

Company: Charles N. Griffin
Address: PO Box 347
Pratt, KS 67124

OPERATOR
Well Name: #2 Springer
Section 34-32S-12W
API: 15-007-24307
Field: Toni-Mike
State: Kansas
County: USA

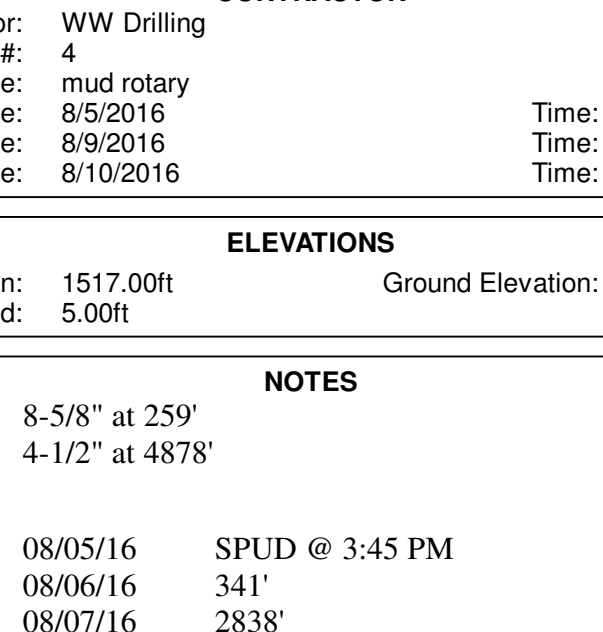
Contact Geologist:
Well Name: #2 Springer
Surface Location: Section 34-32S-12W
Bottom Location:
License Number: API: 15-007-24307
Spud Date: 8/5/2016
Region: Barber County
Time: 3:45 PM
Drilling Completed: 8/9/2016
Time: 5:15 PM
Surface Coordinates: 638 FSL & 1680 FWL
Bottom Hole Coordinates: 1512.00ft
Ground Elevation: 1517.00ft
K.B. Elevation: 1517.00ft
Logged Interval: 3300.00ft To: 4880.00ft
Total Depth: 4880.00ft
Formation:
Drilling Fluid Type: Chemical (MudCo)

Scale 1:240 Imperial

SURFACE CO-ORDINATES

Well Type: Vertical
Longitude: Latitude:
N/S Co-ord: 638 FSL
E/W Co-ord: 1680 FWL

LOGGED BY



Company: TerraTech Energy Service LLC.
Address: 1632 S. West St. Suite 12
Wichita, KS 67208
Phone Nbr: 316-617-3959
Logged By: Geologist Name: Bruce Reed

CONTRACTOR

Contractor: WW Drilling
Rig #: 4
Rig Type: mud rotary
Spud Date: 8/5/2016
TD Date: 8/9/2016
Rig Release: 8/10/2016
Time: 3:45 PM
Time: 5:15 PM
Time: 3:00 PM

ELEVATIONS

K.B. Elevation: 1517.00ft Ground Elevation: 1512.00ft
K.B. to Ground: 5.00ft

NOTES

Surface Casing: 8-5/8" at 259'
Production Casing: 4-1/2" at 4878'

Daily Penetration:
08/05/16 SPUD @ 3:45 PM
08/06/16 341'
08/07/16 2838'
08/08/16 4245'
08/09/16 4770' RTD @ 5:15 PM
08/10/16 4880' Rig Released @ 3:00 PM

DRILL STEM TEST

DST #1 4742'-4770'. Simpson Sand. Strong blow, bottom of the bucket in 1 minute during the initial flow period, with GTS in 30". Strong blow, bottom of the bucket in 30 seconds, with GTS immediately during the second flow period. TSTM. Good blow backs on both shut in periods. Recovered: 4075' GIP, 341' GMWCO (20% gas, 55% oil, 18% water, 7% mud), 186' GOMCW (10% gas, 20% oil, 60% water, 10% mud), 121' Water (chlorides 84,000 ppm). IFP/30" 161-189#, ISIP/45" 1481#, IFP/30" 206-288#, FSP/60" 1475#

FORMATION TOPS

Formation	Log Top	Datum	Sample Top	Datum	Comparison*
Lecompton	3399'	-1882	3400'	-1883	+5
Elgin	3431'	-1914	3434'	-1917	+6
Heebner	3607'	-2090	3607'	-2090	+10
Lansing	3807'	-2290	3809'	-2292	+5
Stark	4188'	-2671	4190'	-2673	+1
Hush	4218'	-2701	4218'	-2701	+1
Base KC	4274'	-2757	4273'	-2756	-1
Mississippian	4362'	-2845	4365'	-2848	-1
Kinderhook	4559'	-3042	4560'	-3043	flat
Viola	4664'	-3147	4662'	-3145	-1
Simpson Sand	4757'	-3240	4756'	-3239	-1

*Reference well: Charles N. Griffin, #1 Springer, 846' FSL / 2504' FWL
Section 34-32S-12W, Barber County, Kansas

ROCK TYPES

Chert
Limest fw7>

shale, gry
Carbon Sh
Ss

ACCESSORIES

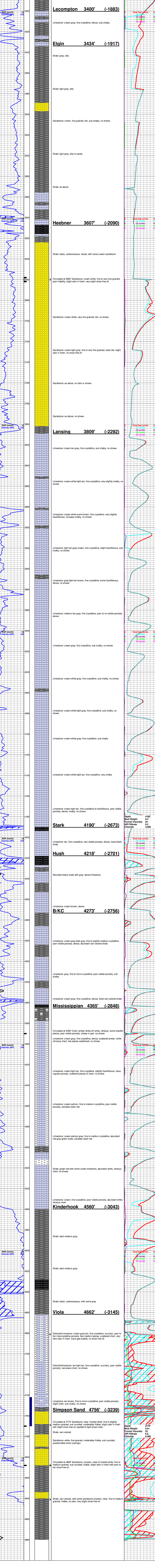
MINERAL
Dolomite
Chert White

OTHER SYMBOLS

INTERVALS
Core
DST
Oil Show
Good Show
Fair Show
Poor Show
Spotted or Trace
Questionable Sin
Dead Oil Sin
Fluorescence
Gas

DST
DST Int
DST alt
Core
tail pipe

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*Due to fast drilling, Kelly samples were obtained for sample descriptions

Shale: dark-medium gray

Shale: medium gray

Shale: medium-light gray

Lecompton 3400' (-1883)

Limestone: cream-gray, fine crystalline, dense, sub shaley

Shale: gray, silty

Shale: light gray, silty

Sandstone: cream, fine grained, tile, sub shaley, no shows

Shale: light gray, silty to sandy

Shale: as above

Heebner 3607' (-2090)

Shale: black, carbonaceous, fissile, with some cream sandstone

Circulated at 3660' Sandstone, cream-white, fine to very fine grained, poor friability, slight odor in fresh, very slight show free oil

Sandstone: cream-white, very fine grained, tile, no shows

Sandstone: cream-light gray, fine to very fine grained, looks tile, slight odor in fresh, no show free oil

Sandstone: as above, no odor or shows

Sandstone: as above, no shows

Lansing 3809' (-2292)

Limestone: cream-tan-gray, fine crystalline, sub chalky, no shows

Limestone: cream-white-light tan, fine crystalline, very slightly chalky, no shows

Limestone: cream-white-some brown, fine crystalline, very slightly fossiliferous, increase chalky, no shows

Limestone: light tan-gray-cream, fine crystalline, slight fossiliferous, sub chalky, no shows

Limestone: gray-light tan-brown, fine crystalline, some fossiliferous, dense, no shows

Limestone: medium tan-gray, fine crystalline, poor to no visible porosity, dense

Limestone: cream-gray, fine crystalline, sub chalky, no shows

Limestone: cream-white-gray, fine crystalline, sub chalky, no shows

Limestone: cream-white-light gray, fine crystalline, sub chalky, no shows

Limestone: cream-white-light tan, fine crystalline, very chalky

Limestone: cream-light tan, fine crystalline to fossiliferous, poor visible porosity, dense, chalky, no shows

Stark 4190' (-2673)

Limestone: tan, fine crystalline, rare visible porosity, dense, trace black shale

Hush 4218' (-2701)

Abundant black shale with gray, dense limestone

Limestone: cream-brown, dense

B/KC 4273' (-2756)

Limestone: cream-gray-dark gray, fine to slightly medium crystalline, poor visible porosity, dense, abundant vari-colored shale

Limestone: gray, fine to micro-crystalline, poor visible porosity, sub shaley

Limestone: cream-gray, fine crystalline, dense, flood vari-colored shale

Mississippian 4365' (-2848)

Circulated at 4390' Chert: amber-white-off white, vitreous, some tripolitic pieces, poor visible porosity, shaley in part, no shows

Limestone: cream-gray, fine crystalline, dense, scattered amber, white vitreous chert, few pieces weathered, no shows

Limestone: cream-light tan, fine crystalline, slightly fossiliferous, trace vugular porosity, scattered pieces of chert, no shows

Limestone: cream-salmon, fine to medium crystalline, poor visible porosity, samples wash red

Limestone: cream-salmon-gray, fine to medium crystalline, abundant red-gray-green shale, samples wash red

Shale: green-red with some cream limestone, abundant white, vitreous chert, no shows

Limestone: cream, fine crystalline, poor visible porosity, abundant white, vitreous chert

Kinderhook 4560' (-3043)

Shale: dark-medium gray

Shale: dark-medium gray

Shale: black, carbonaceous, with some gray

Dolomite/Limestone: cream-gray-tan, fine crystalline, sucrosic, poor to fair intercrystalline porosity, few medium pieces, scattered chert, very faint odor in fresh, trace gas bubble, no show free oil

Dolomite/limestone: tan-light tan, fine crystalline, sucrosic, poor visible porosity, rare piece chert, no shows

Limestone: tan-brown, fine to micro-crystalline, poor visible porosity, slight chert, sub chalky, no shows

Simpson Sand 4756' (-3239)

Circulated at 4770' Sandstone: clear, frosted white, fine to slightly medium grained, sub rounded, moderately friable, slight odor in fresh with slight show free oil, spotted to light brown stain

Shale: vari-colored

Sandstone: white, fine grained, moderately friable, sub rounded, questionable show (casings)

Circulated at 4808' Sandstone: clusters, clear to frosted white, fine to medium grained, sub rounded, friable, slight odor in fresh with poor to fair show free oil

Shale: vari-colored, with some sandstone clusters, clear, fine to medium grained, friable, no odor, very slight show free oil

Depth 4182'
Mud Weight 9.3
Funnell Viscosity 54
API Filtrate 9.2
Chloride 4,000

Depth 4770'
Mud Weight 9.5
Funnell Viscosity 52
API Filtrate 8.8
Chloride 6,000