KOLAR Document ID: 1313365

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 # 4787
Name: TDI, Inc.
Address 1: 1310 BISON RD
Address 2:
City: HAYS State: KS Zip: 67601 + 9696
Contact Person: Tom Denning
Phone: (785) 628-2593
CONTRACTOR: License # 33350
Name: Southwind Drilling, Inc.
Wellsite Geologist: Herb Deines
Purchaser:

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 #:

7/5/2016	7/10/2016	7/10/2016
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No.: 15-051-26833-00-00
Spot Description:
S2 - SE - NE - NE Sec. 12 Twp. 12 S. R. 19 ☐ East ☑ West
1260 Feet from ☑ North / ☐ South Line of Section
330 Feet from ☑ East / ☐ West Line of Section

Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW

GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Ellis
Lease Name: GJ Well #: 1
Field Name: Unnamed
Producing Formation: Dry Hole
Elevation: Ground: 2117 Kelly Bushing: 2125
Total Vertical Depth: 3699 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 220 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: 39000 ppm Fluid volume: 700 bbls
Dewatering method used: Evaporated

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: 08/11/2016
☑ **Confidential Release Date:** 08/11/2018
☐ **Wireline Log Received** ☐ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** Karen Ritter **Date:** 08/12/2016

Operator Name: TDI, Inc. Lease Name: GJ Well #: 1

Sec. 12 Twp. 12 S. R. 19 ☐ East ☑ West County: Ellis

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 *(Attach Additional Sheets)*	☑ Yes	☐ No
Samples Sent to Geological Survey	☐ Yes	☑ No
Cores Taken	☐ Yes	☑ No
Electric Log Run	☐ Yes	☑ No
Geologist Report / Mud Logs	☐ Yes	☐ No
List All E. Logs Run:		

☐ Log Formation (Top), Depth and Datum ☑ Sample

Name	Top	Datum
Anhydrite	1459'	+666'
Topeka	3150'	-1025'
Heebner	3379'	-1254'
Lansing/Kansas City	3421'	-1296'
Base Kansas City	3654'	-1529'

CASING RECORD ☑ New ☐ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12.25	8.625	20	220	70/30 Poz	150	3% cc, 2% gel

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ Plug Off Zone	-			
	-			

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: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)*

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

DISPOSITION OF GAS:	METHOD OF COMPLETION:	PRODUCTION INTERVAL:
☐ Vented ☐ Sold ☐ Used on Lease *(If vented, Submit ACO-18.)*	☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*	Top / Bottom

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*

TUBING RECORD: Size: Set At: Packer At:

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	TDI, Inc.
Well Name	GJ 1
Doc ID	1313365

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	20	220	70/30 Poz	150	3% cc, 2% gel

OPERATOR

Company:	TDI, INC		
Address:	1310 BISON ROAD HAYS, KANSAS 67601		
Contact Geologist:	TOM DENNING		
Contact Phone Nbr:	785-628-2593		
Well Name:	GJ # 1		
Location:	S2 SE NE NE SEC.12-T12S-R19W		
API:	15-051-26,833-00-00		
Pool:	WILDCAT	Field:	UNNAMED
State:	KANSAS	Country:	USA

Scale 1:240 Imperial

Well Name:	GJ # 1		
Surface Location:	S2 SE NE NE SEC.12-T12S-R19W		
Bottom Location:			
API:	15-051-26,833-00-00		
License Number:	4787		
Spud Date:	7/5/2016	Time:	8:15 AM
Region:	ELLIS COUNTY		
Drilling Completed:	7/10/2016	Time:	5:21 AM
Surface Coordinates:	1260' FNL & 330' FEL		
Bottom Hole Coordinates:			
Ground Elevation:	2117.00ft		
K.B. Elevation:	2125.00ft		
Logged Interval:	0.00ft	To:	0.00ft
Total Depth:	3699.00ft		
Formation:	LANSING-KANSAS CITY		
Drilling Fluid Type:	CHEMICAL/FRESH WATER GEL		

SURFACE CO-ORDINATES

Well Type:	Vertical
Longitude:	-99.3719892
Latitude:	39.0270062
N/S Co-ord:	1260' FNL
E/W Co-ord:	330' FEL

LOGGED BY

Company:	SOLUTIONS CONSULTING, INC.		
Address:	108 W 35TH HAYS, KS 67601		
Phone Nbr:	(785) 639-1337		
Logged By:	GEOLOGIST	Name:	HERB DEINES

CONTRACTOR

Contractor:	SOUTHWIND DRILLING, INC.		
Rig #:	3		
Rig Type:	MUD ROTARY		
Spud Date:	7/5/2016	Time:	8:15 AM
TD Date:	7/10/2016	Time:	5:21 AM

Rig Release:	7/10/2016	Time:	1:30 PM

ELEVATIONS

K.B. Elevation:	2125.00ft	Ground Elevation:	2117.00ft
K.B. to Ground:	8.00ft		

NOTES

RECOMMENDATION TO PLUG AND ABANDON WELL BASED ON LOW STRUCTURE AND NEGATIVE RESULTS OF DST # 1

NO OPEN HOLE LOGS WERE RAN ON THIS WELL.

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

	GJ # 1	KEITH 1	STACKHOUSE # 1
	S2 SE NE NE	S2 SW SW NE	N2 SE NW
	SEC.12-12S-19W	SEC.12-12-19W	SEC.7-12-18W
	2117'GL 2125'KB	KB 2197'	KB 2179'
FORMATION	SPL TOPS	LOG TOPS	LOG TOPS
Anhydrite	1459 +666	+ 667	+ 685
B-Anhydrite	1492 +633	+ 627	+ 654
Topeka	3150-1025	-1031	-1005
Heebner Sh.	3379-1254	-1261	-1233
Toronto	3399-1274	-1279	-1257
LKC	3421-1296	-1303	-1279
BKC	3654-1529	-1537	-1510
Arbuckle	NOT REACHED	NR	-1563
RTD	3699-1574	-1705	-1573

SUMMARY OF DAILY ACTIVITY

7-05-16	Spud 8:15 AM, set 8 5/8" surface casing to 220' w/150 sxs 70/30 Pos 2%Gel 3%CC, slope 1/2 degree, plug down 2:00PM
7-06-16	1035', drilling
7-07-16	2330', drilling
7-08-16	3025', drilling, displaced 2969' to 3001'
7-09-16	3555', drilling, CFS 3625', short trip, DST #1 3530' to 3625' "H" to "K" LKC, TIWB, drilling
7-10-16	3699', drilling, RTD 3699' @ 5:21AM, P&A, no logs, LDDP, RD

DRILL STEM TEST REPORT

TDI, Inc

1310 Bison Rd.
Hays Ks 67601-9696

ATTN: Tom Denning , Herb D

12-12s-19w Ellis

GJ #1

Job Ticket: 65473 **DST#: 1**

Test Start: 2016.07.09 @ 16:20:45

GENERAL INFORMATION:

Formation: **LKC H-K**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:11:55
Time Test Ended: 22:43:39

Test Type: Conventional Bottom Hole (Initial)
Tester: Ray Schwager
Unit No: 77

Interval: 3530.00 ft (KB) To 3625.00 ft (KB) (TVD)
Total Depth: 3625.00 ft (KB) (TVD)
Hole Diameter: 7.85 inches Hole Condition: Fair

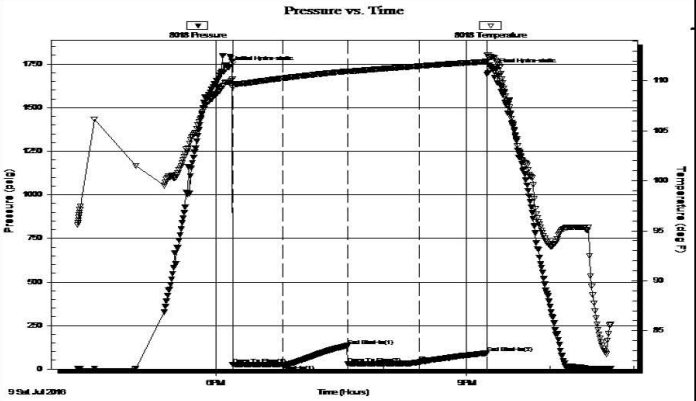
Reference Elevations: 2125.00 ft (KB)
2117.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 40.22 psig @ 3536.00 ft (KB)
Start Date: 2016.07.09 End Date: 2016.07.09
Start Time: 16:20:45 End Time: 22:43:39

Capacity: 8000.00 psig
Last Calib.: 2016.07.09
Time On Btm: 2016.07.09 @ 18:09:25
Time Off Btm: 2016.07.09 @ 21:18:09

TEST COMMENT: 45-IFP-w k bl thru-out 1/2"to 1"bl
45-ISIP-no bl
45-FFP-no bl
45-FSIP-no bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1729.83	109.85	Initial Hydro-static
3	25.60	109.35	Open To Flow (1)
39	26.13	110.26	Shut-In(1)
85	134.31	110.96	End Shut-In(1)
86	30.25	110.94	Open To Flow (2)
137	40.22	111.49	Shut-In(2)
185	91.75	111.93	End Shut-In(2)
189	1719.24	112.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	CO	0.07
20.00	OCM 15%O85%M	0.28

Gas Rates

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

ROCK TYPES

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

ACCESSORIES

MINERAL

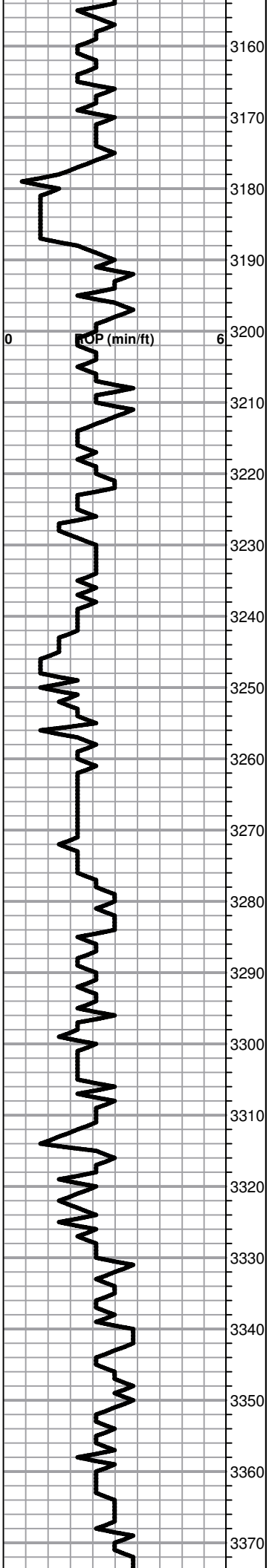
▲ Chert, dark
P Pyrite
△ Chert White

FOSSIL

F Fossils < 20%
Oolite
Oomoldic

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

Curve Track #1 ROP (min/ft) 1:240 Imperial	Depth | Intervals Cored Interval DST Interval	DST	Lithology	Oil Show	Geological Descriptions	Curve Track #3 1:240 Imperial
0 ROP (min/ft) 6	3050				BEGIN 1' DRILL TIME FROM 3050' TO RTD BEGIN 10' WET AND DRY SAMPLES FROM 3100' TO RTD	8 5/8" SURFACE CASING SET TO 220' W/ 150 SXS 70/30 POS 2%GEL 3%CC
	3060				**ANHYDRITE SPL TOP 1459+666** **ANHYDRITE SPL BASE 1492+633**	SURVEY 1/2 DEGREE @220'
	3070				Shale, lt-med gray, soft sticky to soft blocky	
	3080				Lime, med brn-med gray, fnxln, slightly fossiliferous Shale, lt gray, soft, sticky clumps	
	3090				Lime, lt-med brn, fnxln, slightly fossiliferous	
	3100				Lime, lt brn-lt grayish brn, fnxln, slightly fossiliferous-fusulinids	
	3110				Shale, lt-med gray, soft sticky clumps to soft blocky	
	3120					
	3130				Lime, offwhite-crm, fnxln to slightly granular in part	
	3140				Shale, lt-med gray, soft blocky	
	3150				**TOPEKA SPL TOP 3150-1025** Lime, white-crm, fnxln, slightly chalky	



Lime, lt brn-lt gray, fn-vfxln

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

Lime, lt brn, grainstone with thin bedded chalk, NS, No wet cut

Lime, crm-lt gray, fn-vfxln

Lime, brn-lt grayish brn, fn-vfxln

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

Lime, lt-med brn, fn-vfxln

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

Lime, lt-med brn, fn-vfxln

Lime, lt-med brn, fnxln-granular with chalky matrix

Shale, black carbonaceous, fissile, blocky

Shale, med gray, soft blocky

Lime, crm, fn-micro xln, lithographic

Lime, lt brn, fn-micro xln

Lime, crm-lt brn, fnxln

Shale, med gray, moderatedly firm and blocky

Lime, crm-lt brn, fn-vfxln

Shale, black carbonaceous, fissile, blocky
Lime, lt-med brn, fn-vflxn

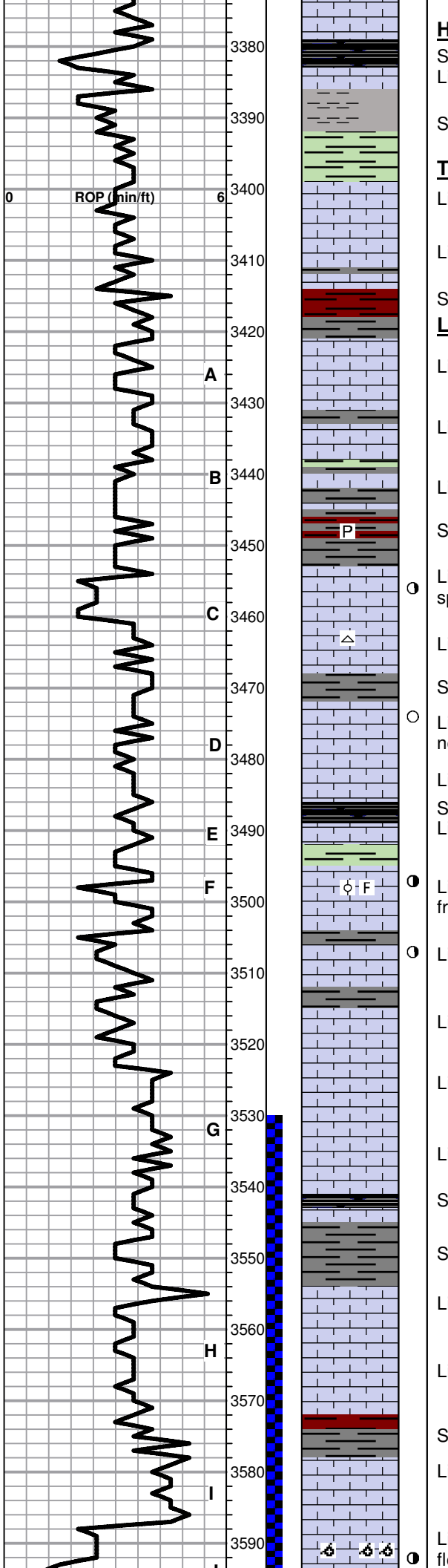
Lime, crm, fnxln, bedded chalk, NS

Lime, crm-lt brn, fnxln with bedded chalk , NS

Lime, crm-lt brn, fn-vfxln

Lime, crm-lt brn, fnxln

Lime, cmr-lt brn, fn-vfxln



HEEBNER SHALE SPL TOP 3379-1254

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

Shale, dove gray-lime green, soft mud

TORONTO SPL TOP 3399-1274

Lime, buff-crm, fn-micro xln, bedded chalk in part, NS

Lime, crm with green shale tint, fnxln

Shale, lt red wash, soft mud to soft blocky

LKC SPL TOP 3421-1296

Lime, crm-lt brn, fn-micro xln

Lime, lt brn with green tint in part, fn-vfxln

Lime, crm-lt brn, fn-vfxln

Shale, lt red wash-lt gray, firm blocky, slight fossil content

Lime, crm-lt brn, mostly fnxln with thin oolitic zone with spotty lt stain, NFO, No Odor, poorly developed

Lime, crm-lt brn, fn-vfxln

Shale, lt gray, soft blocky, slightly waxy

Lime, crm-lt brn, fn-micro xln, trace of lt spotty stain, NFO, no odor

Lime, crm-lt brn, fn-micro xln

Shale, black carbonaceous, blocky
Lime, pale gray, fn-vfxln

Lime, crm, mostly fnxln with thin zone of oolitic and fossil fragment with spotty staining, NFO, no odor

Lime, crm, fnxln-granular, spotty stain, NFO, no odor

Lime, crm, mostly fnxln

Lime, crm, fn-micro xln

Lime, crm, fn-micro xln grading to lt brn, fnxln

Shale, black carbonaceous, blocky

Shale, med gray, firm, blocky with slivers in part

Lime, crm-lt brn, fn-micro xln, NS, No odor

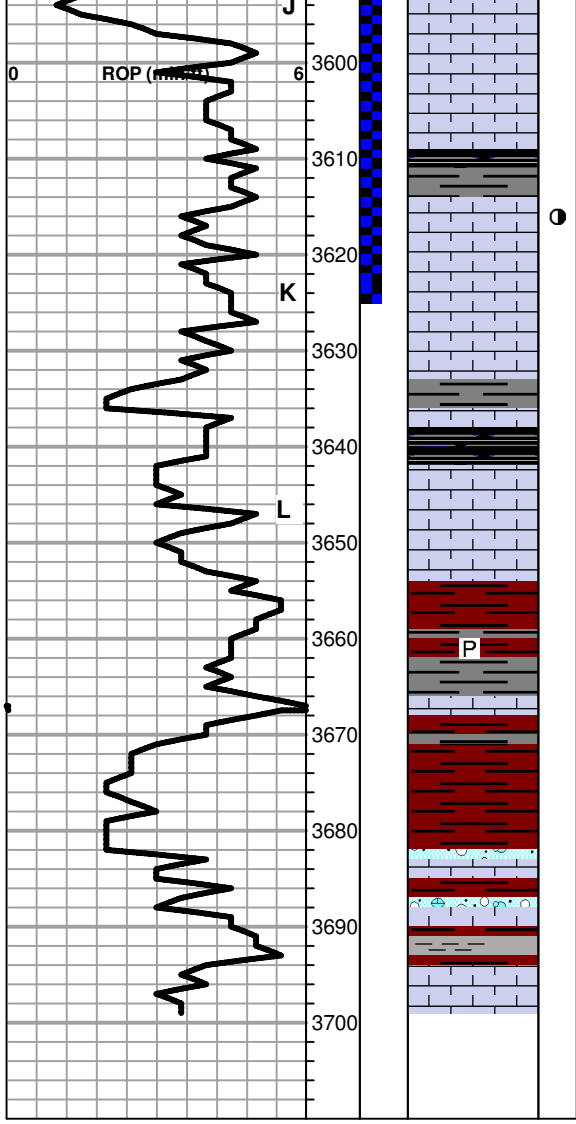
Lime, crm-lt brn, fn-vfxln

Shale, reddish brn-med gray, firm blocky

Lime, white-crm, fn-micro xln

Lime, crm, oolitic/oomoldic to slightly vuggy, lt odor, SFO floating in tray

DST # 1 3530' TO 3625' SEE HEADER FOR TEST SUMMARY



Lime, crm, fn-vfxln, bedded chalk

Shale, gray-black carbonaceous, firm blocky

Lime, white-crm, fnxln, bed of fossil fragments and casts with dark oil stain, lt odor

SURVEY 3/4 DEGREE @3625'

Lime, crm-lt brn, fn-vfxln

Shale, gray-black carbonaceous, blocky

Lime, crm-lt brn, fn-vfxln

BKC SPL TOP 3654-1529

Shale, lt red wash, soft to firm blocky

Shale, red-gray, soft sticky clumps

1st plug @1478' w/50 sxs
2nd plug @750' w/100 sxs
3rd plug @270' w/50 sxs
4th plug @40' w/10 sxs
Rathole w/30 sxs

Ordered 240 sxs 60/40pos 4% gel, 1/4 # flocele per sx
Plugging completed 1:30PM 7/10/2016

Shale, red-med brn, soft mud to firm blocky

Lime, cmr-lt brn, fnxln with slight bedded chalky with increasing chalk and white wash with depth

Shale, red to dove gray, soft sticky clumping

Lime, crm, fnxln, chalky

ARBUCKLE NOT REACHED

RTD 3699-1574

2633

GLOBAL CEMENTING, L.L.C.

REMIT TO 18048 170RD
RUSSELL, KS 67665

SERVICE POINT: Russell, KS

DATE 7-5-16	SEC.	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START	JOB FINISH 2:00pm
LEASE GJ	WELL # 1		LOCATION			COUNTY Ellis	STATE KS
OLD OR NEW (CIRCLE ONE)							

CONTRACTOR Southwind #3
TYPE OF JOB Surface
HOLE SIZE 12¼ T.D.
CASING SIZE 8⅝ DEPTH
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX 300psi MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG. 20ft
PERFS
DISPLACEMENT 13.66 bbl

EQUIPMENT

PUMP TRUCK # P#2 CEMENTER Heath
HELPER Heath
BULK TRUCK # B#4 DRIVER Shane
BULK TRUCK # DRIVER

OWNER

CEMENT
AMOUNT ORDERED 150 70/30 3%CC 2%gel

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

REMARKS:

Ran 5 Jts of 8⅝ casing & landed

Est Circulation

Mix 150 sks 70/30 3%CC 2%gel and disp 13.66 bbl H20 - shut in @ 300psi. Cement Did Circulate!!

SERVICE

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

TOTAL

CHARGE TO: TOC
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

@
@
@
@
@

TOTAL

Global Cementing, L.L.C.,
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 Krier
SIGNATURE Jay Krier

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

GLOBAL CEMENTING, L.L.C.

2664

REMIT TO 1958 E. Highway 40
Russell, KS 67665

SERVICE POINT: Russell

DATE	SEC.	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
7-10-16	12	12S	19W			NOON	1:30 PM

LEASE	WELL #	LOCATION	COUNTY	STATE
GJ	#1	Hays 7N. 3W 1½N	Ellis	Kansas

OLD OR (NEW) (CIRCLE ONE)

CONTRACTOR SOUTHWIND DRLG. Rig #3 "J"
TYPE OF JOB Rotary Plug
HOLE SIZE 7 7/8 T.D. 3699'
CASING SIZE 8 5/8 DEPTH 220'
TUBING SIZE DEPTH
DRILL PIPE 4½ X H DEPTH 1478
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG.
PERFS
DISPLACEMENT

EQUIPMENT

PUMP TRUCK # P-2 CEMENTER Glenn G.
HELPER Cody H.
BULK TRUCK # B-3 DRIVER Jason M.
BULK TRUCK # DRIVER

OWNER

CEMENT
AMOUNT ORDERED 240 SX 60/40 4% Gel ¼# Flo-Seal Per SX

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

REMARKS:

50 SX @ 1478
100 SX @ 750
50 SX @ 270
10 SX @ 40 + Wiper Plug
30 SX @ Rat Hole

THANKS

SERVICE

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

CHARGE TO: TDI, Inc.
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

1 - 8 5/8 Wooden Plug		@	
		@	
		@	
		@	
		@	
		TOTAL	

Global Cementing, L.L.C.,
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 Krier
SIGNATURE Jay Krier

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

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **TDI, Inc**

1310 Bison Rd.
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

GJ #1

12-12s-19w Ellis,KS

Start Date: 2016.07.09 @ 16:20:45

End Date: 2016.07.09 @ 22:43:39

Job Ticket #: 65473 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.07.11 @ 09:38:35

DRILL STEM TEST REPORT

TDI, Inc

1310 Bison Rd.
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

12-12s-19w Ellis,KS

GJ #1

Job Ticket: 65473 **DST#: 1**

Test Start: 2016.07.09 @ 16:20:45

GENERAL INFORMATION:

Formation: **LKC H-K**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:11:55
Time Test Ended: 22:43:39

Test Type: Conventional Bottom Hole (Initial)
Tester: Ray Schw ager
Unit No: 77

Interval: 3530.00 ft (KB) To 3625.00 ft (KB) (TVD)
Total Depth: 3625.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

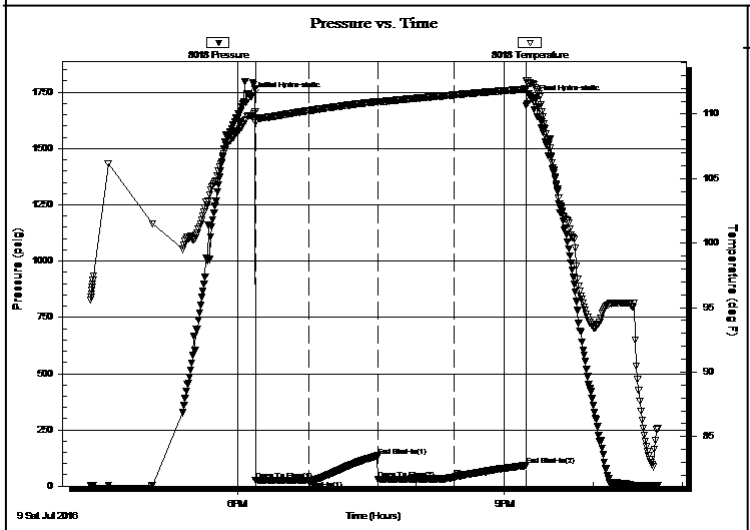
Reference Elevations: 2125.00 ft (KB)
2117.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 40.22 psig @ 3536.00 ft (KB)
Start Date: 2016.07.09 End Date: 2016.07.09
Start Time: 16:20:45 End Time: 22:43:39

Capacity: 8000.00 psig
Last Calib.: 2016.07.09
Time On Btm: 2016.07.09 @ 18:09:25
Time Off Btm: 2016.07.09 @ 21:18:09

TEST COMMENT: 45-IFP-w k bl thru-out 1/2" to 1" bl
45-ISIP-no bl
45-FFP-no bl
45-FSIP-no bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1729.83	109.85	Initial Hydro-static
3	25.60	109.35	Open To Flow (1)
39	26.13	110.26	Shut-In(1)
85	134.31	110.96	End Shut-In(1)
86	30.25	110.94	Open To Flow (2)
137	40.22	111.49	Shut-In(2)
185	91.75	111.93	End Shut-In(2)
189	1719.24	112.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	CO	0.07
20.00	OCM 15%O85%M	0.28

Gas Rates

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

DRILL STEM TEST REPORT

TDI, Inc

1310 Bison Rd.
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

12-12s-19w Ellis,KS

GJ #1

Job Ticket: 65473 **DST#: 1**

Test Start: 2016.07.09 @ 16:20:45

GENERAL INFORMATION:

Formation: **LKC H-K**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:11:55
Time Test Ended: 22:43:39

Test Type: Conventional Bottom Hole (Initial)
Tester: Ray Schw ager
Unit No: 77

Interval: 3530.00 ft (KB) To 3625.00 ft (KB) (TVD)
Total Depth: 3625.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

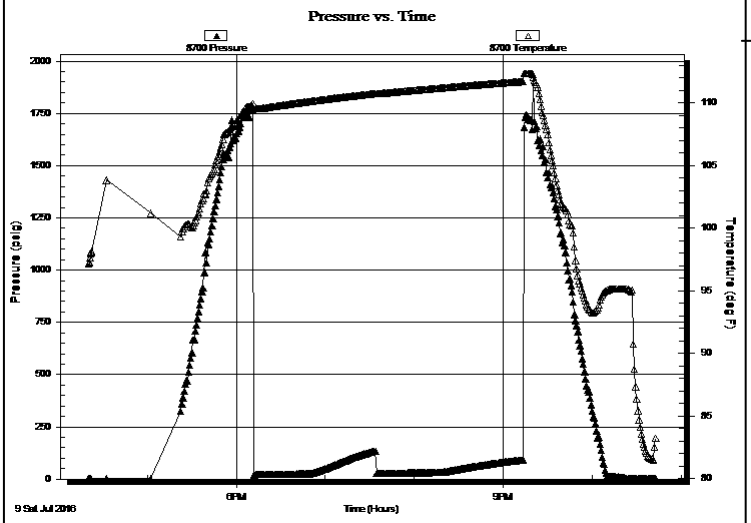
Reference Elevations: 2125.00 ft (KB)
2117.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8700 **Outside**

Press@RunDepth: psig @ 3536.00 ft (KB)
Start Date: 2016.07.09 End Date: 2016.07.09
Start Time: 16:20:24 End Time: 22:43:18

Capacity: 8000.00 psig
Last Calib.: 2016.07.09
Time On Btm:
Time Off Btm:

TEST COMMENT: 45-IFP-w k bl thru-out 1/2" to 1" bl
45-ISIP-no bl
45-FFP-no bl
45-FSIP-no bl



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	CO	0.07
20.00	OCM 15%O85%M	0.28

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI, Inc

1310 Bison Rd.
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

12-12s-19w Ellis,KS

GJ #1

Job Ticket: 65473 **DST#: 1**

Test Start: 2016.07.09 @ 16:20:45

Tool Information

Drill Pipe:	Length:	3516.00 ft	Diameter:	3.80 inches	Volume:	49.32 bbl	Tool Weight:		2200.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 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:		45000.00 lb
					Total Volume:	49.32 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		7.00 ft					String Weight:	Initial	38000.00 lb
Depth to Top Packer:		3530.00 ft						Final	38000.00 lb
Depth to Bottom Packer:		ft							
Interval betw een Packers:		95.00 ft							
Tool Length:		116.00 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			3510.00		
Shut In Tool	5.00			3515.00		
Hydraulic tool	5.00			3520.00		
Packer	5.00			3525.00	21.00	Bottom Of Top Packer
Packer	5.00			3530.00		
Stubb	1.00			3531.00		
Perforations	5.00			3536.00		
Recorder	0.00	8018	Inside	3536.00		
Recorder	0.00	8700	Outside	3536.00		
Blank Spacing	65.00			3601.00		
Perforations	21.00			3622.00		
Bullnose	3.00			3625.00	95.00	Bottom Packers & Anchor
Total Tool Length:	**116.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI, Inc

1310 Bison Rd.
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

12-12s-19w Ellis,KS

GJ #1

Job Ticket: 65473 **DST#: 1**

Test Start: 2016.07.09 @ 16:20:45

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	17 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	53.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2800.00 ppm				
Filter Cake:	1.00 inches				

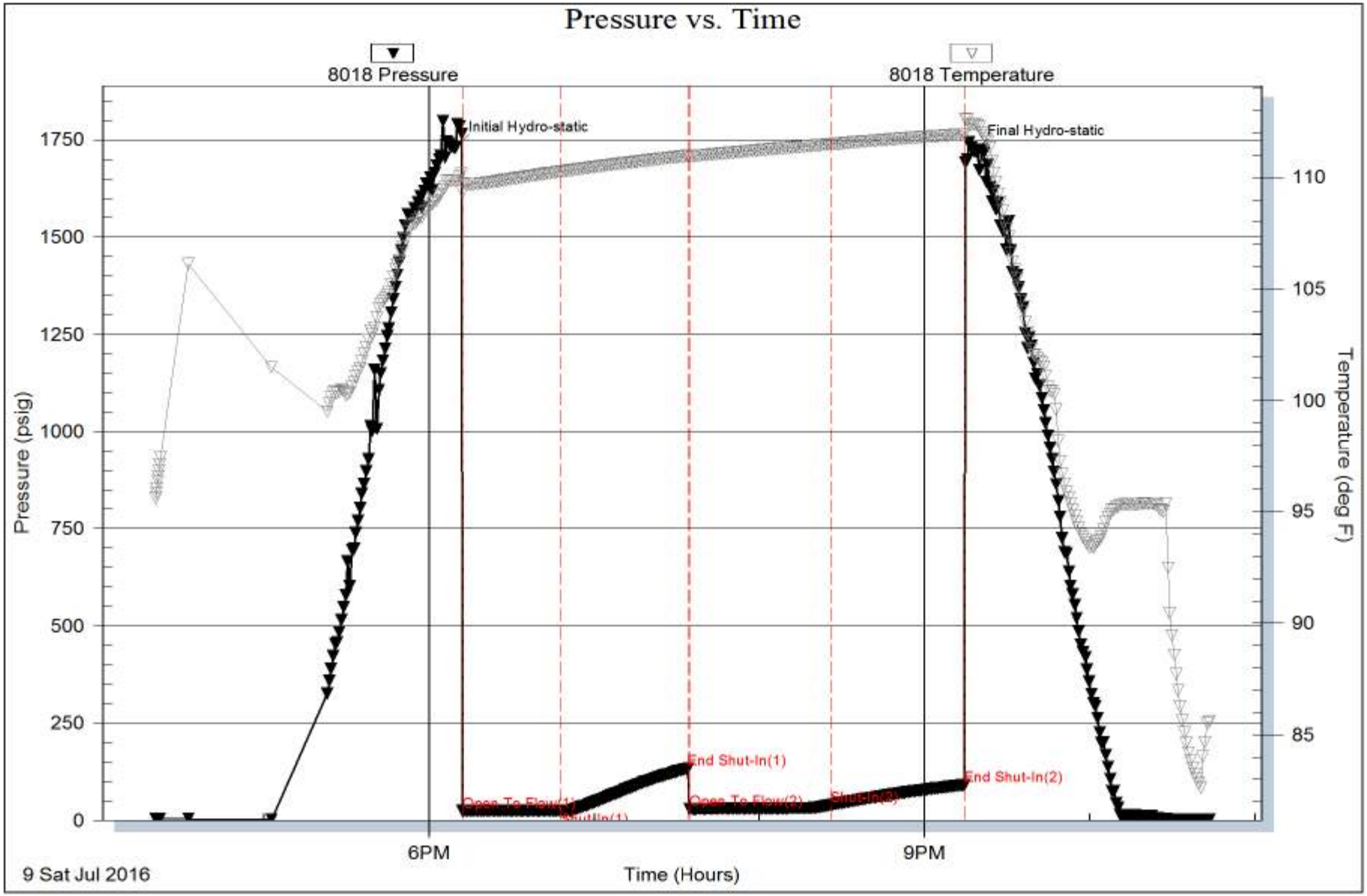
Recovery Information

Recovery Table

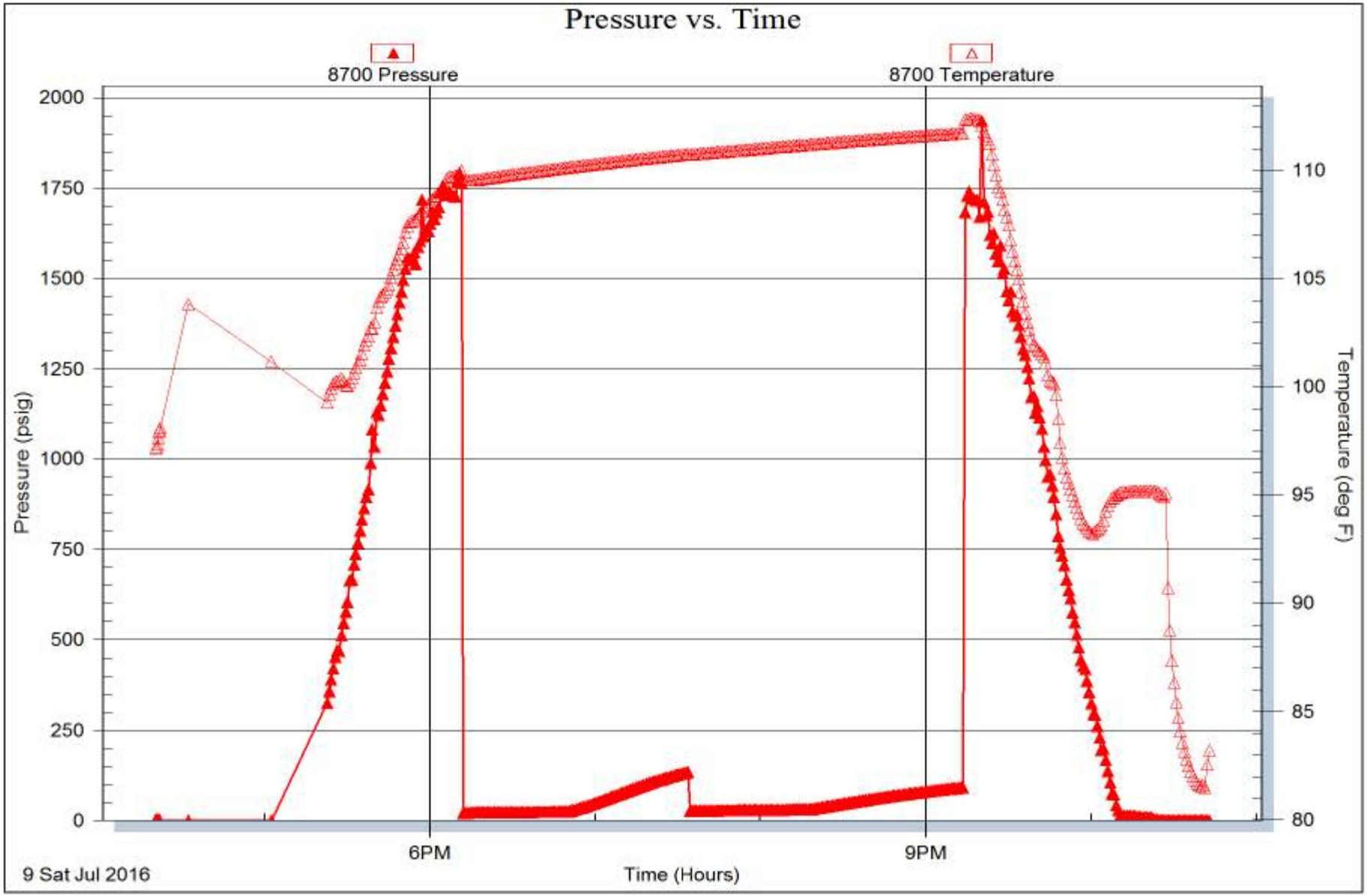
Length ft	Description	Volume bbl
5.00	CO	0.070
20.00	OCM 15%O85%M	0.281

Total Length: 25.00 ft Total Volume: 0.351 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:


Pressure vs. Time
8018 Pressure
8018 Temperature
Initial Hydro-static
Final Hydro-static
End Shut-In(1)
End Shut-In(2)
Pressure (psig)
Temperature (deg F)
1750
1500
1250
1000
750
500
250
0
110
105
100
95
90
85
6PM
9PM
9 Sat Jul 2016
Time (Hours)

Serial #: 8700 **Outside** TDI, Inc GJ #1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 65473 Printed: 2016.07.11 @ 09:38:43

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 65473

Well Name & No. GJ #1 Test No. 1 Date 7-9-16

Company TDI Inc Elevation 2125 KB 2117 GL

Address 1310 Bison Rd. Hays, Ks 67601-9696

Co. Rep / Geo. Herb Deines Rig Southwind rig 3

Location: Sec. 12 Twp. 12 Rge. 19W Co. Ell State Ks

Interval Tested 3530-3625 Zone Tested LKC H-K

Anchor Length 95 Drill Pipe Run 3516 Mud Wt. 9.2

Top Packer Depth 3525 Drill Collars Run - Vis 53

Bottom Packer Depth 3530 Wt. Pipe Run - WL 7.6

Total Depth 3625 Chlorides 2800 ppm System LCM 2#

Blow Description IFP - Weak Blow thru-out ½" TO 1" Blow

ISIP - NO Blow

FFP - NO Blow

FBIP NO Blow

Rec 5	Feet of CO	%gas	%oil	%water	%mud
Rec 20	Feet of OCM	%gas 15	%oil	%water 85	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 25 BHT 112 Gravity 17 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1729	☑ Test 1050	T-On Location 1445	
(B) First Initial Flow 25	☐ Jars	T-Started 1620	
(C) First Final Flow 26	☐ Safety Joint	T-Open 1815	
(D) Initial Shut-In 134	☐ Circ Sub	T-Pulled 2115	
(E) Second Initial Flow 30	☐ Hourly Standby	T-Out 2	
(F) Second Final Flow 40	☑ Mileage 31 RT 46.50	Comments	
(G) Final Shut-In 91	☐ Sampler	Loaded 7/10 7:00	
(H) Final Hydrostatic 1719	☐ Straddle	☐ Ruined Shale Packer	
	☐ Shale Packer	☐ Ruined Packer	
Initial Open 45	☐ Extra Packer	☐ Extra Copies	
Initial Shut-In 45	☐ Extra Recorder	Sub Total 0	
Final Flow 45	☐ Day Standby	Total 1096.50	
Final Shut-In 45	☐ Accessibility	MP/DST Disc't	
	Sub Total 1096.50		

Approved By Our Representative Ray Schwagy Thank You