KOLAR Document ID: 1466031

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 # 34344
Name: Culbreath Oil & Gas Company, Inc.
Address 1: 3501 S YALE AVE
Address 2:
City: TULSA State: OK Zip: 74135 + 8014
Contact Person: Dillan Carney
Phone: (918) 749-3508
CONTRACTOR: License # 35410
Name: STP Drilling LLC
Wellsite Geologist: Larry Nicholson
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 #:

6/17/2019 Spud Date or Recompletion Date
6/27/2019 Date Reached TD
6/28/2019 Completion Date or Recompletion Date

API No.: 15-203-20346-00-00
Spot Description:
NE - SW - SW - SE Sec. 22 Twp. 16 S. R. 35 ☐ East ☑ West
630 Feet from ☐ North / ☑ South Line of Section
2240 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: Wichita
Lease Name: HAGEN-JANTZ Well #: 1-22
Field Name: Wildcat
Producing Formation: N/A
Elevation: Ground: 3195 Kelly Bushing: 3202
Total Vertical Depth: 4883 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 291 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: 12400 ppm Fluid volume: 750 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:
☐ **Confidential Release Date:**
☑ **Wireline Log Received** ☑ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** Karen Ritter **Date:** 07/17/2019

Operator Name: Culbreath Oil & Gas Company, Inc. Lease Name: HAGEN-JANTZ Well #: 1-22

Sec. 22 Twp. 16 S. R. 35 ☐ East ☑ West County: Wichita

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:
Attached

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

Name	Top	Datum
Anhy	2338	+728
HBNR	2358	-774
BKC	4150	-1184
JHNZ	4444	-1444
MSSP	4594	-1573

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	23	290	Surface Blend II	200	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	Culbreath Oil & Gas Company, Inc.
Well Name	HAGEN-JANTZ 1-22
Doc ID	1466031

All Electric Logs Run

Micro
Porosity
Resistivity
Sonic

Form	ACO1 - Well Completion
Operator	Culbreath Oil & Gas Company, Inc.
Well Name	HAGEN-JANTZ 1-22
Doc ID	1466031

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	23	290	Surface Blend II	200	3%CC 2%gel

QES

PRESSURE PUMPING LLC
PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

TICKET NUMBER 56043
LOCATION Oaklaud Ks
FOREMAN Jerry Y
Walt D

FIELD TICKET & TREATMENT REPORT
CEMENT

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
6-17-19		Haagen Stutz 1-22	22	16S	35W	Wichita KS

CUSTOMER: Culbreath
MAILING ADDRESS:
CITY | STATE | ZIP CODE:

Fence W to 22 S to E ½ East N into

TRUCK #	DRIVER	TRUCK #	DRIVER
731	Neil W		
566	Matt G		
535	Jerry Y		
1097	Walt D		

JOB TYPE surface HOLE SIZE 12¼ HOLE DEPTH 292 CASING SIZE & WEIGHT 8⅝ 23#
CASING DEPTH 290 DRILL PIPE TUBING OTHER
SLURRY WEIGHT 14.8 SLURRY VOL 1.24 WATER gal/sk CEMENT LEFT in CASING 20'
DISPLACEMENT 17bbl DISPLACEMENT PSI MIX PSI RATE

REMARKS: Safty meeting rig up on STP circulate casing mix 200sks com 3%CC 2% gel w/50 gal Displace with 17bbl water shut in
Circulated approx 3bbl to pit
Cement did circulate
Thank you
Jerry & crew

ACCOUNT CODE	QUANITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CE0471	1	PUMP CHARGE	1150.00	1150.00
CE0002	45	MILEAGE	7.15	321.75
CE0710	9.4	ton mileage delivery	1.75	740.25
CC5871	200sks	surface blend II	24.00	4800.00
			subtotal	7012.00
			-25%	1753.00
			subtotal	5259.00
			SALES TAX	
			ESTIMATED TOTAL	

COPY

Ravin 3737

AUTHORIZTION TITLE DATE

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's

QES

PRESSURE PUMPING LLC
PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

TICKET NUMBER 56135
LOCATION Oakley Ks
FOREMAN Walt Dinkel

FIELD TICKET & TREATMENT REPORT
CEMENT

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
6-28-19		Hagen-Jantz #1-22	22	16S	35W	Wichita KS

CUSTOMER: Culbreath
MAILING ADDRESS:
CITY | STATE | ZIP CODE:

Fence west to Rd 22, 2-South, ½ East

TRUCK #	DRIVER	TRUCK #	DRIVER
731	Neil White		
70	Matadi Unruh		

JOB TYPE PTA | HOLE SIZE 7 7/8 | HOLE DEPTH 4883' | CASING SIZE & WEIGHT
CASING DEPTH | DRILL PIPE 4½ XH | TUBING | OTHER
SLURRY WEIGHT 13.5 | SLURRY VOL | WATER gal/sk | CEMENT LEFT in CASING
DISPLACEMENT | DISPLACEMENT PSI | MIX PSI | RATE 4 BPM

REMARKS: Safety Meeting, Rig up on STP Dk, Plug as ordered

50 SKs @ 2520'
80 SKs @ 1560'
50 SKs @ 780'
50 SKs @ 330'
20 SKs @ 60'
30 SKs in RH

280 SKs 60/40 poz, 4% Gel, ¼# Flo Seal

Thank You
Walt & Crew

ACCOUNT CODE	QUANITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
C00450	1	PUMP CHARGE	1,500.00	1,500.00
C00002	45	MILEAGE	7.15	321.75
C00910	12.04	Ton Mileage Delivery	1.75	948.15
CC5829	280 sk	Lite Weight Blend Y	16.00	4,480.00
CC6075	70 #	Flo-Seal	3.00	210.00
CP8228	1	8⅝ Wooden Plug	165.00	165.00
				7,624.90
				1,906.23
				5,718.67

Walt Dinkel

SALES TAX
ESTIMATED TOTAL

Ravin 3737

AUTHORIZTION _____ TITLE _____ DATE _____

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records. at our office. and conditions of service on the back of this form are in effect for services identified on this form.

COMPANY & WELL Culbreath O&G Hagen-Jantz #1-2
LOCATION 660' FSL 2240' FEL NE SW SW SE
SEC 22 TWP 16S RGE 36W
COUNTY Wichita STATE Ks

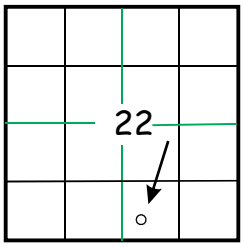
GEOLOGICAL REPORT

Larry A. Nicholson

FINAL

NAD 83
38.64357099
-101.17299602

COMPANY Culbreath O&G Company, Inc.
API # 15-203-20346 FIELD Wildcat
LEASE Hagen-Jantz WELL # #1-22
LOCATION NE SW SW SE
SURVEY 660' FSL 2240' FEL
SECTION 22 TWP 16S RGE 36W
COUNTY Wichita STATE Kansas



CONTRACTOR STP Drlg TP L Lang Rig # 1
SPUD 06-17-19 7:45 pm COMP
RTD 4883 11:55am 06-27-19 LTD 4881
MUD UP AT 3388 650 bbls
MUD TYPE Chemical, Andy's A. Blew

ELEVATIONS

K.B. 3202
D.F.
G.L. 3195
All measurements from K.B. 3202

SAMPLES SAVED FROM 3600 TO RTD
DRILLING TIME FROM 3500 TO RTD
SAMPLES EXAMINED FROM 3600 TO RTD
GEOLOGICAL SUPERVISION FROM 3600 TO RTD
WELLSITE GEOLOGIST LARRY A. NICHOLSON

CASING RECORD

Conductor of w/ sx
Surface 291 of 8 5/8 w/ 200 sx
Production of w/ sx

ELECTRICAL SURVEYS Haliburton: Neu, Den, Micro, Dual, Sonic

FORMATION TOPS & STRUCTURAL POSITION

FORMATION	SAMPLE TOPS	SUBSEA DATUM	ELEC LOG TOPS	SUBSEA DATUM	REFERENCE WELL A	REFERENCE WELL B	
Anhydrite			2338	+728			
Heebner			2358	-774			
Lansing			3845	-822			
Stark			3890	-1090			
BKC			4150	-1184			
Marm			4227	-1238			
Altamont			4267	-1248			
Cherokee Sh			4284	-1390			
Johnson			4444	-1444			
Morrow Sh			4530	-1526			
Mississippian			4594	-1573			
RTD			4670	-1681			
LTD			4671	-1679			

REFERENCE WELLS
A:
B:

LAN 7/92, Modified 5/05, 11/11, 4/12, 4/18 1inch =25.4mm 8.5 x 97.5 216 mm x 2460 mm

DRILLSTEM TEST SUMMARY :

Dst #1 4024-4038 (LKC A) 45 60 45 90 IF:38-76 FF:81-95 SI:1129-1131
Rec 130' MCW O spts 4" O (85W 15M) IF 4 1/2", nr
FF 3 1/2", nr BHT 111, RW .167@64, 56K CL

Dst #2 4060-4080 (LCK C) 60 60 30 60 IF:142-537 FF:566-817 SI:2060-2021
Rec 1720' MCW O spts throughout (95W 5M) IF BOB 1.5" -135" blow, nr
FF BOB 3: - 99" blow, nr BHT 111, RW .129@72, 58K CL

Dst #3 4239-4318 (LKC I-K) 15 45 15 60 IF:454-745 FF:810-1016 SI:2123-2083
Rec 1200' MCW (97W 3M) Oil spts IF 183" blow, nr FF 135" blow, nr
RW .155 @ 74, 51,000ppm BHT 111

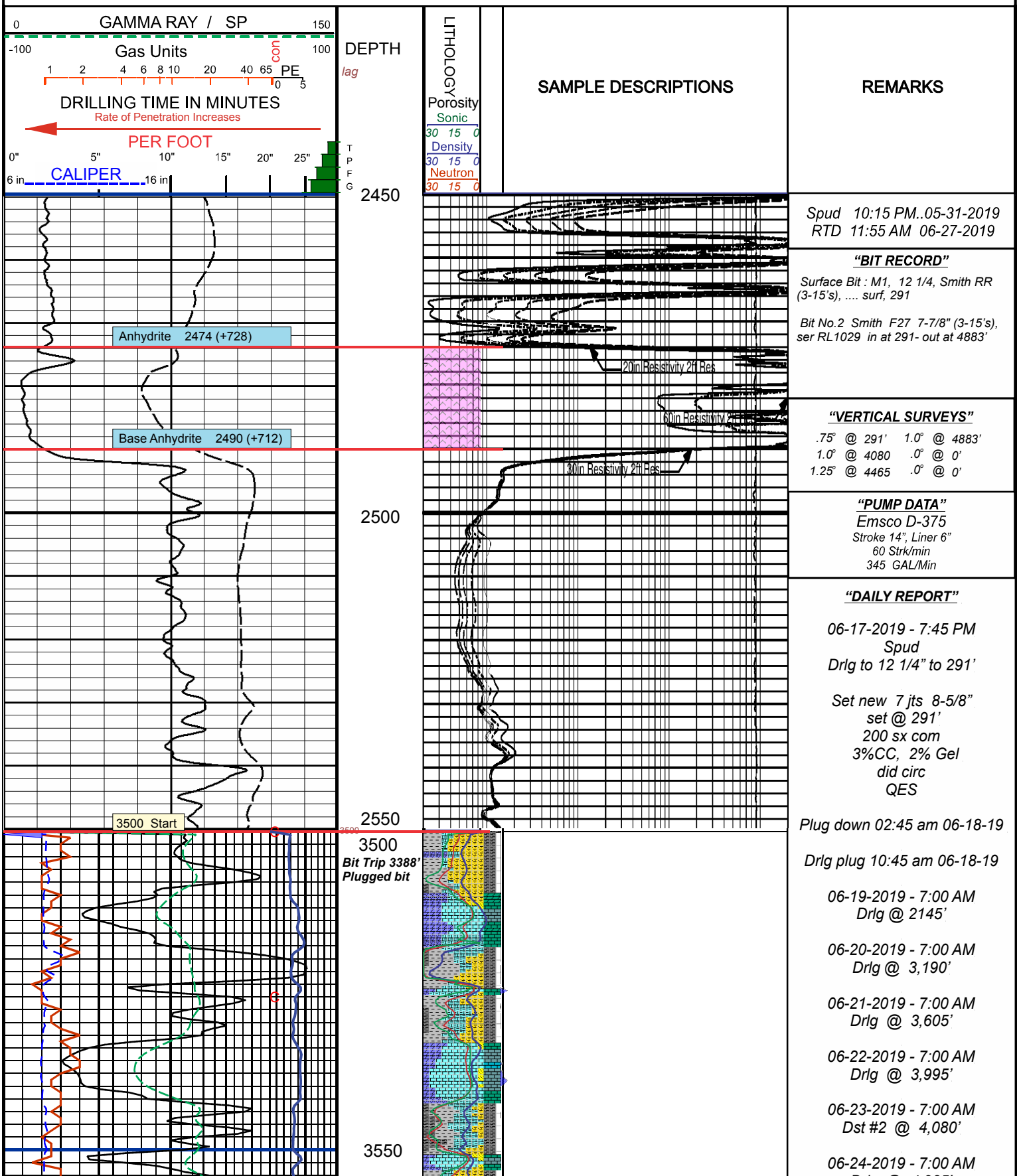
Dst #4 4433-4465 (Marmaton) 30 60 30 60 IF:25-36 FF:31-35 SI:1291-1242
Rec 15' O (100O) 5' OCM (20O 80M) IF 1/2 blow, nr
FF n blow, nr BHT 110, Grav 31 API

REMARKS & RECOMMENDATIONS:

The structural position of the well is high.
Based on dst results, samples and log review
the well was P&A

LEGEND

Dolomite | Limestone | Shale | Carbonaceous Shale | Sandstone | Chert | Anhydrite



Spud 10:15 PM..05-31-2019
RTD 11:55 AM 06-27-2019

"BIT RECORD"

Surface Bit : M1, 12 1/4, Smith RR (3-15's), ... surf, 291

Bit No.2 Smith F27 7-7/8" (3-15's), ser RL1029 in at 291- out at 4883'

"VERTICAL SURVEYS"

.75°	@	291'	1.0°	@	4883'
1.0°	@	4080	.0°	@	0'
1.25°	@	4465	.0°	@	0'

"PUMP DATA"

Emsco D-375
Stroke 14", Liner 6"
60 Strk/min
345 GAL/Min

"DAILY REPORT"

06-17-2019 - 7:45 PM
Spud
Drlg to 12 1/4" to 291'

Set new 7 jts 8-5/8"
set @ 291'
200 sx com
3%CC, 2% Gel
did circ
QES

Plug down 02:45 am 06-18-19

Drlg plug 10:45 am 06-18-19

06-19-2019 - 7:00 AM
Drlg @ 2145'

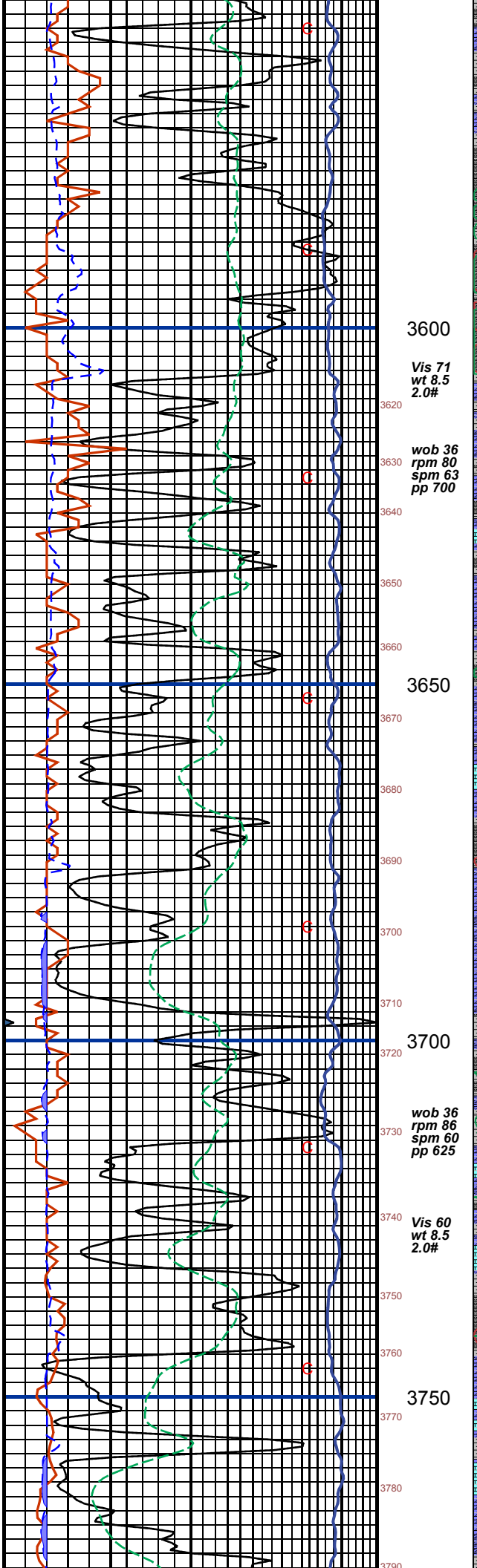
06-20-2019 - 7:00 AM
Drlg @ 3,190'

06-21-2019 - 7:00 AM
Drlg @ 3,605'

06-22-2019 - 7:00 AM
Drlg @ 3,995'

06-23-2019 - 7:00 AM
Dst #2 @ 4,080'

06-24-2019 - 7:00 AM



Ls, lt tan, vfn xln, spary calc, remn foss & ool, pr por, n stn, n odor, n sho

Ls, lt tan, vfn xln, spary calc, remn foss & ool, pr por, n stn, n odor, n sho

Sh, gry, grngry silty

Ls, lt tan, vfn xln, spary calc, remn bioclatic, pr por, n stn, n odor, n sho

Sh md gry, lt gry silty, spks pyrite

Ls, lt tan, vfn xln, spary calc & spary bioclastics, pr-fr por, n stn, n odor, n sho

Ls, lt gry micro xln, lt tan, vfn xln, spary calc, granular foss in prt, pr-fr por, scat lt gry chert, n stn, n odor, n sho

Sh, md gry, calc

Ls, crm lt gry, vfn xln, spary calc, remn foss, n-pr por, n stn, n odor, n sho

Ls, crm lt gry, vfn xln, spary calc, subsucro in part, britl, chlky, scat lt gry dull chert, n stn, n odor, n sho

Ls, crm lt gry, vfn xln, spary calc, subsucro in part, britl, chlky, scat lt gry dull chert, n stn, n odor, n sho

Ls, crm lt gry, micro-vfn xln, spary calc, dns-britl, chlky, scat lt gry dull chert, n stn, n odor, n sho

Sh, lt gry, dk gry, silty

Ls, lt crm-gry, micro-vfn xln, mostly pr por, scat lt crm chert, n stn, n odor, n sho

Ls, lt crm-gry, micro-vfn xln, mostly pr por, scat lt crm chert, few dk gry, n stn, n odor, n sho

Sh, md gry, dk gry, grygrn firm

Sh, md gry calc

Sh, md gry, brn

Ss, brn, fn-md grn, brittle.?

Sh, md gry, fossilf

Ls, lt tan brn motld, micro xln, lt gry foss, pr por, 10% vfn xln, n stn, n odor, n sho

Ls, lt tan gry, micro xln, lt gry foss, pr por, 10% vfn xln, dol, scat lt gry chert, n stn, n odor, n sho

Sh, md gry, lt gry grn vsft clay

Drlg @ 4,285'

06-25-2019 - 7:00 AM
Drlg @ 4,415'

06-26-2019 - 7:00 AM
Drlg @ 4,524'

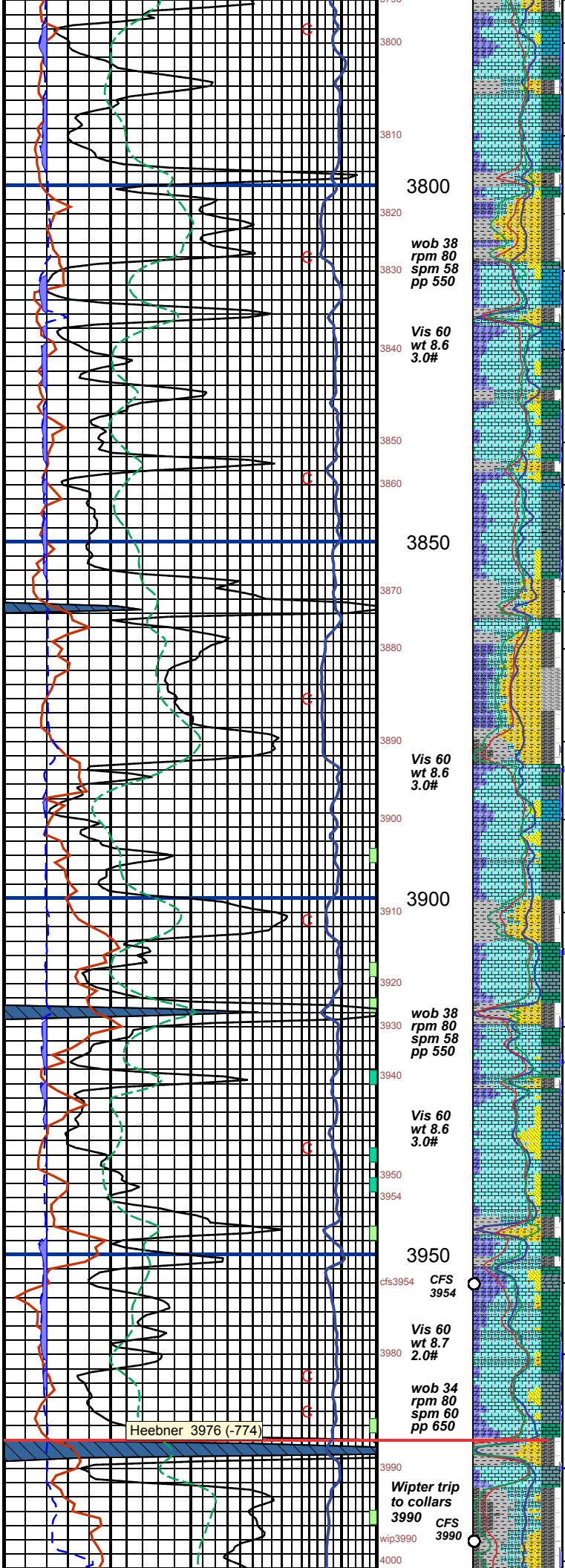
06-27-2019 - 7:00 AM
Drlg @ 4,825'

06-27-2019 - 11:55 AM
RTD @ 4,883'

06-27-2018 - 4:30 PM
Rig up Haliburton
LTD @ 4,,881

Plugged Hole
50sx 2520
80sx 1560
50sx 780
50sx 330
20sx 60
30sx rathole
Plug down @ 9:00 am
6-28-19

Mud Check 4 at 3,730'
vis: 57 wt: 8.5 Chlor: 9,500
LCM: 3# Ph: 10.0 WL:8.8



Sh, md gry,

Ls, lt crm gry, vfn xln, dull, fr por, trc spary calc, trc lt gry chert, n stn, n odor, n sho

Sh, md gry carb

Ls, lt tan, vfn xln, trc spary calc, few motld gry, foss, pr por, lt crm chert, n stn, n odor, n sho

Ls, lt gry sli motld, vfn xln, sli dol, spary calc fross frag & xln, fr ppt por, chlky, lt gry chert, n stn, n odor, n sho

Sh, motld lt gry carb

Ls, lt tan, vfn xln, sli dol, spary calc xln, sli granular , micro xln, motld dns, scat tan chert, n stn, n odor, n sho

Ls, lt tan, vfn xln, sli dol, spary calc xln, sli granular , micro xln, motld dns, scat tan chert, n stn, n odor, n sho

Ls, lt tan, vfn xln, sli dol, spary calc, lt gry bioclatic, fr ppt in tra xln por, scat tan chert, n stn, n odor, n sho

Ls, lt tan, vfn xln, sli dol, spary calc, lt gry bioclastic, pr intra xln por, scat tan chert, n stn, n odor, n sho

Sh, dk gry, blk silty

Ls, lt tan sli motld, vfn xln, sli dol, spary calc xln, pr por, chalky, dull lt gry chert, n stn, n odor, n sho

Sh, lt gry clay

Ls, lt tan & gry, vfn-micro, britl, trc spary calc, trc spary calc, lt gry chert, chalky, n stn, n odor, n sho

Ls, lt tan, vfn xln, trc spary calc, pr por, lt tan chert, 3 lt tan chert cutn w/spks O on edge, n odor, nsfo

Ls, lt tan gry, micro-vfn xln, mostly tite, n vis por, 4 cutn w/spks md brn O on break, tite, vfnt odor, wht cut, patchy-sat dry, nsfo

Sh, blk carb

Ls, lt crm, vfn xln, trc spary calc xln, 5 cutn spks brnO, patch dk brn dry, pr por, vfnt odor, nsfo

Ls lt crm, micro xln dns, vfn xln, trc spary calc xln, pr por, 4 cutn spts md brn O, varies dol spary xln w/fr por, ppt vugs sat stn dry to vfn xln tite patchy stn, yel edge Oflor, flash wht cut, fnt-fr odor, nsfo

Ls, lt crm gry, micro xln, trc spary calc xln & fn foss, n-pr por, 3-4 granular cutn, spks dk brn O on break w/asphaltic spks, vvfnt odor, nsfo

Ls, lt tan, micro xln, lithic, vfn xln, sli dol, spary calc bioclastic, britl, fr por, wht chert, chalky, n stn, n odor, n sho

Ls, lt tan, micro-vfn xln, trc spary calc, , britl, pr por, lt tan chert, 3 cutns spts O on edge/surf, vvfnt odor, nsfo

Sh, blk carb, wht spks,
Ls, lt tan, micro-vfn xln, sli dol, spary calc bioclastic, britl, pr por, lt tan chert, ,5 cutns sli gran, ppt vug w/spts dk brnO on break, vvfnt odor, nsfo

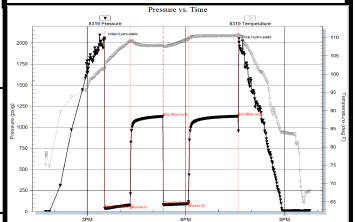
DST (1) 4024-4038
LKC A
30-60-45-90

IF: 4 1/2" blow
IS: nr
FF: 3 1/2" blow
FS: nr

Total Rec: 130' MCW, 4" O
(85W 15M)

FP: 38-76	FFP: 81-95
SIP: 1129	FSIP:1131
HP: 2042	FHP: 2008

BHT 111°F RW .167 @ 64°F
Chloride 56,000 ppm



Toronto 4004 (-802)

Lansing 4024 (-822)

C Zone 4060 (-858)

D Zone 4076 (-874)

E Zone 4110 (-908)

F Zone 4130 (-928)

G Zone 4146 (-944)

Muncie Creek 4195 (-993)

H Zone 4198 (-996)

4000

4050

4100

4150

4200

wob 36 rpm 82 spm 46 pp 600

CFS 4024

CFS 4038

wob 36 rpm 80 spm 58 pp 750

CFS 4080

Vis 56 wt 9.0 2.0#

wob 38 rpm 80 spm 54 pp 800

Vis 60 wt 9.0 3.0#

wob 38 rpm 80 spm 58 pp 700

Vis 100 wt 9.0

Vis 56 wt 9.1

Sh, md gry, dk gry, grngry wxy, brn

Ls, lt tan gry, micro xln, dns, lt brn, micro xln, rem foss, few w/edge trc spks dk brn O, n odor, nsfo

Ls, lt tan gry, micro xln, dns, few gry fn foss frag inclu, n-pr por, vfn xln, britl, sli chalky, scat crm & tranl gry chert, n stn, n odor, n sho

Ls, lt tan gry, micro xln, lithic, n-pr por, vfn xln, britl, few w/spks ppt por bleeding sparc drops oil, tite, sli chalky, scat crm & tranl gry chert, vvfnt odor, nsfo

Ls, wht crm, micro xln, lithic, n por, wht chert, crm lt brn micro xln, trc spary calc rem grnstn, few edge ppt spks O, vfnt odor,

Ls, crm lt brn micro xln, micro -vfn xln, lithic, 2% remn spary calc subsucro ool grnstn, spts dk brn O in ppt por, spts fo in tray, mostly dk brn sat in dry, n Oflor, fr odor

Ls, crm lt brn micro xln, micro -vfn xln, lithic, few cutns granular w/spts dk brn O & tary O on break, gd odor

Ls, wht crm , micro xln, lithic, n por, 10% vfn xln, spary calc xln, p por, remn ool grnstn pr por, few intrx ool w/spts tary O scat crm & lt crm chert, chlky, n odor, nsfo

Ls, wht crm , micro-vfn xln, lithic, n -p por, remn ool grnstn lt crm chert, n stn, n odor, nsfo

Lmy Dol clean fn xln in top. Sh, md gry, aqua grn

Dol ls, lt tan, fn xln, 15% dev rhob xln, pr-fr intra xln por w/few xln vugs, dk brn O bleeding from por, scat lt tan chert, n Oflor, wht flash cut w/dk brn ring (hvyO), gd odor changing to more sour in 60 min. few spts in tray.

Sh, brn, olive grn gry, lt brn vsft.

Ls, wht, ool grnstn, hvy sec cmt, pr intra ool por w/blk spks O , fr sli sour odor, n Oflor, nsfo

Ls, wht lt gry, micro xln, lithic, dns trc fn bioclastic, pr intra xln por, scat wht chert, whethrd sparce ppt vug in chert w/spks blk asphaltic O, fr odor, nsfo

Ls, crm lt gry, micro xln, dns pr intra xln por, scat lt brn chert, n stn, n odor, n sho

Sh, blk, dk gry, aqugrngry, brn

Ls, crm lt gry, micro xln, dns pr intra xln por, scat lt brn chert, n stn, n odor, n sho

Sh, aqua grn gry, brn

Ls, wht lt crm, micro xln, lithic dns, 2% rnd bioclastic, hvy cmt, pr por, few spks O in vugs, scat wht chert, , n stn, vfnt odor, nsfo

Ls, crm lt tan, micro xln, dns, lt tan gry chert,vfnt odor

Ls, wht lt crm, micro xln, lithic dns, 2% rnd bioclastic, hvy cmt, pr por, few spks O in vugs, scat wht chert, , n stn, vfnt odor, nsfo

Ls, wht, micro xln, dns, n por, wht dull chert, vfnt odor, few weathered cutn w/spks, nsfo

Ls, lt tan, micro xln, dns, trc rem ool hvy cmt, pr por, sli chlky, n stn, n odor, n sho

Ls, lt tan brn, micro xln, dns,trc rem oolite , hvy sec calc cmt, n intra oolitic por, scat wht/ lt tan chert, n odor, n stn, nso

Ls, wht lt tan, micro xln, dns, wht lt tan chert, chlky, n stn, n odor, n sho

Ls, crm lt tan gry, micro xln, dns, few rem oolites, scat lt tan- gry chert, n stn, n odor, n

Sh, blk carb, n burn, coal odor

Ls, wht lt crm, micro xln, dns, imbedded md gry oolite, n-pr por, chlky, scat wht lt crm chrt, 6 cutn vfn xln, w/sat brn Ostn, fnt odor, nsfo

Mud Check 5 at 4,008'
vis: 56 wt:8.8 Chlor: 10,000
LCM: 3# Ph: 10.0 WL:9.6

Strap	3997.92'
Board	3998.92'
Srap short	1'

DST (2) 4060-4080

LKC C

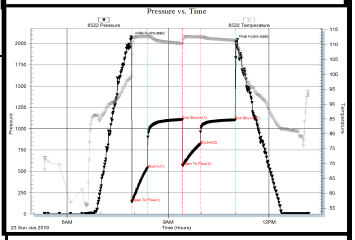
30 60 30 60

IF: BOB 1.5" - 135" blow
IS: nr
FF: BOB 3" - 99" blow
FS: nr

Total: 1720' MCW (95W 5M)
O spts through out

FP:	147-537	FFP:	566-817
SIP:	1108	FSIP:	1104
HP:	2060	FHP:	2021

BHT 111° F RW .129 @ 72° F
Chloride 58,000 ppm



Mud Check 6 at 4,080'
vis: 55 wt: 9.0 Chlor: 9,000
LCM: 2# Ph: 10.5 WL:8.4

I Zone 4244 (-1042)

J Zone 4266 (-1064)

Stark 4292 (-1090)

K Zone 4296 (-1094)

Hushpuckney 4342 (-1140)

L Zone 4346 (-1144)

BKC 4386 (-1184)

Pleasanton 4390 (-1188)

2.0#

20

CFS 4222

cfs4222

wob 38 rpm 80 spm 60 pp 750

4240

4250

4260

4250

20

CFS 4260

cfs4260

Vis 53 wt 9.1 2.0#

20

Den >Son Porosity Oolmoldic

CFS 4280

3

cfs4280

wob 36 rpm 78 spm 55 pp 650

4300

4310

4300

4318

20

CFS 4318

cfs4318

4340

4350

4360 4350

Vis 60 wt 9.0 2.0#

4370

4380

4390

4400

4410

4420

4430

Vis 54 wt 9.0 1.0#

wob 34 rpm 64 spm 53 pp 700

4440

Ls, lt crm tan, micro xln, dns, n por, trc rem ool , scat lt gry tranl chert, 8 cutn vfn ppt spts O break, m brn sat stn dry, gd odor,

Ls, lt crm tan, micro xln, dns, n por, trc rem ool , scat lt gry tranl chert. few stn cutn AA, gd odor, nsfo

Ls, crm lt tan, micro xln, dns, few gry fn pisoli inclu, n por, few vfn md brn sat cutn, fnt odor, nsfo

Ls, lt crm gry, micro xln, lithic, scat lt gry chert, few spks md brn O in edge chert, vfnt odor, nsfo

Ls, wht crm & lt gry, micro xln, trc brn ool grnstn hvy cmt, pr intra ool por, spks brnO, scat crm chert, fr odor, nsfo

Ls, lt tan gry, micro xln, lithic, , trc ool & fn bioclastic, brn O edge stn, n-pr vis por, wht tranl chert, fr odor, nsfo

Ls, cmr lt brn, micro xln, dns, n por, sli spary calc fn bioclastic hash, n-pr por, scat wht chert, 8 cutn surf spts O, sat-patch stn dry, vvfnt odor, nsfo

Ls, crm lt tan, micro xln, lithic, 6 cutn, ool grnstn rexln intra ool cmt, w/trc md brn O in ppt por, spts O on crush, sptd brn stn, few ool moldic, vfnt odor, nsfo

Ls, crm lt tan, micro xln, 20% oolmoldic,n intra mold por, trc brn stn in molds, spts md brnO, fr odor, nsfo

Ls, lt tan brn, 3% ool grnstn Aa, microxln, dns, scat lt tan crm chert, chlky, trc brn edge stn, n odor

Sh, blk carb, burns, coal odor, org, brn

Ls, crm lt tan, micro xln, lithic, 3% cutn, ool grnstn dns rexln intra ool cmt, w/trc blk O spts in molds, sat brn stn,fr odor, nsfo

Ls, crm lt tan, micro xln, lithic, decr, ool grnstn dns rexln intra ool cmt, chlky, few edge Ostn, ,fr odor, nsfo

Ls, crm lt tan, micro xln, lithic, 3 cutn, vfn xln, n-pr por, sat-patch stn, vfnt odor, nsfo

Ls, crm lt tan, micro xln, lithic vfn xln, n-pr por, 3 oolmoldic vugs w/bk O stn, vvfnt odor, nsfo

Ls, lt crm gry, micro xln, lithic, few fossil frag, 2 cutn with dk brn edge stn, n odor, nsfo

Sh, blk carb, burns, coal odor

Ls, lt crm tan, micro xln, dull, dns, n por, 3% vfm xln, scat lt crm chert, n stn, vvfnt odor, n sho

Ls, lt gry crm, micro xln, scat lt gry chert,

Ls, lt gry crm, micro xln, lithic, dns, 3% vfn xln, trc spary calc, scat lt gry tranl chert, n odor, nsfo

Ls, lt gry crm, micro xln, lithic, dns, 3% vfn xln, trc spary calc xln, 2% cutn rem foss, n por, scat lt gry chert, chlky, n stn, n sho

Sh, md gry, blk

Ls, lt tan-lt gry, micro xln, lithic, n vis por, few pisolites, scat lt brn tranl chert, n odor,

Ls, crm lt brn, micro xln, lithic, rem embed pisolites, n por, few ool moldic, n stn, n odor, n sho

Ls, crm lt brn, micro xln, lithic, rem embed pisolites, scat tan chert, n stn, n odor, n sho

Ls, brn, micro xln, lithic, rem embed pisolites, scat tan chert, n stn, n odor, n sho

Sh, brn, lt brn vsft, lt gry grn vsft

Ls, md brn, dns pisolite, n por, scat lt tan chert, lt gry lithic, n stn, n odor, n sho

DST (3) 4239-4318

LKC J-K

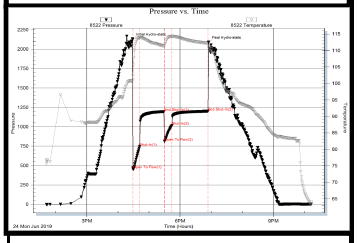
15 45 15 60

IF: 183" blow
IS: nr
FF: 135" blow
FS: nr

Total Rec: 1200' MCW,
(97W 3M),
Oil spts on top

FP: 454-745 FFP: 810-1016
SIP: 1196 FSIP:1200
HP: 2123 FHP: 2083

BHT 112° F RW .155 @ 74° F
Chloride 51,000 ppm



Mud Check 7 at 4,318'
vis: 49 wt: 9.0 Chlor: 15,000
LCM: 2# Ph: 9.5 WL:10.0

DST (4) 4433-4465

Marmaton

30 60 30 60

IF: 1/2" blow
IS: nr
FF: n blow
FS: nr

Total Rec: 20'
15' O, (100O)
5' OCM (20O 80M)

FP: 25-36 FFP: 31-35

Marm 4440 (-1238)

Altamont 4450 (-1248)

Altamont B 4466 (-1264)

Altamont C 4489 (-1287)

Pawnee 4512 (-1310)

Myrick Statio 4550 (-1348)

Fort Scott 4566 (-1364)

Cherokee Sh 4592 (-1390)

Cherokee Lm 4599 (-1397)

Johnson 4646 (-1444)

4450 4460 4465 /15 dst4465 4480 4490 /4495 4500 /4505 4500 4510 4520 4530 4540 4550 4560 4550 4570 4580 /4585 4590 /4595 /4605 4610 4600 /4615 4620 /4625 4630 /4635 4640 /4645 4650 /4655 4650 4660

4 4450

CFS 4465

CFS 4436

Vis 53 wt 8.9 2.0#

Vis 50 wt 8.9 2.0#

wob 38 rpm 75 spm 58 pp 1000

Vis 55 wt 8.8 2.0#

Ls, md brn, dns pisolite, n por, scat lt tan chert, lt gry lithic, n stn, n odor, n sho

Ls, lt tan gry, micro xln, dull, dns, n por, vfn xln, trc calc xln, 2% ool grnstn,hvy sec cmt, n intra ool por, 7 cutn w/trc intra ool xln por, nOflor, sat stn in dry, wht cut, fnt odor , nsfo

Ls, lt tan gry, micro xln, dull, dns, few cutn rnd bioclastic, hvy sec cmt, 3-4 pr intra grn por, cutn sat-patch brn stn, d spts O on

Sh, aqua grn gry, brn, few crs qtz grns

Ls, lt tan crm, micro xln, lithic, few embd rem oolites, n por, vfnt britle, 3 granular chert spts O on break , vvfnt odor, nsfo

Ls, lt tan crm, micro xln, lithic, dns, vfn xln, n-pr por, few cuting fn bioclastic, pr por, n odor, n sho, Sh grygrn brn

Ls, lt tan crm, micro xln, lithic, dns, vfn xln, n-pr por, few cuting dns pisolite, and fn bioclastic, pr por, odor, n stn, n sho

Ls, lt tan gry, micro xln, lithic, dns, n-pr por, few cuting fn bioclastic, pr por, scat lt gry chert, chlky, n odor, n stn, n sho

Ls, lt tan gry, micro xln, lithic, dns, n-pr por, few cuting fn bioclastic and pisolite, pr por, scat lt crm chert, chlky, n odor, n stn, n sho

Ls, lt tan gry, micro xln, lithic, dns, Aa Sh, blk carb, burns, coal odor, md gry, gry grn

Ls, tan lt gry, micro xln, dull, dns, n vis por, scat lt tan chert, n stn, n odor, n sho

Ls, lt tan gry, dull, dns, scat lt gry chrt, n sho

Ls, lt tan gry, motld in part, micro xln, lithic, dns, md gry tranl chert, sli chllk

Ls, brn, sli motld dns, lt gry chert, n por, n stn, n sho

Sh, blk carb, burns, coal odor, md gry

Ls, lt tan, micro-vfn xln, scat lt gry tranl chert,, n stn, n odor, n sho

Ls, lt tan, micro-vfn xln, scat lt gry tranl chert,, n stn, n odor, n sho

Sh, blk carb, burns, coal odor, md gry

Ls, lt tan, micro xln, mealy rem oolites, n vis por,

Ls, lt gry tan, micro xln, mealy, rem oolites/dns ool grnstn, n vis por, n stn, n odor, n sho

Ls, lt gry tan, micro xln, mealy, rem oolites/dns pisolite, hvy cmt, scat lt gry tranl chert, n vis por, n stn, n odor, n sho

Sh, blk carb, burns, coal odor, trc buble, brn, aqua gry grn

Ls, lt tan gry, micro xln, dns, dull, few motld, scat lt grybrn, lt gry chlky, n stn, n odor, n sho

Ls, lt gry, micro xln, dns, n por, few w/bioclastic inclusions, scat lt gry chert, n

Ls, lt gry brn, micro xln, lithic, n por, few w/bioclastic inclusions, n stn, n odor, n sho

Sh, blk carb,

Ls, lt gry brn, motld, micro xln, lithic, n por, few w/bioclastic inclusions, few vfn xln britl, n stn, n odor, n sho

Sh, blk, gry grn, brn

Ls, lt gry brn, motld, micro xln, lithic, n por, scat llt gry chert, n sho

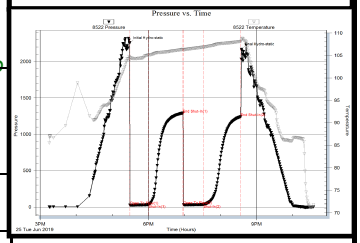
Sh, blk carb,

Sh, lt gry, vsft clay

Ls, lt brn, motld, micro xln, few gry pisolite, hvy sec cmt, scat lt brn chert, n stn, n odor, n sho

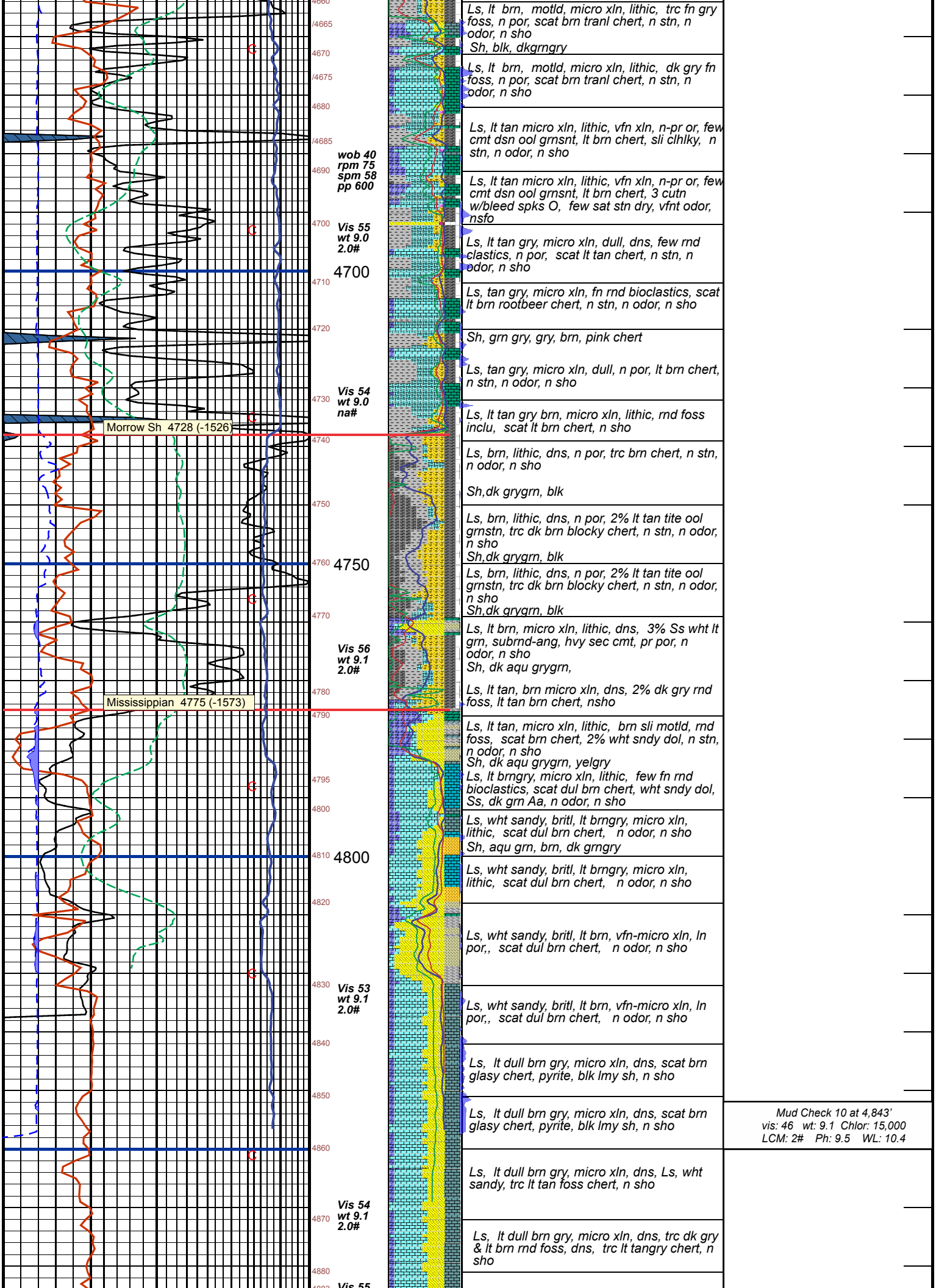
FP: 25-36 FFP: 31-35
SIP: 1291 FSIP:1242
HP: 2253 FHP: 2167

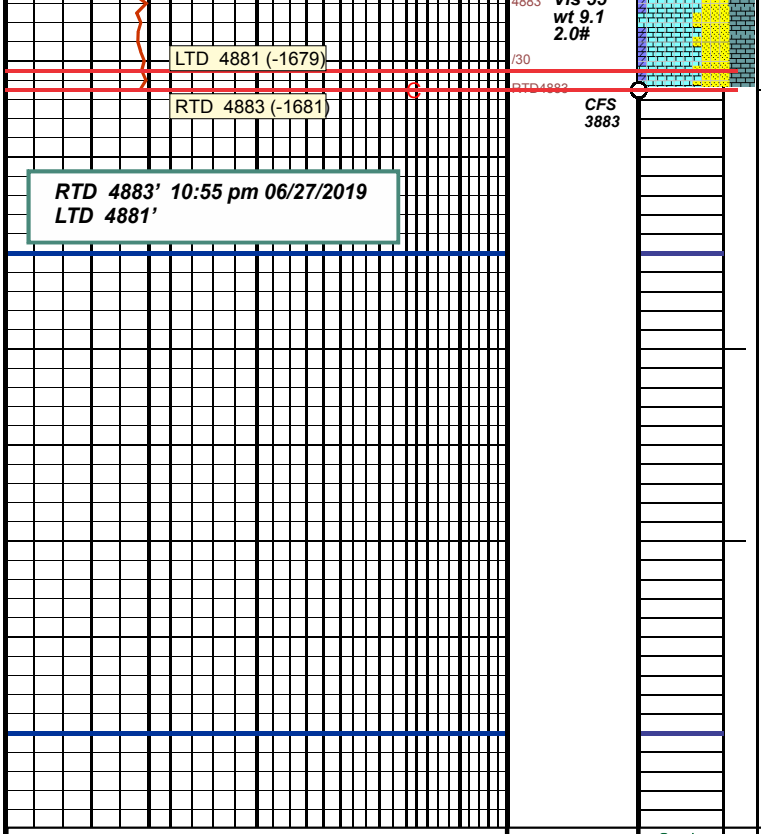
BHT 110° F Grav 31° F



Mud Check 8 at 4,460'
vis: 50 wt: 8.8 Chlor: 10,500
LCM: 2# Ph: 10.5 WL:9.4

Mud Check 9 at 4,580'
vis: 49 wt: 9.4 Chlor: 13,500
LCM: 2# Ph: 10.0 WL:9.4


4660
/4665
4670
/4675
4680
/4685
wob 40
rpm 75
spm 58
pp 600
4690
4700
Vis 55
wt 9.0
2.0#
4700
4710
4720
Vis 54
wt 9.0
na#
4730
Morrow Sh 4728 (-1526)
4740
4750
4760
4750
4770
Vis 56
wt 9.1
2.0#
4780
Mississippian 4775 (-1573)
4790
4795
4800
4810
4800
4820
4830
Vis 53
wt 9.1
2.0#
4840
4850
4860
4870
Vis 54
wt 9.1
2.0#
4880
Vis 55
Ls, lt brn, motld, micro xln, lithic, trc fn gry foss, n por, scat brn tranl chert, n stn, n odor, n sho
Sh, blk, dkgrngry
Ls, lt brn, motld, micro xln, lithic, dk gry fn foss, n por, scat brn tranl chert, n stn, n odor, n sho
Ls, lt tan micro xln, lithic, vfn xln, n-pr or, few cmt dsn ool grnsnt, lt brn chert, sli clhlky, n stn, n odor, n sho
Ls, lt tan micro xln, lithic, vfn xln, n-pr or, few cmt dsn ool grnsnt, lt brn chert, 3 cutn w/bleed spks O, few sat stn dry, vfnt odor, nsfo
Ls, lt tan gry, micro xln, dull, dns, few rnd clastics, n por, scat lt tan chert, n stn, n odor, n sho
Ls, tan gry, micro xln, fn rnd bioclastics, scat lt brn rootbeer chert, n stn, n odor, n sho
Sh, grn gry, gry, brn, pink chert
Ls, tan gry, micro xln, dull, n por, lt brn chert, n stn, n odor, n sho
Ls, lt tan gry brn, micro xln, lithic, rnd foss inclu, scat lt brn chert, n sho
Ls, brn, lithic, dns, n por, trc brn chert, n stn, n odor, n sho
Sh,dk grygrn, blk
Ls, brn, lithic, dns, n por, 2% lt tan tite ool grnstn, trc dk brn blocky chert, n stn, n odor, n sho
Sh,dk grygrn, blk
Ls, brn, lithic, dns, n por, 2% lt tan tite ool grnstn, trc dk brn blocky chert, n stn, n odor, n sho
Sh,dk grygrn, blk
Ls, lt brn, micro xln, lithic, dns, 3% Ss wht lt grn, subrnd-ang, hvy sec cmt, pr por, n odor, n sho
Sh, dk aqu grygrn,
Ls, lt tan, brn micro xln, dns, 2% dk gry rnd foss, lt tan brn chert, nsho
Ls, lt tan, micro xln, lithic, brn sli motld, rnd foss, scat brn chert, 2% wht sndy dol, n stn, n odor, n sho
Sh, dk aqu grygrn, yelgry
Ls, lt brngry, micro xln, lithic, few fn rnd bioclastics, scat dul brn chert, wht sndy dol, Ss, dk grn Aa, n odor, n sho
Ls, wht sandy, britl, lt brngry, micro xln, lithic, scat dul brn chert, n odor, n sho
Sh, aqu grn, brn, dk grngry
Ls, wht sandy, britl, lt brngry, micro xln, lithic, scat dul brn chert, n odor, n sho
Ls, wht sandy, britl, lt brn, vfn-micro xln, ln por,, scat dul brn chert, n odor, n sho
Ls, wht sandy, britl, lt brn, vfn-micro xln, ln por,, scat dul brn chert, n odor, n sho
Ls, lt dull brn gry, micro xln, dns, scat brn glasy chert, pyrite, blk lmy sh, n sho
Ls, lt dull brn gry, micro xln, dns, scat brn glasy chert, pyrite, blk lmy sh, n sho
Ls, lt dull brn gry, micro xln, dns, Ls, wht sandy, trc lt tan foss chert, n sho
Ls, lt dull brn gry, micro xln, dns, trc dk gry & lt brn rnd foss, dns, trc lt tangry chert, n sho
Mud Check 10 at 4,843'
vis: 46 wt: 9.1 Chlor: 15,000
LCM: 2# Ph: 9.5 WL: 10.4



Ls, lt dull brn gry, micro xln, dns, Ls, wht sandy, trc lt tan foss chert, n sho

16 Stand short trip
Circ 1.5 hr
TOH for Logs

0 GAMMA RAY / SP 150

-100 Gas Units 100

1 2 4 6 8 10 20 40 65 PE

0 5

DRILLING TIME IN MINUTES

Rate of Penetration Increases

PER FOOT

.5" 5" 10" 15" 20" 25"

6 in CALIPER 16 in

DEPTH

Sonic
30 15 0
Density
30 15 0
Neutron
30 15 0

LITHOLOGY

SAMPLE DESCRIPTIONS

REMARKS

COMPANY Culbreath O&G Company, Inc.

LEASE Hagen-Jantz #1-22 NE SW SW SE

LOCATION 660' FSL 2240' FEL SEC. 22 TWP 16S RGE 36W

COUNTY Wichita STATE Ks

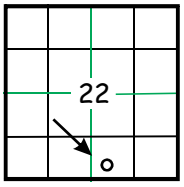
ELEVATIONS

K.B. 3202

D.F.

G.L. 3195

All measurements from K.B. 3202



DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64358 **DST#: 1**

Test Start: 2019.06.22 @ 13:44:00

GENERAL INFORMATION:

Formation: **LKC A**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:31:45
Time Test Ended: 21:46:15

Test Type: Conventional Bottom Hole (Initial)
Tester: Bradley Walter
Unit No: 78

Interval: 4034.00 ft (KB) To 4038.00 ft (KB) (TVD)
Total Depth: 4038.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

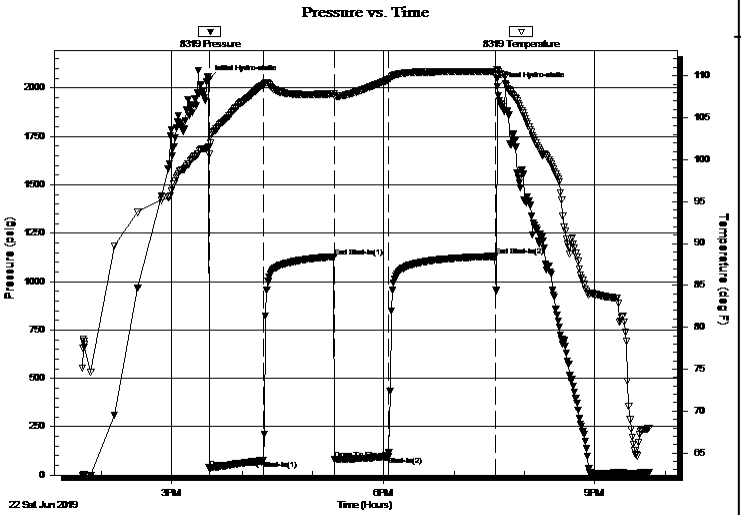
Reference Elevations: 3202.00 ft (KB)
3195.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8319 **Outside**

Press@RunDepth: 94.52 psig @ 4025.00 ft (KB)
Start Date: 2019.06.22 End Date: 2019.06.22
Start Time: 13:44:05 End Time: 21:46:14

Capacity: 8000.00 psig
Last Calib.: 2019.06.22
Time On Btm: 2019.06.22 @ 15:31:30
Time Off Btm: 2019.06.22 @ 19:37:00

TEST COMMENT: 45- IF: 4 1/2" blow .
60- ISI: No return.
45- FF: 3 1/2" blow .
90- FSI: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2042.45	101.51	Initial Hydro-static
1	37.82	100.63	Open To Flow (1)
47	76.12	108.91	Shut-In(1)
107	1128.64	107.84	End Shut-In(1)
108	81.46	107.58	Open To Flow (2)
153	94.52	109.50	Shut-In(2)
244	1130.89	110.50	End Shut-In(2)
246	2007.70	110.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
130.00	mcw 15m 85w w/oil spots	0.74
0.00	4 inches of oil on top	0.00

Gas Rates

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

DRILL STEM TEST REPORT

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64358 **DST#: 1**

Test Start: 2019.06.22 @ 13:44:00

GENERAL INFORMATION:

Formation: **LKC A**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:31:45
Time Test Ended: 21:46:15

Test Type: Conventional Bottom Hole (Initial)
Tester: Bradley Walter
Unit No: 78

Interval: 4034.00 ft (KB) To 4038.00 ft (KB) (TVD)
Total Depth: 4038.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

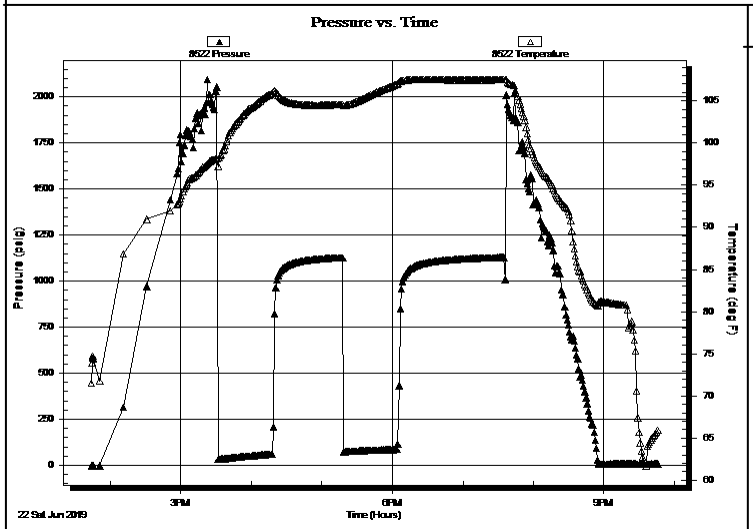
Reference Elevations: 3202.00 ft (KB)
3195.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Inside**

Press@RunDepth: psig @ 4025.00 ft (KB)
Start Date: 2019.06.22 End Date: 2019.06.22
Start Time: 13:44:05 End Time: 21:46:14

Capacity: 8000.00 psig
Last Calib.: 2019.06.22
Time On Btm:
Time Off Btm:

TEST COMMENT: 45- IF: 4 1/2" blow .
60- ISI: No return.
45- FF: 3 1/2" blow .
90- FSI: No return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
130.00	mcw 15m 85w w/oil spots	0.74
0.00	4 inches of oil on top	0.00

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64358 **DST#: 1**

Test Start: 2019.06.22 @ 13:44:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	0 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	56000 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	10000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
130.00	mcw 15m 85w w/oil spots	0.740
0.00	4 inches of oil on top	0.000

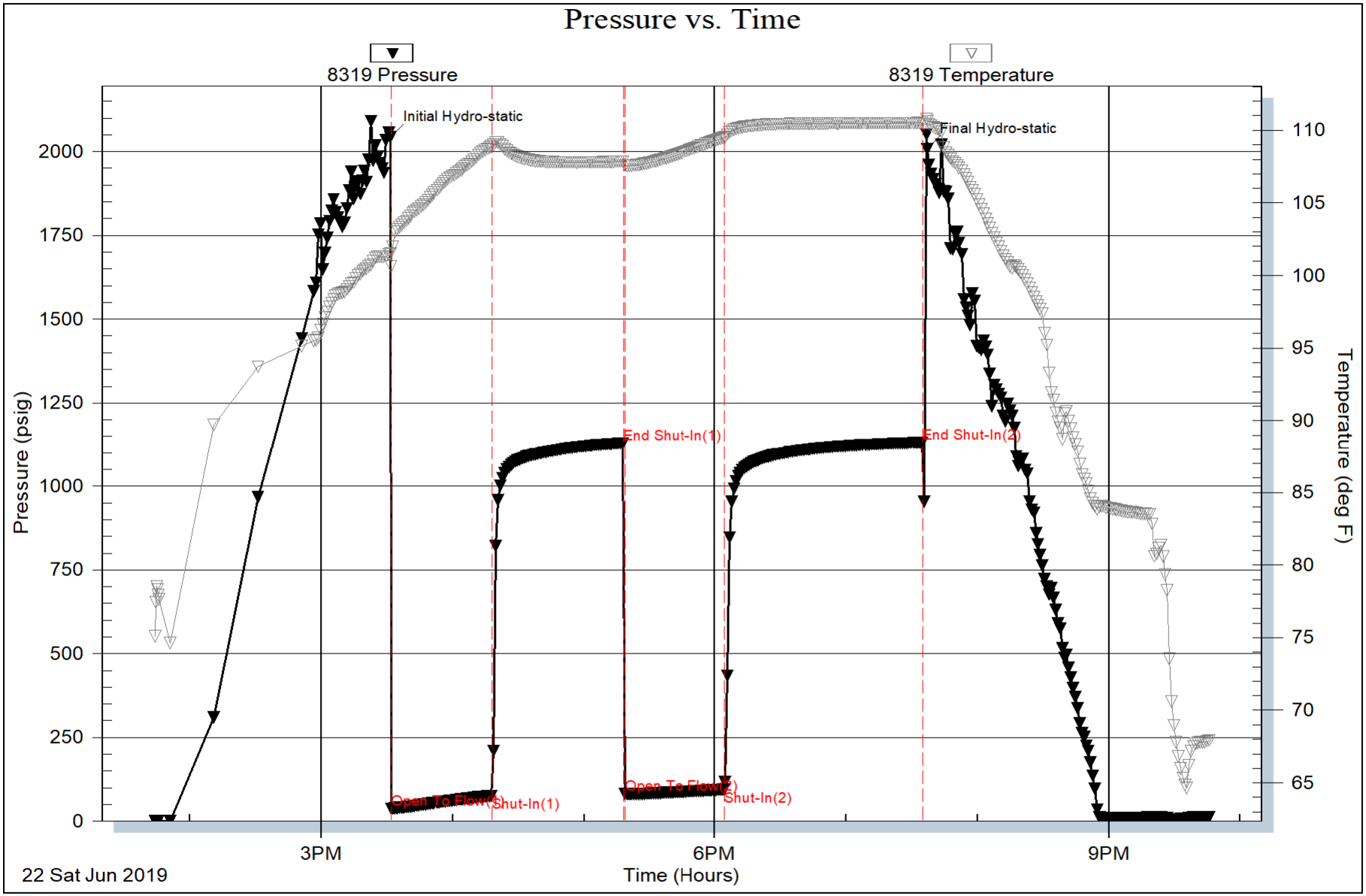
Total Length: 130.00 ft Total Volume: 0.740 bbl

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

Laboratory Name: Laboratory Location:

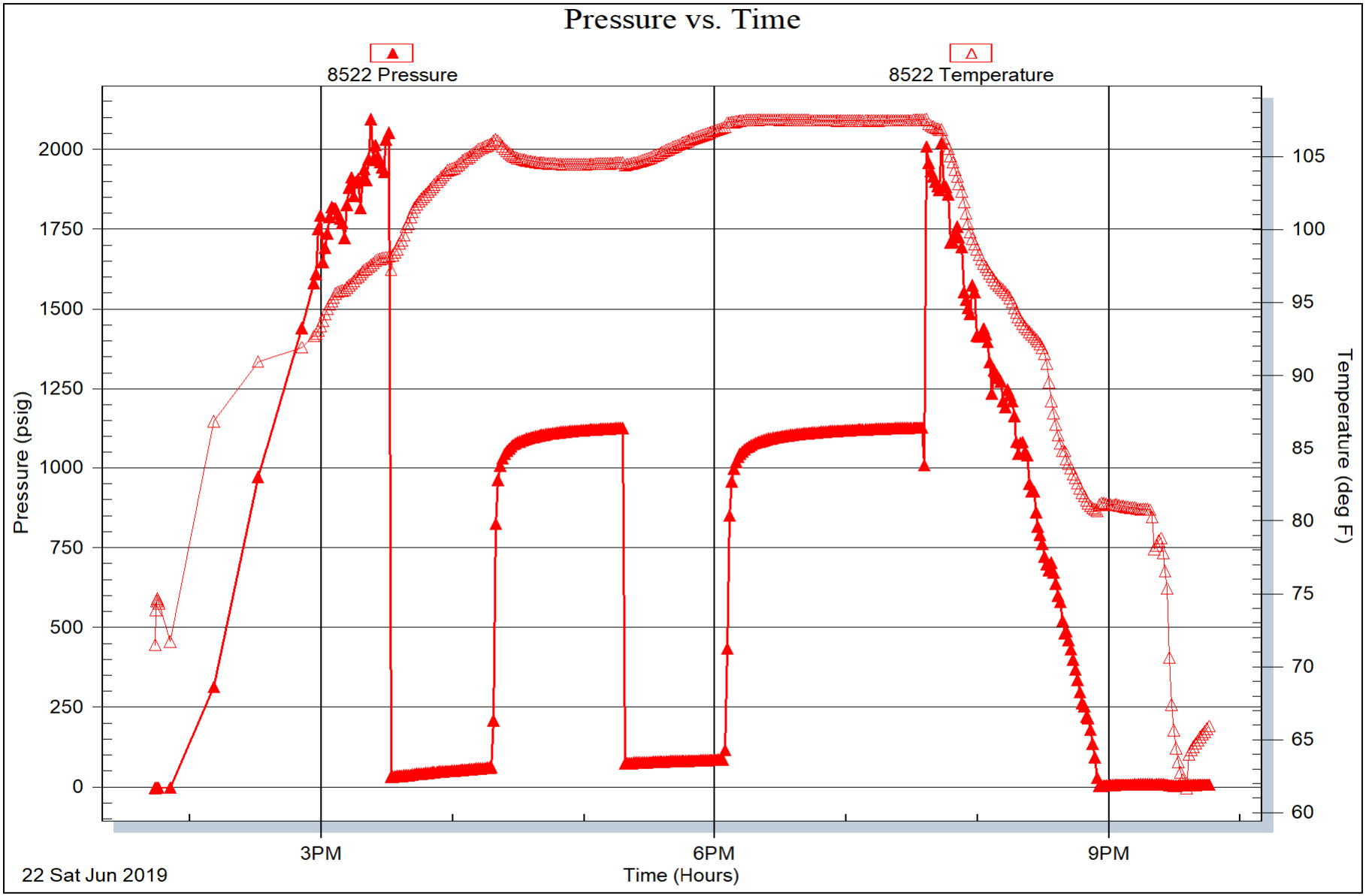
Recovery Comments: rw is .167 @ 64 F= 56,000ppm

Serial #: 8319 **Outside** Culbreath OIL & Gas Co, Inc. Hagen-Jantz 1-22 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 64358 Printed: 2019.06.22 @ 22:17:27

Serial #: 8522 **Inside** Culbreath OIL & Gas Co, Inc. Hagen-Jantz 1-22 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 64358 Printed: 2019.06.22 @ 22:17:27

DRILL STEM TEST REPORT

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64359 **DST#: 2**

Test Start: 2019.06.23 @ 05:19:00

GENERAL INFORMATION:

Formation: **LKC C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:55:15
Time Test Ended: 13:11:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 78

Interval: 4060.00 ft (KB) To 4080.00 ft (KB) (TVD)
Total Depth: 4080.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

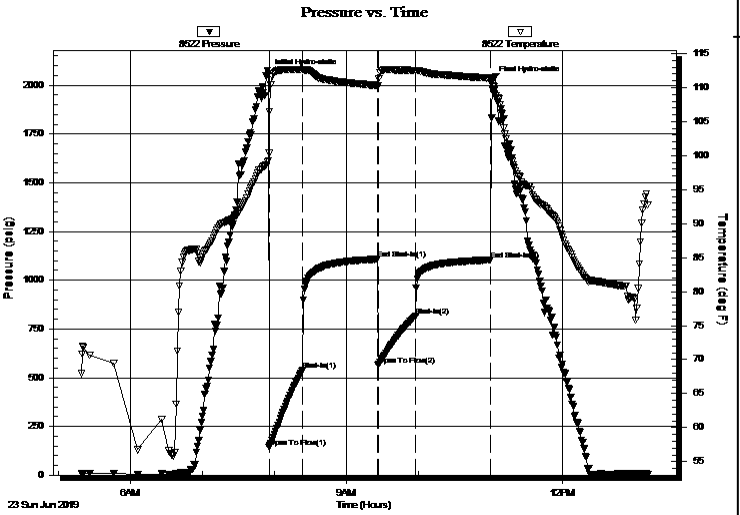
Reference Elevations: 3202.00 ft (KB)
3195.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Inside**

Press@RunDepth: 816.99 psig @ 4061.00 ft (KB)
Start Date: 2019.06.23 End Date: 2019.06.23
Start Time: 05:19:05 End Time: 13:11:29

Capacity: 8000.00 psig
Last Calib.: 2019.06.23
Time On Btm: 2019.06.23 @ 07:54:45
Time Off Btm: 2019.06.23 @ 11:01:00

TEST COMMENT: 30- IF: BOB @ 1.5 min. - 135" blow .
60- ISI: No return.
30- FF: BOB @ 3 min. - 99" blow .
60- FSI: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2060.30	99.26	Initial Hydro-static
1	142.31	100.34	Open To Flow (1)
29	536.79	112.66	Shut-In(1)
91	1107.88	110.33	End Shut-In(1)
92	565.93	110.31	Open To Flow (2)
123	816.99	112.53	Shut-In(2)
185	1103.53	111.39	End Shut-In(2)
187	2021.32	111.16	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1720.00	mcw 5m 95w w/oil spots throughout	23.04

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64359 **DST#: 2**

Test Start: 2019.06.23 @ 05:19:00

GENERAL INFORMATION:

Formation: **LKC C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:55:15
Time Test Ended: 13:11:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 78

Interval: 4060.00 ft (KB) To 4080.00 ft (KB) (TVD)
Total Depth: 4080.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

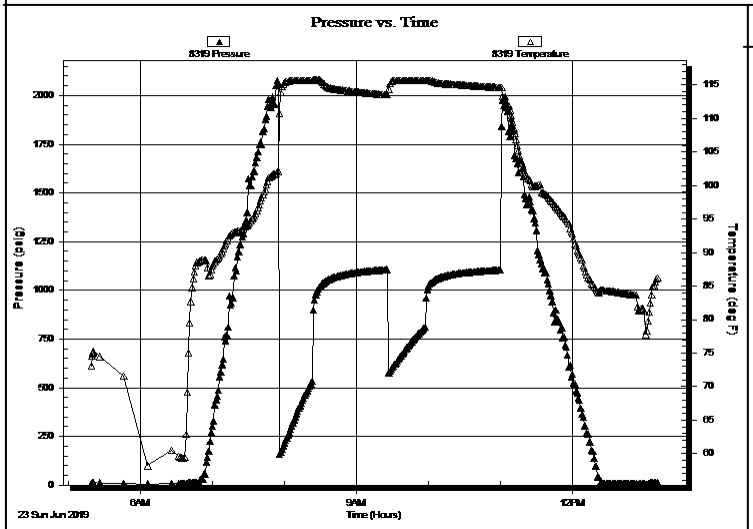
Reference Elevations: 3202.00 ft (KB)
3195.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8319 **Outside**

Press@RunDepth: psig @ 4061.00 ft (KB)
Start Date: 2019.06.23 End Date: 2019.06.23
Start Time: 05:19:05 End Time: 13:11:29

Capacity: 8000.00 psig
Last Calib.: 2019.06.23
Time On Btm:
Time Off Btm:

TEST COMMENT: 30- IF: BOB @ 1.5 min. - 135" blow .
60- ISI: No return.
30- FF: BOB @ 3 min. - 99" blow .
60- FSI: No return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1720.00	mcw 5m 95w w/oil spots throughout	23.04

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64359 **DST#: 2**

Test Start: 2019.06.23 @ 05:19:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	0 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	58000 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	10000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1720.00	mcw 5m 95w w/oil spots throughout	23.043

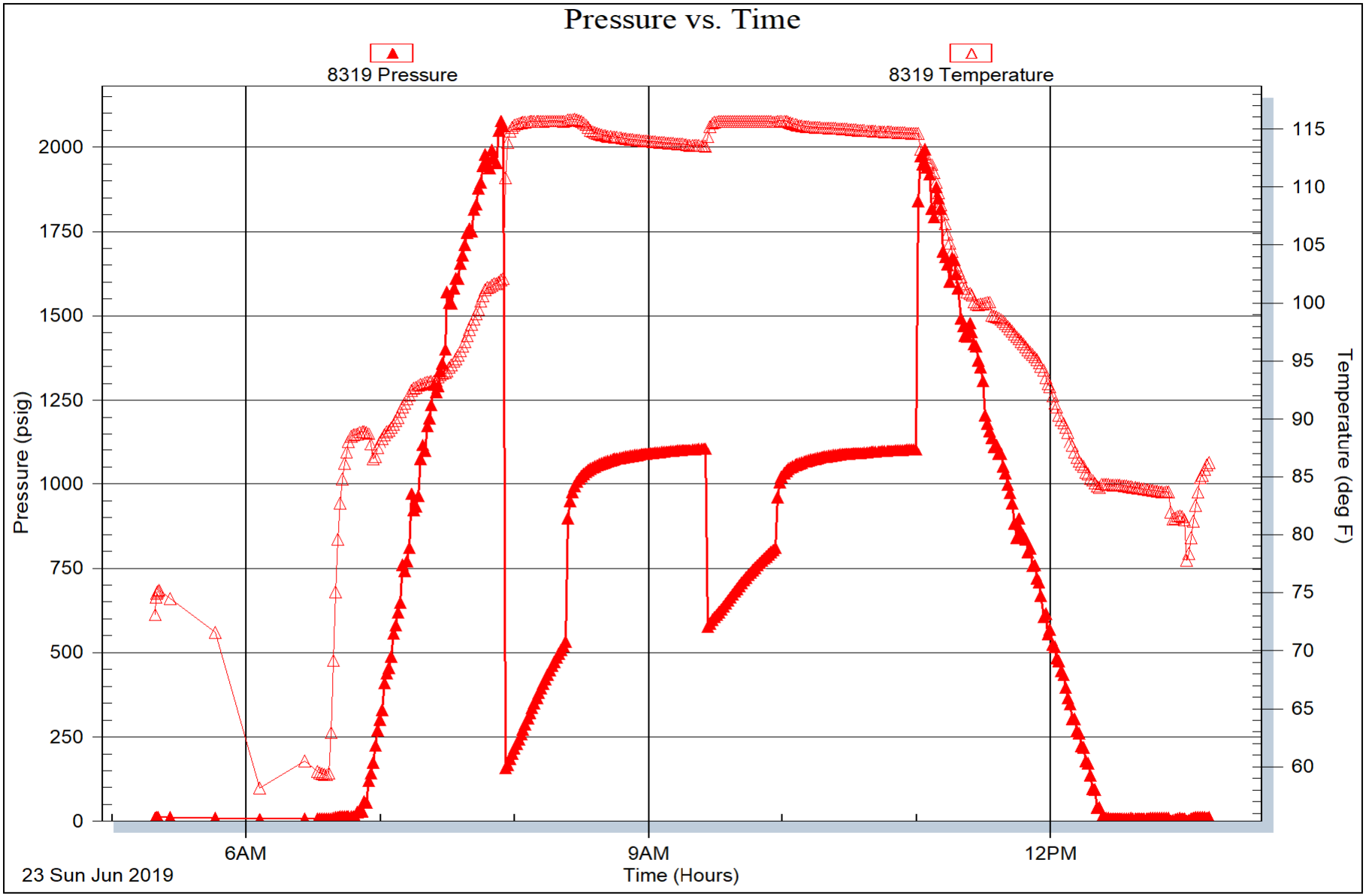
Total Length: 1720.00 ft Total Volume: 23.043 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: rw is .129 @ 72F= 58000ppm

Serial #: 8319 **Outside** Culbreath OIL & Gas Co, Inc. Hagen-Jantz 1-22 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 64359 Printed: 2019.06.23 @ 13:59:40

DRILL STEM TEST REPORT

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64360 **DST#: 3**

Test Start: 2019.06.24 @ 13:42:00

GENERAL INFORMATION:

Formation: **LKC I - K**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:29:00
Time Test Ended: 22:12:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 78

Interval: 4239.00 ft (KB) To 4318.00 ft (KB) (TVD)
Total Depth: 4318.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

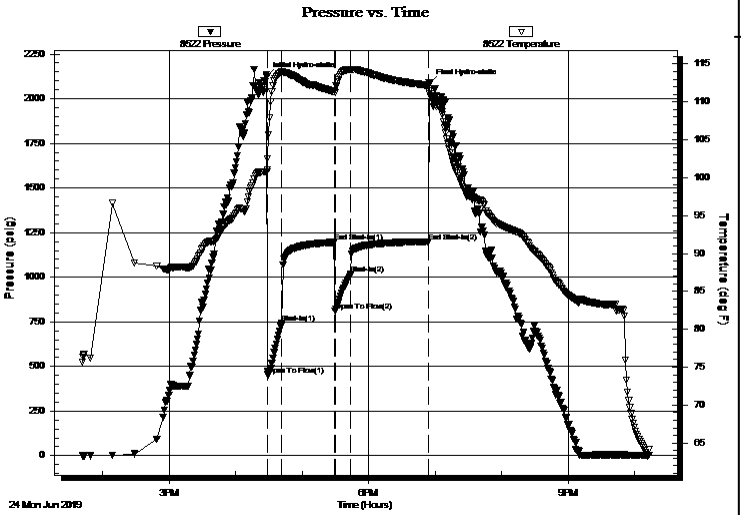
Reference Elevations: 3202.00 ft (KB)
3195.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Inside**

Press@RunDepth: 1016.14 psig @ 4240.00 ft (KB)
Start Date: 2019.06.24 End Date: 2019.06.24
Start Time: 13:42:05 End Time: 22:12:44

Capacity: 8000.00 psig
Last Calib.: 2019.06.24
Time On Btm: 2019.06.24 @ 16:28:15
Time Off Btm: 2019.06.24 @ 18:55:00

TEST COMMENT: 15- IF: 183" blow .
45- ISI: No return.
15- FF: 135" blow .
60- FSI: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2123.42	100.77	Initial Hydro-static
1	453.67	102.46	Open To Flow (1)
14	744.81	113.92	Shut-In(1)
61	1196.25	111.37	End Shut-In(1)
62	809.86	111.24	Open To Flow (2)
76	1016.14	114.29	Shut-In(2)
146	1200.15	112.17	End Shut-In(2)
147	2082.63	111.07	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1200.00	mcw 3m 97w w/oil spots on top	15.75

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64360 **DST#: 3**

Test Start: 2019.06.24 @ 13:42:00

GENERAL INFORMATION:

Formation: **LKC I - K**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:29:00
Time Test Ended: 22:12:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 78

Interval: 4239.00 ft (KB) To 4318.00 ft (KB) (TVD)
Total Depth: 4318.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

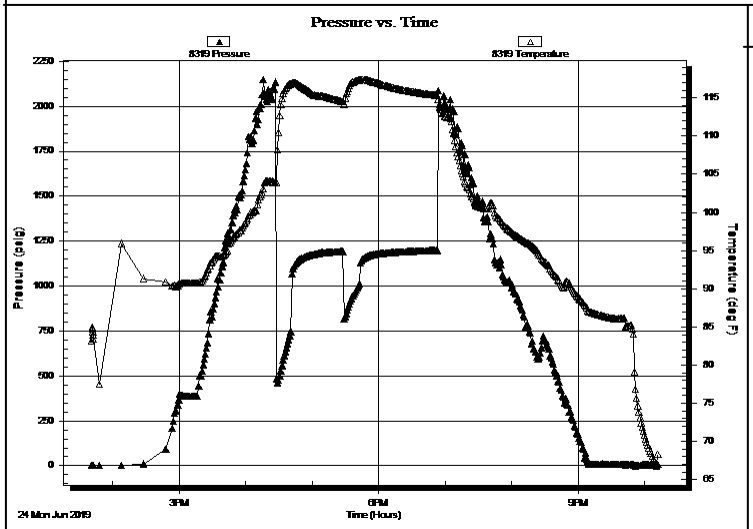
Reference Elevations: 3202.00 ft (KB)
3195.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8319 **Outside**

Press@RunDepth: psig @ 4240.00 ft (KB)
Start Date: 2019.06.24 End Date: 2019.06.24
Start Time: 13:41:05 End Time: 22:11:44

Capacity: 8000.00 psig
Last Calib.: 2019.06.24
Time On Btm:
Time Off Btm:

TEST COMMENT: 15- IF: 183" blow .
45- ISI: No return.
15- FF: 135" blow .
60- FSI: No return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1200.00	mcw 3m 97w w/oil spots on top	15.75

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64360 **DST#: 3**

Test Start: 2019.06.24 @ 13:42:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	0 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	51000 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.58 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	10000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1200.00	mcw 3m 97w w/oil spots on top	15.749

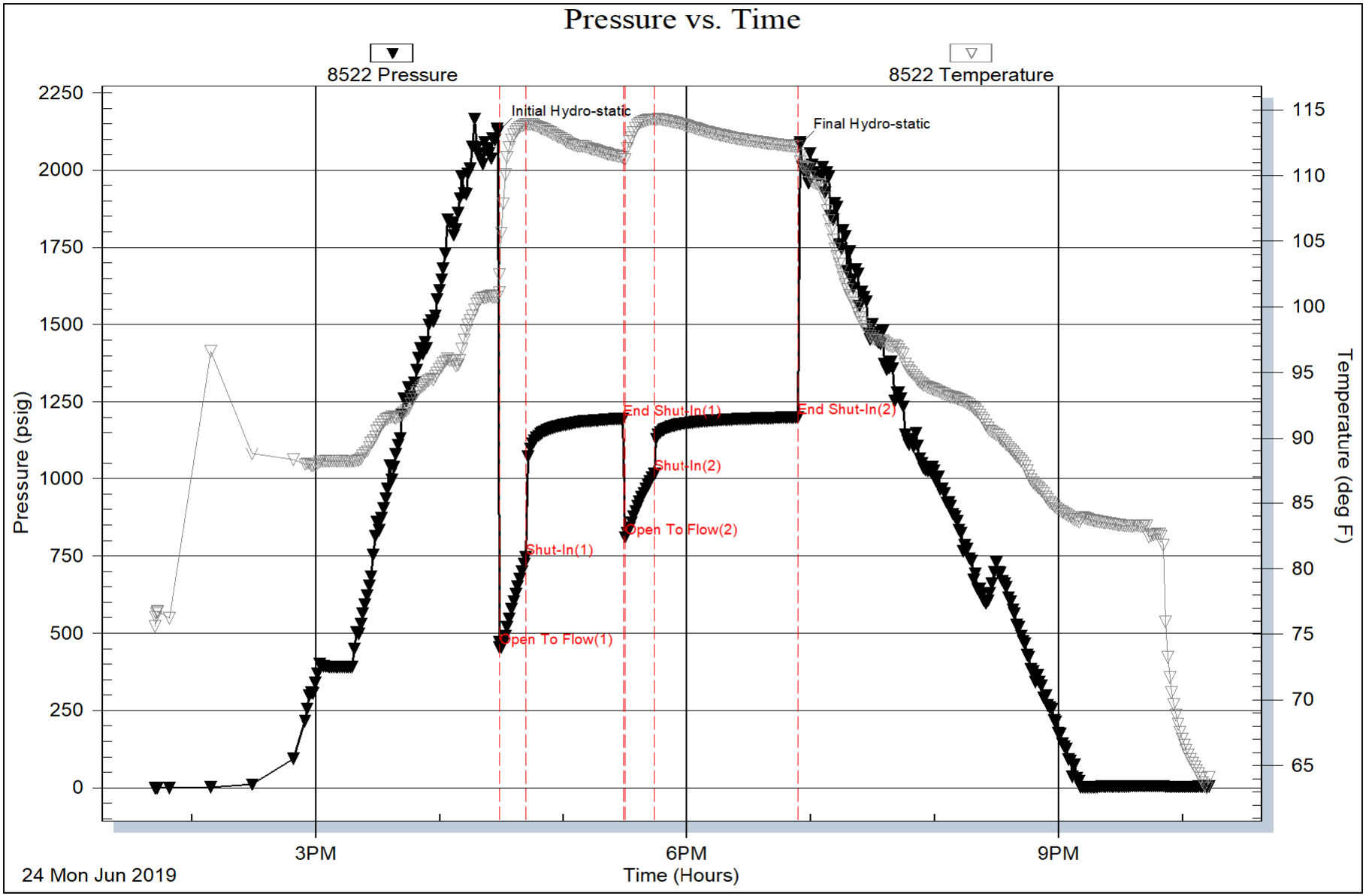
Total Length: 1200.00 ft Total Volume: 15.749 bbl

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

Laboratory Name: Laboratory Location:

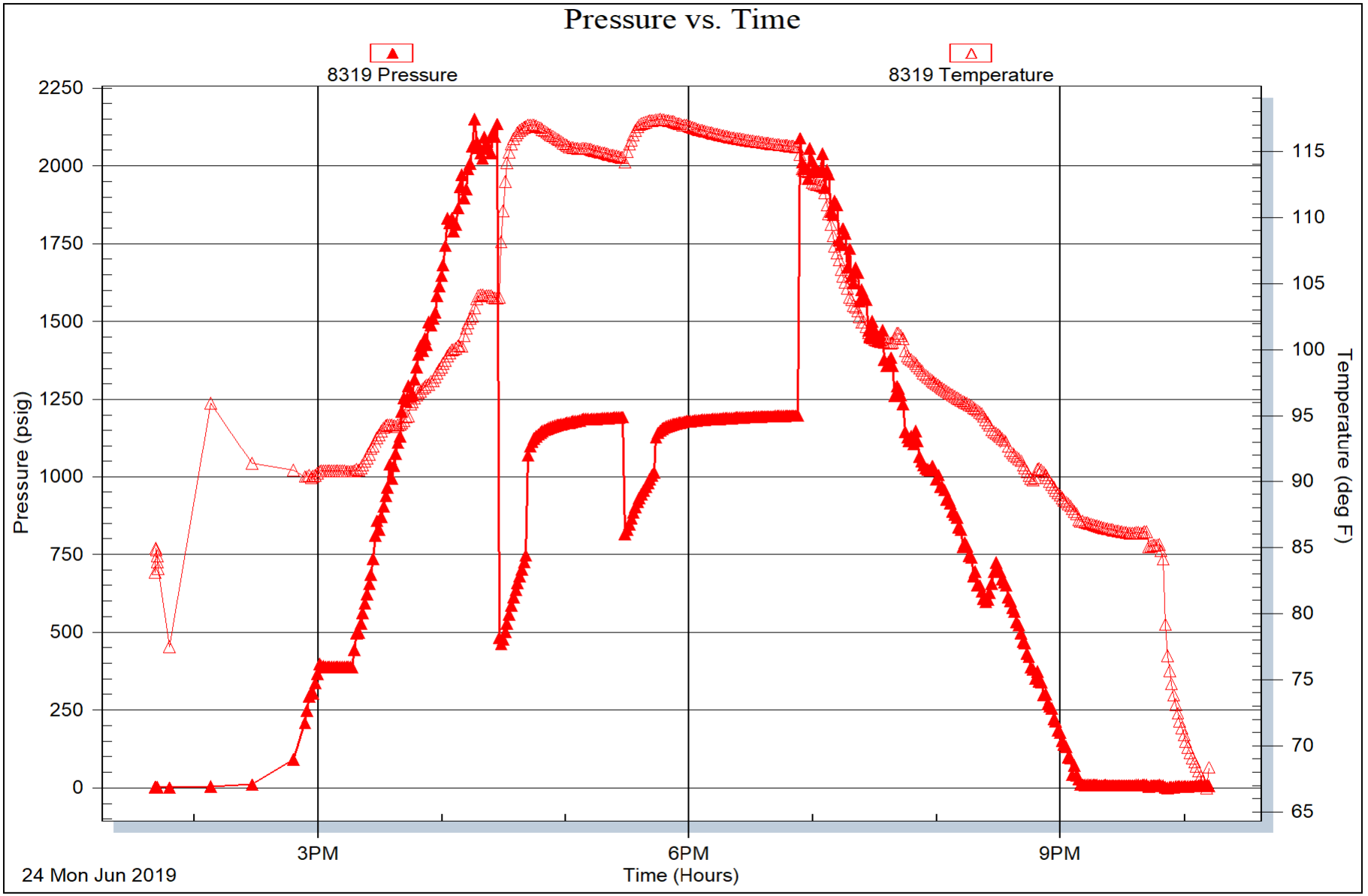
Recovery Comments: rw is .155 @ 74f = 51000ppm

Serial #: 8522 **Inside** Culbreath OIL & Gas Co, Inc. Hagen-Jantz 1-22 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 64360 Printed: 2019.06.24 @ 22:31:52

Serial #: 8319 **Outside** Culbreath OIL & Gas Co, Inc. Hagen-Jantz 1-22 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 64360 Printed: 2019.06.24 @ 22:31:53

DRILL STEM TEST REPORT

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64361 **DST#: 4**

Test Start: 2019.06.25 @ 15:15:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:29:15
Time Test Ended: 22:34:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 78

Interval: 4433.00 ft (KB) To 4465.00 ft (KB) (TVD)
Total Depth: 4465.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

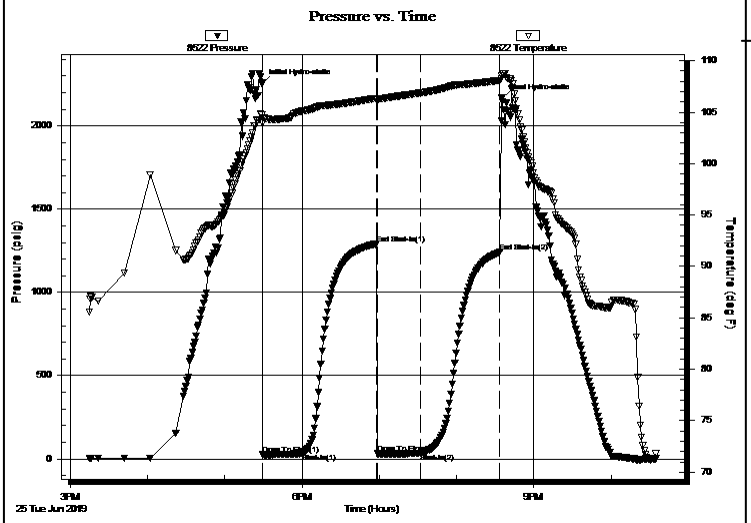
Reference Elevations: 3202.00 ft (KB)
3195.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Inside**

Press@RunDepth: 35.06 psig @ 4434.00 ft (KB)
Start Date: 2019.06.25 End Date: 2019.06.25
Start Time: 15:15:05 End Time: 22:34:44

Capacity: 8000.00 psig
Last Calib.: 2019.06.25
Time On Btm: 2019.06.25 @ 17:29:00
Time Off Btm: 2019.06.25 @ 20:35:15

TEST COMMENT: 30- IF: 1/2" blow .
60- ISI: No return
30- FF: No blow .
60: FSI: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2253.25	104.76	Initial Hydro-static
1	25.14	103.94	Open To Flow (1)
32	35.52	105.10	Shut-In(1)
89	1291.30	106.34	End Shut-In(1)
90	31.34	106.20	Open To Flow (2)
124	35.06	106.88	Shut-In(2)
185	1241.70	108.10	End Shut-In(2)
187	2166.91	108.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	ocm 20o 80m	0.02
15.00	oil 100o	0.07

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64361 **DST#: 4**

Test Start: 2019.06.25 @ 15:15:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:29:15
Time Test Ended: 22:34:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 78

Interval: 4433.00 ft (KB) To 4465.00 ft (KB) (TVD)
Total Depth: 4465.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

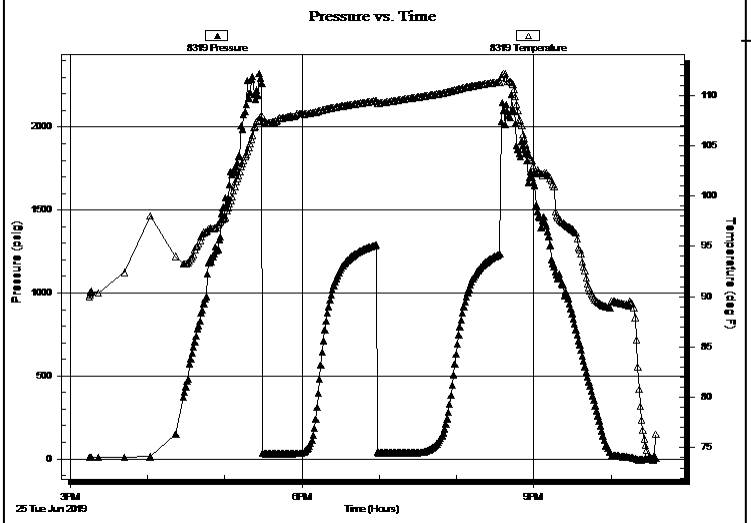
Reference Elevations: 3202.00 ft (KB)
3195.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8319 **Outside**

Press@RunDepth: psig @ 4434.00 ft (KB)
Start Date: 2019.06.25 End Date: 2019.06.25
Start Time: 15:15:05 End Time: 22:34:44

Capacity: 8000.00 psig
Last Calib.: 2019.06.25
Time On Btm:
Time Off Btm:

TEST COMMENT: 30- IF: 1/2" blow .
60- ISI: No return
30- FF: No blow .
60: FSI: No return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	ocm 20o 80m	0.02
15.00	oil 100o	0.07

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Culbreath OIL & Gas Co, Inc.

3501 S Yale Ave
Tulsa, Ok 74135

ATTN: Larry Nicholson

22 16s 35w Wichita, Ks

Hagen-Jantz 1-22

Job Ticket: 64361 **DST#: 4**

Test Start: 2019.06.25 @ 15:15:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	31 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	0 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	8.99 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	10500.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

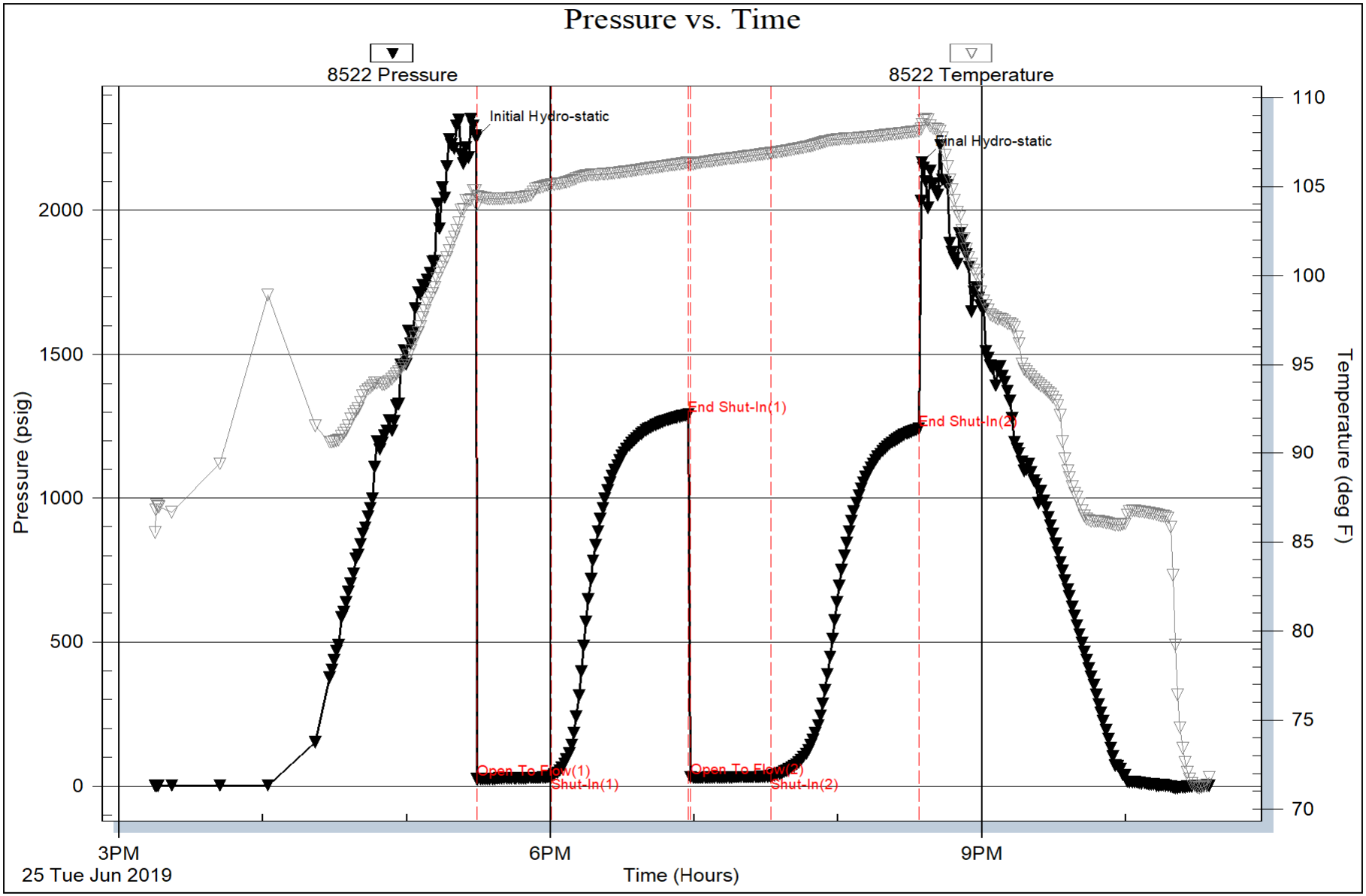
Recovery Table

Length ft	Description	Volume bbl
5.00	ocm 20o 80m	0.025
15.00	oil 100o	0.074

Total Length: 20.00 ft Total Volume: 0.099 bbl

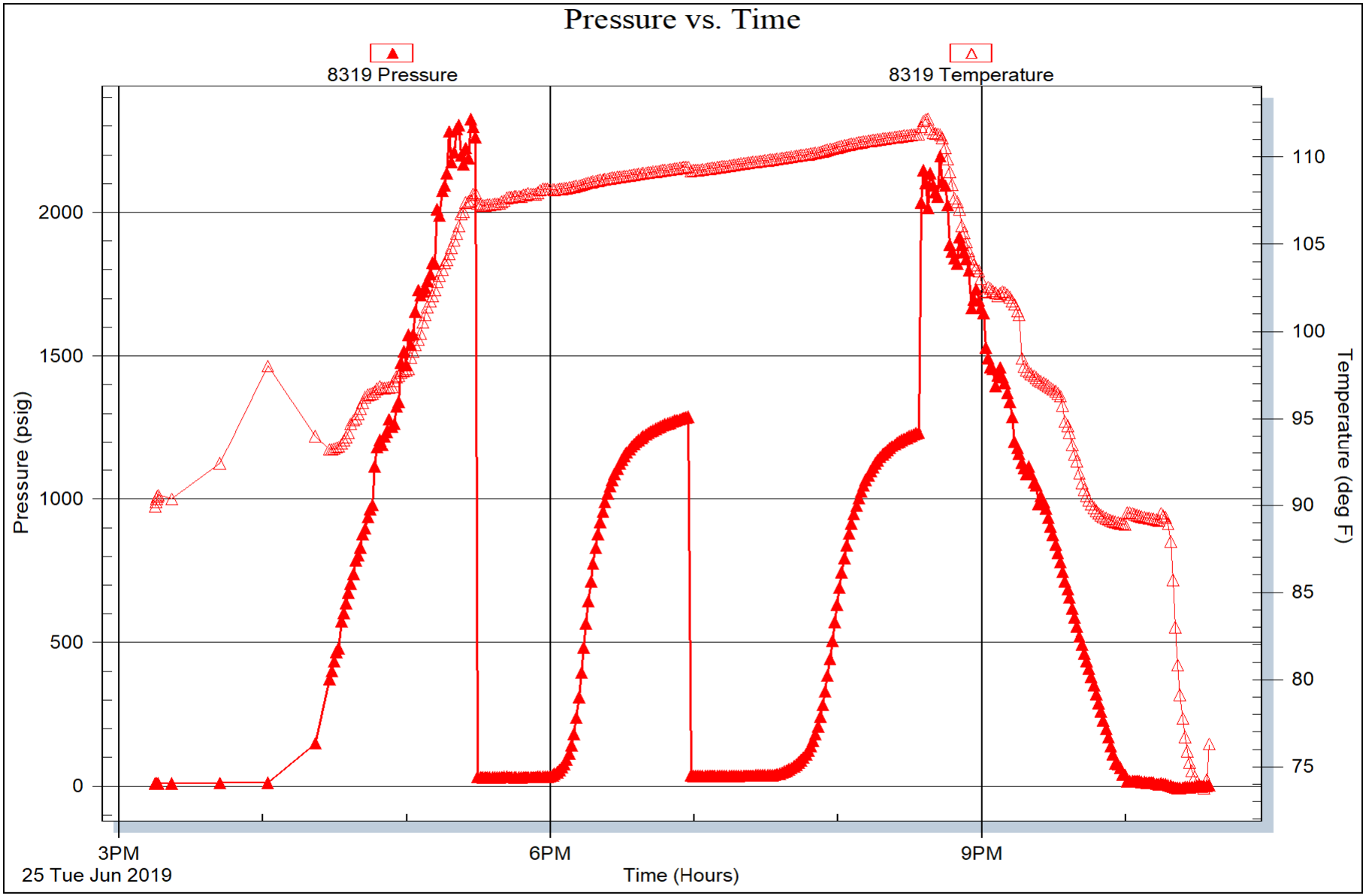
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8522 **Inside** Culbreath OIL & Gas Co, Inc. Hagen-Jantz 1-22 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 64361 Printed: 2019.06.25 @ 23:24:07

Serial #: 8319 **Outside** Culbreath OIL & Gas Co, Inc. Hagen-Jantz 1-22 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 64361 Printed: 2019.06.25 @ 23:24:07