

# **Geological Report**

American Warrior, Inc.

**Denise #2-33**

2230' FSL & 335' FWL

Sec. 33 T17s R21w

Ness County, Kansas



**American Warrior, Inc.**

## General Data

Well Data: American Warrior, Inc.  
Denise #2-33  
2230' FSL & 335' FWL  
Sec. 33 T17s R21w  
Ness County, Kansas  
API # 15-135-25850-0000

Drilling Contractor: Discovery Drilling Rig #3

Geologist: Jason T Alm

Spud Date: July 20, 2015

Completion Date: July 27, 2015

Elevation: 2165' Ground Level  
2173' Kelly Bushing

Directions: Bazine KS, 2 mi East on Hwy 96, North 5 ½ mi,  
East into location.

Casing: 231' 8 5/8" surface casing  
4221' 5 1/2" production casing

Samples: 10' wet and dry, 3850' to RTD

Drilling Time: 3550' to RTD

Electric Logs: Pioneer Energy Services "Chris DeSaire"  
CNL/CDL, DIL

Drillstem Tests: Two, Trilobite Testing, Inc. "Brett Dickinson"

Problems: None

Remarks: Gas detector had high levels of background gas  
after DST #1 due to oil in mud.

## Formation Tops

Formation	American Warrior, Inc. Denise #2-33 Sec. 33 T17s R21w 2230' FSL & 335' FWL
Anhydrite	1444', +729
Base	1476', +697
Heebner	3614', -1441
Lansing	3658', -1488
BKC	3941', -1768
Pawnee	4040', -1867
Fort Scott	4118', -1945
Cherokee	4135', -1962
Mississippian	4209', -2036
RTD	4222', -2049

## Sample Zone Descriptions

**Cher. "A" Sand (4143', -1970):**      **Covered in DST #1**  
 Ss – Quartz, clear to slightly frosted, fine grained, fairly sorted, poor to fair cementation, sub-rounded with fair to good inter-granular porosity, light to fair oil stain and saturation in cluster, slight show of free oil on break, light odor, dull to fair yellow cut fluorescents, 100 units hotwire.

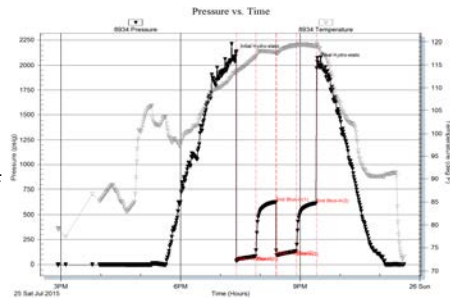
**Mississippian Osage (4209', -2049):**      **Covered in DST #2**  
 Δ – Dolo – White to clear, weathered, slightly triptolic with fair to good scattered vuggy porosity, slightly dolomitic – fine crystalline with poor scattered inter-crystalline porosity, light to fair oil stain and saturation in porosity, fair show of free oil, good odor, fair to good yellow fluorescents.

**Drill Stem Tests**  
Trilobite Testing, Inc.  
"Brett Dickinson"

**DST #1 Cherokee "A" Sand**

Interval (4134' – 4165') Anchor Length 31'

IHP	– 2114 #	
IFP	– 45" – B.O.B. 28 min.	21-71 #
ISI	– 45" – W.S.B.	626 #
FFP	– 45" – Built to 8 in.	88-131 #
FSI	– 45" – W.S.B.	614 #
FHP	– 2034 #	
BHT	– 119°F	

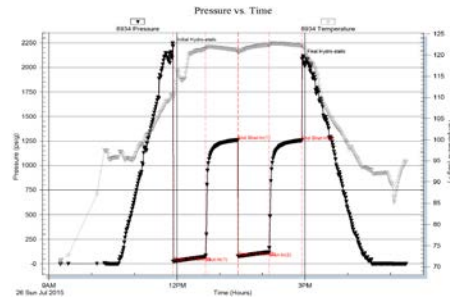


Recovery:      55' GIP  
                    10' SGO  
                    127' VSOWCM      2% Oil, 10% Water  
                    120' OSMCW            90% Water

**DST #1 Mississippian Osage**

Interval (4221' – 4228') Anchor Length 7'

IHP	– 2214 #	
IFP	– 45" – B.O.B. 32 min.	21-71 #
ISI	– 45" – W.S.B.	1259 #
FFP	– 45" – B.O.B. 45 min.	75-118 #
FSI	– 45" – W.S.B.	1255 #
FHP	– 2093 #	
BHT	– 122°F	



Recovery:      380' GIP  
                    100' GCO  
                    157' OSMCW            75% Water

## Structural Comparison

	American Warrior, Inc. Denise #2-33 Sec. 33 T17s R21w 2230' FSL & 335' FWL	Mull Drilling Co. Casey #1 Sec. 33 T17s R21w C NW SW		Lance Drilling, Inc. Reynolds #1 Sec. 32 T17s R21w 1980' FSL & 330' FEL	
<b>Formation</b>					
Anhydrite	<b>1444', +729</b>	1434', +734	<b>(-5)</b>	1442', +725	<b>(+4)</b>
Base	<b>1476', +697</b>	NA	<b>NA</b>	1474', +693	<b>(+4)</b>
Heebner	<b>3614', -1441</b>	3607', -1439	<b>(-2)</b>	3616', -1449	<b>(+8)</b>
Lansing	<b>3658', -1488</b>	3654', -1486	<b>(-2)</b>	3662', -1495	<b>(+7)</b>
BKC	<b>3941', -1768</b>	3936', -1768	<b>FL</b>	3944', -1777	<b>(+9)</b>
Pawnee	<b>4040', -1867</b>	4037', -1869	<b>(+2)</b>	4047', -1880	<b>(+13)</b>
Fort Scott	<b>4118', -1945</b>	4113', -1945	<b>FL</b>	4124', -1957	<b>(+12)</b>
Cherokee	<b>4135', -1962</b>	4128', -1960	<b>(-2)</b>	4140', -1973	<b>(+11)</b>
Mississippian	<b>4209', -2036</b>	4208', -2040	<b>(+4)</b>	4216', -2049	<b>(+13)</b>

## Summary

The location for the Denise #2-33 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 ½ inch production casing to further evaluate the Denise #2-33 well.

### Recommended Perforations

**Primary:**

**Mississippian Osage                      (4209' – 4219')                      DST #2**

**Before Abandonment:**

**Cherokee "A" Sand                      (4143' – 4147')                      DST #1**

Respectfully Submitted,

Jason T Alm  
Hard Rock Consulting, Inc.