## **Geological Report**

## KT #1-25

1800' FNL & 1200' FEL Sec. 25 T20s R22w Ness County, Kansas



# **American Warrior, Inc.**

## **General Data**

Well Data:	American Warrior, Inc. KT #1-25 1800' FNL & 1200' FEL Sec. 25 T20s R22w Ness County, Kansas API # 15-125-25978-0000
Drilling Contractor:	Discovery Drilling Co. Inc. Rig #4
Geologist:	Jason T Alm
Spud Date:	November 10, 2017
Completion Date:	November 17, 2017
Elevation:	2181' Ground Level 2189' Kelly Bushing
Directions:	Bazine KS, South 11 mi. to 20 Rd. West <sup>1</sup> / <sub>4</sub> mi. South into location.
Casing:	<ul><li>213' 8 5/8" surface casing</li><li>4336' 5 1/2" production casing</li></ul>
Samples:	10' wet and dry, 3650' to RTD
Drilling Time:	3650' to RTD
Electric Logs:	Pioneer Energy Services "J. Hendrickson" CNL/CDL, DIL
Drillstem Tests:	Two, Trilobite Testing, Inc. "Ken Swinney"
Problems:	None
Remarks:	There was 3 ft. of fill in the hole during log. LTD was 3 ft. shallow of RTD.

	American Warrior, Inc.		
	KT #1-25		
	Sec. 25 T20s R22w		
Formation	1800' FNL & 1200' FEL		
Anhydrite	1376' +813		
Base	1409' +780		
Heebner	3682' -1493		
Lansing	3728' -1539		
BKC	4044' -1855		
Pawnee	4164' -1975		
Fort Scott	4235' -2046		
Cherokee	4260' -2071		
Mississippian	4305' -2116		
Osage	4326' -2137		
LTD	4333' -2144		
RTD	4336' -2147		

### **Formation Tops**

### **Sample Zone Descriptions**

Fort Scott(4235', -2046):Covered in DST #1Ls – Fine crystalline with poor to scattered fair inter-crystalline<br/>and vuggy porosity, light to fair oil stain and saturation in porosity,<br/>fair show of free oil, fair odor, bright yellow fluorescents, 45 units<br/>hotwire.

#### Mississippian Osage (4326', -2137): Covered in DST #2

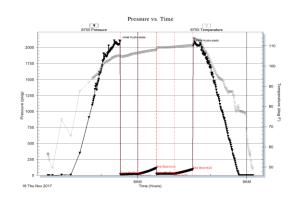
 $\Delta$  – Angular, mostly fresh, few pieces with scattered poor to fair vuggy porosity, light to good oil stain in porosity, fair show of free oil on cup, good odor, scattered bright yellow fluorescents, 55 units hotwire.

## **Drill Stem Tests**

Trilobite Testing, Inc. "Ken Swinney"

#### DST #1 Fort Scott

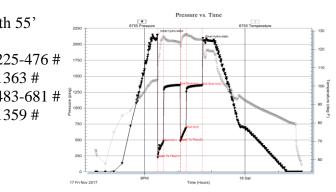
Interval (4210' – 4268') Anchor Length 58'		
IHP	- 2097 #	
IFP	– 30" – Built to 1 in.	17-25 #
ISI	– 30" – Dead	115 #
FFP	– 30" – Built to 3 in.	18-29 #
FSI	– 30" – Dead	96 #
FHP	- 2047 #	
BHT	– 113°F	



Recovery: 30' Mud with oil spots

#### DST #2 Mississippian Osage

τ	1 (40012 400C2) A 1 I	(1 662
Interv	al (4281' – 4336') Anchor L	ength 55
IHP	- 2145 #	
IFP	– 10" – B.O.B. 1 ½ min.	225-476
ISI	– 30" – Dead	1363 #
FFP	– 30" – B.O.B. 2 min.	483-681
FSI	– 30" – Dead	1359 #
FHP	- 2059 #	
BHT	– 127°F	



Recovery:	124' GIP
	248' GCMO
	868' MWCGO
	186' OCMW
	124' WCOM

85% Oil 70% Oil, 10% Water 10% Oil, 75% Water 10% Oil, 5% Water

	American Warrior, Inc.	Natural Gas & Oil		Thunderbird DRLG	
	KT #1-25	Cook #1		Bondurant D #1	
	Sec. 25 T20s R22w	Sec. 25 T20s R22w		Sec. 30 T20s R21w	
Formation	1800' FNL & 1200' FEL	C NE NE		C SW NW	
Anhydrite	1376' +813	1400' +795	(+18)	1413' +819	(-6)
Base	<b>1409' +780</b>	NA	NA	1446' +786	(-6)
Heebner	3682' -1493	3698' -1503	(+10)	3723' -1491	(-2)
Lansing	3728' -1539	3745' -1550	(+11)	3774' -1542	(-3)
BKC	4044' -1855	4065' -1870	(+15)	4088' -1856	(+1)
Pawnee	4164' -1975	4188' -1993	(+18)	4215' -1983	(+8)
Fort Scott	4235' -2046	4259' -2064	(+18)	4281' -2049	(+3)
Cherokee	4260' -2071	4283' -2088	(+17)	4306' -2074	(+3)
Mississippian	4305' -2116	4326' -2131	(+15)	4358' -2126	(+10)
Osage	4326' -2137	4352' -2157	(+20)	4378' -2146	(+9)
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## **Structural Comparison**

#### Summary

The location for the KT #1-25 was found via 3-D seismic survey. The new well ran structurally as expected via the survey. Two Drill Stem Tests were conducted, one of which recovered commercial amounts of oil from the Mississippian Osage Formation. After all gathered data had been examined the decision was made to run 5  $\frac{1}{2}$  inch production casing to further evaluate the KT #1-25 well.

#### **Recommended Perforations**

Primary: Mississippian Osage	(4328' – 4332')	DST #2
Before Abandonment: Fort Scott	(4247' – 4252')	DST #1

Respectfully Submitted,

Jason T Alm Hard Rock Consulting, Inc.