

BEREXCO LLC

MICHAEL 4-22

SW SE SE NW SEC 22 T1S R36W

RAWLINS COUNTY, KANSAS

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SUMMARY

The Berexco LLC Michael 4-22 in Rawlins County, Kansas spud February 22, 2014 and reached a total depth of 4450' on March 5, 2014. Wellsite geological supervision commenced at 3000'. The primary objective was the Pennsylvanian Missourian Lansing-Kansas City carbonate benches, which produce in the East Fork field. A secondary zone of interest was the Oread Limestone. The Michael 4-22 was drilled using seismic and nearby well control.

Evaluation of the primary zones of interest was by drill stem testing after sample analysis. Five DSTs were run.

Foraker, Wabaunsee, and Topeka

There were no hydrocarbon shows in the Foraker Limestone. Thin Wabaunsee limestones from 3850' to 3870' displayed significant hydrocarbon fluorescence and solvents cuts, but lacked visual porosity. There were no shows in the Topeka Limestone.

Oread and Lansing-Kansas City

DST 1 in the Oread recovered 372 ft of mud with oil spots. Shut-in pressure indicated the zone was depleted. Oread samples were fossiliferous packstone with poor interparticle porosity, scattered oil staining, and fair cuts.

DST 2 in the Lansing A recovered 624 ft of oil spotted mud from interparticle porosity with spotty black oil stain in cuttings.

DST 3 in the Lansing B recovered approximately 950 ft of gassy mud cut oil and 950 ft of water and oil cut mud with 846 ft of gas in the drill pipe. Samples were fossiliferous packstone and mudstone with poor to fair interparticle and vuggy porosity, live black oil staining and strong cuts.

DST 4 covering the upper and lower Lansing C recovered 820 ft of oil and oil cut mud and 855 ft of gas in the drill pipe. Flow pressures were good. The upper C samples displayed good cut, fluorescence, and live black oil staining in a grainstone with fair moldic porosity. The lower C had poor oil shows and no visible porosity.

The Lansing D samples exhibited poor porosity with spotty fluorescence and cuts. No drill stem testing was warranted in the D zone alone and the decision was made to drill through the E zone and test the D and E zones together. The Lansing E was packstone with traces of intergranular porosity and rare vuggy porosity with scattered black heavy oil staining. Fluorescence and cuts were fair. DST 5 over the combined D and E zones recovered 446 ft of very slightly oil cut watery mud. Low shut-in pressures suggest depletion.

The Lansing F was non-porous limestone with no sample shows.

Oil Well Completion

5 ½" production casing was run to complete the Michael 4-22 as an oil producer.

Peter J. Vollmer
Consulting Wellsite Geologist, WPG #3369
March 2014

Berexco LLC
Michael 4-22

WELL DATA

OPERATOR: Berexco LLC
2020 North Bramblewood Drive
Wichita, Kansas 67206

WELL NAME: Michael 4-22

SURFACE LOCATION: 2450' FNL & 2160' FWL
SW SE SE NW Sec. 22, T1S, R36W
Rawlins County, Kansas

LATITUDE & LONGITUDE: 39.9523956, -101.3470353 (From State, calculated from footages)

BOTTOM HOLE LOCATION: Vertical hole

ELEVATIONS: 3173' GL 3186' KB

API NUMBER: 15-153-20950

BASIN: Mid-Continental Arch

FIELD: East Fork

HOLE SIZE: 12 1/4" to 310'; 7 7/8" to 4450'

CASING: 8 5/8" J-55 24# STC set to 310' KB

SPUD DATE: February 22, 2014

TD DATE: March 5, 2014

TOTAL DEPTH: 4450' Rig TD 4446' Log TD

LAST FORMATION: Pennsylvanian Lansing-Kansas City

WELL STATUS: Ran 5 1/2" production casing

OPERATOR
REPRESENTATIVE: Dana Wreath - Vice President

WELLSITE GEOLOGIST: Peter J. Vollmer

FORMATION TOPS

Formation	Sample Top	Log Top	Log TVD	Log Datum
KB				3186
Pierre Sh	Cased	Cased	N/A	N/A
Niobrara Fm	N/A	1103	1103	+2083
Fort Hays Ls Mbr	N/A	1633	1633	+1553
Carlile Sh	N/A	1679	1679	+1507
Dakota	N/A	2247	2247	+939
Cheyenne	N/A	2604	2604	+582
Blaine	N/A	2936	2936	+250
Stone Corral Anhydrite	3096	3096	3096	+90
Base Anhydrite	3128	3124	3124	+62
Neva	3570	3576	3576	-390
Foraker	3689	3686	3686	-500
Wabaunsee	3851	3848	3848	-662
Topeka	3901	3906	3906	-720
Deer Creek Sand	3940	3938	3938	-752
Oread	4014	4016	4016	-830
Lansing-Kansas City				
"A"	4114	4116	4116	-930
"B"	4170	4170	4170	-984
"C"	4230	4232	4232	-1046
"D"	4271	4278	4278	-1092
"E"	4316	4320	4320	-1134
"F"	4351	4358	4358	-1172
TD Driller	4450			
TD Logger		4446	4446	-1260

LITHOLOGY AND SHOWS

The following descriptions are interpretive. Rig crew members collected unlagged samples from 3500' to 4450' TD. Depths are rig depths except where noted as wireline.

3500' - 3550'	SHALE: red to gray, firm, blocky, very silty, occasional sandy in part, non calcareous, trace Limestone stringers.
3550' - 3570'	SHALE: reddish brown, soft to firm, sub blocky to platy, non to slightly calcareous, occasional silty.
NEVA	SAMPLE TOP: 3570' LOG TOP: 3576' SUBSEA: -390'
3570' - 3578'	LIMESTONE: white to light gray, firm to hard, chalky, fossil fragment, tight, no shows.
3578' - 3638'	SHALE: reddish brown, soft to firm, sub blocky to platy, non to slightly calcareous, occasional silty, trace LIMESTONE.
3638' - 3650'	LIMESTONE: gray to reddish gray, firm to hard, cryptocrystalline, slightly to moderately argillaceous, interbedded red Shale, tight, no shows.
3650' - 3689'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional silty.
FORAKER	SAMPLE TOP: 3689' LOG TOP: 3686' SUBSEA: -500'
3689' - 3698'	LIMESTONE: white to light gray, firm to hard, cryptocrystalline, chalky, fossil fragment, calcareous micro fracture fill, argillaceous in part, no visible porosity, no shows.
3698' - 3710'	SHALE: light gray to greenish gray, firm, platy, waxy, slightly calcareous, occasional fossils.
3710' - 3723'	LIMESTONE: light tan to light gray to white to cream, firm to soft, cryptocrystalline, slightly chalky, sandy/silty, rare fossil fragments, argillaceous in part, occasional light gray SHALE, tight, no shows.
3723' - 3738'	SANDSTONE: white to tan to very light gray, friable, very fine grained, subangular, well sorted, calcareous cement, clay fill, tight to trace porosity, no shows.
3738' - 3758'	SHALE: reddish brown, soft to firm, sub blocky to sub fissile, non calcareous, occasional silty.

LITHOLOGY AND SHOWS

3758' - 3804'	SHALE: reddish brown to brown, soft to firm, sub blocky, non calcareous, occasional silty, well/ interbedded LIMESTONE: white to light gray, firm to hard, cryptocrystalline, fossil fragments, tight, no shows.
3804' - 3820'	SHALE: dark gray to black, firm, fissile to blocky, non calcareous, carbonaceous in part, fossil fragments (Brachiopod).
3820' - 3851'	SHALE: reddish brown to reddish orange, soft to firm, sub blocky to sub fissile, non calcareous, occasional silty, thin gray Limestone partings.
WABAUNSEE	SAMPLE TOP: 3851' LOG TOP: 3848' SUBSEA: -662'
3851' - 3864'	LIMESTONE: very light gray to white, hard to firm, packstone to grainstone, abundant fossil fragments (Fusulinids) and interclasts, sparry calcareous, very chalky texture, algal remains, abundant heavy black oil stain, very tight, bright yellowish white fluorescence, good flash cuts with slow streaming yellowish white cuts, very good show.
3864' - 3901'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, interbedded scattered Limestone fragments.
TOPEKA	SAMPLE TOP: 3901' LOG TOP: 3906' SUBSEA: -720'
3901' - 3914'	LIMESTONE: light gray to white, hard to firm, cryptocrystalline, fossil fragment, Shale partings, black dead oil, tight, no shows.
3914' - 3924'	SHALE: gray, firm, platy, n to slightly calcareous, subwaxy, plant remains.
3924' - 3940'	LIMESTONE: light tan to light gray to white to cream, firm to soft, cryptocrystalline, slightly chalky, occasional sandy, rare fossil fragment, argillaceous in part, occasional light orange Shale stringers, trace opaque to light orange chert, tight, no shows.
DEER CREEK SAND	SAMPLE TOP: 3940' LOG TOP: 3938' SUBSEA: -752'
3940' - 3962'	SANDSTONE: light gray to light grayish brown, friable to soft, very fine grained, well rounded, well sorted, calcareous, clay filled, plant remains, abundant loose grains, no visible porosity, no show.

LITHOLOGY AND SHOWS

3962' - 3974' SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional silty.

3974' - 3984' LIMESTONE: white to cream, with red argillaceous mottled and partings, hard to firm, cryptocrystalline, very chalky texture, micro fossils, tight, no shows.

3984' - 4014' SHALE: reddish brown to maroon to gray, mottled in part, soft to firm, sub blocky, non calcareous, moderately to very silty in part, white Limestone partings.

OREAD SAMPLE TOP: 4014' LOG TOP: 4016' SUBSEA: -830'

4014' - 4030' LIMESTONE: cream to white, firm to hard, packstone, occasional oolites and peloids, fossil fragments, slightly chalky, scattered to patchy live dark brown to black oil stain, predominant tight to trace moldic porosity, bright yellowish white fluorescence, blooming yellowish white cuts, fair show.

4030' - 4034' LIMESTONE: white to cream, very hard, cryptocrystalline, slightly silica, scattered fossil fragments (Brachiopod, Fusulinids), tight, no shows.

4034' - 4042' SHALE: grayish black to dark gray, firm, sub fissile, carbonaceous, non to very slightly calcareous.

4042' - 4054' SHALE: gray, firm, platy, non to slightly calcareous, fossil fragments.

4054' - 4092' LIMESTONE: very light gray to gray, firm to hard, mudstone, fossil fragments, argillaceous in part, gray to dark gray Shale partings, tight, no shows.

4092' - 4114' SHALE: gray to reddish brown to maroon, mottled in part, firm, blocky, non to slightly calcareous.

LANSING- KANSAS CITY "A" SAMPLE TOP: 4114' LOG TOP: 4116' SUBSEA: -930'

4114' - 4138' LIMESTONE: white to cream, firm to hard, mudstone to grainstone, occasional interclasts, fossil fragment, patchy black heavy oil stain, trace to fair interparticle porosity, bright yellowish white fluorescence, instant blooming yellowish white cuts, with slow streaming yellowish white cuts, fair show.

4138' - 4142' SANDSTONE: white to very light brown, hard to friable, very fine grained, well rounded, well sorted, calcareous cement, clay filled, trace black heavy oil specks, predominant tight, bright yellowish white fluorescence, occasional slow diffuse yellowish white cut, poor show.

LITHOLOGY AND SHOWS

4142' - 4156'	SHALE: dark gray to gray, firm, platy, slightly carbonaceous in part.
4156' - 4162'	LIMESTONE: light gray to gray, firm, mudstone, moderately argillaceous, fossil fragments, tight, no shows.
4162' - 4170'	SHALE: gray to maroon to reddish brown, mottled, firm, blocky, non to slightly calcareous.
LANSING- KANSAS CITY "B"	SAMPLE TOP: 4170' LOG TOP: 4170' SUBSEA: -984'
4170' - 4186'	LIMESTONE: white, firm to hard, packstone, fossils (Crinoid, Fusulinids), occasional peloids and interclasts, spotty black oil stain, trace to fair intergranular and poor to poor vuggy porosity, bright yellowish white fluorescence, instant blooming yellowish white cuts, fair show.
4186' - 4202'	SHALE: gray to dark gray to black, firm, fossil fragments, blocky, calcareous, carbonaceous in part.
4202' - 4210'	LIMESTONE: white to light gray, firm, cryptocrystalline, dark gray Shale partings, fossil fragments, slightly argillaceous in part, tight, no show.
4210' - 4230'	SHALE: brownish red to gray to maroon, firm, platy, slightly calcareous, Limestone partings.
LANSING- KANSAS CITY "C"	SAMPLE TOP: 4230' LOG TOP: 4232' SUBSEA: -1046'
4230' - 4246'	LIMESTONE: white, firm, grainstone, very fossil, occasional oolites, spotty black heavy oil stain, poor intergranular and pin point vuggy porosity, patchy dull yellowish white fluorescence, blooming yellowish white cuts, good show.
4246' - 4259'	SHALE: dark gray, firm, blocky, calcareous, Limestone partings.
4259' - 4264'	LIMESTONE: white to gray, mottled in part, hard to firm, mudstone, fossil fragments, tight to trace vuggy porosity, spotty black oil stain, patchy yellowish white fluorescence, fair yellowish white streaming cut, fair show.
4264' - 4271'	SHALE: dark gray to black, firm, blocky, calcareous, carbonaceous in part, fossil fragments.

LITHOLOGY AND SHOWS

LANSING- KANSAS CITY "D"	SAMPLE TOP: 4271'	LOG TOP: 4278'	SUBSEA: -1092'
4271' - 4286'	LIMESTONE: white, firm to hard, grainstone to mudstone, fossil fragment, occasional pellet, trace spotty black oil, tight to trace moldic porosity, bright yellowish white fluorescence, blooming yellowish white cuts, fair show.		
4286' - 4316'	SHALE: dark gray to gray, firm, blocky, fossil (Brachiopod), white chalky Limestone partings.		
LANSING- KANSAS CITY "E"	SAMPLE TOP: 4316'	LOG TOP: 4320'	SUBSEA: -1134'
4316' - 4330'	LIMESTONE: white, firm, mudstone to packstone, fossil in part, secondary clear calcareous crystals in vugs, scattered black heavy oil stain, trace interparticle and occasional trace vuggy porosity, bright yellowish white fluorescence, dull yellowish white diffuse cut, fair show.		
4330' - 4351'	SHALE: dark gray to gray to black, firm, sub fissile, non calcareous, slightly carbonaceous in part, fossil fragments.		
LANSING- KANSAS CITY "F"	SAMPLE TOP: 4351'	LOG TOP: 4358'	SUBSEA: -1172'
4351' - 4359'	LIMESTONE: light gray to white, firm to hard, mudstone to wackestone, scattered fossil fragment, trace black dead oil, very tight, no shows.		
4359' - 4410'	SHALE: dark gray, firm, blocky, slightly to non calcareous, fossil fragment, with interbedded LIMESTONE: gray to white, firm to hard, mudstone, occasional fossil fragment, slightly argillaceous in part, tight, no show.		
4410' - 4424'	LIMESTONE: cream to white, firm to hard, mudstone, fossil fragment, chalky, dense, with interbedded dark gray Shale partings, tight, no shows.		
4424' - 4450' TD	SHALE: gray to dark gray, firm, platy to blocky, non to very slightly calcareous, fossil fragment, interbedded white chalky Limestone stringers.		

SERVICES

CONTRACTOR:	Beredco Drilling Inc., Rig 2	
Toolpusher:	Milo Salinas	
DRILLING FLUIDS:	Morgan Mud, Inc.	McCook, ND
Mud Type:	Freshwater Chemical	308-340-5946
Engineer:	Dave Lines, Dave Korte	
MUD LOGGING:	None	
WELLSITE GEOLOGY:	T. M. McCoy & Co., Inc.	Wilson, WY
	Peter J. Vollmer	307-733-4332
DRILL STEM TESTING:	Trilobite Testing, Inc.	Hays, KS
	Kevin Mack	785- 625-4778
	DST 1: 3978' - 4032' Oread	
	DST 2: 4080' - 4160' LKC "A"	
	DST 3: 4132' - 4192' LKC "B"	
	DST 4: 4204' - 4270' LKC "C"	
	DST 5: 4262' - 4330' LKC "D" & "E"	
DIRECTIONAL DRILLING:	None	
WIRELINE LOGS:	Pioneer Wireline Services	Hays, KS
	RAG: Surface casing - TD	785-625-3858
	Micro: 3100' - TD	
	Engineer: J. Henrickson	