



Scale 1:240 Imperial

Well Name: O'Connor #1-8
 Surface Location: Sec. 8 - T24S - R12W
 Bottom Location:
 API: 15-185-24053-0000
 License Number: 34434
 Spud Date: 5/18/2019 Time: 7:30 PM
 Region: Stafford County
 Drilling Completed: 5/25/2019 Time: 8:30 AM
 Surface Coordinates: 330' FSL & 1545' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 1885.00ft
 K.B. Elevation: 1895.00ft
 Logged Interval: 2775.00ft To: 4140.00ft
 Total Depth: 4240.00ft
 Formation: Viola
 Drilling Fluid Type: Chemical/Fresh Water Gel

OPERATOR

Company: Edison Operating Company LLC
 Address: 8100 E. 22nd St. North
 Building 1900
 Wichita, KS 67226
 Contact Geologist: David Withrow
 Contact Phone Nbr: 316.613.1544
 Well Name: O'Connor #1-8
 Location: Sec. 8 - T24S - R12W
 API: 15-185-24053-0000
 Pool:
 State: Kansas Field: Knoche South
 Country: USA

LOGGED BY



Company: Edison Operating Company LLC
 Address: 8100 E. 22nd St. North
 Building 1900
 Wichita, KS 67226
 Phone Nbr: 316.655.3550
 Logged By: Geologist Name: Derek W. Patterson

REMARKS

After review of the geologic log, DST results, and open hole logs for the O'Connor #1-8, it was decided upon by operator to deepen the well to a final rotary total depth of 4240' and run 5 1/2" casing for open hole completion as a salt water disposal well in the Arbuckle.

Note: the drill time, gas curves, and DST intervals have been shifted 3' shallow/higher to correspond with the electric log curves. All connection and circulation points 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: Southwind Drilling - Rig #8

Drilling Fluid: Mud-Co/Service Mud Inc.

Tool Pusher: Doug Roberts
 Daylight Driller: Heraclio Rojas
 Evening Driller: Richard Rickers
 Morning Driller: Carlos Martinez

Engineer: Jason Whiting

Gas Detector: Bluestem Environmental
 Engineer: Keith Reavis
 Unit: 5154
 Operational By: 1900'

Logging Company: Eli Wireline
 Engineer: Jason Cappellucci
 Logs Ran: DI, CDNL, Micro, Sonic
 Testing Company: Eagle Testers
 Tester: Gene Budig

Deviation Survey	
Depth	Survey
419'	3/4°
3887'	1 1/4°
RTD - 4140'	1°

Pipe Strap	
Depth	Pipe Strap
n/a	n/a

Bit Record								
Bit #	Size	Make	Type	Serial Number	Depth In	Depth Out	Feet	Hours
1	12 1/4"	J-2	RT	RR	0'	419'	419'	4.5
2	7 7/8"	Varel	HE29H	1617115	419'	4140'	3721'	79
3	7 7/8"	Varel		RR	4140'	4240'	100'	3.75

Surface Casing	
5.19.2019	Ran 9 joints of new 20#, 8 5/8" surface casing, tallying 406', set @ 418' KB. Cemented with 175 sacks A-Con followed 175 sacks 60/40 Poz, 4% cc, 2% gel, 1/4 #/sx floccell. Cement did circulate. Plug down @ 0715 hrs 5.19.19. By Basic Energy Services.

Production Casing	
5.27.2019	Ran 95 joints of new 17# CRW 5 1/2" J-55 R-3 LTC casing, tallying 4064', set @ 4074' KB. Cemented with 125 sacks AA-2 10% salt, 5% calset, 0.3% FR, 0.3% FLR-322, 1% GB & 5#/ sx gilsonite. Cement did circulate. Plug down @ 0915 hrs 5.27.19. By Basic Energy Services.

DAILY DRILLING REPORT

Date	0700 Hrs Depth	Previous 24 Hours of Operations
5.22.2019	3330'	Displace mud system @ 2896'. Drilling and connections upper Pennsylvanian beds. Geologist Derek W. Patterson on location 2140 hrs 5.21.19. Drilling and connections Topeka. Drilling and connections Topeka. Made 818' over past 24 hrs of operations. WOB: 30k RPM: 90 PP: 1000 SPM: 60 DMC: \$2,377.93 CMC: \$5,128.54
5.23.2019	3805'	Drilling and connections Heebner, Toronto, Douglas and into Brown Lime. Short trip @ 3497', 1230 hrs 5.22.19. Conduct 15 stand short trip, CTCH. Resume drilling following short trip, 1415 hrs 5.22.19. Drilling and connections Brown Lime and Lansing-Kansas City. CFS @ 3551' (LKC 'B'). Resume drilling and connections Lansing-Kansas City. CFS @ 3694' (LKC 'J') & @ 3740' (LKC 'K'). Resume drilling and connections Lansing-Kansas City, Base Kansas City, and into Marmaton. Made 475' over past 24 hrs of operations. WOB: 35k RPM: 90 PP: 1200 SPM: 60 DMC: \$1,414.33 CMC: \$6,540.87
5.24.2019	3917'	Drilling and connections Marmaton and into Kinderhook. CFS @ 3825' to evaluate Marmaton. Resume drilling and connections Kinderhook and into Viola. CFS @ 3887' (Viola). Shows warrant test. CTCH, conduct 15 stand short trip, CTCH, drop survey, strap out of hole for DST #1 1600 hrs 5.23.19. Rig up tester, make up tool, TIH with tool. Conduct DST #1, test successful. TIH with bit, CTCH, resume drilling following DST #1 0545 hrs 5.24.19. Drilling and connections Viola. CFS @ 3917' (Viola). Made 112' over past 24 hrs of operations. WOB: 35k RPM: 90 PP: 1200 SPM: 60 DMC: \$985.76 CMC: \$7,526.63
5.25.2019	4090'	CFS @ 3917' (Viola). Shows warrant test. CTCH, TOH for DST #2 0830 hrs 5.24.19. TIH with tool. Conduct DST #2, test successful. TIH with bit, CTCH, resume drilling following DST #2 2100 hrs 5.24.19. Drilling and connections Viola and into Simpson. CFS @ 4037' (Simpson SD). Resume and connections Simpson and into Arbuckle. CFS @ 4074' (Arb). Resume drilling and connections Arbuckle ahead to RTD of 4140'. Made 173' over past 24 hrs of operations.

WOB: 35k RPM: 90 PP: 1200 SPM: 60
 DMC: \$1,269.59 CMC: \$8,796.22

5.26.2019 RTD - 4240' LTD - 4141' Drilling and connections Arbuckle ahead to RTD. RTD reached 0830 hrs 5.25.19. CTCH, drop survey, TOH for open hole logging operations. Rig up Eli Wireline. Conduct open hole logging operations. Orders received to deepen well to a drill down RTD of 4240'. Geologist released 1730 hrs 5.25.19. Following open hole logging operations, TIH with bit, resume drilling ahead to RTD of 4240'. RTD reached 2325 hrs 5.25.19. Made 150' over past 24 hrs of operations. WOB: 35k RPM: 90 PP: 1200 SPM: 60 DMC: \$1,155.86 CMC: \$9,952.28

WELL COMPARISON SHEET

Formation	Drilling Well				Comparison Well				Comparison Well				Comparison Well			
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Sample	Sub-Sea	Sample	Log	Sample	Sub-Sea	Sample	Log
Topeka	3016	-1121	3013	-1118												
King Hill	3130	-1235	3128	-1233												
Queen Hill	3226	-1331	3226	-1331												
Heebner	3331	-1436	3328	-1433	3325	-1436	0	3	3325	-1440	4	7	3327	-1437	1	4
Toronto	3350	-1455	3347	-1452	3342	-1453	-2	1								
Douglas	3366	-1471	3363	-1468	3358	-1469	-2	1								
Brown Lime	3487	-1592	3485	-1590	3478	-1589	-3	-1	3478	-1593	1	3	3477	-1587	-5	-3
Lansing-Kansas City	3511	-1616	3508	-1613	3506	-1617	1	4	3506	-1621	5	8	3506	-1616	0	3
LKC 'B'	3530	-1635	3526	-1631	3525	-1636	1	5								
LKC 'D'	3552	-1657	3549	-1654	3548	-1659	2	5								
LKC 'F'	3581	-1686	3579	-1684	3577	-1688	2	4								
LKC 'G'	3601	-1706	3596	-1701	3596	-1707	1	6								
Muncie Creek	3634	-1739	3632	-1737	3632	-1743	4	6								
LKC 'H'	3641	-1746	3638	-1743	3637	-1748	2	5								
LKC 'I'	3656	-1761	3653	-1758	3652	-1763	2	5								
LKC 'J'	3671	-1776	3668	-1773	3668	-1779	3	6								
Stark	3701	-1806	3699	-1804	3697	-1808	2	4								
LKC 'K'	3708	-1813	3710	-1815	3706	-1817	4	2								
Hushpuckney	3744	-1849	3741	-1846	3739	-1850	1	4								
LKC 'L'	3752	-1857	3748	-1853	3746	-1857	0	4								
Base Kansas City	3772	-1877	3774	-1879	3772	-1883	6	4								
Marmaton	3784	-1889	3782	-1887	3782	-1893	4	6								
Kinderhook	3821	-1926	3818	-1923	3818	-1929	3	6								
Viola	3873	-1978	3872	-1977	3868	-1979	1	2	3868	-1983	5	6	3872	-1982	4	5
Simpson	4006	-2111	4006	-2111	DNP				DNP				DNP			
Simpson Sand	4021	-2126	4018	-2123	DNP				DNP				DNP			
Arbuckle	4066	-2171	4065	-2170	DNP				DNP				DNP			
Total Depth	4140	-2245	4141	-2246	3874	-1985	-260	-261	3871	-1986	-259	-260	3877	-1987	-258	-259
Drill Down Total Depth	4240	-2345														

ROCK TYPES





Cht	LMST2	Ss	SHALE GRA	SHALE YEL
DOL2	LMST3	SHALE BRN	SHALE PUR	
DOL4	LMST4	SHALE CAR	SHALE RED	
LMST1	LMST5	SHALE GRN	SHALE TEAL	

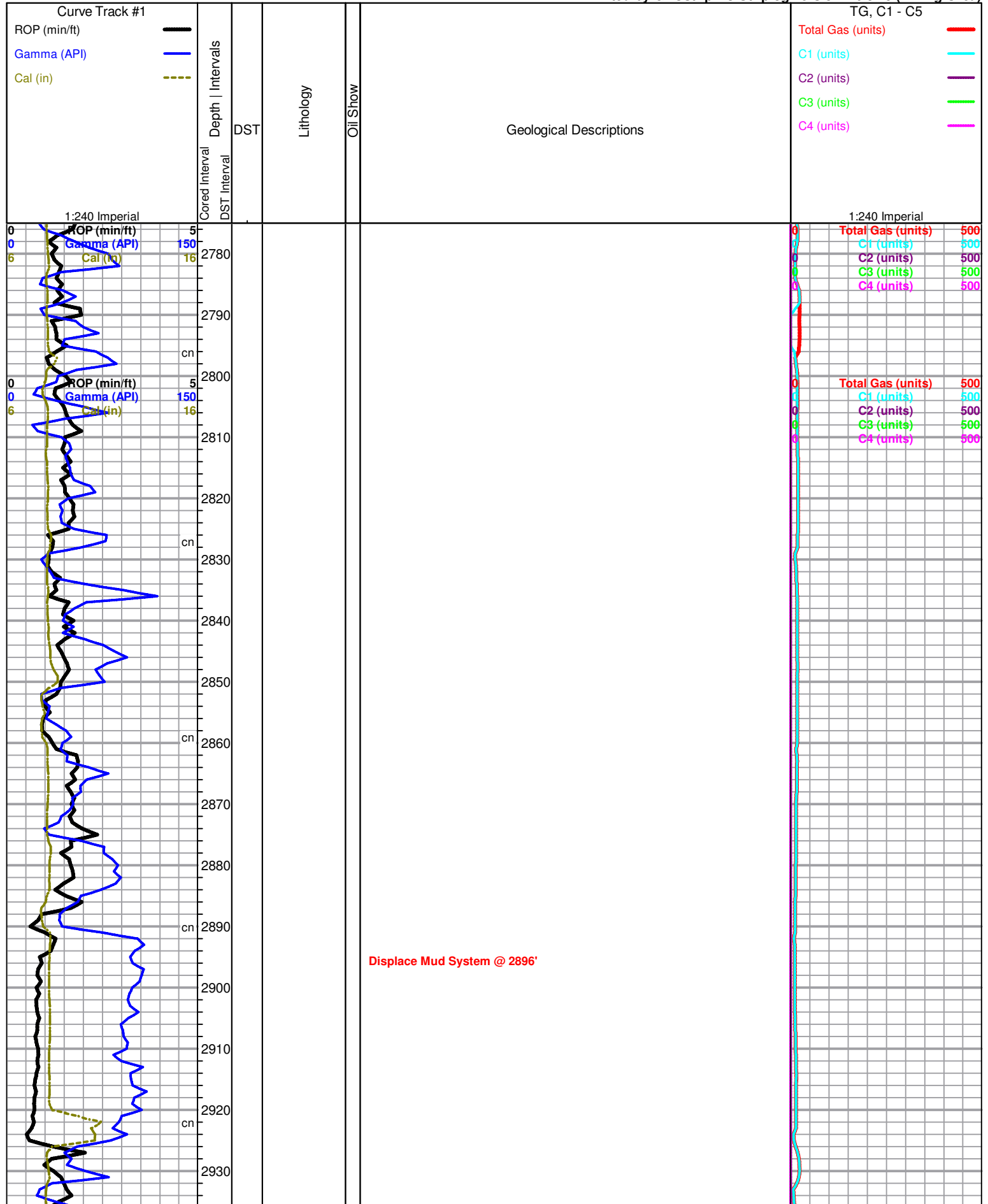
ACCESSORIES

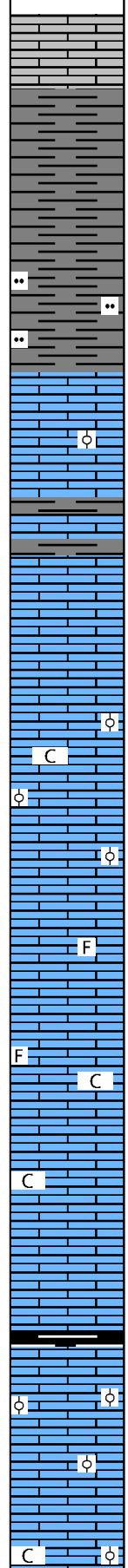
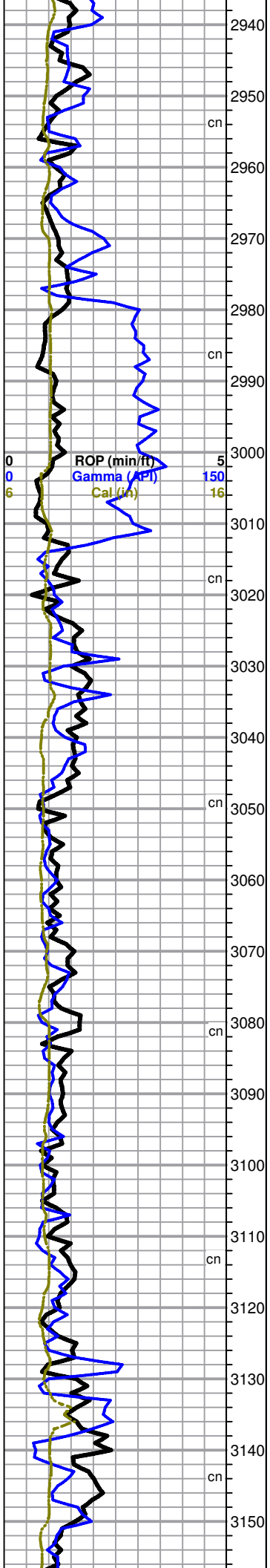
MINERAL	FOSSIL	STRINGER	TEXTURE
▲ Chert, dark	F Fossils < 20%	Dolomite4	C Chalky
∩ Glauconite	φ Oolite	Limestone4	CX Cryptocrystalline
■ Heavy, dark minerals	☛ Oomoldic	Sandstone	
P Pyrite		Siltstone	
• Sandy			
•• Silty			
△ Chert White			

OTHER SYMBOLS

MISC	DST
Daily Report	DST1
Digital Photo	DST2
Document	DST3
Folder	Core
Link	tail pipe
Vertical Line File	

-  Vertical Log File
-  Horizontal Log File
-  Core Log File
-  Drill Cuttings Rpt





Start 10' Wet & Dry Samples

Limestone: gray cream, dense matrix, vf-fxl, grainy, no shows, no fluorescence.

SEVERY 2979' (-1084')

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

Shale: gray dk gray, blocky to rounded, some becoming limy in part, most dense and hard, some scattered softer.

Shale: gray dk gray, blocky to rounded, mostly soft, some silty in part.

TOPEKA 3013' (-1118')

Limestone: cream lt cream, dense matrix, micro-vfxln, oolitic, fair interoolitic porosity, no shows, no fluorescence.

Limestone: cream tan, dense matrix, microfxln, barren, poor visible porosity, no shows, with some scattered interbedded Shale: gray dk gray, limy and dense.

Limestone: cream tan brown, dense matrix, micro-vfxln, barren, poor visible porosity, no shows, no fluorescence.

Limestone: off white lt cream, softer sub-chalky matrix, vfxln, becoming oolitic with imbedded quartz crystals, fair-good interxln/vuggy porosity, no shows, no fluorescence, with influx loose Chalk, sample washes white.

Geologist Derek W. Patterson On Location 2140 hrs 5.22.19

Limestone: cream tan, dense matrix, micro-vfxln, mostly barren with some scattered sub-fossiliferous, poor visible porosity, no shows, no fluorescence.

Limestone: cream tan, dense matrix, micro-vfxln, mostly barren with some scattered sub-fossiliferous, poor visible porosity, no shows, no fluorescence.

Limestone: off white lt cream, softer sub-chalky matrix, vfxln, some scattered imbedded quartz crystals, fair-good interxln/vuggy porosity, no shows, no fluorescence, with loose Chalk.

Limestone: lt gray lt cream, becoming more dense, microfxln, mostly barren, poor visible porosity, no shows, no fluorescence.

KING HILL 3128' (-1233')

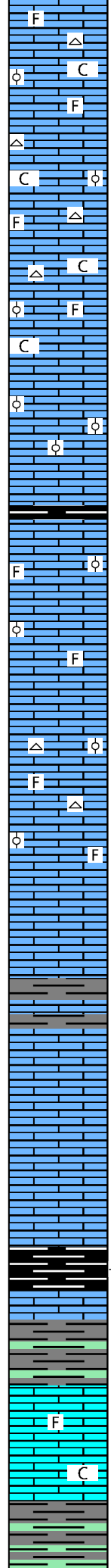
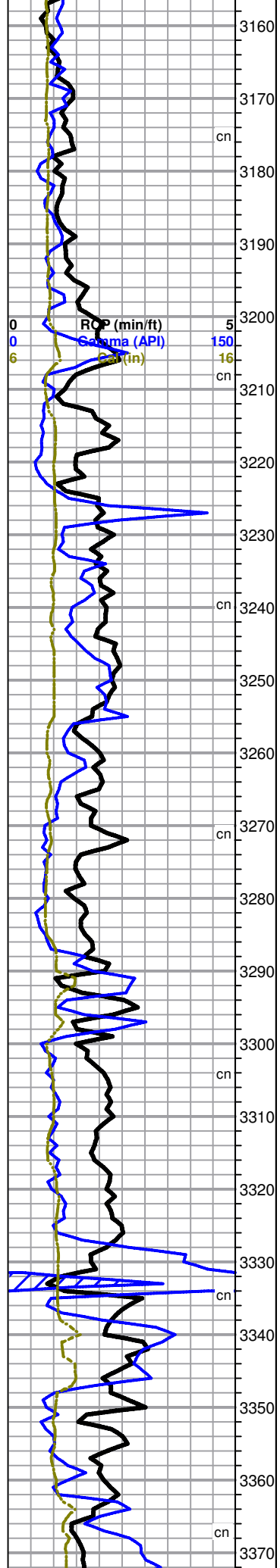
Shale: black dk gray, carbonaceous, blocky to rounded, soft, no gas show.

Limestone: ccream gray tan brown, subchalky to dense matrix, microfxln, some scattered compact oolitic, overall poor-no visible porosity, no shows, no fluorescence.

Limestone: lt cream, dense matrix, vfxln, scattered sub-oolitic to sub-fossiliferous, overall fair-good interxln porosity, no shows, no fluorescence, with

Total Gas (units)	500
C1 (units)	500
C2 (units)	500
C3 (units)	500
C4 (units)	500

Test Bloodhound, Reset Unit



trace Chert: white smoky gray, fresh and sharp to slightly weathered, no shows, and scattered loose Chalk.

Limestone: It cream lt tan, sub-friable matrix, vfxln, scattered sub-oolitic to sub-fossiliferous, overall fair-good interxn porosity, no shows, no fluorescence, with scattered Chert and Chalk as above.

Limestone: It cream tan, sub-friable matrix, vfxln, scattered sub-oolitic to sub-fossiliferous, overall fair-good interxn porosity, no shows, no fluorescence, with scattered loose Chalk.

Limestone: off white, lt gray, softer matrix, vfxln, oolitic to compact oolitic, good visible porosity, no shows, no fluorescence, with some loose chalky material.

QUEEN HILL 3226' (1331')
Shale: black dk gray, carbonaceous, blocky to rounded, soft, no gas show.

Limestone: cream tan, mostly dense matrix, vf-fxln, oolitic/fossiliferous, some very good vug development and associated porosity, 2ndary xln, no shows, no fluorescence.

Limestone: gray tan, dense matrix, micro-fxln, most poor visible porosity, no shows, no fluorescence.

Limestone: lt cream lt tan, dense to sub-friable matrix, vf-fxln, compact oolitic to fossiliferous, some scattered good interfossiliferous porosity, no shows, no fluorescence, with influx Chert: gray white, fresh and sharp.

Limestone: off white lt cream, sub-chalky matrix, micro-vfxln, overall poor visible porosity, no shows, no fluorescence.

Limestone: cream lt gray, dense matrix, microxln, poor-no visible porosity, no shows, no fluorescence, with influx Shale: black dk gray, carbonaceous, blocky and dense, no gas show.

Limestone: cream lt gray, dense matrix, microxln, poor-no visible porosity, no shows, no fluorescence.

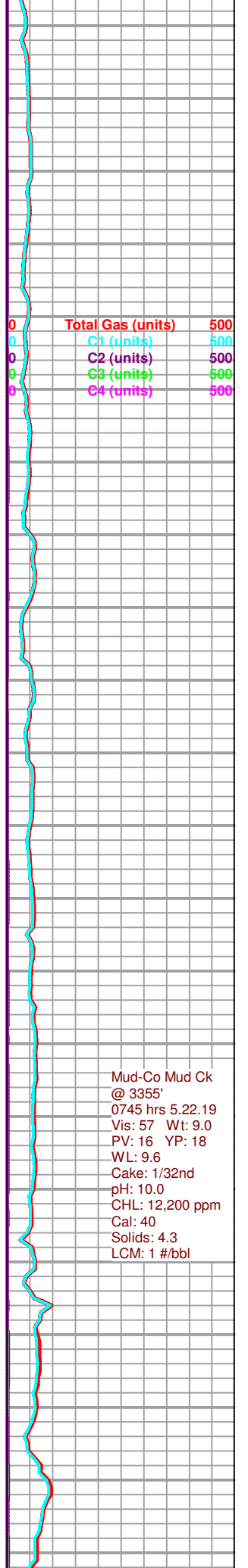
Limestone: cream lt gray, dense matrix, microxln, poor-no visible porosity, no shows, no fluorescence.

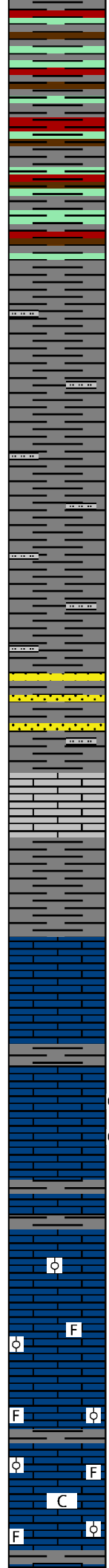
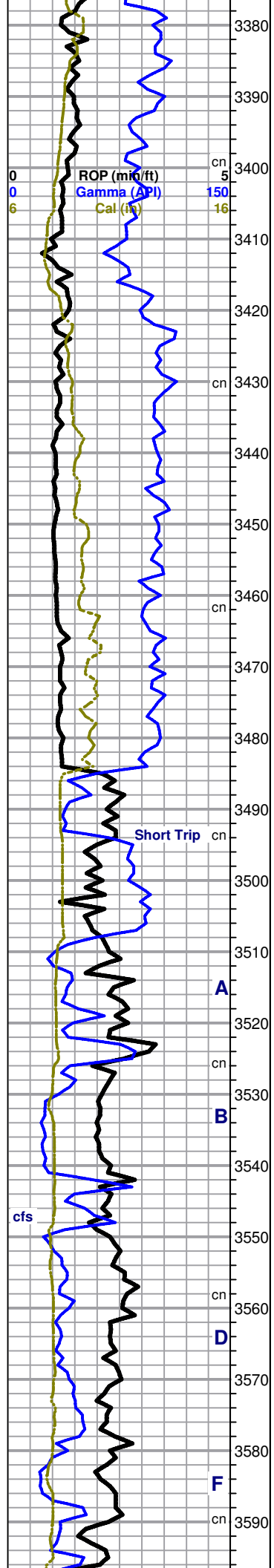
HEEBNER 3328' (-1433')
Shale: black dk gray, carbonaceous, blocky and firm, fair gas show.

Shale: dk gray gray dk green, blocky and firm, limey and very dense.

TORONTO 3347' (-1452')
Limestone: cream gray, dense matrix, microxln, scattered fossiliferous, overall poor visible porosity, no shows, no fluorescence.
Limestone: off white cream, dense matrix, microxln, barren, poor visible porosity, with some loose Chalk.

DOUGLAS 3363' (-1468')
Shale: gray dk gray some pale green, mostly dense and limey.





Shale: brown dk red some pale green and gray, very dense and blocky.

Shale: brown dk red some pale green and gray, very dense and blocky.

Shale: gray lt gray pale green red brown, blocky to rounded, most becoming softer, influx lt green mushy gummy material, same washes brown.

Shale: gray dk gray, blocky and dense, some silty in part, with scattered Siltstone.

Shale: gray dk gray, blocky and dense, some silty in part, with scattered Siltstone.

Shale: gray dk gray, becoming softer and waxy, some silty in part, with scattered Siltstone.

Shale: gray dk gray, mostly silty, contineud scattered Siltstone, with influx Sandstone: lt gray dirty clusters, heavily micaceous and pyritic, vf-grained, fair intergranular porosity, no shows, no fluorescence.

BROWN LIME 3485' (-1590')

Limestone: dk gray brown dk brown, dense, microxln, no visible porosity, no shows, no fluorescence.

Shale: gray dk gray, blocky to rounded, firm to softer, some waxy.

LANSING-KANSAS CITY 3508' (-1613')

Limestone: gray brown, dense tight matrix, microxln, most barren, overall poor visible porosity, no shows, no fluorescence.

3548' cfs - Limestone: off white lt cream, dense matrix, micro-cryptoxln, good vug/pinpoint development and associated porosity, scattered 2nd xln fill, few pieces with poor edge stain, no live shows, no fluorescence, fair oily odor in wet sample.

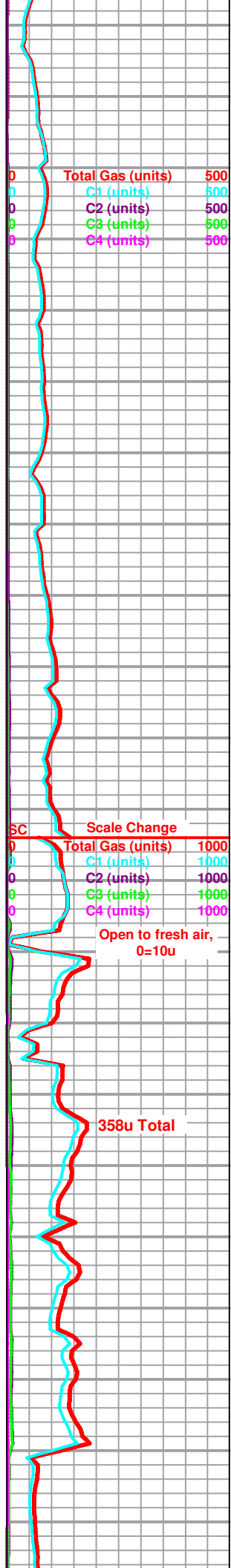
Limestone: gray lt gray, dense matrix, microxln, barren, poor visible porosity, no shows, no fluorescence, with Shale: gray dk gray, blocky and firm.

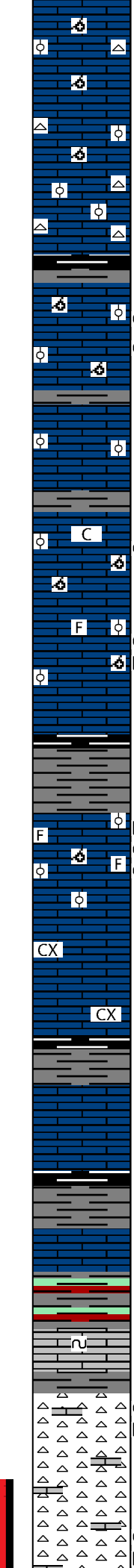
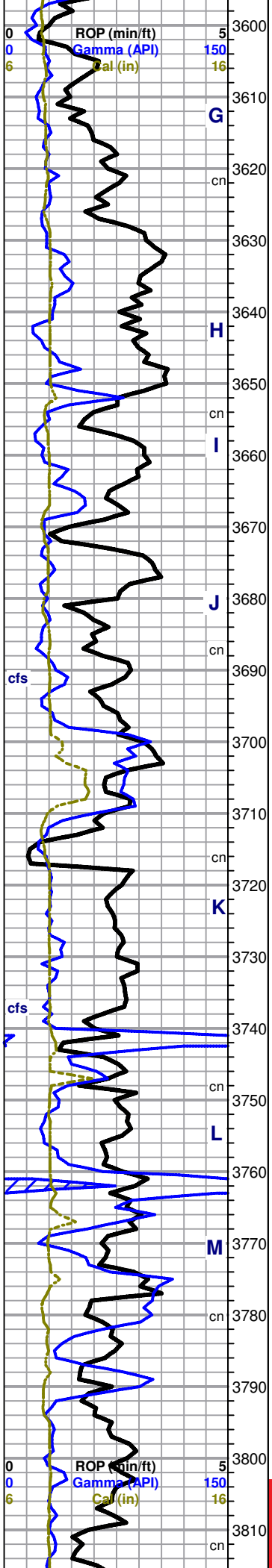
Limestone: lt cream off white, dense sub-friable matrix, microxln, most oolitic, fair-good visible porosity, no shows, no fluorescence.

Limestone: cream tan, dense matrix, vfxln, scattered fossiliferous/oolitic, overall decrease in visible porosity, no shows, poor-no mineral fluorescence.

Limestone: cream tan, dense matrix, vfxln, scattered fossiliferous/oolitic, fair interxln porosity, no shows, poor-no mineral fluorescence.

Limestone: lt cream off white, dense to sub-chalky friable matrix, micro-vfxln, scattered compact oolitic/fossiliferous, fair visible porosity, no shows, no fluorescence.





Limestone: cream lt cream, dense matrix, micro-vfxln, heavily oolitic with excellent oomoldic development and associated porosity, no shows, no fluorescence, with scattered Chert: white, fresh, oolitic in part.

Limestone: tan brown, dense matrix, microxln, heavily oolitic, some scattered fair-good oomoldic development and associated porosity, no shows, no fluorescence, with continued scattered Chert.

Limestone: lt cream tan, dense cherty matrix, scattered oolitic, poor visible porosity, no shows, no fluorescence, with abundant Chert: white, fresh and sharp, most oolitic, limey in part.

MUNCIE CREEK 3632' (-1737')
 Shale: black dk gray, some carbonaceous, no gas show.

Limestone: tan cream, dense to sub-friable matrix, micro-vfxln, scattered compact oolitic with fair-good oomoldic development, fair-poor porosity throughout, few pieces with poor golden stain and fair show lt brown oil upon break, spotty poor fluorescence, dull cut in show rocks, faint odor in wet cup.

Limestone: cream tan, dense matrix, microxln, compact oolitic, fair interoolitic porosity, no shows, no fluorescence.

Limestone: cream tan, dense matrix, microxln, poor visible porosity, no shows, no fluorescence.

Limestone: lt cream, friable chalky matrix, vfxln, heavily oolitic with fair-good oomoldic porosity, scattered pieces with poor show dk brown oil in porosity with increase upon break, spotty yellowish-green fluorescence in show rocks, faint odor.

3691' cfs 20"/40" - Limestone: lt cream, friable sub-chalky matrix, vfxln, heavily oolitic/fossiliferous with fair-good oomoldic porosity, few pieces with dk black dead stain in porosity, very poor to no live shows to note, spotty green fluorescence, no odor.

STARK 3699' (-1804')
 Shale: black dk gray, some carbonaceous, blocky and dense.

Limestone: lt cream off white, sub-friable matrix, vfxln, heavily fossiliferous to compact fossiliferous/oolitic, some good oomoldic/vug development and associated porosity, good pinpoint/visible porosity, couple pieces with live stringy show upon break, little-no fluorescence, no odor.

Samples across LKC 'K' not ideal for evaluation due to sample box being opened a number of times while clearing out gas detector line.

3737' cfs - Limestone: gray tan cream, dense matrix, cryptoxln, no visible porosity, no shows, scattered dull yellow mineral fluorescence.

HUSHPUCKNEY 3741' (-1846')
 Shale: black dk gray, abundant carbonaceous, blocky and soft, no gas show.

Limestone: gray lt gray, dense matrix, microxln, barren, no visible porosity, no shows, no fluorescence.

Shale: black dk gray, some carbonaceous, blocky and dense, no gas show.

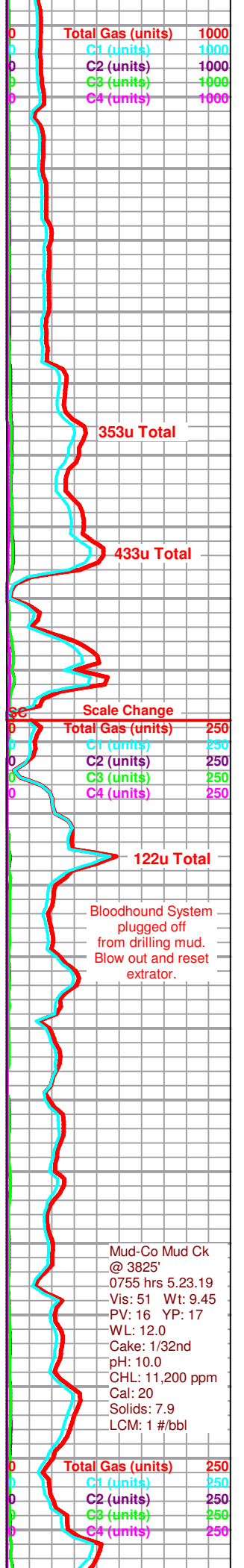
Limestone: cream gray lt gray, dense matrix, microxln, barren, no visible porosity, no shows, no fluorescence.

BASE KANSAS CITY 3774' (-1879')
 Shale: gray dk gray dk green some brick red, blocky and dense

MARMATON 3782' (-1887')
 Limestone: cream lt gray, mostly dense and cherty, vfxln, some glauconitic, poor visible porosity, no shows, no fluorescence.

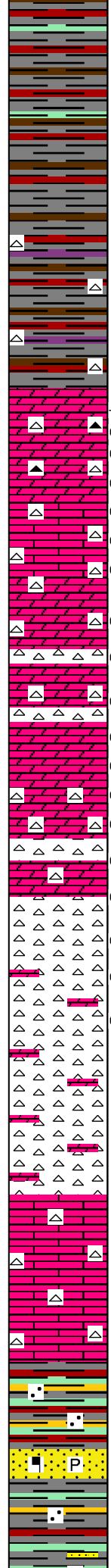
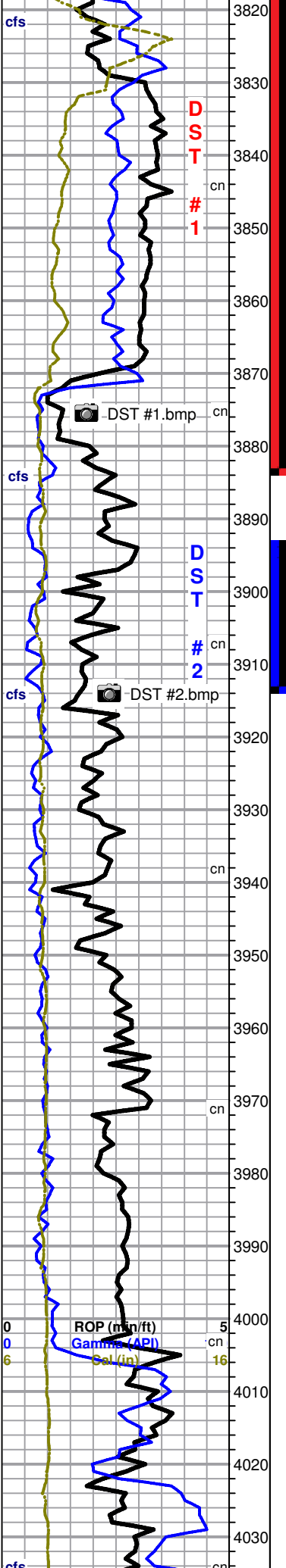
Chert: cream white, dense, limey to fresh and sharp, tripolitic in part, more edge staining with depth, few pieces with poor live show upon break, little-no fluorescence, faint odor.

3822' cfs 20"/40"/60" - Chert: cream off white, dense and limey, some slightly weathered tripolitic, poor scattered oil stain with little-no show upon break, poor fluorescence, faint gassy odor, with Limestone as above.



Mud-Co Mud Ck @ 3825' 0755 hrs 5.23.19
 Vis: 51 Wt: 9.45
 PV: 16 YP: 17
 WL: 12.0
 Cake: 1/32nd
 pH: 10.0
 CHL: 11,200 ppm
 Cal: 20
 Solids: 7.9
 LCM: 1 #/bbl

KINDERHOOK 3818' (-1923')



Shale: brown dk red pale green grays, mixed, some cherty pieces, sample washes brown.

Shale: grays brown dk red, dense, blocky and hard, sample washes brown.

Shale: grays brown dk red purples, increase in softer mushy material, sample washes brown, with influx Chert: cream, translucent, fresh and sharp.

VIOLA 3872' (-1977')

3884' cfs - Dolomite: It cream off white, sub-friable matrix, f-vfxln, cherty in part, scattered good rhombic/vug development good-vg interxln porosity, vg show oil and gas bubbles from porosity with increase upon break/under lamp, spotty bright yellow fluorescence, streaming milky-white cut, with scattered Chert: white/brown, weathered to triploitic, good oil saturation, good odor.

Limestone: cream lt cream, dense cherty/dolomitic matrix, micro-vfxln, poor xln development and associated porosity, very poor staining in a few pieces, no live shows, poor-no fluorescence, no odor, with Chert: bone white cream, mostly fresh and sharp, few slightly weathered pieces with poor sat stain.

3914' cfs 20"/40"/60" - Dolomite: It cream, sub-friable matrix, vfxln, cherty in part, fair-good xln development with associated good porosity, even saturated stain throughout, most fair show lt brown oil upon break, spotty bright yellow fluorescence, milky-white cut, with scattered Chert: most cream off white, fresh and sharp, trace sub-weathered with poor stain, moderate odor.

Dolomite: cream off white, dense tighter cherty matrix, vf-microxln, drastic decrease in xln development and associated porosity, some scattered fair interxln porosity, fair saturated stain in most with fair-poor show live oil upon break, spotty bright yellow fluorescence, bluish-white cut, with scattered Chert: most cream off white, opaque, fresh and sharp, trace sub-weathered with poor stain, faint odor.

Influx Chert: bone white off white, dense matrix, opaque, most fresh and sharp, scattered slightly weathered, oolitic/fossiliferous in part, some fair edge weathering with associated staining, few poor live shows upon break, even bright white fluorescence, faint odor.

Chert: bone white off white cream, opaque, fresh and sharp to slightly weathered, increase in translucent pieces, some scattered poor edge weathering with associated staining, no live shows, even dull white fluorescence, with some scattered Dolomite: tan cream, dense matrix, micro-vfxln, poor interxln porosity, some poor staining, no live shows, no odor.

Chert: bone white off white cream, opaque, fresh and sharp to slightly weathered, much translucent, some scattered poor edge weathering, no shows, even dull white fluorescence, with some scattered Dolomite: tan cream, dense matrix, micro-vfxln, poor interxln porosity, no shows, no odor.

Limestone: cream lt cream, dense cherty matrix, cryptoxln-lithographic non-descript, no visible porosity, no shows, with fair amount of Chert: white cream, opaque, vitreous, fresh and sharp, no shows.

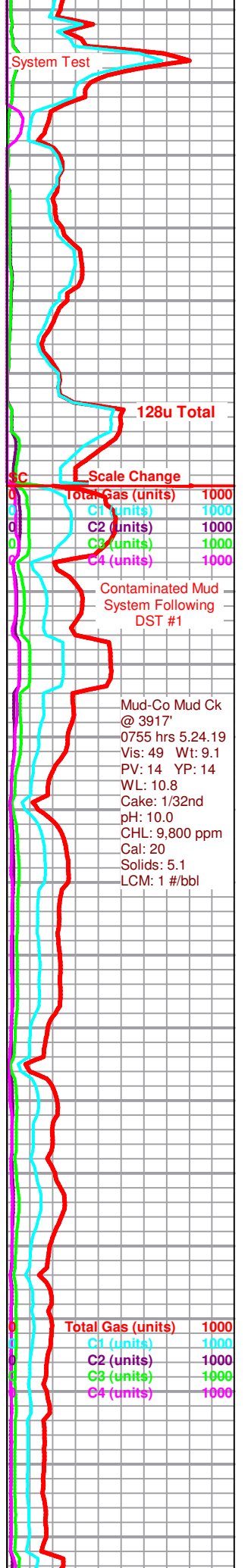
SIMPSON 4006' (-2111')

Shale: pale green gray dk red yellow, blocky and dense, arenaceous in part.

4034' cfs 20"/40" - Sandstone: gray white green, mostly friable matrix, fairly cemented, fgrained, poorly sorted dirty clusters, heavily micaceous/pyritic, good intergranular porosity in most, no shows, no fluorescence.

Shale: pale green gray dk red yellow, blocky and dense, arenaceous in part.

4034' cfs 60" - Shale: gray pale green, most blocky and dense, some mushy material, arenaceous in part, some interbedded Sandstoneas above.



Scale Change

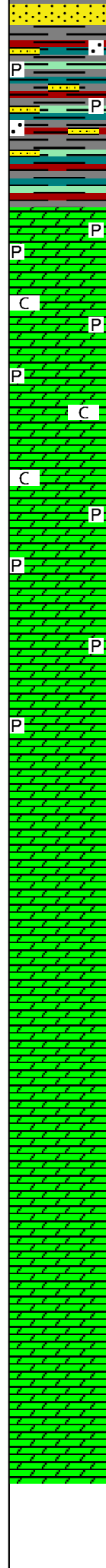
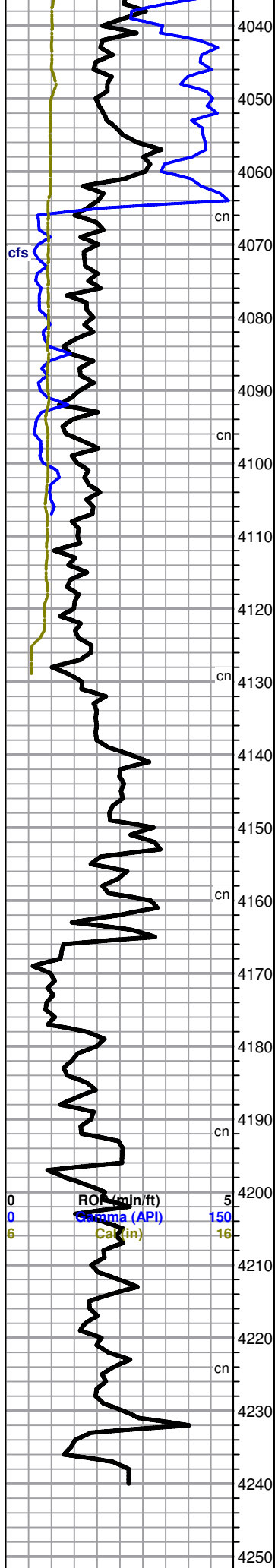
Total Gas (units)	1000
C1 (units)	1000
C2 (units)	1000
C3 (units)	1000
C4 (units)	1000

Contaminated Mud System Following DST #1

Mud-Co Mud Ck @ 3917'
0755 hrs 5.24.19
Vis: 49 Wt: 9.1
PV: 14 YP: 14
WL: 10.8
Cake: 1/32nd
pH: 10.0
CHL: 9,800 ppm
Cal: 20
Solids: 5.1
LCM: 1 #/bbl

Total Gas (units)

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



Shale: gray dk gray teal dk red maroon, blocky and dense, arenaceous in part, pyritic in part, with scattered Pyrite nodules, and Sandstone stringers: gray white, mostly friable matrix, fairly cemented, fgrained, poorly sorted dirty clusters, heavily micaceous/pyritic, good intergranular porosity in most, no shows, no fluorescence..

Shale: gray dk gray teal dk red maroon, blocky and dense.

ARBUCKLE 4065' (-2170')

4071' cfs 20"/40"/60" - Dolomite: lt cream tan, dense matrix, micro-vfxln, poor xln development and associated visible porosity, most pyritic, no shows, even dull pale yellow mineral fluorescence, no odor.

Dolomite: cream lt cream lt gray, dense matrix, micro-vfxln, poor xln development and associated porosity, still heavily pyritic, no shows, even dull pale yellow mineral fluorescence, with scattered loose Chalk, no odor.

Dolomite: cream lt cream lt gray, dense matrix, micro-vfxln, poor xln development and associated porosity, no shows, even dull pale yellow mineral fluorescence, with scattered loose Chalk, no odor.

Dolomite: cream lt cream, dense matrix, micro-vfxln, poor-fair xln development and associated porosity, no shows, even dull pale yellow mineral fluorescence, with scattered loose Pyrite nodules, no odor.

4140' cfs 40"/60" - Dolomite: cream lt cream, dense matrix, micro-vfxln, poor-fair xln development and associated porosity, no shows, even dull pale yellow mineral fluorescence, with scattered loose Pyrite nodules, no odor.

RTD 4140' (-2245')

LTD 4141' (-2246')

Geologist Derek W. Patterson Off Location 1730 hrs 5.25.19

Note: no samples evaluated from original RTD to DD RTD

DD RTD 4240' (-2345')

Respectfully Submitted,
Derek W. Patterson

Vis: 50
Wt: 9.2
LCM: 1 #/bbl

Mud-Co Mud Ck @ 4112'
0735 hrs 5.25.19
Vis: 50 Wt: 9.2
PV: 15 YP: 13
WL: 10.4
Cake: 1/32nd
pH: 10.0
CHL: 10,400 ppm
Cal: 20
Solids: 5.8
LCM: 1 #/bbl

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



DRILL STEM TEST REPORT

Edison Operating Company LLC

8-24s-12w Stafford

8100 E.22nd st N.Bldg. 1900
Wichita, Kansas 67226-2319

O'Connor #1-8

Job Ticket: 01362

DST#: 1

ATTN: Derek Patterson

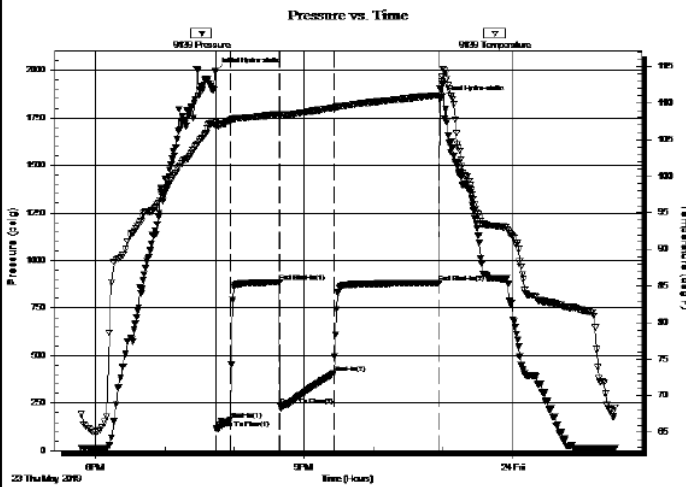
Test Start: 2019.05.23 @ 17:19:00

GENERAL INFORMATION:

Formation: **viola**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:45:00
 Time Test Ended: 01:30:00
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Gene Budig
 Unit No: 1
 Interval: **3806.00 ft (KB) To 3887.00 ft (KB) (TVD)**
 Reference Elevations: 1895.00 ft (KB)
 Total Depth: 3887.00 ft (KB) (TVD) 1885.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

Serial #: 9139 Outside
 Press@RunDepth: 882.51 psig @ 3882.05 ft (KB) Capacity: 5000.00 psig
 Start Date: 2019.05.23 End Date: 2019.05.24 Last Calib.: 1899.12.30
 Start Time: 17:46:00 End Time: 01:28:29 Time On Btm: 2019.05.23 @ 19:44:00
 Time Off Btm: 2019.05.23 @ 22:57:30

TEST COMMENT: 1st Opening 10 Minutes Fair blow built to the bottom of a 5 gallon bucket in 4 minutes
 1st Shut-In 45 Minutes no blow back
 2nd Opening 45 Minutes Fair blow built to the bottom of a 5 gallon bucket in 4 minutes
 2nd Shut-In 90 Minutes no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1995.73	107.34	Initial Hydro-static
1	116.84	106.92	Open To Flow (1)
13	162.62	107.59	Shut-In(1)
55	885.56	108.47	End Shut-In(1)
56	237.25	108.32	Open To Flow (2)
102	404.58	109.33	Shut-In(2)
193	882.51	111.06	End Shut-In(2)
194	1847.55	111.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
100.00	slightly oil cut muddy w ater	1.40
0.00	5% Gas 5% Oil 50% Mud 40% Water	0.00
180.00	slightly oil cut muddy w ater	2.52
0.00	2% Gas 3% Oil 40% Mud 45% Water	0.00
240.00	slightly oil cut muddy w ater	3.37
0.00	2% Gas 3% Oil 10% Mud 85% Water	0.00

Gas Rates

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

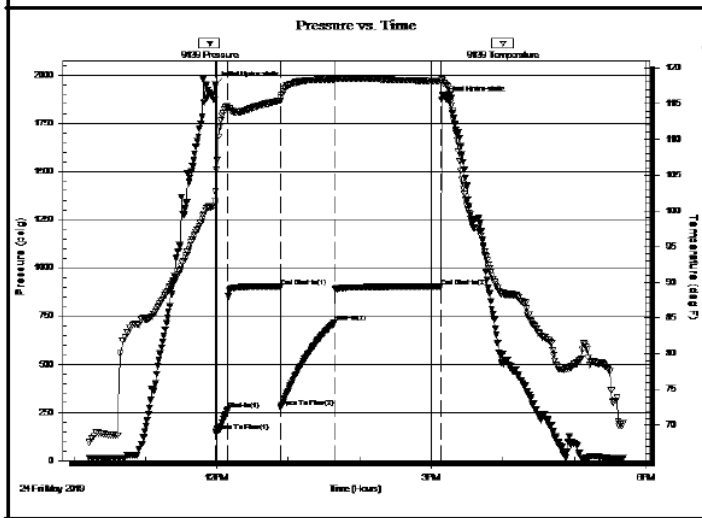
 <p>Eagle Testers Great Bend, Kansas</p>	DRILL STEM TEST REPORT
	Edison Operating Company LLC 8-24s-12w Stafford
	8100 E.22nd st N.Bldg. 1900 Wichita, Kansas 67226-2319 O'Connor #1-8
ATTN: Derek Patterson Job Ticket: 01363 DST#: 2	
	Test Start: 2019.05.24 @ 10:11:00

GENERAL INFORMATION:

Formation: Viola	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Gene Budig
Time Tool Opened: 11:59:00	Unit No: 1
Time Test Ended: 17:42:00	
Interval: 3896.00 ft (KB) To 3917.00 ft (KB) (TVD)	Reference Elevations: 1895.00 ft (KB)
Total Depth: 3917.00 ft (KB) (TVD)	1885.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair	KB to GR/CF: 10.00 ft

Serial #: 9139	Outside				
Press@RunDepth: 903.32 psig @ 3912.00 ft (KB)	Capacity: 5000.00 psig				
Start Date: 2019.05.24	End Date: 2019.05.24	Last Calib.: 2019.05.24			
Start Time: 10:11:00	End Time: 17:40:30	Time On Btm: 2019.05.24 @ 11:58:30			
		Time Off Btm: 2019.05.24 @ 15:08:30			

TEST COMMENT: 1st Opening 10 Minutes fair blow built to the bottom of a 5 gallon bucket in 4 minutes
 1st Shut-In 45 Minutes 2 inch blow back
 2nd Opening 45 Minutes fair blow built to the bottom of a 5 gallon bucket in 2 minutes
 2nd Shut-In 90 Minutes 4 inch blow back



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1948.64	101.21	Initial Hydro-static
1	148.35	102.77	Open To Flow (1)
11	265.63	114.38	Shut-In(1)
55	904.55	115.40	End Shut-In(1)
55	276.68	115.85	Open To Flow (2)
100	716.00	118.38	Shut-In(2)
189	903.32	118.16	End Shut-In(2)
190	1871.30	118.37	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
0.00	600 feet of gas in the pipe	0.00
180.00	gassy slightly oil cut muddy w ater	2.52
0.00	29%Gas 5% Oil 6% Mud 90%Water	0.00
180.00	slightlu oiland gas cut muddy w ater	2.52
0.00	1%Gas 5%Oil 4%Mud 90%Water	0.00
180.00	slightly oil and mud cut w ater	2.52

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