

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. 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: HART # 3  
 Location: SW NE SE NE, SEC. 26-T13S-R19W  
 API: 15-051-26998-00-00  
 Pool: IN FIELD  
 State: KANSAS

Field: SACK SOUTHWEST  
 Country: USA



Scale 1:240 Imperial

Well Name: HART # 3  
 Surface Location: SW NE SE NE, SEC. 26-T13S-R19W  
 Bottom Location:  
 API: 15-051-26998-00-00  
 License Number: 4787  
 Spud Date: 5/27/2021 Time: 7:30 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 6/1/2021 Time: 6:27 PM  
 Surface Coordinates: 1730 FNL & 470 FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2089.00ft  
 K.B. Elevation: 2099.00ft  
 Logged Interval: 3000.00ft To: 3841.00ft  
 Total Depth: 3839.00ft  
 Formation: LANSING-KANSAS CITY  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.3928196  
 Latitude: 38.8951606  
 N/S Co-ord: 1730 FNL  
 E/W Co-ord: 470 FEL

**LOGGED BY**

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

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

**CONTRACTOR**

Contractor: SOUTHWIND DRILLING INC.  
 Rig #: 1  
 Rig Type: MUD ROTARY  
 Spud Date: 5/27/2021 Time: 7:30 PM  
 TD Date: 6/1/2021 Time: 6:27 PM

**ELEVATIONS**

K.B. Elevation: 2099.00ft  
 K.B. to Ground: 10.00ft

Ground Elevation: 2089.00ft


**NOTES**

DRILL STEM TESTING: TRILOBITE TESTING INC: ONE (1) CONVENTIONAL TEST AND TWO (2) STRADDLE TESTS

OPEN HOLE LOGGING BY MIDWEST WIRELINE: DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG, MICRORESISTIVITY LOG

DECISION MADE AFTER TESTING SIGNIFICANT SHOW ZONES TO RUN CASING AND COMPLETE FOR A SALT WATER DISPOSAL WELL. DEEPENED WELL TO 3950'. DEEPENING COMPLETED AT 8:15PM ON 6/03/2021.

**TEST SUMMARY DST # 1**

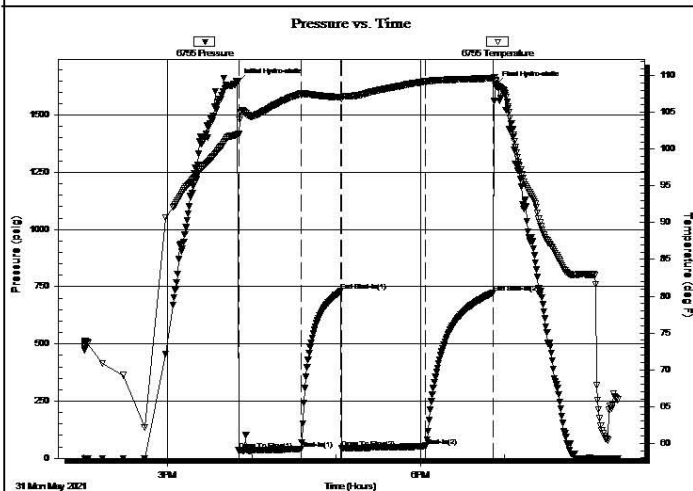
	<b>DRILL STEM TEST REPORT</b>	
	TDI Inc 1310 Bison RD Hays, KS 67601-9696  ATTN: Herb Deines	<b>26-13s-19w</b>  <b>Hart #3</b> Job Ticket: 61762 <b>DST#: 1</b>  Test Start: 2021.05.31 @ 14:01:00

**GENERAL INFORMATION:**

Formation: C	Whipstock: ft (KB)	Test Type: Conventional Bottom Hole (Initial)
Deviated: No		Tester: spencer/kevin
Time Tool Opened: 15:50:32		Unit No: 72
Time Test Ended: 20:21:02		
Interval: 3426.00 ft (KB) To 3445.00 ft (KB) (TVD)		Reference Elevations: 2099.00 ft (KB)
Total Depth: 3445.00 ft (KB) (TVD)		2089.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition:	KB to GR/CF: 10.00 ft

<b>Serial #: 6755</b>	<b>Inside</b>				
Press@RunDepth: 52.21 psig @ 3427.00 ft (KB)		Capacity:		psig	
Start Date: 2021.05.31	End Date: 2021.05.31	Last Calib.:		2021.05.31	
Start Time: 14:01:01	End Time: 20:21:02	Time On Btm:		2021.05.31 @ 15:49:47	
		Time Off Btm:		2021.05.31 @ 18:53:47	

TEST COMMENT: 45-ff-slid 10 bled off surface-2"  
 45-isi-veryw eak surface  
 45-ff-surface to 1.25"  
 45-fsi-no return



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1644.10	101.97	Initial Hydro-static
1	34.71	102.05	Open To Flow (1)
46	41.20	107.54	Shut-In(1)
74	731.23	107.06	End Shut-In(1)
75	43.48	106.86	Open To Flow (2)
134	52.21	109.21	Shut-In(2)
183	724.43	109.64	End Shut-In(2)
184	1630.27	109.22	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
80.00	n/w 45% mud 55% water	1.13

Gas Rates

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

Trilobite Testing, Inc

Ref. No: 61762

Printed: 2021.05.31 @ 21:39:28

TEST SUMMARY DST # 2



**TRILOBITE TESTING, INC**

DRILL STEM TEST REPORT

TDI Inc  
 1310 Bison RD  
 Hays, KS 67601-9696  
 ATTN: Herb Deines

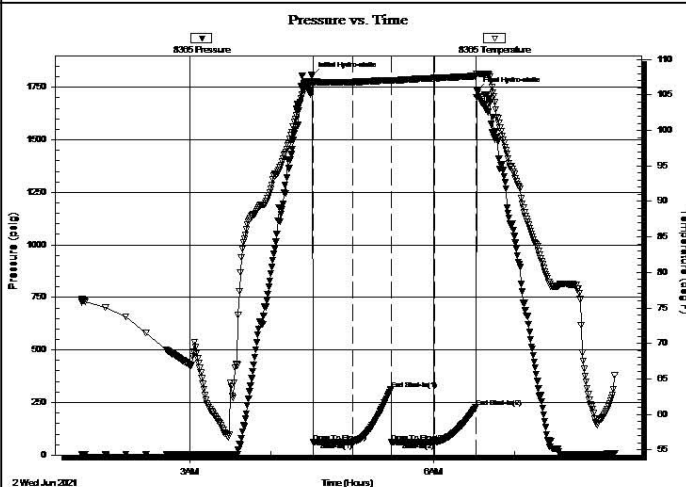
**26-13s-19w**  
**Hart #3**  
 Job Ticket: 61763      **DST#: 2**  
 Test Start: 2021.06.02 @ 01:40:00

GENERAL INFORMATION:

Formation: **J**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:31:17  
 Time Test Ended: 08:14:02  
 Interval: **3572.00 ft (KB) To 3610.00 ft (KB) (TVD)**  
 Total Depth: 3610.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Reset)  
 Tester: spencer/kevin  
 Unit No: 72  
 Reference Elevations: 2099.00 ft (KB)  
 2089.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 8365**      **Outside**  
 Press@RunDepth: 61.26 psig @ 3580.00 ft (KB)      Capacity: psig  
 Start Date: 2021.06.02      End Date: 2021.06.02      Last Calib.: 2021.06.02  
 Start Time: 01:40:01      End Time: 08:14:02      Time On Btm: 2021.06.02 @ 04:30:32  
 Time Off Btm: 2021.06.02 @ 06:32:32

TEST COMMENT: IF-built quickly to 7" then died back  
 IS- no blow back  
 FF- no blow  
 FS- no blow back



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1805.20	106.85	Initial Hydro-static
1	62.85	106.73	Open To Flow (1)
30	62.58	106.81	Shut-In(1)
58	313.76	107.06	End Shut-In(1)
59	61.89	107.03	Open To Flow (2)
91	61.26	107.36	Shut-In(2)
121	226.94	107.69	End Shut-In(2)
122	1733.93	107.98	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)

Gas Rates

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

Length (ft)	Description	Volume (bbl)
80.00	Mud 100% M	1.13

\* Recovery from multiple tests


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

Trilobite Testing, Inc

Ref. No: 61763

Printed: 2021.06.02 @ 10:34:00

### TEST SUMMARY DST # 3

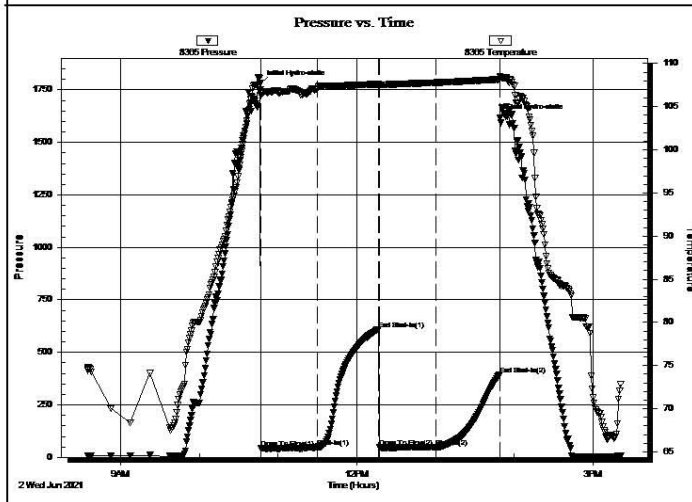
	<b>DRILL STEM TEST REPORT</b>	
	TDI Inc 1310 Bison RD Hays, KS 67601-9696  ATTN: Herb Deines	<b>26-13s-19w</b>  <b>Hart #3</b> Job Ticket: 61765 <b>DST#: 3</b> Test Start: 2021.06.02 @ 08:35:00

**GENERAL INFORMATION:**

Formation: <b>LKC F - G</b>	Test Type: Conventional Straddle (Reset)
Deviated: No Whipstock: ft (KB)	Tester: Spencer/kevin
Time Tool Opened: 10:46:47	Unit No: 72
Time Test Ended: 15:21:02	Reference Elevations: 2099.00 ft (KB)
Interval: <b>3464.00 ft (KB) To 3512.00 ft (KB) (TVD)</b>	2089.00 ft (CF)
Total Depth: 3512.00 ft (KB) (TVD)	KB to GR/CF: 10.00 ft
Hole Diameter: 7.88 inches Hole Condition: Fair	

<b>Serial #: 8365</b>	<b>Outside</b>	Capacity: psig
Press@RunDepth: 47.84 psig @ 3465.00 ft (KB)	Start Date: 2021.06.02	End Date: 2021.06.02
Start Time: 08:35:01	End Time: 15:21:02	Last Calib.: 2021.06.02
		Time On Btm: 2021.06.02 @ 10:46:32
		Time Off Btm: 2021.06.02 @ 13:49:02

TEST COMMENT: IF-weak blow built to 1 1/2"  
 IS-no blow back  
 FF-no blow, blow @15 min built to 1/2  
 FS-no blow back



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1780.63	106.95	Initial Hydro-static
1	42.91	106.27	Open To Flow (1)
44	48.69	107.02	Shut-In(1)
90	609.50	107.59	End Shut-In(1)
91	48.54	107.53	Open To Flow (2)
134	47.84	107.78	Shut-In(2)
183	393.64	108.20	End Shut-In(2)
183	1615.20	108.53	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)

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

35.00	soem 5% oil 95% mud	0.50

\* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 61765

Printed: 2021.06.02 @ 16:15:43

### FORMATION TOPS COMPARISON

HART # 3	HART # 1	MATLOCK # 1
SW NE SE NE	NW SE SE NE	NW SW NE SE
SEC.26-13S-19W	SEC.26-13S-19W	SEC.26-13S-19W
KB 2099'	KB 2105'	KB 2172'

	LOG TOPS		
Anhydrite-top	1392 +709	+707	+704
Anhydrite-base	1430 +669	+669	+667
Topeka	3106-1007	-1009	-1010
Heebner Shale	3431-1263	-1263	-1262
Toronto	3380-1281	-1288	-1280
LKC	3408-1309	-1311	-1305
BKC	3640-1541	-1541	-1542
Arbuckle	3816-1717	-1659	-1642
RTD	3839-1740	-1695	-1728
DDTD	3950-1851		

- 5-27-21 Spud 8:30 PM. Drill 12 ¼" hole for surface casing.
- 5-28-21 214', Set 8 5/8" surface casing to 214' w 150 sks 80/20 pos 3%CC 2%gel, plug down 2:00 AM, slope 1 degree @214'. WOC 8 hours, drilled plug at 10:00 AM with PDC bit.
- 5-29-21 1877', drilling, pulled PDC bit at 5:00 PM due to incoming wet weather.
- 5-30-21 2793', drilling, displaced 2951'-2983'
- 5-31-21 3390', CFS 3390', short trip, drilling, CFS 3445' DST # 1 3426'-3445' "C", slope 1 degree @ 3390', drilling.
- 6-01-21 3586', drilling, RTD 3839' @ 6:27PM, CCH, TOWB, logs.
- 6-02-21 3839' DST # 2 straddle test 3572'-3610', DST # 3 straddle test 3464'-3512', TIWB and deepen well to 3950'. LDDP and run casing for salt water disposal.
- 6-03-21 Finish running casing and cementing. Slips set at 5:45AM and rig released.




**ROCK TYPES**

Clystcol	Chtcongl	Lmst fw7>	shale, gry	shale, red
Congl	Dolprim	Lscongl	Carbon Sh	

**ACCESSORIES**

**FOSSIL**

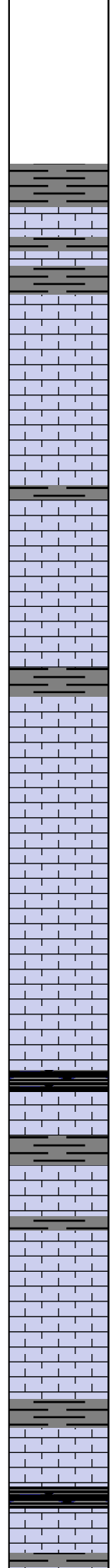
- Oolite
- Oomoldic

Printed by GEOstrip VC Striplog version 4.0.8.15 ([www.grsi.ca](http://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 3000' TO RTD BEGIN 10' WET AND DRY SAMPLES FROM 3100' TO RTD</p> <p><b>ANHYDRITE TOP 1392+707</b> <b>ANHYDRITE BASE 1430+669</b></p>	<p>1:240 Imperial</p> <p>8 5/8" SURFACE CASING SET TO 213.7' WITH 150 SXS 80/20 POS 3%CC 2% GEL. PLUG DOWN 2:00 AM ON 5/28/2021. QUALITY TICKET# 1788</p> <p>SLOPE SURVEY 1 DEGREE AT 214'</p>

3080  
3090  
3100  
3110  
3120  
3130  
3140  
3150  
3160  
3170  
3180  
3190  
3200  
3210  
3220  
3230  
3240  
3250  
3260  
3270  
3280  
3290

ROP (min/ft)



Lime, lt brn, granular, slightly fossiliferous, slight chalk matrix

**TOPEKA 3106-1007**

Lime, lt brn-lt gray, fn-micro xln, scattered fusulinids

Lime, lt brn-lt gray, fn-vfxln

Lime, crm-lt brn, fn-vfxln

Lime, crm-lt brn, fn-vfxln

Lime, lt brn-lt gray, fnxln, NS

Lime, med brn-med gray

Lime, med brn, fn-micro sln

Lime, lt-med brn, fn-vfxln

Lime, lt-med brn, fn-vfxln

Lime, lt brn, fnxln-granular in part

Lime, lt-med brn, fnxln-granular in part

Lime, lt-med brn, fn-micro xln

Lime, crm, fn-vfxln, lithographic in part

Lime, crm-lt brn, fn-micro xln

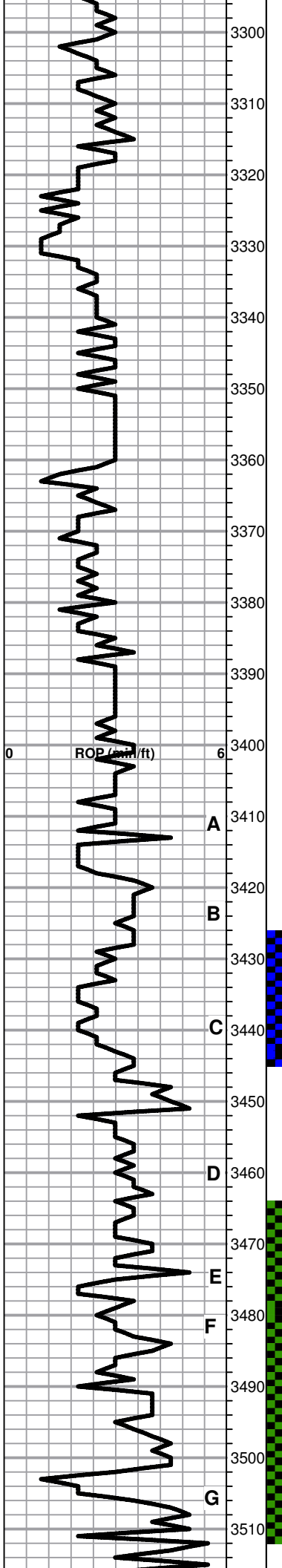
Lime, crm-lt brn, fnxln, bedded chalk in part, NS

Lime, crm-lt brn, fn-micro xln, slight bedded chalk in part, firm to hard

Lime, lt-med brn, fn-vfxln,

Shale, dark gray to black carbonaceous, blocky, fissile

Lime, crm-lt brn, fn-micro xln



Lime, crm-lt brn, fnxln

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

Lime, white to crm, fnxln to soft chalky with lt white wash

Lime, lt brn, fnxln with fine oolmoldic porosity with lite scattered to saturated staining, lt odor

Lime, lt brn, fnxln

Lime, crm-lt brn, fn-vfxln

Lime, crm-lt brn, fn-vfxln

**HEEBNER SHALE 3362-1263**

Shale, black carbonaceous, blocky, fissile  
Lime, med brn, med xln, hard on crush

Shale, dove gray, soft mud

**TORONTO 3380-1281**

Lime, white-crm, vrxln with hard bedded chalk and white fresh chert, NS

Lime, white-lt brn, fn-microxln

Shale, red to med gray, blocky, soft

**LKC 3408-1309**

Lime, lt brn, fn-micro xln

Lime, lt brn, fossiliferous and oolitic, coarse grained with saturated dark stain with very lite odor and no free oil in vuggy and interxln porosity

Lime, lt-med brn-med gray, fnxln with scattered oolmoldic and oolitic material with spotty vugular porosity with spotted to saturated lite staining with lt odor.

Lime, lt brn, fn-micro xln

Lime, crm-lt brn, micro xln with soft chalky matrix in part, spotty lt stain, NFO or odor, scattered vugs. Does not appear well developed

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

Lime, crm-lt brn, fn-vfxln

Shale, black carbonaceous  
Shale, lime green, soft mud

Lime, crm-lt brn, oolitic, oomoldic and fossil fragments. Dark staining with no free oil, lt odor, interxln and inter particle porosity

Lime, crm-lt brn, fn-vfxln fine cemented oolitic, no visible porosity, NS

Lime, white-crm, oolmoldic, scattered pores with lt oil staining along with barren chips. NFO or odor

Lime, crm, fn-micro xln

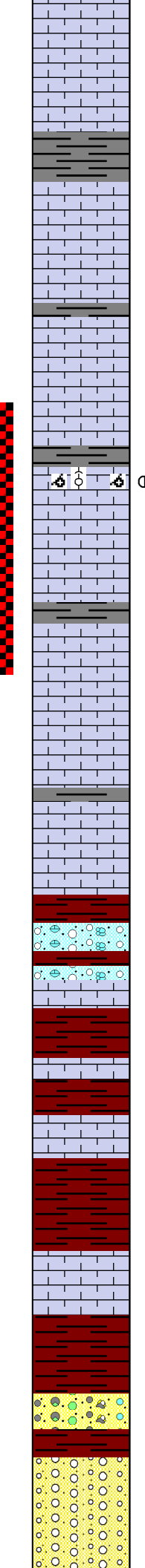
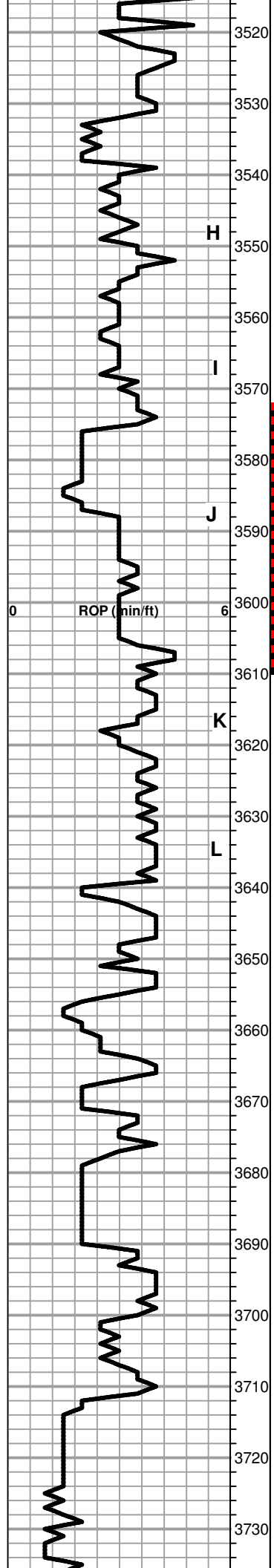
CFS 3390', SHORT TRIP

DST # 1 3426'-3445' SEE HEADER FOR TEST SUMMARY

SLOPE SURVEY 1 DEGREE AT 3445'

DST # 3 STRADDLE TEST SEE HEADER FOR TEST SUMMARY

PUMP ISSUES-CHANGE PUMP HEAD OR W...



Lime, crm, fn-micro xln

Shale, lt gray, soft mud

Lime, crm-lt gray, fn-micro xln, scattered fresh chert/

Lime, offwhite-lt brn, fn-micro xln

Lime, white-crm, fn-micro xln

Lime, crm, oolitic and oomoldic, good show of gassy free oil on crush, lt odor.

Lime, crm, fn-micro xln, firm to hard bedded chalk

Lime, crm, fn-micro xln, NS

Lime, crm, fn-micro xln

Lime, brn-lt gray, fn-micro xln

Shale, black carbonaceous

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

**BKC 3640-1541**  
Shale, red wash

Limestone, clastic mix with red shale

Shale, red with red wash

Lime, crm, fn-micro xln, shale red staining on contacts and in porosity

Shale, red-dark brown, firm mixed with chert granules

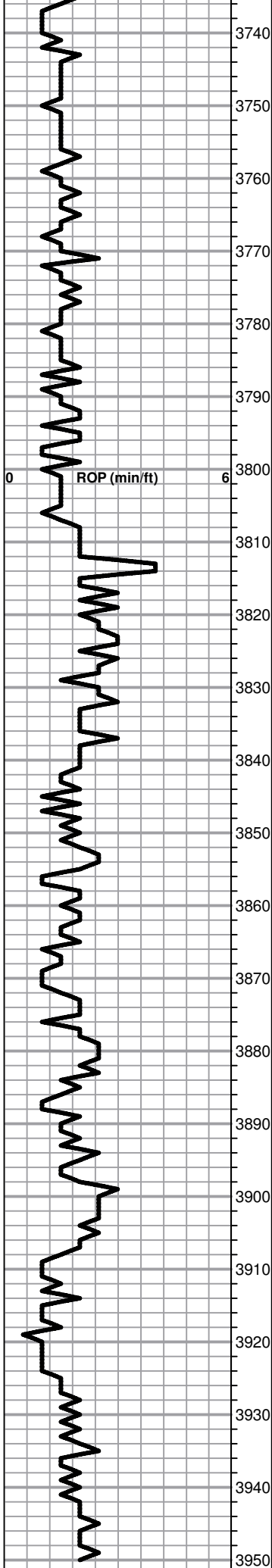
Lime, white-crm, fn-vfxln, chalky and sticky

Shale, red soft with deep red wash and vari colored cherts

Shale, reddish brn, soft sticky mixed with red chert rubble

Cherts, white, cream, reds, fresh sharp

DST # 2 STRADDLE  
TEST SEE HEADER  
FOR TEST SUMMARY



Cherts as above with red wash shale

Cherts as above and red wash shale

Increasing cherts with less red shale

**ARBUCKLE 3816-1717**

Dolomite, white, cream, fnxln-granular in part, NS

Dolomite, ivory, cream, fnxln-granular

Dolomite, ivory-cream, fnxln-granular

Dolomite, ivory-cream, fnxln-granular

Dolomite, ivory-cream, fnxln-granular, scattered sucrosic

Dolomite, ivory-cream, fnxln-granular, fn-coarse grained

Dolomite, ivory-cream, fnxln-granular

Dolomite, ivory-cream, fnxln-granular

Dolomite, cream-tan, fnxln

Dolomite, cream-tan, fnxln, fine-coarse grained

Dolomite, cream-tan, fnxln-granular, fn-coarse grained

Dolomite, tan, fnxln-granular

Dolomite, tan, fnxln-granular, scattered quartz inclusions, clear, angular

5 1/2" PRODUCTION CASING SET TO 3836.32' CEMENTED WITH 150 SXS EA-2, DV SET AT 1413.85' CEMENTED WITH 155 SXS SMD. CIRCULATED 25 SXS TO PIT. 30 SXS IN RATHOLE AND 15 SXS IN MOUSEHOLE. SLIPS SET AT 5:45AM ON 6/03/2021

OTD 3839'



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071  
Cell 785-324-1041

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

No. 1788

Date	Sec.	Twp.	Range	County	State	On Location	Finish
S-28-21	26	13	19	Ellis	Ks	1:30 Am	2:00 Am

Location **3W 4 S HAYS**

Lease	Well No.	Owner
Hopt	X3	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.
Contractor		
Southwind		
Type Job		
SURFACE		
Hole Size	T.D.	Charge To
12 1/4	214	T D I
Csg.	Depth	Street
8 5/8	213	
Tbg. Size	Depth	City
		State
Tool	Depth	The above was done to satisfaction and supervision of owner agent or contractor.
Cement Left in Csg.	Shoe Joint	Cement Amount Ordered
		150M 80/20 3-2

Meas Line	Displace	
<b>EQUIPMENT</b>		
Pumptrk	No.	Cementer
20		Helper
Bulktrk	No.	Driver
14		Driver
Bulktrk	No.	Driver
		Driver
		Common
		120
		Poz. Mix
		30
		Gel.
		3
		Calcium
		6

<b>JOB SERVICES &amp; REMARKS</b>	
Remarks:	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
	Sand
	Handling 159
	Mileage
	<b>FLOAT EQUIPMENT 8 5/8 SWOSC</b>
	Guide Shoe
	Centralizer
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down

Ran 5 Jts of 8 5/8  
Set c 213  
Cemt w/ 150M  
pump plug w/ 12 1/2 bbls  
Cemt did circ.

Thanks

Pumptrk Charge	Surface
Mileage	15/mi
Signature	Tax
Frank J. Rowe	Discount
	Total Charge

X Signature

JOB LOG

SWIFT Services, Inc.

DATE 6-3-21 PAGE NO.

CUSTOMER TDE		WELL NO. #3		LEASE HART		JOB TYPE 2 STAGE L.S.		TICKET NO. 35746	
CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS	
				T	C	TUBING	CASING		
	0030								ON location
									Csg - 5 1/2 x 1 1/4"
									RTD -
									PLR SHOE @ 3836
									D.V. TOOL @ 1413 ON # 58
									CENTRALIZERS - 1, 3, 5, 7, 9, 11, 13, 15, 17, 58
									Basket - 2, 6, 57
	115								START Running Csg
	300								BREAK Circ ON BTM
							800		SET PLR SHOE
		5.5	12				400		Pump mud flush - 500 Gals
		5.5	20				400		Pump KCL SPACER
		5	36				400		pump CMT - 150 SX EA - 2
									Drop plug - WASH P&L
		7	0				200		START Disp
	430	6	92				800		LAND PLUG @ 1500
									RELEASE Psi - Dry
									Drop D.V. opening tool
		2.5	8				0		PLUG RAT HOLE - 30 SX
		2.5	4				0		PLUG MOOSE HOLE - 15 SX
							900		open D.V. TOOL
		6.5	0				400		START CMT @ 11.2 PPG
		5	70				300		Raise Wgt to 14 PPG
		5	78				700		END CMT - 155 SX
	515	5	78				700		LAND plug @ 1500 psi
									RELEASE Psi - Dry
									CIRCULATED 25 SX CMT to pit
									JOB COMPLETE
									THANKS
									DAVIS, ZACH & ISAAC





## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays, KS 67601-9696

ATTN: Herb Deines

### **Hart #3**

### **26-13s-19w Ellis,KS**

Start Date: 2021.05.31 @ 14:01:00

End Date: 2021.05.31 @ 20:21:02

Job Ticket #: 61762                      DST #: 1

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

Printed: 2021.06.03 @ 10:15:56

TDI Inc  
26-13s-19w Ellis,KS  
Hart #3  
DST # 1  
LKC C  
2021.05.31



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

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

**26-13s-19w Ellis,KS**

**Hart #3**

Job Ticket: 61762

**DST#: 1**

Test Start: 2021.05.31 @ 14:01:00

## GENERAL INFORMATION:

Formation: **LKC C**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 15:50:32  
 Tester: Spencer/Kevin  
 Time Test Ended: 20:21:02  
 Unit No: 72  
 Interval: **3426.00 ft (KB) To 3445.00 ft (KB) (TVD)**  
 Reference Elevations: 2099.00 ft (KB)  
 Total Depth: 3445.00 ft (KB) (TVD)  
 2089.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: KB to GR/CF: 10.00 ft

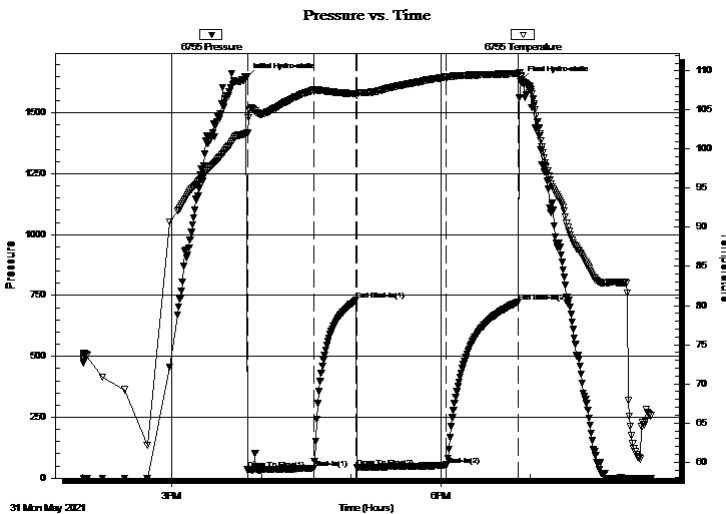
**Serial #: 6755**

**Inside**

Press@RunDepth: 52.21 psig @ 3427.00 ft (KB) Capacity: psig  
 Start Date: 2021.05.31 End Date: 2021.05.31 Last Calib.: 2021.05.31  
 Start Time: 14:01:01 End Time: 20:21:02 Time On Btm: 2021.05.31 @ 15:49:47  
 Time Off Btm: 2021.05.31 @ 18:53:47

**TEST COMMENT:** 45-IF-slid 10' bled off surface-2"  
 45-ISI-Weak surface  
 45-FF-Surface to 1 1/4"  
 45-FSI-No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1644.10	101.97	Initial Hydro-static
1	34.71	102.05	Open To Flow (1)
46	41.20	107.54	Shut-In(1)
74	731.23	107.06	End Shut-In(1)
75	43.48	106.86	Open To Flow (2)
134	52.21	109.21	Shut-In(2)
183	724.43	109.64	End Shut-In(2)
184	1630.27	109.22	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
80.00	MW 45% Mud 55% Water	1.13

## 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

**26-13s-19w Ellis,KS**  
**Hart #3**  
Job Ticket: 61762      **DST#: 1**  
Test Start: 2021.05.31 @ 14:01:00

**Tool Information**

Drill Pipe:	Length: 3421.00 ft	Diameter: 3.82 inches	Volume: 48.49 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	63000.00 lb
			<u>Total Volume:</u> - bbl	Tool Chased	10.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial	46000.00 lb
Depth to Top Packer:	3426.00 ft			Final	47000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	19.00 ft				
Tool Length:	38.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut-In Tool	5.00			3412.00	
Hydraulic tool	5.00			3417.00	
Top Packer	5.00			3422.00	
Packer	4.00			3426.00	19.00      Bottom Of Top Packer
Stubb	1.00			3427.00	
Recorder	0.00	6755	Inside	3427.00	
Recorder	0.00	8365	Outside	3427.00	
Perforations	15.00			3442.00	
Bullnose	3.00			3445.00	19.00      Anchor Tool
<b>Total Tool Length:</b>	<b>38.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

TDI Inc **26-13s-19w Ellis,KS**  
 1310 Bison Rd **Hart #3**  
 Hays, KS 67601-9696 Job Ticket: 61762 **DST#: 1**  
 ATTN: Herb Deines Test Start: 2021.05.31 @ 14:01:00

### Mud and Cushion Information

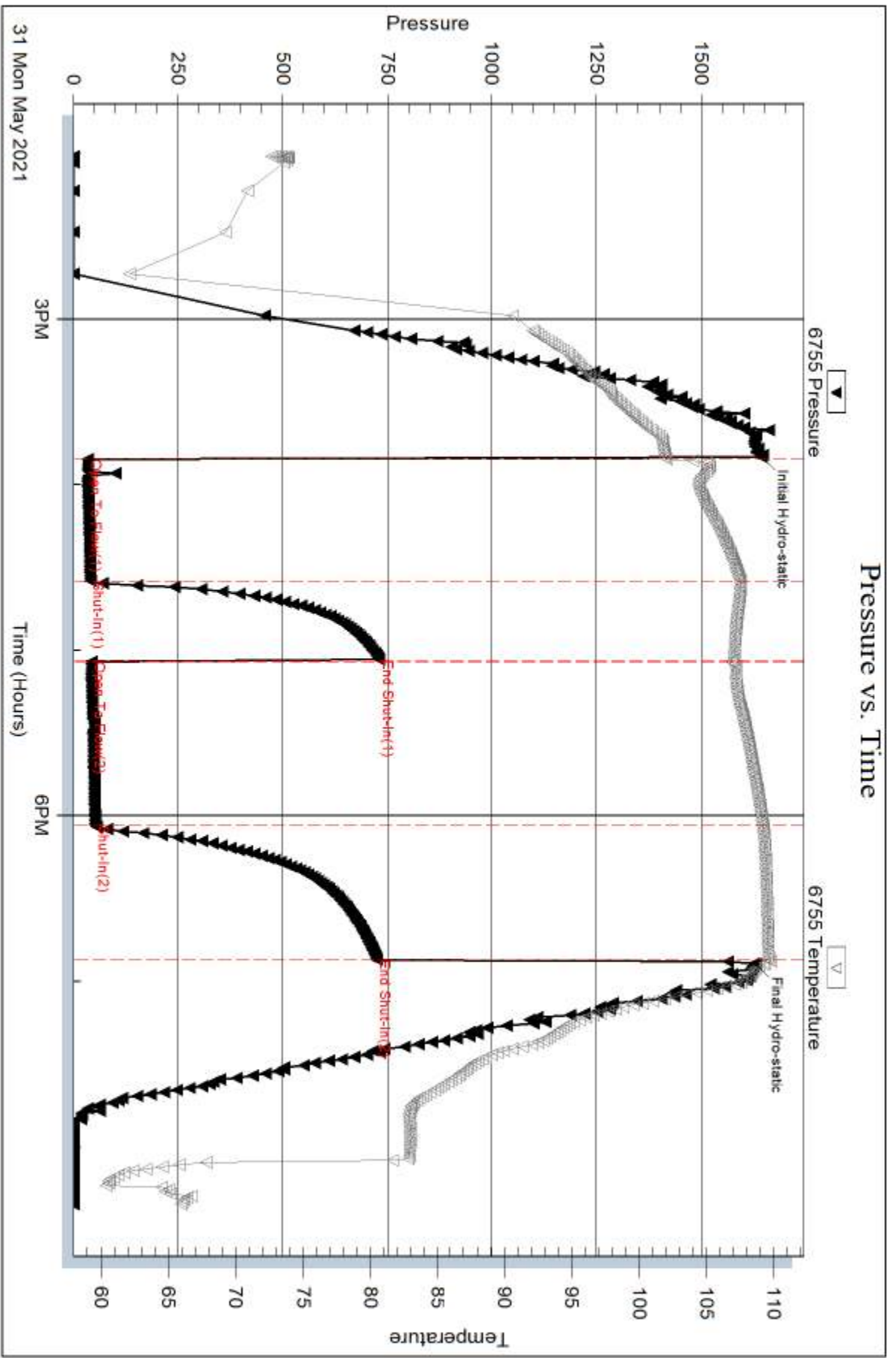
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 44.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.39 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2400.00 ppm			
Filter Cake: inches			

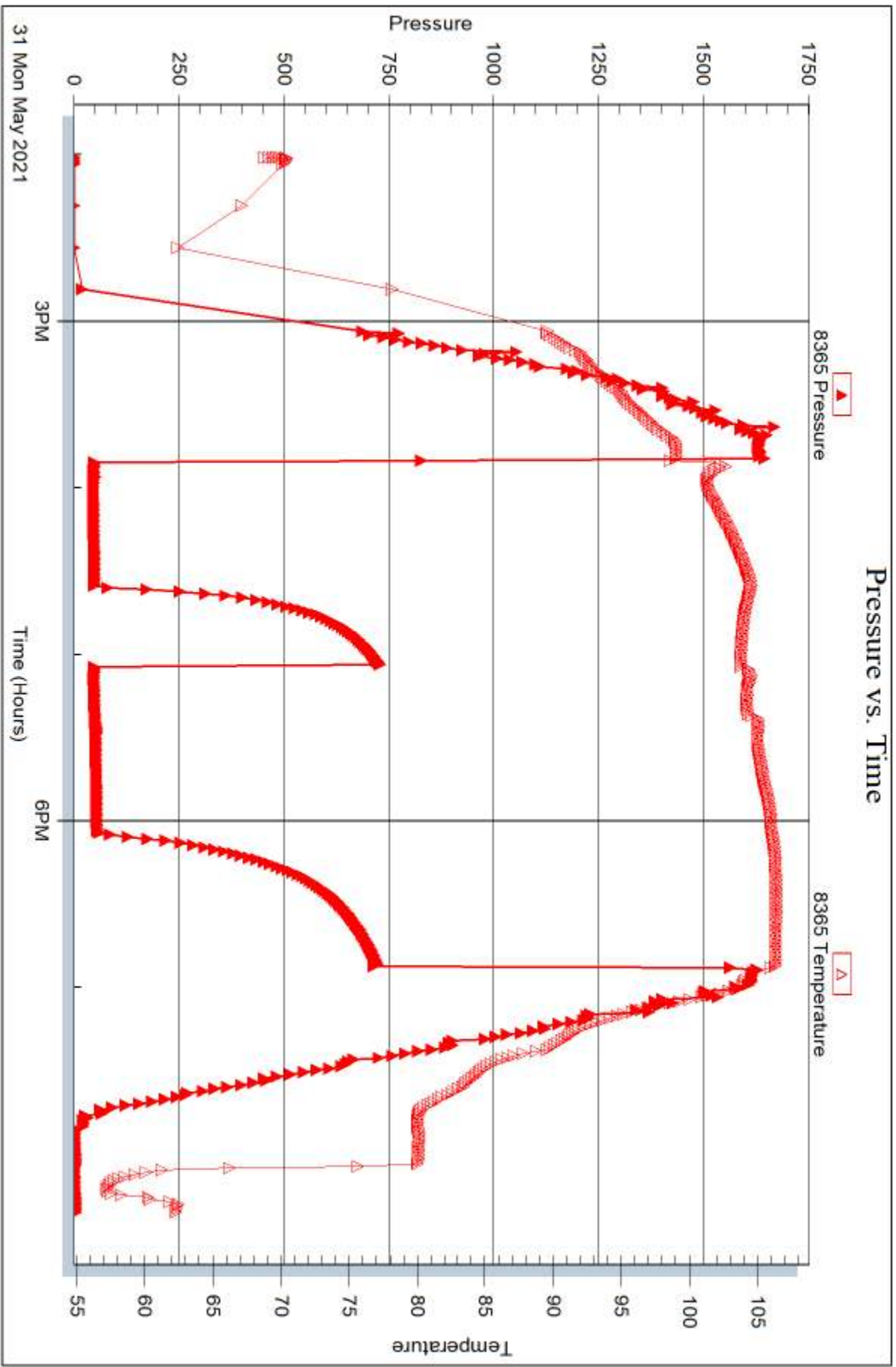
### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
80.00	MW 45% Mud 55% Water	1.134

Total Length: 80.00 ft Total Volume: bbl  
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:  
 Laboratory Name: Laboratory Location:  
 Recovery Comments: #2 lcm  
 rw = .246@68f







## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays, KS 67601-9696

ATTN: Herb Deines

### **Hart #3**

### **26-13s-19w Ellis,KS**

Start Date: 2021.06.02 @ 01:40:00

End Date: 2021.06.02 @ 08:14:02

Job Ticket #: 61763                      DST #: 2

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

Printed: 2021.06.03 @ 10:15:27

TDI Inc  
26-13s-19w Ellis,KS  
Hart #3  
DST # 2  
LKC J  
2021.06.02





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

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

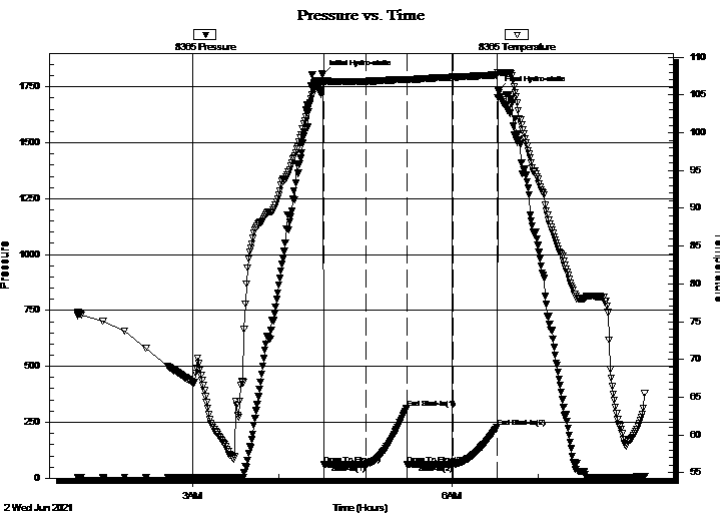
**26-13s-19w Ellis,KS**  
**Hart #3**  
 Job Ticket: 61763 **DST#: 2**  
 Test Start: 2021.06.02 @ 01:40:00

## GENERAL INFORMATION:

Formation: **LKC J**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:31:17  
 Time Test Ended: 08:14:02  
**Interval: 3572.00 ft (KB) To 3610.00 ft (KB) (TVD)**  
 Total Depth: 3610.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Reset)  
 Tester: Spencer/Kevin Webste  
 Unit No: 72  
 Reference Elevations: 2099.00 ft (KB)  
 2089.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 8365 Outside**  
 Press@RunDepth: 61.26 psig @ 3580.00 ft (KB) Capacity: psig  
 Start Date: 2021.06.02 End Date: 2021.06.02 Last Calib.: 2021.06.02  
 Start Time: 01:40:01 End Time: 08:14:02 Time On Btm: 2021.06.02 @ 04:30:32  
 Time Off Btm: 2021.06.02 @ 06:32:32

**TEST COMMENT:** 30-IF-Built quickly to 7" then died back  
 30-ISI- No blow back  
 30-FF- No blow  
 30-FSI-No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1805.20	106.85	Initial Hydro-static
1	62.85	106.73	Open To Flow (1)
30	62.58	106.81	Shut-In(1)
58	313.76	107.06	End Shut-In(1)
59	61.89	107.03	Open To Flow (2)
91	61.26	107.36	Shut-In(2)
121	226.94	107.69	End Shut-In(2)
122	1733.93	107.98	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
80.00	Mud 100% M	1.13

\* Recovery from multiple tests

## 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

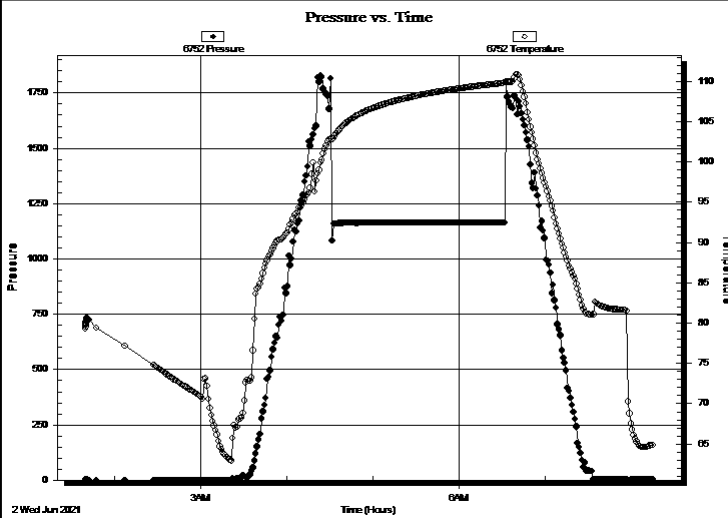
**26-13s-19w Ellis,KS**  
**Hart #3**  
 Job Ticket: 61763 **DST#: 2**  
 Test Start: 2021.06.02 @ 01:40:00

## GENERAL INFORMATION:

Formation: **LKC J**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:31:17  
 Time Test Ended: 08:14:02  
**Interval: 3572.00 ft (KB) To 3610.00 ft (KB) (TVD)**  
 Total Depth: 3610.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Reset)  
 Tester: Spencer/Kevin Webste  
 Unit No: 72  
 Reference Elevations: 2099.00 ft (KB)  
 2089.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 6752 Below (Straddle)**  
 Press@RunDepth: psig @ 3614.00 ft (KB) Capacity: psig  
 Start Date: 2021.06.02 End Date: 2021.06.02 Last Calib.: 2021.06.02  
 Start Time: 01:40:01 End Time: 08:15:02 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 30-IF-Built quickly to 7" then died back  
 30-ISI- No blow back  
 30-FF- No blow  
 30-FSI-No blow back



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

Recovery		
Length (ft)	Description	Volume (bbl)
80.00	Mud 100% M	1.13

\* Recovery from multiple tests

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

**26-13s-19w Ellis,KS**  
**Hart #3**  
Job Ticket: 61763 **DST#: 2**  
Test Start: 2021.06.02 @ 01:40:00

**Tool Information**

Drill Pipe:	Length: 3578.00 ft	Diameter: 3.82 inches	Volume: 50.72 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 51000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3572.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	3606.00 ft			
Interval between Packers:	34.00 ft			
Tool Length:	286.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut-In Tool	5.00			3558.00	
Hydraulic tool	5.00			3563.00	
Top Packer	5.00			3568.00	
Packer	4.00			3572.00	19.00 Bottom Of Top Packer
Stubb	1.00			3573.00	
perforations	7.00			3580.00	
Recorder	0.00	6755	Inside	3580.00	
Recorder	0.00	8365	Outside	3580.00	
Perforations	25.00			3605.00	
Blank Off Sub	1.00			3606.00	34.00 Tool Interval
Packer	4.00			3610.00	
Stubb	1.00			3611.00	
Perforations	2.00			3613.00	
Change Over Sub	1.00			3614.00	
Recorder	0.00	6752	Below	3614.00	
Drill Pipe	221.00			3835.00	
Change Over Sub	1.00			3836.00	
Bullnose	3.00			3839.00	233.00 Bottom Packers & Anchor

**Total Tool Length: 286.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

TDI Inc **26-13s-19w Ellis,KS**  
 1310 Bison Rd **Hart #3**  
 Hays, KS 67601-9696 Job Ticket: 61763 **DST#: 2**  
 ATTN: Herb Deines Test Start: 2021.06.02 @ 01:40:00

### Mud and Cushion Information

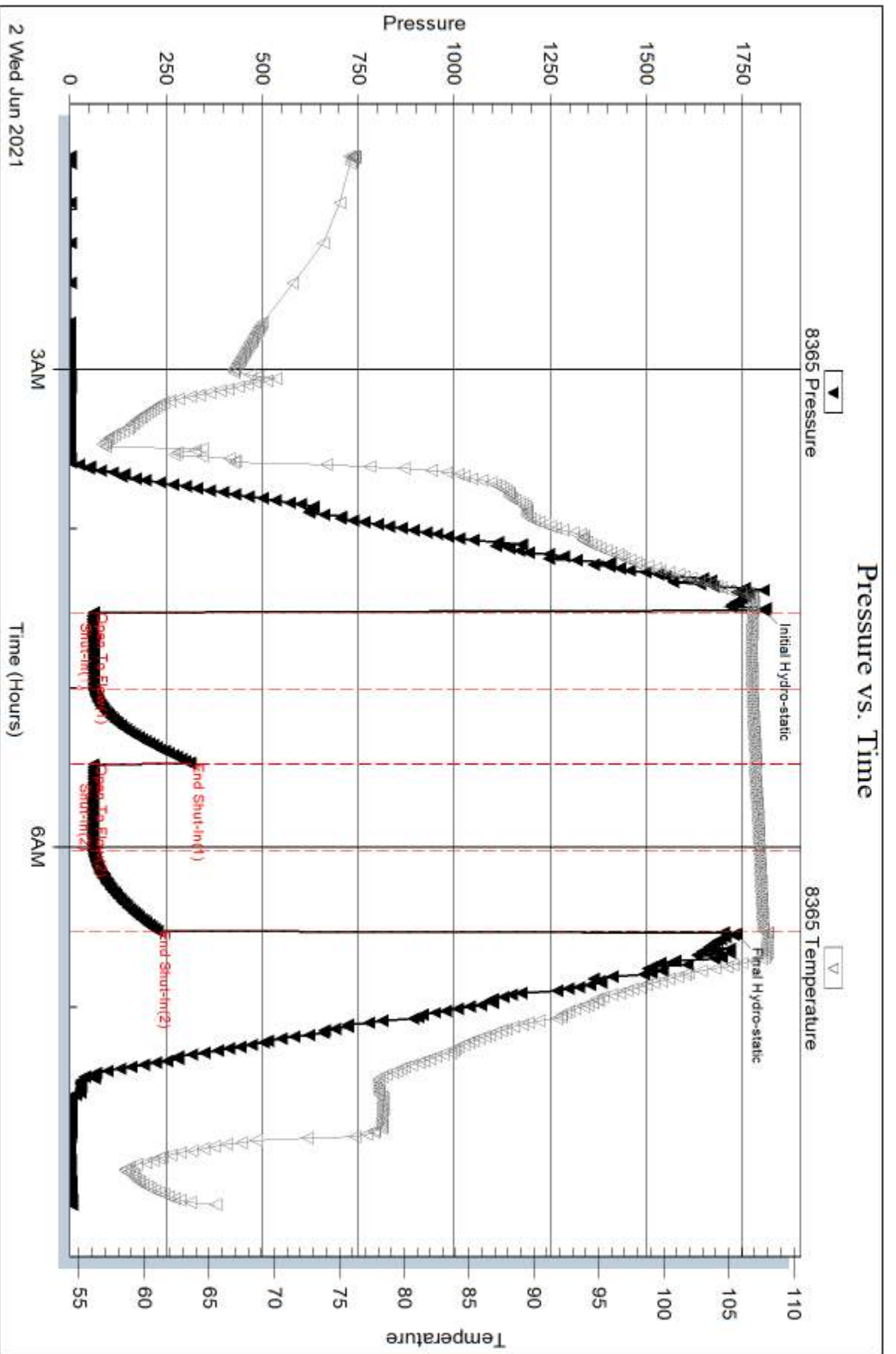
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.79 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3400.00 ppm			
Filter Cake: inches			

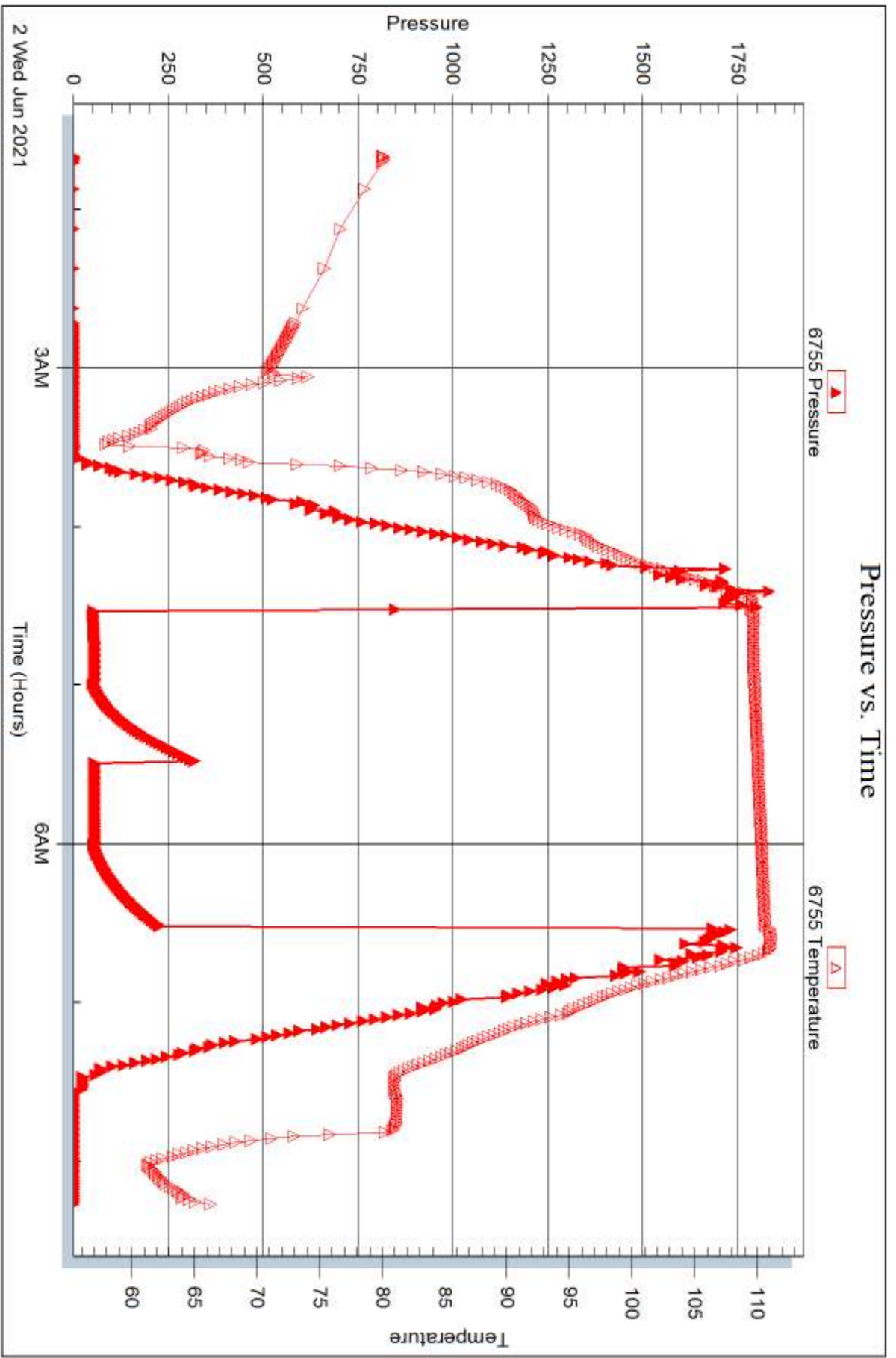
### Recovery Information

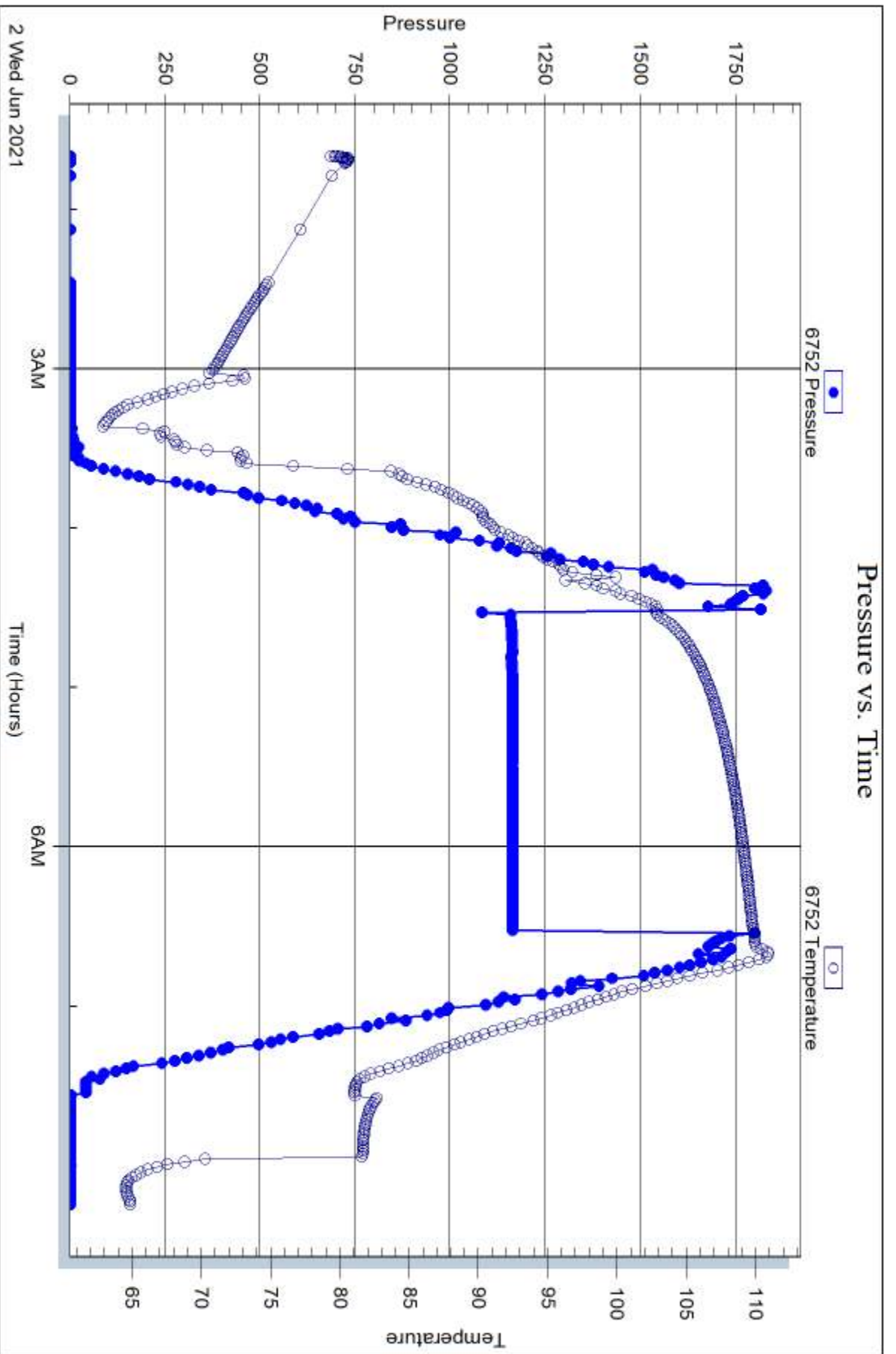
Recovery Table

Length ft	Description	Volume bbl
80.00	Mud 100% M	1.134

Total Length: 80.00 ft Total Volume: 1.134 bbl  
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:  
 Laboratory Name: Laboratory Location:  
 Recovery Comments: 1#LCM











## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays, KS 67601-9696

ATTN: Herb Deines

### **Hart #3**

### **26-13s-19w Ellis,KS**

Start Date: 2021.06.02 @ 08:35:00

End Date: 2021.06.02 @ 15:21:02

Job Ticket #: 61765                      DST #: 3

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

Printed: 2021.06.03 @ 10:14:57

TDI Inc  
26-13s-19w Ellis,KS  
Hart #3  
DST # 3  
LKC F - G  
2021.06.02



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

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

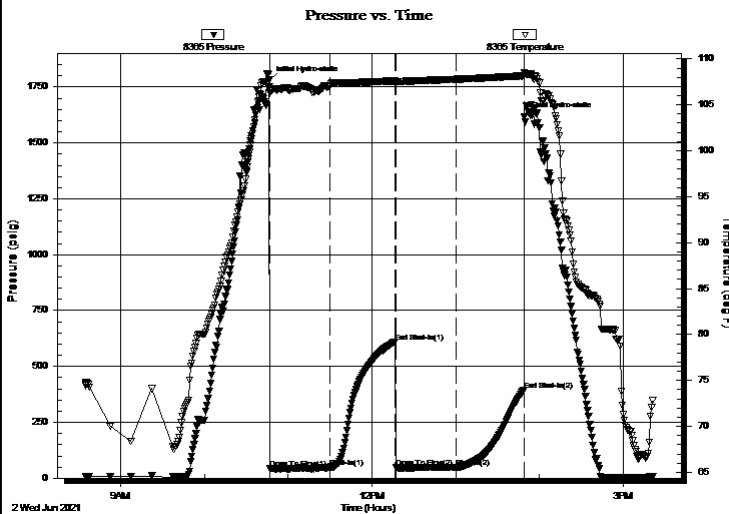
**26-13s-19w Ellis,KS**  
**Hart #3**  
 Job Ticket: 61765 **DST#: 3**  
 Test Start: 2021.06.02 @ 08:35:00

## GENERAL INFORMATION:

Formation: **LKC F - G**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:46:47  
 Time Test Ended: 15:21:02  
 Interval: **3464.00 ft (KB) To 3512.00 ft (KB) (TVD)**  
 Total Depth: 3512.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Reset)  
 Tester: Spencer/Kevin Webste  
 Unit No: 72  
 Reference Elevations: 2099.00 ft (KB)  
 2089.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 8365 Outside**  
 Press@RunDepth: 47.84 psig @ 3465.00 ft (KB) Capacity: psig  
 Start Date: 2021.06.02 End Date: 2021.06.02 Last Calib.: 2021.06.02  
 Start Time: 08:35:01 End Time: 15:21:02 Time On Btm: 2021.06.02 @ 10:46:32  
 Time Off Btm: 2021.06.02 @ 13:49:02

**TEST COMMENT:** 45-IF-Weak blow built to 1 1/2"  
 45-ISI-No blow back  
 45-FF-No blow , blow @ 15 min built to 1/2  
 45-FSI-No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1780.63	106.95	Initial Hydro-static
1	42.91	106.27	Open To Flow (1)
44	48.69	107.02	Shut-In(1)
90	609.50	107.59	End Shut-In(1)
91	48.54	107.53	Open To Flow (2)
134	47.84	107.78	Shut-In(2)
183	393.64	108.20	End Shut-In(2)
183	1615.20	108.53	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
35.00	SOCM 5% Oil 95% Mud	0.50

\* Recovery from multiple tests

## 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

**26-13s-19w Ellis,KS**  
**Hart #3**  
Job Ticket: 61765 **DST#: 3**  
Test Start: 2021.06.02 @ 08:35:00

**Tool Information**

Drill Pipe:	Length: 3452.00 ft	Diameter: 3.82 inches	Volume: 48.93 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	51000.00 lb
			<u>Total Volume:</u> - bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3464.00 ft			Final	51000.00 lb
Depth to Bottom Packer:	3508.00 ft				
Interval between Packers:	44.00 ft				
Tool Length:	394.00 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>
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Shut In Tool	5.00			3450.00	
Hydraulic tool	5.00			3455.00	
Top Packer	5.00			3460.00	
Packer	4.00			3464.00	19.00 Bottom Of Top Packer
Stubb	1.00			3465.00	
Recorder	0.00	6755	Inside	3465.00	
Recorder	0.00	8365	Outside	3465.00	
Perforations	1.00			3466.00	
Change Over Sub	1.00			3467.00	
Drill Pipe	32.00			3499.00	
Change Over Sub	1.00			3500.00	
Perforations	7.00			3507.00	
Blank Off Sub	1.00			3508.00	44.00 Tool Interval
Packer	4.00			3512.00	
Stubb	1.00			3513.00	
Perforations	5.00			3518.00	
Change Over Sub	1.00			3519.00	
Recorder	0.00	6752	Below	3519.00	
Drill Pipe	316.00			3835.00	
Change Over Sub	1.00			3836.00	
Bullnose	3.00			3839.00	331.00 Bottom Packers & Anchor

**Total Tool Length: 394.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI Inc **26-13s-19w Ellis,KS**  
 1310 Bison Rd **Hart #3**  
 Hays, KS 67601-9696 Job Ticket: 61765 **DST#: 3**  
 ATTN: Herb Deines Test Start: 2021.06.02 @ 08:35:00

## Mud and Cushion Information

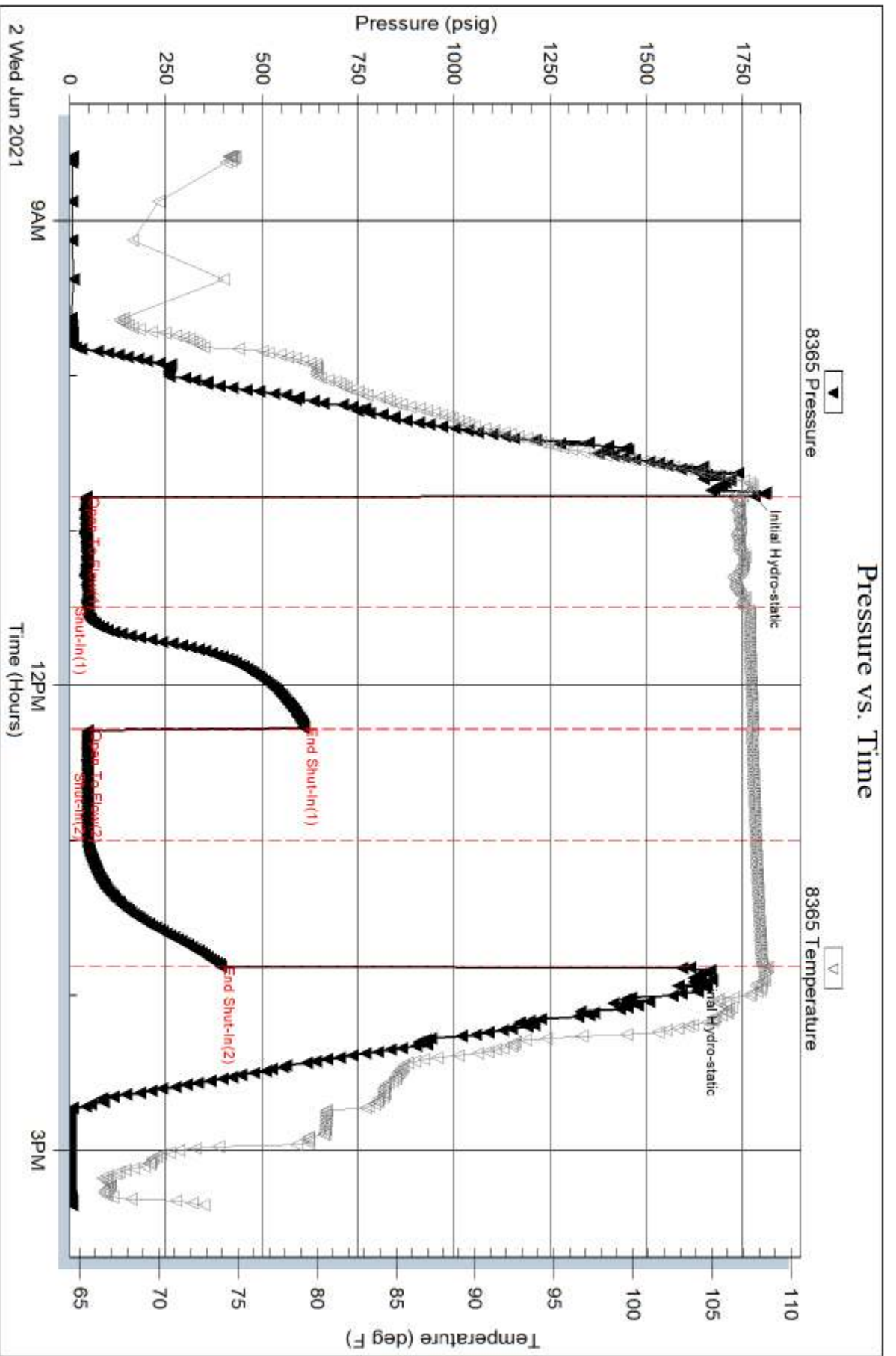
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.79 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3400.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
35.00	SOCM 5% Oil 95% Mud	0.496

Total Length: 35.00 ft Total Volume: 0.496 bbl  
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:  
 Laboratory Name: Laboratory Location:  
 Recovery Comments: 1#LCM



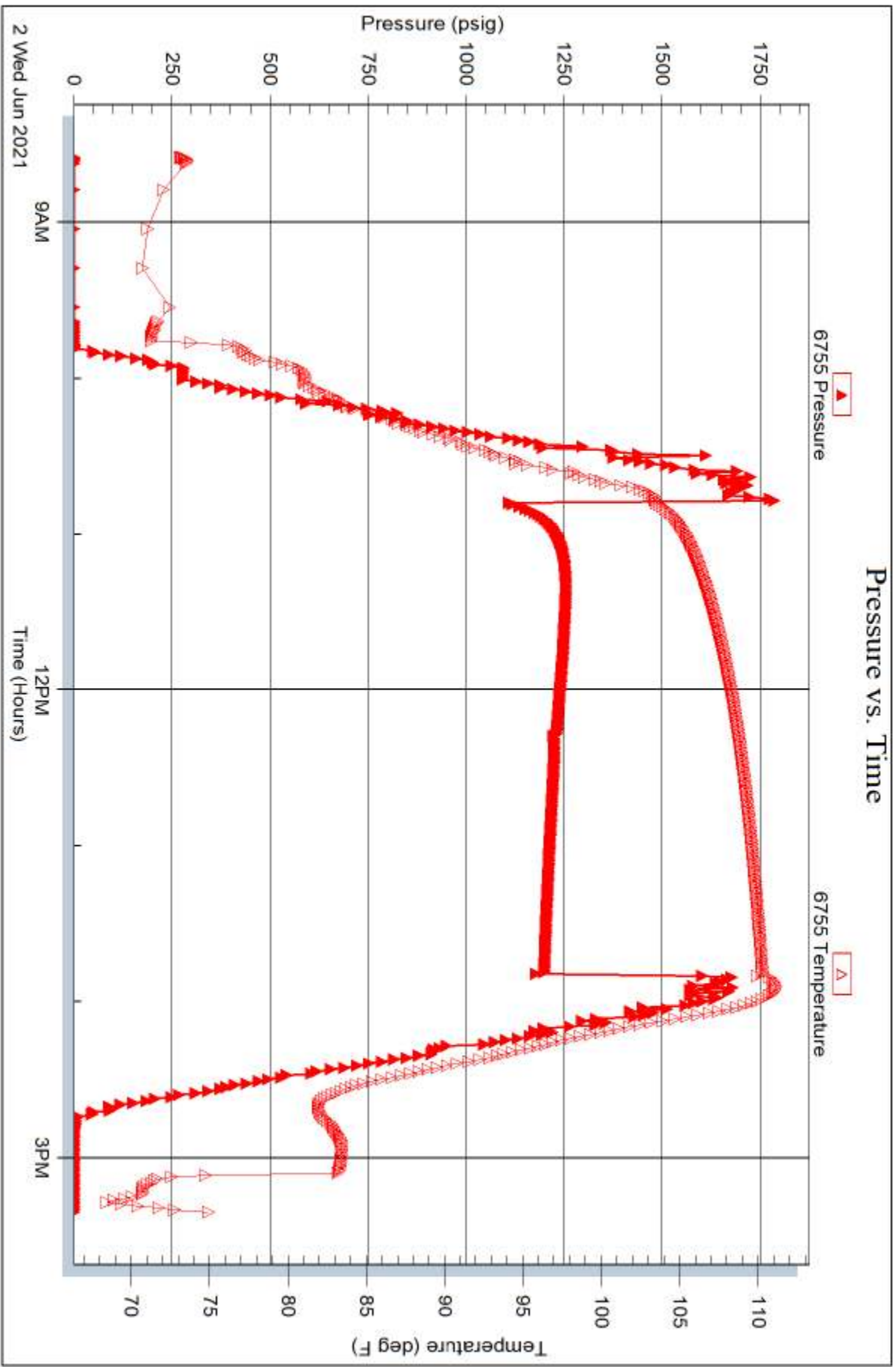
Serial #: 6755

Inside

TDI Inc

Hart #3

DST Test Number: 3

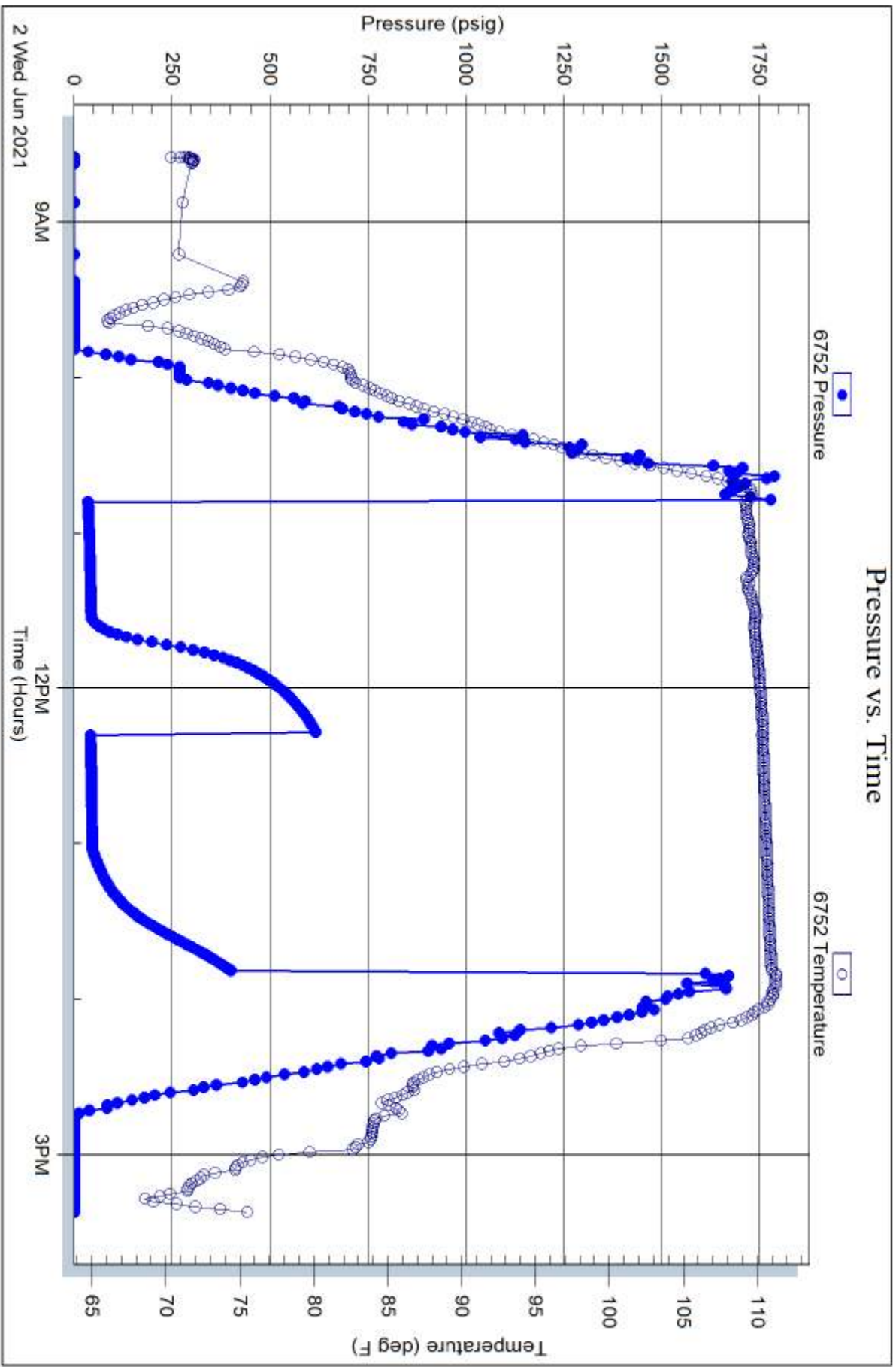


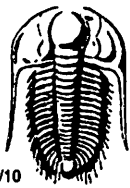
Trilobite Testing, Inc

Ref. No: 61765

Printed: 2021.06.03 @ 10:14:58







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61762

Well Name & No. Halt # 3 Test No. # 1 Date 5/31/21  
 Company TOT Inc. Elevation 2099 KB 2084 GL  
 Address 1310 Bison Rd Hays, KS 67601-9696  
 Co. Rep / Geo. Herb Deines Rig SANTHWIN #1  
 Location: Sec. 26 Twp. 13 S Rge. 19 W Co. Ellis State Ks

Interval Tested 3426-3445 Zone Tested C  
 Anchor Length 19' Drill Pipe Run \_\_\_\_\_ Mud Wt. 8.8  
 Top Packer Depth 3421 Drill Collars Run \_\_\_\_\_ Vis 44  
 Bottom Packer Depth 3426 Wt. Pipe Run \_\_\_\_\_ WL 5.4  
 Total Depth 3445 Chlorides 2400 ppm System LCM 2

Blow Description IF - tool slid 10' bled off surface blow - 2"  
ISI - very weak surface died in 5 min  
PF - surface to 1 1/4"  
FST - no return

Rec	Feet of	%gas	%oil	%water	%mud
<u>80</u>	<u>MW</u>			<u>55</u>	<u>45</u>
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____

Rec Total \_\_\_\_\_ BHT 109 Gravity \_\_\_\_\_ API RW .246 @ 68° F Chlorides 27,000 ppm

- (A) Initial Hydrostatic 1644
- (B) First Initial Flow 74
- (C) First Final Flow 41
- (D) Initial Shut-In 731
- (E) Second Initial Flow 43
- (F) Second Final Flow 52
- (G) Final Shut-In 724
- (H) Final Hydrostatic 1630

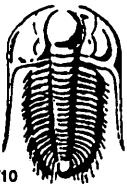
- Test 1200
- Jars \_\_\_\_\_
- Safety Joint \_\_\_\_\_
- Circ Sub \_\_\_\_\_
- Hourly Standby \_\_\_\_\_
- Mileage 24rt
- Sampler \_\_\_\_\_
- Straddle \_\_\_\_\_
- Shale Packer \_\_\_\_\_
- Extra Packer \_\_\_\_\_
- Extra Recorder \_\_\_\_\_
- Day Standby \_\_\_\_\_
- Accessibility \_\_\_\_\_
- Sub Total 1224

- T-On Location 13:15
- T-Started 14:01
- T-Open 15:48
- T-Pulled 18:48
- T-Out 20:19
- Comments \_\_\_\_\_
- Ruined Shale Packer \_\_\_\_\_
- Ruined Packer \_\_\_\_\_
- Extra Copies \_\_\_\_\_
- Sub Total 0
- Total 1224
- MP/DST Disc't \_\_\_\_\_

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

Approved By \_\_\_\_\_

Our Representative Spencer Kevin



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61763

Well Name & No. Hart #3 Test No. 2 Date 6/2/21  
 Company TDI Inc. Elevation 2099 KB 2089 GL  
 Address 1310 Bison Rd Hays, KS 67601-9696  
 Co. Rep / Geo. Herb Deines Rig Southwind #1  
 Location: Sec. 26 Twp. 13S Rge. 19W Co. Ellis State KS

Interval Tested 3572-3610 Zone Tested J  
 Anchor Length 38' Drill Pipe Run 3578' Mud Wt. 9.1  
 Top Packer Depth 3572' Drill Collars Run — Vis 50  
 Bottom Packer Depth 3610' Wt. Pipe Run — WL 5.8  
 Total Depth 3839 Chlorides 3,400 ppm System LCM 1

Blow Description IF - Built quickly to 7" then died back  
ISI - No blow back  
FF - No blow  
FSI - No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 90' BHT 107 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1805</u>	<input checked="" type="checkbox"/> Test 1200	T-On Location <u>00:45</u>
(B) First Initial Flow <u>62</u>	<input type="checkbox"/> Jars	T-Started <u>01:40</u>
(C) First Final Flow <u>62</u>	<input type="checkbox"/> Safety Joint	T-Open <u>04:31</u>
(D) Initial Shut-In <u>313</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>06:31</u>
(E) Second Initial Flow <u>61</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>08:17</u>
(F) Second Final Flow <u>61</u>	<input checked="" type="checkbox"/> Mileage 24	Comments
(G) Final Shut-In <u>226</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1733</u>	<input checked="" type="checkbox"/> Straddle 600	

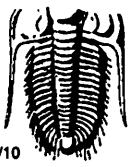
Initial Open 30  
 Initial Shut-In 30  
 Final Flow 30  
 Final Shut-In 30

Ruined Shale Packer  
 Ruined Packer  
 Extra Copies  
 Sub Total 0  
 Total 1824  
 MP/DST Disc't

Sub Total 1824

Approved By \_\_\_\_\_ Our Representative Kevin / SPANGLER

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# TRILLOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61765

Well Name & No. Halt #3 Test No. 3 Date 6/2/21  
 Company TOI Inc. Elevation 2099 KB 2089 GL  
 Address 1310 BISON Rd HAYS, KS 67601-9696  
 Co. Rep / Geo. Herb Deines Rig Southwind #1  
 Location: Sec. 26 Twp. 13S Rge. 19W Co. Ellis State KS

Interval Tested 3464 - 3512 Zone Tested F and G  
 Anchor Length 48' Drill Pipe Run 3452 Mud Wt. 9.1  
 Top Packer Depth \_\_\_\_\_ Drill Collars Run \_\_\_\_\_ Vis 50  
 Bottom Packer Depth \_\_\_\_\_ Wt. Pipe Run \_\_\_\_\_ WL 5.8  
 Total Depth 3839 Chlorides 3,400 ppm System LCM 1

Blow Description IF - weak blow built to 1.5"  
ISI - NO blow back  
FE - NO blow, blow @ 15 min built to 1/2"  
F9I - NO blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>35</u>	<u>50cm</u>		<u>5</u>		<u>95</u>
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total \_\_\_\_\_ BHT 107 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1780</u>	<input checked="" type="checkbox"/> Test 1200	T-On Location <u>08:17</u>
(B) First Initial Flow <u>42</u>	<input type="checkbox"/> Jars _____	T-Started <u>08:35</u>
(C) First Final Flow <u>48</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>10:45</u>
(D) Initial Shut-In <u>609</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>13:45</u>
(E) Second Initial Flow <u>48</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>15:18</u>
(F) Second Final Flow <u>47</u>	<input checked="" type="checkbox"/> Mileage _____	Comments _____
(G) Final Shut-In <u>393</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1615</u>	<input checked="" type="checkbox"/> Straddle 600	_____
Initial Open <u>45</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1800</u>
	Sub Total <u>1800</u>	MP/DST Disc't _____

Approved By \_\_\_\_\_ Our Representative \_\_\_\_\_

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