

**JAMES C. MUSGROVE**

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

Office (620) 588-4250

Res. Claflin (620) 587-3444

American Warrior Inc.  
Grubb Unit #1-5  
NE-NE-SE-SW (1171' FSL & 2610' FWL)  
Section 5-16s-10w  
Ellsworth County, Kansas  
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**5 1/2" Production Casing Set**

**Contractor:** Duke Drilling Co. (Rig #8)  
**Commenced:** January 2, 2014  
**Completed:** January 9, 2014  
**Elevation:** 1826' K.B; 1824' D.F; 1818' G.L.  
**Casing program:** Surface; 8 5/8" @ 394'  
Production; 5 1/2" @ 3406'  
**Sample:** Samples saved and examined 2700' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 2700 ft. 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 Pioneer Energy Services; Dual Induction, Dual Compensated Porosity Log, and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	625	+1201
Base Anhydrite	652	+1174
Heebner	2853	-1027
Toronto	2873	-1047
Douglas	2883	-1057
Brown Lime	2955	-1129
Lansing	2969	-1146
Base Kansas City	3267	-1441
Arbuckle	3294	-1465
Rotary Total Depth	3407	-1581
Log Total Depth	3407	-1581

(All tops and zones corrected to Electric Log measurements).

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

**TOPEKA SECTION**

There were several zones of well-developed porosity encountered in the drilling of the Topeka Section but no show of oil and/or gas was noted (see attached Drilling Time Log).

**TORONTO SECTION**

Limestone; white, cream, finely crystalline, fossiliferous, chalky, poor porosity, no shows.

**LANSING SECTION**

- 2971-2980' Limestone; white, cream, oolitic, fossiliferous, scattered porosity, no show.
- 2993-3010' Limestone; cream, tan, finely crystalline, oolitic, trace black stain, no free oil and no odor in fresh samples.
- 3018-3029' Limestone; gray, tan, oomoldic, slightly cherty, no show and no odor in fresh samples.
- 3042-3058' Limestone; white, cream, oolitic, poor porosity, cherty in part, trace white chalky, no show.
- 3060-3080' Limestone; cream, white, oomoldic, fair porosity, (barren).
- 3115-3124' Limestone; cream, tan, finely crystalline, fossiliferous, poorly developed porosity, no shows.
- 3130-3140' Limestone; gray, finely crystalline, fossiliferous in part, chalky, no shows.
- 3146-3164' Limestone; tan, cream, oolitic, sub oomoldic, chalky, few cherty, no shows.
- 3190-3200' Limestone; gray, cream, finely crystalline, dense.
- 3224-3231' Limestone; white, tan, fossiliferous, scattered porosity, chalky, no shows.

**ARBUCKLE SECTION**

- 3291-3295' Dolomite; tan, finely crystalline, scattered intercrystalline porosity, brown stain, show of free oil and faint odor in fresh samples.
- 3295-3297' Dolomite; as above; strong odor in fresh samples.

**Drill Stem Test #1 3260-3297'**

Times: 30-30-30-30

Blow: Very weak

Recovery: 1' clean oil  
15' slightly oil cut mud  
(5% oil, 95% mud)

Pressures: ISIP 453 psi  
FSIP 347 psi  
IFP 15-18 psi  
FFP 18-19 psi

**HSH 1709-1681 psi**

3297-3307' Dolomite; as above, fair stain and saturation, show of free oil and strong odor, plus white boney opaque chert.

**Drill Stem Test #2 3260-3307'**

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

**Blow: Strong**

**Recovery: 100' gas in pipe  
13' clean oil  
127' very slightly oil cut mud  
(2% oil, 98% mud)**

**Pressures: ISIP 579 psi  
FSIP 593 psi  
IFP 31-59 psi  
FFP 65-80 psi  
HSH 1621-1600 psi**

3307-3320' Dolomite, white, gray, poor to fair intercrystalline porosity, trace stain, show of free oil and good odor.

3320-3340' Dolomite; cream, tan, finely crystalline, poor porosity, trace stain, show of free oil and good odor in fresh samples.

3340-3360' Dolomite; as above, oomoldic, poorly developed, no show and fair odor in fresh samples.

3360-3390' Dolomite; as above.

3390-3407' Dolomite; white, cream, tan, finely crystalline, sucrosic in part, no show, faint odor.

**Rotary Total Depth 3407  
Log Total Depth 3407**

**Recommendations: 5 1/2" production casing was set and cemented in the Grubb Unit #1-5.**

Respectfully submitted;

*Clint & James C. Musgrove*  
Clint Musgrove and  
James C. Musgrove,  
Petroleum Geologists

