



Scale: 5" / 100'  
Measured Depth Log

**Well Name** Breniman 6

**Location** Sec. 16-T6N-R67W

**State** Colorado

**County** Weld

**Country** USA

**Rig Number** Patterson 346

**API Number** 05-123-40420

**Field** Wattenberg

**Geographic Region** DJ Basin

**Drilling Completed** TBD

**Spud Date** 7/13/2016

**Surface Coordinates** SHL: 582' FNL, 2070' FWL, Sec. 16

Lat: 40.492519 / 40° 29' 33.0684"  
Long: -104.900208 / -104° 54' 0.7488"

**Bottom Hole Coordinates** PBHL: 1023' FNL & 460' FWL, Sec 18

Lat:  
Long:

**Ground Elevation** 4,796'

**K.B. Elevation** 4820.5'

**Logged Interval** 5,000' MD To 7,100' MD

**Total Depth** TBD

**Formation** Codell

**Type of Drilling Fluid** Oil Based Mud

## Operator

**Company** Extaction Oil & Gas

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

## Geologist

**Name** Jared Rouse

## Zone Color Coding

Oil Condensate Gas

Name

Sarah Reese

Company

Extraction Oil & Gas

Address

1888 Sherman St., Suite 200  
Denver, CO 80203

Note

Error

Core

Water

Pressure

Seal

Other

Equipment

ML-166

Comments

Start: 7-13-16  
TD: TBD

Services Provided

2-man Logging  
On Site Geosteering

Logger Names

Dominic Pitre/ Mark Gross

Address

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

Rock Types

UNKNOWN

ANHYDRITE

GYPSUM

SALT

SIDERITE or LIMONITE

LIMESTONE

DOLOMITE

CHERT

COAL

MARLSTONE

CLAYSTONE

SHALE

SHALE GRAY

SHALE COLORED

SILTSTONE

SANDSTONE

CONGLOMERATE

BRECCIA

TILL

BENTONITE

TUFF

IGNEOUS

METAMORPHIC

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 PELLET

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

ORGANIC

PINPOINT

VUGGY

Engineering

BIT

CASING

FORMATION TOP

GAS SHOW

MN DEPTH

NORMAL FAULT

OIL SHOW

OVERTURNED STRATA

REVERSE FAULT

Rounding

ANGULAR

ROUNDED

SUBANG

SUBRND

L LITHOGRAPHIC

MX MICROXLN

MS MUDSTONE

PS PACKSTONE

WS WACKESTONE

Sorting

Porosity

- E EARTHY
- ▣ FENESTRAL
- F FRACTURE
- ✕ INTERCRYSTALLINE
- ⊕ INTEROOLITIC
- ✎ MOLDIC

Connections

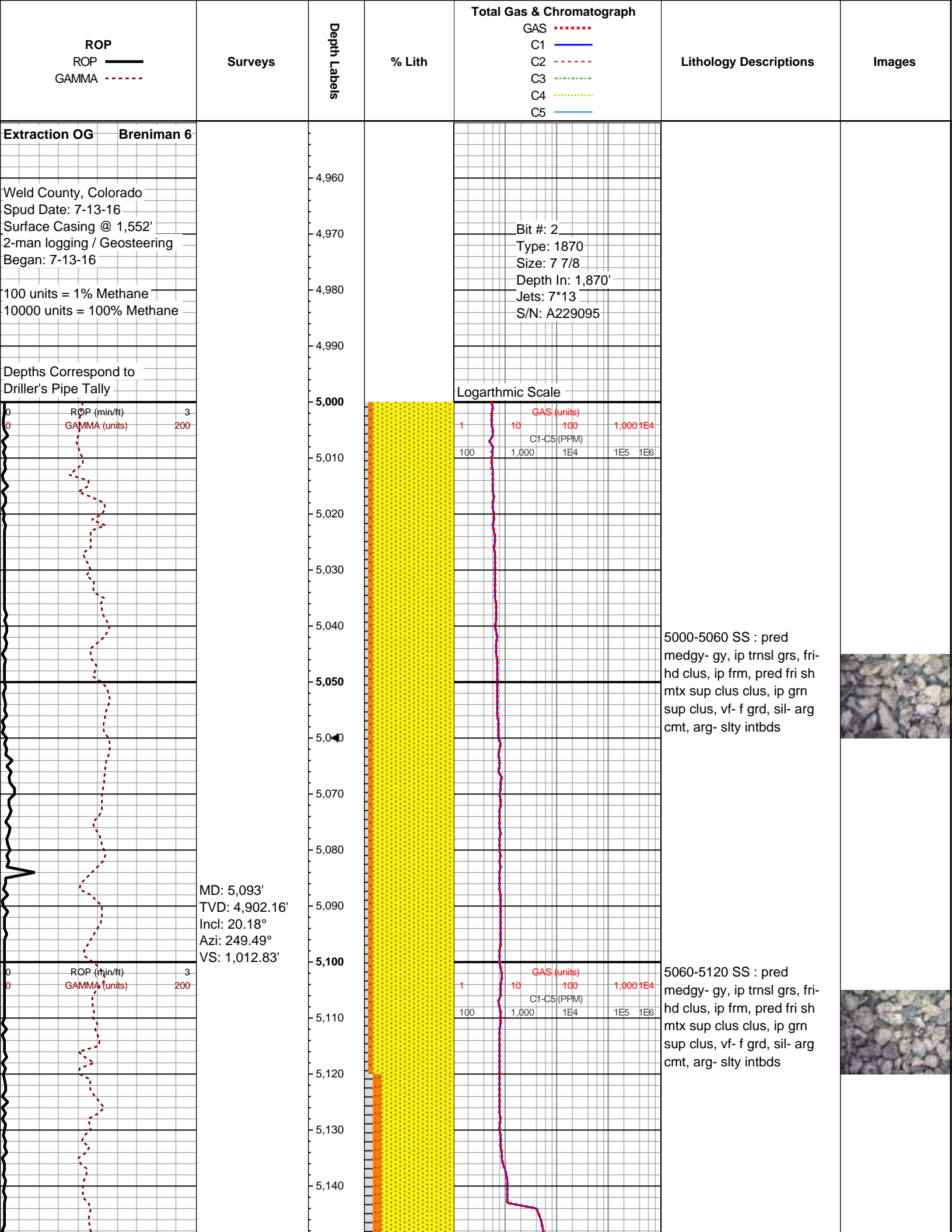
- ◀ CONNECTION (LEFT)
- ▶ CONNECTION (RIGHT)
- ◀🔥 CONNECTION GAS
- ⬇ CORE - LOST
- CORE - RECOVERED
- ⋮ DST INTERVAL
- ⬇/⬆ FAULT

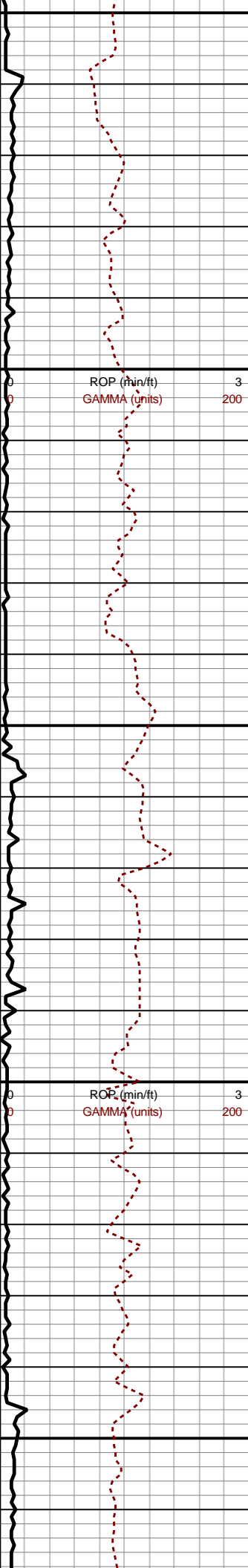
Wells

- ◀ SIDEWALL CORE (LEFT)
- ▶ SIDEWALL CORE (RIGHT)
- ▨ SLIDE
- DS SURVEY
- 🔥 TRIP GAS
- ◀ WIRELINE TESTED - LEFT
- ▶ WIRELINE TESTED - RT

Textures

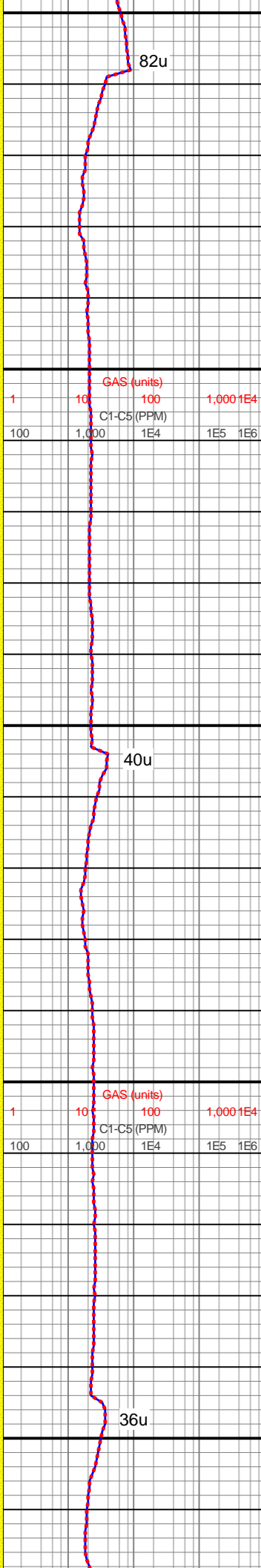
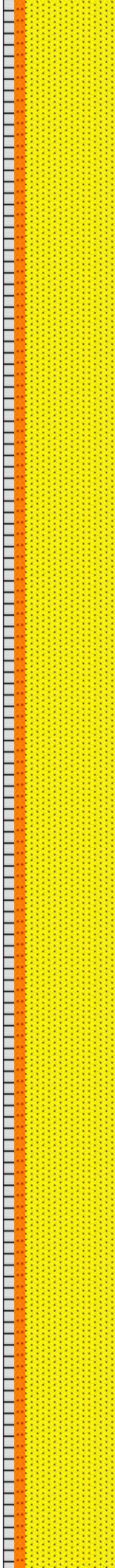
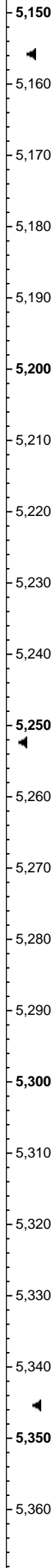
- BS BOUNDSTONE
- CHALKY
- ✕ CRYPTOXLN
- E EARTHY
- F✕ FINELYXLN
- GS GRAINSTONE
- M MODERATE
- P POOR
- W WELL





MD: 5,188'  
TVD: 4,991.07'  
Incl: 21.1°  
Azi: 251.45°  
VS: 1,044.89'

MD: 5,284'  
TVD: 5,080.86'  
Incl: 20.33°  
Azi: 248.2°  
VS: 1,077.28'



5120-5180 SS (80%) : pred medgy- gy, ip trnsl grs- brn, fri- hd clus thru, ip sl frm, pred frm- fri sh mtx sup clus, mod grn sup clus, vf- f grd sd, sil- arg cmt, arg- slty intbds- mtx (20%)



5180-5240 SS (80%) : pred medgy- gy, ip trnsl grs- brn, fri- hd clus thru, ip sl frm, pred frm- fri sh mtx sup clus, mod grn sup clus, vf- f grd sd, sil- arg cmt, arg- slty intbds- mtx (20%)



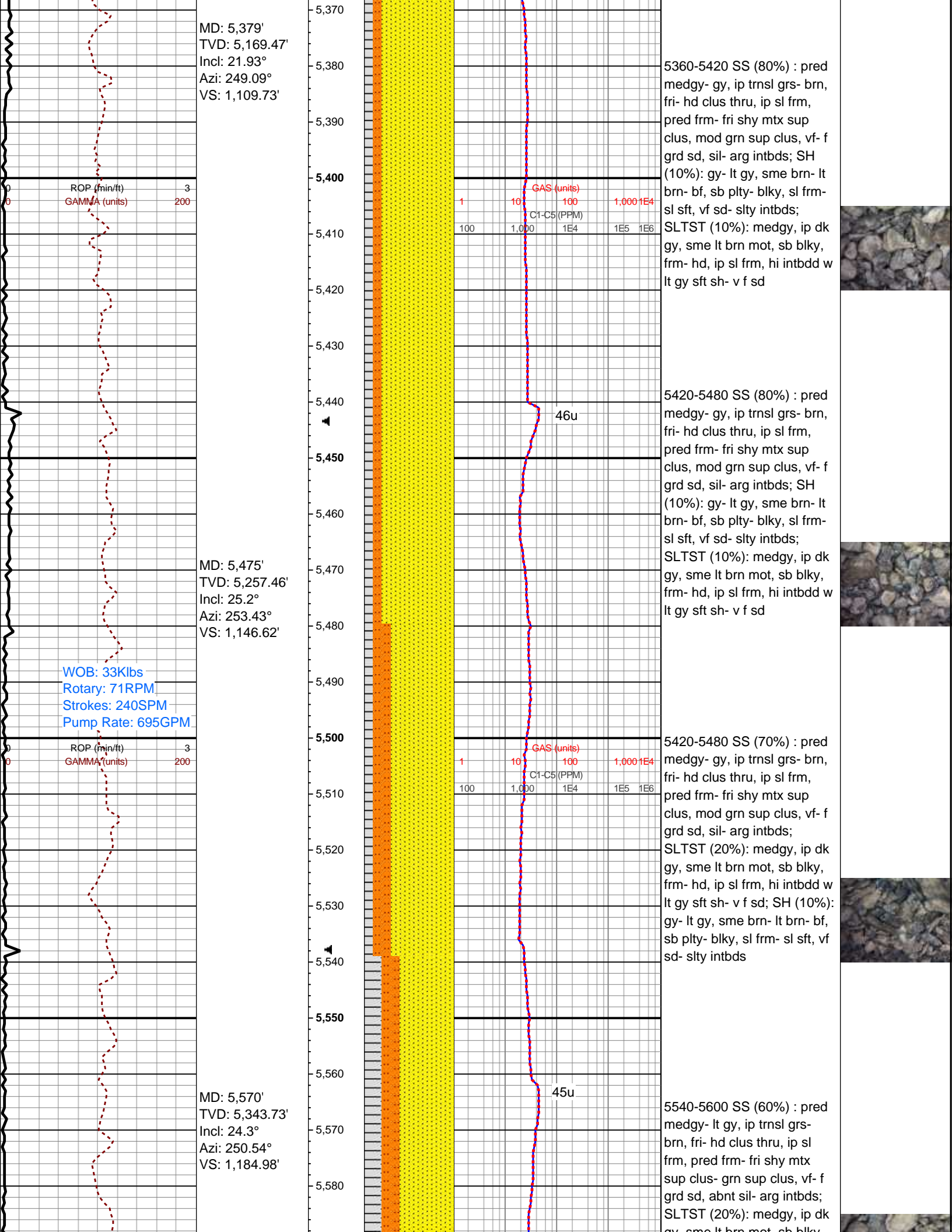
5240-5300 SS (80%) : pred medgy- gy, ip trnsl grs- brn, fri- hd clus thru, ip sl frm, pred frm- fri sh mtx sup clus, mod grn sup clus, vf- f grd sd, sil- arg cmt, arg- slty intbds- mtx (20%)

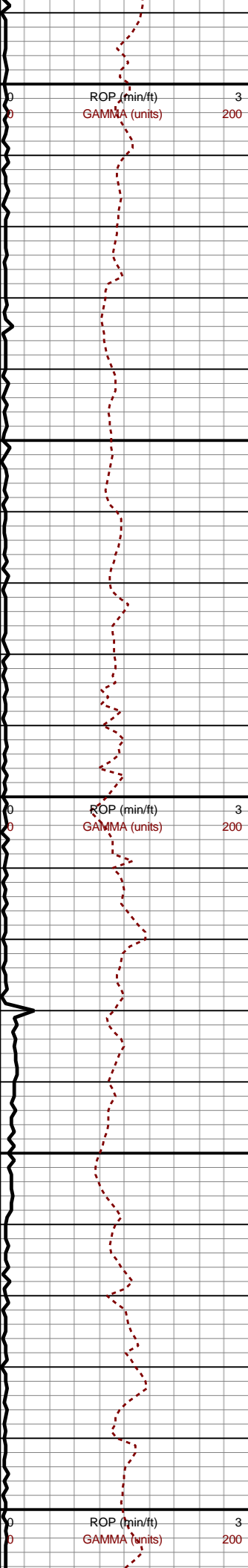


5300-5360 SS (80%) : pred medgy- gy, ip trnsl grs- brn, fri- hd clus thru, ip sl frm, pred frm- fri shy mtx sup clus, mod grn sup clus, vf- f grd sd, sil- arg intbds; SH (10%): gy- lt gy, sme brn- lt brn- bf, sb plty- blkly, sl frm- sl sft, vf sd- slty intbds; SLTST (10%): medgy, ip dk gy, sme lt brn mot, sb blkly, frm- hd, ip sl frm, hi intbdd w lt gy sft sh- v f sd



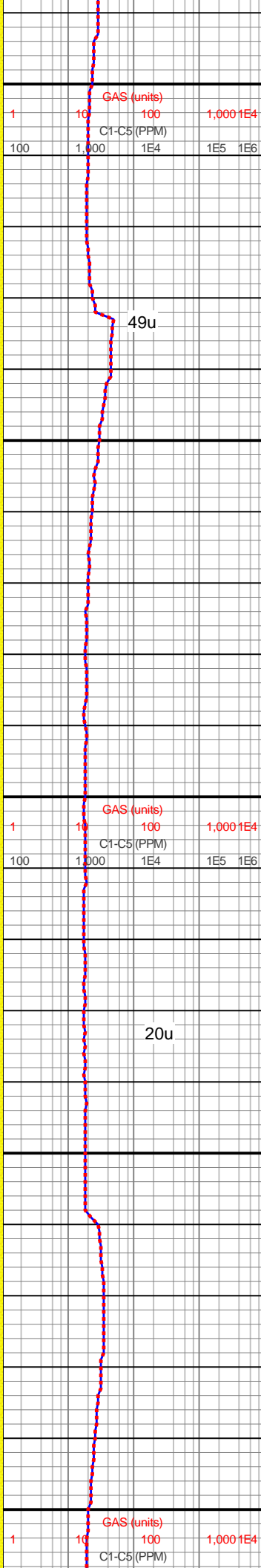
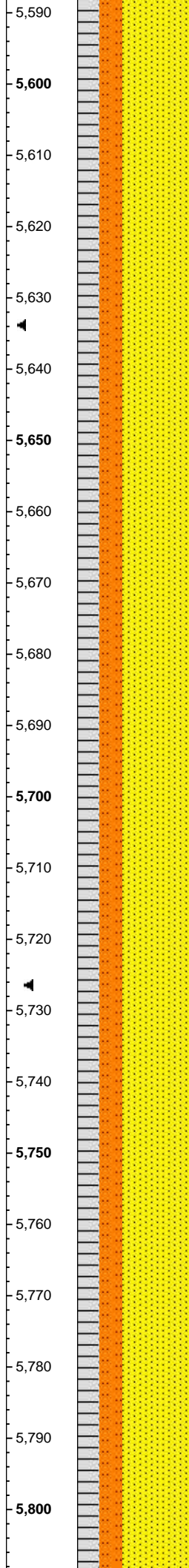






MD: 5,666'  
TVD: 5,431.86'  
Incl: 22.41°  
Azi: 250.1°  
VS: 1,221.38'

MD: 5,761'  
TVD: 5,519.61'  
Incl: 22.65°  
Azi: 251.3°  
VS: 1,256.26'



gy, sme lt brn mot, sb blk, frm- hd, ip sl frm, hi intbdd w lt gy sft sh- v f sd; SH (20%): lt gy- med gy mtx

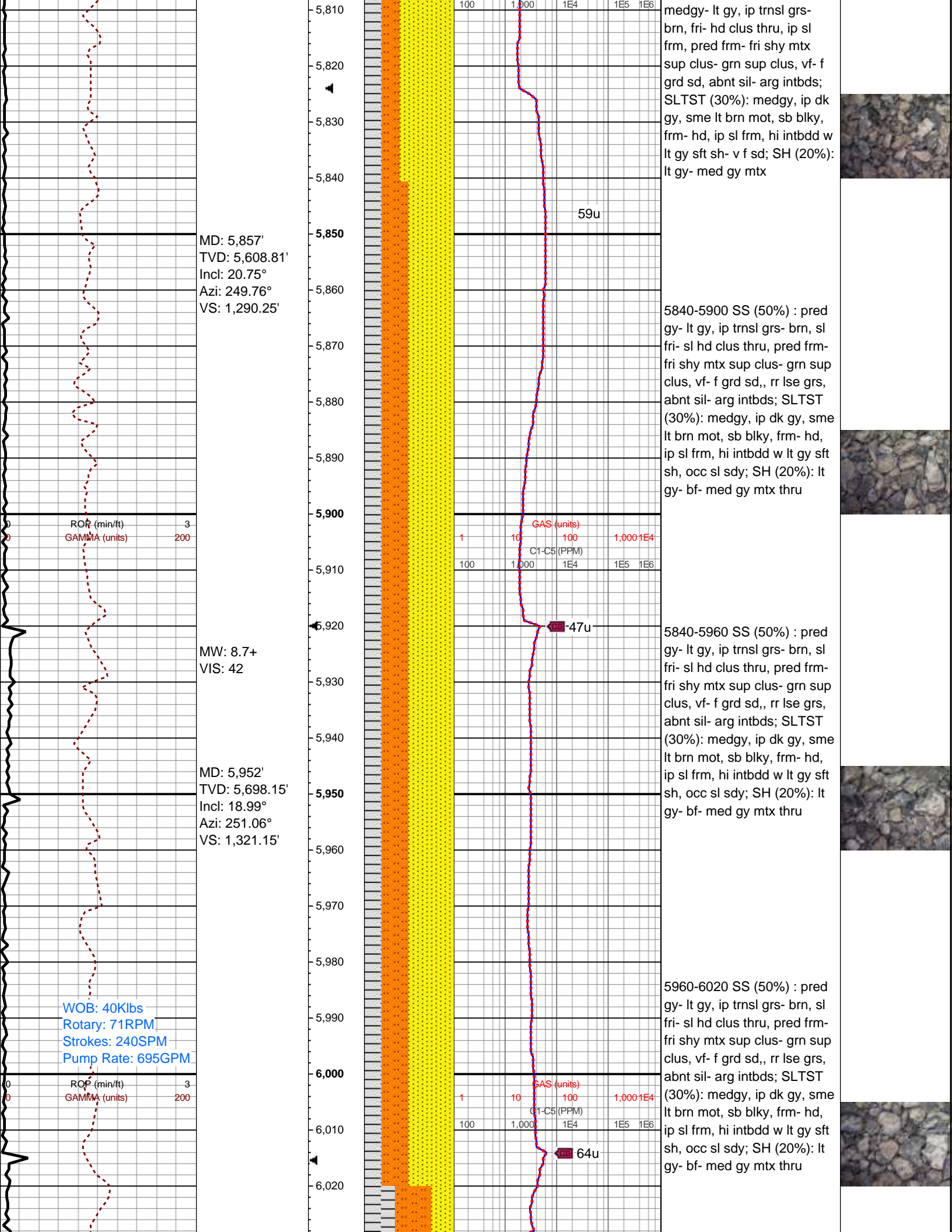
5600-5660 SS (60%) : pred medgy- lt gy, ip trns grs- brn, fri- hd clus thru, ip sl frm, pred frm- fri shy mtx sup clus- grn sup clus, vf- f grd sd, abnt sil- arg intbds; SLTST (20%): medgy, ip dk gy, sme lt brn mot, sb blk, frm- hd, ip sl frm, hi intbdd w lt gy sft sh- v f sd; SH (20%): lt gy- med gy mtx

5660-5720 SS (60%) : pred medgy- lt gy, ip trns grs- brn, fri- hd clus thru, ip sl frm, pred frm- fri shy mtx sup clus- grn sup clus, vf- f grd sd, abnt sil- arg intbds; SLTST (20%): medgy, ip dk gy, sme lt brn mot, sb blk, frm- hd, ip sl frm, hi intbdd w lt gy sft sh- v f sd; SH (20%): lt gy- med gy mtx

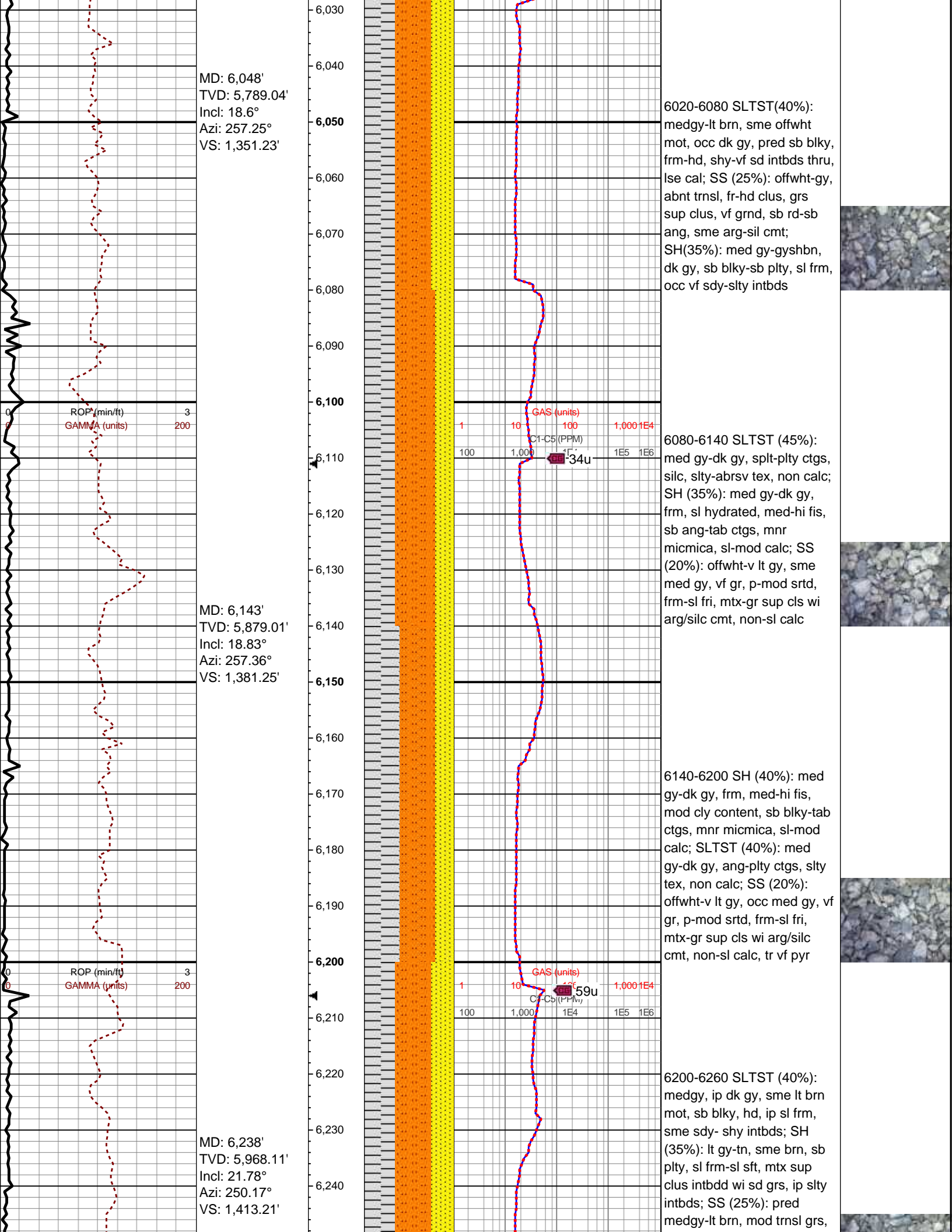
5720-5780 SS (60%) : pred medgy- lt gy, ip trns grs- brn, fri- hd clus thru, ip sl frm, pred frm- fri shy mtx sup clus- grn sup clus, vf- f grd sd, abnt sil- arg intbds; SLTST (20%): medgy, ip dk gy, sme lt brn mot, sb blk, frm- hd, ip sl frm, hi intbdd w lt gy sft sh- v f sd; SH (20%): lt gy- med gy mtx

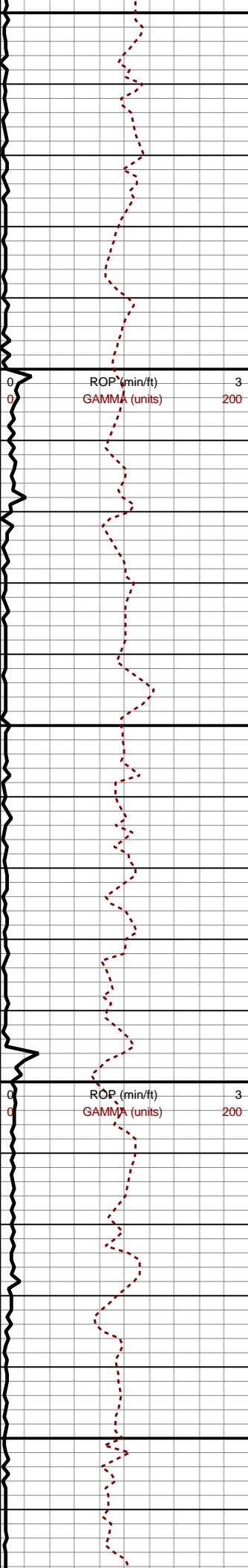
5780-5840 SS (50%) : pred





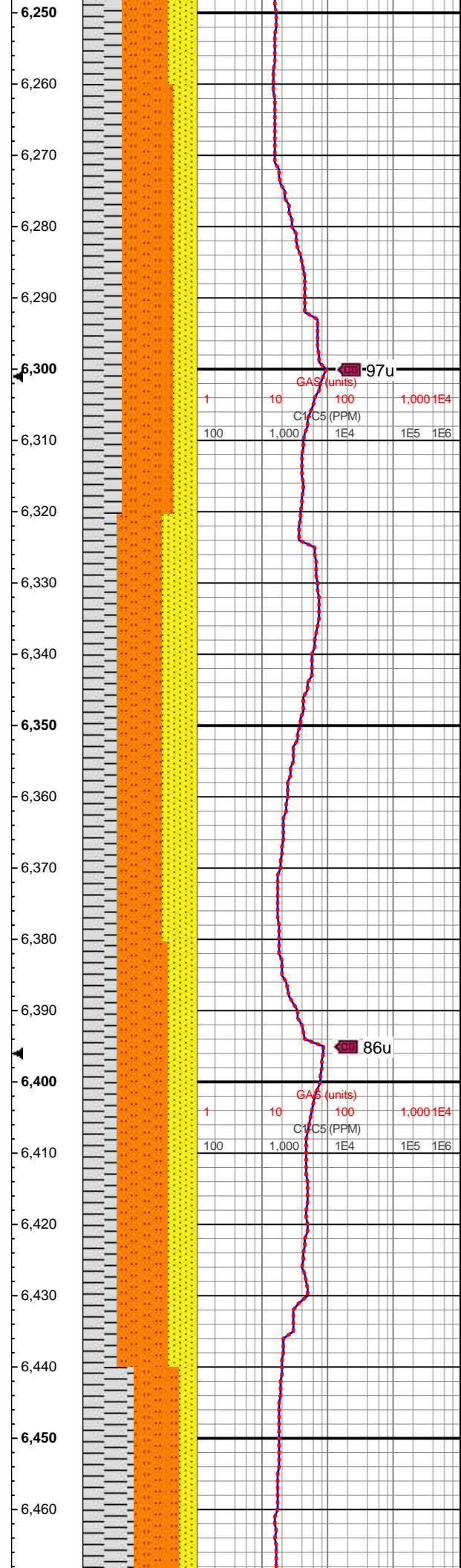






MD: 6,333'  
TVD: 6,056.74'  
Incl: 20.48°  
Azi: 243.65°  
VS: 1,445.28'

MD: 6,428'  
TVD: 6,145.64'  
Incl: 20.82°  
Azi: 247.88°  
VS: 1,476.43'



97u

86u

pred arg mtx sup clus, tr grn sup clus, fri-hd clus, sme sft clus, vf gr sd-slt, sil-arg cmt, abnt arg intbds

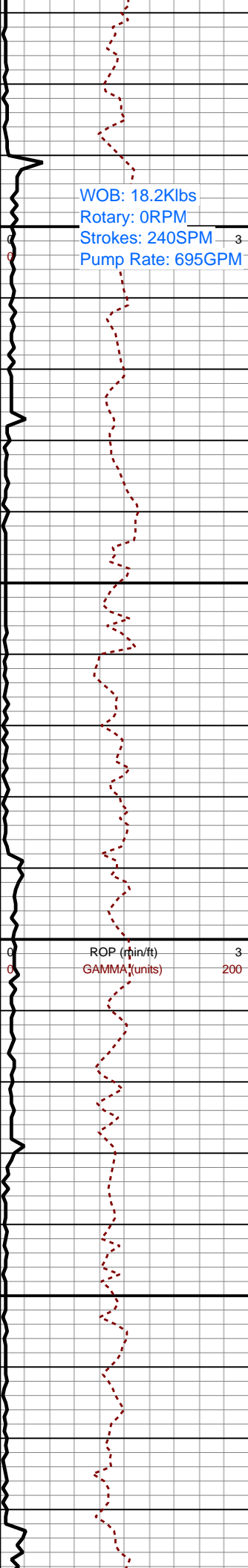
6260-6320 SLTST (45%):  
predy med gy, occ dk gy-lt gy ctgs, non calc, silc, blkyl-sb tab ctgs, non calc; SH (35%): med gy-dk gy, med frm-frm, sl hydrated, med-hi fis, sb ang-tab ctgs, mnr micmica, non-sl calc; SS (20%): offwht-lt gy, occ med gy, vf gr, p-mod srtd, frm-sl fri, mtx-gr sup cls wi arg-silc cmt, non-sl calc

6320-6380 SLTST (40%):  
predy med gy, occ dk gy-lt gy ctgs, non calc, silc, blkyl-sb tab ctgs, non calc; SH (30%): med gy-dk gy, med frm-frm, sl hydrated, med-hi fis, sb ang-tab ctgs, mnr micmica, non-sl calc; SS (30%): offwht-lt gy, occ med gy, vf gr, p-mod srtd, frm-sl fri, mtx-gr sup cls wi arg-silc cmt, non-sl calc

6380-6440 SLTST (45%): lt gy-gy-dk gy, ang-plty ctgs, silc, non calc; SH (30%): med gy-dk gy, frm, sl hydrated med-hi fis sb ang-blky-tab ctgs, tr vf pyr, sl-mod calc; SS (25%): off wh-v lt gy-occ lt gy brn, occ dk gy incl, vf-f gr, p-mod srtd, pred gr sup cls, med frm-frm pred non calc, sl calc ip

6440-6500 SS (15%): pred lt gy-lt brn, sme trnsf grs, pred arg mtx sup clus-grn

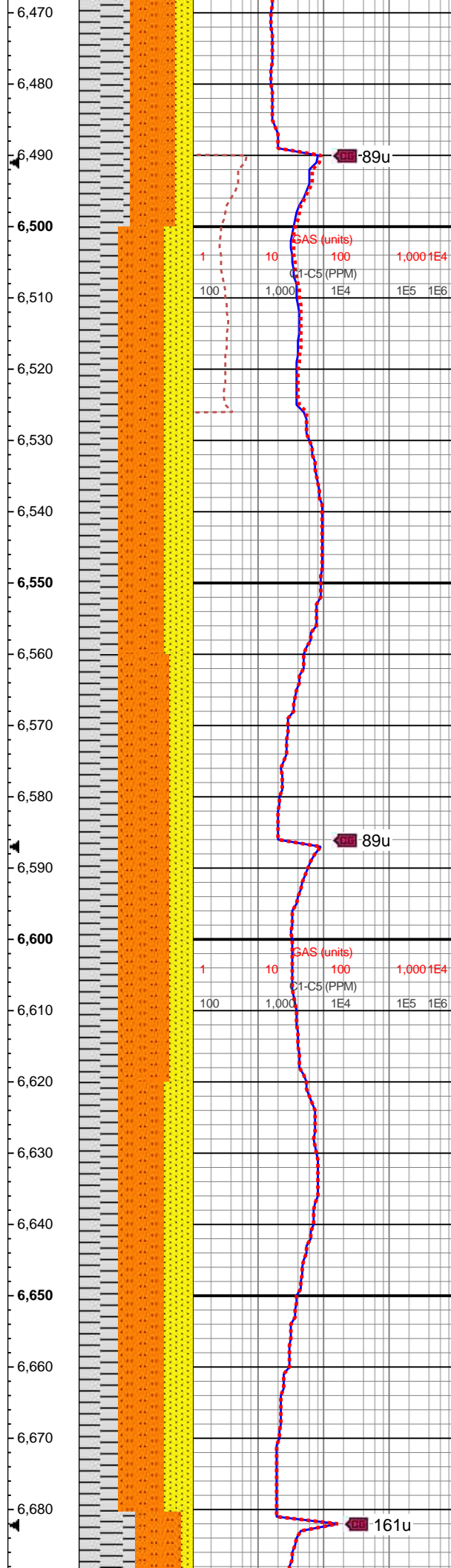




WOB: 18.2Klbs  
Rotary: 0RPM  
Strokes: 240SPM  
Pump Rate: 695GPM

MD: 6,524'  
TVD: 6,235.49'  
Incl: 20.43°  
Azi: 250.85°  
VS: 1,508.6'

MD: 6,619'  
TVD: 6,324.22'  
Incl: 21.45°  
Azi: 250.64°  
VS: 1,541.14'



89u

89u

161u

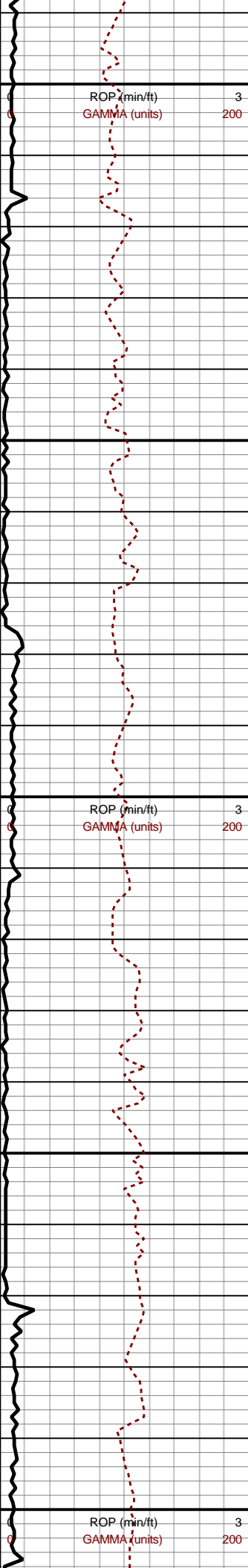
sup clus, fri-hd clus, sme sft  
grs, sil-arg cmt; SH (45%):  
med gy-dk gy, sme lt gy, sb  
plty, sl frm-sl sft, mtx sup  
clus intbdd wi sd grs, ip slty  
intbds; SLTST (40%):  
medgy, ip dk gy, sme lt brn  
mot, sb blk, hd, ip sl frm,  
sme sdy-shy intbds

6500-6560 SLTST (40%):  
medgy, ip dk gy, sme lt brn  
mot, sb blk, hd, ip sl frm,  
sme sdy- shy intbds; SH  
(35%): med gy-lt gy, sme  
brn, sb plty, sl frm-sl sft, mtx  
sup clus intbdd wi sd grs, ip  
slty intbds; SS (25%): pred lt  
brn-lt gy, mod trns grs, pred  
arg mtx sup clus, tr grn sup  
clus, fri-hd clus, vf gr sd-slt,  
sil- arg cmt

6560-6620 SLTST(45%):  
medgy-lt brn, sme offwht- bf  
mot, occ dk gy- blk, pred sb  
blk, frm hd, shy-vf sd intbds  
thru, lse cal; SH(35%): pred  
med gy-lt gyshbn, sme dk  
gy, sb blk-sb plty, sl frm,  
occ v f sdy-slt intbds; SS  
(20%): offwht-gy, abnt trns,  
fr-hd clus, grs sup clus, vf  
grnd, sb rd-sb ang, sme  
arg-sil cmt

6620-6680 SLTST(40%):  
medgy-lt brn, sme lt gy mot,  
occ dk gy, pred sb blk,  
frm-hd, shy-vf sd intbds thru;  
SH(35%): pred med gy-dk  
gyshbn, sme gy, sb blk-sb  
plty, sl frm, occ vf sdy-slt  
intbds; SS (20%): offwht-gy,  
abnt trns, fr-hd clus, grs  
sup clus, vf grnd, sb rd-sb  
ang, sme arg- sil cmt

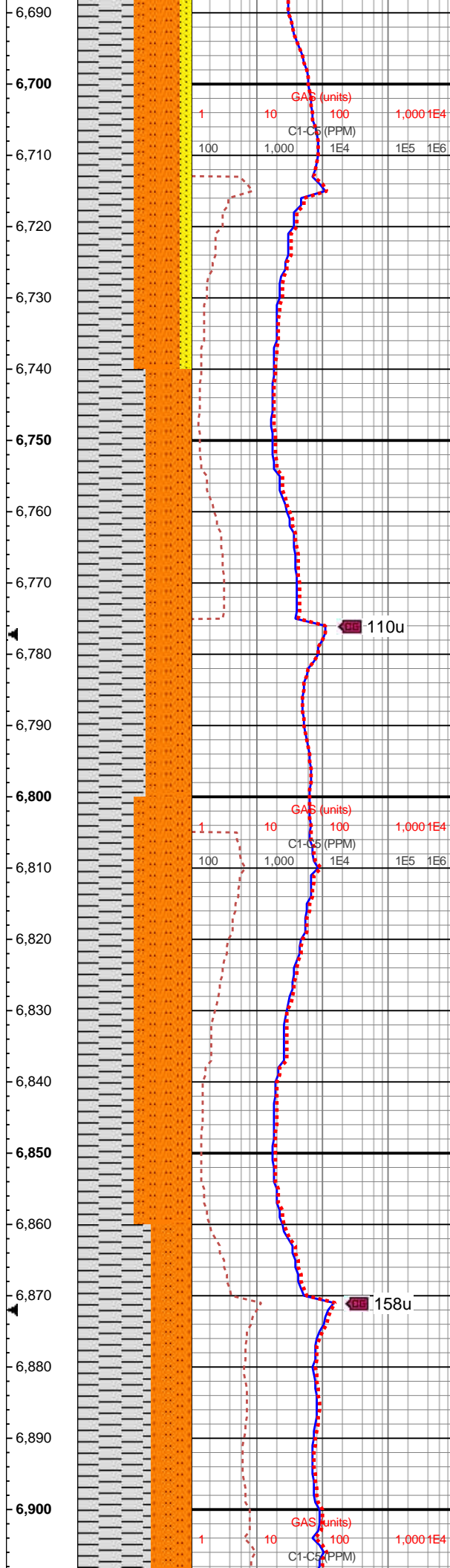




MD: 6,714'  
TVD: 6,412.54'  
Incl: 21.79°  
Azi: 251.66°  
VS: 1,574.76'

MD: 6,809'  
TVD: 6,500.88'  
Incl: 21.38°  
Azi: 253.91°  
VS: 1,608.59'

MD: 6,905'  
TVD: 6,590.24'  
Incl: 21.48°  
Azi: 255.80°



110u

158u

6680-6740 SH (50%): med gy-dk gy, frm, med-hi fis, mod cly content, sb blkyl-tab ctgs, mnr micmica, sl-mod calc; SLTST (40%): med gy-dk gy, ang-plty ctgs, slty tex, non calc; SS (10%): offwht-v lt gy, occ med gy, vf gr, p-mod srted, frm-sl fri, mtz-gr sup cls wi arg/silc cmt, non-sl calc, tr vf pyr

6740-6800 SH (60%): predy med gy, gyshbn-dk gy, frm-sl hrd, sb blkyl-sb tab ctgs, sl slty-sm tex, tr vf pyr, tr vf lam, sl calc, SLTST (40%): med gy-dk gy, slty-sl grty tex, plty-sb blkyl ctgs, silc, tr mic pyr, non calc

6800-6860 SH (50%): med gy, mot dk gy, sb blkyl-tab ctgs, med frm-frm, sl hydrated, med-hi fis, tr vf pyr, non-sl calc, SLTST (50%): predy med gy, dk gy, silc, blkyl ctgs, tr vf pyr & silc lamn ip, non calc

6860-6920 SH (65%): med gy-lt gy, med frm-sl hrd, sl hydrated, med-hi fis, sb blkyl-tab ctgs, tr vf pyr, non-sl





