



Exploration Services LLC

www.pmls.com

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

Well Name: Murray 3406 1-5H
Location: 5-34S-6W Harper County
Licence Number: 15-077-2192101-00 Region: Kansas
Spud Date: 4/12/13 Drilling Completed: 4/21/13
Surface Coordinates: 200' FSL & 660' FEL of Section 5, T34S, R6W

Bottom Hole 330' FNL & 660' FEL of Section 5, T34S, R6W
Coordinates:
Ground Elevation (ft): 1,254' K.B. Elevation (ft): 1,272' (+18' EST)
Logged Interval (ft): 3100' To: 8,885' Total Depth (ft): 8,885'
Formation: Mississippi Limestone
Type of Drilling Fluid: WATER BASE MUD

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
405-429-5720

GEOLOGIST

Name: Tammy Alcorn
Company: Sandridge Energy, Inc.
Address: 123 Robert S. Kerr Avenue
Oklahoma City, OK 73102
405-429-5720

MUD LOG

PML Exploration Services LLC
5601 NW 72nd St., Suite 354
Oklahoma City, OK 73132
UNIT # 34
MUDLOGGERS: Chris White / Brad Baram

CONTRACTOR

Unit Rig 310

ROCK TYPES

- Anhy
- Bent
- Brec
- Cht

- Clyst
- Coal
- Congl
- Dol

- Gyp
- Igne
- Lmst
- Meta

- Mrlst
- Salt
- Shale
- Shcol

- Shgy
- Sltst
- Ss
- Till

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
- 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

- Spotted
- Ques
- Dead

EVENTS

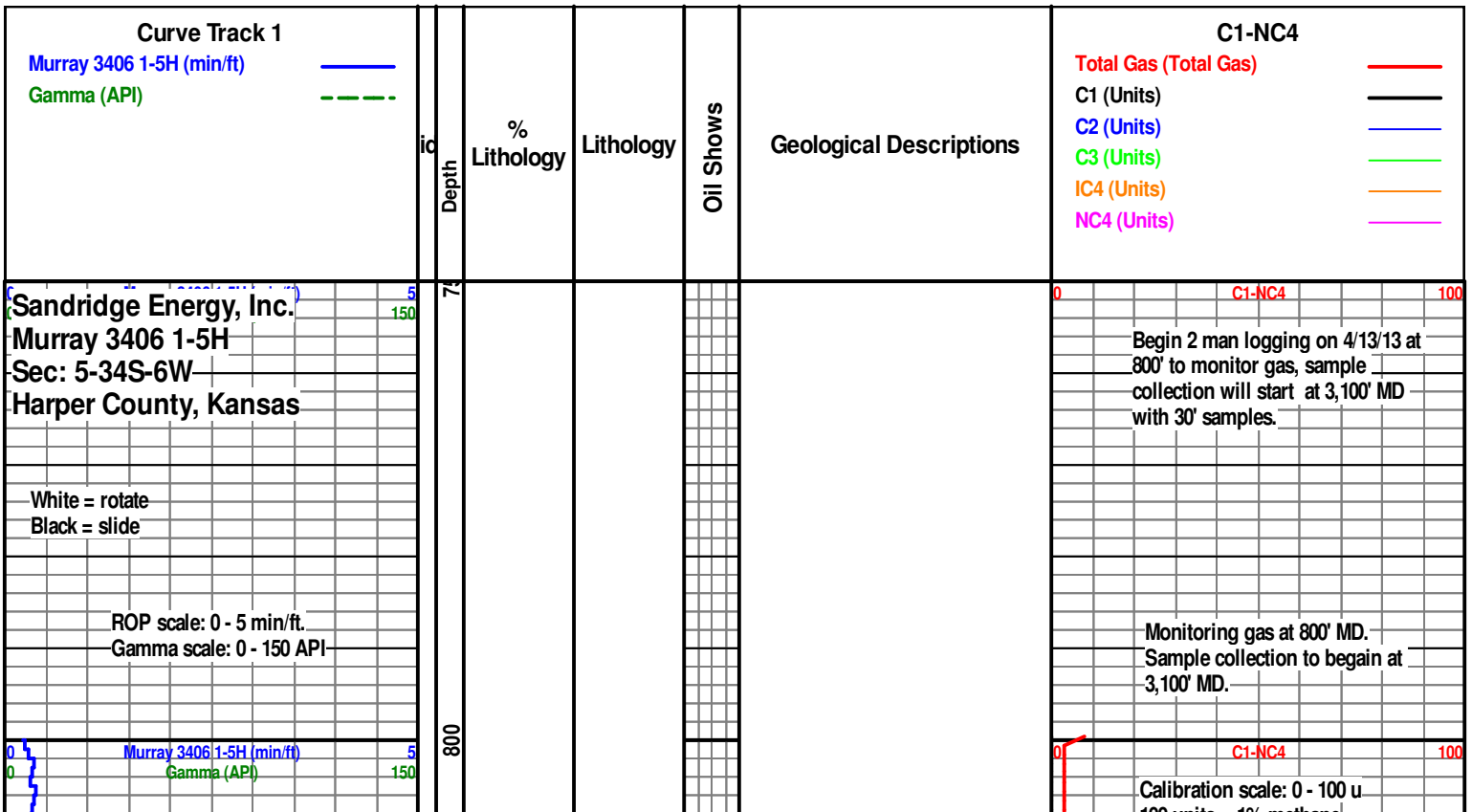
- Rft
- Sidewall

INTERVALS

- Core
- Dst
- Slide

OIL SHOWS

- Even



4/14/13

MWIN 8.4/36
OUT 8.5/37

CONN

850

900

CONN

950

WOB 13.2
RPM 62
SPM 177
PP 1577

Murray 3406 1-5H (min/ft) 5
Gamma (API) 150

1000

Sample collection to begin at 3,100' MD

Sample collection to begin at 3,100' MD

Monitoring Gas

CG 4u

CG 4u

Monitoring Gas

C1-NC4

100

100 units = 1% methane

CONN

1050

1100

1150

1200

CONN

CONN

Murray 3406 1-5H (min/ft)

Gamma (API)

0 5
0 150

Sample collection to begin at 3,100' MD

SD: 1090.00
Inc: 0.09
Azi: 285.74
TVD: 1089.99
VS: -0.92

Sample collection to begin at 3,100' MD

CG 4u

Monitoring Gas

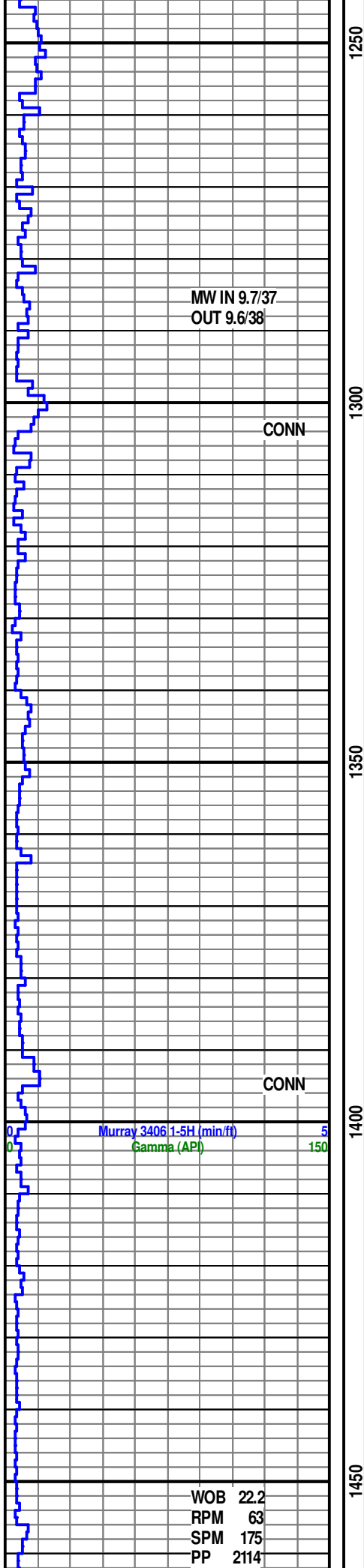
CG 5u

C1-NC4

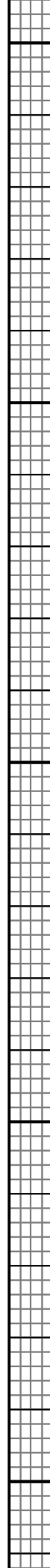
CG 5u

Monitoring Gas

100

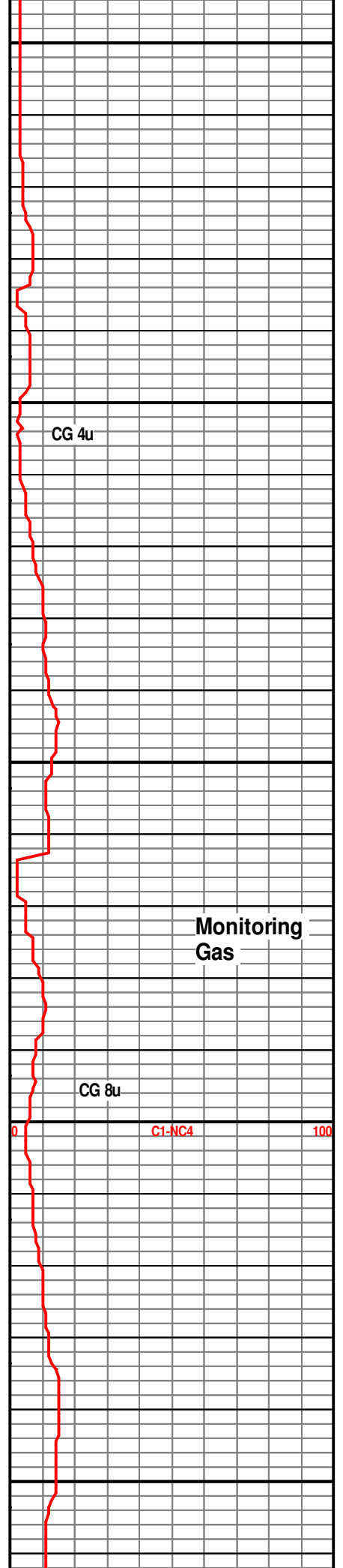


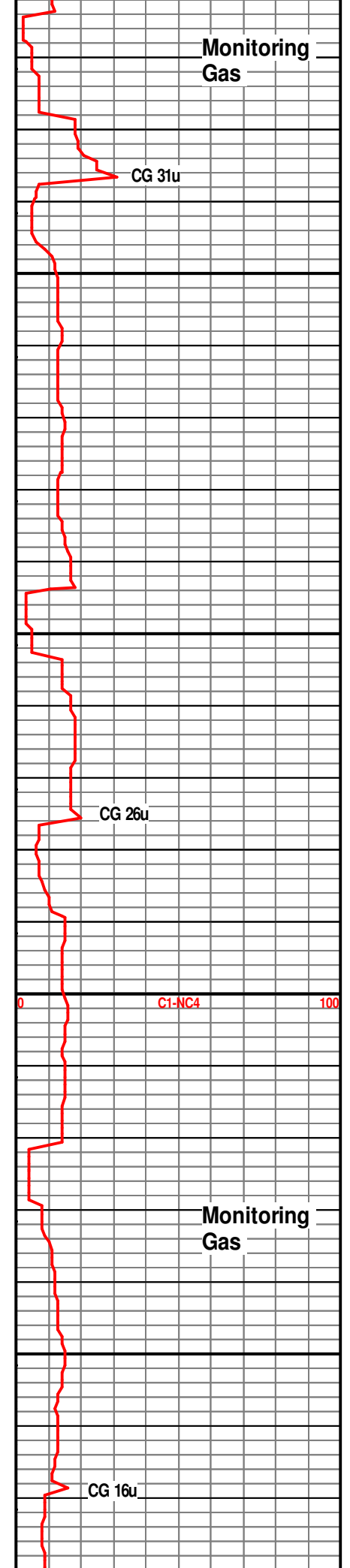
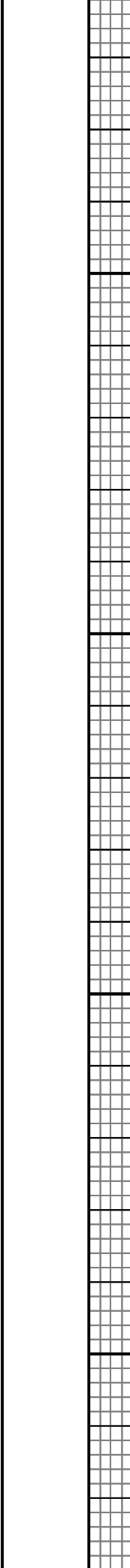
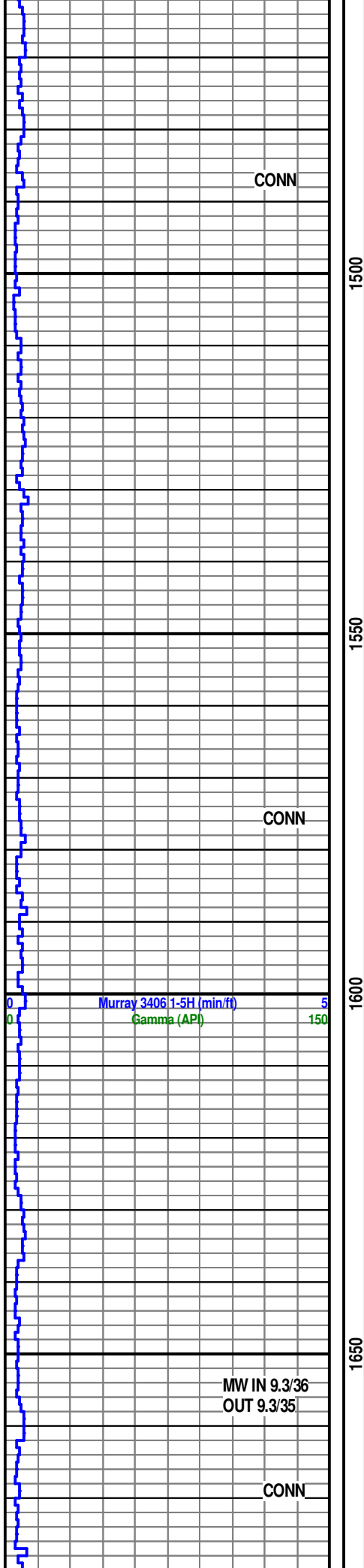
1250
1300
1350
1400
1450

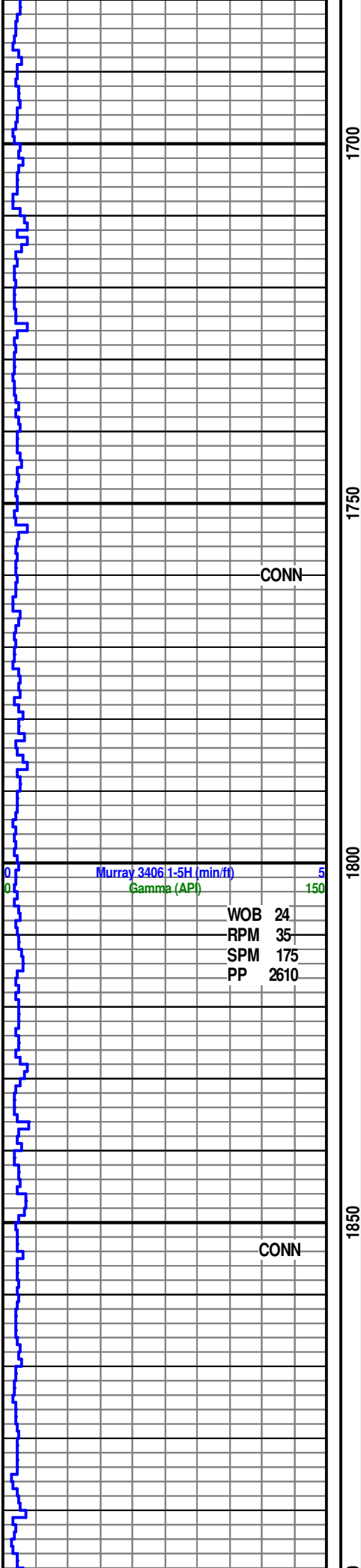


Sample collection to begin at 3,100' MD

Sample collection to begin at 3,100' MD







1700

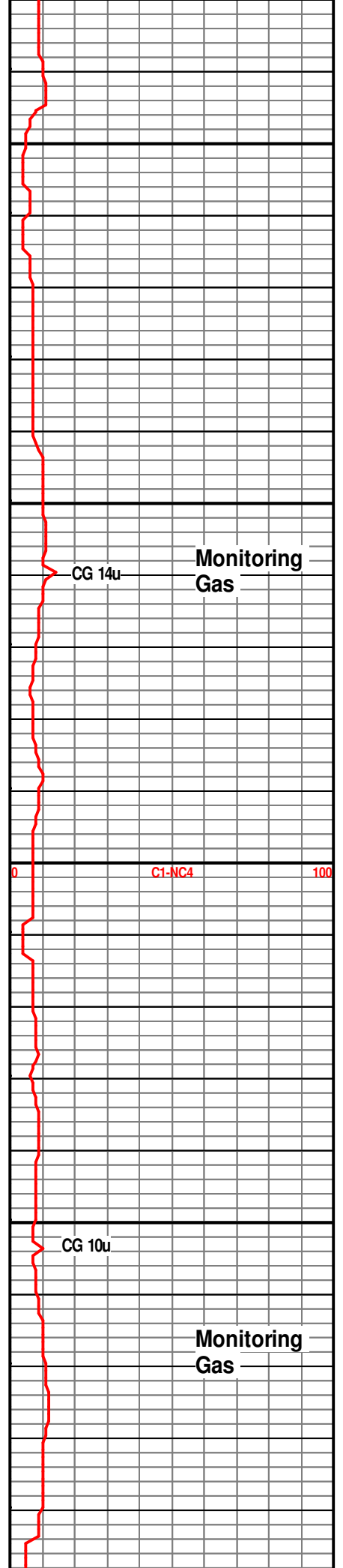
1750

1800

1850

Sample collection to begin at 3,100' MD

Sample collection to begin at 3,100' MD



CG 14u

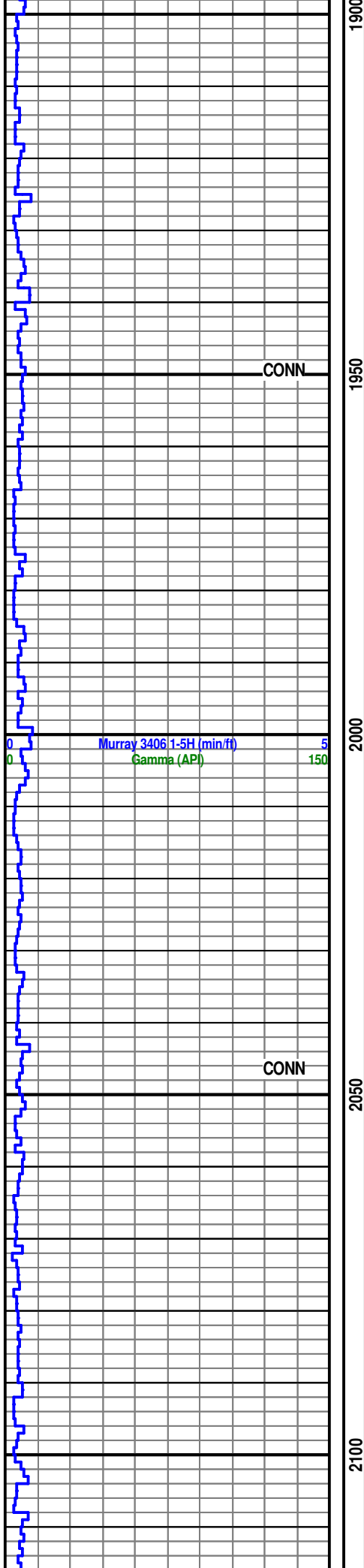
Monitoring Gas

C1-NC4

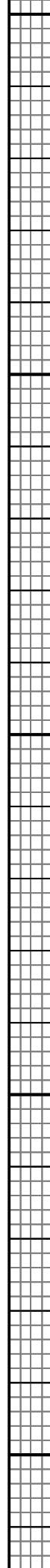
100

CG 10u

Monitoring Gas



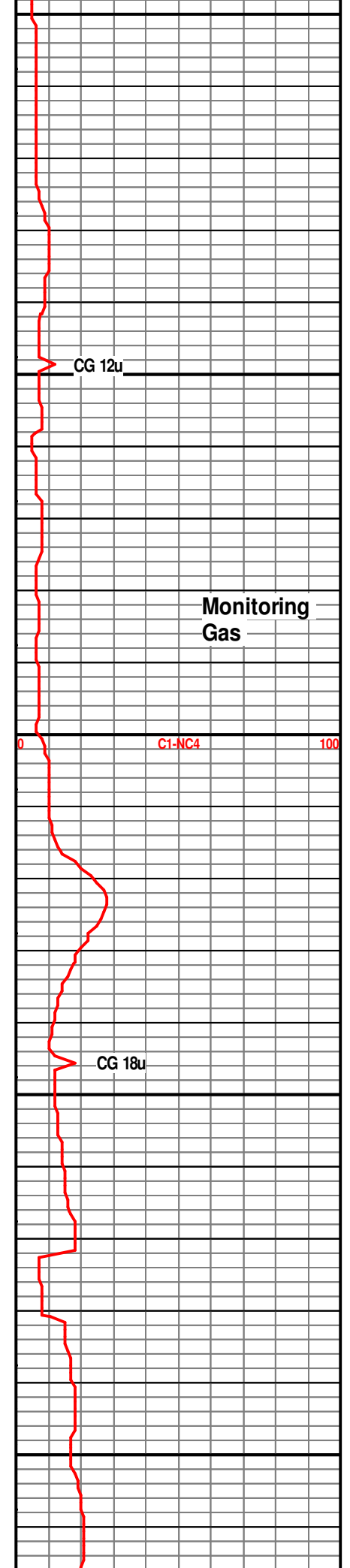
1900
1950
2000
2050
2100



Sample collection to begin at 3,100' MD

SD: 2016.00
Inc: 0.10
Azi: 354.55
TVD: 2015.99
VS: -0.84

Sample collection to begin at 3,100' MD



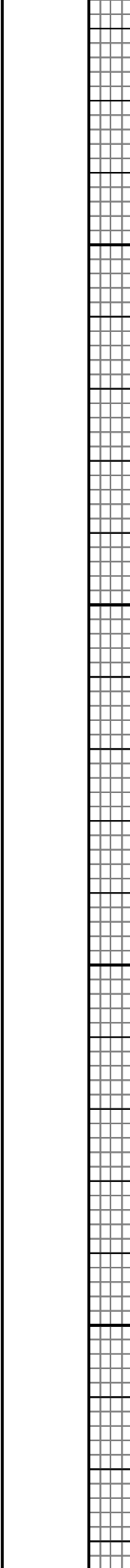
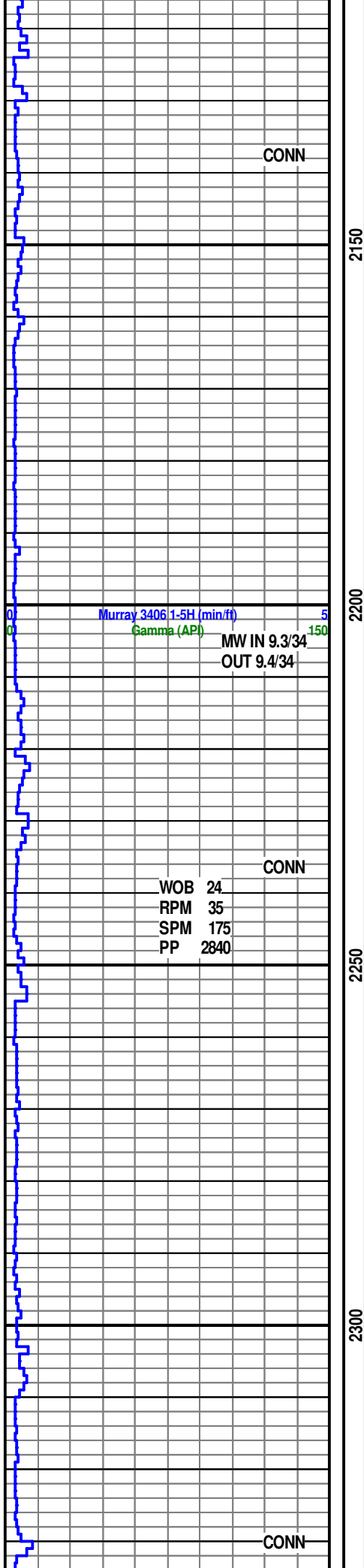
CG 12u

Monitoring Gas

C1-NC4

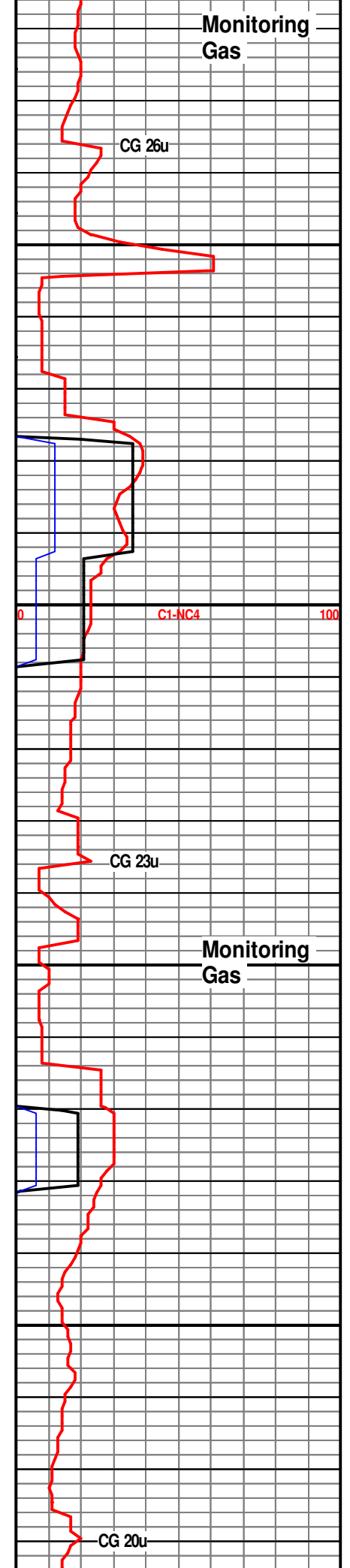
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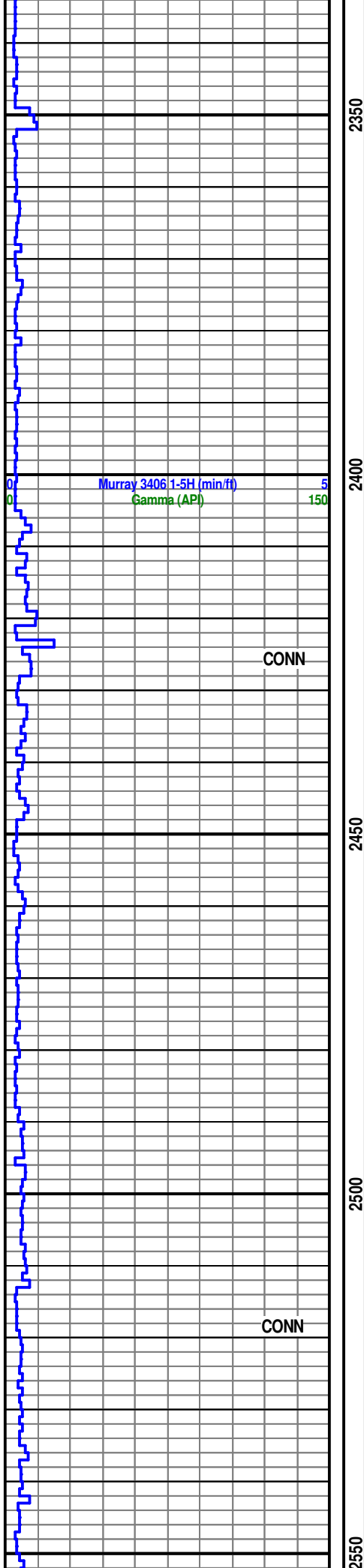
CG 18u



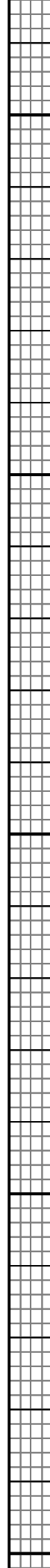
Sample collection to begin at 3,100' MD

Sample collection to begin at 3,100' MD





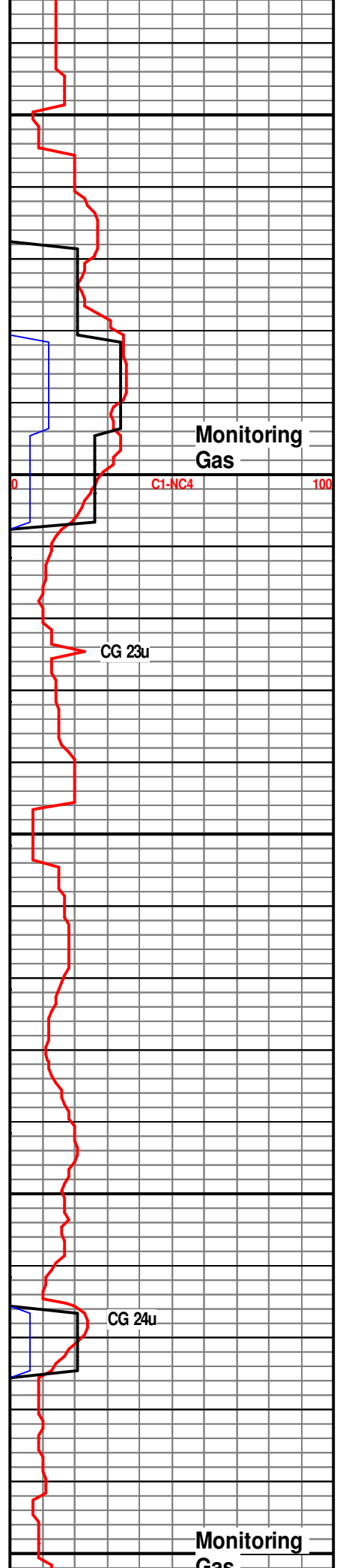
2350
2400
2450
2500
2550

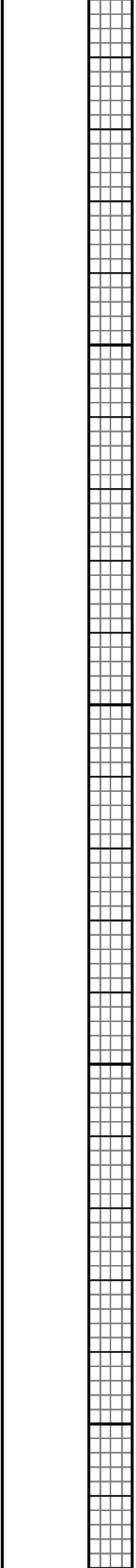
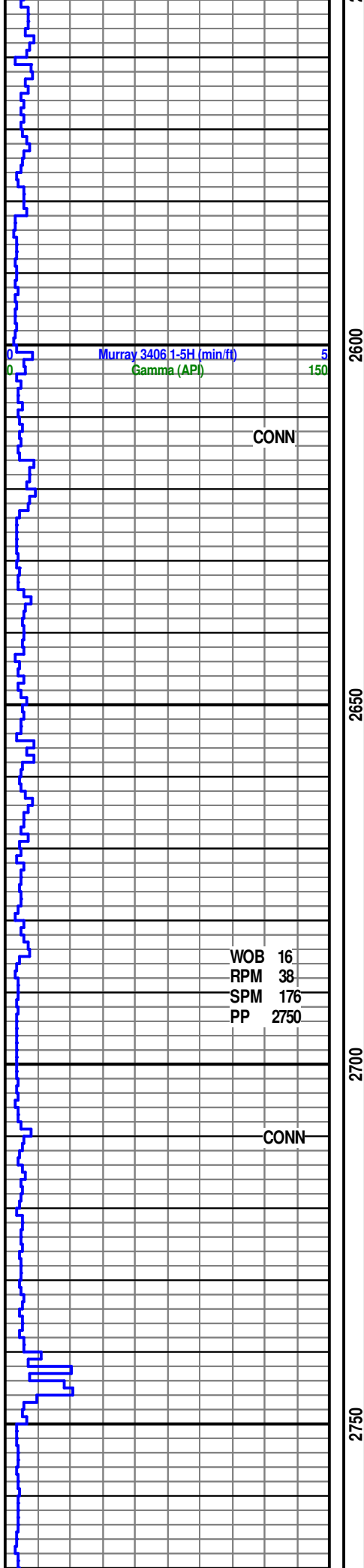


Sample collection to begin at 3,100' MD

Sample collection to begin at 3,100' MD

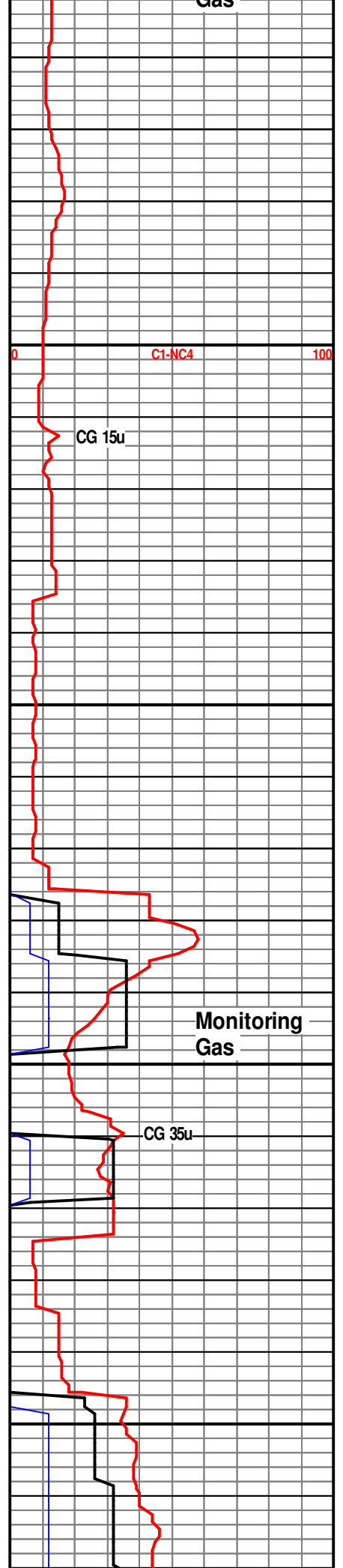
SD: 2490.00
Inc: 0.07
Azi: 196.23
TVD: 2489.99
VS: -0.19

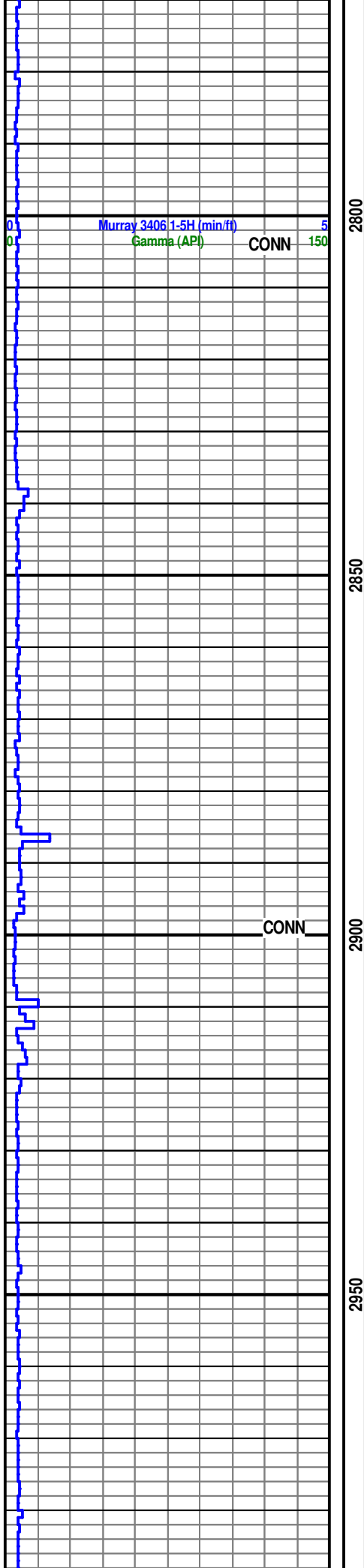




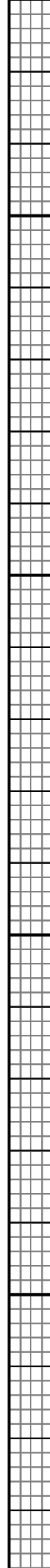
Sample collection to begin at 3,100' MD

Sample collection to begin at 3,100' MD



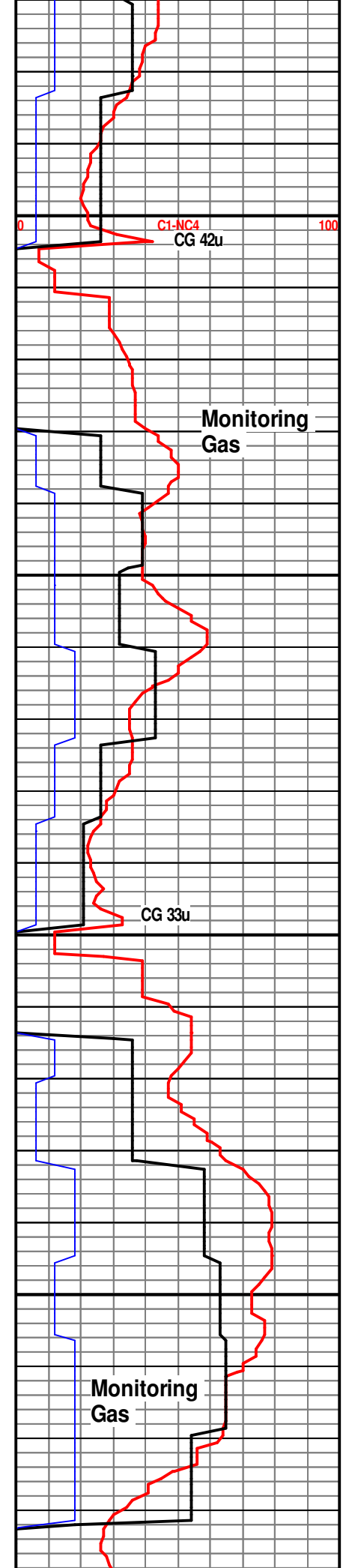


2800
 2850
 2900
 2950



Sample collection to begin at 3,100' MD

SD: 2964.00
 Inc: 0.20
 Azi: 304.63
 TVD: 2963.99
 VS: -0.39



CONN

Murray 3406 1-5H (min/ft)
Gamma (API)

3000

3050

CONN

3100

3150

CONN

Murray 3406 1-5H (min/ft)
Gamma (API)

3200

Sample collection to begin at 3,100' MD

Sample collection begin at 3,100' MD - TD

LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Med Gry, sft-frm, sb plty-plty, intlam, dull; SS: Tr% mlky-Wht, m consol, f-m, ang, srt; lt Yl fluor, no cut, no rng

LS: 20% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 60% Lt-Med Gry, sft-frm, sb plty-plty, intlam, dull; SS: 20% mlky-Wht, m consol, f-m, ang, srt; lt Yl fluor, no cut, no rng

LS: 40% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 50% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; SS: 10% mlky-Wht, m consol, f-m, ang, srt; lt Yl fluor, no cut, no rng

CG 140u

C1-NC4

100

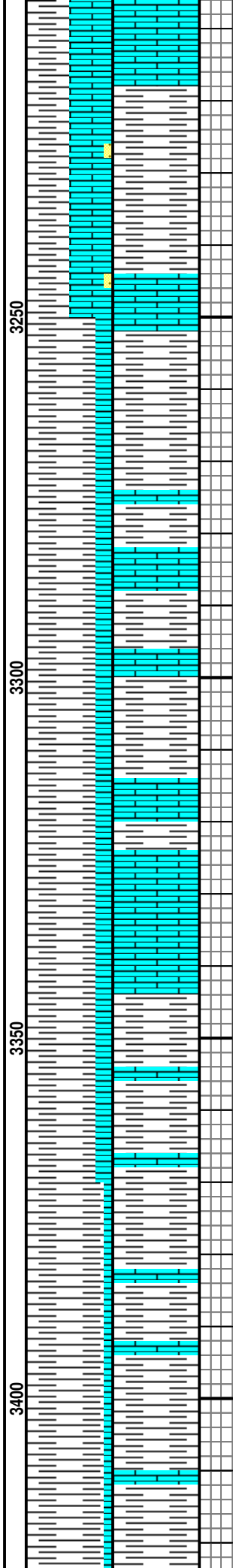
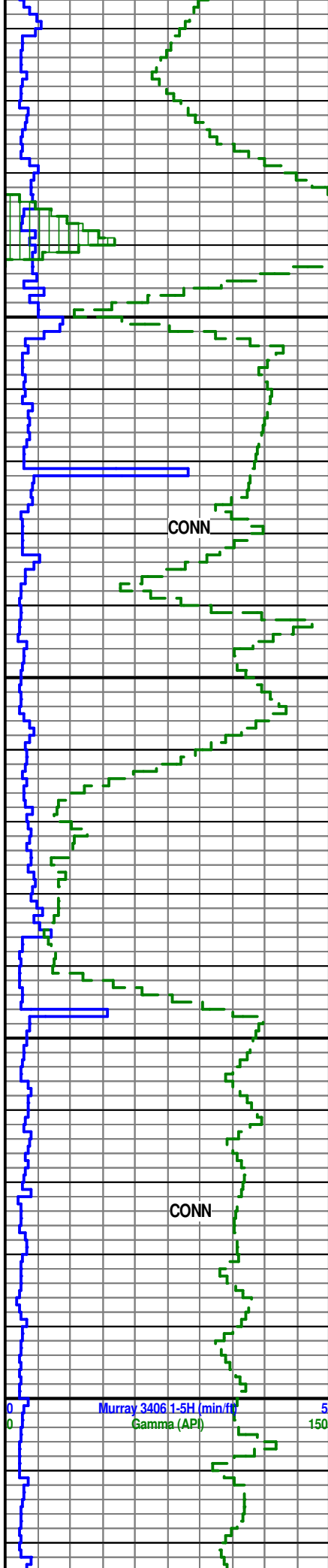
Monitoring Gas

CG 30u

MAX GAS 103u

C1-NC4

100



LS: 50% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 50% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; SS: TRC milky- Wht, m consol, f-m, ang, srt; lt YI fluor, no cut, no rng

Base Heebner @ 3,232' MD, 3,232' TVD

LS: 20% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 80% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

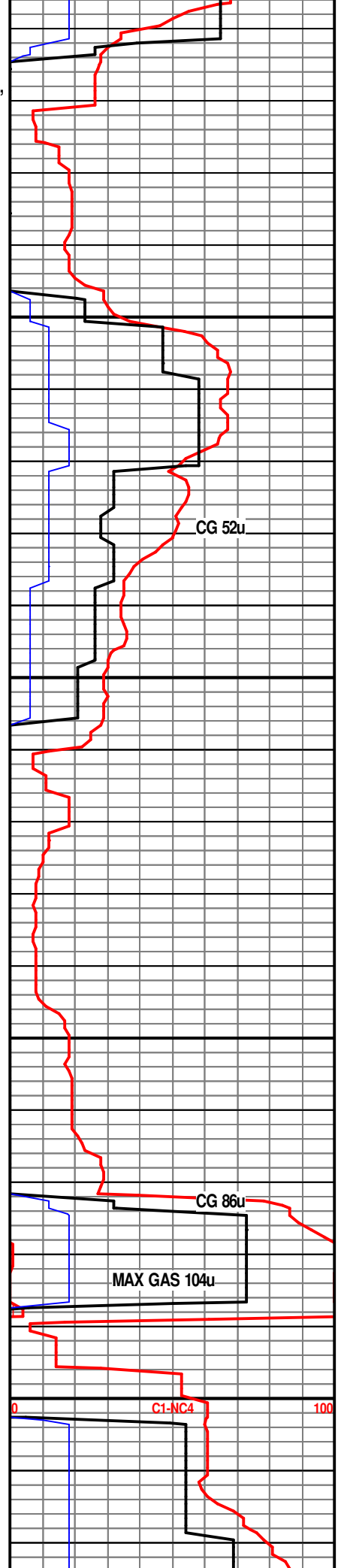
LS: 20% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 80% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

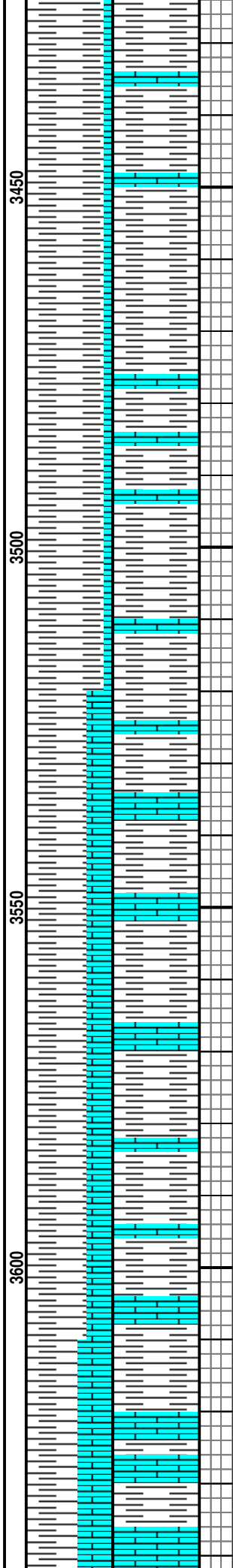
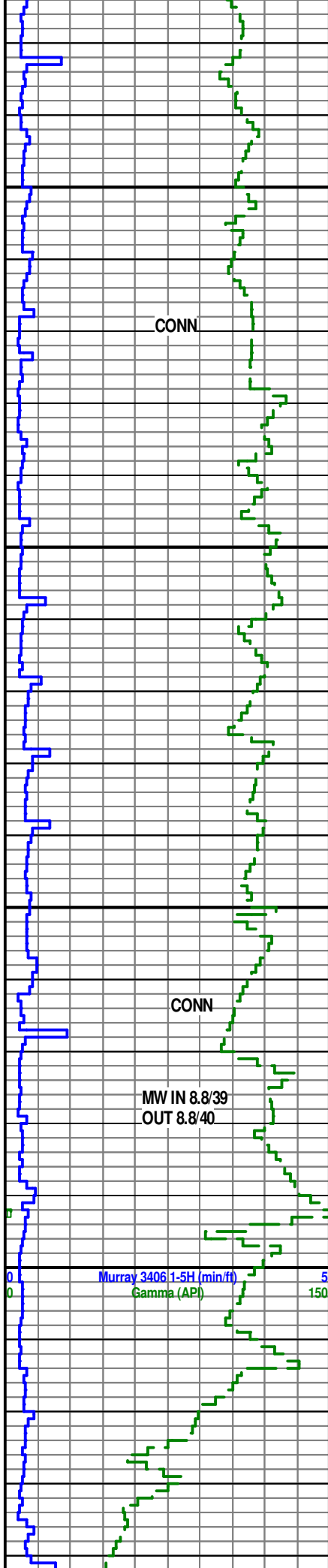
LS: 20% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 80% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

LS: 20% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 80% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; no fluor, no cut, no rng

LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; no fluor, no cut, no rng





SD: 3439.00
Inc: 0.11
Azi: 112.76
TVD: 3438.99
VS: 0.17

LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; no fluor, no cut, no rng

LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; no fluor, no cut, no rng

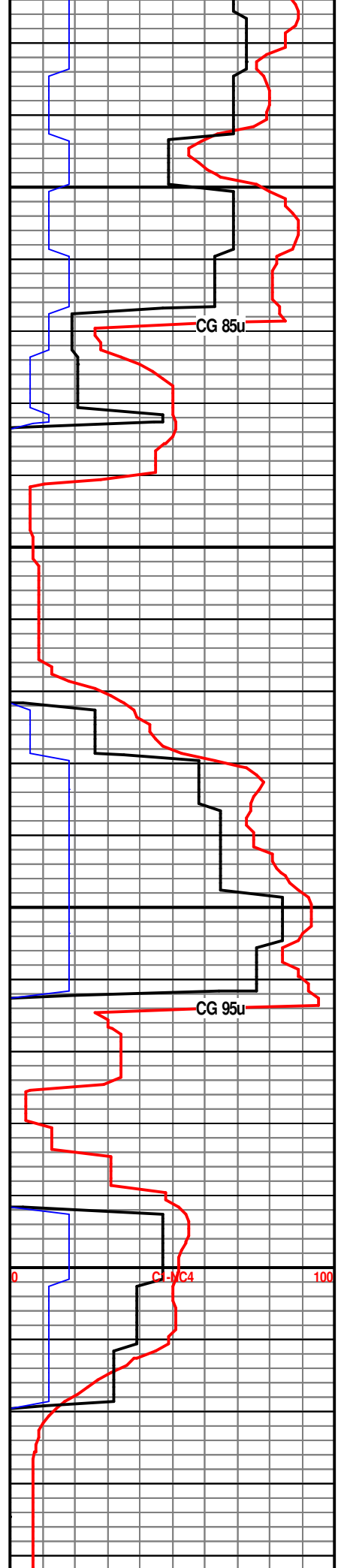
LS: 30% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

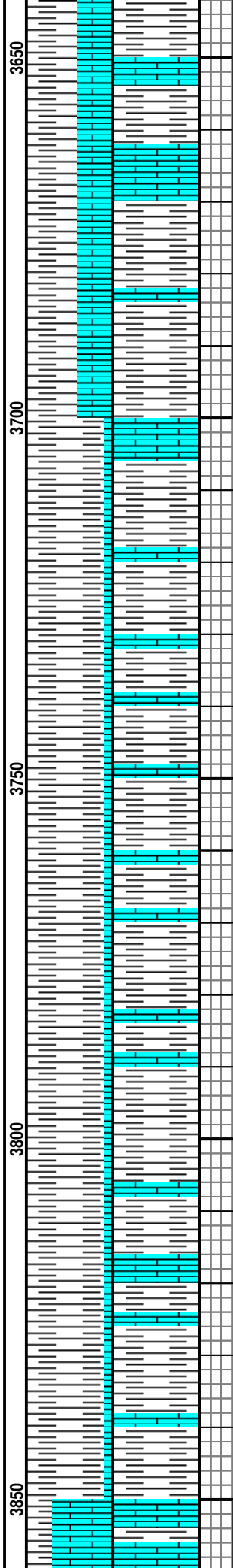
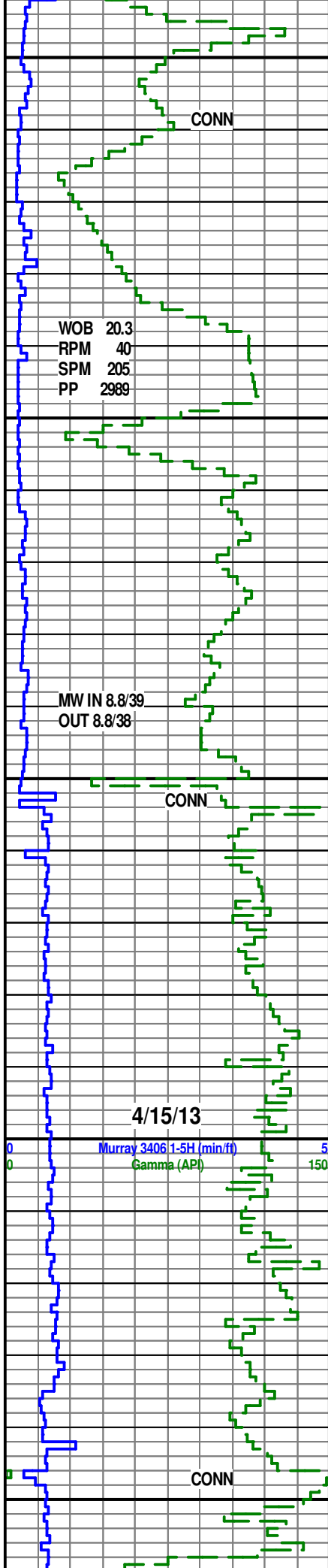
LS: 30% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

LS: 30% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

**Lansing @ 3,607' MD,
3,607' TVD,**

LS: 30% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 70% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng





LS: 30% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 70% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

LS: 30% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 70% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; no fluor, no cut, no rng

LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; no fluor, no cut, no rng

SD: 3786.00
Inc: 2.71
Azi: 345.60
TVD: 3785.97
VS: 1.73

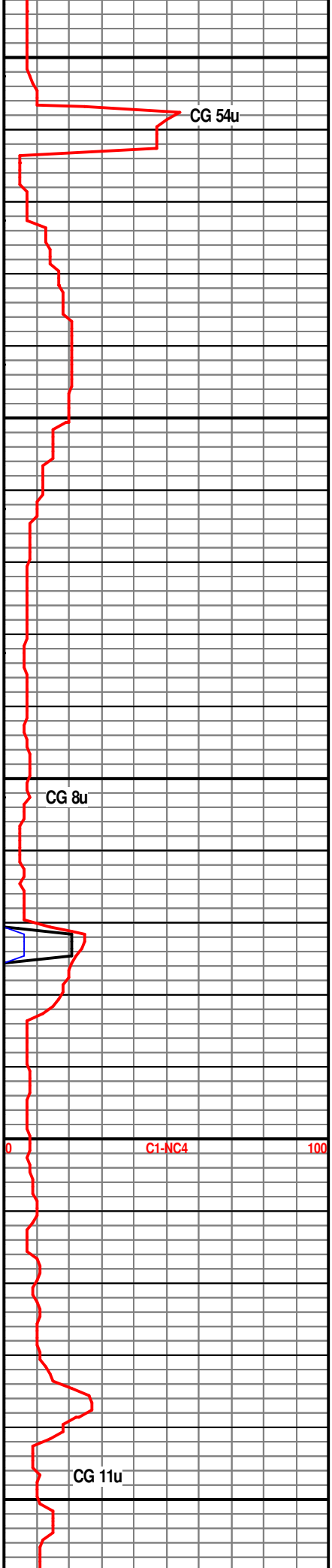
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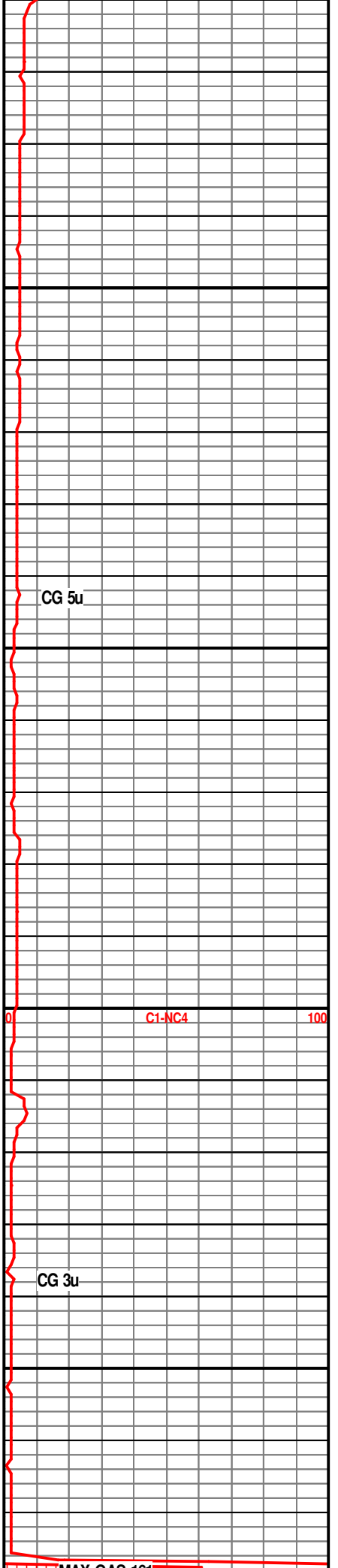
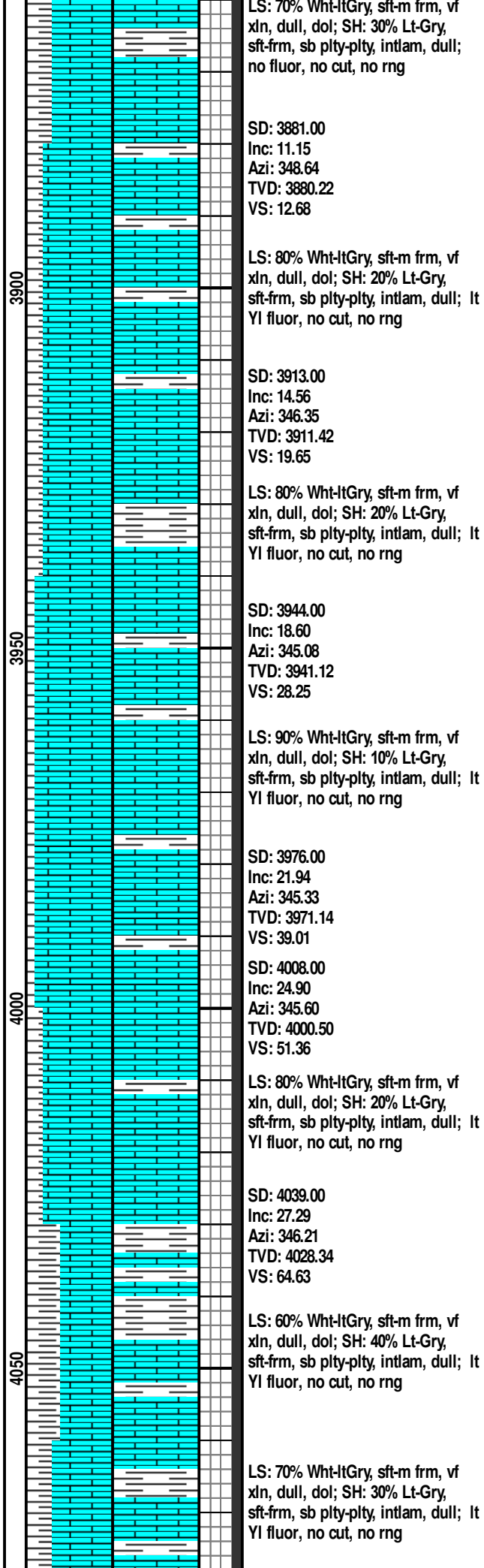
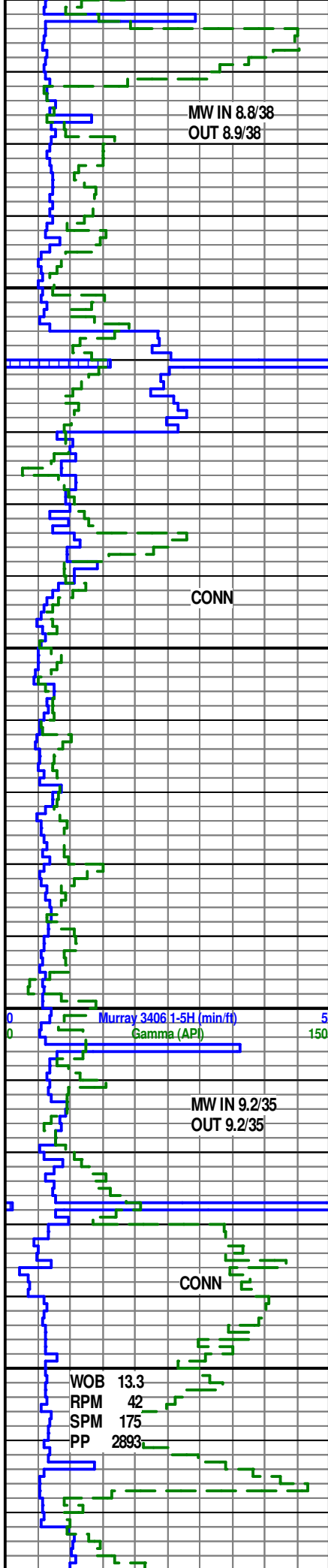
SD: 3817.00
Inc: 5.31
Azi: 347.00
TVD: 3816.89
VS: 3.84

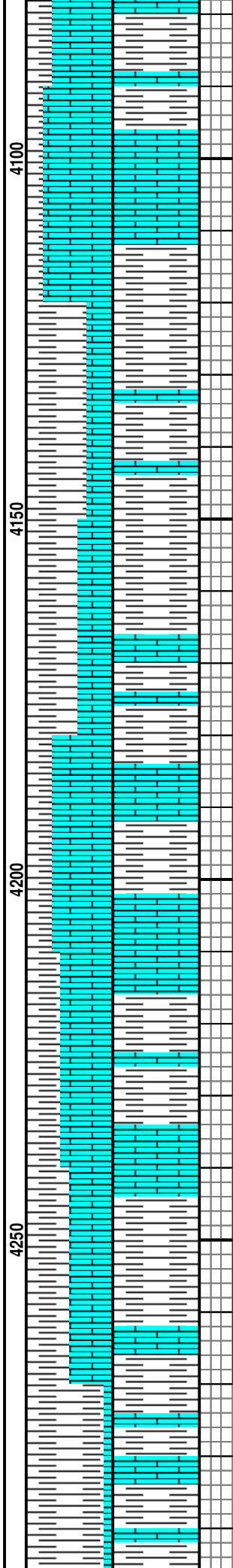
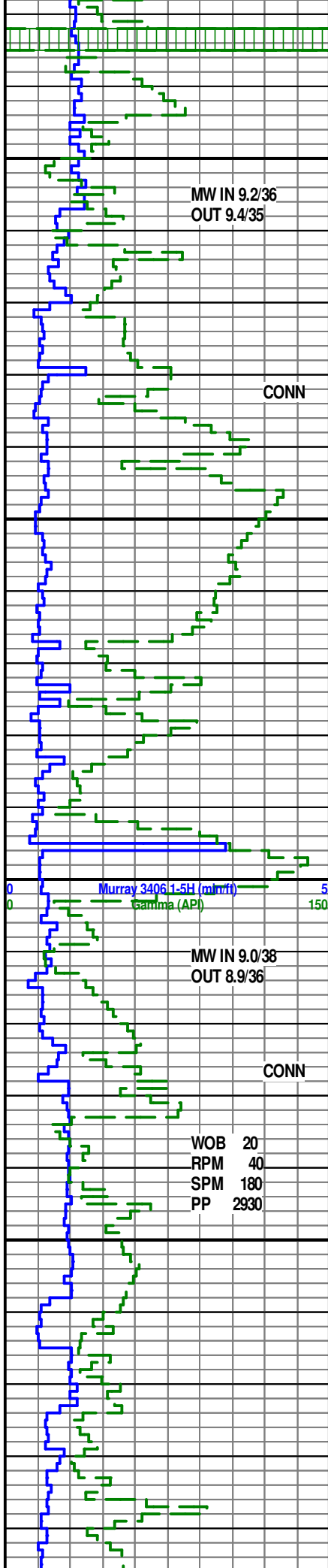
LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; no fluor, no cut, no rng

SD: 3849.00
Inc: 7.93
Azi: 349.38
TVD: 3848.67
VS: 7.47

Cottage Grove @ 3,850'
MD 3,850' TVD







SD: 4071.00
Inc: 28.63
Azi: 346.98
TVD: 4056.60
VS: 79.28

LS: 80% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 20% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

SD: 4134.00
Inc: 32.35
Azi: 351.17
TVD: 4110.91
VS: 110.69

LS: 30% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 70% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

SD: 4166.00
Inc: 33.79
Azi: 353.63
TVD: 4137.72
VS: 128.02

LS: 40% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 60% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

SD: 4197.00
Inc: 35.13
Azi: 355.42
TVD: 4163.28
VS: 145.50

LS: 70% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 30% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

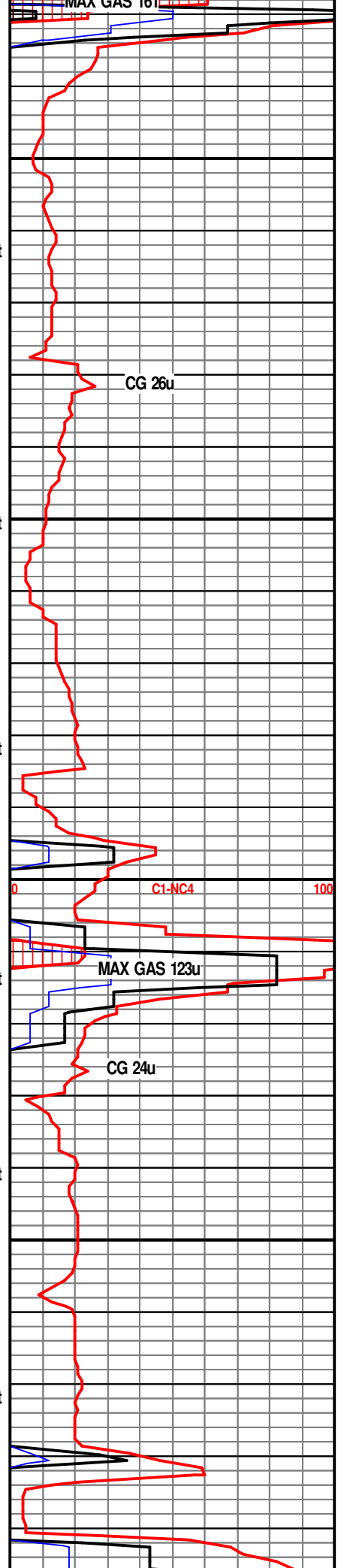
**Oswego @ 4,220' MD
4,181' TVD**

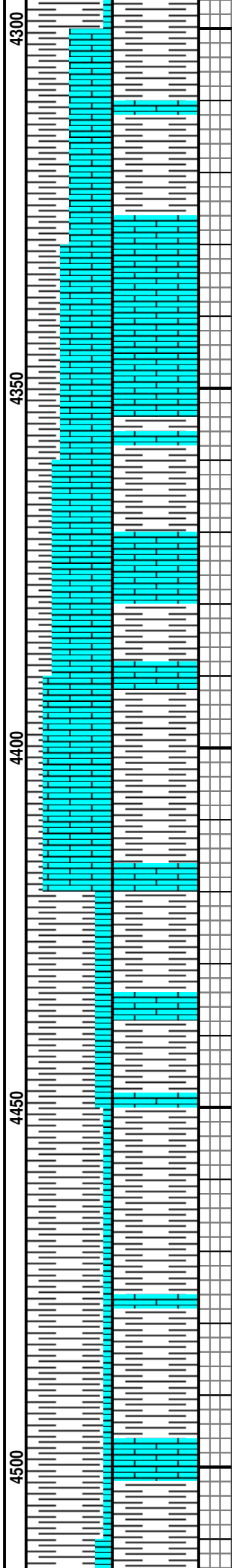
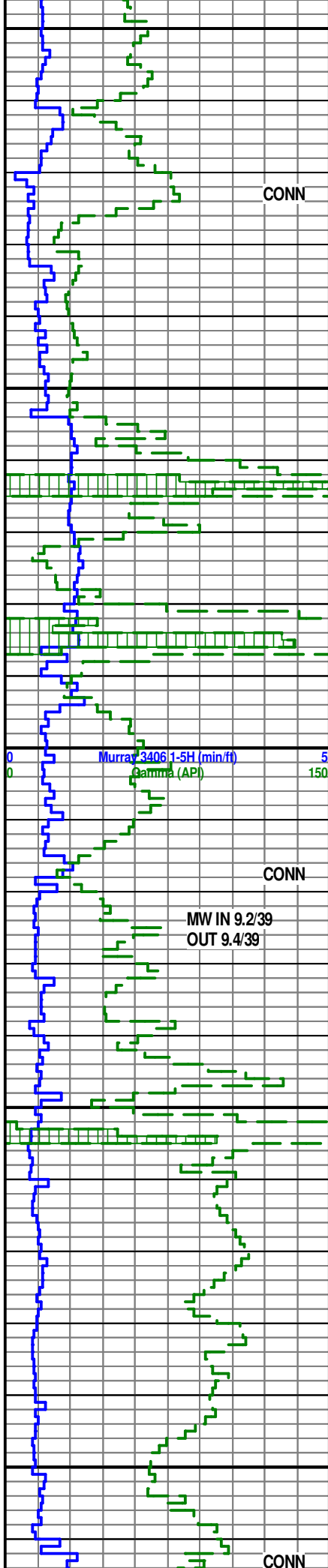
LS: 60% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 40% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

SD: 4261.00
Inc: 38.74
Azi: 358.14
TVD: 4214.56
VS: 183.56

LS: 50% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 50% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

SD: 4293.00
Inc: 40.84
Azi: 358.61
TVD: 4239.15
VS: 204.22





VS: 204.23
 LS: 10% Wht-ltGry, sft-m frm, vf xln, dull, dol; SH: 90% Lt-Gry, sft-frm, sb plty-plty, intlam, dull; lt YI fluor, no cut, no rng

SD: 4324.00
 Inc: 42.56
 Azi: 359.29
 TVD: 4262.30
 VS: 224.85

LS: 50% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 50% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; lt YI fluor, no ring/cut

LS: 60% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 40% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; lt YI fluor, no ring/cut

**Cherokee @ 4,364' MD
 4,291' TVD**

SD: 4388.00
 Inc: 47.33
 Azi: 358.65
 TVD: 4307.65
 VS: 269.98

LS: 60% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 40% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; lt YI fluor, no ring/cut

SD: 4419.00
 Inc: 50.14
 Azi: 357.83
 TVD: 4328.06
 VS: 293.31

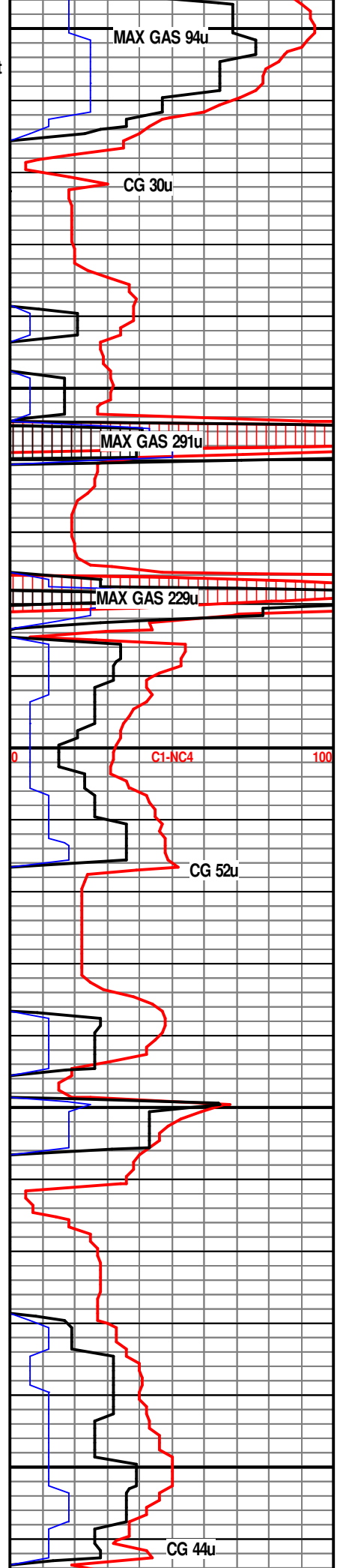
**Verdigris @ 4,423' MD
 4,330' TVD**

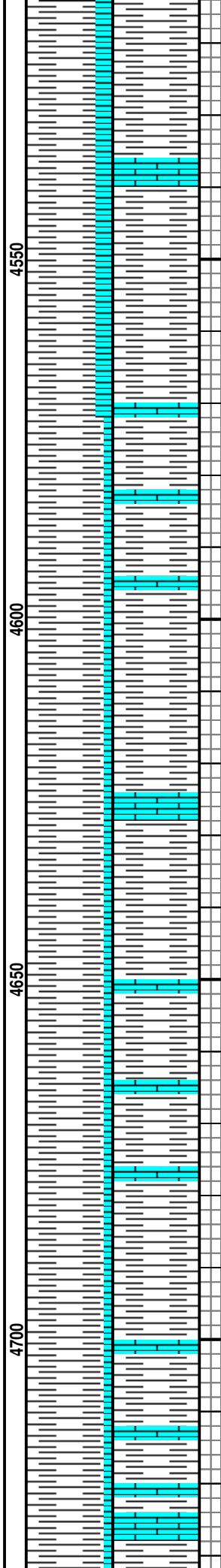
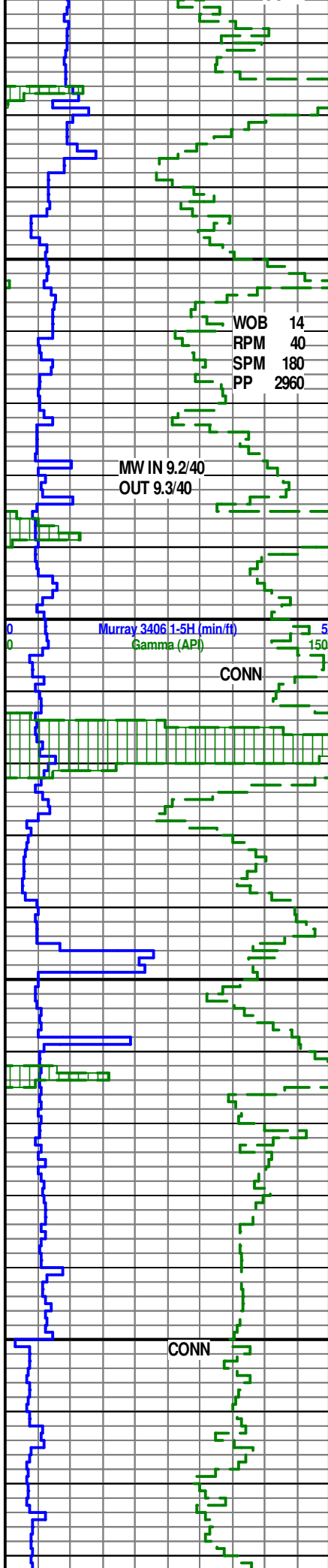
LS: 20% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 80% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; YI fluor, no ring/cut

SD: 4451.00
 Inc: 52.24
 Azi: 357.60
 TVD: 4348.07
 VS: 318.28

LS: 10% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 90% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; YI fluor, no ring/cut

LS: 10% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 90% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; YI fluor, no ring/cut





SD: 4514.00
Inc: 56.44
Azi: 353.31
TVD: 4384.90
VS: 369.37

LS: 20% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 80%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; YI fluor, no
ring/cut

SD: 4578.00
Inc: 62.13
Azi: 358.92
TVD: 4417.61
VS: 424.34

LS: 20% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 80%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; YI fluor, no
ring/cut

LS: 10% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 90%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; YI fluor, no
ring/cut

SD: 4609.00
Inc: 63.76
Azi: 359.12
TVD: 4431.71
VS: 451.95

LS: 10% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 90%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; YI fluor, no
ring/cut

SD: 4641.00
Inc: 65.57
Azi: 359.68
TVD: 4445.41
VS: 480.87

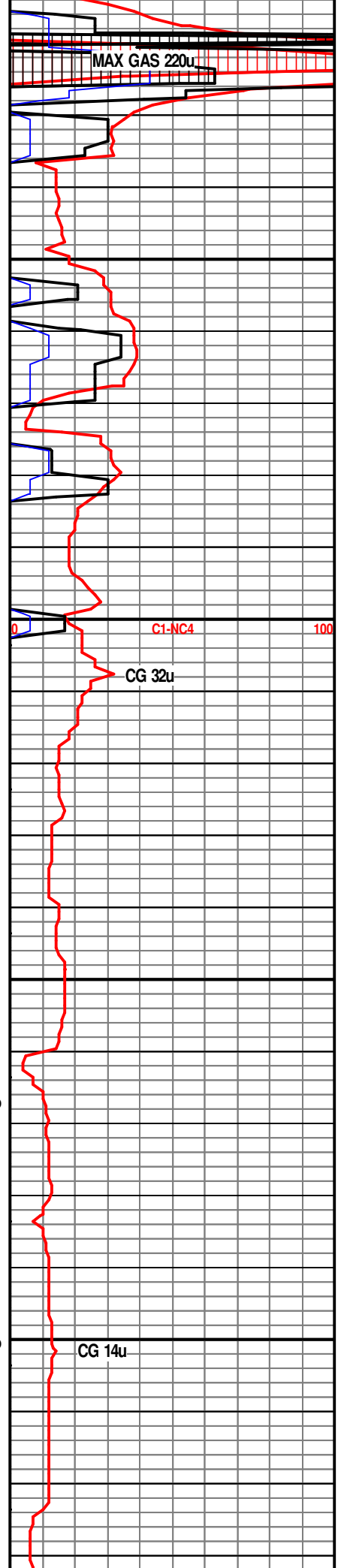
LS: 10% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 90%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; no fluor, no
ring/cut

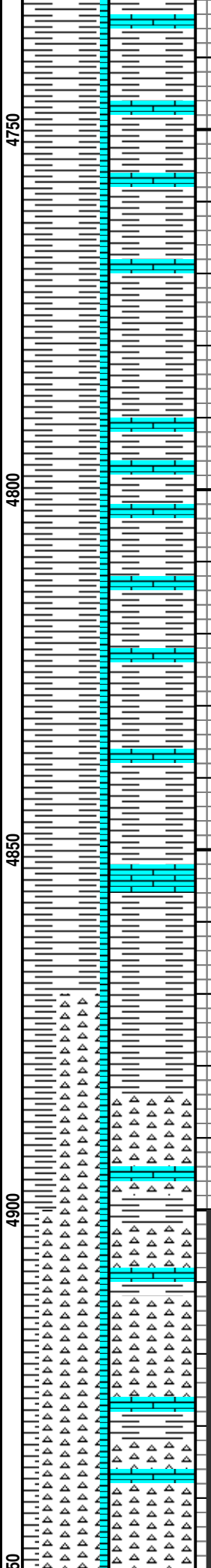
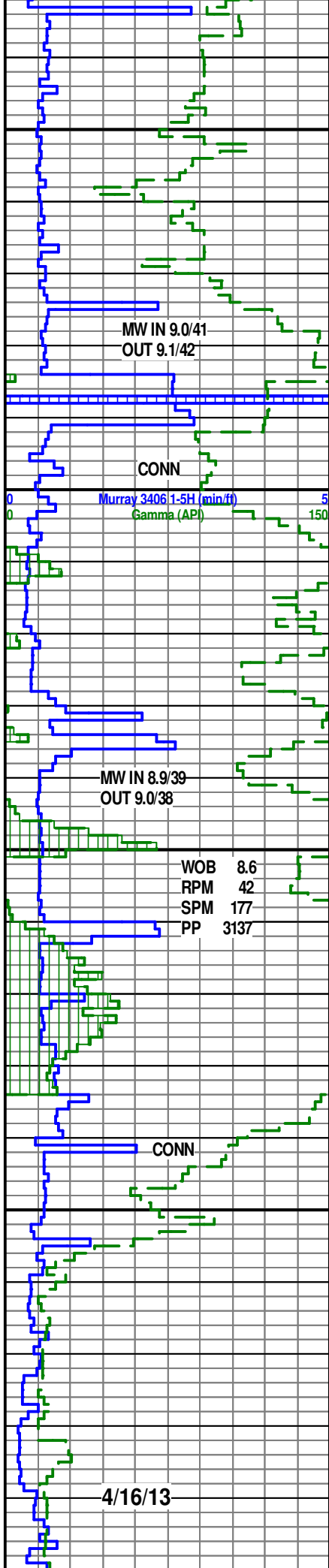
SD: 4672.00
Inc: 67.69
Azi: 359.73
TVD: 4457.70
VS: 480.87

LS: 10% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 90%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; no fluor, no
ring/cut

SD: 4736.00
Inc: 72.17
Azi: 0.44
TVD: 4479.64
VS: 569.42

LS: 15% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 85%





Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; lt Yl fluor, lt
Yl ring, lt Wht cut

SD: 4767.00
Inc: 74.58
Azi: 0.70
TVD: 4488.51
VS: 599.11

LS: 15% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 85%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; lt Yl fluor, lt
Yl ring, lt Wht cut

SD: 4799.00
Inc: 77.02
Azi: 0.64
TVD: 4496.36
VS: 630.12

LS: 5% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 95%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; no fluor, no
ring/cut

SD: 4830.00
Inc: 78.75
Azi: 1.01
TVD: 4502.87
VS: 660.42

LS: 5% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 95%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; no fluor, no
ring/cut

LS: 5% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 95%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; no fluor, no
ring/cut

SD: 4862.00
Inc: 80.91
Azi: 0.95
TVD: 4508.52
VS: 691.90

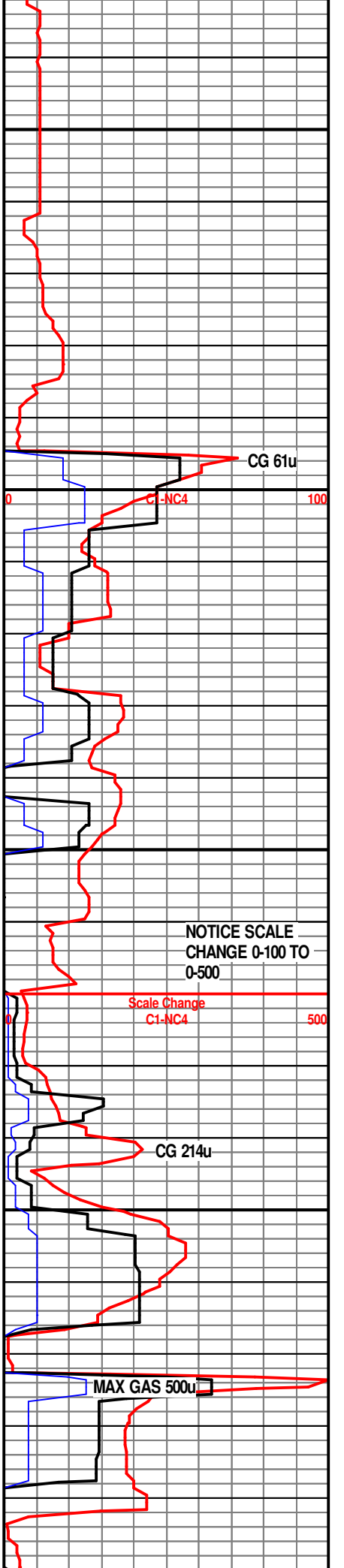
LS: 5% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 45%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 50%
Wht, frm-hrd; lt Yl fluor, no
ring/cut

SD: 4894.00
Inc: 83.93
Azi: 0.66
TVD: 4512.74
VS: 723.60

**Miss Unconformity @
4,912' MD, 4,514' TVD**

LS: 10% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 20%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 70%
Wht, frm-hrd; lt Yl fluor, Yl ring,
Wht cut

SD: 4957.00
Inc: 86.06
Azi: 0.50



MW IN 8.9/38
OUT 9.0/36

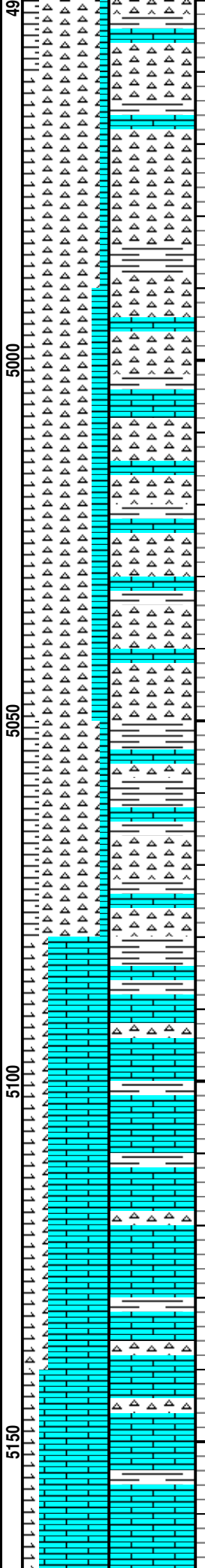
CONN

Murray 3406 1-5H (min/ft)
Gamma (API)

WOB 24
RPM 41
SPM 170
PP 3504

MW IN 8.9/40
OUT 9.0/42

MW IN 9.0/44
OUT 9.1/46



TVD: 4517.61
VS: 786.39

LS: 10% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 10%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 80%
Wht, frm-hrd; lt YI fluor, YI ring,
Wht cut

LS: 20% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 5%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 75%
Wht, frm-hrd; lt YI fluor, no ring,
no cut

SD: 5020.00
Inc: 85.32
Azi: 359.70
TVD: 4522.34
VS: 849.21

LS: 20% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 5%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 75%
Wht, frm-hrd; lt YI fluor, no ring,
no cut

SD: 5083.00
Inc: 85.38
Azi: 359.41
TVD: 4527.45
VS: 912.00

LS: 10% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 20%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 70%
Wht, frm-hrd; lt YI fluor, no ring,
no cut

LS: 70% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 15%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 15%
Wht, frm-hrd; lt YI fluor, no ring, lt
Wht cut

SD: 5146.00
Inc: 85.29
Azi: 359.96
TVD: 4532.57
VS: 974.79

LS: 70% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 15%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 15%
Wht, frm-hrd; lt YI fluor, no ring, lt
Wht cut

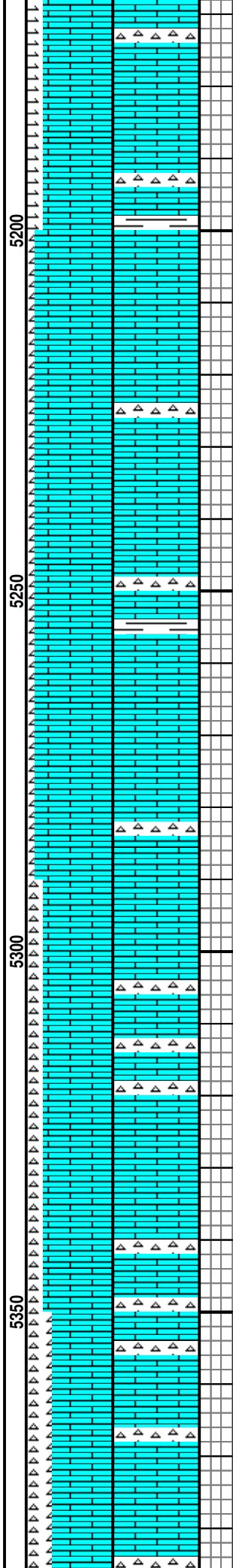
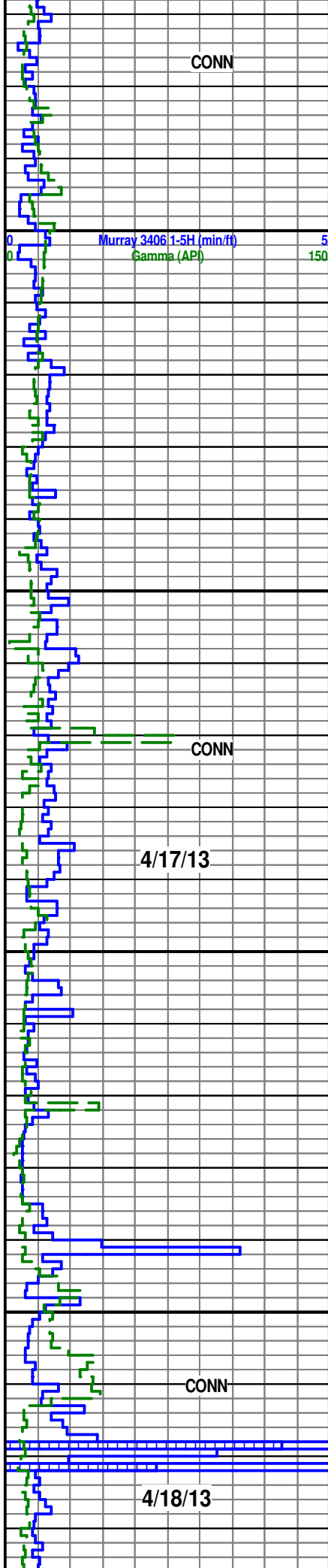
LS: 85% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; SH: 10%
Blk-dk Gry-lt Brn, sft-frm, sb
blky-blky, intlam, dull; CHRT: 5%
Wht, frm-hrd; lt YI fluor, no ring,
no cut

MAX GAS 667u

CG 656u

C1-NC4

CG 76u



LS: 85% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 10% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; CHRT: 5% Wht, frm-hrd; lt YI fluor, no ring, no cut

SD: 5210.00
Inc: 85.22
Azi: 0.04
TVD: 4537.87
VS: 1038.57

LS: 90% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 5% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; CHRT: 5% Wht, frm-hrd; lt YI fluor, no ring, no cut

SD: 5241.00
Inc: 86.86
Azi: 359.33
TVD: 4540.01
VS: 1069.49

LS: 90% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 5% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; CHRT: 5% Wht, frm-hrd; lt YI fluor, no ring, no cut

LS: 90% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; SH: 5% Blk-dk Gry-lt Brn, sft-frm, sb blk-y-blky, intlam, dull; CHRT: 5% Wht, frm-hrd; lt YI fluor, no ring, no cut

TD @ 5,291' MD for Intermediate Casing

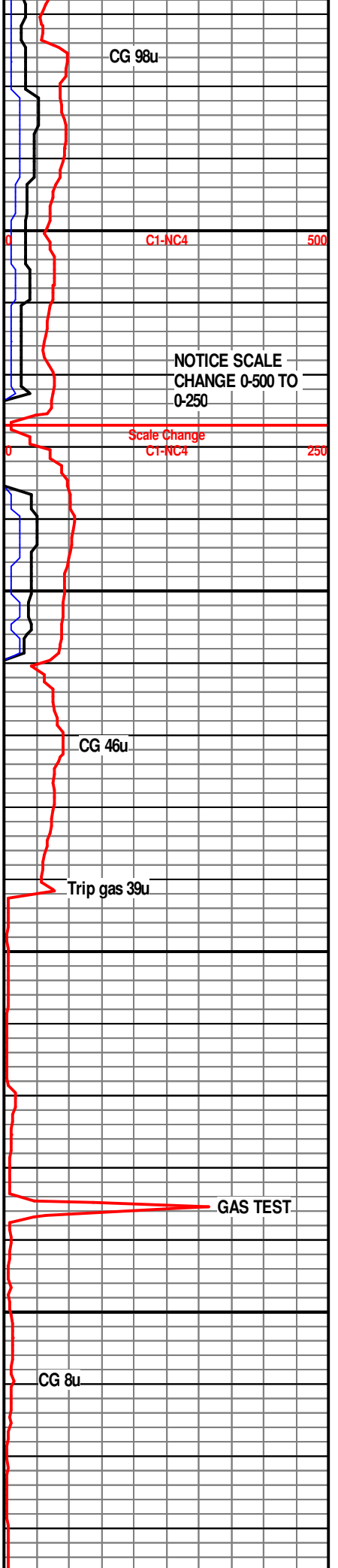
LS: 80% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 20% Wht, frm-hrd; no fluor, no ring, no cut

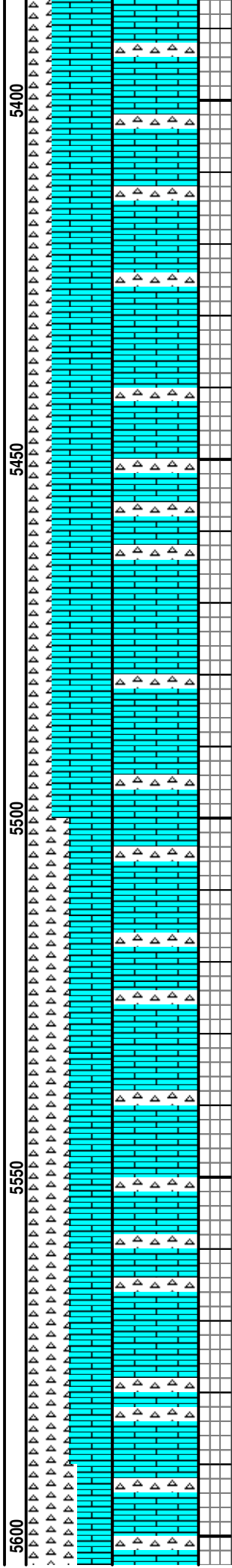
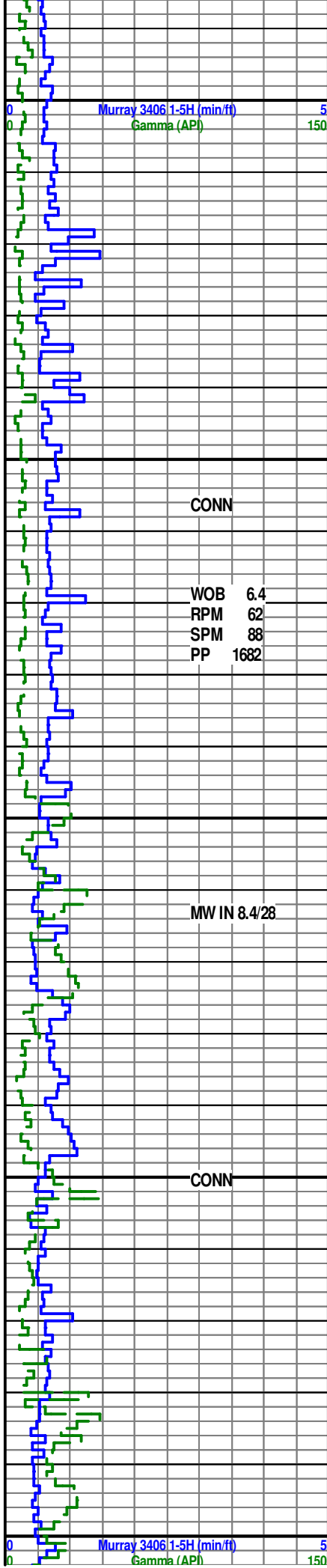
SD: 5317.00
Inc: 91.20
Azi: 359.10
TVD: 4541.30
VS: 1145.46

LS: 80% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 20% Wht, frm-hrd; no fluor, no ring, no cut

LS: 70% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt YI fluor, no ring, no cut

SD: 5380.00
Inc: 90.12
Azi: 359.31
TVD: 4540.57





VS: 1208.45

LS: 70% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt YI fluor, no ring, no cut

LS: 70% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt YI fluor, no ring, no cut

SD: 5443.00
Inc: 90.22
Azi: 359.48
TVD: 4540.38
VS: 1271.45

LS: 70% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt YI fluor, no ring, no cut

LS: 70% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt YI fluor, no ring, no cut

LS: 50% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 50% Wht, frm-hrd; lt YI fluor, no ring, no cut

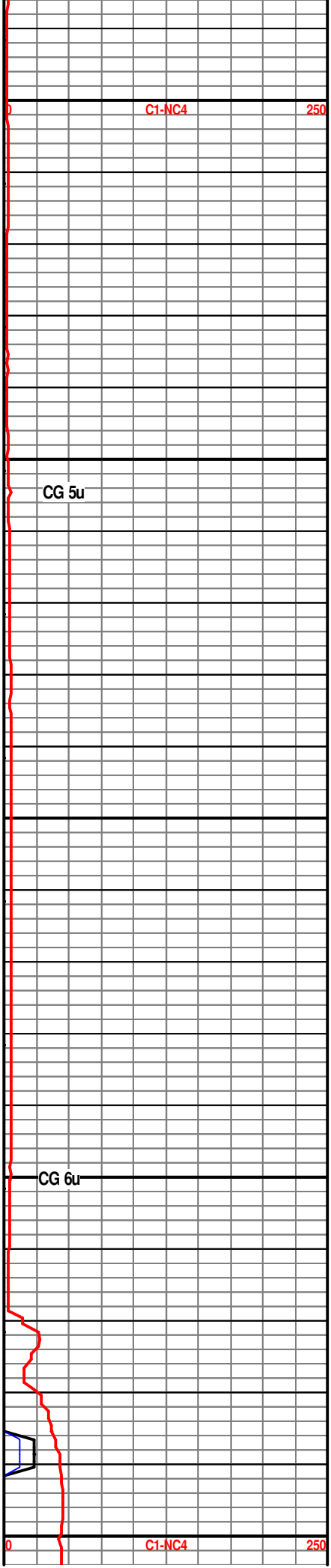
SD: 5507.00
Inc: 90.43
Azi: 358.75
TVD: 4540.02
VS: 1335.45

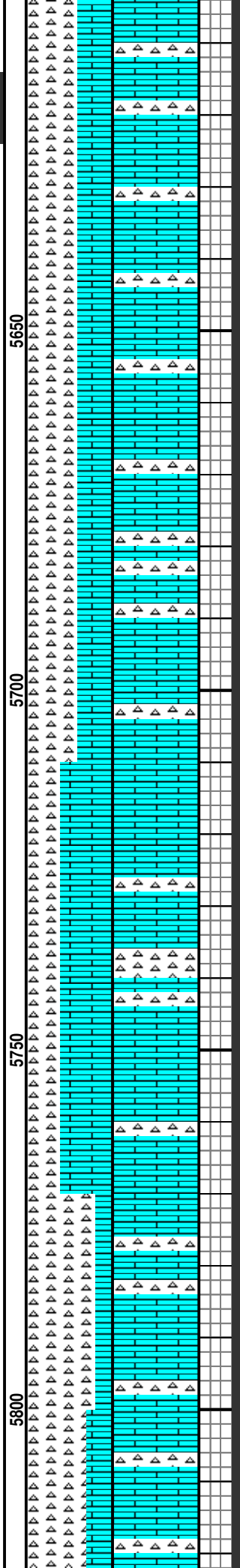
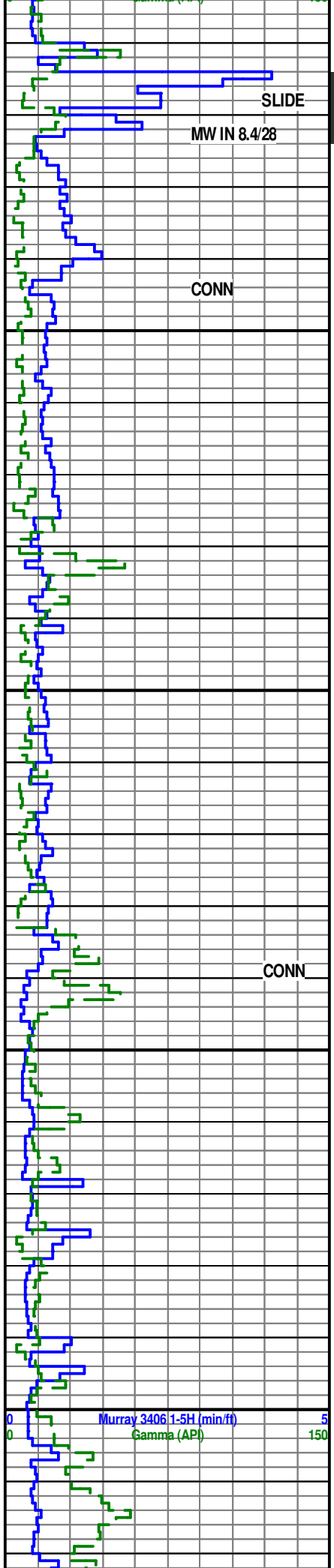
LS: 50% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 50% Wht, frm-hrd; lt YI fluor, no ring, no cut

SD: 5570.00
Inc: 90.94
Azi: 357.74
TVD: 4539.27
VS: 1398.44

LS: 50% Gry-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 50% Wht, frm-hrd; lt YI fluor, no ring, no cut

LS: 40% Gry-ltGry, sft-m frm, vf





xln-mic xln, dull, dol; CHRT: 60%
Wh't, frm-hrd; lt YI fluor, no ring,
no cut

SD: 5633.00
Inc: 89.78
Azi: 359.57
TVD: 4538.87
VS: 1461.43

LS: 40% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 60%
Wh't, frm-hrd; lt YI fluor, no ring,
no cut

SD: 5696.00
Inc: 89.75
Azi: 0.55
TVD: 4539.13
VS: 1524.42

LS: 40% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 60%
Wh't, frm-hrd; lt YI fluor, no ring,
no cut

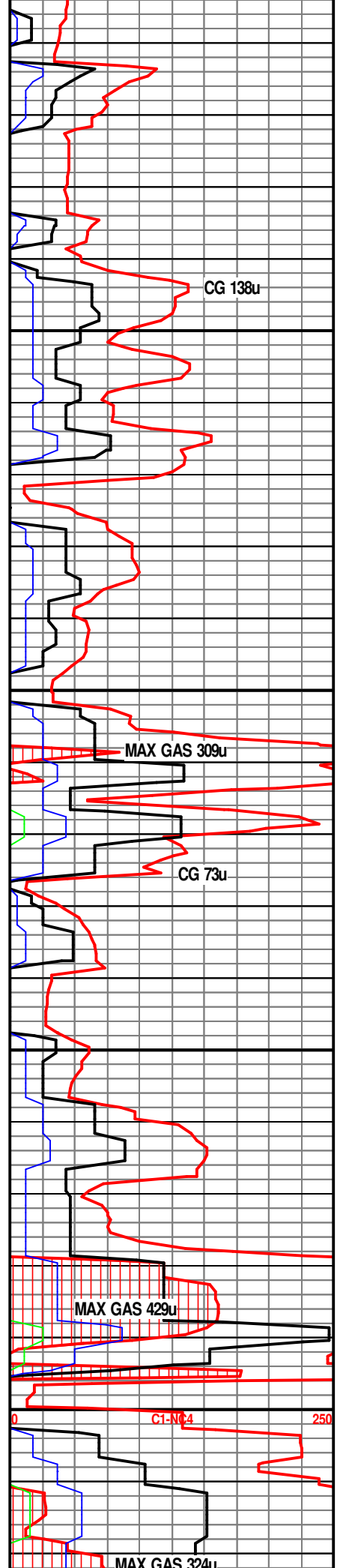
LS: 60% Gry-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 40%
Wh't, frm-hrd; lt YI fluor, no ring,
no cut

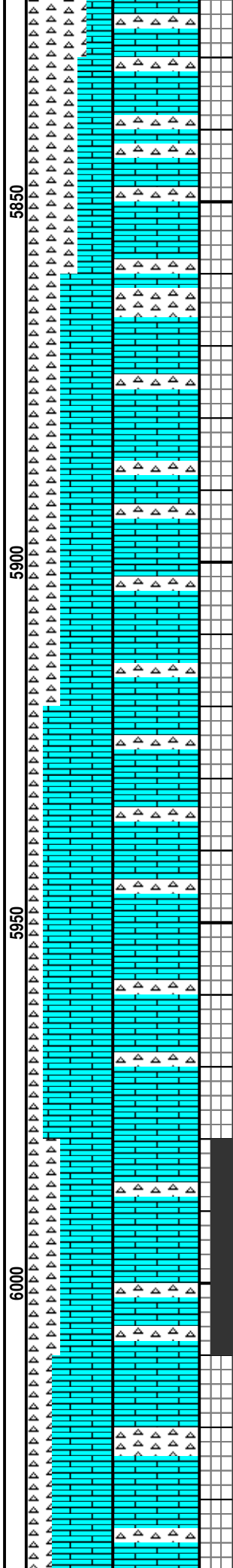
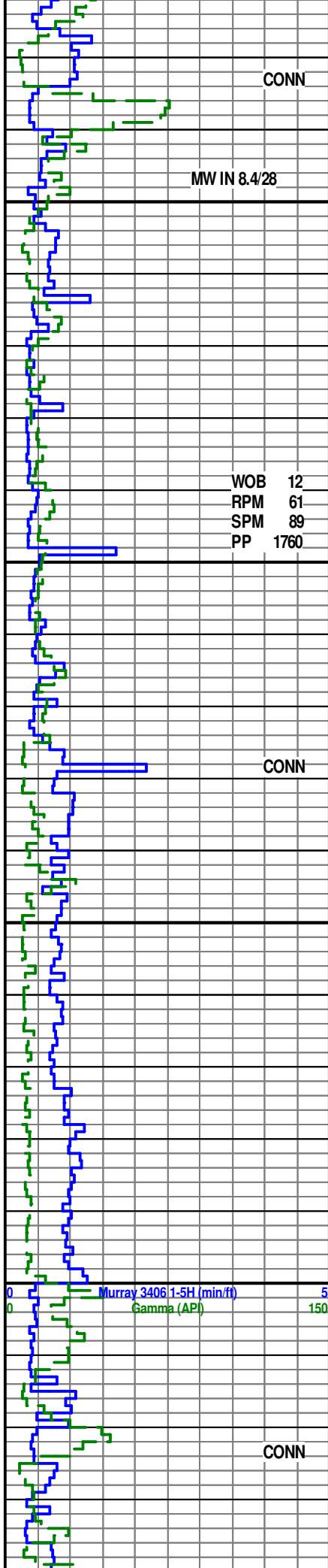
CONN

LS: 60% Wh't-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 40%
Wh't, frm-hrd; lt YI fluor, no ring,
no cut

SD: 5790.00
Inc: 90.15
Azi: 0.84
TVD: 4539.21
VS: 1619.39

LS: 20% Wh't-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 80%
Wh't, frm-hrd; lt YI fluor, no ring,
no cut





LS: 30% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 70% Wht, frm-hrd; lt YI fluor, no ring, no cut

LS: 40% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 60% Wht, frm-hrd; lt YI fluor, no ring, no cut

SD: 5885.00
Inc: 90.15
Azi: 359.99
TVD: 4538.97
VS: 1713.36

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; lt YI fluor, no ring, no cut

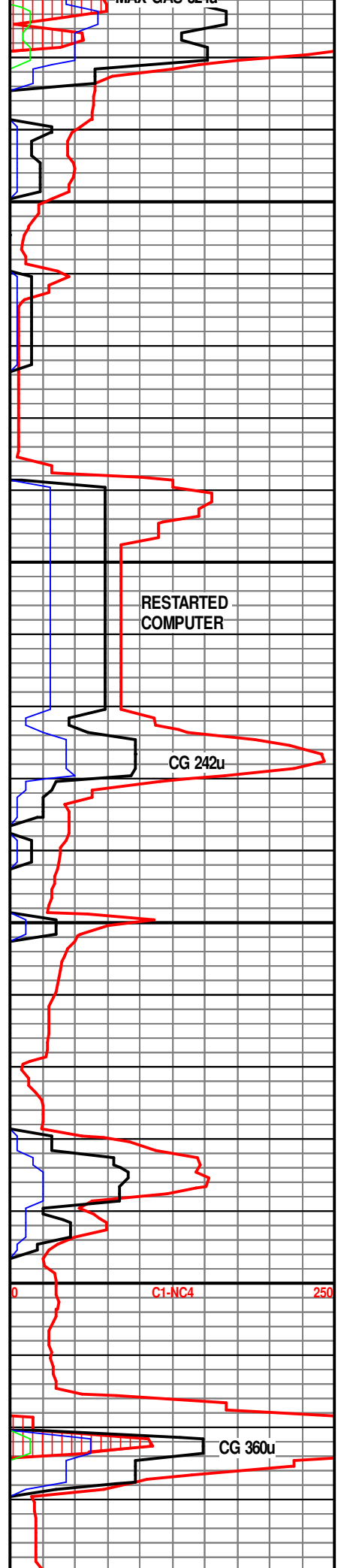
LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; lt YI fluor, no ring, no cut

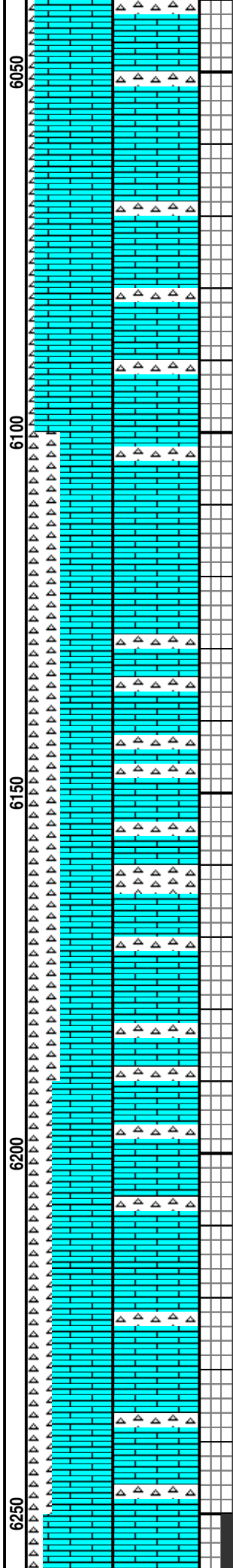
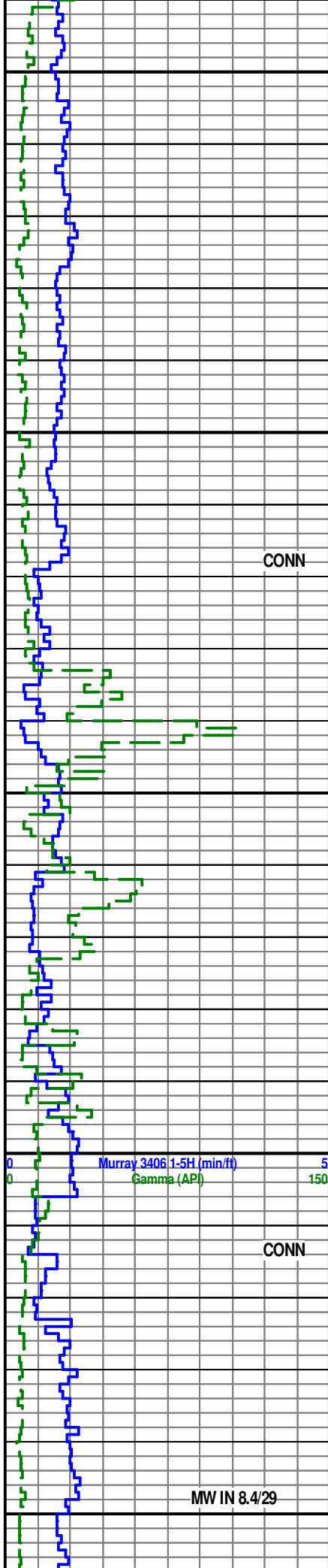
LS: 80% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 20% Wht, frm-hrd; lt YI fluor, no ring, no cut

SD: 5980.00
Inc: 90.37
Azi: 0.14
TVD: 4538.54
VS: 1808.35

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; lt YI fluor, Thick ring, Wht cut

LS: 70% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30%





Wht, frm-hrd; lt Yl fluor, no ring, no cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt Yl fluor, no ring, no cut

SD: 6075.00
Inc: 90.37
Azi: 359.80
TVD: 4537.92
VS: 1903.34

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt Yl fluor, no ring, no cut

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; lt Yl fluor, no ring, no cut

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; lt Yl fluor, no ring, no cut

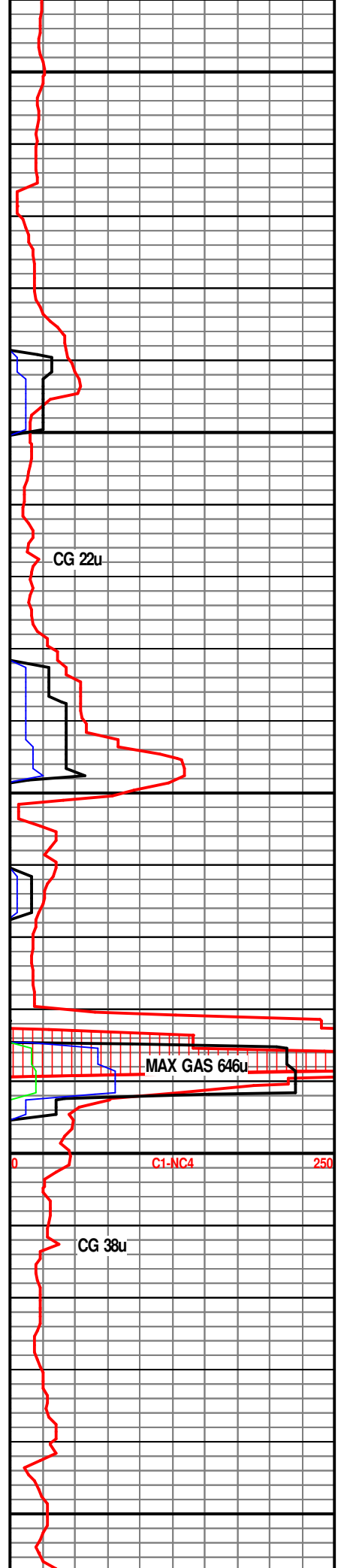
SD: 6170.00
Inc: 90.22
Azi: 359.53
TVD: 4537.43
VS: 1998.34

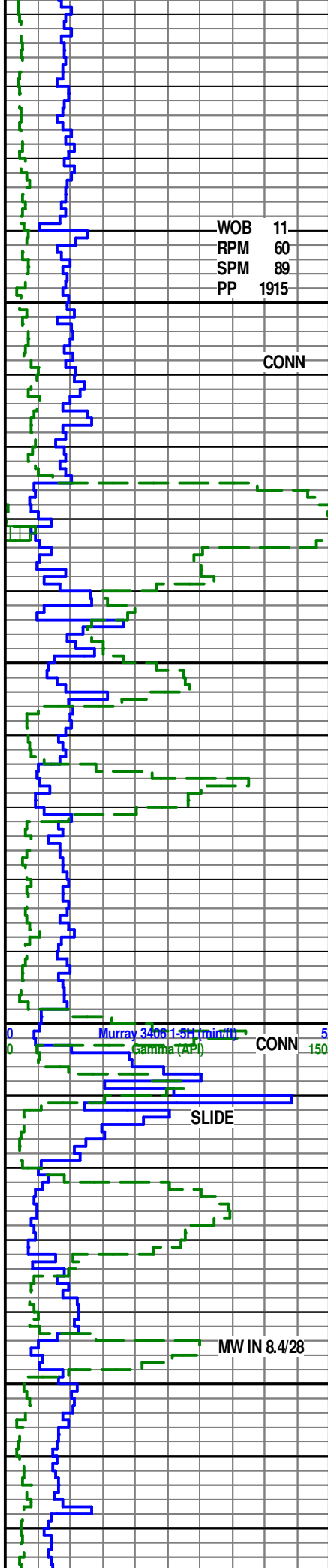
LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; lt Yl fluor, no ring, no cut

LS: 70% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt Yl fluor, no ring, no cut

LS: 70% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt Yl fluor, no ring, no cut

SD: 6265.00





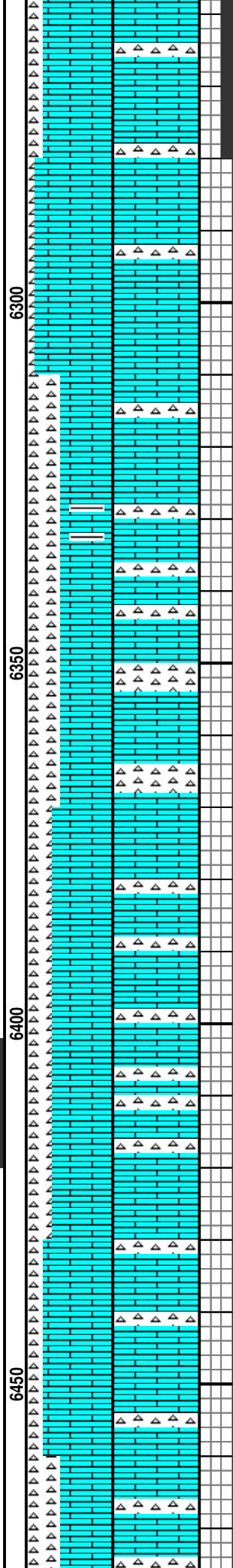
WOB 11
 RPM 60
 SPM 89
 PP 1915

CONN

CONN

SLIDE

MW IN 8.4/28



Inc: 90.53
 Azi: 359.17
 TVD: 4536.81
 VS: 2093.33

LS: 80% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 20% Wht, frm-hrd; lt YI fluor, thin ring, Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt YI fluor, no ring, no cut

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; lt YI fluor, no ring, no cut

POSSIBLE SHALE STRINGER

SD: 6360.00
 Inc: 91.42
 Azi: 359.06
 TVD: 4535.19
 VS: 2188.32

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; lt YI fluor, no ring, no cut

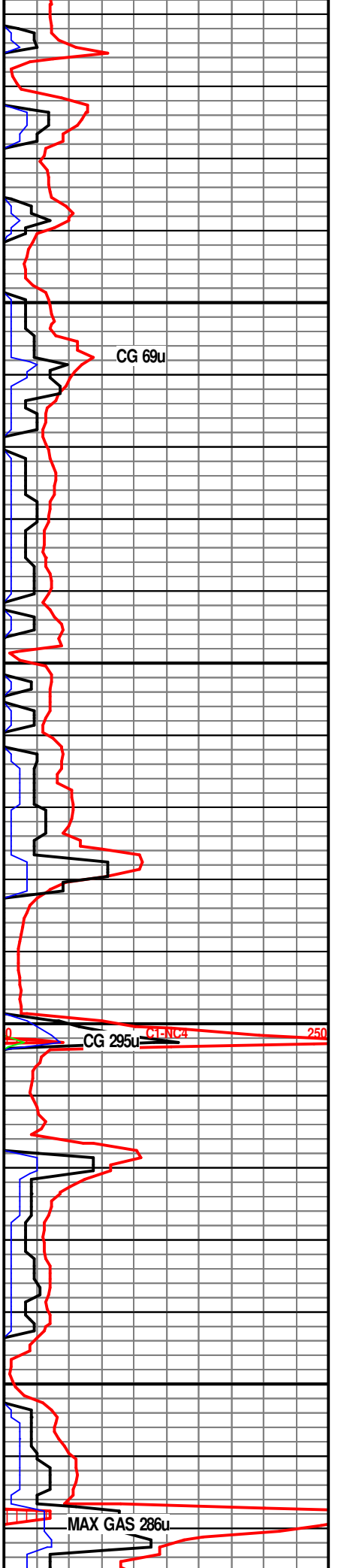
LS: 70% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt YI fluor, no ring, no cut

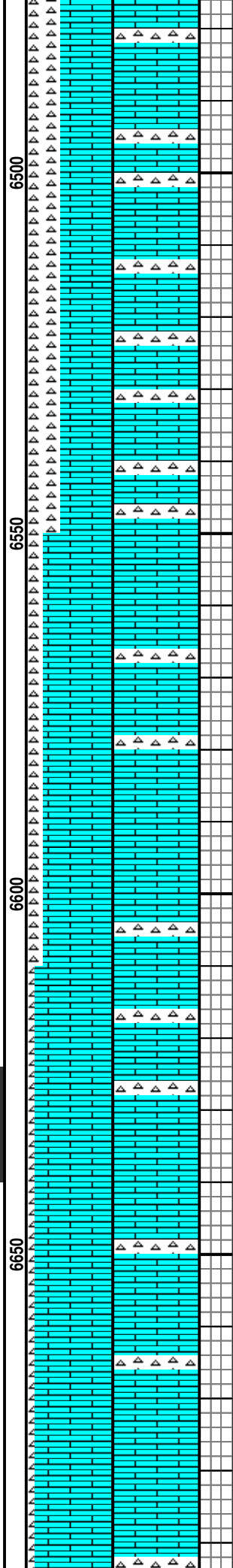
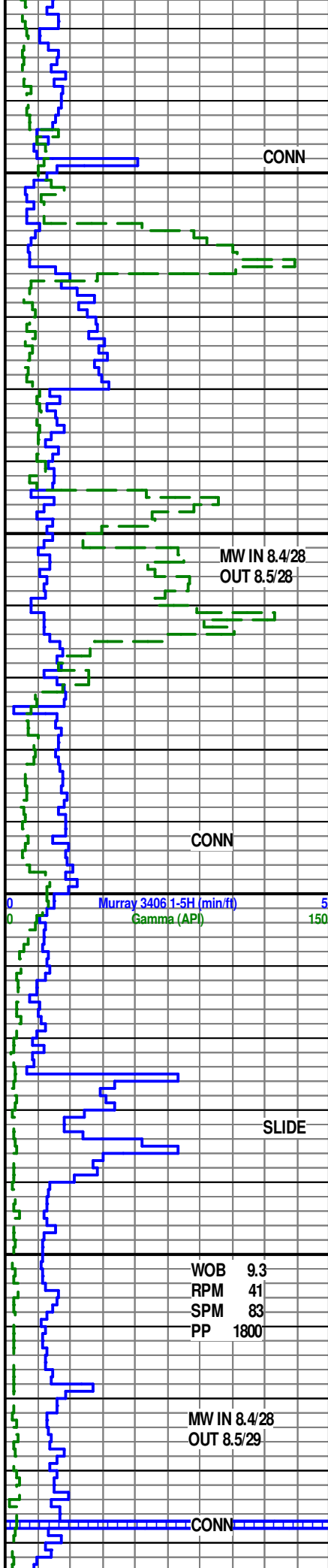
SD: 6423.00
 Inc: 89.38
 Azi: 359.63
 TVD: 4534.75
 VS: 2251.31

LS: 70% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 30% Wht, frm-hrd; lt YI fluor, Trace SH: drk gry-blk, no ring, no cut

LS: 80% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 20% Wht, frm-hrd; lt YI fluor, Trace SH: drk gry-blk, no ring, no cut

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, no cut





SD: 6487.00
Inc: 88.89
Azi: 359.35
TVD: 4535.72
VS: 2315.30

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, no cut

LS: 60% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 40% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, no cut

SD: 6550.00
Inc: 88.55
Azi: 359.04
TVD: 4537.13
VS: 2378.29

LS: 80% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 20% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, no cut

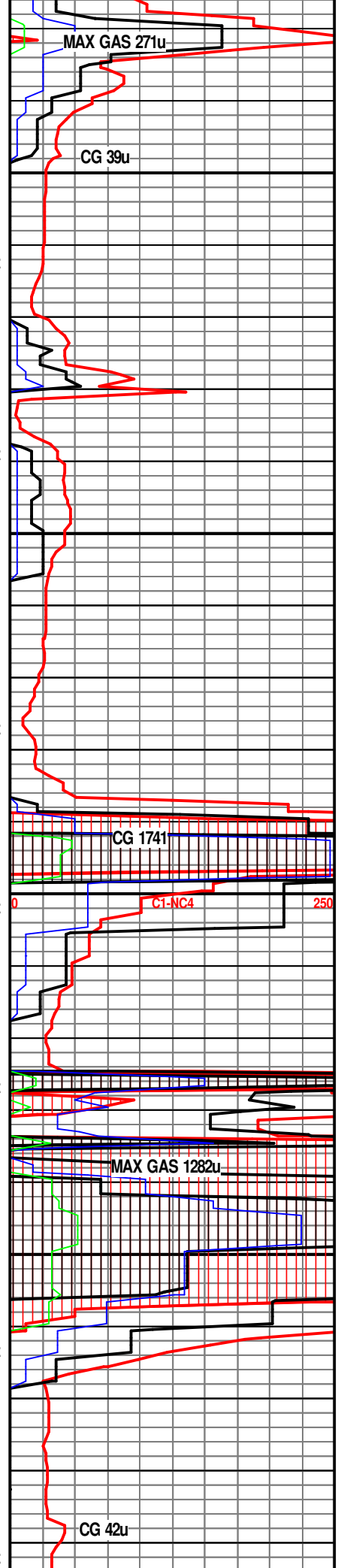
LS: 80% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 20% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, no cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, no cut

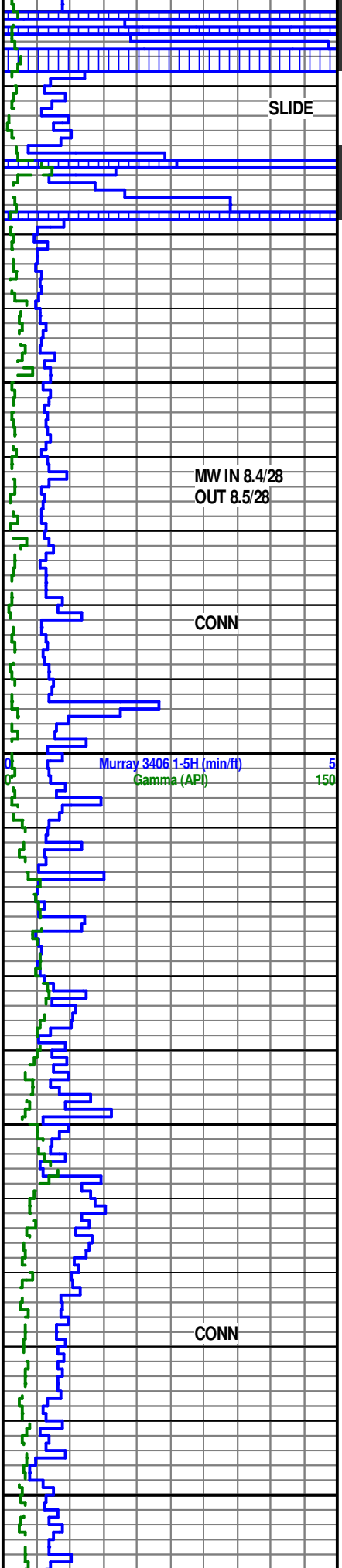
SD: 6645.00
Inc: 88.23
Azi: 358.94
TVD: 4539.80
VS: 2473.25

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, no cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, no cut



4/19/13



SLIDE

MW IN 8.4/28
OUT 8.5/28

CONN

CONN

6700
6750
6800
6850
6900

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LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; It YI fluor, no ring, no cut

SD: 6740.00
Inc: 89.66
Azi: 358.74
TVD: 4541.55
VS: 2568.23

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; It YI fluor, no ring, no cut

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; Trace SH: drk gry-blk; It YI fluor, no ring, It Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; Trace SH: drk gry-blk; It YI fluor, no ring, It Wht cut

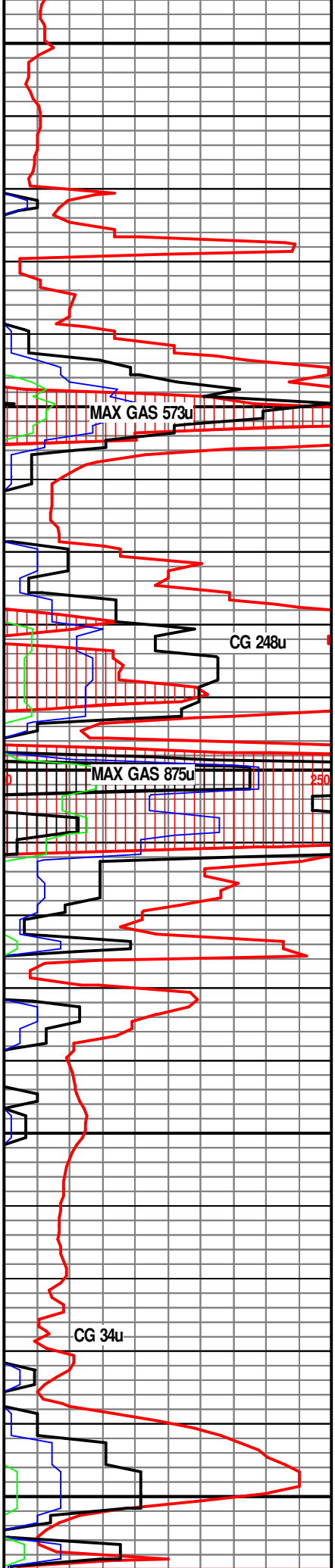
SD: 6835.00
Inc: 90.53
Azi: 359.39
TVD: 4541.39
VS: 2663.23

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; It YI fluor, no ring, no cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; It YI fluor, no ring, no cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; It YI fluor, no ring, no cut

SD: 6929.00
Inc: 91.36



Scale Change

Azi: 359.15
TVD: 4539.84
VS: 2757.21

C1-NC4 1000
NOTE: SCALE
CHANGE TO 1000

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; Trace SH: drk
gry-blk; It YI fluor, no ring, It Wht
cut

MAX GAS 594u

CONN

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; Trace SH: drk
gry-blk; It YI fluor, no ring, Wht
cut

CG 792u

Murray 3406 1-5H (min/ft) 5
Gamma (API) 150

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; Trace SH: drk
gry-blk; It YI fluor, no ring, Wht
cut

C1-NC4 1000

MAX GAS 1167u

SD: 7024.00
Inc: 91.63
Azi: 359.99
TVD: 4537.36
VS: 2852.18

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; Trace SH: drk
gry-blk; It YI fluor, Thick ring, Wht
cut

CONN

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; Trace SH: drk
gry-blk; It YI fluor, Thin ring, Wht
cut

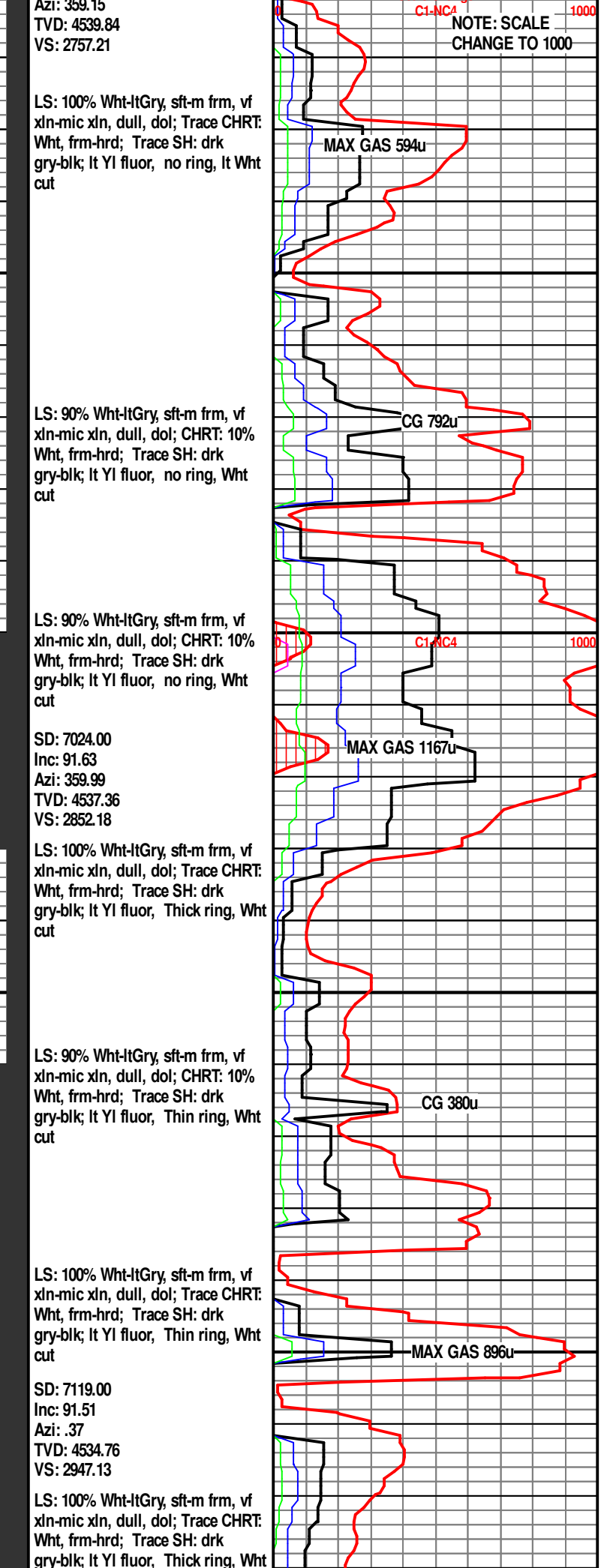
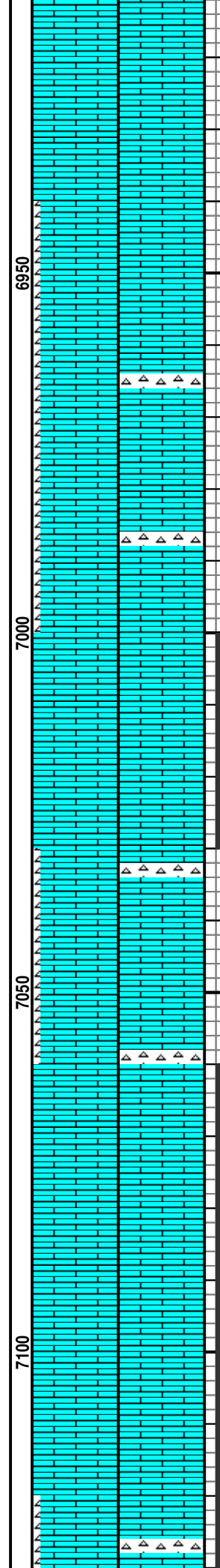
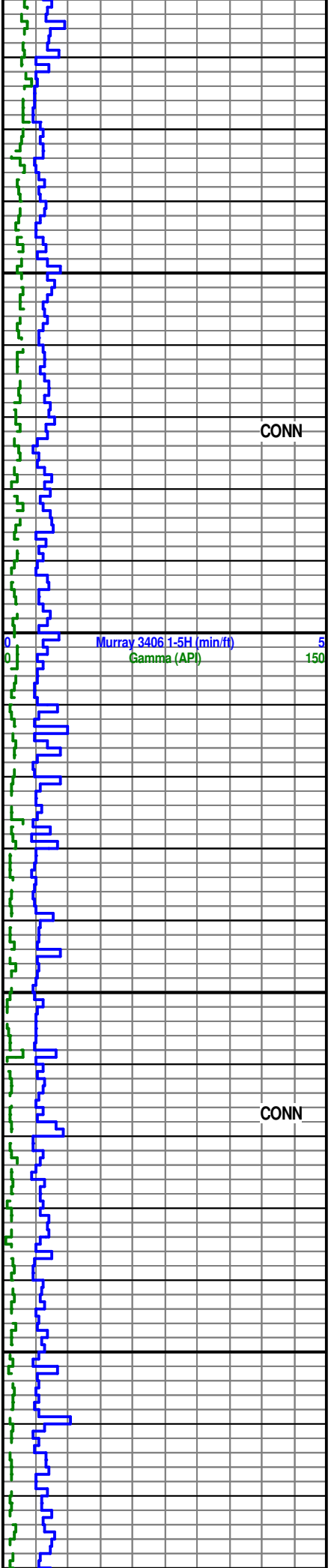
CG 380u

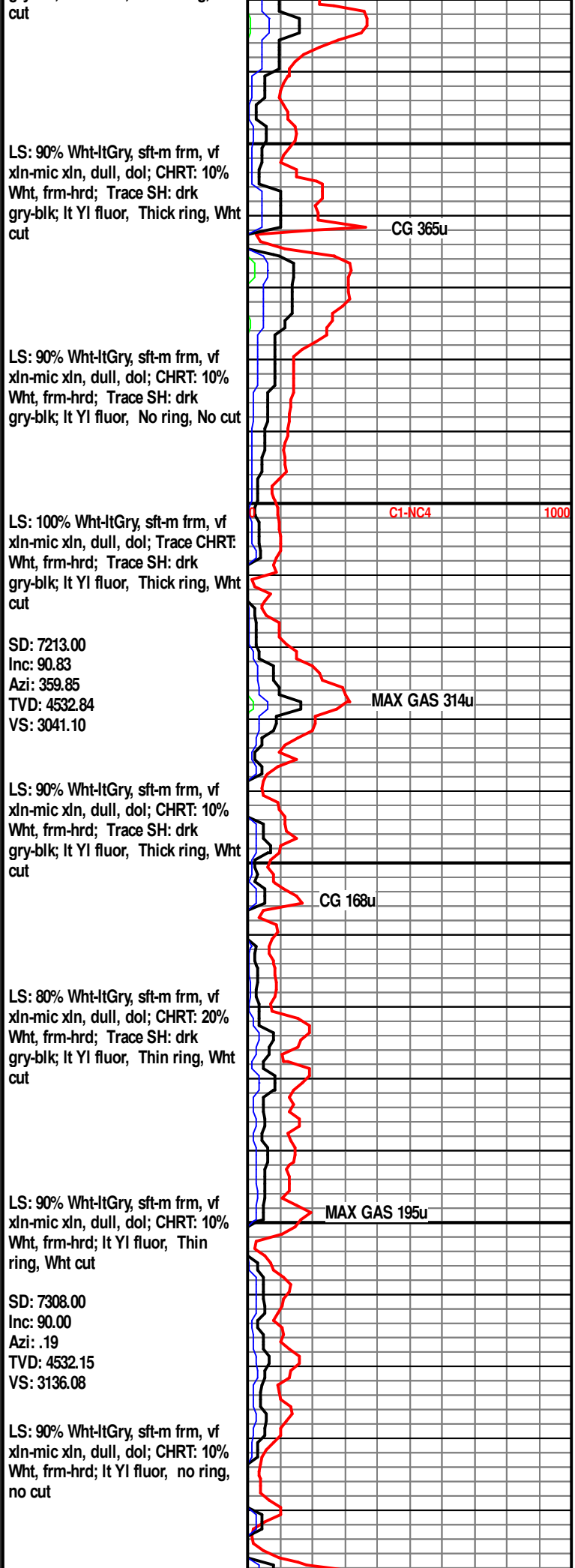
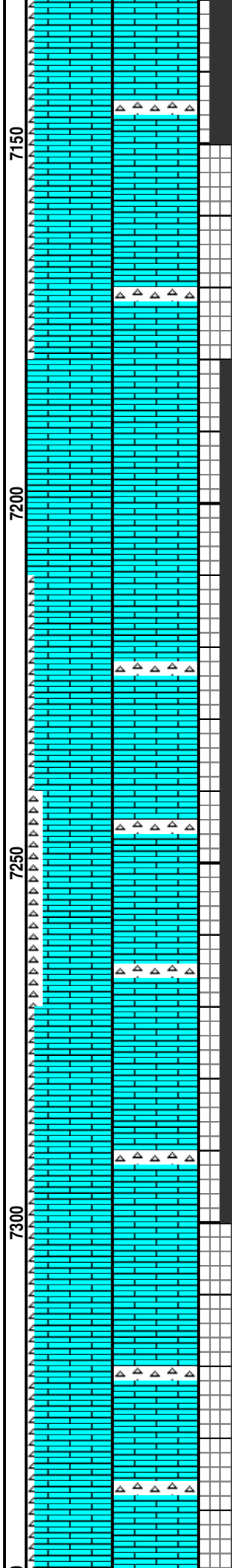
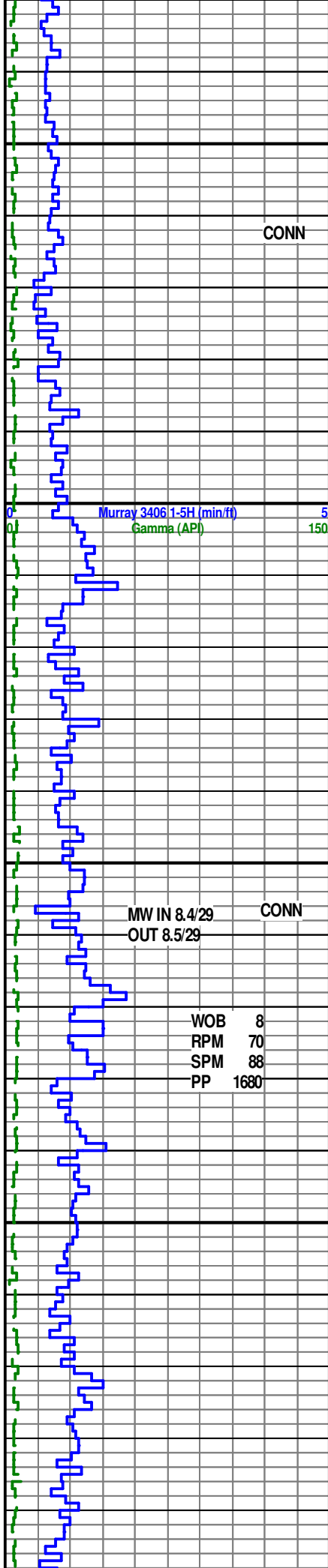
LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; Trace SH: drk
gry-blk; It YI fluor, Thin ring, Wht
cut

MAX GAS 896u

SD: 7119.00
Inc: 91.51
Azi: .37
TVD: 4534.76
VS: 2947.13

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; Trace SH: drk
gry-blk; It YI fluor, Thick ring, Wht





CONN

Murray 3406 1-5H (min/ft) 5
Gamma (API) 150

MW IN 8.4/29 CONN
OUT 8.5/29

WOB 8
RPM 70
SPM 88
PP 1680

CONN

7350

7400

7450

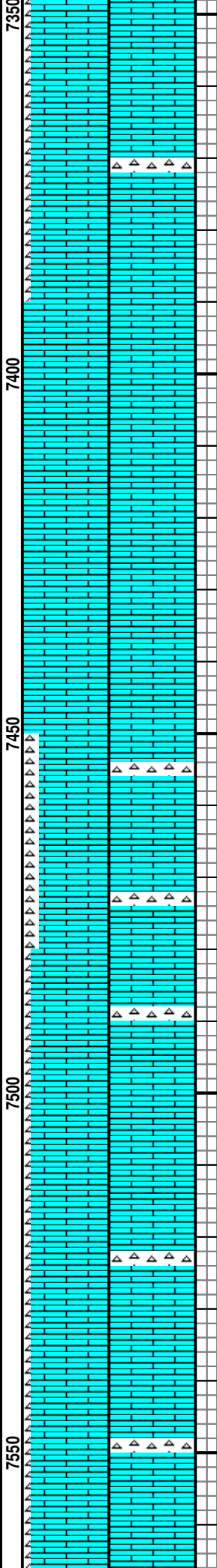
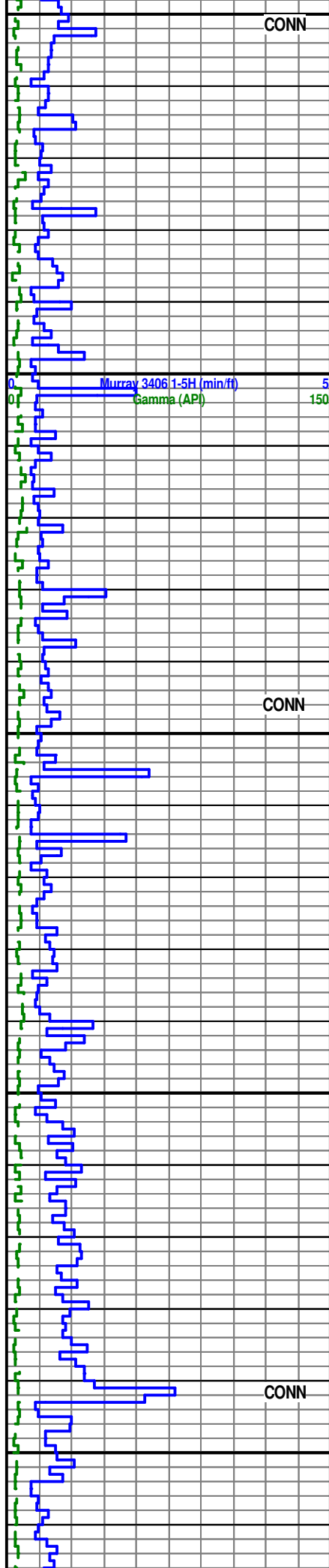
7500

7550

CONN

CONN

Murray 3406 1-5H (min/ft)
Gamma (AP)



LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt YI fluor, no ring, no cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt YI fluor, no ring, Wht cut

SD: 7403.00
Inc: 89.75
Azi: .21
TVD: 4532.36
VS: 3231.07

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, Thick ring, Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

LS: 80% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 20% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, Wht cut

SD: 7498.00
Inc: 89.17
Azi: .68
TVD: 4533.25
VS: 3326.04

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt YI fluor, no ring, Wht cut

CG 359u

MAX GAS 332u

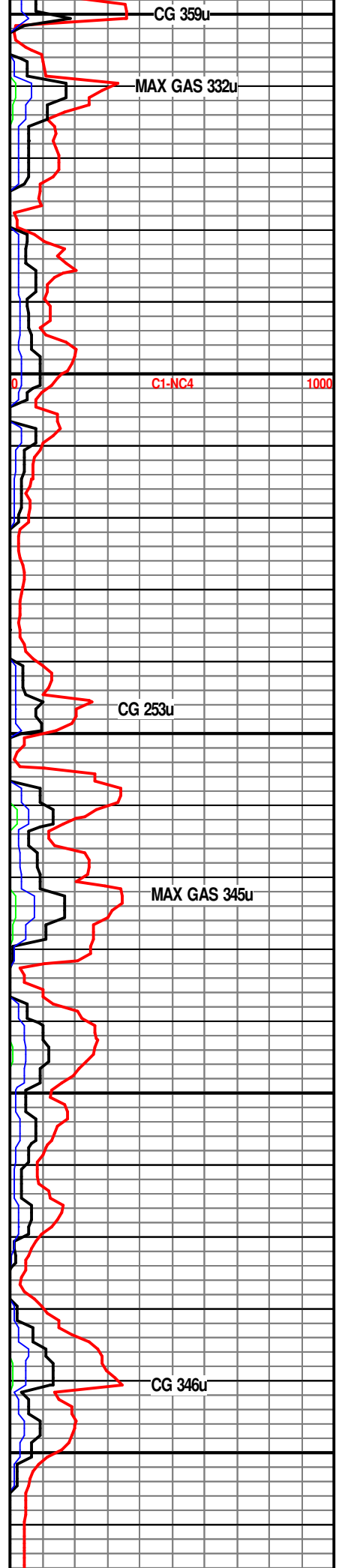
C1-NC4

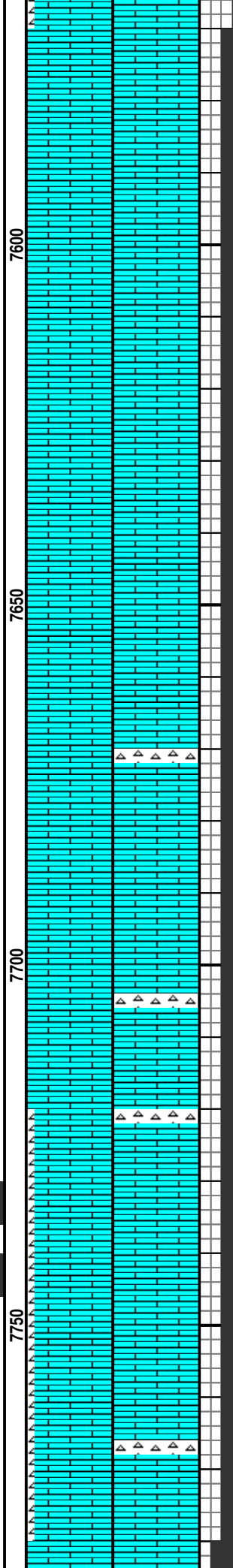
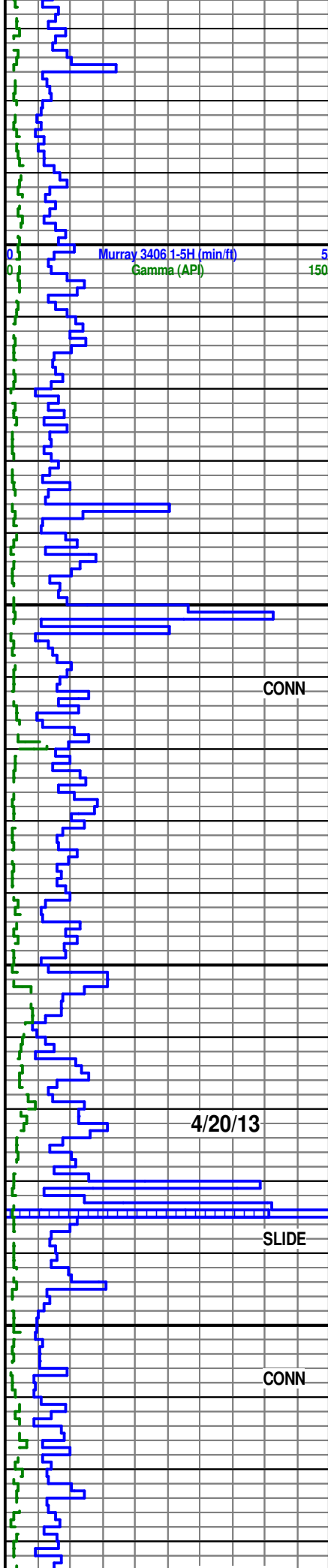
1000

CG 253u

MAX GAS 345u

CG 346u





no cut

SD: 7593.00
Inc: 89.17
Azi: 359.52
TVD: 4534.63
VS: 3421.01

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

SD: 7687.00
Inc: 88.86
Azi: 359.93
TVD: 4536.24
VS: 3514.99

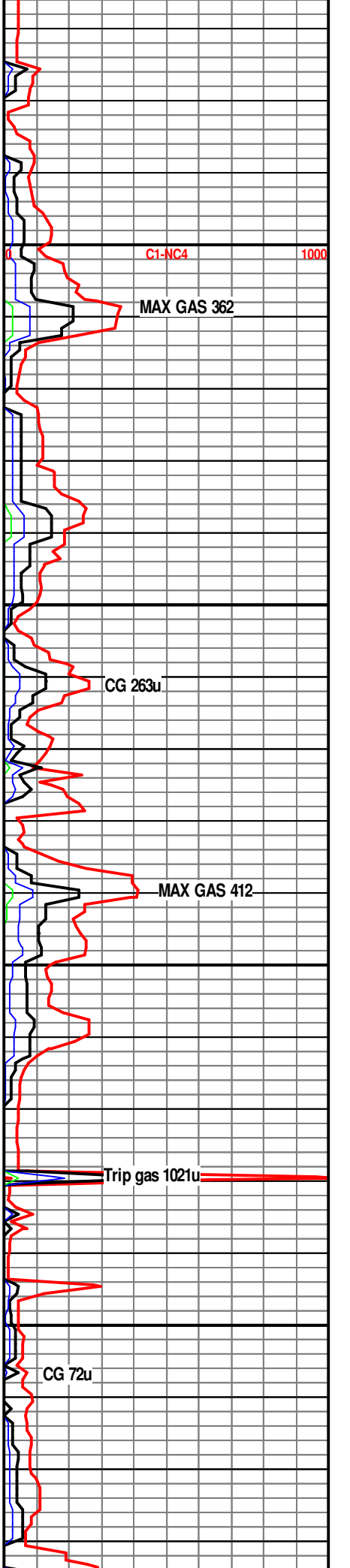
LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

TRIP @ 7,730' MD

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; Trace SH: drk gry-blk; lt YI fluor, no ring, Wht cut

SD: 7777.00
Inc: 89.23
Azi: 359.40
TVD: 4537.74



MWIN 8.5/29
OUT 8.5/29

Murray 3406 1-5H (min/ft) 5
Gamma (API) 150

WOB 18
RPM 31
SPM 77
PP 2515

CONN

CONN

Murray 3406 1-5H (min/ft) 5

7800
7850
7900
7950
8000

VS: 3604.98

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, Thin
ring, Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

SD: 7872.00
Inc: 89.57
Azi: 1.40
TVD: 4538.74
VS: 3699.95

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; lt YI fluor, Thin
ring, Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; lt YI fluor, Thin
ring, Wht cut

SD: 7967.00
Inc: 91.05
Azi: 6.85
TVD: 4538.22
VS: 3794.55

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

C1-NC4 1000

MAX GAS 740u

CG 347u

MAX GAS 709u

CG 740u

MAX GAS 118u

C1-NC4 1000

Gamma (API) 150

CONN

SLIDE

CONN

SLIDE

Murray 3406 1-5H (min/ft) 5
Gamma (API) 150

8050
8100
8150
8200

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LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

SD: 8030.00
Inc: 90.37
Azi: 6.37
TVD: 4537.44
VS: 3857.02

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt YI fluor, no ring, Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt YI fluor, no ring, Wht cut

SD: 8094.00
Inc: 90.18
Azi: 5.51
TVD: 4537.14
VS: 3920.57

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt YI fluor, no ring, Wht cut

LS: 90% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; CHRT: 10% Wht, frm-hrd; lt YI fluor, no ring, Wht cut

SD: 8157.00
Inc: 91.14
Azi: 5.05
TVD: 4536.41
VS: 3983.21

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf xln-mic xln, dull, dol; Trace CHRT: Wht, frm-hrd; lt YI fluor, no ring, Wht cut

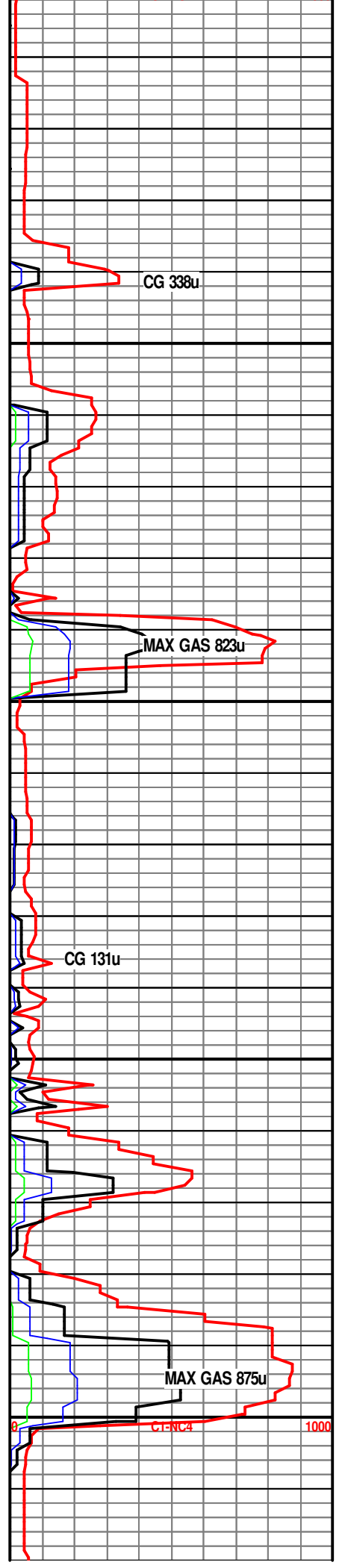
CG 338u

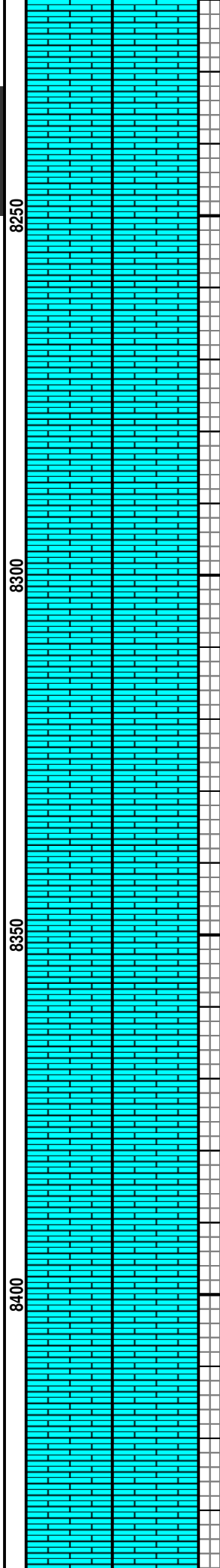
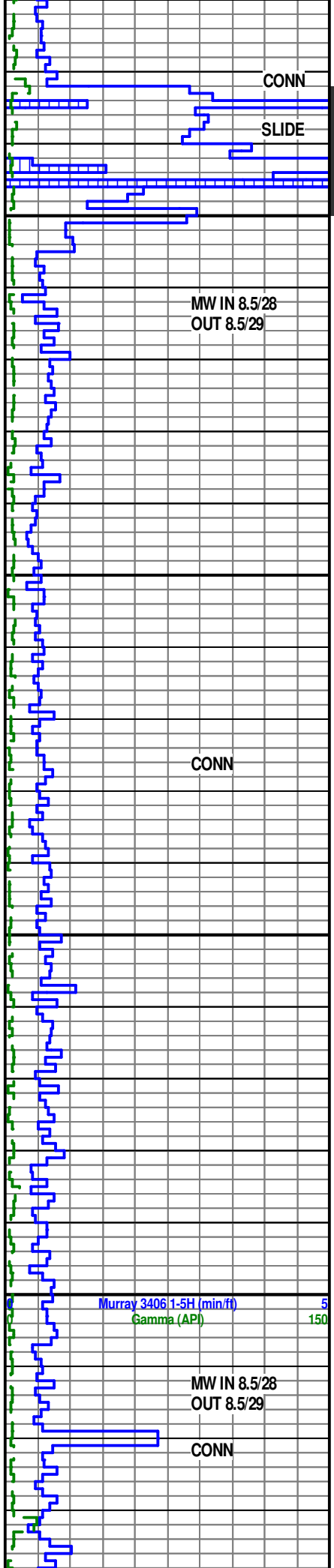
MAX GAS 823u

CG 131u

MAX GAS 875u

Cl-NC4 1000





xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

SD: 8252.00
Inc: 91.54
Azi: 3.09
TVD: 4534.19
VS: 4077.83

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

SD: 8283.00
Inc: 91.20
Azi: 2.07
TVD: 4533.45
VS: 4108.76

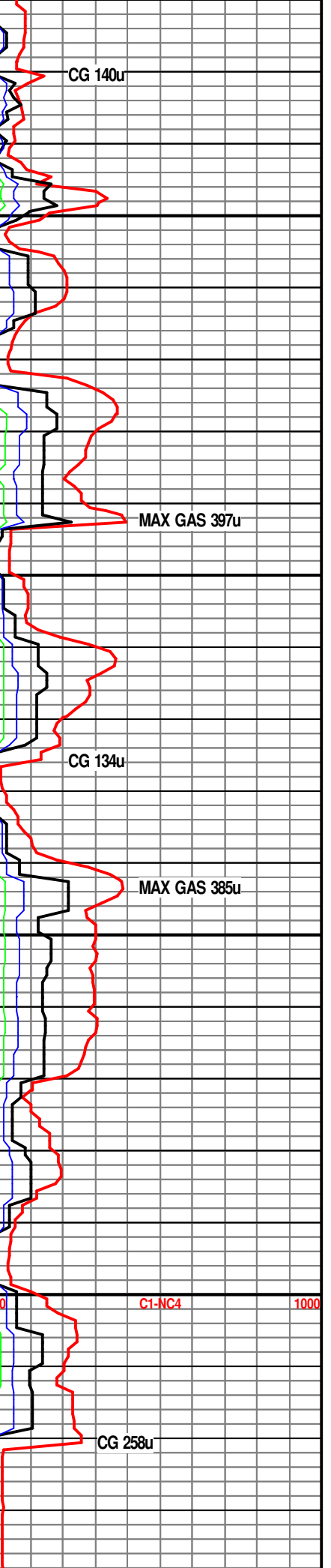
LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

SD: 8378.00
Inc: 90.80
Azi: 2.72
TVD: 4531.79
VS: 4203.60

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

SD: 8441.00
Inc: 90.68



4/21/13

8450

Azi: 3.75
TVD: 4530.98
VS: 4266.43

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

SLIDE

WOB 17.3
RPM 32
SPM 77
PP 2208

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; lt YI fluor, thin ring,
good cut

SLIDE

8500

SD: 8504.00
Inc: 90.09
Azi: 2.57
TVD: 4530.55
VS: 4329.28

MAX GAS 137u

CG 90u

CONN

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; lt YI fluor, thin ring,
good cut

8550

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; lt YI fluor, thin ring,
good cut

MAX GAS 397u

SD: 8568.00
Inc: 89.85
Azi: 2.94
TVD: 4530.59
VS: 4393.15

LS: 90% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; CHRT: 10%
Wht, frm-hrd; lt YI fluor, thin ring,
good cut

8600

LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

C1-NC4

1000

Murray 3406 1-5H (min/ft)
Gamma (API)

CONN

CG 28u

SLIDE

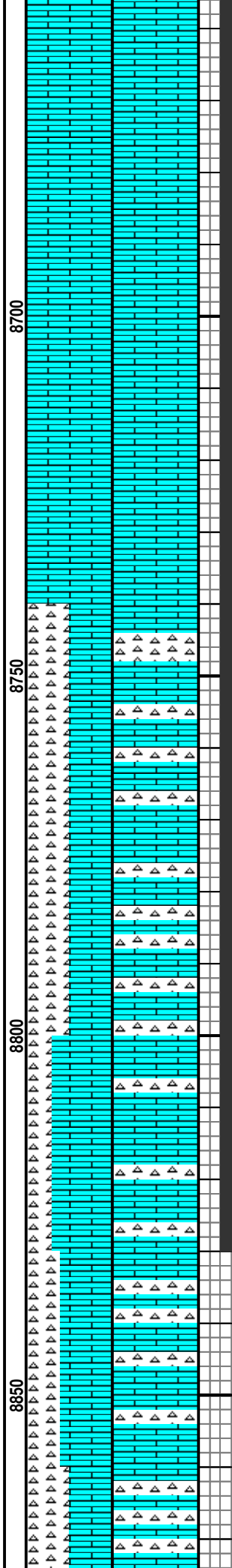
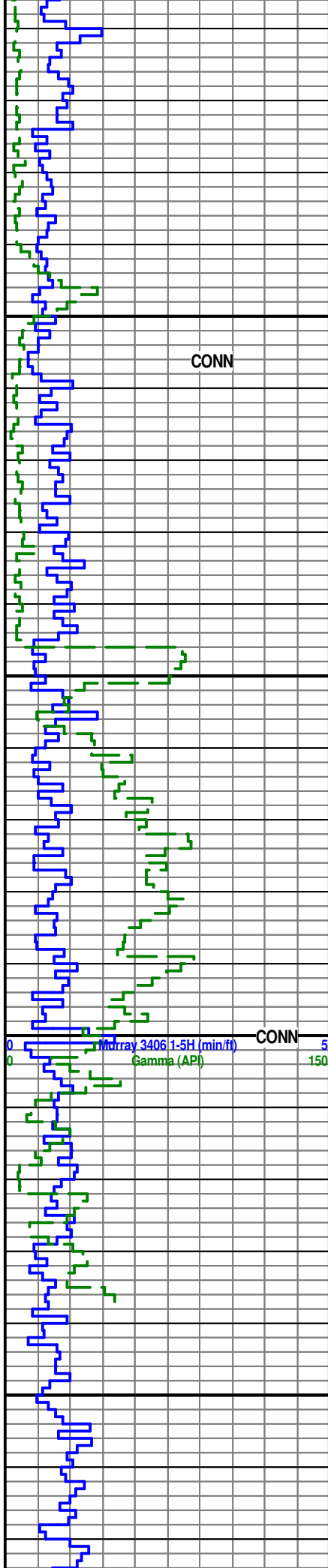
LS: 100% Wht-ltGry, sft-m frm, vf
xln-mic xln, dull, dol; Trace CHRT:
Wht, frm-hrd; lt YI fluor, no ring,
Wht cut

MAX GAS 200u

MW IN 8.5/28
OUT 8.6/29

8650

SD: 8662.00
Inc: 90.71



Azi: 1.43
 TVD: 4530.13
 VS: 4487.02

 LS: 100% Wht-ltGry, sft-m frm, vf
 xln-mic xln, dull, dol; Trace CHRT:
 Wht, frm-hrd; lt YI fluor, no ring,
 Wht cut

 LS: 100% Wht-ltGry, sft-m frm, vf
 xln-mic xln, dull, dol; Trace CHRT:
 Wht, frm-hrd; lt YI fluor, no ring,
 Wht cut

 SD: 8757.00
 Inc: 90.86
 Azi: 2.90
 TVD: 4528.83
 VS: 4581.88

 LS: 50% Wht-ltGry, sft-m frm, vf
 xln-mic xln, dull, dol; CHRT: 50%
 Wht, frm-hrd; lt YI fluor, no ring,
 Wht cut

 LS: 50% Wht-ltGry, sft-m frm, vf
 xln-mic xln, dull, dol; CHRT: 50%
 Wht, frm-hrd; lt YI fluor, no ring,
 Wht cut

 LS: 70% Wht-ltGry, sft-m frm, vf
 xln-mic xln, dull, dol; CHRT: 30%
 Wht, frm-hrd; lt YI fluor, no ring,
 Wht cut

 SD: 8842.00
 Inc: 90.31
 Azi: 4.28
 TVD: 4527.96
 VS: 4527.96

 LS: 50% Wht-ltGry, sft-m frm, vf
 xln-mic xln, dull, dol; CHRT: 50%
 Wht, frm-hrd; lt YI fluor, no ring,
 Wht cut

