



Scale: 5" / 100'  
Measured Depth Log

**Well Name** Sharp\_24-3-11HC\_Lateral\_Sidetrack

**Location** Sec.24-T1S-R67W

**State** CO

**Country** USA

**API Number** 05-001-09801

**Region** Rockies

**Spud Date** 6/9/2014

**Surface Coordinates** 250' FSL, 190' FWL

Lat: 39° 56' 38.5074"

Long: -104° 50' 45.78"

**Bottom Hole Coordinates** 460' FNL, 880' FWL  
Coordinates not available

**Ground Elevation** 5,019.0'

**Logged Interval** 6,900' MD      **To** 12,582' MD

**Formation** Codell

**Type of Drilling Fluid** Water Based Mud

**K.B. Elevation** 5,044.0'

**Total Depth** 12,582' MD

**County** Adams

**Rig Number** Frontier 28

**AFE #** n/a

**Field** n/a

**Drilling Completed** 7/3/2014

**Company** Ward Petroleum  
**Address** Box 1187, 502 S  
Enid, Oklahoma

**Name** Mark Gross & Al  
**Company** Empirica, LLC  
**Address** Empirica, LLC  
6360 W Sam Ho  
Suite 100  
Houston, TX 770

**Additional Information** 2-Man  
Well St  
Releas  
Equipm  
Loggin

# Operator

Corporation  
Fillmore  
73702

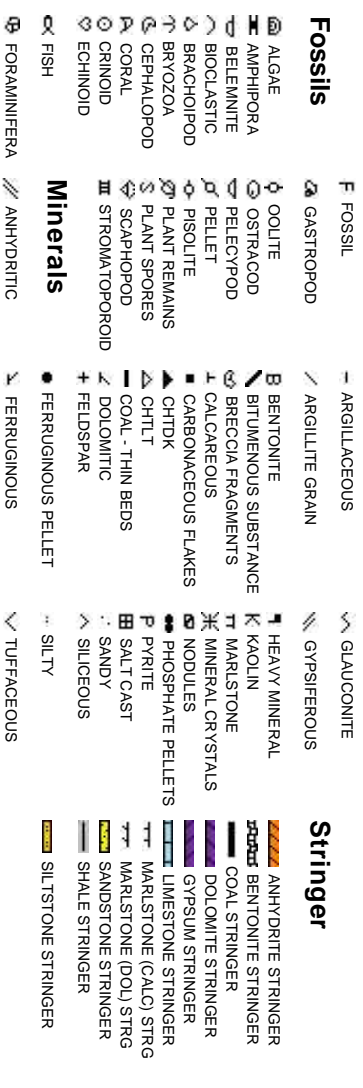
# Rock Types



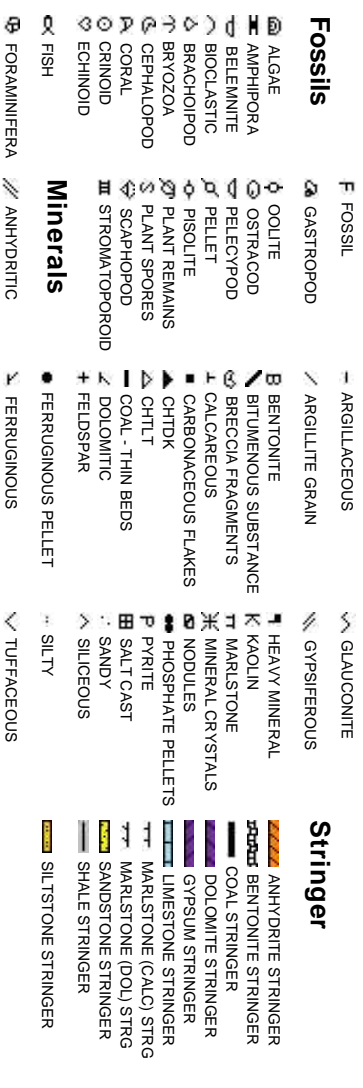
# Geologist

Neil & Dominic Pitre

# Accessories



# Fossils



# Stringer



# Other

Logging & Geosteering Service  
Start Date: 6/9/2014, Sidetrack Start Date: 6/28/2014  
Well Name: TBD  
Well ID: ML-128  
Log Unit: Skid

# Other Symbols

## Oil Show

- ORGANIC
- PINPOINT
- VUGGY

- DEAD
- EVEN
- QUESTIONABLE

- SPOTTED STAINING

## Engineering

- BIT
- CASING

## Porosity

- E EARTHY
- F FENESTRAL
- F FRACTURE
- X INTERCRYSTALLINE
- Q INTEROOOLITIC
- M MOLDIC
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION (UP)
- CONNECTION GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL

- FAULT

- FORMATION TOP

- GAS SHOW

- MINDEPTH 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
- GRAINSTONE

- L LITHOGRAPHIC

- MX MICROXLN

- MS MUDSTONE

- PS PACKSTONE

- WS WACKESTONE

## Rounding

- A ANGULAR

- R ROUNDED

- B SUBANG

- r SUBRND

## Textures

- BS BOUNDSTONE

- C CHALKY

- CX CRYPTOXLN

- E EARTHY

- FX FINELYXLN

## Sorting

- M MODERATE

- P POOR

- W WELL

# Ward Petroleum Corporation

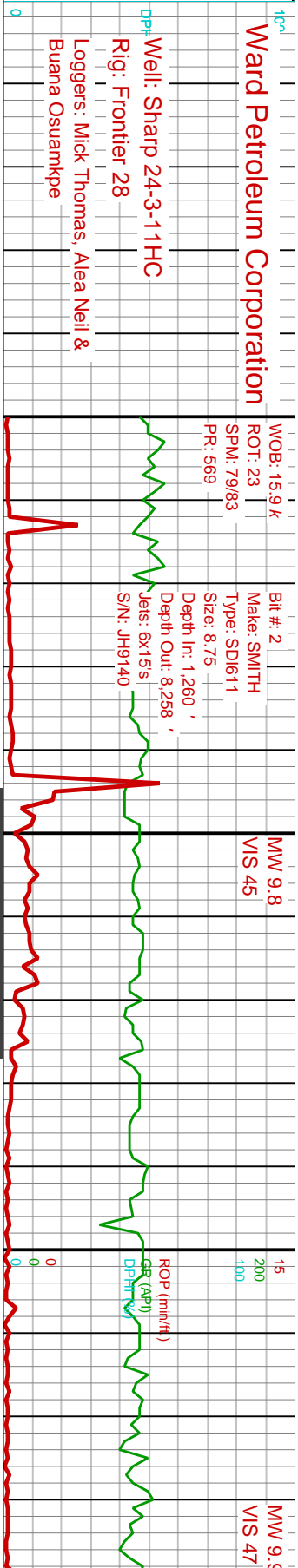
Well: Sharp 24-3-11HC  
 Rig: Frontier 28  
 Loggers: Mick Thomas, Alea Neil & Buana Osuamkpe

WOB: 15.9 k  
 ROT: 23  
 SPM: 79/83  
 PR: 569

Bit #: 2  
 Make: SMITH  
 Type: SD1611  
 Size: 8.75  
 Depth In: 1,260'  
 Depth Out: 8,258'  
 Lens: 6x15s  
 S/N: JH9140

MW 9.8  
 VIS 45

MW 9.5  
 VIS 47

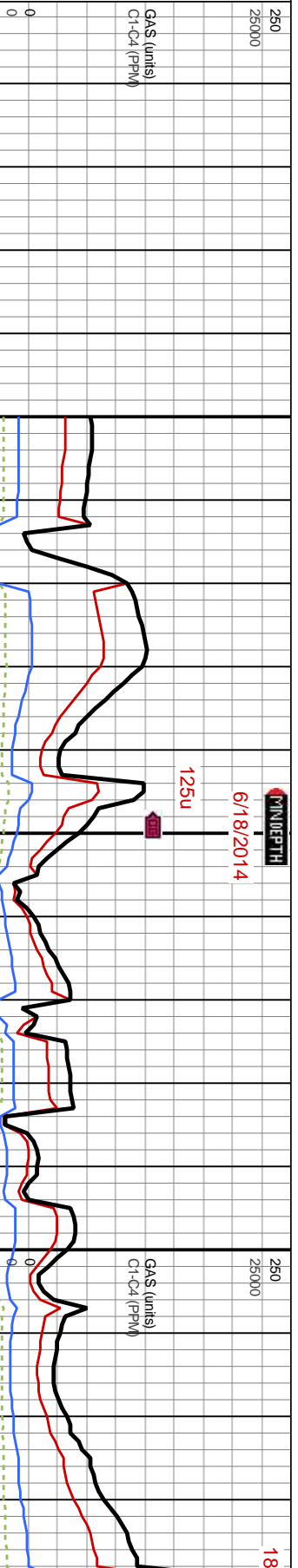


Slide/Rotate

Depth Labels

## Total Gas & Chromatograph

- GAS (units)
- C1
- C2
- C3
- C4

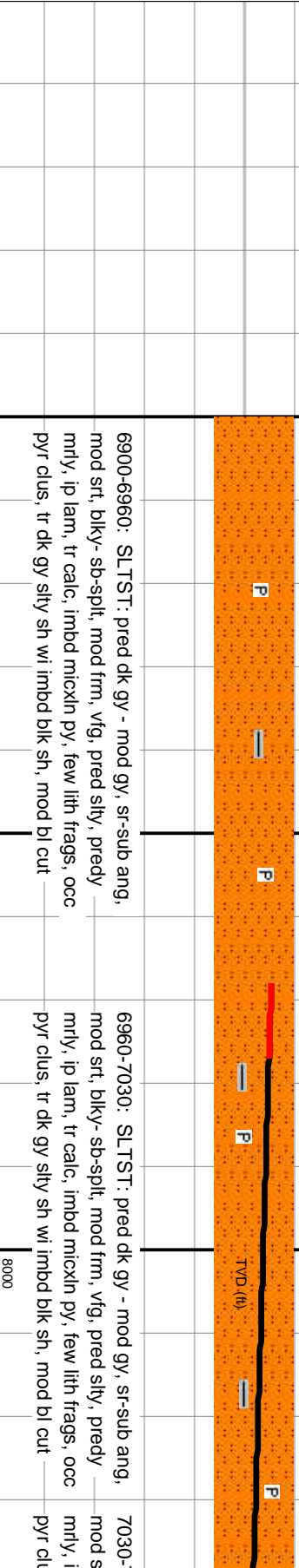


MINIDEPTH  
 6/18/2014  
 125u

MD: 6.968'  
 TVD: 6.896.9'  
 Inclination: 3.3°  
 Azimuth: 51.9°  
 VS: -393.6'

MD: 7.020'  
 TVD: 6.948.83'  
 Inclination: 2.6°  
 Azimuth: 64.6°  
 VS: -391.85'

Well Bore  
 TVD



6900-6960: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, blk-ly-sb-splt, mod frm, vfg, pred slty, predy mrlly, ip lam, tr calc, imbd micxln py, few lith frags, occ pyr clus, tr dk gy slty sh wi imbd blk sh, mod bl cut

6960-7030: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, blk-ly-sb-splt, mod frm, vfg, pred slty, predy mrlly, ip lam, tr calc, imbd micxln py, few lith frags, occ pyr clus, tr dk gy slty sh wi imbd blk sh, mod bl cut

7030-7030: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, blk-ly-sb-splt, mod frm, vfg, pred slty, predy mrlly, ip lam, tr calc, imbd micxln py, few lith frags, occ pyr clus, tr dk gy slty sh wi imbd blk sh, mod bl cut

Oil Show

PR

Images



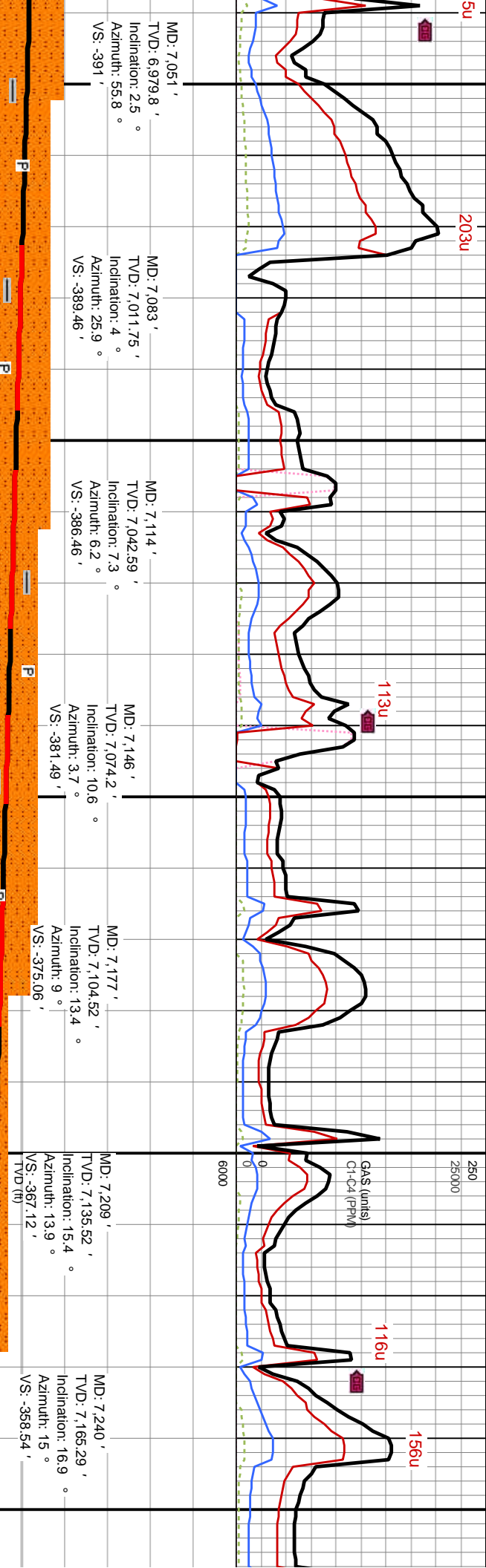
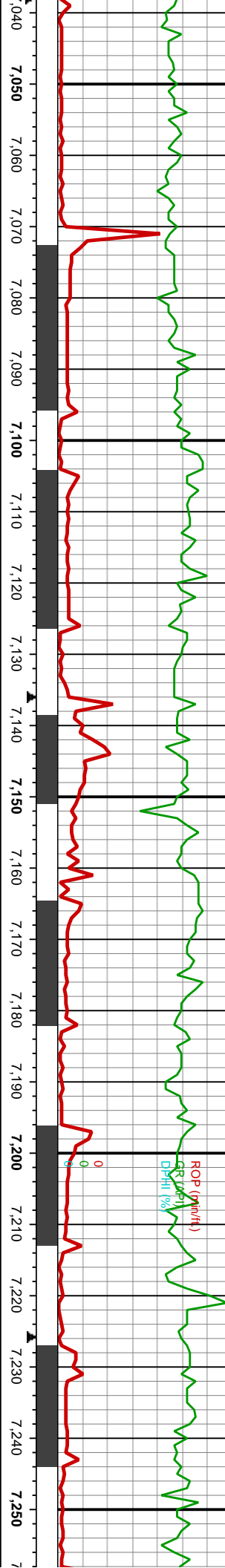
IN MW: 10.2  
 VIS: 49  
 OUT MW: 10  
 VIS: 49

WOB: 10.0 k  
 ROT: 0  
 SPM: 79/80  
 PR: 559

IN MW: 10.2  
 VIS: 51  
 OUT MW: 10.1  
 VIS: 51

ROP (in/ft)  
 15  
 200  
 100  
 0

DSH (%)  
 0  
 0  
 0



MD: 7.051' TVD: 6.979.8' Inclination: 2.5° Azimuth: 55.8° VS: -391'

MD: 7.083' TVD: 7.011.75' Inclination: 4° Azimuth: 25.9° VS: -389.46'

MD: 7.114' TVD: 7.042.59' Inclination: 7.3° Azimuth: 6.2° VS: -386.46'

MD: 7.146' TVD: 7.074.2' Inclination: 10.6° Azimuth: 3.7° VS: -381.49'

MD: 7.177' TVD: 7.104.52' Inclination: 13.4° Azimuth: 9° VS: -375.06'

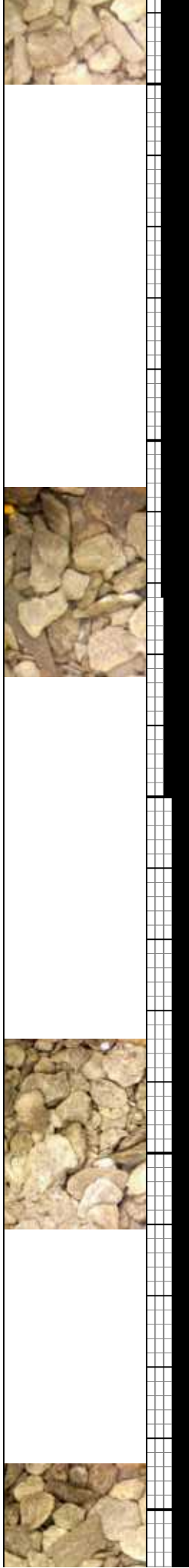
MD: 7.209' TVD: 7.135.52' Inclination: 15.4° Azimuth: 13.9° VS: -367.12' TVD(ft)

MD: 7.240' TVD: 7.165.29' Inclination: 16.9° Azimuth: 15° VS: -358.54'

7090-7150: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, blk- sb-spl, mod frm, vfg, pred stly, predy mrlly, ip lam, tr calc, imbd micxn py, few lith frags, occ pyr clus, tr dk gy stly sh wi imbd blk sh, mod bl cut

7150-7210: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, blk- sb-spl, mod frm, vfg, pred stly, predy mrlly, lam, tr calc, imbd micxn py, few lith frags, pyr clus, tr dk gy stly sh wi imbd blk sh, fnt bl cut

7210-7270: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, sb-spl- spl, mod frm, vfg, pred stly mrlly, lam, tr calc, imbd micxn py, few lith frags, pyr clus, tr dk gy stly sh wi imbd blk sh, wk bl cut



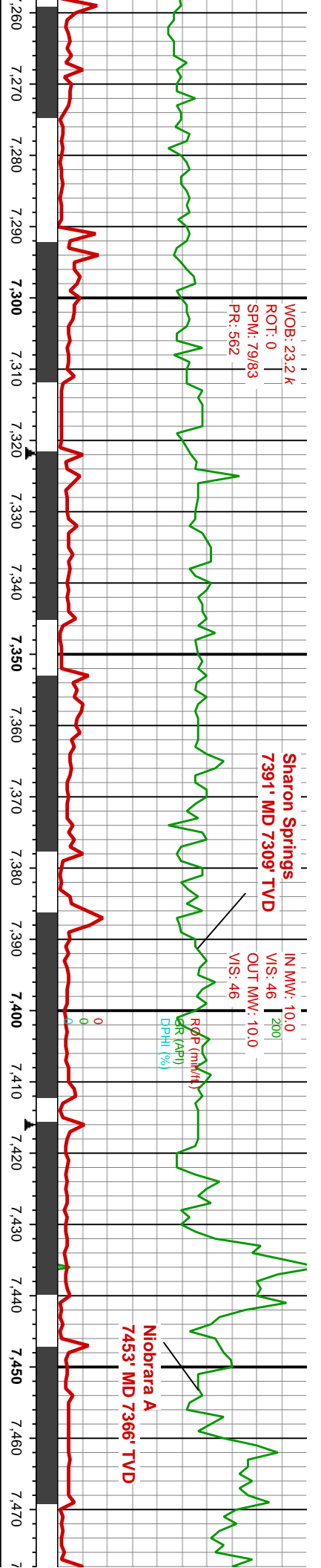
WOB: 23.2 k  
ROT: 0  
SPM: 79/83  
PR: 562

Sharon Springs  
7391' MD 7309' TVD

IN MW: 10.0  
V/S: 46  
OUT MW: 10.0  
V/S: 46

ROP (mm/hr)  
GAS (API)  
DPHl (%)

Niobrara A  
7453' MD 7366' TVD



MD: 7.271 '  
TVD: 7.194.94 '  
Inclination: 17 °  
Azimuth: 14.8 °  
VS: -349.56 '

MD: 7.303 '  
TVD: 7.225.58 '  
Inclination: 16.6 °  
Azimuth: 9.4 °  
VS: -340.34 '

MD: 7.334 '  
TVD: 7.255.24 '  
Inclination: 17.2 °  
Azimuth: 3.9 °  
VS: -331.34 '

MD: 7.366 '  
TVD: 7.285.69 '  
Inclination: 18.7 °  
Azimuth: 359.3 °  
VS: -321.56 '

MD: 7.397 '  
TVD: 7.314.88 '  
Inclination: 20.5 °  
Azimuth: 357.8 °  
VS: -311.48 'TVD (ft)

MD: 7.429 '  
TVD: 7.344.55 '  
Inclination: 23.5 °  
Azimuth: 358.8 °  
VS: -299.69 '

MD: 7.460 '  
TVD: 7.372.71 '  
Inclination: 25.9 °  
Azimuth: 359.2 °  
VS: -286.92 '

7270-7330: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, sb-splt-splt, mod frm, vfg, pred silty, predy mrlly, predy lam, tr calc, imbd micxln py, few lith frags, pyr clus, tr dk gy silty sh wi imbd blk sh, no cut

7330-7390: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, sb-splt-splt, mod frm, vfg, pred silty, predy mrlly, predy lam, tr calc, imbd micxln py, tr lith frags, tr pyr, tr dk gy silty sh wi imbd blk sh, no cut

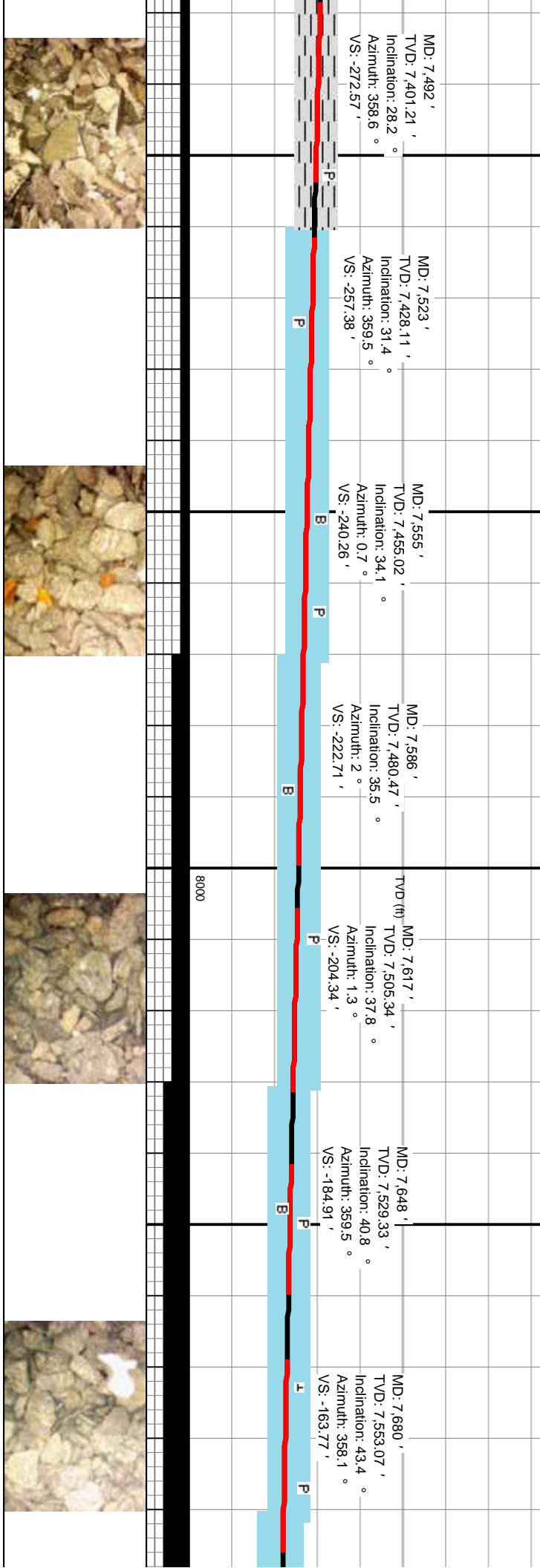
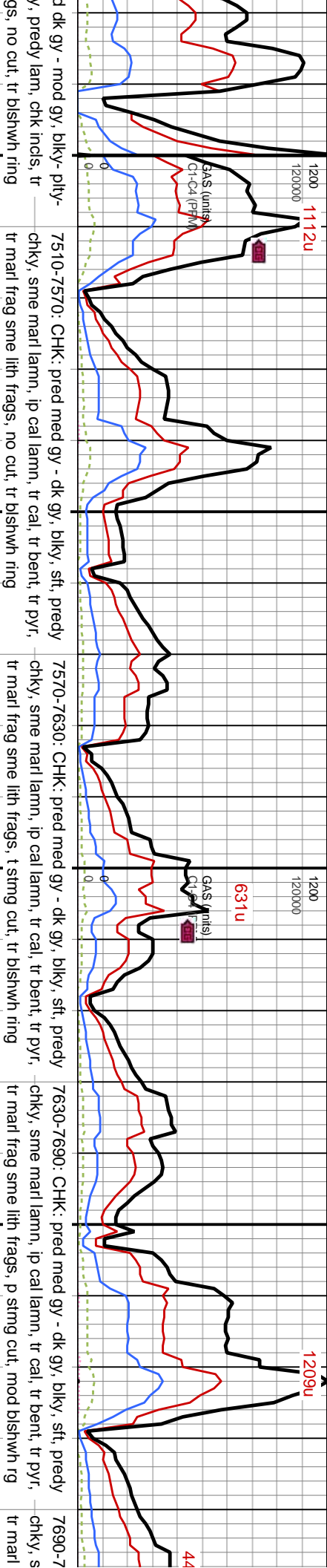
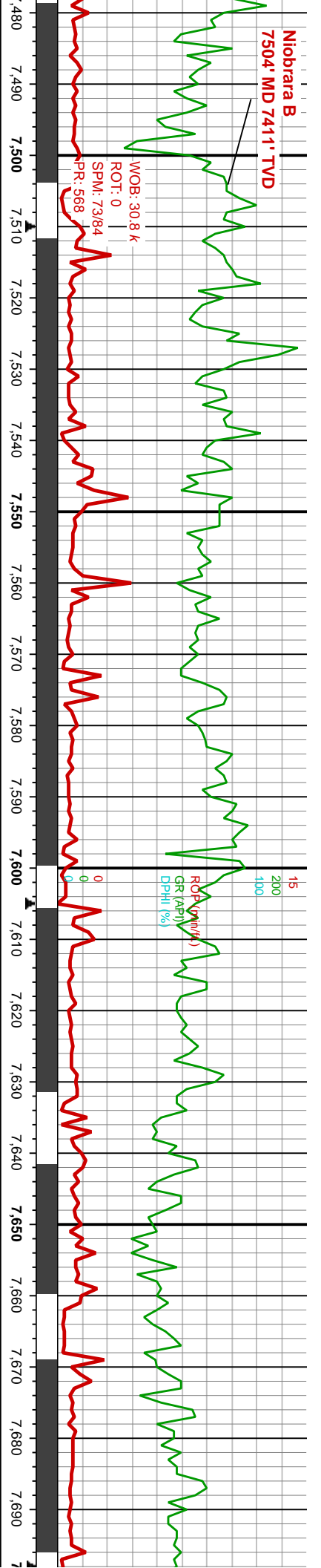
7390-7450: SLTST: pred dk gy - mod gy, sr-sub ang, mod srt, sb-blky-sb-splt, mod frm, vfg, pred silty, predy mrlly, predy lam, tr calc, ip imbd micxln py, sme lith frags, tr dk gy silty sh, sme imbd blk sh, no cut, no ring

7450-7510: SLTY SH, predy mrlly, predy lam, tr calc, ip imbd micxln py, sme lith frags, tr ss srt



8000

**Niobrara B**  
7504' MD 7411' TVD

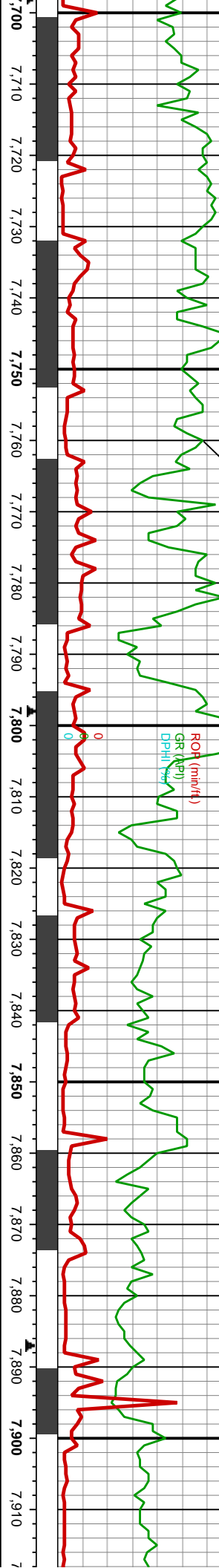


WOB: 24.1 k  
ROT: 0  
SPM: 79/82  
PR: 561

**Niobrara C**  
**7760' MD 7607' TVD**

IN MW: 10.1  
V/S: 49  
OUT MW: 10.0  
V/S: 53

WOB: 29.5 k  
ROT: 19  
SPM: 78/84  
PR: 563



7750: CHK: pred med gy - dk gy, blk, sft, predy  
me marl lamn, ip cal lamn, tr cal, tr bent, tr pyr,  
frag sme lith frags, g strng cut, mod blshwh rg

7750-7810: SLTY SH/CHK: pred dk gy - mod gy-sme  
lt gy, blk- pty- ip spl, mod frm, predy mly, predy lam,  
chk incl, tr cal, sme lith frags, abunt wh blk ch frag,  
tr sting cut, tr pyr & bent, tr blshwh ring

7810-7870: SLTY SH/CHK: pred gy - med gy-sme dk  
gy, blk- pty- ip spl, mod frm-sft, predy mly, predy lam gy,  
chk, chk incl, tr cal, sme lith frags, tr pyr & bent, no  
cut, p blshwh ring

7870-7930: CHK/SLTY SH: pred gy - med gy,  
chk, chk incl, tr cal, sme lith frags, tr pyr & bent,  
cut, p blshwh ring

MD: 7.711 '  
TVD: 7.574.99 '  
Inclination: 46.6 °  
Azimuth: 357.6 °  
VS: -142.24 '

MD: 7.743 '  
TVD: 7.596.5 '  
Inclination: 48.9 °  
Azimuth: 357.2 °  
VS: -119 '

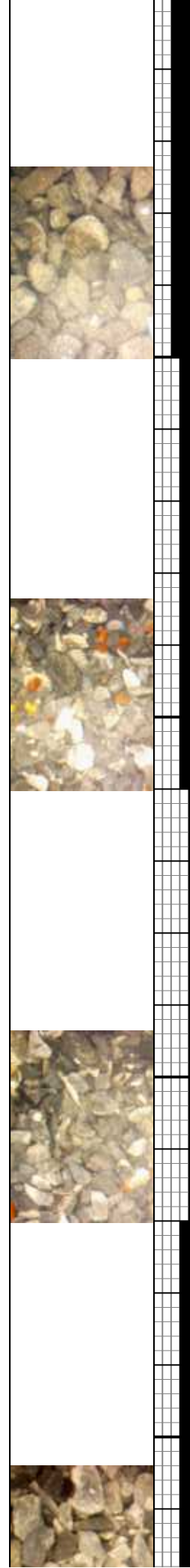
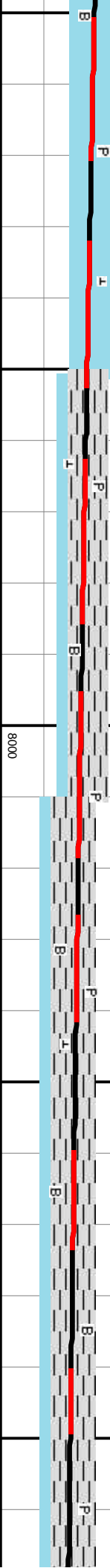
MD: 7.774 '  
TVD: 7.616.15 '  
Inclination: 52.4 °  
Azimuth: 356.9 °  
VS: -95.52 '

MD: 7.806 '  
TVD: 7.634.6 '  
Inclination: 57.2 °  
Azimuth: 355.6 °  
VS: -69.99 '

MD: 7.837 '  
TVD: 7.650.63 '  
Inclination: 60.5 °  
Azimuth: 356 °  
VS: -44.12 '

MD: 7.868 '  
TVD: 7.665.3 '  
Inclination: 63 °  
Azimuth: 356.2 °  
VS: -17.46 '

MD: 7.899 '  
TVD: 7.679.13 '  
Inclination: 64 °  
Azimuth: 356.7 °  
VS: 9.67 '



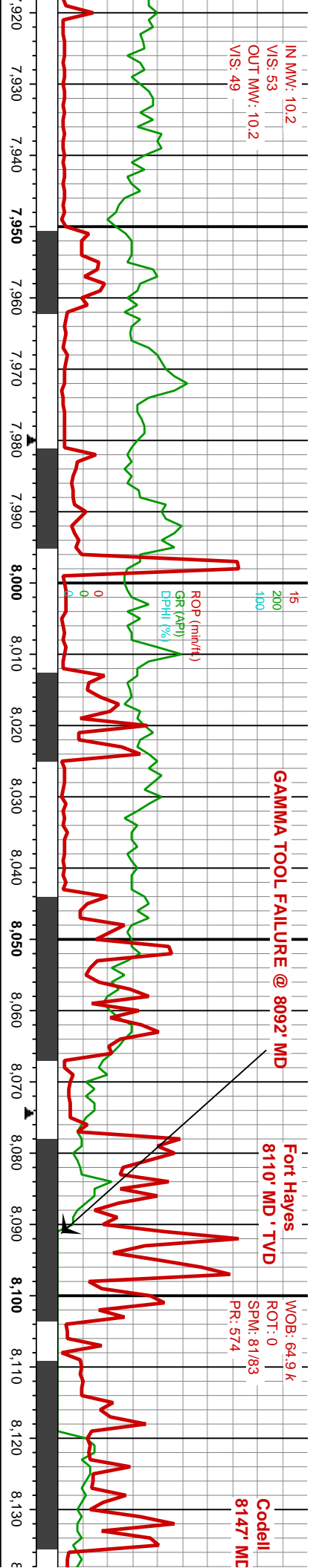
IN MW: 10.2  
VIS: 53  
OUT MW: 10.2  
VIS: 49

**GAMMA TOOL FAILURE @ 8092' MD**

Fort Hayes  
8110' MD - TVD

WOB: 64.9 k  
ROT: 0  
SPM: 81/83  
PR: 574

Codell  
8147' MD



6/19/2014

1200  
120000

GAS (units)  
C1-C4 (PPM)

8

238u

41u

Polyflow blocked - 121u

207u

442u

7930-7990: SLTY SH: pred gy - med gy-sme dk gy,  
predy lam blk- pty- ip spl, mod frm-sft, predy mrlly, predy lam  
bent, mod chk, chk incl, tr cal, sme lith frags, tr pyr & bent, mod  
bl cut, p bishwh ring

7990-8050: SLTY SH: pred gy - med gy-sme dk gy,  
blk- pty- ip spl, mod frm-sft, predy mrlly, predy lam  
chk, tr chk incl, tr cal, sme lith frags, tr pyr & bent, tr  
pyr clus, mod bl cut, p bishwh ring

8050-8080: SLTY SH:  
pred gy - med gy-sme  
dk gy, blk- pty- ip  
spl, mod frm-sft,  
predy mrlly, predy lam  
chk, tr chk incl, tr cal,  
sme lith frags, tr pyr &  
bent, tr pyr clus, mod  
bl cut, p bishwh ring

8080-8110: LS: cm-  
off wh, sme buff- lt gy  
brn, frm- sl hd, pred  
blk, sme pty, mudst,  
microxy, dns, rthy-  
chky tex, ip dk stly SH,  
fnt bl cut, mod yel ring

8110-8140: LS: cm-  
off wh, sme buff- lt gy  
brn, frm- sl hd, pred  
pty, sme blk, tr  
mudst, microxy, dns,  
rthy- chky tex, ip dk  
stly SH, tr pyr clus, tr  
cal, fnt bl cut, mod ye  
ring

MD: 7.930 '  
TVD: 7.692.67 '  
Inclination: 64.2 °  
Azimuth: 356 °  
VS: 36.92 '

MD: 7.962 '  
TVD: 7.706.25 '  
Inclination: 65.6 °  
Azimuth: 355.8 °  
VS: 65.19 '

MD: 7.993 '  
TVD: 7.718.76 '  
Inclination: 66.8 °  
Azimuth: 356.7 °  
VS: 92.9 '

MD: 8.025 '  
TVD: 7.731.21 '  
Inclination: 67.4 °  
Azimuth: 357.4 °  
VS: 121.78 '

MD: 8.056 '  
TVD: 7.743 '  
Inclination: 67.9 °  
Azimuth: 357.4 °  
VS: 149.91 '

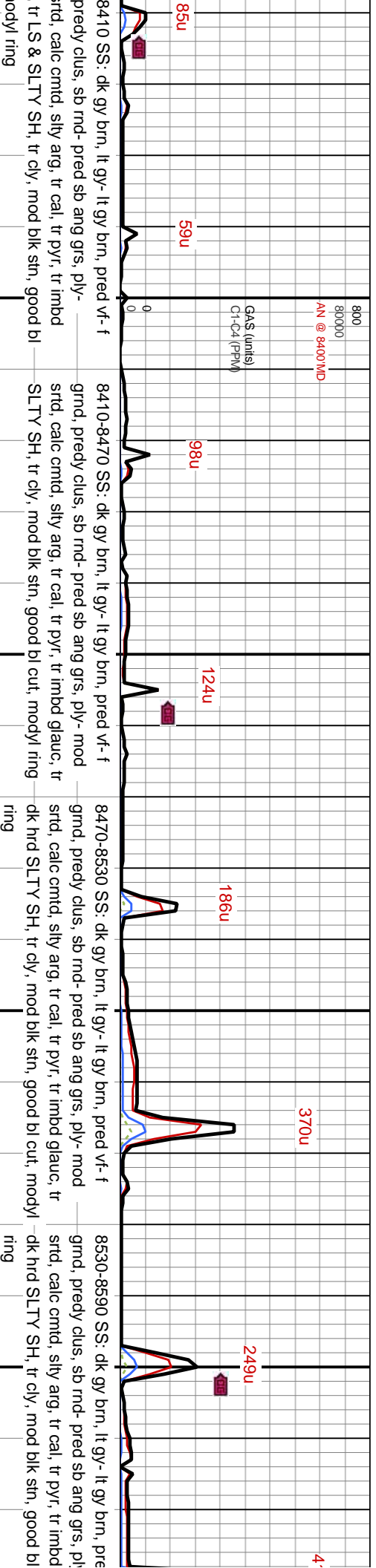
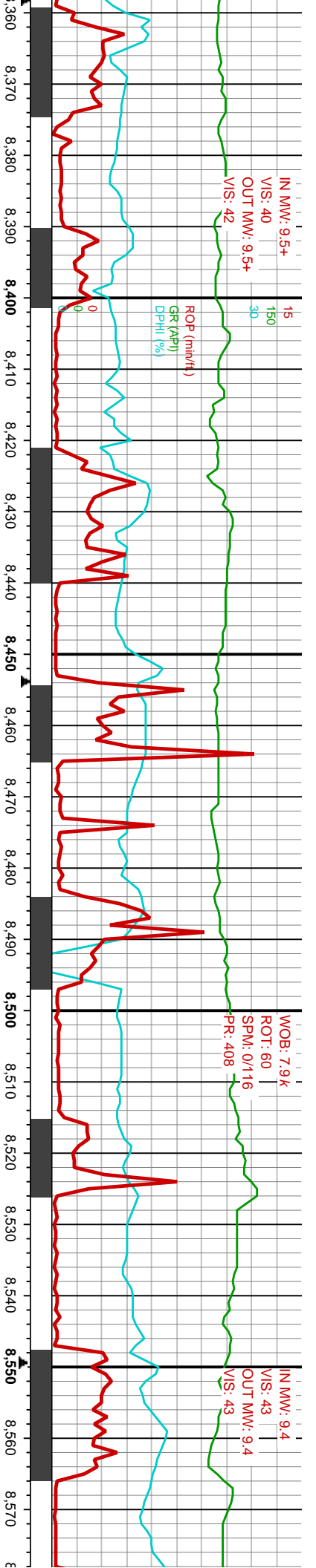
MD: 8.087 '  
TVD: 7.754.06 '  
Inclination: 70.3 °  
Azimuth: 357.2 °  
VS: 178.31 '

MD: 8.119 '  
TVD: 7.764 '  
Inclination: 73.5 °  
Azimuth: 356.9 °  
VS: 208.11 '

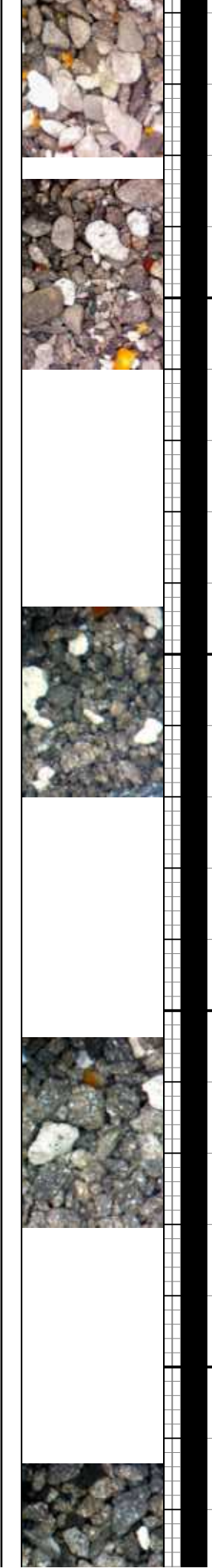
8000

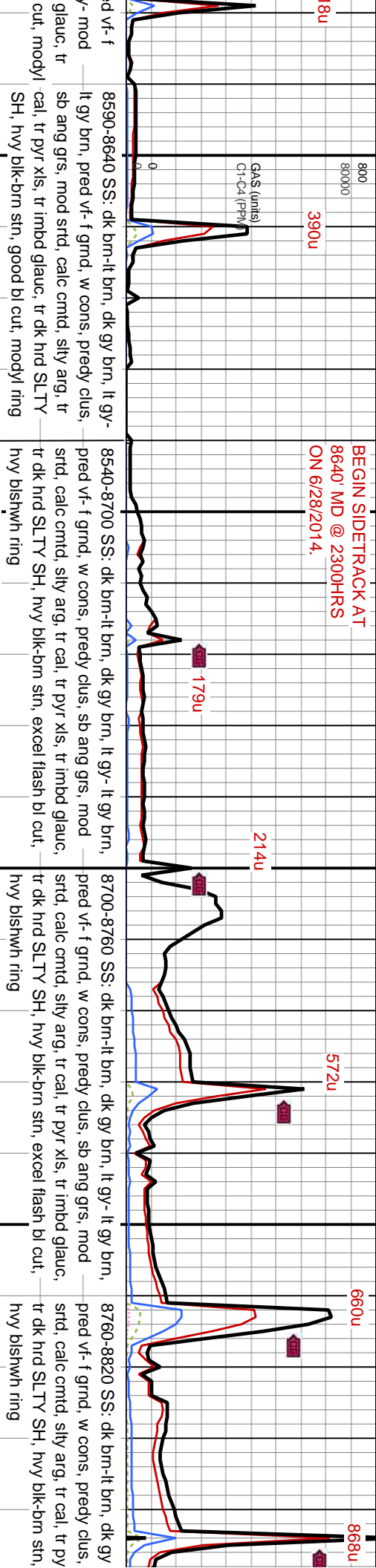
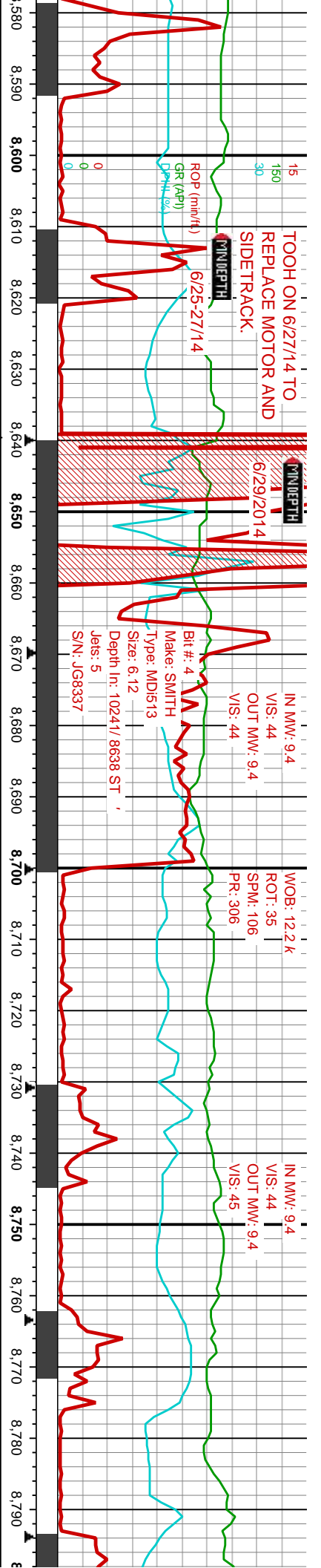




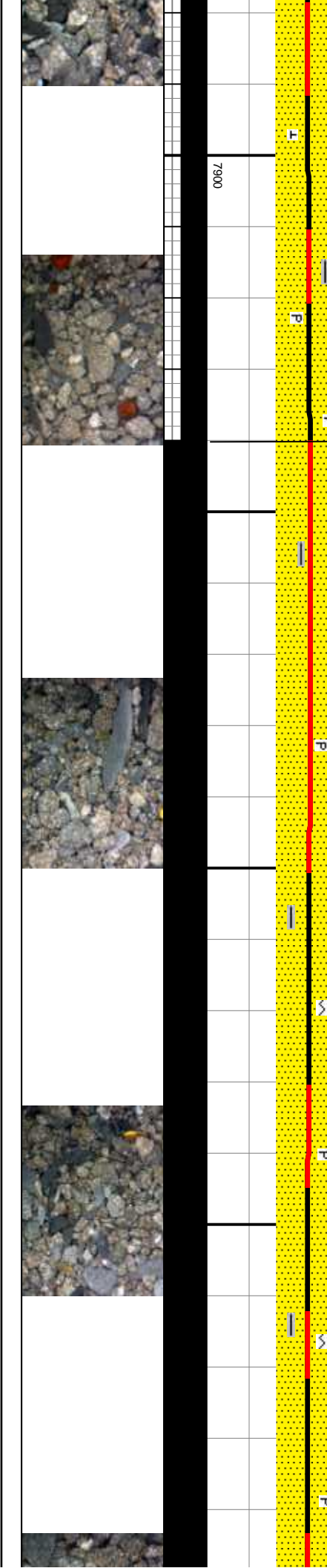


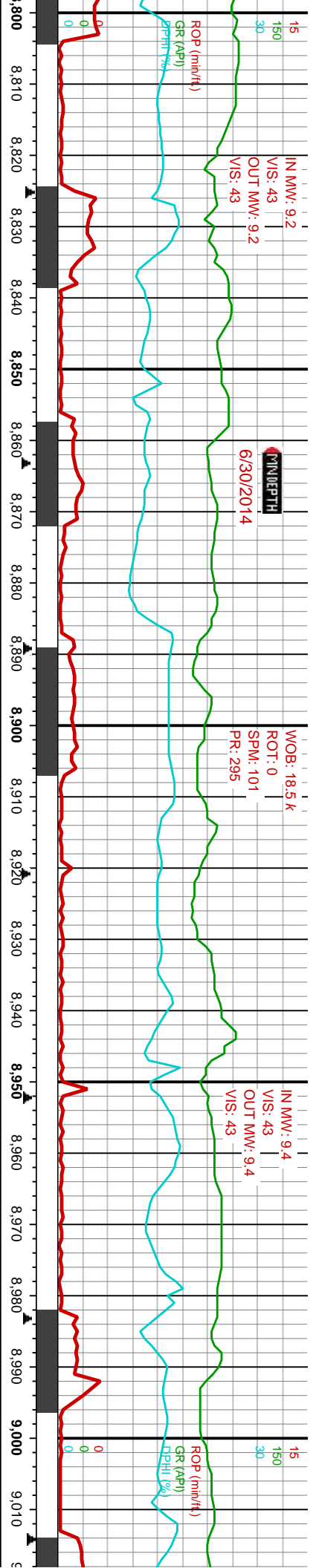
MD: 8,375 ' TVD: 7,787 ' Inclination: 89.69 ° Azimuth: 2.47 ° VS: 459.44 '	MD: 8,406 ' TVD: 7,787.08 ' Inclination: 90.04 ° Azimuth: 3.1 ° VS: 490.28 '	MD: 8,437 ' TVD: 7,786.89 ' Inclination: 90.66 ° Azimuth: 2.59 ° VS: 521.12 '	MD: 8,469 ' TVD: 7,786.57 ' Inclination: 90.48 ° Azimuth: 4.11 ° VS: 552.99 '	MD: 8,500 ' TVD: 7,786 ' Inclination: 91.63 ° Azimuth: 3.09 ° VS: 583.86 '	MD: 8,531 ' TVD: 7,785.14 ' Inclination: 91.54 ° Azimuth: 3.45 ° VS: 614.72 '	MD: 8,562 ' TVD: 7,783.93 ' Inclination: 92.95 ° Azimuth: 2.46 ° VS: 645.54 '
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MD (ft)	TVD (ft)	Inclination (°)	Azimuth (°)	VS (ft)
8594	7782.18	93.3	2.92	677.33
8625	7780.37	93.39	2.32	708.11
8654	7779.45	90.57	3.2	736.96
8685	7779.69	88.55	5.99	767.88
8716	7780.72	87.67	6.7	798.84
8748	7781.97	87.85	6.66	830.8
8779	7782.8	89.08	6.56	861.77





GAS (units)  
 C1-C4 (PPM)

800  
 80000

1031u  
 85u  
 186u  
 121u  
 149u  
 154u  
 106u

BYPASS SHAKER - Low gas  
 due to circulating through  
 buster @ 8850' MD - 8919'  
 MD

MG 24 HR  
 1031u

Low Gas d

8820-8880 SS: lt brn- lt gy- wh, pred vf- f grnd, w-mod  
 cons, predy clus, sb ang grs, mod strd, calc cmtd, sily  
 arg, tr cal, tr pyr xls, tr imbd glauc, tr dk hrd SLTY SH,  
 mod brn stn, fr blshwh cut, g blshwh ring

8880-8910 SS: lt brn- lt gy- 8910-8940 SS: lt brn- lt gy-  
 wh, pred vf- f grnd, w-mod cons, predy clus, sb ang  
 grs, mod strd, calc cmtd, sily arg, tr cal, tr pyr xls, tr  
 imbd glauc, tr cly, tr dk hrd hrd split SLTY SH, mod-  
 mod stimg bl cut, fnt scat brn stn, tr bl cut, fnt  
 bishwh ring

8940-8970 SS: lt brn- lt gy- wh, pred vf- f grnd,  
 w-mod cons, predy clus, sb ang grs, mod strd,  
 calc cmtd, sily arg, tr cal, tr pyr xls, tr imbd glauc, tr  
 cly, tr dk hrd split SLTY SH, mod brn stn, tr bl cut,  
 g bishwh ring

8970-9000 SS: lt brn- lt gy- wh, pred vf- f grnd,  
 w-mod cons, predy clus, sb ang grs, mod strd,  
 calc cmtd, sily arg, tr cal, tr pyr xls, tr imbd glauc, tr  
 dk hrd SLTY SH, mod brn stn, tr bl cut, g  
 bishwh ring

9000-9060 SS: lt brn- lt gy- wh, pred vf- f grnd,  
 cons, predy clus, arg, tr cal, tr pyr xls, mod brn stn, p bl  
 mod brn stn, p bl

MD: 8,811'    TVD: 7,783.29'    Inclination: 89.16°    Azimuth: 5.06°  
 VS: 893.72'

MD: 8,843'    TVD: 7,783.63'    Inclination: 89.6°    Azimuth: 3.65°  
 VS: 925.63'

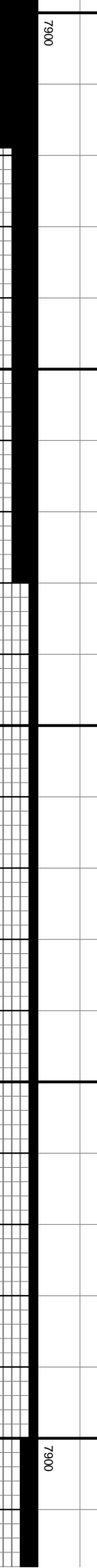
MD: 8,874'    TVD: 7,783.71'    Inclination: 90.13°    Azimuth: 0.74°  
 VS: 956.44'

MD: 8,905'    TVD: 7,783.16'    Inclination: 91.89°    Azimuth: 359.68°  
 VS: 987.1'

MD: 8,937'    TVD: 7,781.86'    Inclination: 92.77°    Azimuth: 359.82°  
 VS: 1,018.7'

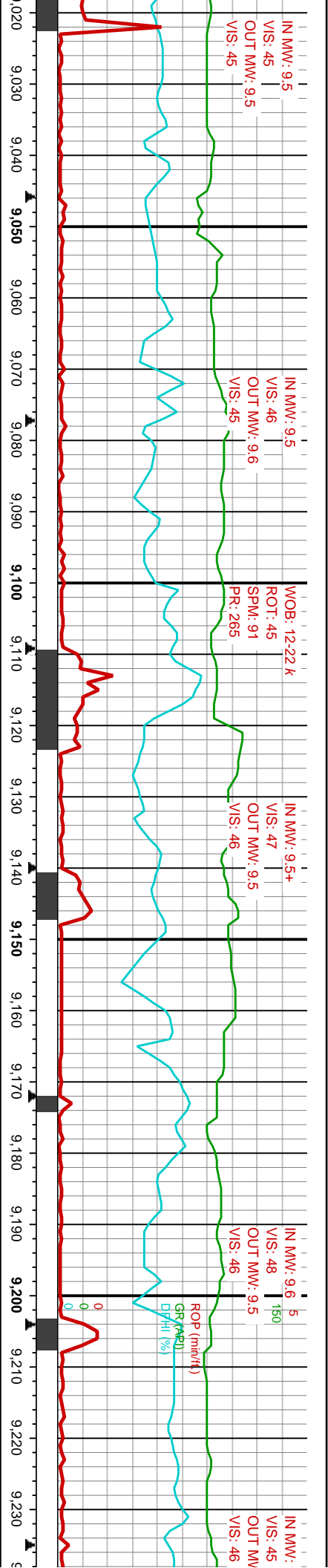
MD: 8,968'    TVD: 7,780.24'    Inclination: 93.21°    Azimuth: 359.74°  
 VS: 1,049.29'

MD: 9,000'    TVD: 7,778.48'    Inclination: 93.12°    Azimuth: 1.33°  
 VS: 1,080.92'



7900

7900



Use to Motor Malfunction 8990' MD - 9190' MD

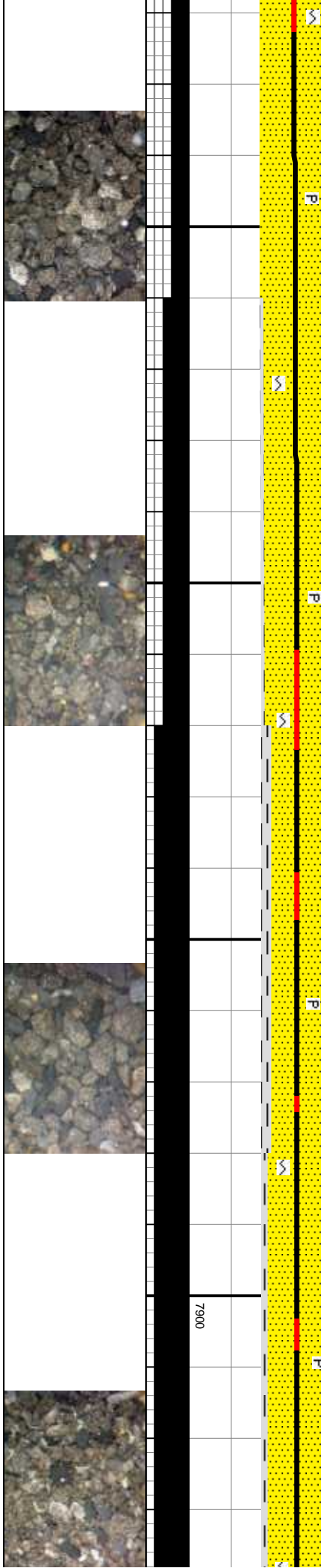
brn-lt gy-w, pred vf-f grnd, w-mod  
sb ang grs, mod strd, calc cmtd, silty  
kls, tr imbd glauc, tr dk hrd SLTY SH,  
cut, fat blshwh ring

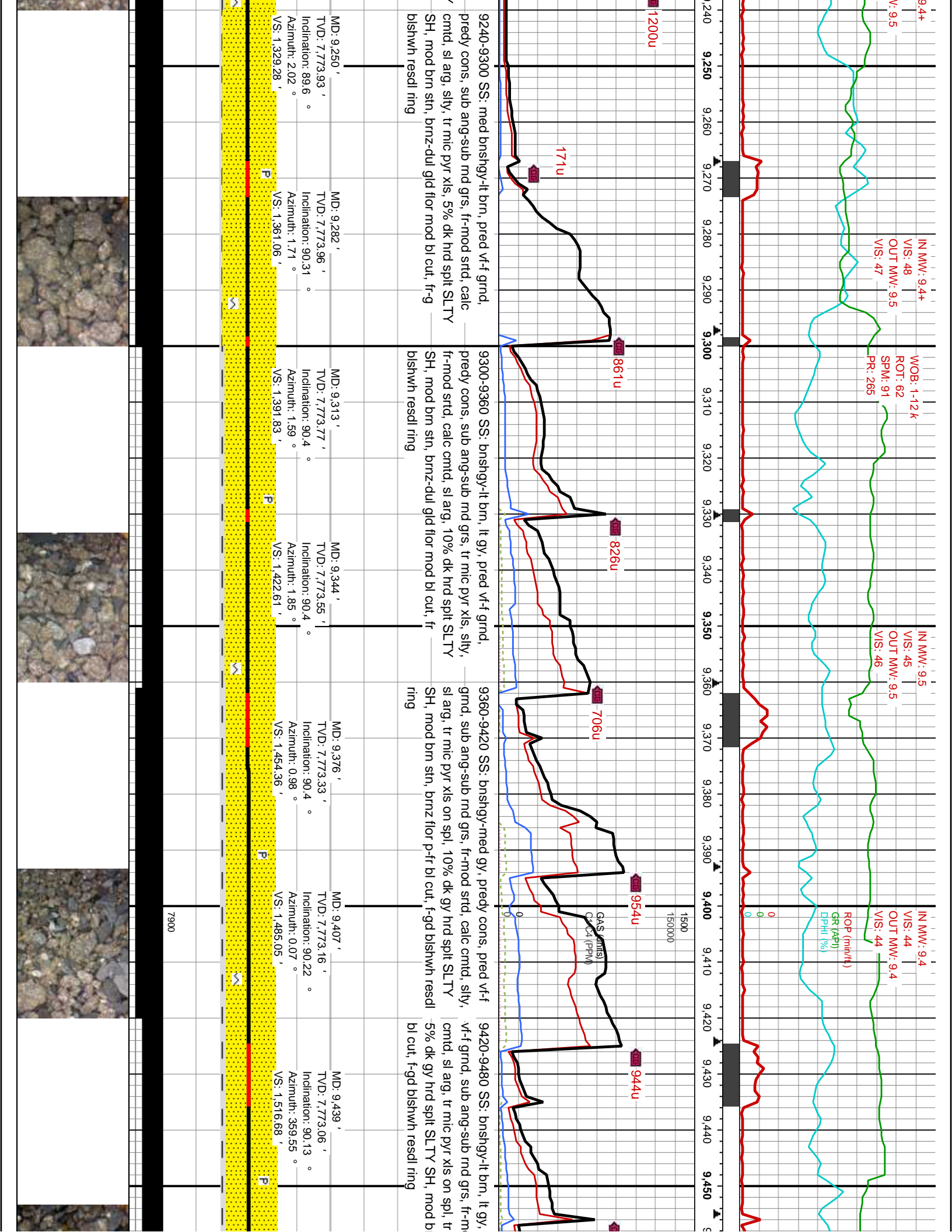
9060-9120 SS: lt brn-lt bnshgy, pred vf-f grnd, predy  
cons, sb ang grs, mod strd, calc cmtd, sl arg, tr cal, tr  
mic pyr xls, tr glauc mat in spl, 10% dk hrd SLTY SH,  
mod brn sn, mod bl cut, fr-gd blshwh resdl ring

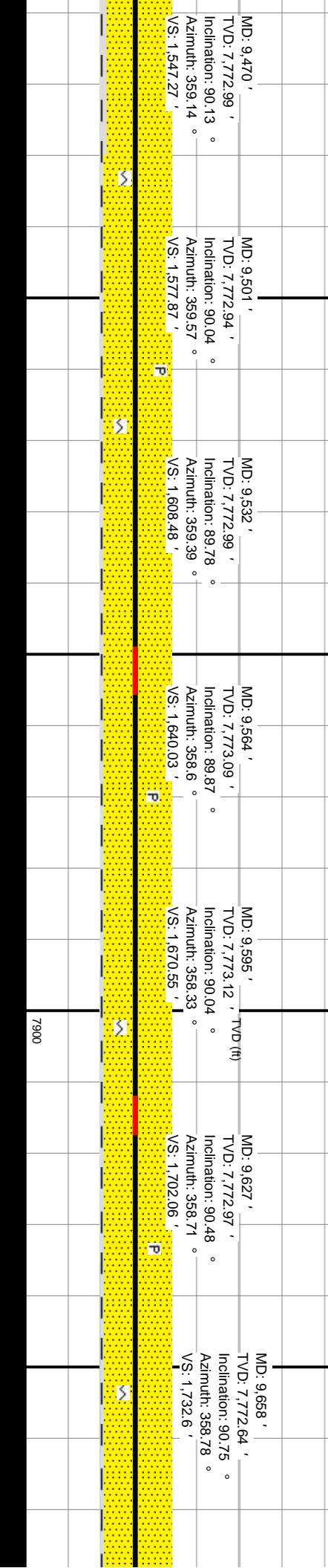
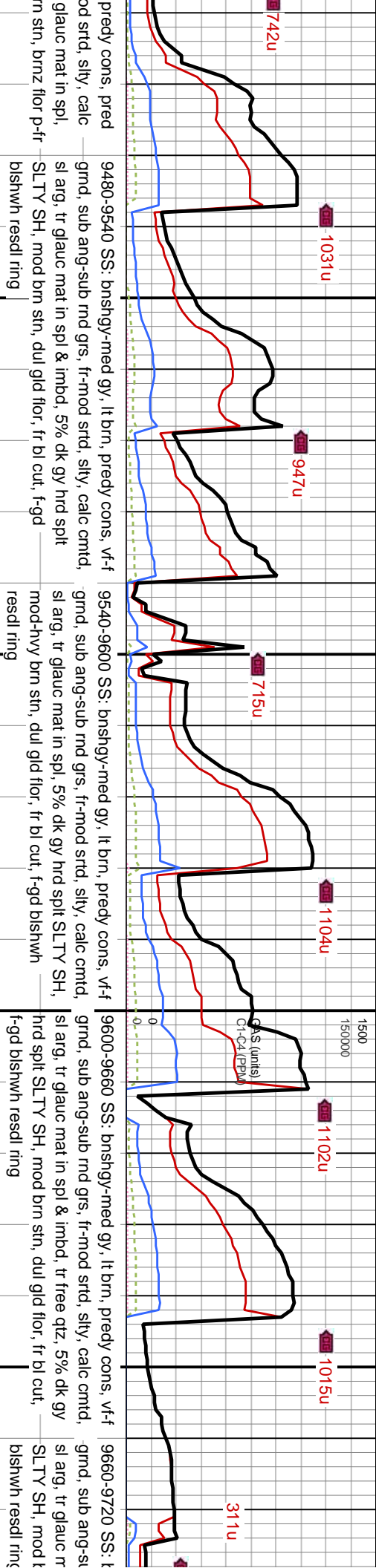
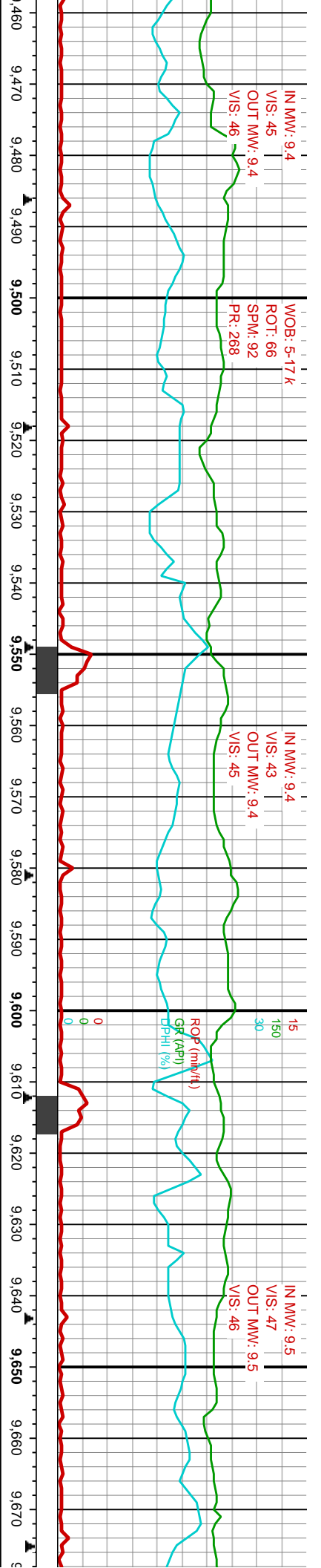
9120-9180 SS: lt bnshgy-med gy, pred vf-f grnd, predy  
cons, sub ang-sub md grs, fr-mod strd, calc cmtd, sl  
arg, tr cal, tr mic pyr xls, 15% dk hrd spl SLTY SH,  
mod brn sn, mod bl cut, fr-g blshwh resdl ring

9180-9240 SS: med bnshgy-lt brn, pred vf-f grnd,  
predy cons, sub ang-sub md grs, fr-mod strd, calc  
cmtd, sl arg, tr cal, tr mic pyr xls, 15% dk hrd spl SLTY  
SH, mod brn sn, brnz-dul gld flor mod bl cut, fr-g  
blshwh resdl ring

MD: 9,031 ' TVD: 7,777.03 ' Inclination: 92.24 ° Azimuth: 2.44 ° VS: 1,111.68 '	MD: 9,062 ' TVD: 7,775.81 ' Inclination: 92.24 ° Azimuth: 2.16 ° VS: 1,142.47 '	MD: 9,093 ' TVD: 7,774.58 ' Inclination: 92.33 ° Azimuth: 2.38 ° VS: 1,173.26 '	MD: 9,125 ' TVD: 7,773.69 ' Inclination: 90.84 ° Azimuth: 2.08 ° VS: 1,205.05 '	MD: 9,156 ' TVD: 7,773.43 ' Inclination: 90.13 ° Azimuth: 2.9 ° VS: 1,236.87 '	MD: 9,188 ' TVD: 7,773.48 ' Inclination: 89.69 ° Azimuth: 2.35 ° VS: 1,267.7 '	MD: 9,219 ' TVD: 7,773.7 ' Inclination: 89.52 ° Azimuth: 1.64 ° VS: 1,298.49 '
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9480-9540 SS; bnshgy-med gy, lt brn, predy cons, vf-f  
grnd, sub ang-sub rnd grs, fr-mod strd, sily, calc cmtd,  
sl arg, tr glauc mat in spl & imbd, 5% dk gy hrd spl  
SLTY SH, mod brn stn, dul gid flor, fr bl cut, f-gd  
blshwh resdl ring

9540-9600 SS; bnshgy-med gy, lt brn, predy cons, vf-f  
grnd, sub ang-sub rnd grs, fr-mod strd, sily, calc cmtd,  
sl arg, tr glauc mat in spl, 5% dk gy hrd spl SLTY SH,  
mod-hvy brn stn, dul gid flor, fr bl cut, f-gd blshwh  
resdl ring

9600-9660 SS; bnshgy-med gy, lt brn, predy cons, vf-f  
grnd, sub ang-sub rnd grs, fr-mod strd, sily, calc cmtd,  
sl arg, tr glauc mat in spl & imbd, tr free qtz, 5% dk gy  
hrd spl SLTY SH, mod brn stn, dul gid flor, fr bl cut,  
f-gd blshwh resdl ring

9660-9720 SS; t  
grnd, sub ang-sub  
sl arg, tr glauc r  
SLTY SH, mod t  
blshwh resdl ring

MD: 9.470 '  
TVD: 7.772.99 '  
Inclination: 90.13 °  
Azimuth: 359.14 °  
VS: 1.547.27 '  
P

MD: 9.501 '  
TVD: 7.772.94 '  
Inclination: 90.04 °  
Azimuth: 359.57 °  
VS: 1.577.87 '  
P

MD: 9.532 '  
TVD: 7.772.99 '  
Inclination: 89.78 °  
Azimuth: 359.39 °  
VS: 1.608.48 '  
P

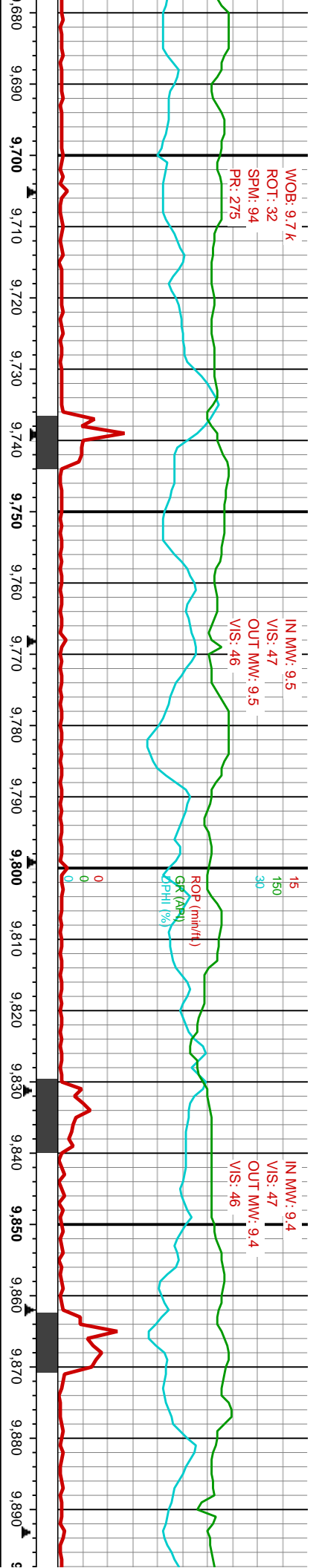
MD: 9.564 '  
TVD: 7.773.09 '  
Inclination: 89.87 °  
Azimuth: 358.6 °  
VS: 1.640.03 '  
P

MD: 9.595 '  
TVD: 7.773.12 '  
Inclination: 90.04 °  
Azimuth: 358.33 °  
VS: 1.670.55 '  
P

MD: 9.627 '  
TVD: 7.772.97 '  
Inclination: 90.48 °  
Azimuth: 358.71 °  
VS: 1.702.06 '  
P

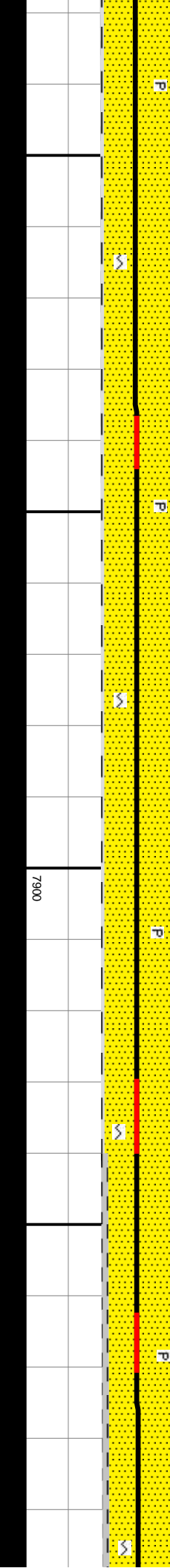
MD: 9.658 '  
TVD: 7.772.64 '  
Inclination: 90.75 °  
Azimuth: 358.78 °  
VS: 1.732.6 '  
P

7900



LOW GAS DUE TO SMALL LEAK IN POLYFLOW LINE & WATER IN LINE: 9650' MD-9860' MD

MD (ft)	TVD (ft)	Inclination (°)	Azimuth (°)	VS (ft)	Stratigraphic Description
9690'	7772.22'	90.75°	359.22°	1,764.15'	brn, predy cons, vf-f
9721'	7771.84'	90.66°	358.96°	1,794.73'	9720-9780 SS: brnshgy-med gy, lt brn, predy cons, vf-f
9753'	7771.47'	90.66°	358.81°	1,826.27'	grnd, sub ang-sub rnd grs, fr-mod strd, silty, calc cmtd, sl arg, tr glauc mat in spl & imbd, 5% dk gy hrd splt SLTY SH, mod brn stn, dul gld flor, g bishwh cut, f-gd bishwh resdl ring
9784'	7771.16'	90.48°	358.25°	1,856.79'	9780-9840 SS: brnshgy-med gy, lt brn, predy cons, vf-f
9815'	7770.88'	90.57°	358.06°	1,887.28'	grnd, sub ang-sub rnd grs, fr-mod strd, silty, calc cmtd, sl arg, tr glauc mat in spl, 5% dk gy hrd splt SLTY SH, mod brn stn, dul gld flor, g bishwh cut, f-gd bishwh
9846'	7770.49'	90.84°	358.46°	1,917.77'	9840-9900 SS: brnshgy-med gy, lt brn, predy cons, vf-f
9878'	7769.95'	91.1°	358.13°	1,949.26'	grnd, sub ang-sub rnd grs, fr-mod strd, silty, calc cmtd, sl arg, tr glauc mat in spl, 10% dk gy hrd splt SLTY SH, mod brn stn, dul gld flor, fr bishwh cut, f-gd bishwh resdl ring



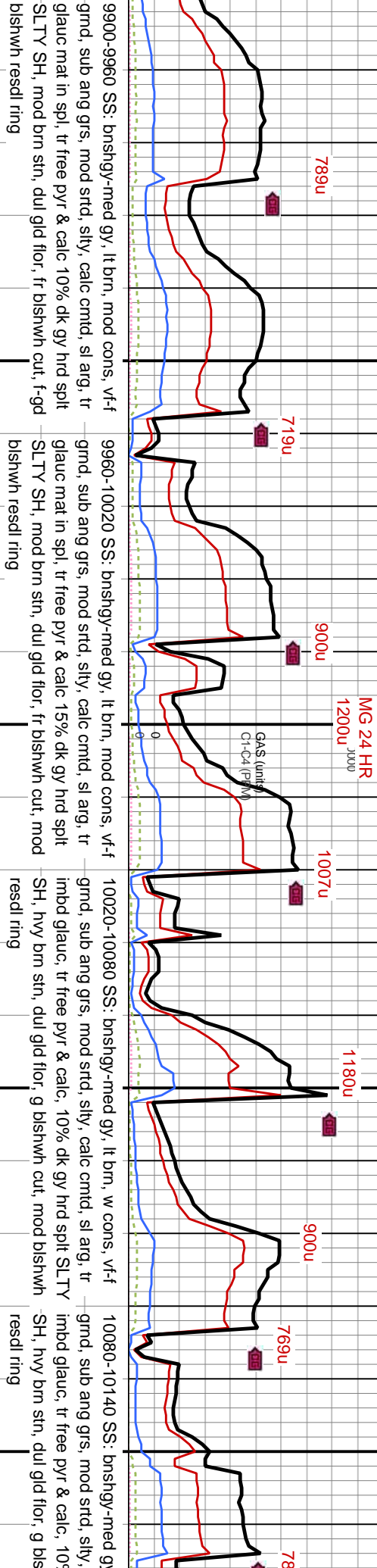
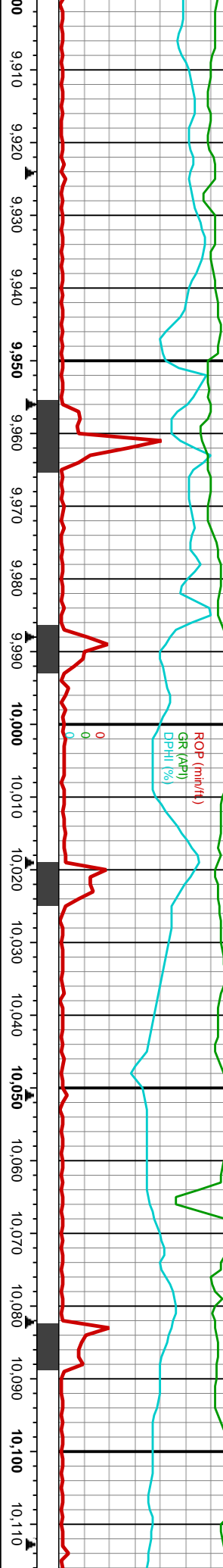
WOB: 5.3k  
 ROT: 54  
 SPM: 96  
 PR: 279

IN MW: 9.4  
 VS: 47  
 OUT MW: 9.4  
 VS: 46

MINDEPTH  
 07/01/14

IN MW: 9.3  
 VS: 45  
 OUT MW: 9.3  
 VS: 45

WOB: 6.2k  
 ROT: 55  
 SPM: 95  
 PR: 275



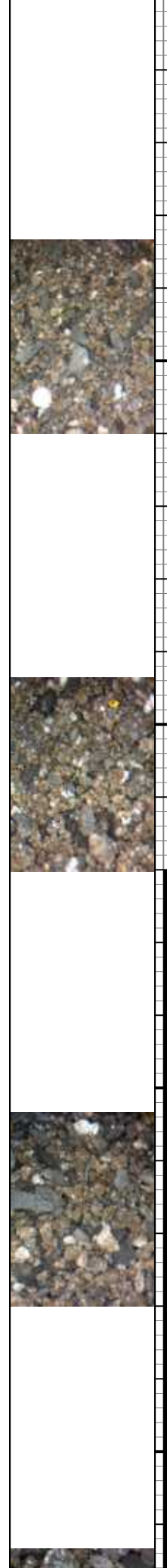
9900-9960 SS: bnshgy-med gy, lt brn, mod cons, v-f  
 grnd, sub ang grs, mod strd, slty, calc cmtd, sl arg, tr  
 glauc mat in spl, tr free pyr & calc 10% dk gy hrd spl  
 SLTY SH, mod brn str, dul gld flr, fr blshwh cut, f-gd  
 blshwh resd ring

9960-10020 SS: bnshgy-med gy, lt brn, mod cons, v-f  
 grnd, sub ang grs, mod strd, slty, calc cmtd, sl arg, tr  
 glauc mat in spl, tr free pyr & calc 15% dk gy hrd spl  
 SLTY SH, mod brn str, dul gld flr, fr blshwh cut, mod  
 blshwh resd ring

10020-10080 SS: bnshgy-med gy, lt brn, w cons, v-f  
 grnd, sub ang grs, mod strd, slty, calc cmtd, sl arg, tr  
 imbd glauc, tr free pyr & calc, 10% dk gy hrd spl SLTY  
 SH, hvy brn str, dul gld flr, g blshwh cut, mod blshwh  
 resd ring

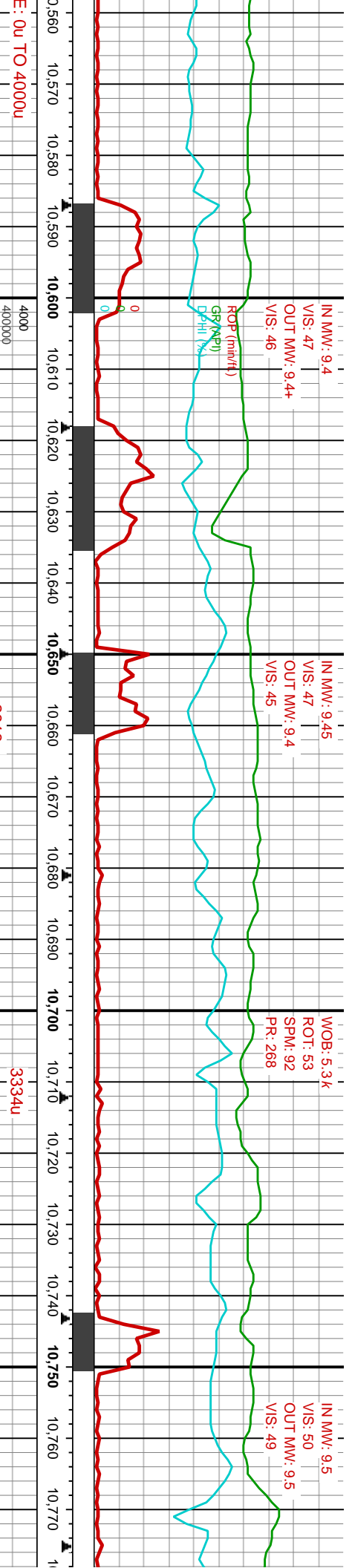
10080-10140 SS: bnshgy-med gy,  
 grnd, sub ang grs, mod strd, slty, calc cmtd, sl arg, tr  
 imbd glauc, tr free pyr & calc, 10%  
 SH, hvy brn str, dul gld flr, g blshwh  
 resd ring

MD: 9,909'      TVD: 7,769.29'      Inclination: 91.36°      Azimuth: 358.16°      VS: 1,979.74'  
 MD: 9,941'      TVD: 7,768.53'      Inclination: 91.36°      Azimuth: 357.31°      VS: 2,011.16'  
 MD: 9,972'      TVD: 7,767.79'      Inclination: 91.36°      Azimuth: 357.03°      VS: 2,041.53'  
 MD: 10,004'      TVD: 7,767.13'      Inclination: 91.01°      Azimuth: 356.86°      VS: 2,072.87'  
 MD: 10,035'      TVD: 7,766.73'      Inclination: 90.48°      Azimuth: 357.32°      VS: 2,103.25'  
 MD: 10,067'      TVD: 7,766.51'      Inclination: 90.31°      Azimuth: 356.46°      VS: 2,134.58'  
 MD: 10,098'      TVD: 7,766.41'      Inclination: 90.04°      Azimuth: 356.88°      VS: 2,164.91'









686u  
637u  
2307u  
1512u  
1782  
3334u  
2020u  
2295u

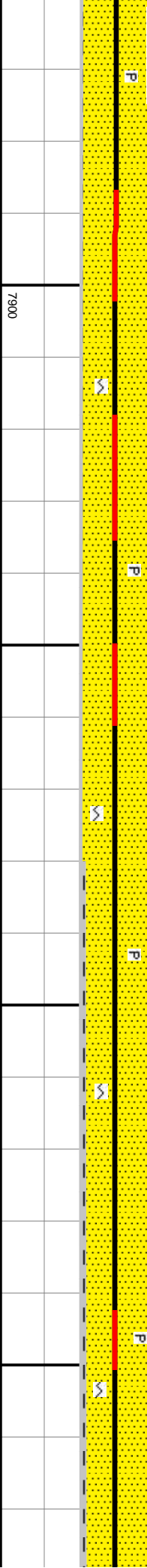
10560-10620 SS: lt gy-bnshgy, lt brn, predy cons, vf-f  
grnd, sub ang-sub rnd grs, fr-mod strd, sl arg, slty,  
calc cmtd, tr glauc mat in spl, mnr mic pyr, 5% dk gy  
hrd splt SLTY SH, mod brn str, brnz-dul gld flor, g  
blsh yel mky cut, mod blshwh resd ring

10620-10680 SS: lt gy-bnshgy, lt brn, predy cons, vf-f  
grnd, sub ang-sub rnd grs, fr-mod strd, sl arg, slty,  
calc cmtd, tr glauc mat in spl, mnr mic pyr, 5% dk gy  
hrd splt SLTY SH, mod brn str, brnz-dul gld flor, g  
blsh yel mky cut, mod blshwh resd ring

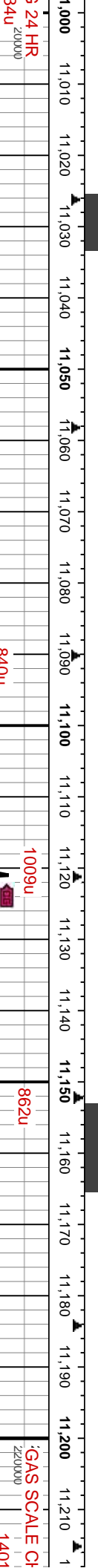
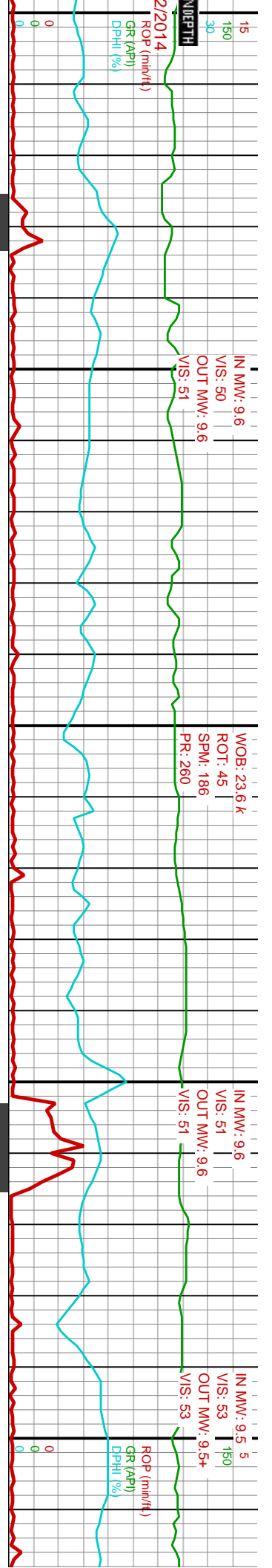
10680-10740 SS: lt gy-bnshgy, lt brn, predy cons, vf-f  
grnd, sub ang-sub rnd grs, fr-mod strd, sl arg, slty,  
calc cmtd, tr glauc mat in spl, mnr mic pyr, 10% dk gy  
hrd splt SLTY SH, mod-hvy brn str, brnz-dul gld flor, g  
blsh yel mky cut, mod blshwh resd ring

10740-10800 SS: lt gy-bnshgy, lt brn, predy cons, vf-f  
grnd, sub ang-sub rnd grs, fr-mod strd, sl arg, slty,  
calc cmtd, tr glauc mat in spl, tr free  
pyr & glauc, 10% dk gy hrd splt SLTY SH  
brnz-dul gld flor, g blshwh mky cut,  
ring

MD: 10,571 '    TVD: 7,768.47 '    Inclination: 89.16 °    Azimuth: 356.86 °    VS: 2,627.33 '  
MD: 10,602 '    TVD: 7,768.47 '    Inclination: 89.08 °    Azimuth: 358.17 °    VS: 2,657.75 '  
MD: 10,634 '    TVD: 7,769.94 '    Inclination: 89.25 °    Azimuth: 359.91 °    VS: 2,689.31 '  
MD: 10,665 '    TVD: 7,769.11 '    Inclination: 90.13 °    Azimuth: 1.52 °    VS: 2,720.01 '  
MD: 10,697 '    TVD: 7,769.04 '    Inclination: 90.13 °    Azimuth: 0.95 °    VS: 2,751.75 '  
MD: 10,728 '    TVD: 7,768.99 '    Inclination: 90.04 °    Azimuth: 0.84 °    VS: 2,782.47 '  
MD: 10,760 '    TVD: 7,768.89 '    Inclination: 90.31 °    Azimuth: 0.8 °    VS: 2,814.18 '

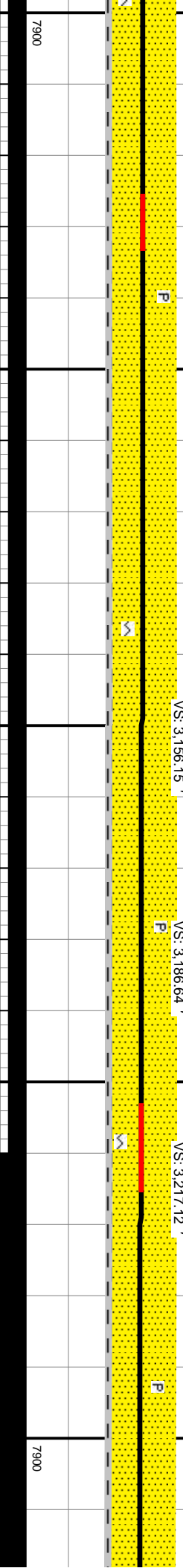


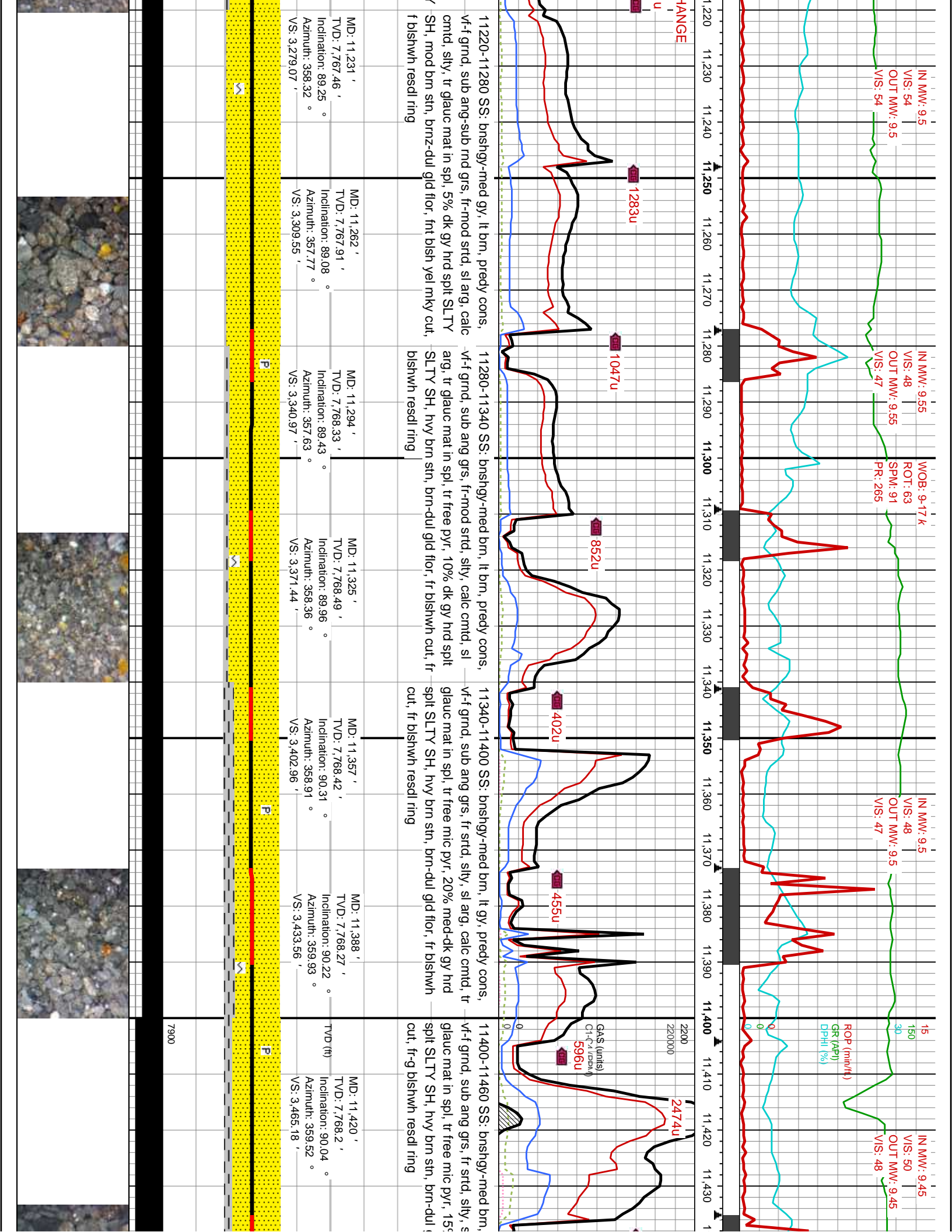




GAS SCALE CH  
200000  
1401

Depth (ft)	Depth (m)	Description	MD	TVD	Inclination	Azimuth	VS
88u	11,000	It gy-bnshgy, sme wh, lt brn, predy	11,011	7,764.46	90.66	358.94	3,062.6
676u	11,020	mod cons- sme unconcs, vf-f grnd, sub ang-sub grs,	11,043	7,764.26	90.04	358.96	3,094.15
726u	11,060	fr-mod strd, sl arg, sly, calc cmt, tr glauc mat in spl,	11,074	7,764.48	89.16	358.11	3,124.68
840u	11,090	fr-mod strd, sl arg, sly, calc cmt, tr glauc mat in spl,	11,106	7,765.12	88.55	358.41	3,156.15
1009u	11,120	It gy-bnshgy, lt brn, predy mod	11,137	7,765.95	88.37	358.14	3,186.64
862u	11,150	cons, vf-f grnd, sub ang-sub grs, fr-mod strd, sl arg,	11,168	7,766.64	89.08	358.08	3,217.12
677u	11,180	fr-mod strd, sl arg, sly, calc cmt, tr glauc mat in spl, mnr mic pyr, tr	11,199	7,767.07	89.34	358.13	3,247.6





IN MW: 9.5  
VIS: 54  
OUT MW: 9.5  
VIS: 54

IN MW: 9.55  
VIS: 48  
OUT MW: 9.55  
VIS: 47

WOB: 9-17 k  
ROT: 63  
SPM: 91  
PR: 265

IN MW: 9.5  
VIS: 48  
OUT MW: 9.5  
VIS: 47

ROP (min/ft)  
GR (API)  
DPHI (%)

IN MW: 9.45  
VIS: 50  
OUT MW: 9.45  
VIS: 48

CHANGE

1283u

1047u

852u

402u

455u

596u

2474u

11220-11280 SS: brushy-med gy, lt brn, predy cons, vf-f grnd, sub ang-sub rnd grs, fr-mod strd, sl arg, calc cmtd, sily, tr glauc mat in spl, 5% dk gy hrd spl SLTY SH, mod brn stn, brn-dul gld flr, frt blsh yel mky cut, blshwh resdl ring

11280-11340 SS: brushy-med brn, lt brn, predy cons, vf-f grnd, sub ang grs, fr-mod strd, sily, calc cmtd, sl arg, tr glauc mat in spl, fr free pyr, 10% dk gy hrd spl SLTY SH, hvy brn stn, brn-dul gld flr, fr blshwh cut, fr blshwh resdl ring

11340-11400 SS: brushy-med brn, lt gy, predy cons, vf-f grnd, sub ang grs, fr strd, sily, sl arg, calc cmtd, tr glauc mat in spl, fr free mic pyr, 20% med-dk gy hrd spl SLTY SH, hvy brn stn, brn-dul gld flr, fr blshwh cut, fr blshwh resdl ring

11400-11460 SS: brushy-med brn, vf-f grnd, sub ang grs, fr strd, sily, s glauc mat in spl, fr free mic pyr, 15% med-dk gy hrd spl SLTY SH, hvy brn stn, brn-dul gld flr, fr-g blshwh resdl ring

MD: 11,231 '  
TVD: 7,767.46 '  
Inclination: 89.25 °  
Azimuth: 358.32 °  
VS: 3,279.07 '

MD: 11,262 '  
TVD: 7,767.91 '  
Inclination: 89.08 °  
Azimuth: 357.77 °  
VS: 3,309.55 '

MD: 11,294 '  
TVD: 7,768.33 '  
Inclination: 89.43 °  
Azimuth: 357.63 °  
VS: 3,340.97 '

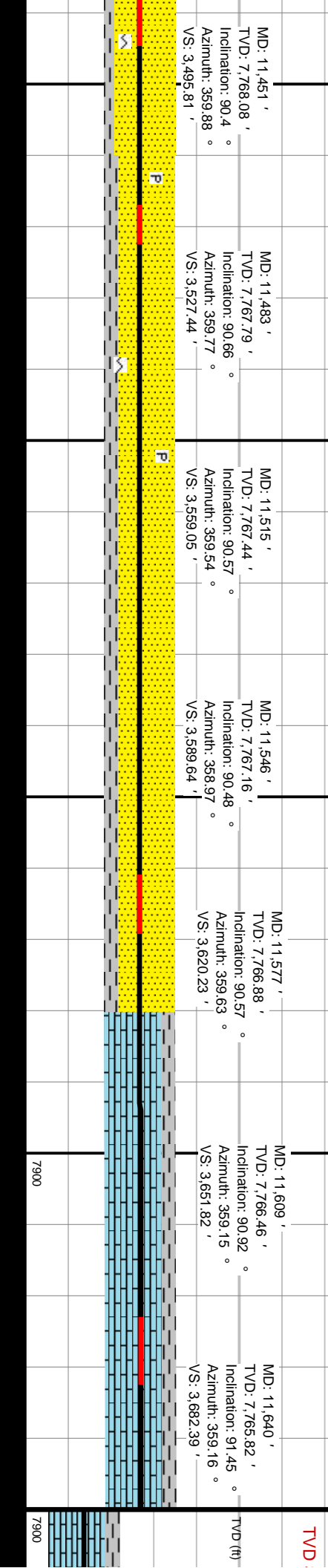
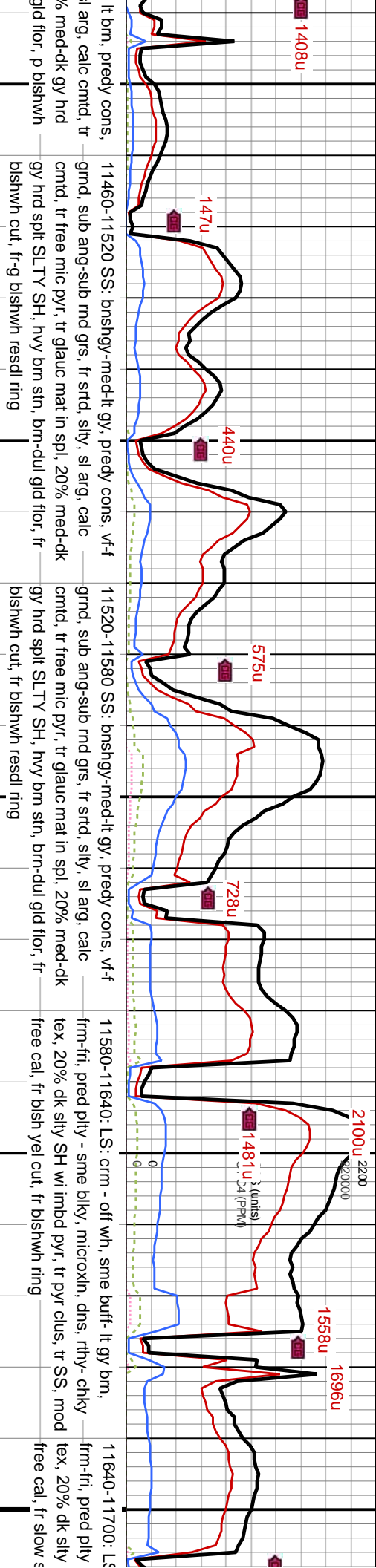
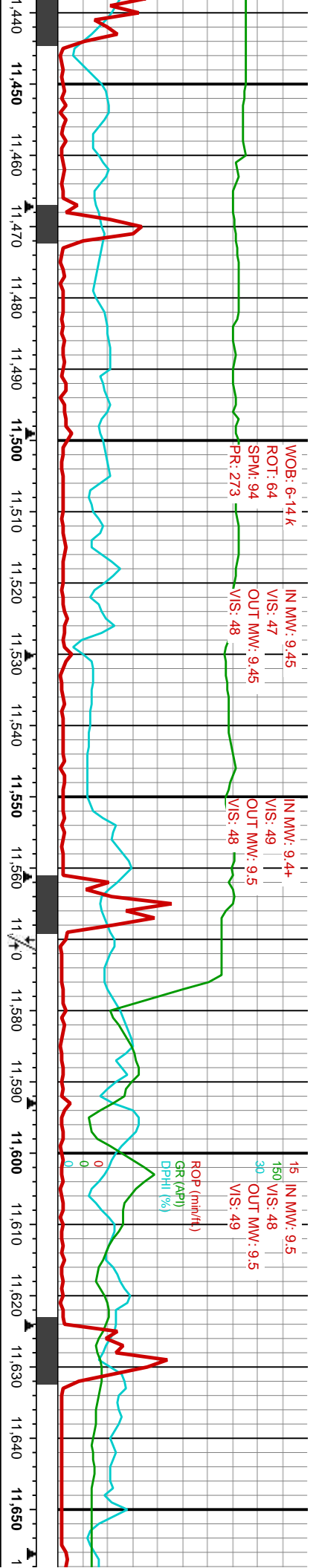
MD: 11,325 '  
TVD: 7,768.49 '  
Inclination: 89.96 °  
Azimuth: 358.36 °  
VS: 3,371.44 '

MD: 11,357 '  
TVD: 7,768.42 '  
Inclination: 90.31 °  
Azimuth: 358.91 °  
VS: 3,402.96 '

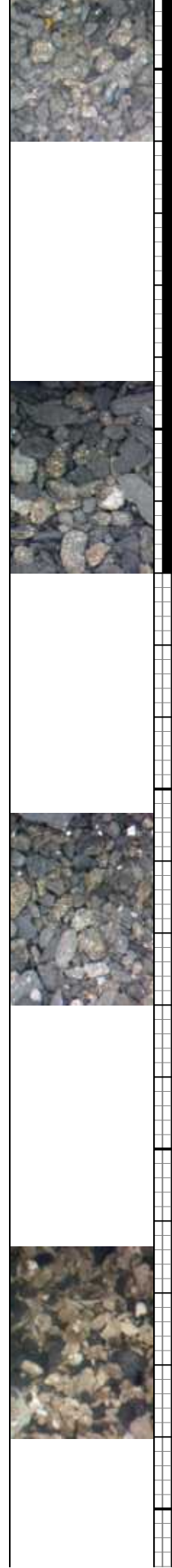
MD: 11,388 '  
TVD: 7,768.27 '  
Inclination: 90.22 °  
Azimuth: 359.93 °  
VS: 3,433.56 '

MD: 11,420 '  
TVD: 7,768.2 '  
Inclination: 90.04 °  
Azimuth: 359.52 °  
VS: 3,465.18 '

7900



11440-11450: lt brn, predy cons, lt arg, calc cmt, tr med-dk gy hrd flid, p bishwh  
 MD: 11,451 ' TVD: 7,766.08 ' Inclination: 90.4 ° Azimuth: 359.88 ° VS: 3,495.81 '  
 11460-11520 SS: bshgy-med-lt gy, predy cons, vf-f grnd, sub ang-sub md grs, fr strd, silty, sl arg, calc cmt, tr free mic pyr, tr glauc mat in spl, 20% med-dk gy hrd split SLTY SH, hvy bm str, bm-dul gid flid, fr bishwh cut, fr-g bishwh resd ring  
 MD: 11,483 ' TVD: 7,767.79 ' Inclination: 90.66 ° Azimuth: 359.77 ° VS: 3,527.44 '  
 MD: 11,515 ' TVD: 7,767.44 ' Inclination: 90.57 ° Azimuth: 359.54 ° VS: 3,559.05 '  
 MD: 11,546 ' TVD: 7,767.16 ' Inclination: 90.48 ° Azimuth: 358.97 ° VS: 3,589.64 '  
 MD: 11,577 ' TVD: 7,766.88 ' Inclination: 90.57 ° Azimuth: 359.63 ° VS: 3,620.23 '  
 11580-11640: LS: crm - off wh, sme buf- lt gy brn, frm-fri, pred pty - sme blk, microxn, dns, rhy-ckly tex, 20% dk silty SH wi imbd pyr, tr pyr clus, tr SS, mod free cal, fr bsh yel cut, fr bishwh ring  
 MD: 11,609 ' TVD: 7,766.46 ' Inclination: 90.92 ° Azimuth: 359.15 ° VS: 3,651.82 '  
 MD: 11,640 ' TVD: 7,765.82 ' Inclination: 91.45 ° Azimuth: 359.16 ° VS: 3,682.39 '  
 11640-11700: LS: frm-fri, pred pty free cal, fr slow s



IN MW: 9.5  
 V/S: 45  
 OUT MW: 9.5  
 V/S: 47

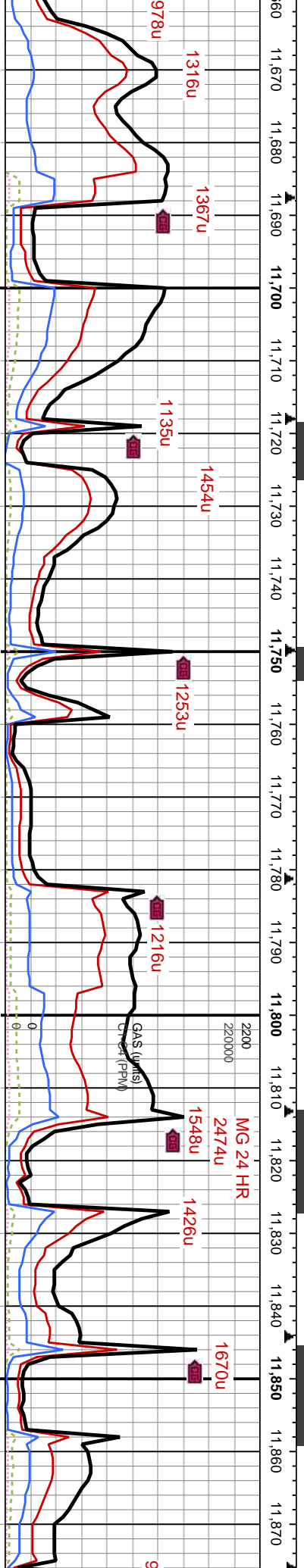
WOB: 13.8 k  
 ROT: 53  
 SPM: 94  
 PR: 275

IN MW: 9.5  
 V/S: 46  
 OUT MW: 9.5  
 V/S: 47

IN MW: 9.5  
 V/S: 47  
 OUT MW: 9.5  
 V/S: 47

IN MW: 9.5  
 V/S: 47  
 OUT MW: 9.5  
 V/S: 47

IN MW: 9.5  
 V/S: 48  
 OUT MW: 9.5  
 V/S: 49



cm - off wh, sme buff- lt gy brn,  
 - sme blk, microxin, dns, rthy- chky  
 - SH wi imbd pyr, tr pyr clus, tr SS, mod  
 - btng blshwh cut, fr blshwh resdl ring

**SCALE CHANGE**

11700 - 11730: LS: pred  
 frm, sme buff- lt gy brn,  
 frm, pred ply - sme blk,  
 microxin - tr stri, dns, rthy-  
 chky tex, 5% dk gy sily sb  
 blkly SH wi imbd pyr, mod  
 free cal, g slow sting  
 blshwh cut, fr blshwh  
 resdl ring

11730 - 11760: LS: pred  
 frm, sme buff- lt gy brn,  
 frm, pred ply - sme blk,  
 microxin - tr stri, dns, rthy-  
 chky tex, 5% dk gy sily sb  
 blkly SH wi imbd pyr, mod  
 free cal, p slow sting  
 blshwh cut, p blshwh  
 resdl ring

11760 - 11790: LS: pred  
 frm, sme buff- lt gy brn,  
 frm, pred ply - sme blk,  
 microxin, pred stri, dns,  
 rthy- chky tex, 5% dk gy  
 sily split SH wi imbd pyr,  
 mod free cal, p slow sting  
 blshwh cut, frt blshwh  
 resdl ring

11790 - 11820: LS: pred  
 frm, sme buff- lt gy brn,  
 frm, pred ply - sme blk,  
 microxin, pred stri, dns,  
 rthy- chky tex, 5% dk gy  
 sily split SH wi imbd pyr,  
 mod free cal, sme brn  
 stn, fr slow sting blshwh  
 cut, fr blshwh resdl ring

11820 - 11850: LS: pred  
 frm, sme buff- lt gy brn,  
 frm, pred ply - sme blk,  
 microxin, pred stri, dns,  
 rthy- chky tex, 5% dk  
 gy sily split SH wi imbd  
 pyr, sme free cal, sme  
 brn stn, g slow sting  
 blshwh cut, fr blshwh  
 resdl ring

11850 - 11880: LS: pred  
 frm, sme buff- lt gy brn,  
 frm, pred blkly - sme ply,  
 microxin, sme stri, dns,  
 rthy- chky tex, 15% dk gy  
 hrd sily sb blkly SH wi  
 imbd pyr & calc, 5% dk  
 brn w cons SS clus, p  
 slow sting blshwh cut, fr  
 blshwh resdl ring

MD: 11,672' TVD: 7,764.84' Inclination: 92.07° Azimuth: 359.18° VS: 3,713.94'

MD: 11,703' TVD: 7,763.62' Inclination: 92.42° Azimuth: 358.73° VS: 3,744.49'

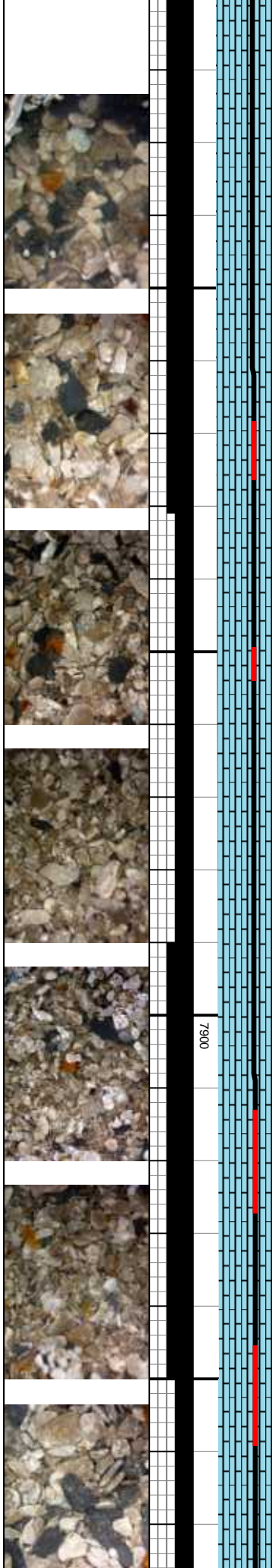
MD: 11,735' TVD: 7,762.52' Inclination: 91.54° Azimuth: 358.79° VS: 3,776'

MD: 11,766' TVD: 7,761.59' Inclination: 91.89° Azimuth: 358.93° VS: 3,806.54'

MD: 11,798' TVD: 7,760.36' Inclination: 92.51° Azimuth: 359° VS: 3,838.07'

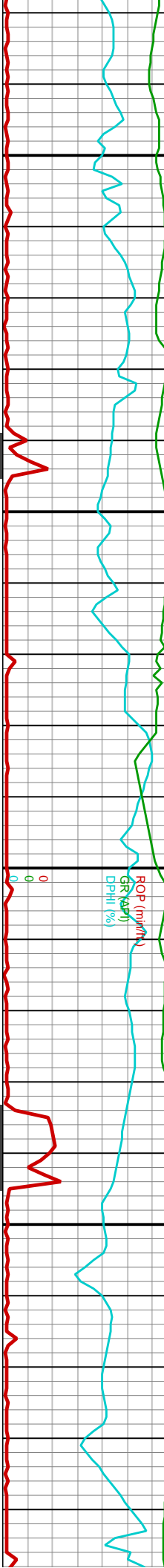
MD: 11,829' TVD: 7,759.33' Inclination: 91.28° Azimuth: 359.02° VS: 3,868.62'

MD: 11,860' TVD: 7,759.36' Inclination: 88.64° Azimuth: 358.53° VS: 3,899.16'



7900

WOB: 15.4k  
 ROT: 59  
 SPM: 239  
 PR: 82  
 IN MW: 9.5  
 V/S: 47  
 OUT MW: 9.4  
 V/S: 47  
 IN MW: 9.5  
 V/S: 49  
 OUT MW: 9.5  
 V/S: 50  
 IN MW: 9.4  
 V/S: 46  
 OUT MW: 9.3  
 V/S: 47  
 IN MW: 9.4  
 V/S: 49  
 OUT MW: 9.5  
 V/S: 47

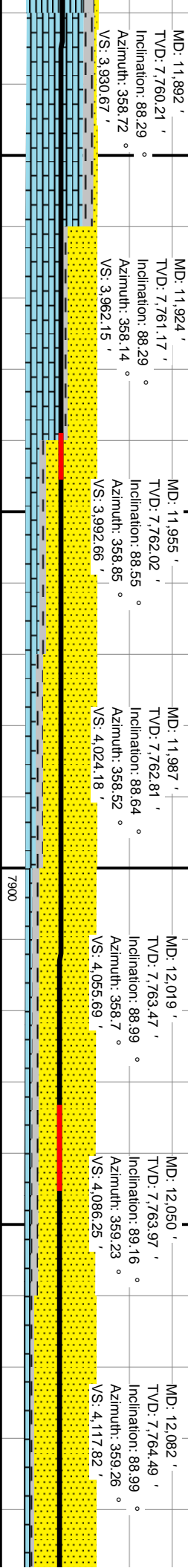


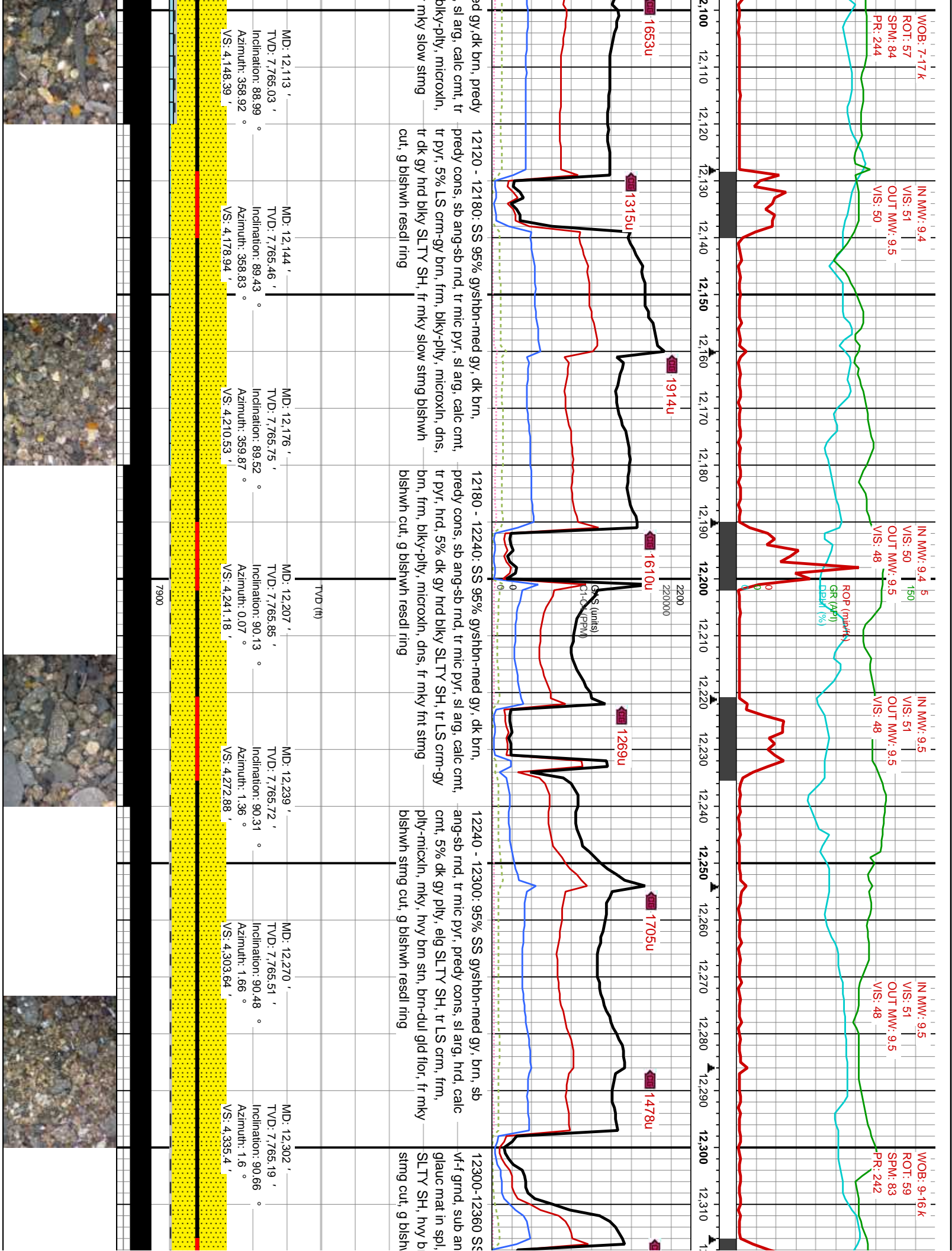
11880 11890 11900 11910 11920 11930 11940 11950 11960 11970 11980 11990 12000 12010 12020 12030 12040 12050 12060 12070 12080 12090 12100

1402u  
 1168u  
 846u  
 1373u  
 1356u  
 1555u

11880 - 11910: LS: pred  
 crm, sme buff- lt gy brn, frm, pred blk- sme pty, microxin, sme stri, dns, rhy- chky tex, 15% dk gy hrd silty sb blk SH wi imbd pyr & calc, 5% dk brn w cons SS clus, g slow stmg bishwh cut, fr bishwh resd ring  
 MD: 11,892' TVD: 7,760.21' Inclination: 88.29° Azimuth: 358.72° VS: 3,930.67'  
 11910 - 11940: LS: pred  
 crm, sme buff- lt gy brn, frm, pred blk- sme pty, microxin, mod stri, dns, rhy- chky tex 40% dk brn w cons SS clus, 10% dk gy hrd silty blk SH wi imbd pyr & calc, g slow stmg bishwh cut, fr bishwh resd ring  
 MD: 11,924' TVD: 7,761.17' Inclination: 88.29° Azimuth: 358.14° VS: 3,962.15'  
 11940 - 11970: SS 70%  
 gysbhn-dk brn, med gy, predy cons, sb ang-sb rmd, tr mic pyr, 20% LS crm-lt gy tr mic pyr, frm, pred blk- sme pty, microxin, mod stri, dns, rhy- chky tex, 10% dk gy hrd silty blk SH, tr pyr & calc, g slow stmg bishwh cut, fr bishwh resd ring  
 MD: 11,955' TVD: 7,762.02' Inclination: 88.55° Azimuth: 358.85° VS: 3,992.66'  
 11970 - 12000: SS 75%  
 gysbhn-med brn, lt gy, predy cons, sb ang-sb rmd, tr mic pyr, sl arg, calc cmt, 15% LS crm-gy brn, frm, blk- sme pty, microxin, dns, rhy- chky tex, 10% dk gy hrd silty blk SH, tr pyr & calc, fr slow stmg bishwh cut, fr bishwh resd ring  
 MD: 11,987' TVD: 7,762.81' Inclination: 88.64° Azimuth: 358.52° VS: 4,024.18'  
 12000 - 12060: SS 80% gysbhn-dk brn, med gy, predy cons, sb ang-sb rmd, tr free mic pyr, sl arg, calc cmt, 10% LS crm-gy brn, frm, blk- pty, microxin, dns, 10% dk gy hrd blk SLTY SH, tr pyr & calc, fr mky slow stmg bishwh cut, g bishwh resd ring  
 MD: 12,019' TVD: 7,763.47' Inclination: 88.99° Azimuth: 358.7° VS: 4,055.69'  
 12060 - 12120: SS 90% gysbhn-med brn, med gy, predy cons, sb ang-sb rmd, tr free mic pyr, pyr & calc, 5% LS crm-gy brn, frm, dns, 5% dk gy hrd blk SLTY SH, fr bishwh cut, g bishwh resd ring  
 MD: 12,082' TVD: 7,764.49' Inclination: 88.99° Azimuth: 359.26° VS: 4,117.82'

GAS (units)  
 C1-C4 (PPM)  
 ROP (in/Min)  
 GR (API)  
 DPHI (%)  
 TVD (ft)





WOB: 7-17k  
 ROT: 57  
 SPM: 84  
 PR: 244

IN MW: 9.4  
 V/S: 51  
 OUT MW: 9.5  
 V/S: 50

IN MW: 9.4  
 V/S: 50  
 OUT MW: 9.5  
 V/S: 48

IN MW: 9.5  
 V/S: 51  
 OUT MW: 9.5  
 V/S: 48

IN MW: 9.5  
 V/S: 51  
 OUT MW: 9.5  
 V/S: 48

WOB: 9-16k  
 ROT: 59  
 SPM: 83  
 PR: 242

12100 - 12120: dk brn, predy  
 sl arg, calc cmt, tr  
 blkly-pty, microxln,  
 mky slow stmg

12120 - 12180: SS 95% gysbhn-med gy, dk brn,  
 predy cons, sb ang-sb md, tr mic pyr, sl arg, calc cmt,  
 tr pyr, 5% LS crm-gy brn, frm, blkly-pty, microxln, dns,  
 tr dk gy hrd blkly SLTY SH, fr mky slow stmg bishwh  
 cut, g bishwh resdl ring

12180 - 12240: SS 95% gysbhn-med gy, dk brn,  
 predy cons, sb ang-sb md, tr mic pyr, sl arg, calc cmt,  
 tr pyr, hrd, 5% dk gy hrd blkly SLTY SH, tr LS crm-gy  
 brn, frm, blkly-pty, microxln, dns, fr mky fat stmg  
 bishwh cut, g bishwh resdl ring

12240 - 12300: 95% SS gysbhn-med gy, brn, sb  
 ang-sb md, tr mic pyr, predy cons, sl arg, hrd, calc  
 cmt, 5% dk gy pty, elg SLTY SH, tr LS crm, frm,  
 pty-micxln, mky, hvy brn stn, brn-dul gld flor, fr mky  
 bishwh stmg cut, g bishwh resdl ring

12300-12360 SS  
 wf-f grnd, sub an  
 glauc mat in spl,  
 SLTY SH, hvy b  
 stmg cut, g bishwh

MD: 12,113 '  
 TVD: 7,765.03 '  
 Inclination: 88.99 °  
 Azimuth: 358.92 °  
 VS: 4,148.39 '

MD: 12,144 '  
 TVD: 7,765.46 '  
 Inclination: 89.43 °  
 Azimuth: 358.83 °  
 VS: 4,178.94 '

MD: 12,176 '  
 TVD: 7,765.75 '  
 Inclination: 89.52 °  
 Azimuth: 359.87 °  
 VS: 4,210.53 '

MD: 12,207 '  
 TVD: 7,765.85 '  
 Inclination: 90.13 °  
 Azimuth: 0.07 °  
 VS: 4,241.18 '

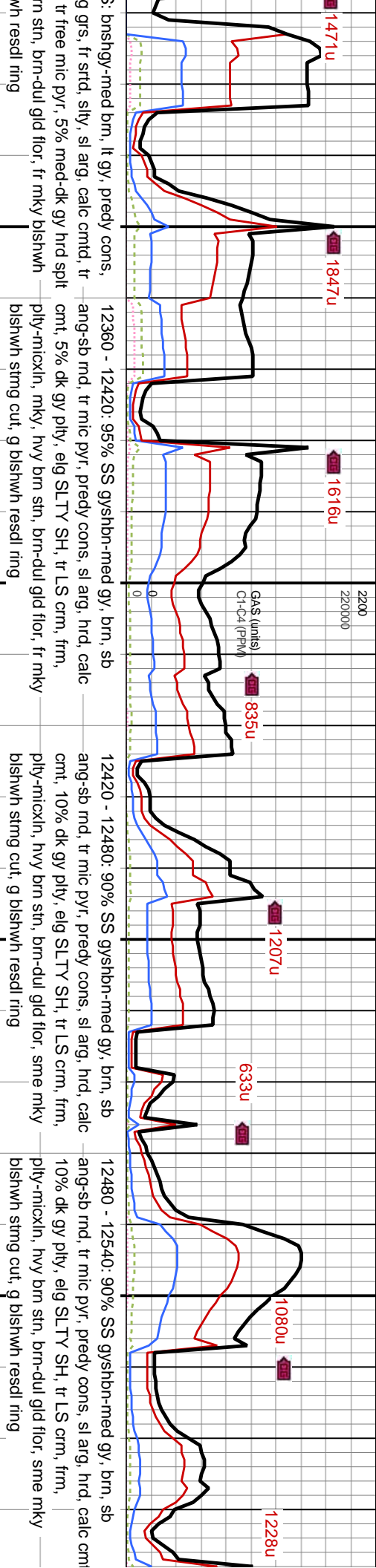
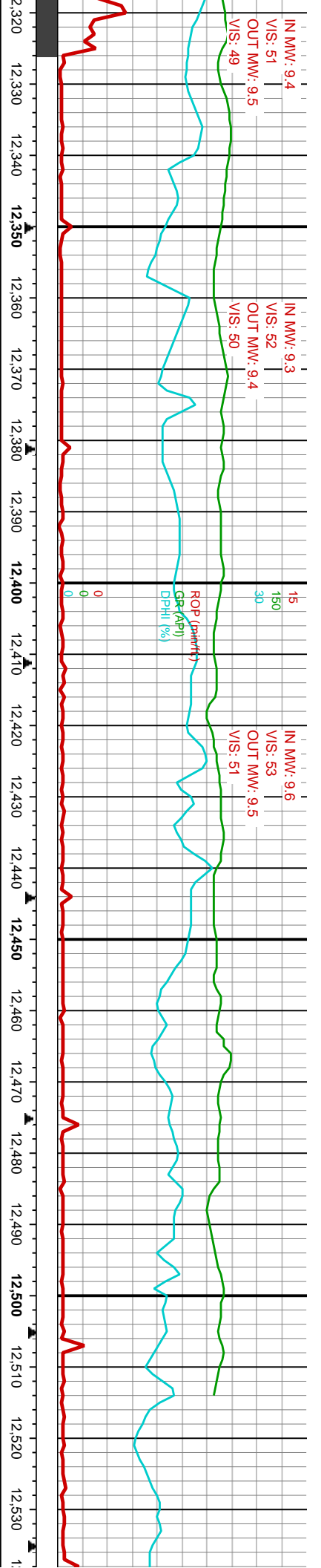
MD: 12,239 '  
 TVD: 7,765.72 '  
 Inclination: 90.31 °  
 Azimuth: 1.36 °  
 VS: 4,272.88 '

MD: 12,270 '  
 TVD: 7,765.51 '  
 Inclination: 90.48 °  
 Azimuth: 1.66 °  
 VS: 4,303.64 '

MD: 12,302 '  
 TVD: 7,765.19 '  
 Inclination: 90.66 °  
 Azimuth: 1.6 °  
 VS: 4,335.4 '

7900

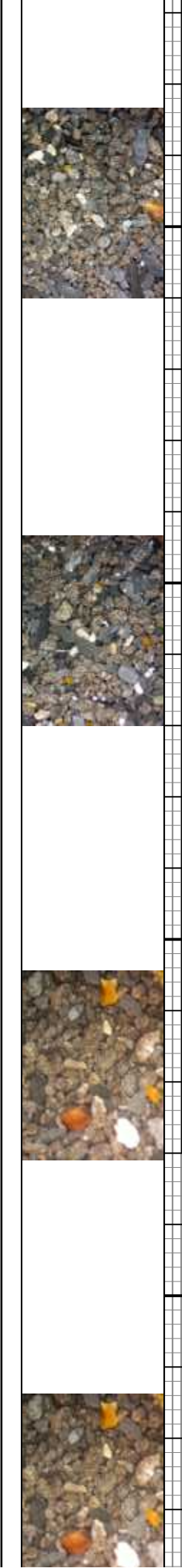


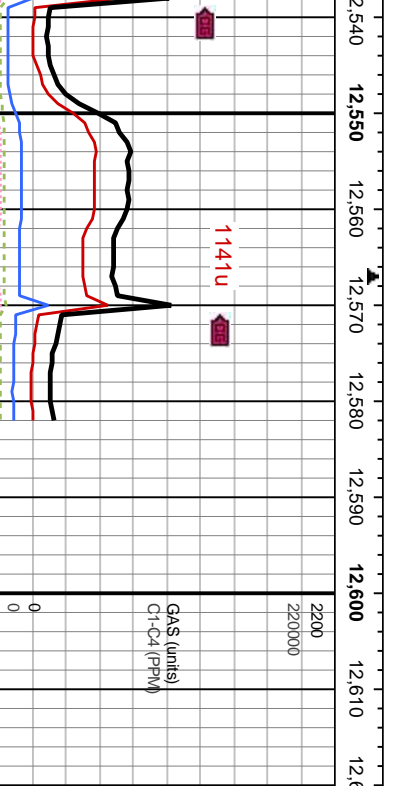
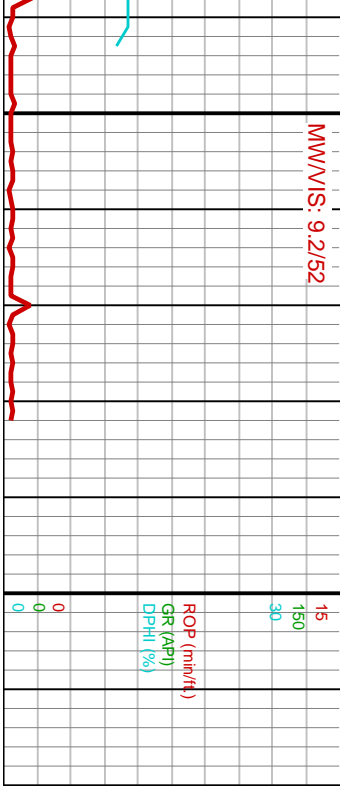


MD: 12,334'	MD: 12,365'	MD: 12,396'	MD: 12,428'	MD: 12,459'	MD: 12,491'
TVD: 7,764.58'	TVD: 7,763.68'	TVD: 7,762.7'	TVD: 7,761.87'	TVD: 7,760.97'	TVD: 7,760.08'
Inclination: 91.54°	Inclination: 91.8°	Inclination: 91.8°	Inclination: 91.71°	Inclination: 91.63°	Inclination: 91.54°
Azimuth: 1.8°	Azimuth: 2.58°	Azimuth: 2.27°	Azimuth: 2.32°	Azimuth: 2.55°	Azimuth: 2.52°
VS: 4.367.17'	VS: 4.397.96'	VS: 4.428.77'	VS: 4.460.57'	VS: 4.491.38'	VS: 4.523.19'

TVD (ft) 7900

**DP @ 12,480'**





12540 - 12582: 85% SS  
 gylshbn-med gy, brn, sb  
 ang-sb mrd, tr mic pyr, predy  
 cons, sl arg, hrd, calc cmt, lith  
 frags, 15% dk gy plty, elg - split  
 SLTY SH, tr LS crm, frm,  
 plty-micxln, hvy brn stn, brn-dul  
 gld flor, sme nky bishwh strng  
 cut, g bishwh resdl ring

MD: 12,582 '  
 TVD: 7,757.39 '  
 Inclination: 91.71 °  
 Azimuth: 2.51 °  
 VS: 4,613.64 '

**TD @ 1730hrs  
 on 7-03-14**

TVD (ft)

