

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	HEIM TRUST 1
Doc ID	1424417

Tops

Name	Top	Datum
Anhydrite	596	+1093
Grand Haven	2161	-472
1st Tarkio Sand	2173	-484
2nd Tarkio Sand	2194	-505
Topeka	2508	-819
Heebner	2748	-1059
Toronto	2767	-1078
Lansing	2831	-1142
Base Kansas City	3118	-1429
Arbuckle	3192	-1503





## DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations, Inc.**

8411 Preston Rd STE 800  
Dallas TX 75225+5520

ATTN: Jlm Musgrove

### **Heim Trust #1**

#### **21-14s-12w Russell,KS**

Start Date: 2018.09.15 @ 03:08:00

End Date: 2018.09.15 @ 07:54:00

Job Ticket #: 64596                      DST #: 1

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

Printed: 2018.09.18 @ 08:52:46

Mai Oil Operations, Inc.  
21-14s-12w Russell,KS  
Heim Trust #1  
DST # 1  
2nd Tarkio Ss  
2018.09.15



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations, Inc.  
 8411 Preston Rd STE 800  
 Dallas TX 75225+5520  
 ATTN: Jlm Musgrove

**21-14s-12w Russell,KS**  
**Heim Trust #1**  
 Job Ticket: 64596 **DST#: 1**  
 Test Start: 2018.09.15 @ 03:08:00

## GENERAL INFORMATION:

Formation: **2nd Tarkio Ss**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:45:00  
 Time Test Ended: 07:54:00  
 Interval: **2163.00 ft (KB) To 2210.00 ft (KB) (TVD)**  
 Total Depth: 2210.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Spencer J. Staab  
 Unit No: 84  
 Reference Elevations: 1689.00 ft (KB)  
 1682.00 ft (CF)  
 KB to GR/CF: 7.00 ft

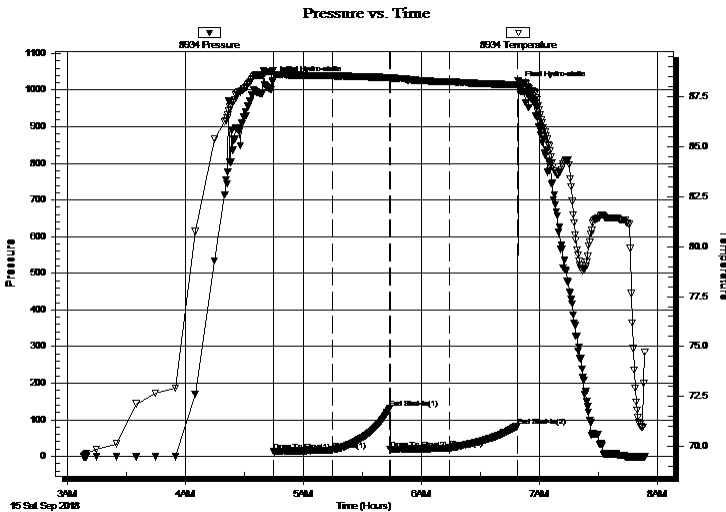
## Serial #: 8934

Inside

Press@RunDepth: 22.63 psig @ 2166.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.09.15 End Date: 2018.09.15 Last Calib.: 2018.09.15  
 Start Time: 03:08:15 End Time: 07:54:00 Time On Btm: 2018.09.15 @ 04:44:45  
 Time Off Btm: 2018.09.15 @ 06:49:30

TEST COMMENT: 30-IF-Weak; Built to 1"  
 30-ISI-No Return  
 30-FF-Weak Surface  
 30-FSI-No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1026.23	88.81	Initial Hydro-static
1	13.57	88.48	Open To Flow (1)
31	17.32	88.54	Shut-In(1)
60	130.73	88.46	End Shut-In(1)
90	20.04	88.40	Open To Flow (2)
124	82.45	88.09	End Shut-In(2)
125	1011.85	88.23	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100%M	0.10

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Mai Oil Operations, Inc.  
8411 Preston Rd STE 800  
Dallas TX 75225+5520  
ATTN: Jlm Musgrove

**21-14s-12w Russell, KS**

**Heim Trust #1**

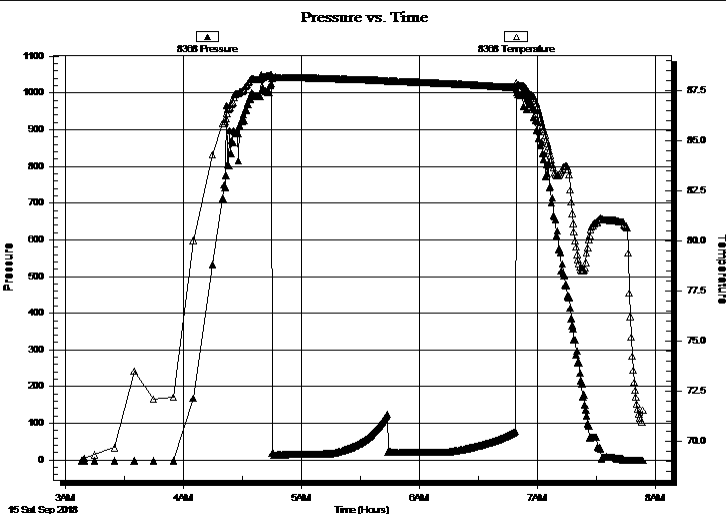
Job Ticket: 64596 **DST#: 1**  
Test Start: 2018.09.15 @ 03:08:00

### GENERAL INFORMATION:

Formation: **2nd Tarkio Ss**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 04:45:00  
Time Test Ended: 07:54:00  
Interval: **2163.00 ft (KB) To 2210.00 ft (KB) (TVD)**  
Total Depth: 2210.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Reference Elevations: 1689.00 ft (KB)  
1682.00 ft (CF)  
KB to GR/CF: 7.00 ft  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Spencer J. Staab  
Unit No: 84

**Serial #: 8368** Inside  
Press@RunDepth: psig @ 2166.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2018.09.15 End Date: 2018.09.15 Last Calib.: 2018.09.15  
Start Time: 03:08:15 End Time: 07:54:00 Time On Btm:  
Time Off Btm:

TEST COMMENT: 30-IF-Weak; Built to 1"  
30-ISI-No Return  
30-FF-Weak Surface  
30-FSI-No Return



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100%M	0.10

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Mai Oil Operations, Inc.

**21-14s-12w Russell,KS**

8411 Preston Rd STE 800  
Dallas TX 75225+5520

**Heim Trust #1**

Job Ticket: 64596

**DST#: 1**

ATTN: Jlm Musgrove

Test Start: 2018.09.15 @ 03:08:00

## Tool Information

Drill Pipe:	Length: 2046.00 ft	Diameter: 3.82 inches	Volume: 29.00 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 118.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 42000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	2163.00 ft			Final 30000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	47.00 ft			
Tool Length:	76.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			2135.00	
Shut In Tool	5.00			2140.00	
Hydraulic tool	5.00			2145.00	
Jars	5.00			2150.00	
Safety Joint	3.00			2153.00	
Packer	5.00			2158.00	29.00 Bottom Of Top Packer
Packer	5.00			2163.00	
Stubb	1.00			2164.00	
Perforations	1.00			2165.00	
Change Over Sub	1.00			2166.00	
Recorder	0.00	8368	Inside	2166.00	
Recorder	0.00	8934	Inside	2166.00	
Drill Pipe	32.00			2198.00	
Change Over Sub	1.00			2199.00	
Perforations	8.00			2207.00	
Bullnose	3.00			2210.00	47.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>76.00</b>				





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mai Oil Operations, Inc.

**21-14s-12w Russell,KS**

8411 Preston Rd STE 800  
Dallas TX 75225+5520

**Heim Trust #1**

Job Ticket: 64596

**DST#: 1**

ATTN: Jlm Musgrove

Test Start: 2018.09.15 @ 03:08:00

## 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: in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	Mud 100%M	0.098

Total Length: 20.00 ft      Total Volume: 0.098 bbl

Num Fluid Samples: 0

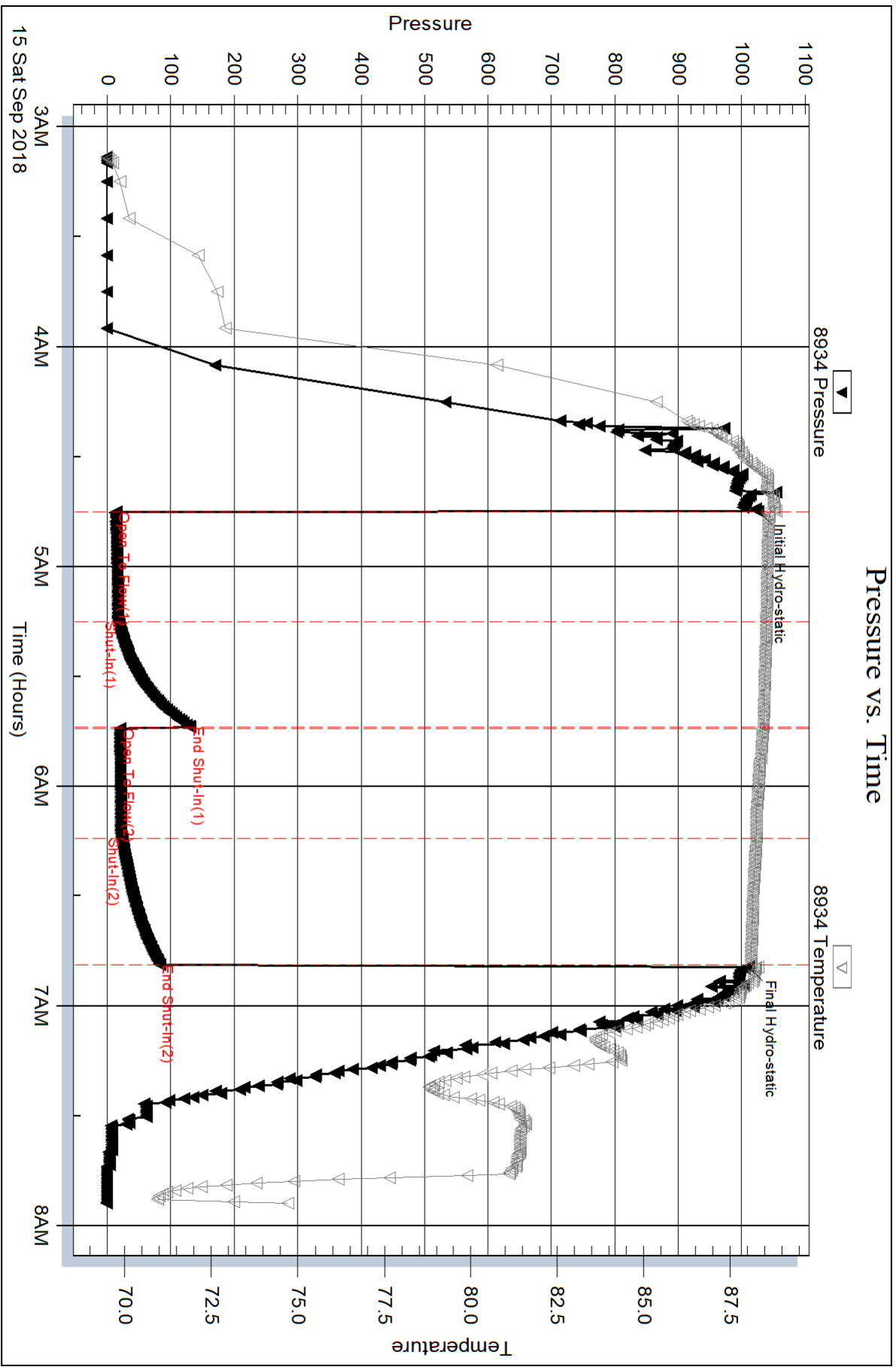
Num Gas Bombs: 0

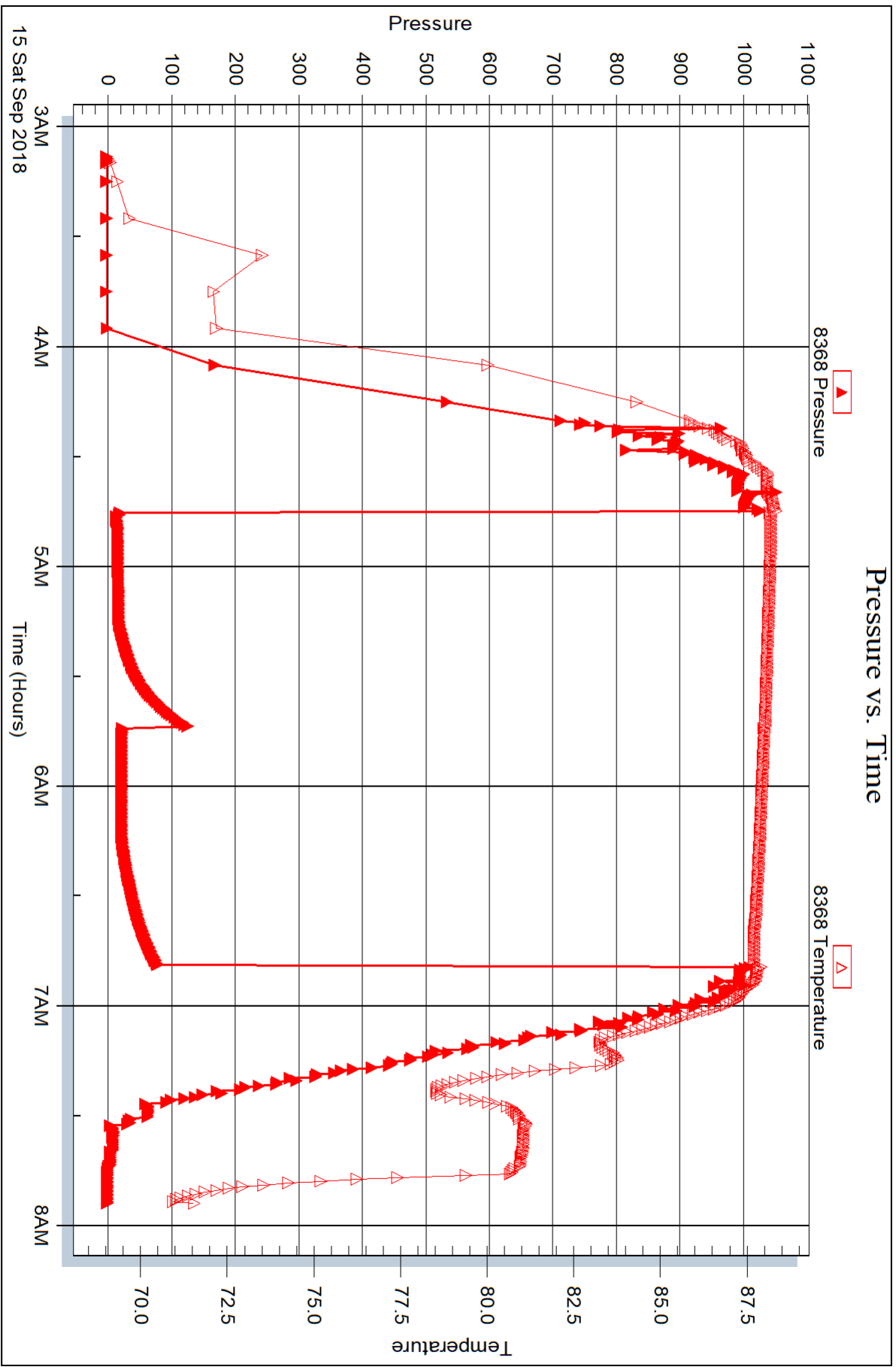
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations, Inc.**

8411 Preston Rd STE 800  
Dallas TX 75225+5520

ATTN: Jim Musgrove

### **Heim Trust #1**

#### **21-14s-12w Russell,KS**

Start Date: 2018.09.17 @ 00:40:00

End Date: 2018.09.17 @ 07:00:15

Job Ticket #: 64597                      DST #: 2

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

Printed: 2018.09.18 @ 08:52:25



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations, Inc.  
 8411 Preston Rd STE 800  
 Dallas TX 75225+5520  
 ATTN: Jlm Musgrove

**21-14s-12w Russell, KS**  
**Heim Trust #1**  
 Job Ticket: 64597 **DST#: 2**  
 Test Start: 2018.09.17 @ 00:40:00

## GENERAL INFORMATION:

Formation: **Cong. Ss**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 02:21:00 Tester: Spencer J. Staab  
 Time Test Ended: 07:00:15 Unit No: 84  
 Interval: **3093.00 ft (KB) To 3160.00 ft (KB) (TVD)** Reference Elevations: 1689.00 ft (KB)  
 Total Depth: 3160.00 ft (KB) (TVD) 1682.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 7.00 ft

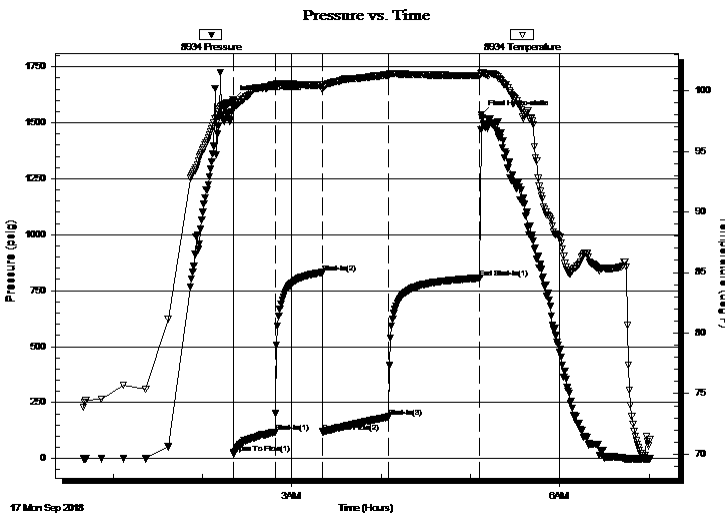
## Serial #: 8934

Inside

Press@RunDepth: 118.34 psig @ 3096.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.09.17 End Date: 2018.09.17 Last Calib.: 2018.09.17  
 Start Time: 00:40:15 End Time: 07:00:15 Time On Btm: 2018.09.17 @ 02:20:45  
 Time Off Btm: 2018.09.17 @ 05:07:15

TEST COMMENT: 30-IF-Strong; BOB in 13 mins; Built to 19"  
 30-ISI-No Return  
 45-FF-Strong; BOB in 20 mins; Built to 22&1/2"  
 60-FSI-No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1601.43	99.14	Initial Hydro-static
1	21.97	98.56	Open To Flow (1)
28	118.34	100.48	Shut-In(1)
60	830.84	100.47	Shut-In(2)
60	119.48	100.09	Open To Flow (2)
105	186.21	101.31	Shut-In(3)
166	806.19	101.24	End Shut-In(1)
167	1537.57	101.45	Final Hydro-static

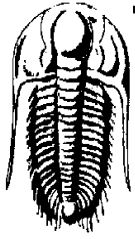
## Recovery

Length (ft)	Description	Volume (bbl)
240.00	WM 25%W 75%M	2.31
120.00	Mud 100%M	1.70

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations, Inc.  
8411 Preston Rd STE 800  
Dallas TX 75225+5520  
ATTN: Jlm Musgrove

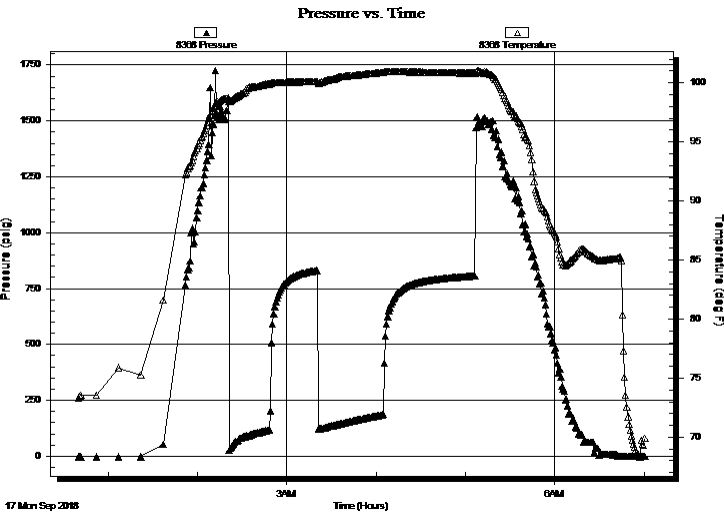
**21-14s-12w Russell,KS**  
**Heim Trust #1**  
Job Ticket: 64597      **DST#: 2**  
Test Start: 2018.09.17 @ 00:40:00

## GENERAL INFORMATION:

Formation: **Cong. Ss**  
Deviated: No Whipstock:                          ft (KB)  
Time Tool Opened: 02:21:00  
Time Test Ended: 07:00:15  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Spencer J. Staab  
Unit No: 84  
**Interval: 3093.00 ft (KB) To 3160.00 ft (KB) (TVD)**  
Total Depth: 3160.00 ft (KB) (TVD)  
Reference Elevations: 1689.00 ft (KB)  
1682.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
KB to GR/CF: 7.00 ft

**Serial #: 8368      Inside**  
Press@RunDepth:                          psig @      3096.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2018.09.17      End Date: 2018.09.17      Last Calib.: 2018.09.17  
Start Time: 00:40:15      End Time: 07:00:15      Time On Btm:  
Time Off Btm:

**TEST COMMENT:** 30-IF-Strong; BOB in 13 mins; Built to 19"  
30-ISI-No Return  
45-FF-Strong; BOB in 20 mins; Built to 22&1/2"  
60-FSI-No Return



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
240.00	WM 25%W 75%M	2.31
120.00	Mud 100%M	1.70

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Mai Oil Operations, Inc.

**21-14s-12w Russell,KS**

8411 Preston Rd STE 800  
Dallas TX 75225+5520

**Heim Trust #1**

Job Ticket: 64597

**DST#: 2**

ATTN: Jlm Musgrove

Test Start: 2018.09.17 @ 00:40:00

## Tool Information

Drill Pipe:	Length: 2971.00 ft	Diameter: 3.82 inches	Volume: 42.12 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 118.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 39000.00 lb
Depth to Top Packer:	3093.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	67.00 ft			
Tool Length:	88.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3073.00	
Shut In Tool	5.00			3078.00	
Hydraulic tool	5.00			3083.00	
Packer	5.00			3088.00	21.00 Bottom Of Top Packer
Packer	5.00			3093.00	
Stubb	1.00			3094.00	
Perforations	1.00			3095.00	
Change Over Sub	1.00			3096.00	
Recorder	0.00	8368	Inside	3096.00	
Recorder	0.00	8934	Inside	3096.00	
Drill Pipe	32.00			3128.00	
Change Over Sub	1.00			3129.00	
Perforations	28.00			3157.00	
Bullnose	3.00			3160.00	67.00 Bottom Packers & Anchor

**Total Tool Length: 88.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mai Oil Operations, Inc.

**21-14s-12w Russell,KS**

8411 Preston Rd STE 800  
Dallas TX 75225+5520

**Heim Trust #1**

Job Ticket: 64597

**DST#: 2**

ATTN: Jlm Musgrove

Test Start: 2018.09.17 @ 00:40:00

## 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:

62000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.77 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5500.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
240.00	WM 25%W 75%M	2.310
120.00	Mud 100%M	1.701

Total Length: 360.00 ft      Total Volume: 4.011 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

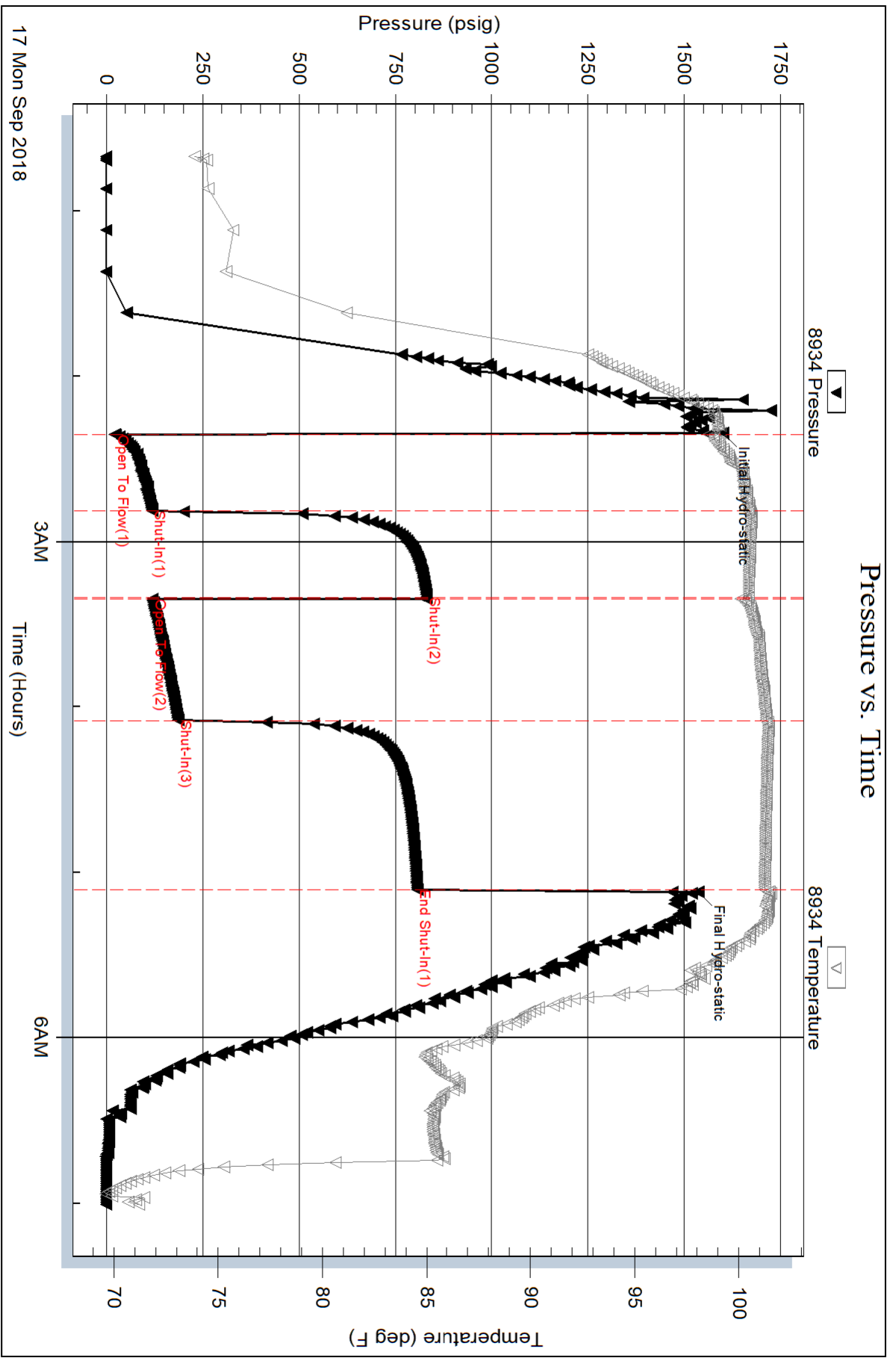
Laboratory Name:

Laboratory Location:

Recovery Comments: 1/2#LCM

RW=.125@63F





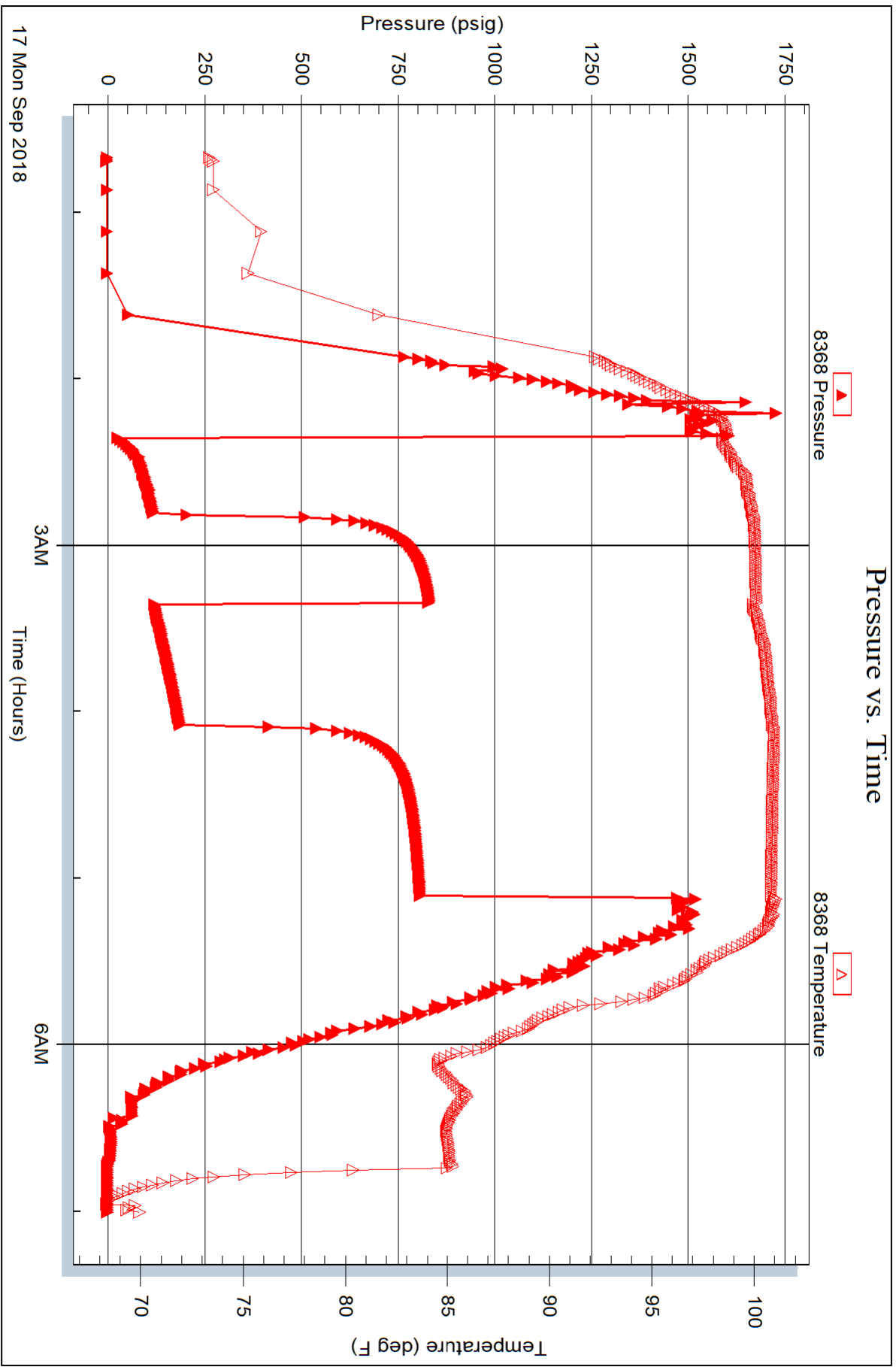
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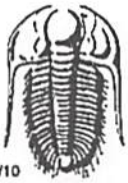
Inside

Mai Oil Operations, Inc.

Heim Trust #1

DST Test Number: 2





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64596

Well Name & No. Helm Trust #1 Test No. 1 Date 09/15/2018  
 Company Mai Oil Operations, Inc. Elevation 1689 KB 1682 GL  
 Address 8411 Preston Rd STE 800 Dallas Tx 75225-5520  
 Co. Rep / Geo. Jim Musgrove Rig Southwind #3  
 Location: Sec. 21 Twp 14 Rge. 12 Co. Russell State Ks

Interval Tested 2163'-2210' Zone Tested Tarkio Ss  
 Anchor Length 48' Drill Pipe Run 2046' Mud Wt. 8.6  
 Top Packer Depth 2155' Drill Collars Run 118' Vis 58  
 Bottom Packer Depth 2163' Wt. Pipe Run - WL -  
 Total Depth 2210' Chlorides - ppm System LCM -

Blow Description 27-Weak; Built to 1"  
1st- No Return  
74-Weak Surface  
75st- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 20' BHT 88° Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1026  Test 1050 T-On Location 02:45  
 (B) First Initial Flow 13  Jars \_\_\_\_\_ T-Started 03:08  
 (C) First Final Flow 17  Safety Joint \_\_\_\_\_ T-Open 04:43  
 (D) Initial Shut-In 130  Circ Sub \_\_\_\_\_ T-Pulled 06:43  
 (E) Second Initial Flow 20  Hourly Standby \_\_\_\_\_ T-Out 07:53  
 (F) Second Final Flow 22  Mileage 88 RT 88  
 (G) Final Shut-In 82  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1011  Straddle \_\_\_\_\_

Initial Open 30  Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Initial Shut-In 30  Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Final Flow 30  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Final Shut-In 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1138  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1138

Approved By \_\_\_\_\_ Our Representative James J. Stal Thanks!

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

785-259-0056



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64597

Well Name & No. Helm Trust #1 Test No. 2 Date 09/17/2018  
 Company Maui Oil Operations Inc Elevation 1689 KB 1682 GL  
 Address 8411 Preston Rd STE 800 Dallas Tx 75225+5520  
 Co. Rep / Geo. Jim Musgrove Rig Southwind #3  
 Location: Sec. 21 Twp 14s Rge. 2w Co. Russell State Ks

Interval Tested 3093'-3160' Zone Tested Cong. Ss  
 Anchor Length 67' Drill Pipe Run 2971' Mud Wt. 9.4  
 Top Packer Depth 3088' Drill Collars Run 118' Vis 50  
 Bottom Packer Depth 3093' Wt. Pipe Run - WL 8.8  
 Total Depth 3160' Chlorides 5500 ppm System LCM 1/2#

Blow Description 17-Strong; BOB in 13 min; Build to 19"  
JSD - No Return  
77-Strong; BOB in 20; Build to 22 1/2"  
7SD - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>240'</u>	<u>9WM</u>		<u>25</u>	<u>75</u>	
<u>120'</u>	<u>Mud</u>			<u>100</u>	

Rec Total 360' BHT 101° Gravity - API RW 125 @ 63° F Chlorides 62000 ppm

(A) Initial Hydrostatic 1601  Test 1050 T-On Location 00:25  
 (B) First Initial Flow 21  Jars \_\_\_\_\_ T-Started 00:40  
 (C) First Final Flow 118  Safety Joint \_\_\_\_\_ T-Open 02:20  
 (D) Initial Shut-In 830  Circ Sub \_\_\_\_\_ T-Pulled 05:05  
 (E) Second Initial Flow 119  Hourly Standby \_\_\_\_\_ T-Out 07:00  
 (F) Second Final Flow 186  Mileage 88RMx2 176 Comments loaded @ 14:30  
 (G) Final Shut-In 806  Sampler \_\_\_\_\_ 09/17/2018  
 (H) Final Hydrostatic 1537  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Extra Copies \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 30  
 Final Flow 45  
 Final Shut-In 60  
 Day Standby X 1.5d 4.5h  
 Accessibility \_\_\_\_\_  
 Sub Total 1226  
 Sub Total 150  
 Total 1376  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Spencer J. Stuebgen

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

785-259-0056

**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.  
Heim Trust #1  
NE-SW-SE-SW (1023' FSL & 1797' FWL)  
Russell County, Kansas

Page 1

**Dry and Abandoned**

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** September 12, 2018  
**Completed:** September 17, 2018  
**Elevation:** 1689' K.B., 1687' D.F., 11681' G.L.  
**Casing program:** Surface; 8 5/8" @ 365'  
Production, 5 1/2" @ none  
**Sample:** Samples saved and examined 2050' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 2050' to the Rotary Total Depth.  
**Measurements:** All depths measured from the Kelly Bushing.  
**Drill Stem Tests:** There were two (2) Drill Stem Tests ran by Trilobite Testing Co.  
**Electric Log:** None

<u>Formation</u>	<u>Sample Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	596	+1093
Base Anhydrite	627	+1062
Grand Haven	2161	-472
1 <sup>st</sup> Tarkio Sand	2173	-484
2 <sup>nd</sup> Tarkio Sand	2194	-505
Tarkio Lime	2235	-546
Elmont	2295	-606
Howard	2436	-747
Topeka	2508	-819
Heebner	2748	-1059
Toronto	2767	-1078
Lansing	2831	-1142
Base Kansas City	3118	-1429
Conglomerate	3132	-1443
Conglomerate Sand	3152	-1463
Arbuckle	3192	-1503
Rotary Total Depth	3200	-1511

(All tops and zone(s) determinations were made from a correlation of Drilling Time and Sample Analysis)

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

**1<sup>ST</sup> TARKIO SAND**

2173-2182' Sand; gray, very fine grained; micaceous; silty, poorly developed porosity, trace stain, trace of free oil and no odor in fresh samples.

**2<sup>nd</sup> TARKIO SAND**

2194-2204' Sand; gray, white, very fine grained; micaceous, silty; poor visible porosity, poor stain, no show of free oil and questionable odor in fresh samples. (poorly developed)

**Drill Stem Test #1** **2163-2210**

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

**Blow: Weak**

**Recovery: 20' mud**

**Pressures:** ISIP 130 psi  
FSIP 82 psi  
IFP 13-17 psi  
FFP 20-22 psi  
HSH 1026-1011 psi

**ELMONT, HOWARD, TOPEKA SECTIONS**

2295-2747' There were several zones of porosity encountered in the drilling of the Elmont thru Topeka sections but no show of oil and/or gas was noted (see attached Sample Log, Geologist Report)

**TORONTO SECTION**

2767-2780' Limestone, white, gray, finely crystalline, chalky, poor porosity, trace black stain, no free oil and no odor.

**LANSING SECTION**

2835-2845' Limestone, tan; finely crystalline, fossiliferous; scattered pinpoint porosity; trace stain, trace of free of free oil and no odor in fresh samples.

2864-2880' Limestone, tan; oomoldic, fair oomoldic porosity, trace brown stain, no show of free oil and no odor in fresh samples.

2894-2900' Limestone; white, cream, finely crystalline, fossiliferous in part, chalky; no shows.

2914-2919' Limestone, gray, fossiliferous, dense; poor porosity, no shows.

2926-2931' Limestone, gray, cream, oomoldic, fair oomoldic porosity, no shows.

2940-2960' Limestone, white, cream, chalky; few cherty (dense)

- 2978-2986' Limestone, white, gray, finely crystalline, slightly fossiliferous; "crumbly", chalky; no shows.
- 3011-3024' Limestone, white and gray, oomoldic, chalky, scattered porosity, (barren) no shows.
- 3052-3060' Limestone, gray, oolitic, sub-oomoldic, poor visible porosity, no shows.
- 3080-3084' Limestone, tan, gray, fossiliferous/oolitic, chalky, no shows.

**CONGLOMERATE SECTION**

- 3132-3151' Shale, soft red and green, plus chert, orange and white and loose unconsolidated large quartz grains.
- 3152-3159' Sand; clear and white, fine to medium grained; sub-rounded friable fair stain and saturation; fair show of free of and faint odor in fresh samples.

**Drill Stem Test #2 3093-3160**

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

**Blow: Strong**

**Recovery: 120' mud  
240' watery mud  
(25% water; 75% mud)**

**Pressures: ISIP 830 psi  
FSIP 806 psi  
IFP 21-118 psi  
FFP 119-186 psi  
HSH 1601-1537 psi**

- 3160-3192' Chert; varied colored, boney, plus large round unconsolidated quartz, and gray soft sand shale, no shows.

**ARBUCKLE SECTION**

- 3192-3200' Dolomite, tan, brown, fine and medium crystalline, slightly cherty; dense, poor porosity, no shows.

**Rotary Total Depth 3200 -1511**

**Recommendations:**

The Mai Oil Operations, Inc., Heim Trust #1; was plugged and abandoned at the Rotary Total Depth 3200

Respectfully yours,

  
James C Musgrove  
Petroleum Geologist



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

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

No. 946

Cell 785-324-1041

Date	9.13.18	Sec.	21	Twp.	14	Range	12	County	Russell	State	Ks	On Location		Finish	6:30AM
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Location Bunker hill - S to 4 Corners Rd, 2 1/2 E

Lease Heim Trust Well No. 1 Owner M/Intro

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 Surface Charge To Mai oil operations

Hole Size 12 1/4" T.D. 365'

Csg. 8 5/8" Depth 365' 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 @ 14% 4% CC 2% Gel

Meas Line Displace 22 1/4 BLS used 180

**EQUIPMENT** Common 110

Pumptrk 16 No. Cementer David Poz. Mix 70

Bulktrk 3 No. Driver Doug Gel. 3

Bulktrk p.u. No. Driver Rick Calcium 8

**JOB SERVICES & REMARKS** Hulls

Remarks: Cement did Circulate Salt

Rat Hole Flowseal

Mouse Hole Kol-Seal

Centralizers used 180 5x Mud CLR 48

Baskets CFL-117 or CD110 CAF 38

D/V or Port Collar Sand

Handling 125'

Mileage

**FLOAT EQUIPMENT**

Guide Shoe Wood plug

Centralizer

Baskets

AFI Inserts

Float Shoe

Latch Down

Pumptrk Charge Surface

Mileage 15

Signature Jay Davis

Tax	
Discount	
Total Charge	

