



# Empirica

Scale: 5" / 100'  
Measured Depth Log

**Well Name** Winder South 6

**Location** Sec. 9-T6N-R67W

**State** Colorado

**Country** USA

**API Number** 05-123-43403-00

**Geographic Region** DJ Basin

**Spud Date** 9/21/2016

**Surface Coordinates** SHL: 2306'FNL, 428' FEL, Sec. 9 T6N R67W

Lat: 40.502673 / 40° 30' 9.6228"  
Long: -104.890411 / -104.890411

**Bottom Hole Coordinates** PBHL: 1705'FSL, 460' FWL, Sec. 8 T6N R67W

**Ground Elevation** 4,855'

**K.B. Elevation** 4,879.5'

**Logged Interval** 6,860' To 17,050'

**Total Depth** 17,050'

**Formation** Niobrara B Chalk

**Type of Drilling Fluid** Oil Based Mud

## 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-589


**Comments** Start: 9-21-16  
TD: 9-25-16


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


**Logger Names** Dominic Pitre/ Nicholas V


**Address** ALS Empirica  
6510 Guhn Road  
Houston, Texas 77040


Zone Color Coding


 Oil


 Note


 Error


 Condensate

 Core

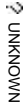
 Water

 Gas


 Pressure

 Seal


Rock Types

 UNKNOWN


 ANHYDRITE

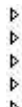
 GYPSUM


 SALT

 CHALK


 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


 ALGAE


 AMPHIPORA


 BELEMNITE


 BIOCLASTIC


 BRACHIOPOD


 BRYOZOA


 CEPHALOPOD


 CORAL


 CRINOID


 ECHINOID


 FISH


 FORAMINIFERA


 ARGILLACEOUS


 ARGILLITE GRAIN


 BENTONITE


 BITUMENOUS SUBSTANCE


 BRECCIA FRAGMENTS


 CALCAREOUS


 CARBONACEOUS FLAKES


 CHERT


 COAL - THIN BEDS


 DOLOMITIC


 FELDSPAR


 FERRUGINOUS PELLET


 FERRUGINOUS


 GLAUCONITE


 GYPSIFEROUS


 HEAVY MINERAL


 KAOLIN


 MARLSTONE


 MINERAL CRYSTALS


 NODULES


 PHOSPHATE PELLET


 PYRITE


 SALT CAST


 SANDY


 SILICEOUS


 SILTY


 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 Syn

 ORGANIC

 PINPOINT

 FORM

 GAS SHOW

 DEAD

 VUGGY

 EVEN

 NORMAL F

 QUESTIONABLE

 SPOTTED STAINING

 Engineering

 OIL SHOW

 BIT

 OVERTURF

 CASING

 REVERSE

 Porosity

 CONNECTION (LEFT)

 SIDEWALL


 CONNECTION (RIGHT)


 E EARTHY


 FENESTRAL


 SURVEY


 SLIDE


 F FRACTURE


 INTERCRYSTALLINE


 CORE - LOST


 TRIP GAS


 INTEROOLITIC

 DST INTERVAL

 WIRELINE

 WIRELINE

 MOLDIC

 FAULT

# mbols

ATION TOP L LITHOGRAPHIC

## Rounding

**MX** MICROXLN

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

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

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

**F** SUBRND

## Sorting

## Textures

**M** MODERATE

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

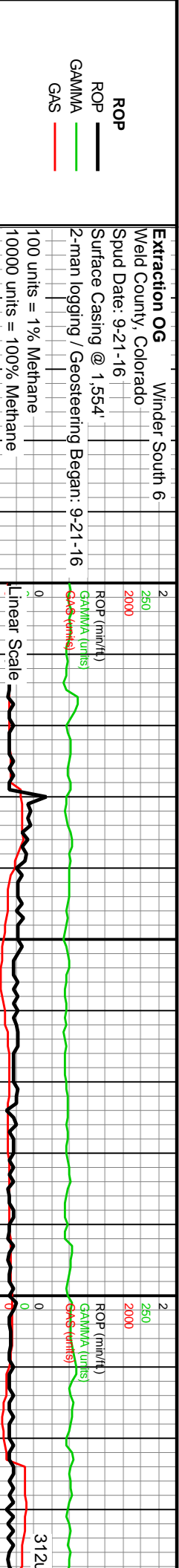
**C** CHALKY **W** WELL

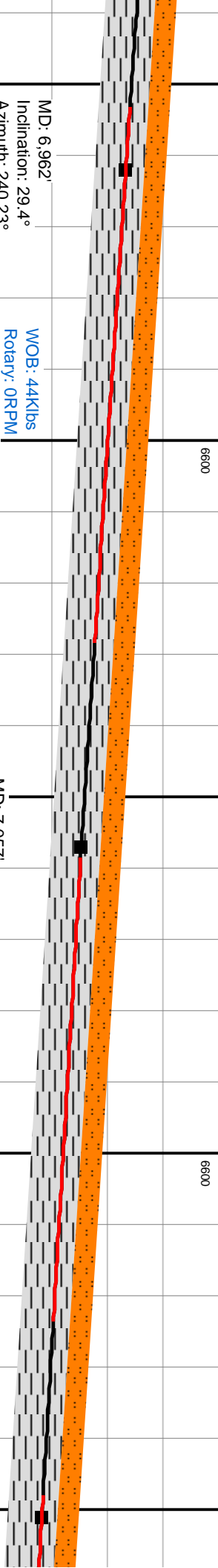
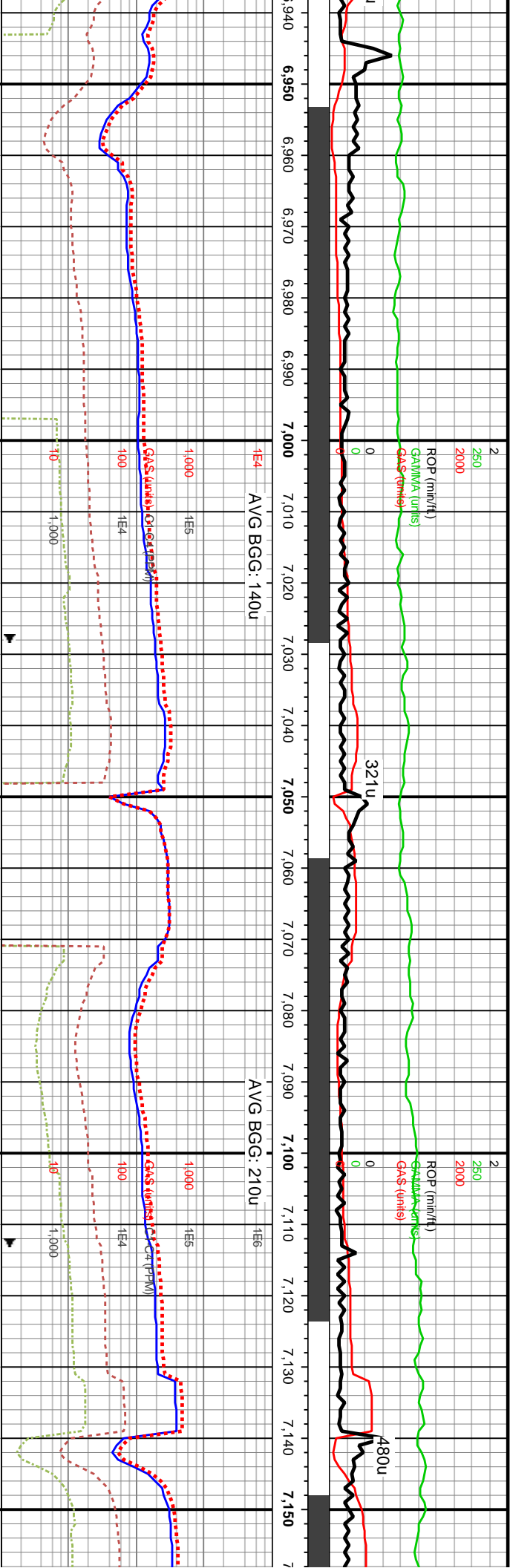
**CX** CRYPTOXLN

**E** EARTHY

**FX** FINELYXLN

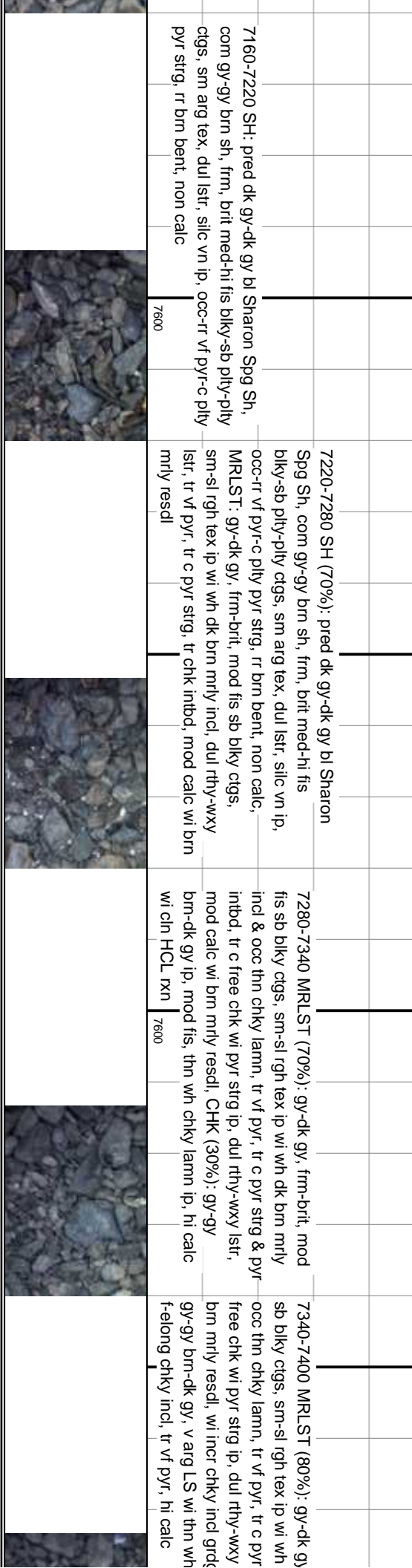
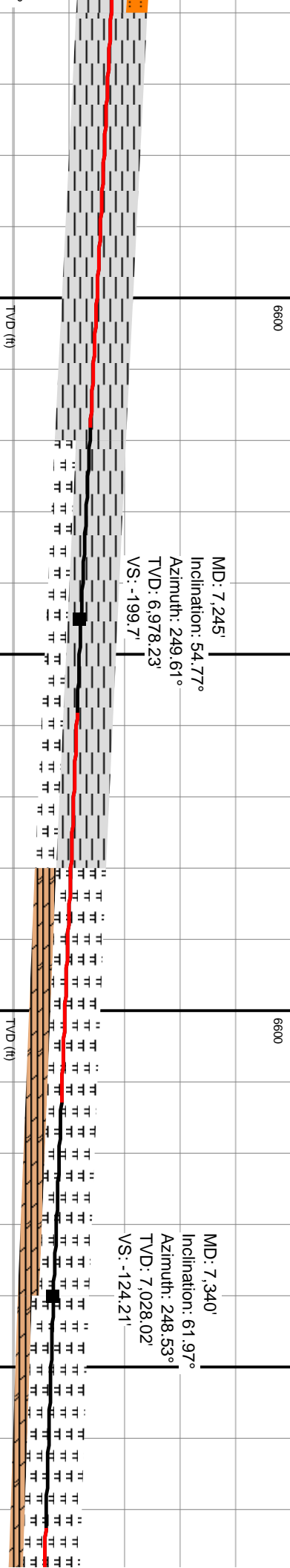
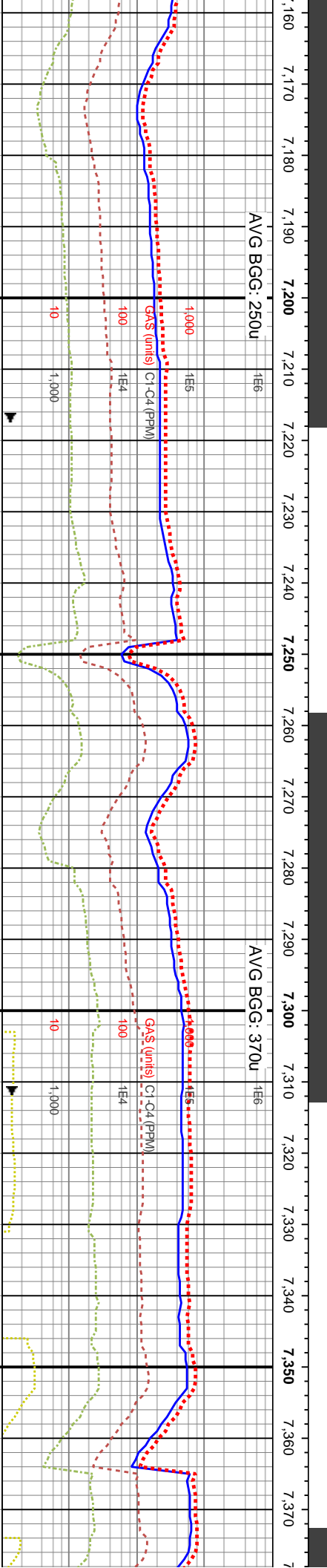
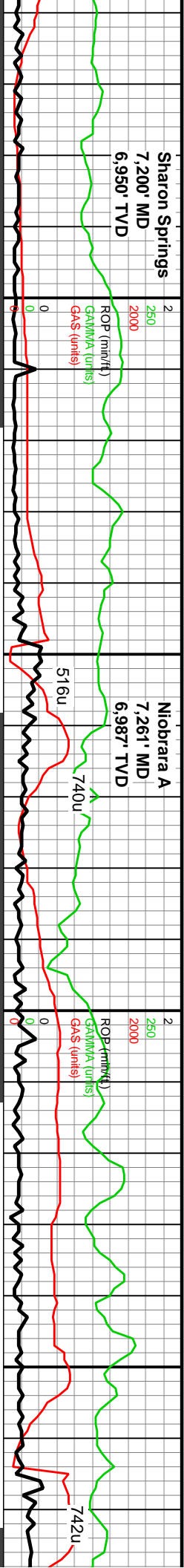
**GS** GRAINSTONE



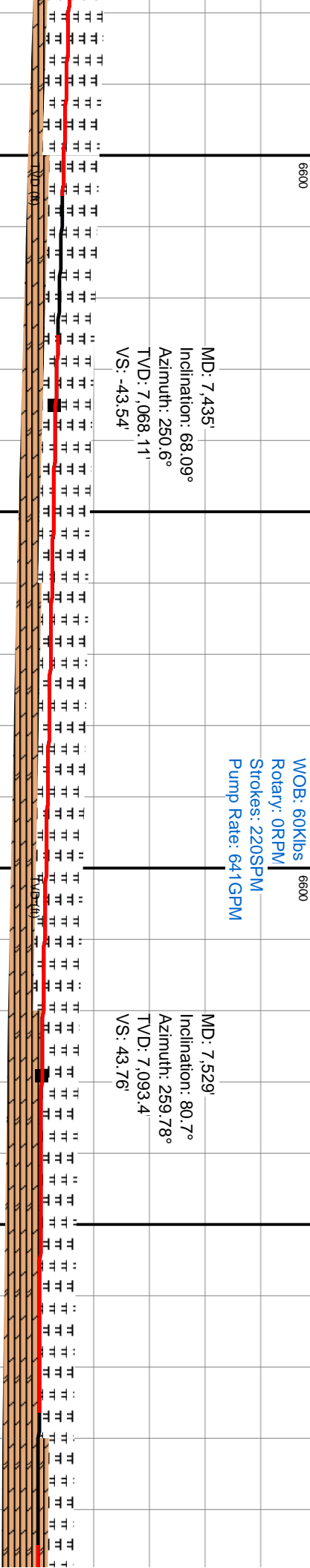
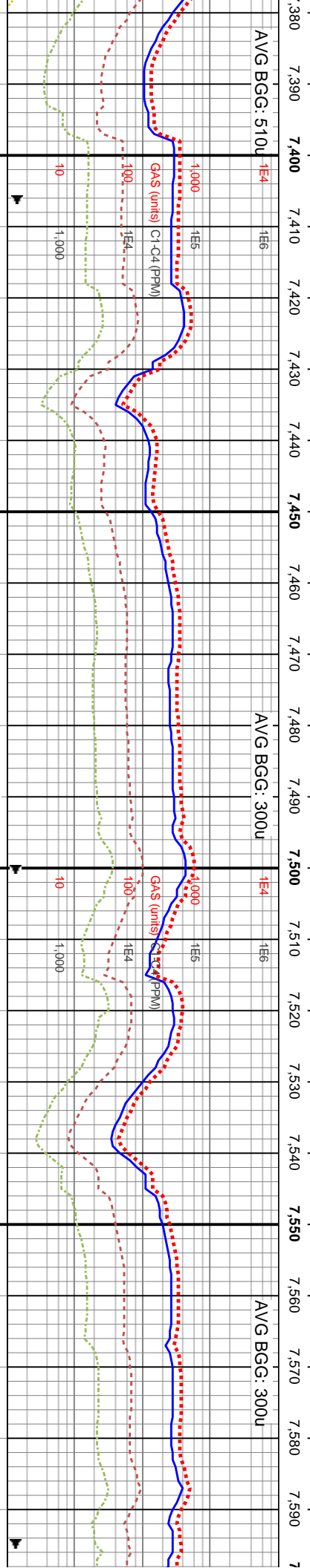
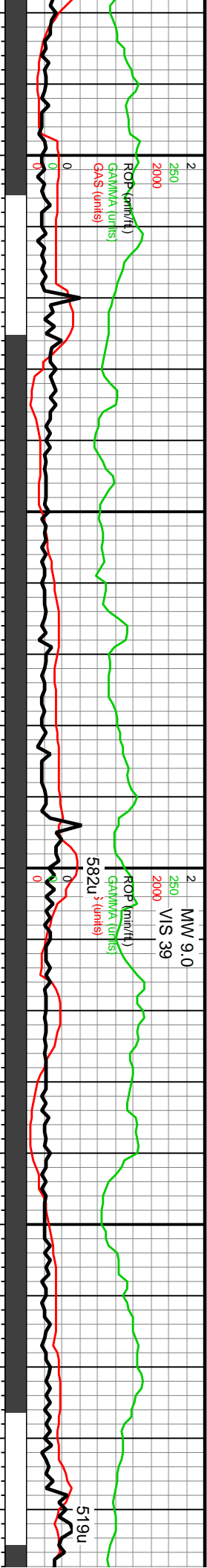


MD: 6.962' Inclination: 29.4° Azimuth: 240.23° TVD: 6.767' VS: -367.39'	WOB: 44Klbs Rotary: 0RPM Strokes: 220SPM Pump Rate: 641GPM	TVD (ft)	6600
6980-7040 SH (70%): lt gy-gy-gy brn, med frm-frm, l-mod fis sb rd-sb blkly tab ctgs, sm-sily tex wi thn lamn, tr vf pyr, non calc, SLTST (30%): v dk gy, frm-brt, med-hi fis ang-pty ctgs, tr vf pyr, silc, rr sdy intbds & lamn, tr silc vn, non calc		7600	
7040-7100 SH (70%): lt gy-gy-gy brn, med frm-frm, l-mod fis sb rd-sb blkly ctgs, sm arg-sily tex wi thn lamn, tr vf pyr, non calc, SLTST (30%): v dk gy-blk, frm-brt, med-hi fis ang-pty ctgs, tr vf pyr, silc, rr wvy silc vn, tr vf pyr, non calc			
MD: 7.057' Inclination: 36.1° Azimuth: 242.72° TVD: 6.846.86' VS: -322.22'		TVD (ft)	6600
7100-7160 SH (70%): lt gy-gy-gy brn, med frm-frm, l-mod fis sb rd-sb blkly tab ctgs, sm-sily tex wi thn lamn, tr vf pyr, non calc, SLTST (30%): v dk gy, frm-brt, med-hi fis ang-pty ctgs, tr vf pyr, silc, rr sdy intbds & lamn, tr silc vn, non calc		7600	
MD: 7.151' Inclination: 45.43° Azimuth: 246.97° TVD: 6.917.99' VS: -266.66'			



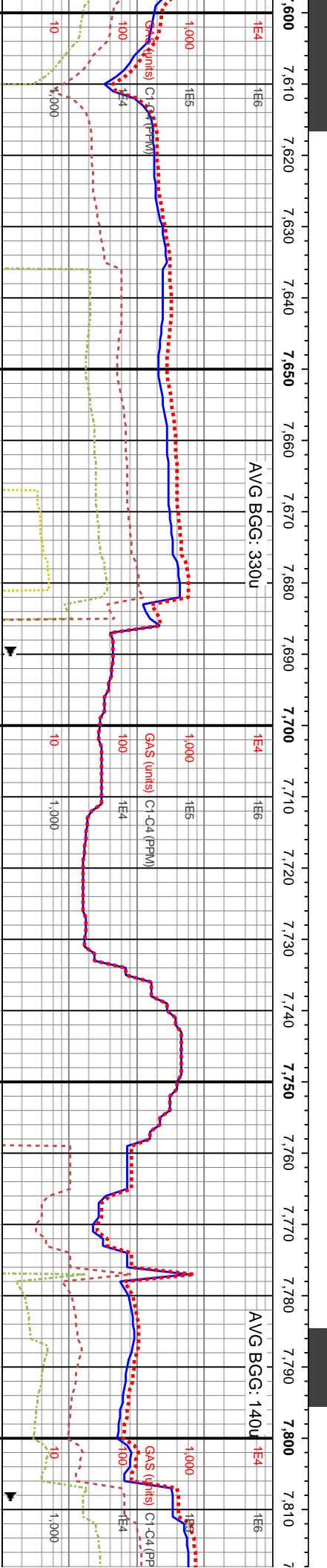
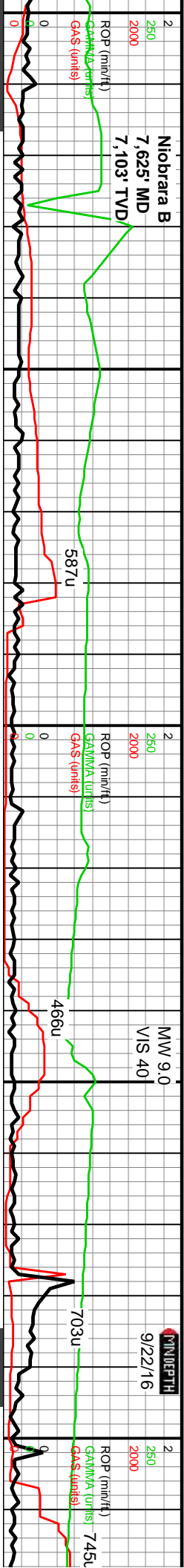






7400-7460 MRLST (70%): gy-dk gy, frm-brit, mod fis sb biky ctgs, sm-sl rgh tex ip wi dk brn mrlly incl & occ thn chky lamm, tr vf pyr, tr c pyr strg & pyr intbd, tr c free chk wi pyr strg ip, dul rthy-wxy lstr, mod calc wi brn mrlly resdl, CHK (30%): gy-gy brn-dk gy ip, mod fis, thn wh chky lamm ip, hi calc	7460-7520 MRLST (65%): gy-dk gy, frm-brit, mod fis sb biky ctgs, sm-sl rgh tex ip wi dk brn mrlly incl & occ thn chky lamm, tr vf pyr, tr c pyr strg & pyr intbd, tr c free chk wi pyr strg ip, dul rthy-wxy lstr, mod calc wi brn mrlly resdl, wi incr chky incl grdg to CHK (35%): gy-gy brn-dk gy, v arg LS wi thn wh chky lamm & f-u f-elong chky incl, tr vf pyr, hi calc wi cin efferv	7520-7580 MRLST (50%): gy-dk gy, frm-brit med-hi fis sb biky-sb splty ctgs, u f-med dk brn mrlly incl & occ chky incl, tr vf pyr, wi incr chky incl grdg to CHK (50%): gy-gy brn wi OBM str-dk gy, v arg LS wi thn wh chky lamm & f-u f-elong chky incl, tr c free chk, tr vf pyr, tr bent, hi calc wi cin HCL RXN	7580-7640 CHK arg LS wi abnt c mod fis sb ang-s mod gl, occ tn bent, t gy, frm-brit sm e mod calc wi brn
--	--	--	--





MD: 7,624'  
Inclination: 87.13°  
Azimuth: 269.47°  
TVD: 7,103.49'  
VS: 137.65'

MD: 7,718'  
Inclination: 85.77°  
Azimuth: 269.59°  
TVD: 7,109.31'  
VS: 231.46'

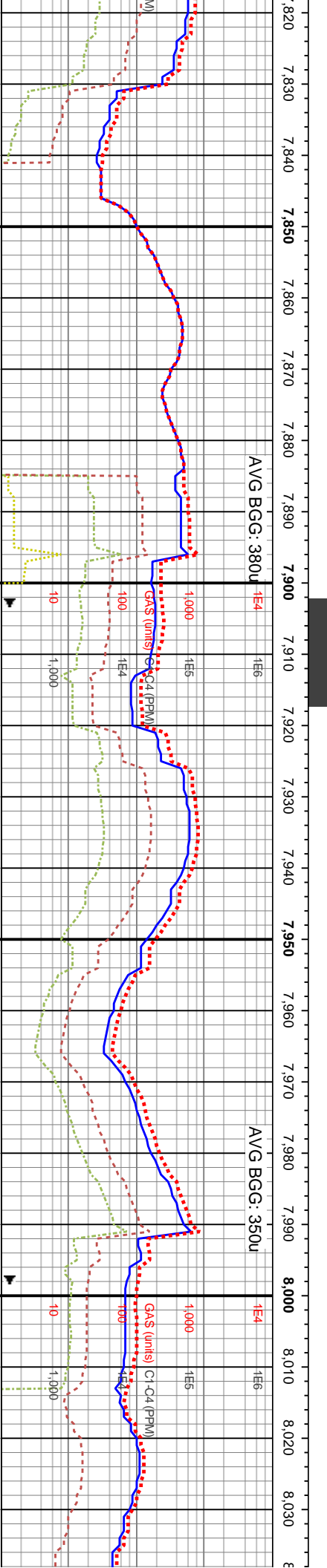
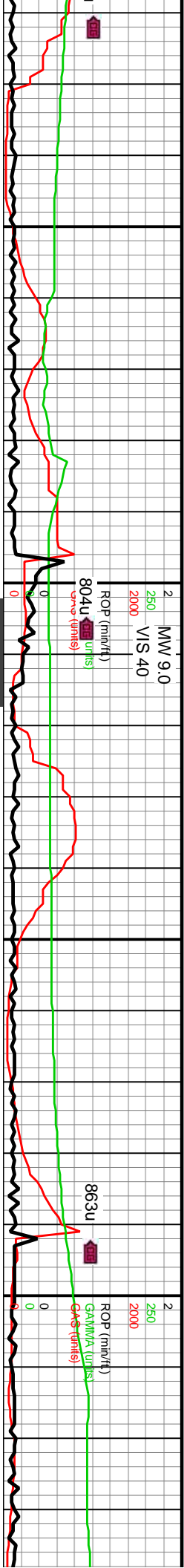
(65%): pied gy, occ lt gy-off wh v  
ch & com c free chk thru, frm-brit  
sh bkly cigs, sm arg-sl stly tex, occ  
r of pyr, hi calc, MRLST (35%): gy-dk  
cigs wi occ brn mrlly incl, tr of pyr,  
mrlly resl

7640-7700 CHK (70%): lt-gy-gy, occ dk gy, v arg LS w/ com thin wh chky incl & lamna, occ c free wh chk, frm-bit mod fls sb ang-sb bkly ctgts, sm arg-sl slty tex, occ tn bent, tr vf pyr, hi calc, MRLST (30%): gy-dk gy, frm-bit mod fls ctgts w/ occ brn mrly incl, sm-sltly tex, tr vf pyr, mod calc w/ brn mrly resd

7700-7760 CHK (70%): pied gy, occ it gy-off wh v arg  
LS wi/abt chk & com c free chk thru, frm-brit mod fis  
sb ang-sb blkly cigs, sm arg-sl silty tex, occ gl, occ in  
bent, tr vf pyr, hi calc, MRLST (30%): gy-dk gy, frm-brit  
sm arg cigs wi occ brn mrlly incl, tr vf pyr, mod calc wi  
brn mrlly resdl

7760-7620 CHK (75%): it-gy-gy, occ dk gy, frm-brit mod fis sb ang-sb blk cygs, v arg LS wi com thn wh chy incl & lamn, sm arg-sl stly tex, occ c free wh chk, rr euhed cal & cal vn ip w/ chk, occ tn bent, tr vf pyr, hi calc, MRLST (25%): gy-dk gy, frm-brit mod fis cygs wi occ brn mrlly incl, sm-sltly tex, tr vf pyr, mod calc wi brn mrlly resd





MD: 7,837'  
Inclination: 87.11°  
Azimuth: 270.45°  
TVD: 7,116.7  
VS: 350.23'

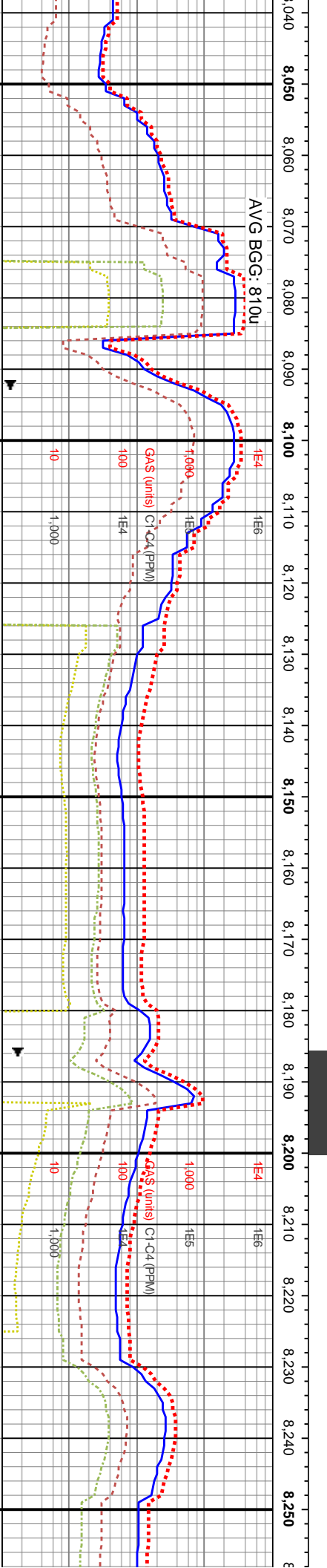
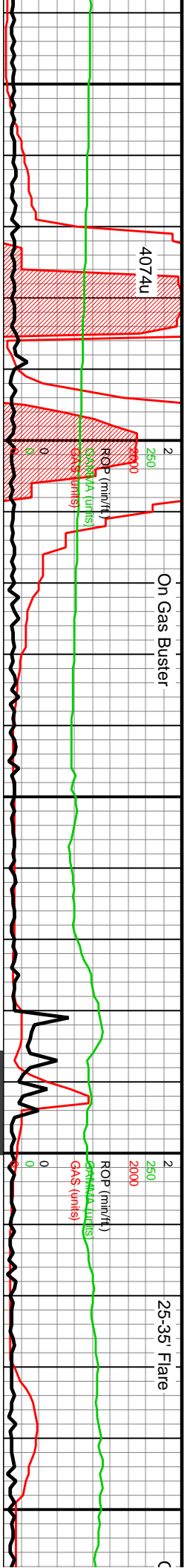
MD: 7,932'  
Inclination: 90.18°  
Azimuth: 271.87°  
TVD: 7,118.95'  
VS: 445.17'

WOB: 28Klbs  
Rotary: 60RPM  
Strokes: 220SPM  
Pump Rate: 641GPM

MD: 8,026'  
Inclination: 91.49°  
Azimuth: 272.09°  
TVD: 7,117.26'  
VS: 760.8'

7820-7880 CHK (75%): lt gy-gy, occ dk gy, v arg LS wi thn chky lamm & f chky incl, frm-brit mod fis sb ang-sb blkly ctgs, sm arg-sl stly tex, rr-occ c free chk, rr cal & cal vn, rr tn bent, tr vf pyr, hi calc, MRLST (25%): gy-dk gy, frm-brit sm arg ctgs wi occ brn mrlly incl, tr vf pyr, mod calc wi brn mrlly resdl	7880-7940 CHK (75%): off wh-lt gy-gy, occ dk gy v arg LS wi wh chky incl, frm-brit mod fis sb ang-sb blkly ctgs, sm arg-sl stly tex, occ c free wh chk, rr cal & thk cal vn ip w/ chk, occ tn bent, tr vf pyr, hi calc, MRLST (25%): gy-dk gy, frm-brit mod fis ctgs wi occ brn mrlly incl, sm-sily tex, tr vf pyr, mod calc wi brn mrlly resdl	7940-8000 CHK (80%): lt gy-gy-dk gy v arg LS wi com thn chky lamm & vf-f chky incl, frm-brit mod fis sb ang-sb blkly ctgs, sm-sily tex, occ c free wh chk, rr tn bent, tr vf pyr, hi calc, MRLST (20%): gy-dk gy, frm-brit mod fis ctgs wi occ brn mrlly incl, sm-sily tex, tr vf pyr, mod calc wi brn mrlly resdl	8000-8060 CHK (80%): lt gy-gy-dk sb ang-sb blkly-pty ctgs, v arg LS lamm & vf-f chky incl, sm-sily tex, r bent, tr vf pyr, hi calc, MRLST (20%): dk brn mrlly incl, frm-brit mod fis ct pyr, mod calc wi brn mrlly resdl
--	---	---	---

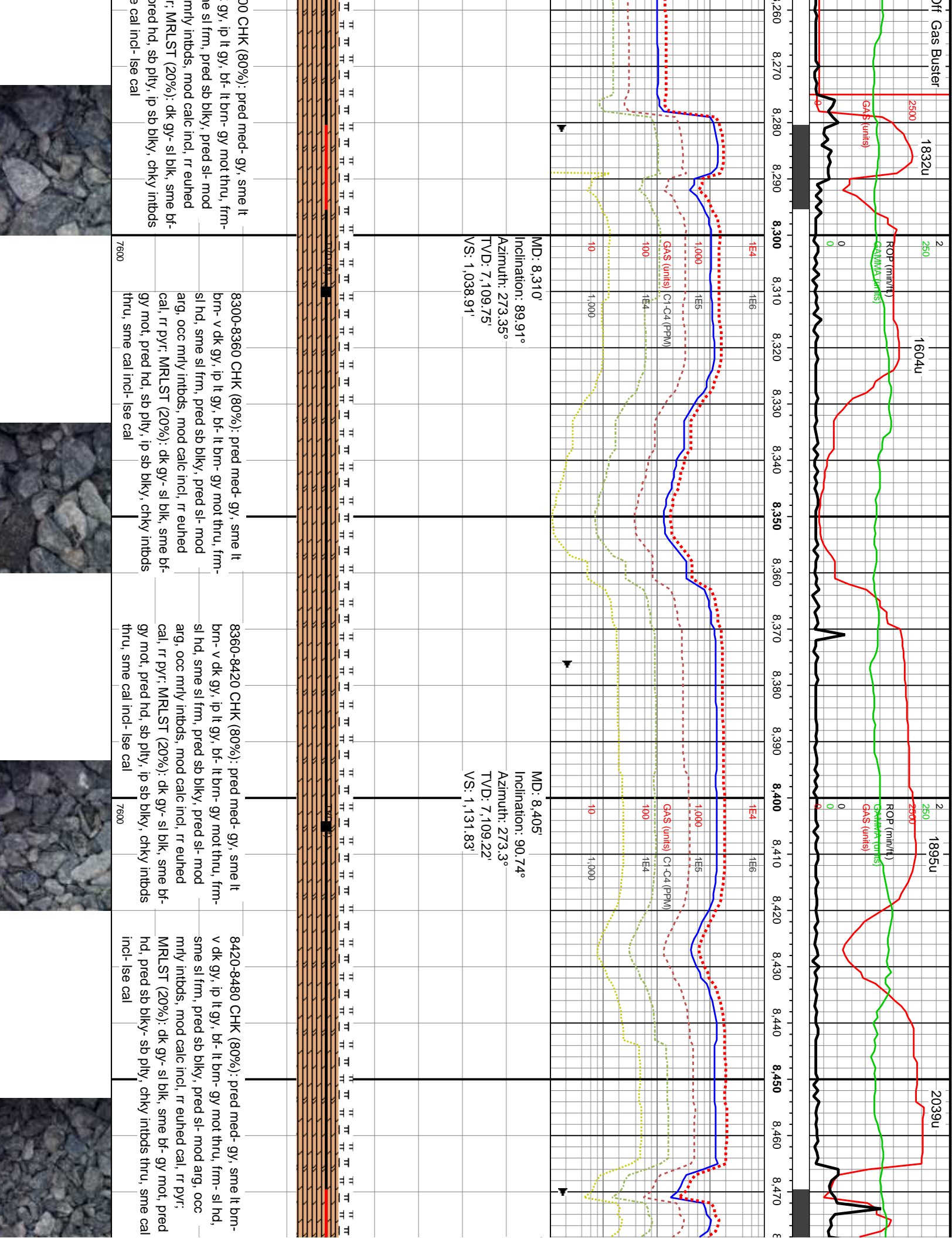


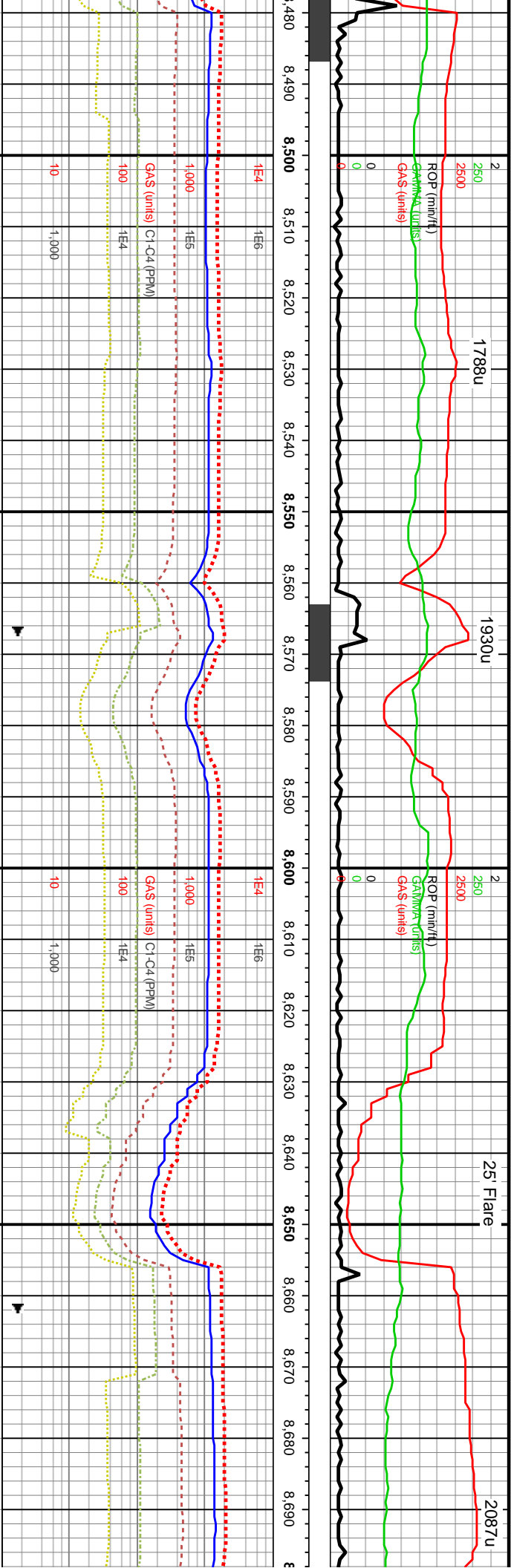


DP 6600

MD: 8,187'  
Inclination: 92.33°  
Azimuth: 272.78°  
TVD: 7,111.89'  
VS: 918.69'

8060-8120 CHK (70%): pred med- gy, sme lt brn- v dk gy, bf- lt brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, r euhed cal, MRLST (30%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl, tr lse cal	8120-8180 CHK (70%): pred med- gy, sme lt brn- v dk gy, bf- lt brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, r euhed cal, MRLST (30%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl, tr lse cal	8180-8240 CHK (70%): pred med- gy, sme lt brn- v dk gy, bf- lt brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, r euhed cal, MRLST (30%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl	8240-8310 CHK (70%): pred med- gy, sme lt brn- v dk gy, bf- lt brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, r euhed cal, MRLST (30%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl
7600		6600	6600





WOB: 38KMD: 8,499' 6600  
Rotary: 65Inclination: 89.21°  
Strokes: 2,Azimuth: 270.28°  
Pump RateTVD: 7,109.26'  
VS: 1,224.25'

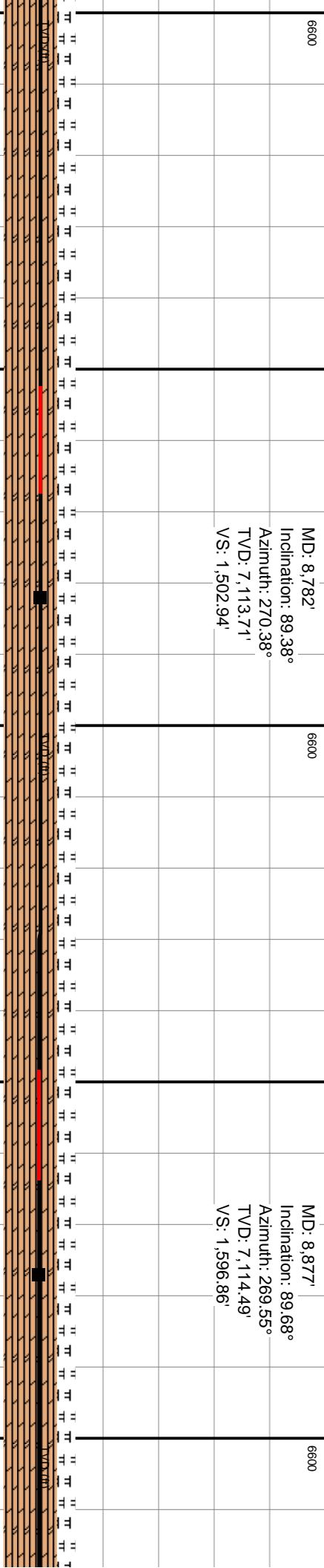
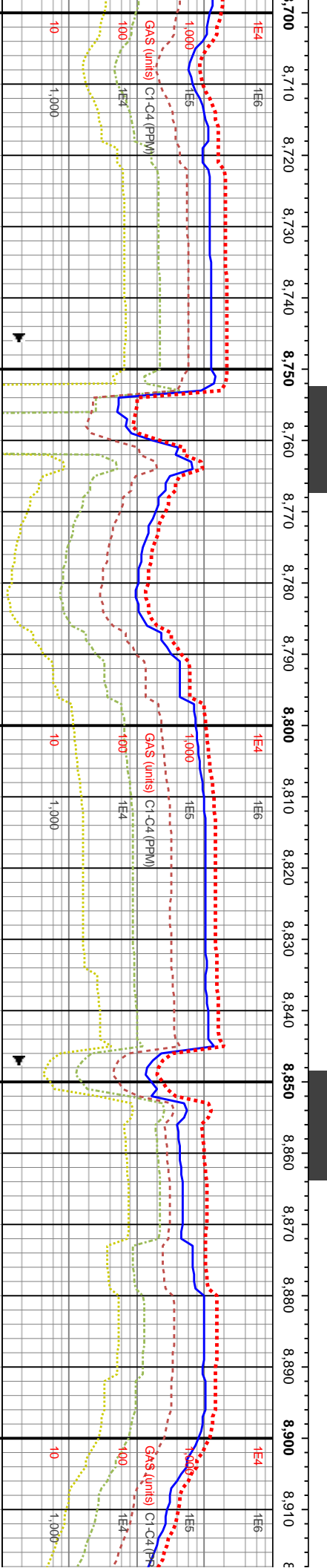
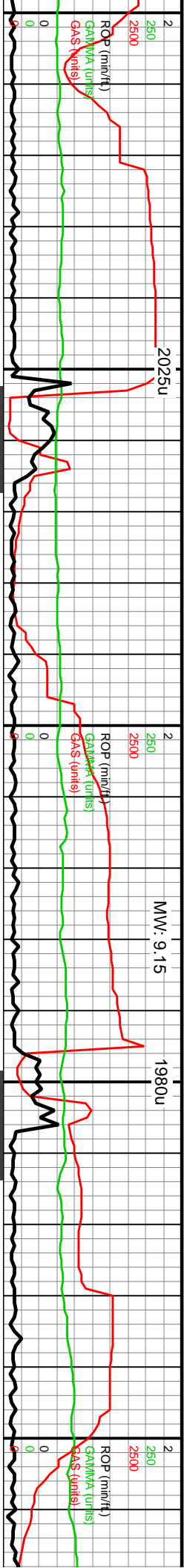
MD: 8,594'  
Inclination: 88.74°  
Azimuth: 271.52°  
TVD: 7,110.96'  
VS: 1,317.91'

MD: 8,688'  
Inclination: 89.26°  
Azimuth: 271.99°  
TVD: 7,112.6'  
VS: 1,410.34'

8480-8540 CHK (80%): pred med- gy, sme lt brn- v dk gy, ip lt gy, bf- lt brn- gy mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl- mod arg, occ mrlly intbds, mod calc incl, rr euhed cal, rr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, pred sb blkly- sb plty, chky intbds thru, sme cal incl- lse cal	8540-8600 CHK (80%): pred med- gy, sme lt brn- v dk gy, ip lt gy, bf- lt brn- gy mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl- mod arg, occ mrlly intbds, mod calc incl, rr euhed cal, rr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, pred sb blkly- sb plty, chky intbds thru, sme cal incl- lse cal	8600-8660 CHK (80%): pred gy, sme lt brn- med gy, ip lt gy, bf- lt brn- gy mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl- mod arg, occ mrlly intbds, mod calc incl, rr euhed cal, rr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, pred sb blkly- sb plty, chky intbds thru, sme cal incl- lse cal	8660-8720 CHK (80%): pred g gy, ip lt gy, bf- lt brn- brn mot t sl frm, pred sb blkly, pred sl- m intbds, mod calc incl, rr euhed (20%): dk gy- sl blk, sme bf- g sb blkly- sb plty, chky intbds th cal
---	---	---	---





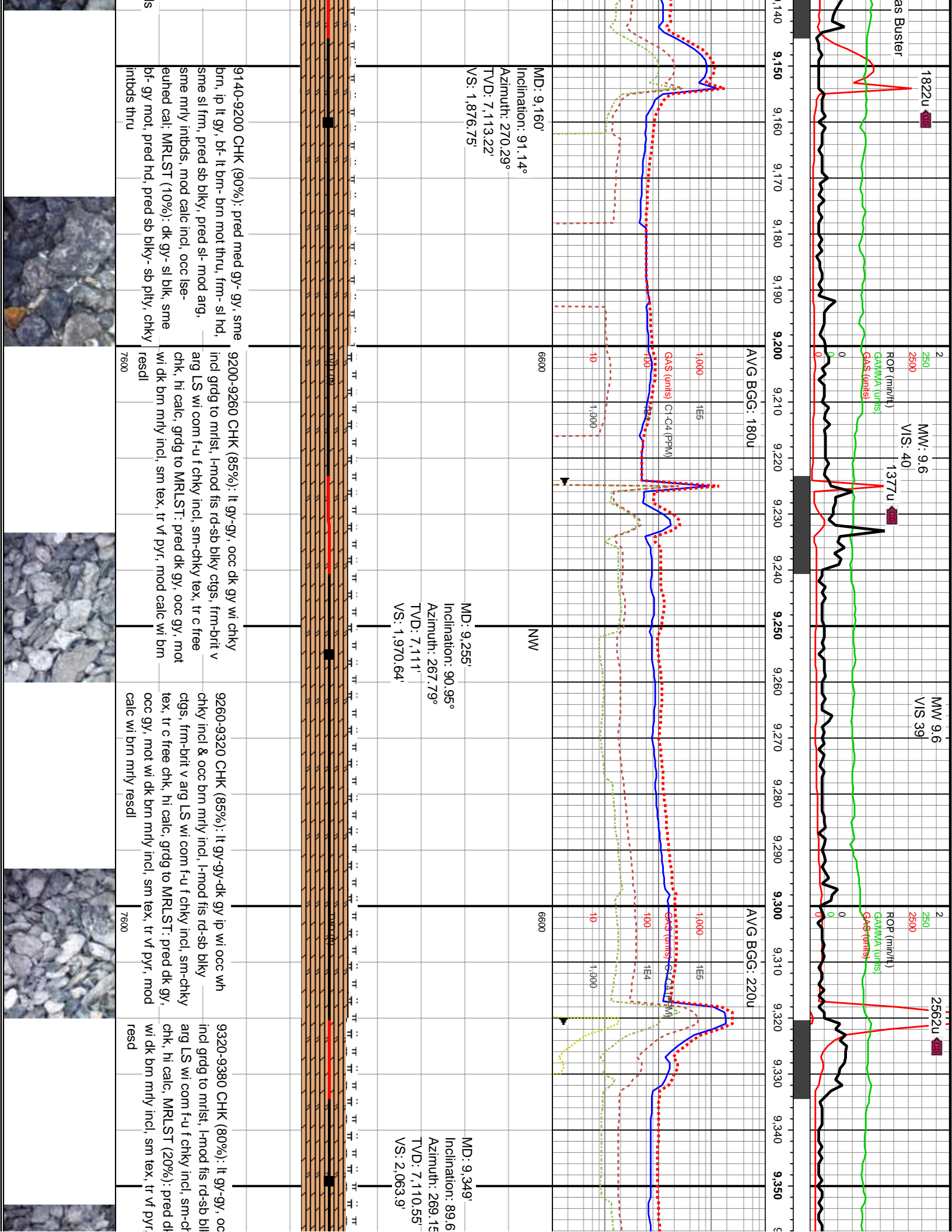


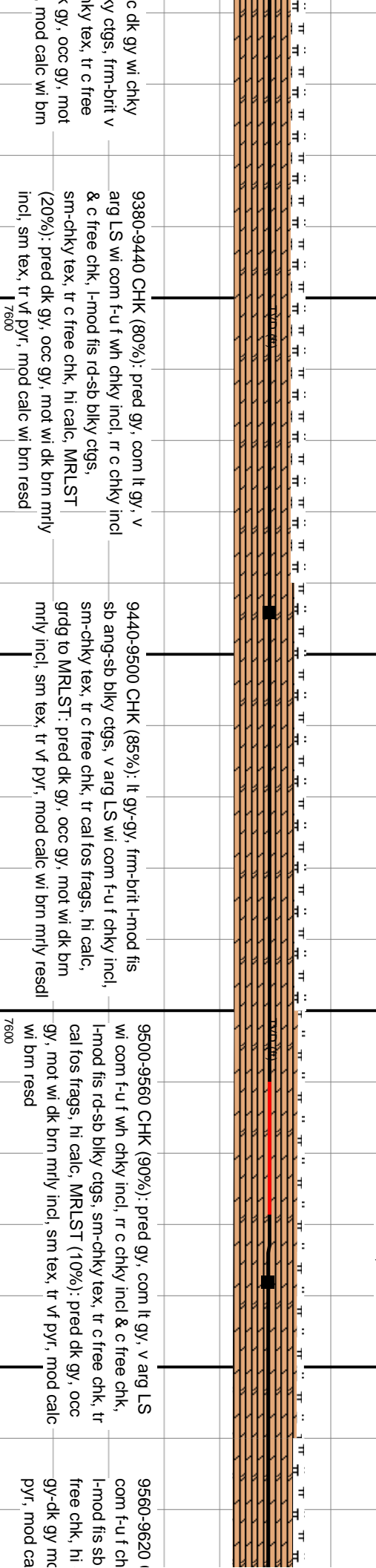
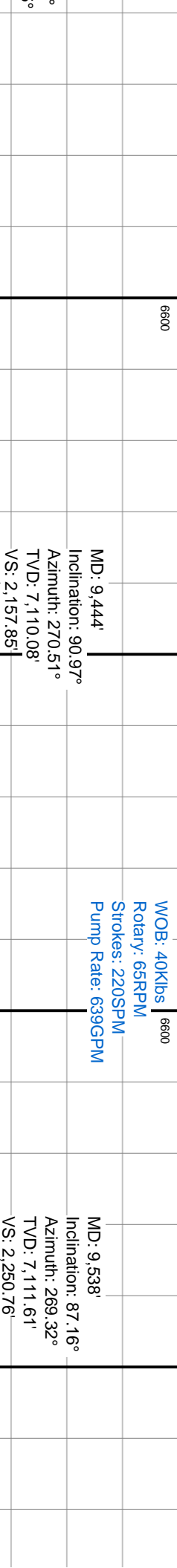
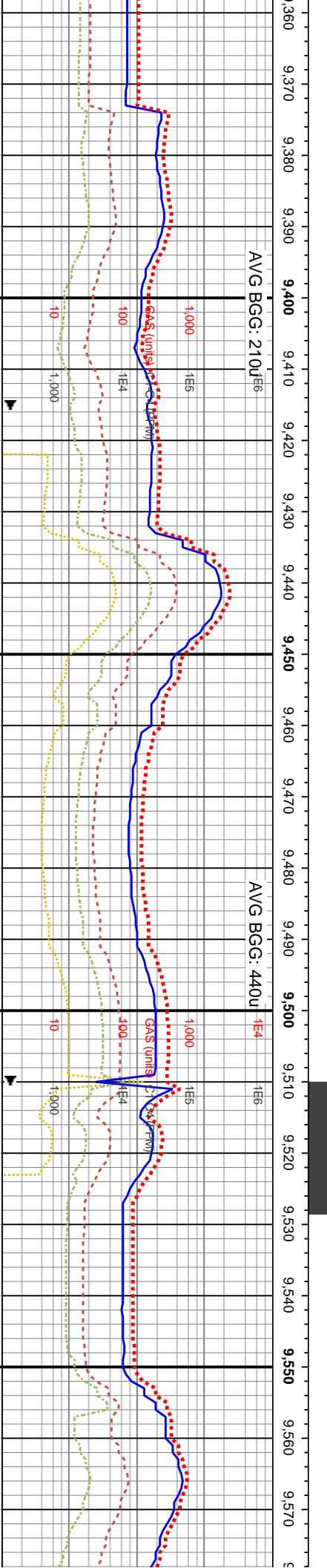
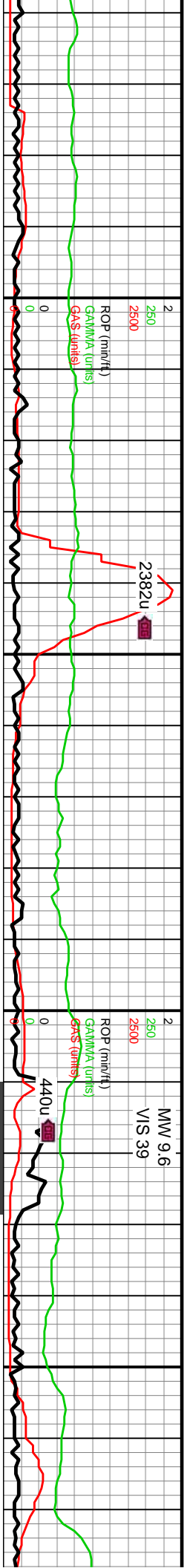
8720-8780 CHK (80%): pred gy, sme lt brn- med gy, ip lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, occ mfly intbds, mod calc incl, rr euhed cal, rr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, pred sb blk- sb pily, chky intbds thru, sme cal incl- lse cal	8780-8840 CHK (80%): pred gy- med gy, sme brn, ip lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, sme mfly intbds, mod calc incl, occ lse cal, rr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, pred sb blk- sb pily, chky intbds thru, sme cal incl- lse cal	8840-8900 CHK (80%): pred gy- med gy, sme brn, ip lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, sme mfly intbds, mod calc incl, occ lse cal, rr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, pred sb blk- sb pily, chky intbds thru, sme cal incl- lse cal	8900-8960C brn, ip lt gy, sme sl frm mfly intbds MRLST (20%) pred hd, p sme cal incl
7600			7600

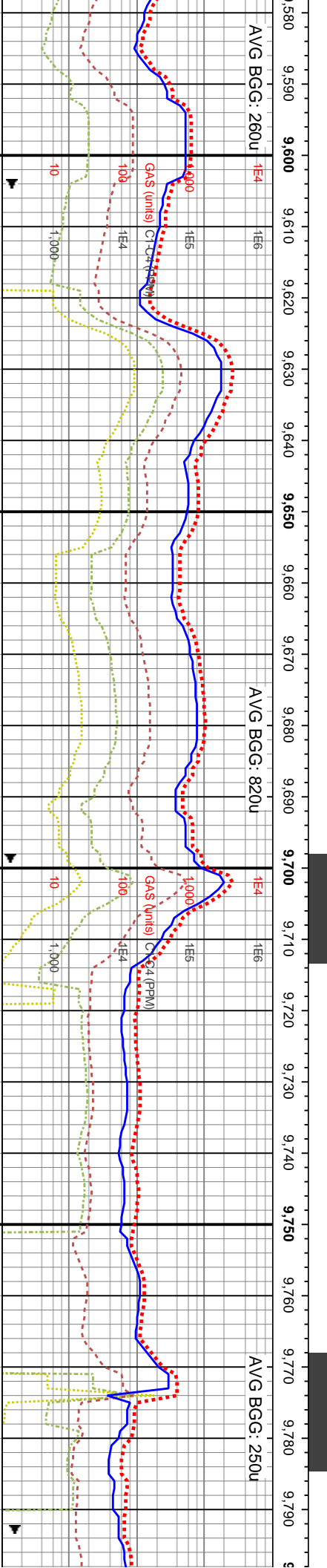
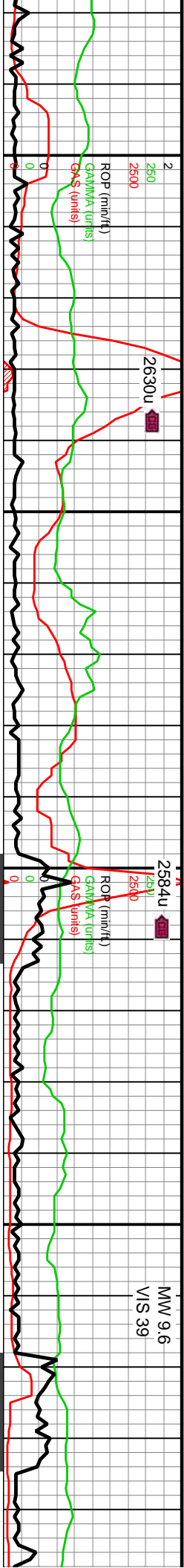






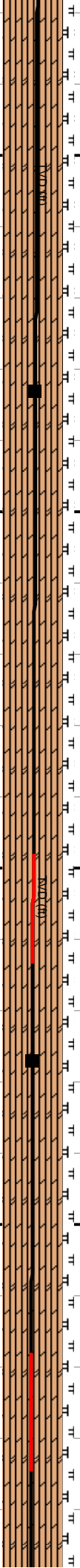






MD: 9,633'  
Inclination: 85.96°  
Azimuth: 269.8°  
TVD: 7,117.31'  
VS: 2,344.61'

MD: 9,727'  
Inclination: 86.86°  
Azimuth: 267.87°  
TVD: 7,123.2'  
VS: 2,437.61'



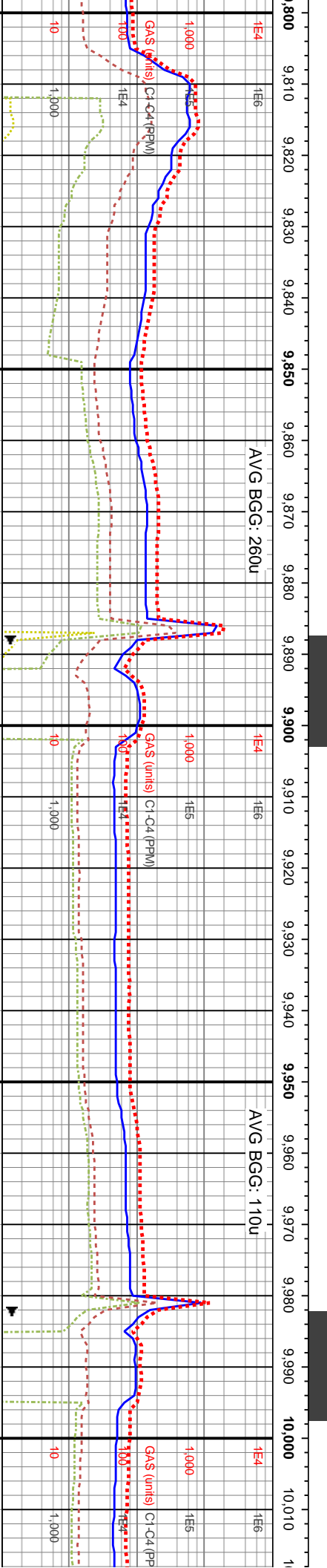
CHK (85%): lt gy-gy v arg LS wi  
ky incl & r r thn chky lamn, frm-brit  
ang-sb blkly cigs, sm-chky tex, tr c  
calc wi cin hcl rxn, MRLST (15%):  
t wi dk brn mrlly incl, sm tex, tr vf  
c wi brn mrlly resd

9620-9740 CHK (85%): lt gy-gy, frm-brit l-mod fls sb ang-sb blkly cigs, v arg LS wi com f-u f chky incl & r r thn chky lamn, occ c chky incl & tr c free chk thru, sm-chky tex, hi calc wi cin hcl rxn, MRLST (15%): gy-dk gy mot wi dk brn mrlly incl, sm tex, tr vf pyr, mod calc wi brn mrlly resd

9740-9800 CHK (85%): lt gy-gy v arg LS wi com f-u f  
chky incl & r r thn chky lamn, frm-brit l-mod fls sb  
ang-sb blkly cigs, sm-chky tex, tr c free chk, hi calc wi  
cin hcl rxn, MRLST (15%): gy-dk gy mot wi dk brn  
mrlly incl, sm tex, tr vf pyr, mod calc wi brn mrlly resd







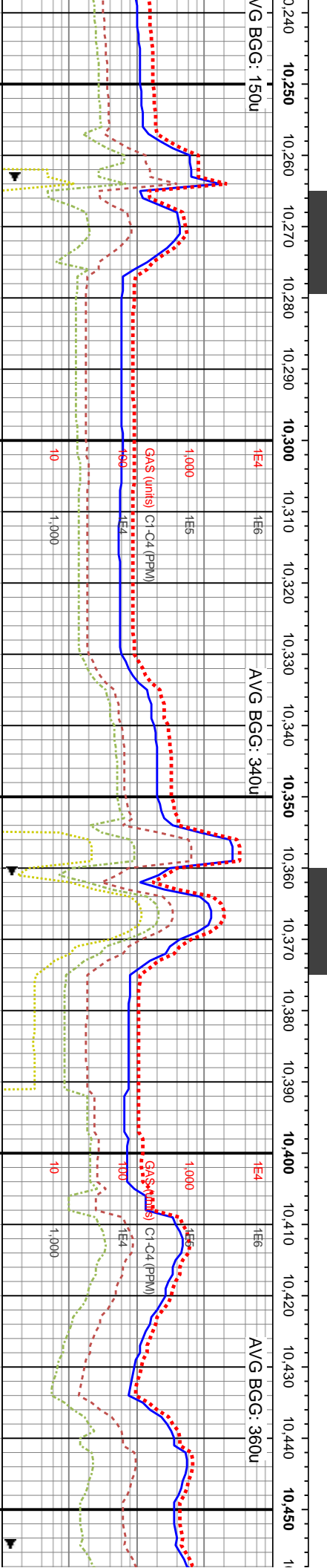
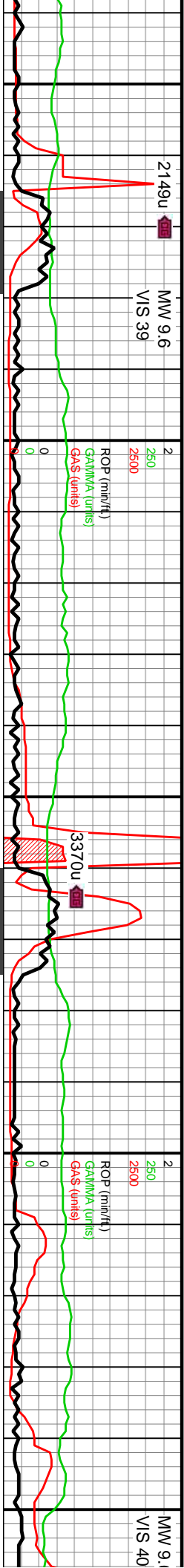
MD: 9,916'  
Inclination: 89.76°  
Azimuth: 267.51°  
TVD: 7,128.13'  
VS: 2,625.54'

MD: 10,011'  
Inclination: 92.5  
Azimuth: 267.94  
TVD: 7,126.19'  
VS: 2,719.92'

99380-1-0040 CHK (85%): gy-dk gy,  
wi com f-u f chky incl., firm-brit-l-mo-  
cigs, ooc c chky incl & ooc c free cl  
ooc c pyr stg, hi calc wi cln hcl rxn,  
gy-dk gy brn mol wi dk brn mfly inc  
ooc chky incl ip, mod calc wi brn m





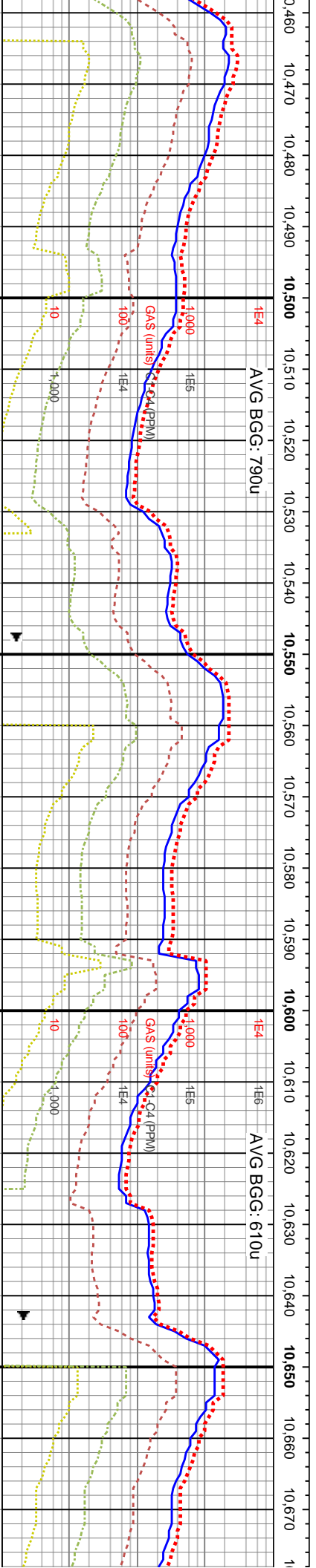
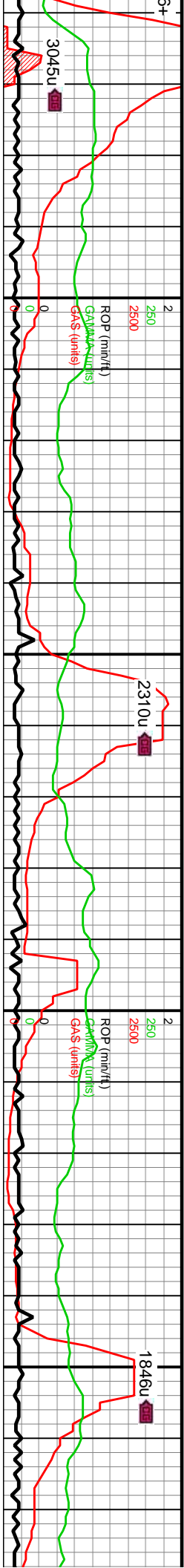


MD: 10,294'  
Inclination: 91.72°  
Azimuth: 269.17°  
TVD: 7,112.62'  
VS: 3,000.58'

MD: 10,389'  
Inclination: 90.03°  
Azimuth: 269.6°  
TVD: 7,111.17'  
VS: 3,094.63'

10280-10340 CHK (90%): lt gy, occ gy, frm-brit l-mod fis sb ang-sb blk cy cigs, v arg LS wi abnt v f-f chky incl & thn chky lamn thru, rr c free chk thru, sm-chky tex, tr vf pyr, hi calc, MRLST (10%): gy-dk gy brn mot wi dk brn mrlly incl, sm tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resd	7600
10340-10400 CHK (90%): pred lt gy, occ gy, v arg LS wi abnt f-u f chky incl & thn chky lamn, frm-brit l-mod fis sb rd-sb blk cy cigs, tr c free chk, tr vf pyr, hi calc wi cin hcl rxn, MRLST (10%): gy-dk gy, mot wi occ brn mrlly incl, sm-sltly tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resd	7600
10400-10460 CHK (90%): lt gy, occ gy, frm-brit l-mod fis sb ang-sb blk cy cigs, v arg LS wi abnt v f-f chky incl & thn chky lamn thru, rr c free chk thru, sm-chky tex, tr c cal, tr vf pyr, hi calc, MRLST (10%): gy-dk gy brn mrlly incl, sm tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resd	7600





WOB: 39Klbs  
Rotary: 65RPM  
Strokes: 220SPM  
Pump Rate: 639GPM

MD: 10,483'  
Inclination: 90.26°  
Azimuth: 269.45°  
TVD: 7,110.93'  
VS: 3,187.67'

MD: 10,578'  
Inclination: 89.21°  
Azimuth: 270.03°  
TVD: 7,111.37'  
VS: 3,281.65'

MD: 10,672'  
Inclination: 8  
Azimuth: 270  
TVD: 7,113.0  
VS: 3,374.5'

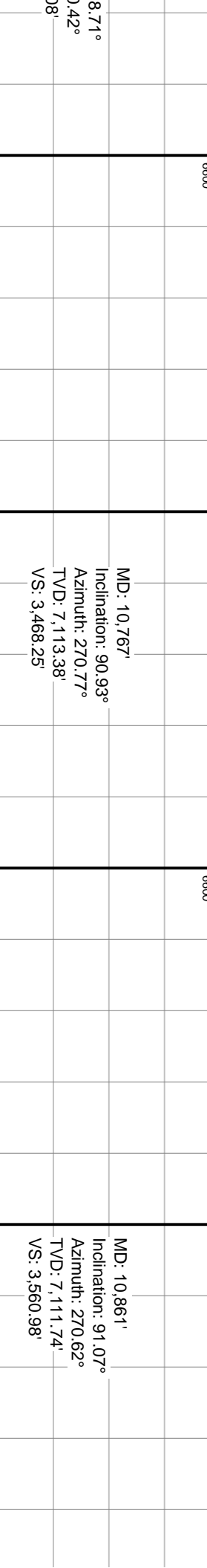
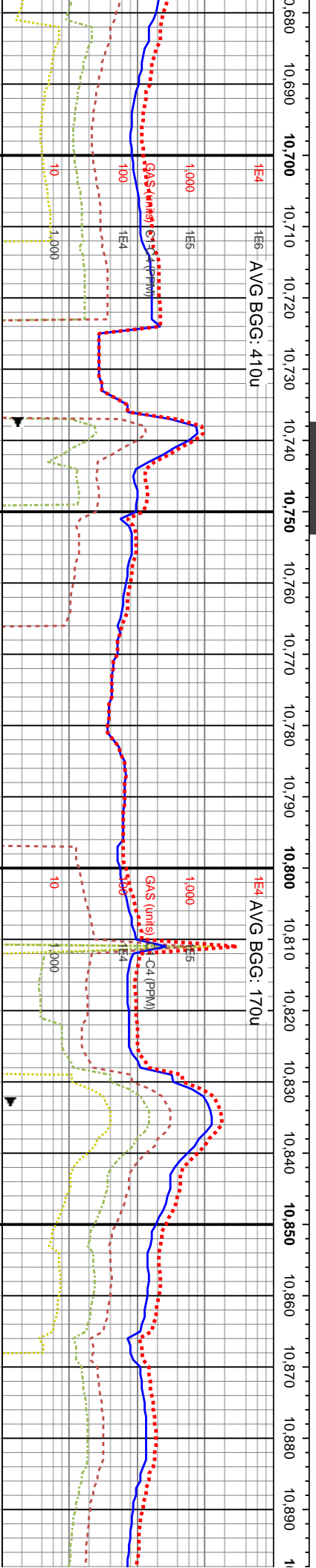
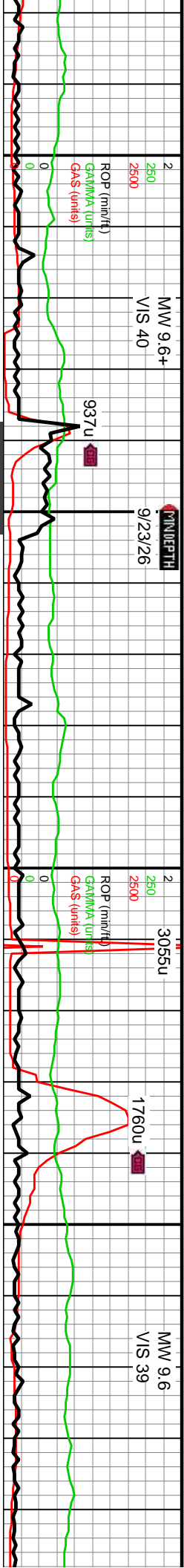
10460-10520 CHK: pred gy v arg LS wi occ vf-u f wh  
chkyl incl, occ lt gy, frm-brit l-mod fis sb rd-biky cigs,  
occ-r c free chk, tr vf pyr, rr cal vn & lse euhed cal, tr  
tn bent, hi calc wi cin hcl rxn, MRLST (10%): gy-dk gy  
mot wi occ brn mrlly incl, sm-si silty tex, tr vf pyr, occ  
chkyl incl ip, mod calc wi brn mrlly resdl

10520-10580 CHK (85%): pred gy, occ lt gy, frm-brit  
l-mod fis sb ang-sb biky cigs, v arg LS wi occ v f-f  
chkyl incl & thn chkyl lamm, occ-r c free chk thru,  
sm-chky tex, tr c cal, tr bent, tr vf pyr, hi calc, MRLST  
(15%): gy-dk gy brn mot wi dk brn mrlly incl, sm tex, tr  
vf pyr, occ chkyl incl ip, mod calc wi brn mrlly resdl

10580-10640 CHK (80%): pred gy v arg LS wi occ  
vf-u f wh chkyl incl, occ lt gy, frm-brit l-mod fis sb  
rd-biky cigs, occ-r c free chk, tr vf pyr, rr cal vn & lse  
euhed cal, tr tn bent, hi calc wi cin hcl rxn, MRLST  
(20%): gy-dk gy mot wi occ brn mrlly incl, sm-si silty  
tex, tr vf pyr, occ chkyl incl ip, mod calc wi brn mrlly  
resdl

10640-10700 CHK (85%): pred gy,  
l-mod fis sb ang-sb biky cigs, v arg  
chkyl incl & thn chkyl lamm, occ-r c  
sm-chky tex, tr c cal, tr bent, tr vf p  
(15%): gy-dk gy brn mot wi dk brn  
vf pyr, occ chkyl incl ip, mod calc wi

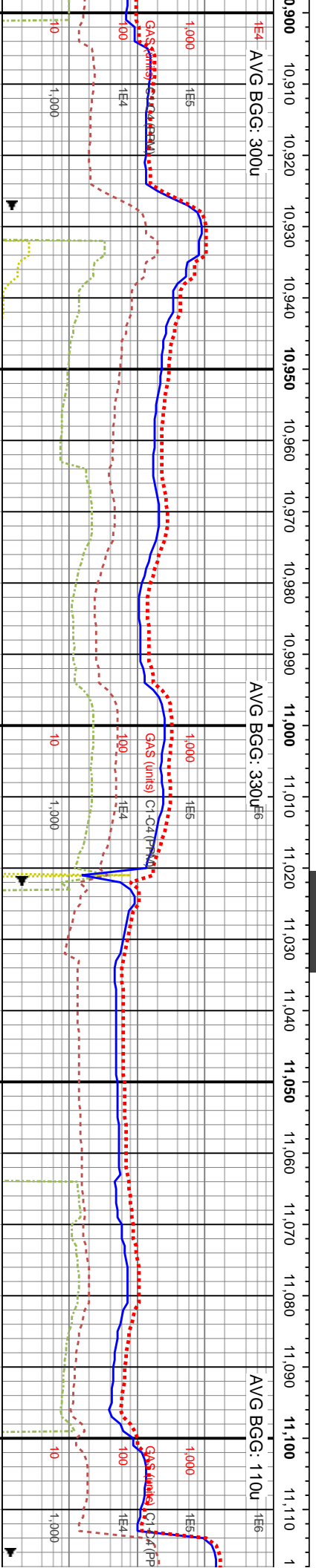
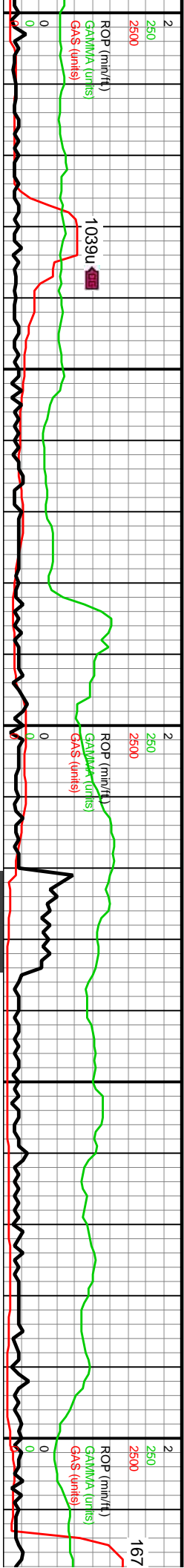




occ lt gy, frm-brit LS wi occ v f-f free chk thru, yr, hi calc, MRLST mrlly incl, sm tex, tr brn mrlly resd	10700-10760 CHK (80%): pred gy v arg LS wi occ vf-u f wh chky incl, occ lt gy, frm-brit l-mod fis sb rd-bkly ctgs, rr c free chk, tr vf pyr, tr c pyr strg, hi calc wi cin hcl rxn, MRLST (20%): gy-dk gy mot wi occ brn mrlly incl, sm-sl silty tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resd	10760-10820 CHK (85%): pred gy, occ lt gy, frm-brit l-mod fis sb ang-sb bkly ctgs, v arg LS wi occ v f-f chky incl & thin chky lamm, rr c free chk thru, sm-chky tex, tr vf pyr & pyr strg, hi calc, MRLST (15%): gy-dk gy brn mot wi dk brn mrlly incl, sm tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resd	10820-10880 CHK (85%): pred gy v arg LS wi occ vf-u f wh chky incl, occ lt gy, frm-brit l-mod fis sb rd-bkly ctgs, rr c free chk, tr vf pyr, tr c pyr strg, hi calc wi cin hcl rxn, MRLST (15%): gy-dk gy, frm-brit mod fis sb bkly-sb ply ctgs mot wi occ brn mrlly incl, sm-sl silty tex, tr vf pyr, mod calc wi brn mrlly resd	10880-10940 CHK (85%): pred gy v arg LS wi occ vf-u f wh chky incl, occ lt gy, frm-brit l-mod fis sb rd-bkly ctgs, rr c free chk, tr vf pyr, tr c pyr strg, hi calc wi cin hcl rxn, MRLST (15%): gy-dk gy, frm-brit mod fis sb bkly-sb ply ctgs mot wi occ brn mrlly incl, sm-sl silty tex, tr vf pyr, mod calc wi brn mrlly resd
---	---	--	---	---



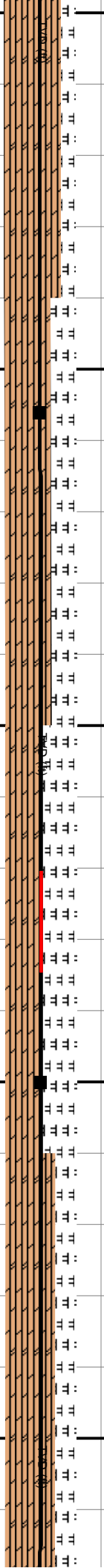




WOB: 46Klbs 6600  
Rotary: 65RPM  
Strokes: 220SPM  
Pump Rate: 639GPM

MD: 10,956'  
Inclination: 92.13°  
Azimuth: 270.66°  
TVD: 7,109.09'  
VS: 3,654.69'

MD: 11,050'
Inclination: 89.39°
Azimuth: 270.64°
TVD: 7,107.84'
VS: 3,747.44'



CHK (80%); pred gy v arg LS wi occ  
incl, occ lt gy, frm-brit l-mod lts sb  
free chk, tr vf pyr, tr c pyr stng, hi calc  
RLST (20%); gy-dk gy mot wi occ brn  
slly tex, tr vf pyr, occ chky incl ip, mod  
resd  
7600

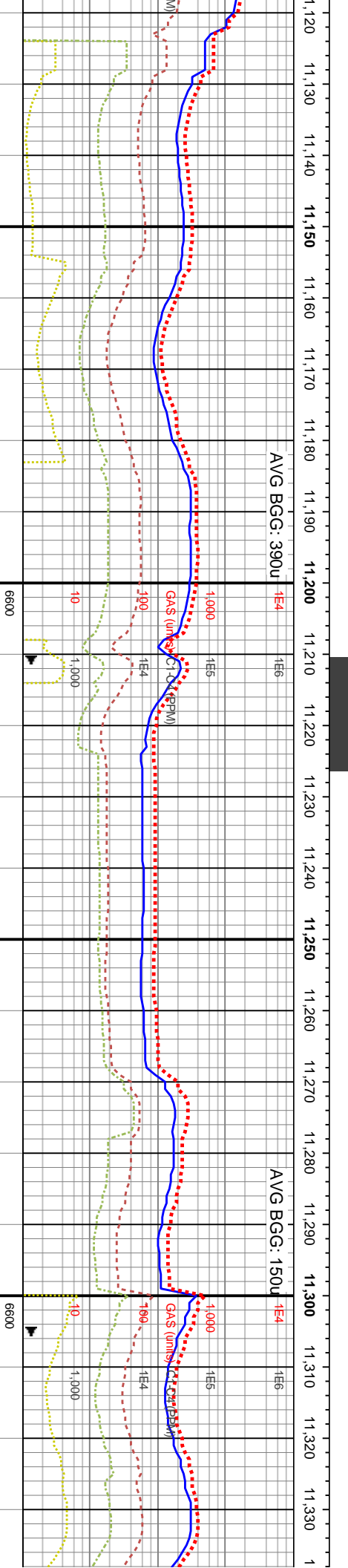
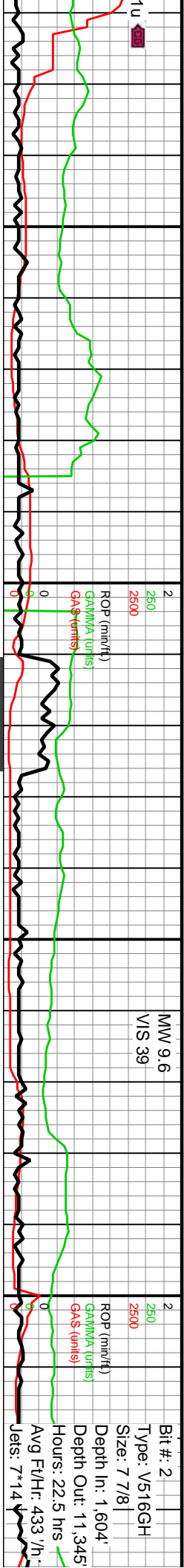
10940-11000 CHK (65%): pred gy v arg LS wi occ  
v-f-u f wh chky incl, occ tr gy, frm-brit l-mod fis sb  
rd-biky cigs, tr c free chk, tr vf pyr, tr c pyr strg, hi calc  
wi chl hcl rxn, MRLST (35%): gy-dk gy, frm-brit mod  
fis sb biky-sb ply cigs mot wi occ brn mrlly incl, sm-sl  
sly tex, tr vf pyr, mod calc wi brn mrlly resd

11000-11060 MRLST (50%): gy-dk gy, frm-brit mod  
fis sb blkly-sb plyt cigs mot wi occ brn mrlly incl, sm-sl  
sily tex, tr vf pyr, mod calc wi brn mrlly resld, CHK  
(50%): pred gy v arg LS wi occ vf-u f wh chky incl, occ  
lt gy, frm-brit l-mod fis sb rd-bkly cigs, tr vf pyr, tr c pyr  
strng, hi calc wi dln hcl rxn

1 1060-11120 CHK (70%): *tt-gy-gv v arg LS wi occ*  
*vf-u f wñ chky incl, frm-bñt l-mod fñs sb rd-blyk cñgs,*  
*tr vf pyr, hi calc wi cñn hcl rxn, MRLST (30%): gy-dk*  
*gy mot wi occ brñ mñly incl, sm-sl sñly tex, tr vf pyr,*  
*occ chky incl ip, mod calc wi brñ mñly resdl*

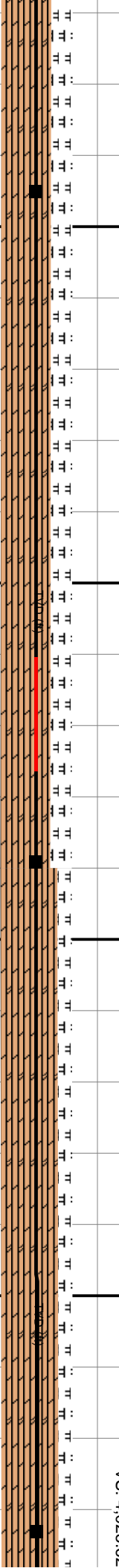






MD: 11,145'  
Inclination: 88.62°  
Azimuth: 271.83°  
TVD: 7,109.49'  
VS: 3.841'

MD: 11,239'  
Inclination: 90.99°  
Azimuth: 272.25°  
TVD: 7,109.81'  
VS: 3.933.35'



MD: 11,333'  
Inclination: 90.99°  
Azimuth: 272°  
TVD: 7,108.4'  
VS: 4,025.62'

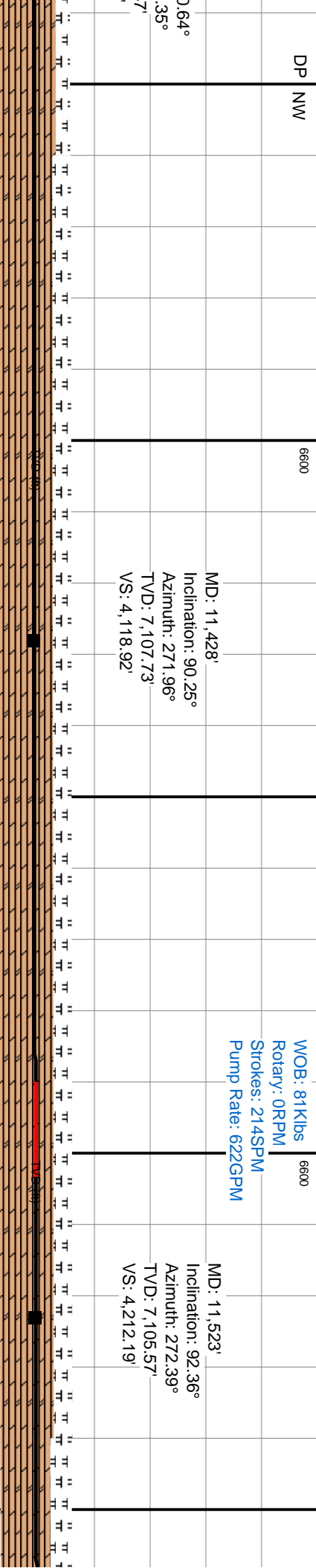
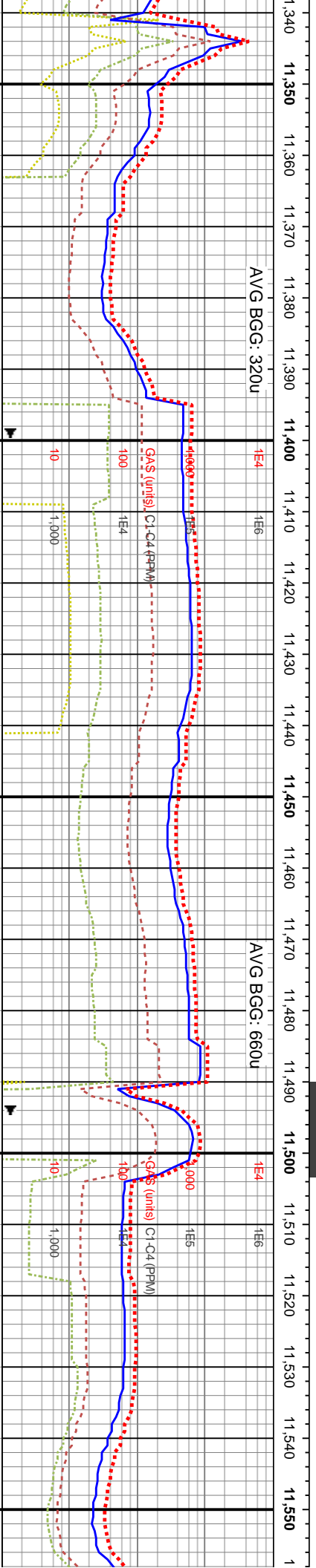
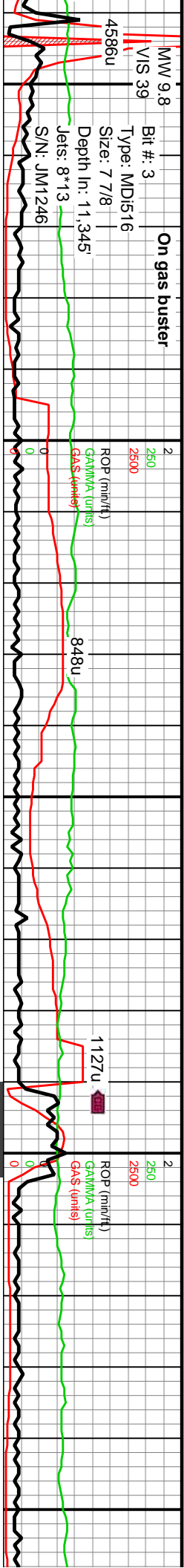
11120-11180 CHK (70%): lt gy-gy, frm-brit l-mod fis sb rd-blky ctgs, v arg LS wi occ vf-u f wh chky incl, tr vf pyr, hi calc, MRLST (30%): gy-dk gy mot wi occ brn mrlly incl, sm-sl silty tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resdl

11180-11240 CHK (70%): lt gy-gy v arg LS wi occ vf-u f wh chky incl, frm-brit l-mod fis sb rd-blky ctgs, tr vf pyr, hi calc wi cin hcl rxn, MRLST (30%): gy-dk gy mot wi occ brn mrlly incl, sm-sl silty tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resdl

11240-11300 CHK (80%): pred gy, occ lt gy, v arg LS wi occ vf-u f wh chky incl, frm-brit l-mod fis sb rd-blky ctgs, tr c free chk, tr vf pyr, tr c pyr strg, hi calc wi cin hcl rxn, MRLST (20%): gy-dk gy mot wi occ brn mrlly incl, sm-sl silty tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resdl

11300-11360 CHK (80%): lt-gy, v f wh chky incl, frm-brit l-mod fis sb rd-blky ctgs, tr vf pyr, hi calc, MRLST (30%): gy-dk gy mot wi occ-brn mrlly incl, sm-sl silty tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resdl

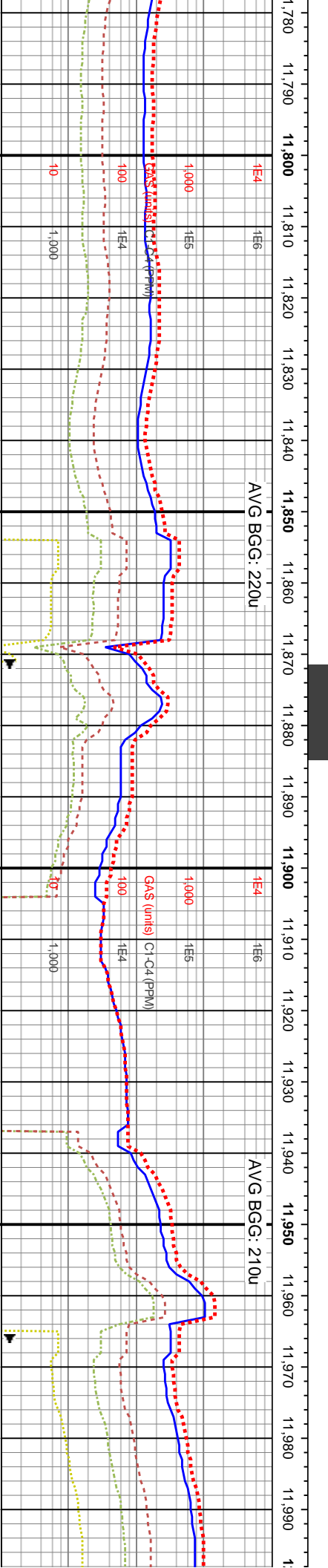
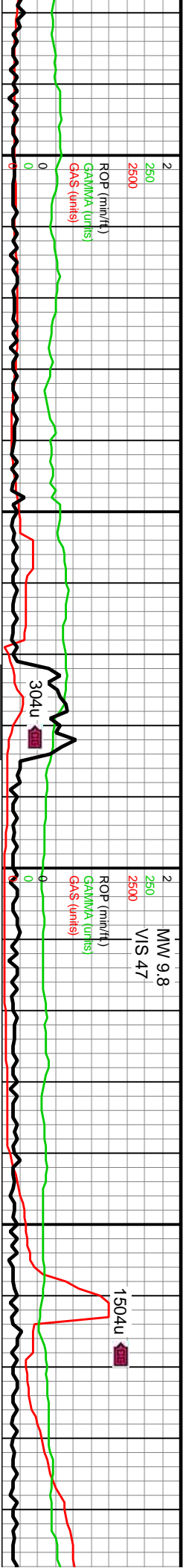




arg LS wi occ vf-u rd-biky ctgs, rr c MRLST (20%): incl, occ gy, sm calc wi brn mrlly	11360-11420 CHK (75%): pred gy, occ lt gy, v arg LS wi occ vf-u f wh chky incl, frm-brit l-mod fis sb rd-biky ctgs, rr c free chk, tr vf pyr, tr c pyr strg, hi calc wi cin hcl rxn, MRLST (25%): gy-dk gy mot wi occ brn mrlly incl, sm-sl silty tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resdl	11420-11480 CHK (75%): lt gy-gy v arg LS wi occ vf-u f wh chky incl, frm-brit l-mod fis sb rd-biky ctgs, rr c free chk wi splty break ip, tr vf pyr, hi calc wi cin hcl rxn, MRLST (25%): gy-dk gy mot wi occ brn mrlly incl, sm-sl silty tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resdl	11480-11540 CHK (75%): lt-gy, v arg LS wi occ vf-u f wh chky incl, frm-brit l-mod fis sb rd-biky ctgs, rr c free thn lamm chk, tr vf pyr, hi calc MRLST (25%): pred dk gy mot wi occ-rr dk brn mrlly incl, occ gy, sm tex, tr vf pyr, occ chky incl ip, mod calc wi brn mrlly resdl	11540-11660 ang-sb biky ct dk gy, occ gy, mrlly resdl
---	--	--	--	--







MD: 11,806'  
Inclination: 92.81°  
Azimuth: 271.9°  
TVD: 7,092.3'  
VS: 4,490.09'

MD: 11,900'  
Inclination: 91.61°  
Azimuth: 270.87°  
TVD: 7,088.68'  
VS: 4,582.58'

WOB: 41Klb  
Rotary: 65RR  
Strokes: 214  
Pump Rate:

MD: 11,995'  
Inclination:  
Azimuth: 27  
TVD: 7,085'  
VS: 4,676.1'

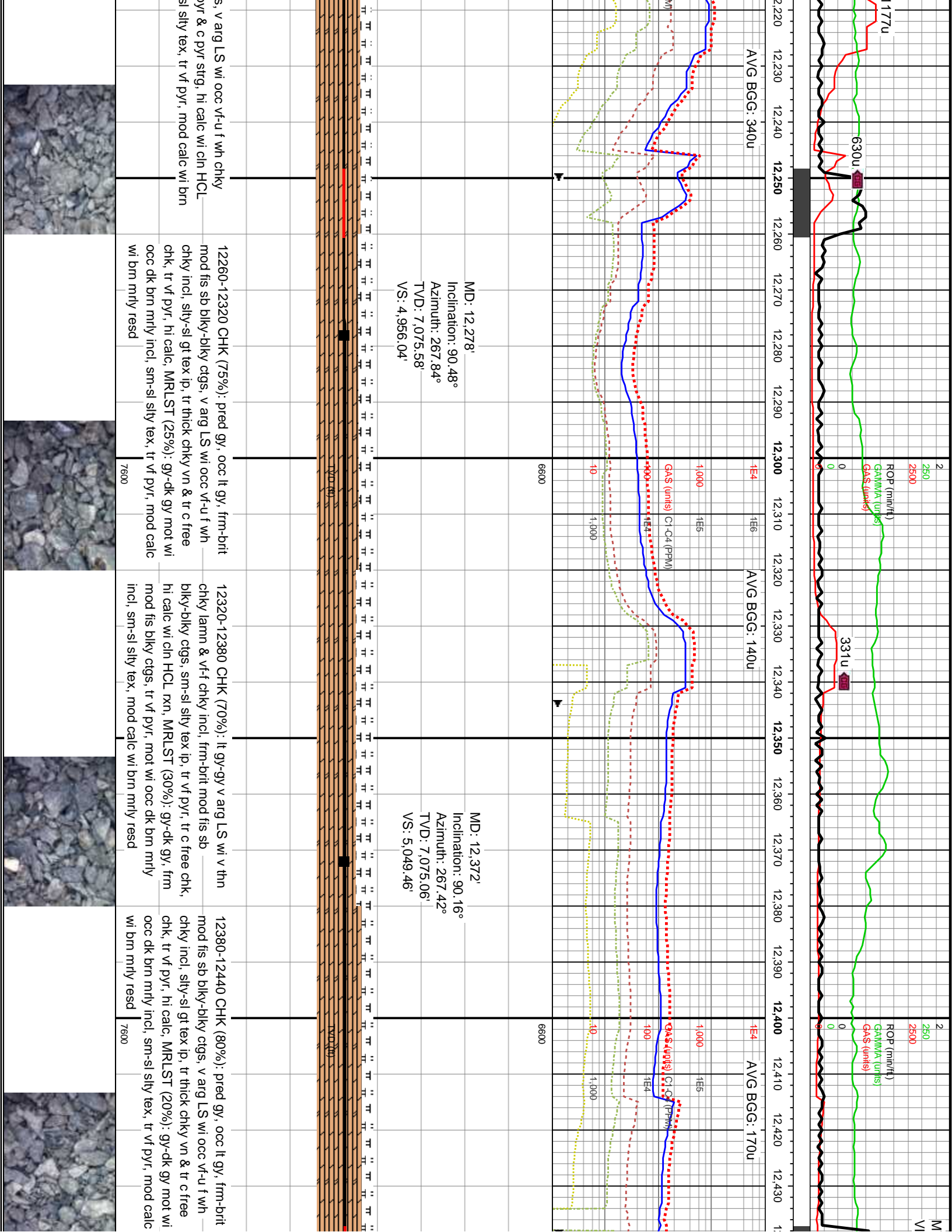
11780-11900 CHK (80%): lt gy-gy v arg LS wi occ vf-u f wh chky incl, frm-brit l-mod fis sb ang-sb blk cy cigs, slty-sl gt tex ip, rr thick chky vn & tr cal fos frgs, rr c free chk, tr vf pyr, hi calc wi chn hcl rxn, MRLST (20%): pred dk gy-v dk gy, occ gy, mot wi occ brn mrlly incl, sm-sl slty tex, tr vf pyr, occ vf-f-along chky incl ip, mod calc wi brn mrlly resdl	7600
11900-11960 CHK (90%): lt gy-gy, frm-brit l-mod fis sb ang-sb blk cy cigs, v arg LS wi occ vf-u f wh chky incl, slty-sl gt tex ip, rr thick chky vn & tr cal fos frgs, rr c free chk, tr vf pyr & c pyr strg, hi calc, MRLST (10%): gy-gy brn-dk gy mot wi occ dk brn mrlly incl, sm-sl slty tex, tr vf pyr, mod calc wi brn mrlly resdl	7600
11960-12020 CHK (80%): lt gy-gy, sb ang-sb blk cy cigs, v arg LS wi occ incl, slty-sl gt tex ip, rr thick chky vn c free chk, tr vf pyr & c pyr strg, hi efferv, MRLST (20%): gy-gy brn-dl brn mrlly incl, sm-sl slty tex, tr vf py mrlly resdl	

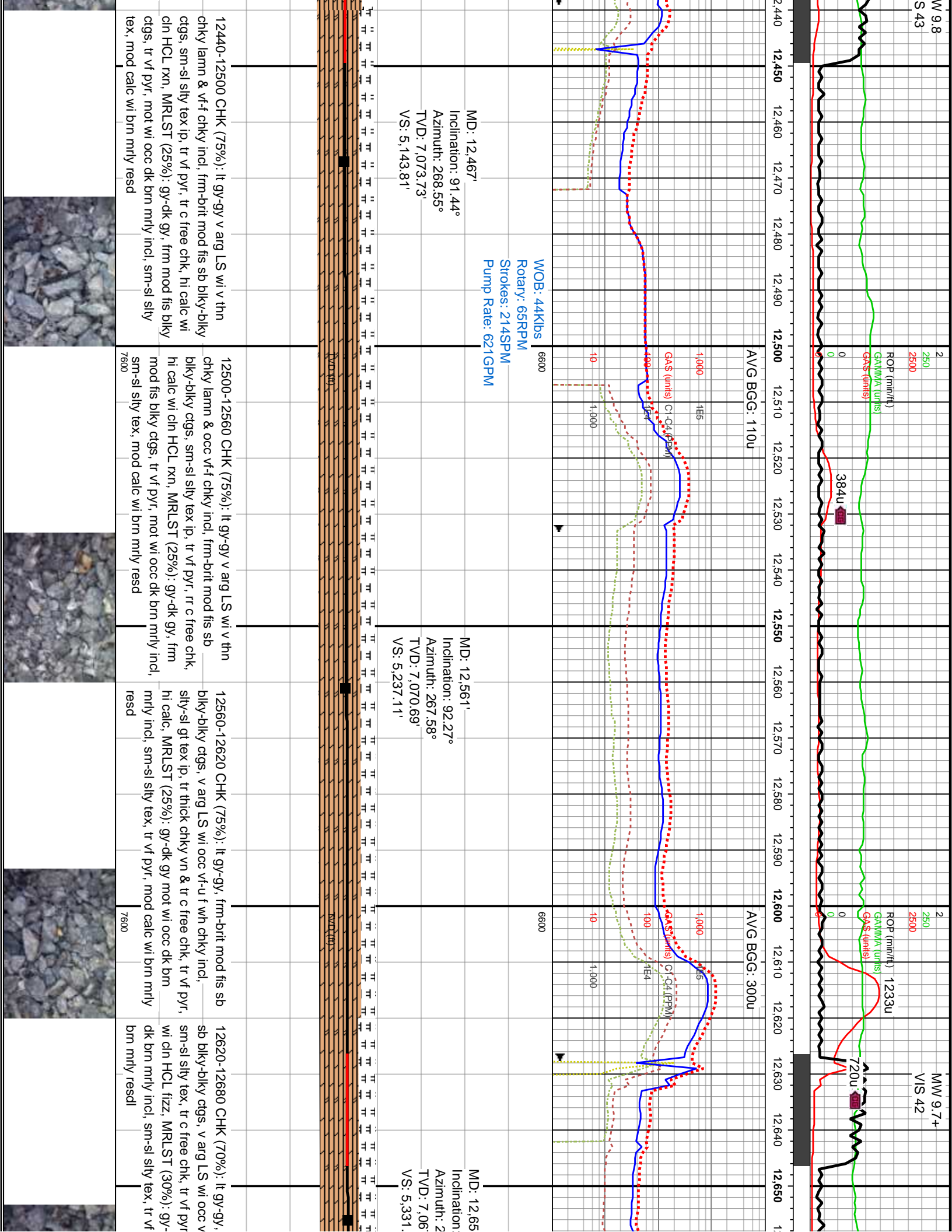


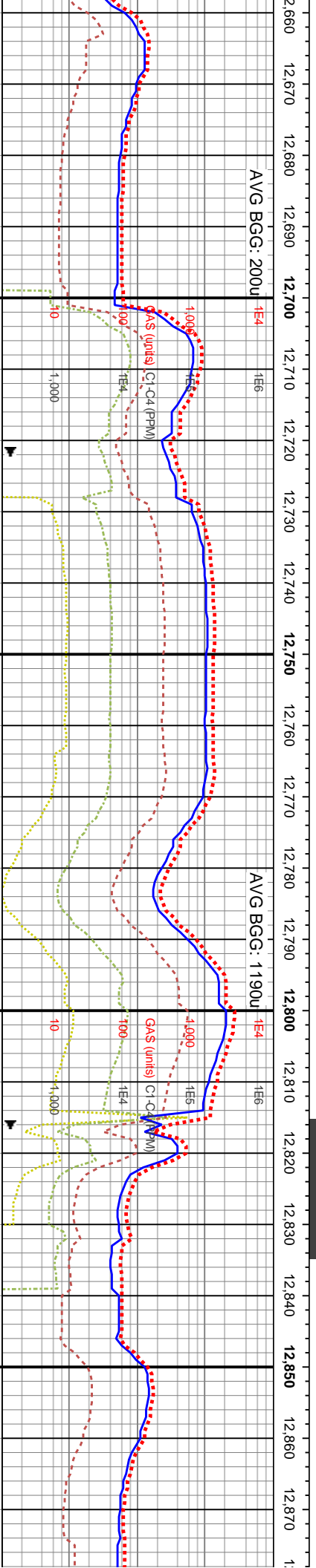
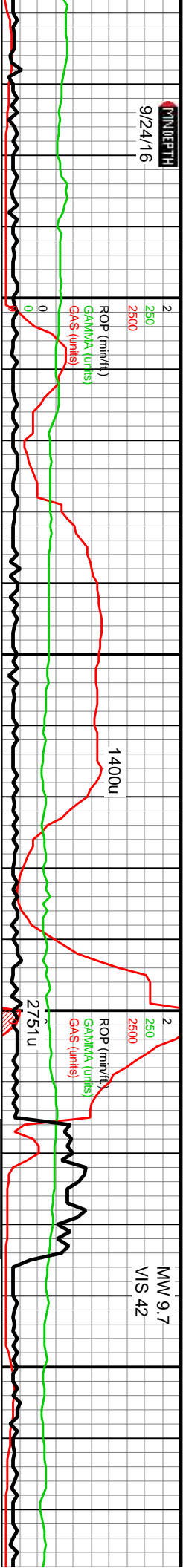










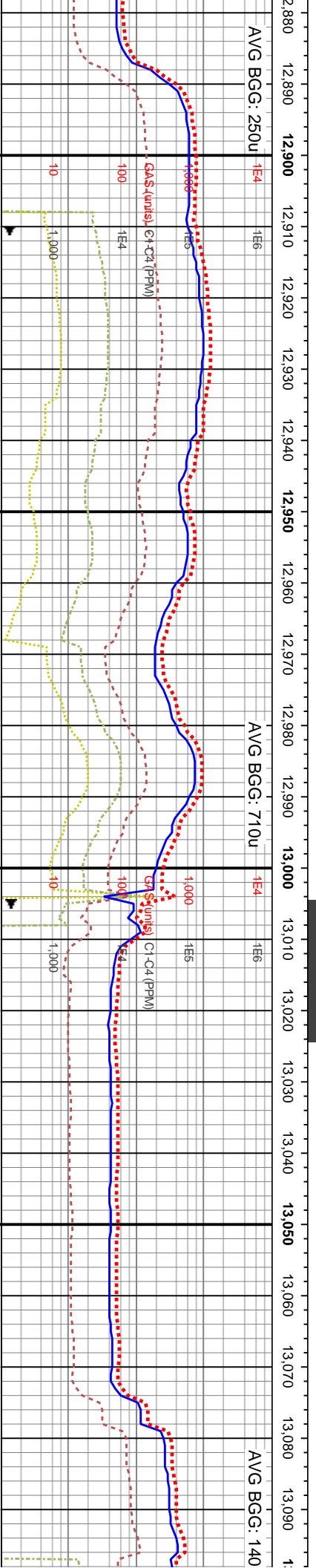


MD: 12,750'  
Inclination: 91.24°  
Azimuth: 268.45°  
TVD: 7,065.8'  
VS: 5,424.58'

MD: 12,845'  
Inclination: 93.61°  
Azimuth: 269.71°  
TVD: 7,061.78'  
VS: 5,518.62'

12680-12740 CHK (75%): lt gy-gy v arg LS wi v thn chky lamm & occ vf-f chky incl, frm-brit mod fis sb blkly-bkly ctgs, sm-sl silty tex ip, tr vf pyr & c pyr strg, tr c free chk, hi calc wi cin HCL rxn, MRLST (25%): gy-dk gy, frm mod fis blkly ctgs, tr vf pyr, mot wi occ dk brn mrlly incl, sm-sl silty tex, mod calc wi brn mrlly resd	7600
12740-12800 CHK (75%): pred gy, occ lt gy, frm-brit mod fis sb blkly-bkly tab ctgs, v arg LS wi occ vf-u f wh chky incl, sm-sl silty tex, tr c free chk, tr vf pyr, hi calc wi cin HCL rxn, MRLST (25%): gy-dk gy occ mot wi dk brn mrlly incl, sm-sl silty tex, tr vf pyr, mod calc wi brn mrlly resd	7600
12800-12860 CHK (75%): lt gy-gy v arg LS wi occ vf-u f wh chky incl, lt gy ctgs wi abnt chky incl ip, frm-brit mod fis sb blkly-bkly tab ctgs, sm-sl silty tex, tr c free chk, tr cal vn, tr vf pyr, hi calc wi cin HCL rxn, MRLST (25%): gy-dk gy mot wi occ dk brn mrlly incl & occ vf chky incl, sm-sl silty tex, tr vf pyr, mod calc wi brn mrlly resd	7600
12860-12920 CHK (75%): mod fis sb blkly-bkly tab ctgs, sm-sl silty tex, tr c free chk, hi calc wi cin HCL rxn, MRLST (25%): gy-dk gy mot wi dk brn mrlly incl, sm-sl silty tex, tr vf pyr, mod calc wi brn mrlly resd	7600





MD: 12,939'  
Inclination: 94.52°  
Azimuth: 268.76°  
TVD: 7,055.12'  
VS: 5,611.48'

WOB: 43Klbs  
Rotary: 65RPM  
Strokes: 21ASPM  
Pump Rate: 622GPM

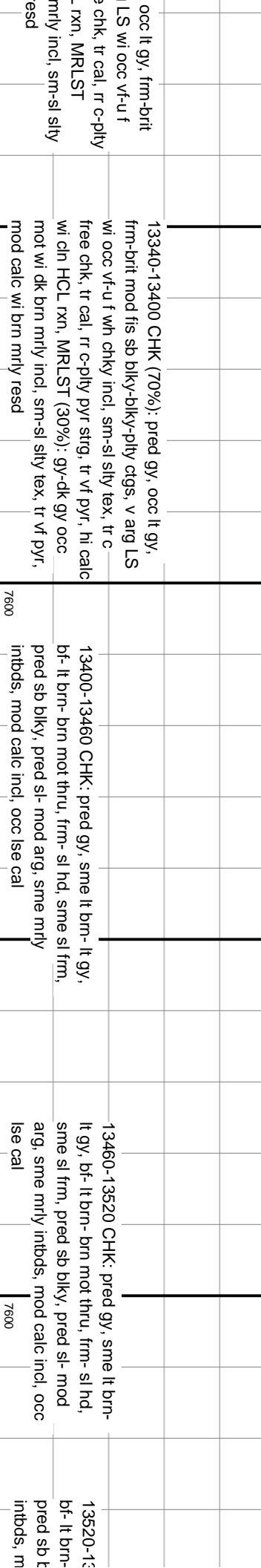
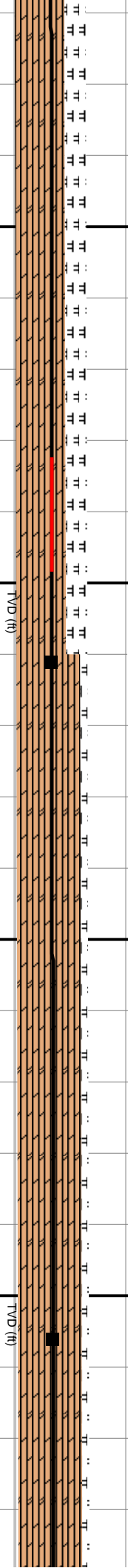
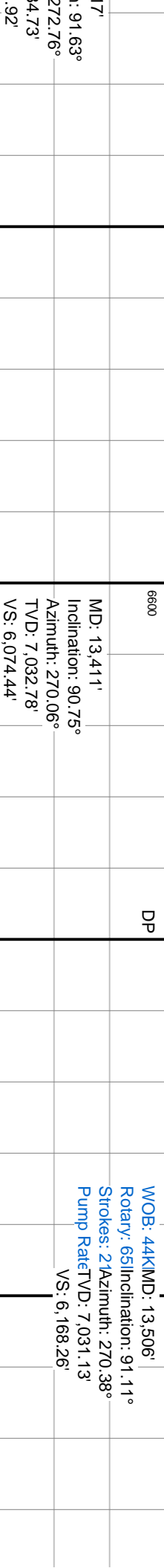
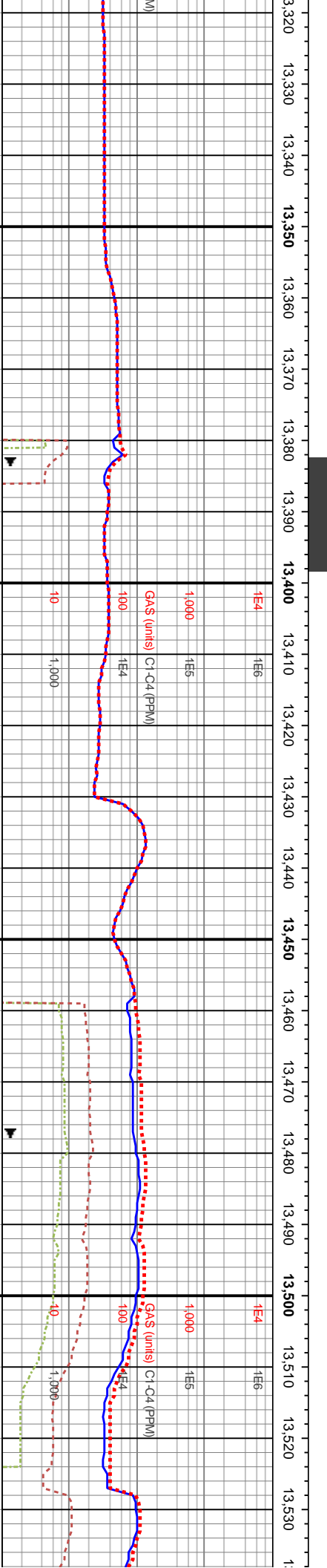
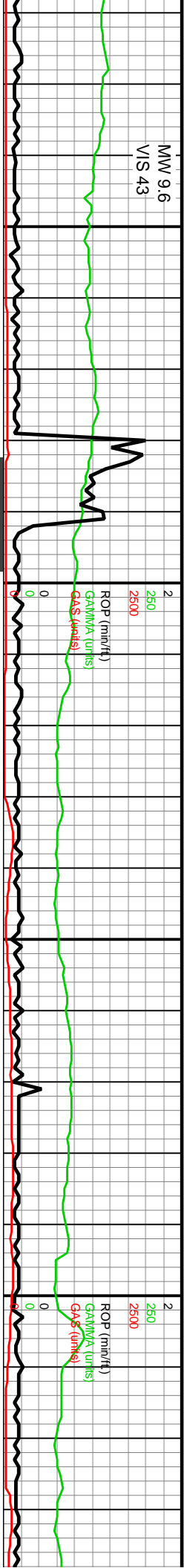
MD: 13,034'  
Inclination: 94.09°  
Azimuth: 270.98°  
TVD: 7,047.99'  
VS: 5,705.15'

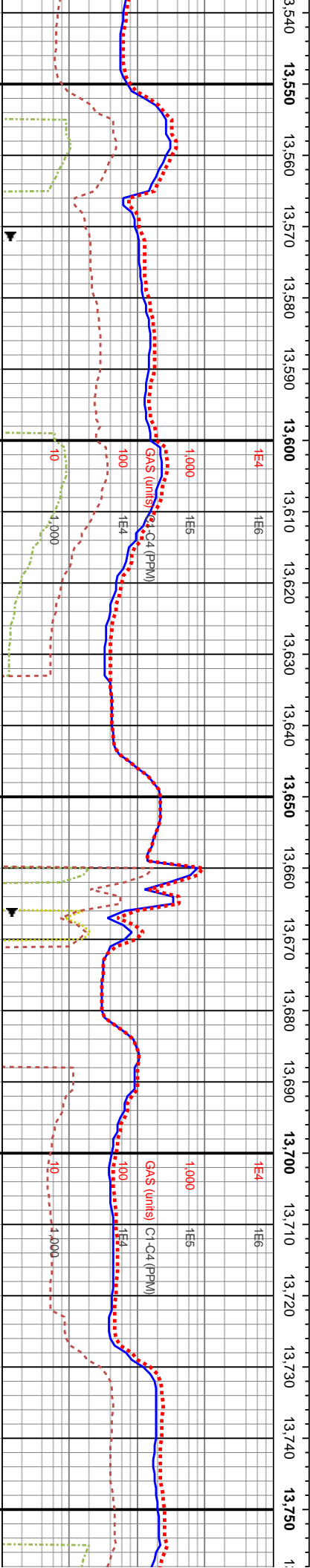
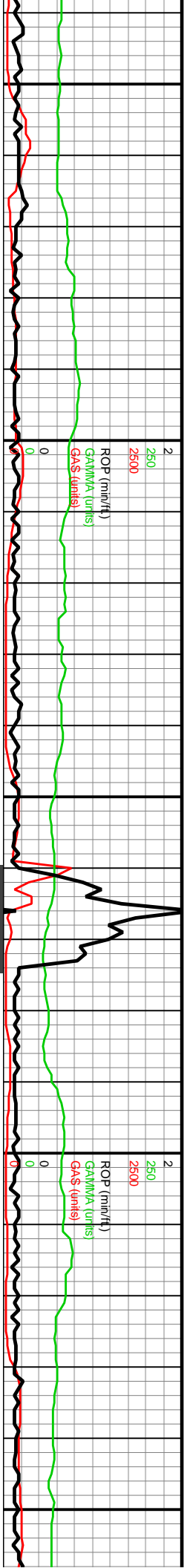
12920-12980 CHK (80%): lt gy-gy, frm-brit mod fis sb biky-biky tab ctgs, v arg LS wi occ vf-u f wh chky incl, lt gy ctgs wi abnt chky incl ip, sm-sl stly tex, tr c free chk, tr cal vn, tr vf pyr, hi calc wi cin HCL rxn, MRLST (20%): gy-dk gy mot wi occ dk brn mrlly incl & occ vf chky incl, sm-sl stly tex, tr vf pyr, mod calc wi brn mrlly resdl	12980-13040 CHK (80%): pred gy, occ lt gy, frm-brit mod fis sb biky-biky tab ctgs, v arg LS wi occ vf-u f wh chky incl, sm-sl stly tex, tr c free chk, tr cal vn, tr vf pyr, hi calc wi cin HCL rxn, MRLST (20%): gy-dk gy mot wi dk brn mrlly incl, sm-sl stly tex, tr vf pyr, mod calc wi brn mrlly resdl	13040-13100 CHK (80%): lt gy-gy v arg LS wi occ vf-u f wh chky incl, lt gy ctgs wi abnt chky incl ip, frm-brit mod fis sb biky-biky tab ctgs, sm-sl stly tex, tr c free chk, tr cal vn, tr vf pyr, hi calc wi cin HCL rxn, MRLST (20%): gy-dk gy mot wi occ dk brn mrlly incl & occ vf chky incl, sm-sl stly tex, tr vf pyr, mod calc wi brn mrlly resdl
---	--	--





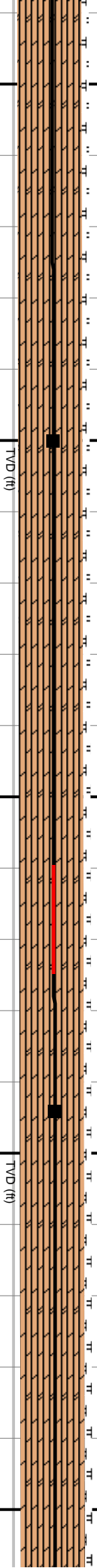




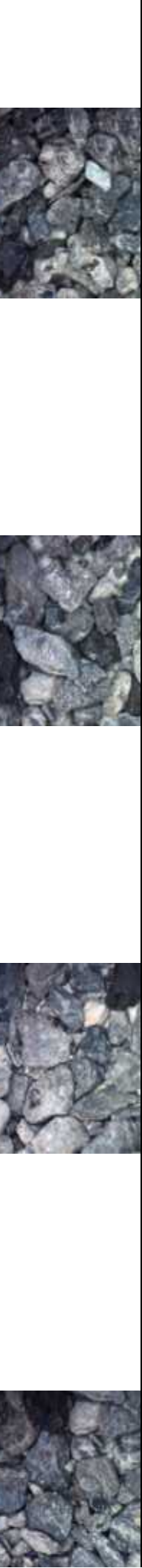


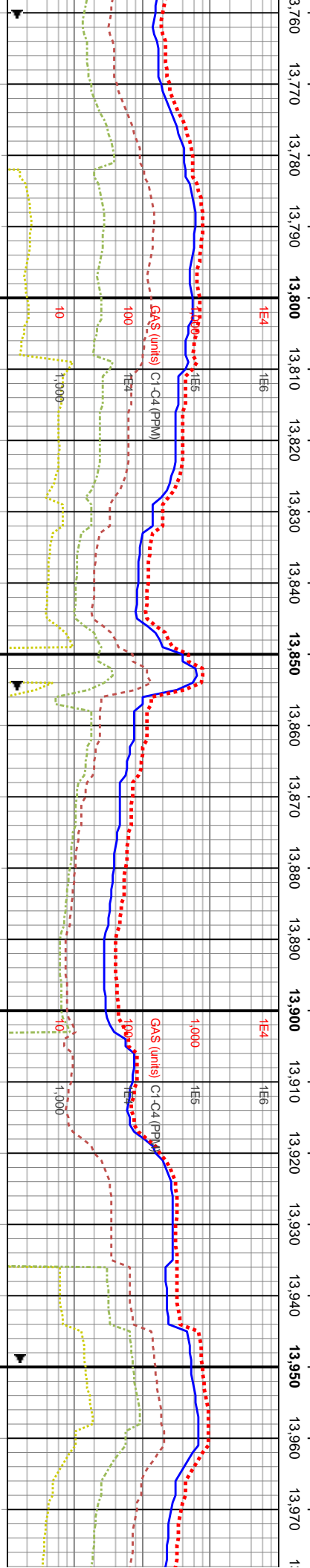
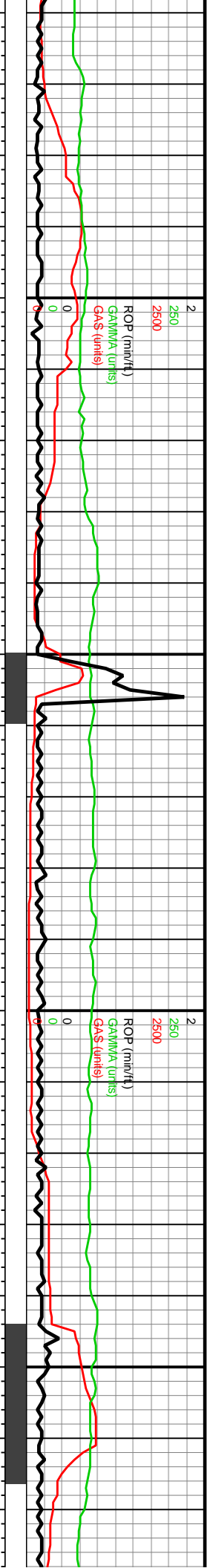
MD: 13,600'  
Inclination: 91.6°  
Azimuth: 271.64°  
TVD: 7,028.9'  
VS: 6,260.89'

MD: 13,694'  
Inclination: 91.31°  
Azimuth: 269.26°  
TVD: 7,026.52'  
VS: 6,353.66'

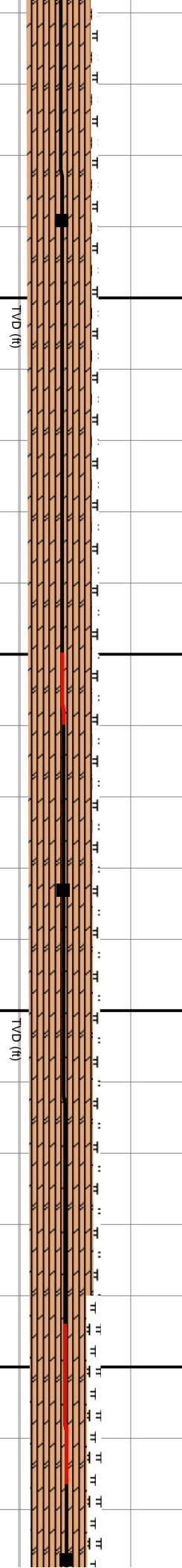


13580-13640 CHK: pred gy, sme lt brn- lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl- mod arg, sme mrlly inbds, mod calc incl	13640-13700 CHK: pred gy, sme lt brn- lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl- mod arg, sme dk mrlly inbds, mod calc incl, sme elg cal incl	13700-13760 CHK: pred gy, sme lt brn- lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl- mod arg, sme dk mrlly inbds, mod calc incl, tr tab cal, OBM sin
--	---	--





MD: 13,789'  
Inclination: 91.48°  
Azimuth: 269.86°  
TVD: 7,024.2'  
VS: 6,447.65'



MD: 13,883'  
Inclination: 92.52°  
Azimuth: 270.01°  
TVD: 7,020.92'  
VS: 6,540.53'

13760-13820 CHK: pred gy, sme lt brn- lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkky, pred sl- mod arg, sme dk mrlly intbds, mod calc incl, tr tab cal

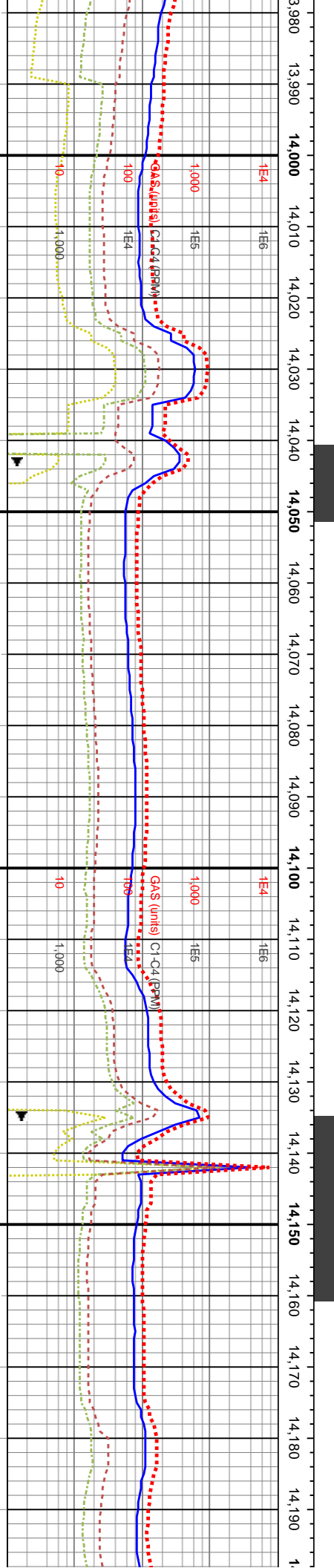
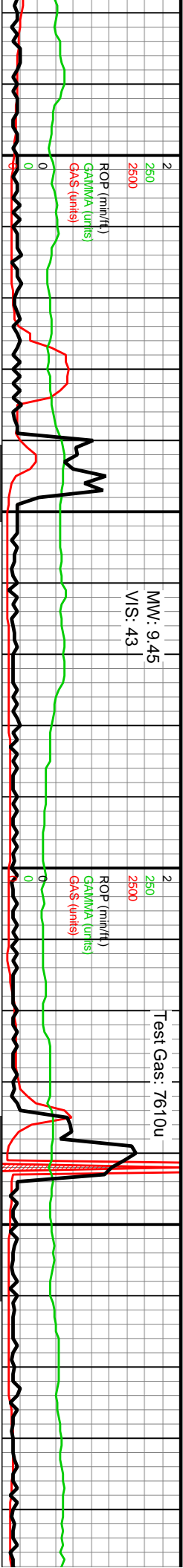
13820-13880 CHK: pred gy, sme lt brn- lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkky, pred sl arg, sme dk mrlly intbds, mod calc incl, tr tab cal

13880-13940 CHK (80%): pred gy, sme lt brn- lt gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkky, pred sl arg, (20%) dk frm- hd mrlly intbds, mod calc incl, tr tab cal

13940-14000 CHK (80%): f sme lt brn- dk gy, bf- lt brn- sl hd, sme sl frm, pred sb blkky, mrlly intbds thru, occ ce cal; MRLST (20%): dk gy- s mot, pred hd, sb plty, ip sb l thru, sme cal incl





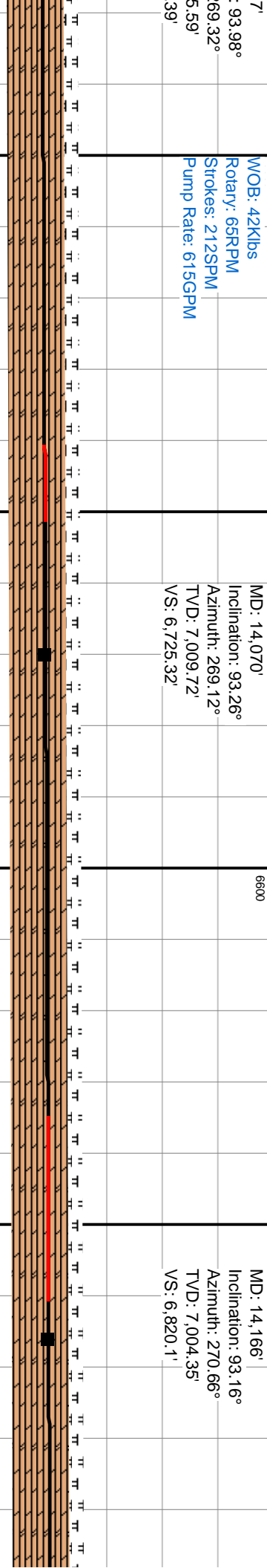


7' 93.98° 69.32° 5.59 39

WOB: 42Klbs  
Rotary: 65RPM  
Strokes: 212SPM  
Pump Rate: 615GPM

MD: 14,070'  
Inclination: 93.26°  
Azimuth: 269.12°  
TVD: 7,009.72'  
VS: 6,725.32'

MD: 14,166'  
Inclination: 93.16°  
Azimuth: 270.66°  
TVD: 7,004.35'  
VS: 6,820.1'



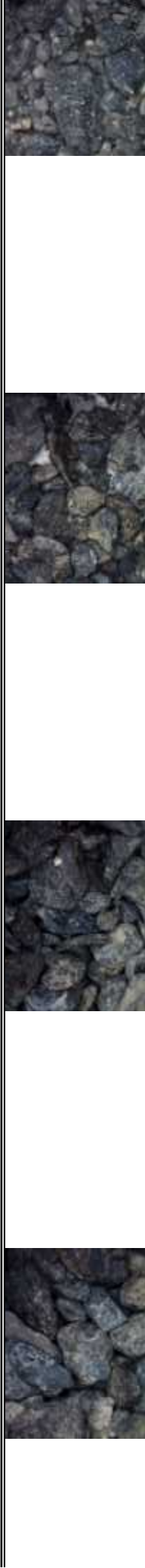
pred gy- med gy, brn mot thru, frm- ky, pred sl- mod ic incl, rr euhed l blk, sme bf- gy blk, sme bf- gy mot, pred hd, sb blk, chky intbds

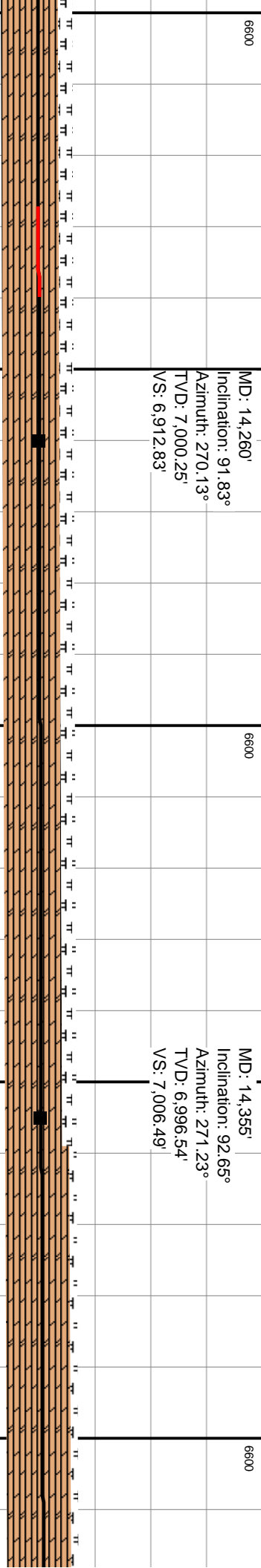
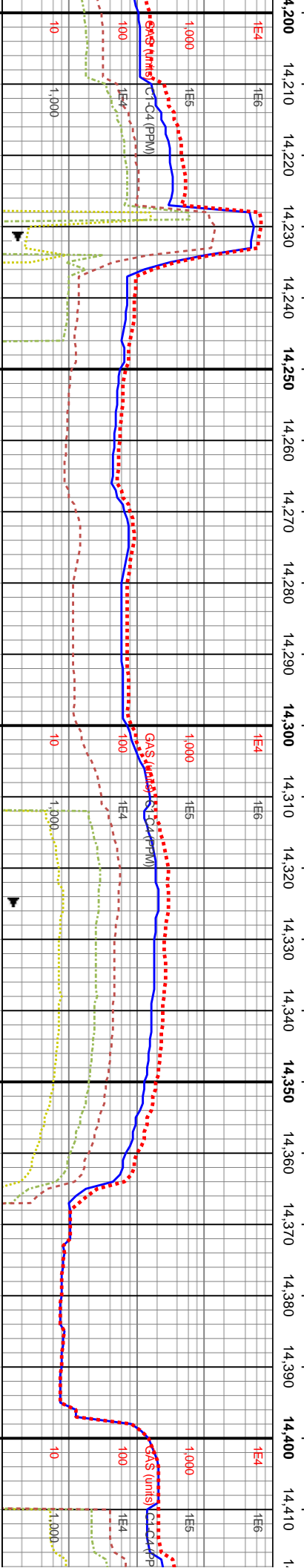
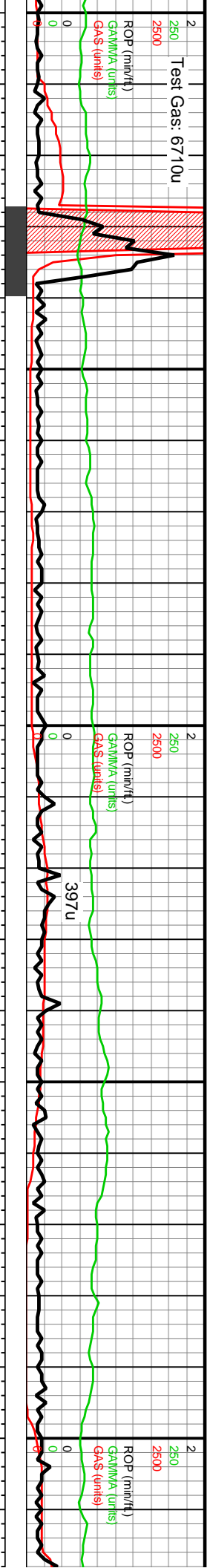
14000-14060 CHK (80%): pred gy- med gy, sme lt brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, sb blk, chky intbds thru, sme cal incl

14060-14120 CHK (80%): pred gy- med gy, sme lt brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, rr euhed cal; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, sb blk, chky intbds thru, sme cal incl

14120-14180 CHK (80%): pred gy- med gy, sme lt brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, rr euhed cal; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, sb blk, chky intbds thru, sme cal incl

14180-14190-: brn- dk sme sl l mrlly inti MRLST pred hd sme cal





14240 CHK (80%): pred med gy, sme gy, bf- lt brn- brn mot thru, frm- sl hd, frm, pred sb blk, pred sl- mod arg, pos thru, occ calc incl, rr euhed cal; (20%): dk gy- sl blk, sme bf- gy mot, blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, incl

14240-14300 CHK (80%): pred med gy, sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, tr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl

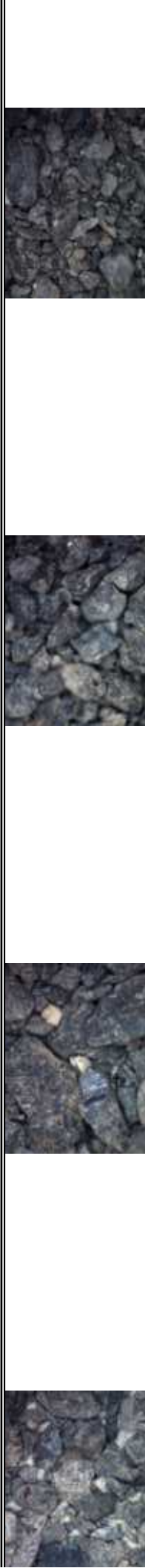
14300-14360 CHK (80%): pred med gy, sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, rr euhed cal, tr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl

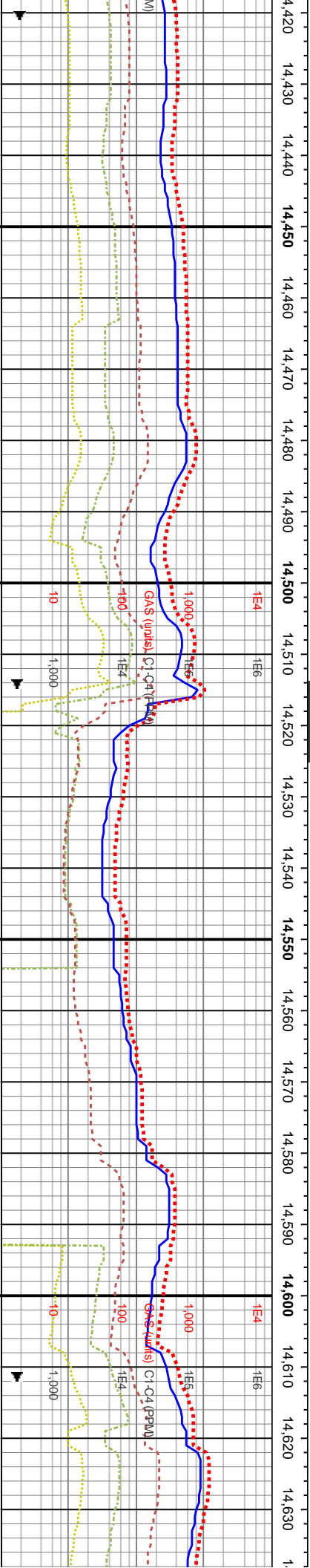
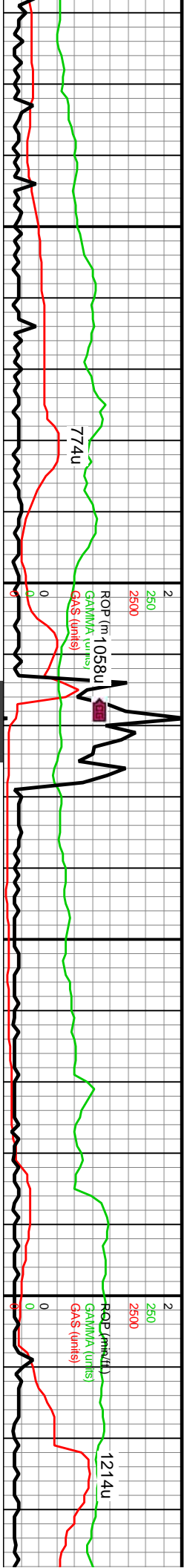
14360-14420 CHK (90%): pred gy, sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, rr euhed cal, tr pyr; MRLST (10%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl

7600

7600

7600

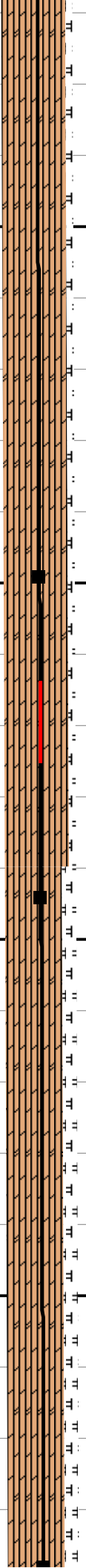




WOB: 41Klbs  
Rotary: 65RPM  
Strokes: 213SPM  
Pump Rate: 6.18GPM

MD: 14,499'  
Inclination: 93.63°  
Azimuth: 271.86°  
TVD: 6,988.65'  
VS: 7,147.99'

MD: 14,544'  
Inclination: 92.55°  
Azimuth: 270.15°  
TVD: 6,986.23'  
VS: 7,192.28'



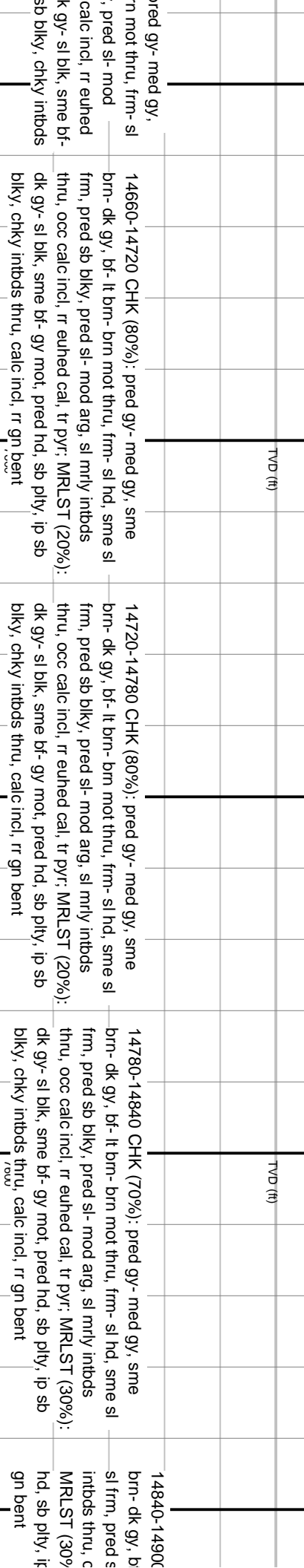
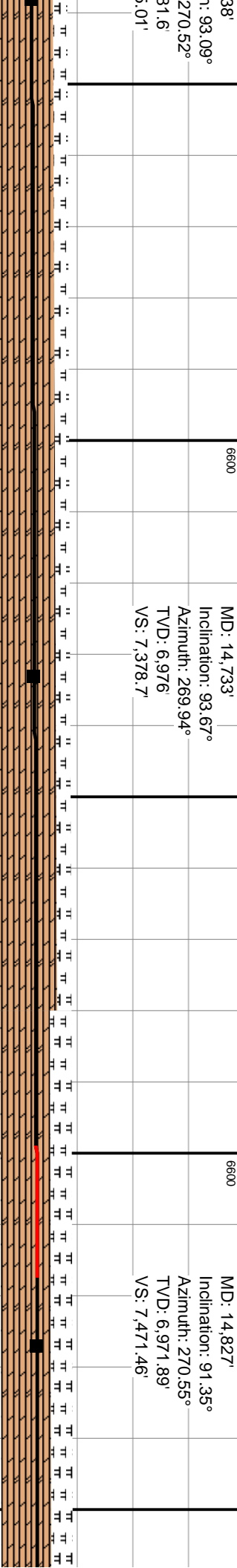
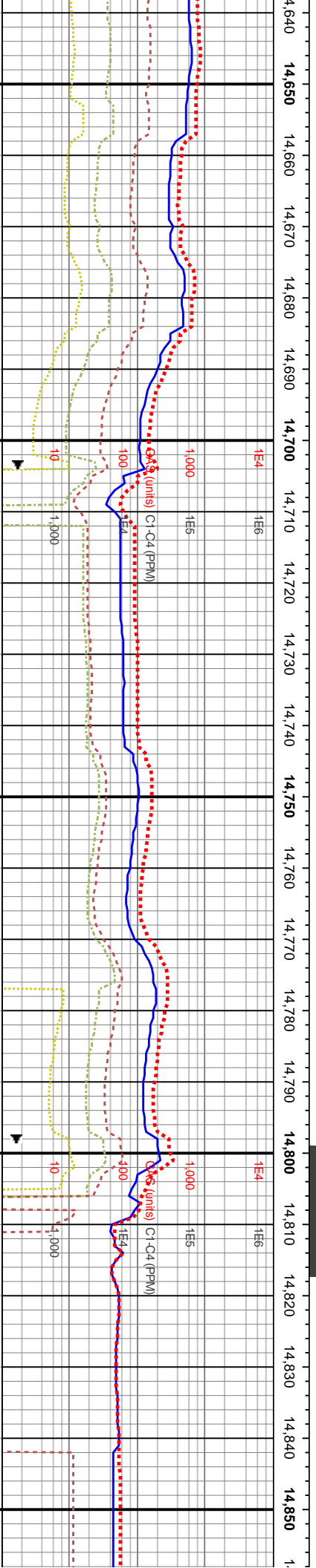
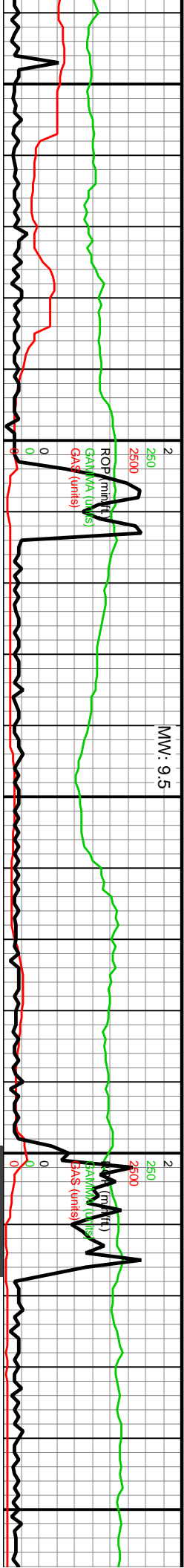
14420-14480 CHK (90%): pred gy, sme brn-dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, tr euhed cal, tr pyr; MRLST (10%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl

14480-14540 CHK (90%): pred gy, sme brn-dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, mrlly intbds thru, occ calc incl, tr euhed cal, tr pyr; MRLST (10%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, sme cal incl

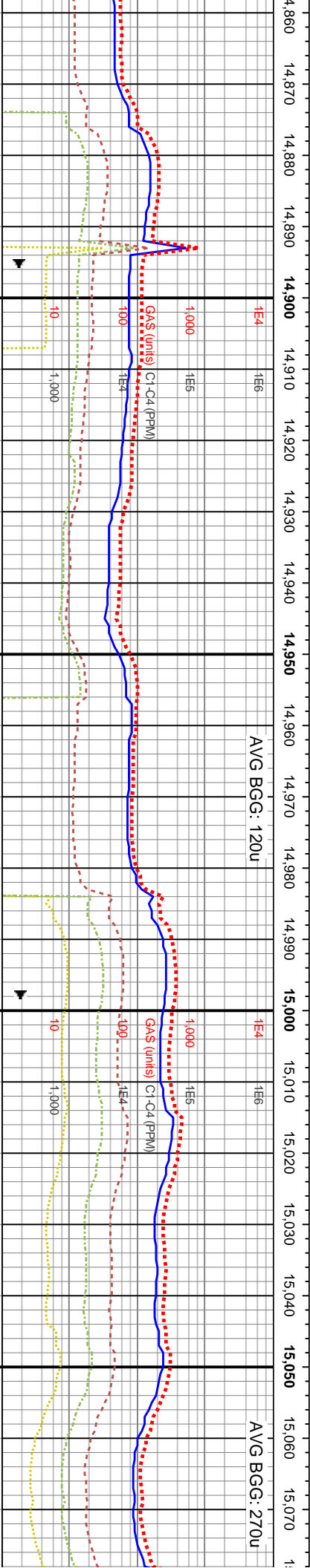
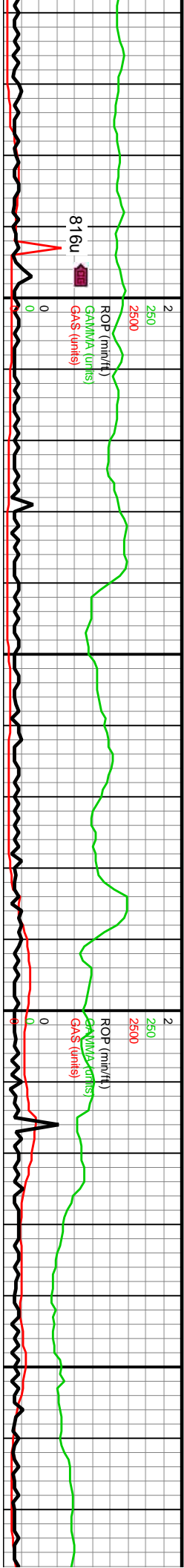
14540-14600 CHK (80%): pred gy- med gy, sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk, pred sl- mod arg, sl mrlly intbds thru, occ calc incl, tr euhed cal, tr pyr; MRLST (20%): dk gy- sl blk, sme bf- gy mot, pred hd, sb ply, ip sb blk, chky intbds thru, calc incl

14600-14660 CHK (80%): f sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blk arg, sl mrlly intbds thru, occ cal, tr pyr; MRLST (20%): d gy mot, pred hd, sb ply, ip : thru, calc incl





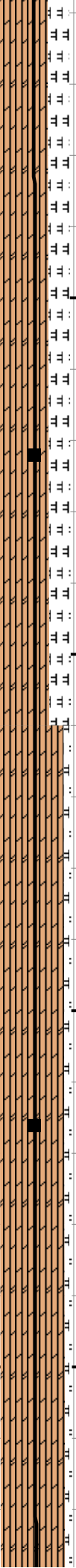




MD: 14,922'  
Inclination: 91.44°  
Azimuth: 270.77°  
TVD: 6,969.57'  
VS: 7,565.17'

WOB: 41Klbs  
Rotary: 65RPM  
Strokes: 210SPM  
Pump Rate: 610GPM

MD: 15,016'  
Inclination: 89.95°  
Azimuth: 271.42°  
TVD: 6,968.43'  
VS: 7,657.8'



TVD (ft)

TVD (ft)

CHK (70%): pred gy- med gy, sme  
- lt brn- brn mot thru, frm- sl hd, sme  
b blkly, pred sl- mod arg, sl mrlly  
occ calc incl, rr euhed cal, tr pyr;  
dk gy- sl blk, sme bf- gy mot, pred  
sb blkly, chky intbds thru, calc incl, rr

14900-14960 CHK (70%): pred gy- med gy,  
sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl  
hd, sme sl frm, pred sb blkly, pred sl- mod  
arg, sl mrlly intbds thru, occ calc incl, rr euhed  
cal, tr pyr; MRLST (30%): dk gy- sl blk, sme bf-  
gy mot, pred hd, sb ply, ip sb blkly, chky intbds  
thru, calc incl, rr gn bent

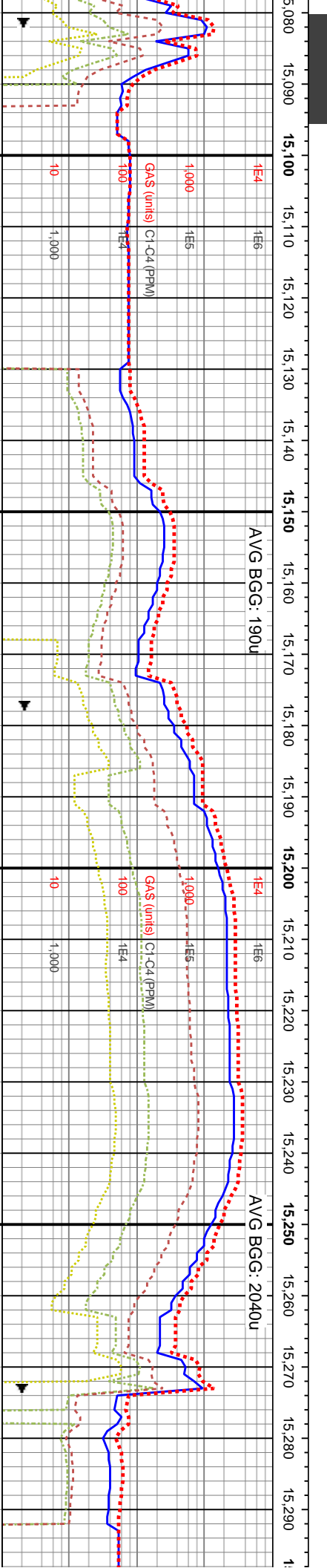
14960-15020 CHK: pred gy, sme med gy,  
sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl  
hd, sme sl frm, pred sb blkly, pred sl arg, sl  
mrlly intbds thru, occ calc incl

15020-15080 CHK: pred gy, sme med gy,  
sme brn- dk gy, bf- lt brn- brn mot thru, frm- s  
hd, sme sl frm, pred sb blkly, pred sl arg, sl  
mrlly intbds thru, occ calc incl



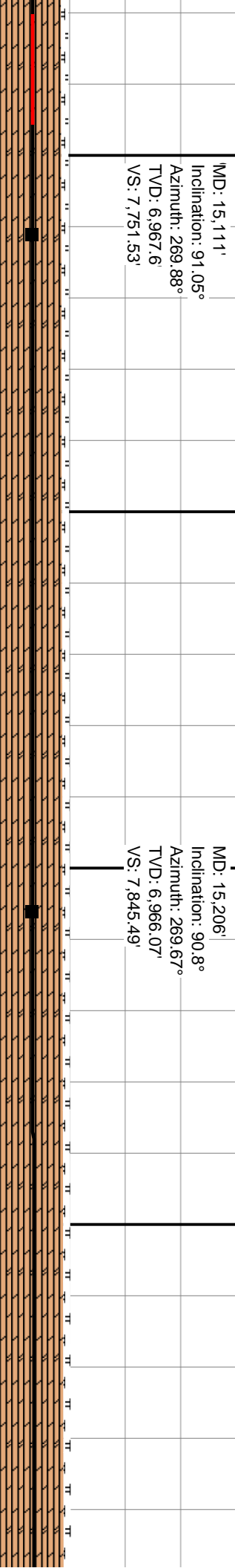


MW: 9.35  
VIS: 40



MD: 15,111'  
Inclination: 91.05°  
Azimuth: 269.88°  
TVD: 6,967.6'  
VS: 7,751.53'

MD: 15,206'  
Inclination: 90.8°  
Azimuth: 269.67°  
TVD: 6,966.07'  
VS: 7,845.49'



TVD (ft)

TVD (ft)

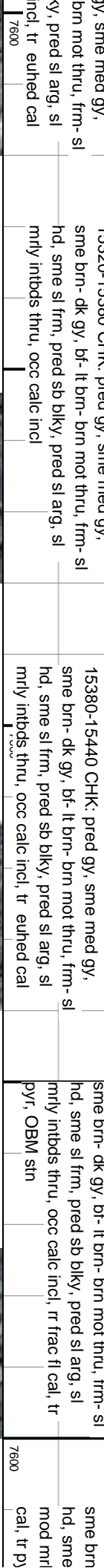
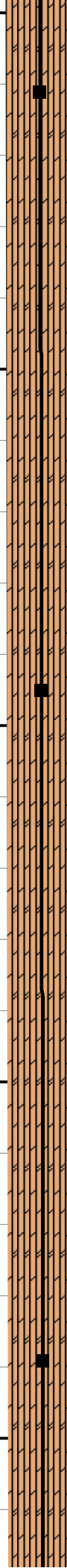
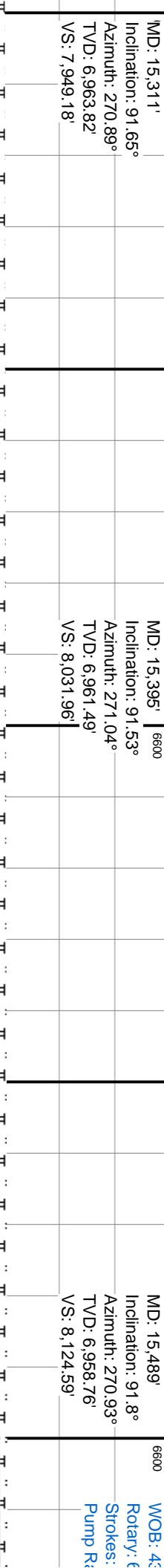
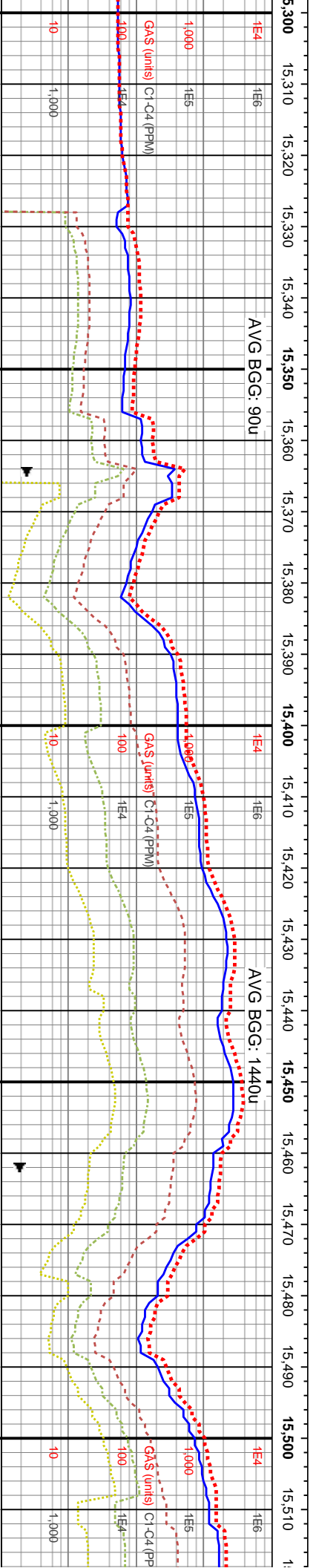
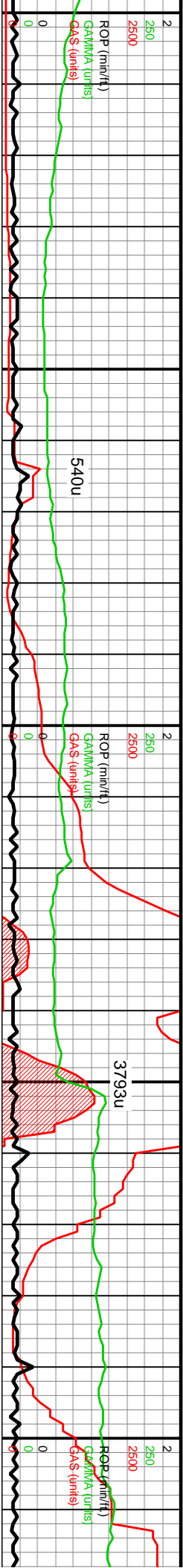
15080-15140 CHK: pred gy, sme med gy, sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl arg, sl mrlly intbds thru, occ calc incl, tr microxn ls, tr pyr

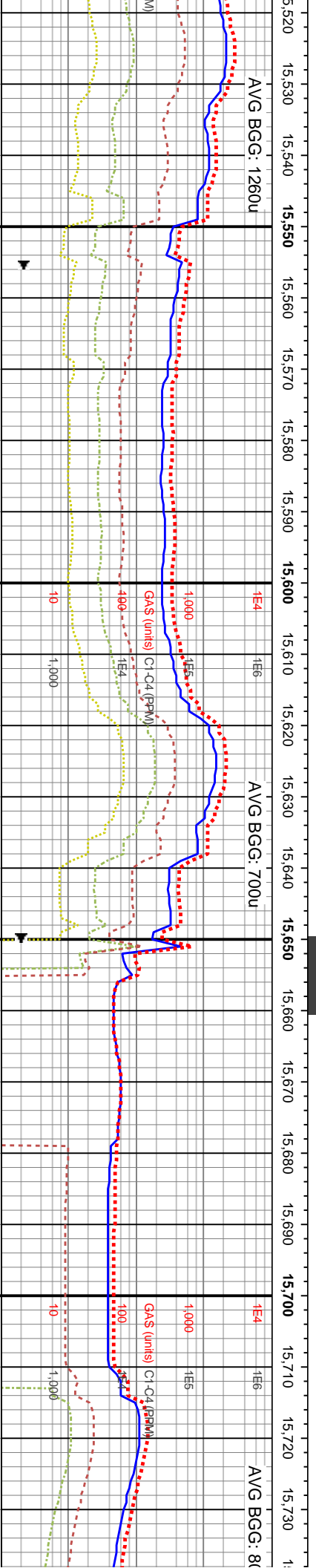
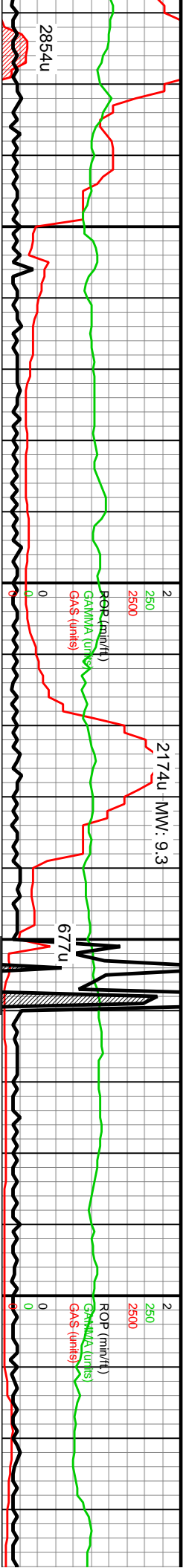
15140-15200 CHK: pred gy, sme med gy, sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl arg, sl mrlly intbds thru, occ calc incl, tr microxn ls, tr pyr

15200-15260 CHK: pred gy, sme med gy, sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl arg, sl mrlly intbds thru, occ calc incl, tr microxn ls, tr pyr

15260-15320 CHK: pred gy, sme brn- dk gy, bf- lt brn- brn mot thru, frm- sl hd, sme sl frm, pred sb blkly, pred sl arg, sl mrlly intbds thru, occ calc

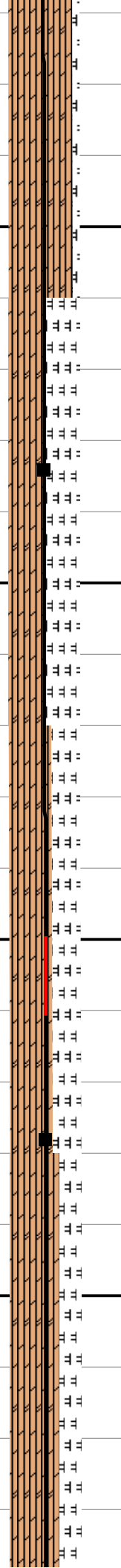






MD: 15,584'  
Inclination: 91.49°  
Azimuth: 271.24°  
TVD: 6,956.04'  
VS: 8,218.17'

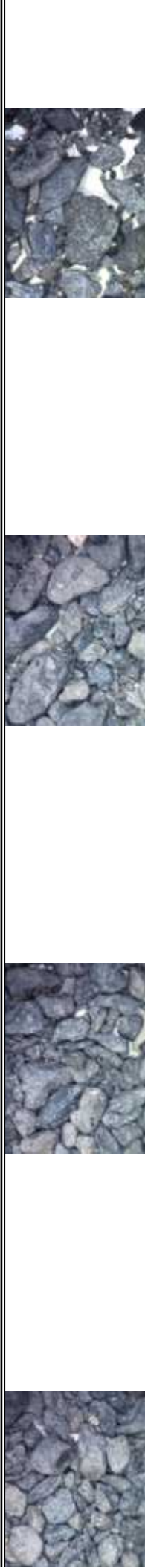
MD: 15,678'  
Inclination: 90.75°  
Azimuth: 270.41°  
TVD: 6,954.29'  
VS: 8,310.95'



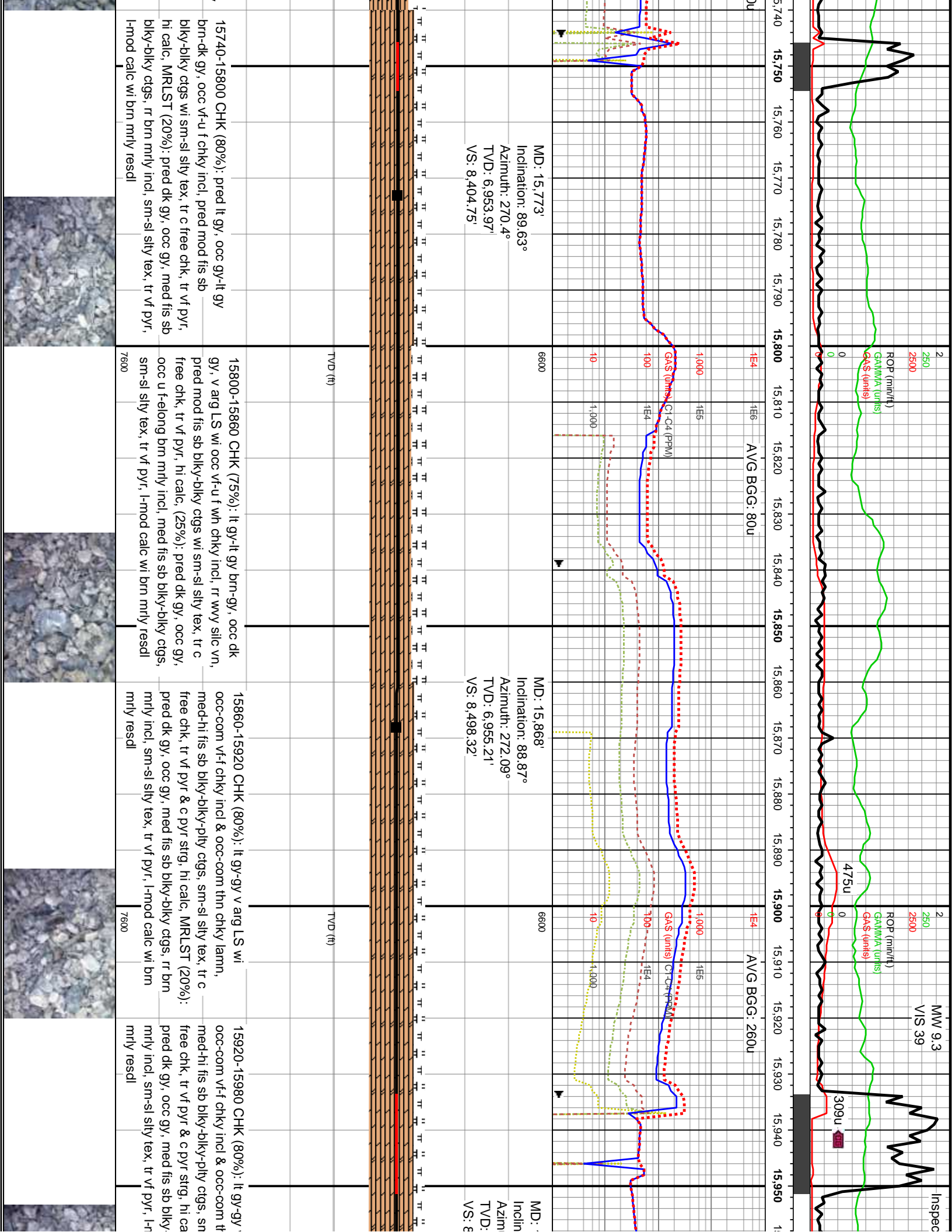
15560-15620 CHK (50%): lt gy-lt gy brn-gy, occ vf-u f chky incl & rr brn mrlly incl ip, pred mod fis sb blkly-blky ctgs wi sm-sl silty tex, tr c free chk, tr vf pyr, hi calc, wi incr mrlly incl grdg to MRLST (50%): pred dk gy, occ gy, med fis sb blkly-blky ctgs, sm-sl silty tex, tr vf pyr, l-mod calc wi brn mrlly resdl

15620-15680 CHK (60%): lt gy-lt gy brn-gy, occ dk gy wi vf-u f chky incl & rr brn mrlly incl ip, mod fis sb blkly-blky ctgs wi sm-sl silty tex, tr c free chk, tr vf pyr, hi calc, wi incr mrlly incl grdg to MRLST (40%): pred dk gy, occ gy, mot wi u f brn mrlly incl & rr wh chky incl, med fis sb blkly-blky ctgs, sm-sl silty tex, tr vf pyr, l-mod calc wi brn mrlly resdl

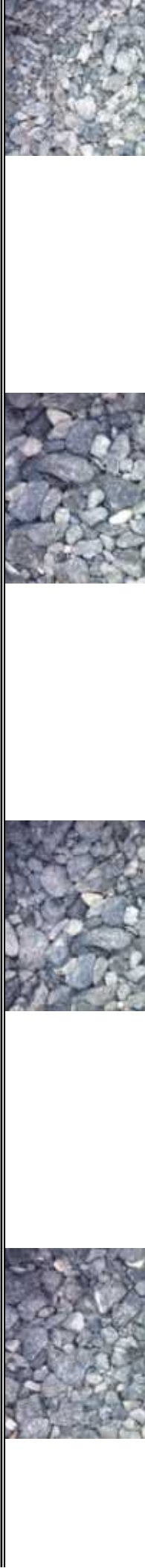
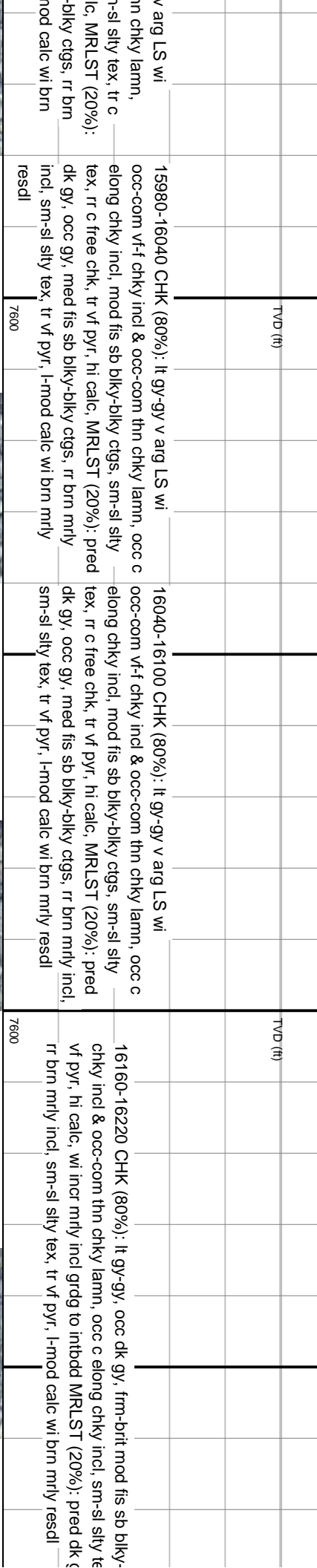
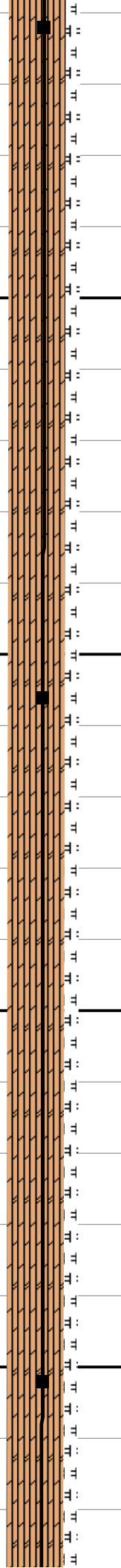
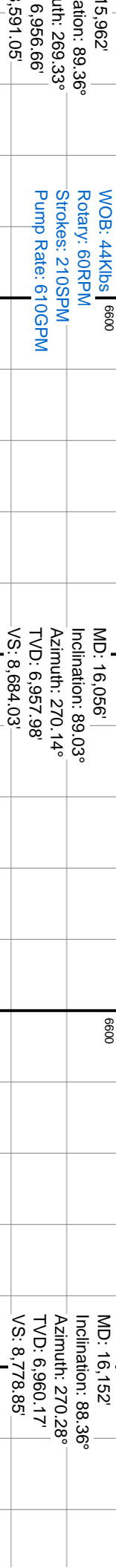
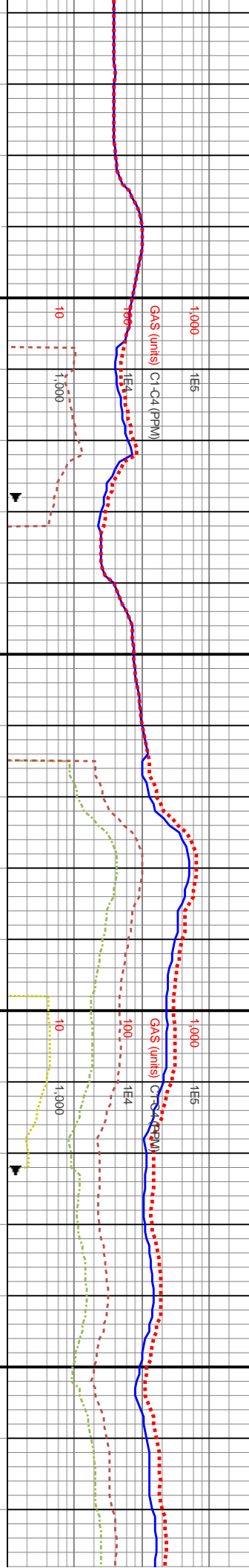
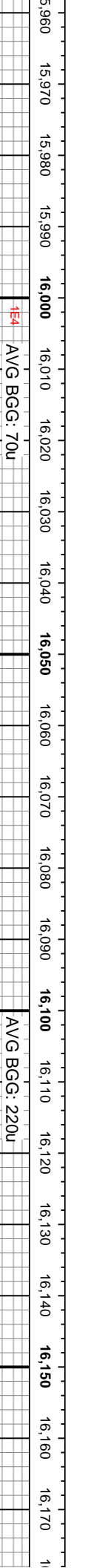
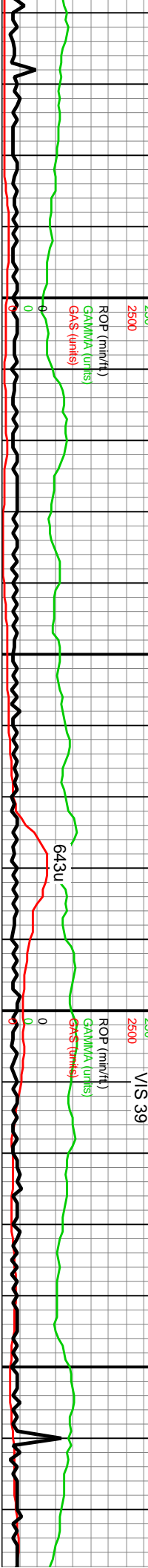
15680-15740 CHK (70%): lt gy-lt gy brn-gy, occ vf-u f chky incl & rr brn mrlly incl ip, pred mod fis sb blkly-blky ctgs wi sm-sl silty tex, tr c free chk, tr vf pyr, hi calc, wi incr mrlly incl grdg to MRLST (30%): pred dk gy, occ gy, med fis sb blkly-blky ctgs, sm-sl silty tex, tr vf pyr, l-mod calc wi brn mrlly resdl



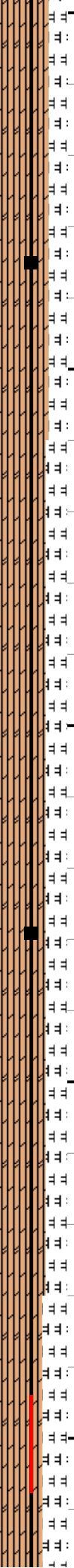
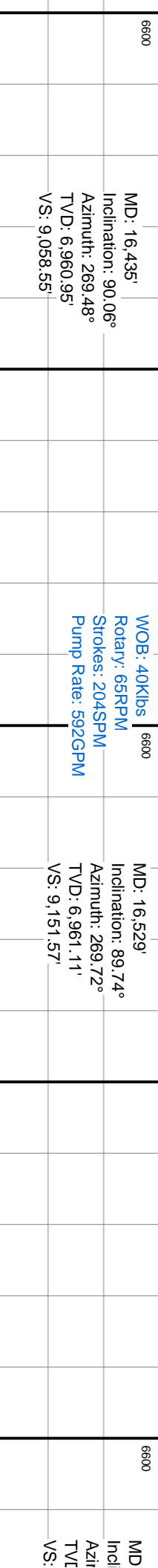
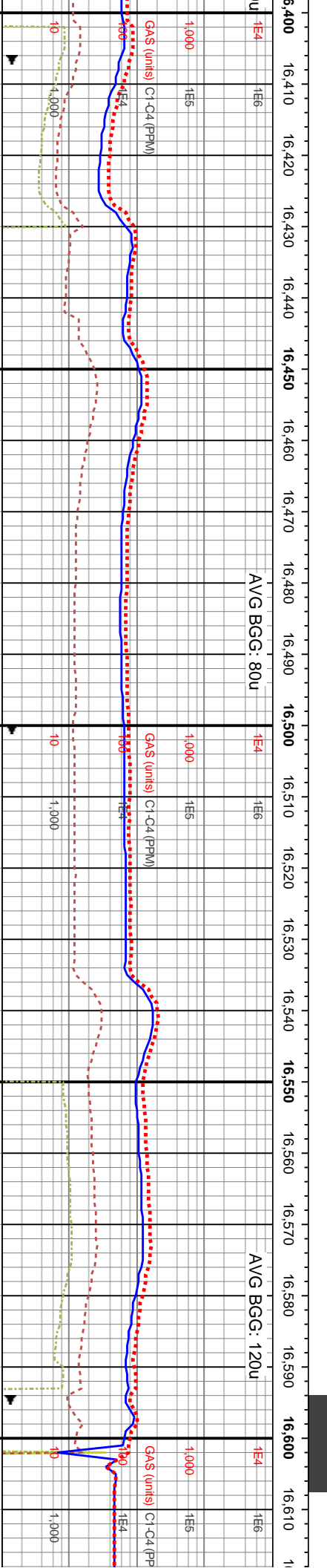
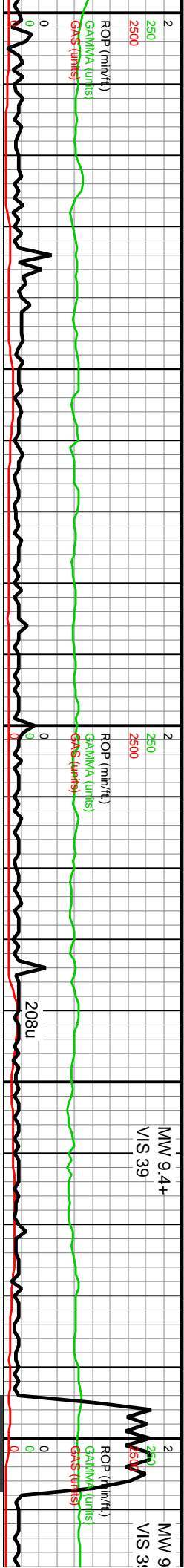




t gas trap, everything running well





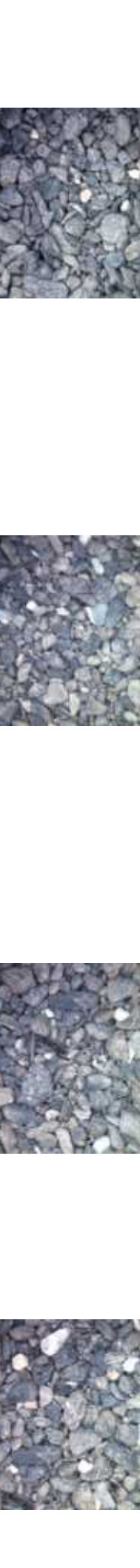
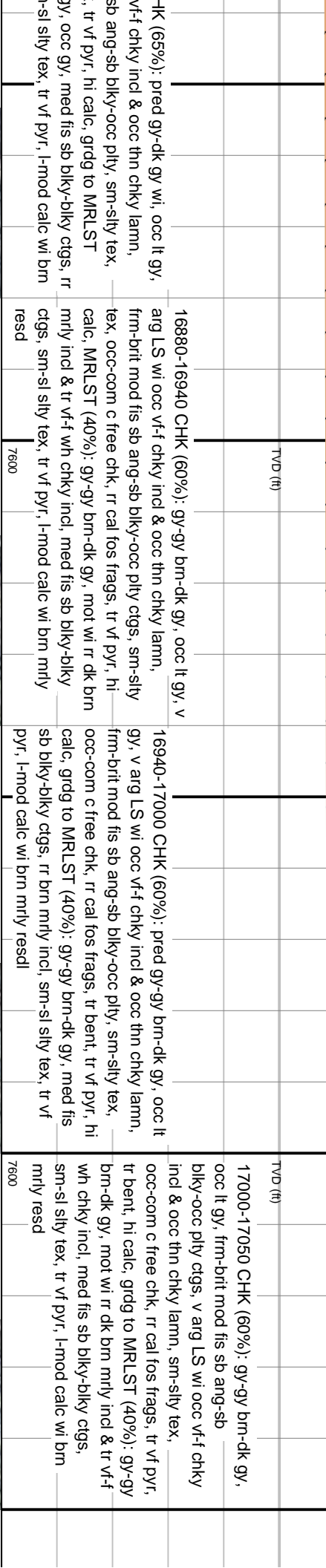
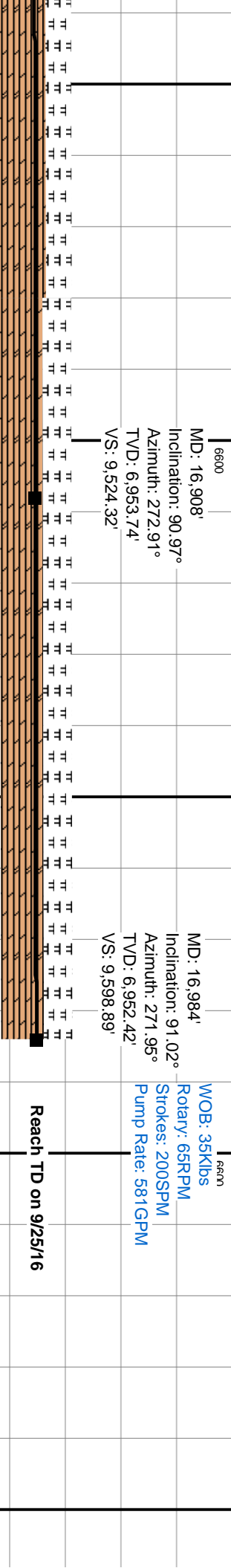
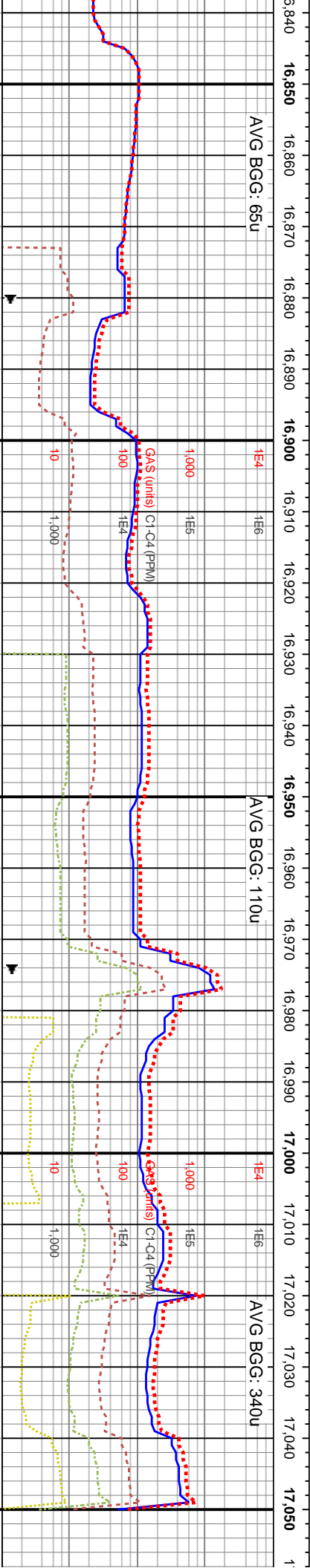
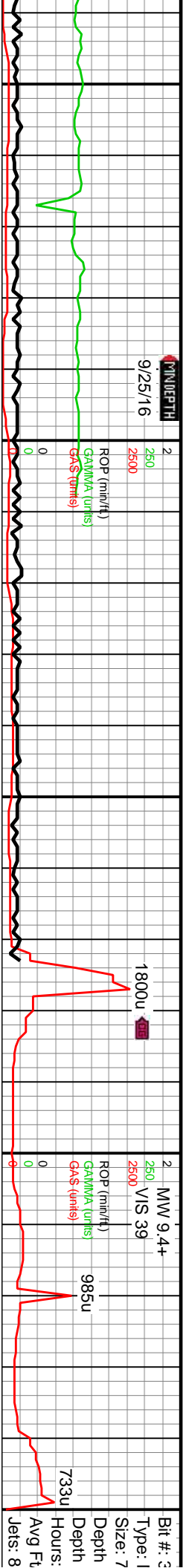


16400-16460 CHK (75%): lt gy-gy-dk gy, frm-brit mod fis sb blkly-bkly ctgs, v arg LS wi occ-com vf-f chky incl, sm-sily tex, rr c free chk, rr-tr cal fos frags, tr vf pyr, hi calc, wi incr mrlly incl grdg to inbddd	16460-16520 CHK (70%): gy-dk gy, occ lt gy-lt gy brn, v arg LS wi occ-com vf-f chky incl & occ-com chky lamn, frm-brit mod fis sb blkly-bkly ctgs, sm-sily tex, rr c free chk wi occ pyr stng ip, tr chky vn, tr vf pyr, hi calc, grdg to MRLST (25%): pred dk gy, occ gy, med fis sb blkly-bkly ctgs, rr brn mrlly incl, sm-sl sily tex, tr vf pyr, l-mod calc wi brn mrlly resd	16520-16580 CHK (70%): lt gy-lt gy brn-gy-dk gy ip grdg to mrlst, frm-brit mod fis sb blkly-bkly ctgs, v arg LS wi occ-com vf-f chky incl & occ-com chky lamn, sm-sily tex, rr c free chk wi occ pyr strg ip, tr chky vn, tr vf pyr, hi calc, grdg to MRLST (25%): gy brn-dk gy mot wi occ dk brn mrlly incl, med fis sb blkly-bkly ctgs, sm-sl sily tex, tr vf pyr, l-mod calc wi brn mrlly resd	16580-16640 CHK (65%): lt gy-lt gy brn-gy-dk gy ip grdg to mrlst, frm-brit mod fis sb blkly-bkly ctgs, v arg LS wi occ-com vf-f chky incl & occ-com chky lamn, sm-sily tex, rr c free chk wi occ pyr strg ip, tr chky vn, tr vf pyr, hi calc, grdg to MRLST (25%): med fi mot wi occ dk brn mrlly incl, med fi sm-sl sily tex, tr vf pyr, l-mod calc
16400-16460 CHK (75%): lt gy-gy-dk gy, frm-brit mod fis sb blkly-bkly ctgs, v arg LS wi occ-com vf-f chky incl, sm-sily tex, rr c free chk, rr-tr cal fos frags, tr vf pyr, hi calc, wi incr mrlly incl grdg to inbddd	16460-16520 CHK (70%): gy-dk gy, occ lt gy-lt gy brn, v arg LS wi occ-com vf-f chky incl & occ-com chky lamn, frm-brit mod fis sb blkly-bkly ctgs, sm-sily tex, rr c free chk wi occ pyr stng ip, tr chky vn, tr vf pyr, hi calc, grdg to MRLST (25%): pred dk gy, occ gy, med fis sb blkly-bkly ctgs, rr brn mrlly incl, sm-sl sily tex, tr vf pyr, l-mod calc wi brn mrlly resd	16520-16580 CHK (70%): lt gy-lt gy brn-gy-dk gy ip grdg to mrlst, frm-brit mod fis sb blkly-bkly ctgs, v arg LS wi occ-com vf-f chky incl & occ-com chky lamn, sm-sily tex, rr c free chk wi occ pyr strg ip, tr chky vn, tr vf pyr, hi calc, grdg to MRLST (25%): gy brn-dk gy mot wi occ dk brn mrlly incl, med fis sb blkly-bkly ctgs, sm-sl sily tex, tr vf pyr, l-mod calc wi brn mrlly resd	16580-16640 CHK (65%): lt gy-lt gy brn-gy-dk gy ip grdg to mrlst, frm-brit mod fis sb blkly-bkly ctgs, v arg LS wi occ-com vf-f chky incl & occ-com chky lamn, sm-sily tex, rr c free chk wi occ pyr strg ip, tr chky vn, tr vf pyr, hi calc, grdg to MRLST (25%): med fi mot wi occ dk brn mrlly incl, med fi sm-sl sily tex, tr vf pyr, l-mod calc









MDi516

7/8

In: 11,345'

Out: 17,050'

42 hrs

4Hr: 135 %h

X13

7,060	17,070	17,080	17,090	17,100
-------	--------	--------	--------	--------

