

**OPERATOR**

Company: Deutsch Oil Company  
 Address: 8100 E. 22nd St. N.  
 Bldg 600, Ste. D  
 Wichita, KS 67226

Contact Geologist: Kent Deutsch  
 Contact Phone Nbr: 316-681-3567  
 Well Name: McGaughey #1-31  
 Location: Sec. 31 - T21S - R23W

API: 15-083-21789-0000  
 Field: Wildcat  
 Country: USA

Scale 1:240 Imperial

Well Name: McGaughey #1-31  
 Surface Location: Sec. 31 - T21S - R23W  
 Bottom Location:  
 API: 15-083-21789-0000  
 License Number: 3180  
 Spud Date: 6/9/2012 Time: 00:00  
 Region: Hodgeman County  
 Drilling Completed: 6/16/2012 Time: 17:50  
 Surface Coordinates: 1350' FNL & 700' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2356.00ft  
 K.B. Elevation: 2366.00ft To: 4700.00ft  
 Logged Interval: 3800.00ft  
 Total Depth: 4700.00ft  
 Formation: Mississippian  
 Drilling Fluid Type: Chemical/Fresh Water Gel

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: Latitude:  
 N/S Co-ord: 1350' FNL  
 E/W Co-ord: 700' FEL

**LOGGED BY**

**Keith Reavis**  
*Consulting Geologist*

Company:  
 Address:

Phone Nbr:  
 Logged By: Geologist Name: Ted Pfau and Keith Reavis

**CONTRACTOR**

Contractor: Maverick Drilling  
 Rig #: 106  
 Rig Type: mud rotary  
 Spud Date: 6/9/2012 Time: 00:00  
 TD Date: 6/16/2012 Time: 17:50  
 Rig Release: Time:

**ELEVATIONS**

K.B. Elevation: 2366.00ft Ground Elevation: 2356.00ft  
 K.B. to Ground: 10.00ft

**NOTES**

Due to poor structural position, negative drill stem test results and electrical log analysis, it was elected by the operator to plug and abandon the McGaughey #1-31 as a dry hole.

A Bloodhound gas detector provided by Bluestem Environmental was employed on this well. The ROP and gas curves were imported into this mudlog. The gamma ray and caliper curves were also imported from the electrical logs. It should be noted that sample formation top picks were generally within 2 to 4 ft. of electrical log tops. The ROP and gamma curves were not shifted to provide an exact match, but rather left as recorded in the field.

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

Respectfully submitted  
 Keith Reavis

**Deutsch Oil**  
 daily drilling report

DATE	7:00 AM DEPTH	REMARKS
06/13/2012		Geologist Ted Pfau on location @ 1730 hrs, 4010 ft., drilling ahead Heebner, Toronto, Douglas, currently drilling Lansing
06/14/2012	4292	geologist Ted Pfau off location 4377 ft, relieved by geologist Keith Reavis 4476 ft, 1840 hrs, drilling Pawnee, Ft. Scott, Cherokee
06/15/2012	4604	drilling ahead, Cherokee, conglomerate, Mississippian, show warrants DST, short trip, TOH w/bit, in w/tools, conduct and complete DST #1, successful test, back in hole w/bit, resume drilling
06/16/2012	4624	drill ahead, Mississippian, show warrants test, TOH w/bit, conduct DST #2, successful test, in hole w/bit, rathole to TD at 2055 hrs, ctch, TOH
06/17/2012	4700	TOH w/bit, conduct and complete wireline logs, geologist off loc 0630 hrs

**Deutsch Oil**  
 well comparison sheet

	DRILLING WELL				COMPARISON WELL				COMPARISON WELL					
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Structural Relationship	Sample	Log	Sub-Sea	Structural Relationship	Sample	Log	
	McGaughey #1-31 1350' FNL & 700' FEL Sec. 31-21S-23W				Petromark #31-1 Madonna SE NW NE Sec. 31 - 21S - 23W				Thunderbird - #1 Tammen OWWO C NW SW Sec. 30-T21S-R23SW					
	2366 KB				2363 KB				2407 KB					
Formation														
Heebner	3912	-1546	3914	-1548	3906	-1543	-3	-5	3937	-1530	-16	-18		
Toronto	3931	-1565	3935	-1569	3925	-1562	-3	-7						
Douglas	3949	-1583	3952	-1586	3943	-1580	-3	-6						
Lansing	3967	-1601	3968	-1602	3959	-1596	-5	-6	3979	-1572	-29	-30		
Stark	4222	-1856	4224	-1858	4219	-1856	0	-2						
BKC	4336	-1970	4334	-1968	4332	-1969	-1	1						
Marmaton	4364	-1998	4353	-1987	4355	-1992	-6	5						
Pawnee	4439	-2073	4435	-2069	4428	-2065	-8	-4						
Ft. Scott	4492	-2126	4496	-2130	4488	-2125	-1	-5	4507	-2100	-26	-30		
Cherokee	4517	-2151	4520	-2154	4514	-2151	0	-3	4534	-2127	-24	-27		
Miss Ls	np				4582	-2219			4600	-2193				
Miss Dol	4586	-2220	4588	-2222	4596	-2233	13	11						
Total Depth	4700	-2334	4699	-2333	4635	-2272	-62	-61	4669	-2262	-72	-71		

**Drill Stem Test #1**

	<b>DRILL STEM TEST REPORT</b>	
	Deutsch Oil Co.	<b>31-21s-23w Hodgeman Co KS</b>
	8100 E22nd St N Wichita KS 67226	<b>McGaughey # 1-31</b>
	ATTN: Keith Reavis	Job Ticket: 45902 <b>DST#: 1</b> Test Start: 2012.06.15 @ 10:50:00

**GENERAL INFORMATION:**

Formation: **Mississippi**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 13:11:10  
 Time Test Ended: 19:37:55

Test Type: Conventional Bottom Hole (Initial)  
 Tester: Will MacLean  
 Unit No: 40

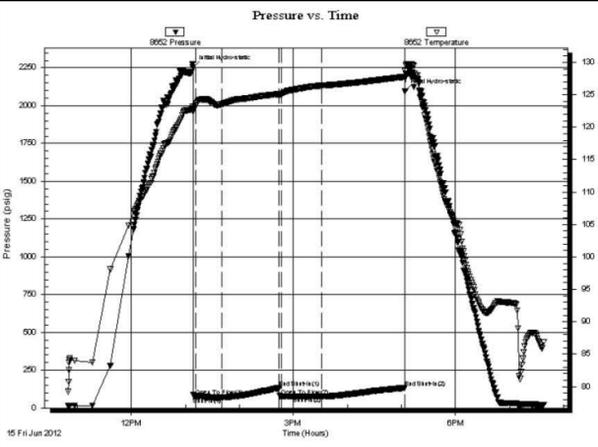
Interval: **4536.00 ft (KB) To 4604.00 ft (KB) (TVD)**  
 Total Depth: 4604.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches-Hole Condition: Fair

Reference Elevations: 2366.00 ft (KB)  
 2356.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 8652 Inside**

Press@RunDepth: 76.77 psig @ 4539.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.06.15 End Date: 2012.06.15 Last Calib.: 2012.06.15  
 Start Time: 10:50:00 End Time: 19:37:55 Time On Btm: 2012.06.15 @ 13:08:25  
 Time Off Btm: 2012.06.15 @ 17:03:54

**TEST COMMENT:** IF- Weak Surface Blow Built to 3/4"  
 IS- No Blow  
 FF- Weak Surface Blow Died in 8min Flushed Tool at 30min Weak Surface Blow Died in 2min  
 FS- No Blow



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2251.29	123.14	Initial Hydro-static
3	77.26	123.28	Open To Flow (1)
32	70.07	123.54	Shut-In(1)
96	132.49	125.12	End Shut-In(1)
98	76.77	125.13	Open To Flow (2)
144	76.77	126.43	Shut-In(2)
236	133.80	127.78	End Shut-In(2)
236	2095.80	128.70	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
1.00	GO 5%g 95%oil	0.01
30.00	GOCM 2%g 8%oil 90%m	0.42

Gas Rates			
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

**Drill Stem Test #2**

**DRILL STEM TEST REPORT**

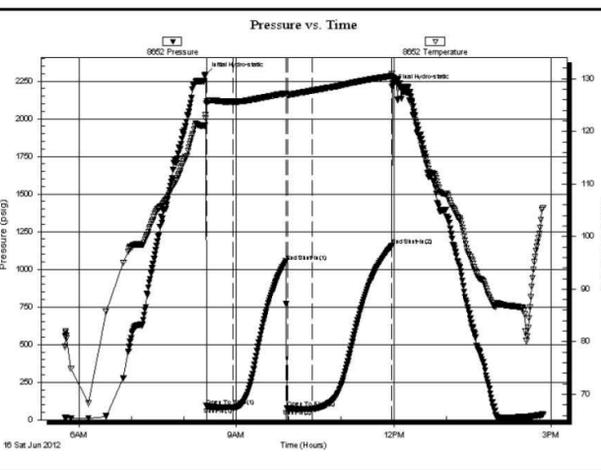
Deutsch Oil Co.	<b>31-21s-23w Hodgeman Co KS</b>
8100 E22nd St N Wichita KS 67226	<b>McGaughey # 1-31</b>
ATTN: Keith Reavis	Job Ticket: 45903 <b>DST#:2</b> Test Start: 2012.06.16 @ 05:44:00

**GENERAL INFORMATION:**

Formation: <b>Mississippi</b>	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock      ft (KB)	Tester: Will MacLean
Time Tool Opened: 08:25:55	Unit No: 40
Time Test Ended: 14:50:40	
<b>Interval: 4604.00 ft (KB) To 4624.00 ft (KB) (TVD)</b>	Reference Elevations: 2366.00 ft (KB)
Total Depth: 4624.00 ft (KB) (TVD)	2356.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Poor      KB to GR/CF: 10.00 ft

<b>Serial #: 8652</b> <b>Inside</b>	Press@RunDepth: 73.84 psig @ 4606.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2012.06.16	End Date: 2012.06.16	Last Calib.: 2012.06.16
Start Time: 05:44:00	End Time: 14:50:40	Time On Btm: 2012.06.16 @ 08:24:55
		Time Off Btm: 2012.06.16 @ 11:58:09

**TEST COMMENT:** F- 2" Blow Chased the Tool to Bottom 5 to 6'  
 IS- No Blow  
 FF- Weak Surface Blow Died in 26min  
 FSI- No Blow



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2294.59	123.08	Initial Hydro-static
1	90.86	125.41	Open To Flow (1)
31	82.40	125.61	Shut-In(1)
92	1052.34	127.20	End Shut-In(1)
94	76.66	126.95	Open To Flow (2)
123	73.84	127.72	Shut-In(2)
213	1154.53	130.51	End Shut-In(2)
214	2211.21	130.95	Final Hydro-static

Length (ft)	Description	Volume (bbl)
40.00	100% m with Skim of Oil on Top	0.56

Choke (inches)	Pressure (psig)	Gas Rate (M cfd)

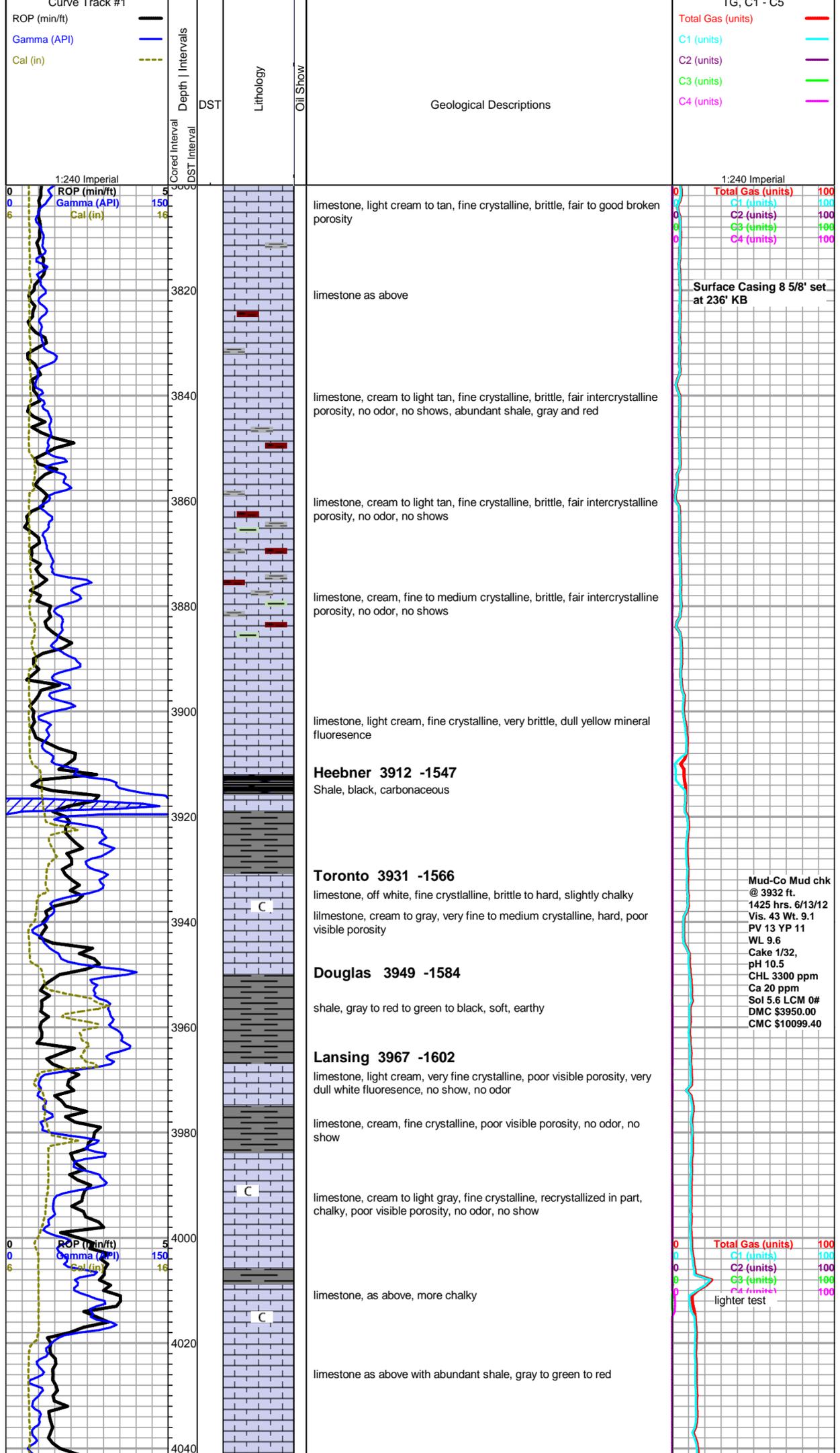
\* Recovery from multiple tests      Date: 2012.06.16 @ 05:44:00

Cht vari	Lmst fw<7	shale, grn	Carbon Sh
Dolprim	Lmst fw7>	shale, gry	shale, red

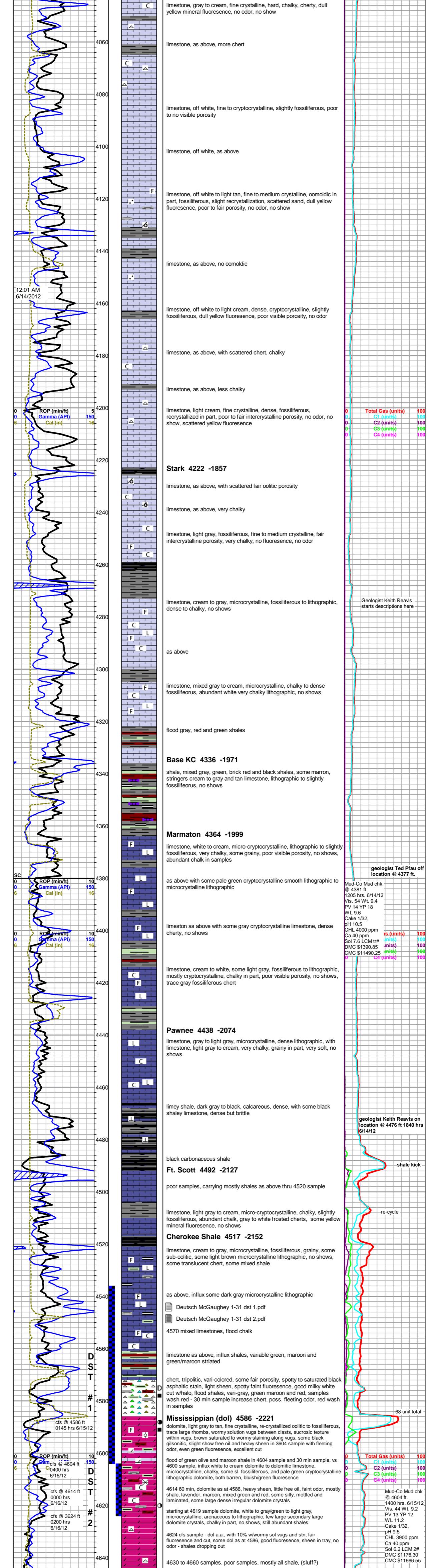
<b>MINERAL</b> ⊥ Calcareous ⊘ Dolomitic ∩ Glauconite ✕ Mineral Crystals • Sandy △ Chert White	<b>FOSSIL</b> F Fossils < 20% ∅ Oolite ∅ Oomoldic	<b>STRINGER</b> ▬ Limestone ▬ Shale ▬ green shale ▬ red shale ▬ carb shale	<b>TEXTURE</b> C Chalky L Lithogr
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<b>MISC</b> [DR] Daily Report [DP] Digital Photo [DOC] Document [F] Folder [L] Link [VLF] Vertical Log File [HLF] Horizontal Log File [CLF] Core Log File [DCR] Drill Cuttings Rpt	<b>DST</b> [DST Int] DST Int [DST alt] DST alt [Core] Core [tail pipe] tail pipe
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**Mud-Co Mud chk @ 3932 ft.**  
 1425 hrs. 6/13/12  
 Vis. 43 Wt. 9.1  
 PV 13 YP 11  
 WL 9.6  
 Cake 1/32,  
 pH 10.5  
 CHL 3300 ppm  
 Ca 20 ppm  
 Sol 5.6 LCM 0#  
 DMC \$3950.00  
 CMC \$10099.40



limestone, gray to cream, fine crystalline, hard, chalky, cherty, dull yellow mineral fluorescence, no odor, no show

limestone, as above, more chert

limestone, off white, fine to cryptocrystalline, slightly fossiliferous, poor to no visible porosity

limestone, off white, as above

limestone, off white to light tan, fine to medium crystalline, oomoldic in part, fossiliferous, slight recrystallization, scattered sand, dull yellow fluorescence, poor to fair porosity, no odor, no show

limestone, as above, no oomoldic

limestone, off white to light cream, dense, cryptocrystalline, slightly fossiliferous, dull yellow fluorescence, poor visible porosity, no odor

limestone, as above, with scattered chert, chalky

limestone, as above, less chalky

limestone, light cream, fine crystalline, dense, fossiliferous, recrystallized in part, poor to fair intercrystalline porosity, no odor, no show, scattered yellow fluorescence

**Stark 4222 -1857**

limestone, as above, with scattered fair oolitic porosity

limestone, as above, very chalky

limestone, light gray, fossiliferous, fine to medium crystalline, fair intercrystalline porosity, very chalky, no fluorescence, no odor

limestone, cream to gray, microcrystalline, fossiliferous to lithographic, dense to chalky, no shows

as above

limestone, mixed gray to cream, microcrystalline, chalky to dense fossiliferous, abundant white very chalky lithographic, no shows

flood gray, red and green shales

**Base KC 4336 -1971**

shale, mixed gray, green, brick red and black shales, some maroon, stringers cream to gray and tan limestone, lithographic to slightly fossiliferous, no shows

**Marmaton 4364 -1999**

limestone, white to cream, micro-cryptocrystalline, lithographic to slightly fossiliferous, very chalky, some grainy, poor visible porosity, no shows, abundant chalk in samples

as above with some pale green cryptocrystalline smooth lithographic to microcrystalline lithographic

limestone as above with some gray cryptocrystalline limestone, dense cherty, no shows

limestone, cream to white, some light gray, fossiliferous to lithographic, mostly cryptocrystalline, chalky in part, poor visible porosity, no shows, trace gray fossiliferous chert

**Pawnee 4438 -2074**

limestone, gray to light gray, microcrystalline, dense lithographic, with limestone, light gray to cream, very chalky, grainy in part, very soft, no shows

limy shale, dark gray to black, calcareous, dense, with some black shaley limestone, dense but brittle

black carbonaceous shale

**Ft. Scott 4492 -2127**

poor samples, carrying mostly shales as above thru 4520 sample

limestone, light gray to cream, micro-cryptocrystalline, chalky, slightly fossiliferous, abundant chalk, gray to white frosted cherts, some yellow mineral fluorescence, no shows

**Cherokee Shale 4517 -2152**

limestone, cream to gray, microcrystalline, fossiliferous, grainy, some sub-oolitic, some light brown microcrystalline lithographic, no shows, some translucent chert, some mixed shale

as above, influx some dark gray microcrystalline lithographic

Deutsch McGaughey 1-31 dst 1.pdf

Deutsch McGaughey 1-31 dst 2.pdf

4570 mixed limestones, flood chalk

limestone as above, influx shales, variable green, maroon and green/maroon striated

chert, tripolitic, vari-colored, some fair porosity, spotty to saturated black asphaltic, light sheen, spotty faint fluorescence, good milky white cut w/halo, flood shales, vari-gray, green maroon and red, samples wash red - 30 min sample increase chert, poss. fleeting odor, red wash in samples

**Mississippian (dol) 4586 -2221**

dolomite, light gray to tan, fine crystalline, re-crystallized oolitic to fossiliferous, trace large rhombs, wormy solution vugs between clasts, sucrosic texture within vugs, brown saturated to wormy staining along vugs, some black gilsonitic, slight show free oil and heavy sheen in 3604 sample with fleeting odor, even green fluorescence, excellent cut

flood of green olive and maroon shale in 4604 sample and 30 min sample, vs 4600 sample, influx white to cream dolomite to dolomitic limestone, microcrystalline, chalky, some sl. fossiliferous, and pale green cryptocrystalline lithographic dolomite, both barren, bluish/green fluorescence

4614 60 min, dolomite as at 4586, heavy sheen, little free oil, faint odor, mostly shale, lavender, maroon, mixed green and red, some silty, mottled and laminated, some large dense irregular dolomite crystals

starting at 4619 sample dolomite, white to gray/green to light gray, microcrystalline, arenaceous to lithographic, few large secondary large dolomite crystals, chalky in part, no shows, still abundant shales

4624 cfs sample - dol a.a., with 10% w/wormy sol vugs and stn, fair fluorescence and cut, some dol as at 4586, good fluorescence, sheen in tray, no odor - shales dropping out

4630 to 4660 samples, poor samples, mostly all shale, (sluff?)

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

Geologist Keith Reavis starts descriptions here

geologist Ted Pfau off location @ 4377 ft.

Mud-Co Mud chk @ 4381 ft. 1205 hrs. 6/14/12 Vis. 54 Wt. 9.4 PV 14 YP 18 WL 9.6 Cake 1/32, pH 10.5 CHL 4000 ppm Ca 40 ppm Sol 7.6 LCM tr# DMC \$1390.85 CMC \$11490.25

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

geologist Keith Reavis on location @ 4476 ft 1840 hrs 6/14/12

shale kick

re-cycle

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

68 unit total

Mud-Co Mud chk @ 4604 ft. 1400 hrs. 6/15/12 Vis. 44 Wt. 9.2 PV 13 YP 12 WL 11.2 Cake 1/32, pH 9.5 CHL 3900 ppm Ca 40 ppm Sol 6.2 LCM 2# DMC \$1176.30 CMC \$11666.55

12:01 AM 6/14/2012

ROP (min/ft) Gamma (API) Cal (in)

SC ROP (min/ft) Gamma (API) Cal (in)

ROP (min/ft) Gamma (API) Cal (in)

cfs @ 4586 ft 0145 hrs 6/15/12

ROP (min/ft) Gamma (API) Cal (in) cfs @ 4604 ft 0000 hrs 6/15/12

cfs @ 4614 ft 0000 hrs 6/16/12 cfs @ 3624 ft 0200 hrs 6/16/12

DIST # 1

DIST # 2

4660  
4680  
4700



beginning 4670 sample, shales dropping out, dolomite, fairly homogeneous, white to cream, microcrystalline, sub-sucrosic, fairly dense, slightly glauconitic, barren, light even mineral fluorescence, with chert, white to light gray fossiliferous, mostly sharp and fresh, some scattered weathered to sub-tripolitic, no shows, no odor

dolomite and chert as above

rotary TD 4700 ft. 2055 hrs 6/16/12  
Superior Log TD 4699 ft.  
Complete Logging Operations @ 0515 hrs

Mud-Co Mud chk  
@ 4624 ft  
1150 hrs. 6/16/12  
Vis. 49 Wt. 9.4  
PV 15 YP 15  
WL 11.2  
Cake 1/32,  
pH 9.5  
CHL 3400 ppm  
Ca 40 ppm  
Sol 7.7 LCM 2#  
DMC \$377.95  
CMC \$13044.50

