

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 # 1
 Location: NW SE SE NE, SEC.26-T13S-R19W
 API: 15-051-26,953-00-00
 Pool: WILDCAT
 State: KANSAS

Field: UNNAMED
 Country: USA



Scale 1:240 Imperial

Well Name: HART # 1
 Surface Location: NW SE SE NE, SEC.26-T13S-R19W
 Bottom Location:
 API: 15-051-26,953-00-00
 License Number: 4787
 Spud Date: 6/14/2019 Time: 4:30 PM
 Region: ELLIS COUNTY
 Drilling Completed: 6/21/2019 Time: 2:40 AM
 Surface Coordinates: 2260' FNL & 550' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 2096.00ft
 K.B. Elevation: 2105.00ft
 Logged Interval: 3000.00ft To: 3800.00ft
 Total Depth: 3800.00ft
 Formation: LANSING-KANSAS CITY
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.3931222
 Latitude: 38.8937038
 N/S Co-ord: 2260' FNL
 E/W Co-ord: 550' 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 #: 3
 Rig Type: MUD ROTARY
 Spud Date: 6/14/2019 Time: 4:30 PM
 TD Date: 6/21/2019 Time: 2:40 AM

ELEVATIONS

K.B. Elevation: 2105.00ft
K.B. to Ground: 9.00ft

Ground Elevation: 2096.00ft

NOTES

RECOMMENDATION TO PLUG AND ABANDON WELL BASED ON NEGATIVE RESULTS OF THREE DSTS AND LOG ANALYSIS.

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

DRILL STEM TESTING BY TRILOBITE TESTING INC: THREE (3) CONVENTIONAL TESTS

HART # 1	MATLOCK # 1	BRULL FARMS # 1
NW SE SE NE	1700FSL,1200FEL	SE NW NW NE
SEC.26-13S-19W	SEC.26-13-19W	SEC.25-13-19W
KB 2105'	KB 2172'	KB 2024'

	LOG TOPS		
Anhydrite top	1398 +707	+ 704	+ 715
Anhydrite base	1436 +669	+ 667	+ 678
Topeka	3120-1015	-1010	- 996
Heebner Sh.	3367-1262	-1260	-1253
Toronto	3393-1288	-1280	-1271
LKC	3416-1311	-1305	-1299
BKC	3646-1541	-1542	-1528
Arbuckle	3764-1659	-1642	-1638
RTD	3800-1695	-1728	-1648

SUMMARY OF DAILY ACTIVITY

06-14-19 Spud 4:30 pm, set 8 5/8" surface casing to 221' w/ 150 sxs common 2%gel 3%CC, plug down 11:00PM. slope 1/2 degree

06-15-19 221', WOC, drill plug 7:00 AM

06-16-19 1484' drilling

06-17-19 2560', drilling

06-18-19 3285' drilling, CFS 3410', short trip 20 stands, CFS 3458' DST # 1 3402' to 3458', slope 3/4 degree @ 3458'.

06-19-19 3458, finish DST # 1, TIWB, CFS 3480', DST # 2 3456' to 3480'

06-20-19 3656', CFS 3656', DST # 3 3584'-3656', TIWB, drilling, CFS 3726', CFS 3738', drilling

06-21-19 3800', RTD 3800' @2:40 AM, TOWB, slope 1/2 degree, logs, decision to plug and abandon well



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

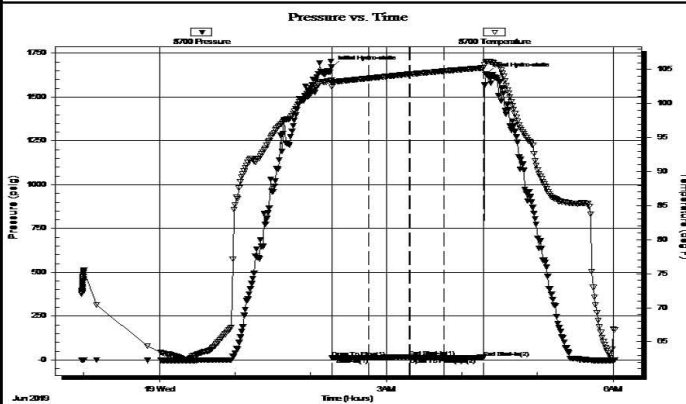
26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65696 **DST#: 1**
Test Start: 2019.06.18 @ 22:58:19

GENERAL INFORMATION:

Formation: **LKC "A-C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 02:16:55
 Time Test Ended: 06:01:10
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brannan Lonsdale
 Unit No: 73
 Interval: **3402.00 ft (KB) To 3458.00 ft (KB) (TVD)**
 Total Depth: 3458.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 2105.00 ft (KB)
 2096.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 8700 Outside
 Press@RunDepth: 12.23 psig @ 3403.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.06.18 End Date: 2019.06.19 Last Calib.: 2019.06.19
 Start Time: 22:58:20 End Time: 06:01:10 Time On Btm: 2019.06.19 @ 02:16:40
 Time Off Btm: 2019.06.19 @ 04:19:25

TEST COMMENT: 30- IF- 0.25" blow died in 12mins
 30- IS- No blow
 30- FF- No blow
 30- FS- No blow



PRESSURE SUMMARY

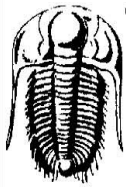
Time (Min.)	Pressure (psig)	Temp (deg F)	Anotation
0	1671.63	103.45	Initial Hydro-static
1	13.18	102.43	Open To Flow (1)
29	12.52	103.70	Shut-In(1)
62	17.90	104.31	End Shut-In(1)
63	12.45	104.32	Open To Flow (2)
90	12.23	104.77	Shut-In(2)
121	14.78	105.24	End Shut-In(2)
123	1631.05	106.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	M	0.03

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
ATTN: Herb Deines

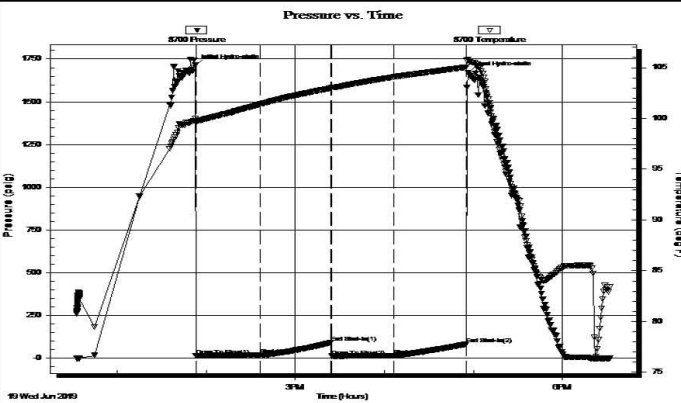
26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65697 **DST#: 2**
Test Start: 2019.06.19 @ 12:32:59

GENERAL INFORMATION:

Formation: **LKC "D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:53:05
Time Test Ended: 18:32:05
Test Type: Conventional Bottom Hole (Reset)
Tester: Brannan Lonsdale
Unit No: 73
Interval: **3456.00 ft (KB) To 3480.00 ft (KB) (TVD)**
Reference Elevations: 2105.00 ft (KB)
Total Depth: 3480.00 ft (KB) (TVD) 2096.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 9.00 ft

Serial #: 8700 Outside
Press@RunDepth: 15.97 psig @ 3457.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.06.19 End Date: 2019.06.19 Last Calib.: 2019.06.19
Start Time: 12:33:00 End Time: 18:32:05 Time On Btm: 2019.06.19 @ 13:52:35
Time Off Btm: 2019.06.19 @ 16:56:20

TEST COMMENT: 45- IF- Slow ly built to 1.89"
45- IS- No blow
45- FF- 2.22" initial surge slow ly built to 3.74"
45- FS- No blow



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1713.51	99.97	Initial Hydro-static
1	13.83	99.57	Open To Flow (1)
44	17.39	101.40	Shut-In(1)
92	92.19	102.97	End Shut-In(1)
92	12.28	103.01	Open To Flow (2)
134	15.97	104.08	Shut-In(2)
183	82.08	105.04	End Shut-In(2)
184	1670.35	105.81	Final Hydro-static

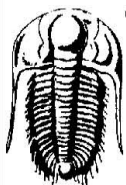
Length (ft)	Description	Volume (bbl)
20.00	OCM, 15% O 85% M	0.28
0.00	< 40' GIP	0.00

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

Trilobite Testing, Inc

Ref. No: 65697

Printed: 2019.06.19 @ 22:50:12



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65698 **DST#: 3**
Test Start: 2019.06.20 @ 08:56:59

GENERAL INFORMATION:

Formation: **LKC "J-L"**
Deviated: No Whipstock: ft (KB)
Test Type: Conventional Bottom Hole (Reset)

Time Tool Opened: 11:20:20
 Time Test Ended: 16:00:50

Tester: Brannan Lonsdale
 Unit No: 73

Interval: 3784.00 ft (KB) To 3656.00 ft (KB) (TVD)
 Total Depth: 3656.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair

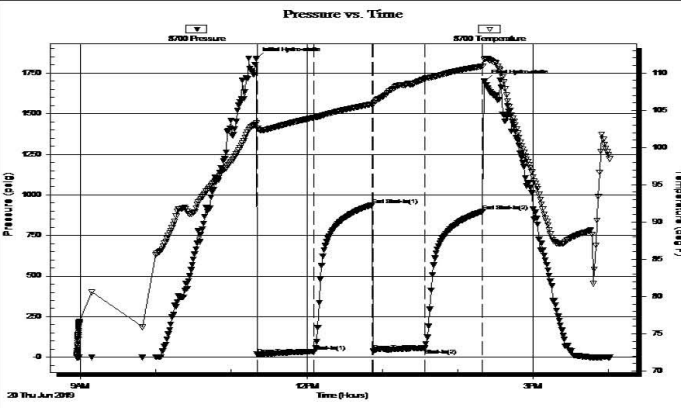
Reference Elevations: 2105.00 ft (KB)
 2096.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 8700 Outside

Press@RunDepth: 55.24 psig @ 3585.00 ft (KB)
 Start Date: 2019.06.20 End Date: 2019.06.20
 Start Time: 08:57:00 End Time: 16:00:50

Capacity: 8000.00 psig
 Last Calib.: 2019.06.20
 Time On Btm: 2019.06.20 @ 11:20:05
 Time Off Btm: 2019.06.20 @ 14:21:35

TEST COMMENT: 45- IF- Slow ly built to 5.82"
 45- IS- No blow
 45- FF- Slow ly built to 3.04"
 45- FS- No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1840.98	103.29	Initial Hydro-static
1	17.16	102.57	Open To Flow (1)
46	35.93	104.02	Shut-In(1)
92	937.70	105.82	End Shut-In(1)
93	39.92	105.72	Open To Flow (2)
134	55.24	109.24	Shut-In(2)
180	898.24	110.90	End Shut-In(2)
182	1702.83	111.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
90.00	OCMW, 10%O 30%M 60%VW	1.28

Gas Rates

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

* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 65698

Printed: 2019.06.20 @ 16:14:43

ROCK TYPES

Clystgy	Dolprim	Lscongl	shale, gry	shale, red
Chtcongl	Lmst fw7>	shale, grn	Carbon Sh	

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

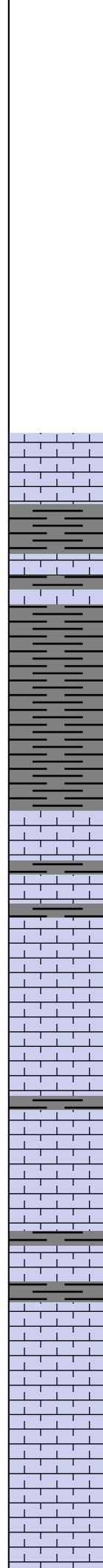
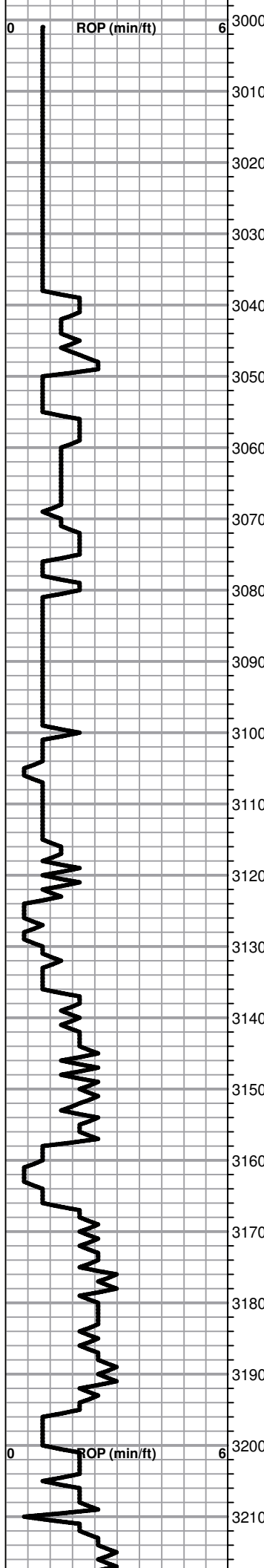
Curve Track #1	Depth Intervals	DST	Lithology	Oil Show	Geological Descriptions	Curve Track #3
ROP (min/ft)	Cored Interval DST Interval					
1:240 Imperial						1:240 Imperial
0	ROP (min/ft)	6				
					BEGIN 1' DRILL TIME FROM 3000' TO RTD	8 5/8" SURFACE CASING SET TO 221' W/ 150 SXS

BEGIN 1' DRILL TIME FROM 3000' TO RTD
BEGIN 10' WET AND DRY SAMPLES FROM 3100' TO
RTD

60/40 2%GEL 3%CC

SLOPE 3/4 DEGREE @ 221'

ANHYDRITE TOP 1398+707
ANHYDRITE BASE 1436+669



Lime, med brn-gray, fnxln, slightly fossiliferous

Shale, med gray, soft blocky

Lime, lt-med brn, fnxln

Shale, lt-dark gray, soft blocky

Shale, lt-dark gray, soft blocky, calcareous in part

Lime, med brn, fnxln, some chalky granular

TOPEKA 3120-1015

Lime, crm-lt brn, fnxln, slightly fossiliferous, fusulinids and crinoid segments.

Lime, lt-dark brn, fnxln, fossiliferous in part

Lime, lt-med brn, fnxln

Lime, lt brn, granular and micro oomoldic, NS or staining

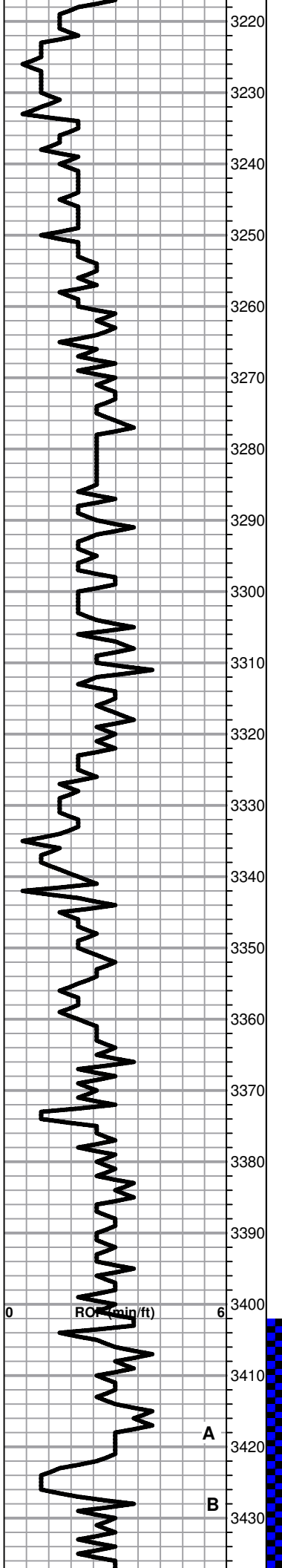
Lime, lt-med brn-med grayish brn, fn-vfxln

Lime, lt brn-lt gray, fn-vfxln

Lime, lt brn-lt gray, fnxln grading to granular, NS

Lime, lt-med brn, fnxln-granular

Lime, med brn, fn-vfxln, slight bedded chalk



3220
3230
3240
3250
3260
3270
3280
3290
3300
3310
3320
3330
3340
3350
3360
3370
3380
3390
3400
3410
3420
3430

Lime, lt-med brn, fnxn-granular

Lime, crm, granular with slight bedded chalk, NS
Shale, black carbonaceous, blocky

Lme, crm, fn-vfxln, slight bedded chalk

Lime, crm-lt brn, fn-micro xln

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

Lime, lt brn, fnxln-granular in part

Lime, crm, fnxln, chalky, white wash
Shale, black carbonaceous, blocky

Lime, med brn-med gray, fn-vfxln

Lime, crm, fnxln, slight bedded chalk

Lime, lt brn-lt grayish brn, fnxln

Lime, lt gray, fnxln, chalky and sticky chalk clumps

Lime, lt brn-lt gray, granular with bedded chalk

Lime, lt-med brn, fn-vfxln with granular in part, bedded chalk

Lime, lt-med brn, fnxln, chalky

Lime, lt-med brn, fnxln, chalky

HEEBNER SHALE 3367-1262
Shale, black carbonaceous, blocky, fissile
Lime, lt brn, fn-vfxln

Shale, dove gray-lime green, soft mud

TORONTO 3393-1288

Lime, crm-lt brn, fnxln, NS

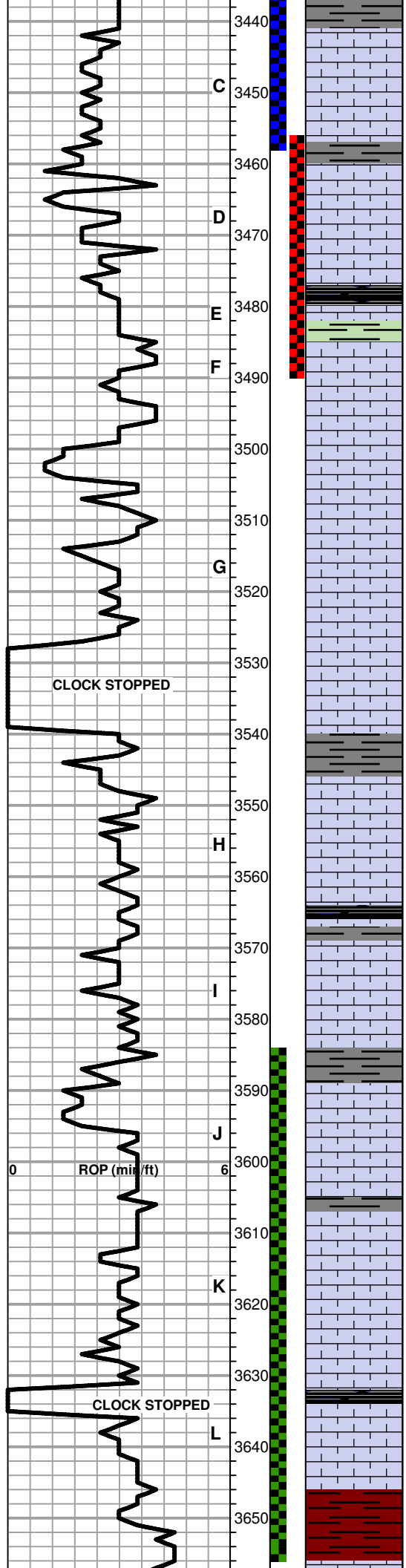
Lime, lt-med brn, fn-micro xln

Shale, red soft mud with red wash
LKC 3416-1311

Lime, white-crm, fnxln, few oolitic chips with spotty staining, NFO

Lime, crm-med grayish brn, gray mottling in part, fnxln, slightly fossiliferous

DST # 1 3402' TO 3458'
SEE HEADER FOR TEST SUMMARY



Lime, crm-lt brn, fn-vfxln, slightly fossiliferous
 few chips oolitic and fossiliferous with scattered micro vugs
 and interoolitic porosity, spotty stain, NFO

Lime, crm-lt brn, fn-vfxln, slight white chalk wash

Lime, white-offwhite, fnxln, oolitic chips with fossil
 fragments, scattered pinpoint vuggy porosity, scat-saturated
 staining, lt odor and minor SFO on crush

Lime, white-offwhite-lt brn, fn-vfxln, lt chalky wash

Shale, black carbonaceous, soft blocky
 Lime, pale gray, fnxln

Lime lt brn, fn-vfxln, lt odor and spotty staining in few chips,
 lt gassy SFO on crush.

Lime, crm-tan, fnxln-granular, lot of bedded chalk and white
 chalk wash

Lime, crm, mostly fnxln, bedded chalk with white chalk
 wash, few oomoldic chips with trace of lt staining, very lt
 odor.

Lime, lt-med brn, fnxln, bedded chalk

Lime, crm-lt brn, fn-vfxln
 Chert, crm-lt gray, fresh, sharp

Shale, med gray soft-firm blocky

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

Lime, crm, fn-vfxln trace of spotty staining, not well
 developed porosity system

Lime, crm, fn-micro xln

Lime, crm, fn-micro xln, few oomoldic chips with spotty lt
 staining and dark gilsonite

Lime, crm-tan, fn-micro xln, white chalky wash

Lime, crm-lt brn, fn-micro xln, white chalk wash

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

Lime, lt-med brn, fn-micro xln
 Shale, black carbonaceous

Lime, crm-lt brn, fn-micro xln, white chalk wash

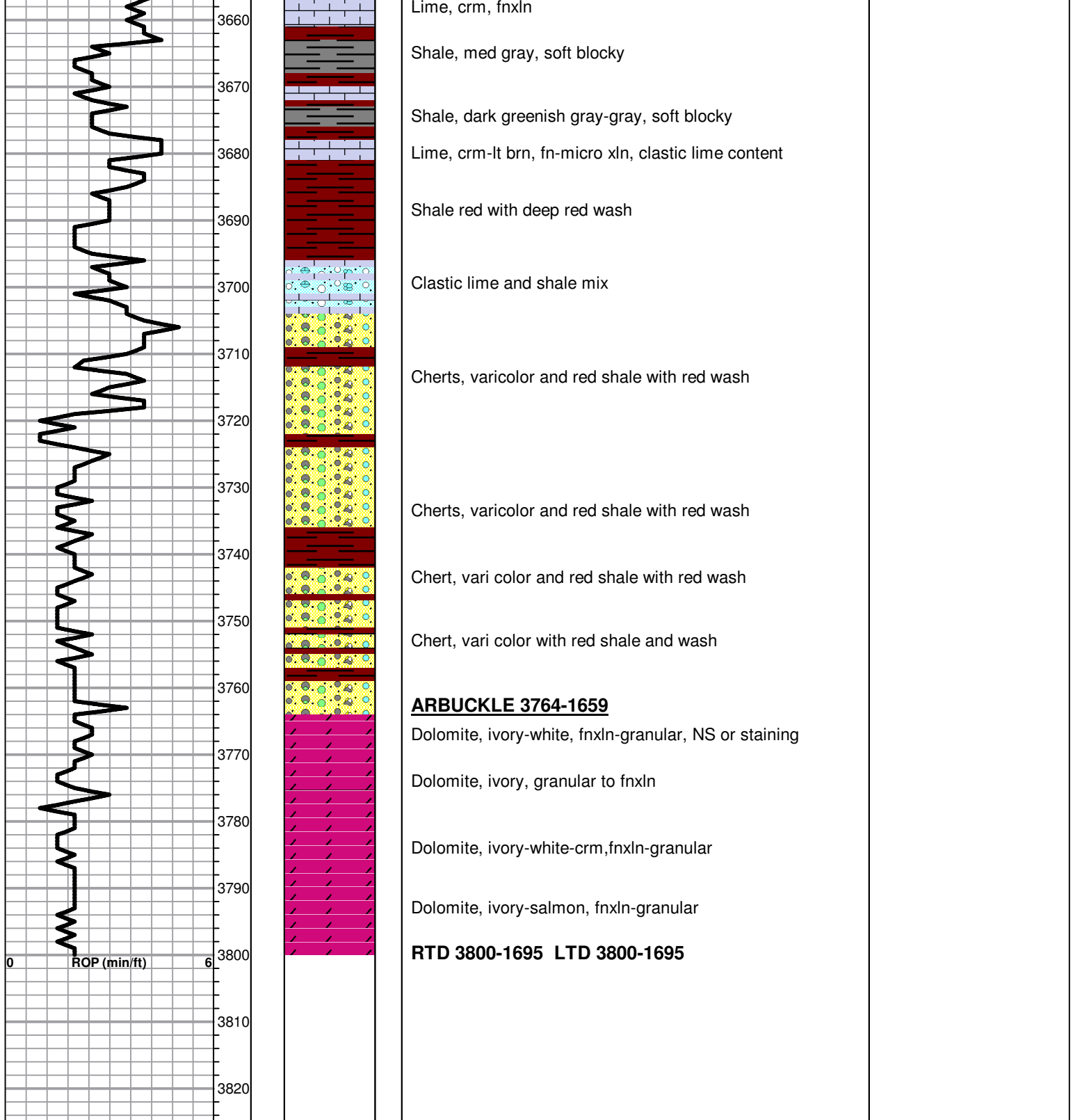
BKC 3646-1541

Shale, reddish brn with red shale wash

SLOPE 3/4 DEGREE

DST # 2 3456' TO 3480'
SEE HEADER FOR TEST SUMMARY

DST # 3 3584' TO 3656'
SEE HEADER FOR TEST SUMMARY



GLOBAL OIL FIELD SERVICES, LLC

0013490

REMIT TO 24 S. Lincoln
Russell, KS 67665

SERVICE POINT: Russell KS

DATE <u>6-14-19</u>	SEC. <u>26</u>	TWP. <u>13</u>	RANGE <u>T9W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
LEASE <u>4021</u>	WELL# <u>201</u>	LOCATION <u>4W of Hays 1/2 South</u>	COUNTY <u>Ellis</u>	STATE <u>KS</u>			
OLD OR NEW (CIRCLE ONE) <u>NEW</u>				<u>West Intern</u>			

CONTRACTOR <u>Southwind Drilling Rigs #3</u>	OWNER <u>TDI</u>
TYPE OF JOB <u>Surface</u>	
HOLE SIZE <u>12 3/4</u>	T.D.
CASING SIZE <u>3 5/8</u>	DEPTH <u>221</u>
TUBING SIZE	DEPTH
DRILL PIPE	DEPTH
TOOL	DEPTH
PRES. MAX	MINIMUM
MEAS. LINE	SHOE JOINT
CEMENT LEFT IN CSG. <u>25'</u>	
PERFS	
DISPLACEMENT	
EQUIPMENT	
PUMP TRUCK # <u>417</u>	CEMENTER <u>Eady</u>
BULK TRUCK # <u>379</u>	HELPER <u>Jason</u>
BULK TRUCK #	DRIVER <u>Tom</u>
BULK TRUCK #	DRIVER
COMMON	@
POZMIX	@
GEL	@
CHLORIDE	@
ASC	@
	@
	@
	@
	@
	@
	@
HANDLING	@
MILEAGE	

REMARKS:
Ran 5 hrs of processing + Lt + Hooked to Rigs + Brake circulation + Hooked to truck + Pumped 150 sacks of cement + displaced 12.5 bbls of H₂O + Shut IN.
cement DID circulate to surface
CHARGE TO: TDI
STREET _____
CITY _____ STATE _____ ZIP _____

Global Oil Field Services, 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 Jay Kriet
SIGNATURE Jay Kriet

SERVICE

DEPTH OF JOB _____
PUMP TRUCK CHARGE _____
EXTRA FOOTAGE @ _____
MILEAGE @ _____
MANIFOLD @ _____
@ _____
@ _____
TOTAL _____

PLUG & FLOAT EQUIPMENT

@ _____
@ _____
@ _____
@ _____
@ _____
TOTAL _____

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

GLOBAL OIL FIELD SERVICES, LLC

13759

REMIT TO 24 S. Lincoln
Russell, KS 67665

SERVICE POINT: Russell KS

DATE <u>6-21-19</u>	SEC. <u>26</u>	TWP. <u>12S</u>	RANGE <u>19W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <u>5:00 PM</u>
LEASE <u>Hart</u>	WELL #. <u>1</u>	LOCATION <u>4 west of traps on old Hwy 60</u>			COUNTY <u>Ellis</u>	STATE <u>KS</u>	
OLD OR NEW (CIRCLE ONE) <u>NEW</u>				<u>1 south west into</u>			

CONTRACTOR Southwind Drilling Rig #3
 TYPE OF JOB Rotary Plug
 HOLE SIZE 2 3/8 T.D. 3900'
 CASING SIZE _____ DEPTH _____
 TUBING SIZE _____ DEPTH _____
 DRILL PIPE _____ DEPTH _____
 TOOL _____ DEPTH _____
 PRES. MAX _____ MINIMUM _____
 MEAS. LINE _____ SHOE JOINT _____
 CEMENT LEFT IN CSG. _____
 PERFS _____
 DISPLACEMENT _____

OWNER TDI
 CEMENT AMOUNT ORDERED 290SKS 60/40/2
1/2 gel 1/4 per flow seal

EQUIPMENT
 PUMP TRUCK CEMENTER Cody
 # 417 HELPER Jason
 BULK TRUCK DRIVER Eddie
 # 481
 BULK TRUCK DRIVER _____
 # _____

COMMON _____ @ _____
 POZMIX _____ @ _____
 GEL _____ @ _____
 CHLORIDE _____ @ _____
 ASC _____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____
 HANDLING _____ @ _____
 MILEAGE _____ @ _____
 TOTAL _____

REMARKS:
3744' 50SKS @ 1
1430' 50SKS
700' 100SKS
280' 50SKS wiper plug
40' 10SKS 200 30SKS

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 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.

PLUG & FLOAT EQUIPMENT
 _____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____
 TOTAL _____

PRINTED NAME J. G. H. Kent 2C
 SIGNATURE Jay Hogue 2019 4C

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



DRILL STEM TEST REPORT

Prepared For: **TDI, Inc.**

1310 Bison Rd.
Hays, KS 67601

ATTN: Herb Deines

Hart #1

26-13S-19W Ellis, KS

Start Date: 2019.06.18 @ 22:58:19

End Date: 2019.06.19 @ 06:01:10

Job Ticket #: 65696 DST #: 1

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

Printed: 2019.06.21 @ 12:00:53

TDI, Inc. 26-13S-19W Ellis, KS Hart #1 DST # 1 LKC "A-C" 2019.06.18



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65696 **DST#: 1**
Test Start: 2019.06.18 @ 22:58:19

GENERAL INFORMATION:

Formation: **LKC "A-C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 02:16:55
 Time Test Ended: 06:01:10
 Interval: **3402.00 ft (KB) To 3458.00 ft (KB) (TVD)**
 Total Depth: 3458.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brannan Lonsdale
 Unit No: 73
 Reference Elevations: 2105.00 ft (KB)
 2096.00 ft (CF)
 KB to GR/CF: 9.00 ft

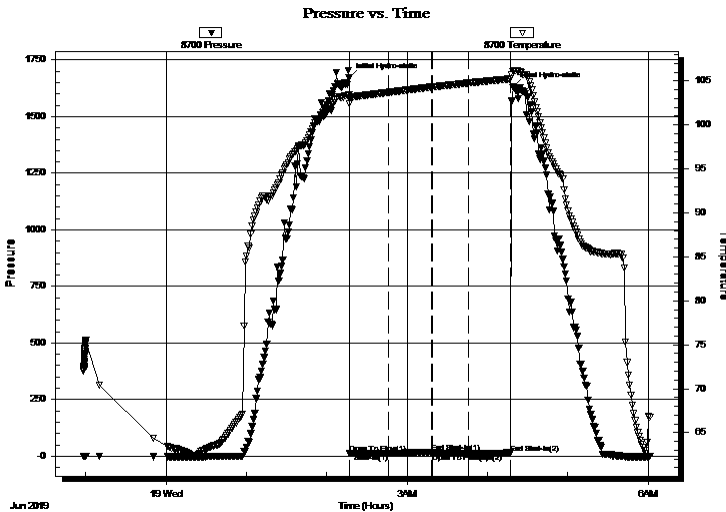
Serial #: 8700

Outside

Press@RunDepth: 12.23 psig @ 3403.00 ft (KB)
 Start Date: 2019.06.18 End Date: 2019.06.19
 Start Time: 22:58:20 End Time: 06:01:10
 Capacity: 8000.00 psig
 Last Calib.: 2019.06.19
 Time On Btm: 2019.06.19 @ 02:16:40
 Time Off Btm: 2019.06.19 @ 04:19:25

TEST COMMENT: 30- IF- 0.25" blow died in 12 mins
 30- IS- No blow
 30- FF- No blow
 30- FSI- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1671.63	103.45	Initial Hydro-static
1	13.18	102.43	Open To Flow (1)
29	12.52	103.70	Shut-In(1)
62	17.90	104.31	End Shut-In(1)
63	12.45	104.32	Open To Flow (2)
90	12.23	104.77	Shut-In(2)
121	14.78	105.24	End Shut-In(2)
123	1631.05	106.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	M	0.03

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
 ATTN: Herb Deines

26-13S-19W Ellis, KS
Hart #1
 Job Ticket: 65696 **DST#: 1**
 Test Start: 2019.06.18 @ 22:58:19

GENERAL INFORMATION:

Formation: **LKC "A-C"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 02:16:55 Tester: Brannan Lonsdale
 Time Test Ended: 06:01:10 Unit No: 73
Interval: 3402.00 ft (KB) To 3458.00 ft (KB) (TVD)
 Total Depth: 3458.00 ft (KB) (TVD) Reference Elevations: 2105.00 ft (KB)
 2096.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 9.00 ft

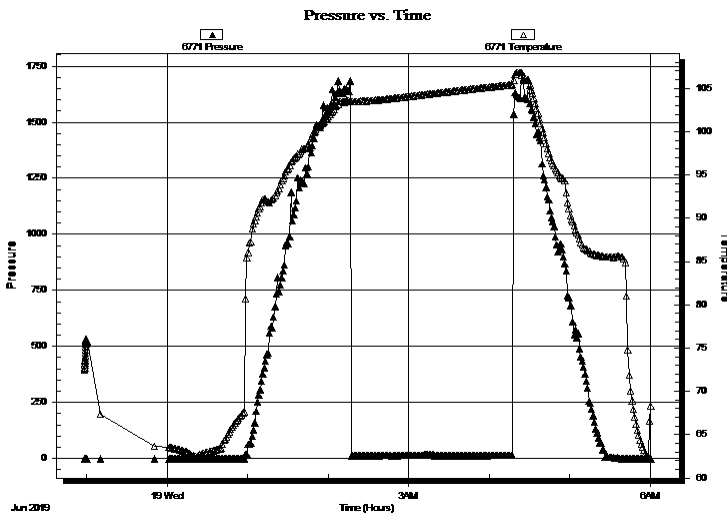
Serial #: 6771

Inside

Press@RunDepth:	psig @	3403.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2019.06.18	End Date:	2019.06.19	Last Calib.:	2019.06.19
Start Time:	22:58:31	End Time:	06:01:06	Time On Btm:	
			Time Off Btm:		

TEST COMMENT: 30- IF- 0.25" blow died in 12 mins
 30- IS- No blow
 30- FF- No blow
 30- FS- No blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
2.00	M	0.03

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
ATTN: Herb Deines

26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65696 **DST#: 1**
Test Start: 2019.06.18 @ 22:58:19

Tool Information

Drill Pipe:	Length: 3386.00 ft	Diameter: 3.82 inches	Volume: 48.00 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: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 40000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 37000.00 lb
Depth to Top Packer:	3402.00 ft			Final 37000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	56.00 ft			
Tool Length:	76.00 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			3383.00	
Shut In Tool	5.00			3388.00	
Hydraulic tool	5.00			3393.00	
Packer	5.00			3398.00	20.00 Bottom Of Top Packer
Packer	4.00			3402.00	
Stubb	1.00			3403.00	
Recorder	0.00	6771	Inside	3403.00	
Recorder	0.00	8700	Outside	3403.00	
Perforations	18.00			3421.00	
Change Over Sub	1.00			3422.00	
Drill Pipe	32.00			3454.00	
Change Over Sub	1.00			3455.00	
Bullnose	3.00			3458.00	56.00 Bottom Packers & Anchor

Total Tool Length: 76.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI, Inc.

26-13S-19W Ellis, KS

1310 Bison Rd.
Hays, KS 67601

Hart #1

Job Ticket: 65696

DST#: 1

ATTN: Herb Deines

Test Start: 2019.06.18 @ 22:58:19

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: 45.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	M	0.028

Total Length: 2.00 ft Total Volume: 0.028 bbl

Num Fluid Samples: 0

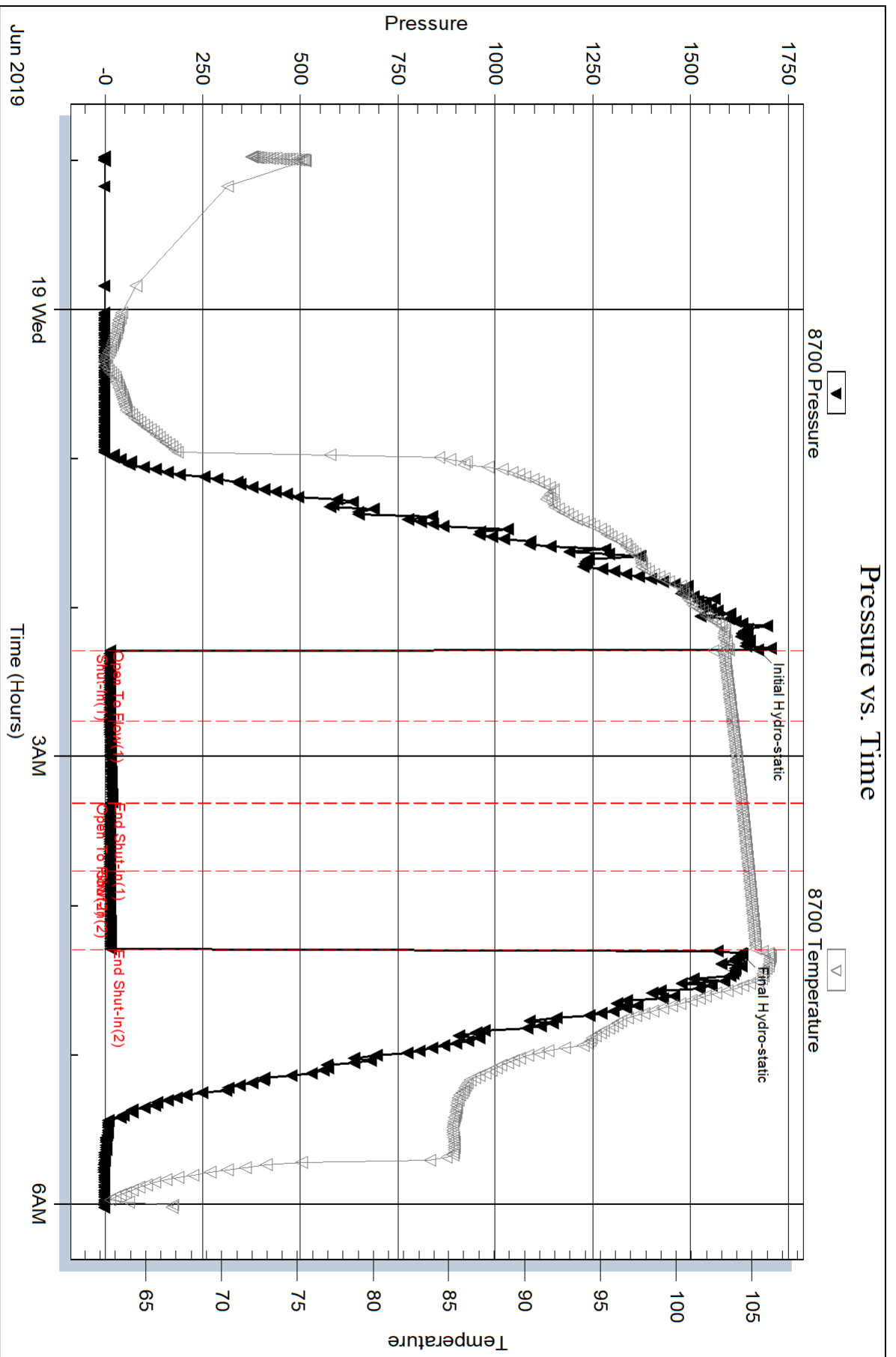
Num Gas Bombs: 0

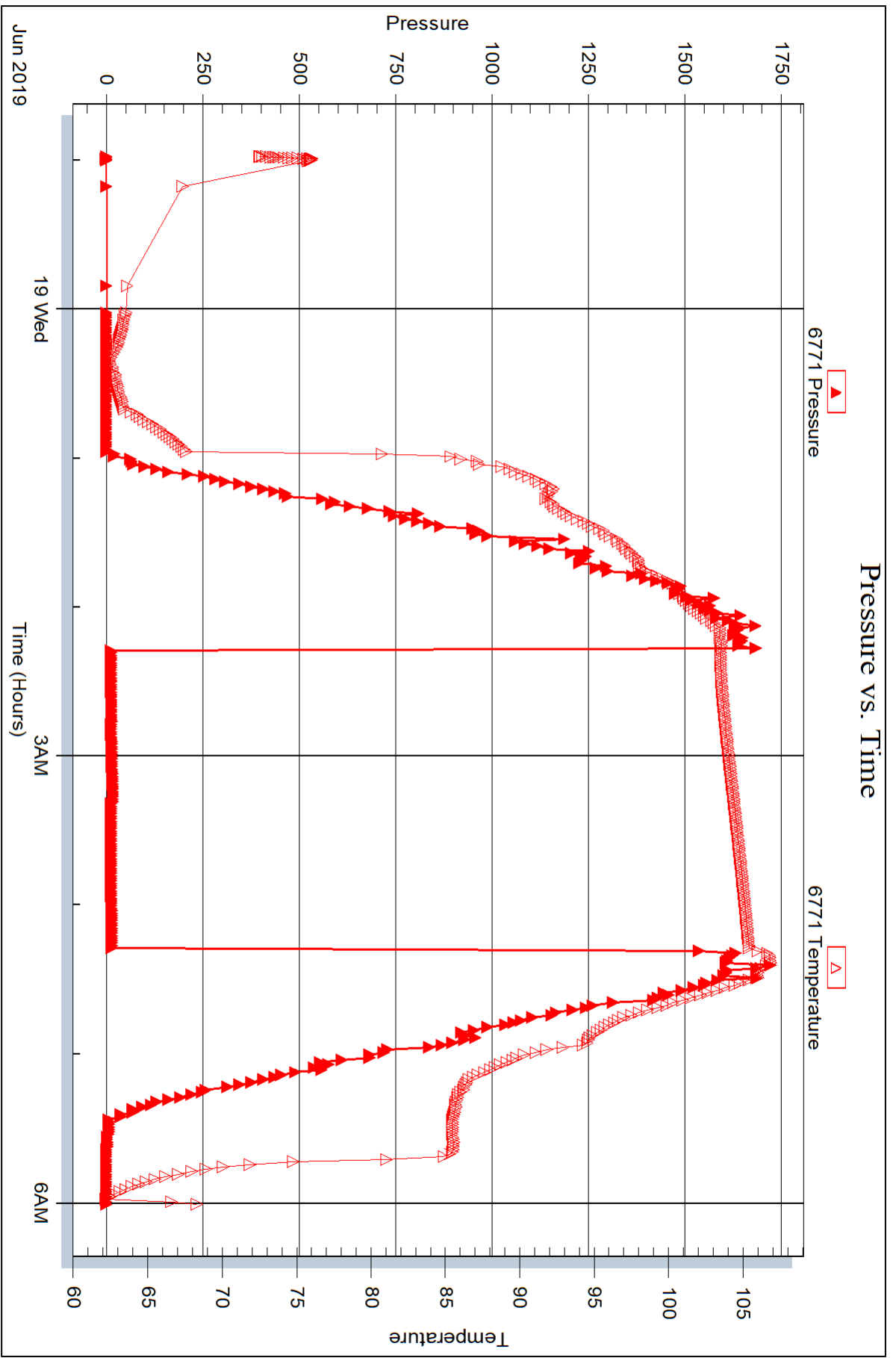
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **TDI, Inc.**

1310 Bison Rd.
Hays, KS 67601

ATTN: Herb Deines

Hart #1

26-13S-19W Ellis, KS

Start Date: 2019.06.19 @ 12:32:59

End Date: 2019.06.19 @ 18:32:05

Job Ticket #: 65697 DST #: 2

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

Printed: 2019.06.21 @ 11:54:26

TDI, Inc.
26-13S-19W Ellis, KS
Hart #1
DST # 2
LKC "D"
2019.06.19



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

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

26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65697 **DST#: 2**
Test Start: 2019.06.19 @ 12:32:59

GENERAL INFORMATION:

Formation: **LKC "D"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 13:53:05
 Time Test Ended: 18:32:05
 Interval: **3456.00 ft (KB) To 3480.00 ft (KB) (TVD)**
 Total Depth: 3480.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brannan Lonsdale
 Unit No: 73
 Reference Elevations: 2105.00 ft (KB)
 2096.00 ft (CF)
 KB to GR/CF: 9.00 ft

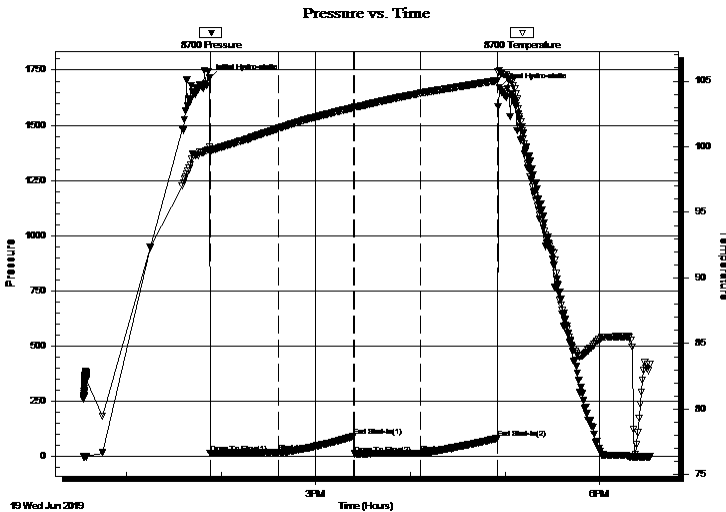
Serial #: 8700

Outside

Press@RunDepth: 15.97 psig @ 3457.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.06.19 End Date: 2019.06.19 Last Calib.: 2019.06.19
 Start Time: 12:33:00 End Time: 18:32:05 Time On Btm: 2019.06.19 @ 13:52:35
 Time Off Btm: 2019.06.19 @ 16:56:20

TEST COMMENT: 45- IF- Slow ly built to 1.89"
 45- IS- No blow
 45- FF- 2.22" initial surge slow ly built to 3.74"
 45- FSI- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1713.51	99.97	Initial Hydro-static
1	13.83	99.57	Open To Flow (1)
44	17.39	101.40	Shut-In(1)
92	92.19	102.97	End Shut-In(1)
92	12.28	103.01	Open To Flow (2)
134	15.97	104.08	Shut-In(2)
183	82.08	105.04	End Shut-In(2)
184	1670.35	105.81	Final Hydro-static

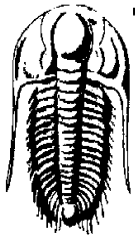
Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCM, 15%O 85%M	0.28
0.00	< 40' GIP	0.00

* 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
ATTN: Herb Deines

26-13S-19W Ellis, KS

Hart #1

Job Ticket: 65697 **DST#: 2**
Test Start: 2019.06.19 @ 12:32:59

GENERAL INFORMATION:

Formation: **LKC "D"**
Deviated: No Whipstock: ft (KB)
Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 13:53:05
Tester: Brannan Lonsdale
Time Test Ended: 18:32:05
Unit No: 73
Interval: **3456.00 ft (KB) To 3480.00 ft (KB) (TVD)**
Reference Elevations: 2105.00 ft (KB)
Total Depth: 3480.00 ft (KB) (TVD) 2096.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 9.00 ft

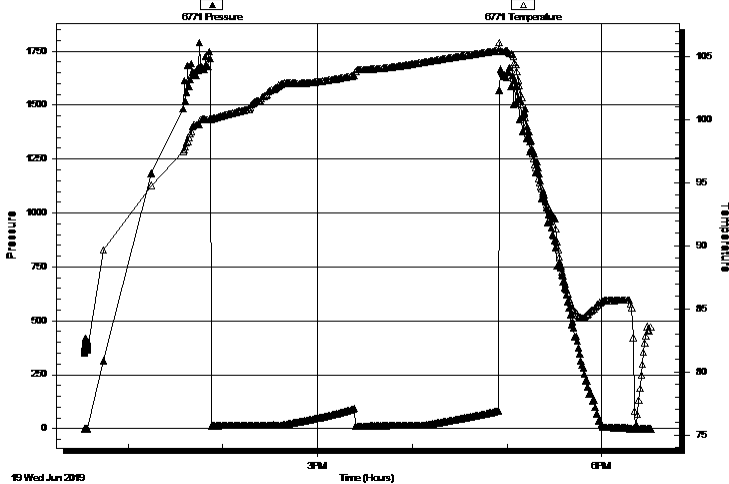
Serial #: 6771

Inside

Press@RunDepth: psig @ 3457.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.06.19 End Date: 2019.06.19 Last Calib.: 2019.06.19
Start Time: 12:32:25 End Time: 18:31:30 Time On Btm:
Time Off Btm:

TEST COMMENT: 45- IF- Slow ly built to 1.89"
45- IS- No blow
45- FF- 2.22" initial surge slow ly built to 3.74"
45- FS- No blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCM, 15%O 85%M	0.28
0.00	< 40' GIP	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65697 **DST#: 2**
Test Start: 2019.06.19 @ 12:32:59

Tool Information

Drill Pipe:	Length: 3450.00 ft	Diameter: 3.82 inches	Volume: 48.91 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: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	52000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial	37000.00 lb
Depth to Top Packer:	3456.00 ft			Final	38000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	24.00 ft				
Tool Length:	44.00 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			3437.00	
Shut In Tool	5.00			3442.00	
Hydraulic tool	5.00			3447.00	
Packer	5.00			3452.00	20.00 Bottom Of Top Packer
Packer	4.00			3456.00	
Stubb	1.00			3457.00	
Recorder	0.00	6771	Inside	3457.00	
Recorder	0.00	8700	Outside	3457.00	
Perforations	20.00			3477.00	
Bullnose	3.00			3480.00	24.00 Bottom Packers & Anchor
Total Tool Length:	44.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

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

26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65697 **DST#: 2**
Test Start: 2019.06.19 @ 12:32:59

Mud and Cushion Information

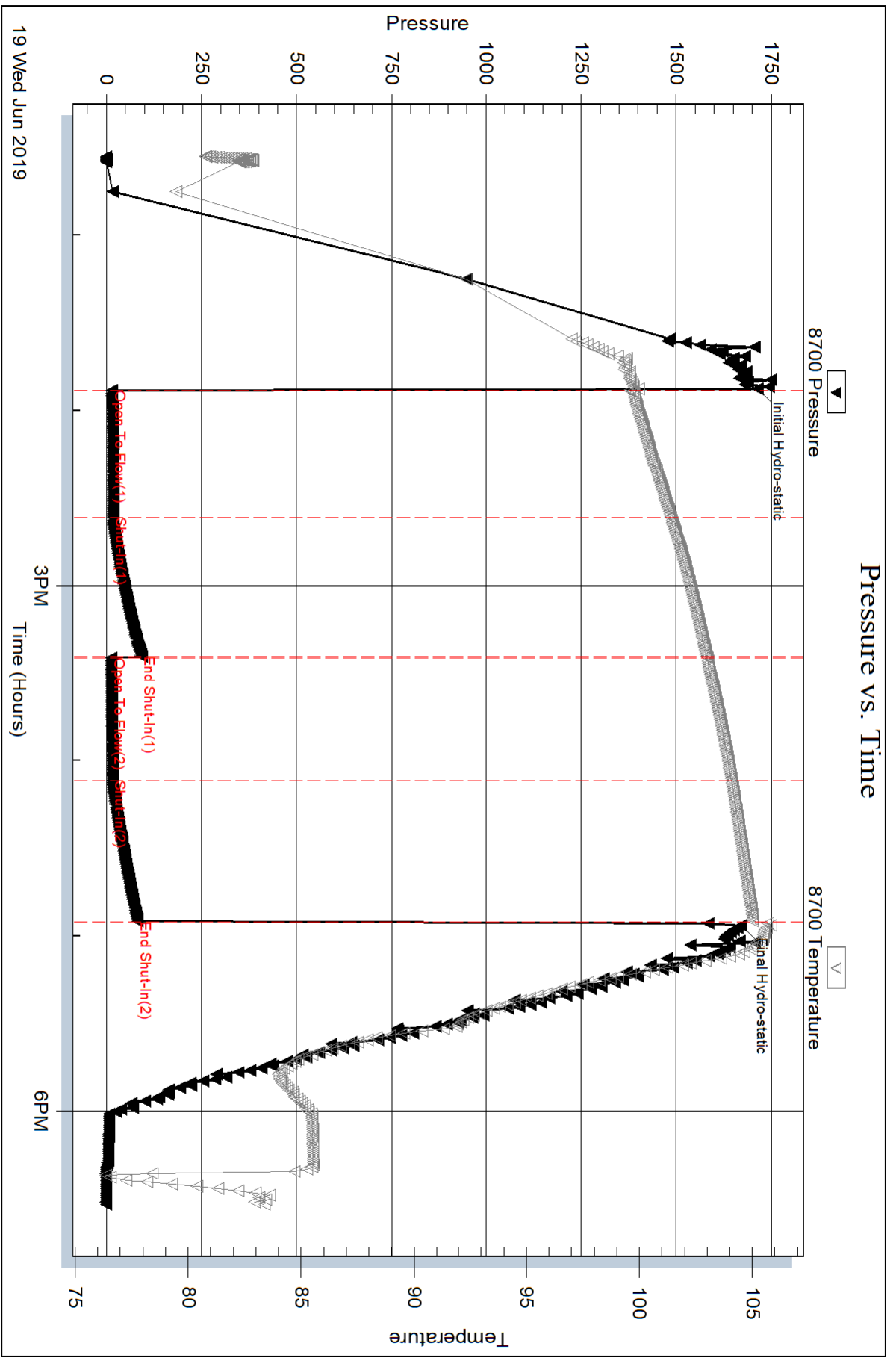
Mud Type: Gel Chem	Cushion Type:	Oil API: 34 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.99 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 4200.00 ppm		
Filter Cake: inches		

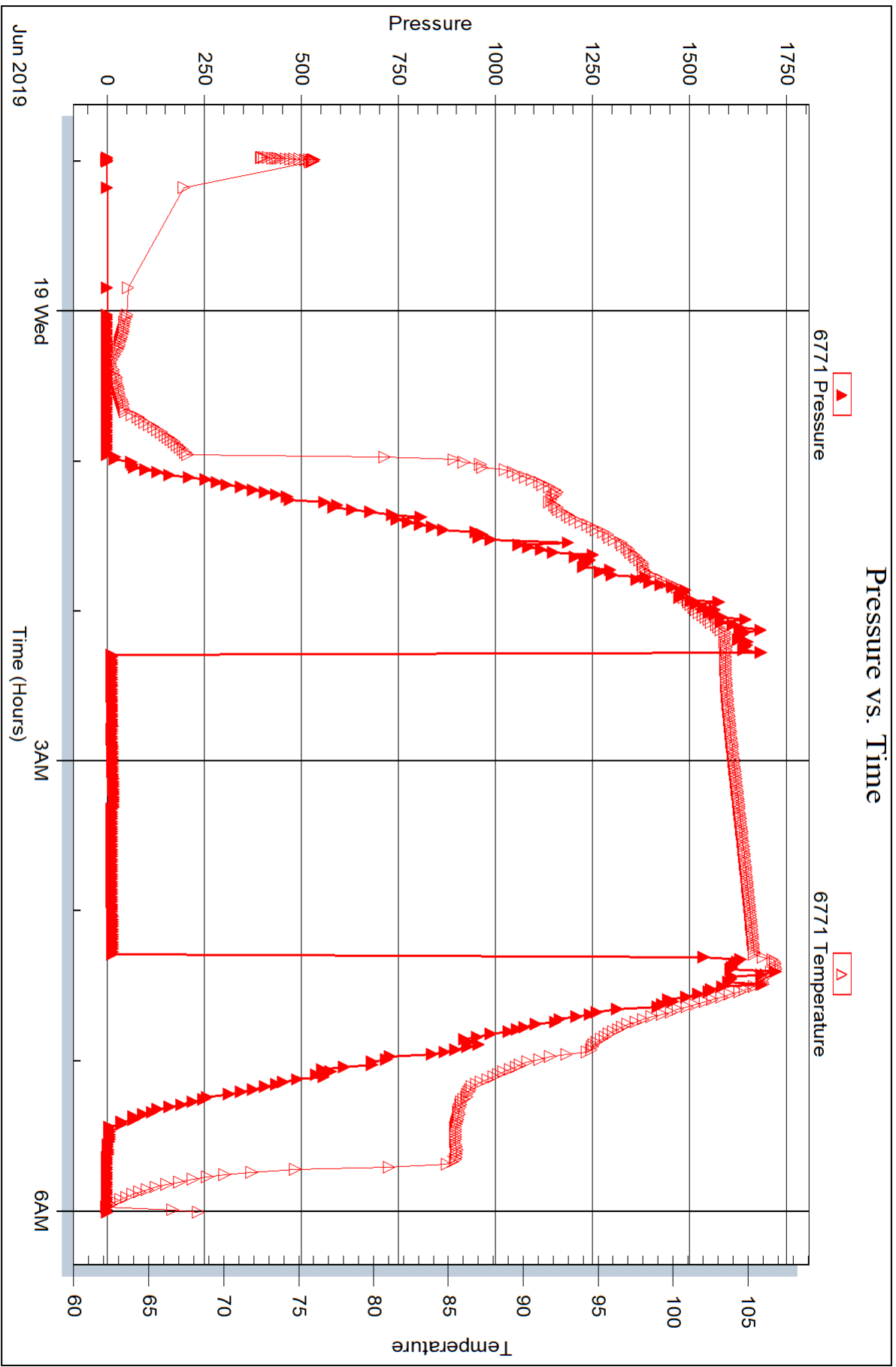
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	OCM, 15%O 85%M	0.284
0.00	< 40' GIP	0.000

Total Length: 20.00 ft Total Volume: 0.284 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

Hart #1

26-13S-19W Ellis, KS

Start Date: 2019.06.20 @ 08:56:59

End Date: 2019.06.20 @ 16:00:50

Job Ticket #: 65698 DST #: 3

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

Printed: 2019.06.21 @ 11:54:02

TDI, Inc. 26-13S-19W Ellis, KS Hart #1 DST # 3 LKC "J-L" 2019.06.20



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

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

26-13S-19W Ellis, KS

Hart #1

Job Ticket: 65698

DST#: 3

Test Start: 2019.06.20 @ 08:56:59

GENERAL INFORMATION:

Formation: **LKC "J-L"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:20:20
 Time Test Ended: 16:00:50
 Interval: **3784.00 ft (KB) To 3656.00 ft (KB) (TVD)**
 Total Depth: 3656.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brannan Lonsdale
 Unit No: 73
 Reference Elevations: 2105.00 ft (KB)
 2096.00 ft (CF)
 KB to GR/CF: 9.00 ft

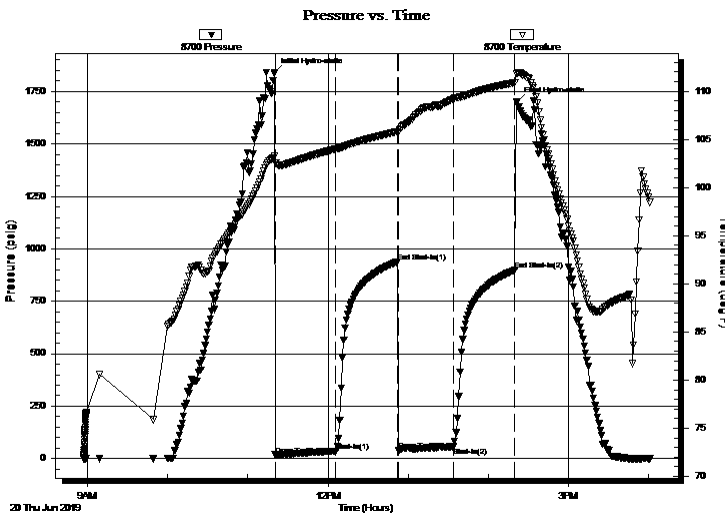
Serial #: 8700

Outside

Press@RunDepth: 55.24 psig @ 3585.00 ft (KB)
 Start Date: 2019.06.20 End Date: 2019.06.20
 Start Time: 08:57:00 End Time: 16:00:50
 Capacity: 8000.00 psig
 Last Calib.: 2019.06.20
 Time On Btm: 2019.06.20 @ 11:20:05
 Time Off Btm: 2019.06.20 @ 14:21:35

TEST COMMENT: 45- IF- Slow ly built to 5.82"
 45- IS- No blow
 45- FF- Slow ly built to 3.04"
 45- FS- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1840.98	103.29	Initial Hydro-static
1	17.16	102.57	Open To Flow (1)
46	35.93	104.02	Shut-In(1)
92	937.70	105.82	End Shut-In(1)
93	39.92	105.72	Open To Flow (2)
134	55.24	109.24	Shut-In(2)
180	898.24	110.90	End Shut-In(2)
182	1702.83	111.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
90.00	OCMW, 10%O 30%M 60%W	1.28

* 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
ATTN: Herb Deines

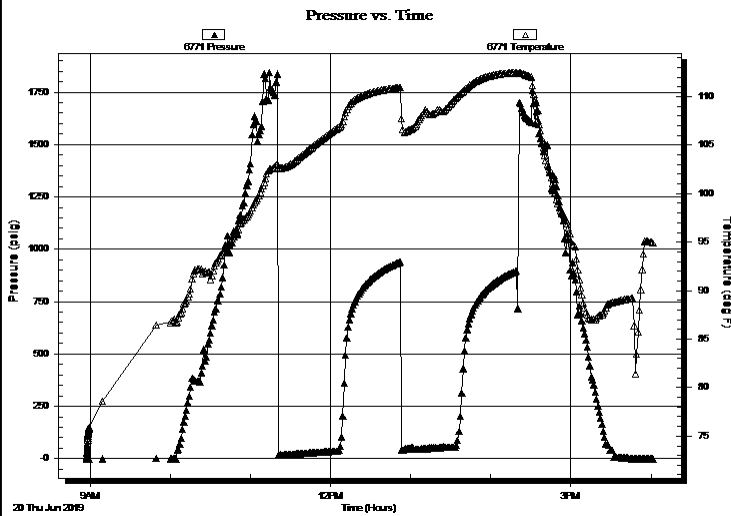
26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65698 **DST#: 3**
Test Start: 2019.06.20 @ 08:56:59

GENERAL INFORMATION:

Formation: **LKC "J-L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 11:20:20
Time Test Ended: 16:00:50
Interval: **3784.00 ft (KB) To 3656.00 ft (KB) (TVD)**
Total Depth: 3656.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2105.00 ft (KB)
2096.00 ft (CF)
KB to GR/CF: 9.00 ft
Test Type: Conventional Bottom Hole (Reset)
Tester: Brannan Lonsdale
Unit No: 73

Serial #: 6771 Inside
Press@RunDepth: psig @ 3585.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.06.20 End Date: 2019.06.20 Last Calib.: 2019.06.20
Start Time: 08:57:26 End Time: 16:01:16 Time On Btm:
Time Off Btm:

TEST COMMENT: 45- IF- Slow ly built to 5.82"
45- IS- No blow
45- FF- Slow ly built to 3.04"
45- FS- No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
90.00	OCMW, 10%O 30%M 60%W	1.28

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

26-13S-19W Ellis, KS
Hart #1
Job Ticket: 65698 **DST#: 3**
Test Start: 2019.06.20 @ 08:56:59

Tool Information

Drill Pipe:	Length: 3576.00 ft	Diameter: 3.82 inches	Volume: 50.69 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: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 39000.00 lb
Depth to Top Packer:	3584.00 ft			Final 43000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	72.00 ft			
Tool Length:	92.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3565.00	
Shut In Tool	5.00			3570.00	
Hydraulic tool	5.00			3575.00	
Packer	5.00			3580.00	20.00 Bottom Of Top Packer
Packer	4.00			3584.00	
Stubb	1.00			3585.00	
Recorder	0.00	6771	Inside	3585.00	
Recorder	0.00	8700	Outside	3585.00	
Perforations	3.00			3588.00	
Change Over Sub	1.00			3589.00	
Drill Pipe	63.00			3652.00	
Change Over Sub	1.00			3653.00	
Bullnose	3.00			3656.00	72.00 Bottom Packers & Anchor

Total Tool Length: 92.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI, Inc.

26-13S-19W Ellis, KS

1310 Bison Rd.
Hays, KS 67601

Hart #1

Job Ticket: 65698

DST#: 3

ATTN: Herb Deines

Test Start: 2019.06.20 @ 08:56:59

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:

65000 ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	OCMW, 10%O 30%M 60%W	1.276

Total Length: 90.00 ft Total Volume: 1.276 bbl

Num Fluid Samples: 0

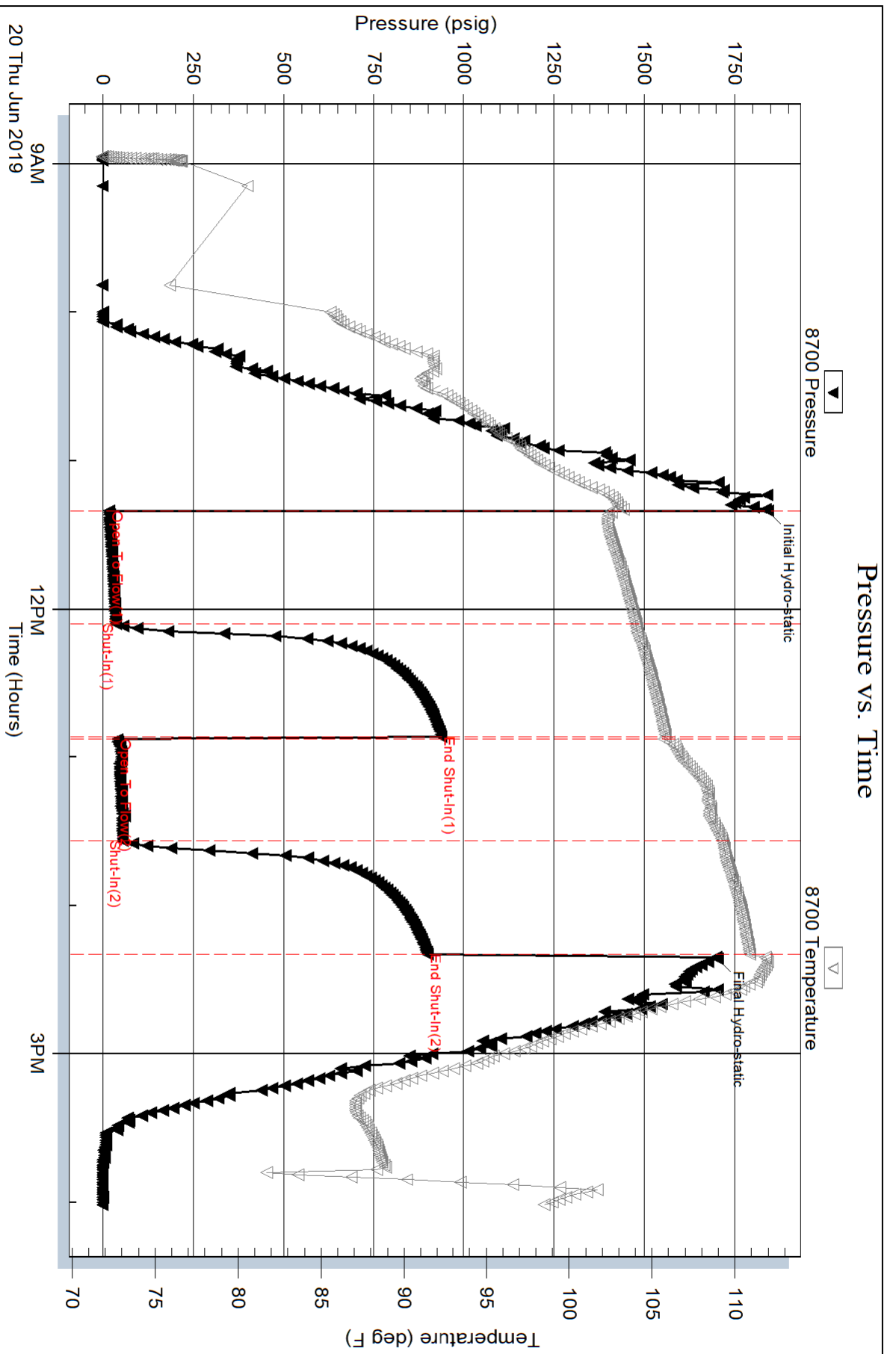
Num Gas Bombs: 0

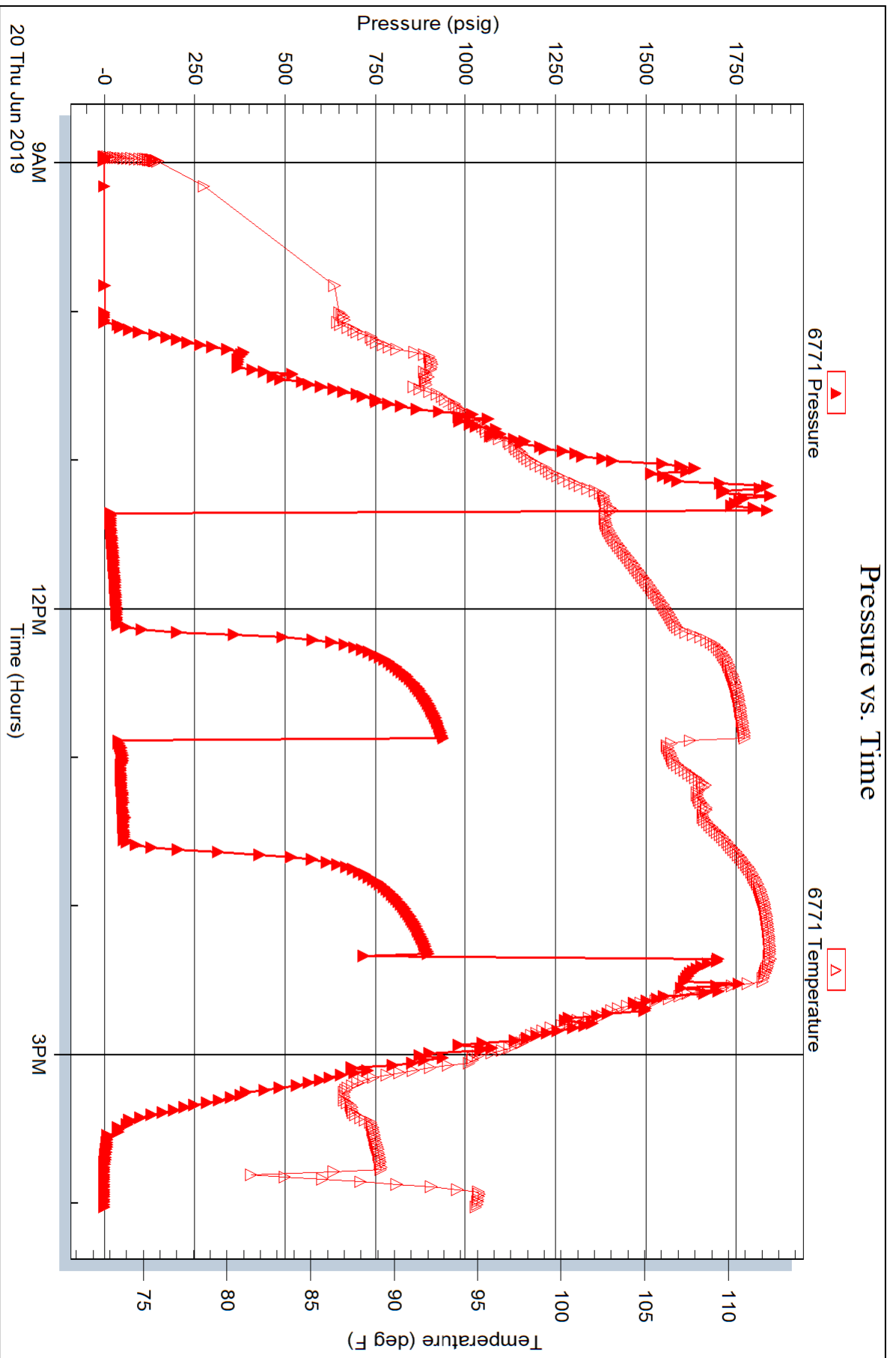
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .08@87deg







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65696**

Well Name & No. Hart #1 Test No. 1 Date 6/19/19
 Company TDF, Inc. Elevation 2105 KB 2096 GL
 Address 1310 Bison Rd. Hays, KS 67601
 Co. Rep / Geo. Herb Dames Rig Southwind 3.1
 Location: Sec. 26 Twp 13 S Rge. 19 W/Co. Ellis State KS

Interval Tested 3402-3458 Zone Tested LKC "A-C"
 Anchor Length 56' Drill Pipe Run 3386 Mud Wt. 8.9
 Top Packer Depth 3397 Drill Collars Run — Vis 45
 Bottom Packer Depth 3402 Wt. Pipe Run — WL 6.0
 Total Depth 3458 Chlorides 3,600 ppm System LCM 2#

Blow Description FF-1/4" blow direct in 12 mins
IST - No blow
FF - No blow
PSI - No blow

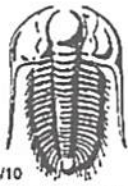
Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>M</u>				

Rec Total 2' BHT 105° Gravity — API RW — @ —° F Chlorides — ppm

(A) Initial Hydrostatic <u>1672</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>6/18</u> <u>2235</u>
(B) First Initial Flow <u>13</u>	<input type="checkbox"/> Jars <u>—</u>	T-Started <u>2258</u>
(C) First Final Flow <u>13</u>	<input type="checkbox"/> Safety Joint <u>—</u>	T-Open <u>0217</u>
(D) Initial Shut-In <u>18</u>	<input type="checkbox"/> Circ Sub <u>—</u>	T-Pulled <u>0417</u>
(E) Second Initial Flow <u>12</u>	<input type="checkbox"/> Hourly Standby <u>—</u>	T-Out <u>0601</u>
(F) Second Final Flow <u>12</u>	<input checked="" type="checkbox"/> Mileage <u>22 RT</u> <u>22</u>	Comments <u>—</u>
(G) Final Shut-In <u>15</u>	<input type="checkbox"/> Sampler <u>—</u>	
(H) Final Hydrostatic <u>1631</u>	<input type="checkbox"/> Straddle <u>—</u>	
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer <u>—</u>	<input type="checkbox"/> EM Tool <u>—</u>
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer <u>—</u>	<input type="checkbox"/> Ruined Shale Packer <u>—</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder <u>—</u>	<input type="checkbox"/> Ruined Packer <u>—</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby <u>—</u>	<input type="checkbox"/> Extra Copies <u>—</u>
	<input type="checkbox"/> Accessibility <u>—</u>	Sub Total <u>0</u>
	Sub Total <u>1222</u>	Total <u>1222</u>

Approved By _____ Our Representative Brannan Lonsdale

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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65697**

Well Name & No. Hart #1 Test No. 2 Date 6/19/19
 Company TDF, Inc. Elevation 2105 KB 2096 GL
 Address 1310 Bison Rd. Hays, KS 67601
 Co. Rep / Geo. Herb Deines Rig Southwind 3.1
 Location: Sec. 26 Twp 13 S Rge. 19 W Co. Ellis State KS

Interval Tested 3456-3480 Zone Tested LKC "D"
 Anchor Length 24' Drill Pipe Run 3450 Mud Wt. 9.0
 Top Packer Depth 3451 Drill Collars Run --- Vis 59
 Bottom Packer Depth 3456 Wt. Pipe Run --- WL 6.0
 Total Depth 3480 Chlorides 4,200 ppm System LCM 2#

Blow Description IF - Slowly built to 1.89"
ISF - No flow
PF - Initial surge of 2.22" then built slowly to 3.74"
FSF - No flow

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>OCM</u>		<u>15</u>		<u>85</u>
Rec	Feet of <u>< 40' CIP</u>	%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 20' BHT 34 Gravity 105° API RW --- @ --- F Chlorides --- ppm

(A) Initial Hydrostatic <u>1714</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>1210</u>
(B) First Initial Flow <u>14</u>	<input type="checkbox"/> Jars	T-Started <u>1232</u>
(C) First Final Flow <u>17</u>	<input type="checkbox"/> Safety Joint	T-Open <u>1352</u>
(D) Initial Shut-In <u>92</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>1652</u>
(E) Second Initial Flow <u>12</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1831</u>
(F) Second Final Flow <u>16</u>	<input checked="" type="checkbox"/> Mileage <u>22 RT</u> <u>22</u>	Comments
(G) Final Shut-In <u>82</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1670</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
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>1222</u>
	Sub Total <u>1222</u>	MP/DST Disc't

Approved By _____ Our Representative Brannan Lonsdale

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65698

Well Name & No. Hart #1 Test No. 3 Date 6/20/19
 Company TDF, Inc. Elevation 2105 KB 2096 GL
 Address 1310 Bison Rd. Hays, KS 67601
 Co. Rep / Geo. Herb Darnes Rig Southwind 3.1
 Location: Sec. 26 Twp 13 S Rge. 19 W Co. Ellis State KS

Interval Tested 3584-3656 Zone Tested LKC "J-L"
 Anchor Length 72' Drill Pipe Run 3576 Mud Wt. 9.4
 Top Packer Depth 3579 Drill Collars Run --- Vis 64
 Bottom Packer Depth 3584 Wt. Pipe Run --- WL 6.0
 Total Depth 3656 Chlorides 4,000 ppm System LCM 4#

Blow Description IF - slowly built to 5.82"
FF - No blow
FF - slowly built to 3.04"
FST - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>CCMW</u>		<u>10%</u>	<u>60%</u>	<u>30%</u>
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 116° Gravity API RW .08 @ 87° F Chlorides 65000 ppm

(A) Initial Hydrostatic <u>1841</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>0840</u>
(B) First Initial Flow <u>17</u>	<input type="checkbox"/> Jars	T-Started <u>0857</u>
(C) First Final Flow <u>36</u>	<input type="checkbox"/> Safety Joint	T-Open <u>1120</u>
(D) Initial Shut-In <u>938</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>1420</u>
(E) Second Initial Flow <u>40</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1601</u>
(F) Second Final Flow <u>55</u>	<input checked="" type="checkbox"/> Mileage <u>22 RT x 2 44</u>	Comments <u>Tools loaded</u>
(G) Final Shut-In <u>898</u>	<input type="checkbox"/> Sampler	<u>9/21 @ 0915</u>
(H) Final Hydrostatic <u>1703</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
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>1244</u>
	Sub Total <u>1244</u>	MP/DST Disc't

Approved By _____ Our Representative Brannan Louisdale

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