



Scale: 5" / 100'
Measured Depth Log

Well Name Troudt 1

Location S 32 T2N R67W

State Colorado

County Weld

Country USA

Rig Number Savanna 802

API Number 05-123-41433

Field Wattenberg

Region DJ Basin

Drilling Completed TBD

Spud Date 9/11/2015

Surface Coordinates Lat: 40° 5' 20.634" N
Long: 104° 54' 31.374" W

Ground Elevation 5,079'

K.B. Elevation 5,094'

Logged Interval 5,000' **To** 17,859'

Total Depth 17,859'

Formation Niobrara B Chalk

Type of Drilling Fluid Invert

Operator

Company Extraction Oil & Gas

Address 1888 Sherman St., Suite 200
Denver, CO 80203










Geologist

Name Jared Rouse

Company Extraction Oil & Gas

Address 1888 Sherman St., Suite 200
Denver, CO 80203

Zone Color Coding

 Oil	 Condensate	 Gas
 Note	 Core	 Pressure
 Error	 Water	 Seal



Other

Equipment ML 197

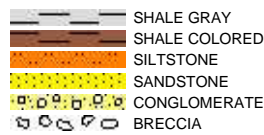
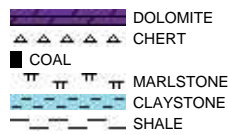
Comments Start: 9-11-15
TD: 9-15-15

Logger Names Stuart Henry Printz/ Nicholas Watkins

Services Provided 2-man Logging

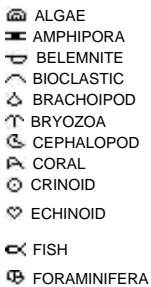
Address Empirica, LLC.
6360 W Sam Houston Pkwy N
Suite 100
Houston, TX 77041

Rock Types



Accessories

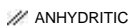
Fossils



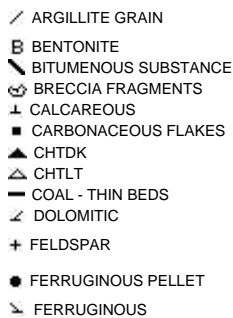
Fossil



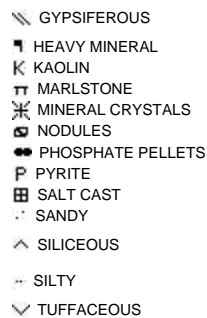
Minerals



Argillaceous



Glauconite

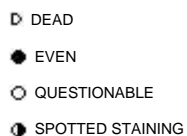


Stringer

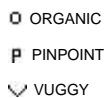
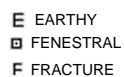


Other Symbols

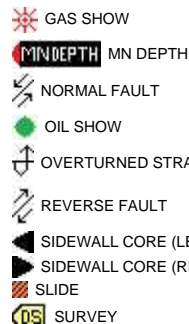
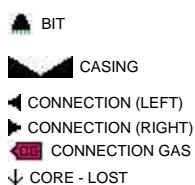
Oil Show



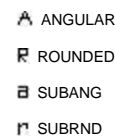
Porosity



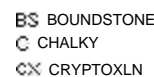
Engineering



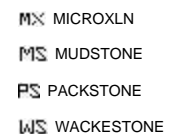
Rounding



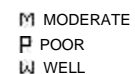
Textures



Lithographic



Sorting



✕ INTERCRYSTALLINE

◊ INTEROOLITIC

✂ MOLDIC

■ CORE - RECOVERED

⋮ DST INTERVAL

⚡ FAULT

🔧 TRIP GAS

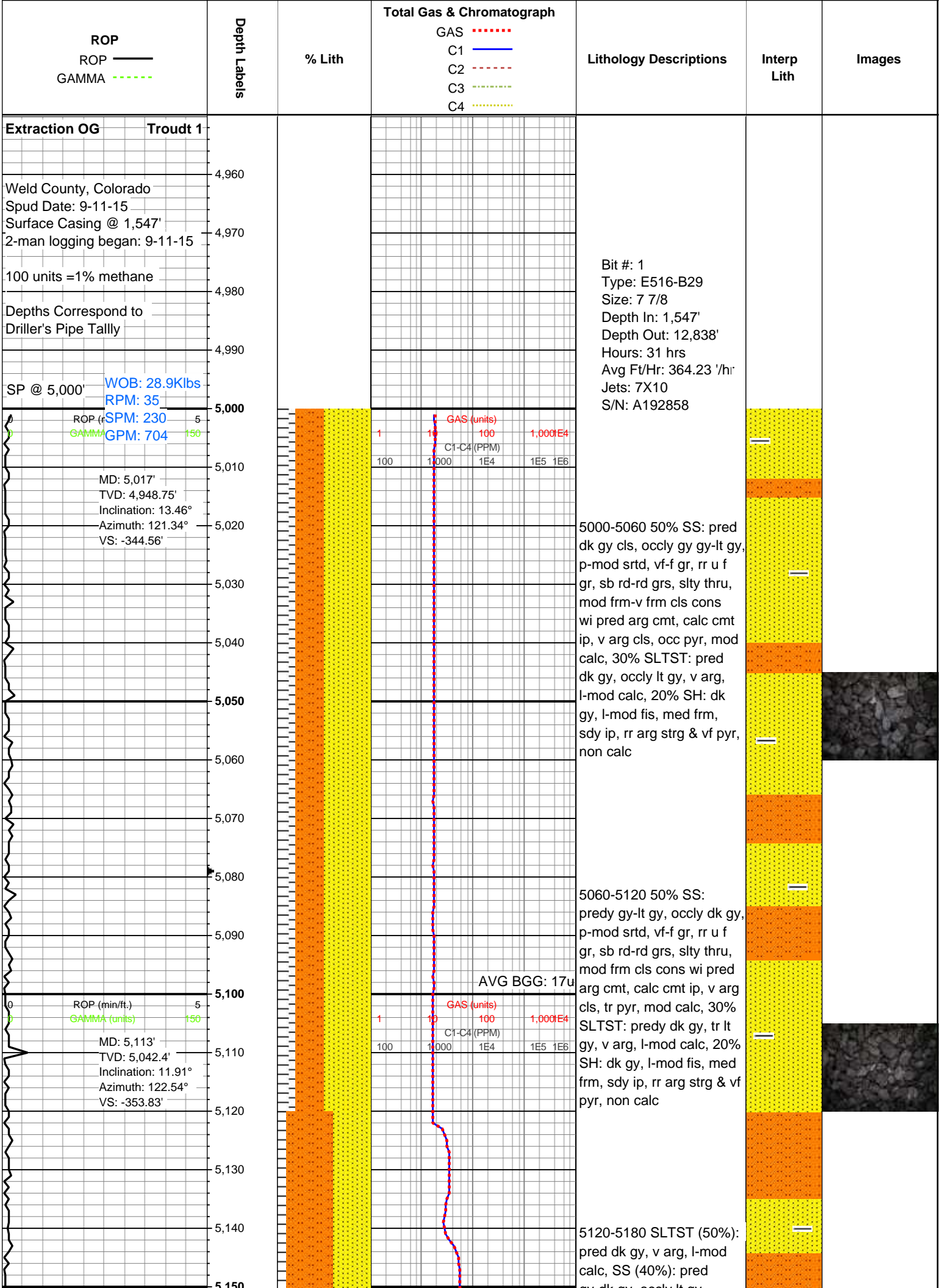
◀ WIRELINE TESTED - LEFT

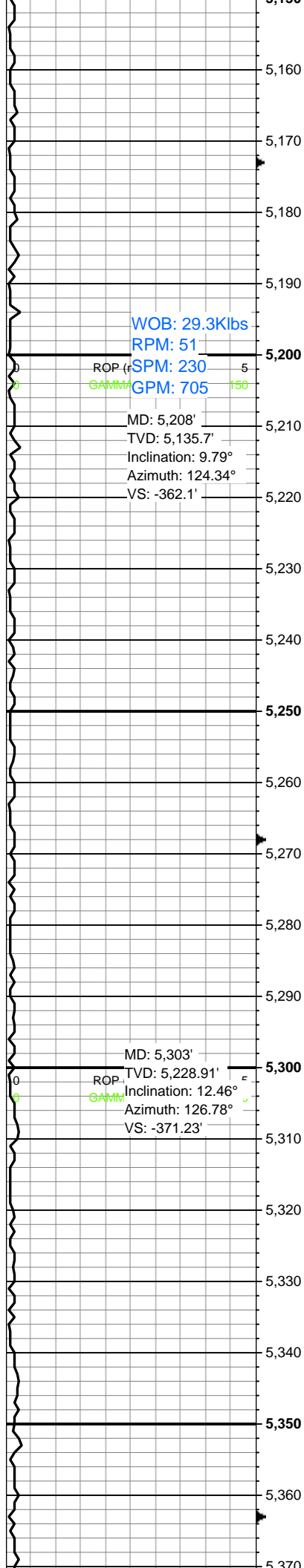
▶ WIRELINE TESTED - RT

E EARTHY

FX FINELYXLN

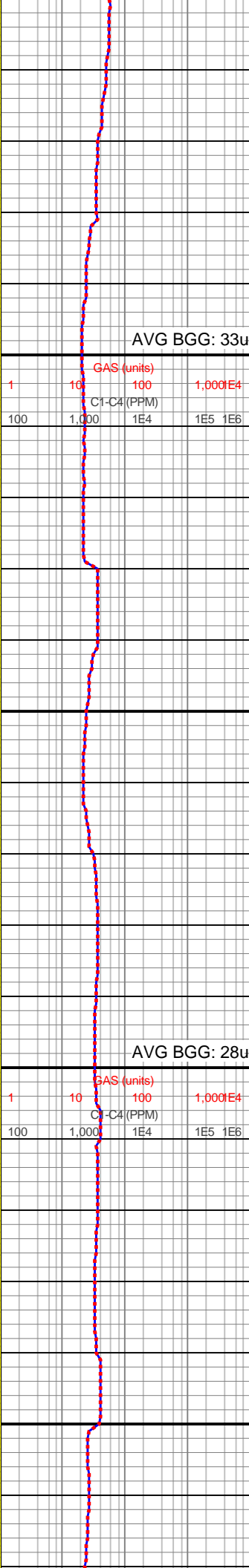
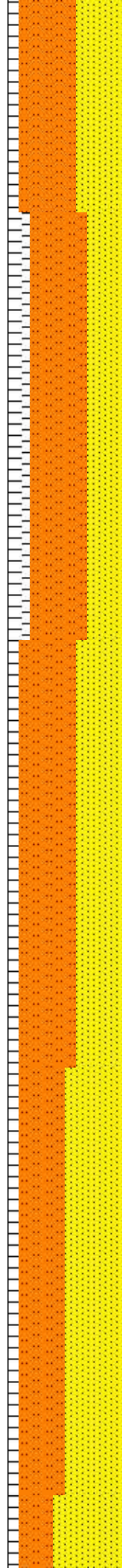
SS GRAINSTONE





WOB: 29.3Klbs
RPM: 51
SPM: 230
GPM: 705
MD: 5,208'
TVD: 5,135.7'
Inclination: 9.79°
Azimuth: 124.34°
VS: -362.1'

MD: 5,303'
TVD: 5,228.91'
Inclination: 12.46°
Azimuth: 126.78°
VS: -371.23'

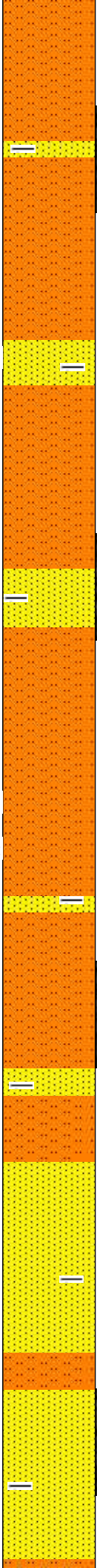


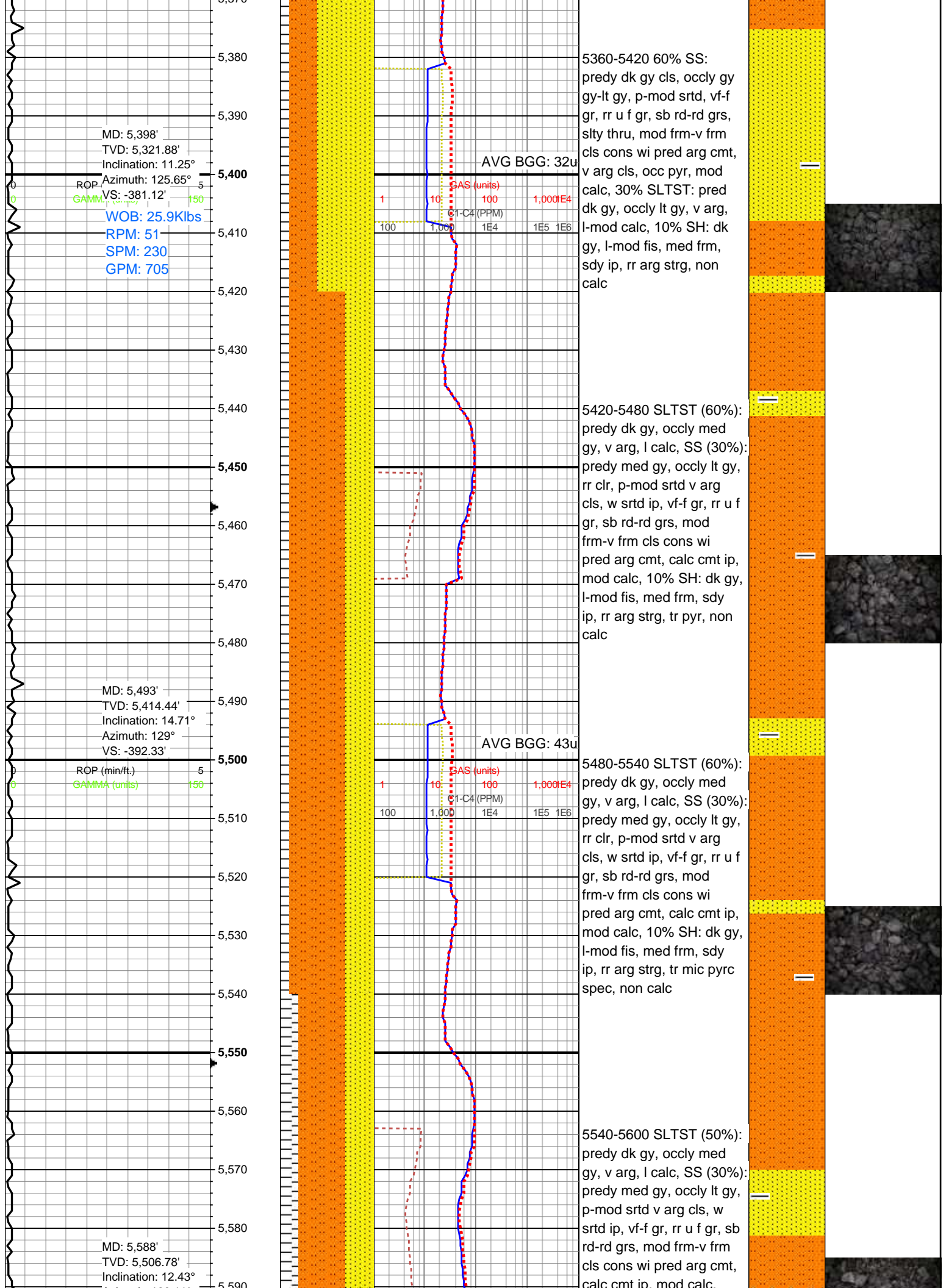
gy-dk gy, occly lt gy,
p-mod srted v arg cls, w
srted ip, vf-f gr, rr u f gr, sb
rd-rd grs, mod frm-v frm
cls cons wi pred arg cmt,
calc cmt ip, pyr strg ip,
mod calc, 10% SH: dk gy,
l-mod fis, med frm, sdy
ip, rr arg strg & vf pyr, non
calc

5180-5240 SLTST (50%):
pred dk gy, occly lt-med
gy, v arg, l-mod calc, SS
(30%): pred med gy,
occly lt gy, p-mod srted v
arg cls, w srted ip, vf-f gr, rr
u f gr, sb rd-rd grs, mod
frm-v frm cls cons wi
pred arg cmt, calc cmt ip,
pyr strg ip, mod calc,
20% SH: dk gy, l-mod fis,
med frm, sdy ip, rr arg
strg & vf pyr, non calc

5240-5300 SLTST (50%):
predy dk gy, occly lt-med
gy, v arg, l calc, SS (40%):
predy med gy, occly lt gy,
p-mod srted v arg cls, w
srted ip, vf-f gr, rr u f gr, sb
rd-rd grs, mod frm-v frm
cls cons wi pred arg cmt,
calc cmt ip, mod calc,
10% SH: dk gy, l-mod fis,
med frm, sdy ip, rr arg
strg & vf pyr, non calc

5300-5360 50% SS:
predy dk gy cls, occly gy
gy-lt gy, p-mod srted, vf-f
gr, rr u f gr, sb rd-rd grs,
sly thru, mod frm-v frm
cls cons wi pred arg cmt,
calc cmt ip, v arg cls, occ
pyr, mod calc, 40%
SLTST: pred dk gy, occly
lt gy, v arg, l-mod calc,
10% SH: dk gy, l-mod fis,
med frm, sdy ip, rr arg
strg & vf pyr, non calc





Azimuth: 128.11°
VS: -404.4'

WOB: 25.9Klbs
RPM: 52
SPM: 230
GPM: 704

ROP (ft/min)
GAMMA (units)

MD: 5,683'
TVD: 5,600.05'
Inclination: 9.42°
Azimuth: 130.81°
VS: -414.32'

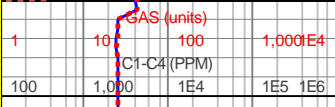
ROP (min/ft.)
GAMMA (units)

MD: 5,777'
TVD: 5,692.46'
Inclination: 11.62°
Azimuth: 131.53°
VS: -424.27'

WOB: 23.3Klbs
RPM: 51
SPM: 230
GPM: 706

ROP (ft/min)
GAMMA (units)

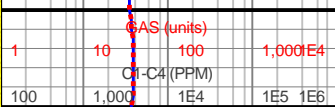
AVG BGG: 49u



calc cmt ip, mod calc,
20% SH: dk gy, l-mod fis,
med frm, sdy ip, rr arg
strg, tr pyr, non calc

5600-5660 SLTST (60%):
dk gy-med gy, v arg, l
calc, SS (30%): predy
med gy, occlt lt gy, rr clr,
p-mod srted v arg cls, w
srted ip, vf-f gr, rr u f gr, sb
rd-rd grs, mod frm-v frm
cls cons wi pred arg cmt,
calc cmt ip, mod calc,
10% SH: dk gy, l-mod fis,
med frm, sdy ip, rr arg
strg, tr mic pyrc spec, non
calc

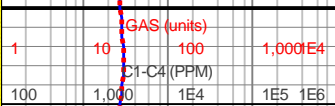
AVG BGG: 27u



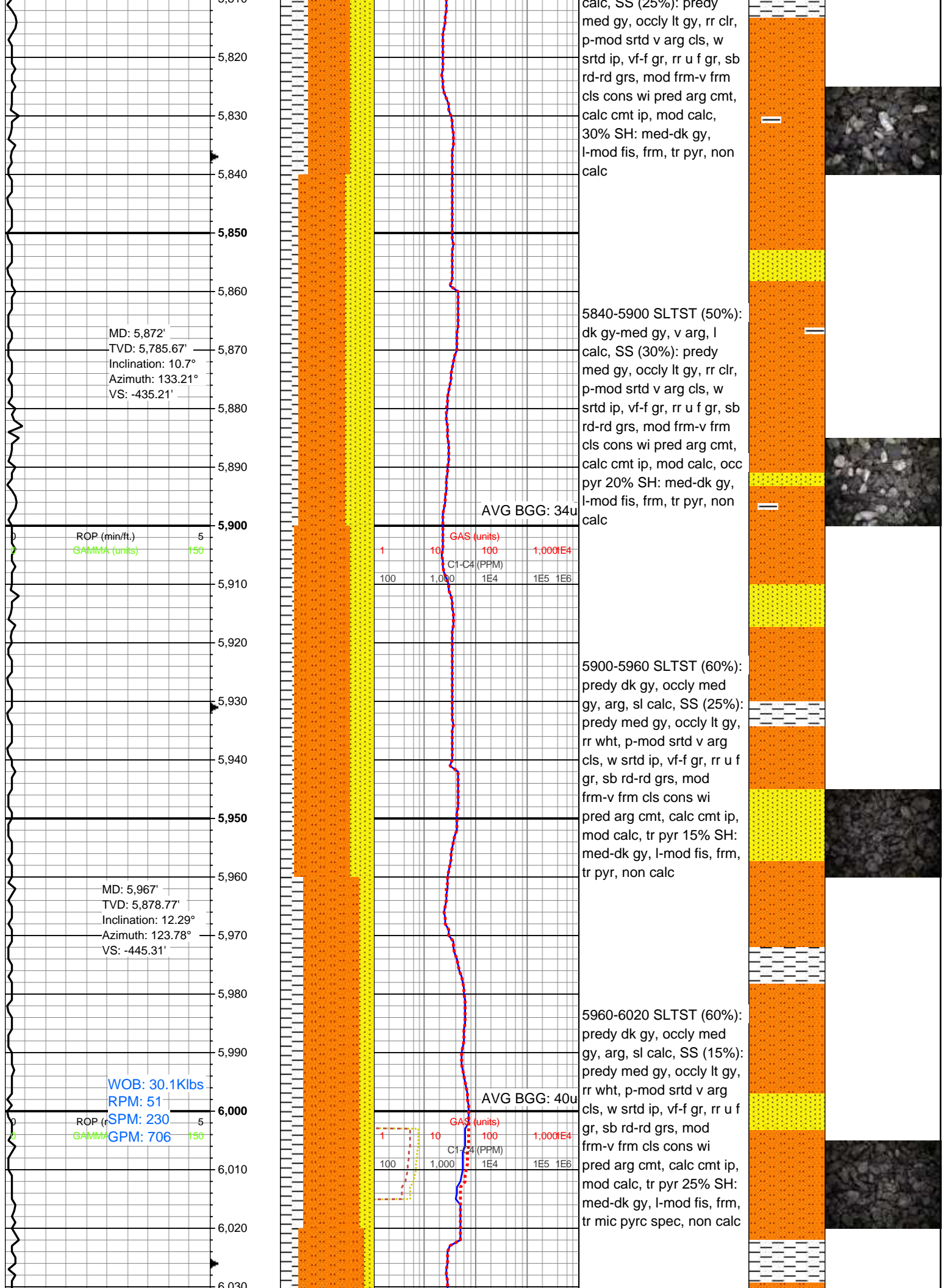
5660-5720 SLTST (50%):
dk gy-med gy, v arg, l
calc, SS (30%): predy
med gy, occlt lt gy, p-mod
srted v arg cls, w srted ip,
vf-f gr, rr u f gr, sb rd-rd
grs, mod frm-v frm cls
cons wi pred arg cmt,
calc cmt ip, mod calc, occ
pyr, 20% SH: dk gy, l-mod
fis, med frm, sdy ip, rr arg
strg, tr mic pyrc spec, non
calc

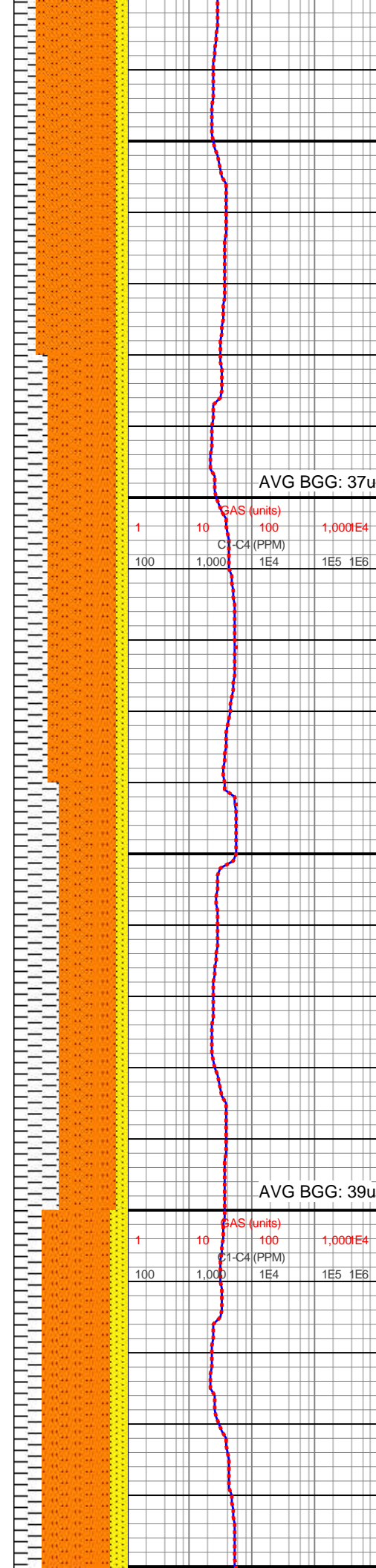
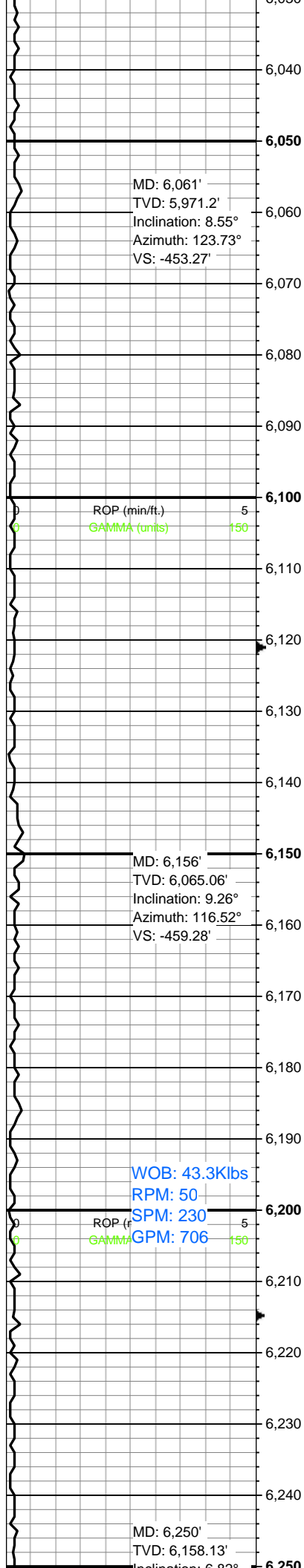
5720-5780 SLTST (50%):
dk gy-med gy, v arg, l
calc, SS (25%): predy
med gy, occlt lt gy, rr clr,
p-mod srted v arg cls, w
srted ip, vf-f gr, rr u f gr, sb
rd-rd grs, mod frm-v frm
cls cons wi pred arg cmt,
calc cmt ip, mod calc,
25% SH: med-dk gy,
l-mod fis, frm, tr mic pyrc
spec, non calc

AVG BGG: 36u



5780-5840 SLTST (45%):
dk gy-med gy, v arg, l
calc, SS (25%): predy
med gy, occlt lt gy, rr clr,
p-mod srted v arg cls, w
srted ip, vf-f gr, rr u f gr, sb
rd-rd grs, mod frm-v frm
cls cons wi pred arg cmt,
calc cmt ip, mod calc,
25% SH: med-dk gy,
l-mod fis, frm, tr mic pyrc
spec, non calc



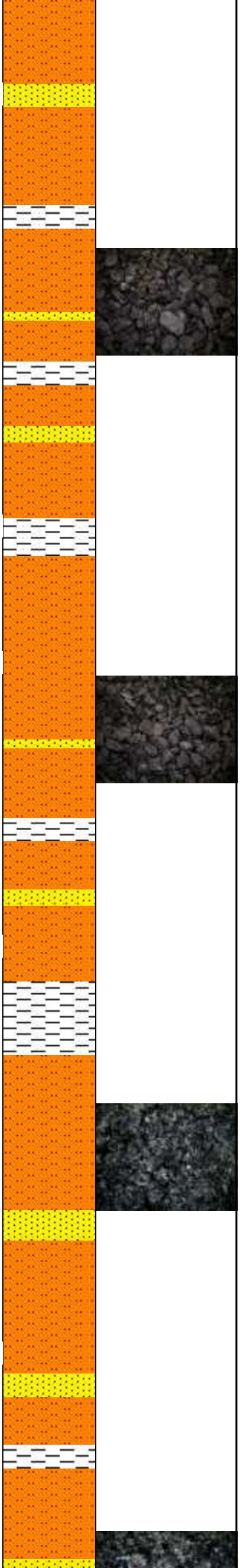


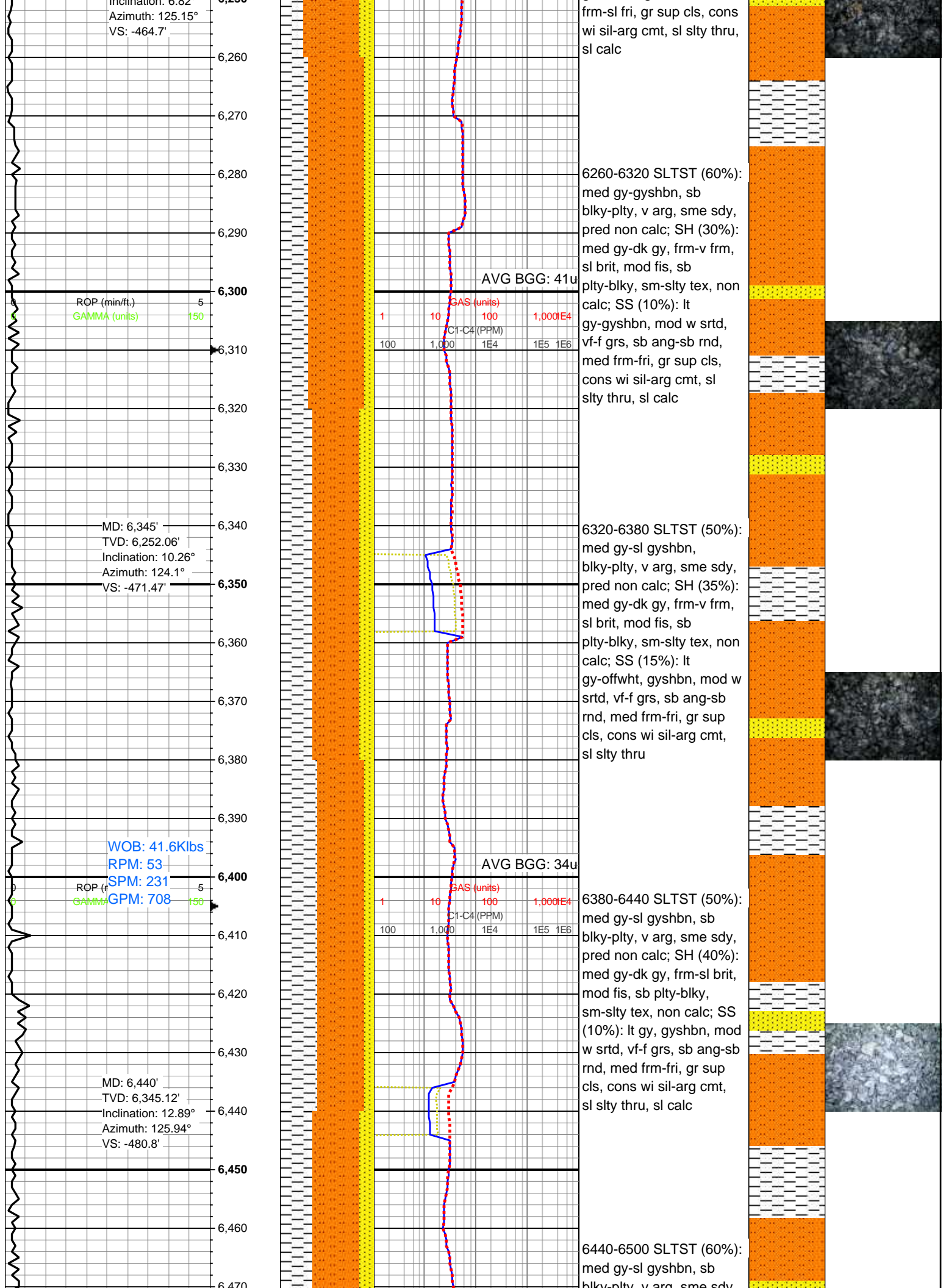
6020-6080 SLTST (70%):
predy dk gy, occlly med
gy, arg, sl calc, SS (10%):
predy med gy, occlly lt gy,
rr wht, p-mod srtd v arg
cls, w srtd ip, vf-f gr, rr u f
gr, sb rd-rd grs, mod frm
cls cons wi pred arg cmt,
calc cmt ip, mod calc, tr
pyr 20% SH: med-dk gy,
l-mod fis, frm, tr mic pyrc
spec, non calc

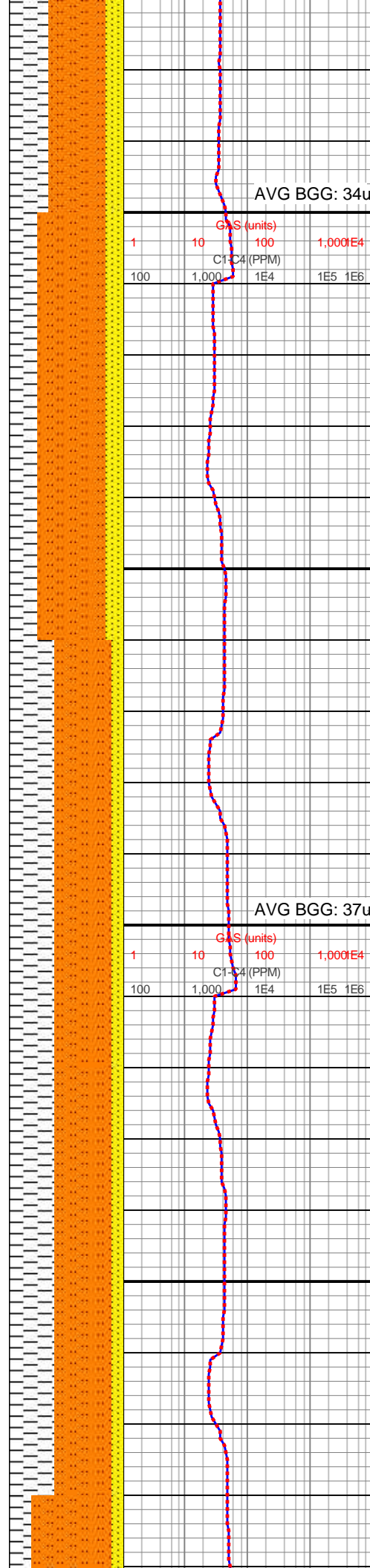
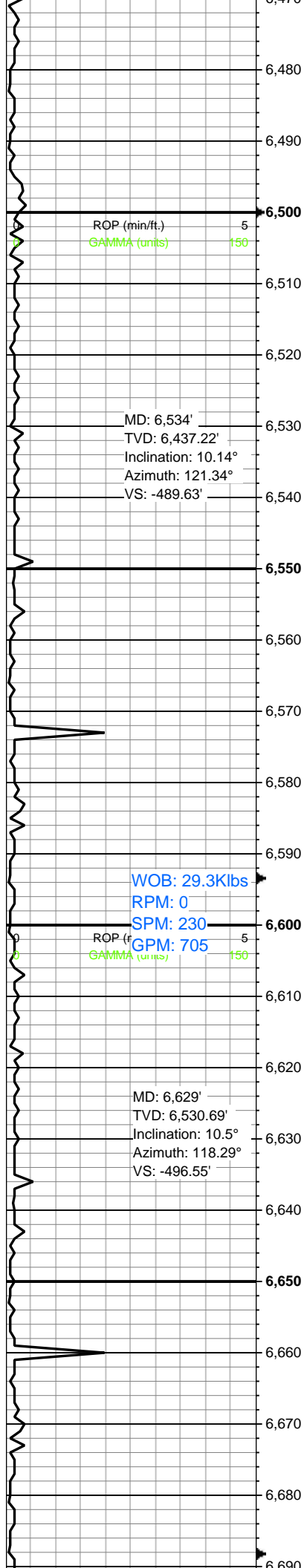
6080-6140 SLTST (60%):
predy dk gy, occlly med
gy, arg, sl calc, SS (10%):
predy med gy, occlly lt gy,
rr wht, p-mod srtd v arg
cls, mod w srtd ip, vf-f gr,
rr u f gr, sb rd-rd grs, mod
frm-frm cls cons wi pred
arg cmt, calc cmt ip, mod
calc, tr pyr 30% SH:
med-dk gy, l-mod fis, frm,
non calc

6140-6200 SLTST (50%):
med gy-gyshbn, blkly-pty,
v arg, sl sdy, pred non
calc; SH (40%): med
gy-dk gy, frm, sl brit, mod
fis, sb pty-blky, sm-sltly
tex, non calc; SS (10%): lt
gy-offwht, gyshbn, mod w
srtd, vf-f grs, sb ang-sb
rnd, med frm-fri, gr sup
cls, cons wi sil-arg cmt,
sl slty thru, sl calc

6200-6260 SLTST (60%):
med gy-gyshbn, blkly-pty,
v arg, sl sdy, pred non
calc; SH (25%): med
gy-dk gy, frm-v frm, sl brit,
mod fis, sb pty-blky,
sm-sltly tex, non calc; SS
(15%): lt gy-offwht,
gyshbn, mod w srtd, vf-f
grs, sb ang-sb rnd, med





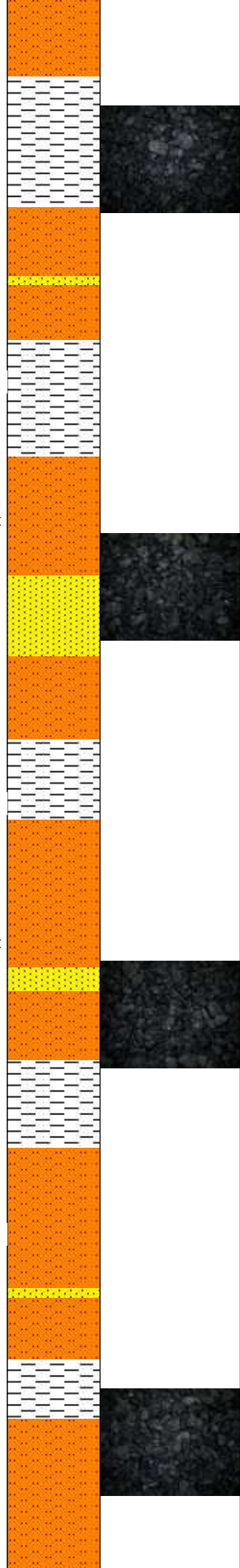


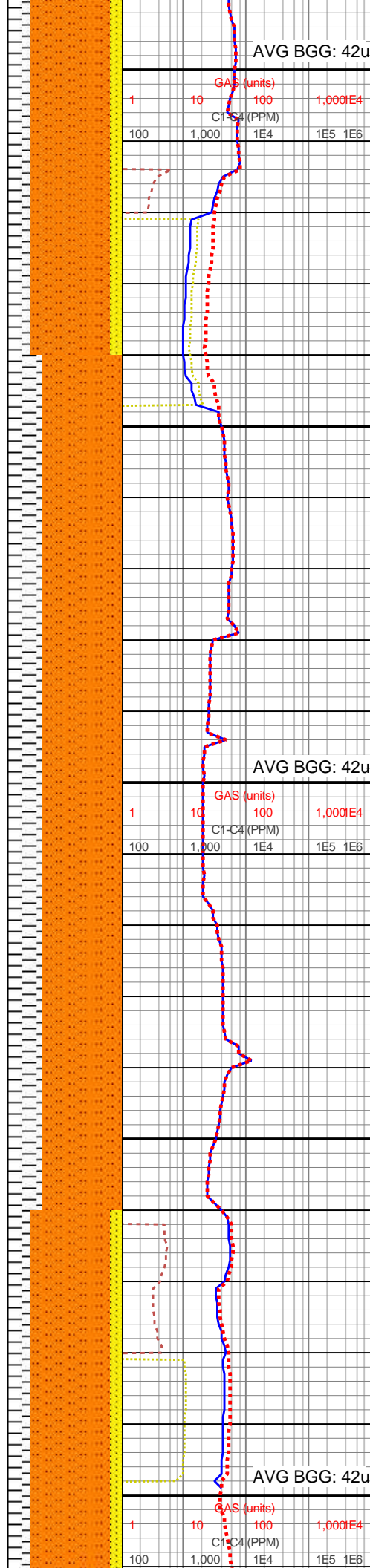
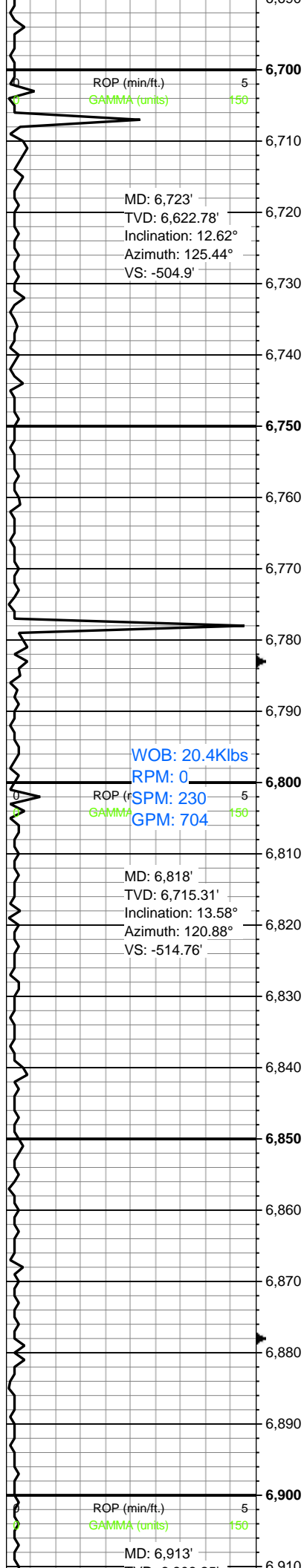
dky-pty, v arg, sme sdy,
pred non calc; SH (35%):
med gy-dk gy, frm-sl brit,
mod fis, sb plty-blky,
sm-sltly tex, non calc; SS
(5%): lt gy, gyshbn, mod
w srtd, vf-f grs, sb ang-sb
rnd, med frm-fri, gr sup
cls, cons wi sil-arg cmt,
sl slty thru, sl calc

6500-6560 SLTST (60%):
med gy-dk gy, blky-pty, v
arg, sme sdy, pred non
calc; SH (25%): med
gy-dk gy, frm-sl brit, mod
fis, sb plty-blky, sm-sltly
tex, non calc; SS (15%): lt
gy, gyshbn, mod w srtd,
vf-f grs, sb ang-sb rnd,
med frm-fri, gr sup cls,
cons wi sil-arg cmt, sl
slty thru, sl calc, tr pyr

6560-6620 SLTST (50%):
med gy-dk gy, blky-pty, v
arg, sme sdy, pred non
calc; SH (40%): med
gy-dk gy, frm-sl brit, mod
fis, sb plty-blky, sm-sltly
tex, non calc; SS (10%): lt
gy, gyshbn, mod w srtd,
vf-f grs, sb ang-sb rnd,
med frm-fri, gr sup cls,
cons wi sil-arg cmt, sl
slty thru, sl calc

6620-6680 SLTST (50%):
dk gy, blky-sb plty, arg, sl
sdy, pred non calc; SH
(40%): med gy-dk gy,
frm-sl brit, mod fis, sb
plty-sb blky, sm-sltly tex,
non calc, occ pyr; SS
(10%): lt gy, gyshbn, mod
w srtd, vf-f grs, sb ang-sb
rnd, med frm-fri, gr sup
cls, cons wi sil-arg cmt,
sl slty thru, sl calc



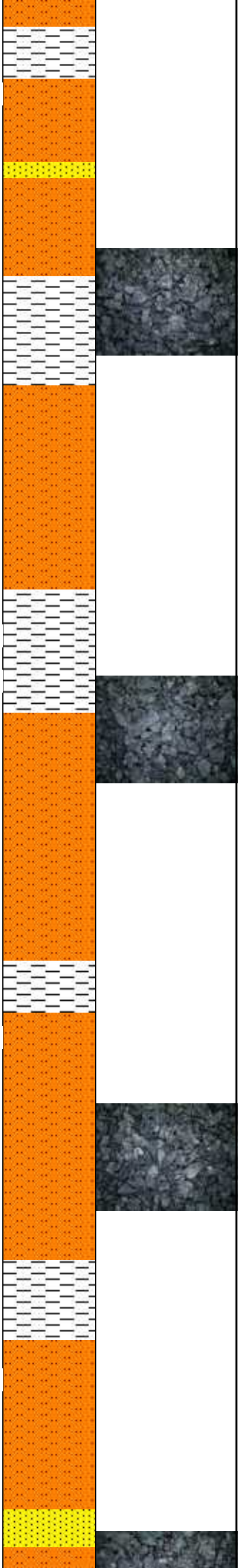


6680-6740 SLTST (70%):
dk gy, blkysb plty, arg, sl
sdy, pred non calc; SH
(20%): med gy-dk gy,
frm-sl brit, mod fis, sb
plty-sb blkys, sm-sltly tex,
non calc, occ pyr; SS
(10%): lt gy, gyshbn, mod
w srted, vf-f grs, sb ang-sb
rnd, med frm-fri, gr sup
cls, cons wi sil-arg cmt,
sl slty thru, sl calc

6740-6800 SLTST (70%):
med-dk gy, blkysb plty,
arg, sl sdy, pred non calc;
SH (30%): med gy-dk gy,
sl frm-sl brit, mod fis, sb
plty-sb blkys, sm-sltly tex,
non calc; tr ss

6800-6860 SLTST (70%):
dk gy, blkysb plty, arg, sl
sdy, pred non calc, sme
lam & stri; SH (30%):
med gy-dk gy, frm-sl brit,
mod fis, sb plty-sb blkys,
sm-sltly tex, non calc, occ
pyr; tr ss

6860-6920 SLTST (70%):
dk gy, blkysb plty, arg, sl
sdy, pred non calc; SH
(20%): med gy-dk gy,
frm-sl brit, mod fis, sb
plty-sb blkys, sm-sltly tex,
non calc, sl stri; SS
(10%): lt gy, gyshbn, mod
w srted, vf-f grs, sb ang-sb



TVD: 6,808.25'
Inclination: 10.34°
Azimuth: 110.39°
VS: -607.29'

WOB: 7.6Klbs
RPM: 0
SPM: 190
GPM: 582

ROP MD: 7,007'
TVD: 6,899.27'
Inclination: 18.36°
Azimuth: 95.16°
VS: -611.57'

ROP (min/ft.)
GAMMA (units)

GAS (units)				
1	10	100	1,000	1E4
C1-C4 (PPM)				
100	1,000	1E4	1E5	1E6

GAS (units)				
1	10	100	1,000	1E4
C1-C4 (PPM)				
100	1,000	1E4	1E5	1E6

rd, med frm-fri, gr sup
cls, cons wi sil-arg cmt,
sl slty thru, sl calc

6920-6980 SLTST (60%):
predy dk gy, occly med-lt
gy, blkly-plty, arg, sl sdy,
pred non calc, occly mot;
SH (40%): med gy-dk gy,
frm-sl brit, mod fis, sb
plty-sb blkly, sm-slty tex,
non calc, sl stri; tr ss

6980-7040 SH (60%):
med gy-dk gy, frm-sl brit,
mod fis, sb plty, sm-slty
tex, non calc, sl stri;
SLTST (40%): dk gy,
blkly-plty, arg, sl sdy, pred
non calc, occly mot; tr ss

7040-7100 SLTST (50%):
dk gy, blkly-plty, arg, sl
sdy, pred non calc, occly
mot; SH (50%): med
gy-dk gy, frm-sl brit, mod
fis, sb plty-sb blkly,
sm-slty tex, non calc, sl
stri-lam; tr ss

*Continued on
horizontal log*

