RESERVOIR GROUP

Scale: 5" / 100'
Measured Depth Log

Well Name	Kugel 1K-18H-H267		
Location	Sec. 18 T2N R67W		
State	Colorado	**County**	Weld
Country	USA	**Rig Number**	Ensign 153
API Number	05-123-49485	**AFE #**	16192097
Geographic Region	Rockies	**Field**	Wattenberg
Spud Date	7/13/2019	**Drilling Completed**	7/17/2019
Surface Coordinates	Lat/Long (NAD83): 40.139551/-104.926457 SHL: Sec 18 T2N R67W Footage: 2218 FNL 682 FEL		
Bottom Hole Coordinates	Proposed BHL: Sec 7 T2N R67W Footage: 10 FNL 360 FEL		
Ground Elevation	4,953'	**K.B. Elevation**	4,976'
Logged Interval	6,460' **To** 15,195'	**Total Depth**	15,195'
Formation	Niobrara B Chalk		
Type of Drilling Fluid	Synthetic Oil Based Mud (Neoflo Base Oil)		

Operator

Company Crestone Peak Resources

Address 1801 California Street, Suite 2500
Denver, CO 80202

CRESTONE PEAK
RESOURCES

Geologist

Name John Ready

Company Crestone Peak Resources

Address 1801 California Street, Suite 2500
Denver, CO 80202

CRESTONE PEAK
RESOURCES

Color Coding

Oil	Condensate	Gas
Note	Core	Pressure
Error	Water	Seal

Other

Loggers: Shana Swirin, Thomas Yull, Nicholas Watkins

Services Provided: 2-Man Mudlogging, Geosteering

Equipment: ML-558

Contractor: Reservoir Group
6360 West Sam Houston Pkwy N
Houston, Texas, 77041

Service Start Date: 7/13/2019

Service End Date: 7/17/2019

Job # 2336RK1907

Release Date: 7/19/219

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
- No Sample

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHOIPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- FOSSIL
- GASTROPOD
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- ARGILLACEOUS
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- GLAUCONITE
- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST

Stringer

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

CRINOID
ECHINOID
FISH
FORAMINIFERA
STROMATOPOROID

Minerals

ANHYDRITIC
DOLOMITIC
FELDSPAR
FERRUGINOUS PELLET
FERRUGINOUS
SANDY
SILICEOUS
SILTY
TUFFACEOUS
SANDSTONE STRINGER
SHALE STRINGER
SILTSTONE STRINGER

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

Other Symbols

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

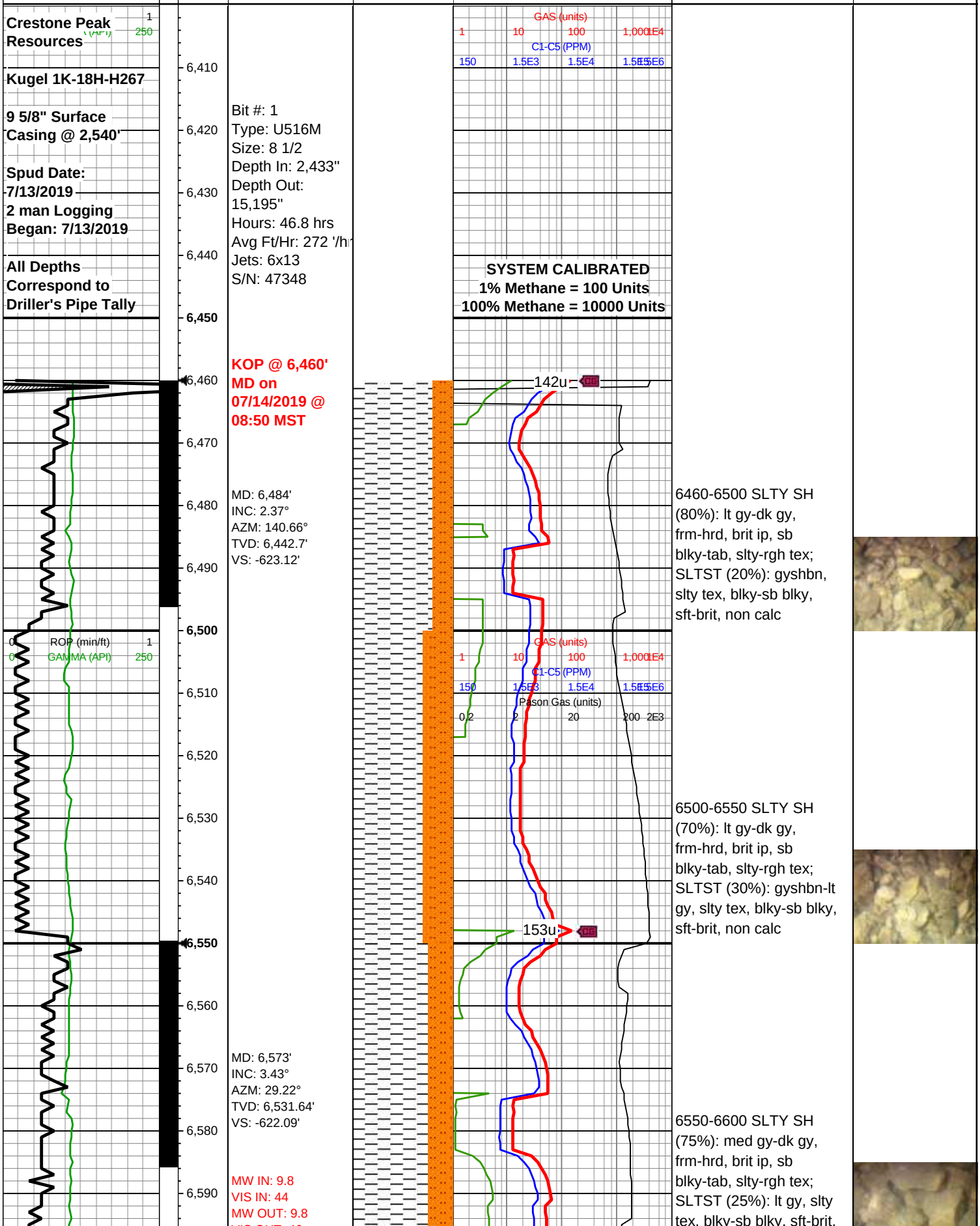
Textures

BOUNDSTONE
CHALKY
CRYPTOXLN
EARTHY
FINELYXLN
GRAINSTONE
LITHOGRAPHIC
MICROXLN
MUDSTONE
PACKSTONE
WACKESTONE

Sorting

MODERATE
POOR
WELL

ROP	Slide/Rotate	Depth Labels	Notes	% Lith	Total Gas	Lithology Descriptions	Images
ROP GAMMA					GAS C1 C2 C3 C4 C5 Pason Gas		



VIS OUT: 46

WOB: 43.9klbs
RPM: 30
SPM: 217
SPP: 4,022psi

MD: 6,662'
INC: 7.47°
AZM: 10.59°
TVD: 6,620.23'
VS: -613.96'

MW IN: 9.8
VIS IN: 47
MW OUT: 9.8
VIS OUT: 45

MD: 6,752'
INC: 11.7°
AZM: 3.73°
TVD: 6,708.95'
VS: -599.03'

WOB: 43.5klbs
RPM: 30
SPM: 218
SPP: 3,895psi

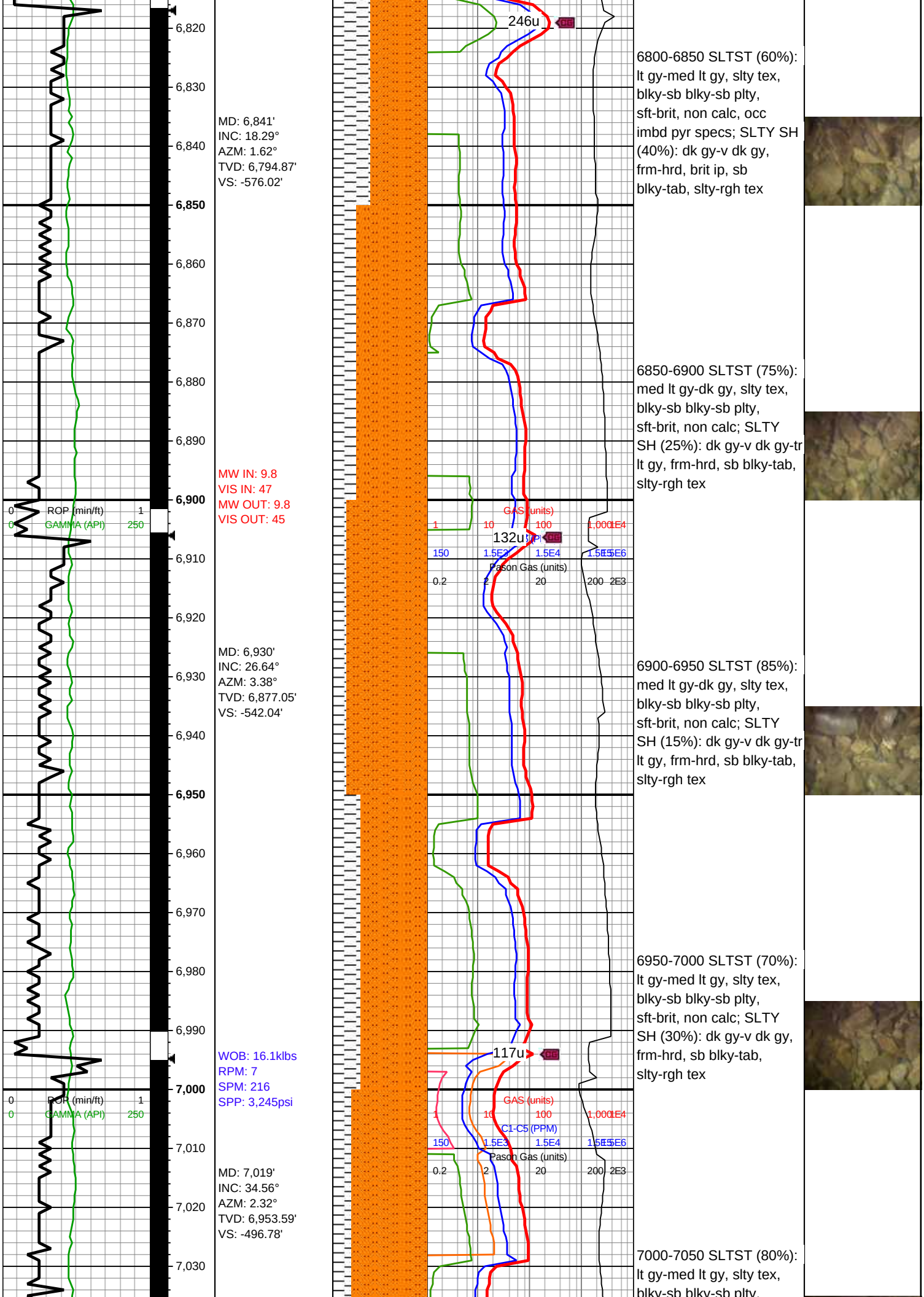
non calc

6600-6650 SLTY SH (65%): med gy-dk gy, frm-hrd, brit ip, sb blky-tab, slty-rgh tex; SLTST (35%): lt gy, slty tex, blky-sb blky, sft-brit, non calc, tr imbd pyr specs

6650-6700 SLTY SH (60%): med gy-dk gy, frm-hrd, brit ip, sb blky-tab, slty-rgh tex; SLTST (40%): lt gy, slty tex, blky-sb blky-tr sb plty, sft-brit, non calc

6700-6750 SLTY SH (70%): dk gy, frm-hrd, brit ip, sb blky-tab, slty-rgh tex; SLTST (30%): lt med gy, slty tex, blky-sb blky, sft-brit, non calc

6750-6800 SLTST (55%): lt gy-med lt gy, slty tex, blky-sb blky-sb plty, sft-brit, non calc; SLTY SH (45%): dk gy-v dk gy, frm-hrd, brit ip, sb blky-tab, slty-rgh tex



6800-6850 SLTST (60%): lt gy-med lt gy, slty tex, blky-sb blky-sb plty, sft-brit, non calc, occ imbd pyr specs; SLTY SH (40%): dk gy-v dk gy, frm-hrd, brit ip, sb blky-tab, slty-rgh tex

6850-6900 SLTST (75%): med lt gy-dk gy, slty tex, blky-sb blky-sb plty, sft-brit, non calc; SLTY SH (25%): dk gy-v dk gy-tr lt gy, frm-hrd, sb blky-tab, slty-rgh tex

6900-6950 SLTST (85%): med lt gy-dk gy, slty tex, blky-sb blky-sb plty, sft-brit, non calc; SLTY SH (15%): dk gy-v dk gy-tr lt gy, frm-hrd, sb blky-tab, slty-rgh tex

6950-7000 SLTST (70%): lt gy-med lt gy, slty tex, blky-sb blky-sb plty, sft-brit, non calc; SLTY SH (30%): dk gy-v dk gy, frm-hrd, sb blky-tab, slty-rgh tex

7000-7050 SLTST (80%): lt gy-med lt gy, slty tex, blky-sb blky-sb plty,

7,040
MW IN: 9.8
VIS IN: 48
MW OUT: 9.8
VIS OUT: 46
7,050
7,060
7,070
7,080
7,090
7,100
0 ROP (min/ft) 1
0 GAMMA (API) 250
MD: 7,108'
INC: 41.24°
AZM: 4.26°
TVD: 7,023.79'
VS: -442.14'
7,110
7,120
7,130
7,140
7,150
7,160
7,170
MW IN: 9.8
VIS IN: 46
MW OUT: 9.8
VIS OUT: 43
7,180
7,190
MD: 7,197'
INC: 49.33°
AZM: 5.31°
TVD: 7,086.35'
VS: -378.98'
7,200
0 ROP (min/ft) 1
0 GAMMA (API) 250
WOB: 30.8klbs
RPM: 7
SPM: 219
SPP: 3,532psi
7,210
7,220
7,230
7,240
7,250

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.2 2 20 200 2E3

189u
146u

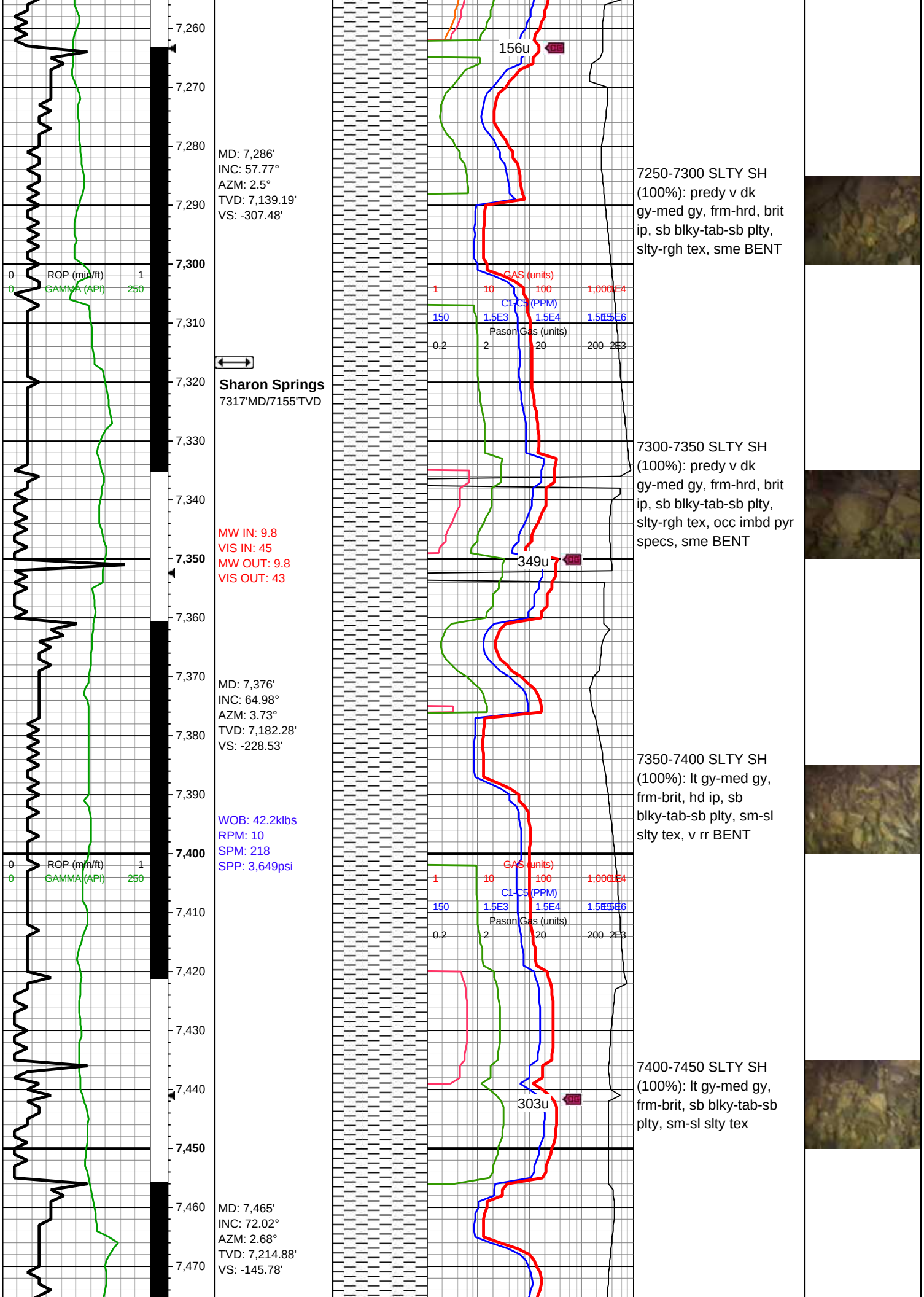
sft-brit, non calc; SLTY SH (20%): v dk gy, hrd, sb blky-tab, slty-rgh tex

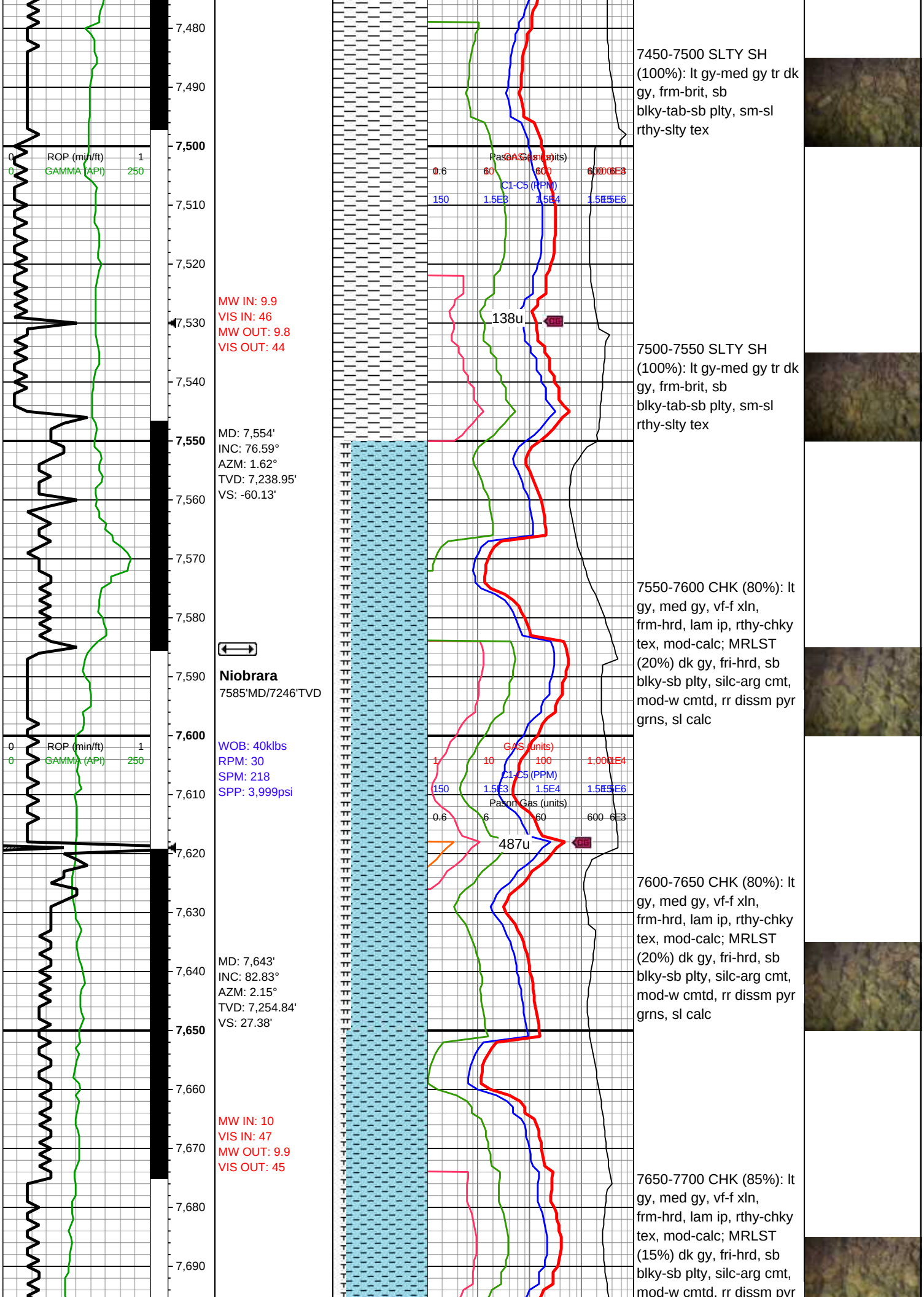
7050-7100 SLTST (85%): lt gy-med lt gy, slty tex, blky-sb blky-sb plty, sft-brit, non calc; SLTY SH (15%): v dk gy, hrd, sb blky-tab, slty-rgh tex

7100-7150 SLTST (90%): lt gy-med lt gy, slty tex, blky-sb blky-sb plty, sft-brit, non calc; SLTY SH (10%): v dk gy-rr lt gy, frm-hrd, sb blky-tab, slty-rgh tex

7150-7200 SLTST (80%): med lt gy-tr dk gy, slty tex, blky-sb blky-sb plty, sft-brit, non calc; SLTY SH (20%): v dk gy, frm-hrd, sb blky-tab, slty-rgh tex

7200-7250 SLTST (70%): med lt gy-tr dk gy, slty tex, blky-sb blky-sb plty, frm-brit, non calc; SLTY SH (30%): v dk gy, frm-hrd, sb blky-tab, slty-rgh tex


7,260
7,270
7,280
7,290
7,300
7,310
7,320
7,330
7,340
7,350
7,360
7,370
7,380
7,390
7,400
7,410
7,420
7,430
7,440
7,450
7,460
7,470
0 ROP (min/ft) 1
0 GAMMA (API) 250
MD: 7,286'
INC: 57.77°
AZM: 2.5°
TVD: 7,139.19'
VS: -307.48'
Sharon Springs
7317'MD/7155'TVD
MW IN: 9.8
VIS IN: 45
MW OUT: 9.8
VIS OUT: 43
MD: 7,376'
INC: 64.98°
AZM: 3.73°
TVD: 7,182.28'
VS: -228.53'
WOB: 42.2klbs
RPM: 10
SPM: 218
SPP: 3,649psi
MD: 7,465'
INC: 72.02°
AZM: 2.68°
TVD: 7,214.88'
VS: -145.78'
156u
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.2 2 20 200 2E3
349u
303u
7250-7300 SLTY SH (100%): predy v dk gy-med gy, frm-hrd, brit ip, sb blky-tab-sb plty, slty-rgh tex, sme BENT
7300-7350 SLTY SH (100%): predy v dk gy-med gy, frm-hrd, brit ip, sb blky-tab-sb plty, slty-rgh tex, occ imbd pyr specs, sme BENT
7350-7400 SLTY SH (100%): lt gy-med gy, frm-brit, hd ip, sb blky-tab-sb plty, sm-sl slty tex, v rr BENT
7400-7450 SLTY SH (100%): lt gy-med gy, frm-brit, sb blky-tab-sb plty, sm-sl slty tex



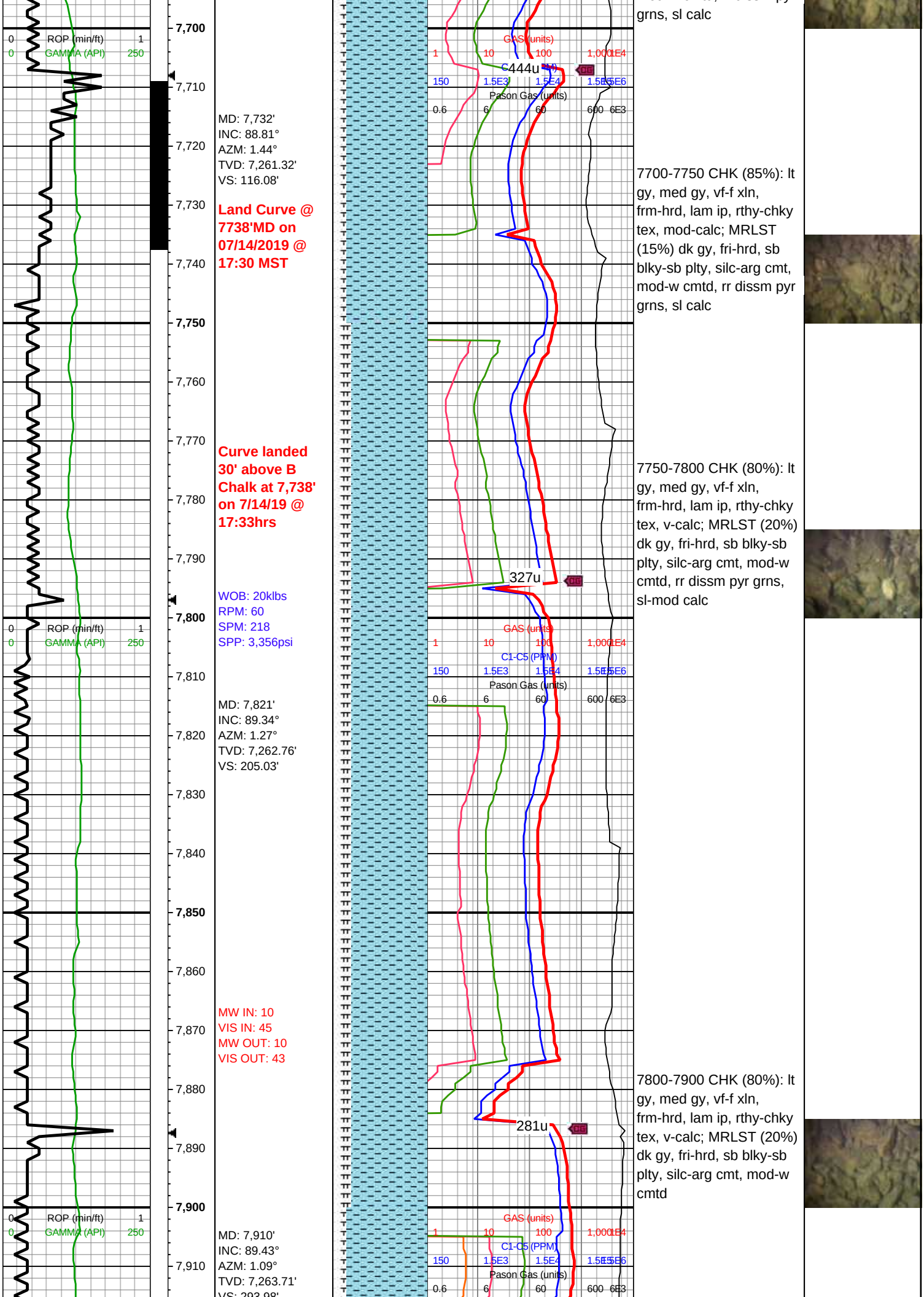
7450-7500 SLTY SH (100%): lt gy-med gy tr dk gy, frm-brit, sb blky-tab-sb plty, sm-sl rthy-slty tex

7500-7550 SLTY SH (100%): lt gy-med gy tr dk gy, frm-brit, sb blky-tab-sb plty, sm-sl rthy-slty tex

7550-7600 CHK (80%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, mod-calc; MRLST (20%) dk gy, fri-hrd, sb blky-sb plty, silc-arg cmt, mod-w cmtd, rr dissm pyr grns, sl calc

7600-7650 CHK (80%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, mod-calc; MRLST (20%) dk gy, fri-hrd, sb blky-sb plty, silc-arg cmt, mod-w cmtd, rr dissm pyr grns, sl calc

7650-7700 CHK (85%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, mod-calc; MRLST (15%) dk gy, fri-hrd, sb blky-sb plty, silc-arg cmt, mod-w cmtd, rr dissm pyr


0 ROP (min/ft) 1
0 GAMMA (API) 250
GAS (units)
1 10 100 1,000 1E4
C444u
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
7,700
7,710
7,720
7,730
7,740
7,750
7,760
7,770
7,780
7,790
7,800
7,810
7,820
7,830
7,840
7,850
7,860
7,870
7,880
7,890
7,900
7,910
MD: 7,732'
INC: 88.81°
AZM: 1.44°
TVD: 7,261.32'
VS: 116.08'
Land Curve @ 7738'MD on 07/14/2019 @ 17:30 MST
Curve landed 30' above B Chalk at 7,738' on 7/14/19 @ 17:33hrs
WOB: 20klbs
RPM: 60
SPM: 218
SPP: 3,356psi
MD: 7,821'
INC: 89.34°
AZM: 1.27°
TVD: 7,262.76'
VS: 205.03'
MW IN: 10
VIS IN: 45
MW OUT: 10
VIS OUT: 43
MD: 7,910'
INC: 89.43°
AZM: 1.09°
TVD: 7,263.71'
7700-7750 CHK (85%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, mod-calc; MRLST (15%) dk gy, fri-hrd, sb blky-sb plty, silc-arg cmt, mod-w cmtd, rr dissm pyr grns, sl calc
7750-7800 CHK (80%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (20%) dk gy, fri-hrd, sb blky-sb plty, silc-arg cmt, mod-w cmtd, rr dissm pyr grns, sl-mod calc
327u
7800-7900 CHK (80%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (20%) dk gy, fri-hrd, sb blky-sb plty, silc-arg cmt, mod-w cmtd
281u

VS: 293.98

7,920
7,930
7,940
7,950
7,960
7,970
7,980
7,990
8,000
8,010
8,020
8,030
8,040
8,050
8,060
8,070
8,080
8,090
8,100
8,110
8,120
8,130

WOB: 40klbs
RPM: 60
SPM: 218
SPP: 4,171psi

MD: 7,999'
INC: 88.81°
AZM: 1.44°
TVD: 7,265.08'
VS: 382.92'

Niobrara B Chalk
8024'MD/7265'TVD

MD: 8,088'
INC: 89.08°
AZM: 2.85°
TVD: 7,266.72'
VS: 471.89'

MW IN: 10.2
VIS IN: 45
MW OUT: 10
VIS OUT: 43

0 ROP (min/ft) 1
0 GAMMA (API) 250

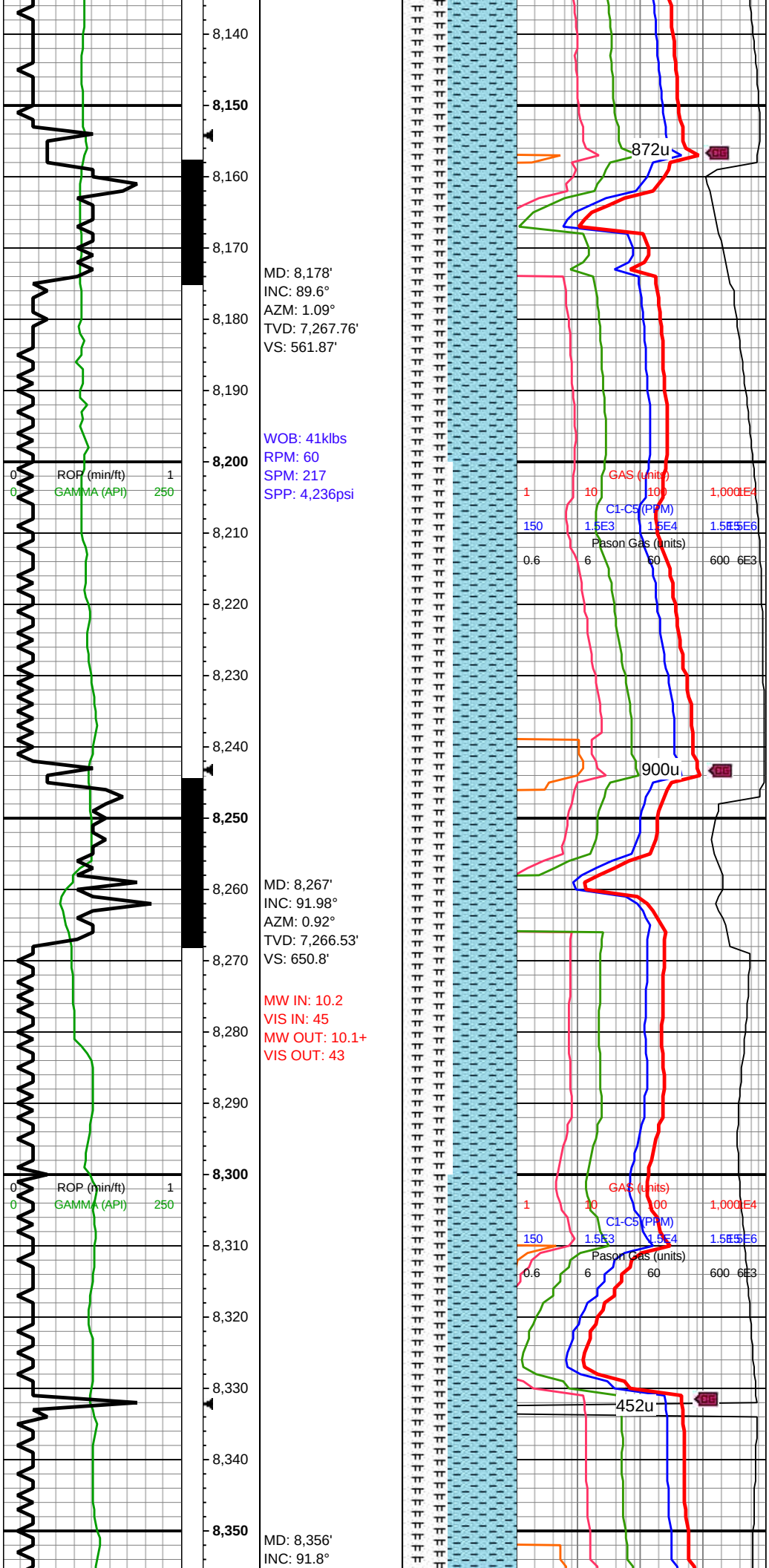
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3

551u

7900-8000 CHK (85%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (15%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd

853u

8000-8100 CHK (80%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (20%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd



MD: 8,178'
INC: 89.6°
AZM: 1.09°
TVD: 7,267.76'
VS: 561.87'

WOB: 41klbs
RPM: 60
SPM: 217
SPP: 4,236psi

MD: 8,267'
INC: 91.98°
AZM: 0.92°
TVD: 7,266.53'
VS: 650.8'

MW IN: 10.2
VIS IN: 45
MW OUT: 10.1+
VIS OUT: 43

MD: 8,356'
INC: 91.8°

8100-8200 CHK (60%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (40%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd, tr f pyr grns

8200-8300 CHK (55%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (45%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd, tr f pyr grns

AZM: 0.57°
TVD: 7,263.59'
VS: 739.68'

8,360
8,370
8,380
8,390

WOB: 40klbs
RPM: 60
SPM: 218
SPP: 4,245psi

8,400

0 ROP (min/ft) 1
0 GAMMA (API) 250

8,410
8,420
8,430

MD: 8,445'
INC: 90.84°
AZM: 0.39°
TVD: 7,261.54'
VS: 828.56'

8,440

8,450

8,460
8,470
8,480
8,490

8,500

0 ROP (min/ft) 1
0 GAMMA (API) 250

MW IN: 10.2
VIS IN: 45
MW OUT: 10.2
VIS OUT: 43

8,510
8,520

MD: 8,534'
INC: 90.04°
AZM: 0.57°
TVD: 7,260.86'
VS: 917.47'

8,530
8,540

8,550

8,560
8,570

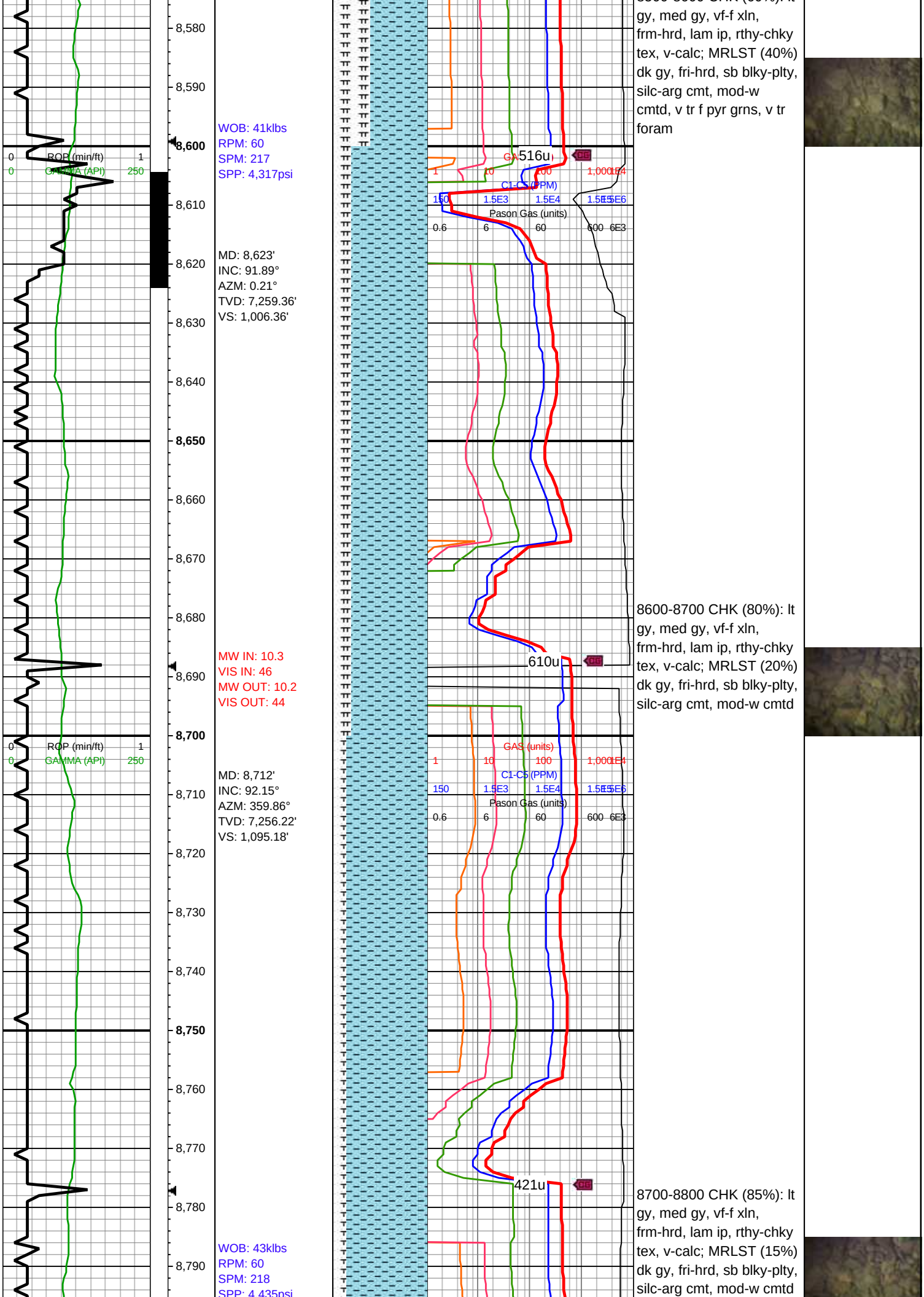
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
462u
DE

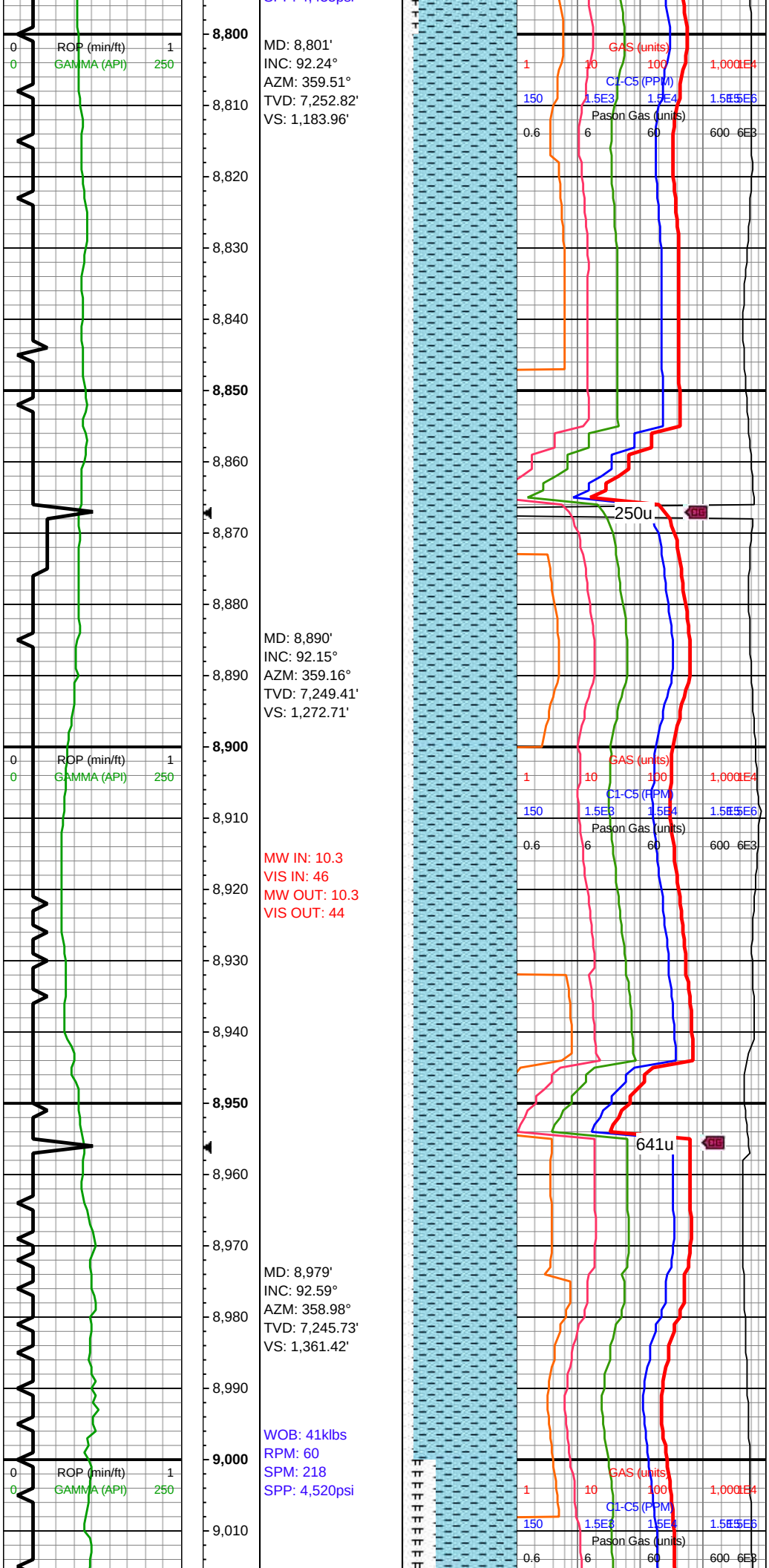
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
412u
DE
0.6 6 60 600 6E3

8300-8400 CHK (60%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (40%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd, tr f pyr grns

8400-8500 CHK (55%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (45%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd, v tr f pyr grns, v tr foram

8500-8600 CHK (60%): lt


8,580
8,590
8,600
8,610
8,620
8,630
8,640
8,650
8,660
8,670
8,680
8,690
8,700
8,710
8,720
8,730
8,740
8,750
8,760
8,770
8,780
8,790
0 ROP (min/ft) 1
0 GAMMA (API) 250
WOB: 41klbs
RPM: 60
SPM: 217
SPP: 4,317psi
MD: 8,623'
INC: 91.89°
AZM: 0.21°
TVD: 7,259.36'
VS: 1,006.36'
MW IN: 10.3
VIS IN: 46
MW OUT: 10.2
VIS OUT: 44
MD: 8,712'
INC: 92.15°
AZM: 359.86°
TVD: 7,256.22'
VS: 1,095.18'
WOB: 43klbs
RPM: 60
SPM: 218
SPP: 4,435psi
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
516u
610u
421u
8600-8700 CHK (80%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (20%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd
8700-8800 CHK (85%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (15%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd



MD: 8,801'
INC: 92.24°
AZM: 359.51°
TVD: 7,252.82'
VS: 1,183.96'

MD: 8,890'
INC: 92.15°
AZM: 359.16°
TVD: 7,249.41'
VS: 1,272.71'

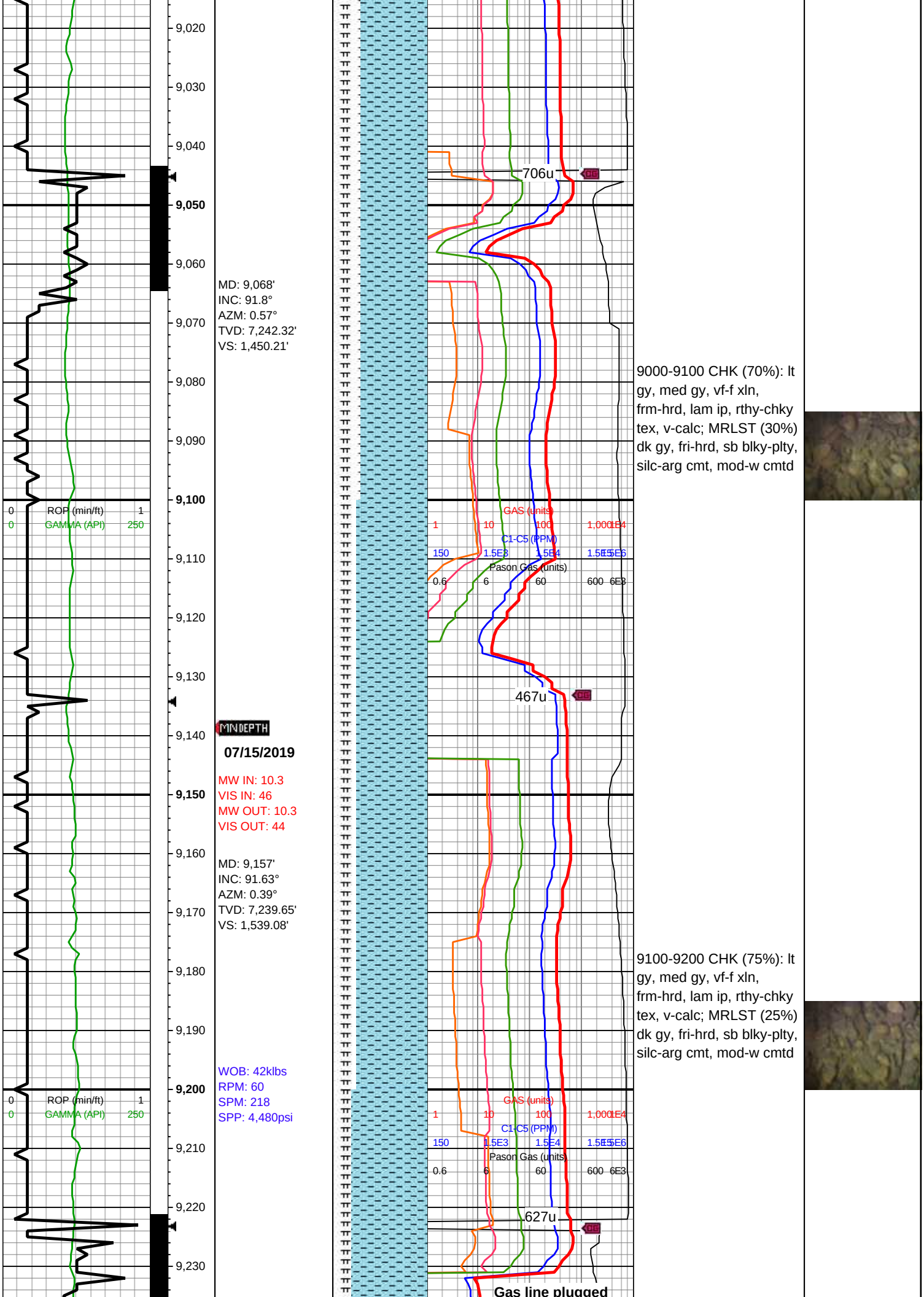
MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44

MD: 8,979'
INC: 92.59°
AZM: 358.98°
TVD: 7,245.73'
VS: 1,361.42'

WOB: 41klbs
RPM: 60
SPM: 218
SPP: 4,520psi

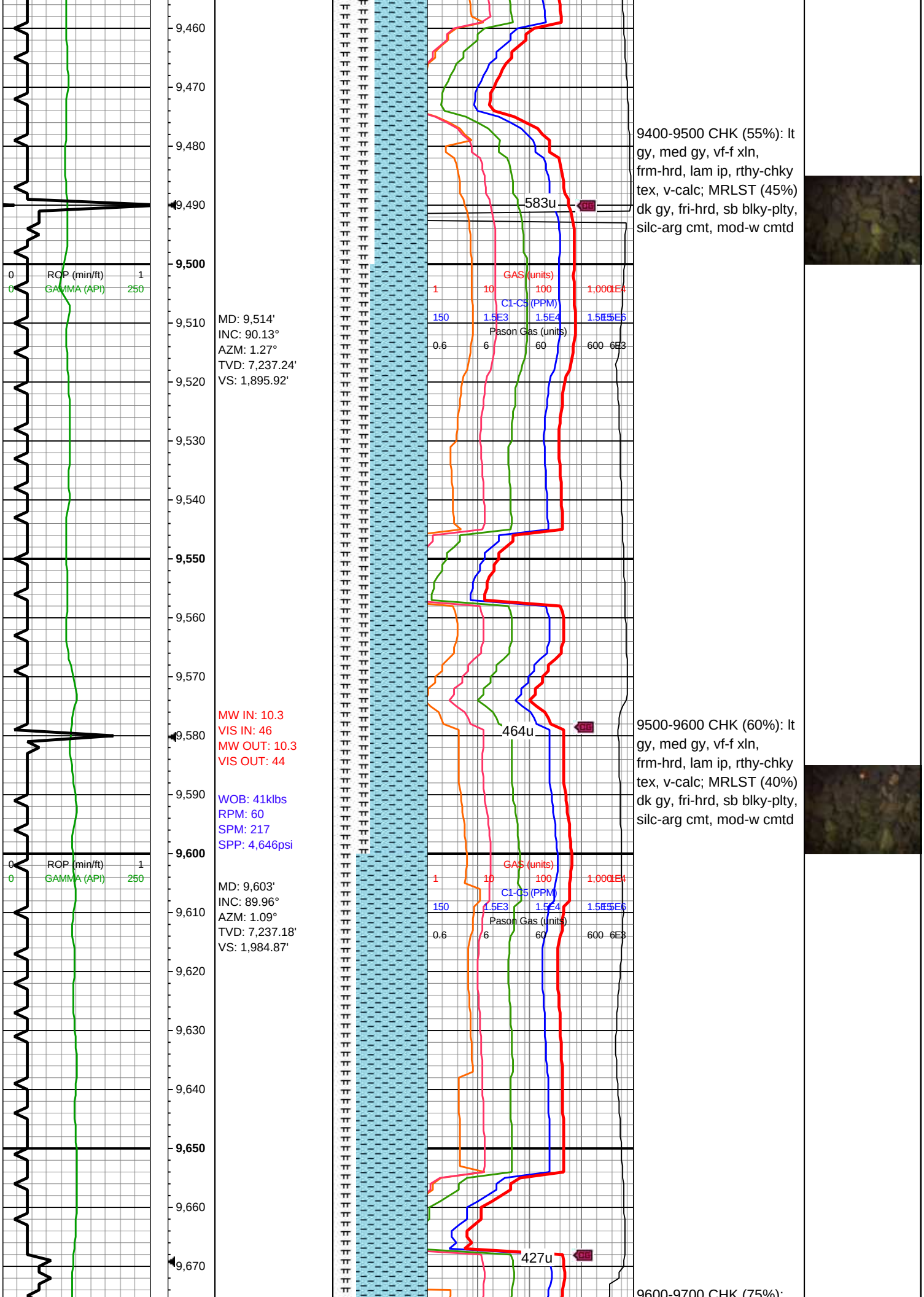
8800-8900 CHK (90%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (10%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd, v rr pyr grns

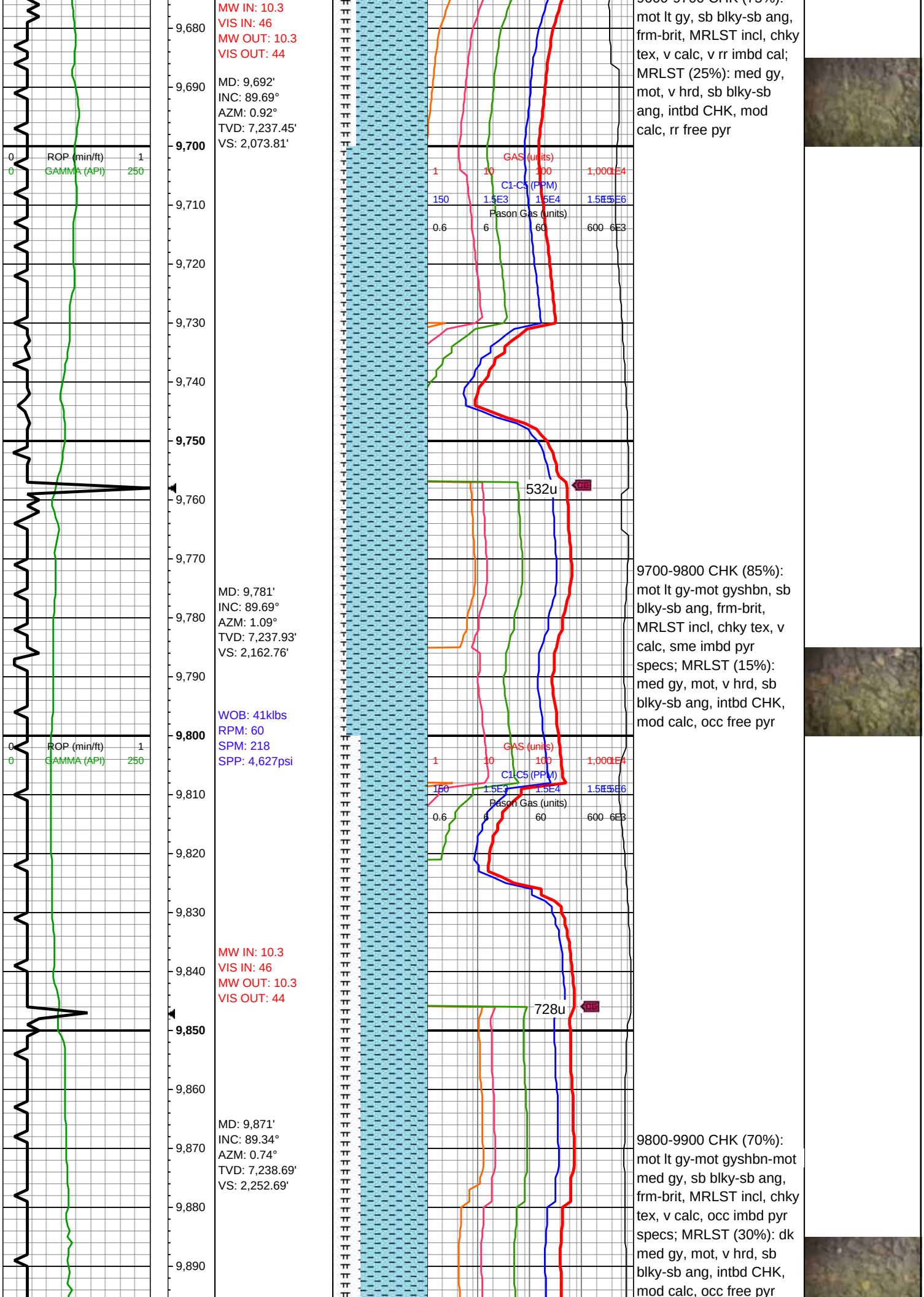
8900-9000 CHK (90%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (10%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd, v rr pyr grns


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
9,170
9,180
9,190
9,200
9,210
9,220
9,230
0 ROP (min/ft) 1
0 GAMMA (API) 250
MD: 9,068'
INC: 91.8°
AZM: 0.57°
TVD: 7,242.32'
VS: 1,450.21'
706u
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
9000-9100 CHK (70%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (30%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd
MNDEPTH
07/15/2019
MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44
467u
9100-9200 CHK (75%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (25%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd
WOB: 42klbs
RPM: 60
SPM: 218
SPP: 4,480psi
627u
Gas line plugged

9,240
MD: 9,247'
INC: 90.31°
AZM: 1.62°
TVD: 7,238.13'
VS: 1,629.01'
9,250
9,260
9,270
9,280
9,290
9,300
0 ROP (min/ft) 1
0 GAMMA (API) 250
9,310
9,320
9,330
MD: 9,336'
INC: 90.22°
AZM: 1.62°
TVD: 7,237.72'
VS: 1,717.98'
9,340
9,350
9,360
MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44
9,370
9,380
9,390
WOB: 42klbs
RPM: 60
SPM: 218
SPP: 4,569psi
9,400
0 ROP (min/ft) 1
0 GAMMA (API) 250
9,410
9,420
MD: 9,425'
INC: 90.13°
AZM: 1.62°
TVD: 7,237.45'
VS: 1,806.95'
9,430
9,440
9,450
Line unplugged
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
249u (units)
0.6 6 60 600 6E3
297u (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
9200-9300 CHK (80%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (20%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd

9300-9400 CHK (75%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (25%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd



0
ROP (min/ft)
1
0
GAMMA (API)
250
9,460
9,470
9,480
9,490
9,500
9,510
9,520
9,530
9,540
9,550
9,560
9,570
9,580
9,590
9,600
9,610
9,620
9,630
9,640
9,650
9,660
9,670
GAS (units)
1
10
100
1,000
1E4
C1-C5 (PPM)
150
1.5E3
1.5E4
1.5E5
1.5E6
Pason Gas (units)
0.6
6
60
600
6E3
583u
464u
427u
MD: 9,514'
INC: 90.13°
AZM: 1.27°
TVD: 7,237.24'
VS: 1,895.92'
MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44
WOB: 41klbs
RPM: 60
SPM: 217
SPP: 4,646psi
MD: 9,603'
INC: 89.96°
AZM: 1.09°
TVD: 7,237.18'
VS: 1,984.87'
9400-9500 CHK (55%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (45%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd
9500-9600 CHK (60%): lt gy, med gy, vf-f xln, frm-hrd, lam ip, rthy-chky tex, v-calc; MRLST (40%) dk gy, fri-hrd, sb blky-plty, silc-arg cmt, mod-w cmtd
9600-9700 CHK (75%):



MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44

MD: 9,692'
INC: 89.69°
AZM: 0.92°
TVD: 7,237.45'
VS: 2,073.81'

mot lt gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, v rr imbd cal; MRLST (25%): med gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, rr free pyr

MD: 9,781'
INC: 89.69°
AZM: 1.09°
TVD: 7,237.93'
VS: 2,162.76'

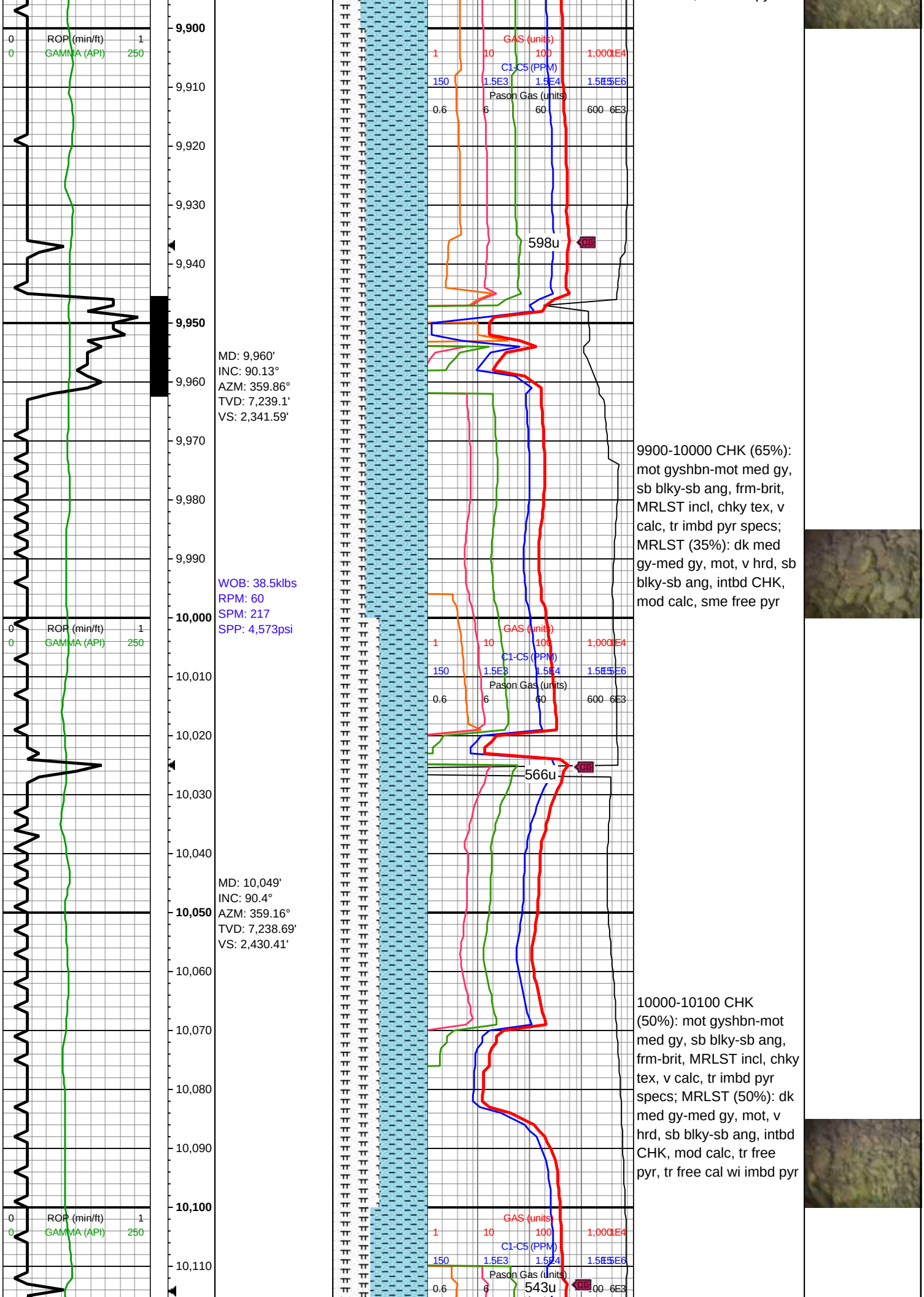
9700-9800 CHK (85%): mot lt gy-mot gyshbn, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, sme imbd pyr specs; MRLST (15%): med gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, occ free pyr

WOB: 41klbs
RPM: 60
SPM: 218
SPP: 4,627psi

MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44

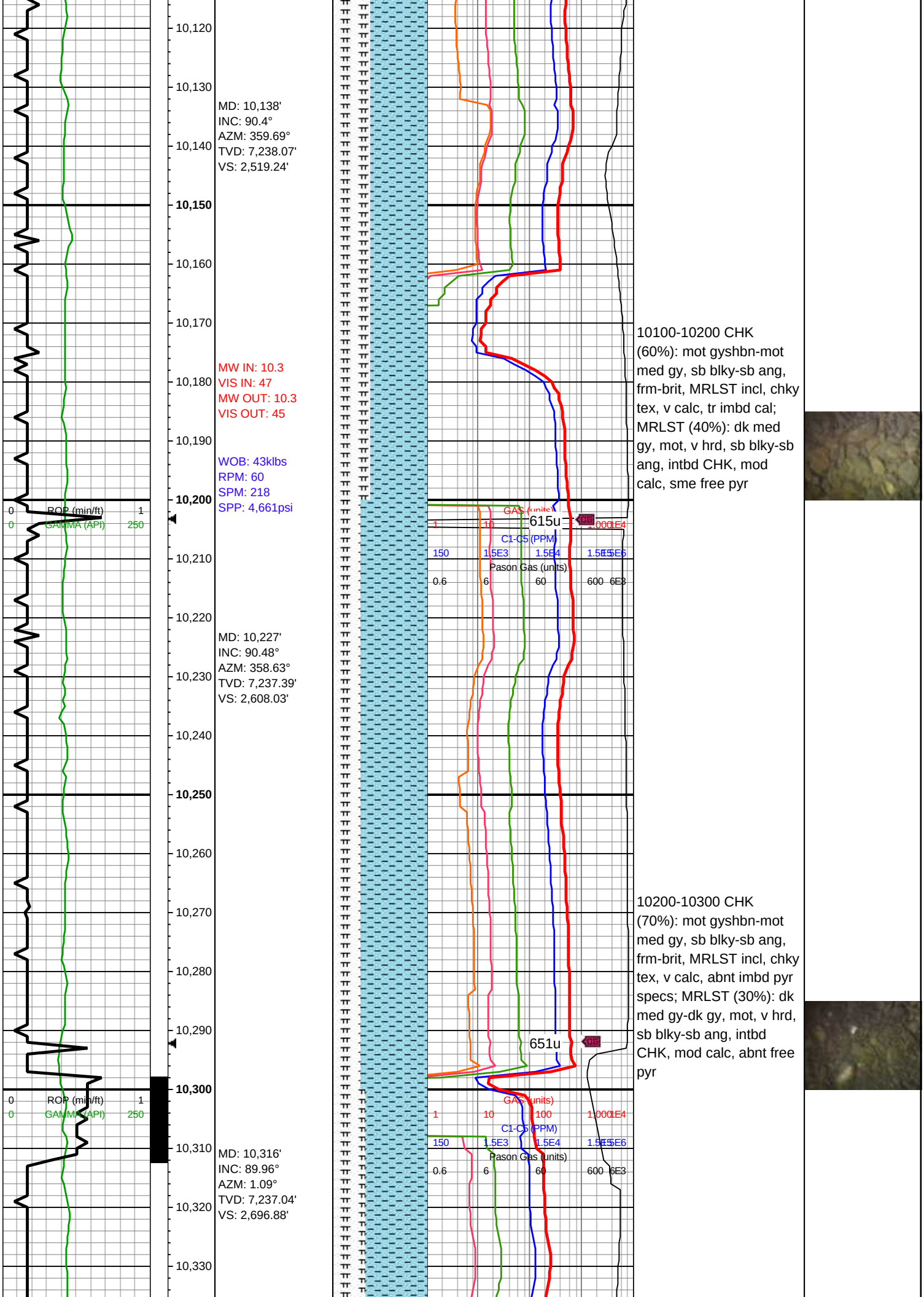
MD: 9,871'
INC: 89.34°
AZM: 0.74°
TVD: 7,238.69'
VS: 2,252.69'

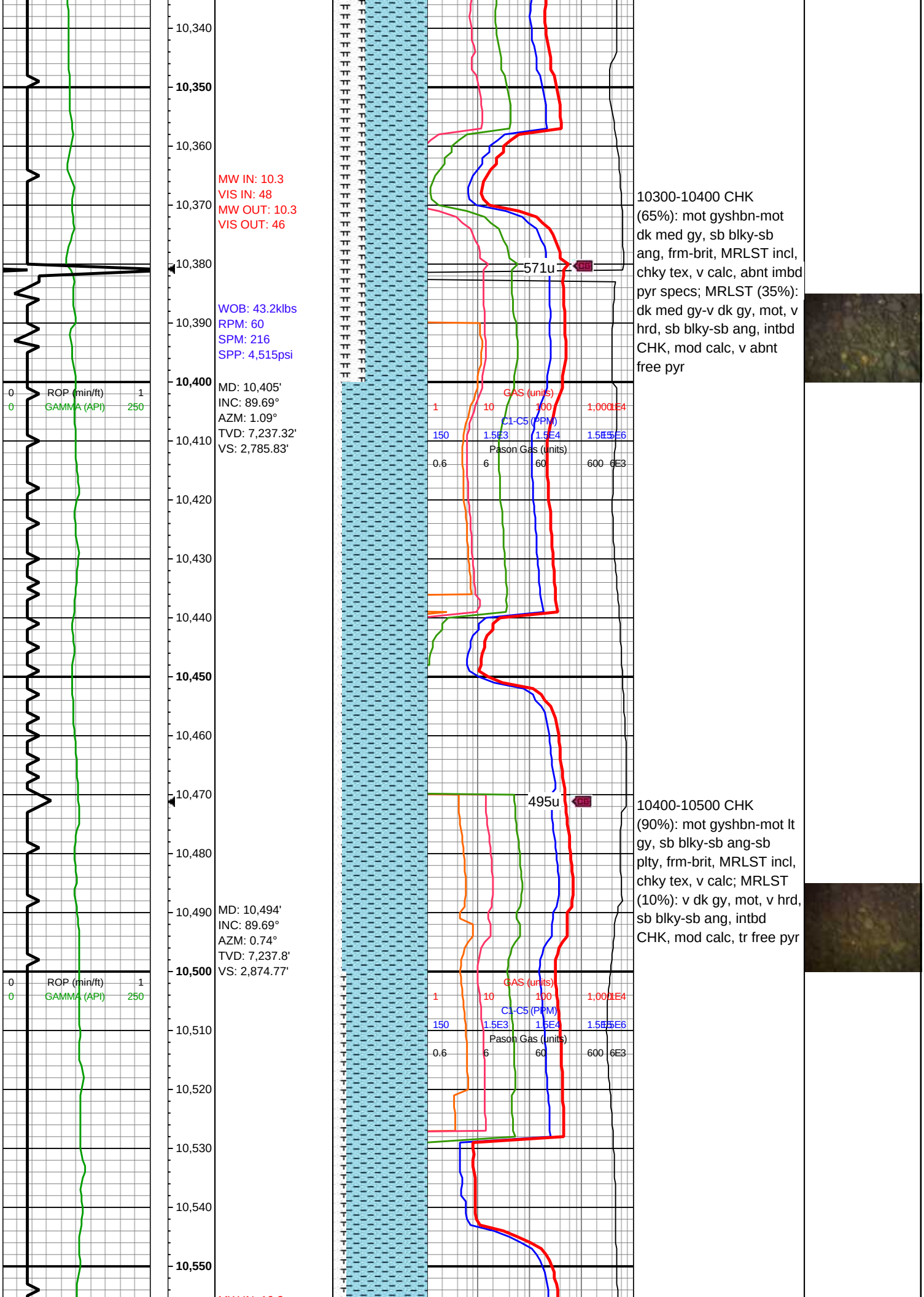
9800-9900 CHK (70%): mot lt gy-mot gyshbn-mot med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, occ imbd pyr specs; MRLST (30%): dk med gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, occ free pyr



9900-10000 CHK (65%): mot gyshbn-mot med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, tr imbd pyr specs; MRLST (35%): dk med gy-med gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, sme free pyr

10000-10100 CHK (50%): mot gyshbn-mot med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, tr imbd pyr specs; MRLST (50%): dk med gy-med gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, tr free pyr, tr free cal wi imbd pyr


10,120
10,130
10,140
10,150
10,160
10,170
10,180
10,190
10,200
10,210
10,220
10,230
10,240
10,250
10,260
10,270
10,280
10,290
10,300
10,310
10,320
10,330
MD: 10,138'
INC: 90.4°
AZM: 359.69°
TVD: 7,238.07'
VS: 2,519.24'
MW IN: 10.3
VIS IN: 47
MW OUT: 10.3
VIS OUT: 45
WOB: 43klbs
RPM: 60
SPM: 218
SPP: 4,661psi
MD: 10,227'
INC: 90.48°
AZM: 358.63°
TVD: 7,237.39'
VS: 2,608.03'
MD: 10,316'
INC: 89.96°
AZM: 1.09°
TVD: 7,237.04'
VS: 2,696.88'
0 ROP (min/ft) 1
0 GAMMA (API) 250
GAS (units)
1 10 100 1000 1E4
615u
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
651u
10100-10200 CHK (60%): mot gyshbn-mot med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, tr imbd cal; MRLST (40%): dk med gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, sme free pyr
10200-10300 CHK (70%): mot gyshbn-mot med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, abnt imbd pyr specs; MRLST (30%): dk med gy-dk gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, abnt free pyr



10300-10400 CHK (65%): mot gyshbn-mot dk med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, abnt imbd pyr specs; MRLST (35%): dk med gy-v dk gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, v abnt free pyr

10400-10500 CHK (90%): mot gyshbn-mot lt gy, sb blky-sb ang-sb plty, frm-brit, MRLST incl, chky tex, v calc; MRLST (10%): v dk gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, tr free pyr

MW IN: 10.3
VIS IN: 48
MW OUT: 10.3
VIS OUT: 45

MD: 10,583'
INC: 89.6°
AZM: 0.39°
TVD: 7,238.35'
VS: 2,963.68'

WOB: 43.4klbs
RPM: 60
SPM: 217
SPP: 4,583psi

MD: 10,673'
INC: 89.52°
AZM: 0.04°
TVD: 7,239.04'
VS: 3,053.57'

MD: 10,762'
INC: 89.87°
AZM: 359.34°
TVD: 7,239.51'
VS: 3,142.42'

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
10,710
10,720
10,730
10,740
10,750
10,760
10,770

0 ROP (min/ft) 1
0 GAMMA (API) 250

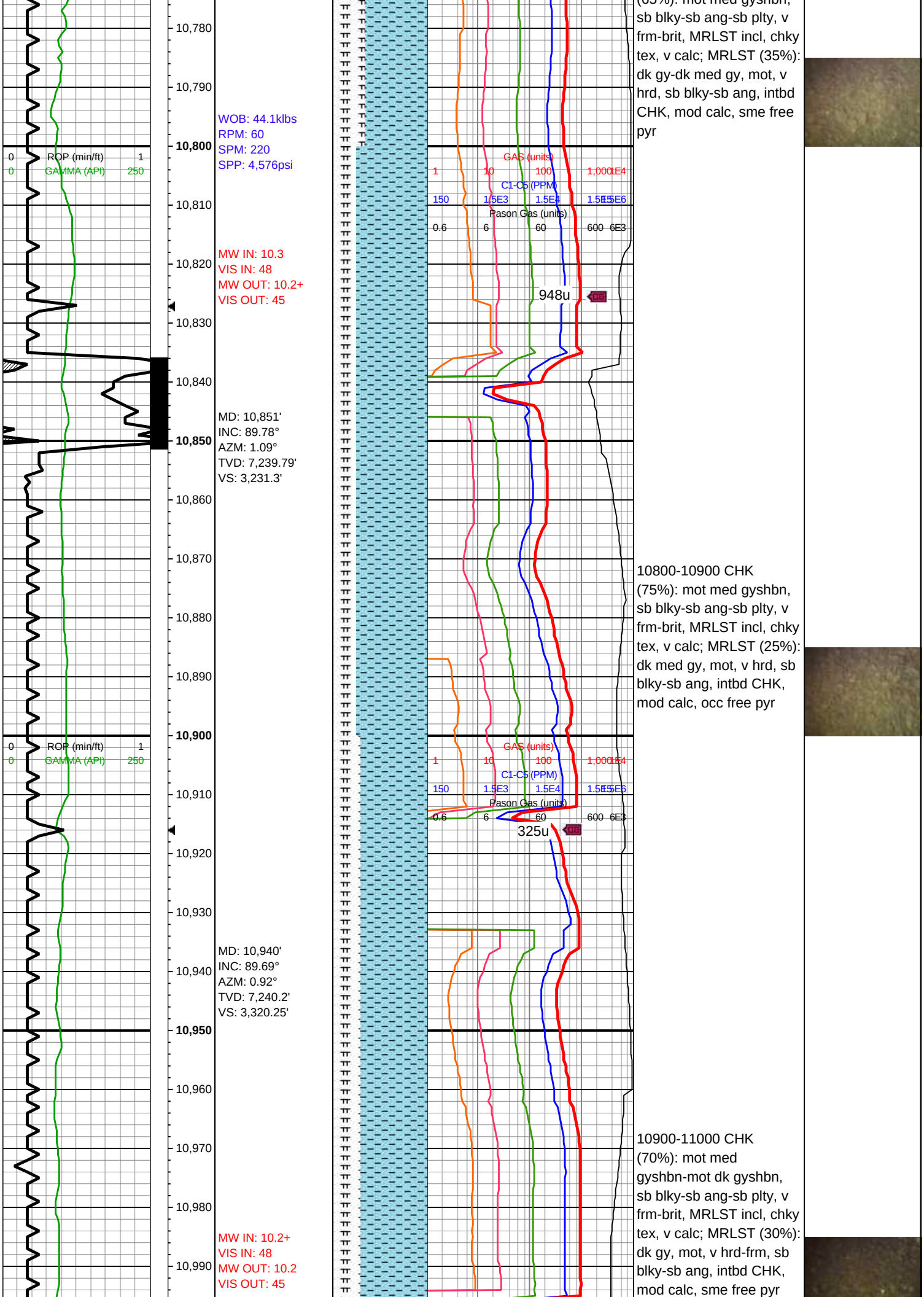
339u
619u
728u

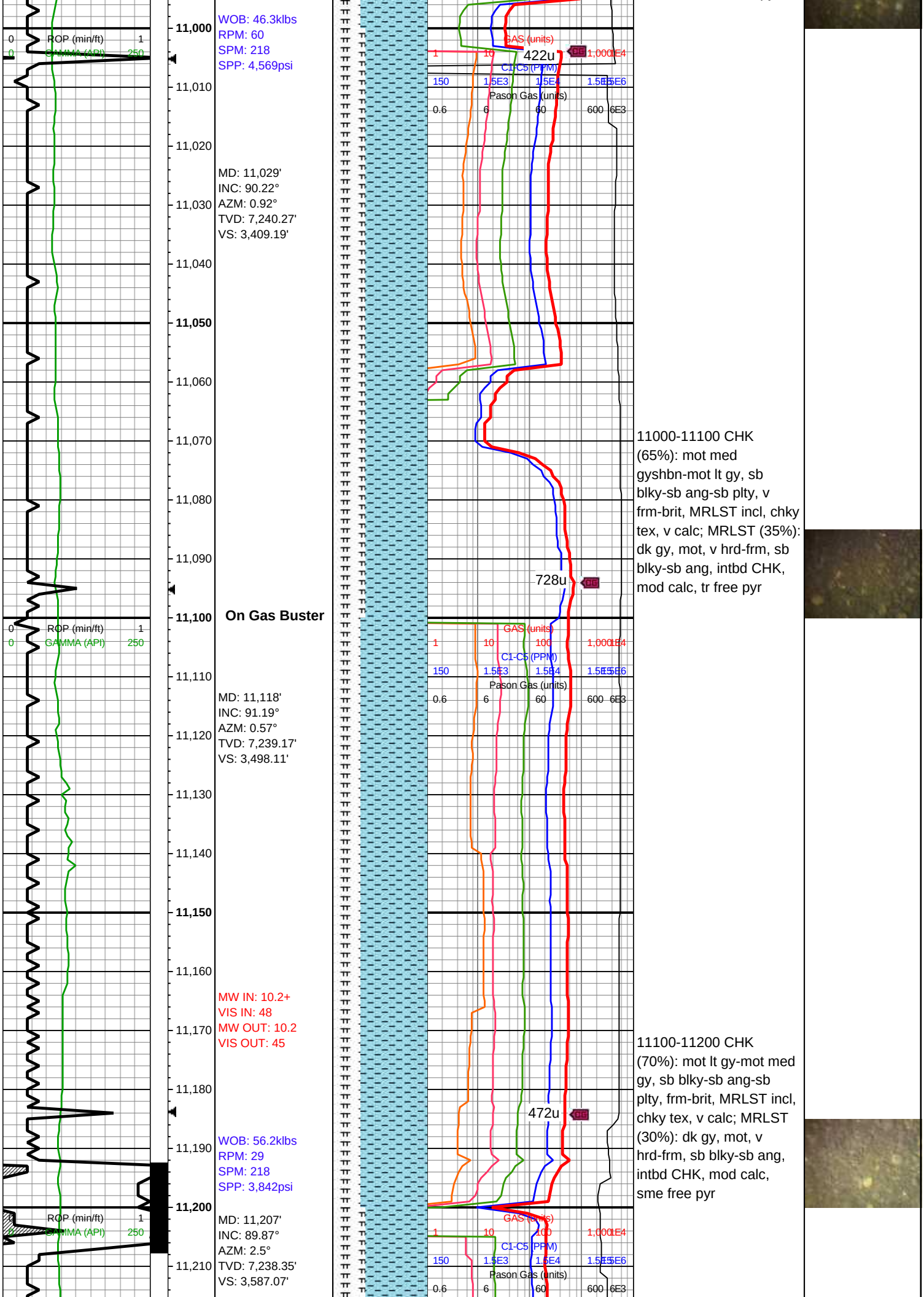
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3

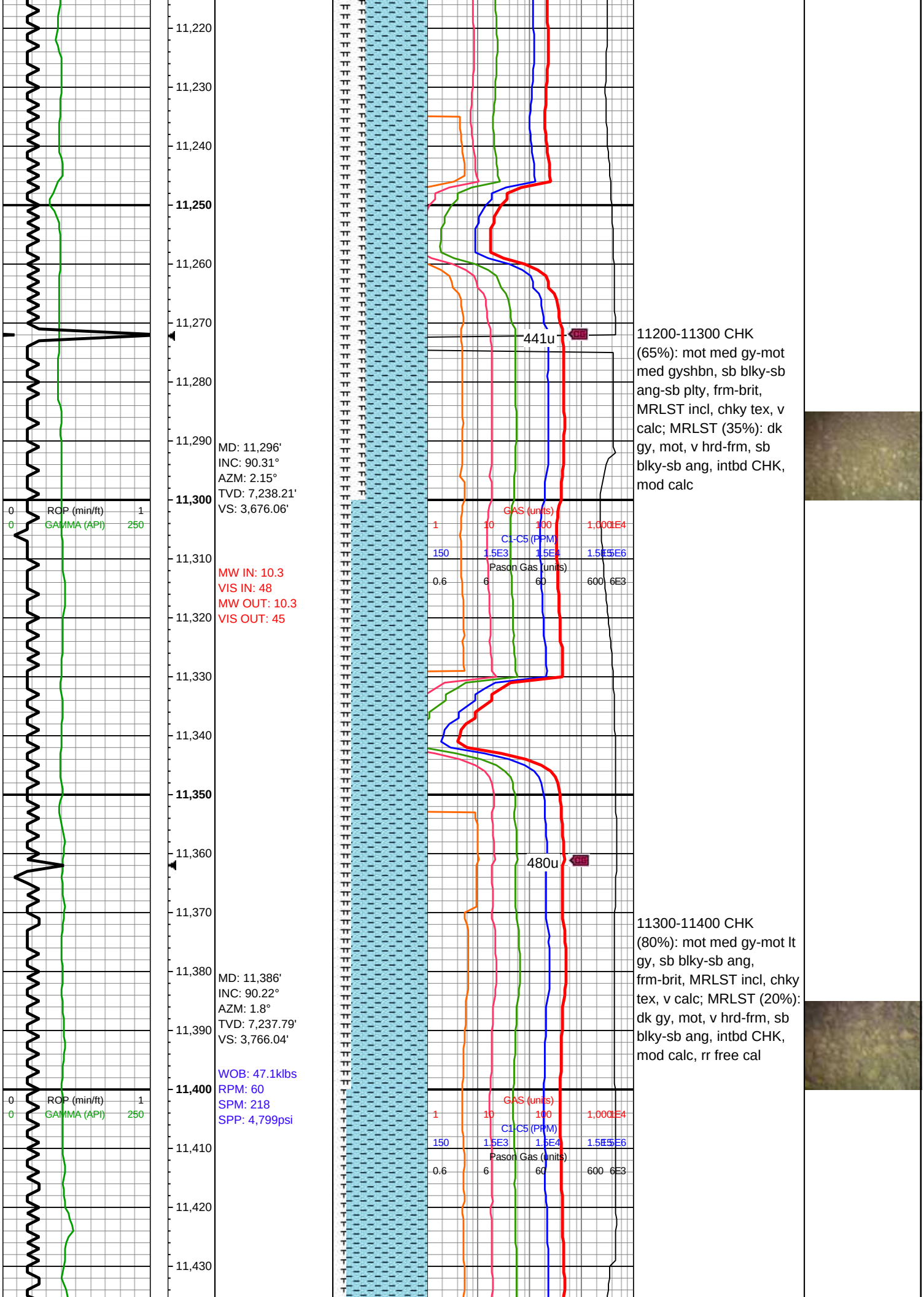
10500-10600 CHK (85%): mot lt gy-mot gyshbn, sb blky-sb ang-sb plty, frm-brit, MRLST incl, chky tex, v calc; MRLST (15%): v dk gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, occ free pyr

10600-10700 CHK (90%): predy mot lt gy-mot gyshbn, sb blky-sb ang-sb plty, frm-brit, MRLST incl, chky tex, v calc; MRLST (10%): v dk gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, sme free pyr

10700-10800 CHK (65%): mot med gyshbn

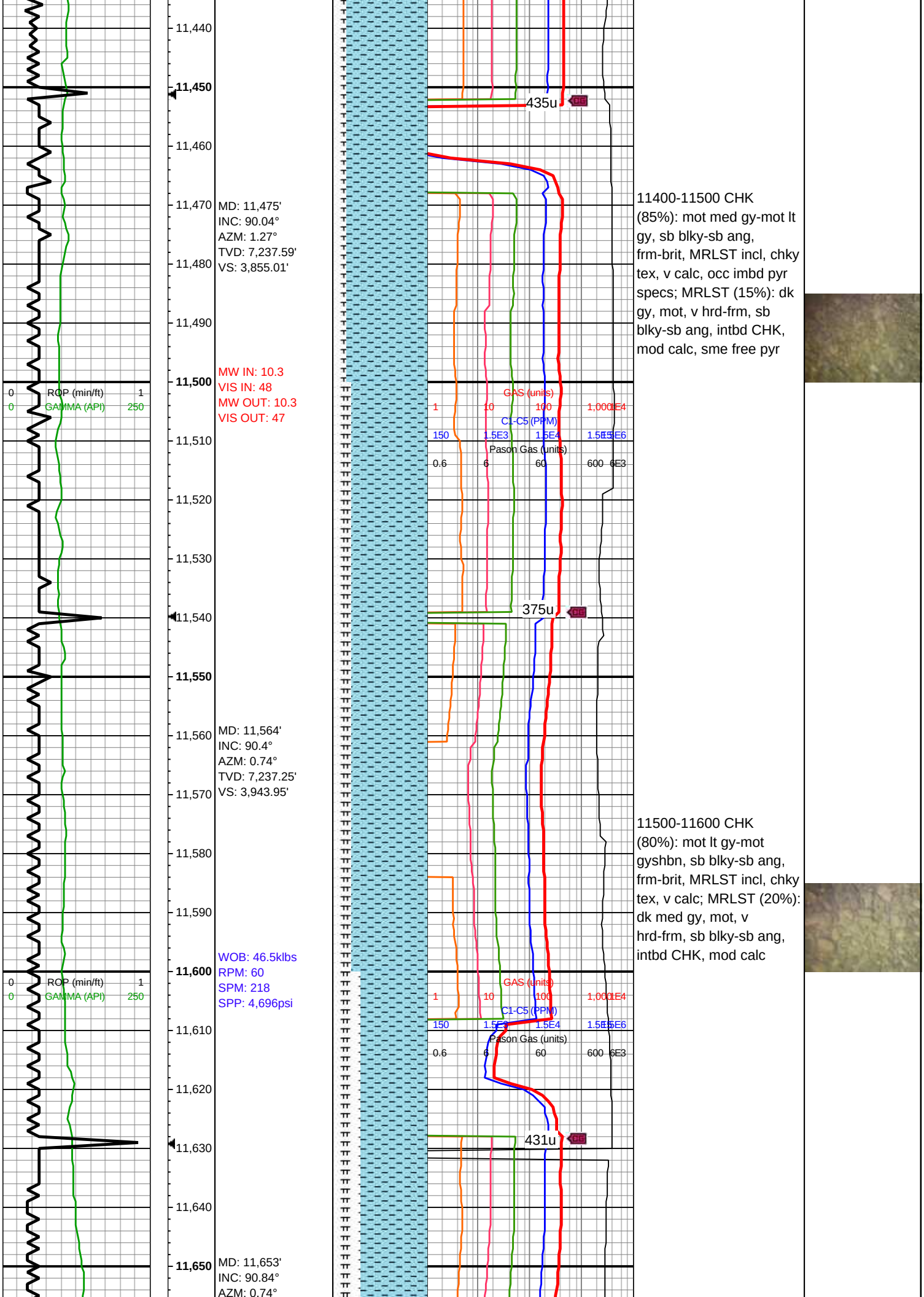

0 ROP (min/ft) 1
0 GAMMA (API) 250
10,780
10,790
10,800
10,810
10,820
10,830
10,840
10,850
10,860
10,870
10,880
10,890
10,900
10,910
10,920
10,930
10,940
10,950
10,960
10,970
10,980
10,990
WOB: 44.1klbs
RPM: 60
SPM: 220
SPP: 4,576psi
MW IN: 10.3
VIS IN: 48
MW OUT: 10.2+
VIS OUT: 45
MD: 10,851'
INC: 89.78°
AZM: 1.09°
TVD: 7,239.79'
VS: 3,231.3'
MD: 10,940'
INC: 89.69°
AZM: 0.92°
TVD: 7,240.2'
VS: 3,320.25'
MW IN: 10.2+
VIS IN: 48
MW OUT: 10.2
VIS OUT: 45
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
948u
325u
(65%): mot med gyshbn, sb blky-sb ang-sb plty, v frm-brit, MRLST incl, chky tex, v calc; MRLST (35%): dk gy-dk med gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, sme free pyr
10800-10900 CHK (75%): mot med gyshbn, sb blky-sb ang-sb plty, v frm-brit, MRLST incl, chky tex, v calc; MRLST (25%): dk med gy, mot, v hrd, sb blky-sb ang, intbd CHK, mod calc, occ free pyr
10900-11000 CHK (70%): mot med gyshbn-mot dk gyshbn, sb blky-sb ang-sb plty, v frm-brit, MRLST incl, chky tex, v calc; MRLST (30%): dk gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc, sme free pyr


0 ROP (min/ft) 1
0 GAMMA (API) 250
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
11,150
11,160
11,170
11,180
11,190
11,200
11,210
WOB: 46.3klbs
RPM: 60
SPM: 218
SPP: 4,569psi
MD: 11,029'
INC: 90.22°
AZM: 0.92°
TVD: 7,240.27'
VS: 3,409.19'
On Gas Buster
MD: 11,118'
INC: 91.19°
AZM: 0.57°
TVD: 7,239.17'
VS: 3,498.11'
MW IN: 10.2+
VIS IN: 48
MW OUT: 10.2
VIS OUT: 45
WOB: 56.2klbs
RPM: 29
SPM: 218
SPP: 3,842psi
MD: 11,207'
INC: 89.87°
AZM: 2.5°
TVD: 7,238.35'
VS: 3,587.07'
GAS (units)
1 10 100 1,000 1E4
422u
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
728u
472u
11000-11100 CHK (65%): mot med gyshbn-mot lt gy, sb blky-sb ang-sb plty, v frm-brit, MRLST incl, chky tex, v calc; MRLST (35%): dk gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc, tr free pyr
11100-11200 CHK (70%): mot lt gy-mot med gy, sb blky-sb ang-sb plty, frm-brit, MRLST incl, chky tex, v calc; MRLST (30%): dk gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc, sme free pyr



11200-11300 CHK (65%): mot med gy-mot med gyshbn, sb blky-sb ang-sb plty, frm-brit, MRLST incl, chky tex, v calc; MRLST (35%): dk gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc

11300-11400 CHK (80%): mot med gy-mot lt gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc; MRLST (20%): dk gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc, rr free cal



11400-11500 CHK (85%): mot med gy-mot lt gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, occ imbd pyr specs; MRLST (15%): dk gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc, sme free pyr

11500-11600 CHK (80%): mot lt gy-mot gyshbn, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc; MRLST (20%): dk med gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc

TVD: 7,236.29'
VS: 4,032.88'

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 45

0 ROP (min/ft) 1
0 GAMMA (API) 250

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
363u
OIL

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
11,810
11,820
11,830
11,840
11,850
11,860
11,870

MD: 11,742'
INC: 89.87°
AZM: 1.09°
TVD: 7,235.73'
VS: 4,121.81'

WOB: 46.7klbs
RPM: 60
SPM: 218
SPP: 4,703psi

0 ROP (min/ft) 1
0 GAMMA (API) 250

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
370u
OIL
Pason Gas (units)
0.6 6 60 600 6E3

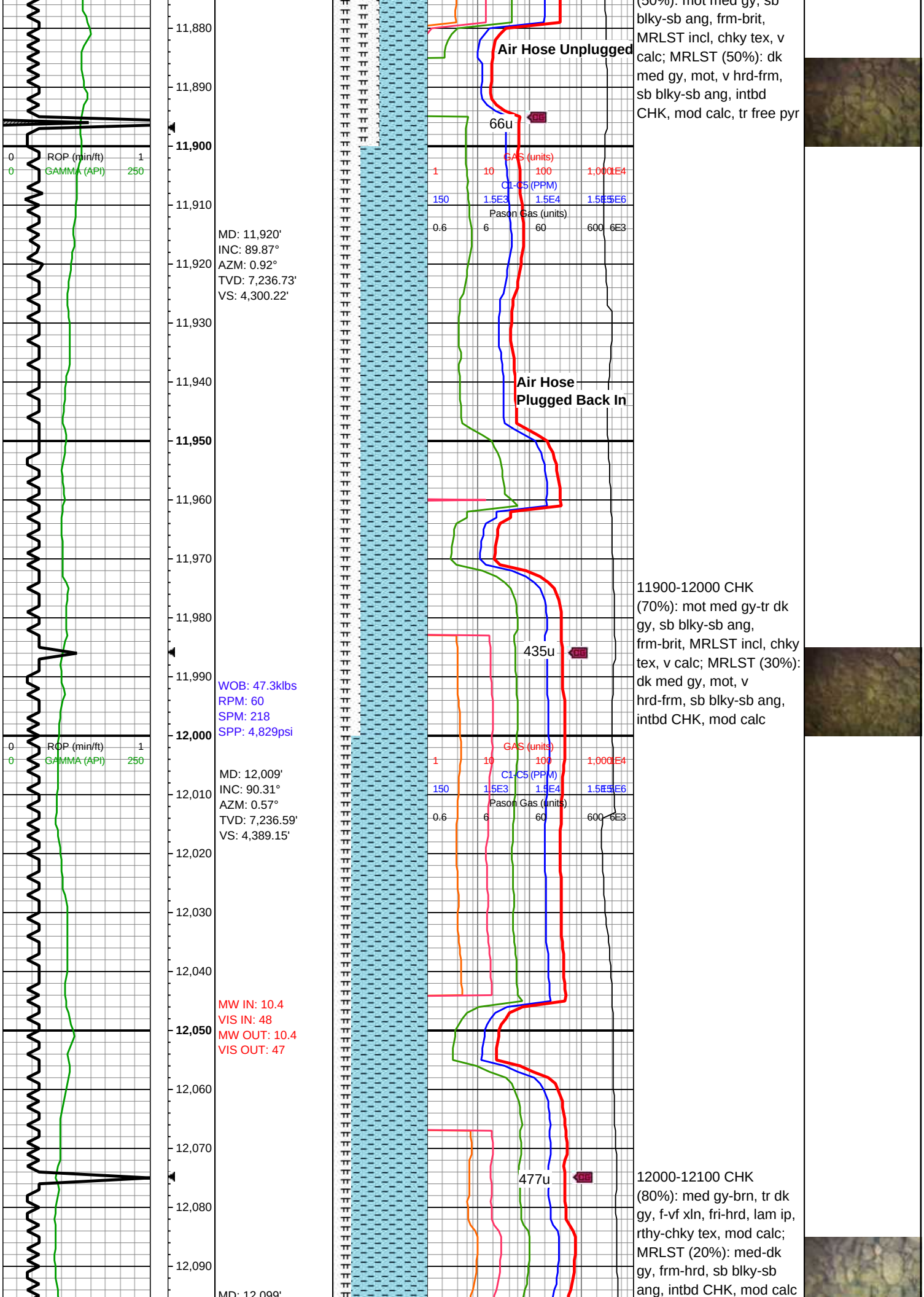
MD: 11,831'
INC: 89.52°
AZM: 1.09°
TVD: 7,236.21'
VS: 4,210.76'

MW IN: 10.4
VIS IN: 47
MW OUT: 10.4
VIS OUT: 46

11600-11700 CHK (70%): mot med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc; MRLST (30%): dk gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc, tr free pyr

11700-11800 CHK (60%): mot med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc, sme imbd pyr specs; MRLST (40%): dk gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc, sme free pyr

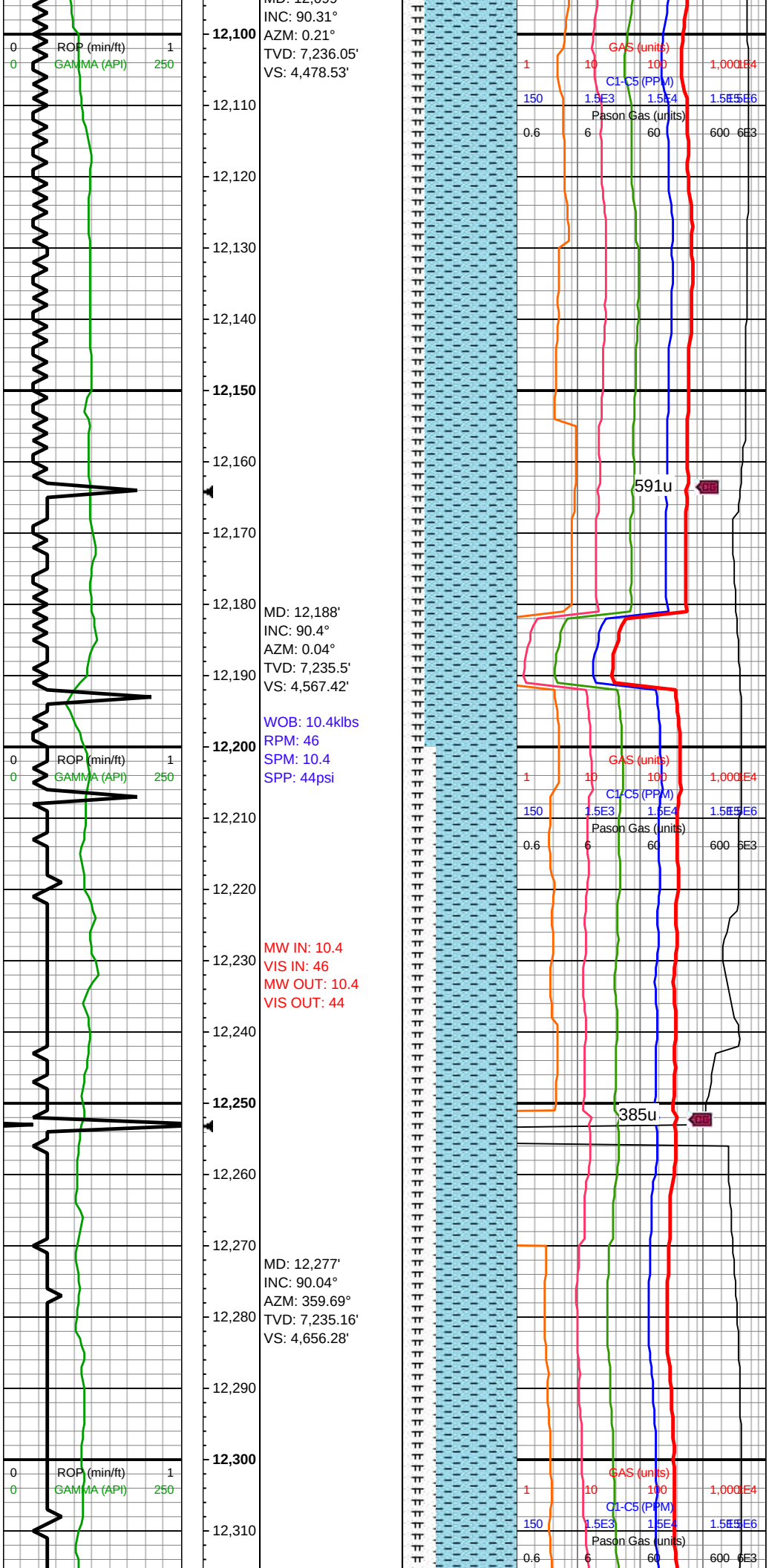
11800-11900 CHK (50%): mot med gy, sb



(50%): mot med gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc; MRLST (50%): dk med gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc, tr free pyr

11900-12000 CHK (70%): mot med gy-tr dk gy, sb blky-sb ang, frm-brit, MRLST incl, chky tex, v calc; MRLST (30%): dk med gy, mot, v hrd-frm, sb blky-sb ang, intbd CHK, mod calc

12000-12100 CHK (80%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (20%): med-dk gy, frm-hrd, sb blky-sb ang, intbd CHK, mod calc



INC: 90.31°
AZM: 0.21°
TVD: 7,236.05'
VS: 4,478.53'

MD: 12,188'
INC: 90.4°
AZM: 0.04°
TVD: 7,235.5'
VS: 4,567.42'

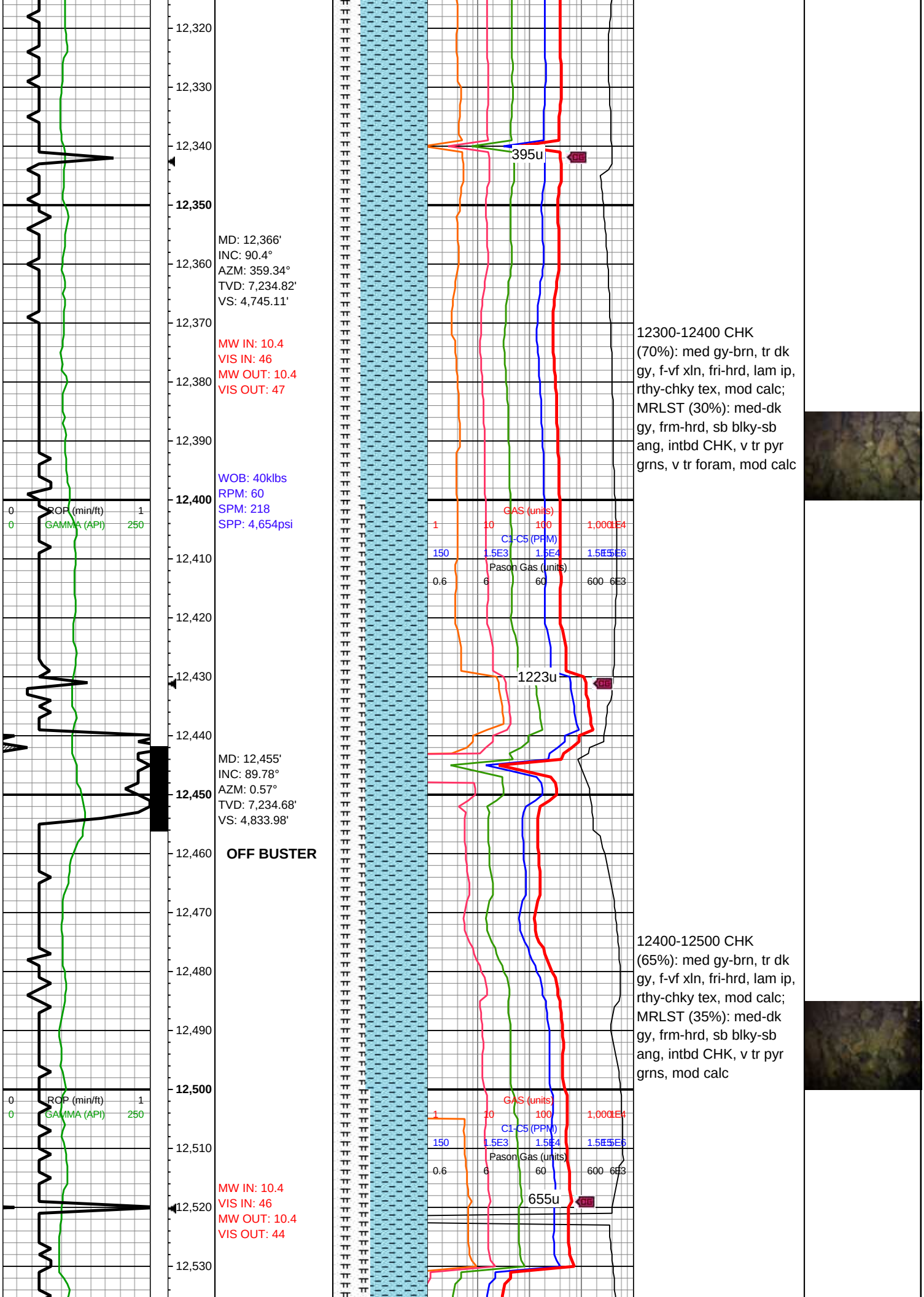
WOB: 10.4klbs
RPM: 46
SPM: 10.4
SPP: 44psi

MW IN: 10.4
VIS IN: 46
MW OUT: 10.4
VIS OUT: 44

MD: 12,277'
INC: 90.04°
AZM: 359.69°
TVD: 7,235.16'
VS: 4,656.28'

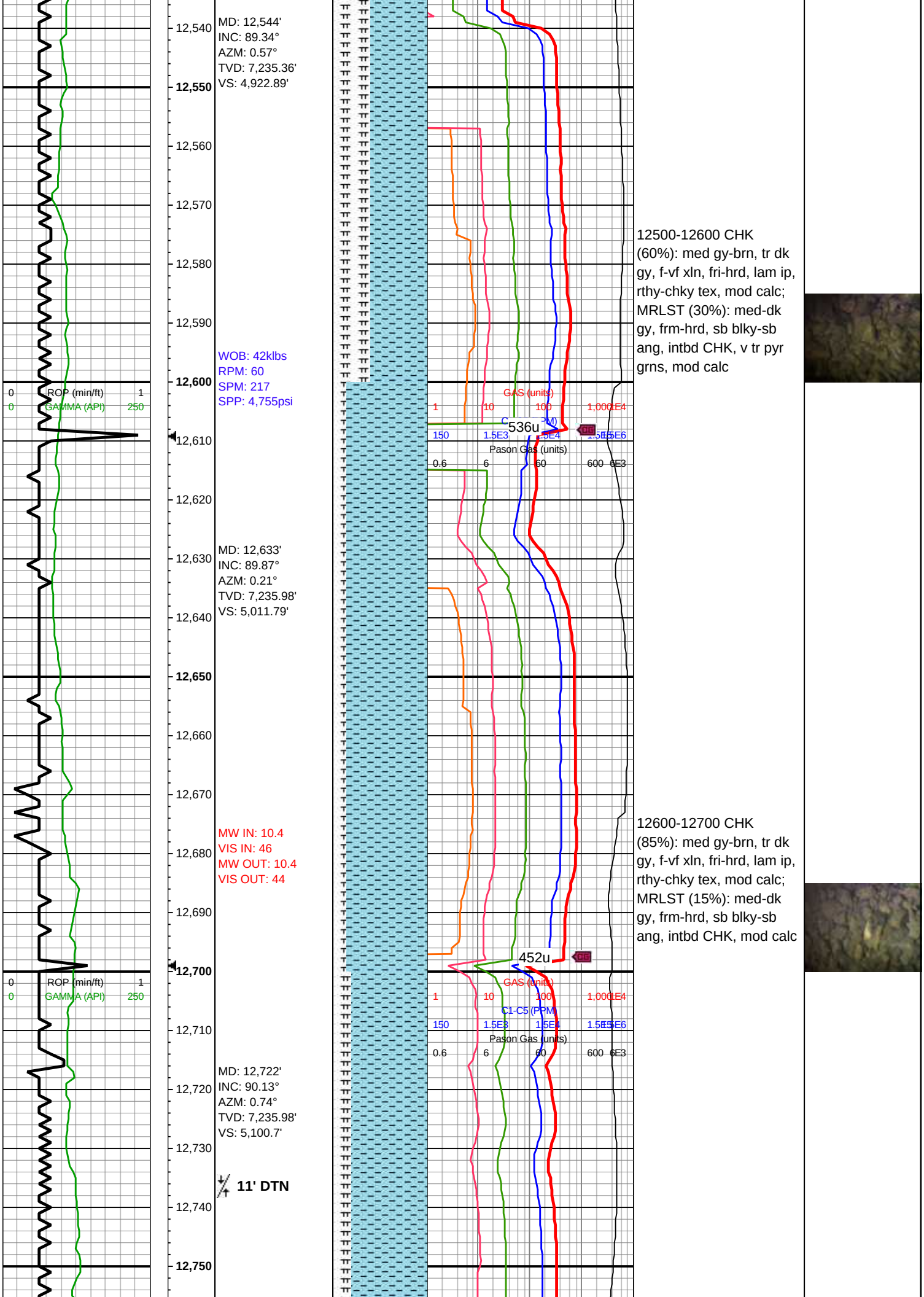
12100-12200 CHK (80%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (20%): med-dk gy, frm-hrd, sb blky-sb ang, intbd CHK, mod calc

12200-12300 CHK (70%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (30%): med-dk gy, frm-hrd, sb blky-sb ang, intbd CHK, v tr pyr grns, v tr foram, mod calc



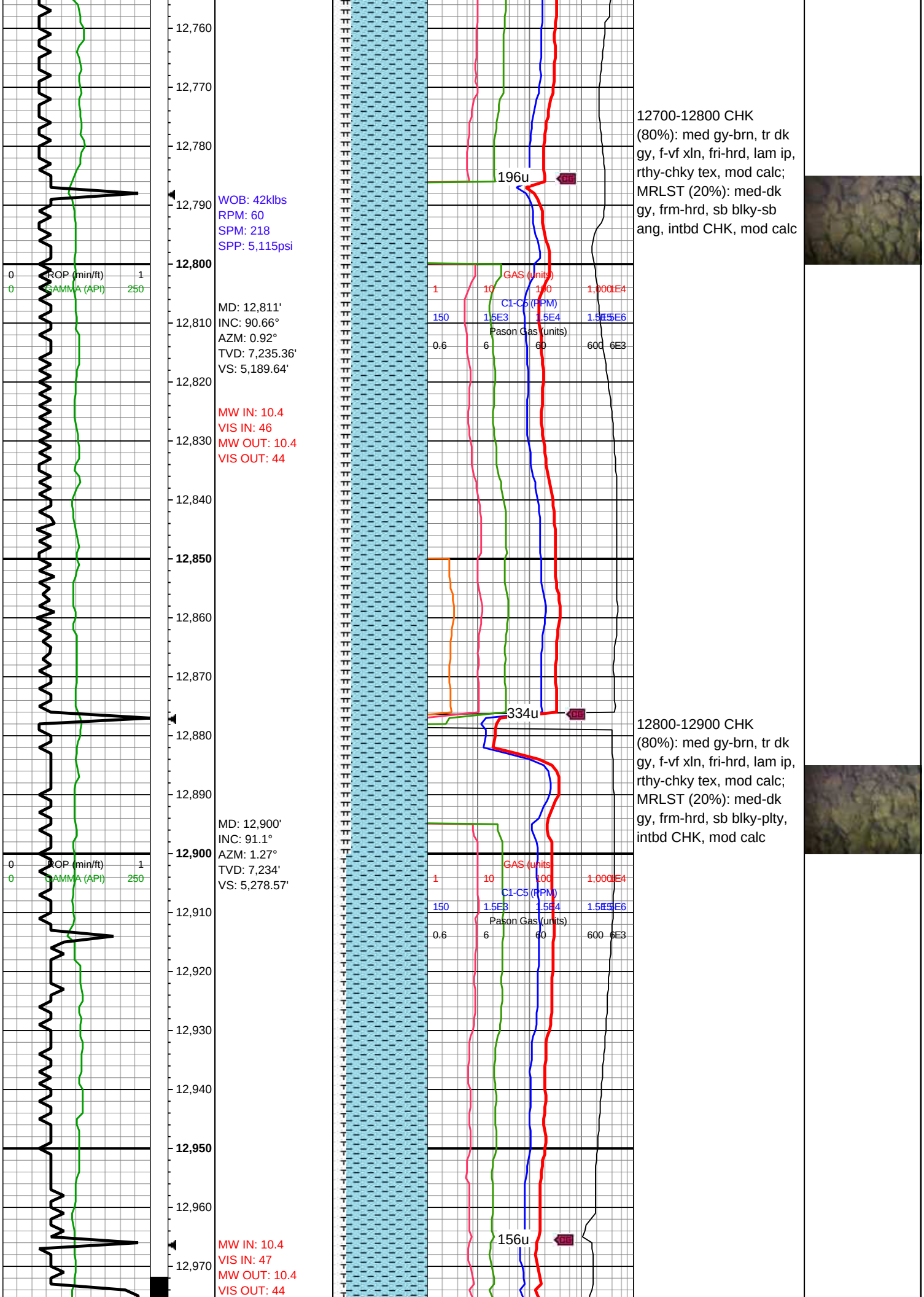
12300-12400 CHK (70%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (30%): med-dk gy, frm-hrd, sb blky-sb ang, intbd CHK, v tr pyr grns, v tr foram, mod calc

12400-12500 CHK (65%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (35%): med-dk gy, frm-hrd, sb blky-sb ang, intbd CHK, v tr pyr grns, mod calc



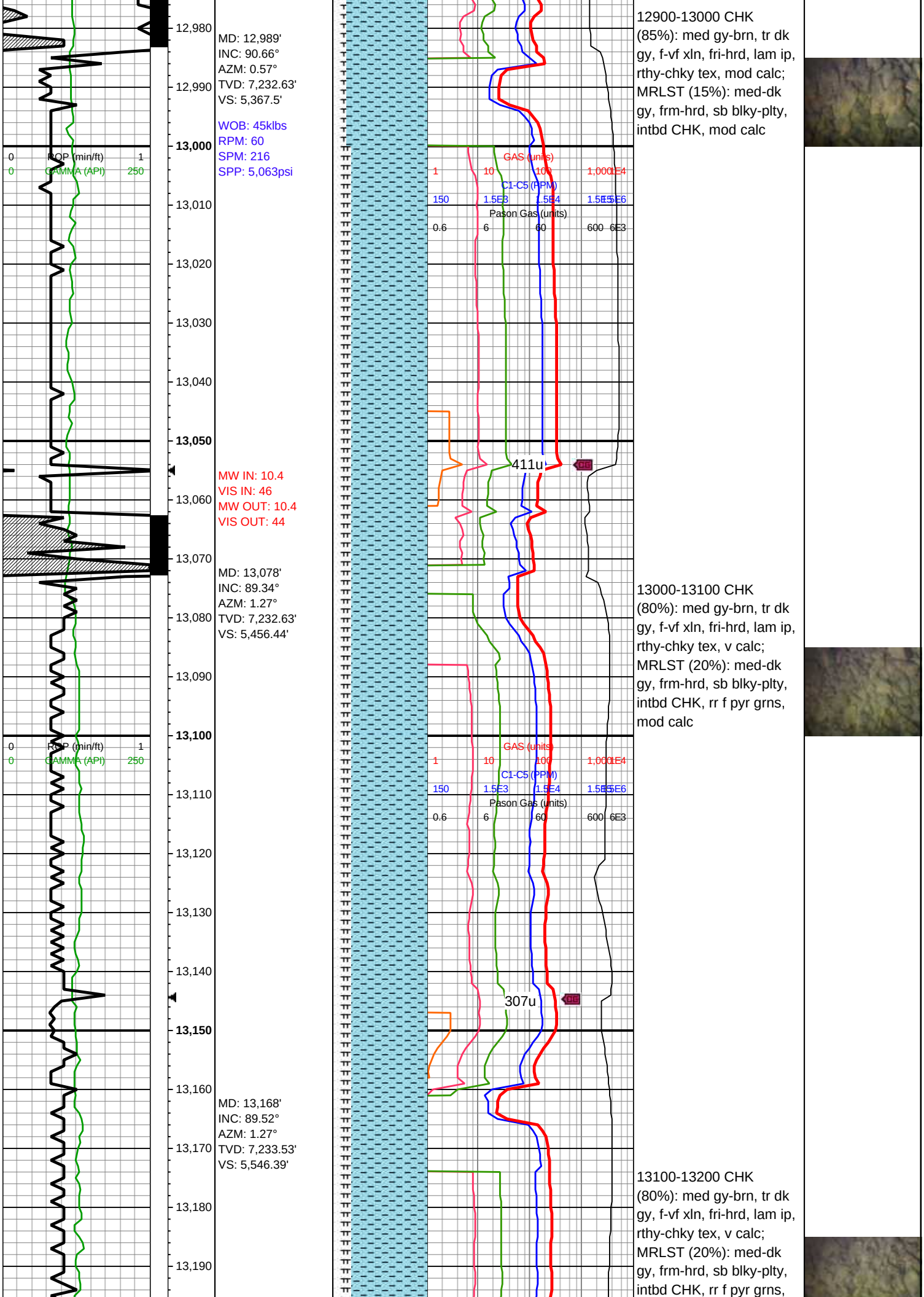
12500-12600 CHK (60%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (30%): med-dk gy, frm-hrd, sb blky-sb ang, intbd CHK, v tr pyr grns, mod calc

12600-12700 CHK (85%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (15%): med-dk gy, frm-hrd, sb blky-sb ang, intbd CHK, mod calc



12700-12800 CHK (80%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (20%): med-dk gy, frm-hrd, sb blky-sb ang, intbd CHK, mod calc

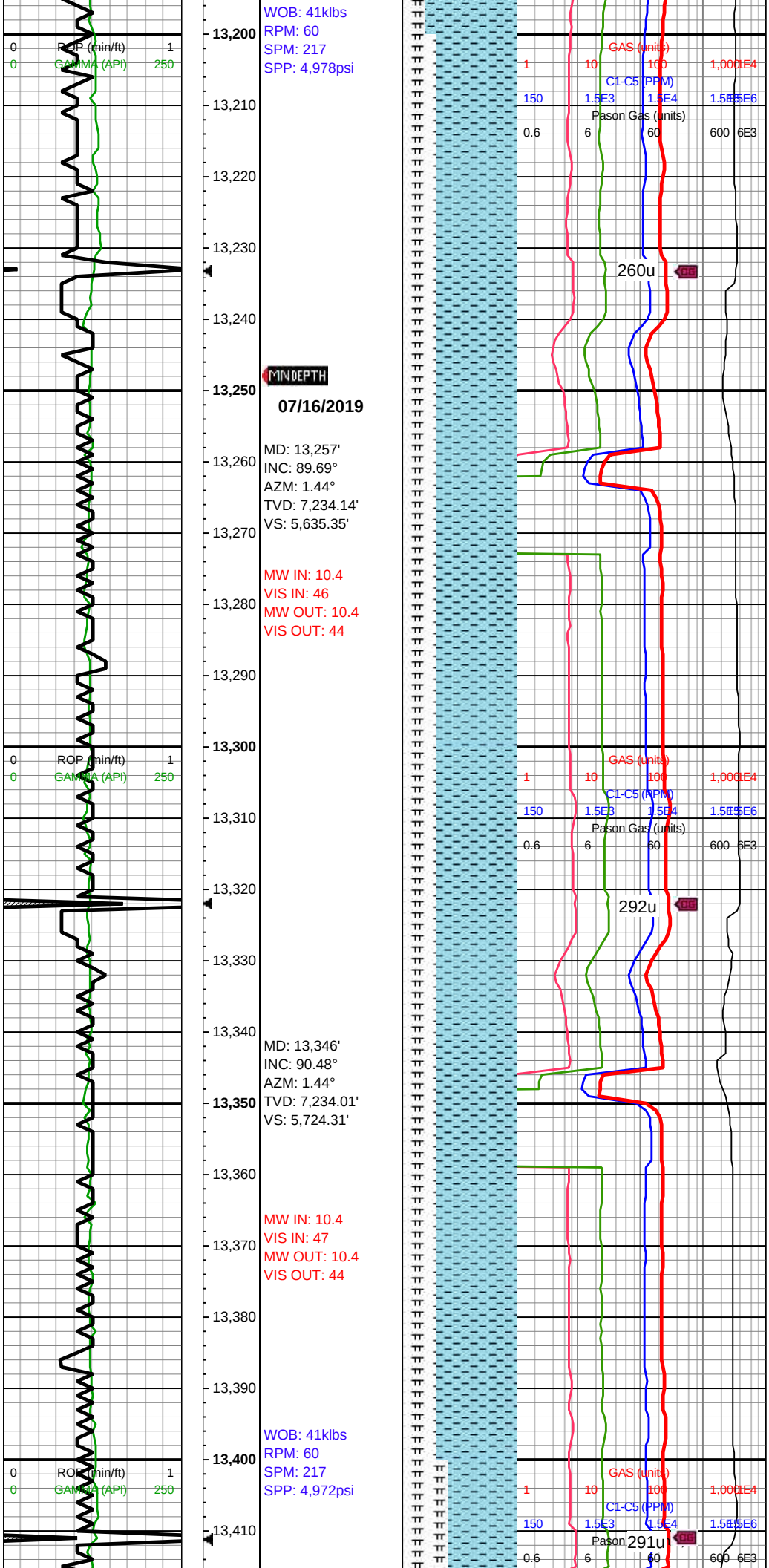
12800-12900 CHK (80%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (20%): med-dk gy, frm-hrd, sb blky-plty, intbd CHK, mod calc

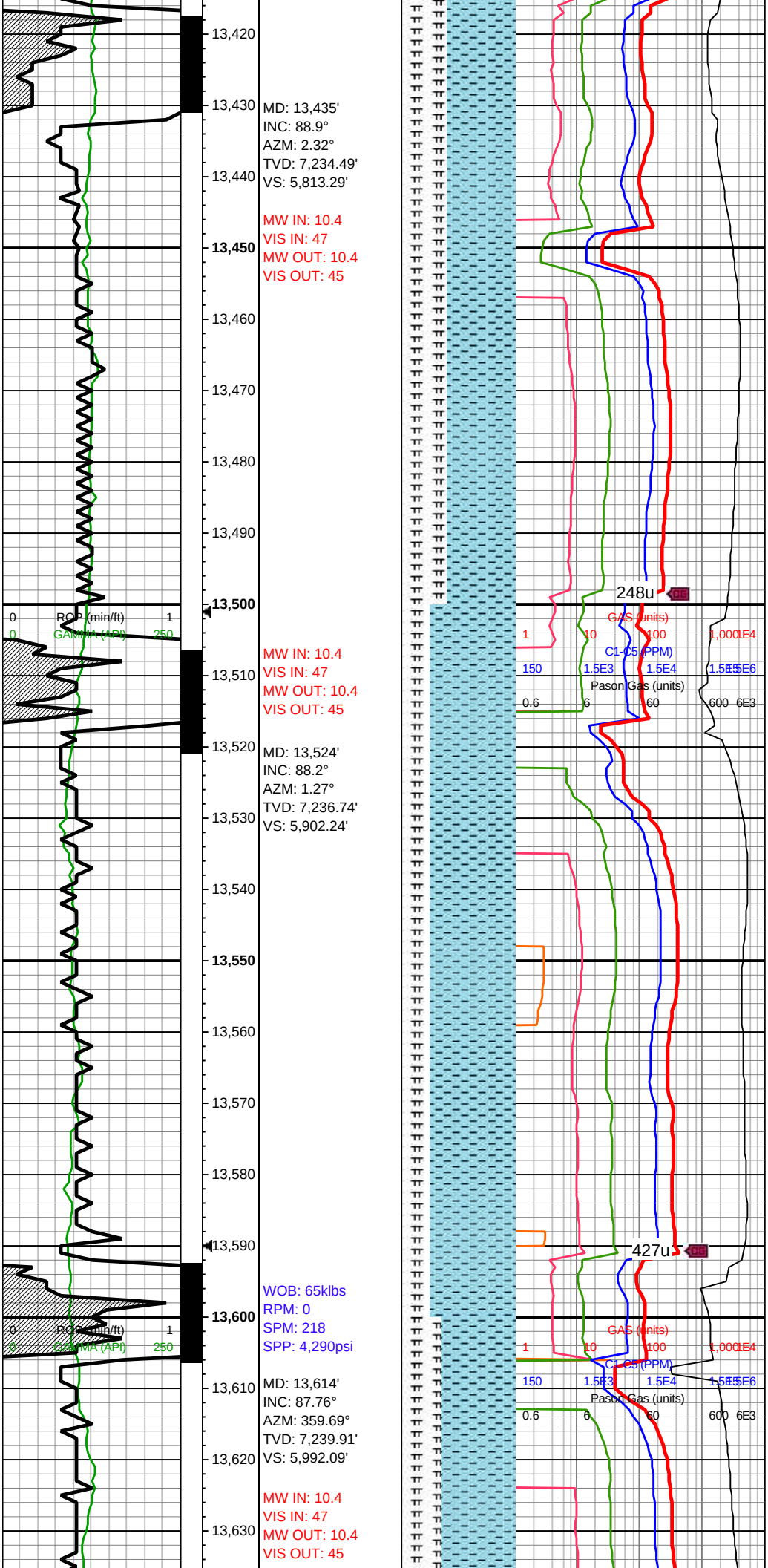


12900-13000 CHK (85%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, mod calc; MRLST (15%): med-dk gy, frm-hrd, sb blky-plty, intbd CHK, mod calc

13000-13100 CHK (80%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, v calc; MRLST (20%): med-dk gy, frm-hrd, sb blky-plty, intbd CHK, rr f pyr grns, mod calc

13100-13200 CHK (80%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, v calc; MRLST (20%): med-dk gy, frm-hrd, sb blky-plty, intbd CHK, rr f pyr grns,


0 ROP (min/ft) 1
0 GAMMA (API) 250
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
13,350
13,360
13,370
13,380
13,390
13,400
13,410
WOB: 41klbs
RPM: 60
SPM: 217
SPP: 4,978psi
MNDEPTH
07/16/2019
MD: 13,257'
INC: 89.69°
AZM: 1.44°
TVD: 7,234.14'
VS: 5,635.35'
MW IN: 10.4
VIS IN: 46
MW OUT: 10.4
VIS OUT: 44
MD: 13,346'
INC: 90.48°
AZM: 1.44°
TVD: 7,234.01'
VS: 5,724.31'
MW IN: 10.4
VIS IN: 47
MW OUT: 10.4
VIS OUT: 44
WOB: 41klbs
RPM: 60
SPM: 217
SPP: 4,972psi
GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3
260u
292u
291u
mod calc
13200-13300 CHK (70%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, v calc; MRLST (30%): med-dk gy, frm-hrd, sb blky-plty, intbd CHK, v rr f pyr grns, mod calc
13300-13400 CHK (70%): med gy-brn, tr dk gy, f-vf xln, fri-hrd, lam ip, rthy-chky tex, v calc; MRLST (30%): med-dk gy, frm-hrd, sb blky-plty, intbd CHK, v rr f pyr grns, mod calc



MD: 13,435'
INC: 88.9°
AZM: 2.32°
TVD: 7,234.49'
VS: 5,813.29'

MW IN: 10.4
VIS IN: 47
MW OUT: 10.4
VIS OUT: 45

13400-13500 CHK (60%): gy-gyshbn wi occ v thn chky lamn ip, frm-brit, mod fis sb blky-blky ctngs wi sm arg-sl slty tex, tr forams & fos frags, hi calc; MRLST (40%): dk gy, frm-brit sb ang-sb blky ctngs wi sm-sl slty tex, mod fis, tr pyr strg ip, mod calc

MW IN: 10.4
VIS IN: 47
MW OUT: 10.4
VIS OUT: 45

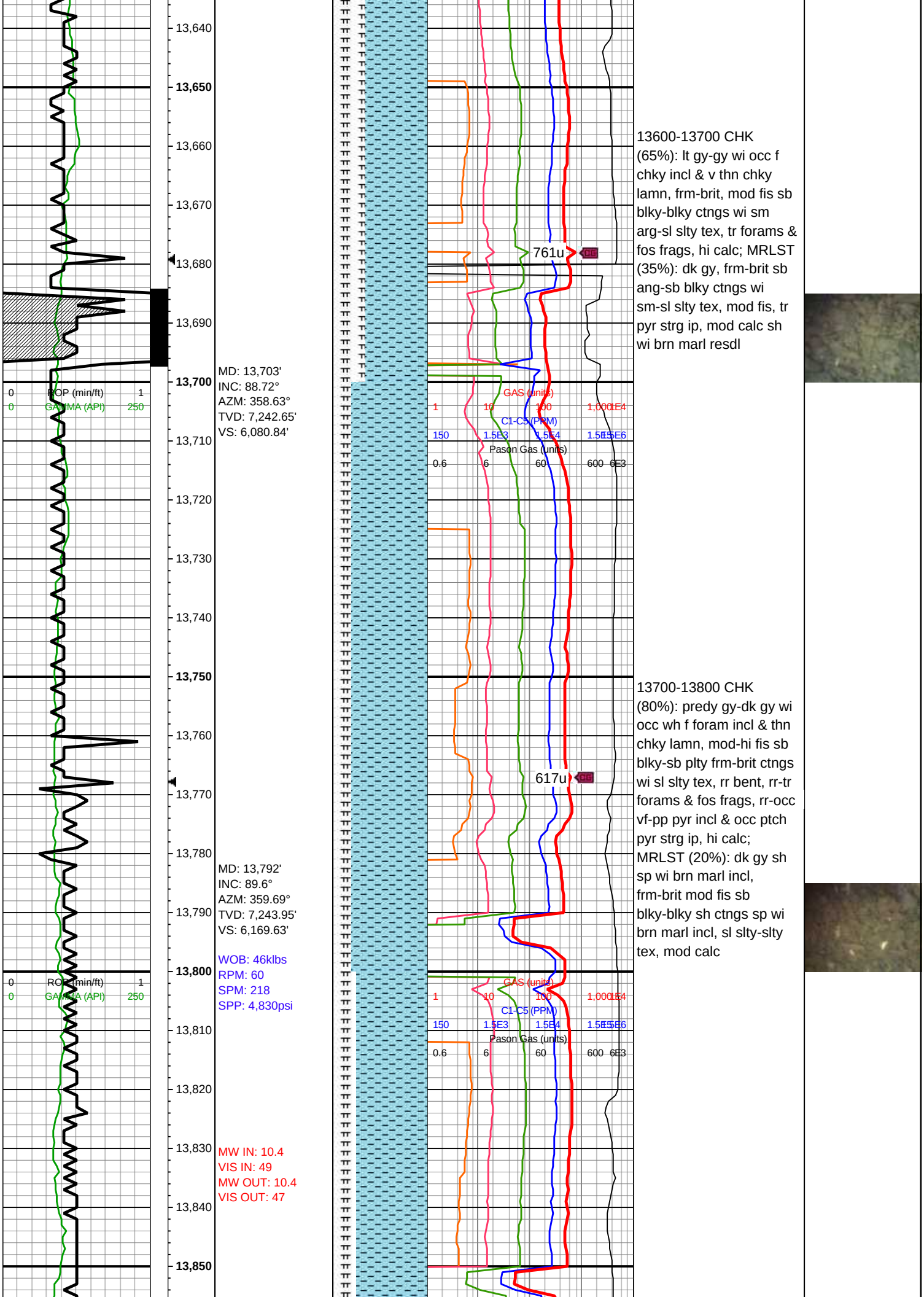
MD: 13,524'
INC: 88.2°
AZM: 1.27°
TVD: 7,236.74'
VS: 5,902.24'

13500-13600 CHK (75%): med gy, rr lt gy-dk gy, frm-brit mod fis sb blky-blky ctngs wi sm arg-sl slty tex, rr forams, tr fos frags, hi calc; MRLST (25%): dk gy, frm-brit sb ang-sb blky ctngs wi sm-sl slty tex, mod fis, tr pyr strg ip, mod calc wi brn mrly resdl

WOB: 65klbs
RPM: 0
SPM: 218
SPP: 4,290psi

MD: 13,614'
INC: 87.76°
AZM: 359.69°
TVD: 7,239.91'
VS: 5,992.09'

MW IN: 10.4
VIS IN: 47
MW OUT: 10.4
VIS OUT: 45



MD: 13,703'
INC: 88.72°
AZM: 358.63°
TVD: 7,242.65'
VS: 6,080.84'

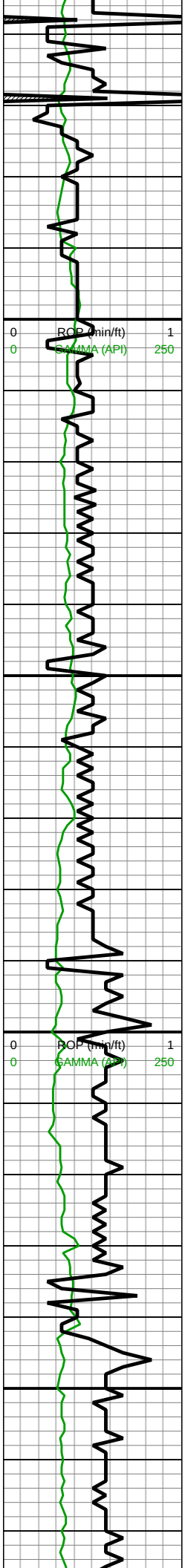
MD: 13,792'
INC: 89.6°
AZM: 359.69°
TVD: 7,243.95'
VS: 6,169.63'

WOB: 46klbs
RPM: 60
SPM: 218
SPP: 4,830psi

MW IN: 10.4
VIS IN: 49
MW OUT: 10.4
VIS OUT: 47

13600-13700 CHK (65%): lt gy-gy wi occ f chky incl & v thn chky lamn, frm-brit, mod fis sb blky-blky ctngs wi sm arg-sl slty tex, tr forams & fos frags, hi calc; MRLST (35%): dk gy, frm-brit sb ang-sb blky ctngs wi sm-sl slty tex, mod fis, tr pyr strg ip, mod calc sh wi brn marl resdl

13700-13800 CHK (80%): predy gy-dk gy wi occ wh f foram incl & thn chky lamn, mod-hi fis sb blky-sb plty frm-brit ctngs wi sl slty tex, rr bent, rr-tr forams & fos frags, rr-occ vf-pp pyr incl & occ ptch pyr strg ip, hi calc; MRLST (20%): dk gy sh sp wi brn marl incl, frm-brit mod fis sb blky-blky sh ctngs sp wi brn marl incl, sl slty-slty tex, mod calc



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
14,010
14,020
14,030
14,040
14,050
14,060
14,070

MD: 13,881'
INC: 89.96°
AZM: 359.51°
TVD: 7,244.29'
VS: 6,258.47'

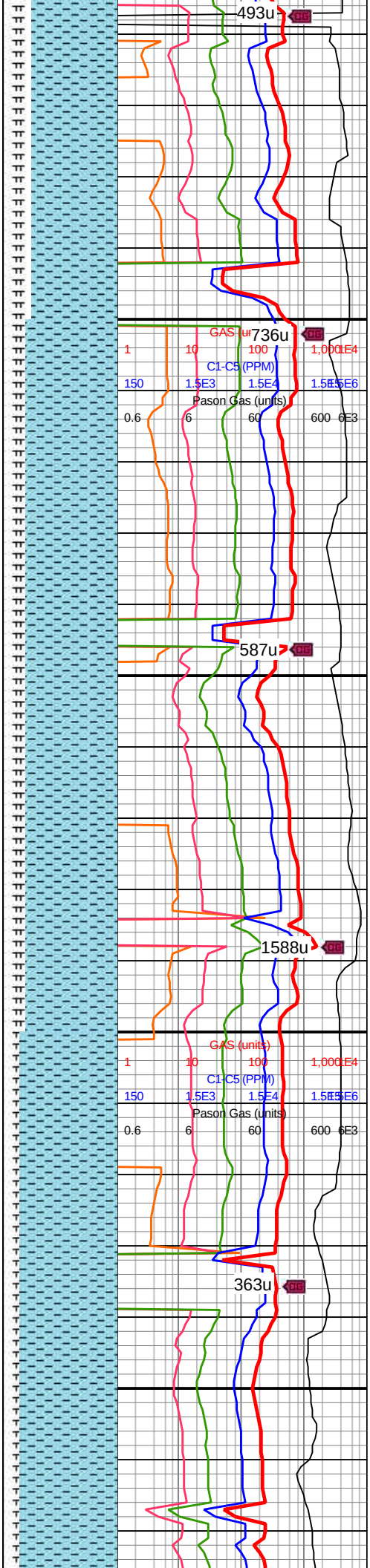
MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 47

MD: 13,970'
INC: 90.48°
AZM: 359.16°
TVD: 7,243.95'
VS: 6,347.28'

MW IN: 10.4
VIS IN: 46
MW OUT: 10.4
VIS OUT: 46

WOB: 42klbs
RPM: 60
SPM: 220
SPP: 4,870psi

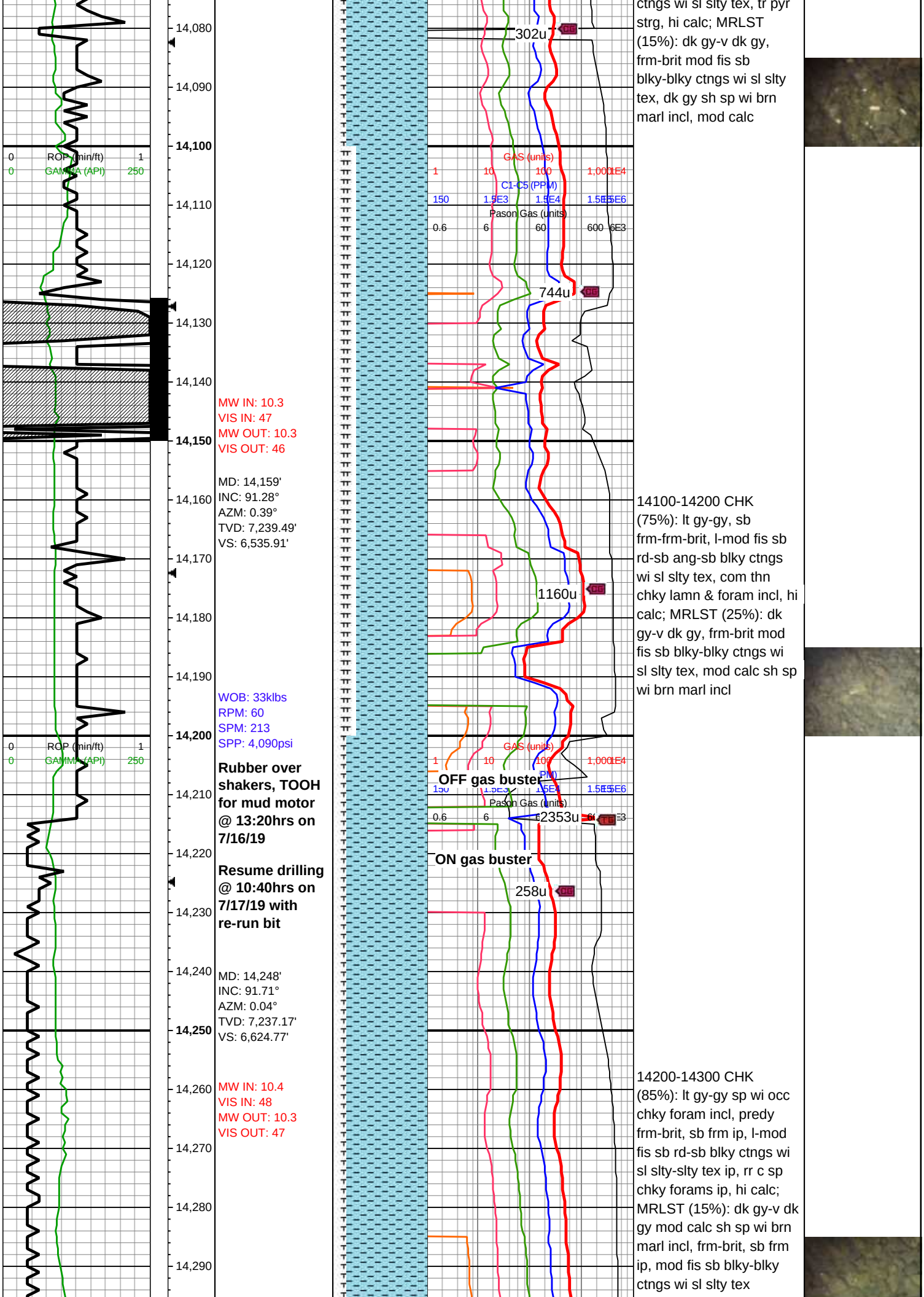
MD: 14,059'
INC: 91.8°
AZM: 359.69°
TVD: 7,242.18'
VS: 6,436.08'



13800-13900 CHK (75%): med gy, rr lt gy-dk gy, frm-brit mod fis sb blky-blky ctngs wi sm arg-sl slty tex, rr-tr fos frags & c sp forams, hi calc; MRLST (25%): dk gy, frm-brit sb ang-sb blky ctngs wi sm-sl slty tex, mod fis, tr pyr strg ip, tr bent, mod calc wi brn mrly resdl

13900-14000 CHK (80%): lt gy-gy, sb frm-frm-brit, l-mod fis sb rd-sb ang-sb blky ctngs wi sl slty tex, com thn chky lamn & foram incl, hi calc; MRLST (20%): dk gy-v dk gy, frm-brit mod fis sb blky-blky ctngs wi sl slty tex, dk gy sh sp wi brn marl incl, mod calc

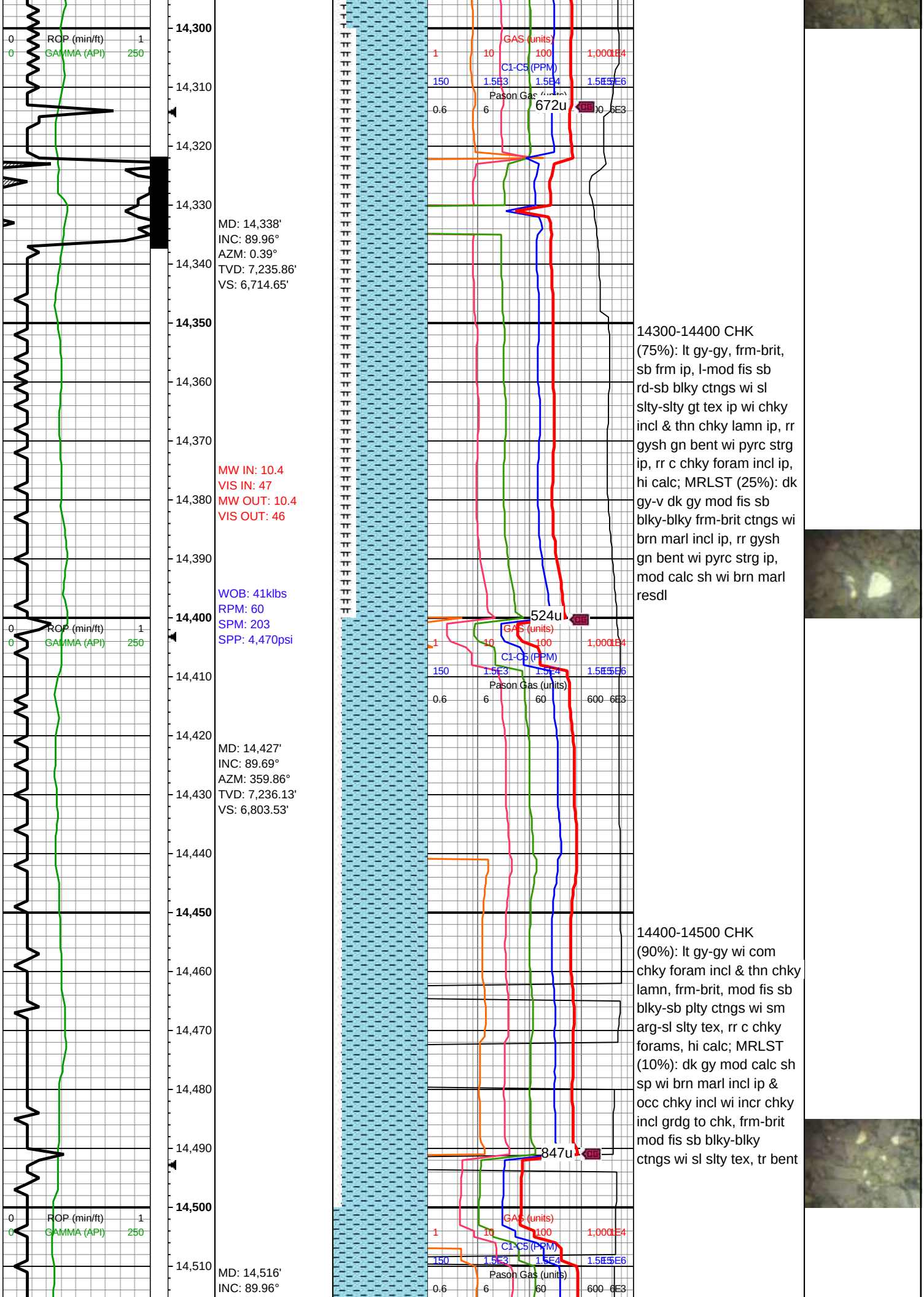
14000-14100 CHK (85%): lt gy-gy v arg LS-calc sh sp wi chky foram incl & thn chky lamn, sb frm-frm-brit, mod fis sb ang-sb blky



ctngs wi sl slty tex, tr pyr strg, hi calc; MRLST (15%): dk gy-v dk gy, frm-brit mod fis sb blky-blky ctngs wi sl slty tex, dk gy sh sp wi brn marl incl, mod calc

14100-14200 CHK (75%): lt gy-gy, sb frm-frm-brit, l-mod fis sb rd-sb ang-sb blky ctngs wi sl slty tex, com thn chky lamn & foram incl, hi calc; MRLST (25%): dk gy-v dk gy, frm-brit mod fis sb blky-blky ctngs wi sl slty tex, mod calc sh sp wi brn marl incl

14200-14300 CHK (85%): lt gy-gy sp wi occ chky foram incl, predy frm-brit, sb frm ip, l-mod fis sb rd-sb blky ctngs wi sl slty-slty tex ip, rr c sp chky forams ip, hi calc; MRLST (15%): dk gy-v dk gy mod calc sh sp wi brn marl incl, frm-brit, sb frm ip, mod fis sb blky-blky ctngs wi sl slty tex



14300-14400 CHK (75%): lt gy-gy, frm-brit, sb frm ip, l-mod fis sb rd-sb blky ctngs wi sl slty-slty gt tex ip wi chky incl & thn chky lamn ip, rr gysh gn bent wi pyrc strg ip, rr c chky foram incl ip, hi calc; MRLST (25%): dk gy-v dk gy mod fis sb blky-blky frm-brit ctngs wi brn marl incl ip, rr gysh gn bent wi pyrc strg ip, mod calc sh wi brn marl resdl

14400-14500 CHK (90%): lt gy-gy wi com chky foram incl & thn chky lamn, frm-brit, mod fis sb blky-sb plty ctngs wi sm arg-sl slty tex, rr c chky forams, hi calc; MRLST (10%): dk gy mod calc sh sp wi brn marl incl ip & occ chky incl wi incr chky incl grdg to chk, frm-brit mod fis sb blky-blky ctngs wi sl slty tex, tr bent

AZM: 359.86°
TVD: 7,236.4'
VS: 6,892.39'

14,520
14,530
14,540
14,550
14,560
14,570
14,580
14,590
14,600

0 ROP (min/ft) 1
0 GAMMA (API) 250

WOB: 41klbs
RPM: 60
SPM: 204
SPP: 4,580psi

MD: 14,605'
INC: 90.75°
AZM: 359.69°
TVD: 7,235.85'
VS: 6,981.25'

14,610
14,620
14,630
14,640
14,650

MW IN: 10.4
VIS IN: 47
MW OUT: 10.4
VIS OUT: 47

14,660
14,670
14,680
14,690

MD: 14,694'
INC: 89.43°
AZM: 0.74°
TVD: 7,235.71'
VS: 7,070.14'

14,700

0 ROP (min/ft) 1
0 GAMMA (API) 250

14,710
14,720
14,730

681u

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 5E6
Pason Gas (units)
0.6 6 60 600 6E3

14500-14600 CHK (100%): lt gy-gy wi com f-c forams & thn chky lamn, frm-brit, mod fis sb blky-sb plty ctngs wi sm arg-sl slty tex, rr-tr bent, hi calc, wi rr mrlst ip

386u

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 5E6
Pason Gas (units)
0.6 6 60 600 6E3

OFF gas buster

14600-14700 CHK (85%): lt gy-gy sp wi occ chky foram incl, predy frm-brit, sb frm ip, l-mod fis sb rd-sb blky ctngs wi sl slty-slty tex ip, rr c sp chky forams ip, hi calc; MRLST (15%): dk gy-v dk gy mod calc sh sp wi brn marl incl, frm-brit, sb frm ip, mod fis sb blky-blky ctngs wi sl slty tex

0 ROP (min/ft) 1
0 GAMMA (API) 250

14,740
14,750
14,760
14,770
14,780
14,790
14,800
14,810
14,820
14,830
14,840
14,850
14,860
14,870
14,880
14,890
14,900
14,910
14,920
14,930
14,940
14,950

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 46

MD: 14,783'
INC: 89.43°
AZM: 0.57°
TVD: 7,236.6'
VS: 7,159.05'

WOB: 42klbs
RPM: 60
SPM: 205
SPP: 4,540psi

MD: 14,873'
INC: 90.04°
AZM: 0.39°
TVD: 7,237.01'
VS: 7,248.96'

MD: 14,962'

2507u

ON gas buster

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1E6
Pason Gas (units)
0.6 6 60 600 6E3

861u

14700-14800 CHK (90%): lt gy-gy spec wi com chky foram incl & thn chky lamn ip, frm-brit mod fis sb blky-blky ctngs, sb rd l fis chk ip, rr c sp chky forams, tr cal & mict cal, hi calc; MRLST (10%): dk gy sh spec wi occ brn marl incl, frm-brit mod fis sb blky-blky ctngs wi sl slty tex, tr vf pyr, mod calc wi brn mrly resdl

14800-14900 CHK (100%): lt gy-gy wi com f-c forams & thn chky lamn, frm-brit, mod fis sb blky-sb plty ctngs wi sm arg-sl slty tex, rr-tr bent, hi calc, wi rr mrlst ip

INC: 90.84°
AZM: 0.39°
TVD: 7,236.33'
VS: 7,337.86'

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 46

WOB: 41klbs
RPM: 60
SPM: 204
SPP: 4,590psi

MD: 15,051'
INC: 91.1°
AZM: 0.21°
TVD: 7,234.82'
VS: 7,426.75'

MD: 15,130'
INC: 91.45°
AZM: 359.69°
TVD: 7,233.07'
VS: 7,505.61'

Reach TD of 15,195' @ 15:45hrs on 7/17/19

14,960
14,970
14,980
14,990
15,000
15,010
15,020
15,030
15,040
15,050
15,060
15,070
15,080
15,090
15,100
15,110
15,120
15,130
15,140
15,150
15,160
15,170

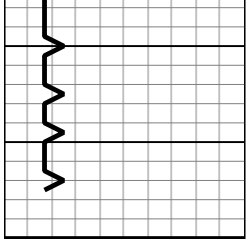
0 ROP (min/ft) 1
0 GAMMA (API) 250

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.6 6 60 600 6E3

14900-15000 CHK (100%): lt gy-gy wi com f-c forams & thn chky lamn, frm-brit, mod fis sb blky-sb plty ctngs wi sm arg-sl slty tex, rr-tr bent, hi calc, wi rr mrlst ip

15000-15100 CHK (90%): lt gy-gy spec wi com chky foram incl & thn chky lamn ip, frm-brit mod fis sb blky-blky ctngs, sb rd l fis chk ip, rr c sp chky forams, tr cal & mict cal, hi calc; MRLST (10%): dk gy sh spec wi occ brn marl incl, frm-brit mod fis sb blky-blky ctngs wi sl slty tex, tr vf pyr, mod calc wi brn mrly resdl

15100-15195 CHK (100%): lt gy-gy wi com



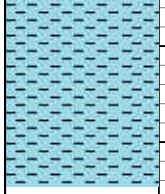
15,180

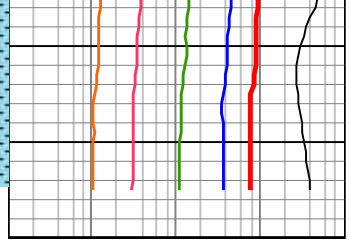
15,190

15,200

Bit Projection

MD: 15,195'
INC: 91.5°
AZM: 359.7°
TVD: 7,231.39'
VS: 7,570.48'





f-c forams & thn chky lamn, frm-brit, mod fis sb blky-sb plty ctngs wi sm arg-sl slty tex, rr-tr bent, hi calc, wi rr mrlst ip