

**JAMES C. MUSGROVE**

Petroleum Geologist, LLC  
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P.O. Box 215  
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Mai Oil Operations  
Wildcat 5 #1  
NW-NW-NW (330'FNL & 330' FWL)  
Section 19-20s-22w  
Ness County, Kansas

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

**Contractor:** Southwind Drilling Co. (rig #2)  
**Commenced:** June 3, 2016  
**Completed:** June 10, 2016  
**Elevation:** 2207' K.B., 2205' D.F., 2197' G.L.  
**Casing program:** Surface; 8 5/8" @ 280'  
Production, 5 1/2" @ 4397'  
**Sample:** Samples saved and examined 3500' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 3500' 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:** By Eli Wireline Services, Dual Induction, Compensated Density/Neutron Log, Micro and Sonic Logs.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	1402	+805
Base Anhydrite	1438	+769
Heebner	3651	-1444
Toronto	3666	-1459
Lansing	3700	-1493
Base Kansas City	4012	-1805
Marmaton	4061	-1854
Pawnee	4144	-1937
Ft Scott	4214	-2207
Cherokee Shale	4236	-2029
Mississippi Osage	4314	-2107
Rotary Total Depth	4401	-2194
Log Total Depth	4405	-2198

(All tops and zones corrected to Electric Log Measurement)

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

**TOPEKA, TORONTO, LANSING SECTION**

3500-4012' There were several zones of well-developed porosity encountered in the drilling of the Topeka/Toronto/Lansing Sections, but no shows of oil and/or gas was noted. (See attached sample log/Geologist report)

**MARMATON SECTION**

4061-4070' Limestone, gray, white, finely crystalline, chalky, no shows.

4118—4140' Limestone, white and gray; few granular, few fossiliferous, chalky; poor visible porosity, no shows.

**PAWNEE SECTION**

4144-4160' Limestone, gray, dark gray, chalky; poor visible porosity, no shows.

4160-4209' Limestone, gray, cream, chalky; few argillaceous.

**FT SCOTT SECTION**

4214-4220' Limestone, gray, white, finely crystalline, chalky, few oolitic, plus gray chert; no shows.

4226-4232' Limestone, tan, finely crystalline, highly chalky, few oolitic, trace brown stain, trace free oil and no odor in fresh samples.

**CHEROKEE SECTION**

4243-4260' Limestone, gray, white, chalky, fossiliferous in part, no shows.

4270-4280' Limestone, tan, slightly cherty, dense, no shows.

4283-4290' Sand, gray, white, very fine grained; calcareous, black and gray stain, no free oil and no odor in fresh samples.

**MISSISSIPPIAN SECTION**

4302-4314' Chert, tan, finely crystalline, dolomitic, poor visible porosity, no shows.

**OSAGE SECTION**

4314-4324' Chert; white, cream, fresh; poor visible porosity, brown/golden brown stain, no free oil and no odor.

4324-4329' Chert, as above, few weathered; scattered porosity, trace stain, show of free oil and faint odor in fresh sample.

**Drill Stem Test #1** **4241-4325**  
**Log Measurement (4245-4329)**

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

**Blow:** Weak

**Recovery:** 10' slightly oil cut mud  
 (5% oil; 95% mud)

**Pressures:** ISIP 1320 psi  
 FSIP 1304 psi  
 IFP 71-73 psi  
 FFP 62-57 psi  
 HSH 2113-2086 psi

(plugging action on flow periods)

4329-4335' Dolomite, white, gray, finely crystalline, scatter pin point porosity, good stain, show of free oil and fair odor, plus chert, weathered, tripolitic scattered vuggy porosity; brown stain, show of free oil.

**Drill Stem Test #2** **4242-4331**  
**Log Measurement (4246-4335)**

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

**Blow:** Strong

**Recovery:** 165' oil cut mud  
 (30% oil; 70% mud)  
 300; oil cut muddy water  
 (20% oil; 70% water; 10% mud)  
 600' oil cut water  
 (15% oil; 85% water)

**Pressures:** ISIP 1352 psi  
 FSIP 1356 psi  
 IFP 117-330 psi  
 FFP 445-556 psi  
 HSH 2131-2049 psi

4335-4390' Chert and dolomite, as above, poor stain, no free oil and no odor in fresh samples.

4350-4370' Chert and dolomite; as above, no show.

4370-4380' Dolomite, gray, white, finely crystalline, granular, glauconitic, plus white, gray boney chert.

Mai Oil Operations  
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Section 19-20s-22w  
Ness County, Kansas

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4380-4401'      Chert, white/gray; boney, plus dolomite; finely crystalline, few sucrosic, cherty, no shows.

**Rotary Total Depth      4401**  
**Log Total Depth        4405**

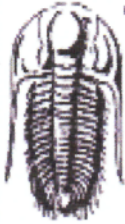
**Recommendations:**

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

Respectfully yours,

James C. Musgrove  
Petroleum Geologist





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations Inc  
 8411 Preston Rd Ste 800  
 Dallas, TX 75225-5520  
 ATTN: Jim Musgrove

**19-20s-22w Ness, KS**  
**Wildcat 5#1**  
 Job Ticket: 61858 **DST#: 2**  
 Test Start: 2016.06.09 @ 16:21:34

## GENERAL INFORMATION:

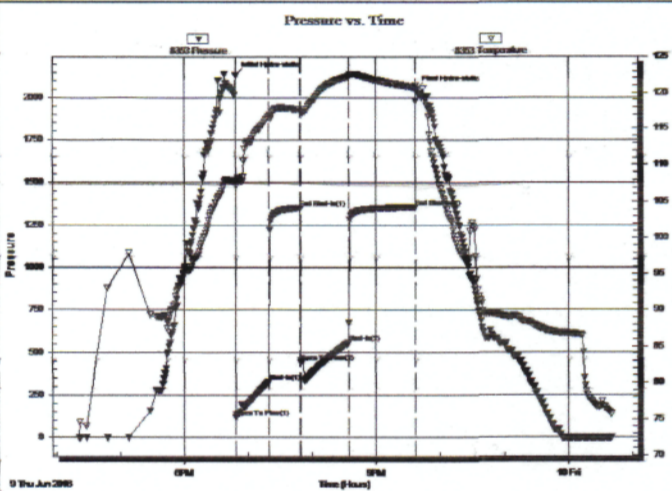
Formation: **Miss**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:48:49  
 Time Test Ended: 00:40:19  
 Interval: **4242.00 ft (KB) To 4331.00 ft (KB) (TVD)**  
 Total Depth: 4331.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 84  
 Reference Elevations: 2208.00 ft (KB)  
 2197.00 ft (CF)  
 KB to GR/CF: 11.00 ft

## Serial #: 8353

Inside

Press@RunDepth: 556.53 psig @ 4243.00 ft (KB)  
 Start Date: 2016.06.09 End Date: 2016.06.10  
 Start Time: 16:21:34 End Time: 00:40:19  
 Capacity: 8000.00 psig  
 Last Calb.: 2016.06.10  
 Time On Btm: 2016.06.09 @ 18:48:34  
 Time Off Btm: 2016.06.09 @ 21:37:19

TEST COMMENT: B.O.B. in 5 1/2 min  
 No return  
 B.O.B. in 9 1/2 min  
 No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2131.18	107.83	Initial Hydro-static
1	117.92	107.16	Open To Flow (1)
31	330.17	116.72	Shut-In(1)
60	1352.15	117.70	End Shut-In(1)
61	445.33	117.41	Open To Flow (2)
106	556.53	122.22	Shut-In(2)
168	1356.62	120.73	End Shut-In(2)
169	2049.13	120.91	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
165.00	o c m 30o 70m	2.31
300.00	s m & o c w 10m 20o 70w	4.21
600.00	o c w 15o 85w	8.42

\* Recovery from multiple tests

## Gas Rates

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

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

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

No. 1866

Cell 785-324-1041

Date	Sec.	Twp.	Range	County	State	On Location	Finish
6-4-16	19	20	22	Ness	KS		2:15 AM

Location *Ness City 11 S to 20 Rd SE to KRd*

Lease *Wildcat 5* Well No. # *1* Owner *1 1/4 N E 10 10*

Contractor *Southwind 8* 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*

Hole Size *12 1/4* T.D. *280'* Charge To *Ma. Oil*

Csg. *8 5/8* Depth *280'* 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. Shoe Joint Cement Amount Ordered *175 60/40 40/60 20/60*

Meas Line Displace *16 1/2 bbl*

EQUIPMENT Common *105*

Pumptrk *18* No. Cementer *Brett* Poz. Mix *70*

Bulktrk *14* No. Driver *Craig* Gel. *3*

Bulktrk No. Driver *Doug* Calcium *7*

**JOB SERVICES & REMARKS**

Remarks: 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

Handling *185*

Mileage

**FLOAT EQUIPMENT**

Guide Shoe

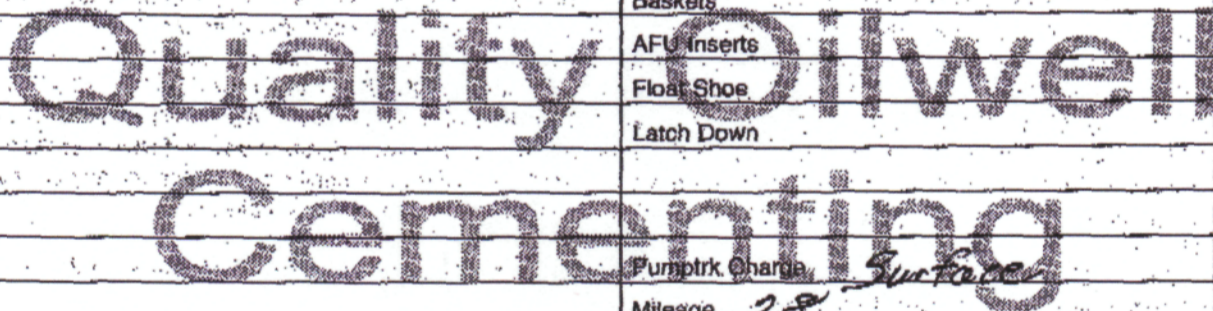
Centralizer

Baskets

AFU Inserts

Float Shoe

Latch Down



Pumptrk Charge *Surface*

Mileage *28*

Signature *William Sanders* Tax Discount Total Charge

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

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

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

No. 1713

Date	Sec.	Twp.	Range	County	State	On Location	Finish
6-11-16	19	20	22	Neosho	Ks		

Location *Bazine - 4 W. to AAPD 9 S to 40rd*

Lease <i>Wildcat 5</i>	Well No. <i>#1</i>	Owner <i>2w to X Rd 15, E 15</i>
Contractor <i>Southwind 8</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>Longstring</i>	Charge To <i>Main oil operations</i>	
Hole Size <i>7 7/8"</i>	T.D. <i>4401'</i>	Street
Csg. <i>Used 5 1/2" 14#</i>	Depth <i>4397'</i>	City
Tbg. Size	Depth	State
Tool <i>Port Collar</i>	Depth <i>1401' / #74</i>	The above was done to satisfaction and supervision of owner agent or contractor.
Cement Left in Csg. <i>3091</i>	Shoe Joint <i>3091'</i>	Cement Amount Ordered <i>175 60/40 10% Salt 5% Glsmit</i>
Meas Line	Displace <i>106 1/2 Bcs</i>	<i>1/4# Flt seal - 1000 gal mud Clear 48</i>

**EQUIPMENT**

Pumptrk <i>20</i>	No. <i>20</i>	Cementer <i>Brett</i>	Helper <i>Brett</i>	Common
Bulktrk <i>14</i>	No. <i>14</i>	Driver <i>Tom</i>	Driver <i>Tom</i>	Poz. Mix
Bulktrk <i>14</i>	No. <i>14</i>	Driver <i>Rich</i>	Driver <i>Rich</i>	Gel.
				Calcium

**JOB SERVICES & REMARKS**

Remarks:	Hulls
Rat Hole <i>30 SX</i>	Salt
Mouse Hole <i>20 SX</i>	Flowseal
Centralizers <i>1-4</i>	Kol-Seal
Baskets <i>74 mid Joint</i>	Mud CLR 48
D/V or Port Collar <i>1401' #74</i>	CFL-117 or CD110 CAF 38
<i>Pipe on bottom over 1000 gal mud clear 48 plug bath</i>	Sand
<i>2w/ 30 SX plug mousehole 1/2 20 SX</i>	Handling
<i>Hook to casing + mix 125 SX</i>	Mileage
<i>Cement shut down wash pump + lines Disposal plug 1000 Bcs 1000 Release + held</i>	<b>FLOAT EQUIPMENT</b>
<i>Lift pressure #</i>	Guide Shoe <i>Port Collar</i>
<i>Lead plug to #</i>	Centralizer <i>5</i>
	Baskets <i>1 Red</i>
	AFU Inserts
	Float Shoe
	Latch Down <i>1</i>
	Pumptrk Charge
	Mileage

X Signature <i>William Lanier</i>	Tax
	Discount
	Total Charge





CHARGE TO: MAI OIL OPERATIONS  
 ADDRESS:  
 CITY, STATE, ZIP CODE:

TICKET 29782

PAGE 1 OF

SERVICE LOCATIONS  
 1. NESS CITY, KS WELL/PROJECT NO. WILDCAT 5 #1 LEASE NESS COUNTY/PARISH NESS STATE KS CITY NESS CITY, KS DATE 21 SEP 16 OWNER  
 2. TICKET TYPE  SERVICE  SALES CONTRACTOR FRITZLER TRUCKING RIG NAME/NO. SHIPPED VIA DELIVERED TO ORDER NO.  
 3. WELL TYPE OIL WELL CATEGORY DEVELOPMENT JOB PURPOSE CEMENT PORT COLLAR WELL PERMIT NO. WELL LOCATION 9S, SE, 1S, E INTD.  
 4. REFERRAL LOCATION INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575					MILEAGE #115	20		MIL		5 <sup>00</sup>	100 <sup>00</sup>
576D					Pump CHARGE	1		JOB		1250 <sup>00</sup>	1250 <sup>00</sup>
276					FLOCELE	40		LBS		2 <sup>25</sup>	90 <sup>00</sup>
290					D-AIR	2		sq		42 <sup>00</sup>	84 <sup>00</sup>
105					PORT COLLAR OPENING TOOL	1		JOB		275 <sup>00</sup>	275 <sup>00</sup>
330					SMD CEMENT	160		SX		15 <sup>75</sup>	2520 <sup>00</sup>
581					CEMENT SERVICE CHARGE	200		SX		1 <sup>50</sup>	300 <sup>00</sup>
582					MINIMUM DRAYAGE	19950		LBS	199.5 TM	250 <sup>00</sup>	250 <sup>00</sup>

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

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

X [Signature]  
 DATE SIGNED 21 SEP 16 TIME SIGNED 1115  A.M.  P.M.

REMIT PAYMENT TO:

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

SURVEY	AGREE	UN-DECIDED	DIS-AGREE	PAGE TOTAL	4869 <sup>00</sup>
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?					
WE UNDERSTOOD AND MET YOUR NEEDS?					
OUR SERVICE WAS PERFORMED WITHOUT DELAY?					
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?				TAX	
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES <input type="checkbox"/> NO			TOTAL	
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND					

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

SWIFT OPERATOR [Signature] APPROVAL

Thank You!

**JOB LOG**

**SWIFT Services, Inc.**

DATE 21 SEP 10 PAGE NO.

CUSTOMER TITAI OIL WELL NO. LEASE WILDCATS #1 JOB TYPE CEMENT PORT COLLAR TICKET NO. 29782

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	0845							ON LOCATION
								PORT COLLAR @ 1401 RBP @ 2040
	0910	4	43	✓				LOAD - CIRCULATE WELL
	0920				✓		1000	TEST - HELD
	0926							OPEN PORT COLLAR
	0928	4 1/2	80	✓		300		Pump mud - CIRCULATE TO PIT
	0954	4	88 1/2	✓		200		MIX 160 SX SMD.
		3	7	✓				DISPLACE CEMENT
								CIRCULATE 20 S. TO PIT
	1017			✓		1000		CLOSE PORT COLLAR - TEST - HELD
								RUN 5 JTS.
	1029	4	22	✓		300		REVERSE CLEAN
	1039							WASH TRUCK
	1039							RUN TUBING TO RBP
								RBP CLEAN.
	1115							JOB COMPLETE.
								THANKS # 115
								JASON DAVE PRESTON