

LITHOLOGY STRIP LOG

WellSight Systems

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

Well Name: Thompson 'C' #2-16
Location: 555' FNL & 2235' FWL, Sec. 16-T33S-R13W, Barber Co., KS.
Licence Number: 15-007-24122-00-00 Region: Medicine Lodge-Boggs
Spud Date: 12/27/2013 Drilling Completed: 1/6/2014
Surface Coordinates: 555' FNL & 2235' FWL, Sec. 16-T33S-R13W

Bottom Hole Same as above
Coordinates:
Ground Elevation (ft): 1811' K.B. Elevation (ft): 1820'
Logged Interval (ft): 3400' To: 5162' Total Depth (ft): 5162'
Formation: Simpson Formation at Total Depth
Type of Drilling Fluid: Freshwater/Gel to 3375'; Chemical Gel 3375' to 5162'

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OPERATOR

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GEOLOGIST

Name: Jon D. Christensen
Company: Consulting Petroleum Geologist
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Wichita, KS. 67205-8856

Cores

None Taken

DSTs

DST #1(Kansas City Swope) 4527' - 4552'(Corrected Depths to Log) Test Times 15"-45"-45"-90" IFP Strong Blow BOB/4 Min., FFP Strong Blow BOB/45 Sec., no Gas to Surface, 0.5" Blowback on FSI; REC: 1550' Gas in Pipe, 122' OCM(2%O, 98%M), 120' OCMSW(2%O, 14%M, 84%W) CI 96,000, Mud 5000; IFP 66-62#, ISIP 1557#, FFP 60-109#, FSIP 1541#, IHP 2303#, FHP 2246#, BHT 120 Deg. F.

DST #2(Conglomerate/Reworked Miss.) 4670' - 4702'(Corrected Depth to Log) Test Times 15"-45"-45"-90" IFP Weak to Fair 6" Blow, 3" Blowback on ISI; FFP Weak Blow Built to 6", 1" Blowback on FSI; REC: 2316' Gas in Pipe, 15' VSOCM(1%O, 99%M), no Water; IFP 17-20#, ISIP 82#, FFP 18-23#, FSIP 379#, IHP 2368#, FHP 2387#, BHT 120 Deg. F.

DST #3(Viola) 5001' - 5041'(Corrected Depths to Log) Test Times 15"-45"-30"-60" IFP Weak 0.75" Blow, FFP 0.25" Blow, no Blowback on SI's; REC: No Gas in Pipe, 65' SGCM(2%G, 98%M), no oil shows; IFP 52-61#, ISIP 827#, FFP 61-68#, FSIP 190#, IHP 2656#, FHP 2526#, BHT 120 Deg. F.

Comments

12/23/13 MIRU Sterling Drilling Rig #4; 12/24 through 12/26/13 Shut down for Christmas Holiday; 12/27/13 Spud at 11:00 AM.; 12/28/13 TD. 260' - WOC; 12/29/13 Drilling at 1885'; 12/30/13 Drilling at 3223'; 12/31/13 Drilling at 4030'; 1/1/14 TD. 4550' - Circ. for Samples; 1/2/14 TD. 4550' - TIH after DST #1; 1/3/14 TD. 4700' - DST #2; 1/4/14 Drilling at 4835'; 1/5/14 TD. 5040' - TOH for DST #3; 1/6/14 Drilling at 5135' - Reached Total Depth of 5162' at 12:30 PM., Run Nabors Co. Logs - LTD. 5162'; 1/7/14 RTD. 5162', LTD. 5162' - TIH after Logs, will set Production Casing.

Set new 13 3/8"(55#) Surface Casing at 257' with 300 sx. of cement(Allied Cementing). Cement did Circulate. PD. at 9:45 PM. on 12/27/13.

Set new 4 1/2"(11.6#) Production Casing at 5040' with 250 sx. of "Loeb Blend" cement(Basic Energy Services). PD. at 10:00 PM. on 11/7/14.

Surveys: 1 Deg. at 260'(Surface Casing); 5.25 Deg. at 4550'(DST #1); 4.75 Deg. at 4700'(DST #2); 1.75 Deg. at 5040'(DST #3); 1.0 Deg. at 5162'(RTD).


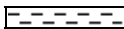


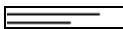
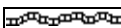




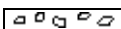
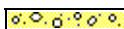



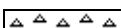



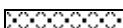
Pipe Strap at 4700'(DST #2): Strap 0.99' Short to the Board, no Correction made to the Board.

After review of the Nabor's Logs, DST data, and indications of commercial amounts of recoverable hydrocarbons, the operator elected to set new 4 1/2" Production Casing for completion in the Basal Penn. Conglomerate and Miss. Chert zones. The Swope zone tested in DST #1 should be perforated and treated prior to abandonment of the Thompson 'C' #2-16.














































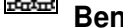

























LOG TOPS: Chase 2185(-365), Wabaunsee 3078(-1258), Howard 3491(-1671), Lecompton 3760(-1940), Elgin Sand 3878(-2058), Heebner Shale 3978(-2158), Snyderville Sand 3979(-2159), Toronto 3998(-2178), Upper Douglas Sand 4048(-2228), Lower Douglas Sand 4139(-2319), Brown Lmst. 4154(-2334), Lansing 4164(-2344), Stark Shale 4530(-2710), Swope 4535(-2715), Base Kansas City 4624(-2804), Massey Zone 4635(-2815), Basal Penn. Conglomerate 4670(-2850), Miss. Chert 4696(-2876), Kinderhook Shale 4898(-3078), Woodford 4942(-3122), Viola 5003(-3183), Simpson Shale 5104(-3284), Simpson Sand 5132(-3312).

NOTE: This log was shifted downward by 1' to 3' for correlation purposes with the Nabors Co. LOGS.

ROCK TYPES

 Anhy	 Clyst	 Gyp	 Mrlst	 Shgy
 Bent	 Coal	 Igne	 Salt	 Sltst
 Brec	 Congl	 Lmst	 Shale	 Ss
 Cht	 Dol	 Meta	 Shcol	 Till

ACCESSORIES

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

OTHER SYMBOLS

- POROSITY**
 [E] Earthy
 [F] Fenest
 [X] Fracture
 [I] Inter
 [M] Moldic
 [O] Organic
 [P] Pinpoint

[V] Vuggy

- SORTING**
 [W] Well
 [M] Moderate
 [P] Poor

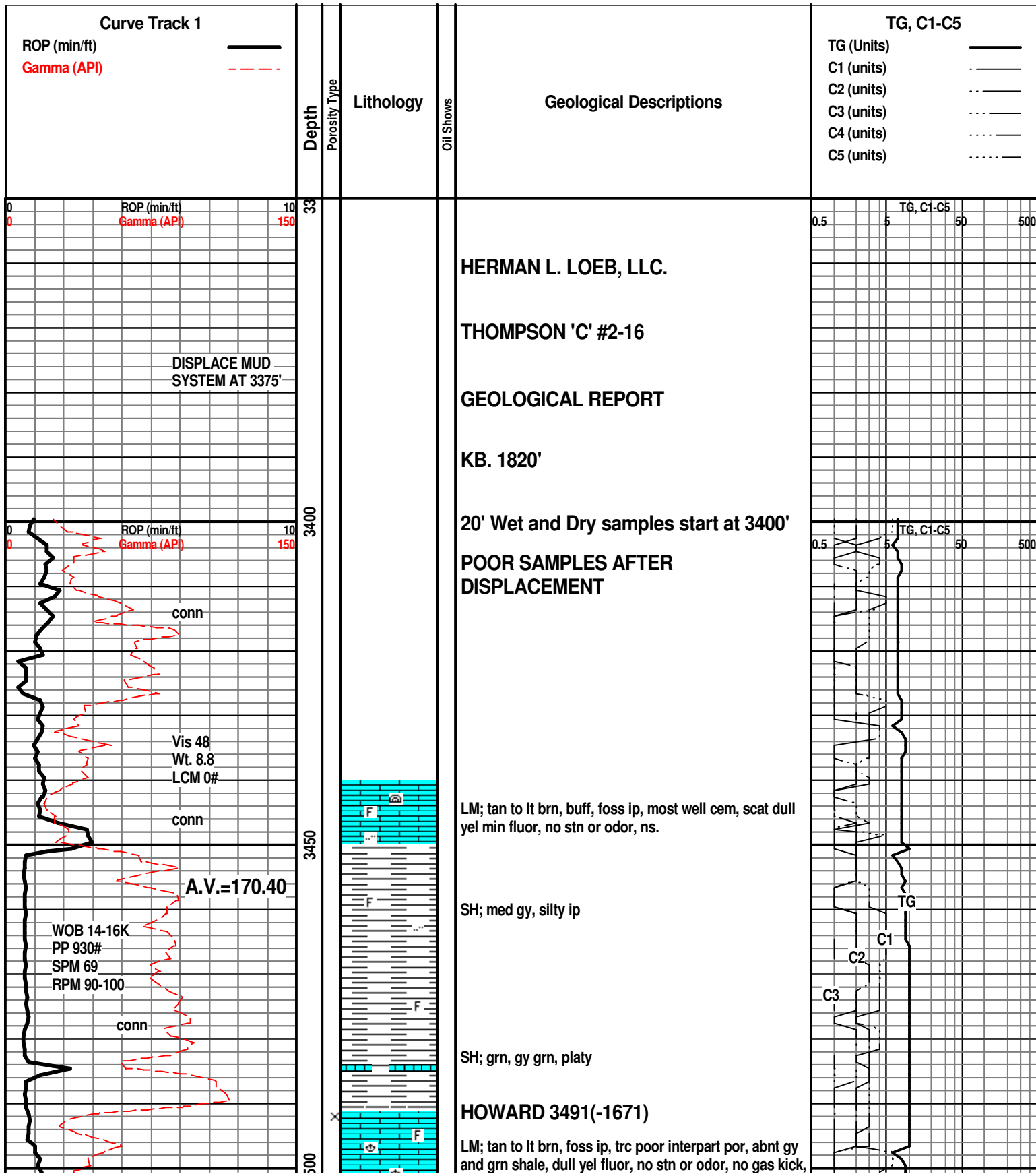
- ROUNDING**
 [R] Rounded
 [r] Subrnd
 [a] Subang
 [A] Angular

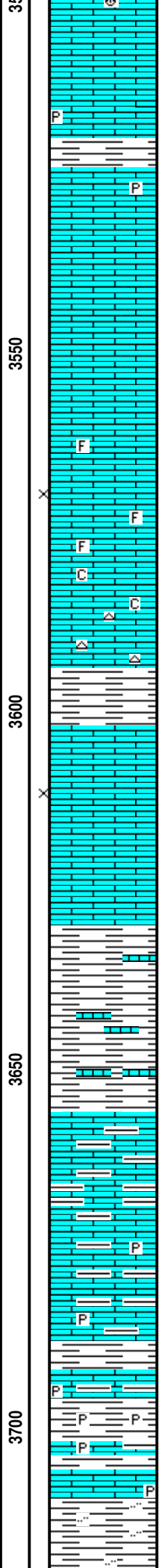
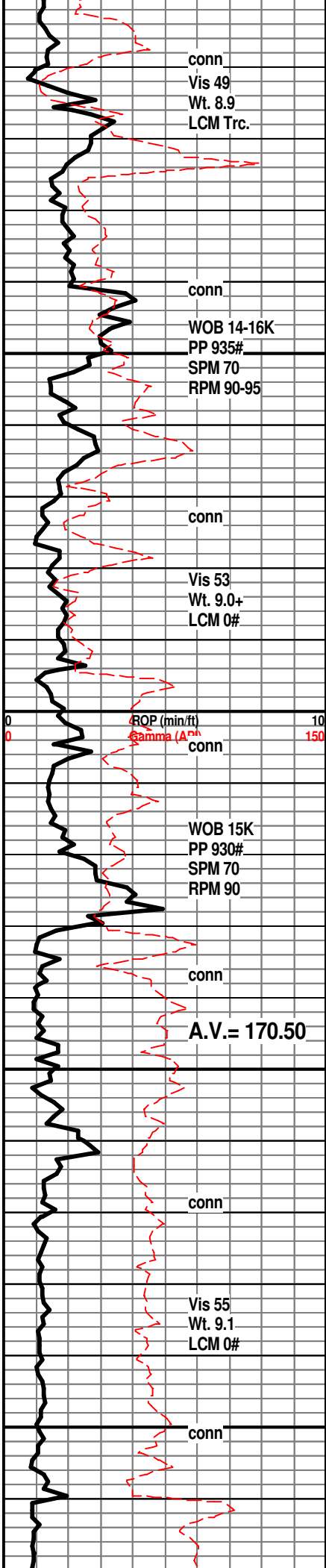
OIL SHOW
 [●] Even

- [●] Spotted
 [○] Ques
 [D] Dead

- INTERVAL**
 [■] Core
 [□] Dst

- EVENT**
 [▽] Rft
 [▲] Sidewall





ns.

LM; med brn, dense, occ pyr, hd, no vis por, abnt gy shales(75 - 80% shale in samples)

LM; tan to lt brn, hd, micritic ip, most dense, no vis por, ns.

LM; lt to med brn, blocky, rare well cem foss, trc poor interpart por, most dense, tite

LM; wh, off wh, tan, fxln w/scat off wh/lt gy cht, most dense, minor chalky mtx, dull yel fluor, no stn or odor, ns.

SH; med gy, platy

LM; tan to off wh, buff, fxln w/rare interxln por, much dense, no fluor, ns.

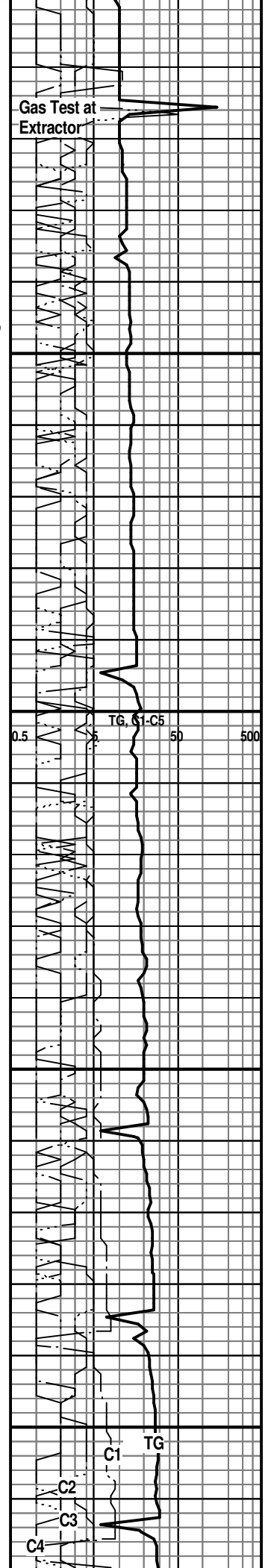
SH; med to dk gy, gy brn, lmy ip, firm

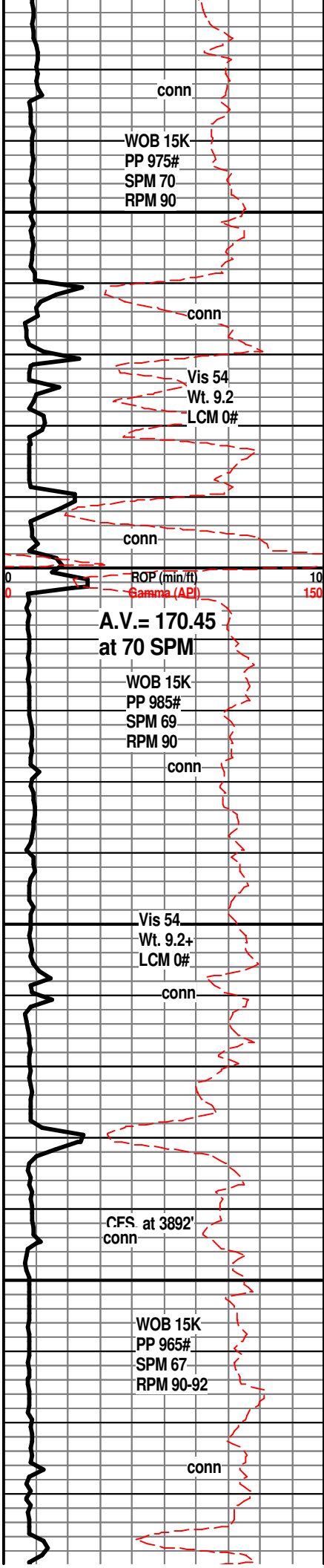
LM; med to dk gy brn, blocky, argil thru

LM; med to dk gy, gy brn, v. shaly ip, firm, scat pyr

SH; med/dk gy, platy, occ pyr, abnt lmy sh and shaly lmst.

SH; lt to med gy, silty ip, platy





3750
3800
3850
3900



SH; lt gy, occ med gy, platy, occ silty

LECOMPTON LMST. 3760(-1940)

LM; med to dk brn, dense, micritic
SH; dk gy, some blk, platy

LM; med brn, occ gritty text, silty ip, interbdd gy shale

SH; dk gy, blk, platy, occ pyr

LM; med gy, dk gy brn, hd
SH; dk gy, blk, platy to blocky, trc gas

ELGIN SHALE 3804(-1984)

SH; lt gy, silty, soft, platy, occ mica

SH; most lt gy, platy, silty, occ mica

SH; lt gy, platy, silty to occ sandy, mica, interbdd hd vf gr qtz ss - well cem, lmy, dense, no vis por, no fluor, ns.

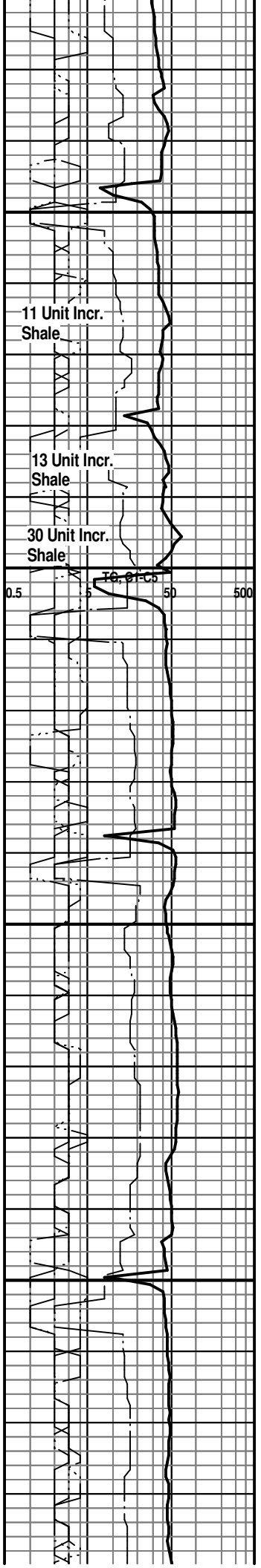
ELGIN SAND 3878(-2058)

SS; lt gy, vf to f gr qtz, most well cem, occ mica, trc trc lmy ss, v. poor intergran por, no fluor, no stn or odor, no gas kick, ns.

SH; lt gy, silty to occ sandy, platy

OREAD LMST. 3936(-2116)

LM; med brn. dense. micritic

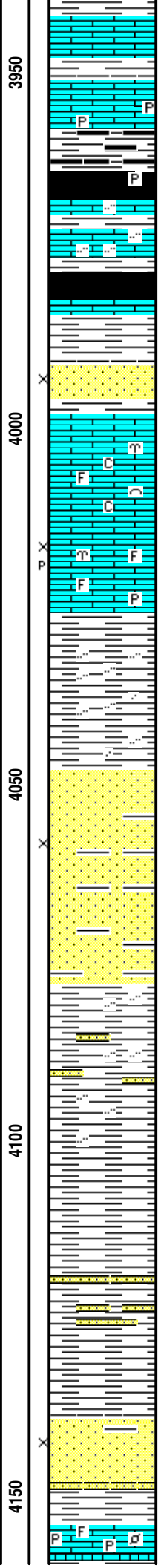
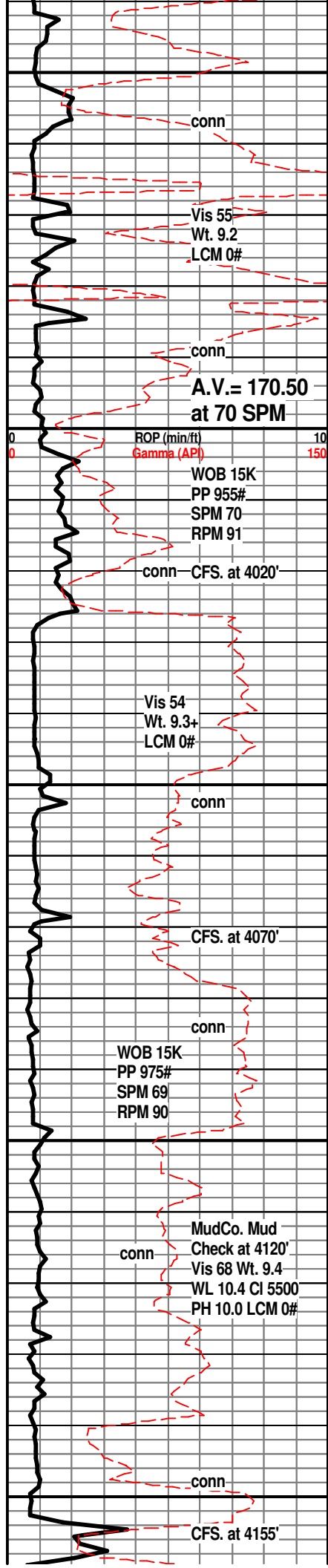


11 Unit Incr. Shale

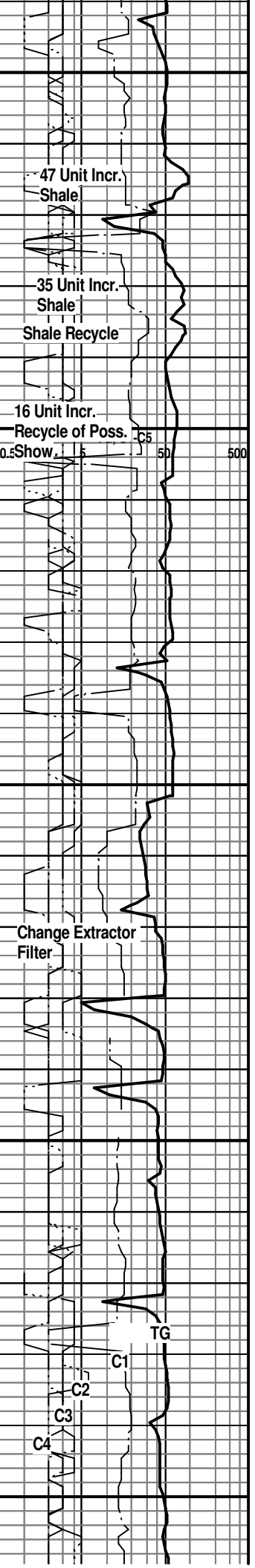
13 Unit Incr. Shale

30 Unit Incr. Shale

TO, 01-C5
0.5 50 500



SH; med to dk gy, firm, platy
 LM; med to dk brn, pyr ip, dense
 SH; dk gy - blk, carb ip, platy, rare pyr, trc gas
 LM; med gy, med brn, hd, some gritty text
HEEBNER SHALE 3978(-2158)
 SH; blk, carb, trc gas
 LM; med to dk brn, v. hd, blocky
SNYDERVILLE SAND 3979(-2159)
 SS; lt gy, vf gr, qtz, clusters, soft, fair to occ gd intergran por, no stn or odor, no fluor, no vis gas bubbles/no apparent gas kick
TORONTO 3998(-2178)
 LM; tan to off wh, wh, foss ip, most well cem, lt yel min fluor, no vis por, minor chalky mtx, no stn or odor, ns.
 LM; off wh, foss, scat fair p-p and interpart por, lt yel/wh min fluor, no stn, ns.
DOUGLAS SHALE 4026(-2206)
 SH; lt to med gy, platy, occ silty to sandy
UPPER DOUGLAS SAND 4048(-2228)
 SS; lt gy, vf to f gr qtz, mica ip, fair to occ gd vis intergran por, interbdd shaly ss w/scat carb strks, subrnd gr, no fluor, no stn or odor, no gas kick, barren, ns.
 SH; med gy, smooth, occ silty to sandy
 SH; med gy, platy, sandy ip, occ mica
 SH; lt to med gy, sandy w/interbdd lt gy ss strngs, mica ip, some argil ss
LOWER DOUGLAS SAND 4139(-2319)
 SS; lt gy, most f gr qtz, clusters, some "salt & pepper" gr, subrnd, fair to gd intergran por, no fluor, no stn or odor, no gas kick
BROWN LMST. 4154(-2334)
 LM; med brn, foss ip, dense, occ pyr



A.V. = 170.55

Vis 68
Wt. 9.3
LCM 0#
conn

CFS. at 4185'

ROP (min/ft)
Gamma (API)

conn
WOB 15K
PP 1000#
SPM 70
RPM 90

conn

Vis 51
Wt. 9.3+
LCM 0#

conn

WOB 15K
PP 1000#
SPM 70
RPM 90

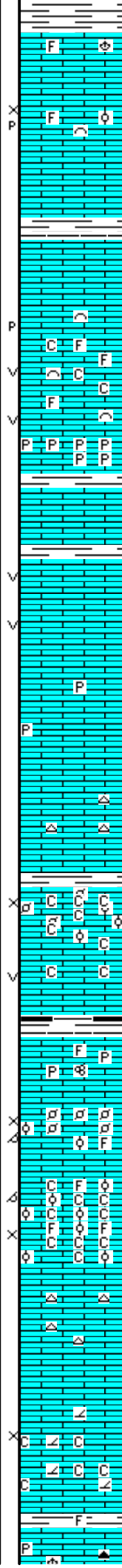
conn

conn
Vis 53
Wt. 9.3
LCM 0#

A.V. = 170.60
at 70 SPM

conn

4200
4250
4300
4350



LANSING 'A' 4164(-2344)

LM; tan to lt brn, buff, fxln w/scat foss mat, most well cem, no vis por, dull yel/wh fluor, ns.

LM; tan to lt brn, buff, foss w/scat fair interpart and p-p por, trc v. spotted dk brn oil stn, no odor, no apparent gas kick, most looks tite, weak to no cut, no live shows

LANSING 'B' 4193(-2373)

LM; tan to lt brn, foss ip, some dense - micritic, blocky, no vis por, ns.

LM; tan to buff, off wh, foss w/fair to occ gd p-p and vug por, minor soft chalky mtx, dull to lt yel min fluor, no stn or odor, no gas kick, ns.

LM; med brn, blocky, abnt pyr, hd, no vis por, ns

LM; tan to lt brn, fxln, few pcs w/gd vug - leached por, occ cse spar calc xtals, dull yel fluor, no stn or odor, ns.

LM; tan to lt brn, blocky, dense, scat pyr, hd, no vis por, ns.

Start 10' Wet/Dry Samples at 4270'

LM; lt to med brn, hd, blocky, scat off wh cht, tite

LM; tan to off wh, buff, fxln w/occ pellets/oolites, fair interpart por, interbdd soft chalk and chalky mtx, scat lt yel min fluor, no stn or odor, no sample shows

LM; tan to buff, off wh, f to med xln, scat gd interxln w/occ vug por, minor chalky mtx, no fluor, ns.

SH; v. dk gy/blk, carb ip. platy

LM; tan to lt brn, foss ip, hd, well cem, scat pyr

LM; lt brn, v. foss w/scat ooids/pellets, gd interpart por, rare oomoldic por, lt to med yel min fluor, no vis stn, no odor, ns.

LM; tan to lt brn, buff, highly foss/partly oolitic, gd interpart w/occ oomoldic por, much soft chalky and chalky mtx, dull/lt yel min fluor, no stn, ns.

LM; lt gy, lt brn, dense, micritic, scat tan cht

LM; off wh, wh, buff, fxln to sucrosic text, v. soft ip w/fair interxln por, trc dolomitic lmst, v. dull yel/wh min fluor, minor chalky mtx, no stn, ns.

SH; grn, gy grn, platy, foss ip.

LM; med to dk brn, gy brn, hd, pyr ip, tite, rare amber

TG, C1-C5
0.5 5 50 500

7 Unit Incr.

6 Unit Incr. Shale

WOB 14-16K
PP 1000#
SPM 70
RPM 90

ROP (min) Conn
Gamma (A)

conn
Vis 58
Wt. 9.4
LCM 0#

conn

WOB 14-16K
PP 1000#
SPM 70
RPM 90

conn
Start Adding LCM
to Mud

Vis 54
Wt. 9.4+
LCM 1#

A.V. = 170.60

conn

DST #1
K.C. Swope
4527' - 4552'
Corrected

CFS. at 4552'
MudCo. Mud
Check at 4552'
Vis 52 Wt. 9.4
WL 10.0 Cl 5000
PH 9.5 LCM 3#

A.V. = 145.00
at 60 SPM

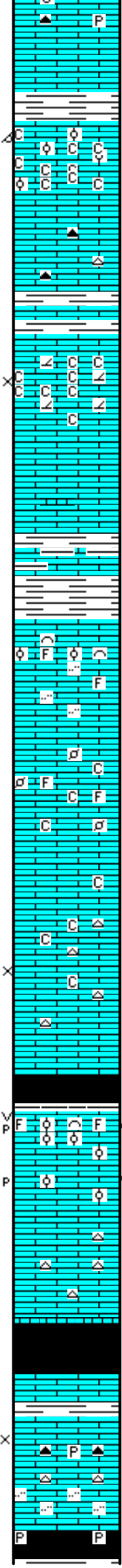
4400

4450

4500

4550

0



cht

K.C. 'H' DRUM 4396(-2576)

LM; tan to lt brn, foss - partly oolitic, small to med size moldic por(rare), much soft chalky mtx, scat dull yel fluor, no stn or odor, no gas kick

LM; med brn, micritic, occ amber/gy cht, no vis por, ns.

LM; off wh, buff, fxln, occ sucrosic text, partly dolomitic, soft, fair interln por, chalky ip w/some very soft sticky chalk, dull yel min fluor, no stn, no sample shows

SH; med to dk gy, gy brn, lmy ip. w/interbdd shaly lmst.

LM; med brn, foss w/ scat cse foss frags, scat well cem oolites, interbdd an/brn cht, no vis por, no fluor, ns.

LM; med to dk brn, dense, some gritty text, dense

LM; tan to buff, lt brn, foss w/occ pellets/scat foss hash, occ soft chalky mtx, lt yel min fluor, no stn or odor, ns.

LM; tan to cream, off wh, gran text w/occ foss mat, fair interln/interpart por, scat lt gy/off wh cht, chalky ip, dull to occ lt yel min fluor, no stn or odor, ns.

STARK SHALE 4530(-2710)

SH; blk, carb, gassy w/fair gas odor

SWOPE 4535(-2715)

LM; tan, lt brn, foss w/well dev. vug and p-p por, gd odor, even lt brn oil stn, SFO, gas bubbles, med to brite yel fluor, gd cut

LM; tan to buff, fxln w/occ small ooids, poor/ fair p-p por, spotted dk brn oil stn, v. faint odor, some barren por

DST #1: K.C. Swope 4527' - 4552'(Corrected Depths to Loa)
NOTE: BUTTON BIT IN AT 4550'

HUSHPUCKNEY SHALE 4565(-2745)

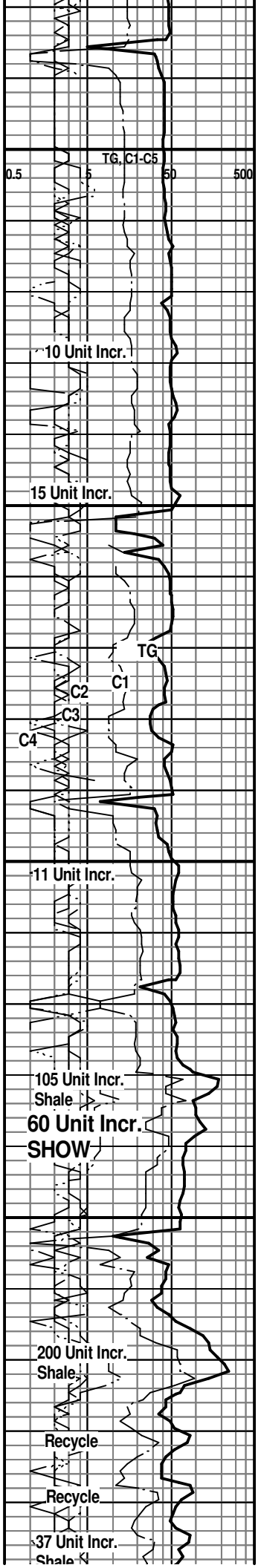
SH; blk, carb, gassy w/gas odor

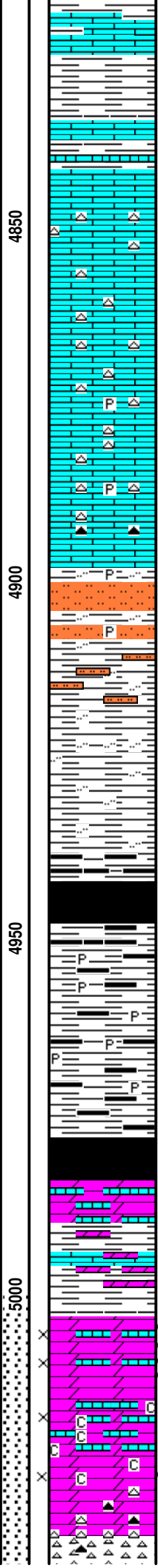
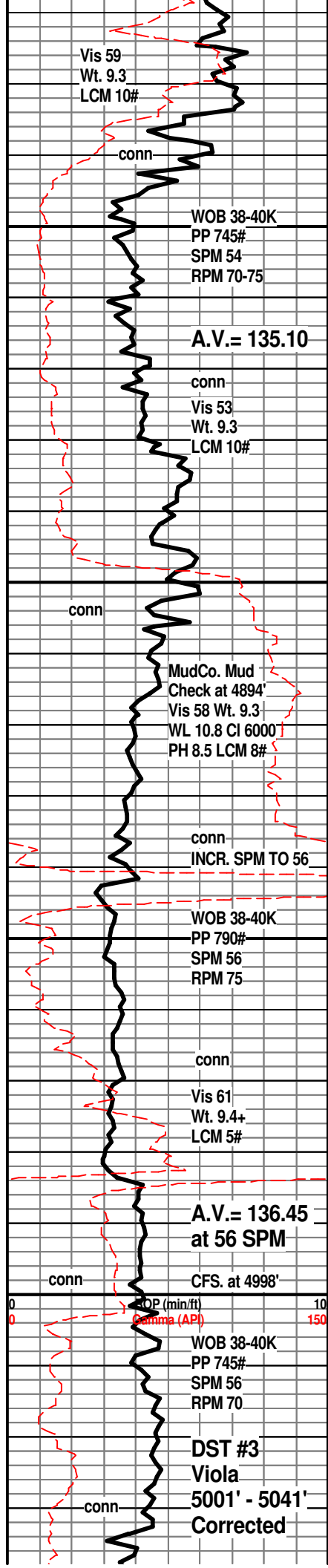
HERTHA 4572(-2752)

LM; med brn, blocky, most dense - micritic, scat spar calc xtals, occ lt yel min fluor, no stn or odor, interbdd brn occ pyr cht, ns.

LM; tan to lt brn, gritty text ip, some silty, hd, no vis por, no fluor, ns.

SH; dk ov. blk. ovr ip. scat foss mat





argil lmst, dense

SH; med grn, gy grn, platy, occ sticky - soft - gumbo

SH; gy grn, grn, platy, rarely silty, interbdd hd argil lmst.

LM; tan to buff, hd, scat off wh/tan fresh cht, dull yel min fluor, no vis por, ns.

LM; tan to lt brn, most dense - litho ip, scat tan to lt gy cht w/pyr incl, occ lt yel min fluor, no vis por, no stn, rare spar calc xtals, ns.

LM; lt brn, buff, dense, litho, hd, cherty ip, no vis por, no fluor, ns.

KINDERHOOK SHALE 4898(-3078)

SH; med to dk gy, occ dk gy grn, occ silty w/interbdd sltst, rare pyr.

SH; med gy, grn, silty w/interbdd sltst, firm

SH; lt to med gy, gy grn, silty, firm

WOODFORD SHALE 4942(-3122)

SH; blk, v. dk brn, carb, gassy odor, flecks of med yel fluor("spores")

SH; v. dk brn - blk, carb, occ dissem pyr, fair hydrocarbon odor

SH; dk gy brn - blk, carb, fairly strong gas/oil odor, occ flecks of med yel fluor

MISENER ZONE 4984(-3164)

LMY DOL; tan, sucrosic, mod. hd, no vis por, w/agril dolo, no fluor, no stn or odor, no gas kick

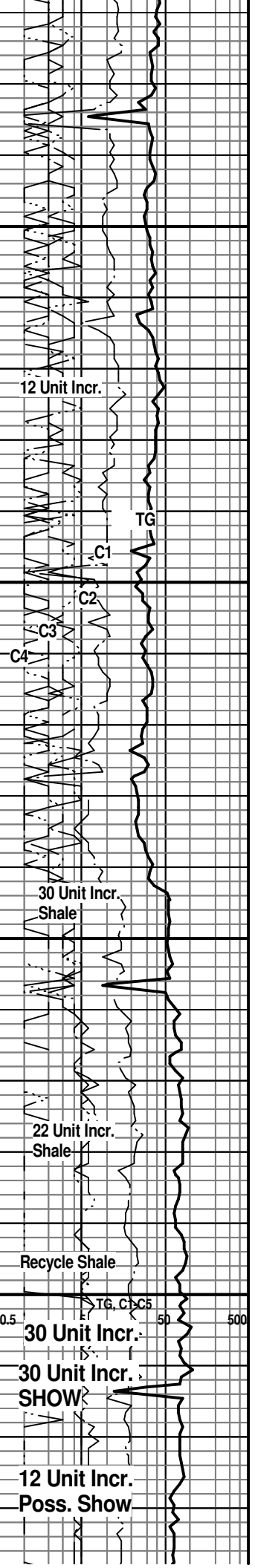
VIOLA 5003(-3183)

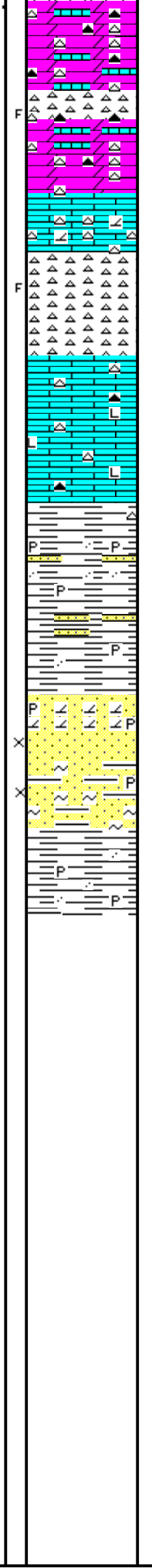
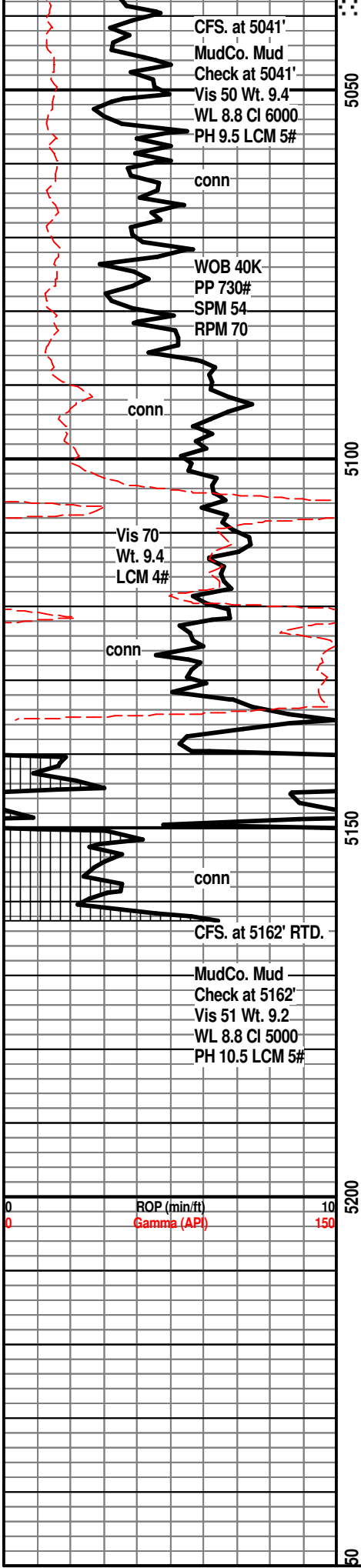
DOL; off wh, tan, lt gy, sucrosic to cse xln, interbdd cse xln dolo. lmst w/spotted to occ even lt brn oil stn, fair odor, lt yel fluor, fair interxln por, Trc. FO.

DOL; tan to lt brn, interbdd off wh partly chalky lmst, fair interxln por, some cse xln dolomitic lmst w/spotted lt brn oil stn, scat brite yel fluor, faint odor

DOL; lt brn, buff, sucrosic, cherty, most tite

CHT; lt brn, gy, fresh, hd, no vis por, no fluor, ns.





DST #3: Viola 5001' - 5041'(Corrected Depths to Log)
 DOL; med brn, v. limy w.scnt gy to lt brn fresh chert, tite, no fluor, ns.
 CHT; dove gy, lt brn, fresh, poss fracs
 DOL; lt brn, sucrosic, lmy ip, scat speckled gy to brn cht, no vis por, no fluor, ns.
 LM; tan to lt brn, fxln, occ cherty, dolomitic, tite
 CHT; lt brn, occ dove gy, all fresh, poss fracs, no vis por, no fluor, ns.
 LM; med brn, hd, cherty ip, most litho, dense

SIMPSON SHALE 5104(-3284)
 SH; grn, waxy ip, occ sandy w/trc dolomitic ss - well cem, occ pyr

SIMPSON SAND 5132(-3312)
 SS; lt gy, f gr, dolomitic, hd, pyr ip, poor to no intergran por, no fluor, no stn or odor, ns.
 SS; clr, med to occ cse gr, qtz, clusters, fair to gd intergran por, rnd gr, no fluor, no stn or odor, no vis gas bubbles(Gas line Frozen - no gas readings), interbdd argil brn/gy brn ss w/occ grn to blk clay(glau) inclusions

SH; sea grn to turquoise, waxy, rare pyr, sandy ip.

RTD. 5162' at 12:30 PM. 1/6/2014

LTD. 5162'

Nabors Co.: DIL, NEU/DEN w/PE, Microlog, Sonic

NOTE: This log was shifted downward by 1' to 3' for correlation purposes with the Narbors Co. Logs

