



Scale: 5" / 100'  
Measured Depth Log

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

**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** 5,288'

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

**Logged Interval** 7,550' To 17,882'

**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

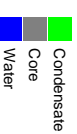
**Address** 5251 DTC Parkway, Suite 420  
Greenwood Village, Colorado 80111



























## Other

**Logging Services Provided By:** ALS Oil & Gas Heather Davis, C

## Zone Color Coding



## Rock Types

 UNKNOWN	 DOLOMITE	 SHALE GRAY	 TILL
 ANHYDRITE	 CHERT	 SHALE COLORED	 BENTONITE
 GYPSUM	 COAL	 SILTSTONE	 TUFF
 SALT	 MARLSTONE	 SANDSTONE	 IGNEOUS
 CHALK	 CLAYSTONE	 CONGLOMERATE	 METAMORPHIC
 LIMESTONE	 SHALE	 BRECCIA	 CEMENT

## Other Syn

### Oil Show

 ORGANIC	 FORM
 PINPOINT	 GAS SHOW

D DEAD

 VUGGY	 MINERAL DEPTH
---	---

● EVEN

 NORMAL F.	 NORMAL F.
---	---

○ QUESTIONABLE

### Engineering

 OIL SHOW	 OIL SHOW
--	--

● SPOTTED STAINING

 BIT	 OVERTUNE
---	--

CASING

 REVERSE	 REVERSE
---	---

### Porosity

 CONNECTION (LEFT)	 SIDEWALL
---	--

E EARTHY

 CONNECTION (RIGHT)	 SIDEWALL
--	--


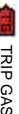
■ FENESTRAL

 CONNECTION GAS	 SLIDE
--	---

F FRACTURE

 CORE - LOST	 SURVEY
---	--

X INTERCRYSTALLINE

 CORE - RECOVERED	 TRIP GAS
--	--

◇ INTEROOLITIC

 DST INTERVAL	 WIRELINE
--	--













⌘ MOLDIC

 FAULT	 WIRELINE
---	--

## Accessories

F FOSSIL	— ARGILLACEOUS	↘ GLAUCONITE
 GASTROPOD	/ ARGILLITE GRAIN	⌘ GYPSIFEROUS
◇ OOLITE	B BENTONITE	⌘ HEAVY MINERAL
⌘ AMPHIPORA	— BITUMENOUS SUBSTANCE	K KAOLIN
⌘ BELEMNITE	 BRECCIA FRAGMENTS	⌘ MARLSTONE
⌘ BIOCLASTIC	⌘ PELLET	⌘ MINERAL CRYSTALS
⌘ BRACHIOPOD	⌘ PISOLITE	■ CARBONACEOUS FLAKES
⌘ BRYOZOA	⌘ PLANT REMAINS	⌘ NODULES
 CEPHALOPOD	⌘ PLANT SPORES	⌘ CHITDK
⌘ CORAL	⌘ SCAPHOPOD	⌘ CHTLT
⌘ CRINOID	⌘ STROMATOPOROID	— COAL - THIN BEDS
⌘ ECHINOID	⌘ STROMATOPOROID	⌘ DOLOMITIC
⌘ FISH	⌘ ECHINOID	⌘ SANDY
⌘ FORAMINIFERA	⌘ ANHYDRITIC	⌘ FERRUGINOUS
		⌘ FERRUGINOUS PELLET
		⌘ SILTY
		⌘ TUFFACEOUS
		⌘ FELDSPAR
		⌘ SILICEOUS
		⌘ SHALE STRINGER
		⌘ SILTSTONE STRINGER
		⌘ TUFFACEOUS

### Stringer

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

# mbols

L LITHOGRAPHIC

## Rounding

**MX** MICROXLN

**A** ANGULAR **MS** MUDSTONE

**R** ROUNDED **PS** PACKSTONE

**S** SUBANG **WS** WACKESTONE

**F** SUBRND

## Sorting

FAULT

## Textures

**M** MODERATE

**B** BOUNDSTONE **P** POOR

**C** CHALKY **W** WELL

**CX** CRYPTOXLN

**E** EARTHY

**FX** FINELYXLN

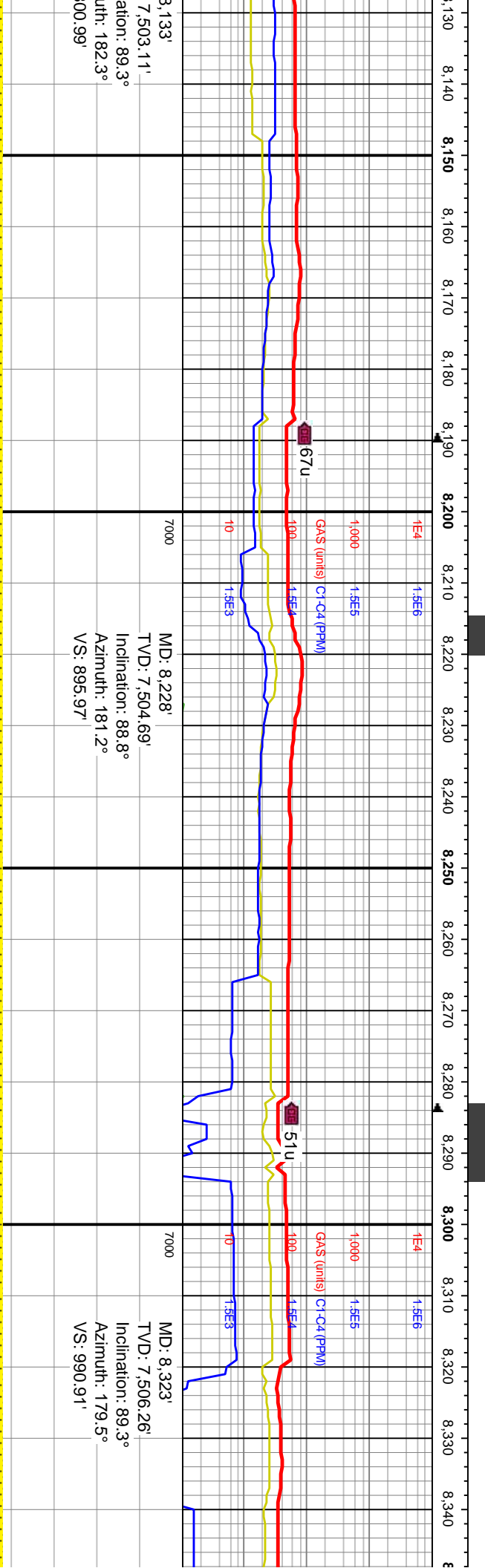
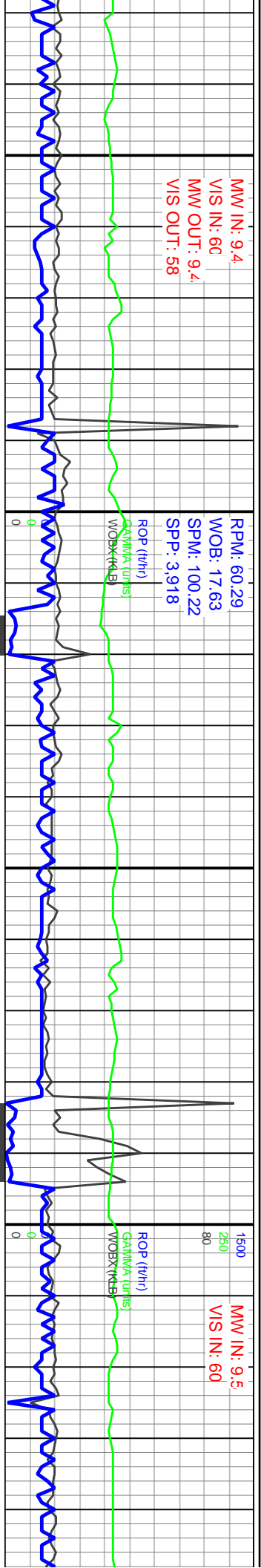
**GS** GRAINSTONE

<div><div>ROP</div><div>ROP</div><div>GA/MMA</div><div>WOBX</div></div> <div>Fifth Creek Energy Criter Creek 562-1527H Weld County, CO Spud Date: 05/14/2017 Surface Casing @ 1,525 2 Man Logging/ Mass Spec Began: 05/30/2017 All Depths Correspond to Drillers Pipe Tally</div>		<div><div>RPM: 0.32</div><div>WOB: 14.68</div><div>SPM: 219.89</div><div>SPP: 3.925</div></div> <div><div>ROP (ft/hr)</div><div>GA/MMA (units)</div><div>WOB (k/ft)</div></div> <div>M Zone Top 7,610 MD/7,422 TVD</div>		<div><div>Ft Hay</div><div>7689 MD</div></div>					
Slide/Rotate									
Depth Labels		7,5107,5207,5307,5407,5507,5607,5707,5807,5907,6007,6107,6207,6307,6407,6507,6607,6707,6807							
Total Gas & Chromatograph		<div><div>1E4</div><div>1.5E6</div><div>1.0E0</div><div>1.5E5</div><div>100</div><div>1.5E4</div><div>10</div><div>1.5E3</div></div> <div><div>GAS</div><div>C1</div><div>C2</div><div>C3</div><div>C4</div></div> <div><div>GAS (units)</div><div>C1-C4 (PPM)</div></div>				<div><div>1E4</div><div>1.5E6</div><div>1.0E0</div><div>1.5E5</div><div>100</div><div>1.5E4</div><div>10</div><div>1.5E3</div></div> <div><div>GAS</div><div>C1</div><div>C2</div><div>C3</div><div>C4</div></div> <div><div>GAS (units)</div><div>C1-C4 (PPM)</div></div>			
Well Bore		<div><div>7000</div><div>7000</div></div> <div><div>MD: 7,639'</div><div>TVD: 7,436.69'</div><div>Inclination: 61.7°</div><div>Azimuth: 177°</div><div>VS: 318.56'</div></div> <div><div>TVD (ft)</div><div>TVD (ft)</div></div>				<div><div>7000</div><div>7000</div></div> <div><div>MD: 7,639'</div><div>TVD: 7,436.69'</div><div>Inclination: 61.7°</div><div>Azimuth: 177°</div><div>VS: 318.56'</div></div> <div><div>TVD (ft)</div><div>TVD (ft)</div></div>			
Images		<div><div>7550-7600 60% CHK: lt-med gysbhn, sme med gy, blkly, intbd MRLST; MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc; 40% MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc; Tr pyr</div><div>7600-7650 60% MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc; 40% CHK: lt-med gysbhn, sme med gy, blkly, intbd MRLST; MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc; 30%</div><div>7650-7700 70% CHK: lt-med gysbhn, sme med gy, blkly, intbd MRLST; MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc;</div></div>				<div><div>7550-7600 60% CHK: lt-med gysbhn, sme med gy, blkly, intbd MRLST; MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc; 40% CHK: lt-med gysbhn, sme med gy, blkly, intbd MRLST; MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc; 30%</div><div>7600-7650 60% MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc; 40% CHK: lt-med gysbhn, sme med gy, blkly, intbd MRLST; MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc; 30%</div><div>7650-7700 70% CHK: lt-med gysbhn, sme med gy, blkly, intbd MRLST; MRLST: med-dk gy, sme gysbhn, pty-sb blkly, intbd sh lam, v calc;</div></div>			
Oil Show		<div><div>TR</div><div>P</div><div>FR</div><div>G</div><div>E</div></div>				<div><div>TR</div><div>P</div><div>FR</div><div>G</div><div>E</div></div>			

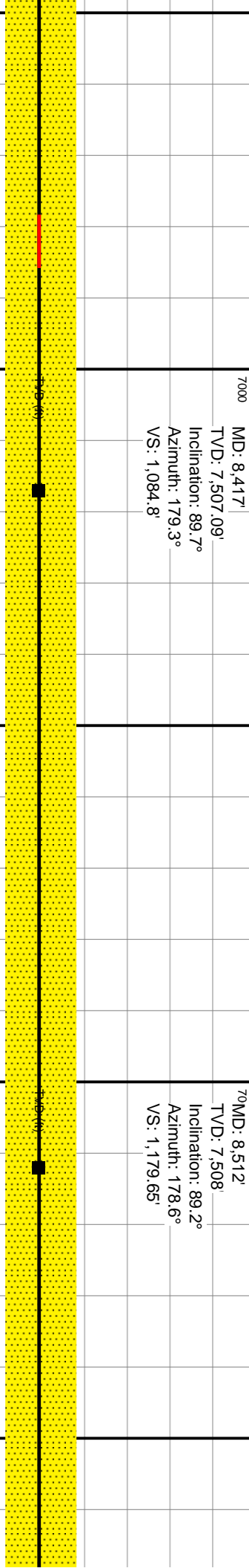
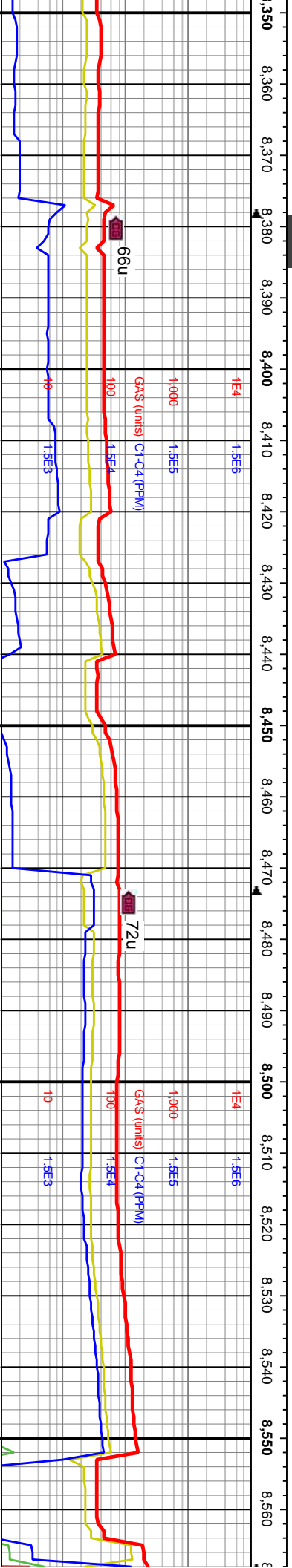
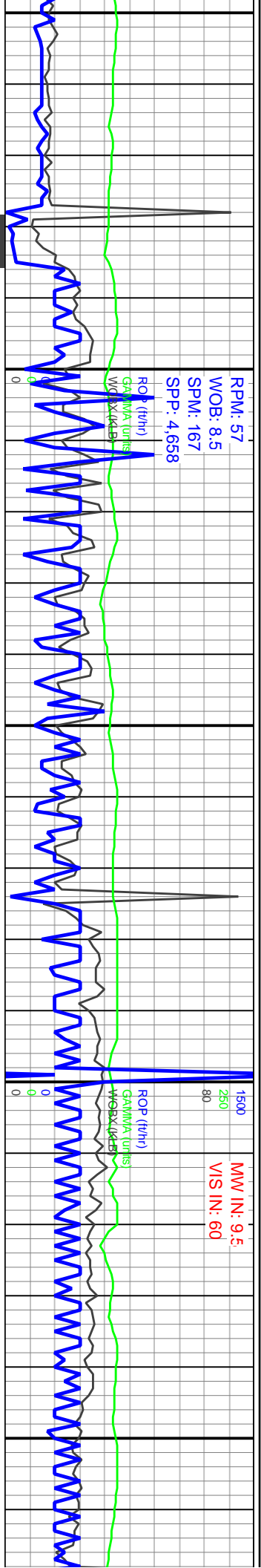






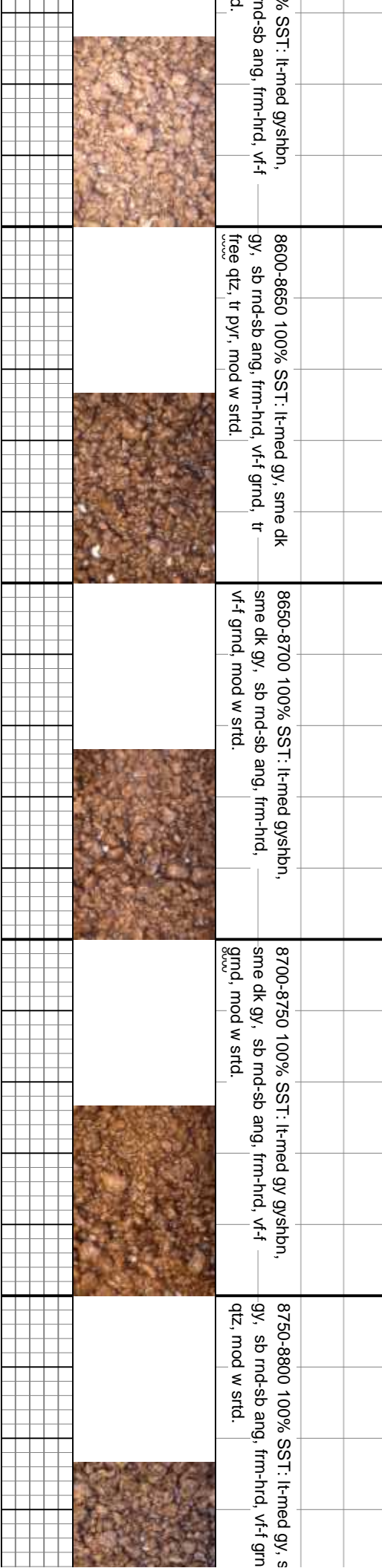
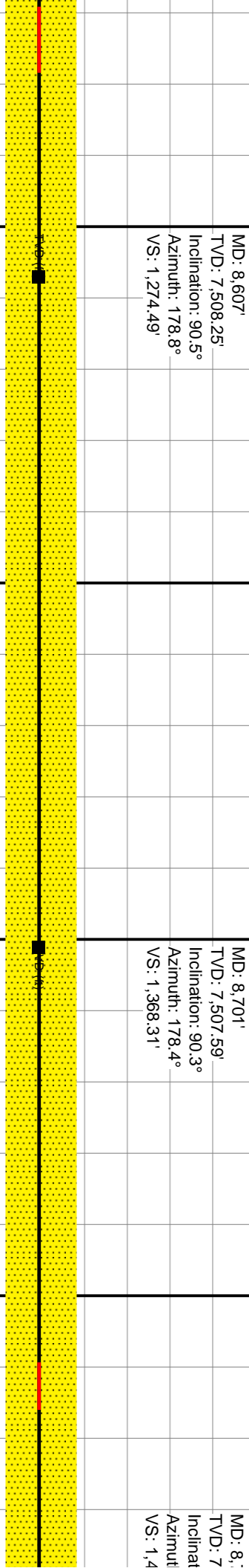
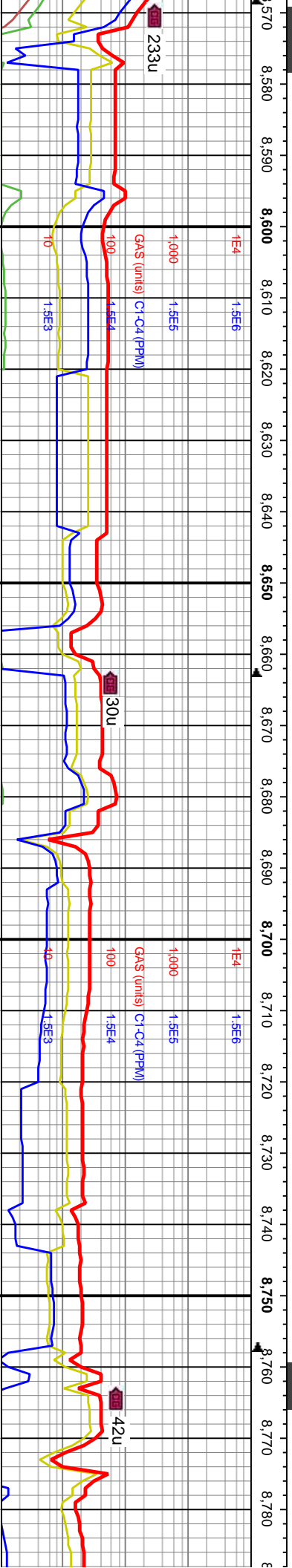
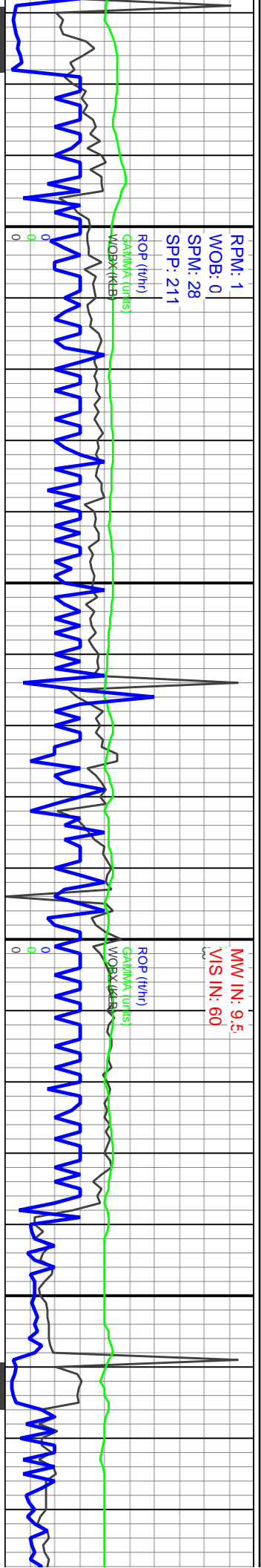


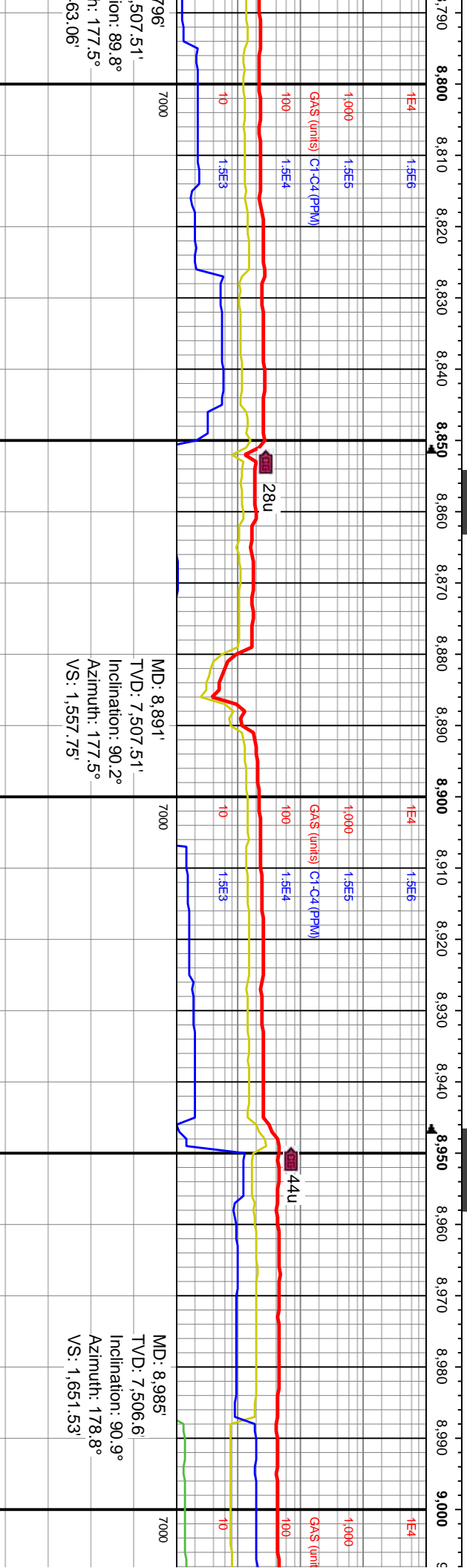
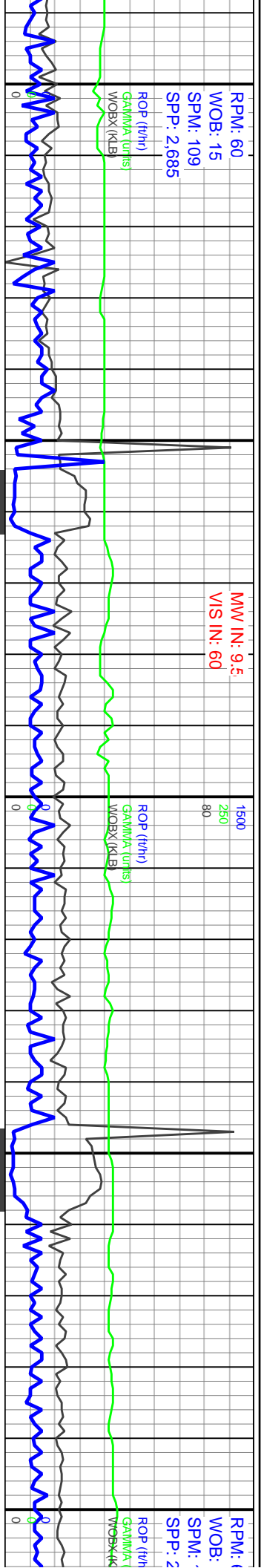
3,133' 7,503.11' ation: 89.3° uth: 182.3° 00.99'										
gysbhn, frm-hrd, vf-f										
8150-8200 100% SST: predy med gysbhn, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt'd, tr pyr pp/nci, tr free qtz.										
8200-8250 100% SST: predy med gysbhn, tr dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt'd, tr pp pyr, tr free qtz.										
8250-8300 100% SST: lt-med gysbhn, sme dk gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w srt'd.										
8300-8350 100% SST: lt-med gysbhn, sme dk gy, sb md-sb ang, frm-hrd, vf-f grnd, tr free qtz, mod w srt'd.										



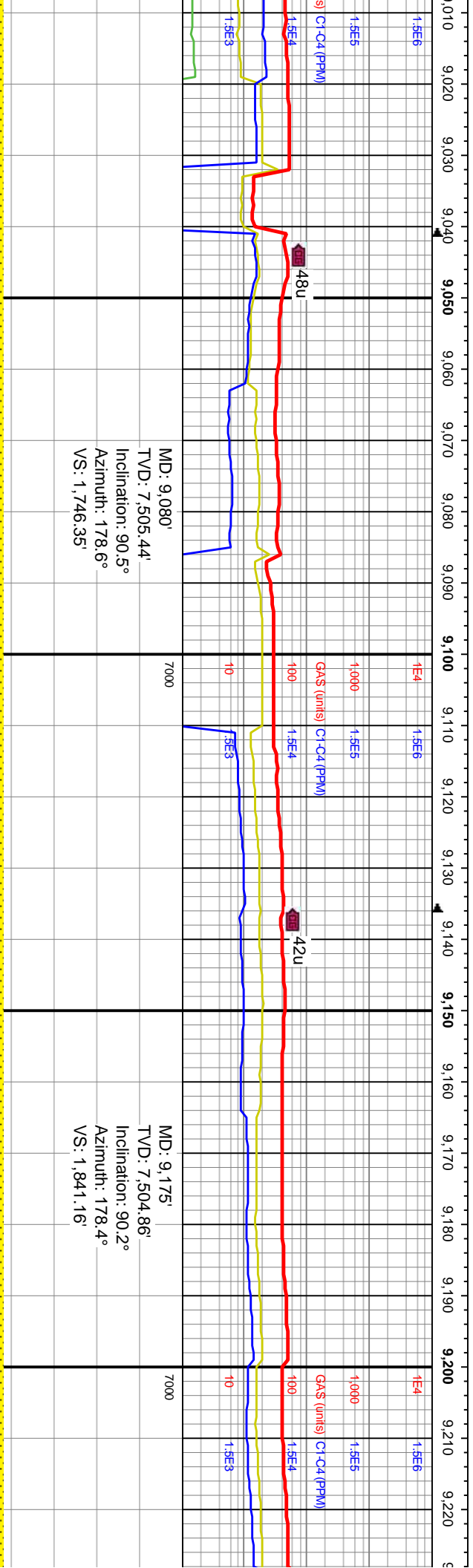
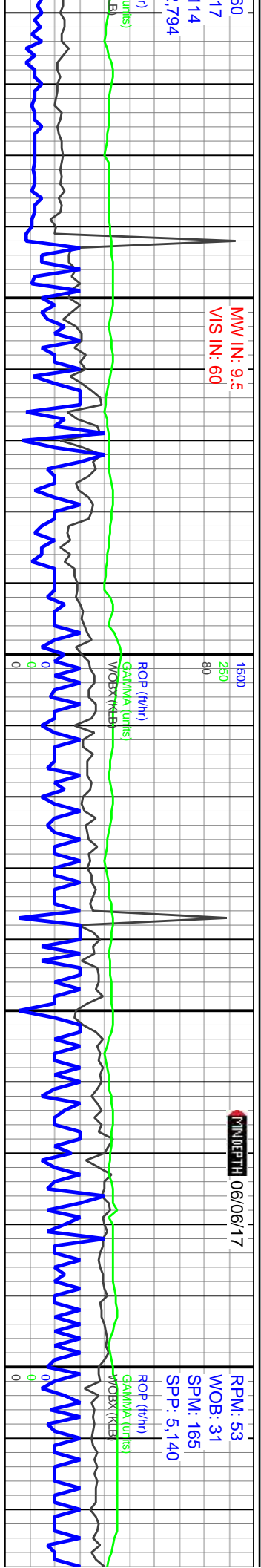
8350-8400 100% SST: predy med gysbhn, tr dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd, tr pp pyr, tr free qtz.	8400-8450 100% SST: predy med gysbhn, tr dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd, tr pp pyr, tr free qtz.	8450-8500 100% SST: predy med gysbhn, tr dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd, tr pp pyr, tr free qtz.	8500-8550 100% SST: lt-med gysbhn, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd.	8550-8600 100% SST: lt-med gysbhn, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd.



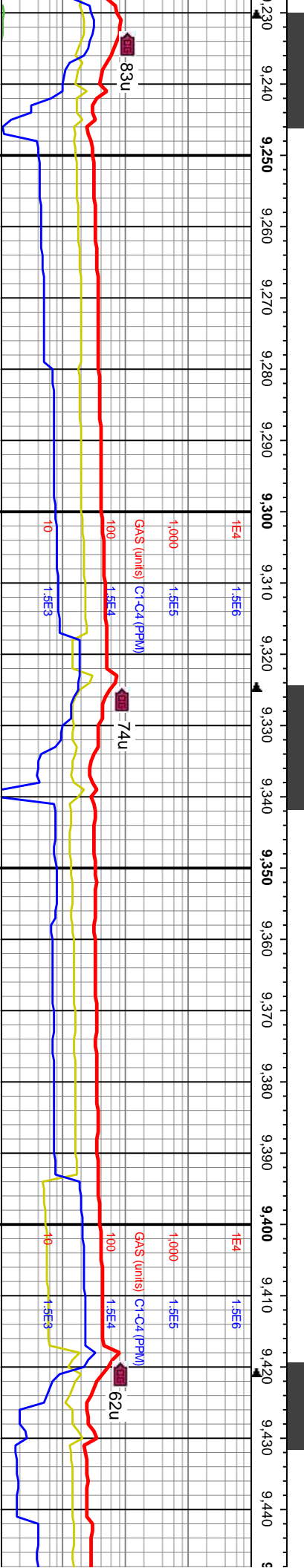
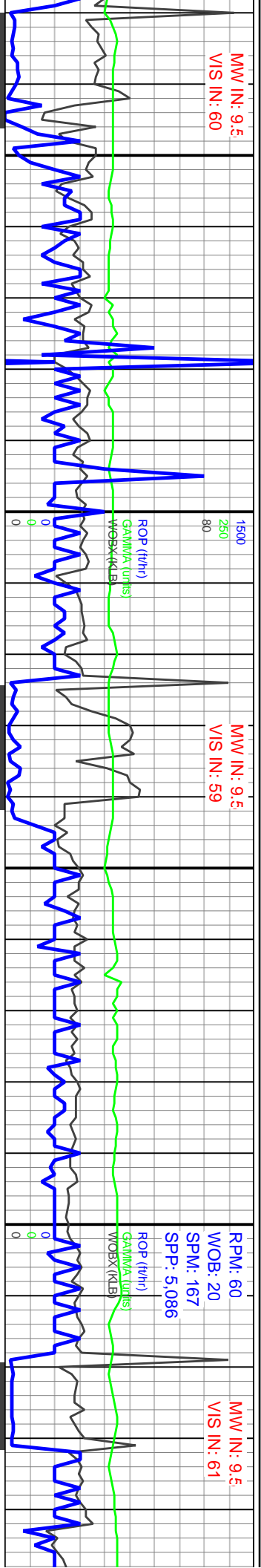




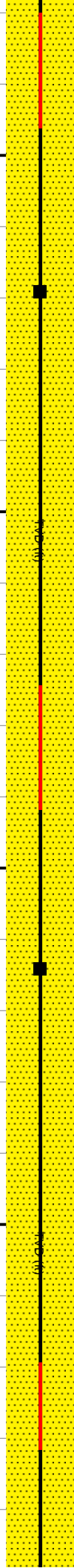
me dk d, tr free	8800-8850 100% SST: lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, tr free qtz, tr pyr, mod w strd, tr free qtz bluv	8850-8900 100% SST: lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd.	8900-8950 100% SST: lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, tr free qtz, tr pyr, mod w strd.	8950-9000 100% SST: lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, tr free qtz, tr pyr, mod w strd.	9000-9050 100% SST: lt-med gy, sme dk dk gy, tr pyr, mod w strd.



9050-9100 100% SST: lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, tr free qtz, tr pyr, mod w strd,	9100-9150 100% SST: lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd.	9150-9200 100% SST: lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd.	9200-9250 100% SST: lt-med gy, sb rnd-sb ang, frm-hrd, tr pyr pp/inci, mod w strd.



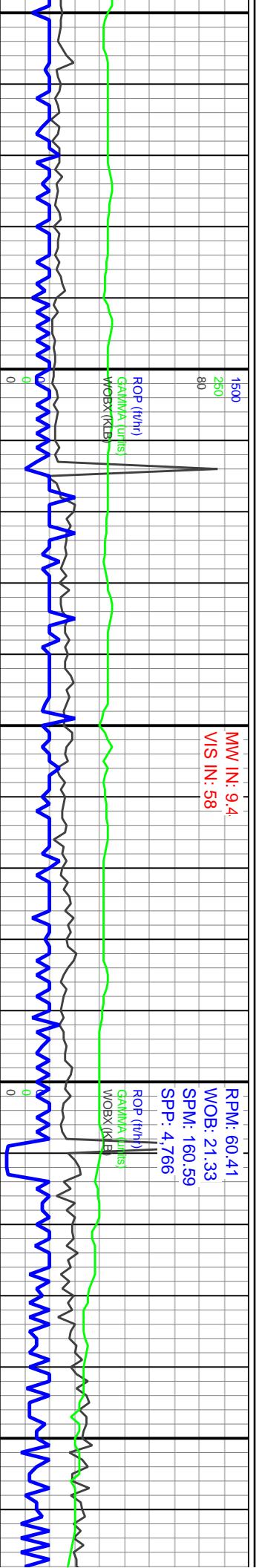
MD: 9,269' TVD: 7,504.54' Inclination: 90.2° Azimuth: 179.1° VS: 1,935'	7000	
MD: 9,364' TVD: 7,504.19' Inclination: 90.2° Azimuth: 178.6° VS: 2,029.85'	7000	



ned gy, sme dk d, vf-f grnd, mod w	9250-9300 100% SST:lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd	9300-9350 100% SST:lt-med gy, sme dk gy, sb rnd-sb ang, v frm-hrd, vf-f grnd, mod w strd	9350-9400 100% SST:lt-med gy, sme dk gy, sb rnd-sb ang, v frm-hrd, vf-f grnd, mod w strd, tr pyr nod	9400-9450 100% SST:lt-med gy, sme dk gy, sb rnd-sb ang, frm-v frm, vf-f grnd, mod w strd
---------------------------------------	--	--	--	--

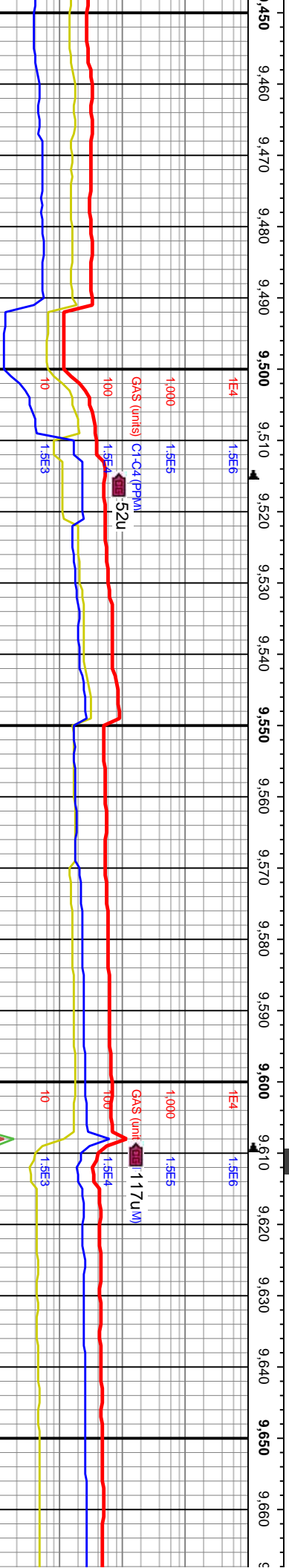






MW IN: 9.4  
VIS IN: 58

RPM: 60.41  
WOB: 21.33  
SPM: 160.59  
SPP: 4.766



52u

117uM

MD: 9.459'  
TVD: 7,502.96'  
Inclination: 91.3°  
Azimuth: 179°  
VS: 2,124.68'

MD: 9.554'  
TVD: 7,500.97'  
Inclination: 91.1°  
Azimuth: 179.1°  
VS: 2,219.53'

MD: 9.649'  
TVD: 7,500.22'  
Inclination: 89.8°  
Azimuth: 178.1°  
VS: 2,314.35'



TVD (ft)

TVD (ft)

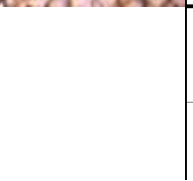
9450-9500 100% SST:lt-med gy, sme dk gy, sb rnd-sb ang, frm-v frm, vf-f grnd, mod w strd

9500-9550 100% SST:lt-med gy, sme dk gy, sb rnd-sb ang, frm-v frm, vf-f grnd, mod w strd, tr pyr nod, tr free qtz

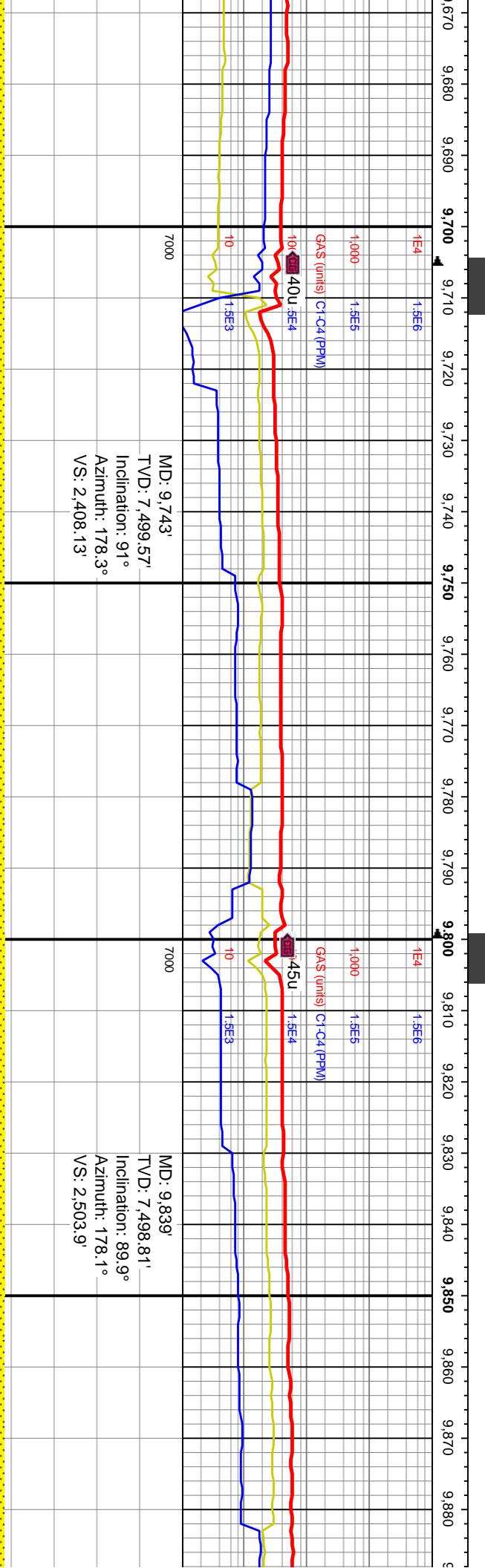
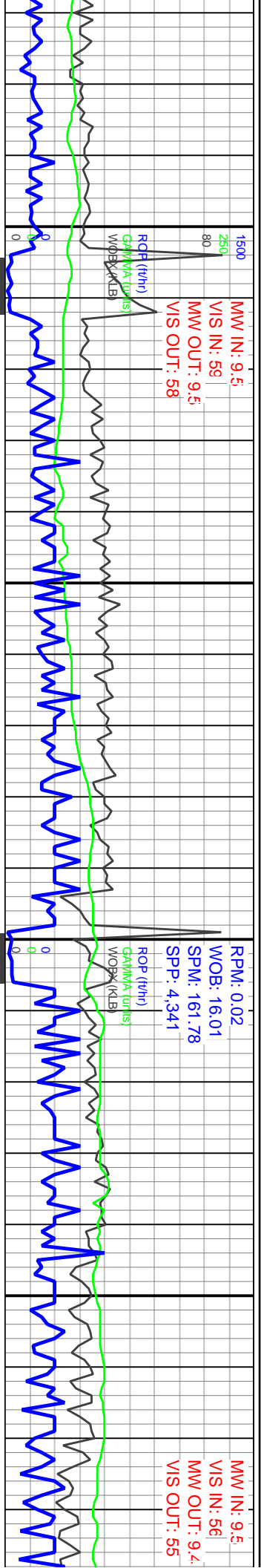
9550-9600 100% SST:lt-med gy, sme dk gy, sb rnd-sb ang, frm-v frm, vf-f grnd, mod w strd, tr pyr nod, tr free qtz

9600-9650 100% SST:lt-med gy, sme dk gy, sb rnd-sb ang, frm-v frm, vf-f grnd, mod w strd: tr LMST

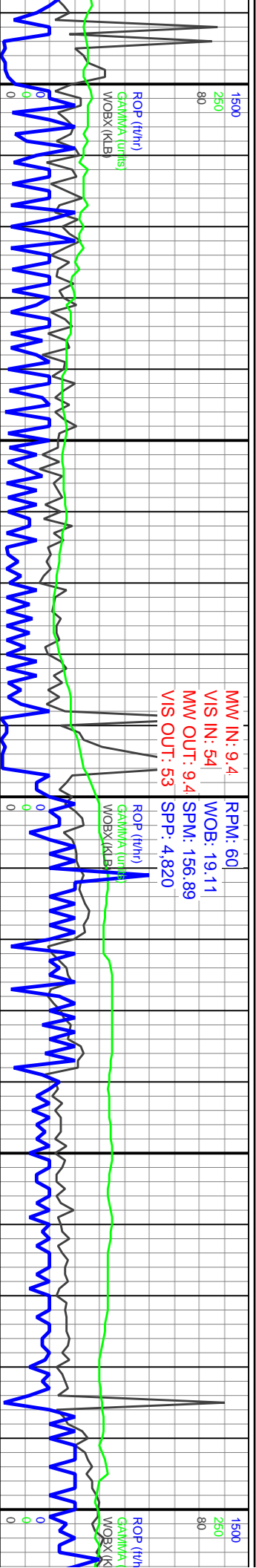
9650-9700 80% sme med gy, sb grnd, mod w strc mxcin, frm, lam



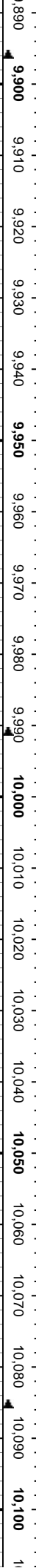




SST: lt gy, mot med gy, rmd-sb ang, frm-hrd, vf-f i; 20% LMST: lt brn-crm, rthy-chky tex	9700-9750 50% SST: lt gy, mot med gy, sme med gy, sb rmd-sb ang, frm-hrd, vf-f grnd, mod w strt; 50% LMST: lt brn-crm, micxln, frm, lam ip, rthy-chky tex	9750-9800 70% LMST: lt brn-crm, micxln, frm, lam ip, rthy-chky tex; 30% SST: lt gy, mot med gy, sme med gy, sb rmd-sb ang, frm-hrd, vf-f grnd, mod w strt	9800-9850 85% LMST: lt brn-crm, micxln, frm, lam ip, rthy-chky tex; 15% SST: lt gy, mot med gy, sme med gy, sb rmd-sb ang, frm-hrd, vf-f grnd, mod w strt	9850-9900 60% LMST: lt brn-crm, frm, lam ip, rthy-chky tex; 40% SS: mot med gy, sme med gy, sb rmd-sb ang, frm-hrd, vf-f grnd, mod w strt



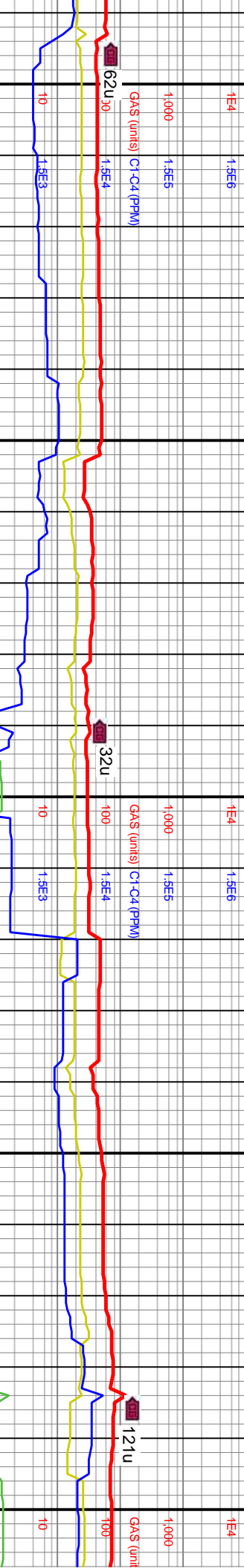
MW IN: 9.4  
VIS IN: 54  
MW OUT: 9.4  
VIS OUT: 53  
RPM: 60  
WOB: 19.11  
SPM: 156.89  
SPP: 4.820



ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)

ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)

ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)



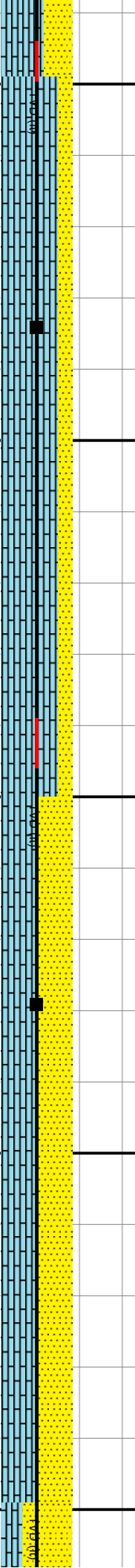
ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)

ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)

ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)

MD: 9,934'  
TVD: 7,499.39'  
Inclination: 89.4°  
Azimuth: 178.8°  
VS: 2,598.71'

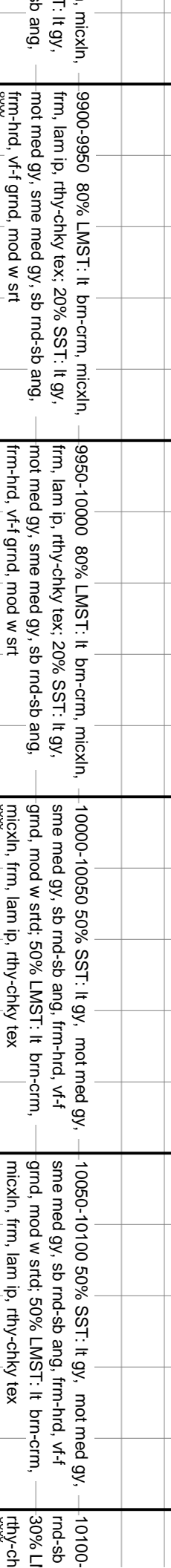
MD: 10,029'  
TVD: 7,500.39'  
Inclination: 89.4°  
Azimuth: 179.8°  
VS: 2,693.59'



ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)

ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)

ROP (ft/hr)  
GAMA (units)  
WOBX (kLB)



9900-9950 80% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex; 20% SST: It gy, mot med gy, sme med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt

9950-10000 80% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex; 20% SST: It gy, mot med gy, sme med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt

10000-10050 50% SST: It gy, mot med gy, sme med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt; 50% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex

10050-10100 50% SST: It gy, mot med gy, sme med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt; 50% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex

10100-10150 30% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex



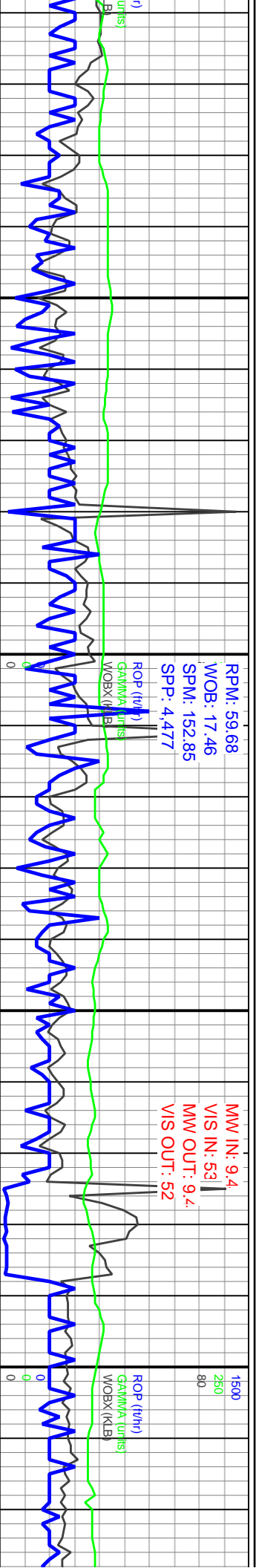
9900-9950 80% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex; 20% SST: It gy, mot med gy, sme med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt

9950-10000 80% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex; 20% SST: It gy, mot med gy, sme med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt

10000-10050 50% SST: It gy, mot med gy, sme med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt; 50% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex

10050-10100 50% SST: It gy, mot med gy, sme med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srt; 50% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex

10100-10150 30% LMST: It brn-crm, micxn, frm, lam ip, rthy-ckly tex

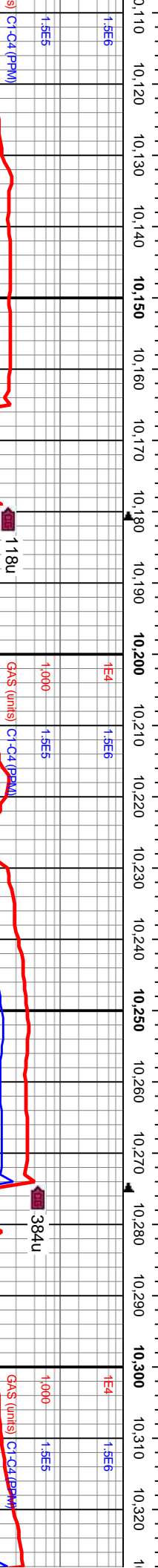


RPM: 59.68  
WOB: 17.46  
SPM: 152.85  
SPP: 4.477

MMW IN: 9.4  
VIS IN: 53  
MMW OUT: 9.4  
VIS OUT: 52

ROP (ft/h)  
GAMA (units)  
WOB (klb)  
Gamma (API)

1500  
250  
80  
0



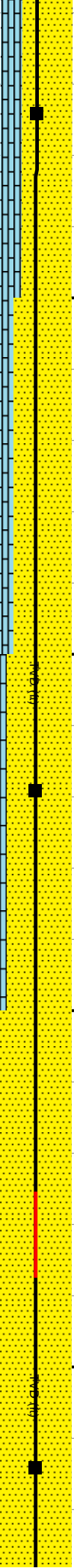
118u

384u

MD: 10,124'  
TVD: 7,501.55'  
Inclination: 89.2°  
Azimuth: 179°  
VS: 2,788.47'

MD: 10,219'  
TVD: 7,502.79'  
Inclination: 89.3°  
Azimuth: 178.3°  
VS: 2,883.29'

MD: 10,314'  
TVD: 7,502.21'  
Inclination: 91.4°  
Azimuth: 179.3°  
VS: 2,978.13'



10150-10200 80% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd; 20% LMST: lt brn-crm, micxn, frm, lam ip, rthy-chky tex

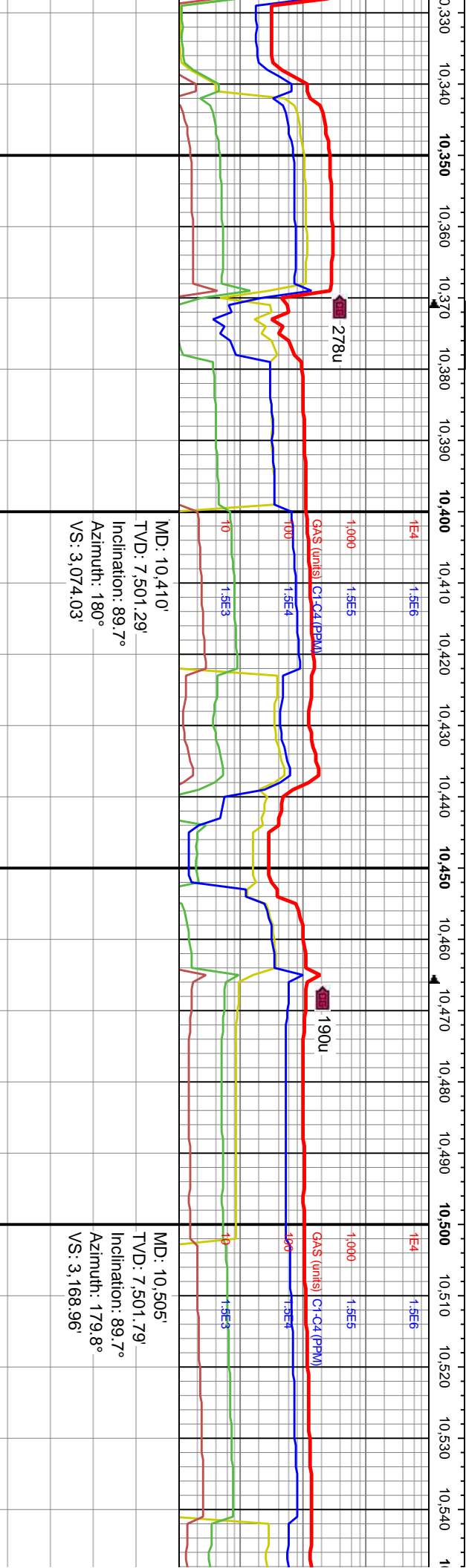
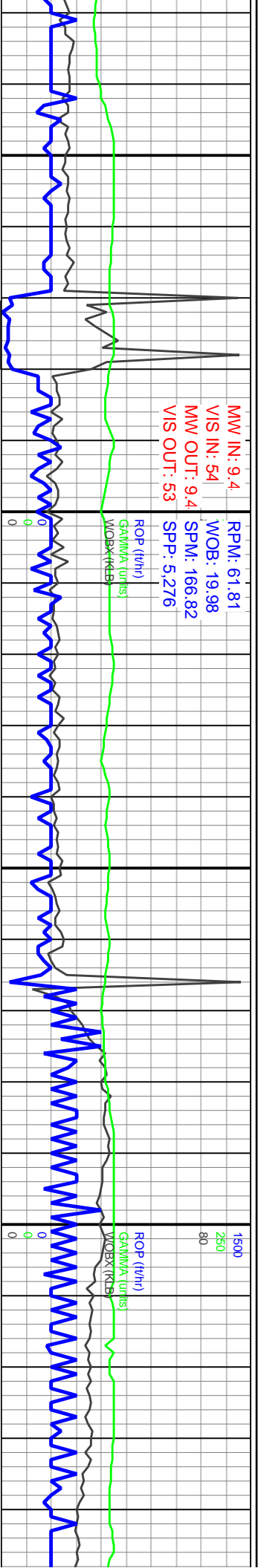
10200-10250 90% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd; 10% LMST: lt brn-crm, micxn, frm, lam ip, rthy-chky tex

10250-10300 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd;

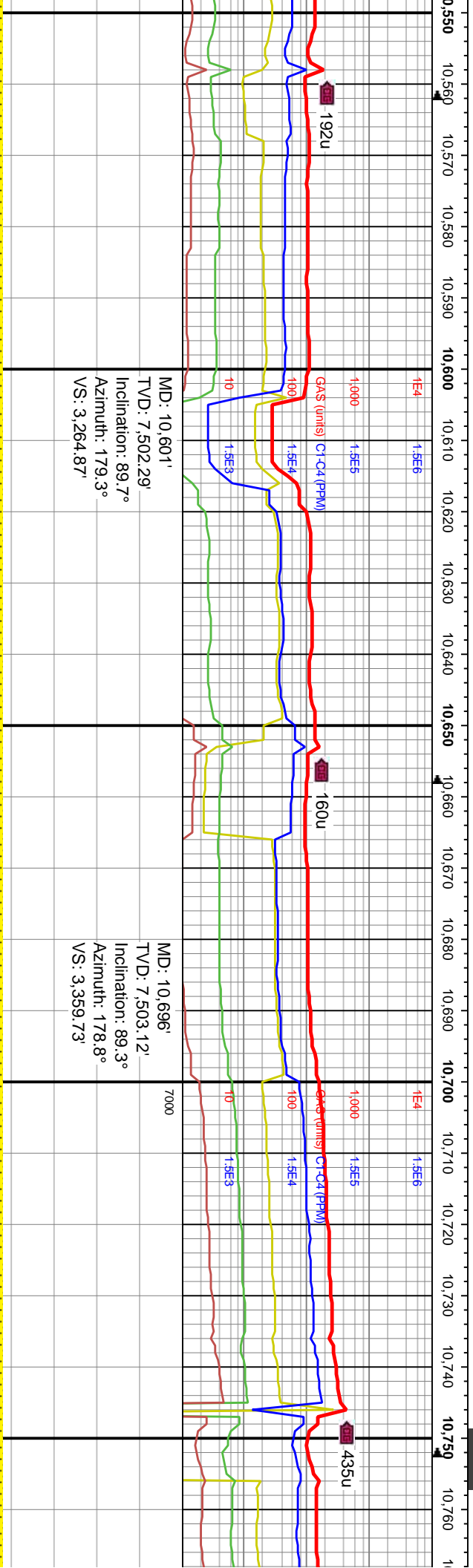
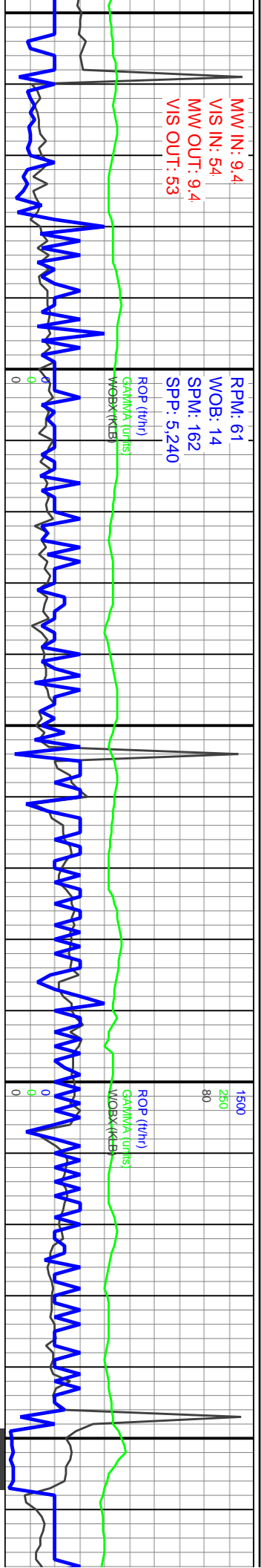
10300-10350 100% SST: sme dk-med gy, sb rnd-st grnd, mod w strd;





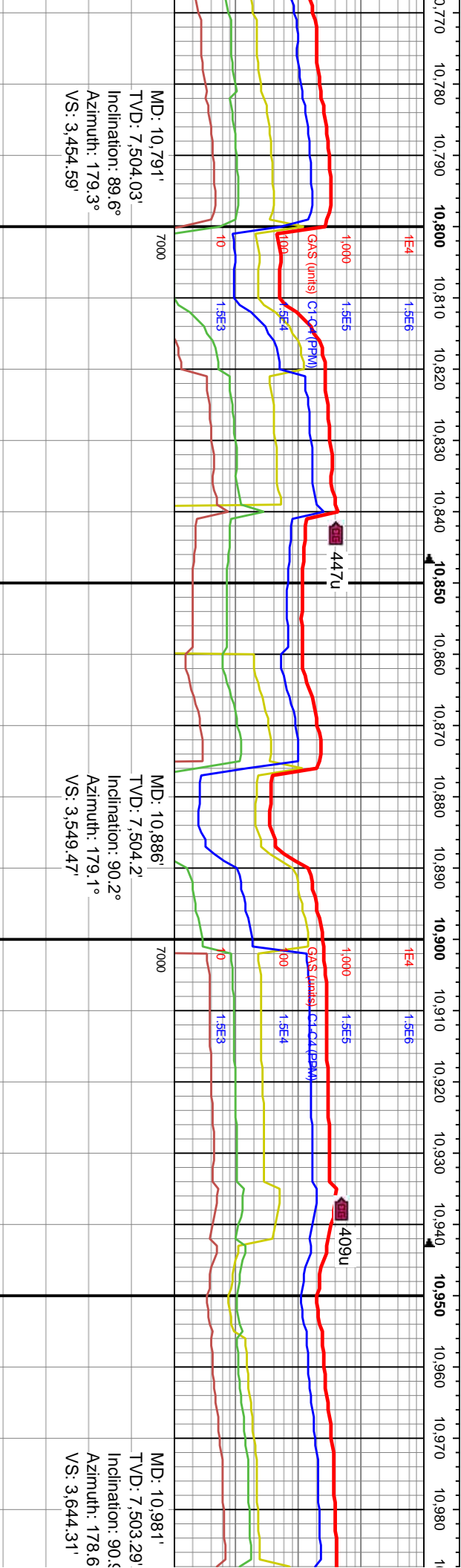
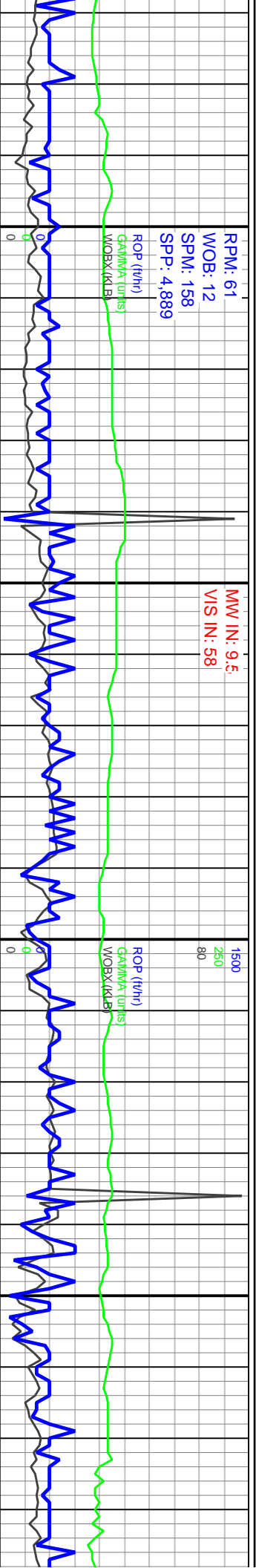


10,330 10,340 10,350 10,360 10,370 10,380 10,390 10,400 10,410 10,420 10,430 10,440 10,450 10,460 10,470 10,480 10,490 10,500 10,510 10,520 10,530 10,540		10,330 10,340 10,350 10,360 10,370 10,380 10,390 10,400 10,410 10,420 10,430 10,440 10,450 10,460 10,470 10,480 10,490 10,500 10,510 10,520 10,530 10,540	
lt-med gysbhn, dk gy, sb rnd-sb ang, frm-hrd, vf-f free qtz, tr pyr, mod w srtid.		10350-10400 100% SST: lt-med gy, sme dk gy, sb rnd-sb ang, frm-hrd, vf-f grnd, tr free qtz, tr pyr, mod w srtid.	
10400-10450 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srtid;		10400-10450 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srtid;	
10450-10500 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srtid;		10450-10500 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srtid;	
10500-10550 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srtid;		10500-10550 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srtid;	



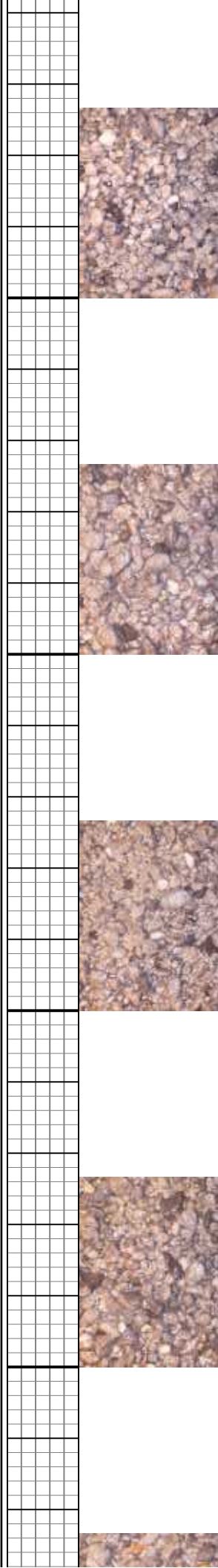
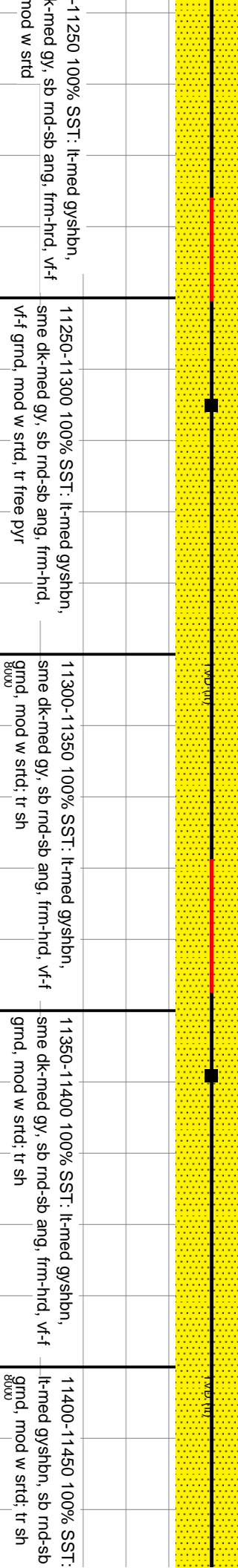
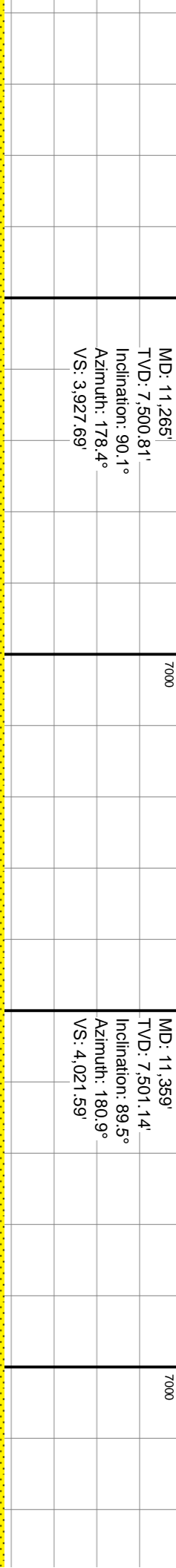
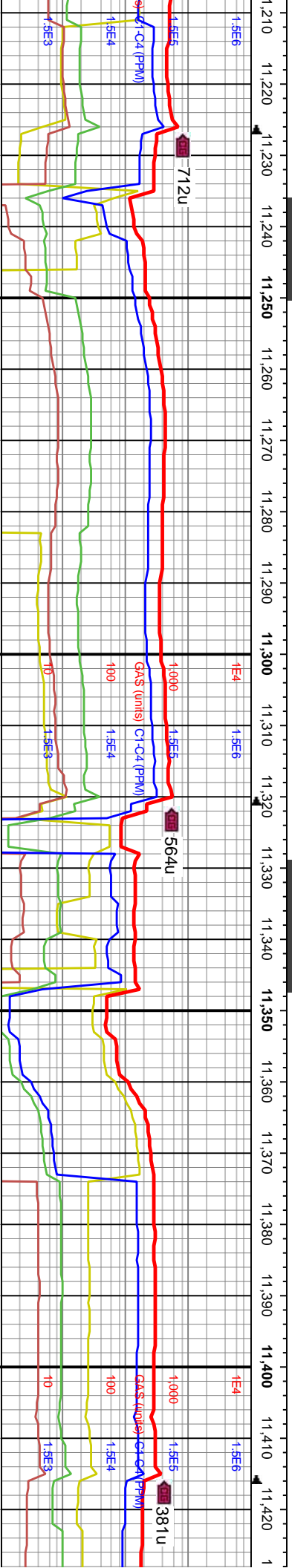
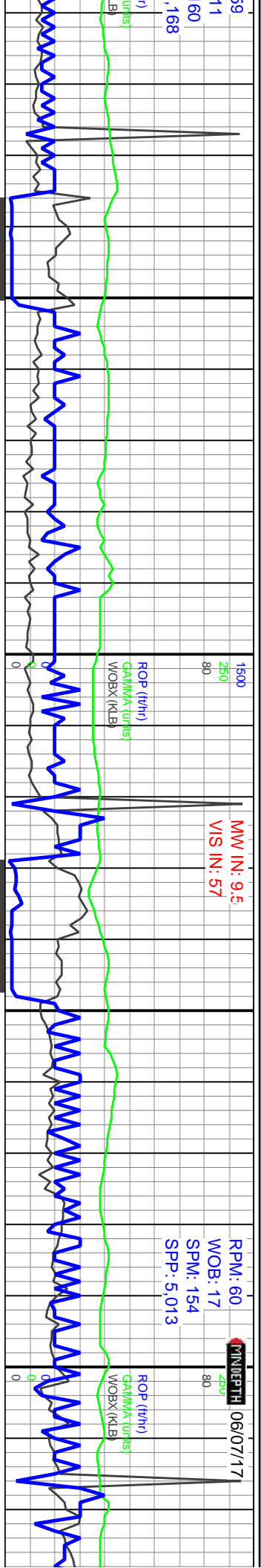
10550-10600 100% SST: lt-med gysbn, sme dk-med gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w srtcd;		10600-10650 100% SST: lt-med gysbn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w srtcd;		10650-10700 100% SST: lt-med gysbn, sme dk-med gy, sb rnd-sb ang, frm-hrd, grnd, mod w srtcd;		10700-10750 100% SST: lt-med gysbn, sme dk-med gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w srtcd;		10750-10800 100% SST: lt-med gysbn, sme dk-med gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w srtcd;	

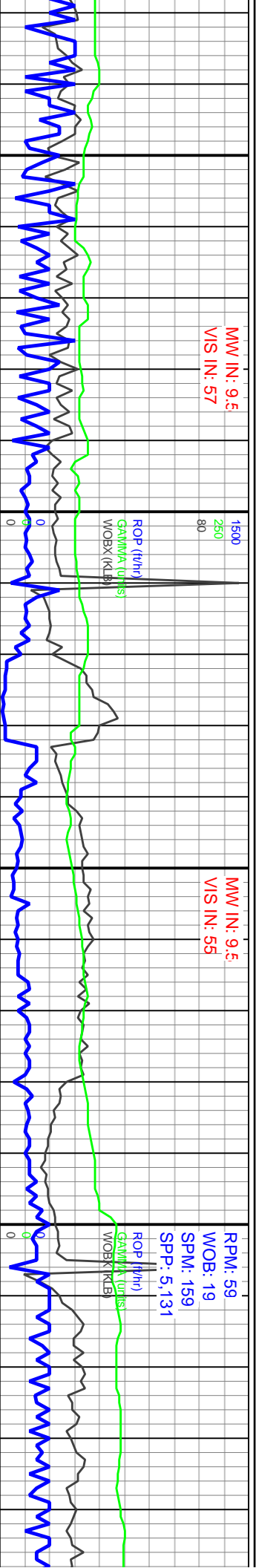




10800-10850 95% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd, tr free pyr: 5% SH: dk-med gy, sme mot gysbhn, ply-sb blkly, slty-sl grity, frm-fri		10850-10900 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd		10900-10950 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd		10950-11000 100% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd	



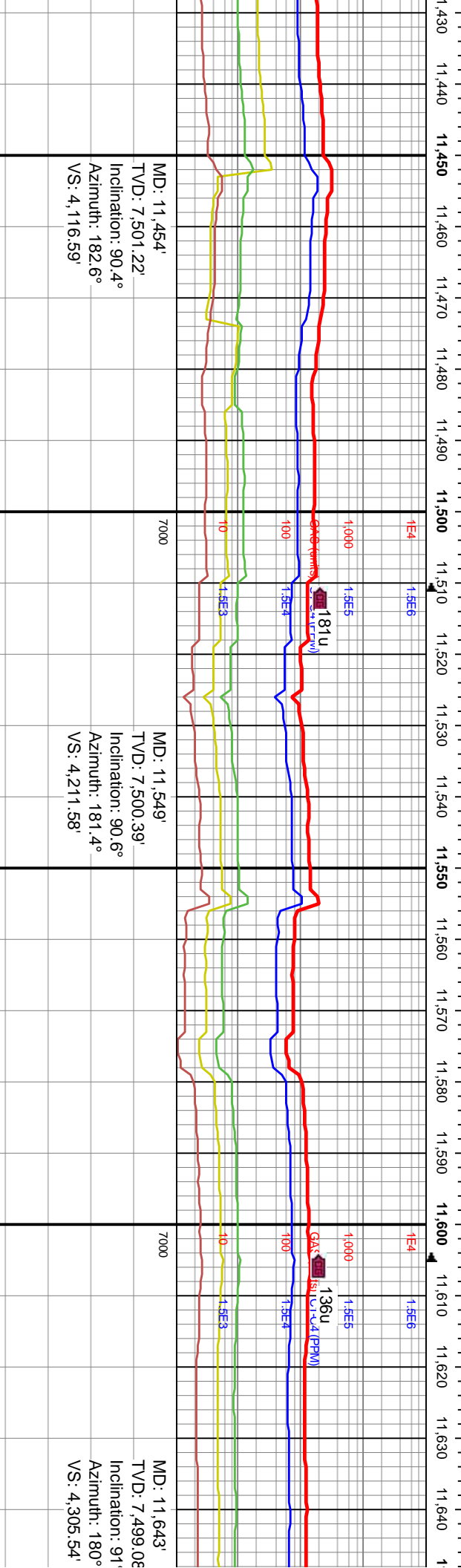




MW IN: 9.5  
VIS IN: 57

MW IN: 9.5  
VIS IN: 55

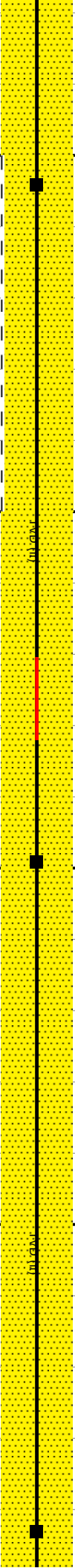
RPM: 59  
WOB: 19  
SPM: 159  
SPP: 5,131



MD: 11,454'  
TVD: 7,501.22'  
Inclination: 90.4°  
Azimuth: 182.6°  
VS: 4,116.59'

MD: 11,549'  
TVD: 7,500.39'  
Inclination: 90.6°  
Azimuth: 181.4°  
VS: 4,211.58'

MD: 11,643'  
TVD: 7,499.08'  
Inclination: 91°  
Azimuth: 180°  
VS: 4,305.54'



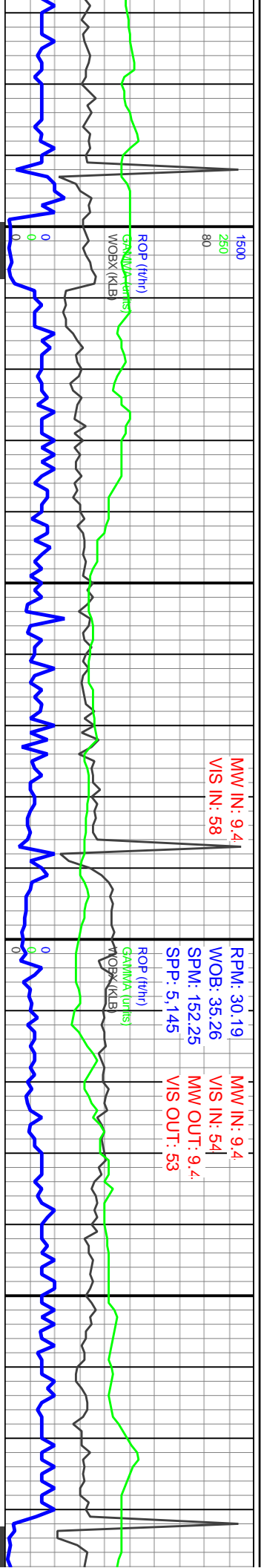
11450-11550 95% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd, tr free pyr: 5% SH: dk-med gy, sme not gysbhn, pily-sb biky, silty-sl grity, frm-fri	11500-11550 100% SST: lt-med gy, sme lt-med gysbhn, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd; tr sh, tr free qtz	11550-11600 100% SST: lt-med gy, sme lt-med gysbhn, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd; tr sh, tr free qtz	11600-11650 100% SST: lt-med gy, sme lt-med gysbhn, sb rnd-sb ang, frm-hrd, vf-f grnd, mod w strd; tr free qtz
--	---	---	--





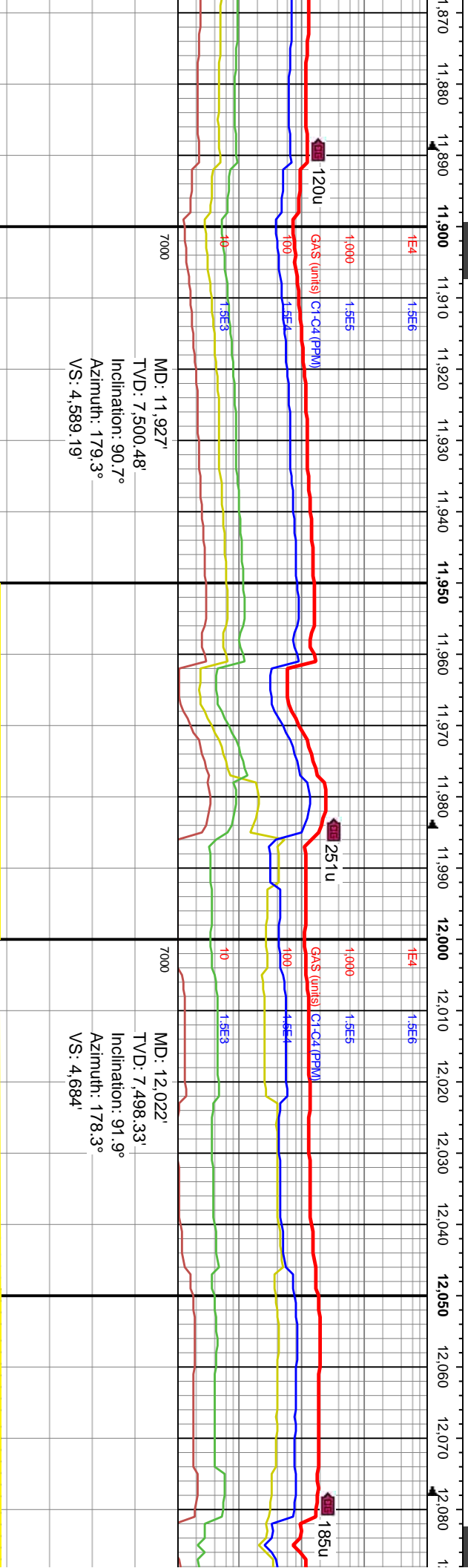






MM IN: 9.4  
VIS IN: 58

ROP: 30.19  
WOB: 35.26  
SPM: 152.25  
SPP: 5.145  
MM IN: 9.4  
VIS IN: 54  
MM OUT: 9.4  
VIS OUT: 53



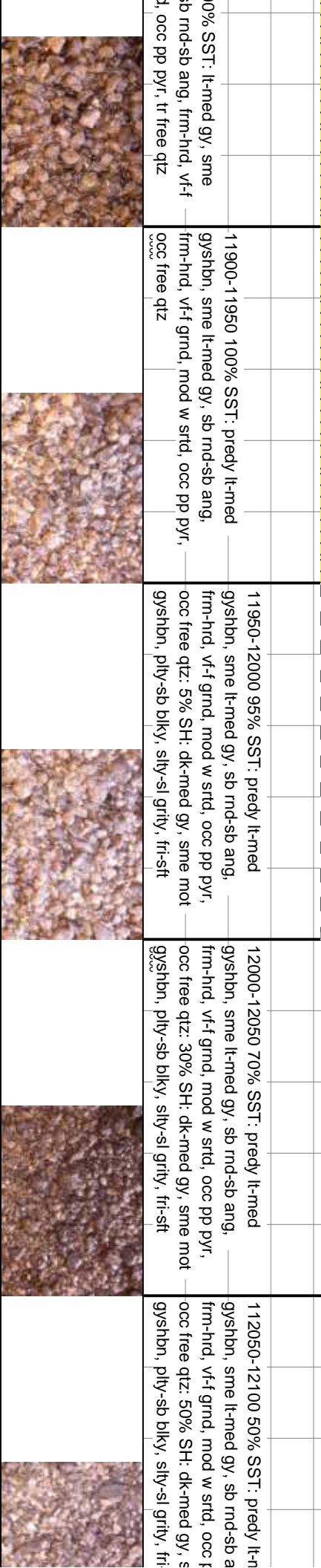
MD: 11,927'  
TVD: 7,500.48'  
Inclination: 90.7°  
Azimuth: 179.3°  
VS: 4,589.19'

MD: 12,022'  
TVD: 7,498.33'  
Inclination: 91.9°  
Azimuth: 178.3°  
VS: 4,684'



VD (ft)

VD (ft)



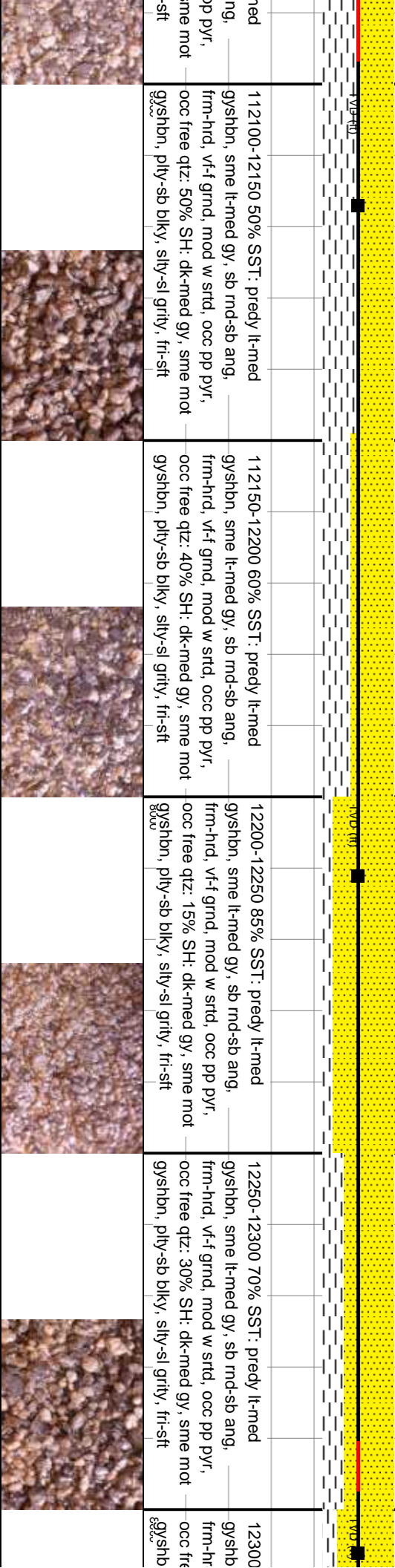
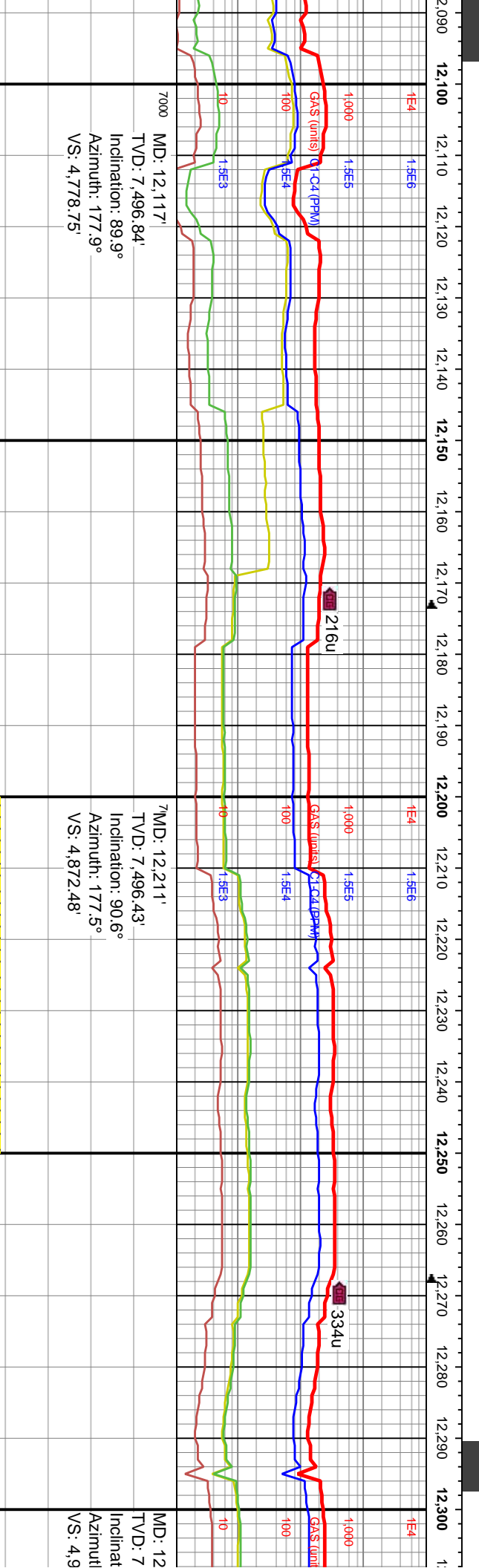
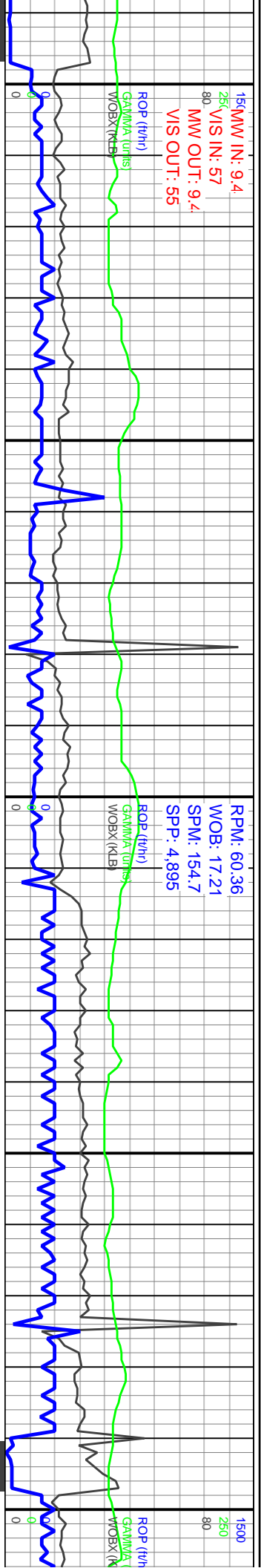
100% SST: lt-med gy, sme  
sb rnd-sb ang, frm-hrd, vf-f  
d, occ pp pyr, tr free qtz

11900-11950 100% SST: predy lt-med  
gysbhn, sme lt-med gy, sb rnd-sb ang,  
frm-hrd, vf-f grnd, mod w srt, occ pp pyr,  
occ free qtz

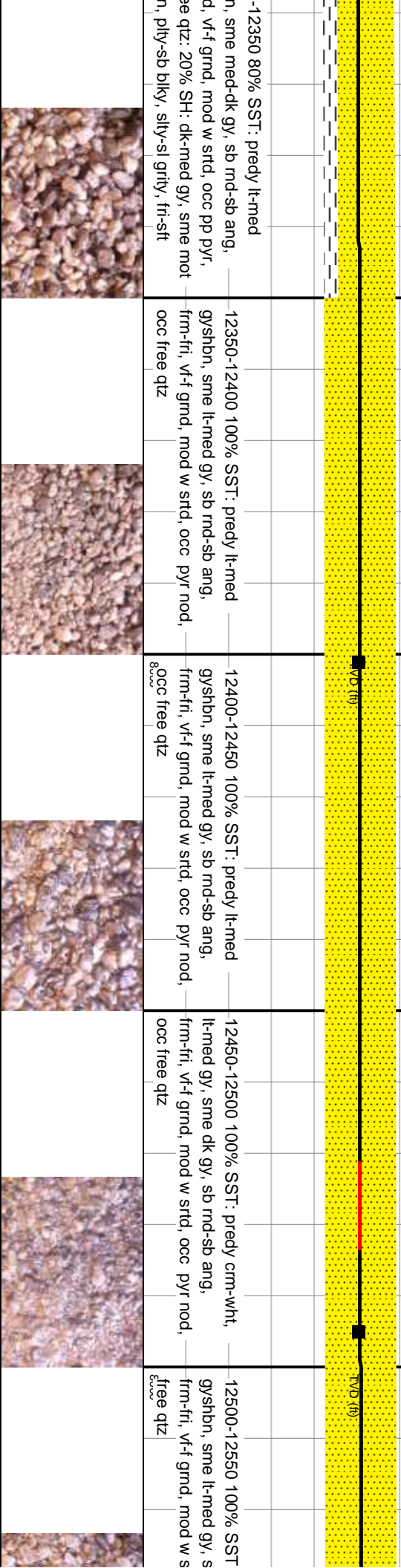
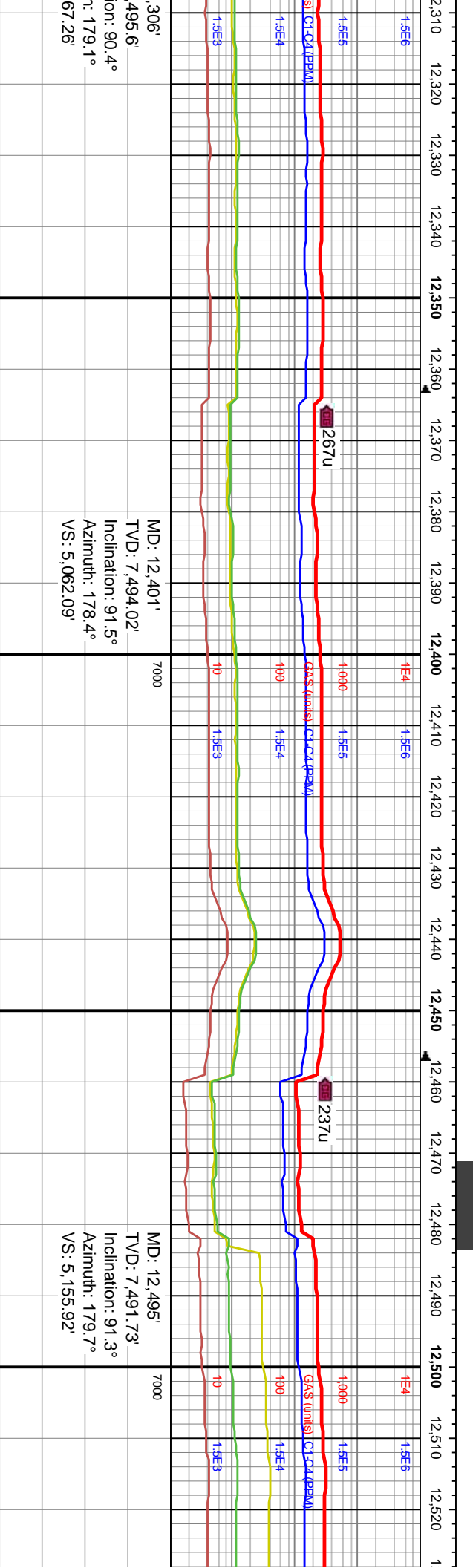
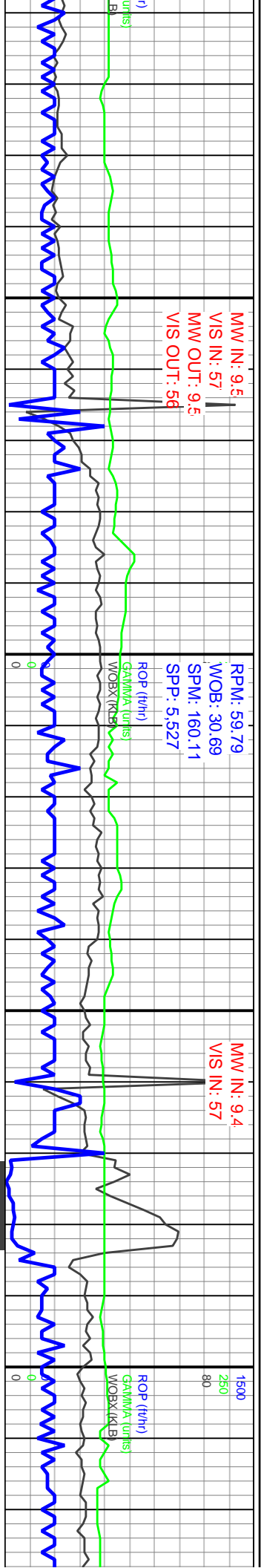
11950-12000 95% SST: predy lt-med  
gysbhn, sme lt-med gy, sb rnd-sb ang,  
frm-hrd, vf-f grnd, mod w srt, occ pp pyr,  
occ free qtz: 5% SH: dk-med gy, sme mot  
gysbhn, ply-sb blkly, silty-si grity, fri-st

12000-12050 70% SST: predy lt-med  
gysbhn, sme lt-med gy, sb rnd-sb ang,  
frm-hrd, vf-f grnd, mod w srt, occ pp pyr,  
occ free qtz: 30% SH: dk-med gy, sme mot  
gysbhn, ply-sb blkly, silty-si grity, fri-st

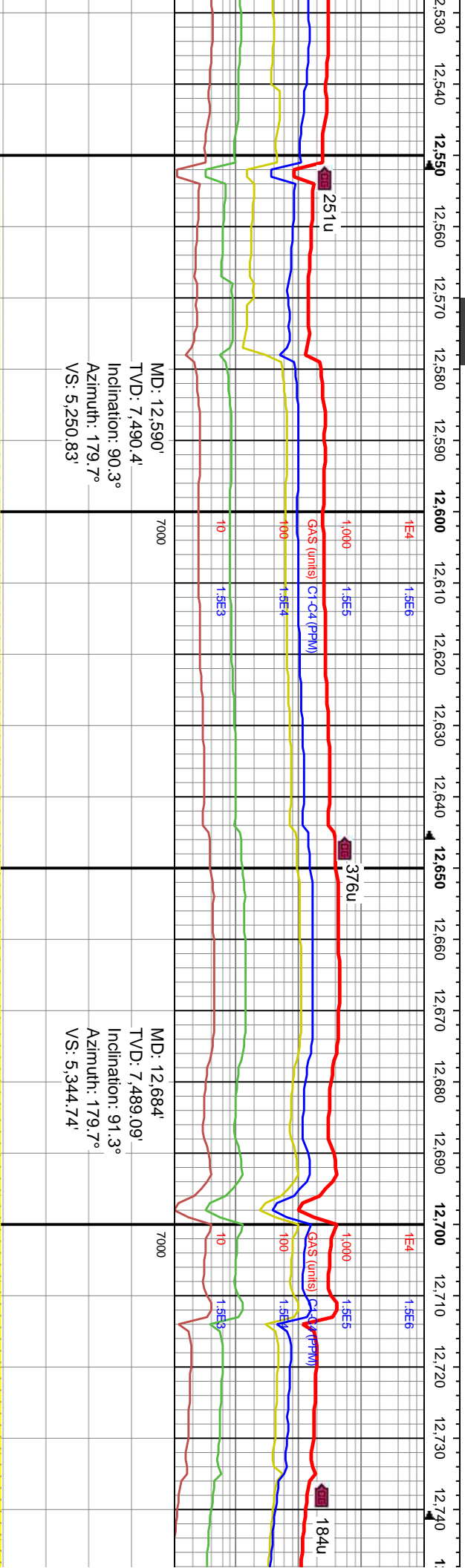
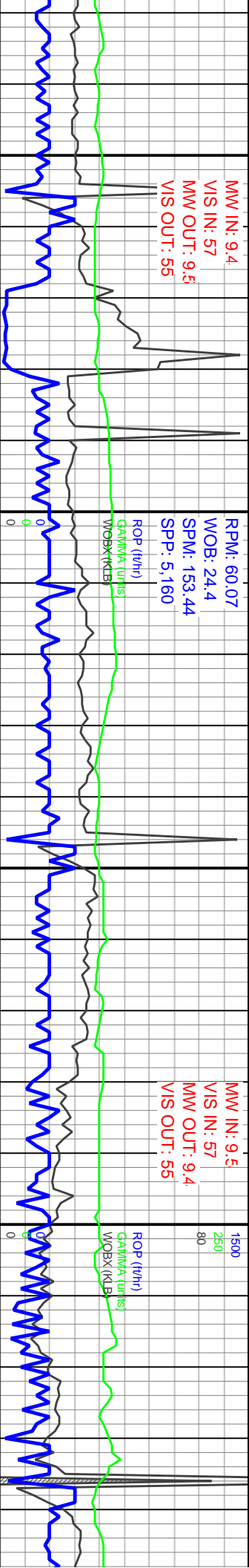
12050-12100 50% SST: predy lt-med  
gysbhn, sme lt-med gy, sb rnd-sb ang,  
frm-hrd, vf-f grnd, mod w srt, occ pp pyr,  
occ free qtz: 50% SH: dk-med gy, sme mot  
gysbhn, ply-sb blkly, silty-si grity, fri-st







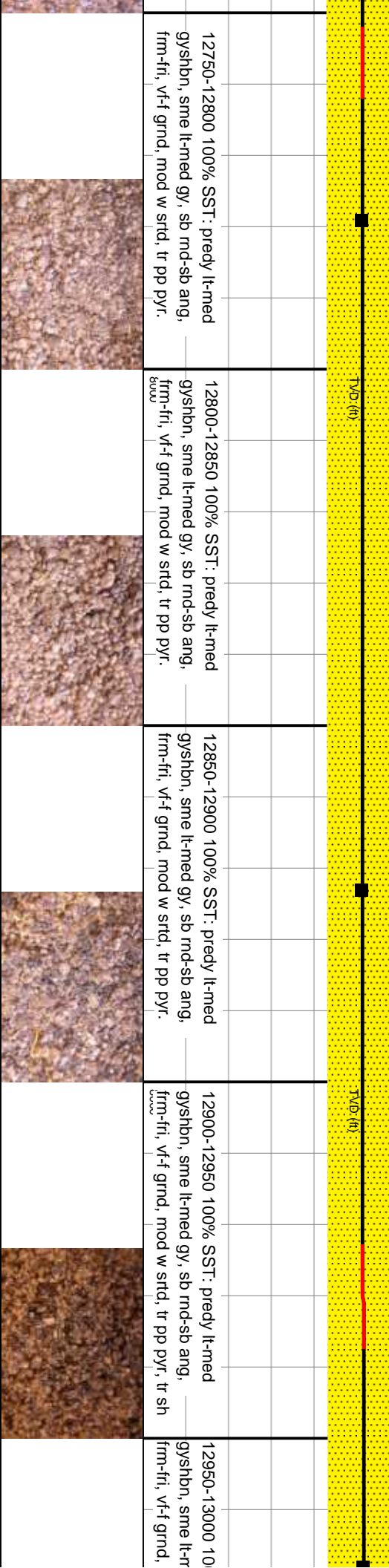
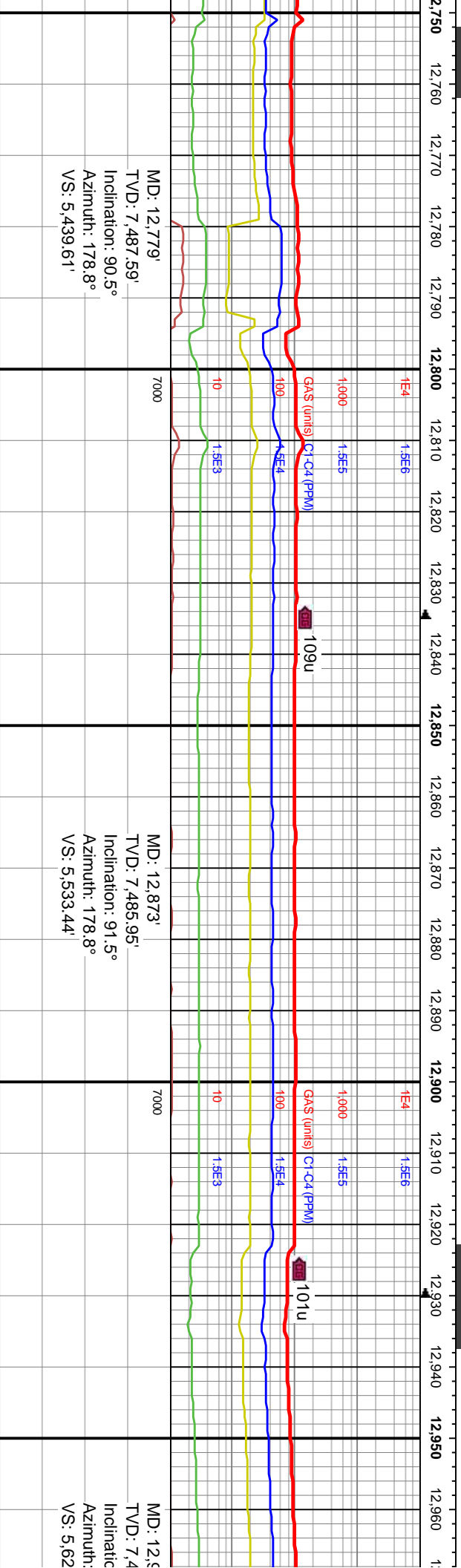
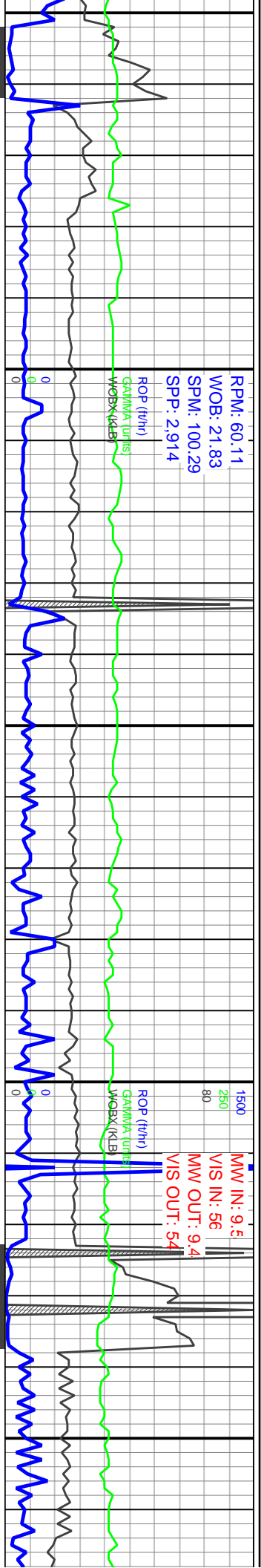
112100-12150 50% SST: predy lt-med gysbhn, sme lt-med gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w strd, occ pp pyr, occ free qtz: 50% SH: dk-med gy, sme mot gysbhn, ply-sb blkly, silty-sl grtly, frt-st	112150-12200 60% SST: predy lt-med gysbhn, sme lt-med gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w strd, occ pp pyr, occ free qtz: 40% SH: dk-med gy, sme mot gysbhn, ply-sb blkly, silty-sl grtly, frt-st	12200-12250 85% SST: predy lt-med gysbhn, sme lt-med gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w strd, occ pp pyr, occ free qtz: 15% SH: dk-med gy, sme mot gysbhn, ply-sb blkly, silty-sl grtly, frt-st	12250-12300 70% SST: predy lt-med gysbhn, sme lt-med gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w strd, occ pp pyr, occ free qtz: 30% SH: dk-med gy, sme mot gysbhn, ply-sb blkly, silty-sl grtly, frt-st	12300 gysbhn, frm-hrd, occ free qtz: 60% SH: dk-med gy, sme mot gysbhn, ply-sb blkly, silty-sl grtly, frt-st
---	---	--	--	--



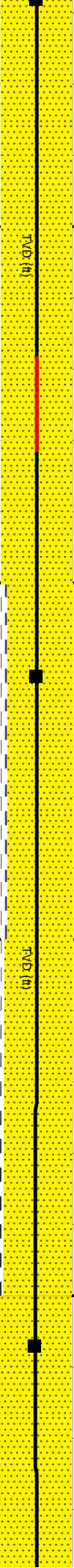
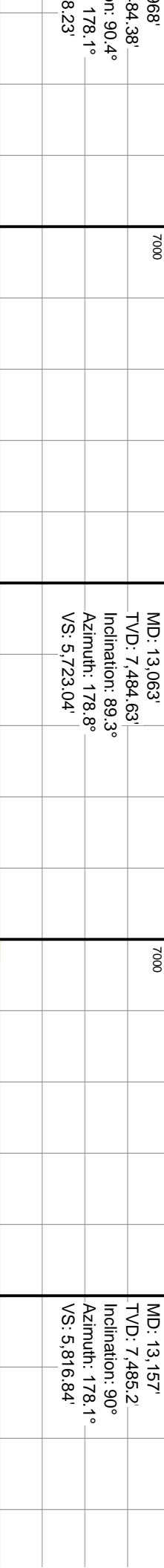
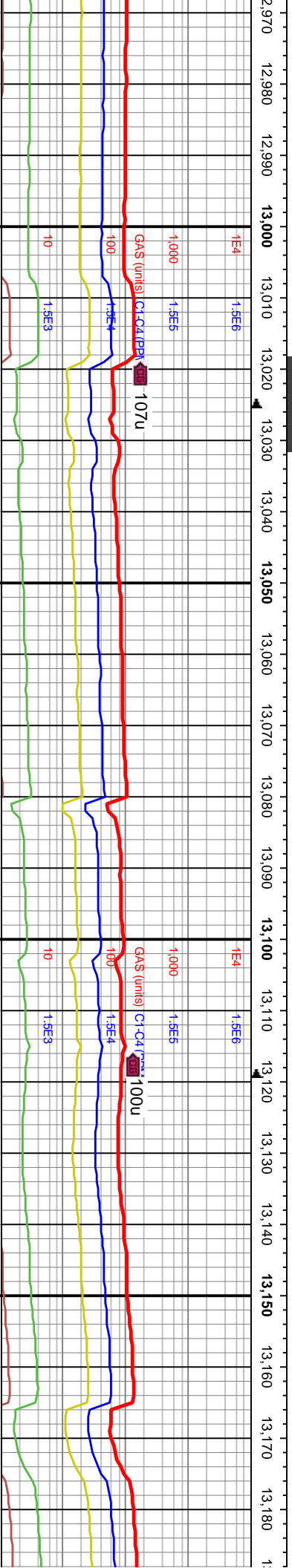
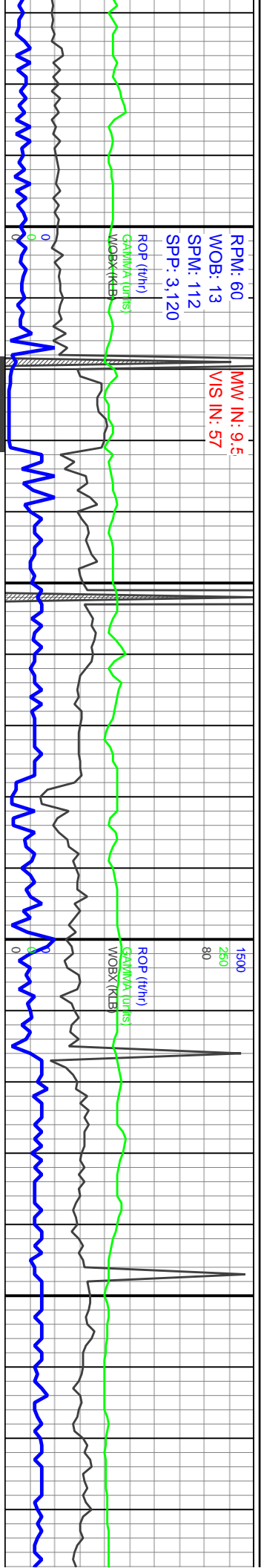




TVD (ft)										TVD (ft)									
predy lt-med b rnd-sb ang, trd, tr pp pyr, tr		12550-12600 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frn-fri, vf-f grnd, mod w srt'd, tr pp pyr, tr free qtz; tr SH				12600-12650 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frn-fri, vf-f grnd, mod w srt'd, tr pp pyr, tr free qtz.				12650-12700 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frn-fri, vf-f grnd, mod w srt'd, tr pp pyr, tr free qtz.				12700-12750 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frn-fri, vf-f grnd, mod w srt'd, tr pp pyr.					







0% SST: predy lt-med med gy, sb md-sb ang, mod w srt, tr pp pyr, tr sh	13000-13050 100% SST: predy lt-med gysbhn, sme lt-med gy, sb md-sb ang, frm-fri, vf-f grnd, mod w srt, tr pp pyr, tr sh	13050-13100 90% SST: predy lt-med gysbhn, sme med-dk gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w srt, occ pp pyr, occ free qtz: 10% SH: dk-med gy, sme mot gysbhn, pty-sb blk, silty-sil grity, fri-sit	13100-13150 95% SST: predy lt-med gysbhn, sme med-dk gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w srt, occ pp pyr, occ free qtz: 5% SH: dk-med gy, sme mot gysbhn, pty-sb blk, silty-sil grity, fri-sit	13150-13200 100% SST: predy lt-r gysbhn, sme lt-med gy, sb md-sb ang, frm-fri, vf-f grnd, mod w srt, tr pp pyr, tr sh
--	---	---	--	---



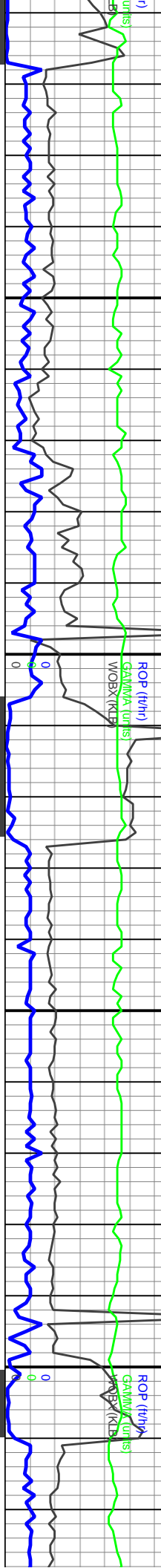
--	--	--	--	--



0  
6  
49  
973

150' MW IN: 9.5  
250' VIS IN: 54

RPM: 56.83 MW IN: 9  
WOB: 15.45  
SPM: 157.69  
SPP: 5.177



13,3410 13,420 13,430 13,440 13,450 13,460 13,470 13,480 13,490 13,500 13,510 13,520 13,530 13,540 13,550 13,560 13,570 13,580 13,590 13,600 13,610 13,620

5u

1E4 1E5

1E4 1E5

1.5E4

1.5E5

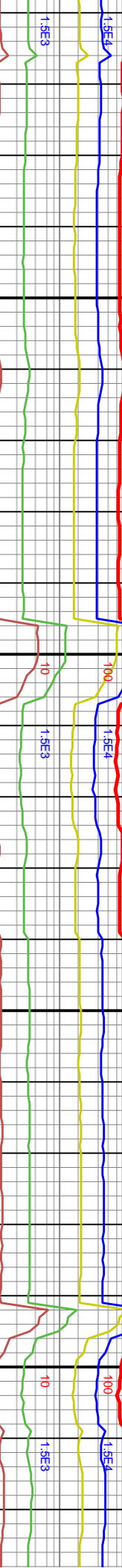
1.5E5

1.5E4

1.5E4

1.5E3

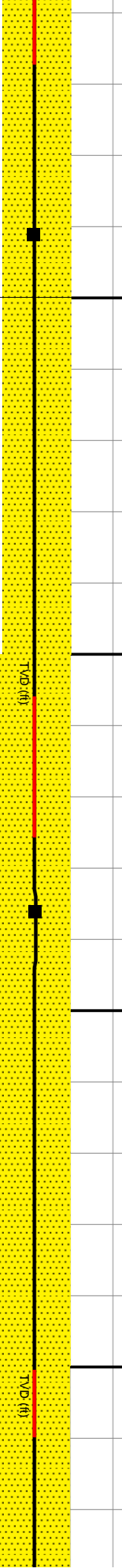
1.5E3



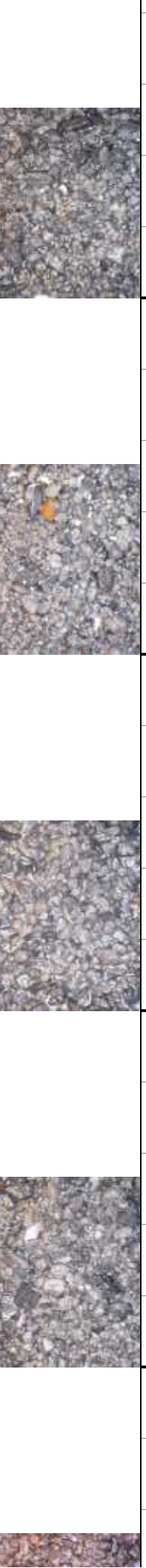
MD: 13,441'  
TVD: 7,481.9'  
Inclination: 89.8°  
Azimuth: 177.7°  
VS: 6,100'

MD: 13,536'  
TVD: 7,481.66'  
Inclination: 90.5°  
Azimuth: 180°  
VS: 6,194.84'

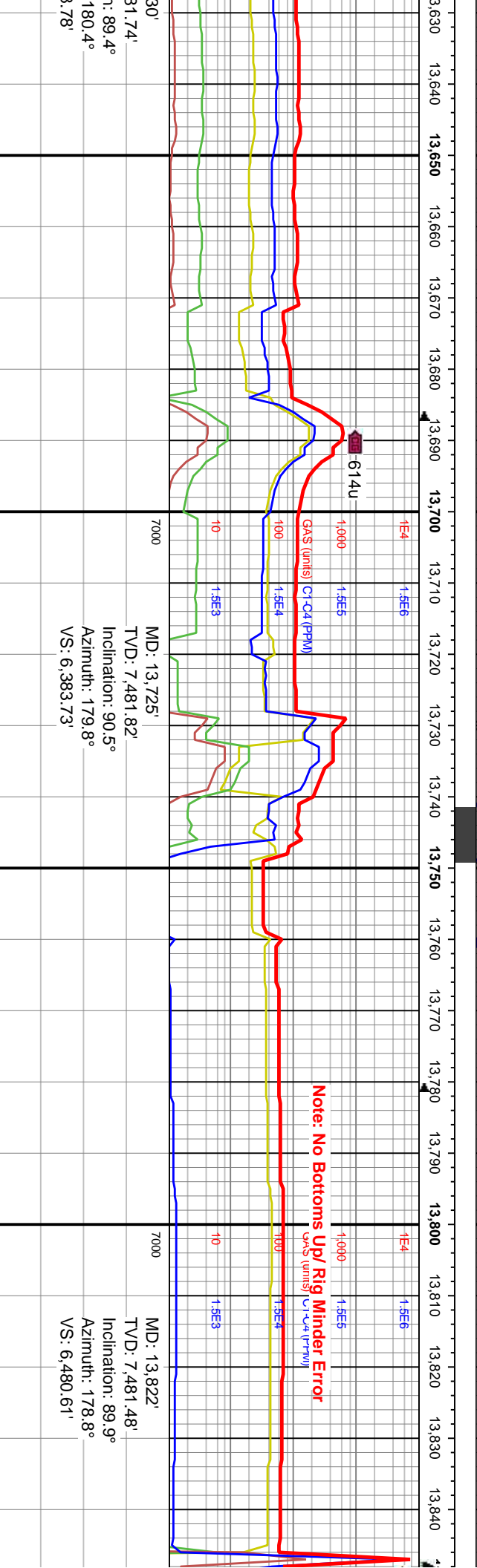
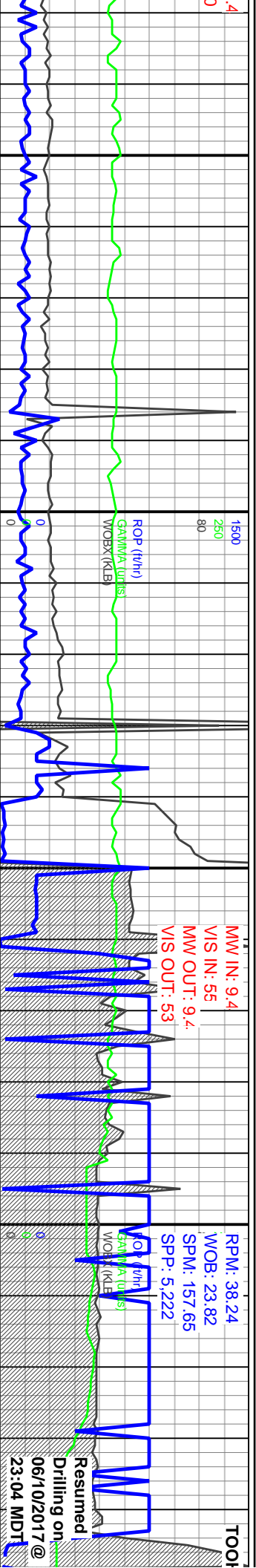
MD: 13,620'  
TVD: 7,481.66'  
Inclination: 90.5°  
Azimuth: 180°  
VS: 6,286.84'



13450 95% SST: predy lt-med  
13450-13500 95% SST: predy med-dk gy,  
13500-13550 100% SST: predy lt-med gy,  
13550-13600 100% SST: predy lt-med  
13600-13650 100% SST:

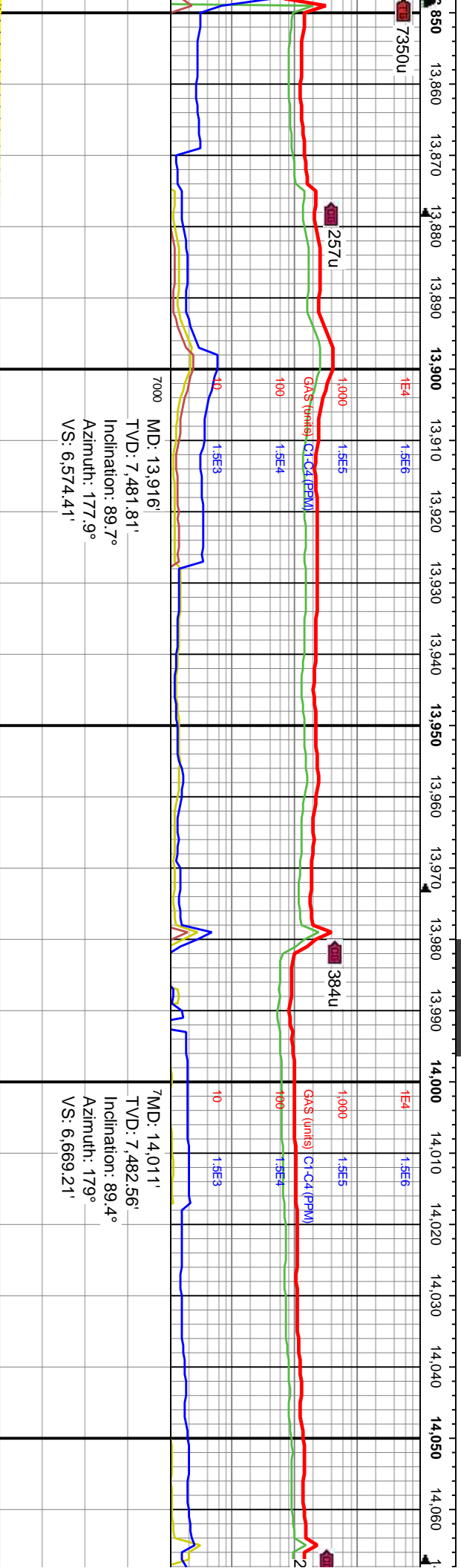
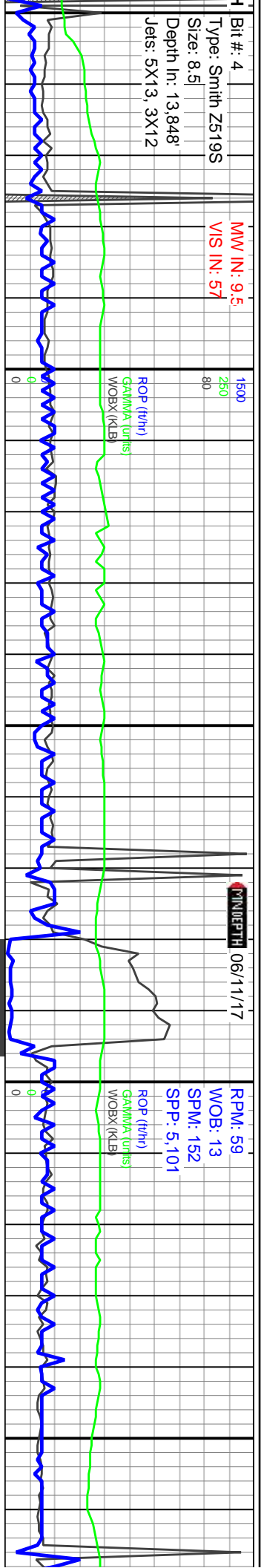




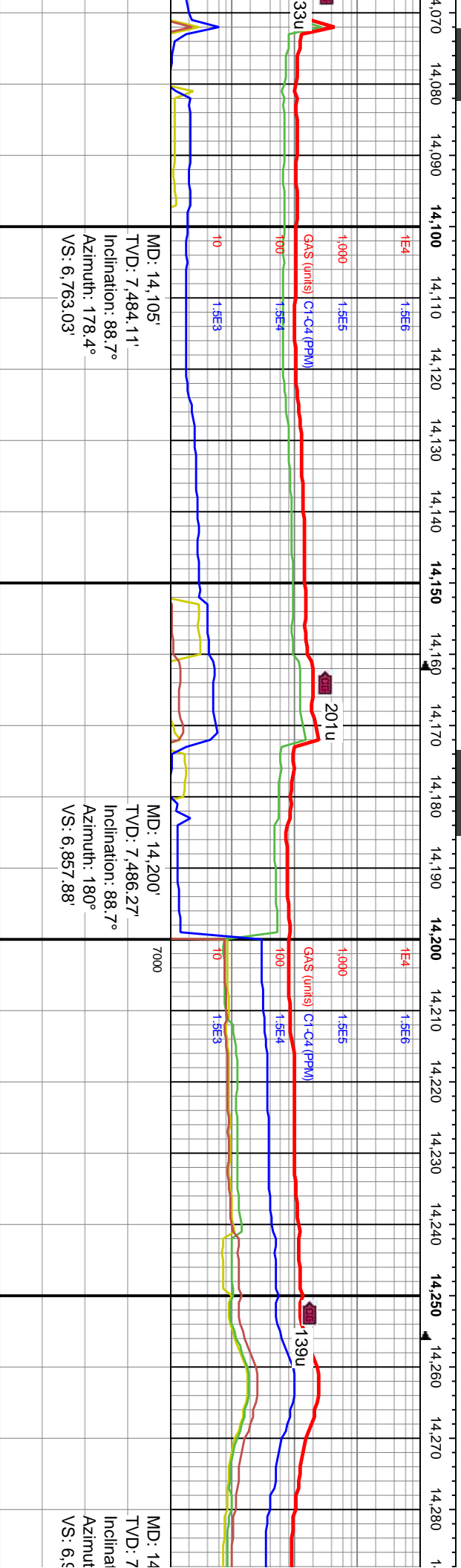
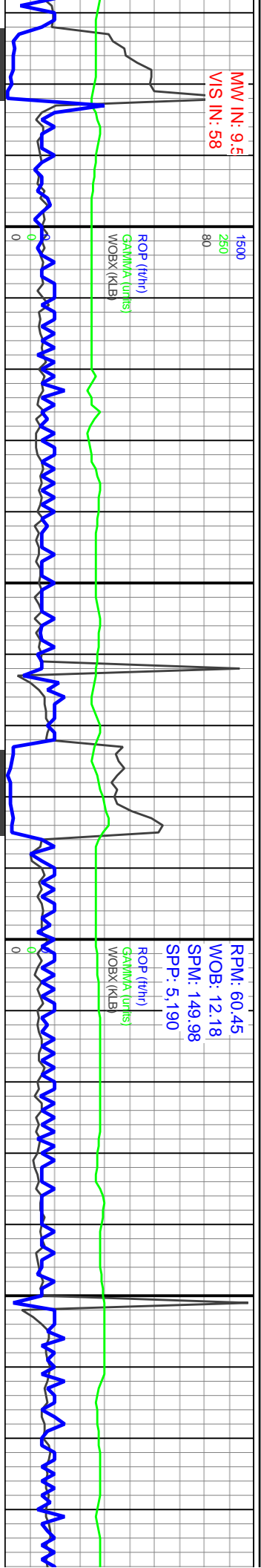


13650-13700 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frm-fri, vf-f grnd, mod w srted, tr pyr nod, tr SH		13700-13750 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frm-fri, vf-f grnd, mod w srted, tr pyr nod, tr SH		13750-13800 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frm-fri, vf-f grnd, mod w srted, tr pyr nod, tr SH		13800-13850 60% SH: dk-med gy, sme mot gysbhn, pty-sb blkly, silty-sl grity, fri-sft: 40% SST: predy lt-med gysbhn, sme med-dk gy, sb md-sb ang, frm-hrd, vf-f grnd, mod w srted, occ pp pyr, occ free qtz	

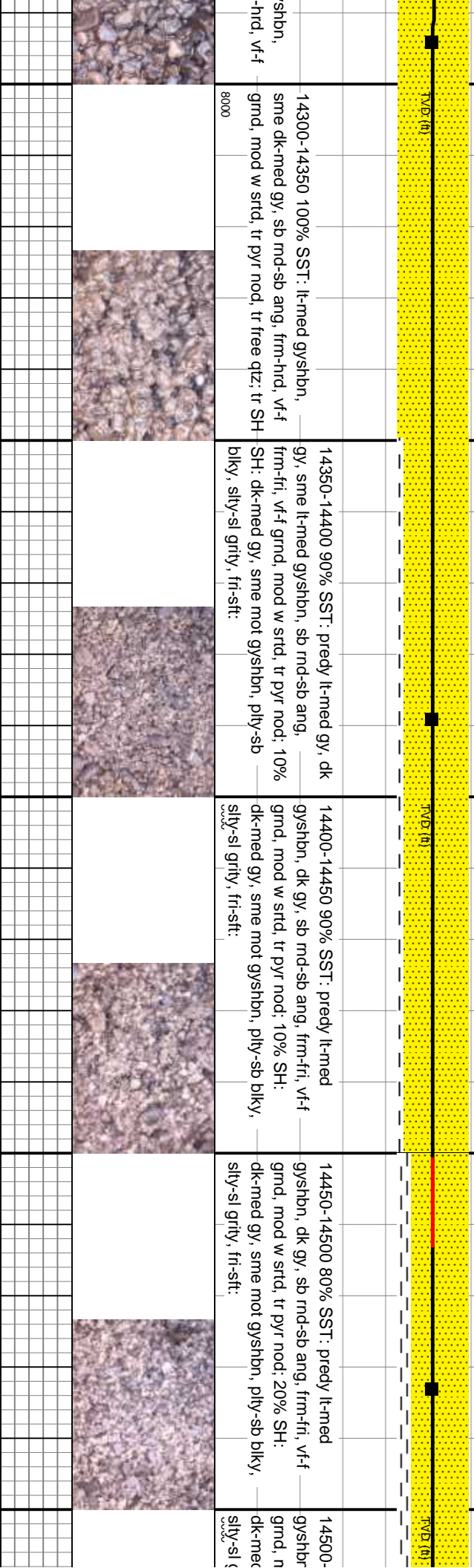
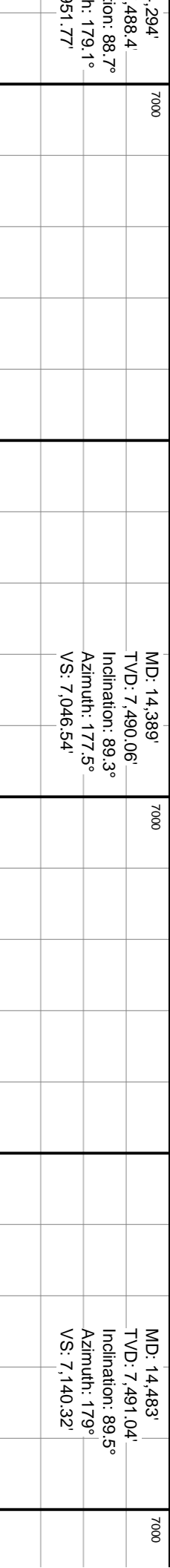
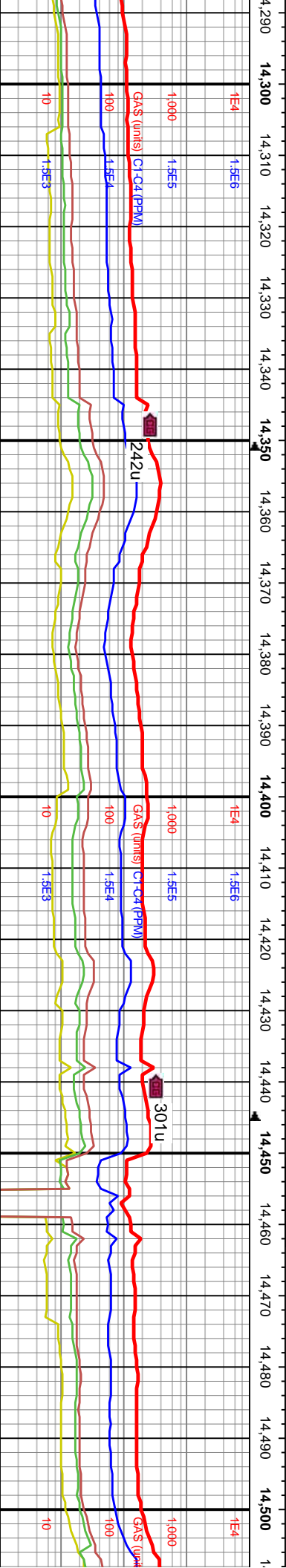
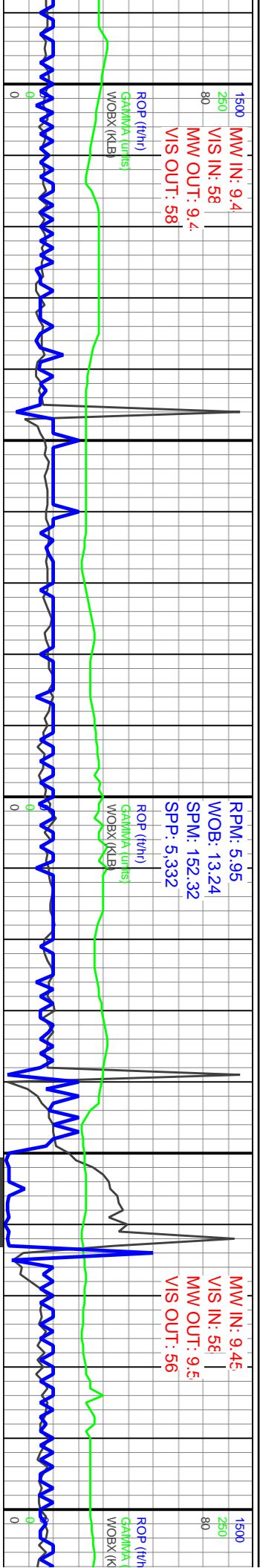




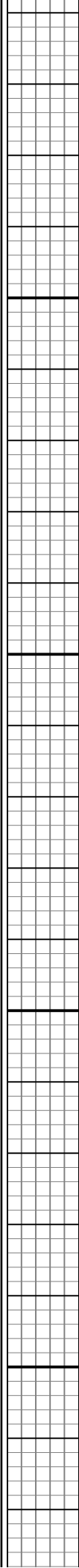
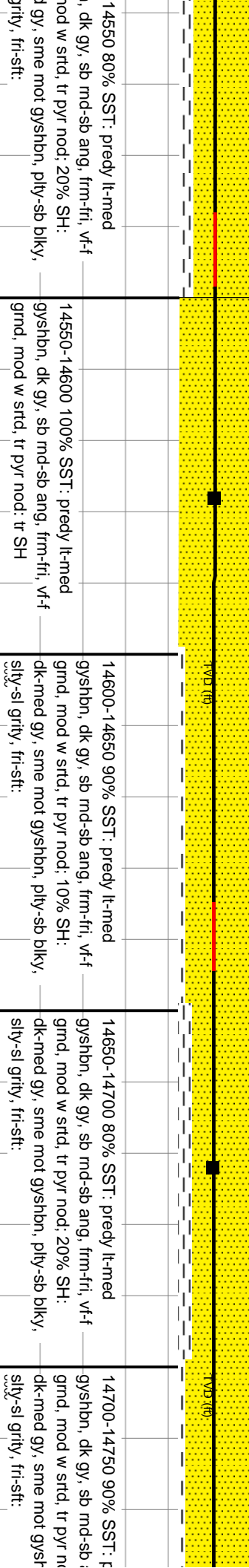
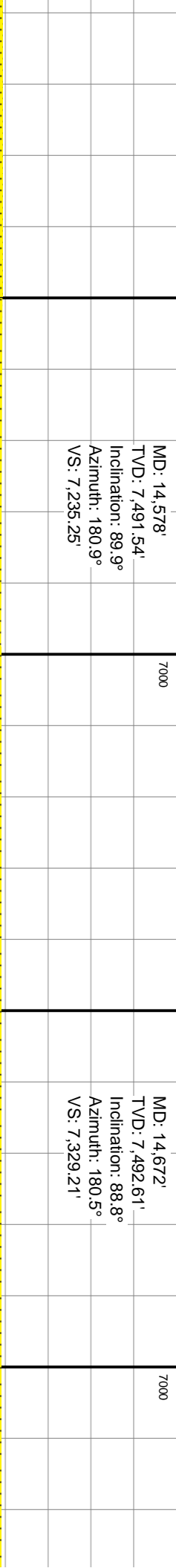
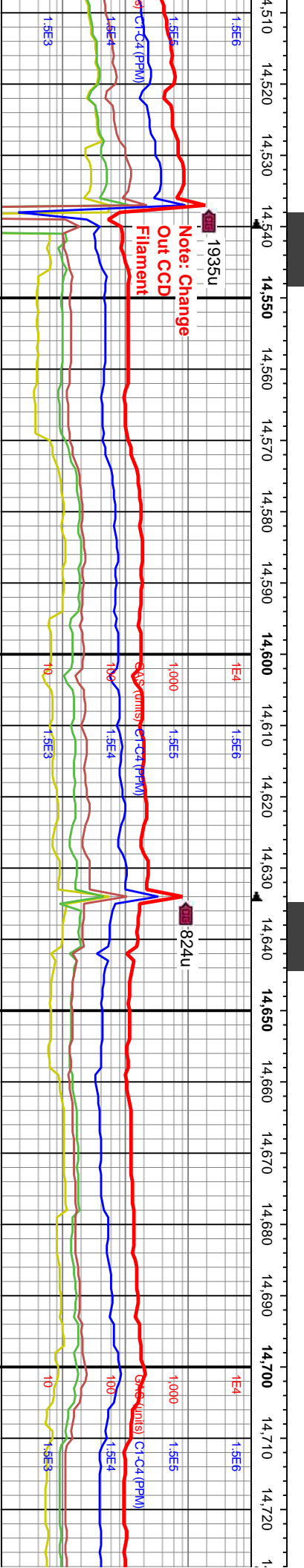
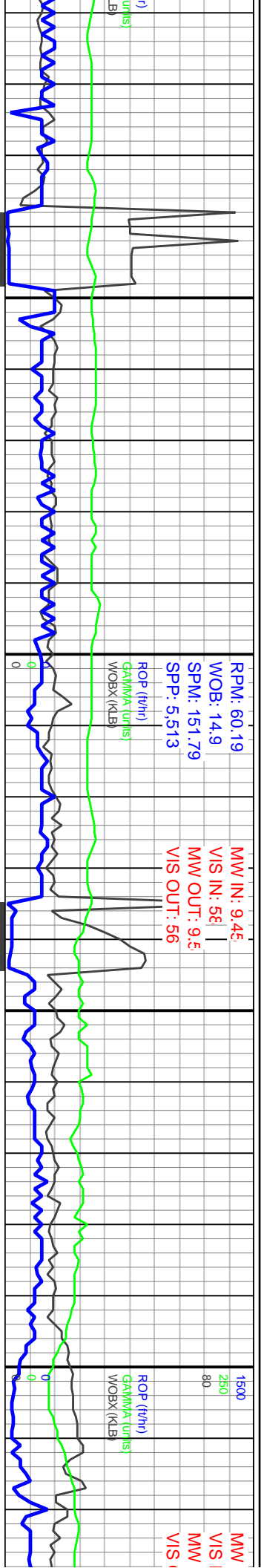
13850-13900 50% SH: dk-med gy, sme mot gysbhn, pty-sb blk, sly-sl grity, fri-sft:50% SST: lt-med gysbhn, sme dk-med gy, sb rnd-sb ang, frm-hrd, vr-f grnd, mod w srt	13900-13950 70% SST: predy lt-med gysbhn, sme med-dk gy, sb rnd-sb ang, frm-hrd, vr-f grnd, mod w srt, occ pp pyr, occ free qtz: 30% SH: dk-med gy, sme mot gysbhn, pty-sb blk, sly-sl grity, fri-sft: 80u	13950-14000 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frm-fri, f-med grnd, mod w srt, tr pyr nod, sh	14000-14050 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frm-fri, f-med grnd, mod w srt, tr pyr nod	14050-14100 100% SST: predy lt-med gysbhn, sme lt-med gy, sb rnd-sb ang, frm-fri, f-med grnd, mod w srt, tr pyr nod
--	--	---	---	---



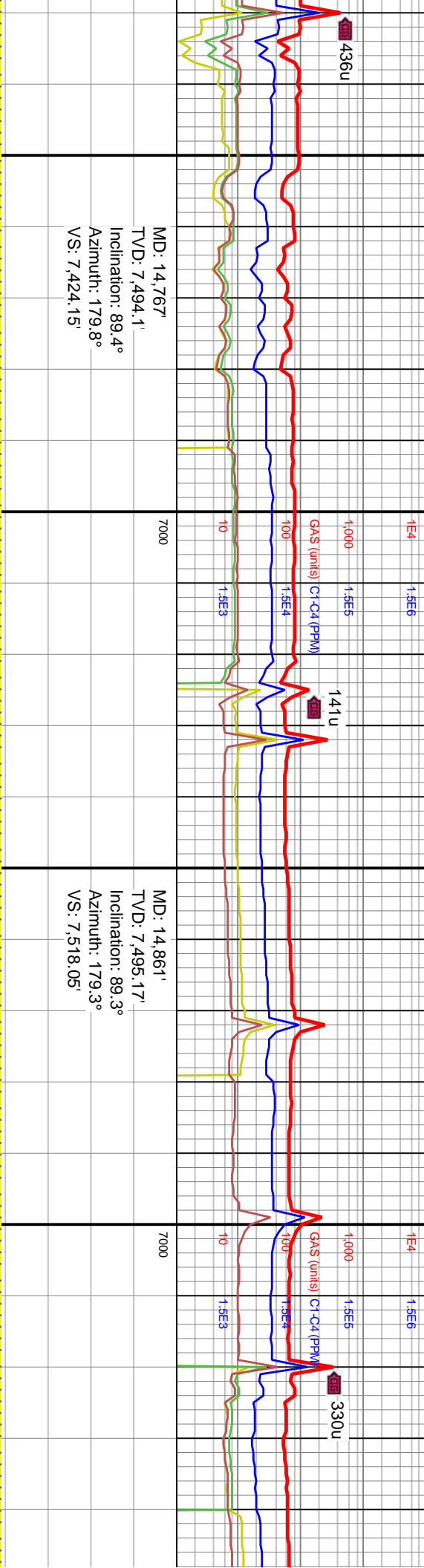
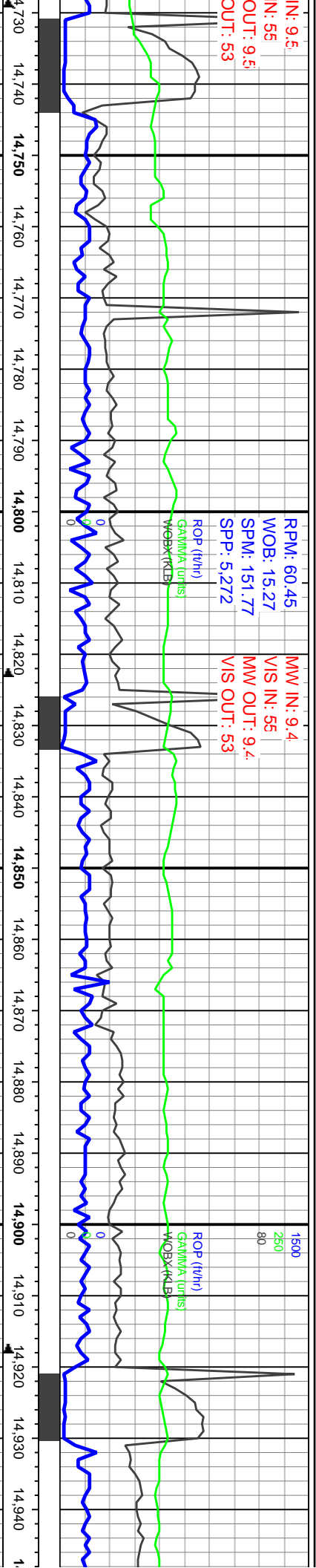
100% SST: predy lt-med gy, sb rnd-sb ang, mod w strd, tr pyr nod		14100-14150 100% SST: predy lt-med gyshbn, sme lt-med gy, sb rnd-sb ang, frm-fri, f-med grnd, mod w strd, tr pyr nod		14150-14200 80% SST: predy lt-med gy, dk gy, sme lt-med gyshbn, sb rnd-sb ang, frm-fri, f-med grnd, mod w strd, tr pyr nod; 20% SH: dk-med gy, sme mot gyshbn, pty-sb blkly, slty-sl grty, fri-sft:		14200-14250 80% SST: predy lt-med gy, dk gy, sme lt-med gyshbn, sb rnd-sb ang, frm-fri, f-med grnd, mod w strd, tr pyr nod; 20% SH: dk-med gy, sme mot gyshbn, pty-sb blkly, slty-sl grty, fri-sft:		14250-14300 100% SST: lt-med gy sme dk-med gy, sb rnd-sb ang, frm grnd, mod w strd, tr SH	



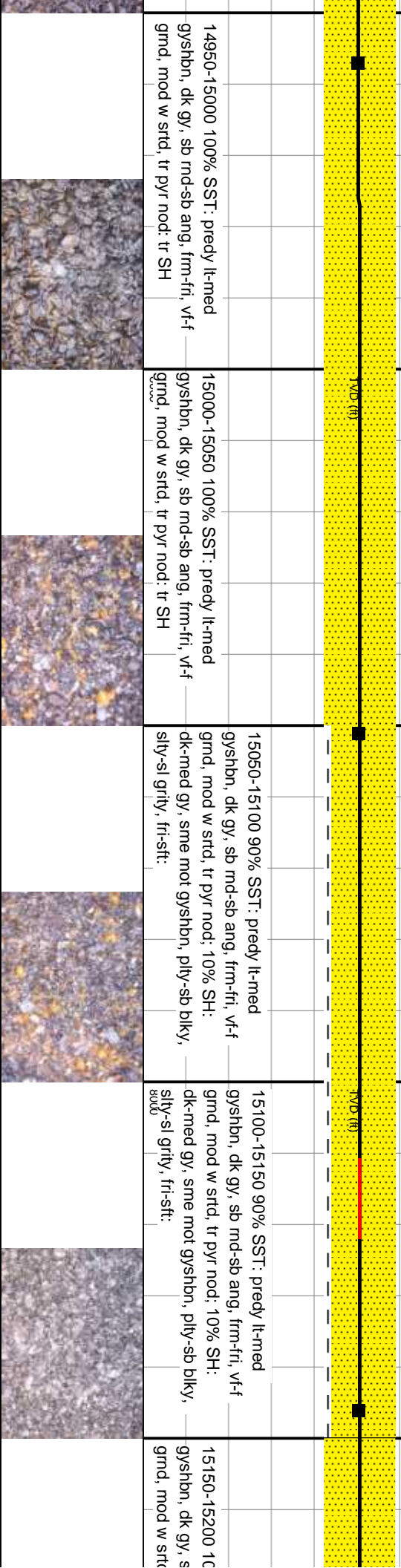
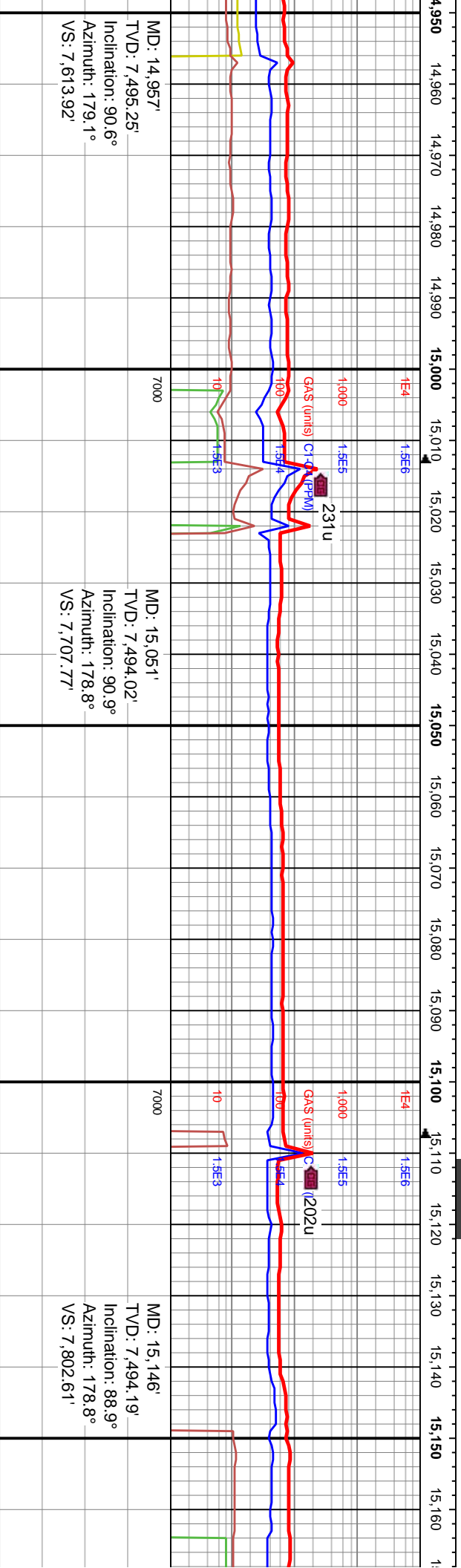
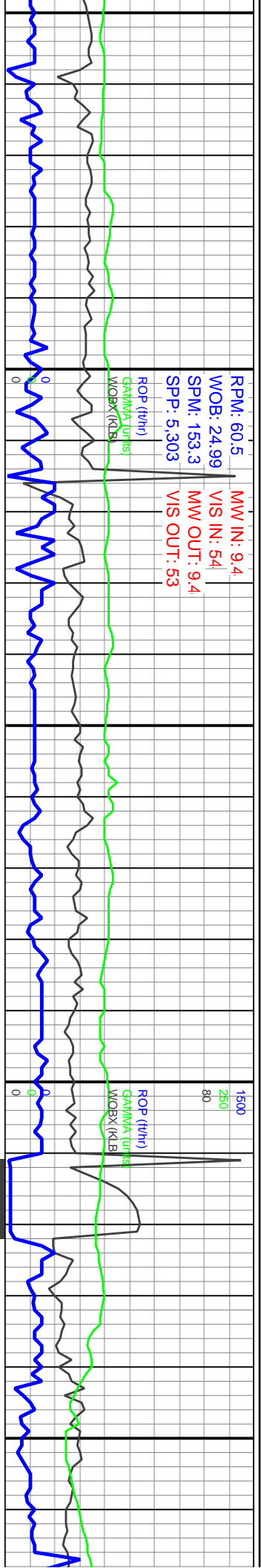


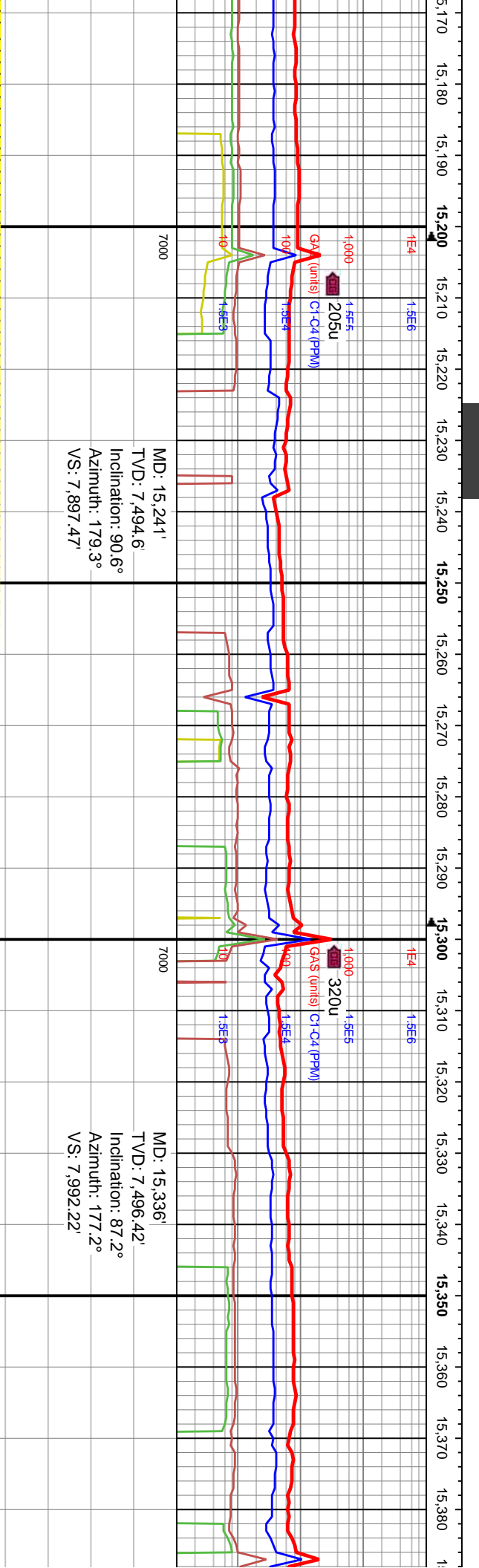
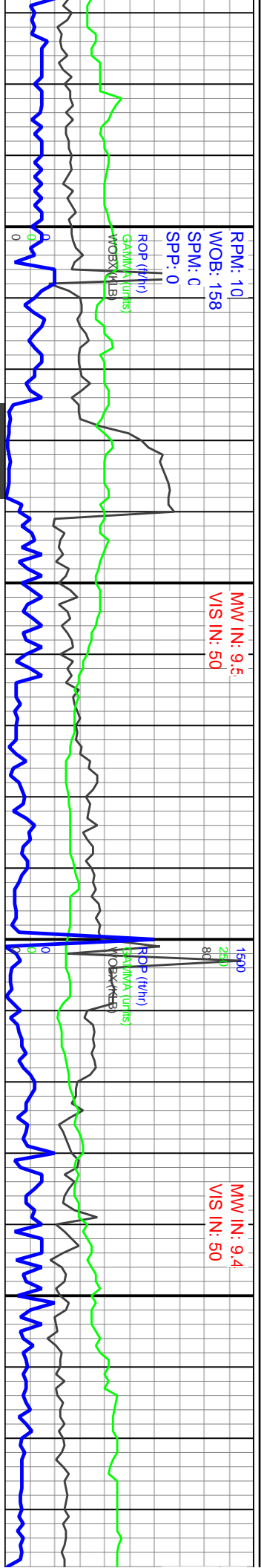






predy lt-med ang, frm-fri, vf-f		14750-14800 100% SST: predy lt-med gysbhn, dk gy, sb md-sb ang, frm-fri, vf-f		14800-14850 100% SST: predy lt-med gysbhn, dk gy, sb md-sb ang, frm-fri, vf-f		14850-14900 100% SST: predy lt-med gysbhn, dk gy, sb md-sb ang, frm-fri, vf-f		14900-14950 100% SST: predy lt-med gysbhn, dk gy, sb md-sb ang, frm-fri, vf-f	
mod: 10% SH: bhn, ply-sb blkly,		grnd, mod w strd, tr pyr nod: tr SH		grnd, mod w strd, tr pyr nod: tr SH		grnd, mod w strd, tr pyr nod: tr SH		grnd, mod w strd, tr pyr nod: tr SH	

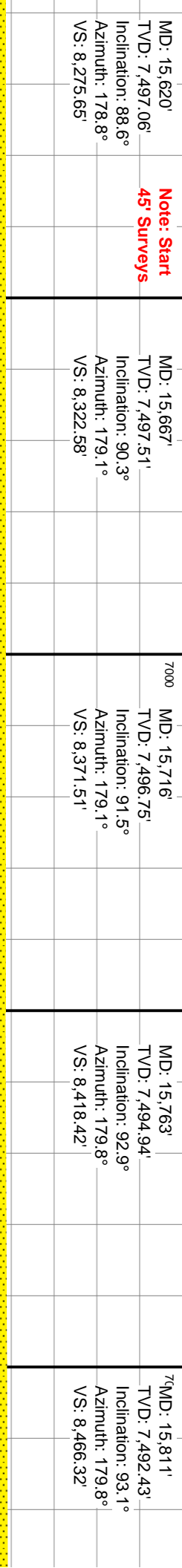
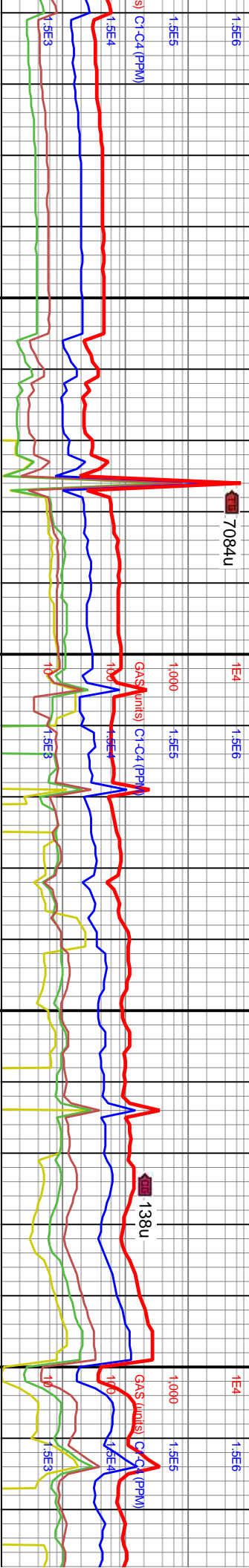
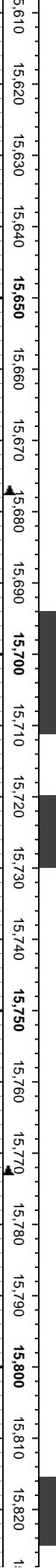
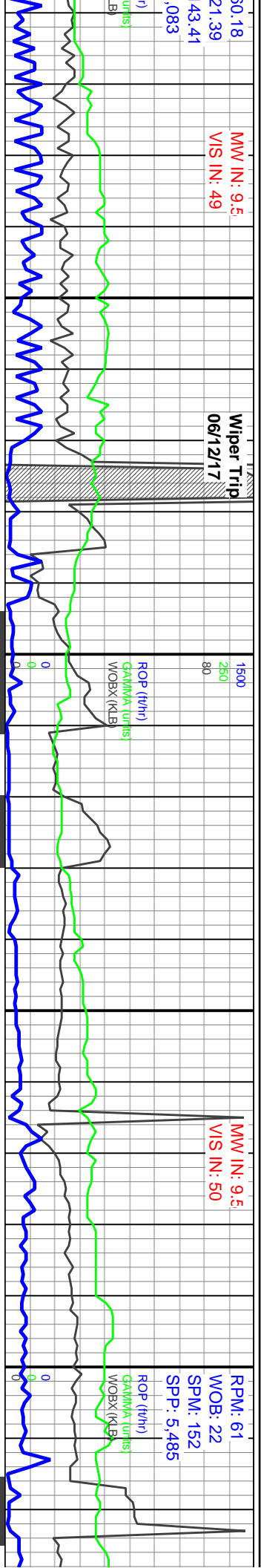




100% SST: predy lt-med b md-sb ang, frm-fri, vf-f d, tr pyr nod, tr sh	15200-15250 100% SST: predy lt-med gyshbn, dk gy, sb md-sb ang, frm-fri, vf-f grnd, mod w strd, tr sh	15250-15300 100% SST: predy lt-med gyshbn, dk gy, sb md-sb ang, frm-fri, vf-f grnd, mod w strd, tr sh	15300-15350 60% SST: predy lt-med gyshbn, dk gy, sb md-sb ang, frm-fri, vf-f grnd, mod w strd, tr pyr nod, 40% SLTY SH: dk-med gy, sme mot gyshbn, ply-sb blk, slty-si grity, fri-frm	15350-15400 60% SLTY SH: dk-m sme mot gyshbn, ply-sb blk, slty- fri-frm; 40% SST: predy lt-med gys- gy, sb md-sb ang, frm-fri, vf-f grnd, strd, tr pyr nod







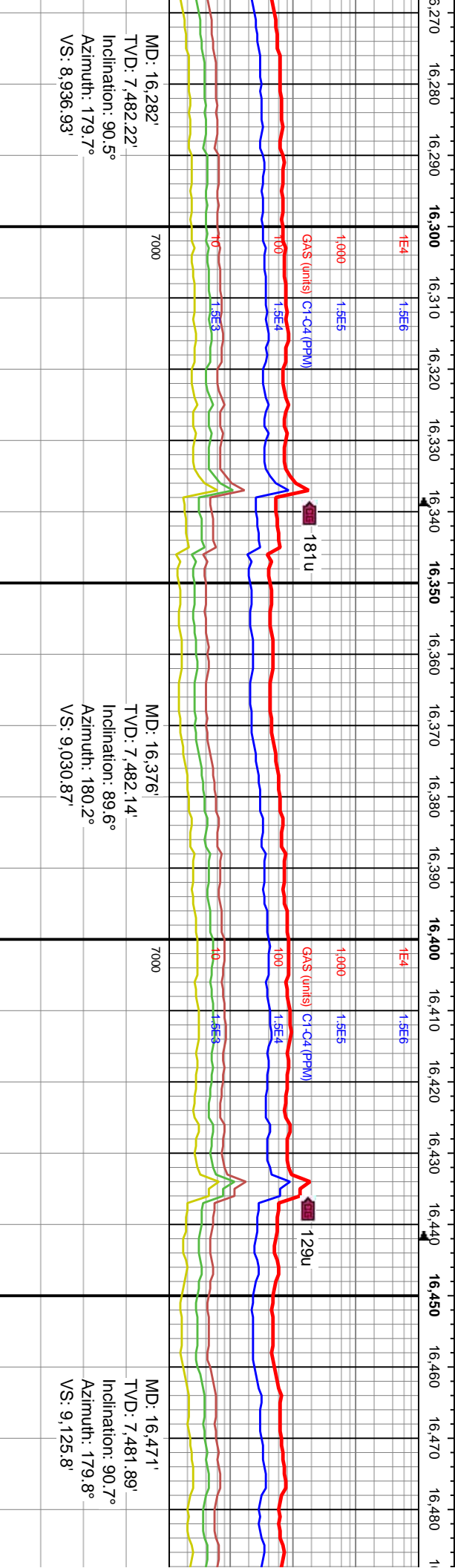
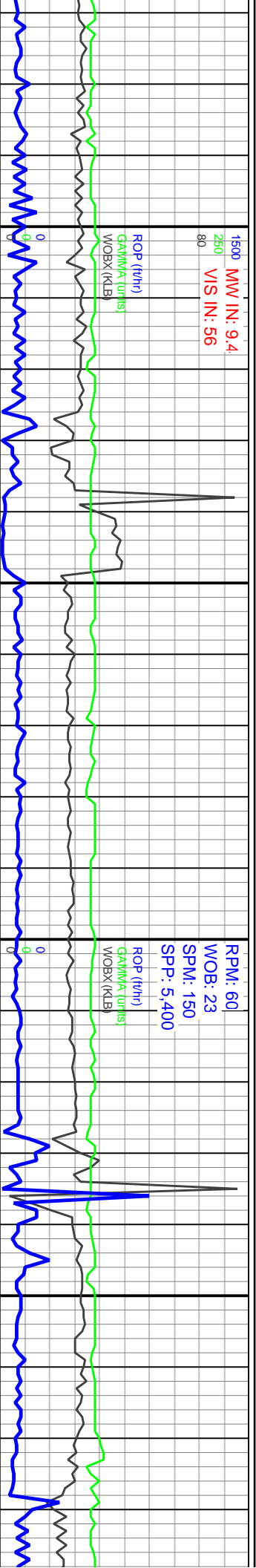
15650-15700 70% SLTY SH: dk-med gy, ply-sb blkly, slty-sl grity, fr-frm; 30% SST: predy lt-med gysbhn, dk gy, sb md-sb ang, frm-frt, vf-f grnd, mod w strd, occ free qtz, tr pyr nod.	15700-15750 60% SLTY SH: dk-med gy, ply-sb blkly, slty-sl grity, fr-frm; 40% SST: predy lt-med gysbhn, dk gy, sb md-sb ang, frm-frt, vf-f grnd, mod w strd, occ free qtz, tr pyr nod.	15750-15800 60% SST: predy lt-med gysbhn, dk gy, sb md-sb ang, frm-frt, vf-f grnd, mod w strd, occ free qtz, tr pyr nod; 40% SLTY SH: dk-med gy, ply-sb blkly, slty-sl grity, fr-frm	15800-15850 80% SST: ply-sb blkly, dk gy, sb md-sb ang, frm-frt, vf-f grnd, mod w strd, comm 1 20% SLTY SH: dk-med gy, slty-sl grity, fr-frm
---	---	--	--





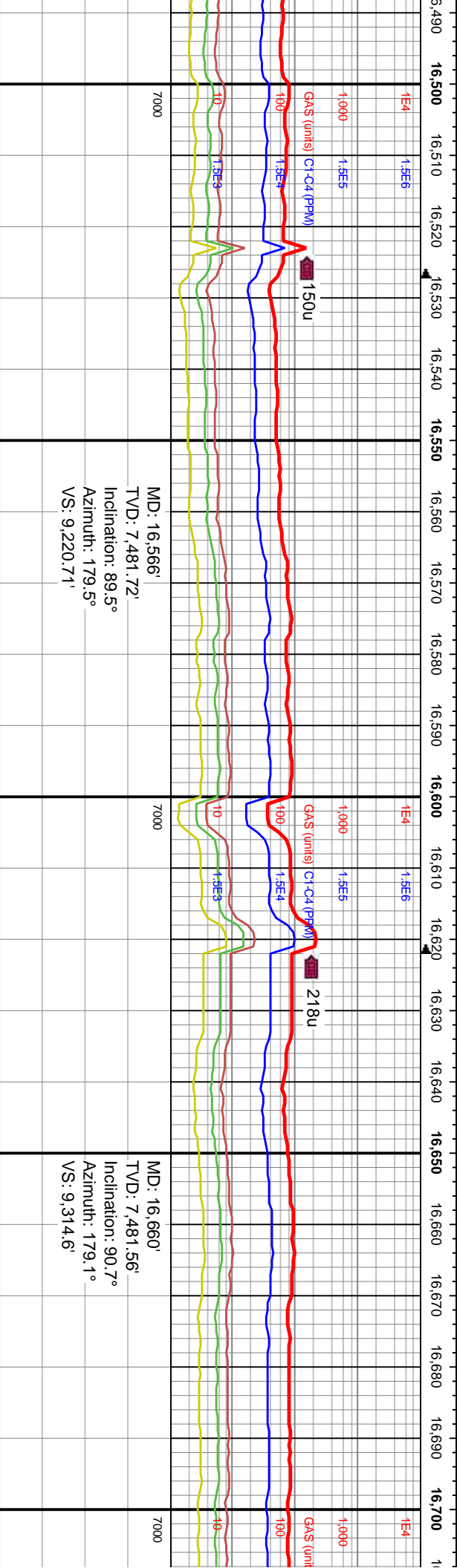
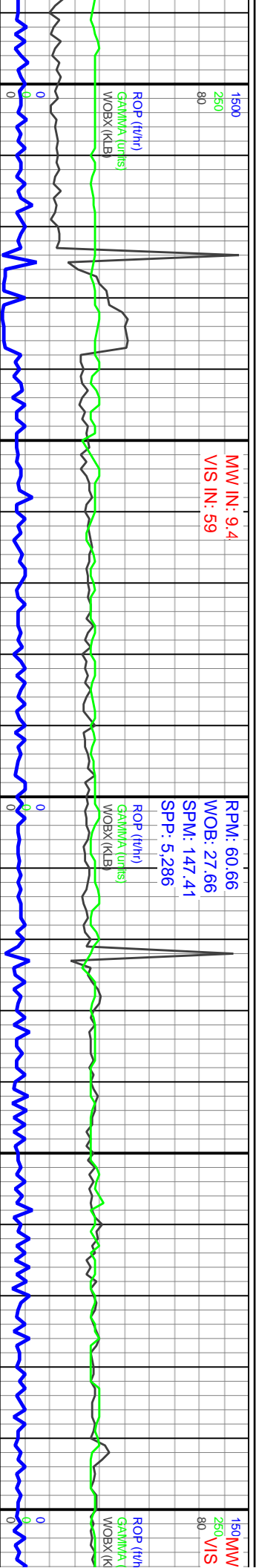




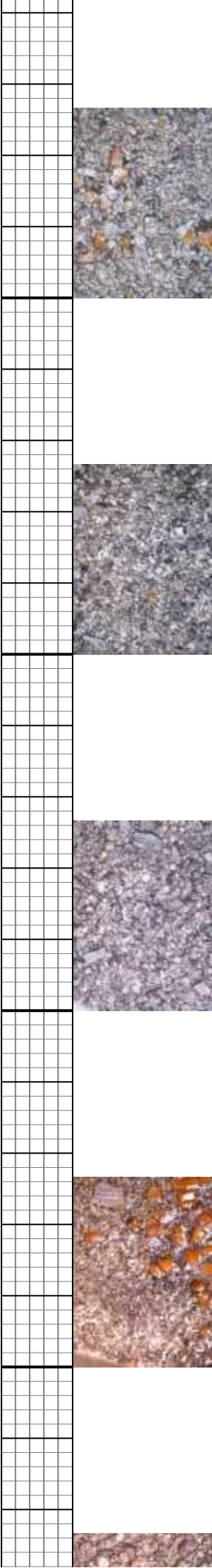
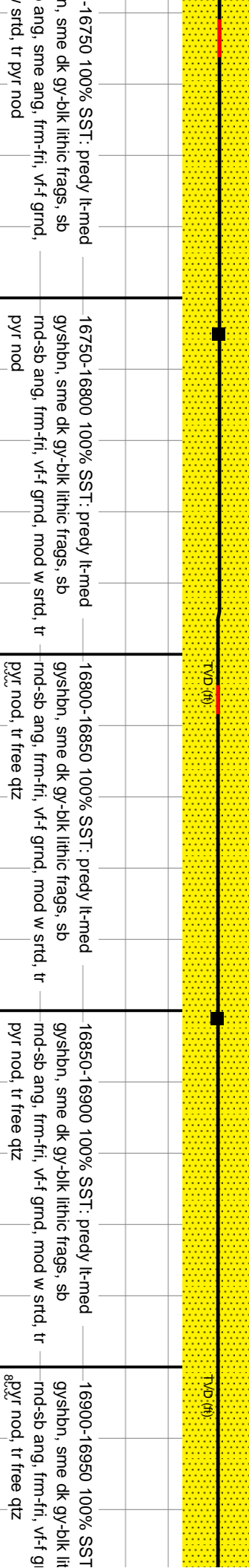
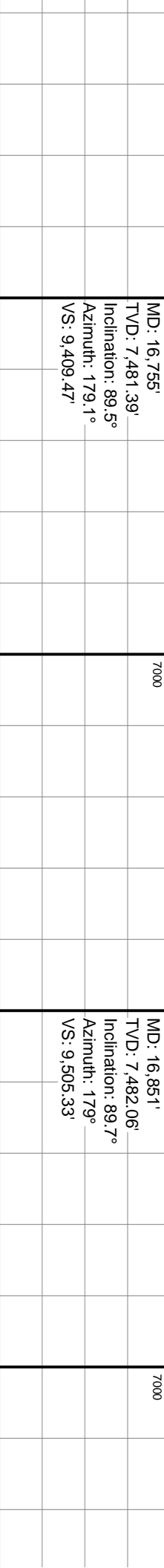
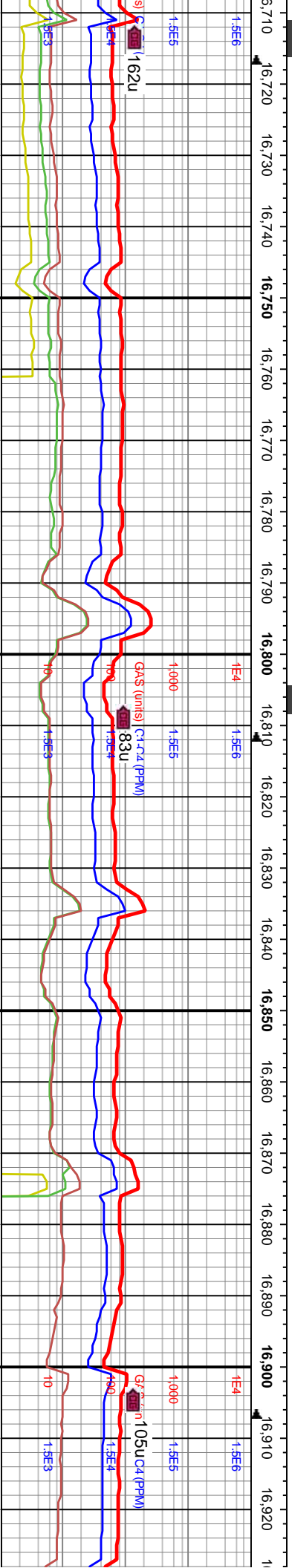
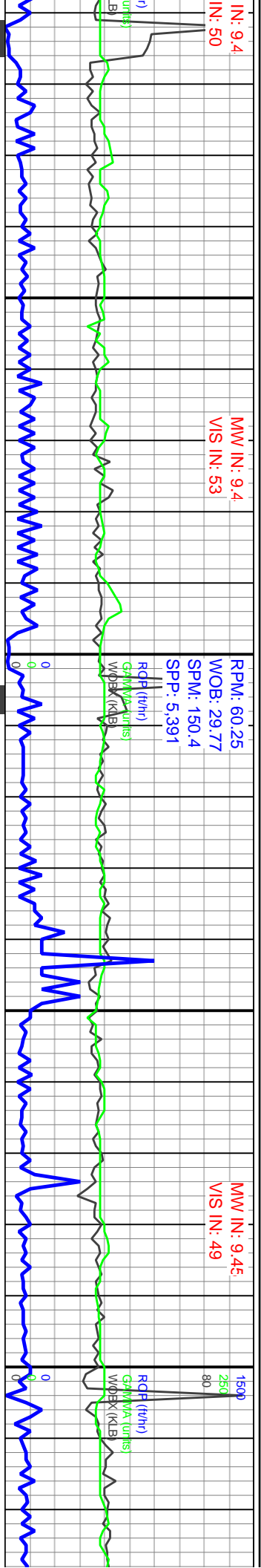


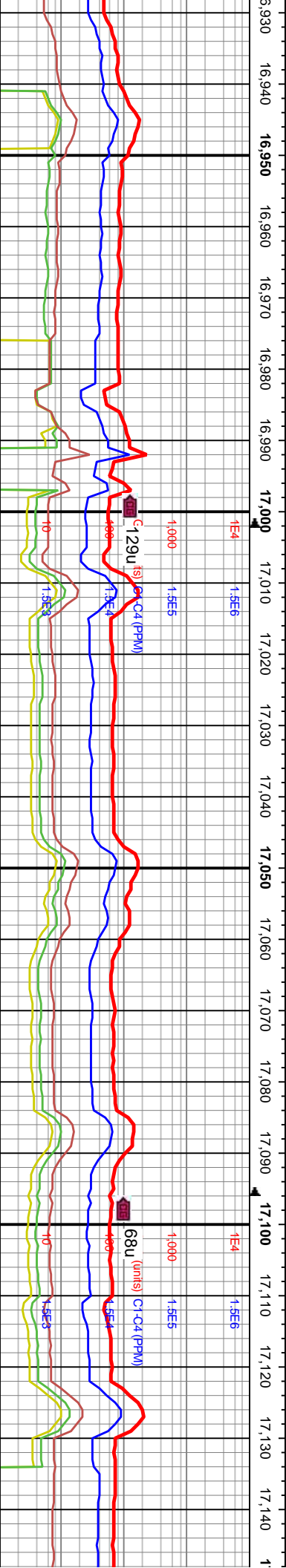
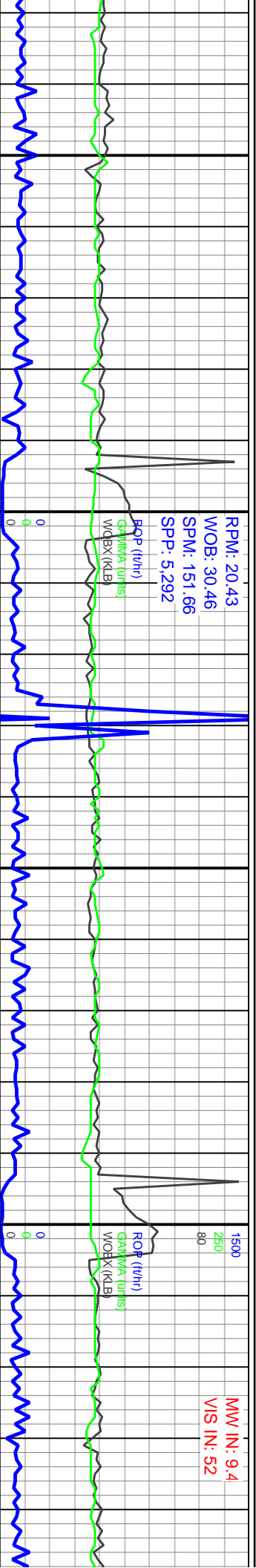
MD: 16,282' TVD: 7,482.22' Inclination: 90.5° Azimuth: 179.7° VS: 8,936.93'		MD: 16,376' TVD: 7,482.14' Inclination: 89.6° Azimuth: 180.2° VS: 9,030.87'		MD: 16,471' TVD: 7,481.89' Inclination: 90.7° Azimuth: 179.8° VS: 9,125.8'	
10% SST: predy lt-med gy, sb md-sb ang, frm-fri, strd, tr free qtz, tr sh		16300-16350 100% SST: predy lt-med gysbhn, sme dk gy, sb md-sb ang, frm-fri, v-f gmd, mod w strd, tr free qtz, tr sh		16400-16450 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, v-f gmd, mod w strd, tr pp pyr, tr free qtz, tr sh	
16350-16400 100% SST: predy lt-med gysbhn, sme dk gy, sb md-sb ang, frm-fri, v-f gmd, mod w strd, tr pp pyr, tr free qtz, tr sh		16450-16500 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, rmd-sb ang, frm-fri, v-f gmd, mod pp pyr, tr free qtz, tr sh			
16500-16550 100% SST: predy lt-med gysbhn, sme dk gy, sb md-sb ang, frm-fri, v-f gmd, mod w strd, tr pp pyr, tr free qtz, tr sh					





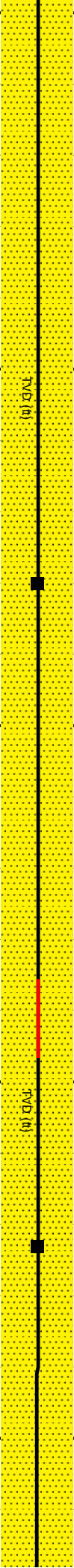
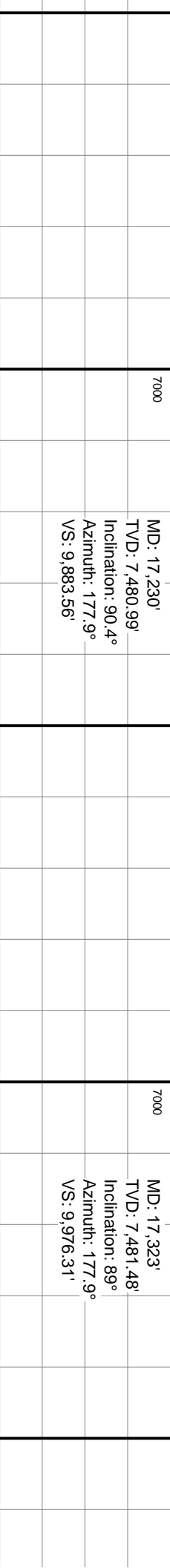
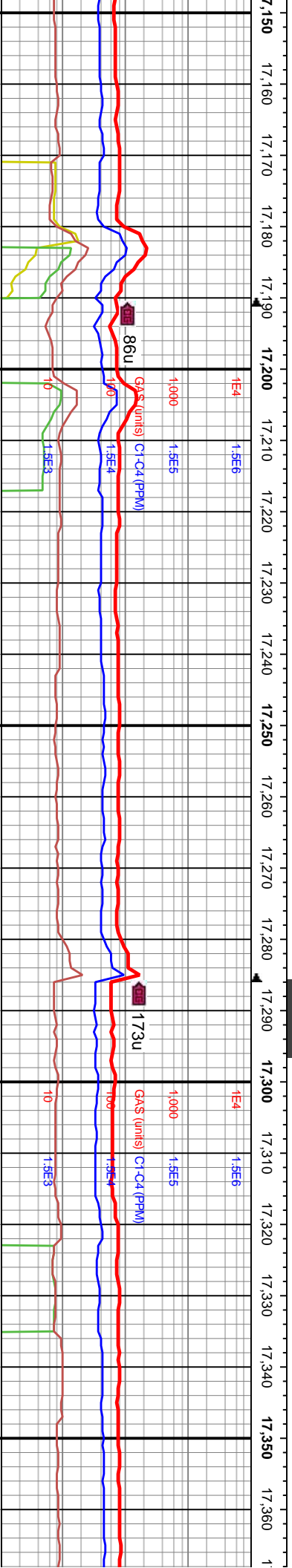
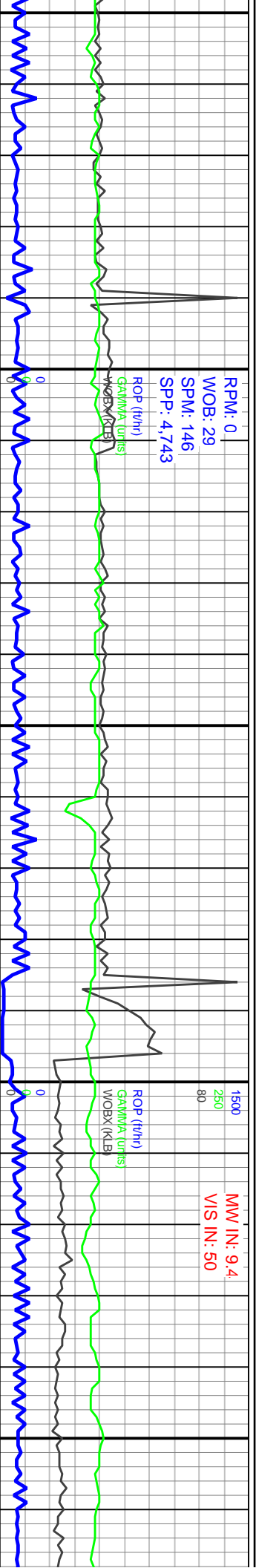
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
med sb	16500-16550 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb	16550-16600 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb	16600-16650 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb	16650-16700 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb	16700		
w strd, tr	rnd-sb ang, frm-fri, vf-f grnd, mod w strd, tr	rnd-sb ang, frm-fri, vf-f grnd, mod w strd, tr	rnd-sb ang, frm-fri, vf-f grnd, mod w strd, tr pp pyr, occ free qtz	rnd-sb ang, sme ang, frm-fri, vf-f grnd, mod w strd, tr pp pyr, mod free qtz	mod w		
pp pyr, comm free qtz		pp pyr, comm free qtz		pp pyr, comm free qtz		pp pyr, comm free qtz	
pp pyr, comm free qtz		pp pyr, comm free qtz		pp pyr, comm free qtz		pp pyr, comm free qtz	



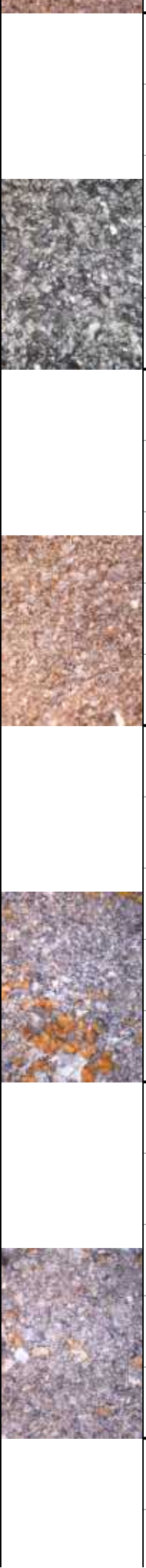


predy lt-med hic frags, sb md, mod w strd, tr	16950-17000 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w strd, tr pyr nod, tr free qtz	17000-17050 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w strd, tr pyr nod, tr free qtz	17050-17100 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w strd, tr pyr nod, tr free qtz	17100-17150 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w strd, tr pyr nod, tr free qtz
---	---	---	---	---



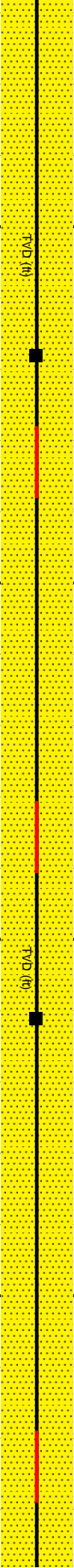
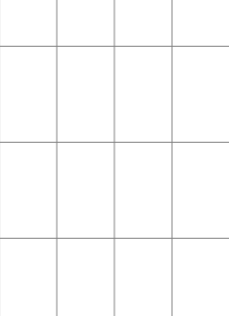
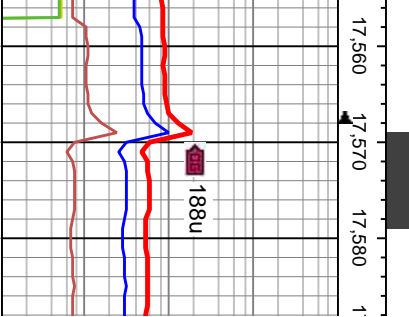
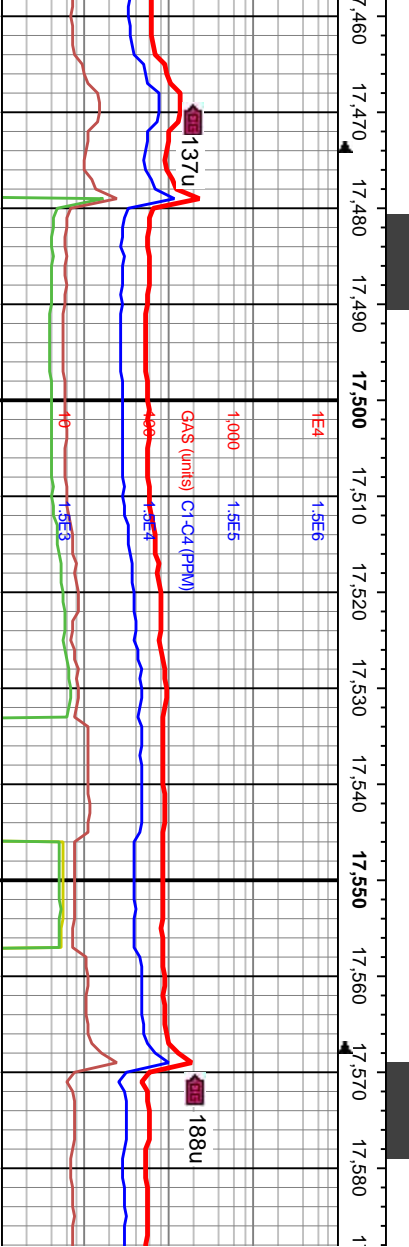
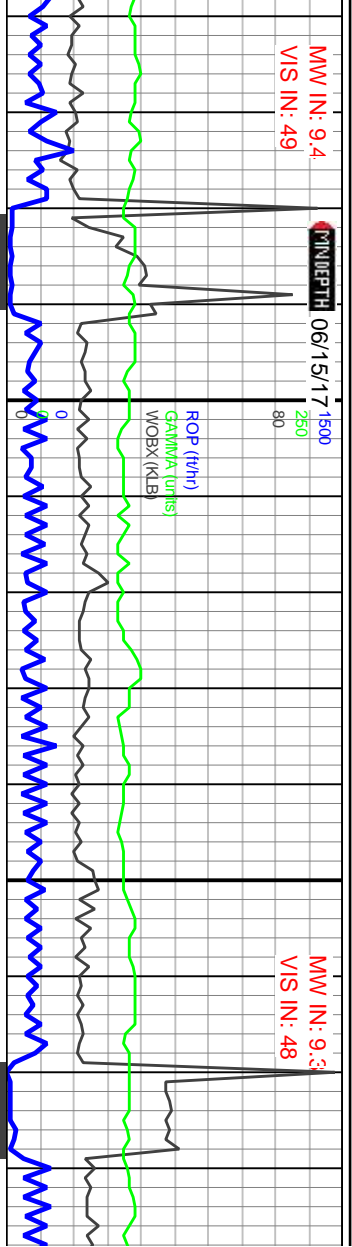
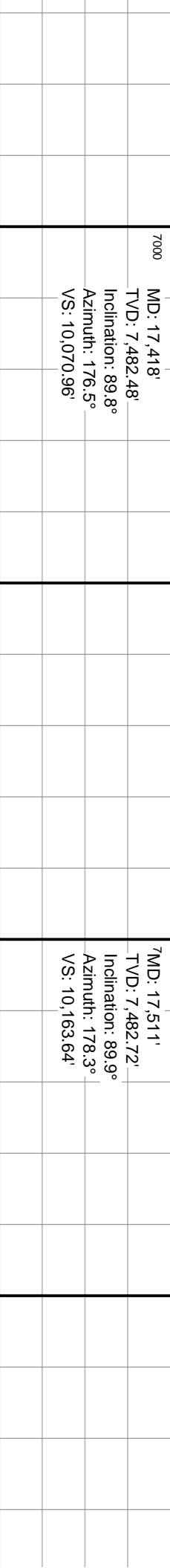
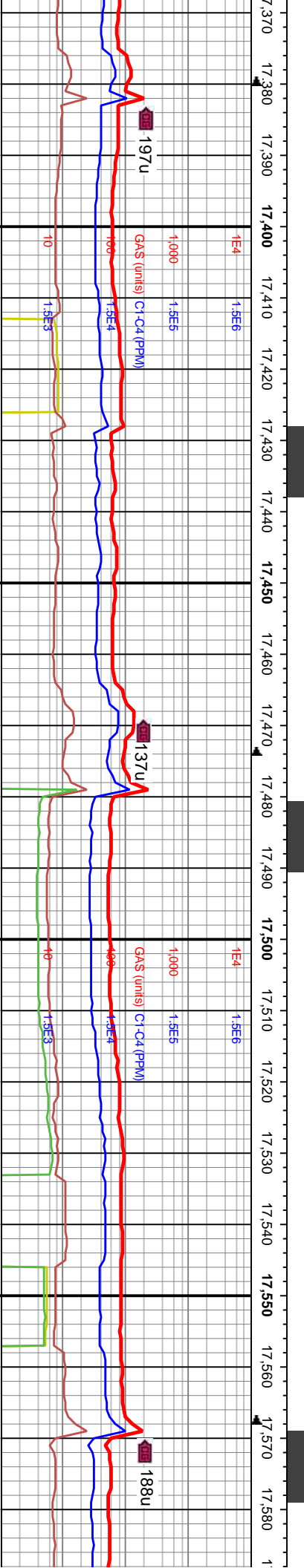
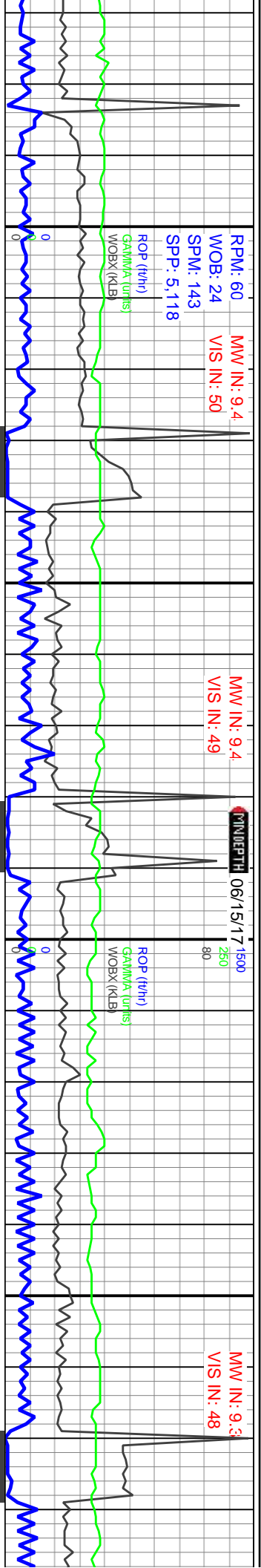


17150-17200 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w srtld, tr free qtz	17200-17250 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w srtld, tr free qtz	17250-17300 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w srtld, tr free qtz	17300-17350 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w srtld, tr free qtz	17350-17400 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb md-sb ang, frm-fri, vf-f grnd, mod w srtld, tr free qtz
---	---	---	---	---



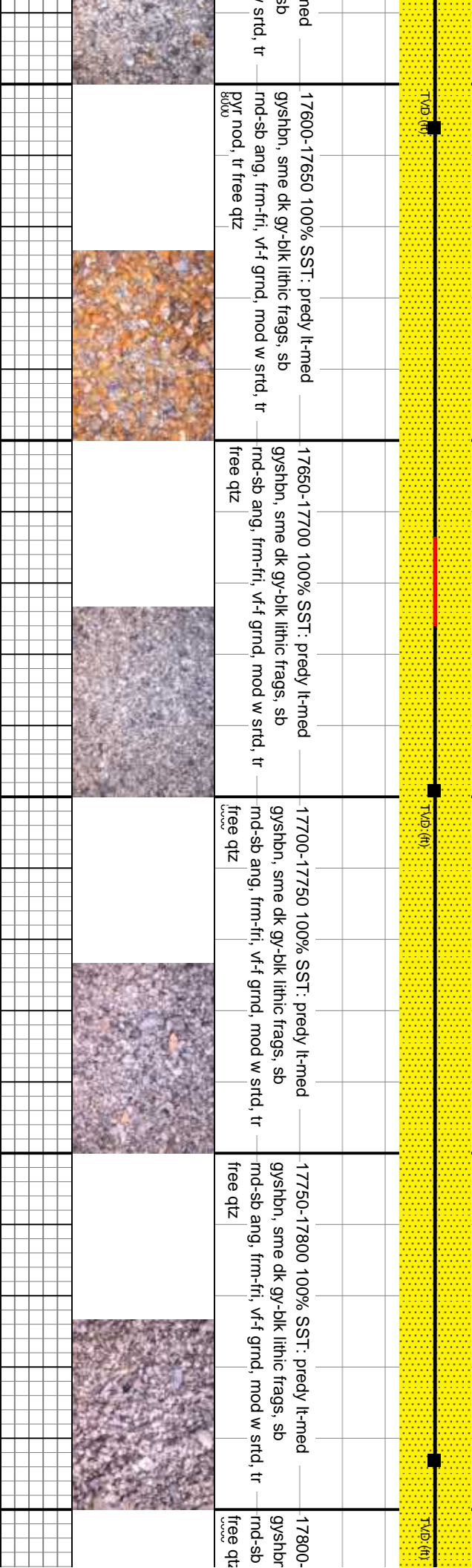
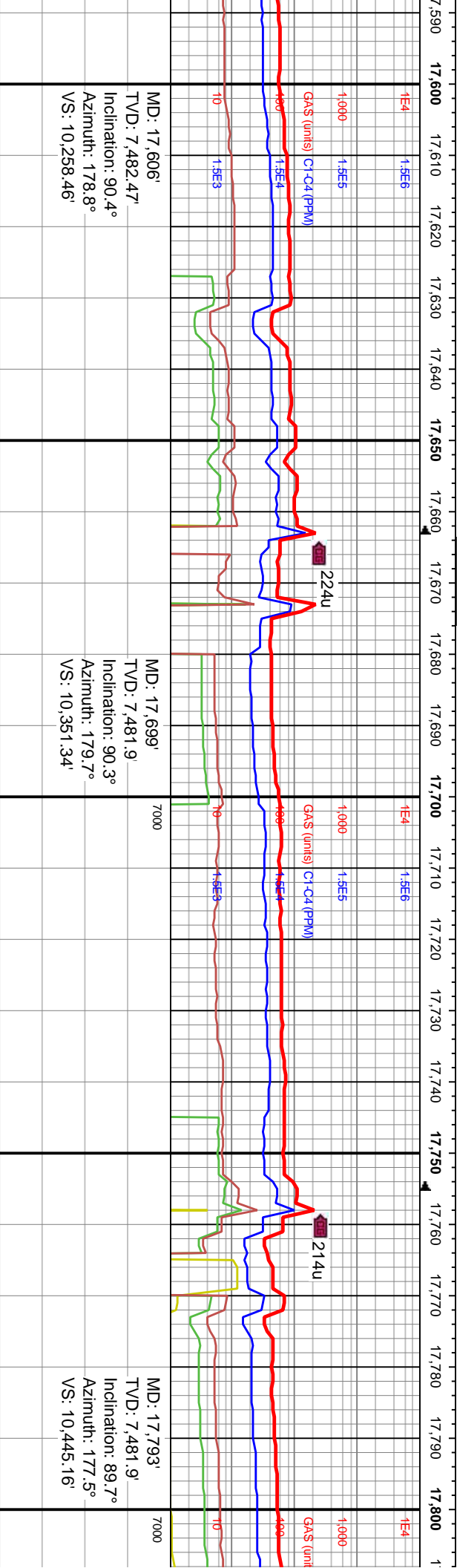
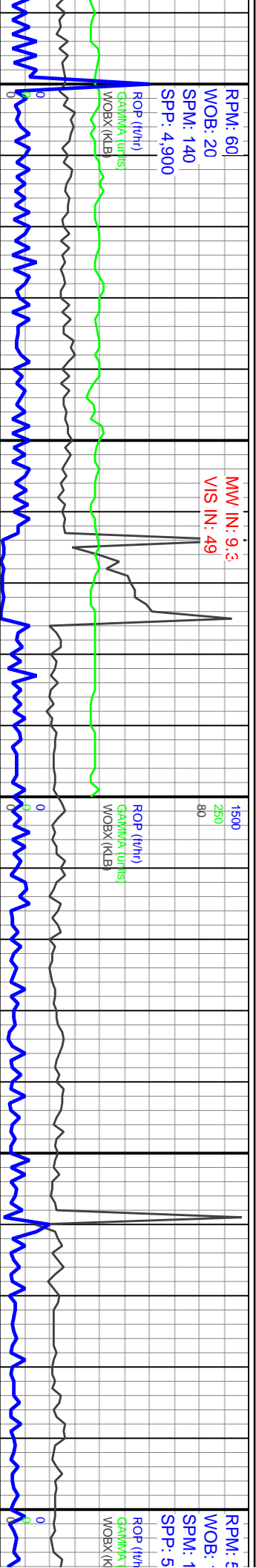
--	--	--	--	--

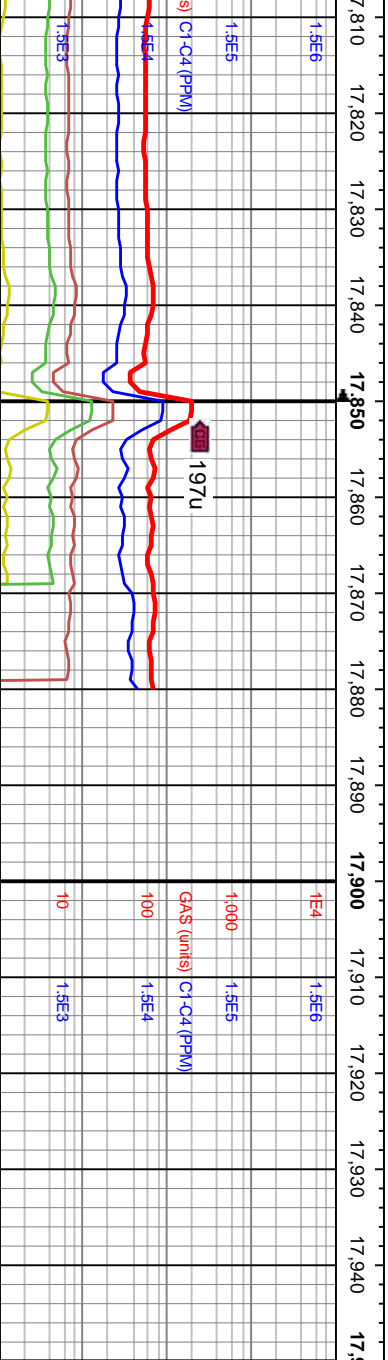
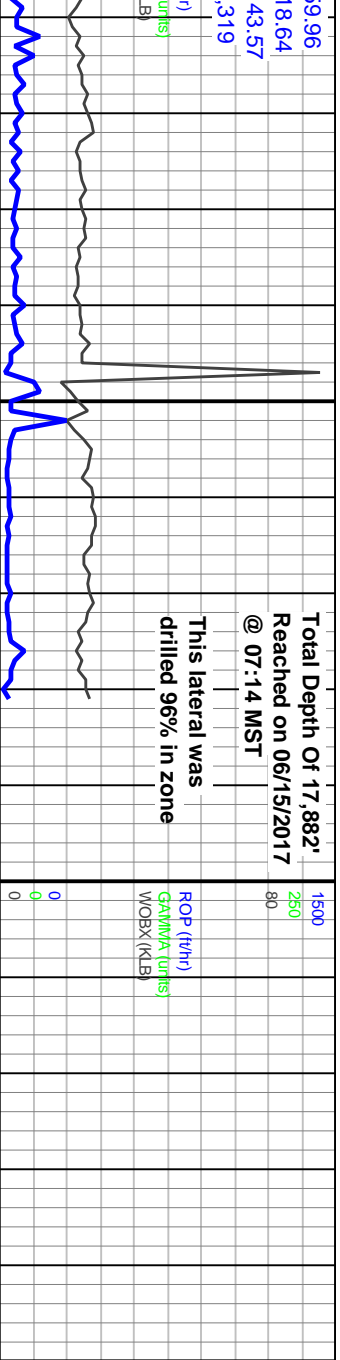




0% SST: predy lt-med gy-blk lithic frags, sb rnd-sb gfrnd, mod w strd, tr pyr nod,	17400-17450 100% SST: predy lt-med gysbhn, sme dk gy, sb rnd-sb ang, frm-fri, vf-f grnd, mod w strd, tr free qtz: tr SH	17450-17500 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb rnd-sb ang, frm-fri, vf-f grnd, mod w strd, tr pyr nod, tr free qtz	17500-17550 100% SST: predy lt-med gysbhn, sme dk gy-blk lithic frags, sb rnd-sb ang, frm-fri, vf-f grnd, mod w strd, tr free qtz	17550-17600 100% SST: predy lt-r gysbhn, sme dk gy-blk lithic frags, s; rnd-sb ang, frm-fri, vf-f grnd, mod w pyr nod, tr free qtz
--	---	--	---	---

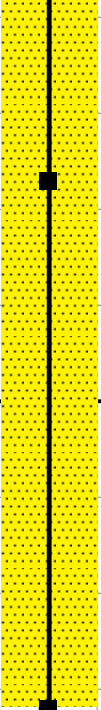






MD: 17,827'  
TVD: 7,482.2'  
Inclination: 89.3°  
Azimuth: 176.7°  
VS: 10,479.03'

**Projection to Bit:**  
MD: 17,882'  
TVD: 7,482.87'  
Inclination: 89.3°  
Azimuth: 176.7°  
VS: 10,533.78'



TVD (ft)

17850 100% SST: predy lt-med  
gyshbn, sme dk gy-blk lithic frags, sb  
ang, frm-fri, vf-f grnd, mod w srid, tr

17850-17882 100% SST: predy lt-med  
gyshbn, sme dk gy-blk lithic frags, sb  
rmd-sb ang, frm-fri, vf-f grnd, mod w srid, tr  
free qtz

8000

