

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
--	---

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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Form	ACO1 - Well Completion
Operator	Shakespeare Oil Co., Inc.
Well Name	MARCUSON 1-4
Doc ID	1415915

All Electric Logs Run

Array Induction
Photo Density
Comp Neutron
Microlog





PAGE	CUST NO	YARD #	INVOICE DATE
1 of 1	1003782	1718	07/06/2018
INVOICE NUMBER			
92749081			

Pratt (620) 672-1201  
 B SHAKESPEARE OIL COMPANY  
 I 202 W MAIN ST  
 L SALEM  
 L IL US 62881  
 T  
 O ATTN: ACCOUNTS PAYABLE

J LEASE NAME Marcuson 1-4  
 O LOCATION  
 B COUNTY Decatur  
 S STATE KS  
 I JOB DESCRIPTION Cement-New Well Casing/Pi  
 T JOB CONTACT  
 E

JOB #	EQUIPMENT #	PURCHASE ORDER NO.	TERMS	DUE DATE
41118251	19919		Net - 30 days	08/05/2018

	QTY	U of M	UNIT PRICE	INVOICE AMOUNT
<i>For Service Dates: 07/03/2018 to 07/03/2018</i>				
0041118251 <span style="color: red; font-size: 2em; font-weight: bold;">INT</span>				
171815746L Cement-New Well Casing/Pi 07/03/2018 <u>Cement/Surface Casing</u>				
Premium Plus Cement	165.00	EA	8.15	1,344.75 T
Calcium Chloride	312.00	EA	0.53	165.36 T
Celloflake	42.00	EA	1.85	77.70 T
"Top Rubber Cmt Plug, 8 5/8" ""	1.00	EA	225.00	225.00
Heavy Equipment Mileage	200.00	MI	3.75	750.00
Blending & Mixing Service Charge	165.00	BAG	0.70	115.50
Proppant & Bulk Del. Chgs., per ton mil	780.00	EA	1.25	975.00
Depth Charge; 0-500'	1.00	EA	500.00	500.00
Plug Container Util. Chg.	1.00	EA	125.00	125.00
"Unit Mileage Chg (PU, cars one way)"	100.00	MI	2.25	225.00
"Service Supervisor, first 8 hrs on loc.	1.00	EA	87.50	87.50
Cement Data Acquisition Monitor	1.00	EA	275.00	275.00

RECEIVED

JUL 09 2018

502-5  
DA

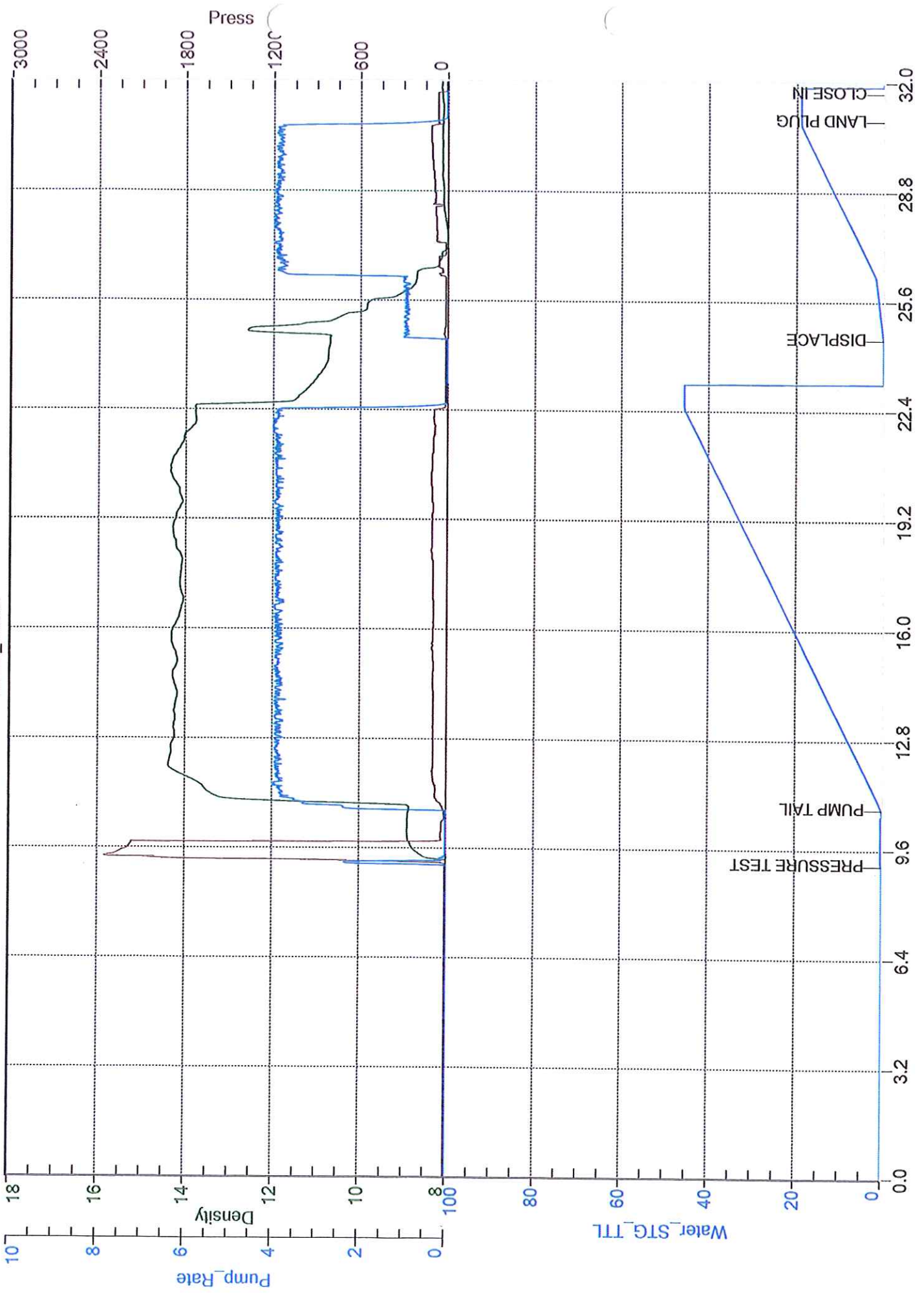
PLEASE REMIT TO:	SEND OTHER CORRESPONDENCE TO:	SUB TOTAL	4,865.81
BASIC ENERGY SERVICES, LP	BASIC ENERGY SERVICES, LP	TAX	119.09
PO BOX 841903	801 CHERRY ST, STE 2100	INVOICE TOTAL	4,984.90
DALLAS, TX 75284-1903	FORT WORTH, TX 76102		DW





# Shakespeare Oil Co.

WELL\_NAME







PAGE 1 of 1	CUST NO 1003782	YARD # 1718	INVOICE DATE 07/11/2018
INVOICE NUMBER <b>92752831</b>			

Pratt (620) 672-1201  
 B SHAKESPEARE OIL COMPANY  
 I 202 W MAIN ST  
 L SALEM  
 L IL US 62881  
 T  
 O ATTN: ACCOUNTS PAYABLE

J LEASE NAME Marcuson 1-4  
 O LOCATION  
 B COUNTY Decatur  
 S STATE KS  
 I JOB DESCRIPTION Cement-New Well Casing/Pi  
 T JOB CONTACT  
 E

*Plug job*

JOB #	EQUIPMENT #	PURCHASE ORDER NO.	TERMS	DUE DATE
41119098	19570		Net - 30 days	08/10/2018

	QTY	U of M	UNIT PRICE	INVOICE AMOUNT
<i>For Service Dates: 07/10/2018 to 07/10/2018</i>				
0041119098				
171815771L Cement-New Well Casing/Pi 07/10/2018 Cement/PTA				
60/40 POZ	255.00	EA	6.60	1,683.00 T
Cement Gel	440.00	EA	0.14	61.60 T
Celloflake	64.00	EA	2.04	130.56 T
Heavy Equipment Mileage	200.00	MI	4.13	826.00
Blending & Mixing Service Charge	255.00	BAG	0.77	196.35
Proppant & Bulk Del. Chgs., per ton mil	1,100.00	EA	1.38	1,518.00
Depth Charge; 2001'-3000'	1.00	EA	990.00	990.00
"Unit Mileage Chg (PU, cars one way)"	100.00	MI	2.48	248.00
"Service Supervisor, first 8 hrs on loc.	1.00	EA	96.25	96.25
Cement Data Acquisition Monitor	1.00	EA	302.50	302.50

*INT*

*INT*

RECEIVED  
JUL 16 2018

*502-17  
DH*

PLEASE REMIT TO:	SEND OTHER CORRESPONDENCE TO:	SUB TOTAL	6,052.26
BASIC ENERGY SERVICES, LP	BASIC ENERGY SERVICES, LP	TAX	140.64
PO BOX 841903	801 CHERRY ST, STE 2100	INVOICE TOTAL	6,192.90
DALLAS, TX 75284-1903	FORT WORTH, TX 76102		

*DW*





Liberal Yard #1717 - Phone 620-624-2277 - 1700 S. Country Estates Road, Liberal KS 67901

**PRESSURE PUMPING**

**Job Log**

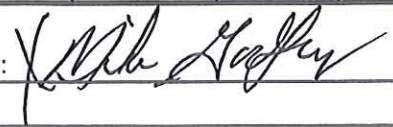
Customer:	Shakespeare Oil Company	Cement Pump No.:	38119-19570 5 HRS	Operator TRK No.:	96815
Address:	202 West Main Street	Ticket #:	1718-15771 L	Bulk TRK No.:	14354-19578
City, State, Zip:	Salem IL, 62881-1519	Job Type:	Z42 - Plug to Abandon		
Service District:		Well Type:	OIL		
Well Name and No.:	Marcuson #1-4	Well Location:	4,5,29	County:	Decatur
				State:	Ks

Type of Cmt	Sacks	Additives	Truck Loaded On		
60/40 POZ	255	4%GEL	14354-19578	Front	Back
				Front	Back
				Front	Back

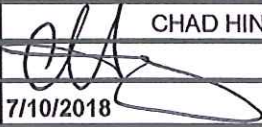
Lead/Tail:	Weight #1 Gal.	Cu/Ft/sk	Water Requirements	CU. FT.	Man Hours / Personnel	
<b>Lead:</b>	13.5	1.51	7.5	385.05	Man Hours:	32
<b>Tail:</b>					# of Men on Job:	3

Time (am/pm)	(BPM)	Volume (BBLS)	Pumps		Pressure (PSI)		Description of Operation and Materials
			T	C	Tubing	Casing	
23:00							ON LOC, SAFTEY MTG, R.U.
0:07	4	10			160		H2O SPACER
12:12 AM	4	13.4			220		MIX 50 SX @ 2550'
12:15 AM	4	3			60		H2O SPACER
12:18 AM	8	29			220		MUD
0:58	5	10			140		H2O SPACER
1:00	5.4	27			200		MIX 100SX @ 1750'
1:06 AM	5.4	18			60		DISPLACE
2:12	5.3	10			60		H2O SPACER
2:16	5.4	13.4			90		MIX 50 SX @ 300'
2:19	5.4	1			20		DISPLACE
3:26	4	10.5					MIX 40 SX @ 30'
3:30							PLU RAT & MOUSE
3:45							WASHUP
							JOB COMPLETE
							THANK YOU FOR YOUR BUSINESS!!!

Size Hole	Depth			TYPE	
Size & Wt Csg.	Depth		New / Used	Packer	Depth
lbg.	Depth			Retainer	Depth
Top Plugs	Type			Perfs	CIBP

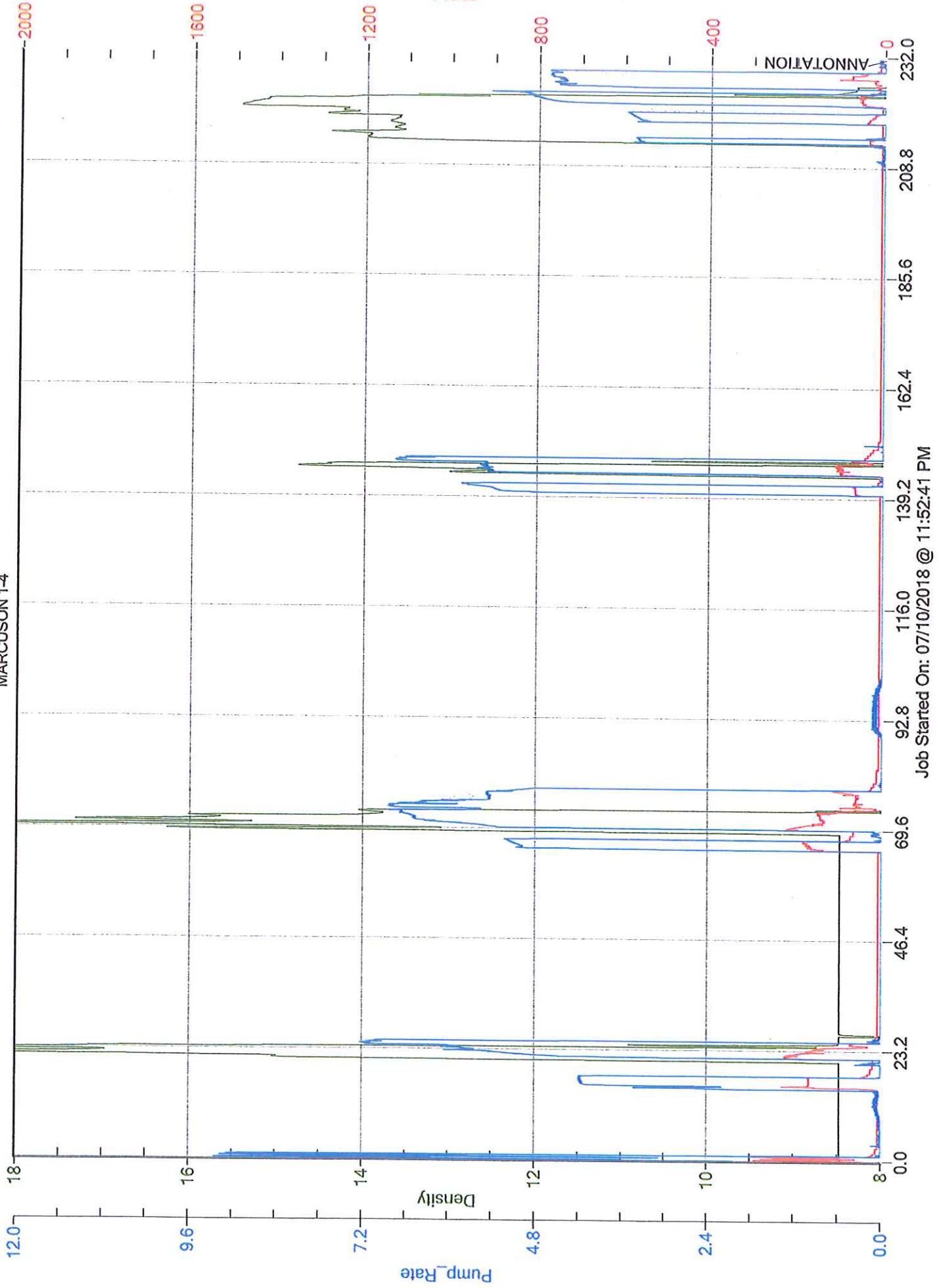
Customer Signature: 

Basic Representative: CHAD HINZ

Basic Signature: 

Date of Service: 7/10/2018

# SHAKESPEARE MARCUSON 1-4





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Shakespeare Oil Co Inc

**4 5s 29w Decatur KS**

202 W Main St  
Salem IL 62881-1519

**Marcuson 1-4**

Job Ticket: 63737

**DST#: 1**

ATTN: Wes Hansen

Test Start: 2018.07.07 @ 17:40:00

## GENERAL INFORMATION:

Formation: **LKC "EF & G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:16:46

Time Test Ended: 00:32:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Jim Svaty

Unit No: 76

**Interval: 3918.00 ft (KB) To 3968.00 ft (KB) (TVD)**

Reference Elevations: 2752.00 ft (KB)

Total Depth: 3968.00 ft (KB) (TVD)

2740.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 12.00 ft

**Serial #: 8400 Outside**

Press@RunDepth: 35.98 psig @ 3919.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.07.07

End Date:

2018.07.08

Last Calib.:

2018.07.08

Start Time: 17:40:01

End Time:

00:31:46

Time On Btm:

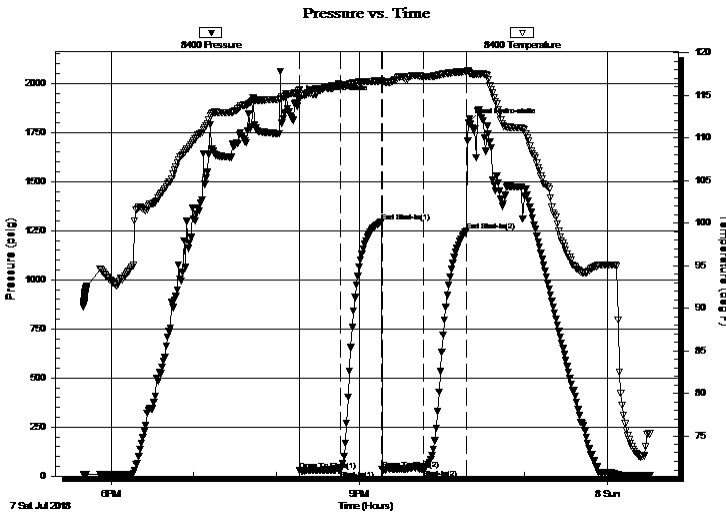
2018.07.07 @ 20:16:31

Time Off Btm:

2018.07.07 @ 22:19:16

**TEST COMMENT:** 30-IFP-Weak Surface Blow Dead in 7min.  
30-ISIP- No Blow  
30-FFP- Good Surge on Open --- No Blow  
30-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1918.81	115.62	Initial Hydro-static
1	27.54	114.51	Open To Flow (1)
30	31.59	116.27	Shut-In(1)
60	1294.32	116.72	End Shut-In(1)
61	33.06	116.39	Open To Flow (2)
90	35.98	117.21	Shut-In(2)
122	1250.96	117.79	End Shut-In(2)
123	1801.35	117.80	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Oil Speck Mud 2%o 98%m	0.14

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Shakespeare Oil Co Inc

**4 5s 29w Decatur KS**

202 W Main St  
Salem IL 62881-1519

**Marcuson 1-4**

Job Ticket: 63737

**DST#: 1**

ATTN: Wes Hansen

Test Start: 2018.07.07 @ 17:40:00

## 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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.80 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Oil Speck Mud 2%o 98%m	0.140

Total Length: 10.00 ft      Total Volume: 0.140 bbl

Num Fluid Samples: 0

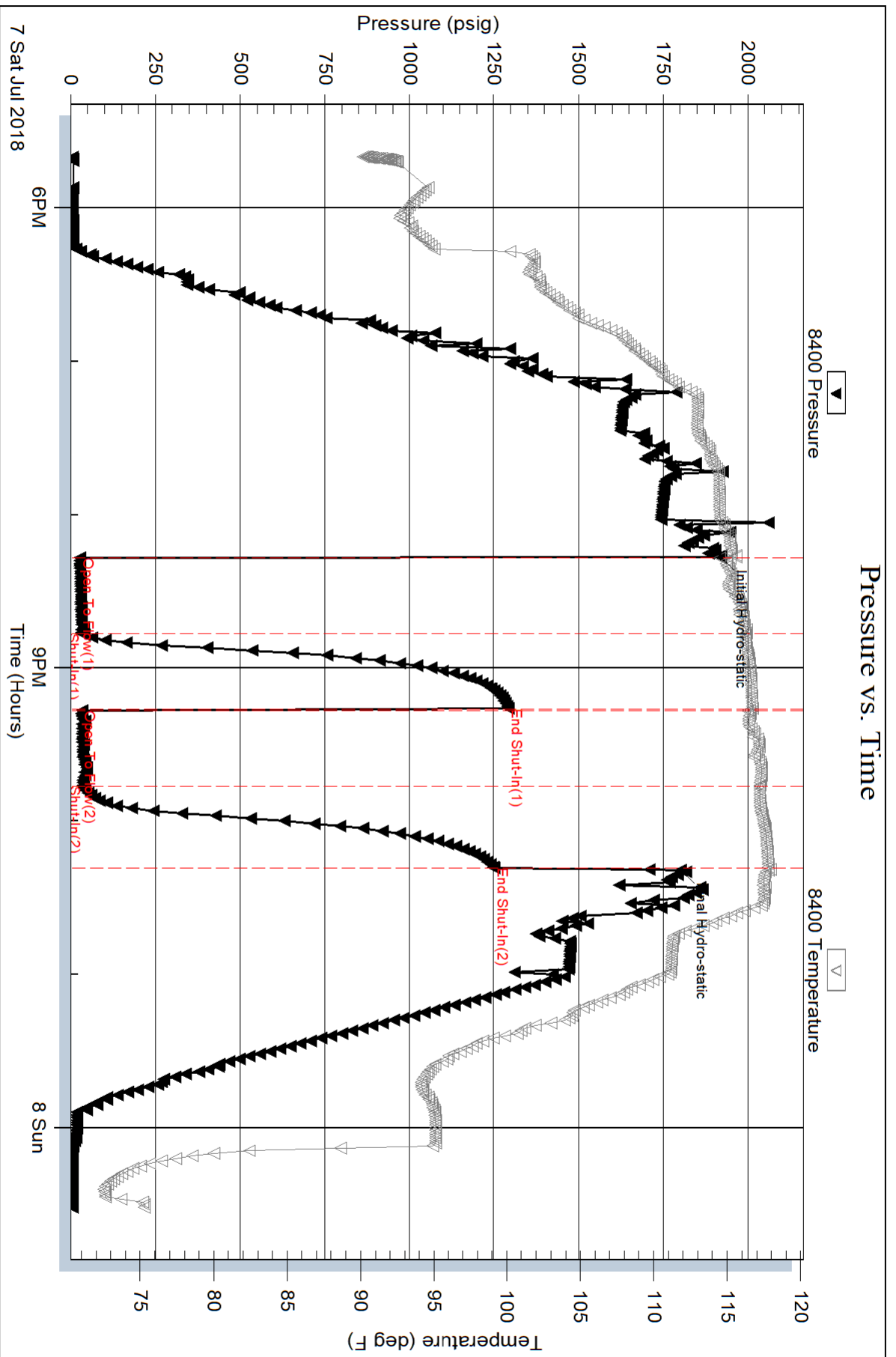
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





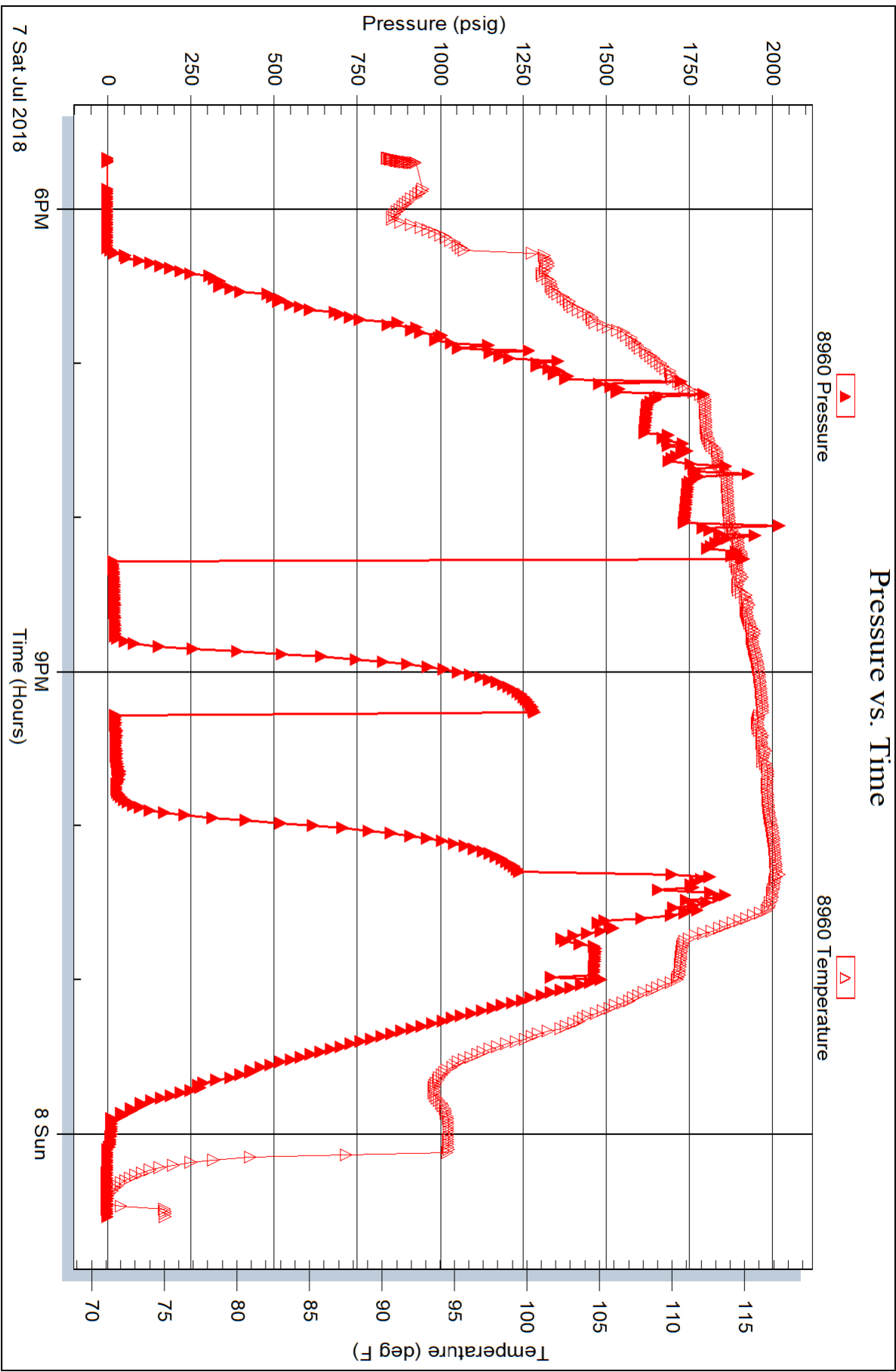
Serial #: 8960

Inside

Shakespeare Oil Co Inc

Marcuson 1-4

DST Test Number: 1





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Shakespeare Oil Co Inc

**4 5s 29w Decatur KS**

202 W Main St  
Salem IL 62881-1519

**Marcuson 1-4**

Job Ticket: 63738

**DST#: 2**

ATTN: Wes Hansen

Test Start: 2018.07.08 @ 12:40:00

## GENERAL INFORMATION:

Formation: **LKC " J & K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:25:46

Time Test Ended: 18:16:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jim Svaty

Unit No: 76

**Interval: 3990.00 ft (KB) To 4060.00 ft (KB) (TVD)**

Reference Elevations: 2752.00 ft (KB)

Total Depth: 4060.00 ft (KB) (TVD)

2740.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 12.00 ft

**Serial #: 8400 Outside**

Press@RunDepth: 27.31 psig @ 3993.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.07.08

End Date:

2018.07.08

Last Calib.:

2018.07.08

Start Time: 12:40:01

End Time:

18:15:46

Time On Btm:

2018.07.08 @ 14:25:31

Time Off Btm:

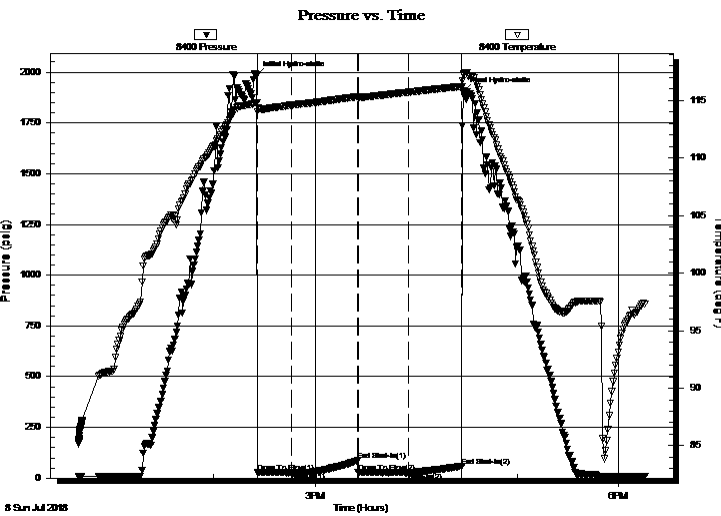
2018.07.08 @ 16:27:46

TEST COMMENT: 30-IFP-Surface Blow Dead in 15min.

30-ISIP- No Blow

30-FFP- No Blow

30-FSIP- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1984.95	114.80	Initial Hydro-static
1	28.04	114.03	Open To Flow (1)
21	26.76	114.58	Shut-In(1)
60	86.48	115.32	End Shut-In(1)
60	29.31	115.29	Open To Flow (2)
90	27.31	115.71	Shut-In(2)
122	59.12	116.22	End Shut-In(2)
123	1906.62	117.20	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	OCM 5%o 95%m	0.07

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Shakespeare Oil Co Inc

**4 5s 29w Decatur KS**

202 W Main St  
Salem IL 62881-1519

**Marcuson 1-4**

Job Ticket: 63738

**DST#: 2**

ATTN: Wes Hansen

Test Start: 2018.07.08 @ 12:40:00

## 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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.40 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OCM 5%o 95%m	0.070

Total Length: 5.00 ft      Total Volume: 0.070 bbl

Num Fluid Samples: 0

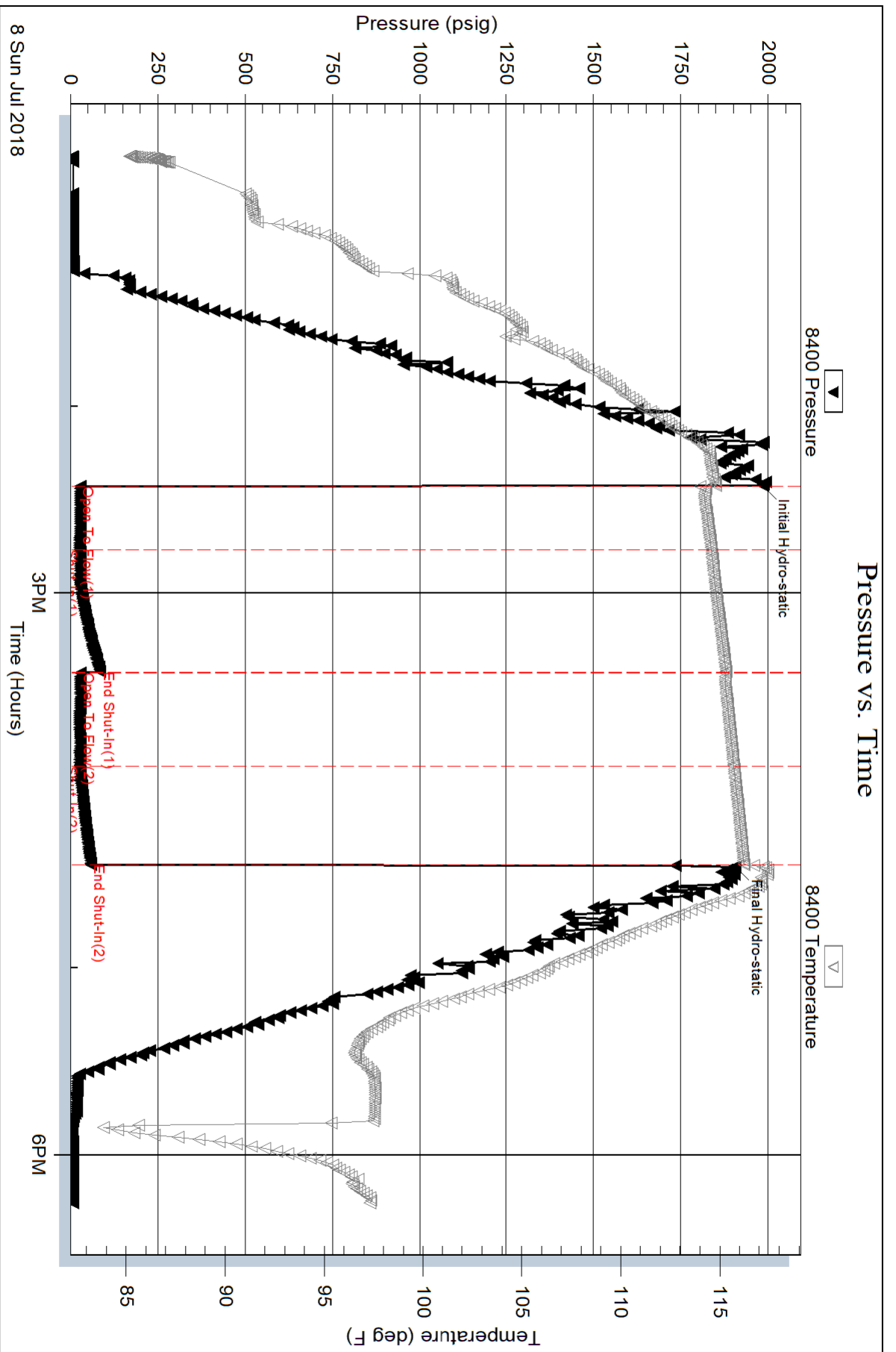
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



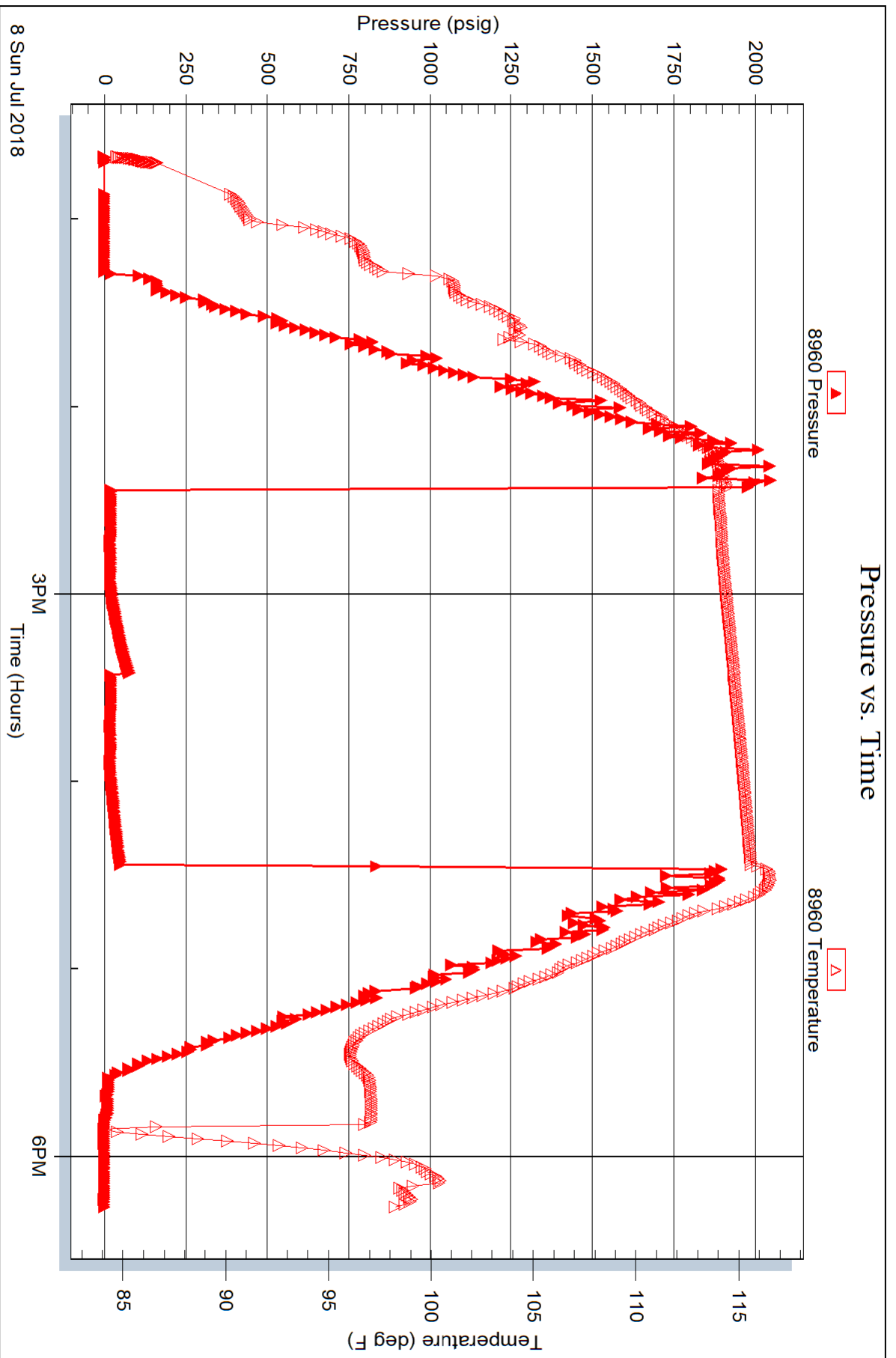
Serial #: 8960

Inside

Shakespeare Oil Co Inc

Marcuson 1-4

DST Test Number: 2





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Shakespeare Oil Co Inc

**4 5s 29w Decatur KS**

202 W Main St  
Salem IL 62881-1519

**Marcuson 1-4**

Job Ticket: 63739

**DST#: 3**

ATTN: Wes Hansen

Test Start: 2018.07.09 @ 10:38:00

## GENERAL INFORMATION:

Formation: **LKC " A - D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:11:16

Time Test Ended: 16:56:00

Test Type: Conventional Straddle (Reset)

Tester: Jim Svaty

Unit No: 76

**Interval: 3882.00 ft (KB) To 3922.00 ft (KB) (TVD)**

Reference Elevations: 2752.00 ft (KB)

Total Depth: 4153.00 ft (KB) (TVD)

2740.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 12.00 ft

**Serial #: 8400 Outside**

Press@RunDepth: 182.46 psig @ 3883.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.07.09

End Date:

2018.07.09

Last Calib.:

2018.07.09

Start Time: 10:38:01

End Time:

16:55:46

Time On Btm:

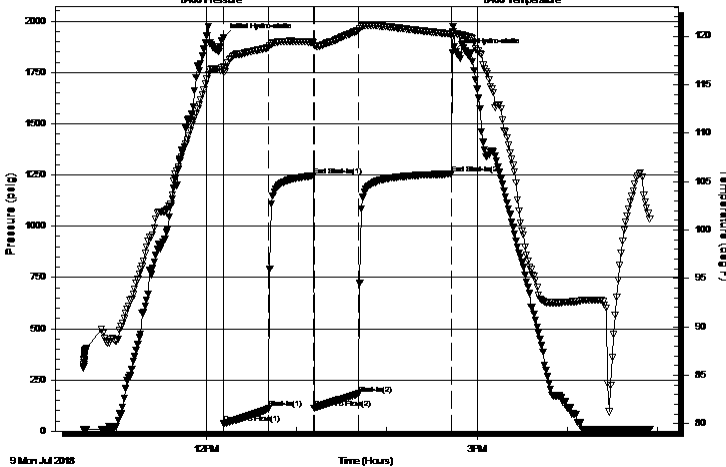
2018.07.09 @ 12:11:01

Time Off Btm:

2018.07.09 @ 14:43:46

**TEST COMMENT:** 30-IFP- BOB in 18min. IPRO--17.66  
30-ISIP- No Blow IPRO -- 18.32  
30-FFP- BOB in 20min. IPRO -- 16.75  
60-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1918.46	116.85	Initial Hydro-static
1	36.72	116.35	Open To Flow (1)
31	109.93	118.80	Shut-In(1)
60	1245.58	119.36	End Shut-In(1)
61	112.30	119.06	Open To Flow (2)
91	182.46	120.58	Shut-In(2)
153	1254.42	120.20	End Shut-In(2)
153	1846.80	120.33	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	OCM 5%o 95%m	0.07
315.00	Oil Spots MCW 15%m 85%w	4.42

## Gas Rates

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

\* Recovery from multiple tests







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Shakespeare Oil Co Inc

**4 5s 29w Decatur KS**

202 W Main St  
Salem IL 62881-1519

**Marcuson 1-4**

Job Ticket: 63739

**DST#: 3**

ATTN: Wes Hansen

Test Start: 2018.07.09 @ 10:38:00

## 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:

77500 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.80 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OCM 5%o 95%m	0.070
315.00	Oil Spots MCW 15%m 85%w	4.419

Total Length: 320.00 ft

Total Volume: 4.489 bbl

Num Fluid Samples: 0

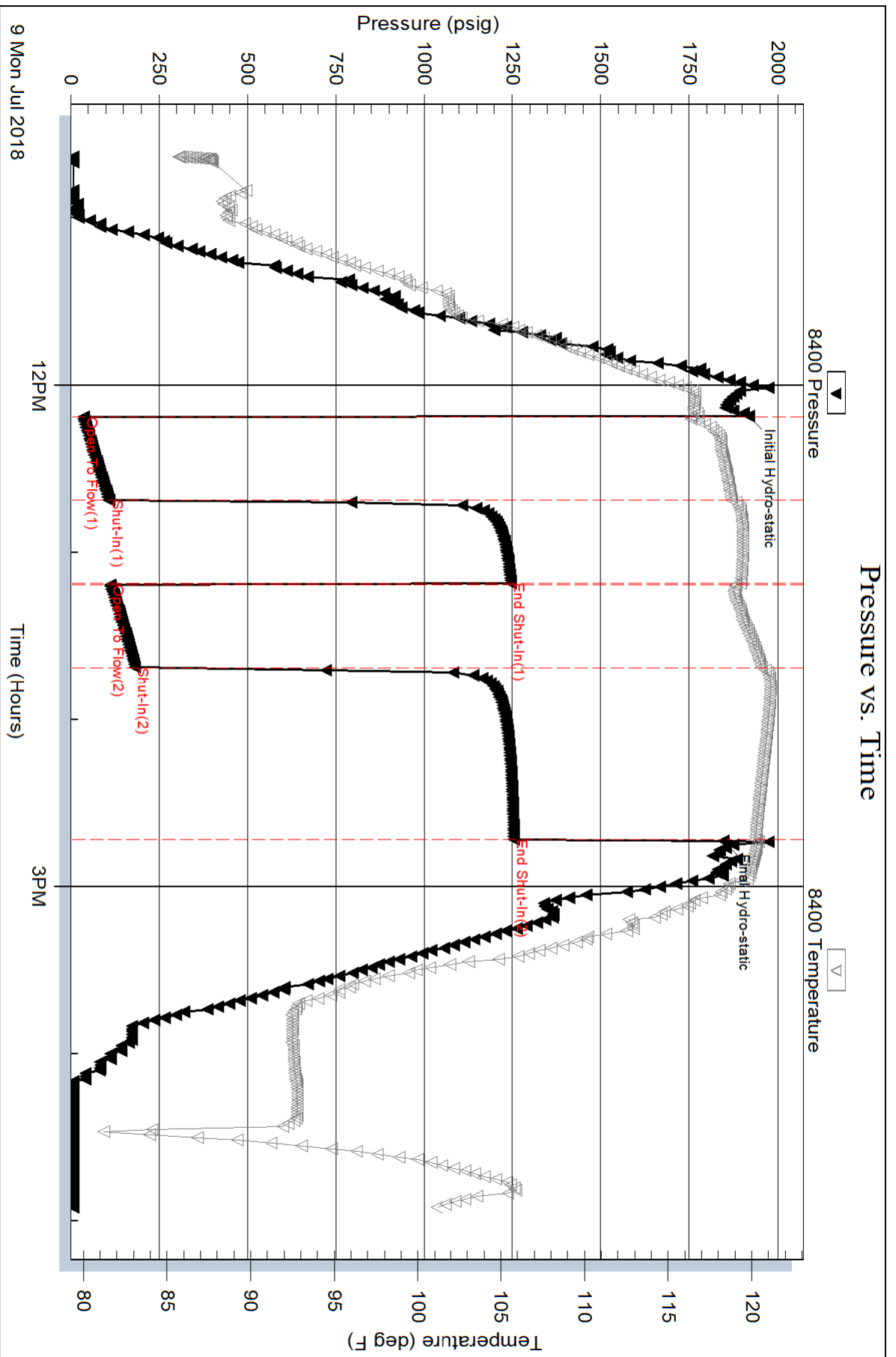
Num Gas Bombs: 0

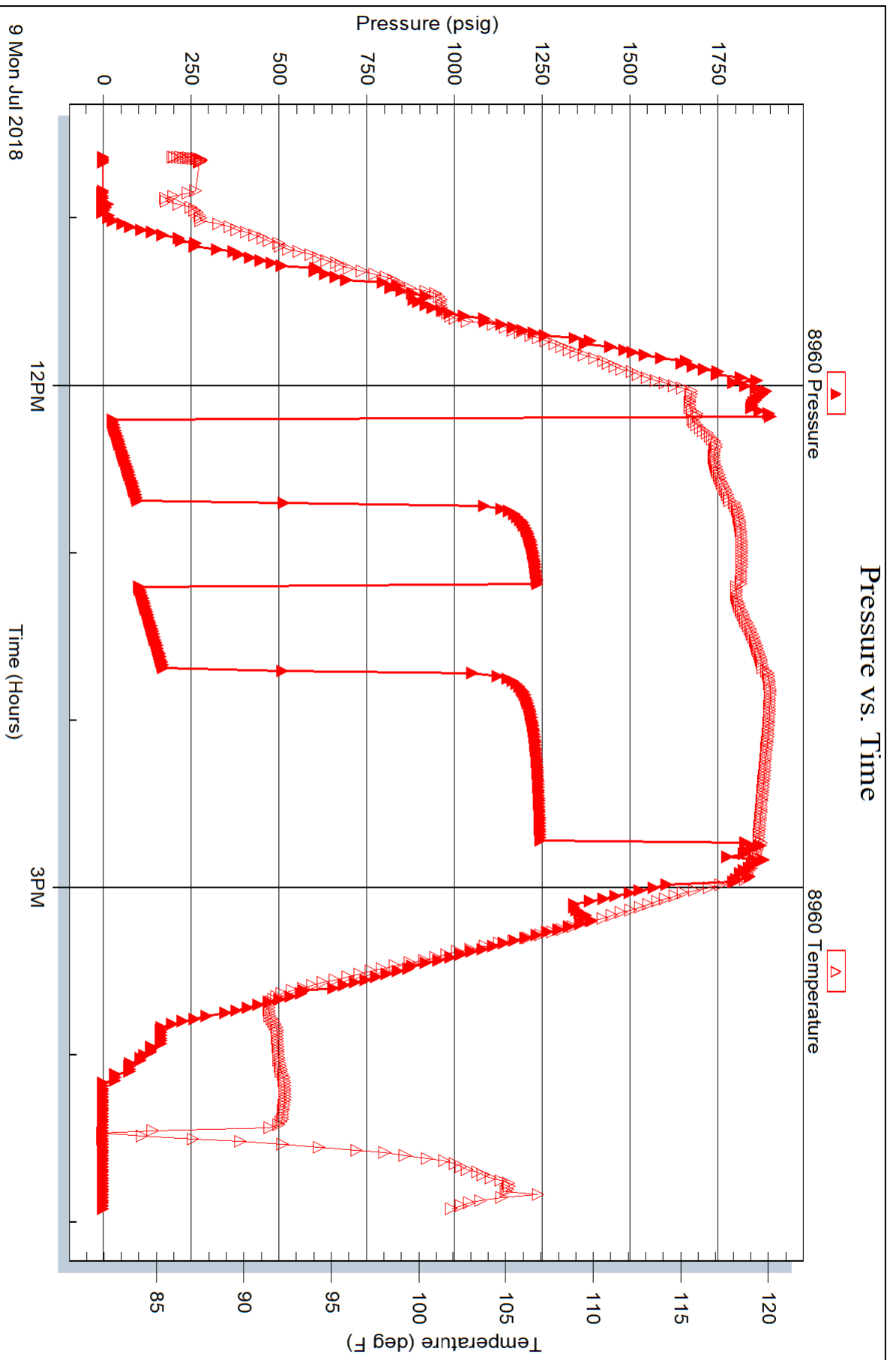
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .073 @ 95





# LITHOLOGY STRIP LOG

## WellSight Systems

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

Well Name: Shakespeare Oil Company, Inc. #1-4 Marcuson

API: 15-039-21249

Location: 160' FEL, 1395' FNL of 4-5-29W

License Number: 7311

Spud Date: 7-2-2018

Surface Coordinates: 160' FEL, 1395' FNL of 4-5-29W

Region: Decatur County, KS

Drilling Completed: 7-9-2018

Bottom Hole Vertical hole

Coordinates:

Ground Elevation (ft): 2740'

K.B. Elevation (ft): 2752'

Logged Interval (ft): 3550' To: RTD

Total Depth (ft): 4150'

Formation: Marmaton at RTD

Type of Drilling Fluid: Chemical - Displaced at 3409-3421'

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

### OPERATOR

Company: Shakespeare Oil Company, Inc.

Address: 202 W. Main Street  
Salem, IL 62881

### GEOLOGIST

Name: Wesley D. Hansen

Company: Wesley D. Hansen - Consulting Petroleum Geologist

Address: 212 N. Market, Suite 257  
Wichita, KS 67202  
Cellular: 316-772-6188

### COMMENTS

Contractor: Duke Drilling Co., Inc. Rig #1

Pusher: Mike Godfrey

Surface Casing: 8 5/8" set at 268' w/165 sx

Production Casing: P&A

Mud by: Mudco - Gary Schmidtberger was the engineer

DST's by: Trilobite - Jim Svaty was the tester

Logs by: Weatherford - MAI/MFE, MPD/MPN - Adam Sill was the engineer

Deviation Surveys: 1/2 deg. @ 268'; 1/2 deg. @ 1330'; 1/4 deg. @ 2181'; 3/4 deg. @ 3188; 3/4 deg. @ 3968'

Bit #	Size	MFG	Type	Depth Out	Footage Cut	Hours on bit
1	12 1/4"		rr	268'	268'	2 1/2
2	7 7/8"	Varel	HE-21	3968'	3700'	57 1/4
3	7 & 8"	Varel	HE-29	4150'	182'	8 1/4

## FORMATION TOPS AND STRUCTURAL COMPARISON

FORMATION	SAMPLE TOPS SOCO Marcuson 1-4 4-5S-29W 2752' KB		LOG TOPS SOCO Marcuson 1-4 4-5S-29W 2752' KB		COMPARISON WELLS (1) SOCO Anderson #1-33 33-4S-29W KB 2784' (2) McCoy Pet. Neff "A" #1-4 4-5S-29W KB 2723'			
	Depth	Datum	Depth	Datum	(1)		(2)	
Top of Anhydrite	2522'	+230	2524'	+228	2544'	+240	2486'	+237
Heebner Shale	3826'	-1074	3826'	-1074	3843'	-1059	3792'	-1069
Lansing	3874'	-1122	3877'	-1125	3892'	-1108	3838'	-1115
Muncie Creek Shale	3970'	-1218	3973'	-1221	3989'	-1205	3936'	-1213
Stark Shale	4026'	-1274	4027'	-1275	4043'	-1259	3991'	-1268
BKC	4074'	-1322	4077'	-1325	4090'	-1306	4040'	-1317
Marmaton	4109'	-1357	4110'	-1358	4128'	-1344	4077'	-1354
RTD	4150'	-1398						
LTD			4153'	-1401				

# DRILL STEM TESTS

DST No. 1 Lansing "E" - "F" - "G"  
Interval: 3918'-3968'  
Times: 30-30-30-30  
Recovery: 10' oil specked mud  
FP: 27-31/33-35 SIP: 1294-1250  
HP: 1918-1801 BHT: 117 deg. F

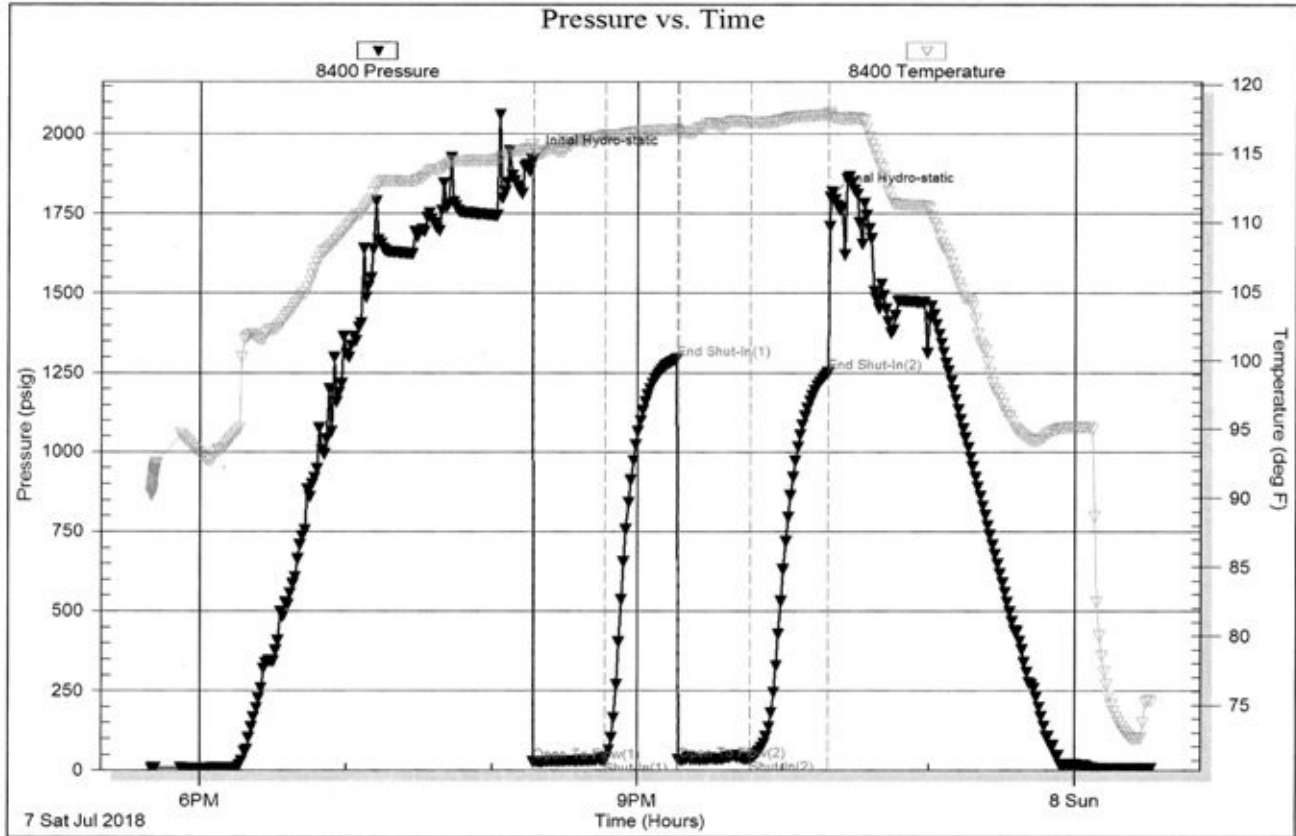
IFP: weak surface blow, died in 7 minutes  
ISIP: no return blow  
FFP: good surge on open, no blow  
FSIP: no return blow

Serial #: 8400

Outside Shakespeare Oil Co Inc

Marcuson 1-4

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 63737

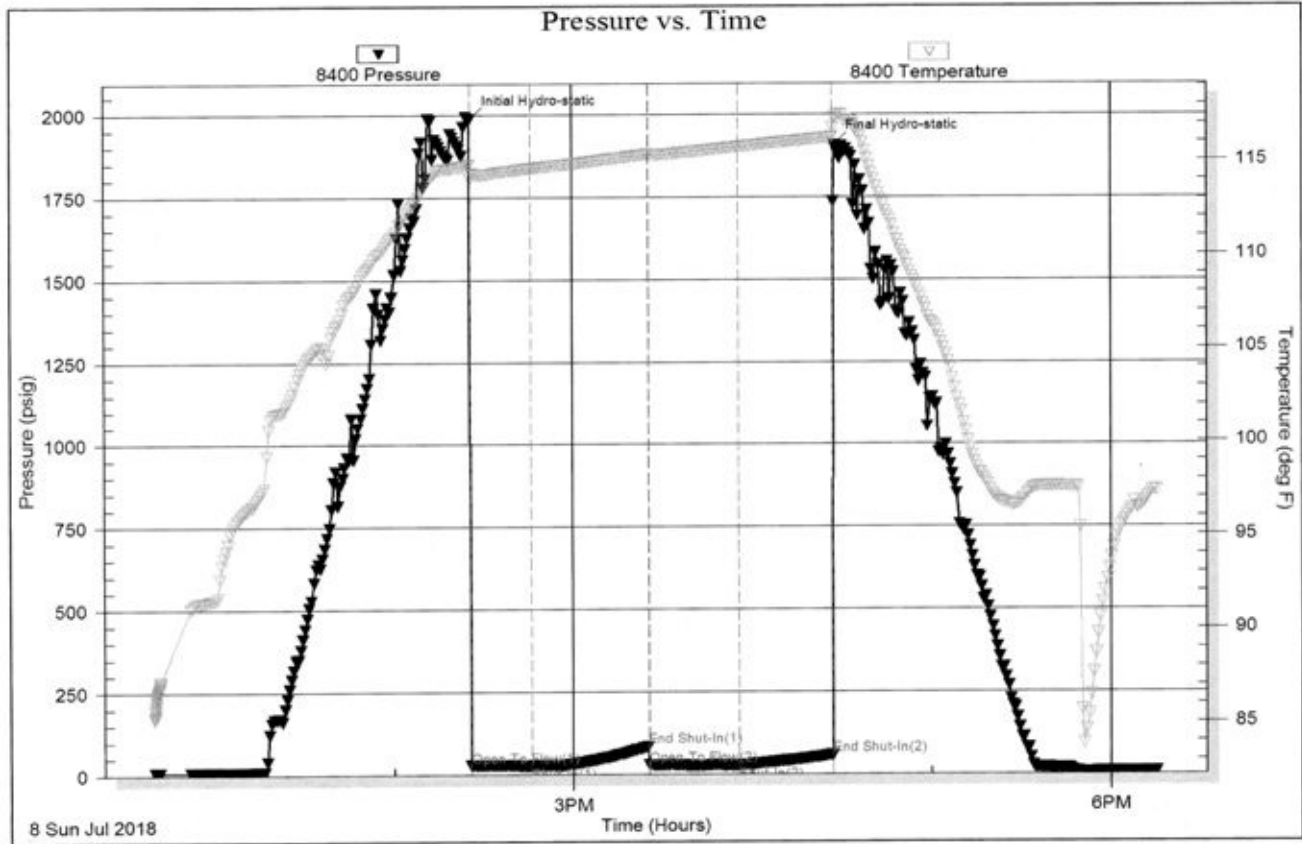
Printed: 2018.07.08 @ 00:43:08

# DRILL STEM TESTS

DST No. 2 Lansing "J" - "K"  
Interval: 3990'-4060'  
Times: 30-30-30-30  
Recovery: 5' OCM (5o, 95m)  
FP: 28-26/29-27 SIP: 86-59  
HP: 1984-1906 BHT: 117 deg. F

IFP: weak surface blow, died in 15 minutes  
ISIP: no return blow  
FFP: no blow  
FSIP: no return blow

Serial #: 8400      Outside      Shakespeare Oil Co Inc      Marcuson 1-4      DST Test Number: 2



# DRILL STEM TESTS

DST No. 3 Lansing "A" - "D"  
 Interval: 3880'-3920' straddle  
 Times: 30-30-30-60  
 Recovery: 5' OCM (5o, 95m), 315' MCW with  
 oil spots (15m, 85w), chl. 77,500 ppm  
 FP: 36-109/112-182 SIP: 1245-1254  
 HP: 1918-1846 BHT: 120 deg. F

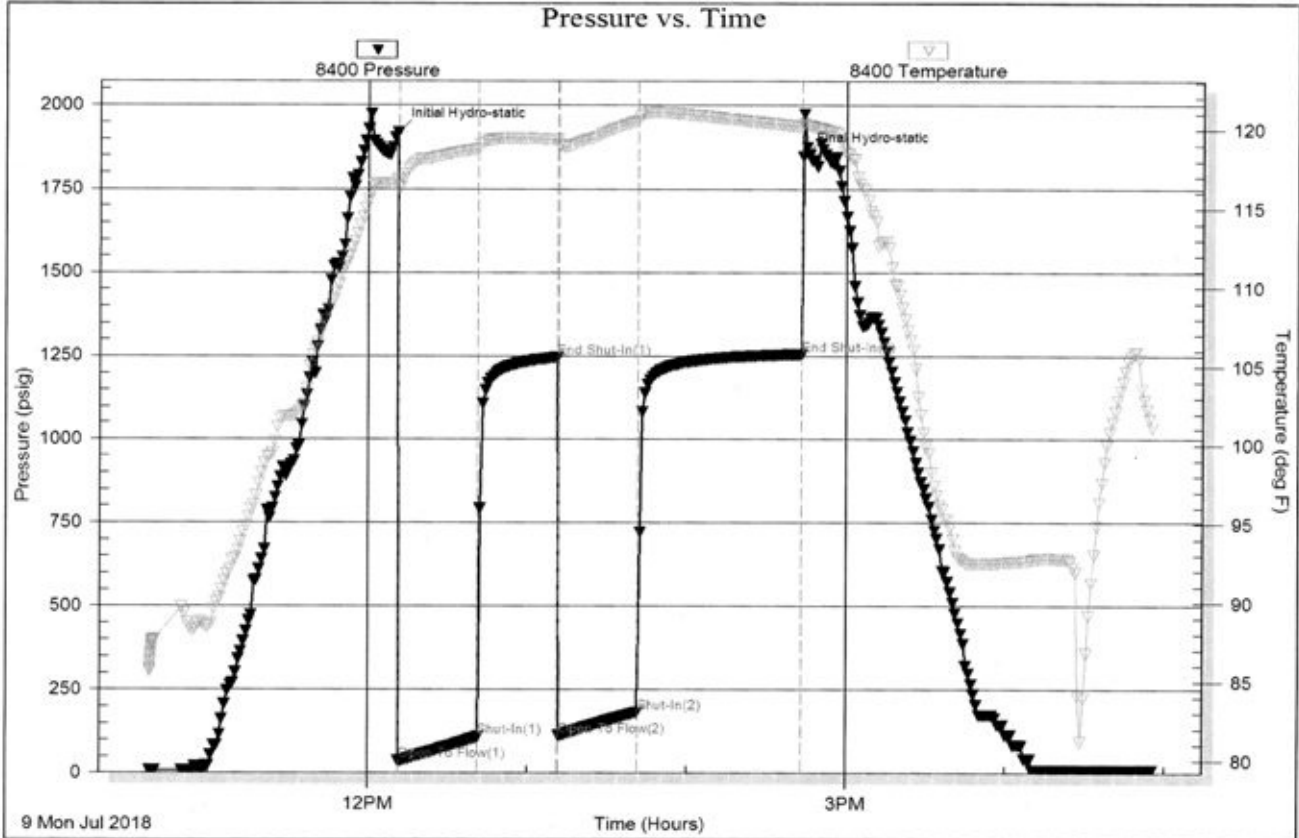
IFP: blow built to B.O.B. in 18 minutes  
 ISIP: no return blow  
 FFP: blow built to B.O.B. in 20 minutes  
 FSIP: no return blow

Serial #: 8400

Outside Shakespeare Oil Co Inc

Marcuson 1-4

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 63739

Printed: 2018.07.09 @ 17:10:14

## ROCK TYPES

Anhy  
 Cht  
 Coal  
 Congl  
 Dol  
 Gyp  
 Lmst

Salt  
 Shale  
 Shcol  
 Shgy  
 Siltst  
 Ss  
 Carb sh

Dol  
 Dtd  
 Gry sh  
 Sandylms  
 redshale  
 Shale  
 Siltstn

Shlyslts  
 Sltys h  
 Sdy dolo  
 Silty dolo  
 Shy dolo  
 Shaly ls



### ACCESSORIES

#### FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite

- Plant
- Strom
- Fuss
- Oomold

#### MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclrag
- 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
- Sltly

#### STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh
- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

### OTHER SYMBOLS

#### INTERVALS

- Core
- Dst
- Dst

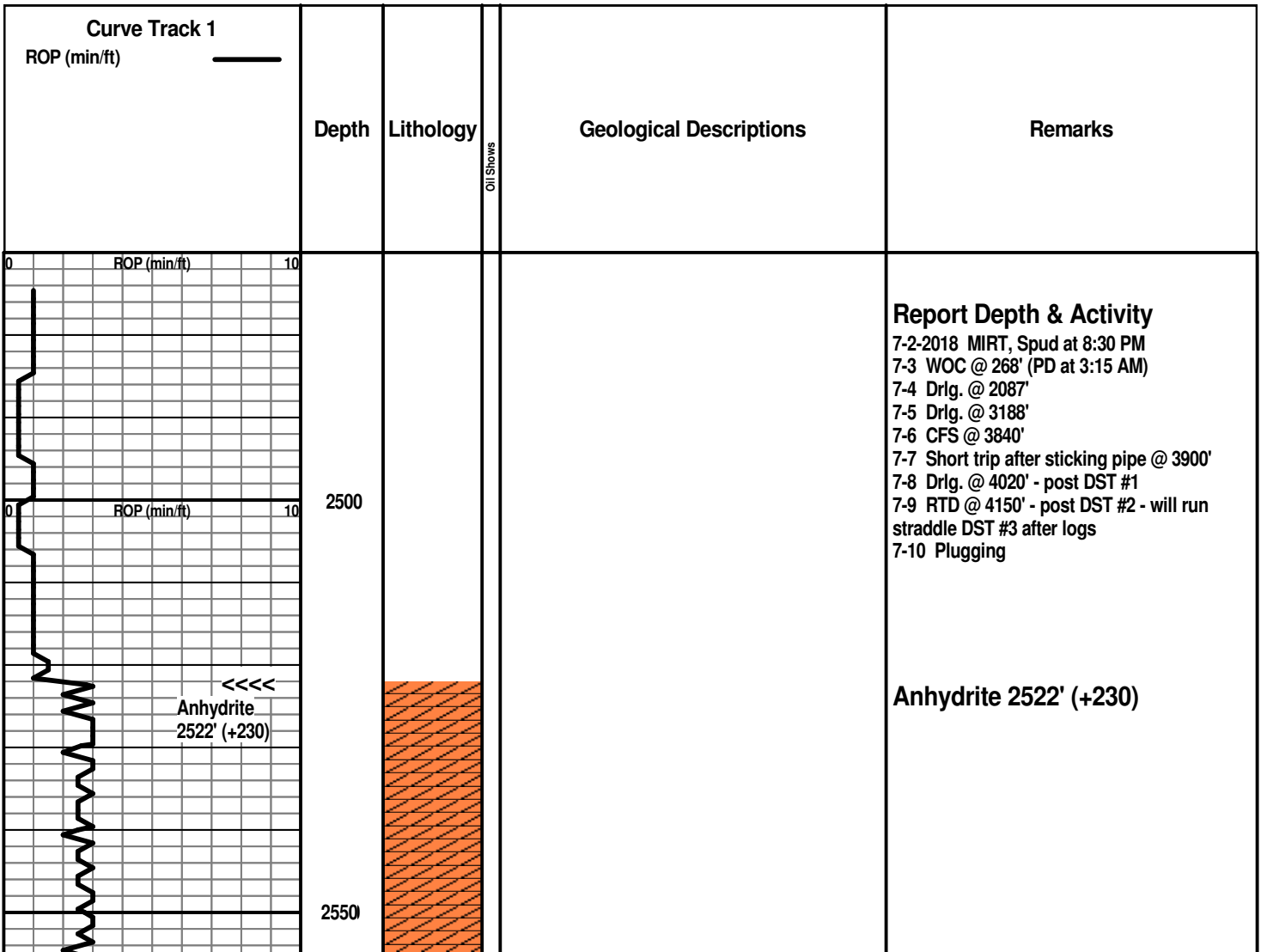
#### EVENTS

- Rft
- Dst top/base

#### OIL SHOWS

- Even
- Spotted
- Quest.

- Trace
- Dead
- Gas show



Base/Anhydrite  
2557' (+195)

<<<<

DEPTH CHANGE

2600

3550

3600

3650

60' spl - Ls: flood mottled lt brn, gray fn granular to micro oolitic, poor-NVP, some with subchalky matrix, foss. IP, N.S.

70' spl - Ls: trace tan, lt brn fn granular to micro oolitic with brn stain, oily residue, no odor, nfo, tight; strong influx tan, lt brn vf-cryptoxln and offwhite, tan vfxln dense; Sh: dark gray to black

80' spl - Ls: predom. lt to med gray dense, silty to shaly and offwhite, tan mic-vfxln dense, subchalky IP; occ chips micro oolitic AA with slow building gas bubbles on chip, occ oil spots under pressure, nfo

90' spl - Ls: lt gray, tan vfxln dense, silty IP, sl foss. IP and offwhite, tan vf-cryptoxln, NVP, N.S.

3600' spl - Ls: various dense AA, N.S.

10' spl - Ls: pred. offwhite, lt gray, tan fn-vfxln, NVP; some tan fn granular with inter-particle por., N.S.; influx offwhite subchalky; 2 chips tan gran. with ppt brn stain, micro beads on break, very tight, no odor

20' spl - Ls: mix AA with more tan, lt gray sl foss., poor-NVP; sl incr. offwhite chalky; one chip with patchy stain

30' spl - Ls: mix tan, lt brn, lt gray vfxln dense; other tan, lt brn gran., sl foss. with scatt. moldic and inter-particle por., N.S.; lesser offwhite subchalky

40' spl - Ls: mix AA with influx gray, lt brn vf-cryptoxln, NVP

50' spl - Ls: pred. various gray, tan, brn vfxln dense, NVP; one chip tan fn gran. with ppt brn oily stain, no odor

60' spl - Ls: lt gray, tan vf-cryptoxln and offwhite mic-vfxln dense

70' spl - Ls: mix AA; more offwhite subchalky to chalky; Sh: influx red, firm to soft and mushy, some red silty, washes red

80' spl - Sh: AA; Ls: pred. offwhite, tan mic-vfxln, subchalky to chalky

90' spl - Ls: offwhite subchalky to chalky; lesser lt gray, brn, tan vf-cryptoxln; spls still wash red

3700' spl - Ls: mix AA with influx Sst: lt gray vf-fg, subang-subrnd, very calcar., fair to well sorted, N.S.; spls

10' wet and dry samples at 3550'

1' drill time at 3600'

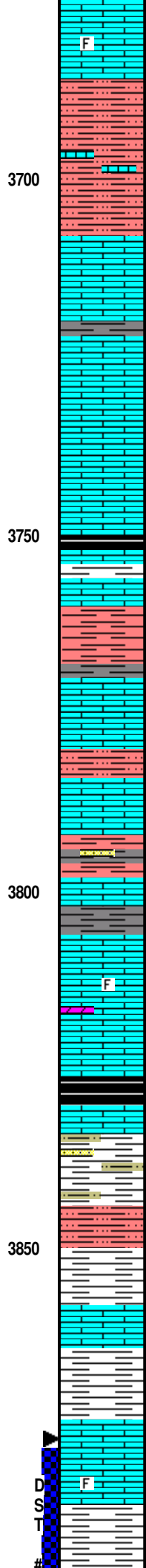
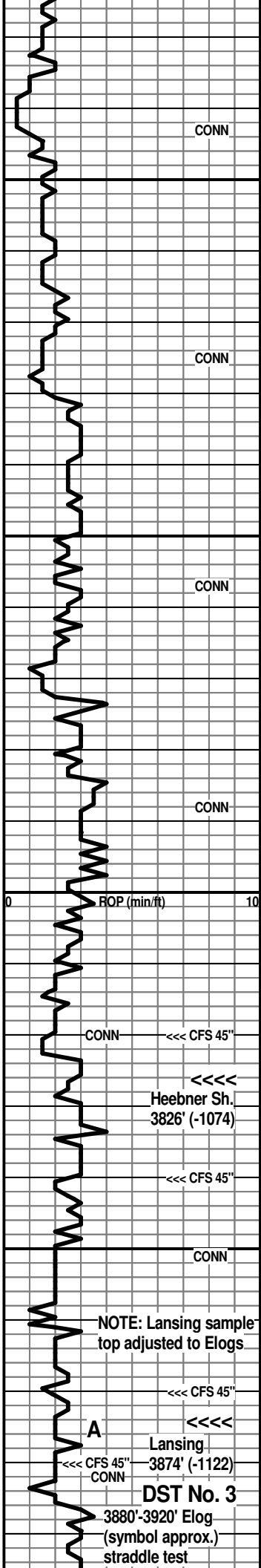
ROP (min/ft)

CONN

CONN

0 10





still wash red

10' spl - Ls: offwhite, tan fn gran., pred. with subchalky matrix; lesser tan, lt brn gran., foss. IP; common chalky; Sh: red AA

20' spl - flood Sh: med to dark red-brn, silty, firm to soft and mushy; lesser Ls: offwhite, tan more cryptoxln to med gran., NVP

30' spl - Ls: mix tan, lt gray cryptoxln to sl gran.; decr. subchalky to chalky; still shaly AA

40' spl - flood Ls: mix offwhite, tan mic-vfxln subchalky to offwhite chalky; other tan cryptoxln; minor Sh: dark gray to black?

50' spl - Ls: mix subchalky and chalky AA with tan, lt brn cryptoxln, some gran. with NVP, N.S.

60' spl - Ls: mix AA; some mottled gray and brn gran., micxln matrix IP, N.S.; Sh: scatt. black carbon.

70' spl - Ls: mix tan, lt gray vf-cryptoxln and offwhite mic-vfxln dense, subchalky, sl gran. IP, N.S.; Sh: scatt. black carbon., red-brn

80' spl - Ls: pred. offwhite, tan mic-fnxln, subchalky to white chalky; lesser tan, lt brn cryptoxln, NVP; Sh: incr. % red-brn, some gray

90' spl - Ls: mix offwhite, tan, lt gray vfxln dense, some granular, NVP; one chip tan fn gran. with ppt stain (prob. slough); Sh: fairly minor brick red, gray, red-brn

3800' spl - Ls: mix AA; occ med brn cryptoxln; Sh: sl incr. % med-dark red-brn, silty IP, some soft red-brn

10' spl - Ls: tan vf-cryptoxln; occ tan gran./foss. with inter-particle por. and offwhite, tan mic-vfxln dense, subchalky to chalky; Sh: incr. gray, dark red-brn, brn; some med gray fg Sst

20' spl - Ls: pred. offwhite, tan subchalky, gran. IP; some lt gray, lt brn cryptoxln; Sh: incr. lt to med gray

CFS 3820' 20" spl - Ls: mix tan, lt gray, lt brn gran./foss. IP with some inter-particle por., N.S.; abund. offwhite, tan subchalky AA; occ tan fnxln, sucrosic Dolomite

30' spl - no new rocks; Ls: various dense, subchalky, gran. IP AA

40' spl - Sh: sl influx black carbon.; Ls: tan, lt gray vfxln dense

CFS 3840' 20" spl - Ls: med brn cryptoxln, NVP; Sh: influx lt to med gray, black, occ red-brn with gray shaly siltst and gray fg shaly Sst; 45" spl - Sh: various AA with Siltst AA; common Ls's in samples

50' spl - no new rocks; abund Ls's and shales AA

60' spl - Sh: good influx med to dark red and red-brn, silty to vfg sandy, sl micac.; gray

70' spl - shales AA with Ls: offwhite subchalky to chalky

CFS 3870' 20"/45" spls - Ls: more offwhite, tan gran. with some inter-particle por., N.S.; 3-4 chips tan fn gran. with ppt brn stain, dull fluor., micro beads of oil on break, no odor; shaly mix AA

CFS 3880' 20" spl - Sh: red-brn, gray, black; flood Ls: offwhite, tan, lt brn vf-cryptoxln, NVP, N.S.; occ subchalky; 45" spl - Ls: tan, lt gray, lt-med brn cryptoxln and offwhite tan mic-vfxln dense, subchalky, N.S.;

90' spl - no new rocks

3900' spl - Ls: pred. offwhite, tan mic-vfxln dense, subchalky; 5-6 chips offwhite foss. with spotty thick oily stain, trace vug. por. on edge, nfo

DST No. 3 Lansing "A" - "D"  
 Interval: 3880'-3920' straddle  
 Times: 30-30-30-60  
 IFP: blow built to B.O.B. in 18 minutes  
 ISIP: no return blow  
 FFP: blow built to B.O.B. in 20 minutes  
 FSIP: no return blow  
 Recovery: 5' OCM (50, 95m), 315' MCW with oil spots (15m, 85w), chl. 77,500 ppm  
 FP: 36-109/112-182 SIP: 1245-1254  
 HP: 1918-1846 BHT: 120 deg. F

CFS 3820' 45" spl - Ls: pred. tan vfxln dense and offwhite, tan mic-vfxln dense, subchalky; some tan, lt brn gran. with some inter-particle por., N.S.; Sh: minor lt to med gray

**Heebner Sh. 3826' (-1074)**

**MudCo Mud Check at 3888'**  
 9:45 AM on 7-6-2018  
 wt vis wl pH chl  
 8.9 60 6.0 11.5 700  
 PV YP GelS lcm solids  
 19 35 12/24 2# 4.3%

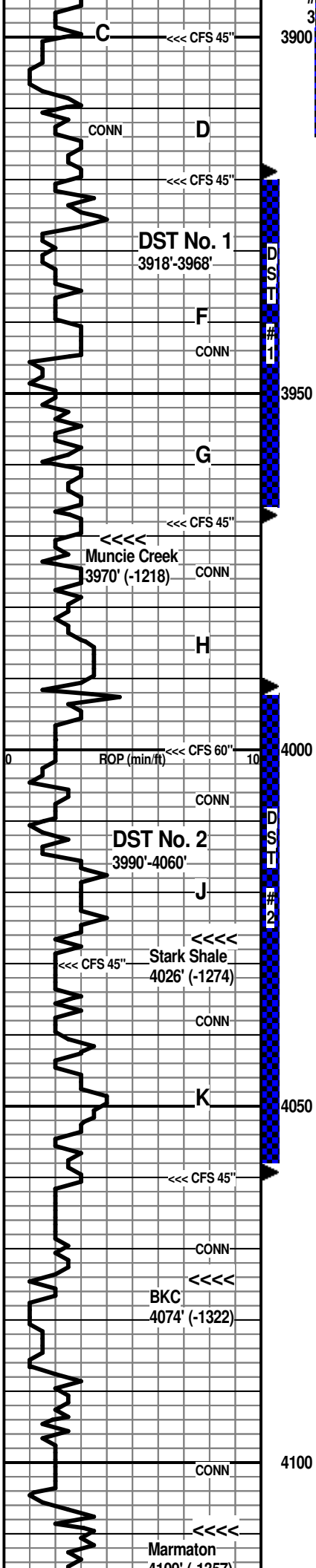
**Lansing 3874' (-1122)**

During short trip prior to trying to test Lansing "A"- "C", the pipe was stuck 11+ stands off bottom. Brought out "driver" to knock pipe loose. Did not work. Spotted 50 bbls of oil. Freed up early morning 7-8-2018. Decided to finish short trip and clean the hole, but no DST here.

CFS 3900' 45" spl - Ls: mix various dense AA with good

NOTE: Lansing sample top adjusted to Elogs

DST #



3900  
 CFS 3900' 20" spl - Ls: pred. tan, it gray vfcryptoxin and offwhite, tan mic-vfxln dense, N.S.; fair influx tan, it brn fn oolitic with poor-fair inter-oolitic por. with spotty to sat. stain, sl sfo, no odor; some foss., some vug. por.

10' spl - no new rocks, trashy; 20' spl - Ls: offwhite mic-vfxln, subchalky with some patchy stain, nfo; tan cryptoxln, NVP; scatt. tan, offwhite vfcryptoxln with some vug. por. with thick black oily stain (new??); Chert: sl influx lt gray, tan mottled and foss. opq - CFS 3920' spls >>>

30' spl - no new rocks; 3-4 chips tan gran./foss with some fair inter-particle por., with ppt stain, trace micro oil beads, trace sg, no odor; 40' spl - >>>

50' spl - Sh: strong influx red-brn; Ls: red stained offwhite, tan cryptoxln and red-brn cryptoxln, NVP, N.S.; trace tan gran. to cryptoxln with some vug. por. with lt stain

60' spl - Ls: tan, lt brn sl gran. to cryptoxln, NVP and lesser offwhite mic-vfxln dense, subchalky, N.S.; good influx offwhite, tan gran. with vug. and inter-particle por. with ft-vsl odor, sl-fair sfo, sg, patchy ppt to subsat. stain

68' spl - Ls: flood offwhite mic-vfxln dense, subchalky to chalky IP, N.S.; occ tan sl gran. with poor inter-particle and scatt. vug. por. with patchy lt stain, nfo, no odor

CFS 3968' 20" spl - Ls: very pred. offwhite, tan mic-vfxln dense, subchalky; lesser tan, lt brn cryptoxln, NVP, N.S.; 3-4 chips tan, offwhite vfxln, sl foss. with poor por. with some ppt stain, trace micro oil beads on break, no odor; 45" spl - >>>

80' spl - no new rocks; 90' spl - Sh: med to dark red-brn, red-maroon, some gray; Ls: mix tan, offwhite vfcryptoxln and offwhite subchalky

4000' spl - Ls: tan, lt gray cryptoxln and offwhite mic-vfxln, subchalky, N.S.; one chip tan sl gran. with spotty stain; one chip lt brn vfcryptoxln NVP, with black subsat. stain (slough??)

CFS 4000' 30" spl - Ls: mix AA, one chip tan cryptoxln, NVP with speckled black tar stain; Sh: med to dark red-brn, other med-dark gray, gray-green; 60" spl - Sh: AA with influx vc gray, black, lt green

10' spl - no new rocks; 20' spl - Sh: influx med to dark red-brn, red-maroon; Ls: pred. tan, offwhite mic-vfxln and tan, lt gray cryptoxln, NVP, N.S.; a few chips tan, offwhite vfcryptoxln with ppt and scatt. vug. por., with ppt to subsat. brn stain, vsl sfo, trace sg, no odor, likely tight

30' spl - flood Ls: tan, lt gray cryptoxln and offwhite mic-vfxln dense, subchalky, N.S.

CFS 4030' 20" spl - Ls: various cryptoxln and dense subchalky AA; one chip tan sl gran. to cryptoxln with scatt. vug. por. with lt stain, sg, nfo, no odor; 45" spl - >>>

50' spl - Sh: influx med to dark red-brn, lesser lt gray; Ls: mix AA with influx lt gray, med brn, and red cryptoxln, NVP, N.S.

60' spl - Ls: pred. offwhite mic-vfxln dense, subchalky and tan, lt gray cryptoxln, NVP, N.S.; several chips tan fn gran. with poor inter-particle por. with ppt brn stain, sl shows micro oil beads on break, no odor

CFS 4060' spls - Ls: various dense AA; occ shows AA; Sh: dark red-brn and vc gray

80' spl - Sh: red-brn, some lt-med gray and dark gray to black; Ls: tan, lt gray, lt-med brn cryptoxln; lesser offwhite dense

90' spl - Ls: various cryptoxln AA, some red-brn cryptoxln; incr. offwhite micvln dense; Sh: med to dark red-brn

4100' spl - Ls: mix AA with new lt gray fnxln, foss.; Sh: med to dark red-brn, lt red silty

10' spl - Sh: med to dark red-brn, silty IP; Ls: offwhite, lt gray mic-vfxln dense

20' spl - Ls: influx tan, offwhite, lt gray gran., poor-NVP, and tan, lt gray cryptoxln, N.S.; Sh: mix AA, decr. %

30' spl - Ls: various gran. AA; tan, lt gray, lt brn cryptoxln;

influx oolitic with shows AA; Sh: incr. dark red-brn

CFS 3920' 20" spl - Ls: very pred. offwhite, tan mic-vfxln dense, subchalky IP; tan, lt gray cryptoxln NVP, N.S.; occ tan, offwhite vfcryptoxln with spotty vug. por. with very spotty black stain, nfo, no odor; 45" spl - Ls: mix AA with influx pale gray/gray-green vfxln, sl shly Ls, NVP, N.S.; Sh: incr. % med-dark red-brn, some gray

40' spl - mix tan, lt brn cryptoxln, gran. IP, NVP and offwhite, tan mic-vfxln dense, N.S.; Sh: influx dark red-brn, red-maroon

**MudCo Mud Check at 3900'**  
 8:30 AM on 7-7-2018  
 wt vis wl pH chl  
 8.7 60 5.8 11.0 700  
 PV YP GelS lcm solids  
 17 31 10/24 2# 2.8%

CFS 3968' 45" spl - Ls: good influx tan, lt brn, lt gray cryptoxln, NVP, N.S.; scatt. lt gray shaly; 5-6 chips tan, offwhite gran. with scatt. vug. and some poor inter-particle por. with spotty stain, no odor, trace micro oil beads on break

**Muncie Creek 3970' (-1218)**  
 Strap 3.97' long to board at 3968'

DST No. 1 Lansing "E" - "F" - "G"  
 Interval: 3918'-3968'  
 Times: 30-30-30-30  
 IFP: weak surface blow, died in 7 minutes  
 ISIP: no return blow  
 FFP: good surge on open, no blow  
 FSIP: no return blow  
 Recovery: 10' oil specked mud  
 FP: 27-31/33-35 SIP: 1294-1250  
 HP: 1918-1801 BHT: 117 deg. F

CFS 4030' 45" spl - Sh: influx dark red-brn, red-maroon, lesser lt gray, some black carbon.

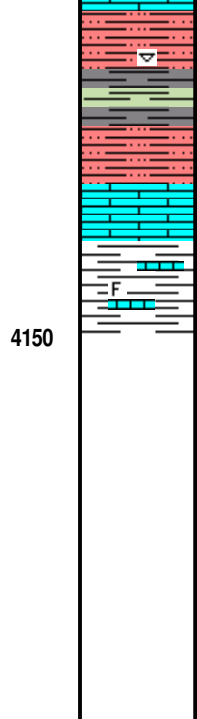
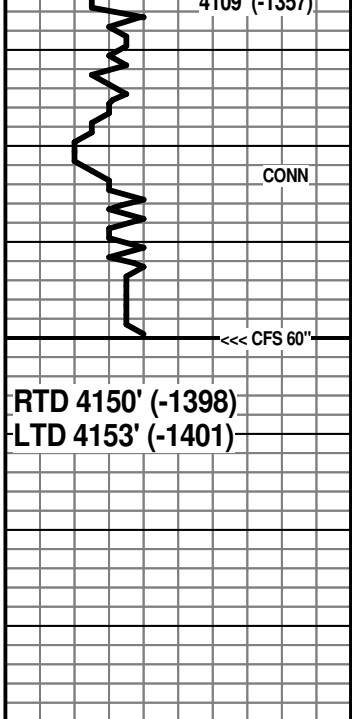
**Stark Shale 4026' (-1274)**

**MudCo Mud Check at 4038'**  
 8:10 AM on 7-8-2018  
 wt vis wl pH chl  
 8.8 60 5.4 11.0 800  
 PV YP GelS lcm solids  
 18 27 10/17 2# 3.6%

DST No. 2 Lansing "J" - "K"  
 Interval: 3990'-4060'  
 Times: 30-30-30-30  
 IFP: weak surface blow, died in 15 minutes  
 ISIP: no return blow  
 FFP: no blow  
 FSIP: no return blow  
 Recovery: 5' OCM (50, 95m)  
 FP: 28-26/29-27 SIP: 86-59  
 HP: 1984-1906 BHT: 117 deg. F

**BKC 4074' (-1322)**

**Marmaton 4109' (-1357)**



occ offwhite opq chert; Sh: red-brn AA, some gray

40' spl - Sh: med to dark red-brn, red-maroon, some lt gray, gray-green; Ls: various dense AA, occ foss.

50' spl - flood Sh: various red-brn, red-maroon, reddish-gray very silty; Ls: lt brn cryptoxin to gran.. NVP

CFS 4150' spls - Sh: red-brn, influx lt purple, lesser gray and silty lt green; scatt. shell fragments and various Ls's AA

After review of Elogs and DST results, the well was declared a dry hole.

Respectfully submitted,

Wesley D. Hansen  
 Petroleum Geologist  
 Kansas License No. 418

**MudCo Mud Check at 4150'**  
 8:15 AM on 7-9-2018  
 wt vis wl pH chl  
 8.9 60 5.8 10.5 800  
 PV YP GelS lcm solids  
 18 27 14/21 2# 4.3%

RTD reached at 12:45 AM on 7-9-2018  
 CFS/CTCH 1 1/2 hours - TOFL

RTD 4150' (-1398)  
 LTD 4153' (-1401)