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DRILLING TIME AND SAMPLE LOG

OPERATOR: Murfin Drilling Co., Inc.
LEASE: Kathka Farms WELL NO.: 1-2
FIELD: Wildcat
LOCATION: 1050' FSL, 2600' FEL (NW,NW,SW,SE)
SEC.: 2 TWP: 2S RANGE: 29W
COUNTY: Decatur STATE: KS
API NO.: 15-039-21176-00-00
CONTRACTOR: Murfin Drilling Co., Rig #8
COMMENCED: 11:30am May 15, 2013 COMPLETED: 5/21/13
ROTARY TOTAL DEPTH: 4000 LOG TOTAL DEPTH: 4001
GEOLOGICAL SUPERVISION FROM: 3000' to: T.D.
MUD-UP DEPTH: 2838' MUD TYPE: Chemical Polymer

ELEVATIONS
KB 2725'
GL 2720'
Measurements are all from KB

CASING RECORD
SURFACE: 8⅝" 23# @249', Circ.
PRODUCTION: None - P&A

WIRELINE SURVEYS
Pioneer Energy Services: Dual Comp. Porosity, Dual Induction, BHC Sonic and Micro-resistivity logs were run

FORMATION	SAMPLE TOP	SAMPLE SUBSEA	LOG TOP	LOG SUBSEA	STRUCTURAL COMPARISON
Stone Corral Anhy.	2426	(+299)	2428	(+297)	+15'
Base of Anhydrite	2458	(+267)	2458	(+267)	+18'
Neva Ls.	3109	(-384)	3109	(-384)	+13'
Foraker Ls.	3227	(-502)	3226	(501)	+14'
Stotler Ls.	3379	(-654)	3379	(-654)	+14'
Topeka Fm.	3493	(-768)	3492	(-767)	+15'
Oread Ls.	3635	(-910)	3636	(-911)	+15'
Heebner Shale	3649	(-924)	3650	(-925)	+17'
Lansing Group	3694	(-969)	3695	(-970)	+15'
Stark Shale	3865	(-1140)	3865	(-1140)	+9'
Base KS City Gp.	3913	(-1188)	3914	(-1189)	+10'
Marmaton Gp.	3942	(-1217)	3944	(-1219)	+14'
Total Depth	4000		4001		

LOCATION MAP: 2 — location — Murfin Kathka Farms #1-2

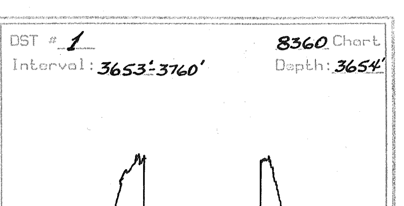
Reference Well for Structural Comparison: Murfin DCFY Unit #1-11 (11-2S-29W)
Comments and Recommendations: Recommended well be plugged and abandoned.

DST # 1 ZONE: Lansing 'A' & 'D' Zones
INTERVAL: 3653'-3760'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		1797 psi	5' Drilling Mud
2. Initial Flow: Start	0	18 psi	
3. Initial Flow: End	30	30 psi	Blow Desc:
4. Initial Shut-in: End	60	1130 psi	I.F. - built to 1¼"
5. Final Flow: Start	0	33 psi	I.S.I. - No blow
6. Final Flow: End	30	41 psi	F.F. - No blow
7. Final Shut-in: End	60	1097 psi	F.S.I. - No blow
8. Final Hydrostatic		1741 psi	Deviation ¾° strap .21' Short to Board

BHT: 111°F.
Rw:

DST # 1 8360 Chart
Interval: 3653'-3760' Depth: 3654'

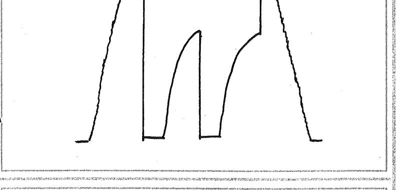


DST # 2 ZONE: Lansing & Ks. City 'G', 'H' & 'J' Zones
INTERVAL: 3752'-3855'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		1795 psi	10' Oil spotted Mud (1% oil)
2. Initial Flow: Start	0	19 psi	
3. Initial Flow: End	30	28 psi	
4. Initial Shut-in: End	60	869 psi	Blow Desc:
5. Final Flow: Start	0	31 psi	I.F. - built to 1¼"
6. Final Flow: End	30	38 psi	I.S.I. - No blow
7. Final Shut-in: End	60	759 psi	F.F. - surf. blow - died 10 Min.
8. Final Hydrostatic		1783 psi	F.S.I. - No blow

BHT: 109°F
Rw:

DST # 2 8353 Chart
Interval: 3752'-3855' Depth: 3753'



ABBREVIATIONS USED

ROCK TYPES:
Ls - limestone
Sh - Shale
Ss - Sandstone
Slts - Siltstone
Cg - Conglomerate
Cht - Chert
Qtz - Quartzite
Gran - Granite
Dol - Dolomite
Chlk - chalky

COLOR:
Wh - White
Crm - Cream
Clr - Clear
Rd - Red
Grn - Green
Gry - Grey
Blk - Black
Mot - Mottled

HARDNESS:
Sft - Soft
M.Sft - Moderately soft
Hrd - Hard
V.Hrd - Very hard

FABRIC:
Fn.grn - Finegrained
VFG - Very Fine grained
Med - Medium
Crs - Coarse
Dt - Detrital
Foss - Fossiliferous
Xln - Crystalline
Mxln - Microcrystalline
Ool - Oolitic
Oom - Oomoldic
Mat - Matrix

OTHER TERMS:
fl - Fluorescence (of oil)
min fl - mineral fluorescence
pyr - pyritic
glau - glauconitic
carb - carbonaceous
stn - stain (of oil)
cut - oil cut
AA - as above
Ø - porosity
NSFOC - no stain, fluorescence, odor, or cut (of oil)
smpl - sample
perm - permeability
F.O. - free oil
vug - vugular
tr - trace
w/ - with

MODIFIERS:
gd - Good
fr - Fair
pr - Poor
ex - excellent
v - very
w - well
tr - trace
occ - occasional
vis - visible
N - no
gran - granular
intgran - intergranular
PP - pinpoint
dd - dead
gsy - gassy

TEXTURE:
Dns - Dense
Cly - Clayey
Fri - Friable
Earth - Earthy
Hack - Hackly
Fiss - Fissile
Vit - Vitreous
Vug - Vugular
Mic - Micritic

OIL SHOWS
○ Weak Oil Show
◐ Fair Oil Show
◑ Good Oil Show
● Excellent Oil Show

ROCK TYPE SYMBOLS

SHALE | CARBONACEOUS SHALE | QUARTZITE | SANDSTONE | LIMESTONE

DRILLING TIME | SAMPLE DESCRIPTIONS | REMARKS

Completed displacing native Mud at 2838'

Start Drilling Time and 10' wet and dry samples at 3000'

REMARKS:

Stone Corral Anhydrite (+299')

Base of Anhydrite (+267')

Neva Ls. (-384')

Red Eagle Ls. (-456')

Foraker Ls. (-502')

Stotler Ls. (-654')

Mud Check @ 3432'
M.W. 8.9 lbs./gal.
Vis. 56 sec./qt.
W.L. 5.6 cc/30 min.
Chl. 4,000 ppm
solids 4.3%
LCM. 6 lbs./bbl.

Topeka Fm. (-768')

Deer Creek Ls. (-805')

King Hill Shale (-853')

Lecompton Ls. (-878')

Oread Ls. (-910')

Heebner Shale (-924')

DST #1 3653'-3760'
Rec. 5' Mud
strap .21' short
Deviation ¾°

Lansing Gp. (-969')
Weak Show

Very Weak Show

Very Weak Show

DST #2 3752'-3855'
Rec: 10' OSM

Mud Check @ 3800'
M.W. 9.0
Vis. 54
W.L. 6.0
Chl. 1,400
solids 5.0%
LCM 6#

Fair-Weak Show

Very Weak Show

Stark Shale (-1140')

Base of Kansas City Group (-1188')

Marmaton Group (-1217')

Mud Check @ 3969'
M.W. 9.2
Vis. 69
W.L. 5.6
Chl. 1,200
solids 6.4%
LCM. 6#

D.T.D. 4,000'
L.T.D. 4,001'
Deviation ¼°

Robert Stolzle
5/21/13