

**BEREXCO LLC**

**OWENS TRUST 1-19**

**E/2 W/2 NE NW SEC 19 T1S R37W**

**CHEYENNE COUNTY, KANSAS**

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## SUMMARY

The Berexco LLC Owens Trust 1-19 in Cheyenne County, Kansas spud November 25, 2014 and reached a total depth of 4750' on December 5, 2014. Wellsite geological supervision commenced at 3000'. The primary objectives of the wildcat were the Pennsylvanian Missourian Lansing-Kansas City limestones. Secondary zones of interests were the Foraker, Oread, and Pawnee limestones. The Owens Trust 1-19 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**

The Foraker was clean non-porous limestone with no sample shows. Minor oil shows in tight limestone were found in the Wabaunsee and Topeka but these did not merit drill stem testing. Oread samples were fossiliferous grainstone and mudstone with trace interparticle and vuggy porosity, scattered black oil staining, live oil in vugs, and good cuts. DST 1 in the Oread recovered 5 ft of oil spotted mud.

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

Minor oil shows and no visible porosity were observed in the Lansing-Kansas City A.

DST 2 in the B recovered 530 ft of oil cut mud. Poor interparticle and vuggy porosity with spotty black oil stain were observed in cuttings.

DST 3 in the C recovered 15 ft of oil spotted mud. Samples displayed scattered black oil stain, good fluorescence and cuts, but only poor porosity. During DST 3 drilling fluid was lost above the test tool. After the test more fluid was lost for a total of 50 bbl. It is believed the fluid was lost in the B porosity.

DST 4 in the combined D and E recovered 589 ft of gas and mud cut oil. The D was mudstone with very poor shows and no visible porosity. No DST was warranted in the D alone. The E samples displayed very spotty oil stain with good fluorescence and cut from oolitic grainstone and mudstone.

The F was nonporous limestone with no sample shows.

DST 5 in the Pawnee recovered 10 ft of drilling mud with very poor flow pressures from chalky mudstone and occasional grainstone with minor porosity and shows.

The Fort Scott was nonporous limestone. The Cherokee displayed dead oil staining in nonporous chalky limestone and tight sandstone.

### **Oil Well Completion**

After wireline logs 5 ½" production casing was run for completion of the Owens Trust 1-19 as an oil well.

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

Berexco LLC  
Owens Trust 1-19

## WELL DATA

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

WELL NAME: Owens Trust 1-19

SURFACE LOCATION: 660' FNL & 1830' FWL  
E/2 W/2 NE NW Sec. 19, T1S, R37W  
Cheyenne County, KS

LATITUDE & LONGITUDE: 39.9577495, -101.5158958 (From State, calculated from footages)

BOTTOM HOLE LOCATION: Vertical hole

ELEVATIONS: 3170' GL 3183' KB

API NUMBER: 15-023-21416

BASIN: Mid-Continental Arch

FIELD: Wildcat

HOLE SIZE: 12 ¼" to 310'; 7 7/8" to 4750'

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

SPUD DATE: November 25, 2014

TD DATE: December 5, 2014

TOTAL DEPTH: 4750' Rig TD 4746' Log TD

LAST FORMATION: Pennsylvanian Cherokee

WELL STATUS: Ran 5 ½" production casing

OPERATOR  
REPRESENTATIVE: Dana Wreath - Vice President

WELLSITE GEOLOGIST: Peter J. Vollmer

**FORMATION TOPS**

Formation	Sample Top	Log Top	Log TVD	Log Subsea
KB				3183
Pierre Sh	Cased	Cased	N/A	N/A
Niobrara Fm	N/A	1096	1096	+2087
Fort Hays Ls Mbr	N/A	1620	1620	+1563
Carlile Sh	N/A	1677	1677	+1506
Dakota	N/A	1894	1894	+1289
Cheyenne	N/A	2583	2583	+600
Blaine	N/A	2941	2941	+242
Cedar Hills	N/A	3020	3020	+163
Stone Corral Anhydrite	3145	3142	3142	+41
Base Anhydrite	3179	3177	3177	+6
Chase Limestone	3347	3342	3342	-159
Neva	3605	3599	3599	-416
Red Eagle	3665	3662	3662	-479
Foraker	3719	3716	3716	-533
Wabaunsee	3832	3832	3832	-649
Topeka	3933	3938	3938	-755
Deer Creek Lime	4009	4017	4017	-834
Oread	4075	4071	4071	-888
Heebner Sh	4104	4102	4102	-919
Lansing-Kansas City				
"A"	4154	4147	4147	-964
"B"	4216	4210	4210	-1027
"C"	4269	4261	4261	-1078
"D"	4310	4302	4302	-1119
"E"	4356	4350	4350	-1167
"F"	4399	4392	4392	-1209
Pawnee	4547	4546	4546	-1363
Ft Scott	4586	4580	4580	-1397
Cherokee	4638	4632	4632	-1449
TD Driller	4750			
TD Logger		4746	4746	-1563

## LITHOLOGY AND SHOWS

The following descriptions are interpretive. Rig crew members collected unlagged samples from 3500' to 4750' TD. Depths are rig depths except where noted as wireline.

3500' - 3538'	SHALE: light reddish brown to reddish orange, firm to soft, fissile to subblocky, very silty, sandy in part, non to slightly calcareous.
3538' - 3554'	LIMESTONE: white to light gray to light brown, occasional reddish brown mottled, firm to hard, mudstone, occasional fossil fragments, chalky, slightly argillaceous in part, reddish brown Shale partings, tight, no show.
3554' - 3605'	SHALE: reddish brown to brownish orange, soft to firm, sub blocky, non calcareous, occasional silty, with interbedded LIMESTONE: white to light gray, firm to hard, mudstone, tight, no shows.
NEVA	SAMPLE TOP: 3605'      LOG TOP: 3599'      SUBSEA: -416'
3605' - 3613'	LIMESTONE: white to light gray, hard, mudstone, slightly chalky, fossil fragments, occasional black Algal stain, tight, no show.
3613' - 3618'	SANDSTONE: very light gray to white, friable to firm, very fine grained, sub rounded to rounded, well sorted, calcareous cement, predominant clay filled/matrix, no visible porosity, no shows.
3618' - 3655'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional moderately to very silty.
3655' - 3665'	SANDSTONE: reddish brown to light gray to light brown, friable, very fine grained, subrounded to subangular, fair to well sorted, weak calcareous cement, predominant clay fill, no visible porosity, no shows.
RED EAGLE	SAMPLE TOP: 3665'      LOG TOP: 3662'      SUBSEA: -479'
3665' - 3684'	LIMESTONE: light gray to tan to light grayish brown, hard, mudstone to wackestone, scattered fossil fragments, occasional black Algal material, occasional slightly argillaceous, occasional reddish brown SHALE partings, tight, no shows.
3684' - 3719'	SHALE: reddish brown to light brown, soft to firm, subblocky, non calcareous, occasional moderately to very silty, Sandstone stringers.

## LITHOLOGY AND SHOWS

FORAKER	SAMPLE TOP: 3719' LOG TOP: 3716' SUBSEA: -533'
3719' - 3724'	LIMESTONE: light gray to dark gray to tan, mottled in part, hard, packstone to grainstone, fragmented in part, abundant fossil fragments, dark gray pellets, tight, no shows.
3724' - 3732'	SHALE: dark gray to gray, firm, subfissile, non calcareous.
3732' - 3758'	LIMESTONE: white to light gray to light brown, firm to hard, wackestone to packstone, fragment texture, fossil fragments, abundant opaque to light tan chert, tight, no shows.
3758' - 3768'	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.
3768' - 3780'	SHALE: reddish brown to light grayish orange, mottled, soft to firm, subblocky, non calcareous, occasional silty, occasional light gray chalky Limestone stringers.
3780' - 3792'	SHALE: dark gray to gray, firm, platy to fissile, non to slightly calcareous, occasional slightly carbonaceous, pyrite.
3792' - 3832'	SHALE: reddish brown to light gray to light orange, mottled, soft to firm, sub blocky, non calcareous, occasional silty, gummy to clayey, occasional light gray chalky Limestone stringers.
WABAUNSEE	SAMPLE TOP: 3832' LOG TOP: 3832' SUBSEA: -649'
3832' - 3862'	LIMESTONE: white to light gray, with occasional light reddish brown mottled, soft to hard, mudstone to wackestone, occasional chalky texture, reddish brown SHALE interbeds, occasional fossil fragments, trace black heavy oil material (dead oil), no visible porosity, no fluorescence, residual slow pale green white cut.
3862' - 3902'	SHALE: reddish brown to very light gray, occasional mottled, soft to firm, sub blocky, non calcareous, gummy to sticky.
3902' - 3933'	SHALE: reddish brown, soft to firm, sub blocky, non calcareous, occasional moderately to very silty, occasional Silty to Sandy stringers, gummy to sticky.

## LITHOLOGY AND SHOWS

TOPEKA	SAMPLE TOP: 3933'	LOG TOP: 3938'	SUBSEA: -755'
3933' - 3940'	LIMESTONE: white to light gray, with light reddish brown mottled, soft to firm, grainstone, ooliths, fossil fragments, spotty black dead oil material, no visible porosity, no shows.		
3940' - 3950'	SHALE: gray to dark gray, firm, platy to fissile, non to slightly calcareous, dull.		
3950' - 3972'	LIMESTONE: light gray to white, hard to firm, cryptocrystalline, fossil fragments, opaque chert, occasional dark gray SHALE stringers, tight, no shows.		
3972' - 4009'	SHALE: reddish brown to light gray to lavender, soft to firm, sub blocky, non calcareous, occasional silty, clayey, occasional white Limestone stringers.		
DEER CREEK LIME	SAMPLE TOP: 4009'	LOG TOP: 4017'	SUBSEA: -834'
4009' - 4020'	LIMESTONE: white to light gray, hard to firm, mudstone, chalky, fossil fragments (Fusilinid), rare black dead oil (Algal stain), tight, no shows.		
4020' - 4075'	SHALE: reddish brown, brownish maroon, gray grain to lavender, firm, blocky, occasional slightly calcareous, very slightly silty in part, occasional thin SANDSTONE stringers, waxy in part, occasional clayey to sticky, occasional LIMESTONE: light brown, hard, mudstone, tight, no shows.		
OREAD	SAMPLE TOP: 4075'	LOG TOP: 4071'	SUBSEA: -888'
4075' - 4086'	LIMESTONE: very light gray to white, firm to hard, mudstone to grainstone, fossil fragments (Brachiopod, Fusulinids), occasional ooliths, occasional patchy black heavy oil stain, black free oil in vugs, predominant tight to trace interparticle porosity and vuggy porosity, bright yellowish white fluorescence, immediate blooming yellowish white cuts, with slow streaming yellowish white cuts, good show.		
4086' - 4104'	LIMESTONE: white to light gray, firm to hard, mudstone, chalky, occasional fossil, occasional pyrite, tight, no show.		

### LITHOLOGY AND SHOWS

HEEBNER SH	SAMPLE TOP: 4104'	LOG TOP: 4102'	SUBSEA: -919'
4104' - 4108'	SHALE: dark gray to black, firm, fissile, slightly carbonaceous in part, non to slightly calcareous, pyrite.		
4108' - 4114'	LIMESTONE: gray to light gray, firm to hard, mudstone, black dead oil, tight, no show.		
4114' - 4154'	SHALE: gray to reddish brown to maroon, variegated, firm, blocky, non to slightly calcareous, occasional silty.		
LANSING- KANSAS CITY "A"	SAMPLE TOP: 4154'	LOG TOP: 4147'	SUBSEA: -964'
4154' - 4160'	LIMESTONE: white to light gray to cream, hard, mudstone to wackestone, rare fossil fragments, few pieces with spotty black oil stain, no visible porosity, bright yellowish white fluorescence, instant blooming yellowish white cuts, limited fair show with no porosity.		
4160' - 4182'	LIMESTONE: gray to light gray to cream, hard, mudstone, occasional fossil, predominant chalky texture, clean, tight, no show.		
4182' - 4184'	SANDSTONE: white to light gray to light brown, firm to friable, very fine grained, well rounded, well sorted, calcareous cement, clay filled, clean, no visible porosity, no show.		
4184' - 4216'	SHALE: reddish brown, soft to firm, subblocky, non to slightly calcareous, clayey, occasional argillaceous LIMESTONE stringers.		
LANSING- KANSAS CITY "B"	SAMPLE TOP: 4216'	LOG TOP: 4210'	SUBSEA: -1027'
4216' - 4230'	LIMESTONE: white to very light gray, firm to hard, grainstone to wackestone, occasional fossil fragment, rare ooliths, occasional free live heavy black oil, predominant tight with trace intergranular porosity and trace vuggy porosity, bright yellowish white fluorescence, instant blooming bright yellowish white cuts, good show from limited pieces.		
4230' - 4238'	LIMESTONE: white to light gray, hard, mudstone, occasional fossil, chalky texture, dark gray Shale partings, tight, no show.		
4238' - 4245'	SHALE: gray to dark gray, firm to hard, blocky to fissile, calcareous, disseminated pyrite.		



## LITHOLOGY AND SHOWS

4245' - 4253' SILTSTONE: light brown to reddish brown, friable to soft, argillaceous matrix, slightly calcareous.

4253' - 4269' SHALE: dark reddish brown to gray, soft to firm, blocky to platy, n calcareous, disseminated pyrite.

### LANSING- KANSAS CITY "C"

SAMPLE TOP: 4269' LOG TOP: 4261' SUBSEA: -1078'

4269' - 4290' LIMESTONE: white to very light gray, firm to hard, grainstone to mudstone, fossil fragments, ooliths, occasional free live black oil, occasional trace intergranular porosity and trace vuggy porosity, bright yellowish white fluorescence, instant blooming bright yellowish white cuts, good show, no show at base.

4290' - 4398' SHALE: dark gray to gray, firm, fissile to blocky, non to slightly calcareous, slightly carbonaceous in part, pyrite, Limestone stringers.

4298' - 4302' LIMESTONE: white, hard, mudstone, tight.

4302' - 4310' SHALE: reddish brown to gray, firm, blocky, non calcareous.

### LANSING- KANSAS CITY "D"

SAMPLE TOP: 4310' LOG TOP: 4302' SUBSEA: -1119'

4310' - 4322' LIMESTONE: light gray to white, firm, mudstone to wackestone, fossil fragment, very chalky texture, trace black oil stain, no visible porosity, occasional yellowish white fluorescence, moderate streaming yellowish white cuts from a few cuttings.

4322' - 4340' SHALE: dark gray to gray to reddish brown, firm, fissile to blocky, non to slightly calcareous, slightly carbonaceous in part, pyrite, Limestone stringers.

4340' - 4344' SANDSTONE: light brown, hard, very fine grained grading to silt, rounded, well sorted, clay fill, tight, no shows.

4344' - 4356' SHALE: reddish brown, soft to firm, subblocky, non to slightly calcareous, clayey, occasional Siltstone and SANDSTONE stringers.

## LITHOLOGY AND SHOWS

LANSING-  
KANSAS CITY "E"

SAMPLE TOP: 4356' LOG TOP: 4350' SUBSEA: -1167'

4356' - 4370'

LIMESTONE: white to very light gray, firm to hard, mudstone to grainstone, peloids, fossil fragments, occasional patchy black oil stain, occasional free oil in micro vugs, trace to fair interparticle and vuggy porosity, bright yellowish white fluorescence, immediate blooming yellowish white cuts, fair show.

4370' - 4376'

SHALE: dark gray to gray to black, firm, blocky, calcareous, very to slightly carbonaceous in part, trace pyrite.

4376' - 4391'

SILTSTONE: maroon to light brown, friable, grading to very fine grained sand, clay fill, tight, no show.

4391' - 4399'

SHALE: dark reddish brown to reddish brown to maroon, firm, blocky to platy, non calcareous, moderately to very silty.

LANSING-  
KANSAS CITY "F"

SAMPLE TOP: 4399' LOG TOP: 4392' SUBSEA: -1209'

4399' - 4407'

LIMESTONE: white to light gray, firm to hard, mudstone, very chalky texture, occasional fossil fragments, occasional sandy, trace black dead oil specks, tight, no shows.

4407' - 4420'

SHALE: gray to dark gray to black to reddish brown, firm, platy, n to slightly calcareous, occasional slightly carbonaceous, trace pyrite, plant remains.

4420' - 4426'

LIMESTONE: white to light gray, firm to hard, mudstone, slightly chalky texture, fossil fragments, tight, no shows.

4426' - 4454'

SHALE: brownish red, firm, blocky, non calcareous, with interbedded white Limestone stringers.

4454' - 4460'

LIMESTONE: white to cream, with reddish brown mottled, mudstone, fossil, chalky, occasional reddish brown SHALE partings, tight, no shows.

4460' - 4482'

SHALE: dark reddish brown, firm to hard, blocky to platy, non calcareous, moderately to very silty.

4482' - 4490'

LIMESTONE: white to cream to light gray, mudstone, sandy, chalky, occasional reddish brown SHALE partings, tight, no shows.

4490' - 4507'

SHALE: brownish red, firm, blocky, non calcareous, with interbedded white Limestone stringers.

4507' - 4522'

LIMESTONE: light gray to white to cream, hard, cryptocrystalline, fossil fragments, gray Shale partings, tight, no shows.

## LITHOLOGY AND SHOWS

4522' - 4547'	SHALE: gray to dark gray to dark gray green, hard to firm, sub blocky, non to slightly calcareous.
PAWNEE	SAMPLE TOP: 4547'      LOG TOP: 4546'      SUBSEA: -1363'
4547' - 4570'	LIMESTONE: white to cream to very light gray, firm to hard, grainstone to mudstone, occasional peloids, fossil fragment, trace live black oil stain, trace vuggy porosity, trace interparticle porosity, occasional live black oil in micro vugs, bright yellowish white fluorescence, instant blooming yellowish white cuts, good show from a few cuttings.
4570' - 4586'	SHALE: gray to dark gray to black, hard to firm, sub blocky to fissile, non calcareous, fossil (Brachiopod), carbonaceous in part.
FORT SCOTT	SAMPLE TOP: 4586'      LOG TOP: 4580'      SUBSEA: -1397'
4586' - 4610'	LIMESTONE: light gray to light brown, firm, mudstone, rare fossil fragment, chalky, trace patchy black dead oil stain, no visible porosity, no shows.
4610' - 4620'	SHALE: gray to dark gray, firm, blocky to fissile, occasional carbonaceous at top, disseminated pyrite, occasional coal.
4620' - 4638'	LIMESTONE: white to light gray to cream, firm to hard, mudstone to wackestone, chalky, fossil fragments, occasional very sandy, tight, no shows.
CHEROKEE	SAMPLE TOP: 4638'      LOG TOP: 4632'      SUBSEA: -1449'
4638' - 4650'	SHALE: black to dark gray to gray, firm, blocky to fissile, occasional carbonaceous, trace pyrite, plant remains, thin black slightly argillaceous Coal stringers.
4650' - 4670'	LIMESTONE: white to light gray, firm to hard, mudstone to wackestone, occasional fossil fragment (Brachiopod), slightly sandy in part, slightly argillaceous in part, light gray Shale stringers, tight, no shows.
4670' - 4684'	LIMESTONE: gray to light gray, firm to hard, mudstone to wackestone, very chalky, occasional fossil fragment (Brachiopod), slightly argillaceous in part, opaque chert, tight, no shows.

### LITHOLOGY AND SHOWS

4684' - 4714'	SHALE: gray to dark gray, firm, platy, non to slightly calcareous, occasional slightly carbonaceous, pyrite, occasional LIMESTONE: white, hard, mudstone, dead oil, tight, no show.
4714' - 4728'	SANDSTONE: white to very light gray, friable to very hard, fine grained, well rounded, well sorted, weak siliceous cement, occasional black dead oil specks, tight, no shows.
4728' - 4744'	SHALE: gray to dark gray, firm, platy, non to slightly calcareous, occasional slightly carbonaceous, pyrite, with Limestone stringer, white, mudstone, sandy, chalky, dead oil, tight, no show.
4744' - 4750' TD	SANDSTONE: white, very friable, very fine grained, rounded, well sorted, weak calcareous cement, no visible porosity, no shows.

**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. Peter J. Vollmer	Wilson, WY 307-733-4332
DRILL STEM TESTING:	Trilobite Testing, Inc. Royal Fisher DST 1: 4018' - 4090' Oread DST 2: 4170' - 4240' LKC "B" DST 3: 4238' - 4290' LKC "C" DST 4: 4280' - 4380' LKC "D & E" DST 5: 4518' - 4564' Pawnee	Hays, KS 785- 625-4778
DIRECTIONAL DRILLING:	None	
WIRELINE LOGS:	Pioneer Energy Services RAG: Surface casing - TD Micro-resistivity, Sonic: 3500' - TD Daylon Kerr	Hays, KS 785-625-3858