

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](mailto:kcc-well-logs@kcc.ks.gov). Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____			
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Geologic Report  
**Aaron L. Young**

Drilling Time and Sample Log

**Scale 1:240 (5"=100') Imperial  
Measured Depth Log**

**Well Name:** Maddy #1-5  
**Well Id:** 15-163-24340  
**Location:** Section 5 - T8S - R18W  
**License Number:** 8914  
**Spud Date:** 5 / 06 / 2017  
**Surface Coordinates:** 330' FSL and 330' FEL  
Approx. SE - SE - SE  
**Bottom Hole  
Coordinates:**  
**Ground Elevation (ft):** 1917'      **K.B. Elevation (ft):** 1925'  
**Logged Interval (ft):** 2880'      **To:** 3470'      **Total Depth (ft):** 3470'  
**Formation:** Arbuckle  
**Type of Drilling Fluid:** Chemical - Mud-Co

**Region:** Rooks Co., KS  
**Drilling Completed:** 5 / 13 / 2017

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

**OPERATOR**

**Company:** H & C Oil Operating Inc.  
**Address:** PO BOX 86  
Plainville, KS 67663 + 0086

**GEOLOGIST**

**Name:** Aaron L. Young, M. S.  
**Company:** Young Consulting LLC  
**Address:** 100 S Main, Ste. 505  
Wichita, Kansas 67202

**General Info**

**CONTRACTOR:** Discovery Drilling Rig #4

**BIT RECORD:**

No.	Size	Make	Jets	Out	Feet	Hours
1	12-1/4	JZ	14-14-14	219	211	7.0
2	7-7/8	HTC GX-20C	14-14-14	3470	3259	75.5

**SURVEYS:** 219' - 3/4, 3385' - 3/4

**GENERAL DRILLING AND PUMP INFORMATION:**

Drilling with 30-35,000 lbs. on bit and approx 80 RPM.  
Running 8.5 stands of collars; 517.87'  
Pumping 56 strokes/min @ approx 750 psi at standpipe.

## Daily Status

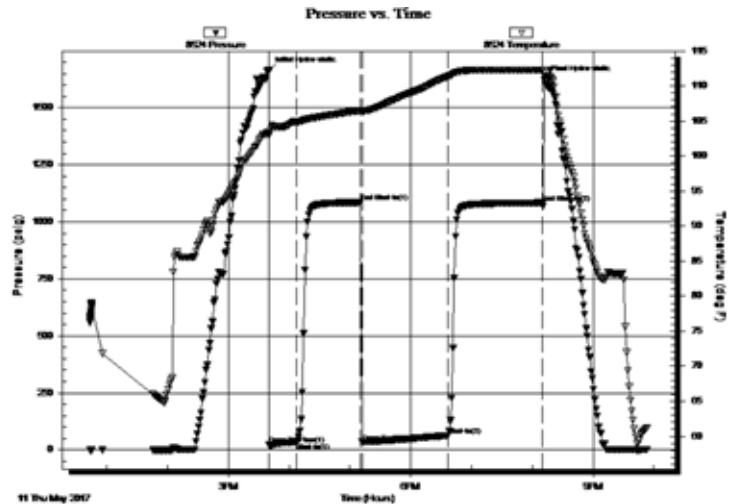
5/07/17 - Spud, @ 219', Ran 5 jts new 23# 8 5/8" casing, set @ 218.84. cem w/ 150 sx 80/20 poz w% gel, 3% cc  
 5/08/17 - Drilling @ 1355'  
 5/09/17 - Drilling @ 2325'  
 5/10/17 - Drilling @ 2945'  
 5/11/17 - DST #1 3372'-3385'  
 5/12/17 - DST #2 3386'-3400'  
 5/13/17 - TD 3470', Logged, Plugged. Plug @ 3360' w/ 50 sx, 2nd plug @ 1345' w/ 50 sx, 3rd plug @ 715' w/ 100sx, 4th plug @ 270 w/ 50 sx, 5th plug @ 40' w/ 10sx. 30 sx in RH, 15 sx in MH. Total 305 sx 60/40 poz, 4% gel, 1/4# FS/sx

**DST #1**  
 Arbuckle  
 3372'-3385'  
 30"-60"-90"-90"

IF: Built slowly to 4"  
 ISI: No return  
 FF: BOB in 74 min  
 FSI: No return

Rec': 15' GIP, 30' CO (100% O), 25' SWSMCO (90% O, 5% W, 5% M), 50' SOCMW (5% O, 65% W, 30% M)

SIP: 1085-1084# FP: 22-34#, 35-64# HP: 1663-1622#

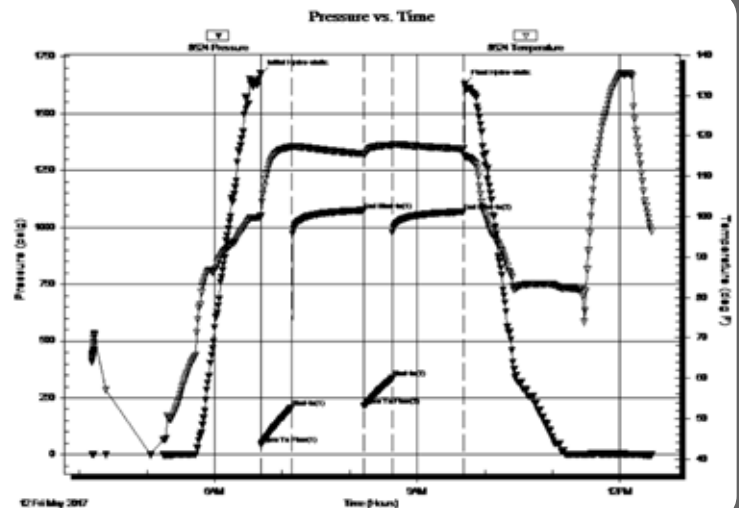


**DST #2**  
 Arbuckle  
 3386'-3400'  
 30"-60"-30"-60"

IF: BOB in 4 min  
 ISI: Surface blowback throughout  
 FF: BOB in 7 min  
 FSI: Surface blowback throughout

Rec': 32' GIP, 30' CO (100% O), 377' SOCMW (10% O, 75% W, 15% M), 314' MW (90% W, 10% M)

SIP: 1075-1069# FP: 46-207#, 214-335# HP: 1672-1631#



### ROCK TYPES

	Anhy
	Bent
	Brec
	Cht
	Clyst
	Coal
	Congl
	Dol

	Gyp
	Igne
	Lmst
	Meta
	Mr1st
	Salt
	Shale
	Shcol

	Shgy
	Slstst
	Ss
	Till
	Carb sh
	Dol
	Dtd
	Gry sh

	Sandylms
	Shale
	Slststn
	Shlyslts
	Sltysh
	Lms

### ACCESSORIES

#### MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr



- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Chlorite
- Dol
- Sand
- Slty

#### FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram



- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom
- Fuss
- Oomold

#### STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh



- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

#### TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Graint
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

### OTHER SYMBOLS

#### POROSITY TYPE

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

#### SORTING

- Well
- Moderate
- Poor

#### ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

#### OIL SHOWS

- Even
- Spotted
- Ques
- Dead
- Gas show

#### INTERVALS

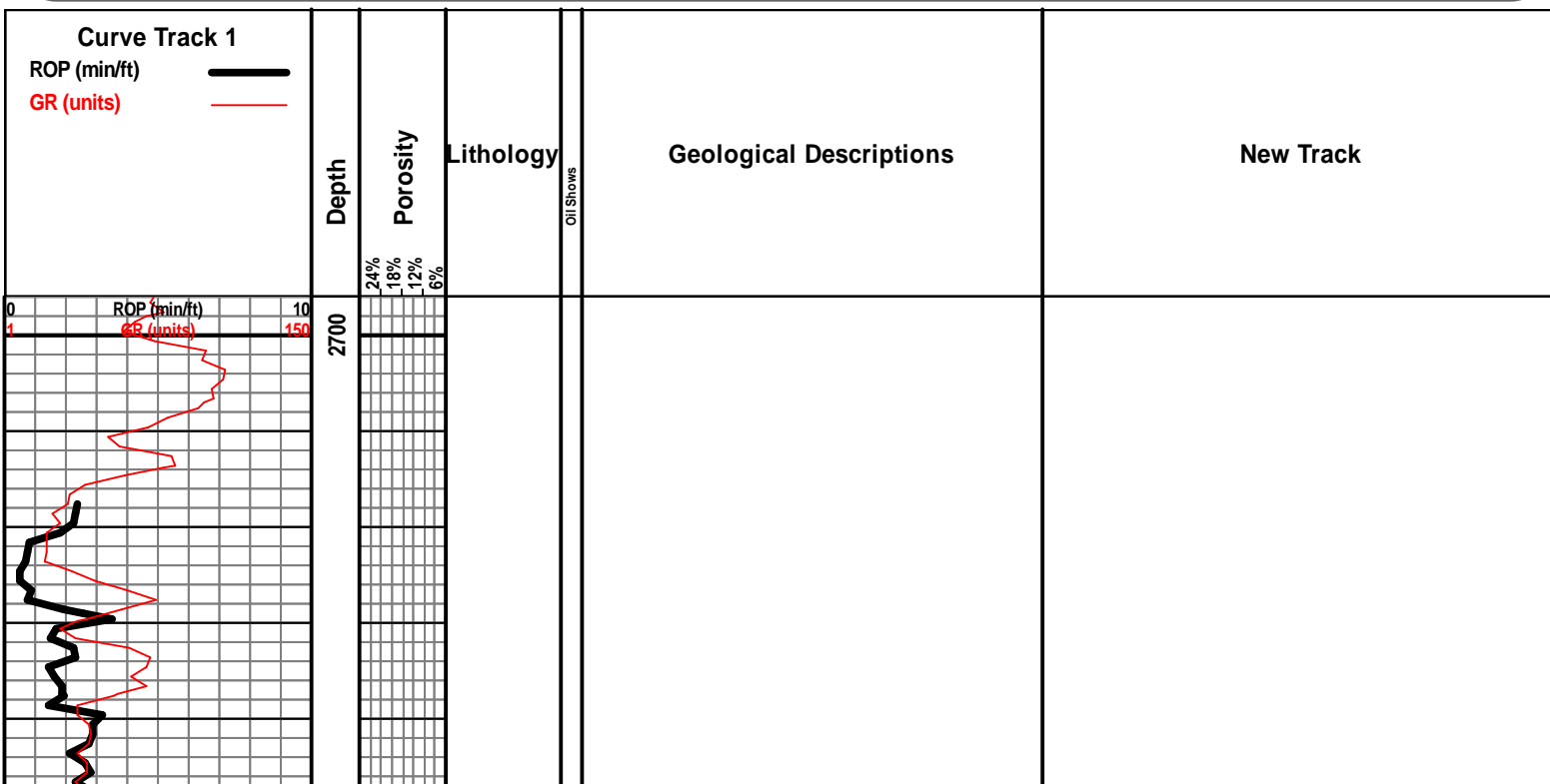
- Core
- Dst

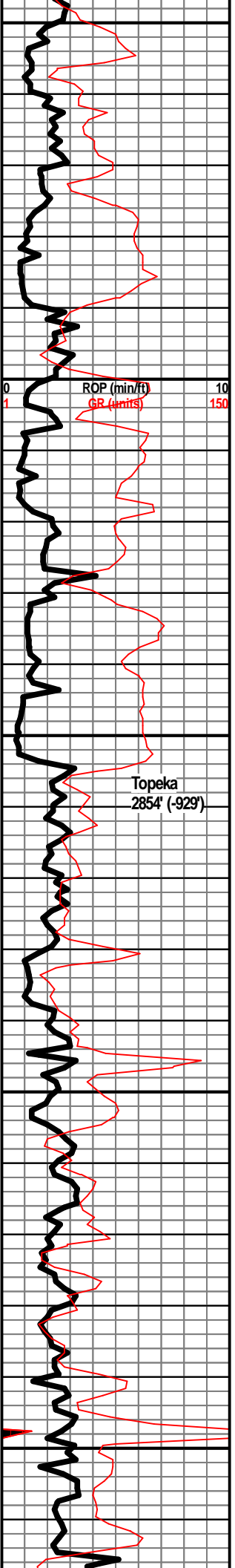


Dst

#### EVENTS

- Rft
- Sidewall
- Conn

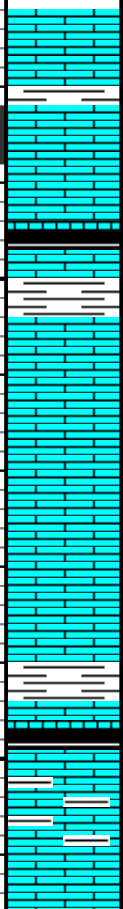




2750  
2800  
2850  
2900  
2950

ROP (min/ft)  
GR (hr/ft)

Topeka  
2854' (-929')



LS - PRED CRM, TAN / BRN IN PT, VF / F XLN, G  
INTXLN POR, VGSFO, LT BRN OIL, G ODOR, V  
SLI YEL-GRN FLUOR

SH - BLK, CARB, W/ SH - GY, W/ LS - GY / TAN, F  
XLN, DNS, FOSS

LS - CRM / TAN, F XLN, MOD DNS / DNS, FOSS

LS - CRM / TAN, F XLN, MOD DNS / DNS, FOSS

LS - TAN, F XLN, DNS, ABUND FOSS

SH - RD / GRN, W/ LS - CRM / TAN, VF / F XLN,  
SUBCHKY

SH - BLK, SLI CARB

LS - TAN / GY, VF / F XLN, MOD DNS, ARG,  
ABUND FOSS (CRINOID, FUSIL)

LS - TAN / LT BRN, F XLN, V DNS, FOSS

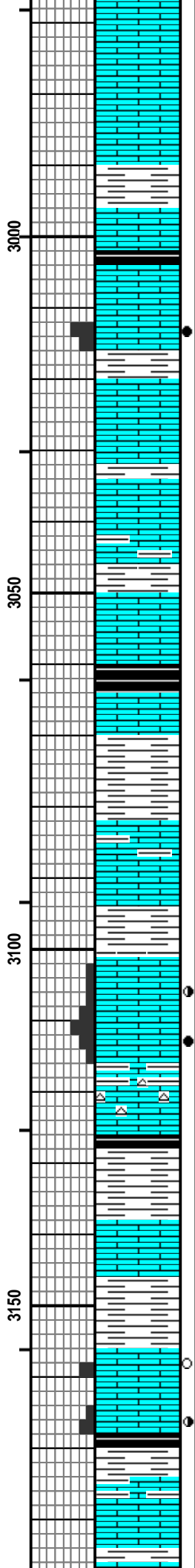
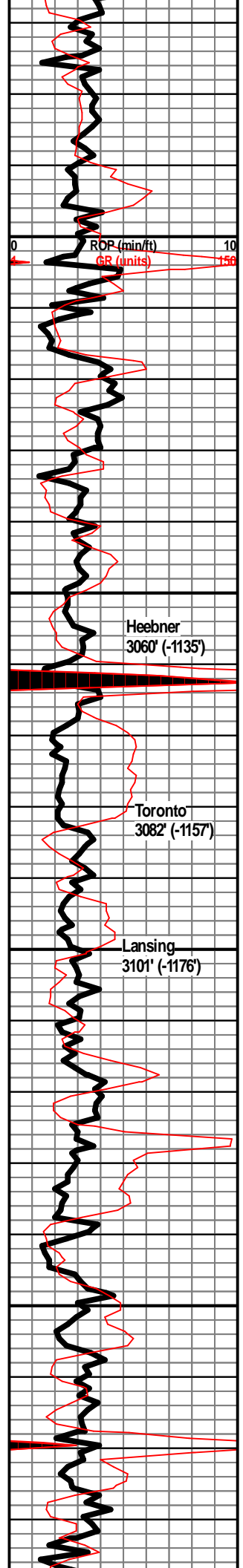
WT 8.5  
VIS 54

WT 8.6  
VIS 54

WT 8.6  
VIS 50

WT 8.7  
VIS 44

WT 8.7



LS - CRM, VF / F XLN, PRED DNS, MOD DNS / SUBCHKY IN PT

LS - TAN, F XLN, MOD DNS / DNS, FOSS IN PT

SH - LT GRN

LS - TAN / LT BRN, F XLN, DNS, FOSS

SH - BLK, CARB

LS - CRM / TAN, F XLN, DNS, FOSS (ABUND FUSIL)

LS - CRM, VF / F XLN, P / F INTXLT POR, FSFO, LT BRN OIL, V SLI ODOR, F YEL-GRN FLUOR

LS - CRM, VF / F XLN, SUBCHKY / MOD DNS, FOSS, W/ SH - GRN

LS - CRM, VF / F XLN, MOD DNS, ARG, W/ SH - GRN / GY

LS - CRM, VF / F XLN, SUBCHKY / MOD DNS

SH - BLK, CARB, W/ LS - CRM / WHT, VF XLN, CHKY / SUBCHKY

LS - TAN, F XLN, DNS, FOSS

SH - GRN / GY

LS - CRM, VF / F XLN, MOD DNS, ARG IN PT, FOSS

LS - CRM / WHT, VF XLN, SUBCHKY

SH - RD / LT GRN

LS - CRM / TAN, VF / F XLN, P INTXLN POR, VSSFO, LT BRN OIL, SOME OIL STN, SLI ODOR, SLI YEL-GRN FLOUR

LS - CRM, F XLN, P / F INTXLN POR, FSFO, LT BRN OIL, F ODOR, F YEL-GRN FLUOR

LS - CRM / TAN, VF / F XLN, MOD DNS / DNS, ARG IN PT, FOSS, W/ CHT - GY, FRSH, SLI TRANSLUCNT

SH - BLK, SLI CARB

SH - GY, GRN

LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY IN PT

SH - RD / GRN

LS - CRM, VF / F XLN, P INTXLN POR, FOSS, NSFO, ABUND OIL STN, ABUND OIL SHEEN UPON BREAK, POR MOSTLY BARREN, V SLI ODOR, SLI YEL-GRN FLUOR

LS - AA, MORE FOSS, VSSFO, V SLI ODOR

SH - DK GY / BLK, W/ LS - TAN / GY, F XLN, MOD DNS / DNS, ARG

LS - CRM, VF XLN, SUBCHKY / CHKY IN PT, W/ SH LT GRN

WT 8.7  
VIS 68

WT 8.7  
VIS 46

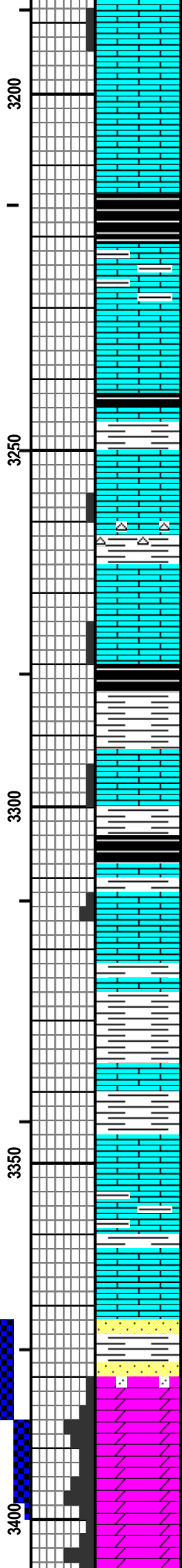
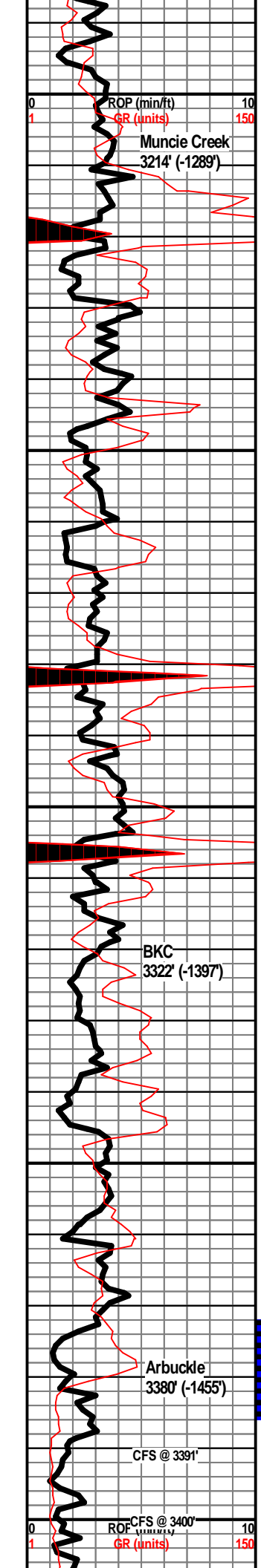
WT 8.7  
VIS 61

WT 8.8  
VIS 61

WT 8.8  
VIS 58

WT 8.9  
VIS 56





LS - CRM, VF / F XLN, ABUND FOSS, P INTXLN POR, FSFO, LT BRN OIL, SLI ODOR, SLI YEL-GRN FLUOR

LS - CRM / TAN, F XLN, DNS, FOSS

LS - CRM / WHT, VF XLN, SUBCHKY / CHKY

SH - BLK, CARB

LS - GY, VF / F XLN, DNS, ARG

LM - CRM, VF / F XLN, SUBCHKY / MOD DNS, DNS IN PT

SH - BLK, SLI CARB, W/ LS - CRM / TAN, F XLN, DNS / V DNS

LS - CRM, VF / F XLN, DNS, P INTXLN POR IN PT, SSFO, SLI ODOR, G YEL-GRN FLUOR

SH - GRN, W/ LS - TAN / GY, F XLN, DNS, W/ CHT - TAN / GY, FRSCH, SLI TRANSLUCNT

LS - CRM, VF / F XLN, SUBCHKY / CHKY

LS - TAN / GY, VF / F XLN, MOD DNS, P INTXLN POR IN PT, SSFO, LT BRN OIL, NO ODOR, F YEL-GRN FLUOR

SH - BLK, CARB

SH - LT GRN

LS - CRM, VF / F XLN, FOSS, P INTXLN POR, SSFO, LT BRN OIL, MOST POR BARREN, SLI ODOR, F YEL-GRN FLUOR, W/ SH - GRN / RD

SH - BLK, CARB

LS - CRM, TAN, VF / F XLN, FOSS, P INTXLN POR, SSFO, LT BRN OIL, SLI ODOR, SLI YEL-GRN FLUOR

SH - LT GRN / RD

SH - GY

SH - GRN / GY / MAR / PURP, W/ LS - CRM, F XLN, DNS

LS - TAN / GY, F XLN, MOD DNS / DNS, ABUND FOSS, ARG IN PT

SH - PURP / GRN, LMY, DNS, W/ LS - WHT / CRM, VF XLN, CHKY

SS - CLR / TAN, F / M GR, SUB-RND, P SRTD, W CEM, PRED DNS, NO VIS POR, NS, NO ODOR, NO FLUOR, W SH - GRN / YEL

DOLO - TAN, F XLN, FOSS, V DNS, P INTXLN POR IN PT, FEW SANDY PIECES W/ F INTXLN + INTGR POR, GSFO IN PT, OIL SLWLY BLEEDING, F ODOR, F YEL-GRN FLUOR

DOLO - TAN / GY, F XLN, DNS IN PT, FOSS, F / G INTXLN POR, GSFO, LT BRN OIL, SHO GAS BUBBLES, G ODOR, G YEL-GRN FLUOR

DOLO - TAN, F XLN, F / G INTXLN + VUG POR, VGSFO, LT BRN OIL, G SHO GAS, SUC IN PT, FOSS IN PT, G ODOR, F YEL-GRN FLUOR

DOLO - TAN, VF / F XLN, P / F INTXLN POR, SUC, ABUND OIL

WT 8.9  
VIS 54

WT 9.0  
VIS 57

ORANGE EXTRACT  
ADDED TO MUD...  
MUD SMELLS LIKE  
ORANGES

DST #1  
Arbuckle  
3372'-3385'  
30"-60"-90"-90"

WT 9.0  
VIS 57

IF: Built slowly to 4"  
ISI: No return  
FF: BOB in 74 min  
FSI: No return

Rec: 15' GIP, 30' CO (100% O), 25' SWSMCO (90% O, 5% W, 5% M), 50' SOCMW (5% O, 65% W, 30% M)

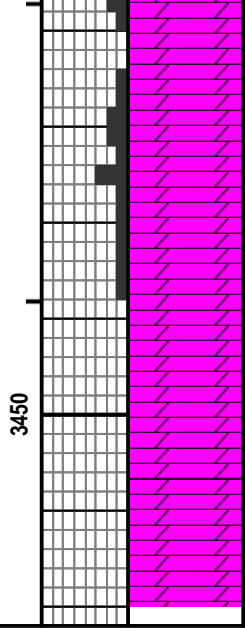
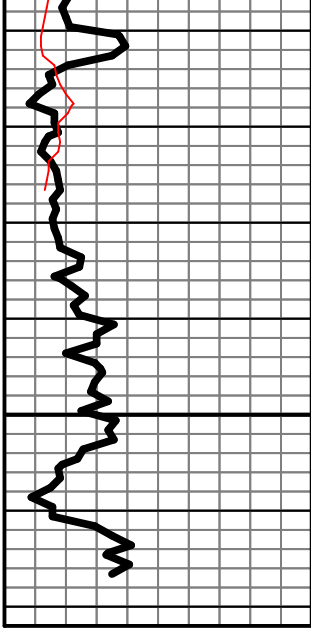
IH: 1663#  
IF: 22#-34#  
ISI: 1085#  
FF: 35#-64#  
FSI: 1084#  
FH: 1622#

WT 9.0  
VIS 56

WT 9.0  
VIS 51

DST #2  
Arbuckle  
3386'-3400'

WT 8.9  
VIS 52



SHEEN, SSFO, LT BRN OIL, SLI ODOR, F YEL-GRN FLUOR

DOLO - TAN, F XLN, V DNS, NO VIS POR, NS

DOLO - TAN, VF / F XLN, F / G INTXLN POR, ABUND OIL SHEEN, FSFO, G ODOR, G SHO OF GAS, F YEL-GRN FLUOR

DOLO - TAN / GY, F XLN, PRED DNS, SLI EDGE STN, OIL SHEEN, SLI ODOR, SLI MIN FLUOR

DOLO - GY, VF / F XLN, SUC IN PT, PRED DNS, NS

DOLO - GY, VF / F XLN, DNS, VP INTXLN POR IN PT, SLT EDGE STN, PYRITIC

DOLO - TAN / GY / WHT IN PT, VF / F XLN, MOD DNS / DNS, CHKY IN PT, NO VIS POR, NS

**RTD      3470'**

30' -60' -30' -60'

IF: BOB in 4 min  
 ISI: Surface blowback throughout  
 FF: BOB in 7 min  
 FSI: Surface blowback throughout

Rec': 32' GIP, 30' CO (100% O), 377' SOCMW (10% O, 75% W, 15% M), 314' MW (90% W, 10% M)

IH: 1672#  
 IF: 46#-207#  
 ISI: 1075#  
 FF: 214#-335#  
 FSI: 1069#  
 FH: 1631#

Drill time slid up 3'  
to match log



## DRILL STEM TEST REPORT

Prepared For: **H&C Oil Operating, Inc.**

PO Box 86  
Plainville, KS 67663

ATTN: Aaron Young

**Maddy #1-5**

**5-8S-18W Rooks,KS**

Start Date: 2017.05.11 @ 12:43:29

End Date: 2017.05.11 @ 21:53:34

Job Ticket #: 63187                      DST #: 1

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

Printed: 2017.05.12 @ 15:02:17



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

**5-8S-18W Rooks,KS**

PO Box 86  
Plainville, KS 67663

**Maddy #1-5**

Job Ticket: 63187

**DST#: 1**

ATTN: Aaron Young

Test Start: 2017.05.11 @ 12:43:29

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:39:50

Time Test Ended: 21:53:34

Test Type: Conventional Bottom Hole (Initial)

Tester: Brannan Lonsdale

Unit No: 73

**Interval: 3372.00 ft (KB) To 3385.00 ft (KB) (TVD)**

Reference Elevations: 1925.00 ft (KB)

Total Depth: 3385.00 ft (KB) (TVD)

1917.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8524 Outside**

Press@RunDepth: 64.08 psig @ 3382.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.05.11 End Date: 2017.05.11

Last Calib.: 2017.05.11

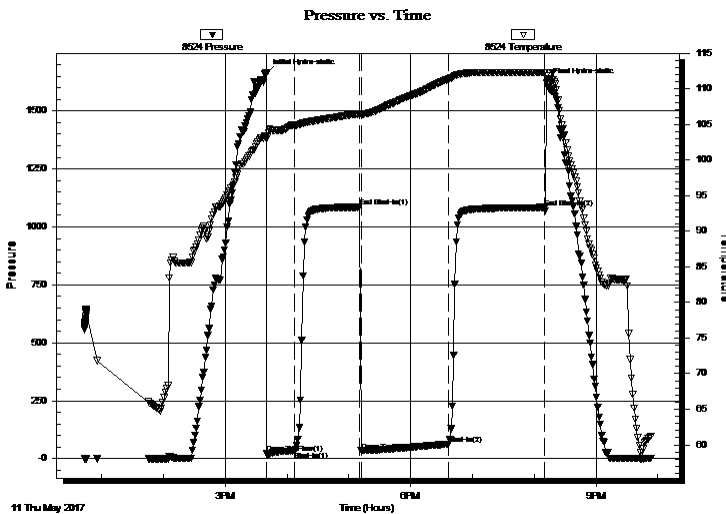
Start Time: 12:43:30 End Time: 21:53:34

Time On Btm: 2017.05.11 @ 15:39:35

Time Off Btm: 2017.05.11 @ 20:11:50

**TEST COMMENT:** 30- IF- Slowly built to 4"  
60- IS- No blow  
90- FF- BOB 74 mins  
90- FSI- No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1662.65	103.34	Initial Hydro-static
1	21.60	102.94	Open To Flow (1)
28	34.35	104.88	Shut-In(1)
91	1085.22	106.50	End Shut-In(1)
93	34.57	106.35	Open To Flow (2)
178	64.08	111.37	Shut-In(2)
271	1083.52	112.25	End Shut-In(2)
273	1622.28	111.76	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
50.00	SOCMW, 5%O 30%M 65%W	0.41
25.00	SWSMCO, 5%W 5%M 90%O	0.35
30.00	CO	0.43
0.00	15' GIP	0.00

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H&C Oil Operating, Inc.

**5-8S-18W Rooks, KS**

PO Box 86  
Plainville, KS 67663

**Maddy #1-5**

Job Ticket: 63187

**DST#: 1**

ATTN: Aaron Young

Test Start: 2017.05.11 @ 12:43:29

## Tool Information

Drill Pipe:	Length: 3318.00 ft	Diameter: 3.82 inches	Volume: 47.03 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose: 44000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	3372.00 ft			Final 43000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	13.00 ft			
Tool Length:	40.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3346.00	
Shut In Tool	5.00			3351.00	
Hydraulic tool	5.00			3356.00	
Jars	5.00			3361.00	
Safety Joint	2.00			3363.00	
Packer	5.00			3368.00	27.00 Bottom Of Top Packer
Packer	4.00			3372.00	
Stubb	1.00			3373.00	
Perforations	9.00			3382.00	
Recorder	0.00	6838	Inside	3382.00	
Recorder	0.00	8524	Outside	3382.00	
Bullnose	3.00			3385.00	13.00 Bottom Packers & Anchor

**Total Tool Length: 40.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

H&C Oil Operating, Inc.

**5-8S-18W Rooks,KS**

PO Box 86  
Plainville, KS 67663

**Maddy #1-5**

Job Ticket: 63187

**DST#: 1**

ATTN: Aaron Young

Test Start: 2017.05.11 @ 12:43:29

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

28 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

48000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
50.00	SOCMW, 5%O 30%M 65%W	0.413
25.00	SWSMCO, 5%W 5%M 90%O	0.354
30.00	CO	0.425
0.00	15' GIP	0.000

Total Length: 105.00 ft

Total Volume: 1.192 bbl

Num Fluid Samples: 0

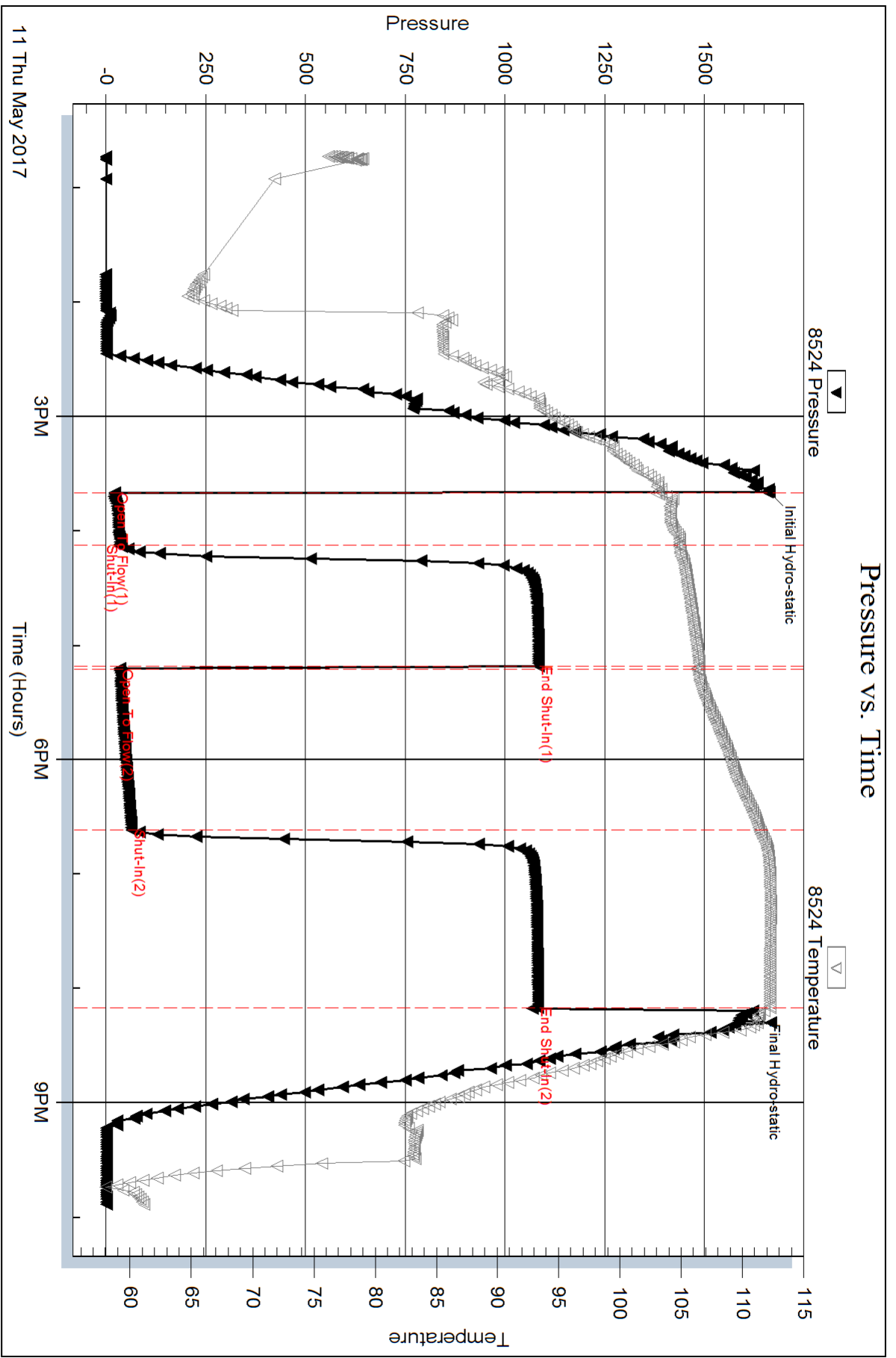
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .15@64deg





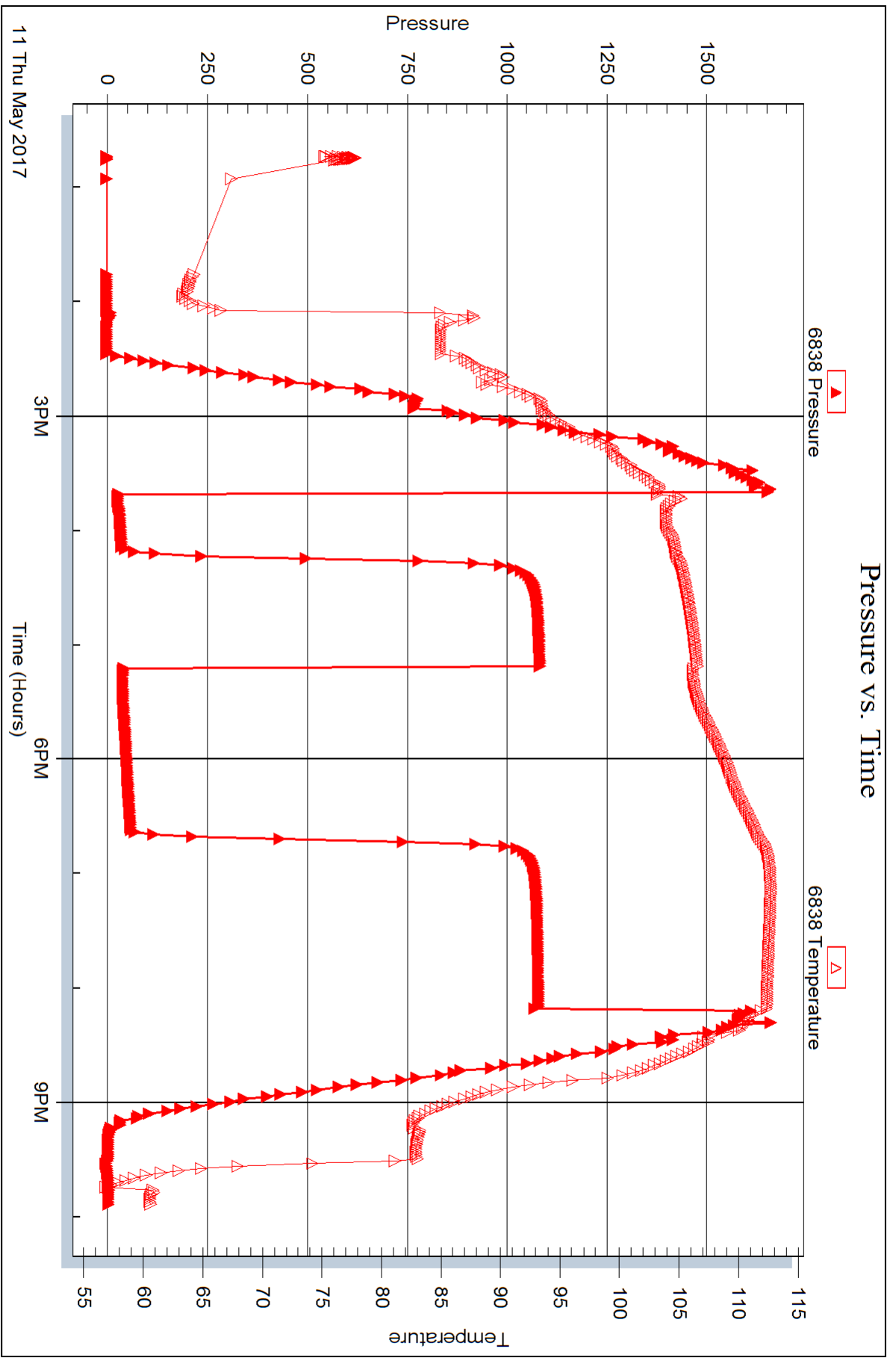
Serial #: 6838

Inside

H&C Oil Operating, Inc.

Maddy #1-5

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 63187

Printed: 2017.05.12 @ 15:02:18



## DRILL STEM TEST REPORT

Prepared For: **H&C Oil Operating, Inc.**

PO Box 86  
Plainville, KS 67663

ATTN: Aaron Young

**Maddy #1-5**

**5-8S-18W Rooks,KS**

Start Date: 2017.05.12 @ 04:11:12

End Date: 2017.05.12 @ 12:28:03

Job Ticket #: 63188                      DST #: 2

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

Printed: 2017.05.12 @ 14:56:30



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

**5-8S-18W Rooks,KS**

PO Box 86  
Plainville, KS 67663

**Maddy #1-5**

Job Ticket: 63188

**DST#: 2**

ATTN: Aaron Young

Test Start: 2017.05.12 @ 04:11:12

## GENERAL INFORMATION:

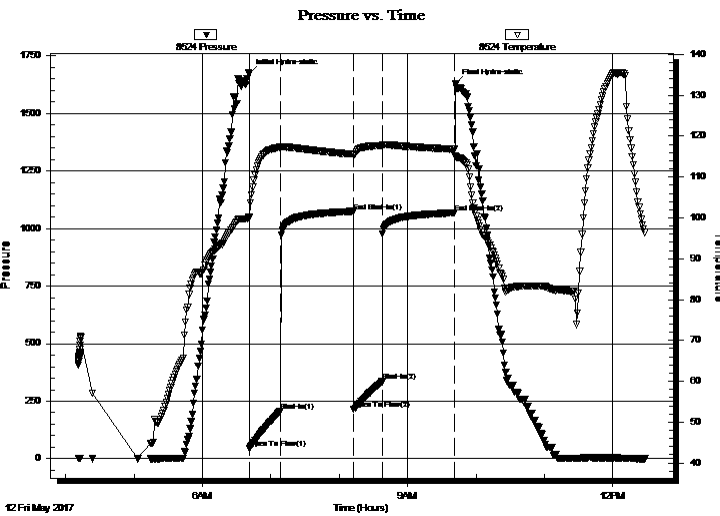
Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 06:41:03  
 Time Test Ended: 12:28:03  
 Interval: **3386.00 ft (KB) To 3400.00 ft (KB) (TVD)**  
 Total Depth: 3400.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brannan Lonsdale  
 Unit No: 73  
 Reference Elevations: 1925.00 ft (KB)  
 1917.00 ft (CF)  
 KB to GR/CF: 8.00 ft

## Serial #: 8524

**Outside**

Press@RunDepth: 335.40 psig @ 3397.00 ft (KB)  
 Start Date: 2017.05.12 End Date: 2017.05.12  
 Start Time: 04:11:13 End Time: 12:28:03  
 Capacity: 8000.00 psig  
 Last Calib.: 2017.05.12  
 Time On Btm: 2017.05.12 @ 06:40:48  
 Time Off Btm: 2017.05.12 @ 09:42:18

TEST COMMENT: 30- IF- BOB 4 mins  
 60- IS- Surface blow throughout  
 30- FF- BOB 7 mins  
 60- FS- Surface blow throughout



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1672.25	100.10	Initial Hydro-static
1	45.91	100.05	Open To Flow (1)
28	207.38	117.29	Shut-In(1)
92	1074.66	115.60	End Shut-In(1)
92	213.85	115.34	Open To Flow (2)
117	335.40	117.73	Shut-In(2)
181	1068.55	116.79	End Shut-In(2)
182	1631.15	114.96	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
314.00	MW, 90%W 10%M	4.15
377.00	SOCMW, 10%O 75%W 15%M	5.34
30.00	CO	0.43
0.00	32' GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H&C Oil Operating, Inc.

**5-8S-18W Rooks, KS**

PO Box 86  
Plainville, KS 67663

**Maddy #1-5**

Job Ticket: 63188

**DST#: 2**

ATTN: Aaron Young

Test Start: 2017.05.12 @ 04:11:12

## Tool Information

Drill Pipe:	Length: 3350.00 ft	Diameter: 3.82 inches	Volume: 47.49 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose: 47000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	3386.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	41.00 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			3360.00	
Shut In Tool	5.00			3365.00	
Hydraulic tool	5.00			3370.00	
Jars	5.00			3375.00	
Safety Joint	2.00			3377.00	
Packer	5.00			3382.00	27.00 Bottom Of Top Packer
Packer	4.00			3386.00	
Stubb	1.00			3387.00	
Perforations	10.00			3397.00	
Recorder	0.00	6838	Inside	3397.00	
Recorder	0.00	8524	Outside	3397.00	
Bullnose	3.00			3400.00	14.00 Bottom Packers & Anchor

**Total Tool Length: 41.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

H&C Oil Operating, Inc.

**5-8S-18W Rooks, KS**

PO Box 86  
Plainville, KS 67663

**Maddy #1-5**

Job Ticket: 63188

**DST#: 2**

ATTN: Aaron Young

Test Start: 2017.05.12 @ 04:11:12

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

26 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

60000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
314.00	MW, 90%W 10%M	4.155
377.00	SOCMW, 10%O 75%W 15%M	5.344
30.00	CO	0.425
0.00	32' GIP	0.000

Total Length: 721.00 ft      Total Volume: 9.924 bbl

Num Fluid Samples: 0

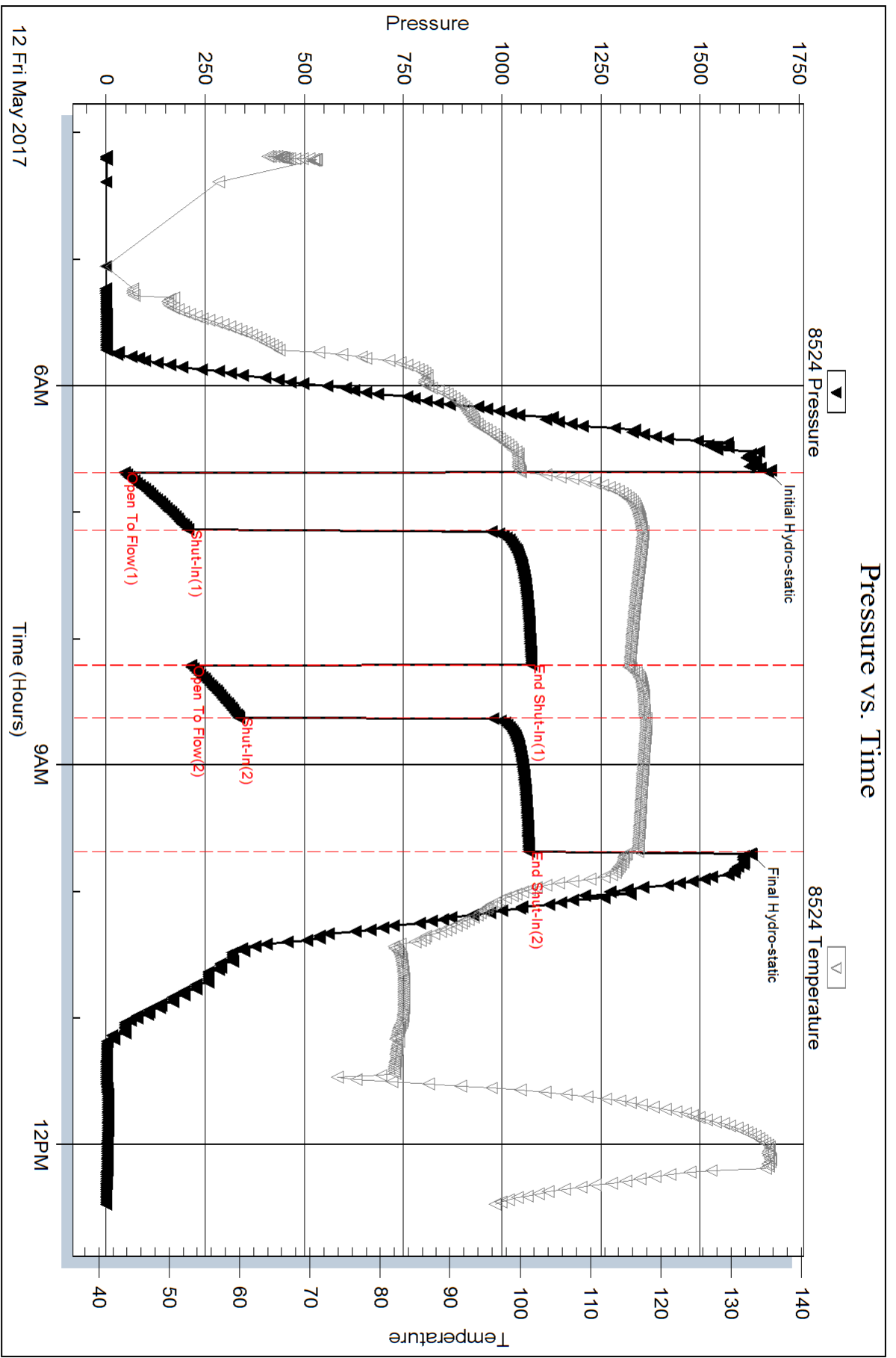
Num Gas Bombs: 0

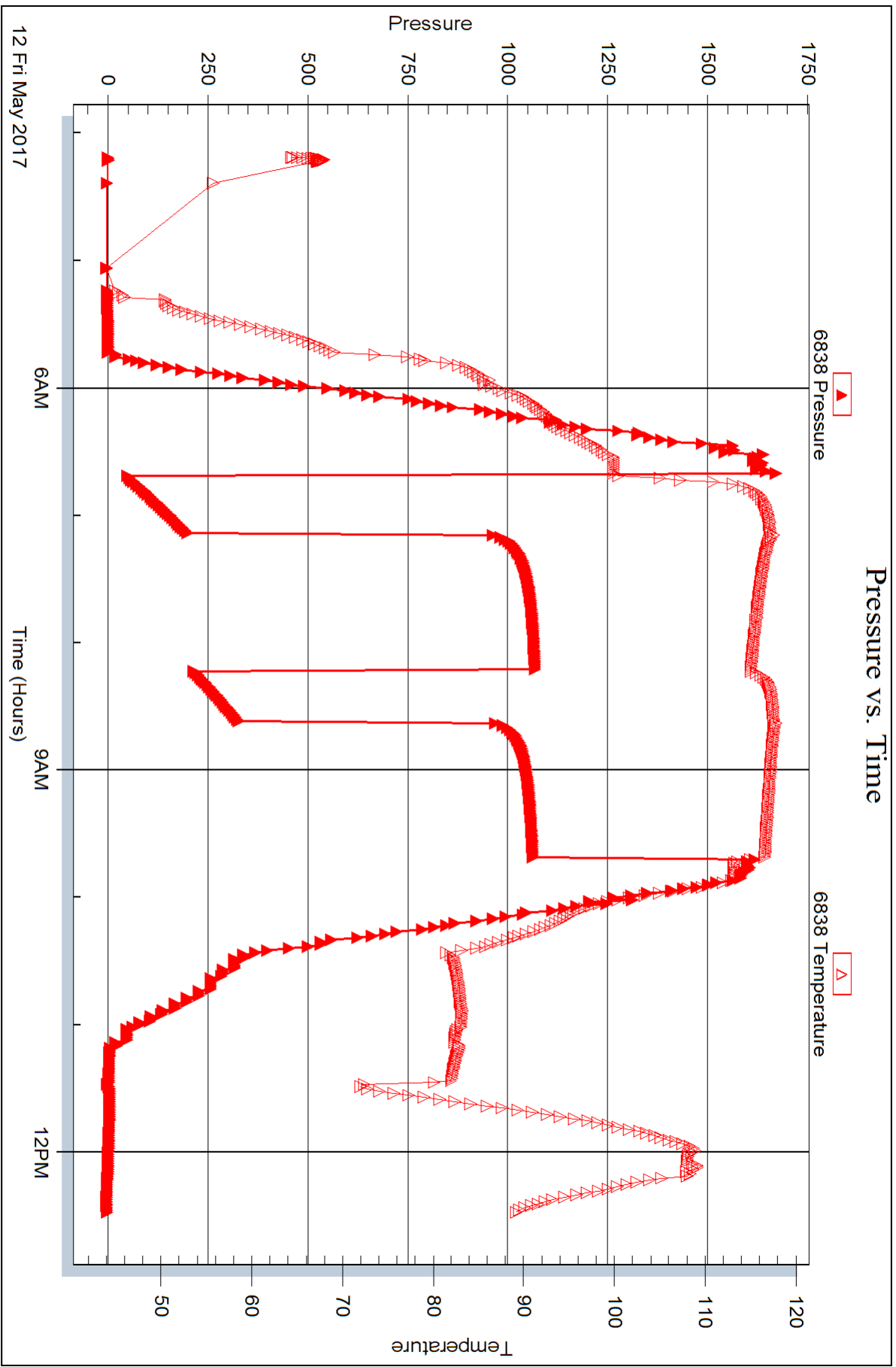
Serial #:

Laboratory Name:

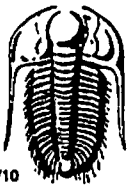
Laboratory Location:

Recovery Comments: RW: .11@69deg









# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63187

Well Name & No. Maddy #1-5 Test No. 1 Date 5/11/17  
 Company H+C Oil Operating, Inc. Elevation 1925 KB 1917 GL  
 Address PO Box 86 Plainville, KS 67663  
 Co. Rep / Geo. Aaron Young Rig Discovery #4  
 Location: Sec. 5 Twp. 8 S Rge. 18 W Co. Recker State KS

Interval Tested 2372-3385 Zone Tested Arbuckle  
 Anchor Length 13' Drill Pipe Run 3318 Mud Wt. 9.0  
 Top Packer Depth 3367 Drill Collars Run 32 Vis 52  
 Bottom Packer Depth 3372 Wt. Pipe Run --- WL 68  
 Total Depth 3385 Chlorides 1800 ppm System LCM 2<sup>nd</sup>  
 Blow Description IF - Built slowly to 4"  
PSI - No blow  
FF - BOB 74 mins  
FSI - No blow

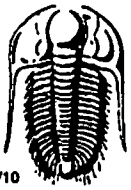
Rec	Feet of	%gas	%oil	%water	%mud
<u>50</u>	<u>SOCM.W</u>	<u>5</u>	<u>65</u>	<u>30</u>	<u>---</u>
<u>25</u>	<u>S4SMCO</u>	<u>90</u>	<u>5</u>	<u>5</u>	<u>---</u>
<u>30</u>	<u>CO</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>
<u>---</u>	<u>15' QIP</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>
<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>

Rec Total 105' BHT 28 <sup>112°</sup> Gravity 28 API RW .15 @ 64 °F Chlorides 48,000 ppm

(A) Initial Hydrostatic <u>1663</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>1100</u>
(B) First Initial Flow <u>22</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1243</u>
(C) First Final Flow <u>34</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1539</u>
(D) Initial Shut-In <u>1085</u>	<input type="checkbox"/> Circ Sub <u>---</u>	T-Pulled <u>2009</u>
(E) Second Initial Flow <u>35</u>	<input checked="" type="checkbox"/> Hourly Standby <u>---</u>	T-Out <u>2153</u>
(F) Second Final Flow <u>64</u>	<input checked="" type="checkbox"/> Mileage <u>82 RT</u> 61.50	Comments <u>---</u>
(G) Final Shut-In <u>1084</u>	<input type="checkbox"/> Sampler <u>---</u>	<u>---</u>
(H) Final Hydrostatic <u>1622</u>	<input type="checkbox"/> Straddle <u>---</u>	<input type="checkbox"/> Ruined Shale Packer <u>---</u>
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer <u>---</u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer <u>---</u>	<input type="checkbox"/> Extra Copies <u>---</u>
Final Flow <u>90</u>	<input type="checkbox"/> Extra Recorder <u>---</u>	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby <u>---</u>	Total <u>1686.50</u>
	<input type="checkbox"/> Accessibility <u>---</u>	MP/DST Disc't <u>---</u>
	Sub Total <u>1686.50</u>	

Approved By \_\_\_\_\_ Our Representative Branner Lonsdale

TriLOBITE TESTING INC. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63188

Well Name & No. Maddy #1-5 Test No. 2 Date 5/12/17  
 Company H+C Oil Operations, Inc. Elevation 1925 KB 1917 GL  
 Address PO Box 86 Plainville, KS 67663  
 Co. Rep / Geo. Aaron Young Rig Discovery #4  
 Location: Sec. 5 Twp. 8 S Rge. 18 W Co. Rooks State KS

Interval Tested 3385-3400 Zone Tested Arbuckle  
 Anchor Length 14' Drill Pipe Run 3350 Mud Wt. 9.0  
 Top Packer Depth 3381 Drill Collars Run 32 Vis 52  
 Bottom Packer Depth 3386 Wt. Pipe Run          WL 6.8  
 Total Depth 3400 Chlorides 1,800 ppm System LCM 2<sup>nd</sup>

Blow Description IF- BOB 4mins  
FSI- Surface blow throughout  
FF- BOB 7mins  
FSI- Surface blow throughout

Rec	Feet of	%gas	%oil	%water	%mud
<u>314</u>	<u>MW</u>		<u>90</u>	<u>10</u>	
<u>377</u>	<u>SOCMW</u>		<u>10</u>	<u>75</u>	<u>15</u>
<u>30</u>	<u>CO</u>				
<u>        </u>	<u>32' ATP</u>				
<u>        </u>	<u>        </u>				

Rec Total 721' BHT 117° Gravity 26 API RW .11 @ 69 °F Chlorides 60,000 ppm

(A) Initial Hydrostatic 1672  Test 1050 T-On Location 0405  
 (B) First Initial Flow 46  Jars 250 T-Started 0411  
 (C) First Final Flow 207  Safety Joint 75 T-Open 0641  
 (D) Initial Shut-In 1075  Circ Sub          T-Pulled 0941  
 (E) Second Initial Flow 214  Hourly Standby          T-Out 1228  
 (F) Second Final Flow 335  Mileage 82 RT 61.50 Comments           
 (G) Final Shut-In 1069  Sampler           
 (H) Final Hydrostatic 1631  Straddle         

Shale Packer 250  Ruined Shale Packer           
 Extra Packer           Ruined Packer           
 Extra Recorder           Extra Copies           
 Initial Open 30  Day Standby          Sub Total 0  
 Initial Shut-In 60  Accessibility          Total 1686.50  
 Final Flow 30  Sub Total 1686.50 MP/DST Disc't           
 Final Shut-In 60 Sub Total 1686.50

Approved By          Our Representative Branan Lonsdale

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

# 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	5-13-17	5	8	18	Range	County	State	On Location	Finish
Lease	Maddy	Well No. 1-5			Location	Plainsville 600 RR 1 1/2 W 16 RD 3 N 1 W 12 N	KS		8:30 AM
Contractor	Discovery #4	Owner							
Type Job	Retary Plug	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.							
Hole Size	7 7/8	T.D.	3470		Charge To	HHC			
Csg.		Depth							
Tbg. Size		Depth							
Tool		Depth							
Cement Left in Csg.		Shoe Joint							
Meas Line		Displace							
EQUIPMENT									
Pumptrk	5	No. Cementer	194						
		Helper	116						
Bulktrk		No. Driver	9						
Bulktrk	15	No. Driver							
		Driver							
JOB SERVICES & REMARKS									
Remarks:	The above was done to satisfaction and supervision of owner agent or contractor								
Rat Hole	305K	Cement Amount Ordered 290 @ 40 4 1/4 @ 1/4 #10							
Mouse Hole	<del>305K</del>								
Centralizers									
Baskets:									
D/V or Port Collar									
	157	3360	505K	Handling 299					
	200	1345	505K	Mileage					
	300	715	1005K	FLOAT EQUIPMENT					
	400	270	505K	Slide Shoe 8 3/8 Dry KK Plug					
	500	40	105K	Centralizer					
				Baskets					
				AFU Inserts					
				Float Shoe					
				Latch Down					
				Pumptrk Charge					
				Mileage 37					
				Tax					
				Discount					
				Total Charge					

Quality Oilwell Cementing

X Signature *John Gardner*

# QUALITY OILWELL CEMENTING, INC.

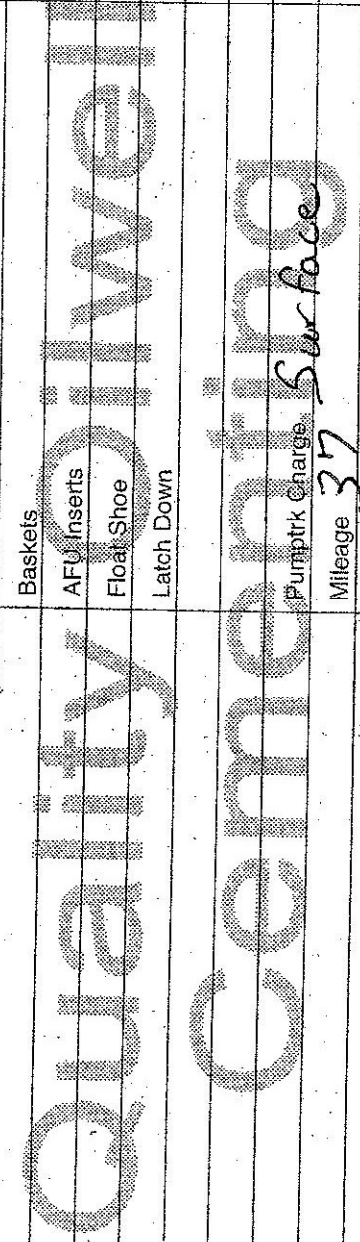
Federal Tax I.D.# 20-2886107

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

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

No. 222

Date	5-7-17	Sec.	5	Twp.	8	Range	18	County	Reeks	State	KS	On Location	4,000 AM	Finish	
Lease	Maddy														
Contractor	Discovery #4														
Type Job	Surface														
Hole Size	12 1/4														
Csg.	8 5/8														
Tbg. Size															
Tool															
Cement Left in Csg.	10'														
Meas Line	Displace 13 BCL														
EQUIPMENT															
Pumptrik	5	No.	Cementing												
			Helper	Sain											
Bulktrik		No.	Driver	DITCH											
Bulktrik	9	No.	Driver	Tony											
JOB SERVICES & REMARKS															
Remarks:															
Rat Hole															
Mouse Hole															
Centralizers															
Baskets															
D/V or Port Collar															
<p>8 5/8 on bottom. Est. Circulation.                  Mix 1500K + Dis-Nuc                  Cement Circulated!</p>															
Common	120														
Poz. Mix	30														
Gel.	3														
Calcium	6														
Hulls															
Salt															
Flowseal															
Kol-Seal															
Mud CLR	48														
CFL-117 or CD110 CAF	38														
Sand															
Handling	159														
Mileage															
Guide Shoe	FLOAT EQUIPMENT														
Centralizer															
Baskets															
AFU Inserts															
Float Shoe															
Latch Down															
Pumptrik Charge	Surface														
Mileage	37														
Tax															
Discount															
Total Charge															



X Signature *John G. Galloway*