

OPERATOR

Company: Murfin Drilling Company, Inc.
 Address: 250 N. Water
 Suite 300
 Wichita, KS 67202
 Contact Geologist: Shauna Gunzelman
 Contact Phone Nbr: 316-267-3241
 Well Name: Patricia #1-16
 Location: Sec. 16 - T1S - R37W
 Pool: API: 15-023-21378-0000
 State: Kansas Field: Wildcat
 Country: USA



Scale 1:240 Imperial

Well Name: Patricia #1-16
 Surface Location: Sec. 16 - T1S - R37W
 Bottom Location: API: 15-023-21378-0000
 License Number: 30606
 Spud Date: 1/29/2014 Time: 21:15
 Region: Cheyenne County
 Drilling Completed: 2/9/2014 Time: 04:05
 Surface Coordinates: 1980' FNL & 2100' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 3247.00ft
 K.B. Elevation: 3260.00ft
 Logged Interval: 3560.00ft To: 4785.00ft
 Total Depth: 4785.00ft
 Formation: Cherokee
 Drilling Fluid Type: Chemical/Fresh Water Gel

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: Latitude:
 N/S Co-ord: 1980' FNL
 E/W Co-ord: 2100' FWL

LOGGED BY

Keith Reavis
Consulting Geologist

Company: Keith Reavis, Inc.
 Address: 3420 22nd Street
 Great Bend, KS 67530
 Phone Nbr: 620-617-4091
 Logged By: KLG #136 Name: Keith Reavis

CONTRACTOR

Contractor: Murfin Drilling Company
 Rig #: 25
 Rig Type: mud rotary
 Spud Date: 1/29/2014 Time: 21:15
 TD Date: 2/9/2014 Time: 04:05
 Rig Release: Time:

ELEVATIONS

K.B. Elevation: 3260.00ft Ground Elevation: 3247.00ft
 K.B. to Ground: 13.00ft

NOTES

Due to negative results of DST's #1 and #2 and evaluation of sample shows and electrical logs, it was determined that the #1 Patricia be plugged and abandoned as a dry hole.

The gamma ray and caliper curves were imported into this report from the electrical log suite. Sample tops from the Topeka down were generally low to logged formation tops. Neither ROP or electrical log curves were shifted to provide an exact match, but rather left as recorded in the field.

The samples were saved and will be available for review at the Kansas Geological Survey Well Sample Library located in Wichita, KS.

Respectfully submitted,
 Keith Reavis

Murfin Drilling Company
daily drilling report

DATE	7:00 AM DEPTH	REMARKS
02/03/2014		Geologist Keith Reavis on location @ 2240 hrs, 3500 ft, bit trip
02/04/2014	3692	complete bit trip, ctch, resume drilling, Neva, Red Eagle, Foraker
02/05/2014	4154	drilling Topeka, Oread, Lansing
02/06/2014	4485	drilling Lansing, BKC, Marmaton, drill to 4595', stop above Pawnee, short trip, put rig to circulating, too cold to test
02/07/2014	4595	circulating until daylight, resume drilling 0750 hrs, cut Pawnee, show warrant DST, TOH w/bit and in w/tools, conduct DST #1,
02/08/2014	4667	complete DST #1, successful test, TIH w/bit, resume drilling, cut upper Cherokee, show warrants test, conduct and complete DST #2, TIH w/bit
02/09/2014	4785	resume drilling, TD @ 0405 hrs, ctch, TOH w/bit, conduct and complete logging operations 1300 hrs, geologist off location 1340 hrs

Murfin Drilling Company
well comparison sheet

Formation	DRILLING WELL Murfin - Patricia #1-16 1980' FNL & 2100' FWL Sec. 16 - T1S - R37W 3260 KB				COMPARISON WELL Murfin - Patricia #2-16 660' FNL & 660' FWL Sec. 16 - T1S - R37W 3264 KB				COMPARISON WELL Murfin - Jones B #1-9 710' FSL & 710' FWL Sec. 9 - T1S - R37W 3253 KB			
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log
Neva	3658	-398	3664	-404	3666	-402	4	-2	3658	-405	7	1
Red Eagle	3726	-466	3729	-469	3729	-465	-1	-4	3722	-469	3	0
Foraker	3773	-513	3775	-515	3777	-513	0	-2	3769	-516	3	1
Topeka	4004	-744	4002	-742	4002	-738	-6	-4	3996	-743	-1	1
Oread	4137	-877	4135	-875	4136	-872	-5	-3	4127	-874	-3	-1
Lansing	4219	-959	4214	-954	4216	-952	-7	-2	4213	-960	1	6
Stark	4438	-1178	4432	-1172	4436	-1172	-6	0	4428	-1175	-3	3
BKC	4490	-1230	4486	-1226	4490	-1226	-4	0	4483	-1230	0	4
Pawnee	4616	-1356	4613	-1353	4612	-1348	-8	-5	4605	-1352	-4	-1
Cherokee	4697	-1437	4696	-1436	4696	-1432	-5	-4	4690	-1437	0	1
Total Depth	4785	-1525	4783	-1523	4845	-1581	56	58	4833	-1580	55	57

Drill Stem Test #1 - Pawnee

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc. **16-1S-37W**
 250 N. Water STE 300
 Wichita Ks. 67202
 ATTN: Keith Reavis

Patricia #1-16
 Job Ticket: 55166 **DST#: 1**
 Test Start: 2014.02.07 @ 13:18:00

GENERAL INFORMATION:

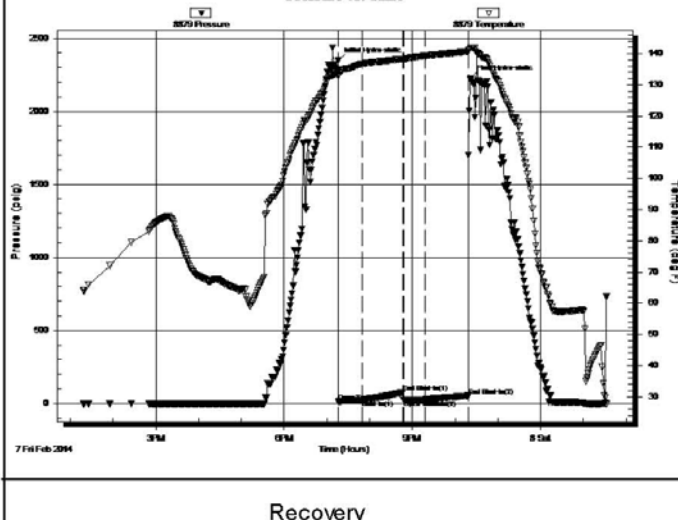
Formation: **Pawnee**
 Deviated: No Whipstock. ft (KB)
 Time Tool Opened: 19:16:15
 Time Test Ended: 01:33:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Royal Fisher
 Unit No: #54

Interval: 4594.00 ft (KB) To 4640.00 ft (KB) (TVD)
 Total Depth: 4640.00 ft (KB) (TVD) Reference Elevations: 3260.00 ft (KB)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 13.00 ft

Serial #: 8879

Press@RunDepth: 26.04 psig @ ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.02.07 End Date: 2014.02.08 Last Calib.: 2014.02.08
 Start Time: 13:18:05 End Time: 01:33:00 Time On Btm: 2014.02.07 @ 19:16:00
 Time Off Btm: 2014.02.07 @ 22:21:30

TEST COMMENT: 30 - IF - No Surface blow
 60 - ISI - No Return
 30 - FF - No Surface blow
 60 - FSI - No Return



PRESSURE SUMMARY

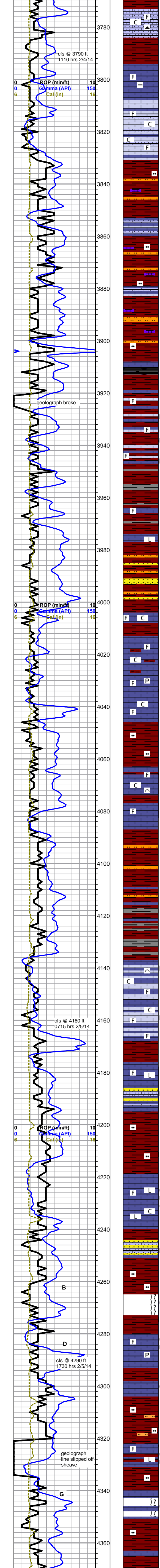
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2346.82	133.82	Initial Hydro-static
1	13.49	132.90	Open To Flow (1)
34	21.12	136.68	Shut-In(1)
91	75.82	138.30	End Shut-In(1)
92	26.21	138.37	Open To Flow (2)
122	26.04	139.26	Shut-In(2)
183	51.82	140.65	End Shut-In(2)
186	2224.34	141.81	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM - 95M - 5o	0.02

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/D)



Foraker 3773 -513

limestone, light gray to pale green, grainy, sandy, fossiliferous, some brown, sandy, with some calcite crystals and orange chert inclusions, some white to cream, cryptocrystalline, fossiliferous, dense, poor visible porosity, no shows, gray to lavender siltstones, abundant chalk

(3810 sample) limestone, dark gray, microcrystalline, mottled, fossiliferous, dense, with some brown cryptocrystalline, dense, arenaceous in part

(3820 sample) grades to limestone, light gray to cream, cryptocrystalline, fossiliferous to sandy to chalky, poor visible porosity, flood chalk in samples, no shows or odor

(3850 sample) shale, red, silty, soft, sticky, some pale green siltstones

shale with some limestone as above

as above

3910 and 3920 samples were missed

shale as above with limestone streaks, gray to cream, micro-cryptocrystalline, fossiliferous, some mottling, chalky in part, black asphaltic staining, some slight fractures, otherwise poor visible porosity, no show free oil or odor, light even mineral fluorescence, faint to fair milky cut

grades back to shale, red silty, gray, fissil,

shale a.a. with: limestone, light gray to cream, cryptocrystalline, fossiliferous to lithographic, dense, no shows

shale as above with pale green siltstone to very fine grain sandstone, soft

Topeka 4004 -744

limestone, light gray to white, pale green, cryptocrystalline, fossiliferous, mostly dense, chalky in part, abundant chalk in tray, poor visible porosity, trace pyrite, no shows or odor, shales as above

limestone as above, some soft white bioclastic, abundant shales

red silty shale and siltstone, some pale green siltstone

as above with influx limestone, cream to light gray, cryptocrystalline, dense, fossiliferous to lithographic

red shales with flood soft light gray shale

Oread 4137 -877

limestone, white to light gray and pale green, microcrystalline, fossiliferous, trace bioclastic, some friable, poor visible porosity, scattered interclast dead gilsonitic stain, no cut, with limestone, gray, cryptocrystalline, lithographic to fossiliferous to arenaceous, barren, no odor or free oil in wet cup, light mineral fluorescence, abundant chalk

grades to limestone, light gray to gray, cryptocrystalline, fossiliferous to lithographic, dense, no shows

as above

limestone, light gray, bioclastic, chalky, with sandstone, pale green, very fine grain, fair rounding and sorting, friable to well cemented, poor visible porosity, both facies with dead black gilsonitic stain, spotted to saturated, no show free oil, no odor, poor fluorescence, no cut

shale, red, silty

Lansing 4219 -959

limestone, light gray to gray, cryptocrystalline, dense lithographic, with some scattered light gray to white limestone, chalky, fossiliferous, some edge etching and interclast crystal lined solution vugs, slightly gassy, trace free oil, no odor in wet cup, fair even fluorescence in tray, slow streaming cut in stained samples

limestone, pale green to gray/green, sandy, with sandstone, pale green to gray/green, very fine grain, well sorting, fair rounding, well cemented to friable, both facies with spotty-saturated black stain, no show free oil, poor fluorescence, no cut

(4290 sample) limestone, light gray to white, microcrystalline, recrystallized fossiliferous, pyritic in part, fractured and vuggy, good interclast and fracture staining, bleeding some heavy free oil, good sheen in tray, no odor, spotty fluorescence, excellent cut - with limestones, mottled cream pelletal, sandy, very pyritic, chalky, no show - cfs samples as above

limestones as above

shales, red, silty, some red siltstone

4340 sample - limestone, gray, cryptocrystalline, lithographic to arenaceous, some solution vugs, trace stain and dark tarry/clingy oil, with limestone, white, microcrystalline, fossiliferous, chalky, some interclast and pinpoint porosity, black spotty stain, sheen in tray, no odor in wet cup, light even fluorescence, fair cut

at tour change, samples missed from 4350 - 4370

4380 sample red silty shales, some varible gray and cream limestone from uphole, mostly fossiliferous, some coral fans, and some small vugs and interclast porosity, scattered staining, questionable free oil (sheen droplets in tray) no odor

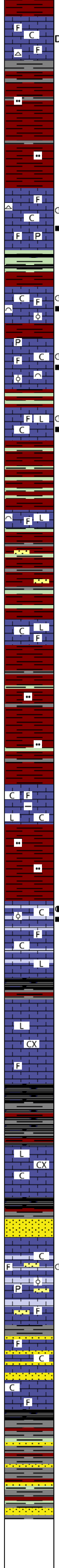
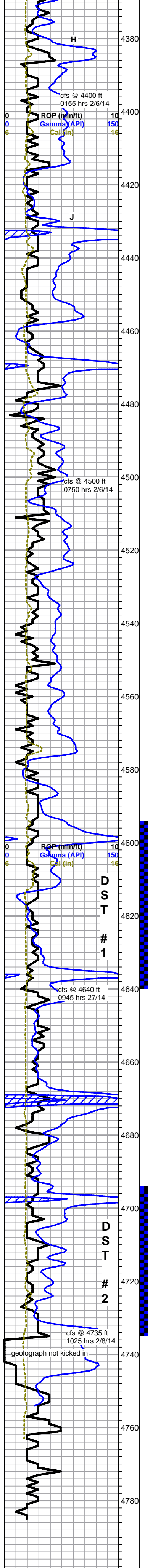
@ 3785 ft.
1115 hrs. 2/4/13
Vis. 62 Wt. 9.0
PV 22 YP 24
WL 5.2
Cake 2/32,
pH 10.5
CHL 800 ppm
Ca 10 ppm
Sol 5.0 LCM 8#
DMC \$5355.00
CMC \$17,017.00

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

Morgan Mud chk
@ 4207 ft.
1200 hrs. 2/5/13
Vis. 44 Wt. 9.2
PV 14 YP 13
WL 7.6
Cake 2/32,
pH 9.0
CHL 1000 ppm
Ca 10 ppm
Sol 6.4 LCM 8#
DMC \$848.00
CMC \$17,865.00

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100



limestone, light gray, microcrystalline, fossiliferous, chalky, no show with limestone, gray to brown mottled, cherty to chalky reworked fossiliferous, arenaceous, no visible porosity, black dead speckled staining, no show free oil, no odor, fair overall fluorescence, no cut

shales, red and gray, silty

limestone, white to light gray, cryptocrystalline, chalky, fossiliferous, some edge etching and small vugs with light stain, trace tarry clingy free oil, limestone, gray mottled, recrystallized cherty fossiliferous, some small vugs, saturated black stain, sheen on water, no odor, good even fluorescence, slow milky cut, pyrite nodules

Stark Shale 4438 -1178
shale, green and black, grading to red

limestone, white to pale gray/green, fossiliferous to bioclastic to oolitic, very chalky, some good interclast porosity, friable in part, some pyritic, spotty brown to black stain, show tarry/clingy oil, trace sandy friable limestone, dark gray, black staining, no odor in wet cup, light fluorescence, slow fair milky cut

as above

L Zone - limestone, white, microcrystalline, chalky fossiliferous, poor porosity, trace black stain, limestone, gray, cryptocrystalline, lithographic, dense, few pieces gray fossiliferous, good interclast porosity and vugs, light stain, profuse streaming sheen, good streaming cut, overall fluorescence is good even, no odor in wet cup

Base KC 4490 -1230
red and green shales, some mottled

limestone, white to cream, cryptocrystalline, fossiliferous to lithographic, limestone, white chalky bioclastic, limestone, pale green, cryptocrystalline, argillaceous, no shows, abundant chalk

mixed gray, green and red shales, some scattered sandstone, light green, very fine grained, well rounded, fair sorting, friable, no shows

limestone, gray, micro-cryptocrystalline, soft arenaceous to dense lithographic and fossiliferous, abundant chalky, no shows

shale, mostly red silty, abundant bright burnt orange, some gray and green

limestone, gray, micro-cryptocrystalline, soft arenaceous to argillaceous with: dense lithographic and fossiliferous, flood of chalk in samples, no shows

cfs @ 4595', 1320 hrs 2/6/14, shor trip then stop and circ on hole until weather warms enough to test

red silty shales

Pawnee 4616 -1356
limestone, cream to light gray, micro-cryptocrystalline, fossiliferous to oolitic, appears recrystallized, some good interclast and vuggy porosity, light brown spotty to saturated stain, some rocks streaming oil sheen, good fluorescence, excellent bright cut, questionable fleeting odor in wet cup, abundant chalk

limestone grades to gray cryptocrystalline, fossiliferous to arenaceous to lithographic, mostly dense, trace tan chert, no shows

30 min cfs sample, flood black carbonaceous and red shale

limestone, light gray to gray, cryptocrystalline, slight fossiliferous to lithographic, some arenaceous, mostly dense, poor visible porosity, no shows

shale, black carbonaceous, gray and red

limestone, light gray to gray, cryptocrystalline, slight fossiliferous to lithographic, chalky in part, some arenaceous, mostly dense, poor visible porosity, no shows

Cherokee 4697 -1437
shale, black carbonaceous, gray and red

sandstone, cream to light gray and light orange, quartz, fine to very fine grain, poor to fair sorting, round to sub-angular, well cemented, slightly glauconitic and micaceous, poor porosity, no show

limestone, white to light gray, microcrystalline, fossiliferous, to oolitic, chalky, trace pyritic, few pieces with small solution vugs and inter-oolite porosity, spotty black stain, some gas bubbles, light sheen in one tray, no odor, poor fluorescence with faint cut and halo

increas in chalk, still carrying abundant sandstone a.a.

limestone, light gray to white, cryptocrystalline, slightly fossiliferous, some very chalky, with few sandstone clusters, quartz, fine grain, well rounded, fair sorted, fair cemented to slightly friable, poor visible porosity, abundant sand grains in bottom of tray, abundant chalk, no shows

samples, mostly shale, mixed, heavy red wash, with sandstone, fine to medium grain, sub-round to sub angular, poor to fair sorting, well cemented, some pyritic, trace arkose and mica, dense, no shows

as above, slight increase in sand

**Rotary TD @ 4785 ft. 0405 hrs 2/9/14
Pioneer Log TD 4783 ft.
Complete Logging Operations 1300 hrs 2/9/14**

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

Morgan Mud chk @ 4542 ft.
1105 hrs. 2/6/13
Vis. 47 Wt. 9.2
PV 15 YP 14
WL 7.2
Cake 2/32,
pH 10.0
CHL 1000 ppm
Ca 10 ppm
Sol 6.4 LCM 7#
DMC \$2775.00
CMC \$20,640.00

Patricia 1-16 dst 1.pdf

Morgan Mud chk @ 4640 ft.
1015 hrs. 2/7/13
Vis. 66 Wt. 9.2
PV 26 YP 22
WL 5.6
Cake 2/32,
pH 10.0
CHL 1000 ppm
Ca 10 ppm
Sol 6.4 LCM 6#
DMC \$2811.00
CMC \$23,451.00

Patricia 1-16 dst 2.pdf

Morgan Mud chk @ 4735 ft.
1130 hrs. 2/8/13
Vis. 48 Wt. 9.3
PV 15 YP 16
WL 6.4
Cake 2/32,
pH 9.5
CHL 900 ppm
Ca 10 ppm
Sol 7.1 LCM 10#
DMC \$504.00
CMC \$23,955.00