

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

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

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

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

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5) (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	Mai Oil Operations, Inc.
Well Name	KAY 3
Doc ID	1423682

Tops

Name	Top	Datum
Anhydrite	778	+992
Tarkio Lime	2413	-643
Topeka	2671	-901
Heebner	2905	-1135
Toronto	2923	-1153
Lansing	2966	-1196
Base Kansas City	3170	-1400
Arbuckle	3219	-1449

JAMES C. MUSGROVE

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

Office (620) 588-4250

Res. Claflin (620) 786-0839

Mai Oil Operations Inc.
Kay #3
SW-NE-SW-SE (700'FSL & 1675'FEL)
Section 33-14s-14w
Russell County, Kansas

Page 1

5 1/2 Production Casing Set

Contractor: Southwind Drilling Co. (rig #3)
Commenced: July 23, 2018
Completed: July 29, 2018
Elevation: 1770' K.B., 1768' D.F., 1762' G.L.
Casing program: Surface; 8 5/8" @ 486'
Production, 5 1/2" @ 3264'
Sample: Samples saved and examined 2200' to the Rotary Total Depth.
Drilling time: One (1) foot drilling time recorded and kept 2200' to the Rotary Total Depth.
Measurements: All depths measured from the Kelly Bushing.
Drill Stem Tests: There were five (5) Drill Stem Tests ran by Trilobite Testing Co.
Electric Log: By Eli, Dual Induction; Compensated Density/Neutron Log and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	778	+992
Base Anhydrite	813	+957
Grand Haven	2345	-575
1 st Tarkio Sand	2355	-585
Dover	2370	-600
2 nd Tarkio Sand	2377	-607
Tarkio Lime	2413	-643
Elmont	2477	-707
Howard	2620	-850
Topeka	2671	-901
Heebner	2905	-1135
Toronto	2923	-1153
Lansing	2966	-1196
Base Kansas City	3170	-1400
Conglomerate	3208	-1438
Conglomerate Sand	3215	-1445
Arbuckle	3219	-1449
Rotary Total Depth	3270	-1500
Log Total Depth	3272	-1502

(All tops and zone(s) corrected to Electric Log Measurements)

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

1st TARKIO SAND

2355-2362' Sand, white/gray, very fine grained; micaeous "shaley", poorly developed porosity; trace poor brown stain, trace of free oil and no odor.

2nd TARKIO SAND

2377-2384' Sand; white, gray; tan; fine grained; sub-rounded; friable; fair brown stain and saturation; show of free oil, odor, samples broken.

**Drill Stem Test #1 2345-2390
(Log Measurements 2347-2392)**

Times: 30-45-45-60

Blow: Good

**Recovery: 110' gas in pipe
70' very slightly oil cut mud
(2% oil; 98% mud)**

**Pressures: ISIP 221 psi
FSIP 282 psi
IFP 19-33 psi
FFP 45-52 psi
HSH 1128-1099 psi**

TOPEKA SECTION

2671-2676' Limestone, white; finely crystalline, chalky, poor visible; questionable brown stain, no show of free oil and fair to good odor in fresh samples.

2717-2730' Limestone, white, gray, finely crystalline, fossiliferous, trace poor light brown stain, no show of free oil and no odor in fresh samples.

2828-2840' Limestone, tan; finely crystalline, chalky in part, poor visible porosity; trace brown stain, no free oil and no odor in fresh samples.

2857-2865' Limestone, white, gray, finely crystalline, oolitic in part; chalky, scattered pinpoint porosity; light brown stain, trace of free oil and no odor in fresh samples.

TORONTO SECTION

2924-2934' Limestone, white, cream, finely crystalline, fossiliferous in part, scattered fair to good inter-crystalline porosity; trace brown/golden brown stain, trace of free oil and no odor in fresh samples.

LANSING SECTION

2966-2972' Limestone, white, finely crystalline, fossiliferous/oolitic in part; scattered vuggy type porosity, trace brown stain, show of free oil and no odor in fresh samples.

2980-2985' Limestone, cream, white, finely crystalline, oolitic, fair vuggy porosity; golden brown stain, show of free oil and good odor in fresh samples.

3000-3010' Limestone, white, oolitic, sub-oomoldic, fair oomoldic and vuggy type porosity; brown stain, trace of free oil and fair odor in fresh samples.

Drill Stem Test #2 **2923-3016**
(Log Measurement 2925-3018)

----Misrun-----

Drill Stem Test #3 **2900-3016**
(Log Measurements 2902-3018)

Times: 30-30-45-60

Blow: Strong

Recovery: 181' gas in pipe
191' oil and gas cut watery mud
(5% gas; 10% oil; 25% water; 60% mud)
248' oil and gas cut muddy water
(25% gas; 10% oil; 40% water; 25% mud)
186' oil and gas cut muddy water
(10% gas; 5% oil; 65%water; 20% mud)

Pressures: ISIP 596 psi
FSIP 637 psi
IFP 75-196 psi
FFP 219-302 psi
HSH 1446-1395 psi

3020-3030' Limestone, gray, white, finely crystalline slightly cherty (dense) no shows.

3035-3040' Limestone, white, cream, finely crystalline, few fossiliferous, scattered porosity, brown stain, no show of free oil and no odor in fresh samples.

3050-3056' Limestone, white, cream, oolitic, good porosity; brown stain, show of free oil and faint odor in fresh samples.

3064-3070' Limestone, white, cream, oomoldic, chalky, poor to fair oomoldic porosity (barren)

3090-3098' Limestone, white, cream, finely crystalline, oomoldic, fair oomoldic porosity, chalky in part, no shows.

3105-3110' Limestone, cream, finely crystalline, fossiliferous, few sub-oomoldic, trace poor brown stain, no show of free oil and no odor, plus gray chert.

3125-3135' Limestone, gray, oolitic, chalky; poor porosity; trace brown stain, no free oil and no odor in fresh samples.

3146-3151' Limestone, cream, tan, finely crystalline, oolitic in part; sub-oomoldic; poor visible porosity, poor stain, no show of free oil and no odor in fresh

samples.

3170-3174' Limestone, tan, fine to medium crystalline, slightly fossiliferous; chalky, golden brown stain, trace of free oil and faint odor in fresh samples.

CONGLOMERATE SECTION

3215-3219' Sand; white, quartzitic; sub-rounded; calcareous, poor fair inter-granular porosity, trace stain, trace of free oil and no odor.

ARBUCKLE SECTION

3219-3223' Dolomite, white, medium crystalline, fair inter-crystalline porosity, brown stain, show of free oil and faint odor in fresh samples.

Drill Stem Test #4 **3190-3221**
(Log Measurements 3192-3223)

Times: 30-30-45-45

Blow: Fair

**Recovery: 5' clean oil
60' oil specked watery mud
(20% water; 80% mud)**

**Pressures: ISIP 613 psi
FSIP 527 psi
IFP 14-27 psi
FFP 30-40 psi
HSH 1611-1558 psi**

3223-3231' Dolomite, as above; fair inter-crystalline porosity; brown stain; show of free oil and faint odor in fresh samples.

Drill Stem Test #5 **3190-3229**
(Log Measurements 3192-3231)

Times: 30-30-30-45

Blow: Strong

Recovery: 449' muddy water, scum of oil

**Pressures: ISIP 1070 psi
FSIP 1079 psi
IFP 23-136 psi
FFP 145-245 psi
HSH 1600-1552 psi**

3230-3250' Dolomite, white, coarse crystalline, glauconitic, fair inter-crystalline porosity, trace brown stain, no free oil and faint odor.

3250-3260' Dolomite, as above, no shows of oil and faint odor in fresh samples.

Mai Oil Operations Inc.
Kay #3
SW-NE-SW-SE (700'FSL & 1675'FEL)
Section 33-14s-14w
Russell County, Kansas

Page 5

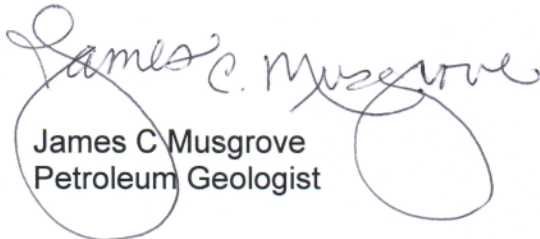
3260-3272' Dolomite, white, fine to medium crystalline, sandy in part; poor porosity,
trace black stain, no free oil and no odor.

Rotary Total Depth 3270
Log Total Depth 3272

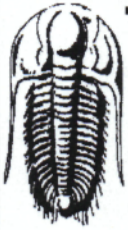
Recommendations:

5 ½" production casing was set and cemented on the Mai Oil Operations, Inc., Kay #3.

Respectfully yours,


James C Musgrove
Petroleum Geologist





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations Inc
 8411 Preston Rd Suite 800
 Dallas TX 75225+5520
 ATTN: Jim Musgrove

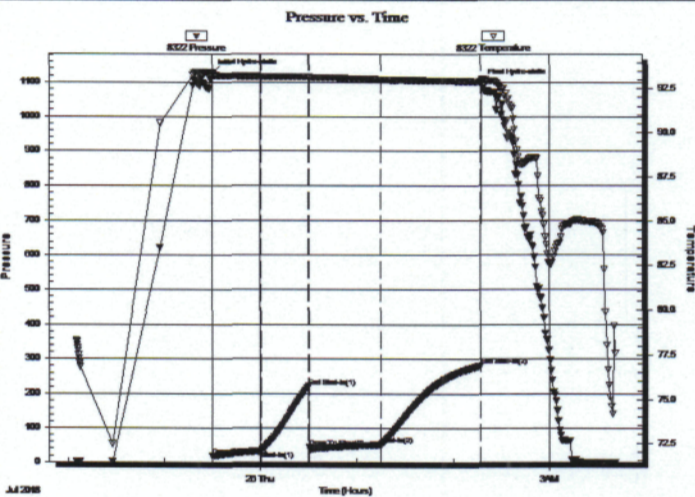
33-14S-14W Russell,KS
Kay #3
 Job Ticket: 63891 **DST#: 1**
 Test Start: 2018.07.25 @ 22:05:00

GENERAL INFORMATION:

Formation: **Tarkio**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:30:17
 Time Test Ended: 03:41:02
 Interval: **2345.00 ft (KB) To 2390.00 ft (KB) (TVD)**
 Total Depth: 2390.00 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: 1767.00 ft (KB)
 1760.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8322 **Inside**
 Press@RunDepth: 51.94 psig @ 2386.00 ft (KB) Capacity: psig
 Start Date: 2018.07.25 End Date: 2018.07.26 Last Calib.: 2018.07.26
 Start Time: 22:05:01 End Time: 03:41:02 Time On Btm: 2018.07.25 @ 23:29:47
 Time Off Btm: 2018.07.26 @ 02:17:47

TEST COMMENT: IFP 30 Minutes Blow built to BOB in 24 minutes - Total build 13"
 ISI 30 Minutes No blow back
 FFP 45 Minutes Blow built to BOB in 43 minutes
 FSI 60 Minutes No blow back



PRESSURE SUMMARY

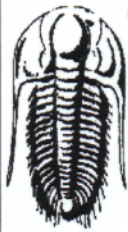
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1127.94	93.41	Initial Hydro-static
1	18.68	93.31	Open To Flow (1)
31	33.05	93.18	Shut-In(1)
61	221.42	93.15	End Shut-In(1)
61	44.80	93.14	Open To Flow (2)
106	51.94	93.00	Shut-In(2)
168	281.70	92.95	End Shut-In(2)
168	1099.26	93.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	Oil cut Mud/ Oil 2% Mud 98%	0.34
0.00	110' GIP	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations Inc
8411 Preston Rd Suite 800
Dallas TX 75225+5520
ATTN: Jim Musgrove

33-14S-14W Russell,KS
Key #3
Job Ticket: 63891 **DST#: 1**
Test Start: 2018.07.25 @ 22:05:00

Tool Information

Drill Pipe:	Length: 2233.00 ft	Diameter: 3.80 inches	Volume: 31.32 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: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 48000.00 lb
			<u>Total Volume: 31.91 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 36000.00 lb
Depth to Top Packer:	2345.00 ft			Final 37000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	65.00 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			2330.00	
Hydraulic tool	5.00			2335.00	
Top Packer	5.00			2340.00	
Packer	5.00			2345.00	20.00 Bottom Of Top Packer
Anchor	40.00			2385.00	
Recorder	1.00	8322	Inside	2386.00	
Recorder	1.00	6752	Outside	2387.00	
Bullnose	3.00			2390.00	45.00 Anchor Tool

Total Tool Length: 65.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations Inc

33-14S-14W Russell,KS

8411 Preston Rd Suite 800
Dallas TX 75225+5520

Kay #3

Job Ticket: 63891

DST#: 1

ATTN: Jim Musgrove

Test Start: 2018.07.25 @ 22:05:00

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: 75.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.98 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	Oil cut Mud/ Oil 2% Mud 98%	0.344
0.00	110' GIP	0.000

Total Length: 70.00 ft Total Volume: 0.344 bbl

Num Fluid Samples: 0

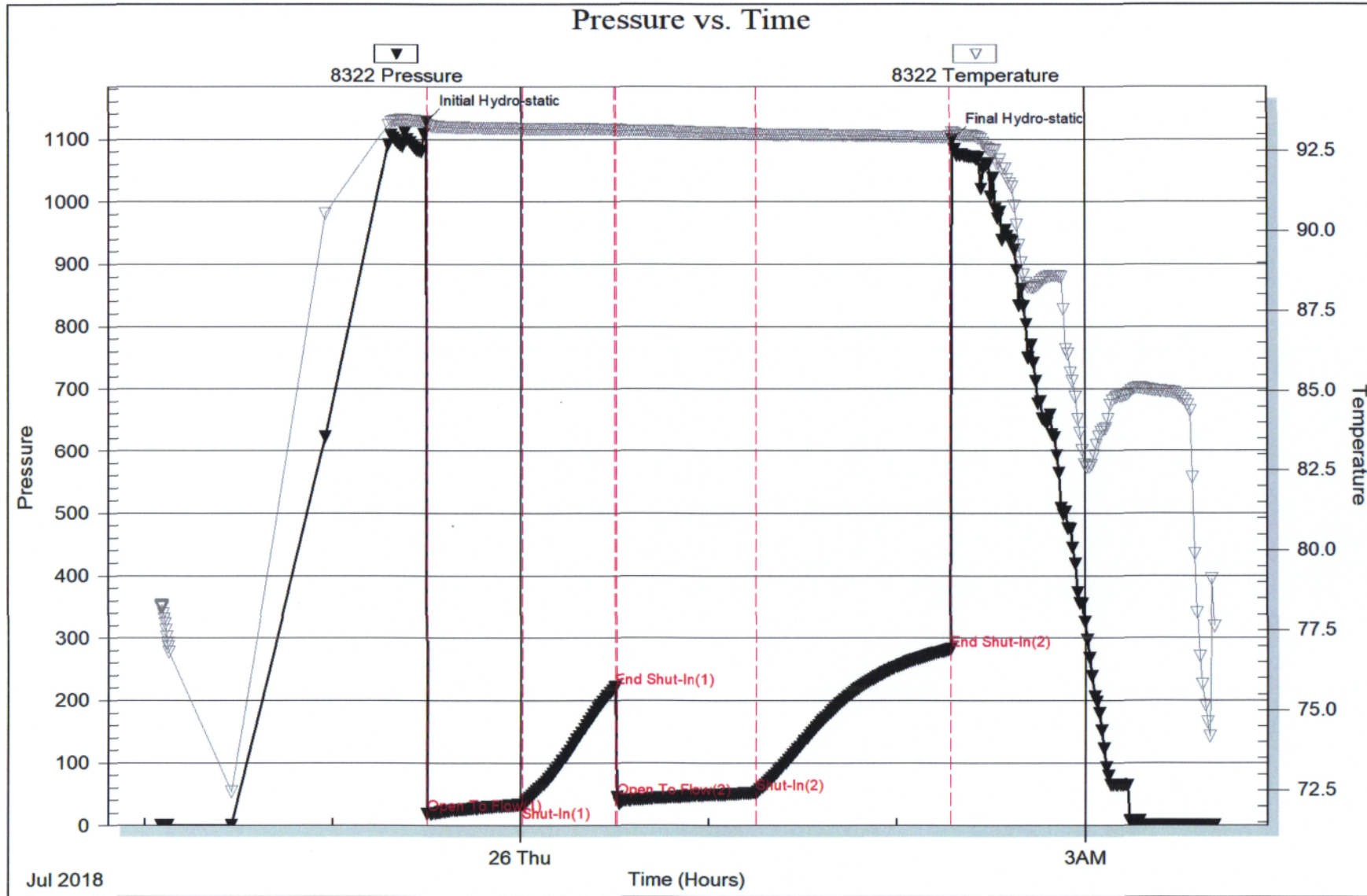
Num Gas Bombs: 0

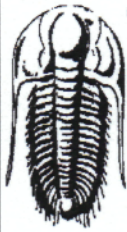
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations Inc
 8411 Preston Rd Suite 800
 Dallas TX 75225+5520
 ATTN: Jim Musgrove

33-14S-14W Russell,KS
Key #3
 Job Ticket: 63892 **DST#: 2**
 Test Start: 2018.07.27 @ 04:27:00

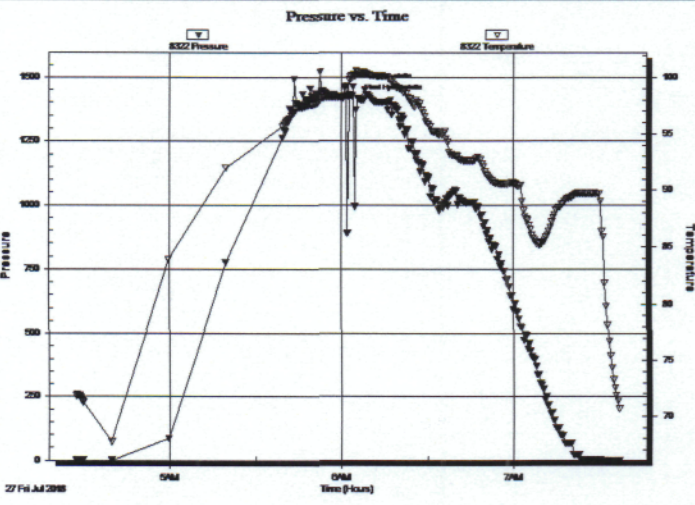
GENERAL INFORMATION:

Formation: **Toronto - LKC C**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: Tester: Ken Swinney
 Time Test Ended: 07:37:17 Unit No: 72
 Interval: **2923.00 ft (KB) To 3016.00 ft (KB) (TVD)**
 Reference Elevations: 1767.00 ft (KB)
 Total Depth: 3016.00 ft (KB) (TVD) 1760.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 7.00 ft

Serial #: 8322

Press@RunDepth: psig @ ft (KB) Capacity: psig
 Start Date: 2018.07.27 End Date: 2018.07.27 Last Calib.: 2018.07.27
 Start Time: 04:27:01 End Time: 07:37:17 Time On Btm: 2018.07.27 @ 06:01:32
 Time Off Btm: 2018.07.27 @ 06:05:32

TEST COMMENT: Packer Failure



PRESSURE SUMMARY

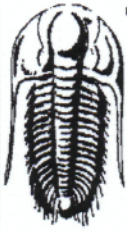
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1463.88	98.31	Initial Hydro-static
4	1416.86	100.52	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
165.00	Mud 100%	2.31

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations Inc
8411 Preston Rd Suite 800
Dallas TX 75225+5520
ATTN: Jim Musgrove

33-14S-14W Russell,KS
Kay #3
Job Ticket: 63892 **DST#: 2**
Test Start: 2018.07.27 @ 04:27:00

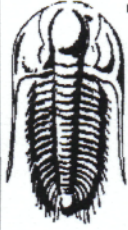
Tool Information

Drill Pipe:	Length: 2934.00 ft	Diameter: 3.80 inches	Volume: 41.16 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 40000.00 lb
			Total Volume: 41.16 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 36000.00 lb
Depth to Top Packer:	2923.00 ft			Final 37000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	93.56 ft			
Tool Length:	113.56 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			2908.00	
Hydraulic tool	5.00			2913.00	
Top Packer	5.00			2918.00	
Packer	5.00			2923.00	20.00 Bottom Of Top Packer
Anchor	24.00			2947.00	
Change Over Sub	1.00			2948.00	
Drill Pipe	62.56			3010.56	
Change Over Sub	1.00			3011.56	
Recorder	1.00	8322	Inside	3012.56	
Recorder	1.00	6752	Outside	3013.56	
Bullnose	3.00			3016.56	93.56 Anchor Tool

Total Tool Length: 113.56



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations Inc

33-14S-14W Russell,KS

8411 Preston Rd Suite 800
Dallas TX 75225+5520

Kay #3

Job Ticket: 63892

DST#: 2

ATTN: Jim Musgrove

Test Start: 2018.07.27 @ 04:27:00

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: 57.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
165.00	Mud 100%	2.315

Total Length: 165.00 ft

Total Volume: 2.315 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

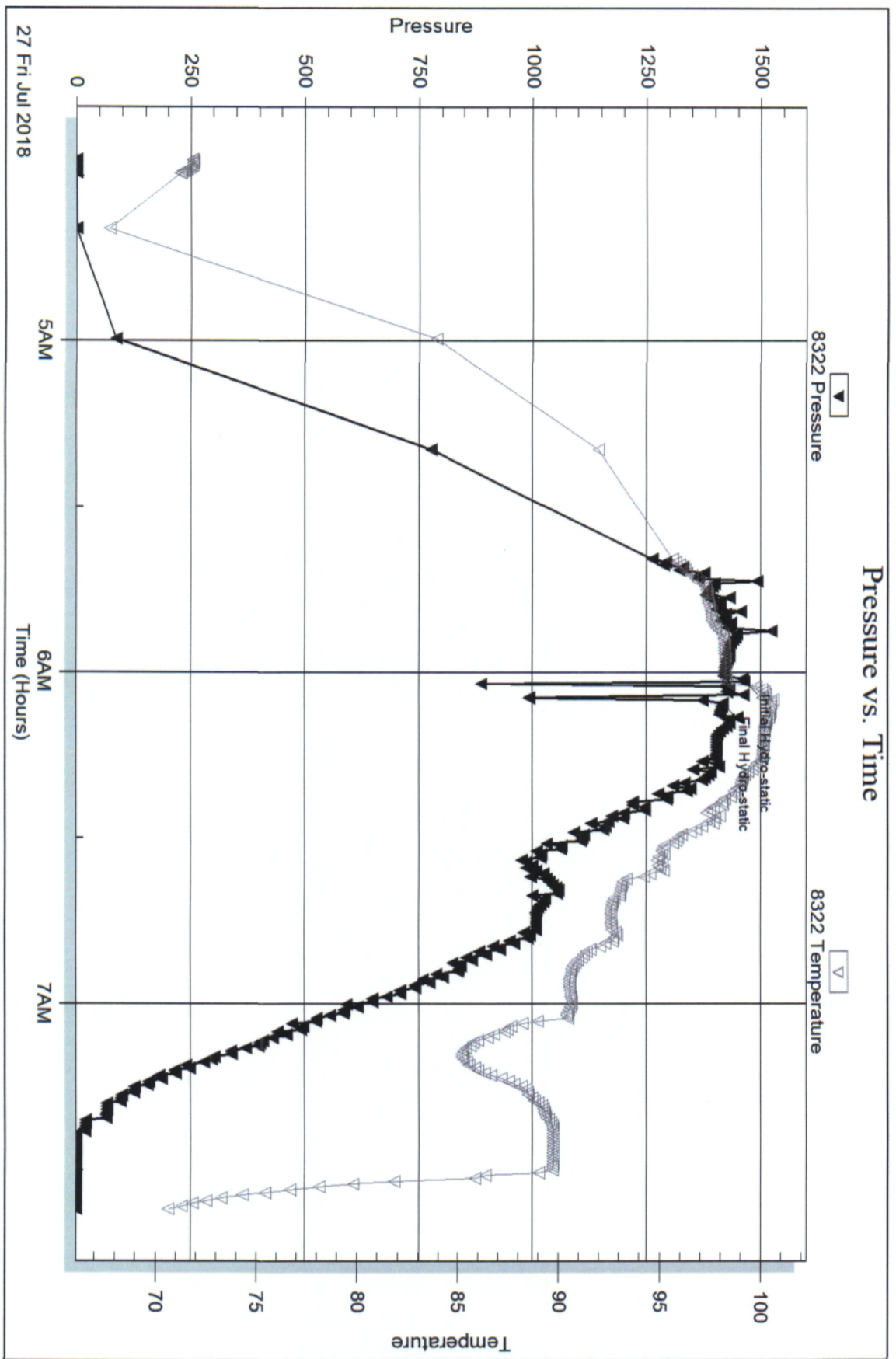
Recovery Comments:

Serial #: 8322

Mai Oil Operations Inc

Kay #3

DST Test Number: 2



Tribolite Testing, Inc

Ref. No: 63892

Printed: 2018.07.30 @ 15:27:04



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations Inc
 8411 Preston Rd Suite 800
 Dallas TX 75225+5520
 ATTN: Jim Musgrove

33-14S-14W Russell,KS

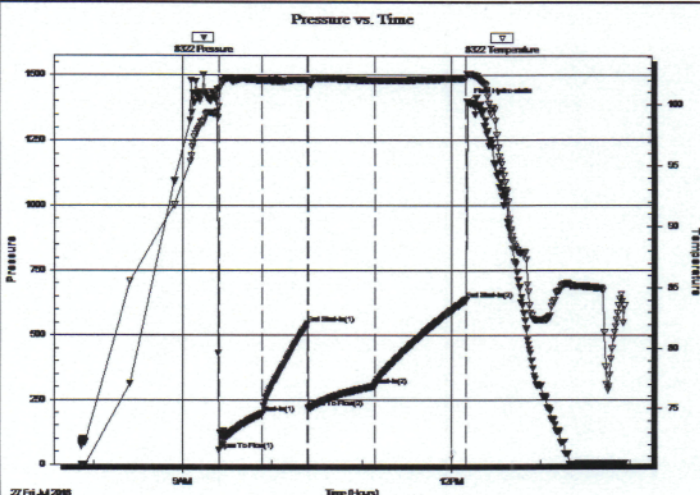
Key #3
 Job Ticket: 63893 **DST#: 3**
 Test Start: 2018.07.27 @ 07:52:00

GENERAL INFORMATION:

Formation: **Toronto - LKC C**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 09:24:32 Tester: Ken Swinney
 Time Test Ended: 13:56:02 Unit No: 72
 Interval: **2900.00 ft (KB) To 3016.00 ft (KB) (TVD)**
 Total Depth: 3016.00 ft (KB) (TVD) Reference Elevations: 1767.00 ft (KB)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GRVCF: 7.00 ft

Serial #: 8322 Inside
 Press@RunDepth: 302.37 psig @ 2901.00 ft (KB) Capacity: psig
 Start Date: 2018.07.27 End Date: 2018.07.27 Last Calib.: 2018.07.27
 Start Time: 07:52:01 End Time: 13:56:02 Time On Btm: 2018.07.27 @ 09:23:17
 Time Off Btm: 2018.07.27 @ 12:10:47

TEST COMMENT: IFF 30 Minutes Blow built to BOB in 2 min - Total build 64"
 ISI 30 Minutes No blow back
 FFP 45 Minutes Blow built to BOB in 5 min - Total build 47"
 FSI 60 Minutes Blow back built an additional 8"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1446.25	99.41	Initial Hydro-static
2	55.87	99.83	Open To Flow (1)
31	196.52	102.02	Shut-In(1)
61	546.53	102.02	End Shut-In(1)
61	219.28	101.79	Open To Flow (2)
106	302.37	101.97	Shut-In(2)
167	637.40	102.21	End Shut-In(2)
168	1395.15	102.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
186.00	GSOCMW Oil 5% Gas 10% Mud 20% Wa	2.615%
248.00	GOCMW Oil 10% Gas 25% Mud 25% Wa	3.48%
191.00	GOCWM Gas 5% Oil 10% Water 25% Mu	2.68%
0.00	181' GIP	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations Inc

33-14S-14W Russell,KS

8411 Preston Rd Suite 800
Dallas TX 75225+5520

Key #3

Job Ticket: 63893

DST#: 3

ATTN: Jim Musgrove

Test Start: 2018.07.27 @ 07:52:00

Tool Information

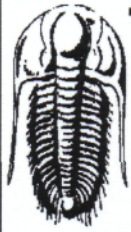
Drill Pipe:	Length: 2903.00 ft	Diameter: 3.80 inches	Volume: 40.72 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 40.72 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 36000.00 lb
Depth to Top Packer:	2900.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	116.32 ft			
Tool Length:	136.32 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			2885.00	
Hydraulic tool	5.00			2890.00	
Top Packer	5.00			2895.00	
Packer	5.00			2900.00	20.00 Bottom Of Top Packer
Recorder	1.00	8322	Inside	2901.00	
Recorder	1.00	6752	Outside	2902.00	
Anchor	15.00			2917.00	
Change Over Sub	1.00			2918.00	
Drill Pipe	94.32			3012.32	
Change Over Sub	1.00			3013.32	
Bullnose	3.00			3016.32	116.32 Anchor Tool

Total Tool Length: 136.32



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations Inc

33-14S-14W Russell,KS

8411 Preston Rd Suite 800
Dallas TX 75225+5520

Key #3

Job Ticket: 63893

DST#: 3

ATTN: Jim Musgrove

Test Start: 2018.07.27 @ 07:52:00

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: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	GSOCMV Oil 5% Gas 10% Mud 20% Water 6	2.609
248.00	GOCMV Oil 10% Gas 25% Mud 25% Water 4	3.479
191.00	GOCVM Gas 5% Oil 10% Water 25% Mud 60	2.679
0.00	181' GIP	0.000

Total Length: 625.00 ft Total Volume: 8.767 bbl

Num Fluid Samples: 0

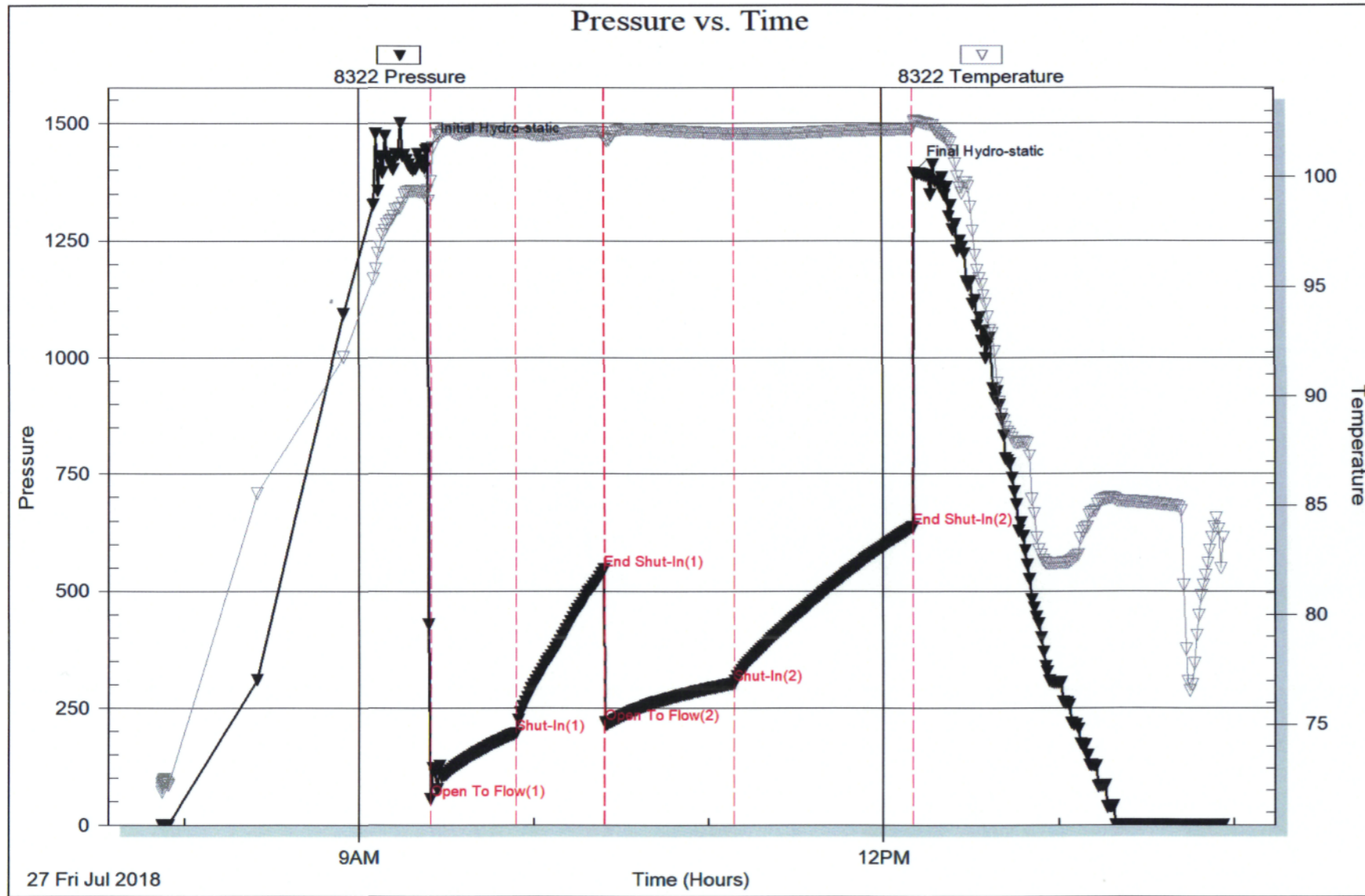
Num Gas Bombs: 0

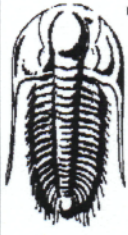
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Mai Oil Operations Inc
8411 Preston Rd Suite 800
Dallas TX 75225+5520
ATTN: Jim Musgrove

33-14S-14W Russell,KS
Key #3
Job Ticket: 63894 **DST#: 4**
Test Start: 2018.07.28 @ 10:11:00

GENERAL INFORMATION:

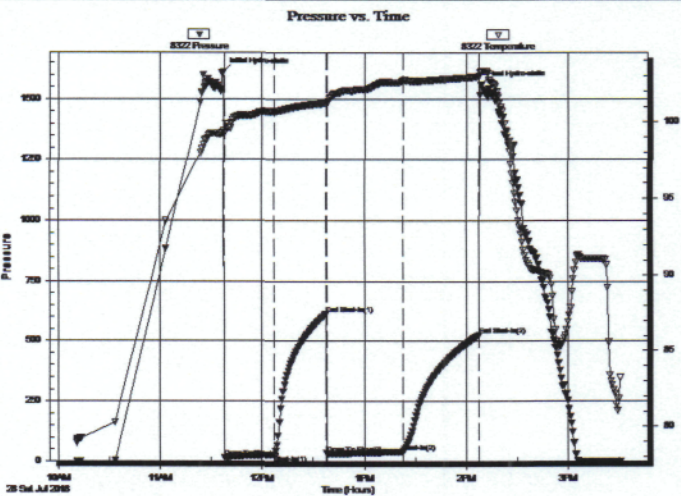
Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 11:37:47
Time Test Ended: 15:31:02
Interval: **3190.00 ft (KB) To 3221.00 ft (KB) (TVD)**
Total Depth: 3221.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Ken Sw inney
Unit No: 72
Reference Elevations: 1767.00 ft (KB)
1760.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8322

Inside

Press@RunDepth: 40.25 psig @ 3191.00 ft (KB) Capacity: psig
Start Date: 2018.07.28 End Date: 2018.07.28 Last Calib.: 2018.07.28
Start Time: 10:11:01 End Time: 15:31:02 Time On Btm: 2018.07.28 @ 11:37:17
Time Off Btm: 2018.07.28 @ 14:08:32

TEST COMMENT: IFP 30 Minutes Blow built to 5"
ISI 30 Minutes 1/4" blow back
FFP 45 Minutes Blow built to 3 1/4"
FSI 45 Minutes No blow back



PRESSURE SUMMARY

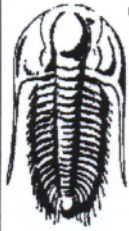
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1611.40	99.42	Initial Hydro-static
1	14.32	99.27	Open To Flow (1)
30	27.65	100.68	Shut-In(1)
61	613.65	101.21	End Shut-In(1)
61	30.61	101.22	Open To Flow (2)
106	40.25	102.68	Shut-In(2)
151	527.53	102.97	End Shut-In(2)
152	1558.71	103.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Clean Oil	0.07
60.00	WM w/ oil spots W 20% M 80%	0.84

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations Inc
8411 Preston Rd Suite 800
Dallas TX 75225+5520
ATTN: Jim Musgrove

33-14S-14W Russell,KS
Key #3
Job Ticket: 63894 **DST#: 4**
Test Start: 2018.07.28 @ 10:11:00

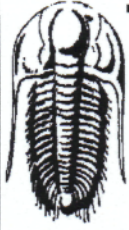
Tool Information

Drill Pipe:	Length: 3187.00 ft	Diameter: 3.80 inches	Volume: 44.71 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 44.71 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 39000.00 lb
Depth to Top Packer:	3190.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	31.00 ft			
Tool Length:	51.00 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			3175.00	
Hydraulic tool	5.00			3180.00	
Top Packer	5.00			3185.00	
Packer	5.00			3190.00	20.00 Bottom Of Top Packer
Recorder	1.00	8322	Inside	3191.00	
Recorder	1.00	6752	Outside	3192.00	
Anchor	26.00			3218.00	
Bullnose	3.00			3221.00	31.00 Anchor Tool

Total Tool Length: 51.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations Inc

33-14S-14W Russell, KS

8411 Preston Rd Suite 800
Dallas TX 75225+5520

Kay #3

Job Ticket: 63894

DST#: 4

ATTN: Jim Musgrove

Test Start: 2018.07.28 @ 10:11:00

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:

7000 ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

dbl

Water Loss: 8.79 in³

Gas Cushion Type:

Gas Cushion Pressure:

psig

Resistivity: ohm.m

Salinity: 6000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume dbl
5.00	Clean Oil	0.070
60.00	WM w/ oil spots W 20% M 80%	0.842

Total Length: 65.00 ft Total Volume: 0.912 dbl

Num Fluid Samples: 0

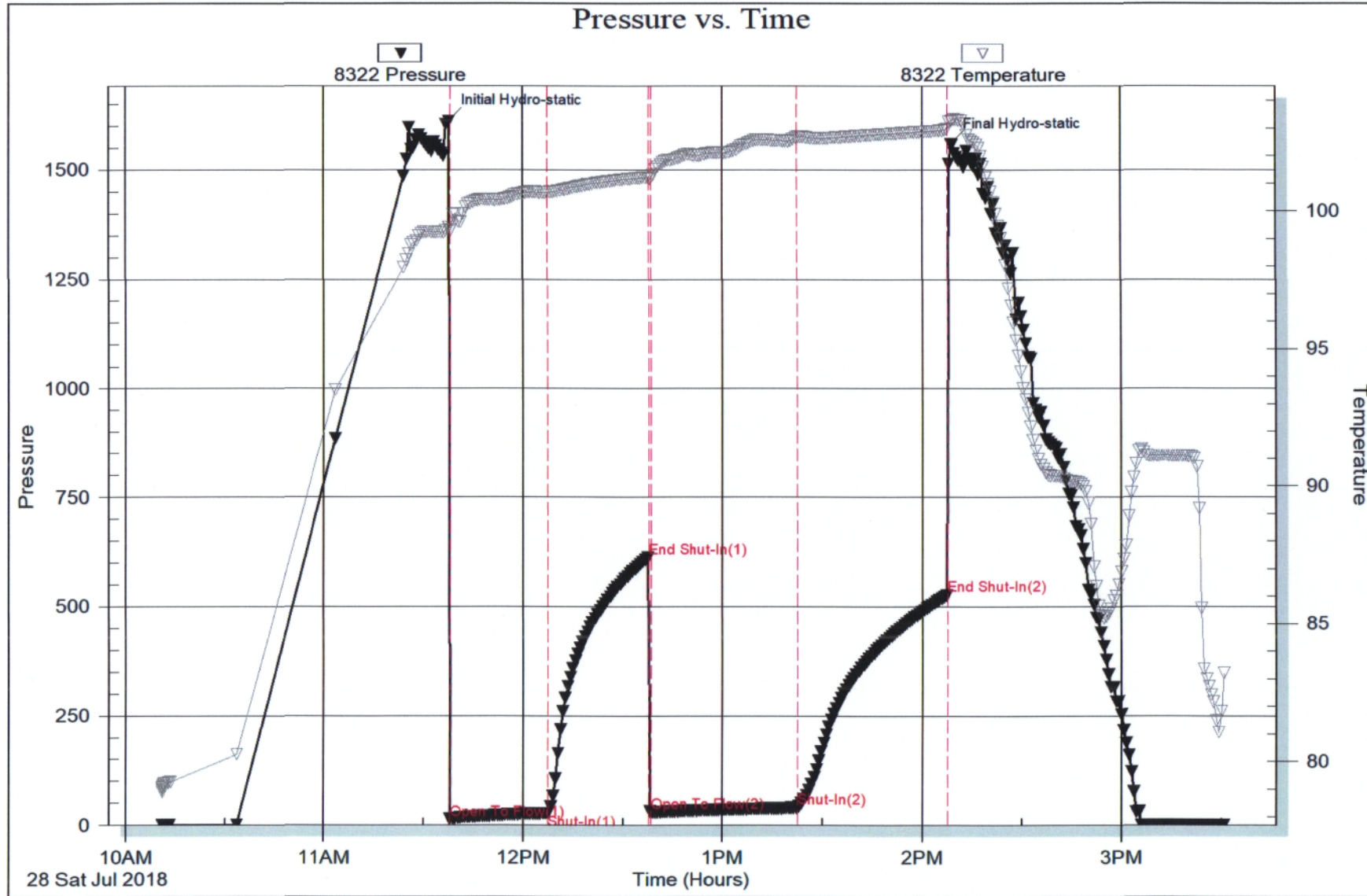
Num Gas Bombs: 0

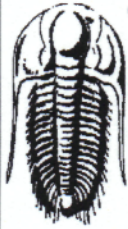
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Recovery Resistivity .596 ohms @ 93 deg





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations Inc
 8411 Preston Rd Suite 800
 Dallas TX 75225+5520
 ATTN: Jim Musgrove

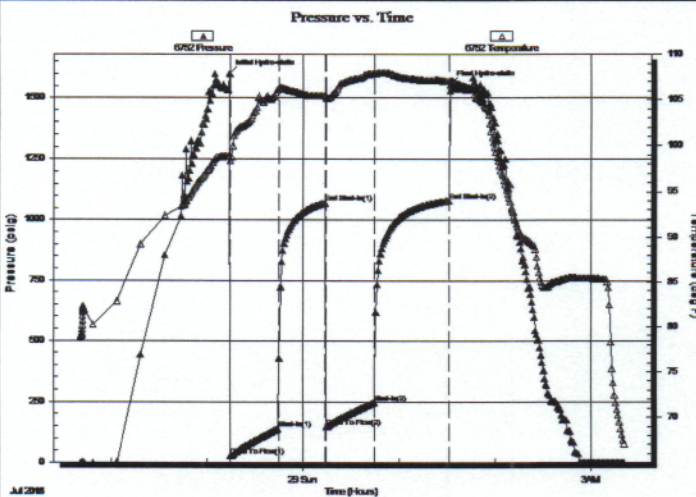
33-14S-14W Russell,KS
Key #3
 Job Ticket: 63895 **DST#: 5**
 Test Start: 2018.07.28 @ 21:41:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:14:47
 Time Test Ended: 03:21:02
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ken Swinney
 Unit No: 72
 Interval: **3190.00 ft (KB) To 3229.00 ft (KB) (TVD)**
 Total Depth: 3229.00 ft (KB) (TVD)
 Reference Elevations: 1767.00 ft (KB)
 1760.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 KB to GRVCF: 7.00 ft

Serial #: 6752 **Outside**
 Press@RunDepth: 1080.96 psig @ 3192.00 ft (KB) Capacity: psig
 Start Date: 2018.07.28 End Date: 2018.07.29 Last Calib.: 2018.07.29
 Start Time: 21:41:01 End Time: 03:21:02 Time On Btm: 2018.07.28 @ 23:14:02
 Time Off Btm: 2018.07.29 @ 01:32:02

TEST COMMENT: IFP 30 Minutes Blow built to BOB in 8 minutes - Total build 36"
 ISI 30 Minutes No blow back
 FFP 30 Minutes Blow built to BOB in 9 minutes - Total build 33"
 FSI 45 Minutes 1/4" blow back



PRESSURE SUMMARY

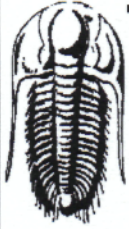
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1600.69	98.92	Initial Hydro-static
1	28.86	98.41	Open To Flow (1)
31	139.76	106.17	Shut-In(1)
60	1071.43	105.41	End Shut-In(1)
61	147.41	105.13	Open To Flow (2)
91	246.81	107.88	Shut-In(2)
137	1080.96	107.04	End Shut-In(2)
138	1554.47	107.08	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
449.00	MW w / skim of oil Mud 30% Water 70%	6.30

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations Inc
8411 Preston Rd Suite 800
Dallas TX 75225+5520
ATTN: Jim Musgrove

33-14S-14W Russell,KS
Key #3
Job Ticket: 63895 **DST#: 5**
Test Start: 2018.07.28 @ 21:41:00

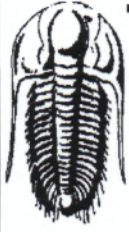
Tool Information

Drill Pipe:	Length: 3187.00 ft	Diameter: 3.80 inches	Volume: 44.71 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 48000.00 lb
			<u>Total Volume: 44.71 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3190.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	39.00 ft			
Tool Length:	59.00 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			3175.00	
Hydraulic tool	5.00			3180.00	
Top Packer	5.00			3185.00	
Packer	5.00			3190.00	20.00 Bottom Of Top Packer
Recorder	1.00	8322	Inside	3191.00	
Recorder	1.00	6752	Outside	3192.00	
Anchor	34.00			3226.00	
Bullnose	3.00			3229.00	39.00 Anchor Tool

Total Tool Length: 59.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations Inc

33-14S-14W Russell,KS

8411 Preston Rd Suite 800
Dallas TX 75225+5520

Kay #3

Job Ticket: 63895

DST#: 5

ATTN: Jim Musgrove

Test Start: 2018.07.28 @ 21:41:00

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:

18000 ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
449.00	MW w / skim of oil Mud 30% Water 70%	6.298

Total Length: 449.00 ft Total Volume: 6.298 bbl

Num Fluid Samples: 0

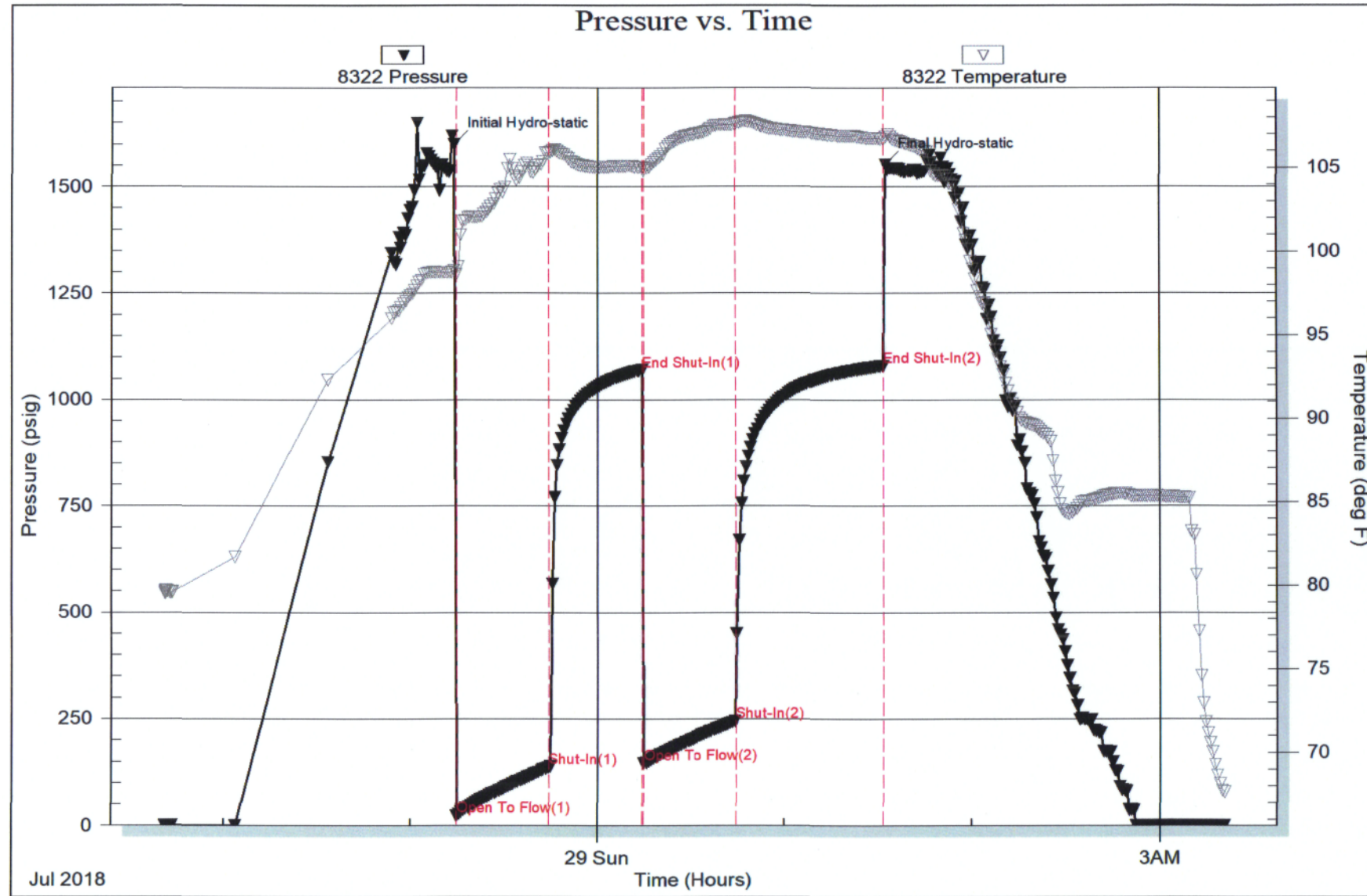
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Recovery Resistivity .360 ohms @ 69 deg.



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. 910

Date	7-24-18	Sec.	33	Twp.	14	Range	14	County	Russell	State	Ks	On Location		Finish	2:00 AM
------	---------	------	----	------	----	-------	----	--------	---------	-------	----	-------------	--	--------	---------

Lease Kay Well No. #3 Owner NIS
Location Russell 5 to Walter's Lane - 1W, 1/2 N, 1/4

Contractor Southward #3
Type Job Surface
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 12 1/4" T.D. 486' Charge To Maioil
Csg. 8 5/8' Depth 486' 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 225' 60/40 4% CC 2 1/2 gal

Meas Line Displace 30 BCS
EQUIPMENT Common

Pumptrk	17	No.	Cementer		
			Helper	<u>Stenn</u>	
Bulktrk	3	No.	Driver	<u>Jack</u>	
			Driver	<u>Jack</u>	
Bulktrk	<u>P.H.</u>	No.	Driver	<u>Rick</u>	
			Driver	<u>Rick</u>	

JOB SERVICES & REMARKS
Remarks: Cement did Circulate

Rat Hole Flowseal
Mouse Hole Kol-Seal

Centralizers Mud CLR 48
Baskets CFL-117 or CD110 CAF 38

D/V or Port Collar Sand

Handling
Mileage

FLOAT EQUIPMENT
Guide Shoe Wood plug

Centralizer
Baskets

AFU Inserts
Float Shoe

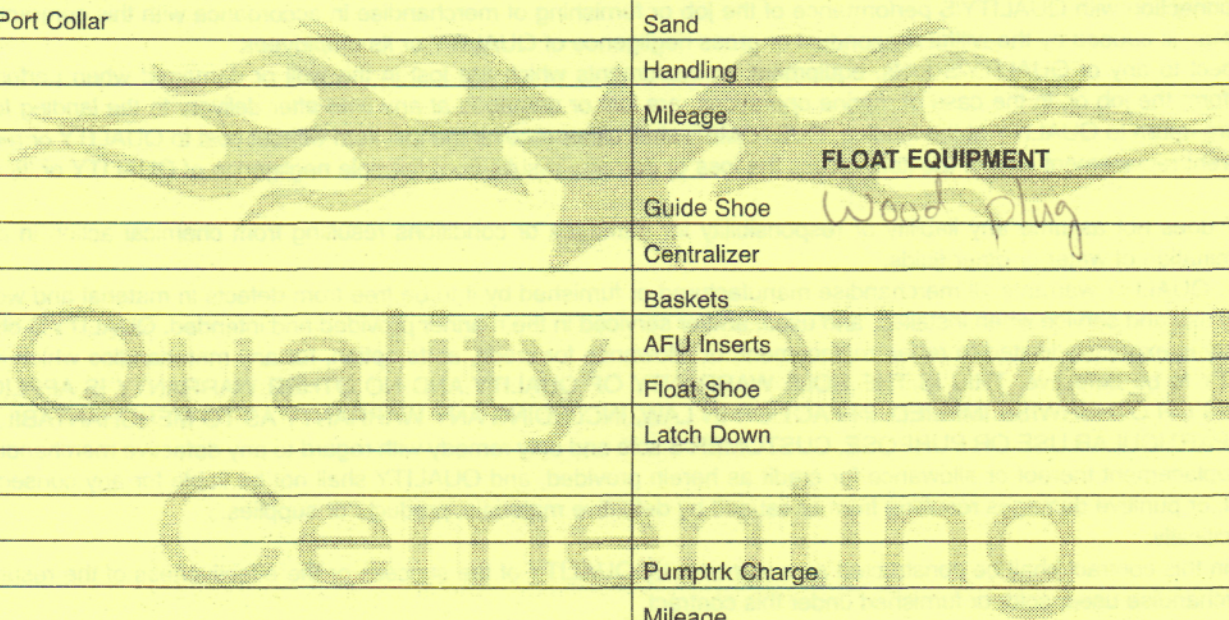
Latch Down

Pumptrk Charge
Mileage

Tax
Discount

Total Charge

X Signature Jay Linn



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. 880

Date	7-29-18	Sec.	33	Twp.	14	Range	14	County	Russell	State	KS	On Location	11:30am	Finish					
								Location <i>Russell's Walters Ln 1/2 W 1/4</i>											
Lease		<i>Key</i>		Well No.		3		Owner											
Contractor		<i>Southwind #3</i>		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		<i>Production string</i>		Charge To								<i>Ma Oil</i>							
Hole Size		7 7/8		T.D.		3270		Street											
Csg.		5 1/2		Depth		3264		City								State			
Tbg. Size				Depth				City								State			
Tool				Depth				The above was done to satisfaction and supervision of owner agent or contractor.											
Cement Left in Csg.		26.08		Shoe Joint		26.08		Cement Amount Ordered								<i>100 60/40 10/Salt 2/602 1/4 FLO</i>			
Meas Line				Displace		793L		<i>125 60/40 18/Salt 2/602 1/4 FLO 100gal mud charge</i>											
EQUIPMENT																			
Pumptrk		18		No.		Cementer		Common											
						Helper		Poz. Mix											
Bulktrk		15		No.		Driver		Gel.											
						Driver		Calcium											
Bulktrk		3		No.		Driver		Hulls											
						Driver		Salt											
JOB SERVICES & REMARKS																			
Remarks:		<i>30SK</i>																	
Rat Hole		<i>30SK</i>																	
Mouse Hole																			
Centralizers		Mud CLR 48																	
Baskets		CFL-117 or CD110 CAF 38																	
D/V or Port Collar		Sand																	
<i>5/2300 3264 Baffle 3238</i>		Handling																	
<i>Est. Circulation Pump removal mud charge</i>		Mileage																	
<i>Plug Reel 30SK Cement 5/2 with</i>		FLOAT EQUIPMENT																	
<i>195SK Clearlines or Displace Plug</i>		Guide Shoe																	
<i>Plug land'ed @ 1200'</i>		Centralizer														12			
		Baskets														1			
		AFU Inserts																	
		Float Shoe																	
		Latch Down														1			
		Pumptrk Charge																	
		Mileage																	
		Tax																	
		Discount																	
		Total Charge																	
X Signature		<i>[Signature]</i>																	