



# GEOSEARCH LOGGING INC.

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

Well Name: 15077218960000 Turner 3406 2-7H  
Location: 215' FNL & 1820' FEL of 36-T29N-R11W  
License Number: 15077218960000  
Spud Date: 12/24/2012  
Surface Coordinates: 250'FSL & 880' FWL of 7-T34S-R6W

Region: Harper  
Drilling Completed: 01/10/2013

Bottom Hole Coordinates: 2310'FSL & 1980' FWL of 6-T34N-R6W

Ground Elevation (ft): 1301"                      K.B. Elevation (ft): 1319"  
Logged Interval (ft): 803'                      To: 11,690'                      Total Depth (ft): 11,690'  
Formation: MISSISSIPPIAN  
Type of Drilling Fluid: WATER BASED

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

## OPERATOR

Company: SANDRIDGE ENERGY, INC.  
Address: 123 ROBERT S KERR AVENUE  
OKLAHOMA CITY, OK 73102

## GEOLOGIST


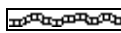
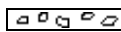
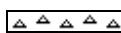
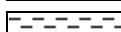


Name: PAUL CAMPBELL/DARRYL MCDANIEL  
Company: Geosearch Logging, Inc.  
Address: P.O. Box 6005  
Edmond, OK 73083-6005  
(405) 340-5545






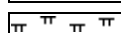

## Comments

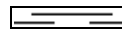
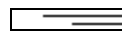
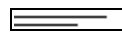

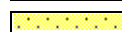

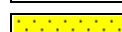
2 Manned Logging Service  
Start Logging Date: 12/24/2012  
Released Logging Date:

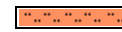




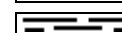
Drilling Contractor: LARIAT 39

## ROCK TYPES

 Anhy  
 Bent  
 Brec  
 Cht  
 Clyst  
 Coal  
 Congl

 Dol  
 Gyp  
 Igne  
 Lmst  
 Meta  
 Mrlst  
 Salt

 Shale  
 Shcol  
 Shgy  
 Sltst  
 Ss  
 Till  
 Sandstn

 Siltstn  
 Granwash  
 Dolowash  
 Cement  
 Granite  
 Hotshale

### ACCESSORIES

- MINERAL**
- Anhy
  - Arggrn
  - Arg
  - Bent
  - Bit
  - Breclfrag
  - Calc
  - Carb
  - Chtdk
  - Chtl
  - 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

### OTHER SYMBOLS

**POROSITY TYPE**

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

**SORTING**

- Well
- Moderate
- Poor

**ROUNDING**

- Rounded
- Subrnd
- Subang
- Angular

**OIL SHOWS**

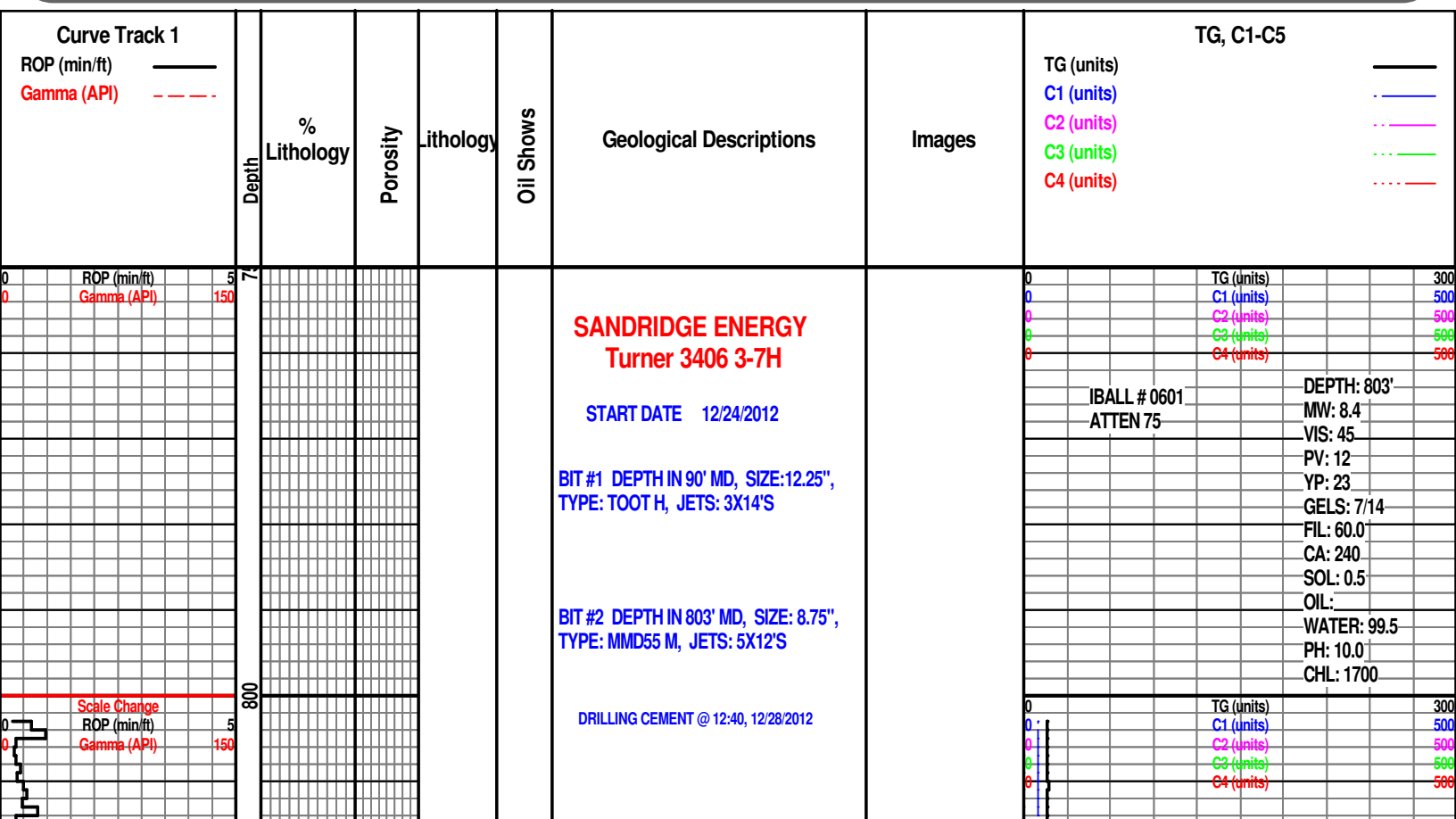
- Even
- Spotted
- Ques
- Dead
- Poor
- Fair
- Good
- Excelent
- Csgshoe

**INTERVALS**

- Core
- Dst
- Verdigris 4680' md

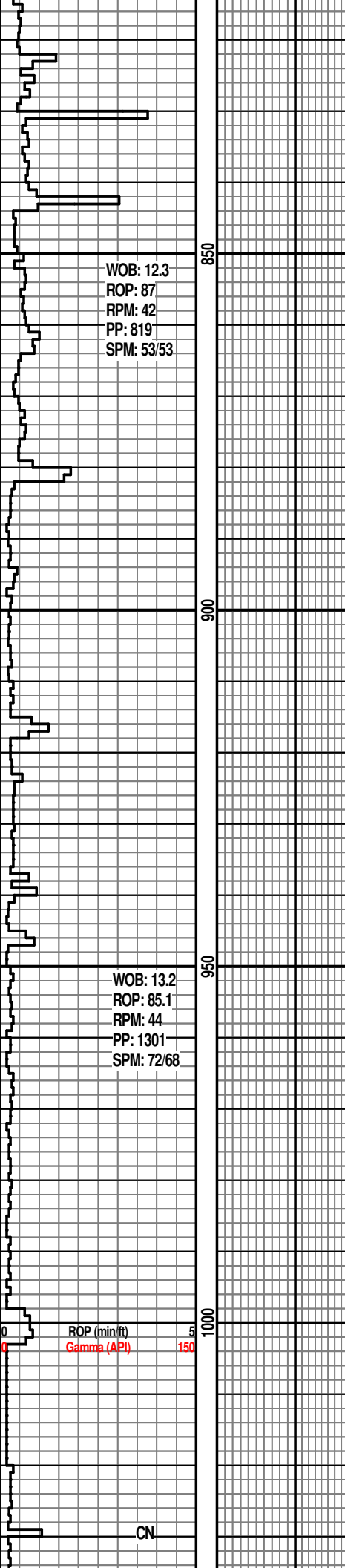
**EVENTS**

- Rft
- Sidewall

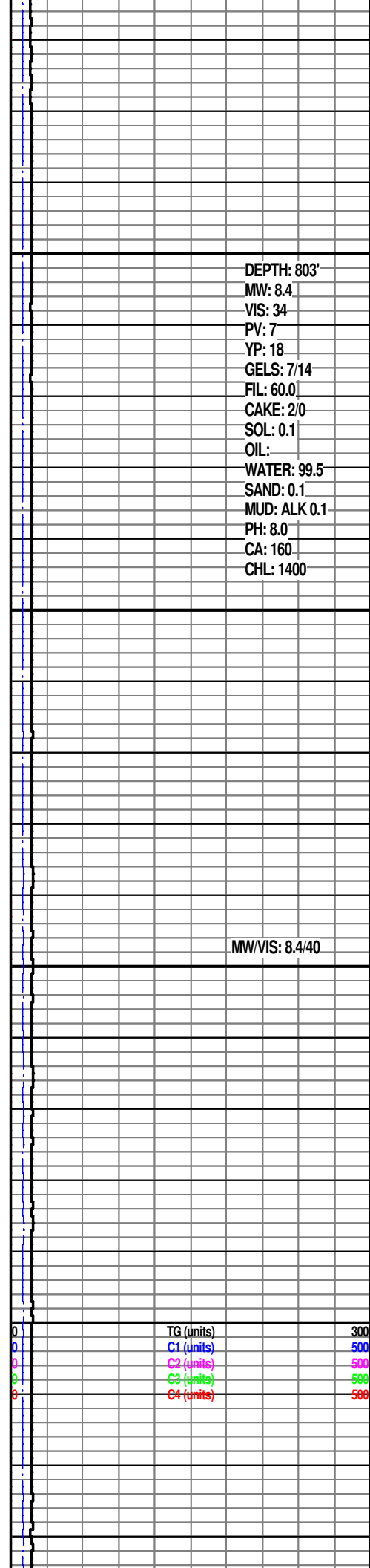


IBALL # 0601  
ATTEN 75

DEPTH: 803'  
MW: 8.4  
VIS: 45  
PV: 12  
YP: 23  
GELS: 7/14  
FIL: 60.0  
CA: 240  
SOL: 0.5  
OIL:  
WATER: 99.5  
PH: 10.0  
CHL: 1700



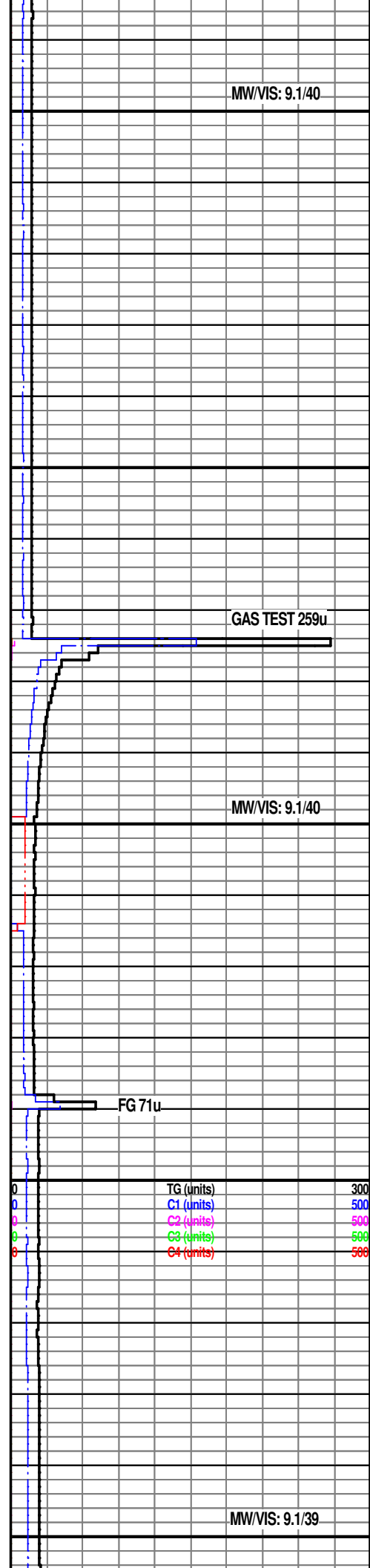
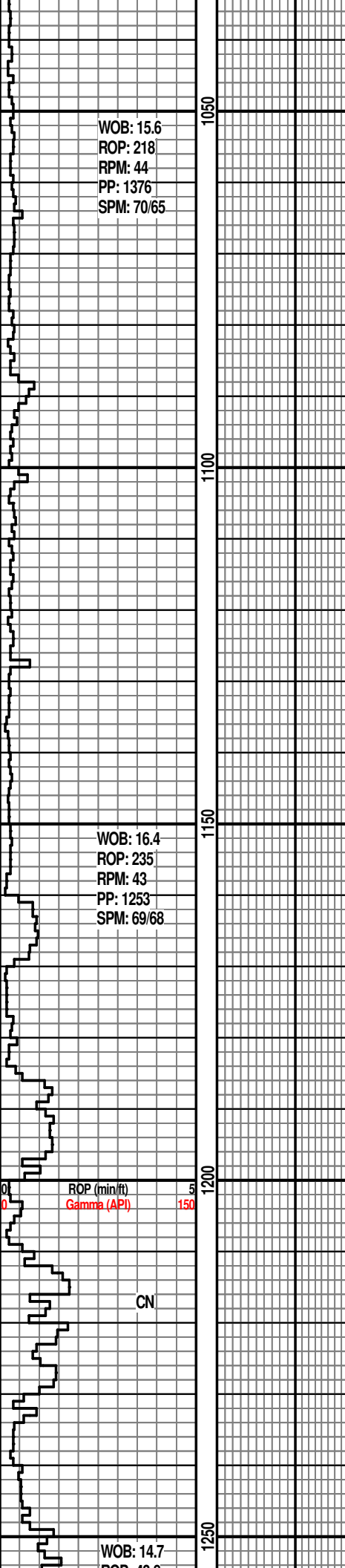
**DEV SURVEY @ 875', INC:  
1.0, AZM: 260.3**



ROP (min/ft)  
Gamma (API)

TG (units)  
C1 (units)  
C2 (units)  
C3 (units)  
C4 (units)

CN



ROP: 43.8  
RPM: 48  
PP: 1320  
SPM: 79/67

CN

WOB: 22  
ROP: 86  
RPM: 48  
PP: 1105  
SPM: 75/78

ROP (min/ft) 0  
Gamma (API) CN 150

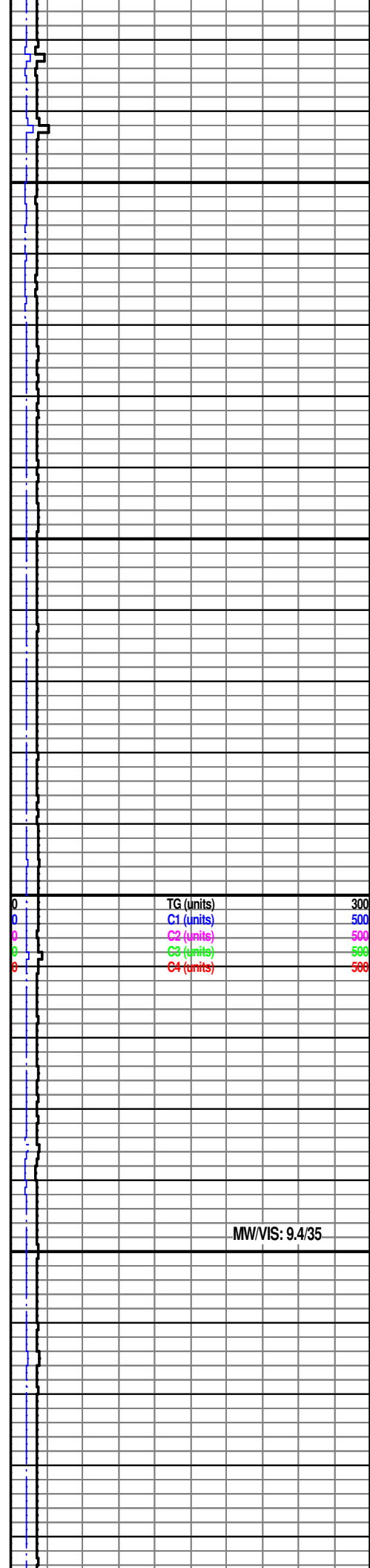
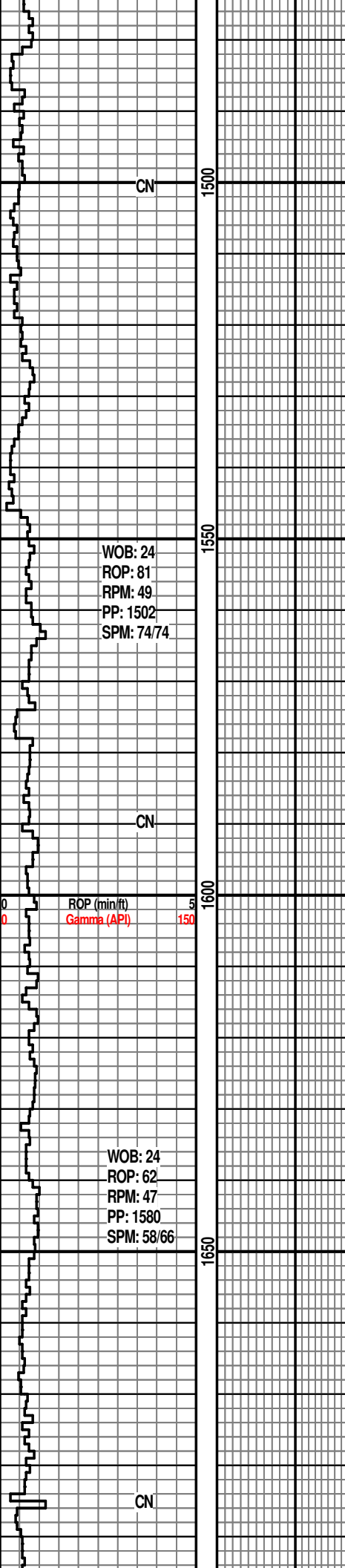
WOB: 25  
ROP: 178  
RPM: 48  
PP: 1380  
SPM: 62/70

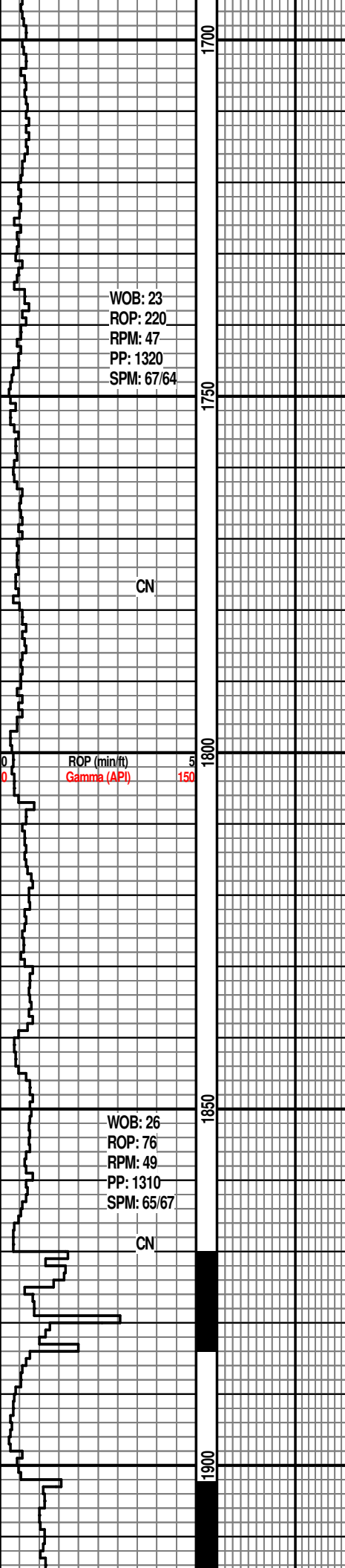
DEV SURVEY @ 1341', INC:  
1.0, AZM: 271.1

MW/VIS: 9.0/40

TG (units) 300  
C1 (units) 500  
C2 (units) 500  
C3 (units) 500  
C4 (units) 500

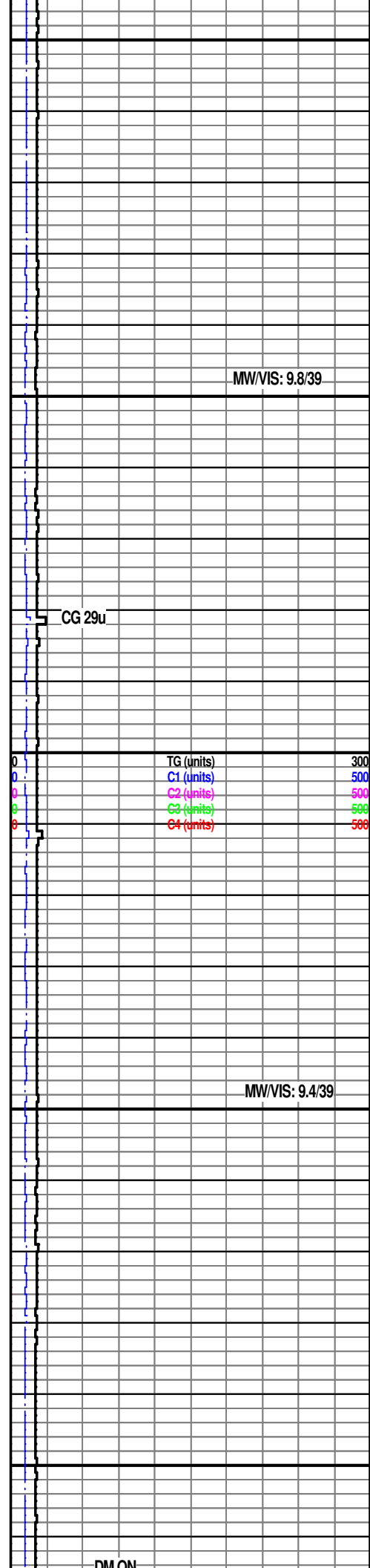
DEPTH: 1404'  
MW: 9.6  
VIS: 34  
PV: 5  
YP: 20  
GELS: 9/18  
FIL: 60.0  
CAKE: 2/  
SOL: 7.1  
OIL:  
WATER: 92.9  
SAND: 0.5  
MUD ALK: 0.8  
PH: 12  
CA: 1600  
CHL: 34,000

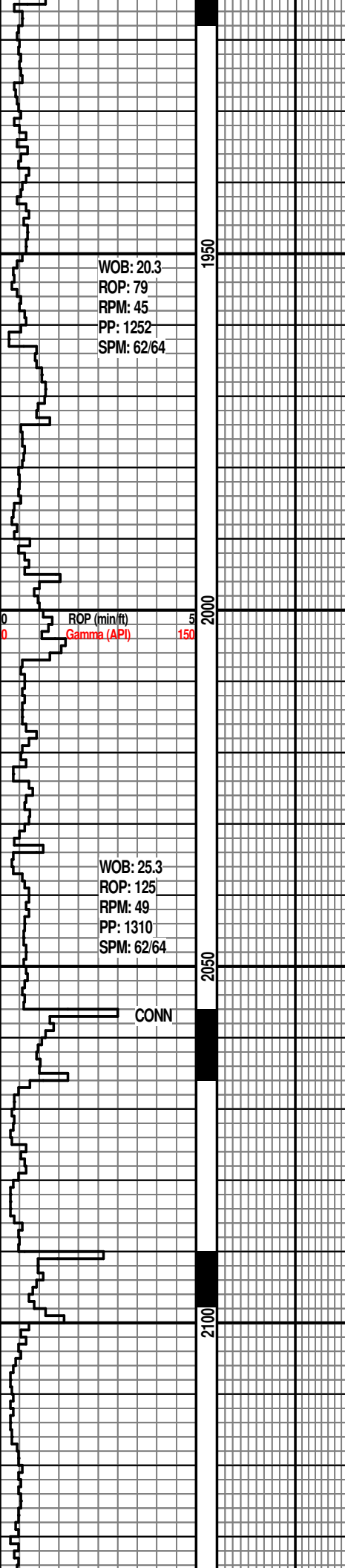




DEV SURVEY @ 1809', INC:  
 0.7, AZM: 286.1

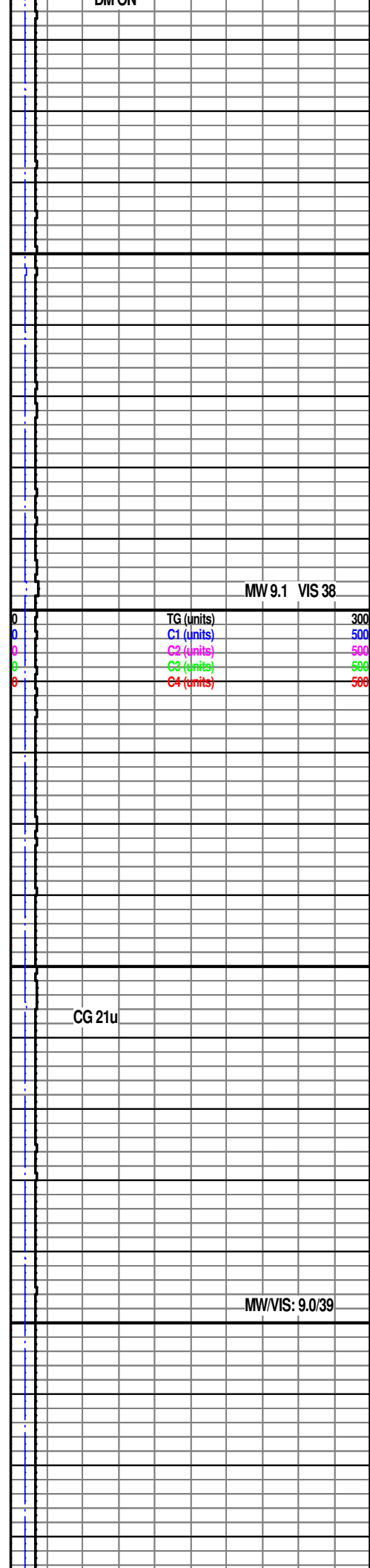
SURVEY @ 9161' INC 88.8 AZM  
 174.5 TVD 4828.46'

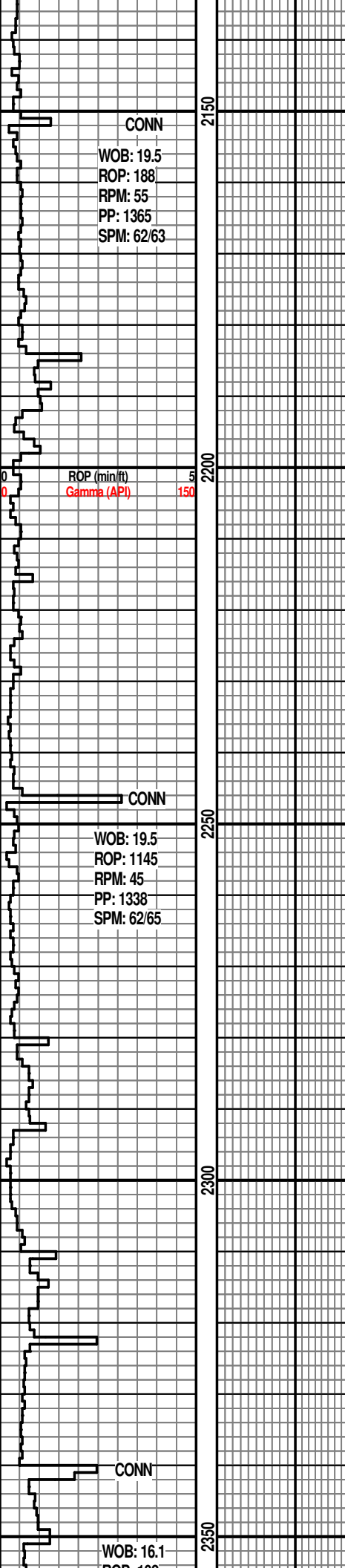




SURVEY @1996' INC 4.0 AZM  
 59.6 TVD 1995.73'

SURVEY @2091' INC 6.0 AZM  
 58.9 TVD 2090.36'





CONN  
 WOB: 19.5  
 ROP: 188  
 RPM: 55  
 PP: 1365  
 SPM: 62/63

ROP (min/ft)  
 Gamma (API)

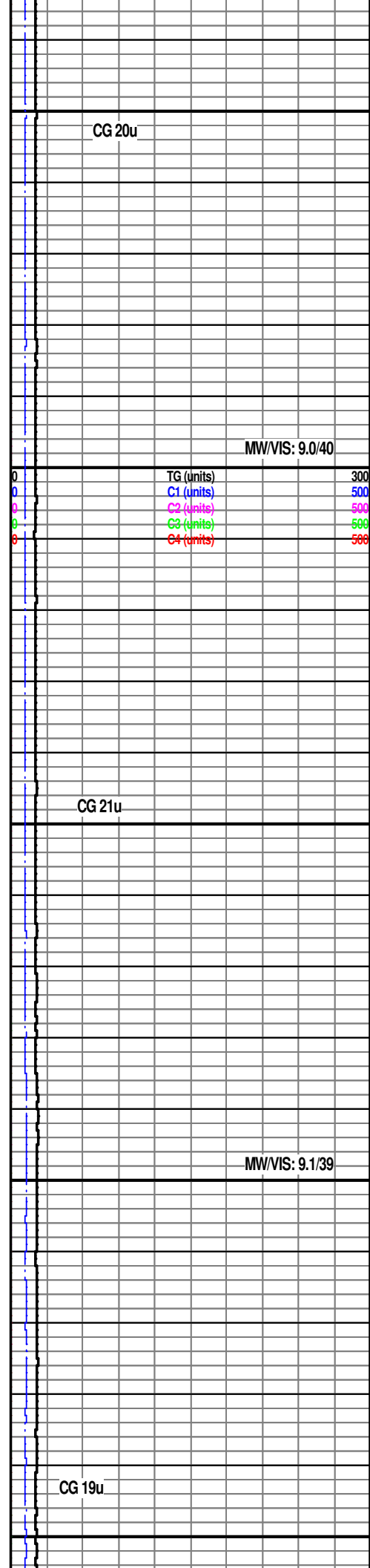
CONN  
 WOB: 19.5  
 ROP: 1145  
 RPM: 45  
 PP: 1338  
 SPM: 62/65

CONN

WOB: 16.1

SURVEY @2185' INC 6.4 AZM  
 60.8TVD 2183.81'

SURVEY @2280' INC 6.4 AZM  
 68.3 TVD 2278.22'



CG 20u

MW/VIS: 9.0/40

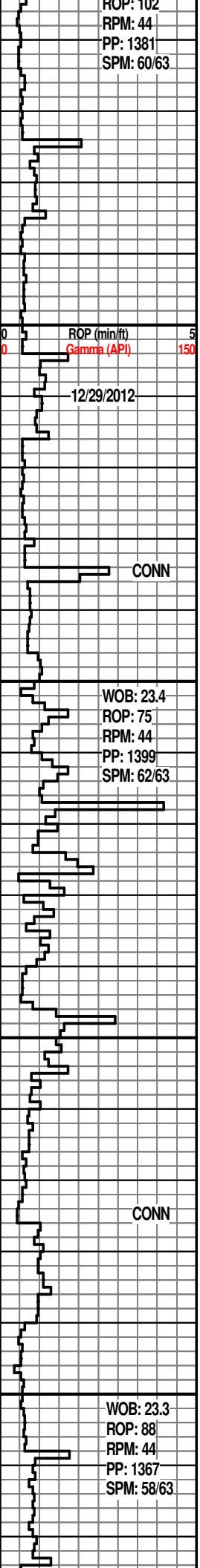
TG (units) 300  
 C1 (units) 500  
 C2 (units) 500  
 C3 (units) 500  
 C4 (units) 500

CG 21u

MW/VIS: 9.1/39

CG 19u

ROP: 102  
RPM: 44  
PP: 1381  
SPM: 60/63

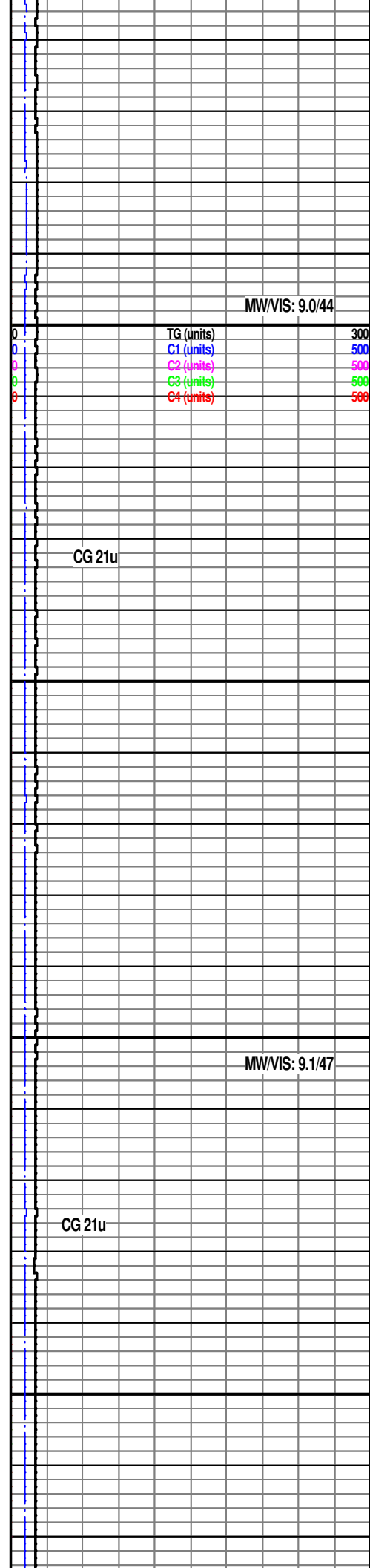


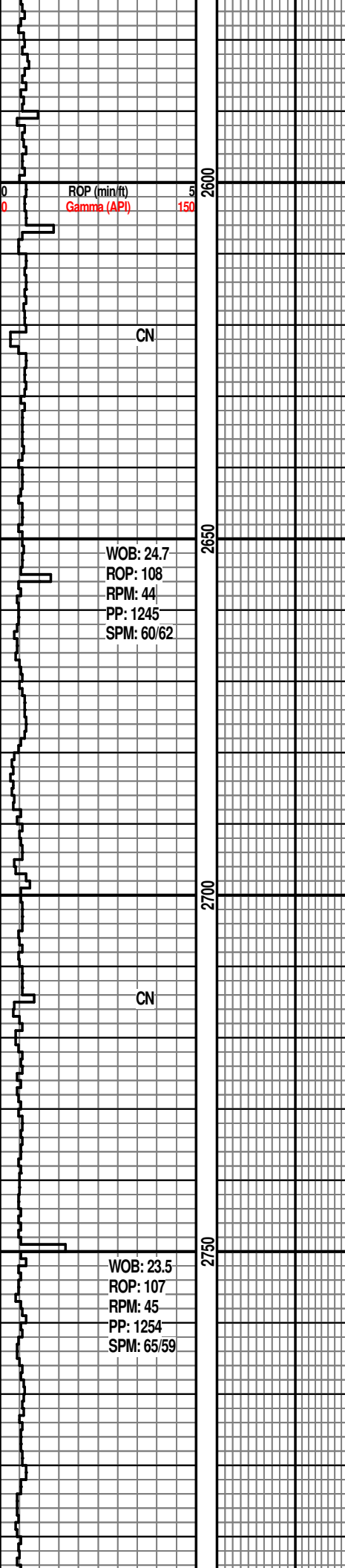
SURVEY @2374' INC 9.0  
AZM 68.5 TVD 2371.34'

SURVEY @2466' INC 12.3 AZM  
63.8 TVD 2461.77'

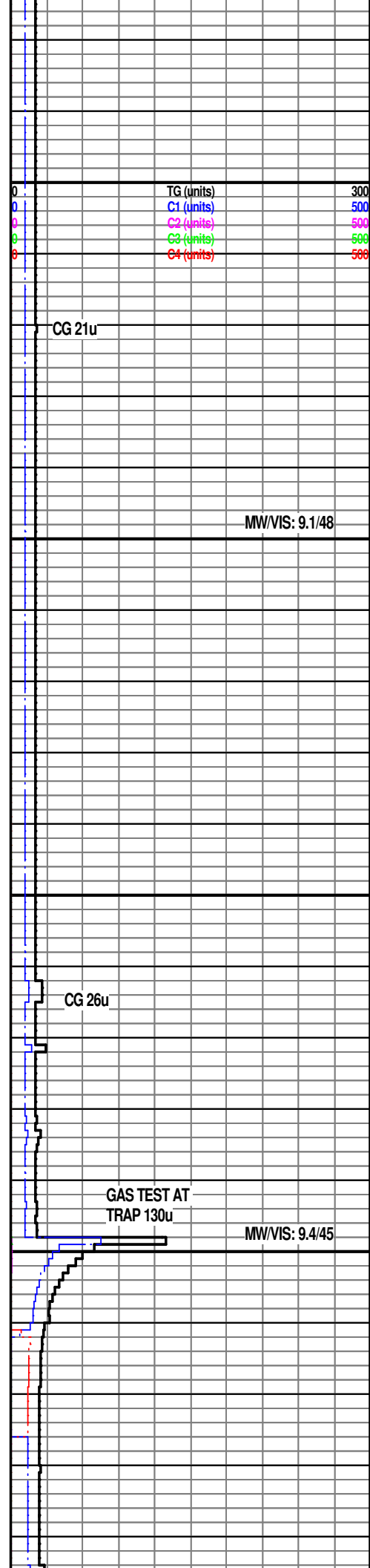
PAUL CAMPBELL ON 12/29/2012

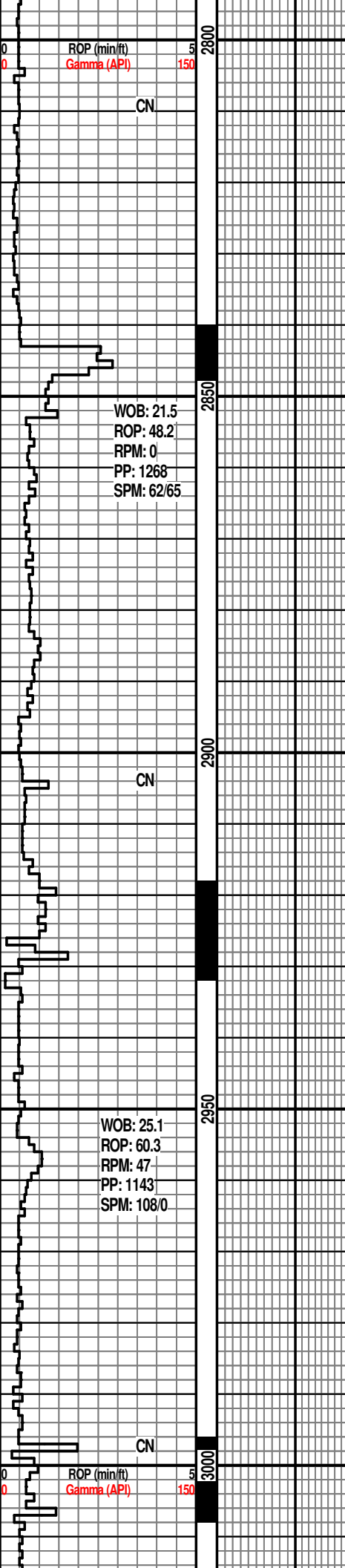
SURVEY@ 2560', INC: 15.3,  
AZM: 61.2, TVD: 2553.05'





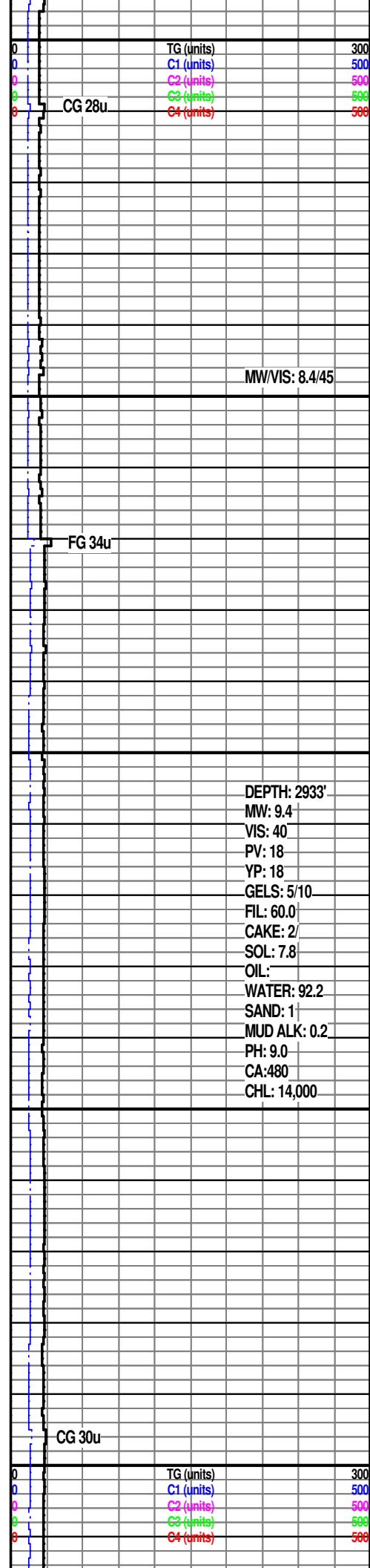
SURVEY @ 2654', INC: 15.6,  
AZM: 60.9, TVD: 2643.65'

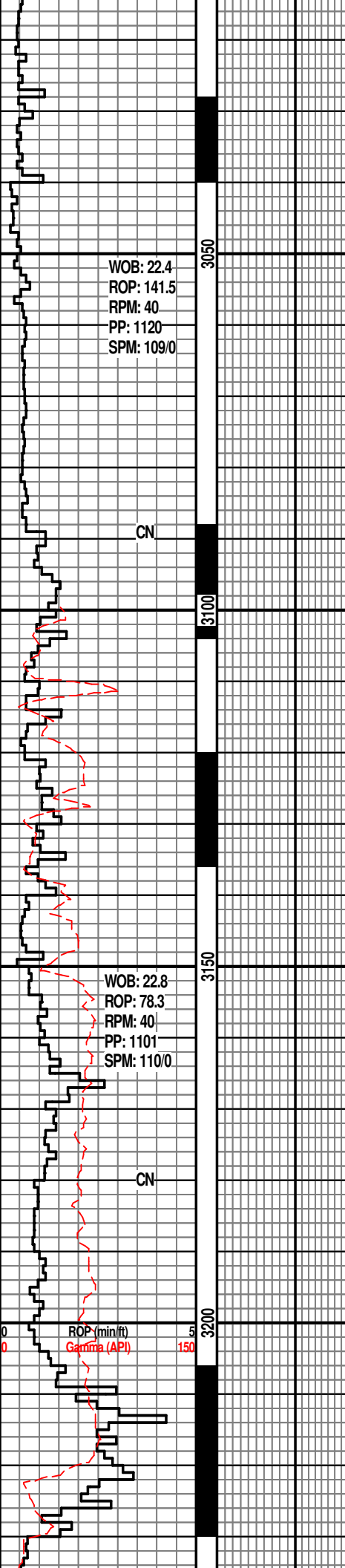




SURVEY @ 2842', INC: 14.3  
AZM: 63.1, TVD: 2825

SURVEY @ 2935', INC: 14.6, AZM:  
64.4, TVD: 2915'





SURVEY@ 3028', INC: 14.4, AZM:  
 63.7, TVD: 3005.36

SURVEY @ 3060', INC: 14.7,  
 AZM: 63.2, TVD: 3036.33

SURVEY@ 3120', INC: 15.7,  
 AZM: 62.3, TVD: 094.23

DISPLACING MUD, NO FLOW OVER  
 SHAKERS

PAUL CAMPBELL OFF @ 3210'

SURVEY@ 3212' INC 15.6 AZM  
 60.6 TVD 3182.82'

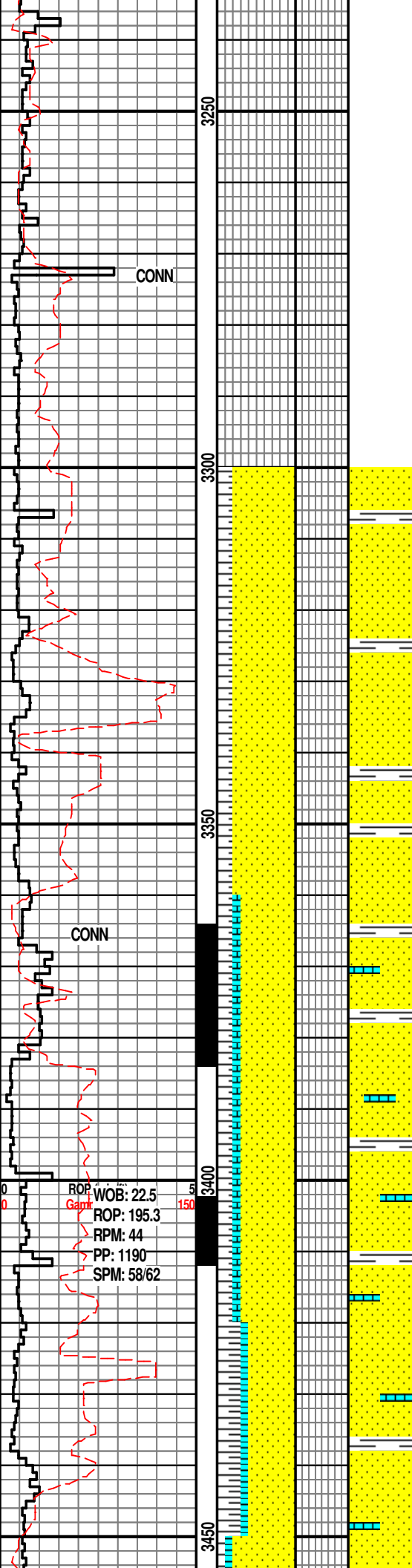
MW/VIS: 9.4/41

MW/VIS: 9.4/42

DM ON

MW 8.4 VIS 50

0	TG (units)	300
0	C1 (units)	500
0	C2 (units)	500
0	C3 (units)	500
0	C4 (units)	500



DISPLACING MUD,  
NO FLOW OVER  
SHAKERS

SS: WHT-LT GY, PRED UNCONSOL, SM  
CONSOL, SUBANG-ANG, WSRT, CALC  
CMT, FRM-HD; SH: GY-DK GY, TRC BLK,  
TRC MAUVE, PLTY-BLKY, FRM; TRC LS:  
WHT-CRM; NO FLUOR

**BASE HEEBNER @  
3,336' MD/ 3,302' TVD**

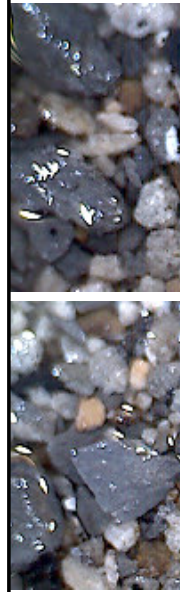
SS: WHT-LT GY, PRED UNCONSOL, SM  
CONSOL, SUBANG-ANG, WSRT, CALC  
CMT, FRM-HD; SH: GY-DK GY, TRC BLK,  
TRC MAUVE, PLTY-BLKY, FRM; TRC LS:  
WHT-CRM; NO FLUOR

SS: WHT-LT GY, PRED UNCONSOL, SM  
CONSOL, FRM-HD, CALC CMT; SH: LT  
GY, GY-DK GY, FRM-HD, BLKY, TRC  
SPNTRY; LS: MOT WHT-CRM,  
VFXLN-CRPXLN, FRM-HD, NO FLUOR

**SURVEY@ 3400' INC 15.0  
AZM 56.1 TVD 3364.42'**

SS: WHT-LT GY, PRED UNCONSOL, SM  
CONSOL, FRM-HD, CALC CMT; SH: LT  
GY, GY-DK GY, FRM-HD, BLKY, TRC  
SPNTRY; LS: MOT WHT-CRM,  
VFXLN-CRPXLN, FRM-HD, NO FLUOR

SS: WHT-LT GY, PRED UNCONSOL, SM  
CONSOL, FRM-HD, CALC CMT; SH: LT  
GY, GY-DK GY, FRM-HD, BLKY, TRC  
SPNTRY; LS: MOT WHT-CRM,  
VFXLN-CRPXLN, FRM-HD, NO FLUOR



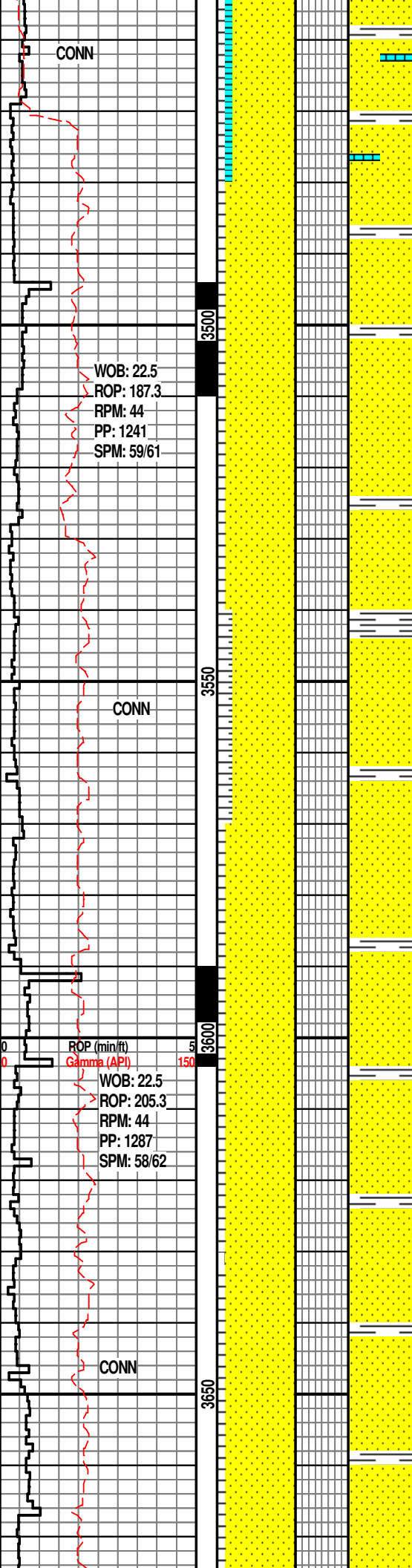
CG 35u

MW 8.4 VIS 50

CG 31u

MW 8.4 VIS 50

0	TG (units)	300
0	C1 (units)	500
0	C2 (units)	500
0	C3 (units)	500
0	C4 (units)	500



CONN

WOB: 22.5  
 ROP: 187.3  
 RPM: 44  
 PP: 1241  
 SPM: 59/61

3500

CONN

3550

ROP (min/ft)  
 Gamma (API)  
 WOB: 22.5  
 ROP: 205.3  
 RPM: 44  
 PP: 1287  
 SPM: 58/62

3600

CONN

3650

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; LS: MOT WHT-CRM, VFXLN-CRPXLN, FRM-HD, TR PYR, NO FLUOR

SURVEY@ 3493' INC 14.4  
 AZM 59.2 TVD 3454.38'

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, TR PYR, NO FLUOR

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, TR PYR, NO FLUOR

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, TR PYR, NO FLUOR

SURVEY@ 3586' INC 14.4  
 AZM 54.4 TVD 3544.46'

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, NO FLUOR

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, NO FLUOR

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, NO FLUOR

SURVEY @ 3680', INC: 14.7,  
 AZM: 56.8 , TVD: 3635.45'

CG 28u

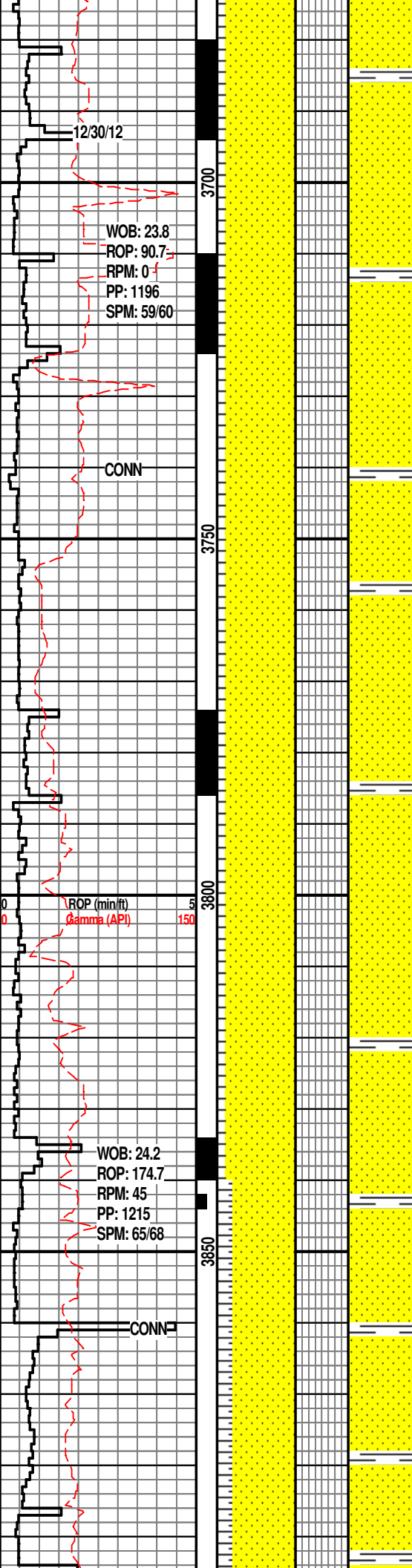
MW 8.4 VIS 50

CG 28u

MW 8.4 VIS 50

0	TG (units)	300
0	C1 (units)	500
0	C2 (units)	500
0	C3 (units)	500
0	C4 (units)	500

CG 28u



SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, NO FLUOR

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, NO FLUOR

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; TRC LS, NO FLUOR

**LANSING @ 3,750' MD/  
3,703' TVD**

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; NO FLUOR

**SURVEY @ 3774', INC: 14.9,  
AZM: 60.2, TVD: 3726.33'**

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; NO FLUOR

**SURVEY @ 3831' INC 13.0  
AZM 59.7 TVD 3781.60'**

SS: WHT-LT GY, PRED UNCONSOL, SM CONSOL, FRM-HD, CALC CMT; SH: LT GY, GY-DK GY, FRM-HD, BLKY, TRC SPNTRY; NO FLUOR

**TOO FOR CURVE ASSEMBLY @  
3834' MD ON 12/30/2012**

**BIT #3 DEPTH IN 3835' MD, SIZE: 8.75",  
TYPE: MMD55 M, JETS: 5X12'S**

**SURVEY @ 3862' INC 13.3  
AZM 60.2 TVD 3811.76'**

SS: TRNSL-OFF WH-WH, VF-F-M GR, MOD SRTD, SBANG-SBRD, MOD W CONS, SH INCLS, SME LS CMT; SH: LT-M GY, OCC DK GY, CHNKY, PLTY, SLI FRM-FRM, NSOC

**SURVEY @ 3894' INC 14.7  
AZM 60.4 TVD 3842.81'**

SS: TRNSL-OFF WH-WH, VF-F-M GR, MOD SRTD, SBANG-SBRD, MOD W CONS, SH INCLS, SME LS CMT; SH: LT-M GY, OCC DK GY, CHNKY, PLTY, SLI FRM-FRM, NSOC



MW 8.7 VIS 57

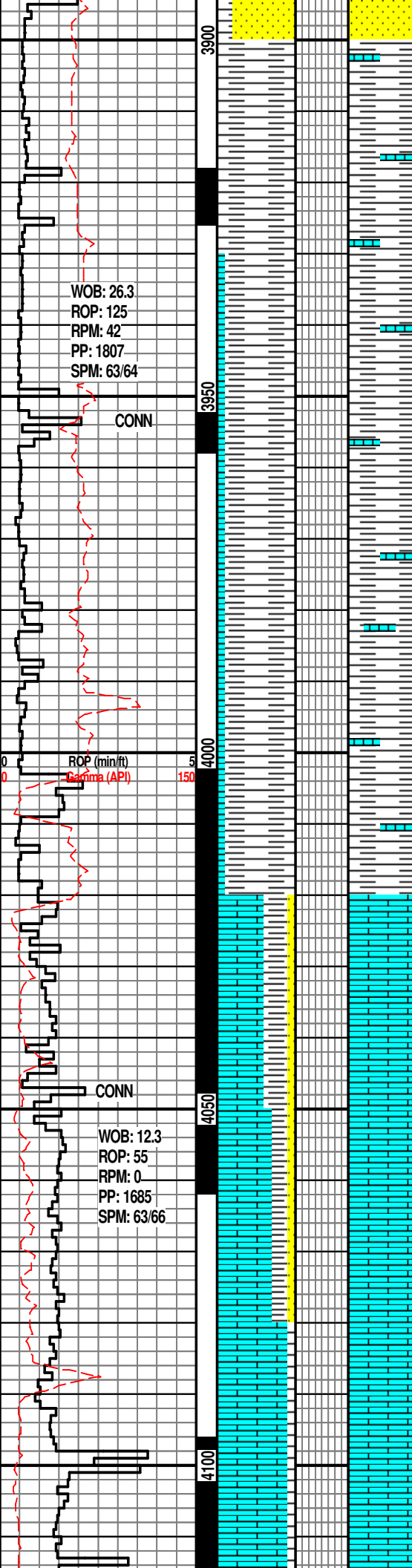
CG 27u

TG (units)	300
C1 (units)	500
C2 (units)	500
C3 (units)	500
C4 (units)	500

BUTANE TEST  
195u

MW 9.2 VIS 51

CG 26u



WOB: 26.3  
 ROP: 125  
 RPM: 42  
 PP: 1807  
 SPM: 63/64

CONN

ROP (min/ft)  
 Gamma (API)

CONN

WOB: 12.3  
 ROP: 55  
 RPM: 0  
 PP: 1685  
 SPM: 63/66

GY, OCC DK GY, CHNKY, PLTY, SLI FRM-FRM, NSOC

**SURVEY @ 3925' INC 16.3  
 AZM 58.4 TVD 3872.68'**

SH: LT-M GY, CHNKY, PLTY, SBBLKY IP, SLI FRM-FRM, DLL ERTHY LSTR;; SH INCLS, LS INCLS, TRC LS, NSOC

**SURVEY @ 3956' INC 17.8  
 AZM 57 TVD 3902.32'**

SH: LT-M GY, OCC DK GY, CHNKY, PLTY, SPLNTY, SLI FRM-FRM, SH INCLS, SME LS CMT, NSOC

**SURVEY @ 3987' INC 19.8  
 AZM 56.1 TVD 3931.66'**

SH: LT-M GY, OCC DK GY, SME BLK CHNKY, PLTY, SPLNTY, SLI FRM-FRM, SH INCLS, SME LS CMT, NSOC

**SURVEY @ 4019' INC 21.8  
 AZM 57.2 TVD 3961.57'**

SH: LT-M GY, OCC DK GY, CHNKY, PLTY, SPLNTY, SLI FRM-FRM, SH INCLS, SME LS CMT, TRC SS, NSOC

**COTTAGE GROVE @  
 4,002' MD/ 3,961' TVD**

**SURVEY @ 4050' INC 24.6  
 AZM 59.9 TVD 3990.06'**

LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, TRC SS, DLL WH FLSH CT

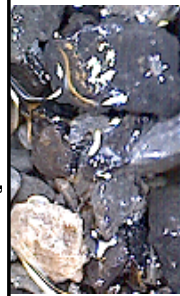
LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, TRC SS, DLL WH FLSH CT

**SURVEY @ 4081' INC 27.9  
 AZM 60.8 TVD 4017.86'**

LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, TRC SS, DLL WH FLSH CT

MW 9.2 VIS 51

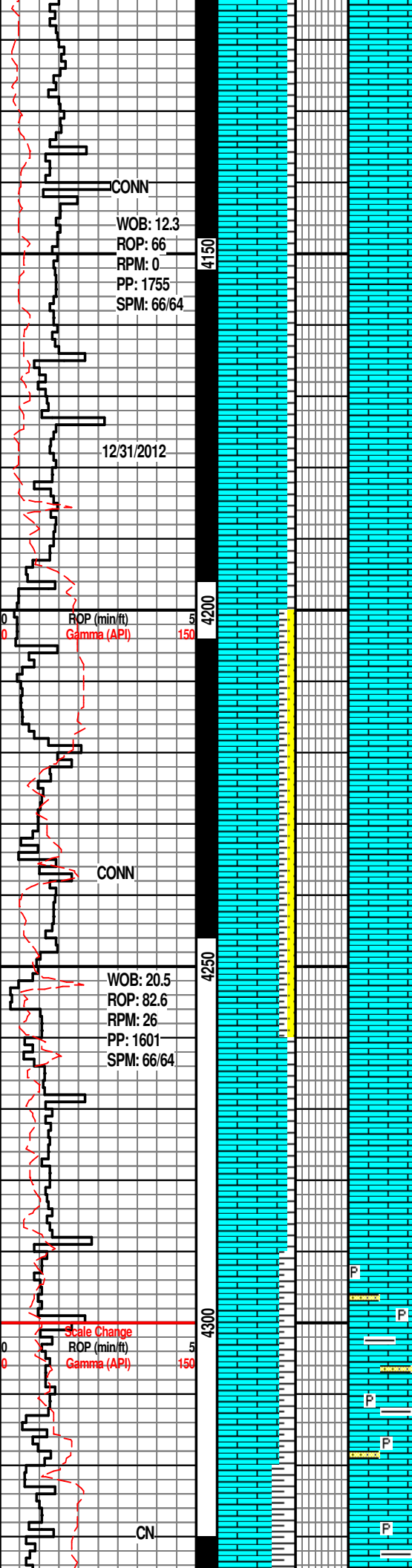
CG 25u



TG (units)	300
C1 (units)	500
C2 (units)	500
C3 (units)	500
C4 (units)	500

CG 26u

MW 9.2 VIS 51



**SURVEY @ 4113' INC 31.0  
AZM 61.9 TVD 4045.73'**

LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, TRC SS, DLL WH FLSH CT

**SURVEY @ 4144' INC 34.0  
AZM 63.5 TVD 4071.87'**

LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, TRC SS, DLL WH FLSH CT

**SURVEY @ 4174' INC 37.1,  
AZM 63.4 TVD 4096.27'**

LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, TRC SS, DLL WH FLSH CT

**SURVEY @ 4205' INC 38.8  
AZM 62.1 TVD 4120.72'**

LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, TRC SS, DLL WH FLSH CT

**SURVEY @ 4237' INC 40.02  
AZM 60.5 TVD 4145.41'**

LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, TRC SS, DLL WH FLSH CT

**SURVEY @ 4267', INC: 41.5,  
AZM: 59.6, TVD: 4168.10'**

LS: WH-OFF WH, CRYPTO-MICRO XLN, SBSMTH TXT, SLI FRM-FRM; SH: LT-M GY, DK GY- BLK, OCC BRN, CHNKY, PLTY, SPLNTY IP, SLI FRM-FRM, DLL WH FLSH CT

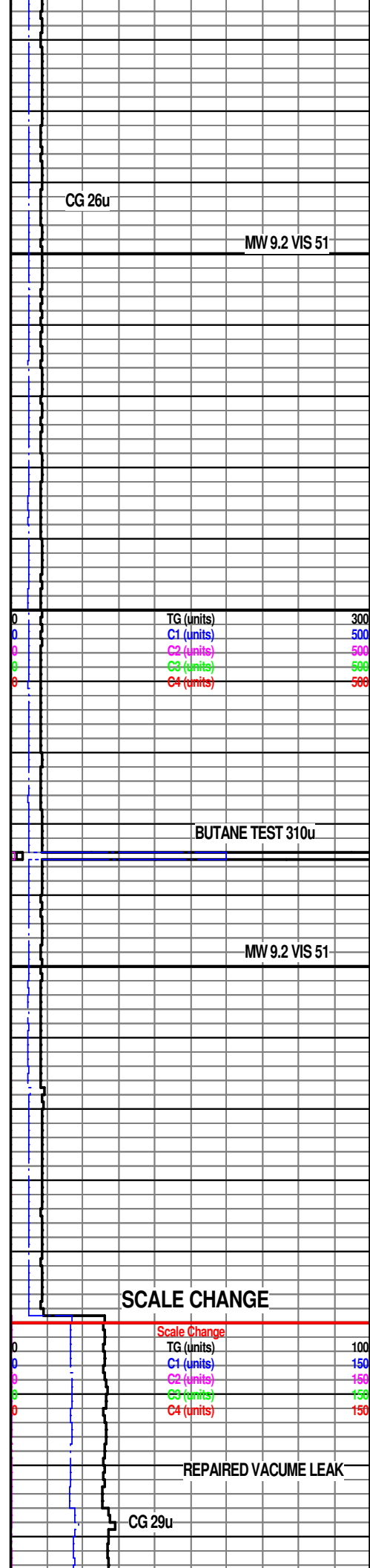
**SURVEY @ 4299', INC: 43.8,  
AZM: 59.3, TVD: 4191.64'**

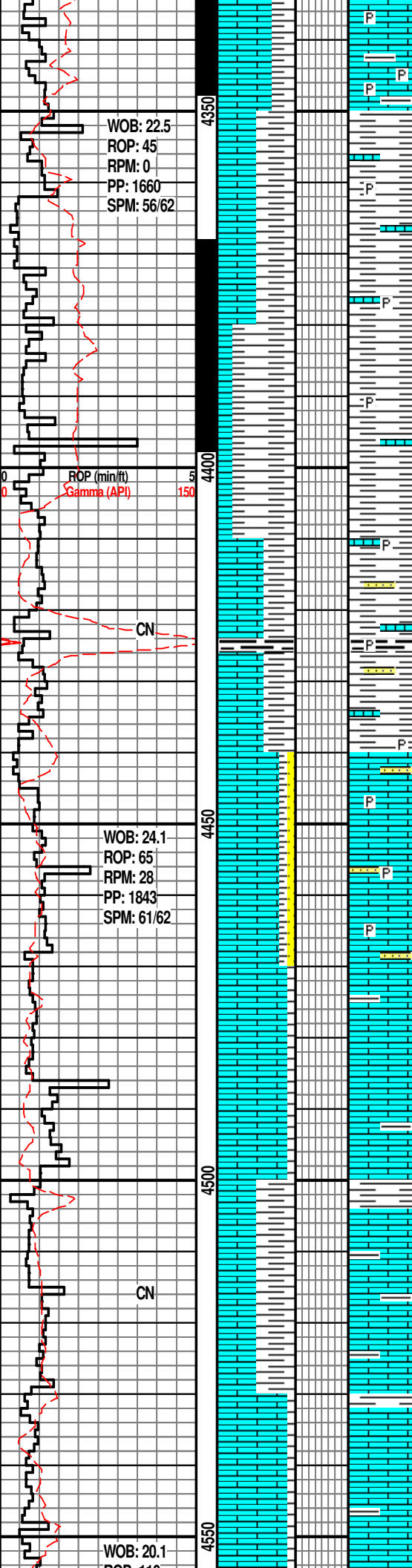
PAUL CAMPBELL ON @ 4290'

LS: PRED LT GY-OFF WH, CRM & MOTTLED IP, C XLN-MC XLN, FRM-BRIT, OCC HD, NO VIS POR; SH: LT GY-GY, PRED SFT, OCC FRM, DLL RHTY LSTR, RGH TXT, BLKY-PLTY, OCC SPLTY, V SLTY, SL CALC CMNT; TRC SS, TRC FREE PYR, SL GLD FLUOR

**SURVEY @ 4331', INC: 45.8, AZM:  
60.0, TVD: 4214.34'**

LS: PRED CRM & MOTTLED, OFF WHI LT PNK IP, OCC TRNSL, C XLN-MC XLN, FRM-BRIT, OCC HD, NO VIS POR, SH: LT GY-GY, PRED SFT, OCC FRM, DLL RHTY LSTR, RGH TXT, BLKY-PLTY, OCC SPLTY, V SLTY, SL CALC CMNT; TRC SS, TRC FREE PYR, SL GLD FLUOR





FRM-BRIT, OCC HD, NO VIS POR; SH: GY-DRK GY, BLK IP, PRED SFT, OCC FRM, RHTY-WXY LSTR, SM-RGH TXT, BLKY-PLTY, OCC SPLTY, SLTY, OCC CARB; TRC SS, TRC FREE PYR

MW 9.2 VIS 55

**SURVEY @ 4362', INC: 46.8,  
AZM: 59.6, TVD: 4235.76'**

LS: PRED CRM & MOTTLED, C XLN-MC XLN, FRM-BRIT, OCC HD, NO VIS POR; SH: GY, RED, BLK IP, PRED SFT, OCC FRM, RHTY-WXY LSTR, SM-RGH TXT, BLKY-PLTY, OCC SPLTY, SL SLTY

**SURVEY @ 4393', INC: 47.3,  
AZM: 59.3, TVD: 4256.88**

SH: GY, RED, BLK IP, PRED SFT, OCC FRM, RHTY-WXY LSTR, SM-RGH TXT, BLKY-PLTY, OCC SPLTY, SL SLTY; LS: PRED CRM & MOTTLED, C XLN-MC XLN, FRM-BRIT, OCC HD, NO VIS POR

**OSWEGO @ 4,423'  
MD / 4,277.32' TVD**

LS: CRM-LT GY, OFF WHI & MOTTLED IP, C XLN-MC XLN, FRM-BRIT, OCC HD; SH: GY, RED, BLK IP, PRED SFT, OCC FRM, RHTY-WXY LSTR, SM-RGH TXT, BLKY-PLTY, OCC SPLTY, CARB IP, SL SLTY, TRC PYR

**SURVEY @ 4455', INC: 47.5,  
AZM: 59.1, TVD: 4298.85**

LS: CRM-LT GY, OFF WHI & MOTTLED IP, C XLN-MC XLN, FRM-BRIT, OCC HD; SH: LT GY-TAN, OCC DK GY, DLL RTHY LSTR, SL RGH TXT, PRED BLKY, PLTY IP, SLTY IP; SS: OFF WHI-TRNSL, FG-VFG, MOD SRTD, SB RNDD, FRI, CALC CMNT; TRC EMBD PYR

**SURVEY @ 4485', INC: 48.6,  
AZM: 59.0, TVD: 4318.90**

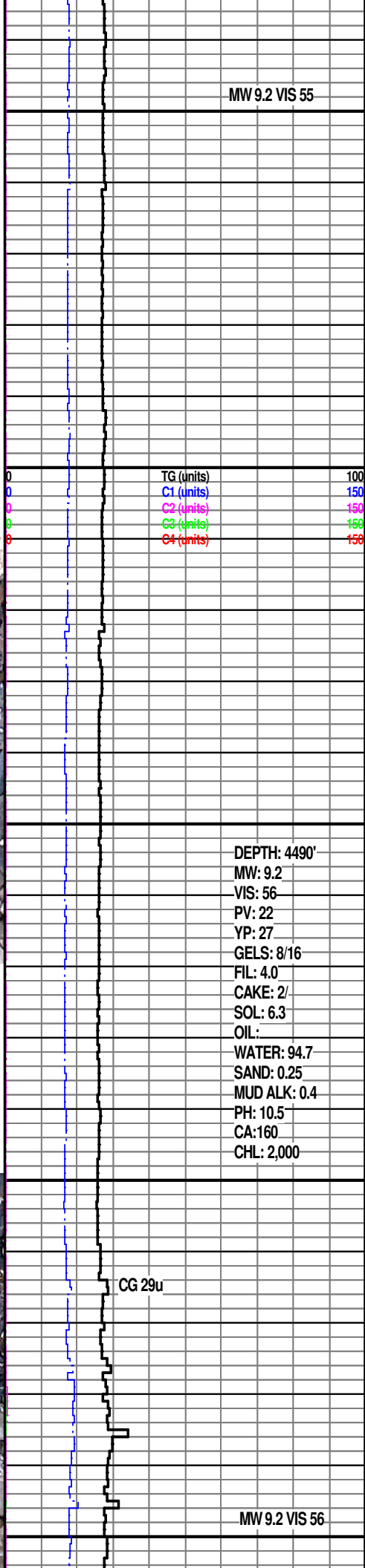
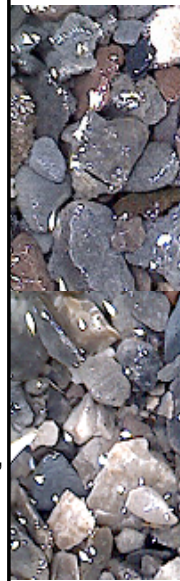
LS: CRM-LT TAN, GY & MOTTLED IP, C XLN-MC XLN, FRM-BRIT, OCC HD; SH: LT-DK GY, RED, DLL RTHY LSTR, SL RGH TXT, PRED BLKY, PLTY IP, SLTY IP

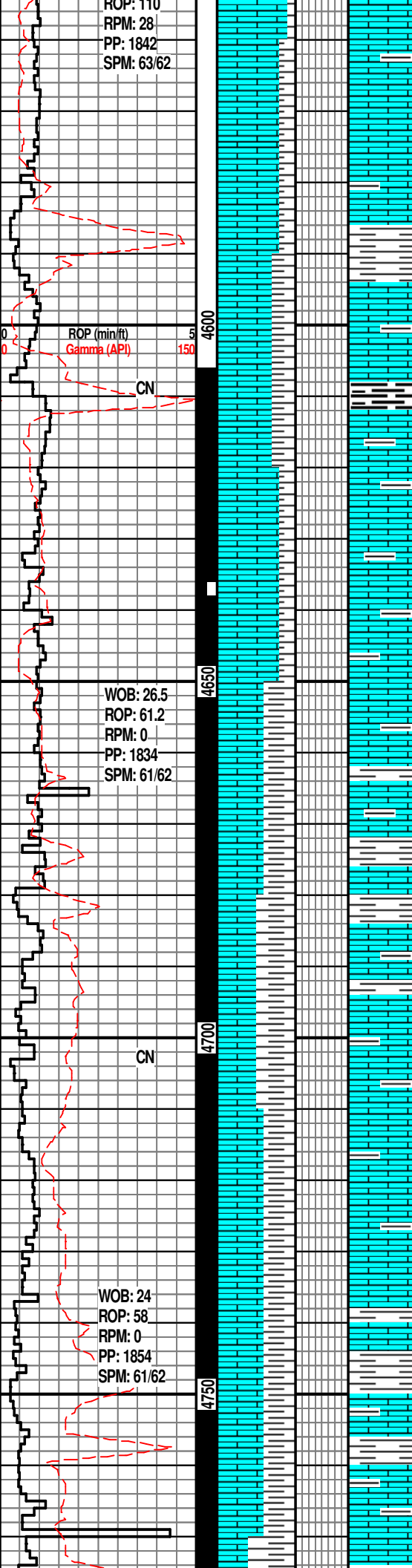
SH: GY-DRK GY, BLK IP, RTHY LSTR, RGH TXT, PRED BLKY, OCC PLTY -SPLTY, SL SLTY, CARB; LS: CRM-LT TAN, GY & MOTTLED IP, XLN-MC XLN, FRM-BRIT, OCC HD

**SURVEY @ 4546', INC: 49.8,  
AZM: 58.0, TVD: 4358.76**

LS: PRED CRM-LT TAN, GY & MOTTLED IP, C XLN-MC XLN, FRM-HD, OCC BRIT; SH: GY LT-GY, DLL RTHY LSTR, SL RGH TXT, PRED BLKY, PLTY IP, SLTY IP

MW 9.2 VIS 56





**SURVEY @ 4577', INC: 49.4,  
AZM: 58.1, TVD: 4378.85**

LS: PRED CRM-LT TAN, GY & MOTTLED IP, C XLN-MC XLN, FRM-HD, OCC BRIT;  
SH: GY LT-GY, DRK GY IP, DLL RTHY-WXY LSTR, SL RGH TXT, PRED BLKY, PLTY IP, CARB IP, SL SLTY IP

**CHEROKEE @ 4,588'MD /  
4,386' TVD**

**SURVEY @ 4608', INC: 49.7, AZM:  
56.1, TVD: 4398**

LS: PRED CRM-LT TAN, GY & MOTTLED IP, C XLN-MC XLN, FRM-HD, OCC BRIT,  
NO VIS POR; SH: GY LT-GY, DRK GY IP, DLL RTHY-WXY LSTR, SL RGH TXT,  
PRED BLKY, PLTY IP, CARB, SL SLTY IP, V SL LT YL-GLD FLUOR

**SURVEY @ 4640', INC: 51.1,  
AZM: 52.2, TVD: 4419.37**

LS: PRED CRM-LT TAN, GY & MOTTLED IP, C XLN-MC XLN, FRM-HD, OCC BRIT,  
NO VIS POR; SH: GY LT-GY, DRK GY IP, DLL RTHY-WXY LSTR, SL RGH TXT,  
PRED BLKY, PLTY IP, CARB IP

**VERDIGRIS @ 4,664' MD /  
4,434' TVD**

LS: GY LT GY, CRM & MOTTLED IP, C XLN-MC XLN, FRM-HD, OCC BRIT, NO VIS  
POR; SH: GY LT-GY, DRK GY IP, DLL RTHY-WXY LSTR, SL RGH TXT, PRED  
PLTY-SPLTY, BLKY IP, SL SLTY IP, CARB IP

**SURVEY @ 4671', INC: 52.8,  
AZM: 48.7, TVD: 4438.48**

LS: GY LT GY, CRM & MOTTLED IP, C XLN-MC XLN, FRM-HD, OCC BRIT, NO VIS  
POR; SH: GY LT-GY, DRK GY IP, DLL RTHY-WXY LSTR, SL RGH TXT, PRED  
PLTY-SPLTY, BLKY IP, SL SLTY IP, CARB IP

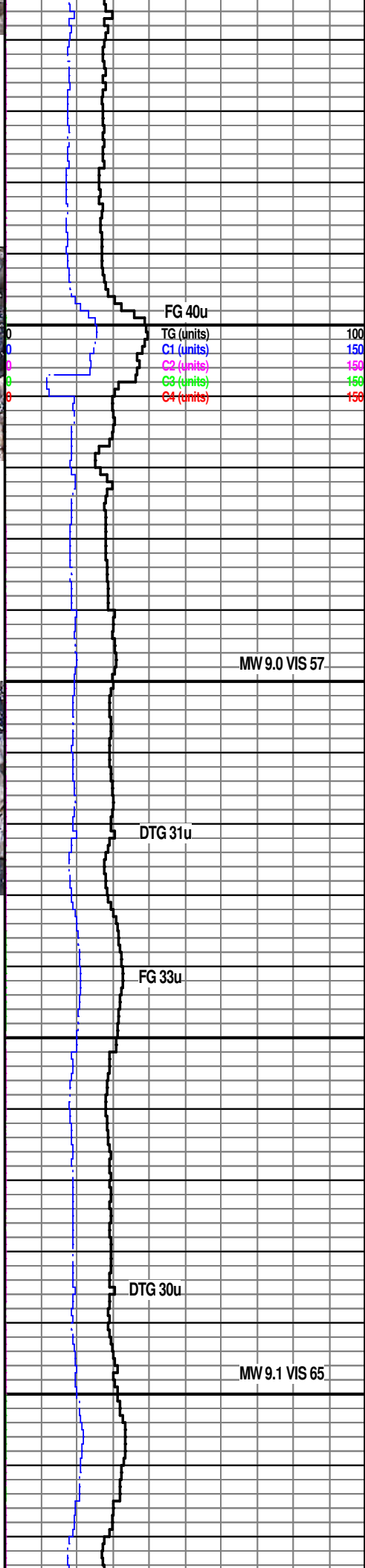
**SURVEY @ 4703', INC: 54.1,  
AZM: 45.7, TVD: 4457.54**

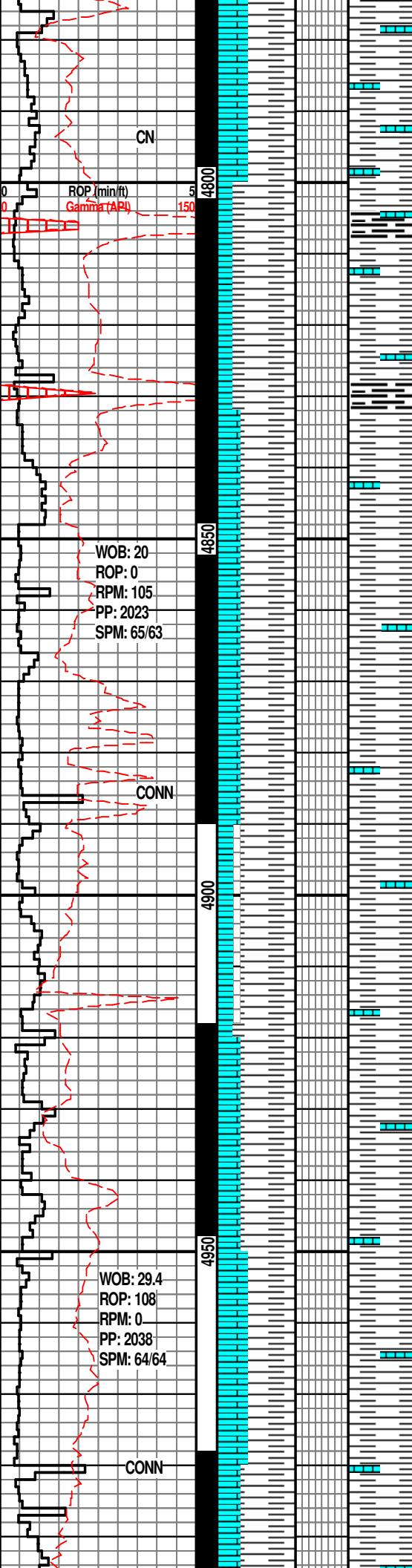
LS: PRED CRM-LT GY, MOTTLED IP, C XLN, FRM-HD, OCC BRIT, NO VIS POR;  
SH: GY LT-GY, RD IP, DLL RTHY LSTR, SL RGH TXT, BLKY- PLTY, OCC SPLTY,  
SL SLTY

**SURVEY @ 4734', INC: 56.6, AZM:  
45.3, TVD: 4475.16**

LS: PRED CRM-LT GY, MOTTLED IP, C XLN, FRM-HD, OCC BRIT, NO VIS POR;  
SH: GY LT-GY, RD IP, DLL RTHY LSTR, SL RGH TXT, BLKY- PLTY, OCC SPLTY,  
SL SLTY

**SURVEY @ 4764', INC: 57.8,**





SH: LT GY-GY, TAN, RED, PRED  
 PLTY-SPLTY, FIS, OCC BLKY, RHTY-WXY  
 LSTR, PRED SM TXT, OCC RGH,  
 SFT-FRM, OCC SLTY; LS: LT GY-CRM,  
 TAN, MOTTLED IP, PRED C XLN,  
 FRM-BRIT, NO VIS POR; NSFOC

SH: LT GY-GY, TAN, RED, PRED  
 PLTY-SPLTY, FIS, OCC BLKY, RHTY-WXY  
 LSTR, PRED SM TXT, OCC RGH,  
 SFT-FRM, OCC SLTY; LS: LT GY-CRM,  
 TAN, MOTTLED IP, PRED C XLN,  
 FRM-BRIT, NO VIS POR; NSFOC

PAUL CAMPBELL OFF @ 4830'

**SURVEY @ 4826' INC 62.5 AZM**  
 42.8 TVD 4522.43

**SURVEY @ 4856' INC 62.6 AZM**  
 40.7 TVD 4535.59

**SURVEY @ 4887' INC 68.2 AZM**  
 38.4 TVD 4547.77

SH: LT GY-GY, TAN, RED, PRED  
 PLTY-SPLTY, FIS, OCC BLKY, RHTY-WXY  
 LSTR, PRED SM TXT, OCC RGH,  
 SFT-FRM, OCC SLTY; LS: LT GY-CRM,  
 TAN, MOTTLED IP, PRED C XLN,  
 FRM-BRIT, NO VIS POR; NSFOC

SH: LT GY-GY, TAN, RED, PRED  
 PLTY-SPLTY, FIS, OCC BLKY, RHTY-WXY  
 LSTR, PRED SM TXT, OCC RGH,  
 SFT-FRM, OCC SLTY; LS: LT GY-CRM,  
 TAN, MOTTLED IP, PRED C XLN,  
 FRM-BRIT, NO VIS POR; NSFOC

**SURVEY @ 4918' INC 70.8**  
 AZM 36.8 TVD 4558.62

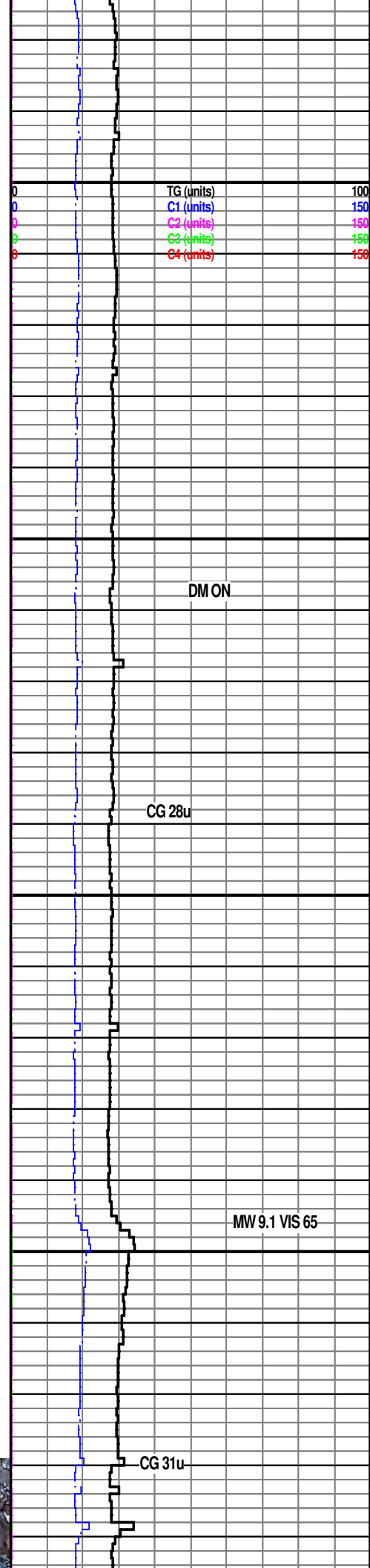
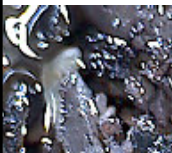
SH: LT GY-GY, TAN, RED, PRED  
 PLTY-SPLTY, FIS, OCC BLKY, RHTY-WXY  
 LSTR, PRED SM TXT, OCC RGH,  
 SFT-FRM, OCC SLTY; LS: LT GY-CRM,  
 TAN, MOTTLED IP, PRED C XLN,  
 FRM-BRIT, NO VIS POR; NSFOC

**SURVEY @ 4948' INC 73.0**  
 AZM 34.2 TVD 4667.94

SH: LT GY-GY, TAN, RED, PRED  
 PLTY-SPLTY, FIS, OCC BLKY, RHTY-WXY  
 LSTR, PRED SM TXT, OCC RGH,  
 SFT-FRM, OCC SLTY; LS: LT GY-CRM,  
 TAN, MOTTLED IP, PRED C XLN,  
 FRM-BRIT, NO VIS POR; NSFOC

**SURVEY @ 4979' INC 73.6**  
 AZM 30.8 TVD 4576.85

SH: LT GY-GY, TAN, RED, PRED  
 PLTY-SPLTY, FIS, OCC BLKY, RHTY-WXY  
 LSTR, PRED SM TXT, OCC RGH,  
 SFT-FRM, OCC SLTY; LS: LT GY-CRM,  
 TAN, MOTTLED IP, PRED C XLN,  
 FRM-BRIT, NO VIS POR; NSFOC



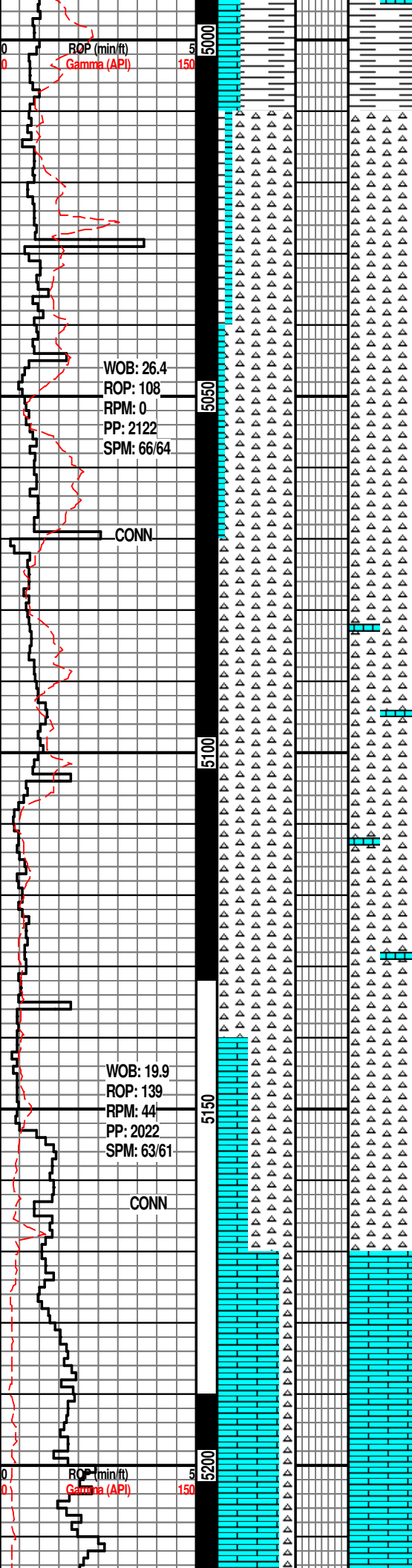
TG (units) 100  
 C1 (units) 150  
 C2 (units) 150  
 C3 (units) 150  
 C4 (units) 150

DM ON

CG 28u

MW 9.1 VIS 65

CG 31u



SFI-FRM, OCC SLY; LS: LT GY-CRM, TAN, MOTTLED IP, PRED C XLN, FRM-BRIT, NO VIS POR; NSFOC

**SURVEY @ 5009' INC 75.5 AZM  
27.7 TVD 4584.85**

**MISS. CHAT @ 5,028' MD  
/ 4,589.3'TVD**

CHRT: WH-OFF WH, SME GY, SME TRNSL, SBSMTH- SMTH TXT, HD, DNS; SH: DK GY-BLK,SME BRN, CHNKY, PLTY, SBSMTH TXT; LS: CRM-OFF WH, MICRO-CRYPTO XLN, SLI FRM-FRM, DLL YLLW FLUOR, NSOC

**SURVEY @ 5040' INC 77.5 AZM  
25.3 TVD 4592.08'**

CHRT: WH-OFF WH, SME GY, SME TRNSL, SBSMTH- SMTH TXT, HD, DNS; SH: DK GY-BLK,SME BRN, CHNKY, PLTY, SBSMTH TXT; LS: CRM-OFF WH, MICRO-CRYPTO XLN, SLI FRM-FRM, DLL YLLW FLUOR, NSOC

**SURVEY @ 5070' INC 79.8  
AZM 22.1 TVD 4597.99'**

CHRT: BGE-OFF WH-WHT, GLAUC INCL, TRC SPCLTC, LS INCL, TRC SH INCLS, DNS, HD; LS: OFF WH-WH, CRYPTO-MICRO XLN, SLI FRM, DLL WH FLSH CT

**SURVEY @ 5100' INC 81.0  
AZM 19.2 TVD 4602.99'**

**MISS. LIME @ 5,108' MD /  
4,605.2' TVD**

**SURVEY @ 5131' INC 81.1  
AZM 15.8 TVD 4607.82'**

CHRT: BGE-OFF WH-WHT, GLAUC INCL, TRC SPCLTC, LS INCL, TRC SH INCLS, DNS, HD; LS: OFF WH-WH, CRYPTO-MICRO XLN, SLI FRM, DLL WH FLSH CT

**SURVEY @ 5161' INC 81.5 AZM  
15.8 TVD 4612.36'**

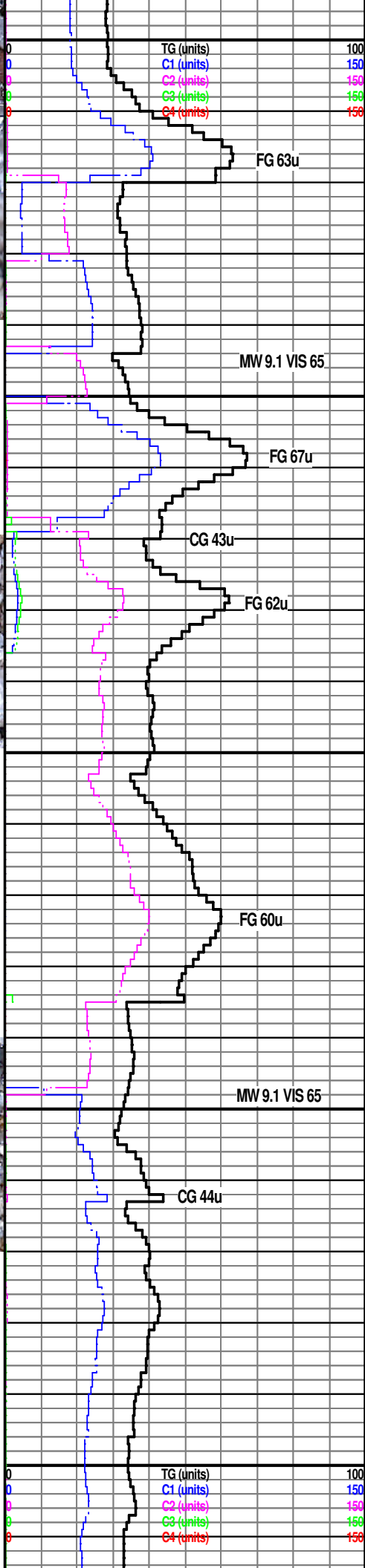
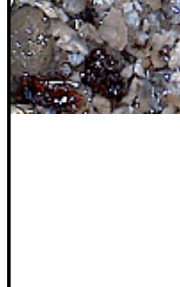
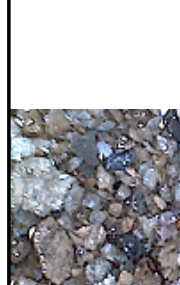
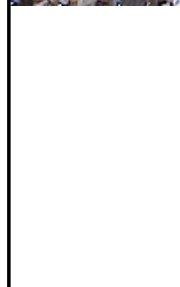
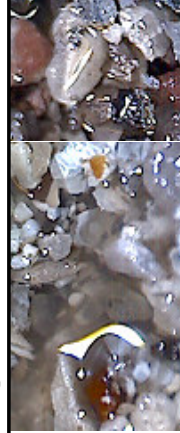
CHRT: BGE-OFF WH-WHT, GLAUC INCL, TRC SPCLTC, LS INCL, TRC SH INCLS, DNS, HD; LS: OFF WH-WH, CRYPTO-MICRO XLN, SLI FRM, DLL WH FLSH CT

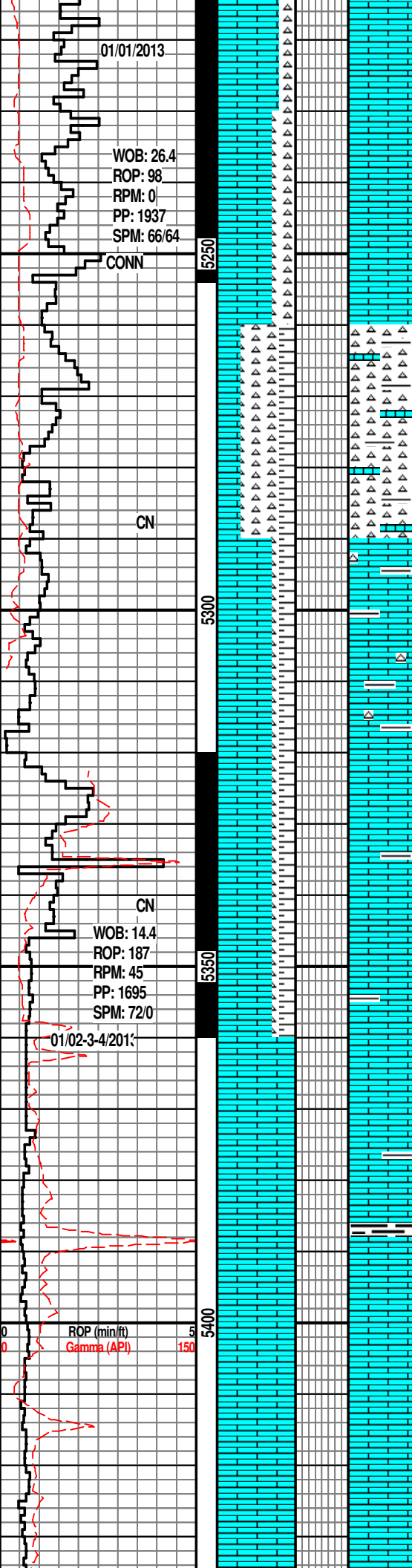
**SURVEY @ 5192' INC 81.9  
AZM 14.9 TVD 4616.83'**

LS: OFF WH-WH, CRYPTO-MICRO XLN, SLI FRM-FRM; CHRT: WH-OFF WH, SME GYSH BRN, SME TRNSL, TRC SH INCLS, SBSMTH-SMTH TXT, HD, TRC SH, TRC GLAUC,DLL WH FLSH CT

**SURVEY @ 5227' INC 83.5  
AZM 7.5TVD 4625.10'**

LS: OFF WH-WH, CRYPTO-MICRO XLN,





SLI FRM-FRM; CHRT: WH-OFF WH, SME GYSH BRN, SME TRNSL, TRC SH INCLS, SBSMTH-SMTH TXT, HD, TRC SH, TRC GLAUC,DLL WH FLSH CT

LS: OFF WH-WH, CRYPTO-MICRO XLN, SLI FRM-FRM; CHRT: WH-OFF WH, SME GYSH BRN, SME TRNSL, TRC SH INCLS, SBSMTH-SMTH TXT, HD, TRC SH, TRC GLAUC,DLL WH FLSH CT

PAUL CAMPBELL ON 1/01/2013

**SURVEY @ 5282' INC 83.6 AZM  
7.3 TVD 4627.91'**

CHT: OFF WHI-CRM, OCC LT TAN, MC XLN, HD, OCC V HD, PRED TRIPOLITIC, OCC W/ DRK INCL; LS: OFF WHI-CRM, M-XLN-C XLN, RGH TXT, SFT-FRM, PRED INTG W/ CHT; SH: LT GY-GY, DLL RTHY LSTR, SM TXT, BLKY, SFT; MOD GLD FLUOR, NO VIS CUT

**SURVEY @ 5299' INC 83.6 AZM  
4.7 TVD 4629.80'**

LS: CRM-TAN, RGH TXT, SFT-FRM; SH: LT GY-GY, DLL RTHY LSTR, SM TXT, BLKY, PRED SFT, SL GLD FLUOR, NO VIS CUT; CHT: OFF WHI-WHI, MC XLN, HD, OCC V HD, PRED TRIPOLITIC, OCC W/ DRK INCL

LS: CRM-TAN, RGH TXT, SFT-FRM; SH: LT GY-GY, DLL RTHY LSTR, SM TXT, BLKY, PRED SFT, SL GLD FLUOR, NO VIS CUT; CHT: OFF WHI-WHI, MC XLN, HD, OCC V HD, PRED TRIPOLITIC, OCC W/ DRK INCL

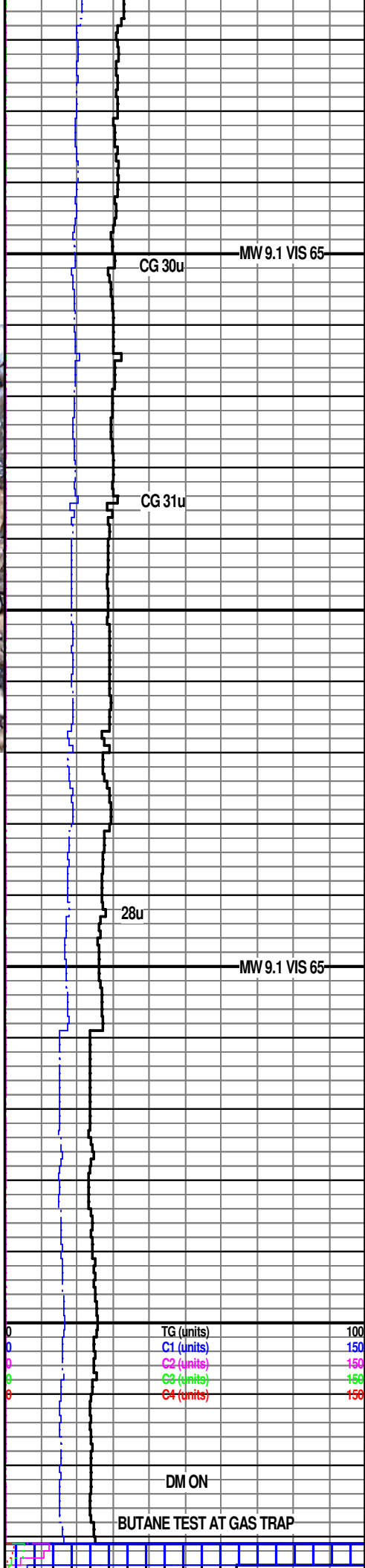
**TOOH FOR INTERMEDIATE CASING @ 5360', 18:00 HRS 1/01/2013**

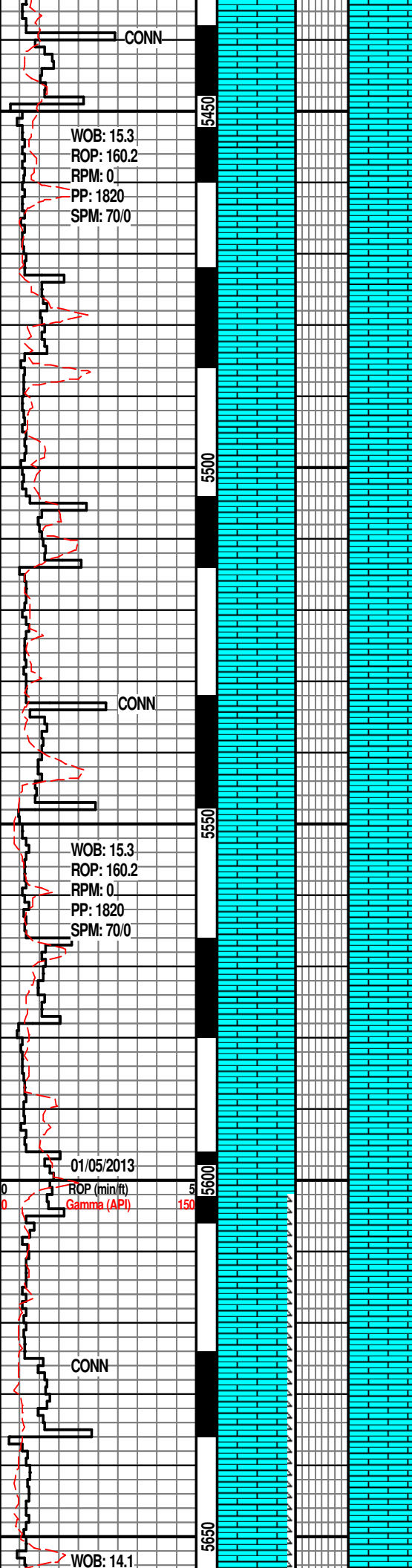
**BIT #4 DEPTH IN 5360' MD, SIZE: 6.125", TYPE: MFX54DM, JETS: 3X14'S & 2X12s**

LS: CRM-TAN, RGH TXT, SFT-FRM; SH: LT GY-GY, DLL RTHY LSTR, SM TXT, BLKY, PRED SFT, SL GLD FLUOR,TRC SH, NO VIS CUT;

**SURVEY @ 5390' INC 86.2  
AZM 4.4 TVD 4637.84'**

LS: CRM-TAN, RGH TXT, SFT-FRM; SH: LT GY-GY, DLL RTHY LSTR, SM TXT, BLKY, PRED SFT, SL GLD FLUOR,TRC SH, MOD GLD FLUOR





WOB: 15.3  
 ROP: 160.2  
 RPM: 0  
 PP: 1820  
 SPM: 70/0

WOB: 15.3  
 ROP: 160.2  
 RPM: 0  
 PP: 1820  
 SPM: 70/0

01/05/2013  
 ROP (min/ft)  
 Gamma (API)

WOB: 14.1

LS: CRM-TAN, RGH TXT, SFT-FRM; SH:  
 LT GY-GY, DLL RTHY LSTR, SM TXT,  
 BLKY, PRED SFT, SL GLD FLUOR,

LS: CRM-TAN, RGH TXT, SFT-FRM; SH:  
 LT GY-GY, DLL RTHY LSTR, SM TXT,  
 BLKY, PRED SFT, TRC SH, MOD GLD  
 FLUOR

**SURVEY @ 5485' INC 87.9 AZM  
 3.8 TVD 4642.73'**

LS: CRM-TAN, RGH TXT, SFT-FRM; SH:  
 LT GY-GY, DLL RTHY LSTR, SM TXT,  
 BLKY, PRED SFT, TRC SH, MOD GLD  
 FLUOR

LS: CRM-TAN, RGH TXT, SFT-FRM; SH:  
 LT GY-GY, DLL RTHY LSTR, SM TXT,  
 BLKY, PRED SFT, TRC CHRT SL GLD  
 FLUOR,

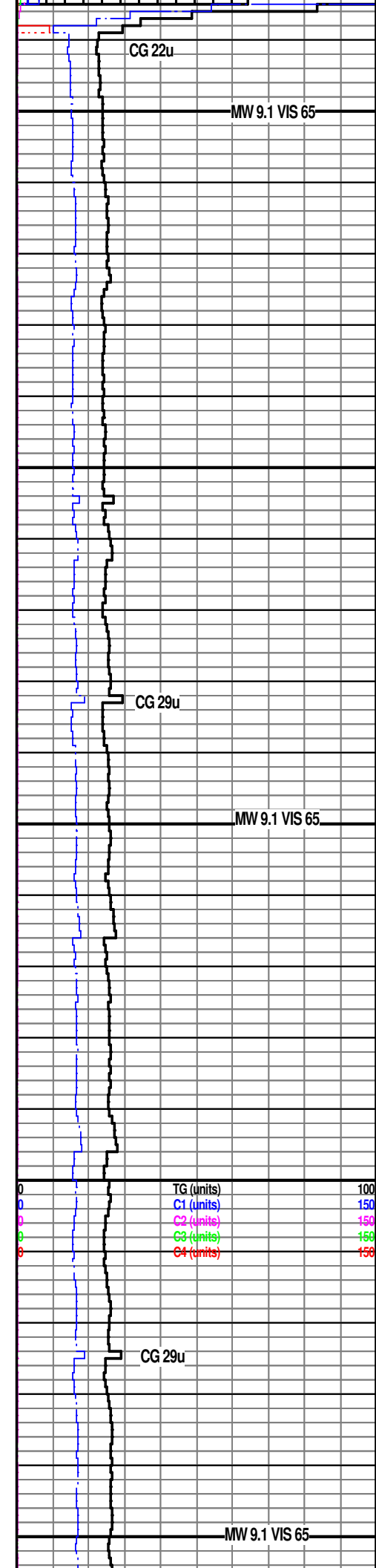
LS: CRM-TAN, RGH TXT, SFT-FRM; SH:  
 LT GY-GY, DLL RTHY LSTR, SM TXT,  
 BLKY, PRED SFT, TRC CHRT SL GLD  
 FLUOR,

**SURVEY @ 5669' INC 92.7 AZM  
 0.5 TVD 4640.53'**

LS: CRM-TAN, RGH TXT, SFT-FRM; SH:  
 LT GY-GY, DLL RTHY LSTR, SM TXT,  
 BLKY, PRED SFT, TRC CHRT SL GLD  
 FLUOR,

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH INCLS,  
 MOD GLD FLUOR

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH INCLS



CG 22u

MW 9.1 VIS 65

CG 29u

MW 9.1 VIS 65

CG 29u

MW 9.1 VIS 65

0	TG (units)	100
0	C1 (units)	150
0	C2 (units)	150
0	C3 (units)	150
0	C4 (units)	150

ROP: 177.6  
 RPM: 32  
 PP: 1843  
 SPM: 74/75

GYSH BRN, SME TRNSL, TRC SH INCLS,  
 MOD GLD FLUOR

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH INCLS,  
 MOD GLD FLUOR

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH INCLS,  
 MOD GLD FLUOR

**SURVEY @ 5730' INC 93.0 AZM  
 0.52TVD 4637.50'**

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH  
 INCLS,TRC SH, SLI GLD FLUOR

**SURVEY @ 5761' INC 93.1 AZM  
 0.1 TVD 4635.85'**

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH  
 INCLS,TRC SH, SLI GLD FLUOR

PAUL CAMPBELL ON 1/05/2012

**SURVEY @ 5791' INC 93.5 AZM 358.9 TVD  
 4634.13', VS 1573.13, DLS 4.21**

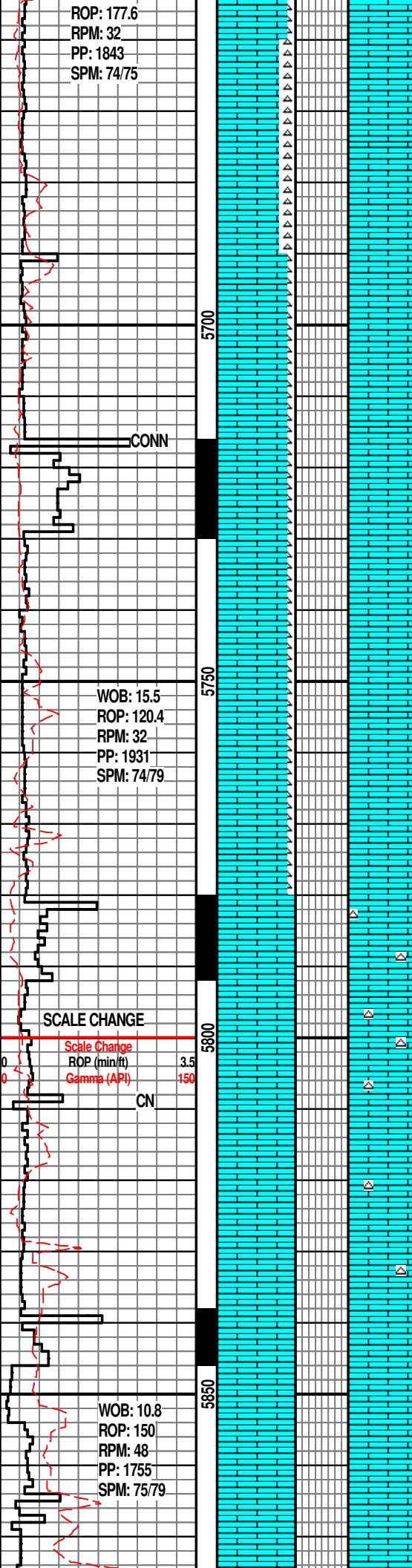
LS: OFF WHI-WHI, CRM, C XLN-MC XLN,  
 PRE SM TXT, OCC SL RGH TXT, PRED  
 SFT-FRM, OCC HD, POS SL TRC INTG  
 POR; TRC CHT, NSFOC

**SURVEY @ 5852' INC 93.4 AZM 357.1 TVD  
 4630.45', VS 1633.14, DLS 2.95**

LS: OFF WHI-WHI, CRM, C XLN-MC XLN,  
 PRE SM TXT, OCC SL RGH TXT, PRED  
 SFT-FRM, OCC HD, POS SL TRC INTG  
 POR; TRC CHT

LS: OFF WHI-WHI, CRM, OCC LT GY, C  
 XLN-MC XLN, PRE SM TXT, OCC SL RGH  
 TXT, PRED SFT-FRM, OCC HD; V SL TRC  
 CHT; SL LT YL-GLD FLUOR, WK LT YL-BL  
 FLASH/CRUSH CUT

LS: OFF WHI-WHI, CRM, OCC LT GY, C



LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH INCLS,  
 MOD GLD FLUOR

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH INCLS,  
 MOD GLD FLUOR

**SURVEY @ 5730' INC 93.0 AZM  
 0.52TVD 4637.50'**

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH  
 INCLS,TRC SH, SLI GLD FLUOR

**SURVEY @ 5761' INC 93.1 AZM  
 0.1 TVD 4635.85'**

LS: OFF WH-WH, CRYPTO-MICRO XLN,  
 SLI FRM-FRM; CHRT: WH-OFF WH, SME  
 GYSH BRN, SME TRNSL, TRC SH  
 INCLS,TRC SH, SLI GLD FLUOR

PAUL CAMPBELL ON 1/05/2012

**SURVEY @ 5791' INC 93.5 AZM 358.9 TVD  
 4634.13', VS 1573.13, DLS 4.21**

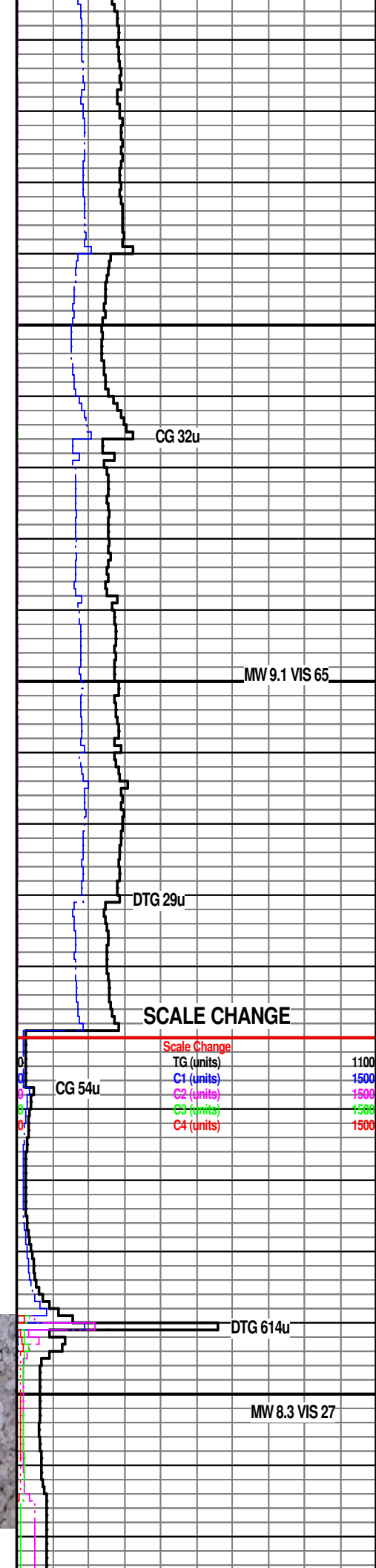
LS: OFF WHI-WHI, CRM, C XLN-MC XLN,  
 PRE SM TXT, OCC SL RGH TXT, PRED  
 SFT-FRM, OCC HD, POS SL TRC INTG  
 POR; TRC CHT, NSFOC

**SURVEY @ 5852' INC 93.4 AZM 357.1 TVD  
 4630.45', VS 1633.14, DLS 2.95**

LS: OFF WHI-WHI, CRM, C XLN-MC XLN,  
 PRE SM TXT, OCC SL RGH TXT, PRED  
 SFT-FRM, OCC HD, POS SL TRC INTG  
 POR; TRC CHT

LS: OFF WHI-WHI, CRM, OCC LT GY, C  
 XLN-MC XLN, PRE SM TXT, OCC SL RGH  
 TXT, PRED SFT-FRM, OCC HD; V SL TRC  
 CHT; SL LT YL-GLD FLUOR, WK LT YL-BL  
 FLASH/CRUSH CUT

LS: OFF WHI-WHI, CRM, OCC LT GY, C



CG 32u

MW 9.1 VIS 65

DTG 29u

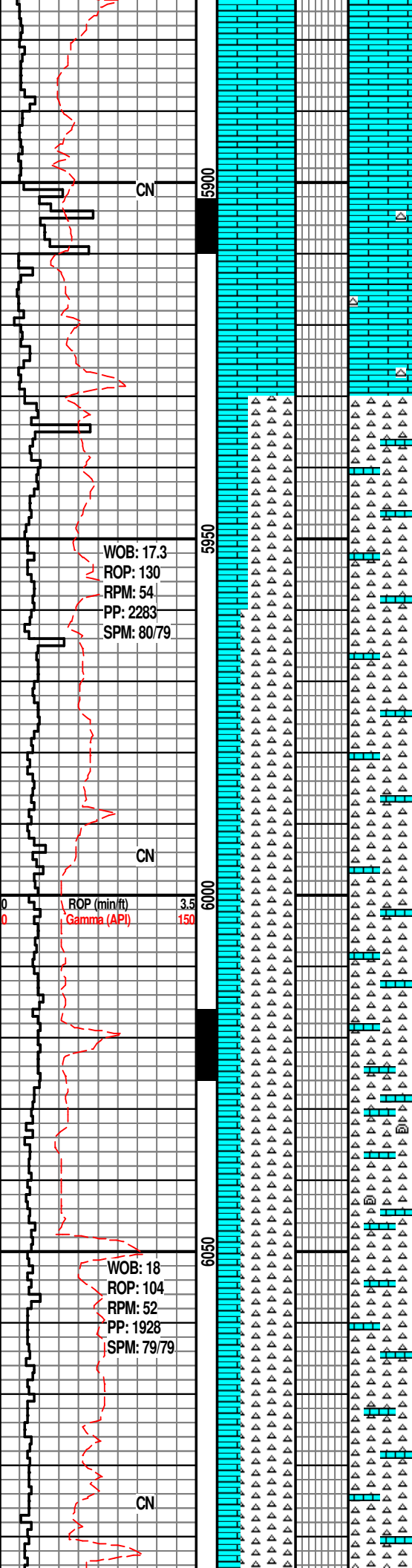
**SCALE CHANGE**

Scale Change	
TG (units)	1100
C1 (units)	1500
C2 (units)	1500
C3 (units)	1500
C4 (units)	1500

CG 54u

DTG 614u

MW 8.3 VIS 27



XLN-MC XLN, PRE SM TXT, OCC SL RGH TXT, PRED SFT-FRM, OCC HD; V SL TRC CHT; SL LT YL-GLD FLUOR, WK LT YL-BL FLASH/CRUSH CUT

**SURVEY @ 5883' INC 93.1 AZM, 356.7 TVD 4628.7', VS 1663.54, DLS 1.61**

LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRE SM TXT, OCC SL RGH TXT, PRED SFT-FRM, OCC HD; SL TRC CHT; LT YL-GLD FLUOR, GD LT-BL FLASH CUT, MOD RES RNG, TRC OIL SHEEN IN SMPL

**SURVEY @ 5914' INC 91.9 AZM, 356.2 TVD 4627.34', VS 1693.91, DLS 4.19**

CHT: OFF WHI-CRM, LT GY & MOTTLED, FRM-HD, OCC BRIT, CR XLN, OCC INTG W/ LS, TRC OIL IN SMPL; LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, OCC SL RGH TXT, PRED SFT-FRM, OCC HD; MOD LT YL FLUOR, WK FLASH CUT, NO RES RNG

**SURVEY @ 5944', INC 91.5 AZM, 355.8, TVD 4626.45', VS 1723.27, DLS 1.89**

**DRILLING 100-150 FT/HR, CATCHING 60' SAMPLES**

**SURVEY @ 5975', INC 91.1 AZM, 355.9, TVD 4625.75', VS 1753.6, DLS 1.33**

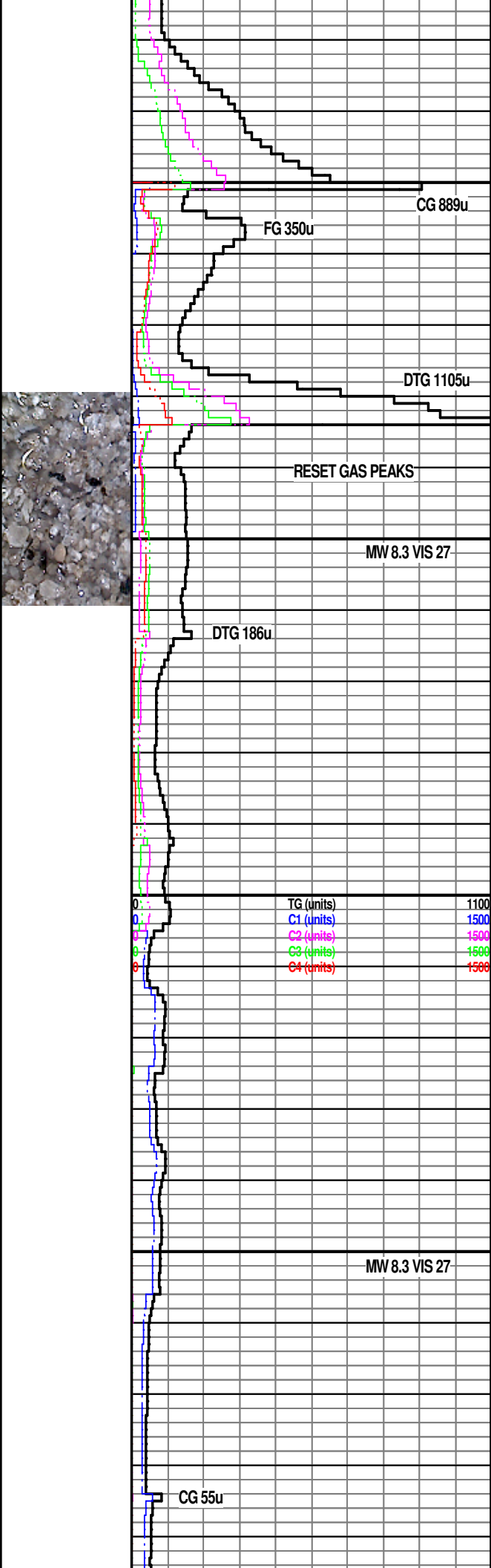
CHT: OFF WHI-CRM, LT GY & MOTTLED IP, FRM-HD, OCC BRIT, CR XLN, OCC INTG W/ LS, PRED TRIPOLITIC; LS: OFF WHI-WHI, CRM, C XLN-MC XLN, SM-RGH TXT, PRED SFT-FRM, OCC HD; MOD LT YL FLUOR, WK FLASH CUT, NO RES RNG

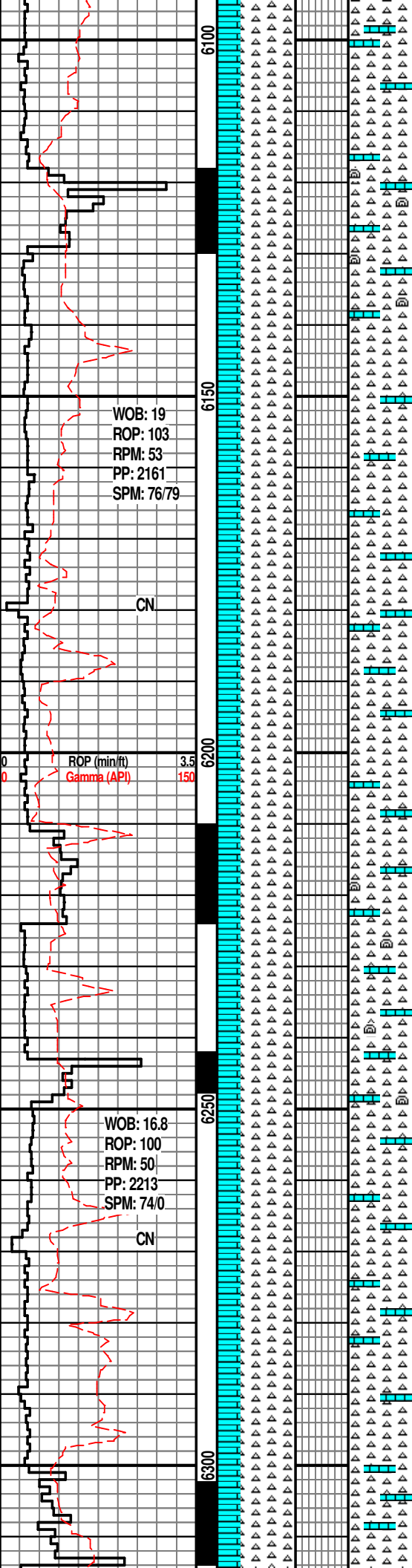
**SURVEY @ 6006', INC 90.6 AZM, 355.7, TVD 4625.21', VS 1783.93, DLS 0.91**

CHT: WHT OFF WHT CRM MOT, FRM-HD, CR XLN; LS: WHT OFF WHT CRM MOT, CR XLN-MC XLN, DNS-MASS, OCC SH, TR GLAUC, NFSOC

**SURVEY @ 6037', INC 91.0 AZM, 355.0, TVD 4624.7', VS 1814.2, DLS 2.28**

CHT: WHT CRM TN LT BR MOT, FRM-HRD, CR XLN. LS: LT GY GY TN CRM MOT, CR XLN-MC XLN, DNS-MASS, NSFOC





WOB: 19  
 ROP: 103  
 RPM: 53  
 PP: 2161  
 SPM: 76/79

CN

ROP (min/ft) 3.5  
 Gamma (API) 150

WOB: 16.8  
 ROP: 100  
 RPM: 50  
 PP: 2213  
 SPM: 74/0

CN

CHT: WHT CRM TN LT BR MOT,  
 FRM-HRD, CR XLN. LS: LT GY GY TN  
 CRM MOT, CR XLN-MC XLN, DNS-MASS,  
 NSFOC

CHT: WHT CRM TN LT BR MOT,  
 FRM-HRD, CR XLN. LS: LT GY GY TN  
 CRM MOT, CR XLN-MC XLN, DNS-MASS,  
 NSFOC

**SURVEY @ 6159', INC 91.9 AZM, 354.0,  
 TVD 4622.33', VS 1933.07, DLS 4.01**

CHT: CRM WHT TAN MOT, DNS-MASS,  
 CR XLN; LS: WHT GY LT GY TN MOT, CR  
 XLN-MC XLN, DNS-MASS, NSFOC

**SURVEY @ 6221', INC 91.3 AZM, 354.6,  
 TVD 4620.60', VS 1933.35, DLS 1.37**

CHT: CRM WHT TAN MOT, DNS-MASS,  
 CR XLN; LS: WHT GY LT GY TN MOT, CR  
 XLN-MC XLN, DNS-MASS, NSFOC

CHT: CRM WHT TAN MOT, DNS-MASS,  
 CR XLN; LS: WHT CRM LT GY MOT, CR  
 XLN-MC XLN, DNS-MASS, NSFOC

**SURVEY @ 6251', INC 90.4 AZM, 354.9,  
 TVD 4620.16', VS 2022.58', DLS 3.16**

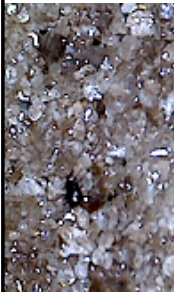
**JETTING SAND TRAP**

CHT: CRM WHT TAN MOT, DNS-MASS,  
 CR XLN; LS: WHT CRM TN LT GY MOT,  
 CR XLN-MC XLN, DNS-MASS, NSFO

**SW LUBE ADDED SINCE 6260', COULD  
 BE GIVING FALSE SHOWS**

CHT: CRM WHT TAN MOT, DNS-MASS,  
 CR XLN; LS: WHT CRM TN LT GY MOT,  
 CR XLN-MC XLN, DNS-MASS, NSFOC

MW 8.3 VIS 27



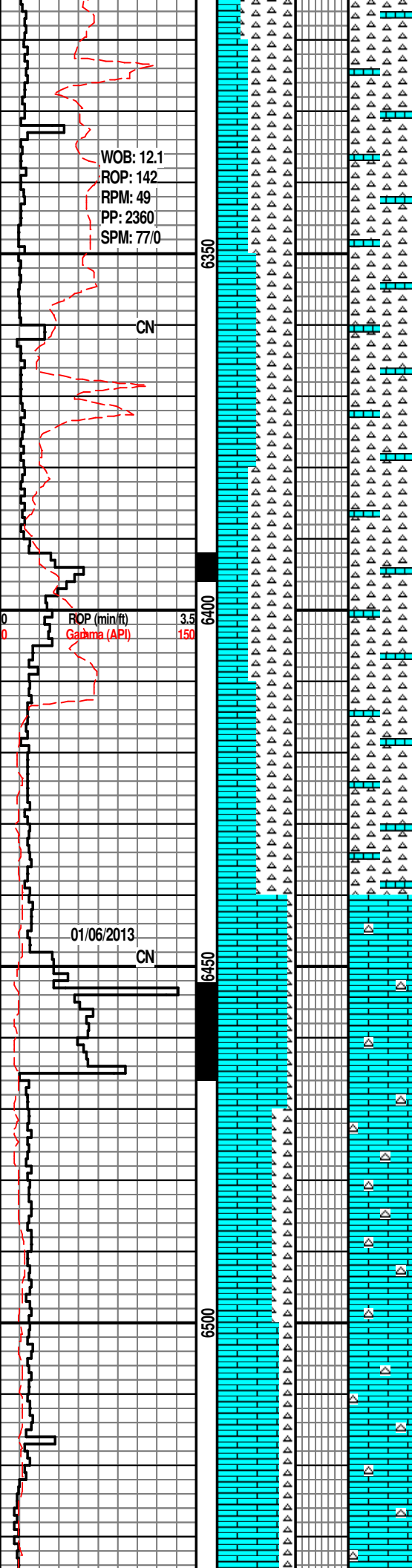
CG 81u

TG (units)	1100
C1 (units)	1500
C2 (units)	1500
C3 (units)	1500
C4 (units)	1500

DTG 53u

CG 42u

DEPTH: 6260'  
 MW: 8.6  
 VIS: 27  
 PV: 1  
 YP: 1  
 GELS: 1/1  
 FIL:  
 CAKE: 0/32  
 SOL: 2.0  
 OIL: 0  
 WATER: 98.0  
 SAND: TRC  
 MUD ALK: 1  
 PH: 11  
 CA: 120  
 CHL: 1,200  
 SW LUBE ADDED



WOB: 12.1  
 ROP: 142  
 RPM: 49  
 PP: 2360  
 SPM: 77/0

CN

ROP (min/ft)  
 Gamma (API)

6350  
 6400  
 6450  
 6500

01/06/2013

CN

**SURVEY @ 6313', INC 89.9 AZM, 356.1, TVD 4619.99', VS 2083.21', DLS 2.10**

CHT: OFF WHI-CRM, MOTTLED, TRNSL IP, FRM-HD, OCC BRIT, CR XLN, OCC INTG W/ LS, PRED TRIPOLITIC; LS: OFF WHI-CRM, LT TAN, C XLN-MC XLN, SM-RGH TXT, PRED SFT-FRM, OCC HD, NSFOC

CHT: OFF WHI-CRM, MOTTLED, TRNSL IP, FRM-HD, OCC BRIT, CXLN, OCC INTG W/ LS, PRED TRIPOLITIC; LS: OFF WHI-CRM, LT TAN, C XLN-MC XLN, SM-RGH TXT, PRED SFT-FRM, OCC HD, WK LT GLDFLUOR, WK-MOD LT BL CRUSH / FLASH CUT, NO RES RNG

CHT: OFF WHI-CRM, MOTTLED, TRNSL IP, FRM-HD, OCC BRIT, CXLN, OCC INTG W/ LS, PRED TRIPOLITIC; LS: OFF WHI-CRM, LT TAN, C XLN-MC XLN, SM-RGH TXT, SFT-FRM, OCC HD, WK LT GLD FLUOR, WK-MOD LT BL CRUSH / FLASH CUT, NO RES RNG

**SURVEY @ 6405', INC 91.0, AZM, 355.9 TVD, 4619.27', VS 2173.28, DLS 1.22**

**TOOH FOR NEW MOTOR @ 6,448' 1/05/2012**

BIT #5 DEPTH IN 6,448' MD, SIZE: 6.125", TYPE: MF74D, JETS: 3X14'S & 3X12s

**SURVEY @ 6467', INC 90.4 AZM, 357.4, TVD 4618.51', VS 2234.12', DLS 2.61**

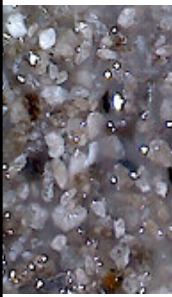
LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, OCC SL RGH TXT, PRED SFT-FRM, OCC HD; SL TRC CHT; NSFOC

LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, OCC SL RGH TXT, PRED SFT-FRM, OCC HD; CHT: LT GY & MOTTLED, SMKY, TRNSL, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, SL TRC DRK INCL; NSFOC

**SURVEY @ 6498', INC 89.9 AZM, 357.2, TVD 4618.43', VS 2264.60', DLS 1.74**

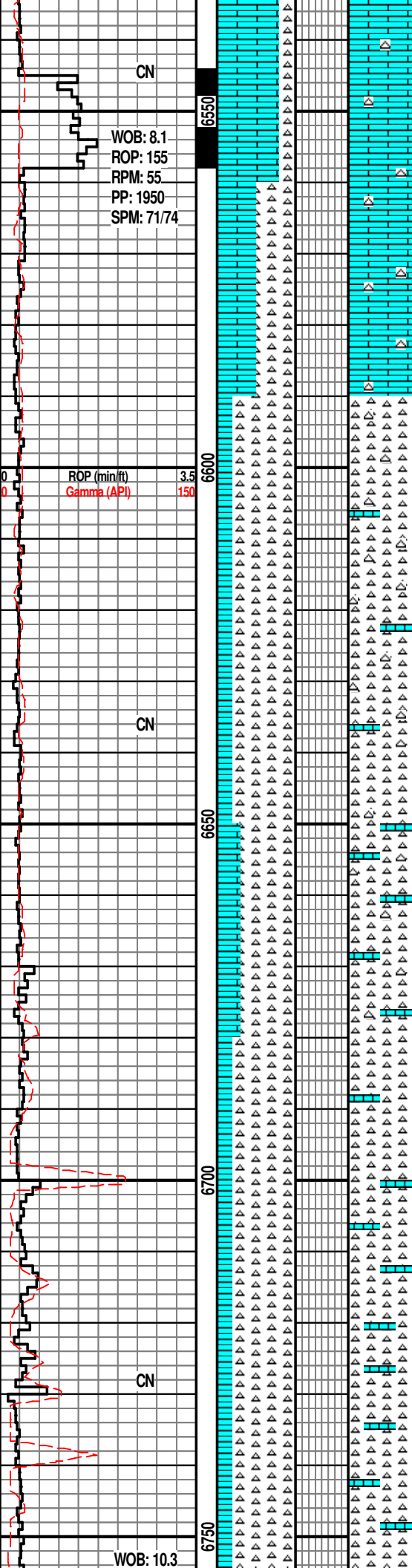
LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, OCC SL RGH TXT, PRED SFT-FRM, OCC HD; CHT: LT GY & MOTTLED, SMKY, TRNSL, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, SL TRC DRK INCL; NSFOC

CG 66u



TG (units)	1100
C1 (units)	1500
C2 (units)	1500
C3 (units)	1500
C4 (units)	1500

CG 57u



LS: OFF WHI-WHI, CRM, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; CHT: LT GY & MOTTLED, SMKY, TRNSL, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, SL TRC DRK INCL; NSFOC

**SURVEY @ 6559', INC 89.5 AZM, 358.2, TVD 4618.75', VS 2324.67', DLS 1.77**

CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, PRED TRIPOLITIC, SL TRC DRK INCL

CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, TRIPOLITIC; LS: OFF WHI-WHI, CRM, LT GY, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; WK LT YL FLUOR

CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, TRIPOLITIC; LS: OFF WHI-WHI, CRM, LT GY, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; WK LT YL FLUOR

**SURVEY @ 6589', INC 89.0 AZM, 358.0, TVD 4619.14', VS 2354.25', DLS 1.80**

CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, TRIPOLITIC; LS: OFF WHI-WHI, CRM, LT GY, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; WK LT YL FLUOR

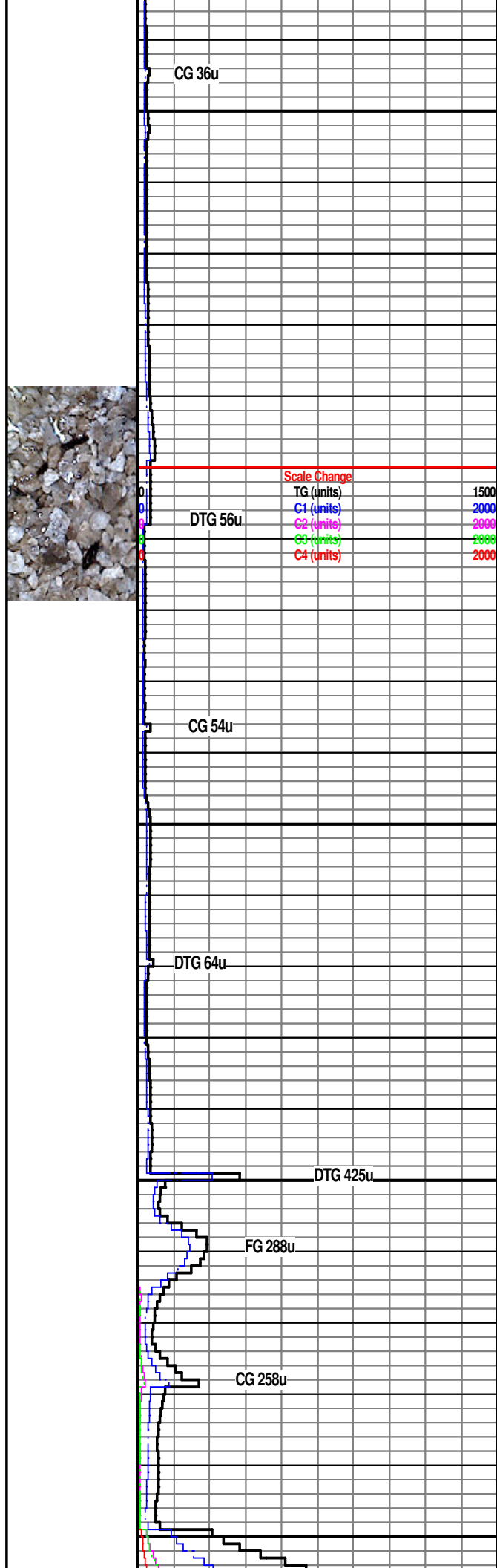
**SURVEY @ 6681', INC 89.1 AZM, 359.6, TVD 4620.67', VS 2445.11', DLS 1.74**

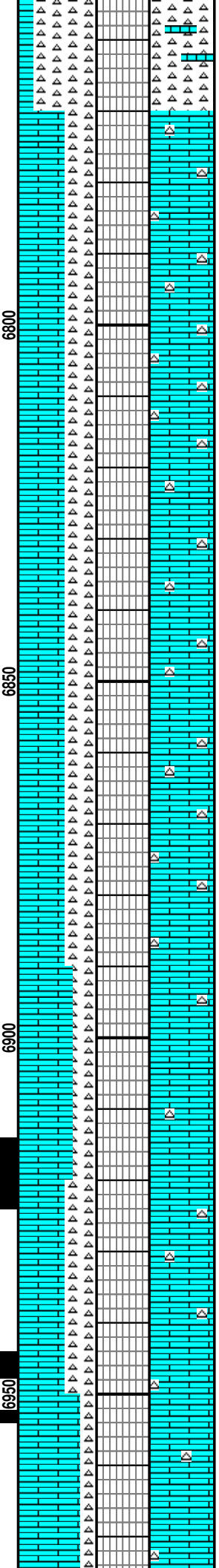
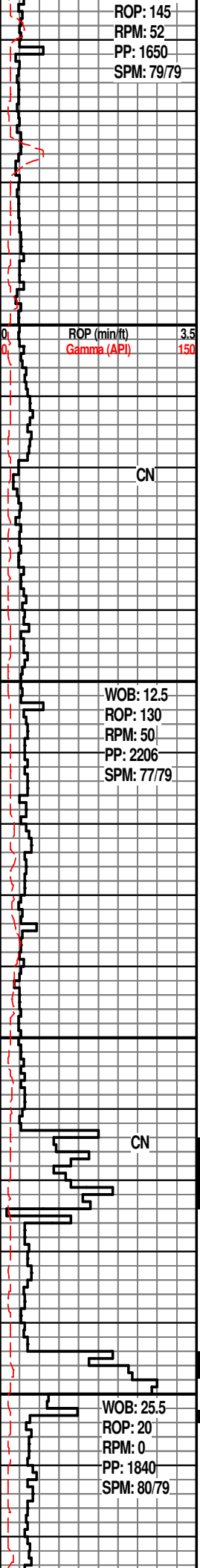
CHT: LT GY & MOTTLED, SMKY, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, TRIPOLITIC; LS: OFF WHI-LT GY, CRM, C XLN-MC XLN, DNS, SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; WK LT YL FLUOR, WK LT BL FLASH CUT

**SURVEY @ 6712', INC 89.2 AZM, 0.3, TVD 4621.13', VS 2475.83', DLS 2.28**

CHT: LT GY & MOTTLED, SMKY, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, TRIPOLITIC; LS: OFF WHI-LT GY, CRM, C XLN-MC XLN, DNS, SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; WK LT YL FLUOR, WK LT BL FLASH CUT

PAUL CAMPBELL OFF





CHT: CRM WHT LT GY MOT, CR XLN, DNS-MASS; LS: OFF WHT LT GY CRM MOT, CR XLN-MC XLN, DNS-MASS, FRM-OCC HD,  
SURVEY @ 6774', INC 88.9 AZM, 0.0, TVD 4622.16', VS 2537.28', DLS 0.68

LS: WHT TN LT BRN MOT, CR XLN-MC XLN, DNS-MASS OCC LITHO, FRM-HRD; CHT: CRM TN LT GY MOT, CR XLN, DNS-MASS, HD, NSFOC

SURVEY @ 6865', INC 89.1 AZM, 0.7, TVD 4623.75', VS 2627.51', DLS 0.8

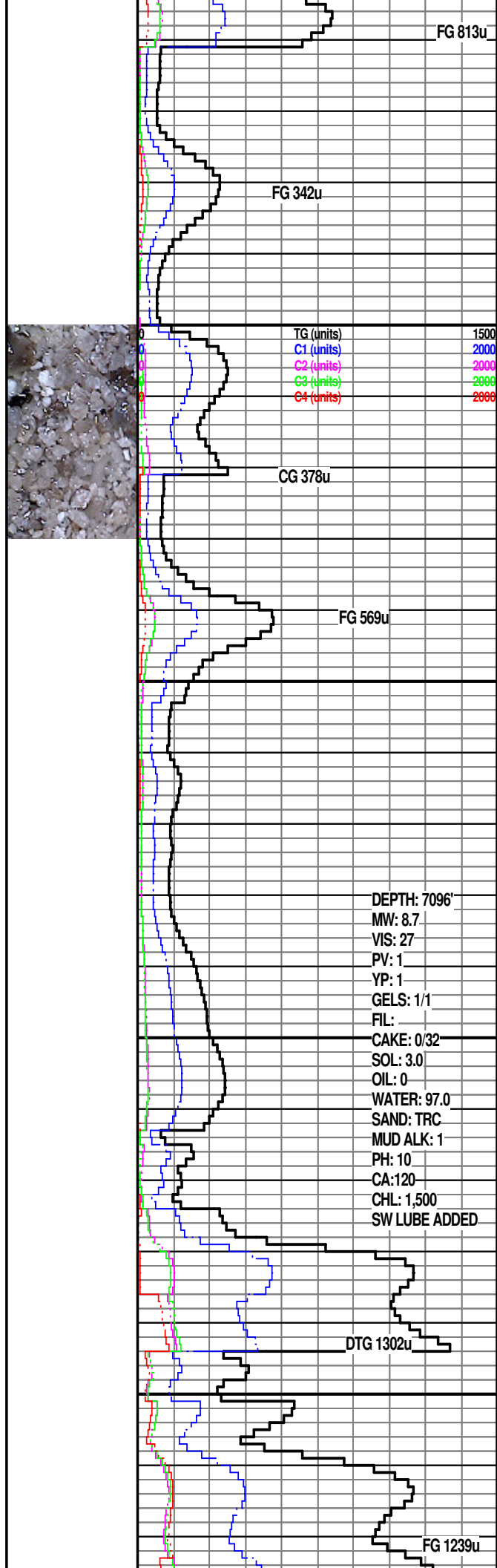
LS: WHT TN LT BRN MOT, CR XLN-MC XLN, DNS-MASS OCC LITHO, FRM-HRD; CHT: CRM TN LT GY MOT, CR XLN, DNS-MASS, HD, NSFOC

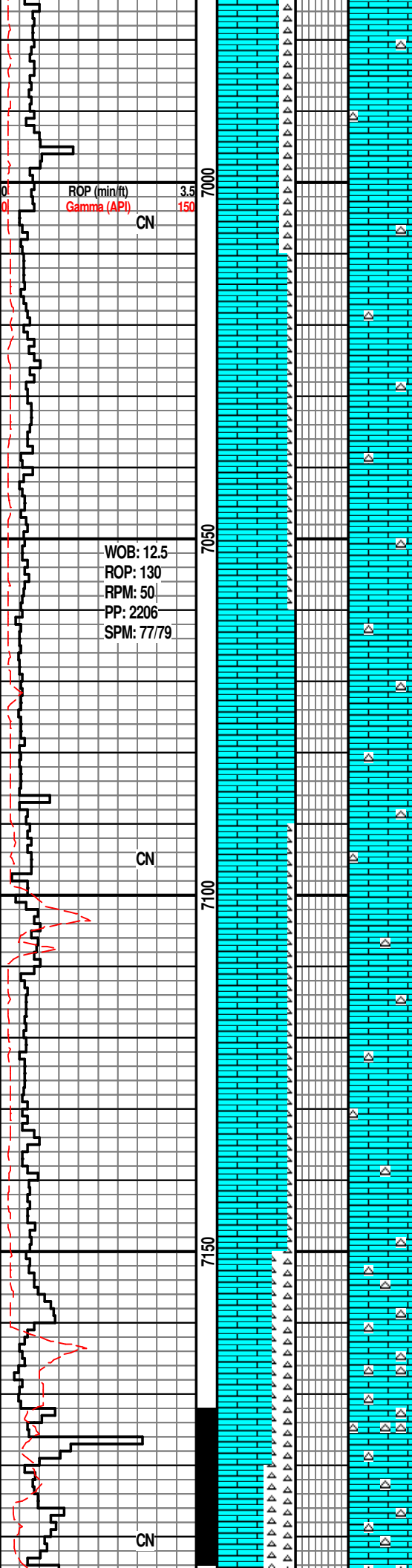
LS: WHT TN LT BRN MOT, CR XLN-MC XLN, DNS-MASS OCC LITHO, FRM-HRD; CHT: CRM TN LT GY MOT, CR XLN, DNS-MASS, HD, NSFOC

LS: WHT TN LT BRN MOT, CR XLN-MC XLN, DNS-MASS OCC LITHO, FRM-HRD; CHT: CRM TN LT GY MOT, CR XLN, DNS-MASS, HD, NSFOC

SURVEY @ 6957', INC 90.4 AZM, 358.0, TVD 4624.15', VS 2718.51', DLS 3.26

LS: WHT TN LT BRN MOT, CR XLN-MC XLN, DNS-MASS OCC LITHO, FRM-HRD; CHT: CRM TN LT GY MOT, CR XLN,





LS: DNS-MASS, HD, NO FLOR, V SL LT BL CRUSH CUT

LS: WHT TN LT BRN MOT, CR XLN-MC XLN, DNS-MASS OCC LITHO, FRM-HRD; CHT: CRM TN LT GY MOT, CR XLN, DNS-MASS, HD, NO FLOR, V SL LT BL CRUSH CUT

LS: OFF WHI-WHI, CRM, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; CHT: LT GY & MOTTLED, SMKY, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, SL TRC DRK INCL; MOD LT YL-GLD FUOR, MOD LT YL-BL FLASH CUT, WK RES RNG

**SURVEY @ 7049', INC 90.2 AZM, 358.1, TVD 4623.66', VS 2809.20', DLS 0.24**

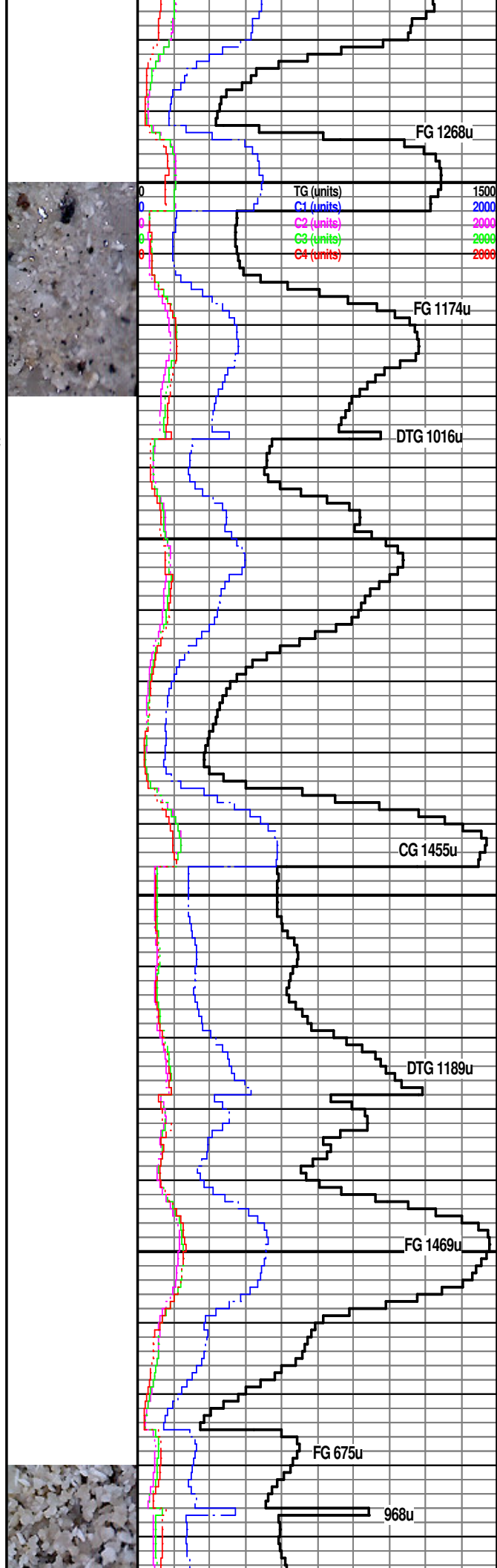
LS: OFF WHI-WHI, CRM, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; TRC CHT; MOD LT YL-GLD FUOR, MOD LT YL-BL FLASH CUT, WK RES RNG

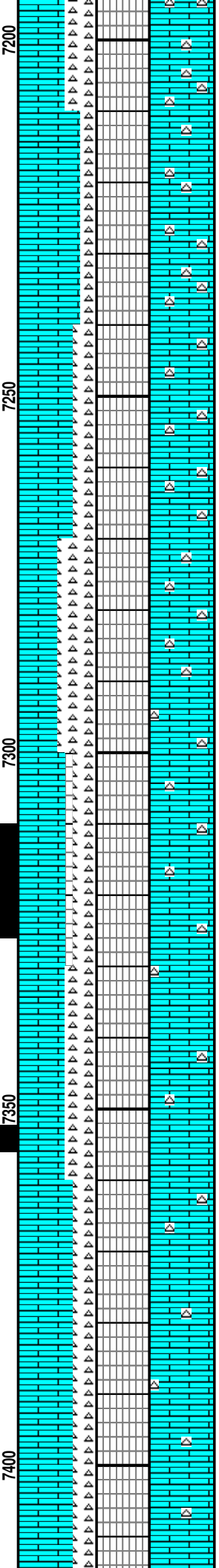
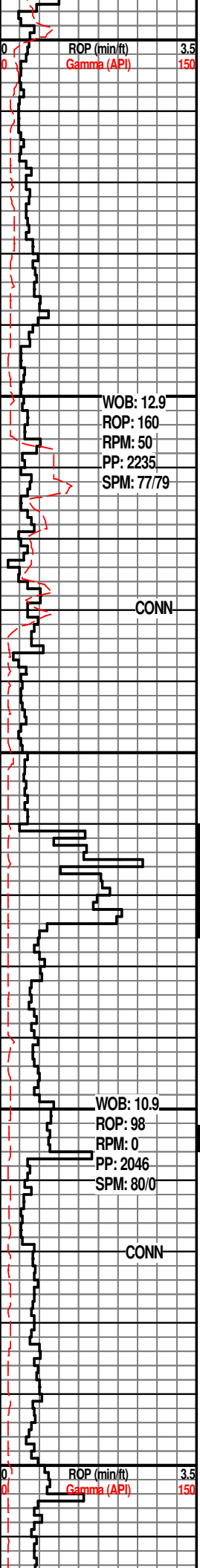
**SURVEY @ 7141', INC 90.6 AZM, 358.7, TVD 4623.02', VS 2899.98', DLS 0.78**

LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, PRED SFT-FRM, OCC HD; CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, MOD LT YL-BL FLASH CUT, WK RES RNG

LS: WHT OFFWHT CRM MOT, C XLN-MC XLN, DNS-MASS, SFT-FRM, OCC HD; CHT: LT GY TN WHT MOT OCC TRNSL, MCXLN, HRD, NFSOC

LS: WHT OFFWHT CRM MOT, C XLN-MC XLN, DNS-MASS, SFT-FRM, OCC HD; CHT: LT GY TN WHT MOT OCC TRNSL





CHT: LT GY TN WHT MOT OCC TRNSL, MCXLN, HRD, NFSOC

LS: WHT OFFWHT CRM MOT, C XLN-MC XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL, MCXLN, HRD, NFSOC

**SURVEY @ 7232' INC 90.1  
AZM 358.1 TVD 4622.47'**

LS: WHT OFFWHT CRM MOT, C XLN-MC XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL, MCXLN, HRD, NFSOC

PAUL CAMPBELL OFF @ 7270'

LS: WHT OFFWHT CRM MOT, C XLN-MC XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL, MCXLN, HRD, DLL WH FLSH CT

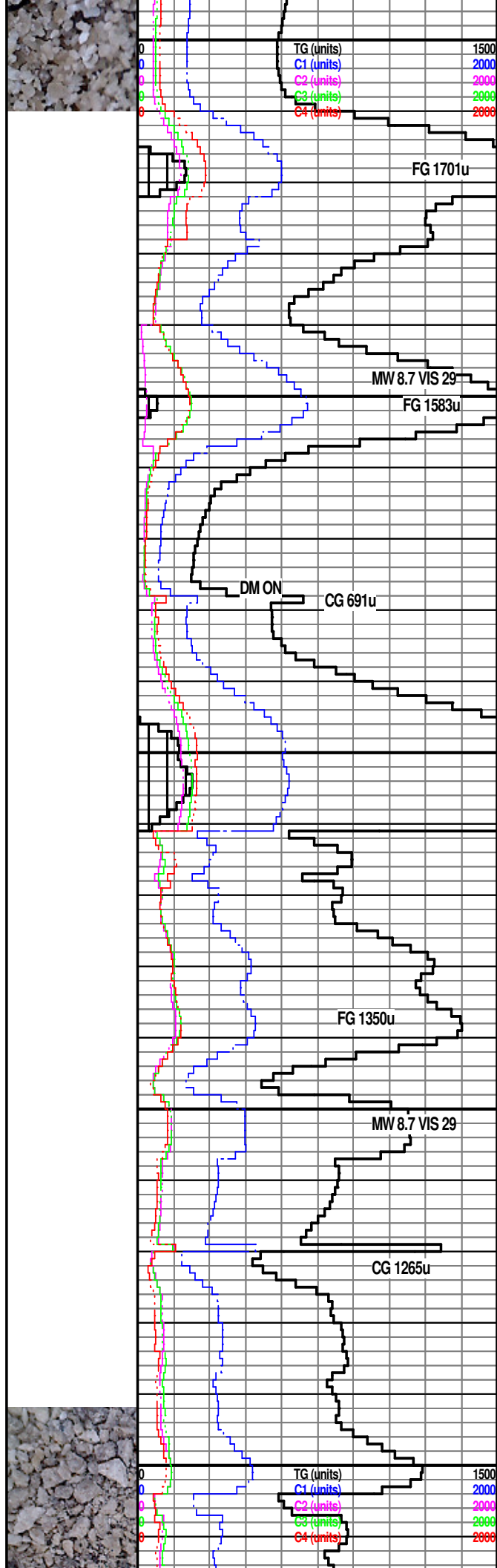
**SURVEY @ 7324' INC 90.6 AZM  
357.8 TVD 4621.80'**

LS: WHT OFFWHT CRM MOT, C XLN-MC XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL, MCXLN, HRD, DLL WH FLSH CT

LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, PRED SFT-FRM, OCC HD;  
CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, MOD LT YL-BL FLASH CUT, WK RES RNG

LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, PRED SFT-FRM, OCC HD;  
CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, MOD LT YL-BL FLASH CUT, WK RES RNG

LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, PRED SFT-FRM, OCC HD;  
CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, MOD LT YL-BL FLASH CUT, WK RES RNG



FG 1701u

MW 8.7 VIS 29

FG 1583u

DM ON

CG 691u

FG 1350u

MW 8.7 VIS 29

CG 1265u

INTG W/LS, MOD LT YE-BE FLASH COI,  
WK RES RNG

**SURVEY @ 7419' INC 90.0  
AZM 356.9 TVD 4621.41'**

LS: WHT OFFWHT CRM MOT, C XLN-MC  
XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL,  
MCXLN, HRD, NFSOC

LS: WHT OFFWHT CRM MOT, C XLN-MC  
XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL,  
MCXLN, HRD, NFSOC

LS: WHT OFFWHT CRM MOT, C XLN-MC  
XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL,  
MCXLN, HRD,TRC SH, MOD GLD FLUOR

**SURVEY @ 7514' INC 89.9  
AZM 357.1 TVD 4621.49'**

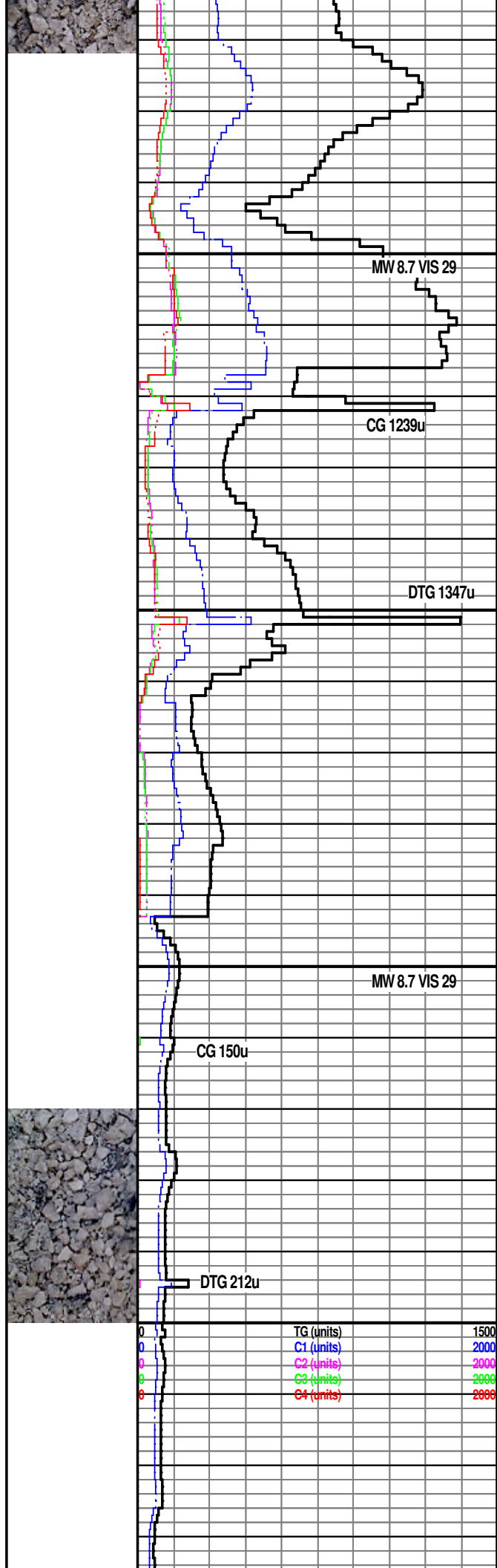
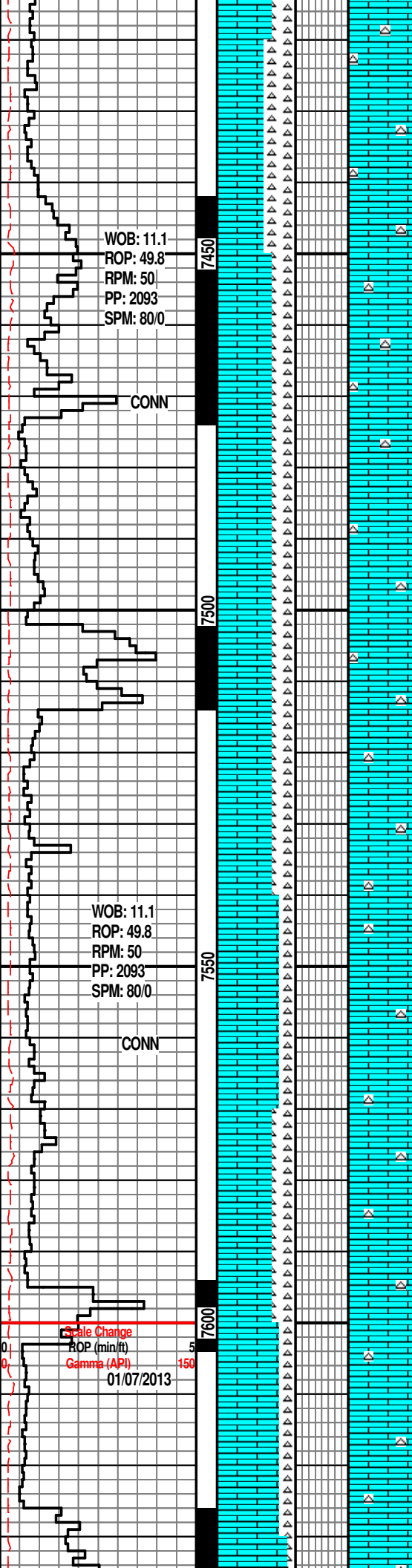
LS: WHT OFFWHT CRM MOT, C XLN-MC  
XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL,  
MCXLN, HRD,TRC SH, MOD GLD FLUOR

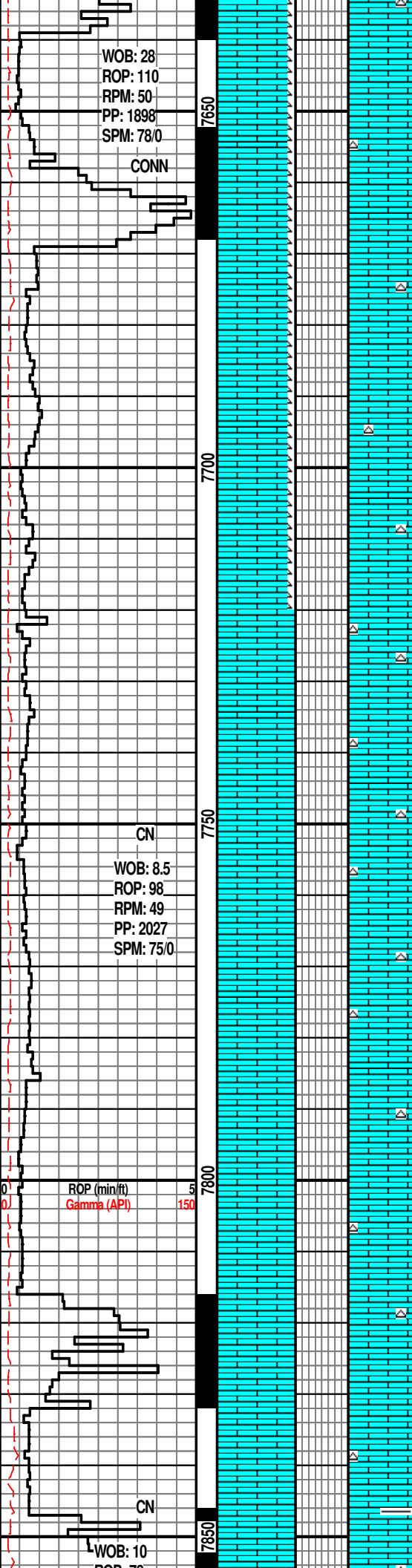
LS: WHT OFFWHT CRM MOT, C XLN-MC  
XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL,  
MCXLN, HRD,TRC SH, MOD GLD FLUOR

LS: WHT OFFWHT CRM MOT, C XLN-MC  
XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL,  
MCXLN, HRD,TRC SH, MOD GLD FLUOR

**SURVEY @ 7609' INC 89.9 AZM  
356.7 TVD 4621.66'**

LS: WHT OFFWHT CRM MOT, C XLN-MC  
XLN, DNS-MASS, SFT-FRM, OCC HD;  
CHT: LT GY TN WHT MOT OCC TRNSL,  
MCXLN, HRD,TRC SH, MOD GLD FLUOR





LS: WHT OFFWHT CRM MOT, C XLN-MC XLN, DNS-MASS, SFT-FRM, OCC HD; CHT: LT GY TN WHT MOT OCC TRNSL, MCXLN, HRD,TRC SH, MOD GLD FLUOR

MW 8.7 VIS 29

CG 72u

LS: WHT OFFWHT CRM MOT, C XLN-MC XLN, DNS-MASS, SFT-FRM, OCC HD; CHT: LT GY TN WHT MOT OCC TRNSL, MCXLN, HRD,TRC SH, MOD GLD FLUOR

**SURVEY @ 7704', INC 92.2, AZM 356.1, TVD 4619.91', VS 3454.10, DLS 3.50**

LS: OFF WHI-WHI, CRM, C XLN-MC XLN, PRED SM TXT, PRED SFT-FRM, OCC HD; CHT: LT GY & MOTTLED, SMKY, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, MOD LT YL-BL FLASH CUT, WK RES RNG

PAUL CAMPBELL ON @ 7730'

LS: WHI-OFF WHI, CRM-MOT, C XLN-MC XLN, SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD, OCC INTG W/ CHT; TRC CHT

**SURVEY @ 7799', INC 92.5, AZM 358.9, TVD 4616.02', VS 3547.92, DLS 0.39**

LS: WHI-OFF WHI, CRM-MOT, C XLN-MC XLN, SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD; SL TRC CHT; NSFOC

LS: WHI-OFF WHI, CRM-MOT, C XLN-MC XLN, SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD; SL TRC CHT; NSFOC



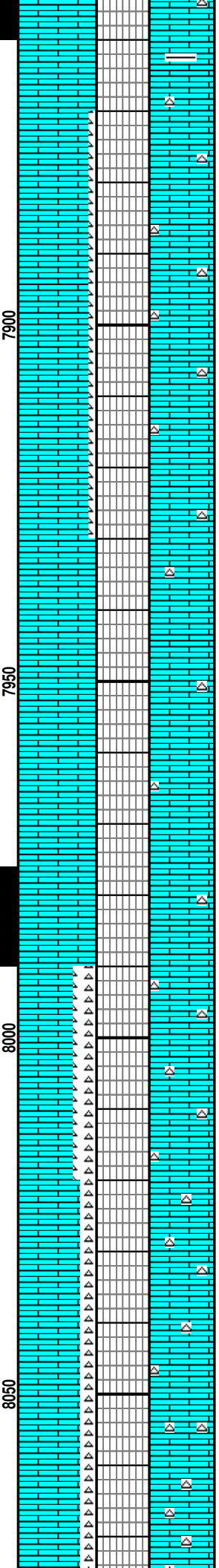
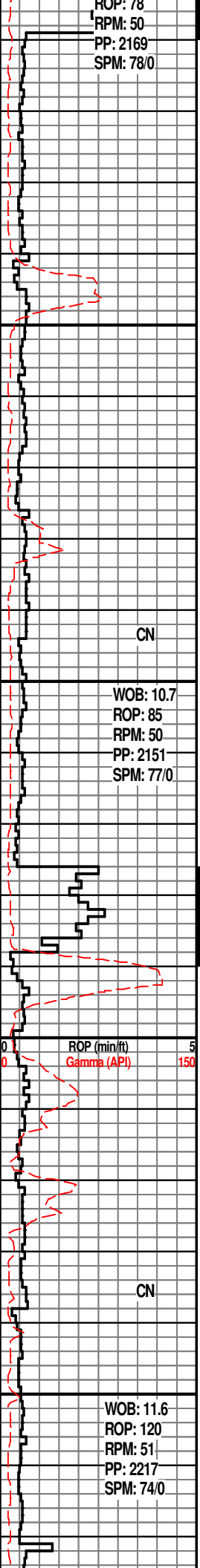
TG (units) 1500  
C1 (units) 2000  
C2 (units) 2000  
C3 (units) 2000  
C4 (units) 2000

LS: WHI-OFF WHI, CRM-MOT, OCC LT TAN, C XLN-MC XLN, SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD; V SL TRC CHT; NSFOC

CG 66u

MW 8.5 VIS 30

ROP: 78  
RPM: 50  
PP: 2169  
SPM: 78/0



LS: WHI-OFF WHI, CRM-MOT, OCC LT TAN, C XLN-MC XLN, SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD; V SL TRC CHT, V SL TRC SH; NSFOC

LS: OFF WHI-WHI, CRM & MOTTLED IP, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; CHT: LT GY- OFF WHI & MOTTLED, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, PRED TRIPOLITIC

**SURVEY @ 7894', INC 91.2, AZM 1.6, TVD 4612.95', VS 3642.06, DLS 3.15**

LS: OFF WHI-WHI, CRM & MOTTLED IP, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; TRC CHT; BGHT LT YL FLUOR, GD LT BL FLASH CUT, GD RES RNG

LS: OFF WHI-WHI, CRM & MOTTLED IP, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; TRC CHT; BGHT LT YL FLUOR, GD LT BL FLASH CUT, MOD RES RNG

LS: OFF WHI-WHI, CRM & MOTTLED IP, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD; TRC CHT; BGHT LT YL FLUOR, GD LT BL FLASH CUT, GD RES RNG

**SURVEY @ 7989', INC 90.8, AZM 2.7, TVD 4611.29', VS 3736.59, DLS 1.23**

LS: OFF WHI-WHI & MOTTLED, LT TAN IP, C XLN-MC XLN, MASS-DNS, PRED SM TXT, OCC SL RGH TXT, SFT-FRM, OCC HD, INTG W, CHT; CHT; CRM-TAN, MC XLN, FRM-HD, PRED TRIPOLITIC, SL TRC OIL IN SMPL, WK LT YL FLUOR, WK BL CRUSH CUT, WK RES RNG

**SURVEY @ 8021', INC 90.4, AZM 2.9, TVD 4610.96', VS 3768.47, DLS 1.4**

LS: WHT OFFWHT MOT, C XLN-MCXLN, MASS-DNS, SFT-FRM; CHT: WHT OFF WHT CRM TN MOT, C XLN, OCC FOSS, NSFOC

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHILKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, NSFOC

FG 147u

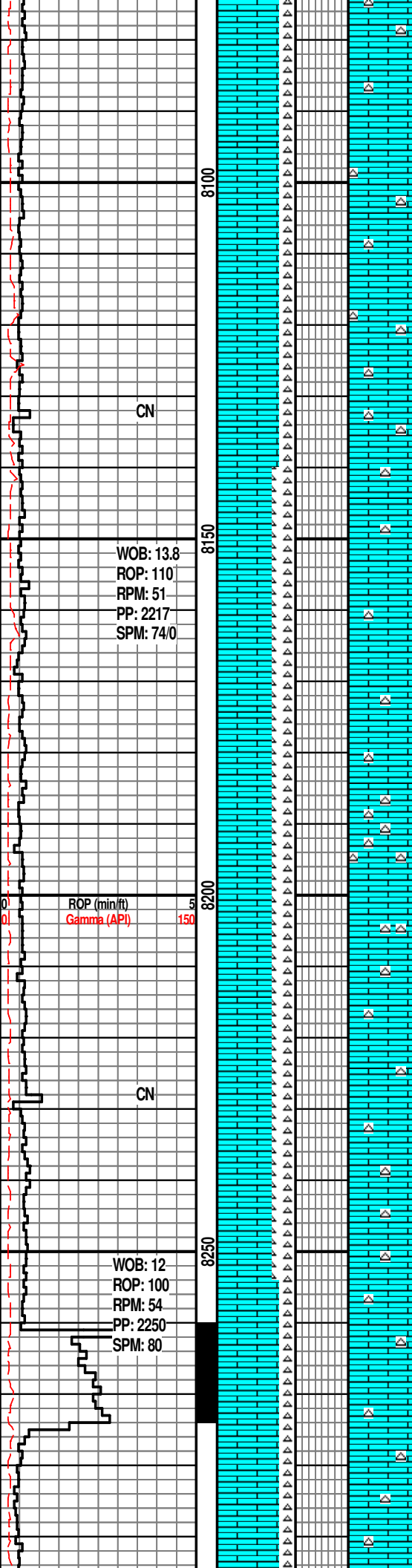
MW 8.2 VIS 30

DTG 190u



TG (units) 1500  
C1 (units) 2000  
C2 (units) 2000  
C3 (units) 2000  
C4 (units) 2000

MW 8.0 VIS 29



**SURVEY @ 8084', INC 90.4, AZM 2.6, TVD 4610.52', VS 3735.40, DLS 0.48**

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, NSFOC

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, NSFOC

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, NSFOC

**SURVEY @ 8179', INC 90.7, AZM 2.1, TVD 4609.61', VS 3925.81, DLS 0.61**

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, P LT BL SLOW CRUSH CUT WK LT BL RES RING

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, P LT BL SLOW CRUSH CUT WK LT BL RES RING

**SURVEY @ 8274', INC 92.1, AZM 3.0, TVD 4607.29', VS 4020.39, DLS 1.75**

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, GD LT BL SLOW CRUSH CUT WK LT BL RES RING



CG 75u

MW 8.1 VIS 30

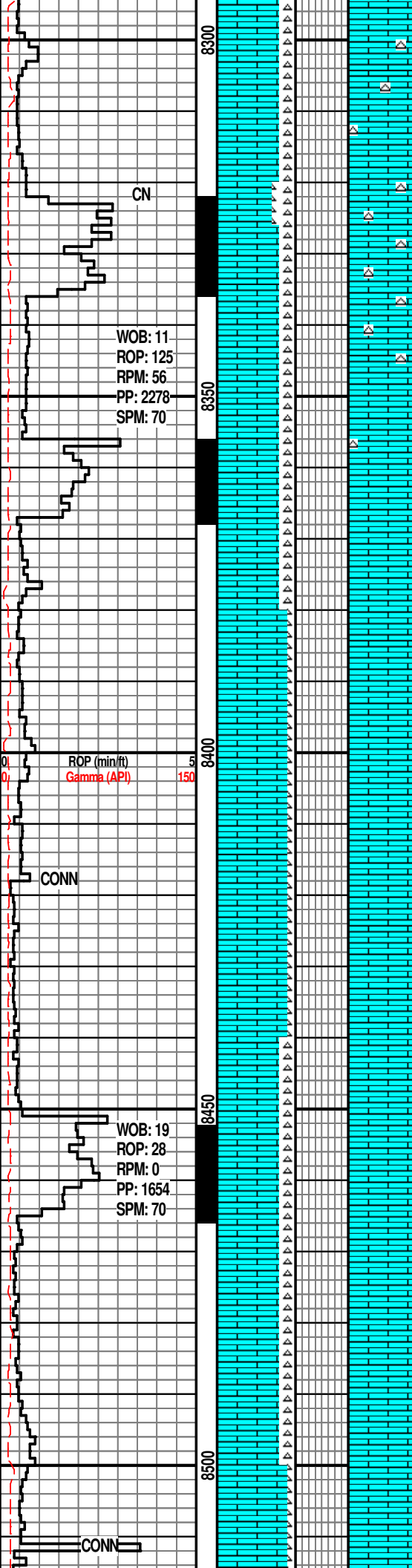
FG 145u

CG 88u

FG 309u

TG (units) 1500  
 C1 (units) 2000  
 C2 (units) 2000  
 C3 (units) 2000  
 C4 (units) 2000

DEPTH: 8203'  
 MW: 8.6  
 VIS: 27  
 PV: 1  
 YP: 1  
 GELS: 1/1  
 FIL:  
 CAKE: 0/32  
 SOL: 2.0  
 OIL: 0  
 WATER: 98.0  
 SAND: TRC  
 MUD ALK: 0.4  
 PH: 9.5  
 CA: 80  
 CHL: 1,200  
 SW LUBE ADDED



LS: WT OFFWHT MOT, C XLN-MCXLN,  
MASS-DNS OCC CHLKY, SFT-FRM; CHT:  
WHT OFFWHT CRM TN MOT, CXLN,  
TRIPOLITIC IP, GD LT BL SLOW CRUSH  
CUT WK LT BL RES RING

PAUL CAMPBELL OFF @ 8320'

LS: WT OFFWHT MOT, C XLN-MCXLN,  
MASS-DNS OCC CHLKY, SFT-FRM; CHT:  
WHT OFFWHT CRM TN MOT, CXLN,  
TRIPOLITIC IP, 30% LT BL FLOR, GD LT  
BL SLOW CRUSH CUT WK LT BL RES  
RING

**SURVEY @ 8369' INC 90.0  
AZM 59.6 TVD 4605.55'**

LS: WT OFFWHT MOT, C XLN-MCXLN,  
MASS-DNS OCC CHLKY, SFT-FRM; CHT:  
WHT OFFWHT CRM TN MOT, CXLN,  
TRIPOLITIC IP, 30% LT BL FLOR, GD LT  
BL SLOW CRUSH CUT WK LT BL RES  
RING

LS: WT OFFWHT MOT, C XLN-MCXLN,  
MASS-DNS OCC CHLKY, SFT-FRM; CHT:  
WHT OFFWHT CRM TN MOT, CXLN,  
TRIPOLITIC IP, 30% LT BL FLOR, GD LT  
BL SLOW CRUSH CUT WK LT BL RES  
RING

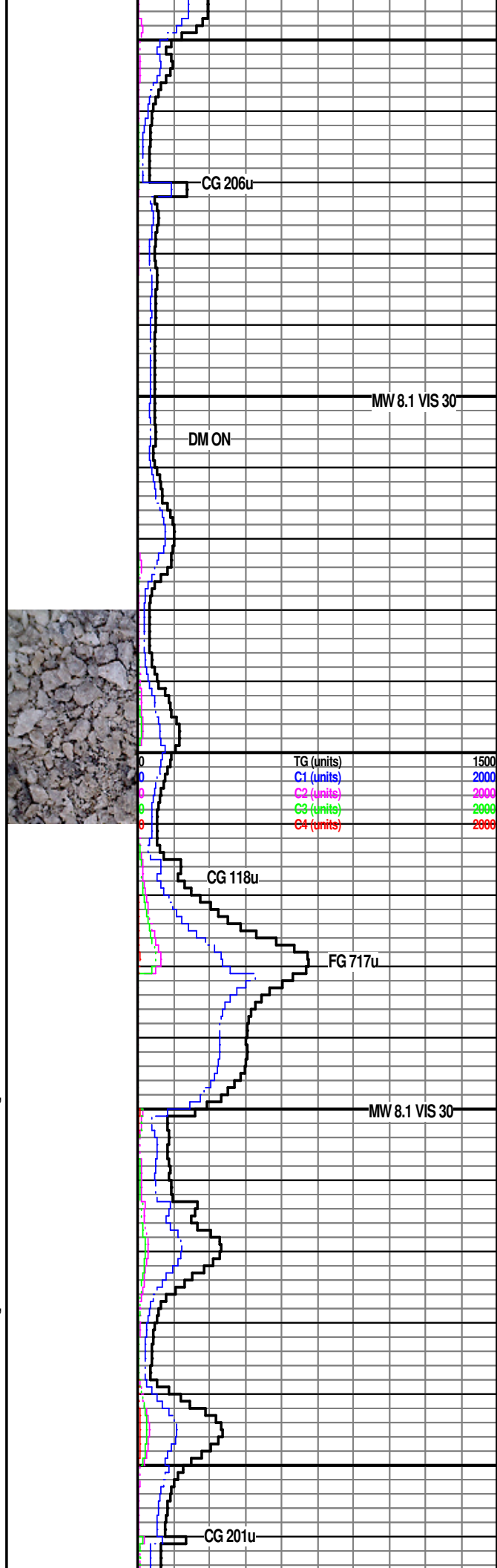
LS: WT OFFWHT MOT, C XLN-MCXLN,  
MASS-DNS OCC CHLKY, SFT-FRM; CHT:  
WHT OFFWHT CRM TN MOT, CXLN,  
TRIPOLITIC IP, 30% LT BL FLOR, GD LT  
BL SLOW CRUSH CUT WK LT BL RES  
RING

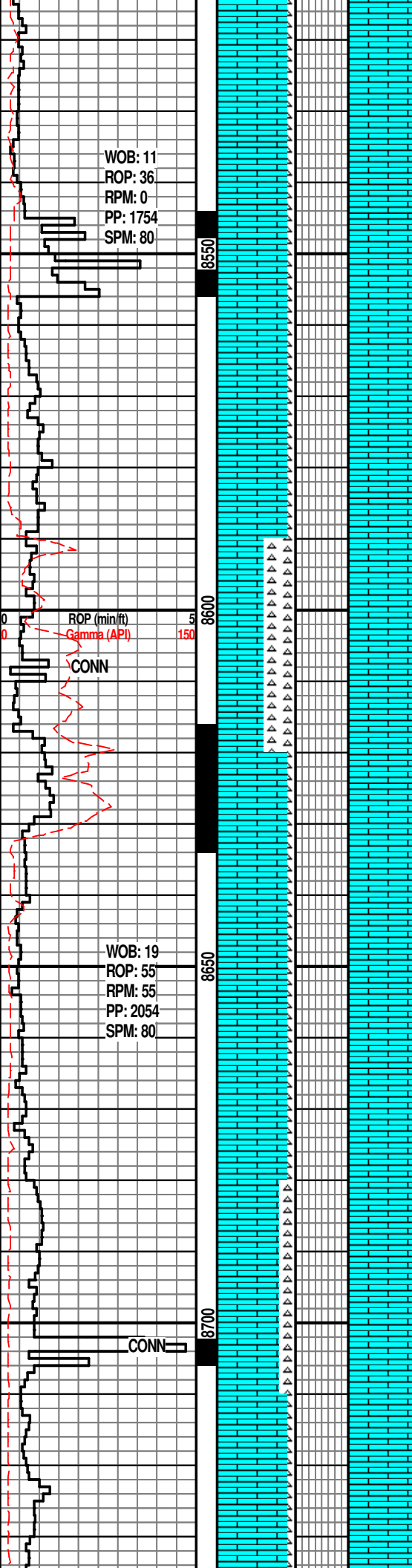
**SURVEY @ 8464' INC 89.7  
AZM 1.1 TVD 4605.79'**

LS: OFF WHI-WHI & MOTTLED, LT TAN IP,  
C XLN-MC XLN, MASS-DNS, PRED SM  
TXT, OCC SL RGH TXT, SFT- FRM, OCC  
HD, INTG W, CHT; CHT; CRM-TAN, MC  
XLN, FRM-HD, PRED TRIPOLITIC, SL TRC  
OIL IN SMPL, WK LT YL FLUOR, WK BL  
CRUSH CUT, WK RES RING

LS: OFF WHI-WHI & MOTTLED, LT TAN IP,  
C XLN-MC XLN, MASS-DNS, PRED SM  
TXT, OCC SL RGH TXT, SFT- FRM, OCC  
HD, INTG W, CHT; CHT; CRM-TAN, MC  
XLN, FRM-HD, PRED TRIPOLITIC, SL TRC  
OIL IN SMPL, WK LT YL FLUOR, WK BL  
CRUSH CUT, WK RES RING

LS: WT OFFWHT MOT, C XLN-MCXLN,  
MASS-DNS OCC CHI KY. SFT-FRM; CHT:



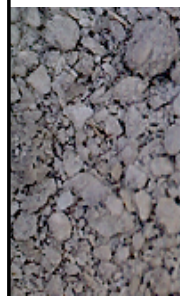


LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, 30% LT BL FLOR, GD LT BL SLOW CRUSH CUT WK LT BL RES RING

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, 30% LT BL FLOR, GD LT BL SLOW CRUSH CUT WK LT BL RES RING

**SURVEY @ 8559' INC 89.5  
AZM 0.1 TVD 4606.46'**

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, 30% LT BL FLOR, GD LT BL SLOW CRUSH CUT WK LT BL RES RING



LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, 30% LT BL FLOR, GD LT BL SLOW CRUSH CUT WK LT BL RES RING

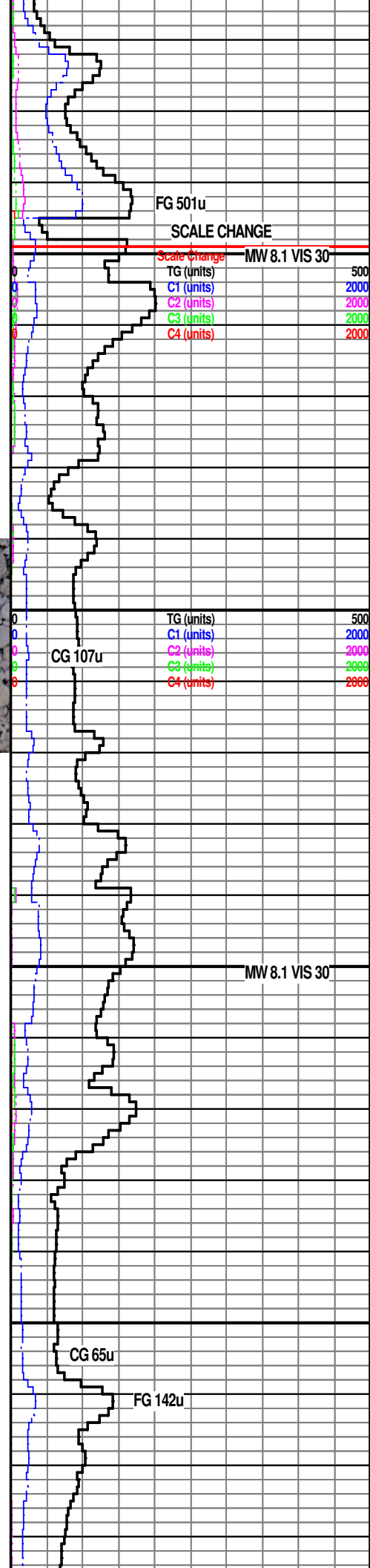
LS: CRM-OFF WH, MICRO-CRYPTO XLN, SLI FRM-FRM; SME LS CMT; SH: BLK-DK GY, SME M-LT GY, SPLNTY, PLTY, SME SBBLKY, GLSSY-DLL LSTR, SMTH-SBSMTH TXT, SLI FRM-FRM, LT BL FLOR

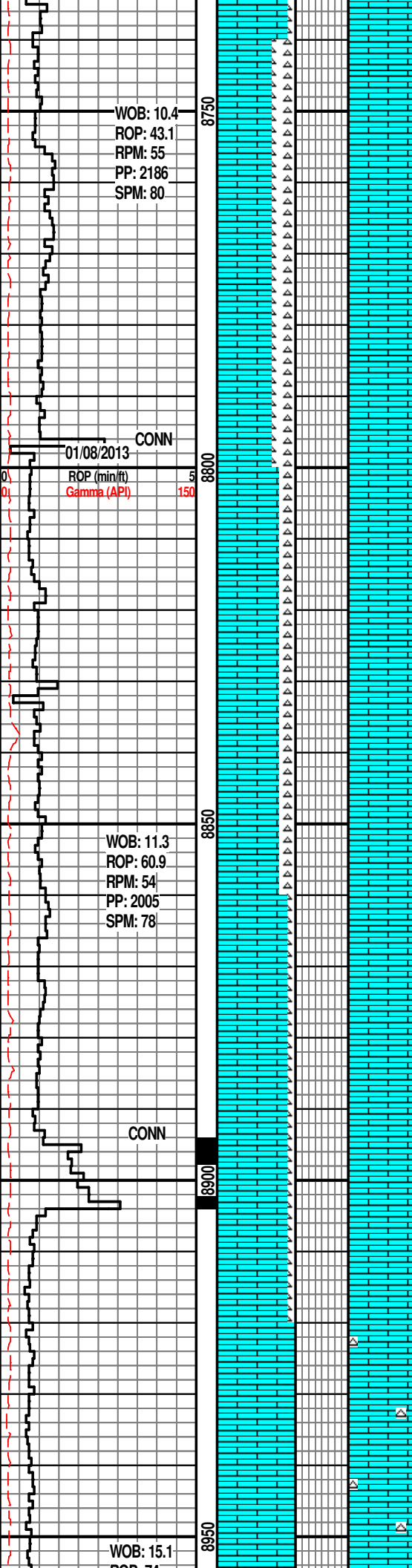
**SURVEY @ 8654' INC 89.2  
AZM 359.7 TVD 4607.54'**

LS: CRM-OFF WH, MICRO-CRYPTO XLN, SLI FRM-FRM; SME LS CMT; SH: BLK-DK GY, SME M-LT GY, SPLNTY, PLTY, SME SBBLKY, GLSSY-DLL LSTR, SMTH-SBSMTH TXT, SLI FRM-FRM, LT BL FLOR

LS: CRM-OFF WH, MICRO-CRYPTO XLN, SLI FRM-FRM; SME LS CMT; SH: BLK-DK GY, SME M-LT GY, SPLNTY, PLTY, SME SBBLKY, GLSSY-DLL LSTR, SMTH-SBSMTH TXT, SLI FRM-FRM, LT BL FLOR

LS: CRM-OFF WH, MICRO-CRYPTO XLN, SLI FRM-FRM; SME LS CMT; SH: BLK-DK GY, SME M-LT GY, SPLNTY, PLTY, SME SBBLKY, GLSSY-DLL LSTR, SMTH-SBSMTH TXT, SLI FRM-FRM, LT BL FLOR





SMTH-SBSMTH TXT, SLI FRM-FRM, LT BL FLOR

**SURVEY @ 8749' INC 89.4 AZM  
359.9 TVD 4608.70'**

LS: CRM-OFF WH, MICRO-CRYPTO XLN, SLI FRM-FRM; SME LS CMT; SH: BLK-DK GY, SME M-LT GY, SPLNTY, PLTY, SME SBBLKY, GLSSY-DLL LSTR, SMTH-SBSMTH TXT, SLI FRM-FRM, LT BL FLOR

LS: CRM-OFF WH, MICRO-CRYPTO XLN, SLI FRM-FRM; SME LS CMT; SH: BLK-DK GY, SME M-LT GY, SPLNTY, PLTY, SME SBBLKY, GLSSY-DLL LSTR, SMTH-SBSMTH TXT, SLI FRM-FRM, LT BL FLOR

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, LT BL FLOR, GD LT BL SLOW CRUSH CUT WK LT BL RES RING

**SURVEY @ 8844' INC 89.3 AZM  
359.4 TVD 4609.77'**

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, LT BL FLOR, GD LT BL SLOW CRUSH CUT WK LT BL RES RING

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, LT BL FLOR, GD LT BL SLOW CRUSH CUT WK LT BL RES RING

LS: WT OFFWHT MOT, C XLN-MCXLN, MASS-DNS OCC CHLKY, SFT-FRM; CHT: WHT OFFWHT CRM TN MOT, CXLN, TRIPOLITIC IP, LT BL FLOR, GD LT BL SLOW CRUSH CUT WK LT BL RES RING

PAUL CAMPBELL ON @ 8920'

**SURVEY @ 8939', INC 90.2, AZM 359.0,  
TVD 4610.19', VS 4979.95', DLS 1.04**

LS: OFF WHI-WHI, CRM, C XLN, PRED SM TXT, DNS-MASS, PRED FRM, OCC HD, OCC INTG W/ CHT, TRC DRK OIL INCL IN SMPL; LT YL-GLD FLUOR, GD LT BL SLOW FLASH CUT, GD CRUSH CUT, WK LT YL RES RING



MW 8.1 VIS 30

CG 75u

TG (units) 500  
C1 (units) 2000  
C2 (units) 2000  
C3 (units) 2000  
C4 (units) 2000

MW 8.1 VIS 30

CG 50u

MW 8.1 VIS 30

ROP: 74  
RPM: 54  
PP: 2121  
SPM: 77

CN

ROP (min/ft)  
Gamma (API)

9000  
150

WOB: 12.4  
ROP: 150  
RPM: 54  
PP: 2202  
SPM: 80

CN

9050

9100

WOB: 11.5  
ROP: 230  
RPM: 54  
PP: 2330  
SPM: 79

9150

LS: OFF WHI-WHI, CRM, C XLN, PRED SM  
TXT, DNS-MASS, SFT- FRM, OCC HD, TRC  
DRK OIL INCL IN SMPL; LT YL-GLD  
FLUOR, GD LT BL FLASH CUT, GD  
CRUSH CUT, WK LT YL RES RNG

LS: OFF WHI-WHI, CRM, OCC LT TAN-GY,  
C XLN, PRED SM TXT, DNS-MASS, SFT-  
FRM, OCC HD, SL TRC DRK OIL INCL IN  
SMPL; LT YL-GLD FLUOR, MOD LT BL  
FLASH CUT, GD CRUSH CUT, WK LT YL  
RES RNG

**SURVEY @ 9034', INC 91.4, AZM 359.7,  
TVD 4608.86', VS 4773.92', DLS 1.46**

LS: OFF WHI-WHI, CRM, C XLN, PRED SM  
TXT, DNS-MASS, SFT- FRM, OCC HD,  
CHT; OFF WHI-LT GY, OCC TRNSL, MC  
XLN, FRM-HD, PRED TRIPOLITIC; LT  
YL-GLD FLUOR, MOD LT BL FLASH CUT,  
WK YL RES RNG

LS: OFF WHI-WHI, CRM, C XLN, PRED SM  
TXT, DNS-MASS, SFT- FRM, OCC HD,  
CHT; OFF WHI-LT GY, OCC TRNSL, MC  
XLN, FRM-HD, PRED TRIPOLITIC; LT  
YL-GLD FLUOR, MOD LT BL FLASH CUT,  
WK YL RES RNG

CHT: WHI-OFF WHI, CRM, MC XLN,  
FRM-HD, OCC V-HD, OCC TRIPOLITIC;  
LS: OFF WHI -WHI, OCC LT GY WL DRK  
INCL, MC XLN-C XLN, DNS-MASS, SM  
TXT, PRED FRM, OCC HD, 10% BGHT YL  
FLUOR, MOD LT BL CRUSH CUT, WK LT  
RES RNG

**SURVEY @ 9129', INC 91.8, AZM 0.5, TVD  
4606.21', VS 4868.04', DLS 0.94**

CHT: WHI-OFF WHI, CRM, MC XLN,  
FRM-HD, OCC V-HD, TRC TRIPOLITIC; LS:  
OFF WHI -WHI, OCC LT GY WL DRK INCL,  
MC XLN-C XLN, DNS-MASS, SM TXT,  
PRED FRM, OCC HD, WK LT YL FLUOR,  
DLL BL CRUSH CUT, NO RES RNG

CHT: WHI-OFF WHI, CRM, MC XLN,  
FRM-HD, OCC V-HD; LS: OFF WHI -WHI,  
OCC LT GY WL DRK INCL, MC XLN-C  
XLN, DNS-MASS, SM TXT, PRED FRM,  
OCC HD, SL LT YL FLUOR, WK DLL BL  
CRUSH CUT, NO RES RNG

CHT: WHI-OFF WHI, CRM, MC XLN,  
FRM-HD, OCC V-HD; LS: OFF WHI -WHI,



CG 60u

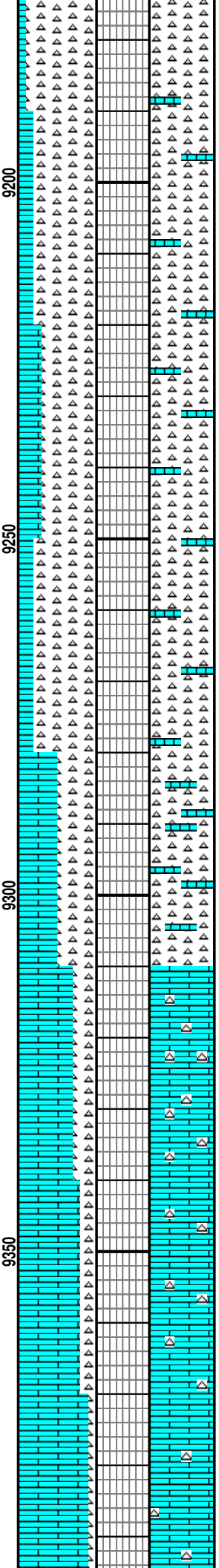
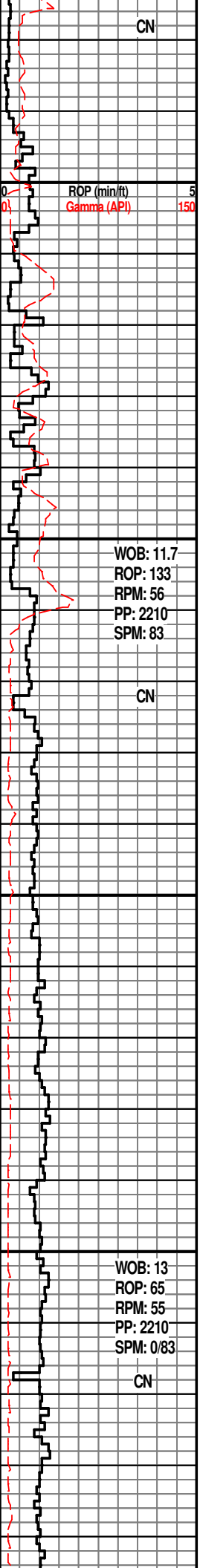
TG (units) 500  
C1 (units) 2000  
C2 (units) 2000  
C3 (units) 2000  
C4 (units) 2000

MW 8.3 VIS 29

CG 53u

FG 104u

MW 8.4 VIS 29



OCC LT GY WL DRK INCL, MC XLN-C XLN, DNS-MASS, SM TXT, PRED FRM, OCC HD, SL LT YL FLUOR, WK DLL BL CRUSH CUT, NO RES RNG

CHT: WHI-OFF WHI, CRM, MC XLN, FRM-HD, OCC V-HD, OCC TRIPOLITIC; LS: OFF WHI -WHI, OCC LT GY W/ DRK INCL, MC XLN-C XLN, DNS-MASS, SM TXT, PRED FRM, OCC HD, SL DLL YL FLUOR, MOD BGHT BL CRUSH CUT, DLL YL RES RNG

**SURVEY @ 9224', INC 91.5, AZM 359.0, TVD 4603.47', VS 4962.08', DLS 1.61**

CHT: WHI-OFF WHI, CRM, MC XLN, FRM-HD, OCC V-HD, TRIPOLITIC; LS: OFF WHI -WHI, OCC LT GY, MC XLN-C XLN, DNS-MASS, SM TXT, PRED FRM-HD, DLL YL FLUOR, MOD BGHT BL FLASH CUT, DLL YL RES RNG

CHT: WHI-OFF WHI, CRM, MC XLN, FRM-HD, OCC V-HD; LS: OFF WHI -WHI, OCC LT GY, MC XLN-C XLN, DNS-MASS, SM TXT, PRED FRM, TRC ODOR, GD OIL SHEEN IN SMPLE, SL DLL YL FLUOR, LT BL FLASH CUT, GD YL RES RNG

CHT: WHT OFF WHT CRM MOT, C XLN, FRM-HD, VHD IP; LS: WHT OFF WHT, C XLN-MC XLN, DNS-MASS, FRM, SL DL YEL FLOR, P LT BL CRUSH CUT, W OR RES RING

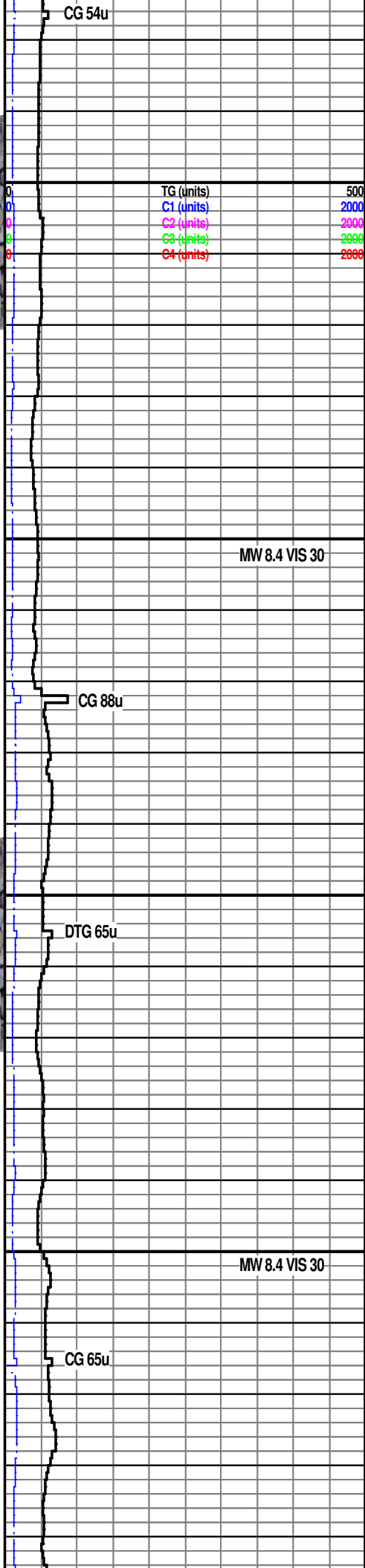
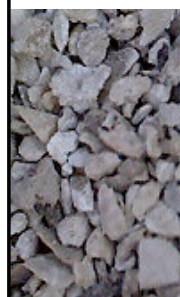
**SURVEY @ 9319', INC 91.3, AZM 358.9, TVD 4602.69', VS 4993.70', DLS 0.70**

LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC

**SURVEY @ 9351', INC 91.0, AZM 358.8, TVD 4600.70', VS 5087.52', DLS 0.70**

LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC

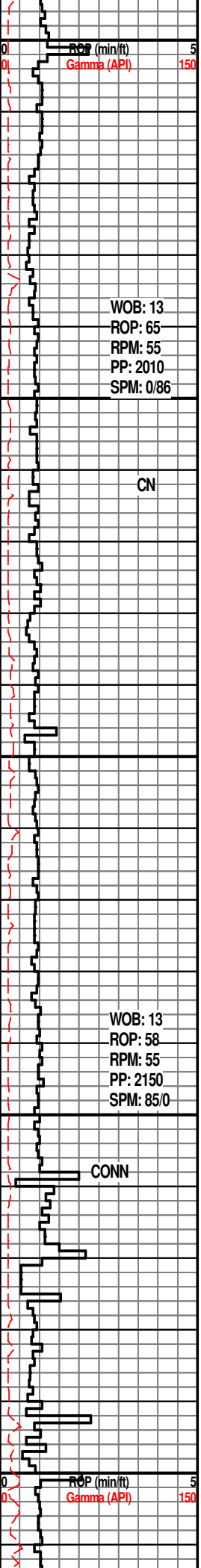
LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC



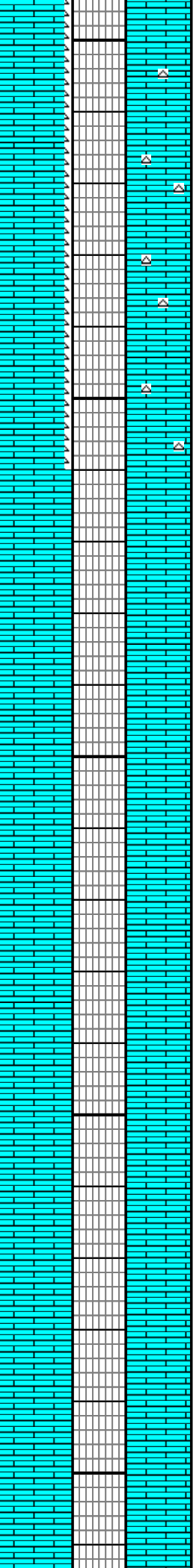
TG (units)	500
C1 (units)	2000
C2 (units)	2000
C3 (units)	2000
C4 (units)	2000

WOB: 11.7  
ROP: 133  
RPM: 56  
PP: 2210  
SPM: 83

WOB: 13  
ROP: 65  
RPM: 55  
PP: 2210  
SPM: 0/83



9400  
9450  
9500  
9550  
9600



WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC

**SURVEY @ 9414', INC 91.1, AZM 358.4, TVD 4599.55', VS 5149.71', DLS 0.65**

LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC

LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC

LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC

**SURVEY @ 9509', INC 91.1, AZM 358.0 TVD 4597.72', VS 5243.38', DLS 0.42**

LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC

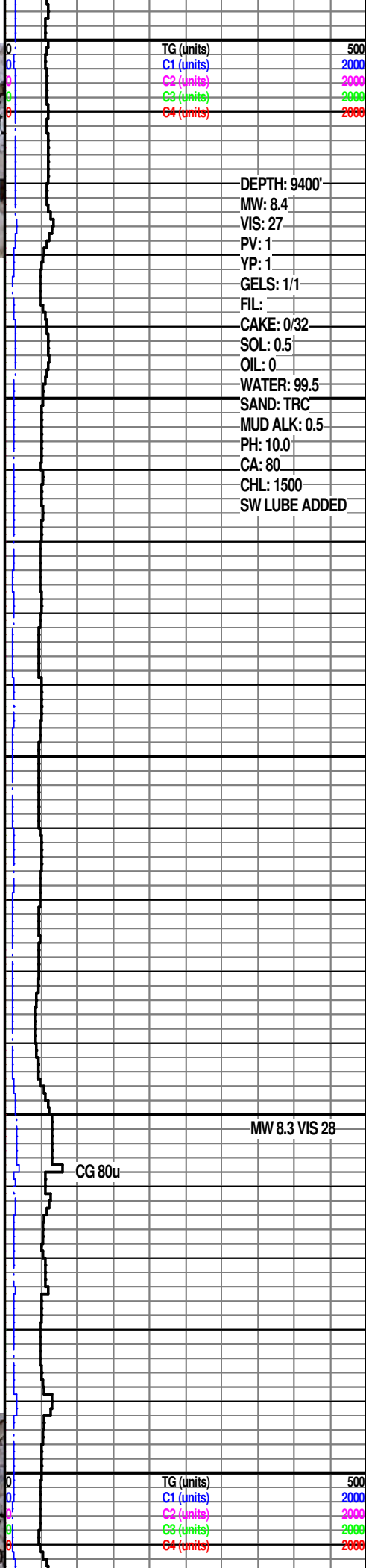
LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC

PAUL CAMPBELL OFF @ 9550'

**SW LUBE ADDED SINCE 6260' POSSIBLE GIVING FALSE CUTS/SHOWS**

**SURVEY @ 9604' INC 91.7 AZM 357.6 TVD 4595.40'**

LS: WHT OFF WHT LT GY MOT IP, C XLN-MC XLN, DNS-MASS, FRM; CHT: WHT OFF WHT CRM OCC TN, CXLN, FRM-HRD, VHD IP, NFSOC



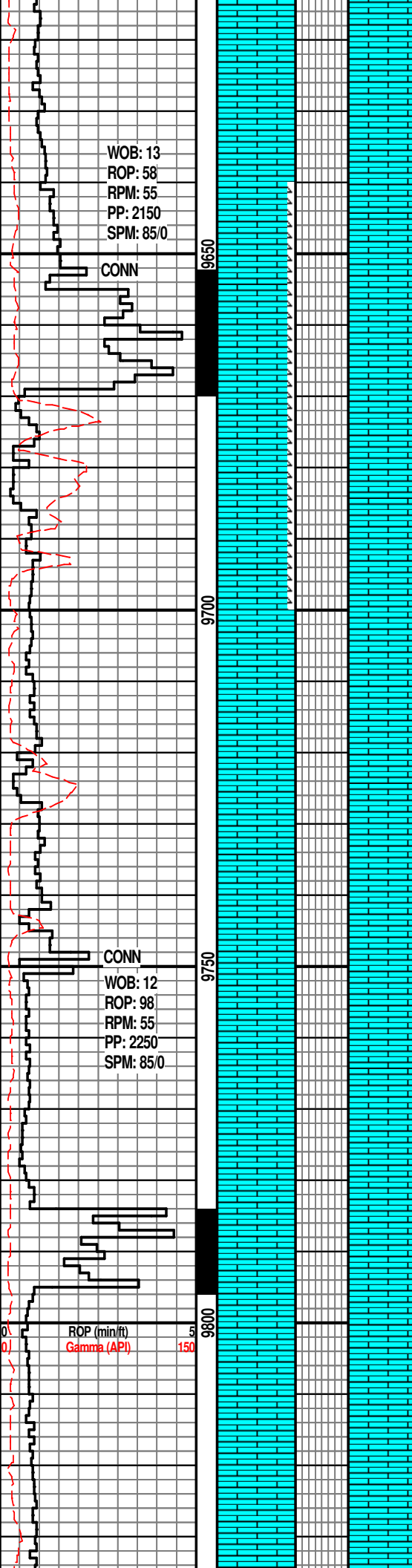
TG (units) 500  
C1 (units) 2000  
C2 (units) 2000  
C3 (units) 2000  
C4 (units) 2000

DEPTH: 9400'  
MW: 8.4  
VIS: 27  
PV: 1  
YP: 1  
GELS: 1/1  
FIL:  
CAKE: 0/32  
SOL: 0.5  
OIL: 0  
WATER: 99.5  
SAND: TRC  
MUD ALK: 0.5  
PH: 10.0  
CA: 80  
CHL: 1500  
SW LUBE ADDED

MW 8.3 VIS 28

CG 80u

TG (units) 500  
C1 (units) 2000  
C2 (units) 2000  
C3 (units) 2000  
C4 (units) 2000



WOB: 13  
 ROP: 58  
 RPM: 55  
 PP: 2150  
 SPM: 85/0

CONN

9650

9700

9750

9800

ROP (min/ft)  
 Gamma (API)

150

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

**SURVEY @ 9699' INC 90.3  
 AZM 358.4 TVD 4593.55'**

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

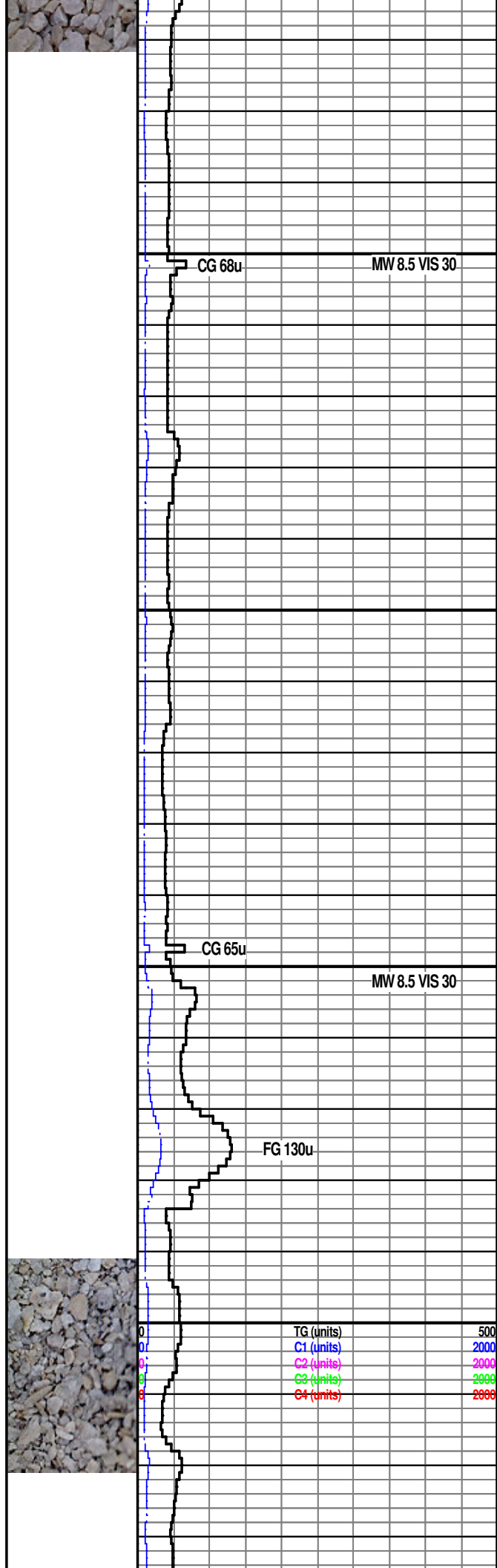
LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

**SURVEY @ 9794' INC 88.8  
 AZM 359.2 TVD 4594.49'**

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC



CG 68u

MW 8.5 VIS 30

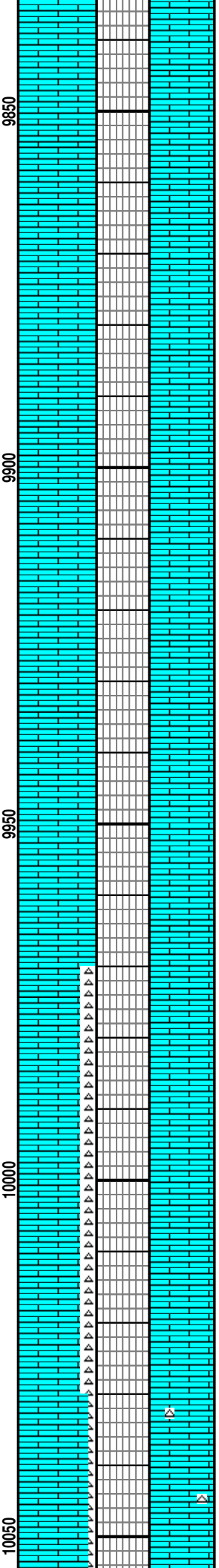
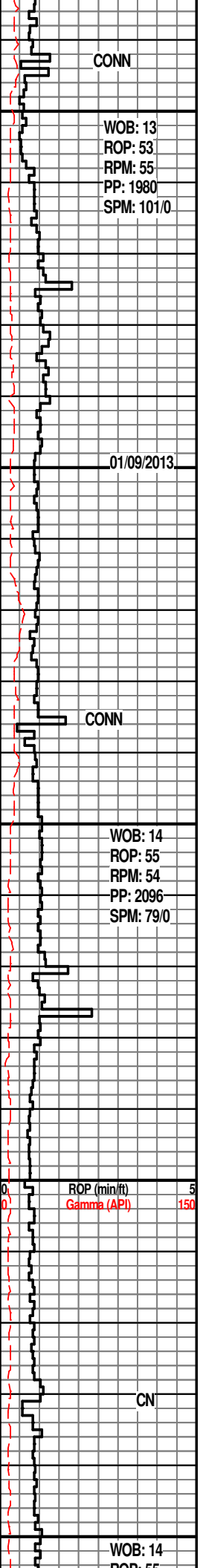
CG 65u

MW 8.5 VIS 30

FG 130u

TG (units)  
 C1 (units)  
 C2 (units)  
 C3 (units)  
 C4 (units)

500  
 2000  
 2000  
 2000  
 2000



LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

**SURVEY @ 9889' INC 89.1  
 AZM 359.8 TVD 4596.23'**

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

LS: WHT OFF WHT LT GY MOT IP, C  
 XLN-MC XLN, DNS-MASS, FRM; CHT:  
 WHT OFF WHT CRM OCC TN, CXLN,  
 FRM-HRD, VHD IP, NFSOC

**SW LUBE ADDED SINCE 6260'  
 POSSIBLE GIVING FALSE SHOWS**

LS: WHT OFFWHT CRM MOT, C XLN-MC  
 XLN, DNS-MASS, SFT-FRM, OCC HD;  
 CHT: LT GY TN WHT MOT OCC TRNSL,  
 MCXLN, HRD, NFSOC

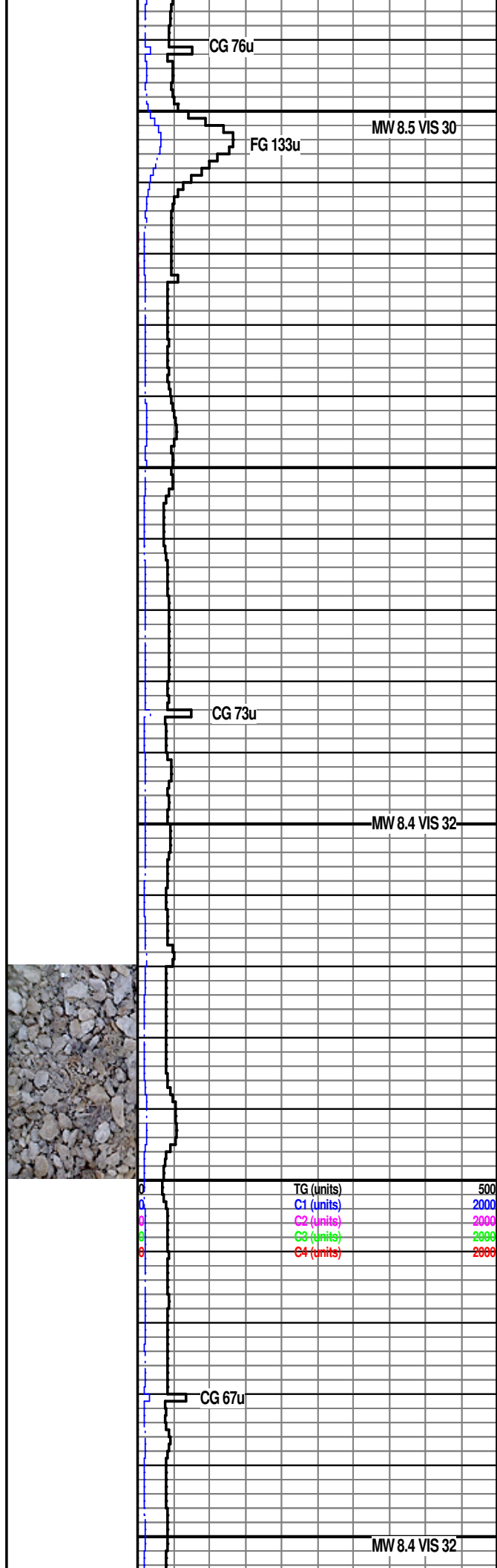
**SURVEY @ 9984' INC 89.5  
 AZM 359.4 TVD 4596.39'**

LS: WHT OFFWHT CRM MOT, C XLN-MC  
 XLN, DNS-MASS, SFT-FRM, OCC HD;  
 CHT: LT GY TN WHT MOT OCC TRNSL,  
 MCXLN, HRD, NFSOC

LS: WHT OFFWHT CRM MOT, C XLN-MC  
 XLN, DNS-MASS, SFT-FRM, OCC HD;  
 CHT: LT GY TN WHT MOT OCC TRNSL,  
 MCXLN, HRD, NFSOC

PAUL CAMPBELL ON @ 10030'

LS: OFF WHI-WHI, OCC CRM-LT GY &  
 MOTTLED, C XLN, PRED SM TXT,  
 DNS-MASS, SFT-FRM, OCC HD, CHT;  
 CHT: LT GY TN WHT MOT OCC TRNSL,  
 MCXLN, HRD, NFSOC



MW 8.5 VIS 30

MW 8.4 VIS 32

TG (units) 500  
 C1 (units) 2000  
 C2 (units) 2000  
 C3 (units) 2000  
 C4 (units) 2000

MW 8.4 VIS 32

ROP: 55  
RPM: 54  
PP: 2096  
SPM: 79/0

OFF WHI-LT GY, OCC TRNSL, MC XLN,  
FRM-HD, NSFOC

**SURVEY @ 10079', INC 89.7, AZM 359.6,  
TVD 4598.06', VS 5806.47', DLS 0.24**

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD; TRC  
CHT; NSFOC

**SW LUBE ADDED SINCE 6260'  
POSSIBLE GIVING FALSE  
CUTS/SHOWS**

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; NSFOC

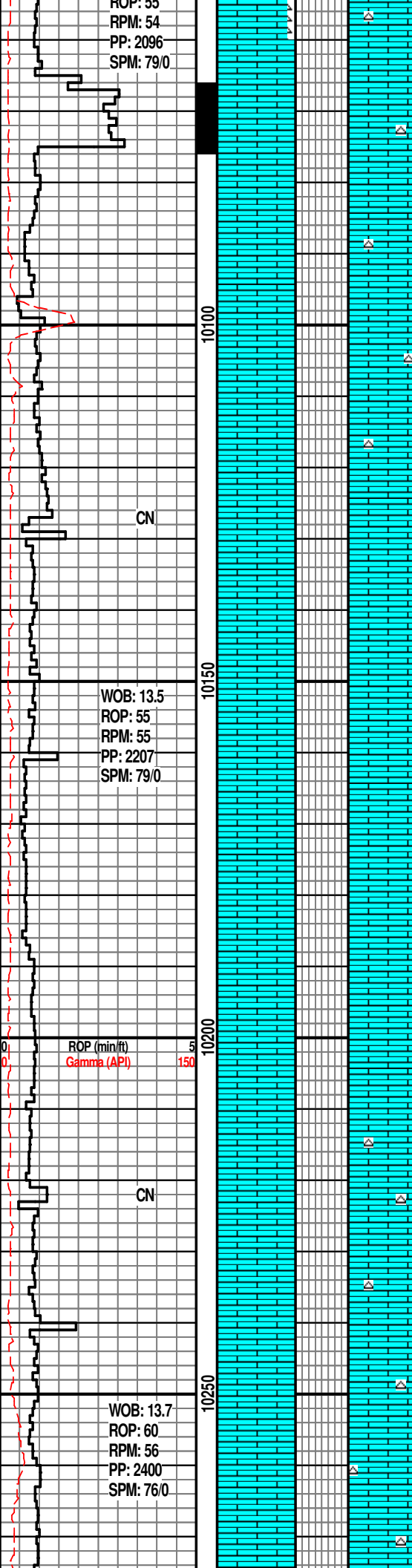
**SURVEY @ 10174', INC 89.6, AZM 359.2,  
TVD 4598.64', VS 5900.47', DLS 0.43**

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC FREE  
CHT; NSFOC

**SURVEY @ 10269', INC 90.1, AZM 359.1,  
TVD 4598.89', VS 5994.89', DLS 0.54**

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, OCC  
INTG W/ CHT; TRC FREE CHT; NSFOC



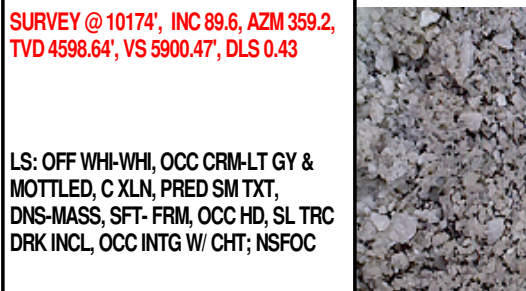
CN

CN

WOB: 13.5  
ROP: 55  
RPM: 55  
PP: 2207  
SPM: 79/0

ROP (min/ft)  
Gamma (API)

WOB: 13.7  
ROP: 60  
RPM: 56  
PP: 2400  
SPM: 76/0



FG 81u

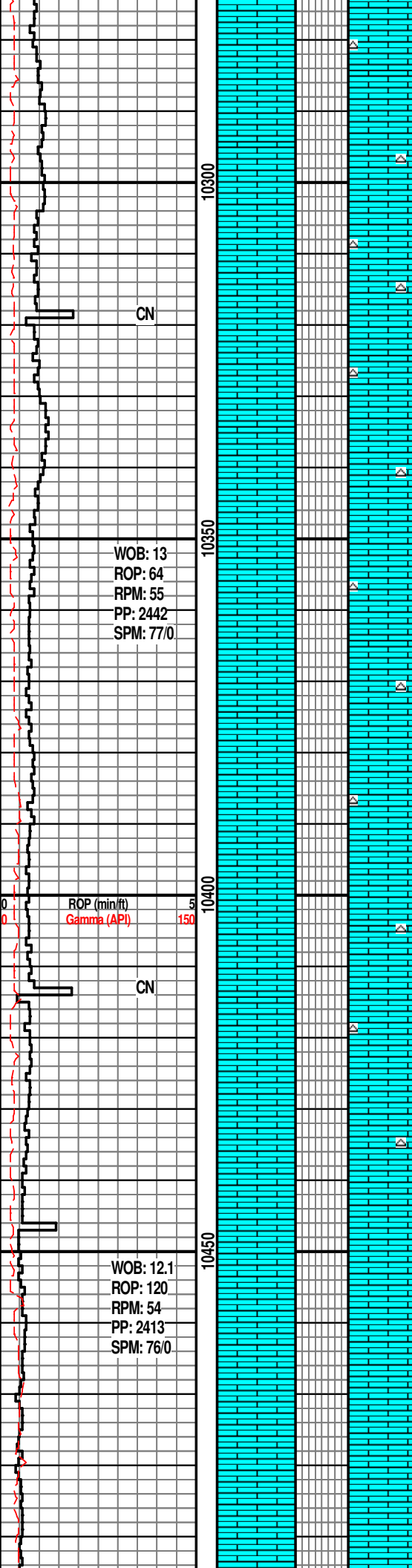
CG 70u

MW 8.4 VIS 30

CG 106u

MW 8.4 VIS 29

TG (units)	500
C1 (units)	2000
C2 (units)	2000
C3 (units)	2000
C4 (units)	2000



LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, OCC INTG W/ CHT; TRC FREE CHT; SL LT YL-GLD FLUOR, WK LT BL CRUSH CUT, WK RES RNG

LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, OCC INTG W/ CHT; TRC FREE CHT; SL LT YL-GLD FLUOR, WK LT BL CRUSH CUT, WK RES RNG

LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, OCC INTG W/ CHT; TRC CHT; NSFOC

**SURVEY @ 10364', INC 90.8, AZM 358.8, TVD 4598.14', VS 6088.29, DLS 0.80**

LS: OFF WHI-WHI, OCC CRM-LT GY, TRNSL IP, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, OCC INTG W/ CHT; TRC CHT; NSFOC

**SW LUBE ADDED SINCE 6260' POSSIBLE GIVING FALSE CUTS/SHOWS**

LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, SL TRC DRK INCL, OCC INTG W/ CHT; TRC CHT; NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, SL TRC DRK INCL, OCC INTG W/ CHT; SL TRC CHT; LT YL FLOUR, WK LT BL FLASH CUT, SL LT YL RES RNG

**SURVEY @ 10459', INC 91.1, AZM 358.5, TVD 4596.56', VS 6182.09, DLS 0.45**

LS: OFF WHI-WHI, OCC CRM-LT GY, TRNSL IP, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD; GD LT YL FLOUR, WK LT BL FLASH CUT, MOD LT YL RES RNG

LS: OFF WHI-WHI, OCC CRM-LT GY,

CG 69u

DEPTH: 10397'  
 MW: 8.35  
 VIS: 27  
 PV: 1  
 YP: 1  
 GELS: 1/1  
 FIL: 60.0  
 CAKE: 2/  
 SOL: 0.5  
 OIL: 0  
 WATER: 99.5  
 SAND: .1  
 PH: 8.0  
 CA: 80  
 CHL: 1,000  
 SW LUBE ADDED

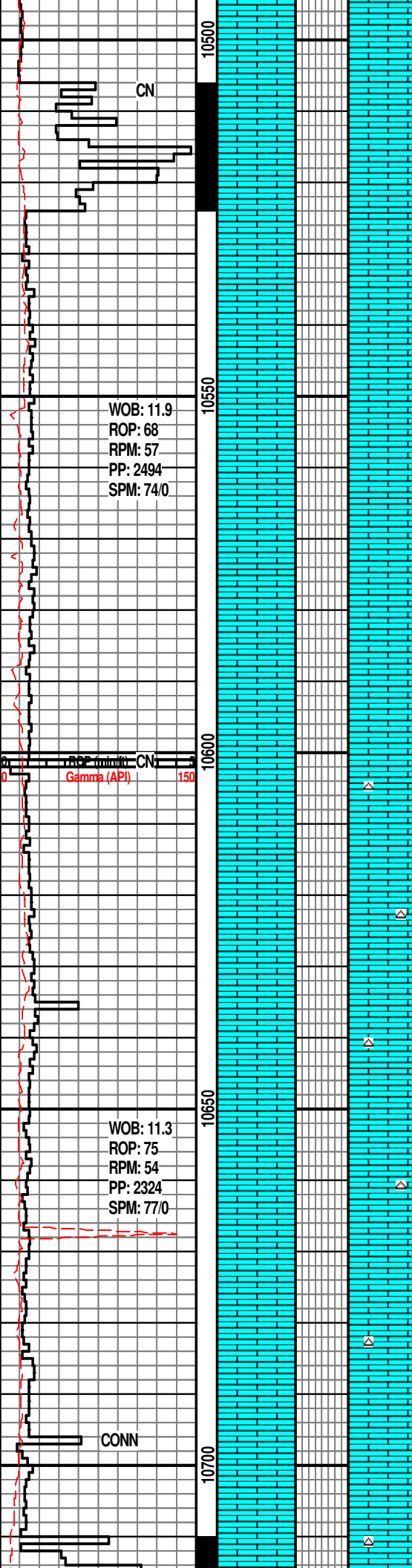


CG 86u

TG (units) 500  
 C1 (units) 2000  
 C2 (units) 2000  
 C3 (units) 2000  
 C4 (units) 2000

MW 8.3 VIS 28

FG 110u



TRNSL IP, C XLN, PRED SM TXT,  
 DNS-MASS, SFT- FRM, OCC HD; GD  
 BGHT YL FLUOR, GD MLKY WHI-LT BL  
 FLASH CUT, GD CRUSH CUT, EXC LT YL  
 RES RNG

LS: OFF WHI-WHI, OCC CRM-LT GY &  
 MOTTLED, C XLN, PRED SM TXT,  
 DNS-MASS, SFT- FRM, OCC HD, SL TRC  
 DRK INCL, OCC INTG W/ CHT; LT YL  
 FLOUR, WK LT BL FLASH CUT, SL LT YL  
 RES RNG

**SURVEY @ 10649', INC 91.2, AZM 359.2,  
 TVD 4594.34', VS 6306.55, DLS 1.16**

LS: OFF WHI-WHI, OCC CRM-LT GY &  
 MOTTLED, C XLN, PRED SM TXT,  
 DNS-MASS, SFT- FRM, OCC HD, SL TRC  
 DRK INCL, OCC INTG W/ CHT; LT YL  
 FLOUR, WK LT BL FLASH CUT, SL LT YL  
 RES RNG

LS: OFF WHI-WHI, OCC CRM-LT GY &  
 MOTTLED, C XLN, PRED SM TXT,  
 DNS-MASS, SFT- FRM, OCC HD; NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY &  
 MOTTLED, C XLN, PRED SM TXT,  
 DNS-MASS, SFT- FRM, OCC HD; V SL  
 TRC CHT; NSFOC

PAUL CAMPBELL OFF @ 10630'

LS: OFF WHI-WHI, OCC CRM-LT GY &  
 MOTTLED, C XLN, PRED SM TXT,  
 DNS-MASS, SFT- FRM, OCC HD, SL TRC  
 DRK INCL, OCC INTG W/ CHT; TRC CHT;  
 NSFOC

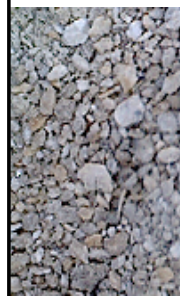
LS: OFF WHI-WHI, OCC CRM-LT GY &  
 MOTTLED, C XLN, PRED SM TXT,  
 DNS-MASS, SFT- FRM, OCC HD; NSFO

LS: OFF WHI-WHI, OCC CRM-LT GY &  
 MOTTLED, C XLN, PRED SM TXT,

CG 806u

**SCALE CHANGE**

Scale Change	MW 8.3 VIS 29	1000
TG (units)		3000
C1 (units)		3000
C2 (units)		3000
C3 (units)		3000
C4 (units)		3000



TG (units)	1000
C1 (units)	3000
C2 (units)	3000
C3 (units)	3000
C4 (units)	3000

DM ON

MW 8.4 VIS 30

CG 472u

DNS-MASS, SFT- FRM, OCC HD; NSFO

**SURVEY @ 10,743' INC 90.3  
AZM 359.0 TVD 4591.22'**

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC

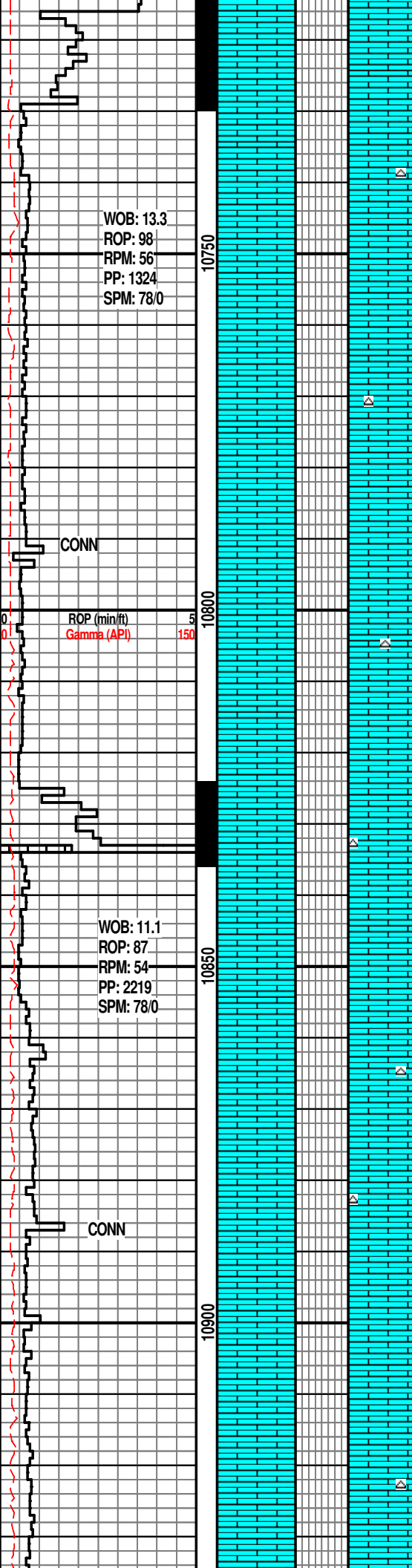
**SURVEY @ 10,838' INC 89.9 AZM  
359.5 TVD 4591.05'**

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC

**SURVEY @ 10,933' INC 89.9  
AZM 359.2 TVD 4591.22'**

LS: OFF WHI-WHI, OCC CRM-LT GY &  
MOTTLED, C XLN, PRED SM TXT,  
DNS-MASS, SFT- FRM, OCC HD, SL TRC  
DRK INCL, OCC INTG W/ CHT; TRC CHT;  
NSFOC



WOB: 13.3  
ROP: 98  
RPM: 56  
PP: 1324  
SPM: 78/0

10750

10800

10850

10900

CONN

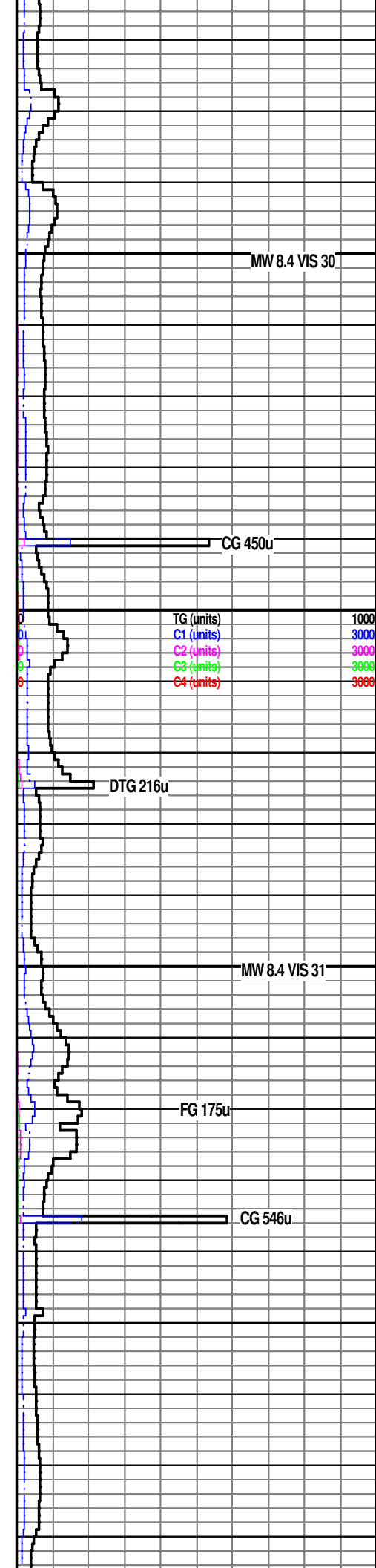
CONN

ROP (min/ft)  
Gamma (API)

150



DNS-MASS, SFT- FRM, OCC HD; NSFO



MW 8.4 VIS 30

CG 450u

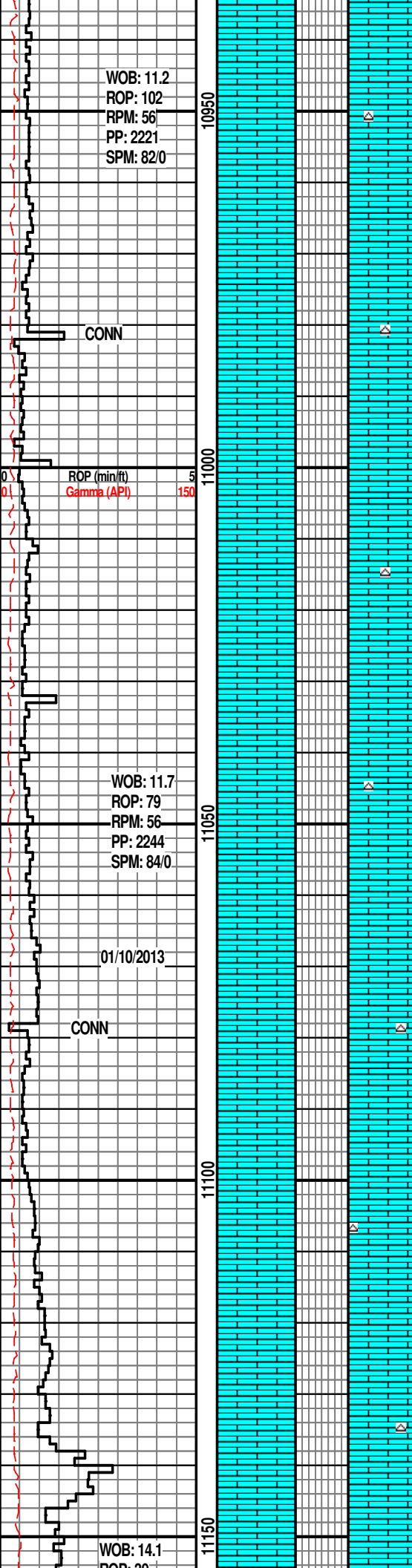
DTG 216u

MW 8.4 VIS 31

FG 175u

CG 546u

TG (units)	1000
C1 (units)	3000
C2 (units)	3000
C3 (units)	3000
C4 (units)	3000



LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD; NSFO

LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, SL TRC DRK INCL, OCC INTG W/ CHT; TRC CHT; NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD; NSFO

**SURVEY @ 11,028' INC 90.2  
AZM 358.5 TVD 4591.13'**

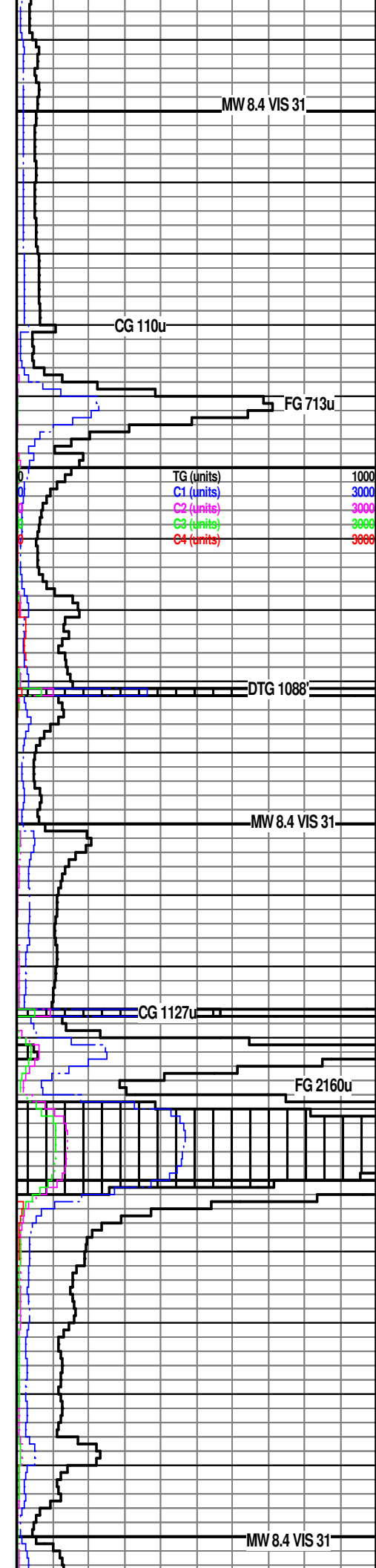
LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, SL TRC DRK INCL, OCC INTG W/ CHT; TRC CHT; NSFOC

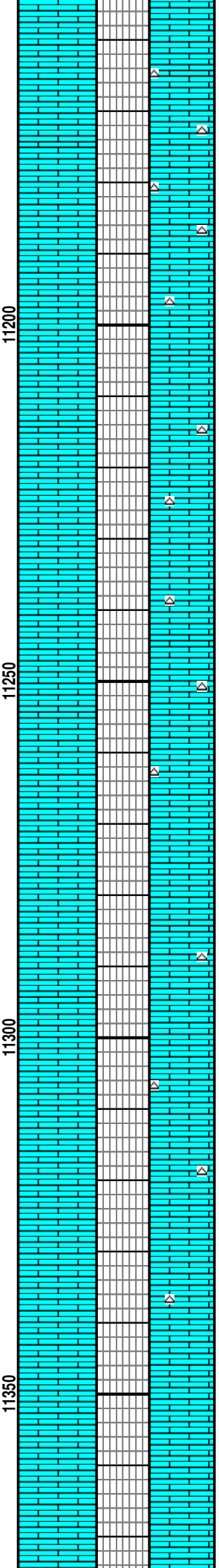
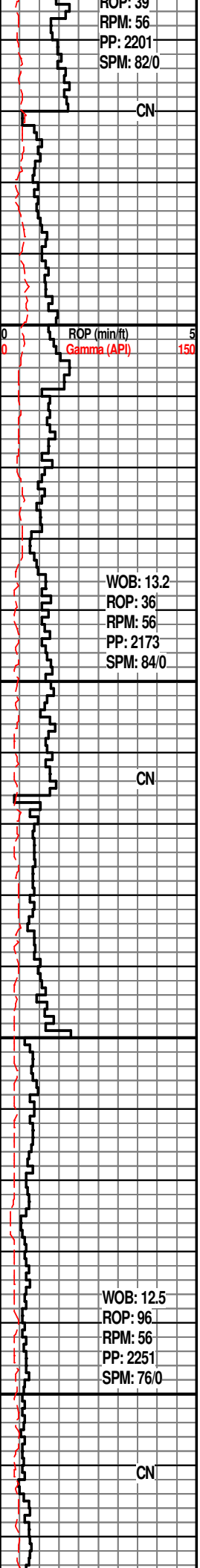
LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, SL TRC DRK INCL, OCC INTG W/ CHT; TRC CHT; NSFOC

LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, SL TRC DRK INCL, OCC INTG W/ CHT; TRC CHT; NSFOC

**SURVEY @ 11,123' INC 90.6  
AZM 358.2 TVD 4590.47'**

LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT- FRM, OCC HD, SL TRC DRK INCL, OCC INTG W/ CHT; TRC CHT; NSFOC





LS: OFF WHI-WHI, OCC CRM-LT GY & MOTTLED, C XLN, PRED SM TXT, DNS-MASS, SFT-FRM, OCC HD, SL TRC DRK INCL, OCC INTG W/ CHT; TRC CHT; NSFOC

PAUL CAMPBELL ON @ 11170'

LS: OFF WHI-WHI, CRM-LT GY IP, C XLN-MC XLN, PRED SM TXT, DNS-MASS, SFT-FRM, OCC HD, OCC INTG W/ CHT; TRC CHT; BGHT LT YL FLUOR, GD MLKY WHI-LT BL LONG FLASH CUT, GD CRUSH CUT, GD LT GLD RES RNG

**SURVEY @ 11218', INC 91.5, AZM 358.2, TVD 4588.78', VS 6936.89', DLS 0.93**

LS: OFF WHI-WHI, CRM-LT GY IP, C XLN-MC XLN, PRED SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD, OCC INTG W/ CHT; TRC CHT; BGHT LT YL FLUOR, GD MLKY LT BL FLASH CUT, GD CRUSH CUT, GD LT GLD RES RNG

LS: OFF WHI-WHI, CRM, OCC SL TRNSL, C XLN-MC XLN, PRED SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD; TRC CHT; BGHT LT YL FLUOR, MOD MLKY LT BL FLASH CUT, GD CRUSH CUT, MOD LT GLD RES RNG

LS: CRM-OFF WHI, OCC LT GY, C XLN-MC XLN, SFT-FRM, OCC HD, PRED SM TXT, OCC SL RGH TXT; SL TRC CHT; BGHT LT YL-WHI FLUOR, STRONG MLKY LT BL CUT, GD CRUSH CUT, BGHT LT GLD RES RNG

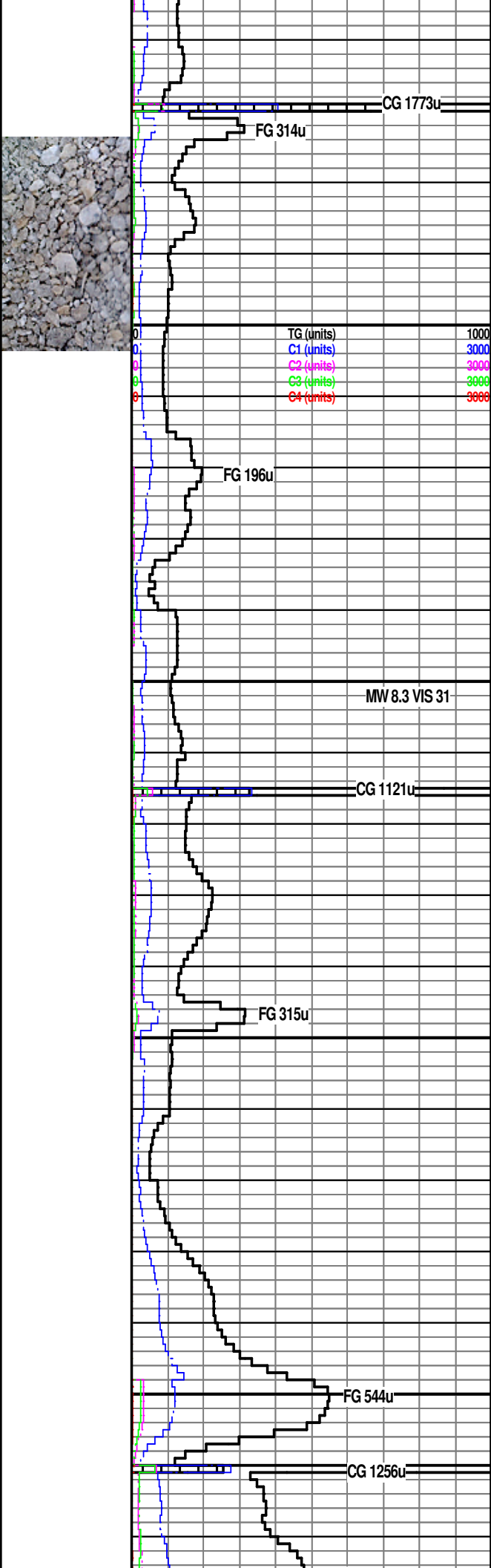
**SURVEY @ 11313', INC 91.4, AZM 358.1, TVD 4586.33', VS 7025.53', DLS 0.15**

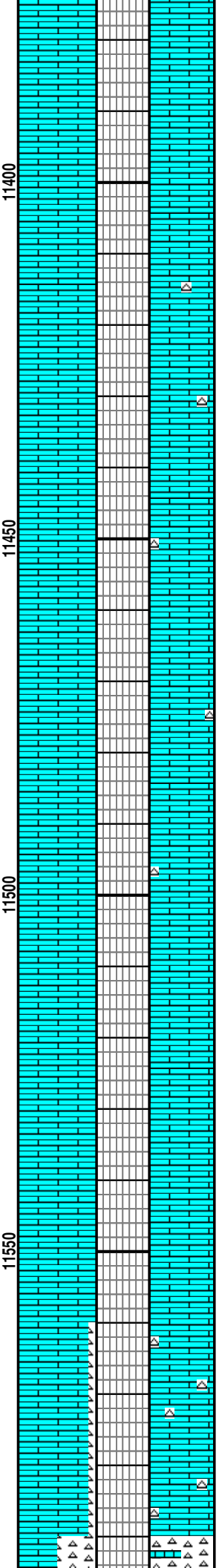
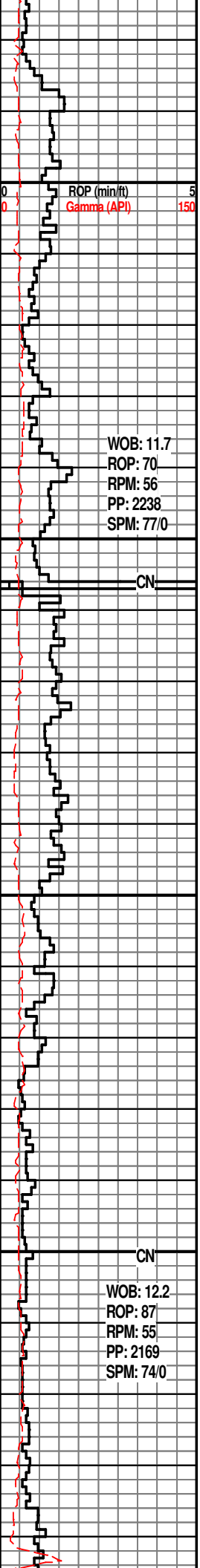
LS: CRM-OFF WHI, OCC LT GY-TRNSL, C XLN, SFT-FRM, OCC HD, PRED SM TXT, OCC SL RGH TXT; V SL TRC CHT; GD LT YL-WHI FLUOR, GD MLKY LT BL CUT, GD CRUSH CUT, FAIR LT GLD RES RNG

**SW LUBE ADDED SINCE 6260' POSSIBLE GIVING FALSE SHOWS**

LS: CRM-OFF WHI, OCC LT GY, C XLN, SFT-FRM, OCC HD, PRED SM TXT, OCC SL RGH TXT; V SL TRC CHT; MOD LT YL-WHI FLUOR, GD MLKY LT BL CUT, GD CRUSH CUT, FAIR LT GLD RES RNG

LS: CRM-OFF WHI, OCC LT GY, C XLN, SFT-FRM, OCC HD, PRED SM TXT, OCC SL RGH TXT; MOD LT YL-WHI FLUOR, GD MLKY LT BL CUT, GD CRUSH CUT, FAIR





**LT GLD RES RNG**

LS: CRM-OFF WHI, OCC LT GY, C XLN, SFT-FRM, OCC HD, PRED SM TXT, OCC SL RGH TXT; MOD LT YL-WHI FLUOR, GD MLKY LT BL CUT, GD CRUSH CUT, FAIR LT GLD RES RNG

**SURVEY @ 11408', INC 92.0, AZM 357.6, TVD 4583.51', VS 7119.08', DLS 0.82**

LS: CRM-OFF WHI, OCC LT GY, C XLN, SFT-FRM, OCC HD, PRED SM TXT, OCC SL RGH TXT; SL TRC CHT; BGHT LT YL-GLD FLUOR, GD MLKY LT BL CUT, GD CRUSH CUT, FAIR LT GLD RES RNG

LS: OFF WHI-WHI, CRM, OCC SL TRNSL, C XLN-MC XLN, PRED SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD; TRC CHT; BGHT LT YL FLUOR, MOD MLKY LT BL FLASH CUT, GD CRUSH CUT, FAIR GLD RES RNG

LS: CRM-OFF WHI, OCC LT GY, C XLN, SFT-FRM, OCC HD, PRED SM TXT, OCC SL RGH TXT; SL TRC CHT; BGHT LT YL-GLD FLUOR, GD MLKY LT BL CUT, GD CRUSH CUT, FAIR LT GLD RES RNG

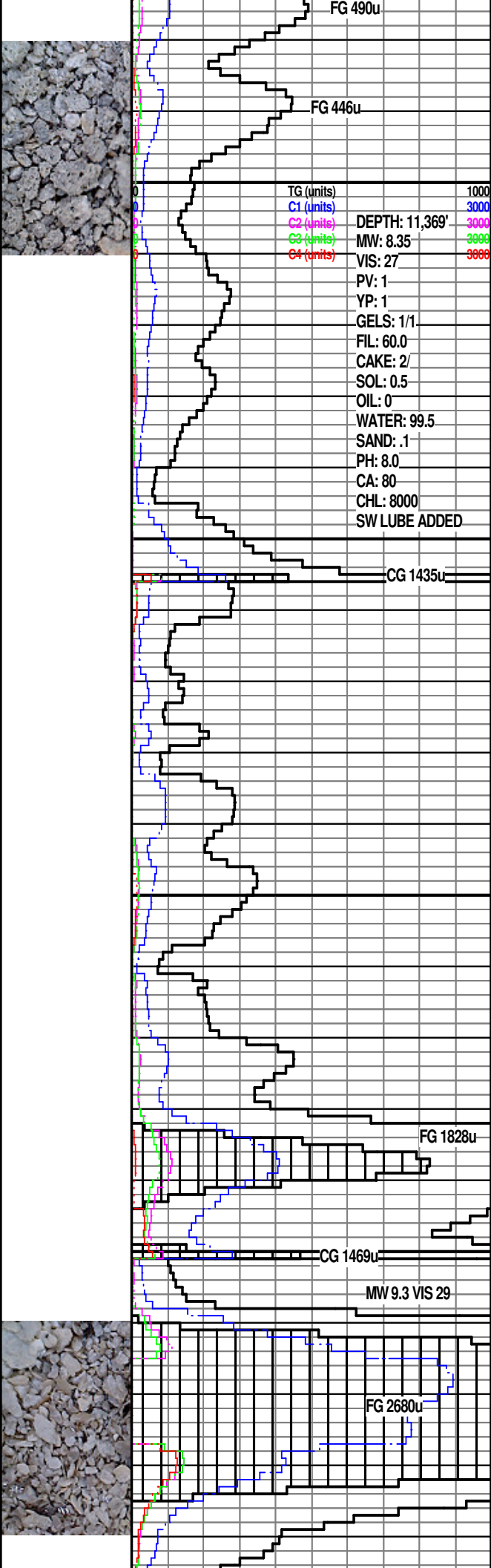
**SURVEY @ 11503', INC 92.1, AZM 356.8, TVD 4580.11', VS 7212.42', DLS 0.85**

LS: CRM-OFF WHI, OCC LT GY, C XLN, SFT-FRM, OCC HD, PRED SM TXT, OCC SL RGH TXT; BGHT LT YL-GLD FLUOR, FAIR MLKY LT BL CUT, WK GLD RES RNG

LS: OFF WHI-WHI, CRM, OCC GY & MOTTLED, C XLN-MC XLN, PRED SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD; MOD LT YL FLUOR, WK MLKY LT BL FLASH/CRUSH CUT, NO RES RNG

LS: OFF WHI-WHI, CRM, OCC GY & MOTTLED, C XLN-MC XLN, PRED SM-SL RGH TXT, DNS-MASS, SFT-FRM, OCC HD; TRC CHT; BGHT LT YL FLUOR, MOD MLKY LT BL FLASH CUT, GD CRUSH CUT, MOD LT GLD RES RNG

**SURVEY @ 11,598' INC 92.3 AZM 356.3 TVD 4576.46'**



TG (units)	1000
C1 (units)	3000
C2 (units)	3000
C3 (units)	3000
C4 (units)	3000
DEPTH: 11,369'	
MW: 8.35	
VIS: 27	
PV: 1	
YP: 1	
GELS: 1/1	
FIL: 60.0	
CAKE: 2/	
SOL: 0.5	
OIL: 0	
WATER: 99.5	
SAND: .1	
PH: 8.0	
CA: 80	
CHL: 8000	
SW LUBE ADDED	

FG 490u

FG 446u

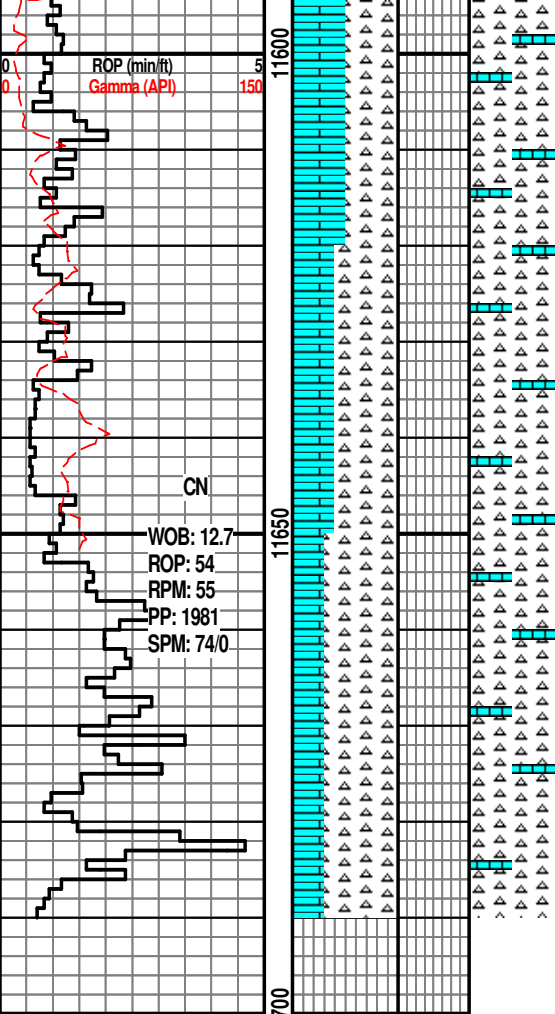
CG 1435u

FG 1828u

CG 1469u

MW 9.3 VIS 29

FG 2680u



CHT: CRM-LT GY & MOTTLED, TRNSL IP, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, PRED TRIPOLITIC; LS: OFF WHI-WHI, CRM, ,C XLN, PRED SM-SL RGH TXT, DNS-MASS, SFT- FRM, OCC HD, MOD LT YL FLUOR, GD SLOW MLKY BL FLASH CUT, FAIR DLL YL RES RNG

**SURVEY @ 11,641' INC 92.2 AZM 356.1 TVD 4574.77'**

CHT: CRM-LT GY, TAN, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, PRED TRIPOLITIC; LS: OFF WHI-WHI, CRM, ,C XLN, PRED SM-SL RGH TXT, DNS-MASS, SFT- FRM, OCC HD, GD LT YL FLUOR, GD MLKY BL FLASH CUT, FAIR YL RES RNG

PAUL CAMPBELL OFF @ 11650'

CHT: CRM-LT GY, TAN, MC XLN, FRM-HD, OCC BRIT, OCC INTG W/ LS, PRED TRIPOLITIC; LS: OFF WHI-WHI, CRM, ,C XLN, PRED SM-SL RGH TXT, DNS-MASS, SFT- FRM, OCC HD, GD LT YL FLUOR, GD MLKY BL FLASH CUT, FAIR YL RES RNG

**TD @ 11,690'**  
**01/10/2013**

