



Empirica

Scale: 5" / 100'
Measured Depth Log

Well Name Silverback 1

Location Sec 36, T12N, R62W

State CO

Country USA

API Number 05-123-42283

Region DJ Basin

Spud Date 11/3/2015

County Weld

Rig Number Savannah 802

Field Wildcat

Drilling Completed 11/9/2015

Surface Coordinates Lat: 40° 58' 21.184" N

Long: 104° 16' 19.978" W

Bottom Hole Coordinates Lat: 40° 56' 13.023" N

Long: 104° 16' 30.230" W

Ground Elevation 5,282'

K.B. Elevation 5,297'

Logged Interval 5,000' **To** 17,510'

Total Depth 17,510'

Formation Codell

Type of Drilling Fluid Invert

Operator

Company Extractions Oil & Gas

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

Geologist

Name Jared Rouse

Company Extractions Oil & Gas

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



Other

Equipment ML-197

Comments Start: 11-5-15
End: 11-9-15

Services Provided 2-man lggng

Logger Names Brian Ferwerda/Mark Gro

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

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

CHTDK

CHTLT

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

DEAD

EVEN

QUESTIONABLE

SPOTTED STAINING

FORM

GAS SHOW

VUGGY

NORMAL F

OIL SHOW

OVERTURN

Oil Show

Porosity

E EARTHY

F FENESTRAL

F FRACTURE

X INTERCRYSTALLINE

O INTEROOLITIC

M MOLDIC

CONNECTION (RIGHT)

CONNECTION GAS

CORE - LOST

CORE - RECOVERED

DST INTERVAL

FAULT

SLIDE

SURVEY

TRIP GAS

WIRELINE

WIRELINE

SIDEWALL

REVERSE

NORMAL F

OIL SHOW

OVERTURN

Engineering

CASING

REVERSE

NORMAL F

OIL SHOW

OVERTURN

CONNECTION (LEFT)

SLIDE

SURVEY

TRIP GAS

WIRELINE

SIDEWALL

REVERSE

NORMAL F

OIL SHOW

OVERTURN

mbols

ATION TOP L LITHOGRAPHIC

Rounding

MX MICROXLN

A ANGULAR **MS** MUDSTONE

R ROUNDED **PS** PACKSTONE

S SUBANG **WS** WAKESTONE

F SUBRND

Sorting

FAULT

Textures

M MODERATE

CORE (LEFT)

B BOUNDSTONE **P** POOR

CORE (RIGHT)

C CHALKY **W** WELL

CX CRYPTOXLN

E EARTHY

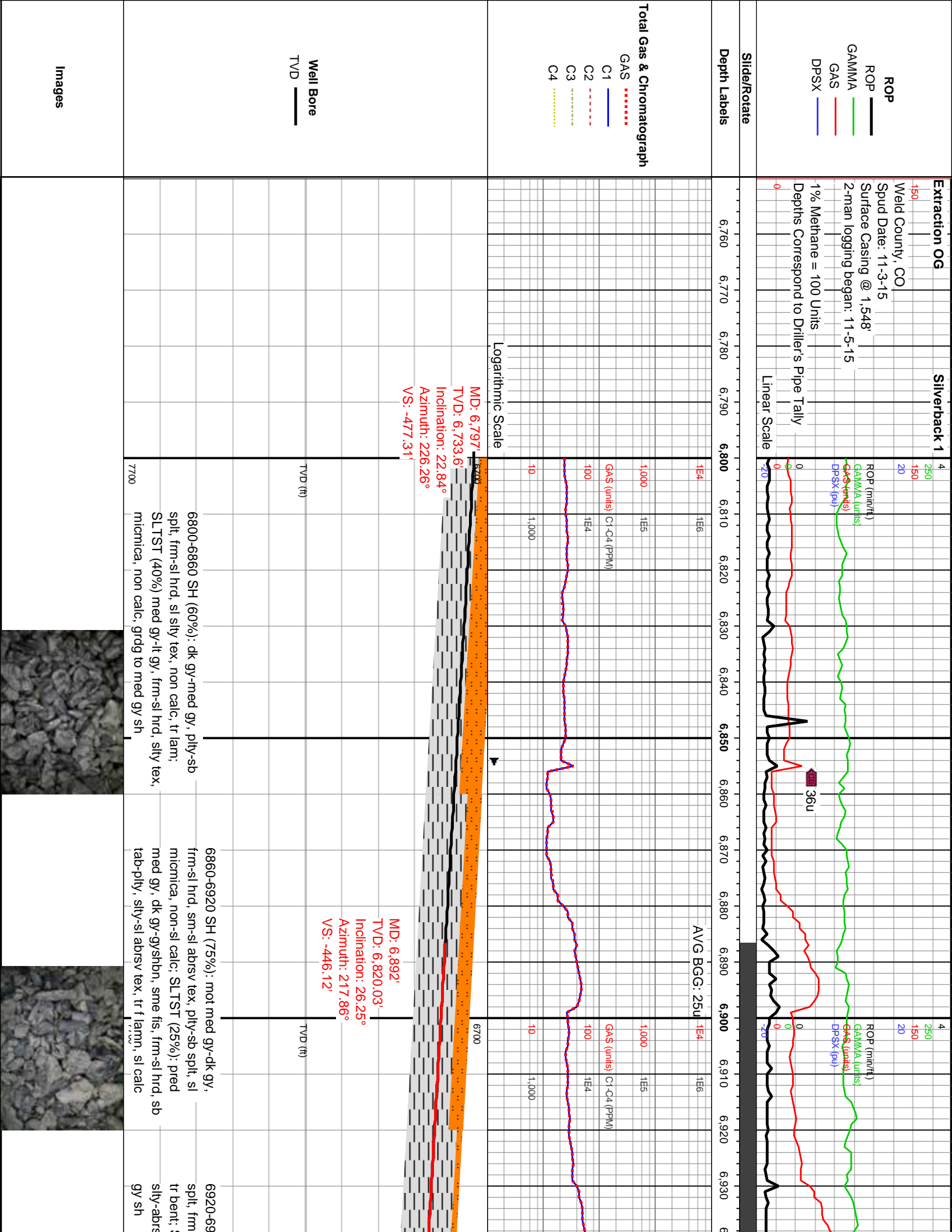
TESTED - RT

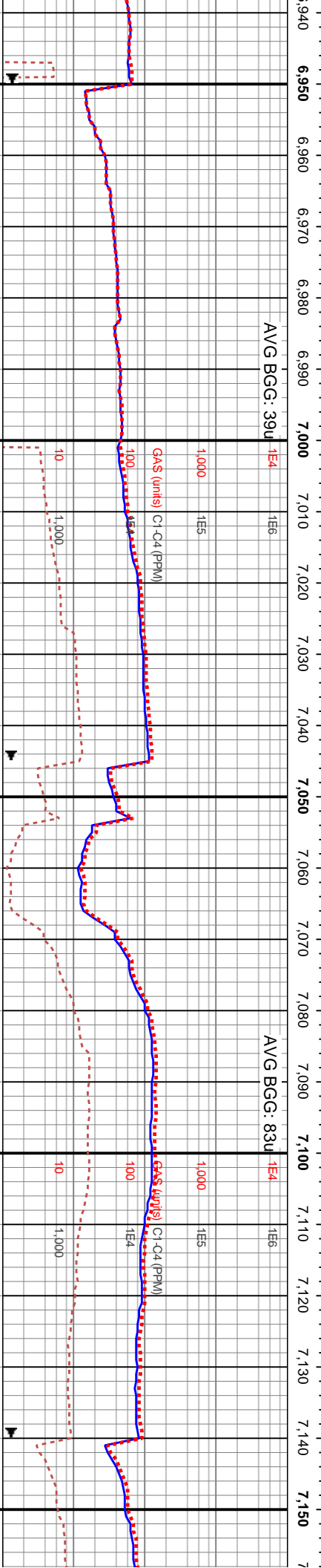
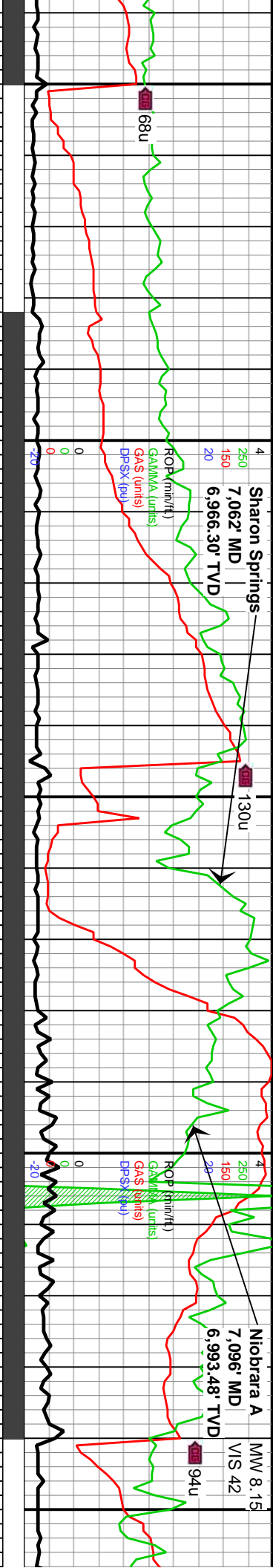
FX FINELYXLN

TESTED - LEFT

GS GRAINSTONE

TESTED - RT





MD: 6,986'
TVD: 6,902.82'
Inclination: 30.37°
Azimuth: 208.34°
VS: -407.09'

WOB: 31.7Klbs
Rotary: 0RPM
Strokes: 226SPM
Pump Rate: 604GPM
TVD (ft)

MD: 7,081'
TVD: 6,982.17'
Inclination: 36.86°
Azimuth: 186.71°
VS: -356.47'

TVD (ft)

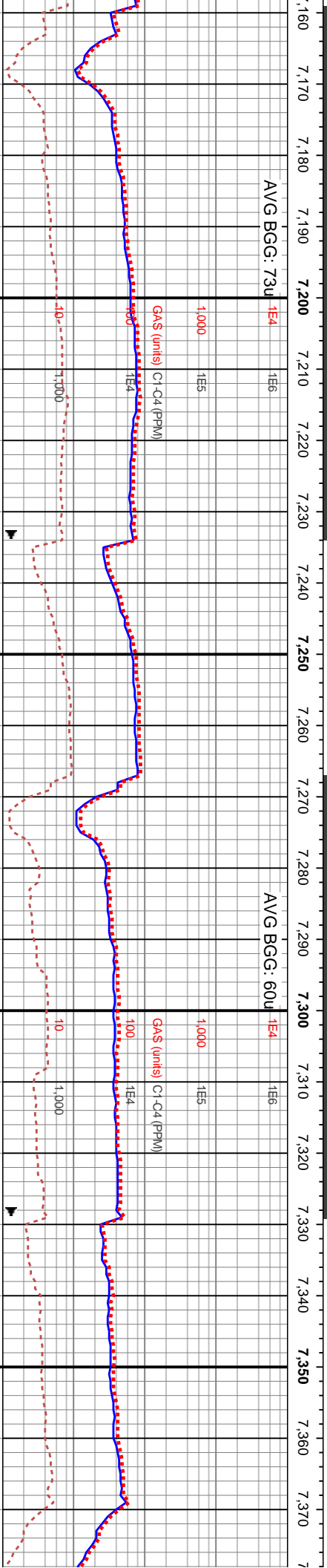
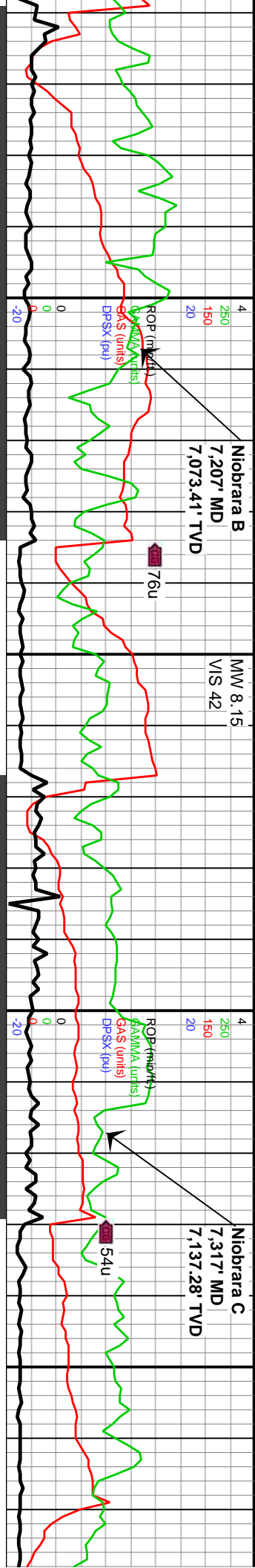
80 SH (90%): dk gy-med gy, pty-sb
SLTST (10%): sm-sl stly tex, non calc, tr lam,
v tex, mica, non calc, grdg to med

6980-7040 SH (60%): med gy-dk gy, sb blkly,
frm-sl hrd, sl mica, non-sl calc: MRLST
(25%): dk gy-med gy, sl hrd, pty-blky, sl stly tex,
v calc, tr lam, scat pp pyr: CHK (15%): pred lt
gysbn-offwht, occ crm, chky tex, sl calc

7040-7100 MRLST (80%): dk gy-v dk gy, med
gy-gysbn, frm-sl hrd, pty-blky, sm-sl stly tex,
v calc, tr f lam, scat pyrc nod/free mic pyr: CHK
(20%): pred lt gysbn-offwht, occ crm-in, chky
tex, calc, mnr mifcos

7100-7160 MRLST (90%): mot dk gy-dk
gysbn, med gy, pred pty, sb blkly-spl, frm, v
calc, mnr mifcos, scat pyrc nod-vf imbd pyr:
CHK (10%): mot crm-offwht, lt gysbn, v sft,
chky tex, sb pty-sb blkly, bri orn-g-dul yeign flo



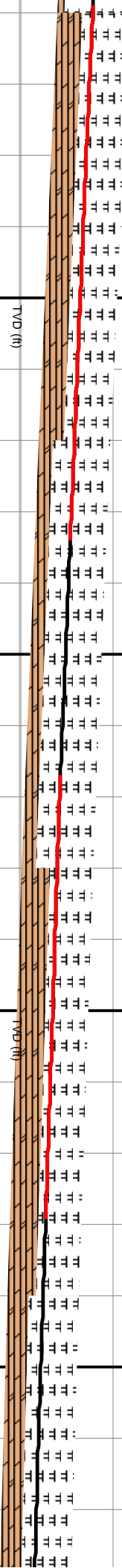


MD: 7,175'
TVD: 7,053.05'
Inclination: 45.34°
Azimuth: 175.14°
VS: -295.09'

WOB: 33.4klbs
Rotary: 0RPM
Strokes: 227SPM
Pump Rate: 605GPM

MD: 7,270'
TVD: 7,113.5'
Inclination: 55.49°
Azimuth: 173.44°
VS: -223.08'

MD: 7,364'
TVD: 7,161.05'
Inclination: 63.69°
Azimuth: 172.58°
VS: -143.63'



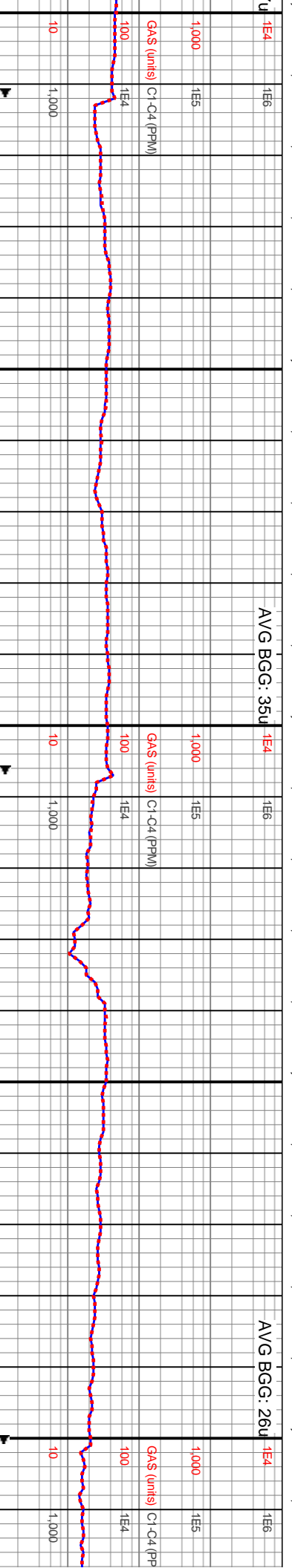
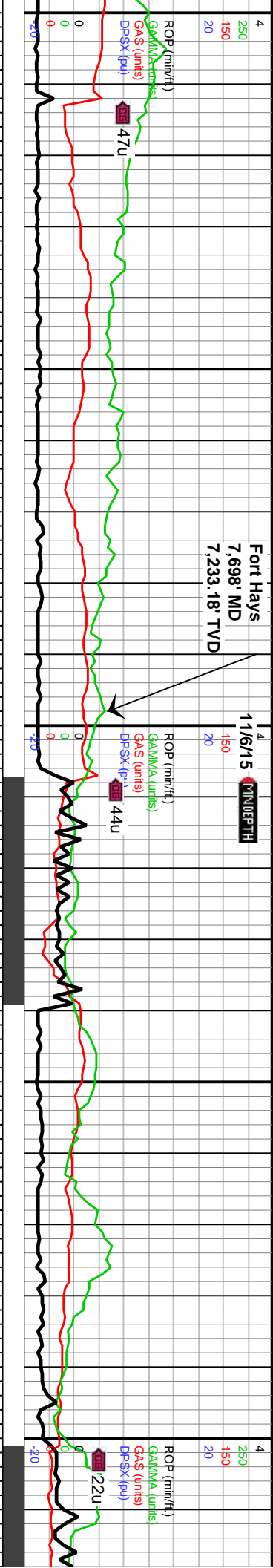
7160-7220 MRLST (65%): pred dk gy, med gy-gyshbn, frm-sl hrd, pred pty, spl-sb blkly, sm-sl abrv tex, v calc, scat imbd pyr; CHK (35%): offwht-lt gyshbn, crm, chky tex, mod calc, tab, mnr mficos, mlst intbnd

7220-7280 MRLST (80%): mot dk gy-med gy, sme blk, frm-v frm, sb pty-spl, sl slty tex, v calc, mnr mficos, scat pyrc nod; CHK (20%): mot crm-gyshbn, offwht, chky tex, calc, sb tab-blky, mlst intbnd

7280-7340 MRLST (60%): dk gy-med gy, occ blk-dk gyshbn, frm-sl hrd, blkly-spl, sm-sl slty tex, scat imbd pyr, v calc; CHK (40%): lt gyshbn-offwht, crm-tn, calc, chky tex, tab-blky, mnr mficos, intbd mlst

7340-7400 MRLST (70%): gyshbn, med gy, frm-sl hrd tex, occ sl slty, v calc, scat (30%): mot gyshbn-crm, of fos, chky tex, stri lp, sb blkly

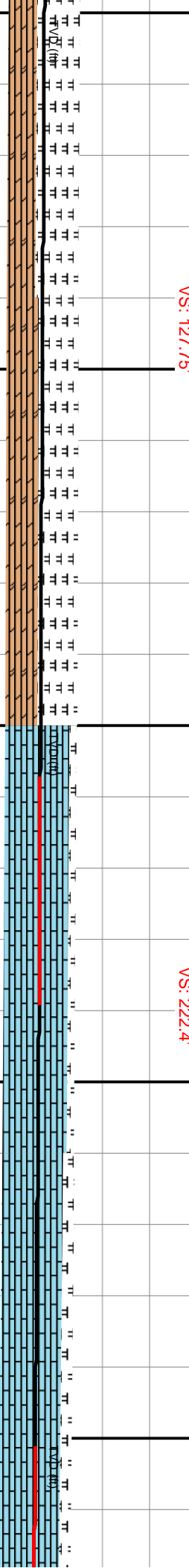




MD: 7,648'
TVD: 7,229.07'
Inclination: 86.48°
Azimuth: 181.92°
VS: 127.75'

MD: 7,743'
TVD: 7,236.87'
Inclination: 84.1°
Azimuth: 184.01°
VS: 222.4'

WOB: 37.9klbs
Rotary: 30RPM
Strokes: 226SPM
Pump Rate: 604GPM



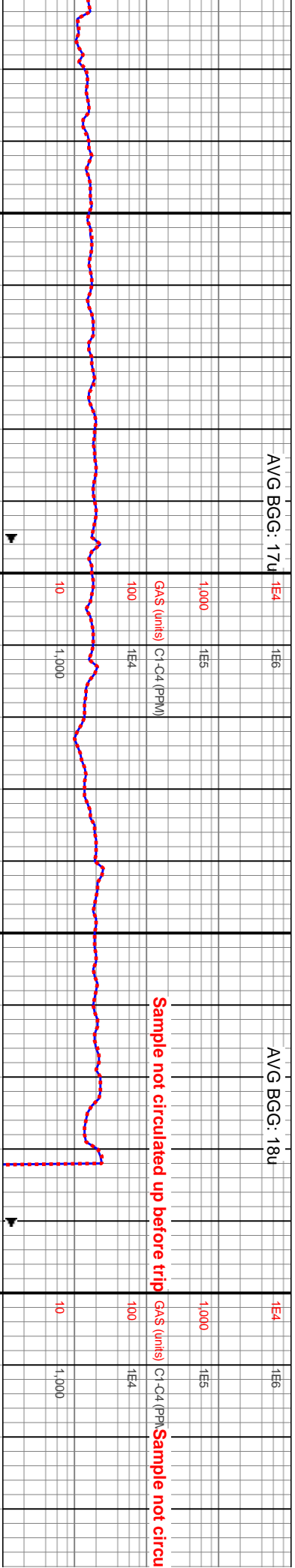
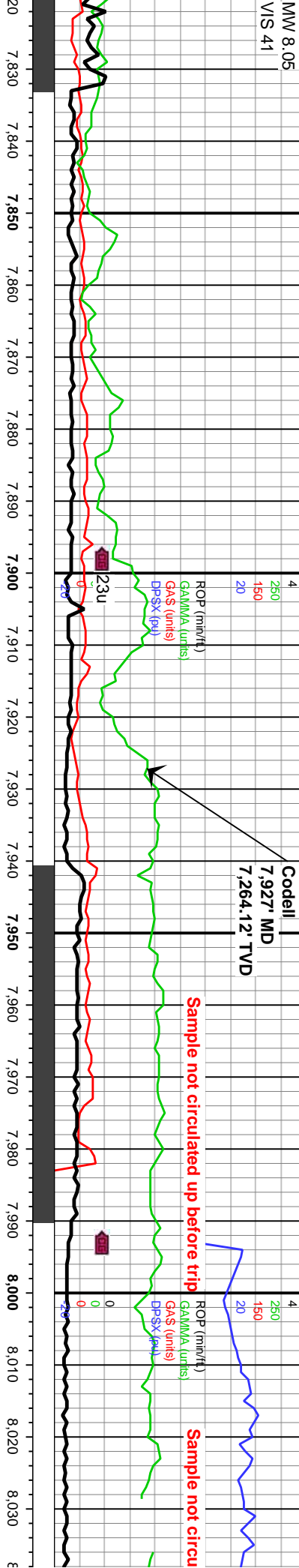
40 MRLST (60%): mot dk gy-dk
frm-sl hrd, pred sb ply-spl, sl stly tex,
nmr micfos, scat pyrc nod/pp mic pyr;
7640-7700 MRLST (55%): mot dk gy-gyshn,
med gy, ply-tab, occ spl, frm-sl hrd, v calc,
imbd mic pyr; CHK (45%): mot gysbhn-lt gy,
crm, mnr offwht, v sft, sb blkly, intbdd mrlst,
chky tex, mnr micfos

7700-7760 LMST (90%): mot gysbhn-lt gy,
offwht-in, sb tab-blky, frm-sl hrd, v calc, mickln,
stri ip, tr pp mic pyr; MRLST (10%): pred dk
gy-med gy, sme v dk gy, sb spl-blky, v calc, tr
micnica, chk intbdd, tr micfos

7760-7820 LS (85%): crm-lt gy, tn ip, occ mot
gyshbn, frm-sl hrd, sb blkly-ply, sme spl,
crpxln, mudst, chky tex, v calc, MRLST (15%)
dk gy-med gy, frm-sl hrd, ply-sb blkly, lam ip,
srn-sl stly tex, intbdd wi ls, tr scat mic pyr



MW 8.05
VIS 41



MD: 7,837'
TVD: 7,249.47'
Inclination: 80.49°
Azimuth: 182.33°
VS: 315.51'

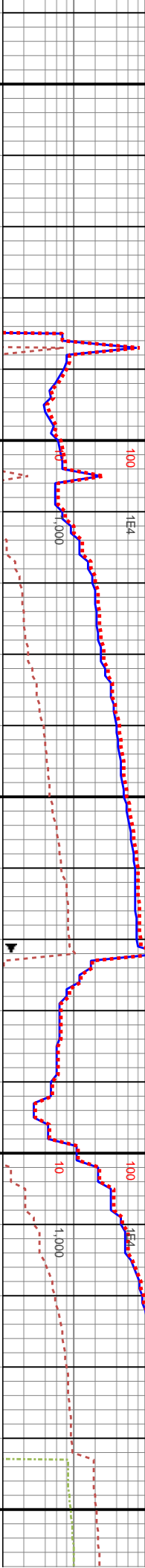
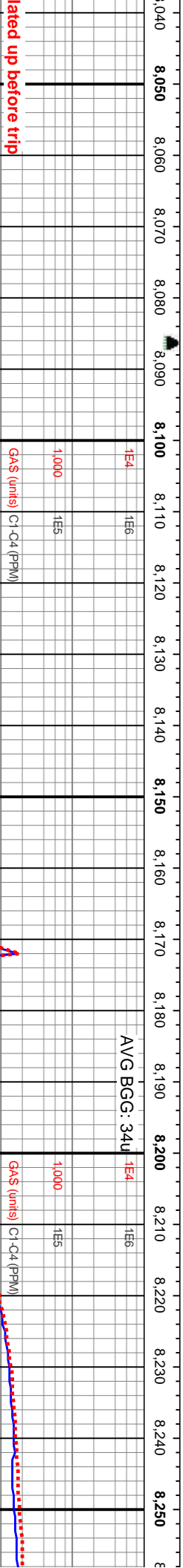
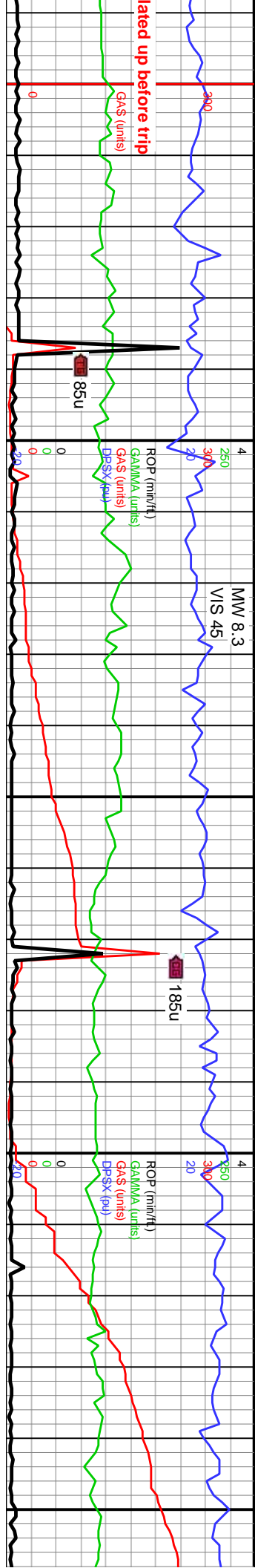
MD: 7,932'
TVD: 7,264.93'
Inclination: 80.79°
Azimuth: 180.84°
VS: 409.15'

WOB: 28.9klbs
Rotary: 35RPM
Strokes: 226SPM
Pump Rate: 604GPM

MD: 8,026'
TVD: 7,274.43'
Inclination: 87.6°
Azimuth: 179.28°
VS: 502.36'

7820-7880 LMST (95%): mot gyshbn-crm, offwht-tn, frm-sl hrd, pty-biky, v calc, micxn-cryptoxln, tr pp mic pyr. MRLST (5%): pred dk gy-med gy, sb bky-splt, v calc, tr micnica, inst intbd, tr micfos		7880-7940 SS (55%): gyshbn-offwht, lt gy-med gy, vt-f grs, mod strd, sb ang-sb rd, gr sup cls wi arg-silic cnt, sl calc: LMST (45%): mot crm-lt gy, lt brn-gyshbn, pty-sb splt, cryptoxln, sl hrd, mnr pyrc nod/pp mic pyr
TVD (ft)		TVD (ft)

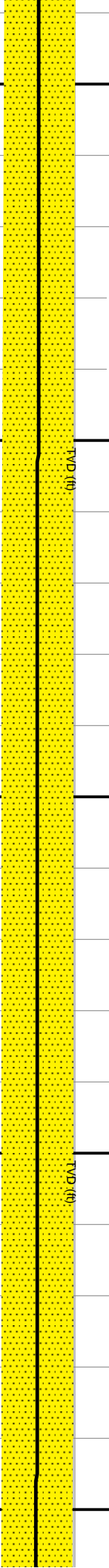




labeled up before trip

Bit #: 3
Type: SKH1513M-H
Size: 8.75
Depth In: 8,086'
Depth Out: 14,583'
Hours: 14.9 hrs
Avg Ft/Hr: 436.04 'hr'
Jets: 7x10
S/N: E207467

MD: 8,117'
TVD: 7,277.39'
Inclination: 88.67°
Azimuth: 179.07°
VS: 592.96'

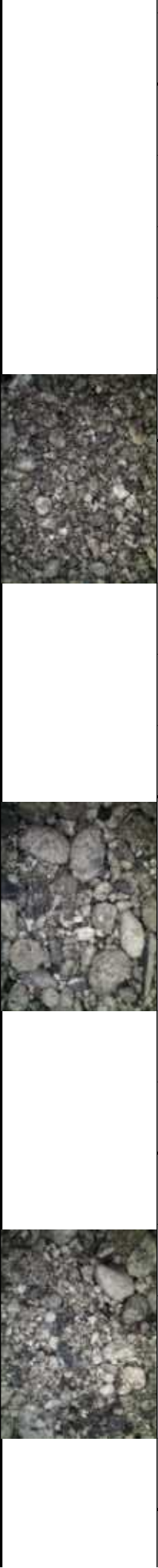


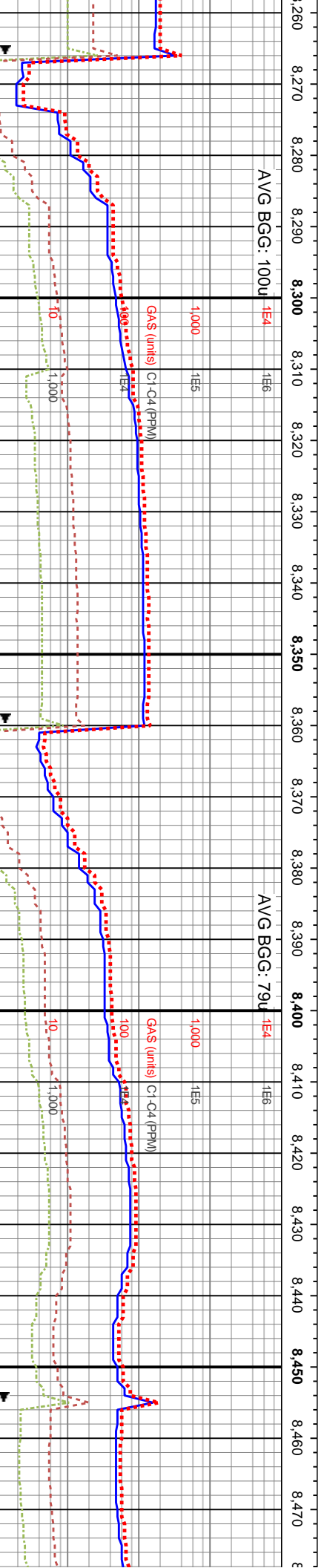
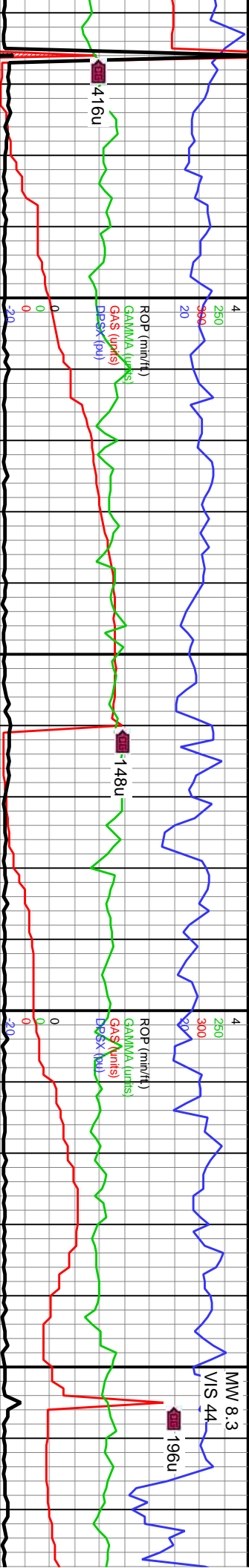
8060-8120 SS: med gy-gyshbn, med brn, offwht clus, vf-f gr, sb ang-sb rd, mod srt'd, frm-sl fri, occ clr lse sd, pred non-sl calc, gr sup cls, cons wi arg-silic cnt, mod-bri yelgn flr, mod mky cut, mod blshwh resd ring

8120-8180 SS: pred med gy-gyshbn, offwht-lt brn clus, chl-op lse sd, mod srt'd, sb ang-sb rd, vf-f gr, frm-sl fri, gr sup cls, cons wi arg-silic cnt, pred non-sl calc, mod-bri yelgn flr, mod mky cut, mod blshwh resd ring

8180-8240 SS: mot gysbhn-med gy, offwht-lt brn clus, occ clr lse sd, mod srt'd, vf-f gr, sb ang-sb rd, frm-sl fri, gr sup cls, cons wi arg-silic cnt, pred non-sl calc, mod-bri yelgn flr, mod mky cut, mod blshwh resd ring

8240-8300 SS: med gy-gyshbn, med brn, offwht clus, vf-f gr, sb ang-sb rd, mod srt'd, frm-sl fri, occ clr lse sd, pred non-sl calc, gr sup cls, cons wi arg-silic cnt, mod-bri yelgn flr, mod mky cut, mod blshwh resd ring



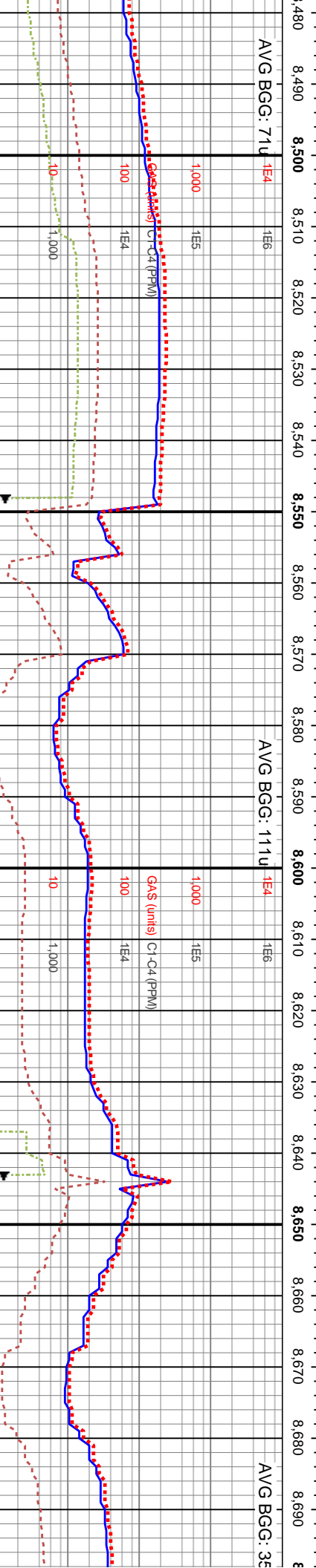
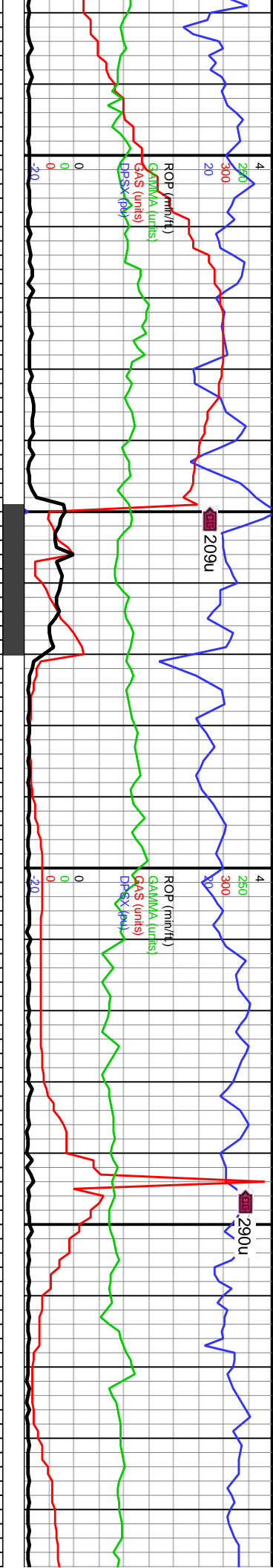


MD: 8,305'
TVD: 7,280.88'
Inclination: 89.56°
Azimuth: 179.11°
VS: 780.05'

WOB: 41.2Klbs
Rotary: 50RPM
Strokes: 260SPM
Pump Rate: 692GPM

MD: 8,400'
TVD: 7,281.55'
Inclination: 89.63°
Azimuth: 178.11°
VS: 874.6'

260 SS: pred gyshbn-med gy, sme dk grs thru, mod strd, vf-f gr, pred sb d, sb ang-sb rnd qtz grs, fri gr sup s wi arg/silic cnt, mod-bri yelgn flor, y cut, mod blshwh resdl ring	8300-8360 SS: pred gyshbn-med gy, sme med brn, trnsl grs thru, vf-f gr, pred sb ang-sb rd, mod strd, fri gr sup cls, sb ang-sb rnd qtz grs, cons wi arg/silic cnt, mod-bri yelgn flor, mod mky cut, mod blshwh resdl ring	8360-8420 SS: pred med gy-gyshbn, lt brn cls, clr-op lse sd, vf-f gr, mod strd, mod frm, pred sb ang-sb rd, sl fri gr sup cls, cons wi arg-silic cnt, pred sl calc, mod-bri yelgn flor, mky cut, mod blshwh resdl ring, so	8420-8480 SS: med gy-gyshbn, lt gy cls, occ clr uncongs sd, vf-f gr, mod strd, pred sb ang-sb rd, med frm-sl fri, gr sup cls wi arg-silic cnt, pred sl calc, scat mod-bri yelgn flor, mod mky cut, mod blshwh resdl ring



MD: 8,494'
TVD: 7,281.88'
Inclination: 89.96°
Azimuth: 177.09°
VS: 967.97'

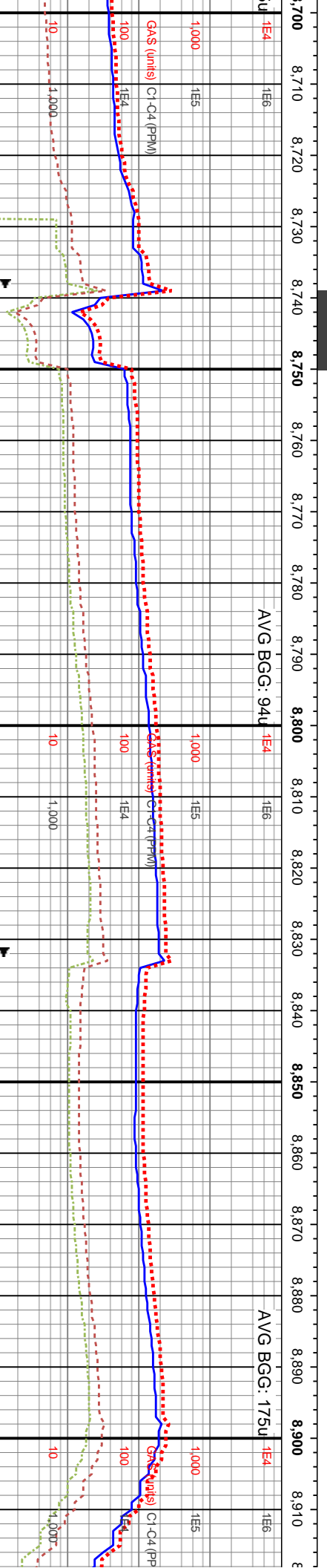
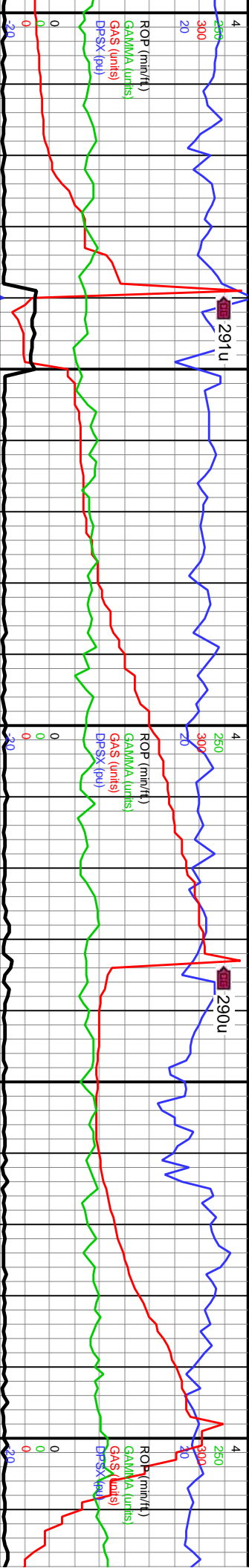
MD: 8,589'
TVD: 7,281.53'
Inclination: 90.46°
Azimuth: 180.53°
VS: 1,062.53'

WOB: 43.3Klbs
Rotary: 51RPM
Strokes: 260SPM
Pump Rate: 693GPM

MD: 8,683'
TVD: 7,280.53'
Inclination: 90.76°
Azimuth: 180.01°
VS: 1,156.3'

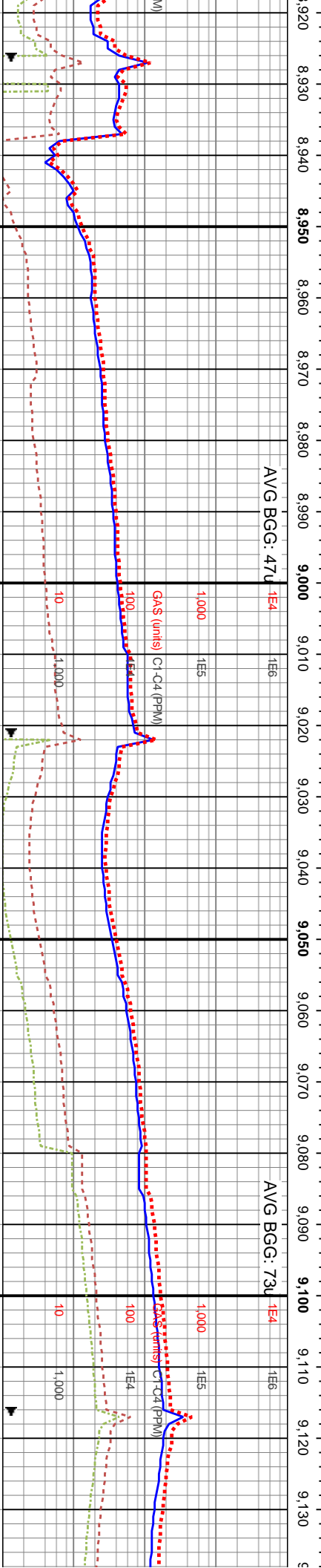
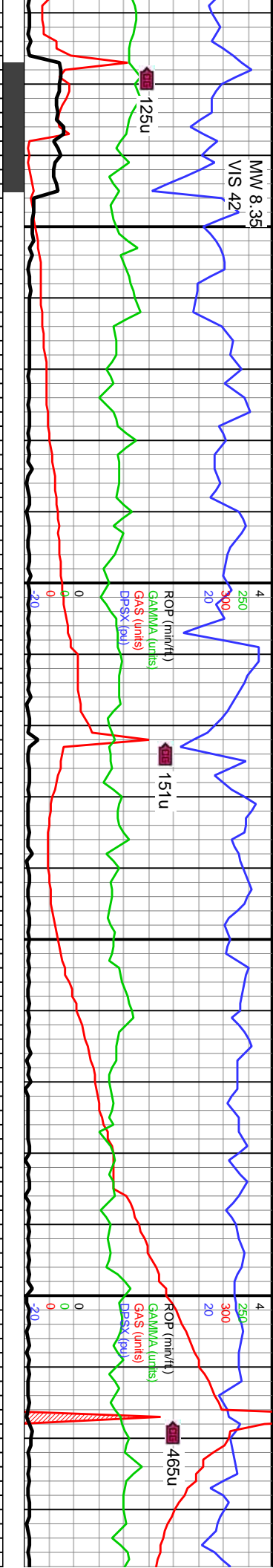
8480-8540 SS: med gy-lt gy/shbn, lt brn, v-f-f grs, pred sb ang-sb rd, mod strd, abnt lse grs, tr pyr, gr sup cls, cons wi arg/silic cnt, pred sl calc, scat mod-bri yelgn flor, mod mky cut, mod blshwh resd ring		8540-8600 SS: pred gy/shbn-med gy, sme lt gy, trns l grs thru, mod strd, v-f-f gr, pred sb ang-sb rd, fri gr sup cls, sb ang-sb rnd qtz grs, cons wi arg/silic cnt, mod-bri yelgn flor, mod mky cut, mod blshwh resd ring		8600-8660 SS: pred med gy-gy/shbn, lt gy, trns l-clr grs thru, v-f-uf grs, mod strd, sb ang-sb rd, fri gr sup cls wi arg-silic cnt, sl calc ip, tr-mnr pp mic pyr, scat mod-bri yelgn flor, mod mky cut, mod blshwh resd ring		8660-8720 SS: med gy-gy/s clr uncongs sd, mod strd, pr v-f-f gr, frm-sl fr, gr sup cls pred non-sl calc, scat mod- mky cut, mod blshwh resd	
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MD: 8,778' TVD: 7,280.34' Rotary: 60RPM Inclination: 89.47° Strokes: 260SPM Azimuth: 180.54° Pump Rate: 693GPM VS: 1,251.08'		WOB: 42Klbs Rotary: 60RPM Strokes: 260SPM Pump Rate: 693GPM VS: 1,251.08'	
8720-8780 SS: predy med gy-gyshbn, lt gy, op grs thru, mod srt, v-f-uf grs, sb ang-sb rd, fri gr sup cls, cons wi arg/silic cnt, mnr scat/pp mic pyr, sl calc ip, mod-bri yelgn flor, mod mky cut, mod blshwh resd ring	8780-8840 SS: pred med gy-gyshbn, dk gy, abt lse ofwhnt-trnsf grs, v-f-f grs, pred sb ang-sb rd, mod srt, gr sup cls, sl frm-fri, cons wi arg/silic cnt, mod-bri yelgn flor, mod mky cut, mod blshwh resd ring	8840-8900 SS: med gy-gyshbn, offwhnt-lt brn clus, v-f-gr, mod srt, sb ang-sb rd, frm-sl fri, pred non-sl calc, gr sup cls, cons wi arg-silic cnt, mod-bri yelgn flor, mod mky cut, mod blshwh resd ring	8900-89 abt op- ang-sb r sme sl c mod blsi





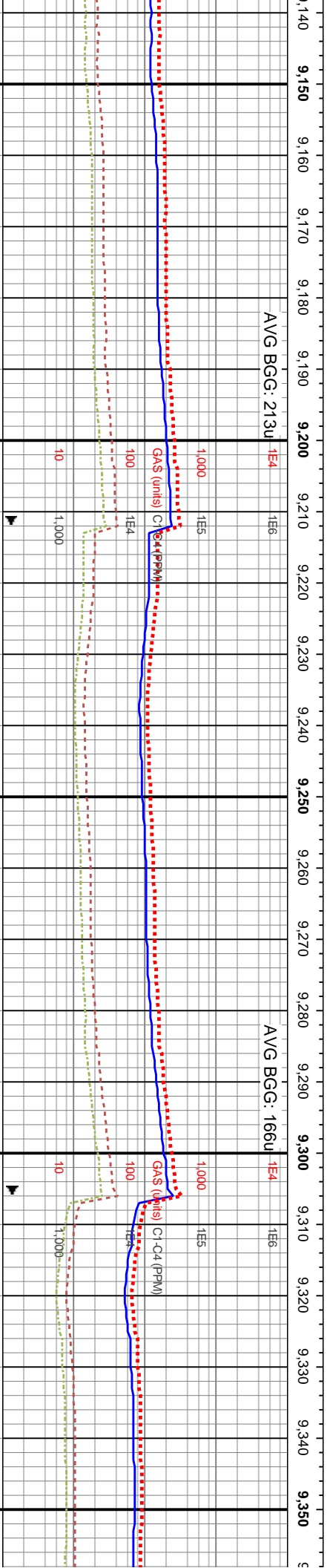
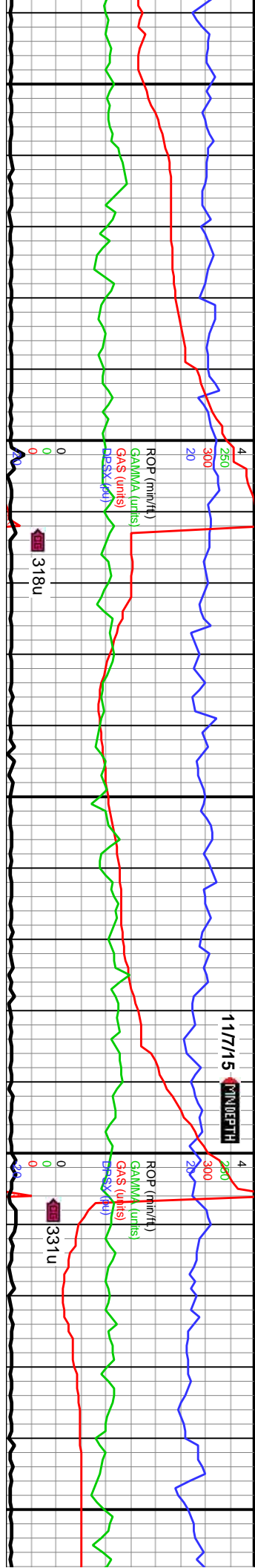
MD: 8,967'
TVD: 7,281.32'
Inclination: 89.29°
Azimuth: 181.59°
VS: 1,439.64'

WOB: 39.2klbs
Rotary: 60RPM
Strokes: 260SPM
Pump Rate: 694GPM

MD: 9,062'
TVD: 7,282.16'
Inclination: 89.69°
Azimuth: 181.99°
VS: 1,534.56'

660 SS: pred med gy-gyshbn, lt gy, sb clr grs thru, v-f grs, mod srtf, pred sb d, fri gr sup cls, cons wi arg-silic cnt, alac, mod-bri yeign flor, mod mky cut, blshwh resd ring	8960-9020 SS: pred med gy-gyshbn, lt gy-offwht, v-f grs, sb ang-sb rd, mod srtf, w cons, sl frm-fri, gr sup cls wi arg/silic cnt, tr mic pyr, mod-bri yeign flor, mod mky cut, blshwh resd ring	9020-9080 SS: pred gyshbn-med gy, sme dk gy brn, v-f gr, trnsf grs thru, pred sb ang-sb rd, mod srtf, sb ang-sb md qtz grs, fri gr sup cls wi arg/silic cnt, mod-bri yeign flor, mod mky cut, mod blshwh resd ring	9080-9140 SS (90%): pred med gy-gyshbn, lt gy-lt brn, abnt lse clr-op grs, v-f-uf grs, pred ang, sb ang-sb rd, gr sup cls wi arg/silic cnt, sme sl calc, tr pp pyr, mod-bri yeign flor, mod mky cut, mod blshwh resd ring
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MD: 9,157'
TVD: 7,282.22'
Inclination: 90.24°
Azimuth: 181.89°
VS: 1,629.48'

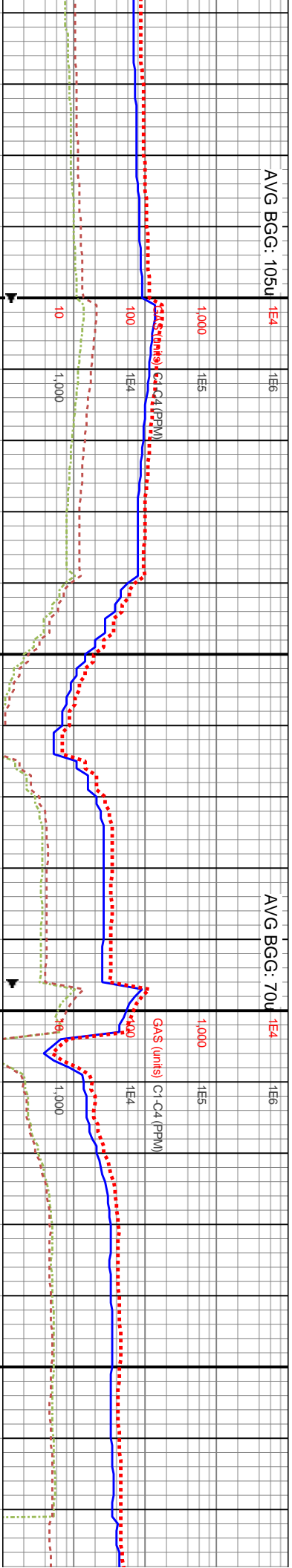
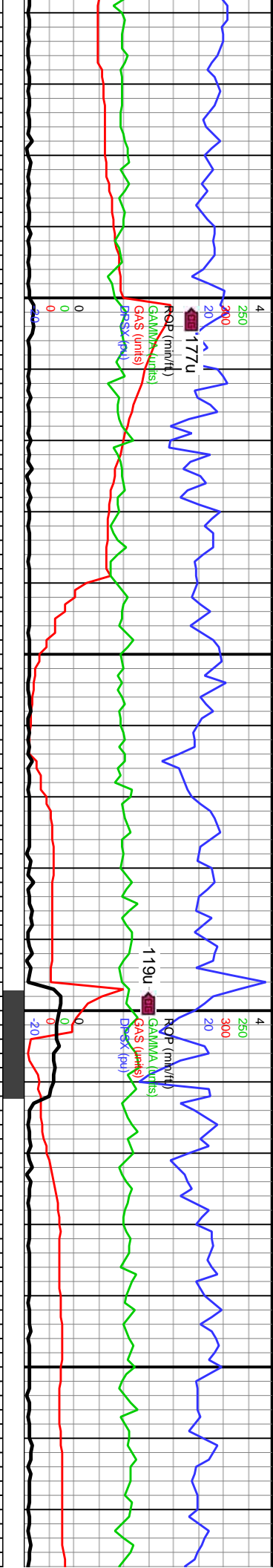
WOB: 44.8klbs
Rotary: 60RPM
Strokes: 260SPM
Pump Rate: 693GPM

MD: 9,251'
TVD: 7,281.45'
Inclination: 90.7°
Azimuth: 182.24°
VS: 1,723.41'

MD: 9,347'
TVD: 7,279.99'
Inclination: 91.04°
Azimuth: 182.22°
VS: 1,819.34'

9140-9200 SS: med gy-gyshbn, lt brn cls, abnt op-clr unconcs sd, vf-f gr, mod strd, pred sb ang-sb rd, med frm-sl fri gr sup cls, cons wi arg-silic cnt, pred sl calc, mod-bri yeign flr, mod mky cut, mod blshwh resdl ring	9200-9260 SS: pred med gy-gyshbn, lt gy-offwht, mod strd, abnt lse ang-sb ang grs, vf-f grs, gr sup cls wi arg-silic cnt, sb ang-sb rd, sl calc, tr mic pymod-bri yeign flr, mod mky cut, mod blshwh resdl ring	9260-9320 SS: med gy-lt gysbhn, lt brn-offwht, vf-f grs, mod strd, pred sb ang-sb rd, gr sup cls wi arg/silic cnt, abnt lse grs, tr pyr, pred sl calc, mod-bri yeign flr, mod mky cut, mod blshwh resdl ring	9320-9380 SS: med gy-gys
7700	7700	7700	





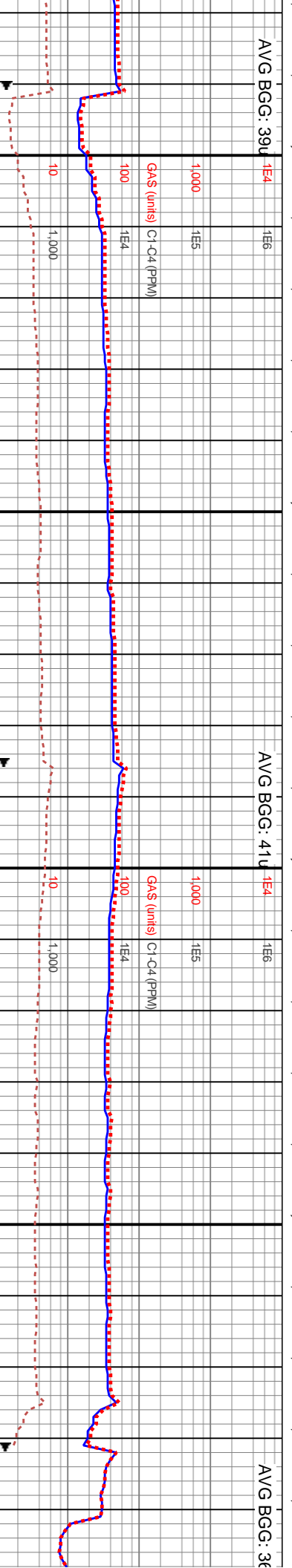
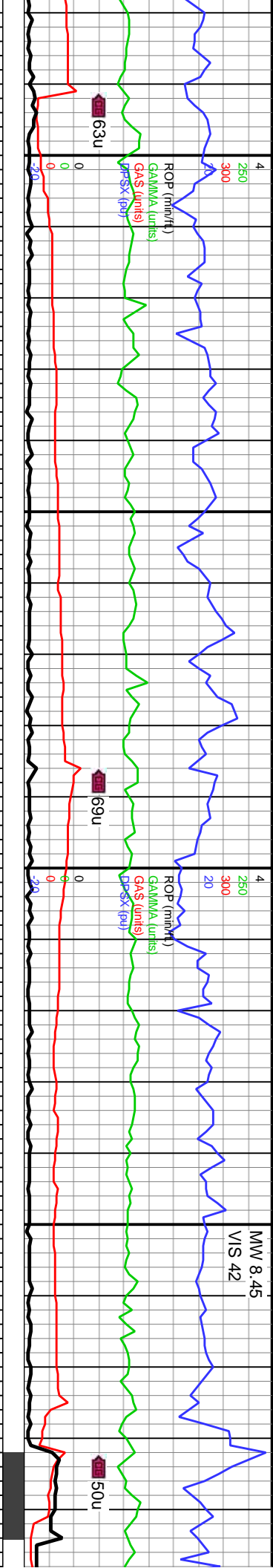
WOB: 14.4klbs
Rotary: 60RPM
Strokes: 260SPM
Pump Rate: 695GPM

MD: 9.441'
TVD: 7.277.87'
Inclination: 91.54°
Azimuth: 182.03°
VS: 1.913.26'

MD: 9.537'
TVD: 7.277.1'
Inclination: 89.38°
Azimuth: 181.29°
VS: 2.009.15'

9380-9440 SS: med gy-gy/shbn, lt brn cls, occ	9440-9500 SS: pred med gy-gy/shbn, mot lt	9500-9560 SS: pred gyshbn-med gy, sme lt	9560-96
clt unconcs sd, mod strd, pred sb ang-sb rd,	gy, abnt lse op grs, vf-f grs, mod strd, pred sb	gy, trnst-trnsp grs thru, mod strd, pred sb	clus, vf-f
vf-f gr, med frm-sl fri gr sup cls, cons wi	ang-sb rd, fri-sl frm, gr sup cls, cons wi	ang-sb rd, vf-f gr, sb ang-sb rnd qtz grs, fri gr	gr sup ci
arg-silic cnt, pred non-sl calc, mod-bri yelgn	arg/silic cnt, mod-bri yelgn flor, tr pp mic pyr,	sup cls, cons wi arg/silic cnt, mod-bri yelgn	pred non
flor, mod mky cut, mod blshwh resd ring	mod mky cut, mod blshwh resd ring	flor, mod mky cut, mod blshwh resd ring	cut, moc





WOB: 39.8klbs
Rotary: 60RPM
Strokes: 260SPM
Pump Rate: 694GPM

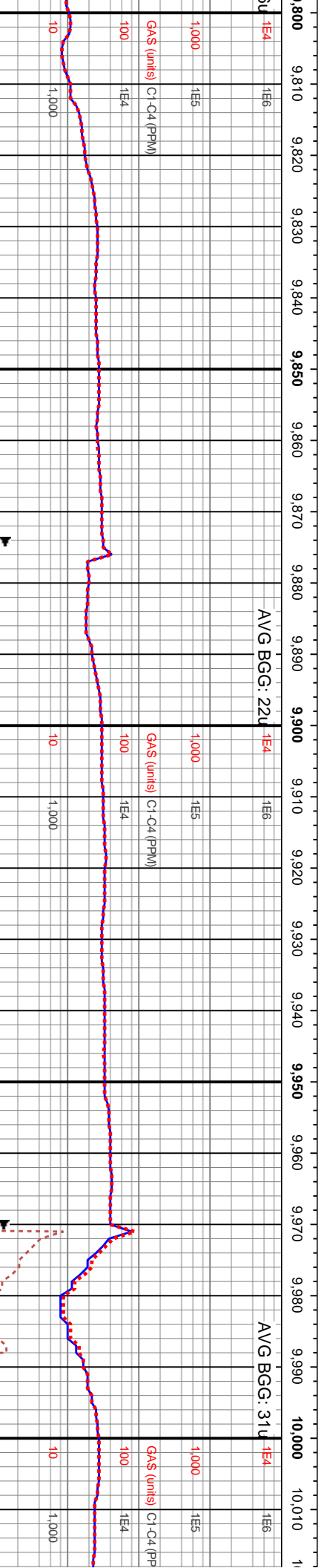
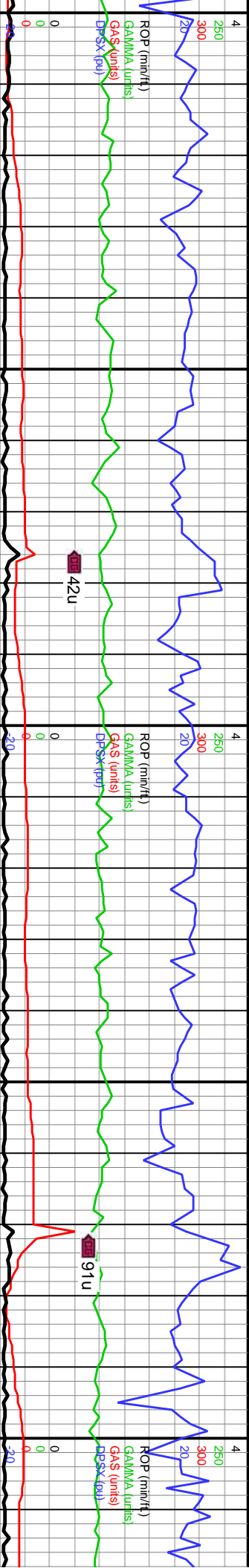
MD: 9,631'
TVD: 7,277.61'
Inclination: 90°
Azimuth: 180.94°
VS: 2,103.01'

MD: 9,726'
TVD: 7,277.06'
Inclination: 90.67°
Azimuth: 180.16°
VS: 2,197.82'

WOB: 21.1
Rotary: 60
Strokes: 26
Pump Rate:

TVD (ft):		TVD (ft):		TVD (ft):	
220 SS: gysbhn-med gy, lt brn-offwht gr, mod strd, sb ang-sb rd, frm-sl fri, s, cons wi arg-silic cnt, tr unconcs, n-sl calc, mod-bri yelgn flor, mod mky blshwh resd ring	9620-9680 SS: pred gysbhn-med gy, sme lt gy, abnt op-clr grs thru, mod strd, pred sb ang-sb rd, vf-f grs, fri-sl frm, gr sup cls wi arg/silic cnt, sl calc, mod-bri yelgn flor, mod mky cut, mod blshwh resd ring	9680-9740 SS: pred med gy-dk gy, dk gysbhn-lt brn, clr unconcs grs, mod w strd, sb ang-sb rd, vf grs, fri-sl hrd, gr sup cls wi silic cnt, sme sl calc, mod-bri yelgn flor, mod mky cut, mod blshwh resd ring	9740-9800 SS: pred med gy-gysbhn, mot lt brn, vf-f grs, mod strd, pred sb ang-sb rd, ang-sb rd qtz grs, sme unconcs qtz grs, fri gr sup cls, cons wi arg/silic cnt, mod-bri yelgn flor, mod mky cut, mod blshwh resd ring		
7700					

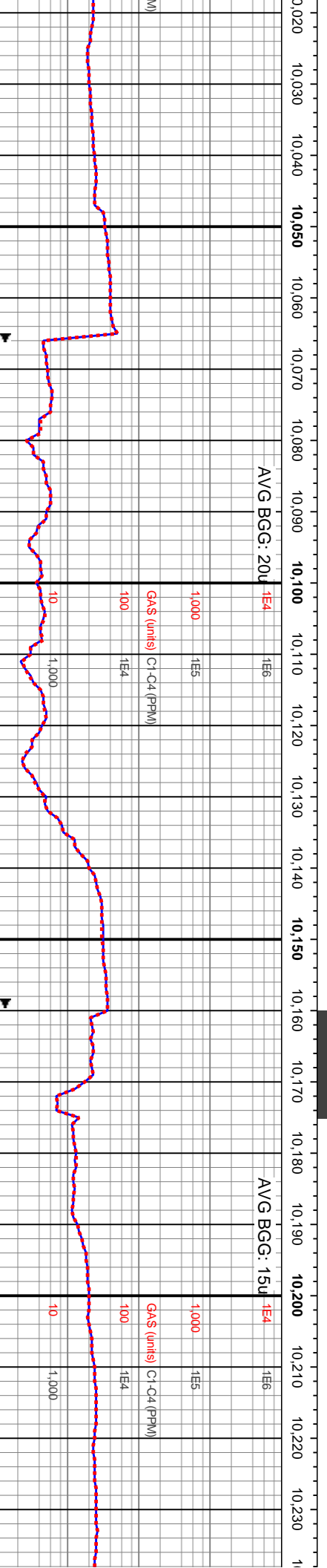
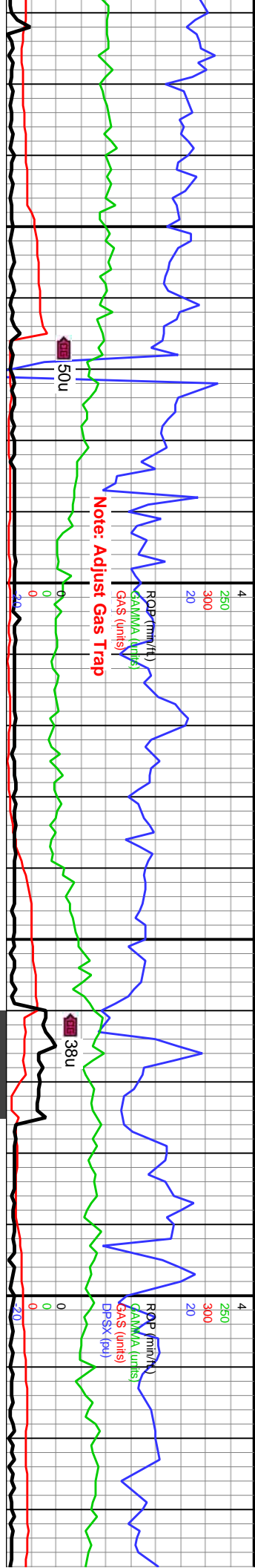




MD: 9.821'	MD: 9.915'	MD: 10.0'
TVD: 7,276.87'	TVD: 7,277.08'	TVD: 7,277.08'
Inclination: 89.56°	Inclination: 90.18°	Inclination: 90.18°
Azimuth: 181.21°	Azimuth: 181.95°	Azimuth: 181.95°
VS: 2,292.63'	VS: 2,386.53'	VS: 2,48'

9800-9860 SS: pred med gy-gyshbn, lt gy-offwht, abnt uncongs op-clr grs, mod srtld, pred sb ang-sb rd, vf-f grs, sl hrd-sl fri, gr sup cls, cons wi arg/silic cmt, mod-bri yelgn flr, mod mky cut, mod blshwh resdl ring	9860-9920 SS: pred med gy-gyshbn, lt gy, abnt trnsd grs thru, mod srtld, pred sb ang-sb rd, vf-f grs, fri gr sup cls, cons wi arg-silic cmt, uncongs grs, sme sl calc, mod-bri yelgn flr, mod mky cut, mod blshwh resdl ring	9920-9980 SS: predy med gy-gyshbn, lt gy, op grs thru, vf-uf grs, sb ang-sb rd, mod srtld, fri gr sup cls wi arg/silic cmt, mnr scat/pp mic pyr, sl calc ip, mod-bri yelgn flr, mod mky cut, mod blshwh resdl ring	9980-10040 SS: pred med op grs thru, mod srtld, vf-uf ang-sb rd, gr sup cls, cons sme sl calc, mod-bri yelgn flr, mod blshwh resdl ring
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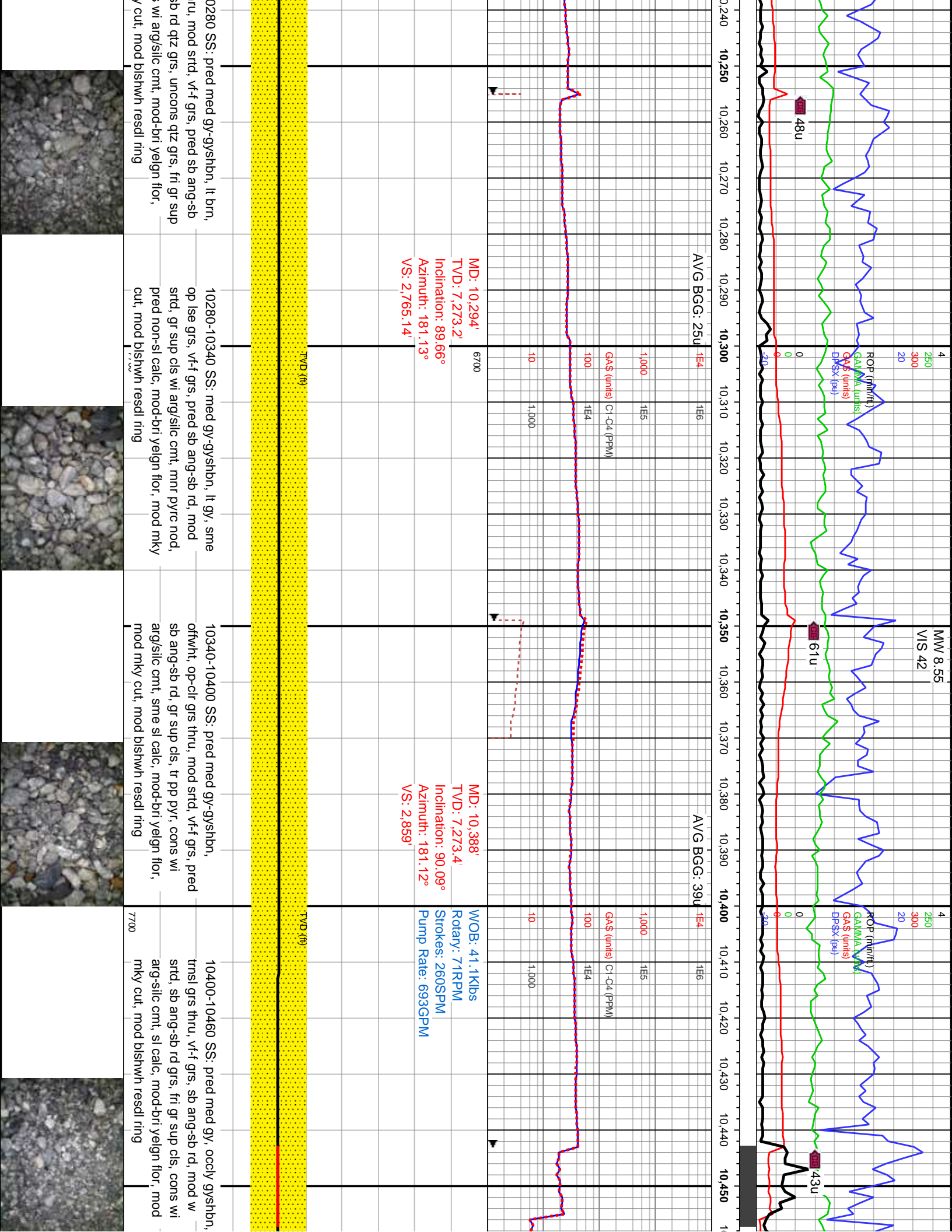
MD: 10,105'
TVD: 7,274.41'
Inclination: 91.2°
Azimuth: 180.78°
VS: 2,576.29'

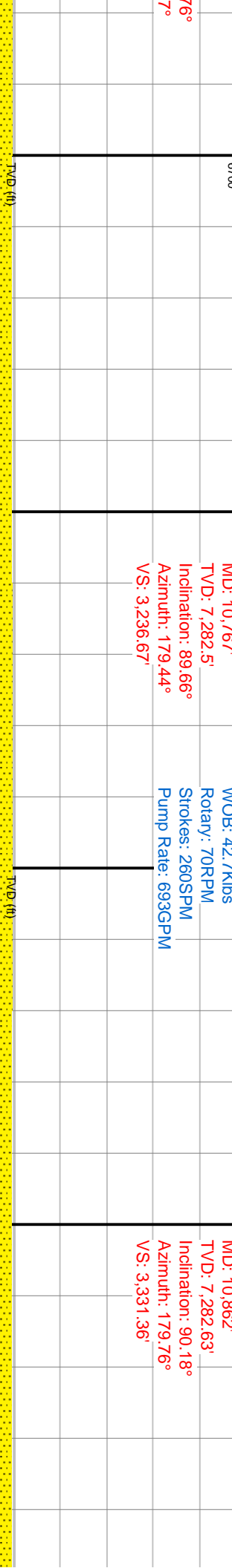
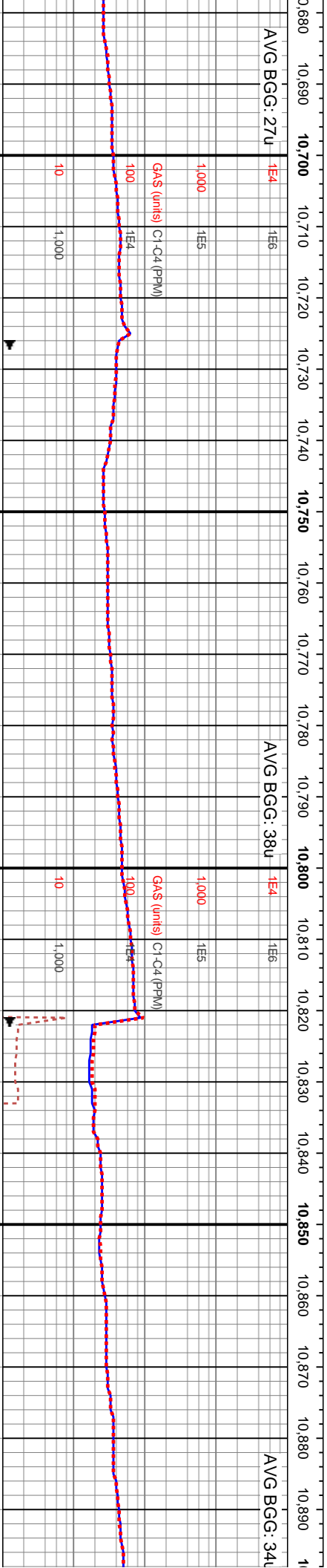
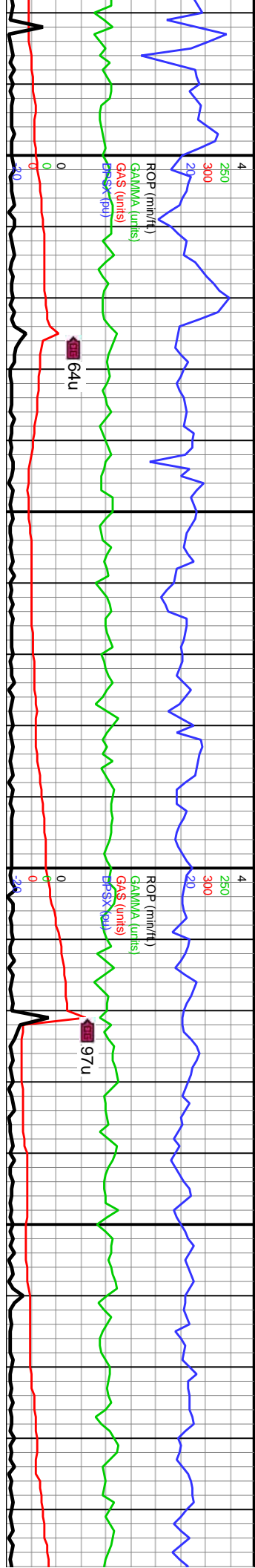
WOB: 29.5Klbs
Rotary: 70RPM
Strokes: 260SPM
Pump Rate: 694GPM

MD: 10,200'
TVD: 7,273.17'
Inclination: 90.3°
Azimuth: 183.19°
VS: 2,671.2'

gy-gyshbn, lt gy, grs, pred sb wi arg/slic cnt, flor, mod mky cut,	10040-10100 SS: pred gysbhn-med gy, sme dk gy, clr grs thru, mod strd, vf-f gr, pred sb ang-sb rd, sb ang-sb rnd qtz grs, fri gr sup cls wi arg/slic cnt, mod-bri yeign flor, mod mky cut, no-tr lt bl resdl ring	10100-10160 SS: med gy-gyshbn, oftwht-lt brn, vf-f grs, abnt lse grs, mod strd, pred sb ang-sb rd, gr sup cls wi arg/slic cnt, tr lmsl, pred sl calc, mtr pyrc nod, mod-bri yeign flor, mod mky cut, mod blshwh resdl ring	10160-10220 SS: med gy-gyshbn, oftwht-lt brn, vf-f grs, mod strd, pred sb ang-sb rd, com lse grs, gr sup cls, cons wi arg/slic cnt, sme sl calc, scat imbd mic pyr, mod-bri yeign flor, mod mky cut, mod blshwh resdl ring	10220-10230 SS: med gy-gyshbn, oftwht-lt brn, vf-f grs, mod strd, pred sb ang-sb rd, com lse grs, gr sup cls, cons wi arg/slic cnt, sme sl calc, scat imbd mic pyr, mod-bri yeign flor, mod mky cut, mod blshwh resdl ring
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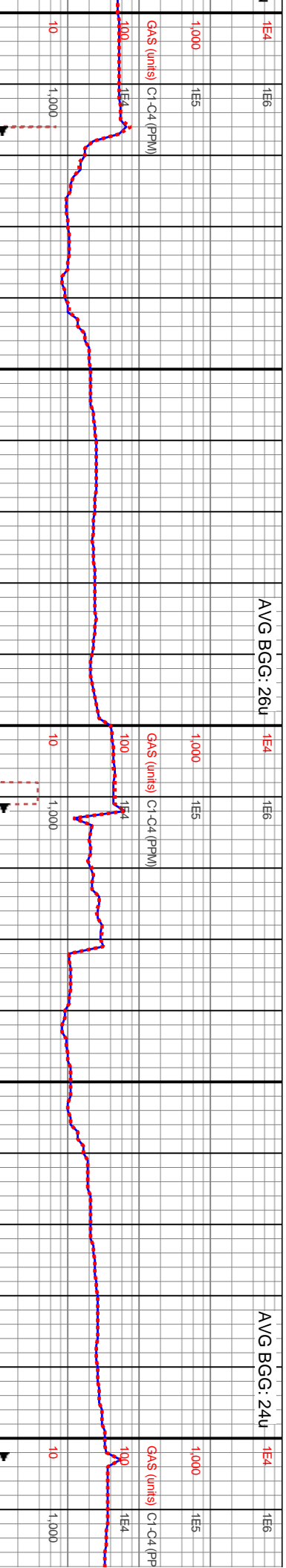
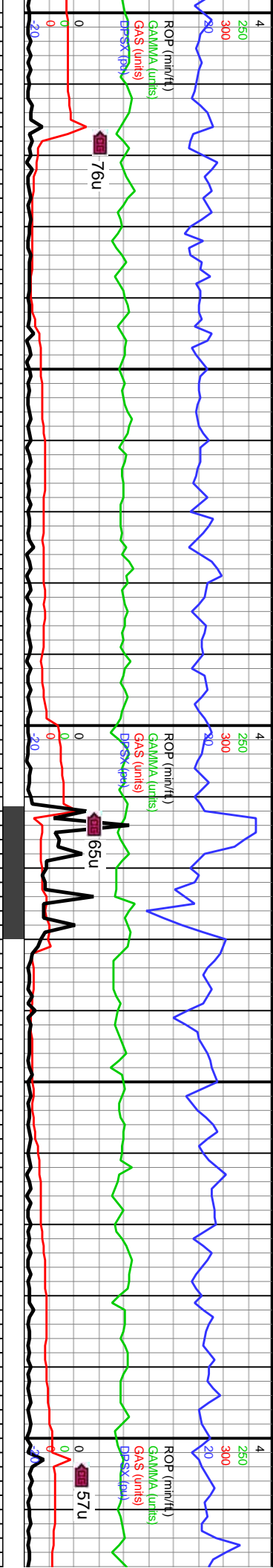






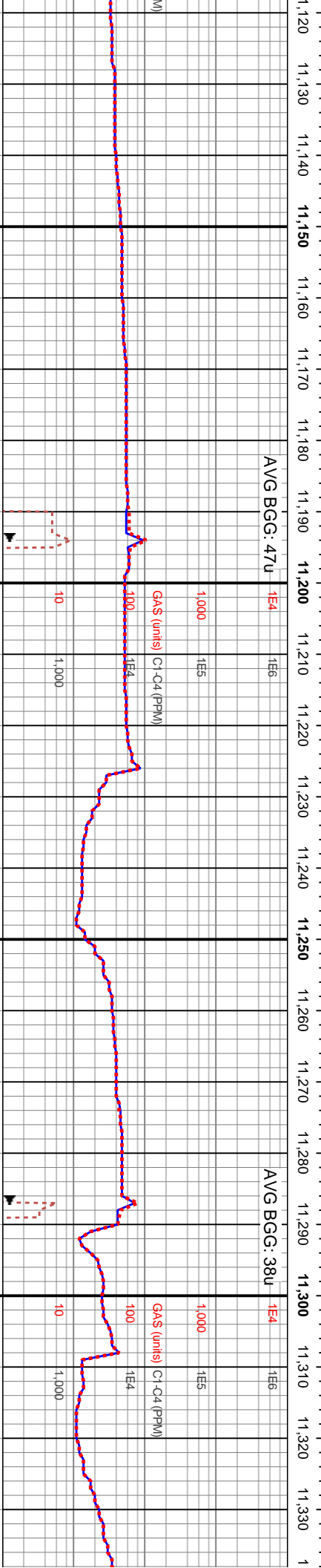
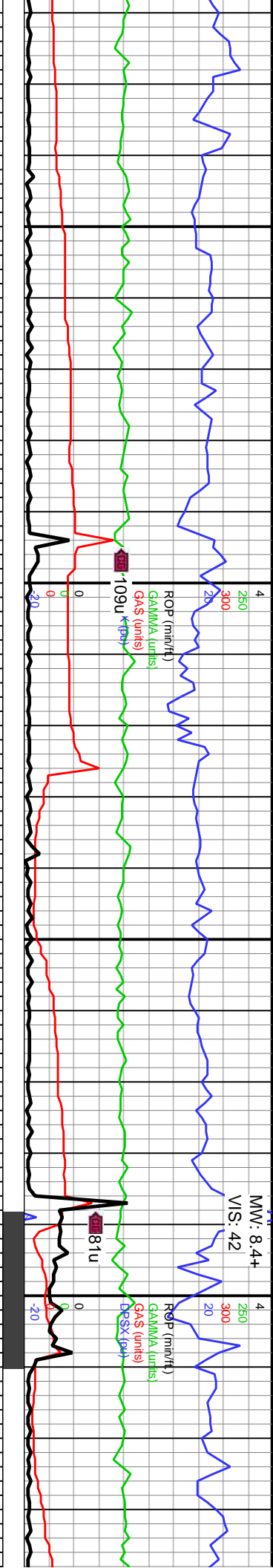
10700-10760 SS (90%): pred gysbhn-med gy, vf-f grs, mod strd, sb ang-sb rd, gr sup cls, cons wi arg-silic cnt, mnr l c qtz grs, scat pp mic pyr, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring; SH (10%): dk gy-v dk gy, frm, blk, rgn tex, slty, tr f lam, non-v sl calc	10760-10820 SS (85%): dk gy-gysbhn, lt gy-offwht, sb ang-sb rd, vf-f grs, mod strd, cons wi arg/silic cnt, abnt lse grs, pred non-sil calc, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring; SH (15%): v dk gy-blk, frm, blk, rgn tex, slty, tr f lam, non-v sl calc	10820-10880 SS (90%): med gy-gysbhn clus, vf-f gr, mod strd, sb ang-sb rd, frm-sl fri, pred non-sil calc, gr sup cls, cons wi arg-silic cnt, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring; SH (10%): dk gy-v dk gy-blk, frm, blk, rgn tex, slty, tr f lam, non-v sl calc	10880-10940 SS (90%): med gy-gysbhn clus, vf-f gr, mod strd, sb ang-sb rd, frm-sl fri, pred non-sil calc, gr sup cls, cons wi arg-silic cnt, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring; SH (10%): dk gy-v dk gy-blk, frm, blk, rgn tex, slty, tr f lam, non-v sl calc
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6700	MD: 10,957' TVD: 7,281.6' Inclination: 91.07° Azimuth: 180.08° VS: 3,426.09	WOB: 45.7Klbs Rotary: 70RPM Strokes: 260SPM Pump Rate: 694GPM	10940-11000 SS: dk gy-med gysbhn, lt brn, rr chr unconcs sd, mod strd, vf-f grs, pred sb ang-sb rd, gr sup cls, cons wi arg/silic cnt, tr imbd/pp mic pyr, non-sl calc, mod-bri yeign flor, mod mky cut, mod blshwh resdl ring	11000-11060 SS: pred med gy-gysbhn, dk brn, op grs thru, vf-f grs, pred sb ang-sb rd, mod strd, gr sup cls, tr pp pyr, cons wi arg/silic cnt, sme sl calc, mod-bri yeign flor, mod mky cut, mod blshwh resdl ring	11060-11120 SS: gysbhn-med gy, lt brn clus, mod strd, sb ang-sb rd, vf-f gr, frm-sl ffr, gr sup cls, cons wi arg-silic cnt, com unconcs, pred non-sl calc, mod-bri yeign flor, mod mky cut, mod yeign-blshwh resdl ring.
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MD: 11,140'
TVD: 7,282.29'
Inclination: 89.69°
Azimuth: 179.54°
VS: 3,608.49'

WOB: 43.1Klbs
Rotary: 70RPM
Strokes: 260SPM
Pump Rate: 692GPM

MD: 11,231'
TVD: 7,282.17'
Inclination: 90.46°
Azimuth: 179.3°
VS: 3,699.17'

MD: 11,323'
TVD: 7,282.82'
Inclination: 88.73°
Azimuth: 180.26°
VS: 3,790.89'

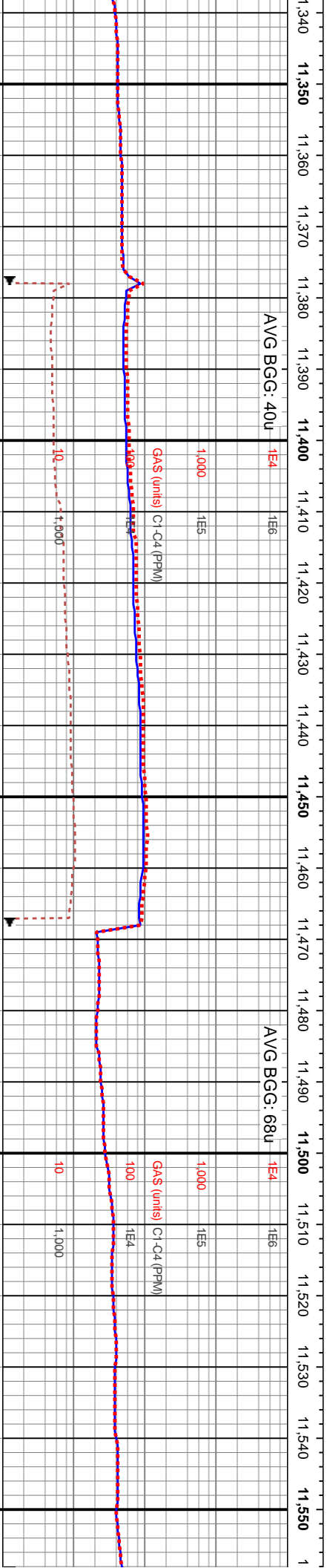
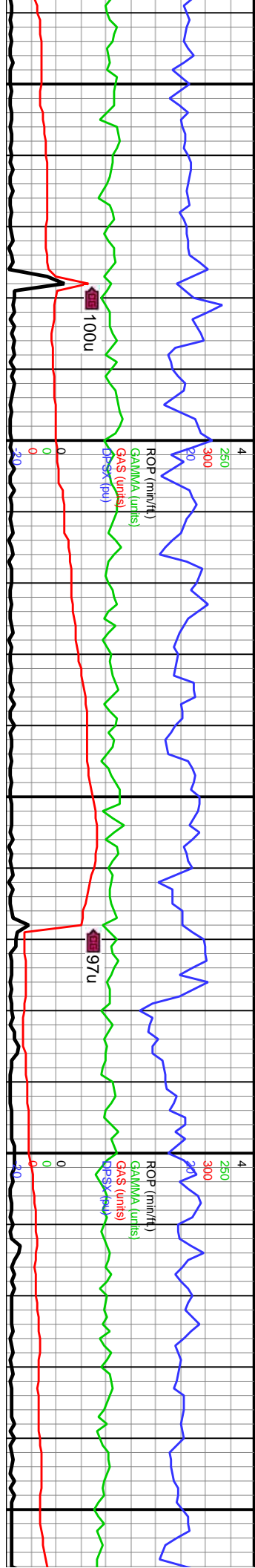
11120-11180 SS: pred gy-med gy, sme dk gy brn, op grs thru, pred sb ang-sb rd, vf-uf grs, mod strd, uncongs grs-fri gr sup cls cons wi arg/silic cnt, sl calc, scat bri yelgn yelgn flor, mod mky cut, mod yelgn-bishwh resdl ring

11180-11240 SS: med gy-gyshbn, lt brn-lt gy, abnt lse grs, mod strd, vf-f grs, pred sb ang-sb rd, tr pyf, gr sup cls, cons wi arg/silic cnt, pred sl calc, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring

11240-11300 SS: dk gy-dk gy brn-lt brn-clr uncongs sd, sft-med frm-frm sft-sl fri gr sup cls cons wi arg-silic cnt, com-abnt uncongs, tr pyf, pred non-sl calc, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring

11300-11360 SS: pred med gy-brn op grs thru, mod strd, rd, gr sup cls, cons wi arg-silic cnt, lse grs, tr scat mic pyf, mod-mky cut, mod bishwh resdl ring

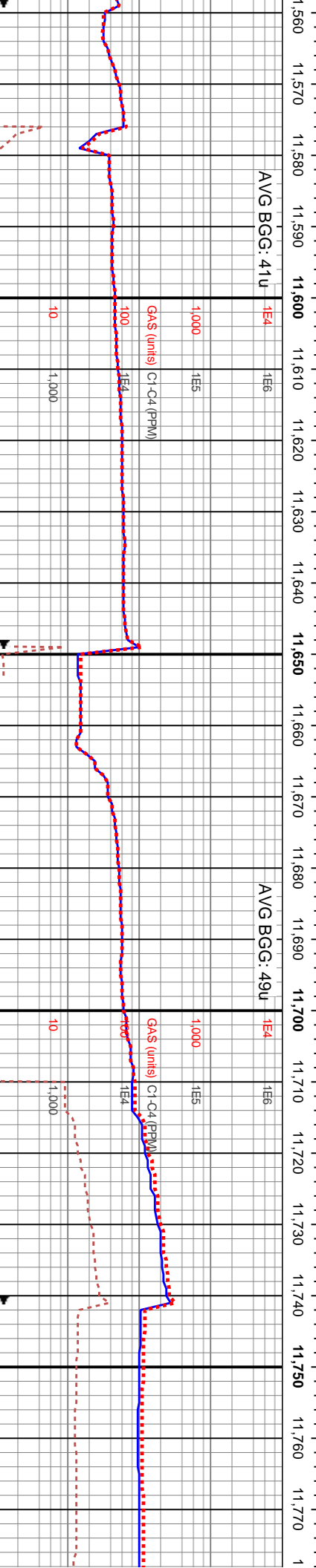
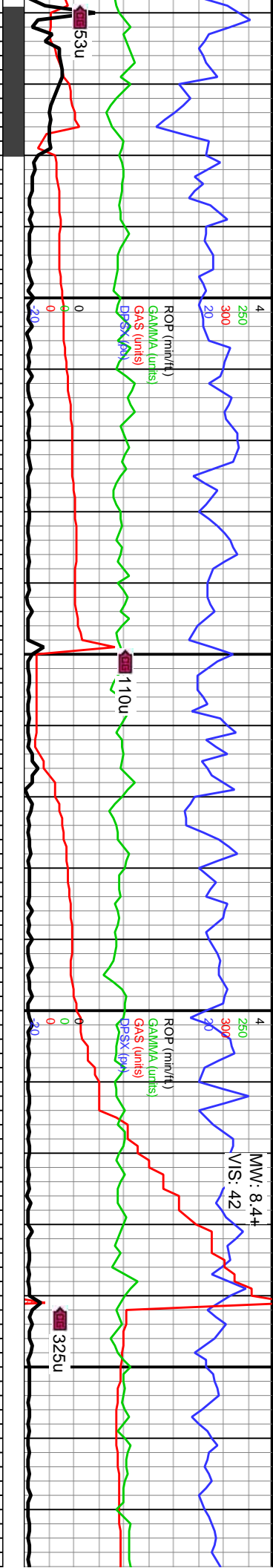




WOB: 36.8klbs
Rotary: 70RPM
Strokes: 260SPM
Pump Rate: 687GPM
MD: 11,415'
TVD: 7,284.24'
Inclination: 89.5°
Azimuth: 180.37°
VS: 3,882.67'

MD: 11,505'
TVD: 7,284.42'
Inclination: 90.27°
Azimuth: 180.27°
VS: 3,972.46'

gy-gyshbn, lt gy, lt	11360-11420 SS: pred med gy-gyshbn, mot lt	11420-11480 SS: gysbhn-med gy, lt	11480-11540 SS: predy med gy-gyshbn, lt gy,	11540-1
vt-f grs, sb ang-sb	brn, vt-f grs, mod srtld, pred sb ang-sb rd,	brn-offwht clus, vt-f gr, mod srtld, sb ang-sb rd,	sb ang-sb rd, vt-uf grs, op grs thru, mod srtld,	sb ang-s
c cnt, sl calc, com	ang-sb rd qtz grs, sme unconcs qtz grs, fri gr	frm-sl fri, gr sup cls, cons wi arg-silic cnt, tr	com lse grs, fri gr sup cls, cons wi arg/silic	gr sup cl
bri yelgn flor, mod	sup cls, cons wi arg/silic cnt, mod-bri yelgn	unconcs, pred non-sl calc, mod-bri yelgn flor,	cnt, sl calc ip, mod-bri yelgn flor, mod mky	mod-bri
ng	flor, mod mky cut, mod bishwh resdl ring	mod mky cut, mod bishwh resdl ring	cut, mod bishwh resdl ring	resdl ring



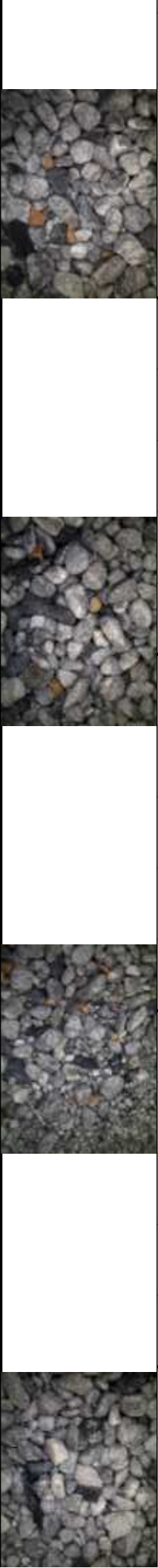
MD: 11,597'
TVD: 7,284.95'
Inclination: 89.07°
Azimuth: 181.45°
VS: 4,064.3

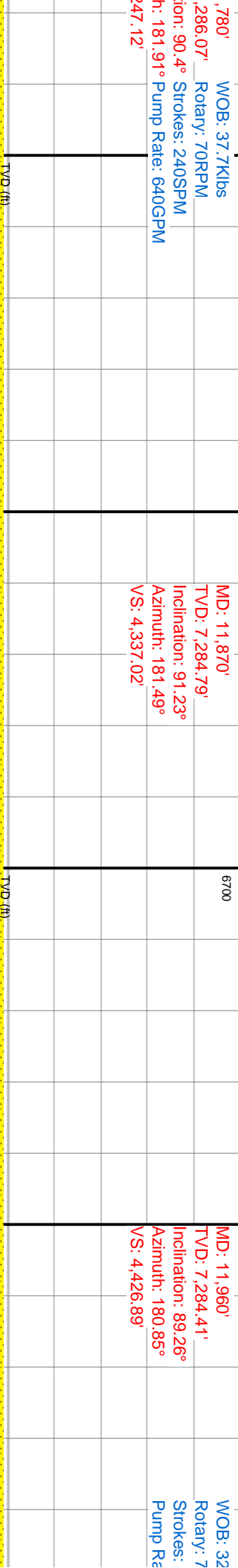
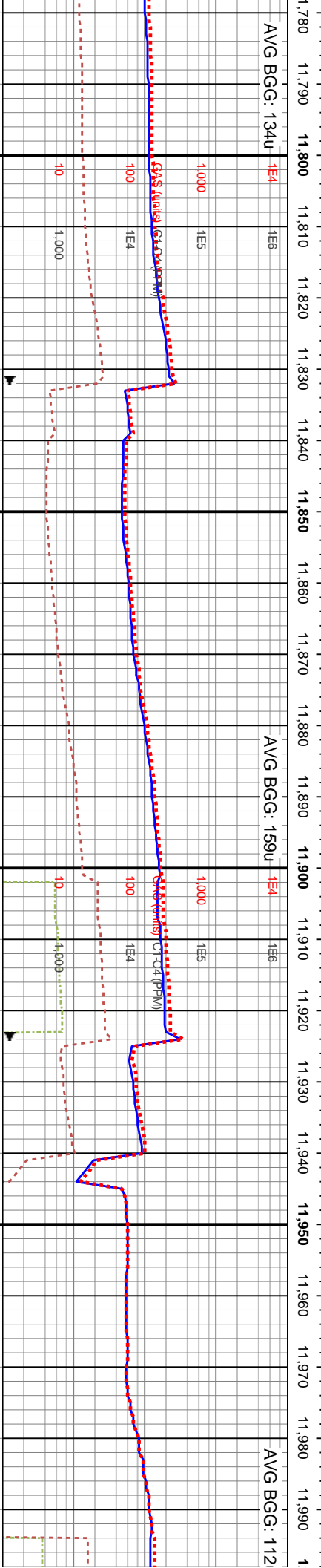
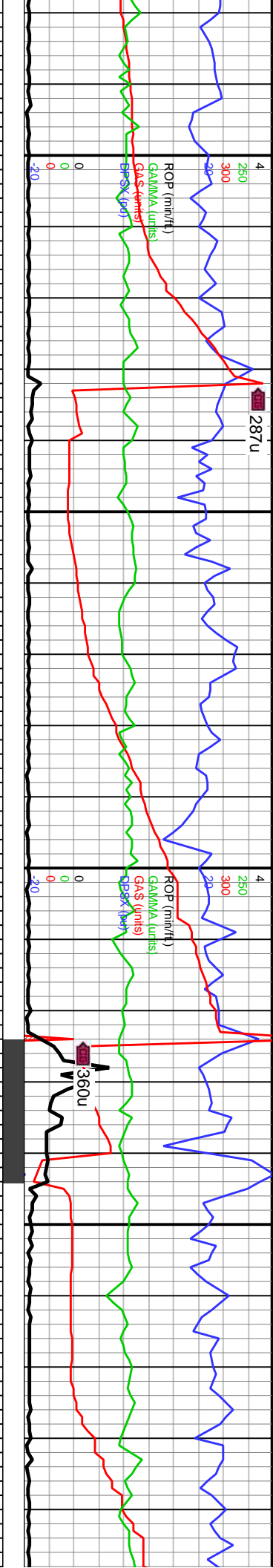
WOB: 35.8Klbs
Rotary: 70RPM
Strokes: 260SPM
Pump Rate: 694GPM

MD: 11,688'
TVD: 7,286.04'
Inclination: 89.56°
Azimuth: 181.77°
VS: 4,156.2

MD: 11,780'
TVD: 7,286.04'
Inclination: 89.56°
Azimuth: 181.77°
VS: 4,156.2

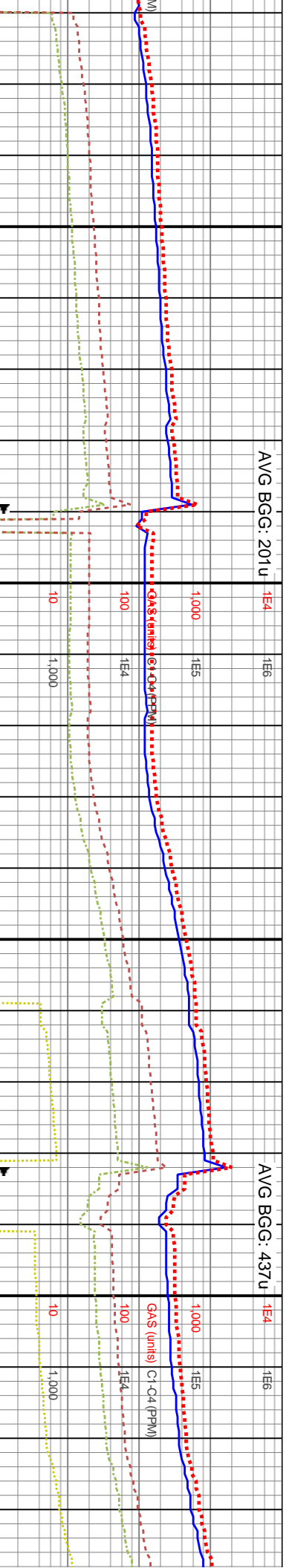
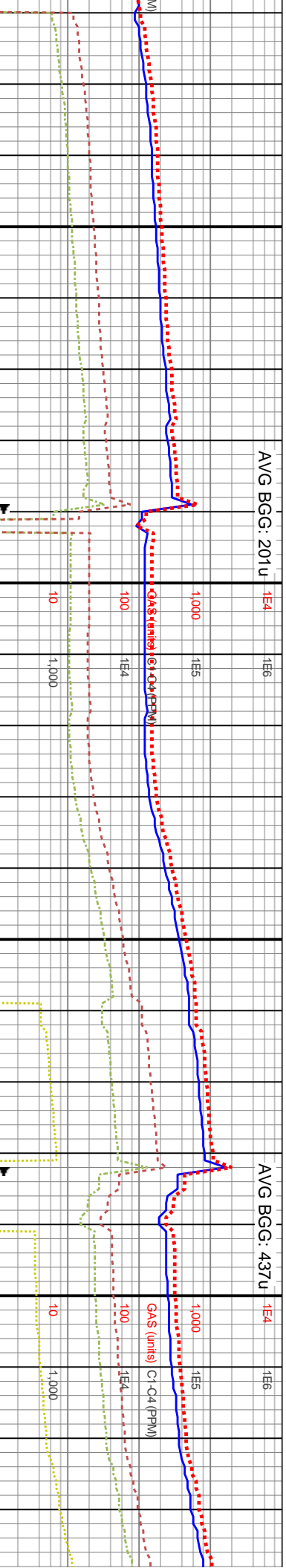
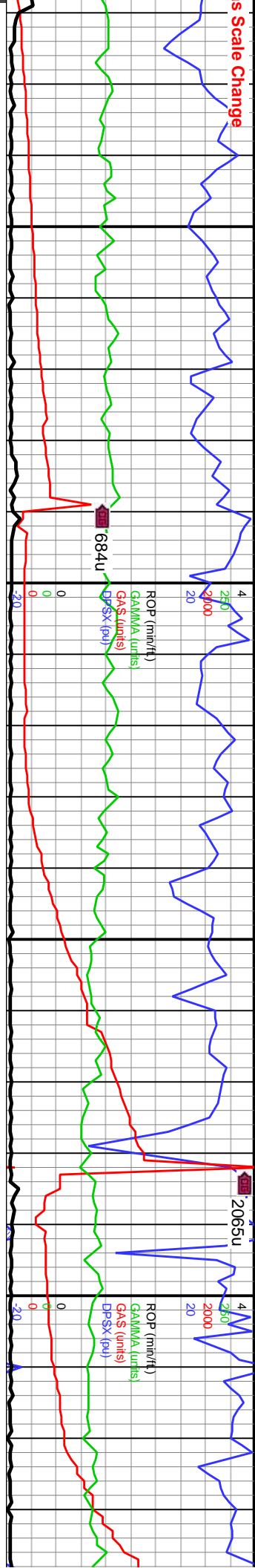
11600-11660 SS: pred med gy, occly gyshbn, mod w srtld, sb ang-sb rd grs, fri s, cons wi arg-silic cnt, sl calc, yeign flor, mod mky cut, mod blshwh	11600-11660 SS: med gy-gyshbn clus, vf-f gr, mod srtld, sb ang-sb rd, frm-sl fri, pred non-sl calc, gr sup cls, cons wi arg-silic cnt, mod-bri yeign flor, mod mky cut, mod blshwh resdl	11660-11720 SS: med gy-gyshbn, dk gyshbn, abnt lse clr-op grs, mod srtld, vf-f grs, pred sb ang-sb rd, fri gr sup cls, cons wi arg/silic cnt, sl calc, tr pp pyf, mod-bri yeign flor, mod mky cut, mod blshwh resdl ring	11720-11780 SS: pred med gy-gyshbn, lt gy, abnt trnsd grs thru, mod srtld, pred sb ang-sb rd, vf-f grs, fri gr sup cls, cons wi arg-silic cnt, uncons grs, sme sl calc, mod-bri yeign flor, mod mky cut, mod blshwh resdl ring
7700	7700	7700	7700





11780-11840 SS: dk gysbhn-med gy, lt brn cls, tr clr unconss sd, mod srtld, pred sb ang-sb rd, vf-f grs, gr sup cls, cons wi arg-silic cnt, com lse grs, tr pyr, bri yelgn flor, mod mky cut, mod yelgn-bishwn resdl ring	11840-11900 SS: predy med gy-gyshbn, lt gy, vf-uf grs, sb ang-sb rd, op grs thru, mod srtld, fri gr sup cls, cons wi arg/silic cnt, com lse grs, sl calc ip, scat bri yelgn flor, mod mky cut, mod yelgn resdl ring	11900-11960 SS: med gy-gyshbn, lt gy, occ op-clr lse grs, vf-f grs, mod srtld, pred sb ang-sb rd, gr sup cls, cons wi arg/silic cnt, tr pp pyr, pred non-sl calc, scat bri yelgn flor, mod mky cut, mod yelgn resdl ring	11960-12020 SS: med gy-gyshbn, lt brn, mod srtld, pred sb ang-sb rd, vf-f grs, gr sup cls, cons wi arg/silic cnt, tr mod, mod-bri yelgn flor, mod mky cut, mod yelgn-bishwn resdl ring
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MD: 12,235'
TVD: 7,285.84'
Inclination: 88.76°
Azimuth: 180.11°
VS: 4,701.3'

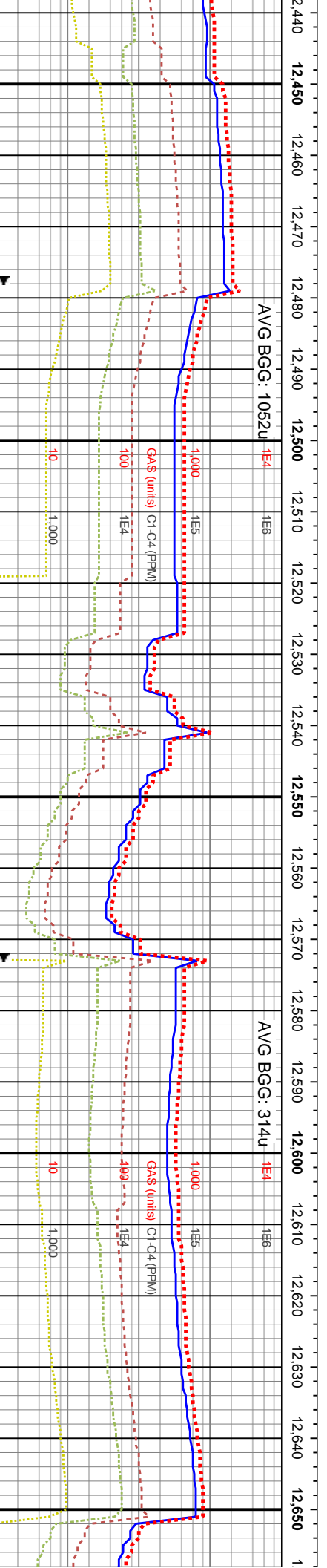
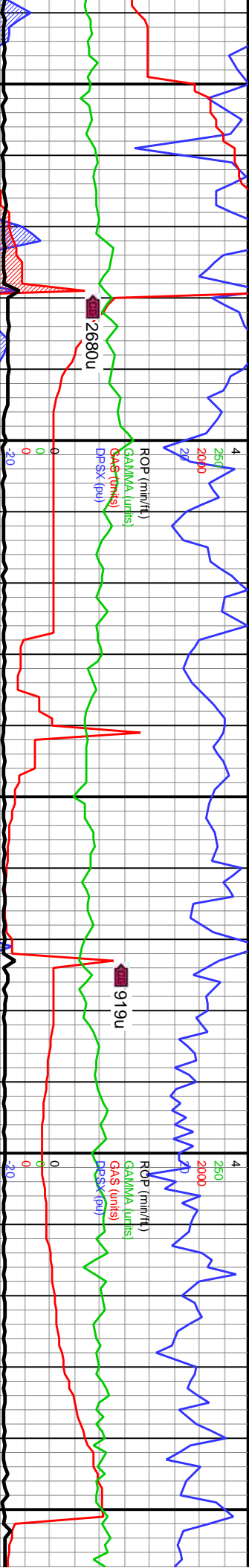
MD: 12,328'
TVD: 7,287.43'
Inclination: 89.29°
Azimuth: 180.31°
VS: 4,794.06'

WOB: 36.2klbs
Rotary: 70RPM
Strokes: 240SPM
Pump Rate: 640GPM

MD: 12,423'
TVD: 7,287.89'
Inclination: 90.15°
Azimuth: 180.57°
VS: 4,888.85'

660 SS: pred med gy-gyshbn, lt gy, lt grs thru, mod srt, vf-f grs, sb ang-sb clus, cons wi arg-silic cnt, sl calc, com arg-silic cnt, mod-bri yelgn flr, mod bishwh resdl ring; tr SH	12260-12320 SS: predy med gy-gyshbn, lt gy, vf-uf grs, sb ang-sb rd, op grs thru, mod srt, fri gr sup cls, cons wi arg/silic cnt, com lse grs, sl calc ip, bri yelgn flr, mod mky cut, bishwh resdl ring; tr SH	12320-12380 SS: med gy-gyshbn, oftwht-lt brn clus, vf-f gr, mod srt, sb ang-sb rd, frm-sl fri, pred non-sl calc, gr sup cls, cons wi arg-silic cnt, mod-bri yelgn flr, mod mky cut, bishwh resdl ring; tr SH	12380-12440 SS: pred med gy-gyshbn, lt gy, mod srt, pred sb ang-sb rd, vf-f grs, fri gr sup cls, cons wi arg-silic cnt, uncongs grs, sme sl calc, mod-bri yelgn flr, mod mky cut, mod bishwh resdl ring; tr SH
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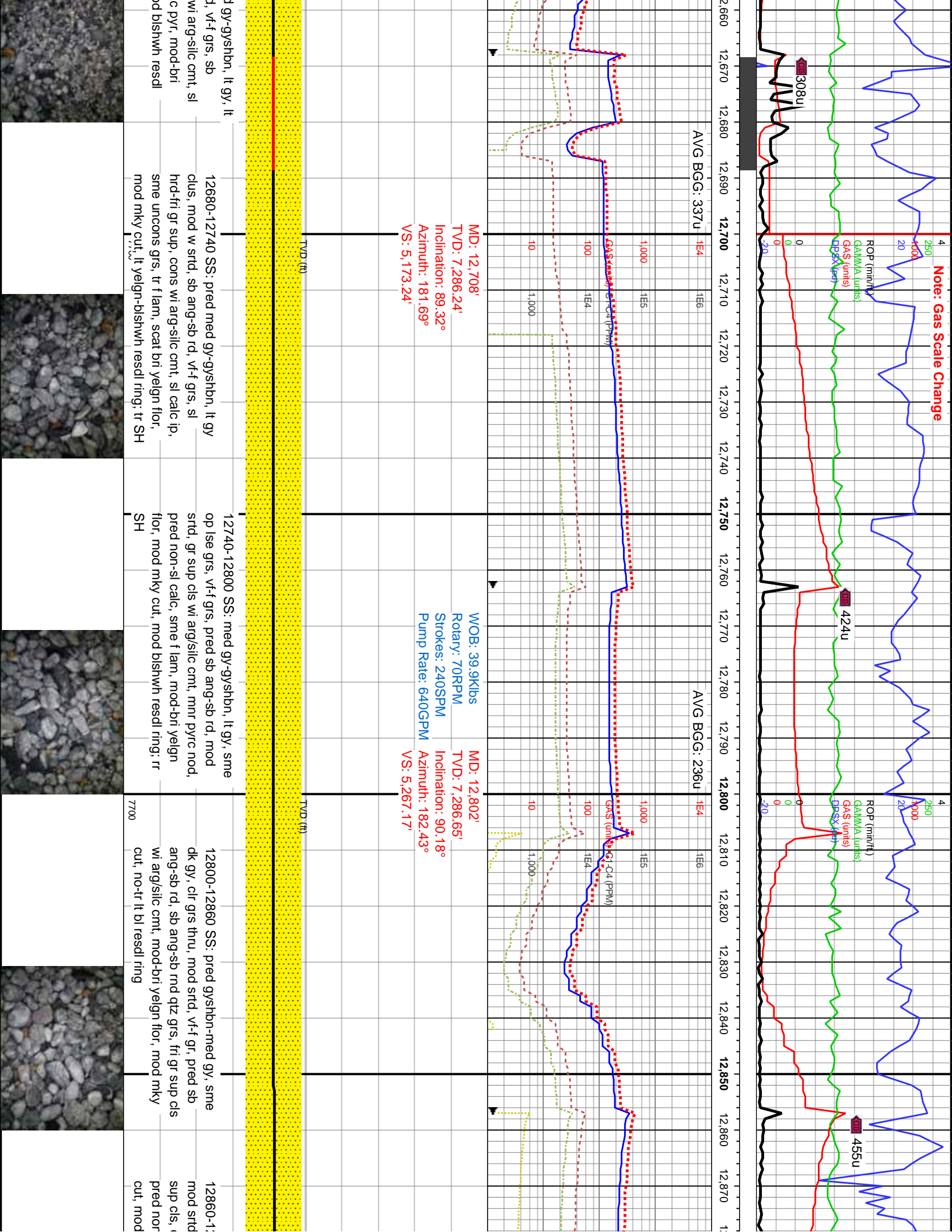


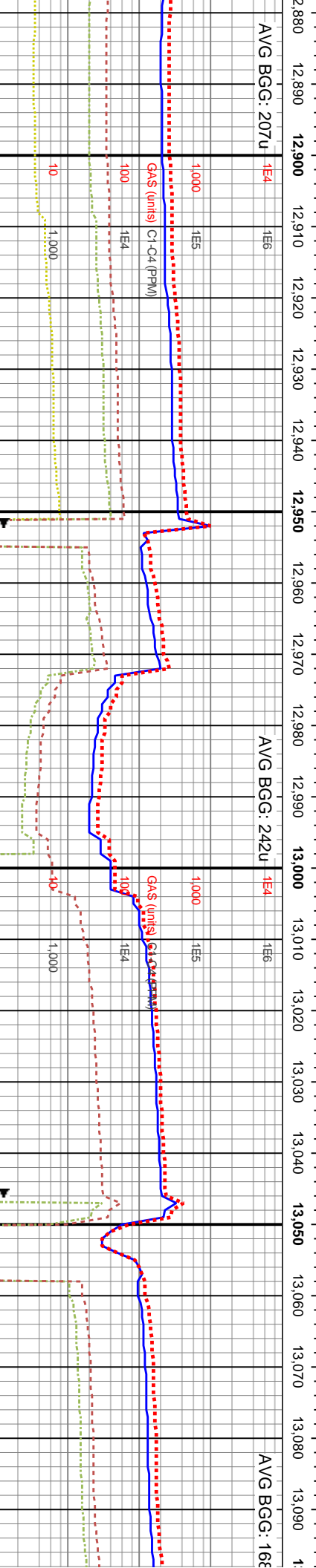
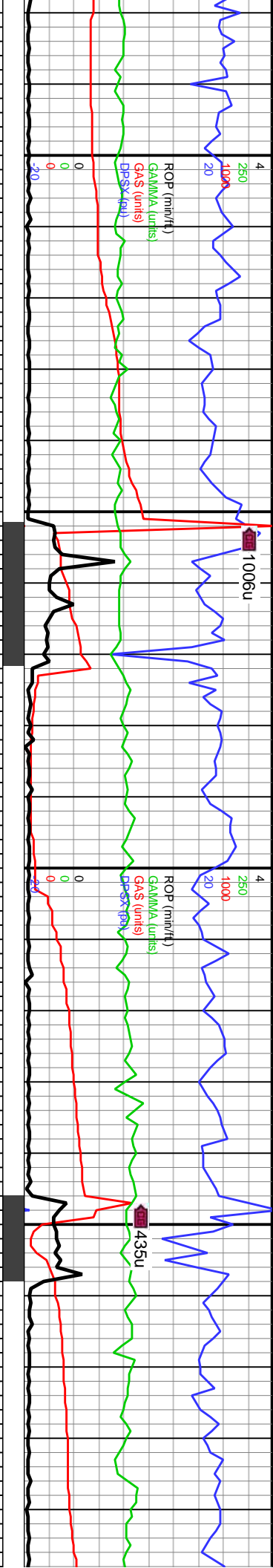
MD: 12,518'
TVD: 7,287.39'
Inclination: 90.46°
Azimuth: 180.56°
VS: 4,983.65'

WOB: 44Klbs
Rotary: 70RPM
Strokes: 240SPM
Pump Rate: 640GPM
MD: 12,613'
TVD: 7,286.34'
Inclination: 90.8°
Azimuth: 179.84°
VS: 5,078.42'

TVD (ft)		TVD (ft)	
12440-12500 SS: med gy-gyshbn clus, v-f-gr, mod srt'd, sb ang-sb rd, frm-sl fri, pred non-silic calc, gr sup cls, cons wi arg-silic cnt, mod-bri yeign fl'or, mod mky cut, mod blshwh resdl ring; tr SH		12500-12560 SS: dk gyshbn-med gy, lt brn cls, com op unconcs sd, mod srt'd, pred sb ang-sb rd, v-f-grs, gr sup cls, cons wi arg-silic cnt, com lse grs, tr pyr, bri yeign fl'or, mod mky cut, mod yeign-blshwh resdl ring; scat SH	
7700		7700	





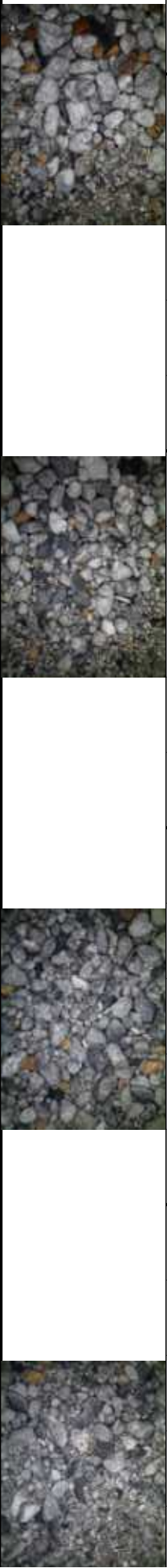


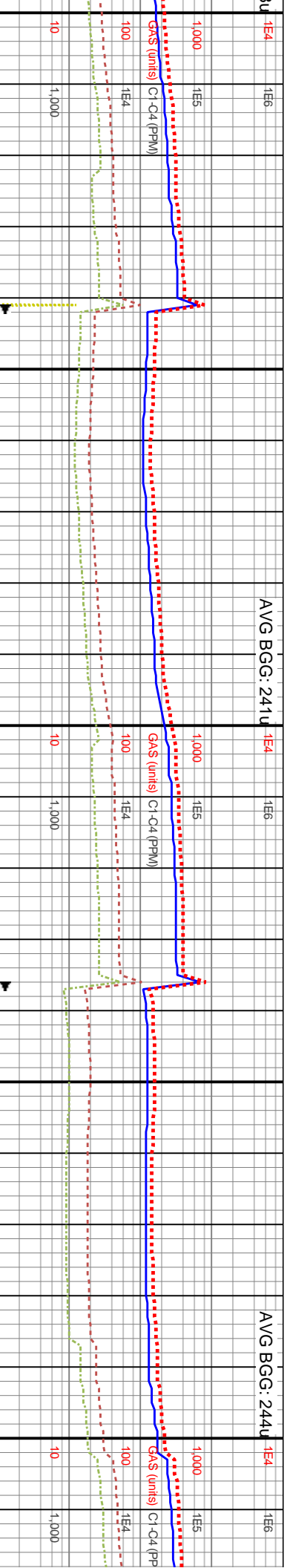
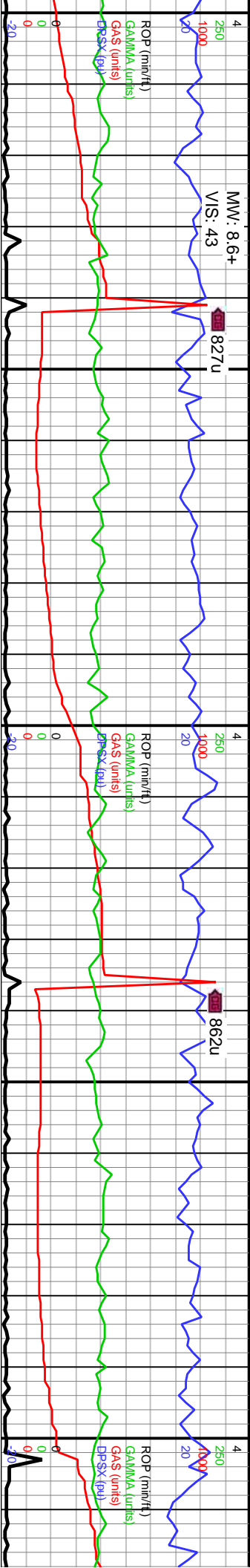
MD: 12,897'
TVD: 7,285.72'
Inclination: 90.95°
Azimuth: 181.75°
VS: 5,362.1

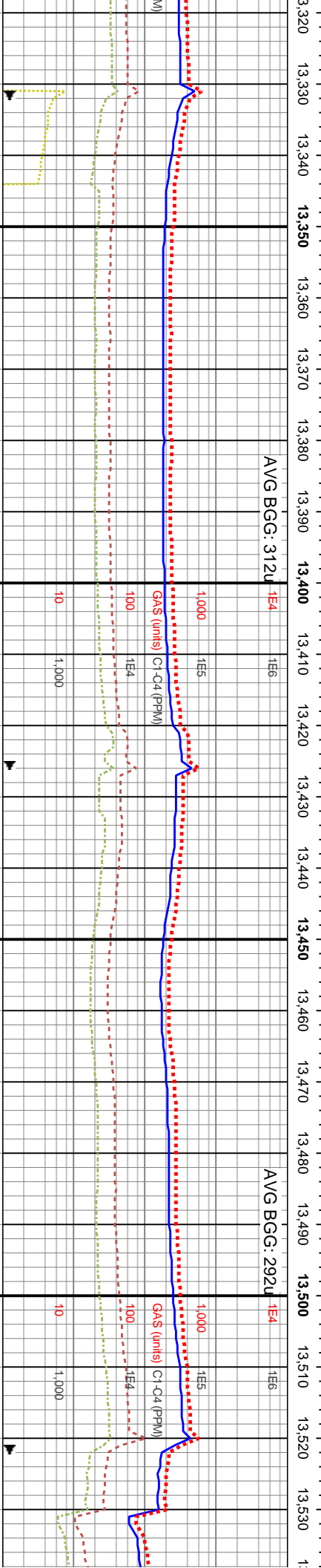
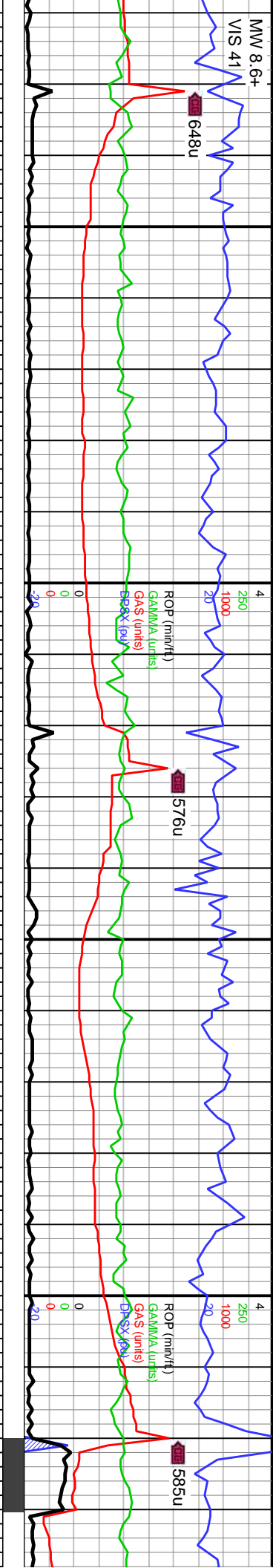
MD: 12,991'
TVD: 7,285.04'
Inclination: 89.87°
Azimuth: 180.84°
VS: 5,455.97'

MD: 13,087'
TVD: 7,286.53'
Inclination: 88.36°
Azimuth: 180.7°
VS: 5,551.78'

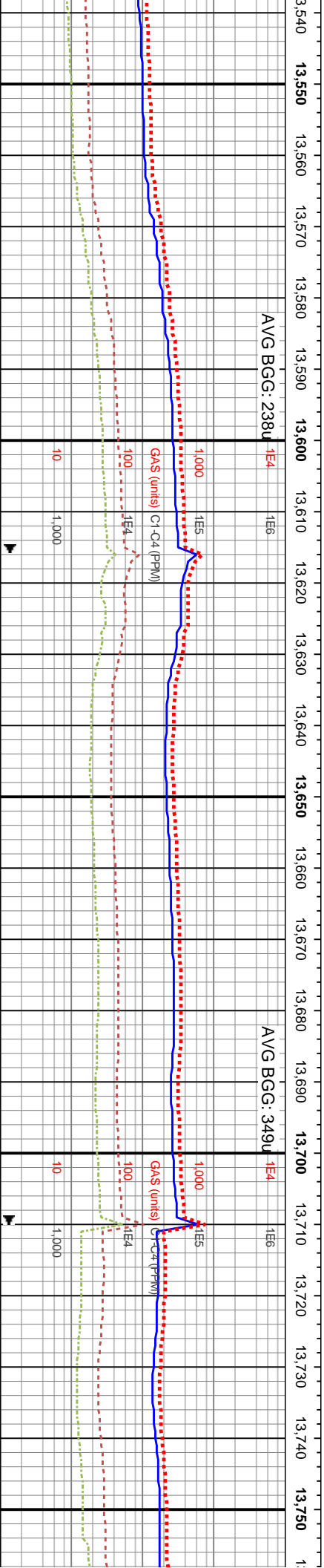
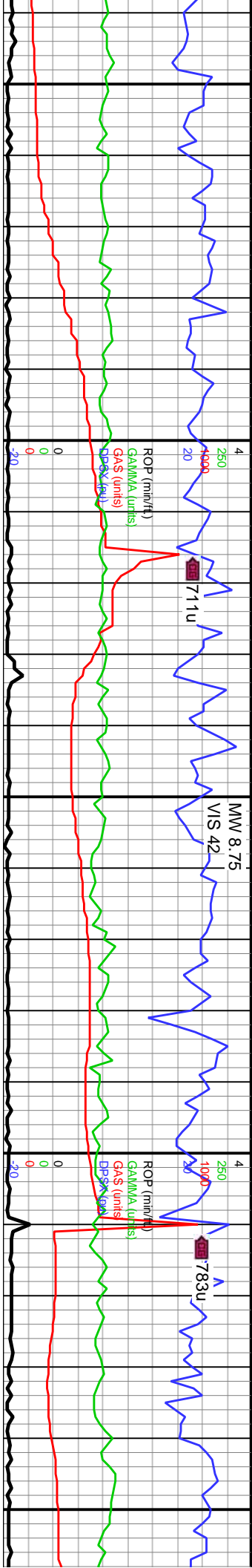
12920-12980 SS: gyshbn-med gy, lt brn clus, , sb ang-sb rd, vf-f gr, frm-sl fri, gr cons wi arg-silic cmt, com unconcs, -sl calc, mod-bri yeign flor, mod mky yeign-bishwh resdl ring; rr SH	12920-12980 SS: pred med gy-gyshbn, mot lt brn, vf-f grs, mod srtld, pred sb ang-sb rd, ang-sb rd qtz grs, sme unconcs qtz grs, fri gr sup cls, cons wi arg/silic cmt, mod-bri yeign flor, mod mky cut, mod bishwh resdl ring	12980-13040 SS: gyshbn-med gy, dk gy, offwhl-trnsl, vf-f grs, mod srtld, sme lse grs, pred sb ang-sb rd, pred gr sup cls, cons wi arg/silic cmt, tr imbd pyr, mod-bri yeign flor, mod mky cut, mod yeign-bishwh resdl ring	13040-13100 SS: pred med gy-gyshbn, lt gy, op grs thru, mod srtld, vf-uf grs, pred sb ang-sb rd, gr sup cls, cons wi arg/silic cmt, sme sl calc, mod-bri yeign flor, mod mky cut, mod bishwh resdl ring
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[illegible]



13340-13400 SS: pred med gy-gyshbn-lt gy, abt trns-lclr grs thru, v-f grs, mod strd, sb ang-sb rd, fri-sl frm, gr sup cls, cons wi arg-silic cnt, sl calc ip, mod-bri yeign flor, mod mky cut, mod blshwhyeign resdl ring	13400-13460 SS: pred gyshbn-med gy, lt gy clus, occ clr-op lse sd, v-f gr, mod strd, sb ang-sb rd, frm-sl fri, gr sup cls wi arg-silic cnt, pred sl calc, tr sh, mod-bri yeign flor, mod mky cut, mod blshwh-yeign resdl ring	13460-13520 SS: med gy-lt gyshbn, offwht, abt lse clr-op grs, mod strd, pred sb ang-sb rd, v-f grs, fri gr sup cls, cons wi arg/silic cnt, sl calc, mod-bri yeign flor, mod mky cut, mod blshwh-yeign resdl ring	13520-13580 SS: pred med gy-gyshbn-lt gy, abt trns-lclr grs thru, v-f grs, mod strd, sb ang-sb rd, fri-sl frm, gr sup cls, cons wi arg-silic cnt, sl calc ip, mod-bri yeign flor, mod mky cut, mod blshwhyeign resdl ring
7700	7700	7700	7700

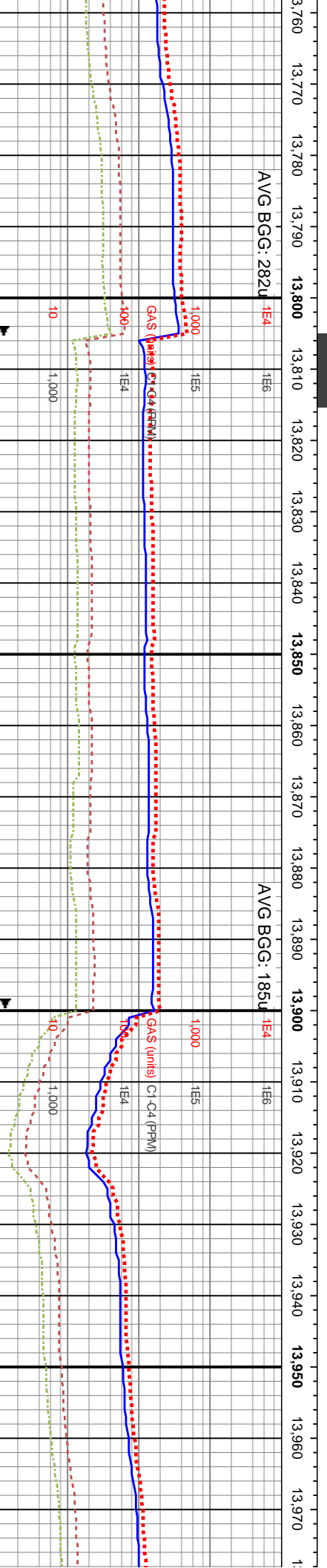
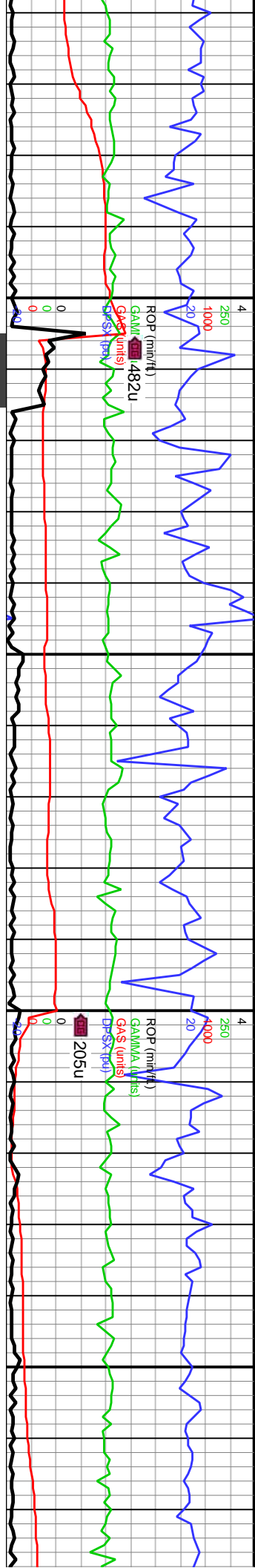


WOB: 39klbs_x
Rotary: 75RPM
Strokes: 240SPM
Pump Rate: 640GPM

MD: 13,656'
TVD: 7,286.75'
Inclination: 90.18°
Azimuth: 180.91°
VS: 6,119.76'

MD: 13,750'
TVD: 7,285.8'
Inclination: 90.98°
Azimuth: 181.7°
VS: 6,213.63'

13580-13640 SS: pred med gy-gyshbn, lt gy, trmsl lse grs thru, vf-f grs, mod srt, pred sb ang-sb rd, fri-sl hrd, gr sup cls wi arg-silic cmt, sme sl calc, mod-bri yelgn flor, mod yelgn-bshwn resdl ring	13640-13700 SS: predy med gy-gyshbn, lt gy, sb ang-sb rd, vf-uf grs, mod srt, abnt lse op grs thru, fri gr sup cls, cons wi arg/silic cmt, sl calc ip, mod-bri yelgn flor, mod mky cut, mod yelgn resdl ring	13700-13760 SS: med gy-gyshbn, sme offwht-lt brn, vf-f grs, abnt lse grs, mod srt, pred sb ang-sb rd, gr sup cls, cons wi arg/silic cmt, sme sl calc, mod-bri yelgn flor, mod mky cut, mod yelgn resdl ring
7700	7700	7700



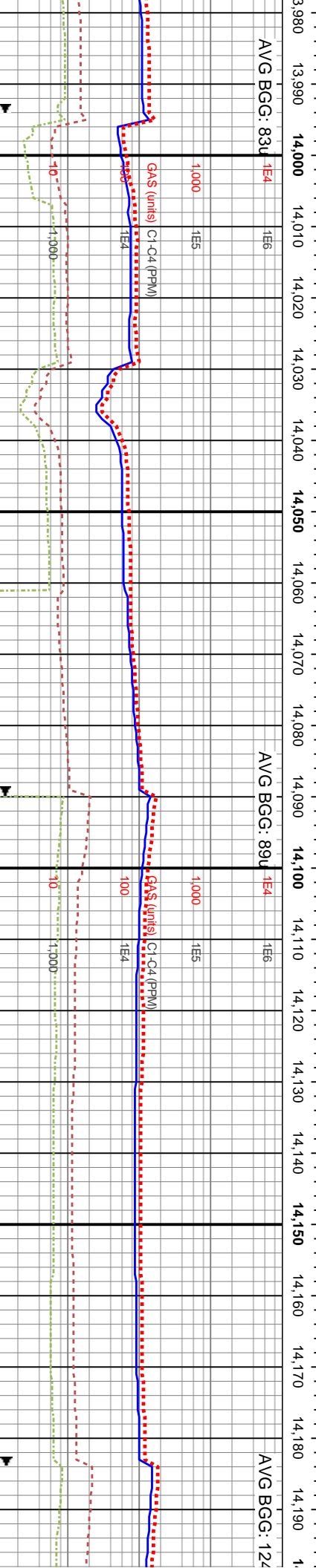
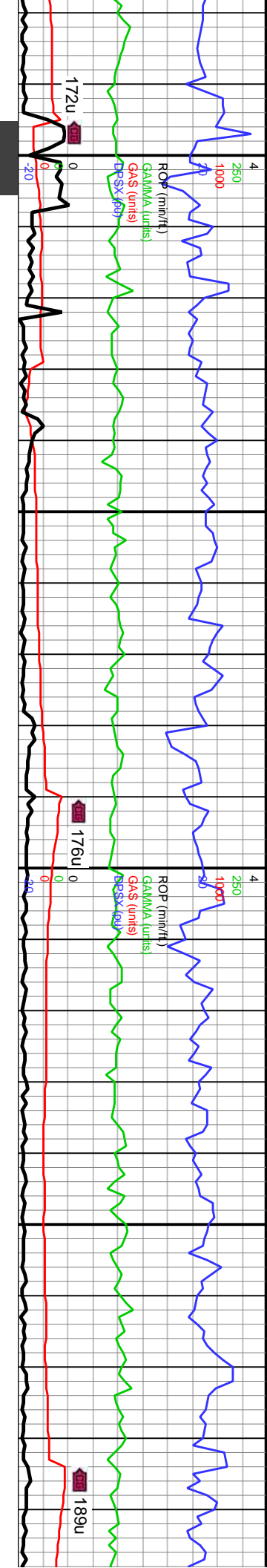
WOB: 35.8klbs
Rotary: 75RPM
Strokes: 240SPM
Pump Rate: 640GPM

MD: 13.845'
TVD: 7,284.63'
Inclination: 90.43°
Azimuth: 180.84°
VS: 6,308.5'

MD: 13.939'
TVD: 7,283.59'
Inclination: 90.83°
Azimuth: 180.62°
VS: 6,402.32'

TVD (ft)			
13760-13820 SS: med gy-gyshbn, lt brn cls, occ clr-op unconss sd, vf-f gr, mod strd, pred sb ang-sb rd, frm-sl fri, gr sup cls wi arg-silic cnt, pred non-sl calc, mod-bri yelgn flor, mod mky cut, mod blshwh-yelgn resdl ring	13820-13880 SS: predy med gy-gyshbn, offwht-lt gy, mod strd, com lse op-clr grs, sb ang-sb rd, vf-uf grs, fri gr sup cls, cons wi arg/silic cnt, sl calc ip, mod-bri yelgn flor, mod mky cut, mod blshwh-yelgn resdl ring	13880-13940 SS: gy-med gy, offwht-gyshbn, vf-f grs, mod strd, op-clr grs thru, pred sb ang-sb rd, fri gr sup cls wi arg/silic cnt, sl calc, scat mic pyr, mod-bri yelgn flor, mod mky cut, mod yelgn-blshwh resdl ring	13940-14000 SS: pred med offwht, clr-op grs, vf-f gr, m rd qtz grs thru, fri-sl hrd, gr cnt, tr pp pyr, sl calc ip, m mod mky cut, mod yelgn-bl





WOB: 47.4klbs
Rotary: 0RPM
Strokes: 240SPM
Pump Rate: 641GPM

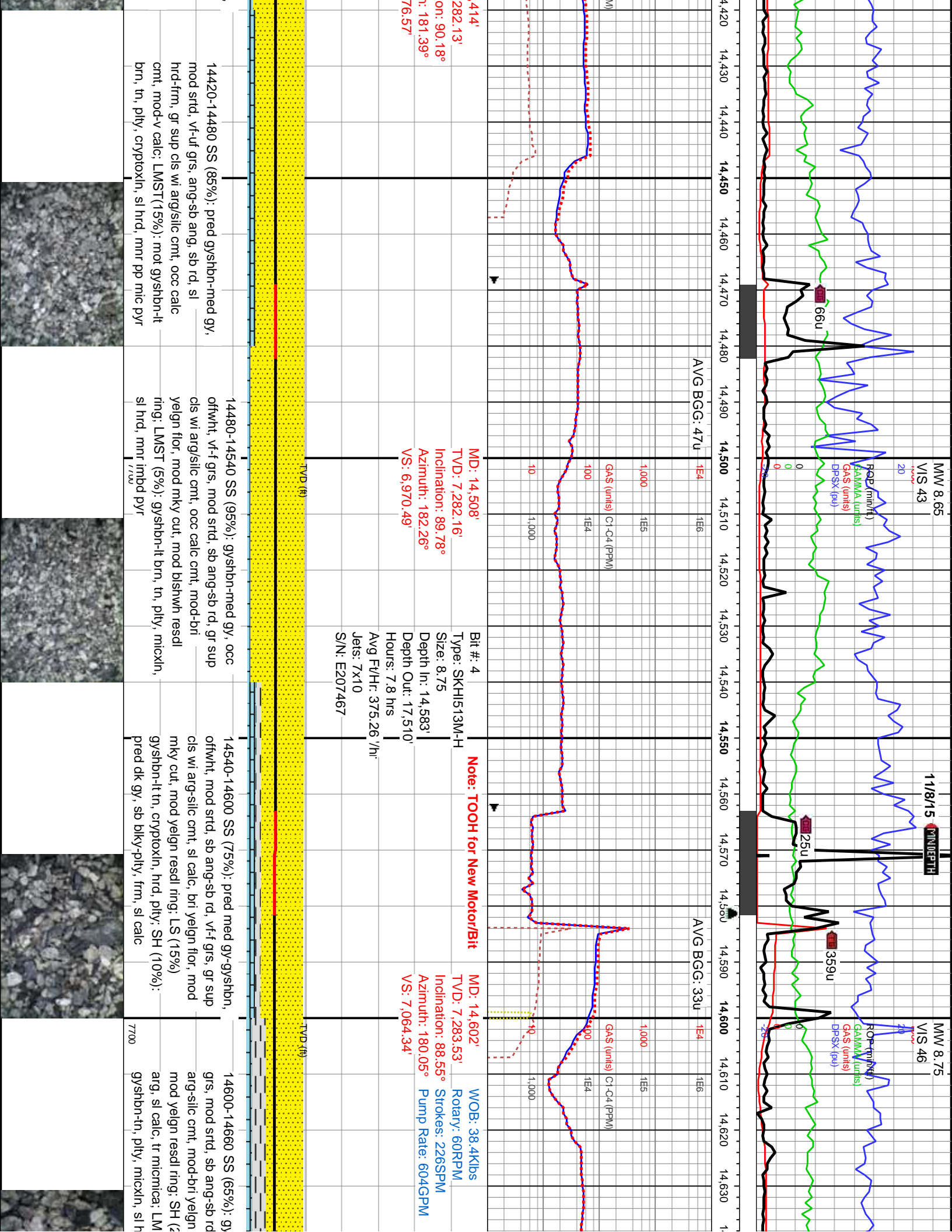
MD: 14.035'
TVD: 7,283.08'
Inclination: 89.78°
Azimuth: 181.12°
VS: 6,498.15'

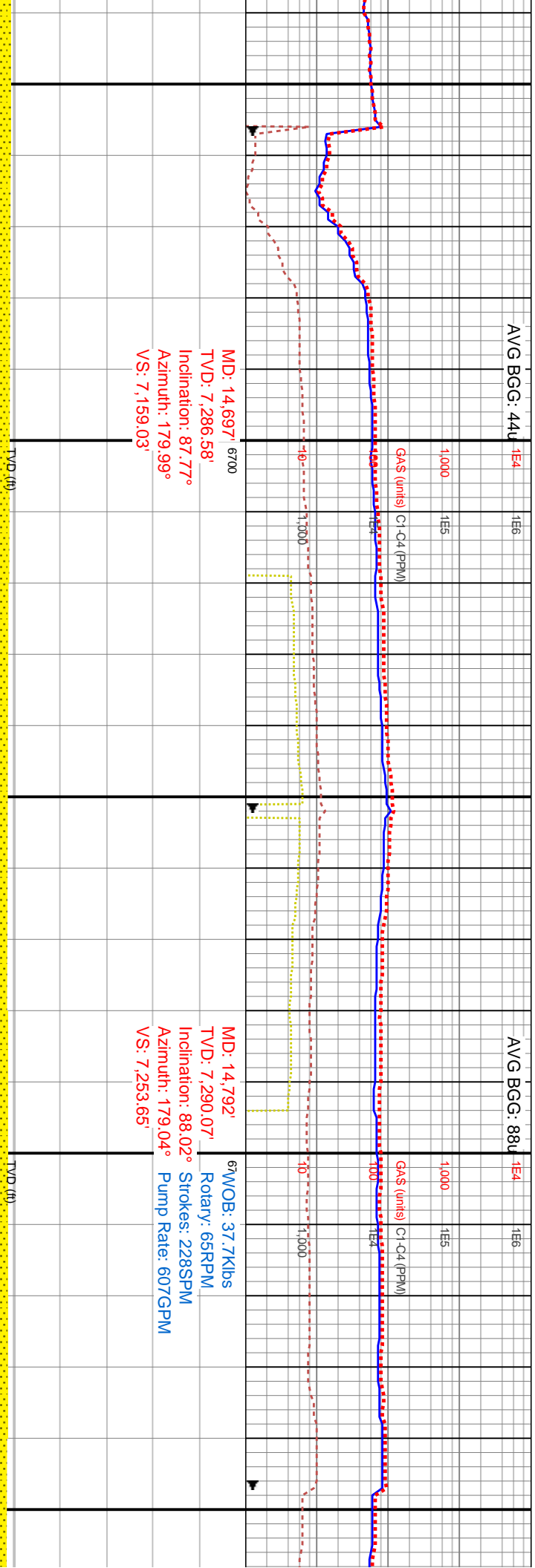
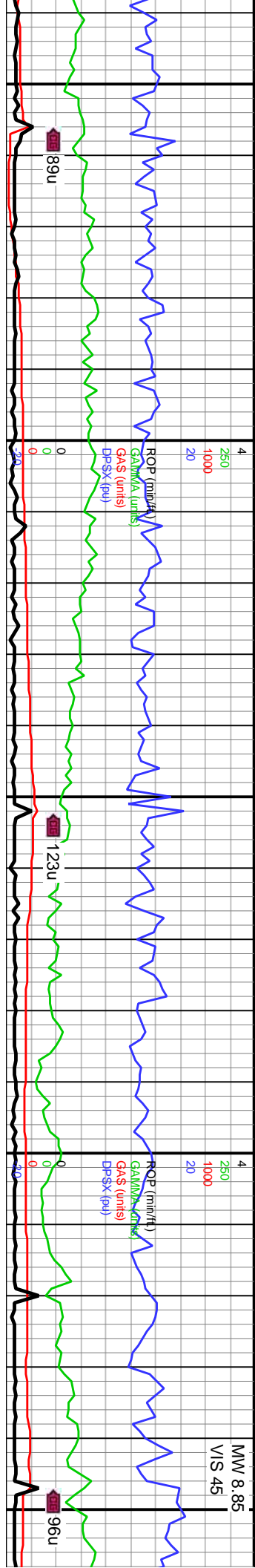
MD: 14.129'
TVD: 7,282.99'
Inclination: 90.33°
Azimuth: 180.98°
VS: 6,592.01'

WOB: 33
Rotary: 6
Strokes:
Pump Ra

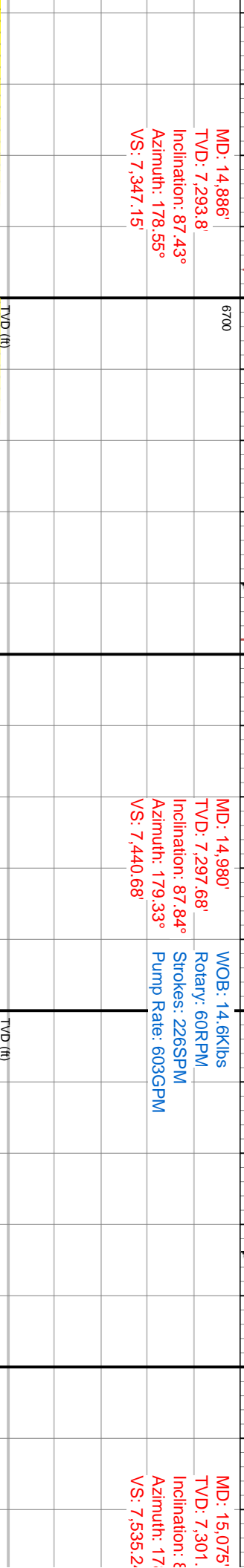
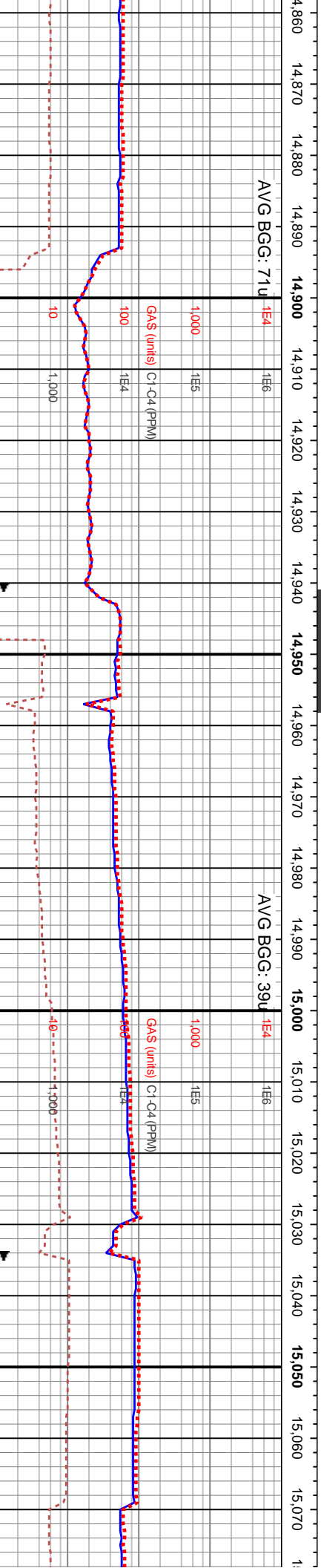
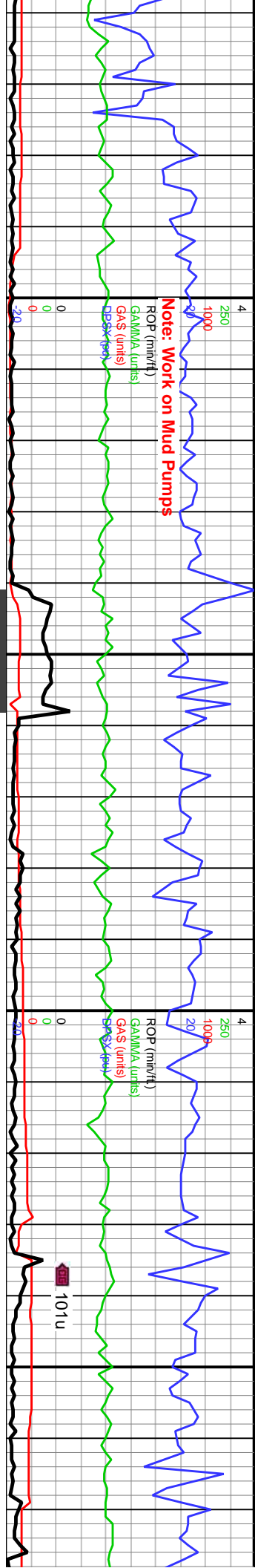
14000-14060 SS (95%): pred gyshbn-med gy, abnt lse grs, v-f gr, mod strd, sb ang-sb rd, gr sup cls wi arg-silic cnt, tr mic pyr, mod-bri yeign flor, mod mky cut, mod yeign resd ring; SH (10%): v dk gy-blk, frm, blk, sily tex, tr f lam, non-v sl calc	14060-14120 SS: predy med gy-gyshbn, lt brn, sb ang-sb rd, v-f uf grs, abnt lse op grs thru, mod strd, fri-sl frm, gr sup cls wi arg/silic cnt, sl calc ip, mod-bri yeign flor, mod mky cut, mod blshwh-yeign resd ring.	14120-14180 SS (90%): med gy-gyshbn, offwht clus, v-f gr, sb ang-sb rd, mod strd, frm, gr sup cls wi arg-silic cnt, pred non calc, mod-bri yeign flor, mod mky cut, mod blshwh-yeign resd ring; SH (10%): v dk gy-blk, frm, blk, sily tex, tr f lam, non-v sl calc	14180-14240 SS (90%): med gy-gyshbn, offwht clus, v-f gr, sb ang-sb rd, mod strd, frm, gr sup cls wi arg-silic cnt, pred non calc, mod-bri yeign flor, mod mky cut, mod blshwh-yeign resd ring; SH (10%): v dk gy-blk, frm, blk, sily tex, tr f lam, non-v sl calc
7700			



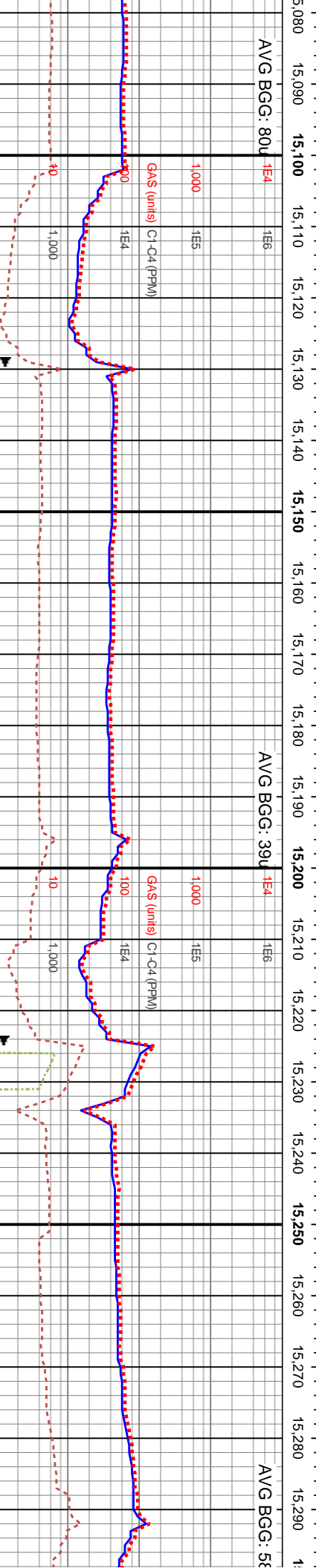
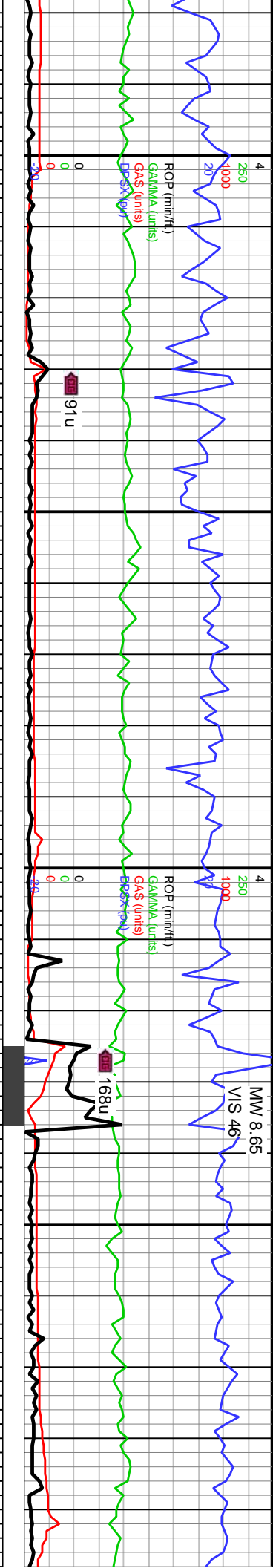




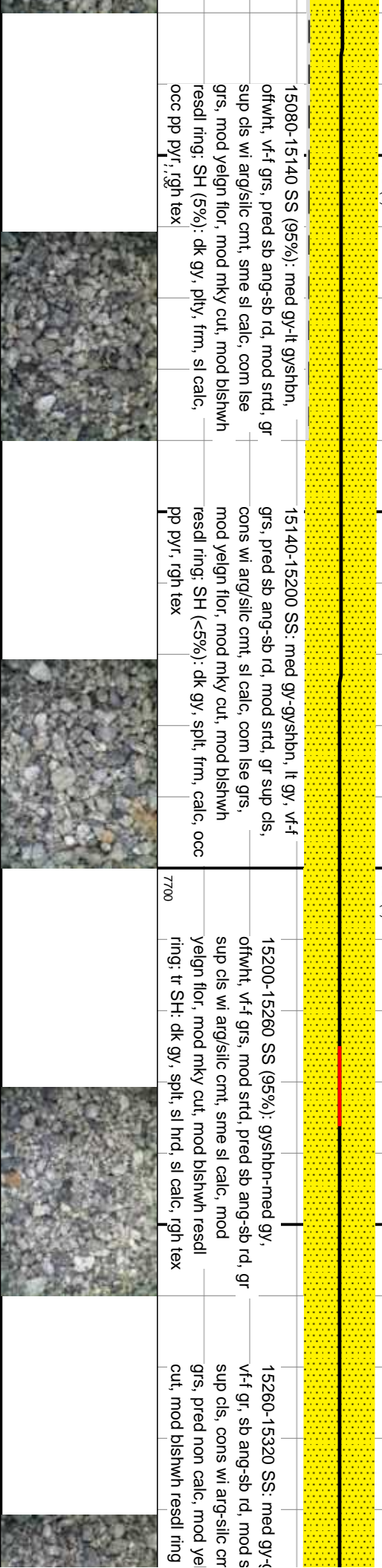
shbn-med gy, vf-f , gr sup cls wi flor, mod mky cut, (55%): dk gy, pty, ST (10%): rd, scat pyrc nod	14660-14720 SS (65%): med gy-gyshbn, mod srted, pred sb ang-sb rd, vf-f grs, ftr gr sup cls wi arg/silic cnt, sl calc, scat pp mic pyr; SH (20%): dk gy, spilt-pty, frm, rgh tex, sl calc; LMST (15%): lt brn-tn, gysbhn ip, pty, microxln-cryptoxln, frm-sl hrd 7700	14720-14780 SS (50%): med gy-gyshbn, occ lt gy, mod frm, mod srted, sb ang-sb rd, vf-f gr, cons wi pred arg-silic, com uncons, mnr pyr, sl calc; SH (30%): mot dk gy-medgy, eig-pty, frm; LMST (20%): lt brn-tn, gy ip, blk-pty, microxln, frm-sl hrd	14780-14840 SS (75%): med gy-gyshbn cls, clr ise sd, mod srted, sb ang-sb rd, vf-f gr, mod yeign flor, mod mky cut, mod yeign resd ring; SH (15%): mot dk gy-med gy, pty-spilt, frm, sl calc, tr micmica, rgh tex; LMST (10%): mot bnshgy-lt gy, pty, microxln, frm, mudst	14840-1 offwht, e vf-f gr, b resd rin calc, tr r gyshbn-
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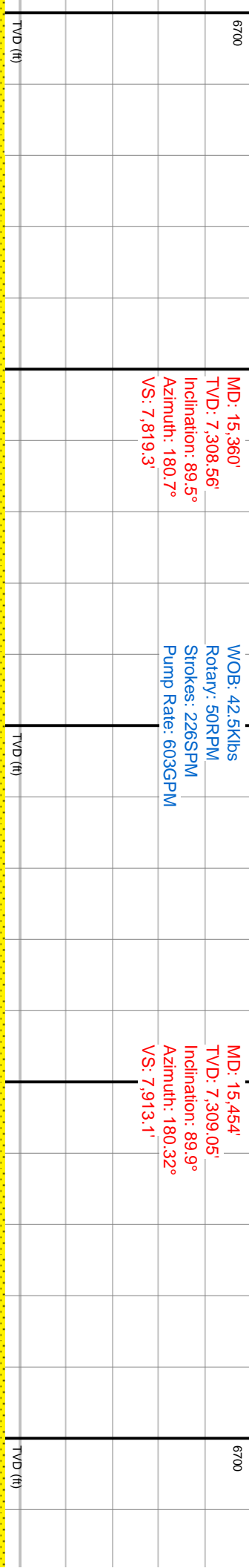
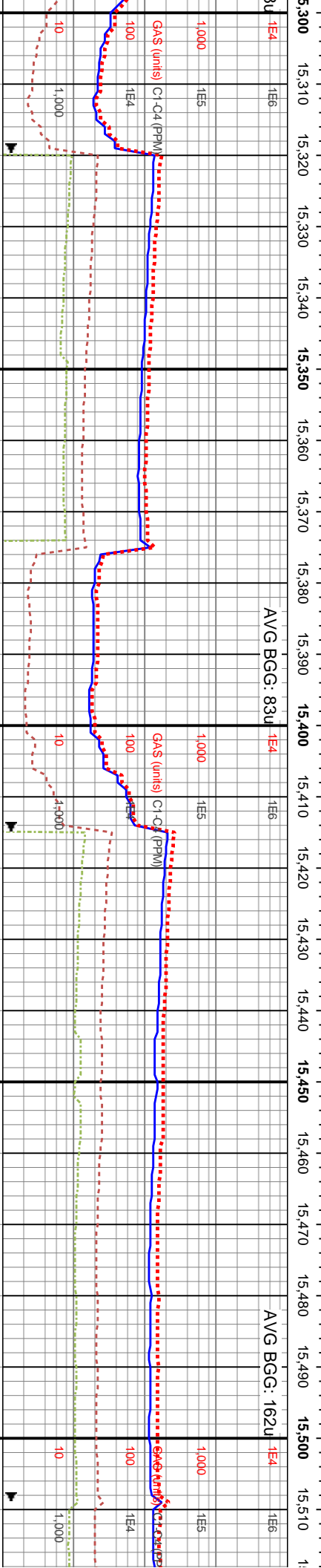
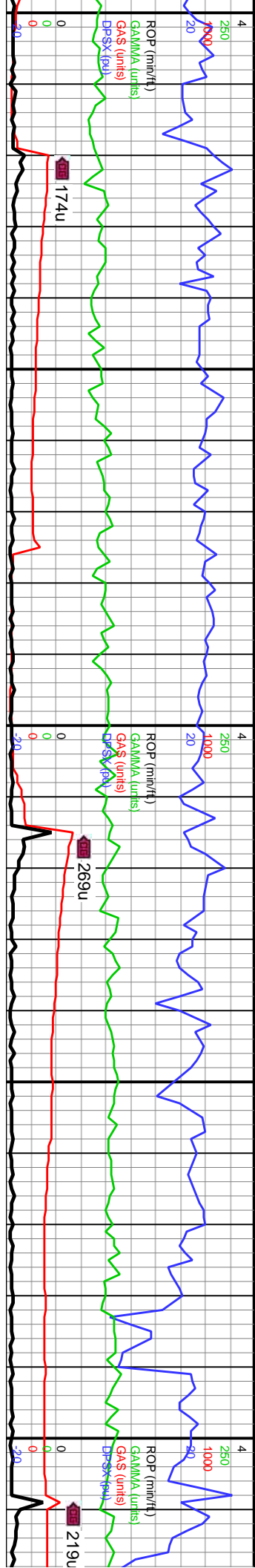


14900 SS (80%): med gy-gyshbn, dbnt op unconcs sd, pred sb ang-sb rd, ri yelgn flor, mod mky cut, mod yelgn gy: SH (20%): mot dk gy, split, frm, sl micmica, rgh tex: LMST (5%): in, pty, microxln, frm-sl hrd, mudst	14900-14960 SS (85%): med gy-gyshbn, lt gy-offwht, vf-f grs, sb ang-sb rd, mod srt, fri gr sup cls, cons wi arg-silic cmt, mod-bri yelgn flor, mod mky cut, mod bishwh- yelgn resdl ring: SH (15%): dk gy-v dk gy, frm-sl hrd, split-sb blk, sl calc	14960-15020 SS (90%): med gy-lt gyshbn, offwht, vf-f grs, mod srt, pred sb ang-sb rd, gr sup cls wi arg/silic cmt, sl calc, abnt op lse grs, bri yelgn flor, mod mky cut, mod bishwh resdl ring: SH (10%): dk gy-blk gy, pty, sme blk, sl hrd, sl calc, occ micmica, rgh-sly tex	15020-15080 SS (95%): med gy-lt gyshbn, offwht-trns, vf-f grs, pred sb ang-sb rd, mod srt, abnt lse grs, gr sup cls wi arg/silic cmt, bri yelgn flor, mod mky cut, mod bishwh resdl ring: SH (5%): dk gy-med gy, pty, sl hrd, sl calc, occ micmica, scat mic pyr, rgh tex



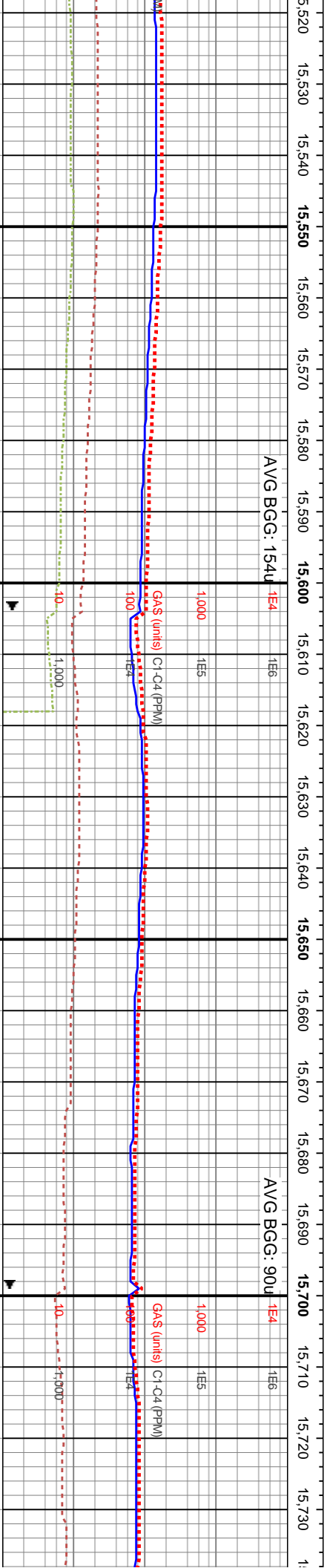
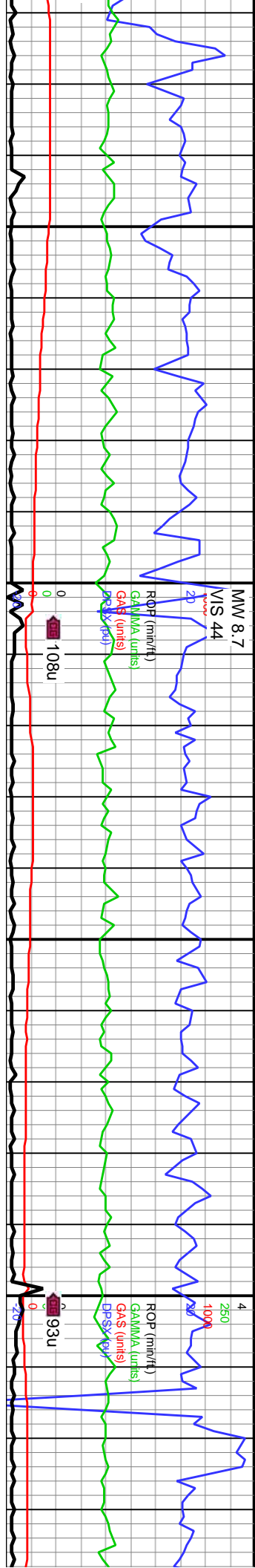
15080-15140 SS (95%): med gy-It gysbhn, offwht, vf-f grs, pred sb ang-sb rd, mod strd, gr sup cls wi arg/silic cnt, sme sl calc, com lse grs, mod yelgn flor, mod mky cut, mod blshwh resdl ring; SH (5%): dk gy, plty, frm, sl calc, occ pp pyr, rgh tex	15140-15200 SS: med gy-gysbhn, lt gy, vf-f grs, pred sb ang-sb rd, mod strd, gr sup cls, cons wi arg/silic cnt, sl calc, com lse grs, mod yelgn flor, mod mky cut, mod blshwh resdl ring; SH (<5%): dk gy, split, frm, calc, occ pp pyr, rgh tex	15200-15260 SS (95%): gysbhn-med gy, offwht, vf-f grs, mod strd, pred sb ang-sb rd, gr sup cls wi arg/silic cnt, sme sl calc, mod yelgn flor, mod mky cut, mod blshwh resdl ring; tr SH: dk gy, split, sl hrd, sl calc, rgh tex	15260-15320 SS: med gy-It gysbhn, offwht, vf-f grs, pred sb ang-sb rd, mod strd, gr sup cls wi arg/silic cnt, sme sl calc, com lse grs, mod yelgn flor, mod mky cut, mod blshwh resdl ring; SH (5%): dk gy, plty, frm, sl calc, occ pp pyr, rgh tex
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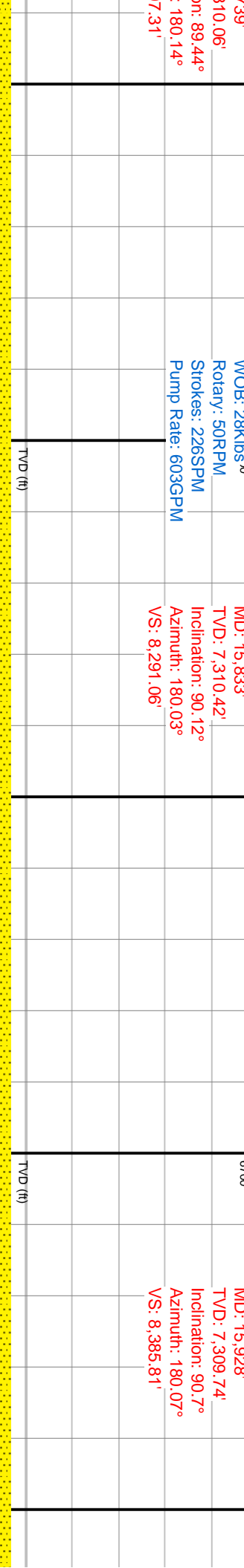
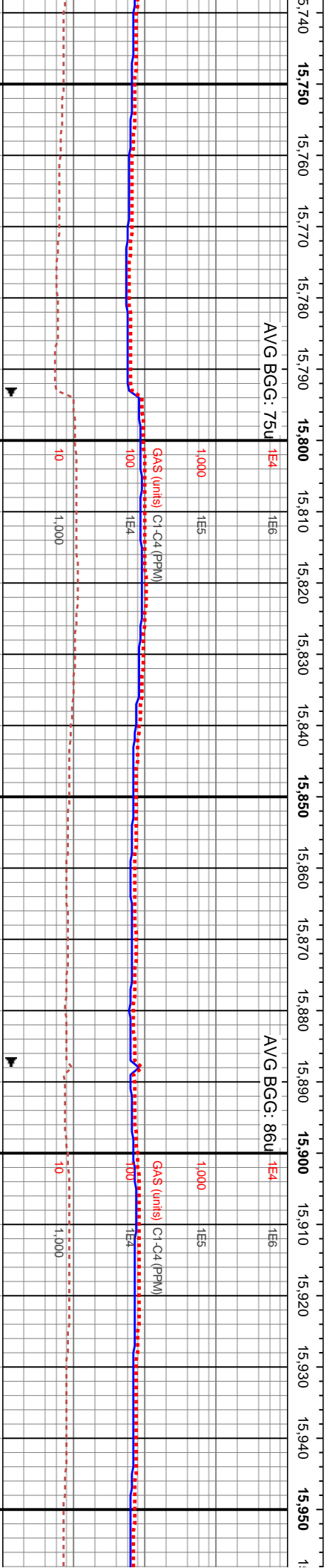
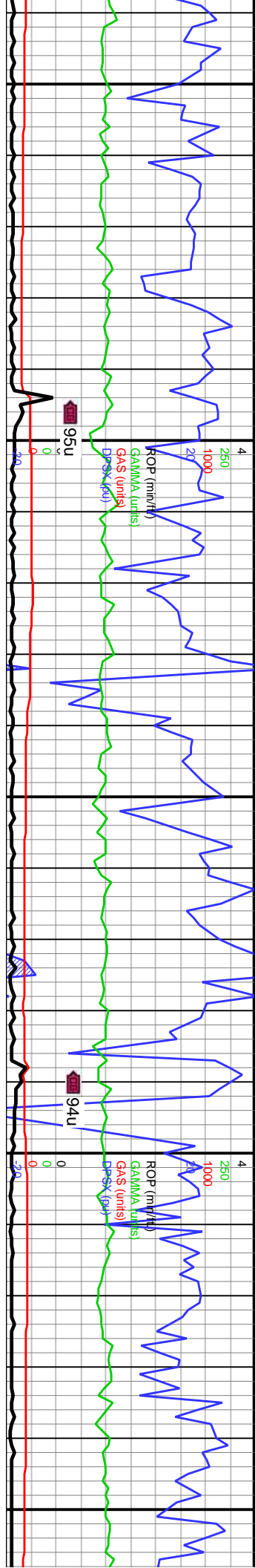
15320-15380 SS: med gy-gyshbn, lt brn clus, rtd, frm-sl fri, gr	15380-15440 SS: predy med gy-gyshbn, lt gy-offwht, offwht-op grs thru, v-f gr, sb ang qtz	15440-15500 SS: med gy-gyshbn, lt brn clus, abnt lse f sb ang qtz grs, v-f gr, sb ang-sb rd, mod srtd, frm-sl fri, gr sup cls wi arg-silic cnt, non-sl calc, mod yelgn flr, mod mky cut, mod blshwh resdl ring	15500-15560 SS: med gy-gyshbn, lt brn clus, abnt lse f sb ang qtz grs, v-f gr, sb ang-sb rd, mod srtd, frm-sl fri, gr sup cls wi arg-silic cnt, non-sl calc, mod yelgn flr, mod mky cut, mod blshwh resdl ring
15320-15380 SS: med gy-gyshbn, lt brn clus, rtd, frm-sl fri, gr	15380-15440 SS: predy med gy-gyshbn, lt gy-offwht, offwht-op grs thru, v-f gr, sb ang qtz	15440-15500 SS: med gy-gyshbn, lt brn clus, abnt lse f sb ang qtz grs, v-f gr, sb ang-sb rd, mod srtd, frm-sl fri, gr sup cls wi arg-silic cnt, non-sl calc, mod yelgn flr, mod mky cut, mod blshwh resdl ring	15500-15560 SS: med gy-gyshbn, lt brn clus, abnt lse f sb ang qtz grs, v-f gr, sb ang-sb rd, mod srtd, frm-sl fri, gr sup cls wi arg-silic cnt, non-sl calc, mod yelgn flr, mod mky cut, mod blshwh resdl ring





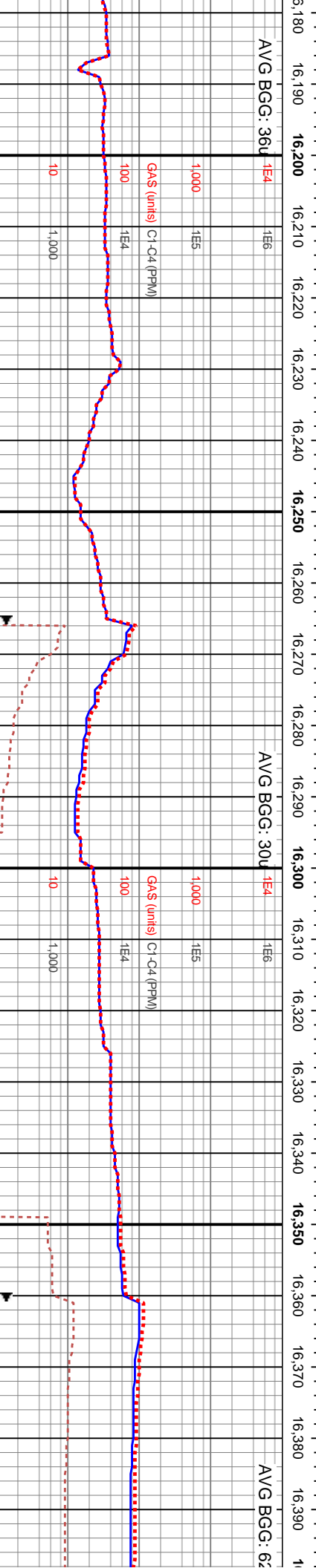
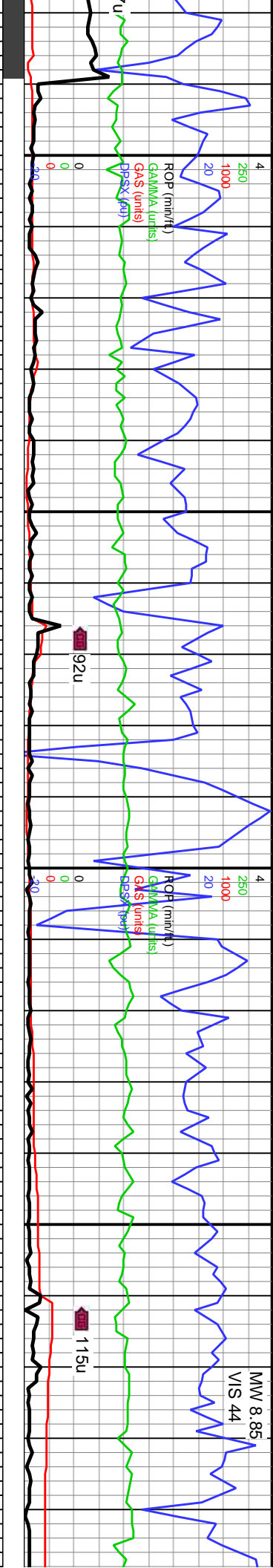
MD: 15,549' TVD: 7,309.06' Inclination: 90.09° Azimuth: 179.77° VS: 8,007.85'		WOB: 43.9klbs Rotary: 61RPM Strokes: 226SPM Pump Rate: 602GPM		MD: 15,644' TVD: 7,309.29' Inclination: 89.63° Azimuth: 179.81° VS: 8,102.57'		MD: 15,740' TVD: 7,309.29' Inclination: 89.63° Azimuth: 179.81° VS: 8,192.57'	
15560-15620 SS: pred med gy-gyshbn, lt gy, abnt lse clr-op grs thru, mod strd, sb ang-sb rd, vf-f grs, gr sup cls, cons wi arg-silic cnt, sl calc, mnr mic pyr, mod yelgn flr, mod mky cut, mod blshwh resdl ring	15620-15680 SS: pred med gy-gyshbn, lt gy-offwht, abnt op-clr unconcs sd, vf-f grs, pred sb ang-sb rd, mod strd, frm-sl fri, gr sup cls wi arg/silic cnt, mnr sh, mod yelgn flr, mod mky cut, mod blshwh resdl ring	15680-15740 SS: med gy-gyshbn, lt gy-offwht, mod strd, sb ang-sb rd, vf-f grs, abnt lse grs, sl hrd-frm, gr sup cls wi arg/silic cnt, mod yelgn flr, mod mky cut, mod blshwh resdl ring, SH (<5%): dk gy, splt, sl calc, frm	AVG BGG: 154u	AVG BGG: 90u	AVG BGG: 90u	AVG BGG: 90u	AVG BGG: 90u
7700							





15740-15800 SS: med gy-gyshbn, lt gy, abnt offwht-op grs thru, mod w srt'd, sb ang-sb rd, vf-f gr, abnt sb ang qtz grs thru, fri-sl frm, gr sup cls wi arg-silic cnt, sl calc ip, mod yelgn flr, mod mky cut, mod blshwh resdl ring	15800-15860 SS (95%): med gy-gyshbn, lt brn clus, vf-f gr, mod srt'd, sb ang-sb rd, frm-sl fri, gr sup cls wi arg-silic cnt, com lse qtz grs, sl calc, mod yelgn flr, mod mky cut, mod blshwh resdl ring; SH (5%): dk gy, spl't, sl calc, frm	15860-15920 SS (95%): pred med gy-gyshbn, lt gy, mod srt'd, sb ang-sb rd, vf-f grs, gr sup cls wi arg-silic cnt, sl calc, mod-bri yelgn flr, mod mky cut, mod blshwh resdl ring; SH (5%) dk gy-v dk gy, sl hrd, plty, slty, sl calc	15920-15980 SS: pred med gy-offwht, vf-f grs, sb ang-sb rd, abnt op-clr grs, gr sup cls, mod w cnt'd, sl calc, mod mky cut, mod blshwh
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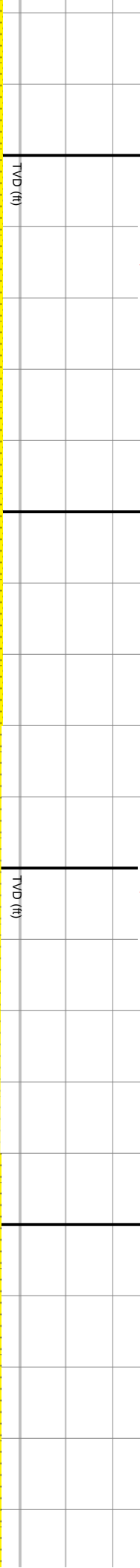


WOB: 25.6klbs 6700
Rotary: 60RPM
Strokes: 226SPM
Pump Rate: 602GPM

MD: 16,212'
TVD: 7,315.37'
Inclination: 88.88°
Azimuth: 181.74°
VS: 8,668.32'

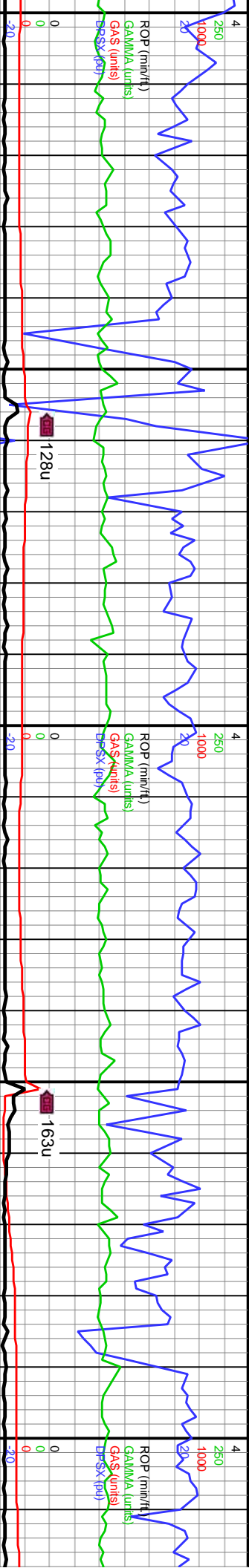
MD: 16,307'
TVD: 7,316.98'
Inclination: 89.19°
Azimuth: 178.3°
VS: 8,763.04'

WOB: 44.4klbs
Rotary: 60RPM
Strokes: 226SPM
Pump Rate: 603GPM

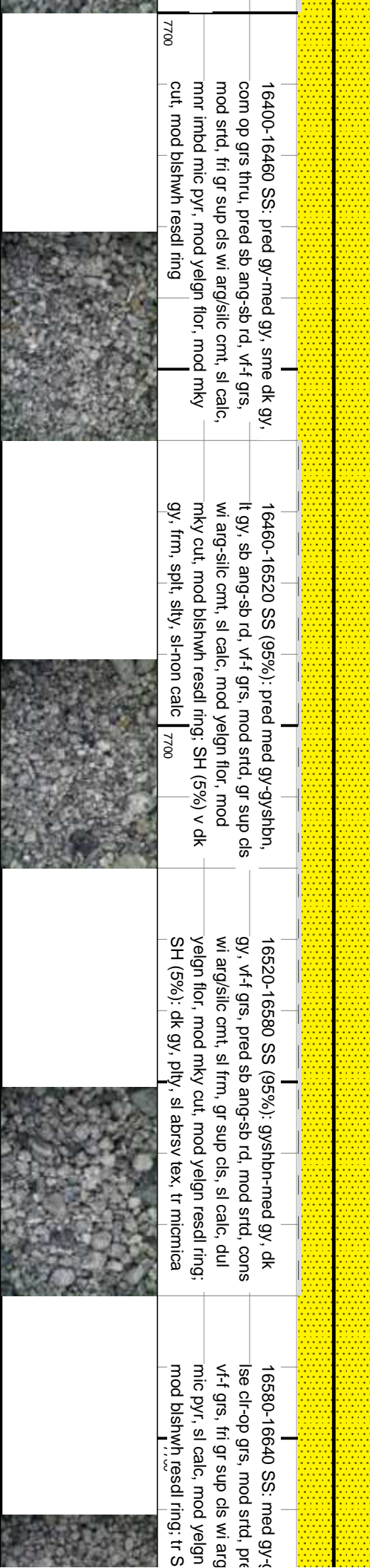


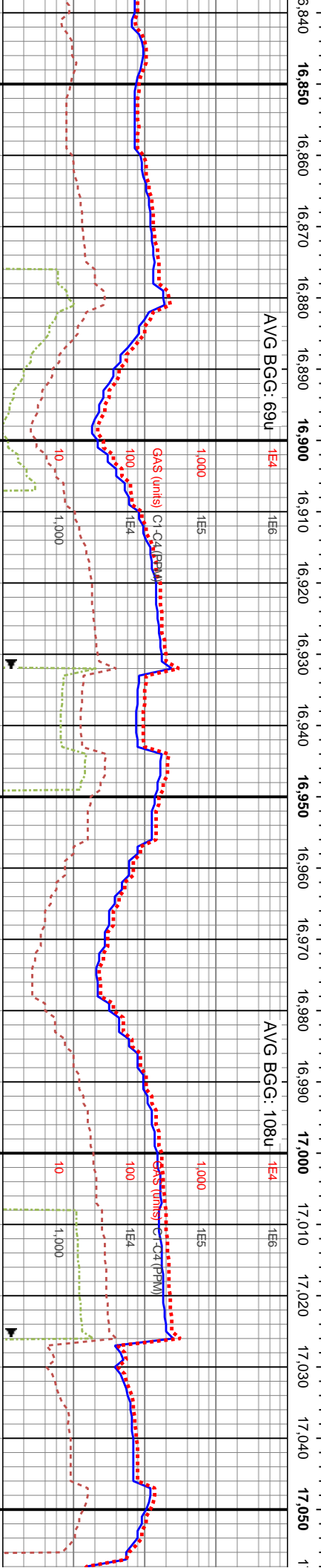
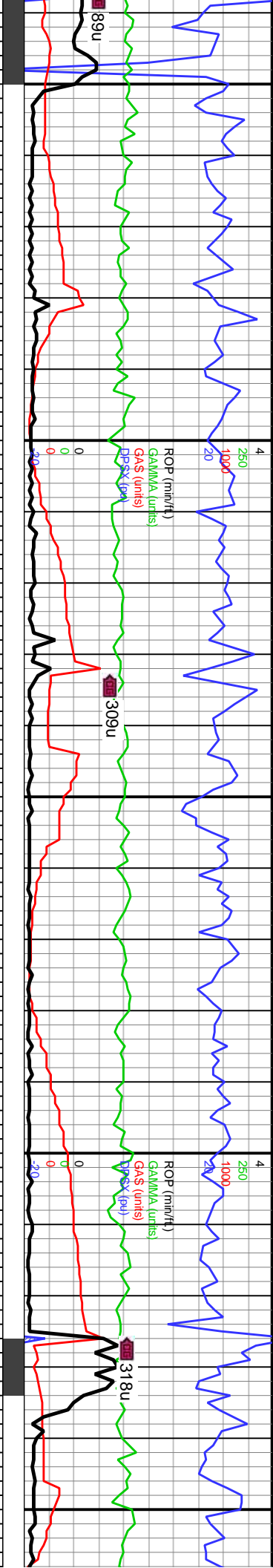
6220 SS (95%): gysbhn-med gy, lt gy, vf-f grs, pred sb ang-sb rd, gr sup s wi arg/silic cnt, sme sl calc, mnr pp SH (5%): dk gy, spl, sme pty, frm-sl calc, occ micnica, rgh tex	16220-16280 SS (95%): gysbhn-med gy, lt gy-offwht clus, sb ang-sb rd, vf-f gr, mod strd, frm, sl calc, gr sup cls wi arg-silic cnt, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring; SH (5%) dk gy, sl hrd, spl, slty, sl calc	16280-16340 SS: predy med gy-gysbhn, lt gy, op grs thru, mod strd, vf-f grs, sb ang-sb rd, fri gr sup cls wi arg/silic cnt, com lse grs, sl calc ip, mod yelgn flor, mod mky cut, mod bishwh resdl ring	16340-16400 SS (95%): mot gysbhn-med gy, offwht, vf-f gr, sb ang-sb rd, gr sup cls wi arg-silic cnt, pred sl calc, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring; SH (5%) dk gy-blk, sl hrd, spl, slty, sl calc
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16400-16460 SS: pred gy-med gy, sme dk gy, com op grs thru, pred sb ang-sb rd, vf-f grs, mod strd, fri gr sup cls wi arg/silic cmt, sl calc, mtr imbd mic pyr, mod yelgn flor, mod mky cut, mod blshwh resdl ring	16460-16520 SS (95%): pred med gy-gyshn, lt gy, sb ang-sb rd, vf-f grs, mod strd, gr sup cls wi arg-silic cmt, sl calc, mod yelgn flor, mod mky cut, mod blshwh resdl ring; SH (5%) v dk gy, frm, splt, slty, sl-non calc	16520-16580 SS (95%): gyshn-med gy, dk gy, vf-f grs, pred sb ang-sb rd, mod strd, cons wi arg/silic cmt, sl frm, gr sup cls, sl calc, dul yelgn flor, mod mky cut, mod yelgn resdl ring; SH (5%): dk gy, ply, sl abrvy tex, tr micnica	16580-16640 SS: med gy-rd, lse clr-op grs, mod strd, pred sb ang-sb rd, vf-f grs, fri gr sup cls wi arg mic pyr, sl calc, mod yelgn mod blshwh resdl ring; tr S
MD: 16,402' TVD: 7,318.04' Inclination: 89.53° Azimuth: 177.96° VS: 8,857.5'	MD: 16,497' TVD: 7,318.35' Inclination: 90.09° Azimuth: 178.28° VS: 8,951.96'	MD: 16,593' TVD: 7,317.94' Inclination: 90.4° Azimuth: 178.31° VS: 9,047.45'	WOB: 39Klbs Rotary: 70RPM Strokes: 226SPH Pump Rate: 603
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)





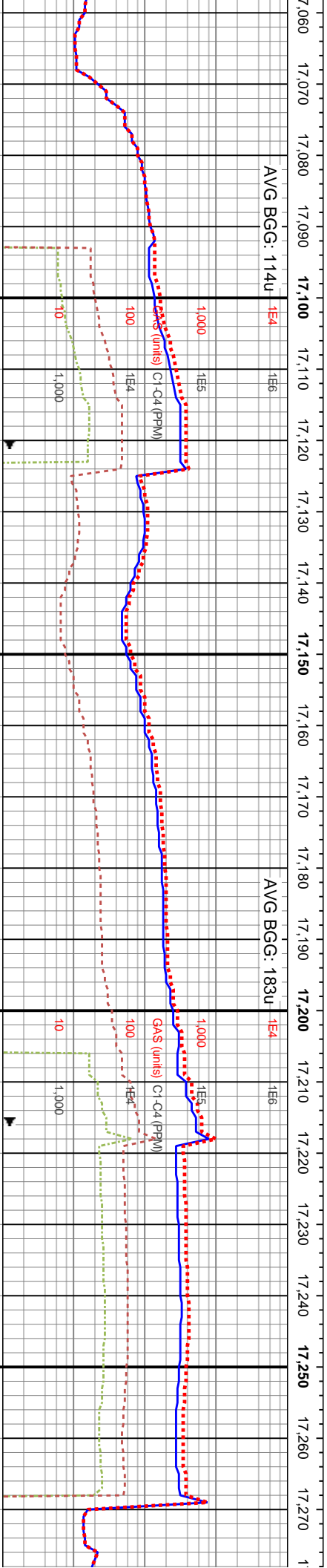
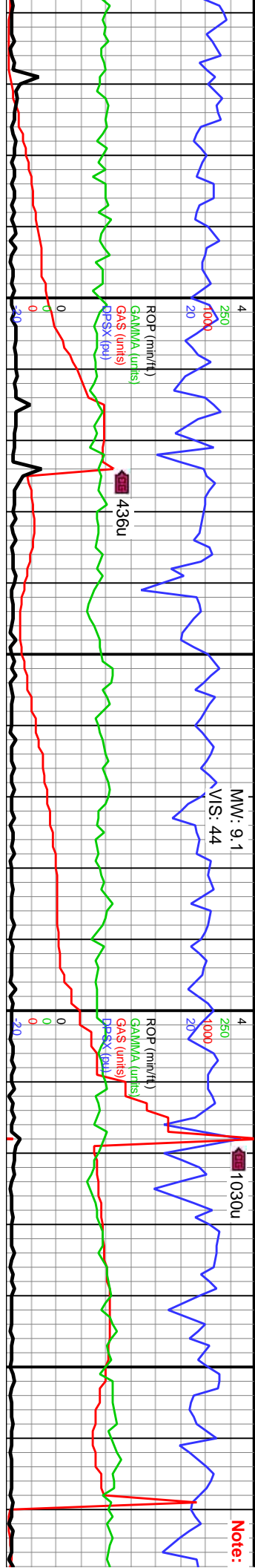
MD: 16,878'
TVD: 7,318.87'
Inclination: 88.92°
Azimuth: 181.12°
VS: 9,331.49'

MD: 16,972'
TVD: 7,320.85'
Inclination: 88.67°
Azimuth: 181.13°
VS: 9,425.33'

WOB: 39klbs
Rotary: 50RPM
Strokes: 226SPM
Pump Rate: 604GPM

16880-16940 SS: dk gy-med gysbhn, oftwt-lt brn, vf-f grs, chr abnt unconcs sd, sl fri-hrd, mod srtd, pred sb ang-sb rd, gr sup cls, cons wi arg/silic cmnt, sme bri yelgn flor, mod mky cut, mod yelgn resdl ring	16940-17000 SS: predy med gy-gysbhn, lt gy, vf-uf grs, sb ang-sb rd, op grs thru, mod srtd, fri gr sup cls, cons wi arg/silic cmnt, com lse grs, sl calc ip, bri yelgn flor, mod mky cut, mod yelgn resdl ring	17000-17060 SS: predy med gy-gysbhn, lt gy, op grs thru, mod srtd, vf-uf grs, sb ang-sb rd, fri gr sup cls wi arg/silic cmnt, mnr scat/pp mic pyr, sl calc ip, mod-bri yelgn flor, mod mky cut, mod blshwn resdl ring
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MD: 17,067'
VTD: 7,322.6'
Inclination: 89.22°
Azimuth: 182.84°
VS: 9,520.24

MD: 17,162'
TVD: 7,323.4'
Inclination: 89.81°
Azimuth: 181.18°
VS: 9,615.16

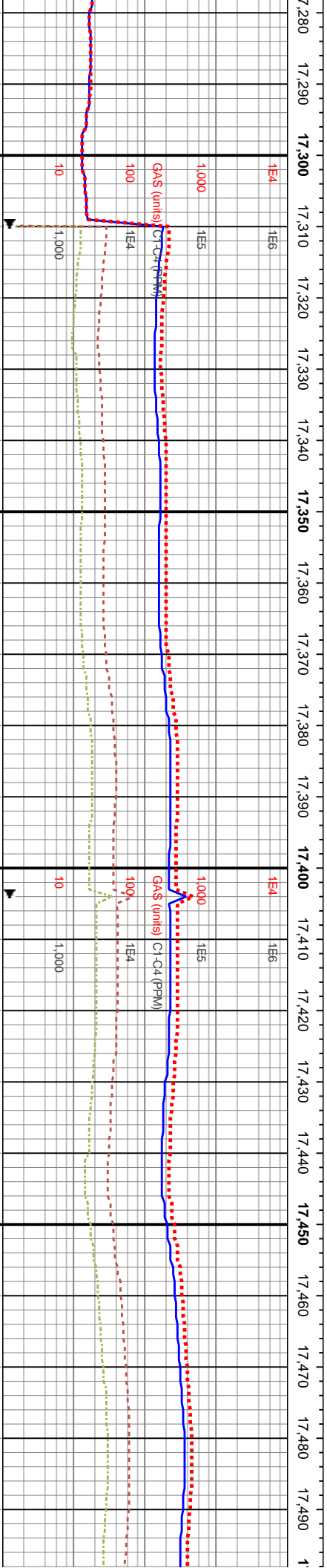
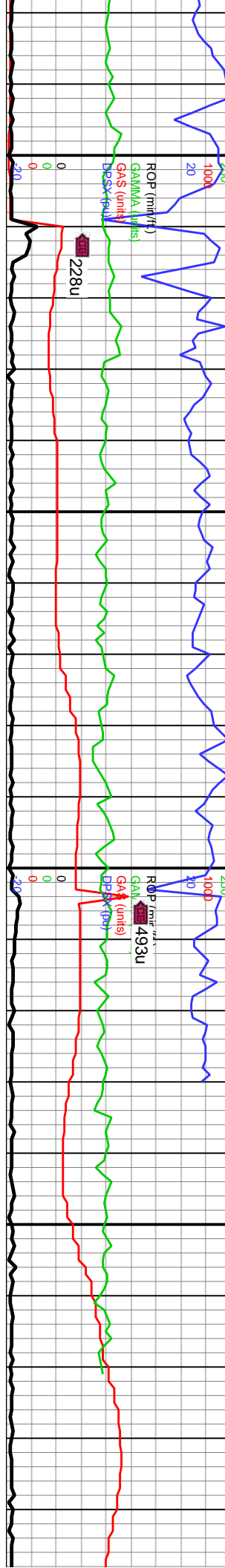
WOB: 41.4kls
Rotary: 45RPM
Strokes: 226SPM
Pump Rate: 602GPM

MD: 17,256'
TVD: 7,323.41'
Inclination: 90.18°
Azimuth: 179.94°
VS: 9,708.97'

17060-17120 SS: pred med gy-gyshbn, lt gy-offwht, abnt op-clr unconcs sd, v-f grs, pred sb ang-sb rd, mod strd, frm-sl fri, gr sup cls wi arg-silic cmt, mnr sh, mod yelgn flor, mod mky cut, mod bishwh resdl ring, 30	17120-17180 SS: med gy-gyshbn, lt brn clus, abnt lse f sb ang qtz grs, v-f gr, sb ang-sb rd, mod strd, frm-sl fri, gr sup cls wi arg-silic cmt, non-sl calc, mod yelgn flor, mod mky cut, mod bishwh resdl ring	17180-17240 SS: pred med gy-gyshbn, lt gy-offwht, v-f grs, sb ang-sb rd, mod strd, abnt op-clr grs, gr sup cls, cons wi arg-silic cmt, mod w cmt, sl calc, mod-bri yelgn flor, mod mky cut, mod bishwh resdl ring	17240-17300 SS: med gy-gyshbn, lt v-f gr, sb ang-sb rd, mod strd, sup cls, cons wi arg-silic cmt, mod yelgn flor, mod mky cut, mod bishwh resdl ring
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Work on Mud Pumps



6700	MD: 17,351' TVD: 7,322.73' Inclination: 90.64° Azimuth: 179.25° VS: 9,803.66'	WOB: 37.3klbs Rotary: 66RPM Strokes: 224SPM Pump Rate: 596GPM	TVD (ft)
			TVD (ft)

ysbhn, lt brn clus, td, frm-sl fri, gr t, lse f sb ang qtz flor, mod mky	17300-17360 SS: pred gyshbn-med gy, occ clr grs, mod strd, sb ang-sb rd, vf-uf grs, sb ang qtz grs thru, mod-w cmtd, fri gr sup cls wi arg-silic cnt, sl calc ip, mnr imbd mic pyr, mod yelgn flor, mod mky cut, mod yelgn resdl ring	17360-17420 SS: pred gyshbn-med gy, sme dk gy, clr grs thru, mod strd, vf-f gr, pred sb ang-sb rd, sb ang-sb rnd qtz grs, fri gr sup cls wi arg/silic cnt, mod-bri yelgn flor, mod mky cut, no-tr lt bl resdl ring	17420-17480 SS: pred med gy-gyshbn, lt brn, clr grs thru, mod strd, vf-f grs, pred sb ang-sb rd, ang-sb rd qtz grs, unconcs qtz grs, fri gr sup cls, cons wi arg/silic cnt, mod-bri yelgn flor, mod mky cut, mod blshwh resdl ring
7700	7700	7700	

