

**BEREXCO LLC**

**MEARS B 2-9**

**SW NE SW SE SEC 9 T1S R37W**

**CHEYENNE COUNTY, KANSAS**

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## SUMMARY

The Berexco LLC Mears B 2-9 in Cheyenne County, Kansas spud May 21, 2014 and reached a total depth of 4720' on May 29, 2014. Wellsite geological supervision commenced at 3000'. The primary objectives were Pawnee in the Marmaton Group and the Pennsylvanian Missourian Lansing-Kansas City limestones which produce in the Jones Canyon Southeast field. Secondary zones of interests were the Permian Foraker and Virgilian Oread limestones. The Mears B 2-9 was drilled using seismic and nearby well control.

On-site evaluation was by drill stem testing after sample analysis and consideration of structural position. Five DSTs were run.

### **Foraker, Wabaunsee, Topeka, and Oread**

DST 1 in the Foraker recovered 6 ft of oil-spotted mud and poor flow pressures. Samples were fossiliferous grainstone and mudstone with poor pin-point porosity, free oil in vugs, and very good fluorescence and cuts. The Foraker produces oil in a field to the north but is nonproductive at this location.

The Wabaunsee was tight and shows of black heavy oil did not merit drill stem testing. Minor shows of dead oil were observed in the Topeka.

DST 2 in the Oread recovered 5 ft of oil-spotted mud. Samples were fossiliferous packstone with traces of interparticle and vuggy porosity, scattered to even oil staining, and good cuts.

### **Lansing-Kansas City and Pawnee**

The Lansing A exhibited no visible porosity or oil shows.

DST 3 in the Lansing B recovered 100 ft of watery mud. Samples were packstone with poor interparticle and vuggy porosity, abundant spotty black oil, and good fluorescence and cuts.

DST 4 tested the Lansing C, D, and E together. Recovery was 5 ft of mud with very low pressures. Samples of the Lansing C were chalky mudstone with occasional very poor fluorescence and cut and rare spotty black and dark brown oil stain. The Lansing D was mudstone with only a trace of black asphaltic staining and no visible porosity. The Lansing E was nonporous mudstone to grainstone heavily occluded with lime mud; only trace spotty oil stain and poor fluorescence and cuts were observed.

The Lansing F was nonporous limestone with no sample show.

DST 5 in the Pawnee recovered 739 ft of gassy oil and 688 ft of gas in drill pipe. Samples were porous grainstone occasionally occluded with lime mud. Scattered good fluorescence and cuts were observed in interparticle and vuggy porosity.

### **Oil Well Completion**

5 ½" production casing was run to complete the Mears B 2-9 as an oil producer.

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

Berexco LLC  
Mears B 2-9

### WELL DATA

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

WELL NAME: Mears B 2-9

SURFACE LOCATION: 780' FSL & 1780' FEL  
SW NE SW SE Sec 9, T1S, R37W  
Cheyenne County, Kansas

LATITUDE & LONGITUDE: 39.9759218, -101.4732086 (From State, calculated from footages)

BOTTOM HOLE LOCATION: Vertical hole

ELEVATIONS: 3265' GL 3278' KB

API NUMBER: 15-023-21390

BASIN: Mid-Continental Arch

FIELD: Jones Canyon Southeast

HOLE SIZE: 12 1/4" to 310'; 7 7/8" to 4720'

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

SPUD DATE: May 21, 2014

TD DATE: May 29, 2014

TOTAL DEPTH: 4720' Rig TD 4715' Log TD

LAST FORMATION: Pennsylvanian Cherokee

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				3278
Pierre Sh	Cased	Cased	N/A	N/A
Niobrara Fm	N/A	1193	1193	+2085
Fort Hays Ls Mbr	N/A	1724	1724	+1554
Carlile Sh	N/A	1760	1760	+1518
Dakota	N/A	2136	2136	+1142
Cheyenne	N/A	2703	2703	+575
Blaine	N/A	3004	3004	+274
Stone Corral Anhydrite	3220	3221	3221	+57
Base Anhydrite	3253	3254	3254	+24
Chase Dolomite	3420	3420	3420	-142
Neva	3669	3672	3672	-394
Red Eagle	3730	3737	3737	-459
Foraker	3783	3783	3783	-505
Wabaunsee	3938	3944	3944	-666
Topeka	4006	4008	4008	-730
Oread	4142	4140	4140	-862
Heebner Sh	4183	4184	4184	-906
Lansing-Kansas City				
"A"	4226	4224	4224	-946
"B"	4285	4282	4282	-1004
"C"	4341	4336	4336	-1058
"D"	4382	4389	4389	-1111
"E"	4428	4435	4435	-1157
"F"	4472	4492	4492	-1214
Pawnee	4627	4622	4622	-1344
Cherokee	4687	4681	4681	-1403
TD Driller	4720			
TD Logger		4715	4715	-1437

## LITHOLOGY AND SHOWS

The following descriptions are interpretive. Rig crew members collected unlagged samples from 3500' to 4720' TD. Depths are rig depths except where noted as wireline.

3500' - 3526'	SHALE: light reddish brown to reddish orange, firm to soft, fissile to blocky, very silty, sandy in part, non to slightly calcareous.
3526' - 3530'	SILTY SANDSTONE: reddish brown, soft to very friable, very fine grained grading to silt, subangular to subrounded, moderately to poor sorted, non to slightly calcareous, argillaceous to clay matrix, no visible porosity, no show.
3530' - 3572'	SHALE: light reddish brown to reddish orange, firm to soft, lumpy to subblocky, very silty, sandy in part, non to slightly calcareous, clayey, white granular Anhydrite/Gypsum.
3572' - 3792'	LIMESTONE: white, with occasional reddish brown mottled, firm to hard, mudstone, slightly chalky, slightly argillaceous in part, reddish brown Shale partings, tight, no show.
3592' - 3637'	SHALE: light reddish brown to reddish orange, firm to soft, fissile to blocky, very silty, sandy in part, non to slightly calcareous.
3637' - 3641'	LIMESTONE: tan with occasional dark red pellet, firm to hard, mudstone, slightly argillaceous in part, reddish brown Shale partings, tight, no show.
3641' - 3669'	SHALE: light reddish brown to reddish orange, firm to soft, fissile to blocky, very silty, sandy in part, non to slightly calcareous.
NEVA	SAMPLE TOP: 3669'      LOG TOP: 3672'      SUBSEA: -394'
3669' - 3674'	LIMESTONE: light tan to gray tan, firm to hard, mudstone, slightly chalky, black Algal material, tight, no show.
3674' - 3678'	SANDSTONE: very light gray to gray, friable to firm, very fine grained, sub rounded to rounded, well sorted, calcareous cement, occasional clay filled, no visible porosity, no shows.
3678' - 3688'	SHALE: dark gray to gray to grayish green, firm, fissile to blocky, slightly calcareous, fossil fragments.
3688' - 3692'	LIMESTONE: white to light gray, hard, cryptocrystalline, very chalky, abundant fossils, scattered black Algal stain (dead oil), occasional dark gray pellet, no visible porosity, no show.
3692' - 3707'	SANDSTONE: light gray to reddish brown, friable to firm, blocky, silty, non calcareous.

## LITHOLOGY AND SHOWS

3707' - 3730'	SHALE: reddish brown to gray, soft to firm, sub blocky, n calcareous, occasional silty, with SILTY SANDSTONE: reddish brown, soft to very friable, very fine grained grading to silt, angular, moderately sorted, non to slightly calcareous, argillaceous to clay matrix, no visible porosity, no show.
3730' - 3754'	LIMESTONE: light gray to white to grayish brown, hard, cryptocrystalline, occasional slightly argillaceous, trace fossil fragments, occasional reddish brown SHALE, tight, no shows.
3754' - 3783'	SHALE: reddish brown, firm to hard, fissile to blocky, very silty, sandy in part, non to slightly calcareous, trace light gray Limestone.
FORAKER	SAMPLE TOP: 3783'      LOG TOP: 3783'      SUBSEA: -505'
3783' - 3792'	LIMESTONE: cream to white to very light brown, firm to hard, mudstone to grainstone, peloids. interclasts, abundant fossil fragments, black oil stain and specks predominant in vugs, pin point vuggy porosity, bright yellowish white fluorescence, immediate blooming and streaming yellowish white cuts, fair show.
3792' - 3806'	LIMESTONE: white to light gray, firm to hard, cryptocrystalline, chalky, fossil fragments, algal stain, Shale stringers, tight to trace intercrystalline porosity, no shows.
3806' - 3812'	SHALE: gray to grain gray, firm, blocky, non to slightly calcareous, fossil fragments, medium to dark gray Limestone stringers.
3812' - 3830'	LIMESTONE: white to light gray, firm to hard, cryptocrystalline to packstone, fossil fragment, algal stain, no visible porosity, no shows.
3830' - 3839'	SANDSTONE: very light gray to white, friable, very fine grained, subangular to subrounded, well sorted, calcareous cement, clay fill, black specks, abundant loose grains, tight to trace porosity, no shows.
3839' - 3857'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional moderately to very silty, occasional light gray Limestone stringers.
3857' - 3876'	LIMESTONE: pale gray to bluish gray, firm to hard, mudstone to wackestone, occasional fossil fragment, sandy in part, slightly argillaceous, tight, no shows.
3876' - 3888'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional moderately to very silty.
3888' - 3900'	SANDY SILTSTONE: reddish brown to light gray, mottled, firm to friable, very fine grained grading to silt, argillaceous in part, reddish brown Shale partings, tight, no show.

## LITHOLOGY AND SHOWS

3900' - 3914'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional silty, occasional light gray chalky Limestone stringers, light tan SANDSTONE present.
3914' - 3924'	LIMESTONE: white to light gray, occasional reddish brown mottled, firm to hard, mudstone, slightly argillaceous in part, gray to dark gray Shale partings, tight, no show.
3924' - 3938'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional silty, occasional light gray chalky Limestone stringers.
WABAUNSEE	SAMPLE TOP: 3938'      LOG TOP: 3944'      SUBSEA: -666'
3938' - 3972'	LIMESTONE: white to light gray, with light reddish brown mottled, soft to firm, microgranular texture, fossil fragment, reddish brown SHALE partings, occasional fossil fragment, slightly sandy in part, even to spotty black heavy oil material, no visible porosity, very tight, pale yellow grain fluorescence, diffuse pale yellowish white cut, no free oil, fair show decreasing with depth.
3972' - 3980'	SANDSTONE: light gray to tan, friable, very fine grained, subangular to subrounded, well sorted, calcareous cement, clay fill, abundant loose grains, tight to trace porosity, no shows.
3980' - 4006'	SHALE: reddish brown, maroon, gray, mottled in part, soft to firm, blocky, non calcareous, moderately to very silty in part, Limestone stringers.
TOPEKA	SAMPLE TOP: 4006'      LOG TOP: 4008'      SUBSEA: -730'
4006' - 4028'	LIMESTONE: light gray to white, hard to firm, cryptocrystalline, fossil fragment (Fusulinid, Brachiopod), sparry calcareous, dark gray Shale partings, occasional black dead oil, tight, no shows.
4028' - 4034'	SHALE: gray, firm, platy to fissile, n to slightly calcareous, dull.
4034' - 4050'	LIMESTONE: light gray to white, hard to firm, cryptocrystalline, fossil fragment, dark gray Shale stringers, tight, no shows.
4050' - 4081'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional silty, clayey, white chalky Limestone stringers.
4081' - 4100'	LIMESTONE: white, soft to firm, cryptocrystalline, very chalky, brownish red partings and inclusions, tight, no shows.

## LITHOLOGY AND SHOWS

4100' - 4142'	SHALE: reddish brown, brownish maroon, gray grain, firm, blocky, occasional slightly calcareous, non to slightly silty in part, occasional thin SANDSTONE stringers, waxy in part, occasional clayey to sticky.
OREAD	SAMPLE TOP: 4142'      LOG TOP: 4140'      SUBSEA: -862'
4142' - 4155'	LIMESTONE: cream to white, firm to hard, mudstone to grainstone, fossil fragments, occasional ooliths, even to scattered black oil stain, tight to trace interparticle and fair vuggy porosity, patchy bright yellowish white fluorescence, immediate blooming yellowish white cuts, with slow streaming cuts, good show.
4155' - 4178'	LIMESTONE: cream to white, firm to hard, mudstone, fossil fragment, very chalky texture, in part, trace to scattered black oil stain, tight to trace interparticle porosity, occasional bright yellowish white fluorescence, immediate blooming yellowish white cuts, with slow streaming cuts, trace show decrease with depth.
4178' - 4187'	SHALE: black to dark gray, blocky, carbonaceous.
4187' - 4194'	SANDSTONE: gray to black, very friable, very fine grained grading to silt, rounded, well sorted, calcareous cement, abundant black dead oil, trace porosity, no show.
4194' - 4226'	SHALE: gray to reddish brown to maroon, firm, blocky, non to slightly calcareous occasionally silty, Limestone stringers.
LANSING- KANSAS CITY "A"	SAMPLE TOP: 4226'      LOG TOP: 4224'      SUBSEA: -946'
4226' - 4250'	LIMESTONE: pale gray to light gray, hard, mudstone, occasional fossils, slightly argillaceous in part, rare black dead oil stain, very tight, no show.
4250' - 4258'	SANDSTONE: white to light gray, firm to friable, very fine grained, well rounded, well sorted, calcareous cement, clay filled, black dead oil specks, no visible porosity, no show.
4258' - 4285'	SHALE: gray to reddish brown, soft to firm, sub blocky, non to slightly calcareous, clayey, occasional argillaceous Siltstone stringers.



## LITHOLOGY AND SHOWS

### LANSING- KANSAS CITY "B"

SAMPLE TOP: 4285' LOG TOP: 4282' SUBSEA: -1004'

4285' - 4299'

LIMESTONE: white to very light gray, firm to hard, mudstone to packstone, occasional fossil fragment (Fusulinid), occasional free live black oil, predominant tight with trace intergranular porosity and trace vuggy porosity, bright yellowish white fluorescence, instant blooming bright yellowish white cuts, good show.

4299' - 4314'

SHALE: gray to dark gray, firm, sub blocky, non to slightly calcareous, fossil fragments, pyrite.

4314' - 4341'

SHALE: dark reddish brown, very soft to slightly firm, sub blocky to lumpy, non calcareous, moderately to very silty, sticky to gummy, clayey.

### LANSING- KANSAS CITY "C"

SAMPLE TOP: 4341' LOG TOP: 4336' SUBSEA: -1058'

4341' - 4357'

LIMESTONE: light gray to white, firm, grainstone to wackestone, abundant fossil fragments, occasional spotty black oil stain and specks, trace intergranular porosity and trace vuggy porosity, bright yellowish white fluorescence, instant blooming bright yellowish white cuts, fair show decreasing with depth.

4357' - 4382'

SHALE: gray to dark gray, firm, sub blocky, non to slightly calcareous, fossil fragments, pyrite.

### LANSING- KANSAS CITY "D"

SAMPLE TOP: 4382' LOG TOP: 4389' SUBSEA: -1111'

4382' - 4394'

LIMESTONE: light gray to white, firm, mudstone to wackestone, fossil fragment, chalky texture, trace spotty black oil specks (few pieces), no visible porosity, dull yellow fluorescence, dull yellowish white cut, very poor show.

4394' - 4402'

SHALE: gray to dark gray, firm, sub blocky, non to slightly calcareous.

4402' - 4408'

LIMESTONE: light gray, hard, cryptocrystalline, chalky, tight, no show.

4408' - 4428'

SHALE: gray to reddish brown, soft to firm, subblocky, non to slightly calcareous, clayey, occasional tan LIMESTONE stringers.

## LITHOLOGY AND SHOWS

### LANSING- KANSAS CITY "E"

SAMPLE TOP: 4428' LOG TOP: 4435' SUBSEA: -1157'

- 4428' - 4444' LIMESTONE: white, firm to soft, mudstone to grainstone, slightly chalky in part, fossil fragments, occasional patchy brown oil stain, trace poor to poor vuggy porosity, bright yellowish white fluorescence, immediate blooming yellowish white cuts, poor show.
- 4444' - 4452' SHALE: dark gray to gray, firm, blocky, calcareous, fossils (Brachiopod), very to slightly carbonaceous in part, plant remains.
- 4452' - 4472' SHALE: dark reddish brown to reddish brown, firm to soft, blocky to platy, non calcareous, moderately to very silty.

### LANSING- KANSAS CITY "F"

SAMPLE TOP: 4472' LOG TOP: 4492' SUBSEA: -1214'

- 4472' - 4484' LIMESTONE: cream to white to light gray, firm to hard, mudstone, very chalky texture, occasional fossil fragments, very tight, no shows.
- 4484' - 4498' SHALE: gray to dark gray, firm, platy, non to slightly calcareous, occasional slightly carbonaceous, pyrite.
- 4498' - 4508' LIMESTONE: light gray to tan, hard, cryptocrystalline, slightly chalky, dense, tight, no show.
- 4508' - 4533' SHALE: brownish red, firm, blocky, non calcareous, with LIMESTONE stringers.
- 4533' - 4546' LIMESTONE: white to cream, with reddish brown mottled, mudstone, occasional red shale partings, trace dark gray SHALE, tight, no shows.
- 4546' - 4567' SHALE: brownish red, firm, blocky, non calcareous, with LIMESTONE stringers.
- 4567' - 4598' LIMESTONE: gray, hard, cryptocrystalline, fossil fragments, dense, interbedded gray to greenish gray Shale, tight, no shows.
- 4598' - 4604' LIMESTONE: light gray to gray, hard, cryptocrystalline, slightly chalky, argillaceous in part, tight, no show.
- 4604' - 4627' SHALE: gray to dark gray to dark gray grain, hard to firm, sub blocky to fissile, non calcareous.

### LITHOLOGY AND SHOWS

PAWNEE	SAMPLE TOP: 4627'	LOG TOP: 4622'	SUBSEA: -1344'
4627' - 4650'	LIMESTONE: white to cream to very light gray, firm to hard, grainstone to mudstone, trace ooliths and peloids, fossil fragments, occasional live black oil stain, tight to poor vuggy porosity, occasional trace interparticle porosity, bright yellowish white fluorescence, instant blooming yellowish white cuts, fair show.		
4650' - 4660'	SHALE: black to dark gray to gray, firm, blocky to fissile, occasionally carbonaceous, trace pyrite, fossil fragment, thin Limestone stringers.		
4660' - 4687'	LIMESTONE: white to very light gray, hard, mudstone, slightly chalky, fossil fragment, trace chert, tight, no shows.		
CHEROKEE	SAMPLE TOP: 4687'	LOG TOP: 4681'	SUBSEA: -1403'
4687' - 4703'	SHALE: black to dark gray to gray, firm, blocky to fissile, occasional carbonaceous, trace pyrite, fossil fragment, thin Limestone stringers.		
4703' - 4720' TD	LIMESTONE: white to light gray, firm to hard, mudstone, trace chert, rare fossil, tight, no shows.		

Berexco LLC  
Mears B 2-9

## 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. Peter J. Vollmer	Wilson, WY 307-733-4332
DRILL STEM TESTING:	Trilobite Testing, Inc. Royal Fisher, Ryan Nichols DST 1: 3754' - 3806' Foraker DST 2: 4096' - 4155' Oread DST 3: 4246' - 4300' LKC "B" DST 4: 4312' - 4446' LKC "C" - "E" DST 5: 4604' - 4644' Pawnee	Hays, KS 785- 625-4778
DIRECTIONAL DRILLING:	None	
WIRELINE LOGS:	Pioneer Wireline Services RAG: Surface casing - TD Micro: 3500' - TD Chris Desaire	Hays, KS 785-625-3858