



# Empirica

Scale: 5" / 100'  
Measured Depth Log

**Well Name** DT-Martinez 3-5-6

**Location** Sec.5-T05N-R65W

**State** Colorado

**Country** USA

**API Number** 05-123 37255 00

**Region** DJ Basin

**Spud Date** 2/21/2015

**Surface Coordinates** SHL: 462°FNL, 1684°FEL, Sec.05

Lat: 40.43522

Long: 104.68373

**County** Weld

**Rig Number** Savanna 802

**AFE #** na

**Field** Wattenberg

**Drilling Completed** 3/7/2015

**Bottom Hole Coordinates** BHL: 2981°FNL, 460°FWL, Sec. 06

**Ground Elevation** 4,640'

**K.B. Elevation** 4,655'

**Logged Interval** 5,000' To 14,887'

**Total Depth** 14,887'

**Formation** Niobrara B Chalk

**Type of Drilling Fluid** Water Based

## Operator

**Company** Extraction Oil & Gas

**Address** 1888 Sherman St., Suite 200  
Denver, CO 80203

## Geologist

**Name** Jared Rouse

**Company** Extraction Oil & Gas

**Address** 1888 Sherman St., Suite 200  
Denver, CO 80203



## Other

**Equipment** ML-461

**Comments** Start: 2-23-15  
Standby: 2-25-15, 3-05-15  
TD: 3-07-15

**Services Provided** 2-man Logging  
On Site Geosteering

**Logger Names** Dominic Pitre / Nicholas V

**Address** Empirica, LLC.  
6360 W Sam Houston Pk  
Suite 100  
Houston, TX 77041

Zone Color Coding

Oil

Note

Error

Condensate

Core

Water

Gas

Pressure

Seal

Rock Types

UNKNOWN

ANHYDRITE

GYPSUM

SALT

SIDERITE or LIMONITE

LIMESTONE

DOLOMITE

CHERT

COAL

MARLSTONE

CLAYSTONE

SHALE

SHALE GRAY

SHALE COLORED

SILTSTONE

SANDSTONE

CONGLOMERATE

BRECCIA

TILL

BENTONITE

TUFF

IGNEOUS

METAMORPHIC

CEMENT

Accessories

F FOSSIL

GASTROPOD

O OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLITE

PLANT REMAINS

CORAL

CEPHALOPOD

CRINOID

ECHINOID

FISH

FORAMINIFERA

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

+ FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

H HEAVY MINERAL

K KAOLIN

M MARLSTONE

M MINERAL CRYSTALS

N NODULES

PHOSPHATE PELLETS

P PYRITE

SALT CAST

S SANDY

S SILICEOUS

TUFFACEOUS

ANHYDRITE STRINGER

BENTONITE STRINGER

COAL STRINGER

DOLOMITE STRINGER

GYPSUM STRINGER

LIMESTONE STRINGER

MARLSTONE (CALC) STRG

MARLSTONE (DOL) STRG

SANDSTONE STRINGER

SHALE STRINGER

SILTSTONE STRINGER

Other Sy

O ORGANIC

P PINPOINT

D DEAD

EVEN

QUESTIONABLE

SPOTTED STAINING

GAS SH

MINDEPTH

V VUGGY

NORMAL

OIL SH

OVERTURN

Engineering

CASING

REVERS

OVERT

CONNECTION (LEFT)

CONNECTION (RIGHT)

SIDEAWA

Porosity

E EARTHY

F FENESTRAL

F FRACTURE

CONNECTION GAS

SLIDE

SURV

INTERCRYSTALLINE

CORE - RECOVERED

TRIP C

INTEROOLITIC

DST INTERVAL

WIRELIN

MOLDIC

FAULT

WIRELIN

# Symbols

FORMATION TOP                      L LITHOGRAPHIC

## Rounding

LOW                      MX MICROXLN

MIN DEPTH                      AN ANGULAR                      MS MUDSTONE

FL FAULT                      R ROUNDED                      PS PACKSTONE

DW                      B SUBANG                      WS WACKESTONE

TURNED STRATA                      N SUBRND

## Sorting

DEFAULT

## Textures

LL CORE (LEFT)                      M MODERATE

LL CORE (RIGHT)                      BS BOUNDSTONE                      P POOR

C CHALKY                      W WELL

CRY                      CX CRYPTOXLN

E EARTHY

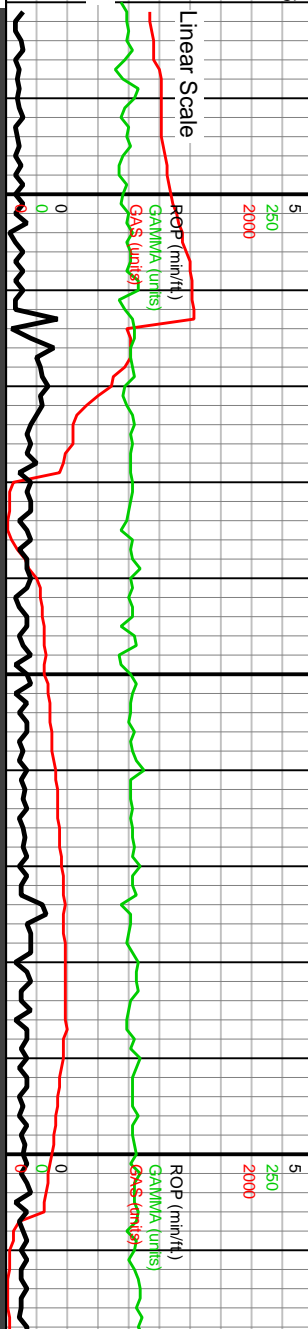
SAS

IE TESTED - LEFT                      FX FINELYXLN

IE TESTED - RT                      GS GRAINSTONE

ROP  
GAMMA  
GAS

Extraction O&G  
DT Martinez 3-5-6  
Weld County, Colorado  
Spud Date: 2-20-15  
Surface Casing @ 1,088'  
Intermediate Casing @ 7,954'  
2-man Logging / Geosteering Began: 2-24-15



Slide/Rotate

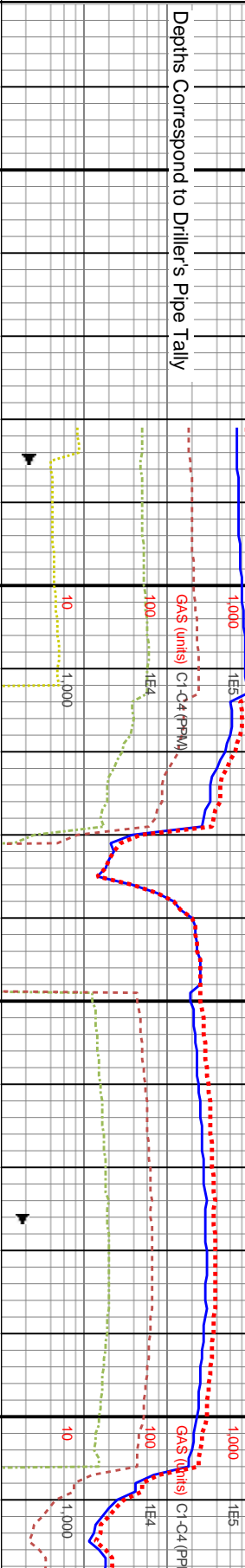
Depth Labels

100 units = 1% methane

Logarithmic Scale 1 - 10,000units

Total Gas & Chromatograph

GAS  
C1  
C2  
C3  
C4



Depths Correspond to Driller's Pipe Tally

WOB: 4.5Klbs  
Rotary: 50RPM  
Strokes: 187SPM  
Pump Rate: 620GPM

MD: 7,013'  
TVD: 6,411.84'  
Inclination: 24.03°  
Azimuth: 197.22°  
VS: 1,410.47'

Well Bore  
TVD

TVD (ft)

TVD (ft)

6980-7040 SS: pred med gy- dk gy, tr bf- offwht- gy, occ lt gy, tr clus w trnsi grs, pred blk- sb blk, occ sb plty, pred vf- f gmd ss, tr u f gmd ss clus, frm- hd cons clus, pred sb ang- sb rd grs, mod- p srt, ip arg- sil- cal cnt, tr pyr, occ inbd arg stst, abnt lith frags, occ f lam, tr lt gn cut

7040-7100 SS: pred med gy- dk gy, tr bf- offwht- gy, occ lt gy, tr clus w trnsi grs, pred blk- sb blk, occ sb plty, pred vf- f gmd ss, tr u f gmd ss clus, frm- hd cons clus, pred sb ang- sb rd grs, mod- p srt, ip arg- silty, sil- cal cnt, tr pyr, occ inbd arg stst, abnt lith frags, occ f lam, tr lt gn cut

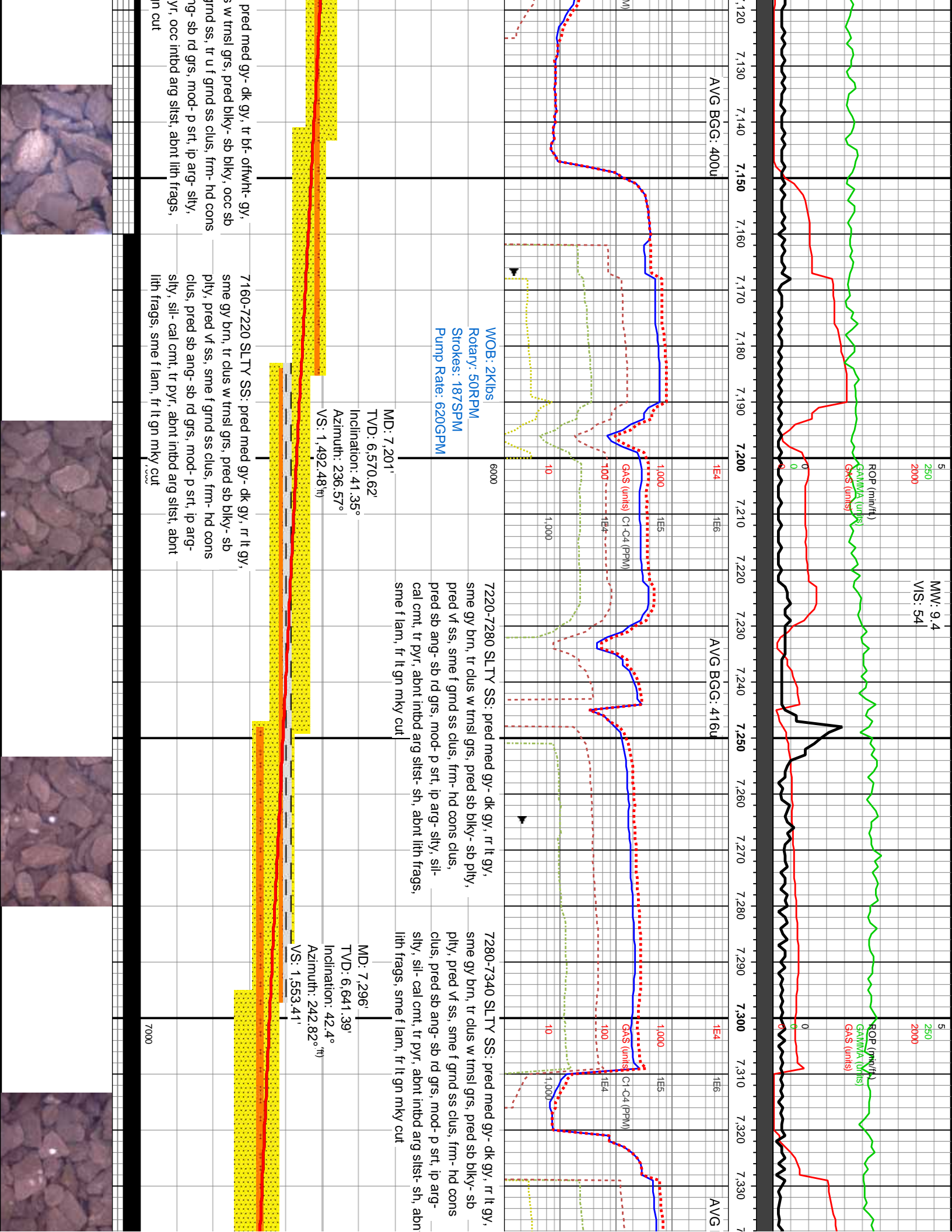
7100-7160 SS: occ lt gy, tr clus plty, pred vf- f g clus, pred sb ang- sil- cal cnt, tr p occ f lam, tr lt g

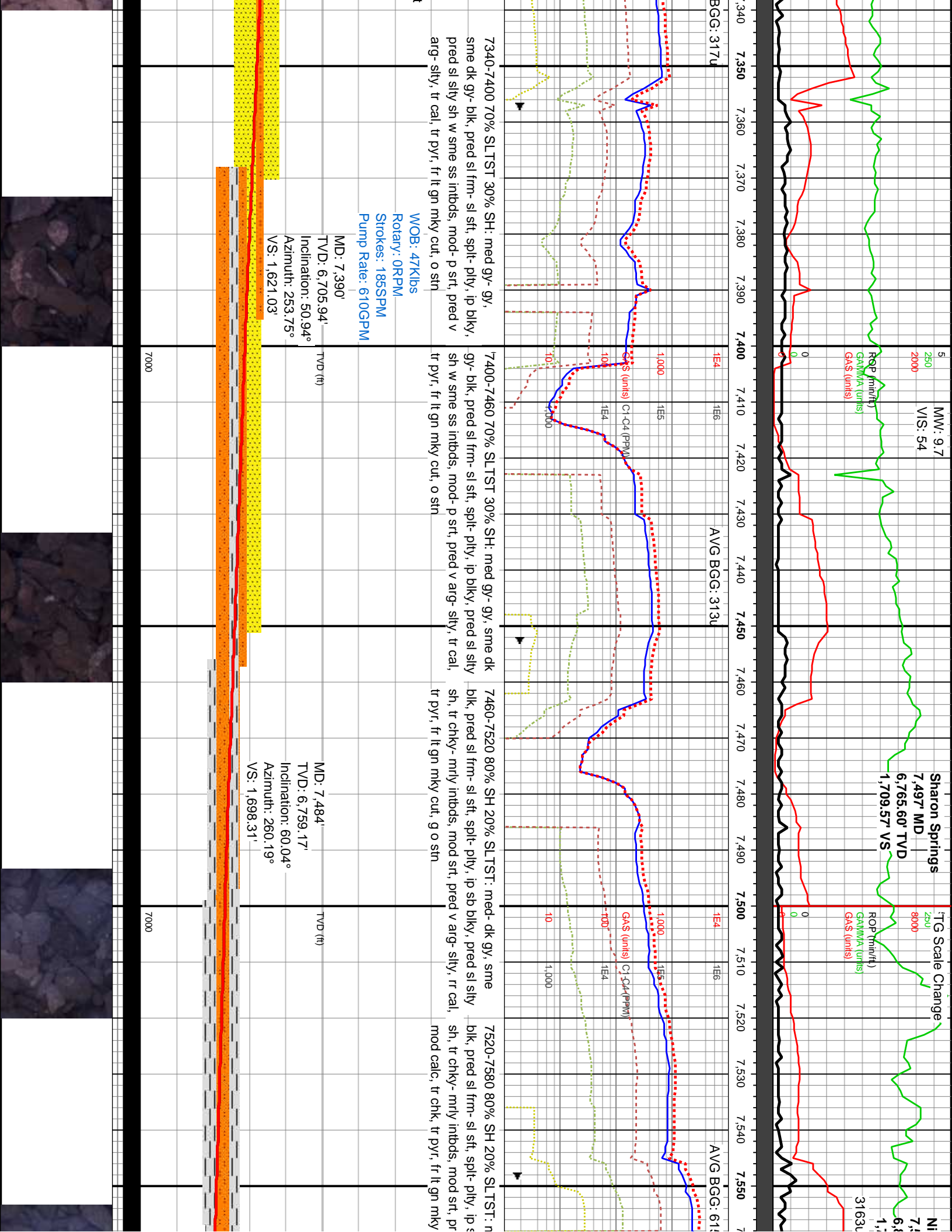
Oil Show

Fig 1

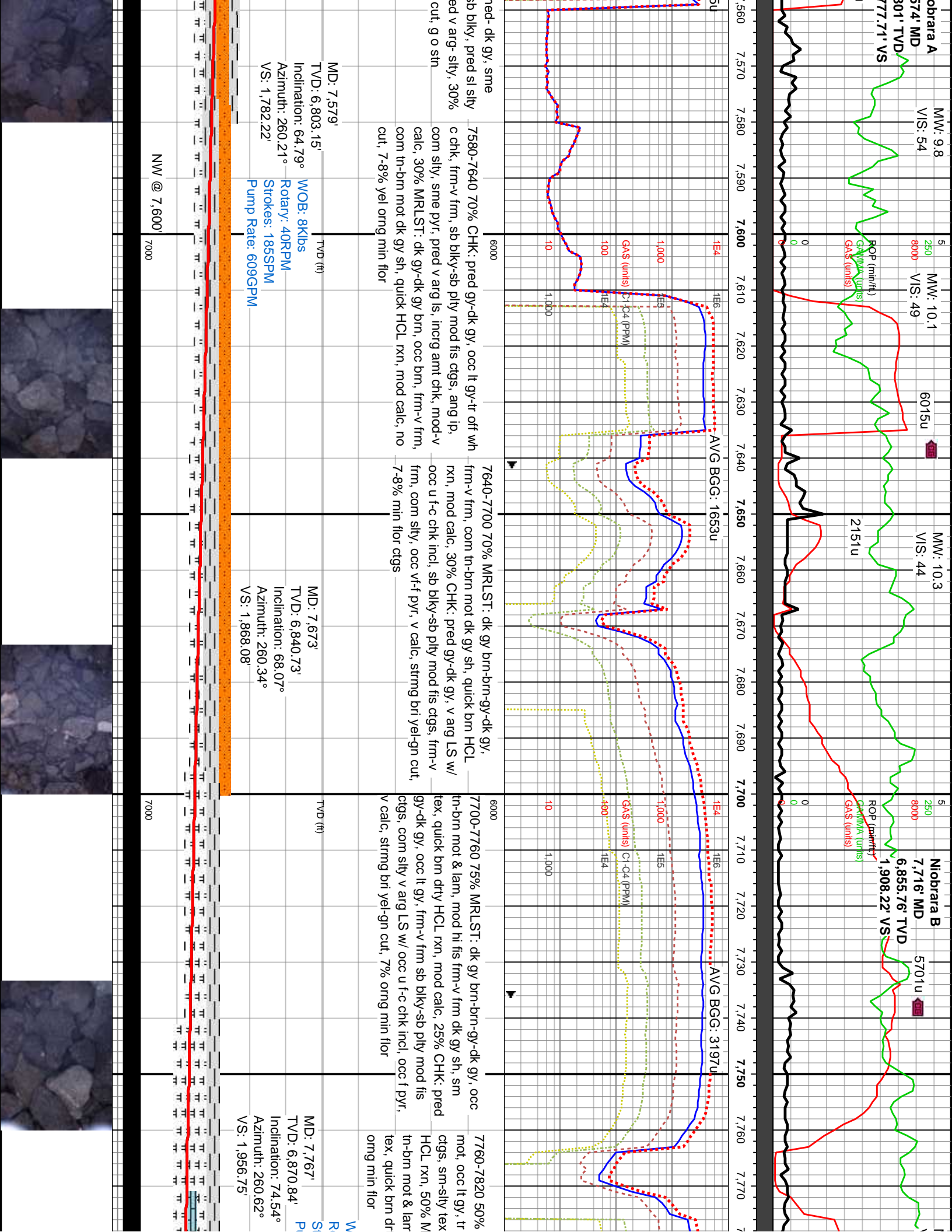


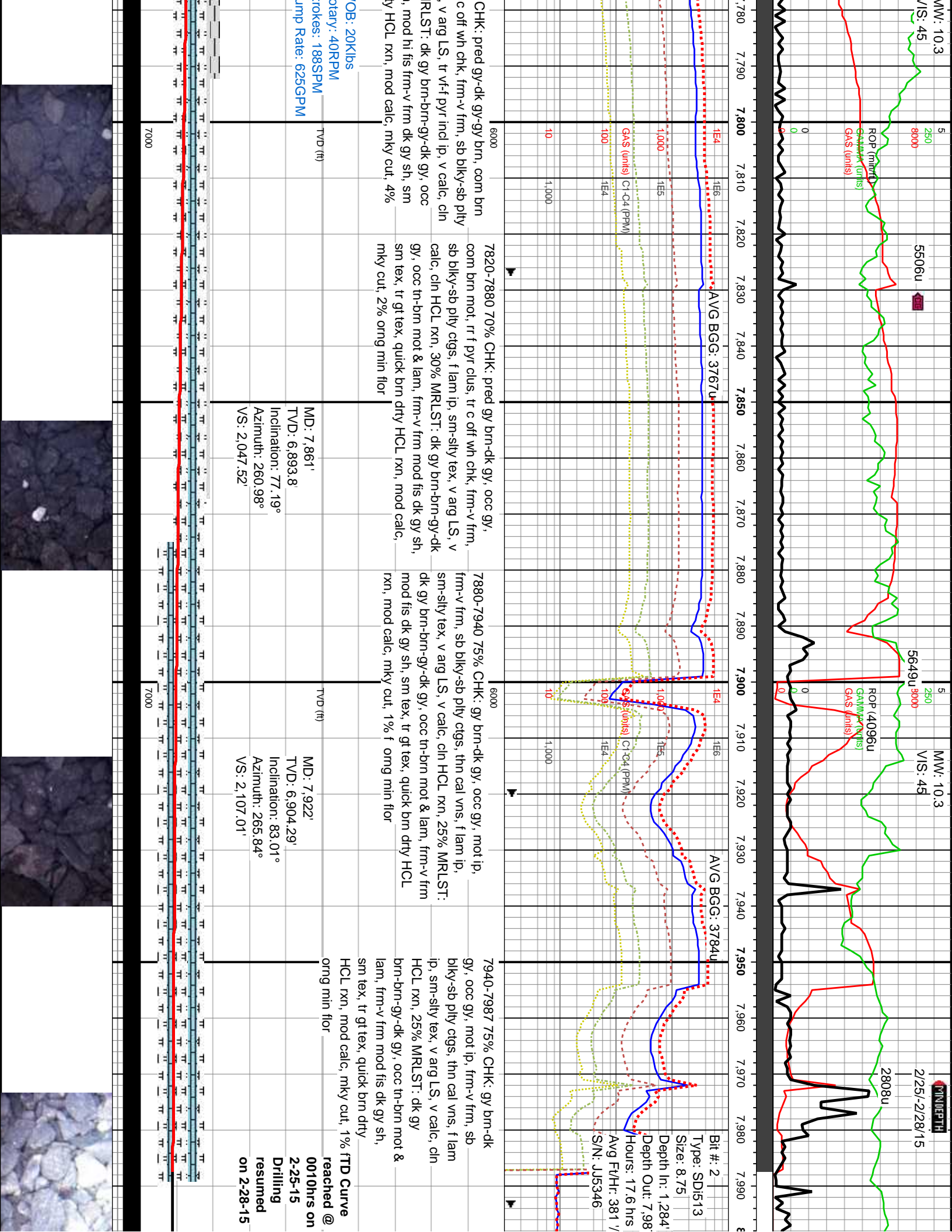
Images



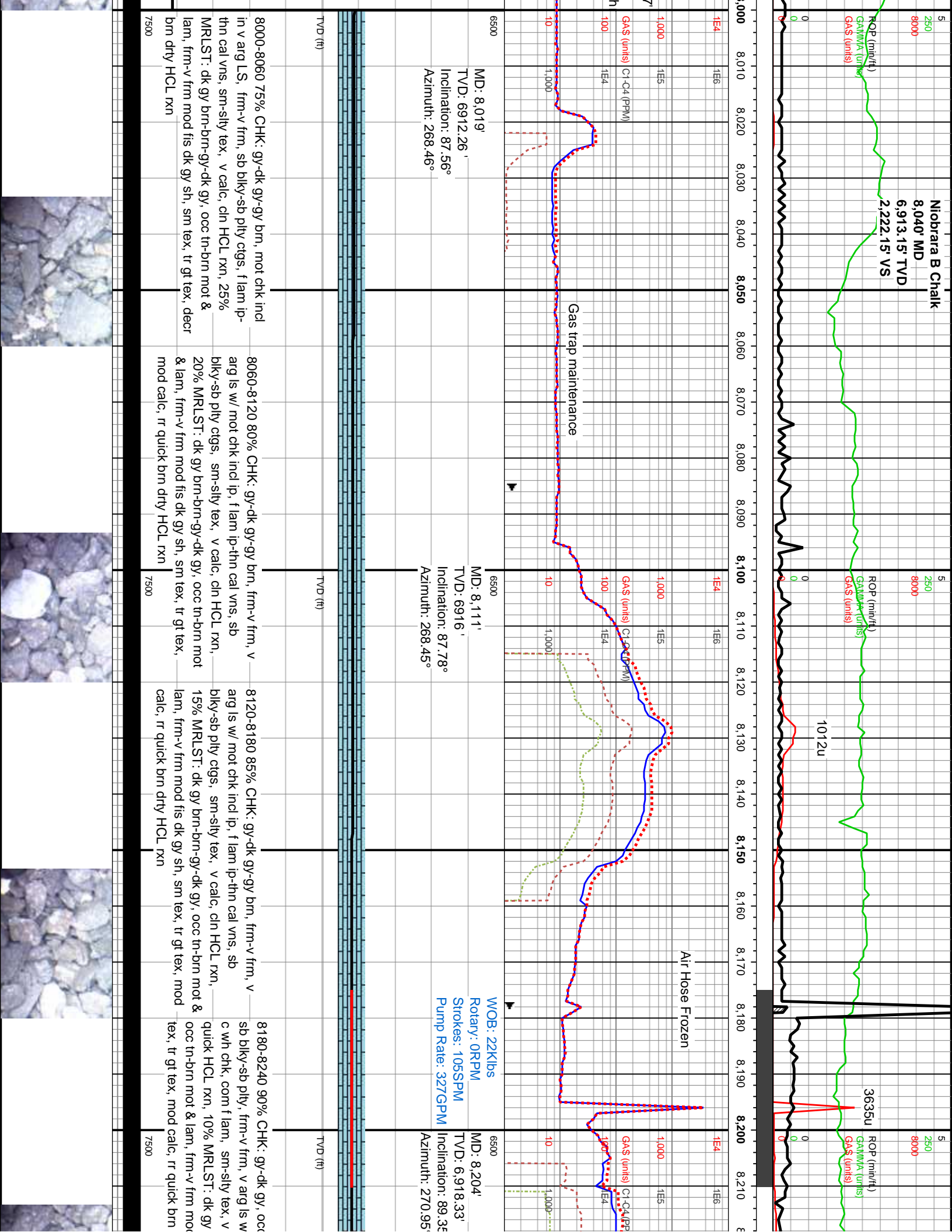




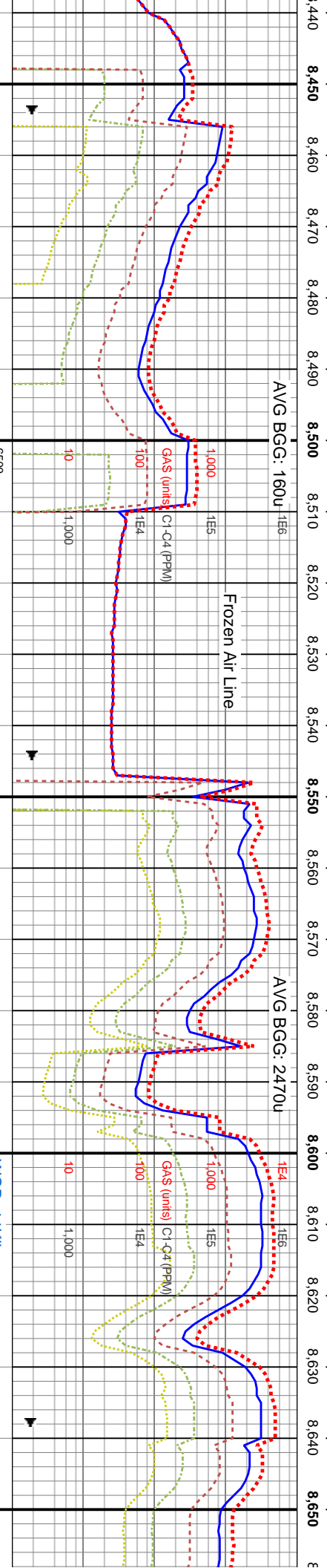
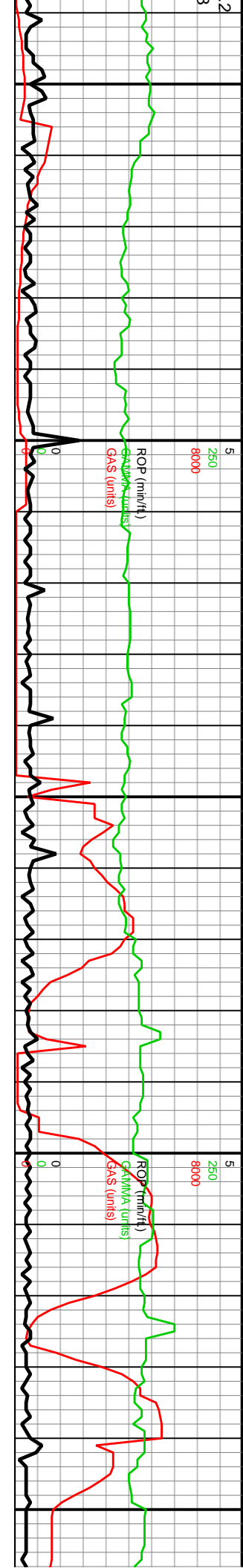












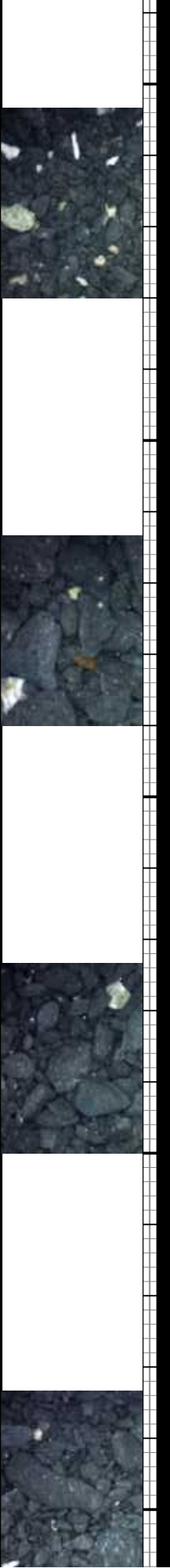
MD: 8,480'  
TVD: 6,917.77'  
Inclination: 90.55°  
Azimuth: 273.55°  
VS: 2,645.42'

MD: 8,573'  
TVD: 6,917.05'  
Inclination: 90.34°  
Azimuth: 273.38°  
VS: 2,733.94'

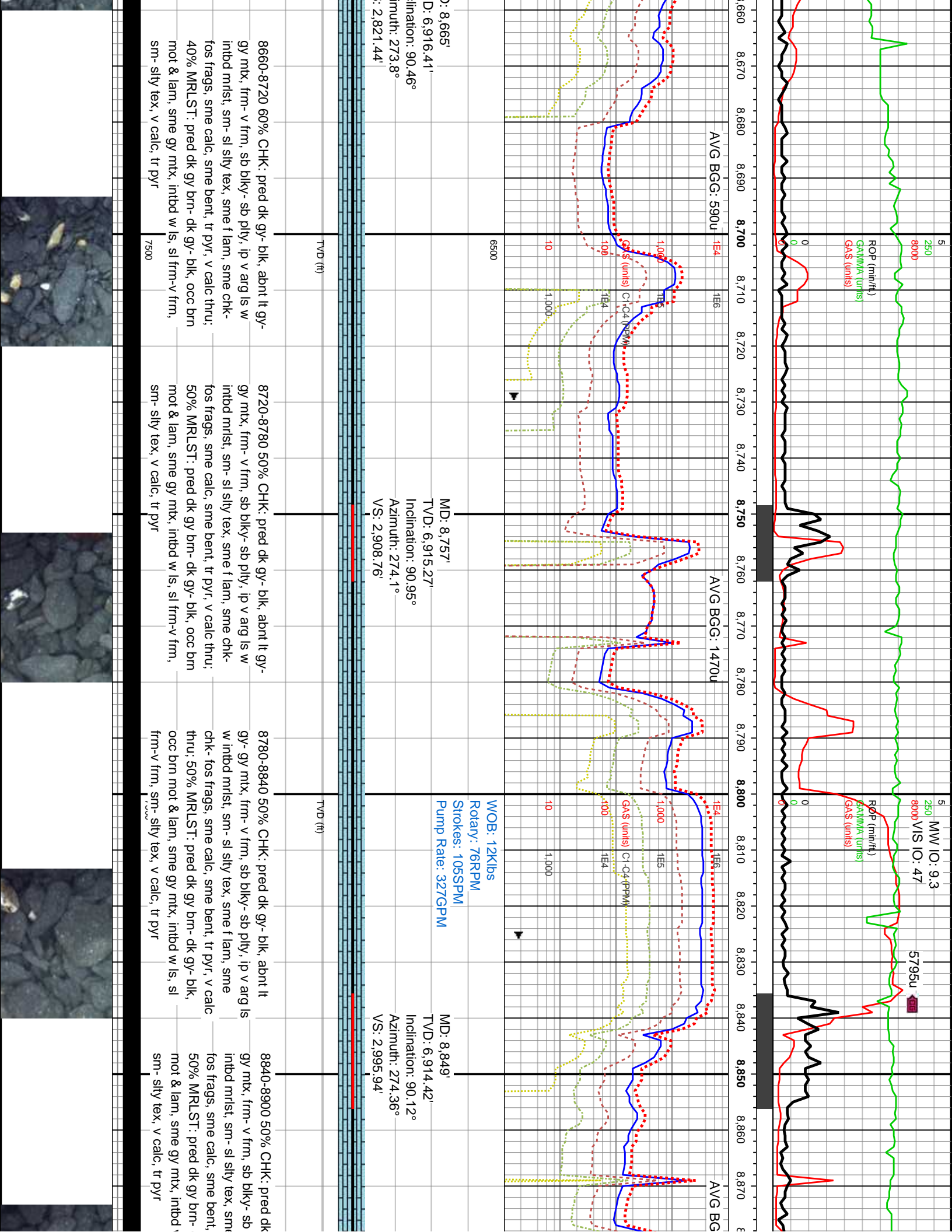
WOB: 11klbs  
Rotary: 71RPM  
Strokes: 105SPM  
Pump Rate: 327GPM

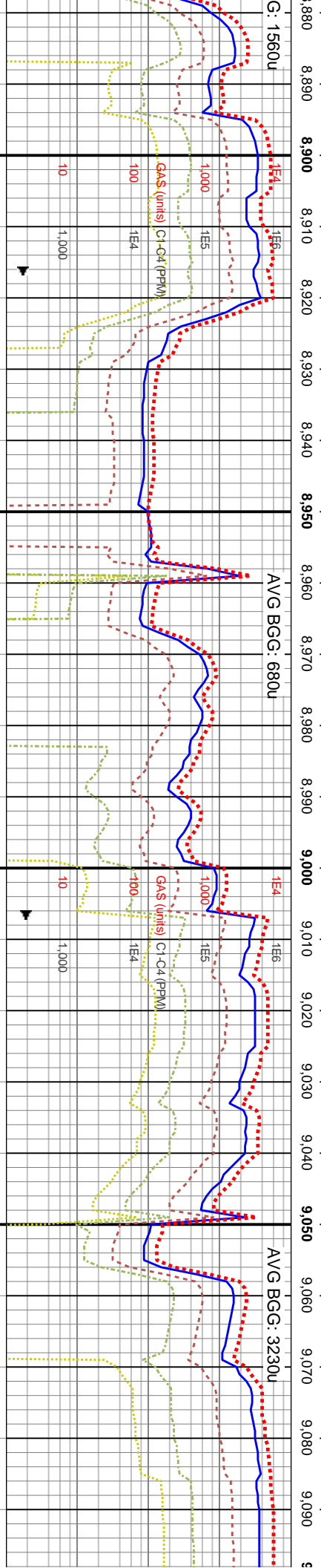
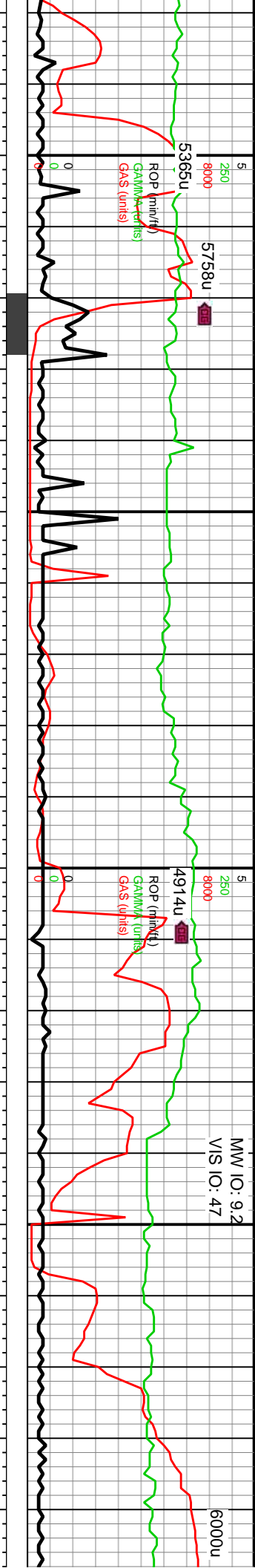
ME  
TV  
Inc  
Az  
VS

8480-8540 60% CHK: pred dk gy- blk, abnt lt gy- gy	8540-8600 60% CHK: pred dk gy- blk, abnt lt gy- gy	8600-8660 60% CHK: pred dk gy- blk, abnt lt gy- gy
frm- v frm, sb blk- sb pty, ip v arg ls w	gy mtx, frm- v frm, sb blk- sb pty, ip v arg ls w	gy mtx, frm- v frm, sb blk- sb pty, ip v arg ls w
sm- sl stly tex, sme f lam, abnt chk-	intbd mrlst, sm- sl stly tex, sme f lam, sme chk-	intbd mrlst, sm- sl stly tex, sme f lam, sme chk-
foss, sme calc, sme bent, tr pyr, v calc thru;	foss frags, sme calc, sme bent, tr pyr, v calc thru;	foss frags, sme calc, sme bent, tr pyr, v calc thru;
40% MRLST: pred dk gy brn- dk gy- blk, occ brn	40% MRLST: pred dk gy brn- dk gy- blk, occ brn	40% MRLST: pred dk gy brn- dk gy- blk, occ brn
mot & lam, sme gy mtx, intbd w ls, sl frm- v frm,	mot & lam, sme gy mtx, intbd w ls, sl frm- v frm,	mot & lam, sme gy mtx, intbd w ls, sl frm- v frm,
sm- stly tex, v calc, tr pyr	sm- stly tex, v calc, tr pyr	sm- stly tex, v calc, tr pyr







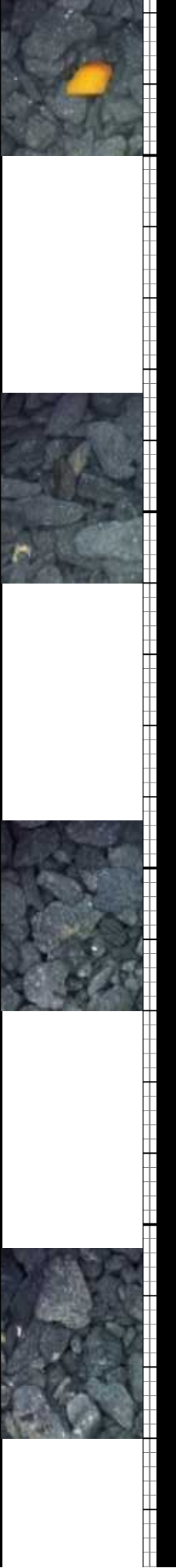


MD: 8.941'  
TVD: 6,915.03'  
Inclination: 89.11°  
Azimuth: 275.23°  
VS: 3,082.83'

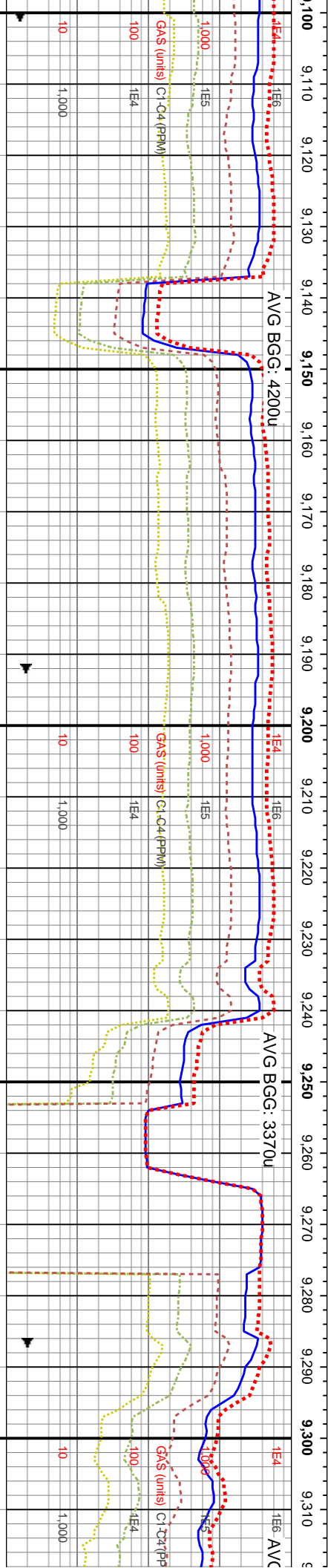
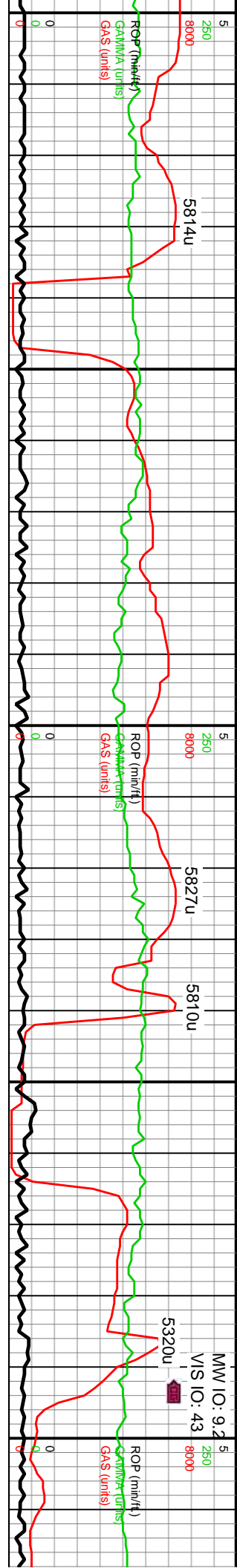
WOB: 8Klbs  
Rotary: 73RPM  
Strokes: 105SPM  
Pump Rate: 327GPM

MD: 9.034'  
TVD: 6,916.23'  
Inclination: 89.42°  
Azimuth: 275.63°  
VS: 3,170.31'

gy- blk, about lt gy- ply, ip v arg ls w a f lam, sme chk- tr pyr, v calc thru; dk gy- blk, occ brn w ls, sl frm-v frm,	8900-8960 50% CHK: pred dk gy- blk, about lt gy- gy mtx, frm- v frm, sb blk- sb ply, ip v arg ls w intbd mrlst, sm- sl silty tex, sme f lam, sme chk- fos frags, sme calc, sme bent, tr pyr, v calc thru; 50% MRLST: pred dk gy brn- dk gy- blk, occ brn mot & lam, sme gy mtx, intbd w ls, sl frm-v frm, sm- silty tex, v calc, tr pyr	8960-9020 70% CHK: pred med gy, ip dk gy- brn, sme blk, about lt gy- gy mtx, frm- v frm, sb blk- sb ply, ip v arg ls w sme intbd mrlst, sm- sl silty tex, sme f lam, sme chk- fos frags, sme calc, sme bent, tr pyr, v calc thru, tr mky gn cut; 30% MRLST: pred dk gy brn- dk gy- blk, occ brn mot & lam, sme gy mtx, intbd w ls, sl frm-v frm, sm- silty tex, v calc, tr pyr	9020-9080 70% CHK: pred med gy, ip dk gy- brn, sme blk, about lt gy- gy mtx, frm- v frm, sb blk- sb ply, ip v arg ls w sme intbd mrlst, sm- sl silty tex, sme f lam, sme chk- fos frags, sme calc, sme bent, tr pyr, v calc thru, tr mky gn cut; 30% MRLST: pred dk gy brn- dk gy- blk, occ brn mot & lam, sme gy mtx, intbd w ls, sl frm-v frm, sm- silty tex, v calc, tr pyr	9080-9140 sme blk, ab ply, ip v arg ls, sme f lam, sme bent, tr pyr, pred dk gy blk, sme gy mtx calc, tr pyr
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MD: 9.126'  
TVD: 6,917.09'  
Inclination: 89.51°  
Azimuth: 275.85°  
VS: 3,256.69'

WOB: 3klbs  
Rotary: 71RPM  
Strokes: 105SPM  
Pump Rate: 327GPM

MD: 9.218'  
TVD: 6,917.78'  
Inclination: 89.63°  
Azimuth: 276.07°  
VS: 3,342.94'

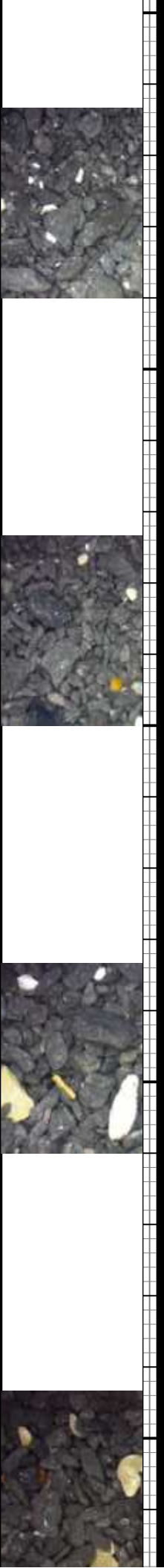
MD: 9.310'  
TVD: 6,918.12'  
Inclination: 89.94°  
Azimuth: 276.15°  
VS: 3,429.12'

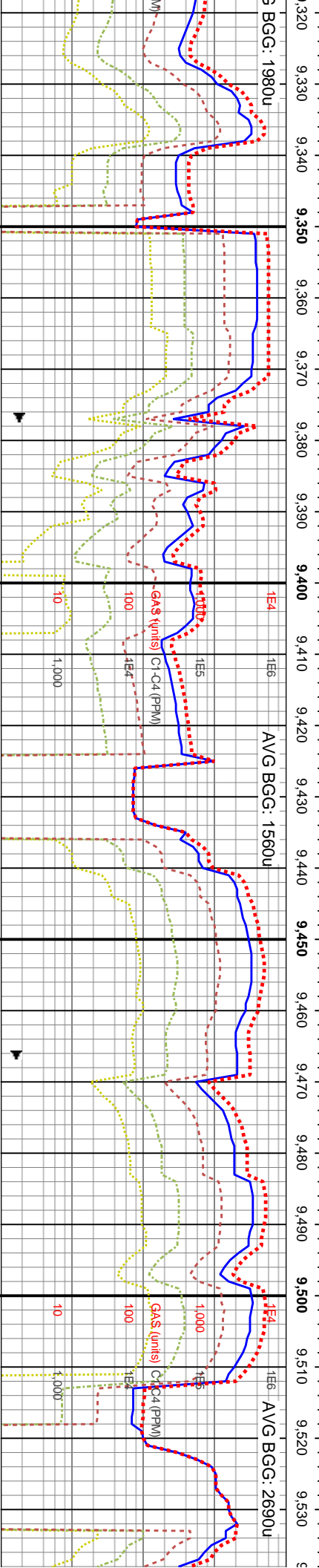
70% CHK: pred med gy, ip dk gy- brn, int lt gy- gy mtx, frm- v frm, sb blk- sb blk- w sme intbd mrlst, sm- sl silty tex, sme chk- fos frags, sme calc, sme calc thru, fr gn cut stn; 30% MRLST: pred dk gy- blk, occ brn mot & lam, intbd w ls, sl frm- v frm, sm- silty tex, v sl frm- v frm, sm- silty tex, v calc, tr pyr

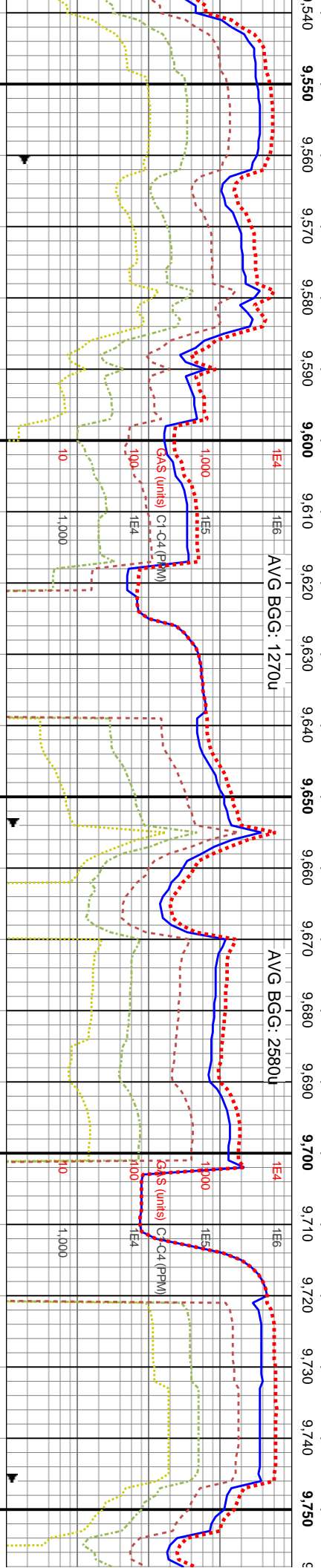
9140-9200 70% CHK: pred med gy, ip dk gy- brn, sme blk, abnt lt gy- gy mtx, frm- v frm, sb blk- sb blk, ip v arg ls w sme intbd mrlst, sm- sl silty tex, sme f lam, sme chk- fos frags, sme calc, sme bent, tr pyr, v calc thru, fr gn cut stn; 30% MRLST: pred dk gy- blk, occ brn mot & lam, sme gy mtx, intbd w ls, sl frm- v frm, sm- silty tex, v calc, tr pyr

9200-9260 70% CHK: pred med gy, ip dk gy- brn, sme blk, abnt lt gy- gy mtx, frm- v frm, sb blk- sb blk, ip v arg ls w sme intbd mrlst, sm- sl silty tex, sme f lam, sme chk- fos frags, sme calc, sme bent, tr pyr, v calc thru, fr gn cut stn; 30% MRLST: pred dk gy- blk, occ brn mot & lam, sme gy mtx, intbd w ls, sl frm- v frm, sm- silty tex, v calc, tr pyr

9260-9320 70% CHK: pred med gy, ip dk gy- brn, sme blk, abnt lt gy- gy mtx, frm- v frm, sb blk- sb blk, ip v arg ls w sme intbd mrlst, sm- sl silty tex, sme f lam, sme chk- fos frags, sme calc, sme bent, tr pyr, v calc thru, fr gn cut stn; 30% MRLST: pred dk gy- blk, occ brn mot & lam, sme gy mtx, intbd w ls, sl frm- v frm, sm- silty tex, v calc, tr pyr

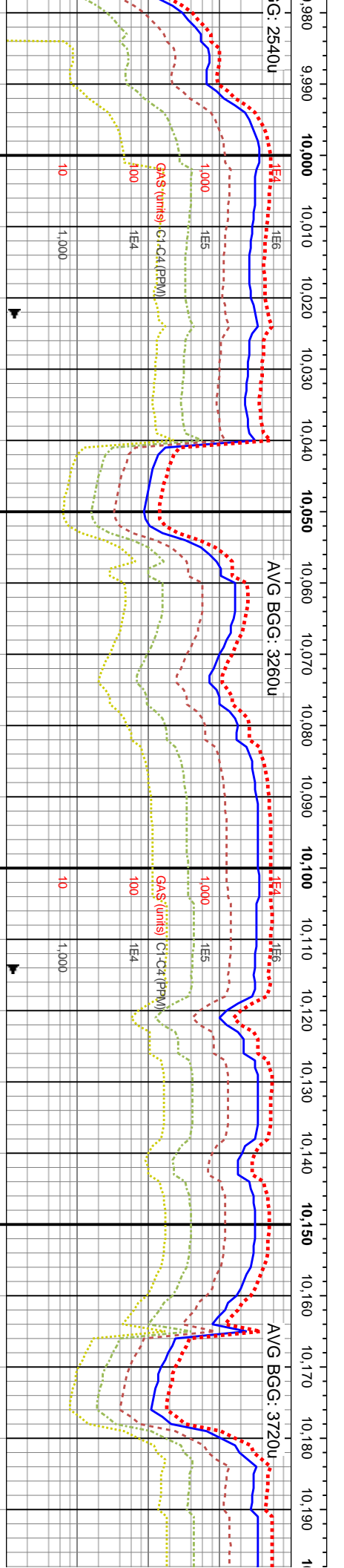






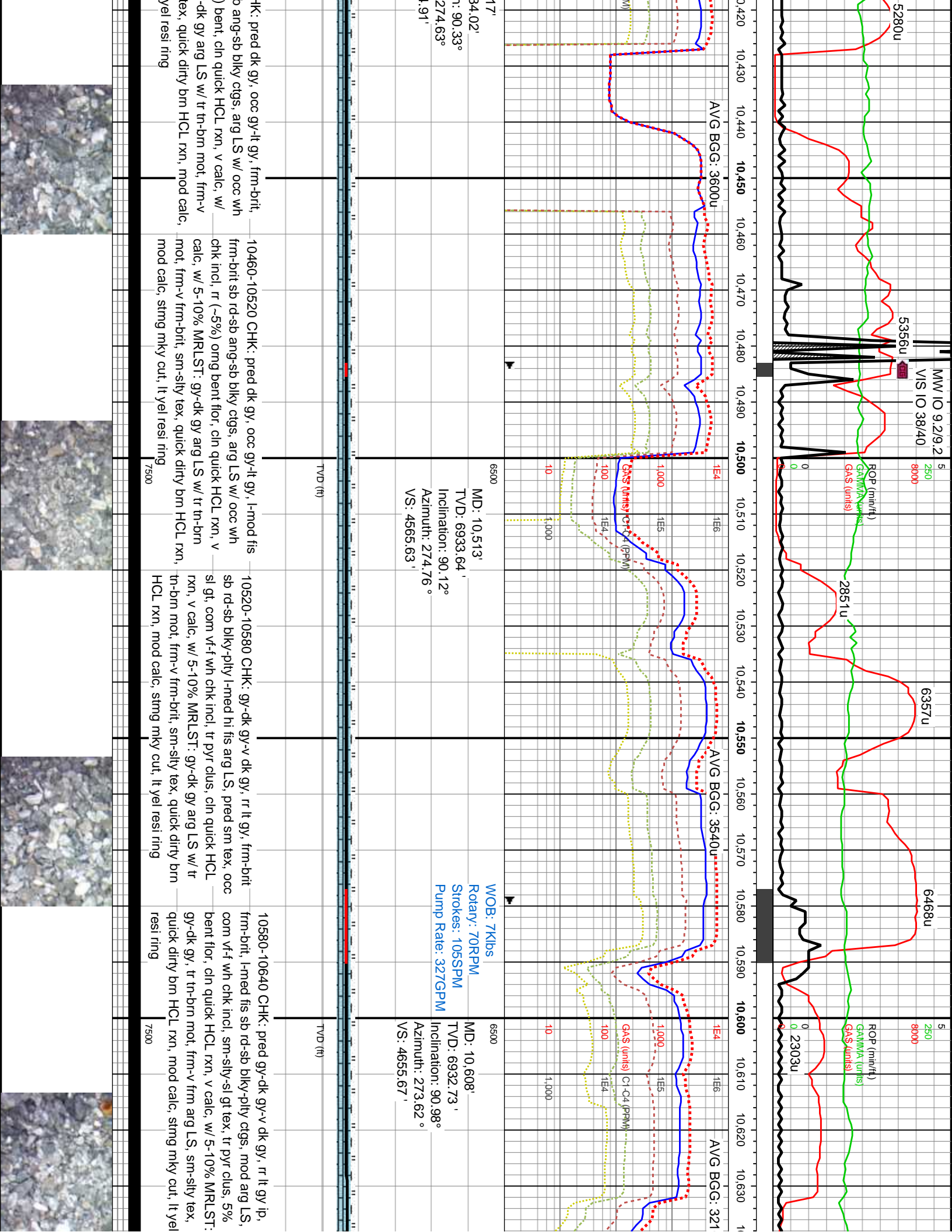


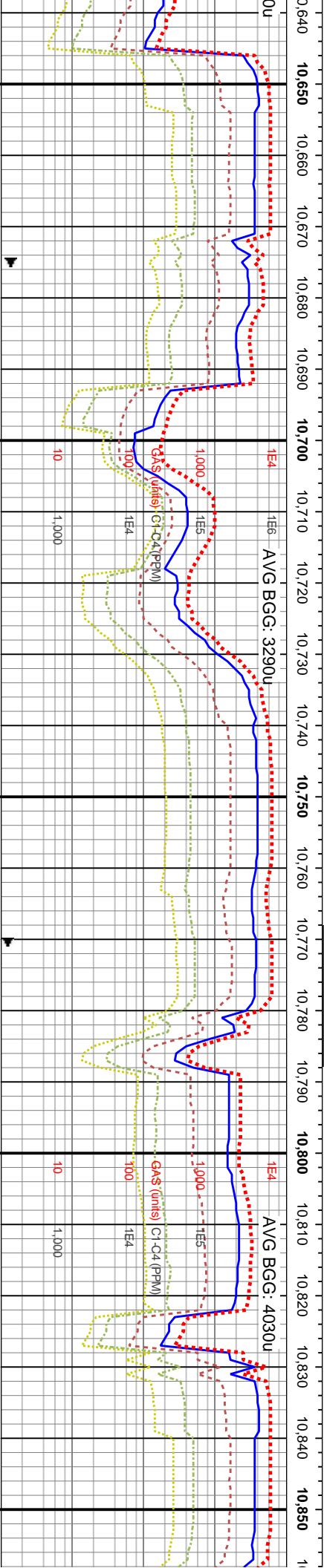
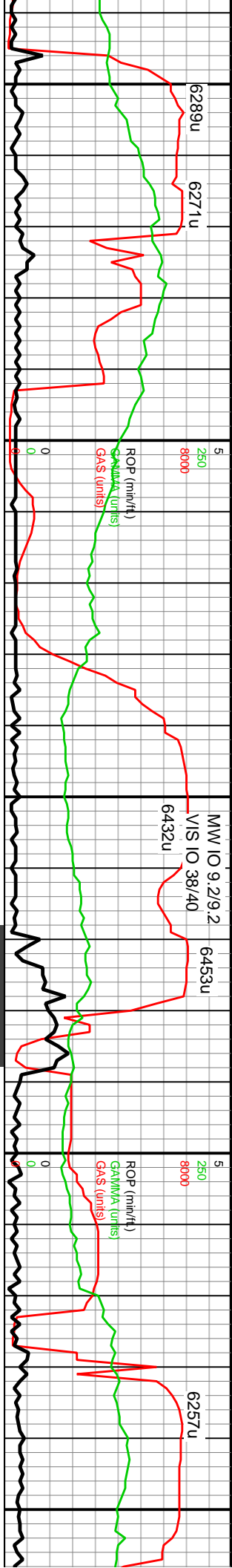












MD: 10,704'  
TVD: 6930.75'  
Inclination: 91.38°  
Azimuth: 273.97°  
VS: 4746.86'

WOB: 12Klbs  
Rotary: 65RPM  
Strokes: 105SPM  
Pump Rate: 328GPM

MD: 10,800'  
TVD: 6928.77'  
Inclination: 90.98°  
Azimuth: 273.28°  
VS: 4838.13'

10640-10700 CHK: pred dk gy-v dk gy, rr gy-lt gy, frm, brit, mod fis sb rd-sb blk-pty ip, v arg LS, thn lam, sm-sly-sl gt tex, com v-f wh chk incl, rr c free chk, 5% bent flr, cin quick HCL rxn, v calc, w/ 5-10% MRLST: gy-dk gy, tr tn-brn mot, dirty brn HCL rxn, mod calc, stmg mky cut, lt yel resi ring

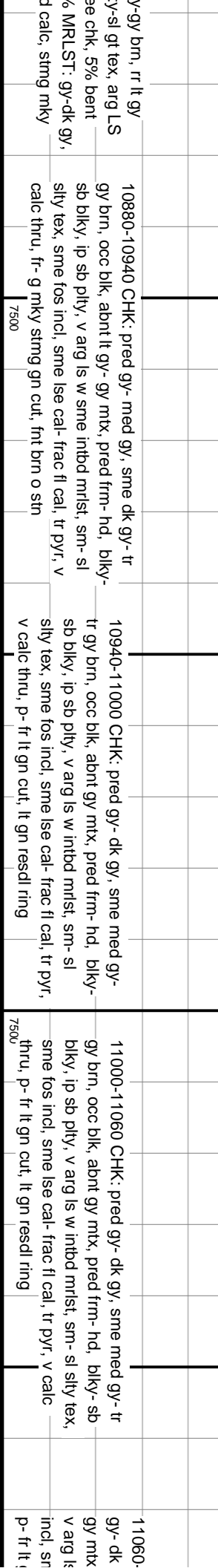
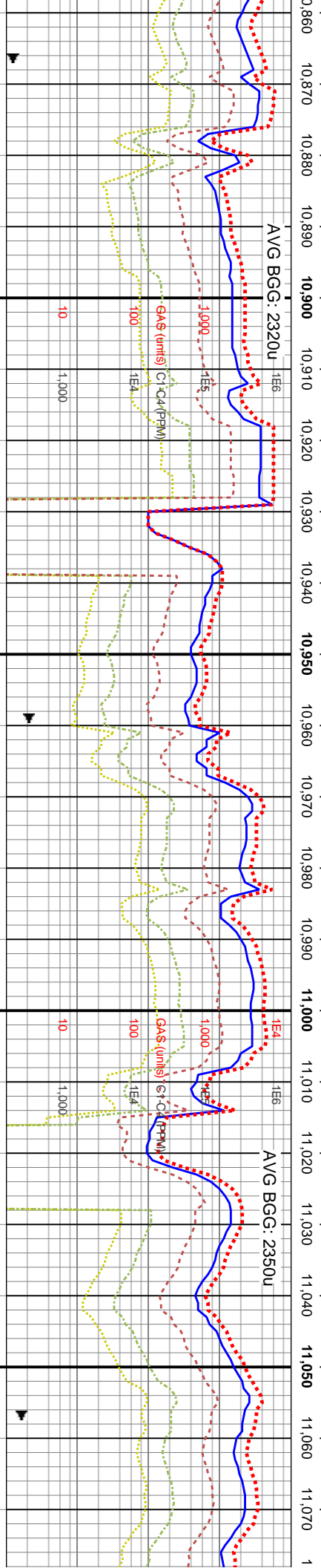
10700-10760 CHK: pre dk gy-v dk gy, occ gy-lt gy, frm, brit, mod fis, thn lam, sm-sly-sl gt tex, arg LS w/ com v-f wh chk incl, rr c free chk, 5% bent flr, cin quick HCL rxn, v calc, w/ 5-10% MRLST: gy-dk gy, tn-brn incl ip, dirty brn HCL rxn, mod calc, stmg mky cut, lt yel resi ring

10760-10820 CHK: gy-dk gy-v dk gy-gy brn, rr lt gy intbds, frm, brit, mod fis, thn lam, sly-sl gt tex, arg LS intbds w/ f wh chk incl & lam, rr c free chk, 5% bent flr, cin quick HCL rxn, v calc, w/ 5% MRLST: gy-dk gy, tn-brn incl ip, dirty brn HCL rxn, mod calc, stmg mky cut, lt yel resi ring

10820-10880 CHK: gy-dk gy-v dk g intbds, frm, brit, mod fis, thn lam, sly-sl gt tex, arg LS intbds w/ f wh chk incl & lam, rr c free chk, 5% bent flr, cin quick HCL rxn, v calc, w/ 5% MRLST: gy-dk gy, tn-brn incl ip, dirty brn HCL rxn, mod calc, stmg mky cut, lt yel resi ring







11060	gy-dk gy-mtx v arg ls incl, sn p-fr lt		11000-11060 CHK: pred gy-dk gy, sme med gy-tr gy brn, occ blk, about gy mtx, pred frm-hd, bly-sb bly, ip sb pty, v arg ls w intbd mrst, sm-sl stly tex, sme fos incl, sme ise cal-frc fl cal, tr pyr, v calc thru, p-fr lt gn cut, lt gn resdl ring	7500
			10940-11000 CHK: pred gy-dk gy, sme med gy- tr gy brn, occ blk, about gy mtx, pred frm-hd, bly-sb bly, ip sb pty, v arg ls w intbd mrst, sm-sl stly tex, sme fos incl, sme ise cal-frc fl cal, tr pyr, v calc thru, p-fr lt gn cut, lt gn resdl ring	7500
			10880-10940 CHK: pred gy-med gy, sme dk gy-tr gy brn, occ blk, about lt gy-gy mtx, pred frm-hd, bly-sb bly, ip sb pty, v arg ls w sme intbd mrst, sm-sl stly tex, sme fos incl, sme ise cal-frc fl cal, tr pyr, v calc thru, fr-g mky stmng gn cut, fnt brn o str	7500

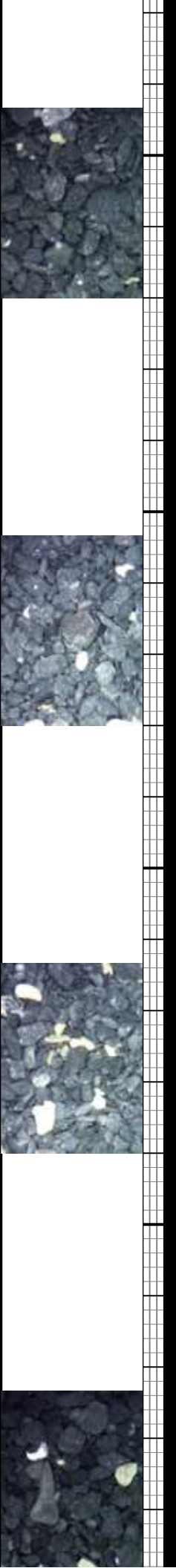
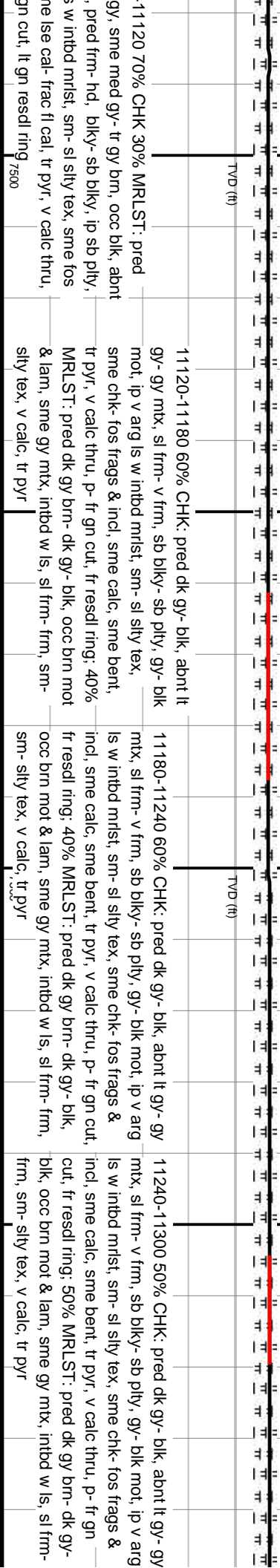
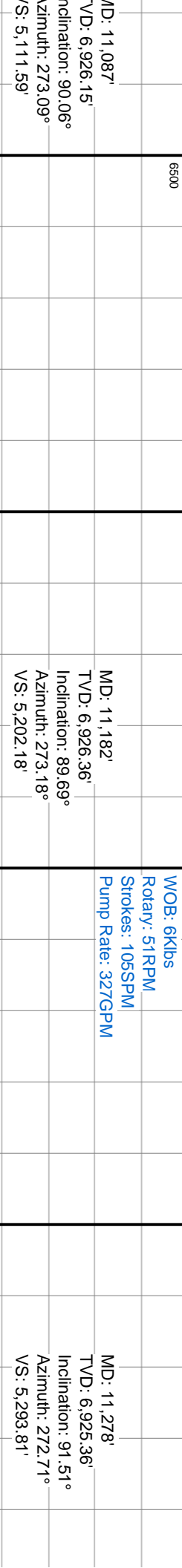
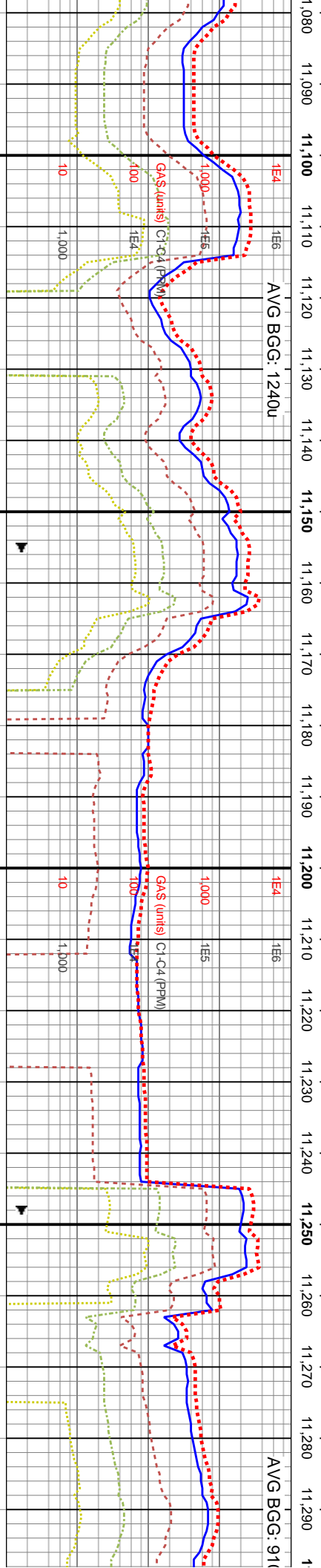
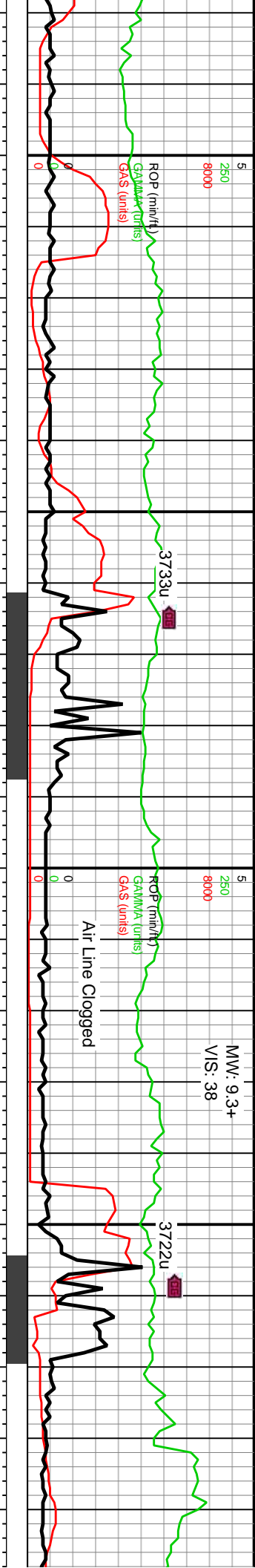
10880-10940 CHK: pred gy- med gy- sme dk gy- tr  
gy brn, occ blk, about lt gy- gy mtz, pred frm- hd, blk-  
sb blkly, ip sb plty, v arg ls w sme inbd mnst, sm- sl  
sity tex, sme fcs incl, sme ise cal- frac fl cal, tr pyr, v  
calc thru, fr- g mky stmg gn cut, fnt brn o stn

10940-11000 CHK. pred gy- dk gy, sme med gy-  
tr gy brn, occ blk, abnt gy mtx, pred frm- hd, blk-  
sb blk, ip sb ply, v aig ls w inbpd mntst, sm- sl  
sly tex, sme fos incl, sme lse cal- trac fl cal, tr pyr,  
v calc thru, p- fr lt gn cut, lt gn resd ring

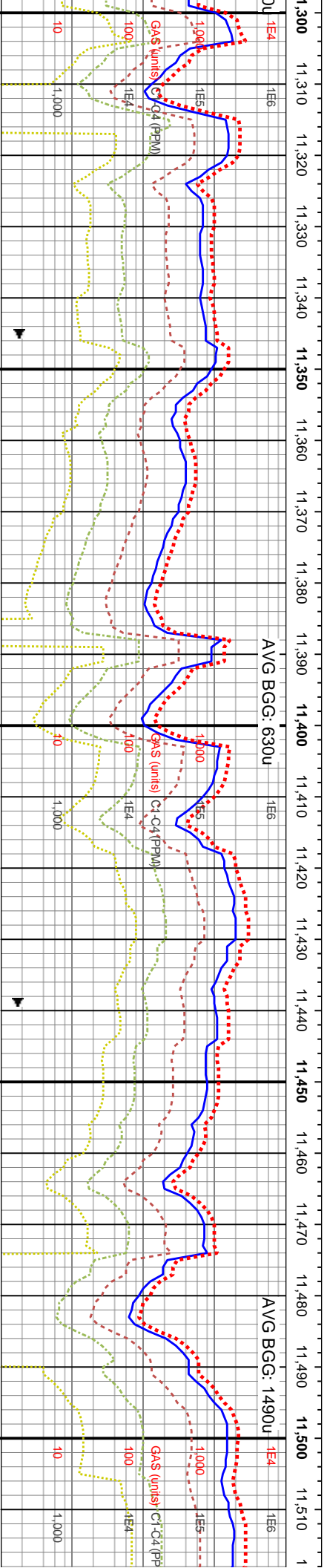
11000-11060 CHK: pred gy- dk gy, sme med gy- tr  
gy brn, occ blk, abnt gy mtx, pred frm- hd, blk- sb  
blk, ip sb pty, v arg is w intbd mrst, sm- sl stly tex,  
sme fos incl, sme lse cal- frac fl cal, tr pyr, v calc  
thru, p- fr it gn cut, it gn resd ring

11060-  
gy-dk  
gy mtx  
v arg l  
incl, sn  
p-fr lt q







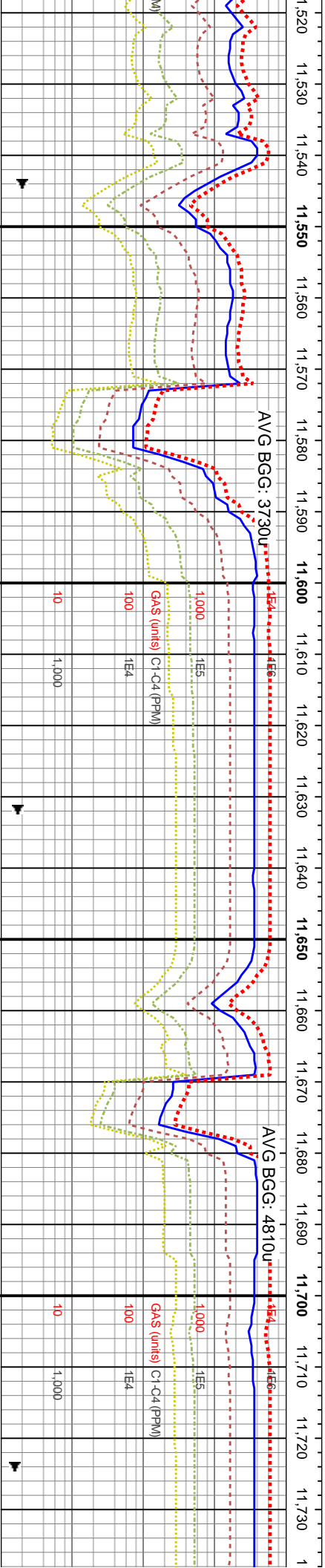
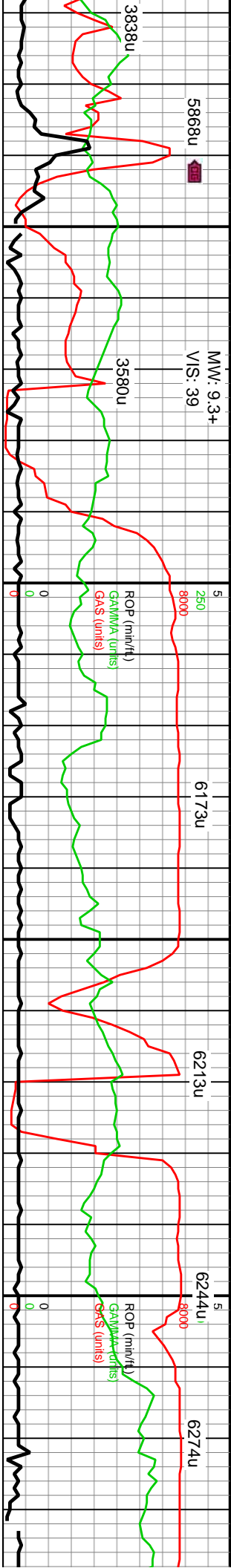


WOB: 12Klbs	
Rotary: 55RPM	
Strokes: 105SPM	
Pump Rate: 327GPM	

AVG BGG: 1490u



11480-11540 CHK: pre  
brn, sme mot, abnt lt g  
frm, sb blkly- sb pily, ip  
mrlist, sm- sl stly tex, s  
sme calc, tr pyr, v calc  
lt brn o stn  
7500



WOB: 9Klbs  
Rotary: 51RPM  
Strokes: 105SPM  
Pump Rate: 327GPM

MD: 11,566'  
TVD: 6,917.71'  
Inclination: 90.86°  
Azimuth: 273.02°  
VS: 5,569.05'

MD: 11,661'  
TVD: 6,915.95'  
Inclination: 91.26°  
Azimuth: 273.22°  
VS: 5,659.63'

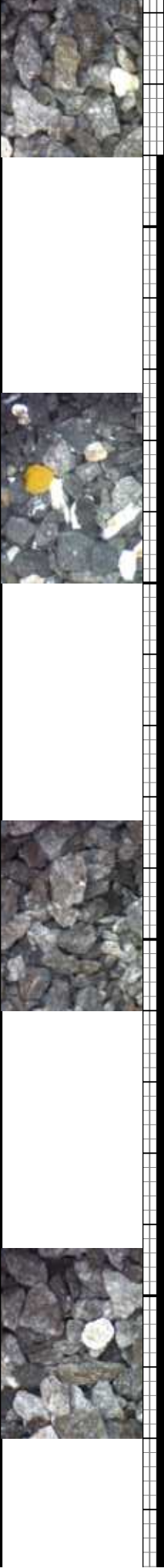
med gy, ip med gy-  
- gy mtx, frm- v  
v arg ls w rr intbd  
ne chk- fos frags,  
thru, fr mky gn cut,

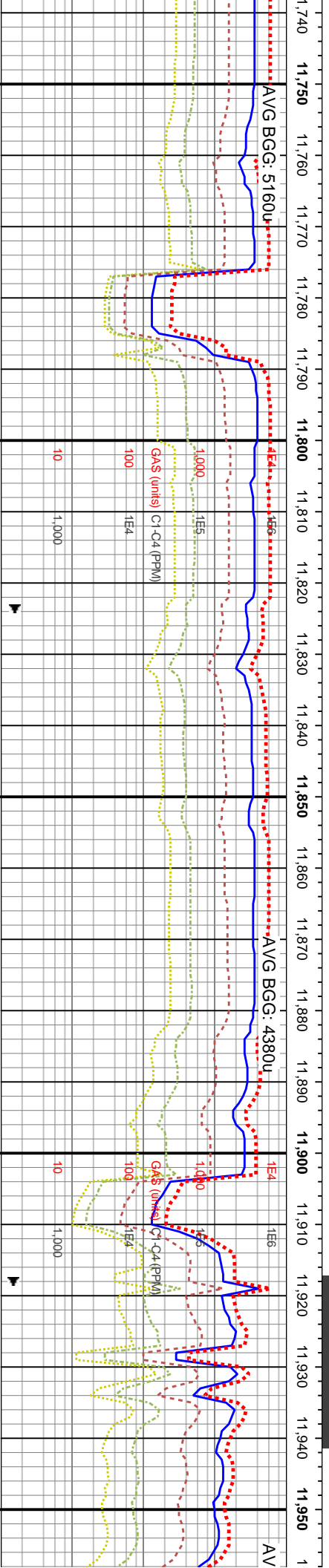
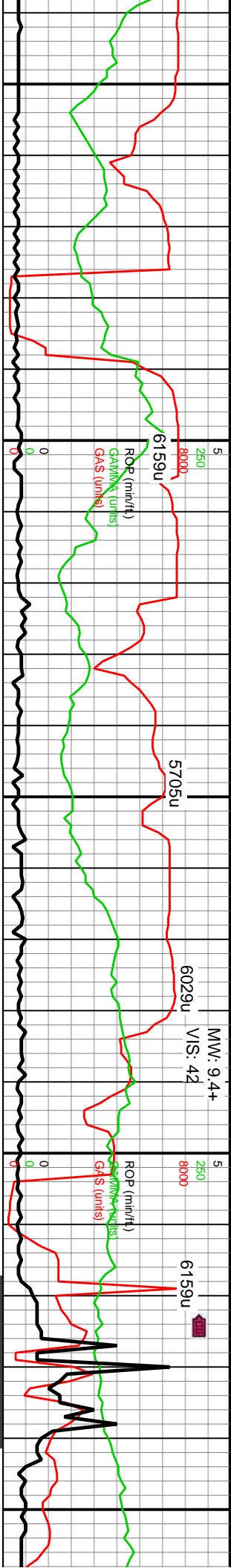
11540-11600 CHK: pred gy, ip med gy-  
brn, sme mot, abnt lt gy- gy mtx, frm- v  
frm, sb bky- sb ply, ip v arg ls w rr intbd  
mrst, sm- sl sily tex, sme chk- fos  
frags, sme calc, tr pyr, v calc thru, fr mky  
gn cut, lt brn o stn

11600-11660 CHK: pred gy, ip med gy- brn,  
sme mot, abnt lt gy- gy mtx, frm- v frm, sb bky-  
sb ply, ip v arg ls w rr intbd mrst, sm- sl sily  
tex, sme chk- fos frags, sme calc, tr pyr, v calc  
thru, fr mky gn cut, lt brn o stn

11660-11720 CHK: pred gy, ip med gy- brn,  
sme mot, abnt lt gy- gy mtx, frm- v frm, sb  
bky- sb ply, ip v arg ls w rr intbd mrst, sm-  
sl sily tex, sme chk- fos frags, sme calc, tr  
pyr, v calc thru, fr mky gn cut, lt brn o stn

11720-11780  
dk gy, sme  
bky- sb ply  
sily tex, rr c  
thru, fr mky





MD: 11,757'  
TVD: 6,913.6'  
Inclination: 91.54°  
Azimuth: 273.24°  
VS: 5,751.1'

WOB: 12Klbs  
Rotary: 54RPM  
Strokes: 105SPM  
Pump Rate: 327GPM

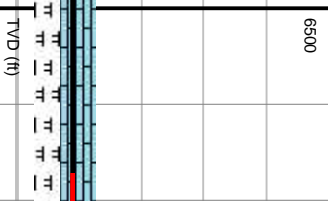


MD: 11,853'  
TVD: 6,910.85'  
Inclination: 91.75°  
Azimuth: 273.51°  
VS: 5,842.69'

NW @ 11,840'



MD: 11,949'  
TVD: 6,908.48'  
Inclination: 91.08°  
Azimuth: 273.68°  
VS: 5,933.97'



11740-11750 CHK: pred gy, ip med gy- brn, sme mot, abnt lt gy- gy mix, frm- v frm, sb , ip v arg ls w occ intbd mlst, sm- sl chk- fos frags, sme calc, tr pyr, v calc gn cut, lt brn o strn

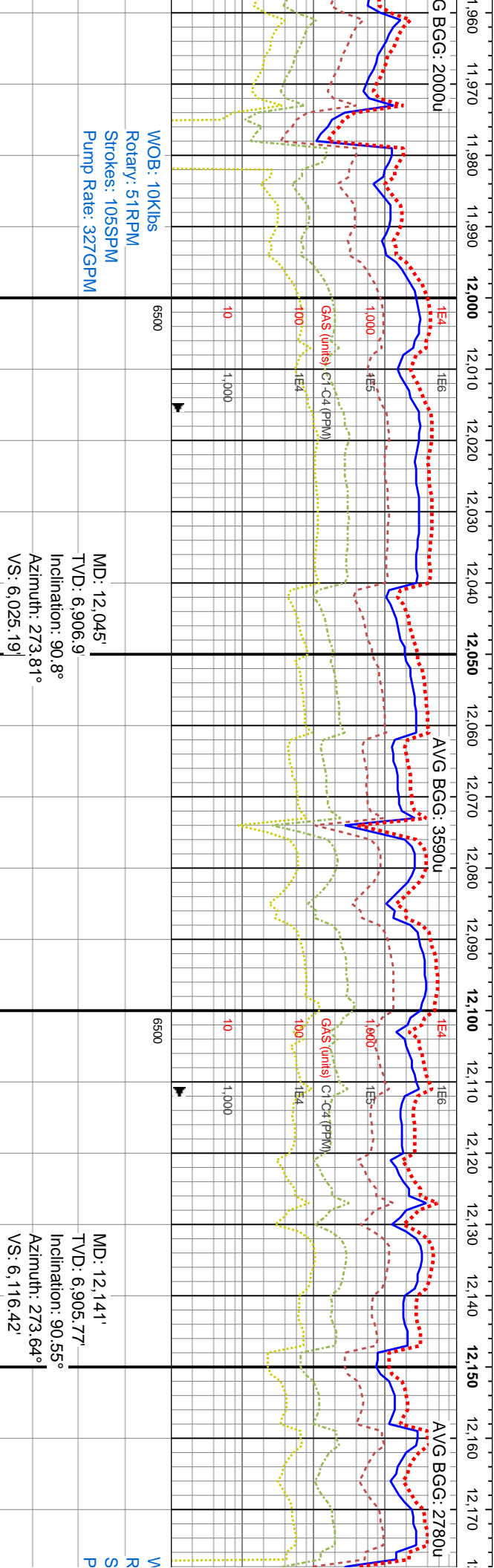
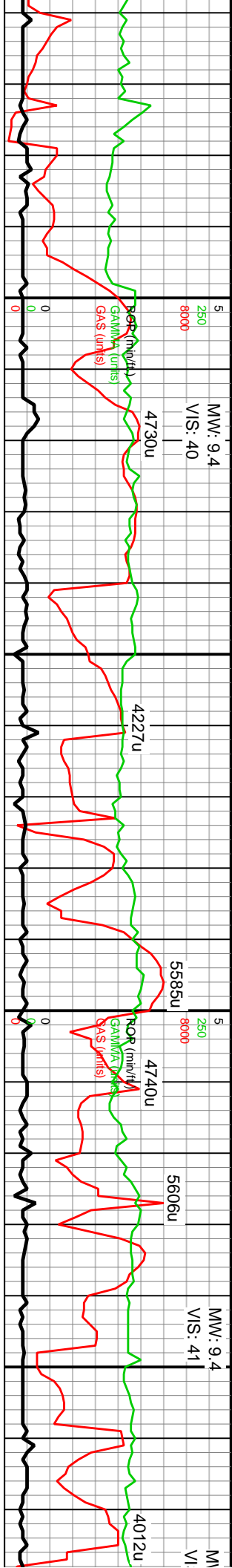
11780-11840 CHK: pred gy, ip med gy- brn, sme dk gy, sme mot, abnt lt gy- gy mix, frm- v frm, sb bly- sb ply, ip v arg ls w occ intbd mlst, sm- sl silty tex, rr chk- fos frags, sme calc, tr pyr, v calc thru, fr mky gn cut, lt brn o strn

11840-11900 CHK: dk gy, occ gy-lt gy- gy brn intbds, frm, brit, mod fis sb bly- sb ply cigs, thn lam, silty- sl gt tex, v arg LS intbds w/ f wh chk incl & lam, rr c free chk, 5% bent flr, cin quick HCL rxn, v calc, w/ v tr MRLST, sting cut, lt yel resi ring

11900-11960 CHK: dk gy, occ gy-lt gy- gy brn intbds, frm, brit, mod fis sb bly- sb ply cigs, thn lam, silty- sl gt tex, v arg LS intbds w/ f wh chk incl & lam, rr c free chk, 5% bent frags & flr, cin quick HCL rxn, v calc, w/ v tr MRLST, sting cut, lt yel resi ring





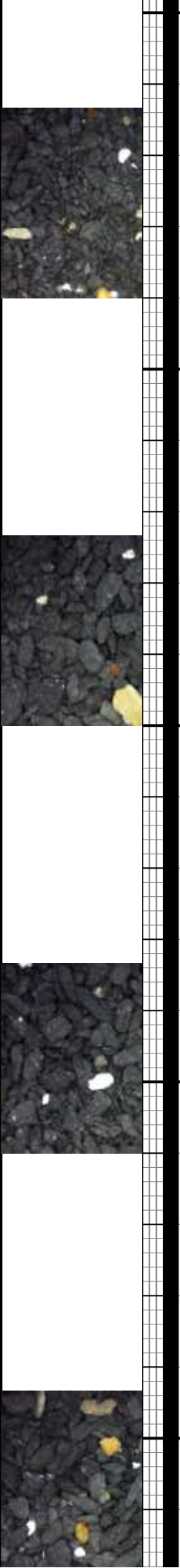
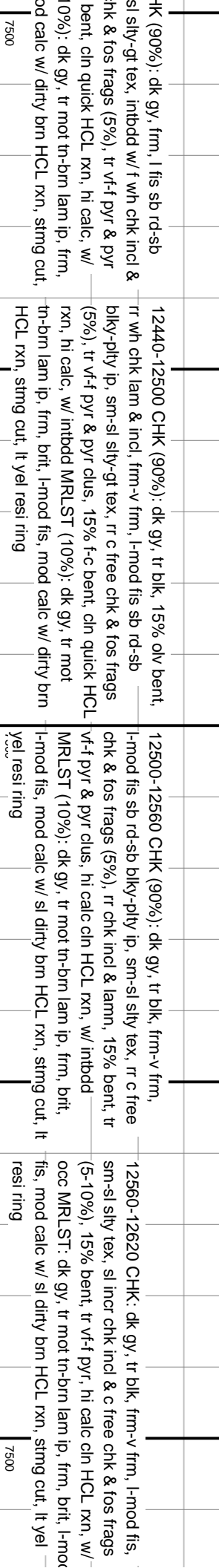
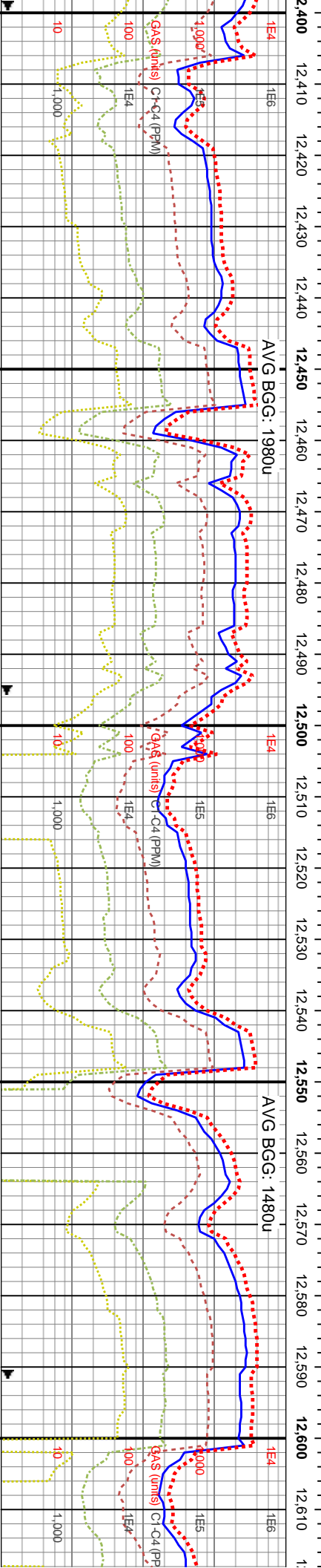


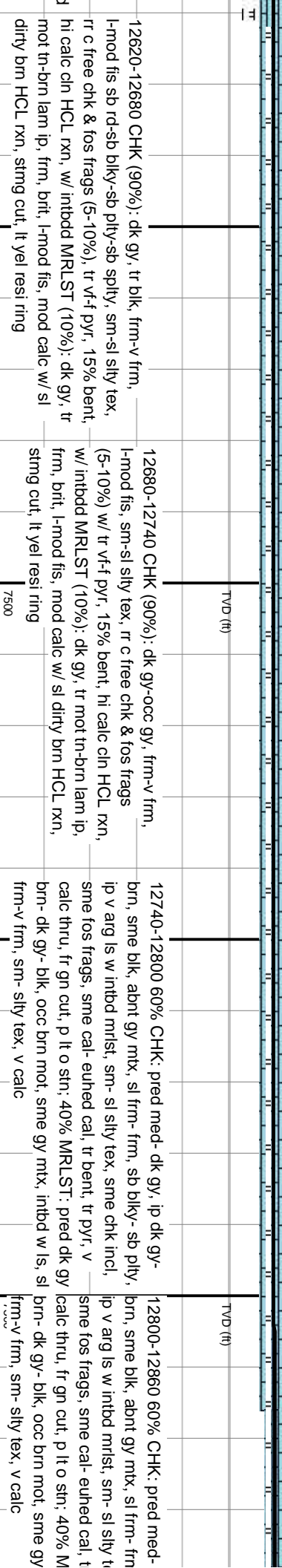
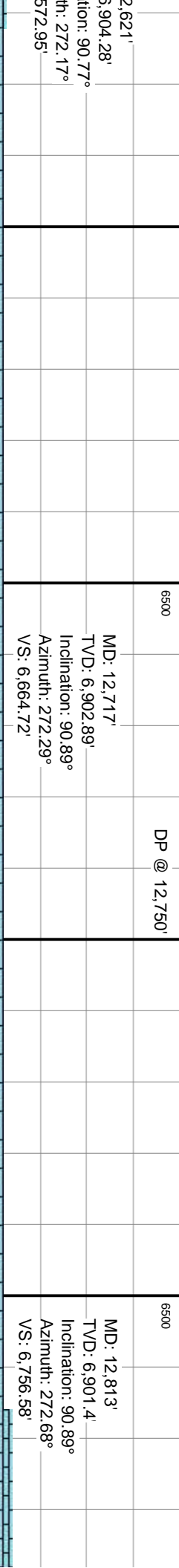
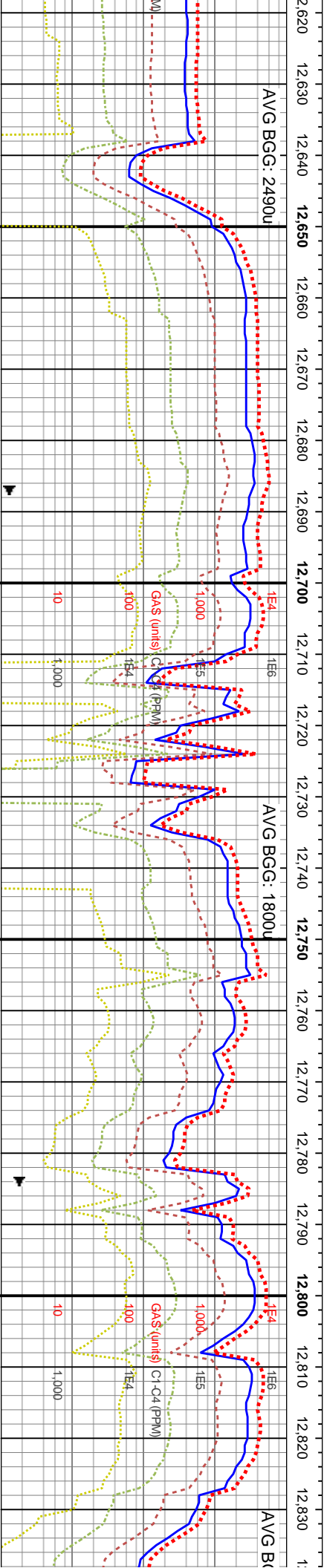
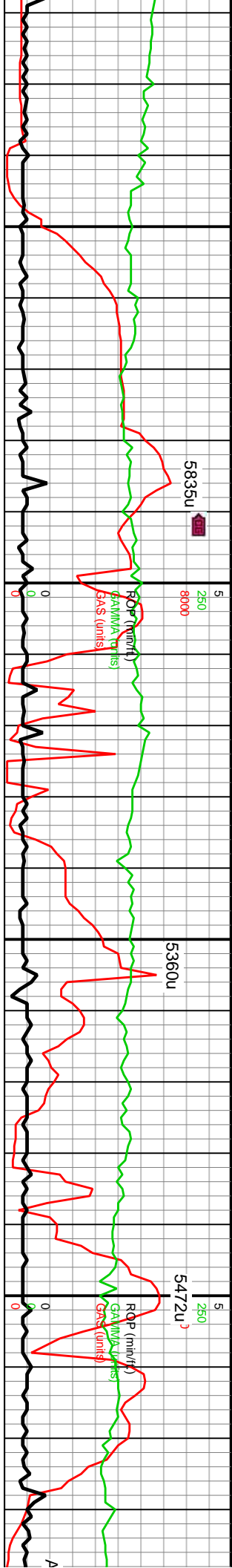
11960-12020 CHK (90%): dk gy, occ gy, frm, brit, l-mod fis sb rd-sb blk-y-sb pty ctgs, thin lam, slty-sl gt tex, v arg LS intbdd w/ f wh chk incl & lam, rr c free chk, 10% f-c bent, cin quick HCL rxn, v calc, w/ 10% MRLST: dk gy, tr mot tn-brn, frm, brit, l-mod fis, mod calc w/ dirty brn HCL rxn, stmg cut, lt yel resi ring	12020-12080 CHK (85%): dk gy, occ gy, frm, brit, l-mod fis sb rd-sb blk-y-sb pty ctgs, thin lam, slty-sl gt tex, v arg LS intbdd w/ f wh chk incl & lam, rr c free chk, 10% f-c bent, cin quick HCL rxn, v calc, w/ intbdd MRLST (15%): dk gy, tr mot tn-brn, frm, brit, l-mod fis, mod calc w/ dirty brn HCL rxn, stmg cut, lt yel resi ring	12080-12140 CHK (90%): dk gy, occ lt gy-gy chky intbds, frm, brit, l-mod fis sb rd-sb blk-y-sb pty ctgs, slty-sl gt tex, arg LS intbdd w/ f wh chk incl & lam, occ c free chk, 10-15% f-c bent, cin quick HCL rxn, v calc, w/ intbdd MRLST (10%): dk gy, tr mot tn-brn, frm, brit, l-mod fis, mod calc w/ dirty brn HCL rxn, stmg cut, lt yel resi ring	12140-12200 CHK (90%): dk gy, r intbds, frm, brit, l-mod fis sb rd-sb blk-y-sb pty ctgs, slty-sl gt tex, arg LS intbdd w/ f wh c free chk, 10-15% f-c bent, cin quick MRLST (10%): dk gy, tr l-mod fis, mod calc w/ dirty brn HCL rxn, stmg cut, lt yel resi ring
7500	7500	7500	

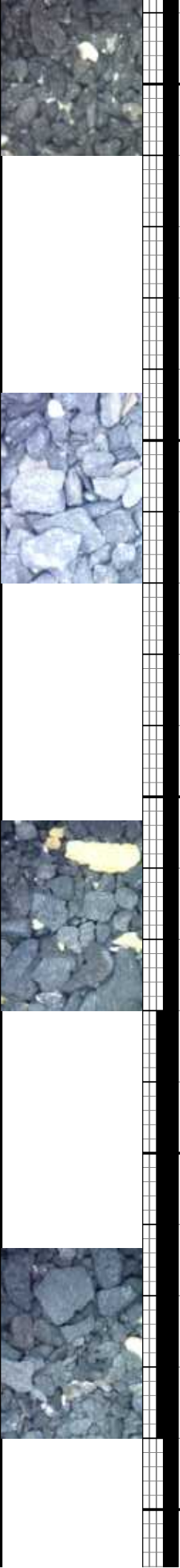
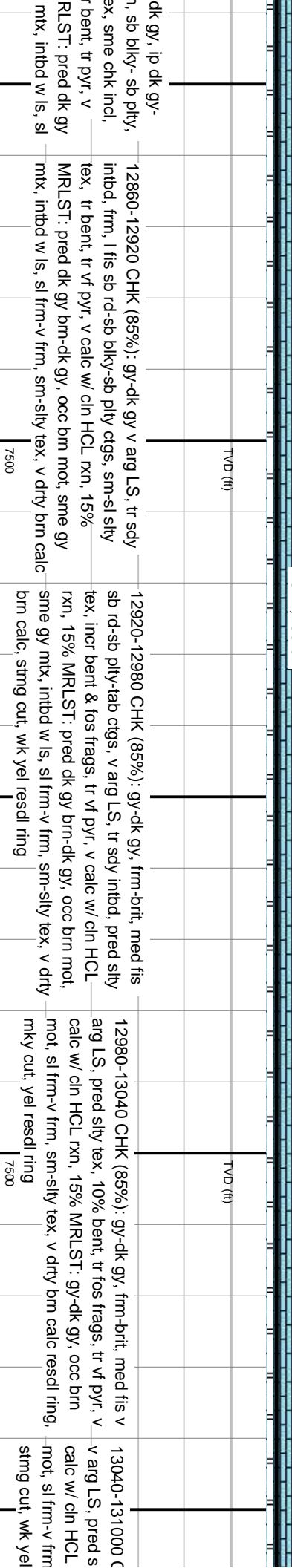
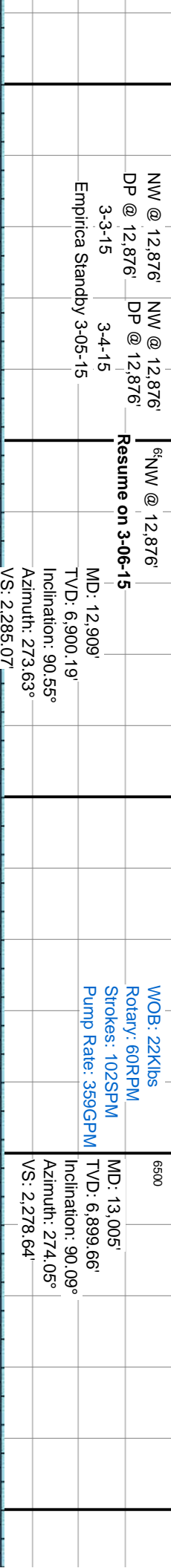
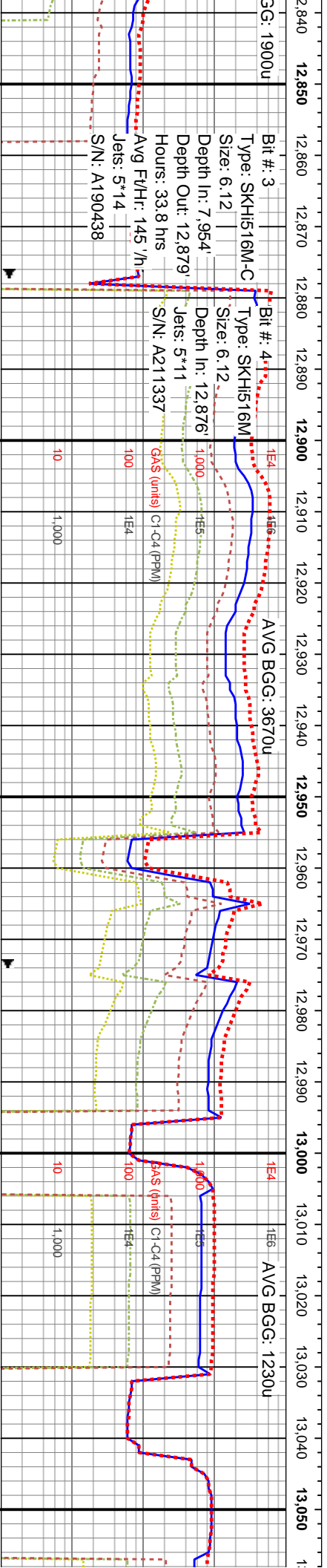
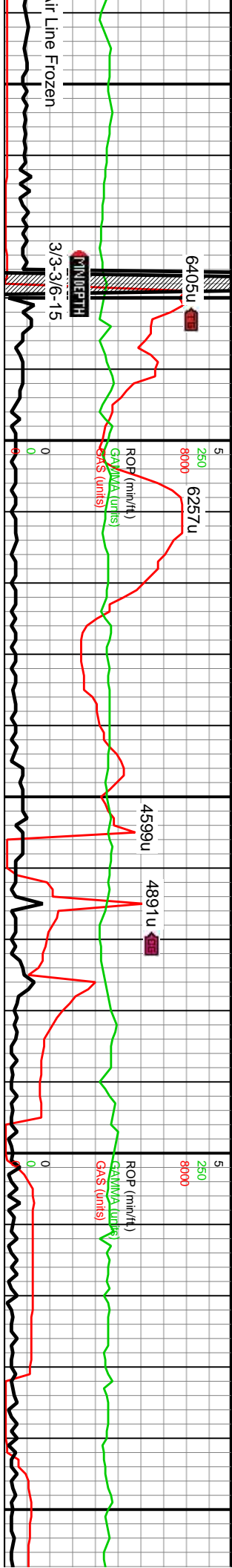










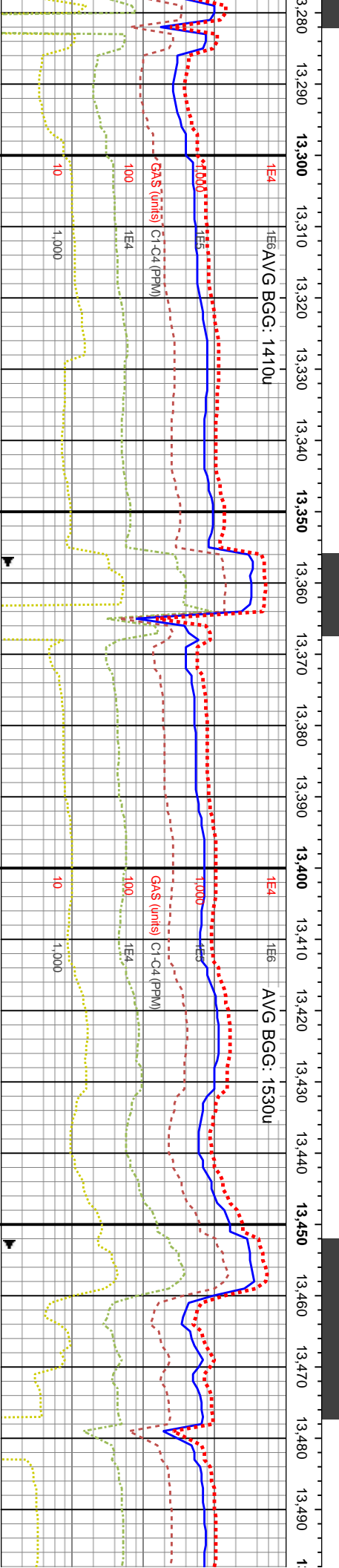
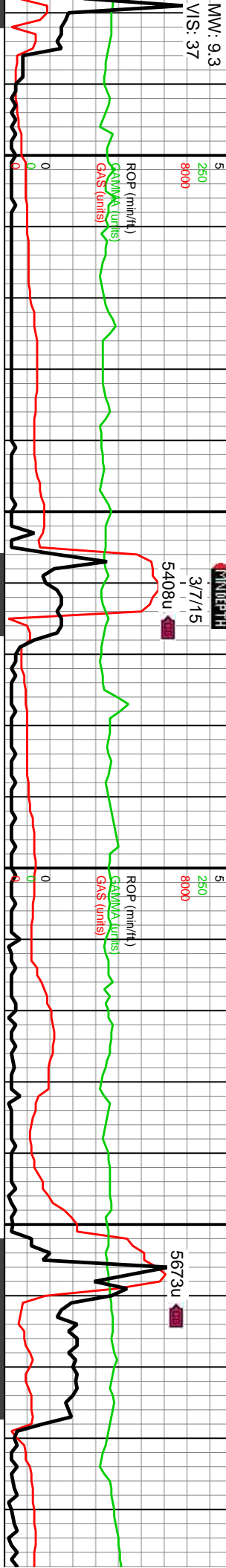








MW: 9.3  
VIS: 37



MD: 13,292'  
TVD: 6,900.62'  
Inclination: 90.43°  
Azimuth: 271.39°  
VS: 2,265.18'

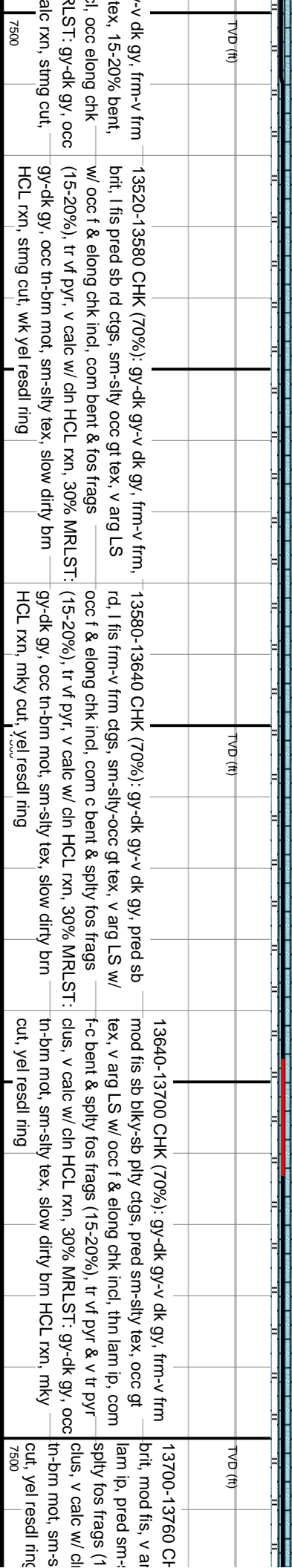
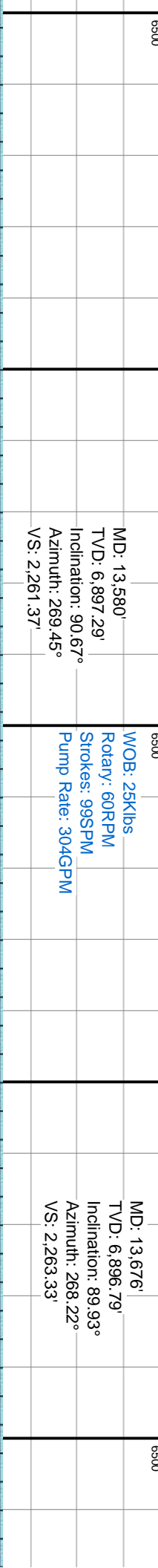
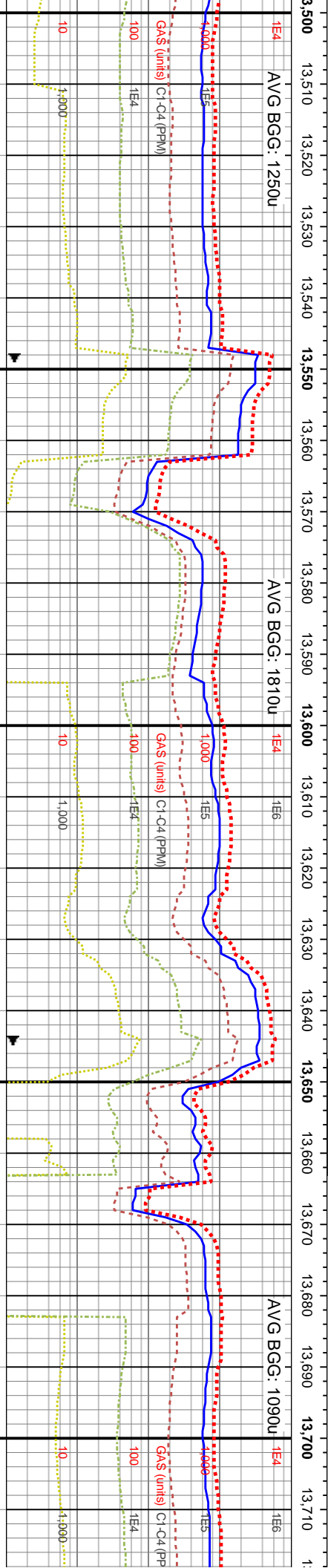
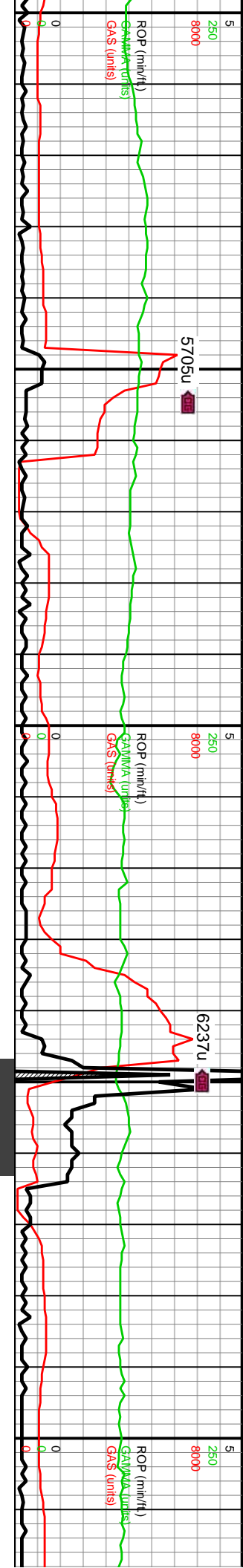
MD: 13,388'  
TVD: 6,900.09'  
Inclination: 90.21°  
Azimuth: 268.84°  
VS: 2,264.98'

WOB: 25Klbs  
Rotary: 60RPM  
Strokes: 99SPM  
Pump Rate: 304GPM

MD: 13,484'  
TVD: 6,898.88'  
Inclination: 91.23°  
Azimuth: 273.01°  
VS: 2,263.43'

13280-13340 CHK (70%): gy-dk gy-v dk gy, frm-v frm & brit, l-med fts sb rd-pty v arg LS, sm-sily tex, 15-20% bent, com fos frags, tr vf pyr, sl incr f chk incl & c free chk, v calc w/ cin HCL rxn, 30% MRLST: gy-dk gy, occ tn-brn mot, sm-sily tex, v dry brn calc rxn, mky cut, yel resd ring	13340-13400 CHK (70%): gy-dk gy-v dk gy, l-med fts sb rd-pty v arg LS, sm-sily tex, frm-v frm, brit, com bent (15-20%), occ fos frags, tr vf pyr, sl incr f chk incl & c free chk, v calc w/ cin HCL rxn, 30% MRLST: gy-dk gy, occ tn-brn mot, sm-sily tex, v dry brn calc rxn, mky cut, yel resd ring	13400-13460 CHK (70%): gy-dk gy-v dk gy, frm-v frm, l fts sb rd-sb blkly v arg LS, occ f chk incl, sm-sily tex, com bent (15-20%), occ fos frags, tr vf pyr, v calc w/ cin HCL rxn, 30% MRLST: gy-dk gy, occ tn-brn mot, sm-sily tex, v dry brn calc rxn, stmg cut, wk yel resd ring	13460-13520 CHK (70%): gy-dk gy, frm-v frm, & brit, l fts, sb rd, v arg LS, sm-sily tex, occ fos frags, tr vf pyr, occ f chk incl, v calc w/ cin HCL rxn, 30% MRLST: gy-dk gy, occ tn-brn mot, sm-sily tex, v dry brn calc rxn, mky cut, yel resd ring
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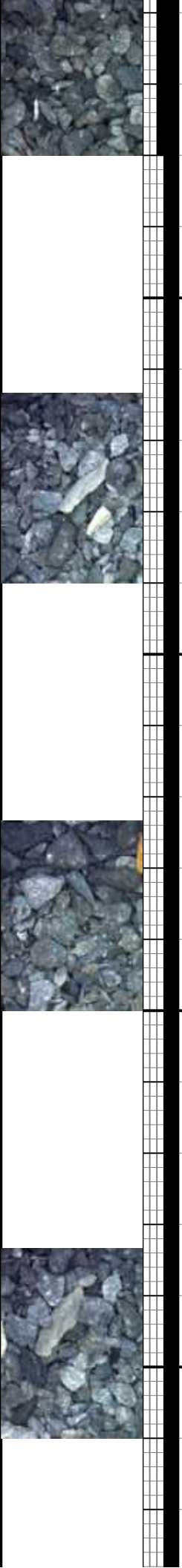
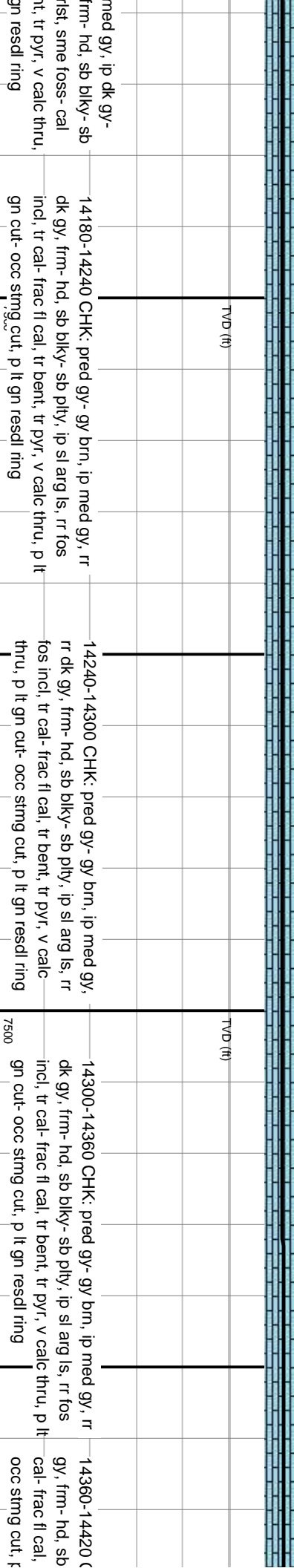
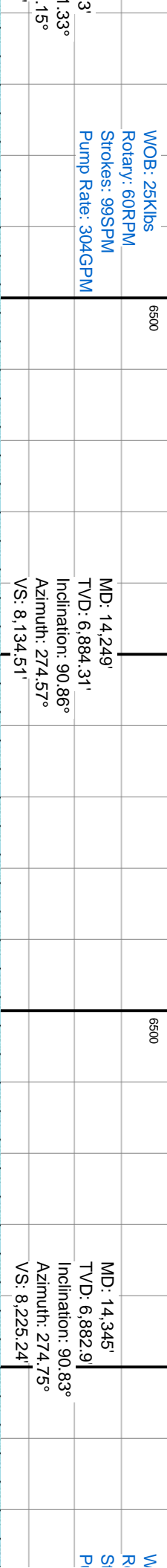
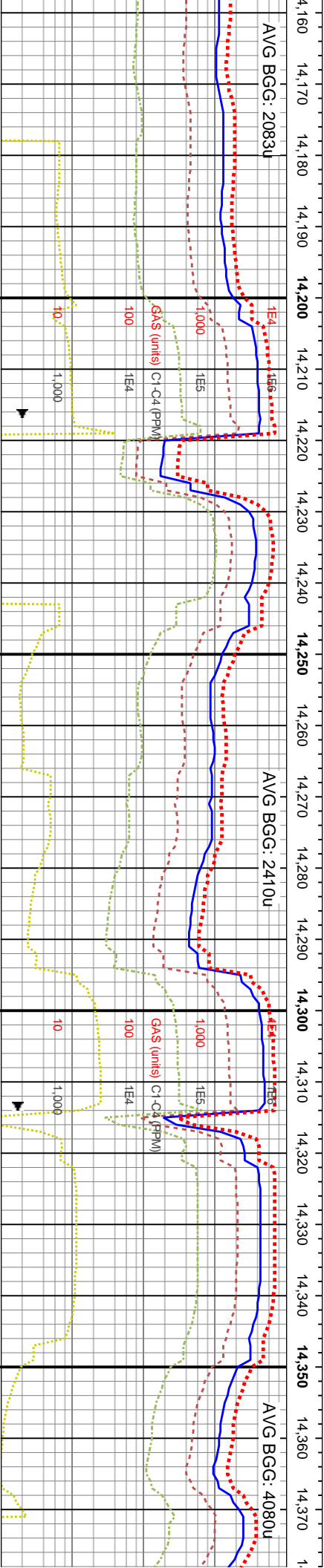
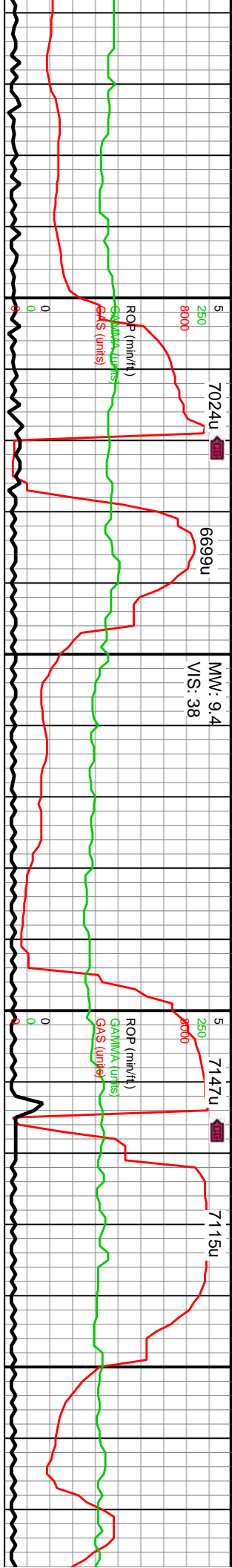


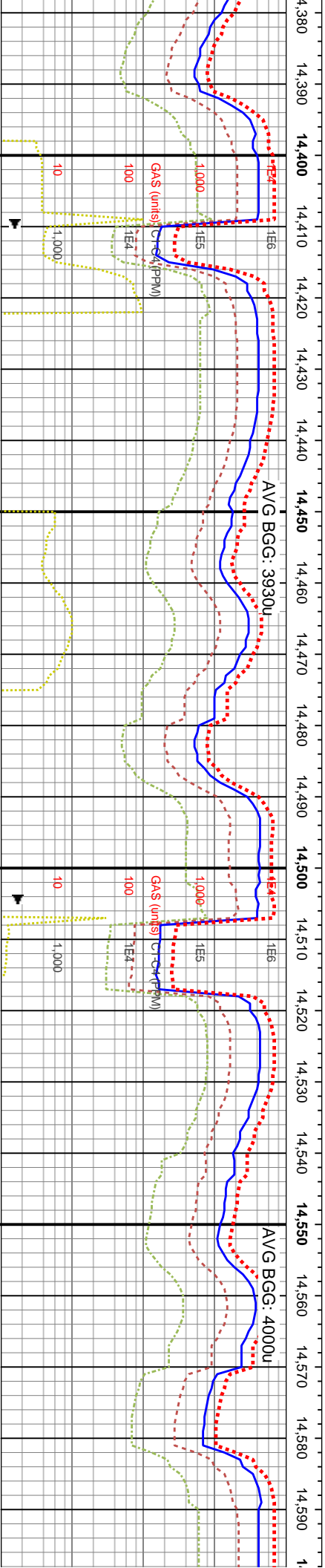
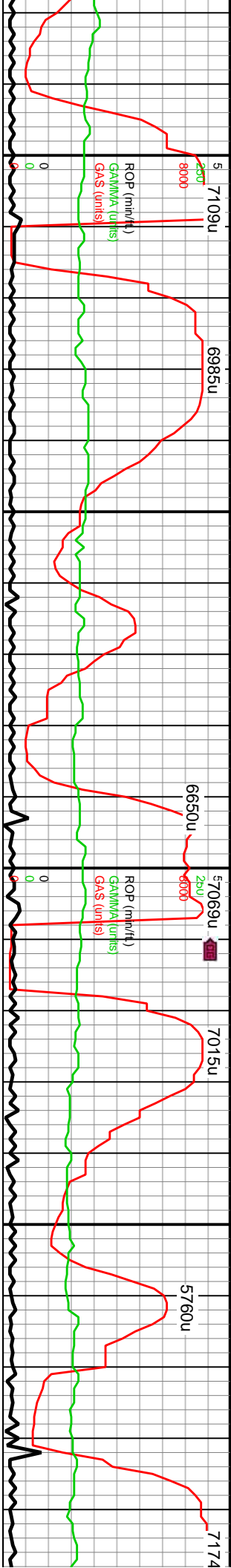






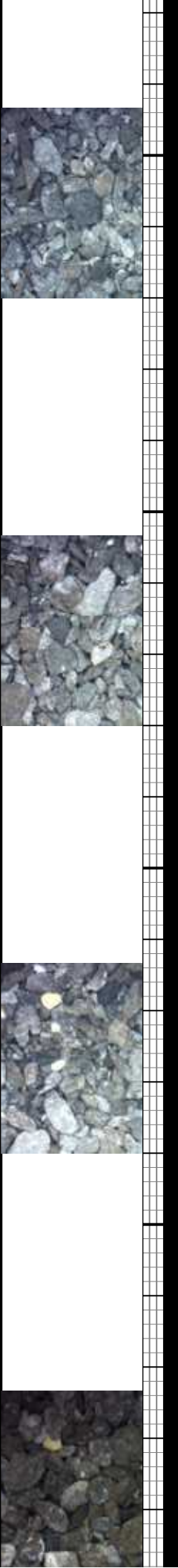


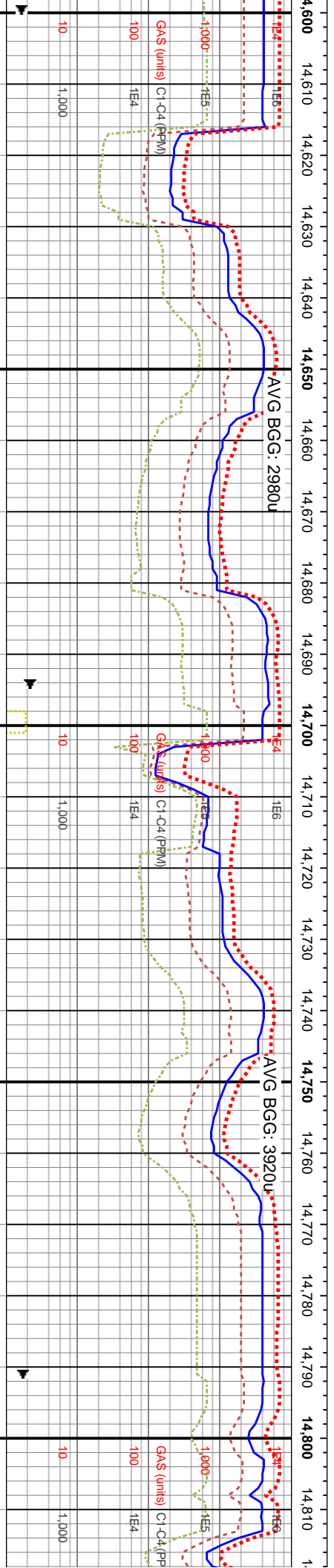
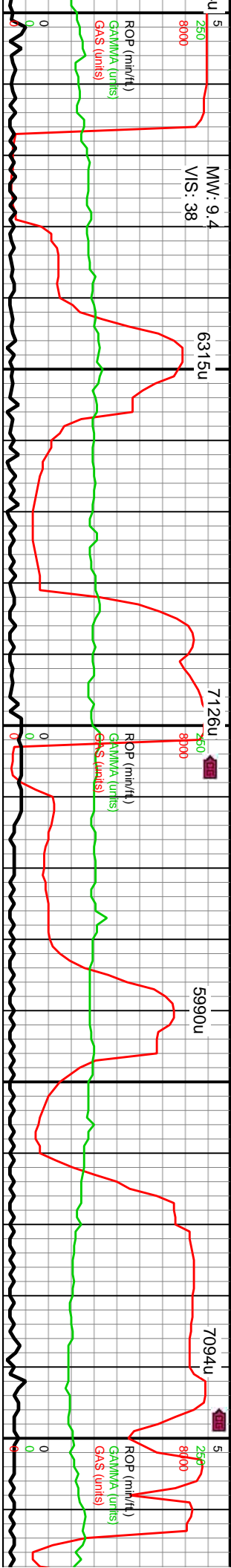




OB: 27Klbs Rotary: 60RPM Strokes: 99SPM Pump Rate: 304GPM		6500	MD: 14,440' TVD: 6,881.93' Inclination: 90.34° Azimuth: 275.5° VS: 8,314.77'	
		6500	MD: 14,535' TVD: 6,881.49' Inclination: 90.19° Azimuth: 276.17° VS: 8,403.92'	

CHK: pred gy- gy brn, ip med gy, rr dk blkly- sb ply, ip sl arg ls, rr fos incl, tr tr bent, tr pyr, v calc thru, p lt gn cut- p lt gn resdl ring		TVD (ft)	14420-14480 CHK: pred gy- gy brn, ip med gy, mot, pred frm- hd, sme sl frm, sb blkly- sb ply, ip sl arg ls, rr fos incl, tr cal, rr bent, thru, p lt gn cut- rr stmg cut, p lt gn resdl ring	
		7500	14480-14540 CHK: pred gy- gy brn, ip med gy, mot, pred frm- hd, sme sl frm, sb blkly- sb ply, ip sl arg ls, rr fos incl, tr cal, rr bent, tr pyr, v calc thru, p lt gn cut- rr stmg cut, p lt gn resdl ring	
		7500	14540-14600 CHK: pred gy- gy brn, ip med gy, mot, pred frm- hd, sme sl frm, sb blkly- sb ply, ip sl arg ls, rr fos incl, tr cal, rr bent, pyr, v calc thru, p lt gn cut- rr stmg cut, p lt g resdl ring	

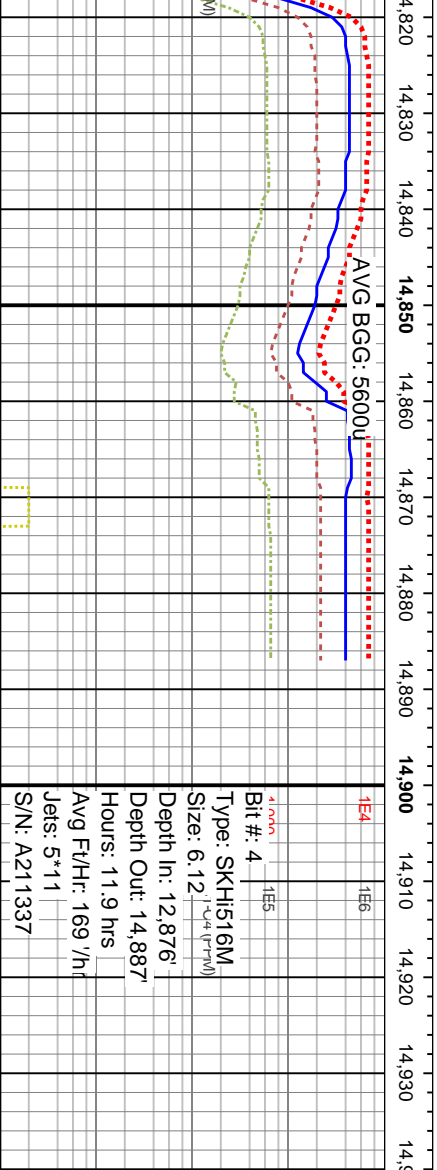
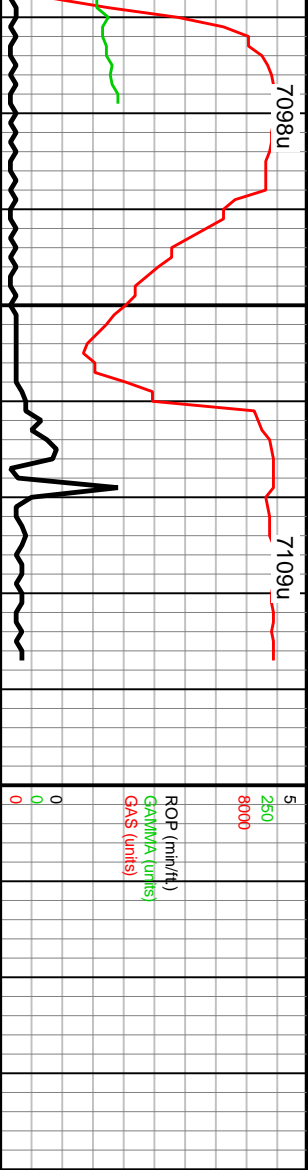




MD: 14,631'	WOB: 22Klbs	MD: 6500
TVD: 6,881.38'	Rotary: 50RPM	
Inclination: 89.94°	Strokes: 99SPM	
Azimuth: 276.07°	Pump Rate: 304GPM	
VS: 8,493.83'		

14600-14660 CHK: pred gy- gy brn, ip med gy, mot, pred frm- hd, sme sl frm, sb blk- sb ply, ip sl arg ls, rr fos incl, tr cal, rr bent, tr pyr, v calc thru, p lt gn cut- rr stmg cut, p lt gn resdl ring	14660-14720 CHK: pred gy- gy brn, ip med gy, mot, pred frm- hd, sme sl frm, sb blk- sb ply, ip sl arg ls, rr fos incl, tr cal, rr bent, tr pyr, v calc thru, p lt gn cut- rr stmg cut, p lt gn resdl ring	14720-14780 CHK: pred gy- gy brn, sme med gy, mot, pred frm- hd, sme sl frm, sb blk- sb ply, ip sl arg ls, rr fos incl, tr cal, rr bent, tr pyr, v calc thru, gn cut, p lt gn resdl ring	14780-14840 CHK: pred gy- gy brn, sme med gy, mot, pred frm- hd, sme sl frm, sb blk- sb ply, ip sl arg ls, rr fos incl, tr cal, rr bent, tr pyr, v calc thru, p lt gn cut- rr stmg cut, p lt gn resdl ring
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)





Bit #: 4  
Type: SKH1516M  
Size: 6.12  
Depth In: 12,876  
Depth Out: 14,887  
Hours: 11.9 hrs  
Avg Ft/Hr: 169 /hr  
Jets: 5\*11  
S/N: A211337

6500

14,823'  
6,882.05'  
ation: 89.66°  
uth: 277.33°  
3,672.96'

\*Projected\*  
MD: 14,887'  
TVD: 6,882.43'  
Inclination: 89.66°  
Azimuth: 277.33°

**TD reached  
@ 1540hrs  
on 3-07-15**

TVD (ft)

14840-14887 CHK: pred gy- gy brn, sme  
med gy, mot, pred frm- hd, sme sl frm, sb  
biky- sb pily, ip sl arg ls, rr fos incl, tr cal, rr  
bent, tr pyr, v calc thrru, p lt gn cut, p  
resd ring

7500

