

# **Geological Report**

American Warrior, Inc.

## **Gano #4-17 Twin**

2273' FSL & 1806' FWL

Sec 17, T25s, R36w

Kearny County, Kansas



**American Warrior, Inc.**

## General Data

Well Data: American Warrior, Inc.  
Gano #4-17 Twin  
2273' FSL & 1806' FWL  
Sec. 17, T25s, R36w  
Kearny County, Kansas  
API # 15-093-21946-00-00

Drilling Contractor: Duke Drilling Co. Rig #5

Geologist: Luke Thompson

Spud Date: November 16, 2016

Completion Date: December 1, 2016

Elevation 3025' G.L.  
3036' K.B.

Directions: From center of Lakin, KS at the intersection of Hwy 50 & Hwy 25 – Now go 3.3 miles South on Hwy 25 – Now go 0.7 mile West on Rd.120 – Now go 1 mile South on Rd. S – Now go 1.5 mile West on Rd. 110 to the lease road – South into by steel grain bins, Now go South 0.6 miles to location.

Casing: 1772' 8 5/8" #23 Surface Casing  
5040' 5 1/2" #15.5 Production Casing

Samples: 3550' to RTD 10' Wet & Dry

Drilling Time: 3500' to RTD

Electric Logs: Pioneer Energy Services "D. Schmidt"  
Stack Micro

Drillstem Tests: Six-Trilobite Testing "Mike Roberts"

Problems: none encountered

# Formation Tops

Gano #4-17 Twin

Sec. 17, T25s, R36w

2273' FSL & 1806' FWL

<b>Heebner</b>	<b>3622' -586</b>
<b>Toronto</b>	<b>3634' -598</b>
<b>Lansing</b>	<b>3668' -632</b>
<b>Stark</b>	<b>4011' -975</b>
<b>Bkc</b>	<b>4179' -1143</b>
<b>Marmaton</b>	<b>4198' -1162</b>
<b>Pawnee</b>	<b>4301' -1265</b>
<b>Fort Scott</b>	<b>4336' -1300</b>
<b>Cherokee</b>	<b>4346' -1310</b>
<b>Morrow</b>	<b>4643' -1607</b>
<b>Miss</b>	<b>4788' -1752</b>
<b>RTD</b>	<b>5050' -2014</b>
<b>LTD</b>	<b>5055' -2019</b>

## Sample Zone Descriptions

- Toronto** (3636', -600): **Covered in DST #1**  
Limestone, cream, sub crystalline, chalky, occasional white Chert, poor to fair scattered pinpoint vuggy porosity, strong odor, fair show of free oil in porosity, poor stain and saturation, good flush cut.
- Lansing D** (3795', -759): **Covered in DST #2**  
Limestone, cream, sub to fine crystalline, slight chalky, sub oolitic in parts, scattered Dolomitic recrystallization, fair pinpoint vuggy porosity, good odor, fair stain and saturation, fair stream cut. Gas 45 units hotwire.
- Lansing E** (3815', -779): **Covered in DST #2**  
Limestone, gray/tan/cream, sub crystalline, fossil hash, scattered pinpoint vuggy porosity, fair odor, fair stain and saturation, slow string cut. Gas 80 units hotwire.
- Lansing K** (4025', -989): **Covered in DST #3**  
Limestone, tan, oolitic packstone, chalky, good oomoldic porosity, fair odor, show of free oil in porosity, fair stain and saturation, good flush cut. Gas 80 units hotwire.
- Marmaton** (4250', -1214): **Covered in DST #4**  
Limestone, cream/tan/gray, oolitic hash, chalky, fair oolitic porosity, strong odor, fair stain, good saturation, show of free oil in porosity, good stream cut. Gas 100+ units hotwire.
- Pawnee** (4320', -1284): **Covered in DST #5**  
Limestone, cream, sub crystalline, sub oolitic fossil hash, scat poor vuggy/oolitic porosity, fair odor, poor stain, fair saturation, fair stream cut. Gas 65 units hotwire.
- Morrow** (4765', -1729): **Covered in DST #6**  
Sandstone, gray/green, fine grain, sub round to sub angular, fair to poor sorting, poor to fair cementation, glauconitic, fair inter crystalline porosity, strong odor, good show of free oil in porosity, good stain, excellent saturation, excellent flush cut.

## Drill Stem Tests

Trilobite Testing

“Mike Roberts”

### DST #1

#### Toronto

Interval (3619' – 3679') Anchor Length 60'

IHP - 1726 #

IFP - 30" – BOB 2 min

ISI - 45" – No Return

FFP - 45" – BOB 45 sec

FSIP - 60" – No Return

FHP - 1707 #

BHT - 103° F

**Recovery:** 6" Free Oil

372' OCWM 3% O

310' OCMW 3% O

620' OCMW 3% O

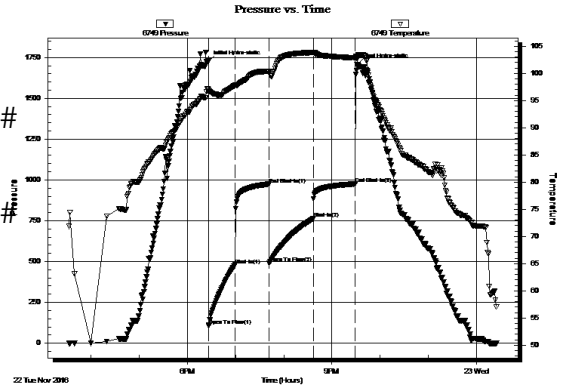
236' W

106-479#

974#

491-764#

975#



### DST #2

#### Lansing D-E

Interval (3791' – 3821') Anchor Length 30'

IHP - 1813 #

IFP - 30" – BOB 10 min

ISI - 45" – Built to 1/8"

FFP - 45" – BOB 15 min

FSIP - 60" – Built to 1/2"

FHP - 1793 #

BHT - 104° F

**Recovery:** 248' GIP

278' GCO 80% O

124' WCGOM 5% O

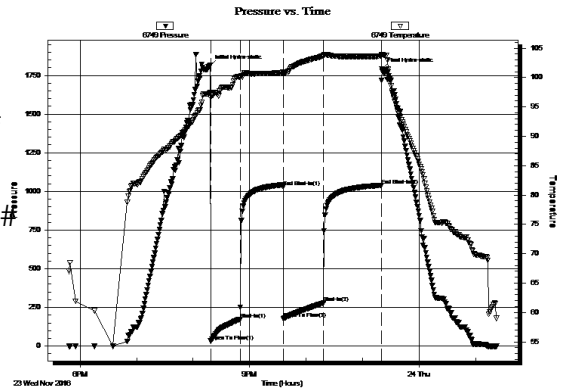
236' OCMW 3% O

33-174#

1030#

178-279#

1039#



**DST #3**

**Lansing K**

Interval (4004' – 4028') Anchor Length 24'

IHP - 1932 #

IFP - 30" – Built to 3 1/2"

ISI - 30" – No Return

FFP - 30" – Built to 1"

FSIP - 30" – No Return

FHP - 1908 #

BHT - 107° F

**Recovery:** 120' MCW

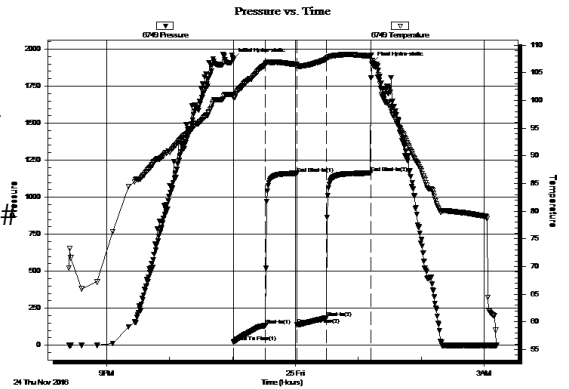
302' WCM

22-134#

1158#

137-185#

1163#



**DST #4**

**Marmaton**

Interval (4248' – 4258') Anchor Length 10'

IHP - 2088 #

IFP - 30" – BOB 2 min

ISI - 45" – BOB 18 min

FFP - 45" – BOB instantly

FSIP - 60" – BOB 18 min

FHP - 2088 #

BHT - 105° F

**Recovery:** 1612' GIP

732' GCO

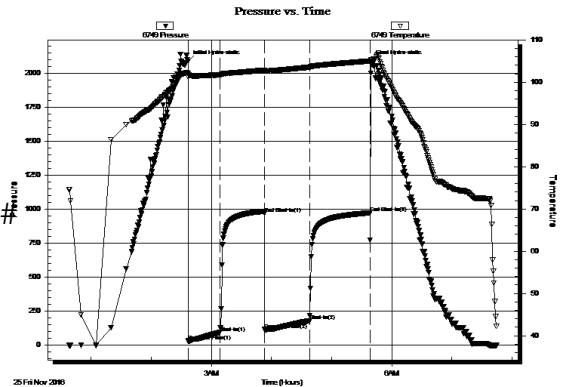
90% O

29-92#

970#

114-179#

973#



**DST #5**

**Pawnee (straddle test)**

Interval (4308' – 4326') Anchor Length 18', 23' Tail Pipe

IHP - 2143 #

IFP - 30" – Built to 1/8"

ISI - 30" – No Return

FFP - 10" – No Blow

FSIP - Pulled Test

FHP - 2115 #

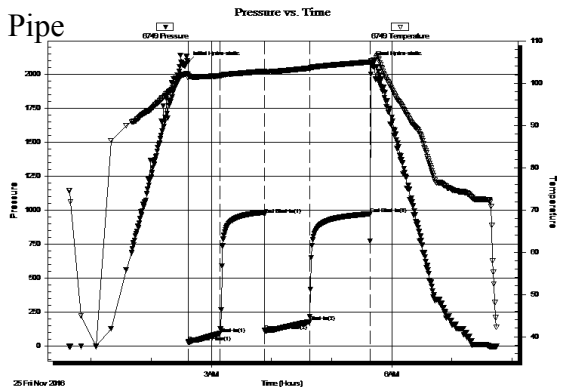
BHT - 105° F

**Recovery:** 5' M with Oil spots in Tool

20-23#

634#

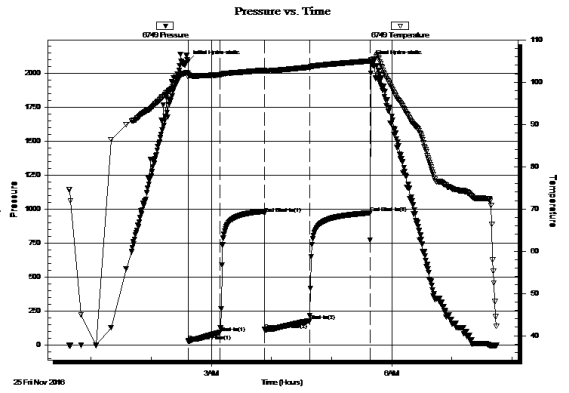
23-24#



**DST #6**      **Morrow**

Interval (4712' – 4800')  
IHP - 2417 #  
IFP - 30" – Built to 1/2"  
ISI - 30" – No Return  
FFP - 10" – No Blow  
FSIP - Pulled Test  
FHP - 2362 #  
BHT - 115° F  
**Recovery:** 60' M

62-83#  
1018#  
143-97#



## Structural Comparison

	American Warrior, Inc. Gano #4-17 Twin Sec. 17, T25s, R36w 2273' FSL & 1806' FWL		American Warrior, Inc. Gano #3-17 Sec. 17, T25s, R36w 1512' FSL & 2603' FEL		Pan American Petro Corp Campbell #1 Sec. 18, T25s, R36w 4620' FSL & 660' FEL
<b>Formation</b>					
<b>Heebner</b>	3622' -586	+5	3627' -591	+5	3627' -591
<b>Lansing</b>	3668' -632	+6	3674' -638	+8	3676' -640
<b>Stark</b>	4011' -975	+7	4018' -982	+6	4017' -981
<b>BKC</b>	4179' -1143	+3	4182' -1146	+7	4186' -1150
<b>Marmaton</b>	4198' -1162	+8	4206' -1170	+14	4212' -1176
<b>Pawnee</b>	4301' -1265	+6	4307' -1271	+6	4307' -1271
<b>Fort Scott</b>	4336' -1300	+4	4340' -1304	+5	4341' -1305
<b>Cherokee</b>	4346' -1310	+5	4351' -1315	+7	4353' -1317
<b>Morrow</b>	4643' -1607	0	4643' -1607	-5	4638' -1602
<b>Miss</b>	4788' -1752	0	4788' -1752	-14	4774' -1738

### Summary

The location for the Gano #4-17 Twin well was found via 3-D seismic survey. The new well ran structurally as expected. Six drill stem tests were conducted, two of which recovered commercial quantities of oil. After all the gathered data had been examined, the decision was made to run 5 1/2" casing to further evaluate the Gano #4-17 Twin well.

### Perforations

<b>Primary:</b>	<b>Morrow</b>	<b>(4760' – 4768')</b>
	<b>Marmaton</b>	<b>(4248' – 4258')</b>
<b>Secondary:</b>	<b>Marmaton</b>	<b>(4239' – 4244')</b>
	<b>Lansing E</b>	<b>(3814' – 3818')</b>
	<b>Lansing D</b>	<b>(3788' – 3794')</b>



<b>Before Abandonment:</b>	<b>Lansing A</b>	<b>(3668' – 3673')</b>
	<b>Toronto</b>	<b>(3634' – 3640')</b>
	<b>Toronto</b>	<b>(3640' – 3644')</b>

Respectfully Submitted,

Lukas Thompson  
American Warrior, Inc.