

BEREXCO LLC

MICHAEL 2-23

NE NW NW SEC 23 T1S R36W

RAWLINS COUNTY, KANSAS

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SUMMARY

The Berexco LLC Michael 2-23 in Rawlins County, Kansas spud March 21, 2014 and reached a total depth of 4540' on April 1, 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 2-23 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 and Wabaunsee

The Foraker Limestone was tight with a trace of black dead oil. There were no shows in the Wabaunsee.

Oread and Lansing-Kansas City

DST 1 in the Oread recovered 10 ft of mud with an oil skim and poor flow pressures. Samples were predominantly mudstone with locally fossiliferous wackestone to grainstone displaying very poor interparticle porosity, good scattered oil staining, and instant blooming cuts.

DST 2 in the Lansing A recovered 98 ft of mud with oil spots and very poor flow pressures. Samples displayed occasional free heavy black oil with no to trace porosity in cuttings.

DST 3 in the Lansing B recovered 92 ft of water cut mud with an oil skim. The poor flow pressures indicated a non-porous B zone, also reflected on wireline logs. Samples exhibited fossiliferous grainstone and mudstone with trace to poor interparticle porosity, good live black oil staining, and good cuts.

DST 4 in the Lansing C recovered 188 ft of clean gassy oil and 376 ft of mud cut oil with 282 ft of gas in the drill pipe. Samples were grainstone with poor interparticle and vuggy porosity with abundant live black oil staining and excellent fluorescence and cuts.

The Lansing D samples were non-porous chalky limestone with no shows. No drill stem testing was warranted in the D zone and the decision was made to drill through the E zone. Packers were placed in the lower D zone to test only the E zone. The Lansing E was predominately non-porous with traces of vuggy porosity and a poor scattered show of black oil stain and hydrocarbon cuts. DST 5 of the E zone recovered 10 ft of mud with oil spots.

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

Oil Well Completion

5 ½" production casing was run to complete the Michael 2-23 as an oil producer.

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

Berexco LLC
Michael 2-23

WELL DATA

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

WELL NAME: Michael 2-23

SURFACE LOCATION: 330' FNL & 990' FWL
NE NW NW Sec. 23, T1S, R36W
Rawlins County, Kansas

LATITUDE & LONGITUDE: 39.9581441, -101.3323351 (From State, calculated from footages)

BOTTOM HOLE LOCATION: Vertical hole

ELEVATIONS: 3289' GL 3302' KB

API NUMBER: 15-153-20983

BASIN: Mid-Continental Arch

FIELD: East Fork

HOLE SIZE: 12 1/4" to 310'; 7 7/8" to 4540'

CASING: 8 5/8" J-55 24# STC set to 311' KB

SPUD DATE: March 21, 2014

TD DATE: April 1, 2014

TOTAL DEPTH: 4540' Rig TD 4536' 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				3302
Pierre Sh	Cased	Cased	N/A	N/A
Niobrara Fm	N/A	1236	1236	+2066
Fort Hays Ls Mbr	N/A	1748	1748	+1554
Carlile Sh	N/A	1783	1783	+1519
Dakota	N/A	2164	2164	+1138
Cheyenne	N/A	2712	2712	+590
Blaine	N/A	3050	3050	+252
Stone Corral Anhydrite	3216	3208	3208	+94
Base Anhydrite	3251	3238	3238	+64
Neva	3704	3692	3692	-390
Foraker	3816	3800	3800	-498
Wabaunsee	3972	3960	3960	-658
Topeka	4028	4016	4016	-714
Deer Creek Sand	4062	4054	4054	-752
Oread	4132	4128	4128	-826
Lansing-Kansas City				
"A"	4240	4228	4228	-926
"B"	4298	4285	4285	-983
"C"	4358	4344	4344	-1042
"D"	4405	4390	4390	-1088
"E"	4448	4433	4433	-1131
"F"	4486	4474	4474	-1172
TD Driller	4540			
TD Logger		4536	4536	-1234

LITHOLOGY AND SHOWS

The following descriptions are interpretive. Rig crew members collected unlagged samples from 3500' to 4540' TD. Depths are rig depths except where noted as wireline.

3500' - 3594'	SHALE: reddish orange, firm to soft, fissile to blocky, very silty, sandy in part, non to slightly calcareous, trace light tan Limestone.
3594' - 3642'	SHALE: reddish orange, firm to soft, fissile to blocky, very silty, sandy in part, non to slightly calcareous, trace light tan Limestone.
3642' - 3694'	SHALE: reddish orange to reddish brown, firm to hard, fissile to blocky, very silty, occasional sandy stringers, non to slightly calcareous, trace light tan Limestone.
3694' - 3704'	SANDSTONE: white to light gray to red brown, friable to firm, very fine grained grading to silt, sub rounded to rounded, well sorted, calcareous cement, occasional clay filled, no visible porosity, no shows.
NEVA	SAMPLE TOP: 3704' LOG TOP: 3692' SUBSEA: -390'
3704' - 3712'	LIMESTONE: white to light gray, firm to hard, chalky, fossil fragment, tight, no shows.
3712' - 3774'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional silty, with interbedded LIMESTONE: white to light gray, firm to hard, cryptocrystalline, tight, no shows.
3774' - 3792'	LIMESTONE: light gray, hard, cryptocrystalline, very slightly sandy, reddish brown SHALE stringers, tight, no shows.
3792' - 3816'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional silty.
FORAKER	SAMPLE TOP: 3816' LOG TOP: 3800' SUBSEA: -498'
3816' - 3824'	LIMESTONE: white to very light gray, firm to hard, cryptocrystalline, chalky, fossil fragment, clean, tight, no show.
3824' - 3834'	SHALE: dark gray, firm, blocky, non to slightly calcareous, fossil fragments.
3834' - 3848'	LIMESTONE: white to light gray, firm to hard, cryptocrystalline, chlky, fossil fragment, algal stain, slightly sandy at base, trace black dead oil, tight to trace intercrystalline porosity, no shows.

LITHOLOGY AND SHOWS

3848' - 3862'	SANDSTONE: very light gray to white, friable, very fine grained, subangular to subrounded, well sorted, calcareous cement, clay fill, black specks, tight to trace porosity, no shows.
3862' - 3918'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional silty, occasional light gray Limestone stringers.
3918' - 3938'	SHALE: dark gray to gray to black, firm, fissile to blocky, non calcareous, slightly carbonaceous in part, fossil fragments (Brachiopod).
3938' - 3972'	LIMESTONE: white to light gray, hard, microcrystalline, occasional slightly chalky, tight, no shows.
WABAUNSEE	SAMPLE TOP: 3972' LOG TOP: 3960' SUBSEA: -658'
3972' - 3994'	LIMESTONE: white to light gray with light brown mottled, hard to firm, cryptocrystalline, chalky texture, light reddish brown SHALE partings and interbeds, rare fossil fragment, tight, no shows.
3994' - 4028'	SHALE: light reddish brown to light gray orange, soft to firm, sub blocky to lumpy, non calcareous, clayey, occasional silty, thin gray Limestone partings.
TOPEKA	SAMPLE TOP: 4028' LOG TOP: 4016' SUBSEA: -714'
4028' - 4032'	LIMESTONE: light gray to white, hard to firm, cryptocrystalline, fossil fragment, sparry calcareous, tight, no shows.
4032' - 4044'	SHALE: gray, firm, sub blocky, non to slightly calcareous, dull.
4044' - 4062'	LIMESTONE: light gray to white, hard to firm, cryptocrystalline, fossil fragment, clear calcareous fill in vugs, clear to opaque chert, tight, no shows.
DEER CREEK SAND	SAMPLE TOP: 4062' LOG TOP: 4054' SUBSEA: -752'
4062' - 4080'	SANDSTONE: light gray to very light gray, very friable to soft, very fine grained, well rounded, well sorted, weak calcareous cement, clay filled, plant remains, abundant loose grains, trace to poor porosity, no show.

LITHOLOGY AND SHOWS

4080' - 4132'	SHALE: reddish brown, brown maroon, gray, mottled in part, soft to firm, blocky, occasional slightly calcareous, non to slightly silty in part, clayey to sticky in part.
OREAD	SAMPLE TOP: 4132' LOG TOP: 4128' SUBSEA: -826'
4132' - 4148'	LIMESTONE: cream to white, firm to hard, wackstone to grainstone, abundant fossil fragment, occasional oolites and peloids, interclasts, scattered black to dark brown live oil stain, tight to trace interparticle and moldic porosity, bright yellowish white fluorescence, immediate blooming yellowish white cuts, with slow streaming cuts, good show.
4148' - 4160'	LIMESTONE: light gray to white, hard, mudstone, chalky, fossil fragment, tight, no shows.
4160' - 4168'	SHALE: dark gray to black, firm, fissile, slightly to very carbonaceous, n to slightly calcareous, fossil fragments (Brachiopod).
4168' - 4202'	LIMESTONE: gray to light gray, firm to hard, mudstone, rare fossil, very chalky texture, light brown to opaque chert, clear calcareous crystals, tight, no show.
4202' - 4212'	SHALE: gray to dark gray, firm, blocky, non to slightly calcareous.
4212' - 4240'	SHALE: gray to light maroon to reddish brown, firm, blocky, non to slightly calcareous, occasional subwaxy, occasional soft and clayey, Limestone stringers.
LANSING- KANSAS CITY "A"	SAMPLE TOP: 4240' LOG TOP: 4228' SUBSEA: -926'
4240' - 4259'	LIMESTONE: white to cream, firm to hard, mudstone to wackestone, occasional interclasts and peloids, fossil fragment, occasional free black heavy oil, predominantly tight to trace inparticle porosity, bright yellowish white fluorescence, instant blooming yellowish white cuts, with fast streaming yellowish white cuts, good show, heavy oil left in spot plate.
4259' - 4269'	SANDSTONE: white to light gray to light brown, firm to friable, very fine grained, well rounded, well sorted, calcareous cement, clay filled, clean, tight to poor porosity, no show.
4269' - 4284'	LIMESTONE: light gray, firm, mudstone, slightly argillaceous, gray shale partings, moderately to very silty and sandy in part, tight.
4284' - 4298'	SHALE: gray to dark gray, firm, platy to fissile, slightly to moderately calcareous, slightly carbonaceous in part, dull, thin Limestone partings.

LITHOLOGY AND SHOWS

LANSING- KANSAS CITY "B"

SAMPLE TOP: 4298' LOG TOP: 4285' SUBSEA: -983'

4298' - 4314'

LIMESTONE: white, firm, packstone to wackstone, fossil fragment, pyrite, patchy live heavy black oil, tight to trace interparticle porosity, bright yellowish white fluorescence, instant blooming bright yellowish white cuts, good oil show.

4314' - 4328'

SHALE: gray to dark gray, firm, platy to fissile, slightly carbonaceous in part, non to slightly calcareous.

4328' - 4334'

LIMESTONE: white to very light gray, firm to hard, cryptocrystalline, gray Shale partings, fossil fragment, slightly to moderately argillaceous in part, tight, no show.

4334' - 4358'

SHALE: brownish red to light gray to maroon, firm to soft, platy, slightly calcareous, sandy/silty in part.

LANSING- KANSAS CITY "C"

SAMPLE TOP: 4358' LOG TOP: 4344' SUBSEA: -1042'

4358' - 4374'

LIMESTONE: white to light tan, firm, mudstone to grainstone, abundant fossil fragment, abundant patchy black heavy oil, poor intergranular and pin point vuggy porosity, bright yellowish white fluorescence, instant blooming yellowish white cuts, with rapid streaming yellowish white cuts, good show.

4374' - 4386'

SHALE: gray to dark gray, firm, sub blocky, non to slightly calcareous, fossil fragment, Limestone stringers.

4386' - 4390'

LIMESTONE: white to gray, mottled in part, hard to firm, mudstone to wackstone, fossil, trace black heavy oil stain, tight to trace porosity, occasional bright yellowish white fluorescence, occasional blooming yellowish white cuts, poor show.

4390' - 4405'

SHALE: dark gray to gray, firm, blocky, white Limestone partings.

LANSING- KANSAS CITY "D"

SAMPLE TOP: 4405' LOG TOP: 4390' SUBSEA: -1088'

4405' - 4414'

LIMESTONE: light gray to white, firm, grainstone to mudstone, fossil fragment, chalky texture, no visible porosity, no show.

4414' - 4430'

SHALE: dark gray to gray, firm, fissile to blocky, white Limestone partings, fossil fragments.

LITHOLOGY AND SHOWS

4430' - 4448' SHALE: dark reddish brown to gray, firm, blocky to platy, non calcareous, occasional silty, pyrite, thin Limestone stringers.

LANSING-
KANSAS CITY "E"

SAMPLE TOP: 4448' LOG TOP: 4433' SUBSEA: -1131'

4448' - 4466' LIMESTONE: white to light gray to very light brown, hard to firm, mudstone to packstone, predominant chalky texture, occasional fossil, patchy black oil specks and stain, tight to trace vuggy porosity, bright yellowish white fluorescence, blooming yellowish white cut, poor to fair show.

4466' - 4486' SHALE: dark gray to black to gray, firm, blocky to subfissile, non to slightly calcareous, fossils, slightly carbonaceous in part, pyrite.

LANSING-
KANSAS CITY "F"

SAMPLE TOP: 4486' LOG TOP: 4474' SUBSEA: -1172'

4486' - 4498' LIMESTONE: cream to white to light gray, firm to hard, mudstone to wackestone, chalky, occasional fossil fragments, clean, very tight, no shows.

4498' - 4508' SHALE: gray to dark gray to black, firm, blocky, calcareous, fossil (Brachiopod), moderately to very carbonaceous in part, pyrite.

4508' - 4518' LIMESTONE: cream to white to light gray, firm to hard, mudstone, fossil fragment, very chalky, dense, with interbedded thin dark gray Shale partings, tight, no shows.

4518' - 4540' TD SHALE: gray to dark gray, firm, platy to blocky, non to very slightly calcareous, fossil fragment, interbedded white to light gray chalky Limestone.

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	
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
	Will MacLean	785- 625-4778
	DST 1: 4098' - 4148' Oread	
	DST 2: 4180' - 4270' LKC "A"	
	DST 3: 4254' - 4318' LKC "B"	
	DST 4: 4310' - 4398' LKC "C"	
	DST 5: 4412' - 4470' LKC "E"	
DIRECTIONAL DRILLING:	None	
WIRELINE LOGS:	Pioneer Wireline Services	Hays, KS
	RAG: Surface casing - TD	785-625-3858
	Micro: 3500' - TD	
	Engineer: Jerrod Long	