



Scale 1:240 Imperial

Well Name: McClaren 'B' #1
Surface Location: 330' FNL and 330' FEL
Bottom Location:
API: 15-097-21759-0000
License Number: 34320
Spud Date: 6/29/2013 Time: 11:30 PM
Region: Sec. 6 - T30S - R18W, Kiowa County
Drilling Completed: 7/8/2013 Time: 3:05 AM
Surface Coordinates:
Bottom Hole Coordinates:
Ground Elevation: 2235.00ft
K.B. Elevation: 2248.00ft
Logged Interval: 4100.00ft To: 5570.00ft
Total Depth: 5570.00ft
Formation: Mississippian
Drilling Fluid Type: Chemical/Fresh Water Gel

OPERATOR

Company: Lasso Energy, LLC
Address: P.O. Box 465
1125 S. Main St.
Chase, KS 67524
Contact Geologist: Bruce Kelso
Contact Phone Nbr: 918.633.9655
Well Name: McClaren 'B' #1
Location: 330' FNL and 330' FEL API: 15-097-21759-0000
Pool: Nichols
State: Kansas Country: USA

LOGGED BY



Company: Valhalla Exploration, LLC
Address: 8100 E. 22nd St. North
Building 1800-2
Wichita, KS 67226
Phone Nbr: 316.655.3550
Logged By: Geologist Name: Derek W. Patterson

REMARKS

After review of the geologic report and electric logs for the McClaren 'B' #1, it was decided upon by operator to run 5 1/2" production casing for further evaluation of said well.

The drill time, lithology, and gas curves have been shifted 7' shallow/higher to correspond with the electric log curves. All circulation points, trip points, and connections have also been moved to match the overall shift.

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

Respectfully Submitted,

Derek W. Patterson

GENERAL INFORMATION

Service Companies

Drilling Contractor: Ninnescah Drilling
Tool Pusher: Rick Barringer
Daylight Driller: Jason Barringer
Evening Driller: Juan Navarro
Morning Driller: Ronald Guerrero

Drilling Fluid: Mud-Co/Service Mud Inc.
Engineers: Justin Whiting
Brad Bortz

Logging Company: Tucker Wireline

Gas Detector: Bluestem Environmental
 Engineer: Sidney Edelbrock
 Unit: 0574
 Operational By: 2450'

Engineer: Z. Hickman
 Logs Ran: DI, CDNL, Micro, Sonic

Testing Company: No DSTs

Deviation Survey	
Depth	Survey
485'	1°
4714'	3/4°
RTD - 5570'	1 1/2°

Pipe Strap	
Depth	Pipe Strap
4714'	1' Short to Board

Bit Record								
Bit #	Size	Make	Type	Serial Number	Depth In	Depth Out	Feet	Hours
1	12 1/4"	SM	Mill Tooth	RR	0'	485'	485'	5.75
2	7 7/8"	Varel	HE21	1356649	485'	4714'	4229'	93.00
3	7 7/8"	Varel	HE29	1326888	4714'	5570'	856'	45.25

Surface Casing	
6.30.2013	Ran 11 joints of new 23 #/ft 8 5/8" casing, tallying 468', set @ 485' KB. Cemented with 150 sacks A Service Lite (6% gel, 3% CC, 1/4 lb CF) and 150 sacks Common (2% CC 1/4 lb CF). Cement did circulate. Plug down @ 1900 hrs 6.30.13. By Basic Energy Services.

Production Casing	
7.9.2013	Ran 132 joints of new 15.5 #/ft 5 1/2" production casing, tallying 5542.16', set @ 5542.16' KB. Cemented with 275 sacks AA2. Cement did circulate. Plug down @ 0900 hrs 7.9.13. By Basic Energy Services.

DAILY DRILLING REPORT

Date	0700 Hrs Depth	Previous 24 Hours of Operations
7.5.2013	4479'	Drilling and connections Topeka, Heebner, Toronto, and into Douglas. Geologist Derek W. Patterson on location 1845 hrs 7.4.13. Drilling and connections Douglas, Brown Lime, and into Lansing/KC. CFS @ 4370' (LKC 'A'). Resume drilling and connections Lansing/KC. Made 543' over past 24 hrs of operations. WOB: 36-38k RPM: 90 PP: 1000 SPM: 60 DMC: \$9,725.60 CMC: \$11,044.35
7.6.2013	4817'	Drilling and connections Lansing/KC. Stop @ 4714' for bit trip. CTCH, drop survey, strap out for bit trip 1845 hrs 7.5.13. TIH with new bit. Resume drilling following bit trip 0010 hrs 7.6.13. Drilling and connections Lansing/KC, Base Kansas City, and into Marmaton. Made 338' over past 24 hrs of operations. WOB: 36-38k RPM: 70-80 PP: 1100 SPM: 60 DMC: \$184.50 CMC: \$11,228.85
7.7.2013	5222'	Drilling and connections Marmaton, Pawnee, Fort Scott, Cherokee, and into Mississippian. Drilling and connections Mississippian and into Kinderhook. Made 405' over past 24 hrs of operations. WOB: 36-38k RPM: 70-75 PP: 1100 SPM: 60 DMC: \$1,427.80 CMC: \$12,656.65
7.8.2013	RTD - 5570' LTD - 5566'	Drilling and connections Kinderhook, Viola, Simpson, and into Arbuckle ahead to RTD of 5570'. RTD reached 0305 hrs 7.8.13. CTCH, conduct short trip, CTCH. Made 348' over past 24 hrs of operations. WOB: 36-38k RPM: 70-75 PP: 1100 SPM: 60 DMC: \$2,991.70 CMC: \$15,648.35
7.9.2013	RTD - 5570' LTD - 5566'	CTCH, drop survey, TOH for open hole logging operations 0735 hrs 7.8.13. Rig up loggers. Conduct logging operations. Orders received to run 5 1/2" production casing for further evaluation of the McClaren 'B' #1. Geologist Derek W. Patterson released 1800 hrs 7.8.13. DMC: \$2,420.55 CMC: \$18,068.90

WELL COMPARISON SHEET

	Drilling Well				Comparison Well				Comparison Well				Comparison Well			
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log
Formation	Lasso Energy - McClaren 'B' #1 Sec. 06 - T30S - R18W NE NE NE 2248 KB				Gulf Oil Corp - Dunn #1 Sec. 06 - T30S - R18W NE NE Oil & Gas - Miss 2241 KB				Francis Oil & Gas - Parkin 'C' #1 Sec. 05 - T30S - R18W NW NW Oil - Miss 2218 KB				Petroleum, Inc. - Lewis 'C' #1 Sec. 31 - T29S - R18W SW SE SE 2222 KB			
Heebner	4154	-1906	4147	-1899	4154	-1913	7	14	4133	-1915	9	16	4126	-1904	-2	5

Toronto	4167	-1919	4160	-1912	4176	-1935	16	15	23	4177	-1929	10	17	4178	-1919	0	7
Douglas	4182	-1934	4178	-1930	4186	-1945	11	15	15	4164	-1946	12	16	4157	-1935	1	5
Brown Lime	4334	-2086	4327	-2079	4336	-2095	9	16	16	4314	-2096	10	17	4307	-2085	-1	6
Lansing-Kansas City	4350	-2102	4341	-2093	4356	-2115	13	22	22	4330	-2112	10	19	4324	-2102	0	9
LKC 'B'	4370	-2122	4364	-2116	4374	-2133	11	17	17	4350	-2132	10	16	4343	-2121	-1	5
LKC 'D'	4410	-2162	4401	-2153	4409	-2168	6	15	15	4388	-2170	8	17	4380	-2158	-4	5
LKC 'G'	4480	-2232	4472	-2224	4480	-2239	7	15	15	4458	-2240	8	16	4451	-2229	-3	5
Muncie Creek	4516	-2268	4512	-2264	4519	-2278	10	14	14	4496	-2278	10	14	4488	-2266	-2	2
LKC 'H'	4524	-2276	4518	-2270	4525	-2284	8	14	14	4504	-2286	10	16	4496	-2274	-2	4
LKC 'I'	4549	-2301	4539	-2291	4553	-2312	11	21	21	4528	-2310	9	19	4520	-2298	-3	7
LKC 'J'	4571	-2323	4565	-2317	4574	-2333	10	16	16	4550	-2332	9	15	4546	-2324	1	7
Stark	4617	-2369	4609	-2361	4619	-2378	9	17	17	4595	-2377	8	16	4589	-2367	-2	6
LKC 'K'	4630	-2382	4620	-2372	4630	-2389	7	17	17	4608	-2390	8	18	4599	-2377	-5	5
Hushpuckney	4669	-2421	4660	-2412	4668	-2427	6	15	15	4648	-2430	9	18	4642	-2420	-1	8
LKC 'L'	4671	-2423	4664	-2416	4675	-2434	11	18	18	4652	-2434	11	18	4647	-2425	2	9
Base Kansas City	4718	-2470	4708	-2460	4721	-2480	10	20	20	4705	-2487	17	27	4692	-2470	0	10
Marmaton	4773	-2525	4766	-2518	4781	-2540	15	22	22	4760	-2542	17	24	4744	-2522	-3	4
Cherokee	4892	-2644	4884	-2636	4896	-2655	11	19	19	4879	-2661	17	25	4864	-2642	-2	6
Mississippian Chert	4961	-2713	4954	-2706	4964	-2723	10	17	17	4942	-2724	11	18	4927	-2705	-8	-1
Mississippian Lime	5012	-2764	5005	-2757	Not Called/Penetrated				Not Called/Penetrated				Not Called/Penetrated				
Kinderhook	5200	-2952	5196	-2948	Not Penetrated				Not Penetrated				Not Penetrated				
Viola	5226	-2978	5218	-2970	Not Penetrated				Not Penetrated				Not Penetrated				
Simpson	5421	-3173	5415	-3167	Not Penetrated				Not Penetrated				Not Penetrated				
Simpson Sand (Upper)	Not Present				Not Penetrated				Not Penetrated				Not Penetrated				
Simpson Sand (Lower)	5546	-3298	Not Covered By Logs		Not Penetrated				Not Penetrated				Not Penetrated				
Arbuckle	5560	-3312	Logs		Not Penetrated				Not Penetrated				Not Penetrated				
Total Depth	5570	-3322	5566	-3318	5065	-2824	-498	-494	5055	-2837	-485	-481	5025	-2803	-519	-515	

ROCK TYPES

Cht	DOL4	LMST4	SHALE CAR	SHALE TEAL
DOL1	LMST1	Ss	SHALE GRN	
DOL2	LMST2	SILTSTONE	SHALE GRA	
DOL3	LMST3	SHALE BRN	SHALE RED	

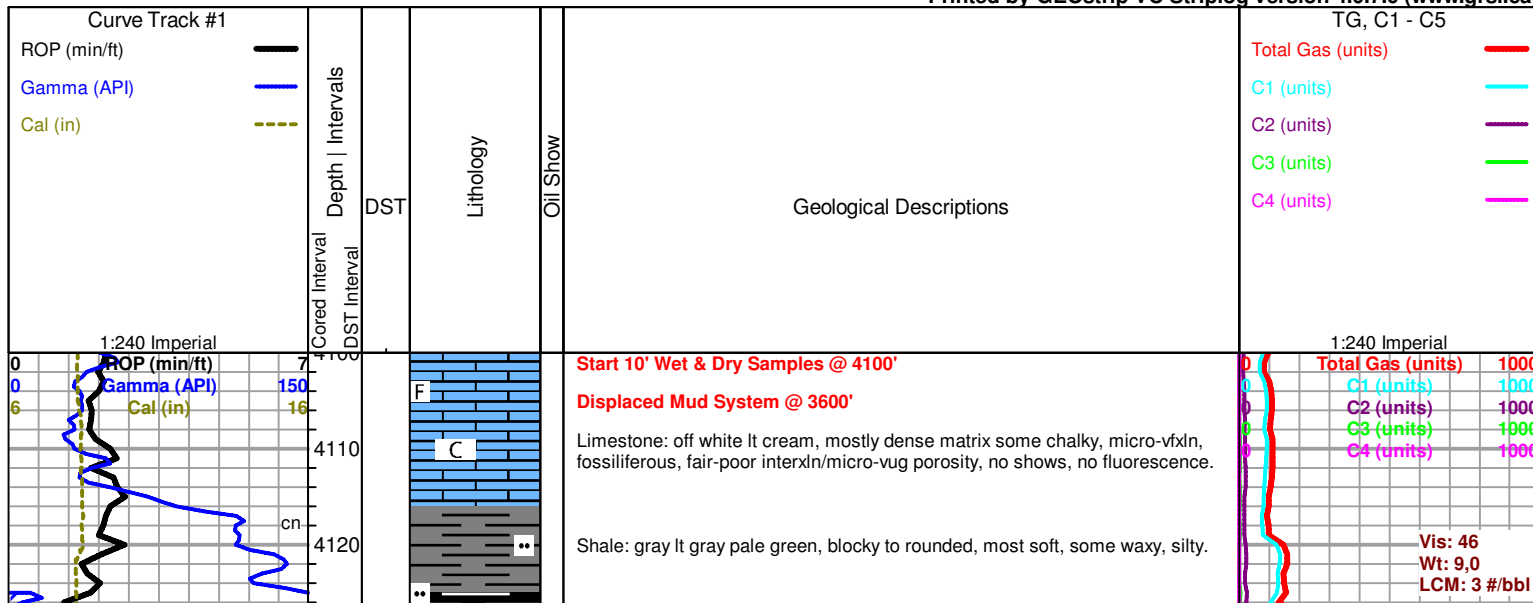
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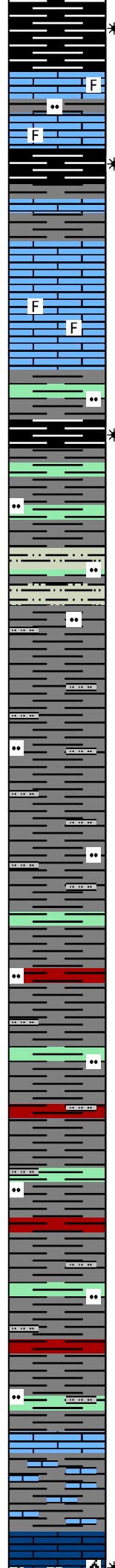
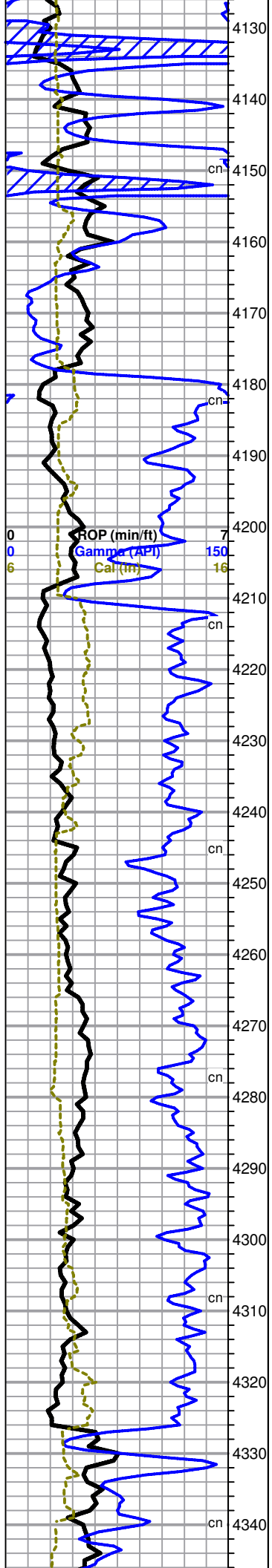
MINERAL	FOSSIL	STRINGER	TEXTURE
∟ Dolomitic	∩ Bioclastic or Fragmental	~~~~ Chert	C Chalky
P Pyrite	F Fossils < 20%	Dolomite2	L Lithogr
∧ Siliceous	∅ Oolite	Dolomite4	
• Silty	⊕ Oomoldic	Limestone2	
△ Chert White		Limestone3	
		Limestone4	
		Sandstone	
		Siltstone	
		Shale Brown	
		Shale Gray	
		Shale Red	

OTHER SYMBOLS

DST
DST1
DST2
DST3
Core
tail pipe

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)





Shale: black, carbonaceous, blocky, firm to waxy, fair gas show.

Limestone: lt cream, dense, microxln, fossiliferous, some barren, poor visible porosity, no shows, no fluorescence, with interbedded Shale.

HEEBNER 4147' (-1899')

Shale: black dk gray, carbonaceous, blocky, firm to waxy, fair gas show.

TORONTO 4160' (-1912')

Limestone: gray cream mottled, dense matrix, microxln, barren, some pelletal, no visible porosity, no shows, no fluorescence.

Limestone: white, dense xln matrix, micro-cryptoxln, fossiliferous, poor visible porosity, no shows, poor dull mineral fluorescence.

DOUGLAS 4178' (-1930')

Shale: some black, carbonaceous, fair gas show, with Shale: gray lt gray lt green, blocky to rounded, hard to soft, some silty.

Geologist Derek W. Patterson on location 1845 hrs 7.4.13

Shale: as above, with Siltstone: gray lt gray salt & pepper, blocky and dense, vfgained, heavily micaceous, no shows.

Shale: gray lt gray, blocky to rounded, most soft, some fissile, abundant silty material, with some scattered Siltstone stringers as above.

Shale: gray dk gray lt gray lt green pale green some dk red, blocky to rounded, most soft, some slightly waxy, abundant silty material, with Siltstone stringers: gray lt gray salt & pepper, blocky and dense, vfgained, heavily micaceous, no shows.

Shale: gray dk gray lt gray lt green pale green some dk red, dense and blocky to rounded and softer, some slightly waxy, abundant silty material, with Siltstone stringers: gray lt gray salt & pepper, blocky and dense, vfgained, heavily micaceous, no shows.

BROWN LIME 4327' (-2079')

Limestone: cream tan lt brown, dense tight matrix, micro-cryptoxln, barren, no visible porosity, no shows, no fluorescence.

Shale: gray dk gray, blocky to rounded, softer, with Limestone stringers.

LANSING-KANSAS CITY 4341' (-2093')

4363' cfs 20" - Limestone: cream, friable matrix, vfxln, oolitic in part, good

Shale Kick

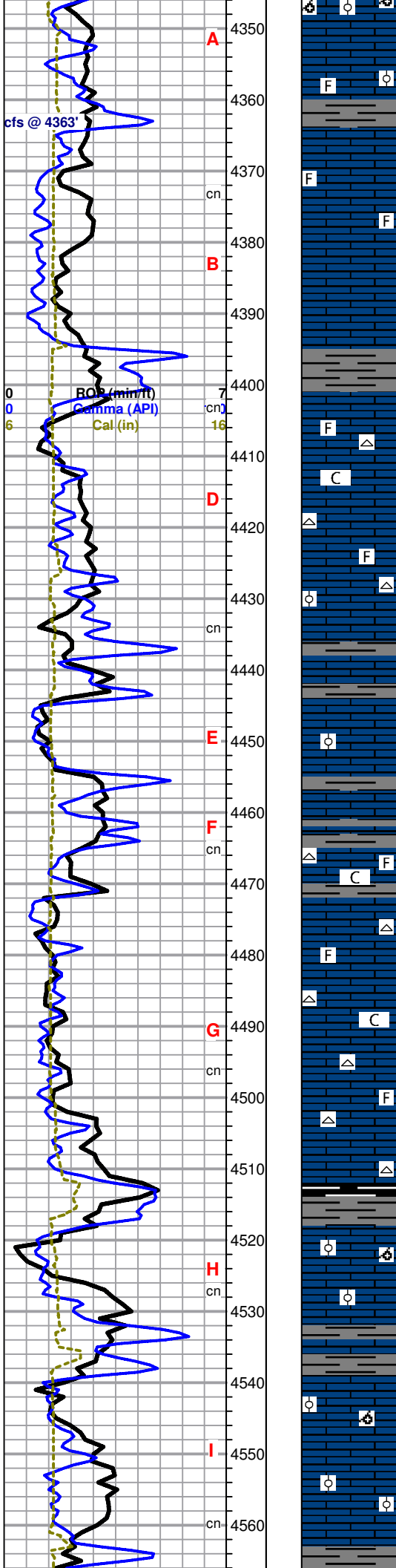
Shale Kick

Shale Kick

Total Gas (units)	1000
C1 (units)	1000
C2 (units)	1000
C3 (units)	1000
C4 (units)	1000

Vis: 50
Wt: 9.2
LCM: 2 #/bbl

1219u Total



ooidic development and porosity, some 2ndary xln in molds, no oil show, poor gas show upon break, spotty bright lt yellow fluorescence, milky bluish cut, faint odor.

4363' cfs 40"/60" - Limestone: cream, dense matrix, microxln, fossiliferous-oolitic, poor visible porosity, no shows, no fluorescence.

Limestone: lt gray lt cream some mottled, dense tight xln matrix, microxln, sub-fossiliferous to fossiliferous, poor visible porosity, no shows, no fluorescence.

Limestone: lt gray off white, dense xln matrix, micro-cryptoxln, barren, little-no visible porosity, no shows, no fluorescence.

Limestone: cream tan gray some mottled, dense sub-chalky matrix, microxln, scattered fossiliferous to barren, fair interxln porosity, no shows, no fluorescence, with scattered Chert: cream tan, opaque, fresh and sharp.

Limestone: cream lt cream lt gray, dense tight matrix, micro-vfxln, fossiliferous with scattered oolitic, fair amount of 2ndary xln along edges, poor visible porosity, no shows, no fluorescence, with some scattered Chert as above.

Limestone: tan brown dk gray, dense tight matrix, micro-cryptoxln, barren, no visible porosity, no shows, no fluorescence.

Limestone: lt cream cream, dense matrix, vfxln, mostly barren with some scattered sub-oolitic, fair pinpoint porosity throughout, no shows, no fluorescence.

Limestone: cream lt tan lt gray, dense to softer chalky matrix, vfxln, mostly barren with trace sub-fossiliferous, grainy in part, some shaley, poor pinpoint porosity, no shows, no fluorescence, with abundant Chert: cream tan lt gray, opaque, fresh and sharp.

Limestone: cream lt cream lt gray, softer chalky matrix, vf-fxln, sub-fossiliferous to barren, grainy in part, scattered 2ndary xln in most, fair pinpoint porosity throughout, no shows, no fluorescence, with continued Chert as above.

Limestone: lt cream lt gray, dense cherty matrix, crypto-microxln with abundant lithographic non-descript, sub-fossiliferous, poor-no visible porosity, no shows, no fluorescence, with Chert: gray cream tan, opaque, fresh and sharp.

MUNCIE CREEK 4512' (-2264')

Shale: trace black, carbonaceous, no gas show, with Shale: gray lt gray, blocky to rounded, mostly soft.

Limestone: off white lt cream, sub-friable to dense tight matrix, vfxln, oolitic with some scattered fair oomoidic development and associated porosity, no shows, no fluorescence, pieces becoming tighter with depth.

Limestone: lt cream lt gray, dense xln matrix, micro-cryptoxln, barren, poor visible porosity, no shows no fluorescence, with interbedded Shale.

Limestone: cream tan, dense matrix, microxln, oolitic with good-fair oomoidic development and associated porosity, some 2ndary xln fill in molds, no shows, very poor-no mineral fluorescence.

Limestone: cream tan, very dense matrix, micro-cryptoxln with some lithographic non-descript, most barren with some scattered sub-oolitic, no visible porosity, no shows, no fluorescence.

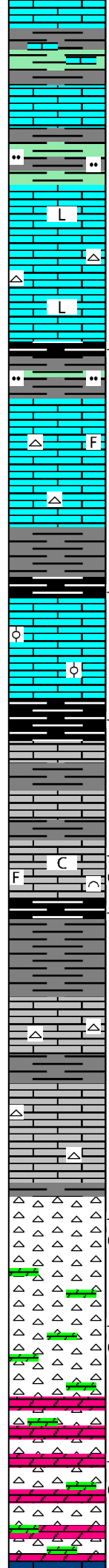
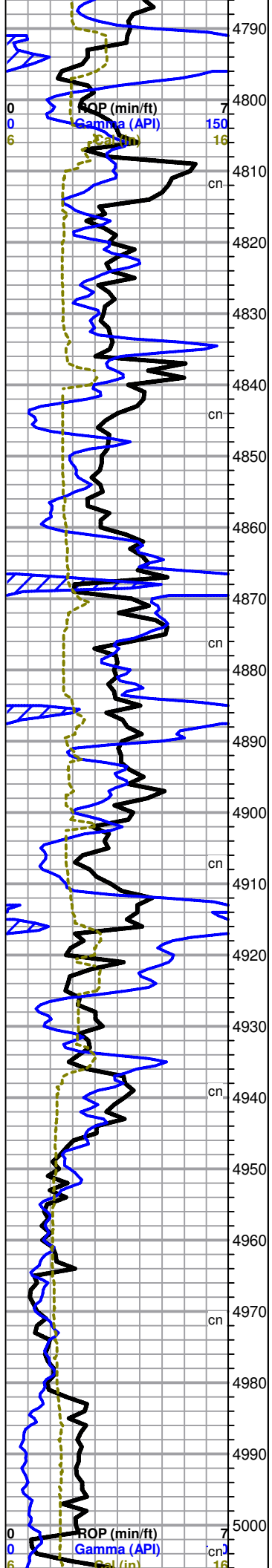
731u Recycle

Invalid Gas Readings

Total Gas (units)	1000
C1 (units)	1000
C2 (units)	1000
C3 (units)	1000
C4 (units)	1000

Invalid Gas Readings

Mud-Co Mud Ck @ 4513'
 0830 hrs 7.5.13
 Vis: 50 Wt: 9.6
 PV: 15 YP: 17
 WL: 9.6
 Cake: 1/32nd
 pH: 9.0
 CHL: 6,000 ppm
 Cal: 80 ppm
 Solids: 8.9
 LCM: 1 #/bbl
 DMC: \$184.50
 CMC: \$11,228.85



Shale: gray dk gray some dk green, blocky to slightly rounded, most firm to fissile, with Limestone stringers: gray dk gray, dense matrix, microxln, barren, very limey, no visible porosity, no shows, no fluorescence.

Limestone: cream lt cream, dense tight matrix, micro-cryptoxln, barren, no visible porosity, no shows, no fluorescence.

Shale: gray dk gray dk green, most blocky and firm, some silty in part, abundant fissile material.

Limestone: cream tan lt brown, very dense cherty matrix, micro-cryptoxln with abundant lithographic non-descript, barren, little-no visible porosity, no shows, no fluorescence, with scattered Chert: cream tan brown, opaque, fresh and sharp, barren.

Shale: trace black, carbonaceous, blocky and dense, poor gas show, with Shale: gray dk gray lt gray lt green, blocky and firm, silty in part.

PAWNEE 4842' (-2594')

Limestone: cream tan brown, dense tight matrix, micro-cryptoxln, scattered sub-fossiliferous with most barren, no visible porosity, no shows, no fluorescence, with scattered Chert: tan brown, opaque, fresh and sharp, barren.

Shale: gray dk gray, blocky to rounded, mostly soft to waxy, with Shale: black, carbonaceous, blocky to rounded, waxy, poor gas show.

FORT SCOTT 4870' (-2622')

Limestone: tan, dense, microxln, oolitic in part, no porosity, no shows.

CHEROKEE 4884' (-2636')

Shale: black, carbonaceous, blocky to rounded, most firm to waxy, good gas show upon break.

Limestone: off white lt cream, dense chalky matrix, microxln, barren, poor porosity, no shows, no fluorescence, with interbedded Shale: gray dk gray, blocky to rounded, mostly soft, some fissile to splintery.

Limestone: cream lt cream lt tan, dense to softer chalky matrix, microxln, scattered fossiliferous/bioclastic, fair vuggy/pinpoint porosity, even-spotty lt brown stain, good gas show with fair lt brown oil show upon break, spotty-even bright yellow fluorescence, fair bluish-white cut, fair odor.

Shale: black dk gray, carbonaceous, blocky to rounded, waxy, fair gas show.

Shale: gray dk gray, blocky to rounded, softer.

Limestone: cream lt cream tan, dense tight matrix, microxln, barren, poor visible porosity, no shows, no fluorescence, with some scattered Chert: cream tan white, opaque, fresh and sharp, some fossiliferous.

Shale: gray dk gray dk green, blocky to rounded, mostly soft.

Limestone: cream lt cream tan, dense tight matrix, microxln, barren, poor visible porosity, no shows, no fluorescence, with some scattered Chert: cream tan white, opaque, fresh and sharp, some fossiliferous.

MISSISSIPPIAN CHERT 4954' (-2706')

Chert: white, opaque to translucent, fresh and sharp, barren, with Chert: cream tan, translucent, fresh and sharp with some slightly weathered, some scattered vugs, golden brown saturated stain, fair gas show, poor oil show, even bright lt yellowish-green fluorescence, fair cut, strong odor.

Chert: as above, with Chert: cream tan, weathered texture with increased vugular porosity, even golden saturated stain, fair gas show, fair-good show oil upon break, even bright lt yellowish-green fluorescence, white cut, and scattered Dolomite: lt cream, friable matrix, vfxln, sucrosic, good interxln porosity, even stain, good gas show and poor show oil upon break, bluish-white cut, strong odor and free oil.

Chert: white, opaque to translucent, fresh and sharp, barren, with Chert: cream tan, weathered texture with fair-good vugular porosity, even golden saturated stain, fair gas show, fair show oil upon break, even bright lt yellowish-green fluorescence, white cut, and influx Dolomite: white lt gray, friable matrix, vfxln, sucrosic, fair porosity, no shows, even pale yellow fluorescence, no cut, moderate odor and some free oil.

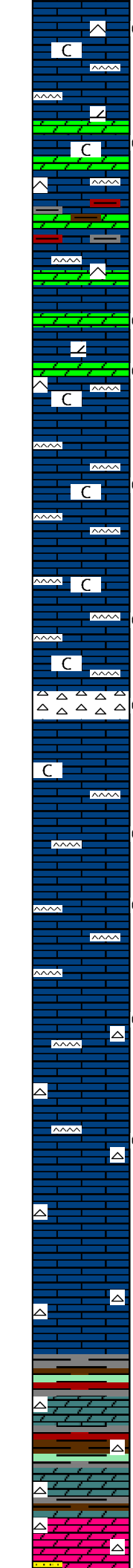
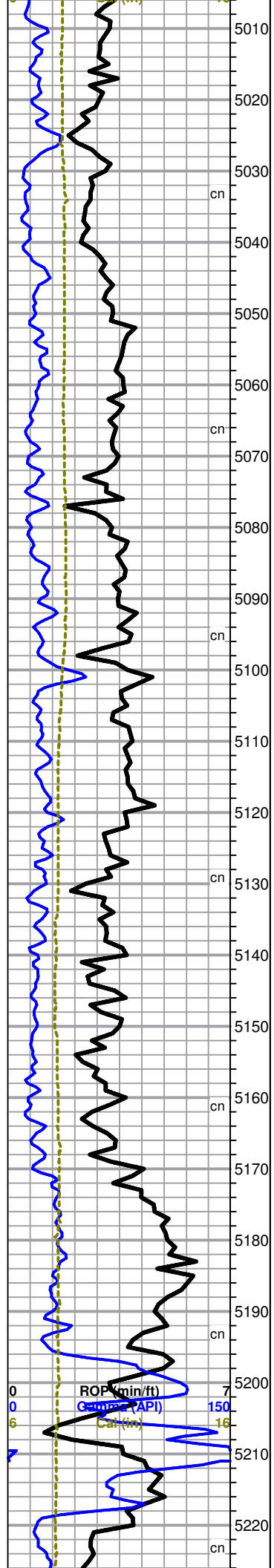
MISSISSIPPIAN LIMESTONE 5005' (-2757')

Total Gas (units) 1000
C1 (units) 1000
C2 (units) 1000
C3 (units) 1000
C4 (units) 1000

Mud-Co Mud Ck @ 4883'
1145 hrs 7.6.13
Vis: 57 Wt: 9.7
PV: 10 YP: 25
WL: 12.8
Cake: 1/32nd
pH: 9.5
CHL: 6,500 ppm
Cal: 100 ppm
Solids: 9.7
LCM: Trc
DMC: \$1,427.80
CMC: \$12,656.65

Shale Kick?

702u Total
Total Gas (units) 1000
858u Total
C1 (units) 1000
C2 (units) 1000
C3 (units) 1000
C4 (units) 1000



5010 Limestone: white lt gray, dense chalky to cherty matrix, micro-vfxln, some dolomitic, imbedded silica, overall poor-fair visible porosity, few pieces with poor spotty stain, very poor scattered dull yellow fluorescence, no cut, with abundant Chert: white gray clear, translucent to opaque, fresh and sharp, some slightly weathered to limey, no shows, some poor fluorescence, no cut, faint odor.

5020 Limestone: as above, with Dolomite: Dolomite: lt gray white, softer friable matrix, sucrosic, some limey, barren, trace edge stain and poor oil show in few pieces upon break with most barren of show, and continued Chert, scattered bright lt yellow fluorescence in sample, little-no cut, faint odor.

5030 As above, with good amount of Shale stringers.

5040 Limestone: white lt cream, dense sub-chalky to dolomitic matrix, microxln, some imbedded silica, fair-poor visible fracture porosity, couple of pieces with poor stain within fractures, couple of oil droplets in sample, with Dolomite: lt gray white, softer friable matrix, sucrosic, some limey, barren, trace edge stain and poor oil show in few pieces upon break, and Chert: white gray, opaque to translucent, fresh and sharp, fossiliferous to barren, few pieces with poor stain in fracture, scattered bright lt yellow fluorescence in sample, little-no cut, faint odor.

5050 Limestone: white lt cream, dense sub-chalky to cherty matrix, microxln, scattered imbedded silica, overall poor visible porosity, no shows, no fluorescence, with Chert: white gray, opaque to translucent, fresh and sharp, fossiliferous to barren, couple pieces with poor stain in fracture, no live shows noted, no fluorescence, no odor.

5060 **Note: Samples becoming extremely shaley from this point on with Shale: gray dk gray dk red dk green brown, most splintery and dense.**

5070 Limestone: white lt cream, dense sub-chalky to cherty matrix, microxln, scattered imbedded silica, overall poor visible porosity, no shows, no fluorescence, questionable poor cut, with scattered Chert: white gray, opaque to translucent, fresh and sharp, fossiliferous to barren, no shows, no fluorescence, no cut, no odor.

5080 Limestone: lt cream off white, grading to a softer chalky matrix, microxln, barren, poor visible porosity, no shows, no fluorescence, no cut, with scattered Chert: cream tan, translucent, fresh and sharp, slight stain in fractures, spotty bright lt yellow fluorescence, poor-no cut, no odor.

5090 Limestone: tan cream brown, dense cherty matrix, micro-cryptoxln, barren, scattered fracture porosity, few pieces with slight saturated edge stain, very poor show oil droplets upon break in couple of pieces, spotty bright lt yellow fluorescence, bluish-white cut, with scattered Chert: cream tan, opaque to translucent, fresh and sharp with trace sub-weathered, some visible fracture porosity, slight golden stain in couple of pieces, spotty-even bright lt yellow fluorescence, very poor cut, no odor.

5100 Limestone: cream tan brown, dense tight slightly cherty matrix, micro-cryptoxln, barren, scattered poor fracture porosity, most no visible porosity, no shows, no fluorescence, no cut, with Chert: gray white speckled, fresh and sharp, fossiliferous in part, few pieces with poor stain in fracture, scattered bright lt yellow fluorescence, no cut, no odor.

5110 Limestone: cream tan brown, dense tight slightly cherty matrix, micro-cryptoxln, barren, scattered poor fracture porosity, most no visible porosity, no shows, no fluorescence, no cut, with Chert: gray white speckled, fresh and sharp, fossiliferous in part, few pieces with poor stain in fracture, scattered bright lt yellow fluorescence, no cut, no odor.

5120 Limestone: cream tan brown, dense tight slightly cherty matrix, micro-cryptoxln, barren, scattered poor fracture porosity, most no visible porosity, no shows, no fluorescence, no cut, with Chert: white, opaque to translucent, some fossiliferous-oolitic with most barren, no shows, no cut.

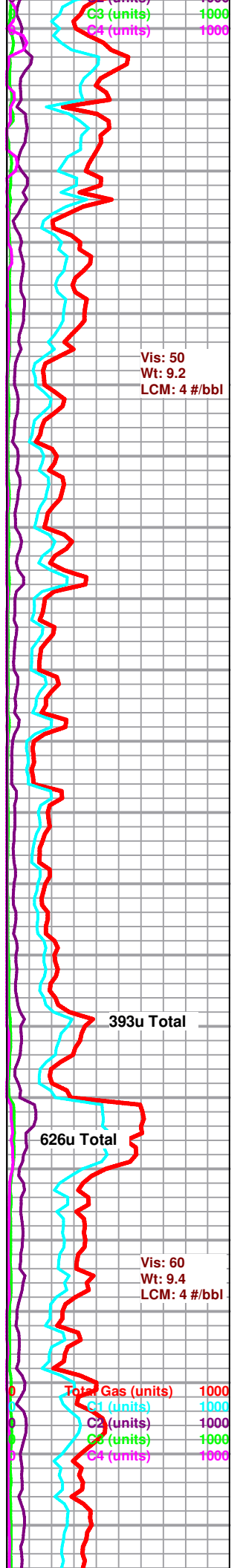
5130 **KINDERHOOK 5196' (-2948')**

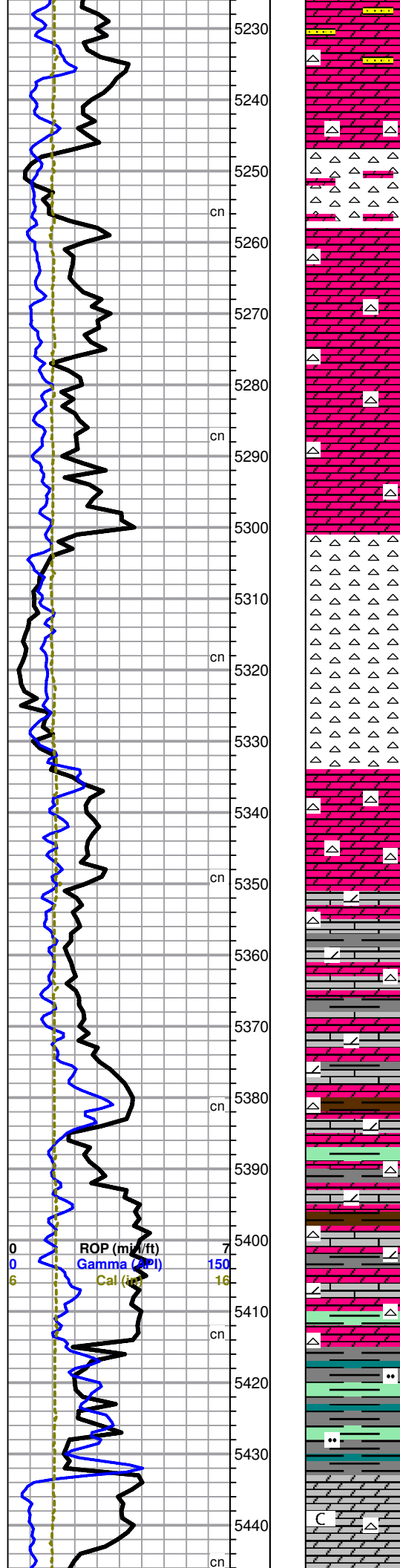
5140 Shale: gray dk gray dk red maroon brown dk green, blocky, most hard and dense, heavy clay percentage, with some scattered Chert: fray dk gray, opaque, fresh and sharp, with interbedded Dolomite: tan brown, dense matrix, microxln, poor sucrosic development, limey in part, poor porosity, no shows, no fluorescence.

5150 Dolomite: tan brown, dense matrix, microxln, poor sucrosic development, limey in part, poor porosity, no shows, no fluorescence, with some scattered Chert as

5160 **VIOLA 5218' (-2970')**

5170 Dolomite: tan lt brown cream, dense matrix, micro-vfxln, heavily arenaceous, fair-poor visible porosity, no shows, no fluorescence, with scattered Sandstone: clear silica grains in gray lt gray tan brown matrix, dense, vfgained, well





cemented, well sorted angular to sub-rounded grains, poor porosity, no shows, no fluorescence, and fair amount of Chert: bone white lt gray, opaque to translucent, fresh and sharp, sub-fossiliferous to barren.

Dolomite: cream lt gray, dense matrix, microxln, poor xln development and associated porosity, no shows, no fluorescence, with continued Chert, Sandstone stringers drop out.

Influx Chert: bone white lt gray, opaque to translucent, fresh and sharp, and abundant Dolomite: cream lt cream, dense matrix, fxln, good rhombic development and associated porosity, no shows, no fluorescence.

Dolomite: cream lt cream tan, dense matrix, micro-vfxln with some scattered fxln, overall poor xln development with some scattered fair rhombic, most poor visible porosity, no shows, no fluorescence, with Chert: bone white, opaque, fresh and sharp to slightly weathered, fossiliferous to barren, no shows.

Dolomite: cream lt cream tan, dense matrix, micro-vfxln with some scattered fxln, overall poor xln development with some scattered fair rhombic, most poor visible porosity, no shows, no fluorescence, with Chert: bone white, opaque, fresh and sharp to slightly weathered, fossiliferous to barren, no shows.

Chert: bone white, opaque to translucent, fresh and sharp to slightly weathered, sub-fossiliferous to barren, no shows, very poor dull white mineral fluorescence, no cut.

Dolomite: cream tan, dense matrix, micro-vfxln with some scattered fxln, overall poor xln development with some scattered fair rhombic, most poor visible porosity, no shows, no fluorescence, with Chert: bone white, opaque, fresh and sharp to slightly weathered, fossiliferous to barren, no shows.

Dolomite: cream tan brown, dense matrix, micro-vfxln, some limey to shaley, poor xln development, poor porosity, no shows, no fluorescence, with Limestone: cream tan brown, dense dolomitic matrix, micro-vfxln, shaley in part, barren, poor visible porosity, no shows, no fluorescence, Chert: bone white, opaque, fresh and sharp to slightly weathered, fossiliferous to barren, no shows, and influx Shale: gray dk gray, blocky and firm, most splintery.

Dolomite: cream tan brown, dense matrix, micro-vfxln, some limey to shaley, poor xln development, poor porosity, no shows, no fluorescence, with Limestone: cream tan brown, dense dolomitic matrix, micro-vfxln, shaley in part, barren, poor visible porosity, no shows, no fluorescence, Chert: bone white, opaque, fresh and sharp to slightly weathered, fossiliferous to barren, no shows, and Shale: gray dk gray lt green some brown, blocky and firm, most splintery.

SIMPSON 5415' (-3167')

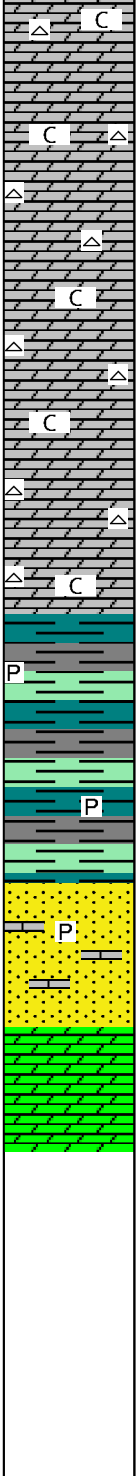
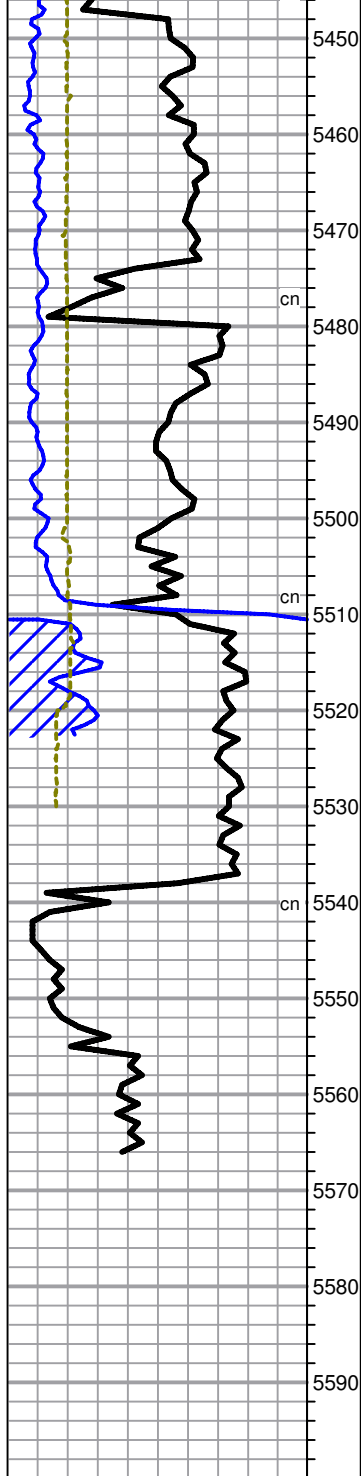
Shale: gray dk gray pale green teal, blocky, most dense and firm with some softer and waxy, silty, abundant splintery material.

SIMPSON DOLOMITE 5433' (-3185')

Dolomite: lt cream lt gray dense matrix, micro-vfxln, poor xln development and associated porosity, no shows, no fluorescence, with scattered Chert: bone white cream, opaque, fresh and sharp, barren, no shows, some dull white

Mud-Co Mud Ck @ 5294'
 1045 hrs 7.7.13
 Vis: 56 Wt: 9.3+
 PV: 17 YP: 21
 WL: 9.6
 Cake: 1/32nd
 pH: 10.0
 CHL: 3,500 ppm
 Cal: 80 ppm
 Solids: 6.8
 LCM: 4 #/bbl
 DMC: \$2,991.70
 CMC: \$15,648.35

Scale Change
 Total Gas (units) 300
 C1 (units) 300
 C2 (units) 300
 C3 (units) 300
 C4 (units) 300



white cream; opaque, fresh and sharp; barren, no shows, and dull white mineral fluorescence, and loose Chalk, sample washes white.

Dolomite: It cream lt gray, dense matrix, micro-vfxln with some scattered coarsexn, poor-fair xln development and associated porosity, no shows, no fluorescence, with scattered Chert: bone white cream, opaque, fresh and sharp, barren, no shows, some dull white mineral fluorescence, and loose Chalk, sample washes white.

Dolomite: It cream cream pink, dense matrix, micro-vfxln, some scattered sub-rhombic development, scattered vugs, poor-fair visible porosity, no shows, no fluorescence, with scattered Chert: bone white cream, opaque, fresh and sharp, barren, no shows, some dull white mineral fluorescence, and loose Chalk, sample washes white.

Shale: teal dk gray gray pale green, mostly blocky, firm and waxy to softer, some scattered pyritic.

Shale: teal dk gray gray pale green, mostly blocky, firm and waxy to softer, some scattered pyritic.

SIMPSON SAND (LOWER) 5538' (-3290') -- Sample Top

Sandstone: clear silica grains in cream white matrix, well cemented with some scattered slightly friable, vf-grained with some coarse grained, fairly sorted, sub-angular to sub-rounded, pyritic in part, shaley in part, poor intergranular porosity, no shows, no fluorescence.

ARBUCKLE 5553' (-3305') -- Sample Top

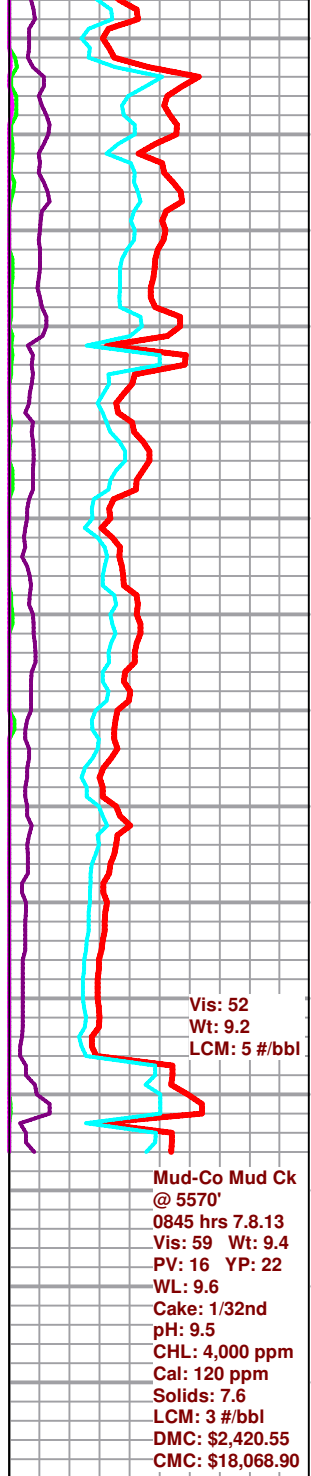
Dolomite: tan lt tan cream, dense matrix, micro-vfxln, poor xln development and associated porosity, no shows, even pale yellow mineral fluorescence.

LTD 5566' (-3318')

RTD 5570' (-3322')

Geologist Derek W. Patterson released 1800 hrs 7.8.13

Respectfully Submitted,
Derek W. Patterson



Vis: 52
Wt: 9.2
LCM: 5 #/bbl

Mud-Co Mud Ck
@ 5570'
0845 hrs 7.8.13
Vis: 59 Wt: 9.4
PV: 16 YP: 22
WL: 9.6
Cake: 1/32nd
pH: 9.5
CHL: 4,000 ppm
Cal: 120 ppm
Solids: 7.6
LCM: 3 #/bbl
DMC: \$2,420.55
CMC: \$18,068.90