



Scale: 5" / 100'  
Measured Depth Log

**Well Name** Critter Creek 562-1527H

**Location** Critter Creek Pad 15-11N-63W

**State** Colorado

**County** Weld

**Country** USA

**Rig Number** Cade 23

**API Number** 0512342507000

**AFE #** 22017002

**Geographic Region** Rockies

**Field** Hereford

**Spud Date** 5/14/2017

**Drilling Completed** 6/15/2017

**Surface Coordinates** 40.915953,-104.4158000  
279' FSL & 1740' FEL, Sec 15

**Bottom Hole Coordinates** 40.8870464,-104.4171689  
300' FNL & 2203' FEL Sec 27

**Ground Elevation** 5,228'

**K.B. Elevation** 5,244'

**Logged Interval** 3,000' **To** 7,999'

**Total Depth** 17,882'

**Formation** Coddell

**Type of Drilling Fluid** OBM

## Operator

**Company** Fifth Creek Energy

**Address** 5251 DTC Parkway, Suite 420  
Greenwood Village, Colorado 80111



## Geologist

**Name** Ben Burke, Aryn Rowe

**Company** Fifth Creek Energy

**Address** 5251 DTC Parkway, Suite 420  
Greenwood Village, Colorado 80111



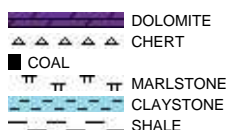
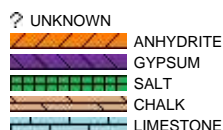
## Zone Color Coding

 Oil	 Condensate	 Gas
 Note	 Core	 Pressure
 Error	 Water	 Seal

## Other

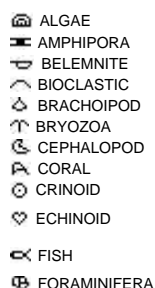
Logging Services Provided By: ALS Oil & Gas Heather Davis, Chad Timken

## Rock Types



## Accessories

### Fossils



### Fossil



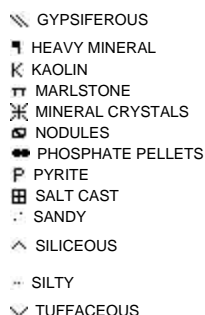
### Minerals



### Argillaceous



### Glauconite

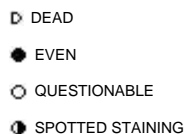


### Stringer



## Other Symbols

### Oil Show



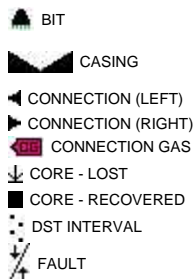
### Porosity



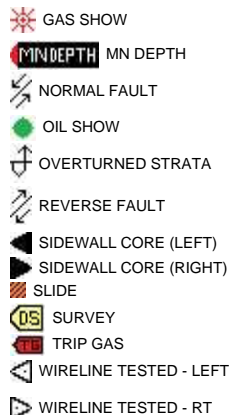
### Organic



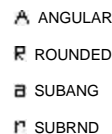
### Engineering



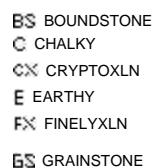
### Formation Top



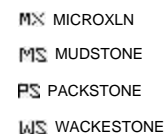
### Rounding



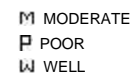
### Textures

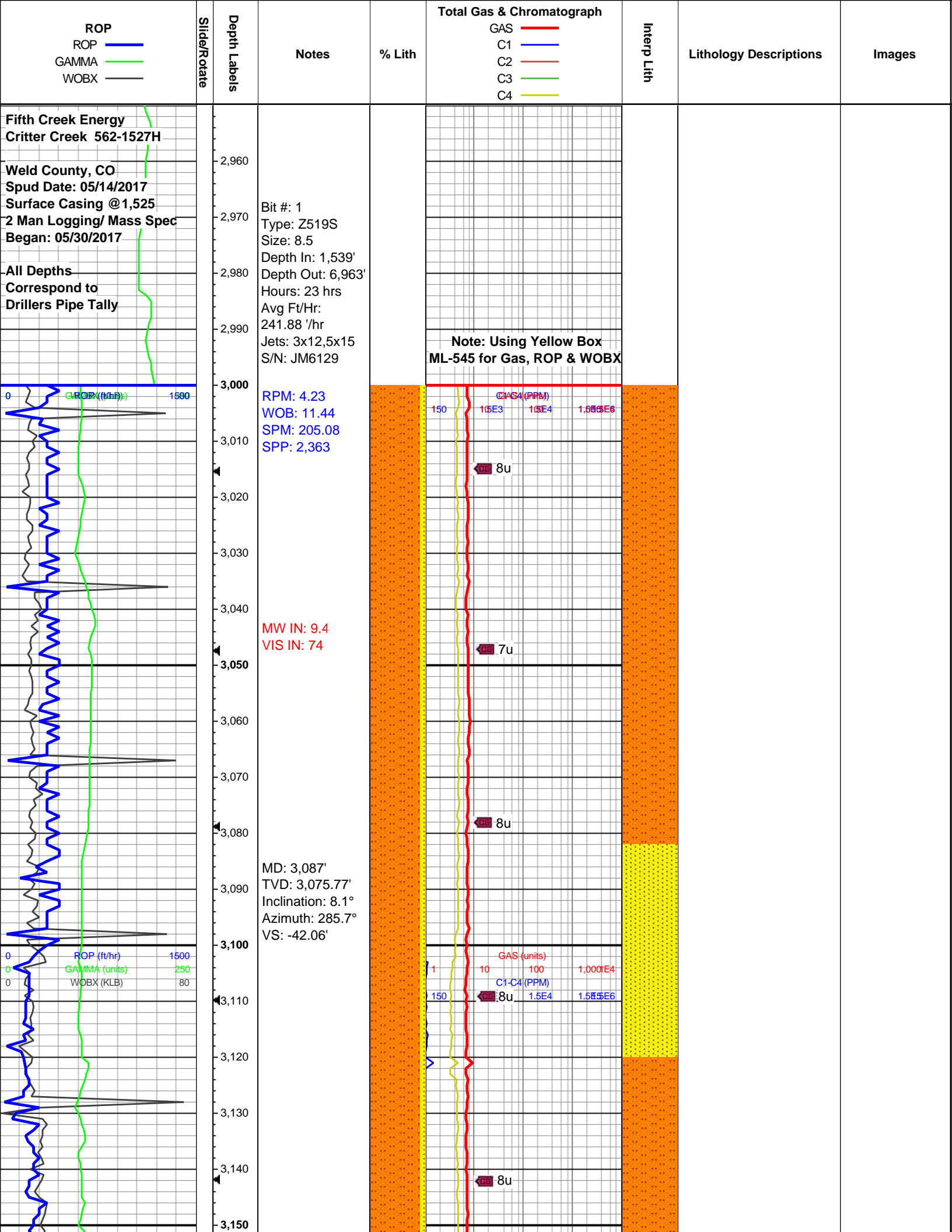


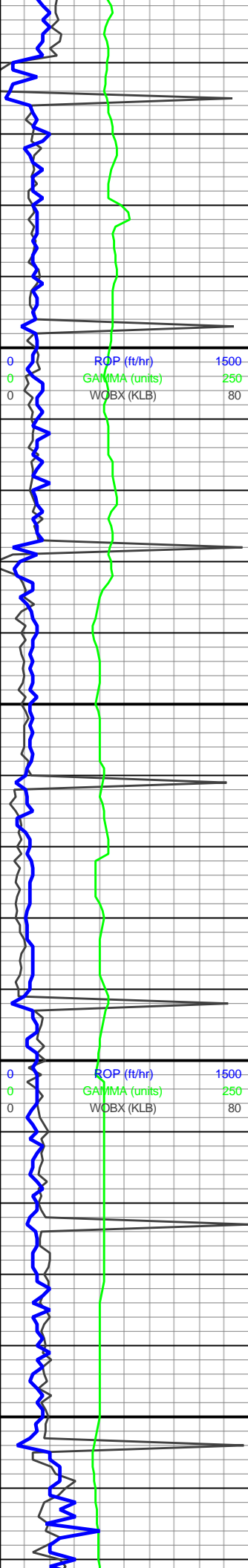
### Lithographic



### Sorting








3,160  
3,170  
3,180  
3,190  
3,200  
3,210  
3,220  
3,230  
3,240  
3,250  
3,260  
3,270  
3,280  
3,290  
3,300  
3,310  
3,320  
3,330  
3,340  
3,350  
3,360  
3,370

MW IN: 9.4  
VIS IN: 74

MD: 3,181'  
TVD: 3,168.87'  
Inclination: 7.8°  
Azimuth: 284.6°  
VS: -45'

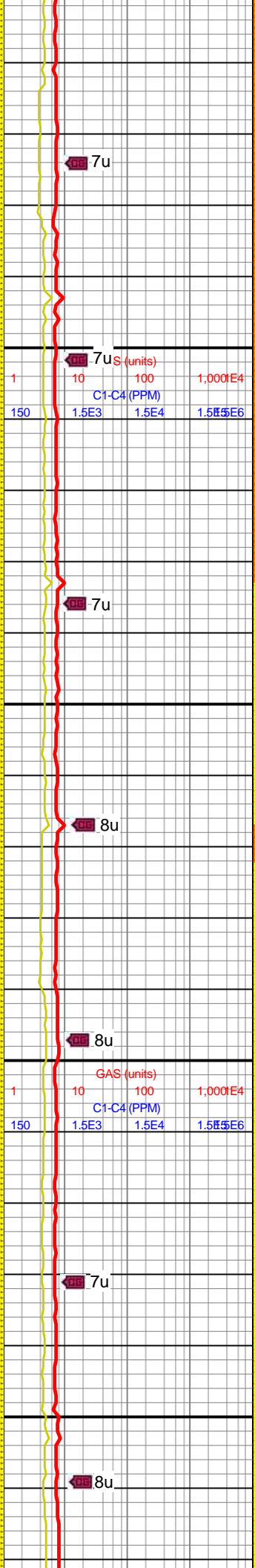
RPM: 4.39  
WOB: 10.96  
SPM: 112.6  
SPP: 1,110

Pierre A   
3,218' MD/3,205' TVD

MD: 3,276'  
TVD: 3,263'  
Inclination: 7.7°  
Azimuth: 284.8°  
VS: -47.8'

MW IN: 9.4  
VIS IN: 74

MD: 3,371'  
TVD: 3,357.18'  
Inclination: 7.4°



7u

7u

7u

8u

8u

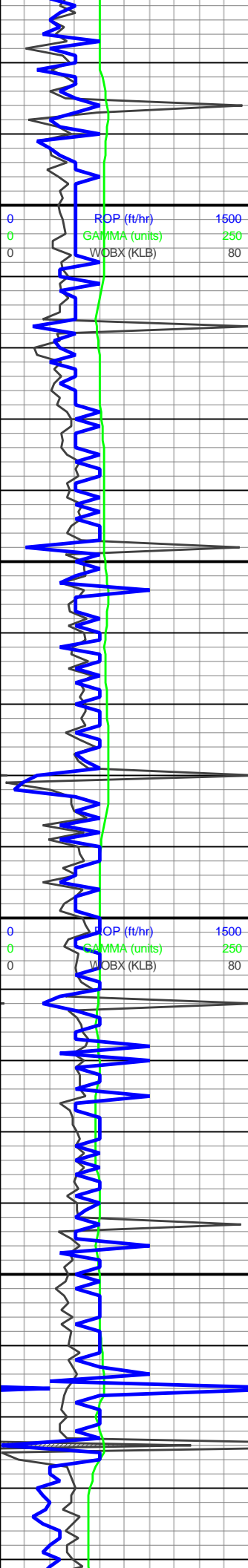
7u

8u

3000-3200 90% SLTST:  
lt-med gy, blk, rnd-sb  
rnd, non calc, grdg to sst  
ip; 10% SST: predy  
med-dk gy, sme lt gy, w  
cons cls, cons silc-arg  
cmt, pred mtz sup, vf-f,  
grdg to slt, sb ang-sb rnd,  
xln.







Inclination: 7.4°  
Azimuth: 283.9°  
VS: -50.45'

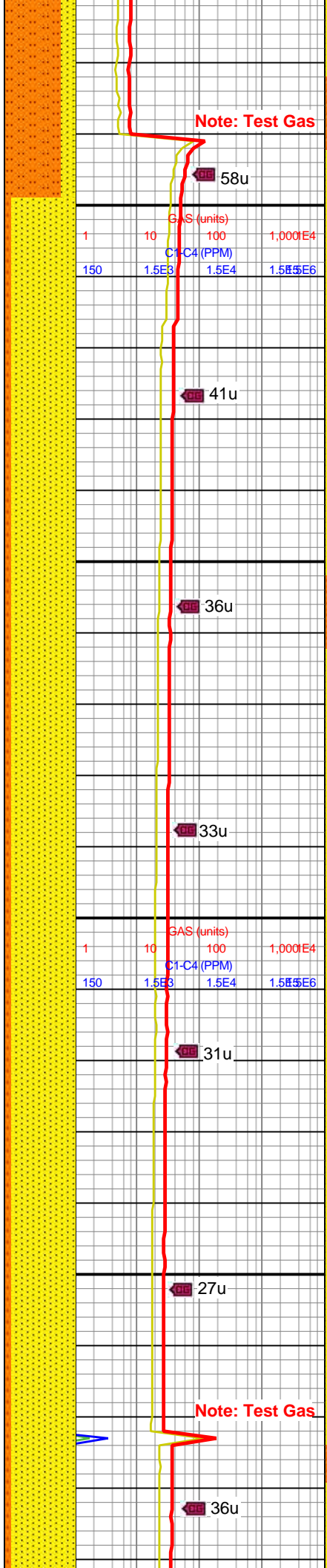
MW IN: 9.4  
VIS IN: 74

RPM: 6.61  
WOB: 20.99  
SPM: 221.9  
SPP: 2,825

MD: 3,465'  
TVD: 3,450.39'  
Inclination: 7.4°  
Azimuth: 282.1°  
VS: -52.74'

MW IN: 9.6  
VIS IN: 66

MD: 3,560'  
TVD: 3,544.56'  
Inclination: 7.8°  
Azimuth: 281.1°  
VS: -54.81'



3200-3400 80% SLTST:  
lt-med gy, blk, rnd-sb  
rnd, non calc, grdg to sst  
ip; 20% SST: predy  
med-dk gy, w cons cls,  
cons silc-arg cmt, pred  
mtx sup, vf-f, grdg to slt,  
sb ang-sb rnd.

Note: Test Gas

58u

41u

36u

33u

31u

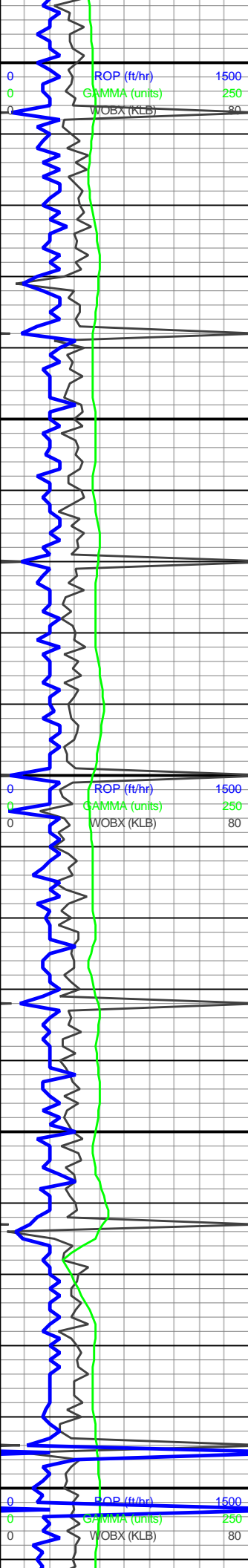
27u

Note: Test Gas

36u

3400-3600 90% SST:  
predy med-dk gy, w cons  
cls, cons silc-arg cmt,  
pred mtx sup, vf-f, grdg to  
slt, sb ang-sb rnd; 10%





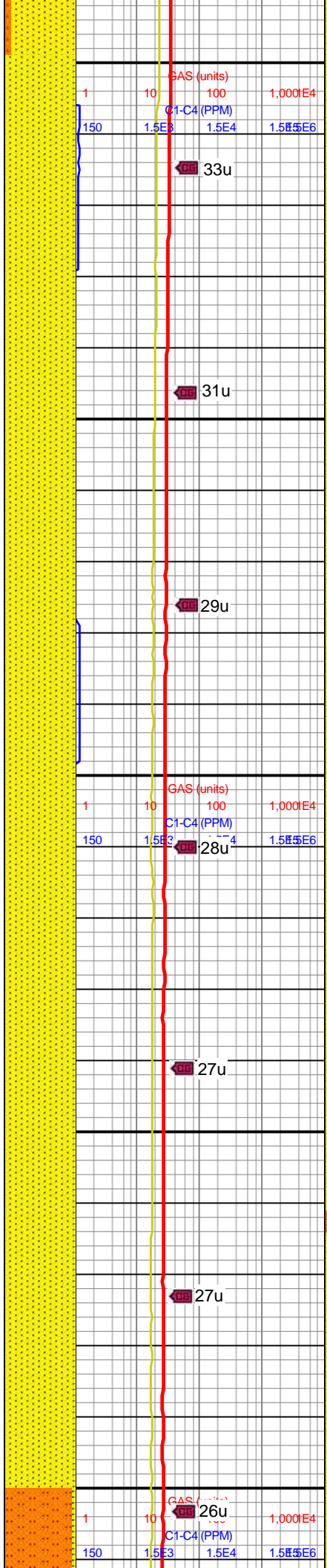
RPM: 0  
WOB: 18.8  
SPM: 112.7  
SPP: 1,266

MD: 3,655'  
TVD: 3,638.69'  
Inclination: 7.7°  
Azimuth: 279.9°  
VS: -56.69'

MW IN: 9.6  
VIS IN: 66

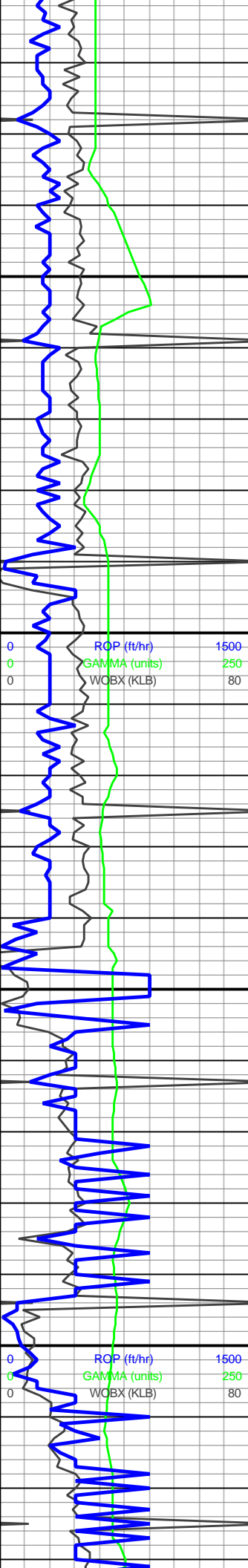
MD: 3,749'  
TVD: 3,731.84'  
Inclination: 7.7°  
Azimuth: 282.7°  
VS: -58.7'

RPM: 0  
WOB: 16.06  
SPM: 113.51  
SPP: 1,240



3600-3800 100% SST:  
predy wht-off wht, sme  
blk, w cons cls, cons  
silc-arg cmt, sl-non calc,  
pred mtx sup, vf-f, sb  
ang-sb rnd, mod w srt





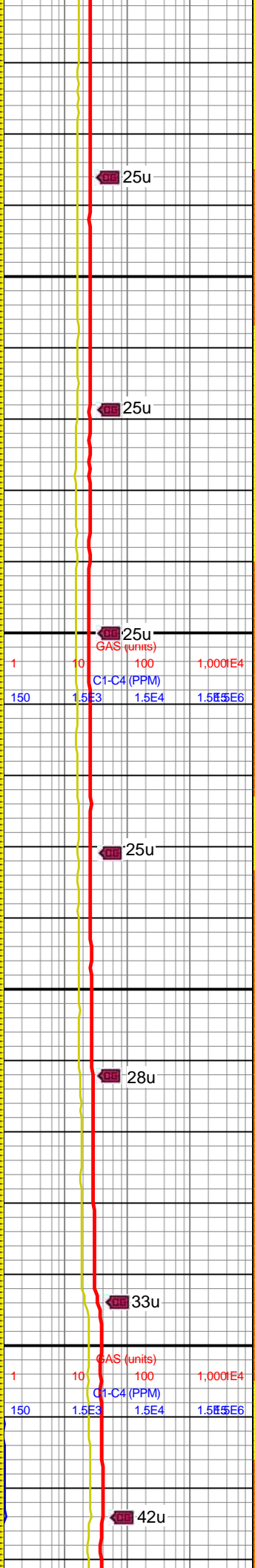
MD: 3,844'  
TVD: 3,826.02'  
Inclination: 7.4°  
Azimuth: 282.1°  
VS: -60.94'

MD: 3,939'  
TVD: 3,920.29'  
Inclination: 6.8°  
Azimuth: 281.8°  
VS: -62.95'

MW IN: 9.3  
VIS IN: 66

RPM: 0.2  
WOB: 0  
SPM: 93  
SPP: 492

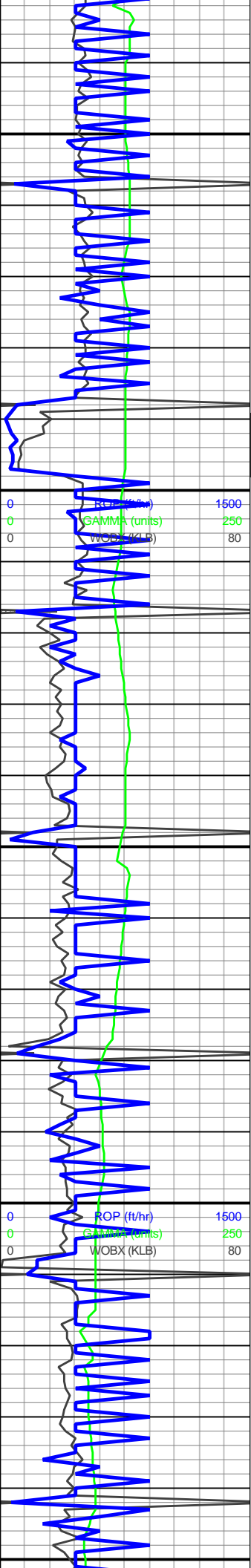
Parkman 4,025' MD/4,006' TVD



3800-4000 95% SLTST:  
lt-med gy, blk, rnd-sb  
rnd, non calc, grd to sst  
ip; 5% SST: predy  
med-dk gy, w cons cls,  
cons silc-arg cmt, pred  
mtx sup, vf-f, grd to slt,  
sb ang-sb rnd.







4,040  
4,050  
4,060  
4,070  
4,080  
4,090  
4,100  
4,110  
4,120  
4,130  
4,140  
4,150  
4,160  
4,170  
4,180  
4,190  
4,200  
4,210  
4,220  
4,230  
4,240  
4,250

MD: 4,033'  
TVD: 4,013.69'  
Inclination: 6.2°  
Azimuth: 295°  
VS: -65.87'

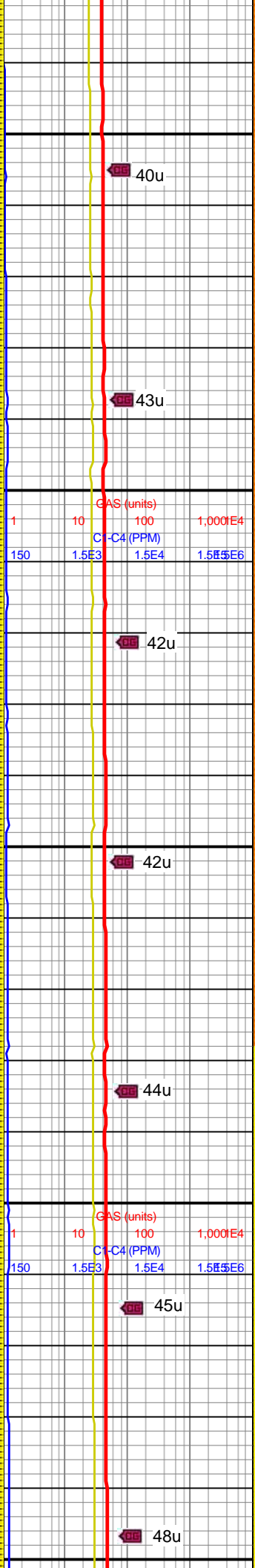
MW IN: 9.3  
VIS IN: 66

MD: 4,128'  
TVD: 4,108.08'  
Inclination: 6.8°  
Azimuth: 286.2°  
VS: -69.23'

RPM: 60  
WOB: 21  
SPM: 219  
SPP: 3,117

MD: 4,223'  
TVD: 4,202.44'  
Inclination: 6.5°  
Azimuth: 283.7°  
VS: -71.69'

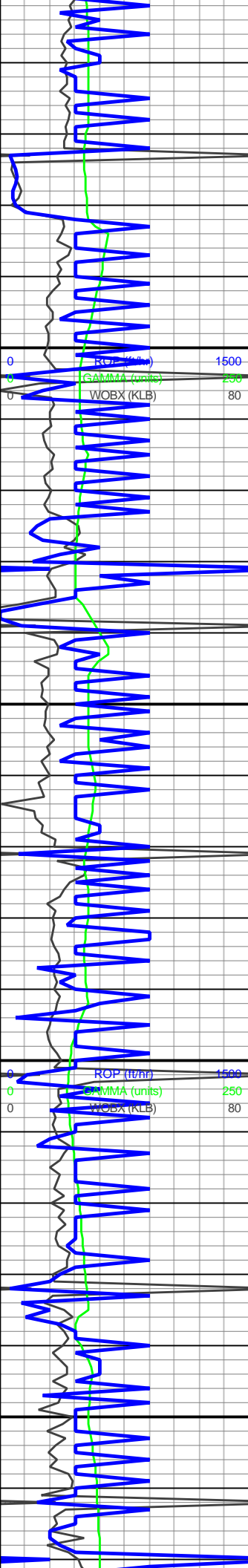
MW IN: 9.3  
VIS IN: 66



4000-4200 95% SLTST:  
lt-med gy, blk, rnd-sb  
rnd, non calc, grdg to sst  
ip; 5% SST: predy  
med-dk gy, w cons cls,  
cons silc-arg cmt, pred  
mtx sup, vf-f, grdg to slt,  
sb ang-sb rnd.







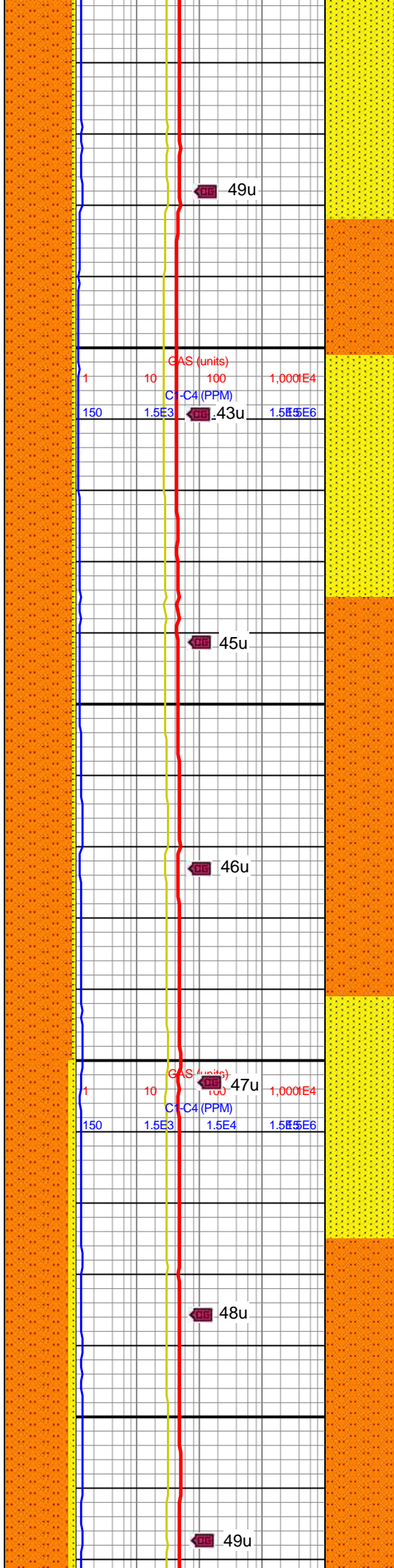
4,260  
4,270  
4,280  
4,290  
4,300  
4,310  
4,320  
4,330  
4,340  
4,350  
4,360  
4,370  
4,380  
4,390  
4,400  
4,410  
4,420  
4,430  
4,440  
4,450  
4,460  
4,470

MD: 4,318'  
TVD: 4,296.64'  
Inclination: 8.4°  
Azimuth: 284.8°  
VS: -74.3'

MW IN: 9.3  
VIS IN: 66

RPM: 20  
WOB: 86  
SPM: 0  
SPP: 0

MD: 4,412'  
TVD: 4,389.61'  
Inclination: 8.6°  
Azimuth: 280.9°  
VS: -76.88'



49u

43u

45u

46u

47u

48u

49u

4200-4400 95% SLTST:  
lt-med gy, rnd-sb rnd,  
non calc, grdg to sst ip;  
5% SST: predy med-dk  
gy, pred mtx sup, vf-f,  
grdg to slt, sb ang-sb  
rnd.





MW IN: 9.3  
VIS IN: 66

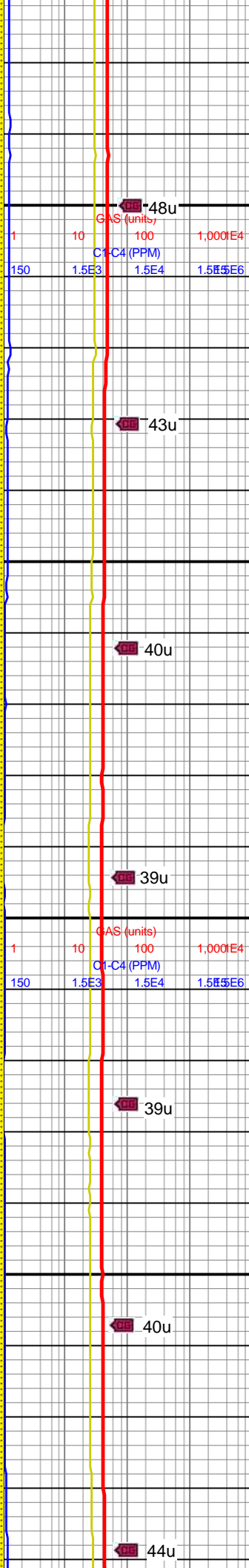
MD: 4,507'  
TVD: 4,483.56'  
Inclination: 8.4°  
Azimuth: 281.6°  
VS: -79.12'

RPM: 54  
WOB: 0  
SPM: 105  
SPP: 913

MD: 4,602'  
TVD: 4,577.47'  
Inclination: 9°  
Azimuth: 277.6°  
VS: -80.98'

MW IN: 9.3  
VIS IN: 66

MD: 4,696'



48u  
GAS (units)  
C4 (PPM)  
150 1.5E3 1.5E4 1.5E6

43u

40u

39u

GAS (units)  
C4 (PPM)  
150 1.5E3 1.5E4 1.5E6

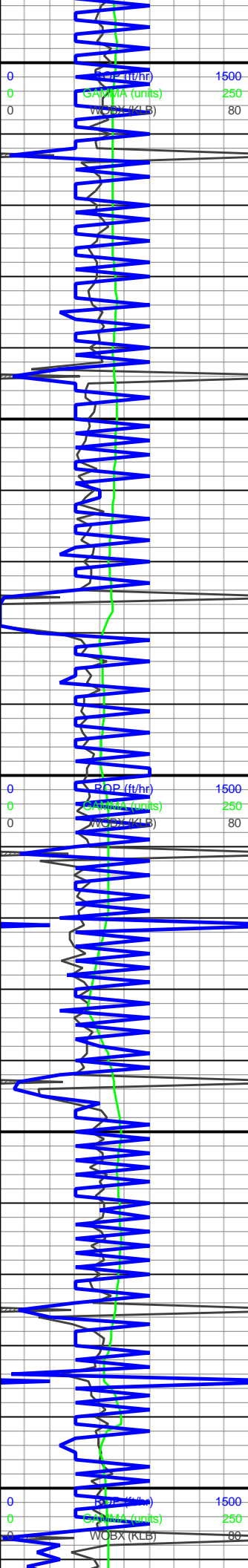
39u

40u

44u

4400-4600 90% SLTST:  
lt-med gy, blk, rnd-sb  
rnd, non calc, grdg to sst  
ip; 10% SST: predy  
med-dk gy, w cons cls,  
cons silc-arg cmt, pred  
mtx sup, vf-f, grdg to slt,  
sb ang-sb rnd.





TVD: 4,670.36'  
Inclination: 8.6°  
Azimuth: 275.6°  
VS: -82.11'

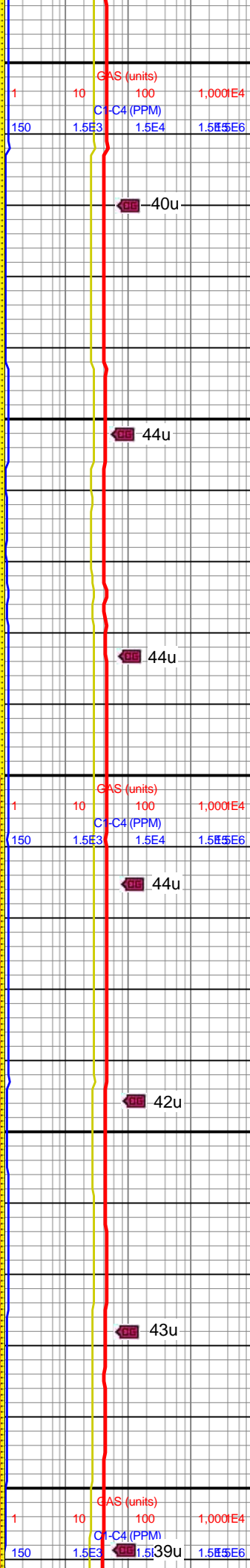
MW IN: 9.3  
VIS IN: 66

MD: 4,791'  
TVD: 4,764.33'  
Inclination: 8.3°  
Azimuth: 277°  
VS: -83.14'

RPM: 49  
WOB: 29  
SPM: 212  
SPP: 3,524

MW IN: 9.3  
VIS IN: 66

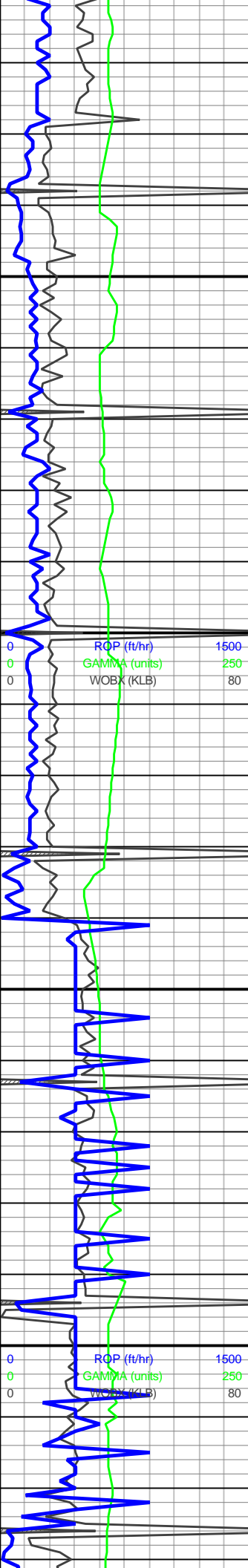
MD: 4,886'  
TVD: 4,858.41'  
Inclination: 7.7°  
Azimuth: 270.9°  
VS: -83.59'



4600-4800 90% SLTST:  
lt-med gy, blk, rnd-sb  
rnd, non calc, grdg to sst  
ip; 10% SST: predy  
med-dk gy, cons silc-arg  
cmt, pred mtx sup, vf-f,  
grdg to slt, sb ang-sb  
rnd.







4,920  
4,930  
4,940  
4,950  
4,960  
4,970  
4,980  
4,990  
5,000  
5,010  
5,020  
5,030  
5,040  
5,050  
5,060  
5,070  
5,080  
5,090  
5,100  
5,110  
5,120  
5,130

MD: 4,980'  
TVD: 4,951.66'  
Inclination: 6.9°  
Azimuth: 286.4°  
VS: -84.86'

RPM: 12  
WOB: 106  
SPM: 5  
SPP: 0

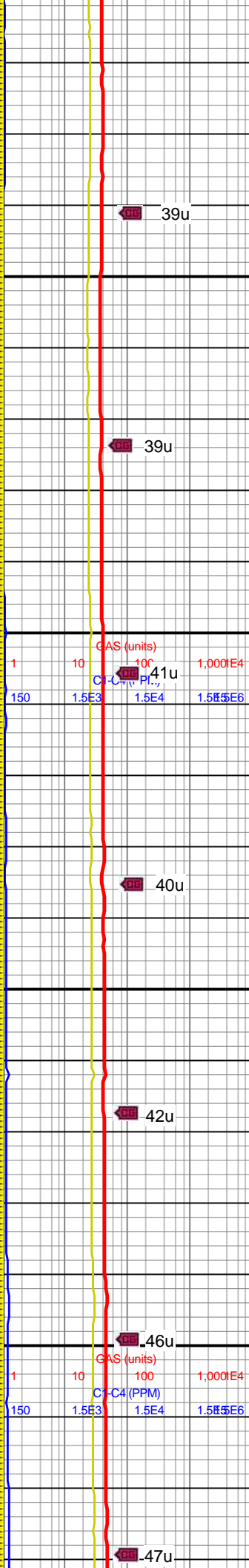
MW IN: 9.3  
VIS IN: 66

MD: 5,075'  
TVD: 5,046.05'  
Inclination: 6°  
Azimuth: 287.9°  
VS: -87.62'

MINDEPTH 5/31/17

RPM: 12  
WOB: 106  
SPM: 5  
SPP: 0

MW IN: 9.3  
VIS IN: 66



39u

39u

41u

40u

42u

46u

47u

4800-5000 95% SLTST:  
lt-med gy, rnd-sb rnd,  
non calc, grdg to sst ip;  
5% SST: predy med-dk  
gy, pred mtx sup, vf-f,  
grdg to slt, sb ang-sb  
rnd.







5,140  
5,150  
5,160  
5,170  
5,180  
5,190  
5,200  
5,210  
5,220  
5,230  
5,240  
5,250  
5,260  
5,270  
5,280  
5,290  
5,300  
5,310  
5,320  
5,330  
5,340  
5,350

MW IN: 9.3  
VIS IN: 66

MD: 5,170'  
TVD: 5,140.58'  
Inclination: 5.5°  
Azimuth: 296°  
VS: -90.82'

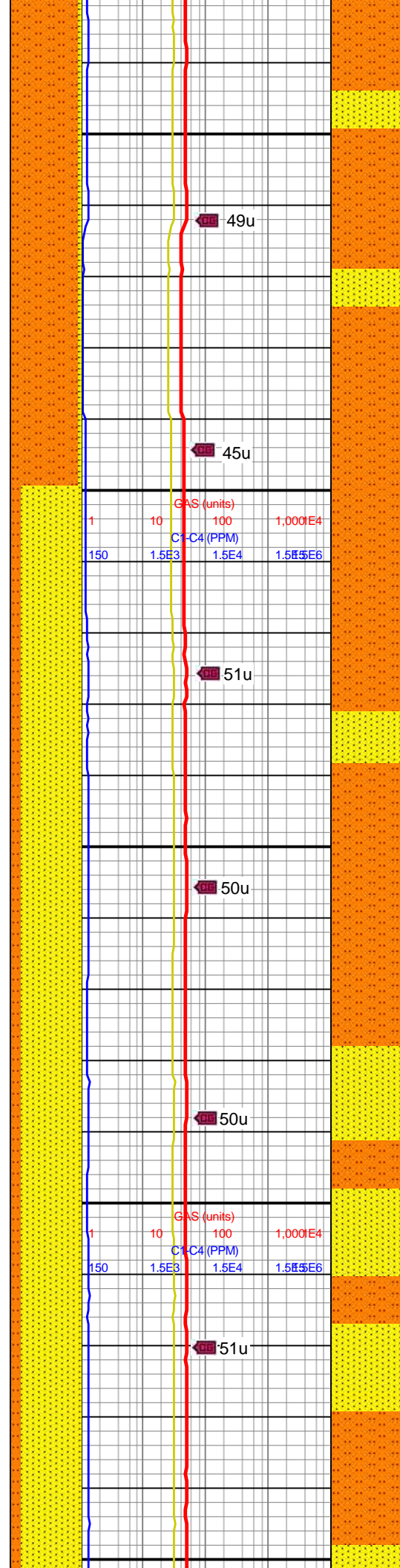
MW IN: 9.2  
VIS IN: 59

RPM: 22  
WOB: 105  
SPM: 0  
SPP: 0

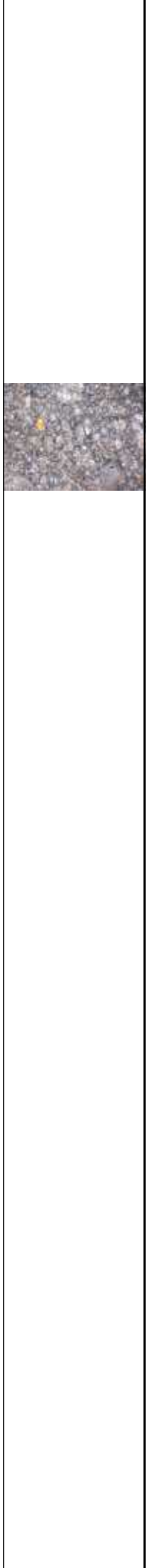
MW IN: 9.2  
VIS IN: 58

MD: 5,264'  
TVD: 5,233.97'  
Inclination: 7.5°  
Azimuth: 294.6°  
VS: -94.99'

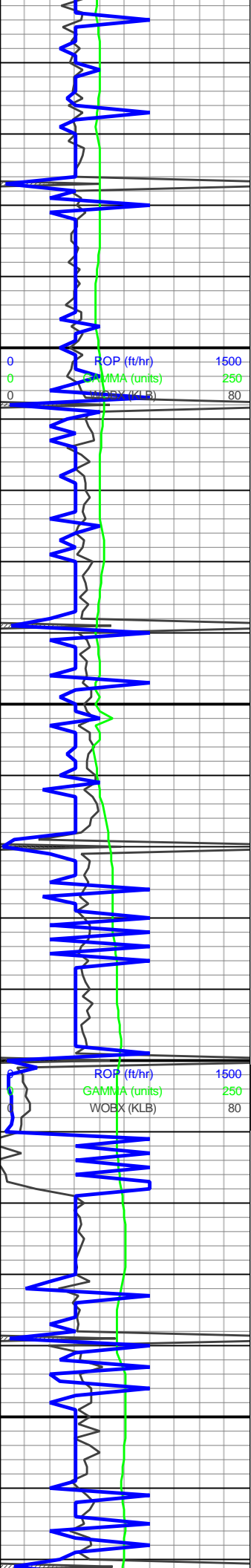
MW IN: 9.2  
VIS IN: 58



49u  
45u  
51u  
50u  
50u  
51u



5000-5200 95% SLTST:  
lt-med gy, rnd-sb rnd,  
non calc, grdg to sst ip;  
5% SST: predy med-dk  
gy, vf-f, grdg to slt, sb  
ang-sb rnd.



MD: 5,359'  
TVD: 5,328.06'  
Inclination: 8.4°  
Azimuth: 284.6°  
VS: -98.87'

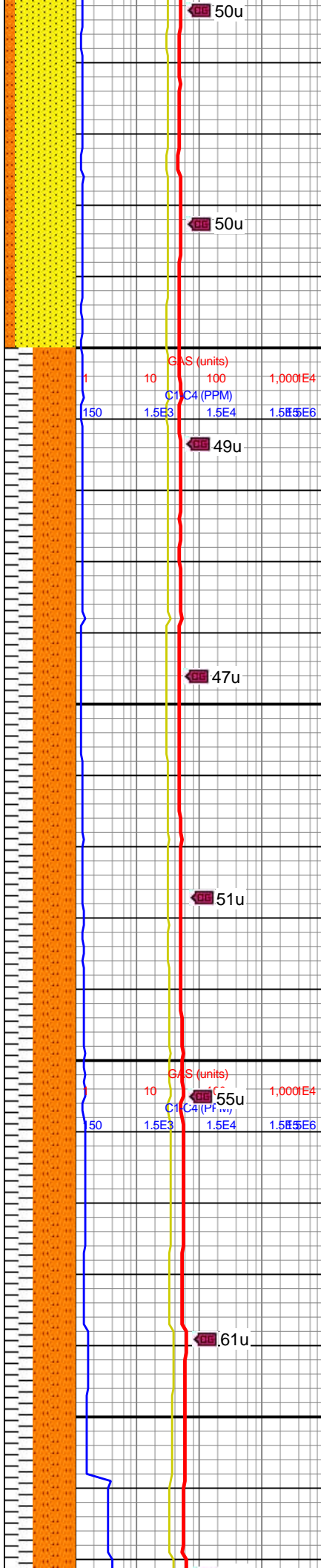
RPM: 49.75  
WOB: 25.22  
SPM: 205.71  
SPP: 3,335

MD: 5,454'  
TVD: 5,422.12'  
Inclination: 7.7°  
Azimuth: 282.3°  
VS: -101.5'

MW IN: 9.2  
VIS IN: 58

MD: 5,549'  
TVD: 5,516.23'  
Inclination: 8°  
Azimuth: 284.6°  
VS: -104.06'

MW IN: 9.2  
VIS IN: 68



50u

50u

49u

47u

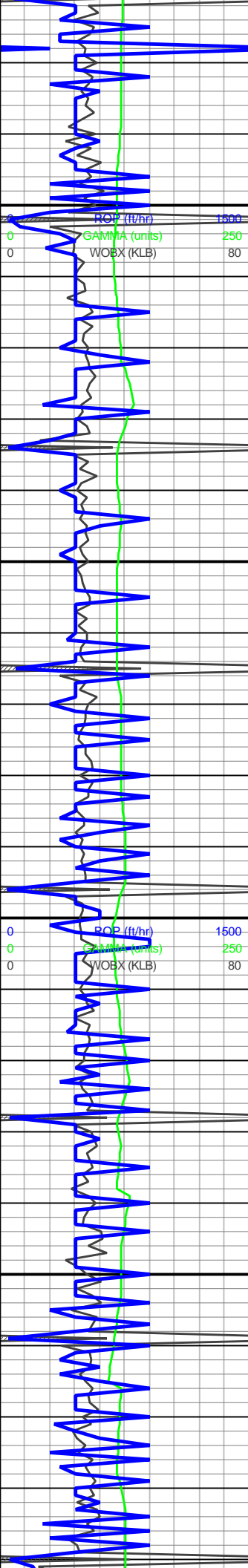
51u

55u

61u

5200-5400 85% SST:  
predy med-dk gy, sme lt  
brn-buff, vf-f, sb ang-sb  
rnd, w srt, tr dk lthc incl;  
15% SLTST: lt-med gy,  
sme wht-crm, rnd-sb rnd,  
non calc.



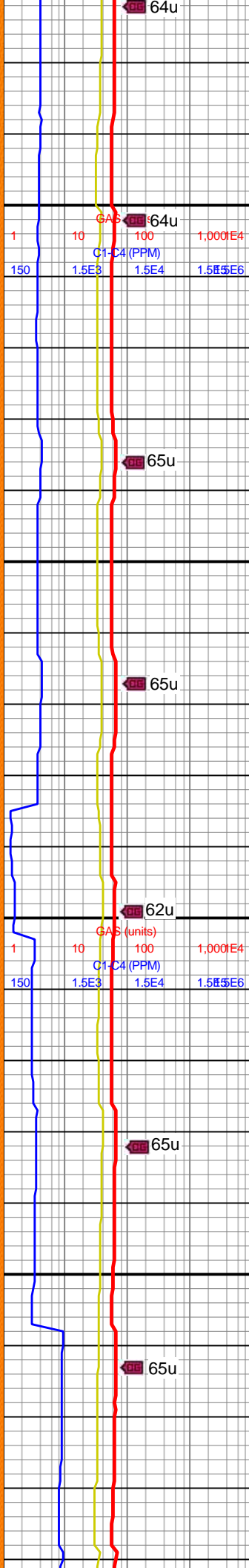


RPM: 49.85  
WOB: 30.42  
SPM: 209.2  
SPP: 3,463

MD: 5,644'  
TVD: 5,610.46'  
Inclination: 6.6°  
Azimuth: 280.6°  
VS: -106.3'

MW IN: 9.2  
VIS IN: 68

MD: 5,740'  
TVD: 5,705.95'  
Inclination: 5.2°  
Azimuth: 279.9°  
VS: -107.71'



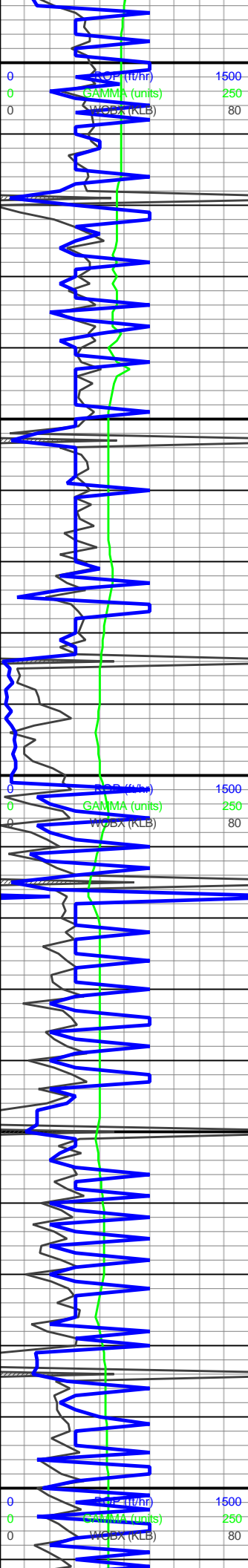
5400-5600 85% SLTY  
SH: md-dk gy, sb  
plty-sbtab, frm, slty-sl  
abrsv, tr sltst grdg: 15%  
SLTY SS predy mot  
med-dk gy, sme lt  
brn-buff, vf-f, sb ang-sb  
rnd, w srt, tr dk lthc incl: tr  
SS



5600-5800 100% SLTY  
SH: md-dk gy, sb  
plty-sbtab, frm, slty-sl







RPM: 49.93  
WOB: 28.67  
SPM: 214.86  
SPP: 3,842

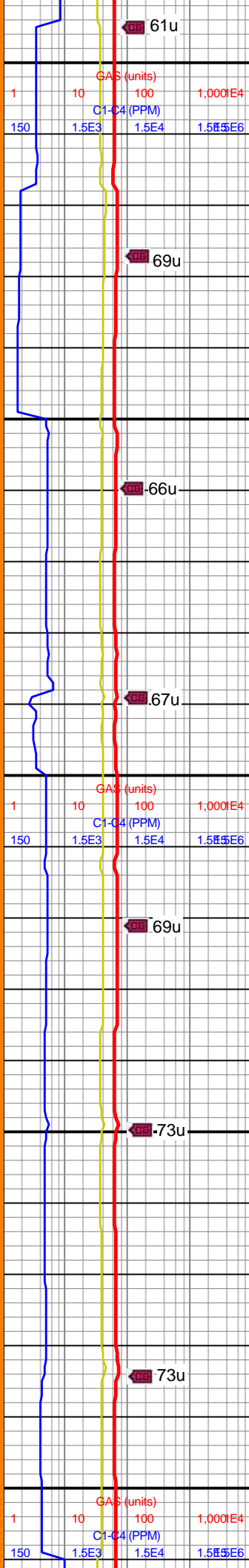
MW IN: 9.2  
VIS IN: 68

MD: 5,835'  
TVD: 5,800.65'  
Inclination: 3.9°  
Azimuth: 271.2°  
VS: -108.24'

MD: 5,930'  
TVD: 5,895.38'  
Inclination: 4.7°  
Azimuth: 265.6°  
VS: -107.75'

MW IN: 9.2  
VIS IN: 68

RPM: 50.6  
WOB: 21.95  
SPM: 217.11  
SPP: 3,709



61u

69u

66u

67u

69u

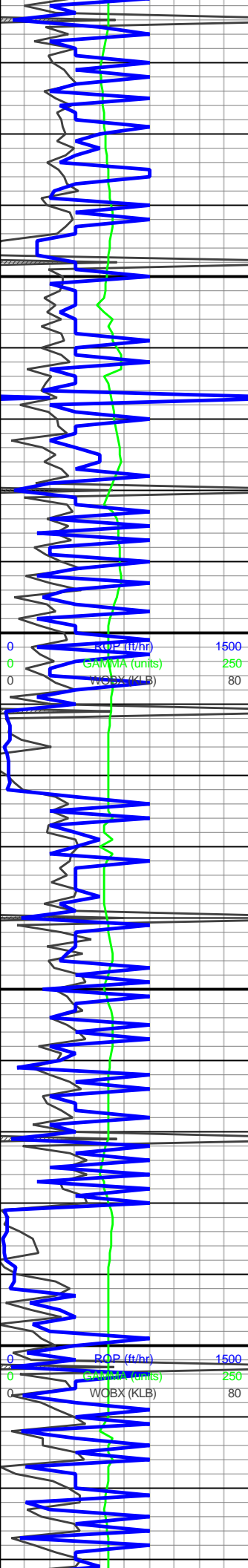
73u

73u

plty-sbt, tr sltst grd, tr pyr  
incl: tr SLTST

5800-6000 85% SLTY  
SH: md-dk gy, sb  
plty-sbt, frm-hd, slty-sl  
abrs, tr sltst grd, tr pyr  
incl: 15% SLTST predy  
lt-med brn, sme med gy,  
vf, blk-sb plty, tr dk lthc  
incl, tr cal incl





MD: 6,025'  
TVD: 5,990.11'  
Inclination: 4°  
Azimuth: 263.5°  
VS: -106.82'

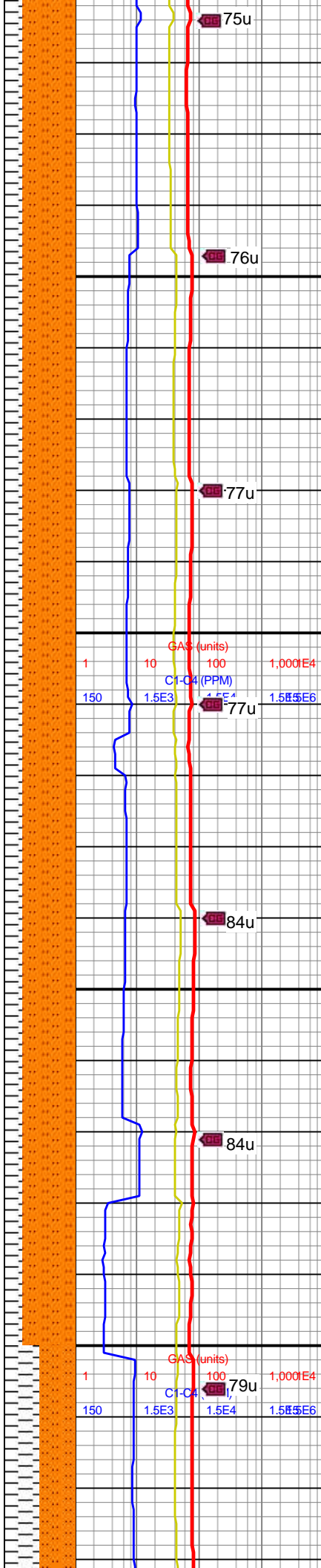
MW IN: 9.2  
VIS IN: 68

MW IN: 9.3  
VIS IN: 58

MD: 6,120'  
TVD: 6,084.91'  
Inclination: 3.4°  
Azimuth: 268.6°  
VS: -106.15'

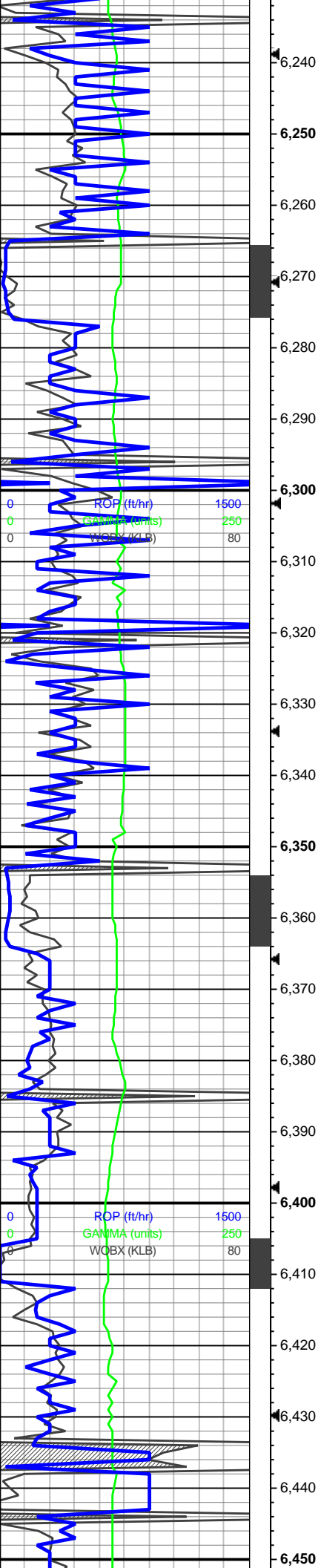
RPM: 50.6  
WOB: 21.95  
SPM: 217.11  
SPP: 3,709

MD: 6,215'  
TVD: 6,179.75'  
Inclination: 3.3°  
Azimuth: 269.5°  
VS: -105.86'



6000-6200 50% SLTY  
SH: md-dk gy, sb  
pity-sbtab, frm-hd, slty-sl  
abrsv, tr sltst grd, tr pyr  
incl: 50% SLTST predy  
lt-med gyshbn, sme med  
gy, vf, blkt-sb pity, tr dk  
lthc incl, tr cal incl, tr  
micmica, tr pyr incl





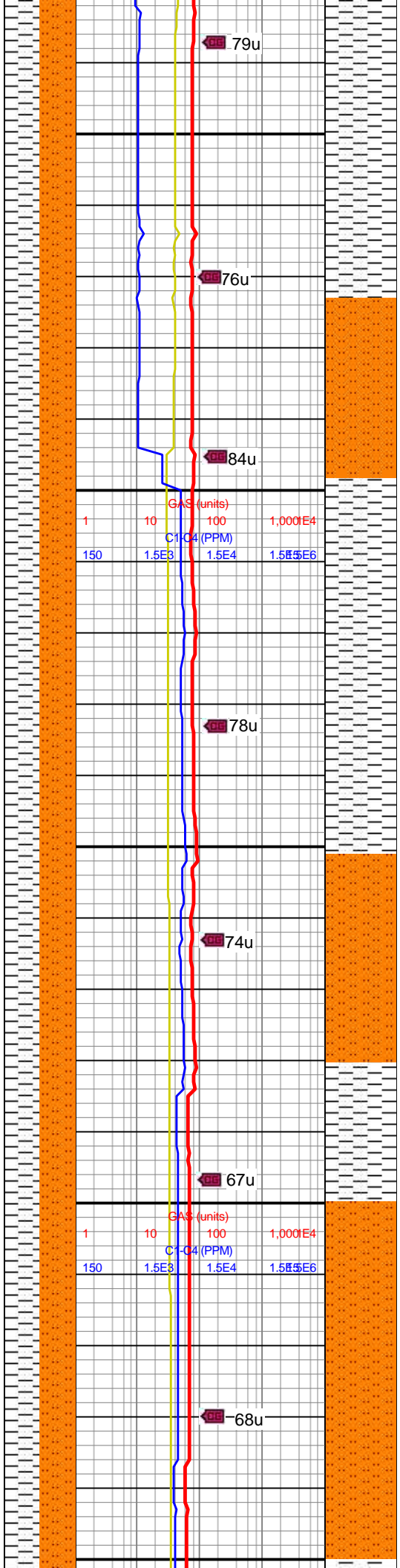
MW IN: 9.4  
VIS IN: 59

MD: 6,311'  
TVD: 6,275.64'  
Inclination: 2°  
Azimuth: 251.2°  
VS: -105.13'

RPM: 48  
WOB: 0.87  
SPM: 207  
SPP: 2,942

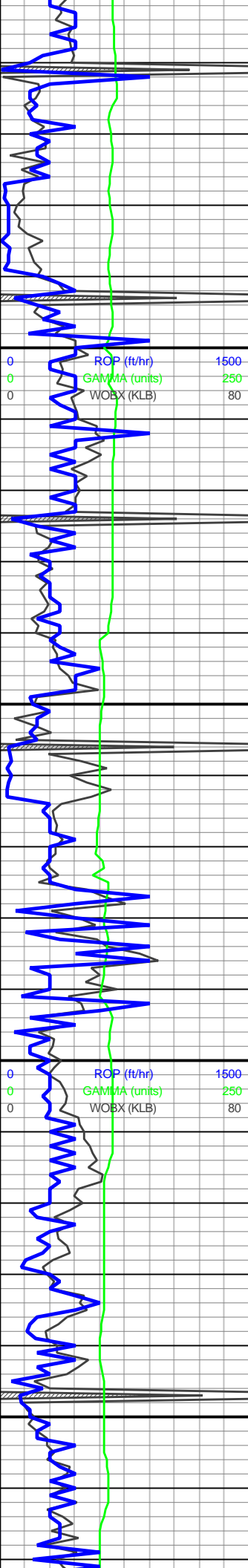
MD: 6,407'  
TVD: 6,371.6'  
Inclination: 1.7°  
Azimuth: 304.1°  
VS: -105.29'

MW IN: 9.4  
VIS IN: 59



6200-6400 100% SLTY  
SH: dk-med gy, sme mot  
gyshbn, plty-sb blk,  
sly-sl grity, frm-fri, vf sltst  
grdg, dk lthc frag.





6,460  
6,470  
6,480  
6,490  
6,500  
6,510  
6,520  
6,530  
6,540  
6,550  
6,560  
6,570  
6,580  
6,590  
6,600  
6,610  
6,620  
6,630  
6,640  
6,650  
6,660  
6,670

MD: 6,502'  
TVD: 6,466.57'  
Inclination: 1°  
Azimuth: 281.6°  
VS: -106.18'

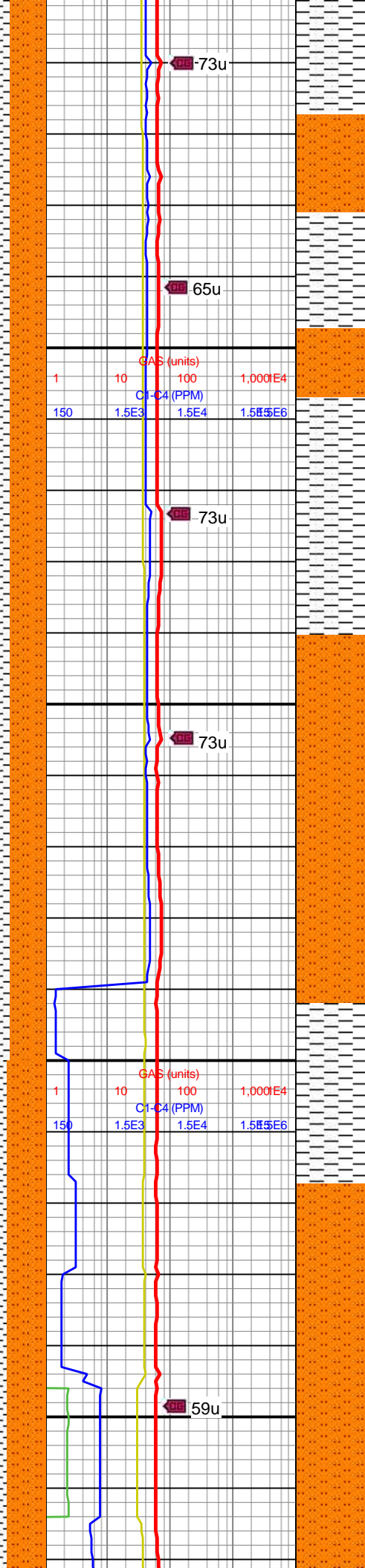
MW IN: 9.4  
VIS IN: 59

MD: 6,597'  
TVD: 6,561.56'  
Inclination: 1.1°  
Azimuth: 276.3°  
VS: -106.38'

RPM: 52  
WOB: 19  
SPM: 212  
SPP: 3,800

MW IN: 9.4  
VIS IN: 64

MW IN: 9.4  
VIS IN: 61



73u

65u

73u

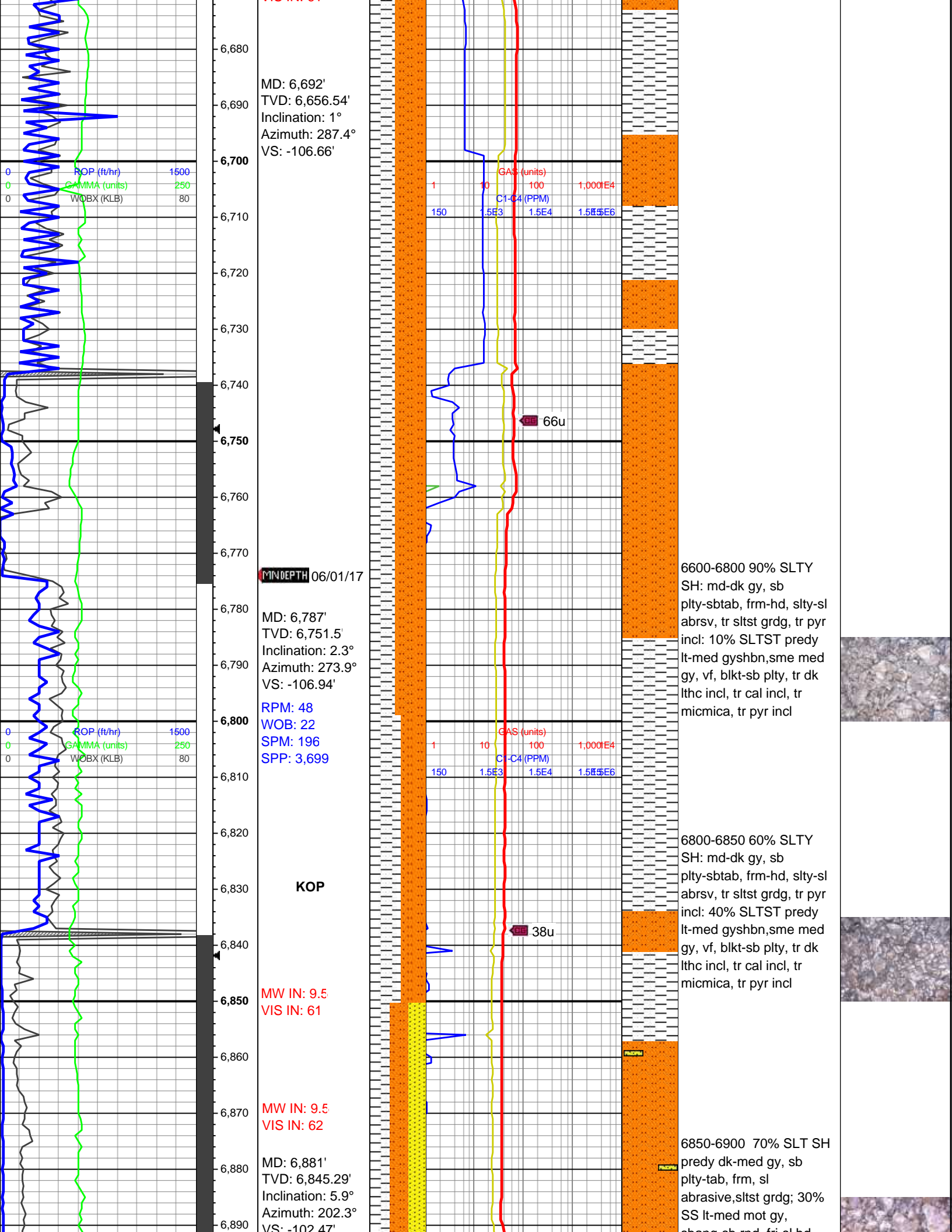
73u

59u

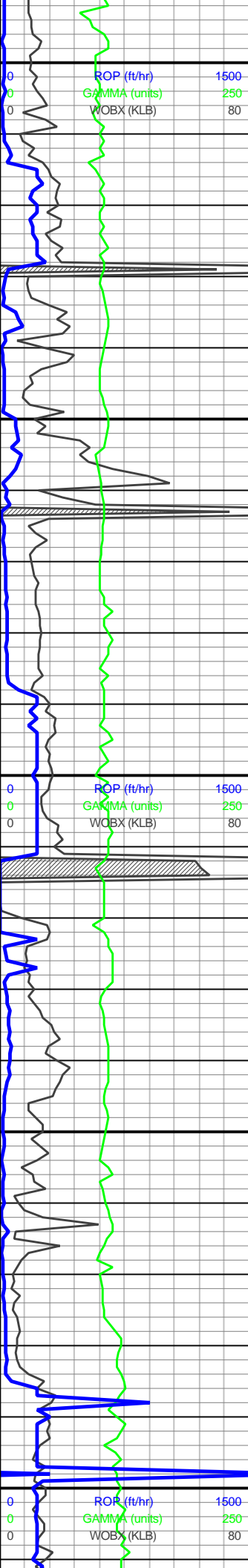
6400-6600 100% SLTY  
SH: dk-med gy, sme mot  
gyshbn, plty-sb blkly,  
sly-sl grity, frm-fri, vf sltst  
grdg, dk lthc frag.











Bit #: 2  
Type: PDC  
Size: 8.5  
Depth In: 6,963'  
Depth Out: 7,912'  
Hours: 19 hrs  
Avg Ft/Hr: 49.9  
'/hr  
Jets: 12X9  
S/N: A223117  
**Drilling**  
**@21:30 on**  
**06/01/17**  
MD: 6,976'  
TVD: 6,938.94'  
Inclination: 13°  
Azimuth: 201.1°  
VS: -87.76°

RPM: 29  
WOB: 14  
SPM: 216  
SPP: 4,052

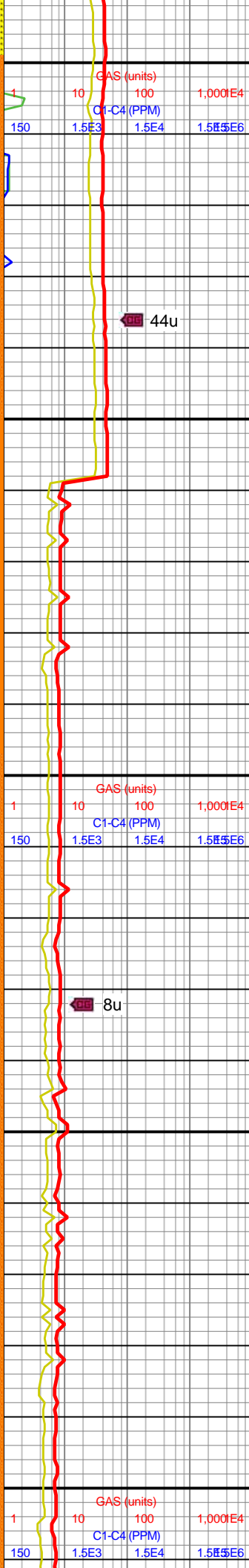
MW IN: 9.5  
VIS IN: 62

MINDEPTH 6/2/17

MW IN: 9.4  
VIS IN: 62

**UpperSharon**  
**Springs**   
7,078' MD/7,035' TVD

MD: 7,071'  
TVD: 7,028.99'  
Inclination: 23.8°  
Azimuth: 187°  
VS: -58.46°



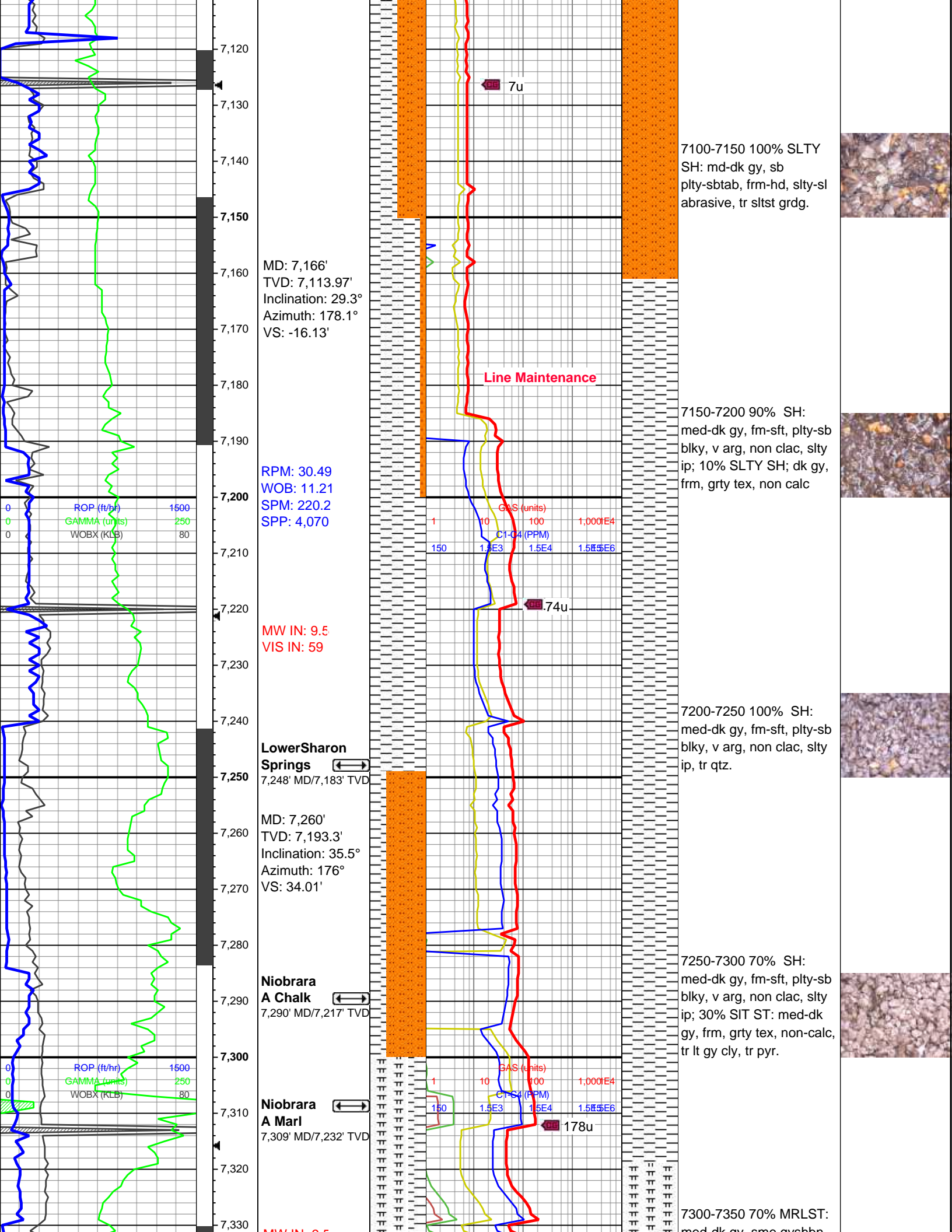
sbang-sb md, m-si md,  
mod w srt, tr free qtz, tr dk  
lithc frag.

6900-6950 100% SLT  
SH: predy dk-med gy, sb  
plty-tab, frm, sl abrasive,  
sltst grdg; tr SS

6950-7000 70% SLTY  
SH: md-dk gy, sb  
plty-sbtab, frm-hd, slty-sl  
abrasive, tr sltst grdg, tr  
pyr incl: 30% SLTST  
predy lt-med gysbhn, sme  
med gy, vf, blkt-sb plty, tr  
dk lithc incl, tr cal incl, tr  
micmica.

7000-7050 100% SLTY  
SH: md-dk gy, sb  
plty-sbtab, frm-hd, slty-sl  
abrasive, tr sltst grdg.

7050-7100 100% SLTY  
SH: md-dk gy, sb  
plty-sbtab, frm-hd, slty-sl  
abrasive, tr sltst grdg.



MD: 7,166'  
TVD: 7,113.97'  
Inclination: 29.3°  
Azimuth: 178.1°  
VS: -16.13'

RPM: 30.49  
WOB: 11.21  
SPM: 220.2  
SPP: 4,070

MW IN: 9.5  
VIS IN: 59

**Lower Sharon Springs**  
7,248' MD/7,183' TVD

MD: 7,260'  
TVD: 7,193.3'  
Inclination: 35.5°  
Azimuth: 176°  
VS: 34.01'

**Niobrara A Chalk**  
7,290' MD/7,217' TVD

**Niobrara A Marl**  
7,309' MD/7,232' TVD

7100-7150 100% SLTY SH: md-dk gy, sb plty-sbtab, frm-hd, slty-sl abrasive, tr sltst grd.

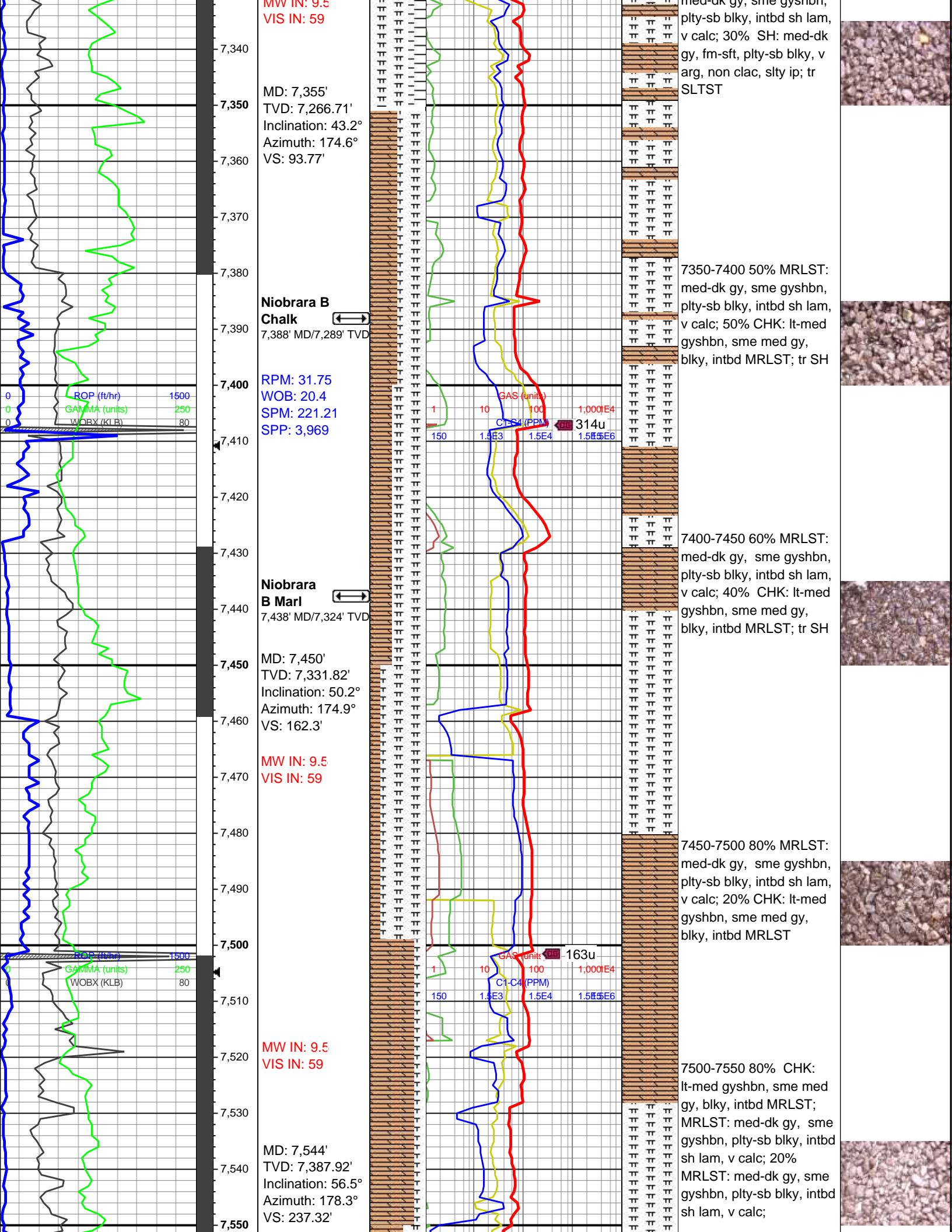
7150-7200 90% SH: med-dk gy, fm-sft, plty-sb blkly, v arg, non clac, slty ip; 10% SLTY SH; dk gy, frm, grty tex, non calc

7200-7250 100% SH: med-dk gy, fm-sft, plty-sb blkly, v arg, non clac, slty ip, tr qtz.

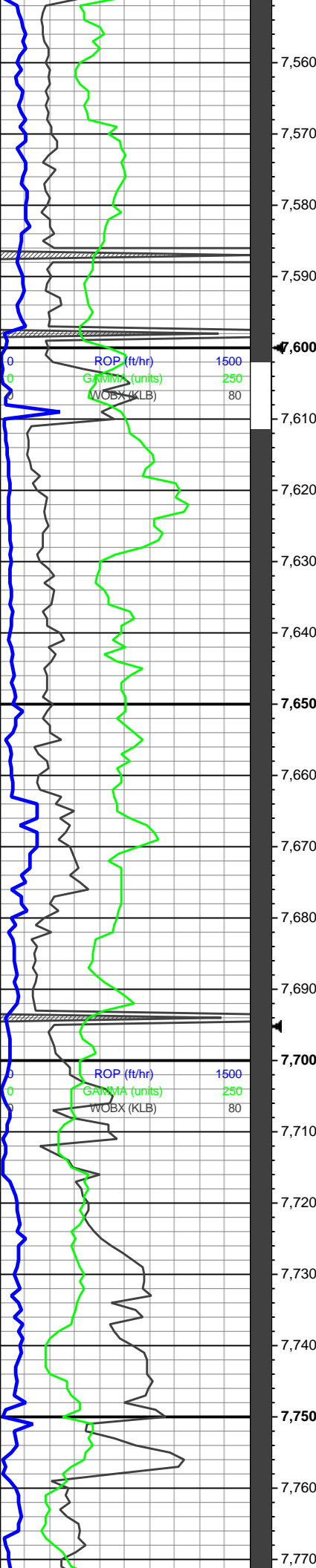
7250-7300 70% SH: med-dk gy, fm-sft, plty-sb blkly, v arg, non clac, slty ip; 30% SIT ST: med-dk gy, frm, grty tex, non-calc, tr lt gy cly, tr pyr.

7300-7350 70% MRLST: med dk gy, ome avshba











RPM: 0.32  
WOB: 14.68  
SPM: 219.89  
SPP: 3,925

**M Zone**   
7,610'MD/7,422'TVD

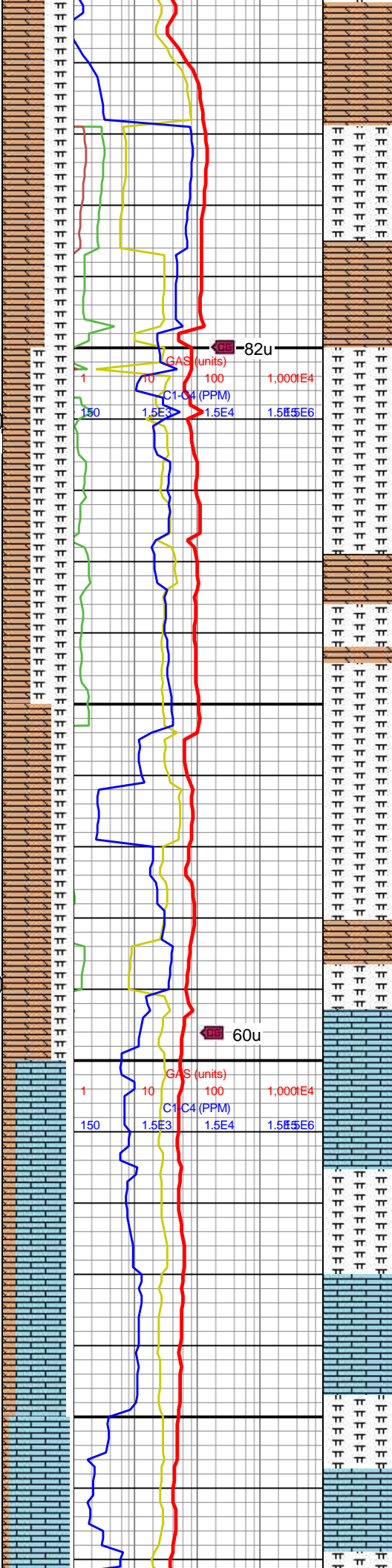
MD: 7,639'  
TVD: 7,436.69'  
Inclination: 61.7°  
Azimuth: 177°  
VS: 318.56'

**Ft Hayes**   
7,689'MD/7,456'TVD

MW IN: 9.4  
VIS IN: 61

MD: 7,734'  
TVD: 7,473.14'  
Inclination: 73.1°  
Azimuth: 177.4°  
VS: 405.8'

MW IN: 9.4  
VIS IN: 58

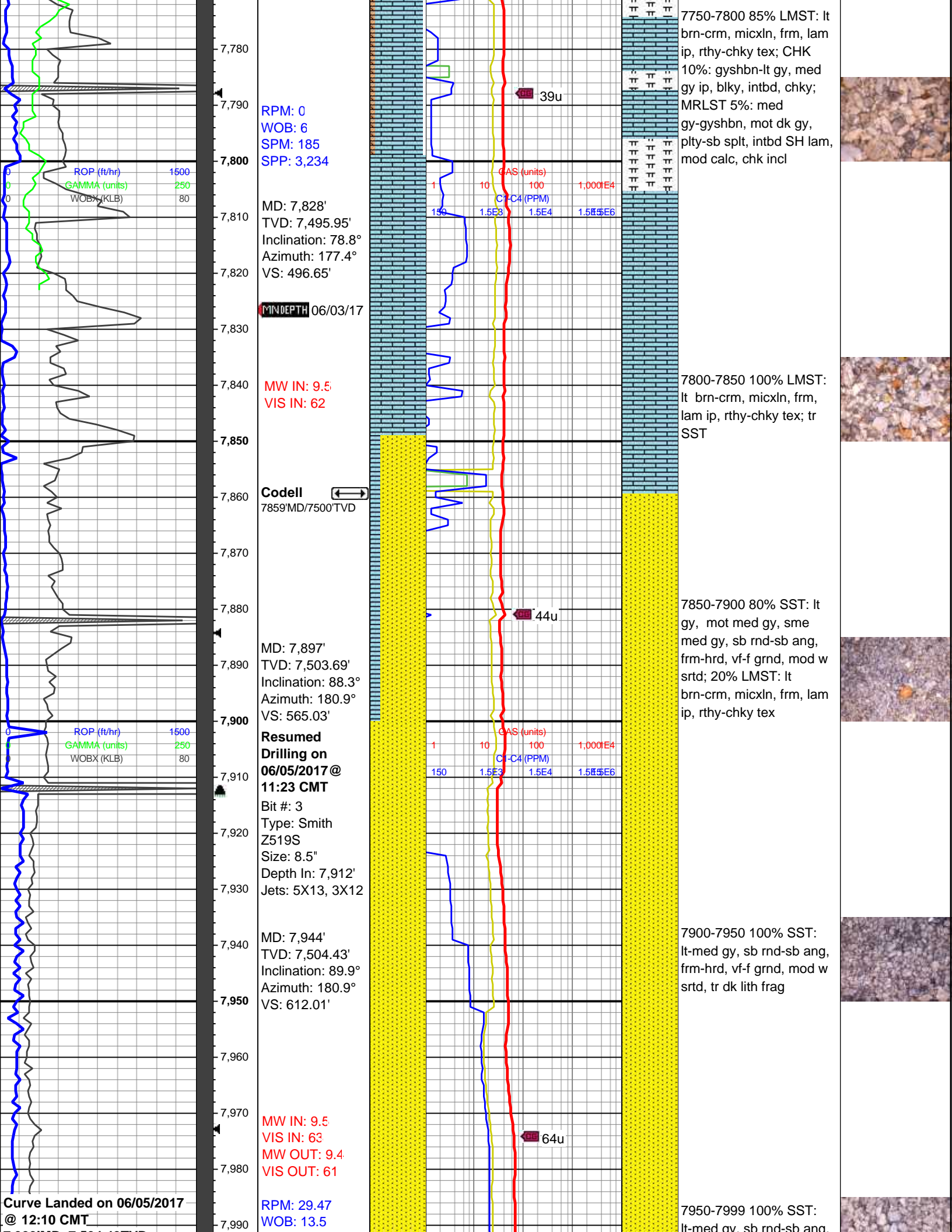


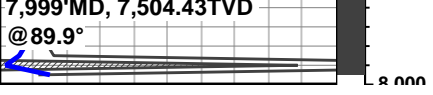
7550-7600 60% CHK:  
lt-med gyshbn, sme med  
gy, blk, intbd MRLST;  
MRLST: med-dk gy, sme  
gyshbn, plty-sb blk, intbd  
sh lam, v calc; 40%  
MRLST: med-dk gy, sme  
gyshbn, plty-sb blk, intbd  
sh lam, v calc; Tr pyr

7600-7650 60% MRLST:  
med-dk gy, sme gyshbn,  
plty-sb blk, intbd sh lam,  
v calc; 40% CHK:  
lt-med gyshbn, sme med  
gy, blk, intbd MRLST;  
MRLST: med-dk gy, sme  
gyshbn, plty-sb blk, intbd  
sh lam, v calc;

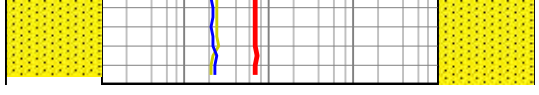
7650-7700 70% CHK:  
lt-med gyshbn, sme med  
gy, blk, intbd MRLST;  
MRLST: med-dk gy, sme  
gyshbn, plty-sb blk, intbd  
sh lam, v calc; 30%  
MRLST: med-dk gy, sme  
gyshbn, plty-sb blk, intbd  
sh lam, v calc;

7700-7750 70% LMST: lt  
brn-crm, micxln, frm, lam  
ip, rthy-chky tex; CHK  
20%: gyshbn-lt gy, med  
gy ip, blk, intbd, chky;  
MRLST 10%: med  
gy-gyshbn, mot dk gy,  
plty-sb spl, intbd SH lam,  
mod calc, chk incl





SPM: 149.2  
SPP: 3,831



fractured, ss and ss ang,  
frm-hrd, vf-f grnd, mod w  
srted, tr dk lith frag

