

Well
File

**BEREXCO, LLC.
DELORES #1-27
SWSE SECTION 27 5S-38W
CHEYENNE COUNTY, KANSAS**

GEOLOGIST

William B. Bynog

RESUME

OPERATOR: BEREXCO, LLC.

WELL NAME & NUMBER: DELORES #1-27

LOCATION: SWSE SECTION 27 5S-38W

COUNTY: CHEYENNE

STATE: KANSAS

SPUD DATE: 9-6-2016 COMPLETION DATE: 9-17-2016

ELEVATIONS: GL: 3478 KB: 3489

CONTRACTOR: BEREDCO RIG 10

LOGS: LOG TECH TYPES: RAG, MICROLOG

WELLSITE ENGINEER: NONE

MUD COMPANY: MORGAN MUD

MUD TYPE & ENGINEER: FRESH CHEMICAL

GEOLOGIST: WILLIAM B. BYNOG

HOLE SIZE: 7 7/8

MUD LOGGING BY: NONE

DRILL STEM TEST COMPANY: TRILOBITE

DRILL STEM TEST: DST#1 4248-4440, DST#2 4425-4540,
DST#3 4638-4682, DST#44664-4720

WELL STATUS: PRODUCTIVE

DISCUSSION

Delores #1-27 5S-38W was drilled a total depth of 5200 feet testing the Lansing Kansas City, Pawnee, and Cherokee and Mississippian formations in Cheyenne County, Kansas. This well was a wildcat drilled with the help of seismic data and well control.

Structurally, Delores #1-27 came in 10 feet high to the prognosis on the Lansing A zone and 35 feet high to Donna #1-29 5S-37W.

There were minor shows of dead black stain in the lower Wabunsee and Toronto formations, none worthy of a drill stem test. The first good live oil show was encountered in the Lansing C zone at 4404-10 feet in a chalky limestone with poor porosity. The C zone was associated with a good drilling break and good sample shows. The A, B and C zones were all tested on drill stem test #1 recovering 2230 feet of mud cut water with spots oil in tool. Most of the water, perhaps all came from the wet Lansing A and B zones. Drilling continued to the E zone encountering a poor oil show in the D zone and no show in the E zone. Both zones were tested on drill stem test #2 recovering 1460 feet of mud cut water.

There was a very good drilling break, porosity development with good live oil shows in the Lower most Marmaton zone at 4654-62 feet. The Marmaton zone is an oolitic Grainstone and was tested on stem test #3 with poor results recovering only 10 feet of free oil and 50 feet of oil cut mud (10% oil).

The upper most Pawnee zone had a poor drilling break but fair live oil shows in an oolitic limestone. The Pawnee was tested recovering only 5 feet of drilling mud with low pressures. A decision was made to continue drilling to total depth with no further oil shows in the Cherokee and Mississippi formations.

Logs agreed with sample evaluation recording wet porous or tight dense limestones in the Lansing Kansas City except for the Lansing upper most C zone. The C zone has 9% porosity with 125 ohms resistivity which should be productive through simulation. The Marmaton Zone at 4654-62 feet has good porosity development with high resistivity and should have tested better, perhaps formation damage.

A decision was made to set pipe on the Lansing C and Marmaton zones. Logs indicated good porosity and permeability development in the Marmaton zone. The C zone has poor porosity, permeability but high resistivity indicating a productive zone.

Delores #1-27 Sample Descriptions

3700-3760 SHALE red,firm,very silty

3760-80 LIMESTONE cream,hard,blocky,slightly fossils, sandy in part,dense,poor porosity,abundant Chert orange

3780-3812 SHALE as above

FORAKER

3812-30 LIMESTONE pale gray,firm,very sandy,slightly chalky in part,fossils in part,poor porosity,no shows

3830-34 SHALE as above

3834-54 LIMESTONE gray,very hard,dense,fossils,shaly

3854-76 LIMESTONE pale gray,firm,becoming very sandy,very fine grained,poor vis porosity,no shows with thin SHALE as above

3876-3916 SHALE red,soft,very argillaceous

3916-54 LIMESTONE pale gray,hard,sandy,some dense,blocky,very hard,poor porosity with thin SHALE as above

3954-82 SHALE red,soft,silty

3982-92 LIMESTONE pale gray,firm,very sandy,very fine grained,poor vis porosity,no shows

Delores #1-27 Sample Descriptions

3992-4030 SHALE red,very soft,very argillaceous

4030-6 LIMESTONE cream,pale gray,hard,fossils,dense, poor porosity,spotty black dead,no free oil with thin SHALE as above

4066-86 LIMESTONE buff,very hard,dense,crptoxln, blocky,poor porosity,no shows

4086-4110 SHALE red,very soft,very argillaceous

TOPEKA

4110-20 LIMESTONE cream,hard,oolitic,poor pinpoint vuggy porosity,very spotty black dead stain,no free oil

4120-34 LIMESTONE pale gray,cream,very hard,dense,blocky, vfx,no shows

4134-50 LIMESTONE white,cream,firm,very chalky in part, slightly sandy,poor vis porosity,no shows

4150-70 SHALE red,green,some black carbonaceous,firm,flaky with very thin LIMESTONE as above

4170-90 SHALE dark gray,gray black,black,firm,slightly carbonaceous becoming red,soft,argillaceous at base

4190-4200 LIMESTONE buff,firm,microcrystalline,fossils in part, fair intxln porosity,no shows

Delores #1-27 Sample Descriptions

4200-4210 SHALE green,black,firm,carbonaceous in part

4210-34 SHALE red,green,soft,argillaceous with thin LIMESTONE as above cream,hard,dense

OREAD

4234-50 LIMESTONE white,cream,firm,microcrystalline,very fossils,fair intxln porosity,no shows

4250-60 SHALE black,firm,blocky,carbonaceous

4260-68 LIMESTONE cream,slightly hard,blocky,chalky in part,poor vis porosity,no shows with thin SHALE as above

4268-76 SANDSTONE pale gray,green,frimvfg,clay filled,poor porosity,no shows

4276-90 SHALE red,green,soft,very argillaceous

4290-4308 LIMESTONE white,hard,fossiliferous, poor pinpoint intergranular porosity,spotty live brown stain, good fast cut

LANSING A

4308-28 GRAINSTONE white,firm,very oolitic,chalky,fair to good intergranular porosity,spotty black dead stain,poor cut,no live oil

Delores #1-27 Sample Descriptions

4318-24 SHALE green,firm,waxy,abundant pyrite

4324-30 LIMESTONE cream,hard,dense,crptoxln

4330-40 SHALE red,soft,argillaceous

4340-50 LIMESTONE cream,very hard,dense,slightly fossils, very fine crystalline,no porosity

4350-62 SHALE as above

B

4362-74 LIMESTONE buff,slightly hard,microcrystalline,sandy in part,poor vis,no shows

4374-88 LIMESTONE white,buff,hard,fnly microcrystalline,chalky in part,abundant Chert white

4388-4404 SHALE red,soft,argillaceous

C

4402-06 LIMESTONE white,hard,chalky,fossils,poor porosity, spotty live dark brown stain,good cut,no free oil

4418-28 LIMESTONE white,firm,sbchky to chalky,very fnly crystalline,poor vis porosity,trace black dead stain,no free oil

4428-40 SHALE red,soft,very argillaceous with thin LIMESTONE white to

Delores #1-27 Sample Descriptions

buff,hard,blocky,poor porosity,no shows

4440-56 SHALE green,gray,some black,firm,slightly carbonaceous

D

4456-68 LIMESTONE white,pale gray,hard,microcrystalline to chalky,poor vis porosity,very spotty black dead stain

4468-82 LIMESTONE pale gray,hard,dense,blocky,fn crystalline,poor porosity,no shows

4482-92 SHALE red,soft,very argillaceous,gummy

4492-4498 LIMESTONE pale gray,very hard,dense,blocky, crptoxln,no shows

4498-4504 SHALE as above

E

4504-22 LIMESTONE pale gray,very hard,dense,blocky, crptoxln,very poor porosity,no shows

4522-46 SHALE gray,green,black,firm,carbonaceous

F

4546-54 LIMESTONE pale gray,hard,dense,crptoxln, no shows

Delores #1-27 Sample Descriptions

4554-56 SHALE dark gray,black,green,carbonaceous in part

4556-70 LIMESTONE cream,light tan,hard,dense,blocky, some sbchky,poor vis porosity,no shows

4570-80 SHALE red,very soft,argillaceous

4580-90 LIMESTONE cream,light tan,firm,sbchky,sandy in part,poor vis porosity,no shows

4590-4602 SHALE red,green,soft,gummy

4602-20 LIMESTONE off white,cream,slightly hard,blocky, sbchky,fossils,poor vis porosity,no shows

4620-30 SHALE red,very soft,very argillaceous,gummy

4530-44 LIMESTONE buff,light tan,very hard,fnly crystalline to crptoxln,dense,abundant Chert orange

4644-54 Shale red,soft,very argillaceous

MARMATON

4654-64 GRAINSTONE off white,firm to slightly hard,very fossils,oolitic,fair to good intergranular and vuggy oomoldic porosity,spotty to even live brown stain,very good instant cut,very good show free oil in tray and samples

Delores #1-27 Sample Descriptions

4664-82 SHALE red,soft,very argillaceous

4682-86 SHALE dark gray,gray black,firm,fissile, carbonaceous

PAWNEE

4786-92 LIMESTONE off white,firm,fossils,oolitic, chalky in part,poor intergranular porosity,spotty live brown stain,good strmg cut,trace free oil

4692-14 LIMESTONE, cream,very hard,dense,crptoxln,poor porosity,no shows

4714-22 SHALE green,gray,black,firm,fissile,carbonaceous in part

4722-43 LIMESTONE pale gray,tan,very hard,very dense, crptoxln,poor porosity,no shows

4743-58 SHALE gray,green,black,fissile,carbonaceous

4758-86 LIMESTONE cream,buff,very hard,dense,blocky, crptoxln,no shows with thin SHALE as above

CHEROKEE

4786-4810 SHALE gray,green,blocky,fissile,carbonaceous in part

4810-42 LIMESTONE cream,very hard,dense,crptoxln with thin SHALE as above

4842-52 LIMESTONE light tan,very hard,very dense,blocky, crptoxln,some Chert tan

Delores #1-27 Sample Descriptions

4852-4910 SHALE red,green,firm,britt with thin SANDSTONE translucent,fine to m grained,hard,siliceous,poor porosity,no shows

4910-20 LIMESTONE cream,hard,dense,blocky,crptoxln,no shows

4920-56 SHALE as above,with thin SANDSTONE pale green,firm,fine to coarse grained,angular,poor sorted,fair intergranular porosity,no shows

4956-66 LIMESTONE tan,light brown,very hard,very dense, crptoxln,no shows

4956-80 SHALE green,gray,black,firm,fissile,carbonaceous in part

4980-5000 SANDSTONE trns,friable,fine to m grained,rounded,well sorted,good intergranular porosity,no shows with thin Shale as above

5000-12 SHALE red,green,gray,yell,firm,britt

5012-24 SANDSTONE translucent,friable,fine to m grained,sorted,rounded, clean,good intergranular porosity,no shows with thin SHALE as above

5024-31 CHERT tan,white,orange,blocky, fresh

MISSISSIPPIAN

5031-54 DOLOMITE light tan,hard,microsuc texture, clean,fair to good intxln porosity,no shows

Delores #1-27 Sample Descriptions

5054-62 SHALE var color as above

5062-86 DOLOMITE buff,light tan,hard,microcrystalline texture,poor to fair intxn porosity,no shows abundant very hard,dense, crptoxln,abundant Chert white,orange at base

5086-5110 SHALE as above var color,fissile

5110-40 DOLOMITE buff,light tan,very hard,dense,micro crystalline,poor vis porosity,no shows abundant Chert white,becoming more calcareous at base

5140-60 LIMESTONE white,firm,chalky in part,poor vis porosity, very abundant Chert white,sharp fresh

5160-5200 LIMESTONE tan,very hard,very dense,blocky, crptoxln,no shows

RTD 5200'

LTD 5199'