



Empirica

Scale: 5" / 100'
Measured Depth Log

Well Name Breniman 6 Horizontal

Location Sec. 16-T6N-R67W

State Colorado

Country USA

API Number 05-123-40420

Geographic Region DJ Basin

Spud Date 7/13/2016

Surface Coordinates SHL: 582' FNL, 2070' FWL, Sec. 16

Lat: 40.492519 / 40° 29' 33.0684"

Long: -104.900208 / -104° 54' 0.7488"

Bottom Hole Coordinates PBHL: 1023' FNL & 460' FWL, Sec 18

Lat:

Long:

Ground Elevation 4,796'

K.B. Elevation 4820.5'

Logged Interval 5,000' MD To 17,320'

Total Depth 17,320'

Formation Codell

Type of Drilling Fluid Oil Based Mud

Operator

Company Extration Oil & Gas

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

Geologist

Name Vivian Spiess / Jared Rouse

Company Extration Oil & Gas

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



Other

Equipment ML-166

Comments Start: 7-13-16
TD: 7-16-16

Services Provided 2-man Logging
On Site Geosteering

Logger Names Dominic Pitre/ Mark C

Address Empirica, LLC.
6360 W Sam Houston
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

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLUTE

PLANT REMAINS

SCAPHOPOD

STROMATOPOROID

ECHINOID

FISH

FORAMINIFERA

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

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 S

ORGANIC

PINPOINT

DEAD

VUGGY

EVEN

QUESTIONABLE

OIL 1

NOR

OVER

REVE

SIDE

SIDE

Engineering

Porosity

E EARTHY

F FENESTRAL

F FRACTURE

INTERCRYSTALLINE

INTEROOLITIC

MOLDIC

CONNECTION (RIGHT)

CONNECTION (LEFT)

CORE - LOST

CORE - RECOVERED

DST INTERVAL

FAULT

WIRE

WIRE

WIRE

WIRE

WIRE

WIRE

Plkwy N

Gross

Symbols

FORMATION TOP L LITHOGRAPHIC

Rounding

SHOW M~~X~~ MICROXLN

TH MN DEPTH A~~.~~ ANGULAR M~~S~~ MUDSTONE

WAL FAULT R~~.~~ ROUNDED P~~S~~ PACKSTONE

SHOW B~~.~~ SUBANG W~~S~~ WACKESTONE

RTURNED STRATA P~~.~~ SUBRND

Sorting

ERSE FAULT

Textures

WALL CORE (LEFT) M~~.~~ MODERATE

WALL CORE (RIGHT) B~~S~~ BOUNDSTONE P~~.~~ POOR

C~~.~~ CHALKY W~~.~~ WELL

RVEY C~~X~~ CRYPTOXLN

P GAS E~~.~~ EARTHY

LINE TESTED - LEFT F~~X~~ FINELYXLN

LINE TESTED - RT G~~S~~ GRANSTONE

ROP
ROP
GAMMA
GAS

Extraction OG
Weld County, Colorado
Spud Date: 7-13-16
2-man logging / Geosteering Began: 7-13-16
100 units = 1% Methane
10000 units = 100% Methane

Breniman 6

ROP (min/ft)
GAMMA (units)
GAS (units)

Sharon Springs
7176' MD
6840' TVD

Niobr
7227'
6884'

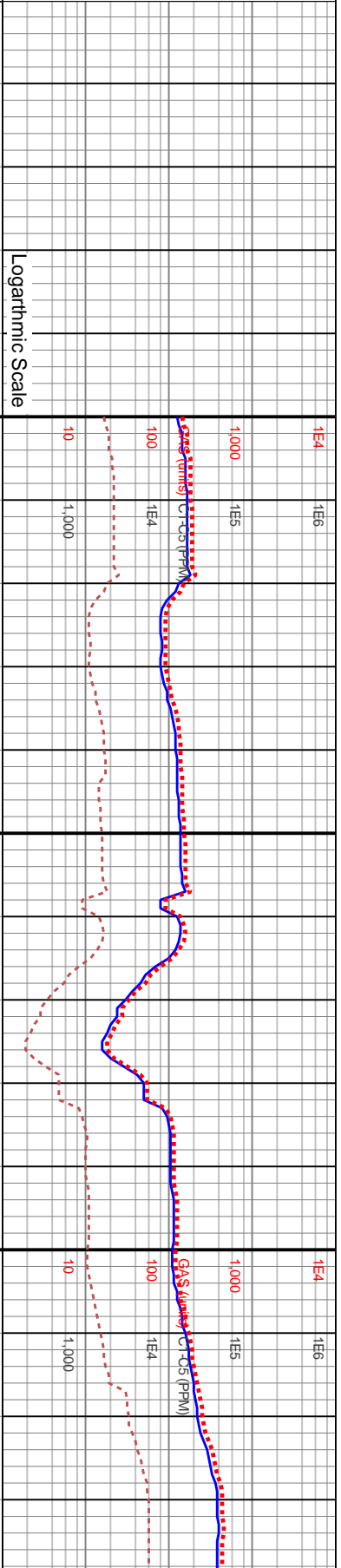
Slide/Rotate

Depth Labels

7,060 7,070 7,080 7,090 7,100 7,110 7,120 7,130 7,140 7,150 7,160 7,170 7,180 7,190 7,200 7,210 7,220 7,230

Total Gas & Chromatograph

GAS
C1
C2
C3
C4
C5



Logarithmic Scale

Well Bore
TVD

TVD (ft)

TVD (ft)

TVD (ft)

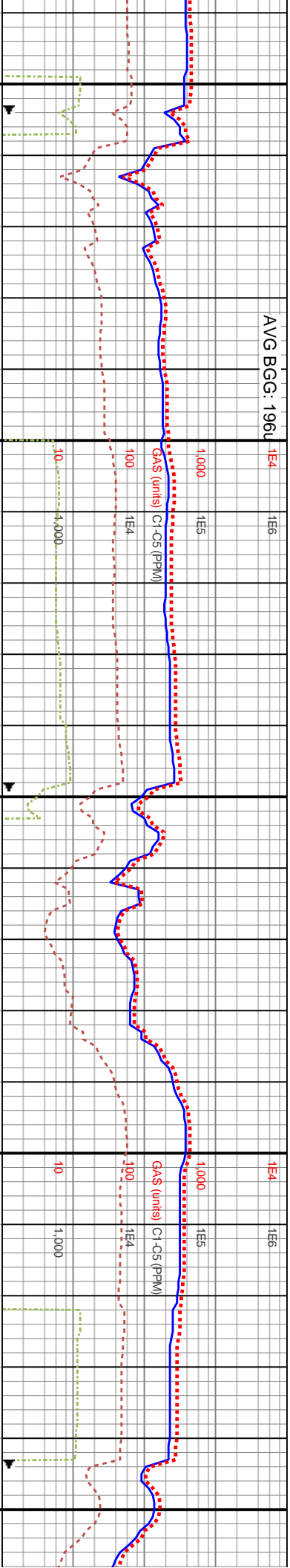
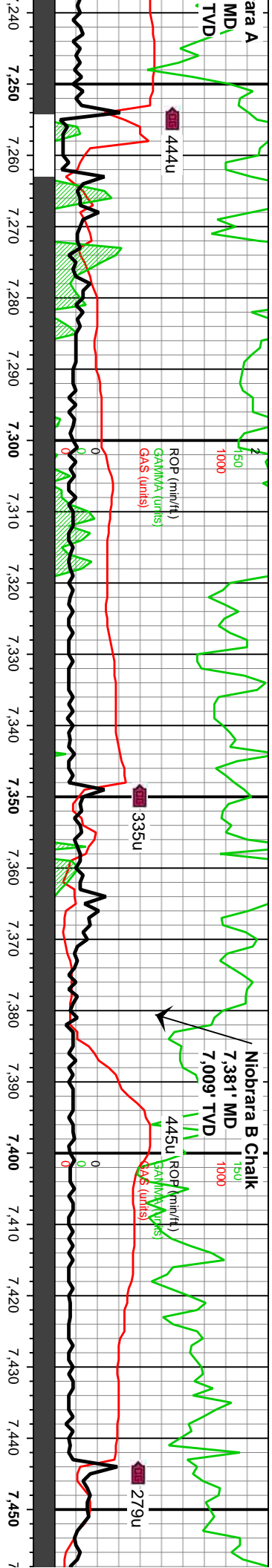
7100-7160 SH (90%): med gy-dk gy, frm, sl hydrated, med-hi fis, sb ang-tab ctgs, mnr micnica, tr pp mic pyr, sl-mod calc; SLTST (10%): med gy-dk gy, spl-pty ctgs, silc, slty-abrsv tex, non calc

7160-7220 SH (75%): predy dk gy-med gy, mot gy/shbn, med frm-sl hrd, mod fis, sb ang-sb blkty ctgs, tr imbd/pp mic pyr, mrlly intbdd, mod calc; MRLST (25%): predy med gy, sl spl-pty, sm-sl slty, mod-hi calc

7220-7227 SH (100%): frm, sb slty-sm, gy-gy/sh blkty-sb intbds, v

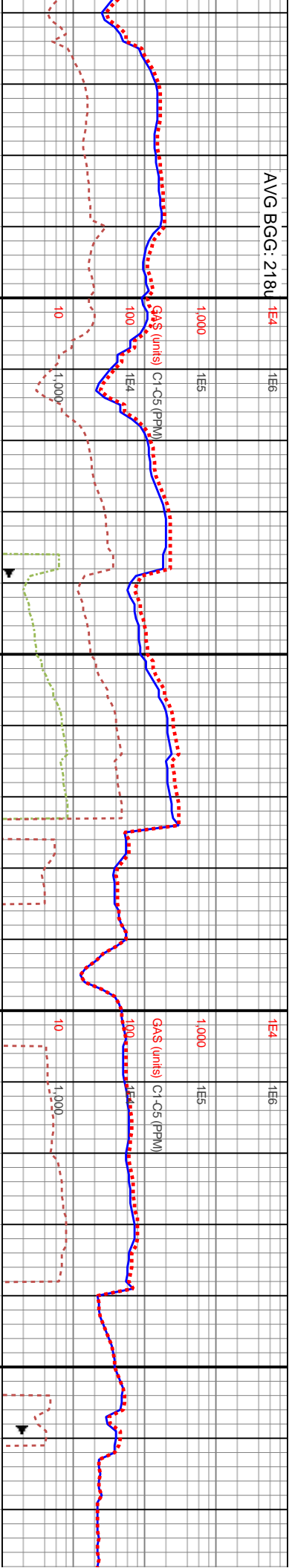
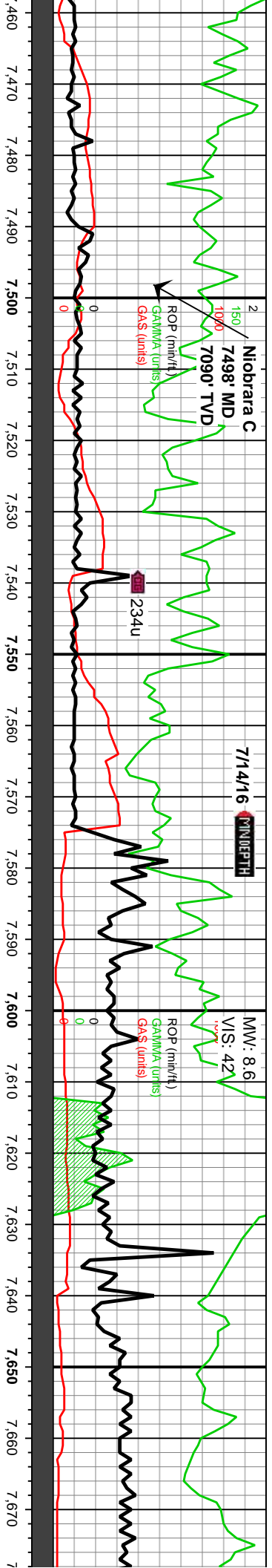
Images





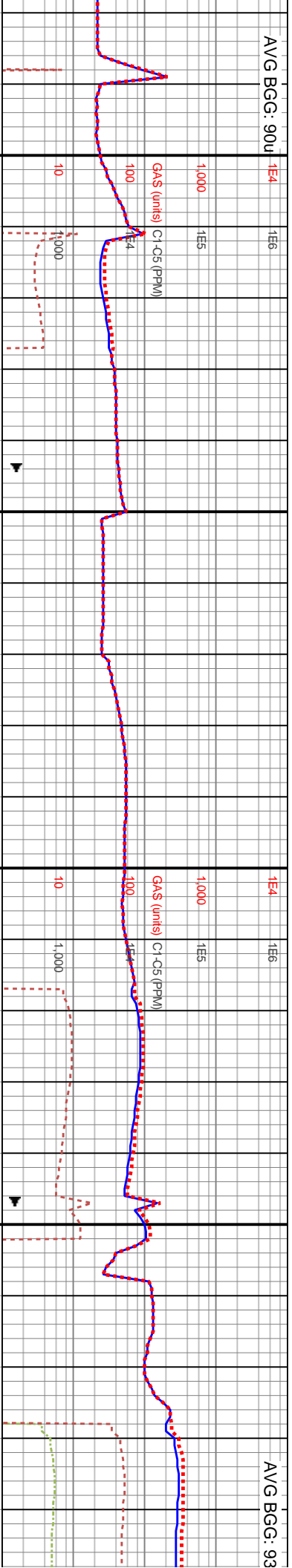
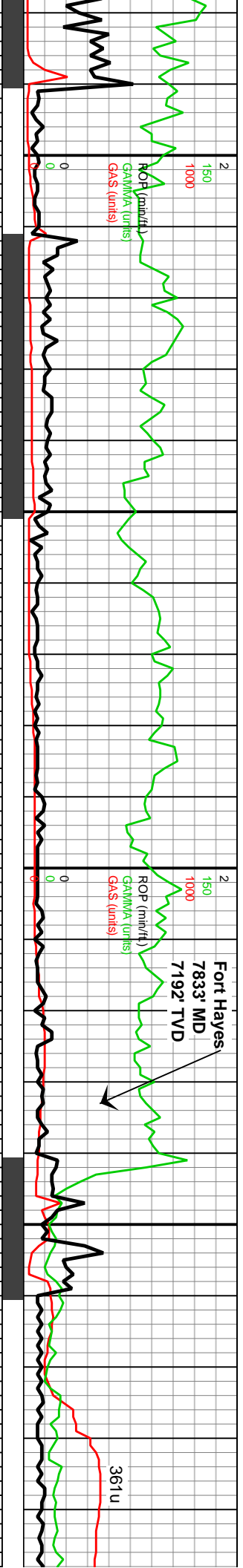
7280-7340 MRLST (60%): dk gy-med gy, sl ply, com chky inbds, mod calc, sl tr pp mic pyr, tr calc; CHK (40%): med bn, lt gysbhn mot, frm-sl frm, sb ply, predy mod arg, occ sb ply mrl occ incl	7280-7340 MRLST (75%): predy med gy, mot gysbhn-dk gy, sl frm, mod fis, sb ang-sb blk ctgs, mot lt brn incl, mod calc; CHK (25%): lt gy-gysbhn, frm-brt, com offwht chky lamm & f chky incl, sb blk-ly-sb tab ctgs, sl-mod calc	7340-7400 MRLST (60%): med gy-dk gy, mot brn-th mrl incl, frm-brt, mod fis, sb spt ctgs, tr mic pyr, mod calc; CHK (40%): lt gy-gysbhn, com lt brn, frm-brt, sb ang-sb tab ctgs, thn crm chky lamm & v chky incl, mod-hi calc	7400-7460 MRLST (65%): med gy-dk gy, mot gysbhn thru, frm-sl brt, mod fis, sb ang-sb blkly ctgs, tr lse cal, mod calc; CHK (35%): predy crm-gysbhn, sl frm-brt, offwht chky lamm, sb blkly-sb ang ctgs, tr pp/lmbd mic pyr, mod calc
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MD: 7,476' TVD: 7,077.06' Inclination: 48.43° Azimuth: 268.8° VS: 1,925.88'	WOB: 23.1klbs Rotary: 0RPM Strokes: 210SPM Pump Rate: 609GPM	MD: 7,571' TVD: 7,134.23' Inclination: 57.45° Azimuth: 267.01° VS: 2,001.65'	MD: 7,618' TVD: 7,156.58' Inclination: 65.71° Azimuth: 268.52° VS: 2,042.95'	6200				
7460-7520 MRLST (60%): predy med gy-dk gy, sme brn-gyshbn mot thru, frm-hd, sl frm, pred sb pty-sb blk, intbdd chk lamm, cal incl; CHK (40%): pred med gy-gyshbn, oftwht-crm mot thru, frm-hd, sb blk, mod arg thru, tr lse-frac fl cal, tr pp mic pyr	8200	7520-7580 MRLST (70%): pred med- dk gy, occ sl blk, gy- bf- brn mot thru, sb blk- sb pty, sme split, pred frm- hd, mod gy- lt gy chky intbds, rr pyr, sme sl silty, CHK (30%): lt gy- gy, intbds, rr pyr, pred sb blk, sl frm, sl arg thru	7580-7620 MRLST (90%): pred med- dk gy, ip sl blk- brn, gy- bf- brn mot thru, sb blk- sb pty, sme split, pred frm- hd, sme calc incl, mod gy- lt gy chky intbds, rr pyr, sme sl silty, CHK (10%): lt gy- gy, occ sl tn, pred sb blk, sl frm, sl arg thru	8200	7620-7660 MRLST (90%): pred med- dk gy, ip sl blk- brn, gy- bf- brn mot thru, sb blk- sb pty, sme split, pred frm- hd, sme calc incl, mod gy- lt gy chky intbds, rr pyr, sme sl silty, CHK (10%): lt gy- gy, occ sl tn, pred sb blk, sl frm, sl arg thru	8200	7620-7710 MRLST (90%): pred med- dk gy, ip sl blk- brn, gy- bf- brn mot thru, sb blk- sb pty, sme split, pred frm- hd, sme calc incl, mod gy- lt gy chky intbds, rr pyr, sme sl silty, CHK (10%): lt gy- gy, occ sl tn, pred sb blk, sl frm, sl arg thru	8200

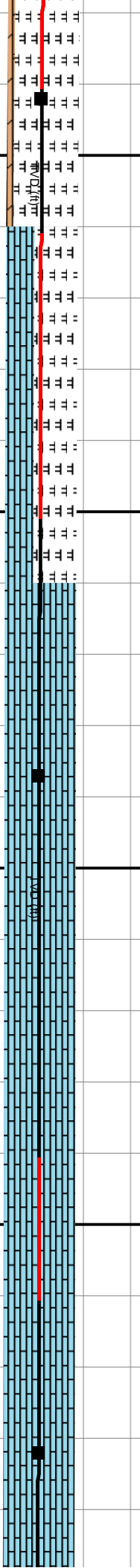




MD: 7,692'
TVD: 7,179.07'
Inclination: 78.83°
Azimuth: 271.25°
VS: 2,113.2'

MD: 7,787'
TVD: 7,190.38'
Inclination: 87.48°
Azimuth: 270.15°
VS: 2,207.26'

MD: 7,882'
TVD: 7,193.66'
Inclination: 88.56°
Azimuth: 268.2°
VS: 2,302.15'

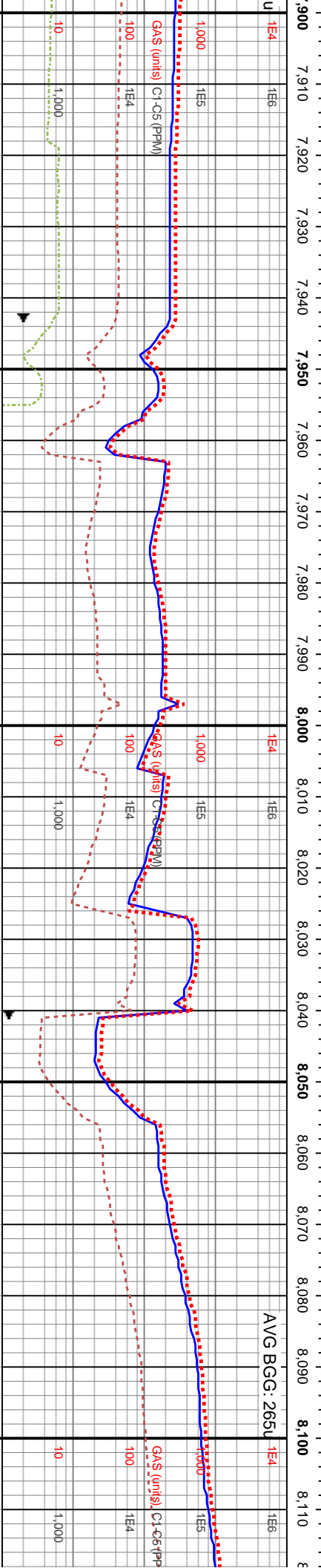
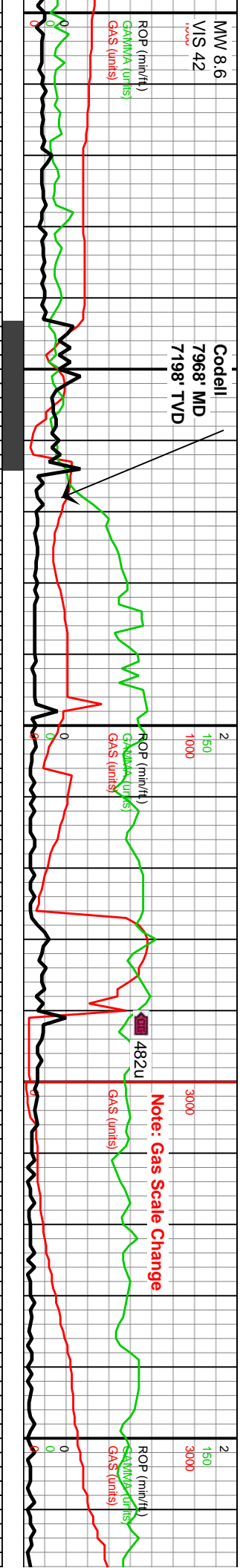


7710-7760 MRLST (60%): pred med- dk gy, ip
sl blk- brn, gy- bf- brn mot thru, sb blk- sb
ilty, sme split, pred frm- hd, sme calc incl,
mod shy intbds, tr gy- lt gy chky intbds, rr pyr,
sme sl stly: LS (40%): gy- med gy- brn, sme
dk brn, frm-hd, sb blk- blk thru, microxn-
cryptoxin

7760-7820 LS: gy- med gy- brn, lt gy- brn mot
thru, sme dk brn, frm-hd, sb blk- blk thru,
microxn- cryptoxin

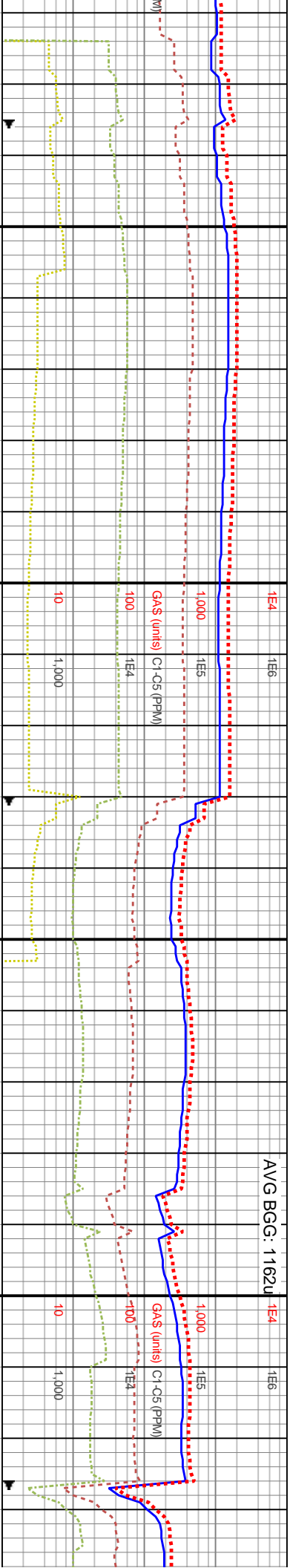
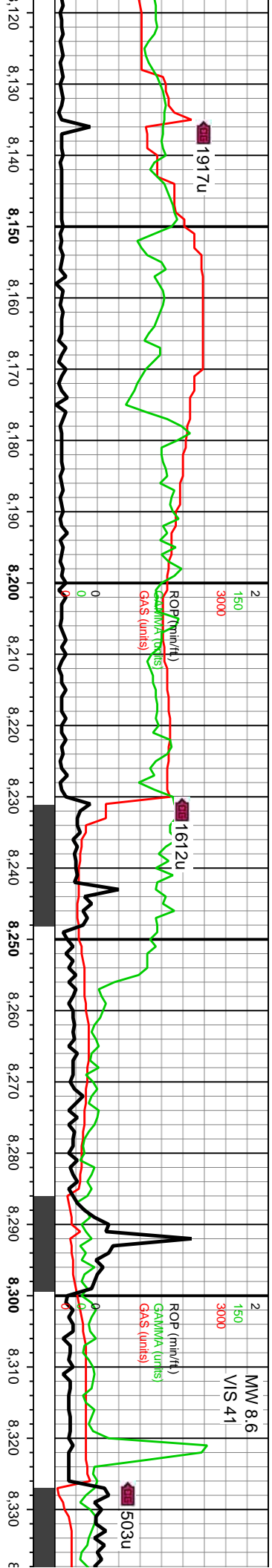
7820-7880 LS: gy- med gy- brn, lt gy- brn mot
thru, sme dk brn, frm-hd, sb blk- blk thru,
microxn- cryptoxin





6200		MD: 7,978'	WOB: 28.8klbs	6200
		TVD: 7,198.51'	Rotary: 50RPM	
		Inclination: 85.67°	Strokes: 240SPM	
		Azimuth: 268.99°	Pump Rate: 694GPM	
		VS: 2,397.94'		
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4400-4500	4400-4500			440





MD: 8,168'
TVD: 7,200.79'
Inclination: 91.24°
Azimuth: 266.72°
VS: 2,587.83'

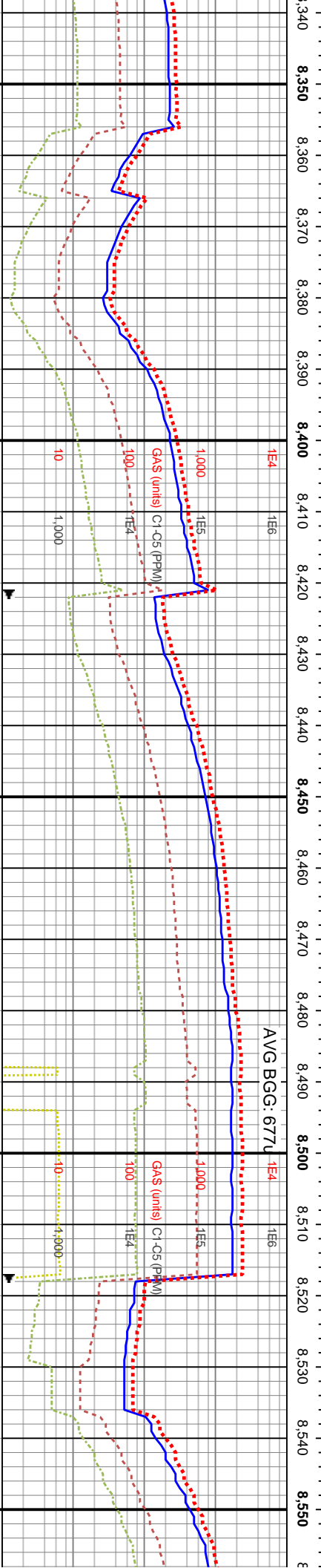
6200

MD: 8,264'
TVD: 7,198.26'
Inclination: 91.78°
Azimuth: 268.14°
VS: 2,683.79'

6200

AVG BGG: 1162u

8120-8180 SS: gyshbn-lt gy, lt brn mot thru, occ offwht, com op-clr grs, frm-fri clus, sme hd, v-f gr, mtx sup clus, ip grn sup, sb rd-sb ang grs, tr scat/pp mic pyr, occ sl arg intbds		8180-8240 SS: gyshbn-lt gy, offwht-lt brn mot thru, com lee sb ang qtz grs, trnsf-trnsp grs, frm-fri clus, v-f gr, mtx-grn sup clus, sb rd-sb ang grs, sil-arg cmf, tr pp/lmbd mic pyr		8240-8300 LS (65%): offwht-v lt gy microxin pkst-wkst wi chky lstr, trnsf brn crpxln mudst wi wxy lstr; SS (35%): offwht-lt gy, arg intbd ip, mod strd v-f-uf, sb rd-rd sd, frm-sl fri, gr-mtx sup clus wi silc cmf, sl calc		8300-8360 LS: predy lt gy- gy, occ dk gy, frm-hd, sb cab grs, microxin-cryptoxl sh intbds	



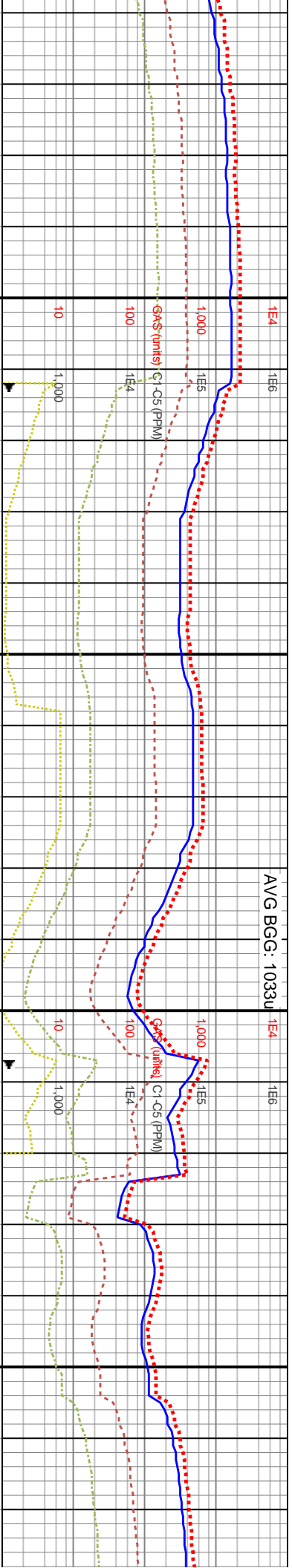
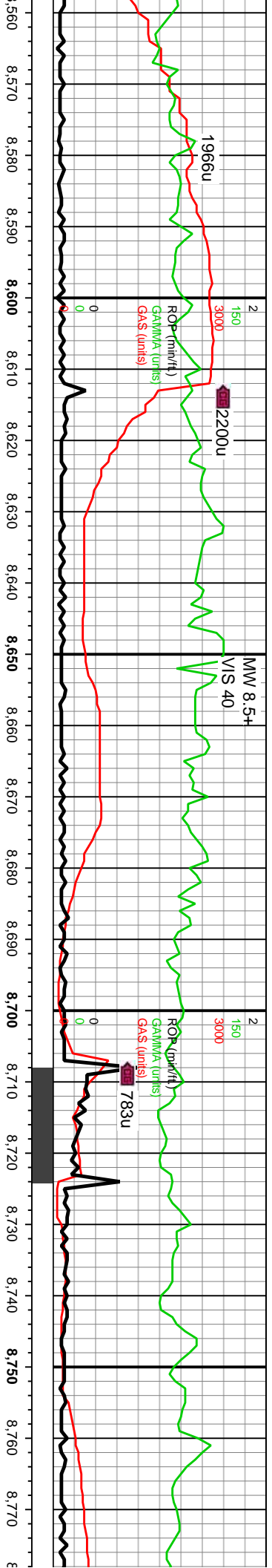
MD: 8,455'
TVD: 7,202.4'
Inclination: 85.74°
Azimuth: 268.94°
VS: 2,874.61'

WOB: 39.4klbs
Rotary: 70RPM
Strokes: 239SPM
Pump Rate: 694GPM

MD: 8,550'
TVD: 7,208.59'
Inclination: 86.78°
Azimuth: 268.95°
VS: 2,969.37'

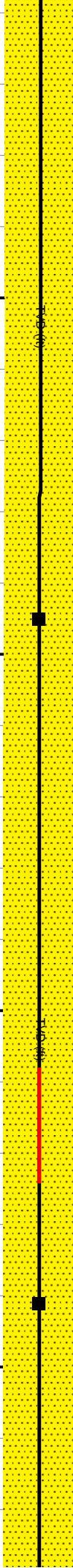
8360-8420 SS (45%): lt gy-brn, ip tmsl, sme lt brn-gyshbn, sme mtg-grn sup clus, pred f-vf grs, mod uncon sd grs, sb rd-sb ang grs, abnt sil cmt, ip arg cmt; LS (55%): lt gy-crm, med gy ip, wxy lstr, frm sb blk-ly-tab clgs, cpxln-microxln, hi calc	8200	8420-8480 SS: med gy-gyshbn, dk gy-lt brn mot thru, ip offwht, tmsl grs, frm-fri clus, vf-f gr, mtg-grn sup clus, predy sb rd- sb ang grs, mod calc cmt, sme sil-arg cmt, tr imbd mic pyr	8200	8480-8540 SS: gysbhn-lt gy, med gy-lt brn, com tmsl grs thru, pred grn sup clus, ip mtg sup clus, vf-f grs, frm-sl fri, sb rd- sb ang grs, ip ang grs, abnt sil cmt, occ sl arg, tr pp mic pyr	8200	8540-8600 SS: med gy-lt brn, mot thru, ip offwht, tmsl grs, frm-fri clus, vf-f gr, mtg-grn sup clus, predy sb rd- sb ang grs, mod calc cmt, sme sil-arg cmt, tr imbd mic pyr	8200





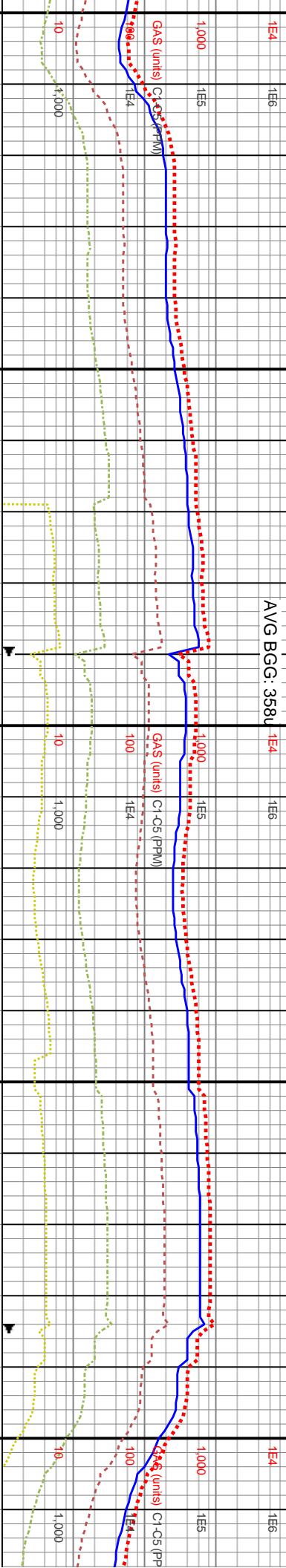
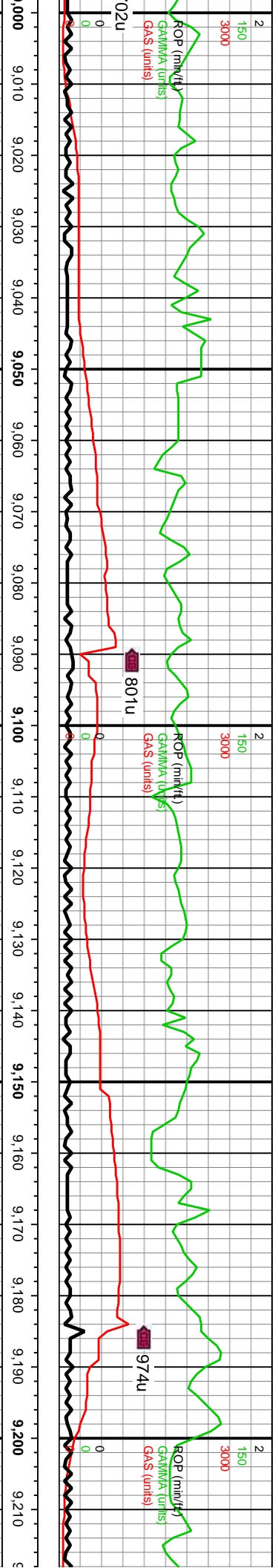
MD: 8,645'
TVD: 7,213.17'
Inclination: 87.69°
Azimuth: 268.2°
VS: 3,064.23'

MD: 8,741'
TVD: 7,215.44'
Inclination: 89.6°
Azimuth: 269.92°
VS: 3,160.15'

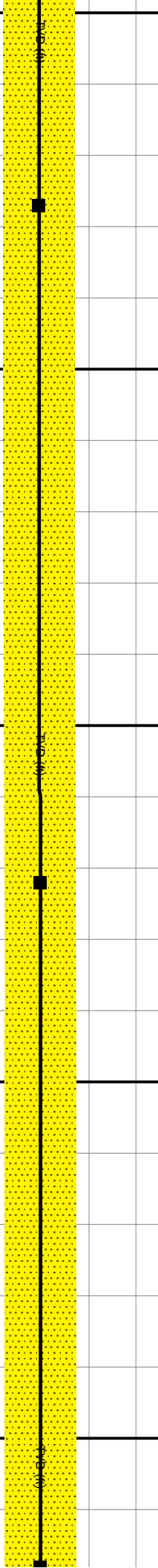


8500 SS: med gy-gy, occ dk gy-lt brn i, ip offwht, sme tmsl grs, pred frm-fri grs, occ f grnd sd, mtx-grn sup clus, ang grs, abnt calc cntl, sme sil-arg pyr	8600-8660 SS: gy-gy brn-lt gy ip, v-f u f sb rd-rd sd grs, mod strd, frm-sl fri, pred gr sup clus cons wi wh silc/arg cntl, occ mtx sup clus, sl-mod calc, tr mic pyr	8660-8720 SS: predy med gy-lt gy, mot gysbhn, mod strd, v-f gr, sb ang-sb rd grs, frm-sl fri, gr sup cls cons wi silc/arg cntl, tr mtx sup cls, non-sl calc, tr pp/mbd mic pyr	8720-8780 SS: med gy-gy, occ lt gy-lt brn mo thru, ip offwht, mod tmsl grs, frm-fri clus, pred v-f grs, ip ut-f grs, grn sup clus, sb rd-sb ang grs, mod uncons qtz grs, sl calc cntl, sme sil- arg cntl, tr pyr
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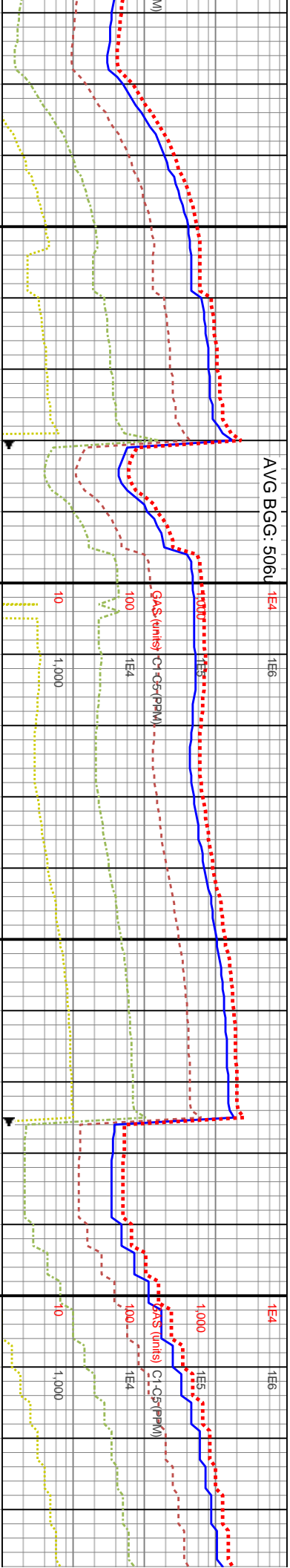
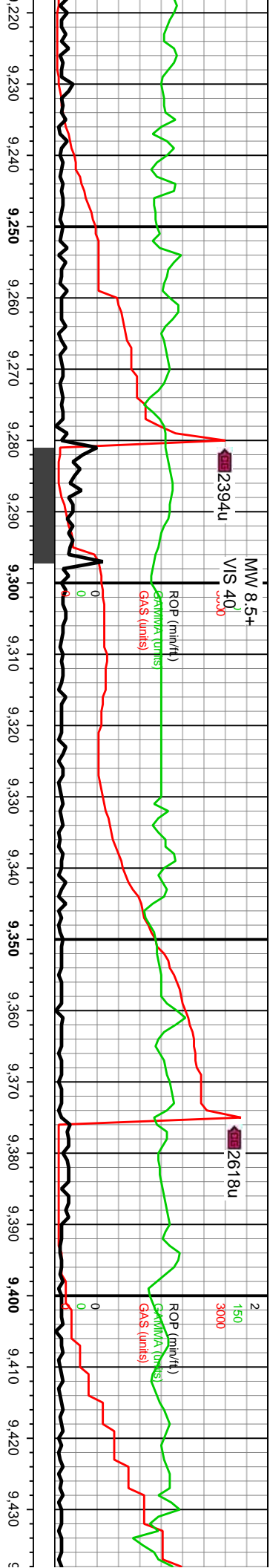


2kips 5RPM 2239SPM ate: 694GPM	MD: 9.027' TVD: 7,213.34' Inclination: 90.84° Azimuth: 269.12° VS: 3,445.82	6200	MD: 9.122' TVD: 7,212.15' Inclination: 90.6° Azimuth: 268.55° VS: 3,540.77	6200	MD: 9.211' TVD: 7,212.15' Inclination: 90.6° Azimuth: 268.55° VS: 3,636
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gyshbn, mot offwht, rts, frm-sl fri, mod-p p cls, gr sup cls wi yr, non-sl calc	9020-9080 SS: predy lt gyshbn-lt gy, mot med gy, mod strd, vf-f gr, sb rd-sb ang, frm-sl fri, gr sup cls cons wi arg-silic cnt, tr scat/pp mic pyr, non-sl calc, abnt lse sb ang clr qtz grs	9080-9140 SS: med gy-gy, occ lt gy, ip offwht, mod trnsi grs, pred frm-fri clus, vf-f grs, grm sup clus, pred sb rd-sb ang grs, mod uncons qtz grs, abnt calc cnt, sme sil-arg cnt, tr pyr	9140-9200 SS: gy-gy brn, occ lt gy, vf-u f sb rd-rd sd grs, mod strd sli fri pred gr sup SS clus cons wi wh silic cnt & brn arg cnt, occ mtz sup clus, calc grs thru, mod calc	9200-9260 SS: mod strd, vf-f gr, sb rd-sb ang, frm-sl fri, gr sup cls cons wi arg-silic cnt, tr scat/pp mic pyr, non-sl calc, abnt lse sb ang clr qtz grs
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MD: 9,313'
TVD: 7,208.43'
Inclination: 90.7°
Azimuth: 269.96°
VS: 3,731.62'

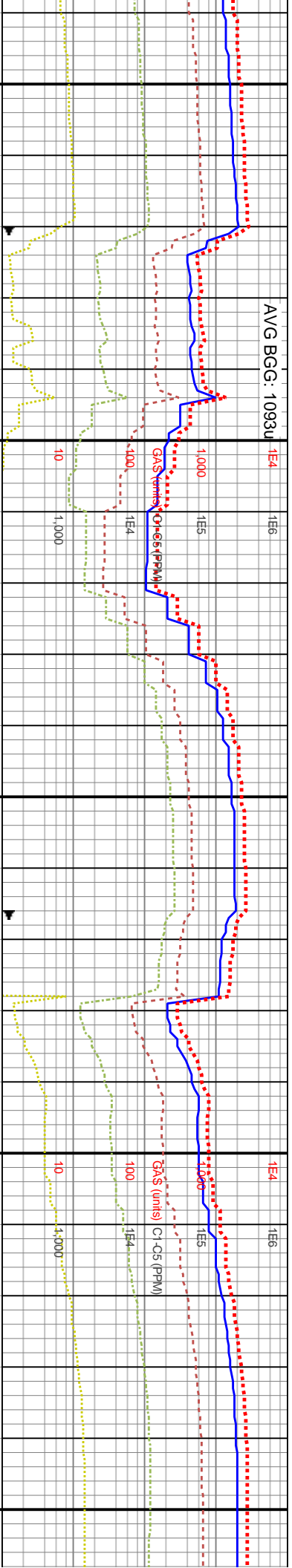
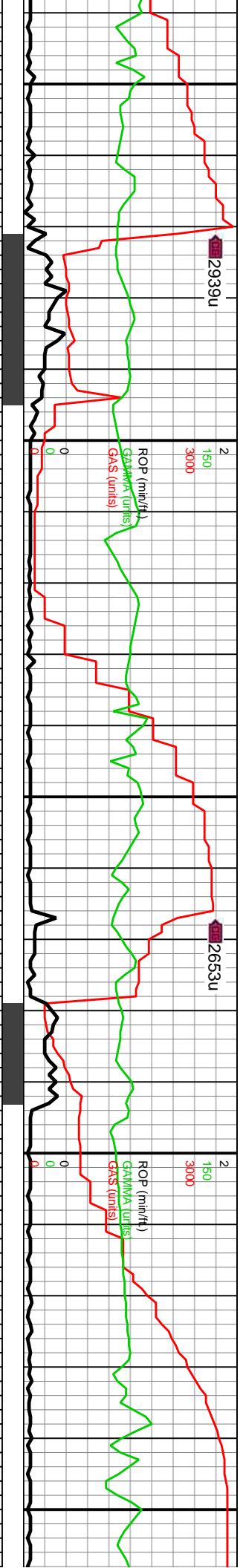
MD: 9,408'
TVD: 7,206.46'
Inclination: 91.68°
Azimuth: 270.09°
VS: 3,826.49'

9260-9320 SS: lt gy-gyshbn, dk gy, offwht, mod strd, vt-uf gr, sb ang-sb rd sd grs, frm-sl fri gr sup cls, cons wi silc/arg cnt ip, mtx sup ip, non-sl calc, tr imbd mic pyr

9320-9380 SS: predy gy-shbn, mot med gy-dk gy, p-mod strd, vt-f gr, occ uncons sd grs, predy gr sup cls wi silc/arg cnt, tr dk lithc frags, non-sl calc, tr dk gy, non calc SH

9380-9440 SS: med gy-gy, occ lt gy-lt brn mo thru, ip offwht, mod trns grs, frm-fri clus, vt-uf grs, pred grn sup clus, sb rd-sb ang grs, sme sil-arg cnt, tr pyr, tr shy intbds





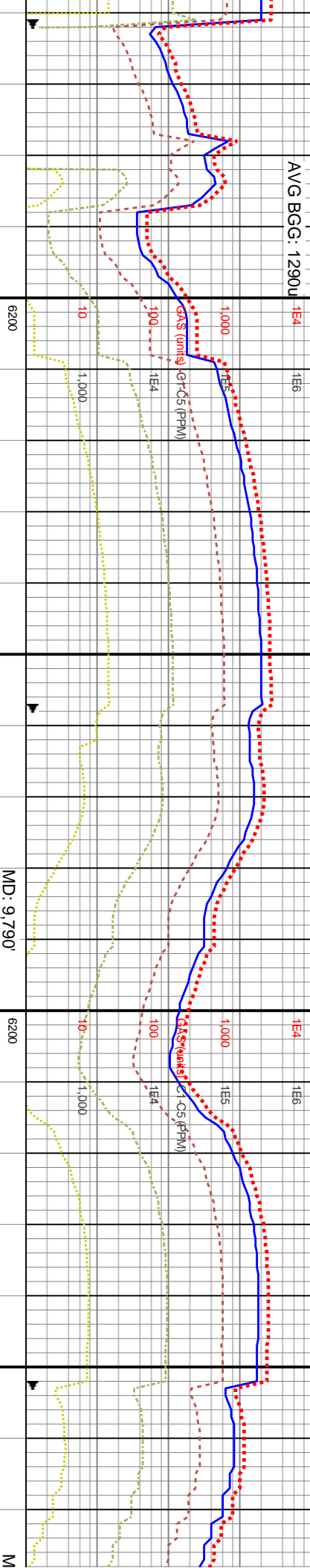
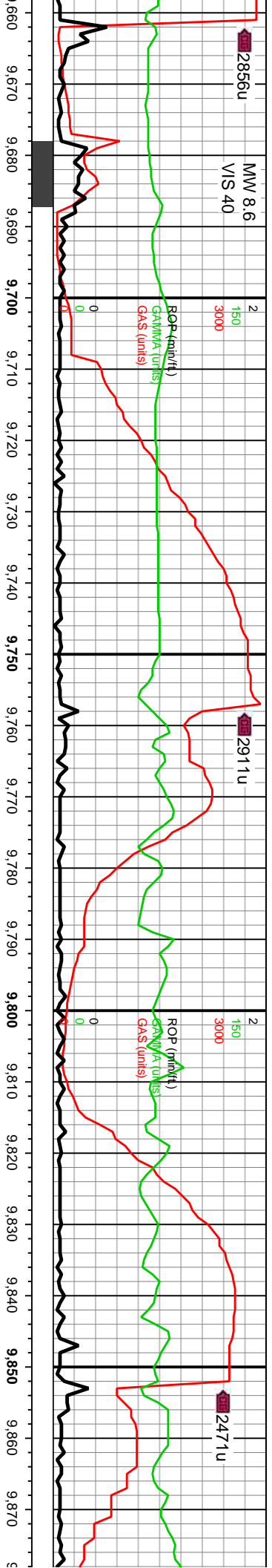
WOB: 21.4Klbs
Rotary: 71RPM
Strokes: 240SPM
Pump Rate: 695GPM

MD: 9,519'
TVD: 7,204.15'
Inclination: 90.7°
Azimuth: 270.8°
VS: 3,937.3'

MD: 9,599 6200
TVD: 7,203.99'
Inclination: 89.53°
Azimuth: 271.97°
VS: 4,017.09'

9440-9500 SS: predy gyshbn, lt gy wi offwht mtk, mod strd, vf-uf, sb rd-sb ang, frm-fri gr sup clus cons wi silic cnt & arg cnt, occ mtk sup clus, tr unconcs sd, l-mod calc	9500-9560 SS: predy gyshbn-lt gy, mot med gy, mnr lse sb ang op-clr qtz grs, mod strd, vf-l gr, gr sup cls wi silic-arg cnt, sb ang-sb rd, frm-sl fri, non-sl calc, tr scat/pp mic pyr	9560-9620 SS: pred gyshbn-med gy, lt gy-gy, mod strd, vf-uf gr, sb rd-sb ang, pred frm-sl fri gr sup clus, cons wi silic cnt & arg cnt, mod calc, tr pp mic pyr	9620-9680 SS: predy gys, frm-fri, sb blk, p- mod sr sb ang qtz grs, predy fri fr arg/silic cnt, tr calc, tr imh
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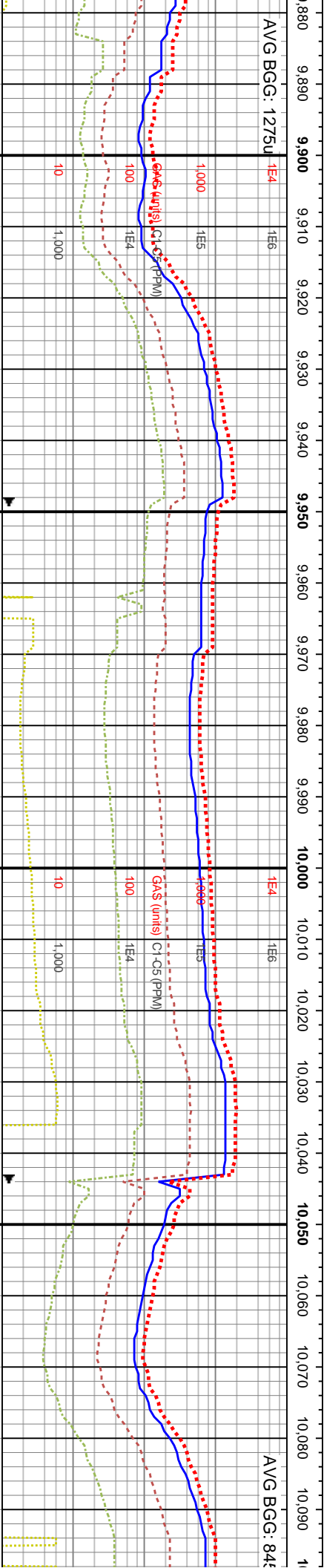
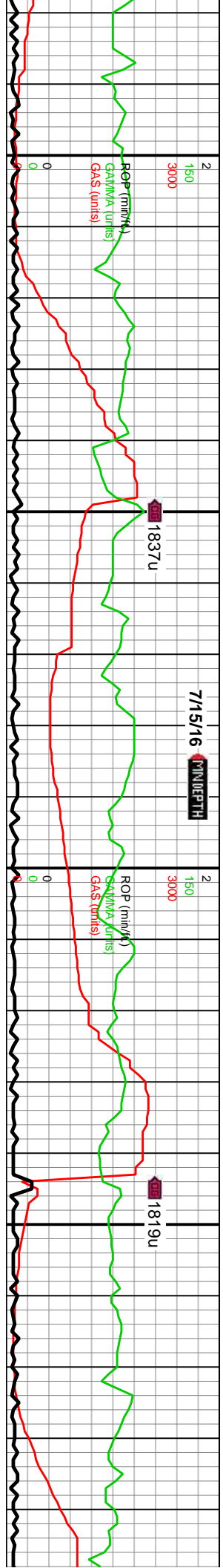




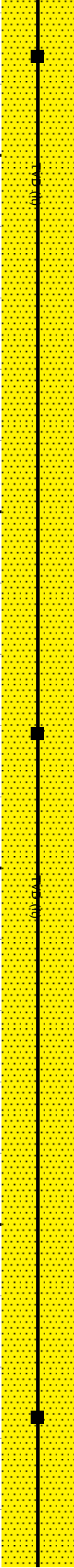
MD: 9,790'
TVD: 7,205.17'
Inclination: 89.77°
Azimuth: 270.31°
VS: 4,207.65'

9680-9740 SS: predy gyshbn-lt brn, mot offwht-med gy, mn lse sb ang op-clr qtz grs, mod strd, vt-f gr, sb ang-sb rd, frm-sl fri, gr sup cls wi silic-arg cnt, tr pp mic pyr, non-sl calc	9740-9800 SS: predy med gy-gy brn, occ lt gy-gy, mod strd, vt-uf gr, sb rd-sb ang grs, frm-sl fri, gr sup cls cons wi silic & arg cnt, l-mod calc, tr imbd mic pyr	9800-9860 SS (95%): predy gyshbn-lt gy, mot med gy, mod strd, vt-f gr, sb ang-sb rd, frm-sl fri, gr sup cls wi silic & arg cnt, r mtu sup, non-sl calc	9860-9880 SS: predy med gy-gy brn, occ lt gy-gy, mod strd, vt-uf gr, sb rd-sb ang grs, frm-sl fri, gr sup cls cons wi silic & arg cnt, l-mod calc, tr imbd mic pyr
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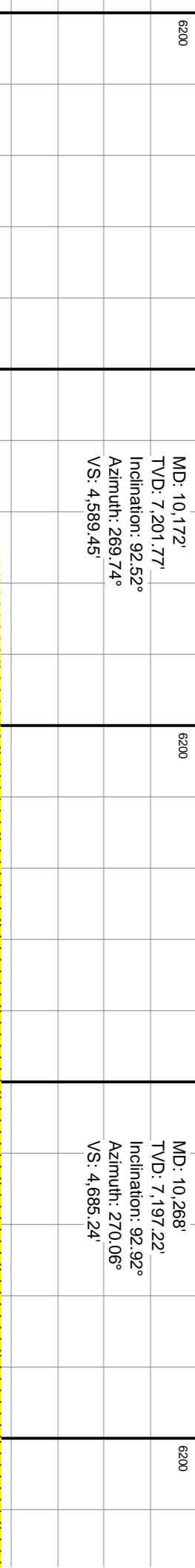
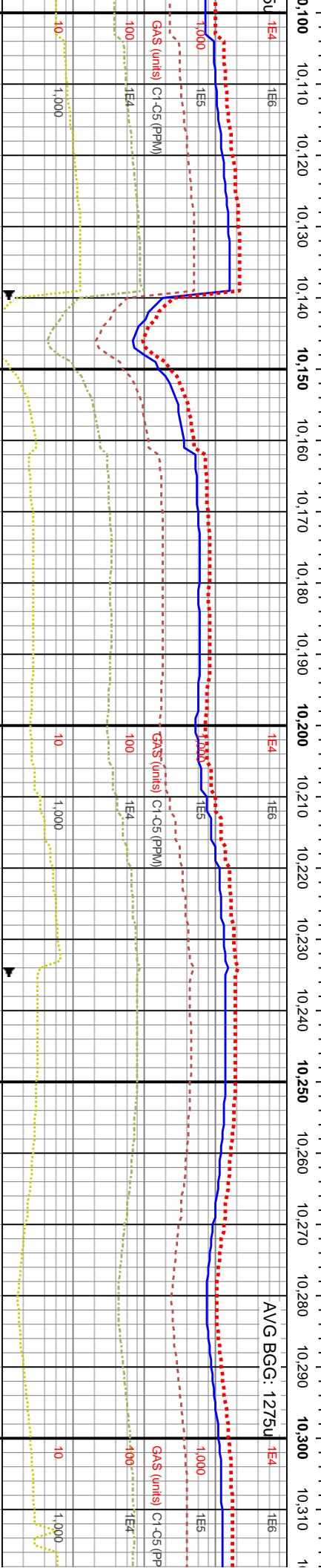
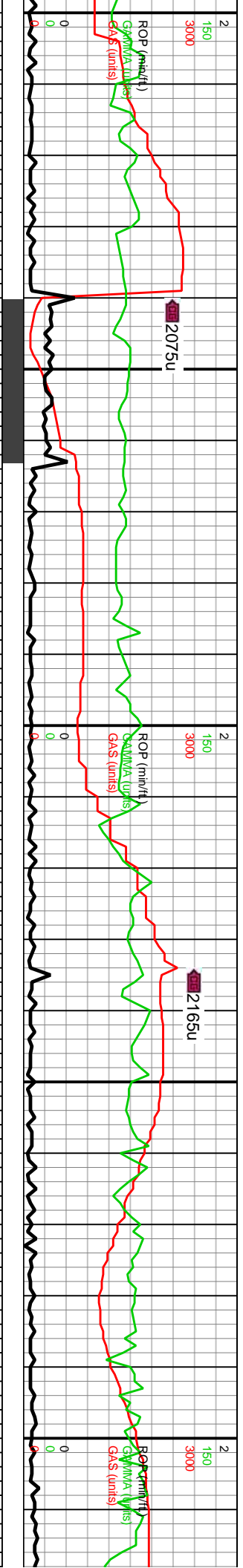


D: 9,886'	6200	MD: 9,981'	WOB: 41.5Klbs	MD: 10,077'
VD: 7,205.14'		TVD: 7,204.86'	Rotary: 70RPM	TVD: 7,204.33'
Inclination: 90.27°		Inclination: 90.07°	Strokes: 239SPM	Inclination: 90.57°
Azimuth: 268.84°		Azimuth: 268.73°	Pump Rate: 694GPM	Azimuth: 267.56°
VS: 4,303.57'		VS: 4,398.53'		VS: 4,494.52'

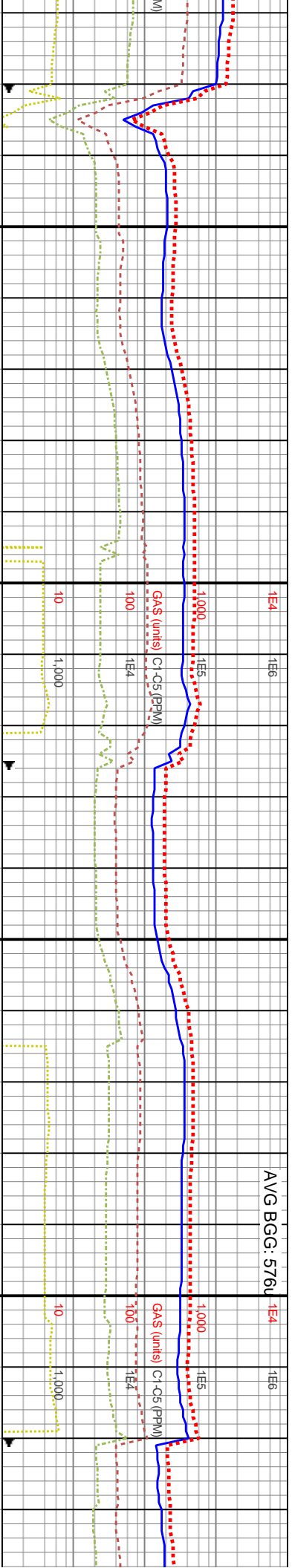


9920 SS: predy gysbhn-med gy, mot lt op, mod srt, vf-f gr, sb rd-sb ang grs, tr gr sup cls, cons wi silc & ang cnt, tr p, non-sl calc, mnr sb ang op qtz grs	9920-9980 SS: predy gysbhn-med gy, dk gy, frm-fri, sb blk, p- mod srt, vf-uf gr, mnr lse sb ang qtz grs, predy fri f gr-mtx sup cls wi arg/silc cnt, tr calc	9980-10040 SS: predy gysbhn-lt brn, mot offwht-med gy, mnr lse sb ang op-clr qtz grs, mod srt, vf-f gr, sb ang-sb rd, frm-sl fri, gr sup cls wi silc-arg cnt, tr pp/lmbd mic pyr, non-sl calc	10040-10100 SS: gysbhn-lt gy, mot med gy, vf-uf gr, sb rd-rd sd grs, mod srt, sl fri pred g sup cls cons wi silc cnt & brn ang cnt, occ mtx sup cls, tr pp mic pyr, mod calc
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10100-10160 SS: predy gyshbn-lt gy, mot med gy-offwht, mod strd, vf-f gr, sb ang-sb rd grs, frm-sl fri gr sup cls, cons wi silc/arg cnt, non-sl calc, tr imbd mic pyr		10160-10220 SS: lt gy-gyshbn, mod strd, com uncons sb ang sd grs, vf-uf gr, sb rd-sb ang, frm-sl fri gr sup cls, cons wi arg cnt & silc ip, occ mtx sup, non-sl calc		10220-10280 SS: predy gyshbn-med gy, dk gy, frm-fri, sb blk, p- mod strd, vf-uf gr, mnr lse sb ang qtz grs, predy fri f gr-mtx sup cls wi arg/silc cnt, tr calc		10280-10340 LS (70%): of ip, wxy lstr, frm crpxln-mnic cfigs, hi calc; SS: predy lt g offwht, mod strd, vf-uf gr, s fri gr sup cls, cons wi silc & ip, non-sl calc, tr pp mic pyr	
8200		8200		8200		8200	



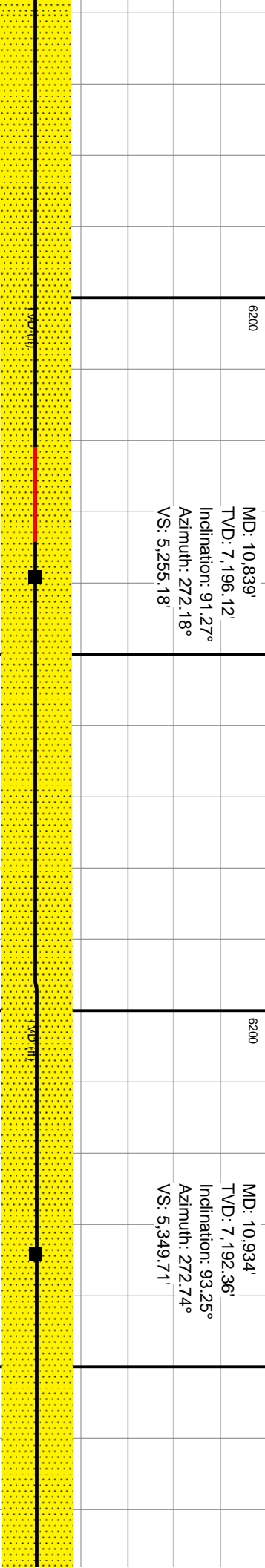
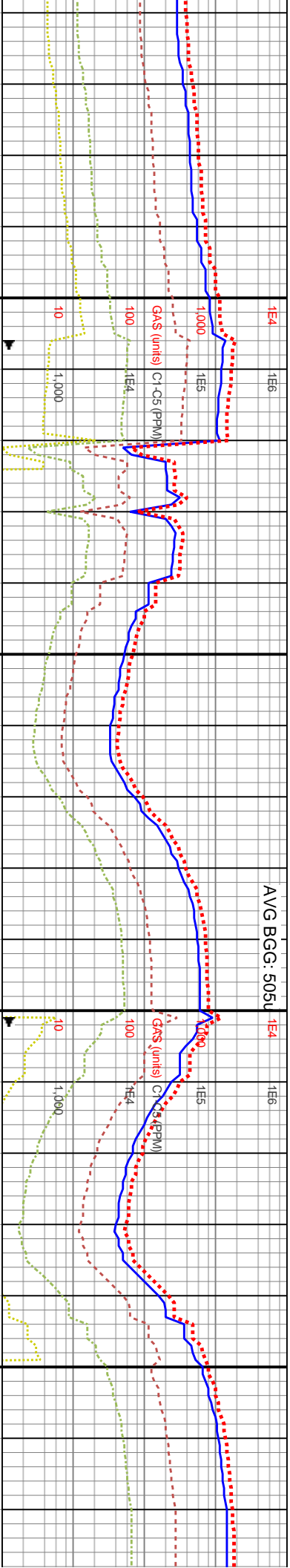
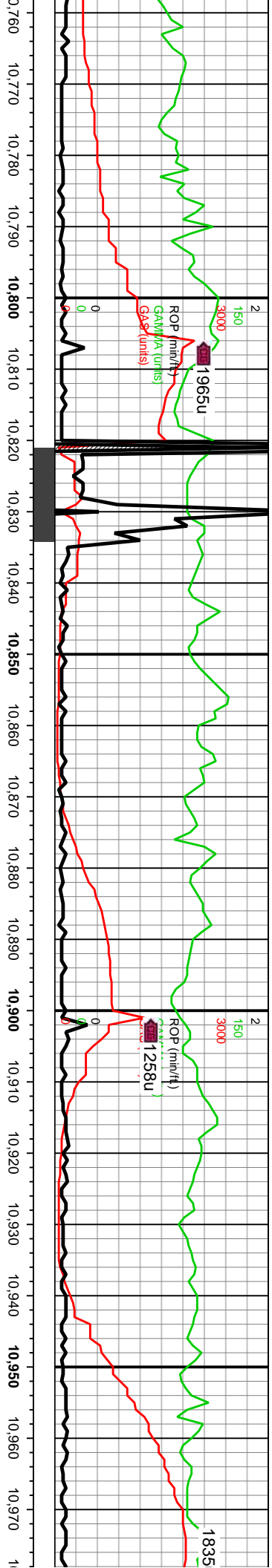
MD: 10,363'
TVD: 7,193.5'
Inclination: 91.57°
Azimuth: 268.21°
VS: 4,780.11'

MD: 10,458'
TVD: 7,191.44'
Inclination: 90.91°
Azimuth: 267.32°
VS: 4,875.08'

WOB: 41.9klbs
Rotary: 50RPM
Strokes: 240SPM
Pump Rate: 695GPM

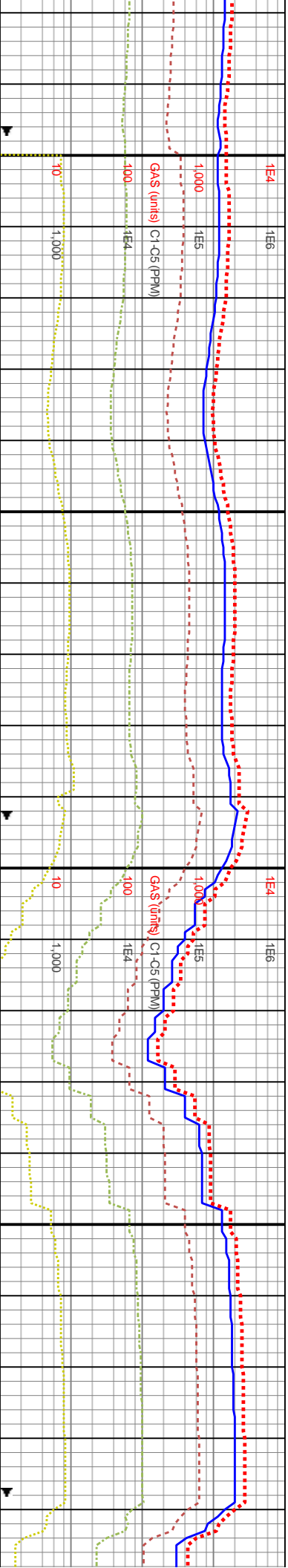
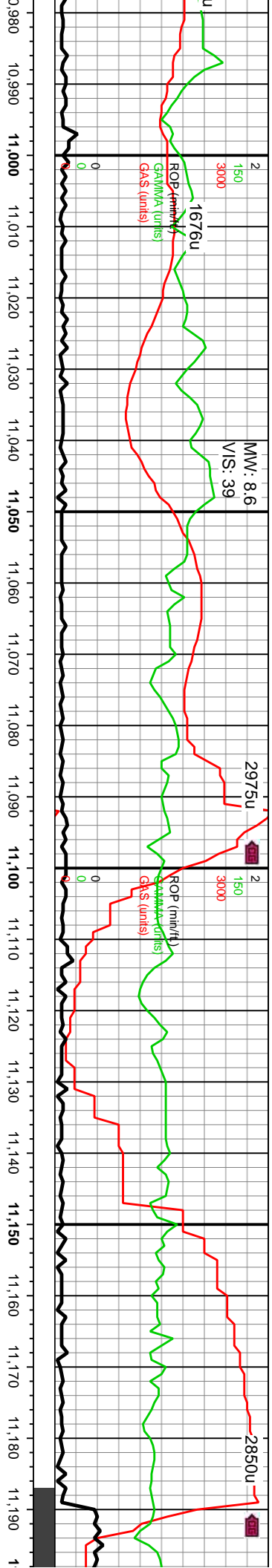
twht-lt gy-crm-tn, gy oxln, sb blk-y-tab	10340-10400 L.S.: offwht-lt gy, gysbhn-crm-tn, gy ip, wxy lstr, frm, crpxln-microxln mudst, sb blk-y-tab cigs, hi calc, tr pp mic pyr	8200	10400-10460 L.S.: offwht-tn, mot gysbhn-lt gy thru, blk-y-sb blk-y, v frm-hd, crpxln-microxln, sme intbdd carb grs, tr imbd/pp mic pyr, sme dk, slty- shy intbds	8200	10460-10520 L.S.: pred gysbhn-med gy, ip offwht-lt brn, microxln-cryploxln, v frm-v-hd, sb blk-y, sme intbdd carb grs, mod med gy shy intbds	8200	10520-10580 L.S.: sb blk-y- imbd/pp
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10760-10820 SS: gy-lt brn-offwht, med gy-brn mot, ip trns grs, frm-fri clus, vf-uf gr, mtx-grn sup clus, occ lse ang qtz grs, sb rd-sb ang, abnt calc cmt, sme sil-arg cmt, tr pyr	10820-10880 SS: gy-lt brn-offwht, med gy-brn mot, ip trns grs, frm-fri clus, vf-uf gr, mtx-grn sup clus, occ lse ang qtz grs, sb rd-sb ang, abnt calc cmt, sme sil-arg cmt, tr pyr	10880-10940 SS: gy-lt brn-offwht, med gy-brn mot, ip trns grs, frm-fri clus, vf-uf gr, mtx-grn sup clus, occ lse ang qtz grs, sb rd-sb ang, abnt calc cmt, sme sil-arg cmt, tr pyr	10940-11000 SS: gy-brn-c brn, abnt trns grs thru, sme pred sb blkly frm- fri grn sup grs, occ mtx sup clus, pred lse grs, sb rd- sb ang grs, lt inbds, abnt sil cmt
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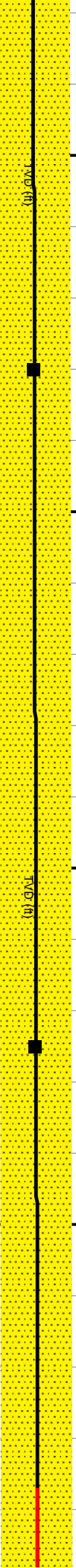


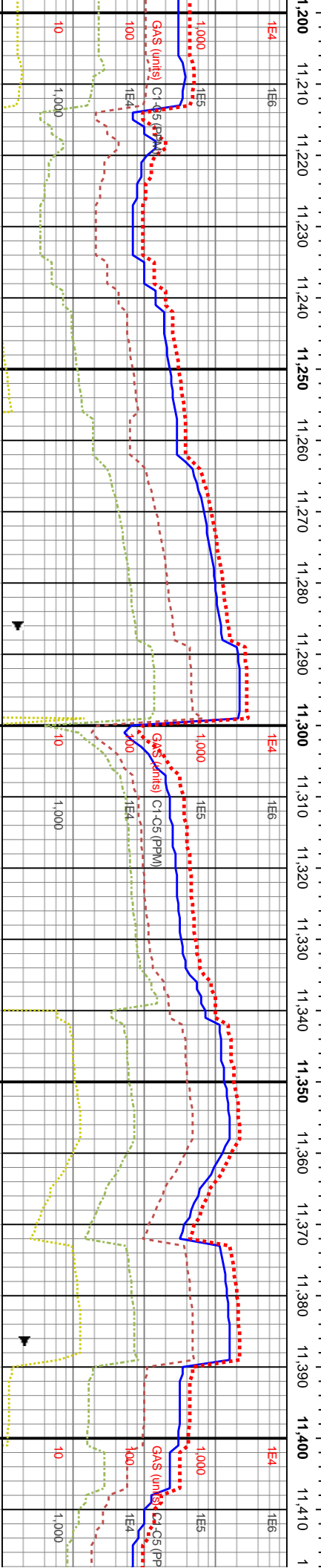
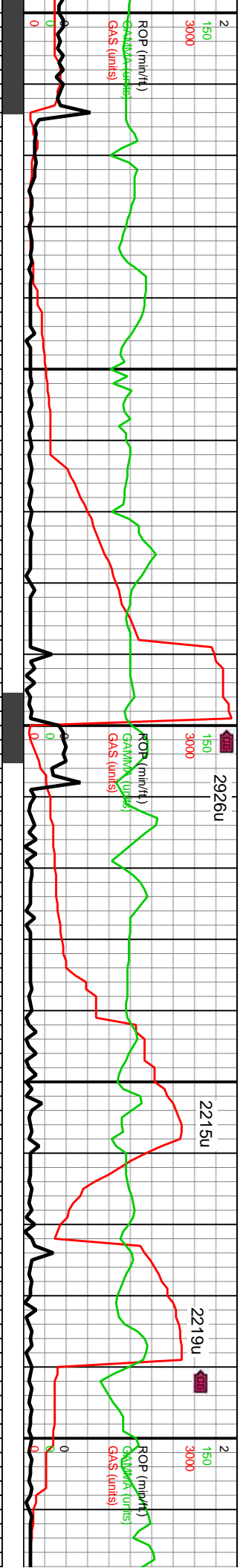


WOB: 44.7Klbs
Rotary: 50RPM
Strokes: 239SPM
Pump Rate: 694GPM

MD: 11,030'
TVD: 7,185.96'
Inclination: 94.4°
Azimuth: 272.43°
VS: 5,445.08'

MD: 11,125'
TVD: 7,177.29'
Inclination: 96.08°
Azimuth: 273.58°
VS: 5,539.21'

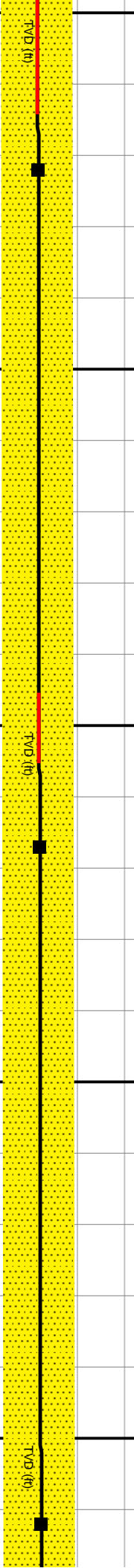




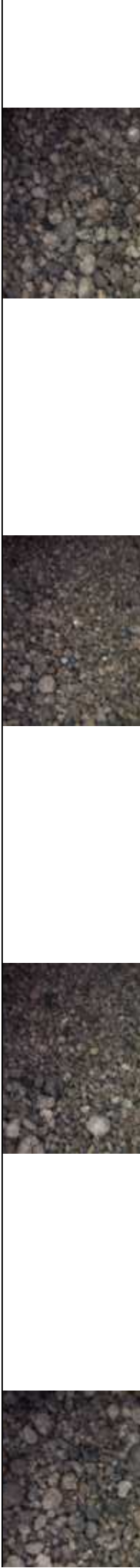
MD: 11,222'
TVD: 7,168.75'
Inclination: 93.96°
Azimuth: 270.92°
VS: 5,635.51'

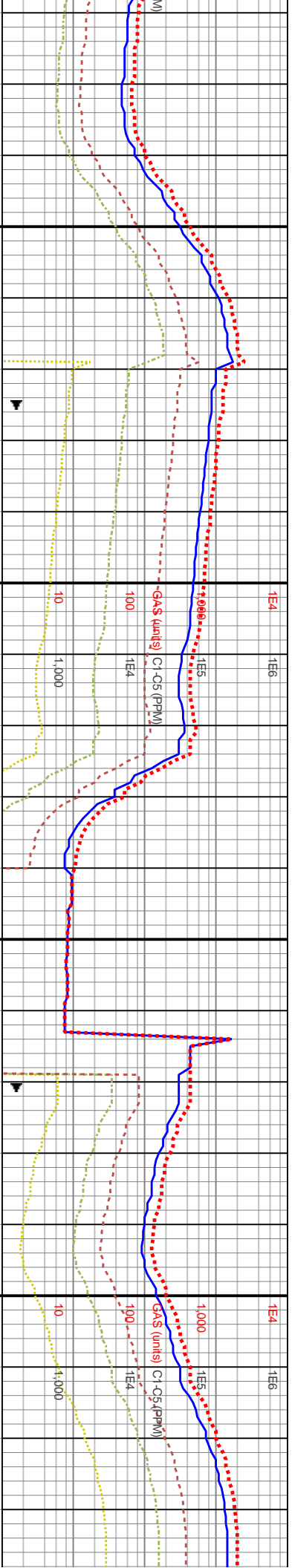
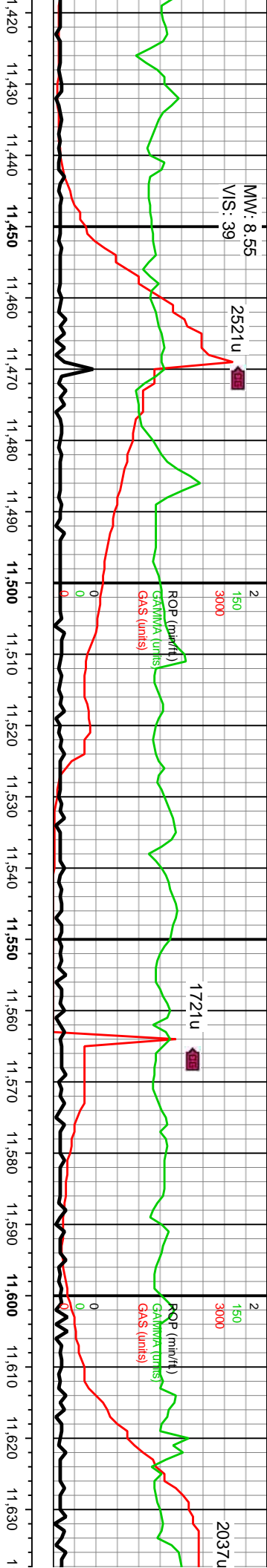
MD: 11,317'
TVD: 7,162.39'
Inclination: 93.72°
Azimuth: 272.08°
VS: 5,730.04'

MD: 11,412'
TVD: 7,156.25'
Inclination: 93.4°
Azimuth: 270.0°
VS: 5,824.63'



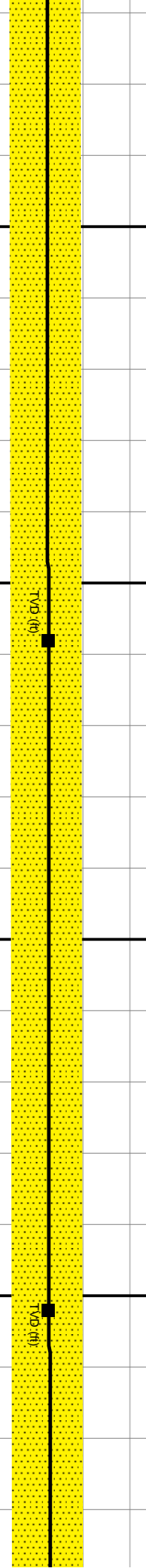
1240 SS: gy- brn- offwht, ip med gy- lt trnsi grs thru, abnt lt brn- bf mot, bdky frm- fri grn sup clus, occ f uncon mtx sup clus, pred f- u f grs, tr med- c sb rd- sb ang grs, ip ang grs, sl arg	11240-11300 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt trnsi grs thru, sme mot, pred f- uf uncons grs, ip sb bdky frm- fri grn sup clus, occ mtx sup clus, occ med grs, tr c lse grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt	11300-11360 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt trnsi grs thru, sme mot, pred f- uf uncons grs, ip sb bdky frm- fri grn sup clus, occ mtx sup clus, occ med grs, tr c lse grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt	11360-11420 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt trnsi grs thru, sme mot, pred f- uf uncons grs, ip sb bdky frm- fri grn sup clus, occ mtx sup clus, occ med grs, tr c lse grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt
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WOB: 46Klbs
Rotary: 75RPM
Strokes: 240SPM
Pump Rate: 695GPM

MD: 11,508'
TVD: 7,150.13'
Inclination: 93.62°
Azimuth: 268.54°
VS: 5,920.37'



MD: 11,602'
TVD: 7,144.8'
Inclination: 92.88°
Azimuth: 266.07°
VS: 6,014.21'

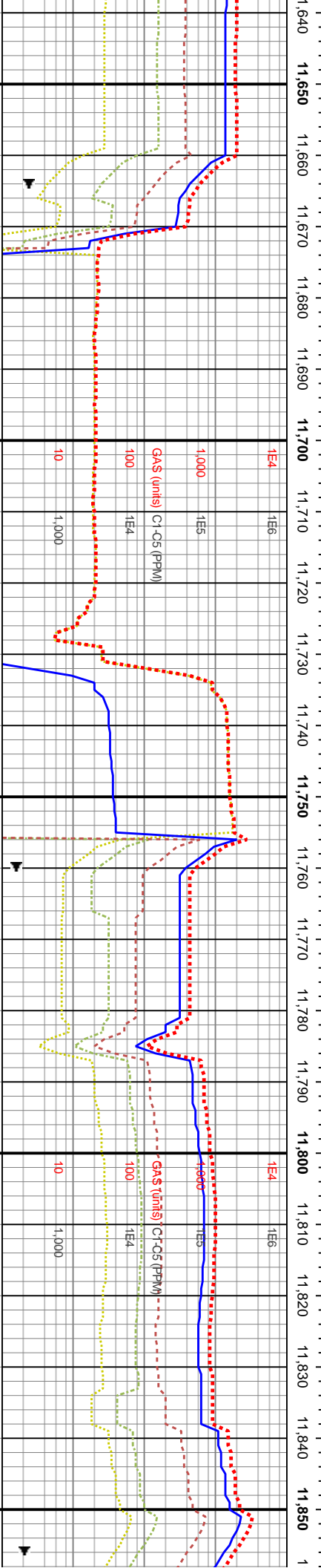
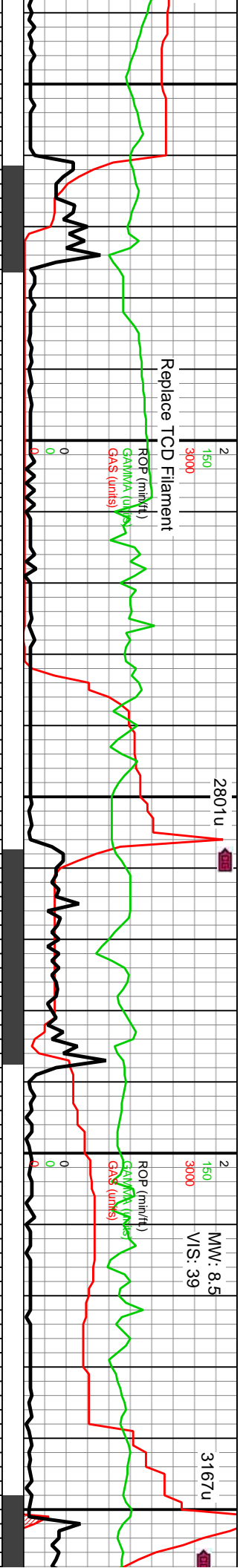
11420-11480 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt trnsl grs thru, sme mot, pred f- uf uncons grs, ip sb blkly frm- fri grn sup clus, occ mtix sup clus, occ med grs, tr c lse grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt

11480-11540 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt trnsl grs thru, sme mot, pred f- uf uncons grs, ip sb blkly frm- fri grn sup clus, occ mtix sup clus, occ med grs, tr c lse grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt

11540-11600 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt trnsl grs thru, sme mot, pred f- uf uncons grs, abnt sb blkly frm- fri grn sup clus, occ mtix sup clus, occ med grs, tr c lse grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt

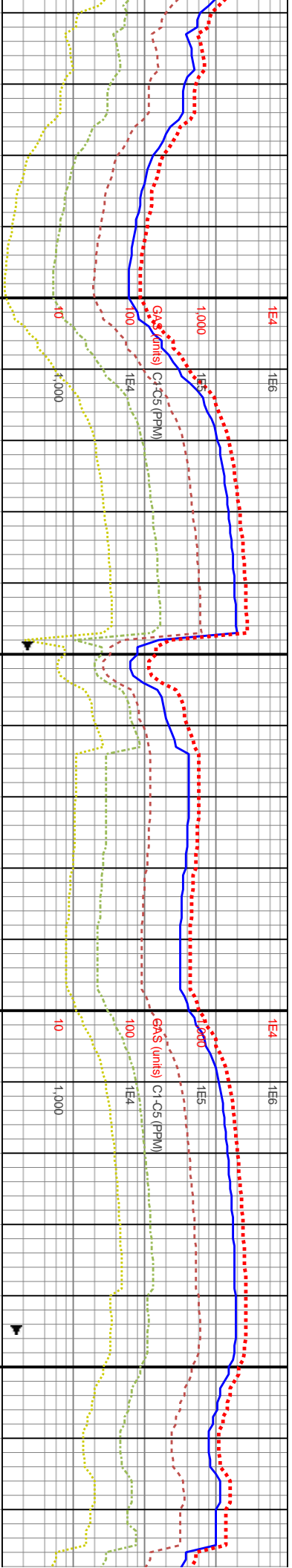
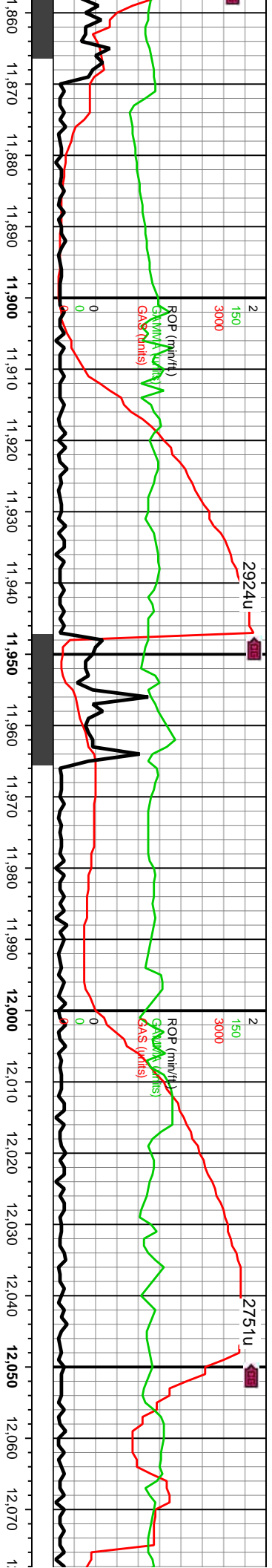
11600-11660 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt trnsl grs thru, sme mot, pred f- uf uncons grs, ip sb blkly frm- fri grn sup clus, occ mtix sup clus, occ med grs, tr c lse grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt





11660-11720 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt tmsl grs thru, sme mot, pred sb blkyl frm- fri gm sup clus, occ mtz sup clus, abnt f- uf uncongs grs, occ med grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt	11720-11780 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt tmsl grs thru, sme mot, pred sb blkyl frm- fri gm sup clus, occ mtz sup clus, abnt f- uf uncongs grs, occ med grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt	11780-11840 SS: gy- gy brn- bf, ip med gy- lt brn- amb, abnt tmsl grs thru, sme mot, pred sb blkyl frm- fri gm sup clus, occ mtz sup clus, abnt f- uf uncongs grs, occ med grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt	11840-11900 SS: gy- brn- bf, ip med gy- lt brn- amb, abnt tmsl grs thru, sme mot, pred sb blkyl frm- fri gm sup clus, occ mtz sup clus, abnt f- uf uncongs grs, occ med grs, sb rd- sb ang grs, ip ang grs, sl arg intbds, mod sil cnt
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MD: 11,888'
TVD: 7,133.46'
Inclination: 93.16°
Azimuth: 270.66°
VS: 6,299.81'

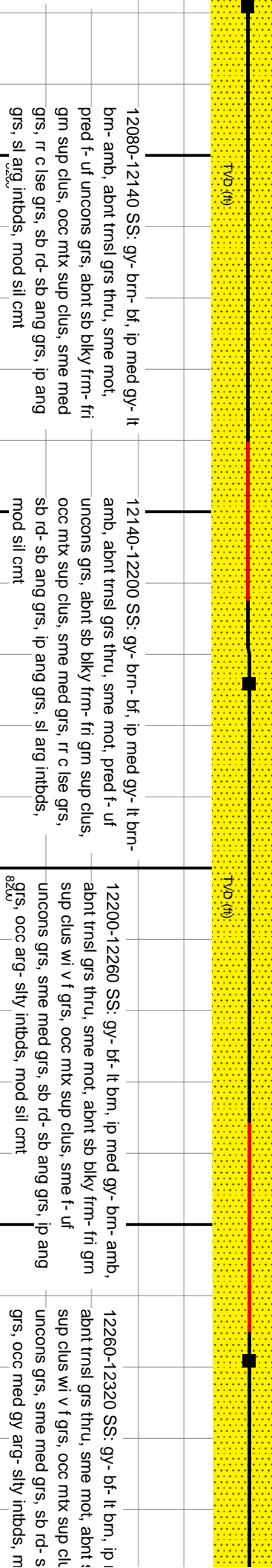
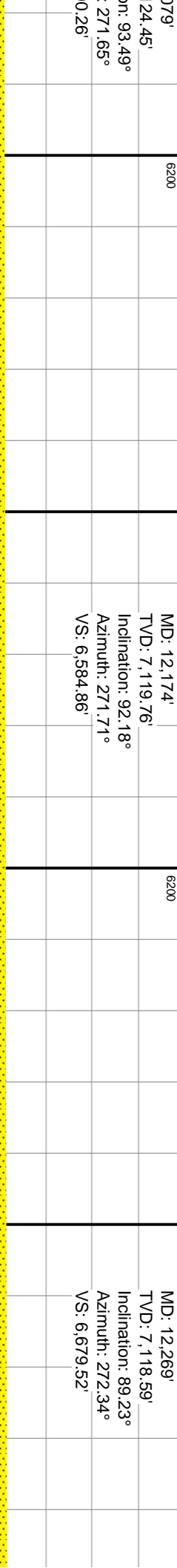
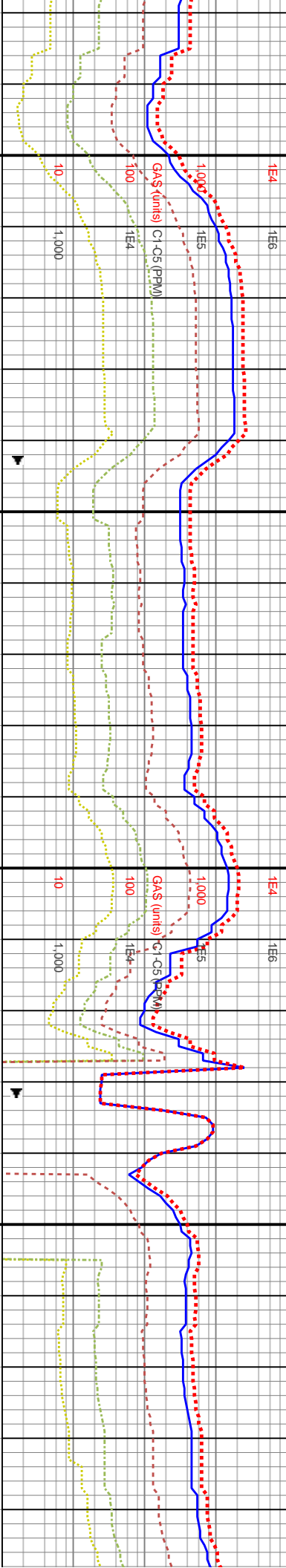
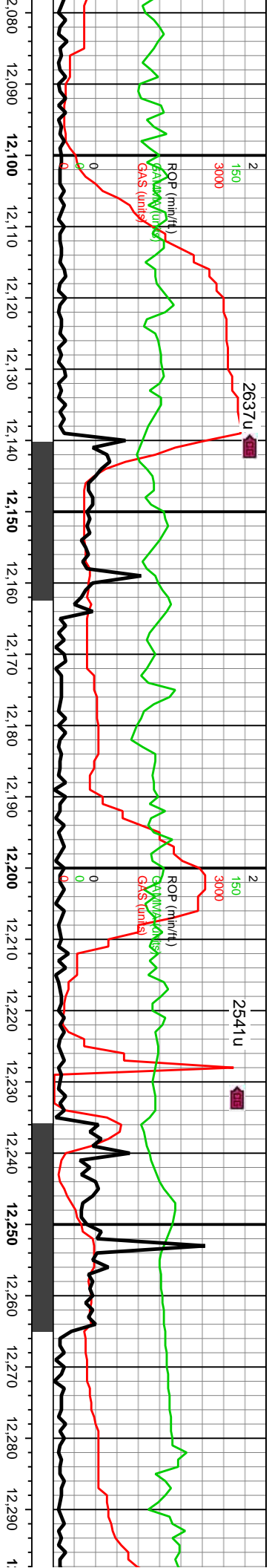
MD: 11,983'
TVD: 7,129.12'
Inclination: 92.08°
Azimuth: 270.19°
VS: 6,394.57'

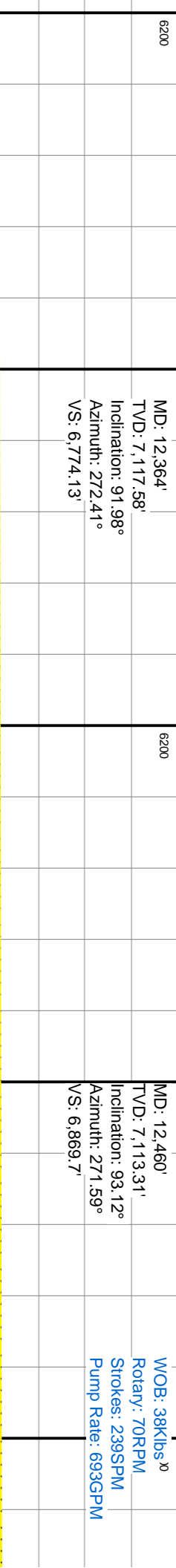
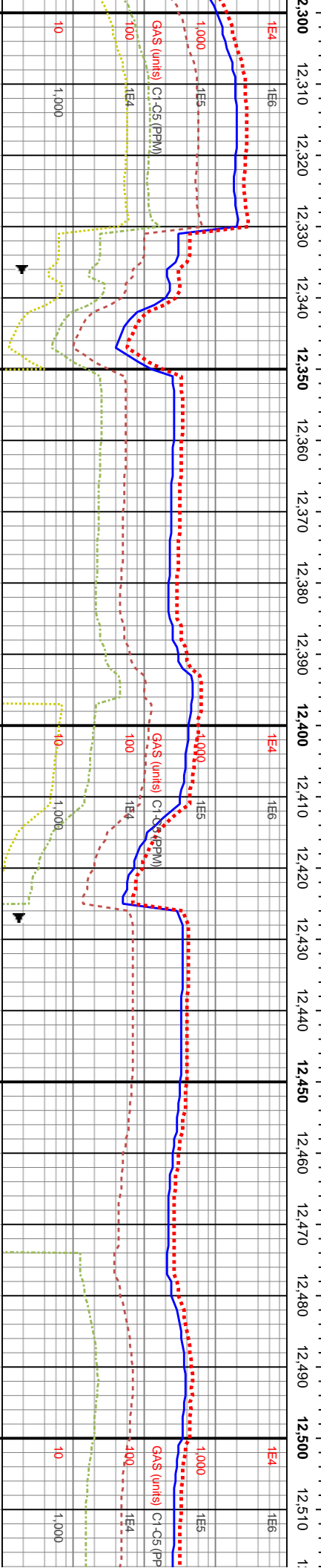
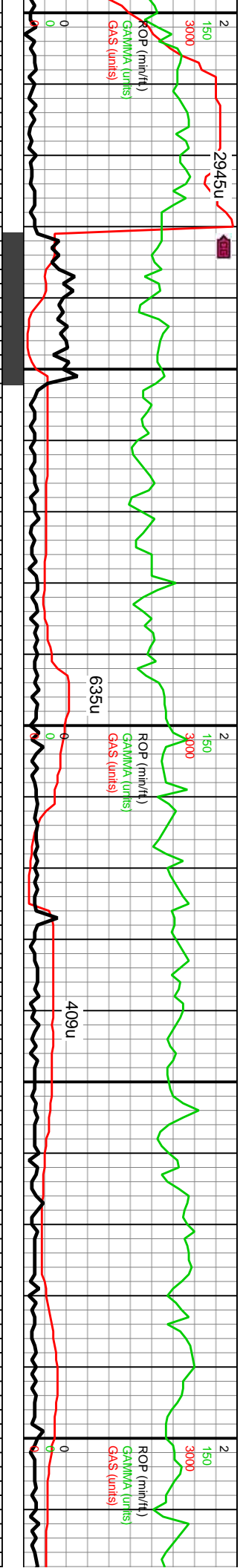
WOB: 37Klbs
Rotary: 75RPM
Strokes: 238SPM
Pump Rate: 693GPM

MD: 12,000'
TVD: 7,133.46'
Inclination: 93.16°
Azimuth: 270.66°
VS: 6,299.81'

11,860-11,888' SS: gy- brn- bf, ip med gy- lt		11,888-11,900' SS: gy- brn- bf, ip med gy- lt		11,900-11,960' SS: gy- brn- bf, ip med gy- lt		11,960-12,020' SS: gy- brn- bf, ip med gy- lt		12,020-12,080' SS: gy- brn- bf, ip med gy- lt	
, abnt trnsi grs thru, sme mot, pred sb		, abnt trnsi grs thru, sme mot, pred f- uf		amb, abnt trnsi grs thru, sme mot, pred f- uf		brn- amb, abnt trnsi grs thru, sme mot,		brn- amb, abnt trnsi grs thru, sme mot, pred f- uf	
fri grn sup clus, occ mtz sup clus, abnt		occ mtz sup clus, sme med grs, rr c lse grs,		uncons grs, abnt sb blkly frm- fri grn sup clus,		grn sup clus, occ mtz sup clus, sme med		f- uf uncons grs, abnt sb blkly frm- fri	
grs, occ med grs, sb rd- sb ang		sb rd- sb ang grs, ip ang grs, sl arg intbds,		mod sil cnt		grs, rr c lse grs, sb rd- sb ang grs, ip ang		lse grs, sb rd- sb ang grs, ip ang grs, sl arg	
grs, sl arg intbds, mod sil cnt		mod sil cnt		mod sil cnt		grs, sl arg intbds, mod sil cnt		intbds, mod sil cnt	

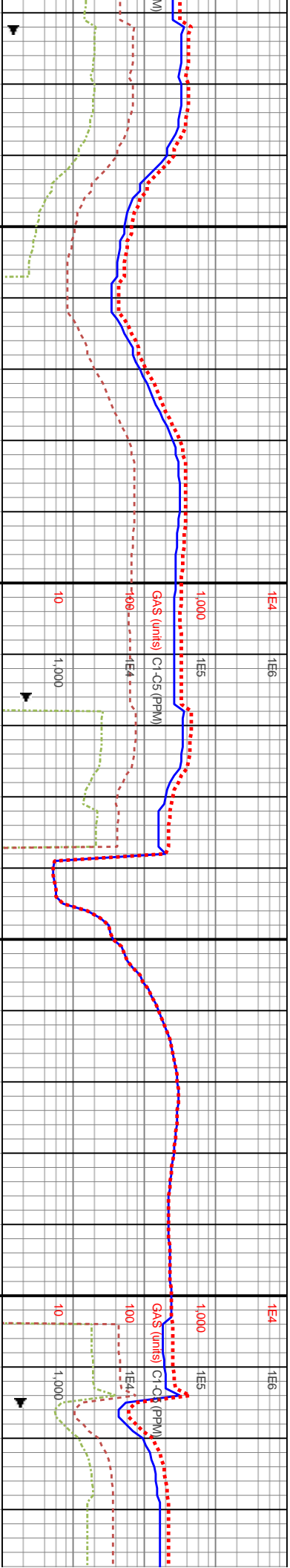
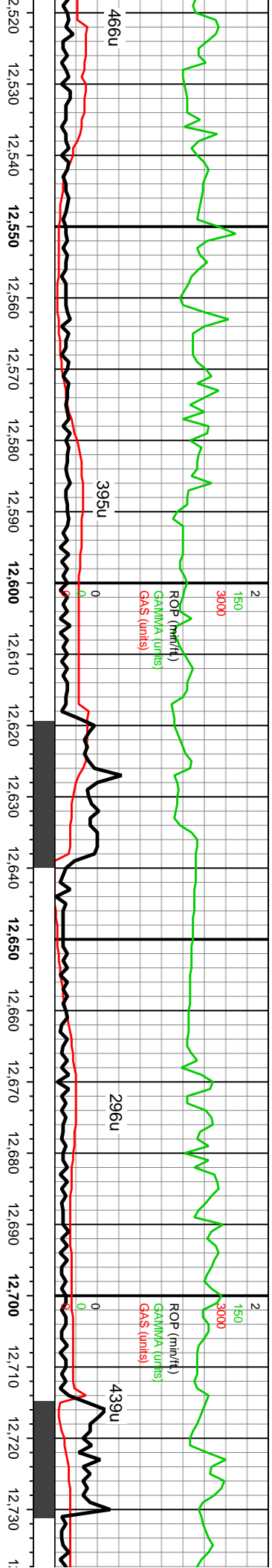






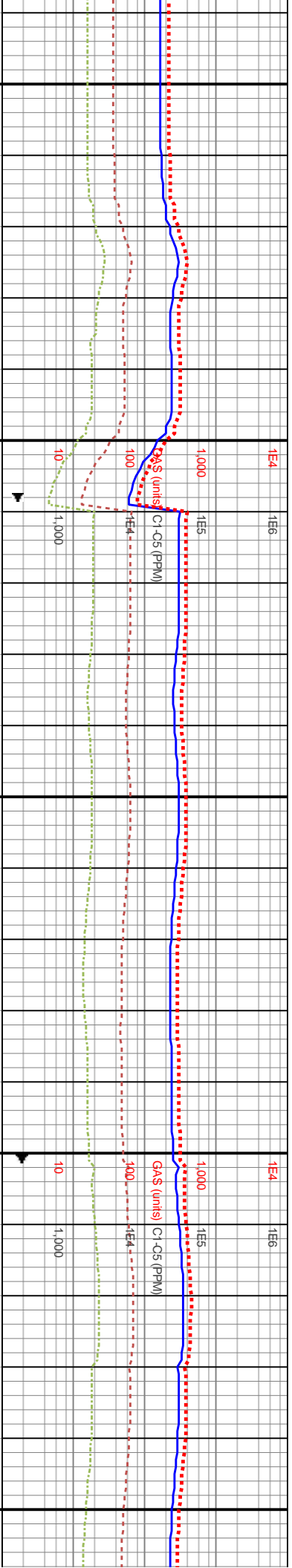
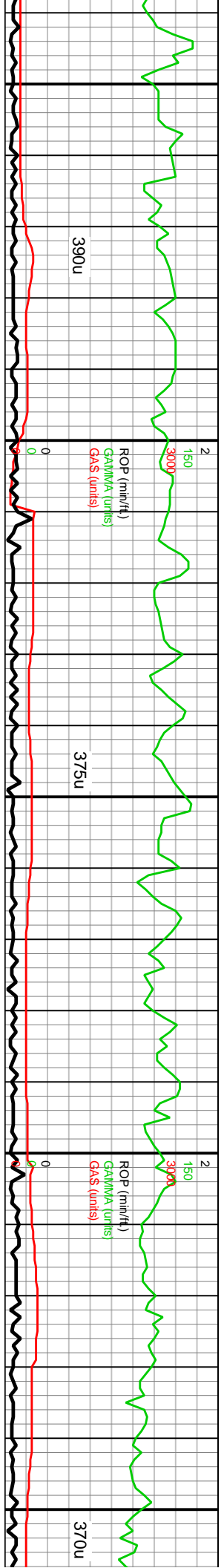
12320-12380 SS: gy- bf- lt brn, ip med gy- brn- amb, abnt trnsi grs thru, sme mot, abnt sb biky frm- fri gm sup clus wi v f grs, occ mtx sup clus, sme f- uf uncongs grs, sme med grs, sb rd- sb ang grs, ip ang grs, occ med gy arg- slty intbds, mod sil cnt	12380-12440 SS: gy- bf- lt brn, ip med gy- brn- amb, abnt trnsi grs thru, sme mot, abnt sb biky frm- fri gm sup clus wi v f grs, occ mtx sup clus, sme f- uf uncongs grs, sme med grs, sb rd- sb ang grs, ip ang grs, occ med gy arg- slty intbds, mod sil cnt	12440-12500 SS: bf- lt gy brn, ip med gy- brn- amb, abnt trnsi grs thru, sme mot, abnt sb biky frm- fri gm sup clus wi v f grs, occ mtx sup clus, sme f- uf uncongs grs, sme med grs, sb rd- sb ang grs, ip ang grs, occ med gy arg- slty intbds, mod sil cnt	12500-12560 SS: gy- bf- lt brn, ip med gy- brn- amb, abnt trnsi grs thru, sme mot, abnt sb biky frm- fri gm sup clus wi v f grs, occ mtx sup clus, sme f- uf uncongs grs, sme med grs, sb rd- sb ang grs, ip ang grs, occ med gy arg- slty intbds, mod sil cnt
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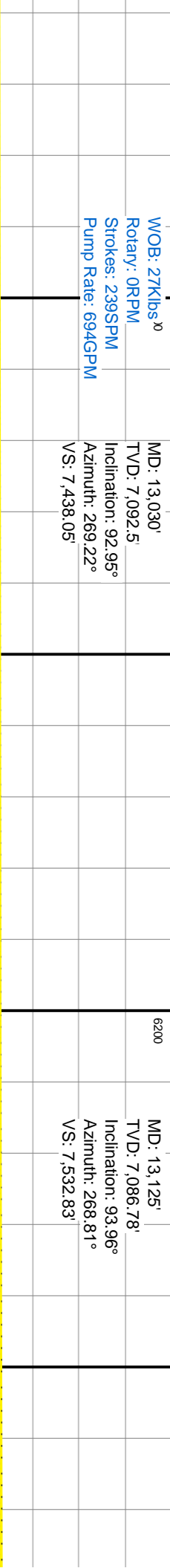
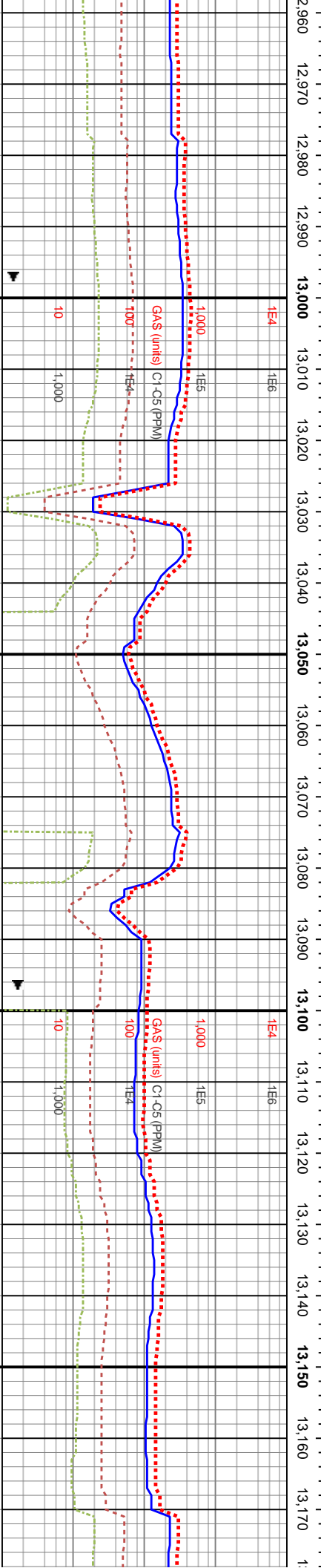
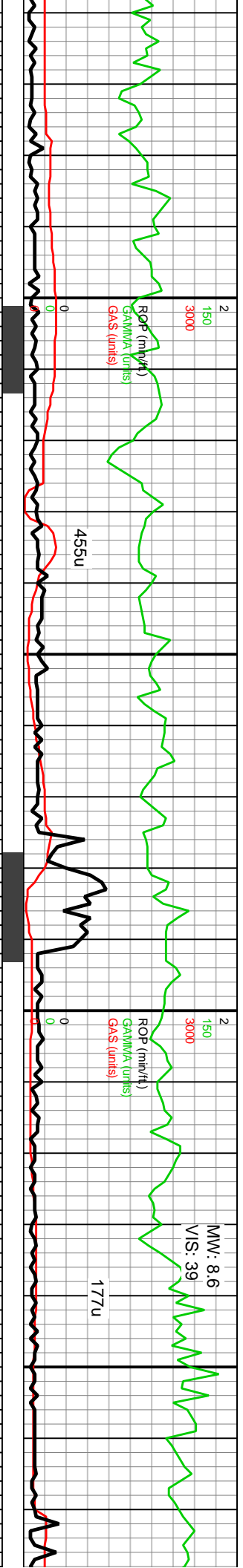
2560 SS (90%): bf- lt gy brn, ip med amb, abnt trnsl grs thru, sme mot, blkly frm- fri grn sup clus wi v f grs, occ clus, sme f- uf uncongs grs, sme med d- sb ang grs, ip ang grs, occ med gy intbds (10%)	12560-12620 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsl grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mnx sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy-bf mot, sb blkly- sb plty, mod arg- sdy	12620-12680 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsl grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mnx sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy-bf mot, sb blkly- sb plty, mod arg- sdy	12680-12740 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsl grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mnx sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy-bf mot, sb blkly- sb plty, mod arg- sdy





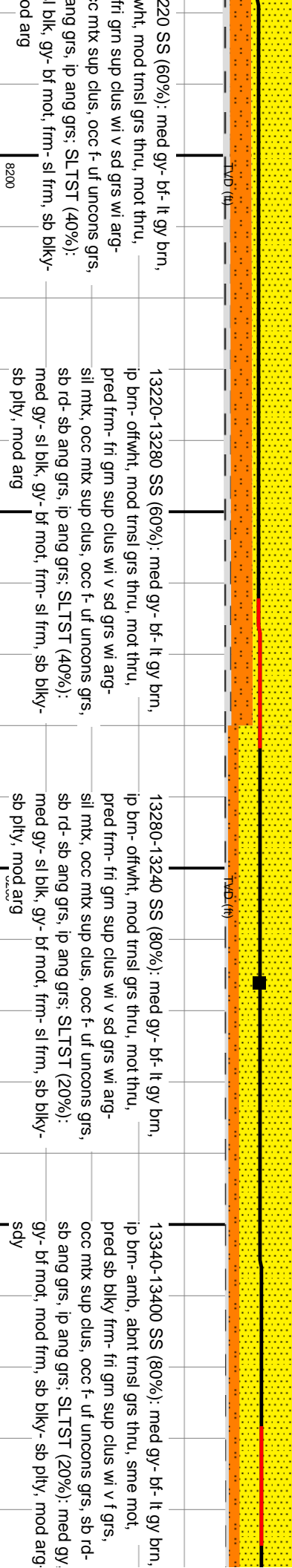
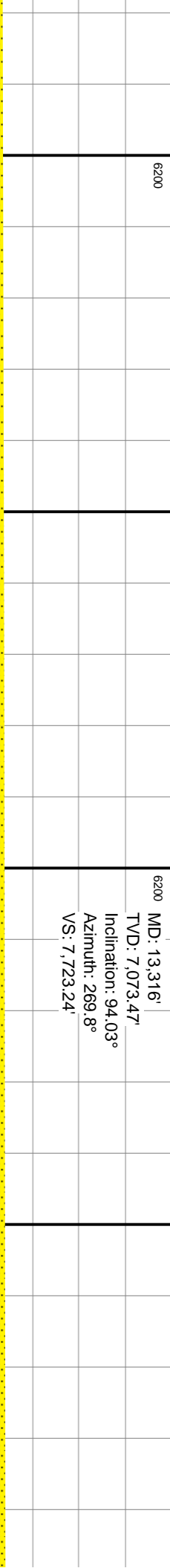
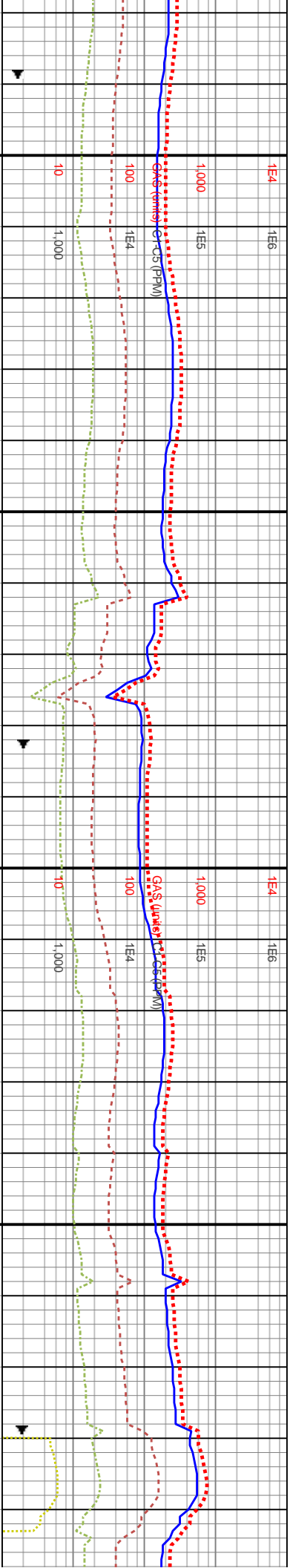
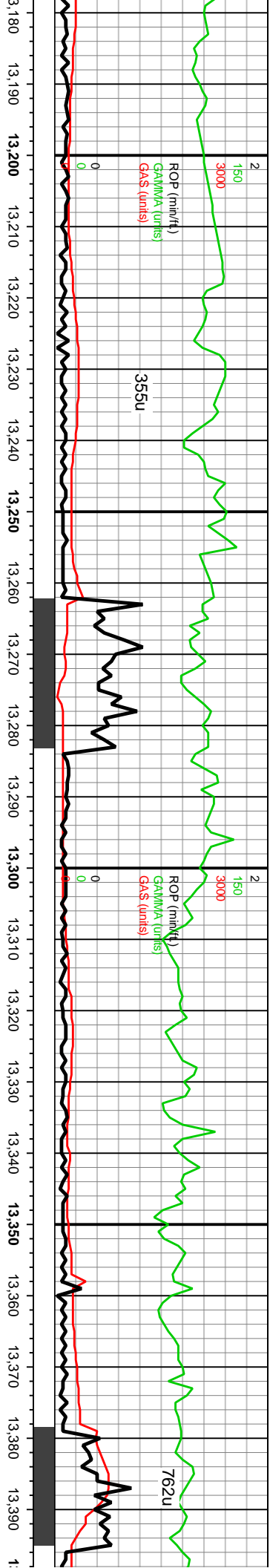
12,745'	MD: 12,840'	6200
D: 7,099.03'	TVD: 7,097.05'	
Inclination: 91.24°	Inclination: 91.14°	
imuth: 270.08°	Azimuth: 269.73°	
7,153.35'	VS: 7,248.23'	

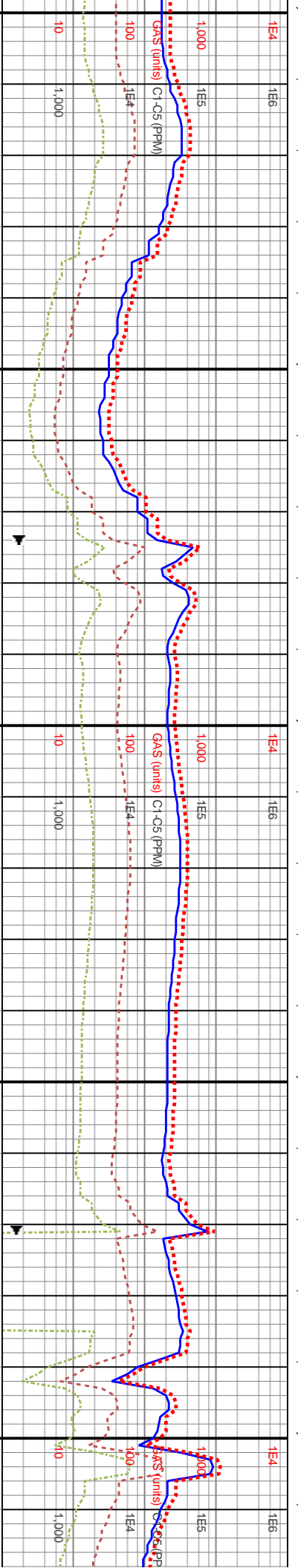
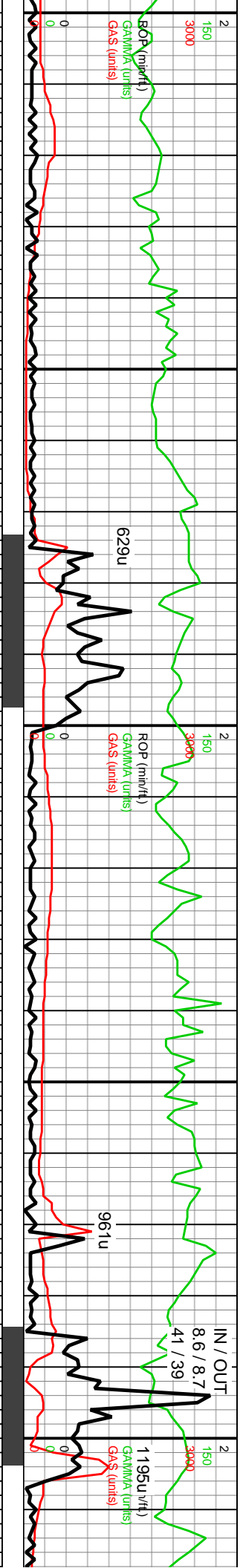
12740-12800 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsi grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mtz sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy-bf mot, sb blkly- sb plty, mod arg- sdy	12800-12860 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsi grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mtz sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy-bf mot, sb blkly- sb plty, mod arg- sdy	12860-12920 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsi grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mtz sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy-bf mot, sb blkly- sb plty, mod arg- sdy	12920-12980 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsi grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mtz sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy-bf mot, sb blkly- sb plty, mod arg- sdy
			



12980-13040 SS (70%): med gy- bf- lt gy brn, ip brn- offwht, mod trnsi grs thru, mot thru, pred frm- fri gm sup clus wi v sd grs wi arg- sil mtz, occ mtz sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, SLTST (30%): med gy, gy-bf mot, sb blk- sb ply, mod arg- sdy		8200
13040-13100 SS (80%): med gy- bf- lt gy brn, ip brn- offwht, mod trnsi grs thru, mot thru, pred frm- fri gm sup clus wi v sd grs wi arg- sil mtz, occ mtz sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, SLTST (20%): med gy, gy-bf mot, sb blk- sb ply, mod arg- sdy		8200
13100-13160 SS (75%): med gy- bf- lt gy brn, ip brn- offwht, mod trnsi grs thru, mot thru, pred frm- fri gm sup clus wi v sd grs wi arg- sil mtz, occ mtz sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, SLTST (25%): med gy, gy-bf mot, sb blk- sb ply, mod arg- sdy		8200
13160-13180 SS (75%): med gy- bf- lt gy brn, ip brn- offwht, mod trnsi grs thru, mot thru, pred frm- fri gm sup clus wi v sd grs wi arg- sil mtz, occ mtz sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, SLTST (25%): med gy, gy-bf mot, sb blk- sb ply, mod arg- sdy		8200



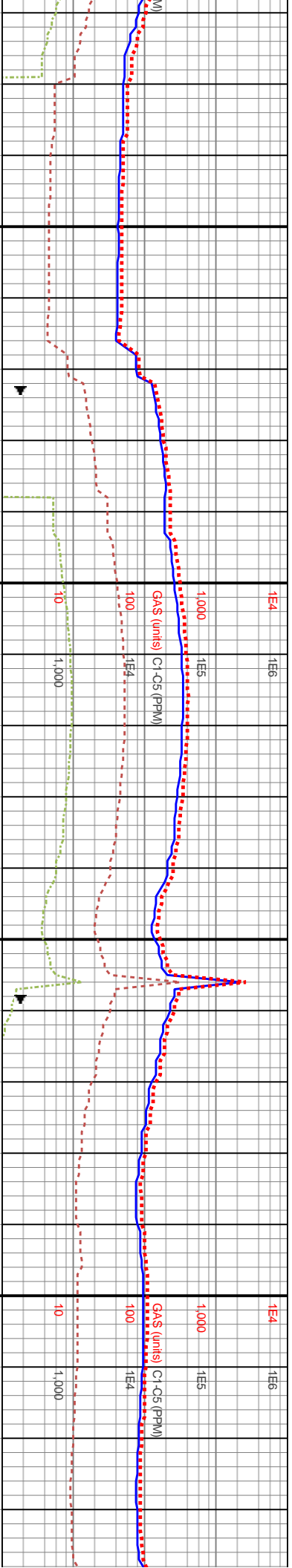
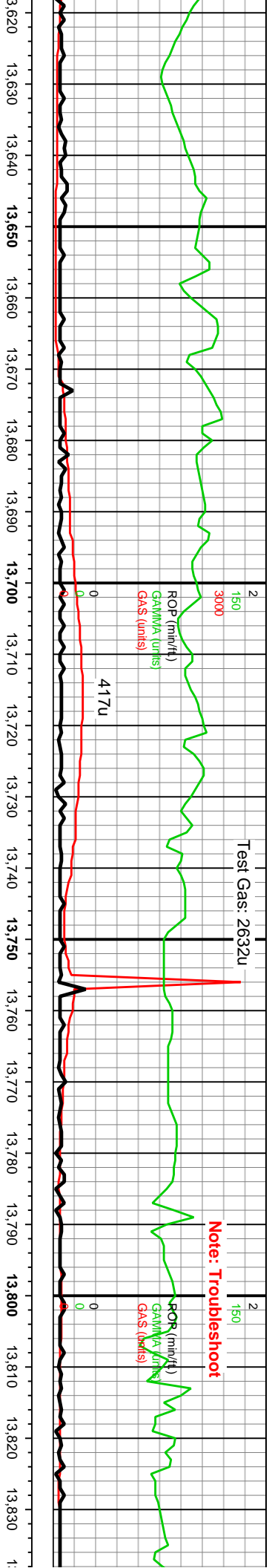




MD: 13,411' TVD: 7,067.02' Inclination: 93.76° Azimuth: 269.34° VS: 7,817.95'	WOB: 31Klbs Rotary: 76RPM Strokes: 238SPM Pump Rate: 693GPM	MD: 13,506' TVD: 7,062.85' Inclination: 91.27° Azimuth: 268.72° VS: 7,912.81'

13400-13460 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsi grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mtix sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy- bf mot, mod frm, sb blkly- sb ply, mod arg- sdy	13460-13520 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsi grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mtix sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy- bf mot, mod frm, sb blkly- sb ply, mod arg- sdy	13520-13580 SS (80%): med gy- bf- lt gy brn, ip brn- amb, abnt trnsi grs thru, sme mot, pred sb blkly frm- fri grn sup clus wi v f grs, occ mtix sup clus, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy- bf mot, mod frm, sb blkly- sb ply, mod arg- sdy	13580-13640 SS (80%): n brn- amb- blk grs, abnt tm mot, pred mod frm- fri grn grs, occ mtix sup clus, tr f- rd- sb ang grs, ip ang grs, SLTST (20%): med gy, ip f frm, sb blkly- sb ply, mod

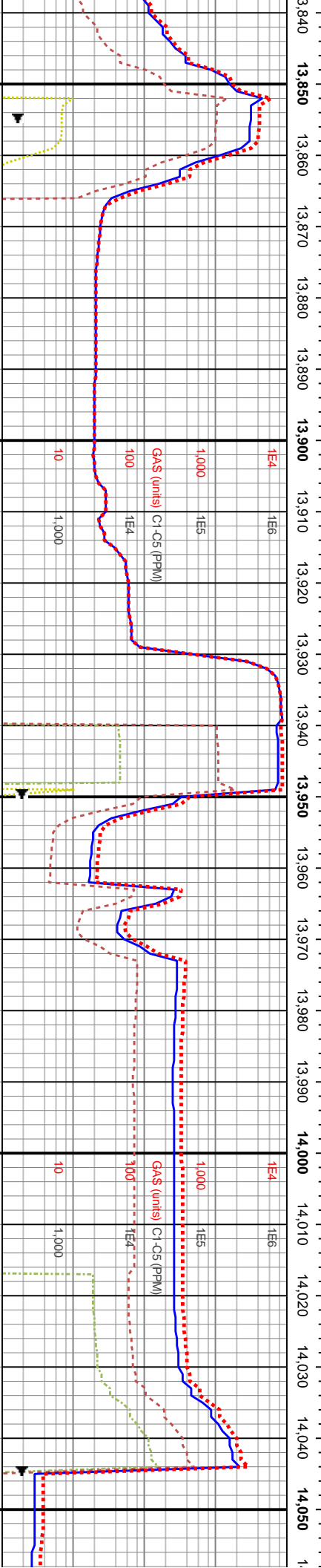
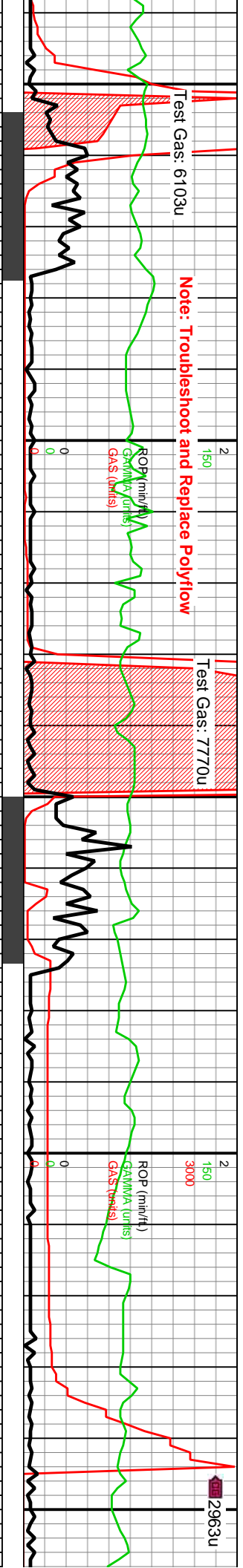




MD: 13,696'
TVD: 7,059.26'
Inclination: 91.38°
Azimuth: 270.67°
VS: 8,102.59'

MD: 13,791'
TVD: 7,055.61'
Inclination: 93.02°
Azimuth: 270.68°
VS: 8,197.35'

bed gy brn- bf, ip lt		13640-13700 SS (80%): med gy brn- bf, ip lt		13700-13760 SS (80%): med gy brn- bf, ip lt		13760-13820 SS: med gy brn- bf, ip lt brn-		13820-13880 SS: med gy brn- bf, ip lt brn-	
si grs thru, sme		brn- amb- blk grs, abnt trnsi grs thru, sme		brn- amb- blk grs, abnt trnsi grs thru, sme		amb- blk grs, abnt trnsi grs thru, sme mot,		amb- blk grs, abnt trnsi grs thru, sme mot,	
sup clus wi v f		mot, pred mod frm- fri grn sup clus wi v f grs,		mot, pred mod frm- fri grn sup clus wi v f grs,		pred mod frm- fri sb rd grn sup clus wi v f grs,		pred mod frm- fri sb rd grn sup clus wi v f grs,	
uf uncongs grs, sb		occ mtz sup clus, tr f- uf uncongs grs, sb rd- sb		occ mtz sup clus, tr f- uf uncongs grs, sb rd- sb		occ mtz sup clus, tr f- uf uncongs grs, sb rd- sb		occ mtz sup clus, tr f- uf uncongs grs, sb rd- sb	
ip sl silty intbds;		ang grs, ip ang grs, ip sl silty intbds; SLTST		ang grs, ip ang grs, ip sl silty intbds; SLTST		ang grs, ip ang grs, ip sl silty intbds; SLTST		ang grs, ip ang grs, ip sl silty intbds	
(20%): med gy, ip gy- bf mot, mod frm, sb blk-		(20%): med gy, ip gy- bf mot, mod frm, sb blk-		(20%): med gy, ip gy- bf mot, mod frm, sb blk-		(20%): med gy, ip gy- bf mot, mod frm, sb blk-		(20%): med gy, ip gy- bf mot, mod frm, sb blk-	
arg		sb plty, mod arg		sb plty, mod arg		sb plty, mod arg		sb plty, mod arg	



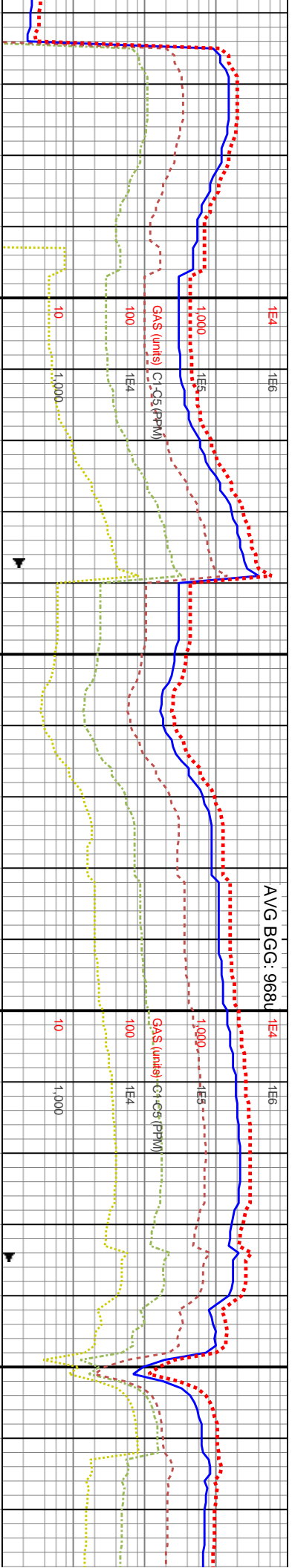
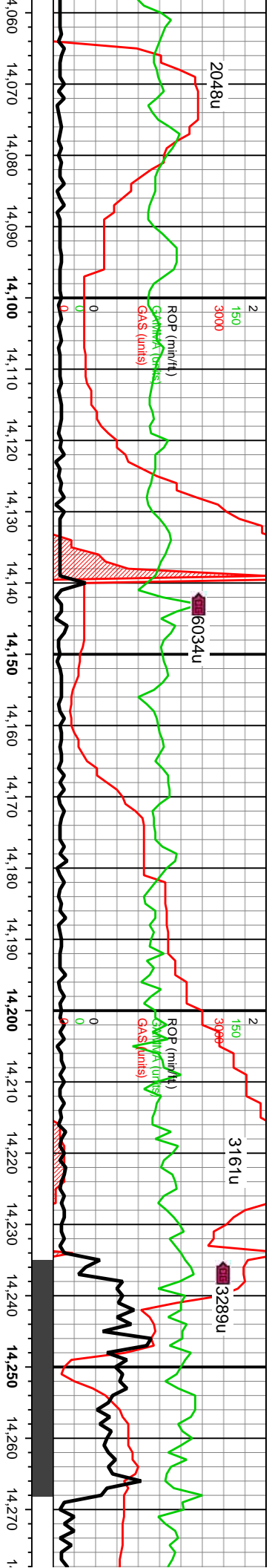
MD: 13,886'
TVD: 7,051.72'
Inclination: 91.68°
Azimuth: 269.91°
VS: 8,292.14'

MD: 13,981'
TVD: 7,050.13'
Inclination: 90.23°
Azimuth: 271.27°
VS: 8,386.96'

WOB: 41.7Klbs
Rotary: 74RPM
Strokes: 238SPM
Pump Rate: 693GPM

13880 SS: med gy brn- bf, ip lt brn- grs, abnt trnsl grs thru, sme mot, frm- fri sb rd grn sup clus wi v f grs, occ mtx sup clus, tr f- uf uncongs grs, sb rd- sb ip ang grs, ip sl silty intbds	13880-13940 SS: med gy brn- bf, ip lt brn- amb- blk grs, abnt trnsl grs thru, sme mot, pred mod frm- fri sb rd grn sup clus wi v f grs, occ mtx sup clus, tr f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, ip sl silty intbds	13940-14000 SS: med gy brn- bf, ip lt brn- amb- blk grs, abnt trnsl grs thru, sme mot, pred mod frm- fri sb rd grn sup clus wi v f grs, occ mtx sup clus, tr f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, ip sl silty intbds	14000-14060 SS: med gy brn- bf, ip lt brn grs, abnt trnsl grs thru, pred mod ht- fri sb rd grn sup clus wi vf- u f grs, sme mtx sup clus, tr f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, ip sl silty intbds
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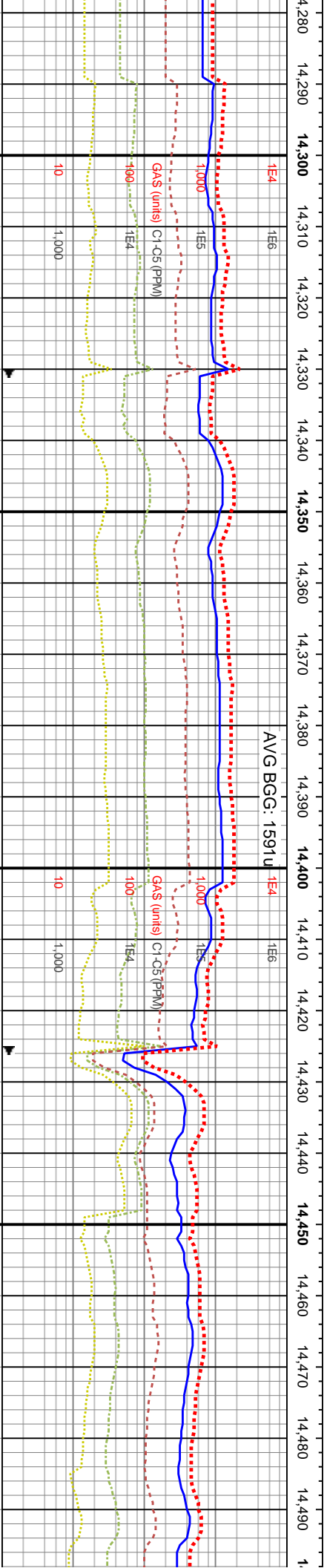
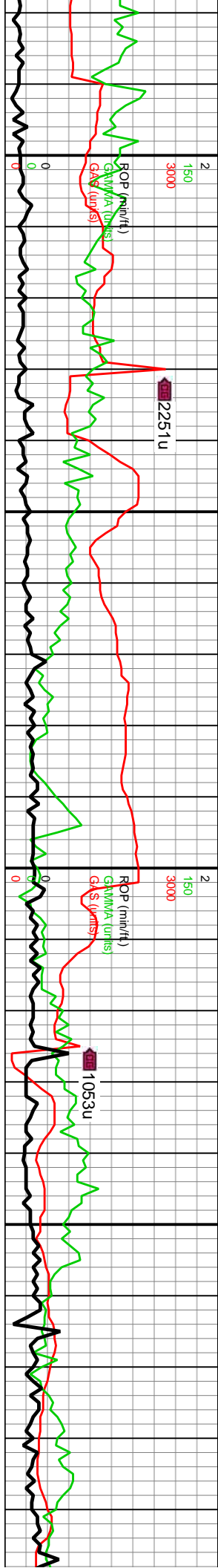




MD: 14,076' TVD: 7,048.97' Inclination: 91.17° Azimuth: 271.44° VS: 8,481.72'	6200	MD: 14,171' TVD: 7,046.26' Inclination: 92.11° Azimuth: 270.86° VS: 8,576.46'	6200	MD: 14,267' TVD: 7,044.8' Inclination: 89.63° Azimuth: 267.49° VS: 8,672.37'
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14060-14120 SS: med gy brn- bf, ip lt brn grs, abnt trnsi grs thru, pred mod hd- fri sb rd grn sup clus wi vf- u f grs, sme mtx sup clus, tr f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, tr sl silty intbds	8200	14120-14180 SS: med gy brn- bf, ip lt brn grs, abnt trnsi grs thru, pred mod hd- fri sb rd grn sup clus wi vf- u f grs, sme mtx sup clus, tr f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, tr sl silty intbds	14180-14240 SS: lt gy- gy- gy brn- dk gy, rr offwhi, mod srti, vf- uf gr, sb ang- sb rd sd grs, frm- sl fri gr sup cls, cons wi silic/arg cnt ip, mtx sup ip, non- sl calc, tr inbnd mic pyr	14240-14300 SS: predy gyshbn, mod srti, vf- uf g grs, frm- sl fri gr sup cls, silic ip, occ mtx sup, non- ang op- clr qtiz grs
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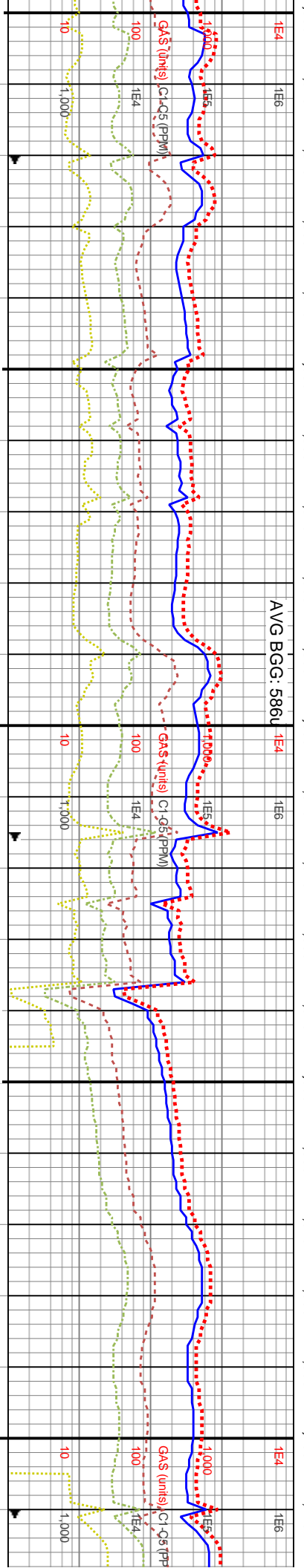
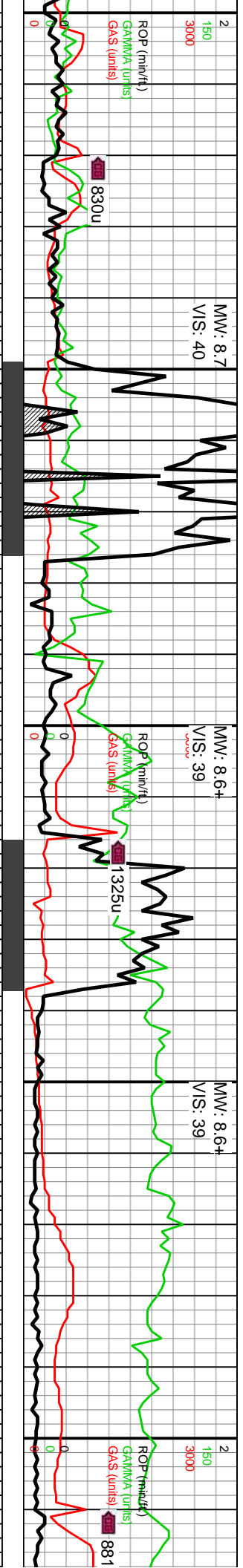
MD: 14,362'
TVD: 7,047.69'
Inclination: 88.22°
Azimuth: 266.85°
VS: 8,767.23'

MD: 14,457'
TVD: 7,049.61'
Inclination: 89.46°
Azimuth: 267.88°
VS: 8,862.2'

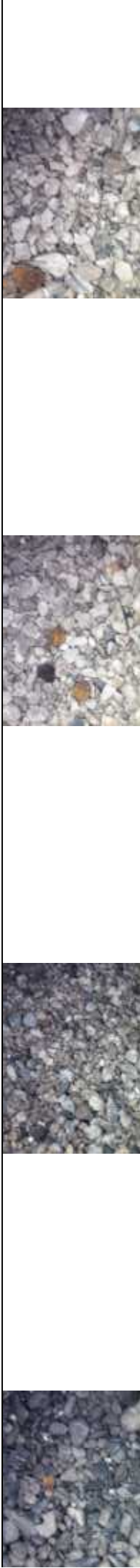
WOB: 38
Rotary: 7
Strokes:
Pump Re

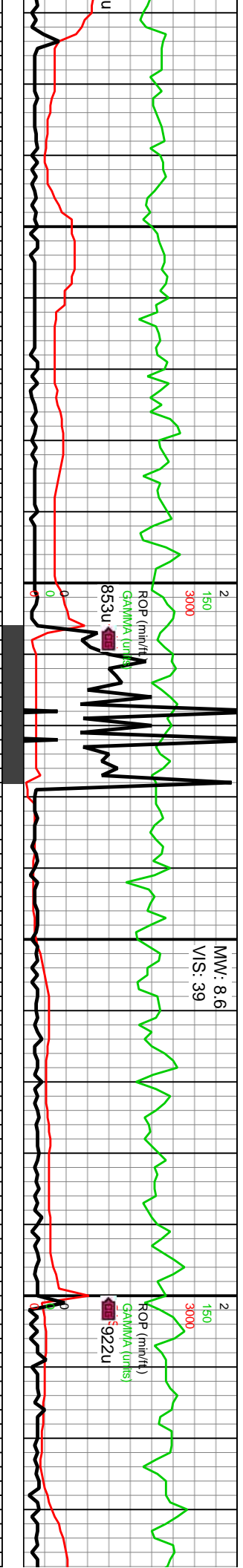
14300-14360 LS (15%): gysbhn-tn, mot offwht, blk-y-sb blk-y, frm-sl hd, crpxn-microxln, mnr intbdd sh, tr pp mic pyr; SS (85%): gysbhn, mot med gy-lt gy, mod srd, v-f gr, gr sup cls wi slic/arg cnt, tr dk tlnc frags, non-sl calc	8200	14360-14420 LS: prey offwht-lt gy, mot gysbhn-lt brn thru, frm-hd, sb blk-y-sb tab, microxln-cryptoxln, tr intbdd carb grs, mnr slty sh intbds, tr inbnd mic pyr	8200	14420-14480 LS (80%): offwht-lt gy, mot gysbhn, microxln pkst-wkst, chky lstr, trnsi brn crpxln mudst wi wxy lstr; SS (20%): gysbhn-med gy, arg intbd ip, mod srd, v-f gr, sb rd-ang sd, frm-sl fri, gr-mtx sup clus wi slic cnt, sl calc	8200	14480-14540 LS (80%): offwht-lt gy, mot gysbhn, microxln pkst-wkst, chky lstr, trnsi brn crpxln mudst wi wxy lstr; SS (20%): gysbhn-med gy, arg intbd ip, mod srd, v-f gr, sb rd-ang sd, frm-sl fri, gr-mtx sup clus wi slic cnt, sl calc	8200
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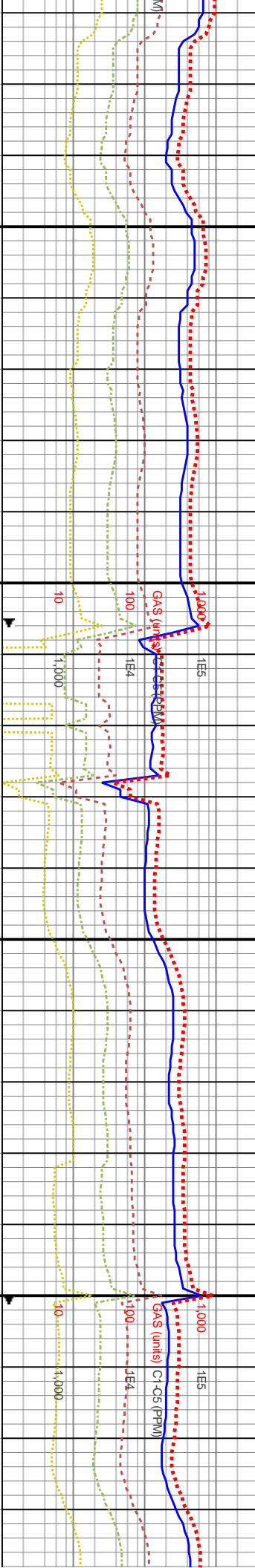


4kbs 5SRPM 2240SPM ite: 694GPM	MD: 14.552' TVD: 7,050.33' Inclination: 89.66° Azimuth: 267.34° VS: 8,957.2'	MD: 14.647' TVD: 7,051.69' Inclination: 88.69° Azimuth: 271.07° VS: 9,052.12'	MD: 14.720' TVD: 7,052.12' Inclination: 88.69° Azimuth: 271.07° VS: 9,052.12'
14540-14540 L.S. 75% offwht-lt gy, microxln, blkst, chky lstr, 25% trnsd brn, mot n thru, crpxln, mudst, wxy lstr, shy, tr pp mic pyr	14540-14600 L.S. offwht-n, mot gysbhn thru, blkly-sb blkly, frm-hd, crpxln-microxln, sme intbdd ss lamm, tr imbd mic pyr, mnr dk, silty-shy intbds	14600-14660 SS: gysbhn-med gy, dk gy, frm-sl fri, com lse sb ang qtz grs, mod strd, vf-uf gr, gr-mtx sup cls, cons wi silc cnt, ip arg, tr calc, tr pp mic pyr, mnr dk gy, non calc SH	14660-14720 SLTY SH (70%): med gy-dk gy, mot gysbhn thru, sb spt-sb blkly, sl hd-frm, silty-vf sdy intbds, sl calc, grd silt intbds; SS (30%): med gy-gysbhn, mot dk gy thru, offwht ip, frm-sl hd, vf-f grs, grn-mtx sup cls, sb rd-sb ang, silc-arg cnt, tr pyr





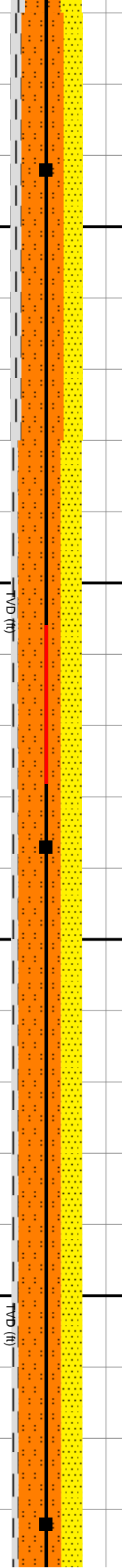
AVG BGG: 467



MD: 14,742'
TVD: 7,054.08'
Inclination: 88.42°
Azimuth: 269.72°
VS: 9,146.95'

MD: 14,837'
TVD: 7,055.22'
Inclination: 90.2°
Azimuth: 270.59°
VS: 9,241.81'

MD: 14,932'
TVD: 7,054.56'
Inclination: 90°
Azimuth: 270.0°
VS: 9,336.67'



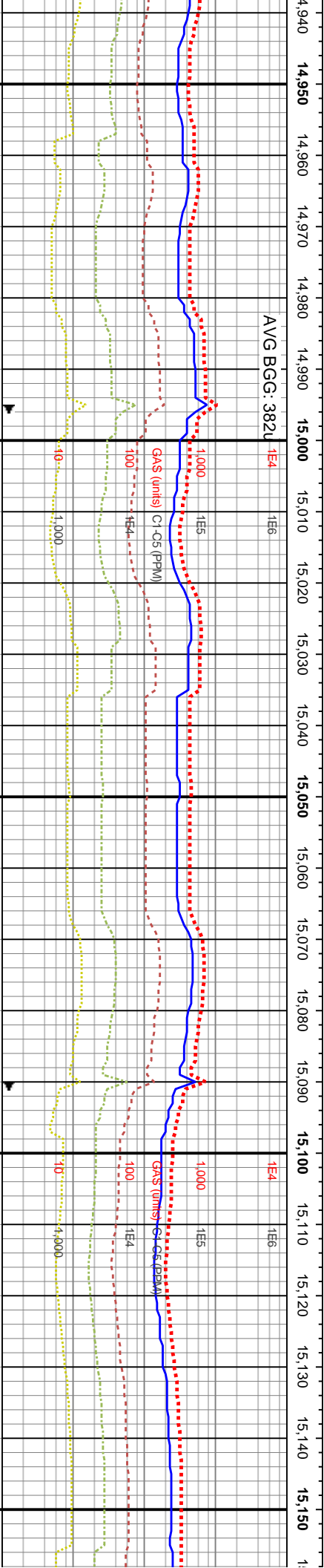
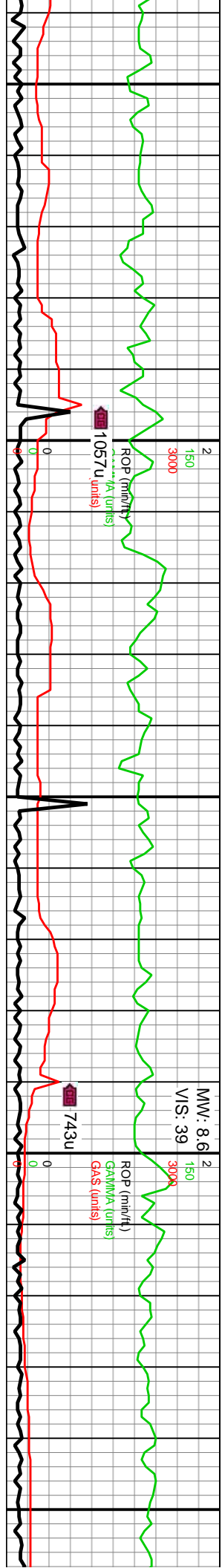
14720-14780 SLTY SH (75%): dk gy-med gy, split-sb blk, frm, non calc, silty tex mnr silst intbds; SS (25%): gyshn-med gy, sme lt gy, frm-fri cls, sb blk, p-mod strd, vf-uf gr, mnr lse sb ang qtz grs, ip fri f gr-mix sup cls wi arg-silic cmt, tr calc

14780-14840 SLTY SH (70%): med gy-dk gy, sb split-sb blk, silty-si sm tex, silty intbds-strg, f lam; SS (30%): gyshn, med gy-lt brn, frm-fri clus, mix sup clus, ip grn sup, f-vf grs, sb rd-sb ang grs, abnt sil cmt

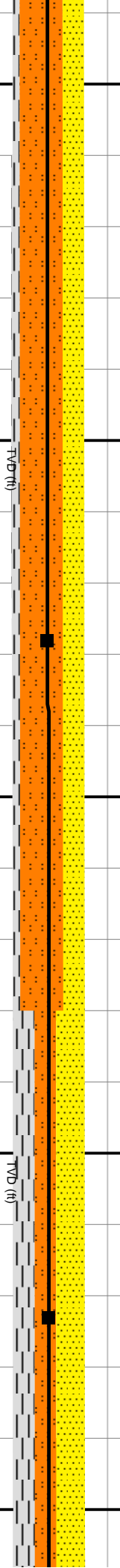
14840-14900 SLTY SH (75%): med gy-dk gy, mot gyshn, sb pty-sb blk, si frm, sme silty-vf sdy intbds, sl calc, silty grdg, tr mic pyr; SS (25%): lt gy-gyshn, lt brn mot thru, ip offwht, mod op grs, frm-si fri clus, vf-f gr, grn sup clus, sb rd-sb ang grs, sil-arg cmt

14900-14960 SLTY SH (80%) pty-sb blk, frm-si hnd, sme : calc, silty grdg, tr pp mic pyr; gy-gyshn, lt brn mot thru, ip clus, sme hd, vf-f gr, grn sup clus, sb rd-sb ang, silc-arg ci



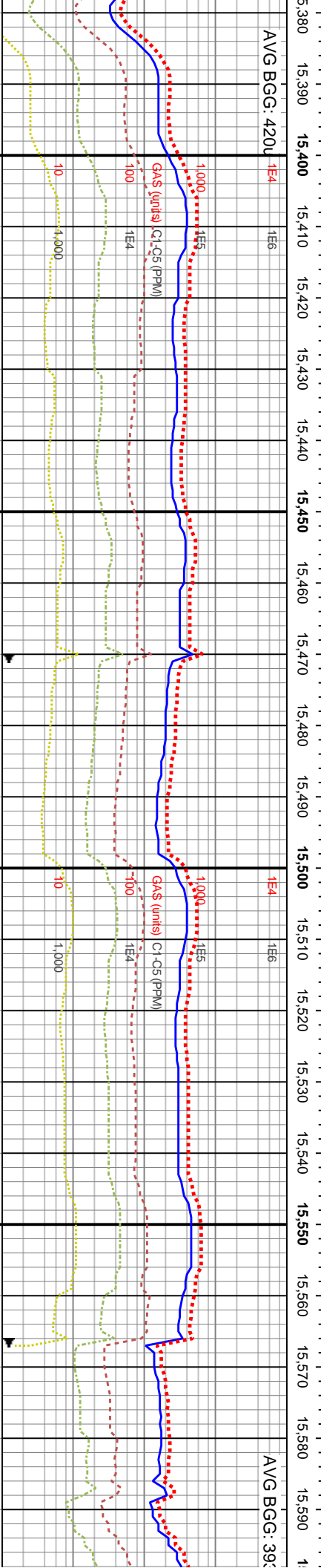
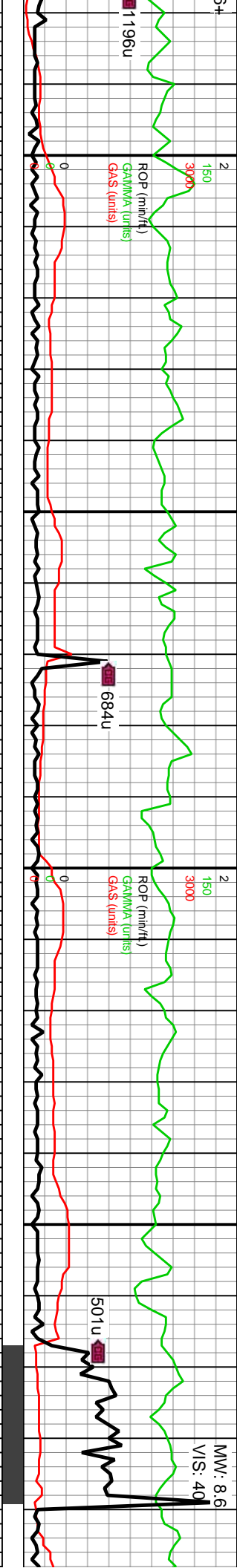


WOB: 41.2Klbs
Rotary: 66RPM
Strokes: 220SPM
Pump Rate: 637GPM
MD: 15,028'
TVD: 7,052.67'
Inclination: 91.64°
Azimuth: 270.27°
VS: 9,432.52'



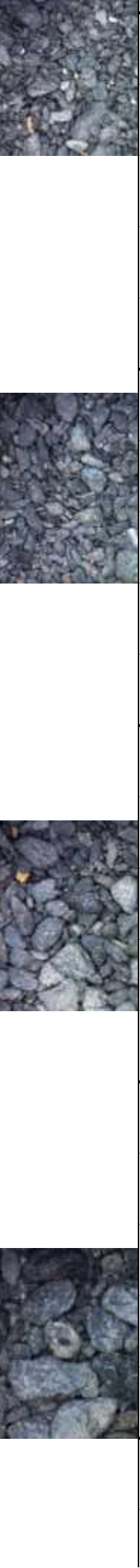
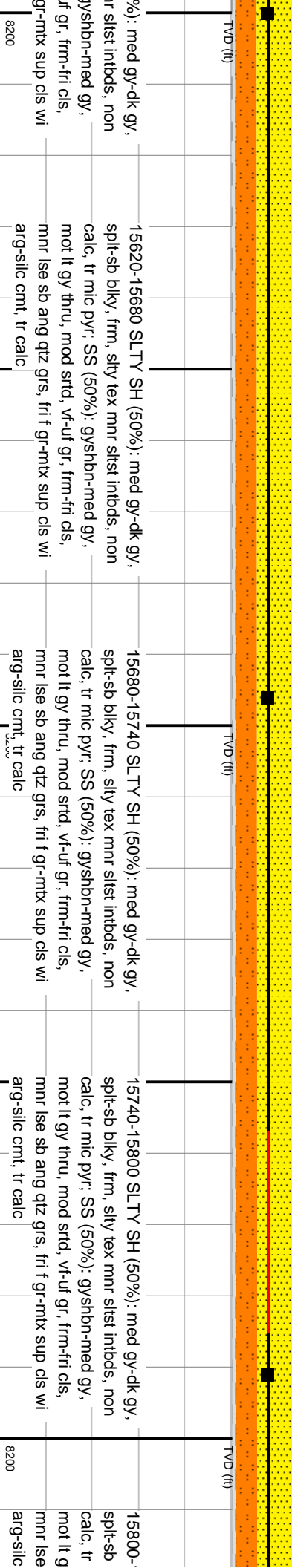
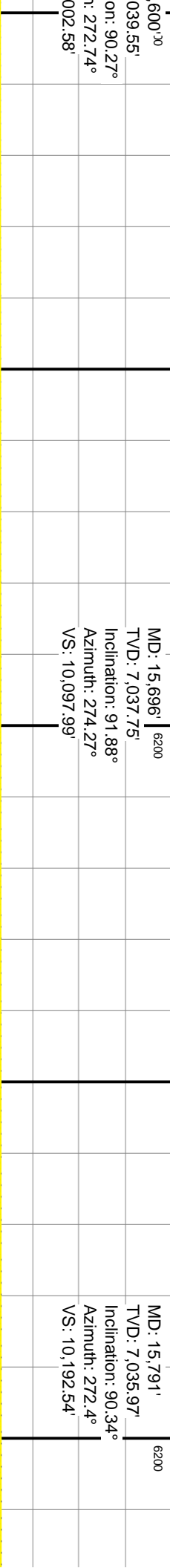
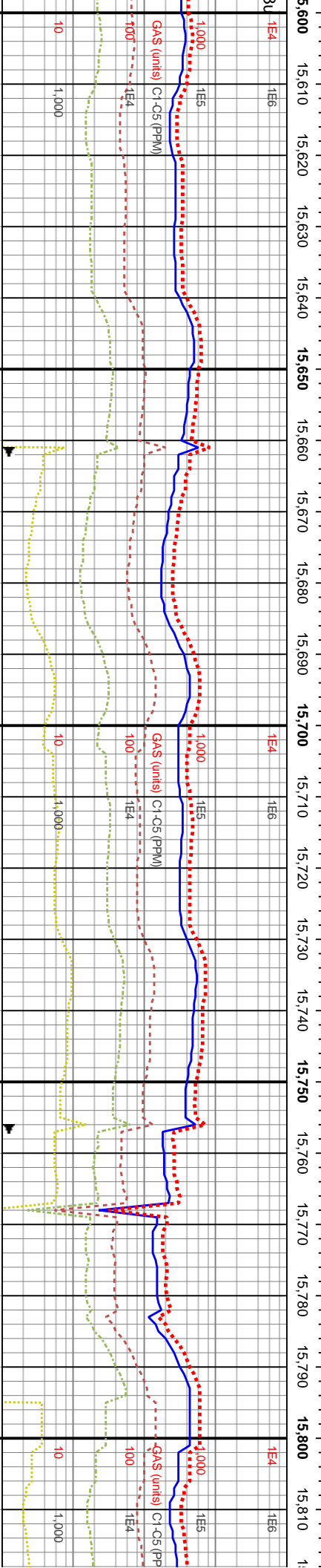
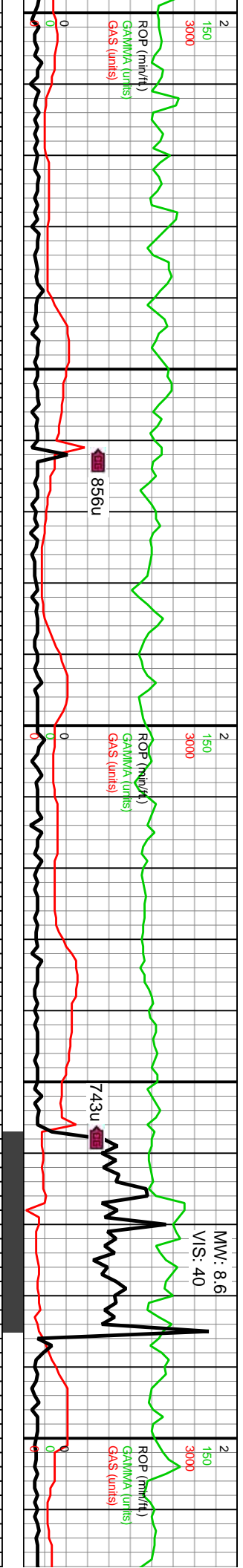
14,960-15,020 SLTY SH (65%): dk gy-med gy, sily-vf sdy inbds, sl	15,020-15,080 SLTY SH (70%): med gy-dk gy, mot gyshn thru, sb spt-sb blk, sl hd frm, sl	15,080-15,140 SLTY SH (80%): predy med gy-dk gy, mot gyshn, sb pty-sb blk, sl frm, sily-vf sdy inbds, sl calc, sily grdg, tr mic pyr, SS (20%): lt gy-gyshn, mot lt bn thru, mod op grs, frm-sl fri clus, vf-f gr, grn sup clus, sb rd-sb ang grs, sil-arg cnt	15,140-15,150 SLTY SH (85%): dk gy-med gy, sily-vf sdy inbds, sl
SS (20%): med offwht, frm-sl fri clus, ip mtx sup nt, tr pyr	arg-silic cnt, tr calc	arg-silic cnt, tr pyr	arg-silic cnt, tr pyr

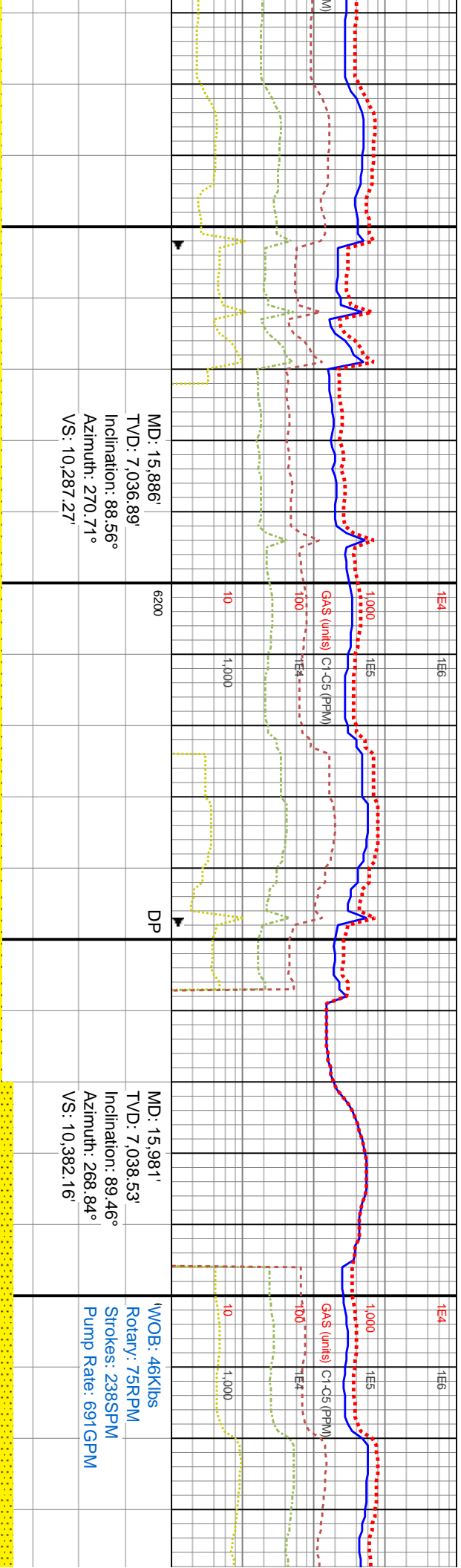
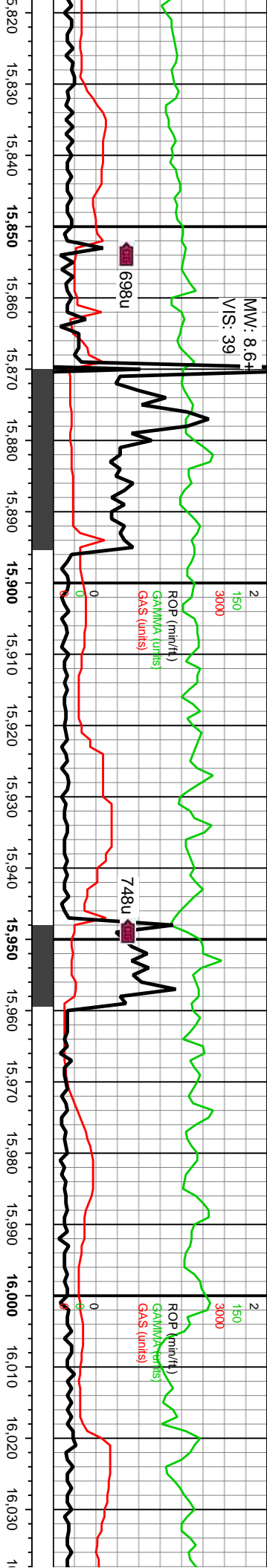




15380-15440 SLTY SH (80%): med gy-dk gy, splt-sb blkly, frm, silty tex mnr silst intbds, non calc, tr mic pyr; SS (20%): gysbhn-med gy, mot lt gy thru, mod strd, vf-uf gr, frm-fri cls, mnr lse sb ang qtz grs, fri f gr-mtx sup cls wi arg-silic cnt, tr calc		15440-15500 SLTY SH (75%): dk gy-med gy, splt-sb blkly, frm, non calc, silty tex mnr silst intbds; SS (25%): gysbhn-med gy, sme lt gy, frm-fri cls, sb blkly, p-mod strd, vf-uf gr, mnr lse sb ang qtz grs, ip fri f gr-mtx sup cls wi arg-silic cnt, tr calc		15500-15560 SLTY SH (70%): med gy-dk gy, splt-sb blkly, frm, silty tex mnr silst intbds, non calc, tr mic pyr; SS (30%): gysbhn-med gy, mot lt gy thru, mod strd, vf-uf gr, frm-fri cls, mnr lse sb ang qtz grs, fri f gr-mtx sup cls wi arg-silic cnt, tr calc		15560-15620 SLTY SH (50%): splt-sb blkly, frm, silty tex mnr silst intbds, non calc, tr mic pyr; SS (50%): gysbhn-med gy, mot lt gy thru, mod strd, vf-uf gr, frm-fri cls, mnr lse sb ang qtz grs, fri f gr-mtx sup cls wi arg-silic cnt, tr calc	
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	

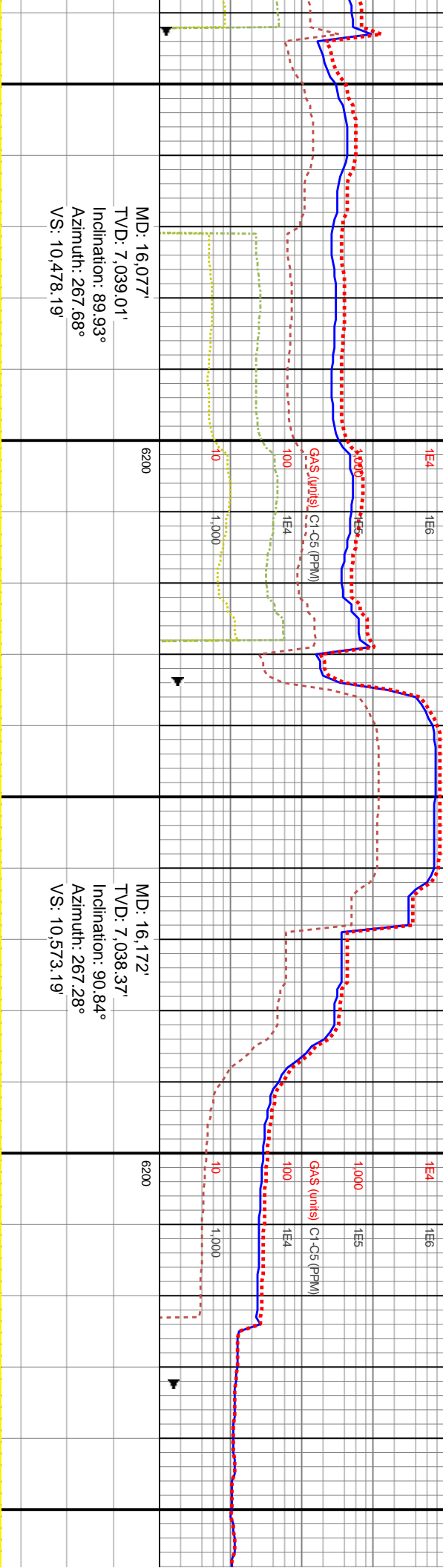
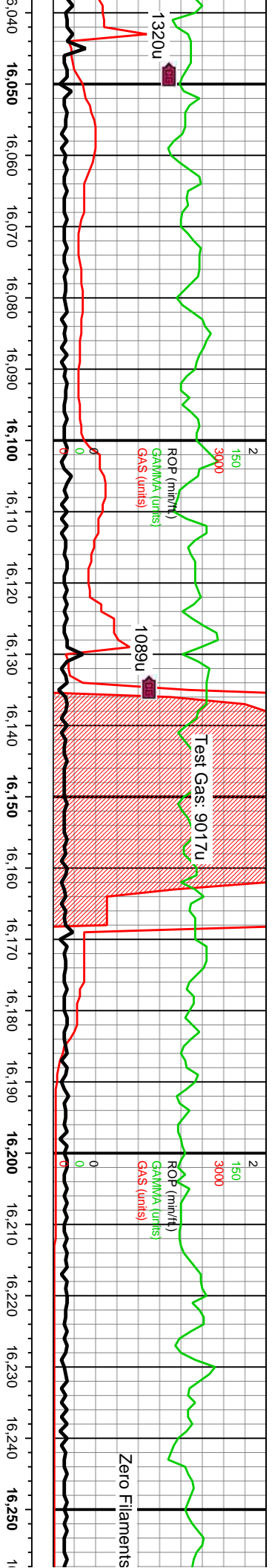






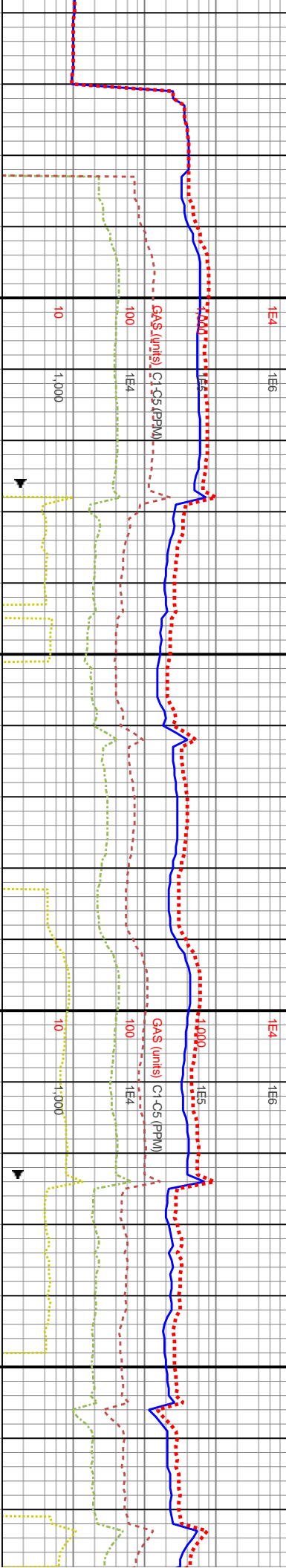
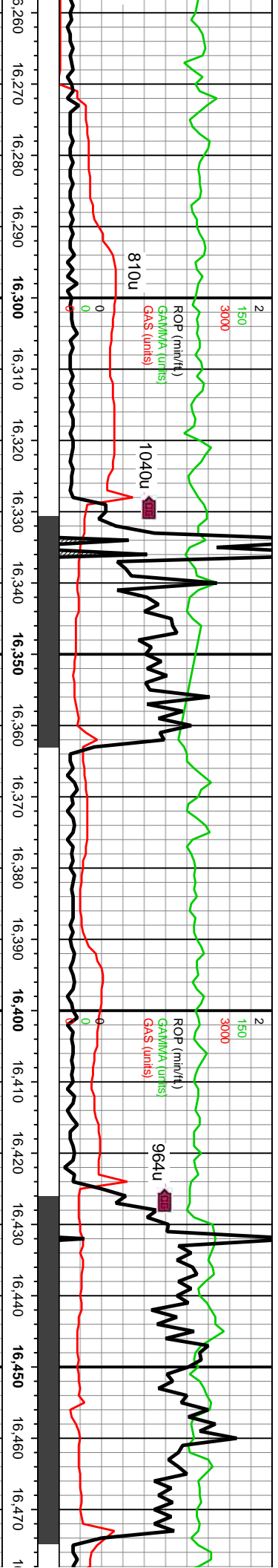
15860-15920 SLTY SH (50%): med gy-dk gy, blkly, frm, silty tex mnr slst intbds, non mic pyr; SS (50%): gysbhn-med gy, y thru, mod strd, vf-uf gr, frm-fri cls, mnr lse sb arg qtz grs, fri f gr-mtx sup cls wi cnt, tr calc	MD: 15,886' TVD: 7,036.89' Inclination: 88.56° Azimuth: 270.71° VS: 10,287.27'	6200	DP	MD: 15,981' TVD: 7,038.53' Inclination: 89.46° Azimuth: 268.84° VS: 10,382.16'	15920-15980 SS (50%): med gy- bf- lt gy brn, sme mot, pred rd clgs, pred sl frm- fri mtx sup clus wi v f sd grs- slt, occ grn sup clus, hi intbdd w slt- sh; SLTST (30%): med gy, gy- bf mot, sb blkly- sb plty, mod arg- sdy; SH (20%): gy- med gy, sl frm, pred sb plty, intbdd w f sd- slt	15860-15920 SLTY SH (50%): med gy-dk gy, splt-sb blkly, frm, silty tex mnr slst intbds, non calc, tr mic pyr; SS (50%): gysbhn-med gy, mot lt gy thru, mod strd, vf-uf gr, frm-fri cls, mnr lse sb arg qtz grs, fri f gr-mtx sup cls wi arg-silic cnt, tr calc





16040-16100 SS (50%): med gy- bf- lt gy brn, sme mot, pred rd ctgs, pred sl frm- fri mtx sup clus wi v f sd grs- silt, occ grn sup clus, hi intbdd w silt- sh; SLTST (30%): med gy, gy- bf mot, sb bly- sb ply, mod arg- sdy; SH (20%): gy- med gy, sl frm, pred sb ply, intbdd w f sd- silt	8200
16100-16160 SLTY SH (60%): med gy, gy- bf, sme lt gy mot, sb bly- sb ply, sl frm, mod arg, sme v f sd intbds, sme f lam; SS (40%): med gy- bf- lt gy brn, sme mot, pred rd ctgs, pred intbdd wi sily sh, ip sl frm- fri mtx sup clus wi v f sd grs- silt, tr grn sup clus, hi intbdd w silt- sh	8200
16160-16220 SLTY SH (60%): med gy, gy- bf, sme lt gy mot, sb bly- sb ply, sl frm, mod arg, sme v f sd intbds, sme f lam; SS (40%): med gy- bf- lt gy brn, sme mot, pred rd ctgs, pred intbdd wi sily sh, ip sl frm- fri mtx sup clus wi v f sd grs- silt, tr grn sup clus, hi intbdd w silt- sh	8200
16220-16280 SLTY SH bf, sme lt gy mot, sb bly- sb ply, mod arg, sme v f sd intbds, sme f lam; SS (40%): med gy- bf- lt gy brn, sme mot, pred rd ctgs, pred intbdd wi sily sh, ip sl frm- fri mtx sup clus wi v f sd grs- silt, tr grn sup clus, hi intbdd w silt- sh	8200

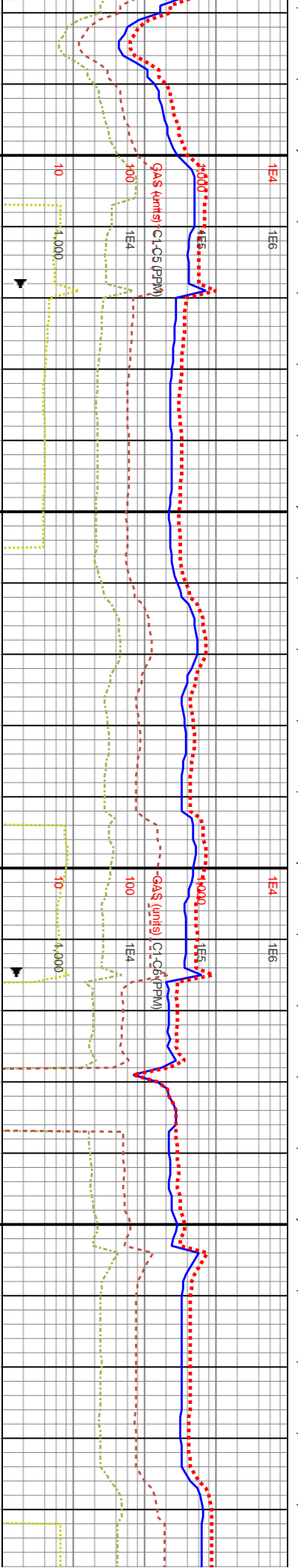
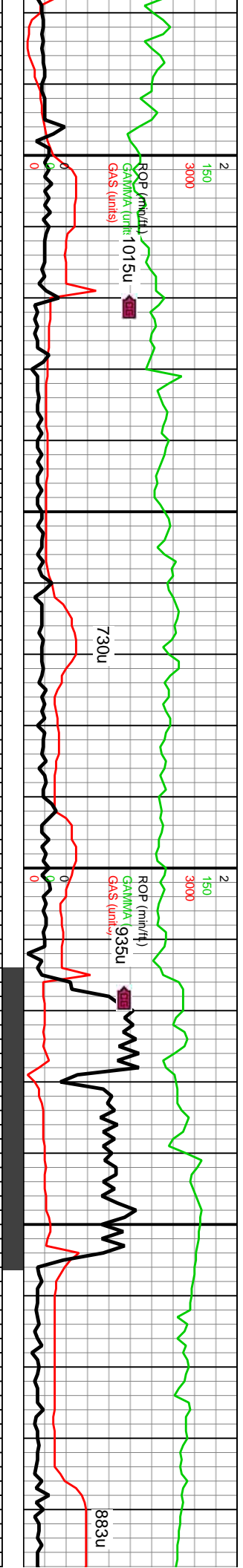




MD: 16,268' TV-D: 7,036.88' Inclination: 90.94° Azimuth: 265.46° VS: 10,669.16'	6200	MD: 16,363' TV-D: 7,035.13' Inclination: 91.17° Azimuth: 266.14° VS: 10,764.11'	6200	MD: 16,458' TV-D: 7,032.8' Inclination: 91.64° Azimuth: 267.38° VS: 10,859.08'
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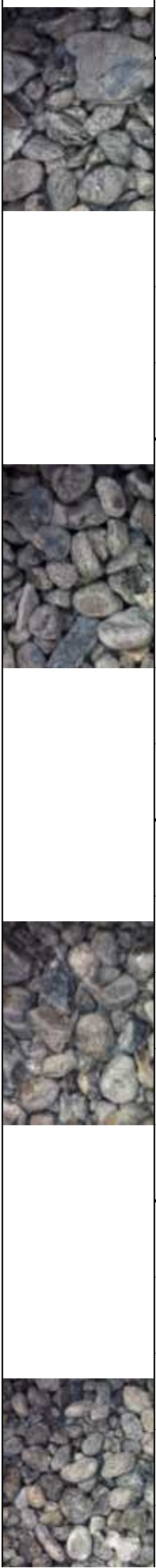
(60%): med gy, gy- yf- sb pily, sl frm, ods, sme f lam; SS brn, sme mot, pred sily sh, ip sl frm- fri rs- silt, tr grn sup	16280-16340 SLTY SH (60%): med gy, gy- bf, sme lt gy mot, sb blk- sb pily, sl frm, mod arg, sme v f sd intbds, sme f lam; SS (40%): med gy- bf- lt gy brn, sme mot, pred rd cigs, pred intbwd wi sily sh, ip sl frm- fri mxt sup clus wi v f sd grs- silt, tr grn sup clus, hi intbwd w silt- sh	16340-16400 SLTY SH (60%): med gy, gy- bf, sme lt gy mot, sb blk- sb pily, sl frm, mod arg, sme v f sd intbds, sme f lam; SS (40%): med gy- bf- lt gy brn, sme mot, pred rd cigs, pred intbwd wi sily sh, ip sl frm- fri mxt sup clus wi v f sd grs- silt, tr grn sup clus, hi intbwd w silt- sh	16400-16460 SLTY SH (60%): med gy, gy- bf, sme sl blk, sme lt gy mot, sb blk- sb pily, sl frm, mod arg, sme v f sd intbds, sme f lam; SS (40%): med gy- bf- lt gy brn, sme mot, pred rd cigs, pred intbwd wi sily sh, ip sl frm- fri mxt sup clus wi v f sd grs- silt, tr grn sup clus, hi intbwd w silt- sh	16460- bf, sm pily, s f lam; mot, f sl frm- grn su
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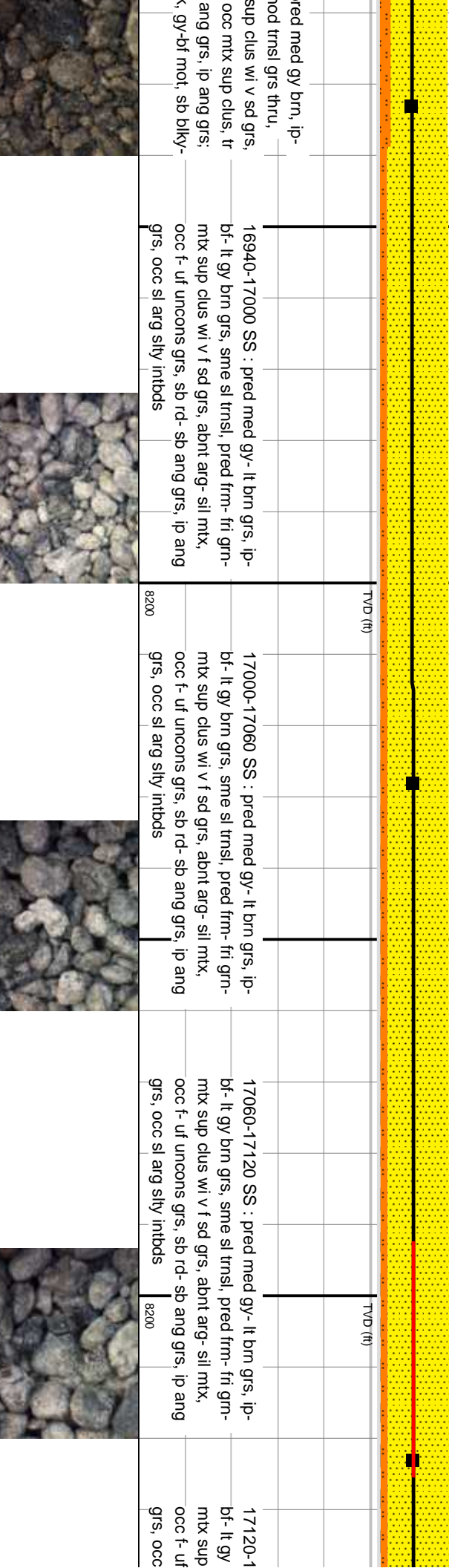
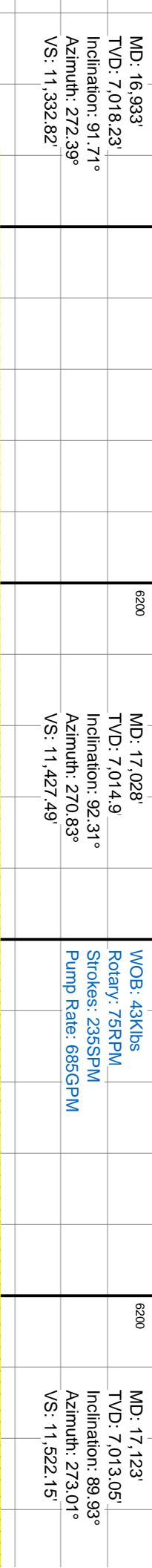
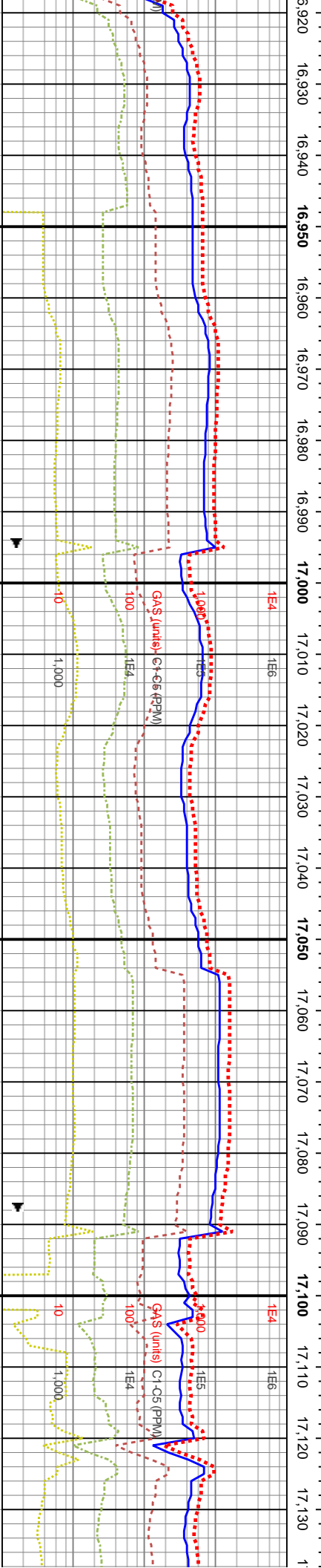
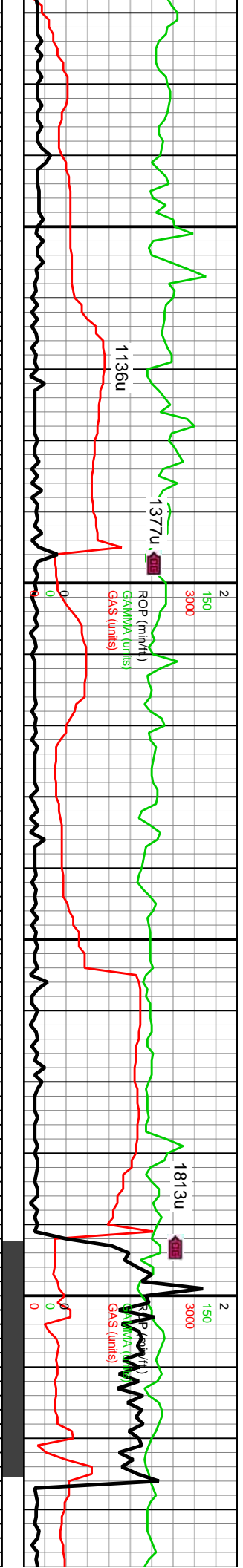


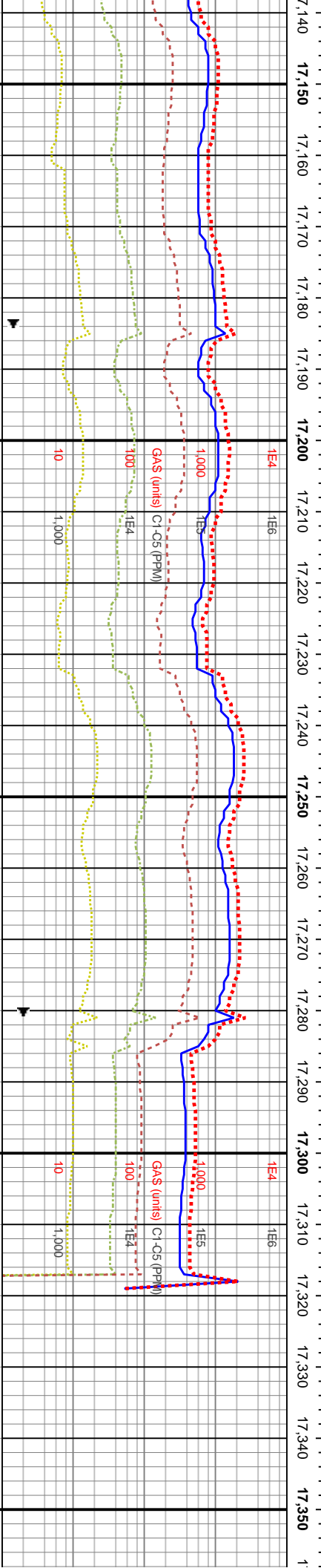
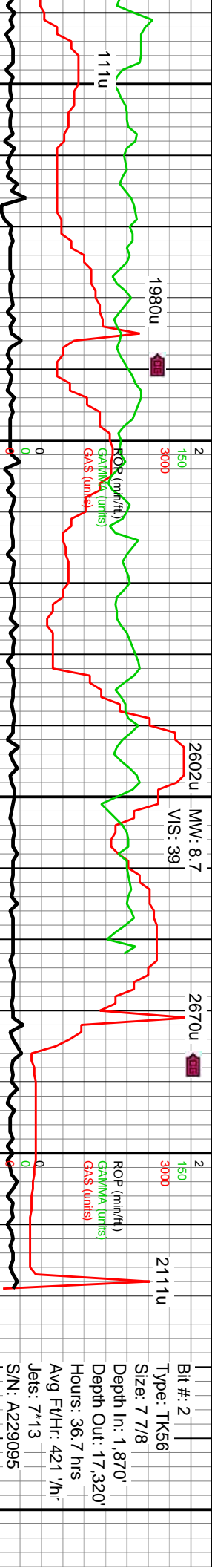


OIB: 35Klbs otary: 71RPM tokes: 238SPM ump Rate: 693GPM	6200	MD: 16,553' TVD: 7,028.69' Inclination: 93.32° Azimuth: 267.73° VS: 10,953.98'
	6200	MD: 16,648' TVD: 7,023.74' Inclination: 92.65° Azimuth: 270.06° VS: 11,048.81'

16520-16580 SLTY SH (60%): med gy, gy- e sl blk, sme lt gy mot, sb blk- sb frm, mod arg, sme v f sd intbds, sme SS (40%): med gy- bf- lt gy brn, sme pred rd cigs, pred intbdt w silty sh, ip fri mtx sup clus wi v f sd grs- slt, tr ip clus, hi intbdt w slt- sh	TVD (ft)	16520-16580 SLTY SH (50%): med gy, gy- bf, sme sl blk, sme lt gy mot, sb blk- sb pily, sl frm, mod arg, sme v f sd intbds, occ f lam; SS (50%): med gy- bf- lt gy brn, sme mot, pred rd cigs, pred intbdt w silty sh, mod sl frm- fri mtx sup clus wi v f sd grs- slt, tr grn sup clus, ip intbdt w slt- sh	TVD (ft)	16580-16640 SS (70%): med gy- bf- lt gy brn, sme mot, pred rd cigs, pred intbdt w silty sh, mod sl frm- fri mtx sup clus wi v f sd grs- slt, tr grn sup clus, ip intbdt w slt- sh; SLTY SH (30%): med gy, gy- bf, sme sl blk, sme lt gy mot, sb blk- sb pily, sl frm, mod arg, sme v f sd intbds, occ f lam	TVD (ft)	16640-16700 SS (80%): med gy- bf- lt gy brn, ip brn- offwht, mod trnsi grs thru, mot thru, pred frm- fri grn sup clus wi v sd grs, abnt arg mtx, sme sil mtx, occ mtx sup clus, tr f- uf uncons grs, sb rd- sb ang grs, ip ang grs; SLTST (20%): med gy, gy- bf mot, sb blk- sb pily, mod arg- sdy	TVD (ft)
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17180-17240 SS : pred gy- lt brn grs, ip- bf- lt gy brn grs, sme sl trnsi, pred frm- fri grn- mtg sup clus wi v f sd grs, abnt bf- offwht arg- sil mtg, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, sme sl arg silty intbds	17180-17240 SS : pred gy- lt brn grs, ip- bf- lt gy brn grs, sme sl trnsi, pred frm- fri grn- mtg sup clus wi v f sd grs, abnt bf- offwht arg- sil mtg, occ f- uf uncongs grs, sb rd- sb ang grs, ip ang grs, sme sl arg silty intbds
17180 SS : pred med gy- lt brn grs, ip- brn grs, sme sl trnsi, pred frm- fri grn- clus wi v f sd grs, abnt arg- sil mtg, uncongs grs, sb rd- sb ang grs, ip ang sil arg silty intbds	

