



Scale: 5" / 100'  
Measured Depth Log

**Well Name** FINAL\_SHOOK 3-10-2NBH\_VERT\_CURVE

**Location** SEC 3 T1S R67W

**State** COLORADO

**County** ADAMS

**Country** USA

**Rig Number** ENSIGN 145

**API Number** 05-001-09971

**AFE #** 1700008

**Geographic Region** DJ BASIN

**Field** WATTENBERG

**Spud Date** 4/12/2017

**Drilling Completed** 6/19/2017

**Surface Coordinates** SEC 3, T1S, R67W  
2058' FSL x 2214' FEL

**Bottom Hole Coordinates** SEC 10, T1S, R67W  
539' FNL x 1855' FWL

**Ground Elevation** 5098'

**K.B. Elevation** 5111'

**Logged Interval** 1835' **To** 8467'

**Total Depth** 6632'

**Formation** SURFACE - NIOBRARA B CHALK

**Type of Drilling Fluid** OBM - OIL BASED MUD

## Operator

**Company** PetroShare

**Address** 7200 S Alton Way  
Englewood, CO 80112



**Geologist**

**Zone Color Coding**

Name WEDGE HOWLAND, SAGE BETTS

Company TERRA GUIDANCE

Address 1298 O Road  
Loma CO 81524  
(970) 260-5408



Oil

Condensate

Gas

Note

Core

Pressure

Error

Water

Seal

## Rock Types

UNKNOWN

ANHYDRITE  
GYPSUM  
SALT  
SIDERITE or LIMONITE  
LIMESTONE  
DOLOMITE

CHERT

COAL  
CHALK  
MARLSTONE  
CLAYSTONE  
SILTY SHALE  
SHALE

SHALE GRAY  
SHALE COLORED  
SHALY SILTSTONE  
SILTSTONE  
SHALY SANDSTONE  
SANDSTONE  
CONGLOMERATE

BRECCIA  
TILL  
BENTONITE  
TUFF  
IGNEOUS  
METAMORPHIC  
CEMENT

## Accessories

### Fossils

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

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

### 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

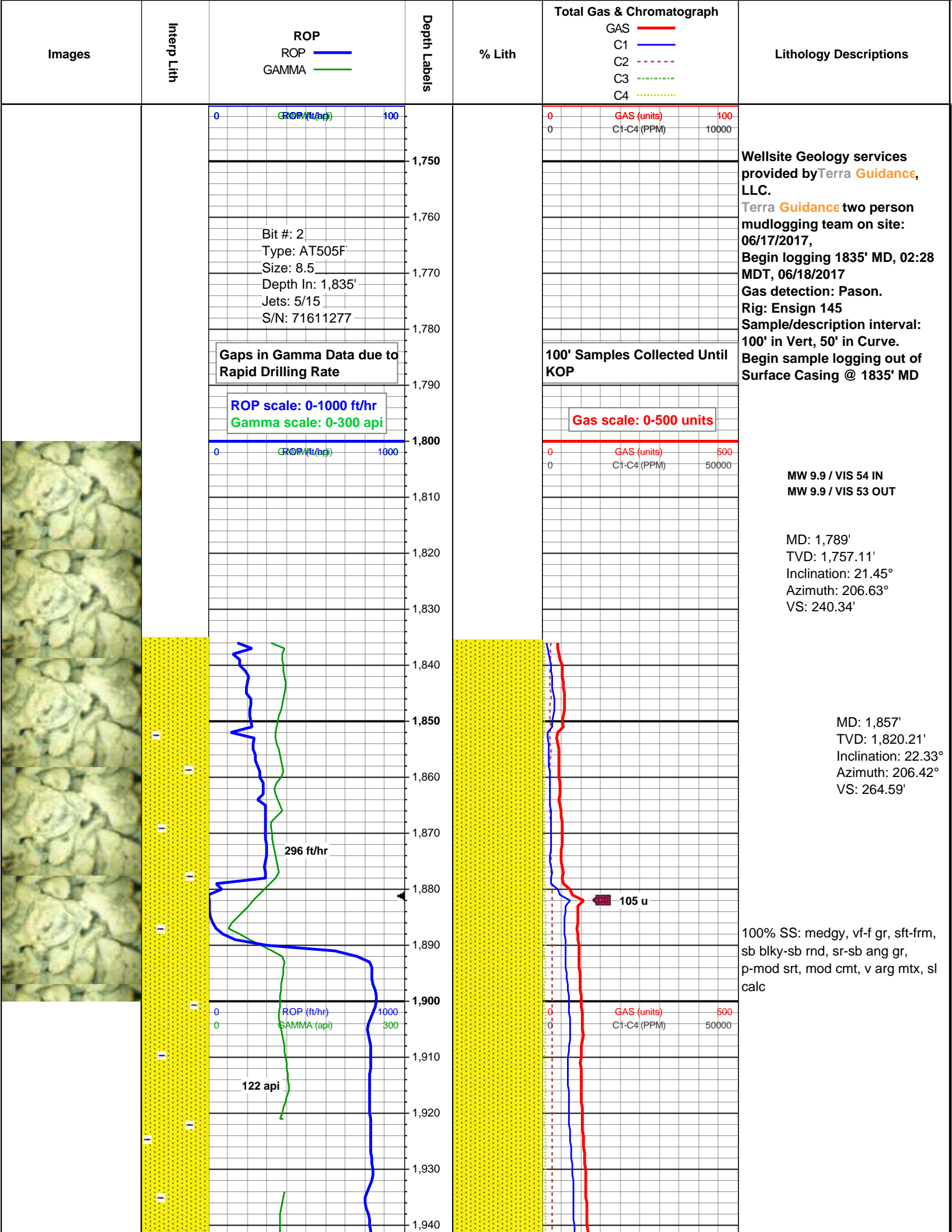
LITHOGRAPHIC

MICROXLN  
MUDSTONE  
PACKSTONE  
WACKESTONE

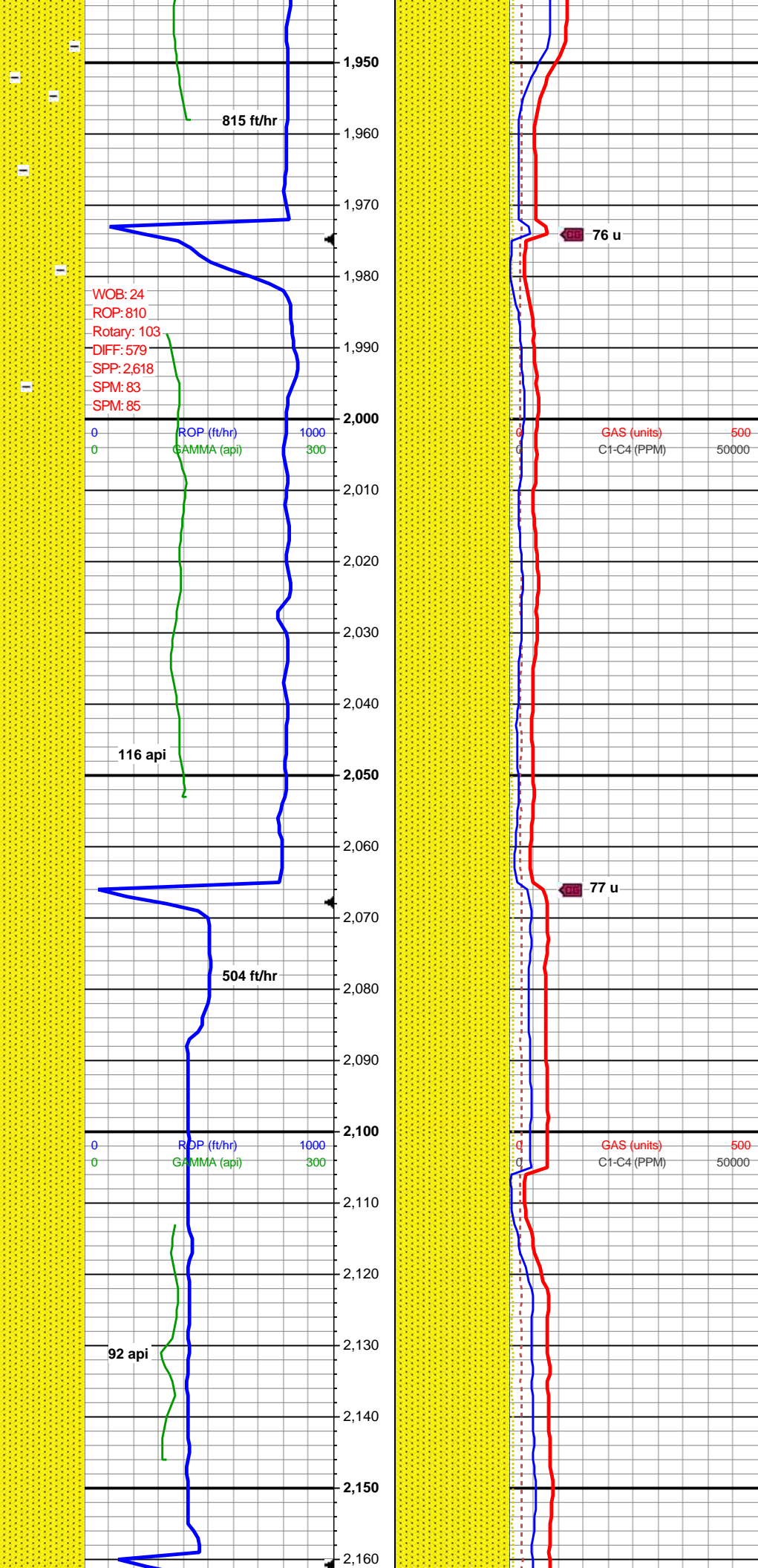
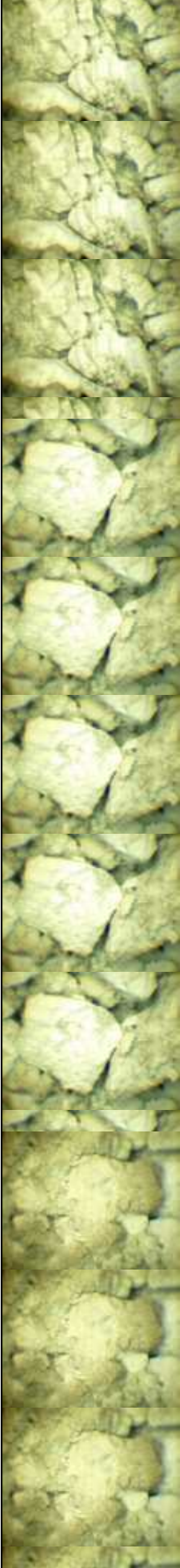
### Sorting

MODERATE  
POOR  
WELL

### SHALY SILTSTONE







MD: 1,951'  
TVD: 1,907.29'  
Inclination: 21.92°  
Azimuth: 200.71°  
VS: 298.9'

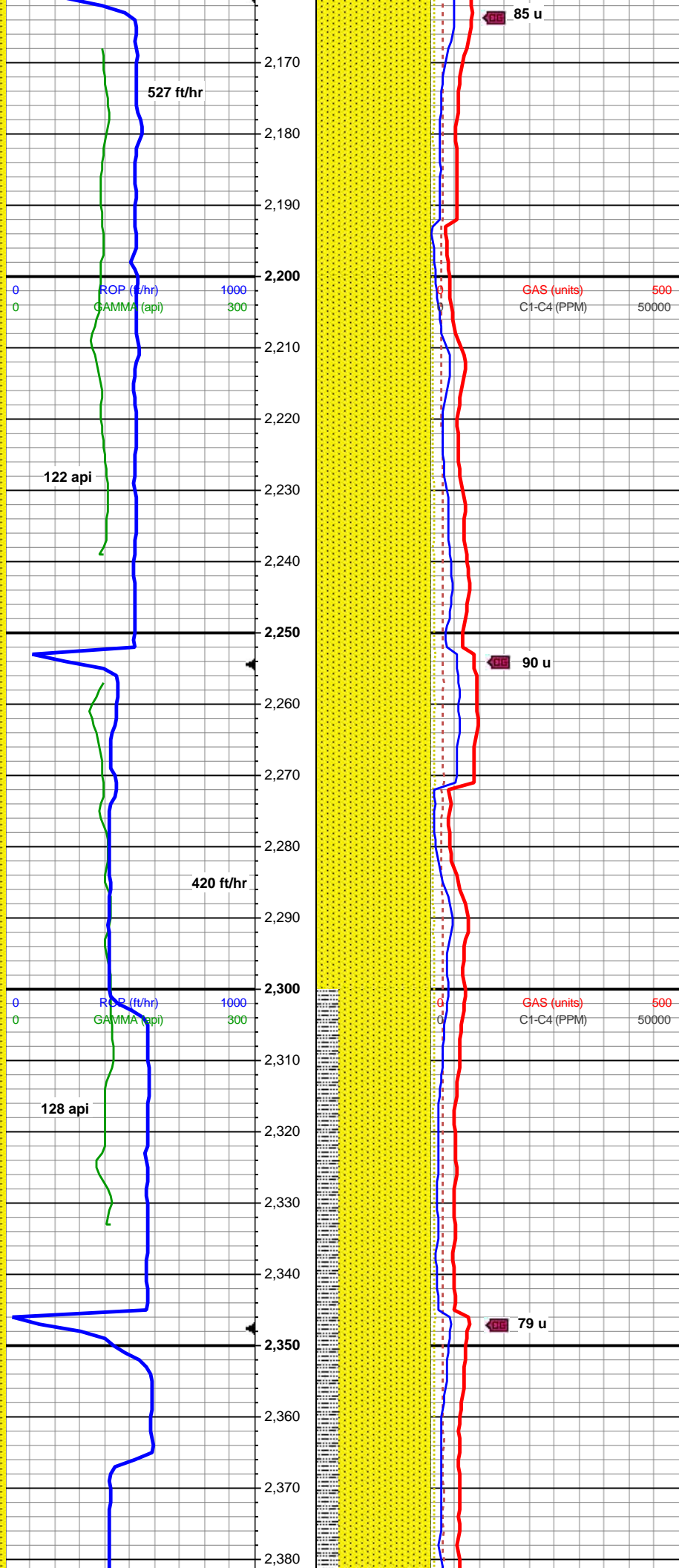
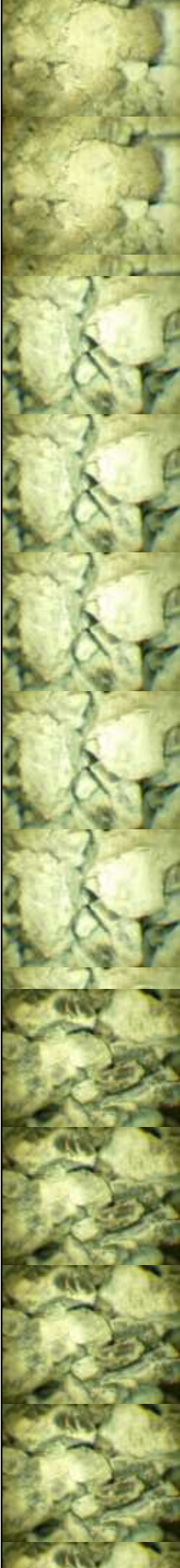
100% SS: med gy, vf-f gr, sft-frn,  
sb blk-y-sb rnd, sr-sb ang gr,  
p-mod srt, mod cmt, arg mtz, calc  
ip

MW 9.9 / VIS 54 IN  
MW 9.9 / VIS 53 OUT

MD: 2,044'  
TVD: 1,993.87'  
Inclination: 20.96°  
Azimuth: 194.97°  
VS: 332.49'

100% SS: med gy, vf-f gr, sft-frn,  
sb blk-y-sb rnd-sb ang, sr-sb ang  
gr, p-mod srt, p cmt, arg mtz, calc  
ip

MD: 2,137'  
TVD: 2,080.73'  
Inclination: 20.92°  
Azimuth: 196.46°  
VS: 365.53'



100% SS: med gy-dk med gy, vf-f  
gr, sft-frn, sb blk-y-sb rnd-sb ang,  
sr-sb ang gr, p-mod srt, p cmt,  
arg mtx, variably calc

**MW 9.9 / VIS 54 IN**  
**MW 9.9 / VIS 53 OUT**

MD: 2,230'  
TVD: 2,167.89'  
Inclination: 19.91°  
Azimuth: 202.65°  
VS: 397.44'

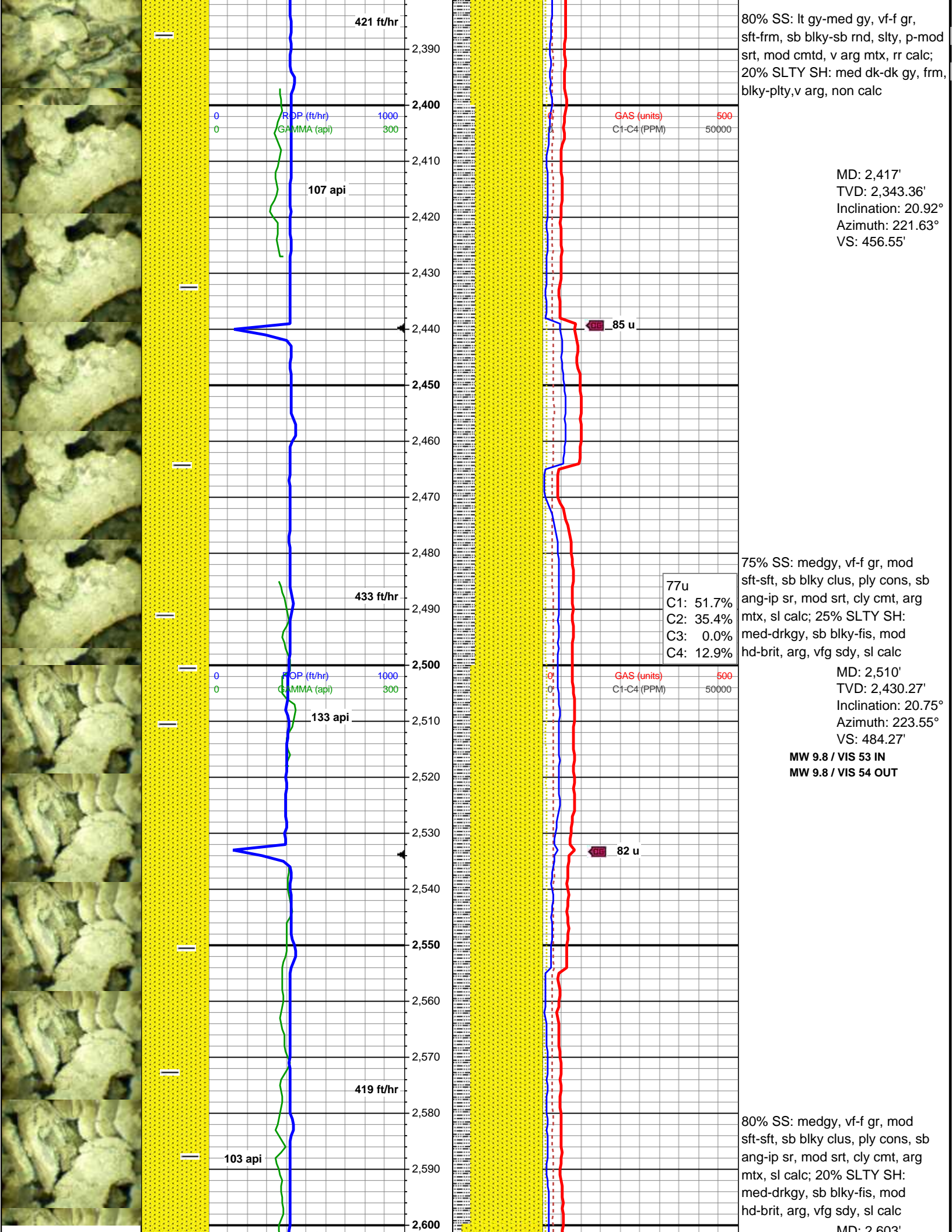
100% SS: med gy-dk med gy, vf-f  
gr, sft-frn, sb rnd-sb ang, sr-sb  
ang gr, p-mod srt, ply cmtd, v arg  
mtx, v sl calc

**MW 9.7 / VIS 55 IN**  
**MW 9.8 / VIS 53 OUT**

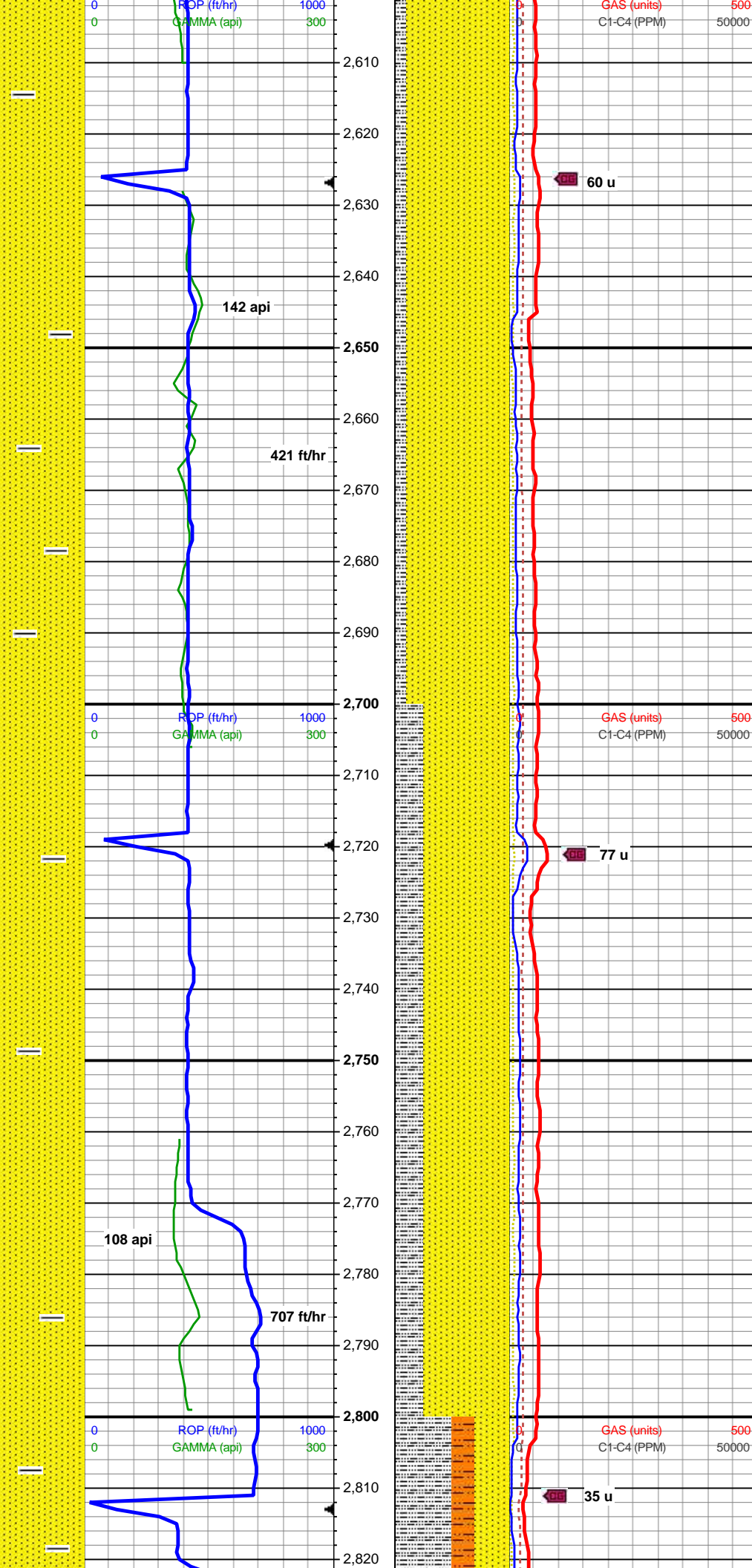
MD: 2,323'  
TVD: 2,255.3'  
Inclination: 20.13°  
Azimuth: 213.34°  
VS: 427.52'

2,170 2,180 2,190 2,200 2,210 2,220 2,230 2,240 2,250 2,260 2,270 2,280 2,290 2,300 2,310 2,320 2,330 2,340 2,350 2,360 2,370 2,380









MD: 2,603'  
TVD: 2,517.22'  
Inclination: 20.82°  
Azimuth: 223.65°  
VS: 511.62'

90% SS: medgy, vf-f gr, mod  
sft-sft, sb blkly clus, ply cons, sb  
ang-ip sr, mod srt, cly cmt, arg  
mtx, sl calc; 10% SLTY SH:  
med-drkgy, sb blkly-fis, mod  
hd-brit, arg, vfg sdy, sl calc

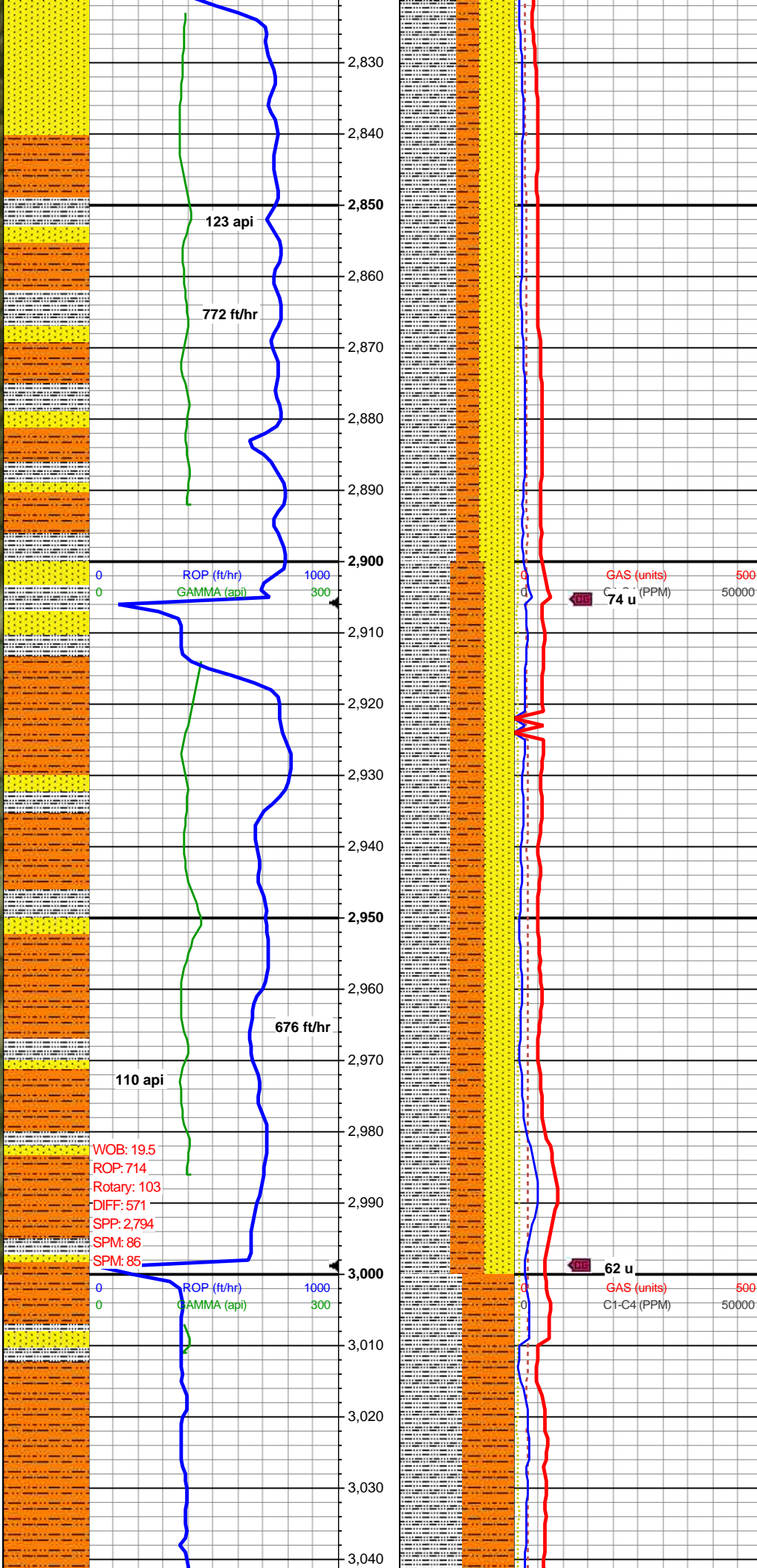
MD: 2,696'  
TVD: 2,604.16'  
Inclination: 20.78°  
Azimuth: 225.33°  
VS: 538.69'  
**MW 9.8 / VIS 53 IN**  
**MW 9.8 / VIS 54 OUT**

MD: 2,789'  
TVD: 2,691.06'  
Inclination: 20.97°  
Azimuth: 225.35°  
VS: 565.57'

75% SS: medgy-sl gy/brn, vf-f gr,  
mod sft-sft, sb blkly clus, ply cons,  
sb ang-ip sr, mod srt, cly cmt, arg  
mtx, sl calc; 25% SLTY SH:  
med-drkgy, sb blkly-fis, mod  
hd-brit, arg, vfg sdy, sl calc

**MW 9.8 / VIS 53 IN**  
**MW 9.8 / VIS 54 OUT**





MD: 2,882'  
TVD: 2,778.07'  
Inclination: 20.38°  
Azimuth: 227.52°  
VS: 591.83'

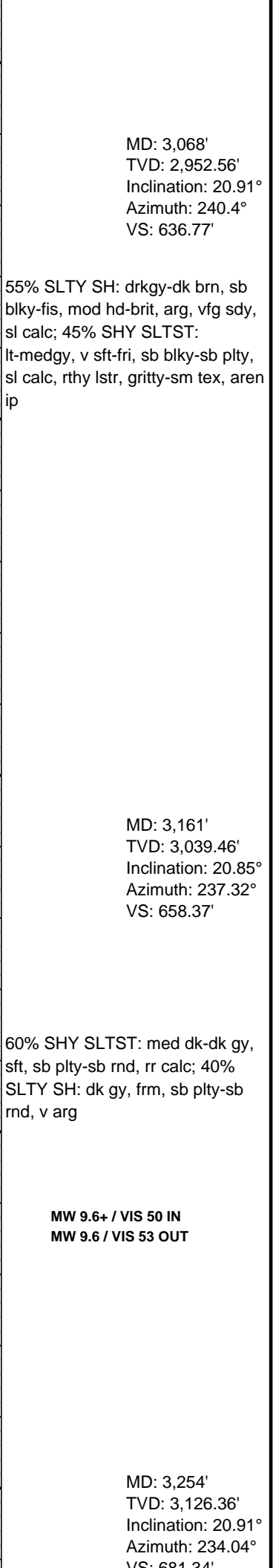
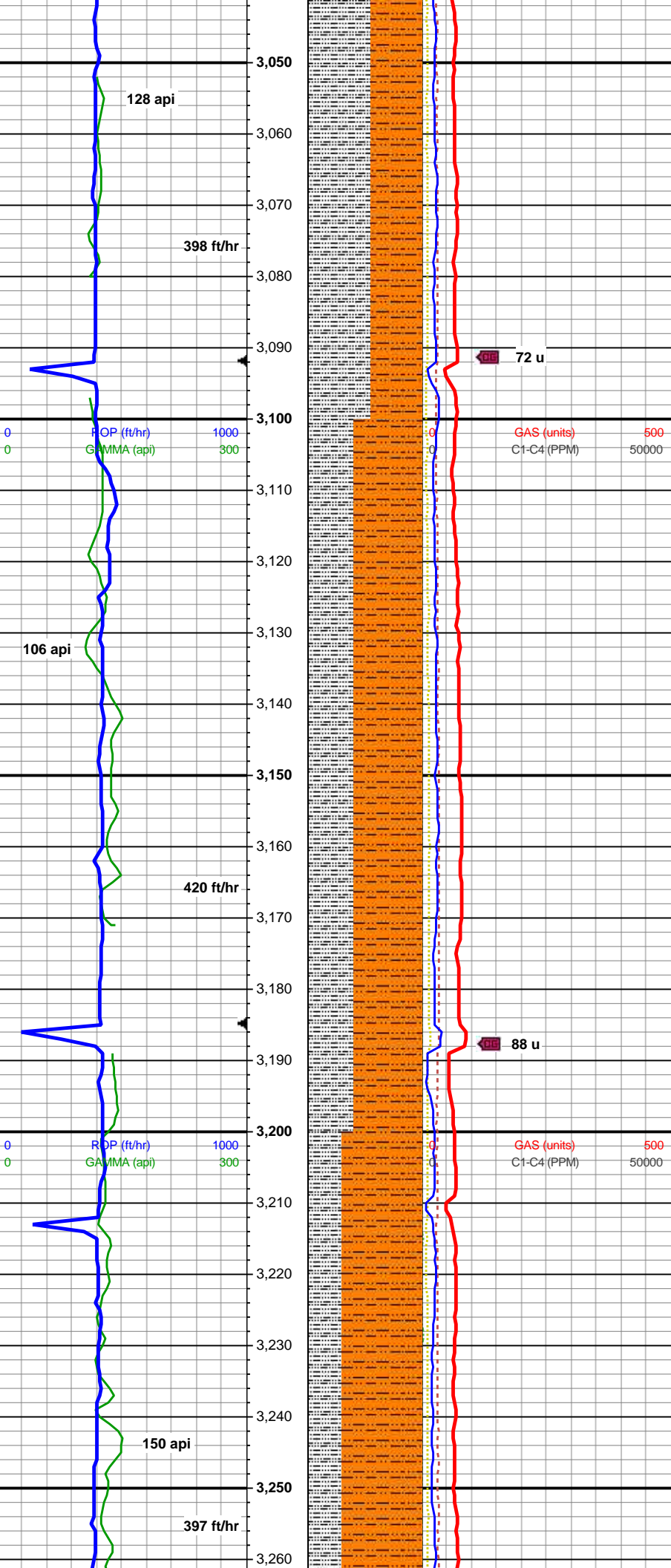
50% SLTY SH: drkgy-dk brn, sb  
blky-fis, mod hd-brit, arg, vfg sdy,  
sl calc; 30% SS: medgy, vf-f gr,  
frm, sb blky clus, mod srt, arg cly  
cmt, sl calc; 20% SHY SLTST:  
lt-medgy, v sft-fri, sb blky-sb plty,  
sl calc, rthy lstr, gritty-sm tex, aren  
ip

MD: 2,975'  
TVD: 2,865.4'  
Inclination: 19.91°  
Azimuth: 236.33°  
VS: 615.45'

45% SLTY SH: drkgy-dk brn, sb  
blky-fis, mod hd-brit, arg, vfg sdy,  
sl calc; 30% SHY SLTST:  
lt-medgy, v sft-fri, sb blky-sb plty,  
sl calc, rthy lstr, gritty-sm tex, aren  
ip; 25% SS: medgy, vf-f gr, frm, sb  
blky clus, mod srt, arg cly cmt, sl  
calc

MW 9.6+ / VIS 50 IN  
MW 9.6 / VIS 53 OUT





MD: 3,068'  
TVD: 2,952.56'  
Inclination: 20.91°  
Azimuth: 240.4°  
VS: 636.77'

55% SLTY SH: drkgy-dk brn, sb  
blky-fis, mod hd-brit, arg, vfg sdy,  
sl calc; 45% SHY SLTST:  
lt-medgy, v sft-fri, sb blky-sb plty,  
sl calc, rthy lstr, gritty-sm tex, aren  
ip

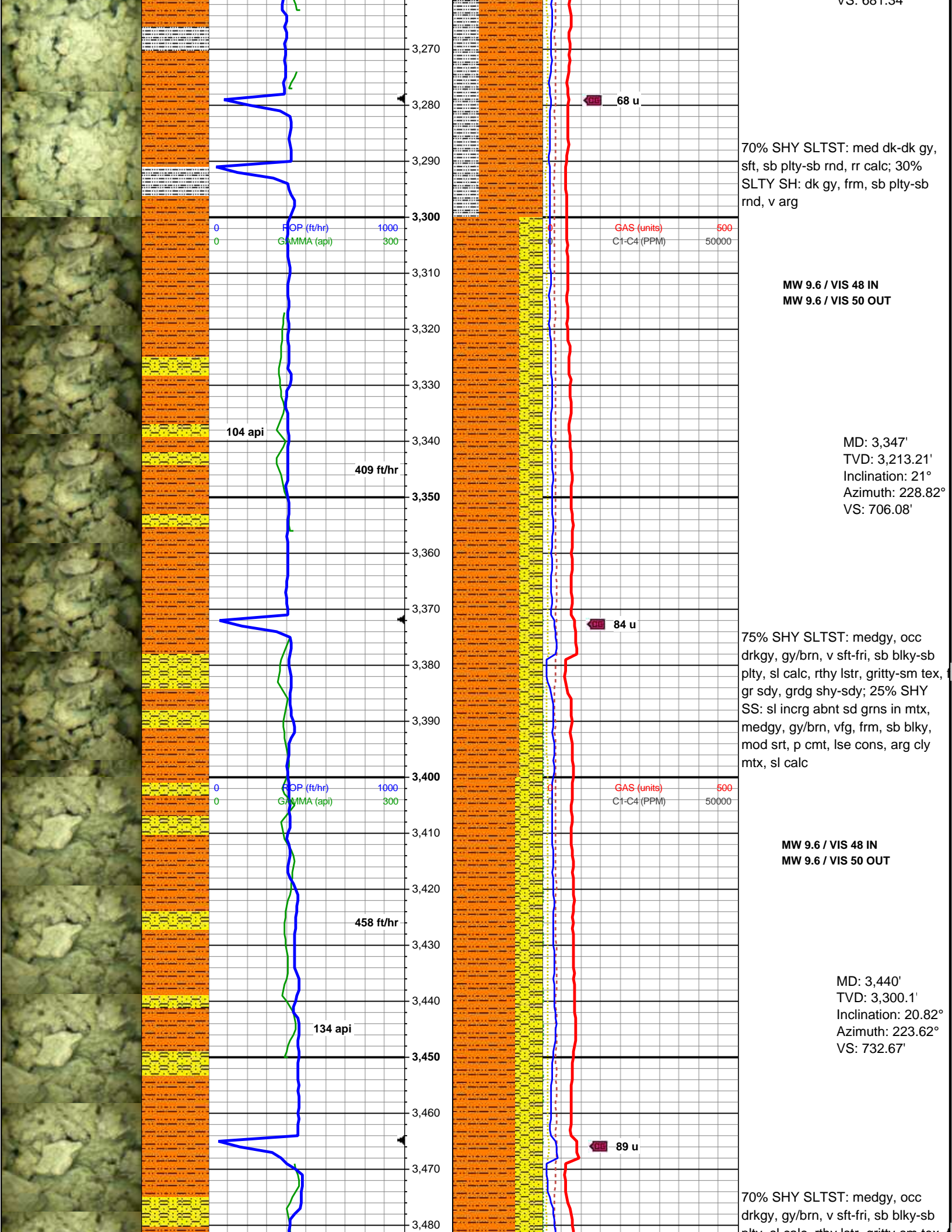
MD: 3,161'  
TVD: 3,039.46'  
Inclination: 20.85°  
Azimuth: 237.32°  
VS: 658.37'

60% SHY SLTST: med dk-dk gy,  
sft, sb plty-sb rnd, rr calc; 40%  
SLTY SH: dk gy, frm, sb plty-sb  
rnd, v arg

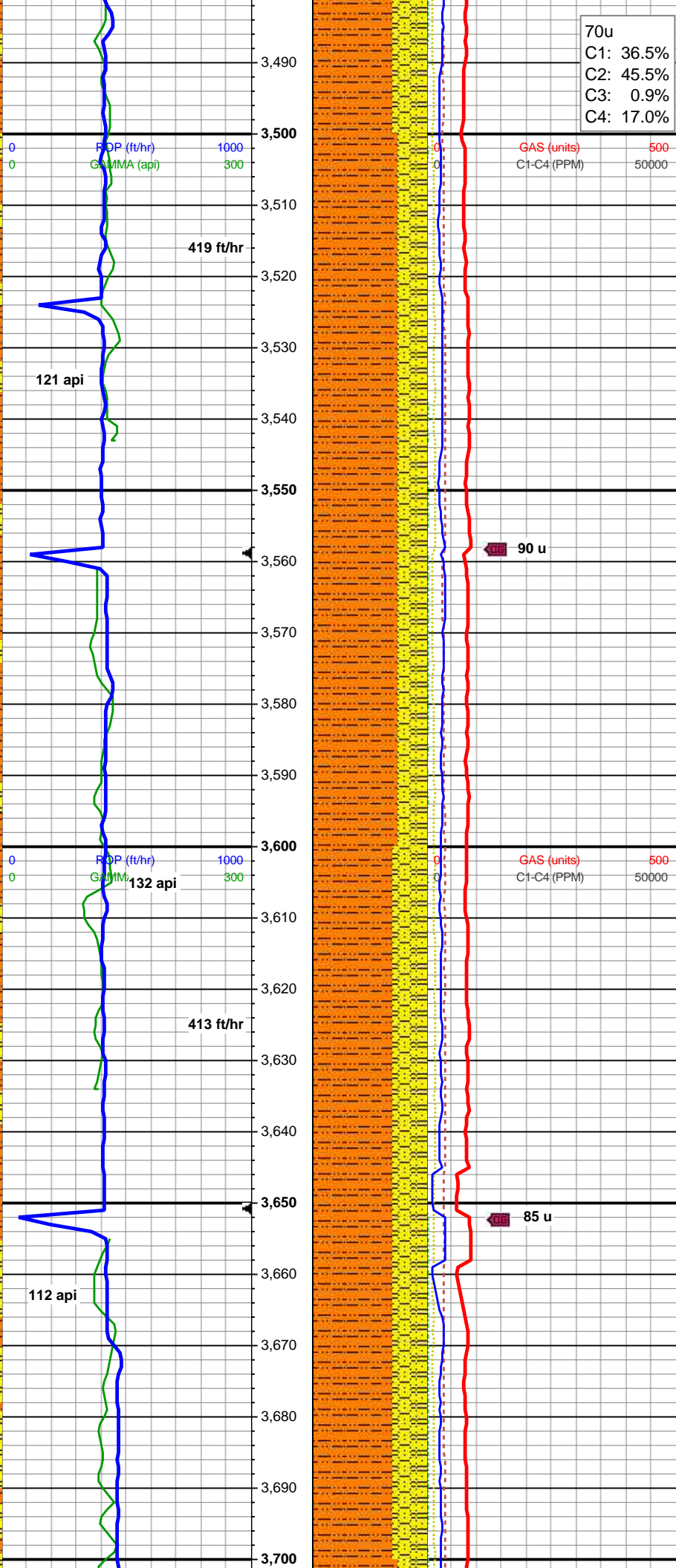
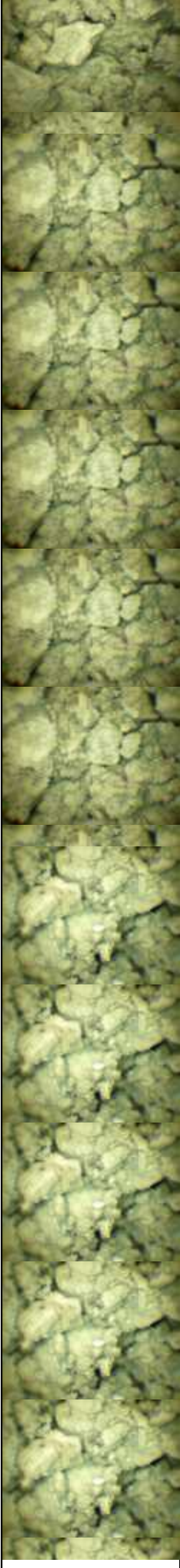
MW 9.6+ / VIS 50 IN  
MW 9.6 / VIS 53 OUT

MD: 3,254'  
TVD: 3,126.36'  
Inclination: 20.91°  
Azimuth: 234.04°  
VS: 681.24'









plty, sl calc, rthy lstr, gritty-sm tex,  
gr sdy, grdg shy-sdy; 30% SHY  
SS: sl incrg abnt sd grns in mtx,  
medgy, gy/brn, vfg, frm, sb blkly,  
mod srt, p cmt, lse cons, arg cly  
mtx, sl calc

MD: 3,533'  
TVD: 3,387'  
Inclination: 20.92°  
Azimuth: 218.82°  
VS: 760.85'

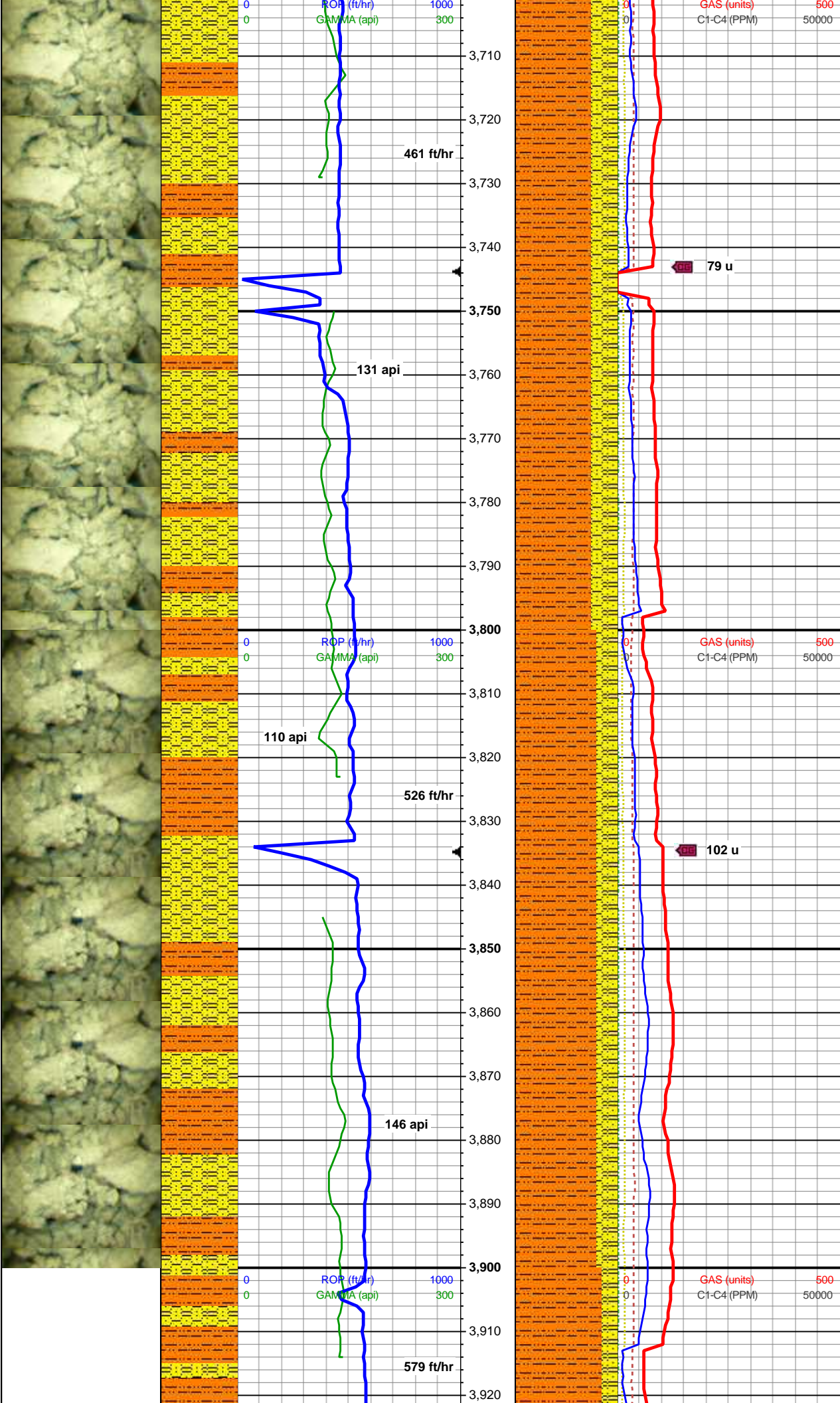
75% SHY SLTST: medgy, occ  
drkgy, gy/brn, v sft-fri, sb blkly-sb  
plty, sl calc, rthy lstr, gritty-sm tex,  
gr sdy, grdg shy-sdy; 25% SHY  
SS: sl incrg abnt sd grns in mtx,  
medgy, gy/brn, vfg, frm, sb blkly,  
mod srt, p cmt, lse cons, arg cly  
mtx, sl calc

MW 9.6 / VIS 45 IN  
MW 9.6 / VIS 47 OUT

MD: 3,626'  
TVD: 3,473.9'  
Inclination: 20.84°  
Azimuth: 214.2°  
VS: 790.37'

70% SHY SLTST: medgy, occ  
drkgy, gy/brn, v sft-fri, sb blkly-sb  
plty, sl calc, rthy lstr, gritty-sm tex,  
gr sdy, grdg shy-sdy; 30% SHY  
SS: sl incrg abnt sd grns in mtx,  
medgy, gy/brn, vfg, frm, sb blkly,  
mod srt, p cmt, lse cons, arg cly  
mtx, sl calc





MD: 3,719'  
TVD: 3,560.81'  
Inclination: 20.87°  
Azimuth: 210.53°  
VS: 820.87'

75% SHY SLTST: medgy, occ drkgy, gy/brn, v sft-fri, sb blkly-sb plty, sl calc, rthy lstr, gritty-sm tex, gr sdy, grdg shy-sdy; 25% SHY SS: sl incrg abnt sd grns in mtx, medgy, gy/brn, vfg, frm, sb blkly, mod srt, p cmt, lse cons, arg cly mtx, sl calc

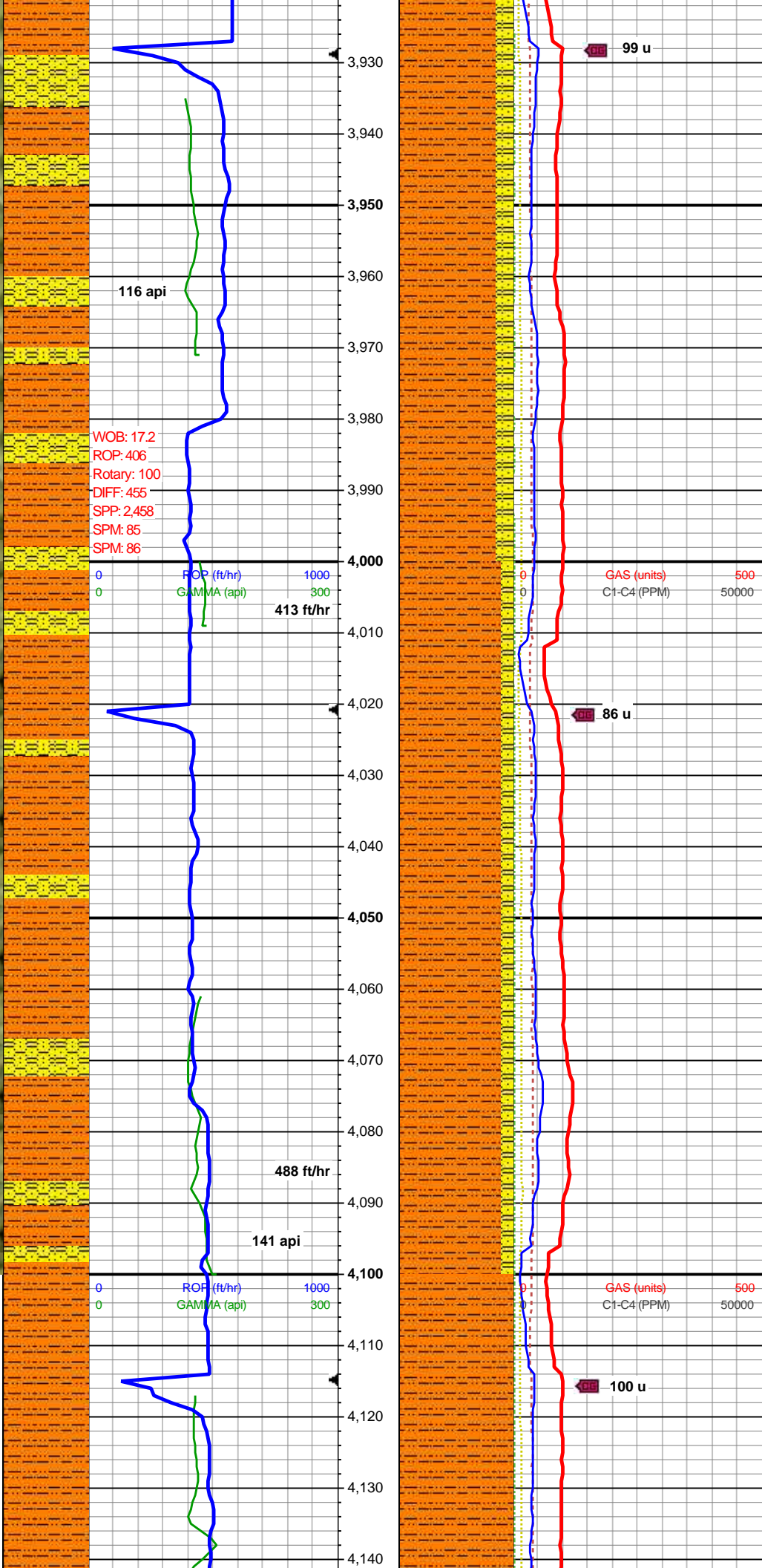
MD: 3,812'  
TVD: 3,647.73'  
Inclination: 20.81°  
Azimuth: 206.12°  
VS: 852.18'

MW 9.6 / VIS 45 IN  
MW 9.6 / VIS 47 OUT

80% SHY SLTST: med gy-dk gy brn, mot, hrd, sb blkly-sb plty, variably calc, rthy, slty tex, f gr sd, grdg shy-sdy; 20% SHY SS: lt gy brn, vfg, frm, sb blkly, mod srt, arg cly mtx

MW 9.6 / VIS 52 IN  
MW 9.6+ / VIS 54 OUT

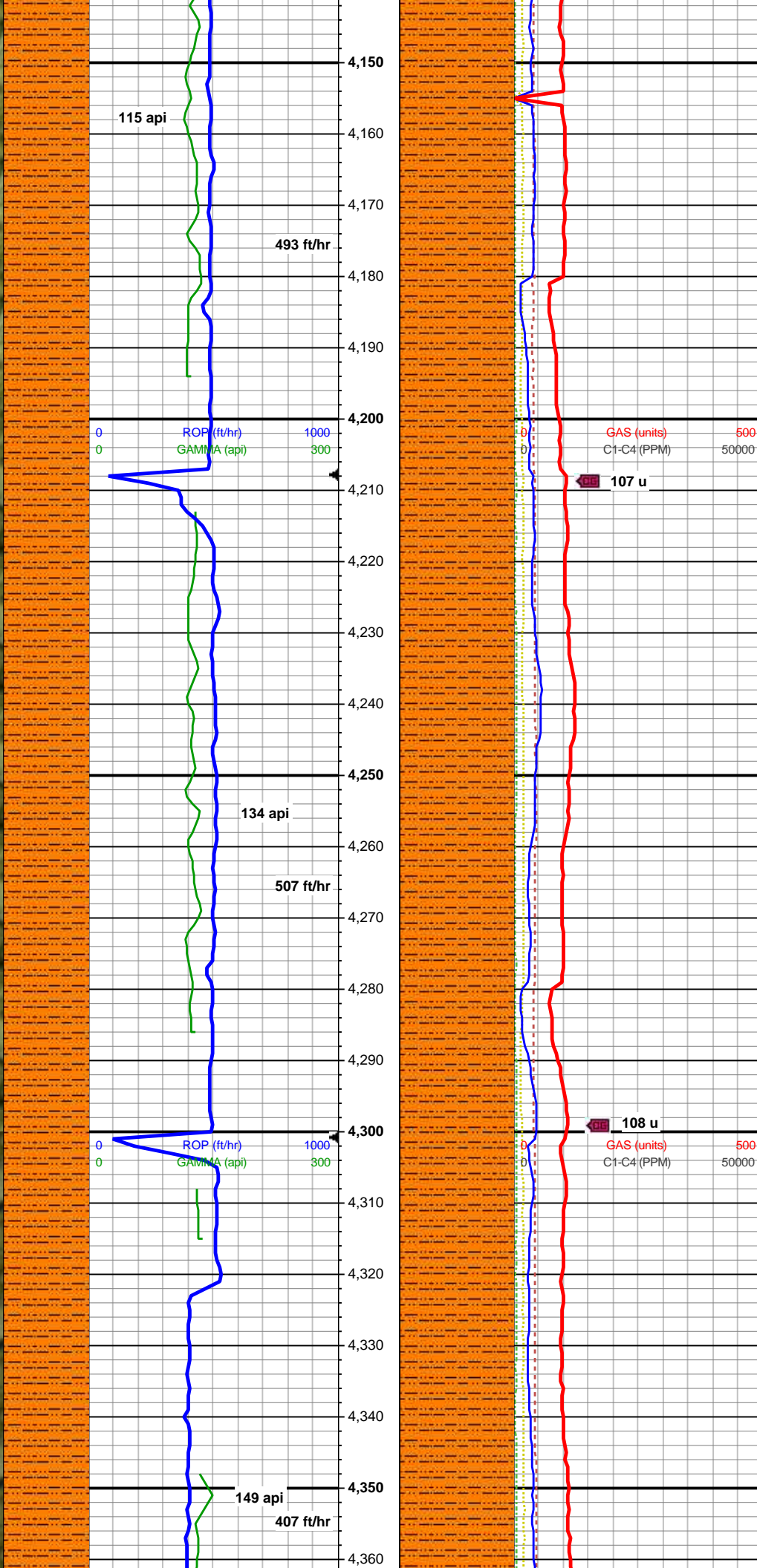




85% SHY SLTST: med gy-dk gy  
brn, mot-stri, hrd, blk- plty, non  
calc, rthy, slty tex, f gr sd, grdg  
shy-sdy; 15% SHY SS: lt gy brn,  
vfg, frm, sb blk, mod srt, arg cly  
mtx  
MD: 3,998'  
TVD: 3,821.57'  
Inclination: 20.87°  
Azimuth: 208.92°  
VS: 915.1'  
MW 9.6 / VIS 52 IN  
MW 9.6+ / VIS 54 OUT

90% SHY SLTST: med gy-dk gy  
brn, mot-stri, hrd, blk- plty, non  
calc, rthy, slty tex, f gr sd, grdg  
shy-sdy; 10% SHY SS: lt gy brn,  
vfg, frm, sb blk, mod srt, arg cly  
mtx  
MD: 4,091'  
TVD: 3,908.45'  
Inclination: 20.91°  
Azimuth: 209.41°  
VS: 946.34'



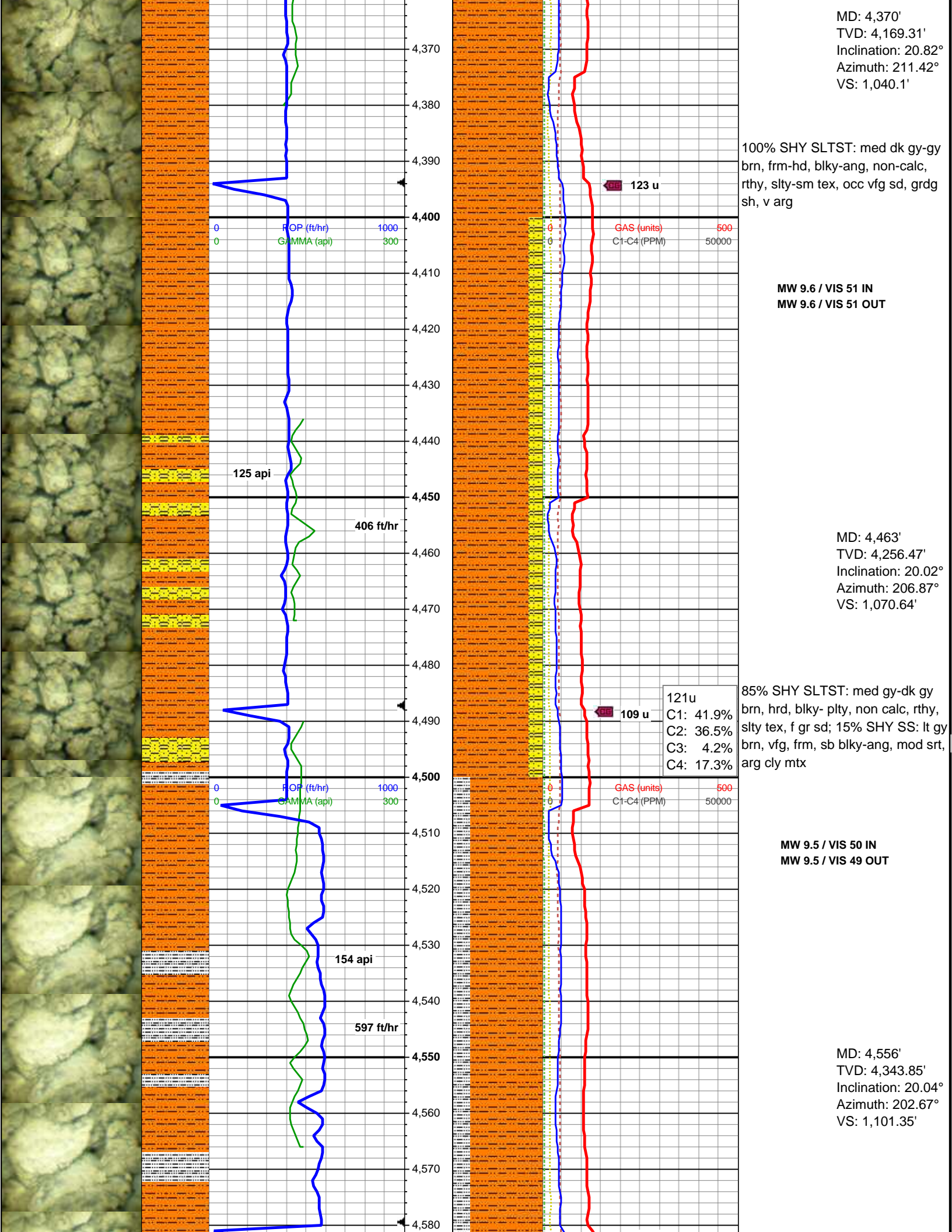


MD: 4,184'  
TVD: 3,995.37'  
Inclination: 20.78°  
Azimuth: 206.11°  
VS: 977.76'  
100% SHY SLTST: med dk gy-gy  
brn, frm-hd, blk-ang, non-calc,  
rthy, slty-sm tex, occ vfg sd, grdg  
sh, v arg

MW 9.6 / VIS 51 IN  
MW 9.6 / VIS 51 OUT

MD: 4,277'  
TVD: 4,082.34'  
Inclination: 20.7°  
Azimuth: 208.01°  
VS: 1,009.17'  
100% SHY SLTST: med dk gy-gy  
brn, frm-hd, blk-ang, non-calc,  
rthy, slty-sm tex, occ vfg sd, grdg  
sh, v arg

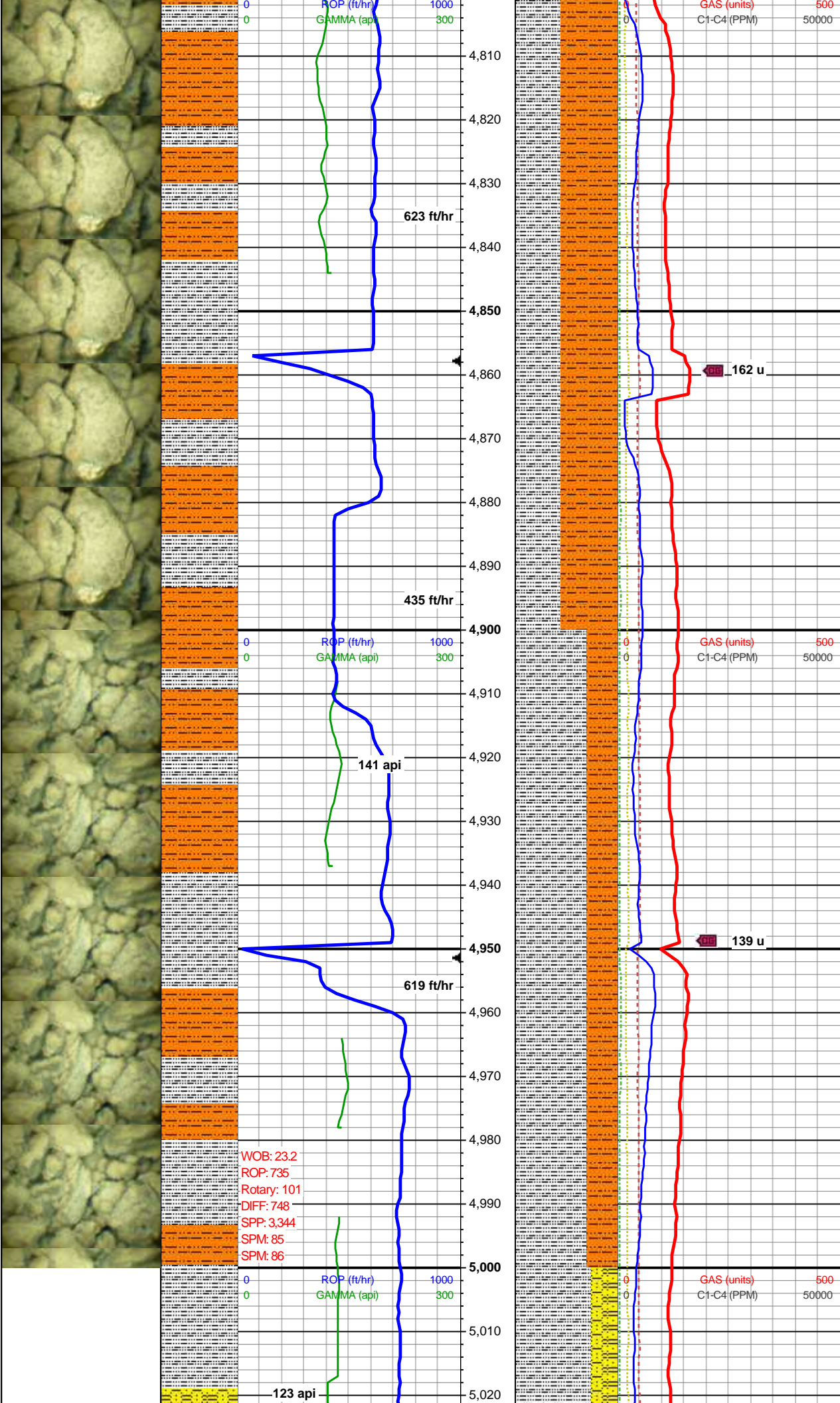












MD: 4,835'  
TVD: 4,605.87'  
Inclination: 20.11°  
Azimuth: 195.7°  
VS: 1,195.29'

55% SHY SLTST: med gy-dk gy  
brn, hrd, blkly-plty, non calc, rthy,  
silty tex, mnrf gr sd; 45% SLTY  
SH: dk gy brn, vfg, frm, sb  
blkly-ang, mod srt, arg mtx

MW 9.5 / VIS 50 IN  
MW 9.5+ / VIS 52 OUT

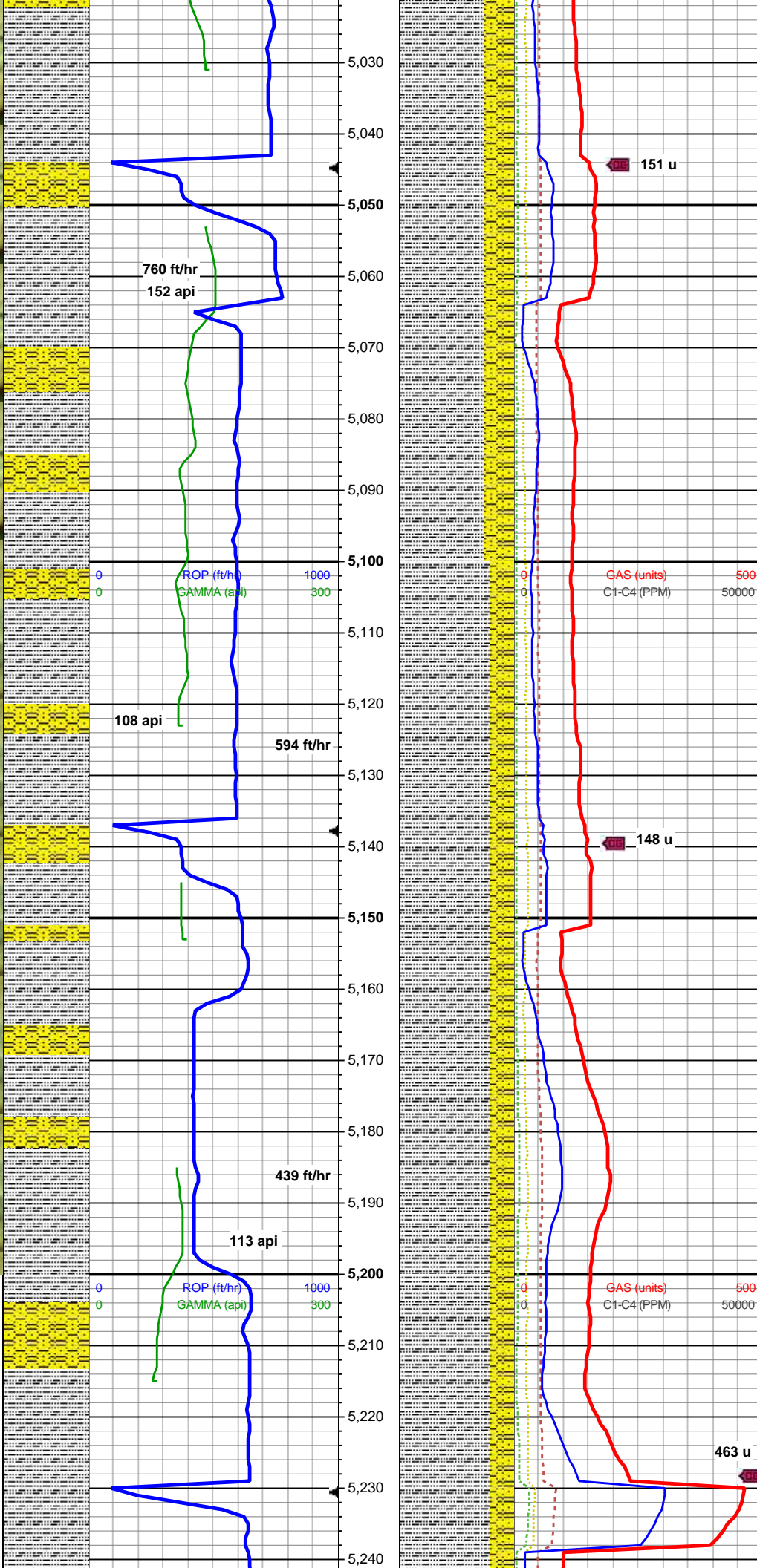
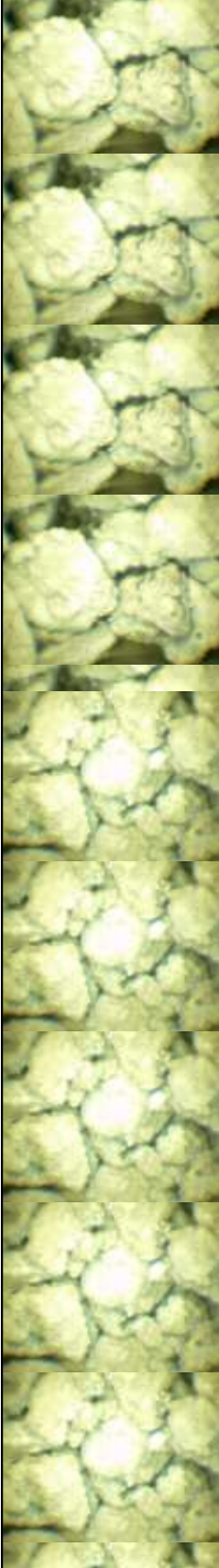
MD: 4,928'  
TVD: 4,693.3'  
Inclination: 19.8°  
Azimuth: 188.58°  
VS: 1,226.94'

70% SLTY SH: dk gy brn, vfg,  
frm-hrd, sb blkly-sb rnd, mod srt,  
arg mtx, non-calc; 30% SHY  
SLTST: med-dk gy brn, stri-mot,  
hrd, blkly, non-calc, rthy, silty tex

MW 9.5 / VIS 50 IN  
MW 9.5+ / VIS 52 OUT

MD: 5,021'  
TVD: 4,781.34'





TVD: 4,761.34'  
Inclination: 17.8°  
Azimuth: 194.5°  
VS: 1,256.85'

Sussex/Shannon Top  
5068' MD / 4826' TVD

75% SLTY SH: dk gy brn, vfg,  
frm-hrd, sb blk-y-rnd, mod srt, arg  
mtx, non-calc; 25% SHY SS:  
lt-med gy brn, stri, sft-frm, blk-y,  
non-calc, rthy, slty tex

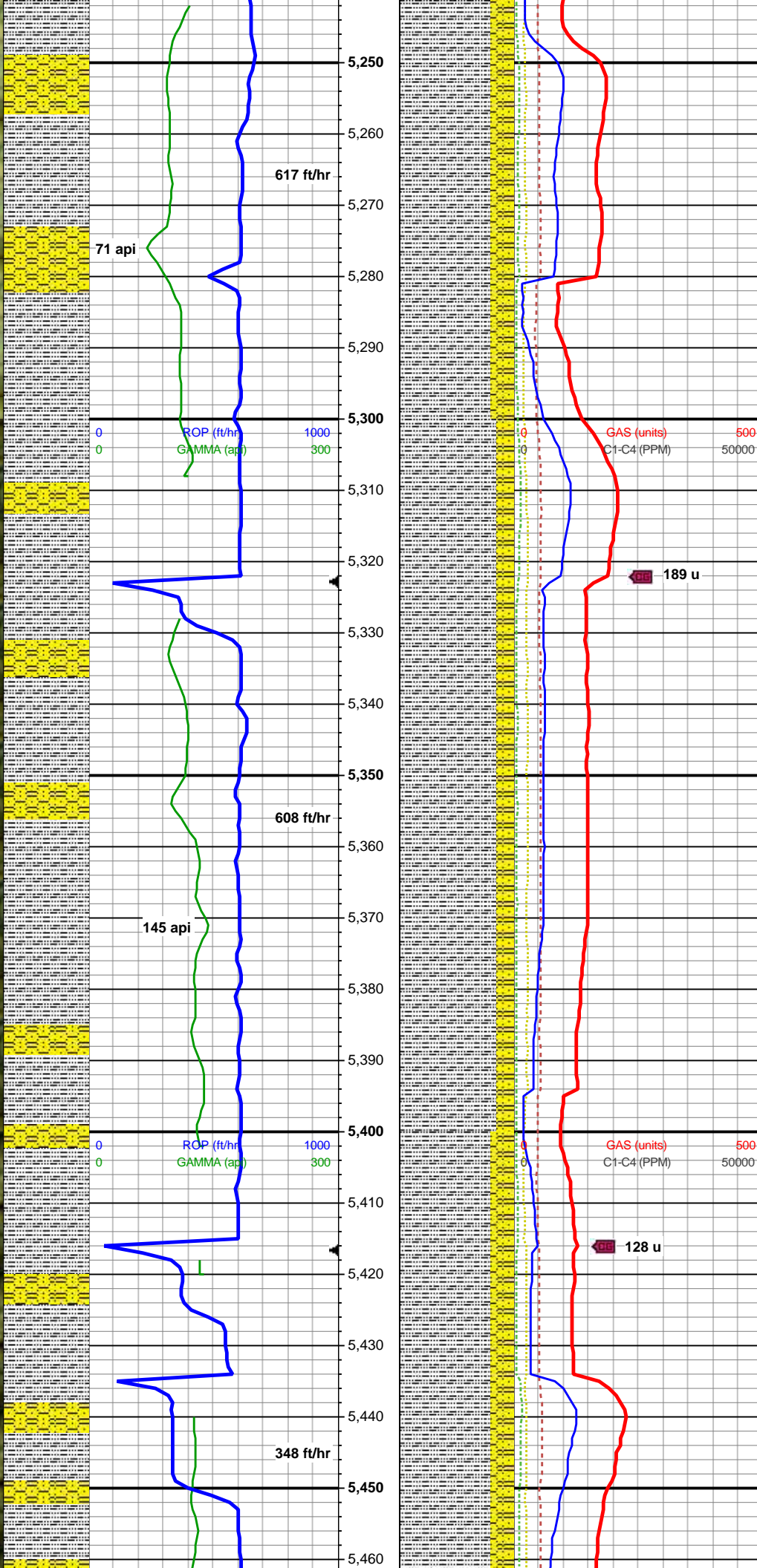
MD: 5,114'  
TVD: 4,869.96'  
Inclination: 17.55°  
Azimuth: 200.22°  
VS: 1,284.8'

80% SLTY SH: dk gy brn, vfg,  
frm-hrd, sb blk-y-rnd, mod srt, arg  
mtx, non-calc; 20% SHY SS:  
lt-med gy brn, stri, sft-frm, blk-y,  
non-calc, rthy, slty tex

MD: 5,206'  
TVD: 4,957.03'  
Inclination: 20.12°  
Azimuth: 205.79°  
VS: 1,313.63'

MW 9.5 / VIS 50 IN  
MW 9.5+ / VIS 52 OUT



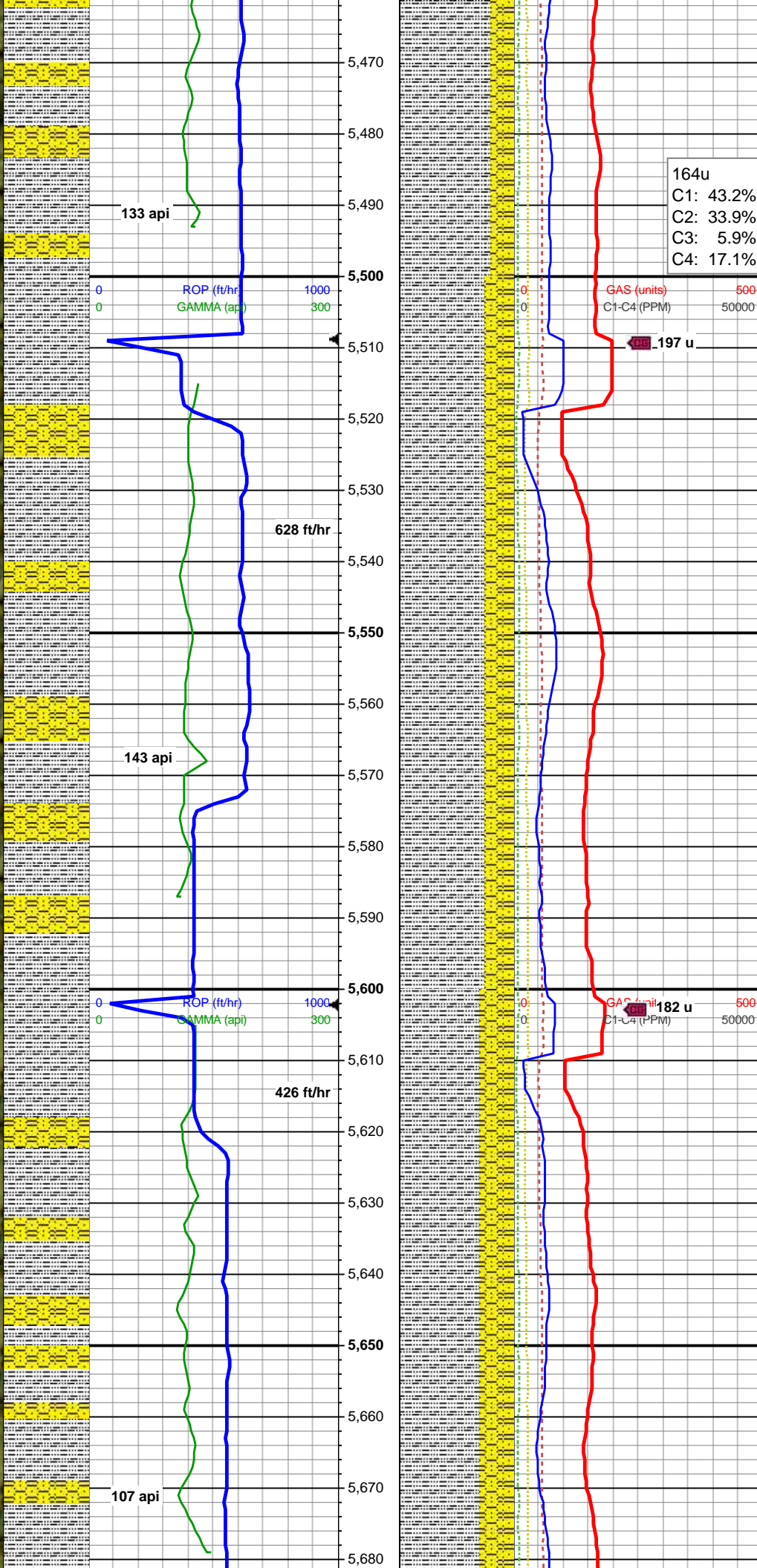


80% SLTY SH: dk gy brn, vfg,  
frm-hrd, sb blk-y-rnd, mod srt, arg  
mtx, non-calc; 20% SHY SS:  
lt-med gy brn, stri, sft-frm, blk-y,  
non-calc, rthy, slty tex  
MD: 5,299'  
TVD: 5,044.31'  
Inclination: 20.38°  
Azimuth: 195.75°  
VS: 1,345.09'

85% SLTY SH: dk gy brn, vfg,  
frm-hrd, sb blk-y-rnd, mod srt, arg  
mtx, non-calc; 15% SHY SS:  
lt-med gy brn, stri, sft-frm, blk-y,  
non-calc, rthy, slty tex  
MD: 5,392'  
TVD: 5,131.64'  
Inclination: 20.13°  
Azimuth: 178.95°  
VS: 1,376.95'

MW 9.5 / VIS 49 IN  
MW 9.5 / VIS 48 OUT





MD: 5,485'  
TVD: 5,218.86'  
Inclination: 20.48°  
Azimuth: 175.52°  
VS: 1,408.46'

80% SLTY SH: dk gy brn, tr lt brn, vfg, frm-sl hrd, sb blk-y-rnd, rr sb ang, mod srt, arg mtx, mod calc;  
20% SHY SS: lt gr brn-offwht, frm, blk-y-ang,arg mtx, non-calc

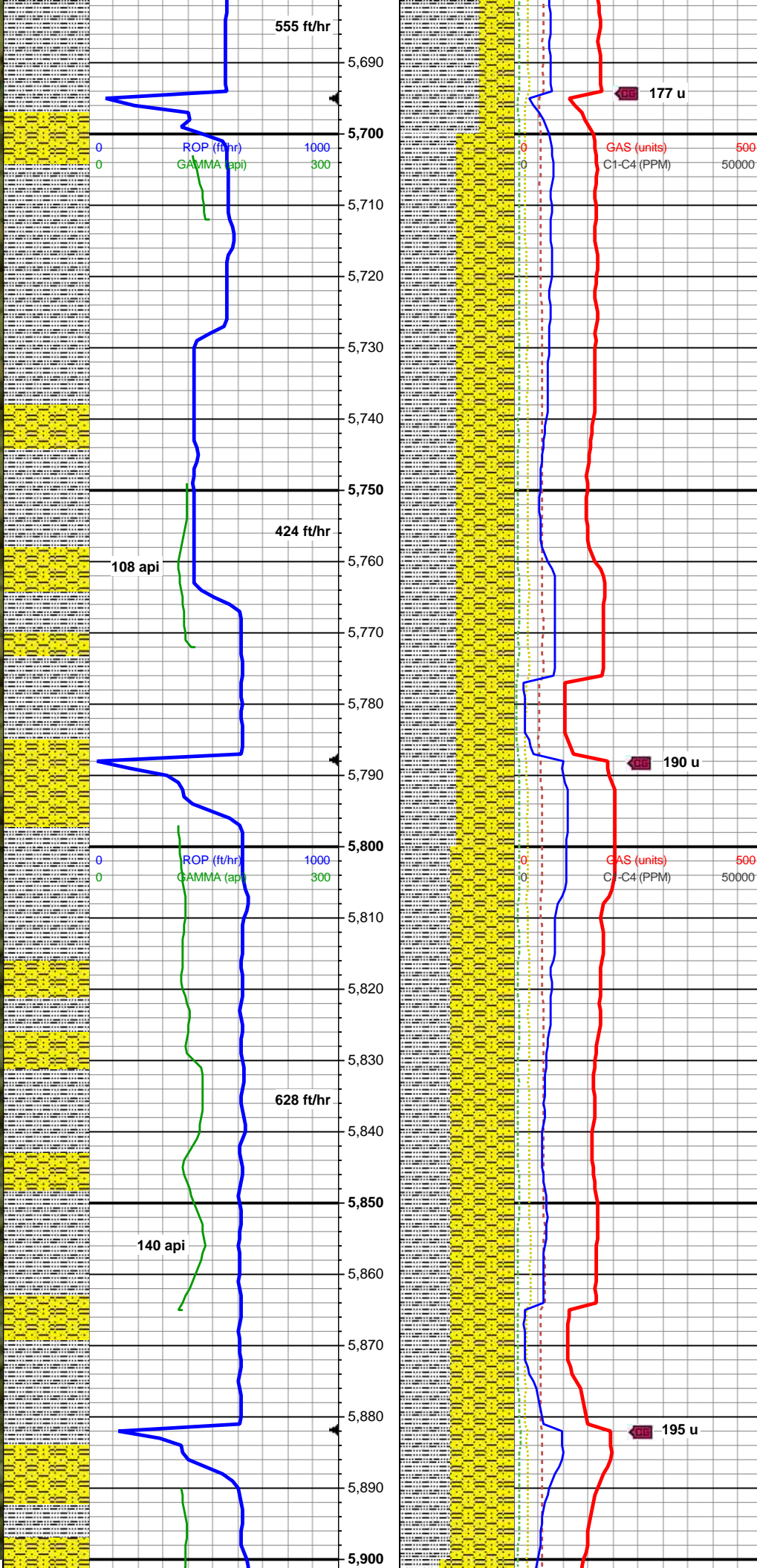
MD: 5,578'  
TVD: 5,306.3'  
Inclination: 19.44°  
Azimuth: 185.38°  
VS: 1,439.69'

75% SLTY SH: dk gy brn, vfg, frm-sl hrd, sb blk-y-rnd, rr sb ang, mod srt, arg mtx, mod calc; 25% SHY SS: lt gr, sft, uncon, rnd-sb blk-y, arg mtx, sl calc

MW 9.5 / VIS 46 IN  
MW 9.5 / VIS 47 OUT

MD: 5,671'  
TVD: 5,393.63'  
Inclination: 20.83°  
Azimuth: 193.22°  
VS: 1,471.64'





70% SLTY SH: dk gy brn, vfg, frm-sl hrd, sb blk-y-rnd, rr sb ang, mod srt, arg mtx, mod calc; 30% SHY SS: lt gr, sft, uncons, rnd-sb blk-y, arg mtx, sl calc

MD: 5,764'  
TVD: 5,480.58'  
Inclination: 20.79°  
Azimuth: 201.56°  
VS: 1,504.29'

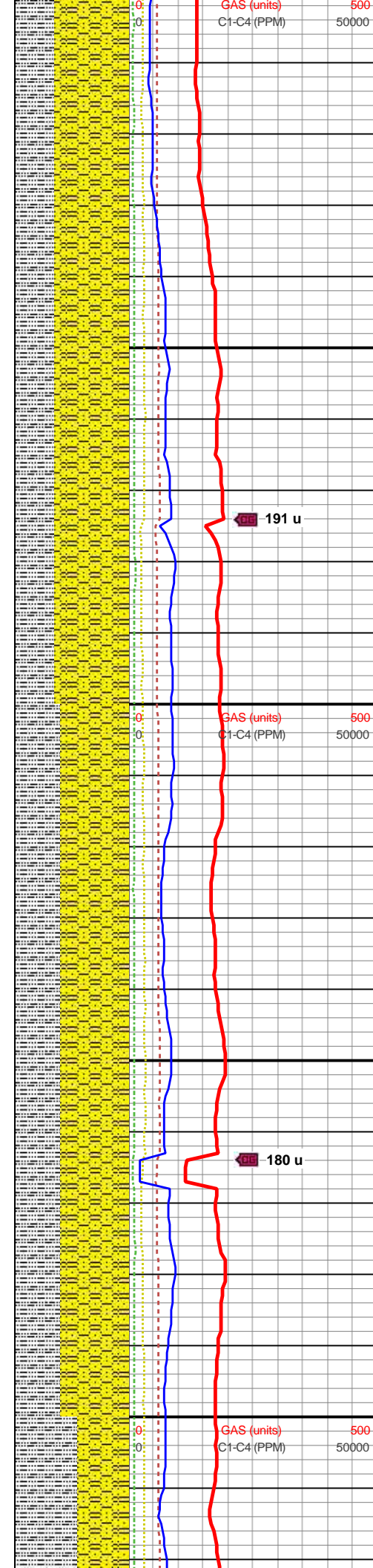
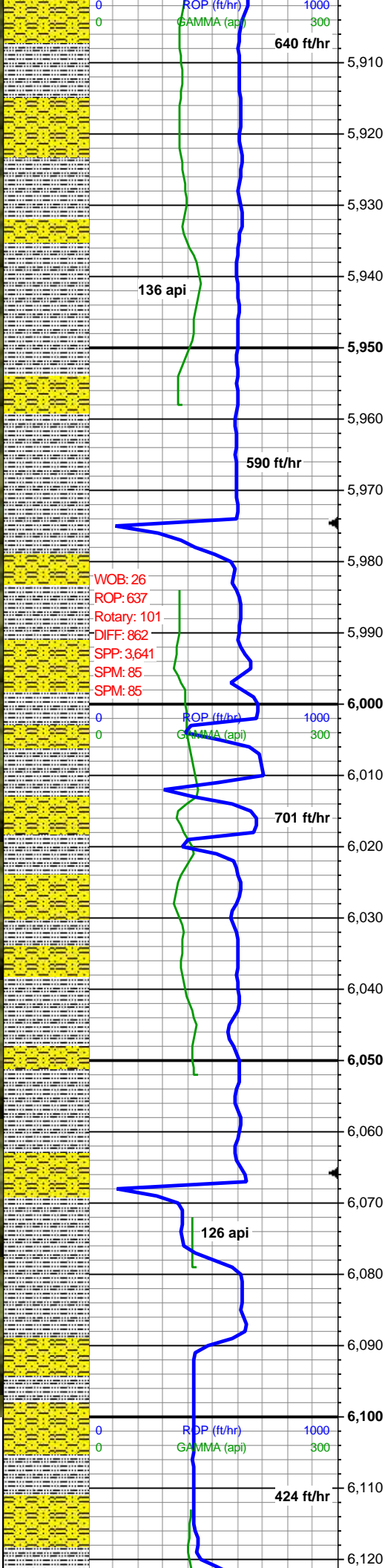
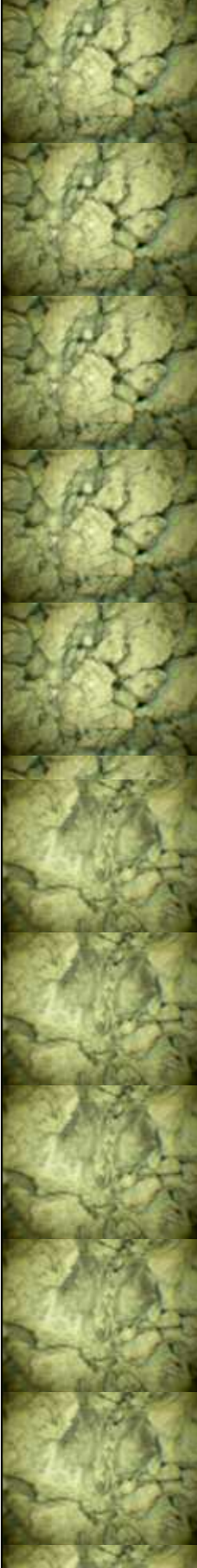
50% SHY SS: lt gr, sft, uncons, rnd-sb blk-y, arg mtx, sl calc; 50% SLTY SH: dk gy brn, vfg, frm-sl hrd, sb blk-y-rnd, rr sb ang, mod srt, arg mtx, mod calc

MW 9.5 / VIS 46 IN  
MW 9.5 / VIS 47 OUT

MD: 5,857'  
TVD: 5,567.52'  
Inclination: 20.84°  
Azimuth: 205.67°  
VS: 1,536.33'

55% SHY SS: lt gr, sft, uncons, rnd-sb blk-y, arg mtx, sl calc; 45% SLTY SH: dk gy brn, vfg, frm-sl hrd, sb blk-y-rnd, rr sb ang, mod srt, arg mtx, mod calc





MD: 5,950'  
TVD: 5,654.46'  
Inclination: 20.76°  
Azimuth: 210.25°  
VS: 1,567.64'

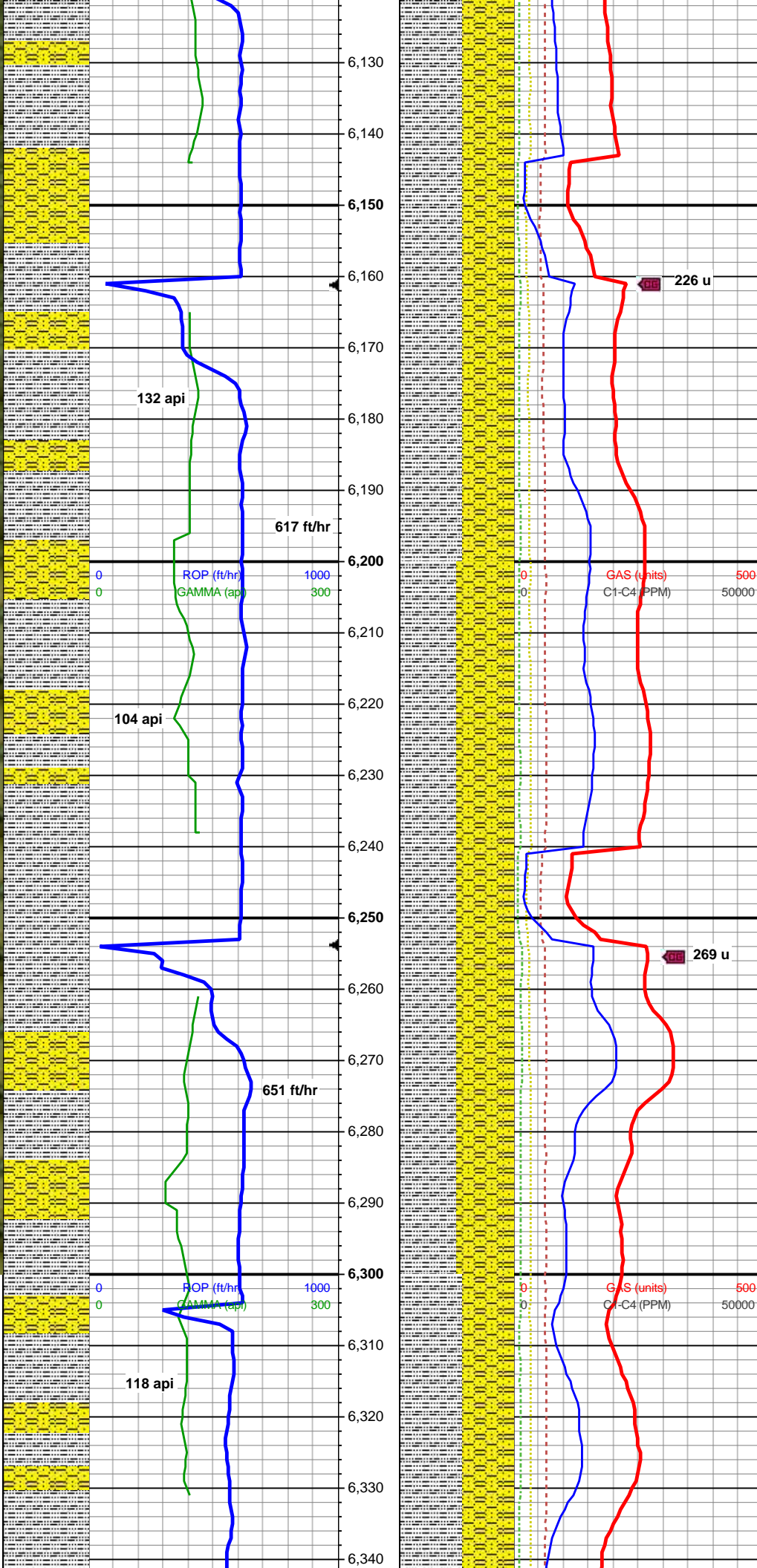
65% SHY SS: lt gr, sft, uncon, rnd-sb blk, arg mtx, sl calc; 35% SLTY SH: dk gy brn, vfg, frm-sl hrd, sb blk-rnd, rr sb ang, mod srt, arg mtx, mod calc

MW 9.5+ / VIS 47 IN  
MW 9.4+ / VIS 48 OUT

MD: 6,044'  
TVD: 5,742.38'  
Inclination: 20.71°  
Azimuth: 216.84°  
VS: 1,598'

60% SHY SS: lt gr, sft, uncon, rnd-sb blk, arg mtx, sl calc; 40% SLTY SH: dk gy brn, vfg, frm-sl hrd, sb blk-rnd, rr sb ang, mod srt, arg mtx, mod calc





MD: 6,137'  
TVD: 5,829.35'  
Inclination: 20.84°  
Azimuth: 224.64°  
VS: 1,626.15'

55% SLTY SH: dk gy brn, vfg,  
frm-sl hrd, sb blk-ry-rnd, rr sb ang,  
mod srt, arg mtx, mod calc; 45%  
SHY SS: lt gr, sft, uncon, rnd-sb  
blk-ry, arg mtx, sl calc

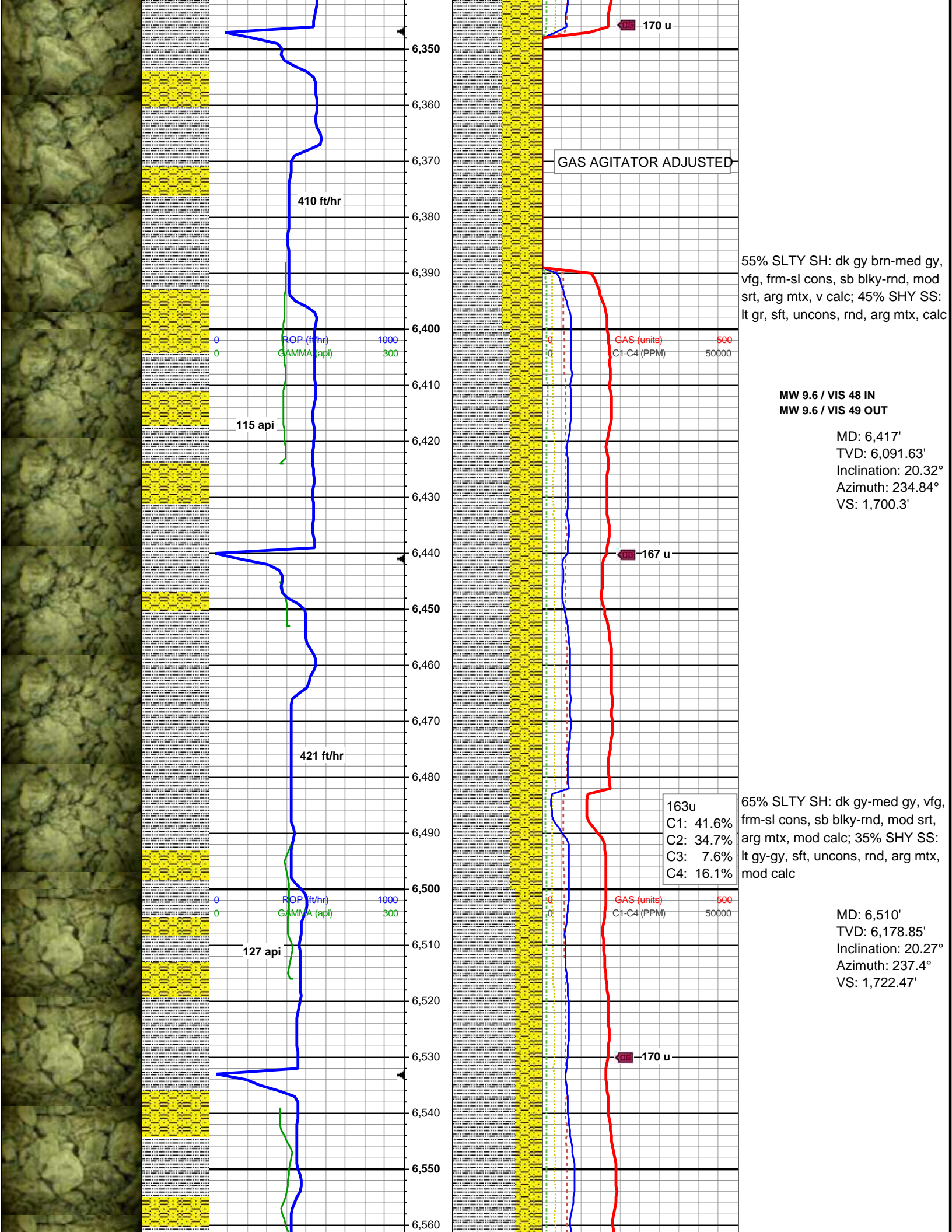
MW 9.5+ / VIS 47 IN  
MW 9.4+ / VIS 48 OUT

MD: 6,230'  
TVD: 5,916.46'  
Inclination: 20.19°  
Azimuth: 229.58°  
VS: 1,651.98'

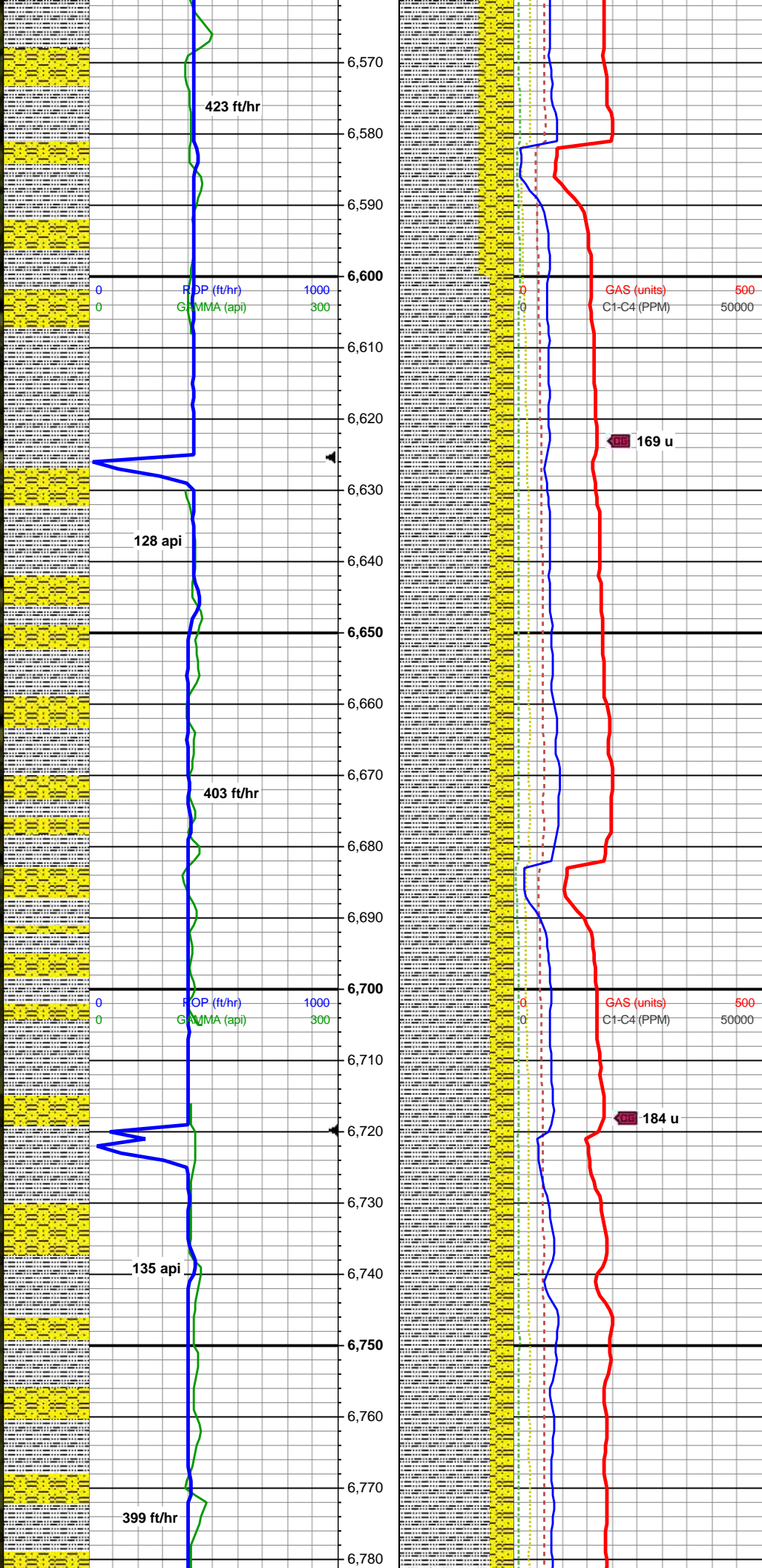
50% SLTY SH: dk gy brn-med gy,  
vfg, frm-sl hrd, sb blk-ry-rnd, rr sb  
ang, mod srt, arg mtx, mod calc;  
50% SHY SS: lt gr, sft, uncon,  
rnd-sb blk-ry, arg mtx, calc

MD: 6,323'  
TVD: 6,003.59'  
Inclination: 20.74°  
Azimuth: 231.7°  
VS: 1,676.48'









70% SLTY SH: dk gy-med gy, vfg, sft-frn, sb blk-y-rnd, mod srt, arg mtx, mod calc; 30% SHY SS: lt gy-gy, sft, rnd, arg mtx, sl calc

MW 9.6 / VIS 48 IN  
MW 9.6 / VIS 49 OUT

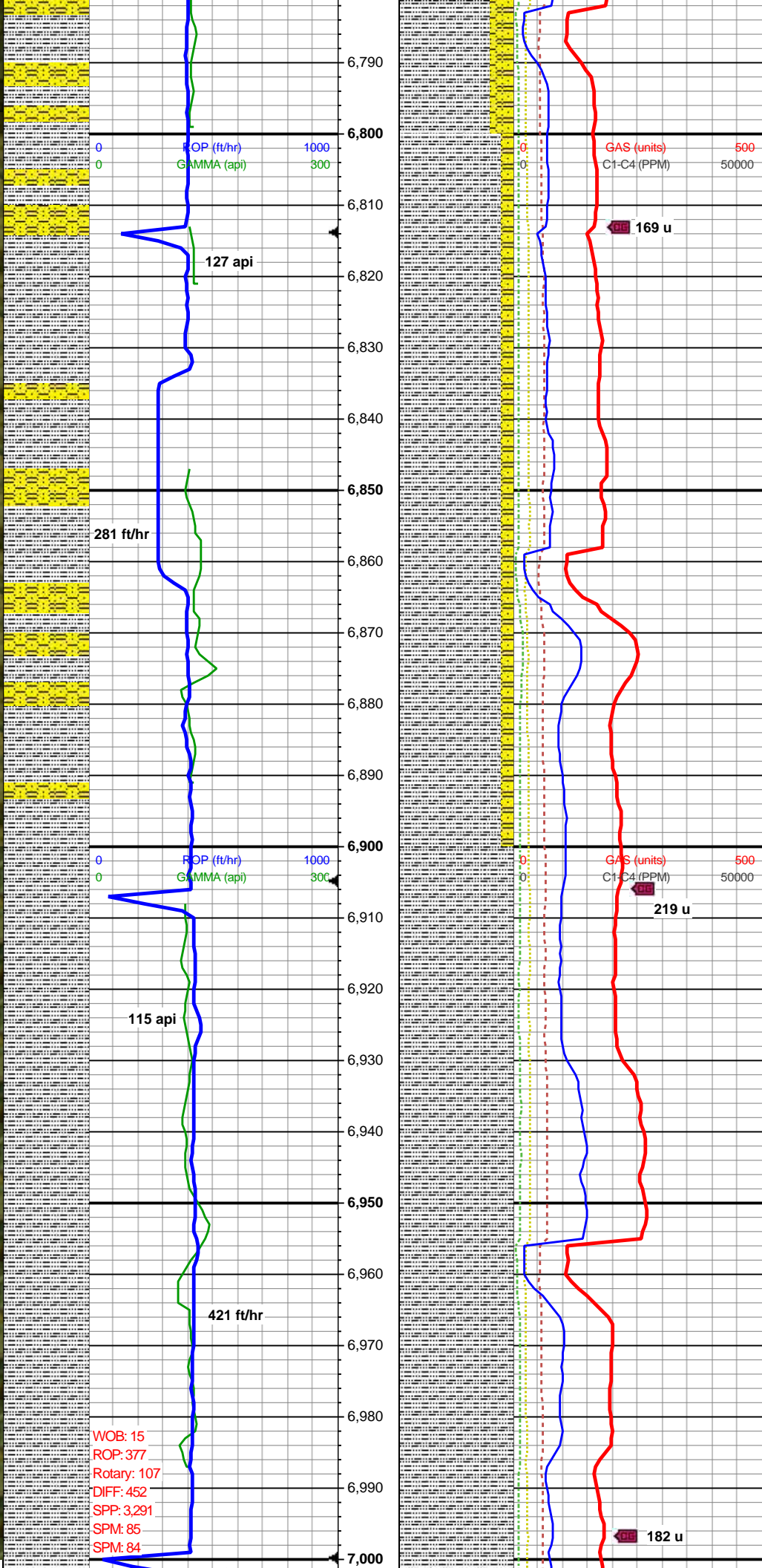
MD: 6,603'  
TVD: 6,265.97'  
Inclination: 20.72°  
Azimuth: 237.22°  
VS: 1,744.36'

80% SLTY SH: dk gy-med gy, vfg, sft-frn, blk-y-rnd, mod srt, v arg mtx, mod calc; 20% SHY SS: lt gy-gy, sft, rnd, arg mtx, sl calc

MD: 6,696'  
TVD: 6,352.95'  
Inclination: 20.74°  
Azimuth: 233.61°  
VS: 1,767.28'

MD: 6,789'  
TVD: 6,439.92'  
Inclination: 20.76°  
Azimuth: 232.19°





VS: 1,791.23'

80% SLTY SH: dk gy-med gy, vfg, sft-sl frm, sb blkly-sb plty, mod srt, v arg mtx, mod calc; 20% SHY SS: lt gy-gy, sft, rnd, arg mtx, sl calc

MD: 6,883'  
TVD: 6,527.83'  
Inclination: 20.72°  
Azimuth: 227.88°  
VS: 1,816.54'

90% SLTY SH: dk gy-med gy, vfg, sft-sl frm, sb blkly-sb plty, mod srt, v arg mtx, v sl calc; 10% SHY SS: lt gy-gy, sft, rnd, arg mtx, sl calc

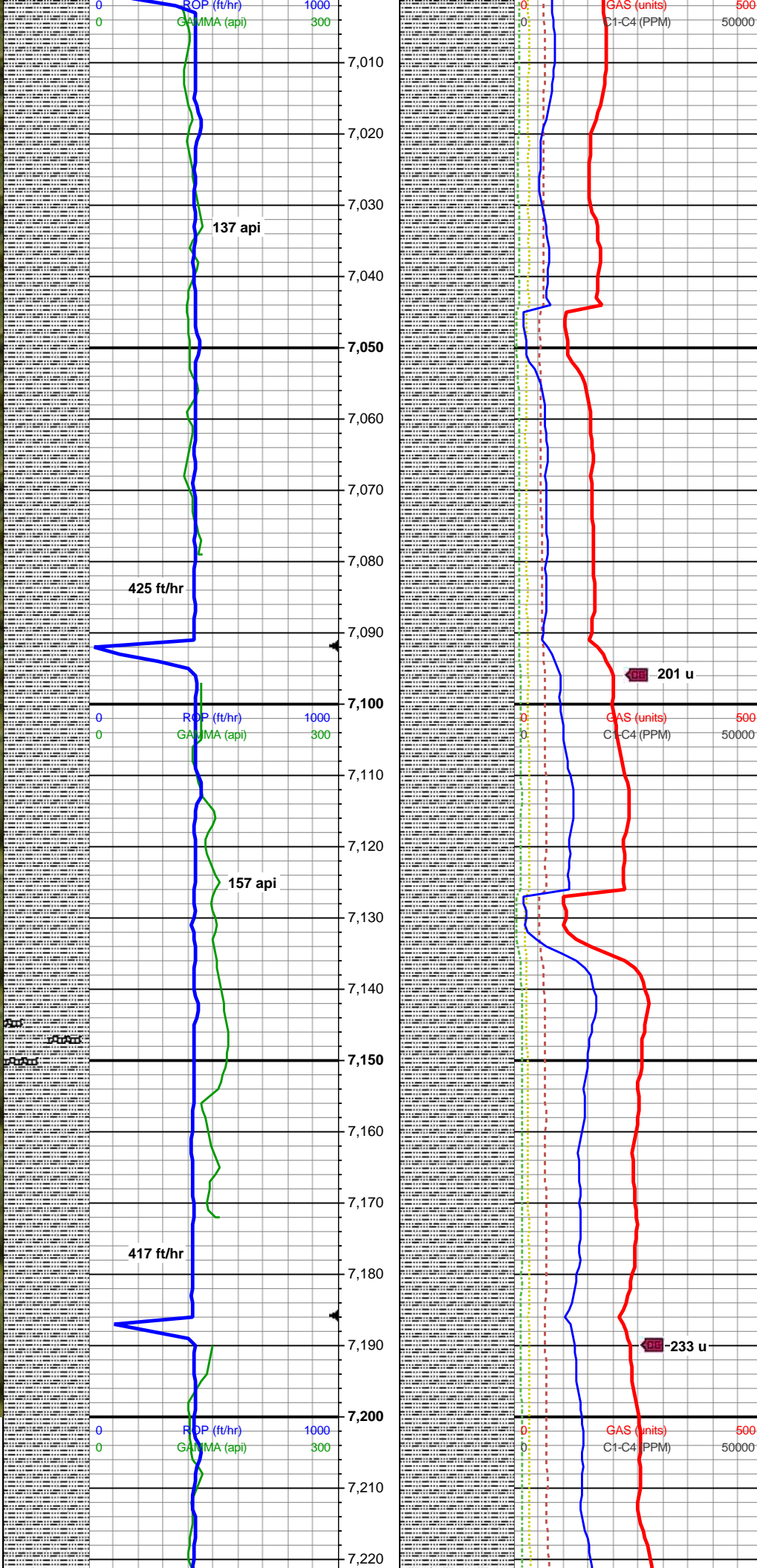
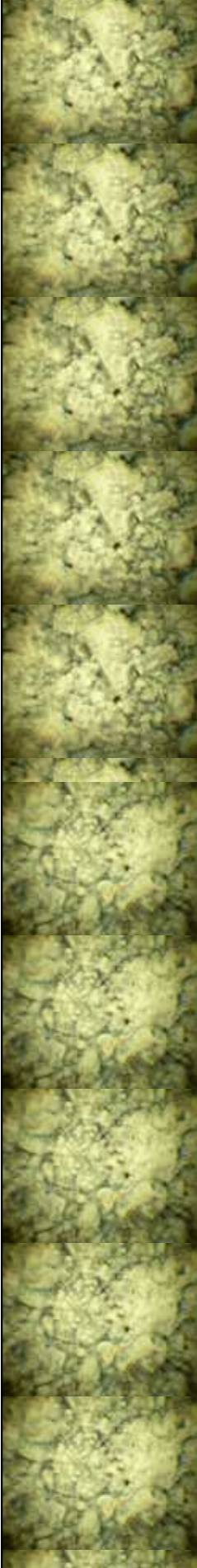
MD: 6,976'  
TVD: 6,614.8'  
Inclination: 20.8°  
Azimuth: 224.24°  
VS: 1,843.02'

MW 9.7 / VIS 49 IN  
MW 9.7 / VIS 47 OUT

100% SLTY SH: dk gy-med gy, vfg, sft-frm, sb blkly-sb plty, mod srt, v arg mtx, sl calc, tr dissd pyr

WOB: 15  
ROP: 377  
Rotary: 107  
DIFF: 452  
SPP: 3,291  
SPM: 85  
SPM: 84





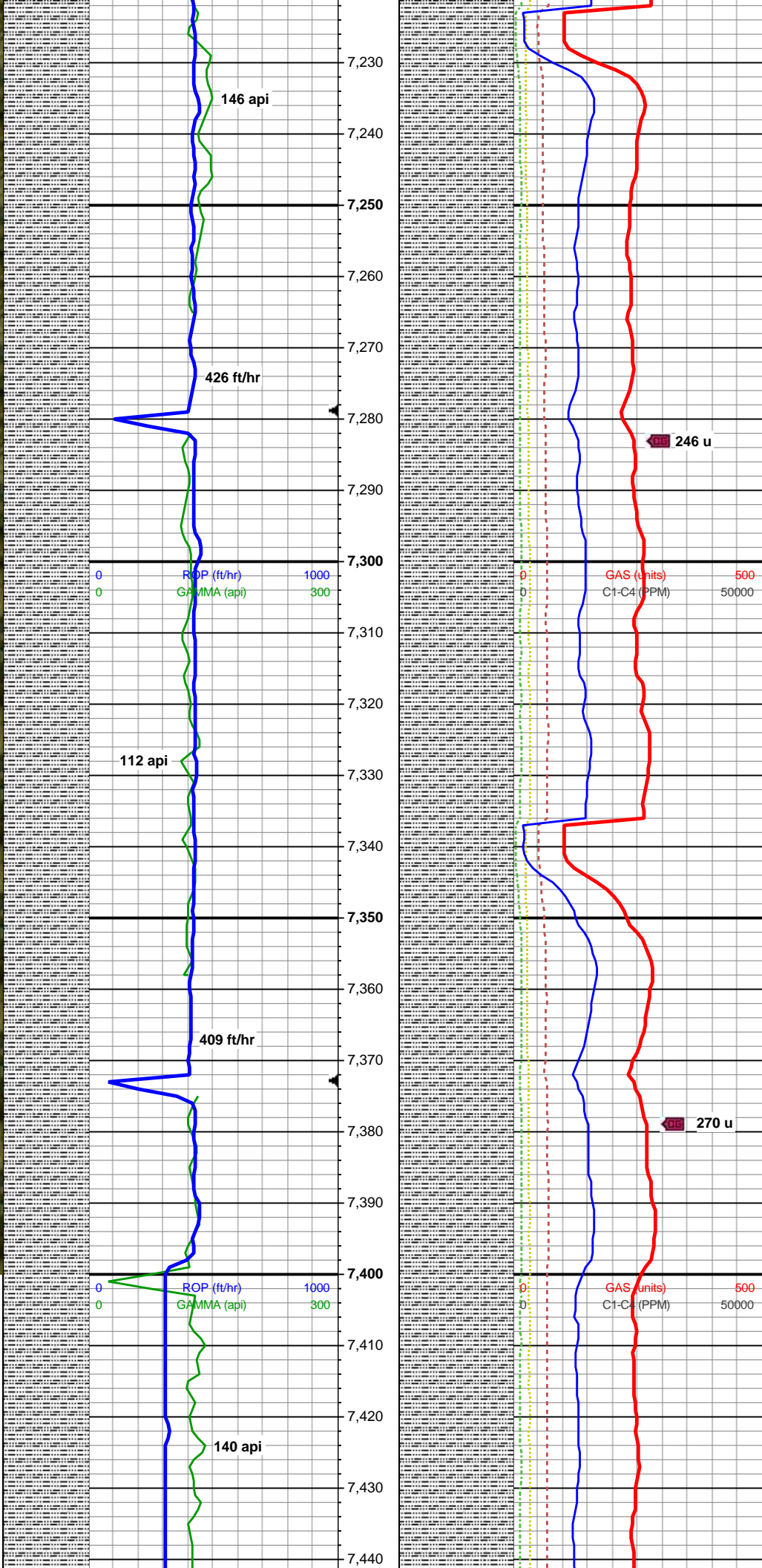
MD: 7,069'  
TVD: 6,701.75'  
Inclination: 20.76°  
Azimuth: 220.6°  
VS: 1,870.72'

100% SLTY SH: dk gy-med gy, vfg, sft-frm, sb blk-y-sb plty, mod srt, slty txt, v arg mtx, sl calc, tr dissim pyr, mnr shy ss frags

MD: 7,162'  
TVD: 6,788.72'  
Inclination: 20.77°  
Azimuth: 215.73°  
VS: 1,899.64'

100% SLTY SH: dk gy, vfg, frm, blk-y-sb rnd, mod srt, slty txt, v arg mtx, sl calc, tr dissim pyr, tr shy ss frags





MD: 7,255'  
TVD: 6,875.69'  
Inclination: 20.74°  
Azimuth: 210.71°  
VS: 1,929.8'

100% SLTY SH: med dk gy-dk gy,  
vfg, frm, blk-y-sb rnd, mod srt, slty  
txt, v arg mtx, calc ip

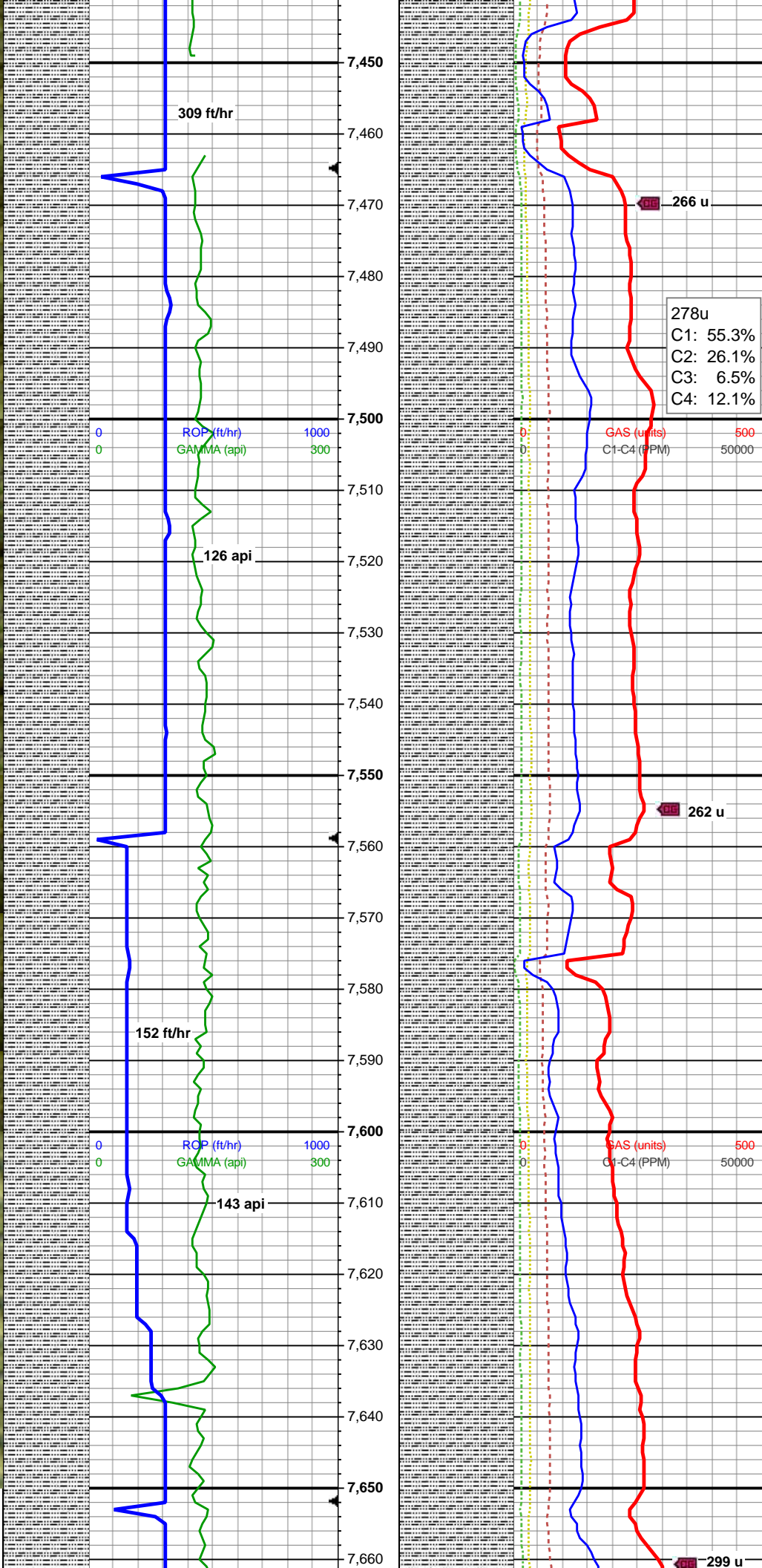
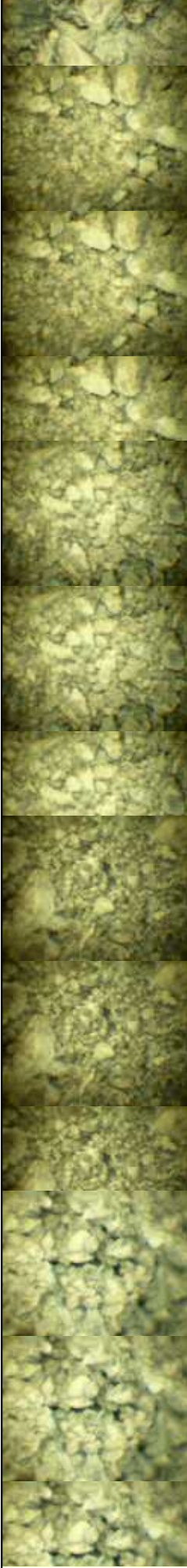
MD: 7,348'  
TVD: 6,962.65'  
Inclination: 20.8°  
Azimuth: 207.75°  
VS: 1,960.84'

100% SLTY SH: med dk gy-dk gy,  
vfg, frm, blk-y-sb ang, mod srt, slty  
txt, v arg mtx, v sl calc

MW 9.8 / VIS 47 IN  
MW 9.8 / VIS 48 OUT

MD: 7,442'  
TVD: 7,050.54'





Inclination: 20.8°  
Azimuth: 199.91°  
VS: 1,993.12'

100% SLTY SH: med dk gy-dk gy,  
vfg, frm, blk-y-sb rnd, mod srt, slty  
txt, v arg mtz, calc ip

MD: 7,535'  
TVD: 7,137.49'  
Inclination: 20.84°  
Azimuth: 189.45°  
VS: 2,025.92'

100% SLTY SH: med lt gy-dk gy,  
vfg, sft-frm, sb blk-y-sb ang, mod  
srt, slty txt, v arg mtz, sl calc

KOP Reached 7558' MD  
Begin 50' Sample Collection

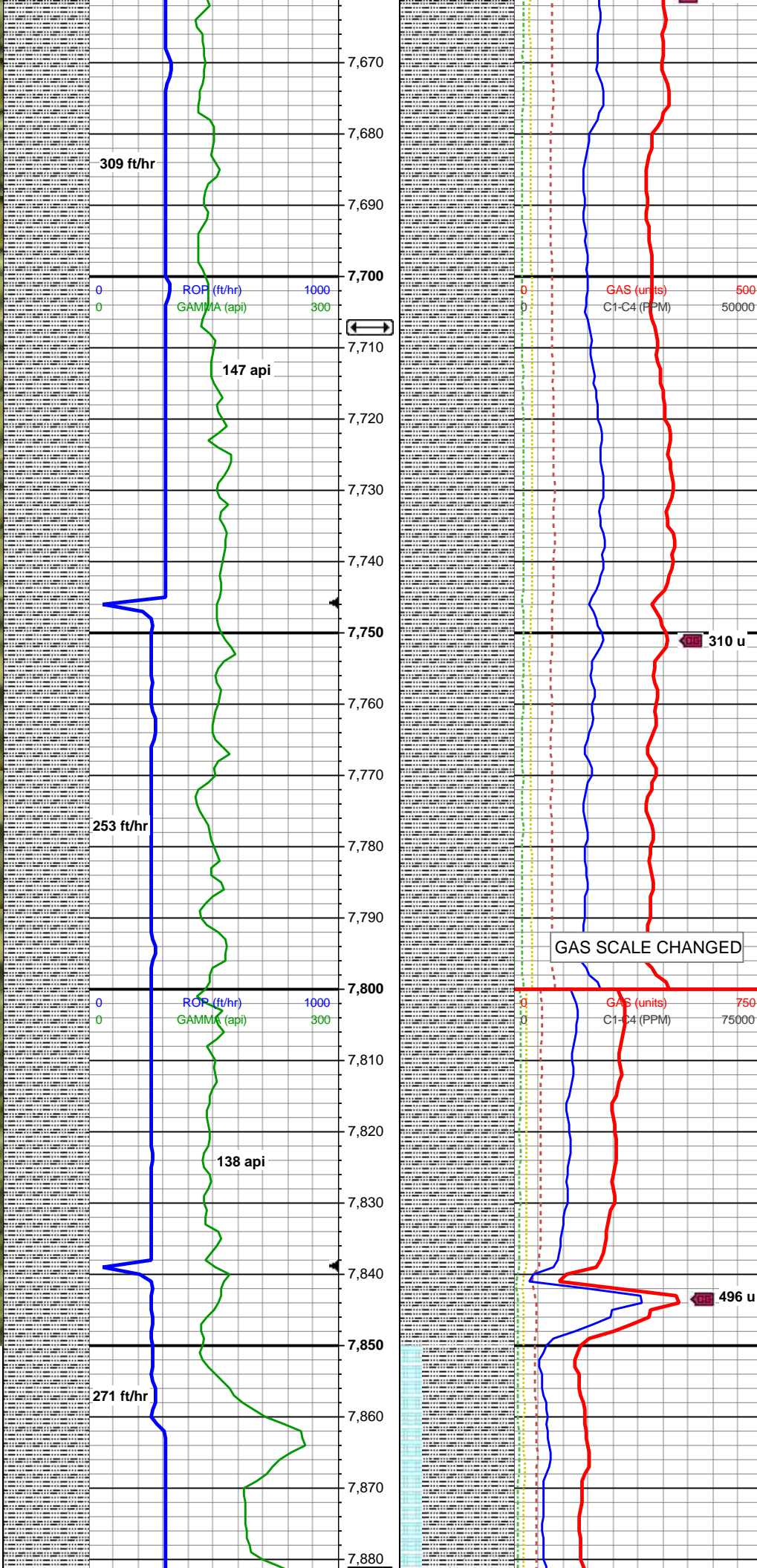
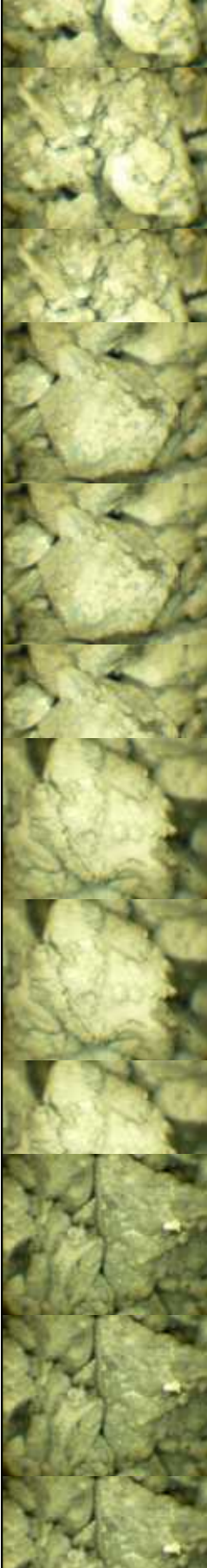
MW 9.8 / VIS 44 IN  
MW 9.8 / VIS 43 OUT

100% SLTY SH: med lt gy-dk gy  
brn, vfg, sft-frm, blk-y-sb ang, mod  
srt, slty txt, v arg mtz, v sl calc

MD: 7,628'  
TVD: 7,221.98'  
Inclination: 28.42°  
Azimuth: 185.96°  
VS: 2,064.61'

100% SLTY SH: med lt gy-dk gy  
brn, vfg, sft-frm, blk-y-sb ang, mod  
srt, slty txt, v arg mtz, v sl calc





MW 9.7+ / VIS 47 IN  
MW 9.8 / VIS 47 OUT

100% SLTY SH: med lt gy-dk gy  
brn, vfg, sft-frm, blk-ang, mod srt,  
slty txt, v arg mtx, v sl calc

Sharon Springs Top  
7707' MD / 7290' TVD

MD: 7,722'  
TVD: 7,302.01'  
Inclination: 34.75°  
Azimuth: 187.01°  
VS: 2,113.74'

100% SLTY SH: med lt gy-dk gy  
brn, vfg, sft-frm, blk-sb ang, mod  
srt, slty txt, v arg mtx, v sl calc

100% SLTY SH: med lt gy-dk gy  
brn, vfg, sft-frm, blk-sb rnd, mod  
srt, slty txt, v arg mtx, v sl calc

MD: 7,814'  
TVD: 7,373.7'  
Inclination: 42.75°  
Azimuth: 186.27°  
VS: 2,171.21'

MW 9.8+ / VIS 47 IN  
MW 9.8 / VIS 48 OUT

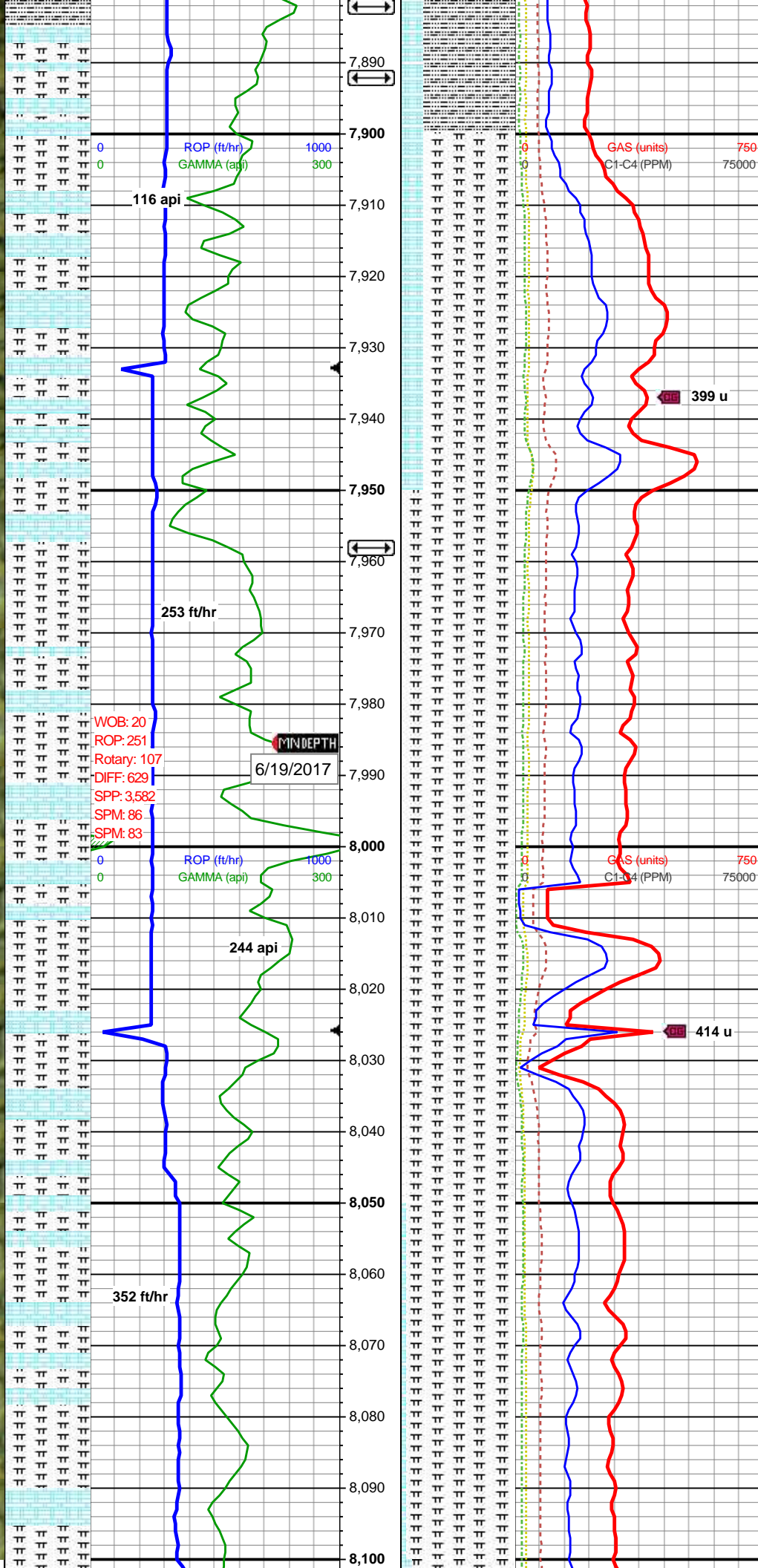
100% SLTY SH: med dk gy-dk gy  
brn, vfg, sft-frm, blk-sb plty, mod  
srt, slty txt, v arg mtx, v sl calc, tr  
nodr pyr

Niobrara Top  
7882' MD / 7421' TVD

Niobrara A Chalk Top  
7892' MD / 7427' TVD

90% SLTY SH: med dk gy-dk gy





80% SLT R SH: med dk gy-uk gy, brn, vfg, frm-sl hrd, sb blk-yl-sb rnd, mod srt, slty txt, v arg mtx, calc, tr nodr pyr; 20% CHK: lt gy, v sft, rnd-sb rnd, mict-rthy txt, bent, sl tr mrlst

MD: 7,908'  
TVD: 7,437.46'  
Inclination: 51.73°  
Azimuth: 183.63°  
VS: 2,239.91'

ON GAS BUSTER

80% MRLST: dk gy brn, frm-sl hrd, sb blk-yl-sb rnd, mnr sb plty, slty txt, v arg mtx, calc, tr nodr pyr, mnr bent; 20% CHK: lt gy, v sft, rnd-sb rnd, mict-rthy txt, sl slty

Niobrara A Marl Top  
7958' MD / 7467' TVD

MW 9.7+ / VIS 52 IN  
MW 9.8 / VIS 47 OUT

100% MRLST: dk gy brn, frm-hrd, blk-yl-plty, slty txt, v arg mtx, calc

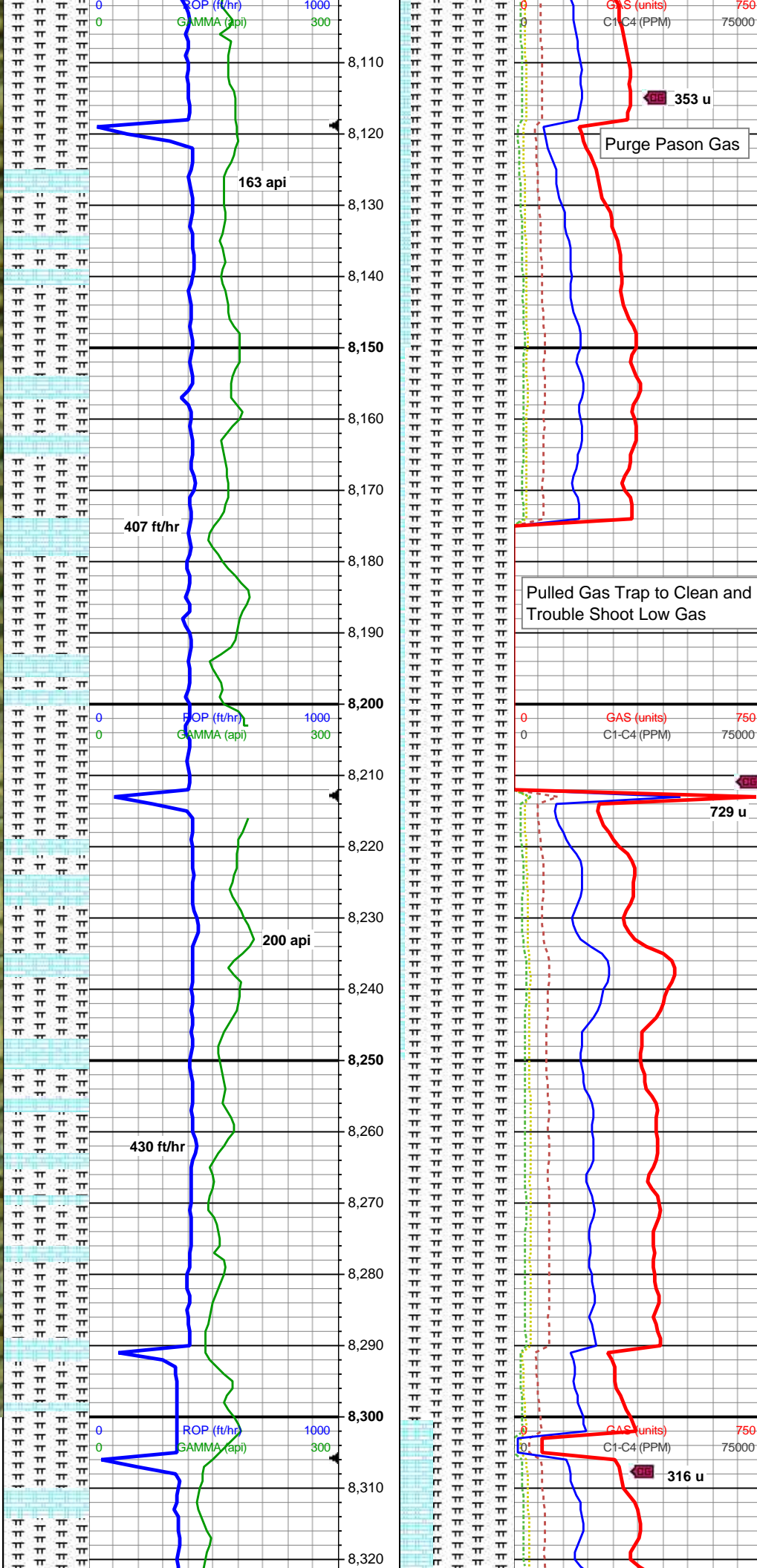
MD: 8,001'  
TVD: 7,489.06'  
Inclination: 60.79°  
Azimuth: 182.52°  
VS: 2,316.66'

100% MRLST: dk brn gy-med gy, frm-hrd, blk-yl-ang, mnr sb rnd, slty, v arg mtx, calc cmt

MD: 8,094'  
TVD: 7,528.14'  
Inclination: 69.47°  
Azimuth: 182.83°  
VS: 2,400.35'

95% MRLST: dk brn gy, hrd, sb blk-yl-ang, mnr sb rnd, slty, v arg mtx, calc cmt, mnr Inoc fos frags, rr pyr nod; 5% CHK: lt gy-bri wht, frm-hrd, blk-yl-sb rnd, rthy-xl, stri, intbdd





90% MRLST: dk brn gy, hrd, sb  
blky-ang, mnr plty, mnr sb rnd,  
slty, v arg mtx, calc cmt, mnr Inoc  
fos frags, rr pyr nod; 10% CHK: lt  
gy-bri wht, frm-hrd, blk-y-sb rnd,  
rthy-xl, stri, intbdd, v calc

MW 9.9 / VIS 52 IN  
MW 9.9 / VIS 53 OUT

MD: 8,188'  
TVD: 7,556.86'  
Inclination: 74.93°  
Azimuth: 183.49°  
VS: 2,489.26'

95% MRLST: dk brn gy, hrd, sb  
blky-ang, mnr sb rnd, slty, v arg  
mtx, calc cmt, mnr Inoc fos frags,  
rr pyr nod; 5% CHK: lt gy-bri wht,  
frm-hrd, blk-y-sb rnd, rthy-xl, stri,  
intbdd

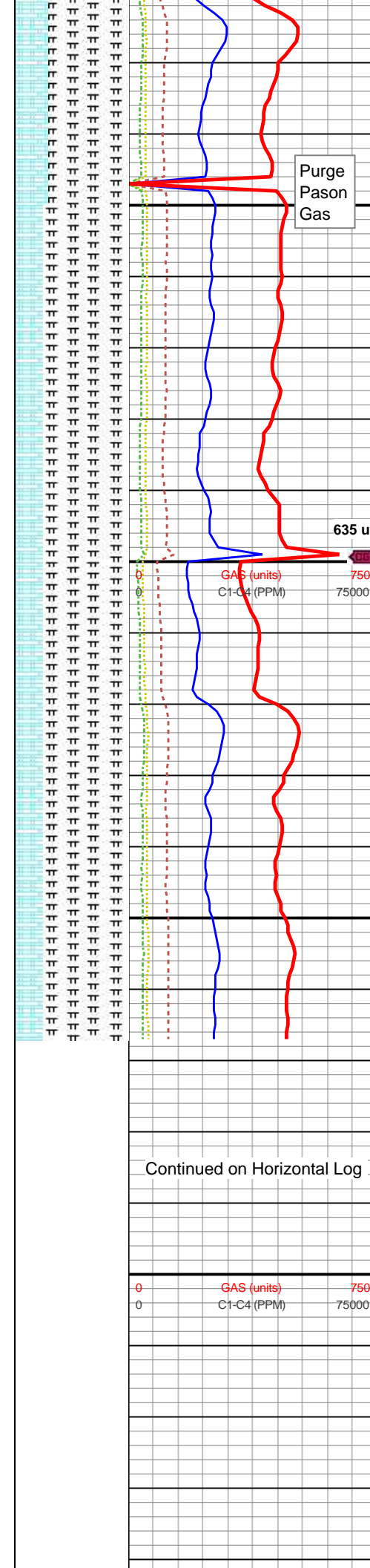
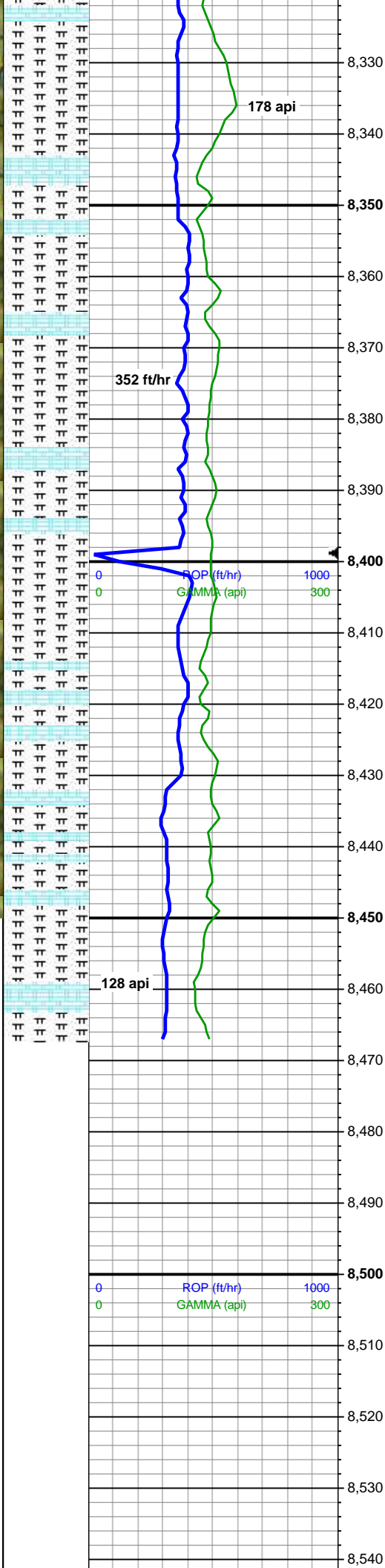
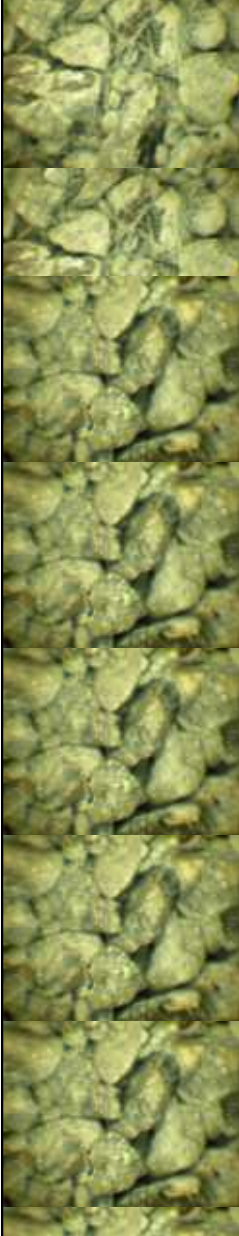
95% MRLST: dk brn gy, hrd, sb  
blky-ang, mnr sb rnd, slty, v arg  
mtx, calc cmt, mnr Inoc fos frags,  
rr pyr nod; 5% CHK: lt gy-bri wht,  
frm-hrd, blk-y-sb rnd, rthy-xl, stri,  
intbdd

MD: 8,281'  
TVD: 7,577.89'  
Inclination: 78.94°  
Azimuth: 181.59°  
VS: 2,579.15'

100% MRLST: dk brn gy, hrd, sb  
blky-ang, mnr sb rnd, slty, v arg  
mtx, calc cmt, mnr Inoc fos frags,  
rr pyr nod

MW 10.1 / VIS 55 IN  
MW 10.1+ / VIS 57 OUT





70% MRLST: dk brn gy, hrd, sb  
blky-ang, mnrt plty, mnrt sb rnd,  
slty, v arg mttx, calc cmt, mnrt Inoc  
fos frags, rr pyr nod; 30% CHK: lt  
gy-bri wht, frm-hrd, blky-sb rnd,  
rthy-xl, stri, intbdd, v calc

MD: 8,374'  
TVD: 7,588.45'  
Inclination: 88°  
Azimuth: 180.7°  
VS: 2,670.46'

75% MRLST: dk brn gy, hrd, sb  
blky-ang, mnrt plty, mnrt sb rnd,  
slty, v arg mttx, calc cmt, mnrt Inoc  
fos frags, rr pyr nod; 25% CHK: lt  
gy-bri wht, frm-hrd, blky-sb rnd,  
rthy-xl, stri, intbdd, v calc

75% MRLST: dk brn gy, hrd, sb  
blky-ang, mnrt plty, mnrt sb rnd,  
slty, v arg mttx, calc cmt, mnrt Inoc  
fos frags, rr pyr nod; 25% CHK: lt  
gy-bri wht, frm-hrd, blky-sb rnd,  
rthy-xl, stri, intbdd, v calc

**Projection to Bit - 6/19/2017 @  
02:42 MDT**

MD: 8,467'  
TVD: 7,590.05'  
Inclination: 90.03°  
Azimuth: 177.69°  
VS: 2,761.92'

Continued on Horizontal Log

Thank you for using Terra Guidance  
LLC.



