RESERVOIR GROUP

Scale: 5" / 100'
Measured Depth Log

Well Name	Ruegge 3J-4H-N165		
Location	Sec. 4 T1N R65W		
State	Colorado	**County**	Weld
Country	USA	**Rig Number**	Ensign 140
API Number	05123465620000	**AFE #**	16190986
Geographic Region	Rockies	**Field**	Wattenberg
Spud Date	6/25/2018	**Drilling Completed**	6/27/2018
Surface Coordinates	Lat/Long: 40.075253/-104.670809 SHL: Sec: 4 Twp: 1N 65W Footage: 705 FSL 2126 FWL		
Bottom Hole Coordinates	Proposed BHL: Sec: 4 Twp: 1N 65W Footages: 460 FNL 2325 FWL		
Ground Elevation	4,915'	**K.B. Elevation**	4,938'
Logged Interval	6,500' **To** 12,064'	**Total Depth**	12,064'
Formation	Codell		
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

Name John Ready

Company Crestone Peak Resources

Address 370 17th Street #2170
Denver, CO 80202

CRESTONE PEAK
RESOURCES

Oil | Condensate | Gas
Note | Core | Pressure
Error | Water | Seal

Other

Loggers: Brian Ferwerda / Nick Watkins

Services Provided: 2-Man Mudlogging / Geosteering

Equipment: ML-533

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

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
BRACHOIPOD
BRYOZOA
CEPHALOPOD
CORAL
CRINOID
ECHINOID
FISH
FORAMINIFERA
FOSSIL
GASTROPOD
OOLITE
OSTRACOD
PELECYPOD
PELLET
PISOLITE
PLANT REMAINS
PLANT SPORES
SCAPHOPOD
STROMATOPOROID

Minerals

ANHYDRITIC
ARGILLACEOUS
ARGILLITE GRAIN
BENTONITE
BITUMENOUS SUBSTANCE
BRECCIA FRAGMENTS
CALCAREOUS
CARBONACEOUS FLAKES
CHTDK
CHTLT
COAL - THIN BEDS
DOLOMITIC
FELDSPAR
FERRUGINOUS PELLET
FERRUGINOUS
GLAUCONITE
GYPSIFEROUS
HEAVY MINERAL
KAOLIN
MARLSTONE
MINERAL CRYSTALS
NODULES
PHOSPHATE PELLETS
PYRITE
SALT CAST
SANDY
SILICEOUS
SILTY
TUFFACEOUS

Stringer

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

Other Symbols

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

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

Crestone Peak Resources

Ruegge 3J-4H-N165

9 5/8" Surface Casing @ 2,476'

Spud Date: 6/25/18
2 man Logging Began: 6/26/18 @ 6,500'

All Depths Correspond to Driller's Pipe Tally

Pason Gas (units) 0.065 0.65 6.5 65 650

6,460
6,470
6,480
6,490
6,500

Bit #: 1
Type: U516M
Size: 8 1/2
Depth In: 2,476'
Depth Out: 12,064'
Hours: 35.7 hrs
Avg Ft/Hr: 365 '/hr
Jets: 6x13
S/N: 37078

SYSTEM CALIBRATED
1% Methane = 100 Units
100% Methane = 10000 Units

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) 0.065 0.65 6.5 65 650

138u

MW IN: 9.6+
VIS IN: 44
MW OUT: 9.7
VIS OUT: 43

6,510
6,520
6,530
6,540

MD: 6,544'
TVD: 6,468.51'
INC: 0.92°
AZM: 24.34°
VS: -924.77'

6500-6550 SH (60%): med gy, frm-brit, plty ,sm-grty, lt calc; SLTST (35%): gy-dk gy, frm-brit, blky, grty, calc; SST (5%): wh-lt gy, fri, blky-sub ang, sdy, calc

6,550
6,560
6,570
6,580
6,590

6550-6600 SH (70%): med gy, frm-brit, plty, sm-grty, lt calc; SLTST (30%): gy-dk gy, frm-brit, blky, grty, calc

WOB: 26klbs
RPM: 0
SPM: 198
SPP: 3,571psi

6,600

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

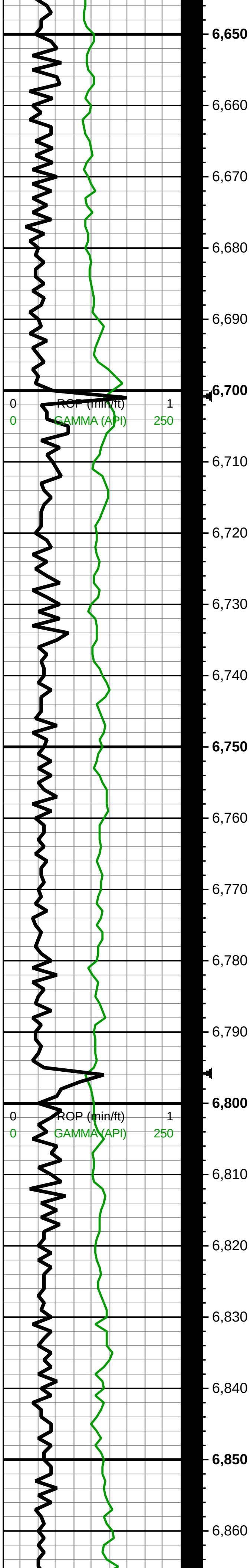
Pason Gas (units) GAS (units) 0.8 8 80 800 8E3
C1-C5 (PPM) 150 1.5E3 1.5E4 1.5E5 1.5E6

66u

6,610
6,620
6,630
6,640

MD: 6,639'
TVD: 6,563.09'
INC: 8.83°
AZM: 357.1°
VS: -916.78'

6600-6650 SH (80%): med gy-gy, frm-brit, plty,sm-grty,lt calc; SLTST (20%): gy-dk gy, frm-brit,



blky,grty,calc ip

MW IN: 9.6+
VIS IN: 44
MW OUT: 9.6
VIS OUT: 44

6650-6700 SH (90%): med gy-gy, frm-brit, plty,sm-grty,lt calc; SLTST (10%): gy-dk gy, frm-brit, blky,grty,calc ip

MD: 6,734'
TVD: 6,656.04'
INC: 14.81°
AZM: 358.15°
VS: -897.35'

6700-6750 SH (90%): dk gy-med gy, frm-brit, plty, sm-grty, o ip, lt calc; SLTST(10%): dk gy-md gy, frm-brit, blky, grty tex, calc

6750-6800 SH (95%): dk gy-med gy, frm-brit, plty,sm-grty, mic mics, o ip, lt calc; SLTST(5%): dk gy-md gy, frm-brit, ang-sub ang, grty tex, calc

WOB: 22.1klbs
RPM: 0
SPM: 180
SPP: 3,154psi

MD: 6,829'
TVD: 6,746.63'
INC: 20.13°
AZM: 2.02°
VS: -868.85'

6800-6850 SH (95%): dk gy-med gy, frm-brit, plty,sm-grty, mic mics, o ip, lt calc; SLTST(tr): dk gy-md gy, frm-brit, ang-sub ang, grdg to slt tex, calc

6,870
6,880
6,890

146u

6850-6900 SH (95%): dk gy-med gy, frm-brit, plty,sm-grty, mic mics, o ip, lt calc; BENT(tr): yel-wh, fri, ang, cly tex

MW IN: 9.6
VIS IN: 44
MW OUT: 9.6
VIS OUT: 42

6,900

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

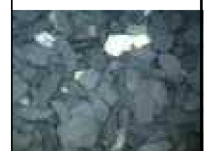
GAS (units): 1 | 10 | 100 | 1,000 | 1E4
C1-C5 (PPM): 150 | 1.5E3 | 1.5E4 | 1.5E5 | 1.5E6
Pason Gas (units): 0.8 | 8 | 80 | 800 | 8E3

6,910
6,920

MD: 6,923'
TVD: 6,833.13'
INC: 25.84°
AZM: 2.37°
VS: -832.18'

6,930
6,940

6900-6950 SH (95%): dk gy-med gy, frm-brit, plty,sm-grty, mic mics, o ip, lt calc; BENT(tr): yel-wh, fri, ang, cly tex



6,950

6,960
6,970
6,980

121u

WOB: 22.2klbs
RPM: 213.9
SPM: 154
SPP: 2,550psi

6,990

6950-7000 SH (95%): dk gy-med gy, frm-brit, plty-blky, sm-grty tex, mic mics, o ip, lt calc; BENT(tr): yel-wh, fri, ang, cly tex

7,000

Sharon Springs
6997 MD/6898 TVD

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): 0.8 | 8 | 80 | 800 | 8E3

7,010

MD: 7,018'
TVD: 6,916.41'
INC: 31.6°
AZM: 360°
VS: -786.56'

7,020
7,030

Niobrara
7026 MD/6923 TVD

7,040

7000-7050 CHK (60%) lt gy, fri, rd-sub ang, chky tex, hi calc; MRLST (40%) md gy, brit, ang, rthy, hi calc

7,050

MW IN: 9.7
VIS IN: 44
MW OUT: 9.6
VIS OUT: 42

7,060
7,070
7,080

103u

7050-7100 CHK (50%) lt gy, fri, rd-sub ang, chky gy, fri, rd-sub ang, chky tex, hi calc; MRLST (50%) md gy, brit, ang, rthy tex, hi calc pyr (tr) gran

7,090

7,100

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) 0.8 8 80 800 8E3

MD: 7,112'
TVD: 6,995.45'
INC: 33.93°
AZM: 0.44°
VS: -735.69'

7,110

7,120

MW IN: 9.8
VIS IN: 43
MW OUT: 9.7+
VIS OUT: 42

7,130

7100-7150 CHK (70%) lt gy, fri, rd-sub ang, chky tex, o, hi calc; MRLST (30%) md gy, brit, ang, rthy tex, hi calc

7,140

7,150

B Chalk
7155 MD/7030 TVD

7,160

7,170

171u

7,180

7150-7200 CHK (75%) med gy, fri, sub ang, chky tex, o, hi calc; MRLST (25%) dk gy, brit, ang, rthy tex, hi calc

B Marl
7194 MD/7060 TVD

7,190

WOB: 6.7klbs
RPM: 0
SPM: 154
SPP: 2,284psi

7,200

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) 0.8 8 80 800 8E3

MD: 7,207'
TVD: 7,070.35'
INC: 41.88°
AZM: 1.67°
VS: -677.38'

7,210

7,220

7,230

MW IN: 9.75
VIS IN: 43
MW OUT: 9.75
VIS OUT: 41

7200-7250 MRLST (70%) dk gy, brit, ang, rthy tex, hi calc; CHK (30%) med dk gy, fri, sub ang, chky tex, o, hi calc

7,240

7,250

C Chalk
7248 MD/7100 TVD

7,260

154u

7,270

MW IN: 9.7
VIS IN: 42
MW OUT: 9.7
VIS OUT: 41

7,280

7250-7300 MRLST (80%) dk gy, brit, ang, rthy tex, hi calc, xln pyr; CHK (20%) med dk gy, fri, sub ang, chky tex, o, hi calc

7,290

C Marl
7298 MD/7134 TVD

7,300

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

GAS (units) 1 10 100 1,000 1E4

MD: 7,302'
TVD: 7,136.62'

TVD: 7,136.62
INC: 49.57°
AZM: 1.05°
VS: -609.42'

7,310
7,320
7,330
7,340

D Chalk
7343 MD/7162 TVD

7,350
7,360
7,370
7,380
7,390
7,400

C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.8 8 80 800 8E3

7300-7350 MRLST (85%): dk gy-dk gyshbn, occ med gyshbn, frm, brit ip, mod fis sb ang-sb blky ctngs, sl slty-sl gt tex, occ brn mrly incl, rr vf pyr-c pyr strg, tr bent, mod calc wi brn mrly resdl; 15% CHK: lt gy-med gy, sb frm-frm, brit ip, l fis sb rd ctngs, sl slty tex, rr forams, tr vf pyr, hi calc

120u

MW IN: 9.7
VIS IN: 43
MW OUT: 9.75
VIS OUT: 41

7350-7400 CHK (65%): predy off wh-lt gy sft-sb frm mod fis sb blky-blky ctngs, occ frm-crunchy lt gy wi f wh chky incl, sm chky-sl slty-sl gt tex, f lamn, tr vf pyr, hi calc; MRLST (35%): dk gy, frm, brit, l-mod fis sb ang-sb blky ctngs, sl slty tex, occ brn marly incl, rr vf pyr, mod calc

MD: 7,397'
TVD: 7,191.54'
INC: 59.68°
AZM: 0.88°
VS: -532.06'

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

WOB: 10klbs
RPM: 0
SPM: 156
SPP: 2,540psi

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.8 8 80 800 8E3

7,410
7,420
7,430
7,440
7,450

7400-7450 CHK (85%): off wh-lt gy wi occ-com wh chky incl, sft-sb frm-frm-brit mod fis sb blky-blky ctngs, sm chky-sl slty-sl gt tex, tr vf pyr, hi calc; MRLST (15%): dk gy, frm, brit, l-mod fis sb ang-sb blky ctngs, sl slty tex, occ brn marly incl, rr vf pyr, mod calc

85u

7,460

MW IN: 9.7
VIS IN: 43
MW OUT: 9.7
VIS OUT: 40

7,470
7,480

7450-7500 CHK (90%): predy off wh-lt gy sft-sb frm mod fis sb blky-blky ctngs, occ frm-crunchy lt gy wi f wh chky incl, sm chky-sl slty-sl gt tex, f lamn, tr vf pyr, hi calc; MRLST (10%): dk gy, frm, brit, l-mod fis sb ang-sb blky ctngs, sl slty tex, occ brn marly incl, rr vf pyr, mod calc

MD: 7,491'
TVD: 7,230.46'
INC: 71.32°
AZM: 359.65°
VS: -446.68'

7,490
7,500

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)
0.8 8 80 800 8E3

7,510

Fort Hays
7515 MD/7237 TVD

7,520

7500-7550 LS (85%): tn-lt brn, frm, brit, ang ctngs, crpxln mudst, occ

7,530
7,540
7,550
7,560
7,570
7,580
7,590
7,600
7,610
7,620
7,630
7,640
7,650
7,660
7,670
7,680
7,690
7,700
7,710
7,720
7,730
7,740

MW IN: 9.8
VIS IN: 42
MW OUT: 9.7
VIS OUT: 42

523u

MD: 7,586'
TVD: 7,254.41'
INC: 79.45°
AZM: 1.05°
VS: -354.83'

Codell
7595 MD/7256 TVD

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)				
0.8	8	80	800	8E3

WOB: 15klbs
RPM: 31
SPM: 158
SPP: 2,970psi

1652u

MW IN: 9.8
VIS IN: 42
MW OUT: 9.75
VIS OUT: 42

MD: 7,681'
TVD: 7,267.63'
INC: 84.55°
AZM: 1.05°
VS: -260.79'

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)				
0.8	8	80	800	8E3

971u

ctngs, crpxln mudst, occ wkst, tr vf pyr, hi calc; CHK (15%): off wh-lt gy, sft-sb frm-frm-brit mod fis sb blky-blky ctngs, occ-com wh chky incl, sm chky-sl slty-sl gt tex, tr vf pyr, hi calc

7550-7600 LS (100%): lt gy-tn-lt brn, frm, brit, ang ctngs, crpxln mudst-mict, occ wkst, tr vf pyr, hi calc

7600-7700 SST (100%): off wh-lt gy-gy, sft-sb frm-frm-sli fri, mod srtd vf-f sd grs, predy mtx sup sst clus cons wi arg cmt, occ frm gr sup clus cons wi silc cmt, non calc

7,750
7,760
7,770
MD: 7,775'
TVD: 7,272.45'
INC: 89.56°
AZM: 0.7°
VS: -166.95'
7,780
7700-7800 SST (100%): off wh-lt gy-gy, mod srtd vf-f sd grs, predy sft-sb frm mtx sup sst clus cons wi arg cmt, occ frm-sl fri gr sup clus cons wi silc cmt, non calc

7,790
WOB: 34klbs
RPM: 70
SPM: 202
SPP: 4,220psi
7,800

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)
0.8 8 80 800 8E3

7,810
7,820
7,830
1075u
7,840
7,850
7,860
MNDEPTH 6/27/18
7,870
MD: 7,870'
TVD: 7,272.93'
INC: 89.87°
AZM: 0.08°
VS: -71.95'
7,880
7800-7900 SST (100%): off wh-lt gy sft-sb frm mtx sup sst cons wi silc cmt, occ gy-dk gy gr sup silc sst, mod srtd vf-f sd grs, slty ip, non calc-sl calc ip

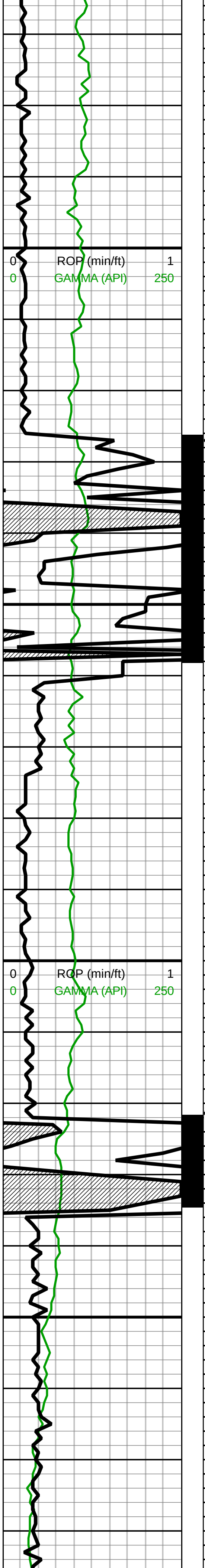
7,890
7,900

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)
0.8 8 80 800 8E3

7,910
7,920
7,930
1144u
7,940
7,950
7,960
MD: 7,964'
TVD: 7,272.75'
INC: 90.35°

AZM: 359.91°
VS: 22.05'



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
8,140
8,150
8,160
8,170
8,180

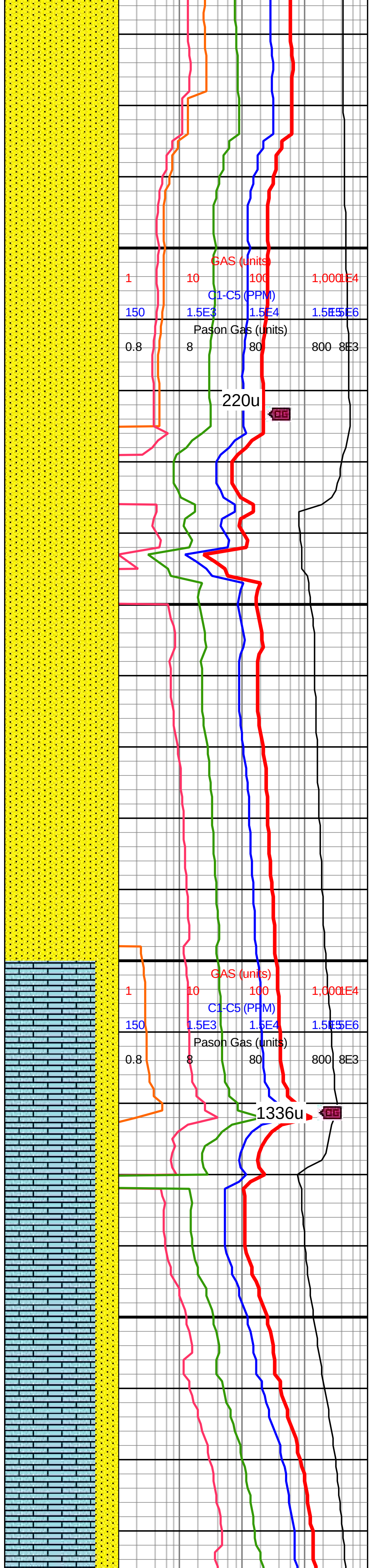
WOB: 33klbs
RPM: 70
SPM: 201
SPP: 4,260psi

MW IN: 9.8
VIS IN: 43
MW OUT: 9.8
VIS OUT: 41

MD: 8,059'
TVD: 7,272.64'
INC: 89.78°
AZM: 0.96°
VS: 117.04'

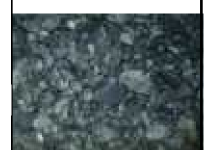
MW IN: 9.8
VIS IN: 43
MW OUT: 9.8
VIS OUT: 41

MD: 8,154'
TVD: 7,274.46'
INC: 88.02°
AZM: 359.12°
VS: 212.02'

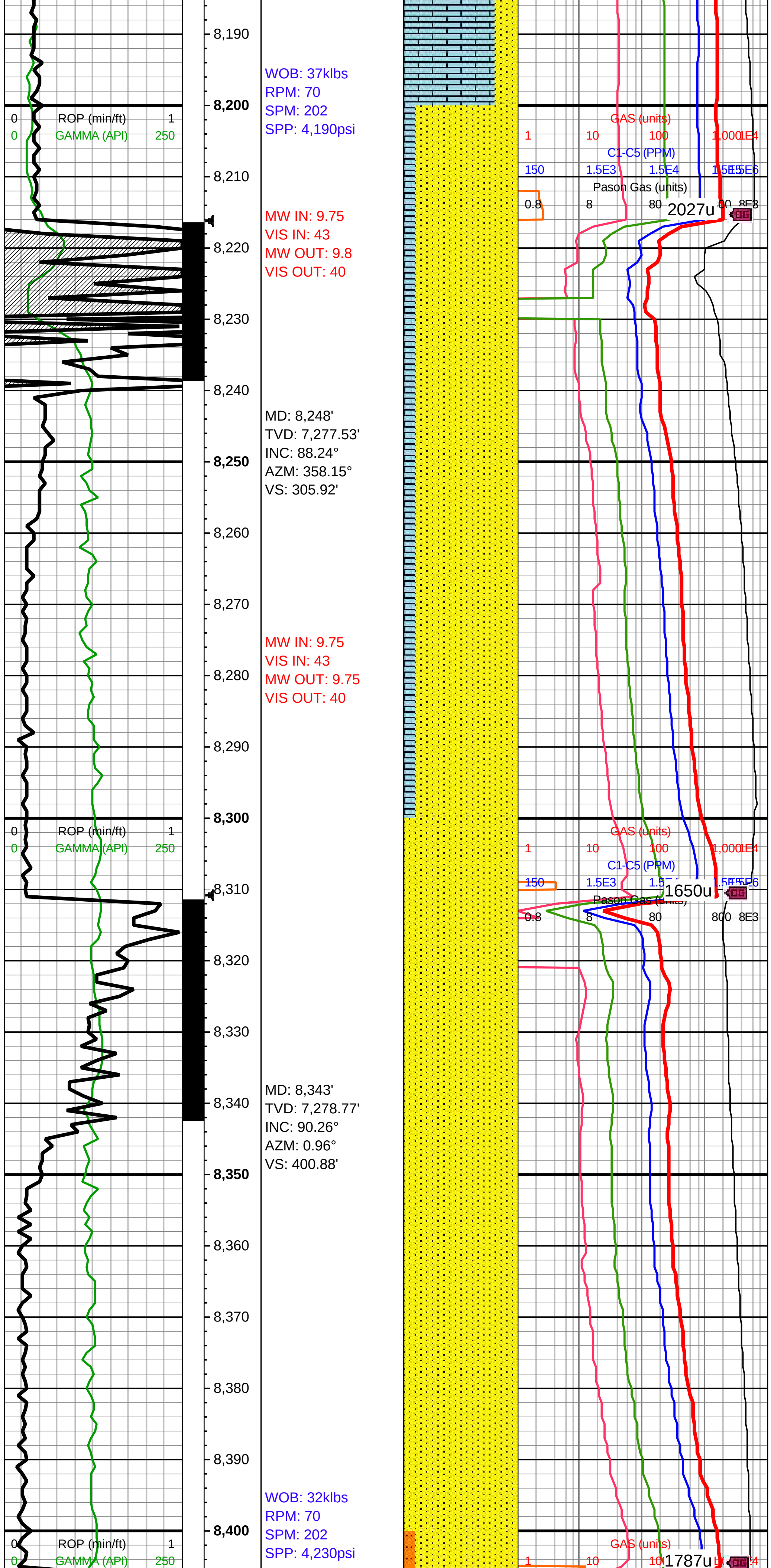


7900-8000 SST (100%): off wh-lt gy-gy, mod srtd vf-f sd grs, predy sft-sb frm mtx sup sst clus cons wi arg cmt, occ frm-sl fri gr sup clus cons wi silc cmt, non calc

8000-8100 SST (100%): off wh-lt gy-gy, sft-sb frm-frm-sli fri, mod srtd vf-f sd grs, gr sup frm-hd sli fri silc sst clus-com sft-sb frm mtx sup arg sst clus, non calc



8100-8200 LS (80%): lt gy-tn-lt brn, frm, brit, ang ctngs, crpxln mudst-mict, occ wkst, tr vf pyr, hi calc; SST (20%): off wh-lt gy sft-sb frm mtx sup sst cons wi silc cmt, occ gy-dk gy gr sup silc sst,



mod srtd vf-f sd grs, slty ip, non calc-sl calc ip

8200-8300 SST (90%): predy mod srtd gy-gyshbn-dk gy frm-hd sli fri gr sup f gr silc sst wi com wh grs, occ p-mod srtd vf-f off wh-lt gy sft-sb frm arg sst clus, thn lamn, predy non calc, sl calc ip, wi 10% ls

8300-8400 SST (100%): off wh-lt gy-gy-gy-gyshbn-dk gy, p-mod srtd vf-f sd grs, predy frm-hd sli fri gr sup sst clus cons wi silc cmt wi com wh sd grs, com off wh-lt gy-gy sft-sb frm v arg sst, predy non calc, sl calc ip

MW IN: 9.75
VIS IN: 42
MW OUT: 9.75
VIS OUT: 40

MD: 8,438'
TVD: 7,277.39'
INC: 91.41°
AZM: 1.93°
VS: 495.86'

8400-8500 SS (90%) mod gy-dk gy, ply srt w cons vf-f gr, brit-fri, blky-sub rd, sandy tex, arg-silc cmt; SLTST (10%) blk-dk gy, fri, blky-splt, grty tex, arg cmt

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

GAS 1217u

MD: 8,533'
TVD: 7,274.55'
INC: 92.02°
AZM: 1.93°
VS: 590.78'

8500-8600 SS (85%) mod gy-dk gy, ply srt w cons vf-f gr, brit-fri, blky-sub rd, sandy tex, arg-silc cmt, hi perm, com o; SLTST (15%) blk-dk gy,v fri, blky-splt, grty tex, arg cmt

1908u

WOB: 27klbs
RPM: 70
SPM: 202
SPP: 4,170psi

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

GAS (units)

MD: 8,628'

TVD: 7,270.97'
INC: 92.29°
AZM: 1.4°
VS: 685.69'

8,630
8,640
8,650
8,660
8,670
8,680
8,690

1189u

8600-8700 SS (90%) mod gy-dk gy, ply srt w cons vf-f gr, brit-fri, blky-sub rd, sandy tex, arg-silc cmt, hi perm, ip o; SLTST (10%) blk-dk gy,fri-frm, blky-splt, grty tex, arg cmt

8,700

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)
0.8 8 80 800 8E3

8,710

MD: 8,722'
TVD: 7,268.23'
INC: 91.06°
AZM: 2.19°
VS: 779.63'

8,720
8,730
8,740
8,750

MW IN: 9.8
VIS IN: 43
MW OUT: 9.7+
VIS OUT: 41

8,760
8,770

8700-8800 LS (95%) med gry-tn wht ip, hd-brit, v ang-blky, cryptoxln tex, hi calc; SS (5%)mod gy-dk gy, ply srt w cons vf-f gr, brit-fri, blky-sub rd, sandy tex, arg-silc cmt SLTST; SLTST (tr)

8,780

1288u

WOB: 37klbs
RPM: 70
SPM: 200
SPP: 4,183psi

8,790
8,800

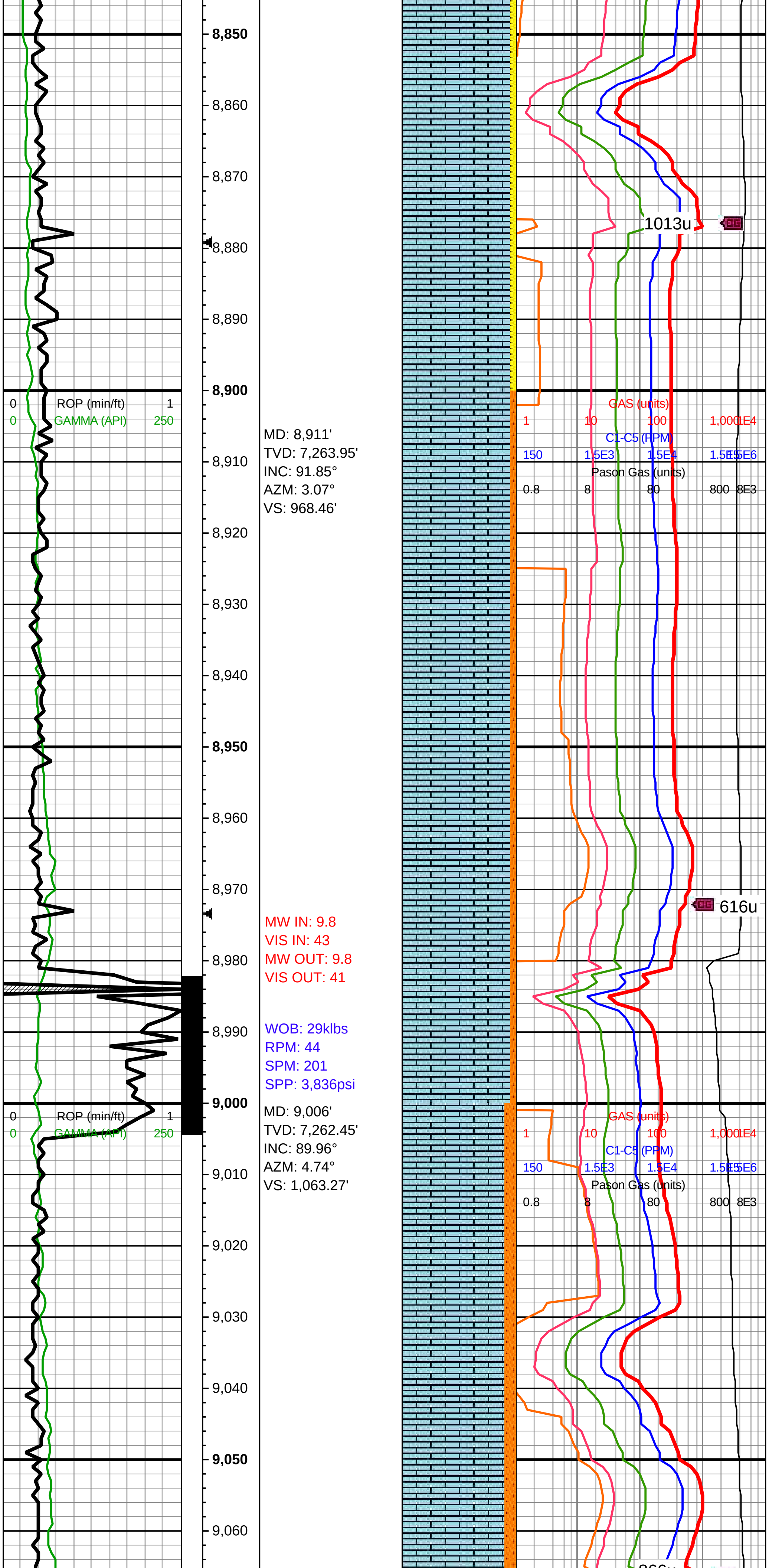
0 ROP (min/ft) 1
0 GAMMA (API) 250

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.8 8 80 800 8E3

8,810

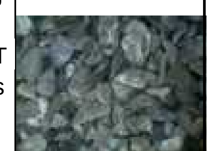
MD: 8,817'
TVD: 7,266.4'
INC: 91.14°
AZM: 2.28°
VS: 874.56'

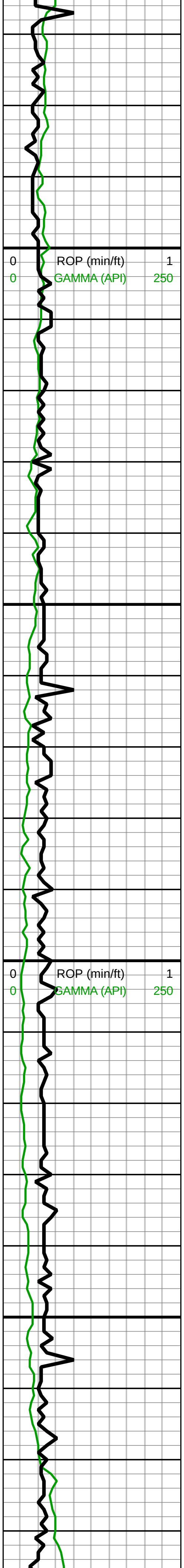
8,820
8,830
8,840



8800-8900 LS (95%) med gry-tn wht ip, hd-brit, v ang-blky, cryptoxln tex, hi calc vugy ip; SS (5%)dk gy, ply srt w cons vf-f gr, brit-fri, blky-sub rd, sandy tex, arg-silc cmt SLTST; SLTST (tr)

8900-9000 LS (95%) med gry-tn wht ip, hd-brit, v ang-blky, cryptoxln tex, hi calc, intstl yel o; SLTST (5%)dk gy, ply srt, w cons vf gr, frm-brit, blky, grty tex, arg cmt





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
9,240
9,250
9,260
9,270
9,280

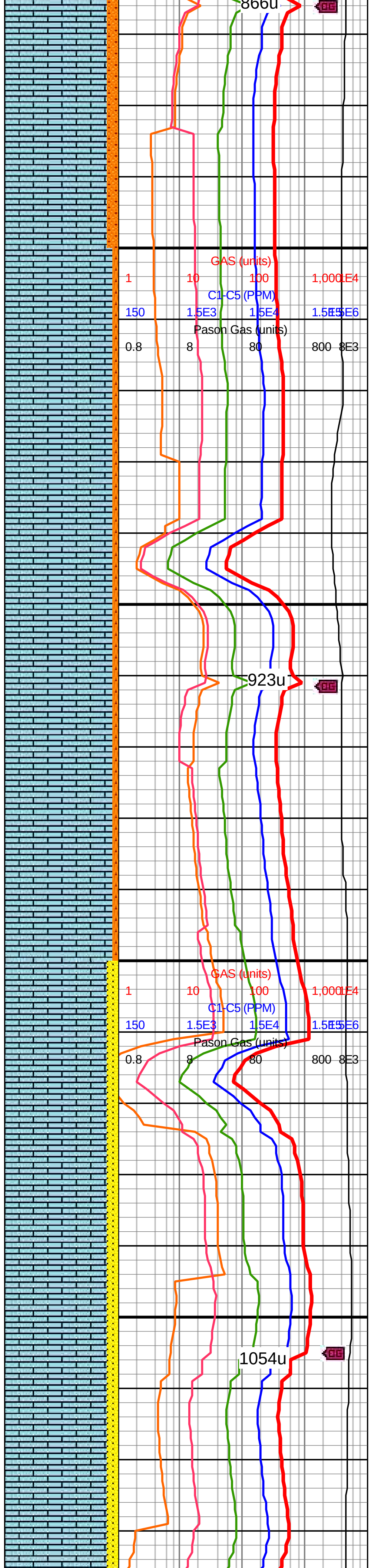
MD: 9,100'
TVD: 7,262.66'
INC: 89.78°
AZM: 4.48°
VS: 1,157.02'

MW IN: 9.8
VIS IN: 43
MW OUT: 9.8
VIS OUT: 41

MD: 9,195'
TVD: 7,263.47'
INC: 89.25°
AZM: 3.95°
VS: 1,251.82'

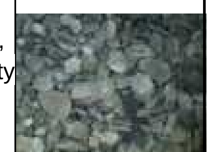
WOB: 38.9klbs
RPM: 70
SPM: 200
SPP: 4,221psi

MD: 9,289'

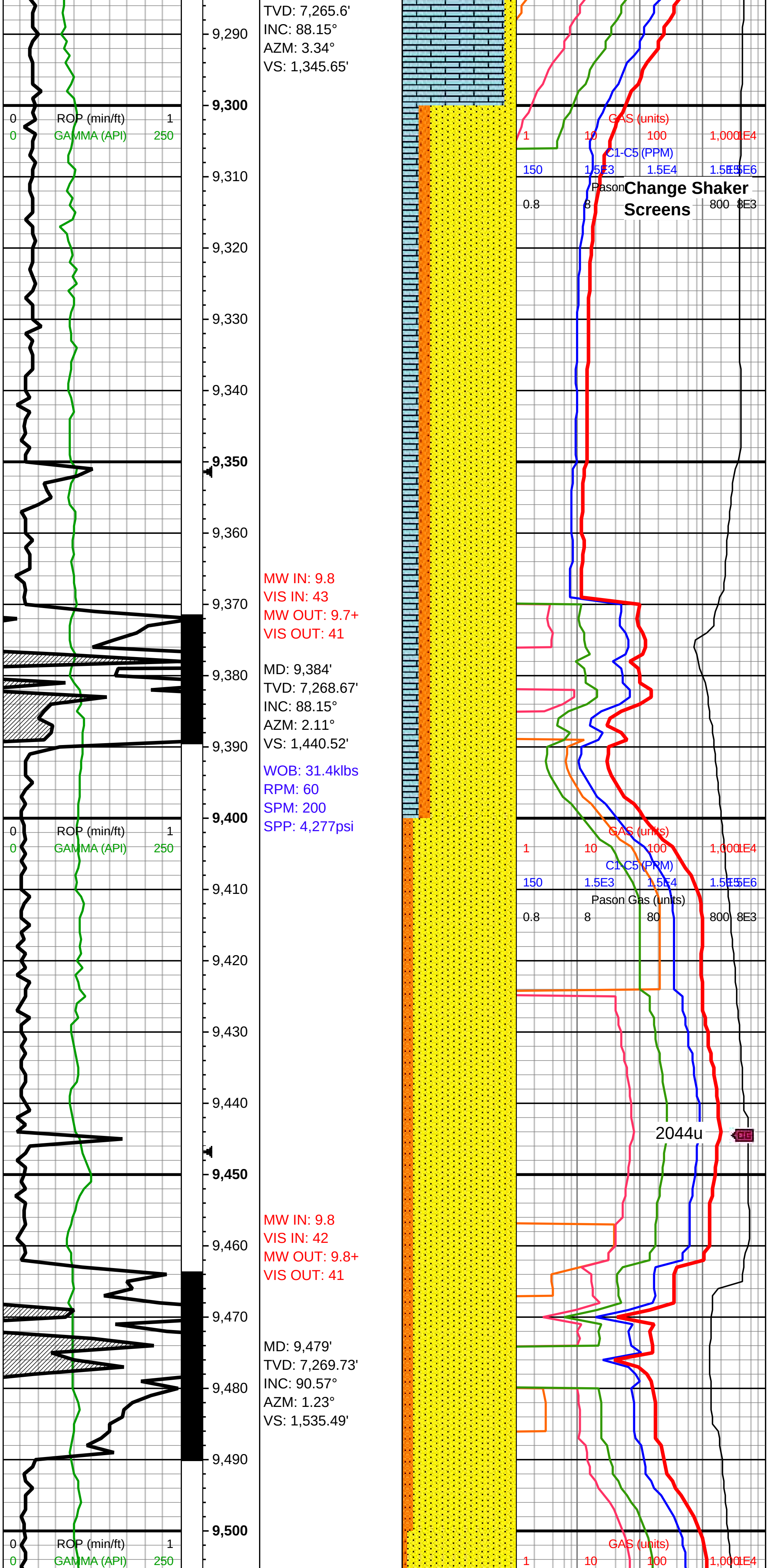


9000-9100 LS (90%) offwht-med gry-tn, hd-brit-fri, v ang-blky-sub rnd, cryptoxln-chky tex, hi calc, intstl yel o; SLTST (10%)dk gy, ply srt, w cons vf gr, frm-brit, blky, grty tex, arg cmt

9100-9200 LS (95%) offwht-med gry-tn, hd-brit, v ang-blky, cryptoxln-chky tex, hi calc, intstl yel o; SLTST (5%)dk gy, ply srt, w cons vf gr, brit, blky, grty tex, arg cmt

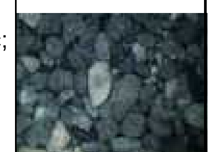


9200-9300 LS (90%) offwht-med gry-tn, hd-brit-fri, v ang-blky-sub rnd, cryptoxln-chky tex, hi calc, intstl yel o; SS



(10%)dk gy-med gy, ply srt, w cons vf-f gr, brit-fri, blky-sub rnd, sdy tex, silc cmt

9300-9400 SS (75%)dk gy-med gy, ply srt, w cons vf-f gr, brit-fri, blky-sub rnd, sdy tex, silc cmt, intgr yel o; LS (15%) offwht-med gry-tn, hd, v ang, cryptoxln tex, hi calc; SLTST (10%) dk gy, ply srt, w cons vf gr, fri, blky, slty tex, arg



9400-9500 SS (90%)dk gy-med gy, ply srt, w cons vf-f gr, brit-fri, blky-sub rnd, sdy tex, silc cmt, com intgr yel o; SLTST (10%) dk gy, ply srt, w cons vf gr, fri, blky, slty tex, arg

C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.8 8 80 800 8E3

9,510
9,520
9,530
9,540
2002u
9,550
9,560
9,570

MD: 9,574'
TVD: 7,268.09'
INC: 91.41°
AZM: 0.26°
VS: 1,630.47'

9,580

9500-9600 SS (95%)dk gy-med gy, ply srt, w cons vf-f gr, brit-fri, blky-sub rnd, sdy tex, silc cmt, com intgr yel o; SLTST (5%) dk gy, ply srt, w cons vf gr, fri, blky, slty tex, arg

WOB: 36.3klbs
RPM: 70
SPM: 201
SPP: 4,440psi

9,590
9,600

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)
0.8 8 80 800 8E3

9,610
9,620
9,630
1672u
9,640
9,650
9,660

MD: 9,668'
TVD: 7,266.03'
INC: 91.1°
AZM: 359.47°
VS: 1,724.44'

9,670

MW IN: 9.8
VIS IN: 41
MW OUT: 9.8
VIS OUT: 40

9,680

9600-9700 SS (60%)dk gy-med gy, ply srt, w cons vf-f gr, frm-fri, blky-sub rnd, sdy tex, silc cmt, com intgr yel o; LS (40%) offwht-med gry-tn, hd, v ang, cryptoxln tex, hi calc

9,690
9,700

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)
0.8 8 80 800 8E3

9,710
9,720

9,730
9,740
9,750
9,760
9,770
9,780
9,790
9,800
9,810
9,820
9,830
9,840
9,850
9,860
9,870
9,880
9,890
9,900
9,910
9,920
9,930
9,940

540u

MD: 9,763'
TVD: 7,265.74'
INC: 89.25°
AZM: 0.08°
VS: 1,819.43'

9700-9800 SS (50%)dk gy-lt gy, ply srt, w cons vf-f gr, frm-fri, blky-sub rnd, sdy tex, silc cmt, com intgr yel o; LS (50%) offwht-med gry-tn, hd, v ang, cryptoxln & wackest tex, hi calc

WOB: 35.2klbs
RPM: 70
SPM: 200
SPP: 4,445psi

MW IN: 9.8
VIS IN: 41
MW OUT: 9.8+
VIS OUT: 40

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)
0.8 8 80 800 8E3

2105u

MD: 9,858'
TVD: 7,266.94'
INC: 89.3°
AZM: 359.38°
VS: 1,914.41'

9800-9900 SS (75%)dk gy-lt gy, ply srt, w cons f gr, frm, blky-sub rnd, sdy tex, silc cmt, com intgr yel o; LS (15%) med dk tn, hd, v ang, cryptoxln tex, hi calc SLTST(10%) dk gy, ply srt, w cons vf gr, fri, blky, slty tex, arg

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)
0.8 8 80 800 8E3

265u

9,950
MD: 9,953'
TVD: 7,269.38'
INC: 87.76°
AZM: 0.88°
VS: 2,009.38'

9,960

9,970

9900-10000 SS (100%)dk gy-lt gy, ply srt, w cons f gr, frm, blky-sub rnd, sdy tex, silc cmt, imbd gran pyr, com intgr yel o; LS (tr) med dk tn, hd, v ang, cryptoxln tex, hi calc SLTST(tr) dk gy, ply srt, w cons vf gr, fri, blky, slty tex, arg

9,980

9,990

WOB: 35klbs
RPM: 70
SPM: 202
SPP: 4,581psi

10,000

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)
0.8 8 80 800 8E3
1663u

MW IN: 9.8+
VIS IN: 41
MW OUT: 9.9
VIS OUT: 40

10,010

10,020

10,030

10,040
MD: 10,047'
TVD: 7,272.66'
INC: 88.24°
AZM: 0.52°
VS: 2,103.32'

10,050

10,060

10,070

10000-10100 SS (90%)dk gy-lt gy, ply srt, w cons f gr, frm, blky-sub rnd, sdy tex, silc cmt, imbd gran pyr, com intgr yel-gn o; SLTST(10%) dk gy, ply srt, w cons vf gr, v fri, rnd, slty tex

10,080

10,090

10,100

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
Pason Gas (units)
0.8 8 80 800 8E3
2408u

10,110

10,120

10,130

MD: 10,142'
TVD: 7,275.28'
INC: 88.59°
AZM: 0.44°
VS: 2,198.28'

10,140

10,150

10,160

10,170
10,180
10,190
WOB: 36klbs
RPM: 70
SPM: 202
SPP: 4,615psi

10100-10200 SS
(85%)dk gy-lt gy, ply srt, w cons f-vy gr, frm, blky-sub rnd, sdy tex, silc cmt, com intgr yel-gn o; SLTST(15%) dk gy, ply srt, w cons vf gr, v fri, rnd, slty tex

10,200

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)
0.8 8 80 800 8E3

1308u

10,210
10,220
10,230
MD: 10,236'
TVD: 7,276.77'
INC: 89.6°
AZM: 1.67°
VS: 2,292.26'
10,240
10,250
10,260
10,270
10,280

10200-10300 SS
(95%)dk gy-lt gy, ply srt, w cons f-vy gr, frm, blky-sub rnd, sdy tex, silc cmt, com intgr yel-gn o; SLTST(5%) dk gy-blk, ply srt, w cons vf gr, v fri, rnd, slty tex

10,290
1615u
MW IN: 9.9+
VIS IN: 42
MW OUT: 10+
VIS OUT: 41
10,300

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)
0.8 8 80 800 8E3

10,310
10,320
MD: 10,331'
TVD: 7,277.18'
INC: 89.91°
AZM: 1.84°
VS: 2,387.24'
10,330
10,340
10,350
10,360
10,370
10,380

10300-10400 SS
(95%)dk gy-lt gy, ply srt, w cons f-vy gr, frm,
blky-sub rnd, sdy tex, silc

10,390
WOB: 28.7klbs
RPM: 70
SPM: 198
SPP: 4,268psi
1973u

cmt, com intgr yel-gn o; SLTST(5%) dk gy-blk, ply srt, w cons vf gr, v fri-frm, splt, slty tex

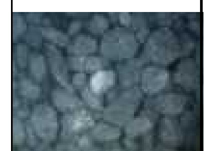
10,400

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

GAS (units): 1, 10, 100, 1,000, 1E4
C1-C5 (PPM): 150, 1.5E3, 1.5E4, 1.5E5, 1.5E6
Pason Gas (units): 0.8, 8, 80, 800, 8E3

10,410
10,420
MD: 10,426'
TVD: 7,277.1'
INC: 90.18°
AZM: 1.23°
VS: 2,482.22'
10,430
10,440
10,450
10,460
10,470
10,480
1405u
10,490

10400-10500 SS (100%)dk gy-lt gy, ply srt, w cons f-vy gr, frm, blky-sub rnd, sdy tex, silc cmt, ip intgr yel-gn o



10,500

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

GAS (units): 1, 10, 100, 1,000, 1E4
C1-C5 (PPM): 150, 1.5E3, 1.5E4, 1.5E5, 1.5E6
Pason Gas (units): 0.8, 8, 80, 800, 8E3

10,510
MD: 10,520'
TVD: 7,276.59'
INC: 90.44°
AZM: 1.32°
VS: 2,576.21'
10,520
10,530
10,540
10,550
10,560
10,570
10,580
MW IN: 10+
VIS IN: 41
MW OUT: 10+
VIS OUT: 40
1852u
10,590
WOB: 59klbs
RPM: 0
SPM: 198
SPP: 4,161psi

10500-10600 SS (95%)dk gy-lt gy, ply srt, w cons vy gr, frm, blky-sub rnd, sdy tex, calc cmt, com intgr yel-gn o; SLTST(5%) dk gy-blk, ply srt, w cons vf gr, v fri-frm, splt, slty tex

10,600

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

GAS (units): 1, 10, 100, 1,000, 1E4

C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.8 8 80 800 8E3

10,610
MD: 10,615'
TVD: 7,277.25'
INC: 88.77°
AZM: 0.61°
VS: 2,671.2'

10,620
10,630
10,640
10,650
10,660
10,670
10,680
1241u
10,690

10600-10700 SS (100%)dk gy-lt gy, ply srt, w cons vy gr, frm-v fri, blky-sub rnd, sdy tex, calc cmt, com intgr yel-gn o; SLTST(tr%) dk gy-blk, ply srt, w cons vf gr,frm, splt, slty tex

10,700

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)
0.8 8 80 800 8E3

MD: 10,710'
TVD: 7,279.44'
INC: 88.59°
AZM: 0.7°
VS: 2,766.17'

10,710
10,720
10,730
10,740
10,750
10,760
10,770
1405u
10,780
10,790

10700-10800 SS (90%)dk gy-lt gy, ply srt, w cons f-vy f gr, frm-fri, blky-sub rnd, sdy tex, calc cmt, com intgr yel-gn o; SLTST(10%) dk gy-blk, ply srt, w cons vf gr,frm, splt, slty tex

WOB: 35.4klbs
RPM: 70
SPM: 198
SPP: 4,799psi

10,800

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)
0.8 8 80 800 8E3

MD: 10,805'
TVD: 7,281.88'
INC: 88.46°
AZM: 0.17°
VS: 2,861.14'

10,810
10,820

10,830
10,840
10,850
10,860
10,870
395u
10,880
10800-10900 SS (90%)dk gy-lt gy, ply srt, w cons f gr, frm-fri, blky-sub rnd, sdy tex, calc cmt; SLTST(10%) dk gy-blk, ply srt, w cons vf gr,frm, splt, slty tex

10,890
MD: 10,900'
TVD: 7,284.21'
INC: 88.73°
AZM: 0.35°
VS: 2,956.11'
10,900

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)
0.8 8 80 800 8E3

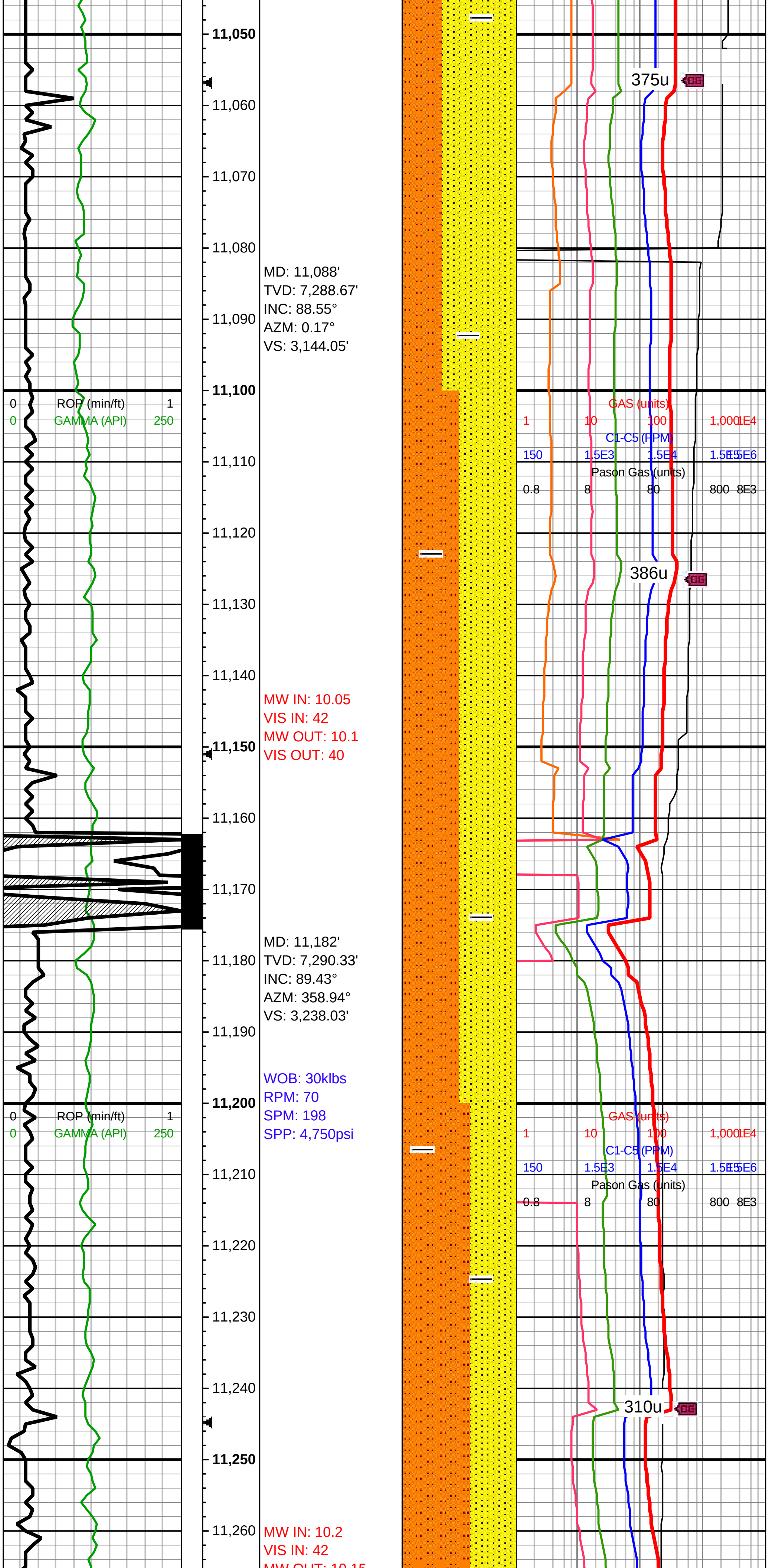
10,910
10,920
10,930
10,940
MW IN: 10.05
VIS IN: 43
MW OUT: 10.1
VIS OUT: 41
10,950
10,960
298u
10900-11000 SS (70%): gy-gyshbn-dk gy, frm-hd, sli fri, mod srtd f sb rd-rd sd grs, gr sup ss clus cons wi silc cmt, com wh sd grs, rr lt gy-lt gyshbn mtx sup sft-sb frm arg ss, non-l calc, wi intbdd SLTST; SLTST (30%): gy-dk gy-v dk gy, frm, brit, mod fis sb ang ctngs, non calc

10,970
10,980
MD: 10,994'
TVD: 7,286.37'
INC: 88.64°
AZM: 360°
VS: 3,050.09'
10,990
WOB: 34klbs
RPM: 70
SPM: 198
SPP: 4,790psi
11,000

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)
0.8 8 80 800 8E3

11,010
11,020
11,030
11,040



11000-11100 SS (65%): gy-gyshbn-dk gy wi com wh sd grs thru, occ lt gy-lt gyshbn, p-mod srtd vf-f sb rd-rd sd grs, predy frm-hd sli fri gr sup ss cons wi silc cmt, rr sft-sb frm mtx sup arg ss, non-l calc, wi intbdd SLTST; SLTST (35%): gy-dk gy-v dk gy, frm, brit, mod fis sb ang-sb plty ctngs, non calc

11100-11200 SS (50%): gy-gyshbn-dk gy, occ lt gy-lt gyshbn, s&p ip, p-mod srtd vf-f sb rd-rd sd grs grdg to slty ip, predy frm-hd sli fri gr sup ss cons wi silc cmt, rr sft-sb frm mtx sup arg ss, non-l calc; SLTST (50%): gy-dk gy-v dk gy, frm, brit, mod fis sb ang-sb plty ctngs, sft-sb frm arg sltst ip, non calc

11200-11300 SLTST (60%): gy-dk gy-v dk gy,

MW OUT: 10.15
VIS OUT: 42

11,270

MD: 11,277'
TVD: 7,291.2'
INC: 89.52°
AZM: 358.59°
VS: 3,332.98'

11,280

11,290

11,300

frm-brit, mod fis sb ang-sb plty ctngs, sft-sb frm arg sltst ip, non calc-l calc; SS (40%): gy-gyshbn-dk gy, occ lt gy-lt gyshbn, p-mod srtd vf-f sb rd-rd sd grs grdg to slt ip, sb frm-frm-brit mtx sup ss cons wi arg cmt-frm-sli fri gr sup silc ss clus, non-l calc

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): 0.8, 8, 80, 800, 8E3

11,310

11,320

11,330

303u

11,340

11,350

11,360

MD: 11,372'
TVD: 7,291.93'
INC: 89.6°
AZM: 357.89°
VS: 3,427.9'

11,370

11,380

11,390

11300-11400 SS (65%): lt gy-med gy, occ dk gy, p-mod srtd vf sd grdg to slt ip, sb frm-frm predy mtx sup arg ss, occ gr sup silc cmt wi predy f sd grs, non-l calc; SLTST (35%): lt gy-med gy sb frm-frm silc-arg sltst, occ frm-brit silc sltst, non calc-sl-l calc

WOB: 32klbs
RPM: 70
SPM: 203
SPP: 5,010psi

11,400

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): 0.8, 8, 80, 800, 8E3

11,410

11,420

11,430

307u

11,440

11,450

11,460

MD: 11,466'
TVD: 7,292.8'
INC: 89.34°
AZM: 357.8°
VS: 3,521.8'

11,470

11,480

11400-11500 SS (60%): lt gy-med gy, occ dk gy, p-mod srtd vf sd grdg to slt ip, sb frm-frm predy mtx sup arg ss, occ gr sup silc cmt wi predy f sd grs, non-l calc; SLTST

11,490

11,500

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

GAS (units) 1 10 100 1,000 1E4
C1-C5 (PPM) 150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units) 0.8 8 80 800 8E3

11,510

11,520

264u

11,530

11,540

MW IN: 10.15
VIS IN: 43
MW OUT: 10.2
VIS OUT: 42

11,550

MD: 11,561'
TVD: 7,293.42'
INC: 89.91°
AZM: 359.38°
VS: 3,616.74'

11,560

11,570

11,580

11,590

WOB: 37klbs
RPM: 70
SPM: 203
SPP: 5,070psi

11,600

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

GAS (units) 1 10 100 1,000 1E4
C1-C5 (PPM) 150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units) 0.8 8 80 800 8E3

11,610

11,620

201u

11,630

11,640

11,650

MD: 11,655'
TVD: 7,293.35'
INC: 90.18°
AZM: 358.68°
VS: 3,710.71'

11,660

11,670

11,680

11,690

11,700

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

GAS (units) 1 10 100 1,000 1E4

grs, non-l calc; SLTST (40%): lt gy-med gy sb frm-frm silc-arg sltst, occ frm-brit silc sltst, non calc-sl-l calc

11500-11600 SS (70%): lt gy-med gy, p-mod srtd vf-f sd grs grdg down to slt ip, sb frm-frm predy mtx sup ss clus cons wi silc cmt, occ frm-hd-sli fri gr sup ss clus cons wi silc cmt, grdg down to sltst ip, mod calc; SLTST (30%): lt gy-med gy-dk gy sb frm-frm-hd silc-arg sltst, predy mod calc, non calc ip

11600-11700 SS (65%): lt gy-med gy, occ dk gy, p-mod srtd vf sd grdg to slt ip, sb frm-frm predy mtx sup arg ss, occ gr sup silc cmt wi predy f sd grs, non-l calc; SLTST (35%): lt gy-med gy sb frm-frm silc-arg sltst, occ frm-brit silc sltst, non calc-sl-l calc

C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.8 8 80 800 8E3

279u

11,710
11,720
11,730
11,740

MD: 11,750'
TVD: 7,292.91'
INC: 90.35°
AZM: 359.29°
VS: 3,805.68'

11,750

11,760
11,770
11,780
11,790

11700-11800 SS (70%): lt gy-med gy, p-mod srtd vf-f sd grs grdg down to slt ip, sb frm-frm predy mtx sup ss clus cons wi silc cmt, occ frm-hd-sli fri gr sup ss clus cons wi silc cmt, grdg down to sltst ip, mod calc; SLTST (30%): lt gy-med gy-dk gy sb frm-frm-hd silc-arg sltst, predy mod calc, non calc ip

WOB: 36klbs
RPM: 70
SPM: 203
SPP: 5,090psi

11,800

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
0.8 8 80 800 8E3

286u

11,810
11,820
11,830
11,840

MD: 11,845'
TVD: 7,292.33'
INC: 90.35°
AZM: 358.68°
VS: 3,900.65'

11,850

11,860
11,870
11,880
11,890

11800-11900 SS (65%): lt gy-med gy, occ dk gy, p-mod srtd slt-vf-f sd grds, frm-hd-sli fri gr sup f gr ss clus cons wi silc cmt-sb frm-frm predy mtx sup arg ss, tr vf pyr, non-l calc; SLTST (35%): off wh-lt gy, predy sft-sb frm mtx sup ss/sltst cons wi arg cmt grdg to slty sh ip, occ v dk gy frm-brit silc sltst, non calc-sl-l calc

11,900

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

GAS (units)
1 10 100 1,000 1E4

260u

C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.8 8 80 800 8E3

11,910
11,920

11,930
11,940
11,950
11,960
11,970
11,980
11,990
12,000
12,010
12,020
12,030
12,040
12,050
12,060
12,070
12,080

MD: 11,940'
TVD: 7,291.56'
INC: 90.57°
AZM: 358.94°
VS: 3,995.6'

WOB: 7klbs
RPM: 70
SPM: 204
SPP: 4,410psi

MD: 12,002'
TVD: 7,290.97'
INC: 90.53°
AZM: 358.77°
VS: 4,057.58'

Bit Projection

MD: 12,064'
TVD: 7,290.4'
INC: 90.53°
AZM: 358.77°
VS: 4,119.55'

Reach TD @ 22:15hrs on 6/27/18

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

389u

GAS (units)
1 10 100 1,000 1E4
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6
Pason Gas (units)
0.8 8 80 800 8E3

11900-12000 SST (80%): off wh-lt gy-gy-gy-gyshbn-dk gy, p-mod srtd vf-f sd grs, predy frm-hd sli fri gr sup sst clus cons wi silc cmt wi com wh sd grs, com off wh-lt gy-gy sft-sb frm v arg sst, sl-l calc, non calc ip; SLTST (20%): lt gy-med gy-dk gy sb frm-frm-hd silc-arg sltst, predy mod calc, non calc ip

12000-12064 SST (100%): lt gy-gy p-mod srtd mtx sup arg ss clus wi vf-f sd grs, com mod srtd f gr frm-hd-sli fri gy-gyshbn-dk gy gr sup ss clus cons wi silc cmt, non calc-sl calc ip