

Scale: 5" / 100'
Measured Depth Log

Well Name Diamond Valley East 3

Location Diamond Valley East Pad Sec.23-T6N-R67W

State Colorado

County Weld

Country USA

Rig Number Frontier 10

API Number 05-123-38500-00

Region DJ Basin

Field Wattenberg

Surface Coordinates Lat: 40.46749
Long: -104.86981

SHL: 832'FSL, 155'FWL, Sec.23

Bottom Hole Coordinates BHL: 495'FSL, 460'FWL, Sec.21

Ground Elevation 4,769'

K.B. Elevation 4,791'

Logged Interval 5,000' **To** TBD

Total Depth TBD

Formation Niobrara B Chalk

Type of Drilling Fluid Fresh Water

Operator

Company Extraction Oil and Gas

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

Geologist

Name Dominic Pitre / Colin Ahearn

Company ALS Empirica

Address 6741 Satsuma Dr.
Houston, TX 77041
(713)-466-7400

Other

Equipment ML 402

Comments

Start Date: 8-08-14 (curve), xx-xx-xx (Lateral)
 Standby: 8-08-14
 TD: xx-xx-xx (Curve), xx-xx-xx (Lateral)
 Release: TBD

Rock Types

UNKNOWN	DOLOMITE	SHALE GRAY	TILL
ANHYDRITE	CHERT	SHALE COLORED	BENTONITE
GYPSUM	COAL	SILTSTONE	TUFF
SALT	MARLSTONE	SANDSTONE	IGNEOUS
SIDERITE or LIMONITE	CLAYSTONE	CONGLOMERATE	METAMORPHIC
LIMESTONE	SHALE	BRECCIA	CEMENT

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

F FOSSIL

- GASTROPOD
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID

Minerals

- ANHYDRITIC

ARGILLACEOUS

- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLETT
- FERRUGINOUS

GLAUCONITE

- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY
- TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOL) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- EARTHY
- FENESTRAL
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC
- MOLDIC

ORGANIC

- PINPOINT
- VUGGY

Engineering

- BIT
- CASING
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL
- FAULT

FORMATION TOP

- GAS SHOW
- MN DEPTH
- NORMAL FAULT
- OIL SHOW
- OVERTURNED STRATA
- REVERSE FAULT
- SIDEWALL CORE (LEFT)
- SIDEWALL CORE (RIGHT)
- SLIDE
- SURVEY
- TRIP GAS
- WIRELINE TESTED - LEFT
- WIRELINE TESTED - RT

Rounding

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

Textures

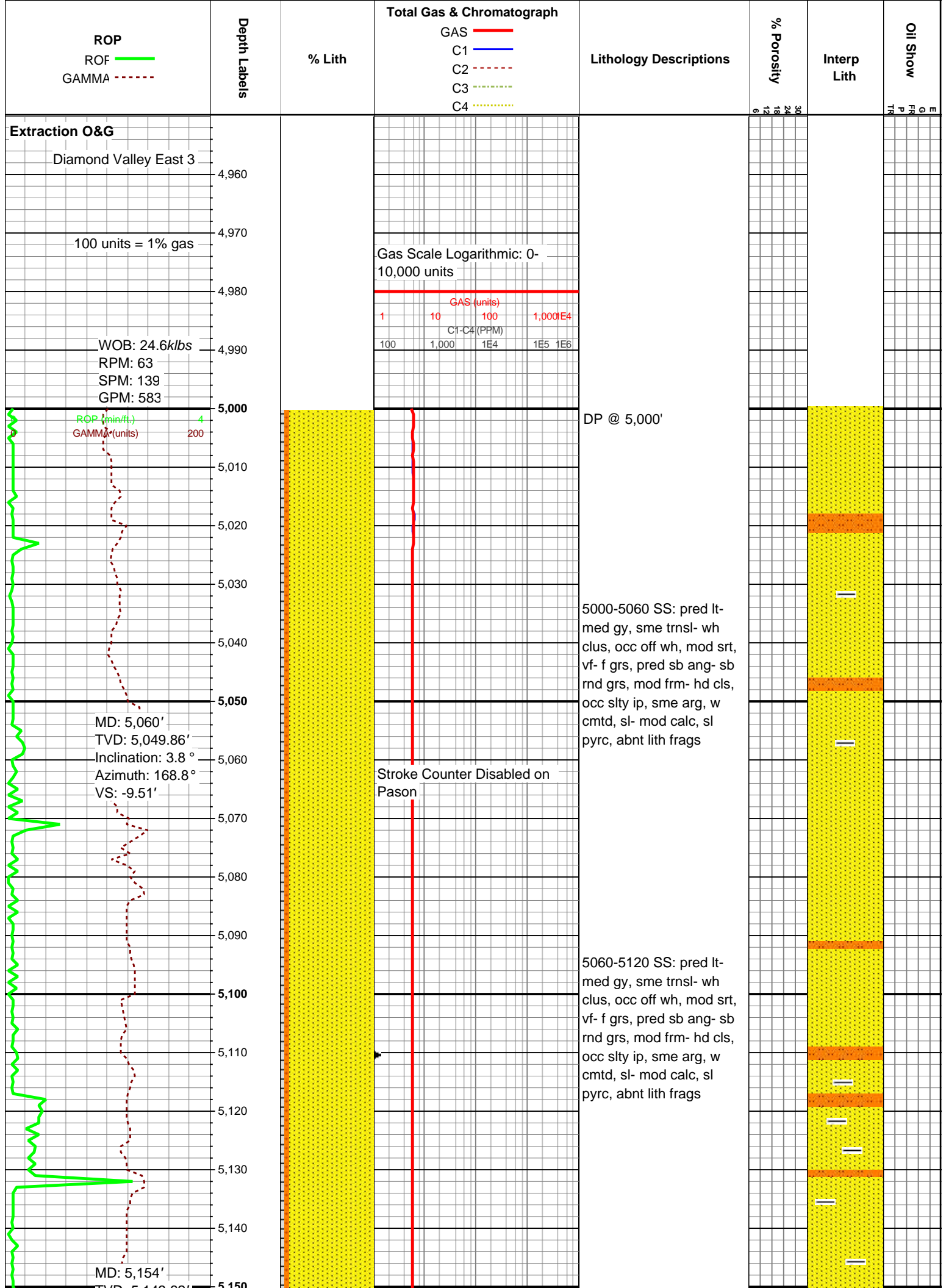
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE

L LITHOGRAPHIC

- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Sorting

- MODERATE
- POOR
- WELL



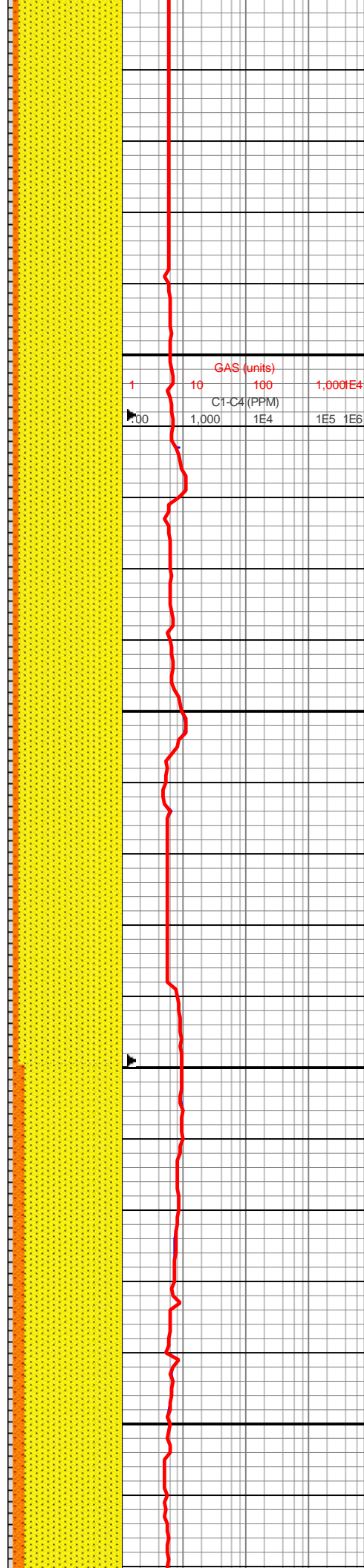
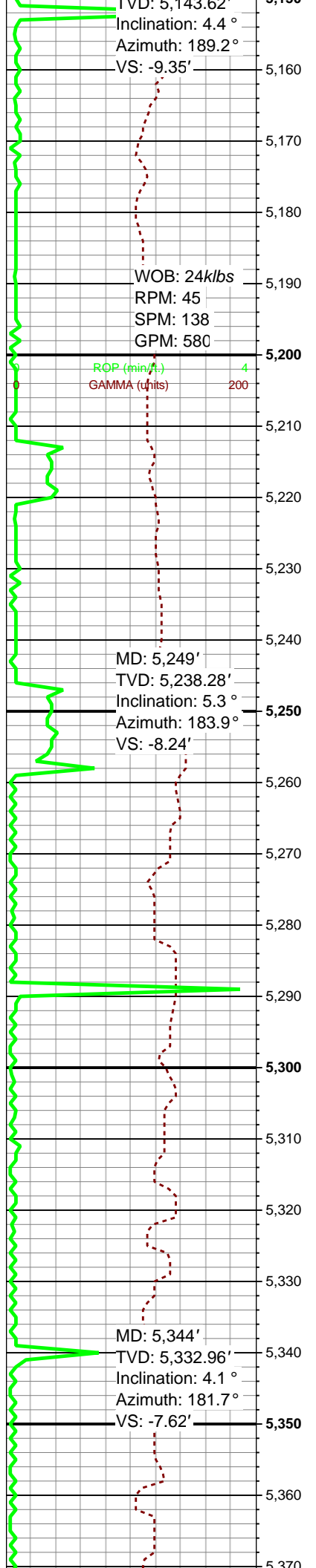
TVD: 5,143.62'
Inclination: 4.4°
Azimuth: 189.2°
VS: -9.35'

WOB: 24klbs
RPM: 45
SPM: 138
GPM: 580

ROP (min/ft) 4
GAMMA (units) 200

MD: 5,249'
TVD: 5,238.28'
Inclination: 5.3°
Azimuth: 183.9°
VS: -8.24'

MD: 5,344'
TVD: 5,332.96'
Inclination: 4.1°
Azimuth: 181.7°
VS: -7.62'

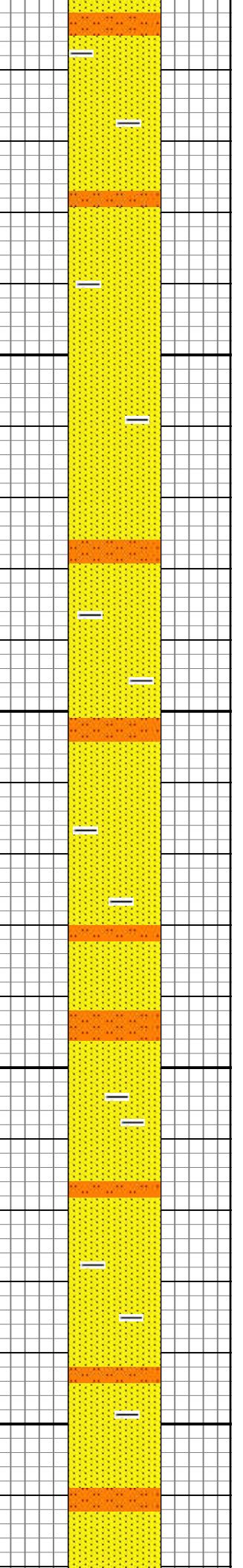


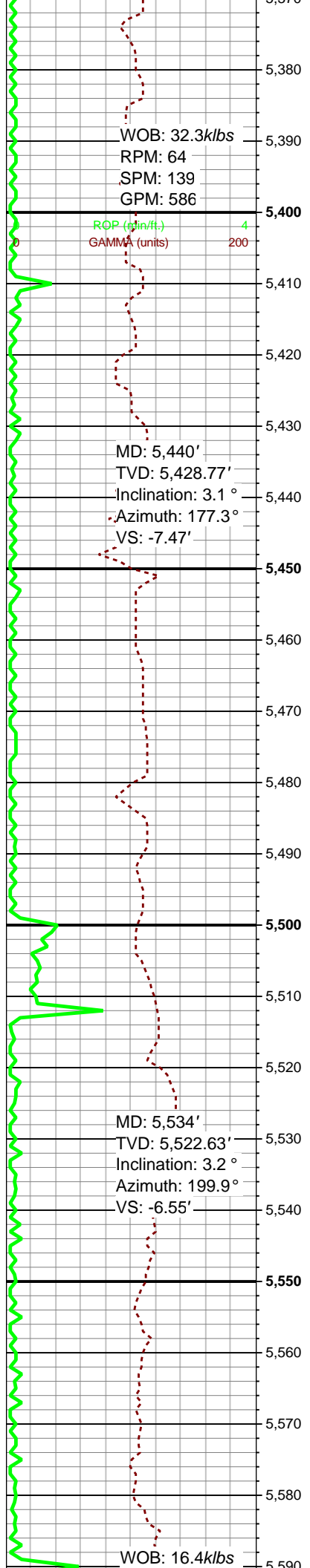
5120-5180 SS: pred lt-med gy, sme trnsl- wh clus, occ off wh, mod srt, vf- f grs, pred sb ang- sb rnd grs, mod frm- hd cls, occ slty ip, sme arg, w cmt, sl- mod calc, sl pyrc, abnt lith frags

5180-5240 SS: med gy-gy, occ trnsl- wh clus, occ off wh, mod srt, vf- u f grs, pred sb ang- sb rnd grs, mod frm- hd cls, occ slty ip, sme arg, w cmt, sl- mod calc, occ pyr, abnt lith frags

5240-5300 SS: med gy-gy, occ trnsl- wh clus, occ off wh, mod srt, vf- u f grs, pred sb ang- sb rnd grs, mod frm- hd cls, occ slty ip, sme arg, w cmt, sl- mod calc, occ pyr, abnt lith frags

5300-5360 SS: med gy-gy, occ trnsl- wh clus, occ off wh, mod srt, vf- u f grs, pred sb ang- sb rnd grs, mod frm- hd cls, occ slty ip, sme arg, w cmt, sl- mod calc, occ pyr, abnt lith frags



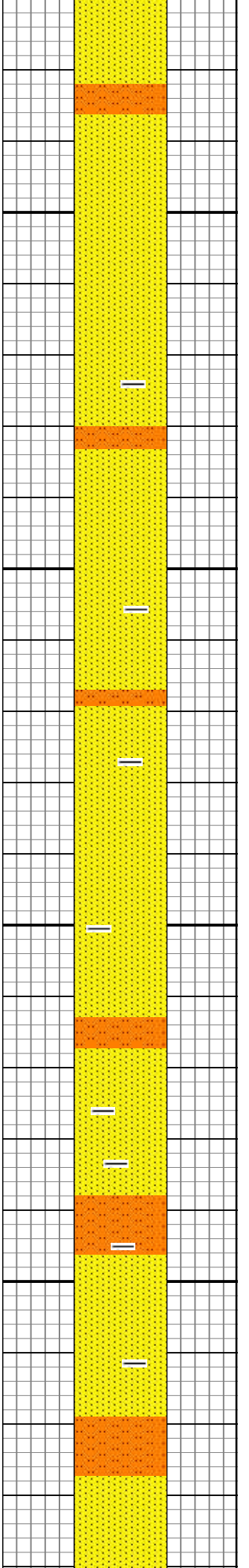


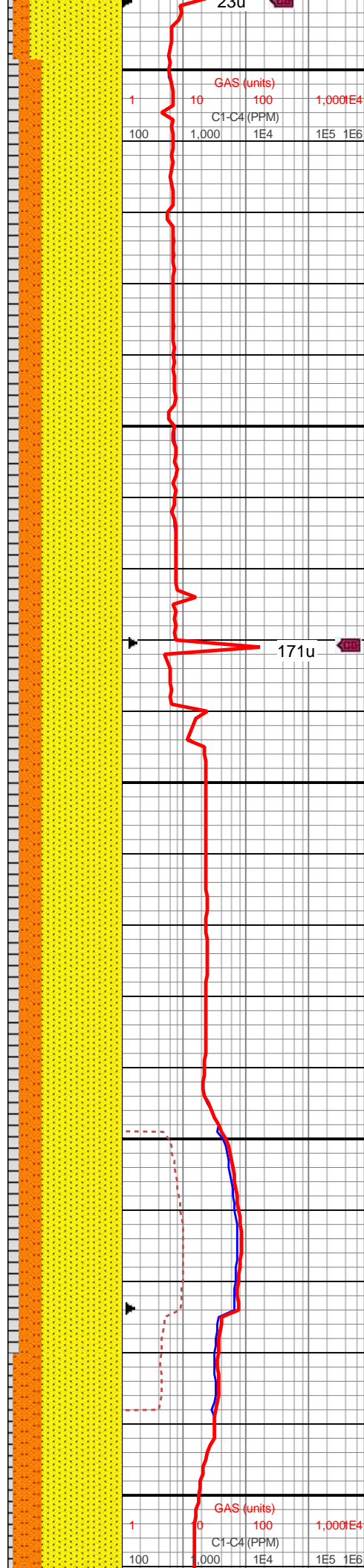
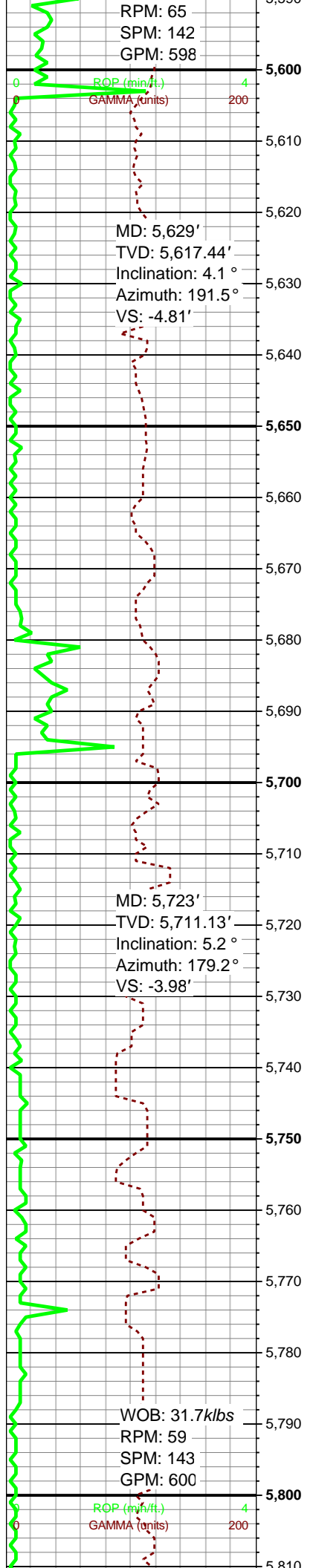
5360-5420 SS: med gy-gy, occ trnsl- wh clus, occ off wh, mod srt, vf- u f grs, pred sb ang- sb rnd grs, mod frm- hd cls, occ slty ip, sme arg, w cmtd, sl- mod calc, occ pyr, abnt lith frags

5420-5480 SS: med gy-gy, occ trnsl- wh clus, occ off wh, mod- p srt, vf- u f ss grs, ip intbd w sltst- sh, pred sb ang- sb rnd grs, mod frm- hd cls, occ slty ip, sme arg, w cmtd, sl- mod calc, occ pyr, rr fe stn, abnt lith frags

5480-5540 SS: med gy-gy, occ trnsl- wh clus, occ off wh, mod- p srt, vf- u f ss grs, ip intbd w sltst- sh, pred sb ang- sb rnd grs, mod frm- hd cls, occ slty ip, sme arg, w cmtd, sl- mod calc, occ pyr, rr fe stn, abnt lith frags

5540-5600 SLTY SS: med gy- gy, occ trnsl- wh clus, occ off wh, mod- p srt, vf- u f ss grs, ip intbd w sltst- sh, pred sb ang- sb rnd grs, mod frm- hd cls, bcm abnt slty- arg, ip





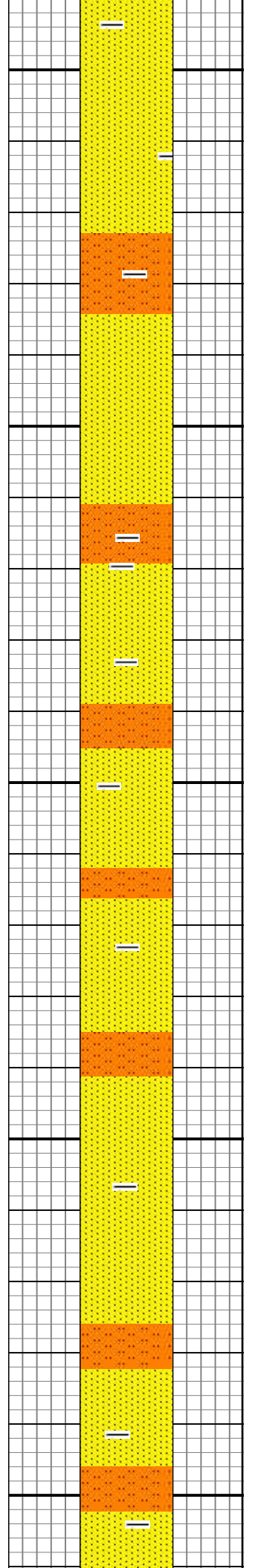
sltst, w cmtd, sl- mod calc, occ pyr, rr fe stn, abnt lith frags

560-5660 SLTY SS: med gy- gy, occ trnsl- wh clus, occ off wh, mod- p srt, vf- u f ss grs, ip intbd w sltst- sh, pred sb ang- sb rnd grs, mod frm- hd cls, bcm abnt slty- arg, ip sltst, w cmtd, sl- mod calc, occ pyr, rr fe stn, abnt lith

5660-5720 SLTY SS: med gy- gy, occ trnsl- wh clus, occ off wh, mod- p srt, pred vf ss grs, occ f ss grs, pred sb ang- sb rnd grs, pred intbd w sb ply sltst- sh, mod frm- hd cls, bcm abnt slty- arg, ip sltst, w cmtd, sl- mod calc, occ pyr, abnt lith frag

5720-5780 SLTY SS: med gy- gy, occ trnsl- wh clus, occ off wh, mod- p srt, pred vf ss grs, occ f ss grs, pred sb ang- sb rnd grs, pred intbd w sb ply sltst- sh, mod frm- hd cls, bcm abnt slty- arg, ip sltst, w cmtd, sl- mod calc, occ pyr, abnt lith frag

5780-5840 SLTY SS: med gy- gy, occ trnsl- wh



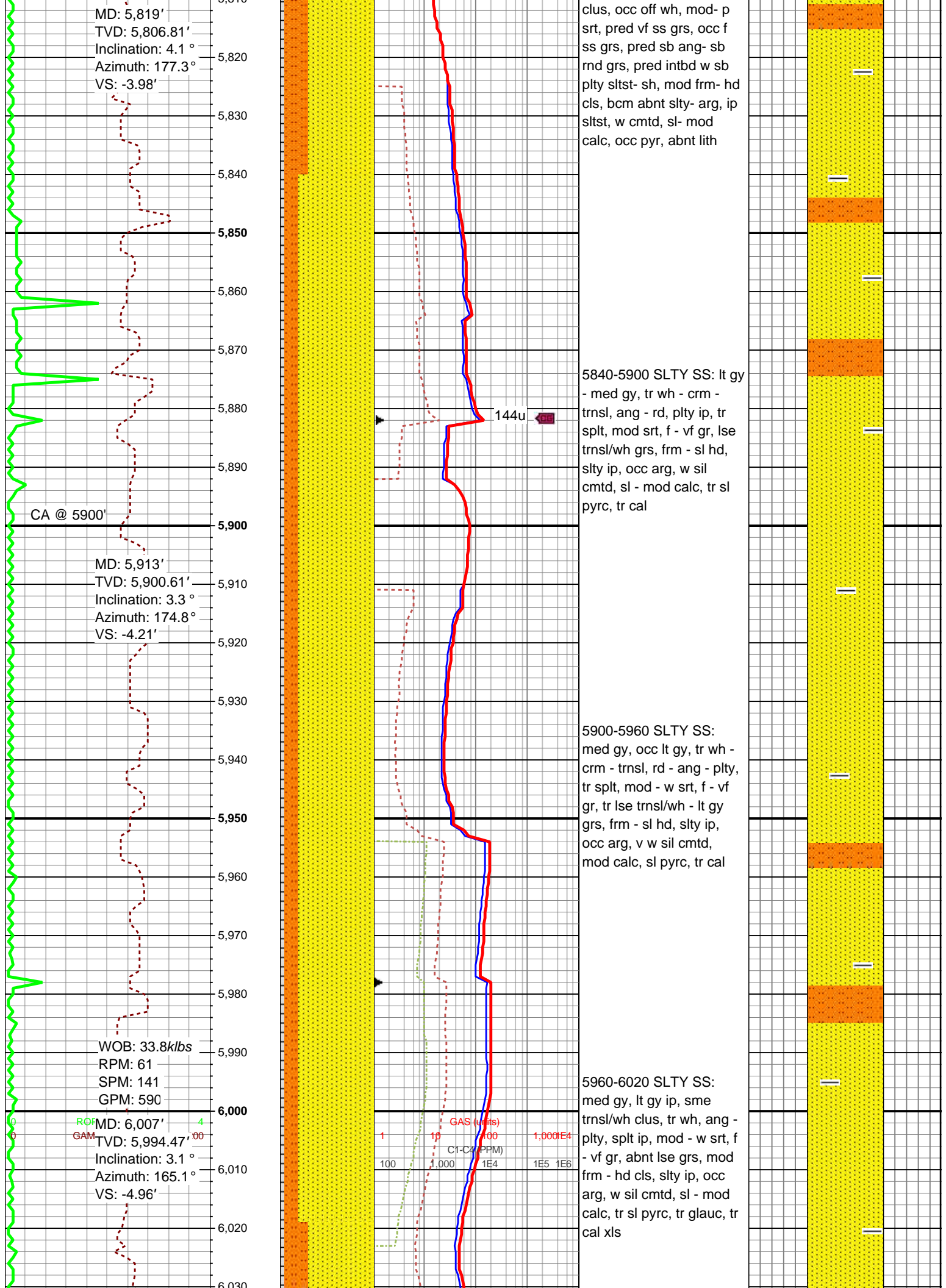
MD: 5,819'
TVD: 5,806.81'
Inclination: 4.1°
Azimuth: 177.3°
VS: -3.98'

CA @ 5900'

MD: 5,913'
TVD: 5,900.61'
Inclination: 3.3°
Azimuth: 174.8°
VS: -4.21'

WOB: 33.8klbs
RPM: 61
SPM: 141
GPM: 590

ROF: 4
GAM: 0
MD: 6,007'
TVD: 5,994.47'
Inclination: 3.1°
Azimuth: 165.1°
VS: -4.96'

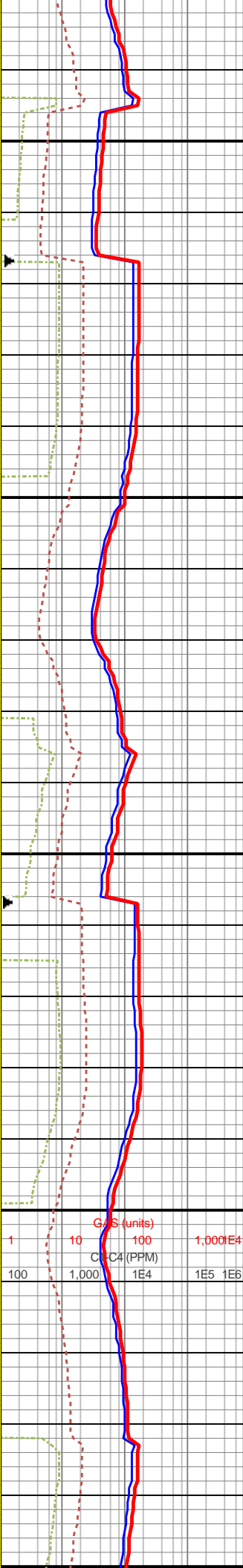
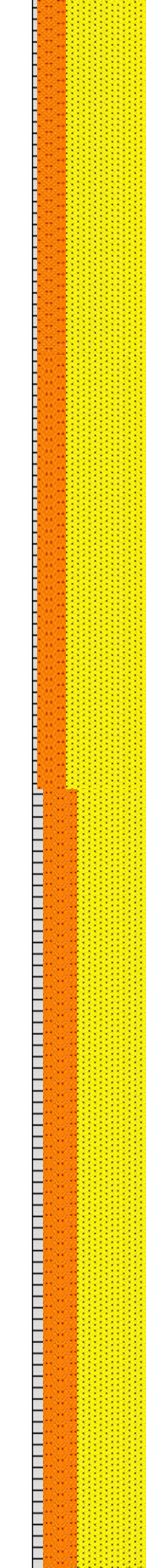
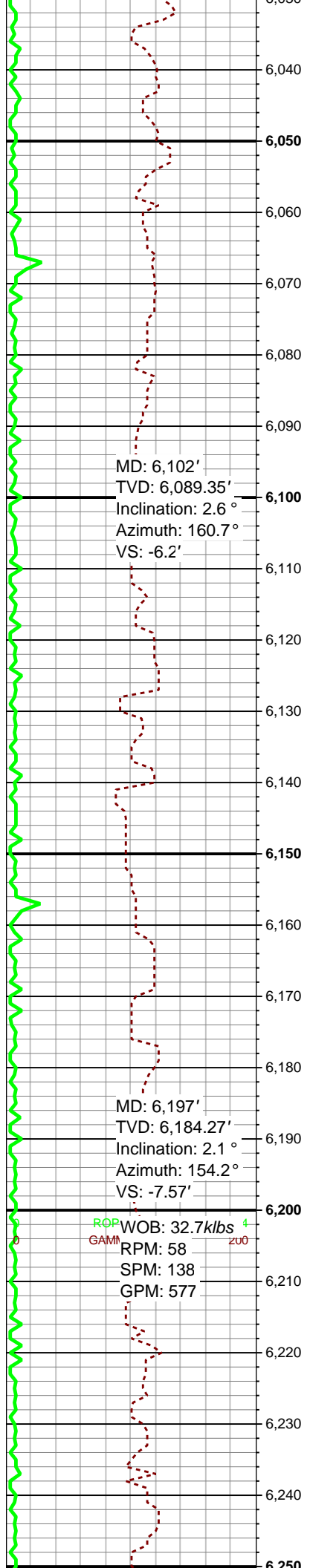


clus, occ off wh, mod - p
srt, pred vf ss grs, occ f
ss grs, pred sb ang- sb
rnd grs, pred intbd w sb
pty sltst- sh, mod frm- hd
cls, bcm abnt slty- arg, ip
sltst, w cmtd, sl- mod
calc, occ pyr, abnt lith

5840-5900 SLTY SS: lt gy
- med gy, tr wh - crm -
trns, ang - rd, pty ip, tr
splt, mod srt, f - vf gr, lse
trns/wh grs, frm - sl hd,
sly ip, occ arg, w sil
cmtd, sl - mod calc, tr sl
pyrc, tr cal

5900-5960 SLTY SS:
med gy, occ lt gy, tr wh -
crm - trns, rd - ang - pty,
tr splt, mod - w srt, f - vf
gr, tr lse trns/wh - lt gy
grs, frm - sl hd, sly ip,
occ arg, v w sil cmtd,
mod calc, sl pyrc, tr cal

5960-6020 SLTY SS:
med gy, lt gy ip, sme
trns/wh clus, tr wh, ang -
pty, splt ip, mod - w srt, f
- vf gr, abnt lse grs, mod
frm - hd cls, sly ip, occ
arg, w sil cmtd, sl - mod
calc, tr sl pyrc, tr glauc, tr
cal xls

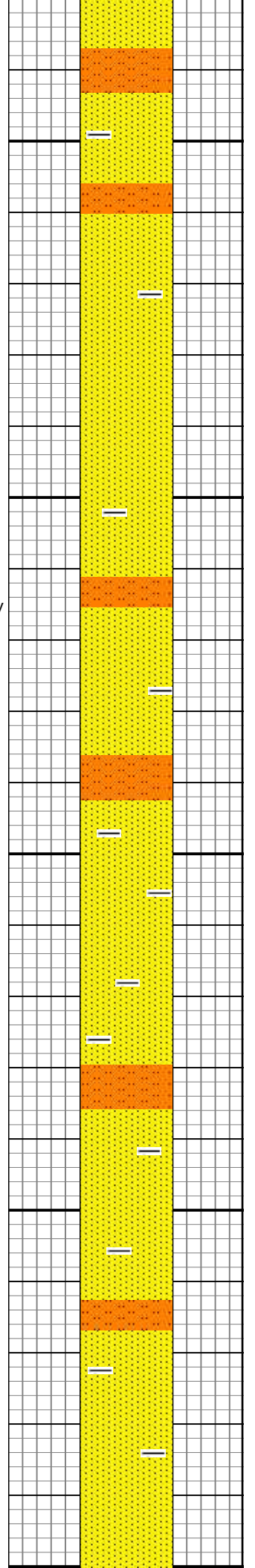


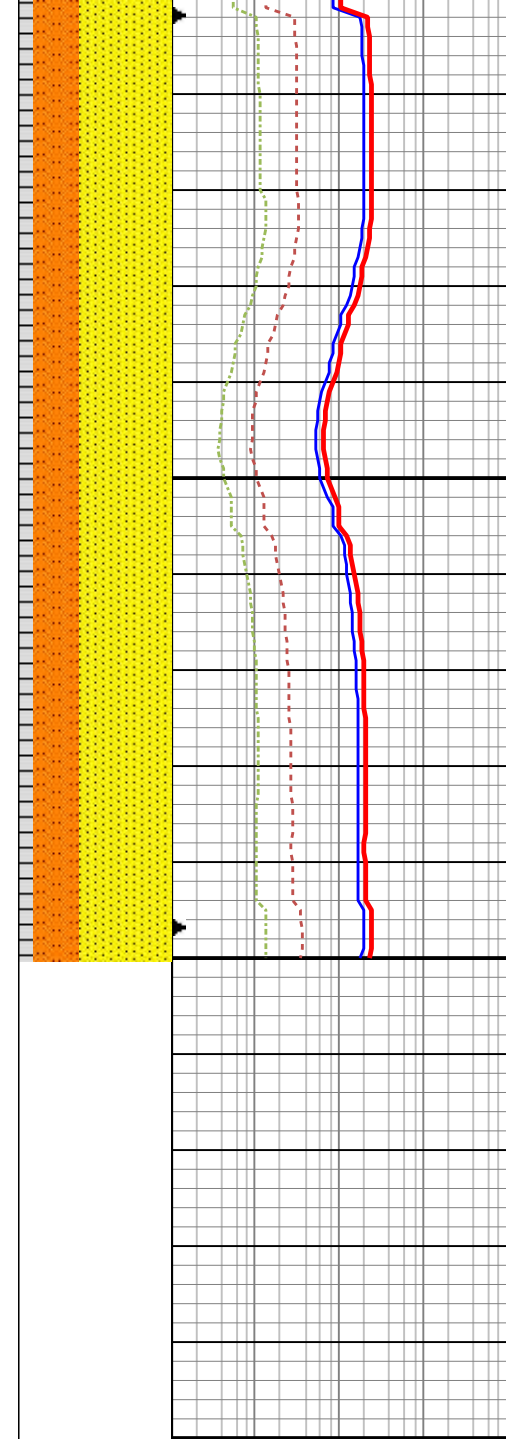
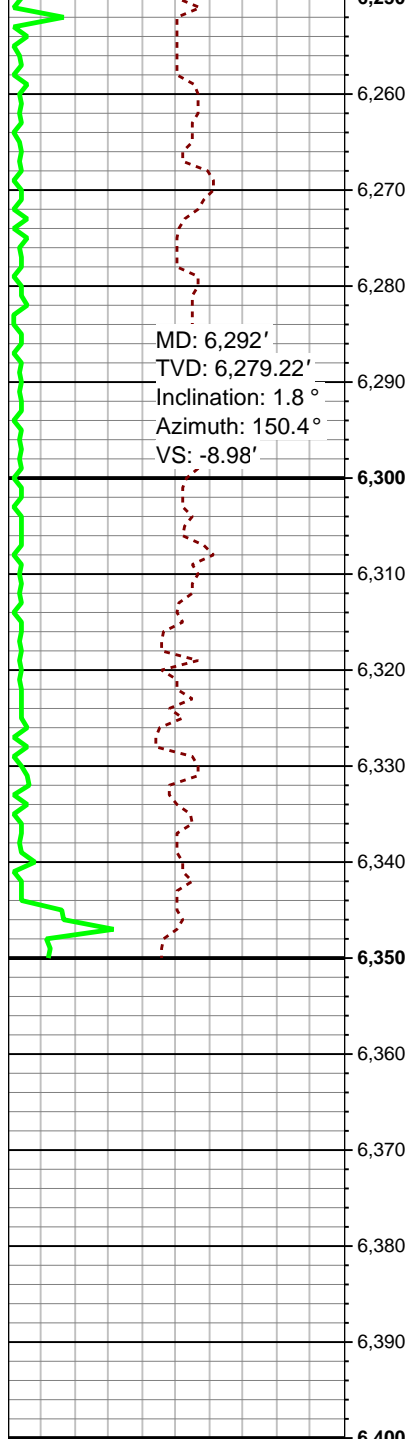
6020-6080 SLTY SS:
 med gy, lt gy ip, occ
 trnsl/wh clus, tr wh, ang -
 rd, tr blk, mod srt, f - vf
 gr, lse grs, frm - sl hd,
 slty ip, occ arg, w sil
 cmd, sl - mod calc, tr sl
 pyrc, v sl glauc, tr cal xls

6080-6140 SLTY SS: lt gy
 - med gy, tr wh - crm -
 trnsl, ang - rd, plty ip, tr
 spl, mod srt, f - vf gr, lse
 trnsl/wh grs, frm - sl hd,
 slty ip, occ arg, w sil
 cmd, sl - mod calc, tr sl
 pyrc, tr cal

6140-6200 SLTY SS:
 med gy, occ lt gy, tr wh -
 crm - trnsl, rd - ang - plty,
 tr spl, mod - w srt, f - vf
 gr, tr lse trnsl/wh - lt gy
 grs, frm - sl hd, slty ip,
 occ arg, v w sil cmd,
 mod calc, sl pyrc, tr cal

6200-6260 SLTY SS:
 med gy, lt gy ip, sme
 trnsl/wh clus, tr wh, ang -
 plty, spl ip, mod - w srt, f
 - vf gr, abnt lse grs, mod





frm - hd cls, slty ip, occ
 arg, w sil cmt, sl - mod
 calc, tr sl pyrc, tr glauc, tr
 cal xls

6260-6320 SLTY SS:
 med gy, tr lt gy, frm - sl
 hd, tr offwht - trns l clus,
 ang - plty, spl t ip, f - vf gr,
 tr med gr, slty - arg, v w
 cmt, mod - w srt, sl pyrc,
 sl - mod calc

Log Continued in
 Horizontal Format

