

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1351515  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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  SIOW
- Gas  D&A  ENHR  SIGW
- OG  GSW  Temp. Abd.
- 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 ENHR  Conv. to SWD
- Plug Back  Conv. to GSW  Conv. to Producer
- Commingled Permit #: \_\_\_\_\_
- Dual Completion Permit #: \_\_\_\_\_
- SWD Permit #: \_\_\_\_\_
- ENHR Permit #: \_\_\_\_\_
- GSW Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

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
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1351515

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 <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Electric Log Run	<input type="checkbox"/> Yes <input type="checkbox"/> No			
List All E. Logs Run:				

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				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:      Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR. \_\_\_\_\_ Producing Method:  
 Flowing    Pumping    Gas Lift    Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
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<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Mai Oil Operations, Inc.
Well Name	TIEPERMAN 1
Doc ID	1351515

Tops

Name	Top	Datum
Anhydrite	666	+1201
Heebner	3124	-1257
Toronto	3141	-1271
Douglas	3155	-1288
Brown Lime	3253	-1386
Lansing	3268	-1401
BAsE Kansas City	3490	-1623
Viola	3502	-1635
Arbuckle	3598	-1731





**JAMES C. MUSGROVE**

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

Office (620) 588-4250

Res. Claflin (620) 587-3444

Mai Oil Operations  
Tieperman #1  
NE-SE-SW-SW (393' FNL & 1113' FWL)  
Section 29-21s-12w  
Stafford County, Kansas

Page 1

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

- Contractor:** Southwind Drilling Co. (rig #3)
- Commenced:** November 22, 2016
- Completed:** December 2, 2016
- Elevation:** 1867' K.B., 1865' D.F., 1859' G.L.
- Casing program:** Surface; 8 5/8" @ 647'  
Production, 5 1/2" @ 3700'
- 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 four (4) Drill Stem Tests ran by Trilobite Testing Co.
- Electric Log:** By Eli Wireline Services, Dual Induction, Compensated Density/Neutron Log and Micro Log

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	666	+1201
Base Anhydrite	687	+1180
Heebner	3124	-1257
Toronto	3141	-1271
Douglas	3155	-1288
Brown Lime	3253	-1386
Lansing	3268	-1401
Base Kansas City	3490	-1623
Viola	3502	-1635
Simpson Shale	3548	-1681
Arbuckle	3598	-1731
Rotary Total Depth	3710	-1843
Log Total Depth	3710	-1843

(All tops and zones corrected to Electric Log Measurement)

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

**TORONTO SECTION**

3141-3150' Limestone, tan, white, finely crystalline, few fossiliferous, chalky, plus white chalk, no shows.

**LANSING SECTION**

- 3268-3280' Limestone, gray, fossiliferous, chalky, poor visible porosity, gray, black stain, no show of free oil and fair odor in fresh samples.
- 3285-3298' Limestone, white, gray, oolitic, poorly developed porosity, gray, black to brown stain, no show of free oil and faint odor in fresh samples.
- 3305-3312' Limestone, gray, white, finely crystalline, oolitic/fossiliferous, scattered porosity, brown to gray stain and saturation; no show of free oil and faint odor in fresh samples.
- 3324-3328' Limestone, gray, fossiliferous, poor porosity, chalky in part, brown to golden brown stain, no show of free oil and no odor in fresh samples.
- 3334-3338' Limestone, gray, oolitic/fossiliferous, increase in porosity, brown stain, weak show of free oil.
- 3346-3350' Limestone, gray, tan, fossiliferous, oolitic, oomoldic, poor to fair oomoldic porosity, brown stain, trace of free oil and faint odor in fresh samples.
- 3356-3370' Limestone, gray, sub-oomoldic, poorly developed porosity, trace poor black stain, no show of free oil and no odor in fresh samples.
- 3391-3397' Limestone, cream, white, oolitic, fair porosity, fair light brown/golden brown stain and saturation, trace of free oil and faint odor in fresh samples.
- 3406-3416' Limestone, gray, white, oolitic/fossiliferous, fair porosity, brown to black stain, weak show of free oil and faint to fair odor in fresh samples.
- 3427-3432' Limestone, white, gray, finely crystalline, chalky, few fossiliferous, black stain and saturation, no show of free oil and faint odor.
- 3453-3460' Limestone, gray, white, fossiliferous, chalky, black stain, no show of free oil or odor in fresh samples

**Drill Stem Test #1**

**3378-3470**

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

**Blow: Strong; Gas to surface (31 mins)**

**Gas gauged as follows:**

<b>Final Flow</b>	<b>gas to surface immediately</b>
<b>10' mins</b>	<b>70,440 cfgpd</b>
<b>20' mins</b>	<b>70,440 cfgpd</b>
<b>30' mins</b>	<b>86,300 cfgpd</b>
<b>40' mins</b>	<b>98,990 cfgpd</b>



**Recovery:** 3279' gas in pipe  
90' very slightly oil cut mud  
(2% oil; 98% mud)  
**Pressures:** ISIP 1025 psi  
FSIP 1018 psi  
IFP 40-104 psi  
FFP 47-94 psi  
HSH 1737-1641 psi

3465-3480' Limestone, white, gray, oolitic, chalky; poor visible porosity, trace black stain, no show of free oil and no odor in fresh samples.

**VIOLA SECTION**

3502-3520' Chert, white, gray, opaque, few semi-tripolitic, brown and gray and black stain, no show of free oil and faint odor in fresh samples.

3520-3548' Chert, as above; plus grains, opaque cherts, no shows.

**ARBUCKLE SECTION**

3598-3601' Dolomite, white, pink, tan, finely crystalline, sucrosic in part; dense

3601-3610' Dolomite, tan, sucrosic, fair pinpoint porosity, good stain and saturation, good show of free oil and good odor in fresh samples.

**Drill Stem Test #2 3540-3610**

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

**Blow:** Weak-fair

**Recovery:** 200' gas in pipe  
50' oil cut mud  
(10% oil; 90% mud)

**Pressures:** ISIP 669 psi  
FSIP 1036 psi  
IFP 16-21 psi  
FFP 21-36 psi  
HSH 1809-1693 psi

3611-3619' Dolomite, gray, with, fine and medium crystalline, fair inter-crystalline porosity, fair stain and saturation, show of free oil and good odor in fresh samples.

**Drill Stem Test #3** **3609-3621**

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

**Blow:** Strong

**Recovery:** 208' gas in the pipe  
40' oil and gas  
(10% gas; 20% oil; 70% mud)  
806' gassy oil  
62' oil cut water  
(10% oil; 90 % water)  
310' water

**Pressures:** ISIP 1256 psi  
FSIP 1255 psi  
IFP 29-236 psi  
FFP 236-467 psi  
HSH 1878-1706 psi

3620-3630' Dolomite, gray, white, medium crystalline, scattered porosity, brown stain, show of free oil and faint odor in fresh samples.

3630-3650' Dolomite, as above, light brown stain, show of free oil and faint odor in fresh samples.

**Drill Stem Test #4** **3645-3660**

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

**Blow:** Strong

**Recovery:** 124' mud cut water  
(76% water; 24% mud)  
1736' water

**Pressures:** ISIP 1268 psi  
FSIP 1264 psi  
IFP 118-472 psi  
FFP 456-966 psi  
HSH 1809-1769 psi

3650-3660' Dolomite, gray, tan, medium crystalline, scattered inter-crystalline to vuggy type porosity, fair brown stain; show of free oil and good odor in fresh samples.

3660-3670' Dolomite, tan, finely crystalline, slightly cherty, poor visible porosity plus white/opaque chert.

3670-3680' Dolomite, gray, white, finely crystalline, few sucrosic, few medium crystalline, fair porosity, trace gray and brown stain, no show of free oil; plus abundant white chalk.

Mai Oil Operations  
Tieperman #1  
NE-SE-SW-SW (393' FNL & 1113' FWL)  
Section 29-21s-12w  
Stafford County, Kansas

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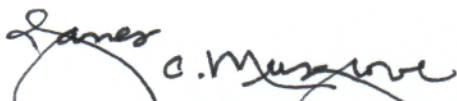
3683-3690'	Dolomite, tan, gray, oomoldic; fair oomoldic and vuggy porosity, brown and light brown stain; show of free oil and fair odor in fresh samples.
3690-3710'	Dolomite, gray, tan, medium crystalline, few coarse crystalline, fair inter-crystalline porosity, black, gray and brown stain, show of free oil and faint odor in fresh samples.

<b>Rotary Total Depth</b>	<b>3710 (-1843)</b>
<b>Log Total Depth</b>	<b>3710 (-1843)</b>

**Recommendations:**

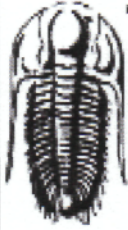
The 5 1/2" production casing was set and cemented on Mai Oil Operations Inc., Tieperman #1.

Respectfully yours,

  
James C. Musgrove  
Petroleum Geologist







**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Mai Oil Operations  
 8411 Preston Rd Ste 800  
 Dallas, TX 75225  
 ATTN: Jim Musgrove

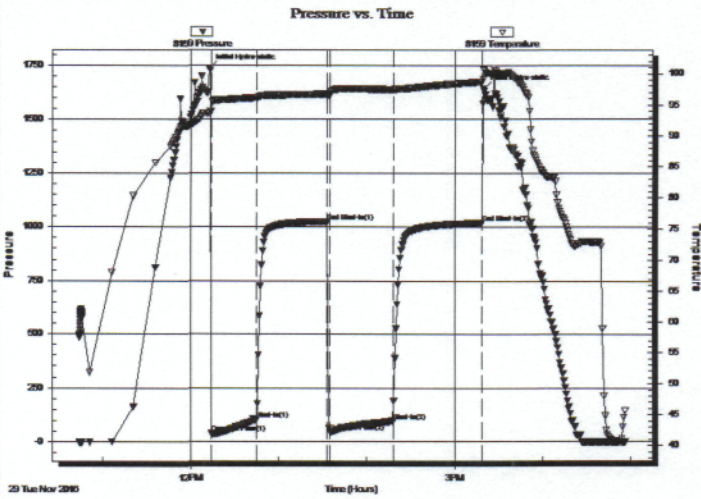
**29-21S-12W Stafford,KS**  
**Tieperman #1**  
 Job Ticket: 57974 **DST#: 1**  
 Test Start: 2016.11.29 @ 10:44:17

**GENERAL INFORMATION:**

Formation: **LKC H-K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:14:02  
 Time Test Ended: 16:56:32  
 Interval: **3378.00 ft (KB) To 3470.00 ft (KB) (TVD)**  
 Total Depth: 3470.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Leal Cason  
 Unit No: 74  
 Reference Elevations: 1867.00 ft (KB)  
 1859.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8159** Inside  
 Press@RunDepth: 94.27 psig @ 3379.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.11.29 End Date: 2016.11.29 Last Calib.: 2016.11.29  
 Start Time: 10:44:18 End Time: 16:56:32 Time On Btm: 2016.11.29 @ 12:12:32  
 Time Off Btm: 2016.11.29 @ 15:19:47

**TEST COMMENT:** IF: Strong Blow , BOB in 20 seconds  
 IS: No Blow Back, GTS During Bleed Off  
 FF: Strong Blow , BOB & GTS Immeddiate, Gauged Gas  
 FS: No Blow Back



**PRESSURE SUMMARY**

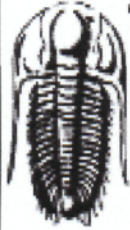
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1736.61	93.72	Initial Hydro-static
2	39.55	93.94	Open To Flow (1)
33	103.77	96.16	Shut-In(1)
81	1025.15	96.75	End Shut-In(1)
83	47.52	96.58	Open To Flow (2)
126	94.27	97.44	Shut-In(2)
187	1018.08	98.70	End Shut-In(2)
188	1641.56	100.69	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
0.00	GTS	0.00
90.00	SOCM 2%O 98%M	1.26

**Gas Rates**

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	30.00	70.44
Last Gas Rate	0.25	50.00	102.16
Max. Gas Rate	0.25	50.00	102.16



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 57974 **DST#: 1**  
Test Start: 2016.11.29 @ 10:44:17

**Tool Information**

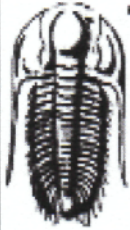
Drill Pipe:	Length: 3369.00 ft	Diameter: 3.80 inches	Volume: 47.26 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 47.26 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	3378.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	92.00 ft			
Tool Length:	111.00 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			3364.00	
Hydraulic tool	5.00			3369.00	
Packer	5.00			3374.00	19.00 Bottom Of Top Packer
Packer	4.00			3378.00	
Stubb	1.00			3379.00	
Recorder	0.00	8159	Inside	3379.00	
Recorder	0.00	6806	Outside	3379.00	
Perforations	7.00			3386.00	
Change Over Sub	1.00			3387.00	
Drill Pipe	63.00			3450.00	
Change Over Sub	2.00			3452.00	
Perforations	15.00			3467.00	
Bullnose	3.00			3470.00	92.00 Bottom Packers & Anchor

**Total Tool Length: 111.00**





**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 57974      **DST#: 1**  
Test Start: 2016.11.29 @ 10:44:17

**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: 69.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3700.00 ppm			
Filter Cake: 0.02 inches			

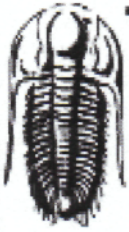
**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
0.00	GTS	0.000
90.00	SOCM 2%O 98%M	1.262

Total Length: 90.00 ft      Total Volume: 1.262 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**GAS RATES**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 57974      **DST#: 1**  
Test Start: 2016.11.29 @ 10:44:17

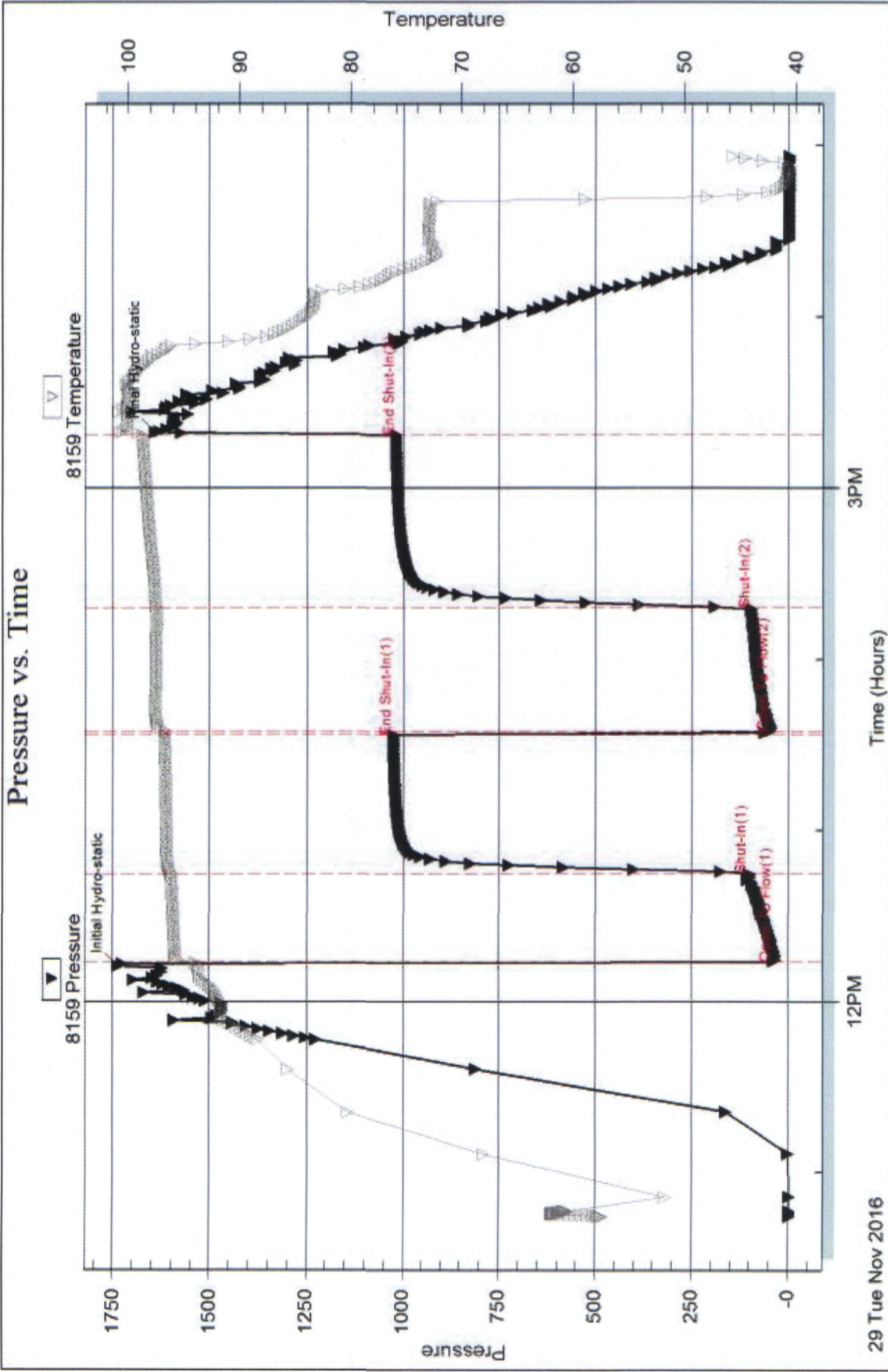
## Gas Rates Information

Temperature: 59 (deg F)  
Relative Density: 0.65  
Z Factor: 0.8

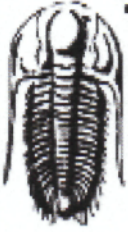
Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
2	10	0.25	30.00	70.44
2	20	0.25	40.00	86.30
2	30	0.25	48.00	98.99
2	40	0.25	50.00	102.16

### Pressure vs. Time







**TRILOBITE TESTING, INC**

**DRILL STEM TEST REPORT**

Mai Oil Operations  
 8411 Preston Rd Ste 800  
 Dallas, TX 75225  
 ATTN: Jim Musgrove

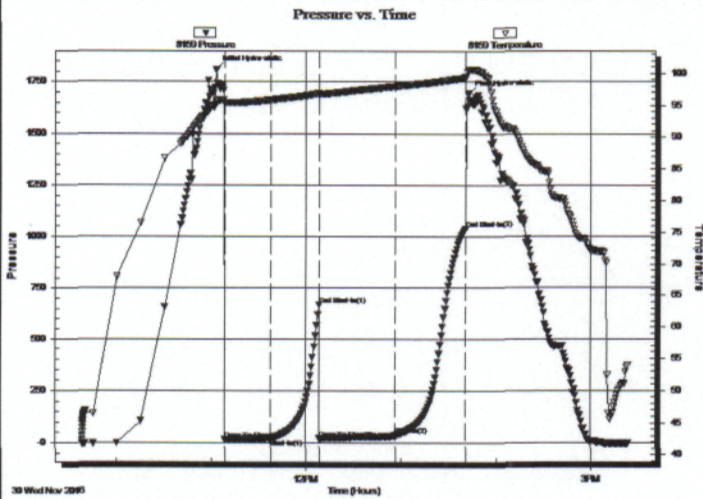
**29-21S-12W Stafford,KS**  
**Tieperman #1**  
 Job Ticket: 57975 **DST#: 2**  
 Test Start: 2016.11.30 @ 09:38:46

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 11:08:46  
 Time Test Ended: 15:23:31  
 Interval: **3540.00 ft (KB) To 3610.00 ft (KB) (TVD)**  
 Total Depth: 3610.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Leal Cason  
 Unit No: 74  
 Reference Elevations: 1867.00 ft (KB)  
 1859.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8159** **Inside**  
 Press@RunDepth: 36.17 psig @ 3541.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.11.30 End Date: 2016.11.30 Last Calib.: 2016.11.30  
 Start Time: 09:38:47 End Time: 15:23:31 Time On Btm: 2016.11.30 @ 11:03:31  
 Time Off Btm: 2016.11.30 @ 13:42:31

TEST COMMENT: IF: Weak Blow Built to 2"  
 IS: No Blow Back  
 FF: Weak Blow , Built to 3 1/2"  
 FS: No Blow Back



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1808.72	95.29	Initial Hydro-static
6	16.47	95.21	Open To Flow (1)
35	21.29	95.83	Shut-In(1)
65	668.87	96.86	End Shut-In(1)
65	21.11	96.68	Open To Flow (2)
113	36.17	98.00	Shut-In(2)
158	1036.48	99.30	End Shut-In(2)
159	1692.74	100.56	Final Hydro-static

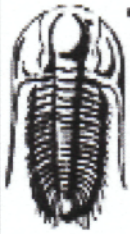
**Recovery**

Length (ft)	Description	Volume (bbl)
0.00	200 GIP	0.00
50.00	OCM 10%O 90%M	0.70

\* Recovery from multiple tests

**Gas Rates**

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



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 57975 **DST#: 2**  
Test Start: 2016.11.30 @ 09:38:46

**Tool Information**

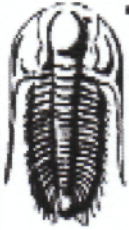
Drill Pipe:	Length: 3525.00 ft	Diameter: 3.80 inches	Volume: 49.45 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 49.45 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	3540.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	70.00 ft			
Tool Length:	89.00 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			3526.00	
Hydraulic tool	5.00			3531.00	
Packer	5.00			3536.00	19.00 Bottom Of Top Packer
Packer	4.00			3540.00	
Stubb	1.00			3541.00	
Recorder	0.00	8159	Inside	3541.00	
Recorder	0.00	6806	Outside	3541.00	
Perforations	7.00			3548.00	
Change Over Sub	1.00			3549.00	
Drill Pipe	32.00			3581.00	
Change Over Sub	2.00			3583.00	
Perforations	24.00			3607.00	
Bullnose	3.00			3610.00	70.00 Bottom Packers & Anchor

**Total Tool Length: 89.00**





**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 57975      **DST#: 2**  
Test Start: 2016.11.30 @ 09:38:46

**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: 69.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.98 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3700.00 ppm			
Filter Cake: 0.02 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
0.00	200 GIP	0.000
50.00	OCM 10%O 90%M	0.701

Total Length: 50.00 ft      Total Volume: 0.701 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

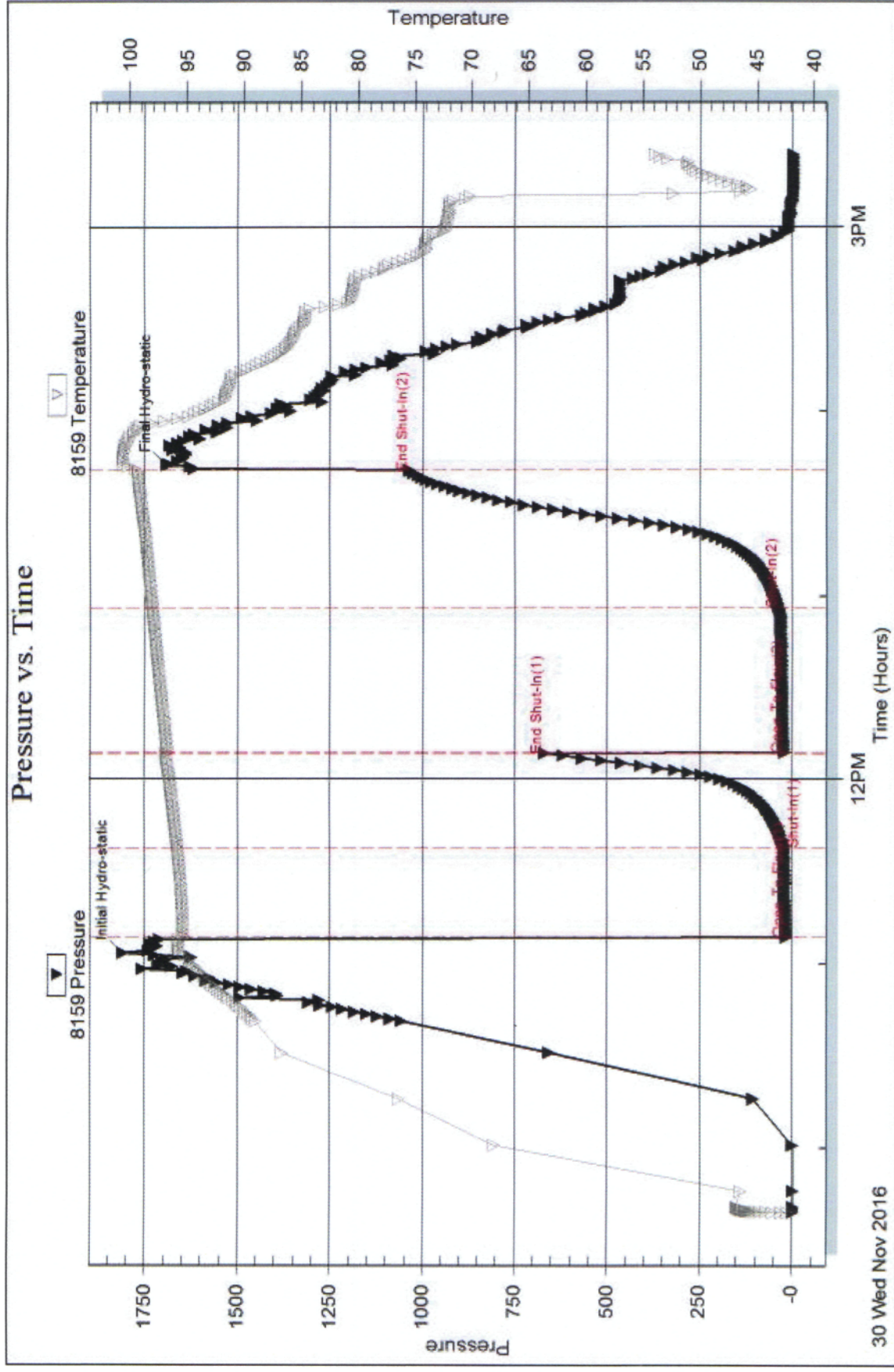
Serial #: 8159

Inside

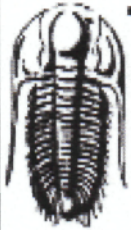
Mai Oil Operations

Tieperman #1

DST Test Number: 2







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

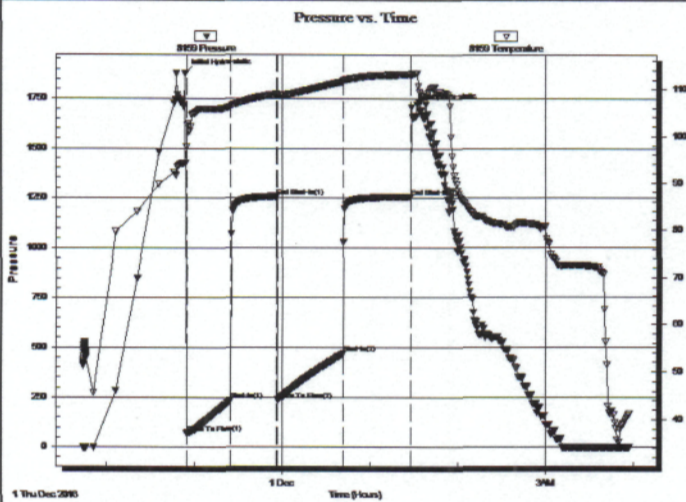
**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 63551      **DST#: 3**  
Test Start: 2016.11.30 @ 21:43:58

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 22:54:43      Tester: Leal Cason  
Time Test Ended: 03:56:58      Unit No: 74  
**Interval: 3609.00 ft (KB) To 3621.00 ft (KB) (TVD)**      Reference Elevations: 1867.00 ft (KB)  
Total Depth: 3621.00 ft (KB) (TVD)      1859.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Good      KB to GR/CF: 8.00 ft

**Serial #: 8159      Inside**  
Press@RunDepth: 467.35 psig @ 3610.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2016.11.30      End Date: 2016.12.01      Last Calib.: 2016.12.01  
Start Time: 21:43:59      End Time: 03:56:58      Time On Btm: 2016.11.30 @ 22:53:58  
Time Off Btm: 2016.12.01 @ 01:28:28

**TEST COMMENT:** IF: Strong Blow , BOB in 90 seconds  
IS: Weak Surface Blow Back  
FF: Strong Blow , BOBin 3 minutes  
FS: 1" Blow Back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1878.72	94.29	Initial Hydro-static
1	69.59	97.73	Open To Flow (1)
31	236.61	106.21	Shut-In(1)
63	1256.19	108.94	End Shut-In(1)
63	236.99	108.62	Open To Flow (2)
108	467.35	111.61	Shut-In(2)
154	1255.44	113.08	End Shut-In(2)
155	1706.70	113.24	Final Hydro-static

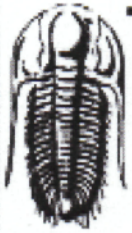
## Recovery

Length (ft)	Description	Volume (bbl)
0.00	208 GIP	0.00
310.00	Water	4.35
62.00	OCW 10%O 90%W	0.87
806.00	GSY Oil 20%G 80%O	11.31
40.00	GOCM 10%G 20%O 70%M	0.56

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 63551 **DST#: 3**  
Test Start: 2016.11.30 @ 21:43:58

**Tool Information**

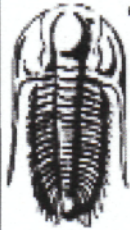
Drill Pipe: Length: 3618.00 ft	Diameter: 3.80 inches	Volume: 50.75 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe: Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar: Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
	Total Volume: 50.75 bbl		Tool Chased ft
Drill Pipe Above KB: 28.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer: 3609.00 ft			Final 44000.00 lb
Depth to Bottom Packer: ft			
Interval between Packers: 12.00 ft			
Tool Length: 31.00 ft			
Number of Packers: 2	Diameter: 6.75 inches		

Tool Comments:

**Tool Description**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3595.00	
Hydraulic tool	5.00			3600.00	
Packer	5.00			3605.00	19.00 Bottom Of Top Packer
Packer	4.00			3609.00	
Stubb	1.00			3610.00	
Recorder	0.00	8159	Inside	3610.00	
Recorder	0.00	6806	Outside	3610.00	
Perforations	8.00			3618.00	
Bullnose	3.00			3621.00	12.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>31.00</b>				





**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 63551 **DST#: 3**  
Test Start: 2016.11.30 @ 21:43:58

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API: 39.8 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 27000 ppm
Viscosity: 69.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.98 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 3700.00 ppm		
Filter Cake: 0.02 inches		

**Recovery Information**

Recovery Table

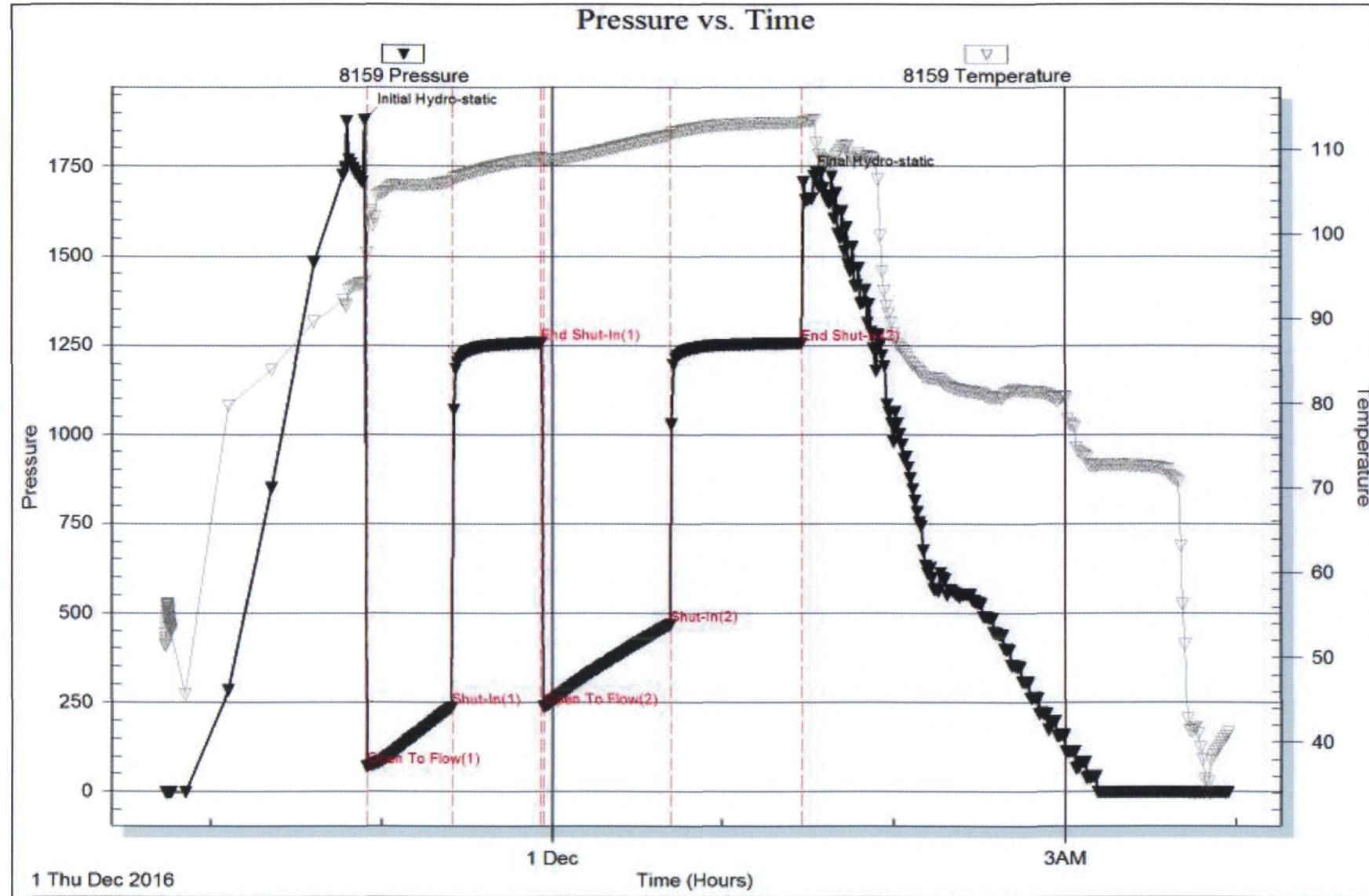
Length ft	Description	Volume bbl
0.00	208 GIP	0.000
310.00	Water	4.348
62.00	OCW 10%O 90%W	0.870
806.00	GSY Oil 20%G 80%O	11.306
40.00	GOCM 10%G 20%O 70%M	0.561

Total Length: 1218.00 ft      Total Volume: 17.085 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: Gravity w as 39 @ 32 degrees  
RW w as .45 @ 40 degrees







**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations  
 8411 Preston Rd Ste 800  
 Dallas, TX 75225  
 ATTN: Jim Musgrove

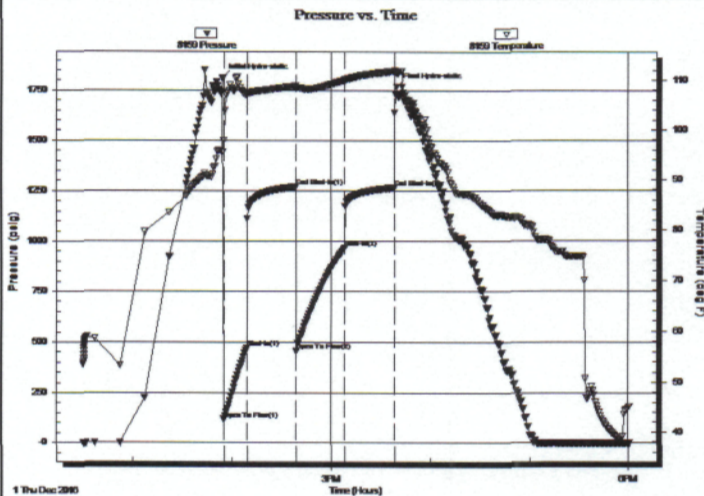
**29-21S-12W Stafford,KS**  
**Tieperman #1**  
 Job Ticket: 63552 **DST#: 4**  
 Test Start: 2016.12.01 @ 12:30:28

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 13:55:13  
 Time Test Ended: 18:00:58  
 Interval: **3645.00 ft (KB) To 3660.00 ft (KB) (TVD)**  
 Total Depth: 3660.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Leal Cason  
 Unit No: 74  
 Reference Elevations: 1867.00 ft (KB)  
 1859.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8159** **Inside**  
 Press@RunDepth: 965.76 psig @ 3646.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.12.01 End Date: 2016.12.01 Last Calib.: 2016.12.01  
 Start Time: 12:30:29 End Time: 18:00:58 Time On Btm: 2016.12.01 @ 13:54:28  
 Time Off Btm: 2016.12.01 @ 15:39:43

**TEST COMMENT:** IF: Strong Blow, BOB in 1 minute  
 IS: No Blow Back  
 FF: Strong Blow, BOB in 1 minute  
 FS: No Blow Back



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1809.96	95.53	Initial Hydro-static
1	117.84	97.92	Open To Flow (1)
15	472.49	106.98	Shut-In(1)
45	1267.82	108.79	End Shut-In(1)
45	456.35	108.31	Open To Flow (2)
74	965.76	109.98	Shut-In(2)
104	1263.62	111.75	End Shut-In(2)
106	1769.17	111.47	Final Hydro-static

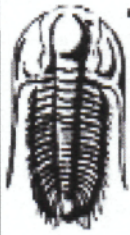
**Recovery**

Length (ft)	Description	Volume (bbl)
1736.00	Water	24.35
124.00	MCW 24%M 76%W	1.74

\* Recovery from multiple tests

**Gas Rates**

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



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 63552 **DST#: 4**  
Test Start: 2016.12.01 @ 12:30:28

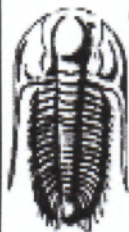
**Tool Information**

Drill Pipe:	Length: 3651.00 ft	Diameter: 3.80 inches	Volume: 51.21 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 51.21 bbl</u>	Tool Chased: ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	3645.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	15.00 ft			
Tool Length:	34.00 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			3631.00	
Hydraulic tool	5.00			3636.00	
Packer	5.00			3641.00	19.00 Bottom Of Top Packer
Packer	4.00			3645.00	
Stubb	1.00			3646.00	
Recorder	0.00	8159	Inside	3646.00	
Recorder	0.00	6806	Outside	3646.00	
Perforations	11.00			3657.00	
Bullnose	3.00			3660.00	15.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>34.00</b>				





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mai Oil Operations  
8411 Preston Rd Ste 800  
Dallas, TX 75225  
ATTN: Jim Musgrove

**29-21S-12W Stafford,KS**  
**Tieperman #1**  
Job Ticket: 63552      **DST#: 4**  
Test Start: 2016.12.01 @ 12:30:28

### Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 69.00 sec/qt  
Water Loss: 7.98 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 3700.00 ppm  
Filter Cake: 0.02 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: 30000 ppm

### Recovery Information

Recovery Table

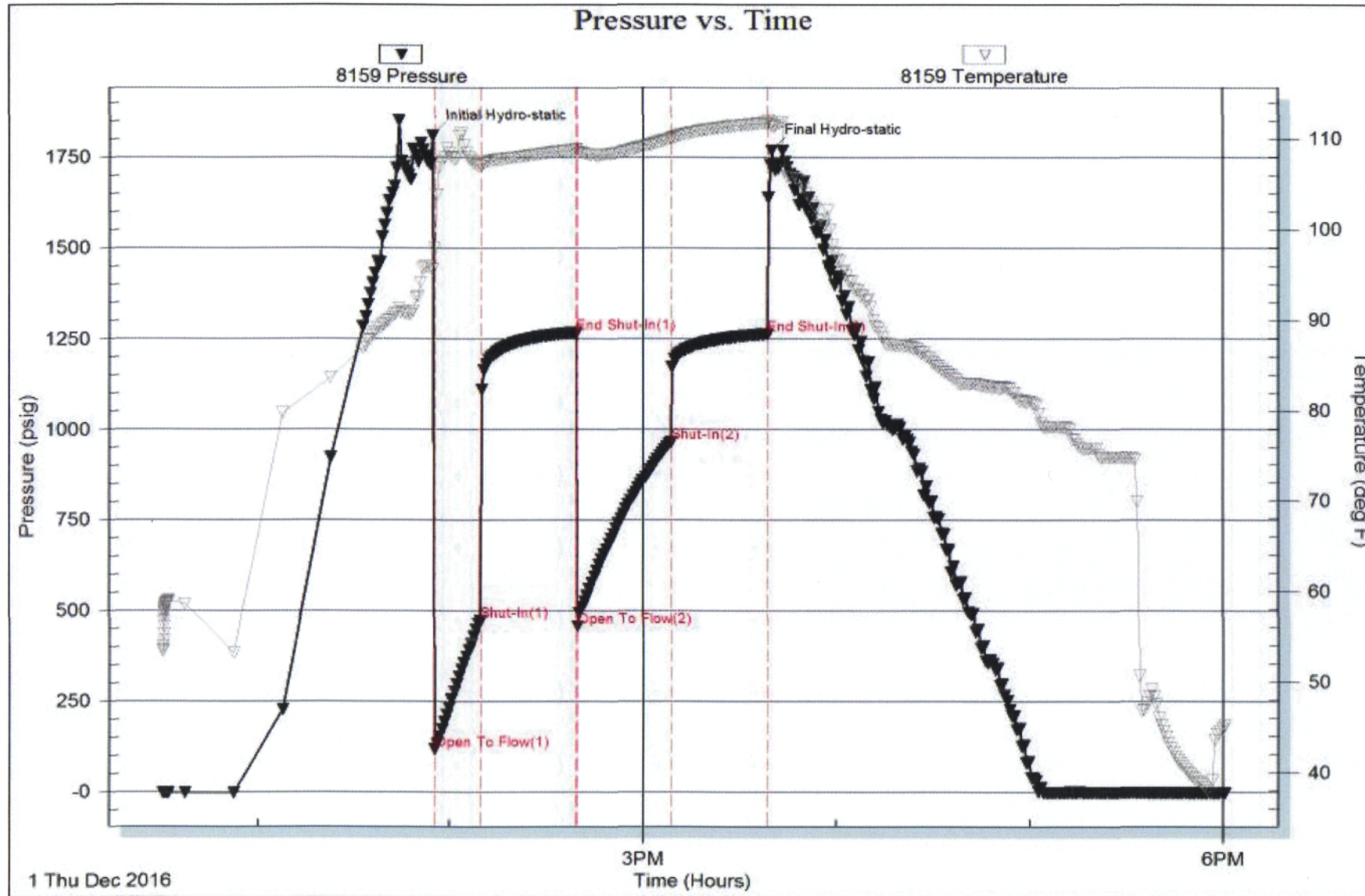
Length ft	Description	Volume bbl
1736.00	Water	24.352
124.00	MCW 24%M 76%W	1.739

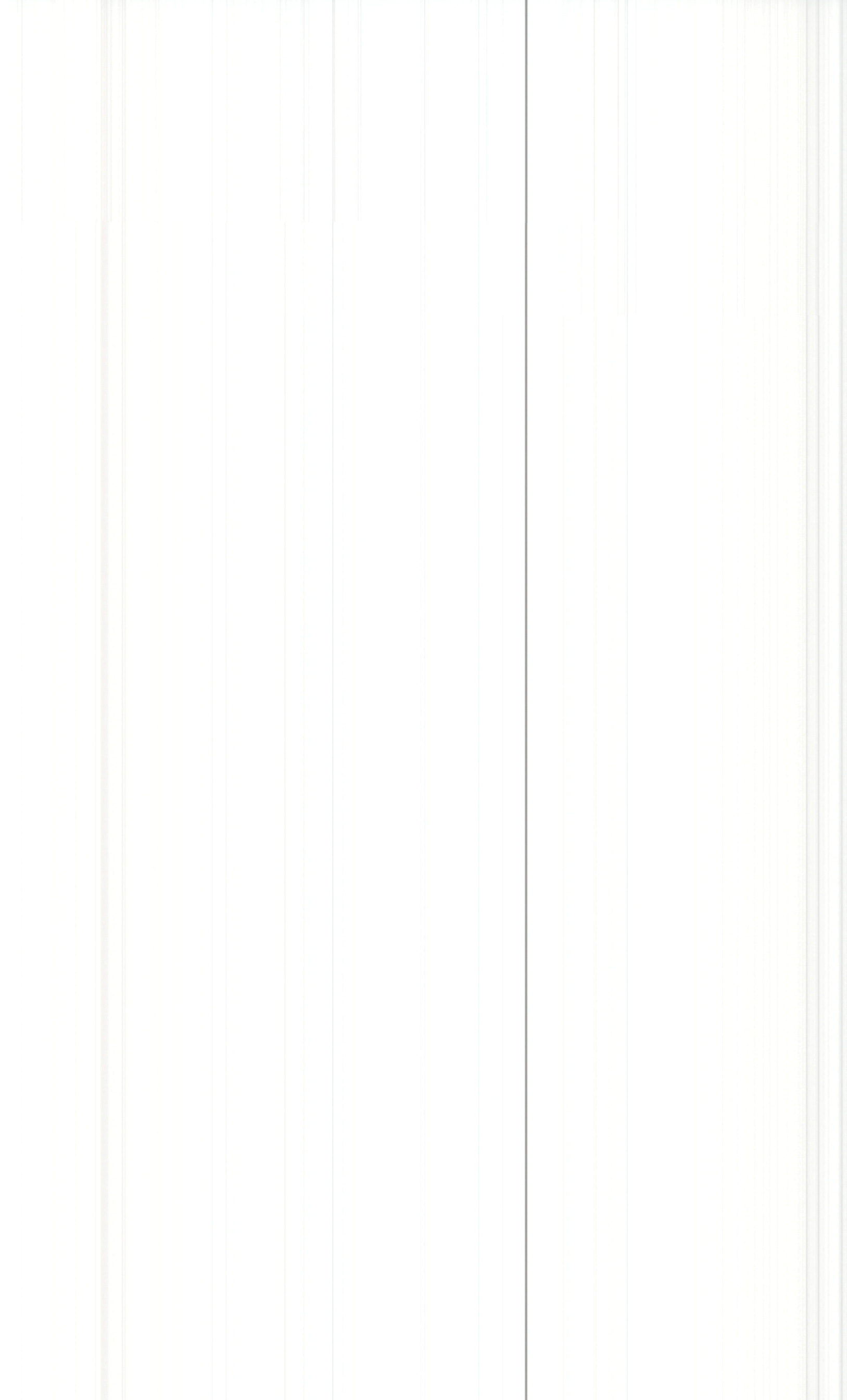
Total Length: 1860.00 ft      Total Volume: 26.091 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: RW was .31 @ 53 degrees







# 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. 3038

Date	11-22-16	Sec.	29	Twp.	21	Range	12	County	Stafford	State	Ks	On Location		Finish	9:15 PM
------	----------	------	----	------	----	-------	----	--------	----------	-------	----	-------------	--	--------	---------

Lease		Tieperman		Well No.	1	Owner	
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	
Hole Size		12 1/4"		T.D.	657'	Main oil operations	
Csg.		8 5/8"		Depth	657'	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	
Meas Line				Displace	40 3/4 BCS	1/2# Flo-seal	

**EQUIPMENT**

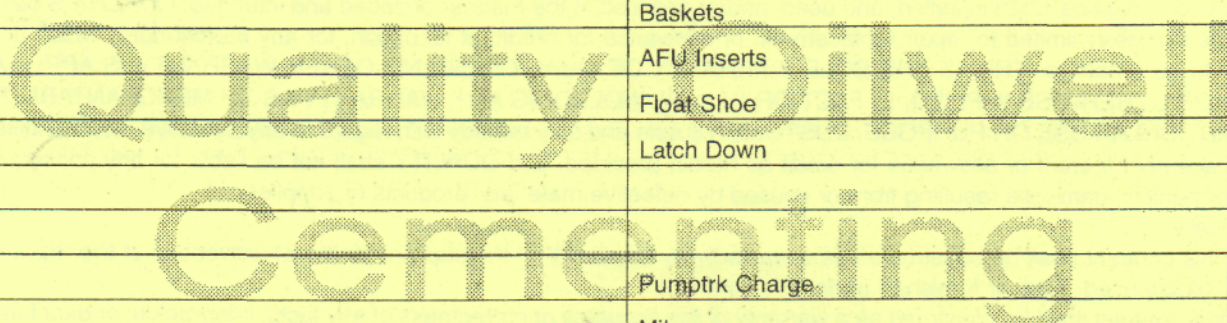
Pumptrk	18	No.	Cementer	Nick		Common
			Helper			
Bulktrk	19	No.	Driver	Downy		Poz. Mix
			Driver			Gel.
Bulktrk	P.U.	No.	Driver	Rick		Calcium
			Driver			

**JOB SERVICES & REMARKS**

Remarks:	Cement did Circulate	Hulls
Rat Hole		Salt
Mouse Hole		Flowseal
Centralizers		Kol-Seal
Baskets		Mud CLR 48
D/V or Port Collar		CFL-117 or CD110 CAF 38
		Sand
		Handling
		Mileage

**FLOAT EQUIPMENT**

Guide Shoe	Rubber plug
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	



Pumptrk Charge		Tax	
Mileage		Discount	
		Total Charge	

X Signature *Jay [unclear]*



# 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. 3040

Date	12-2-16	Sec.	29	Twp.	21	Range	12	County	Stafford	State	Ks	On Location		Finish	3:30 PM
------	---------	------	----	------	----	-------	----	--------	----------	-------	----	-------------	--	--------	---------

Location Darlington - 12 1/2 S E 1/4

Lease	<u>Tieperman</u>	Well No.	<u>#1</u>	Owner	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.
Contractor	<u>Southwind</u>	#	<u>3</u>	Charge To	<u>Main oil operations</u>
Type Job	<u>Production</u>	T.D.	<u>3710'</u>	Street	
Hole Size	<u>7 7/8"</u>	Depth	<u>3705'</u>	City	State
Csg.	<u>5 1/2" 14# used</u>	Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Tbg. Size		Depth		Cement Amount Ordered	<u>160 60/40 10% Sol 2% Gels</u>
Tool		Depth		Meas Line	<u>Displace 89 1/2 BLS 1000 gal Mud Clear 48</u>
Cement Left in Csg.	<u>30.36'</u>	Shoe Joint	<u>30.36'</u>	EQUIPMENT	

Pumptrk	No.	Cementer		Hulls
		Helper	<u>Rick</u>	
	No.	Driver	<u>Stan</u>	
		Driver	<u>Shane</u>	
Bulktrk	No.	Driver		Salt
		Driver		
Bulktrk	No.	Driver		Flowseal
		Driver		

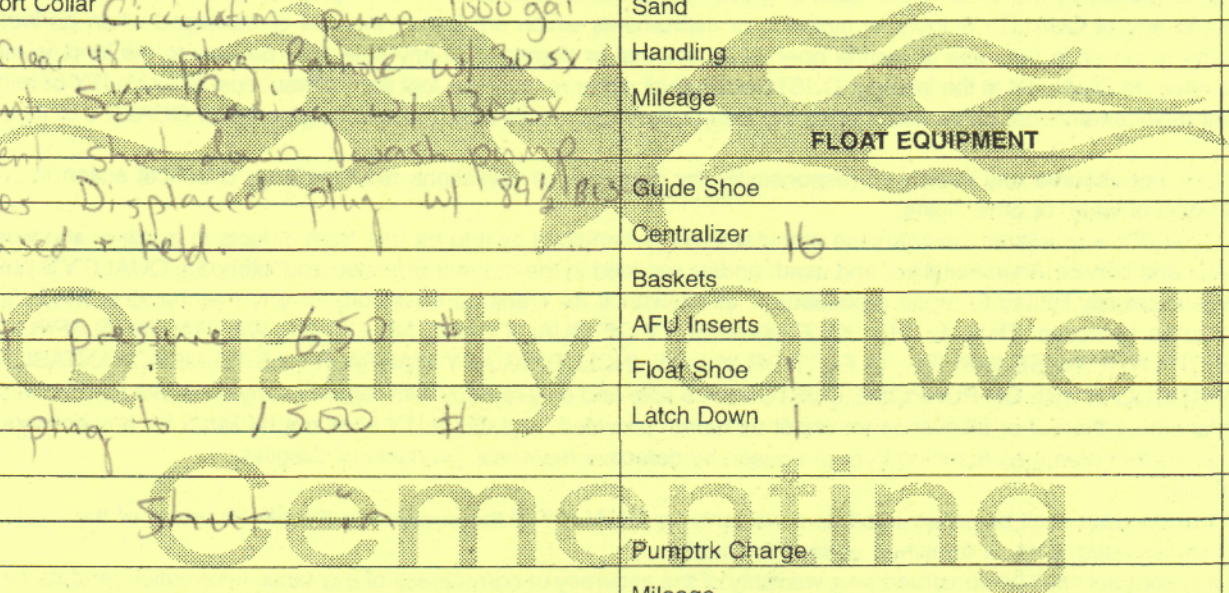
JOB SERVICES & REMARKS				Mud CLR 48
Remarks:				
Rat Hole				CFL-117 or CD110 CAF 38
Mouse Hole				Sand
Centralizers	<u>1-16</u>			Handling
Baskets	<u>1-16</u>			Mileage
D/V or Port Collar				FLOAT EQUIPMENT

pipe on button break  
Circulation pump 1000 gal  
mud clear 48 plug hole w/ 30 sy  
Cement 5 1/2 casing w/ 130 sy  
Cement shut down wash pump  
+ lines displaced plug w/ 89 1/2 BLS  
Released + held.

Lif + pressure	<u>650 #</u>	Guide Shoe	
Land plug to	<u>1500 #</u>	Centralizer	<u>16</u>
		Baskets	
		AFU Inserts	
		Float Shoe	<u>1</u>
		Latch Down	<u>1</u>

Shut in		Pumptrk Charge	
		Mileage	
		Tax	
		Discount	
		Total Charge	

X Signature Bill Horner





Conservation Division  
266 N. Main St., Ste. 220  
Wichita, KS 67202-1513



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Pat Apple, Chairman  
Shari Feist Albrecht, Commissioner  
Jay Scott Emler, Commissioner

Sam Brownback, Governor

April 13, 2017

Allen Bangert  
Mai Oil Operations, Inc.  
8411 PRESTON RD STE 800  
DALLAS, TX 75225-5520

Re: ACO-1  
API 15-185-23973-00-00  
TIEPERMAN 1  
SW/4 Sec.29-21S-12W  
Stafford County, Kansas

Dear Allen Bangert:

K.A.R. 82-3-107 provides for all completion information to be filed within 120 days of the spud date. Subsection(e)(2) of that regulation states "All rights to confidentiality shall be lost if the filings are not timely."

The above referenced well was spudded on 11/22/2016 and the ACO-1 was received on April 12, 2017 (not within the 120 days timely requirement).

Therefore, your request for confidential treatment of data contained within the ACO-1 filing cannot be granted at this time.

If you should have any questions, please do not hesitate to contact me at (316)337-6200.

Sincerely,

Production Department