LITHOLOGY STRIP LOG

WellSight Systems

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

Well Name:	**HERMAN L. LOEB LLC. EVA RICHARDSON #4-19**		
Location:	**SE SW NE SE SEC. 19, T 11S, R 22W, TREGO CO. KANSAS**		
License Number:	**15-195-22785-00-00**	**Region:**	**MONG**
Spud Date:	**5/26/12**	**Drilling Completed:**	**6/4/12**
Surface Coordinates:	**1,520' FSL, 985' FEL**		
Bottom Hole Coordinates:			
Ground Elevation (ft):	**2,291**	**K.B. Elevation (ft):**	**2,302'**
Logged Interval (ft):	**3,000' To: 3,990'**	**Total Depth (ft):**	**3,990'**
Formation:	**RTD IN; Basal Pennsylvanian**		
Type of Drilling Fluid:	**Native Mud to 2,994'. Chem. Gel. to RTD (3,990').**		

OPERATOR

Company: HERMAN L. LOEB LLC.
Address: PO BOX 838
LAWRENCEVILLE IL 62439
(812-453-0385)

GEOLOGIST

Name: James R Hall (Well Site Supervision)
Company: Black Gold Petroleum
Address: 5530 N. Sedgwick
Wichita, Kansas 67204-1828
(316) 838-2574, (316)-217-1223

Comments

Drilling contractor: Sterling Drilling, Rig #2, Pusher: Uvaldo Martinez, Spud 5/26/12. RTD 6/4/12 3,990'.

Surface Casing: 8 5/8" set at 250' w/175sx, cmt. did circulate.

Production Casing: 5.5" ran 6/5/12.

Deviation Surveys: 0.75 @ 259', 0.75 @ 3,588', 1.0 @ 3,990'.

Bit Record:
#1 12 1/4" RR JZ HA1PGC, out @ 259' made 259' in 2hrs.
#2 7 7/8" JZ QX20 in @ 259', out @ 3,588', made 3,329' in 78.25hrs.
#3 7 7/8" RR JZ Qx20 in @ 3,588', out @ 3,990', made 402' in 26.75 hrs.

Drilling time commenced: @ 3,000'. Minimum 10' wet and dry samples commenced: @ 3,000' to RTD 3,990'. Samples delivered to Kansas Geological Sample Library at Wichita, Kansas.

Gas Detector: Sterling Drilling, unit #1. Tooke Daq. Hotwire gas values were lagged by the Tooke Daq and placed in the Geologic Strip Log, by the well site geologist.

Mud System: Mud-Co/Service Mud. Chemical Gel system @ 2,994' to RTD 3,990'. Mud Engineer: Gary Schmidtberger.

DST CO. Trilobite, Tester: Brian Fairbank, Hays Ks..

OH Logs: Log Tech (Hays Kansas),
Operator: J Long.
DIL, CDL/CNL, MEL.

Note: The open hole log gamma ray and caliper curves have been placed on this sample strip log, for better correlation. If there is a depth difference between the sample strip log and the open hole electric logs, the gamma ray and caliper curves have been shifted to reflect strip log drilling time depths.

OH Log Formation Tops: Anhydrite 1,758 (+544), Topeka 3,314 (-1210), Heebner 3,531 (-1229), Toronto 3,552 (-1250), Lansing "A" / "B" 3,566 (-1264), "C" 3,608 (-1306), "D" 3,623 (-1321), "E" 3,642 (-1340), "F" 3,652 (-1350), "G" 3,667 (-1365), "H" 3,706 (-1404), "I" 3,727 (-1425), "J" 3,742 (-1440) , "K" 3,762 (-1460), "L" 3,792 (-1490), B/KC 3,805 (-1503), Marmaton 3,888 (-1586), Arbuckle 3,972 (-1670).

DSTs

DST #1 3,532' - 3,588' (56'), Toronto & Lansing "A/B", 15-45-30-60, IH 1805, IF 36-40 (surface blow dead in 3min), ISI 409, FF 46-48 (no blow, flush tool surface blow-died in 30sec), FSI 383, FH 1674, Rec; 5' drilling mud, BHT 112F.

DST #2 Lansing "C"-"D"-"E" 3,591' - 3,651' (60'), 15-45-45-90, IH 1763, IF 112-137 (weak 1inch), ISI 385, FF 141-164 (no blow first 4min, 1/4" by end of period), FSI 382, FH 1687, Rec; 205'mud (100%mud), 65' muddy water (85%water, 15%mud), Rwa 0.152 @ 65F (0.09 @ 111F), Chl 54,000ppm, Chl drilling mud 2,600ppm, BHT 111F. Had to slide tool approx. 8' to bottom.

DST #3 "H"-"I"-"J" 3,691' - 3,759' (68'), IH 1866, IF 35-45 (weak surface), ISI 750, FF 56-63 (surface blow, dead in 30sec, flush tool, surface blow dead in 17min), FSI 709, FH 1811, Rec: 5' drilling mud, 5' slightly gas & oil cut mud (5%gas, 5%oil), BHT 113F.

DST #4 Kansas City "K" & "L", 3,760' - 3,808', 15-45-30-60, IH 1912, IF 21-22 (surface bowl dead in 6min), ISI 758, FF 153-157 (no blow flush tool, surface blow, dead in 1min), FSI 831, FH 1848, Rec; 10' very slightly oil cut mud (5%oil, 95%mud), 240' drilling mud (100%mud), BHT 112F. Pressure data and large drilling mud recovery are du to tool valve failure after the tool was flushed (right after tool was flushed mud in the annulus fell 30' to 40'), during the second open. Therefore the data recorded on the charts after the tool being flushed and therefore the large mud recovery, are considered invalid.

DST #5 Marmaton 3,902' - 3,941' (39'), 15-45-60-120, IH 1937, IF 17-19 (surface blow dead in 4min), ISI 721, FF 21-26 (no blow), FSI 712, FH 1842, Rec; 5' mud cut oil (70%oil, 30%mud), BHT 116F.

Classification

AFTER DUNHAM: GRAIN; any fossil, fossil fragment, sand grain, or other rock fragment within the rock. MUDSTONE; muddy carbonate rocks containing less than 10% grains. WACKESTONE; mud supported carbonate rocks with more than 10% grains. PACKSTONE; grain supported muddy carbonate rocks. GRAINSTONE; mud free carbonate rock, grain supported. BOUNDSTONE; carbonate rock bound together at deposition (coral, etc.). CRYSTALLINE CARBONATE; carbonate rock retaining to little of their depositional texture to be classified.

ROCK TYPES

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
- BS Boundst
- C Chalky
- CX Cryxln
- E Earthy
- FX Finexln
- GS Grainst
- L Lithogr
- MX Microxln
- MS Mudst
- PS Packst
- WS Wackest

OTHER SYMBOLS

POROSITY
- E Earthy
- Fenest
- F Fracture
- Inter
- Moldic
- Organic
- P Pinpoint
- V Vuggy

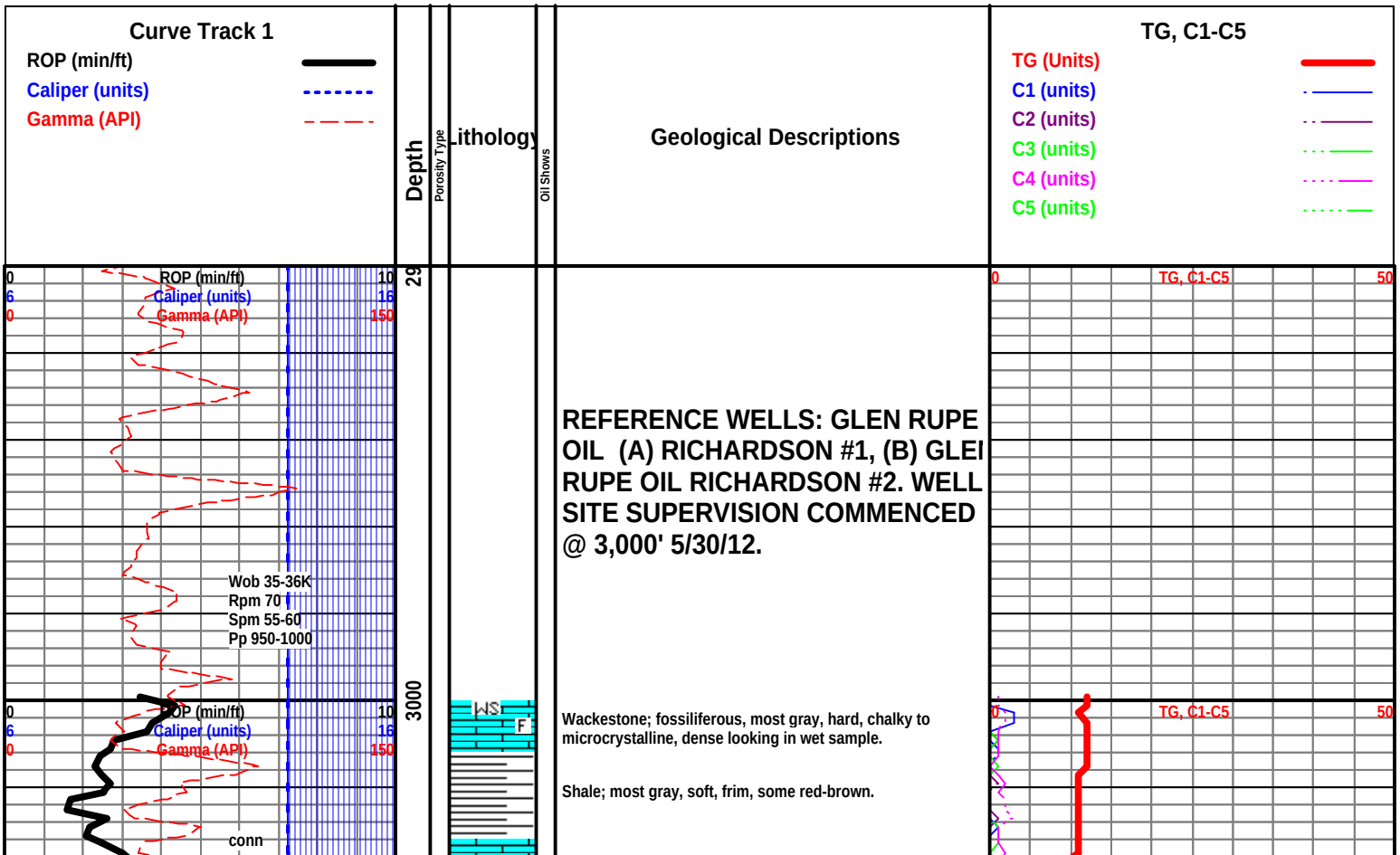
SORTING
- W Well
- M Moderate
- P Poor

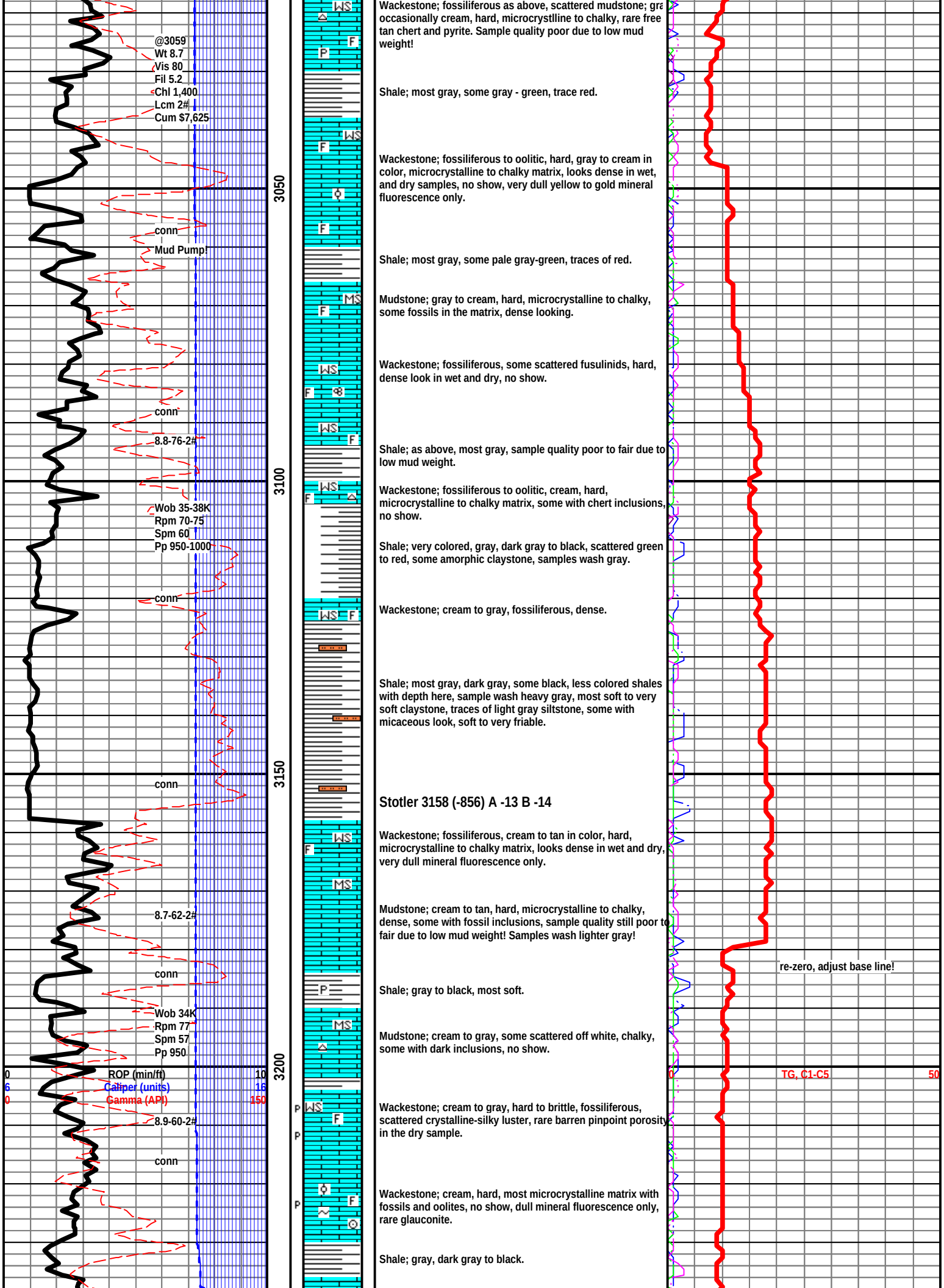
ROUNDING
- R Rounded
- r Subrnd
- a Subang
- A Angular

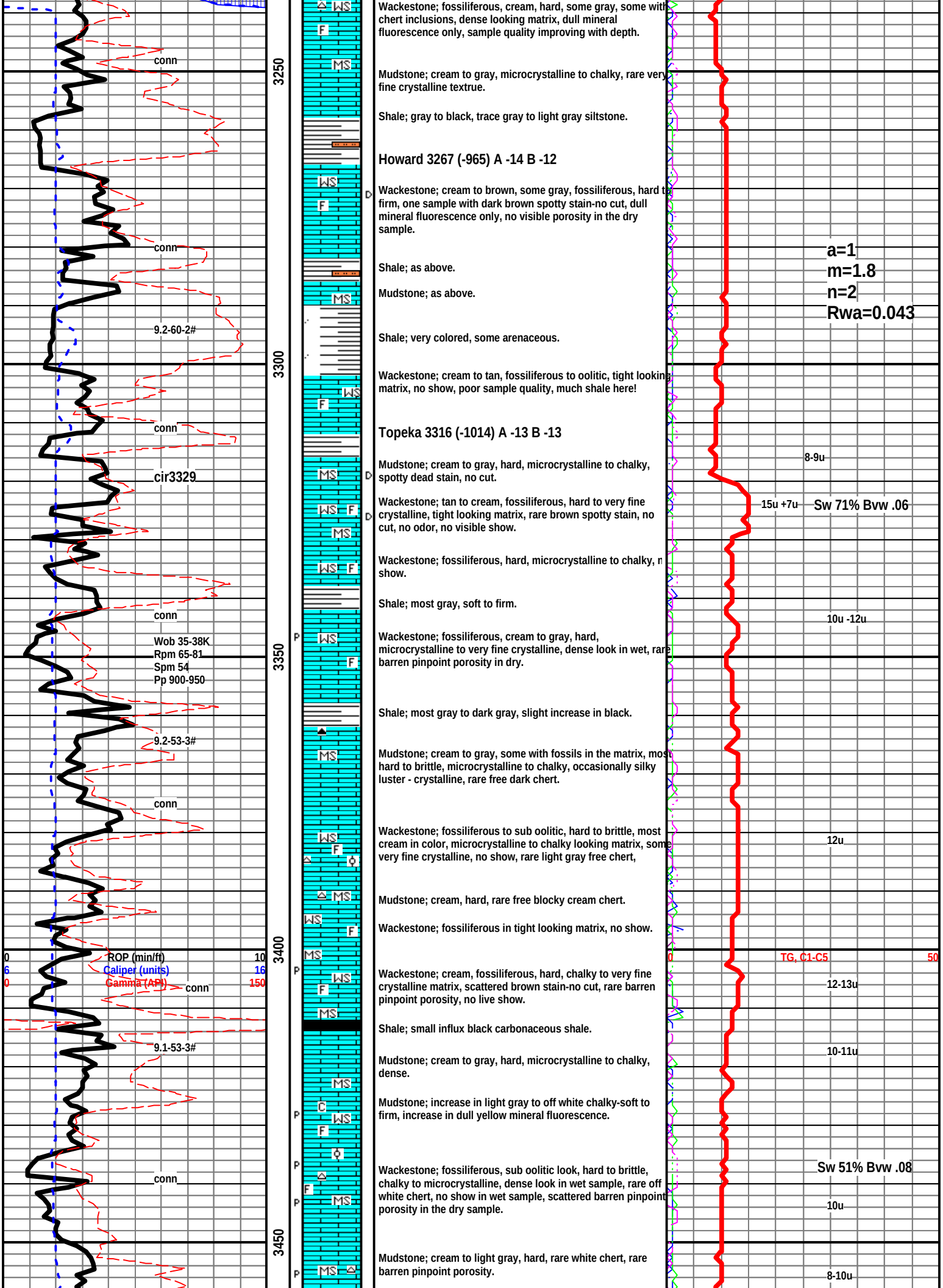
OIL SHOW
- Even
- Spotted
- Ques
- D Dead

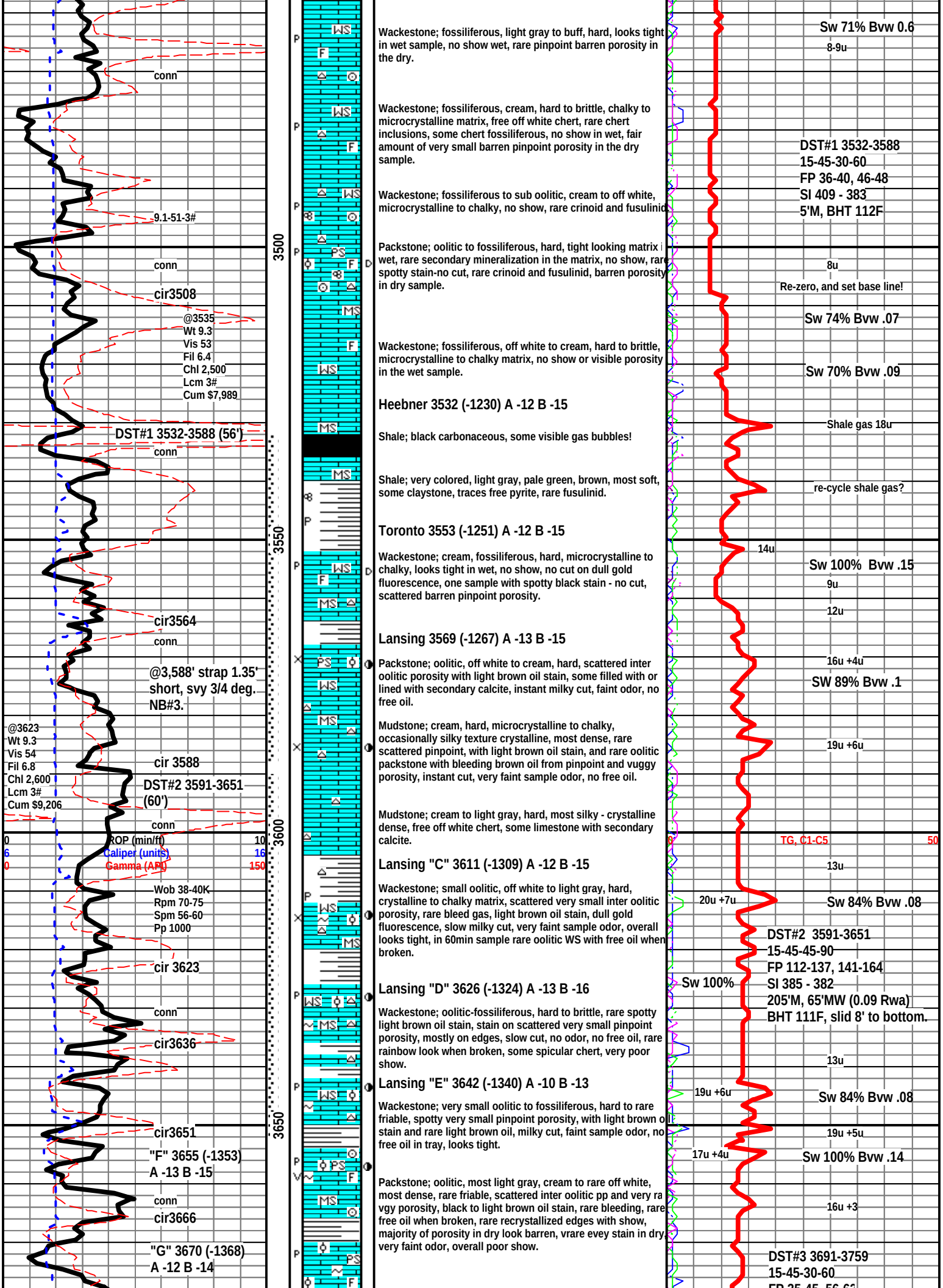
INTERVAL
- Core
- Dst

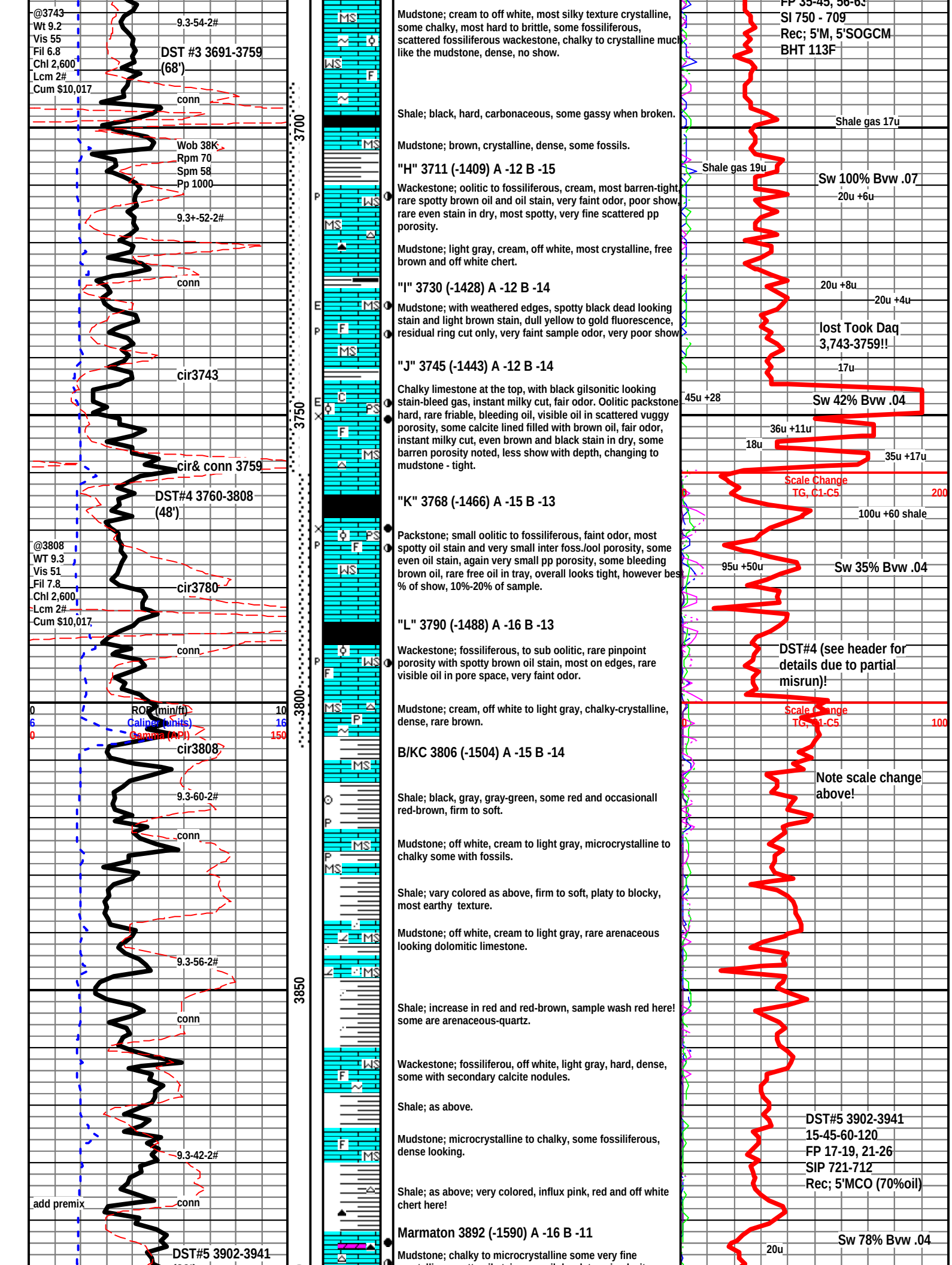
EVENT
- Rft
- Sidewall

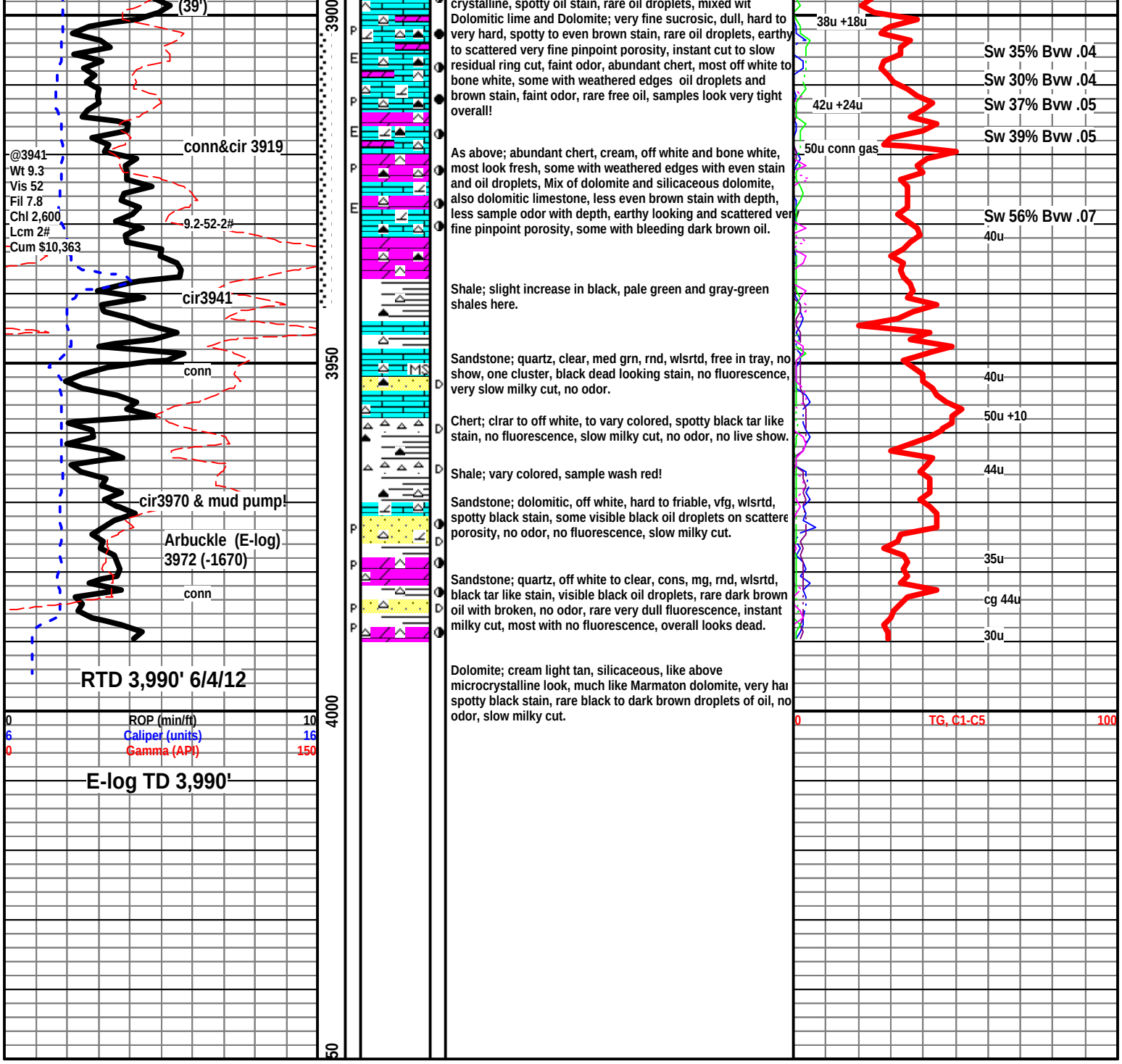



@3059
Wt 8.7
Vis 80
Fil 5.2
Chl 1,400
Lcm 2#
Cum $7,625
conn
Mud Pump!
conn
8.8-76-2#
Wob 35-38K
Rpm 70-75
Spm 60
Pp 950-1000
conn
conn
8.7-62-2#
conn
Wob 34K
Rpm 77
Spm 57
Pp 950
8.9-60-2#
conn
3050
3100
3150
3200
ROP (min/ft)
Caliper (units)
Gamma (API)
TG, C1-C5
Wackestone; fossiliferous as above, scattered mudstone; gra occasionally cream, hard, microcrystlline to chalky, rare free tan chert and pyrite. Sample quality poor due to low mud weight!
Shale; most gray, some gray - green, trace red.
Wackestone; fossiliferous to oolitic, hard, gray to cream in color, microcrystalline to chalky matrix, looks dense in wet, and dry samples, no show, very dull yellow to gold mineral fluorescence only.
Shale; most gray, some pale gray-green, traces of red.
Mudstone; gray to cream, hard, microcrystalline to chalky, some fossils in the matrix, dense looking.
Wackestone; fossiliferous, some scattered fusulinids, hard, dense look in wet and dry, no show.
Shale; as above, most gray, sample quality poor to fair due to low mud weight.
Wackestone; fossiliferous to oolitic, cream, hard, microcrystalline to chalky matrix, some with chert inclusions, no show.
Shale; very colored, gray, dark gray to black, scattered green to red, some amorphic claystone, samples wash gray.
Wackestone; cream to gray, fossiliferous, dense.
Shale; most gray, dark gray, some black, less colored shales with depth here, sample wash heavy gray, most soft to very soft claystone, traces of light gray siltstone, some with micaceous look, soft to very friable.
Stotler 3158 (-856) A -13 B -14
Wackestone; fossiliferous, cream to tan in color, hard, microcrystalline to chalky matrix, looks dense in wet and dry, very dull mineral fluorescence only.
Mudstone; cream to tan, hard, microcrystalline to chalky, dense, some with fossil inclusions, sample quality still poor to fair due to low mud weight! Samples wash lighter gray!
re-zero, adjust base line!
Shale; gray to black, most soft.
Mudstone; cream to gray, some scattered off white, chalky, some with dark inclusions, no show.
Wackestone; cream to gray, hard to brittle, fossiliferous, scattered crystalline-silky luster, rare barren pinpoint porosity in the dry sample.
Wackestone; cream, hard, most microcrystalline matrix with fossils and oolites, no show, dull mineral fluorescence only, rare glauconite.
Shale; gray, dark gray to black.


conn
conn
9.2-60-2#
conn
cir3329
conn
Wob 35-38K
Rpm 65-81
Spm 54
Pp 900-950
9.2-53-3#
conn
0
ROP (min/ft)
10
6
Caliper (units)
16
0
Gamma (API)
150
conn
9.1-53-3#
conn
3250
3300
3350
3400
3450
Wackestone; fossiliferous, cream, hard, some gray, some with chert inclusions, dense looking matrix, dull mineral fluorescence only, sample quality improving with depth.
Mudstone; cream to gray, microcrystalline to chalky, rare very fine crystalline textrue.
Shale; gray to black, trace gray to light gray siltstone.
Howard 3267 (-965) A -14 B -12
Wackestone; cream to brown, some gray, fossiliferous, hard to firm, one sample with dark brown spotty stain-no cut, dull mineral fluorescence only, no visible porosity in the dry sample.
Shale; as above.
Mudstone; as above.
Shale; very colored, some arenaceous.
Wackestone; cream to tan, fossiliferous to oolitic, tight looking matrix, no show, poor sample quality, much shale here!
Topeka 3316 (-1014) A -13 B -13
Mudstone; cream to gray, hard, microcrystalline to chalky, spotty dead stain, no cut.
Wackestone; tan to cream, fossiliferous, hard to very fine crystalline, tight looking matrix, rare brown spotty stain, no cut, no odor, no visible show.
Wackestone; fossiliferous, hard, microcrystalline to chalky, n show.
Shale; most gray, soft to firm.
Wackestone; fossiliferous, cream to gray, hard, microcrystalline to very fine crystalline, dense look in wet, rare barren pinpoint porosity in dry.
Shale; most gray to dark gray, slight increase in black.
Mudstone; cream to gray, some with fossils in the matrix, most hard to brittle, microcrystalline to chalky, occasionally silky luster - crystalline, rare free dark chert.
Wackestone; fossiliferous to sub oolitic, hard to brittle, most cream in color, microcrystalline to chalky looking matrix, some very fine crystalline, no show, rare light gray free chert,
Mudstone; cream, hard, rare free blocky cream chert.
Wackestone; fossiliferous in tight looking matrix, no show.
Wackestone; cream, fossiliferous, hard, chalky to very fine crystalline matrix, scattered brown stain-no cut, rare barren pinpoint porosity, no live show.
Shale; small influx black carbonaceous shale.
Mudstone; cream to gray, hard, microcrystalline to chalky, dense.
Mudstone; increase in light gray to off white chalky-soft to firm, increase in dull yellow mineral fluorescence.
Wackestone; fossiliferous, sub oolitic look, hard to brittle, chalky to microcrystalline, dense look in wet sample, rare off white chert, no show in wet sample, scattered barren pinpoint porosity in the dry sample.
Mudstone; cream to light gray, hard, rare white chert, rare barren pinpoint porosity.
a=1
m=1.8
n=2
Rwa=0.043
8-9u
15u +7u
Sw 71% Bvw .06
10u -12u
12u
0
TG, C1-C5
50
12-13u
10-11u
Sw 51% Bvw .08
10u
8-10u


conn
9.1-51-3#
conn
cir3508
@3535
Wt 9.3
Vis 53
Fil 6.4
Chl 2,500
Lcm 3#
Cum $7,989
DST#1 3532-3588 (56')
conn
cir3564
conn
@3,588' strap 1.35' short, svy 3/4 deg. NB#3.
@3623
Wt 9.3
Vis 54
Fil 6.8
Chl 2,600
Lcm 3#
Cum $9,206
cir 3588
DST#2 3591-3651 (60')
conn
0 ROP (min/ft) 10
6 Caliper (units) 16
0 Gamma (API) 150
Wob 38-40K
Rpm 70-75
Spm 56-60
Pp 1000
cir 3623
conn
cir3636
cir3651
"F" 3655 (-1353) A -13 B -15
conn
cir3666
"G" 3670 (-1368) A -12 B -14
3500
3550
3600
3650
Wackestone; fossiliferous, light gray to buff, hard, looks tight in wet sample, no show wet, rare pinpoint barren porosity in the dry.
Wackestone; fossiliferous, cream, hard to brittle, chalky to microcrystalline matrix, free off white chert, rare chert inclusions, some chert fossiliferous, no show in wet, fair amount of very small barren pinpoint porosity in the dry sample.
Wackestone; fossiliferous to sub oolitic, cream to off white, microcrystalline to chalky, no show, rare crinoid and fusulinid
Packstone; oolitic to fossiliferous, hard, tight looking matrix i wet, rare secondary mineralization in the matrix, no show, rare spotty stain-no cut, rare crinoid and fusulinid, barren porosity in dry sample.
Wackestone; fossiliferous, off white to cream, hard to brittle, microcrystalline to chalky matrix, no show or visible porosity in the wet sample.
Heebner 3532 (-1230) A -12 B -15
Shale; black carbonaceous, some visible gas bubbles!
Shale; very colored, light gray, pale green, brown, most soft, some claystone, traces free pyrite, rare fusulinid.
Toronto 3553 (-1251) A -12 B -15
Wackestone; cream, fossiliferous, hard, microcrystalline to chalky, looks tight in wet, no show, no cut on dull gold fluorescence, one sample with spotty black stain - no cut, scattered barren pinpoint porosity.
Lansing 3569 (-1267) A -13 B -15
Packstone; oolitic, off white to cream, hard, scattered inter oolitic porosity with light brown oil stain, some filled with or lined with secondary calcite, instant milky cut, faint odor, no free oil.
Mudstone; cream, hard, microcrystalline to chalky, occasionally silky texture crystalline, most dense, rare scattered pinpoint, with light brown oil stain, and rare oolitic packstone with bleeding brown oil from pinpoint and vuggy porosity, instant cut, very faint sample odor, no free oil.
Mudstone; cream to light gray, hard, most silky - crystalline dense, free off white chert, some limestone with secondary calcite.
Lansing "C" 3611 (-1309) A -12 B -15
Wackestone; small oolitic, off white to light gray, hard, crystalline to chalky matrix, scattered very small inter oolitic porosity, rare bleed gas, light brown oil stain, dull gold fluorescence, slow milky cut, very faint sample odor, overall looks tight, in 60min sample rare oolitic WS with free oil when broken.
Lansing "D" 3626 (-1324) A -13 B -16
Wackestone; oolitic-fossiliferous, hard to brittle, rare spotty light brown oil stain, stain on scattered very small pinpoint porosity, mostly on edges, slow cut, no odor, no free oil, rare rainbow look when broken, some spicular chert, very poor show.
Lansing "E" 3642 (-1340) A -10 B -13
Wackestone; very small oolitic to fossiliferous, hard to rare friable, spotty very small pinpoint porosity, with light brown o stain and rare light brown oil, milky cut, faint sample odor, no free oil in tray, looks tight.
Packstone; oolitic, most light gray, cream to rare off white, most dense, rare friable, scattered inter oolitic pp and very ra vgy porosity, black to light brown oil stain, rare bleeding, rare free oil when broken, rare recrystallized edges with show, majority of porosity in dry look barren, vrare evey stain in dry, very faint odor, overall poor show.
Sw 71% Bvw 0.6
8-9u
DST#1 3532-3588
15-45-30-60
FP 36-40, 46-48
SI 409 - 383
5'M, BHT 112F
8u
Re-zero, and set base line!
Sw 74% Bvw .07
Sw 70% Bvw .09
Shale gas 18u
re-cycle shale gas?
14u
Sw 100% Bvw .15
9u
12u
16u +4u
SW 89% Bvw .1
19u +6u
0 TG, C1-C5 50
13u
20u +7u
Sw 84% Bvw .08
DST#2 3591-3651
15-45-45-90
FP 112-137, 141-164
SI 385 - 382
205'M, 65'MW (0.09 Rwa)
BHT 111F, slid 8' to bottom.
Sw 100%
13u
19u +6u
Sw 84% Bvw .08
19u +5u
17u +4u
Sw 100% Bvw .14
16u +3
DST#3 3691-3759
15-45-30-60


@3743
Wt 9.2
Vis 55
Fil 6.8
Chl 2,600
Lcm 2#
Cum $10,017
9.3-54-2#
DST #3 3691-3759
(68')
conn
Wob 38K
Rpm 70
Spm 58
Pp 1000
9.3+-52-2#
conn
cir3743
cir& conn 3759
DST#4 3760-3808
(48')
@3808
WT 9.3
Vis 51
Fil 7.8
Chl 2,600
Lcm 2#
Cum $10,017
cir3780
conn
0
ROP (min/ft)
10
6
Caliper (units)
16
0
Gamma (API)
150
cir3808
9.3-60-2#
conn
9.3-56-2#
conn
9.3-42-2#
add premix
conn
DST#5 3902-3941
3700
3750
3800
3850
Mudstone; cream to off white, most silky texture crystalline, some chalky, most hard to brittle, some fossiliferous, scattered fossiliferous wackestone, chalky to crystalline much like the mudstone, dense, no show.
Shale; black, hard, carbonaceous, some gassy when broken.
Mudstone; brown, crystalline, dense, some fossils.
"H" 3711 (-1409) A -12 B -15
Wackestone; oolitic to fossiliferous, cream, most barren-tight, rare spotty brown oil and oil stain, very faint odor, poor show, rare even stain in dry, most spotty, very fine scattered pp porosity.
Mudstone; light gray, cream, off white, most crystalline, free brown and off white chert.
"I" 3730 (-1428) A -12 B -14
Mudstone; with weathered edges, spotty black dead looking stain and light brown stain, dull yellow to gold fluorescence, residual ring cut only, very faint sample odor, very poor show
"J" 3745 (-1443) A -12 B -14
Chalky limestone at the top, with black gilsonitic looking stain-bleed gas, instant milky cut, fair odor. Oolitic packstone hard, rare friable, bleeding oil, visible oil in scattered vuggy porosity, some calcite lined filled with brown oil, fair odor, instant milky cut, even brown and black stain in dry, some barren porosity noted, less show with depth, changing to mudstone - tight.
"K" 3768 (-1466) A -15 B -13
Packstone; small oolitic to fossiliferous, faint odor, most spotty oil stain and very small inter foss./ool porosity, some even oil stain, again very small pp porosity, some bleeding brown oil, rare free oil in tray, overall looks tight, however best % of show, 10%-20% of sample.
"L" 3790 (-1488) A -16 B -13
Wackestone; fossiliferous, to sub oolitic, rare pinpoint porosity with spotty brown oil stain, most on edges, rare visible oil in pore space, very faint odor.
Mudstone; cream, off white to light gray, chalky-crystalline, dense, rare brown.
B/KC 3806 (-1504) A -15 B -14
Shale; black, gray, gray-green, some red and occasionall red-brown, firm to soft.
Mudstone; off white, cream to light gray, microcrystalline to chalky some with fossils.
Shale; vary colored as above, firm to soft, platy to blocky, most earthy texture.
Mudstone; off white, cream to light gray, rare arenaceous looking dolomitic limestone.
Shale; increase in red and red-brown, sample wash red here! some are arenaceous-quartz.
Wackestone; fossiliferou, off white, light gray, hard, dense, some with secondary calcite nodules.
Shale; as above.
Mudstone; microcrystalline to chalky, some fossiliferous, dense looking.
Shale; as above; very colored, influx pink, red and off white chert here!
Marmaton 3892 (-1590) A -16 B -11
Mudstone; chalky to microcrystalline some very fine
FP 35-45, 56-63
SI 750 - 709
Rec; 5'M, 5'SOGCM
BHT 113F
Shale gas 17u
Shale gas 19u
Sw 100% Bvw .07
20u +6u
20u +8u
20u +4u
lost Took Daq
3,743-3759!!
17u
45u +28
Sw 42% Bvw .04
36u +11u
18u
35u +17u
Scale Change
TG, C1-C5
0
200
100u +60 shale
95u +50u
Sw 35% Bvw .04
DST#4 (see header for details due to partial misrun)!
Scale Change
TG, C1-C5
0
100
Note scale change above!
DST#5 3902-3941
15-45-60-120
FP 17-19, 21-26
SIP 721-712
Rec; 5'MCO (70%oil)
Sw 78% Bvw .04
20u


(39')
conn&cir 3919
@3941
Wt 9.3
Vis 52
Fil 7.8
Chl 2,600
Lcm 2#
Cum $10,363
9.2-52-2#
cir3941
conn
cir3970 & mud pump!
Arbuckle (E-log)
3972 (-1670)
conn
RTD 3,990' 6/4/12
ROP (min/ft)
Caliper (units)
Gamma (API)
E-log TD 3,990'
3900
3950
4000
Crystalline, spotty oil stain, rare oil droplets, mixed wit
Dolomitic lime and Dolomite; very fine sucrosic, dull, hard to
very hard, spotty to even brown stain, rare oil droplets, earthy
to scattered very fine pinpoint porosity, instant cut to slow
residual ring cut, faint odor, abundant chert, most off white to
bone white, some with weathered edges oil droplets and
brown stain, faint odor, rare free oil, samples look very tight
overall!
As above; abundant chert, cream, off white and bone white,
most look fresh, some with weathered edges with even stain
and oil droplets, Mix of dolomite and silicaceous dolomite,
also dolomitic limestone, less even brown stain with depth,
less sample odor with depth, earthy looking and scattered ver
fine pinpoint porosity, some with bleeding dark brown oil.
Shale; slight increase in black, pale green and gray-green
shales here.
Sandstone; quartz, clear, med grn, rnd, wlsrtd, free in tray, no
show, one cluster, black dead looking stain, no fluorescence,
very slow milky cut, no odor.
Chert; clrar to off white, to vary colored, spotty black tar like
stain, no fluorescence, slow milky cut, no odor, no live show.
Shale; vary colored, sample wash red!
Sandstone; dolomitic, off white, hard to friable, vfg, wlsrtd,
spotty black stain, some visible black oil droplets on scattere
porosity, no odor, no fluorescence, slow milky cut.
Sandstone; quartz, off white to clear, cons, mg, rnd, wlsrtd,
black tar like stain, visible black oil droplets, rare dark brown
oil with broken, no odor, rare very dull fluorescence, instant
milky cut, most with no fluorescence, overall looks dead.
Dolomite; cream light tan, silicaceous, like above
microcrystalline look, much like Marmaton dolomite, very hai
spotty black stain, rare black to dark brown droplets of oil, no
odor, slow milky cut.
38u +18u
42u +24u
50u conn gas
Sw 35% Bvw .04
Sw 30% Bvw .04
Sw 37% Bvw .05
Sw 39% Bvw .05
Sw 56% Bvw .07
40u
40u
50u +10
44u
35u
cg 44u
30u
TG, C1-C5