

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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**JAMES C. MUSGROVE**

Petroleum Geologist, LLC  
212 Main Street  
P.O. Box 215  
Claflin, KS 67525

Office (620) 588-4250

Res. Claflin (620) 587-3444

Mai Oil Operations  
L&N Miller #1  
SW-NE-SW-NW  
Section 16-20s-22w  
Ness County, Kansas

Page 1

**5 1/2" Production Casing Set**

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** June 19, 2017  
**Completed:** June 26, 2017  
**Elevation:** 2209' K.B., 2207' D.F., 2201' G.L.  
**Casing program:** Surface; 8 5/8" @ 251'  
Production, 5 1/2" @ 4446'  
**Sample:** Samples saved and examined 3600' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 3600' to the Rotary Total Depth.  
**Measurements:** All depths measured from the Kelly Bushing.  
**Drill Stem Tests:** There were three (3) Drill Stem Tests ran by Trilobite Testing Co.  
**Electric Log:** By Eli Wireline Services, Dual Induction, Compensated Density/Neutron and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	1436	+773
Base Anhydrite	1477	+732
Heebner	3702	-1493
Toronto	3716	-1507
Lansing	3749	-1540
Stark	4006	-1797
Base Kansas City	4076	-1867
Marmaton	4116	-1907
Pawnee	4196	-1987
Ft. Scott	4268	-2059
Cherokee Shale	4294	-2085
Mississippian	4352	-2143
Mississippi Osage	4364	-2155
Rotary Total Depth	4450	-2241
Log Total Depth	4453	-2244

(All tops and zones corrected to Electric Log Measurement)

**SAMPLE ANALYSIS, SHOWS OF OIL, TESTING DATA, ETC.**

**TOPEKA through LANSING/KANSAS CITY SECTIONS**

3600-4076' There were several zones of well-developed porosity encountered in the drilling of the Topeka, Toronto, , Lansing, and Kansas City Sections, but no shows of oil and/or gas was noted. (See attached geologist sample log)

**MARMATON SECTION**

4116-4126' Limestone, tan, brown, finely crystalline, poor scattered pinpoint porosity, no shows.

4148-4170' Limestone, white, cream, finely crystalline, chalky, scattered inter-crystalline porosity, no shows.

4174-4193' Limestone, cream, white, finely crystalline, poor visible porosity, (dense), no shows.

**PAWNEE SECTION**

4206-4230' Limestone, cream, white, finely crystalline; chalky in part, poor visible porosity, no shows.

4230-4264' Limestone, cream, white, gray, chalky, shaley with depth, no shows.

**FT SCOTT SECTION**

4268-4280' Limestone, cream white, finely crystalline, chalky in part, poor scattered pinpoint type porosity, trace spotty black stain, no free oil and no odor in fresh samples.

**CHEROKEE SECTION**

4298-4314' Limestone, cream, white, finely crystalline, few fossiliferous, dense, trace chert; white, oolitic, boney, no shows.

4323-4330' Limestone, white, cream, finely crystalline, poor visible porosity, chalky, no shows.

4330-4353' Limestone, white, cream, few fossiliferous, poor to fair vuggy to pinpoint type porosity, chalky, no shows plus gray and green shale.

**MISSISSIPPIAN SECTION**

4353-4364' Dolomite, white, finely crystalline, poorly developed pinpoint type porosity, trace brown stain, no free oil and faint odor in fresh sample, trace chert white, few orange, opaque, no shows

**OSAGE SECTION**

4363-4370' Chert; white, opaque, fair, finely vuggy type porosity, black stain, show of free oil and strong odor in fresh samples.

**Drill Stem Test #1** **4335-4370**

**Times:** 30-30-30-30

**Blow:** Weak

**Recovery:** 5' oil cut mud

**Pressures:** ISIP 969 psi  
FSIP 909 psi  
IFP 17-18 psi  
FFP 20-23 psi  
HSH 2185-2153 psi

4370-4381; Chert, white; scattered vuggy porosity, brown stain, show of free oil and strong odor in fresh samples.

**Drill Stem Test #2** **4334-4389**

**Times:** 30-30-45-60

**Blow:** Strong

**Recovery:** 30' clean oil  
496' slightly oil cut muddy water  
(57% oil; 85% water; 10% mud)  
265' oil cut muddy water  
(10% oil; 40% water; 50% mud)

**Pressures:** ISIP 1381 psi  
FSIP 1382 psi  
IFP 28-205 psi  
FFP 209-373 psi  
HSH 2173-2095 psi

4389-4400' Chert; as above

4400-4420' Dolomite, white, finely crystalline, poor inter-crystalline porosity, trace light brown stain, weak show of free oil and faint to fair odor in fresh samples; plus trace sand; white, fine to medium grained; sub-rounded, friable, no shows.

4420-4450' Chert and dolomite, as above, no shows.

Mai Oil Operations  
L&N Miller #1  
SW-NE-SW-NW  
Section 16-20s-22w  
Ness County, Kansas

Page 4

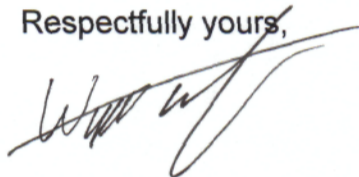
**Rotary Total Depth            4450 -2241**

**Log Total Depth              4453 -2243**

**Recommendations:**

5 ½' production casing was set and cemented on the Mai Oil Operations, L&N Miller #1.

Respectfully yours,



Wyatt Urban  
Petroleum Geologist



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Mai Oil Operations  
 8411 Preston Road Suite 800  
 Dallas, TX 75225+5520  
 ATTN: Wyatt Urban

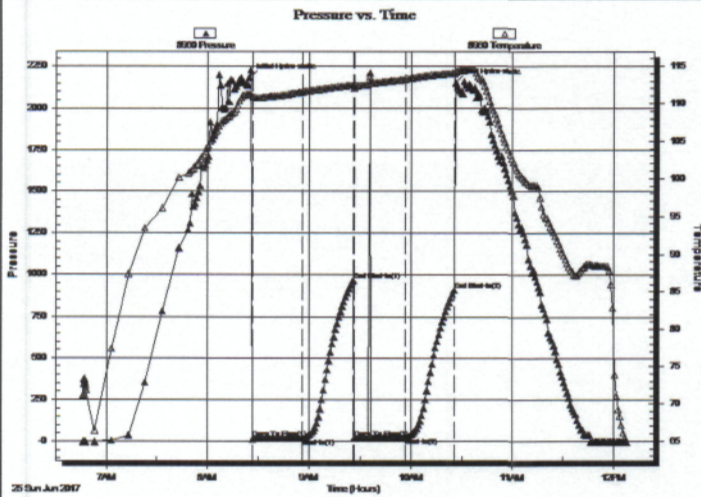
**16-20S-22W Ness,KS**  
**L & N Miller #1**  
 Job Ticket: 64792 **DST#: 1**  
 Test Start: 2017.06.25 @ 06:46:00

**GENERAL INFORMATION:**

Formation: **Mississippi**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:26:30  
 Time Test Ended: 12:08:00  
 Interval: **4335.00 ft (KB) To 4370.00 ft (KB) (TVD)**  
 Total Depth: 4370.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ken Swinney  
 Unit No: 72  
 Reference Elevations: 2209.00 ft (KB)  
 2201.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8960** **Outside**  
 Press@RunDepth: 909.20 psig @ 4367.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.06.25 End Date: 2017.06.25 Last Calib.: 2017.06.25  
 Start Time: 06:46:05 End Time: 12:07:59 Time On Btm: 2017.06.25 @ 08:24:30  
 Time Off Btm: 2017.06.25 @ 10:26:30

**TEST COMMENT:** IFP 30 minutes Blow built to 1/4" in 10 minutes then died after 20 minutes  
 ISI 30 minutes No blow back  
 FFP 30 minutes Dead no blow / Flush tool no help  
 FSI 30 minutes No blow back



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2183.34	111.27	Initial Hydro-static
2	15.59	110.92	Open To Flow (1)
32	17.91	111.57	Shut-In(1)
62	969.48	112.49	End Shut-In(1)
62	19.46	112.10	Open To Flow (2)
92	23.36	113.26	Shut-In(2)
121	909.20	114.07	End Shut-In(2)
122	2152.23	114.30	Final Hydro-static

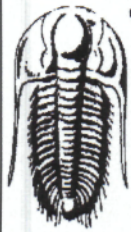
**Recovery**

Length (ft)	Description	Volume (bbl)
5.00	Oil cut Mud w /thin layer of oil in pipe	0.02
0.00	Oil 10% Mud 90%	0.00

**Gas Rates**

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





**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations  
8411 Preston Road Suite 800  
Dallas, TX 75225+5520  
ATTN: Wyatt Urban

**16-20S-22W Ness,KS**  
**L & N Miller #1**  
Job Ticket: 64792      **DST#: 1**  
Test Start: 2017.06.25 @ 06:46:00

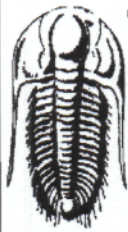
**Tool Information**

Drill Pipe:	Length: 4275.00 ft	Diameter: 3.80 inches	Volume: 59.97 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 60.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose:	48000.00 lb
			<u>Total Volume: 60.27 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	43000.00 lb
Depth to Top Packer:	4335.00 ft			Final	43000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	35.00 ft				
Tool Length:	55.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			4320.00	
Hydraulic tool	5.00			4325.00	
Top Packer	5.00			4330.00	
Packer	5.00			4335.00	20.00      Bottom Of Top Packer
Anchor	30.00			4365.00	
Recorder	1.00	8354	Inside	4366.00	
Recorder	1.00	8960	Outside	4367.00	
Bullnose	3.00			4370.00	35.00      Anchor Tool

**Total Tool Length: 55.00**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations

**16-20S-22W Ness,KS**

8411 Preston Road Suite 800  
Dallas, TX 75225+5520

**L & N Miller #1**

Job Ticket: 64792

**DST#: 1**

ATTN: Wyatt Urban

Test Start: 2017.06.25 @ 06:46:00

**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: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 71.78 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7600.00 ppm

Filter Cake: 1.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
5.00	Oil cut Mud w /thin layer of oil in pipe	0.025
0.00	Oil 10% Mud 90%	0.000

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8354

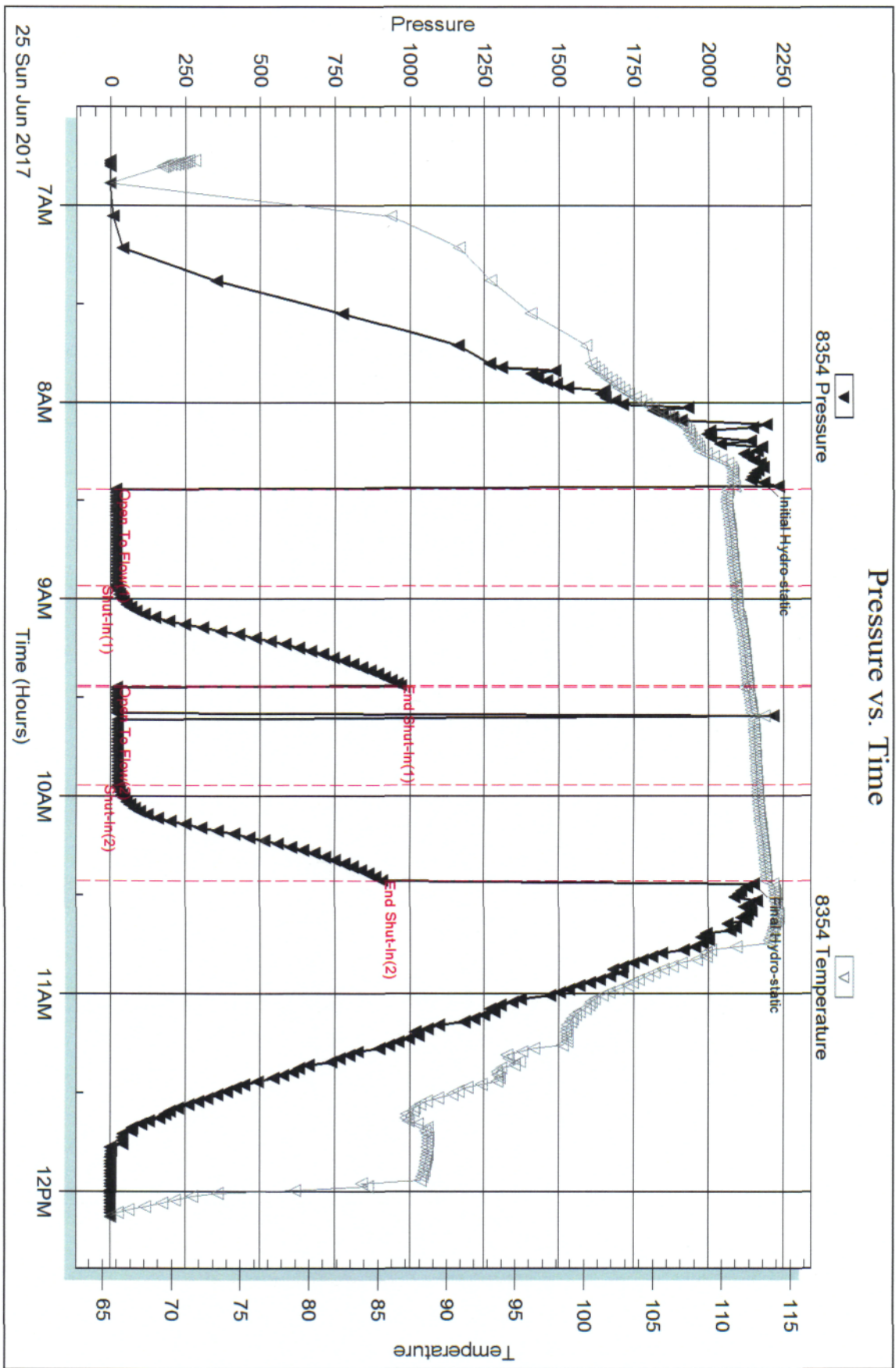
Inside

Mai Oil Operations

L & N Miller #1

DST Test Number: 1

### Pressure vs. Time





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Mai Oil Operations

**16-20S-22W Ness,KS**

8411 Preston Road Suite 800  
Dallas, TX 75225+5520

**L & N Miller #1**

Job Ticket: 64793

**DST#: 2**

ATTN: Wyatt Urban

Test Start: 2017.06.25 @ 19:33:00

### GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:11:30

Time Test Ended: 02:01:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Sw inney

Unit No: 72

Interval: **4334.00 ft (KB) To 4381.00 ft (KB) (TVD)**

Total Depth: 4381.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2209.00 ft (KB)

2201.00 ft (CF)

KB to GRVCF: 8.00 ft

**Serial #: 8960**

**Outside**

Press@RunDepth: 1347.51 psig @ 4336.00 ft (KB)

Start Date: 2017.06.25

End Date:

2017.06.26

Capacity: 8000.00 psig

Last Calib.:

2017.06.26

Start Time: 19:33:05

End Time:

02:01:29

Time On Btm: 2017.06.25 @ 21:09:30

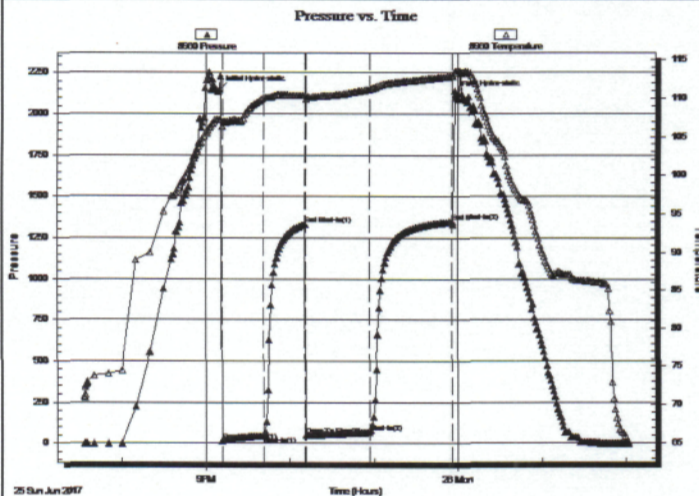
Time Off Btm: 2017.06.25 @ 23:58:00

TEST COMMENT: IFP 30 minutes Blow built to 3 1/2"

ISI 30 minutes No blow back

FFP 45 minutes Blow built to 4 inches

FSI 60 minutes No blow back



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2146.57	107.23	Initial Hydro-static
2	14.67	106.35	Open To Flow (1)
32	44.14	110.10	Shut-In(1)
62	1331.21	110.41	End Shut-In(1)
62	47.74	109.94	Open To Flow (2)
107	63.97	111.16	Shut-In(2)
167	1347.51	112.89	End Shut-In(2)
169	2118.10	113.49	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
90.00	OCM Oil 15% Mud 85%	0.72
30.00	Clean Oil 100%	0.42

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations

16-20S-22W Ness,KS

8411 Preston Road Suite 800  
Dallas, TX 75225+5520

L & N Miller #1

Job Ticket: 64793

DST#: 2

ATTN: Wyatt Urban

Test Start: 2017.06.25 @ 19:33:00

### Tool Information

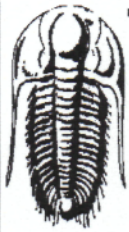
Drill Pipe:	Length: 4275.00 ft	Diameter: 3.80 inches	Volume: 59.97 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 60.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose: 52000.00 lb
			<u>Total Volume: 60.27 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	4334.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	47.23 ft			
Tool Length:	67.23 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut-In Tool	5.00			4319.00	
Hydraulic tool	5.00			4324.00	
Top Packer	5.00			4329.00	
Packer	5.00			4334.00	20.00 Bottom Of Top Packer
Recorder	1.00	8354	Inside	4335.00	
Recorder	1.00	8960	Outside	4336.00	
Anchor	9.00			4345.00	
Change Over Sub	1.00			4346.00	
Drill Pipe	31.23			4377.23	
Change Over Sub	1.00			4378.23	
Bullnose	3.00			4381.23	47.23 Anchor Tool

**Total Tool Length: 67.23**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations

**16-20S-22W Ness,KS**

8411 Preston Road Suite 800  
Dallas, TX 75225+5520

**L & N Miller #1**

Job Ticket: 64793

**DST#: 2**

ATTN: Wyatt Urban

Test Start: 2017.06.25 @ 19:33:00

**Mud and Cushion Information**

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7000.00 ppm

Filter Cake: 1.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
90.00	OCM Oil 15% Mud 85%	0.716
30.00	Clean Oil 100%	0.421

Total Length: 120.00 ft      Total Volume: 1.137 bbl

Num Fluid Samples: 0

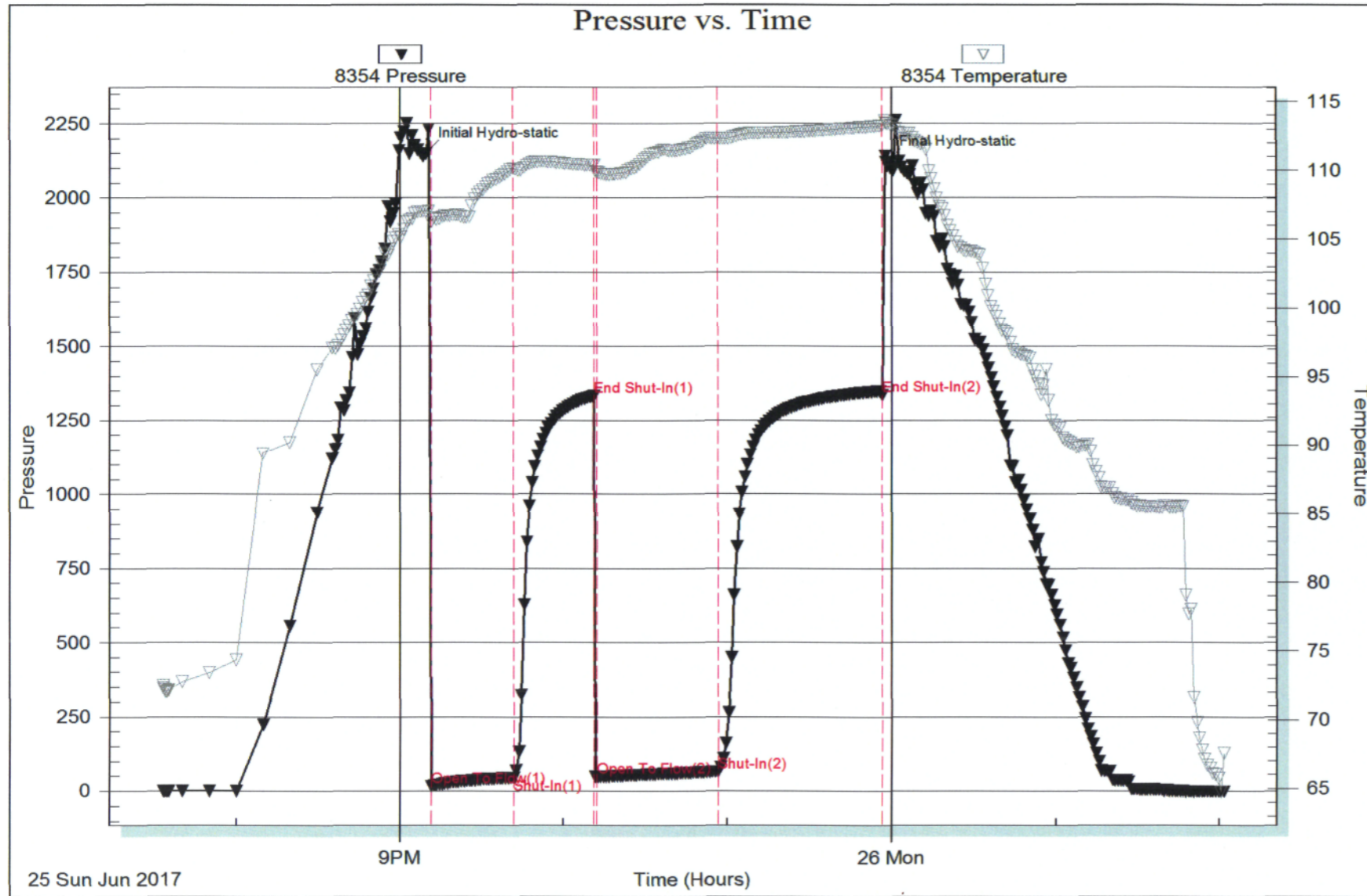
Num Gas Bombs: 0

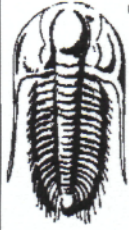
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE TESTING, INC.**

### DRILL STEM TEST REPORT

Mai Oil Operations  
8411 Preston Road Suite 800  
Dallas, TX 75225+5520  
ATTN: Wyatt Urban

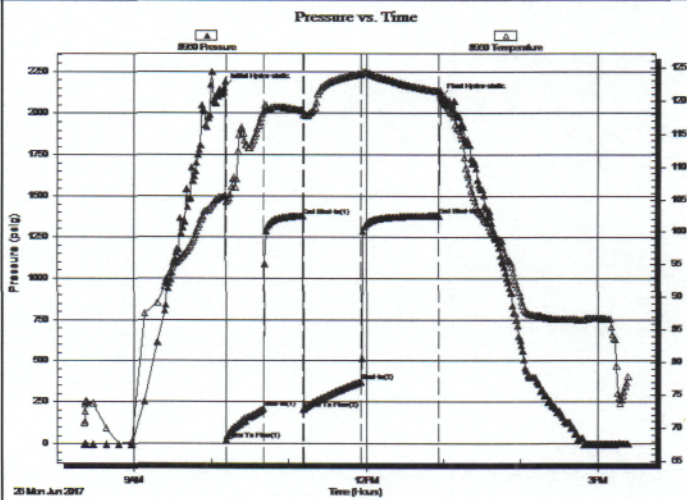
**16-20S-22W Ness,KS**  
**L & N Miller #1**  
Job Ticket: 64794      **DST#: 3**  
Test Start: 2017.06.26 @ 08:21:00

#### GENERAL INFORMATION:

Formation: **Mississippi**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 10:11:30  
Time Test Ended: 15:24:00  
Interval: **4334.00 ft (KB) To 4389.00 ft (KB) (TVD)**  
Total Depth: 4389.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Reference Elevations: 2209.00 ft (KB)  
2201.00 ft (CF)  
KB to GRVCF: 8.00 ft

**Serial #: 8960**      **Outside**  
Press@RunDepth: 1381.35 psig @ 4336.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2017.06.26      End Date: 2017.06.26      Last Calib.: 2017.06.26  
Start Time: 08:21:05      End Time: 15:23:59      Time On Btm: 2017.06.26 @ 10:10:00  
Time Off Btm: 2017.06.26 @ 12:58:00

**TEST COMMENT:** IFP 30 minutes Blow built to BOB in 9 minutes  
ISI 30 minutes No blow back  
FFP 45 minutes Blow built to BOB in 12 minutes  
FSI 60 minutes No blow back



#### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2155.48	105.44	Initial Hydro-static
2	26.95	104.65	Open To Flow (1)
31	211.81	118.52	Shut-In(1)
61	1380.08	118.53	End Shut-In(1)
62	207.69	117.98	Open To Flow (2)
106	372.88	124.01	Shut-In(2)
167	1381.35	121.45	End Shut-In(2)
168	2093.89	121.14	Final Hydro-static

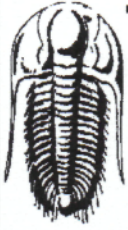
#### Recovery

Length (ft)	Description	Volume (bbl)
496.00	OCMW Oil 5% Mud 10% Water 85%	6.41
265.00	OCWM Oil 10% Water 40% Mud 50%	3.72
30.00	Clean Oil 100%	0.42

#### Gas Rates

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





**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations  
8411 Preston Road Suite 800  
Dallas, TX 75225+5520  
ATTN: Wyatt Urban

**16-20S-22W Ness,KS**  
**L & N Miller #1**  
Job Ticket: 64794      **DST#: 3**  
Test Start: 2017.06.26 @ 08:21:00

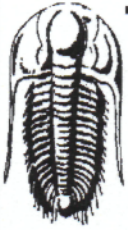
**Tool Information**

Drill Pipe:	Length: 4275.00 ft	Diameter: 3.80 inches	Volume: 59.97 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 60.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose: 62000.00 lb
			<u>Total Volume: 60.27 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	4334.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.23 ft			
Tool Length:	75.23 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			4319.00	
Hydraulic tool	5.00			4324.00	
Top Packer	5.00			4329.00	
Packer	5.00			4334.00	20.00      Bottom Of Top Packer
Recorder	1.00	8354	Inside	4335.00	
Recorder	1.00	8960	Outside	4336.00	
Anchor	17.00			4353.00	
Change Over Sub	1.00			4354.00	
Drill Pipe	31.23			4385.23	
Change Over Sub	1.00			4386.23	
Bullnose	3.00			4389.23	55.23      Anchor Tool

**Total Tool Length: 75.23**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations

**16-20S-22W Ness,KS**

8411 Preston Road Suite 800  
Dallas, TX 75225+5520

**L & N Miller #1**

Job Ticket: 64794

**DST#: 3**

ATTN: Wyatt Urban

Test Start: 2017.06.26 @ 08:21:00

**Mud and Cushion Information**

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

14000 ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7000.00 ppm

Filter Cake: 1.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
496.00	OCMV Oil 5% Mud 10% Water 85%	6.411
265.00	OCVM Oil 10% Water 40% Mud 50%	3.717
30.00	Clean Oil 100%	0.421

Total Length: 791.00 ft      Total Volume: 10.549 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

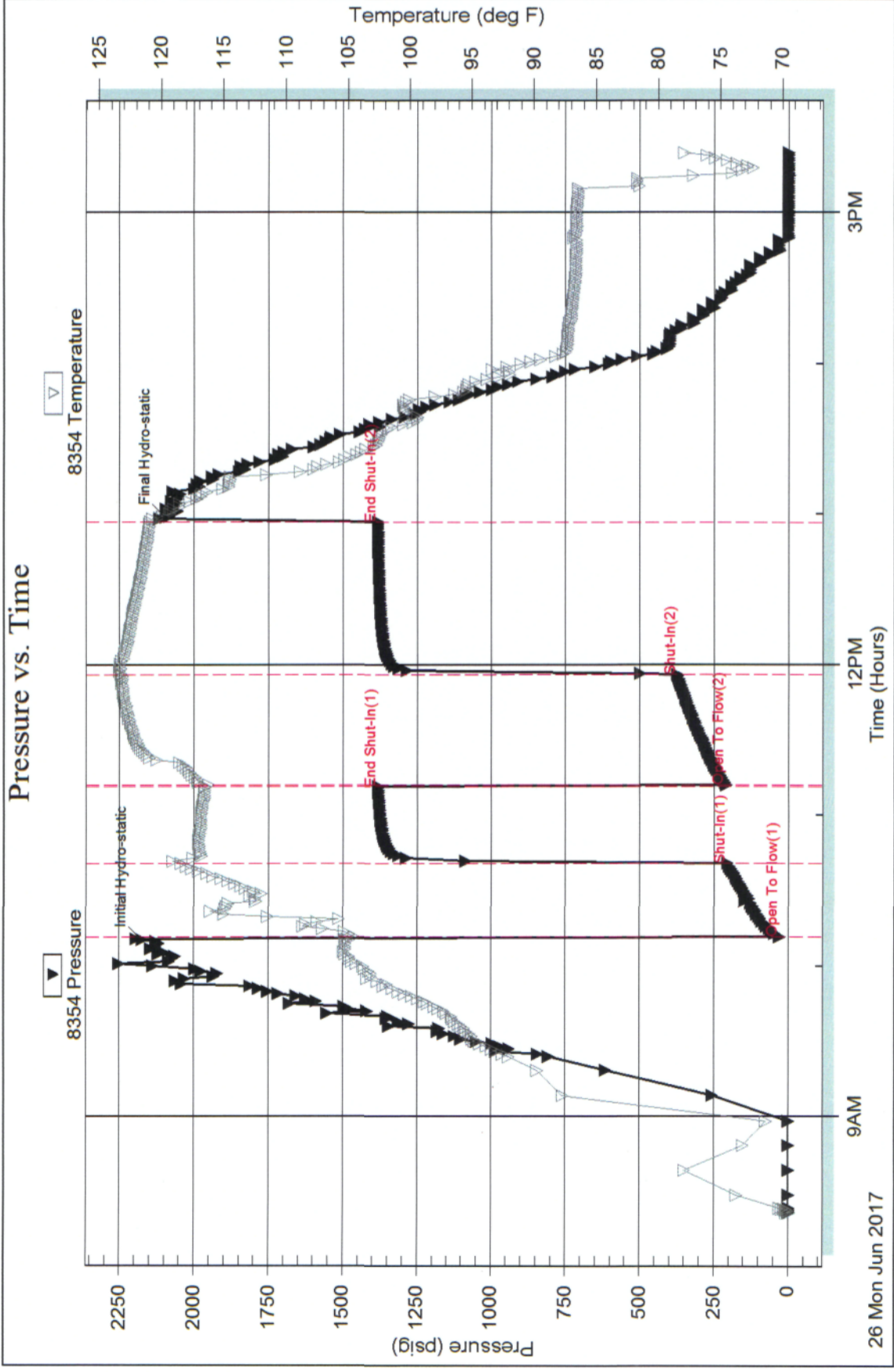
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Recovery Resistivity .35 ohms @ 88 deg.

### Pressure vs. Time



# 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. 192

Date	6-20-17	Sec.	16	Twp.	20	Range	22	County	Ness	State	Ks	On Location		Finish	12:00 AM
------	---------	------	----	------	----	-------	----	--------	------	-------	----	-------------	--	--------	----------

Lease **L+N Miller** Location **Bazine 95, 4W to 2 Rd, 1/4 S, E/S**

Well No. **1** Owner **To Quality Oilwell Cementing, Inc.**

Contractor **Southwind #3** You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Type Job **Surface** Charge To **Main oil operations**

Hole Size **12 1/4"** T.D. **251'** Csg. **8 5/8"** Depth **251'** Street

Tbg. Size Depth City State

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

Cement Left in Csg. **15'** Shoe Joint **15'** Cement Amount Ordered **160 60/40 4% CC 2% Gel**

Meas Line Displace **15 BLS**

EQUIPMENT			
16	No.	Cementer	Common <b>96</b>
9	No.	Helper <b>Rick Travis</b>	Poz. Mix <b>64</b>
9	No.	Driver <b>Jordan</b>	Gel. <b>3</b>
4	No.	Driver	Calcium <b>7</b>

JOB SERVICES & REMARKS

Remarks: **Cement did Circulate.**

Rat Hole

Mouse Hole

Centralizers

Baskets

D/V or Port Collar

Handling **1070**

Mileage

Slide Shoe

Centralizer

Baskets

AF Inserts

Float Shoe

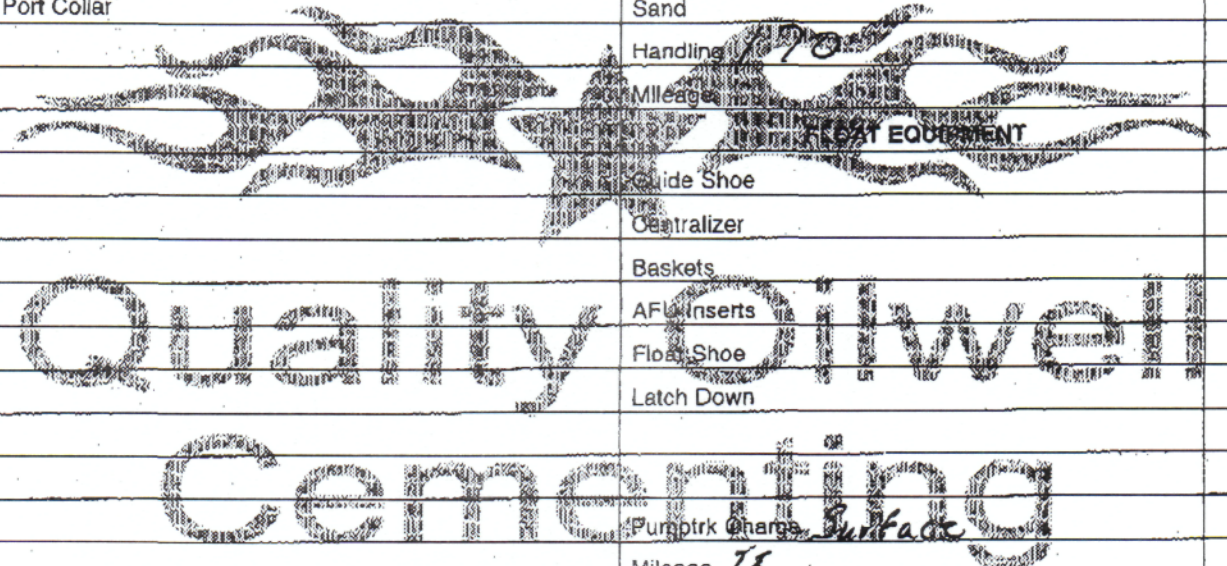
Latch Down

Pumptrk Charge **Surface**

Mileage **25**

Signature **Jay Miller**

Tax
Discount
Total Charge



# QUALITY OILWELL CEMENTING, INC.

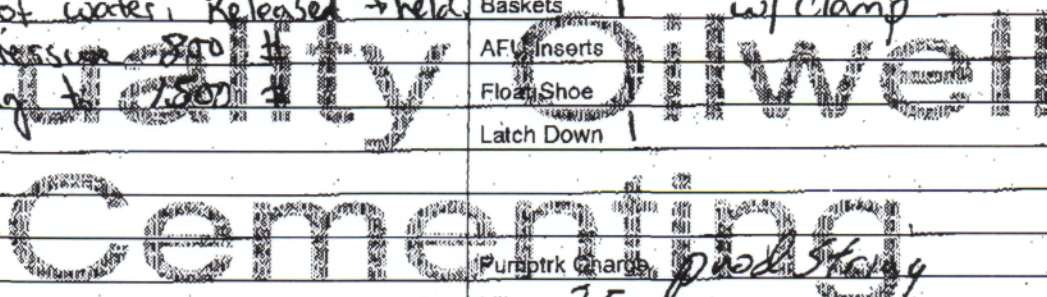
Federal Tax I.D.# 20-2886107

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

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

No. 197

Date	6-27-17	Sec.	16	Twp.	20	Range	22	County	Ness	State	Ks	On Location		Finish	1:45 PM		
Lease	L+N Miller							Well No.	1	Owner VAS, E Hnto							
Contractor	Southwind #3							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.									
Type Job	Longstring							Charge To									
Hole Size	7 7/8"							T.D.	4450'	Moi oil operations							
Csg.	5 1/2" New 14#							Depth	4446'	Street							
Tbg. Size								Depth		City							
Tool	Port Collar							Depth	1377'	State							
Cement Left in Csg.	20.93'							Shoe Joint	20.93'	The above was done to satisfaction and supervision of owner agent or contractor.							
Meas Line	Displace 108 BLS							Cement Amount Ordered 160 60/40 10% Salt 2% Gel									
EQUIPMENT													Common			96	
Pumptrk	16	No.	Cementer	Tavis		Helper				Poz. Mix		60	64				
Bulktrk	15	No.	Driver	Doug		Driver				Gel.		3					
Bulktrk	p.u.	No.	Driver	Rick		Driver				Calcium							
JOB SERVICES & REMARKS													Hulls				
Remarks:														Salt			18
Rat Hole														Flowseal			40#
Mouse Hole														Kol-Seal			
Centralizers	1-5 #74									Mud CLR 48		1000 gal					
Baskets	Half up on #74									CFL-117 or CD110 CAF 38							
D/V or Port Collar	port collar @ 1377' 5#75									Sand							
Pipe on bottom break Circulation pump down and mud plug rather than 205x casing + mix 1055x cement shut wash pump + lines Displaced plug w/ BLS of water, Released + held Lift pressure 800 # Load plug to 2500 #													Handling			16	
													Mileage				
													EQUIPMENT				
													Poz. Mix			Port Collar	
													Centralizer			1 Reg 5 tub's	
													Baskets			1 w/ clamp	
													AFI Inserts				
													Float Shoe				
													Latch Down			1	
													Pumptrk Charge			paid 5/24/17	
													Mileage			25	
													Tax				
													Discount				
													Total Charge				
Signature <i>Hnt</i>																	





CHARGE TO: Mai Oil Operations  
 ADDRESS \_\_\_\_\_  
 CITY, STATE, ZIP CODE \_\_\_\_\_

TICKET 30701

PAGE 1 OF 1

1. SERVICE LOCATIONS <u>Ness City KS</u>	WELL/PROJECT NO. <u>#1</u>	LEASE <u>L&amp;W Miller</u>	COUNTY/PARISH <u>Ness</u>	STATE <u>KS</u>	CITY <u>Ness City</u>	DATE <u>7-12-17</u>	OWNER <u>Same</u>
2.	TICKET TYPE <input checked="" type="checkbox"/> SERVICE <input type="checkbox"/> SALES	CONTRACTOR <u>Express Well Service</u>	RIG NAME/NO.	SHIPPED VIA <u>CT</u>	DELIVERED TO <u>Location</u>	ORDER NO.	
3.	WELL TYPE <u>Oil</u>	WELL CATEGORY <u>Development</u>	JOB PURPOSE <u>Cement 5 1/2" Port Collar</u>	WELL PERMIT NO.	WELL LOCATION <u>Ness City - 9s, 7E, 1/4s Emb</u>		
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT	
		LOC	ACCT	DF								
575		1			MILEAGE			20	mi	5 <sup>00</sup>	100	00
576 D		1			Pump Charge - Port Collar			5 1/2	in	1 <sup>00</sup>	1250	00
330		1			SMD Cement			175	sls	15 <sup>75</sup>	2756	25
276		1			Flocele			50	lbs	2 <sup>25</sup>	112	50
290		1			D-Air			2	gal	42 <sup>00</sup>	84	00
105		1			Port Collar Tool Rental			5 1/2	in	1 <sup>00</sup>	275	00
581		1			Service Charge Cement			175	sls	1 <sup>50</sup>	262	50
582		1			Minimum Drayage Charge			1	ca	250 <sup>00</sup>	250	00

**LEGAL TERMS:** Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X [Signature]  
 DATE SIGNED 7-12-17 TIME SIGNED 1200  A.M.  P.M.

REMIT PAYMENT TO:  
 SWIFT SERVICES, INC.  
 P.O. BOX 466  
 NESS CITY, KS 67560  
 785-798-2300

SURVEY		AGREE	UN-DECIDED	DIS-AGREE	PAGE TOTAL	5090 <sup>25</sup>
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?						
WE UNDERSTOOD AND MET YOUR NEEDS?					TAX	
OUR SERVICE WAS PERFORMED WITHOUT DELAY?						
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?					TOTAL	
ARE YOU SATISFIED WITH OUR SERVICE? <input type="checkbox"/> YES <input type="checkbox"/> NO						
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND						

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR David Kuehn APPROVAL \_\_\_\_\_

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE	PAGE NO.
7-12-17	1
TICKET NO.	
30701	

CUSTOMER	WELL NO.	LEASE	JOB TYPE
Ma. Oil Operations	#1	L+W Miller	Port Collar

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1100							on location 2 7/8 x 5 1/2
								P.C. - 1377' RBP - 2000'
	1205	3 1/2	55	✓		400		Circulate oil out of Hole
	1225	∅	1		✓		1000	Pressure test * Hold *
	1300							open P.C.
	1305	3 1/2	300	✓				Injection Rate
	1310	4	95	✓		300		mix 175 sks SMD w/ 1/4" Flo e 11.2 ppg Circulate Cement to surface
		4	7	✓		400		Displace Cement
	1340	∅	∅	✓		1000		Close P.C. test * Hold *
								Run 19 Jts
	1400	3 1/2	35	✓		300		Reverse clean
								wash up truck
								* 175 total sks *
								* 15 pit *
	1445							Job Complete

Thank You  
Dave Preston Kirby