



Empirica

Scale: 5" / 100'
Measured Depth Log

Well Name Waag 22

Location Sec. 19 T7N-R65W

State Colorado

Country USA

API Number 05-123-40348-00

Region DJ Basin

Spud Date 7/21/2015

County Weld

Rig Number Patterson UTI 346

Field Wattenberg

Drilling Completed 7/26/2015

Surface Coordinates SHL: 305°FSL & 2363°FWL, Sec. 19

Latitude: 40.55431°

Longitude: -104.70736°

Bottom Hole Coordinates BHL: 660' FSL & 2226'FEL, Sec.24

Ground Elevation 4,868'

K.B. Elevation 4,892.5'

Logged Interval 5,000' To 12,064'

Total Depth 12,064'

Formation Codell

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-339

Comments Start: 7-21-15
Standby: na
TD: 7-26-15

Services Provided

2-man Logging: 7-21-15
On Site Geosteering: 7-22

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

FOSSIL

GASTROPOD

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLITE

PLANT REMAINS

CORAL

CRINOID

ECHINOID

FISH

FORAMINIFERA

ARGILLACEOUS

ARGILLITE GRAIN

BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

HEAVY MINERAL

KAOLIN

MARLSTONE

MINERAL CRYSTALS

NODULES

PHOSPHATE PELLETS

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 Sy

ORGANIC

PINPOINT

DEAD

EVEN

QUESTIONABLE

SPOTTED STAINING

CASING

REVERS

OVERT

Engineering

NORMAL

MINDEPTH

VUGGY

DEAD

EVEN

QUESTIONABLE

SPOTTED STAINING

CASING

REVERS

OVERT

Porosity

EARTHY

FENESTRAL

FRACTURE

INTERCRYSTALLINE

INTEROOLITIC

MOLDIC

CONNECTION (RIGHT)

CONNECTION GAS

SLIDE

SURVIVAL

CORE - LOST

CORE - RECOVERED

TRIP

WIRELINE

FAULT

WIRELINE

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

SAS E EARTHY

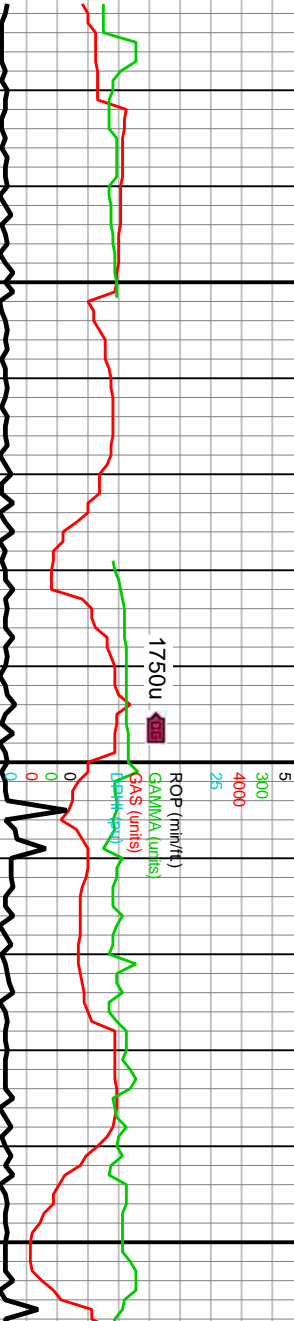
IE TESTED - LEFT FX FINELYXLN

IE TESTED - RT GS GRAINSTONE

ROP
GAMMA
GAS
DPHI

Extraction OG
Well County, Colorado
Spud Date: 7-21-15
Surface Casing @ 902'
Intermediate Csg @ 7,680'
2-man Logging Began: 7-21-15
Geosteering Began: 7-22-15

Waag 22

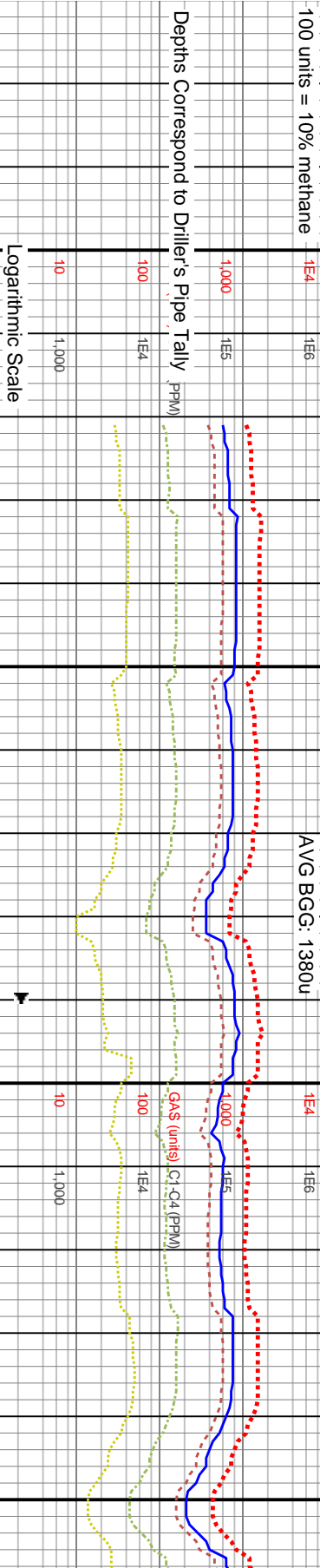


Slide/Rotate

Depth Labels

Total Gas & Chromatograph

GAS
C1
C2
C3
C4



WOB: 30Klbs
Rotary: 70RPM
Strokes: 166SPM
Pump Rate: 581GPM

Well Bore
TVD

6620-6680 80% SS 20% SLTST: pred gy- med gy, sme wh- offwht- gy brn, pred sb blkly, ip sb pily, p srted, pred vf- f gr clus, occ wh u f clus, frm sl fri sd cls thru, mod arg- silty thru, occ vf pyr, dk lith frag thru, sil- cal cnt, ip sl calc, tr pily- sb pily sh intbds, sme intbd slst lamm, rr glau, tr pyr, g lt bl flor cut, occ sl sting- op, fr- g lt gn resd cut

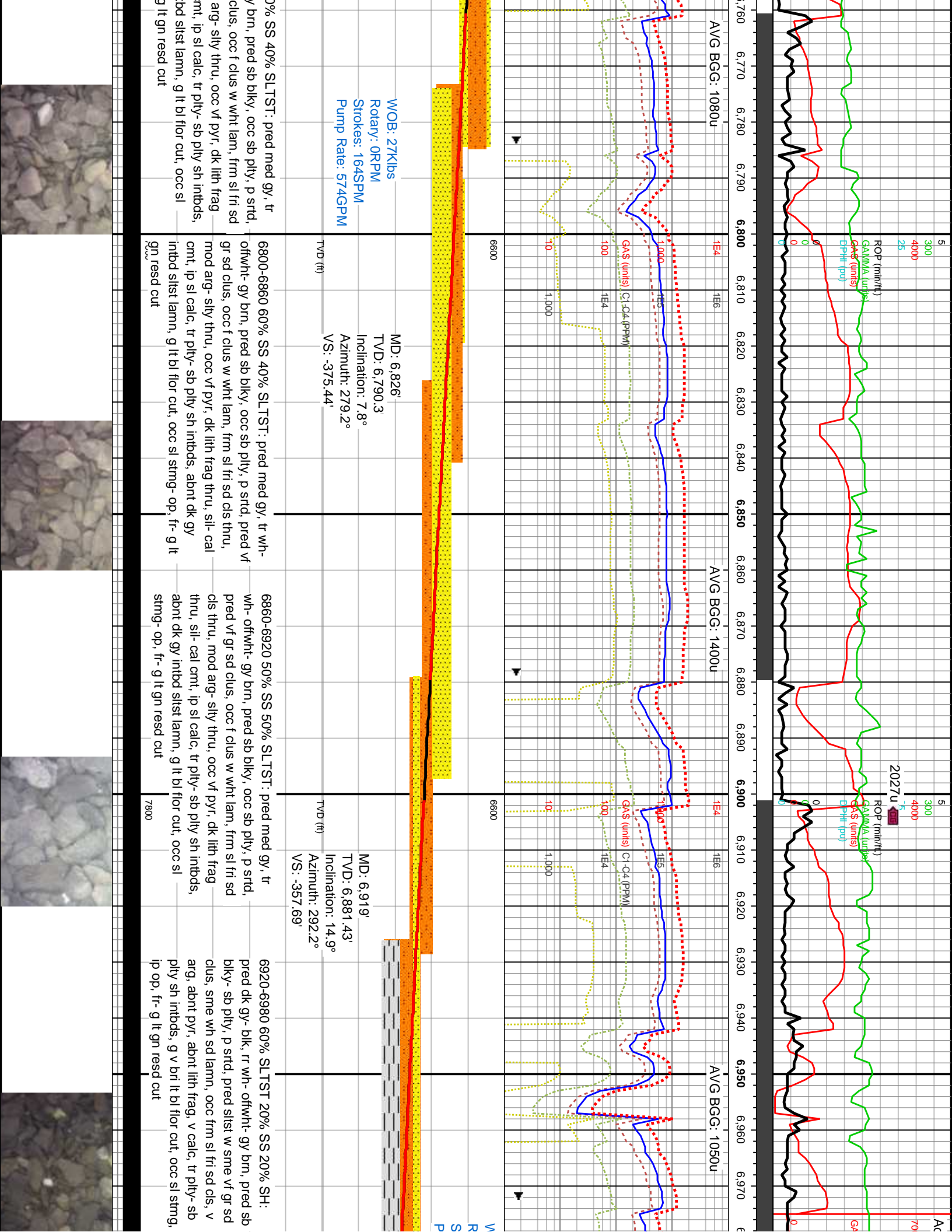
6680-6740 70% SS 30% SLTST: pred gy- med gy, sme wh- offwht- gy brn, pred sb blkly, ip sb pily, p srted, pred vf- f gr clus, occ wh u f clus, frm sl fri sd cls thru, mod arg- silty thru, occ vf pyr, dk lith frag thru, sil- cal cnt, ip sl calc, tr pily- sb pily sh intbds, sme intbd slst lamm, rr glau, tr pyr, g lt bl flor cut, occ sl sting- op, fr- g lt gn resd cut

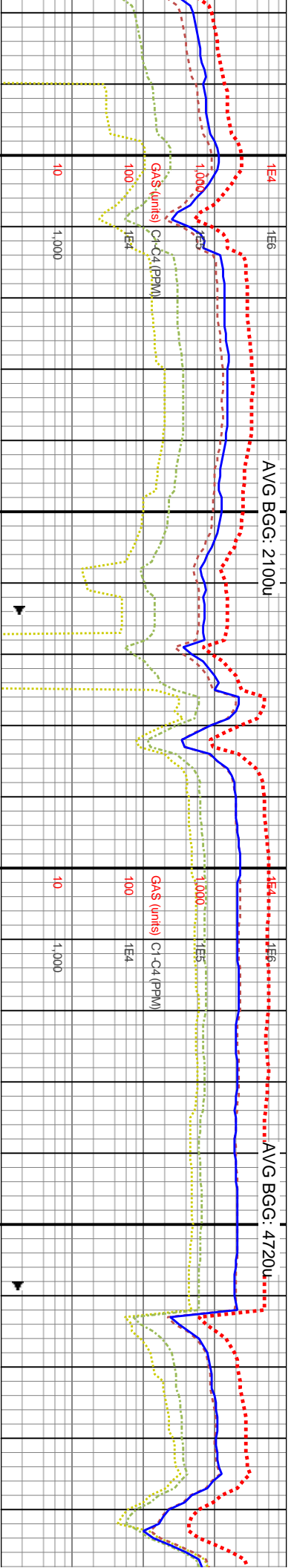
6740-6800 60% SS 40% SLTST: pred gy- med gy, sme wh- offwht- gy brn, pred sb blkly, ip sb pily, p srted, pred vf- f gr clus, occ wh u f clus, frm sl fri sd cls thru, mod arg- silty thru, occ vf pyr, dk lith frag thru, sil- cal cnt, ip sl calc, tr pily- sb pily sh intbds, sme intbd slst lamm, rr glau, tr pyr, g lt bl flor cut, occ sl sting- op, fr- g lt gn resd cut

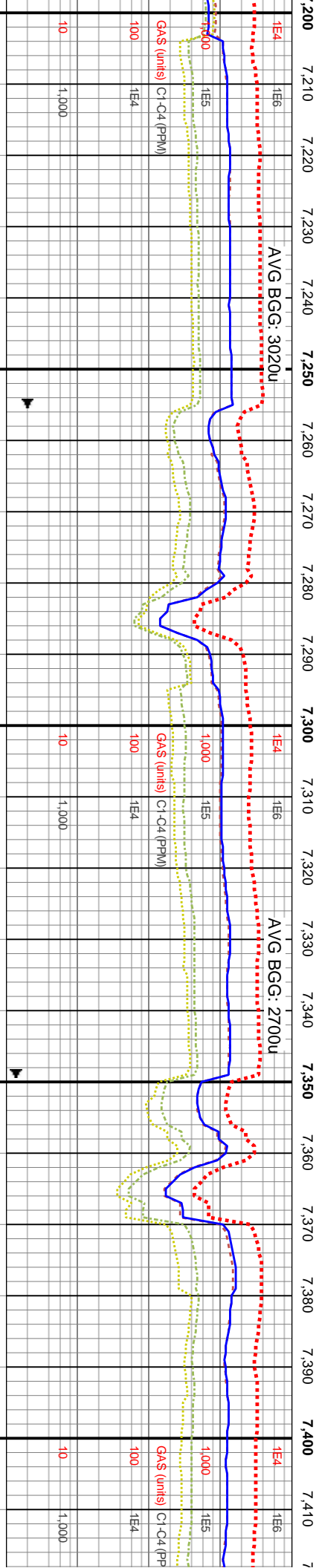
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TVD: 6,696.57'
Inclination: 0.8°
Azimuth: 61.8°
VS: -381.26'

Oil Show

Images



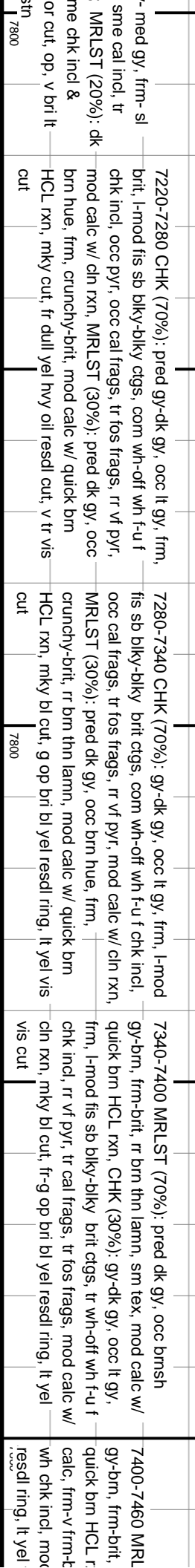




WOB: 51Klbs

 $\frac{F}{F} = \frac{F}{F}$

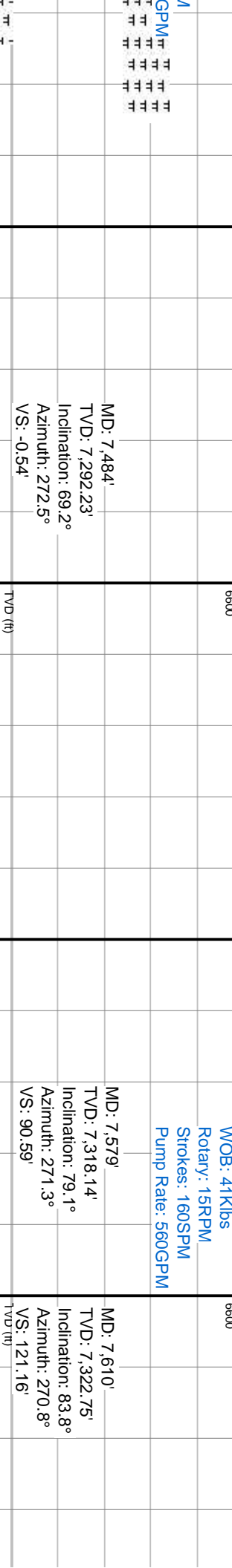
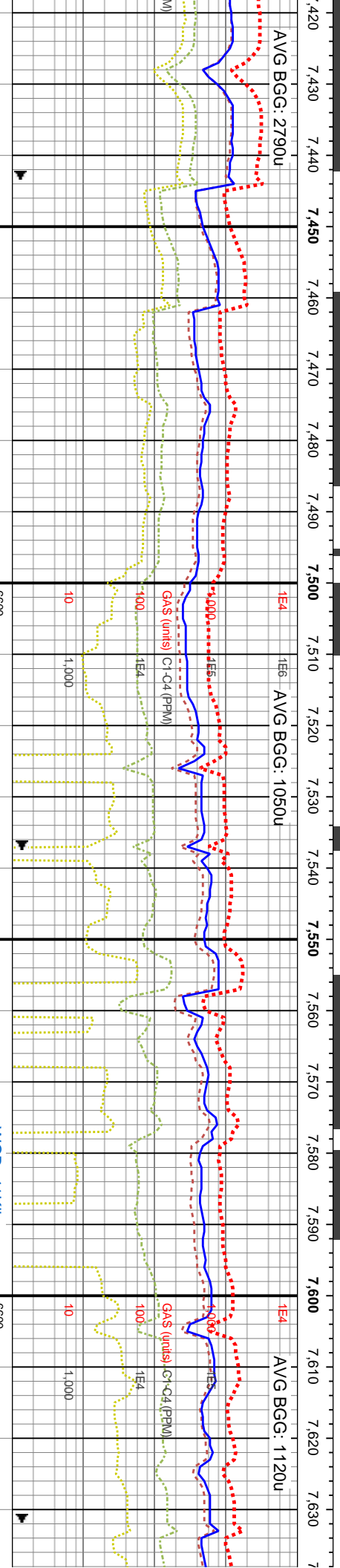
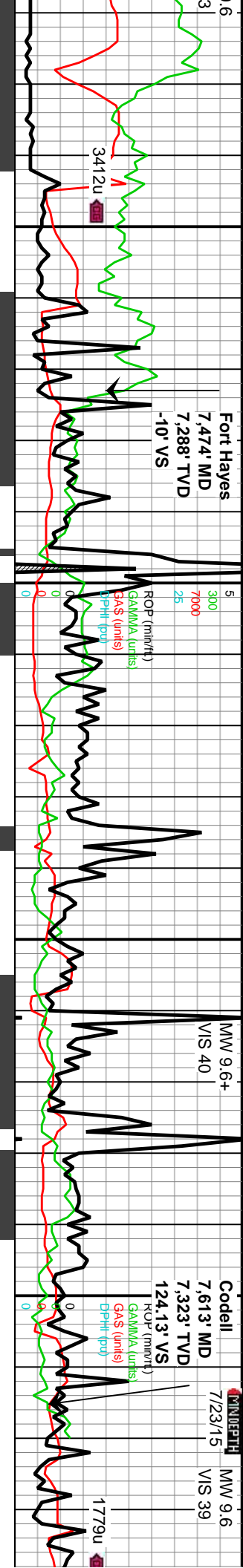
TV D: 7,251.58"

Azimuth: 270.2°
VS. -85°

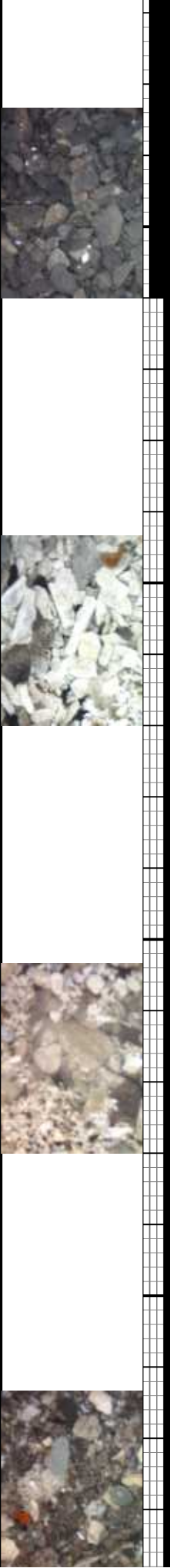
7340-7400 MRLST (70%): pred dk gy, occ bmsh
gy-bm, frm-brt, r brn thn lamn, sm tex, mod calc w/
quick brn HCL rxn, CHK (30%): gy-dk gy, occ lt gy,
frm, l-mod fls sb blk-ly-blk brit ctgs, t wh-off wh f-u f
chk incl, r vf pyr, tr cal frags, t fos frags, mod calc w
cln rxn, mky bl cut, fr-gp op brt bl yel resdl ring, lt yel
is cut

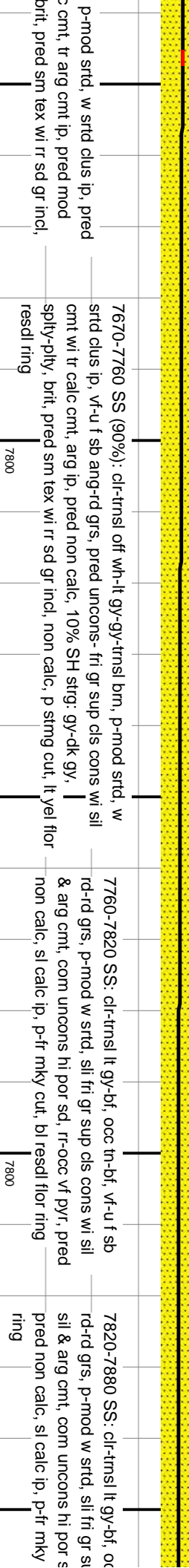
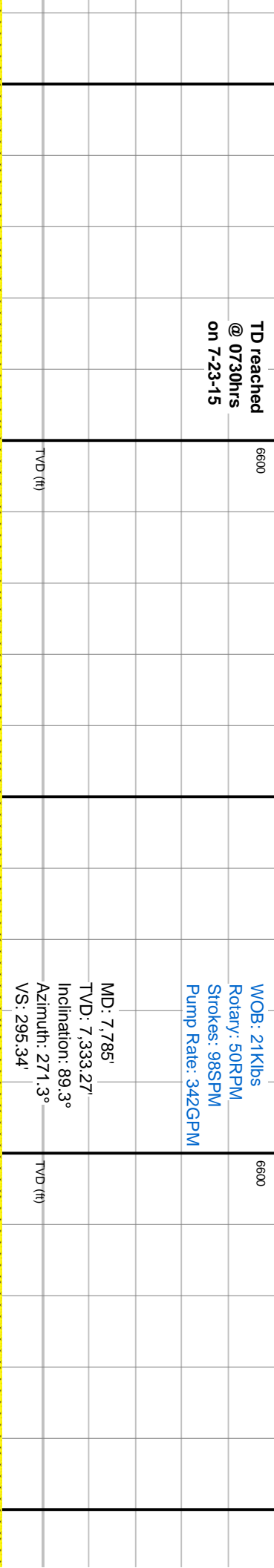
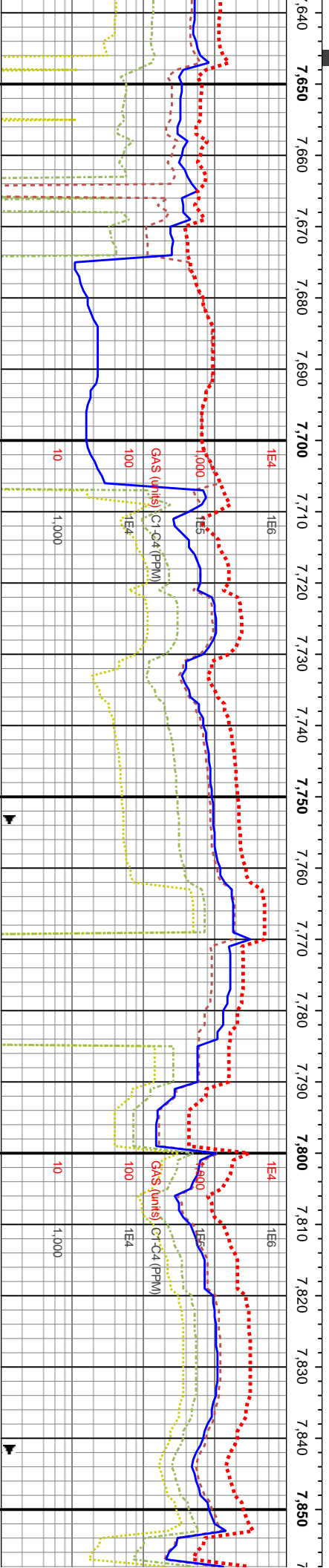
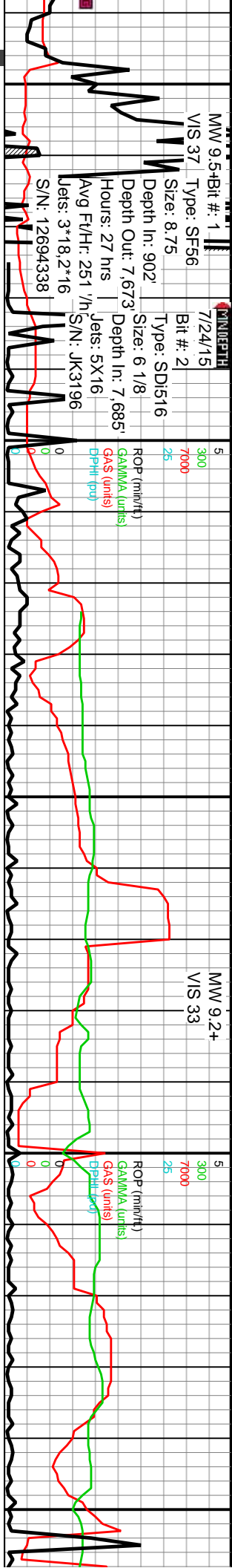
7400-7460 MRL
gy-bm, frm-bit,
quick bm HCL r
calc, frm-v frm-t
wh chk incl, mod
resd ring, lt yel

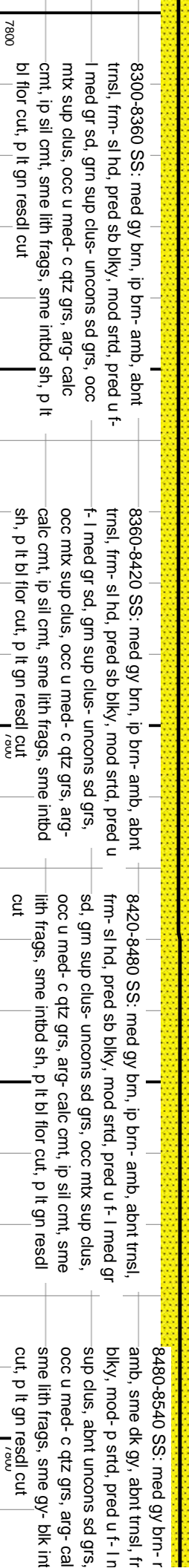
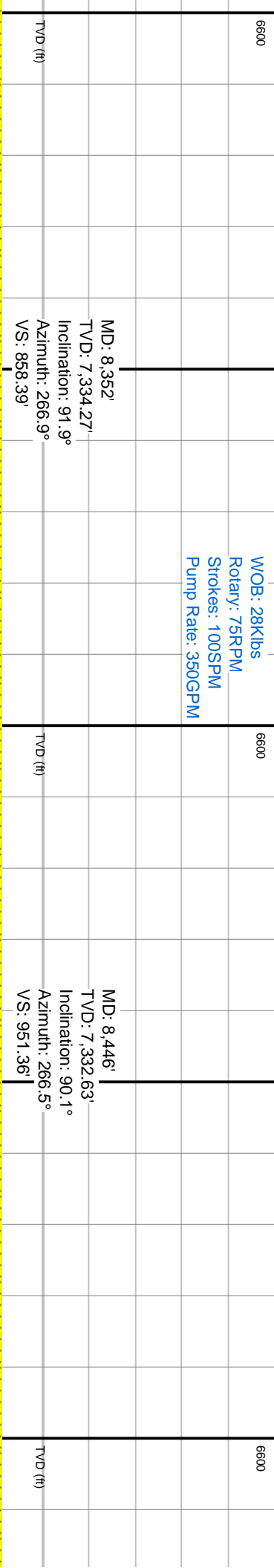
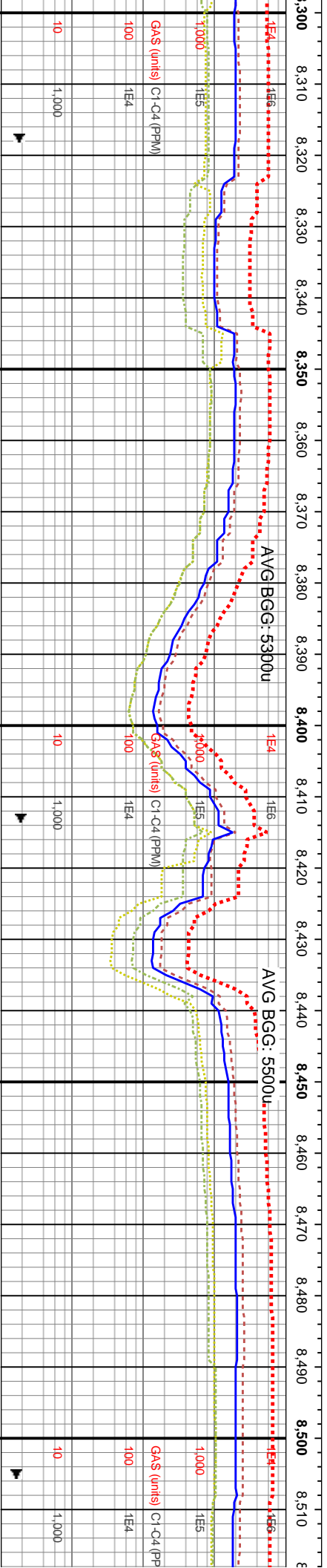
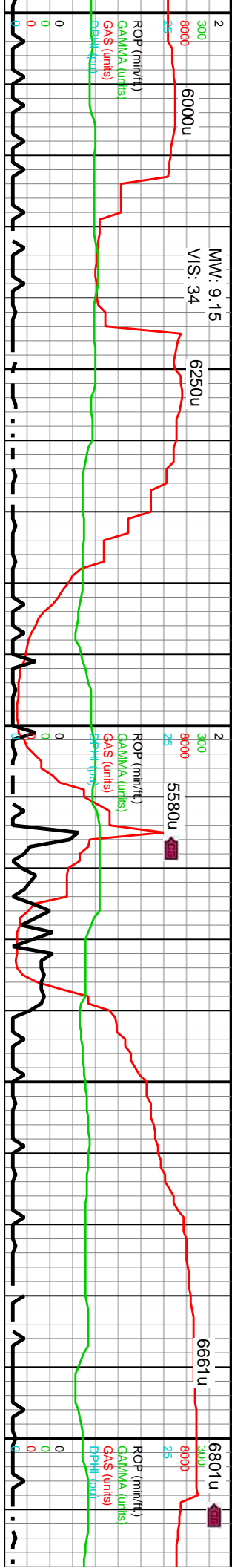


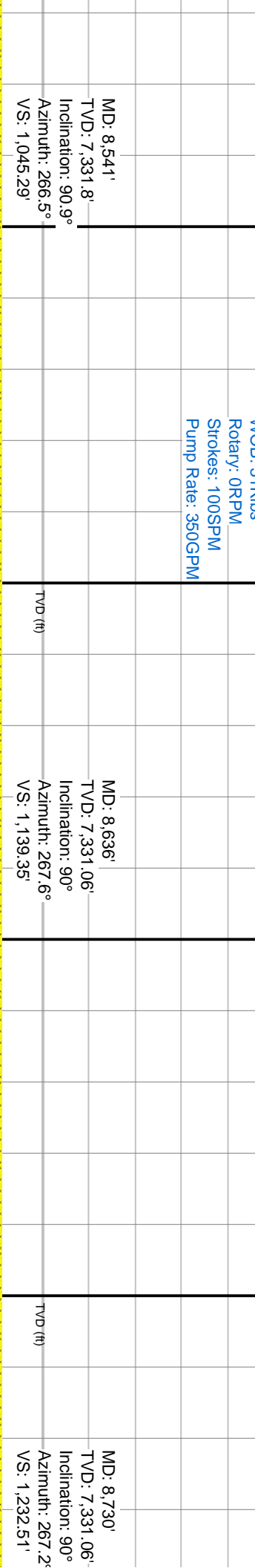
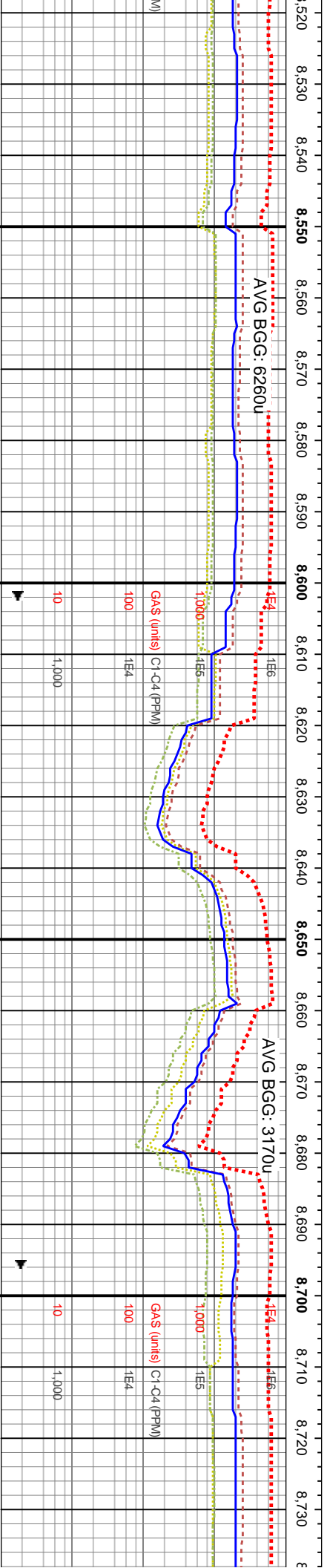


ST (80%): pred dk gy, occ brnsh rr brn thn lann, sm tex, mod calc w/ xn, w/ 20% CHK: gy-dk gy, occ lt gy, v writ mod fis sb blk cygs, rr vf pyr, rr off vis cut	7460-7490 MRLST: pred dk gy, occ brnsh gy-brn, frm-brt, rr brn thn lann, sm tex, mod calc w/ quick brn HCL rxn, p sting cut, lt omg flr resd ring	7490-7520 LS: off wh-v lt gy-sl crm-lt gn, frm-hd brit ply cygs, pred crpxln, microxln ip, mudst, v calc, tr vf pyr, wxy-chky lstr, v calc, p sting cut, lt omg flr resd ring	7520-7550 LS: off wh-v lt gy-sl crm-lt gn, frm-hd brit ply cygs, pred crpxln, microxln ip, mudst, v calc, tr vf pyr, wxy-chky lstr, v calc, p sting cut, lt omg flr resd ring	7550-7580 LS: off wh-v lt gy-sl crm-lt gn, frm-hd brit ply cygs, pred crpxln, microxln ip, mudst, v calc, tr vf pyr, wxy-chky lstr, v calc, p sting cut, lt omg flr resd ring	7580-7667 SS (90%): cl-trnsl off wh-lt gy-gy-trnsl brn, vf-u f sb ang-rd grs, gr sup cls cons w/ sil cmt w/ tr calc calc, sl-non calc ip, 10% SH strg: gy-dk gy, splty-pty, non calc, p sting cut, lt yel flr resd ring
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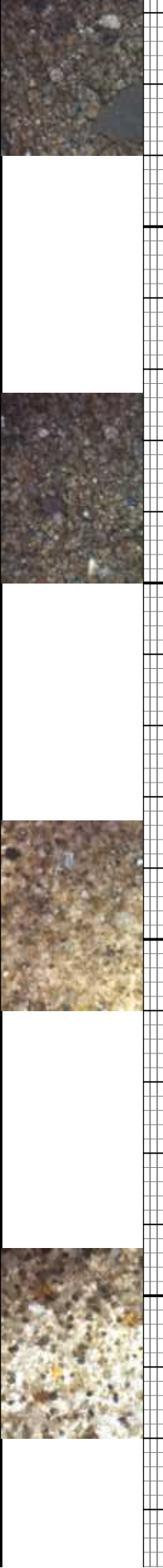


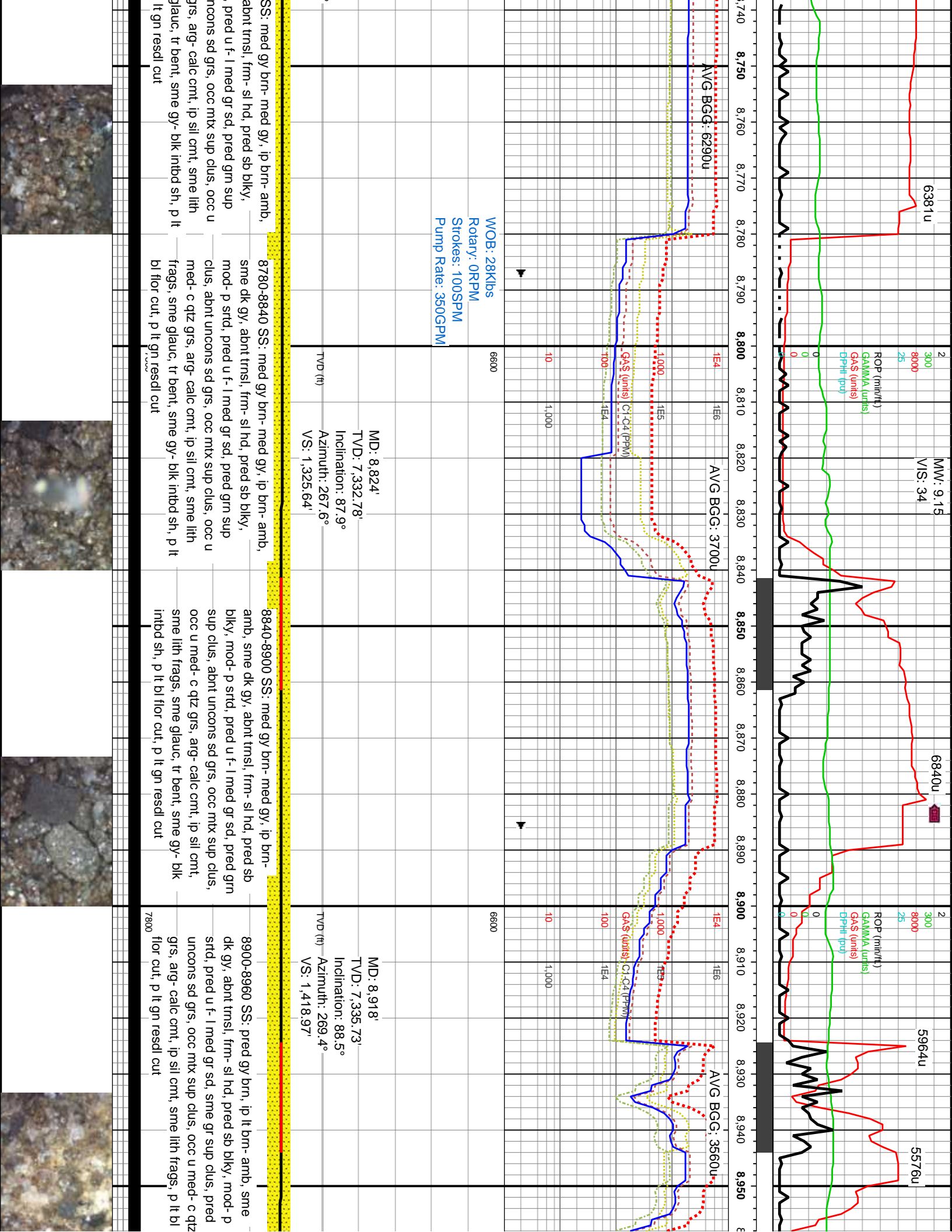


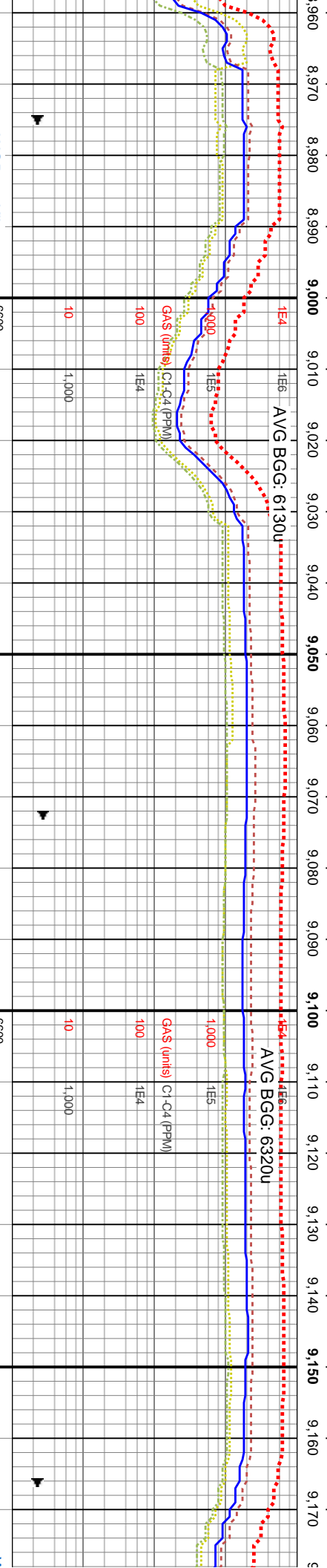
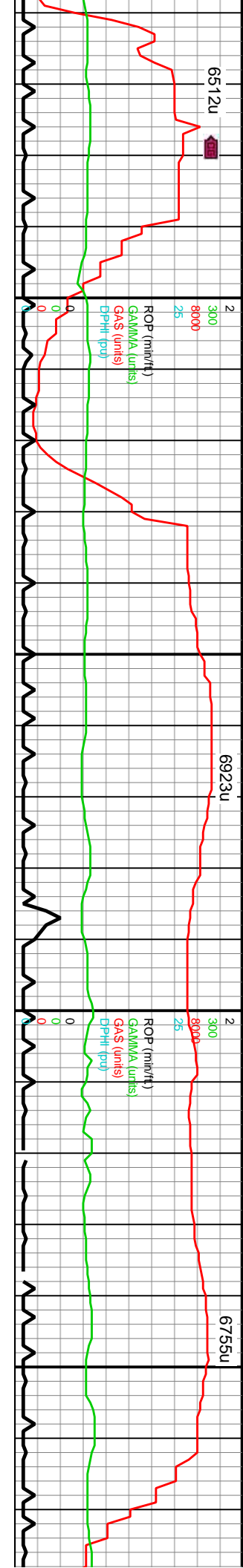




med gy, ip brn- m-si hd, pred sb dk gy, abnt trns, frm-si hd, pred sb blk, mod-p strd, pred u-f-l med gr sd, pred gr sup clus, abnt uncon occ mtz sup clus, c cnt, ip sil cnt, bd sh, p lt bl flr	8540-8600 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt trns, frm-si hd, pred sb blk, mod-p strd, pred u-f-l med gr sd, pred gr sup clus, abnt uncon sd grs, occ mtz sup clus, occ u med-c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme gy- blk intbd sh, p lt bl flr cut, p lt gn resdl cut	7800
med gy, ip brn- m-si hd, pred sb dk gy, abnt trns, frm-si hd, pred sb blk, mod-p strd, pred u-f-l med gr sd, pred gr sup clus, abnt uncon occ mtz sup clus, c cnt, ip sil cnt, bd sh, p lt bl flr	8600-8660 SS: pred gy brn, ip lt brn- amb, sme dk gy, abnt trns, frm-si hd, pred sb blk, mod-p strd, pred u-f-l med gr sd, sme gr sup clus, pred uncon sd grs, occ mtz sup clus, occ u med-c qtz grs, arg-calc cnt, ip sil cnt, sme lith frags, p lt bl flr cut, p lt gn resdl cut	7800
med gy, ip brn- m-si hd, pred sb dk gy, abnt trns, frm-si hd, pred sb blk, mod-p strd, pred u-f-l med gr sd, pred gr sup clus, abnt uncon occ mtz sup clus, c cnt, ip sil cnt, bd sh, p lt bl flr	8660-8720 SS: pred gy brn, ip lt brn- amb, sme dk gy, abnt trns, frm-si hd, pred sb blk, mod-p strd, pred u-f-l med gr sd, sme gr sup clus, pred uncon sd grs, occ mtz sup clus, occ u med-c qtz grs, arg-calc cnt, ip sil cnt, sme lith frags, p lt bl flr cut, p lt gn resdl cut	7800
med gy, ip brn- m-si hd, pred sb dk gy, abnt trns, frm-si hd, pred sb blk, mod-p strd, pred u-f-l med gr sd, pred gr sup clus, abnt uncon occ mtz sup clus, c cnt, ip sil cnt, bd sh, p lt bl flr	8720-8780 sme dk gy, mod-p strd clus, abnt u med-c qtz grs, frags, sme gy- bl flr cut, p	7800







WOB: 25Klbs
Rotary: 75RPM
Strokes: 100SPM
Pump Rate: 350GPM

MD: 9,012'
TVD: 7,338.11'
Inclination: 88.6°
TVAzimuth: 268.7°
VS: 1,512.42'

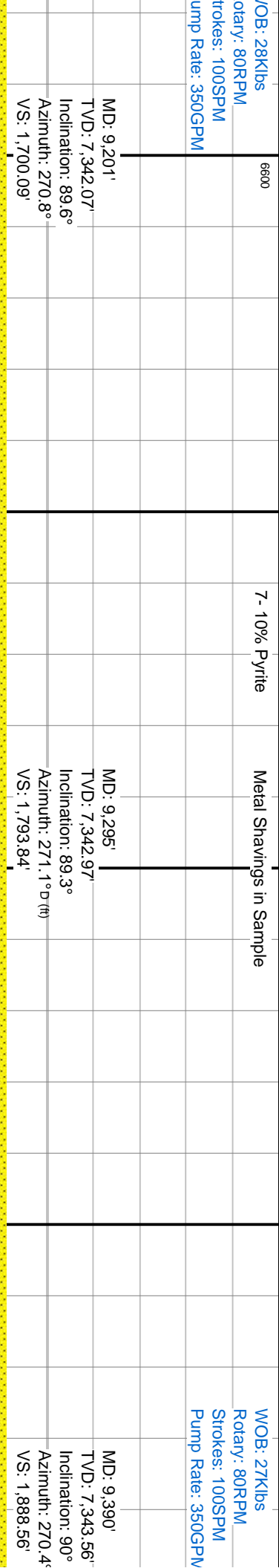
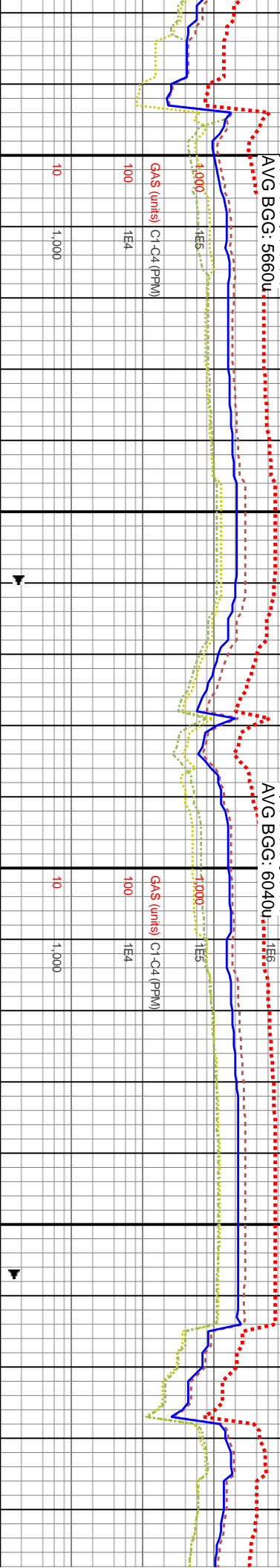
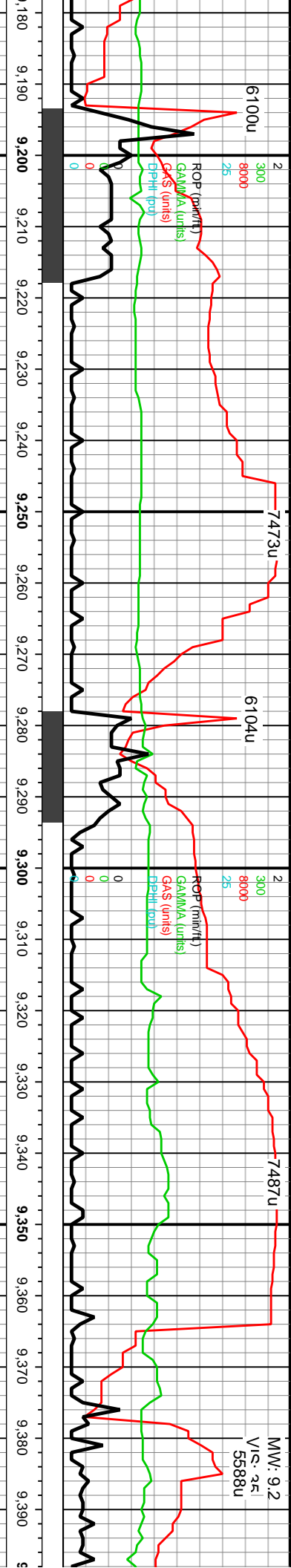
8960-9020 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt trns, frm- sl hd, pred sb blk, mod- p strd, pred u f- l med gr sd, pred grn sup clus, abnt uncon sd grs, occ mix sup clus, occ u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme glauc, tr bent, sme gy- blk intbd sh, p lt bl flr cut, p lt gn resdl cut

9020-9080 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt trns, frm- sl hd, pred sb blk, mod- p strd, pred u f- l med gr sd, pred grn sup clus, abnt uncon sd grs, occ mix sup clus, occ u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme glauc, tr bent, sme gy- blk intbd sh, p lt bl flr cut, p lt gn resdl cut

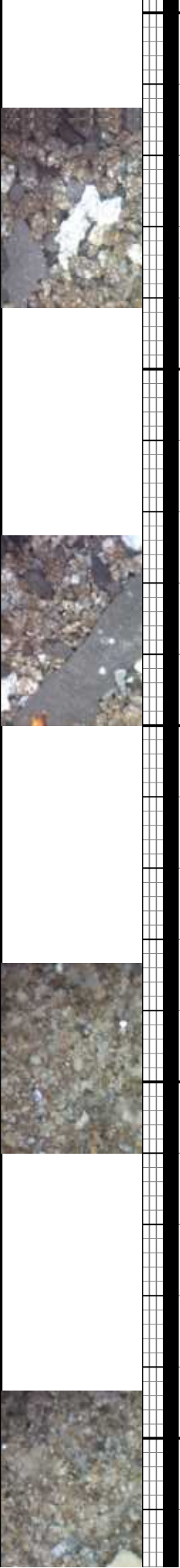
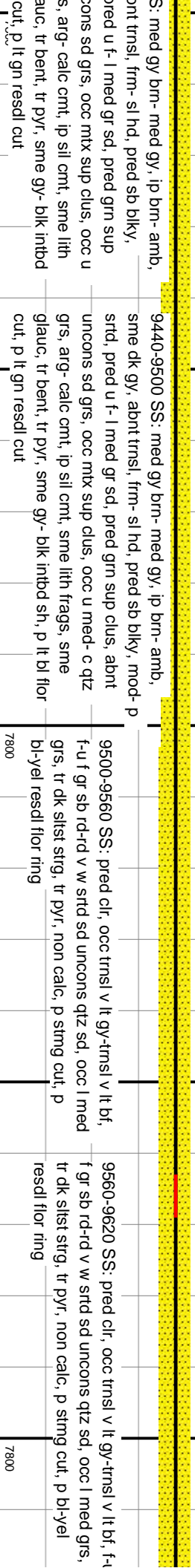
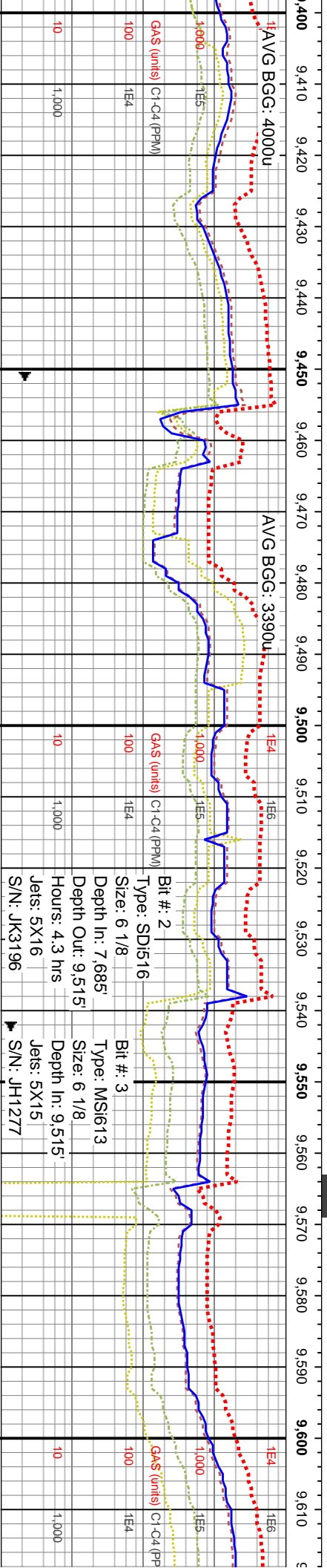
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TVD: 7,340.51'
Inclination: 88.5°
Azimuth: 267.2°
VS: 1,606.65'

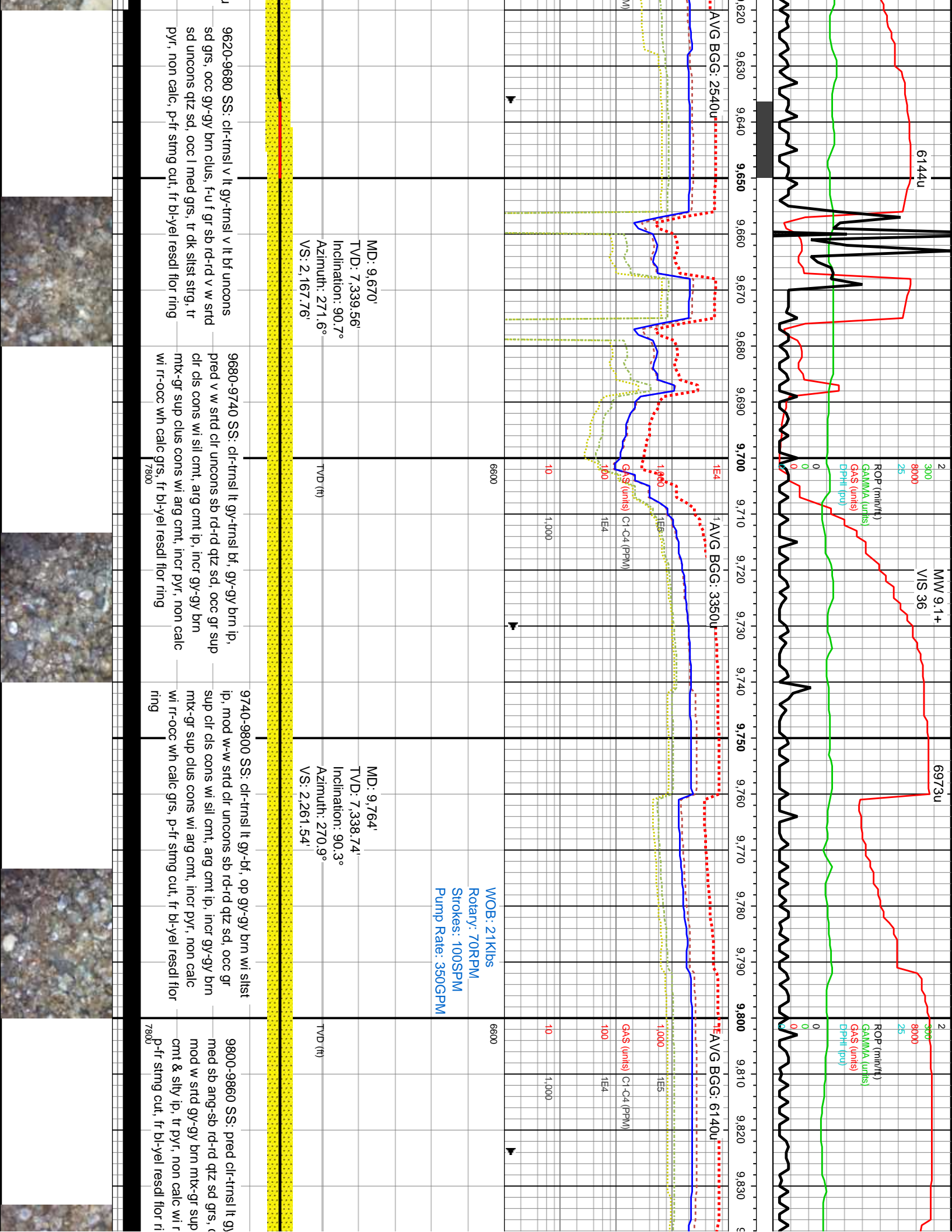
9080-9140 SS: pred gy brn, ip lt brn- amb, sme dk gy, abnt trns, frm- sl hd, pred sb blk, mod- p strd, pred u f- l med gr sd, sme gr sup clus, pred uncon sd grs, occ mix sup clus, occ u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, p lt bl flr cut, p lt gn resdl cut

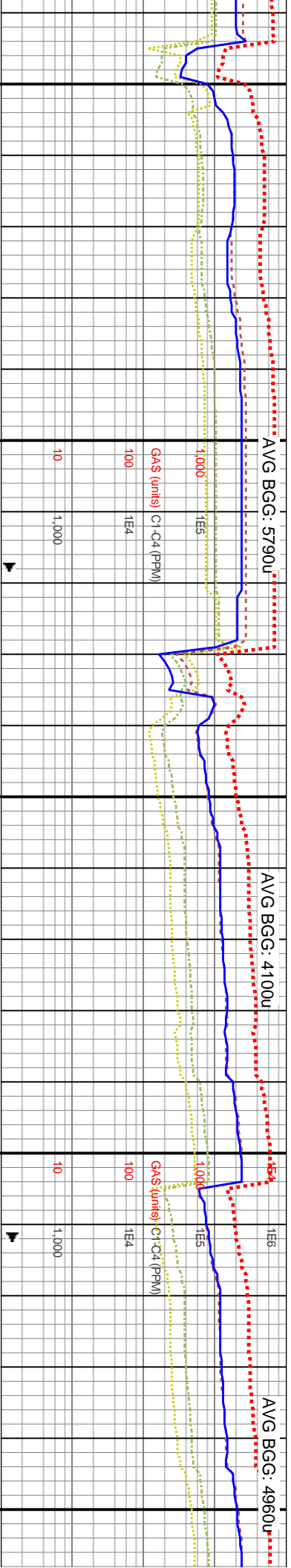
9140-9200 SS: pred gy brn, sme dk gy, abnt trns, frm- sl hd, p strd, pred u f- l med gr sd, pred uncon sd grs, occ mix sup clus, med- c qtz grs, arg- calc cnt, lith frags, p lt bl flr cut, p lt

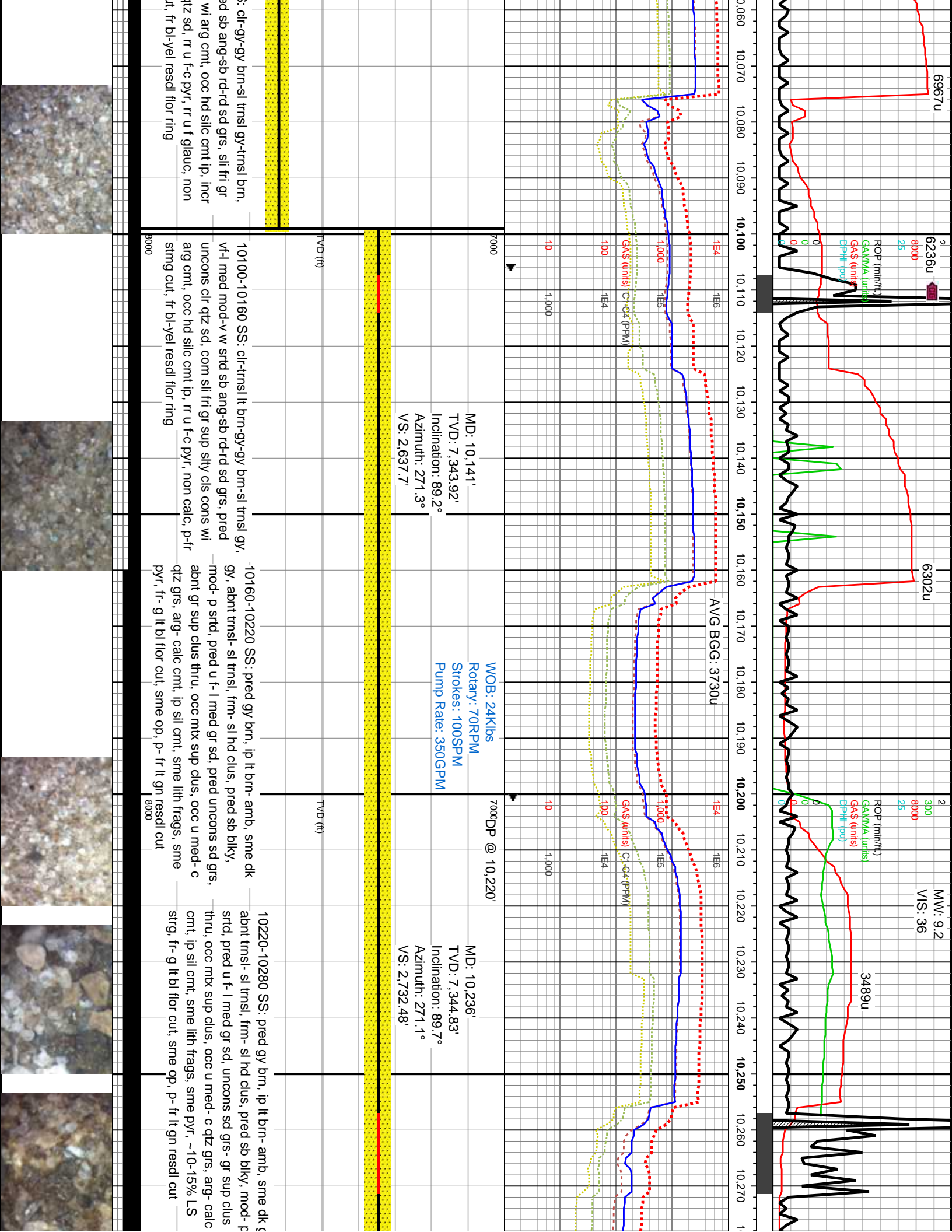


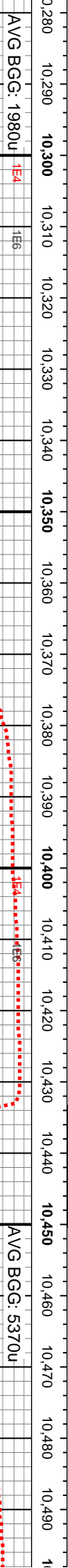
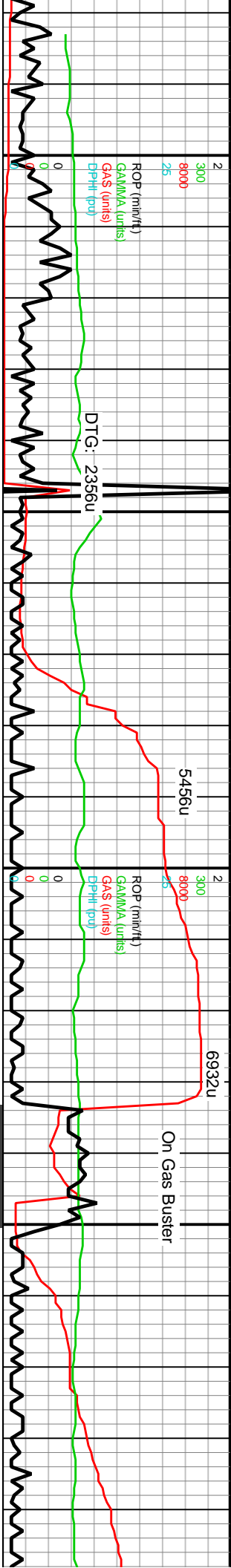
MD: 9.201' TVD: 7,342.07' Inclination: 89.6° Azimuth: 270.8° VS: 1,700.09'		MD: 9.295' TVD: 7,342.97' Inclination: 89.3° Azimuth: 271.1° D (ft) VS: 1,793.84'		MD: 9.390' TVD: 7,343.56' Inclination: 90° Azimuth: 270.4° VS: 1,888.56'	
9200-9260 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt trnsi, frm- sl hd, pred sb blkly, mod- srted, pred u f- l med gr sd, pred grn sup clus, abnt unconsd grs, occ mtz sup clus, occ u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme glauc, tr bent, abnt pyr, sme gy- blk intbd sh, p lt bl flr cut, p lt gn resdl cut		9260-9320 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt trnsi, frm- sl hd, pred sb blkly, mod- srted, pred u f- l med gr sd, pred grn sup clus, abnt unconsd grs, occ mtz sup clus, occ u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme glauc, tr bent, abnt pyr, sme gy- blk intbd sh, p lt bl flr cut, p lt gn resdl cut		9320-9380 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt trnsi, frm- sl hd, pred sb blkly, mod- p srted, pred u f- l med gr sd, pred grn sup clus, abnt unconsd grs, occ mtz sup clus, occ u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme glauc, tr bent, abnt pyr, sme gy- blk intbd sh, p lt bl flr cut, p lt gn resdl cut	
9380-9440 S:					



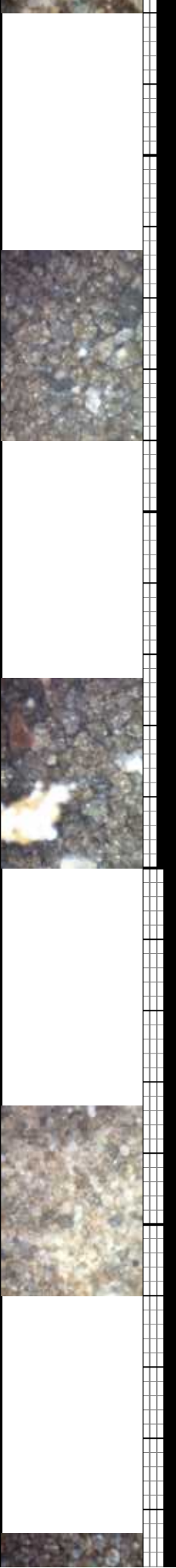
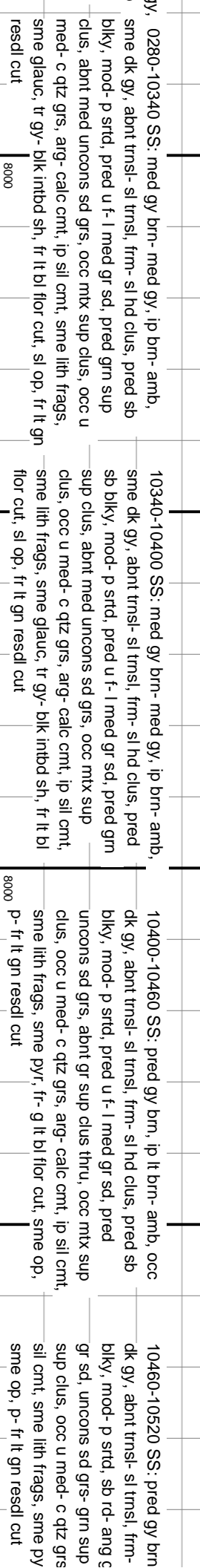
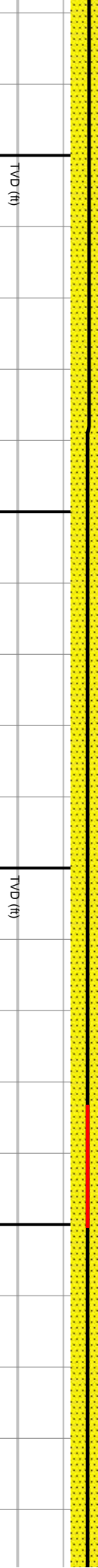
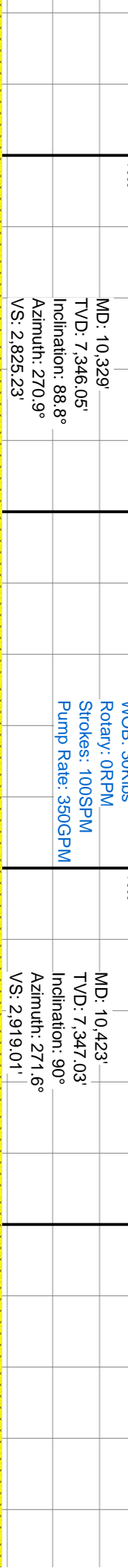
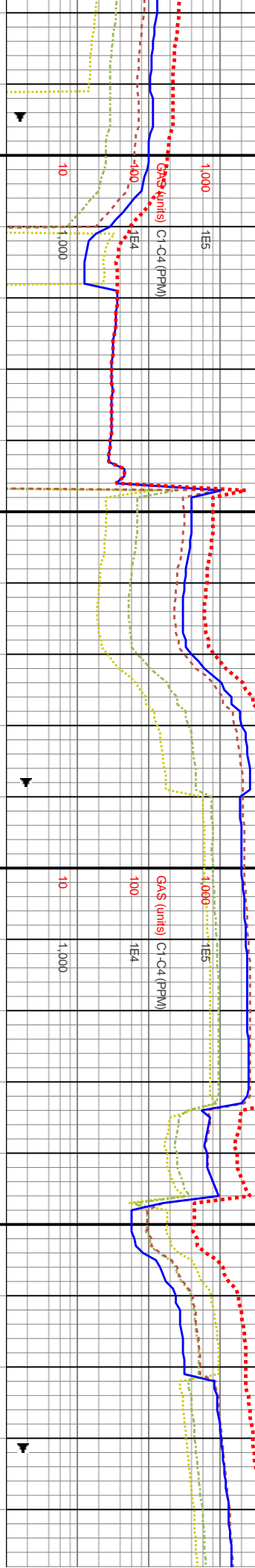


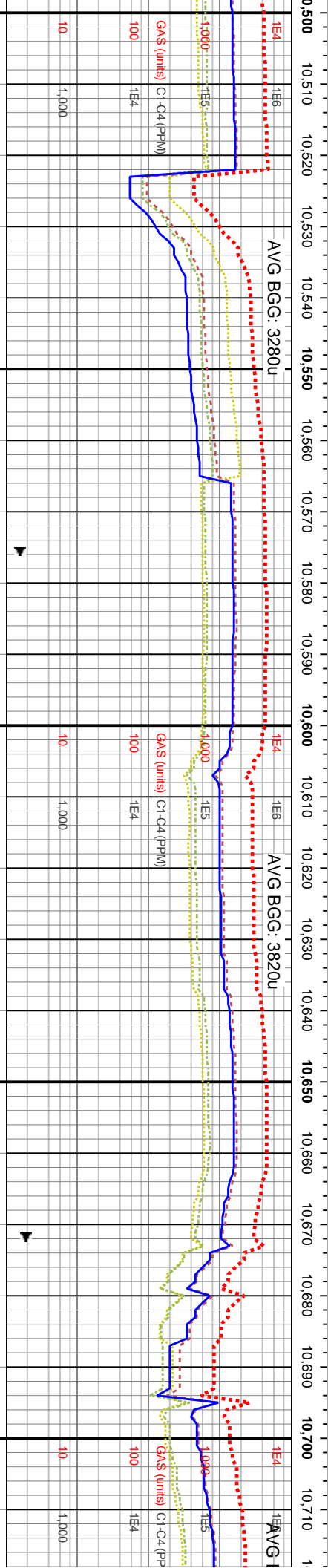
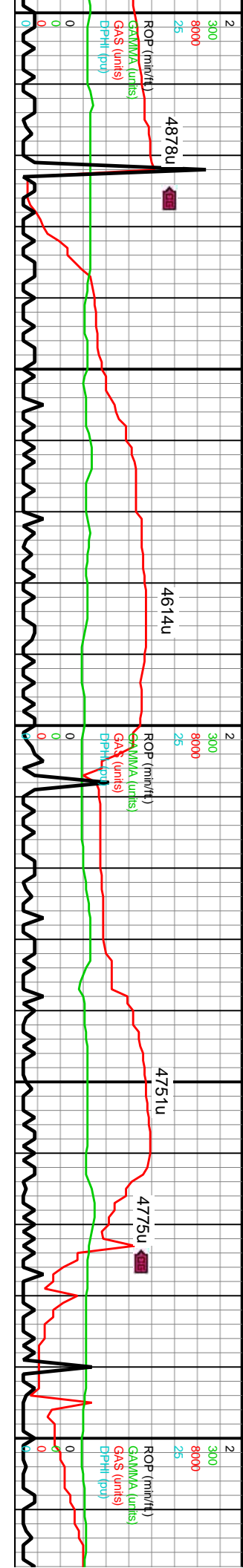






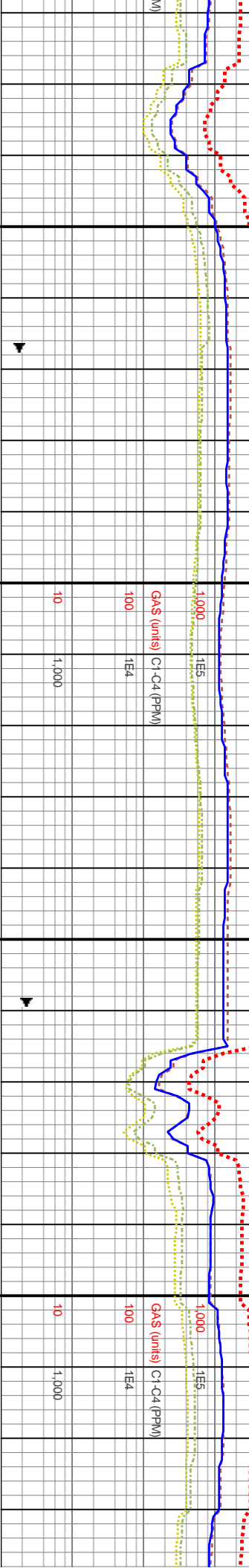
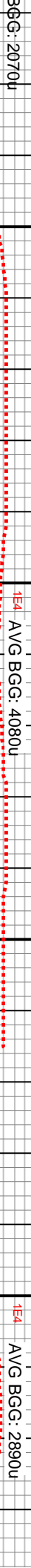
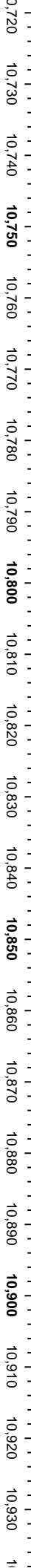
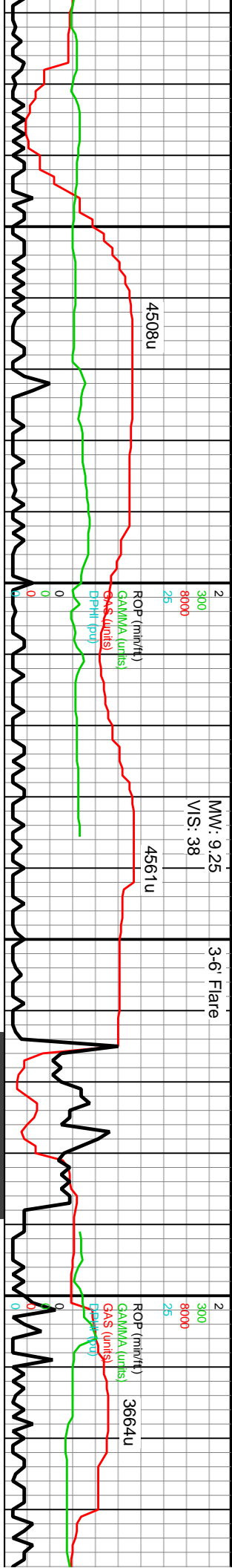
AVG BGG: 5370u





MD: 10,517'	MD: 10,612'	MD: 10,705'
TVD: 7,346.62'	TVD: 7,346.37'	TVD: 7,347.26'
Inclination: 90.5°	Inclination: 89.8°	Inclination: 89.1°
Azimuth: 272.7°	Azimuth: 271.3°	Azimuth: 270.6°
VS: 3,012.89'	VS: 3,107.74'	VS: 3,200.5'

10520-10580 SS: pred gy brn, ip lt brn-amb, occ dk gy, abnt trns-l sl trns-l, frm- sl hd clus, pred sb blk, mod- p strd, sb rd- ang grs, pred u f- l med gr sd, pred unconcs sd grs, abnt gm sup clus thru, occ mtz sup clus, occ u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme pyr, fr- p lt bl fior cut, mky op, p- fr lt gn resd cut	10580-10640 SS: med gy brn- med gy, ip brn-amb, sme dk gy, abnt trns-l sl trns-l, frm- sl hd clus, pred sb blk, mod- p strd, pred u f- l med gr sd, gm sup clus- unconcs sd grs, occ mtz sup clus, occ u med- med sb ang qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme glauc, tr gy- blk intbd sh, fr lt bl fior cut, sl op, fr lt gn resd cut	10640-10700 SS: med gy brn- med gy, ip brn-amb, sme dk gy, abnt trns-l sl trns-l, frm- sl hd clus, pred sb blk, mod- p strd, pred u f- l med gr sd, gm sup clus- unconcs sd grs, occ mtz sup clus, occ u med- med sb ang qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, sme glauc, tr gy- blk intbd sh, fr lt bl fior cut, sl op, fr lt gn resd cut	10700-10760 : sme dk gy, ab blk, mod- p s clus- unconcs s cnt, occ u med- cnt, sl arg, str fior cut, sl op, '
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WOB: 34Klbs
Rotary: 70RPM
Strokes: 100SPM
Pump Rate: 350GPM

TVD (ft)

TVD (ft)

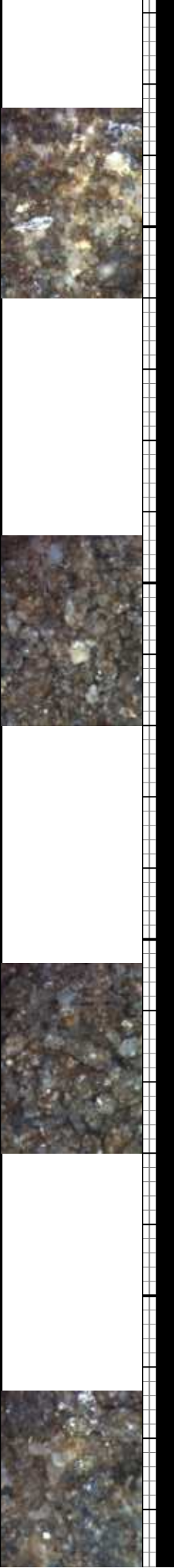
MD: 10,893'
TVD: 7,347.43'
Inclination: 90.8°
Azimuth: 270.9°
VS: 3,387.95'

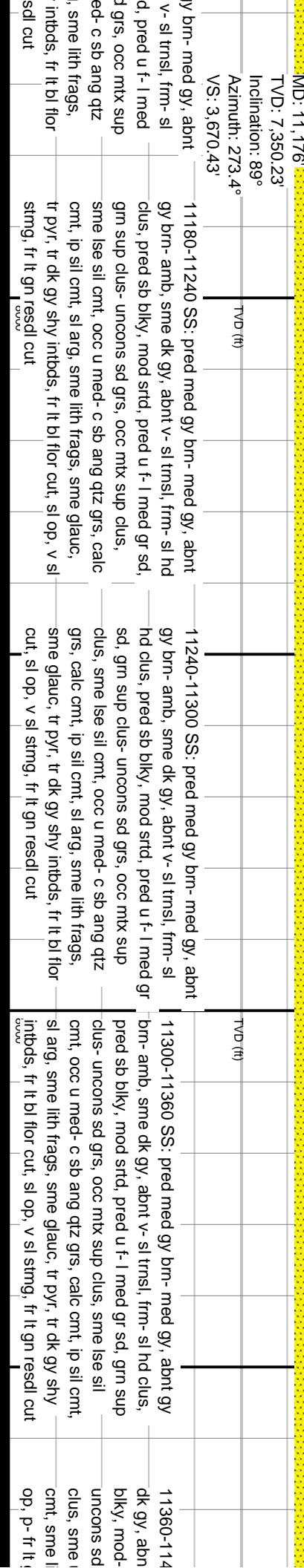
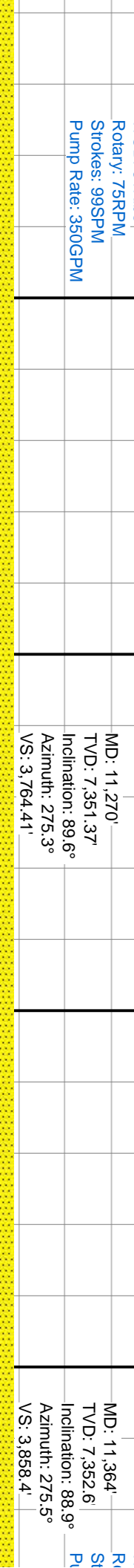
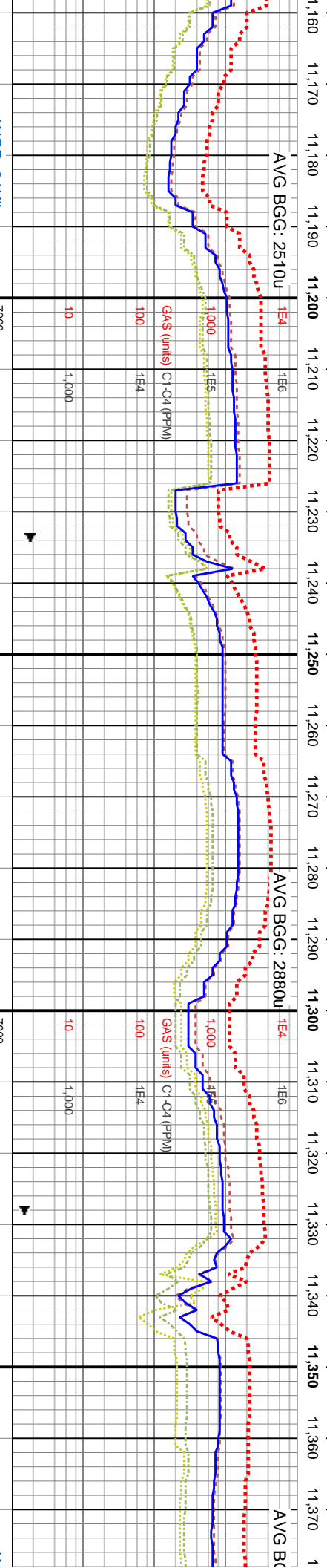
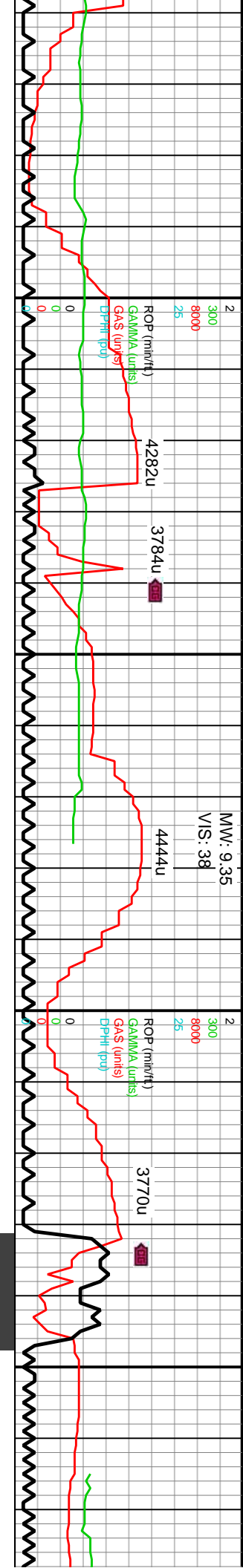
SS: med gy brn- med gy, ip brn- amb, nt v- sl trnsi, frm- sl hd clus, pred sb trtd, pred u f- l med gr sd, grn sup d grs, occ mtz sup clus, sme lse sil -d- med sb ang qtz grs, calc cnt, ip sil lith frags, sme glauc, tr pyr, fr lt bl v sl stmg, fr lt gn resdl cut

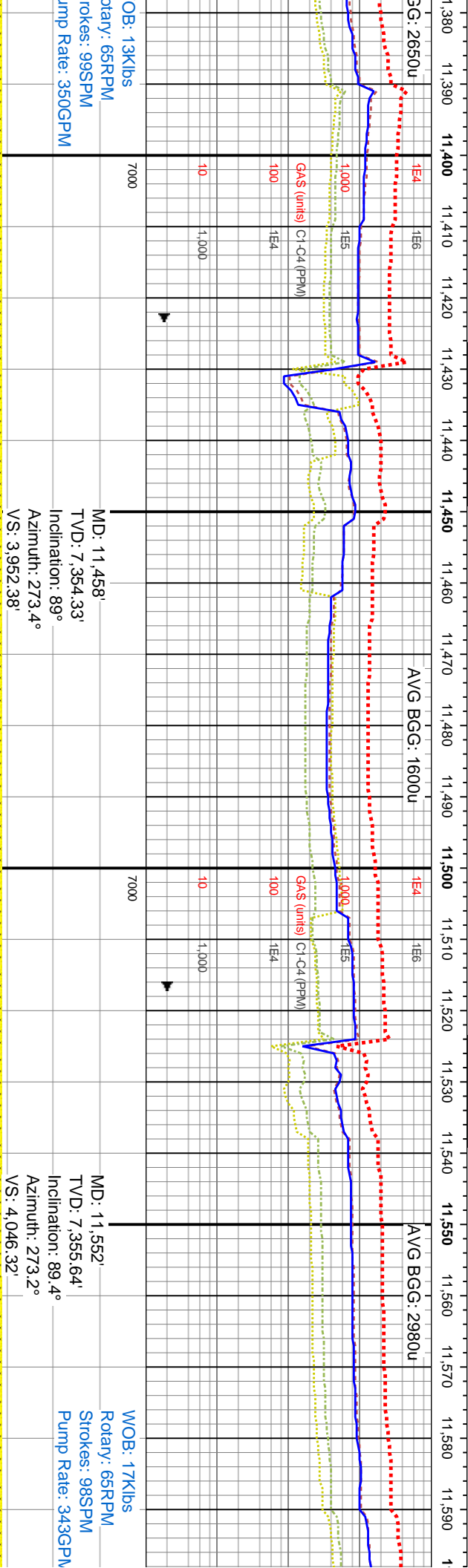
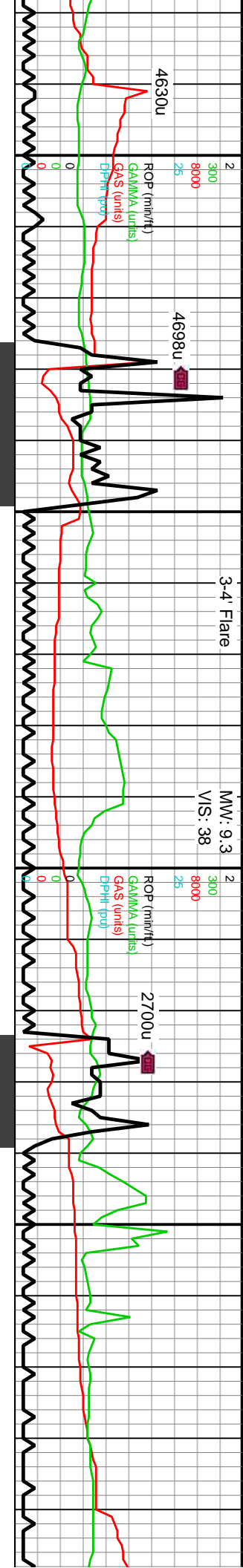
10760-10820 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt v- sl trnsi, frm- sl hd clus, pred sb blk, mod- p strd, pred u f- l med gr sd, grn sup clus- unconcs sd grs, occ mtz sup clus, sme lse sil cnt, occ u med- med sb ang qtz grs, calc cnt, ip sil cnt, sl arg, sme lith frags, sme glauc, tr pyr, fr lt bl flr cut, sl op, v sl stmg, fr lt gn resdl cut

10820-10880 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt v- sl trnsi, frm- sl hd clus, pred sb blk, mod- p strd, pred u f- l med gr sd, grn sup clus- unconcs sd grs, occ mtz sup clus, sme lse sil cnt, occ u med- med sb ang qtz grs, calc cnt, ip sil cnt, sl arg, sme lith frags, sme glauc, tr pyr, fr lt bl flr cut, sl op, v sl stmg, fr lt gn resdl cut

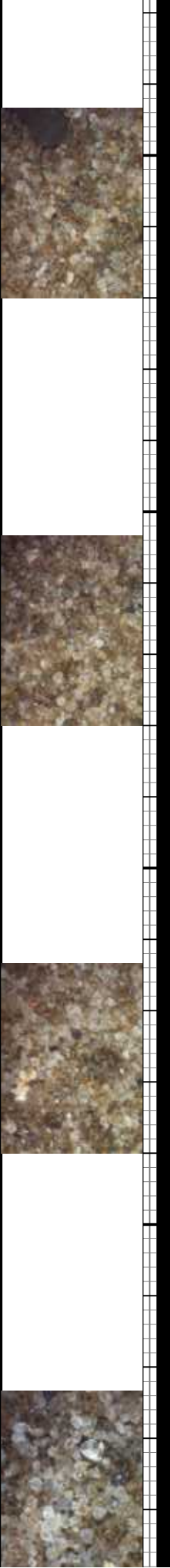
10880-10940 SS: med gy brn- med gy, ip brn- amb, sme dk gy, abnt v- sl trnsi, frm- sl hd clus, pred sb blk, mod- p strd, pred u f- l med gr sd, grn sup clus- unconcs sd grs, occ mtz sup clus, sme lse sil cnt, occ u med- med sb ang qtz grs, calc cnt, ip sil cnt, sl arg, sme lith frags, sme glauc, tr pyr, fr lt bl flr cut, sl op, v sl stmg, fr lt gn resdl cut

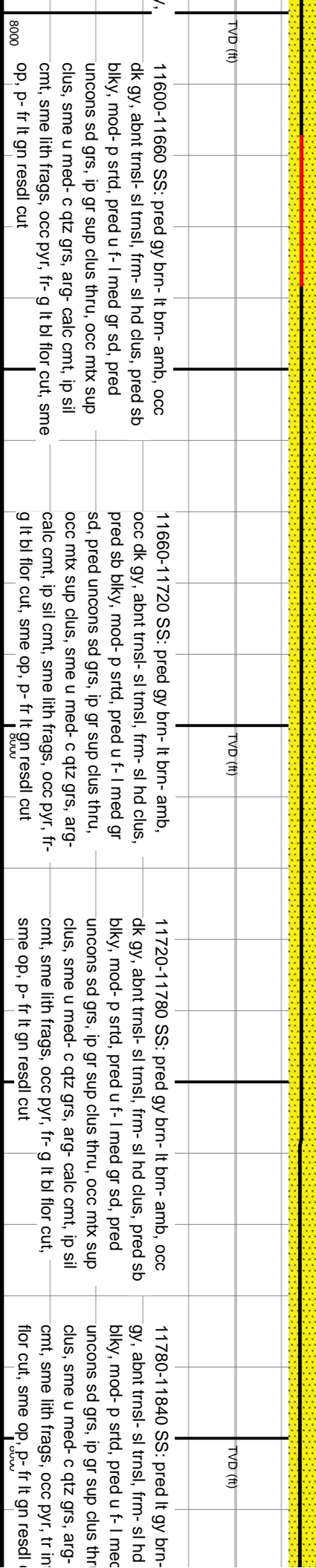
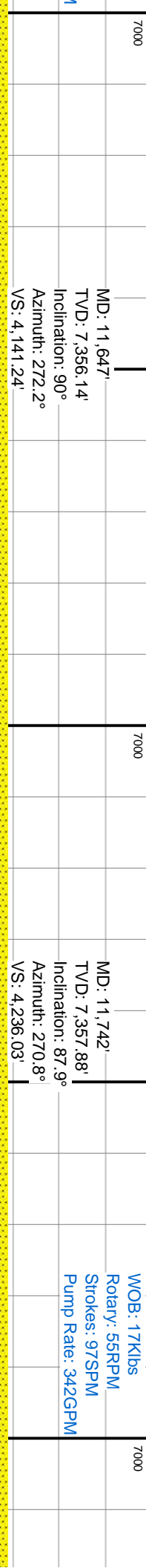
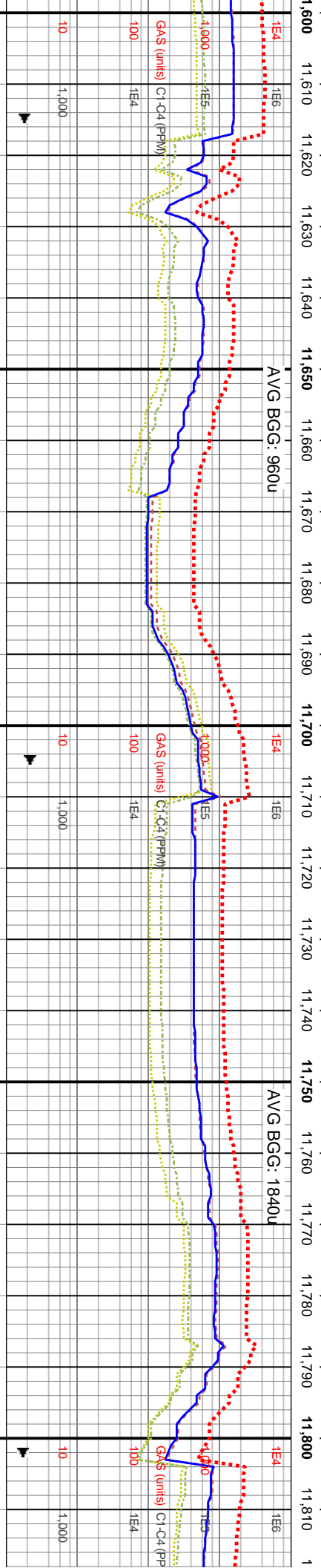
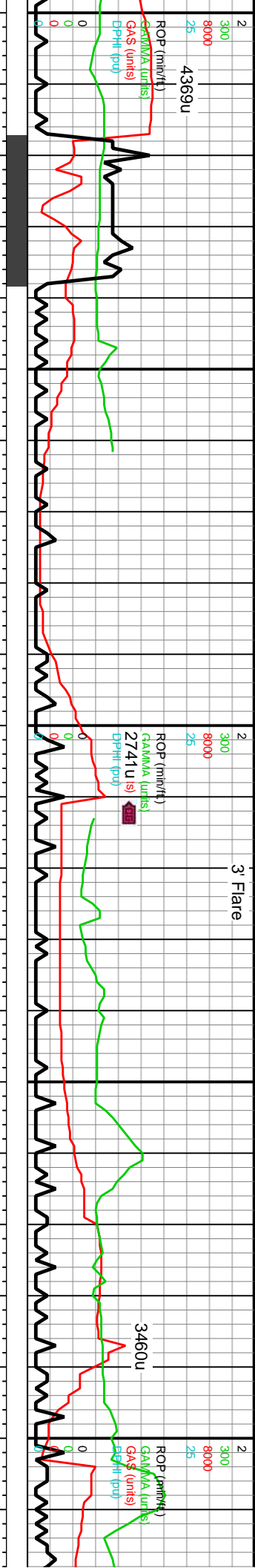


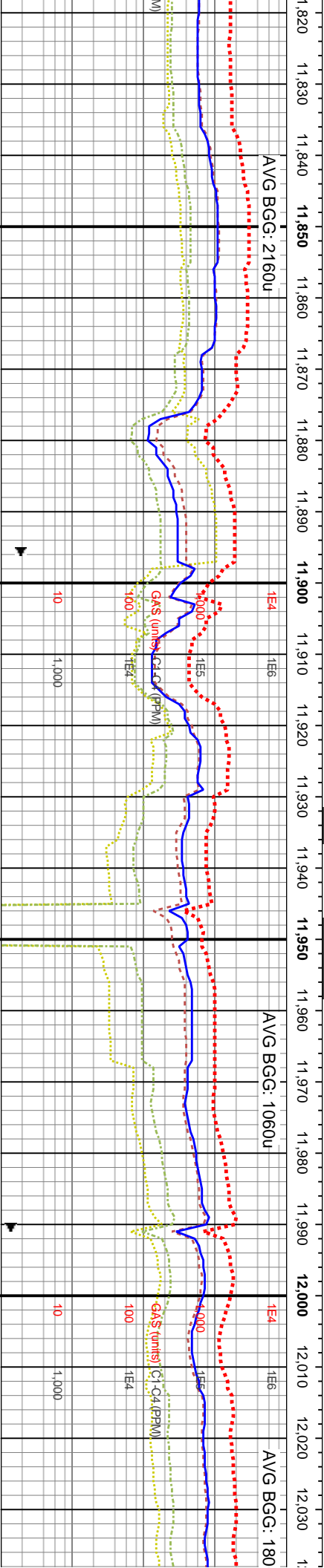
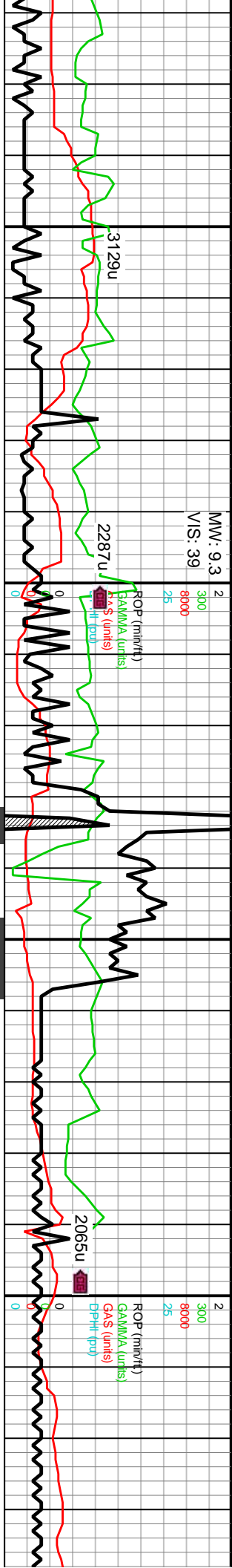




OB: 13Klbs Rotary: 65RPM Strokes: 99SPM Pump Rate: 350GPM	MD: 11,458' TVD: 7,354.33' Inclination: 89° Azimuth: 273.4° VS: 3,952.38'	MD: 11,552' TVD: 7,355.64' Inclination: 89.4° Azimuth: 273.2° VS: 4,046.32'	WOB: 17Klbs Rotary: 65RPM Strokes: 98SPM Pump Rate: 343GPM
20 SS: pred gy brn- lt brn- amb, occ dk gy, about trnsi- sl trnsi, frm- sl hd clus, pred sb mod- p strd, pred u f- l med gr sd, pred u med- c qtz grs, arg- calc cnt, ip sil lith frags, occ pyr, fr- g lt bl flur cut, sme gn resdl cut	11420-11480 SS: pred gy brn- lt brn- amb, occ dk gy, about trnsi- sl trnsi, frm- sl hd clus, pred sb mod- p strd, pred u f- l med gr sd, pred uncons sd grs, ip gr sup clus thru, occ mtz sup clus, sme u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, occ pyr, fr- g lt bl flur cut, sme op, p- fr lt gn resdl cut	11480-11540 SS: pred gy brn- lt brn- amb, occ dk gy, about trnsi- sl trnsi, frm- sl hd clus, pred sb mod- p strd, pred u f- l med gr sd, pred uncons sd grs, ip gr sup clus thru, occ mtz sup clus, sme u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, occ pyr, fr- g lt gn resdl cut	11540-11600 SS: pred gy brn- lt brn- amb, occ dk gy, about trnsi- sl trnsi, frm- sl hd clus, pred sb mod- p strd, pred u f- l med gr sd, pred uncons sd grs, ip gr sup clus thru, occ mtz sup clus, sme u med- c qtz grs, arg- calc cnt, ip sil cnt, sme lith frags, occ pyr, fr- g lt bl flur cut, sme op, p- fr lt gn resdl cut







amb, occ med cclus, pred sb gr sd, pred u, occ mtk sup calc cmt, ip sil bld sh, fr- g lt bl cut	11840-11900 SS: pred lt gy brn- amb, occ med gy, abnt trmsl- sl trmsl, frm- sl hd clus, pred sb biky, mod- p strd, pred u f-l med gr sd, pred uncons sd grs, ip gr sup clus thru, occ mtk sup cclus, sme u med- c qtz grs, arg- calc cmt, ip sil cmt, sme lith frags, occ pyr, tr intbd sh, fr- g lt bl flor cut, sme op, p- fr lt gn resdl cut	11900-11960 85% SS: pred lt gy brn- gy brn, sl trmsl ip, occ clr uncons qtz sd, p strd, f-l med sb ang-sb rd grs, sil fr-hd pred gr sup cls cons wi silc & arg cmt, com dk lithic frags, rr-occ pyr, non calc, wi 15% SH: lt gy-gy, v ply hi fis clgs, com thin gy-lt gy-off wh lamn, tr vl pyr, non calc, fr bl mky cut, bl yel resdl flor ring 8000	MD: 12,003' TVD: 7,365.7' Inclination: 89.2° Azimuth: 270.2° VS: 4,496.07'	11960-12020 SS: pred gy brn- gy-dk gy, occ clr, pred v p strd vl-l med ang-sb rd grs, pred frm-sl hd mtk-gr sup cls cons wi gy-brn arg cmt, v silty, rr vl-f pyr, occ clr f-l med uncons qtz sd, wi occ ply hi fis SH intbds, non calc, fr bl mky cut, bl yel resdl flor ring	12020-12064 S occ clr uncons : med ang-sb rd sup cls cons wi vl-f pyr, occ clr non calc, fr bl r ring



