



Scale: 5" / 100'
Measured Depth Log

Well Name File 3S-32H-K268

Location Sec. 32 T2N R68W

State Colorado

County Weld

Country USA

Rig Number Ensign 140

API Number 05123458290000

AFE # 16190768

Geographic Region Rockies

Field Wattenberg

Spud Date 12/6/2017

Drilling Completed 12/12/2017

Surface Coordinates Lat/Long: 40.092573/-105.030574

SHL: Sec: 32 Twp: 2N 68W
Footage: 1760 FNL 1772 FWL

Bottom Hole Coordinates Proposed BHL: Sec: 20 Twp: 2N 68W
Footages: 2180 FSL 2280 FWL

Ground Elevation 4,970'

K.B. Elevation 4,993'

Logged Interval 6,600' **To** 18,633'

Total Depth 18,633'

Formation C Chalk

Type of Drilling Fluid Synthetic Oil Based Mud

Operator

Company Crestone Peak Resources

Address 370 17th Street #2170
Denver, CO 80202



CRESTONE PEAK
RESOURCES

Geologist

Zone Color Coding

Geologist

Name John Ready

Company Crestone Peak Resources

Address 370 17th Street #2170
Denver, CO 80202



CRESTONE PEAK
RESOURCES

Zone Color Coding



Oil



Condensate



Gas



Note



Core



Pressure



Error



Water



Seal

Other

Loggers: Brian Ferwerda / Nick Watkins

Services Provided: 2-Man Mudlogging / Geosteering

Equipment: ML-597

Contractor: Empirica, Reservoir Group
6510 Guhn Road
Houston, TX 77040

Rock Types

? UNKNOWN

ANHYDRITE

GYPSUM

SALT

SIDERITE or LIMONITE

LIMESTONE

DOLOMITE

CHERT

COAL

MARLSTONE

CHALK

SHALE

SHALE GRAY

SHALE COLORED

SILTSTONE

SANDSTONE

CONGLOMERATE

BRECCIA

TILL

BENTONITE

TUFF

IGNEOUS

METAMORPHIC

CEMENT

Accessories

Fossils

ALGAE

AMPHIPORA

BELEMNITE

BIOCLASTIC

BRACHIOPOD

BRYOZOA

CEPHALPOD

CORAL

CRINOID

ECHINOID

FISH

FORAMINIFERA

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

PELECPOD

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

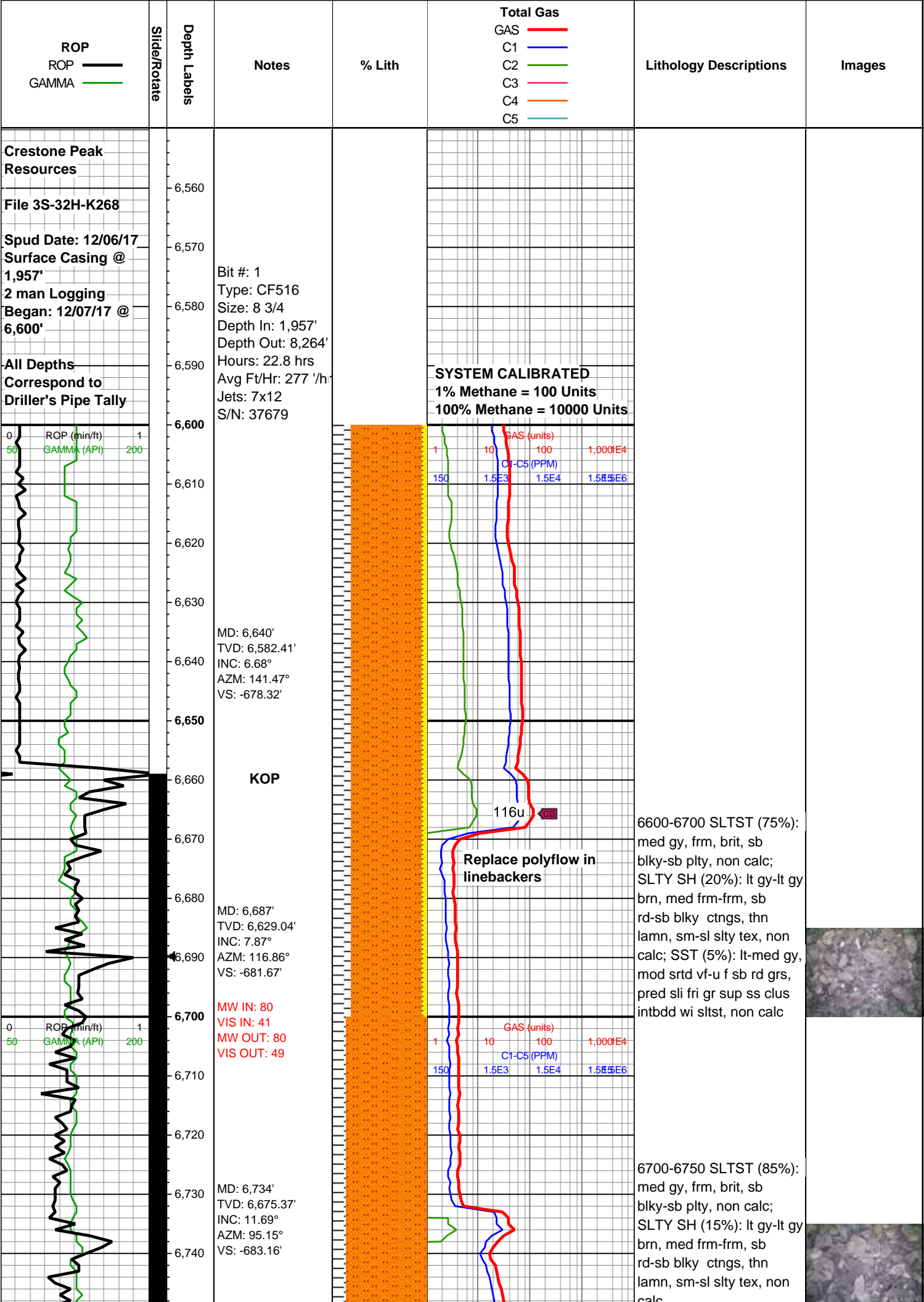
Textures

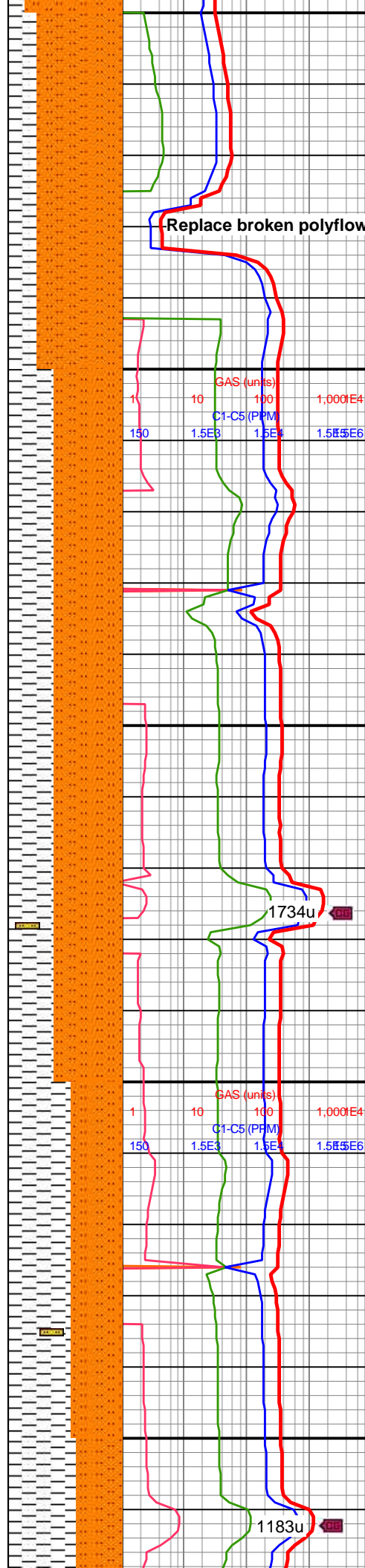
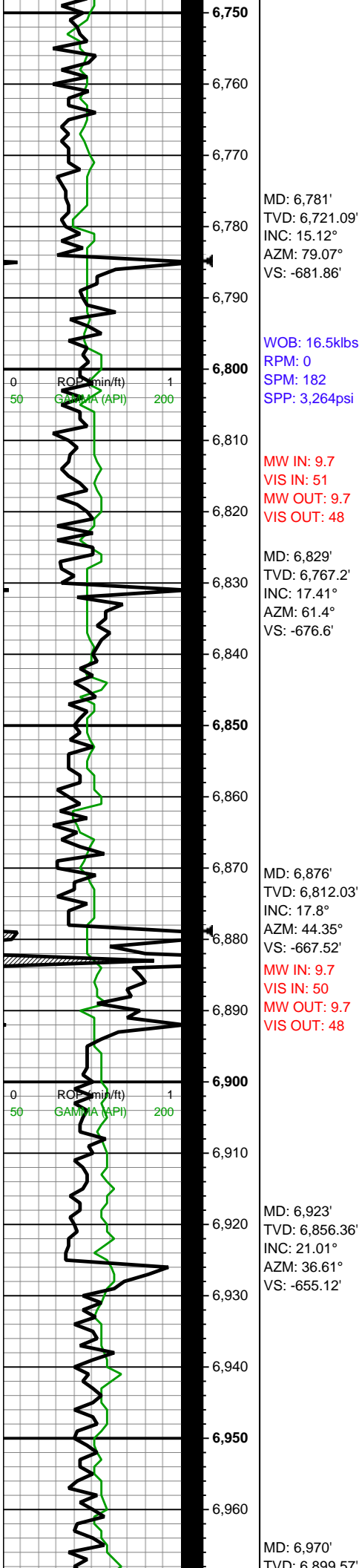
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE

- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Sorting

- MODERATE
- POOR
- WELL





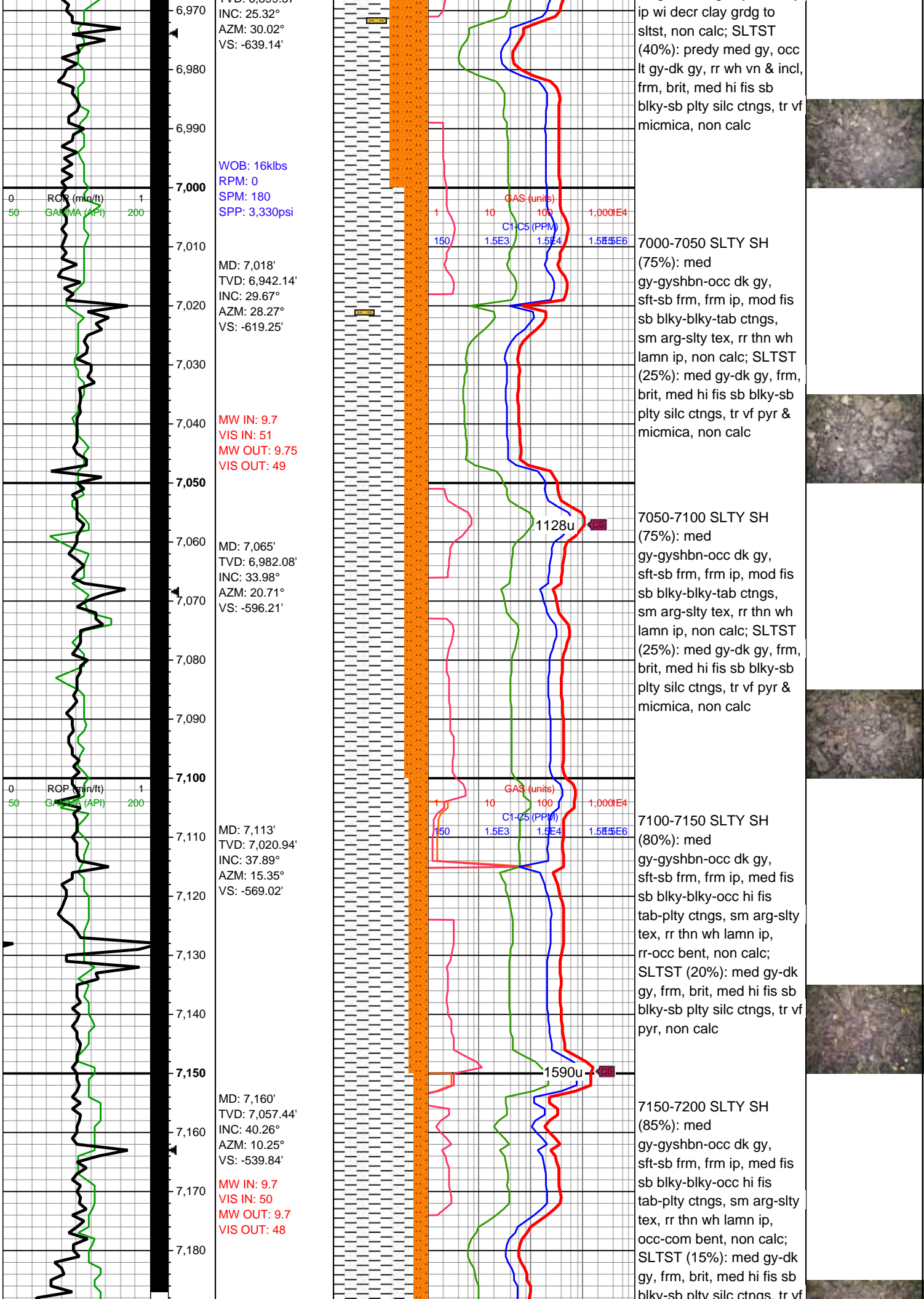
6700-6800 SLTST (75%):
dk gy-dk gyshbn, frm-sl
hrd, blkly-sb plty, v ltly
calc-non calc, rgh tex,
com micmica; SLTY SH
(25%): mod dk gy-v dk gy,
gyshbn, rr lt gy, rr blk,
frm-v frm, sb blkly-sb plty,
v ltly calc, slty tex, vf-f
intbds, occ mic pyr vns

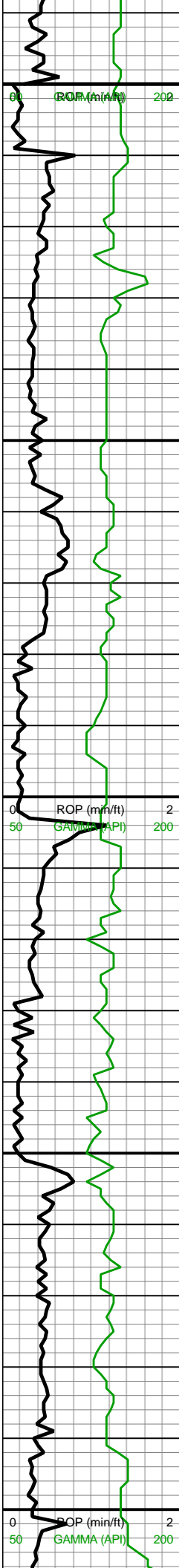
6800-6850 SLTST (60%):
med gy, frm, brit, sb
blkly-sb plty, non calc;
SLTY SH (40%): lt gy-lt gy
brn, med frm-frm, sb
rd-sb blkly ctngs, thn
lamn, bndd lamn ip,
sm-sl slty tex, non calc

6800-6850 SLTST (60%):
predy med gy, occ lt gy-dk
gy, rr wh vn & incl, frm,
brit, med hi fis sb blkly-sb
plty silc ctngs, tr vf
micmica, non calc; SLTY
SH (40%): med
gy-gyshbn, lt gy ip, mod
fis sl hydrated sb frm-frm
blkly-tab ctngs, sm
arg-slty tex, slty ip wi incr
silc slt grdg to sltst, non
calc

6900-6950 SLTY SH
(55%): med gy-gyshbn, lt
gy ip, mod fis sl hydrated
sb frm-frm blkly-tab ctngs,
sm arg-slty tex, slty ip wi
incr silc slt grdg to sltst,
non calc; SLTST (45%):
predy med gy, occ lt gy-dk
gy, rr wh vn & incl, frm,
brit, med hi fis sb blkly-sb
plty silc ctngs, tr vf
micmica, non calc

6950-7000 SLTY SH
(60%): lt-med gy-gyshbn,
sb frm-frm, mod fis sl
hydrated sb blkly-blkly-tab
ctngs, sm arg-slty tex, slty





WOB: 21klbs
RPM: 31
SPM: 182
SPP: 3,830psi

MD: 7,207'
TVD: 7,093.09'
INC: 41.1°
AZM: 4.62°
VS: -509.33'

MD: 7,254'
TVD: 7,128.76'
INC: 40.31°
AZM: 354.71°
VS: -478.81'

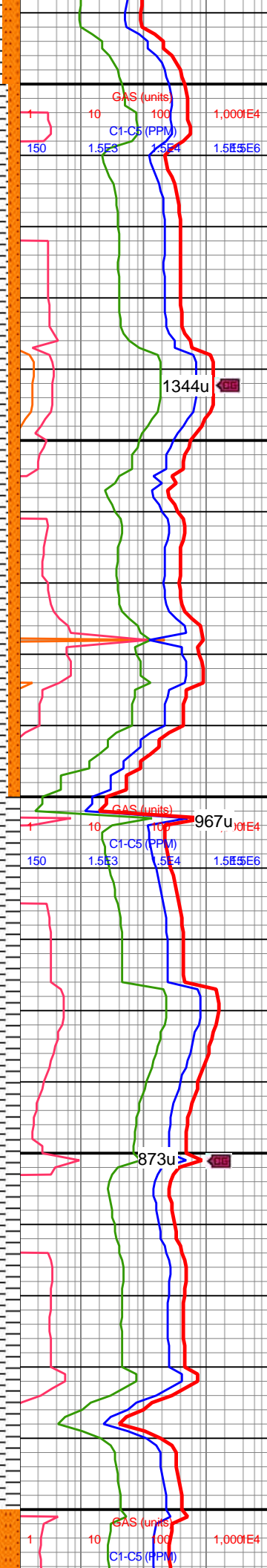
MD: 7,301'
TVD: 7,164.34'
INC: 41.27°
AZM: 353.37°
VS: -448.48'

MD: 7,348'
TVD: 7,199.21'
INC: 42.95°
AZM: 354.34°
VS: -417.36'

MW IN: 9.7
VIS IN: 50
MW OUT: 9.7
VIS OUT: 48

MD: 7,396'
TVD: 7,232.96'
INC: 47.69°
AZM: 358.03°
VS: -383.48'

Sharon Springs
7398'MD/7243'TVD



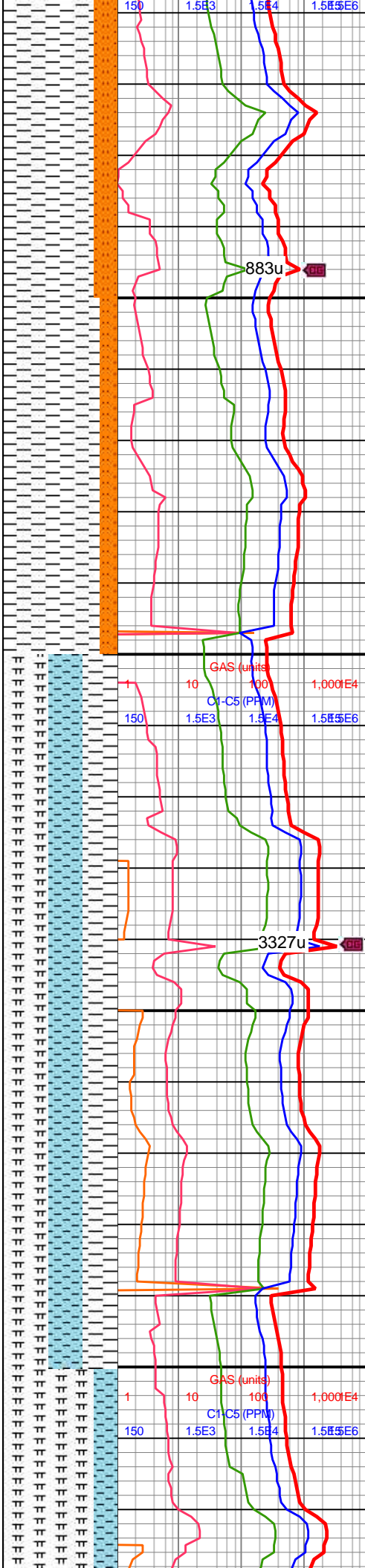
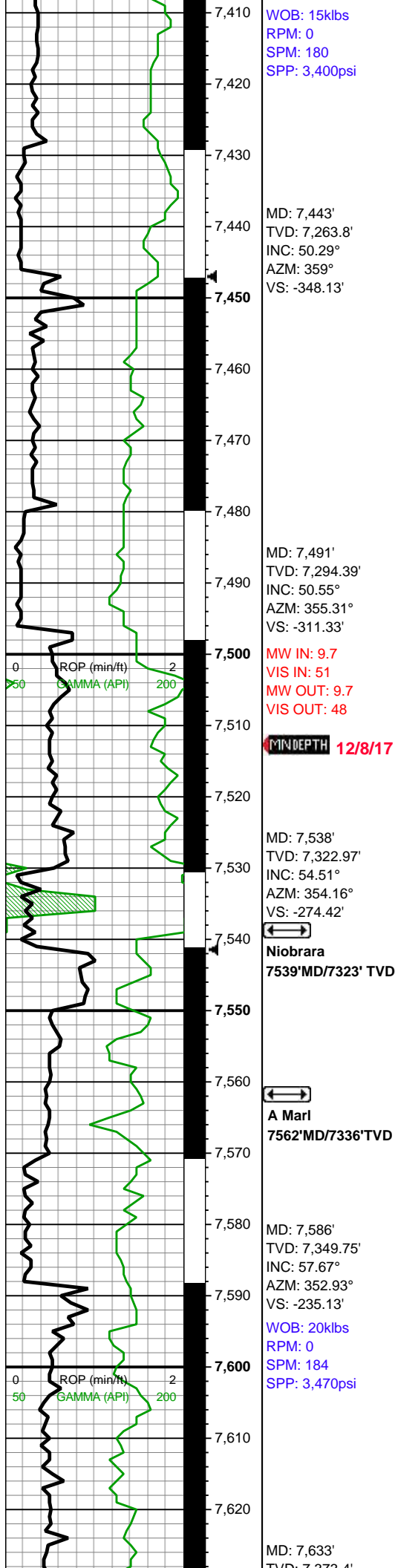
pyr, non calc

7200-7250 SLTY SH
(90%): med gy-dk gy, occ
lt gy thn lamn, sb frm-frm,
mod fis sb rd-sb
blky-blky-tab scalloped
ctngs, sm arg-slty tex,
non calc; SLTST (10%):
med-dk gy, sme tn, sb
ang, frm, brit, med-hi fis,
silc, non calc

7250-7300 SLTY SH
(90%): med gy-dk gy, occ
lt gy thn lamn, sb frm-frm,
mod fis sb rd-sb
blky-blky-tab scalloped
ctngs, sm arg-slty tex,
non calc; SLTST (10%):
med-dk gy, sme tn, sb
ang, frm, brit, med-hi fis,
silc, non calc

7300-7350 SLTY SH
(95%): med gy-gyshbn,
occ lt gy thn lamn, sb
frm-frm, mod fis sb rd-sb
blky-blky-tab scalloped
ctngs, sm arg-slty tex,
wxy lstr, non calc; SLTST
(5%): med gy-dk gy,
frm-brit, sb plty-plty non
calc silc ctngs

7350-7400 SLTY SH
(95%): med gy-dk gy, occ
lt gy, sb frm-med frm,
l-mod fis sb rd-sb ang-sb
blky-blky ctngs, sm
arg-slty tex wi incr silc slt
grdg to sltst, non calc;
SLTST (5%): med-dk gy,
sme tn, frm, brit,
med-med hi fis sb
blky-plty, silc, non calc

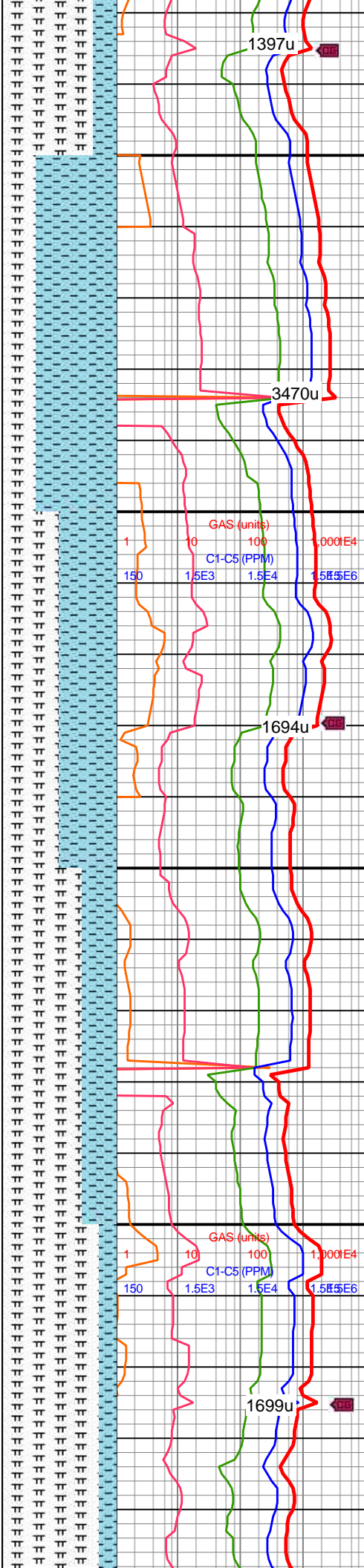
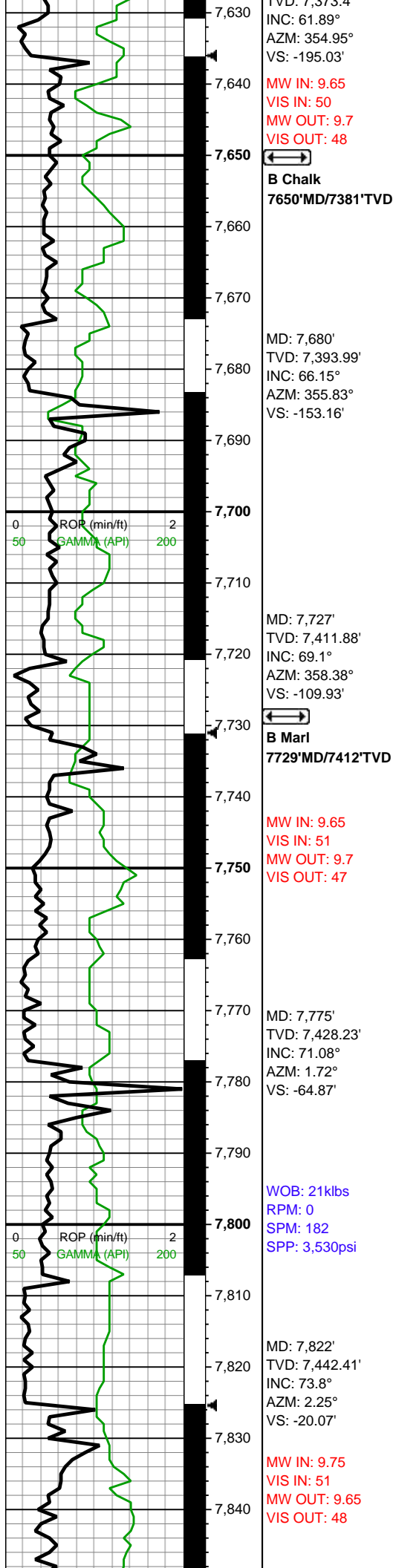


7400-7450 SLTY SH
(80%): predy dk gy, occ lt
gy, frm-med frm, l-mod
fis sb rd-sb ang-sb
blky-blky ctngs, sm
arg-slty tex wi incr silc slt
grdg to sltst, mod calc;
SLTST (20%): med-dk gy,
sme tn, sb blky-ang, frm,
brit, med-med hi fis, silc,
non calc

7450-7500 SLTY SH
(85%): gyshbn-dk gy, occ
lt gy lamn, sb frm-frm,
l-mod fis sb rd-sb ang-sb
blky-blky ctngs, sm
arg-slty tex wi incr silc slt
grdg to sltst, wxy lstr,
mod calc; SLTST (15%):
med-dk gy, sme tn, sb
blky-ang, frm, brit,
med-med hi fis, silc, non
calc

7500-7600 MRLST
(40%): gyshbn-dk gy, sb
frm-frm, l-mod fis sb
ang-sb rd-sb blky ctngs,
slty tex, tr vf pyr, mod calc
wi brn mrly resd, wi incr lt
gy wh chky incl grdg to
chk, CHK (30%): med gy,
rr lt gy-dk gy, f-elong wh
chky incl ip, mod fis, slty
tex, hi calc; SLTY SH
(30%): med
gy-gyshbn-dk gy, occ lt gy
lamn ip, sb frm-frm,
l-mod fis sb rd-sb
blky-blky ctngs, sm
arg-slty tex, occ bent,
mod calc, wi tr non calc
dk gy sltst

7600-7650 MRLST
(80%): gyshbn-dk gy mot
wi brn mrly incl, sb
frm-frm, l-mod fis sb
ang-sb rd-sb blky ctngs,
cm arg slty tex, rr vf



sl arg-sl slty tex, rr vi
pyr-c pyr strg, mod calc
wi brn mrly resd; CHK
(20%): med gy-dk gy wi rr
f wh chky incl, l-mod fis
sb rd-sb blkly ctngs, sl
slty tex, tr vf pyr, hi calc

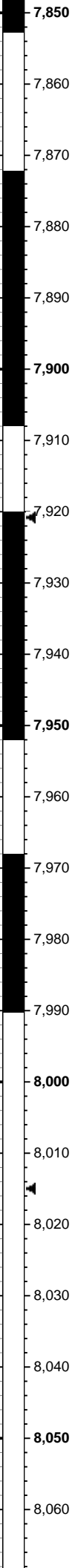
7650-7700 CHK (70%):
lt-med gy wi rr thn wh
chky lamn & f wh incl,
frm-brit mod fis sb rd-sb
blkly ctngs, slty arg tex, rr
bent, rr forams, tr vf pyr, hi
calc; 30% MRLST: med
gy-dk gy, sb frm-brit, mod
fis sb blkly-blky ctngs, mot
wi brn marl ip, mod calc
wi brn mrly resdl

7700-7750 CHK (50%): lt
gy-med gy, frm-brit, mod
fis, blkly-sb blkly ctngs, sm
tex ip, rr rgh tex, rr fos
frags & forams, hi calc;
(50%) MRLST: med gy-dk
gy, frm, brit, l-mod fis, sb
ang-blky ctngs, mot, mod
calc

7750-7800 MRLST
(70%): dk gy-dk gyshbn
wi brn marl incl, sme blk,
frm, brit ip, mod fis sb
blkly-blky, mod calc, rr
bent; CHK (30%): dk
gy-dk gyshbn-med gy,
frm-brit sb blkly-blky mod
fis ctngs, sl slty-rgh tex ip
wi lamn, tr vf pyr, hi calc

7800-7850 MRLST
(85%): dk gy-dk gyshbn-v
dk gy, sme blk, frm-brit,
med-hi fis blkly-pty ctngs,
sm slty tex, rr ptch pyr
strg, mod calc wi brn mrly
resdl; CHK (15%): dk
gy-dk gyshbn-med gy,
frm-brit sb blkly-blky mod
fis ctngs, sl slty-rgh tex ip
wi lamn, tr vf pyr, hi calc





MD: 7,870'
TVD: 7,454.7'
INC: 76.53°
AZM: 2.34°
VS: 26.32'

MD: 7,917'
TVD: 7,463.94'
INC: 80.79°
AZM: 359.61°
VS: 72.36'

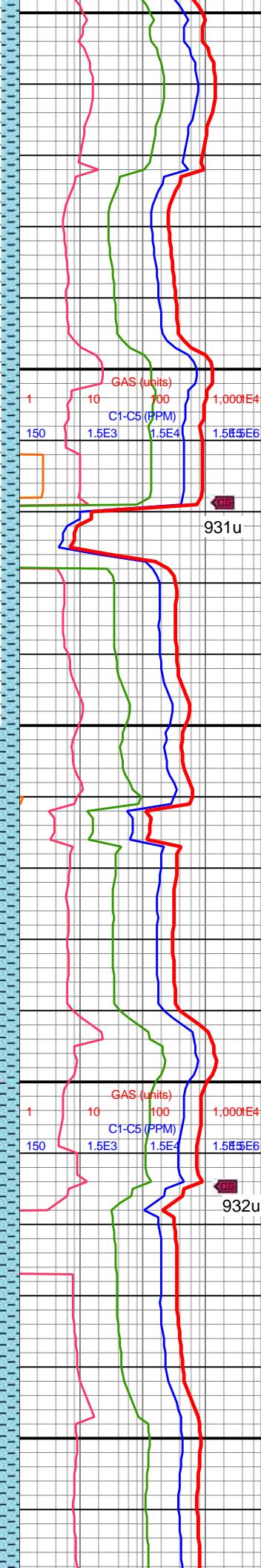
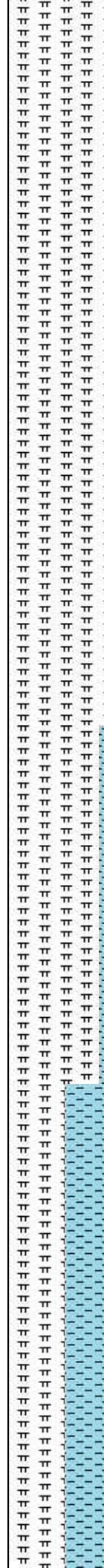
MW IN: 9.8
VIS IN: 50
MW OUT: 9.7
VIS OUT: 48

MD: 7,964'
TVD: 7,469.37'
INC: 85.93°
AZM: 359.53°
VS: 118.95'

WOB: 27.4klbs
RPM: 31
SPM: 182
SPP: 3,912psi

↔
C Chalk
8010 MD/7479 TVD

MD: 8,059'
TVD: 7,473.64'
INC: 88.92°
AZM: 0.14°
VS: 213.7'

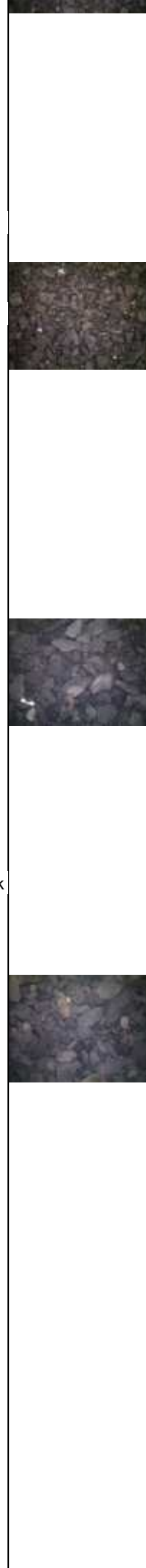


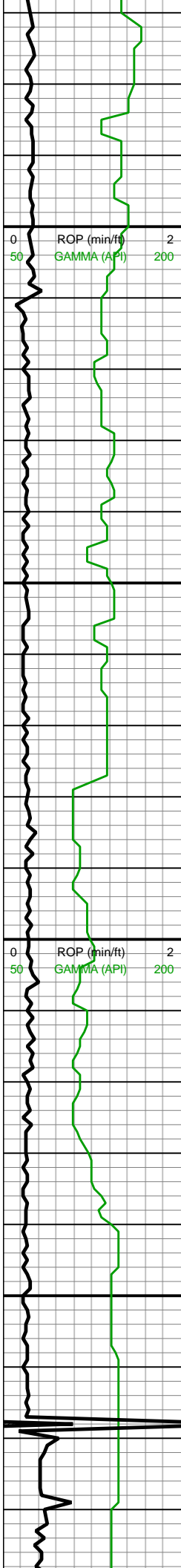
7850-7900 MRLST
(85%): dk gy-dk gyshbn-v
dk gy, sme blk, frm-brit,
med-hi fis blky-plty ctngs,
sm slty tex, rr ptch pyr
strg, mod calc wi brn mrly
resdl; CHK (15%): predy
med gy-dk gy wi rr f wh
chky incl, frm-brit sb
blky-blky mod fis ctngs, sl
slty tex, dul rthy lstr, tr vf
pyr, hi calc

7900-7950 MRLST
(85%): med gyshbn-dk
gy, med frm-frm, l mod-hi
fis sb rd-plty ctngs, sm
slty arg tex-slty tex, occ
bent, rr vf-f pyr strg, mod
calc wi brn resdl; CHK
(15%): dk gy wi vf-f wh
chky incl, frm, brit, mod
fis sb rd-sb plty ctngs, tr
vf pyr, hi calc

7950-8000 MRLST
(80%): gysh bn-dk gy-v dk
gy, brit mod fis ctngs, sb
blky-blky, sl slty tex, tr vf
pyr, mod calc; CHK
(20%): med gy-occ dk gy
mot wi f wh chky incl,
frm-brit, mod fis sb blky
ctngs, tr mict cal vn, hi
calc

8000-8100 CHK (50%):





MW IN: 9.8
VIS IN: 50
MW OUT: 9.8
VIS OUT: 49

MD: 8,154'
TVD: 7,475.28'
INC: 89.1°
AZM: 359.53°
VS: 308.54'

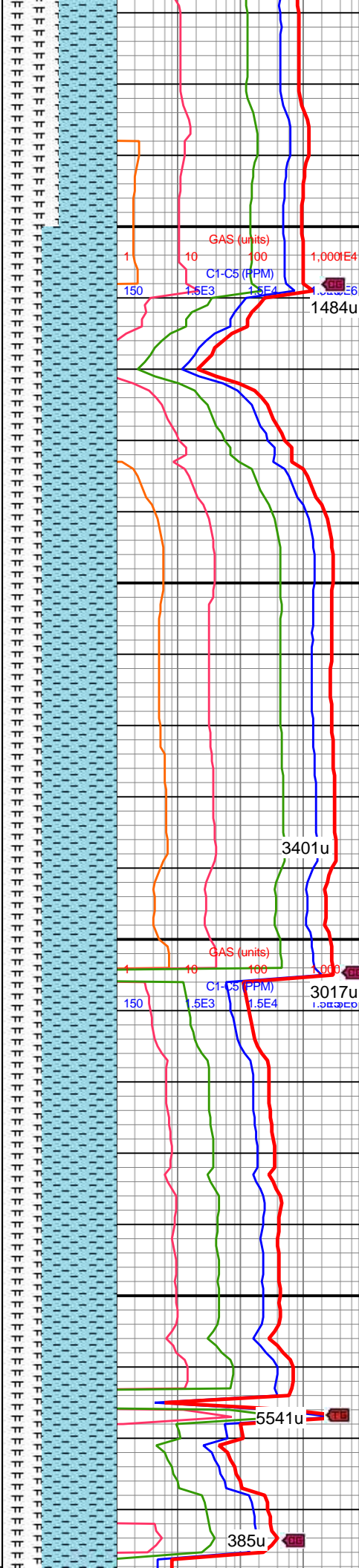
WOB: 38.2klbs
RPM: 62
SPM: 200
SPP: 4,534psi

MW IN: 9.8
VIS IN: 50
MW OUT: 9.8
VIS OUT: 48

MD: 8,234'
TVD: 7,474.57'
INC: 91.91°
AZM: 359.88°
VS: 388.4'

TOOH for mud motor

Bit #: 2
Type: U516M
Size: 8 1/2
Depth In: 8,264'
Depth Out: 18,633'
Hours: 51.7 hrs
Avg Ft/hr: 204.1'/hr

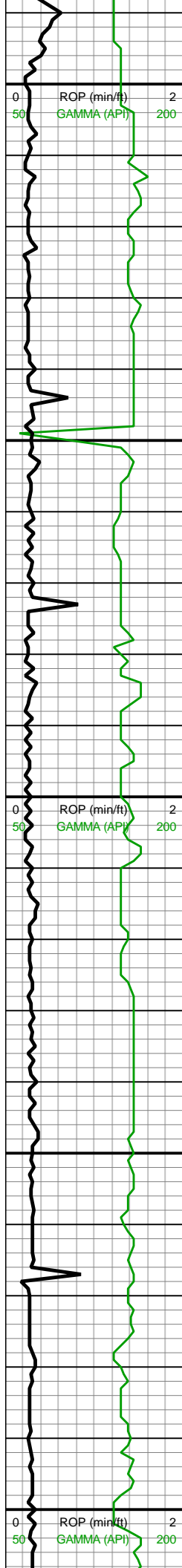


med-lt gy, sme dk gy wi
occ chky incl, brit-frm,
mod fis, sb blkyl-bkly
ctngs, sm tex ip, rr rgh
tex, mod calc; MRLST
(50%): med gy-dk gy,
frm-brit, l-mod fis, sb
ang-blky ctngs, mot wi
brn mrly incl, mod calc, tr
scat pyr nod

8100-8200 CHK (65%):
med brn-gyshbn, mot, sl
frm-frm, sb blkyl-sb tab
ctngs, brit, tr CHK incl,
scat mic fos frags, mnr vf
lam, v calc; MRLST
(35%): dk gy-dk gyshbn,
sb blkyl-spl't ctngs, brit, sl
hd-frm, mnr CHK intbds,
tr pp mic pyr, mod calc

8200-8300 CHK (65%):
lt-med gy wi rr thn wh
chky lamn & f-c wh incl &
forams, brnsh ip, frm-brit
mod fis sb rd-sb blkyl
ctngs, slty tex, rr bent, rr
forams, tr vf pyr, hi calc;
35% MRLST: med gy-dk





Avg FVH: 201 ft/m
Jets: 5x15
S/N: 36903

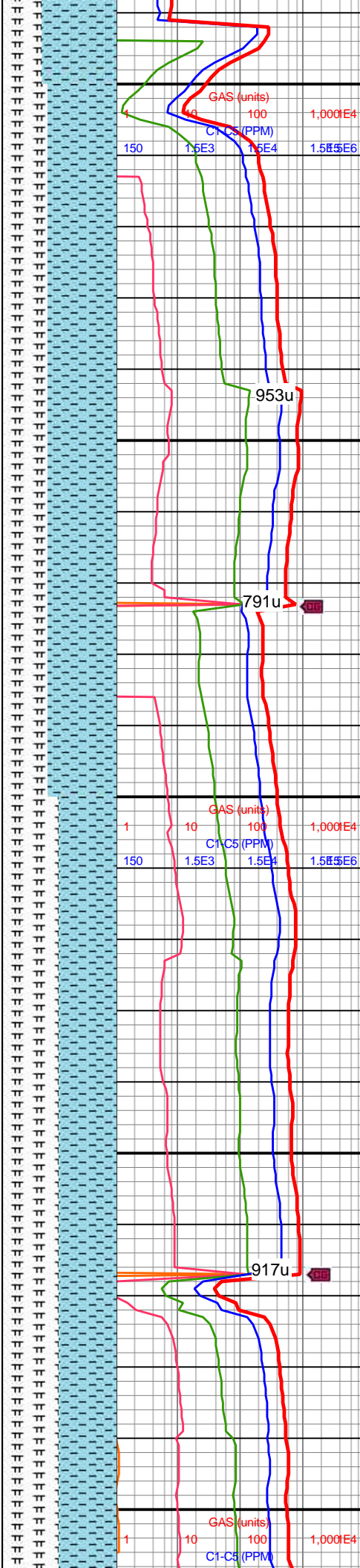
MW IN: 9.95
VIS IN: 74
MW OUT: 10.0
VIS OUT: 65

MD: 8,328'
TVD: 7,472.12'
INC: 91.08°
AZM: 0.84°
VS: 482.27'

WOB: 27klbs
RPM: 75
SPM: 182
SPP: 3,730psi

MINDEPTH 12/9/17

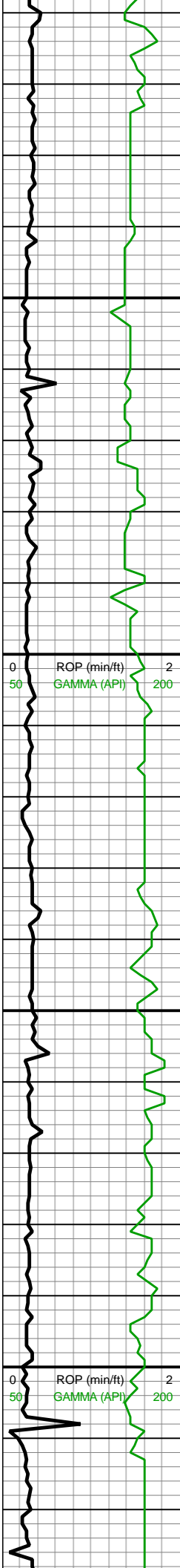
MD: 8,422'
TVD: 7,470.96'
INC: 90.33°
AZM: 3.13°
VS: 576.25'



gy, sb frm-brit, mod fis sb
blky-blky ctngs, mot wi
brn marl ip, mod calc wi
brn mrly resdl

8300-8400 CHK (60%):
lt-med gy wi rr thn wh
chky lamn & f-c wh incl &
forams, brnsh ip, frm-brit
mod fis sb rd-sb blky
ctngs, slty tex, rr bent, rr
forams, tr vf pyr, hi calc;
MRLST (40%): med gy-dk
gy, sb frm-brit, mod fis sb
blky-blky ctngs, mot wi
brn marl ip, mod calc wi
brn mrly resdl

8400-8500 CHK (50%):
predy med gy-gyshbn ip
wi wh chky lamn & f-c wh
incl & forams, frm-brit, sb
rd-sb blky l-mod fis
ctngs, slty tex, freq tn
bent, freq wh-trnsf
forams, tr vf pyr, hi calc;
MRLST (50%): med gy-dk
gy-dk gyshbn, frm-brit,
mod fis sb blky-blky
ctngs, mot wi brn marl ip,
mod calc wi brn mrly
resdl



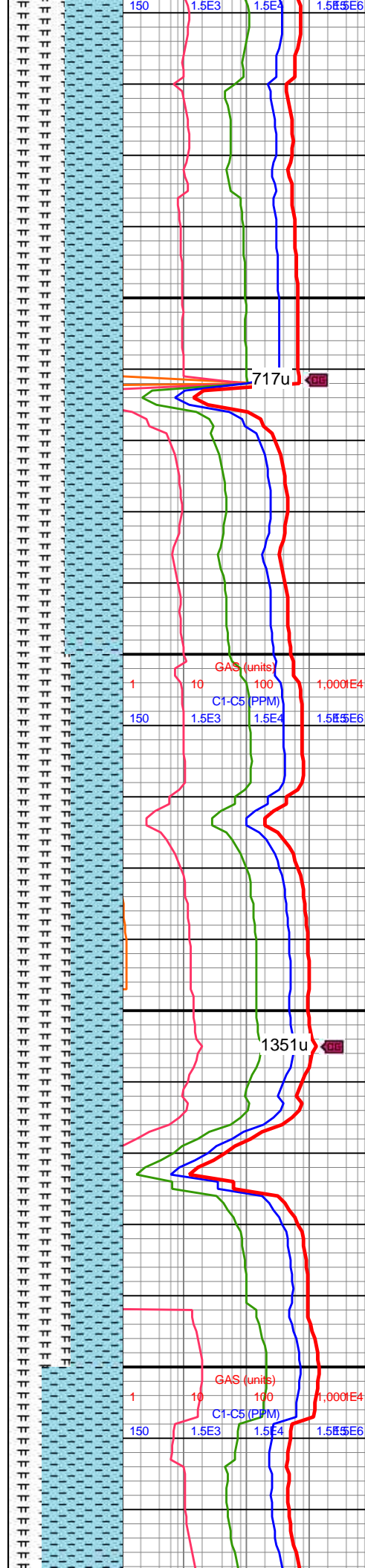
MD: 8,516'
TVD: 7,470.57'
INC: 90.15°
AZM: 4.18°
VS: 670.24'

WOB: 26klbs
RPM: 76
SPM: 138
SPP: 3,320psi

MD: 8,611'
TVD: 7,470.14'
INC: 90.37°
AZM: 5.68°
VS: 765.18'

MW IN: 10
VIS IN: 61
MW OUT: 10.0
VIS OUT: 58

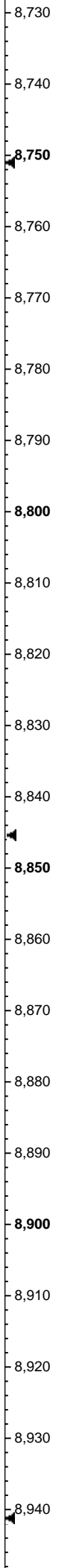
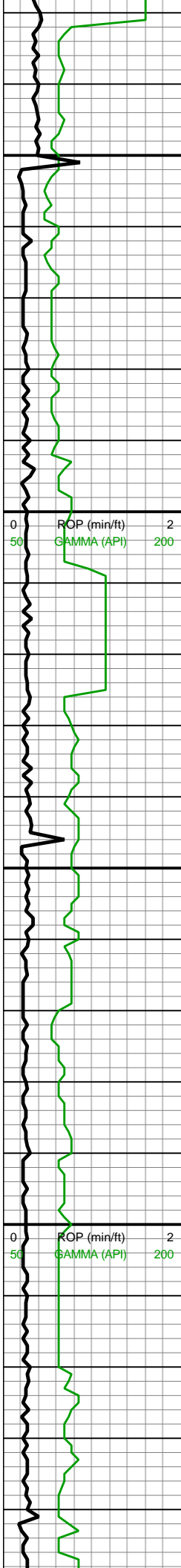
MD: 8,706'
TVD: 7,469.59'
INC: 90.29°
AZM: 3.66°
VS: 860.13'



8500-8600 CHK (50%):
predy med gy-gyshbn ip
wi wh chky lamn & f-c wh
incl & forams, frm-brit, sb
rd-sb blkly l-mod fis
ctngs, slty tex, mod
forams, occ-mod bent, tr
vf pyr, hi calc; MRLST
(50%): med gy-dk gy-dk
gyshbn, frm-brit, mod fis
sb blkly-blky ctngs, mot wi
brn marl ip, mod calc wi
brn mrlly resd

8600-8700 MRLST
(55%): med gy-dk gy-dk
gyshbn, occ blk, frm-brit,
mod fis sb blkly-blky
ctngs, dul rthy lstr, mot,
mod calc wi brn mrlly
resdl; CHK (45%): med
gy-gyshbn, occ dk gy wi
chky incl, frm-brit, l-mod
fis sb rd-sb blkly ctngs,
slty tex, occ bent, occ
forams, tr vf pyr, hi calc

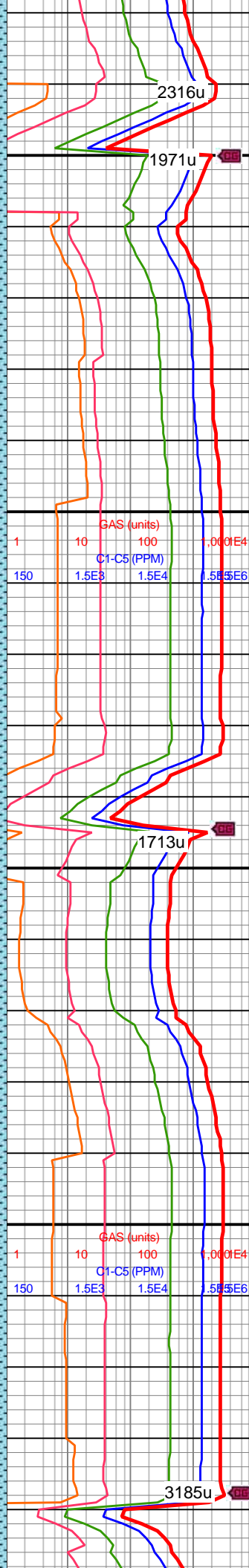
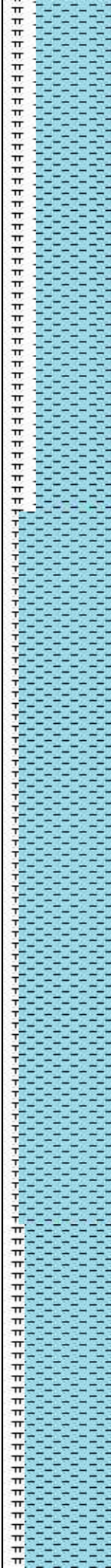




WOB: 29klbs
RPM: 76
SPM: 184
SPP: 3,900psi
MD: 8,800'
TVD: 7,469.05'
INC: 90.37°
AZM: 2.25°
VS: 954.12'

MW IN: 10
VIS IN: 58
MW OUT: 10.05
VIS OUT: 55

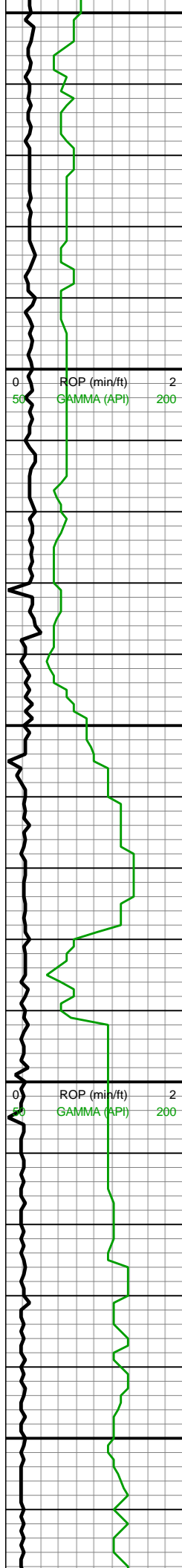
MD: 8,896'
TVD: 7,468.28'
INC: 90.55°
AZM: 1.2°
VS: 1,050.1'



8700-8800 CHK (70%):
predy lt gy, occ med gy,
frm-brit, sb ang-sb rd-sb
blky mod fis ctngs, slty
tex, occ-mod forams,
rr-occ bent, rr cal, tr vf pyr,
hi calc; 30% MRLST: dk
gy-occ blk, frm-brit, mod
fis sb blky-blky-occ hi fis
pty ctngs ip, mot wi brn
marl ip, mod calc wi brn
mrly resd

8800-8900 CHK (85%):
predy lt gy, occ med gy,
frm-brit, mod fis sb
ang-sb rd-sb blky ctngs,
sl slty tex, occ f-u f wh
chky incl & forams, tr vf
pyr, hi calc; MRLST
(15%): med gyshbn-dk
gy, frm-brit, mod fis sb
blky-blky-occ hi fis pty
ctngs ip, mot wi brn marl
ip, mod calc wi brn mrly
resd





8,950
8,960
8,970
8,980
8,990
9,000
9,010
9,020
9,030
9,040
9,050
9,060
9,070
9,080
9,090
9,100
9,110
9,120
9,130
9,140
9,150
9,160

MD: 8,990'
TVD: 7,467.56'
INC: 90.33°
AZM: 359.79°
VS: 1,144.01'
WOB: 29klbs
RPM: 76
SPM: 186
SPP: 2,950psi

MW IN: 10.1
VIS IN: 58
MW OUT: 10.0
VIS OUT: 56

MD: 9,085'
TVD: 7,466.86'
INC: 90.51°
AZM: 359.35°
VS: 1,238.84'

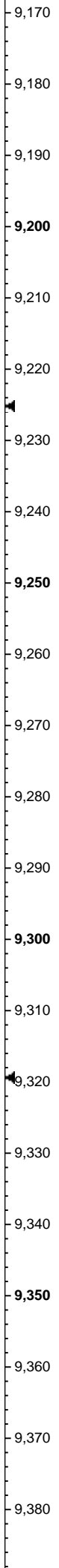
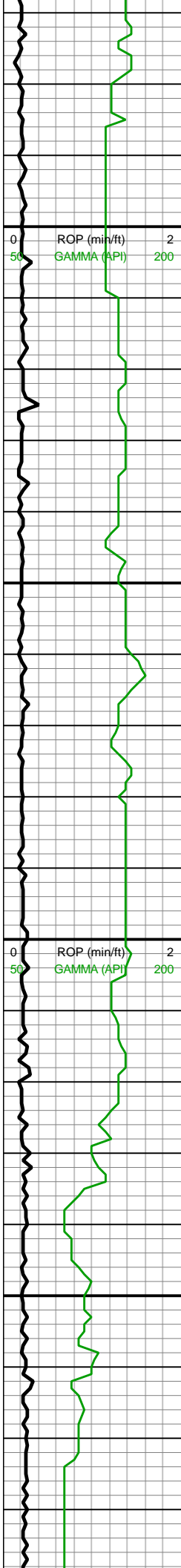


8900-9000 CHK (80%):
predy lt gy-occ med gy,
frm-brit, sb ang-sb rd-sb
blky mod fis ctngs, slty
tex, rr forams & bent, tr
fos frag, tr vf pyr, hi calc;
20% MRLST: dk gy-dk
gyshbn, mot ip, frm-brit,
mod fis sb blky-blky-occ
hi fis plty ctngs, mod calc
wi brn mrly resd

9000-9100 CHK (65%):
med-dk gy wi occ f wh
incl & forams, frm-brit, sb
ang-sb rd-sb blky mod fis
ctngs, slty tex, mod
forams, rr bent, tr fos
frag, tr vf pyr, hi calc;
MRLST (35%): dk gy-dk
gyshbn, mot ip, frm-brit,
mod fis sb blky-blky-occ
hi fis plty ctngs, mod calc
wi brn mrly resd

9100-9200 CHK (60%):
med-dk gy, rr lt gy, spec
wi f wh chky incl & forams





MD: 9,180'
TVD: 7,466.27'
INC: 90.2°
AZM: 358.65°
VS: 1,333.61'

WOB: 32klbs
RPM: 76
SPM: 186
SPP: 3,980psi

MW IN: 10.2
VIS IN: 57
MW OUT: 10.15
VIS OUT: 56

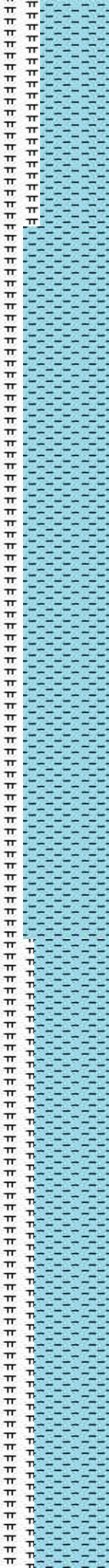
On gas buster

MD: 9,274'
TVD: 7,465.81'
INC: 90.37°
AZM: 359.09°
VS: 1,427.37'

MD: 9,300'
TVD: 7,464.87'
INC: 90.77°
AZM: 359.7°
VS: 1,521.18'

MD: 9,368'
TVD: 7,464.87'
INC: 90.77°
AZM: 359.7°
VS: 1,521.18'

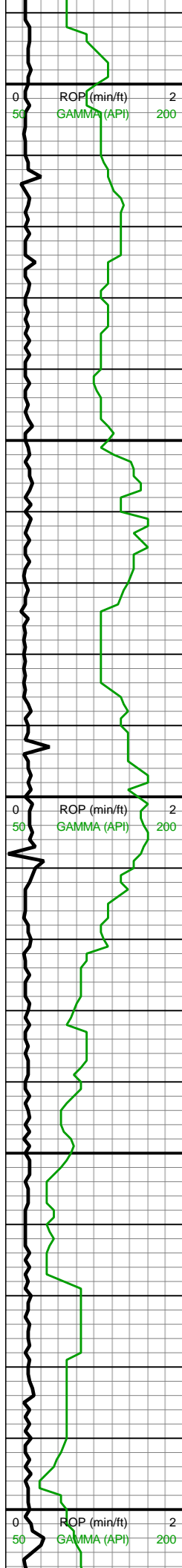
MW IN: 10.25



ip, frm-brit, sb ang-sb
rd-sb blkly mod fis ctngs,
slty-sl gt tex, rr forams, rr
bent, tr vf pyr, hi calc;
MRLST (40%): dk gy-dk
gyshbn, frm, brit, mod fis
sb blkly-blky-occ hi fis plty
ctngs, sm arg tex-sl slty
ip, tr vf pyr-pyr strg, mod
calc wi brn mrly resd

9200-9300 CHK (75%):
predy med gy, med
gyshbn-occ dk gy, mot,
frm-brit, sb blkly-blky, tr
free CHK, rr fos frags,
chky tex, mod calc;
MRLST (25%): med
gy-gyshbn-dk gy, frm-brit,
sb blkly-blky, sm-sl slty
tex, mod calc, tr pp pyr

9300-9400 CHK (65%):
predy med gy, med
gyshbn-occ dk gy, mot,
frm-brit, sb blkly-blky, tr
free CHK, chky tex, mod
calc MRLST (25%): med



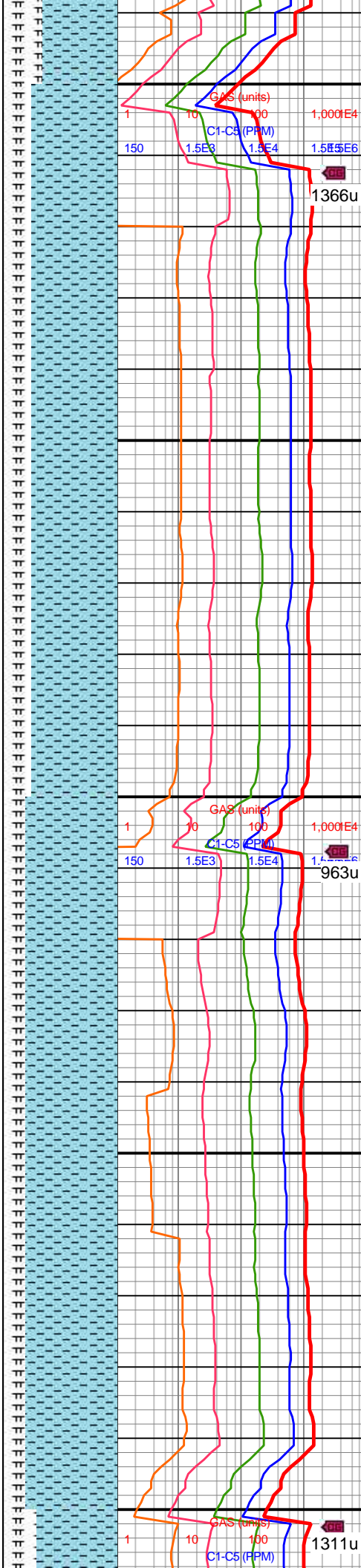
VIS IN: 57
MW OUT: 10.2
VIS OUT: 55
WOB: 31klbs
RPM: 75
SPM: 186
SPP: 4,030psi

MD: 9,462'
TVD: 7,463.71'
INC: 90.64°
AZM: 359.7°
VS: 1,615.02'

MW IN: 1.3
VIS IN: 56
MW OUT: 10.2
VIS OUT: 53

MD: 9,556'
TVD: 7,462.7'
INC: 90.59°
AZM: 359.53°
VS: 1,708.85'

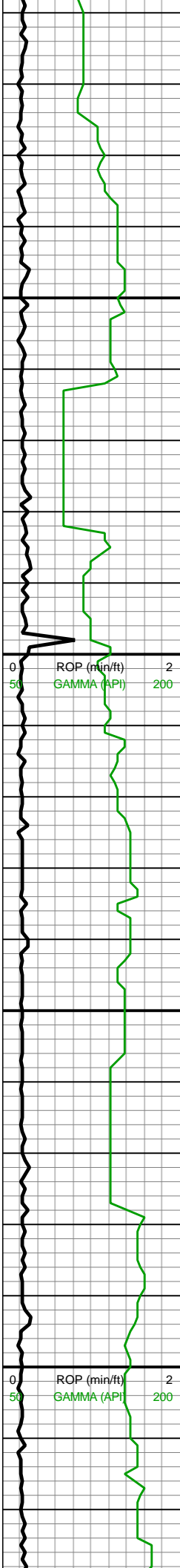
WOB: 29.2klbs
RPM: 75
SPM: 186
SPP: 4,141psi



calc; MRLST (35%): med
gy-gyshbn-dk gy, frm-brit,
sb blkly-blky, sm-sl slty
tex, mod calc, tr pp pyr

9400-9500 CHK (75%):
med brn-dk gyshbn, tr
free chk, mot, frm-sl sft,
blkly-sb rd, chky tex,
scat-com mic fos frags, v
calc; MRLST (25%):
predy dk gy-dk gyshbn,
sm tex, frm-sl hrd,
blkly-sb rd, tr imbd pp pyr,
tr lam CHK, calc

9500-9600 CHK (80%):
med gy, med gyshbn-occ
dk gy, mot, frm-brit, sb
blkly-blky, tr free CHK,
chky tex, com intbd
MRLST, com foram fos
frags, v calc; MRLST
(20%): med gyshbn-dk
gy, frm-brit, blkly-sb blkly,
sm-sl slty tex, calc



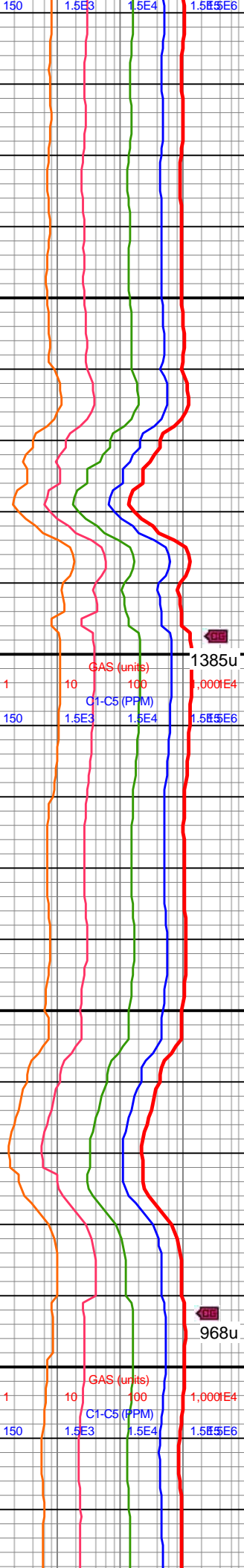
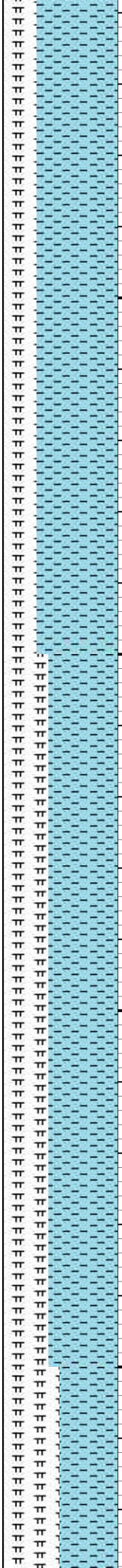
9,610
9,620
9,630
9,640
9,650
9,660
9,670
9,680
9,690
9,700
9,710
9,720
9,730
9,740
9,750
9,760
9,770
9,780
9,790
9,800
9,810
9,820

MD: 9,651'
TVD: 7,461.94'
INC: 90.33°
AZM: 359°
VS: 1,803.65'

MW IN: 10.3
VIS IN: 55
MW OUT: 10.3
VIS OUT: 52

MD: 9,745'
TVD: 7,461.43'
INC: 90.29°
AZM: 358.29°
VS: 1,897.38'

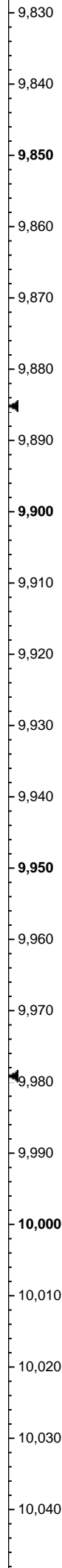
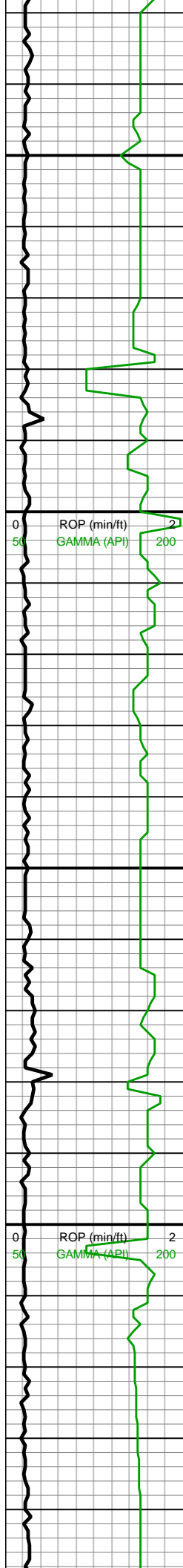
WOB: 29.8klbs
RPM: 76
SPM: 186
SPP: 4,229psi



9600-9700 CHK (70%):
predy med brn-gyshbn,
frm-sft, mod fis, tab-sb
blky, tr free CHK, hi-mod
calc; MRLST (30%): dk
gy-dk gyshbn, sl hd-v frm,
mod fis, sb blky-tab
ctngs, rgh-sm arg tex, hi
calc

9700-9800 CHK (60%):
lt-med gy-gyshbn wi f wh
chky incl ip, frm, brit,
l-mod fis, sb rd-sb blky,
hi calc; MRLST (40%): dk
gy, med frm-frm, brit ip,
mod fis sb blky-sb plty
ctngs, sp brn mrly incl ip,
sly tex, tr vf pyr, mod calc





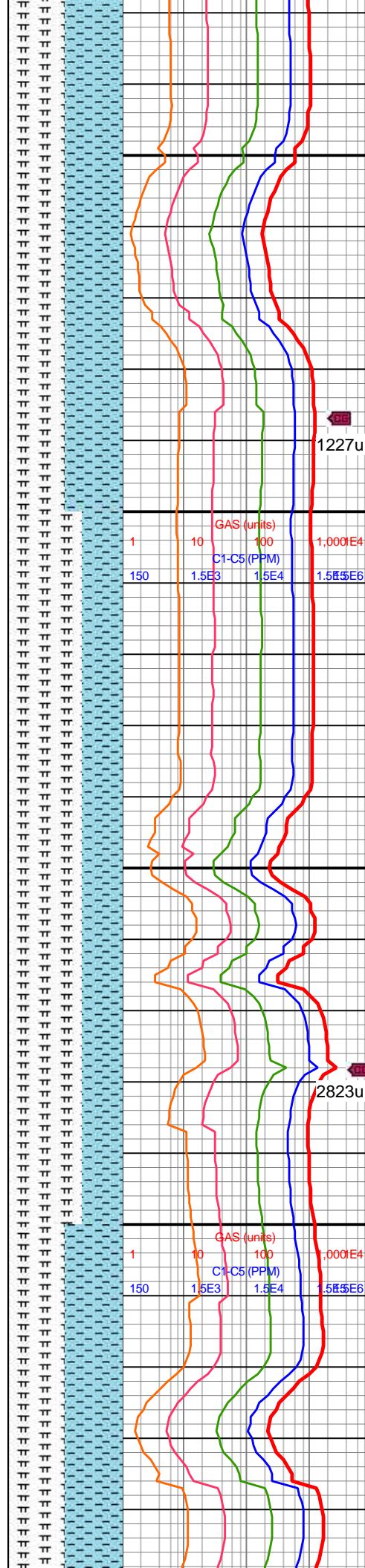
MD: 9,840'
TVD: 7,460.89'
INC: 90.37°
AZM: 358.12°
VS: 1,992.06'

MD: 9,934'
TVD: 7,460.49'
INC: 90.11°
AZM: 357.77°
VS: 2,085.69'

MW IN: 10.3
VIS IN: 55
MW OUT: 10.3
VIS OUT: 52

WOB: 30.2klbs
RPM: 76
SPM: 184
SPP: 4,179psi

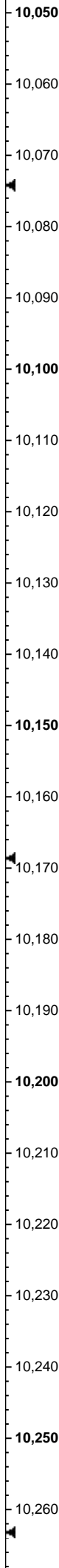
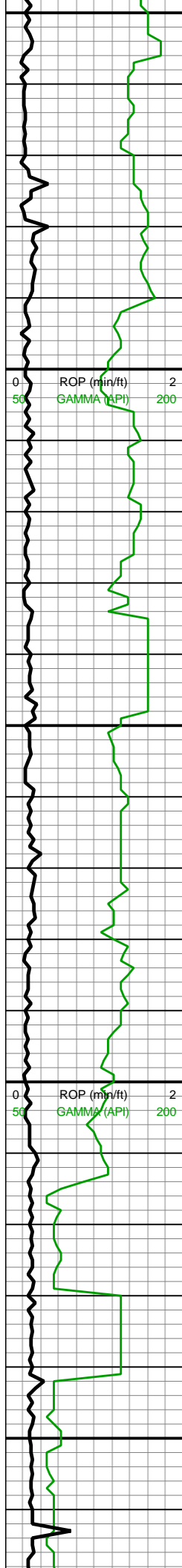
MD: 10,029'
TVD: 7,460.71'
INC: 89.63°
AZM: 358.03°
VS: 2,180.32'



9800-9900 MRLST
(50%): med gyshbn, sb
frm-frm l-mod fis sb rd-rd
ctngs, com dk gy frm hi
fis sb plty-plty ctngs, sm
silty arg tex-silty tex, rr vf-f
pyr strg, mod calc wi brn
resdl; CHK (50%): dk gy
wi vf-f wh chky incl, frm,
brit, mod fis sb rd-sb plty
ctngs, tr vf pyr, hi calc

9900-10000 MRLST
(75%): med gyshbn-dk
gy, med frm-frm, l mod-hi
fis sb rd-plty ctngs, sm
silty arg tex-silty tex, rr vf-f
pyr strg, mod calc wi brn
resdl; CHK (25%): dk gy
wi vf-f wh chky incl, frm,
brit, mod fis sb rd-sb plty
ctngs, tr vf pyr, hi calc





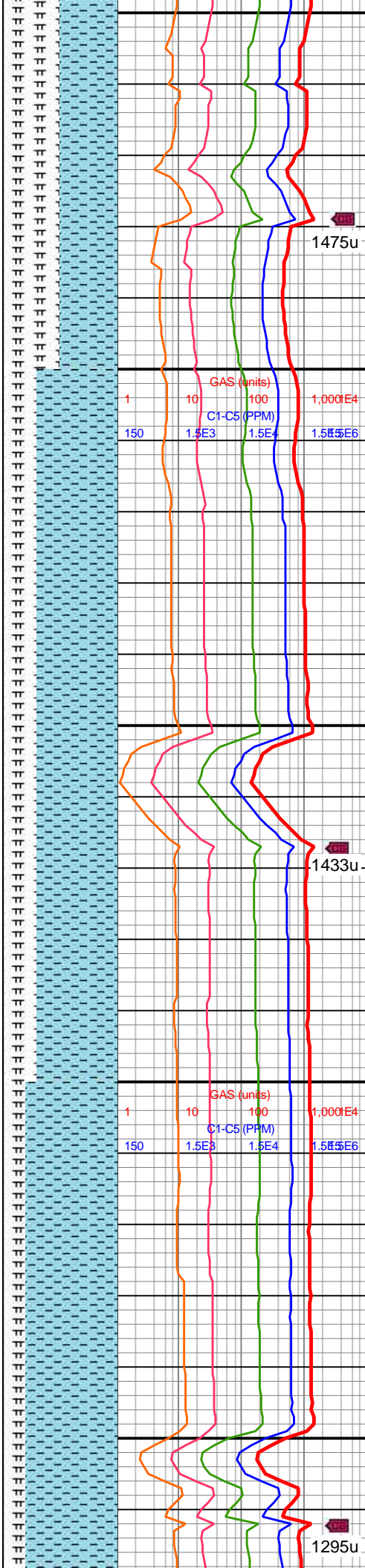
MW IN: 10.3
VIS IN: 56
MW OUT: 10.3
VIS OUT: 53

MD: 10,123'
TVD: 7,461.68'
INC: 89.19°
AZM: 359.35°
VS: 2,274.06'

WOB: 29klbs
RPM: 75
SPM: 184
SPP: 4,191psi

MD: 10,218'
TVD: 7,463.02'
INC: 89.19°
AZM: 358.29°
VS: 2,368.8'

MW IN: 10.3
VIS IN: 56
MW OUT: 10.3
VIS OUT: 53



10000-10100 CHK
(50%): lt brn-dk gyshbn,
mot, frm-sl sft, rd-sb ang,
chky tex, hi calc; MRLST
(50%): predy gy-dk
gyshbn, sm tex-sl slty,
frm-sl hrd, blkyl-sb rd, tr vf
lam, calc

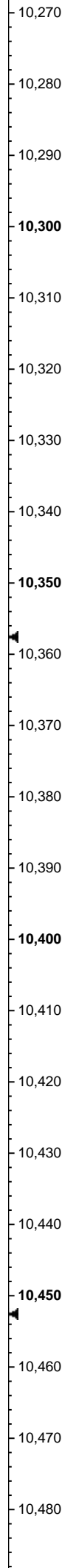
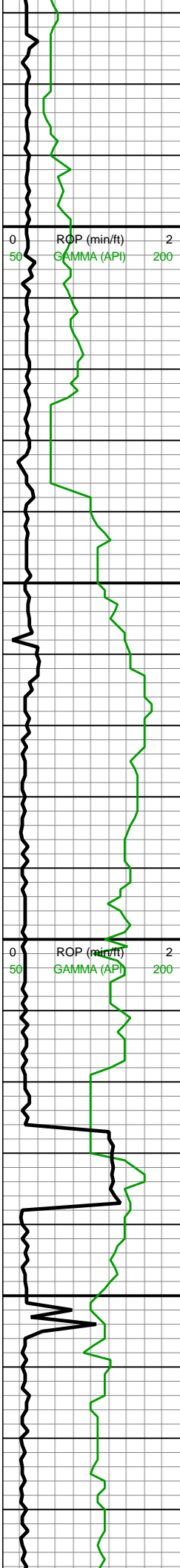
1475u

1433u

10100-10200 CHK
(70%): med brn-gyshbn,
frm-sft, mod fis, tab-sb
blkyl, tr free CHK, v calc;
MRLST (30%): dk gy-dk
gyshbn, sl hd-v frm, mod
fis, sb blkyl-tab ctngs, sm
arg tex, mod calc, tr pp
mic pyr

1295u





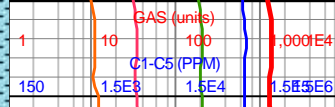
MD: 10,312'
TVD: 7,464.28'
INC: 89.27°
AZM: 358.82°
VS: 2,462.51'

MW IN: 10.3
VIS IN: 55
MW OUT: 10.3
VIS OUT: 53

WOB: 24.8klbs
RPM: 75
SPM: 142
SPP: 3,243psi

MD: 10,407'
TVD: 7,465.34'
INC: 89.45°
AZM: 358.56°
VS: 2,557.24'

MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 52

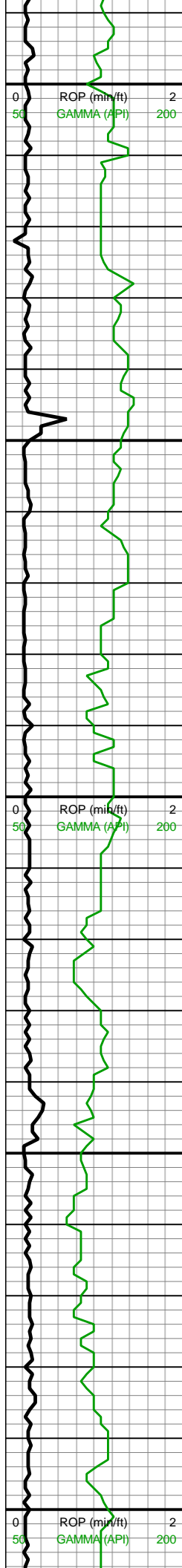


10200-10300 CHK
(80%): med gy-occ dk gy
mot wi f wh chky incl,
frm-brit, mod fis sb blk
ctngs, tr mict cal vn, tr mic
fos frags, hi calc; MRLST
(20%): gyshbn-dk gy-v dk
gy, brit mod fis ctngs, sb
blk-bkly, scat inoc fos
frags, tr vf pyr, mod calc

10300-10400 CHK
(85%): med brn-gyshbn,
frm-sft, mod fis, tab-sb
blk, tr free CHK, scat mic
fos frags, v calc; MRLST
(15%): dk gy-dk gyshbn,
sl hd-v frm, mod fis, sb
blk-tab ctngs, sm arg
tex, mod calc, tr pp mic
pyr

10400-10500 CHK
(80%): med gy, dk gy ip, tr
lt gy, frm-brit, sb blk-bkly
ctngs, slty tex, occ
forams, tr vf pyr, hi calc;
MRLST (20%): dk
gy-gyshbn in sb frm-frm





10,490
10,500
10,510
10,520
10,530
10,540
10,550
10,560
10,570
10,580
10,590
10,600
10,610
10,620
10,630
10,640
10,650
10,660
10,670
10,680
10,690
10,700

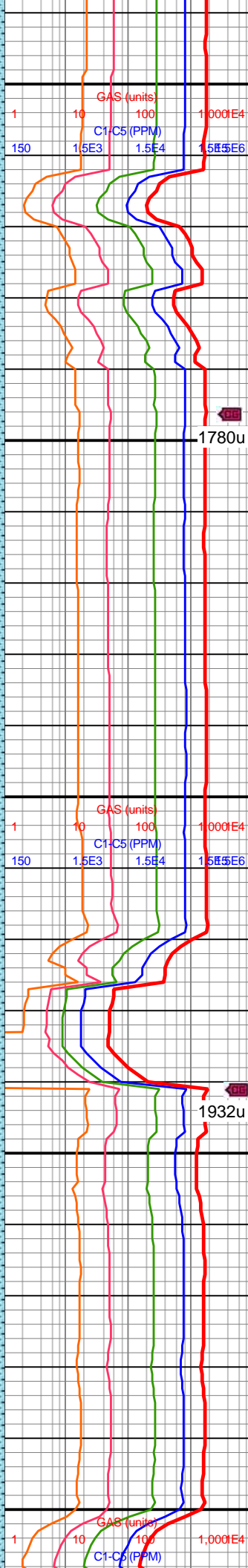
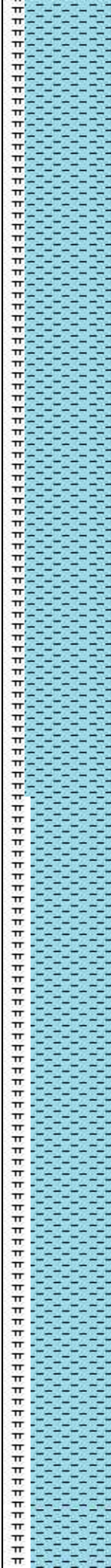
MD: 10,501'
TVD: 7,465.31'
INC: 90.59°
AZM: 358.91°
VS: 2,650.98'

MD: 10,596'
TVD: 7,464.44'
INC: 90.46°
AZM: 359.61°
VS: 2,745.78'

WOB: 29.8klbs
RPM: 75
SPM: 186
SPP: 4,226psi

MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 52

MD: 10,691'
TVD: 7,463.6'
INC: 90.55°
AZM: 0.58°
VS: 2,840.66'

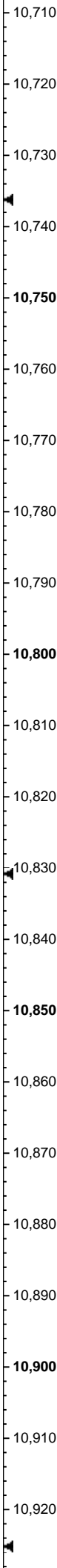
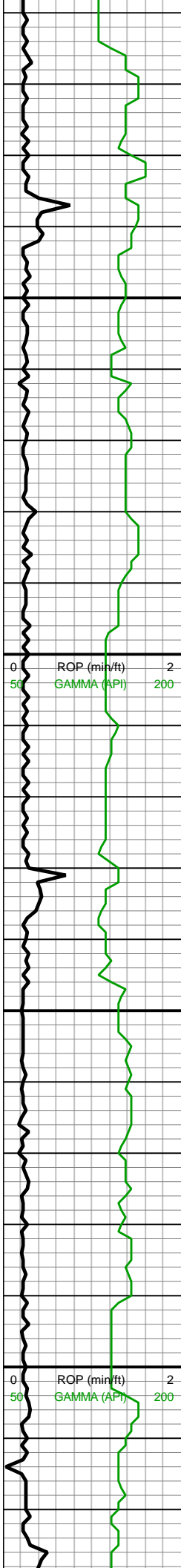


gy gyshbn ip, ss mlt mlt,
brit ip, blk, sm-sl slty arg
tex, mot wi brn mrlly incl
ip, mod calc

10500-10600 CHK
(80%): med gy, med
gyshbn-occ dk gy, mot,
frm-brit, sb blk-bkly, tr
free CHK, chky tex, com
intbd MRLST, com foram
fos frags, v calc; MRLST
(20%): med gyshbn-dk
gy, frm-brit, blk-sb blk,
sm-sl slty tex, calc

10600-10700 CHK
(75%): predy med gy,
med gyshbn-occ dk gy,
mot, frm-brit, sb blk-bkly,
tr free CHK, tr mic fos
frags, chky tex, mod calc;
MRLST (25%): med
gy-gyshbn-dk gy, frm-brit,
sb blk-bkly, sm-sl slty
tex, mod calc, tr pp pyr





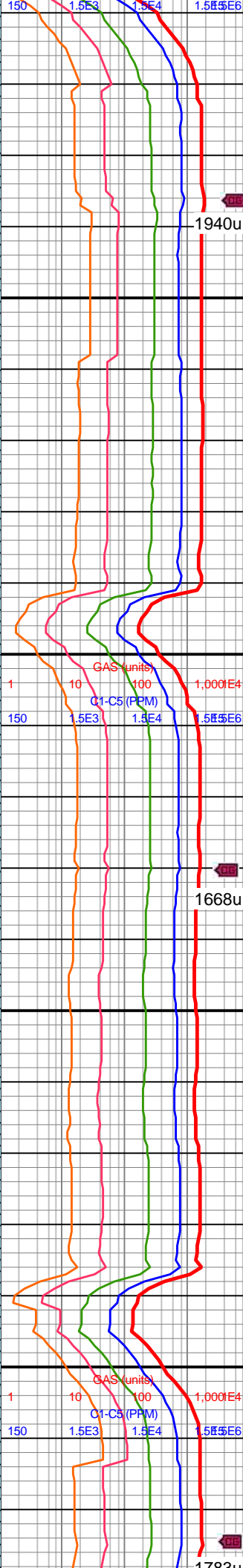
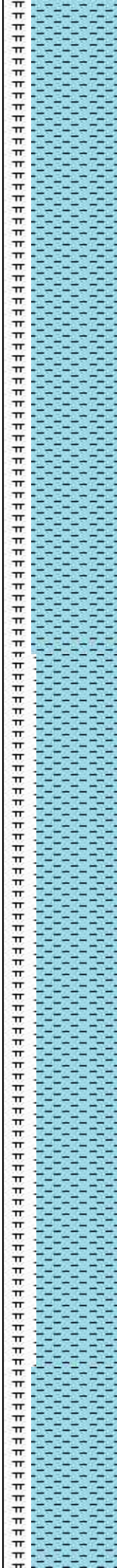
MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 51

MD: 10,785'
TVD: 7,462.88'
INC: 90.33°
AZM: 1.55°
VS: 2,934.6'

WOB: 29klbs
RPM: 75
SPM: 184
SPP: 4,190psi

MD: 10,880'
TVD: 7,462.12'
INC: 90.59°
AZM: 359.79°
VS: 3,029.52'

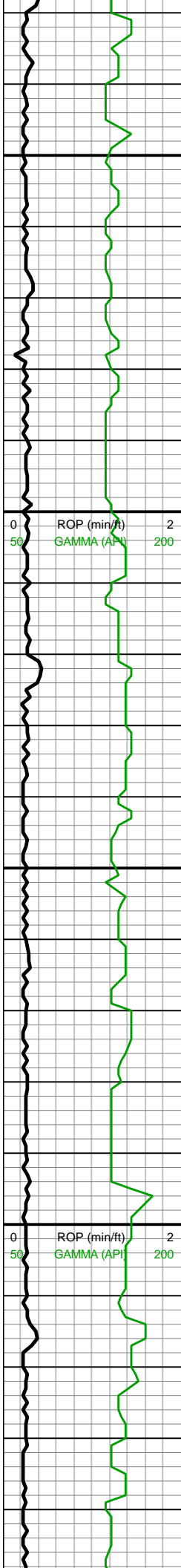
MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 52



10700-10800 CHK
(75%): med gy, med
gyshbn-occ dk gy, mot,
frm-brit, sb blkyl-blky, tr
free CHK, chky tex, rr
foram fos frags, com
intbd MRLST, v calc;
MRLST (25%): med
gyshbn-dk gy, frm-brit,
blkyl-sb blkyl, sm-sl slty
tex, calc

10800-10900 CHK
(70%): predy med gy,
med gyshbn-occ dk gy,
mot, frm-brit, sb blkyl-blky,
tr free CHK, scat inoc fos
frags, chky tex, mod calc;
MRLST (30%): med
gy-gyshbn-dk gy, frm-brit,
sb blkyl-blky, sm-sl slty
tex, mod calc, tr pp pyr





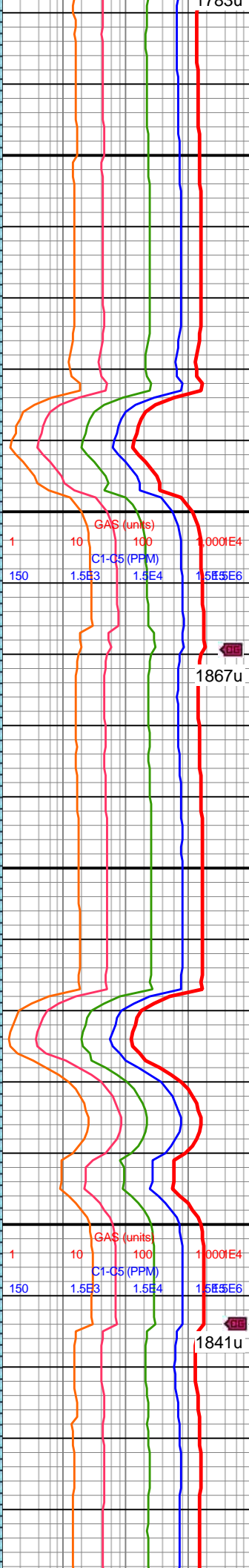
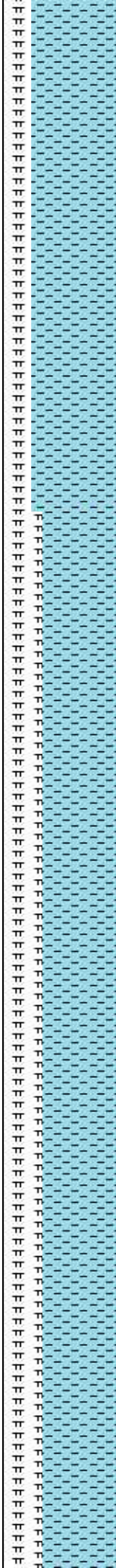
10,930
10,940
10,950
10,960
10,970
10,980
10,990
11,000
11,010
11,020
11,030
11,040
11,050
11,060
11,070
11,080
11,090
11,100
11,110
11,120
11,130
11,140

MD: 10,974'
TVD: 7,461.58'
INC: 90.07°
AZM: 359.26°
VS: 3,123.35'

WOB: 29.9klbs
RPM: 75
SPM: 186
SPP: 4,001psi

MD: 11,069'
TVD: 7,462.08'
INC: 89.32°
AZM: 0.4°
VS: 3,218.2'

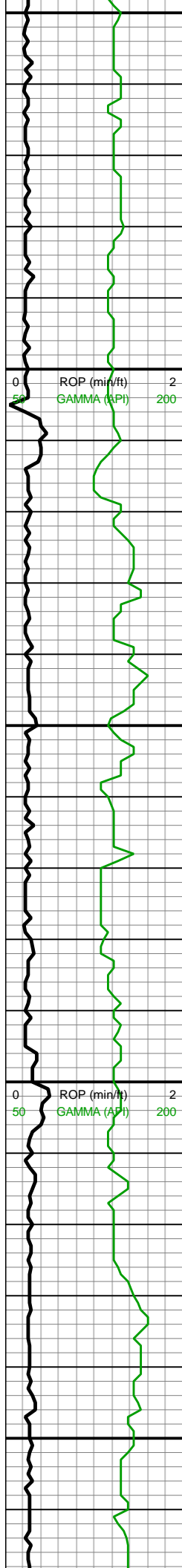
MW IN: 10.3
VIS IN: 53
MW OUT: 10.3
VIS OUT: 52



10900-11000 CHK
(75%): lt brn-gyshbn,
sme lt gy, frm-fis, blkyl-sb
rd, chky tex, tr free CHK,
scat fos frags, v calc;
MRLST (25%): predy
gy-dk gyshbn, sm tex-sl
silty, frm-v frm, blkyl-sb
ang, tr lam CHK, hi calc

11000-11100 CHK
(65%): predy med gy,
med gyshbn-occ dk gy,
mot, frm-brit, sb blkyl-blky,
tr free CHK, chky tex, mod
calc; MRLST (35%): med
gy-gyshbn-dk gy, frm-brit,
sb blkyl-blky, sm-sl silty
tex, mod calc, tr pp pyr





11,150
11,160
11,170
11,180
11,190
11,200
11,210
11,220
11,230
11,240
11,250
11,260
11,270
11,280
11,290
11,300
11,310
11,320
11,330
11,340
11,350
11,360

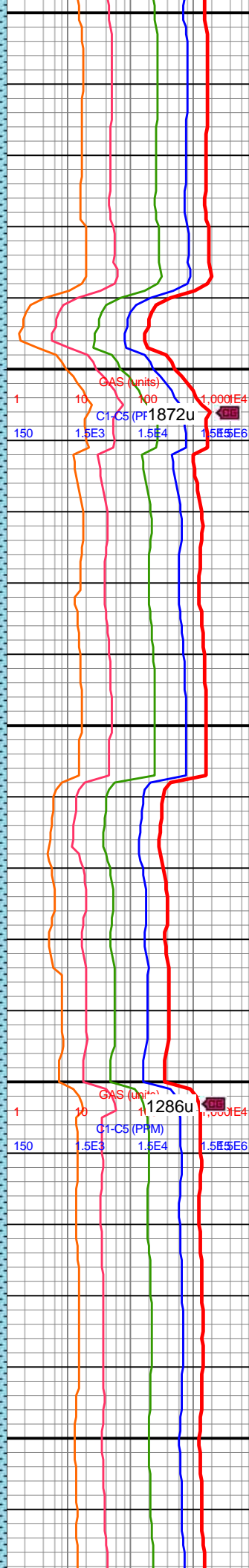
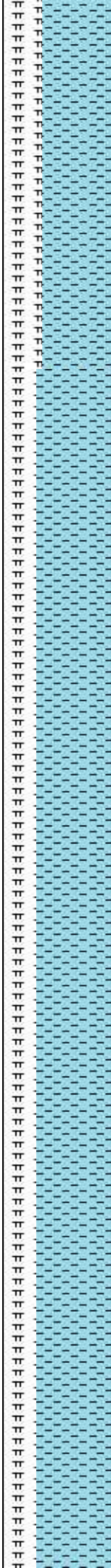
MD: 11,163'
TVD: 7,463.2'
INC: 89.32°
AZM: 1.55°
VS: 3,312.14'

WOB: 30.6klbs
RPM: 75
SPM: 184
SPP: 4,278psi

MW IN: 10.3
VIS IN: 52
MW OUT: 10.3
VIS OUT: 50

MD: 11,258'
TVD: 7,464.37'
INC: 89.27°
AZM: 2.43°
VS: 3,407.12'

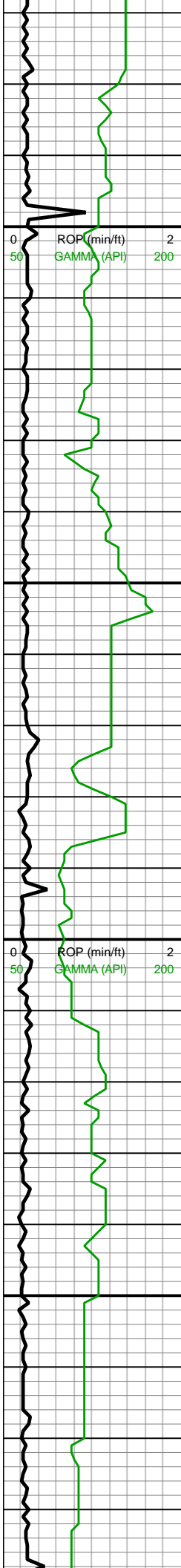
MD: 11,352'
TVD: 7,465.06'
INC: 89.89°
AZM: 0.84°
VS: 3,501.09'



11100-11200 CHK
(65%): dk gy-med brn, frm, mod fis, blk, tr free
CHK, tr pp mic pyr, v calc;
MRLST (35%): predy dk gy-dk gy brn, sme med gy, mot, frm-v frm, mod fis, sb blk, blk, mod calc, tr imbd mic pyr

11200-11300 CHK
(70%): lt-med gy wi f wh chky incl & forams, frm, brit, l-mod fis sb rd-sb blk, ctns, slty tex, occ forams, rr bent, tr vf pyr, hi calc; MRLST (30%): dk gy, med frm-frm, brit ip, mod fis sb blk-sb plty ctns, sp brn mrlly incl ip, sm arg-sl slty tex, tr vf pyr, mod calc

11300-11400 CHK
(70%): lt gy-med gy wi f-elong wh chky incl, frm-brit l-mod fis sb rd-sb blk, ctns, slty tex, occ forams, rr bent, tr vf pyr, hi calc

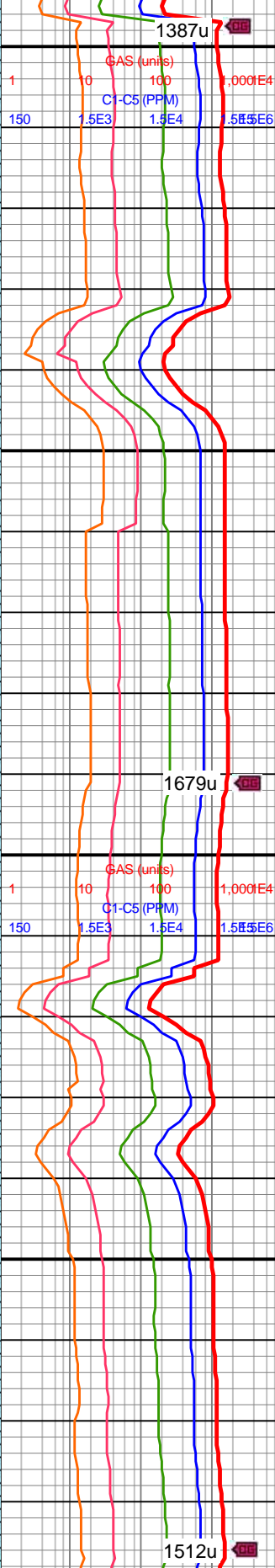
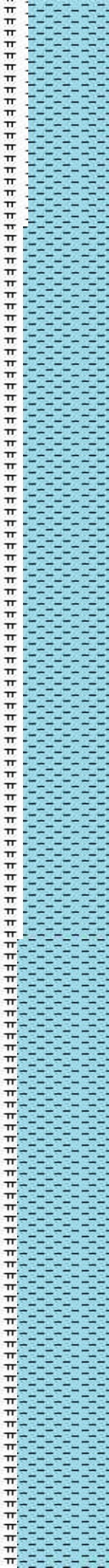


11,370
11,380
11,390
11,400
11,410
11,420
11,430
11,440
11,450
11,460
11,470
11,480
11,490
11,500
11,510
11,520
11,530
11,540
11,550
11,560
11,570
11,580

WOB: 24klbs
RPM: 75
SPM: 186
SPP: 3,980psi

MD: 11,447'
TVD: 7,464.72'
INC: 90.51°
AZM: 0.76°
VS: 3,596.02'

MD: 11,542'
TVD: 7,464.03'
INC: 90.33°
AZM: 0.05°
VS: 3,690.92'

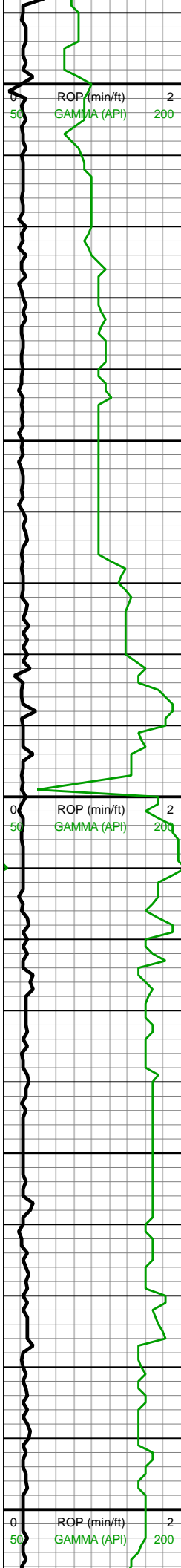


blky-blky ctngs, sl slty tex,
rr forams, tr-rr bent, tr vf
pyr, hi calc; MRLST
(30%): dk gy, brnsh ip
mot wi brn mrly incl, med
frm-frm, brit ip, mod fis
sb blky-sb plty ctngs, sm
arg-sl slty tex, tr vf pyr,
mod calc wi brn mrly
resdl

11400-11500 CHK
(75%): predy lt gy, med gy
ip, frm-brit l-mod fis sb
rd-sb blky ctngs, sl slty
tex, tr forams, tr vf pyr-c
lse pyr,, hi calc; MRLST
(25%): dk gy, brnsh ip
mot wi brn mrly incl, med
frm-frm, brit ip, mod fis
sb blky-sb plty ctngs, sm
arg-sl slty tex, tr vf pyr,
mod calc wi brn mrly
resdl

11500-11600 CHK
(80%): lt gy, occ med gy,
frm-brit, sb rd-sb blky
l-mod fis ctngs, sl slty tex,
tr forams, tr vf pyr-c lse
pyr strg, hi calc; MRLST
(20%): dk gy, frm-brit, mot
ip, mod fis sb blky-sb plty





11,590
11,600
11,610
11,620
11,630
11,640
11,650
11,660
11,670
11,680
11,690
11,700
11,710
11,720
11,730
11,740
11,750
11,760
11,770
11,780
11,790
11,800

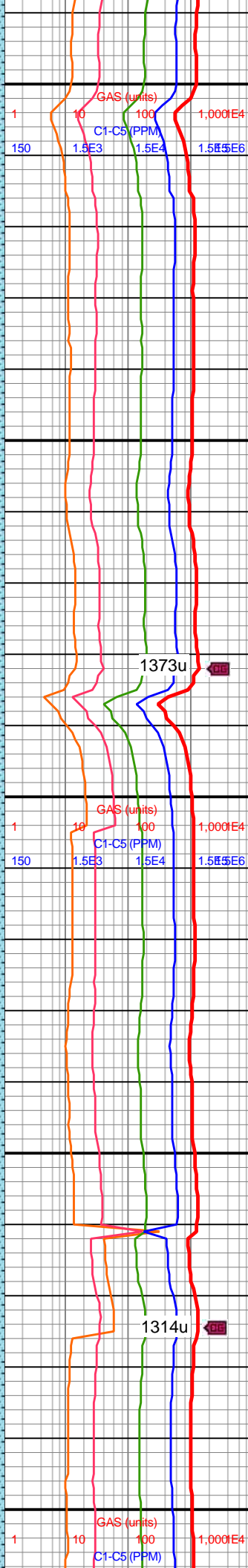
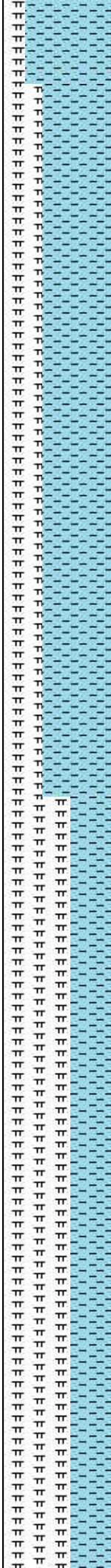
MD: 11,637'
TVD: 7,463.51'
INC: 90.29°
AZM: 359.35°
VS: 3,785.76'

MW IN: 10.3
VIS IN: 53
MW OUT: 10.35
VIS OUT: 47

MD: 11,732'
TVD: 7,462.97'
INC: 90.37°
AZM: 359.53°
VS: 3,880.58'

MW IN: 10.3
VIS IN: 50
MW OUT: 10.35
VIS OUT: 48

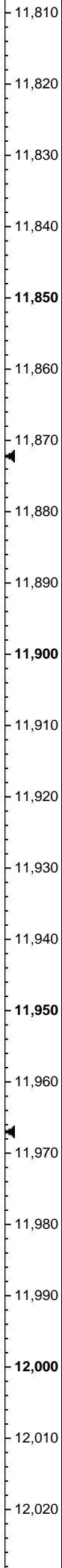
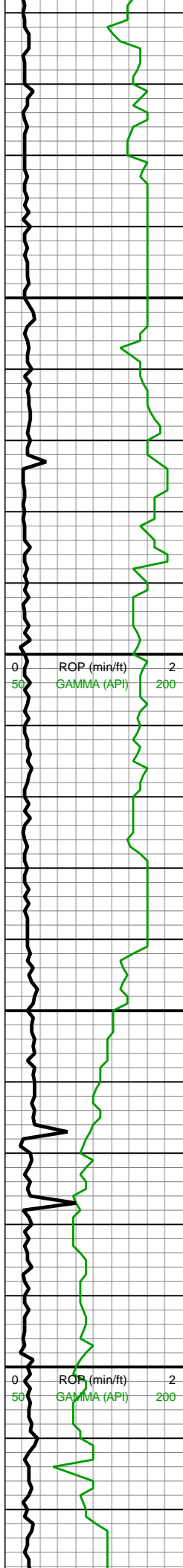
WOB: 30klbs
RPM: 75
SPM: 184
SPP: 4,320psi



ctngs, sm arg-sl slty tex,
tr vf pyr, mod calc wi brn
mrly resdl

11600-11700 CHK
(65%): predy med
gy-gyshbn ip wi wh chky
lamn & f-c wh incl &
forams, occ lt gy, frm-brit,
sb rd-sb blkly l-mod fis
ctngs, slty tex, occ
forams, rr bent, tr vf pyr, hi
calc; MRLST (35%): med
gy-dk gy-dk gyshbn,
frm-brit, mod fis sb
blkly-blky ctngs, mot wi
brn marl ip, mod calc wi
brn mrly resdl

11700-11800 MRLST
(60%): med gy-dk gy-dk
gyshbn mot wi rr brn mrly
incl, frm-brit, mod fis sb
blkly-blky ctngs, dul rthy
lstr, rr-occ forams, rr
bent, mod calc wi brn
mrly resdl; CHK (40%):
med gy-gyshbn, occ dk
gy wi chky incl, frm-brit,
l-mod fis sb rd-sb blkly
ctngs, slty tex, tr vf pyr, hi
calc



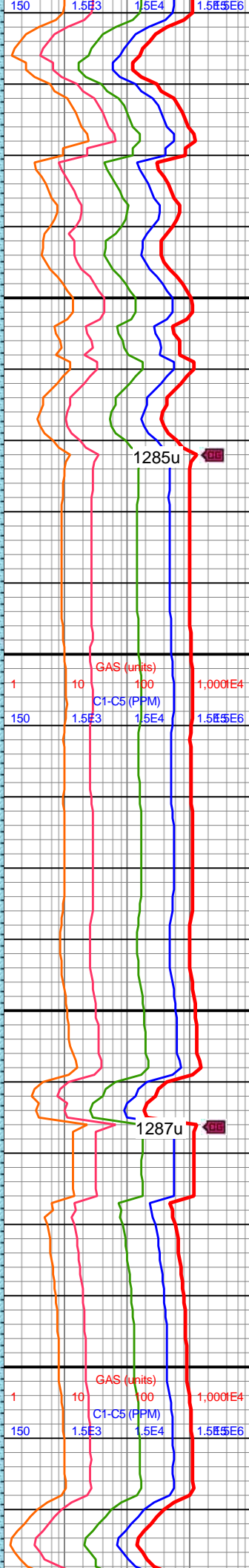
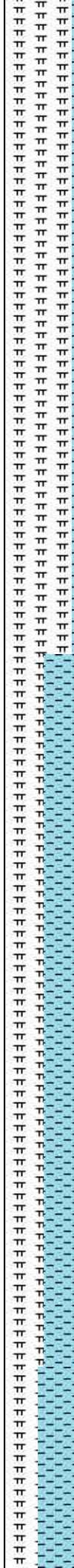
MD: 11,827'
TVD: 7,463.19'
INC: 89.36°
AZM: 0.4°
VS: 3,975.45'

MD: 11,921'
TVD: 7,464.35'
INC: 89.23°
AZM: 1.2°
VS: 4,069.38'

MW IN: 10.3
VIS IN: 50
MW OUT: 10.3
VIS OUT: 46

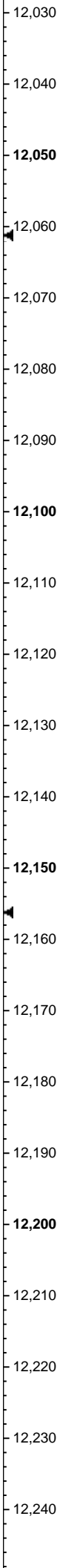
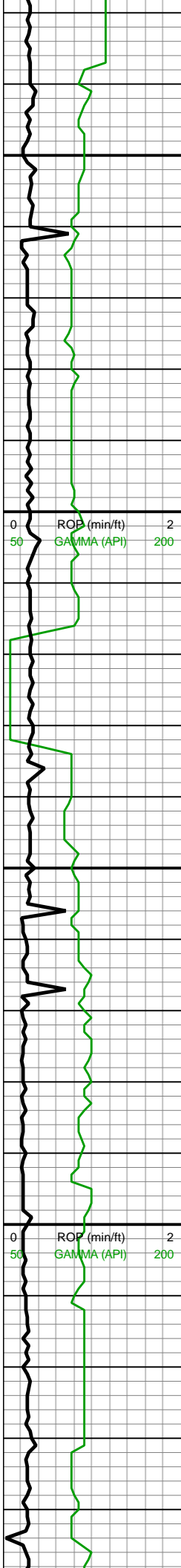
WOB: 30klbs
RPM: 75
SPM: 185
SPP: 4,380psi

MD: 12,016'
TVD: 7,465.62'
INC: 89.23°
AZM: 2.16°
VS: 4,164.34'



11800-11900 CHK
(60%): predy med
gy-gyshbn ip wi wh chky
lamn & f-c wh incl &
forams, occ lt gy, frm-brit,
sb rd-sb blkly l-mod fis
ctngs, slty tex, occ-com
forams & bent, tr vf pyr, hi
calc; MRLST (40%): med
gy-dk gy-dk gyshbn,
frm-brit, mod fis sb
blkly-blky ctngs, mot wi
brn marl ip, mod calc wi
brn mrly resdl

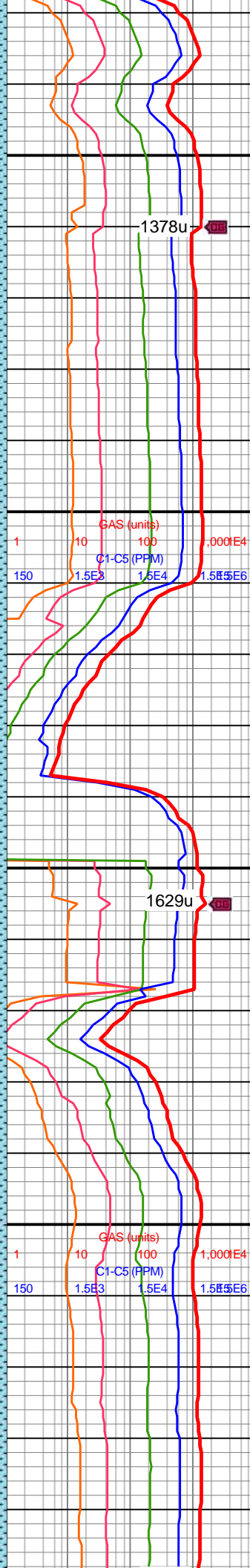
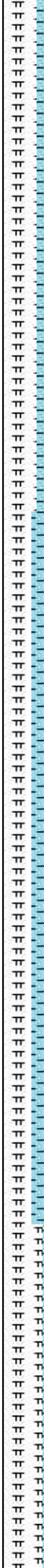
11900-12000 CHK
(65%): med gy-gyshbn,
occ dk gy wi chky incl,
frm-brit, l-mod fis sb
rd-sb blkly ctngs, slty tex,
occ forams, occ bent, tr vf
pyr, hi calc; MRLST
(35%): med gy-dk gy-dk
gyshbn mot wi rr brn mrly
incl, frm-brit, mod fis sb
blkly-blky ctngs, dul rthy
lstr, mod calc wi brn mrly
resdl



MD: 12,111'
TVD: 7,466.14'
INC: 90.15°
AZM: 1.02°
VS: 4,259.31'

MINDEPTH 12/10/17
MW IN: 10.35
VIS IN: 51
MW OUT: 10.35
VIS OUT: 48

MD: 12,206'
TVD: 7,465.81'
INC: 90.24°
AZM: 0.49°
VS: 4,354.24'



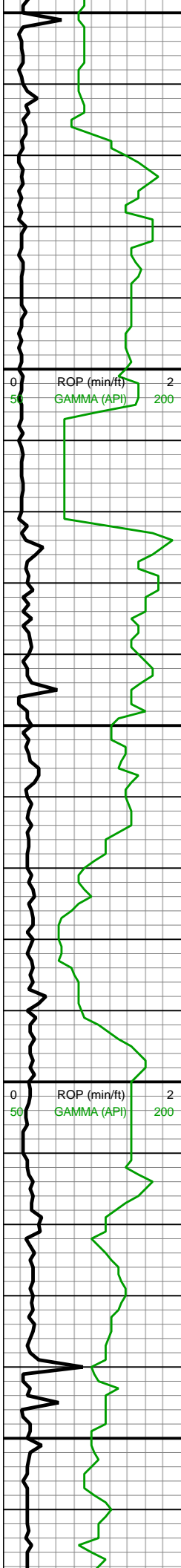
1378u

12000-12100 CHK
(70%): predy med
gy-gyshbn ip wi wh chky
lamn & f-c wh incl &
forams, occ lt gy, frm-brit,
sb rd-sb blkly l-mod fis
ctngs, slty tex, rr forams,
rr mict cal, tr vf pyr-c lse
pyr strg, hi calc; MRLST
(30%): med gy-dk gy-dk
gyshbn, frm-brit, mod fis
sb blkly-blky ctngs, mot wi
brn marl ip, mod calc wi
brn mrly resdl

1629u

12100-12200 CHK
(75%): lt gy-med gy-dk gy
wi rr wh-elong chky incl,
frm-brit, l-mod fis sb
rd-sb blkly ctngs, sm sl
slty tex, rr forams, tr vf pyr,
hi calc; MRLST (25%): dk
gy, frm-brit, mot ip, mod
fis sb blkly-sb plty ctngs,
sm arg-sl slty tex, tr vf pyr,
mod calc wi brn mrly
resdl





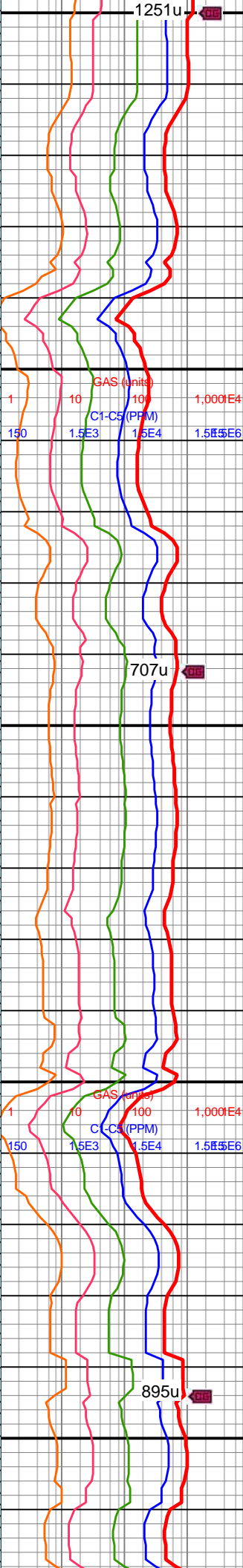
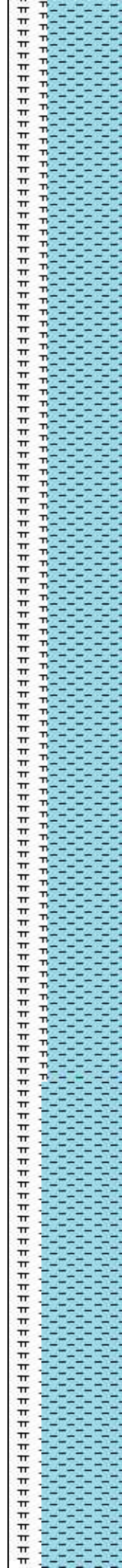
12,250
12,260
12,270
12,280
12,290
12,300
12,310
12,320
12,330
12,340
12,350
12,360
12,370
12,380
12,390
12,400
12,410
12,420
12,430
12,440
12,450
12,460

MD: 12,300'
TVD: 7,465.6'
INC: 90.02°
AZM: 0.58°
VS: 4,448.16'

MD: 12,395'
TVD: 7,465.16'
INC: 90.51°
AZM: 1.55°
VS: 4,543.1'

WOB: 30klbs
RPM: 75
SPM: 182
SPP: 4,350psi

MW IN: 10.3

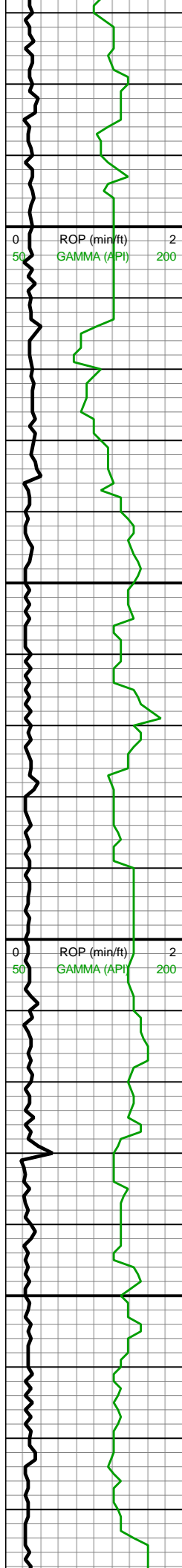


12200-12300 CHK
(65%): lt-med gy-gyshbn
ip wi wh chky lamn & occ
f-c wh incl, frm-brit, sb
rd-sb blkly l-mod fis
ctngs, slty tex, rr forams,
tr bent, tr vf pyr, hi calc;
MRLST (35%): med-dk
gy-v dk gy, frm-brit, mod
fis sb blkly-blky ctngs, mot
wi brn marl ip, sl slty tex,
mod calc wi brn mrly
resdl

12300-12400 CHK
(65%): predy lt-med gy,
occ dk gy wi wh chky incl
thru, frm-brit, sb rd-sb
blkly l-mod fis ctngs, slty
tex, rr forams, tr bent, tr vf
pyr, hi calc; MRLST
(35%): med-dk gy-v dk gy,
frm-brit, mod fis sb
blkly-blky ctngs, mot wi
brn marl ip, sl slty tex,
mod calc wi brn mrly
resdl

12400-12500 CHK
(70%): predy med-dk gy
wi rr f chky incl & rr chky
lamn, tr lt gy, frm-brit





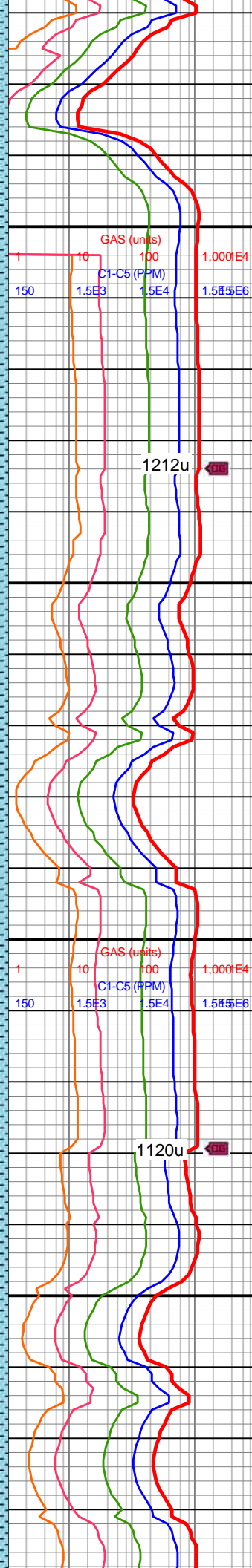
VIS IN: 52
MW OUT: 10.35
VIS OUT: 49

MD: 12,489'
TVD: 7,464.4'
INC: 90.42°
AZM: 1.99°
VS: 4,637.08'

MD: 12,584'
TVD: 7,463.7'
INC: 90.42°
AZM: 2.07°
VS: 4,732.06'

WOB: 31klbs
RPM: 76
SPM: 181
SPP: 4,340psi

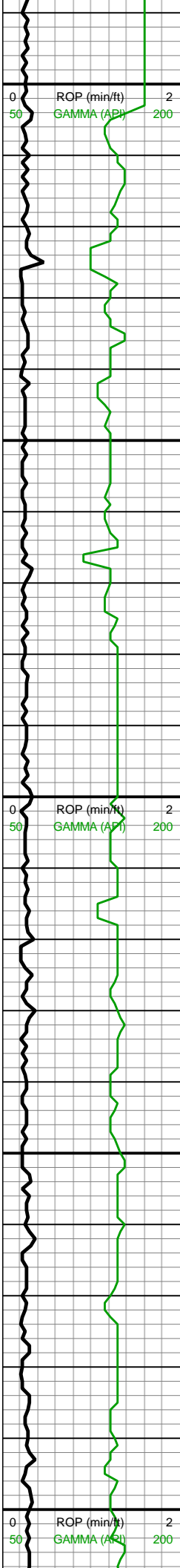
MD: 12,679'
TVD: 7,463.05'
INC: 90.37°
AZM: 1.81°
VS: 4,827.04'



I-mod fis sb rd-sb
blky-blky ctngs, sl slty tex,
rr forams, tr vf pyr, hi calc;
MRLST (30%): dk
gy-gyshbn-v dk gy, med
frm-frm, brit ip, mod fis
sb blky-sb plty ctngs, sm
arg-sl slty tex, tr vf pyr,
mod calc wi brn mrly
resdl

12500-12600 CHK
(65%): med gy-dk gy wi
occ f wh chky incl ip,
frm-brit I-mod fis sb rd-sb
blky ctngs, slty tex, rr c wh
forams thru, tr bent, tr vf
pyr, hi calc; MRLST
(35%): med-dk gy-v dk gy
mot wi brn marl ip,
frm-brit, mod fis sb
blky-blky ctngs, sl slty tex,
mod calc wi brn mrly
resdl

12600-12700 CHK
(70%): predy med gy wi rr
wh chky incl & forams,
occ dk gy wi wh chky incl
thru, frm-brit, sb rd-sb
blky I-mod fis ctngs, slty
tex, tr-rr forams, tr vf pyr,
hi calc; MRLST (30%): dk
gy, mot wi brn mrly incl ip,
frm-brit, mod fis sb



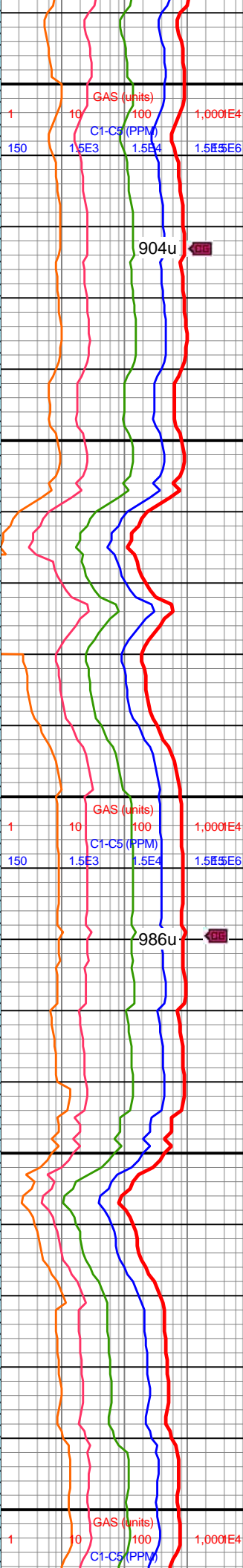
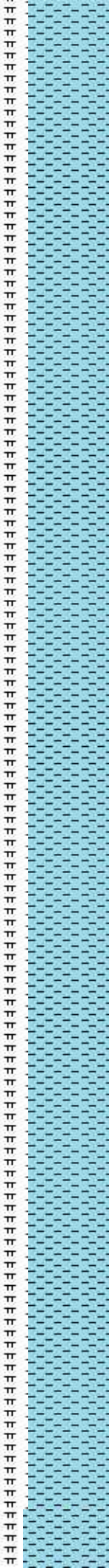
12,690
12,700
12,710
12,720
12,730
12,740
12,750
12,760
12,770
12,780
12,790
12,800
12,810
12,820
12,830
12,840
12,850
12,860
12,870
12,880
12,890
12,900

MW IN: 10.3
VIS IN: 52
MW OUT: 10.35
VIS OUT: 49

MD: 12,774'
TVD: 7,462.03'
INC: 90.86°
AZM: 2.75°
VS: 4,922.03'

WOB: 31klbs
RPM: 75
SPM: 180
SPP: 4,390psi

MD: 12,868'
TVD: 7,461.08'
INC: 90.29°
AZM: 2.34°
VS: 5,016.02'

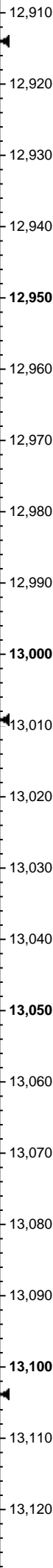
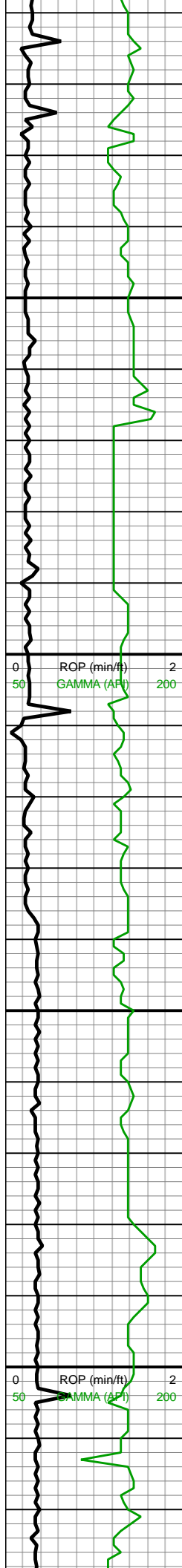


blkly-blky ctngs, sm arg-sl
silty tex, mod calc wi brn
mrly resdl

12700-12800 CHK
(70%): predy med-dk gy
wi rr f chky incl & rr chky
lamn, tr lt gy, frm-brit
l-mod fis sb rd-sb
blkly-blky ctngs, sl silty tex,
rr forams, tr vf pyr, hi calc;
MRLST (30%): dk
gy-gyshbn-v dk gy, med
frm-frm, brit ip, mod fis
sb blkly-sb plty ctngs, sm
arg-sl silty tex, tr vf pyr,
mod calc wi brn mrly
resdl

12800-12900 CHK
(70%): med gy, occ dk gy
wi wh chky incl thru,
frm-brit, sb rd-sb blkly
l-mod fis ctngs, silty tex,
tr-rr forams, tr fos frags, tr
vf pyr, hi calc; MRLST
(30%): dk gy, mot wi brn
mrly incl ip, frm-brit, mod
fis sb blkly-blky ctngs, sm
arg-sl silty tex, mod calc
wi brn mrly resdl



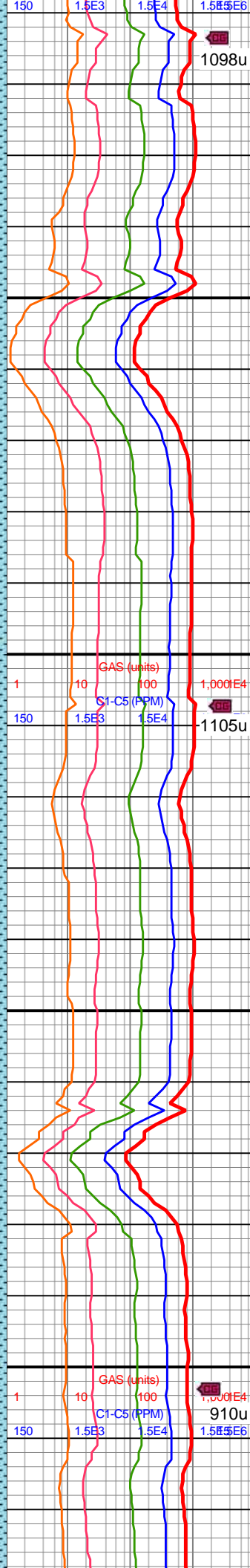


MD: 12,964'
TVD: 7,460.57'
INC: 90.33°
AZM: 1.11°
VS: 5,112'

MW IN: 10.35
VIS IN: 53
MW OUT: 10.4
VIS OUT: 51

WOB: 31klbs
RPM: 75
SPM: 182
SPP: 4,450psi

MD: 13,058'
TVD: 7,460.13'
INC: 90.2°
AZM: 1.11°
VS: 5,205.95'

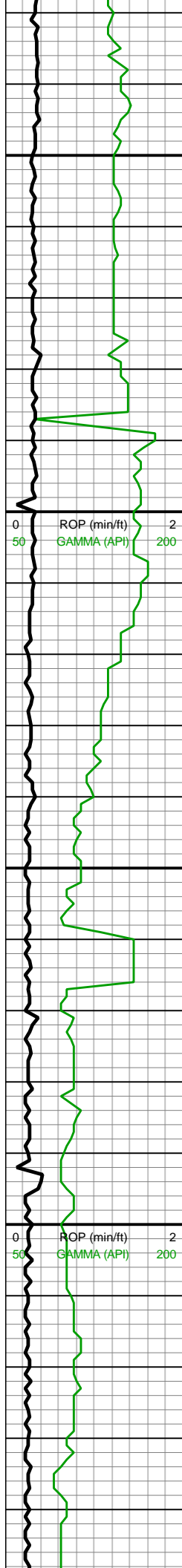


12900-13000 CHK
(75%): predy med gy,
med gyshbn-occ dk gy,
mot, frm-brit, sb blkyl-blky,
tr free CHK, scat inoc fos
frags, chky tex, mod calc;
MRLST (25%): med
gy-gyshbn-dk gy, frm-brit,
sb blkyl-blky, sm-sl slty
tex, mod calc, tr pp pyr



13000-13100 CHK
(80%): med brn-dk
gyshbn, com free chk,
mot, frm-sl sft, blkyl-sb rd,
chky tex, tr lam CHK, mod
calc; MRLST (20%):
predy dk gy-dk gyshbn,
sm tex, frm-sl hrd,
blkyl-sb rd, tr imbd pp pyr,
calc





13,130
13,140
13,150
13,160
13,170
13,180
13,190
13,200
13,210
13,220
13,230
13,240
13,250
13,260
13,270
13,280
13,290
13,300
13,310
13,320
13,330
13,340

MD: 13,153'
TVD: 7,460.5'
INC: 89.36°
AZM: 0.49°
VS: 5,300.88'

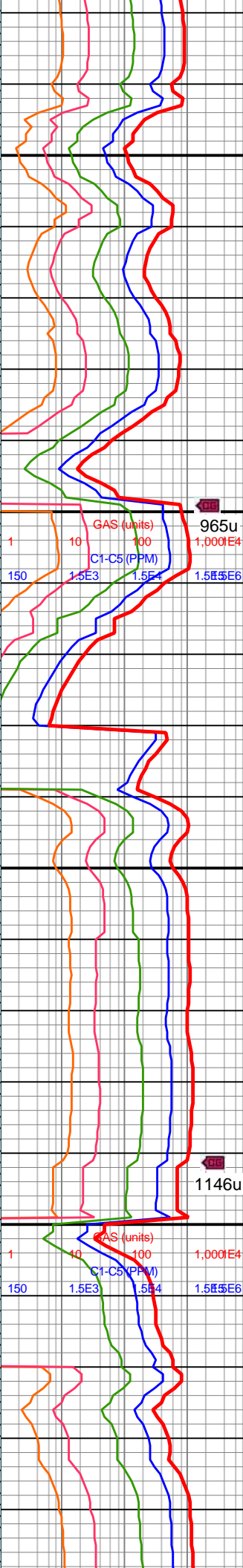
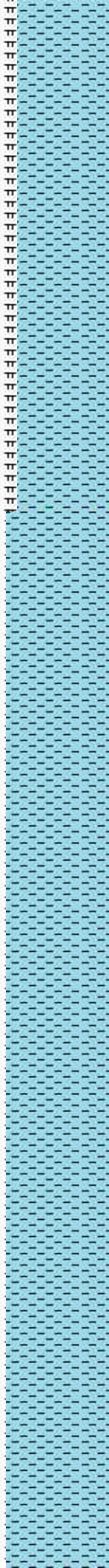
MW IN: 10.3
VIS IN: 53
MW OUT: 10.3
VIS OUT: 51

WOB: 23.8klbs
RPM: 75
SPM: 180
SPP: 4,313psi

MD: 13,247'
TVD: 7,461.37'
INC: 89.58°
AZM: 1.28°
VS: 5,394.81'

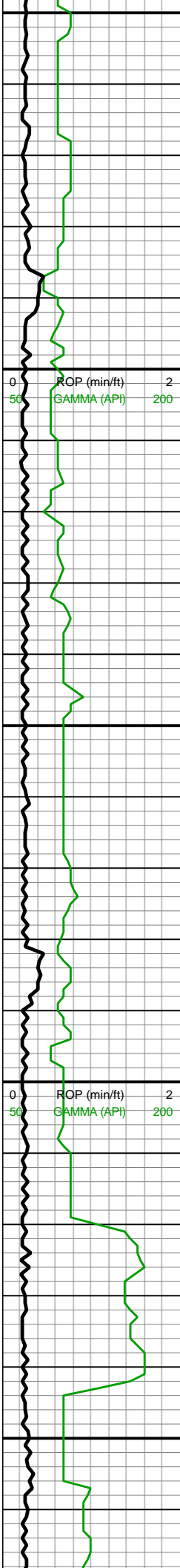
MW IN: 10.3
VIS IN: 53
MW OUT: 10.3
VIS OUT: 51

MD: 13,342'
TVD: 7,462.2'
INC: 89.41°
AZM: 0.58°
VS: 5,489.75'



13100-13200 CHK
(80%): predy med gy,
med gyshbn-occ dk gy,
mot, frm-brit, sb blky-blky,
sme free CHK, chky tex,
com intbd MRLST,
wk-mod calc; MRLST
(20%): med gyshbn-dk
gy, frm-brit, blky-sb blky,
sm-sl slty tex, v calc

10600-10700 CHK
(90%): predy med gy-lt
gyshbn, sme lt gy, mot,
frm-brit, sb blky-blky, tr
free CHK, tr mic fos
frags, chky tex, v calc;
MRLST (10%): med
gy-gyshbn-dk gy, frm-brit,
sb blky-blky, sm-sl slty
tex, v calc, tr pp pyr



13,350
13,360
13,370
13,380
13,390
13,400
13,410
13,420
13,430
13,440
13,450
13,460
13,470
13,480
13,490
13,500
13,510
13,520
13,530
13,540
13,550
13,560

WOB: 27.5klbs
RPM: 76
SPM: 180
SPP: 4,457psi

MD: 13,437'
TVD: 7,463.18'
INC: 89.41°
AZM: 0.58°
VS: 5,584.66'

MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 52

MD: 13,532'
TVD: 7,464.23'
INC: 89.32°
AZM: 359.79°
VS: 5,679.54'

Off Buster

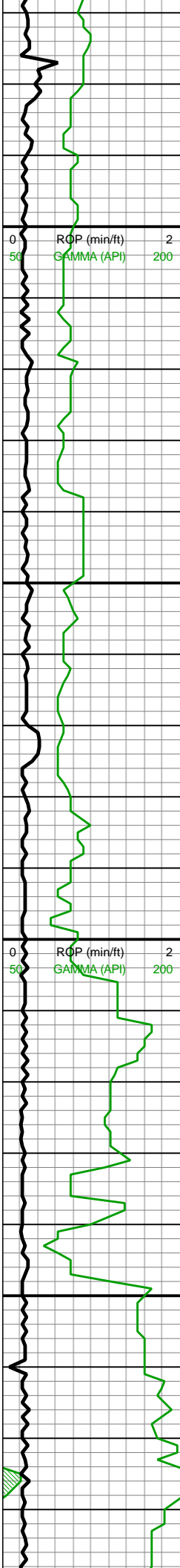


13300-13400 CHK
(90%): med gy-lt gy, sme offwht, dk gy ip, tr lt gyshbn, frm-brit, sb blky-blky ctngs, slty tex, occ forams, tr vf pyr, hi calc; MRLST (10%): dk gy-gyshbn ip, sb frm-frm, brit ip, blky, sm-sl slty arg tex, mot wi brn mrly incl ip, v calc

13400-13500 CHK
(85%): lt brn-crm, sme dk gyshbn, mot, frm-sl sft, rd-sb ang, chky tex, tr mic fos frags, v calc; MRLST (15%): predy gy-dk gyshbn, sm tex-sl slty, frm-sl hrd, blky-sb rd, tr vf CHK lam, calc



13500-13600 CHK



13,570
13,580
13,590
13,600
13,610
13,620
13,630
13,640
13,650
13,660
13,670
13,680
13,690
13,700
13,710
13,720
13,730
13,740
13,750
13,760
13,770
13,780

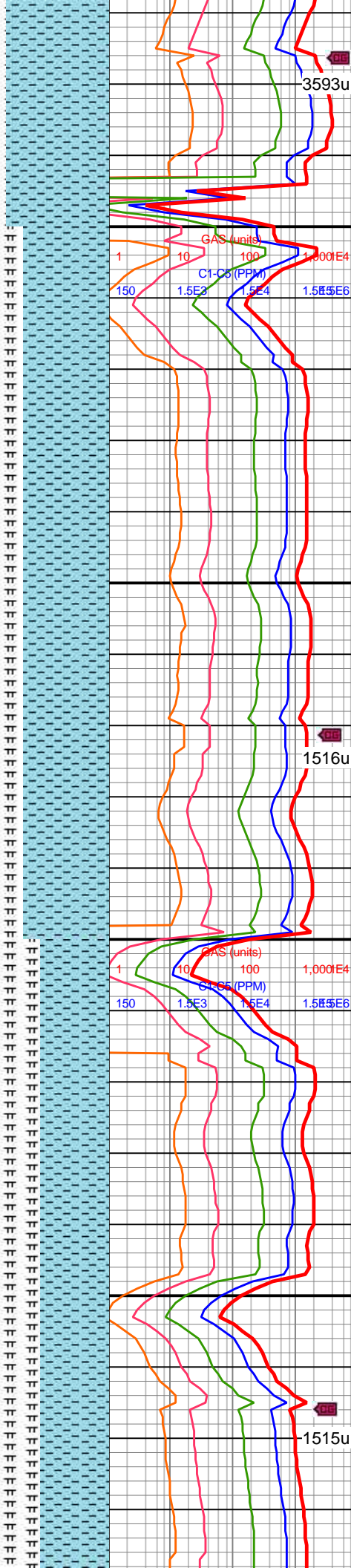
WOB: 28.7klbs
RPM: 75
SPM: 181
SPP: 4,589psi

On Buster

MD: 13,626'
TVD: 7,464.59'
INC: 90.24°
AZM: 0.4°
VS: 5,773.42'

MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 52

MD: 13,720'
TVD: 7,464.27'
INC: 90.15°
AZM: 1.55°
VS: 5,867.37'

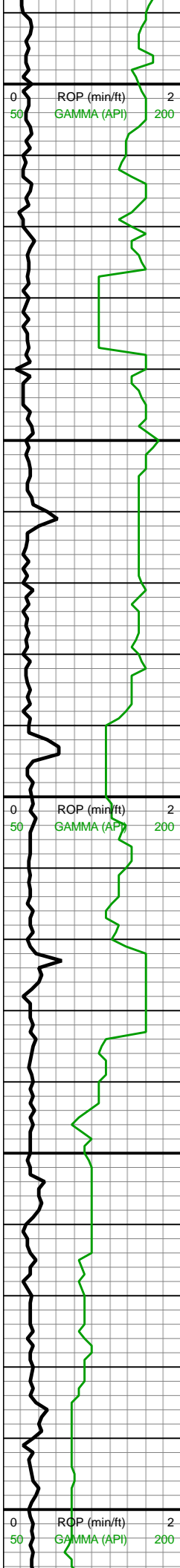


13500-13600 CHK
(90%): predy med gy,
med gyshbn-occ dk gy,
mot, frm-brit, sb blkyl-bkly,
tr free CHK, scat inoc fos
frags, chky tex, mod calc;
MRLST (10%): med
gy-gyshbn-dk gy, frm-brit,
sb blkyl-bkly, sm-sl slty
tex, mod calc, tr pp pyr

13600-13700 CHK
(75%): med brn-lt
gyshbn, com lt gy-offwht,
tr free crm chk, mot,
frm-sl sft, blkyl-sb rd, chky
tex, mod calc; MRLST
(25%): predy dk gy-dk
gyshbn, sm tex, frm-sl
hrd, blkyl-sb rd, tr imbd pp
pyr, tr lam CHK, calc

10400-10500 CHK
(60%): med gy, dk gy ip, tr
lt gy, frm-brit, sb blkyl-bkly
ctngs, slty tex, occ
forams, tr vf pyr, hi calc;
MRLST (40%): dk
gy-gyshbn ip, sb frm frm





13,790
13,800
13,810
13,820
13,830
13,840
13,850
13,860
13,870
13,880
13,890
13,900
13,910
13,920
13,930
13,940
13,950
13,960
13,970
13,980
13,990
14,000

WOB: 28.3klbs
RPM: 75
SPM: 184
SPP: 4,761psi

MD: 13,815'
TVD: 7,464.03'
INC: 90.15°
AZM: 2.34°
VS: 5,962.35'

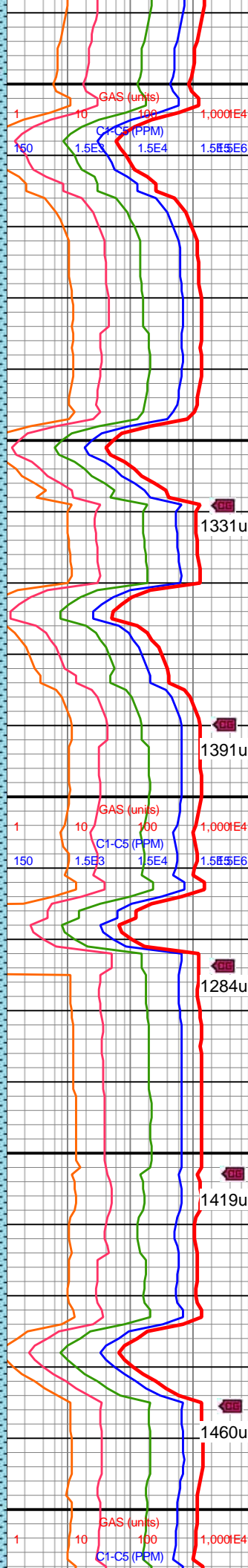
MW IN: 10.3
VIS IN: 56
MW OUT: 10.3
VIS OUT: 54

MD: 13,909'
TVD: 7,463.63'
INC: 90.33°
AZM: 1.81°
VS: 6,056.34'

MW IN: 10.3
VIS IN: 56
MW OUT: 10.3
VIS OUT: 54

WOB: 29.5klbs
RPM: 75
SPM: 179
SPP: 4,454psi

MD: 14,004'
TVD: 7,463.08'
INC: 90.33°
AZM: 2.69°

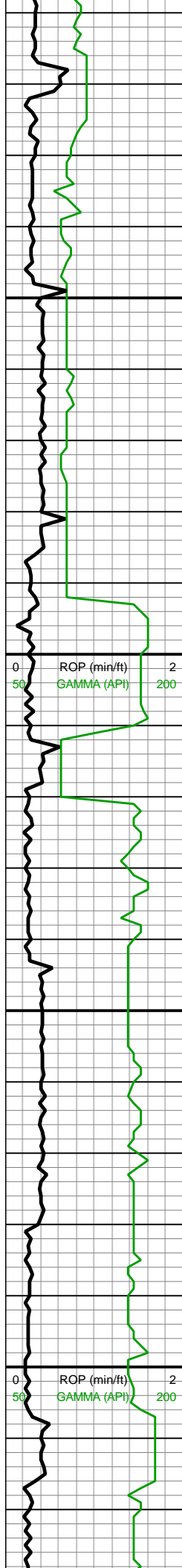


gy-gyshbn ip, sb mfr-mfr, brit ip, blk, sm-sl slty arg tex, mot wi brn mrly incl ip, mod calc

13800-13900 MRLST (60%): dk gy, dk gyshbn, mot, sl hd-frm, sb blk-sb spl, tr CHK intbds, tr diss mic pyr, mod calc; CHK (40%): gyshbn, med brn, mot, sl frm-brit, sb blk-tab ctngs, sm-chky tex, tr vf lam, hi calc

13900-14000 MRLST (50%): pred dk gy-v dk gy, occ blk, calc, blk, frm-v frm, occ slty, rgh tex; CHK (50%): pred med brn-dk brn, occ mot lt gy, frm-sft, blk, rr inoc fos frags, rr frac fl cal, sme lam





VS: 6,151.33'

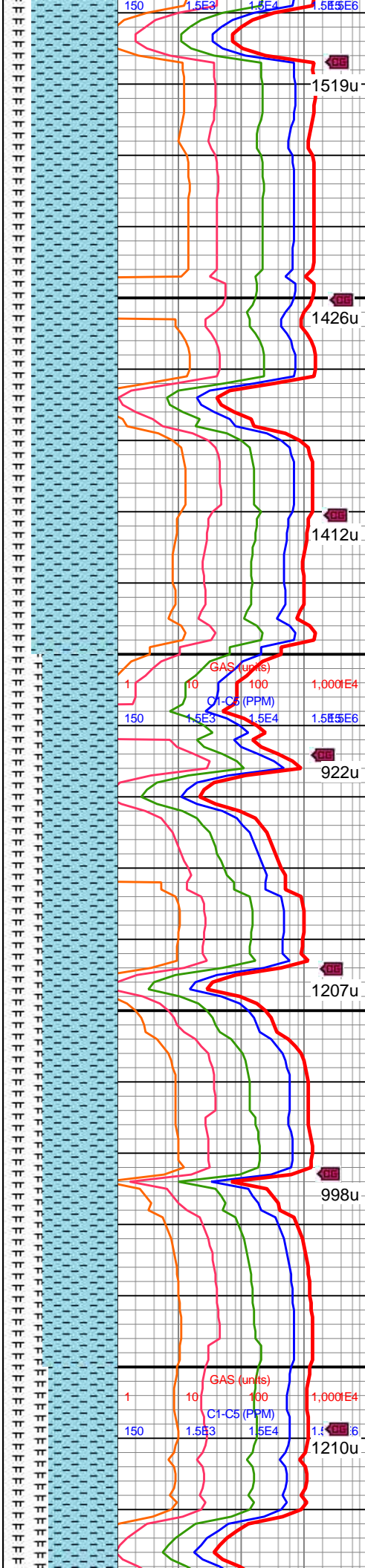
MW IN: 10.3
VIS IN: 55
MW OUT: 10.3
VIS OUT: 53

MD: 14,099'
TVD: 7,462.69'
INC: 90.15°
AZM: 1.72°
VS: 6,246.32'

MW IN: 10.3
VIS IN: 55
MW OUT: 10.3
VIS OUT: 53

MD: 14,194'
TVD: 7,462.32'
INC: 90.29°
AZM: 1.37°
VS: 6,341.29'

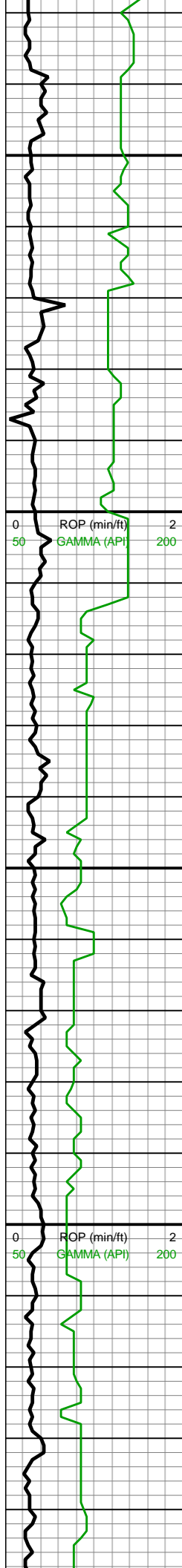
WOB: 27.1klbs
RPM: 75
SPM: 180
SPP: 4,519psi



14000-14100 CHK
(75%): lt brn-crm, sme dk gyshbn, mot, frm-sl sft, rd-sb ang, chky tex, tr mic fos frags, v calc; MRLST (25%): predy gy-dk gyshbn, sm tex-sl slty, frm-sl hrd, blk-y-sb rd, tr vf CHK lam, calc

14100-14200 CHK
(65%): med brn-lt gyshbn, com lt gy-offwht, tr free crm chk, mot, frm-sl sft, blk-y-sb rd, chky tex, mod calc; MRLST (35%): predy dk gy-dk gyshbn, sm tex, frm-sl hrd, blk-y-sb rd, tr imbd pp pyr, tr lam CHK, calc





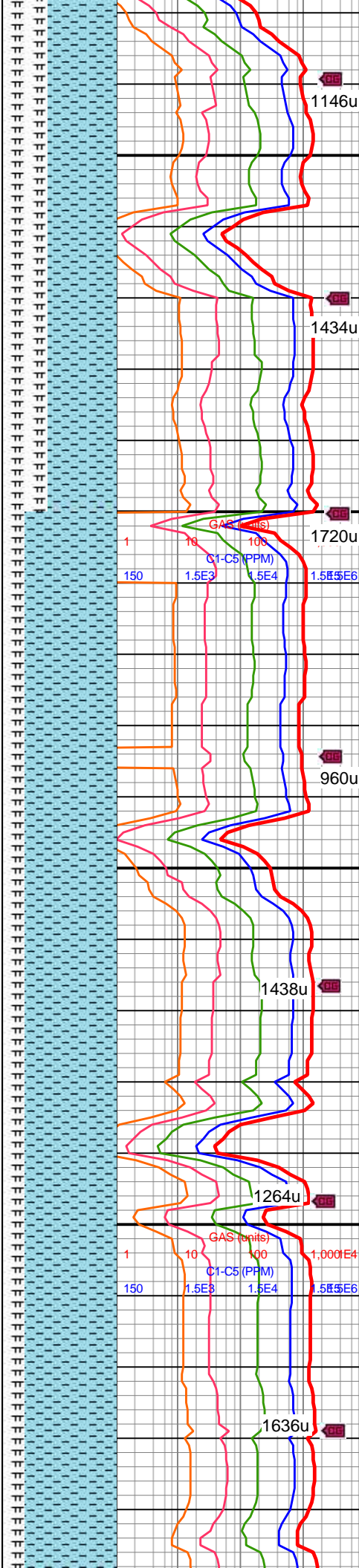
MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 52

MD: 14,289'
TVD: 7,461.63'
INC: 90.55°
AZM: 1.99°
VS: 6,436.26'

MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 52

MD: 14,384'
TVD: 7,460.82'
INC: 90.42°
AZM: 2.51°
VS: 6,531.25'

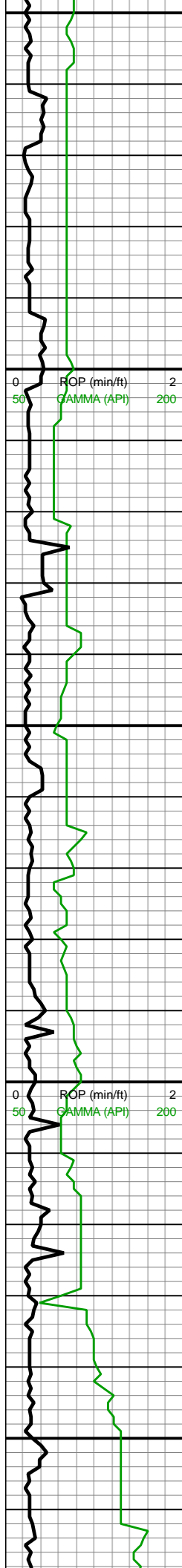
WOB: 29.2klbs
RPM: 75
SPM: 180
SPP: 4,567psi



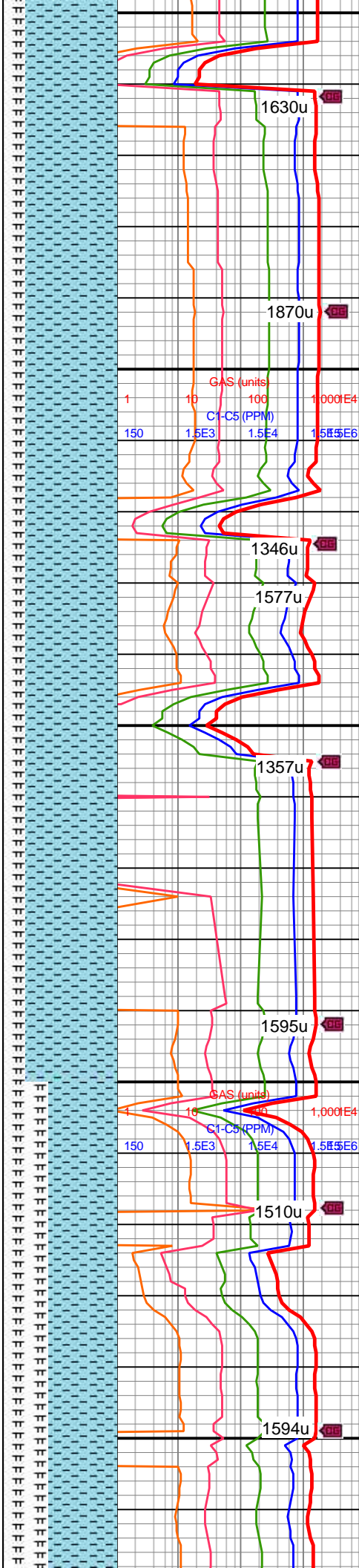
14200-14300 CHK
(60%): med gy, dk gy ip, tr
lt gy, frm-brit, sb blkyl-bkly
ctngs, slty tex, occ mic
fos frags, tr vf pyr, hi calc;
MRLST (40%): dk
gy-gyshbn ip, sb frm-frm,
brit ip, blkyl, sm-sl slty arg
tex, mot wi brn mrly incl
ip, mod calc

14300-14400 CHK
(80%): med gy-lt gy, sme
offwht, dk gy ip, tr lt
gyshbn, frm-brit, sb
blkyl-bkly ctngs, slty tex,
occ forams, tr vf pyr, hi
calc; MRLST (20%): dk
gy-gyshbn ip, sb frm-frm,
brit ip, blkyl, sm-sl slty arg
tex, mot wi brn mrly incl
ip, v calc





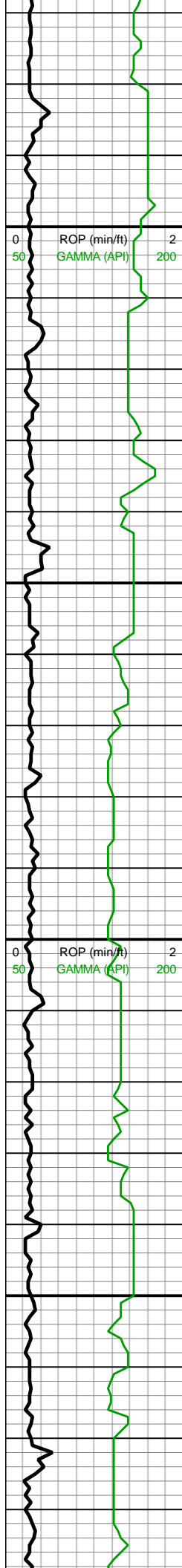
14,450
14,460 MW IN: 10.3
VIS IN: 54
MW OUT: 10.3
VIS OUT: 52
MD: 14,479'
TVD: 7,460.38'
INC: 90.11°
AZM: 2.78°
VS: 6,626.25'
14,470
14,480
14,490
14,500
14,510
14,520
14,530
14,540
14,550 MW IN: 10.3+
VIS IN: 54
MW OUT: 10.3
VIS OUT: 53
MD: 14,574'
TVD: 7,460.02'
INC: 90.33°
AZM: 2.51°
VS: 6,721.24'
14,560
14,570
14,580
14,590
14,600 WOB: 29klbs
RPM: 75
SPM: 180
SPP: 4,620psi
14,610
14,620
14,630 MW IN: 10.3
VIS IN: 53
MW OUT: 10.3
VIS OUT: 51
14,640
14,650
14,660 MD: 14,668'
TVD: 7,459.44'
INC: 90.27°
AZM: 2.73°
VS: 6,626.25'



14400-14500 CHK
(80%): predy lt gy, sl lt brn
hue ip, occ med gy,
frm-brit l-mod fis sb rd-sb
blky-occ blky ctngs, sm-sl
silty tex, tr forams, hi calc;
MRLST (20%): med-dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blky, sm arg-sl silty
tex, mod calc wi brn mrlly
resdl

14500-14600 CHK
(80%): predy lt gy, occ
med gy, rr vf-f chky lamn
& v thn chky lamn ip,
frm-brit l-mod fis sb rd-sb
blky-occ blky ctngs, sm-sl
silty tex, rr forams, hi calc;
MRLST (20%): med-dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blky, sm arg-sl silty
tex, mod calc wi brn mrlly
resdl

14600-14700 CHK
(60%): med gy, tr vf-f chky



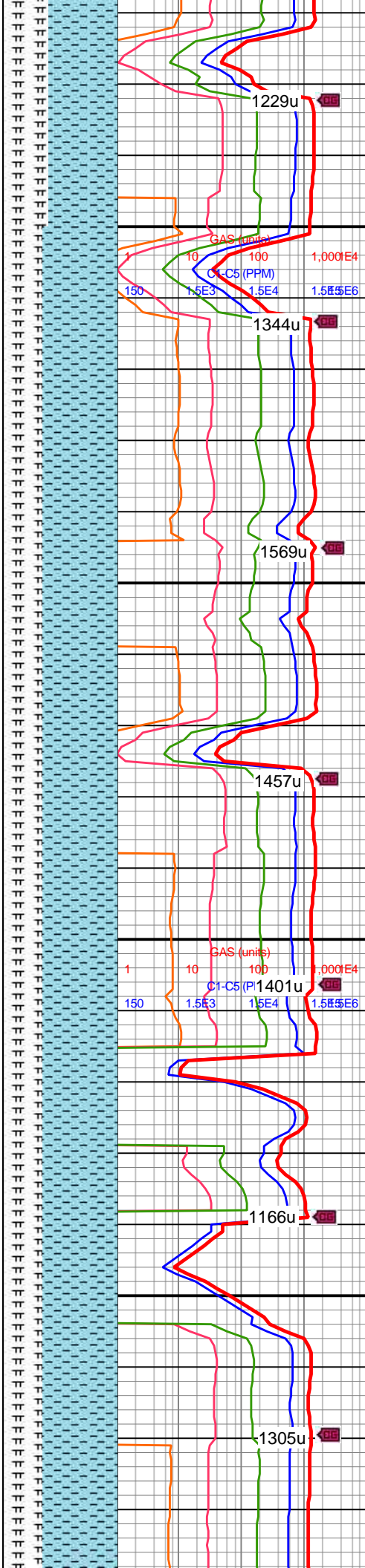
INC: 90.37°
AZM: 2.95°
VS: 6,815.24'

MD: 14,763'
TVD: 7,458.75'
INC: 90.46°
AZM: 3.04°
VS: 6,910.24'

WOB: 33klbs
RPM: 75
SPM: 184
SPP: 4,780psi

MW IN: 10.3
VIS IN: 52
MW OUT: 10.3
VIS OUT: 51

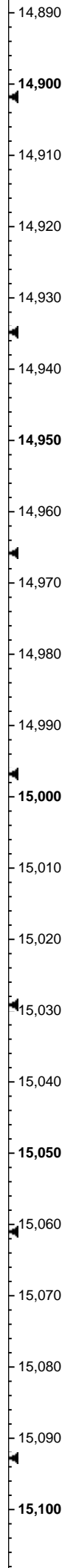
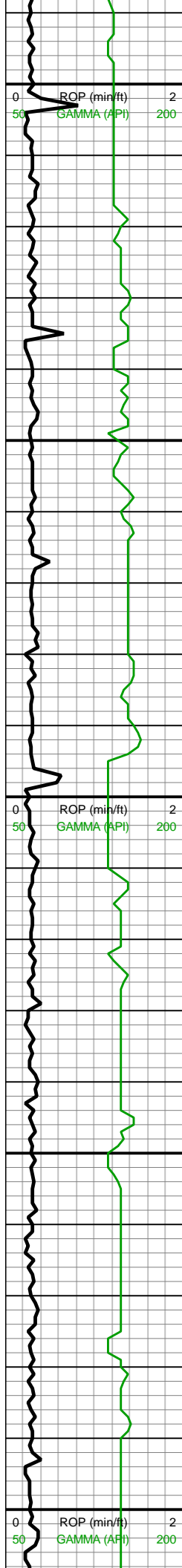
MD: 14,857'
TVD: 7,458.32'
INC: 90.07°
AZM: 2.6°
VS: 7,004.24'



ip, frm-brit l-mod fis sb
rd-sb blkly-occ blkly ctngs,
sm-sl slty tex, tr fos frags,
hi calc; MRLST (40%): dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blkly, sm arg-sl slty
tex, mod calc wi brn mrly
resdl

14700-14800 CHK
(65%): med gy, tr vf-f chky
lamn & v thn chky lamn
ip, frm-brit l-mod fis sb
rd-sb blkly-occ blkly ctngs,
sm-sl slty tex, tr-rr fos
frags & forams, tr wh-tn
bent wi occ pyr strg, tr vf
pyr-pyr strg clus, hi calc;
MRLST (35%): dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blkly, sm arg-sl slty
tex, mod calc wi brn mrly
resdl

14800-14900 CHK
(65%): med gy, tr vf-f chky
lamn & v thn chky lamn
ip, frm-brit l-mod fis sb
rd-sb blkly-occ blkly ctngs,
sm-sl slty tex, tr-rr fos
frags & forams, tr wh-tn
bent wi occ pyr strg, tr vf
pyr-pyr strg clus, hi calc;
MRLST (35%): dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb

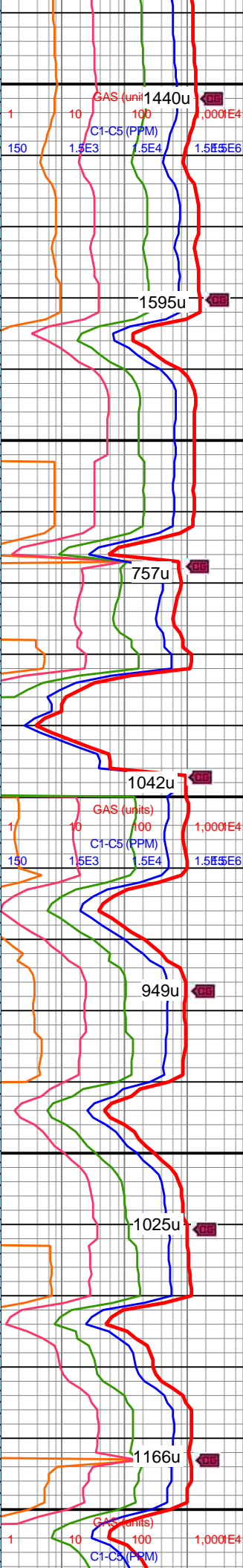
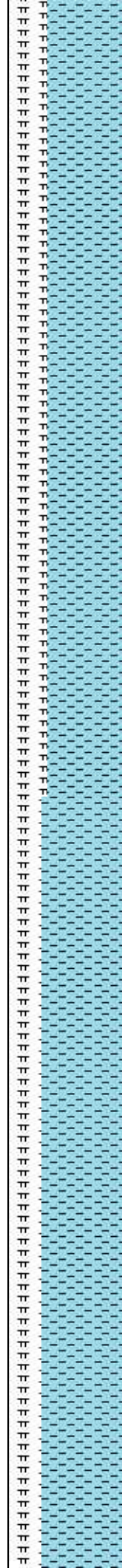


MW IN: 10.35
VIS IN: 53
MW OUT: 10.4
VIS OUT: 52

MD: 14,952'
TVD: 7,457.91'
INC: 90.42°
AZM: 3.22°
VS: 7,099.24'

WOB: 30klbs
RPM: 75
SPM: 180
SPP: 4,550psi

MD: 15,047'
TVD: 7,457.33'
INC: 90.29°
AZM: 2.69°
VS: 7,194.23'

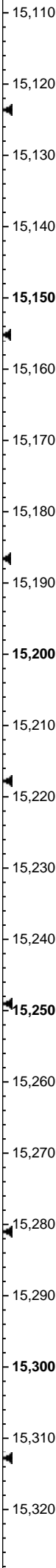
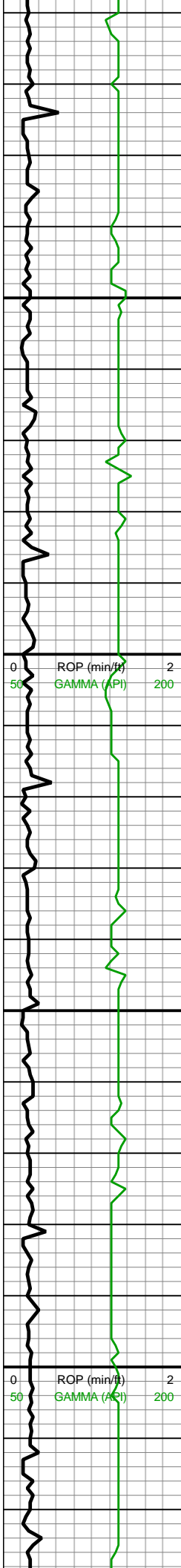


rd-sb blk, sm arg-sl slty
tex, mod calc wi brn mrly
resdl

14900-15000 CHK
(65%): med gy, occ dk gy
wi tr vf-f chky lamn & v thn
chky lamn ip, frm-brit
l-mod fis sb rd-sb
blk-occ blk ctngs, sm-sl
slty tex, rr forams, rr tn
bent, tr fos frags & mict
cal, tr vf pyr, hi calc;
MRLST (35%): dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blk, sm arg-sl slty
tex, mod calc wi brn mrly
resdl

15000-15100 CHK
(70%): med gy-occ dk gy
wi rr-tr vf-f chky lamn & v
thn chky lamn ip, frm-brit
l-mod fis sb rd-sb
blk-occ blk ctngs, sm-sl
slty tex, rr forams, tr u f tn
bent, tr fos frags & mict
cal, tr vf pyr, hi calc;
MRLST (30%): dk gy-v dk
gy, sb frm-frm, l-mod fis
sb rd-sb blk, sm arg-sl
slty tex, mod calc wi brn
mrly resdl





MD: 15,141'
TVD: 7,456.96'
INC: 90.15°
AZM: 2.69°
VS: 7,288.23'

MW IN: 10.4
VIS IN: 58
MW OUT: 10.4
VIS OUT: 57

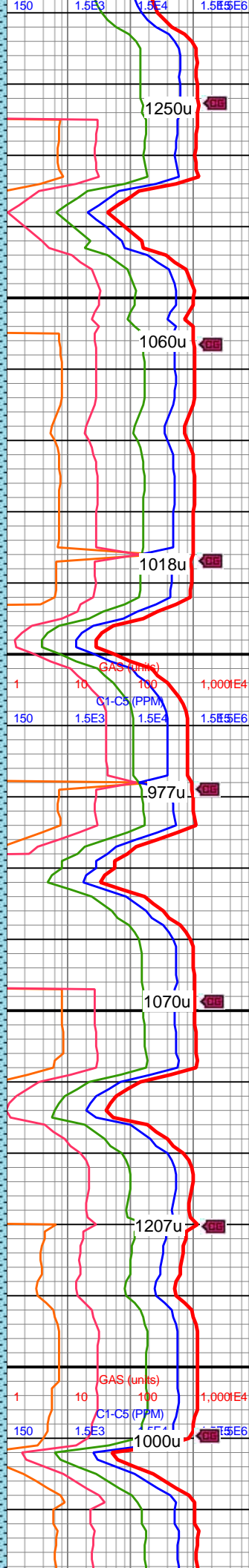
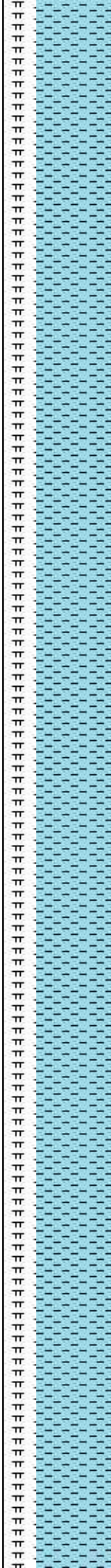
WOB: 29klbs
RPM: 75
SPM: 179
SPP: 4,720psi

MINDEPTH 12/11/17

MD: 15,235'
TVD: 7,456.57'
INC: 90.33°
AZM: 2.6°
VS: 7,382.23'

MW IN: 10.35
VIS IN: 57
MW OUT: 10.4
VIS OUT: 52

MD: 15,330'
TVD: 7,456.02'



1250u

1060u

1018u

977u

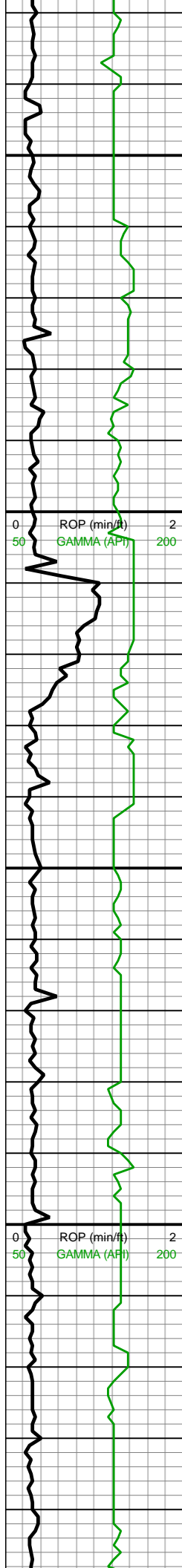
1070u

1207u

1000u

15100-15200 CHK
(70%): med gy, occ dk gy
wi tr vf-f chky lamn & v thn
chky lamn ip, frm-brit
l-mod fis sb rd-sb
blky-occ blky ctngs, sm-sl
silty tex, rr forams, rr tn
bent, tr fos frags & mict
cal, tr vf pyr, hi calc;
MRLST (30%): dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blky, sm arg-sl silty
tex, mod calc wi brn mrlly
resdl

15200-15300 CHK
(70%): med gy-occ dk gy
wi sl brn hue ip, rr-tr vf-f
chky lamn & v thn chky
lamn ip, frm-brit l-mod fis
sb rd-sb blky-occ blky
ctngs, sm-sl silty tex, rr c
wh free chk & forams, tr
fos frags, tr vf pyr, hi calc;
MRLST (30%): dk gy-v dk
gy, sb frm-frm, l-mod fis
sb rd-sb blky, sm arg-sl
silty tex, mod calc wi brn
mrlly resdl



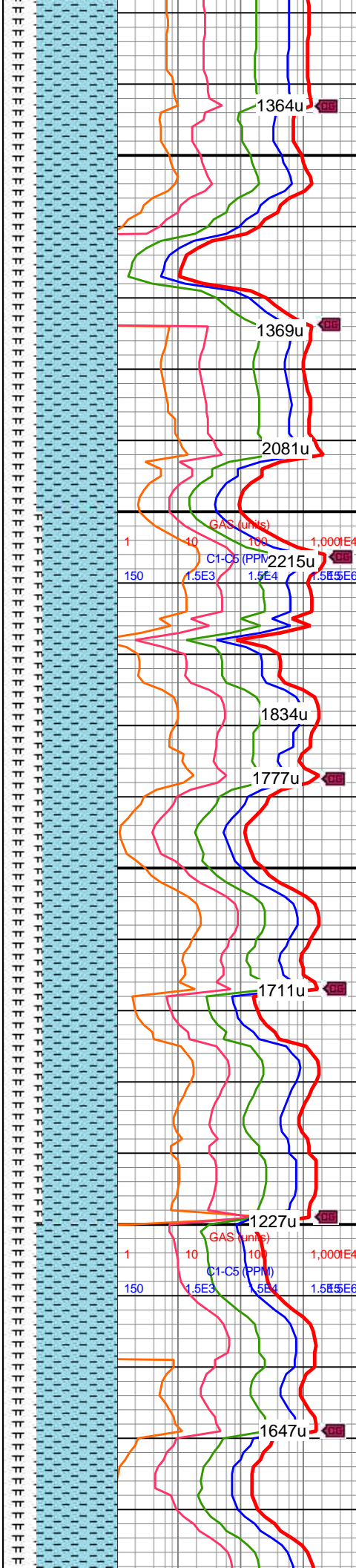
INC: 90.33°
AZM: 2.78°
VS: 7,477.23'

WOB: 31klbs
RPM: 75
SPM: 183
SPP: 4,920psi

MD: 15,422'
TVD: 7,456.41'
INC: 89.19°
AZM: 2.21°
VS: 7,569.22'

MW IN: 10.35
VIS IN: 57
MW OUT: 10.4
VIS OUT: 54

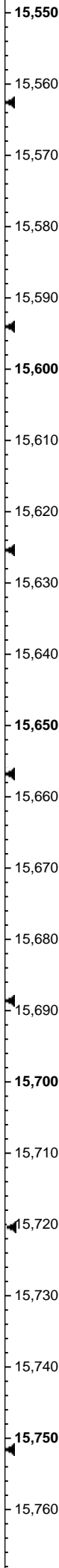
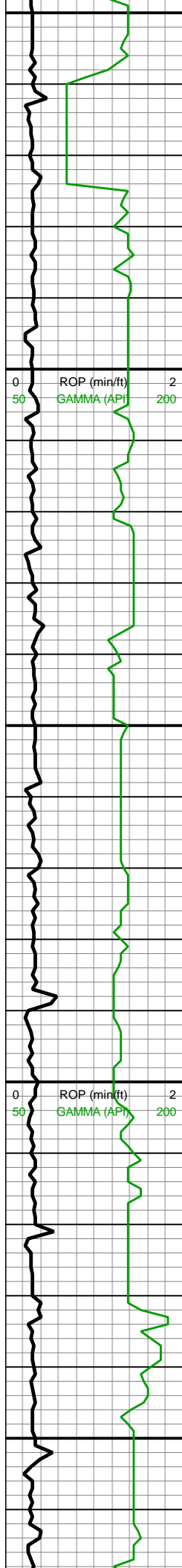
MD: 15,517'
TVD: 7,456.81'
INC: 90.33°
AZM: 2.07°
VS: 7,664.21'



15300-15400 CHK
(70%): med gy, rr-occ lt
gy-dk gy, frm-brit mod fis
sb blkly-blky ctngs, sm-sl
silty tex, rr c wh free chk &
forams & rr-tr mict cal, tr
fos frags, tr vf pyr, hi calc;
MRLST (30%): dk gy-v dk
gy, sb frm-frm, mod fis sb
blkly ctngs, occ l fis sb rd
ctngs, sm arg-sl silty tex,
mod calc wi brn mrlly
resdl

15400-15500 CHK
(65%): med gy, occ dk gy
wi tr vf-f chky incl & v thn
chky lamn ip, frm-brit,
mod fis sb blkly-blky
ctngs, occ sb rd l fis,
sm-sl silty tex, tr wh c free
chk & forams, tr fos frags
& mict cal, tr vf pyr, hi
calc; MRLST (35%): dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blkly, sm arg-sl silty
tex, mod calc wi brn mrlly
resdl





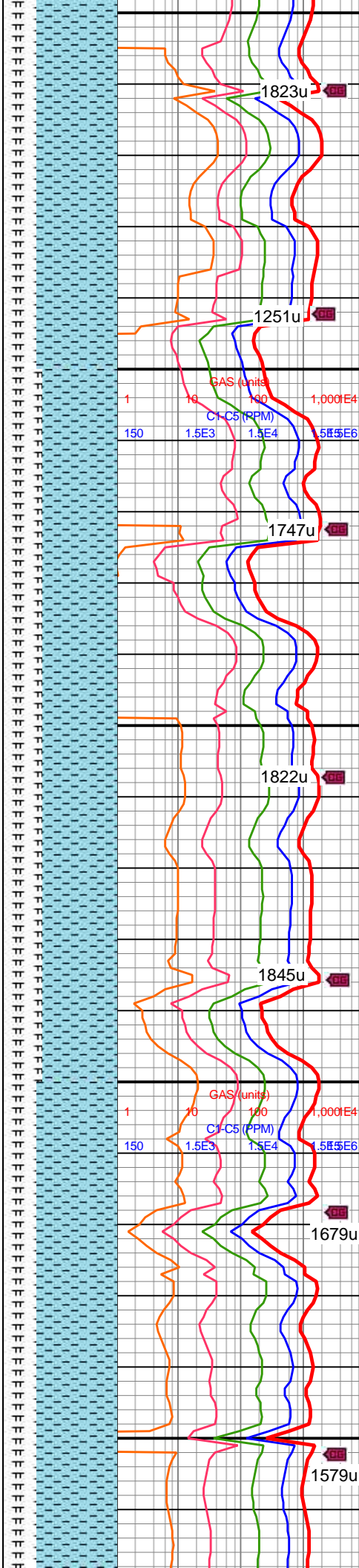
MW IN: 10.35
VIS IN: 55
MW OUT: 10.4
VIS OUT: 52

WOB: 35klbs
RPM: 76
SPM: 179
SPP: 4,780psi

MD: 15,611'
TVD: 7,456.45'
INC: 90.11°
AZM: 1.28°
VS: 7,758.18'

MD: 15,706'
TVD: 7,456.16'
INC: 90.24°
AZM: 1.9°
VS: 7,853.16'

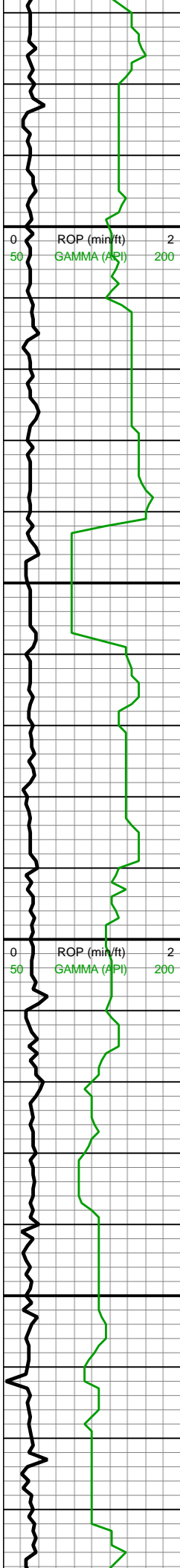
MW IN: 10.4
VIS IN: 56



15500-15600 CHK
(70%): med gy, tr vf-f chky
lamn & v thn chky lamn
ip, frm-brit l-mod fis sb
rd-sb blkly-occ blkly ctngs,
sm-sl slty tex, tr fos frags,
hi calc; MRLST (30%): dk
gy-gyshbn-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blkly, sm arg-sl slty
tex, mod calc wi brn mrly
resdl

15600-15700 CHK
(65%): med gy, rr lt gy, tr
vf-f chky lamn & v thn chky
lamn ip, frm-brit l-mod fis
sb rd-sb blkly-occ blkly
ctngs, sm-sl slty tex, rr
fos frags, tr forams, tr vf
pyr, hi calc; MRLST
(35%): dk gy-gyshbn-v dk
gy, sb frm-frm, l-mod fis
sb rd-sb blkly, sm arg-sl
slty tex, mod calc wi brn
mrly resdl

15700-15800 CHK



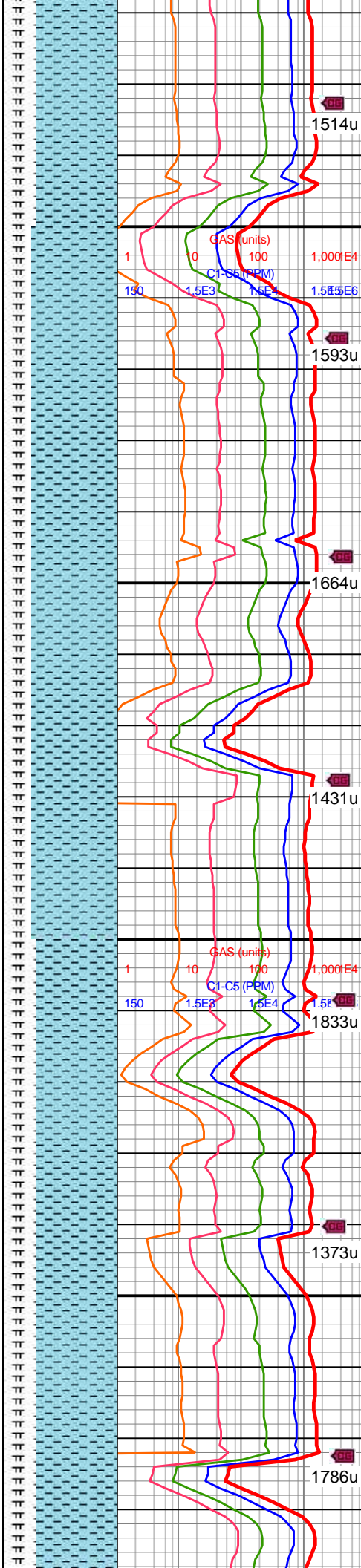
MW OUT: 10.4
VIS OUT: 53

WOB: 34klbs
RPM: 76
SPM: 180
SPP: 4,880psi
MD: 15,801'
TVD: 7,455.79'
INC: 90.2°
AZM: 1.63°
VS: 7,948.13'

MD: 15,895'
TVD: 7,455.36'
INC: 90.33°
AZM: 1.63°
VS: 8,042.11'

MW IN: 10.4
VIS IN: 57
MW OUT: 10.4
VIS OUT: 55

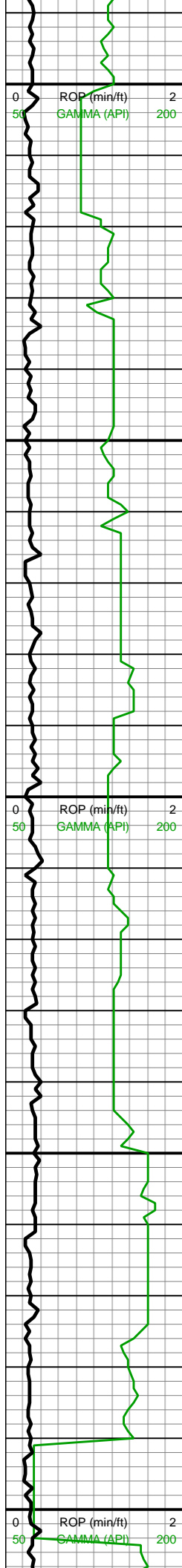
MD: 15,989'
TVD: 7,454.71'



(70%): med gy, rr lt gy, rr
brn wi wh chky incl ip,
chky incl ip, frm, brit, mod
fis, sb blkyl-blky, slty tex, rr
vf pyr, tr fos frags &
forams, hi calc; MRLST
(30%): dk gy-brn, frm-brit
mod fis sb blkyl-blky,
sm-sl slty tex, tr vf pyr,
mod calc

15700-15800 CHK
(75%): med brn-dk
gyshbn, mot, blkyl-sb spl,
frm-v frm, chky tex, tr cal
frac fl, tr free CHK, tr pp
mic pyr, v calc; MRLST
(25%): dk gy-dk gyshbn, v
dk gy, frm-sl hrd, sb
tab-sb spl, tr imbd/pp
pyr, mnr lam CHK, v calc

15900-16000 CHK
(70%): predy med
brn-gyshbn, mot lt brn-lt
gy ip, sme offwht,
blkyl-tab-elg ctngs, chky
tex, frm-sl sft, tr dissm
mic pyr, v calc; MRLST
(50%): predy dk av. med



INC: 90.46°
AZM: 2.43°
VS: 8,136.09'

WOB: 29klbs
RPM: 76
SPM: 184
SPP: 5,133psi

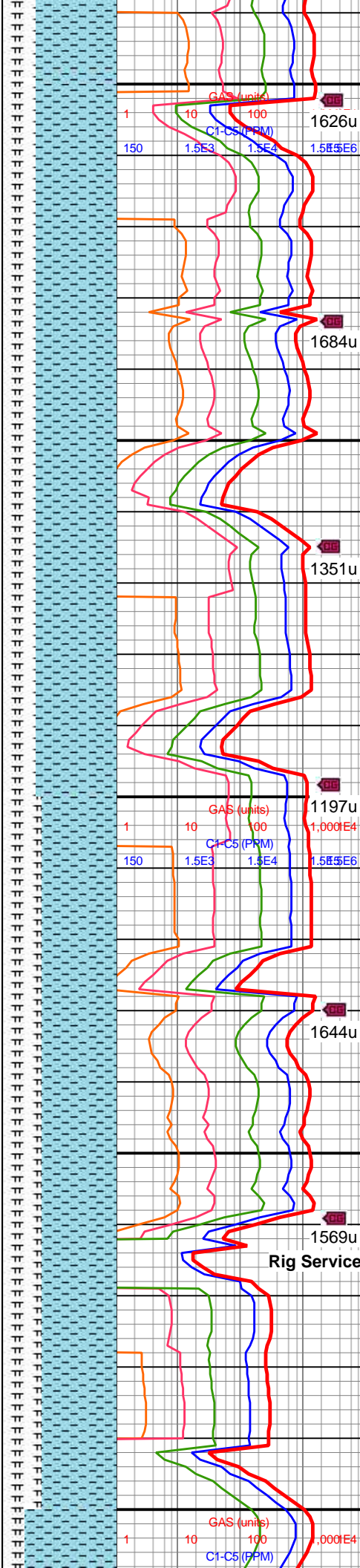
MW IN: 10.4
VIS IN: 56
MW OUT: 10.4
VIS OUT: 55

MD: 16,084'
TVD: 7,454.13'
INC: 90.24°
AZM: 1.55°
VS: 8,231.08'

MW IN: 10.4
VIS IN: 57
MW OUT: 10.4
VIS OUT: 55

MD: 16,179'
TVD: 7,453.69'
INC: 90.29°
AZM: 2.6°
VS: 8,326.06'

WOB: 29klbs
RPM: 76
SPM: 184
SPP: 5,125psi

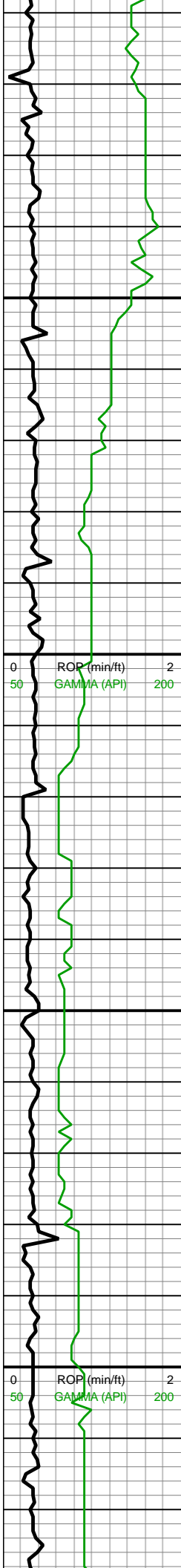


gy, frm-sl hrd, blkyl-sb tab,
tr CHK incl, mod-v calc, tr
imbd/pp pyr

16000-16100 CHK
(70%): med brn-gyshbn-lt
gy, mot, sl frm-frm, sb
blkyl-sb tab ctngs, brit, tr
free CHK, mnv vf lam, hi
calc; MRLST (30%): dk
gy-dk gyshbn, brit, sb
blkyl-splt ctngs, sl hd-frm,
mnv CHK intbds/incl, tr
dissm mic pyr, mod calc

16100-16200 CHK
(65%): med brn-dk
gyshbn, mot, blkyl-sb splt,
frm-v frm, chky tex, tr cal
frac fl, tr free CHK, tr pp
mic pyr, v calc; MRLST
(35%): dk gy-dk gyshbn, v
dk gy, frm-sl hrd, sb
tab-sb splt ctngs, tr
imbd/pp pyr, mnv lam
CHK, v calc





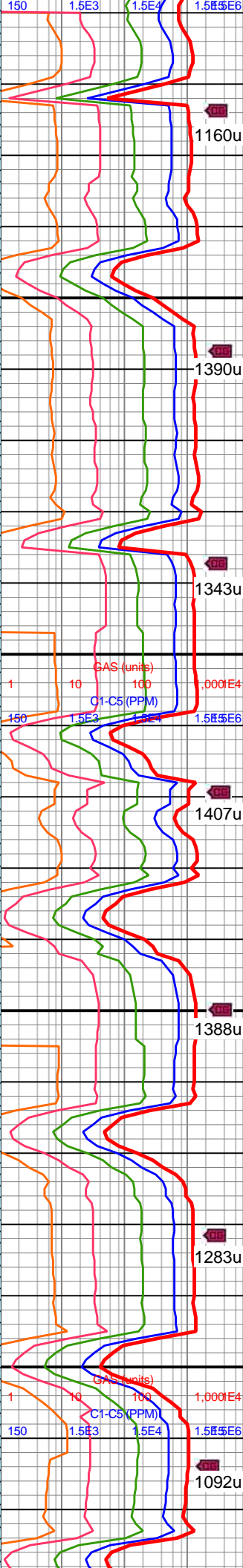
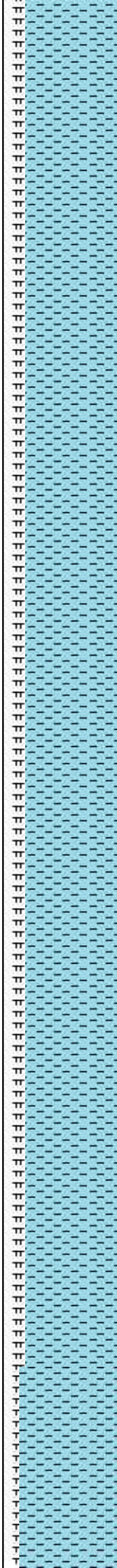
MD: 16,274'
TVD: 7,453.07'
INC: 90.46°
AZM: 1.99°
VS: 8,421.05'

MW IN: 10.4
VIS IN: 56
MW OUT: 10.4
VIS OUT: 54

MD: 16,369'
TVD: 7,452.41'
INC: 90.33°
AZM: 2.43°
VS: 8,516.04'

WOB: 31.3klbs
RPM: 76
SPM: 182
SPP: 5,076psi

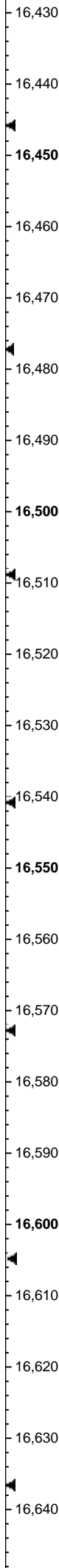
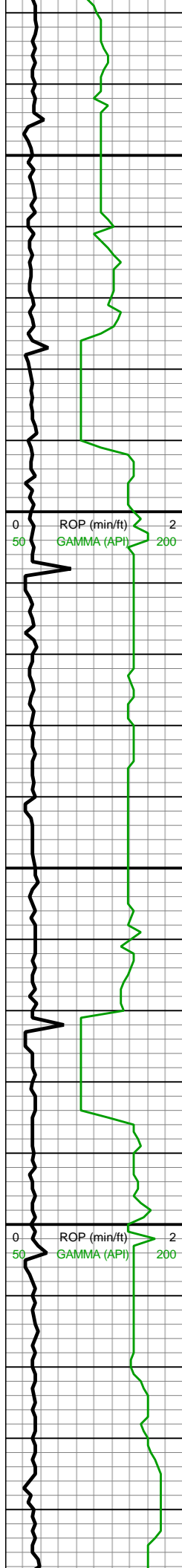
MW IN: 10.4
VIS IN: 57
MW OUT: 10.4
VIS OUT: 55



16200-16300 CHK
(80%): med brn-lt gyshbn, com lt gy-offwht, tr free crm chk, mot, frm-sl sft, blkyl-sb rd, chky tex, mod calc; MRLST (20%): predy dk gy-dk gyshbn, sm tex, frm-sl hrd, blkyl-sb rd, tr imbd pp pyr, tr lam CHK, calc

16300-16400 CHK
(80%): med gy-lt gy, sme offwht, dk gy ip, tr lt gyshbn, frm-brit, sb blkyl-blky ctngs, slty tex, occ forams, tr vf pyr, hi calc; MRLST (20%): dk gy-gyshbn ip, sb frm-frm, brit ip, blkyl, sm-sl slty arg tex, mot wi brn mrlly incl ip, v calc



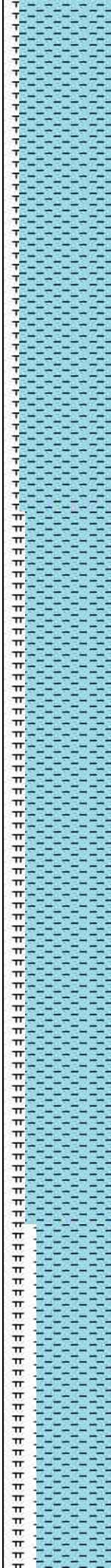


MD: 16,463'
TVD: 7,451.84'
INC: 90.37°
AZM: 2.16°
VS: 8,610.03'

MW IN: 10.4
VIS IN: 55
MW OUT: 10.4
VIS OUT: 54

MD: 16,559'
TVD: 7,451.25'
INC: 90.33°
AZM: 1.46°
VS: 8,706.01'

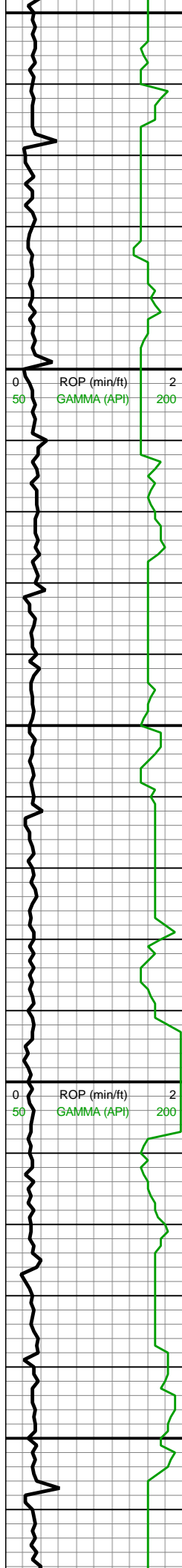
WOB: 29.9klbs
RPM: 75
SPM: 178
SPP: 5,064psi



16400-16500 CHK
(90%): med brn-dk
gyshbn, mot, blk-y-sb splt,
frm-v frm, chky tex, tr cal
frac fl, tr free CHK, tr pp
mic pyr, v calc; MRLST
(10%): dk gy-dk gyshbn, v
dk gy, frm-sl hrd, sb
tab-sb splt ctngs, tr
imbd/pp pyr, mnrlam
CHK, v calc

16500-16600 CHK
(80%): med brn-gyshbn,
mot, sl frm-frm, sb
blk-y-sb tab ctngs, brit, tr
free CHK, mnrlam, hi
calc; MRLST (20%): dk
gy-dk gyshbn, brit, sb
blk-y-spllt ctngs, sl hd-frm,
mnrlam CHK intbds/incl, tr
dissm mic pyr, mod calc





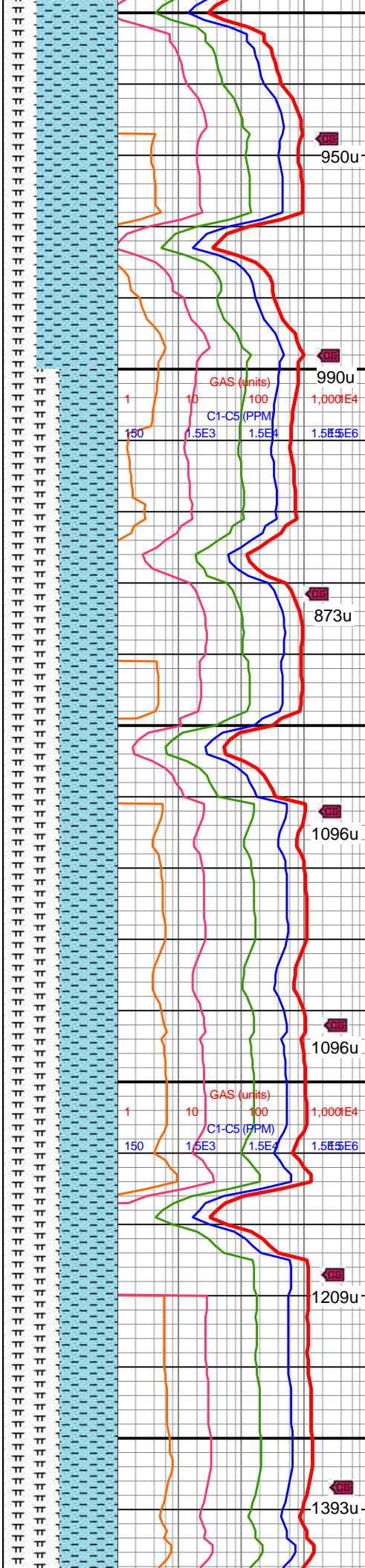
MD: 16,654'
TVD: 7,450.89'
INC: 90.11°
AZM: 1.02°
VS: 8,800.97'

MD: 16,749'
TVD: 7,450.49'
INC: 90.37°
AZM: 1.2°
VS: 8,895.92'

MD: 16,844'
TVD: 7,450.06'
INC: 90.15°
AZM: 0.67°
VS: 8,990.86'

MW IN: 10.4
VIS IN: 55
MW OUT: 10.4
VIS OUT: 54

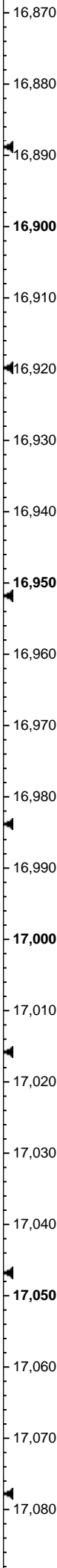
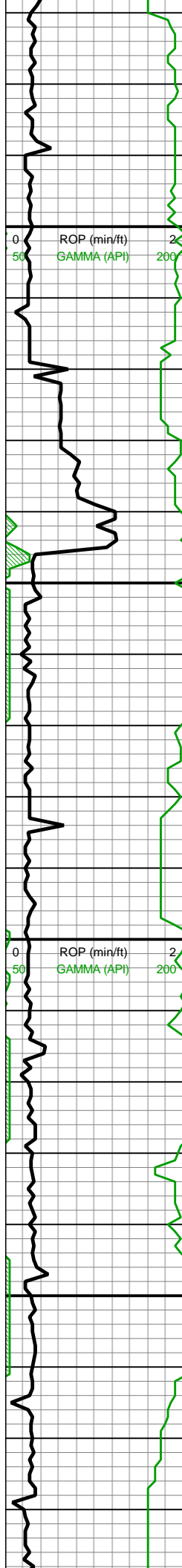
WOB: 30.1kbs
RPM: 75
SPM: 180
SPP: 5,067psi



16600-16700 CHK
(70%): lt-med gy, frm-brit,
mod fis sb blkyl-blky
ctngs, sl slty tex, lamn ip,
rr vf pyr, hi calc; MRLST
(30%): dk gy-gyshbn ip,
frm, brit ip, mod fis, tr vf
pyr-micmica, mod calc

11800-11900 CHK
(50%): lt brn-crm, sme dk
gyshbn, mot, frm-sl sft,
rd-sb ang, chky tex, tr free
CHK, mod calc; MRLST
(50%): predy gy-dk
gyshbn, sm tex-sl slty,
frm-sl hrd, blkyl-sb rd, tr vf
CHK lam, calc





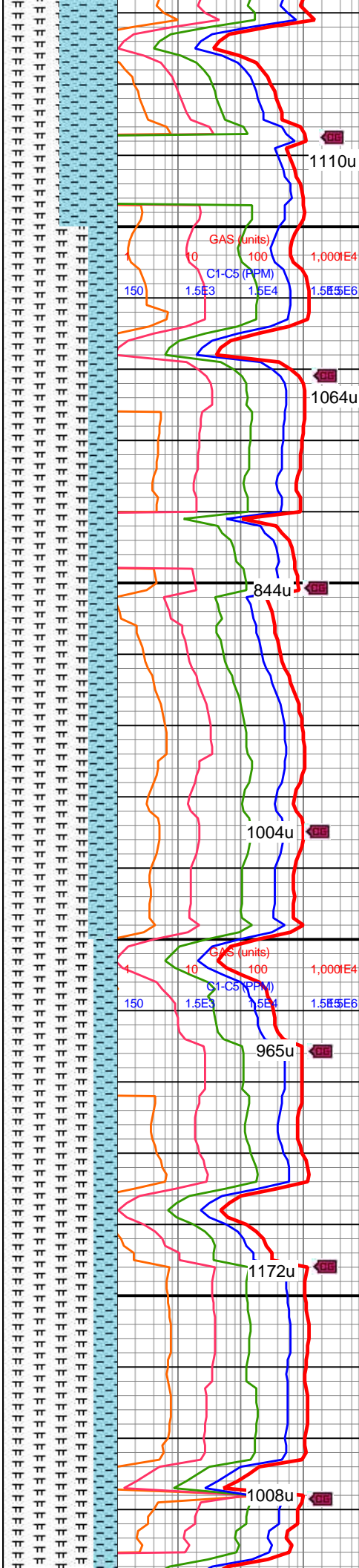
MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 52

MD: 16,939'
TVD: 7,449.99'
INC: 89.93°
AZM: 0.58°
VS: 9,085.78'

WOB: 30klbs
RPM: 76
SPM: 180
SPP: 5,148psi

MD: 17,033'
TVD: 7,450.71'
INC: 89.19°
AZM: 0.93°
VS: 9,179.71'

MW IN: 10.4
VIS IN: 54
MW OUT: 10.4
VIS OUT: 53

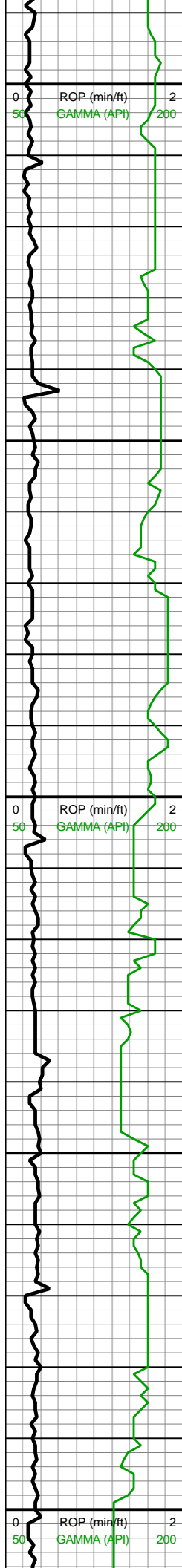


16800-16900 CHK
(50%): med gy, gyshbn,
sb tab ctngs, frm, brit, tr vf
lam, hi calc, scat inoc fos
frags; MRLST (50%): dk
gy, dk gyshbn, sb tab-blky
ctngs, brit, sl hd, tr CHK
intbds, tr pp mic pyr, mod
calc

17000-17100 MRLST
(75%): dk gy-dk gyshbn,
sl hd, sb blky-splt ctngs,
brit, tr diss mic-vf pyr,
mnr chky intbds, mod
calc; CHK (25%): med
gy-gyshbn, sb blky-sb tab
ctngs, mnr vf lam, sl
frm-frm, mnr free CHK,
brit, hi calc

17000-17100 MRLST
(80%): dk gy, dk gyshbn,
mot, sl hd-frm, sb blky-sb
splt, tr CHK intbds, tr
diss mic pyr, mod calc;
CHK (20%): gyshbn, med





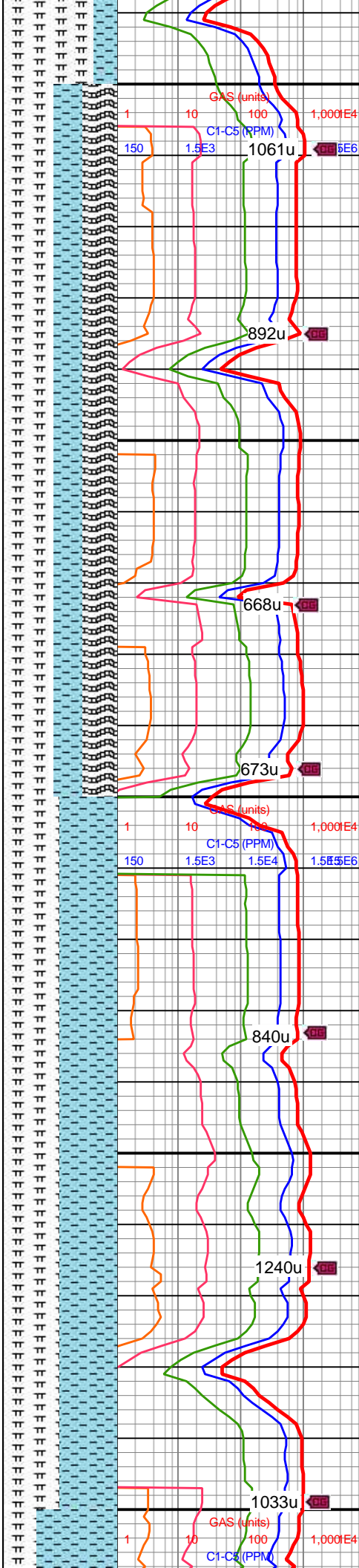
MD: 17,128'
TVD: 7,451.36'
INC: 89.41°
AZM: 1.5°
VS: 9,274.65'

MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 52

WOB: 31klbs
RPM: 75
SPM: 179
SPP: 5,160psi

MD: 17,223'
TVD: 7,452.59'
INC: 89.1°
AZM: 0.76°
VS: 9,369.59'

MW IN: 10.45
VIS IN: 54
MW OUT: 10.5
VIS OUT: 52

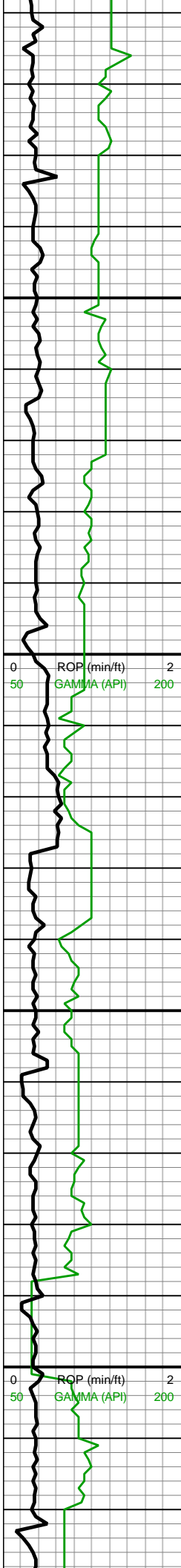


brn, mot, sl frm-brit, sb
blky-tab ctngs, sm-chky
tex, tr mic fos frags, tr vf
lam, hi calc

17100-17200 MRLST
(45%): dk gy-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blky-occ hi fis plty
ctngs, sm arg-sl slty tex,
mod calc wi brn mrlly
resdl; BENT (30%): predy
wh, rr tn, sb frm, rr vf pyr,
non calc, hi flor; CHK
(25%): med gy, tr vf-f chky
lamn & v thn chky lamn
ip, frm-brit l-mod fis sb
rd-sb blky-occ blky ctngs,
sm-sl slty tex, tr vf pyr-pyr
strg clus, hi calc

17200-17300 CHK
(50%): med gy-dk gy wi
occ f wh chky incl ip,
frm-brit l-mod fis sb rd-sb
blky ctngs, slty tex, rr c wh
forams & rr tn bent tr vf
pyr, hi calc; MRLST
(50%): med-dk gy-v dk gy
mot wi brn marl ip,
frm-brit, mod fis sb
blky-blky ctngs, sl slty tex,
mod calc wi brn mrlly
resdl





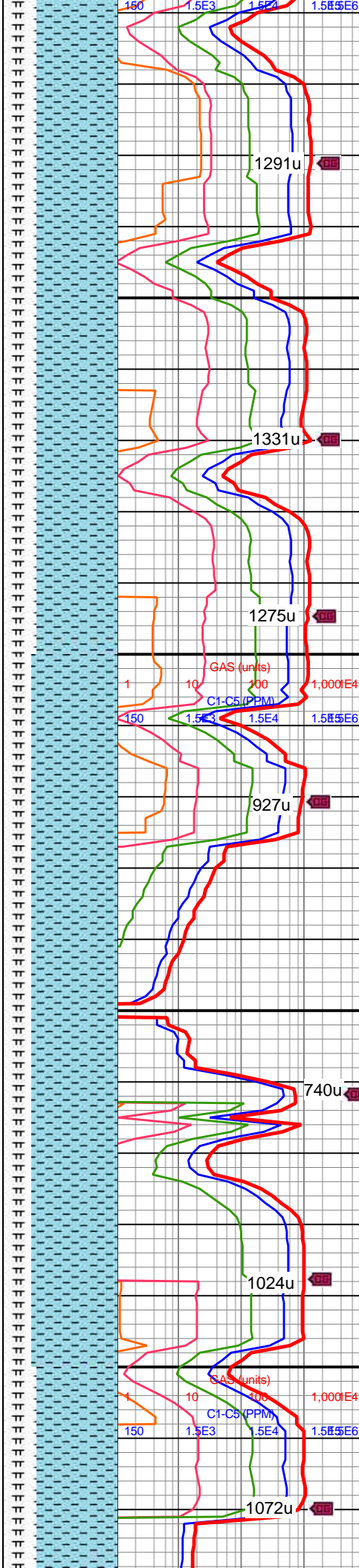
MD: 17,318'
TVD: 7,453.83'
INC: 89.41°
AZM: 1.55°
VS: 9,464.54'

WOB: 40klbs
RPM: 75
SPM: 180
SPP: 5,120psi

MD: 17,413'
TVD: 7,455.03'
INC: 89.14°
AZM: 1.81°
VS: 9,559.51'

MW IN: 10.45
VIS IN: 53
MW OUT: 10.55
VIS OUT: 51

MD: 17,508'
TVD: 7,456.46'
INC: 89.14°
AZM: 1.11°
VS: 9,654.46'



1291u

1331u

1275u

927u

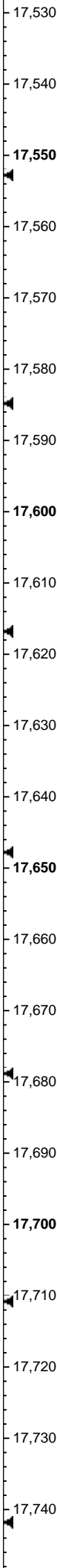
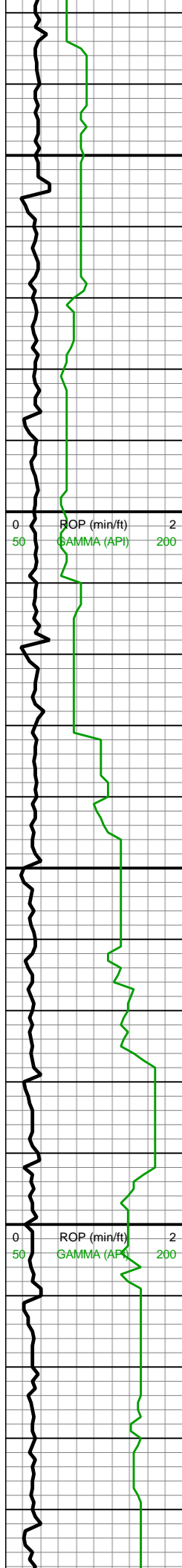
740u

1024u

1072u

17300-17400 CHK
(70%):predy lt gy sme
med gy, rr dk gy wi occ f
wh chky incl ip, frm-brit
l-mod fis sb rd-sb blk
ctngs, slty tex, rr u f-c wh
forams, tr tn bent, tr vf pyr,
hi calc; MRLST (30%):
med-dk gy-v dk gy mot wi
brn marl ip, frm-brit, mod
fis sb blk-bkly ctngs, sl
slty tex, mod calc wi brn
mrly resdl

17400-17700 CHK
(75%): predy lt gy, sme
med gy-rr dk gy wi occ f-u
f-elong wh chky incl ip,
frm-brit l-mod fis sb rd-sb
blk ctngs, slty tex, tr c wh
forams, v tr tn bent, tr vf
pyr, hi calc; MRLST
(25%): med-dk gy-v dk gy
mot wi brn marl ip,
frm-brit, mod fis sb
blk-bkly ctngs, sl slty tex,
mod calc wi brn mrly
resdl

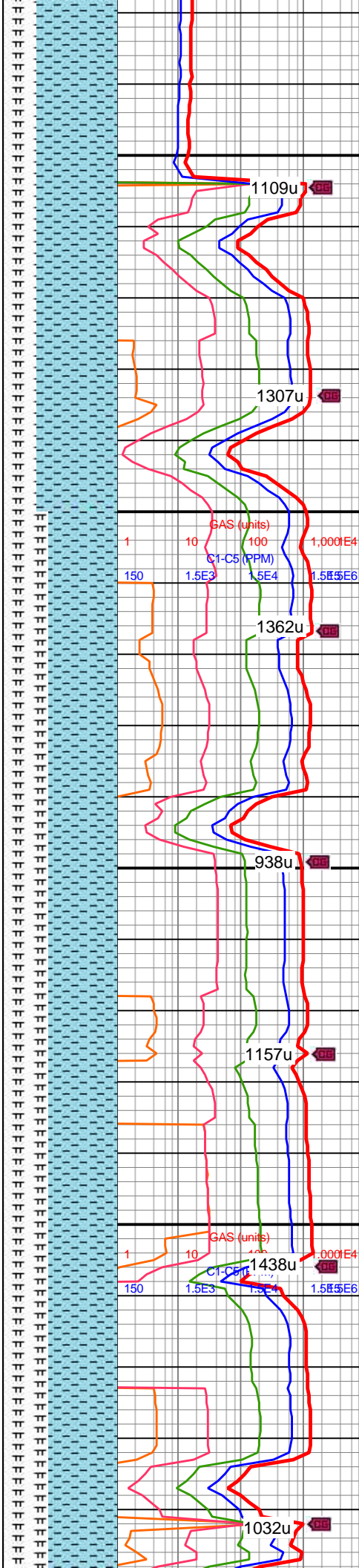


WOB: 39klbs
RPM: 75
SPM: 180
SPP: 5,270psi

MD: 17,603'
TVD: 7,457.81'
INC: 89.23°
AZM: 0.05°
VS: 9,749.37'

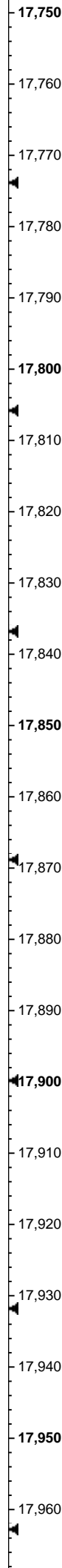
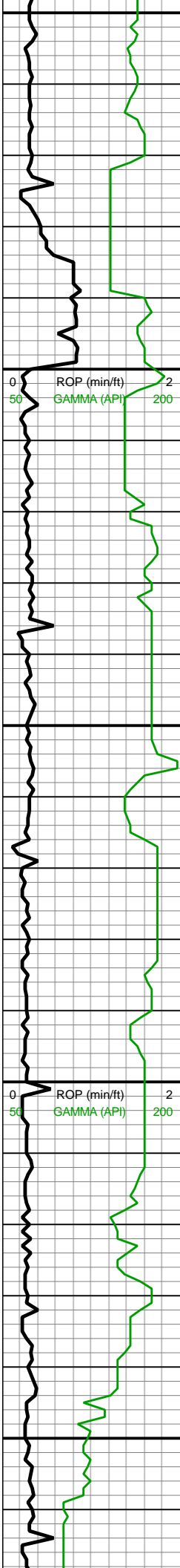
MW IN: 10.5
VIS IN: 56
MW OUT: 10.55
VIS OUT: 54

MD: 17,697'
TVD: 7,459.18'
INC: 89.1°
AZM: 359.26°
VS: 9,843.2'



17500-17600 CHK
(70%): predy lt gy sme
med gy, rr dk gy wi occ f
wh chky incl ip, frm-brit
l-mod fis sb rd-sb blk
ctngs, slty tex, rr u f-c wh
forams, tr tn bent, tr vf pyr,
hi calc; MRLST (30%):
med-dk gy-v dk gy mot wi
brn marl ip, frm-brit, mod
fis sb blkly-blky ctngs, sl
slty tex, mod calc wi brn
mrly resdl

17600-17700 CHK
(60%): med gy, dk gy ip, tr
lt gy, frm-brit, sb blkly-blky
ctngs, slty tex, v tr forams
& bent, tr vf pyr, hi calc;
MRLST (40%): dk
gy-gyshbn ip, sb frm-frm,
brit ip, blkly, sm-sl slty arg
tex, mot wi brn mrly incl
ip, mod calc



MW IN: 10.5
VIS IN: 54
MW OUT: 10.55
VIS OUT: 52

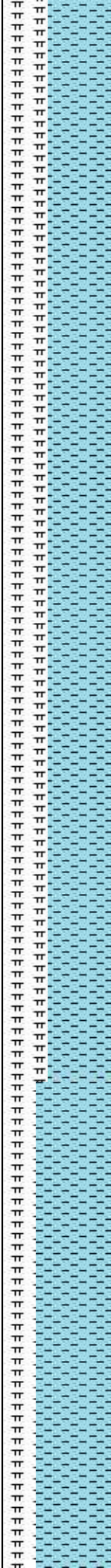
MD: 17,792'
TVD: 7,460.56'
INC: 89.23°
AZM: 358.03°
VS: 9,937.92'

WOB: 23klbs
RPM: 75
SPM: 182
SPP: 4,890psi

MD: 17,887'
TVD: 7,461.33'
INC: 89.85°
AZM: 357.15°
VS: 10,032.5'

MINDEPTH 12/12/17

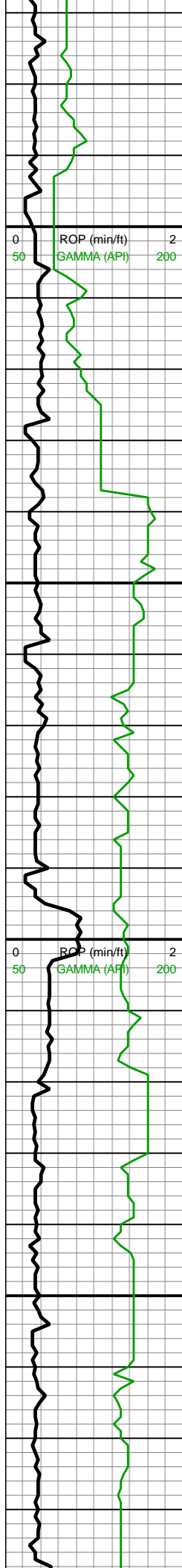
MW IN: 10.45
VIS IN: 55



17700-17800 CHK
(60%): med gy, dk gy ip, tr
lt gy, frm-brit, sb blkly-blky
ctngs, slty tex, v tr forams
& v tr tn bent, tr vf pyr, hi
calc; MRLST (40%): dk
gy-gyshbn ip, sb frm-frm,
brit ip, blkly, sm-sl slty arg
tex, mot wi brn mrly incl
ip, mod calc

17800-17900 CHK
(60%): med gy-dk gy, rr lt
gy, frm-brit, l-mod fis sb
rd-sb blkly-blky ctngs, sl
slty tex, rr u f-c wh
forams, rr tn-brn bent, tr vf
pyr, hi calc; MRLST
(40%): dk gy-v dk gy, sb
frm-frm, l-mod fis sb
rd-sb blkly ctngs, dul rthy
lstr, sm-sl slty arg tex,
mod calc

17900-18000 CHK
(70%): lt gy, mod r

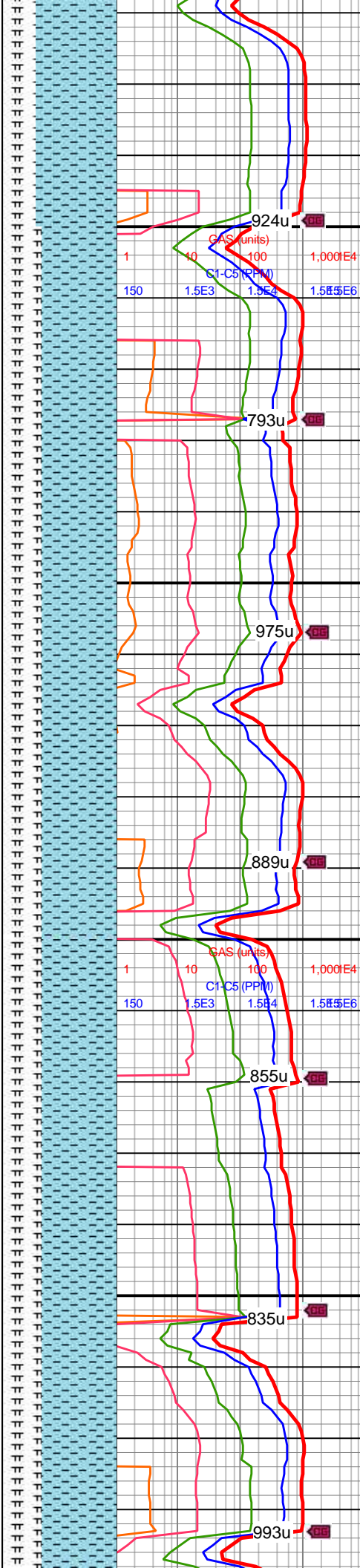


MD: 17,982'
TVD: 7,461.33'
INC: 90.15°
AZM: 355.31°
VS: 10,126.84'

WOB: 41klbs
RPM: 75
SPM: 176
SPP: 5,110psi

MD: 18,076'
TVD: 7,461.08'
INC: 90.15°
AZM: 353.46°
VS: 10,219.79'

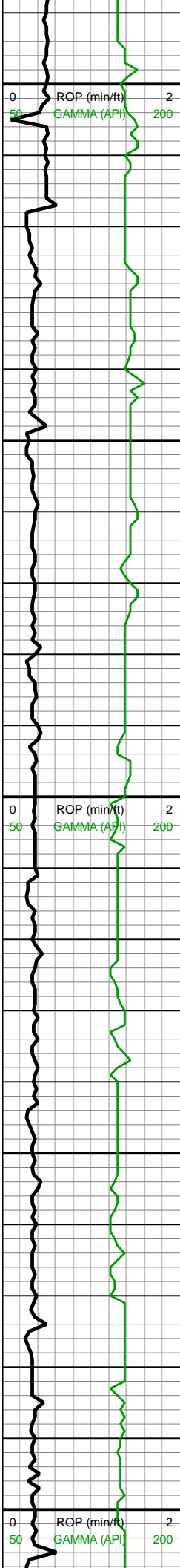
MD: 18,171'
TVD: 7,460.06'
INC: 91.08°
AZM: 351.61°
VS: 10,313.21'



(70%): lt gy, occ med gy, dk gy ip wi f wh chky incl & lamn ip, frm-brit, l-mod fis sb blkly-blky ctngs, sm-sl slty tex, rr f-u f wh forams, tr vf pyr, hi calc; MRLST (30%): dk gy, frm, brit ip, mod fis, blkly, sm-sl slty arg tex, mot wi brn mrly incl ip, mod calc

18000-18100 CHK
(65%): med gy, frm-brit, l-mod fis rd-sb rd-sb blkly ctngs, sm-sl slty tex, rr f-u f trnsf-off wh forams, tr tn bent, tr vf pyr, hi calc; MRLST (35%): dk gy-v dk gy, sb frm-frm, l-mod fis sb rd-sb blkly ctngs, sm-sl slty arg tex, mod calc wi brn mrly resdl

18100-18200 CHK
(65%): med gy, occ dk gy wi wh chky incl thru, frm-brit, sb rd-sb blkly l-mod fis ctngs, slty tex, rr forams, tr fos frags, tr vf pyr, hi calc; MRLST (35%): dk gy, mot wi brn mrly incl ip, frm brit, mod



Off gas buster

WOB: 32klbs
RPM: 75
SPM: 184
SPP: 5,370psi

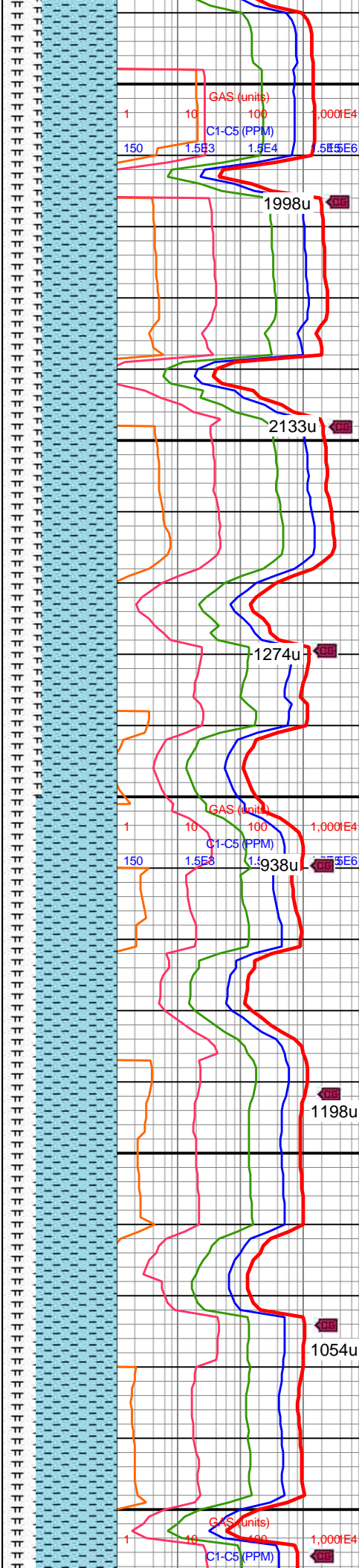
MW IN: 10.45
VIS IN: 54
MW OUT: 10.45
VIS OUT: 51

MD: 18,265'
TVD: 91.21'
INC: 350.38°
AZM: 7,458.18°
VS: 10,405.15'

On gas buster

MD: 18,360'
TVD: 91.16'
INC: 347.66°
AZM: 7,456.22°
VS: 10,497.32'

WOB: 39klbs
RPM: 75
SPM: 178
SPP: 5,280psi



miny incl ip, frm-brit, mod
fis sb blkly-blky ctngs, sm
arg-sl slty tex, mod calc
wi brn mrly resdl

1998u

2133u

1274u

938u

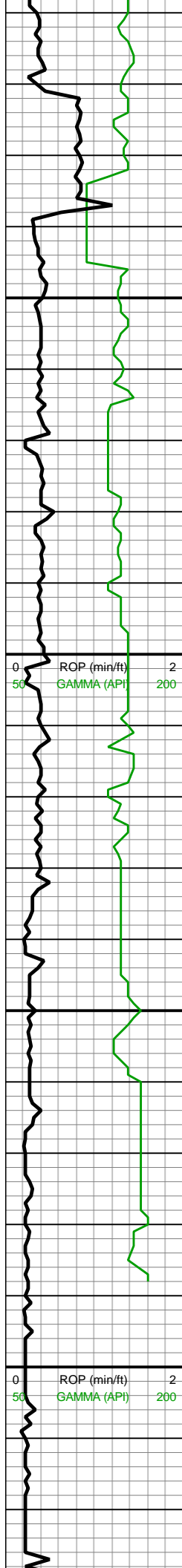
1198u

1054u

18200-18300 CHK
(65%): med gy-dk gy ip wi
rr f wh chky incl, frm-brit,
l-mod fi ssb rd-sb blkly
ctngs, sl slty tex, rr-tr f-u f
sb rd wh forams, rr-tr fos
frags, tr vf pyr, hi calc;
MRLST (35%): dk gy,
frm-brit, mod fis sb
blkly-blky ctngs, sm arg-sl
slty tex, mot, mod calc wi
brn mrly resdl

18300-18400 CHK
(70%): med brn-gyshbn,
mot, sl frm-frm, sb
blkly-sb tab ctngs, brit, tr
free CHK, mnv vf lam, hi
calc; MRLST (30%): dk
gy-dk gyshbn, brit, sb
blkly-splt ctngs, sl hd-frm,
mnv CHK intbds/incl, tr
dissm mic pyr, mod calc





MW IN: 10.4
VIS IN: 53
MW OUT: 10.5
VIS OUT: 51

MD: 18,455'
TVD: 91.21'
INC: 344.5°
AZM: 7,454.25°
VS: 10,588.2'

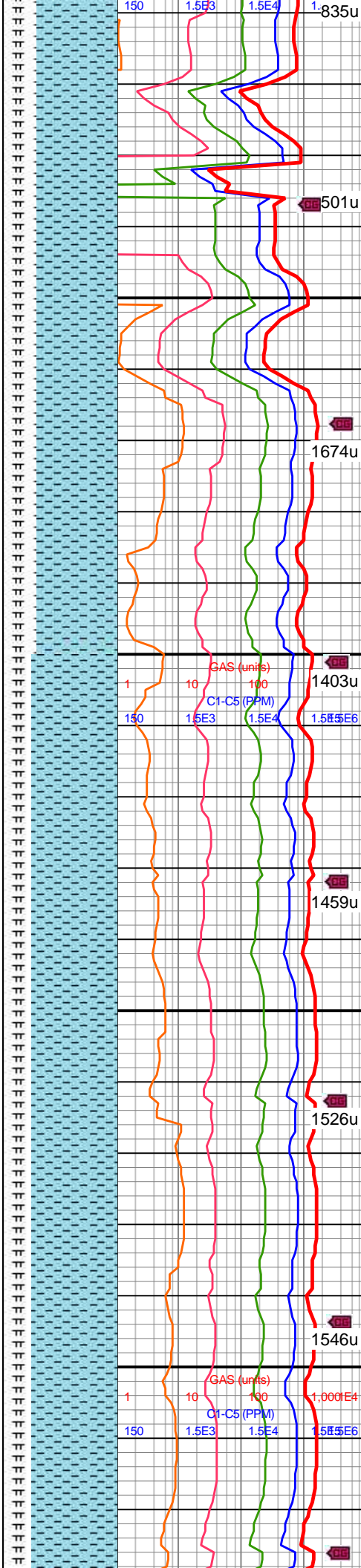
MD: 18,549'
TVD: 91.3°
INC: 345.2°
AZM: 7,452.19°
VS: 10,677.52'

MW IN: 10.5
VIS IN: 55
MW OUT: 10.4+
VIS OUT: 55

MD: 18,588'
TVD: 91.38°
INC: 346.17°
AZM: 7,451.28°
VS: 10,714.75'

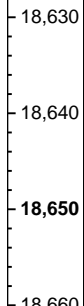
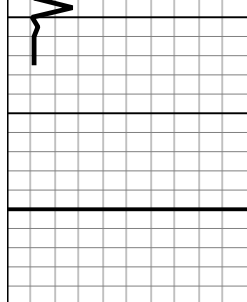
WOB: 37.9klbs
RPM: 70
SPM: 175
SPP: 5,410psi

Bit Projection
MD: 18,632'



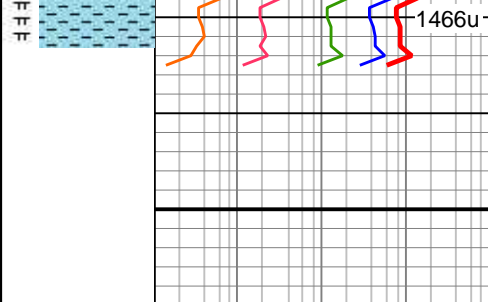
18400-18500 CHK
(70%): med brn-lt
gyshbn, com lt gy-offwht,
tr free chk, mot, frm-sl sft,
blky-sb rd, chky tex, tr mic
fos frags, mod calc;
MRLST (30%): predy dk
gy-dk gyshbn, sm tex,
frm-sl hrd, blky-sb rd, tr
imbd pp pyr, tr lam CHK,
calc

18500-18633 CHK
(75%): med brn-gyshbn-lt
gy, mot, sl frm-frm, sb
blky-sb tab ctngs, brit, tr
free CHK, mnv vf lam, hi
calc; MRLST (25%): dk
gy-dk gyshbn, brit, sb
blky-spld ctngs, sl hd-frm,
mnv CHK intbds/incl, tr



MD: 18,633
TVD: 7,450.2'
INC: 91.38°
AZM: 346.17°
VS: 10,757.82'

TD Well
07:00hrs
12/12/2017



dissem mic pyr, mod calc

