

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:	
----------------	-------	---------	------------	--

Form	ACO1 - Well Completion
Operator	Hupfer Operating, Inc.
Well Name	KNOP 'A' A-3
Doc ID	1427484

All Electric Logs Run

Cement Bond
Dual Induction
Micro Resistivity
Compensated Density Neutron

Form	ACO1 - Well Completion
Operator	Hupfer Operating, Inc.
Well Name	KNOP 'A' A-3
Doc ID	1427484

Tops

Name	Top	Datum
Topeka	2660	-874
Heebner	2923	-1137
Toronto	2941	-1155
Douglas	2952	-1166
Brown Lime	3044	-1258
Lansing	3063	-1277
Arbuckle	3324	-1538
LTD	3342	-1556



Discovery Drilling

P.O. Box 763 • Hays, KS 67601 • OFFICE (785) 623-2920 • CELLULAR (785) 635-1511

DRILLER'S LOG

Operator: Hupfer Operating, Inc. Lic# 30380 Contractor: Discovery Drilling Co., Inc. LIC#31548
P.O. Box 3912 PO Box 763
Shawnee, KS 66203 + 0912 Hays, KS 67601

Lease: Knop "A" # A-3 Location: 675 FSL - 350 FEL
SW?NE/SE/SE
Section 32/ 19S/ 11W
Bartob County, KS

Loggers Total Depth: 3342' API#15- 009-26,222-00-00
Rotary Total Depth: 3339' Elevation: 1776 GL - 1784 KB
Commenced: 8/21/2018 Completed: 8/27/2018
Casing: 8 5/8" @ 257'W/270sks Status: Oil Well
5 1/2" @ 3330'W?145sks

DEPTHS & FORMATIONS (All from KB)

Surface, Sand & Shale	<u>0'</u>	Shale	<u>551'</u>
Dakota Sand	<u>154'</u>	Shale & Lime	<u>975'</u>
Shale	<u>207'</u>	Shale	<u>1382'</u>
Cedar Hill Sand	<u>226'</u>	Shale & Lime	<u>2360'</u>
Red Bed Shale	<u>372'</u>	Lime & Shale	<u>3042'</u>
Anhydrite	<u>538'</u>	RTD	<u>3339'</u>
Base Anhydrite	<u>551'</u>		

STATE OF KANSAS))
) ss
COUNTY OF ELLIS))

Thomas H. Alm of Discovery Drilling states that to the best of his knowledge the above and foregoing is a true and correct log of the above captioned well.

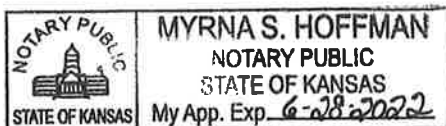
Thomas H. Alm

Subscribed and sworn to before me on 8-30-2018

My Commission expires: 6-28-2022

(Place stamp or seal below)

Notary Public



QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

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

No. 227

Date	8-21-18	Sec.	32	Twp.	19	Range	11	County	Barton	State	Ks	On Location		Finish	7:30pm
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Location Ellinwood - IE, N + W to Rig

Lease	Knop		Well No.	A-3	Owner	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	Discovery #2				Charge To	Hwyfer operating
Type Job	Surface				Street	
Hole Size	12 1/4"	T.D.	262'		City	State
Csg.	8 5/8"	Depth	262'		The above was done to satisfaction and supervision of owner agent or contractor.	
Tbg. Size		Depth			Cement Amount Ordered	285 80% 30% CC 20% Gel
Tool		Depth			1/2 flo	
Cement Left in Csg.	15'	Shoe Joint	15'			
Meas Line		Displace	15 3/4 BLS			

EQUIPMENT

Pumptrk	16	No.	Cementer	David	Common	215
			Helper		Poz. Mix	55
Bulktrk	9	No.	Driver	James	Gel.	5
			Driver		Calcium	10
Bulktrk	p.u.	No.	Driver	Rick		

JOB SERVICES & REMARKS

Remarks:	Cement did Circulate	Hulls	
Rat Hole		Salt	
Mouse Hole		Flowseal	150#
Centralizers		Kol-Seal	
Baskets		Mud CLR 48	
D/V or Port Collar	Mixed 200 SX	CFL-117 or CD110 CAF 38	
		Sand	
		Handling	285
		Mileage	

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	
	150# plug
Pumptrk Charge	Surface
Mileage	15

[Handwritten Signature]

X Signature

Tax	
Discount	
Total Charge	

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

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

No. 935

Cell 785-324-1041

Date	8-27-18	Sec.	32	Twp.	19	Range	11	County	Barton	State	Ks	On Location	Finish	7:45 PM
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Location Ellinwood - 1E, N + W to well

Lease Knop Well No. A #3 Owner

Contractor Discovery #2 To Quality Oilwell Cementing, Inc.

Type Job Longstring You are hereby requested to rent cementing equipment and furnish

Hole Size 5 7/8" T.D. 3339' Charge To Hupfer Operating

Csg. 5 1/2" New 17# Depth 3330.28' Street

Tbg. Size Depth City State

Tool Depth The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. 23.35' Shoe Joint 23.35' Cement Amount Ordered 190 @ Pro-C 10% Salt 5% Gilsomite

Meas Line Displace 76 3/4 BLS 700 gal mud Clear 48

EQUIPMENT

Pumptrk 16 No. Cementer David Common 190 @ pro-c

Bulktrk 15 No. Helper James Poz. Mix

Bulktrk p.u. No. Driver Rick Gel.

JOB SERVICES & REMARKS

Remarks: Salt 15

Rat Hole Flowseal

Mouse Hole Kol-Seal 750 #

Centralizers 2, 4, 6, 10, 12, 14, 16, 18 Mud CLR 48 700 gal

Baskets 8 CFL-117 or CD110 CAF 38

D/V or Port Collar pipe on bottom break Sand

Circulation Pump 700 gal mud Clear Handling 212

48, plug Rathole w/ 30sx, plug mousehole Mileage

w/ 15sx, Hook to 5 1/2" Casing + 0 mix

FLOAT EQUIPMENT

145 sx Cement Shut down, wash pump Guide Shoe packer shoe

+ lines Displaced plug w/ 76 3/4 BLS H2O. Centralizer 7

Released + Held Baskets 1

AFU Inserts

Lift pressure 600 # Float Shoe 1

Land plug to 1500 # Latch Down

Thanks

Pumptrk Charge Pro & String

Mileage 15

X Signature [Signature] Tax

Discount

Total Charge



Musgrove

Petroleum Geology
212 Main Street, Claflin KS

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY Hupfer Operating, Inc.
 LEASE Knop 'A' #3
 FIELD Chase-Silica
 LOCATION SW-NE-SE-SE (675' FSL & 350' FEL)
 SEC 32 TWSP 19S RGE 11W
 COUNTY Barton STATE Kansas

ELEVATIONS

KB 1786'
 DF _____
 GL 1778'
 Measurements Are All
 From KB

CONTRACTOR Discovery Drilling, Co. (Rig # 2)
 SPUD 8/21/2018 COMP 08/27/2018
 RTD 3339' LTD 3342'
 MUD UP 2500' TYPE MUD Chemical

CASING

SURFACE 8 5/8" @ 257'
 PRODUCTION 5 1/2" @ 3330'

ELECTRICAL SURVEYS

Gemini Wireline,
 DIL,CDL/CNL, Micro

SAMPLES SAVED FROM _____ 2600' TO _____ RTD
 DRILLING TIME KEPT FROM _____ 2600' TO _____ RTD
 SAMPLES EXAMINED FROM _____ 2600' TO _____ RTD
 GEOLOGICAL SUPERVISION FROM _____ 2700' TO _____ RTD
 GEOLOGIST ON WELL Jim Musgrove

FORMATION TOPS

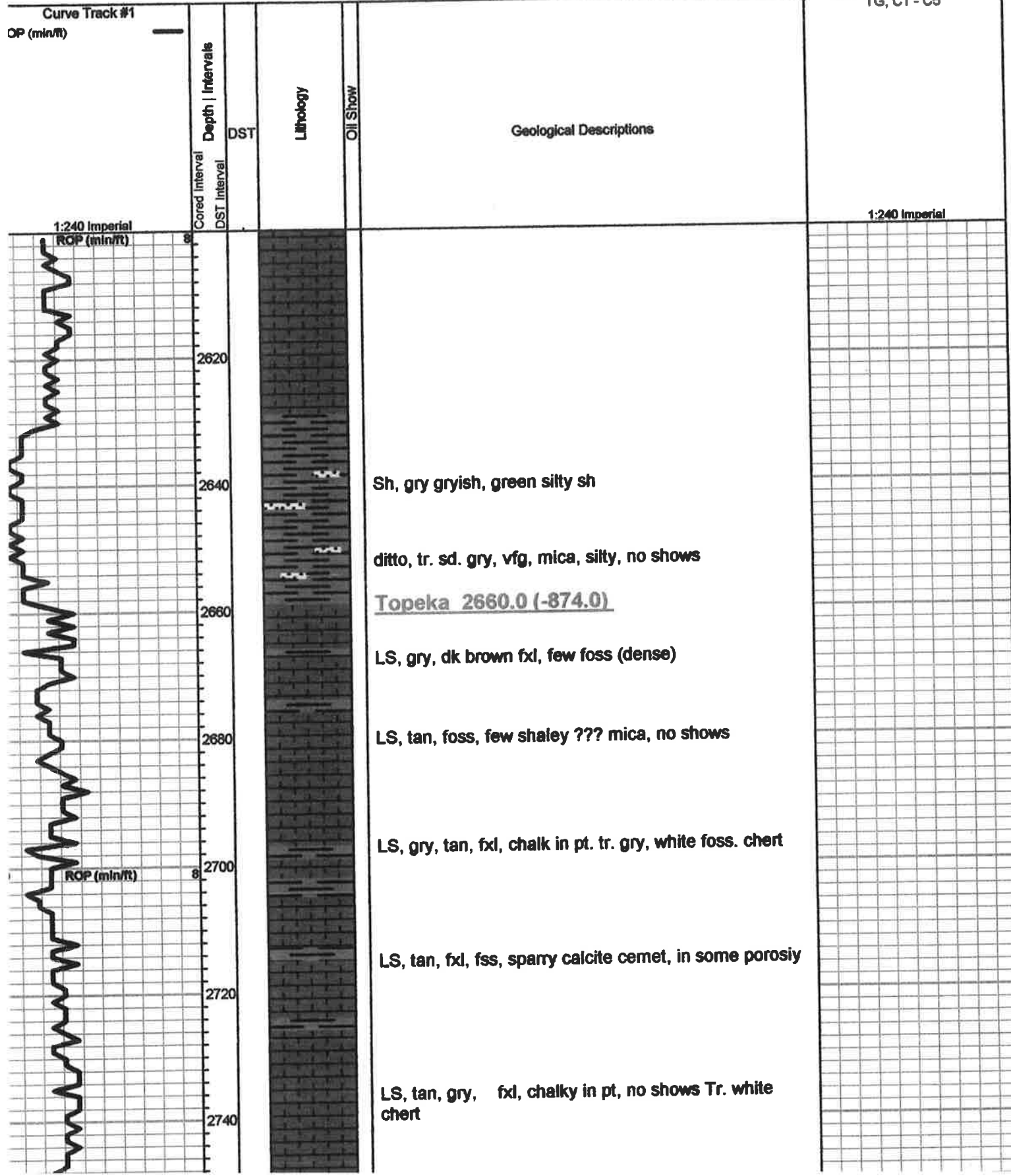
LOG

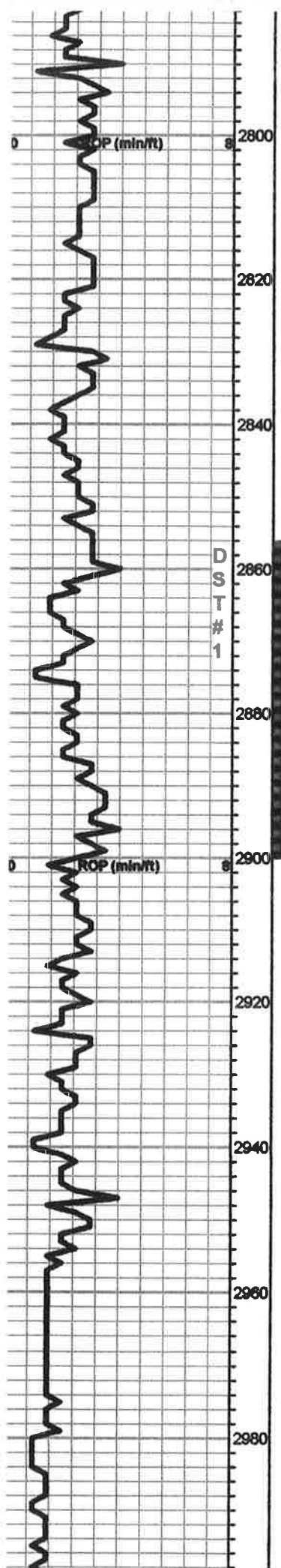
SAMPLES

Anhydrite	517	+1269	RTD	3392	(-1553)
B. Anhydrite	541	+1245	LTD	3342	(-1556)
Topeka	2660	(-874)			
Heebner	2923	(-1137)			
Toronto	2941	(-1155)			

II Show
 Good Show
 Fair Show
 Poor Show
 Spotted or Trace
 Questionable Stn
 Dead Oil Stn
 Fluorescence
 Gas

DST
 ■ DST Int
 ■ DST alt
 ■ Core
 || tail pipe





LS, white, gry, fxl, foss, "crumbly" chalky, poor vis. porosity

LS, white, fxl, chalky, scattered p.p. porosity, no shows

LS, a/a, pyrite inclusions + white/ gry, foss, boney chert

Sh, black carb

LS, tan, fxl, ool/ foss, calky, scattered porosity, no shows

Tr. coal black chert

LS, gry, cream, foss, oom, fair porosity, bm/ blk / dk bm stain/sat./ sfo, no odor

a/a, ??? odor

LS, gry, tan, fxl, few foss, chalky, no shows

LS, gry, tan, fxl, few sl. chety, + tr. gry chert

Heebner 2920.0 (-1134.0)

Sh, black carb

Toronto 2940.0 (-1154.0)

LS, white/ cream, fxl, scattered vuggy type porosity, brown / gry/ blk sfo, faint odor

Douglas 2953.0 (-1167.0)

Sh, gry/ gryish, green rustsy brown

Douglas Sd 2979.0 (-1193.0)

Sd. tan, gry, vfg. sub rounded, friable, fair inner gran porosity, good dk bm sfo, ft. odor

DST#1 2856-2900
30-30-45-60

1st Open:
Strong blow

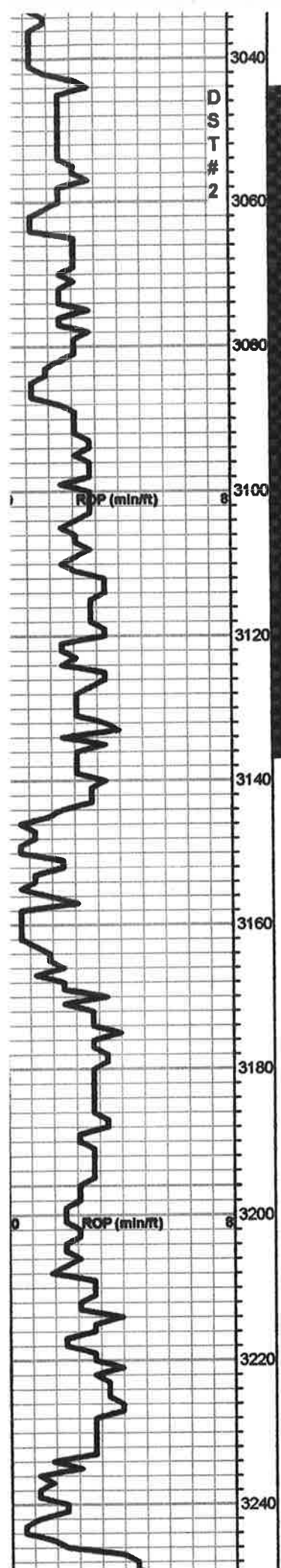
GTS 3 mins.
[gauged as followed]
10 mins 335,830
cfgpd
20" 274,910 "
30" 273,960 "

Final Flow
10 mins. 162,910
cfgpd
20" 126,140 "
40" 115,690 "

Rec.
300' Clean Oil

120' OCMW
(40%O, 60%W)

Pressures:
ISIP 980 psi
FSIP 977 psi
IFP 198-304 psi
FFP 296-537 psi
HSH 1417-1408 psi



Brown Lime 3042.0 (-1256.0)

LS, tan, bm fxl, dense few cherty, no shows

Lansing 3060.0 (-1274.0)

● LS, white, fxl, in pt, chalky in pt. fair p.p. porosity, golden brown str/sat., sfo, ft. odor

● LS, white, gry, oom, ool, fair / good oom porosity, brown-blk str/sat, sfo, ft. odor

○ LS, gry, ool, poor vis. porosity, tr. brown stain, nsfo, no odor

LS, gry, tan, foss/ ool, poor vis. porosity

○ LS, white/gry, foss, sub oom, fair porosity, good stain, sfo, ft. odor

○ LS, white, gry, oom, slightly ool, light bm/ golden brownstain, sfo, ft. odor

a/a

LS, brown, tan, fxl, slightly cherty, + tr. gry, boney chert

Sh, black carb

○ LS, white/ gry, sub oom, chalky, tr. blk stain, nsfo, no odor

○ LS, gry, white, cream, ool, chalky, poor vis. porosity, tr. blk brown sfo,

LS, gry, white, oom, chalky

DST#2 3405-3135

30-30-45-60

1st Open:
Strong Surging blow

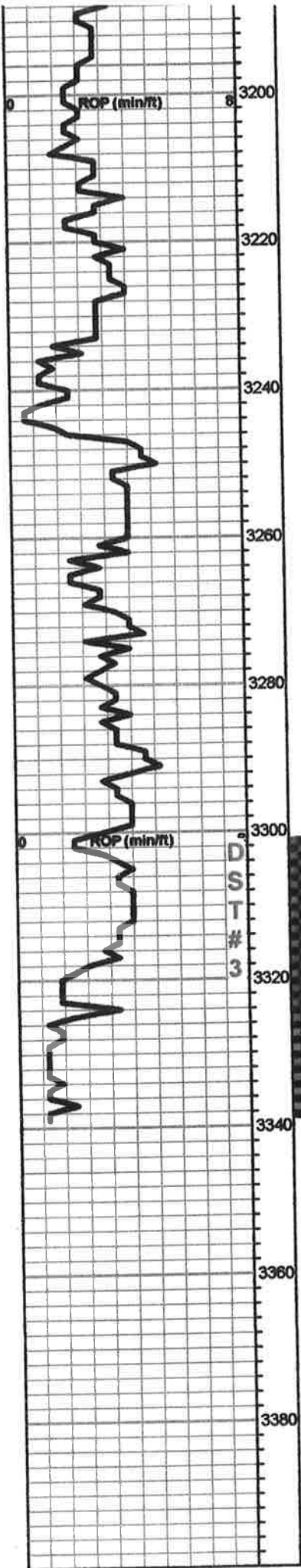
2nd Open:
no blow; flushed tool Strong (BOB 1 min)

Recovery:
70' Mud

120' Oil Cut Mud (10%O, 90%M)

Pressures:
Invalid ; Plugged tool

MISRUN



Sh, black carb

LS, white/ gry, sub oom, chalky, tr. blk stain, nsfo , no odor

LS, gry, white, cream, ool, chalky, poor vis. porosity, tr. blk brown sfo,

LS, gry, white, oom, chalky

LS, gry, tan, fxl, slightly cherty, no shows

Sh, black carb

LS, gry, cream, white, sub oom, chalky, no shows, tr. LS, tan, ool, dense (odor in samples)

LS, white, ool, slightly chalky, scattered porosity, brown stain, tr. fo, ft. odor

LS, white, tan, foss/ ool brown/ dk brown stain, tr. fo

BKC 3312.0 (-1526.0)

tr. gry/ white chert

Arbuckle 3324.0 (-1538.0)

Dol. tan, suc. scattered p.p. porosity, golden brown stn, sat, sfo, odor

Dol. a/a, inc. p.p. type porosity, golden brown/ brown stain/ sat. sfo, odor

Dol, a/a few white/ tan, fxl, scattered p.p. porosity, sfo, odor

*RTD 3339.0 (-1553.0)

LTD 3342.0 (-1556.0)

DST#3 3307-

3339

30-30-30-30

1st Open:
Blow weak (2")

2nd Open:
Weak (1/2")

Recovery
40' Clean Oil

40' HOCM
(10%G, 40%O,
45%M) 5%W)

Pressures:
ISIP 843 psi
FSIP 719 psi
IFP 45-65 psi
FFP 70-83 psi
HSH 1660-1609
psi



DRILL STEM TEST REPORT

Prepared For: **Hupfer Operating Inc.**

P.O. Box
Lawrence, Kansas 66203-0912

ATTN: Jim Musgrove

Knop A # a3

32-19s-11w Barton

Start Date: 2018.08.25 @ 21:29:00

End Date: 2018.08.25 @ 03:02:00

Job Ticket #: 01004 DST #: 2

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2018.08.26 @ 03:28:31

Hupfer Operating Inc.
32-19s-11w Barton
Knop A # a3
DST # 2
Kansas City "A-H"
2018.08.25



DRILL STEM TEST REPORT

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

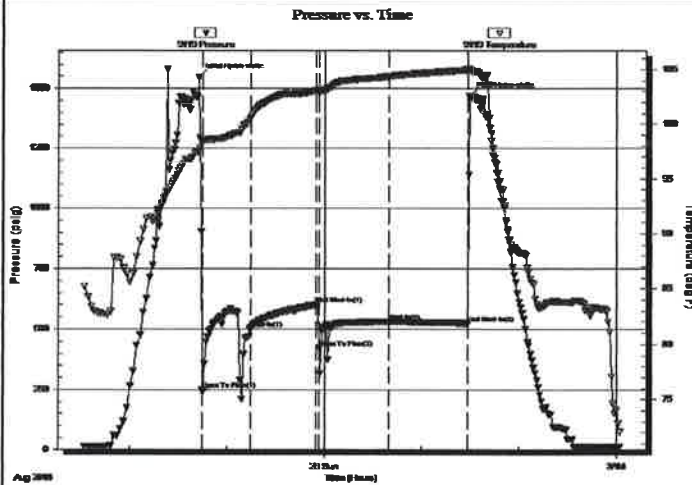
32-19s-11w Barton
Knop A # a3
 Job Ticket: 01004 **DST#: 2**
 Test Start: 2018.08.25 @ 21:29:00

GENERAL INFORMATION:

Formation: **Kansas City "A-H"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 22:44:00
 Time Test Ended: 03:02:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Gene Budig
 Unit No: 1
 Interval: **3035.00 ft (KB) To 3135.00 ft (KB) (TVD)**
 Total Depth: 3035.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 1788.00 ft (KB)
 1780.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 9119 Inside
 Press@RunDepth: 524.53 psig @ 3130.06 ft (KB) Capacity: psig
 Start Date: 2018.08.25 End Date: 2018.08.26 Last Calib.: 2018.08.26
 Start Time: 21:29:09 End Time: 03:02:09 Time On Btm: 2018.08.25 @ 22:42:39
 Time Off Btm: 2018.08.26 @ 01:29:39

TEST COMMENT: 1st Opening 30 Minutes blow built to 10 inches decreased to 6 built to bottom in 29 minutes
 1st Shut-In 30 Minutes
 2nd Opening 45 Minutes no blow flushed tool bottom of the bucket in 1 minute decreasing
 2nd opening 60 Minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1545.88	97.52	Initial Hydro-static
2	248.40	98.36	Open To Flow (1)
32	498.86	100.63	Shut-In(1)
73	601.10	103.08	End Shut-In(1)
74	421.29	102.97	Open To Flow (2)
117	530.32	104.38	Shut-In(2)
166	524.53	104.96	End Shut-In(2)
167	1468.05	105.02	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	drilling mud	0.56
120.00	oil cut mud 10% Oil 90% Mud	1.01

Gas Rates

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



DRILL STEM TEST REPORT

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

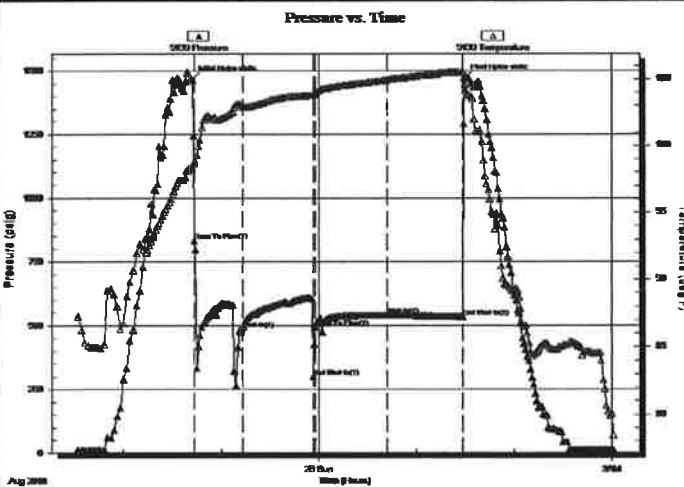
32-19S-11w Barton
Knop A # a3
 Job Ticket: 01004 **DST#: 2**
 Test Start: 2018.08.25 @ 21:29:00

GENERAL INFORMATION:

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 Deviated: No Whipstock: ft (KB)
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 Test Type: Conventional Bottom Hole (Initial)
 Tester: Gene Budig
 Unit No: 1
 Interval: **3035.00 ft (KB) To 3135.00 ft (KB) (TVD)**
 Total Depth: 3035.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 1788.00 ft (KB)
 1780.00 ft (CF)
 KB to GRVCF: 8.00 ft

Serial #: 9139 Outside
 Press@RunDepth: 534.02 psig @ 3130.06 ft (KB) Capacity: 5000.00 psig
 Start Date: 2018.08.25 End Date: 2018.08.26 Last Calib.: 2018.08.26
 Start Time: 21:29:00 End Time: 03:01:30 Time On Btm: 2018.08.25 @ 22:42:00
 Time Off Btm: 2018.08.26 @ 01:29:30

TEST COMMENT: 1st Opening 30 Minutes blow built to 10 inches decreased to 6 built to bottom in 29 minutes
 1st Shut-In 30 Minutes
 2nd Opening 45 Minutes no blow flushed tool bottom of the bucket in 1 minute decreasing
 2nd opening 60 Minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1466.62	98.32	Initial Hydro-static
2	830.94	98.84	Open To Flow (1)
31	484.05	102.94	Shut-In(1)
75	297.98	103.86	End Shut-In(1)
76	491.31	103.89	Open To Flow (2)
120	539.72	104.96	Shut-In(2)
167	534.02	105.50	End Shut-In(2)
168	1472.83	104.56	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	drilling mud	0.56
120.00	oil cut mud 10% Oil 90% Mud	1.01

Gas Rates

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



DRILL STEM TEST REPORT

TOOL DIAGRAM

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

32-19-11w Barton
Knop A # a3
 Job Ticket: 01004 **DST#: 2**
 Test Start: 2018.08.25 @ 21:29:00

Tool Information

Drill Pipe:	Length: 2855.00 ft	Diameter: 3.80 inches	Volume: 40.05 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 180.00 ft	Diameter: 2.86 inches	Volume: 1.43 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 87000.00 lb
			<u>Total Volume: 41.48 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3045.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	90.06 ft			
Tool Length:	110.06 ft			
Number of Packers:	2	Diameter:	6.75 inches	
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3030.00	
Hydraulic tool	5.00			3035.00	
Packer	5.00			3040.00	20.00 Bottom Of Top Packer
Packer	5.00		Fluid	3045.00	
Anchor	5.00			3050.00	
Change Over Sub	0.75			3050.75	
Drill Pipe	62.56			3113.31	
Change Over Sub	0.75		Inside	3114.06	
Anchor	16.00			3130.06	
Recorder	0.00	9119	Inside	3130.06	
Recorder	0.00	9139	Outside	3130.06	
Bullnose	5.00			3135.06	90.06 Bottom Packers & Anchor

Total Tool Length: 110.06



DRILL STEM TEST REPORT

FLUID SUMMARY

Hupfer Operating Inc.
P.O. Box
Shaw nee, Kansas 66203-0912
ATTN: Jim Musgrove

32-19s-11w Barton
Knop A # a3
Job Ticket: 01004 **DST#: 2**
Test Start: 2018.08.25 @ 21:29:00

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: 51.00 sec/qt	Cushion Volume: bbl		
Water Loss: 9.20 in ⁹	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 8000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	drilling mud	0.556
120.00	oil cut mud 10% Oil 90% Mud	1.014

Total Length: 190.00 ft Total Volume: 1.570 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 9119

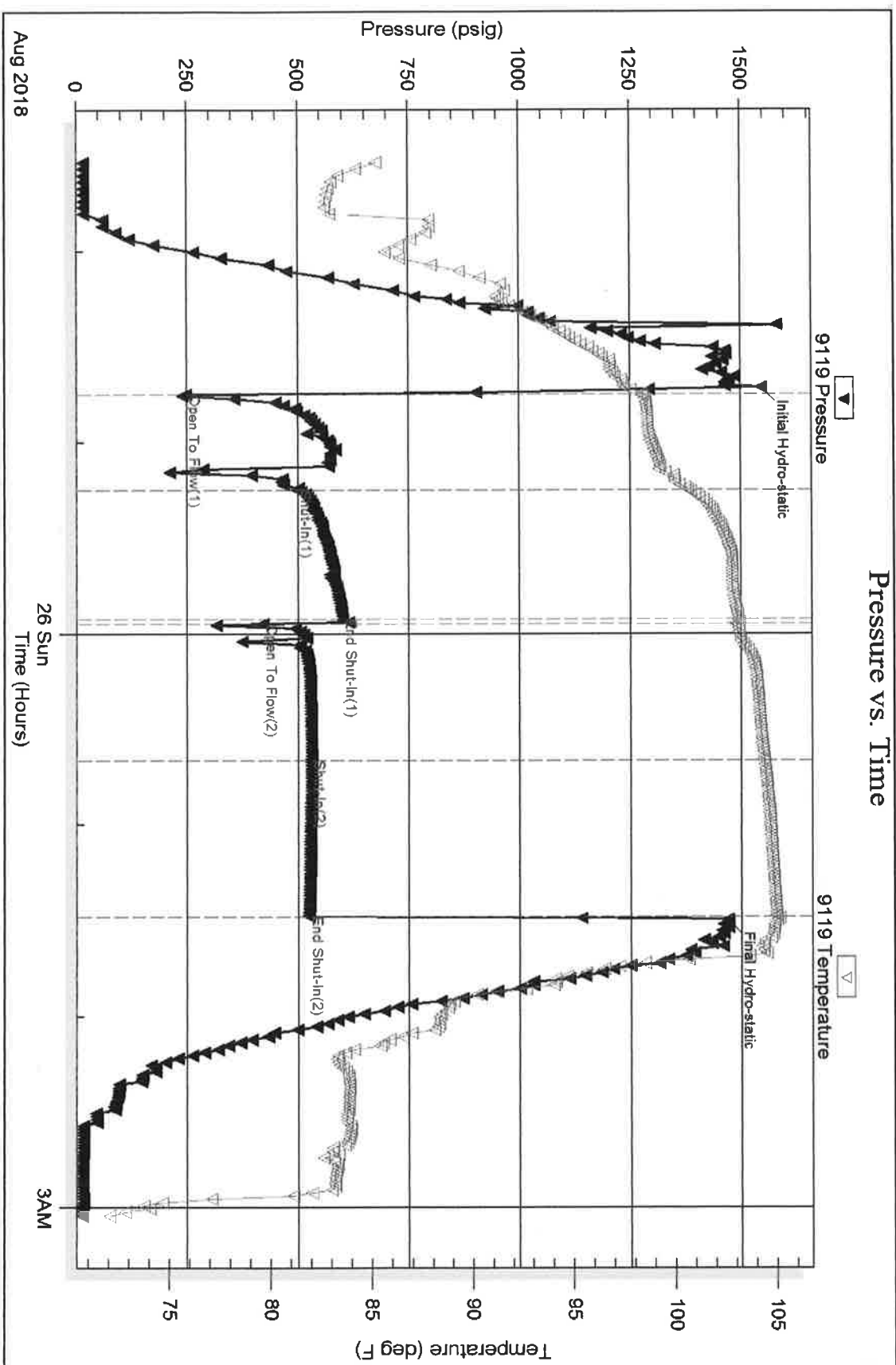
Inside

Huipfer Operating Inc.

Knop A # a3

DST Test Number: 2

Pressure vs. Time



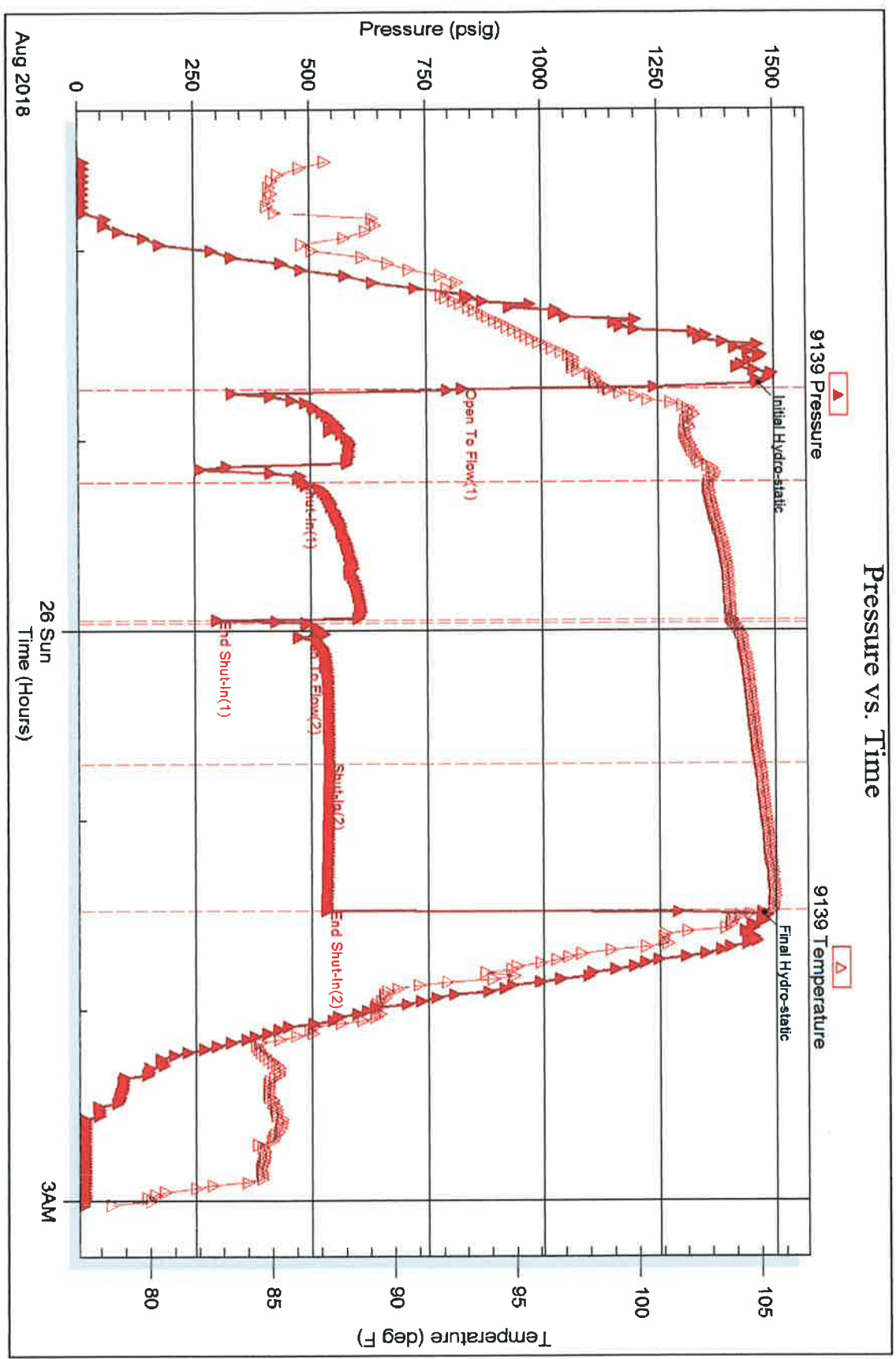
Serial #: 9139

Outside Hupfer Operating Inc.

Knop A # a3

DST Test Number: 2

Pressure vs. Time



Eagle Testers

Ref. No.: 01004

Printed: 2018.08.26 @ 03:28:33



DRILL STEM TEST REPORT

Prepared For: **Hupfer Operating Inc.**

P.O. Box
Shawnee, Kansas 66203-0912

ATTN: Jim Musgrove

Knop A # a3

32-19s-11w Barton

Start Date: 2018.08.26 @ 23:39:00

End Date: 2018.08.27 @ 04:25:00

Job Ticket #: 01005 DST #: 3

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2018.08.27 @ 05:00:48

Hupfer Operating Inc. 32-19s-11w Barton Knop A # a3 DST # 3 Arbuckle 2018.08.26



DRILL STEM TEST REPORT

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

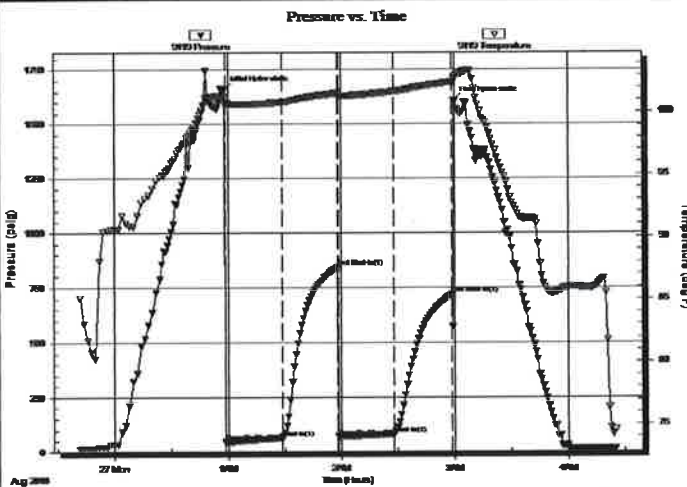
32-19a-11w Barton
Knop A # a3
 Job Ticket: `01005 **DST#:3**
 Test Start: 2018.08.26 @ 23:39:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 12:58:00
 Time Test Ended: 04:25:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Gene Budig
 Unit No: 1
 Interval: **3307.00 ft (KB) To 3339.00 ft (KB) (TVD)**
 Total Depth: 3339.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 1788.00 ft (KB)
 1780.00 ft (CF)
 KB to GRVCF: 8.00 ft

Serial #: 9119 Inside
 Press@RunDepth: 719.54 psig @ 3334.00 ft (KB) Capacity: 5000.00 psig
 Start Date: 2018.08.26 End Date: 2018.08.27 Last Calib.: 2018.08.27
 Start Time: 23:39:00 End Time: 04:25:00 Time On Btm: 2018.08.27 @ 00:58:00
 Time Off Btm: 2018.08.27 @ 02:59:30

TEST COMMENT: 1st Opening 30 Minutes weak blow built to 2 inches decreased to a weak surface blow
 1st Shut-In 30 Minutes
 2nd Opening 30 Minutes weak steady 1/2 inch blow throughout
 2nd Shut-In 30 Minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1660.68	101.25	Initial Hydro-static
1	45.88	100.54	Open To Flow (1)
31	65.82	100.82	Shut-In(1)
60	843.39	101.53	End Shut-In(1)
61	70.41	101.32	Open To Flow (2)
90	83.13	101.67	Shut-In(2)
121	719.54	102.42	End Shut-In(2)
122	1609.21	102.77	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	clean gassy oil 20% Gas 80%Oil	0.32
0.00	Gravity 43 corrected	0.00
40.00	oil cut mud	0.32
0.00	10%Gas 40%Oil 45%Mud 5% w ater	0.00

Gas Rates

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



DRILL STEM TEST REPORT

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

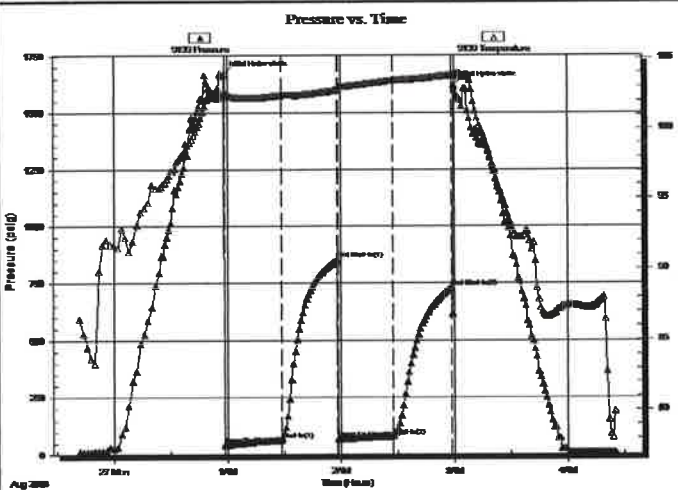
32-19-11w Barton
Knop A # a3
 Job Ticket: '01005 **DST#: 3**
 Test Start: 2018.08.26 @ 23:39:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 12:58:00
 Time Test Ended: 04:25:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Gene Budig
 Unit No: 1
 Interval: **3307.00 ft (KB) To 3339.00 ft (KB) (TVD)**
 Total Depth: 3339.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 1788.00 ft (KB)
 1780.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 9139 Outside
 Press@RunDepth: 729.87 psig @ 3334.00 ft (KB) Capacity: 5000.00 psig
 Start Date: 2018.08.26 End Date: 2018.08.27 Last Calib.: 2018.08.27
 Start Time: 23:39:00 End Time: 04:25:00 Time On Btrn: 2018.08.27 @ 00:58:00
 Time Off Btrn: 2018.08.27 @ 02:59:30

TEST COMMENT: 1st Opening 30 Minutes weak blow built to 2 inches decreased to a weak surface blow
 1st Shut-In 30 Minutes
 2nd Opening 30 Minutes weak steady 1/2 inch blow throughout
 2nd Shut-In 30 Minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1669.92	102.27	Initial Hydro-static
1	42.82	102.60	Open To Flow (1)
31	66.09	102.37	Shut-In(1)
60	853.73	102.73	End Shut-In(1)
61	68.59	103.03	Open To Flow (2)
90	81.18	103.45	Shut-In(2)
121	729.87	103.81	End Shut-In(2)
122	1619.44	103.76	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	clean gassy oil 20% Gas 80% Oil	0.32
0.00	Gravity 43 corrected	0.00
40.00	oil cut mud	0.32
0.00	10% Gas 40% Oil 45% Mud 5% water	0.00

Gas Rates

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



DRILL STEM TEST REPORT

TOOL DIAGRAM

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

32-19s-11w Barton
Knop A # a3
 Job Ticket: `01005 **DST#: 3**
 Test Start: 2018.08.26 @ 23:39:00

Tool Information

Drill Pipe:	Length: 3135.00 ft	Diameter: 3.80 inches	Volume: 43.98 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 180.00 ft	Diameter: 2.86 inches	Volume: 1.43 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	68000.00 lb
			Total Volume: 45.41 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	51000.00 lb
Depth to Top Packer:	3307.00 ft			Final	51000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	32.00 ft				
Tool Length:	52.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3292.00	
Hydraulic tool	5.00			3297.00	
Packer	5.00			3302.00	20.00 Bottom Of Top Packer
Packer	5.00		Fluid	3307.00	
Anchor	27.00			3334.00	
Recorder	0.00	9119	Inside	3334.00	
Recorder	0.00	9139	Outside	3334.00	
Bullnose	5.00			3339.00	32.00 Bottom Packers & Anchor

Total Tool Length: 52.00



DRILL STEM TEST REPORT

FLUID SUMMARY

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

32-199-11w Barton
Knop A # a3
 Job Ticket: `01005 **DST#: 3**
 Test Start: 2018.08.26 @ 23:39:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil Apt:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 10.00 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 70000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	clean gassy oil 20% Gas 80%Oil	0.318
0.00	Gravity 43 corrected	0.000
40.00	oil cut mud	0.318
0.00	10%Gas 40%Oil 45%Mud 5% water	0.000

Total Length: 80.00 ft Total Volume: 0.636 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

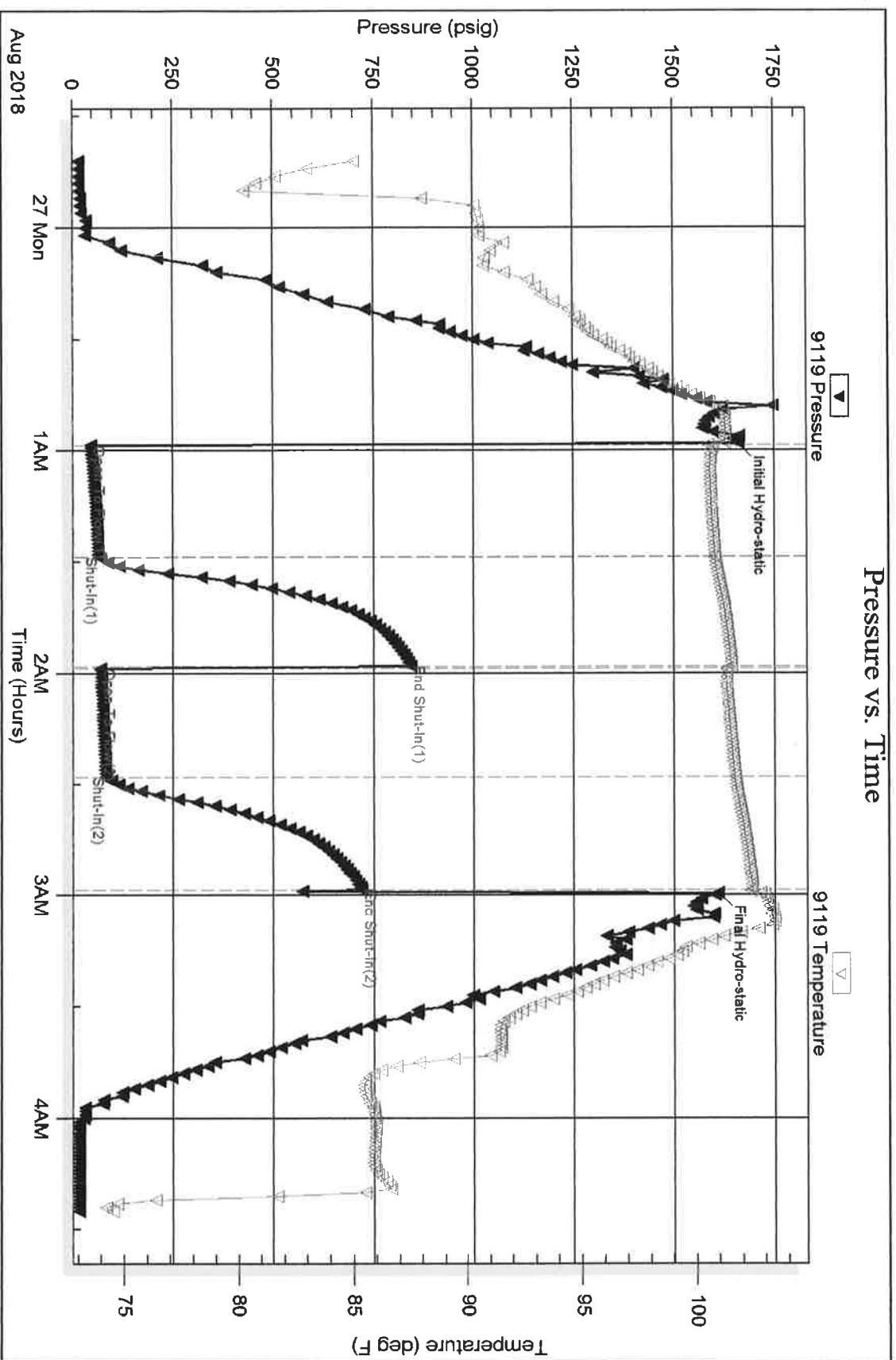
Serial #: 9119

Inside Hupfer Operating Inc.

Knop A # a3

DST Test Number: 3

Pressure vs. Time



Eagle Testers

Ref. No.: 01005

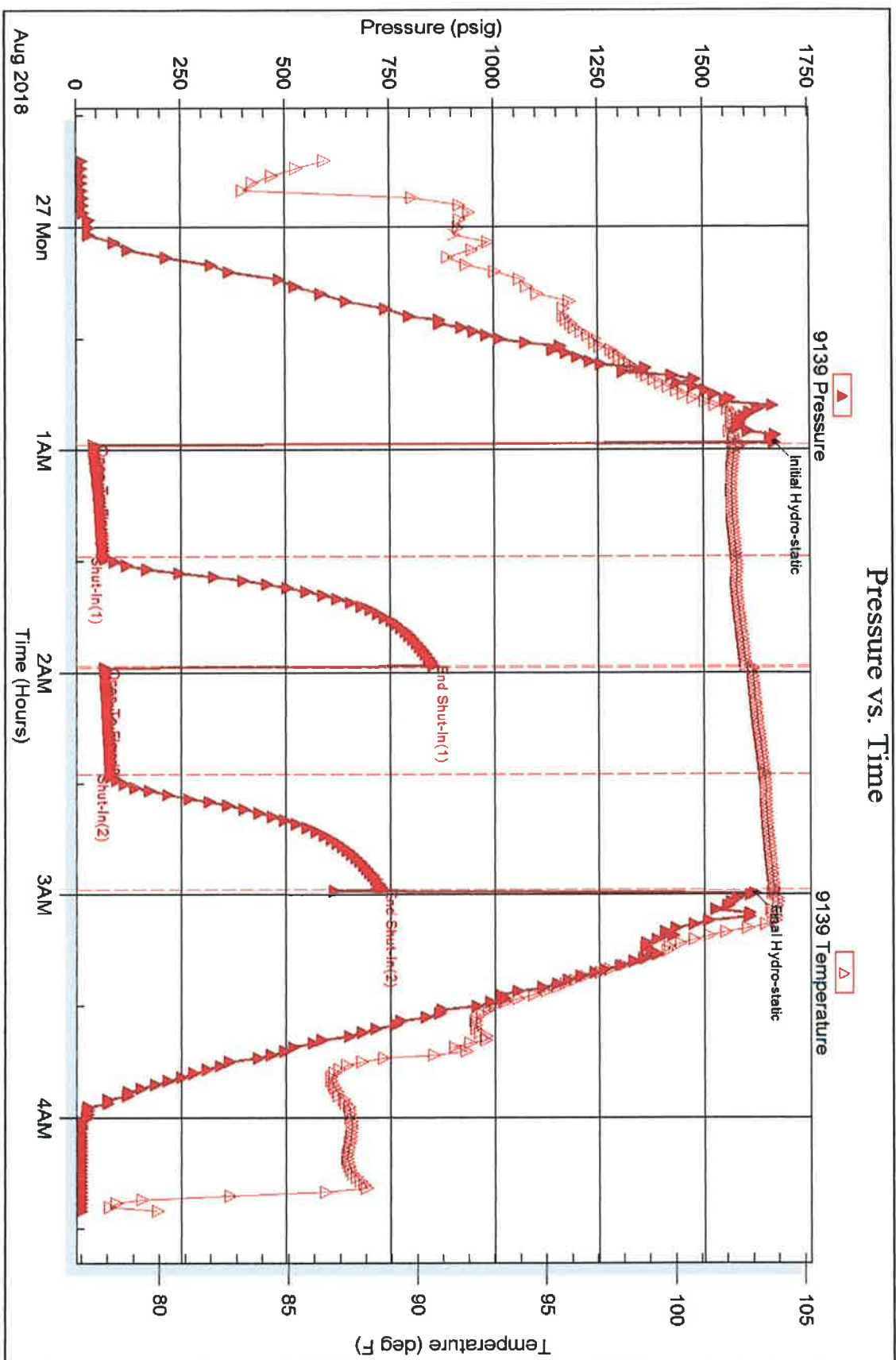
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Serial #: 9139

Outside Hupfer Operating Inc.

Knop A # a3

DST Test Number: 3



Eagle Testers

Ref. No: 01005

Printed: 2018.08.27 @ 05:00:50



DRILL STEM TEST REPORT

Prepared For: **Hupfer Operating inc.**

P.O. Box
Lawrence, Kansas 66203-0912

ATTN: Jim Musgrove

Knop A # a3

32-19s-11w Barton

Start Date: 2018.08.25 @ 22:58:00

End Date: 2018.08.25 @ 05:00:00

Job Ticket #: 01003 DST #: 1

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2018.08.25 @ 05:19:59

Hupfer Operating Inc. 32-19s-11w Barton Knop A # a3 DST # 1 Topoka 2018.08.25



DRILL STEM TEST REPORT

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

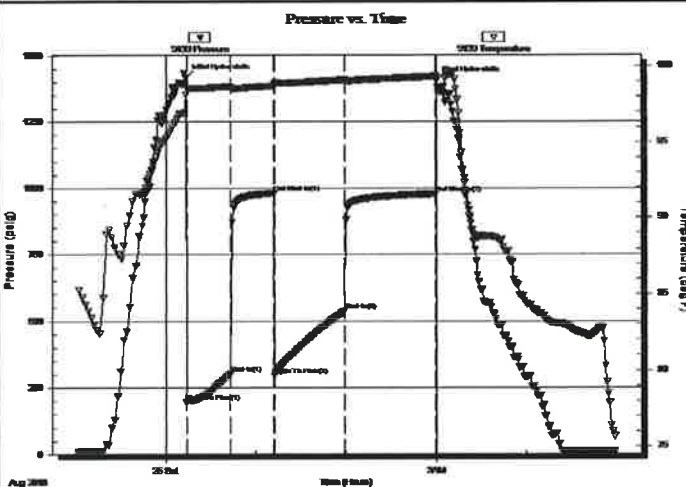
32-19-11w Barton
Knop A # a3
 Job Ticket: 01003 DST#: 1
 Test Start: 2018.08.25 @ 22:58:00

GENERAL INFORMATION:

Formation: **Topeka**
 Deviated: **No** Whipstock: ft (KB)
 Time Tool Opened: 12:14:00
 Time Test Ended: 05:00:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Gene Budig
 Unit No: 1
 Interval: **2856.00 ft (KB) To 2900.00 ft (KB) (TVD)**
 Total Depth: 2900.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 1788.00 ft (KB)
 1780.00 ft (CF)
 KB to GRV/CF: 8.00 ft

Serial #: 9139 Outside
 Press@RunDepth: 977.39 psig @ 2895.00 ft (KB) Capacity: 5000.00 psig
 Start Date: 2018.08.24 End Date: 2018.08.25 Last Calib.: 2018.08.25
 Start Time: 22:59:00 End Time: 04:59:00 Time On Btm: 2018.08.25 @ 00:12:59
 Time Off Btm: 2018.08.25 @ 03:00:00

TEST COMMENT: 1st Opening 30 Minutes strong blow gas to surface in 3 minutes
 1st Shut-In 30 Minutes
 2nd Opening 45 Minutes Strong blow see gas flow report
 2nd Shut-In 60 Minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1417.35	98.11	Initial Hydro-static
2	198.60	98.58	Open To Flow (1)
31	304.93	98.68	Shut-In(1)
60	980.87	98.72	End Shut-In(1)
60	296.04	98.88	Open To Flow (2)
107	537.09	99.11	Shut-In(2)
167	977.39	99.33	End Shut-In(2)
168	1406.30	99.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
300.00	clean oil	3.02
120.00	oil cut water 40%oil 60%Water	1.68
800.00	Water chlorides 96000	11.22

Gas Rates

	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.75	7.10	335.83
Last Gas Rate	0.50	2.75	115.69
Max. Gas Rate	0.50	18.80	223.96



DRILL STEM TEST REPORT

Hupfer Operating Inc.
 P.O. Box
 Shawnee, Kansas 66203-0912
 ATTN: Jim Musgrove

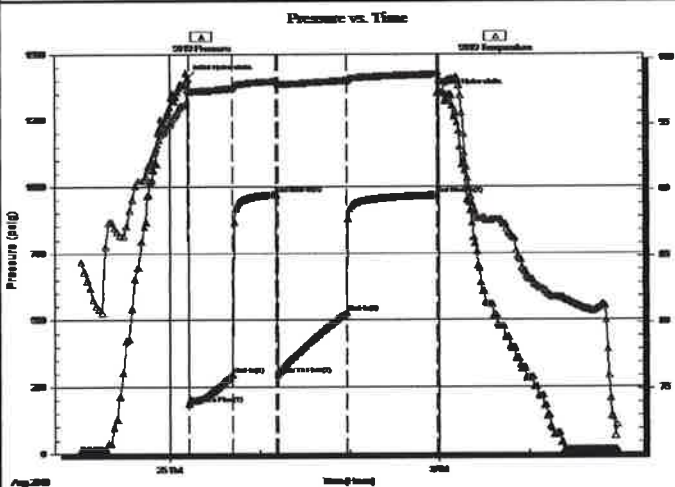
32-199-11w Barton
Knop A # a3
 Job Ticket: 01003 **DST#: 1**
 Test Start: 2018.08.25 @ 22:58:00

GENERAL INFORMATION:

Formation: **Topeka**
 Deviated: **No Whipstock:** ft (KB)
 Time Tool Opened: 12:14:00
 Time Test Ended: 05:00:00
 Test Type: **Conventional Bottom Hole (Initial)**
 Tester: **Gene Budig**
 Unit No: **1**
 Interval: **2856.00 ft (KB) To 2900.00 ft (KB) (TVD)**
 Total Depth: **2900.00 ft (KB) (TVD)**
 Hole Diameter: **7.88 inches** Hole Condition: **Fair**
 Reference Elevations: **1788.00 ft (KB)**
1780.00 ft (CF)
 KB to GR/CF: **8.00 ft**

Serial #: 9119 Inside
 Press@RunDepth: **967.19 psig @ 2895.00 ft (KB)** Capacity: **5000.00 psig**
 Start Date: **2018.08.24** End Date: **2018.08.25** Last Calib.: **2018.08.25**
 Start Time: **22:58:00** End Time: **04:58:00** Time On Btrrc: **2018.08.25 @ 00:12:00**
 Time Off Btrrc: **2018.08.25 @ 02:59:00**

TEST COMMENT: 1st Opening 30 Minutes strong blow gas to surface in 3 minutes
 1st Shut-In 30 Minutes
 2nd Opening 45 Minutes Strong blow see gas flow report
 2nd Shut-In 60 Minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1408.73	97.67	Initial Hydro-static
1	185.59	97.51	Open To Flow (1)
30	296.89	97.79	Shut-In(1)
59	970.49	98.31	End Shut-In(1)
60	297.29	98.10	Open To Flow (2)
106	527.51	98.37	Shut-In(2)
167	967.19	98.83	End Shut-In(2)
167	1353.39	98.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
300.00	clean oil	3.02
120.00	oil cut w ater 40%oil 60%Water	1.68
800.00	Water chlorides 96000	11.22

Gas Rates

	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.75	7.10	335.83
Last Gas Rate	0.50	2.75	115.69
Max. Gas Rate	0.50	18.80	223.96



DRILL STEM TEST REPORT

TOOL DIAGRAM

Hupfer Operating Inc.

32-19s-11w Barton

P.O. Box
Shawnee, Kansas 66203-0912

Knop A # a3

Job Ticket: 01003

DST#: 1

ATTN: Jim Musgrove

Test Start: 2018.08.25 @ 22:58:00

Tool Information

Drill Pipe:	Length: 2666.00 ft	Diameter: 3.80 inches	Volume: 37.40 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 180.00 ft	Diameter: 2.76 inches	Volume: 1.33 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 64000.00 lb
			Total Volume: 38.73 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	2856.00 ft			Final lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	64.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			2841.00	
Hydraulic tool	5.00			2846.00	
Packer	5.00			2851.00	20.00 Bottom Of Top Packer
Packer	5.00		Fluid	2856.00	
Anchor	39.00			2895.00	
Recorder	0.00	9119	Inside	2895.00	
Recorder	0.00	9139	Outside	2895.00	
Bullnose	5.00			2900.00	44.00 Bottom Packers & Anchor

Total Tool Length: 64.00



DRILL STEM TEST REPORT

FLUID SUMMARY

Hupfer Operating Inc.

32-19-11w Barton

P.O. Box
Shawnee, Kansas 66203-0912

Knop A # a3

Job Ticket: 01003

DST#: 1

ATTN: Jim Musgrove

Test Start: 2018.08.25 @ 22:58:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 48.00 sec/qt

Water Loss: 8.80 in³

Resistivity: ohm.m

Salinity: 4000.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: deg API

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
300.00	clean oil	3.015
120.00	oil cut w ater 40%oil 60%Water	1.683
800.00	Water chlorides 96000	11.222

Total Length: 1220.00 ft Total Volume: 15.920 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



DRILL STEM TEST REPORT

GAS RATES

Hupfer Operating Inc.

32-19s-11w Barton

P.O. Box
Shawnee, Kansas 66203-0912

Knop A # a3

Job Ticket: 01003 DST#: 1

ATTN: Jim Musgrove

Test Start: 2018.08.25 @ 22:58:00

Gas Rates Information

Temperature: 59 (deg F)
Relative Density: 0.65
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
1	10	0.75	7.10	335.83
1	20	0.75	3.20	274.91
1	30	0.50	18.80	223.96
2	10	0.50	15.25	200.01
2	20	0.50	9.75	162.91
2	30	0.50	4.30	126.14
2	40	0.50	2.75	115.69

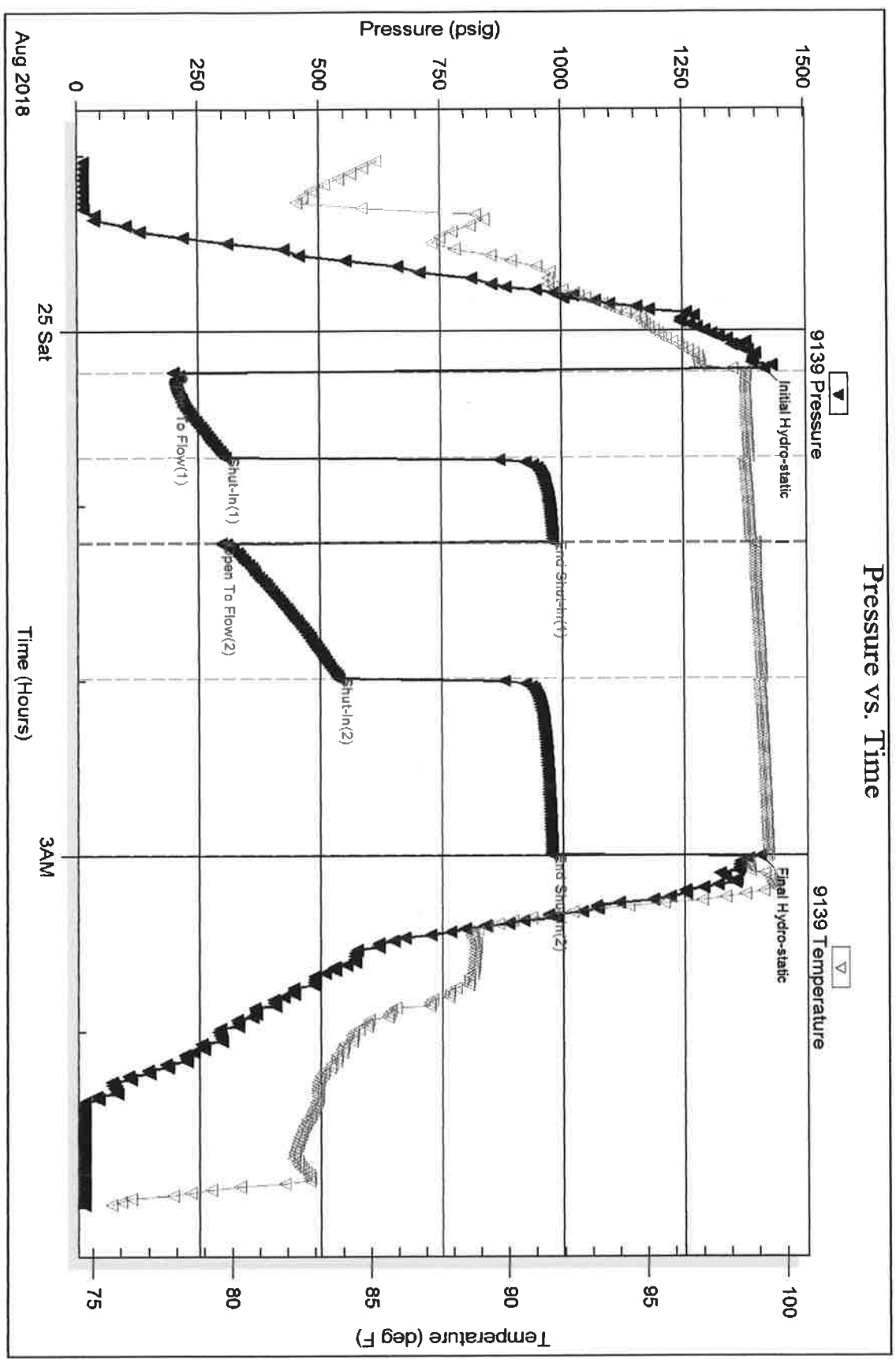
Serial #: 9139

Outside Hupfer Operating Inc.

Knop A # a3

DST Test Number: 1

Pressure vs. Time



Eagle Testers

Ref. No: 01003

Printed: 2018.08.25 @ 05:20:01

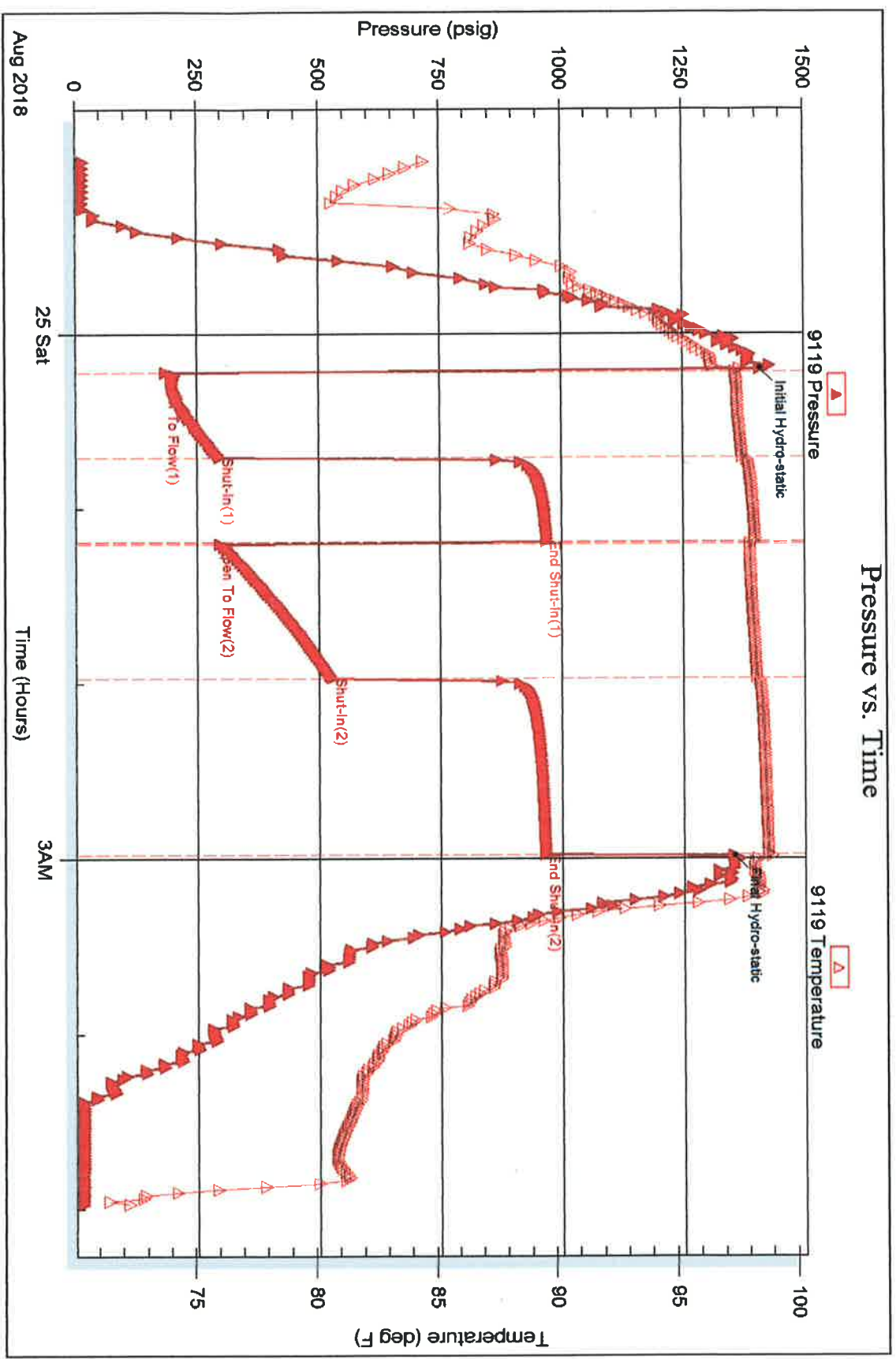
Serial #: 9119

Inside

Hurper Operating Inc.

Knop A # a3

DST Test Number: 1



Eagle Testers

Ref. No: 01003

Printed: 2018.08.25 @ 05:20:01