

Geological Report

DeWerff #2

347' FNL & 1359' FEL

Sec. 32 T22s R12w

Stafford County, Kansas



Globe Operating, Inc.

General Data

Well Data:	Globe Operating, Inc. DeWerff #2 347' FNL & 1359' FEL Sec. 32 T22s R12w Stafford County, Kansas API # 15-185-23981-0000
Drilling Contractor:	Discovery Drilling Co. Inc. Rig #2
Geologist:	Jason T Alm
Spud Date:	March 6, 2017
Completion Date:	March 14, 2017
Elevation:	1868' Ground Level 1876' Kelly Bushing
Directions:	Hudson KS, Intersection of Main St and Highway, South into location.
Casing:	690' 8 5/8" surface casing
Samples:	10' wet and dry, 2900' to RTD
Drilling Time:	2800' to RTD
Electric Logs:	ELI "Jeff Luebbers" CNL/CDL, DIL, MEL
Drillstem Tests:	Four, Eagle Testers "Gene Budig"
Problems:	DST #4, Top packer failed. Reset and got them to seat.
Remarks:	After DST #1 gas detector was inaccurate due to high amounts of gas in mud.

Formation Tops

	Globe Operating, Inc. DeWerff #2 Sec. 32 T22s R12w 347' FNL & 1359' FEL
Formation	
Anhydrite	679' +1197
Base	703' +1175
Topeka	2919' -1043
Heebner	3190' -1314
Toronto	3205' -1329
Douglas	3221' -1345
Brown Lime	3320' -1444
Lansing	3341' -1465
BKC	3582' -1706
Viola	3604' -1728
Simpson	3696' -1820
Arbuckle	3753' -1875
LTD	3846' -1970
RTD	3845' -1969

Sample Zone Descriptions

- LKC “D-zone” (3384’, -1508): Covered in DST #1**
 Ls – Fine crystalline, oolitic with poor scattered oomoldic and scattered very poor inter-crystalline porosity, light to fair oil stain with light saturation, slight show of free oil when broken, light yellow fluorescents, fair cut flourescents, 40 units hotwire.
- LKC “F-zone” (3412’, -1536): Covered in DST #1**
 Ls – Fine crystalline, oolitic packstone with fair to good oomoldic and oolicastic porosity, light to fair brown oil stain in porosity with light scattered saturation, fair show of free oil, many gas bubbles on break, good odor, light to fair yellow fluorescents, good cut, 115 units hotwire.
- LKC “I-zone” (3489’, -1613): Covered in DST #2**
 Ls – Fine crystalline, oolitic packstone in part with fair oolicastic and oomoldic porosity, light fair spotted oil stain, slight show of free oil when broken, light to fair spotted yellow fluorescents, good cut.

LKC “J-zone”	(3508’, -1632): Covered in DST #2 Ls – Fine crystalline, oolitic packstone with poor to fair oomoldic and oolitic porosity, light to fair oil stain with light saturation, slight show of free oil when broken, fair spotted yellow fluorescents, good cut.
LKC “K-zone”	(3536’, -1660): Covered in DST #2 Ls – Fine crystalline, oolitic with poor to fair oolitic porosity, light to fair brown oil stain in porosity, slight show of free oil, light odor, fair yellow fluorescents, fair cut.
Viola	(3604’, -1728): Covered in DST #4 Chert – Weathered in part with good vuggy porosity, light to good oil stain in porosity, show of free oil, good odor, bright yellow fluorescents, slightly dolomitic with fair inter-crystalline porosity, many gas bubble on break.
Simpson	(3796’, -1820): Covered in DST #3 Dolo – SS – Fine crystalline with poor inter-crystalline porosity, mottled with fine grained sand with poor inter-granular porosity, light oil stain in porosity, slight show of free oil, fair to good yellow fluorescents, slight gilsonite.
Arbuckle	(3753’, -1875): Not Tested Dolo – Fine rhombic crystalline with poor inter-crystalline, vuggy and scattered oomoldic porosity, light to fair scattered oil stain, mostly tarry, show of free oil on cup, strong “sour” odor, very dull poor fluorescents, poor cut.

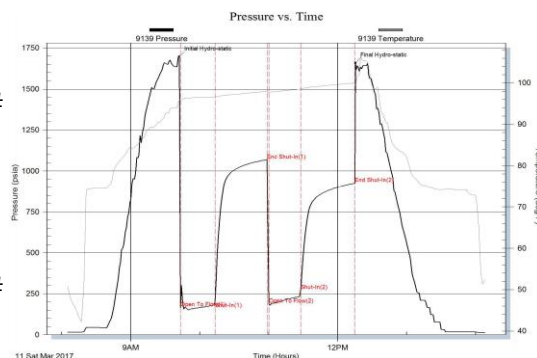
Drill Stem Tests

Diamond Testing, Inc.
"Gene Budig"

DST #1 LKC D thru F zones

Interval (3372' – 3425') Anchor Length 53'

IHP – 1697 #
IFP – 30" – B.O.B. 1 min. 166-200 #
Gauge 10 min. 179.10 MCF
20 min. 163.01 MCF
30 min. 146.04 MCF
ISI – 45" – B.O.B. Imm 1169 #
FFP – 30" – B.O.B. Imm 283-357 #
Gauge 10 min. 159.27 MCF
20 min. 115.28 MCF
30 min. 115.28 MCF
FSI – 45" – B.O.B. Imm 926 #
FHP – 1659 #
BHT – 100°F

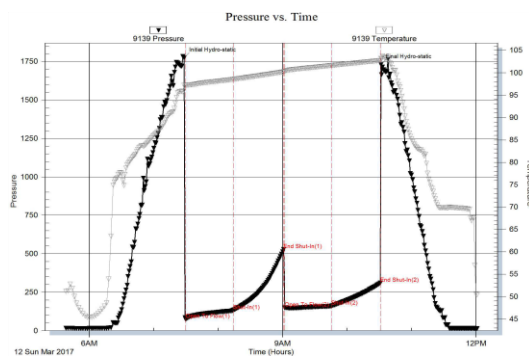


Recovery: GTS 6 min.
120' Heavy Mud
60' MW 70% Water
60' Sl. MW 90% Water

DST #2 LKC I thru K zones

Interval (3478' – 3550') Anchor Length 72'

IHP – 1773 #
IFP – 45" – B.O.B. 32 min. 75-134 #
ISI – 45" – Dead 528 #
FFP – 45" – Built to 5 in. 150-161 #
FSI – 45" – Dead 390 #
FHP – 1729 #
BHT – 103°F

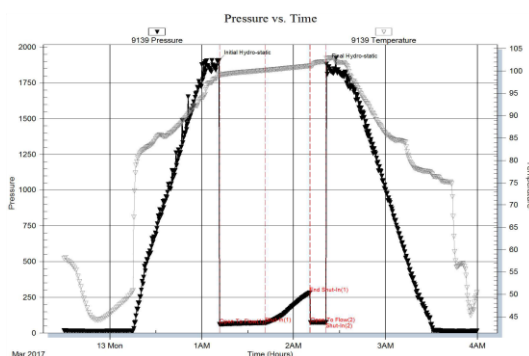


Recovery: 20' mud with oil spots

DST #3 Simpson

Interval (3690' – 3746') Anchor Length 56'

IHP – 1907 #
IFP – 30" – W.S.B. 60-72 #
ISI – 30" – Dead 251 #
FFP – 10" – Dead 72-75 #
FHP – 1882 #
BHT – 103°F



Recovery: 20' Mud

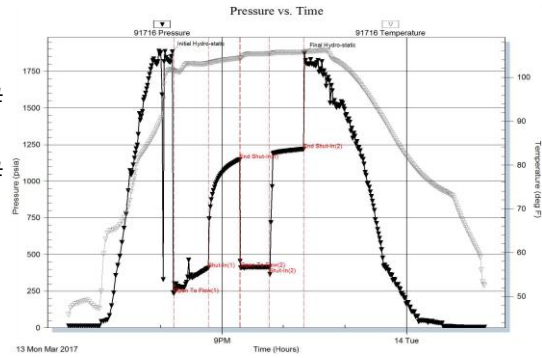
DST #4 Viola

Interval (3580' – 3659') Anchor Length 79'

IHP	– 1883 #	
IFP	– 30" – B.O.B. 11 min.	234-407 #
ISI	– 30" – Dead	1148 #
FFP	– 30" – Built to 2 in.	408-414 #
FSI	– 30" – Dead	1219 #
FHP	– 1872 #	
BHT	– 105°F	

Recovery:

200' Mud	
180' MW	50% Water
180' MW	35% Water
400' MW	60% Water



Structural Comparison

Formation	Globe Operating, Inc. DeWerff #2 Sec. 32 T22s R12w 347' FNL & 1359' FEL	Hilton Drilling Spangenberg #1 Sec. 33 T22s R12w NW NW NW		Globe Operating, Inc. DeWerff #1 Sec. 32 T22s R12w 330' FSL & 2539' FWL	
Anhydrite	679' +1197	NA	NA	656', +1196	(+1)
Base	703' +1175	NA	NA	685', +1167	(+8)
Topeka	2919' -1043	NA	NA	2910', -1058	(+15)
Heebner	3190' -1314	3178' -1317	(+3)	3180', -1328	(+16)
Toronto	3205' -1329	NA	NA	3196', -1344	(+15)
Douglas	3221' -1345	NA	NA	3214', -1362	(+17)
Brown Lime	3320' -1444	3307' -1446	(+2)	3314', -1462	(+18)
Lansing	3341' -1465	3330' -1469	(+4)	3332', -1480	(+15)
BKC	3582' -1706	NA	NA	3375', -1723	(+17)
Viola	3604' -1728	3620' -1759	(+31)	3613', -1761	(+33)
Simpson	3696' -1820	3674' -1813	(-7)	3708', -1856	(+36)
Arbuckle	3753' -1875	3736' -1875	FL	3766', -1914	(+39)

Summary

The location for the DeWerff #2 well was found via 3-D seismic survey. The new well ran structurally as expected on all shallow but lower than expected on deeper datums. Four Drill Stem Tests were conducted, all of which were negative. After all gathered data had been examined the decision was made to plug and abandon the DeWerff #2 well.

Respectfully Submitted,

Jason T Alm
Hard Rock Consulting, Inc.