

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 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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# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071

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

No. 1859

Cell 785-324-1041

Date	12-4-19	Sec.	21	Twp.	16	Range	13	County	Barton	State	Ks	On Location		Finish	9:00 AM
								Location	Susank - 1N, turn East; S into						

Lease	Nettleingham	Well No.	1	Owner	S + E to well
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	Mai oil operations		
Hole Size	7 7/8"	T.D.	3470'	Street	
Csg.	5 1/2" 14# New	Depth	3458.41'	City	State
Tbg. Size		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	21.13	Shoe Joint	21.13'	Cement Amount Ordered	160 60/40 10% Salt 2% Gel
Meas Line		Displace	83 3/4 BLS	1/4 # Flowseal	1000 gal mud Clear 48

**EQUIPMENT**

Pumptrk	17	No.	Cementor	David	Common	96
			Helper		Poz. Mix	64
Bulktrk	1	No.	Driver	Tony	Gel.	3
			Driver		Calcium	
Bulktrk	pu.	No.	Driver	Rick		
			Driver			

**JOB SERVICES & REMARKS**

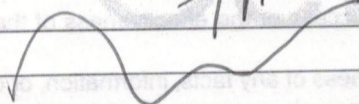
Remarks:	Salt 14
Rat Hole	Flowseal 40 #
Mouse Hole	Kol-Seal
Centralizers	Mud CLR 48
Baskets	CFL-117 or CD110 CAF 38
D/V or Port Collar	Sand
mud Clear 48, plug Rathole w/ 305x	Handling 177
Hook to 5 1/2" Casing + mix 1305x	Mileage
Cement. Shut down wash pump	
+ lines Displaced plug w/ 83 3/4 BLS	
Released + held.	

**FLOAT EQUIPMENT**

Side Shoe	
Centralizer	9
Baskets	
AFU Inserts	
Float Shoe	1
Latch Down	1

Lift pressure 700 #  
Land plug to 1500 #

Thanks



X Signature John D. Muths

Pumptrk Charge	prod string	Tax	
Mileage	21	Discount	
		Total Charge	



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071  
Cell 785-324-1041

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

No. 1854

Date	11-26-19	Sec.	21	Twp.	16	Range	13	County	Barton	State	Ks	On Location		Finish	5:00 AM
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Location *Susank - W, turn east on 2nd Rd, S*

Lease	<i>Nettleingham</i>	Well No.	<i>#1</i>	Owner	<i>S + F to well</i>
Contractor	<i>Southwind</i>	<i>#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>Surface</i>			Charge To	<i>Maui oil operations</i>
Hole Size	<i>12 1/4"</i>	T.D.	<i>460'</i>	Street	
Csg.	<i>8 5/8"</i>	Depth	<i>460'</i>	City	State
Tbg. Size		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Tool		Depth		Cement Amount Ordered	<i>220 60/40 4% CC 2% Gel</i>
Cement Left in Csg.	<i>15'</i>	Shoe Joint	<i>15'</i>		
Meas Line		Displace	<i>28 1/4 BLS</i>		

EQUIPMENT				Common
Pumptrk	<i>17</i>	No.	Cementer Helper <i>Tim</i>	Poz. Mix
Bulktrk	<i>3</i>	No.	Driver Driver <i>Tony</i>	Gel.
Bulktrk	<i>P.W.</i>	No.	Driver Driver <i>Pat</i>	Calcium

JOB SERVICES & REMARKS		Hulls
Remarks:	<i>Cement did Circulate</i>	Salt
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
	Centralizer
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down

	Pumptrk Charge	
	Mileage	
		Tax
		Discount
		Total Charge

X Signature *Joy Kim*

**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.  
Nettleingham #1  
SE-NE-NW-NW (610' FNL & 1180' FWL)  
Section 21-16s-13w  
Barton County, Kansas

Page 1

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

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** November 25, 2019  
**Completed:** December 4, 2019  
**Elevation:** 1947' K.B., 1945' D.F., 1938' G.L.  
**Casing program:** Surface; 8 5/8" @ 460'  
Production, 5 1/2" @ 3458'  
**Sample:** Samples saved and examined 2800' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 2800' 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; Dual Induction, Compensated Density/Neutron and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	890	+1057
Base Anhydrite	917	+1030
Topeka	2843	-896
Heebner	3076	-1129
Toronto	3096	-1149
Douglas	3107	-1160
Brown Lime	3156	-1209
Lansing	3166	-1219
Base Kansas City	3390	-1443
Arbuckle	3396	-1449
Rotary Total Depth	3470	-1523
Log Total Depth	3472	-1525

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

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

**TOPEKA SECTION**

3023-3028' Limestone, white, cream, finely crystalline, chalky; poor porosity; black stain, no show of free oil and odor in fresh samples.

**TORONTO SECTION**

3096-3102' Limestone, white, cream, finely crystalline, few fossiliferous, chalky, poor porosity; trace brown and black stain, no shows of free oil and no odor in fresh sample.

**LANSING SECTION**

3166-3174' Limestone, white, finely crystalline, sub-oomoldic, chalky, trace brown stain, show of free oil and faint odor in fresh samples.

3179-3186' Limestone, gray, white, chalky; poor porosity; no shows.

3194-3200' Limestone, white and gray; oolitic, oomoldic, poor visible porosity, brown stain, show of free oil and no odor in fresh samples.

3215-3220' Limestone, white, oolitic, slightly chalky; fair porosity, golden brown stain, show of free oil and faint odor in fresh samples.

**Drill Stem Test #1** **3161-3232**

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

**Blow:** Strong

**Recovery:** 496' gas in pipe  
125' muddy gassy oil  
(15% gas; 55% oil; 30% mud)

**Pressures:** ISIP 361 psi  
FSIP 445 psi  
IFP 18-41 psi  
FFP 40-66 psi  
HSH 1554-1523 psi

3238-3248' Limestone, white, tan, oolitic, oomoldic, fair oomoldic porosity, brown stain, show of free oil and faint odor in fresh samples.

**Drill Stem Test #2** **3233-3252**

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

**Blow:** Weak

**Recovery:** 15' muddy water (scum of oil)

**Pressures:** ISIP 606 psi  
FSIP 589 psi  
IFP 11-16 psi  
FFP 18-21 psi  
HSH 1579-1539 psi

3261-3280' Limestone, white, chalky; few cherty; poor porosity; no shows.

3932-3300' Limestone, tan, sub-oomoldic, chalky, questionable stain, no show of free oil and no odor in fresh samples.



- 3311-3319' Limestone, white, cream, oolitic, chalky; trace brown stain, no show of free oil and faint odor in fresh samples.
- 3328-3340' Limestone; tan, oolitic, slightly cherty, poor porosity, trace brown stain, weak show of free oil and no odor in fresh samples.
- 3361-3370' Limestone, white, gray, fossiliferous, chalky, trace black stain, no show of free oil and questionable odor in fresh samples.

**ARBUCKLE SECTION**

- 3396-3407' Dolomite, white and cream, medium and coarse crystalline, good inter-crystalline porosity, brown and golden brown stain, show of free oil and fair odor in fresh samples.

**Drill Stem Test #3 3392-3407**

**Times: 15-30-30-45**

**Blow: Strong**

**Recovery: 60' gas in pipe  
362' clean gassy oil  
372' gassy mud cut watery oil  
(10% as; 70% oil; 15% water; 5% mud)  
186' oil cut muddy water  
(10% oil; 85% water; 5% mud)**

**Pressures: ISIP 1041 psi  
FSIP 982 psi  
IFP 105-194 psi  
FFP 218-384 psi  
HSH 1687-1642 psi**

- 3407-3420' Dolomite, as above, brown and gray stain; show of free oil and faint odor in fresh samples, plus white chalk and white chert.
- 3440-3460' Dolomite, gray and white, medium and coarse crystalline, fair to good inter-crystalline and vuggy type porosity, no shows.

**Rotary Total Depth: 3470 (-1523)  
Log Total Depth: 3472 (-1525)**

**Recommendations:**

5 1/2" production casing was set and cemented on the Mai Oil Operations, Inc., Nettleingham #1.

Respectfully yours,

James C. Musgrove  
Petroleum Geologists



## DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations Inc**

8411 Preston Rd Suite 800  
Dallas TX 75224+5520

ATTN: Jim Musgrove

### **Nettleingham #1**

#### **21-16S-13W Barton,KS**

Start Date: 2019.12.01 @ 19:42:00

End Date: 2019.12.02 @ 02:06:02

Job Ticket #: 66271                      DST #: 1

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

Printed: 2019.12.04 @ 08:52:40



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations Inc  
 8411 Preston Rd Suite 800  
 Dallas TX 75224+5520  
 ATTN: Jim Musgrove

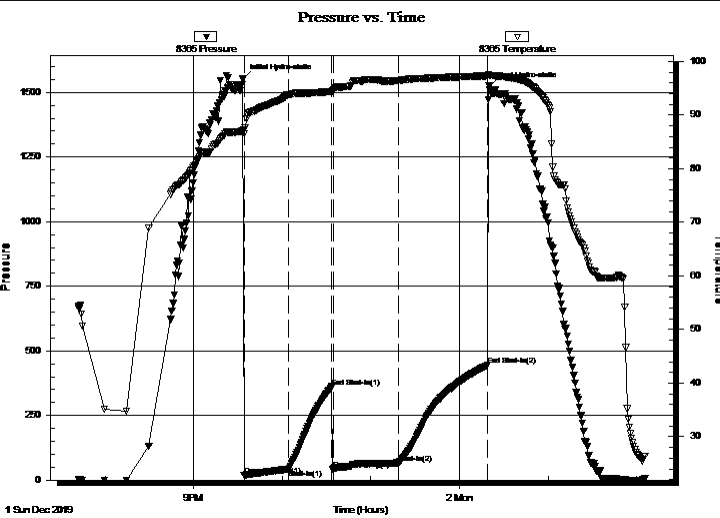
**21-16S-13W Barton,KS**  
**Nettleingham #1**  
 Job Ticket: 66271 **DST#: 1**  
 Test Start: 2019.12.01 @ 19:42:00

## GENERAL INFORMATION:

Formation: **LKC A - E**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:34:02  
 Time Test Ended: 02:06:02  
 Interval: **3161.00 ft (KB) To 3232.00 ft (KB) (TVD)**  
 Total Depth: 3232.00 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: 1947.00 ft (KB)  
 1938.00 ft (CF)  
 KB to GR/CF: 9.00 ft

**Serial #: 8365 Inside**  
 Press@RunDepth: 66.86 psig @ 3162.00 ft (KB) Capacity: psig  
 Start Date: 2019.12.01 End Date: 2019.12.02 Last Calib.: 2019.12.02  
 Start Time: 19:42:01 End Time: 02:06:02 Time On Btm: 2019.12.01 @ 21:33:32  
 Time Off Btm: 2019.12.02 @ 00:20:02

**TEST COMMENT:** IF 30 Minutes BOB in 7 minutes Total build 42"  
 ISI 30 Minutes No blow back  
 FF 45 Minutes Strong blow 1/4" nipple on manifold cracked  
 FSI 60 Minutes Surface blow back



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1554.96	87.19	Initial Hydro-static
1	18.19	86.46	Open To Flow (1)
31	41.59	93.78	Shut-In(1)
60	361.32	94.39	End Shut-In(1)
61	40.90	94.48	Open To Flow (2)
106	66.86	96.44	Shut-In(2)
166	445.21	97.31	End Shut-In(2)
167	1523.57	97.41	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
124.00	GMO/ G 15% O 55% emulsified M 30%	1.74
0.00	496 feet GIP	0.00

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations Inc  
8411 Preston Rd Suite 800  
Dallas TX 75224+5520  
ATTN: Jim Musgrove

**21-16S-13W Barton,KS**

**Nettleingham #1**

Job Ticket: 66271

**DST#: 1**

Test Start: 2019.12.01 @ 19:42:00

## GENERAL INFORMATION:

Formation: **LKC A - E**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:34:02  
 Time Test Ended: 02:06:02  
 Interval: **3161.00 ft (KB) To 3232.00 ft (KB) (TVD)**  
 Total Depth: 3232.00 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: 1947.00 ft (KB)  
 1938.00 ft (CF)  
 KB to GR/CF: 9.00 ft

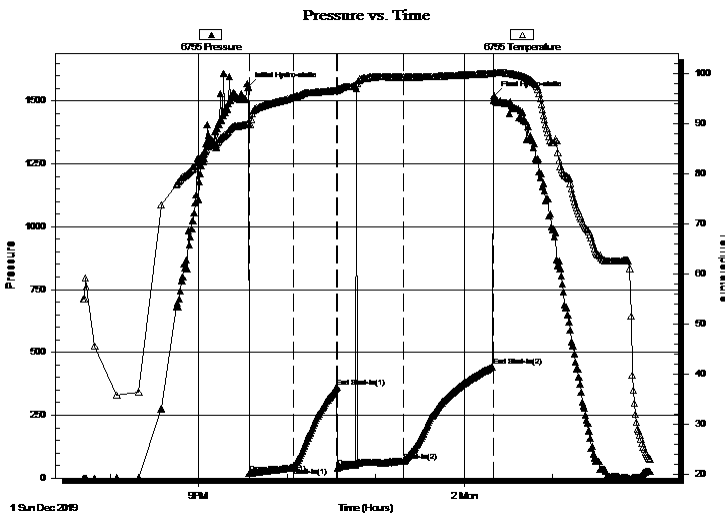
## Serial #: 6755

**Outside**

Press@RunDepth: 443.38 psig @ 3163.00 ft (KB) Capacity: psig  
 Start Date: 2019.12.01 End Date: 2019.12.02 Last Calib.: 2019.12.02  
 Start Time: 19:42:01 End Time: 02:06:02 Time On Btm: 2019.12.01 @ 21:33:47  
 Time Off Btm: 2019.12.02 @ 00:20:17

**TEST COMMENT:** IF 30 Minutes BOB in 7 minutes Total build 42"  
 ISI 30 Minutes No blow back  
 FF 45 Minutes Strong blow 1/4" nipple on manifold cracked  
 FSI 60 Minutes Surface blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1554.54	90.07	Initial Hydro-static
1	18.12	89.88	Open To Flow (1)
31	41.21	95.39	Shut-In(1)
60	360.43	96.73	End Shut-In(1)
61	41.09	96.76	Open To Flow (2)
106	66.18	99.34	Shut-In(2)
166	443.38	100.11	End Shut-In(2)
167	1519.75	100.29	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	GMO/ G 15% O 55% emulsified M 30%	1.74
0.00	496 feet 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 75224+5520  
ATTN: Jim Musgrove

**21-16S-13W Barton,KS**  
**Nettleingham #1**  
Job Ticket: 66271      **DST#: 1**  
Test Start: 2019.12.01 @ 19:42:00

**Tool Information**

Drill Pipe:	Length: 3161.00 ft	Diameter: 3.80 inches	Volume: 44.34 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
			<u>Total Volume: 44.34 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 37000.00 lb
Depth to Top Packer:	3161.00 ft			Final 37000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	70.77 ft			
Tool Length:	90.77 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut-In Tool	5.00			3146.00	
Hydraulic tool	5.00			3151.00	
Top Packer	5.00			3156.00	
Packer	5.00			3161.00	20.00      Bottom Of Top Packer
Recorder	1.00	8365	Inside	3162.00	
Recorder	1.00	6755	Outside	3163.00	
Anchor	32.00			3195.00	
Change Over Sub	1.00			3196.00	
Drill Pipe	31.77			3227.77	
Change Over Sub	1.00			3228.77	
Bullnose	3.00			3231.77	70.77      Anchor Tool

**Total Tool Length: 90.77**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mai Oil Operations Inc

**21-16S-13W Barton,KS**

8411 Preston Rd Suite 800  
Dallas TX 75224+5520

**Nettleingham #1**

Job Ticket: 66271

**DST#: 1**

ATTN: Jim Musgrove

Test Start: 2019.12.01 @ 19:42:00

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 5400.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	GMO/ G 15% O 55% emulsified M 30%	1.739
0.00	496 feet GIP	0.000

Total Length: 124.00 ft      Total Volume: 1.739 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

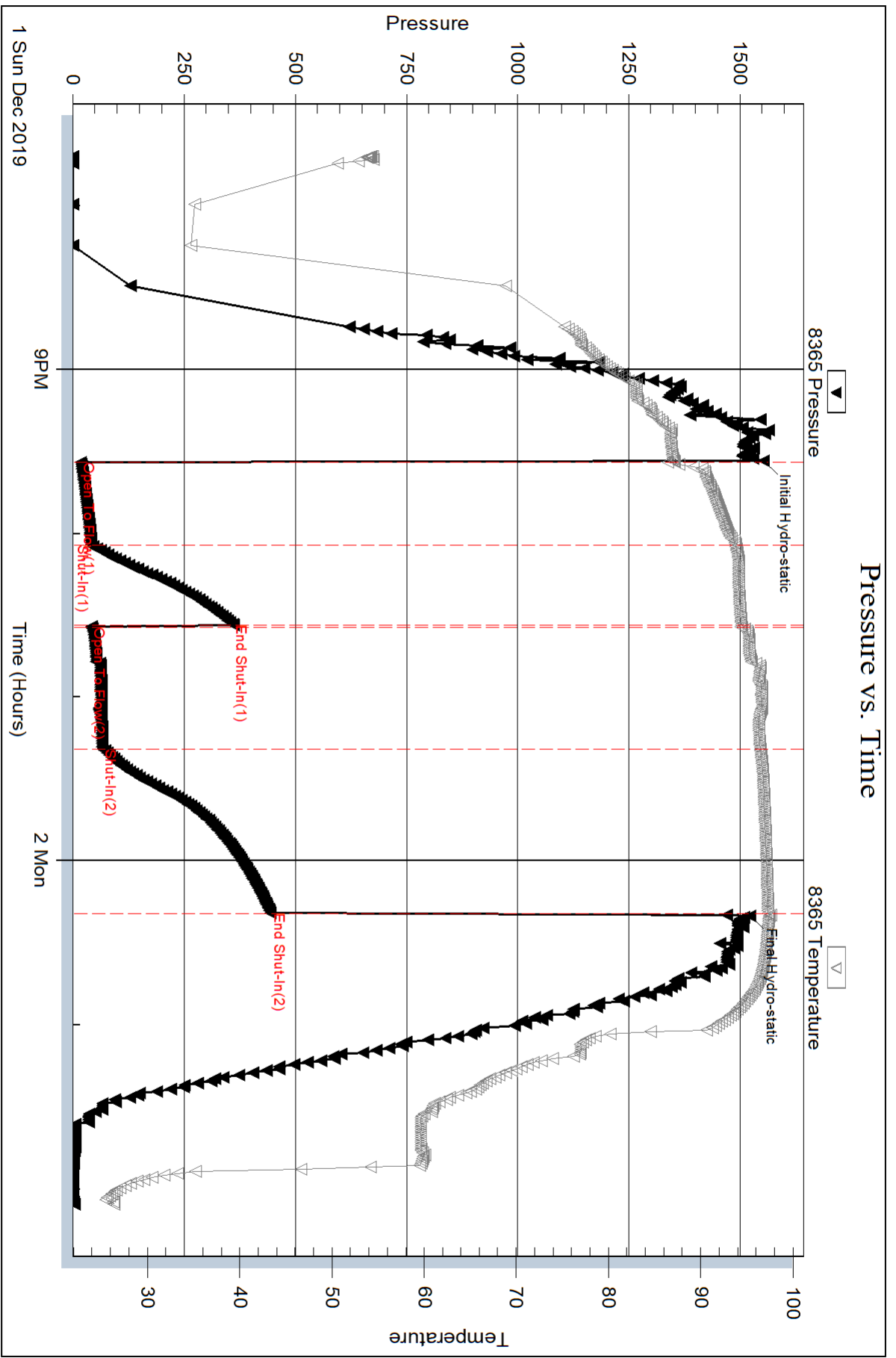
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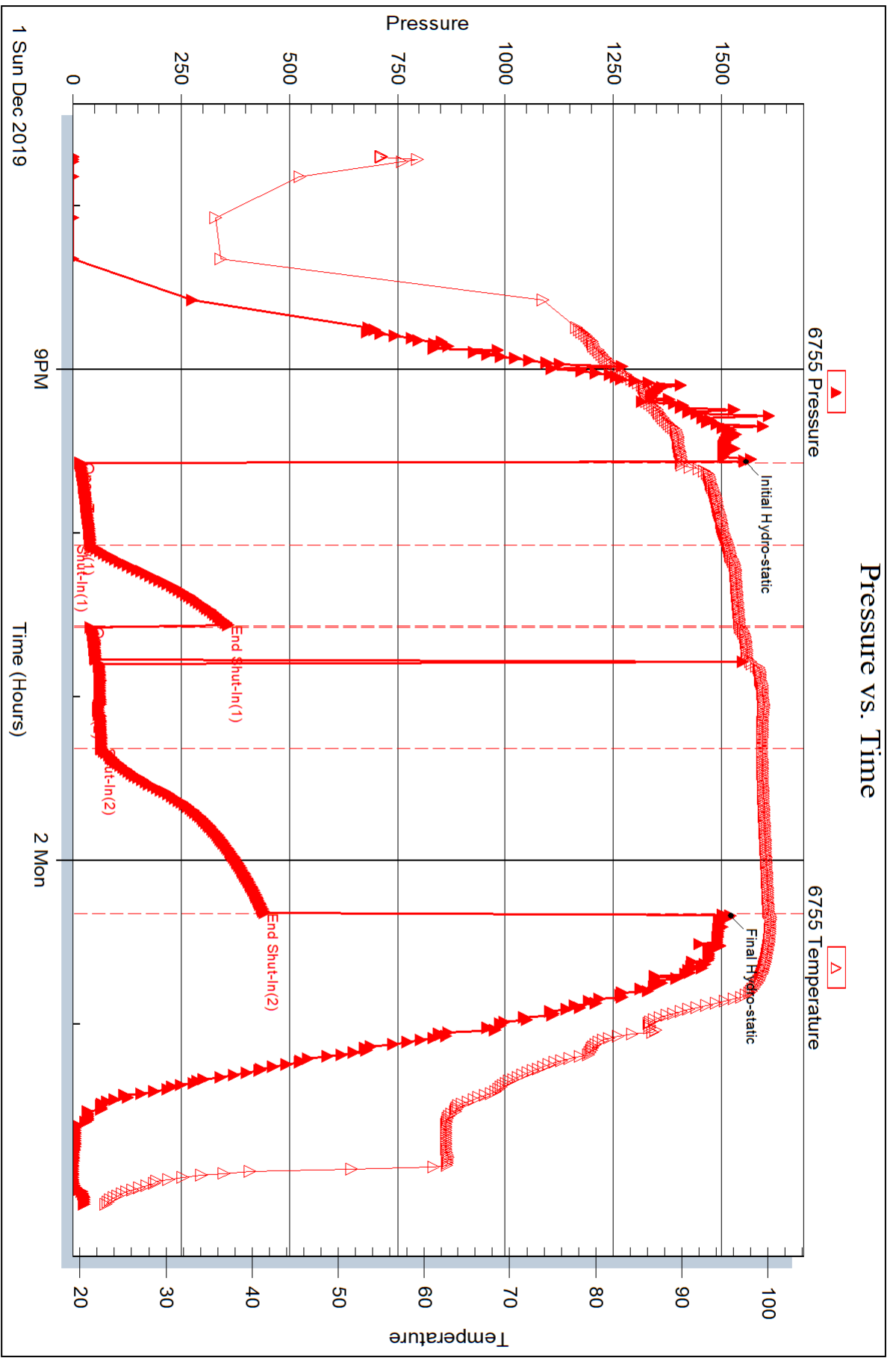
Laboratory Name:

Laboratory Location:

Recovery Comments:









## DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations Inc**

8411 Preston Rd Suite 800  
Dallas TX 75224+5520

ATTN: Jim Musgrove

### **Nettleingham #1**

#### **21-16S-13W Barton,KS**

Start Date: 2019.12.02 @ 08:53:00

End Date: 2019.12.02 @ 13:33:17

Job Ticket #: 66272                      DST #: 2

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

Printed: 2019.12.04 @ 08:52:14





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations Inc  
 8411 Preston Rd Suite 800  
 Dallas TX 75224+5520  
 ATTN: Jim Musgrove

**21-16S-13W Barton,KS**  
**Nettleingham #1**  
 Job Ticket: 66272 **DST#: 2**  
 Test Start: 2019.12.02 @ 08:53:00

## GENERAL INFORMATION:

Formation: **LKC G**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:10:17  
 Time Test Ended: 13:33:17  
 Interval: **3233.00 ft (KB) To 3252.00 ft (KB) (TVD)**  
 Total Depth: 3252.00 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: 1947.00 ft (KB)  
 1938.00 ft (CF)  
 KB to GR/CF: 9.00 ft

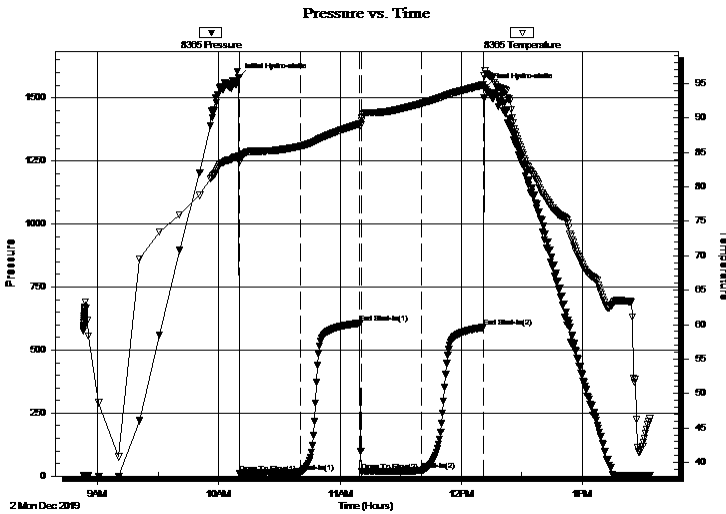
## Serial #: 8365

Inside

Press@RunDepth: 21.91 psig @ 3234.00 ft (KB) Capacity: psig  
 Start Date: 2019.12.02 End Date: 2019.12.02 Last Calib.: 2019.12.02  
 Start Time: 08:53:01 End Time: 13:33:17 Time On Btm: 2019.12.02 @ 10:09:47  
 Time Off Btm: 2019.12.02 @ 12:11:47

TEST COMMENT: IF 30 Minutes Blow built to 2 1/2" in diesel  
 ISI 30 Minutes No blow back  
 FF 30 Minutes Blow built to 2" in diesel  
 FSI 30 Minutes No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1579.85	84.46	Initial Hydro-static
1	11.76	83.56	Open To Flow (1)
31	16.93	85.92	Shut-In(1)
60	606.10	89.15	End Shut-In(1)
61	18.78	89.52	Open To Flow (2)
91	21.91	92.11	Shut-In(2)
121	589.67	94.81	End Shut-In(2)
122	1539.32	96.90	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	MW with skim oil/ M 40% W 60%	0.21

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations Inc  
 8411 Preston Rd Suite 800  
 Dallas TX 75224+5520  
 ATTN: Jim Musgrove

**21-16S-13W Barton,KS**  
**Nettleingham #1**  
 Job Ticket: 66272 **DST#: 2**  
 Test Start: 2019.12.02 @ 08:53:00

## GENERAL INFORMATION:

Formation: **LKC G**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:10:17  
 Time Test Ended: 13:33:17  
 Interval: **3233.00 ft (KB) To 3252.00 ft (KB) (TVD)**  
 Total Depth: 3252.00 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: 1947.00 ft (KB)  
 1938.00 ft (CF)  
 KB to GR/CF: 9.00 ft

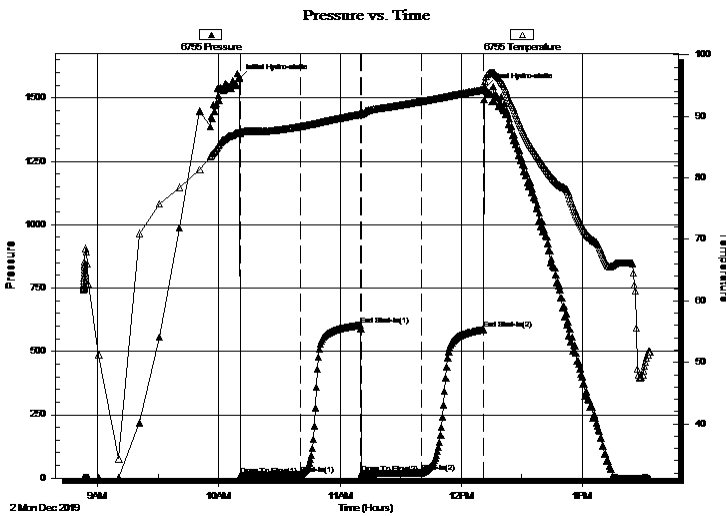
## Serial #: 6755

Outside

Press@RunDepth: 586.61 psig @ 3235.00 ft (KB) Capacity: psig  
 Start Date: 2019.12.02 End Date: 2019.12.02 Last Calib.: 2019.12.02  
 Start Time: 08:53:01 End Time: 13:33:17 Time On Btm: 2019.12.02 @ 10:10:02  
 Time Off Btm: 2019.12.02 @ 12:11:47

TEST COMMENT: IF 30 Minutes Blow built to 2 1/2" in diesel  
 ISI 30 Minutes No blow back  
 FF 30 Minutes Blow built to 2" in diesel  
 FSI 30 Minutes No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1577.70	87.41	Initial Hydro-static
1	11.50	87.28	Open To Flow (1)
31	15.82	88.38	Shut-In(1)
60	603.27	90.39	End Shut-In(1)
61	17.80	90.35	Open To Flow (2)
91	21.50	92.47	Shut-In(2)
121	586.61	94.37	End Shut-In(2)
122	1539.72	95.65	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	MW with skim oil/ M 40% W 60%	0.21

## 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 75224+5520  
ATTN: Jim Musgrove

**21-16S-13W Barton,KS**  
**Nettleingham #1**  
Job Ticket: 66272      **DST#: 2**  
Test Start: 2019.12.02 @ 08:53:00

**Tool Information**

Drill Pipe:	Length: 3223.00 ft	Diameter: 3.80 inches	Volume: 45.21 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: 42000.00 lb
			<u>Total Volume: 45.21 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3233.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	19.00 ft			
Tool Length:	39.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut-In Tool	5.00			3218.00	
Hydraulic tool	5.00			3223.00	
Top Packer	5.00			3228.00	
Packer	5.00			3233.00	20.00      Bottom Of Top Packer
Recorder	1.00	8365	Inside	3234.00	
Recorder	1.00	6755	Outside	3235.00	
Anchor	14.00			3249.00	
Bullnose	3.00			3252.00	19.00      Anchor Tool

**Total Tool Length: 39.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mai Oil Operations Inc

**21-16S-13W Barton,KS**

8411 Preston Rd Suite 800  
Dallas TX 75224+5520

**Nettleingham #1**

Job Ticket: 66272

**DST#: 2**

ATTN: Jim Musgrove

Test Start: 2019.12.02 @ 08:53:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 47.00 lb/gal

Cushion Length:

ft

Water Salinity:

23000 ppm

Viscosity: 9.20 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	MW w ith skim oil/ M 40% W 60%	0.210

Total Length: 15.00 ft      Total Volume: 0.210 bbl

Num Fluid Samples: 0

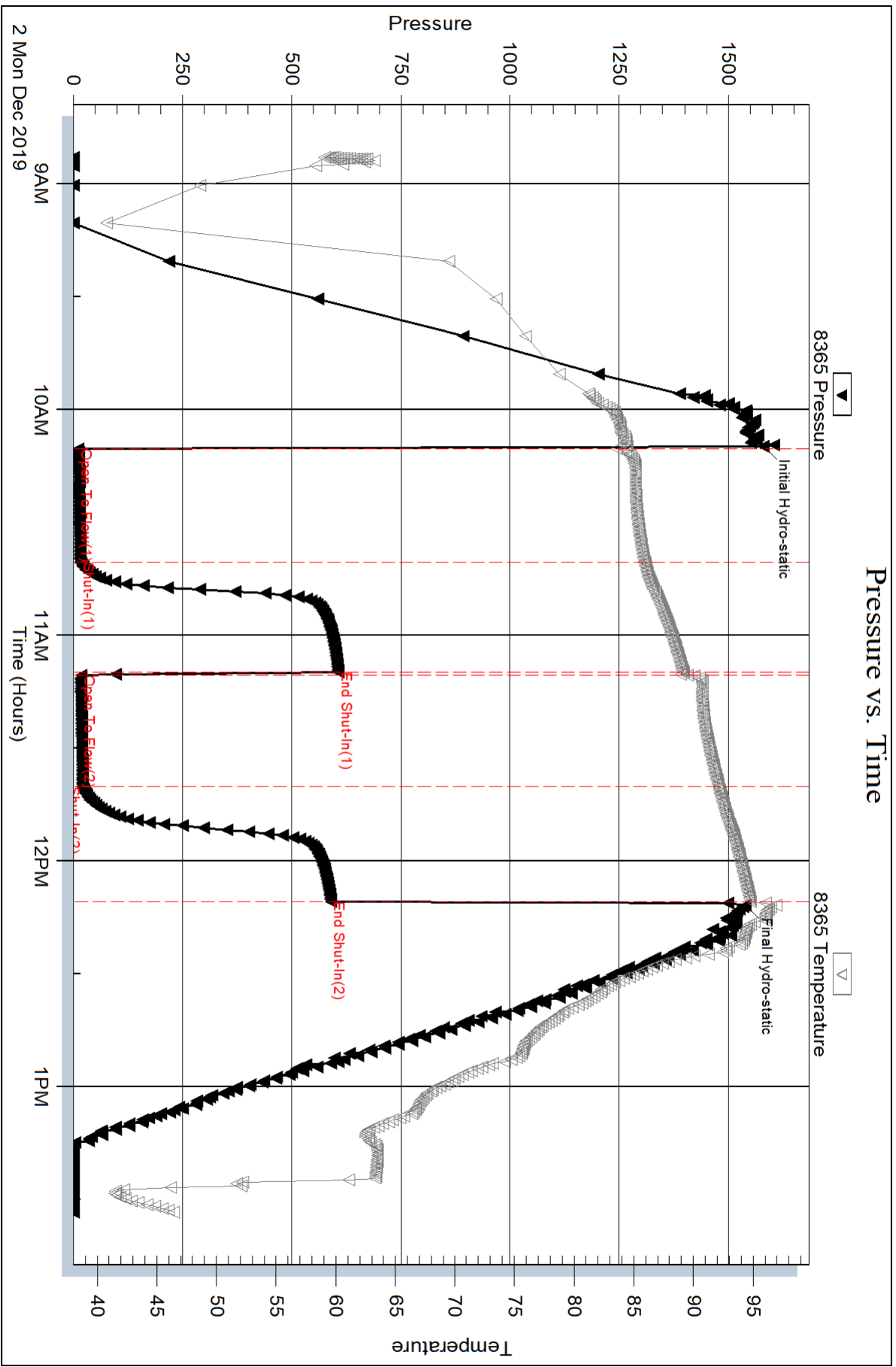
Num Gas Bombs: 0

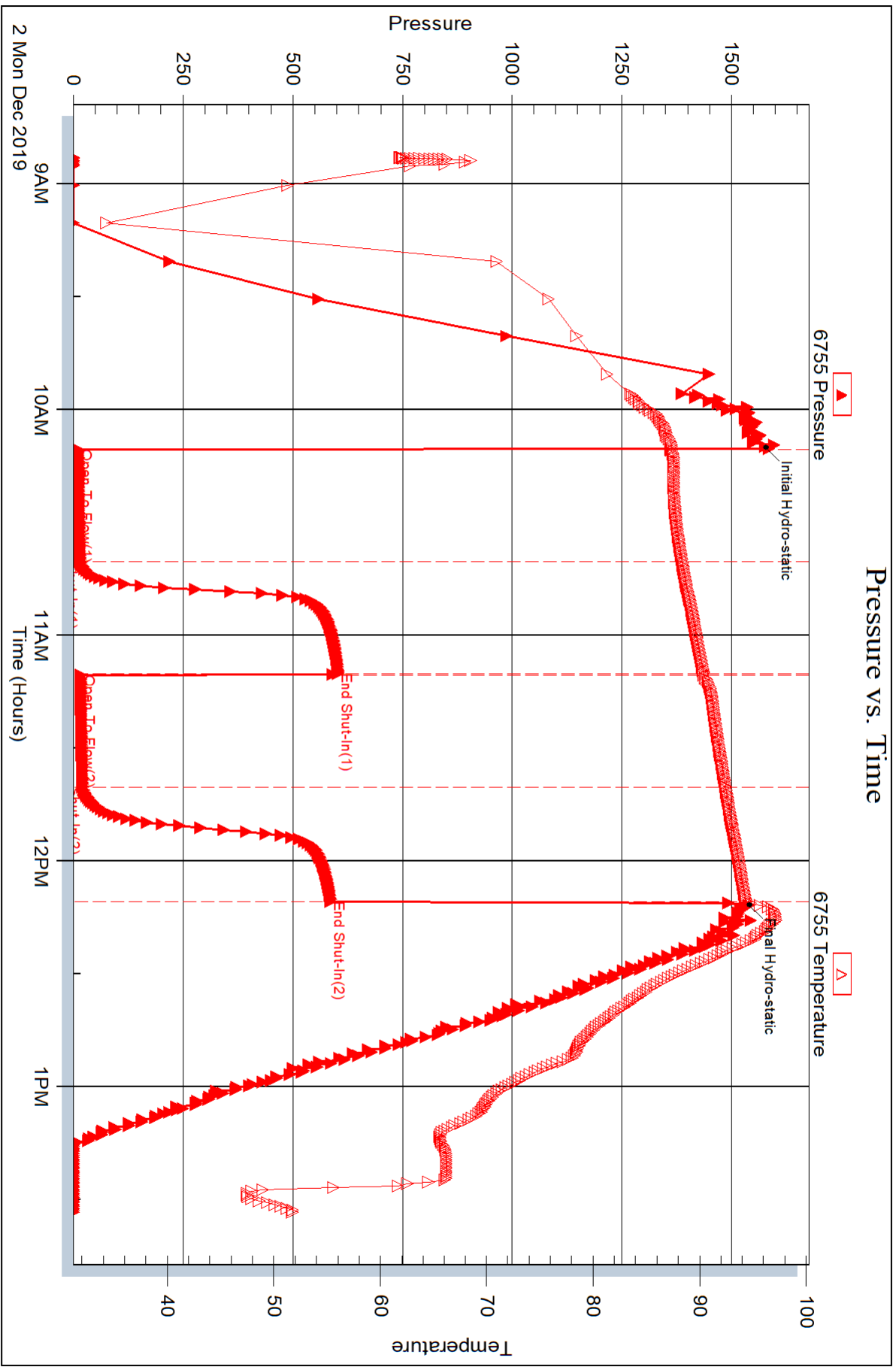
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Recovery Resistivity .348 ohms @ 56 deg.







## DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations Inc**

8411 Preston Rd Suite 800  
Dallas TX 75224+5520

ATTN: Jim Musgrove

### **Nettleingham #1**

#### **21-16S-13W Barton,KS**

Start Date: 2019.12.03 @ 06:57:00

End Date: 2019.12.03 @ 12:57:02

Job Ticket #: 66273                      DST #: 3

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

Printed: 2019.12.04 @ 08:51:43





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations Inc  
 8411 Preston Rd Suite 800  
 Dallas TX 75224+5520  
 ATTN: Jim Musgrove

**21-16S-13W Barton,KS**

**Nettleingham #1**

Job Ticket: 66273

**DST#: 3**

Test Start: 2019.12.03 @ 06:57:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:39:47  
 Time Test Ended: 12:57:02  
 Interval: **3392.00 ft (KB) To 3407.00 ft (KB) (TVD)**  
 Total Depth: 3407.00 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: 1947.00 ft (KB)  
 1938.00 ft (CF)  
 KB to GR/CF: 9.00 ft

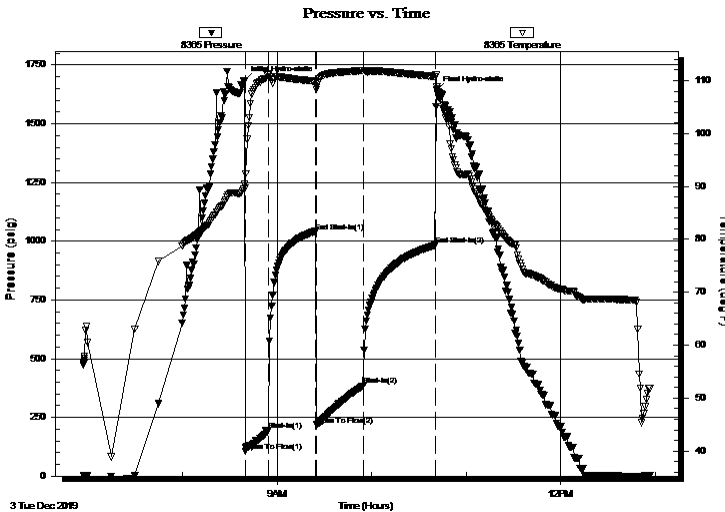
## Serial #: 8365

Inside

Press@RunDepth: 384.93 psig @ 3393.00 ft (KB) Capacity: psig  
 Start Date: 2019.12.03 End Date: 2019.12.03 Last Calib.: 2019.12.03  
 Start Time: 06:57:01 End Time: 12:57:02 Time On Btm: 2019.12.03 @ 08:39:17  
 Time Off Btm: 2019.12.03 @ 10:41:17

TEST COMMENT: IF 15 Minutes Blow to BOB in 2 minutes Total build 58"  
 ISI 30 Minutes 1 inch blow back  
 FF 30 Minutes Blow to BOB in 2 1/2 minutes Total build 79"  
 FSI 45 Minutes No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1681.37	90.37	Initial Hydro-static
1	105.78	89.78	Open To Flow (1)
16	194.88	111.19	Shut-In(1)
45	1041.21	109.86	End Shut-In(1)
46	218.51	108.78	Open To Flow (2)
76	384.93	111.87	Shut-In(2)
121	982.63	110.75	End Shut-In(2)
122	1642.72	108.78	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	MCOV / O 10% M5% W 85%	2.61
372.00	GMCWO / G 10% O 70% M5% W 15%	5.22
362.00	GO / G 10% O 90%	5.08

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations Inc  
 8411 Preston Rd Suite 800  
 Dallas TX 75224+5520  
 ATTN: Jim Musgrove

**21-16S-13W Barton,KS**  
**Nettleingham #1**  
 Job Ticket: 66273 **DST#: 3**  
 Test Start: 2019.12.03 @ 06:57:00

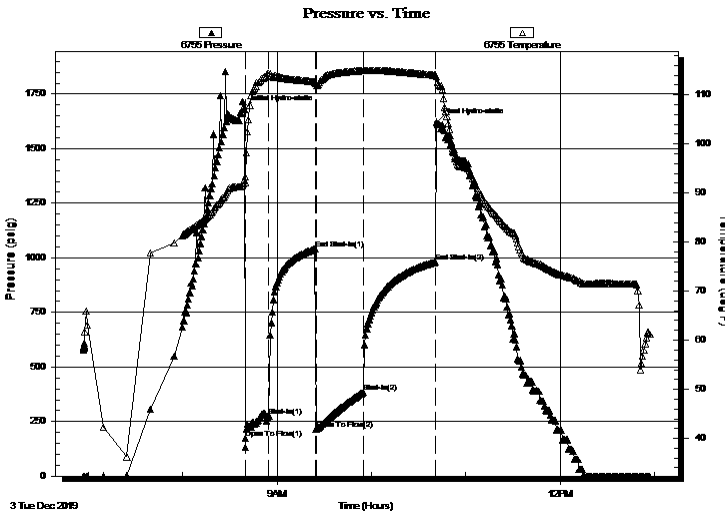
## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:39:47  
 Time Test Ended: 12:57:02  
 Interval: **3392.00 ft (KB) To 3407.00 ft (KB) (TVD)**  
 Total Depth: 3407.00 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: 1947.00 ft (KB)  
 1938.00 ft (CF)  
 KB to GR/CF: 9.00 ft

**Serial #: 6755 Outside**  
 Press@RunDepth: 981.09 psig @ 3394.00 ft (KB) Capacity: psig  
 Start Date: 2019.12.03 End Date: 2019.12.03 Last Calib.: 2019.12.03  
 Start Time: 06:57:01 End Time: 12:57:02 Time On Btm: 2019.12.03 @ 08:39:17  
 Time Off Btm: 2019.12.03 @ 10:41:17

**TEST COMMENT:** IF 15 Minutes Blow to BOB in 2 minutes Total build 58"  
 ISI 30 Minutes 1 inch blow back  
 FF 30 Minutes Blow to BOB in 2 1/2 minutes Total build 79"  
 FSI 45 Minutes No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1679.75	92.69	Initial Hydro-static
1	172.83	93.30	Open To Flow (1)
16	276.21	114.30	Shut-In(1)
45	1039.54	112.58	End Shut-In(1)
46	217.13	112.31	Open To Flow (2)
76	384.00	114.94	Shut-In(2)
122	981.09	114.00	End Shut-In(2)
122	1620.45	113.65	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	MCOV / O 10% M5% W 85%	2.61
372.00	GMCWO / G 10% O 70% M5% W 15%	5.22
362.00	GO / G 10% O 90%	5.08

## 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 75224+5520  
ATTN: Jim Musgrove

**21-16S-13W Barton,KS**  
**Nettleingham #1**  
Job Ticket: 66273      **DST#: 3**  
Test Start: 2019.12.03 @ 06:57:00

**Tool Information**

Drill Pipe:	Length: 3380.00 ft	Diameter: 3.80 inches	Volume: 47.41 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: 43000.00 lb
			<u>Total Volume: 47.41 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 39000.00 lb
Depth to Top Packer:	3392.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	15.00 ft			
Tool Length:	35.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut-In Tool	5.00			3377.00	
Hydraulic tool	5.00			3382.00	
Top Packer	5.00			3387.00	
Packer	5.00			3392.00	20.00      Bottom Of Top Packer
Recorder	1.00	8365	Inside	3393.00	
Recorder	1.00	6755	Outside	3394.00	
Anchor	10.00			3404.00	
Bullnose	3.00			3407.00	15.00      Anchor Tool

**Total Tool Length: 35.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mai Oil Operations Inc

**21-16S-13W Barton,KS**

8411 Preston Rd Suite 800  
Dallas TX 75224+5520

**Nettleingham #1**

Job Ticket: 66273

**DST#: 3**

ATTN: Jim Musgrove

Test Start: 2019.12.03 @ 06:57:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

17000 ppm

Viscosity: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
186.00	MCOW / O 10% M5% W 85%	2.609
372.00	GMCWO / G 10% O 70% M5% W 15%	5.218
362.00	GO / G 10% O 90%	5.078

Total Length: 920.00 ft      Total Volume: 12.905 bbl

Num Fluid Samples: 0

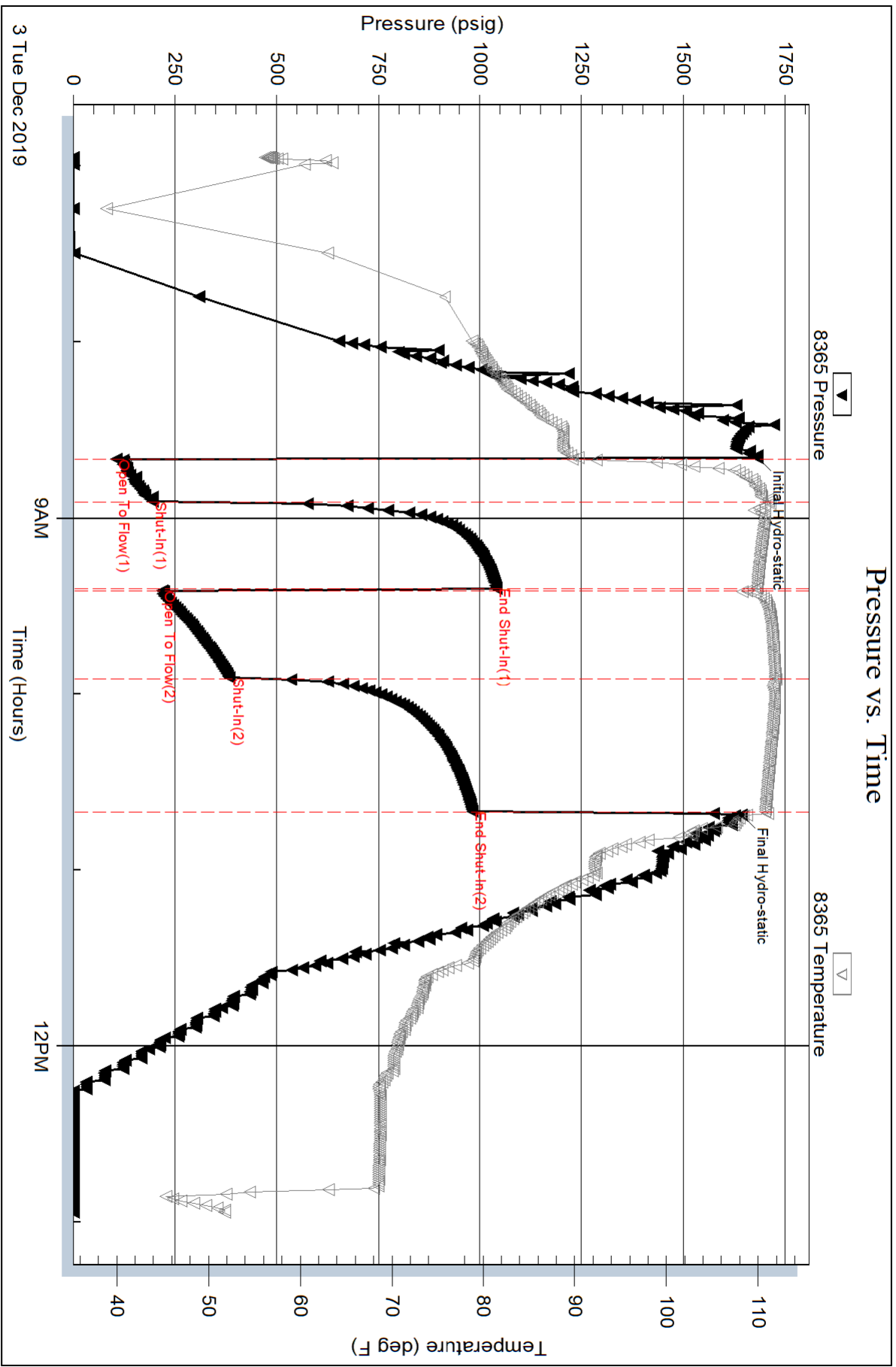
Num Gas Bombs: 0

Serial #:

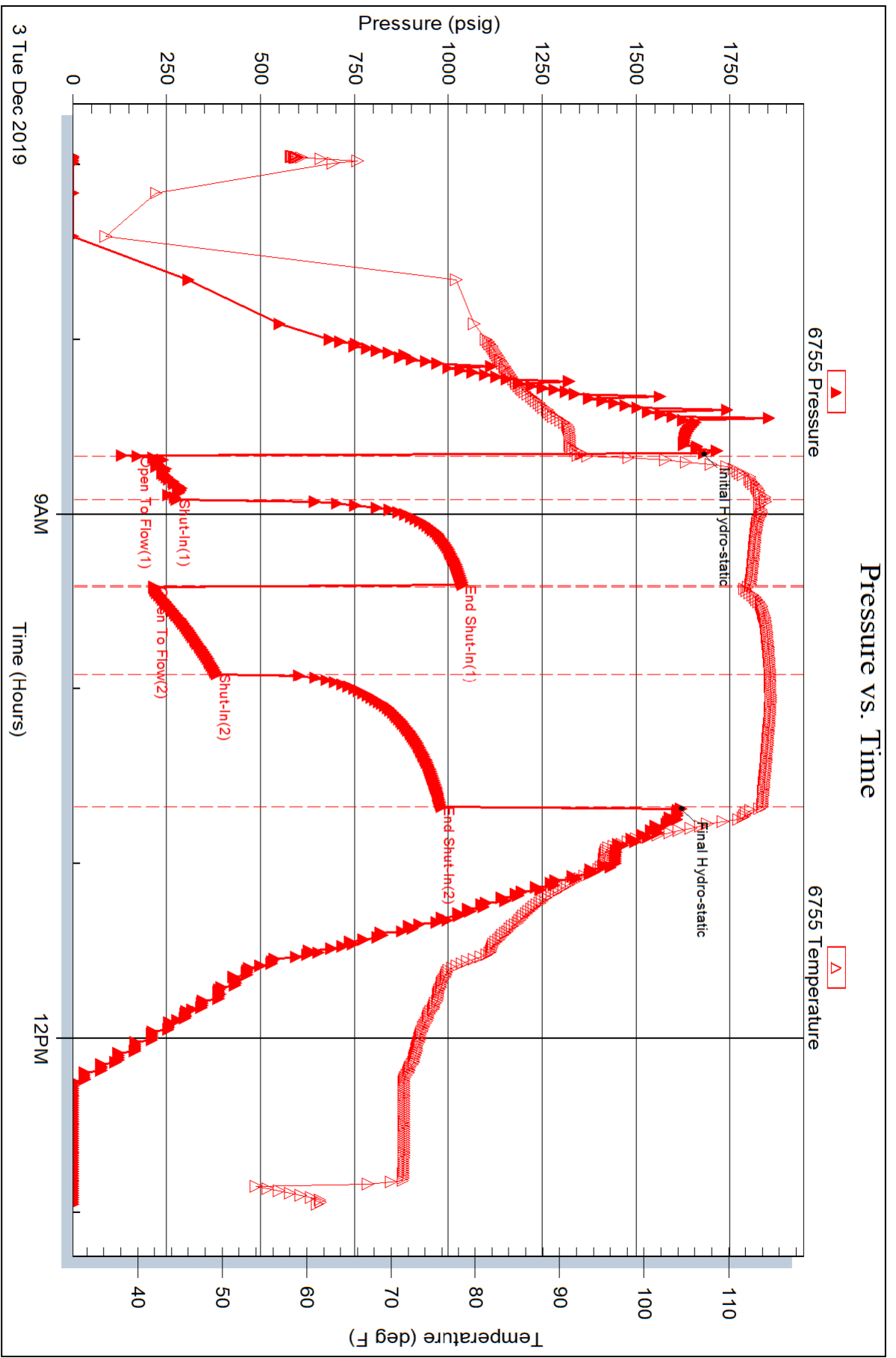
Laboratory Name:

Laboratory Location:

Recovery Comments: Recovery Resistivity .440 ohms @ 59 deg









# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket 66271

NO.

Well Name & No. Nettleingham #1 Test No. 2 Date 1 DEC 19  
 Company Mai Oil Operations Inc Elevation 1947 KB 1938 GL  
 Address 8411 Preston Rd Suite 800 Dallas TX 75225-5320  
 Co. Rep / Geo. Jim Musgrove Rig Southwind Rig 3  
 Location: Sec. 21 Twp 16S Rge. 13W Co. Barton State KS

Interval Tested 3161-3232 Zone Tested Lansing/KC A-E  
 Anchor Length 71 Drill Pipe Run 3161 Mud Wt. 8.7  
 Top Packer Depth 3156 Drill Collars Run - Vis 57  
 Bottom Packer Depth 3161 Wt. Pipe Run - WL 7.6  
 Total Depth 3232 Chlorides 5400 ppm System LCM 1#

Blow Description IF Blow to BOB in 7 minutes / Total build 42 inches  
ISI No blow back

FF 1/4 inch nipple on manifold broke / Strong blow

FSI Surface blow back

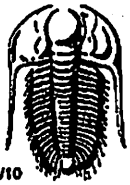
Rec	Feet of	%gas	%oil	%water	%mud
<u>126</u>	<u>6MO emulsified oil</u>	<u>15</u>	<u>55</u>	<u>30</u>	<u></u>
<u>496</u>	<u>6IP</u>	<u>100</u>	<u></u>	<u></u>	<u></u>
<u></u>	<u></u>	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>
<u></u>	<u></u>	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>
<u></u>	<u></u>	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>

Rec Total 126 BHT 97 Gravity  API RW  @  °F Chlorides  ppm

(A) Initial Hydrostatic 1554  Test 1200 T-On Location 6:44 pm  
 (B) First Initial Flow 18  Jars  T-Started 7:42 pm  
 (C) First Final Flow 71  Safety Joint  T-Open 9:35 pm  
 (D) Initial Shut-In 361  Circ Sub  T-Pulled 12:20 am  
 (E) Second Initial Flow 40  Hourly Standby  T-Out 2:07 am  
 (F) Second Final Flow 66  Mileage 42 42 Comments   
 (G) Final Shut-In 445  Sampler   
 (H) Final Hydrostatic 1523  Straddle   EM Tool   
 Shale Packer   Ruined Shale Packer   
 Extra Packer   Ruined Packer   
 Extra Recorder   Extra Copies   
 Day Standby  Sub Total   
 Accessibility  Total   
 Sub Total 1242 MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative [Signature]

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket 66272

NO.

Well Name & No. Nettleingham #2 Test No. 2 Date 2 DEC 19  
 Company Mar. Oil Operations Inc Elevation 1947 KB 1938 GL  
 Address 6411 Preston Rd Suite 800 Dallas TX 75225 + 5500  
 Co. Rep / Geo. Jim Musgrove Rig Southwind Rig 3  
 Location: Sec. 21 Twp 105 Rge. 13W Co. Barton State KS

Interval Tested 3233-3252 Zone Tested Lansing/KC 6  
 Anchor Length 19 Drill Pipe Run 3223 Mud Wt. 9.2  
 Top Packer Depth 3228 Drill Collars Run — Vls 47  
 Bottom Packer Depth 3233 Wt. Pipe Run — WL 7.2  
 Total Depth 3252 Chlorides 5900 ppm System LCM 1#

Blow Description IF Blow to 2 1/2 inch in diesel  
ISE NO blow back  
EF Blow to 2 inch in diesel  
FSE NO blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>MW with skim oil</u>		<u>60</u>	<u>40</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

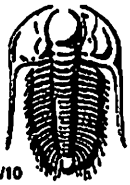
Rec Total 15 BHT 94 Gravity — API RW .348 @ 56° F Chlorides 23000 ppm

(A) Initial Hydrostatic <u>1529</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>7:33 am</u>
(B) First Initial Flow <u>11</u>	<input type="checkbox"/> Jars	T-Started <u>8:53 am</u>
(C) First Final Flow <u>16</u>	<input type="checkbox"/> Safety Joint	T-Open <u>10:11 am</u>
(D) Initial Shut-In <u>606</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>12:11 am</u>
(E) Second Initial Flow <u>18</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1:34 pm</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>42</u>	Comments
(G) Final Shut-In <u>589</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1539</u>	<input type="checkbox"/> Straddle	

Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> EM Tool
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Shale Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Ruined Packer
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Accessibility	Sub Total <u>1242</u>
	Sub Total <u>1242</u>	Total

Approved By \_\_\_\_\_ Our Representative [Signature]

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket 66273

NO.

Well Name & No. Nettingham #1 Test No. 3 Date 3 Dec 19  
 Company Ma: Oil Operations Inc Elevation 1947 KB 1938 GL  
 Address 8411 Preston Rd Suite 800 Dallas TX 75225+5520  
 Co. Rep / Geo. Jim Musgrove Rig Southwind Rig 3  
 Location: Sec. 21 Twp 16S Rge. 13W Co. Barton State MS

Interval Tested 3392-3407 Zone Tested Arbuckle  
 Anchor Length 15 Drill Pipe Run 3380 Mud Wt. 9.15  
 Top Packer Depth 3387 Drill Collars Run - Vis 47  
 Bottom Packer Depth 3392 Wt. Pipe Run - WL 7.2  
 Total Depth 3407 Chlorides 5900 ppm System LCM 14

Blow Description IF Blow to BOB 2 minutes / Total build 58 inches  
ESI 1 inch blow back  
EF Blow to BOB in 2 1/2 minutes / Total build 79 inches  
ESI No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>186</u>	<u>MCOW</u>	<u>10</u>	<u>85</u>	<u>5</u>	
<u>372</u>	<u>GMCWO</u>	<u>10</u>	<u>70</u>	<u>15</u>	<u>5</u>
<u>362</u>	<u>GO</u>	<u>10</u>	<u>90</u>		

Rec Total 920 BHT 111 Gravity 37 API RW 440 @ 59° F Chlorides 17,000 ppm

(A) Initial Hydrostatic <u>1681</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>6:01 am</u>
(B) First Initial Flow <u>105</u>	<input type="checkbox"/> Jars	T-Started <u>6:57 am</u>
(C) First Final Flow <u>194</u>	<input type="checkbox"/> Safety Joint	T-Open <u>8:40 am</u>
(D) Initial Shut-In <u>1041</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>10:40 am</u>
(E) Second Initial Flow <u>218</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>12:57 pm</u>
(F) Second Final Flow <u>384</u>	<input checked="" type="checkbox"/> Mileage <u>42</u>	Comments
(G) Final Shut-In <u>982</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1642</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>15</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1242</u>
	Sub Total <u>1242</u>	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative Ken King

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