



Scale 1:240 (5"=100') Imperial  
Measured Depth Log

Well Name: E & J LEGACY EPP # 3  
Location: AP. SE - SW - SW - SE SEC. 27 - T. 29 S. - R. 15 W.  
License Number: A.P.I. # 15-051-22399-00-00  
Spud Date: 8/20/2012  
Surface Coordinates: SPOT: 285' FSL & 2305' FEL  
Region: PRATT CO., KS  
Drilling Completed:

Bottom Hole  
Coordinates:  
Ground Elevation (ft): 1955' K.B. Elevation (ft): 1964'  
Logged Interval (ft): SURFACE To: 4833' Total Depth (ft): 4833'  
Formation: ARBUCKLE  
Type of Drilling Fluid: CHEMICAL MUD

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: PONDEROSA WITCHING, LLC  
Address: 110 A SPRING CREEK  
WACO, TEXAS 76705

GEOLOGIST

Name: DAVID P. WILLIAMS  
Company: DW ENERGY, LLC.  
Address: 312 NORTH BROADVIEW STREET  
WICHITA, KANSAS 67208

Casing & Deviation

Ran 9 Jts 8 5/8" (24#) Surface Casing Tallied @ 382' & set at 393'. Cemented w/ 225 sx CLASS A; 3% cc 2% Gel. Cement Did Circulate to Surface.

DEVIATION SURVEY'S TAKEN: @ 395' = 1/2 degree; @ 4590' = 3/4 degree; @ 4830' = degree.

DSTs

DST #1 4485'-4590'. Times: 30"-45"-30"-45". Blow: IF= Weak 1/4"; FF= No Blow". Recovery: 5' M.  
Pressures: IH= 2230#; FH= 2183#; IF = 22-25#; FF = 25-26#; ISIP = 52#; FSIP =38#; Temp=118 degrees.

DST #2 4668'-4721'. Times: 30"-45"-60"-60". Blow: IF= Weak 1/2"Building/2.5"; FF= Weak 1/2" Building/3".  
Recovery: 120'G.I.P.; 145' TF (15' CO;130'OCM (18% O& 83% M)). Pressures: IH= 2301#; FH= 2292#; IF = 24-52#; FF = 57-87#; ISIP =1385#; FSIP =1365#; Temp= 122 degrees. Oil Grv.= 31.3 degrees.

### Comments

After review of all geologic samples as examined, combined with the fluid and pressures results from all drill stem tests taken and analysis from the electric logs run, it was determined by all parties that production casing be run in order to further evaluate this well.

Respectfully submitted,

David P. Williams, P.G

### ROCK TYPES

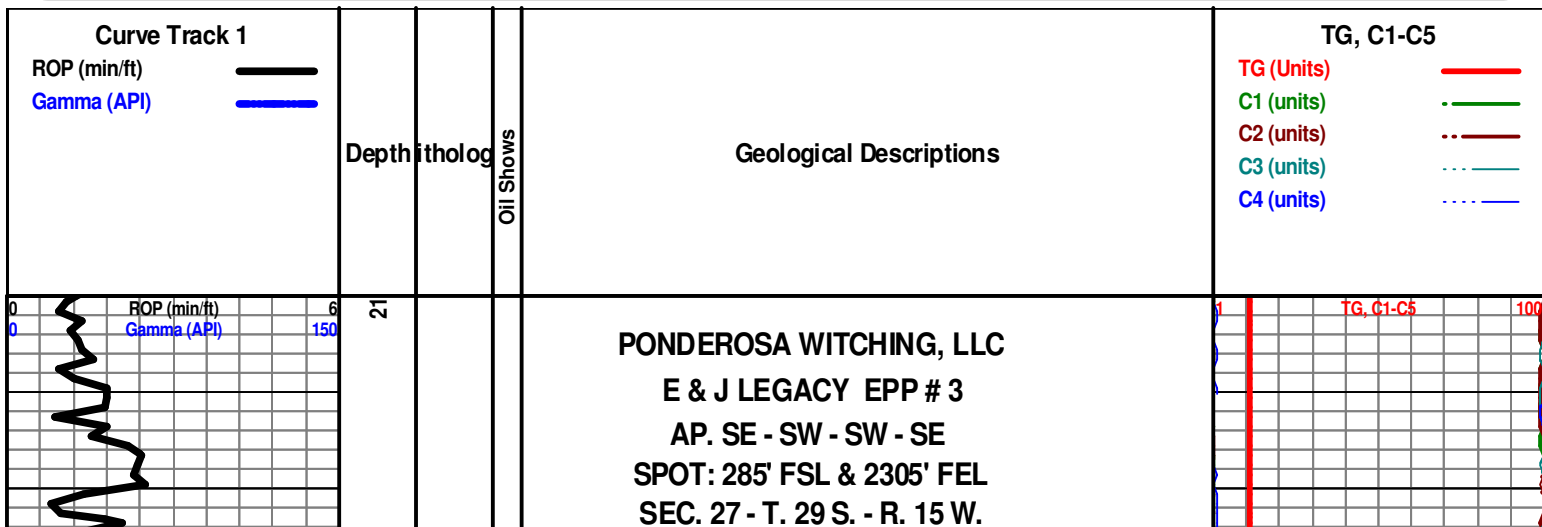
Anhy	Clyst	Gry shale	Mrlst	Shgy
Bent	Coal	Gyp	Red shale	Sltst
Brec	Congl	Igne	Salt	Ss
Carb sh	Dol	Lmst	Shale	Till
Cht	Grn sh	Meta	Shcol	

### ACCESSORIES

<b>MINERAL</b>	Hvymin	Belm	Plant	<b>TEXTURE</b>
Anhy	Kaol	Bioclst	Strom	Boundst
Arggrn	Marl	Brach		Chalky
Arg	Minxl	Bryozoa	<b>STRINGER</b>	Cryxln
Bent	Nodule	Cephal	Anhy	Earthy
Bit	Phos	Coral	Arg	Finexln
Brecfrag	Pyr	Crin	Bent	Grainst
Calc	Salt	Echin	Coal	Lithogr
Carb	Sandy	Fish	Dol	Microxln
Chtdk	Silt	Foram	Gryslt	Mudst
Chtlt	Sil	Fossil	Grysh	Packst
Dol	Sulphur	Gastro	Gyp	Wackest
Feldspar		Oolite	Ls	
Ferrpel	<b>FOSSIL</b>	Ostra	Mrst	
Ferr	Algae	Pelec	Sltstrg	
Glau	Amph	Pellet	Ssstrg	
Gyp		Pisolite		

### OTHER SYMBOLS

<b>POROSITY</b>	Vuggy	<b>ROUNDING</b>	Even	Core
Earthy		Rounded	Spotted	
Fenest	<b>SORTING</b>	Subrnd	Ques	<b>EVENT</b>
Fracture	Well	Subang	Dead	Rft
Inter	Moderate	Angular		Sidewall
Moldic	Poor		<b>INTERVAL</b>	
Organic		<b>OIL SHOW</b>	Dst	
Pinpoint		Gas show	Dst_alt	



PRATT COUNTY, KANSAS

CONTRACTOR: STERLING DRILLING - RIG # 4

GEOLOGISTS: BRIAN FISHER; MAC ARMSTRONG AND DAVID P. WILLIAMS

ELEVATIONS: 1955' G.L.; 1964' K.B.

A.P.I. # 15-051-22399-00-00

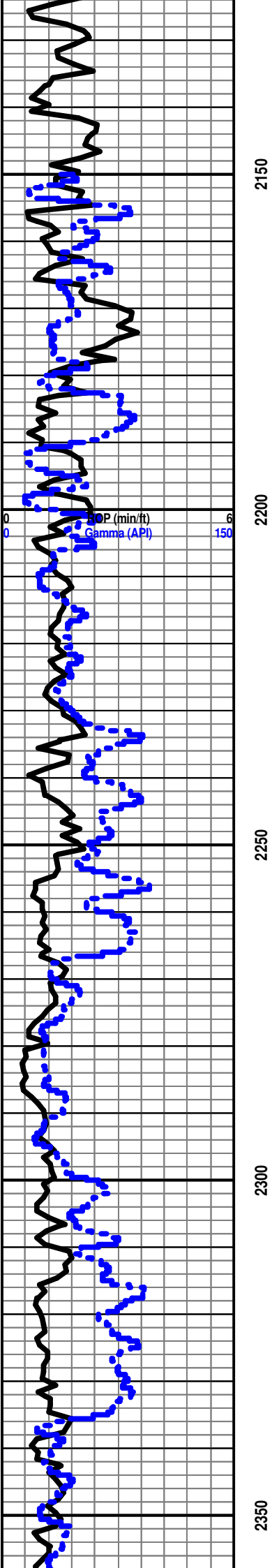
DEVIATION SURVEYS TAKEN: @ 395' = 1/2 degree; @ 4590' = 3/4 degree;  
@ 4830' = degree.

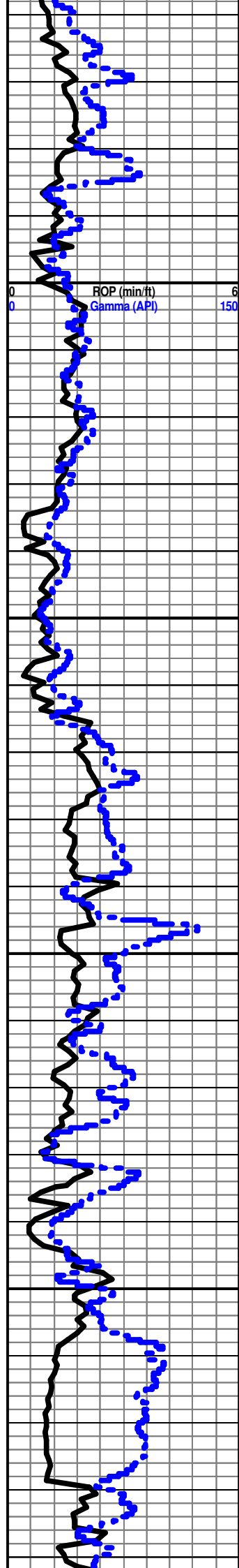
Shallow samples and drill time by Brian G. Fisher, start on 8-14-12.

Herington Ls. 2202 (-238) (0 - flat)

Winfield 2268 (-304) (+1)

Towanda 2338 (-374) (+2)



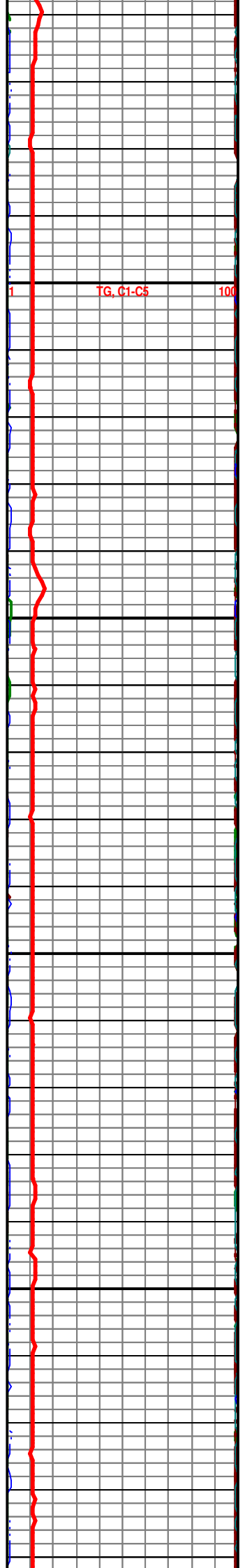


2400  
2450  
2500  
2550

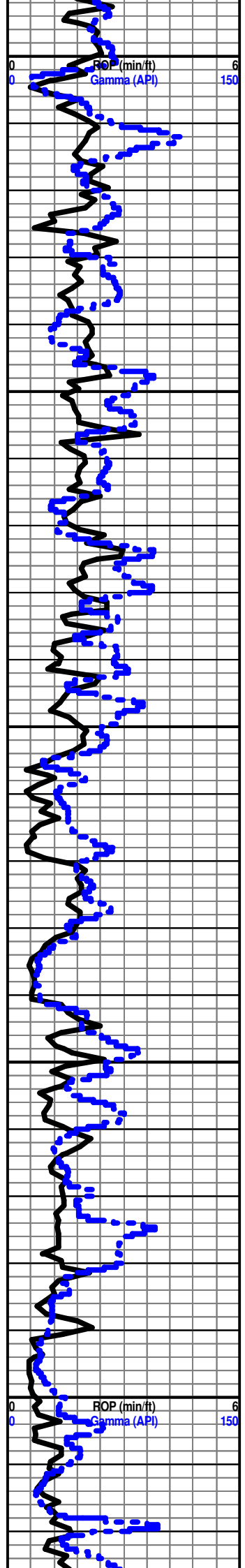
Fort Riley 2388 (-424) (+1)

Base of the Florence 2465 (-501) (+2)

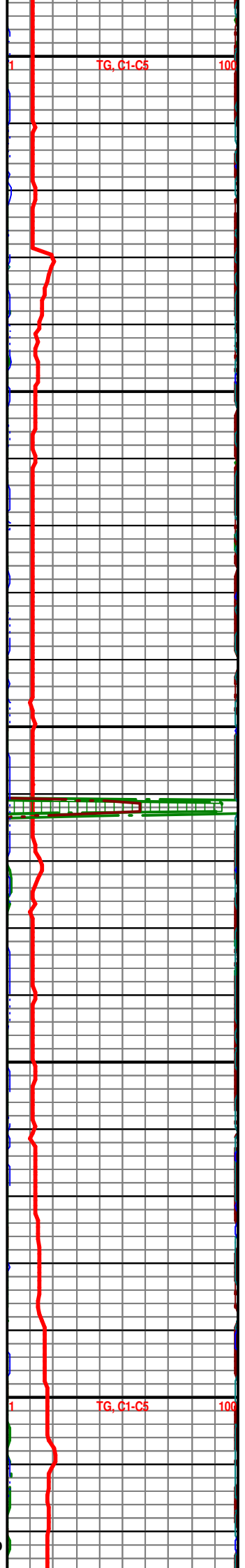
Council Grove 2557 (-593)



TG, C1-C5 100



2600  
2650  
2700  
2750  
2800



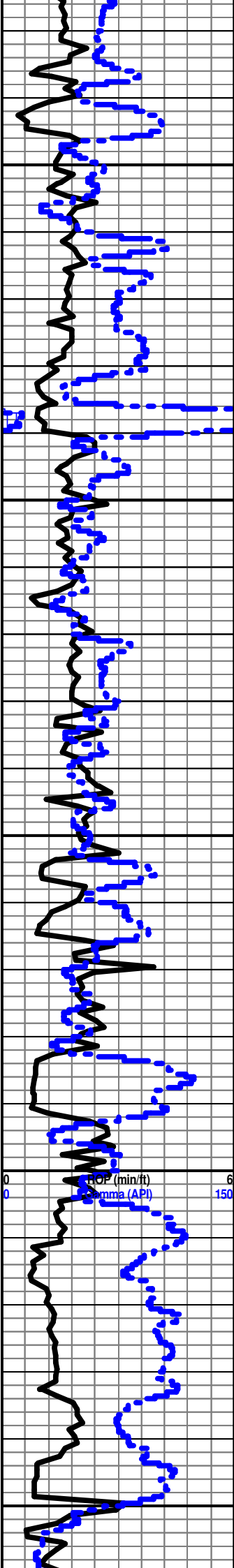
Cottonwood 2714 (-750) (+10)

Cottonwood Porosity Zone 2731 (-797)

Kelly down samples start at 2700', not mudded up yet. Mostly red, gray, also with dk grn sh, dk gray shales, with Ls off wh. no vis por., few large xls pyrite.

2800 Samples: all as above

2830 Sample -mixture of red, gray and dark gray shales, with Ls lt br, no vis por. No shows.



2850

Ls med gray to white, Lith, Sh. dlk red

2860' sample, Shales: dk gray, gray, red (sandy in part), trace sh med grn, Ls lt br to tan lith, no vis por.

2890' Sample: Ls off wh. to wh., fine to med xln, fair to excel inter gran por., no shows

Sh dk gray, Sh red

2900

2920 Sample: mainly Sh dk gray, dk gray gr, red shales, Pyrite xlns, with Sh bl carb

2950 Sample: Sh dk gray g, dk gray, red, Pyrite xlns, Some Ls wh to off wh, lith, no vis por.

2950

Note at 2965' had to replace Rotary Table, bearings went out at 5:00 pm on 8-14-12, Rig back in service at approx. 3:00 am, extra time taken to cut off shims off used table to make it fit. Rotary table taken from stacked Sterling rig #1 in yard from Pratt Ks.)

2980' - Sample not caught! Representing 2965' to 2980"

3000

**Onaga Shale 3004 (-1040)(+1)**

3010' Kelly down sample: Sh dk gray to med gray, Ls lt tan, frag in part with good to excell por, poss gilsonite dead oil stain or black shale -? in part, No odor, No Flour. Saw only piece of Ls with a very faint lt yellow min flour.

Samples 3020' to 3040' not caught. Switch to 20' foot samples.

Samples 3020' to 3040' not caught. Switch to 20' foot samples.

**Wabaunsee Formation 3043 (-1079)(+6)**

All as abv with trace Sh bl carb, very fiss.

3050

TG, C1-C5 100



Sh med gray, also lt gray, soft, sl pyritic in part, also with sml bl inclusions or fossils, trace Sh bl carb, and sh pale grn, Ls lt br lith, no vis por. Trace (Cav?) poss Dolo off wh, sl ghst foss or oolitic, no vis por, tite, No shows

All as abv, also with Slst off wh, vf grain, sub md to rnd tightly cemt with cal cmt, Indian Cave SS - ? No shows

Sh dk gray as abv, Slstt to vf SS, vf grain, Qtz gains, mica, cal cmt, well cmt, no vis por. No odor, No shows, Ls lt br lith, Also sh dk gray,

All as abv, Sh med gray with bl inclus, Ls med br lith, Ls off wh lith, trace Sh bl carb, very fiss. All no shows

All as abv, with increase of upper hole cuttings. as hole is cleaned.

### Stotler Limestone 3168' (-1204) (+9)

Sh dk gray, Also some with fine layers of SS qtz, med xln, distinct xln facets, also amber colored, well cemt with non cal cmt, fair por No shows seen.

Ls med and Lt Br lith, no vis por, Sh dk gray

Ls med gray, frag no vis por, Sh dk gray, Ls med br lith.

Ls med br to dk br, frag with unk fossils, Sh dk gray, Sh med gray grn, sl sandy, Sh bk carb fissel.

Ls med to lt br, foss, lith - to v poor porosity, Sh dk gray

### Tarkio Ls. 3271 (-1312) (+9)

Ls med b, lith to med br, very frag, No vis por, Gray med gray,

Ls med br as adv,, Sh med gray, Ls med br lith, no vis por., trace sh bl to very dk gray, trace Sh bl carb very fissel, Ls med gray vfin, no vis por, trace Sh med gm, very plty

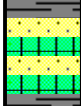
Ls off wh, med xln, trace poor por, No shows, also with sh med gray

3100

3150

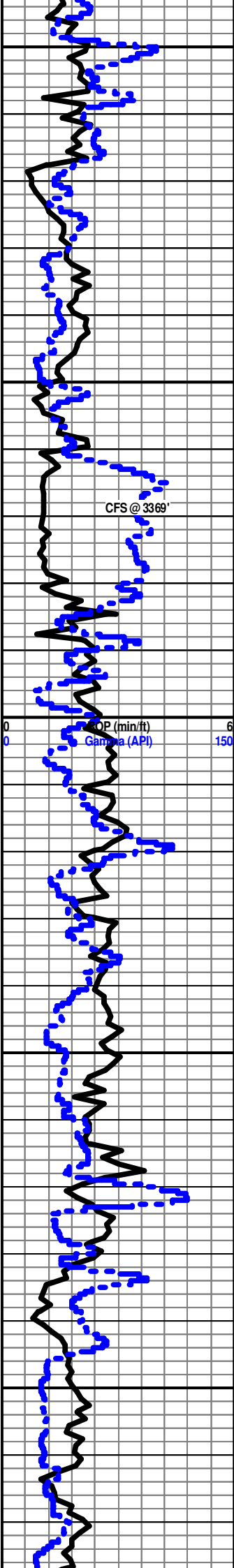
3200

3250



ROP (min/ft) 6  
Circulation (API) 150

TG, C1-C5 100



3300

Mainly Ls med br, lith to sl foss, No vis por, No shows, Ls tan lith no vis por, Trace Sh bl carb very pty, All no shows.

Ls as abv, increase in Sh bl carb as abv, Sh dk gray, No shows

×××  
Ls med brt to dk br, lith to foss (unk), no vis por, Ls lt gray, foss, no vis por, Ls wh wh chlky no vis por, Sh dk gray, All no odor, No flour, No gas bubbles, No stain, trace few pieces with very pale yell min flour, Circulate at 3369'

20 min cir samp: All as abv. increase in Ls off wh, lith to fxlN, Saw one lrg quartz grain with trace bl stain, Also increase in Ls med br, lith to sl foss in part with no vis por. Trace of sh bl carb, Sample had No odor, No oil or gas flour, (few pieces have trace pale yell min flour), No gas bubbles, No cut on the Qtz grain, No other shows seen.

3350

40 min cir: all as abv (but no qtz grains seen) with mainly Ls off wh lith to vfxln, poss trace of inter gran por, No shows seen.

60 min all as abv, No shows. Elected not to Dst. Mud Vis 47, wt 8.8, 1# LCM

CFS @ 3369'

**Howard Ls. 3383 (-1419) (+3)**

Ls off wh lith, Ls lt br lith, to sl gran and foss, No vis por, Chalk off wh, no vis por, Sh med gray, Sml amt of Sh pale gm, All no shows

3400

Ls off wh lith, sl foss in part, No vis por, Ls lt brwn, vfxln no vis por, Sh med gray, trace slst Lt gray, vfg, well cmted, no vis por. Chalk off wh, no vis poi, All no shows

TG, C1-C5

100

Ls med br lith to frag no vis por, Ls dk br, lith, no vis por, Sh dk gray, All no shows

Ls med br lith to frag no vis por, Ls dk br, lith, no vis por, Sh dk gray, trace Sh bl carb, massive to pty, All no shows

3450

Ls med br lith to frag no vis por, Ls dk br, lith, no vis por, Sh dk gray, increase in Sh bl carb, massive to pty, All no shows

**Topeka Ls 3468 (-1504) (+6)**

Ls off wh., lith brittle - Cherty in part - no vis por, lots of Sh bl carb, massive to pty, All no shows, Vis 48, 9 Wt.

**Topeka upper por zone 3482 (-1518) (+6)**

Ls lt gray, lith, to vfxln, some pieces with large calcite xls on edges indicates excell vug por is present, few pieces have very faint yell cal min flour, Sh dk gray, massive, No shows, there was no real gas kick, just a very slight gas rise to 25 to 26 units.

3500

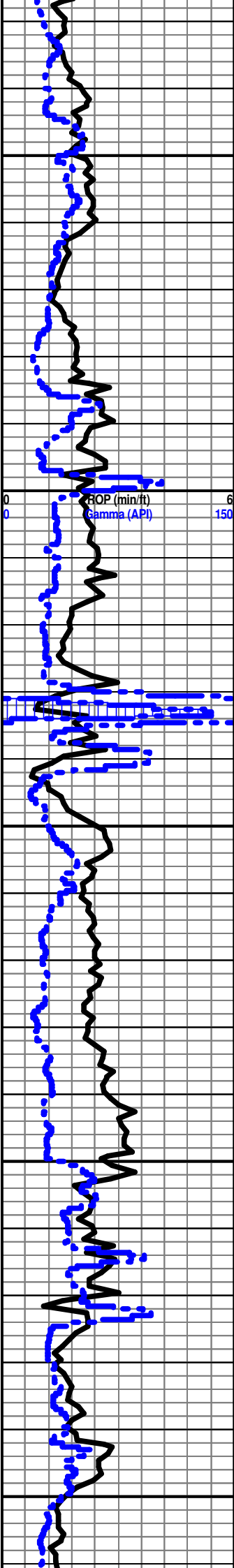
Ls med gray to lt gray, lith to vfxln (re-xln-?), frag texture, no vis por seen, sml layers of sh bl carb, pty with lots of pyrite in part. Trace very faint yell min cal in a few samples, No shows seen.

**Topeka 2nd por zone 3512 (-1548) (+2)**

Sh lt bl to very dk gray, massive, fss in part, Ls med gray, vfxln to dnse also poss cherty in part, poss trace poor fracture po, Ls off wh, lith to vfxln, poor inter gran por, No shows seen

Sh lt bl to very dk gray to blk, massive, fss in part, Ls med gray, dnse to vfxln poss cherty in part, poss trace poor fracture por, Ls off wh, lith to vfxln, poor por, Chlk off white very





3550  
3600  
3650  
3700  
3750

soft, No shows seen, Vis 55, 9 wt

Ls off wh, vfxln to rexln in texture, sl foss to frag in part, some are dnse lith, brittle to almost cherty in part, No vis por, Also chalk off wh with med cal xlns or grains embedded in rock matrix, poor to fair por in some, few with trace bl stain, (did not get a solvent cut) few pieces of Sh dk gray, massive, Sh bl carb very fiss. All No flour, No shows seen, back ground gas decrease slightly, thur this por zone

Ls off wh, med to fxln, some are rexln, few with poss trace black tarry stain, poor por seen, (No solvent cut), Chalk off wh soft, no vis por, Ls off wh lith no vis por, trace gray sh, No flour, No shows seen.

Ls off wh, med to fxln, some are rexln, more with poss trace black irrugar stain or shale inclusions, (No solvent cut), poor por seen very chalky in part, Increase in Chalk off wh soft, Sample washes a little white in color, no vis por, Ls off wh lith no vis por, No flour, No shows seen.

Ls off wh, med to fxln, some with rexln matrix, some are frag with unk foss, some with poss trace black stain or shale inclusions, (No solvent cut as above), poor por seen very chalky in part, Increase in Chalk off wh soft, no vis por, Ls off wh lith no vis por, Sh bl carb, massive No flour, No shows seen.

**Lower Dear Creek Ls Mkr 3598 (-1634) (+4)**

Ls off wh, more dnse than abv, some are very frag, with unk foss, Ls off wh as before with partly chalky in texture, few with edges that have black irregular stain, (Samples have no solvent cut), Also Ls med br dnse, cherty, very foss, no vis por, Ls off wh rexln matrix, poss poor por, Sh bl very carb, very pty, Trace Sh dk gray, All sample has no Flour, No shows.

Mainly Ls off wh, vfxln to mxln poor to fair matrix por seen, Also chlky in part, with some pieces that have black stains or bl shale fragments, Ls off wh, translucent, very cherty in part, fossiliferous, dnse, no vis por seen, Also Ls med br, vfxln, no vis por, Also with Sh bl carb, massive, Note sample washes white, No shows seen.

**Le Compton Ls 3637 (-1673) (+8)**

Ls off wh to very lt gray, rexln, also with poor to fair fracture por in part, Ls med grain to fxln, poor matrix por, Ls off wh, soft chlky texture with bl stain, (No solvent cut), Sh bl carb, Note sample washes white, No shows seen

Ls off wh, vfxln to chlky texture, also rexln, also frag, sl foss, no vis por, Sh bl carb, Sh dk gray, No shows seen

Ls very lt br, vfxln to med xln, poor matrix por, few pieces with excellent fracture porosity, also chlky in part, rexln foss in part, few with dk bl irr stain (has no solvent cut) Also Ls lt br, rexln med xln, also frag in part, trace inter gran por, Sh bl carb pty, All No sample odor, No shows.

Note part of the tubing was changed out, filter, and tubing from the filter to the Glycol jar at 9:30 am, 8-16-12, so the glycol jar would bubble better, got an immediate increase in amount of background gas to 37 units from 18 units. at 3687 - Also zero to 10 units, new back ground 25 units

Ls very lt br, vfxln, rexln, frag foss in part poss poor matrix por, Ls chlky with bl stains (has no solvent cut) Sh bl carb, pty, No sample odor No shows,

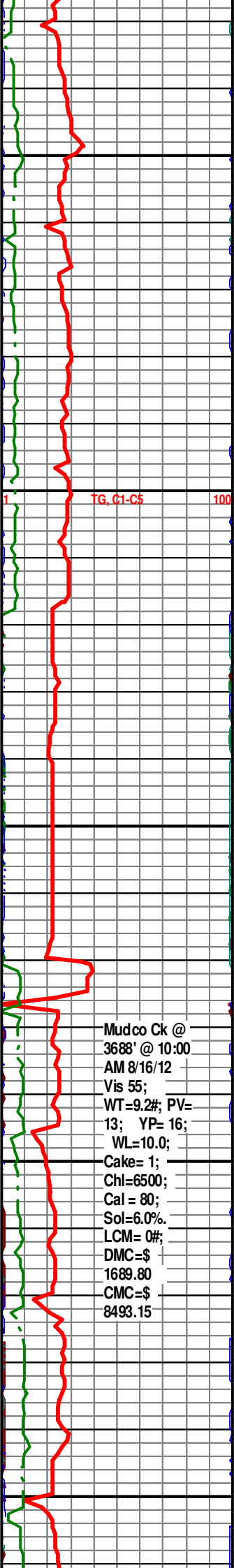
Ls very lt br, lith to re xln, sl foss in part, no vis matrix por, few pieces have excelent fracture por, Sh bl carb pty, Ls very chlky soft, with bl tarry stain in part, (stain has no solvent cut) Trace sh very dk green, Note sample washes white, No odor, No shows

Ls very lt br, lith to re xln, sl foss in part, no vis matrix por, few pieces have excelent fracture por, Ls very chlky soft, with bl tarry stain in part, (stain has no solvent cut) Note sample washes white, No odor, No shows

As above, Ls very lt br, lith to re xln, sl foss in part, no vis matrix por, few pieces have excelent fracture por, increase in Ls very chlky soft, with bl tarry stain in part, (stain has no solvent cut) , increase in Sh dk gray Note sample washes white, No odor, No shows

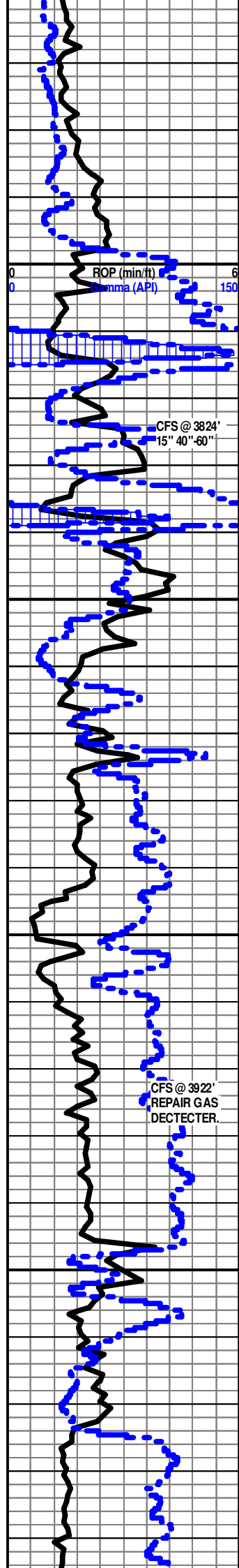
As above with Ls med br, Lith no vis por, No Shows in sample

As anv with increas in Ls med br, very frag, very foss, poor inter gran por No shows in sample



TG, C1-C5 100

Mudco Ck @  
3688' @ 10:00  
AM 8/16/12  
Vis 55;  
WT=9.2#; PV=  
13; YP= 16;  
WL=10.0;  
Cake= 1;  
Chl=6500;  
Cal = 80;  
Sol=6.0%.  
LCM= 0#;  
DMC=\$  
1689.80  
CMC=\$  
8493.15



3800  
3850  
3900  
3950



Sample  
Ls off wh, vf xln, re xln, grading to med xln, Ls very lt br to tan, med xln, re xlm foss, no vis por, Sh bl carb, Ls off wh chiky, No shows  
Ls off wh, vf xln, re xln, grading to med xln, poor to fair inter gran po, few samples have bl stain (No solvent cut) Ls very lt br to tan, med xln, re xlm foss, no vis por, Sh bl carb, Ls off wh chiky, A few Chalky Ls pieces have a bright wh flour- 2 pieces in total sample, (No solvent cut), Sh dark gray, Trace Sh bl carb, No sample odor, No other shows  
Ls off wh, vf xln, re xln, some med xln, poor to fair inter gran por, few samples have bl stain (No solvent cut) Ls very lt br to tan, med xln, re xlm foss, fair to poor vis por, Sh bl carb, Ls off wh chiky, Trace Sh dark gray, No sample odor, No other shows

At 3813' Change vel depth to 147.52, Change Total gas scale to 0 - 100  
**Queenhill Sh. 3806 (-1842) (+7)**  
Circulate at 3824' to evaluate large gas kick, Derrick Hand reported petroleum odor in sample, No odor from sample cup in Geol Shack (also checked by driller)

Sample caught at 3820': Ls lt br to tan, f to med xln, poor to good inter gran por,, few pieces med to lge xln, with fair to med por intergran por, few pieces, Some pieces are part chiky, with black stain, few pieces may be rexin oolitic rocks with no vis por, Very few have a very faint very pale yell min flour, No other sample flour, No Solvent oil cut in any of the samples.  
15 min cir Sample: increase in Ls off wh, med xln poor xln No shows seen, Also increase in Sh bl Carb, few pieces are bleeding small gas bubbles under the microscope. No other sample shows  
40 & 60 min All as above, also increase in Ls med br lith, No vis por, also with Sh bl carb, sl bleeding gas, No other sample shows, Called Dave Williams reviewed report and went back to drilling. Rig down for pump repair and went back to drilling.

**Heebner 3832 (-1868) (+5)**  
3830 Sample: Ls med br, lith to fxl, also as well cmted oolitic in part, some are fossil in part not much vis porosity, Sh bl carb, massive, Also trace sh dk gray, with layer of Sh bl attached to same rock. No shows  
Ls off wh vfxln, to med xln, fair por, with trace pyrite min, few pieces with a lt br stain, Sh bl carb, Sh dk gray, Saw a few large single qtz grains, No Shows

Ls med br to dk br, med xln, dnse, foss, some gran, poor vis por. Sh bl carb, Ls off wh as abv, No Shows.  
LS med br to lt br, poor por, Ls off wh, vf xln to fxl, Ls med dk br, Lith no vis por, Sh bl carb, Sh dk gray, No shows.  
All as abv also with few large qtz grains and Sh dk gray shale, No Shows

Mainly Ls off wh lith, No vis por, No Shows  
Ls off wh as abv, Also trace SS vfg, well cemented with calcite cmt, poorly sorted no vis por, No shows  
Ls off wh, vfxln, Sh dk gray, Sh bl carb, trace SS as abv

As abv, Ls off wh, vfxln, increase in Sh dk gray, Sh bl carb, trace SS as abv  
Mainly SS or Slst, lt gray, well calcite cmted, v fg, rnd to sub rounded, poor sorted Qtz gains, verty "dirty" looking also has unk plant carbon fossils, also breaks along layers of bl (biotite) mica minerals, Sh dk gray. sandy with pyrite, Trace Sh bl carb, All no shows

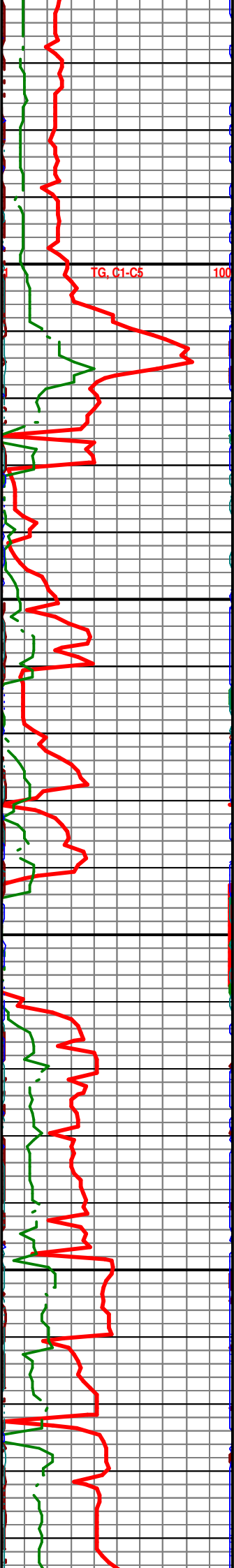
Circulate at 3922' to repair gas dectector line, back to drilling at 8:22 pm.  
all as abv Ss as abv, with trace Sh black carb, Ls med br lith, no vis por, No Shows  
All as abv.

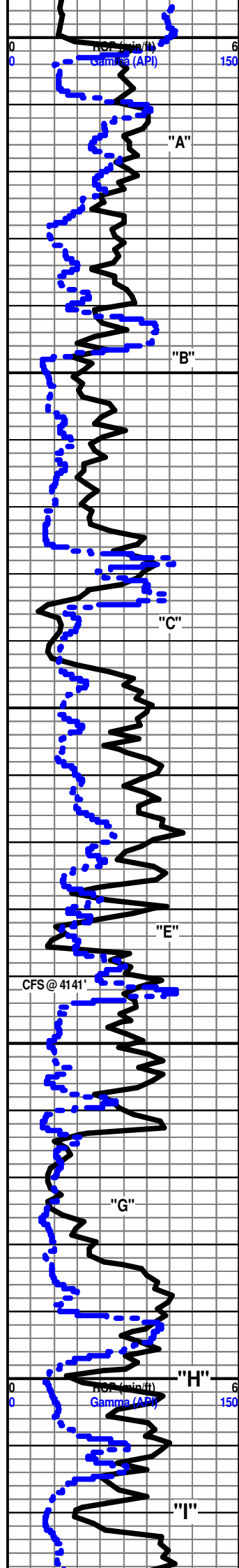
Mainly SS or Slst, lt gray, well calcite cmted, v fg, rnd to sub rounded, poor sorted Qtz gains, verty "dirty" looking also has unk plant carbon fossils, also breaks along layers of bl (biotite) mica minerals, increase in Sh dk gray. sandy, evidence of larger more coarse Ss present, subrounded grains probably weakly cemented, Trace Sh bl carb, All no shows.

Large Qtz Ss grains absent in sample, decrease in Ss vfg as abv increase in Sh med gray sl sandy,  
**Douglas Ss or Siltstone 3972 (-2008)**

Mainly Ss or Slst, lt gray, well calcite cmted, v fg to med grain, rnd to sub rounded, poor sorted Qtz gains, verty "dirty" looking also has unk plant carbon fossils or dark minerals, prob (biotite) mica minerals, Several pieces have very lt yellow cal min Flour, Also saw possible sm l gas bubbles, (Had No Solvent Oil Cut), Sh dk gray. very sandy, Slst lt gray to br, with micro convoluted bedding, poorly sorted grains, well cmted, clay like, Trace Sh bl carb, No Odor, Therefore All no shows.

TG, C1-C5 100





4000  
4050  
4100  
4150  
4200

**IATAN (BROWN LIME 4001' (2037))**

Ls off white to light br, lith no vis por, Also Ls dk br, fine to med grain, poorly sorted cal grains, sl foss, poor to no inter gran por, also with clear med size embedded round qtz grains. Sh dk grav. All no shows.

**LANSING 4110' (- 2046)**

4020 Sample: Conn at 4022', Lots of fine grained Ss cavings from abv, Sh dk gray, Ls dk br, granular, very foss, crinoid stems, rexn, Poor to good inter gran por seen and Ls med br, very foss, rexn, poor inter gran por seen, No Flour, No Shows

Ls med br to dk br, Lith matrix, very foss, crin, forms, re xln, very gran, fair inter gran por, Ls Lt gray Lith, no vis por, Sh dk gray sandy, Ss cavings from abv, No Shows

Ls dk br, lith matrix, very oolitic, also foss, poor to fair vis por, Ls med br, gran well cmted, poor inter gran por, Sh dk gray

Ls med br lith, gran in part, poor inter gran por, Sh dk gray, Sh bl carb, Ls lt br, lith sl chlky in part, No shows

**Lansing B 4043 (-2079) (+3)**

LS med br, med xln, and lith, no vis por to trace poor por, , Sh bl carb, No shows

Circulate for samples at 4060', back to drilling at 3:36 am  
15 min sample: peak gas kick at 70.2, Ls med br, very gran med grain, foss in part, poor inter gran por, No odor, stain or free oil seen in rocks, saw trace gas bubbles, Tried to get a solvent cut several times, No shows except trace of gas bubbles.

40 min Sample: Has distict pet odor, Ls med br, foss, gran, poor inter gran por, LS med xln good inter gran por, Chert trans luc, extem oolitic, trace gas bubles, No other shows noted.

60 min Sample: Odor as abv, Ls med br as abv, Ls off wh, No other shows noted

Sample at 4070 LS off with free ooiite gains in chlky like matrix, No Shows

4080' Sample: Ls med br, lith to med xln, no vis por, Sh bl carb, Ls off wh med xln, gran chlky nno vis por,

**Lansing C Zone 4082 (-2118), (+7)**

Ls med br, very oolitic, in a Lith matrix, No vis por, Ls of wh, soft with dk rexn oolites floating in matrix, No vis por, Chert transluc, with dk oolites, No vis por, Sh dk gray

Ls dk br very oolitic, No show, lots of Sh dk gray, Sh bl carb,

4110' Sample: Ls off wh , f to med xln, poor to fair por, sh bl carb, Saw 1 piece of Ls off white, chlky with a possible stain (Got no solvent cut), No shows

4110' Sample: Ls off wh , f to med xln, poor to fair por, sh bl carb, Saw 1 piece of Ls off white, chlky with a possible stain (Got no solvent cut), No shows

4120' Sample: Ls Ls off wh vfxln re xln, No por, Sh dk gray, Ls med to dk br, lith No por to trace of xln por, also chlky in part, No shows

4130' Sample Ls off wh, med xln rexn, one sample shows micro bedded layer with Sh dk gray, poor to fair inter gran por, No Shows

**Lan E at 4131 (-2167) (+4)**

Ls off wh, med xln, lith in part also with med Cal min xlns in part, indicating excell vug por., Ls dk br dnse, sl oolitic well cry, No vis por, All No Shows

Circulate at 4141' for Sample evaluation: of E zone.

20 min cir Sample: Ls med br to lt br, lith in part, trace of excell vug por, Ls med lt br, med xln with fair inter gran por, Ls off wh, fxn poor por, Sh bl carb, No shows, Poss very lt odor.

40 min: Lots of cavings, Ls med br, med xln, rexn, poor inter gran por, No Shows

60 min as abv with increase in cavings, back to drilling at 8:36 am

4150' Sample: Ls dl br, lith to vfxln, trace of excel fracture por, Ls off wh, med xln, poor to excell inter gran por, also sl chlky, Sh dk br, No shows

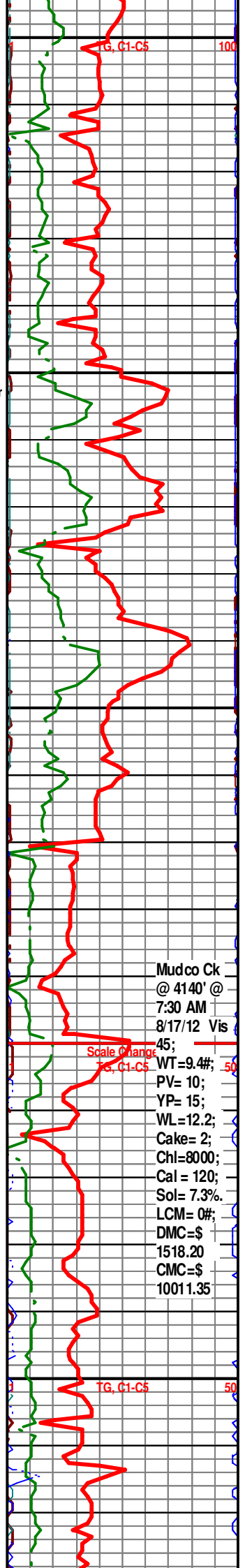
4160' Sample: Ls off wh, fxn, poor inter gran por, LS dk br lith, no vis por, Sh dk gray , No shows.

**Lansing G porosity Zone 4163 (-2199) (+2)**

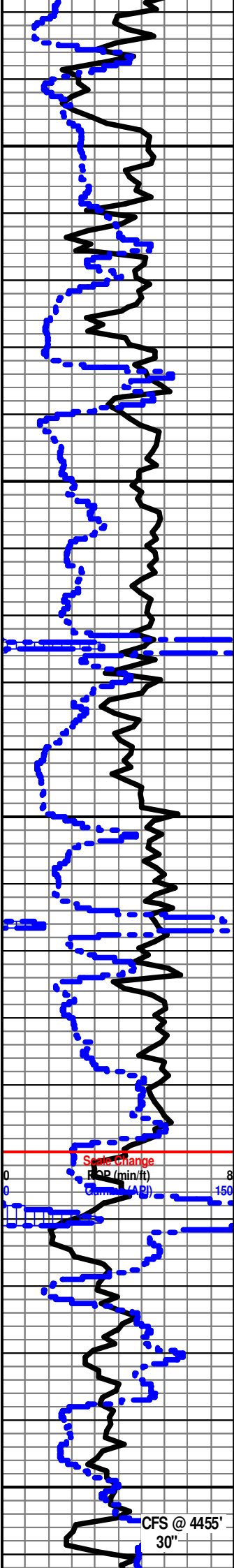
Sample: (20 '), Sample catcher was not catching 10' foot samples as instructed, Ls dk br, gran, frag, re xln oolitic no vis por, Sh dk gray, Ls off wh, med xln, poor inter gran por, Sh bl carb., No shows

4190' Sample: Ls off wh, foss, med grain, poor inter gran por, frag and chlky in part, Sh dk gray, Sh bl carb, very fiss, Ls very lt br, very fg, rexn No por, All no shows,

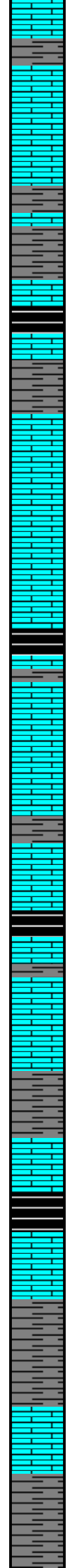
4200' Sample: Mainly sh dk gray, Sh bl carb, Ls med br gran, no vis por, No shows



Mudco Ck @ 4140' @ 7:30 AM 8/17/12 Vis 45; WT=9.4#; PV= 10; YP= 15; WL=12.2; Cake= 2; Chl=8000; Cal = 120; Sol= 7.3%; LCM= 0#; DMC=\$ 1518.20 CMC=\$ 1001.35



4250  
4300  
4350  
4400  
4450



**KANSAS CITY "SWOPE" (K) 4278' (- 2314)**

@ 4230' Geologist Mac Armstrong On Loc Replaced Brian Fisher

Sh Gry-Drk Gry

Ls Cm FxIn Dns Grad Lt Tan MxIn Sli Chky NS

Ls Cm-Lt Tan MxIn Dns No Por

**KANSAS CITY "HERTHA" (L) 4364' (- 2400)**

Sh Gry-Drk Gry

Ls Cm-Tan MxIn Dns No Por

Ls Cm-Tan FxIn Dns Sli Fos (Bry) No Por

Sh Gry-Drk Gry

Ls Cm-Lt Tan FxIn Dns Grad FxIn-MxIn Sli Chky No Por

Ls Cm FxIn Dns Sli Chky No Por

Ls AA

Ls Cm-Lt Tan FxIn-MxIn Sli Chky Sli Fos No Por

**PAWNEE 4434' (- 2470)**

30" CFS @ 4455'

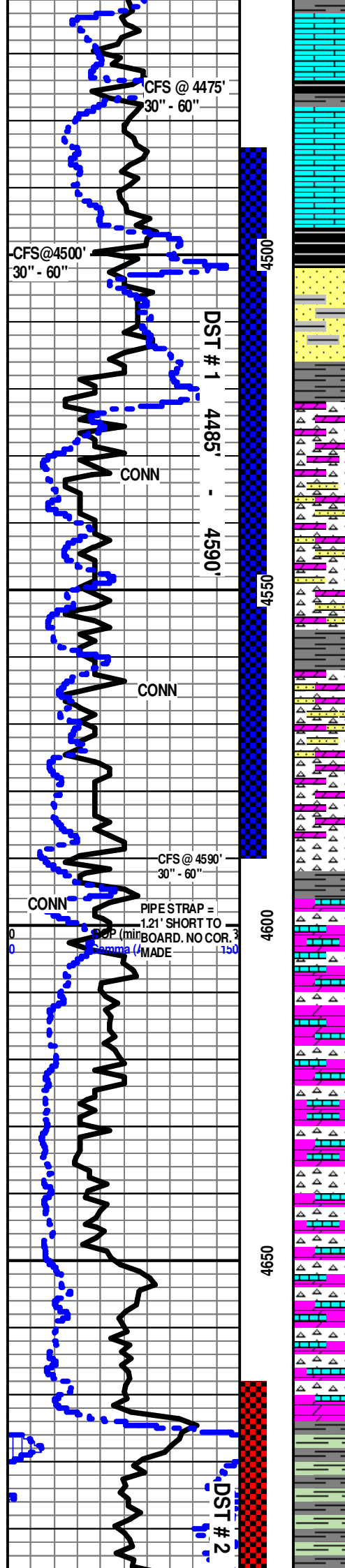
**FORT SCOTT 4460' (- 2496)**

Mudco Ck  
@ 4469' @  
8:00 AM  
8/18/12 Vis  
61;  
WT=9.7#;  
PV= 16;  
YP= 14;  
WL=10.4;  
Cake= 2;  
ChI=7000;  
Cal = 40;

Scale change  
ROP (min/ft)  
0 8  
0 150

CFS @ 4455'  
30"

TG, C1-C5 50



**CHEROKEE SHALE 4496' (- 2532)**

**CHEROKEE SAND 4502' (2538)**

**MARQUOKETA 4523' (- 2559)**

Geologist David P. Williams Replaced Mac Armstrong @ 4554' 8-18-12.

30" CFS @ 4590' Dolo Wht Fxkb Grad Gran Sucrosic Poor lxn Por Cht Wht Trip w/ Hvy Gilsonitic Stn (15% of Tray) w/Poor -Fair Frac Por Qtz Ss Brn-Wht FGm Poor Sort (w/Cht Includ) Ang-Sub Ang Grn Sh Char Gry-Grn Fissil Faint Odor SSG

60" CFS @ 4590' Dolo Wht Fxkb Grad Gran Sucrosic Poor lxn Por Cht Wht Trip w/ Hvy Gilsonitic Stn (15% of Tray) w/Poor -Fair Frac Por Qtz Ss Brn-Wht FGm Poor Sort (w/Cht Includ) Ang-Sub Ang Grn Sh Char Gry-Grn Fissil Faint Odor SSG

**VIOLA 4596' (- 2632)**

Cht Bone Wht-Gry Op Vit Shp (w/Tr scatt Brn Stn AA) Dolo Wht-Crm FxIn Poor lxn Sucrosic Por Barren Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren Chalk Wht Soft (Abd) Sh Char-Aqua Fissil ? Faint Odor No Flor Tr ? Scatt Stn NS

Cht Bone Wht-Gry Op Vit Shp (w/Tr scatt Brn Stn AA) Dolo Wht-Crm FxIn Poor lxn Sucrosic Por Barren Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren Chalk Wht Soft (Abd) Sh Char-Aqua Fissil ? Faint Odor No Flor Tr ? Scatt Stn NS

Cht Bone Wht Op VitShp (w/Tr scatt Brn Stn AA) Dolo Wht FxIn Poor lxn Sucrosic Por Barren Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren Chalk Wht Soft (Abd) Sh Char-Aqua Fissil ? Faint Odor No Flor Tr ? Scatt Stn NS

Cht Bone Wht Op VitShp (w/Tr scatt Brn Stn AA) Dolo Wht FxIn Poor lxn Sucrosic Por Barren Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren Chalk Wht Soft (Abd) Sh Char-Aqua Fissil ? Faint Odor No Flor Tr ? Scatt (4 Pcs) Stn NS

Cht Bone Wht Op VitShp (w/Tr scatt Brn Stn AA) Dolo Wht FxIn Poor lxn Sucrosic Por Barren Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren Chalk Wht Soft (Abd) Sh Char-Aqua Fissil ? Faint Odor No Flor Tr Scatt Stn NS

Cht Bone Wht Op VitShp (w/Tr scatt Brn Stn AA) Dolo Wht FxIn Poor lxn Sucrosic Por Barren Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren Chalk Wht Soft (Abd) Sh Char-Aqua Fissil Inc ? Faint Odor No Flor Tr Scatt Stn NS

Cht Bone Wht Op VitShp (w/Tr scatt Brn Stn AA) Dolo Wht FxIn Poor lxn Sucrosic Por Barren Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren Chalk Wht Soft (Abd) Sh Char-Aqua Fissil Inc ? Faint Odor No Flor Tr Scatt Stn NS

**SIMPSON SHALE 4675' (- 2711)**

Sh Char-Gry-Drab Grn-Aqua Fissil Cht Bone Wht Op Vit Shp (w/Tr scatt Brn Stn AA) Dolo Wht FxIn Poor lxn Sucrosic Por Barren AA Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren AA Chalk Wht Soft No Odor No Flor Tr Scatt Stn AA NS

Sh Char-Gry-Drab Grn-Aqua (Inc) Fissil Cht Bone Wht Op Vit Shp (w/Tr scatt Brn Stn AA) Dolo Wht FxIn Poor lxn Sucrosic Por Barren AA Grad Ls Wht-Crm FxIn-MicroxIn Dns Micrite Barren AA Chalk Wht Soft No Odor No Flor Tr Scatt Stn AA NS

Sol= 9.4%  
LCM= 0#;  
DMC=\$  
2529.65  
CMC=\$  
12540.65

DST #1 4485'-4590'

Times:  
30"-45"-30"-45"  
Blow: IF= Weak  
1/4"; FF=No Blow"  
Recovery: 5' M.  
Pressures: IH=  
2230#; FH=  
2183#; IF =  
22-25#;  
FF = 25-26#  
ISIP = 52#; FSIP  
= 38#; Temp= 118  
degrees

GAS KICK =  
26 UNIT

Mudco Ck  
@ 4590' @  
7:45 AM  
8/19/12 Vis  
50;  
WT=9.5#;  
PV= 18;  
YP= 18;  
WL= 8.8;  
Cake= 1;  
Chl=7000;  
Cal = 40;  
Sol= 8.1%.  
LCM= 2#;  
DMC=\$  
1512.10  
CMC=\$  
14052.75

TG, C1-C2

Mudco Ck  
@ 4721' @  
9:45 AM  
8/20/12  
Vis 64;  
WT=9.5#;  
PV= 20;  
YP= 22;  
WL= 10.8;  
Cake= 2;  
Chl=7000;  
Cal = 160;  
Sol= 8.0%.  
LCM= 2#;  
DMC=\$  
1125.85  
CMC=\$  
15178.60

DST #2 4668'-4721'

Times:  
30"-45"-60"-60"  
Blow: IF= Weak  
1/2" Building/2.5";  
FF= Weak 1/2"  
Building/3".  
Recovery:  
120'G.I.P.; 145' TF:  
(15' CO; 130' OCM  
(18% O & 83% M)).  
Pressures: IH=

Sh Char-Gry-Drab Grn-Aqua (Inc) Fissil Cht Bone Wht Op Vit Shp (w/Tr scatt Brn Stn AA)  
 Dolo Wht Fxln Poor lxn Sucrosic Por Barren AA Grad Ls Wht-Crm Fxln-Microxln Dns  
 Micrite Barren AA Chalk Wht Soft No Odor No Flor Tr Scatt Stn AA NS

2301#; FH=  
 2292#; IF =  
 24-52#;  
 FF = 57-87#  
 ISIP = 1385#;  
 FSIP = 1365#;  
 Temp = 122  
 degrees. Oil Grv. =  
 31.3

### SIMPSON SAND 4710' (- 2748' )

30" CFS @ 4621' Qtz Ss Wht-Frosted-Clear Med Ang/Sub Ang Friable Clusters Fair-Med  
 IGran Por Fair Sort w/SSG/SSO (Both Gas & Oil Do Not Flor) Tr (Few Pcs) Fair  
 Carb/Gillsonitic Residue Fair CaCo3 Matrix Cmt No Odor Sil-Fair SG/SO

60" CFS @ 4621' Qtz Ss Wht-Frosted-Clear Lg-Med Ang/Sub Ang Friable Clusters Fair-Med  
 IGran Por (w/Pyr Inclus) Med-Well Sort w/Inc Fair-Med SG/SO (Both Gas & Oil Do Not Flor)  
 SG & SO (Drk-Med Brn) w/FO (In Tray Under Wtr w/Heat) Med-Hvy Carb/Gillsonitic Residue  
 Poor CaCo3 Matrix Cmt No Odor Med-Good SG/SO

Sh Aqua (V Abd)-Char-Red ? Sluff Fissil Qtz SS AA Clusters Grad Small Grns Well Rd Well  
 Sort w/SG/SO AA Tr Cht Wht AA Ls.Dolo AA No Odor No Stn No Flor NS

Sh Aqua (V Abd)-Char-Red ? Sluff Fissil Qtz SS AA Clusters Grad Small Grns Well Rd Well  
 Sort w/SG/SO AA Tr Cht Wht AA Ls.Dolo AA No Odor No Stn No Flor NS

Sh Aqua (V Abd)-Char-Red ? Sluff Fissil Qtz SS AA Clusters Grad Small Grns Well Rd Well  
 Sort (w/Pyr Inclus) AA Tr Cht Wht AA Ls.Dolo AA No Odor No Stn No Flor NS

Sh Aqua (V Abd)-Char-Red ? Sluff Fissil Qtz SS AA Clusters Grad Small Grns Well Rd Well  
 Sort (w/Pyr Inclus) AA Tr Cht Wht AA Ls.Dolo AA Pyr Mass No Odor No Stn No Flor NS

### ARBUCKLE 4771' (- 2807)

Dolo Crn-Tan FnlN-Microxln Micritic Grad Poor lxn Sucrosic Por Barren  
 Cht AA Qtz Ss AA (w/Pyr Inclus) Sh AA No Odor No Stn No Flor NS

Dolo Crn-Tan FnlN-Microxln Micritic Grad Poor lxn Sucrosic Por Barren  
 (w/Pyr Inclus) Cht AA Qtz Ss AA (w/Pyr Inclus) Sh AA No Odor No Stn No Flor NS

Dolo Crn-Tan FnlN-Microxln Micritic Grad Poor lxn Sucrosic Por Barren  
 (w/Pyr Inclus) Cht Wht Op Shp Vit Inc Tr/Qtz Ss Wht FGrn Barren Sh AA  
 No Odor No Stn No Flor NS

Dolo Crn-Tan FnlN-Microxln Micritic Grad Poor lxn Sucrosic Por Barren  
 (w/Pyr Inclus) Cht Wht Op Shp Vit Inc Tr/Qtz Ss Wht FGrn Barren Sh AA  
 No Odor No Stn No Flor NS

30" CFS @ 4830' Dolo Crn-Tan FnlN-Microxln Micritic Grad Poor lxn  
 Sucrosic Por Barren (w/Pyr Inclus) Cht Wht Op Shp Vit Inc Tr/Qtz Ss Wht  
 FGrn Barren Sh AA No Odor No Stn No Flor NS

60" & 75" CFS @ 4830' Dolo Crn-Tan FnlN-Microxln Micritic Grad Poor lxn  
 Sucrosic Por Barren (w/Pyr Inclus) Cht Wht Op Shp Vit Inc Tr/Qtz Ss Wht  
 FGrn Barren Sh AA No Odor No Stn No Flor NS

Electric Logs Run: By Logtech Logging

Dual Induction; Compensated Density-Neutron; Microresistivity & Sonic  
 Logs were Run.

TRIP GAS &  
 DST FLUID  
 CARRY-ROUND

TG, C1-C5 50

