JOLEN OPERATING COMPANY

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GEOLOGICAL REPORT
Carter 1-6
S/2 SW NE NE, SECTION 6-33S-23W
CLARK COUNTY, KS

Summary

The Carter #1-6 was drilled to a total depth of 5,600′ on October 4, 2019. A one-man logging unit and geologist were on location from 3,500′ to TD. ELI electric logs were run that consisted of Dual Induction, Compensated Neutron-Density, Sonic Log, and Micro-log. Hydrocarbon shows were encountered in the Lansing A&B Oolitic Limestones, the Pawnee Oolitic Limestone, and the Chester Oolite.

Lansing A & B Oolitic Limestone

The Lansing A Oolite was cut at 4,546′ (-2,371′). The sample descriptions were tan, medium and coarsely oolitic and oomoldic limestone with grainy texture. Green mineral fluorescence when wet with spotted green fluorescence when dry showing gas on break. The samples cut fast with a bright blue gold milky cut and residual ring and a 250 unit rooster gas kick which recycled at 50 units; no stain or odor. The zone was drill stem tested, recovering 20′ of mud. The Lansing B Oolite, the primary target, was cut at 4,580′ (-2405). It was described as a brown medium and coarsely oolitic and oomoldic limestone with some rare shows of clear live oil which fluoresced under U.V. light. The Lansing B zone was 18′ high to the Shupe #1-6 show well in NE SW SW of Section 6. This drill stem test recovered gas to surface in 7 minutes with flowing pressures increasing from 65 to 287 psi. During second shut-in there was good blow back, with second open recovering 6 MCF on a 1/8″ choke increasing to 37 MCF on ¼″ choke and flowing pressures beginning at 282 psi increasing to 594 psi. Recorded shut-in pressures were 1,581 psi, with recoveries of 3,372′ of gas in pipe, 504′ of gassy watery mud and 693′ of gassy salt water (chlorides 170,000 ppm).

Pawnee Oolitic Limestone

The Pawnee Oolite was cut at 5,171' (-2,996'). The sample descriptions were cream to white very fine to finely oolitic limestone with bright yellow-gold spotted fluorescence with fair to good shows of clear live oil on break and scattered gas bleeding from inter-particle porosity. The oolite samples had light spotted oil stain with a fair to fast milky cut. The Pawnee had a 130 unit gas show with a 20 unit recycle. The shows and trap noted on the 3D seismic survey merited a drill stem test that recovered 2,334' of gas in pipe and 140' of gassy oil cut mud. Log calculations over the zone averaged 50% water saturation. The nearest offset production comes from the Mount Casino well in the NE Ashland field in 30-32S-22W. Completed in 2014, the Mount Casino has cumulative production to-date of 11.5 MBO, and is currently making 3-5 bopd.

Chester Oolitic Limestone

The Chester Oolite was cut at 5,483' (-3,308'). The sample descriptions were white and cream to light gray, fine to medium oolitic chalky limestone. Dull spotted fluorescence when wet and none when dry with rare trace of fine beads of live oil on a couple of pieces that had fast cut. The zone had a 140 unit gas show that did not recycle. Due to the presence of chalk, the lack of recycle and, lack of an economic analogue this zone was not drill stem tested.

Conclusion

The Carter #1-6 was drilled on a 3D identified four way closure within a larger structural feature on the Northeastern portion of the Jolen Red Cliff Survey to test the Lansing B and porosity build up in the Pawnee Lime. Significant stratigraphic thinning throughout drilling, with oil and gas shows confirm the existence of the structural feature. However, the Carter #1-6 was not high enough on the feature to trap economic hydrocarbons in the Lansing B. The Carter #1-6 had a better drill stem test than the Shupe #1-6, recovering gas to surface and gas cut salt water (the Shupe 1-6 recovered only 3,650' of salt water). Similar improvements in drill stem tests were seen in the Ashland Field (wells tested salt water, followed by gas cut salt water, and then oil toward the top of the structure). Although there are believed to be Pawnee reserves in the Carter #1-6, they are uneconomic given current prices.

It is my recommendation to plug the Carter #1-6 and further evaluate both structural features using the well logs and data collected.

Respectfully Submitted,

Christopher D. Althoff

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ELECTRIC LOG TOPS

	JOLEN OPERATING CO. CARTER 1-6 S/2 SW NE NE 06-33S-23W		HAWKINS OIL AND GAS SHUPE 1-6 C NE SW SW 06-33S-23W
BS. HEEBNER (Subsea)	4339 (-2164)	+18	4272 (-2182)
LANSING (Subsea)	4517 (-2342)	+22	4554 (-2364)
LANSING B (Subsea)	4580 (-2405)	+17	4512 (-2422)
BS. STARK SH. (Subsea)	4977 (-2802)	+37	4929 (-2839)
PAWNEE (Subsea)	5171 (-2996)	+40	5126 (-3036)
CHEROKEE SH. (Subsea)	5226 (-3051)	+39	5180 (-3090)
CHESTER (Subsea)	5415 (-3261)	+18	5369 (-3279)
CHESTER SD/LM (Subsea)	5484 (-3309)	+66	5465 (-3375)
ST GEN (Subsea)	5540 (-3365)		NDE