

Geological Report

Knopp #8

1460' FSL & 2170' FWL

Sec. 13 T14s R32w

Logan County, Kansas



Pioneer Resources, Inc.

General Data

Well Data: Pioneer Resources, Inc.
Knopp #8
1460' FSL & 2170' FWL
Sec. 13 T14s R32w
Logan County, Kansas
API # 15-109-21593-0000

Drilling Contractor: STP Drilling, LLC.

Geologist: Jason T Alm

Spud Date: May 10, 2019

Completion Date: May 19, 2019

Elevation: 2785' Ground Level
2792' Kelly Bushing

Directions: Oakley KS, South on Hwy 83 21 mi to Jayhawk Rd.
East 1 ½ mi, North into location.

Casing: 220' 8 5/8" surface casing

Samples: 10' wet and dry, 3650' to RTD

Drilling Time: 3550' to RTD

Electric Logs: ELI "Jeff Luebbers"
CNL/CDL, DIL, MEL

Drillstem Tests: Three, Trilobite Testing, Inc. "Bradley Walters"

Problems: None

Remarks: Deviation @ 4321' ¾ degrees. Background gas level in drilling mud was high after DST #2. Gas kick for Morrow Sand may not be valid due to high levels.

Formation Tops

Formation	Pioneer Resources, Inc.
	Knopp #8
	Sec. 13 T14s R32w
	1460' FSL & 2170' FWL
Anhydrite	2250' +543
Base	2272' +520
Heebner	3782' -990
Toronto	3800' -1007
Lansing	3818' -1026
Muncie Creek	3975' -1183
BKC	4139' -1347
Altamont	4201' -1409
Myrick Station	4300' -1508
Fort Scott	4324' -1532
Johnson	4392' -1600
Morrow	4419' -1627
Morrow Sand	4442' -1650
Mississippian	4458' -1666
RTD	4530' -1738
LTD	4531' -1739

Sample Zone Descriptions

- Myrick Station (4300' -1508): Covered in DST #1**
 Ls – Fine crystalline, oolitic in part with fair oomoldic and scattered pinpoint vuggy porosity, light to fair oil stain with light spotted saturation, fair show of free oil, good odor, fair yellow fluorescents, heavily mottled with grey chert, 115 units hotwire.
- Johnson (4392' -1600): Covered in DST #2**
 Ls – Fine to sub-crystalline with poor to scattered fair inter-crystalline and vuggy porosity, light to fair oil stain in porosity, slight scattered saturation, fair show of free oil, good to strong odor, fair to good yellow fluorescents, 135 units hotwire.
- Morrow Sand (4442' -1650): Covered in DST #3**
 Ss – Quartz, frosted, fine to medium grained, sub-rounded, fairly sorted, poorly cemented with good inter-granular porosity, few pieces with light brown oil stain, slight show of free oil on sample cup, very light-yellow fluorescents, fair cut fluorescents, heavily glauconitic, mottled with green to gray shale in part.

Drill Stem Tests

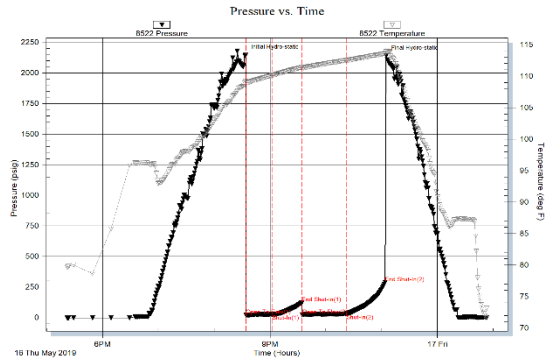
Trilobite Testing, Inc.
"Bradley Walter"

DST #1 Myrick Station

Interval (4290' – 4321') Anchor Length 31'

IHP	– 2144 #	
IFP	– 30" – Built to 2 in.	22-27 #
ISI	– 30" – Dead	122 #
FFP	– 45" – Built to 5 ½ in.	22-33 #
FSI	– 45" – Dead	287 #
FHP	– 2137 #	
BHT	– 113°F	

Recovery: 30' GIP
 30' GOCM 30% Oil

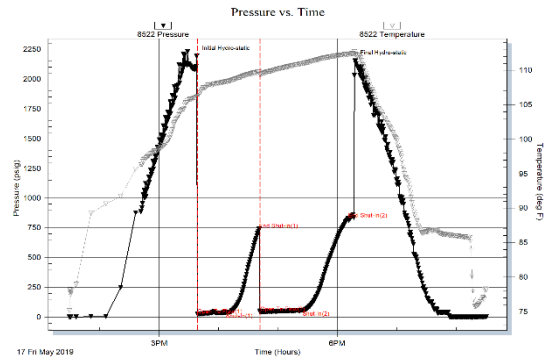


DST #2 Johnson

Interval (4342' – 4420') Anchor Length 78'

IHP	– 2190 #	
IFP	– 30" – Built to 4 in.	22-38 #
ISI	– 30" – Dead	741 #
FFP	– 45" – Built to 6 in.	41-56 #
FSI	– 45" – Dead	827 #
FHP	– 2153 #	
BHT	– 112°F	

Recovery: 45' GIP
 75' GOCM 25% Oil

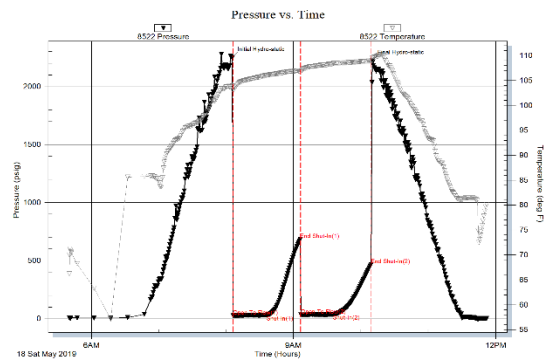


DST #3 Morrow Sand

Interval (4411' – 4450') Anchor Length 39'

IHP	– 2248 #	
IFP	– 30" – Built to 1 in.	25-30 #
ISI	– 30" – Dead	683 #
FFP	– 30" – Built to ½ in.	32-36 #
FSI	– 30" – Dead	466 #
FHP	– 2223 #	
BHT	– 109°F	

Recovery: 25' Oil Spotted Mud



Structural Comparison

Formation	Pioneer Resources, Inc. Knopp #8 Sec. 13 T14s R32w 1460' FSL & 2170' FWL	Pioneer Resources, Inc. Knopp #7 Sec. 13 T14s R32w 2283' FNL & 1650' FEL		Pioneer Resources, Inc. Knopp #5 Sec. 13 T14s R32w 1645' FNL & 330' FWL	
	Anhydrite	2250' +543	2316' +533	(+10)	NA
Base	2272' +520	2338' +507	(+13)	NA	NA
Heebner	3782' -990	3839' -994	(+4)	3787' -980	(-10)
Toronto	3800' -1007	3858' -1013	(+6)	3805' -998	(-9)
Lansing	3818' -1026	3877' -1032	(+6)	3822' -1015	(-11)
Muncie Creek	3975' -1183	NA	NA	3980' -1173	(-10)
BKC	4139' -1347	4191' -1346	(-1)	4141' -1334	(-13)
Altamont	4201' -1409	4253' -1408	(-1)	4207' -1400	(-9)
Myrick Station	4300' -1508	4358' -1513	(+5)	4308' -1502	(-6)
Fort Scott	4324' -1532	4382' -1537	(+5)	4335' -1528	(-4)
Johnson	4392' -1600	4451' -1606	(+6)	4402' -1595	(-5)
Morrow	4419' -1627	4479' -1634	(+7)	4432' -1625	(-2)
Morrow Sand	4442' -1650	NA	NA	4453' -1646	(-4)
Mississippian	4458' -1666	4502' -1657	(-9)	4463' -1656	(-10)

Summary

The location for the Knopp #8 well was found via 3-D seismic survey. The new well ran structurally as expected via the survey. Three 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 Knopp #8 well.

Respectfully Submitted,

Jason T Alm
Hard Rock Consulting, Inc.