

LITHOLOGY STRIP LOG

WellSight Systems

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

Well Name: Art Todd #1-20
Location: 472' FSL & 1756' FEL, Sec. 20-T27S-R18W, Kiowa Co., KS.
Licence Number: 15-097-21749-0000 Region: Unnamed Field
Spud Date: 4/16/2013 Drilling Completed: 4/25/2013
Surface Coordinates: 472' FSL & 1756' FEL, Sec. 20-T27S-R18W

Bottom Hole Same as above
Coordinates:
Ground Elevation (ft): 2196' K.B. Elevation (ft): 2207'
Logged Interval (ft): 3350' To: 4900' Total Depth (ft): 4900'
Formation: Kinderhook at Total Depth
Type of Drilling Fluid: Native Mud/Gel to 3176'; Chemical Gel 3176' to 4900'

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

OPERATOR

Company: Herman L. Loeb, LLC.
Address: P.O. Box 838
Lawrenceville, IL. 62439-0838

GEOLOGIST

Name: Jon D. Christensen
Company: Consulting Petroleum Geologist
Address: 9002 W. Silver Hollow St.
Wichita, KS. 67205-8856

Cores

None Taken

DSTs

DST #1(Lansing "A") 4191' - 4208'(Corrected Depths to Log) Test Times 15"-45"-45"-90" IFP Strong Blow BOB/20 Sec. , FFP Strong Blow BOB/30 Sec., no Gas to Surface, 0.5" Blowback on FSI; REC: 2375' Gas in Pipe, 20' GOCWM(9%G, 15%O, 7%W, 69%M), 60' GOCWM(17%G, 13%O, 12%W, 58%M), 60' SG & OCMW(5%G, 2%O, 83%W, 10%M), CI 80,000, Mud 6800; IFP 19-32#, ISIP 1314#, FFP 21-64#, FSIP 1349#, IHP 2143#, FHP 2076#, BHT 117 Deg. F.

DST #2(Kansas City "I") 4386' - 4408'(Corrected Depths to Log) Test Times 15"-45"-45"-90" IFP Strong Blow BOB/2 Min., 2" Blowback on ISI, FFP Strong Blow Gas to Surface in 14", Gauged 12.5 MCFG in 45", BOB Blowback on FSI; REC: 275' GMCO(20%G, 56%O, 4%W, 20%M), 120' SMWO(85%O, 12%W, 3%M), Not enough Water for CI Check - possible Filtrate; IFP 36-66#, ISIP 1248#, FFP 66-154#, FSIP 1240#, IHP 2351#, FHP 2199#, BHT 117 Deg. F.

DST #3(Miss. Chert) 4735' - 4798'(Corrected Depths to Log) Test Times 15"-45"-45"-90" IFP Strong Blow BOB/1 Min., Weak Surface Blowback on ISI, FFP Strong Blow BOB/ 10 Sec. Gas to Surface in 28 Min. Gauged 6.9 MCFG/45" of FFP; REC: 150' SO&GCM(4%G, 1%O, 95%M) no Water; IFP 41-58#, ISIP 1319#, FFP 52-61#, FSIP 1430#, IHP 2532#, FHP 2377#, BHT 125 Deg. F.

Comments

4/15/13 MIRU Sterling Drilling Co. Rig #2, 4/16/13 Spud at 5:00 AM., Trip out for Plugged bit at 164'; 4/17/13 Drilling at 650'; 4/18/13 Drilling at 1933'; 4/19/13 Drilling at 2945'; 4/20/13 Drilling at 3635'; 4/21/13 Drilling at 4196'; 4/22/13 Drilling at 4285'; 4/23/13 TD. 4414' - CCH for DST #2; 4/24/13 Drilling at 4555'; 4/25/13 TD. 4802' - TIH for DST #3; 4/26/13 RTD. 4900'; LTD. 4896', Nipple Down BOB, to Set 5 1/2" Production Casing.

Set new 8 5/8"(24#) Surface Casing at 565' with 350 sx. of Cement(Basic Energy Services). Cement did Circulate. PD. 8:00 PM. on 4/16/13.

Set new 5 1/2"(15.5#) Production Casing at 4893' with 200 sx. Cement(Basic Energy Services). PD. 11:15 PM. on 4/26/13.

Surveys: 0.75 Deg. at 570'(Surface Casing); 0.50 Deg. at 4214'(DST #1); 1.50 Deg. at 4414'(DST #2); 0.50 Deg. at 4802'(DST #3).


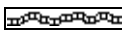
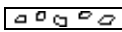
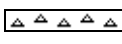
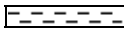







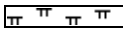

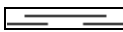
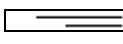
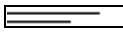



Pipe Strap at 4802'(DST #3): Strap 1.17' Short to the Board, no correction made to the Board.

After review of the Halliburton Logs, DST's, structural position and positive indication of commercial quantities of hydrocarbons, the operator elected to set new 5 1/2"(15.5#) Production Casing for completion in the Miss. Chert, Kansas City "I" and Lansing "A" zones.








































































LOG TOPS: Chase 2433(-226), Stotler Lmst. 3384(-1177), Howard 3588(-1381), Heebner Shale 4030(-1823), Toronto 4045(-1838), Brown Lmst. 4182(-1975), Lansing "A" 4187(-1980), L/KC "H" 4351(-2144), KC. "I" 4396(-2189), Stark Shale 4489(-2282), Swope 4500(-2293), Hertha 4548(-2341), Base Kansas City 4578(-2371), Marmaton 4626(-2419), Pawnee 4672(-2465), Cherokee Shale 4710(-2503), Miss. Chert 4757(-2550), Kinderhook Shale 4815(-2608), Kinderhook Sand 4848(-2641).

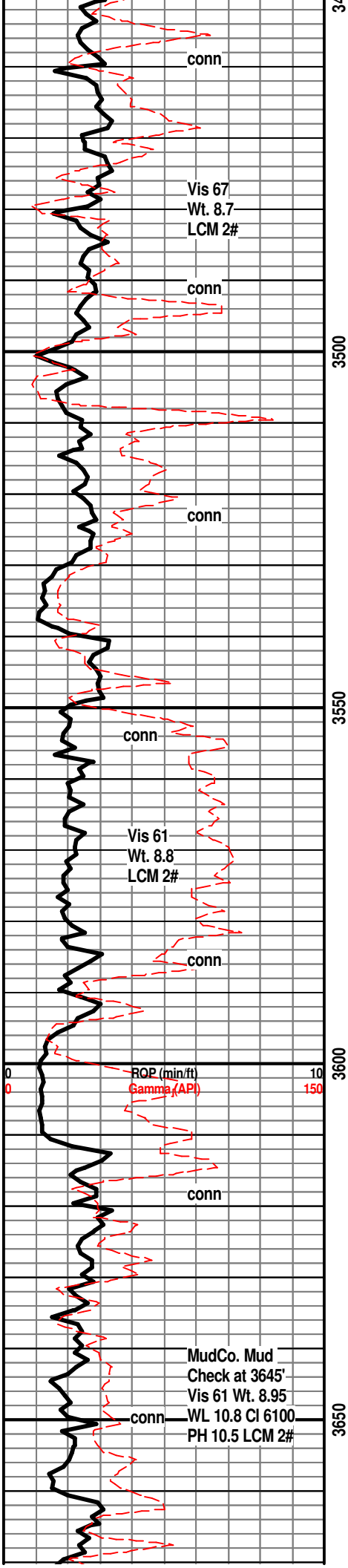
NOTE: This log was shifted upward by 4' - 6' for correlation purposes with the Halliburton LOGS.

ROCK TYPES

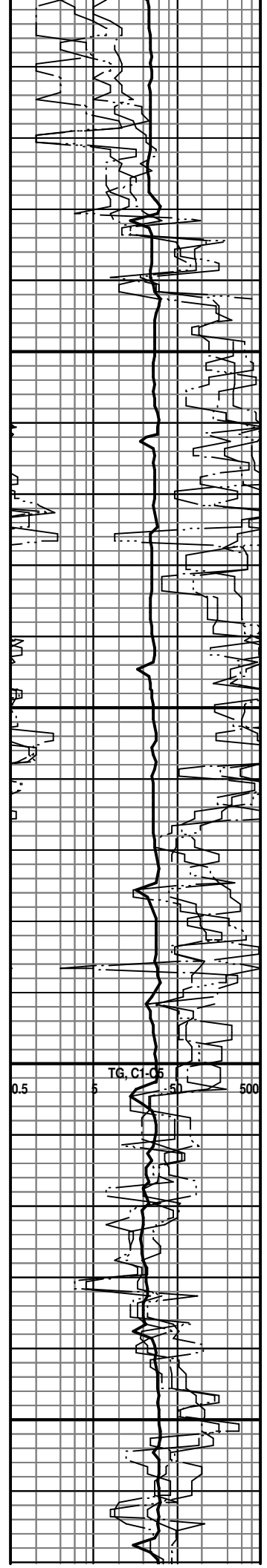
 Anhy  Bent  Brec  Cht	 Clyst  Coal  Congl  Dol	 Gyp  Igne  Lmst  Meta	 Mrlst  Salt  Shale  Shcol	 Shgy  Sltst  Ss  Till
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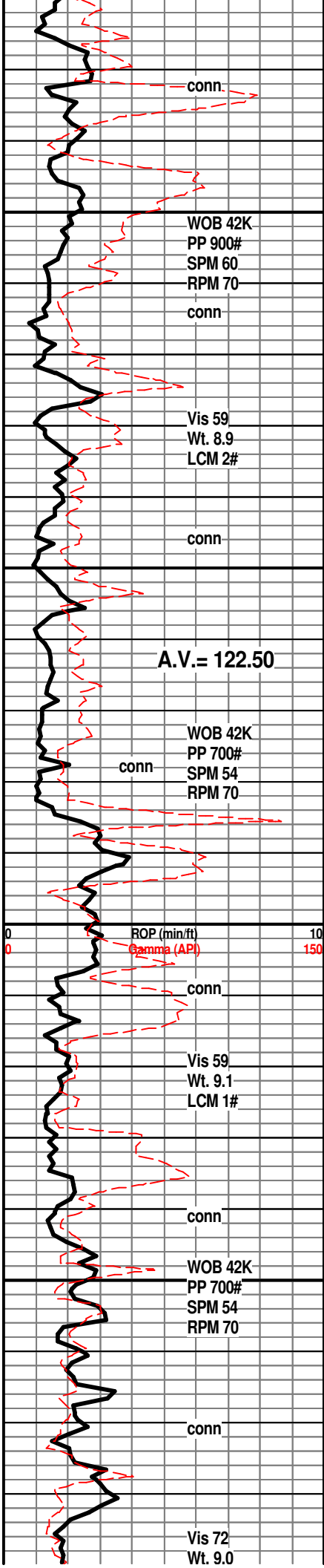
ACCESSORIES

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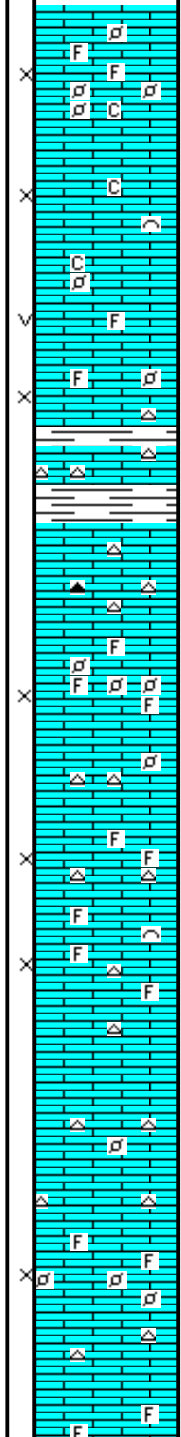


HOWARD 3588(-1381)





3700
3750
3800
3850



START 10' Wet & Dry Samples

LM; tan to lt brn, foss, scat pellets and some foss hash, occ chalky mtx, dull yel min fluor, fair interpart por, no stn or odor, no apparent gas kick

LM; tan to cream, buff, med xln w/foss mat, fair to occ gd interxln w/vug por in some, dull yel to no fluor, no stn or odor, ns.

LM; med brn, hd, cherty ip, tite
SH; med gy, occ dk gy grn, firm

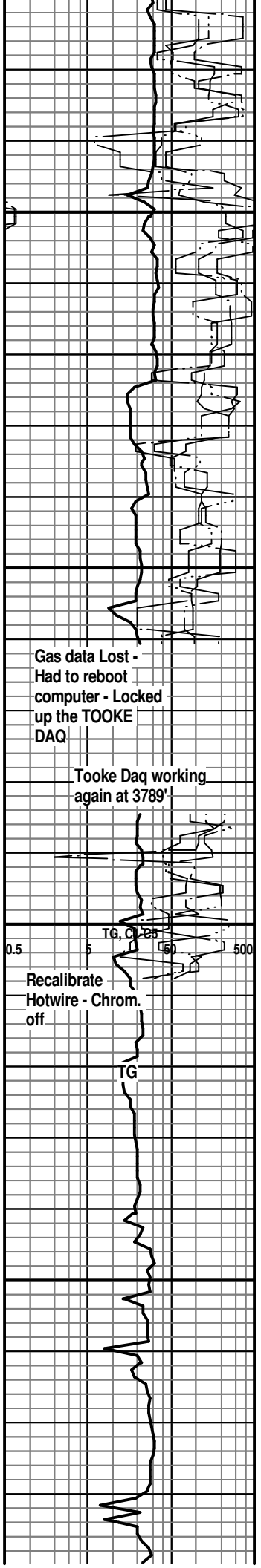
LM; lt brn, occ med gy brn, hd, blocky, scat tan/amber/gy cht, no vis por, scat med yel fluor, no stn or odor, ns.

LM; tan to lt brn, foss - finely pelletal, fair interpart por, lt to occ med yel min fluor, no stn, no gas kick, ns.

LM; tan to lt brn, f to med xln, fair to occ gd interxln por, interbdd foss lmst, cherty ip, lt to occ med yel min fluor, no stn, ns.

LM; lt gy, off wh, buff, f to med xln, interbdd hd cherty micrite, scat lt yel min fluor, poor interxln por, no gas kick, ns.

LM; tan to off wh, lt brn, foss ip w/occ pellets and fusulinids, minor chalky mtx, dull yel fluor, fair interpart por, ns.

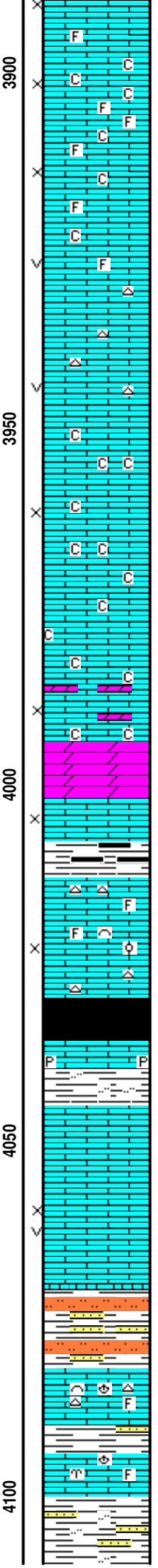
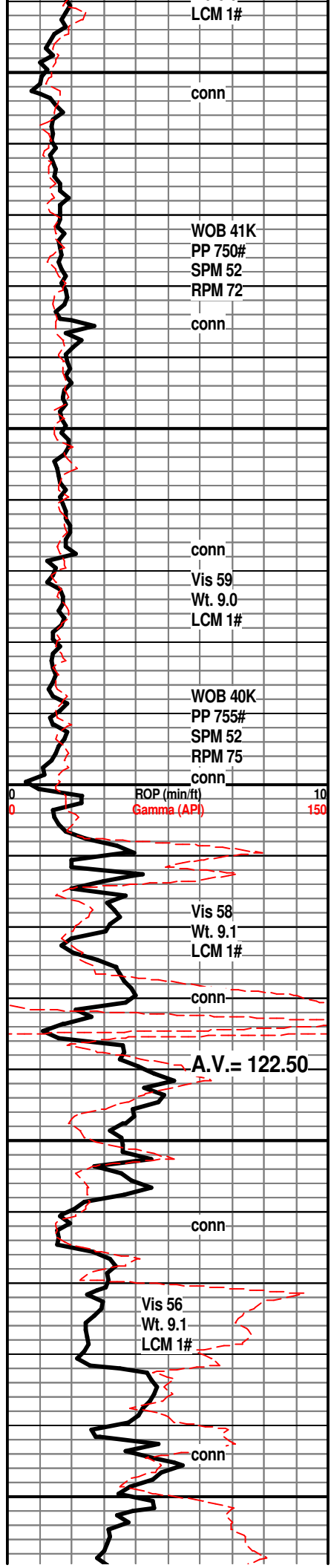


Gas data Lost -
Had to reboot
computer - Locked
up the TOOKE
DAQ

Tooke Daq working
again at 3789'

Recalibrate
Hotwire - Chrom.
off

TG



LM; tan to buff, cream, most med xln to gran text, most tite, scat foss mat, occ soft chalky mtx, rare lt yel min fluor, no stn or odor, ns.

LM; tan to buff, off wh, med xln w/occ cse spar calc xtals, interbdd gy to tan cht, rare unconnected vug por, no fluor, ns.

LM; off wh, wh, tan, f to med xln, scat spar calc xtals, much soft chalk and chalky mtx, poor interxln por, dull yel min fluor, no stn or odor, ns.

LM; off wh, tan, wh, f to med xln, partly dolomitic, poor to fair interxln por, chalky, ns.

DOL; tan to lt brn, fxln to sucrosic, fair interxln por, lt yel min fluor, no stn or odor, ns.

SH; dk gy, some blk, platy

LM; tan to lt brn, buff, fxln, foss ip, poor to fair interxln por, occ gy cht, dull yel min fluor only, no stn or odor, ns.

HEEBNER SHALE 4030(-1823)

SH; blk, carb ip, platy
LM; med brn, dense, pyr ip, tite
SH; grn, gy grn, silty ip, firm

TORONTO 4045(-1838)

LM; off wh, wh, buff, fxln, most dense, blocky

LM; wh, off wh, foss ip, fxln w/occ spar calc xtals, chalky mtx, fair interxln w/scat vug por, lt yel min fluor, no stn or odor, ns.

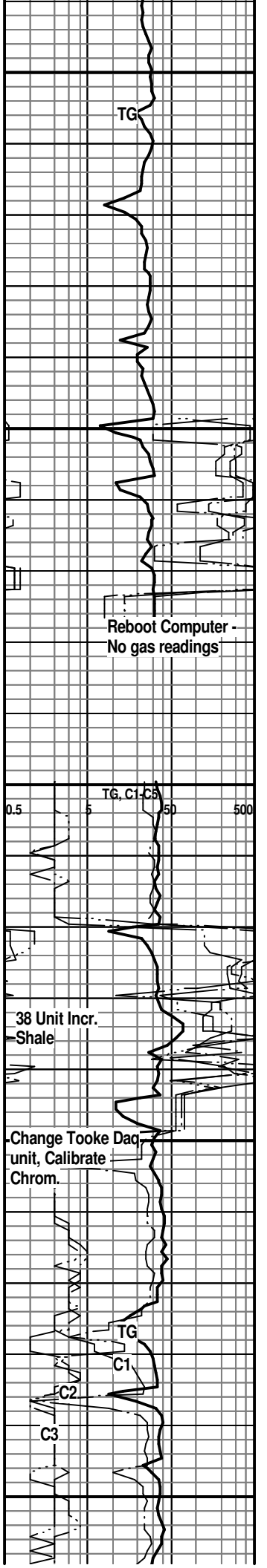
DOUGLAS SHALE 4071(-1864)

SH; lt gy, silty to sandy, interbdd mica hd vf gr qtz ss, firm

LM; med to dk brn, foss ip, well cem, scat gy cht, no vis por, ns.

LM; med gy, gy brn, scat cse foss frags, well cem, no vis por, lt yel fluor, ns.

SH; lt to med gy, silty to sandy, occ mica, firm



WOB 40K
PP 815#
SPM 52
RPM 70

conn

conn

Vis 59
Wt. 9.3
LCM 1#

A.V. = 122.50

conn

DST #1
Lansing 'A'

ROP (min)
Gamma (A) 4191' - 4208'

CFS. at 4208'

MudCo. Mud
Check at 4208'
Vis 63 Wt. 9.4
WL 13.4 CI 6800
PH 10.5 LCM 1#

conn

conn

WOB 41K
PP 745#
SPM 52
RPM 65-70

conn

MudCo. Mud
Check at 4295'
Vis 55 Wt. 9.1
WL 9.2 CI 6100
PH 11.0 LCM 1#

conn

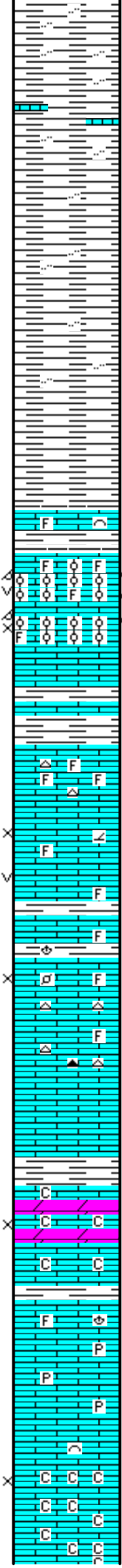
WOB 40K

4150

4200

4250

4300



SH; lt to med gy, most smooth, occ silty, thin lmy sh strngs.

SH; lt to med gy, silty ip, platy

SH; lt to med gy, platy, some flakey/sticky ip.

BROWN LMST. 4182(-1975)

LM; med brn, blocky, foss ip, tite

LANSING "A" 4187(-1980)

LM; lt brn, tan, foss - oolitic, most w/lrg molds, v. gd oomoldic por, occ vug por, occ cse foss frags, much brite yel fluor, fair/gd oil odor, SSFO with gas bubbles, some rextalized moldic por, fair to gd cut, few pcs bleeding oil/gas

DST #1: Lansing "A" 4191' - 4208' Corrected Depths to LOG

LANSING "B" 4214(-2007)

LM; off wh, buff, fxln w/rare foss mat, well cem, occ gy/tan cht, no vis por, no stn, no odor, n.s

LM; off wh, lt gy, med xln w/some sucrosic text, poor to fair interxln por, some gd vug por, interbdd cse spar calc xtals, no fluor, no stn, no gas kick, ns.

SH; grn, gy grn, interbdd hd brn foss lmst.

LM; tan to lt brn, foss ip, most dense, poor interpart por, minor tan/gy cht, no fluor, ns.

LM; lt to med brn, most dense, scat well cem foss, no vis por, cherty ip, tite, ns.

LM; tan to buff, off wh, foss ip, well cem, hd, no vis por, no fluor, ns.

LM; off wh, wh, buff, fxln w/some sucrosic text, interbdd dolomite and dolo. lmst, chalky mtX ip, soft, fair interxln por, dull yel min fluor, ns.

LM; tan to off wh, buff, foss ip, minor soft chalky mtX, no vis por, ns.

SH; med to dk gy, trc blk, foss

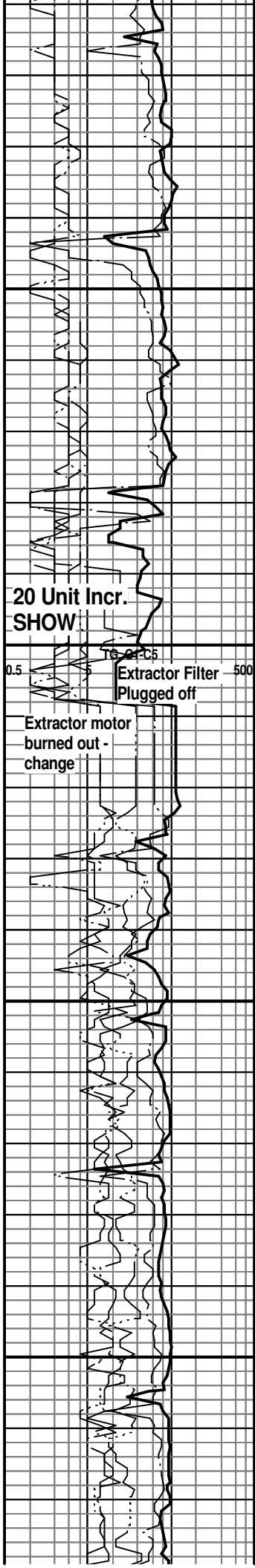
LM; tan to lt brn, hd, most micritic, scat pyr, no vis por, no fluor, ns.

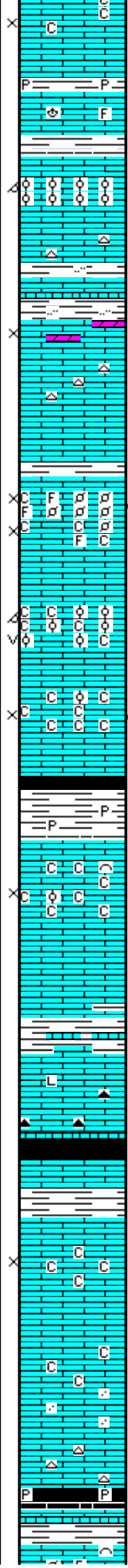
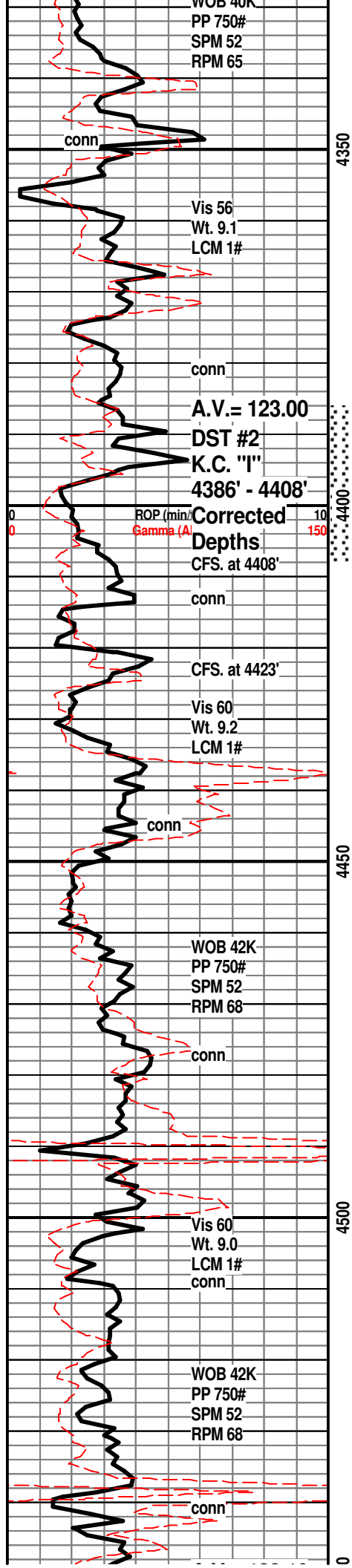
LM; off wh, wh, buff, fxln, scat spar calc xtals, much chalk and chalky mtX, soft, poor interxln por, dull yel min fluor, no stn or odor, ns.

20 Unit Incr. SHOW

To 4205
Extractor Filter Plugged off

Extractor motor burned out - change





LM; off wh, buff, tan, fxln w/occ spar calc xtals, chalky ip, poor interxln por, no fluor, ns.

SH; med gy, gy grn, platy, occ pyr

LM; med brn, hd, foss ip, tite

LANSING/K.C. "H" 4351(-2144)
 LM; tan to buff, foss - oolitic, most small/med size moldic por, lt yel min fluor, brittle ip, no stn or odor, no gas kick, ns.
 LM; lt brn, hd, foss ip, scat tan cht, tite

SH; grn, gy grn, silty ip, platy

LM; tan to cream, buff, fxln w/some sucrosic text, partly dolomitic, fair interxln por, much dense micrite, lt to occ med yel min fluor, no stn or odor, interbdd tan cht, ns.

K.C. "I" 4396(-2189)
 LM; cream, buff, abnt compact small oolites/pellets, some chalky mtx, brite yel fluor, fair interpart por, fair oil odor, Trc. light FO droplets, trc gas bubbles, good cut

DST #2: K.C. "I" zone 4386' - 4408'
 LM; tan to off wh, buff, foss - finely oolitic, fair oomoldic por, occ vug por, much soft chalky mtx, lt yel fluor, quest. gas bubbles, no vis oil stn, no odor, no cut

LM; wh, off wh, fxln, v. chalky - soft, brite yel fluor in chalky section - strong sulfur odor, trc spotted oil stn, no cut, gas kick unreliable due to oil in mud system, virtually no sample shows

SH; dk gy, some blk, platy, firm, occ pyr

K.C. "J" DENNIS 4447(-2240)
 LM; off wh, wh, buff, fxln, scat foss mat, abnt soft chalk and chalky mtx, poor to fair interxln por, dull yel fluor, no vis stn, no odor, ns.

LM; med to dk brn, dense, blocky, tite

SH; med gy brn, lmy w/interbdd argil lmst, firm

LM; med gy brn, dense, hd, litho ip, scat dk gy to occ smoky cht, tite

STARK SHALE 4489(-2282)
 SH; blk, carb ip, hd, blocky

SH; med gy grn, lmy, firm

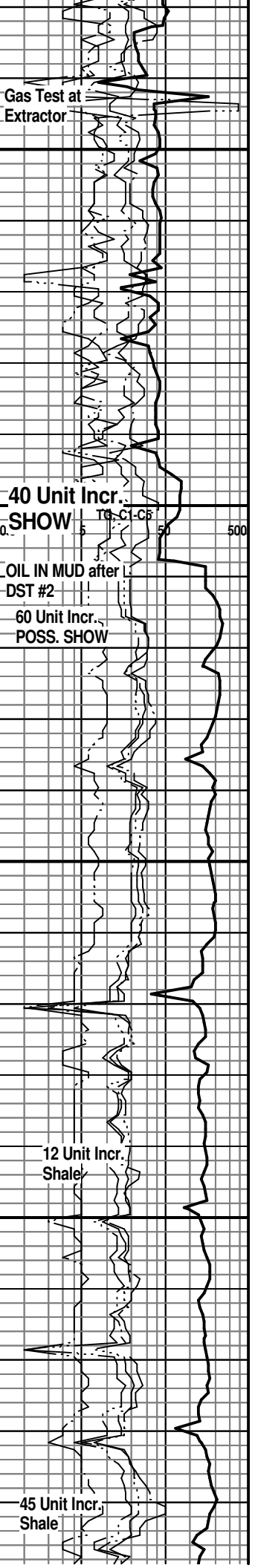
SWOPE 4500(-2293)
 LM; off wh, buff, tan, f to med xln, scat fair interxln por, interbdd soft partly chalky lmst, dull yel min fluor, no stn or odor, ns.

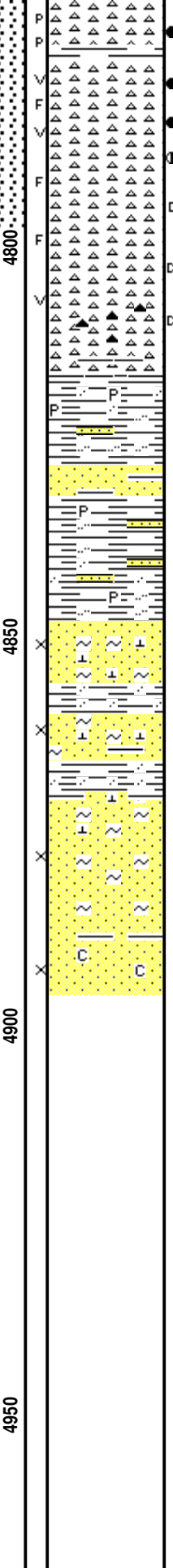
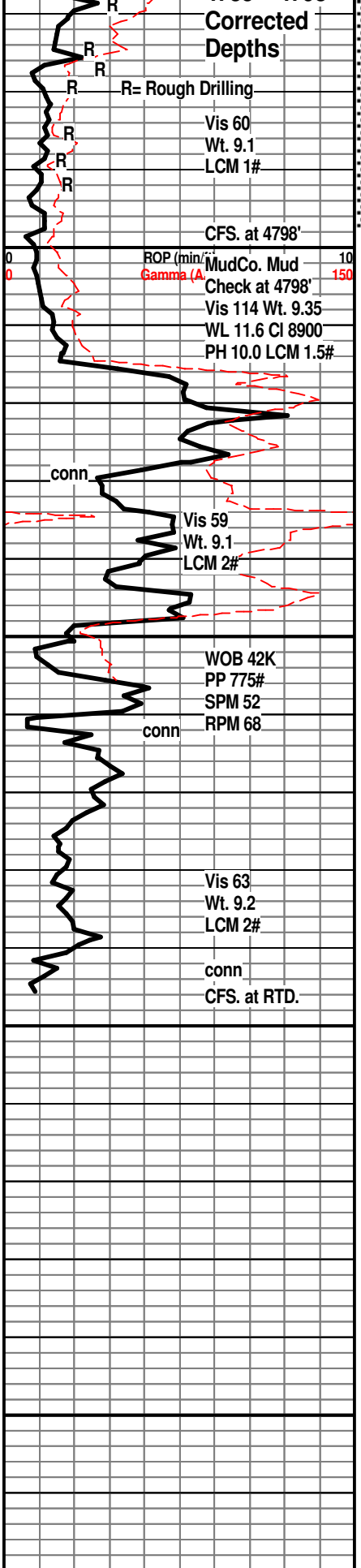
LM; off wh, lt gy, buff, most dense, blocky, micritic, minor chalky mtx, no vis por, no fluor, interbdd gritty to occ sandy text tite lmst, ns.

LM; med brn, blocky, scat gy/tan cht, tite

SH; blk, carb, trc gas, pyr ip.

HERTHA 4548(-2341)
 LM; lt brn. tan. buff. foss w/scat foss pellets and foss





CHT; wh, off wh, spotted to even med brn live oil stn, SFO, gd odor, some gy spicular cht, mostly tripolite, fair to gd p-p por in some

CHT; lt brn, tripolite, oil saturated ip, fair to gd odor, med to brite yel fluor, SFO, occ gd vug por

CHT; tan, org, brn, off wh, pred fresh, sharp edges, likely fracs, decr. shows, spotted med to occ brite yel fluor, some dead tar/gilsonite

DST #3: Miss. Chert 4735' - 4798'
Corrected Depths to Log

CHT; off wh, org, grn, red, fresh, scat blk tar/gilsonite, rare discontinuous vug por, poss fracs, spotted med yel fluor, no odor

KINDERHOOK SHALE 4815(-2608)
SH; grn, gy grn, some varic, silty to sandy, firm, occ pyr

SS; lt gy to pale grn, vf gr qtz, soft ip, shaly, no fluor, no stn or odor, ns.

SH; grn, gy grn, rare varic sh, interbdd vg to rarely f gr qtz ss strngs, minor pyr, platy

KINDERHOOK SAND 4848(-2641)
SS; wh, pale grn, glau ip, fair to gd intergran por, well srt, subang - subrnd gr, calc cmt, trc chlorite, no fluor, no vis stn, questionable gas bubbles, no cut

SS; wh, rare clr/lt gy, all f gr qtz, clusters, gd intergran por in some, calc, some argil, interbdd hd shales and shaly ss, no fluor, no vis stn, ns.

SS; wh, pale grn, f gr qtz, clusters, glau w/some chlorite, brn clay incl and flecks, argil ip, some well cem clusters, fair intergran por, no fluor, ns.

SS; wh, pale grn, f gr, well srt, clusters, minor soft chalky mtx, gd intergran por, no fluor, ns.

RTD. 4900' at 11:00 PM. 4/25/13

LTD. 4896'

Halliburton DIL, NEU/DEN with PE, Microlog

NOTE: This log was shifted upward by 4' - 6' for correlation purposes with the Halliburton LOGS.

