



Empirica

Scale: 5" / 100'
Measured Depth Log

Well Name Kodak #10

Location Kodak Pad Sec.27-T6N-R67W

State Colorado

Country USA

API Number na

Region DJ Basin

Spud Date 1/1/2015

Surface Coordinates SHL: 1341'FNL, 1042'FWL, Sec.27

Lat: 40.46149

Long: 104.88538

County Weld

Rig Number Frontier #10

AFE # na

Field Wattenberg

Drilling Completed 2/3/2015

Bottom Hole Coordinates BHL: 2207'FNL, 460'FWL, Sec. 29

Ground Elevation 4,770'

K.B. Elevation 4,792'

Logged Interval 6,620 To 7,503'

Total Depth 16,05'

Formation Niobrara B Chalk

Type of Drilling Fluid Water Based

Operator

Company Extraction Oil & Gas

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

Geologist

Name Jared Rouse

Company Extraction Oil & Gas

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



Other

Equipment ML-073

Comments Start: 1-2-14 (Curve), 1-30-
Standby: 1-29-15, 2-4-15
TD: 1-3-15 (Curve), 2-3-15

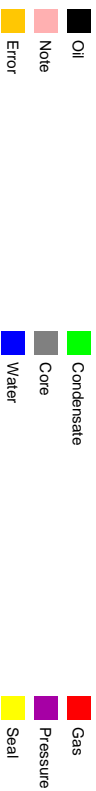
Services Provided

2-man Logging
On Site Geosteering

Logger Names

Dominic Pitre / Colin Ahearn

Zone Color Coding

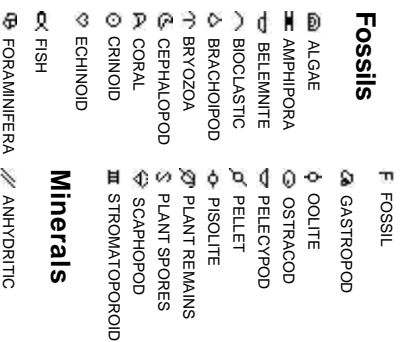


Rock Types

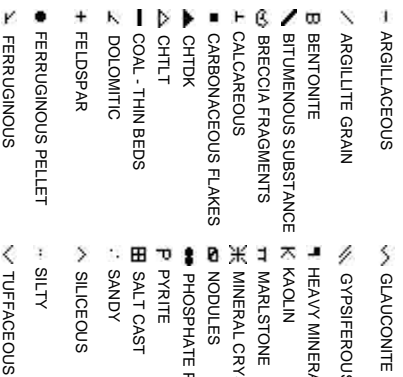


Accessories

Fossils



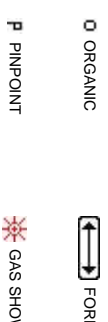
Minerals



Springer



Other Syr



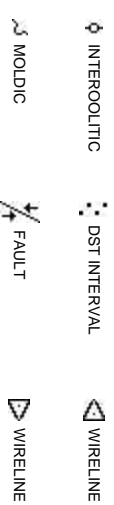
Oil Show



Engineering



Porosity



mbols

MATION TOP L LITHOGRAPHIC

Rounding

N MX MICROXLN

IN DEPTH A ANGULAR MS MUDSTONE

FAULT R ROUNDED PS PACKSTONE

/ B SUBANG MS WACKSTONE

NED STRATA n SUBRND

Sorting

FAULT

Textures

CORE (LEFT) M MODERATE

CORE (RIGHT) BS BOUNDSTONE P POOR

C CHALKY W WELL

CX CRYPTOXLN

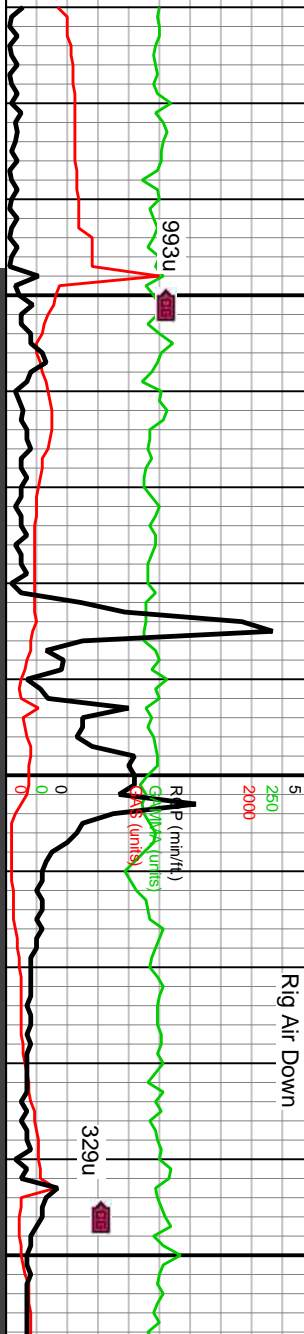
E EARTHY

S TESTED - LEFT FX FINELYXLN

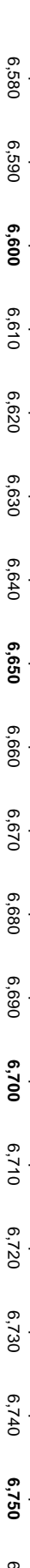
TESTED - RT BS GRAINSTONE

ROP
GAMMA
GAS

Extraction O&G
Weld County, Colorado
Spud Date: 1-1-14
Surface Casing @ 798'
Intermediate Casing @ x,xxx'
2-man Logging / Geosteering Began: 1-2-14

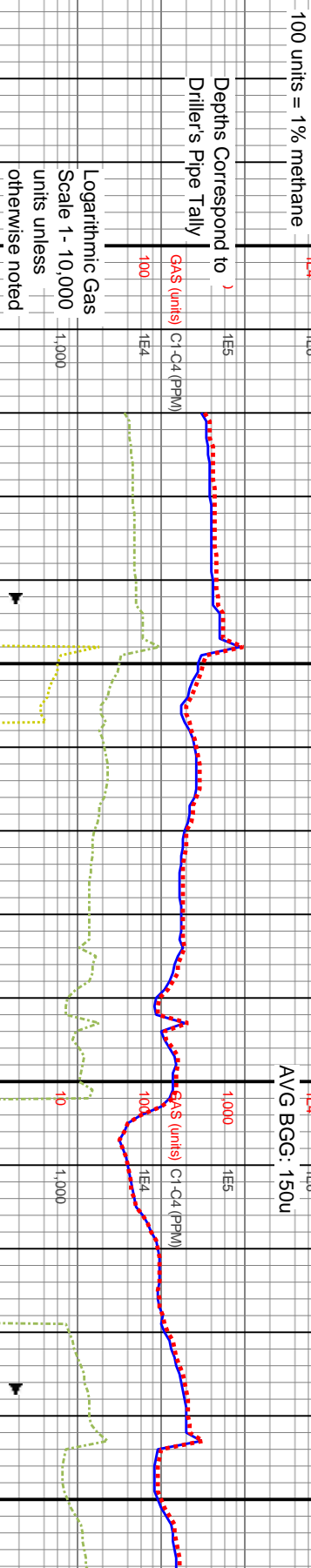


Slide/Rotate
Depth Labels

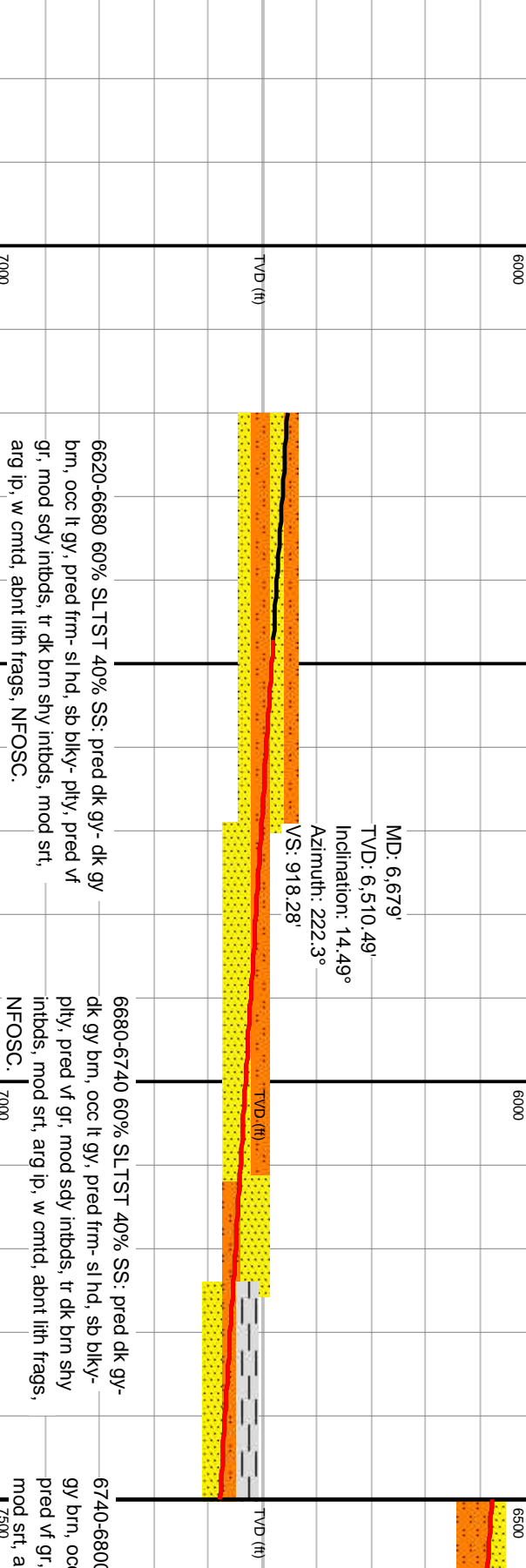


Total Gas & Chromatograph

GAS
C1
C2
C3
C4



Well Bore
TVD

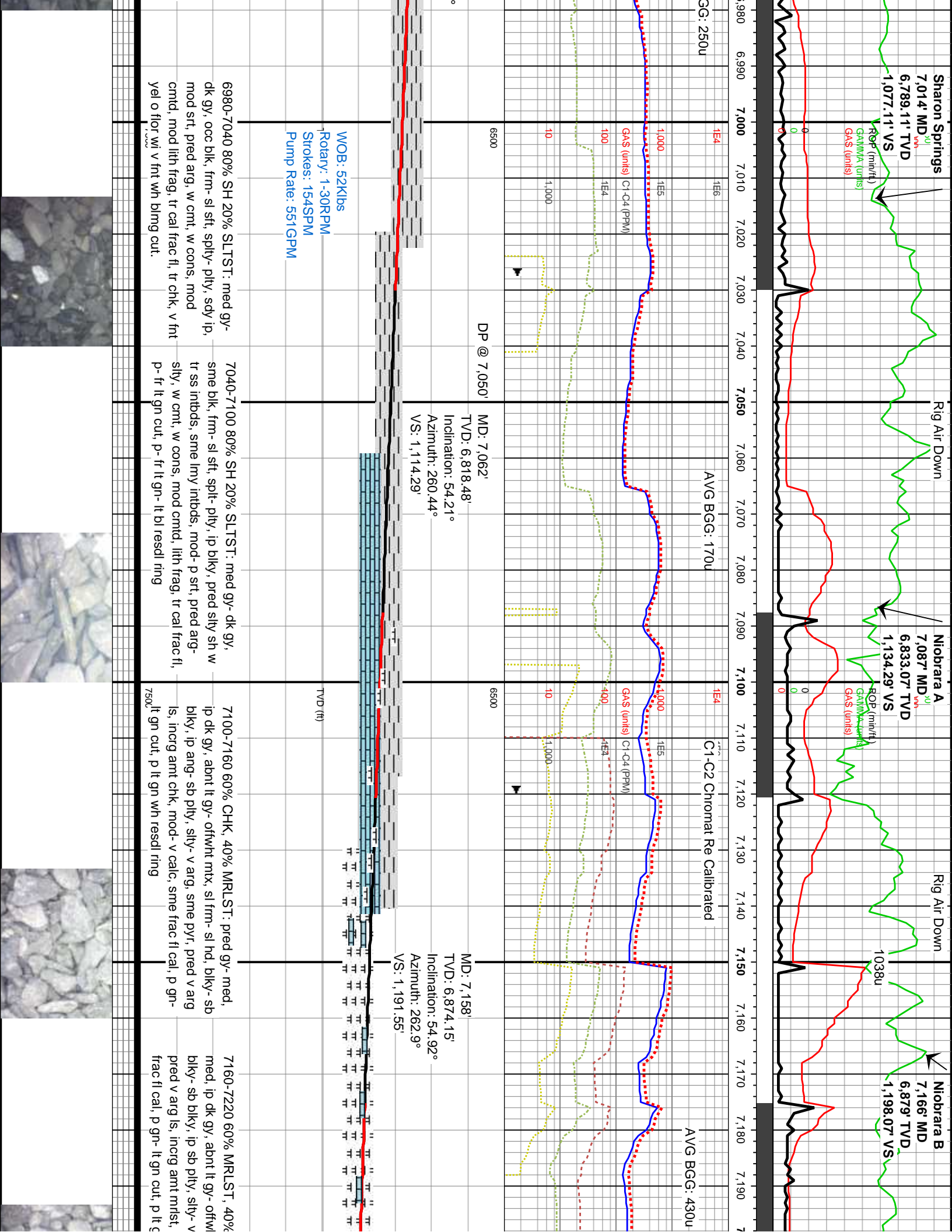


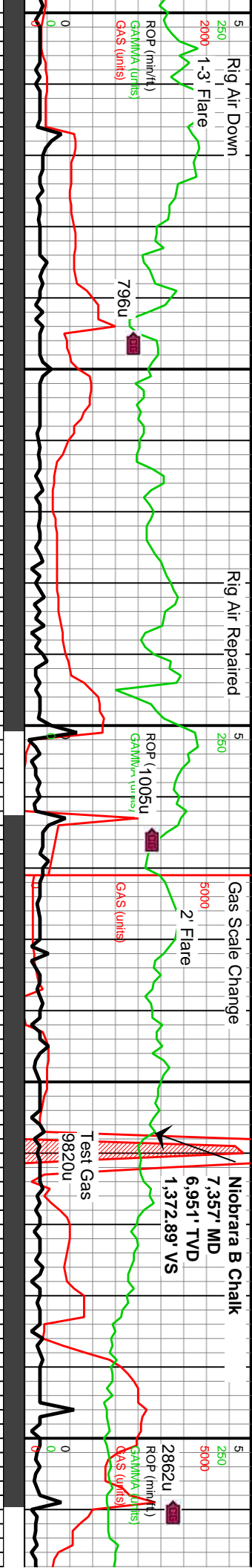
Oil Show

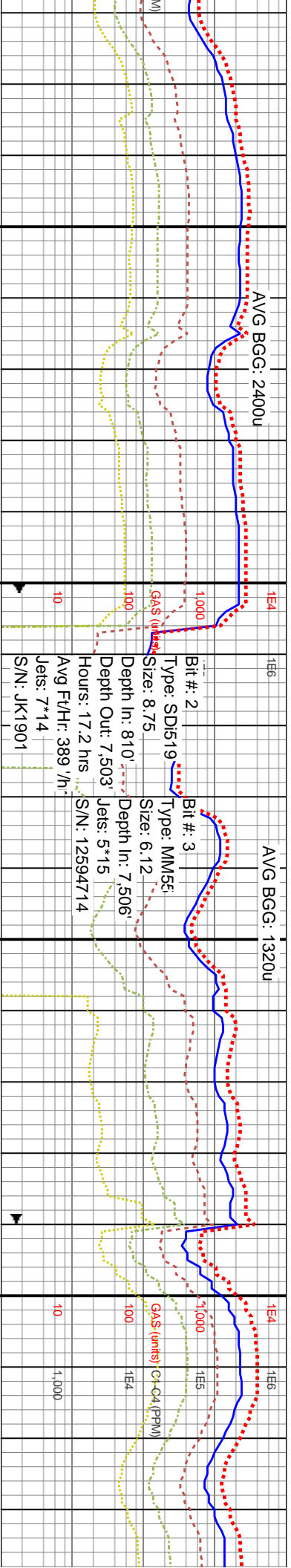
Oil Show

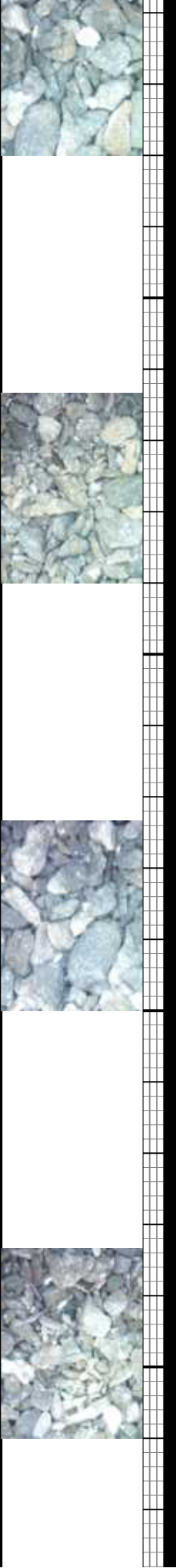
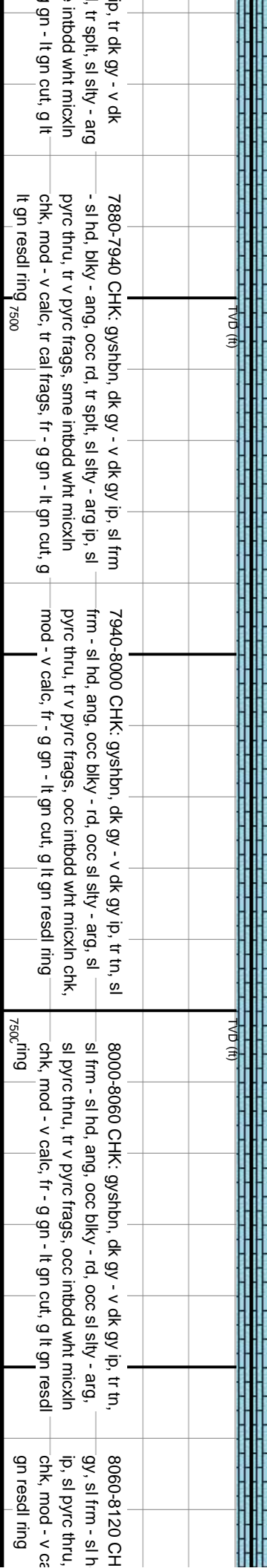
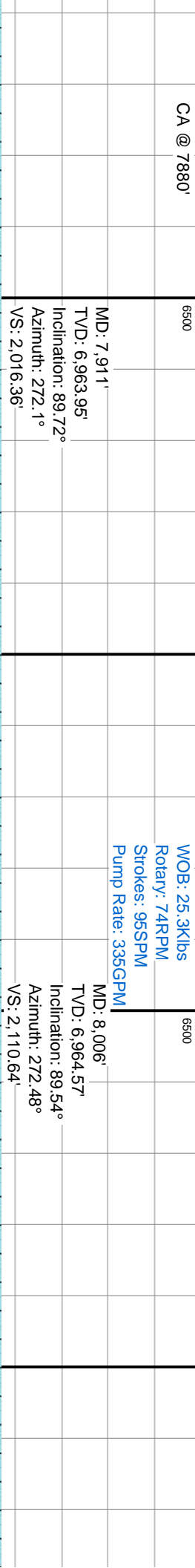
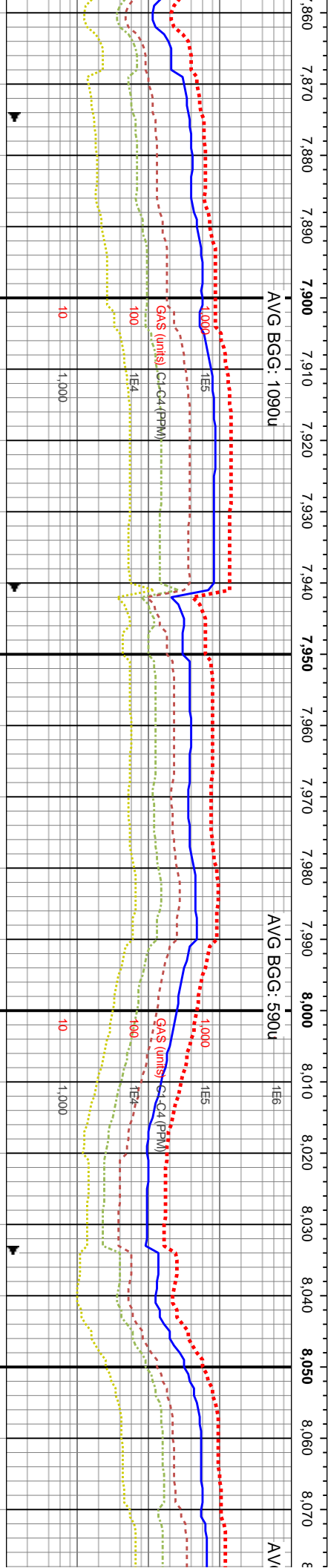
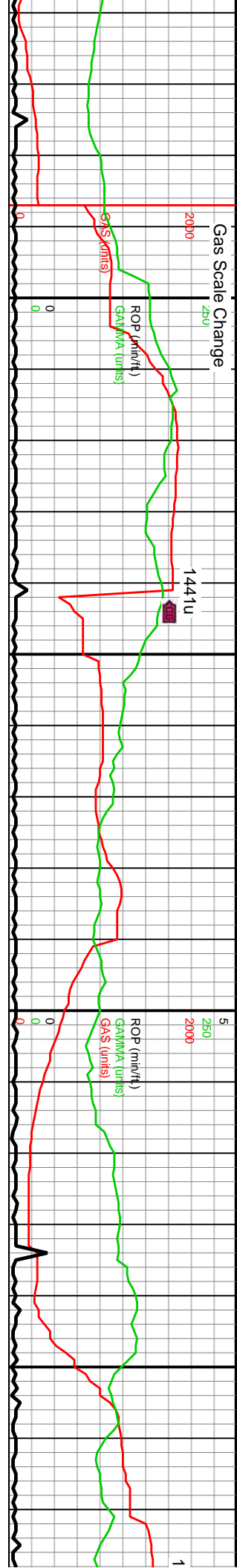
Images

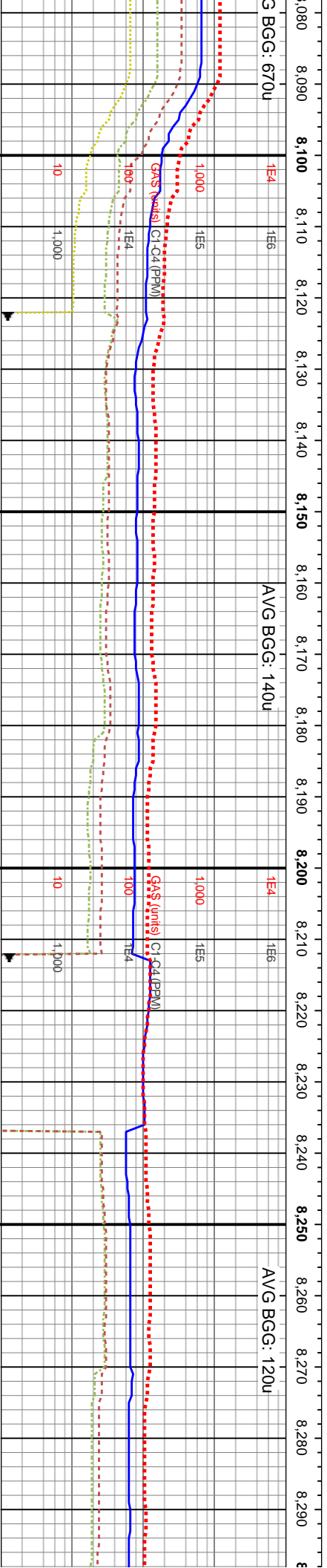
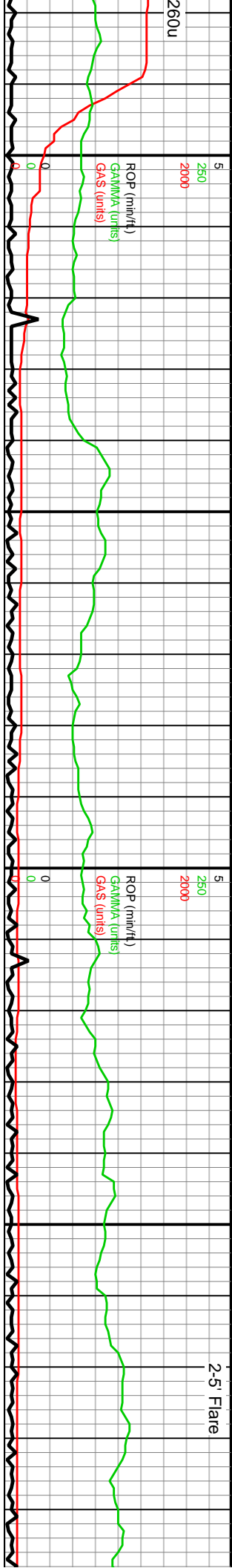












MD: 8,100'
TVD: 6,966'
Inclination: 88.71°
Azimuth: 272.96°
VS: 2,203.83'

TVD (ft)

8120-8180 CHK: gysbhn, dk gy - v dk gy ip, sl frm
- sl hd, biky - ang, occ rd, tr spl, sl silty - arg ip, sl
pyrc thru, tr v pyrc frags, sme intbdd wht micxn
chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt
gn resd ring

8180-8240 CHK: gysbhn, dk gy - v dk gy ip, tr tn, sl
frm - sl hd, ang, occ biky - rd, occ sl silty - arg, sl
pyrc thru, tr v pyrc frags, occ intbdd wht micxn chk,
mod - v calc, fr - g gn - lt gn cut, g lt gn resd ring

8240-8300 90% CHK 10% MRLST: gysbhn, dk
gy - v dk gy ip, tr tn, sl frm - sl hd, ang, occ biky -
rd, occ sl silty - arg, sl pyrc thru, tr v pyrc frags, occ
intbdd wht micxn chk, mod - v calc, fr - g gn - lt
gn cut, g lt gn resd ring

WOB: 24.5klbs
Rotary: 67RPM
Strokes: 96SPM
Pump Rate: 338GPM
MD: 8,194'
TVD: 6,968.86'
Inclination: 87.81°
Azimuth: 273.23°
VS: 2,296.9'

TVD (ft)

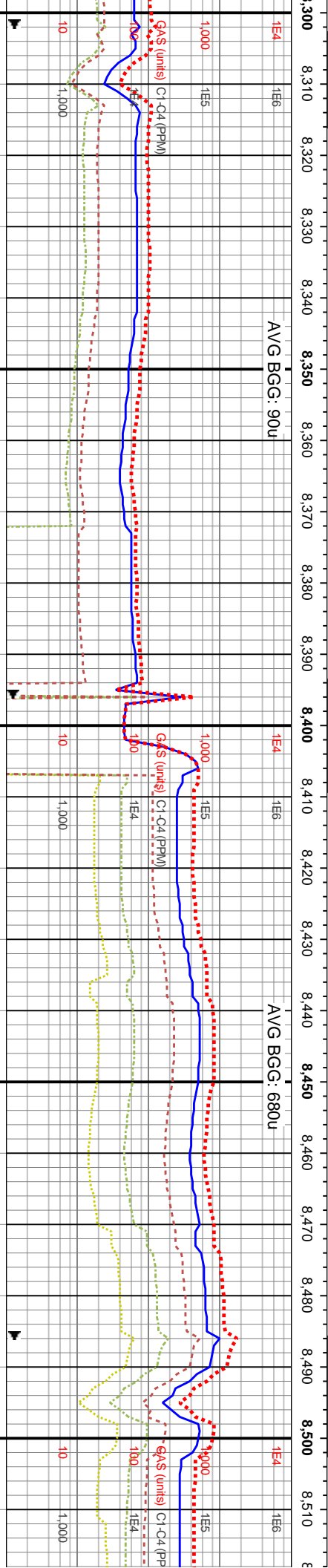
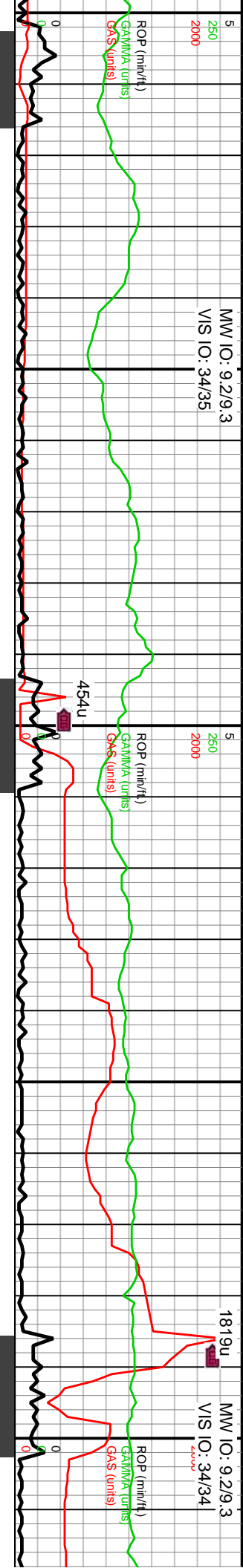
7500

7500



MW IO: 9.2/9.3
VIS IO: 34/35

MW IO: 9.2/9.3
VIS IO: 34/34



WOB: 23.6klbs
Rotary: 74RPM
Strokes: .95SPM
Pump Rate: 335GPM

MD: 8,383'
TVD: 6,978.06'
Inclination: 87.66°
Azimuth: 271.81°
VS: 2,484.23'

MD: 8,477'
TVD: 6,980.89'
Inclination: 88.89°
Azimuth: 270.88°
VS: 2,577.65'

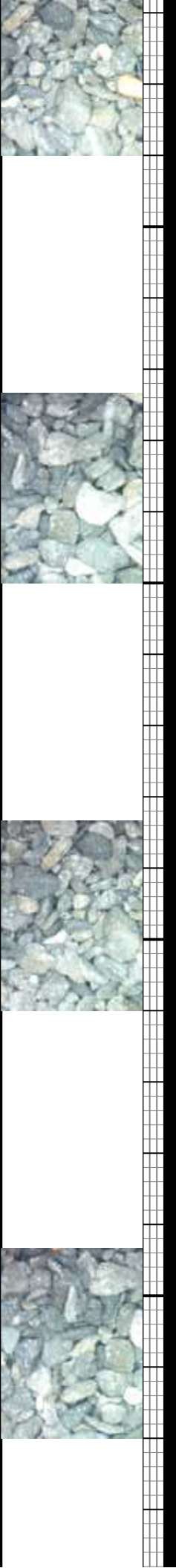
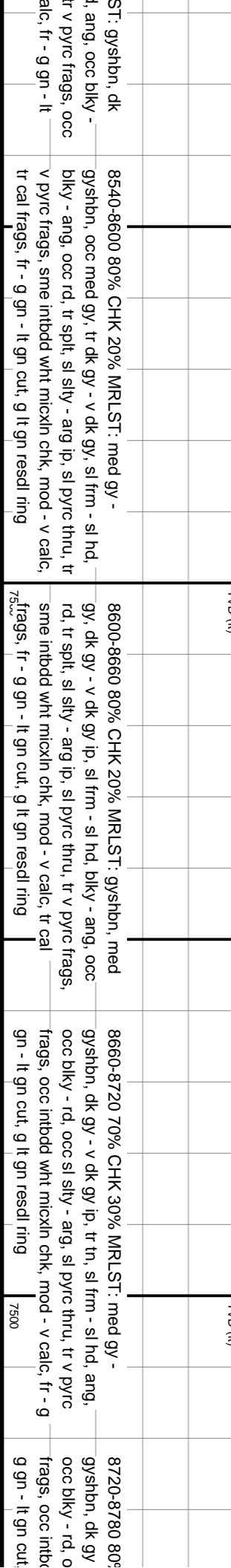
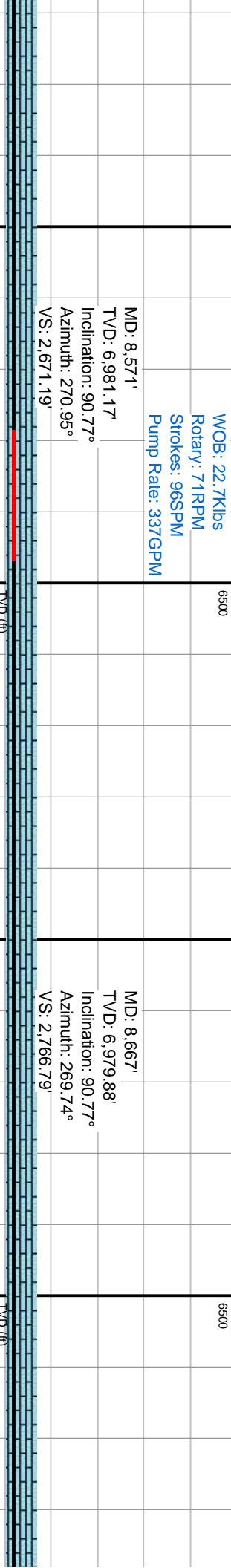
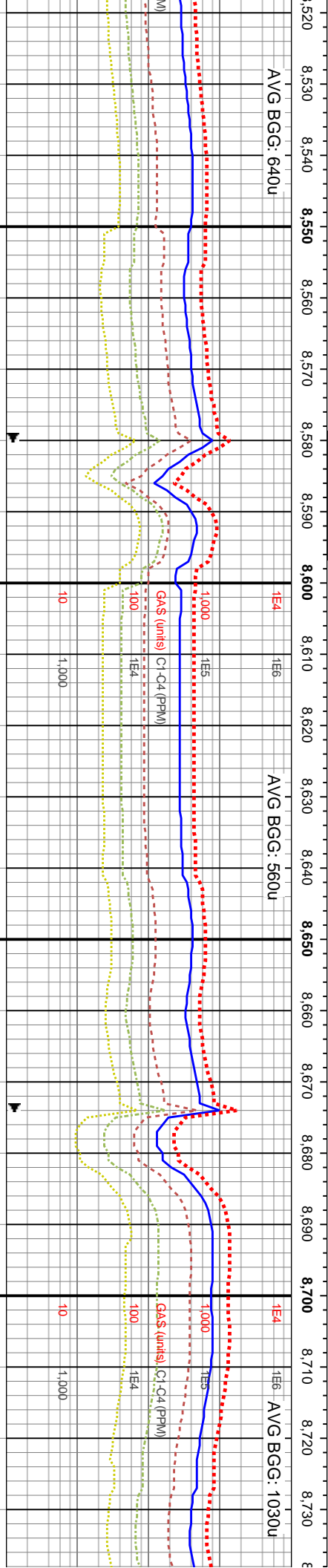
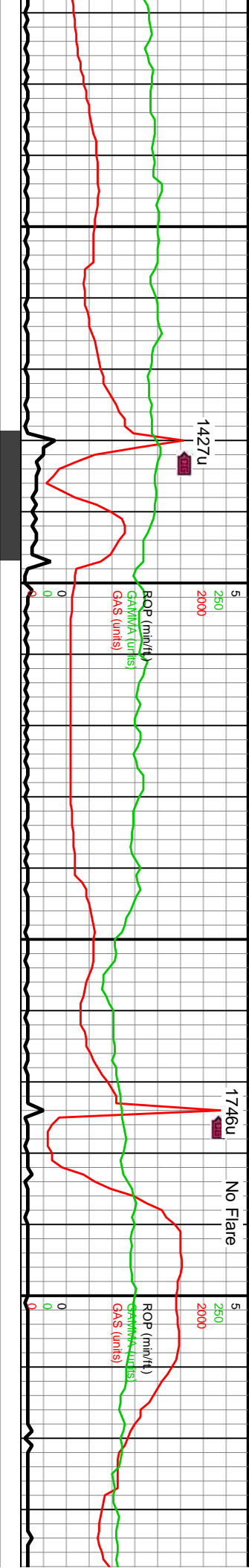
8300-8360 80% CHK 20% MRLST: gysbhn, occ med gy, tr dk gy - v dk gy, sl frm - sl hd, blkyl - ang, occ rd, tr spl, sl sly - arg ip, sl pyrc thru, tr v pyrc frags, sme intbdd wnt micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resdl ring

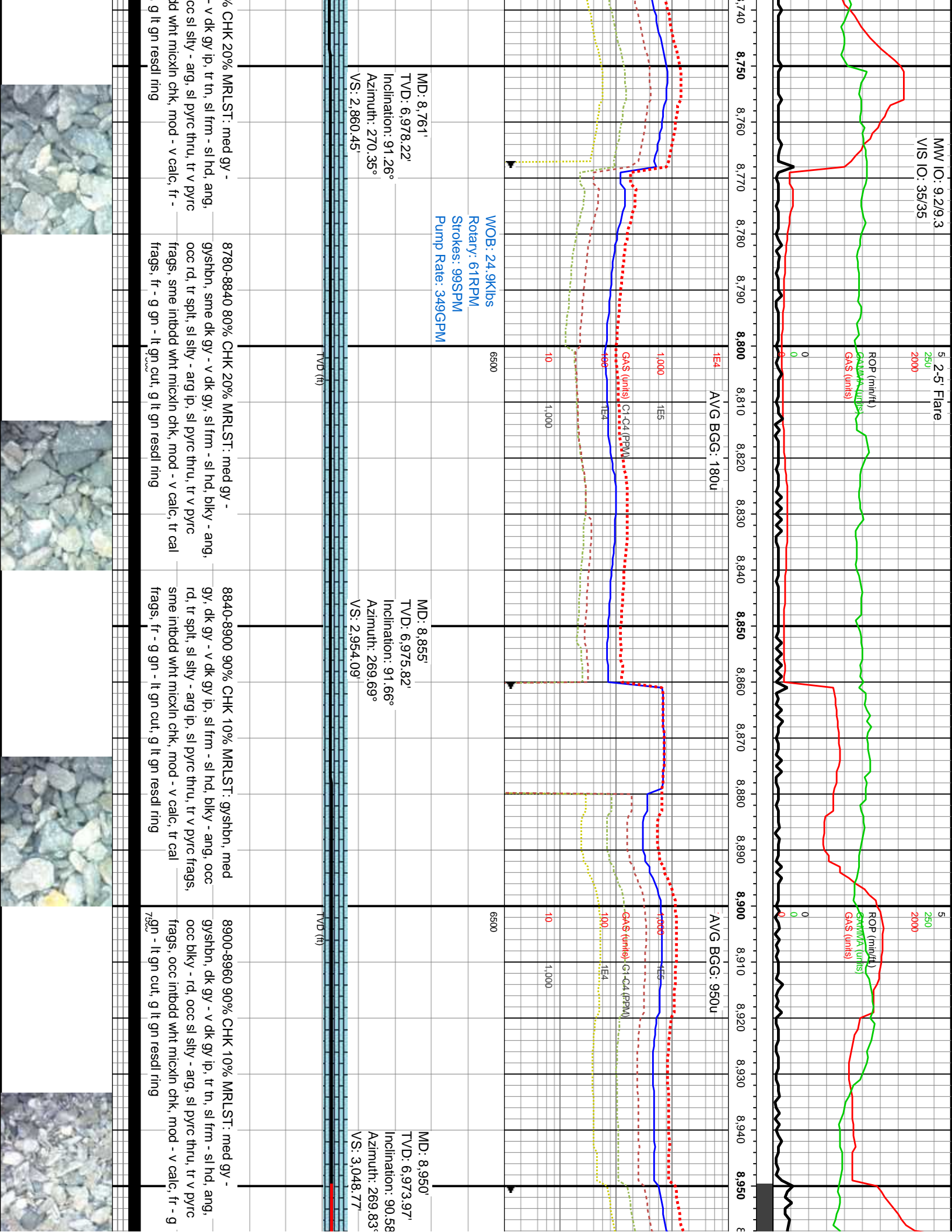
8360-8420 80% CHK 20% MRLST: gysbhn, dk gy - v dk gy ip, sl frm - sl hd, blkyl - ang, occ rd, tr spl, sl sly - arg ip, sl pyrc thru, tr v pyrc frags, sme intbdd wnt micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resdl ring

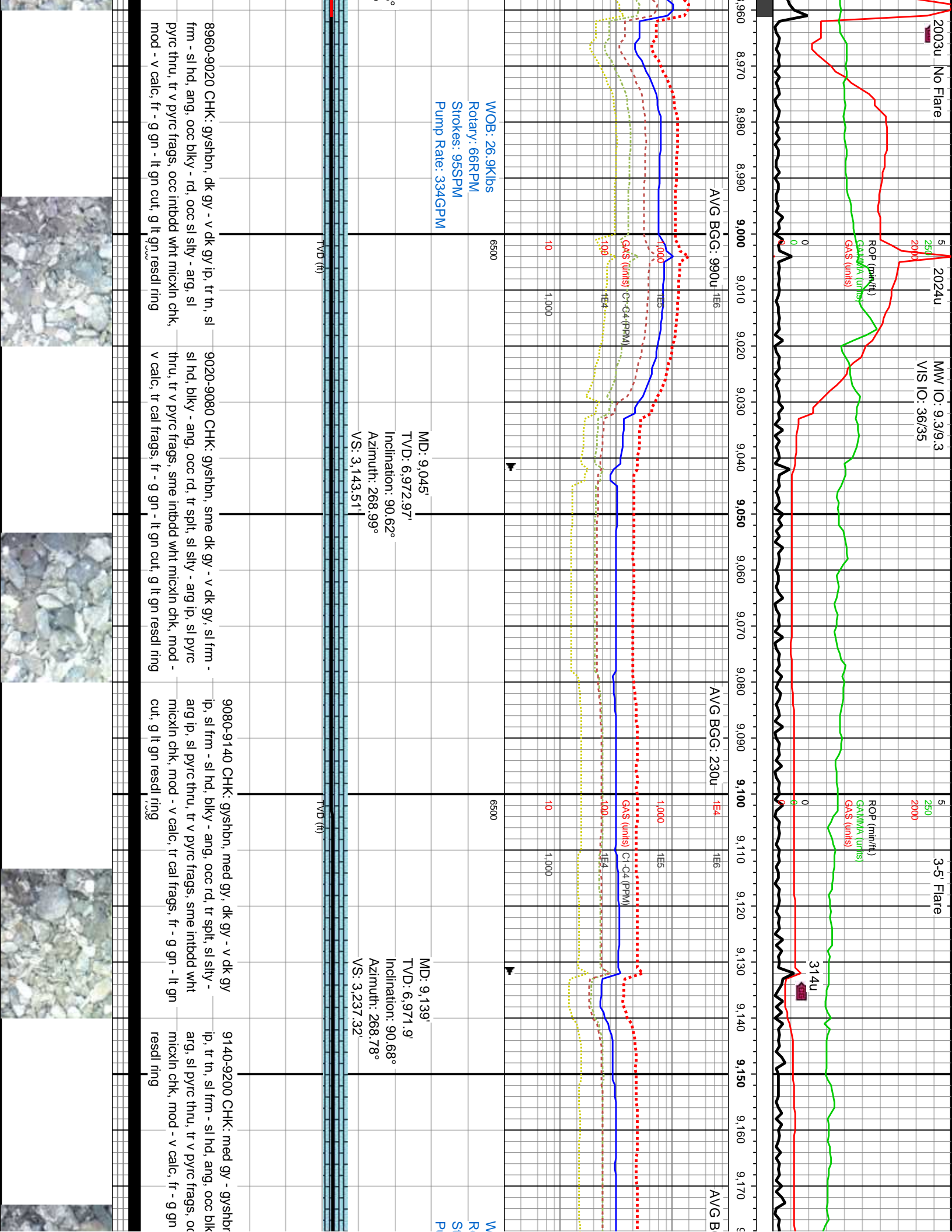
8420-8480 70% CHK 30% MRLST: gysbhn, dk gy - v dk gy ip, tr tn, sl frm - sl hd, ang, occ blkyl - rd, occ sl sly - arg, sl pyrc thru, tr v pyrc frags, occ intbdd wnt micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring

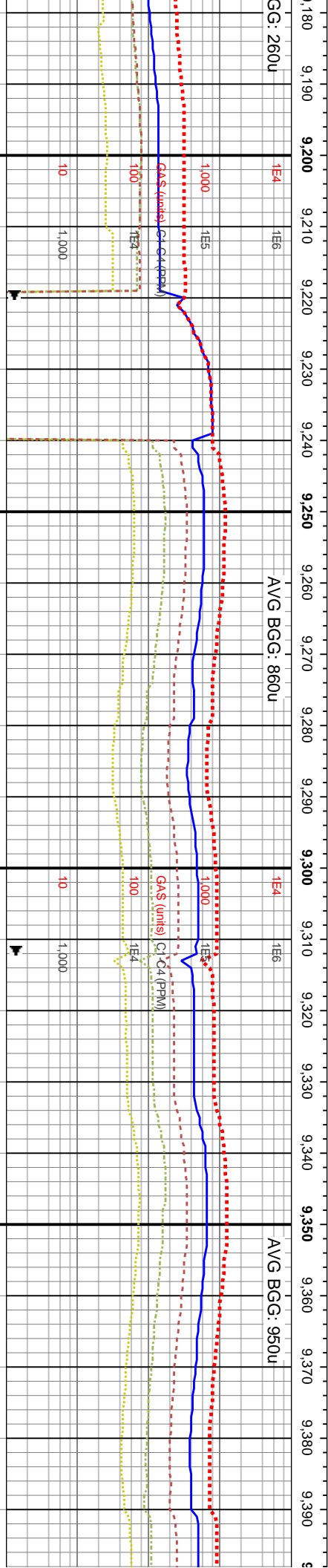
8480-8540 80% CHK 20% MRLST: gysbhn, dk gy - v dk gy ip, tr tn, sl frm - sl hd, ang, occ blkyl - rd, occ sl sly - arg, sl pyrc thru, tr v pyrc frags, sme intbdd wnt micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring



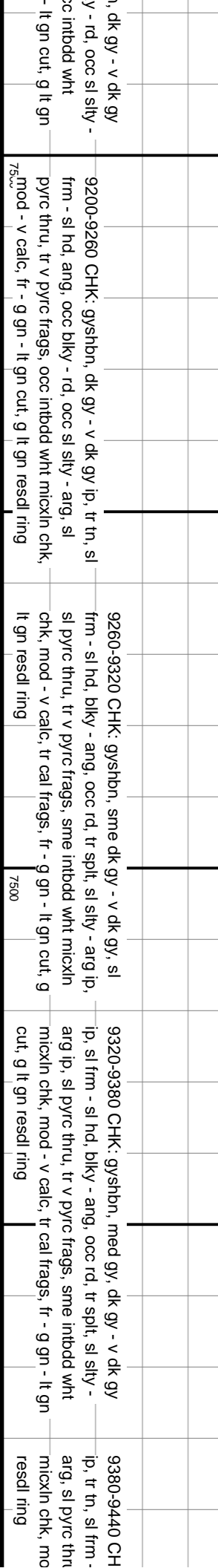




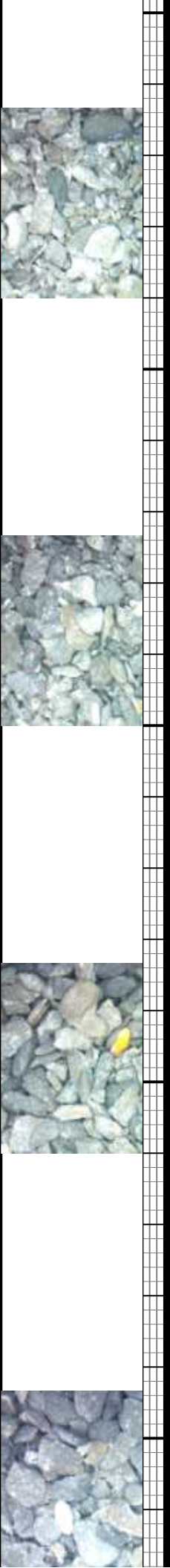
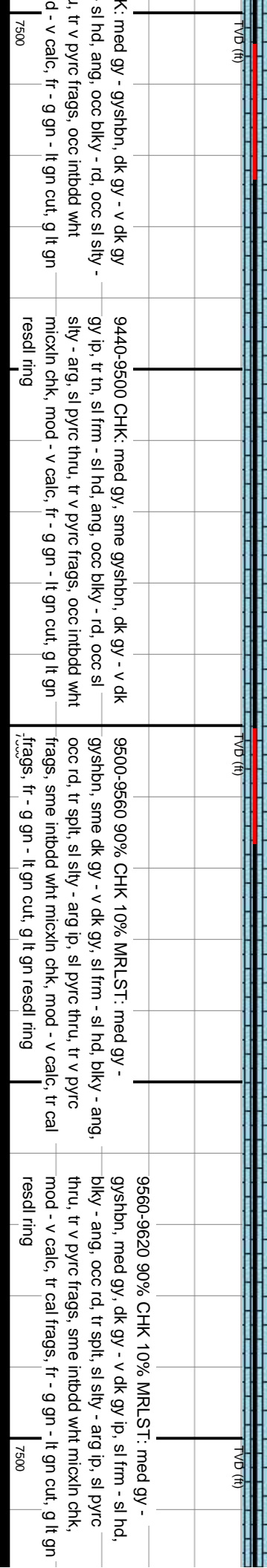
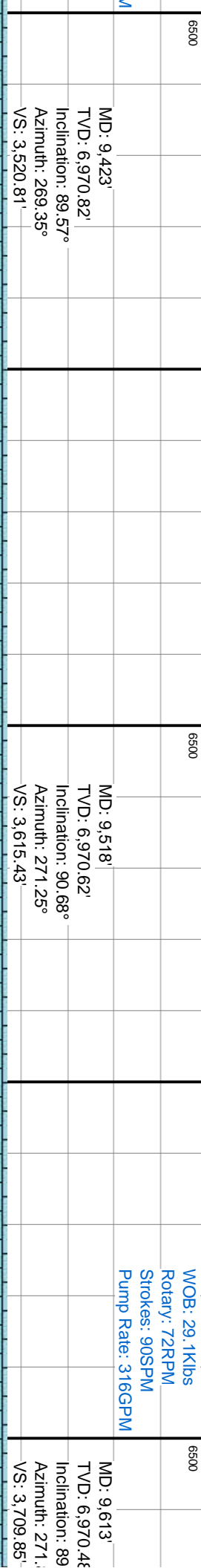
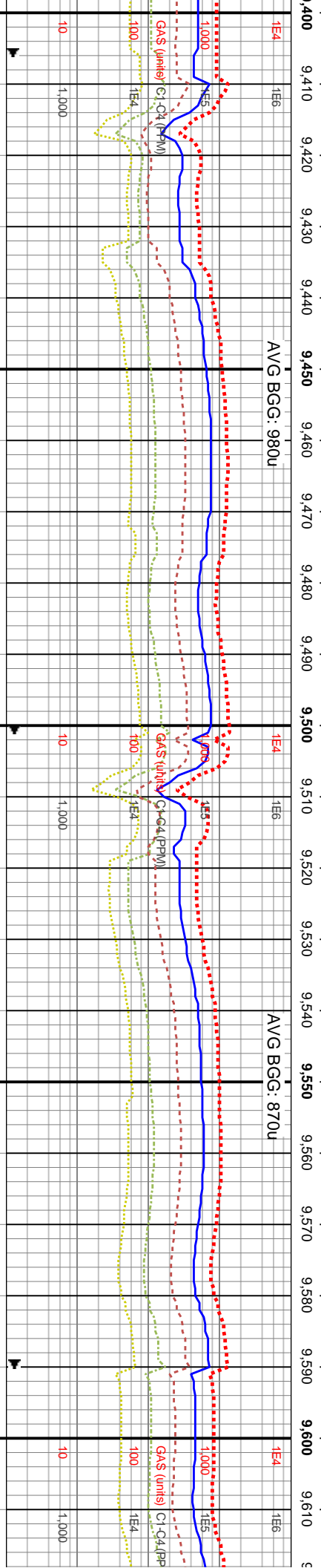
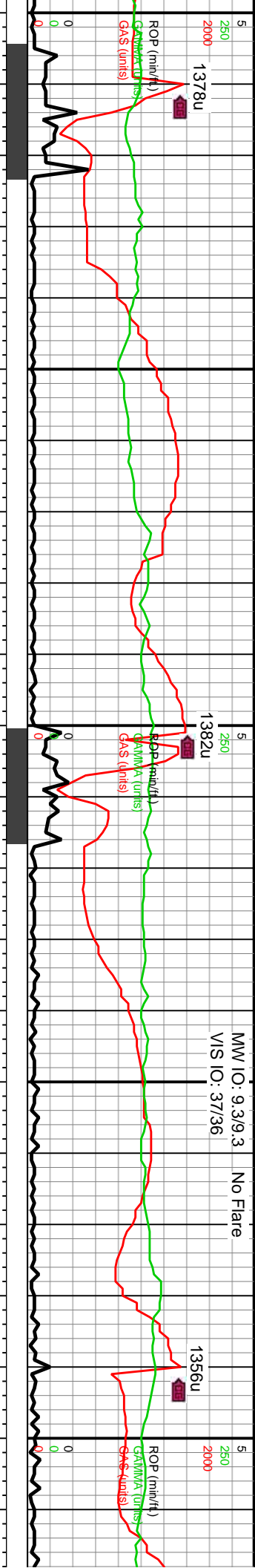


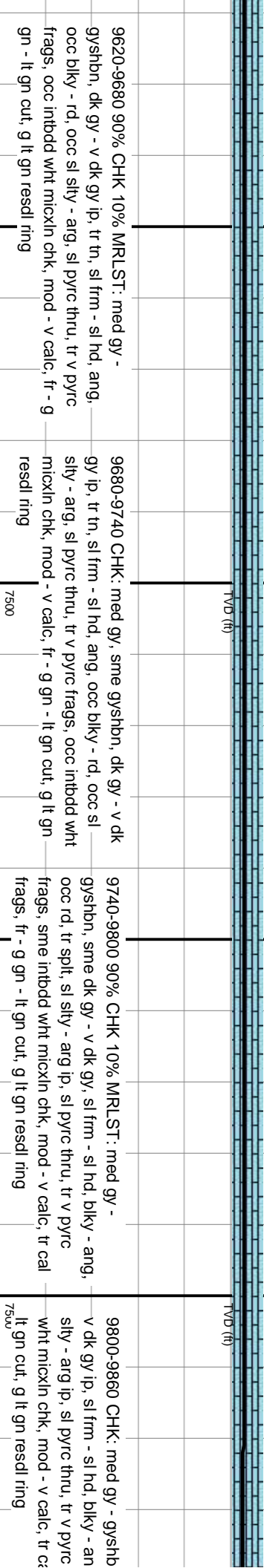
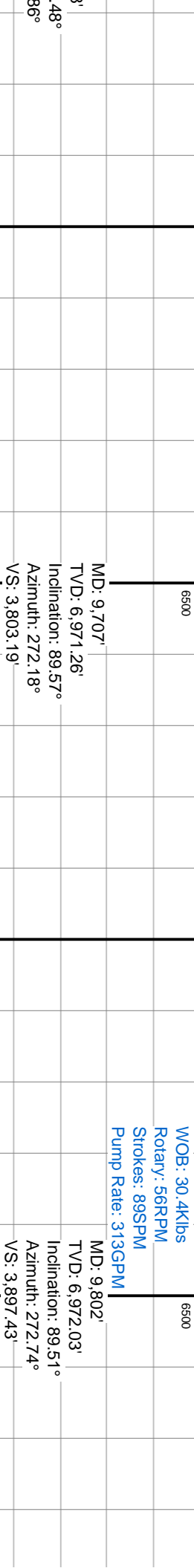
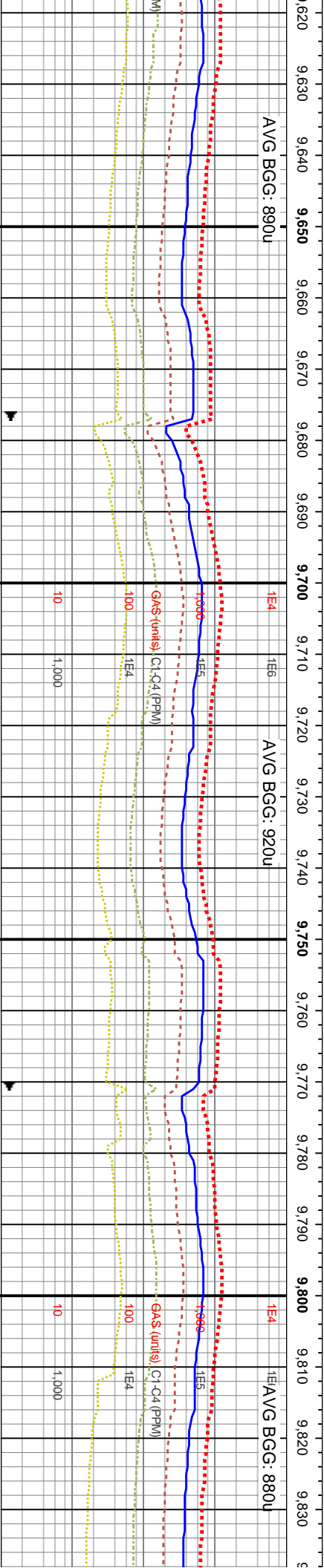
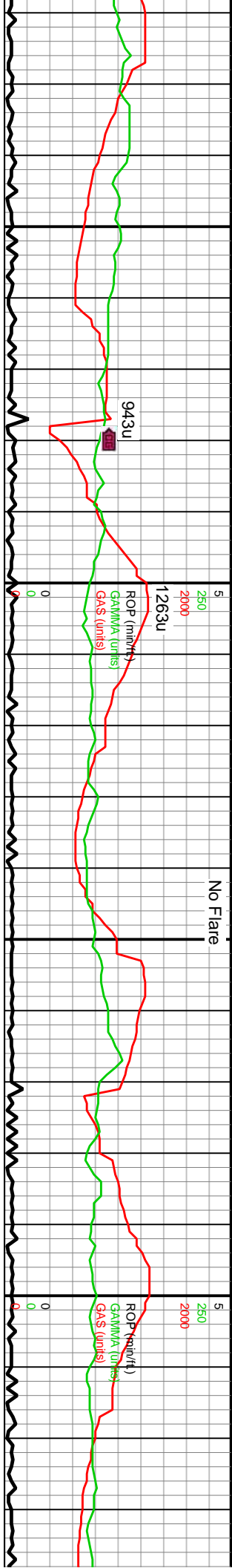


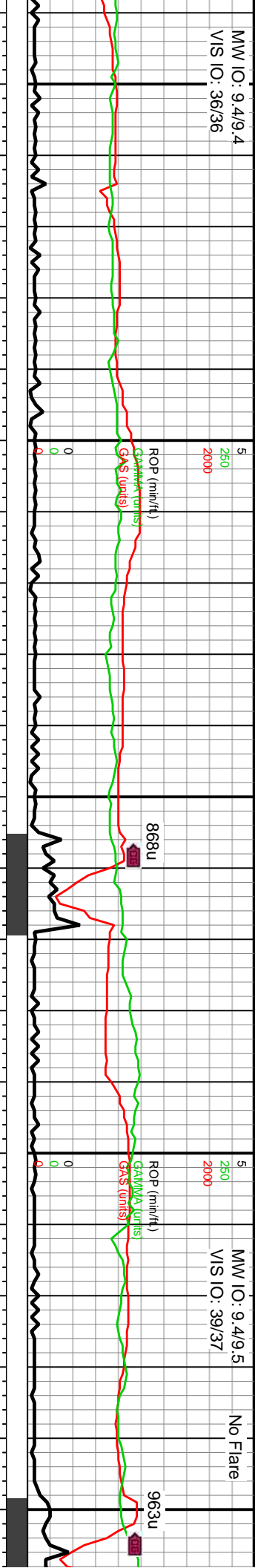
WOB: 12.3Klbs
Rotary: 71RPM
Strokes: 94SPM
Pump Rate: 331 GPM



9380-9440 CH
ip, tr tn, sl frm -
arg, sl pyrc thr
micxn chk, mo
resd ring

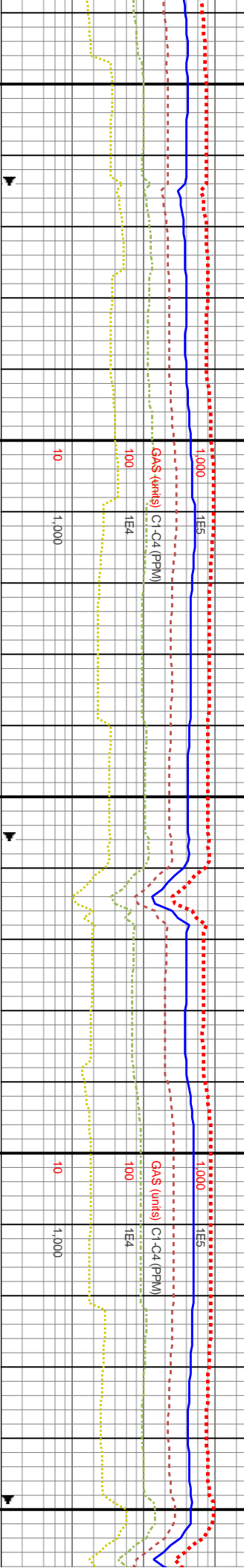






1AVG BGG: 840u

AVG BGG: 790u

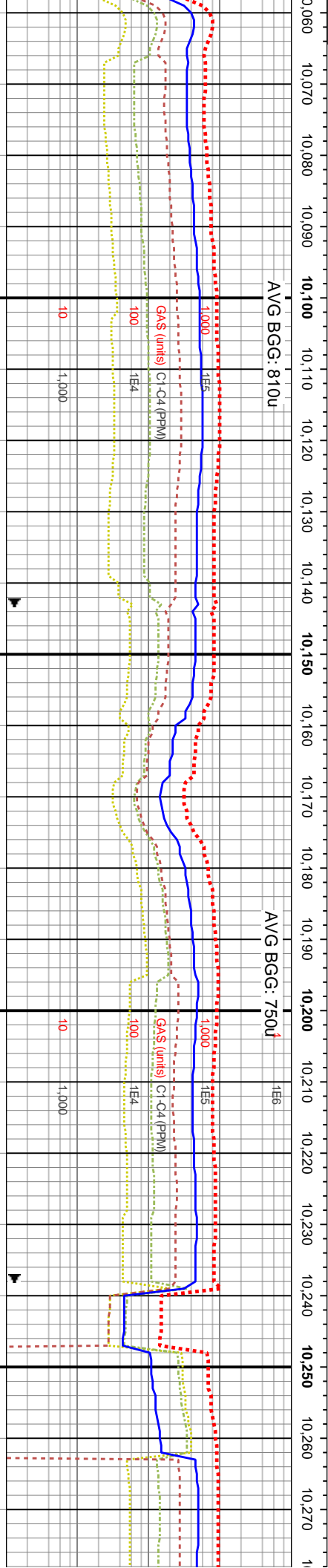
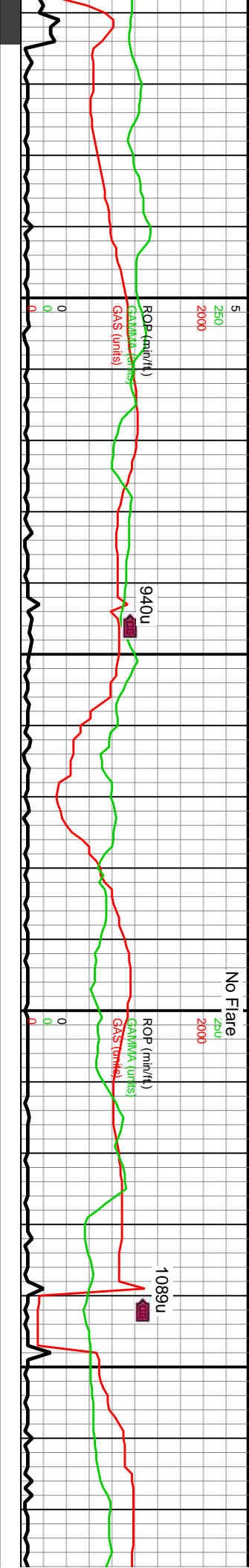


MD: 9,896'
TVD: 6,973.34'
Inclination: 88.89°
Azimuth: 272.38°
VS: 3,990.65'

WOB: 29.5klbs
Rotary: 72RPM
Strokes: 89SPM
Pump Rate: 314GPM
MD: 9,990'
TVD: 6,974.65'
Inclination: 89.51°
Azimuth: 273.04°
VS: 4,083.84'

n, med gy, dk gy - g, occ rd, tr spl, sl frags, sme intbdd al frags, fr - g gn -	9860-9920 90% CHK 10% MRLST: med gy - gyshbn, dk gy - v dk gy ip, tr tn, sl frm - sl hd, ang, occ blk y - rd, occ sl sil y - arg, sl pyrc thru, tr v pyrc frags, occ intbdd wht micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring	9920-9980 90% CHK 10% MRLST: med gy, sme gyshbn, dk gy - v dk gy ip, tr tn, sl frm - sl hd, ang, occ blk y - rd, occ sl sil y - arg, sl pyrc thru, tr v pyrc frags, occ intbdd wht micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring	9980-10040 CHK: med gy - gyshbn, sme dk gy - v dk gy, sl frm - sl hd, blk y - ang, occ rd, tr spl, sl sil y - arg ip, sl pyrc thru, tr v pyrc frags, sme intbdd wht micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resdl ring	10040-10100 9 gyshbn, med gy blk y - ang, occ thru, tr v pyrc fr mod - v calc, tr resdl ring
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MD: 10,085'
TVD: 6,974.21'
Inclination: 91.02°
Azimuth: 272.73°
VS: 4,177.99'

MD: 10,178'
TVD: 6,972.59'
Inclination: 90.98°
Azimuth: 273.17°
VS: 4,270.14'

MD: 10,273'
TVD: 6,970.7'
Inclination: 91°
Azimuth: 273°
VS: 4,364.19'

0% CHK 10% MRLST: med gy -
v dk gy ip, sl frm - sl hd,
tr spl, sl sily - arg ip, sl pyrc
frags, sme intbdd wht micxn chk,
cal frags, fr - g gn - lt gn cut, g lt gn

10100-10160 90% CHK 10% MRLST: med gy -
gysbhn, dk gy - v dk gy ip, tr tn, sl frm - sl hd, ang,
occ blkly - rd, occ sl sily - arg, sl pyrc thru, tr v pyrc
frags, occ intbdd wht micxn chk, mod - v calc, fr - g
gn - lt gn cut, g lt gn resdl ring

10160-10220 90% CHK 10% MRLST: med gy,
sme gysbhn, dk gy - v dk gy ip, tr tn, sl frm - sl hd,
ang, occ blkly - rd, occ sl sily - arg, sl pyrc thru, tr v
pyrc frags, occ intbdd wht micxn chk, mod - v calc,
fr - g gn - lt gn cut, g lt gn resdl ring

10220-10280 CHK: med gy - gysbhn, sme dk gy - v
dk gy, sl frm - sl hd, blkly - ang, occ rd, tr spl, sl sily
arg ip, sl pyrc thru, tr v pyrc frags, sme intbdd wht
micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn
cut, g lt gn resdl ring



MW IO: 9.4/9.5
VIS IO: 39/39

1838u

3-5' Flare

MW IO: 9.4/9.4+
VIS IO: 39

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

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

1342u

1439u

11AVG BGG: 750u

AVG BGG: 960u

AVG BGG: 1170u

1000
1154
1154

1000
1154
1154

6500 DP @ 10,340'

6500

WOB: 29Klbs
Rotary: 91RPM
Strokes: 90SPM
Pump Rate: 315GPM

MD: 10,367'
TVD: 6,968.33'
Inclination: 91.79°
Azimuth: 273.02°
VS: 4,380.42'

MD: 10,459'
TVD: 6,966.3'
Inclination: 90.74°
Azimuth: 273.01°
VS: 4,472.32'

TVD (ft)

TVD (ft)

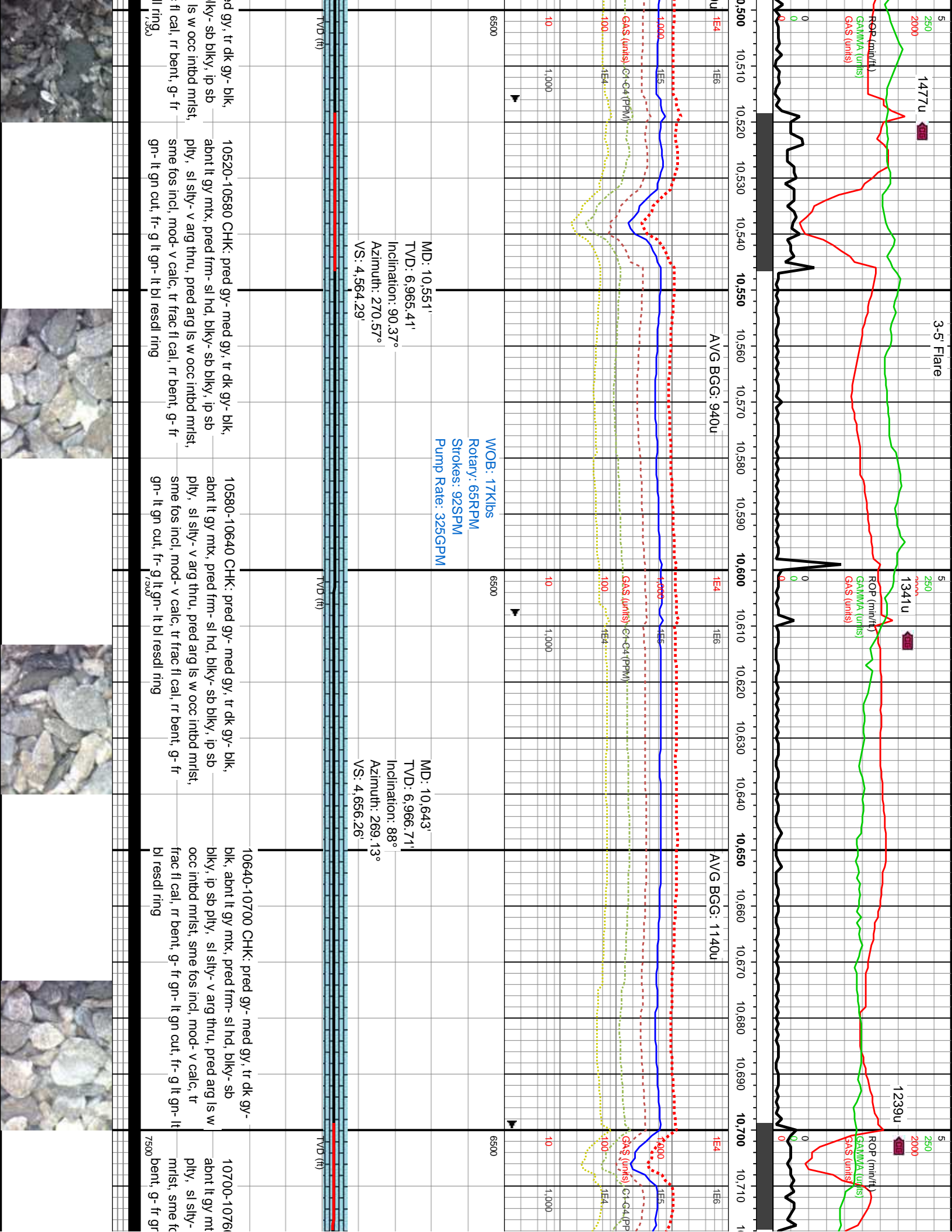
10280-10340 CHK: pred gy- med gy, tr dk gy- blk, about lt gy mtx, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w occ inbd mntst, sme fos incl, mod- v calc, tr frac fl cal, tr bent g- fr gn- lt gn cut, fr- g lt gn wh resd ring

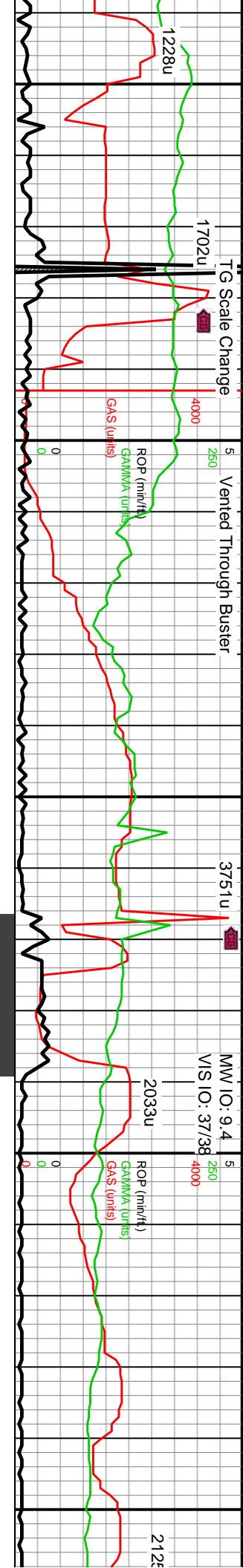
10340-10400 CHK: pred gy- med gy, tr dk gy- blk, about lt gy mtx, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w occ inbd mntst, sme fos incl, mod- v calc, tr frac fl cal, tr bent g- fr gn- lt gn cut, fr- g lt gn wh resd ring

10400-10460 CHK: pred gy- med gy, tr dk gy- blk, about lt gy mtx, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w occ inbd mntst, sme fos incl, mod- v calc, tr frac fl cal, tr bent g- fr gn- lt gn cut, fr- g lt gn- lt bl resd ring

10460-10520 CHK: pred gy- med gy, tr dk gy- blk, about lt gy mtx, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w occ inbd mntst, sme fos incl, mod- v calc, tr frac fl cal, tr bent g- fr gn- lt gn cut, fr- g lt gn- lt bl resd ring







BGG: 850u

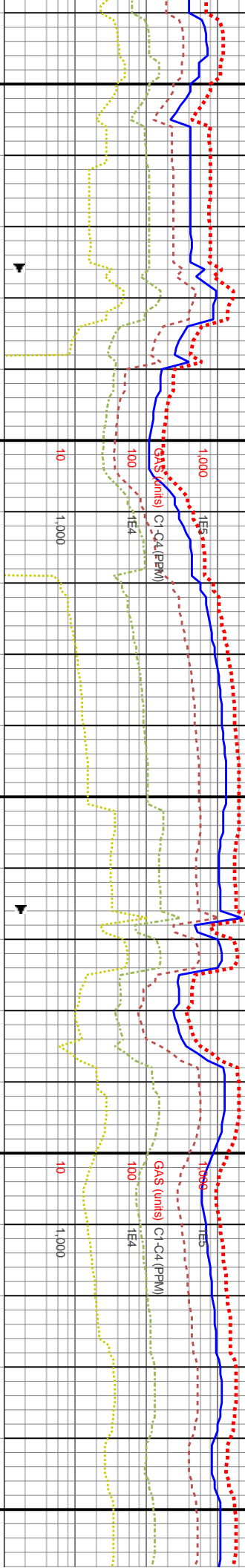
1E4

1E5

AVG BGG: 1140u

1E4

AVG BGG: 1490u



WOB: 31Klbs
Rotary: 16RPM
Strokes: 88SPM
Pump Rate: 308GPM

MD: 11,010'
TVD: 6,966.63'
Inclination: 91.97°
Azimuth: 268.63°
VS: 5,022.91'

TVD (ft)

MD: 11,102'
TVD: 6,964.21'
Inclination: 91.05°
Azimuth: 270.39°
VS: 5,114.86'

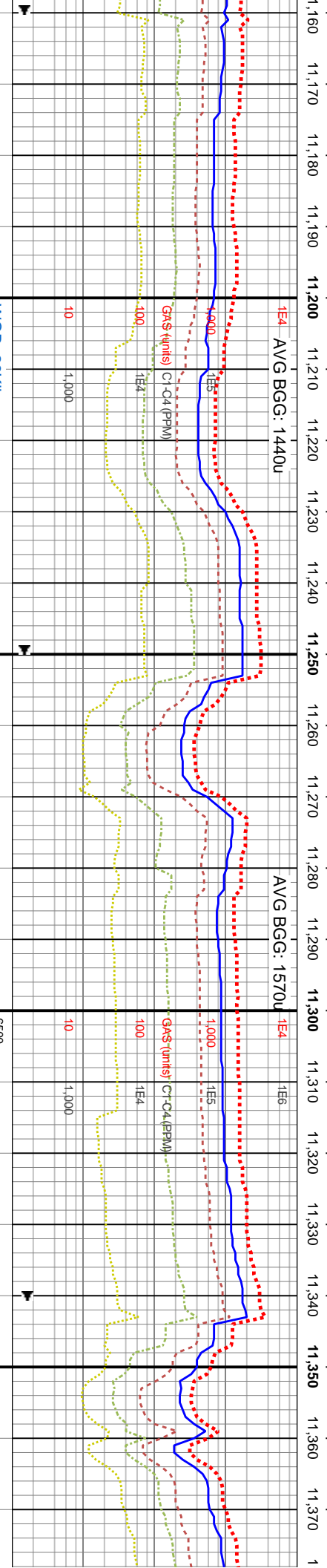
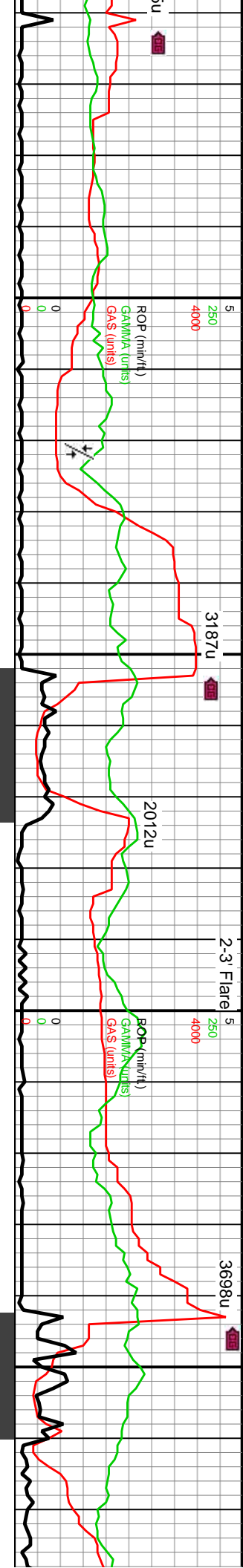
TVD (ft)

10940-11000 80% CHK 20% MRLST: pred med gy, ip dk gy, sme blk, sme lt gy mx, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w inbd mrlst, rr fos incl, mod- v calc, rr frac fl cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring

11000-11060 90% CHK 10% MRLST: pred med gy- brn, ip dk gy- gy brn, tr blk, sme lt gy mx, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w occ inbd mrlst, rr fos incl, mod- v calc, rr frac fl cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring

11060-11120 90% CHK 10% MRLST: pred med gy- brn, ip dk gy- gy brn, tr blk, sme lt gy mx, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w occ inbd mrlst, rr fos incl, mod- v calc, rr frac fl cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring

11120-11180 CHK: pred gy- g blk, lt gy mx thru, pred frm- sl sb ply, sl sily- v arg thru, pred mrlst, sme fos incl, mod- v calc bent, g- fr gn- lt gn cut, fr- g lt g



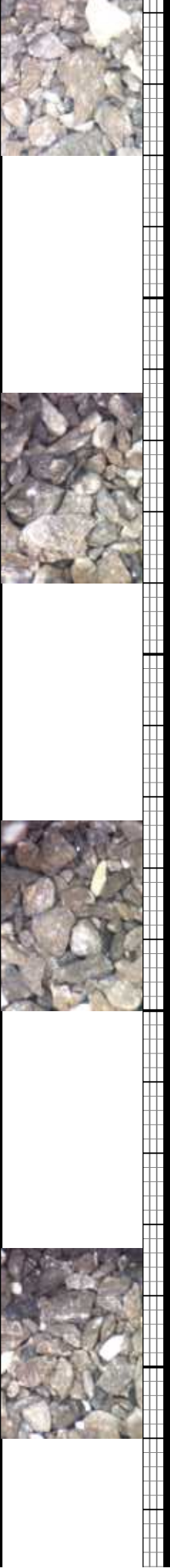
WOB: 29Klbs
Rotary: 67RPM
Strokes: 87SPM
Pump Rate: 307GPM

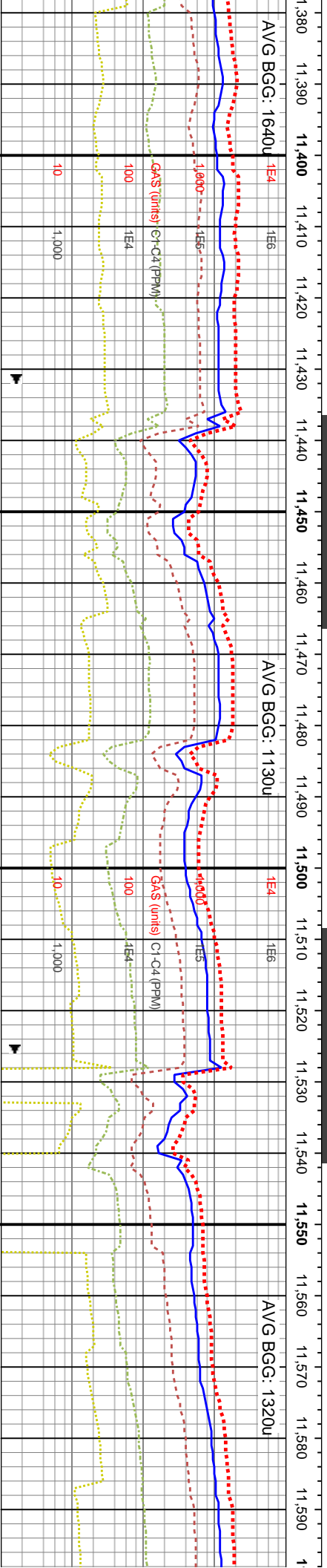
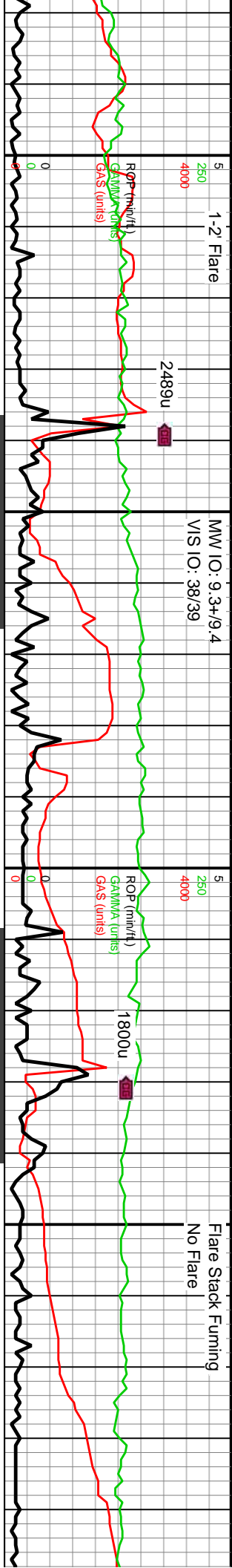
MD: 11,194'
TVD: 6,961.93'
Inclination: 91.79°
Azimuth: 270.79°
VS: 5,206.83'

MD: 11,287'
TVD: 6,962.66'
Inclination: 87.3°
Azimuth: 271.06°
VS: 5,299.8'

MD: 11,360'
TVD: 6,963.33'
Inclination: 87.3°
Azimuth: 271.06°
VS: 5,399.8'

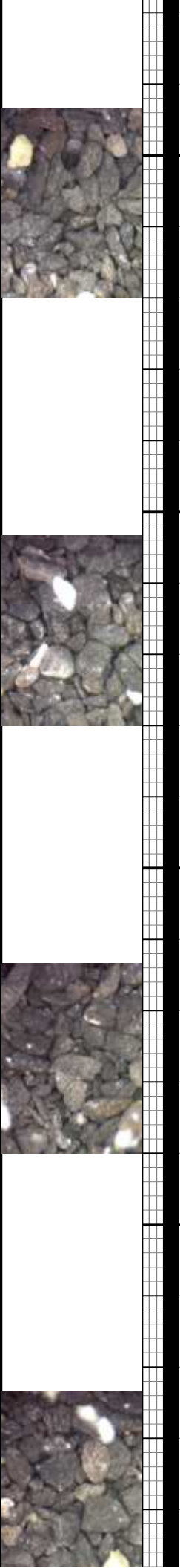
11180-11240 CHK: pred gy- gy brn, ip med gy, tr blk, lt gy mtz thru, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w tr intbd mrlst, sme fos incl, mod- v calc, rr frac fl cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring	11240-11300 CHK: pred gy- gy brn, ip med gy, tr blk, lt gy mtz thru, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w tr intbd mrlst, sme fos incl, mod- v calc, rr frac fl cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring	11300-11360 CHK: pred gy- gy brn, ip med gy, tr blk, lt gy mtz thru, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w tr intbd mrlst, sme fos incl, mod- v calc, rr frac fl cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring	11360-11420 CHK: pred gy- gy brn, ip med gy, tr blk, lt gy mtz thru, pred frm- sl hd, blk- sb blk, ip sb ply, sl sily- v arg thru, pred arg ls w tr intbd mrlst, sme fos incl, mod- v calc, rr frac fl cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring
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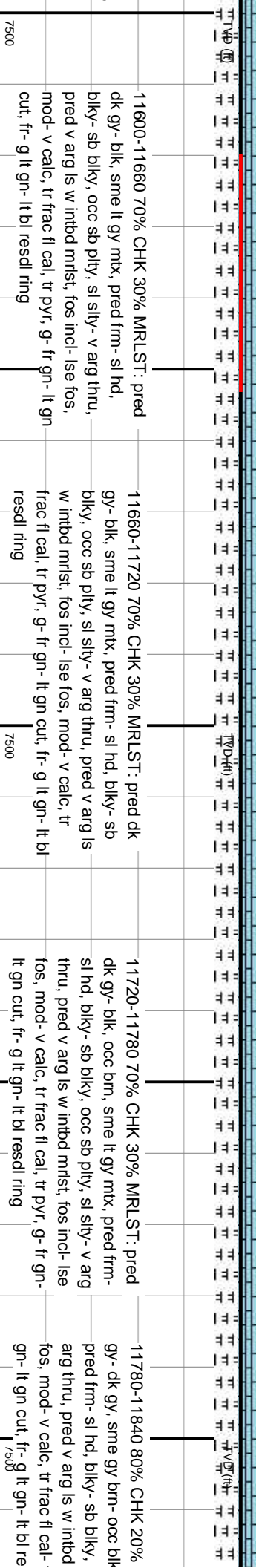
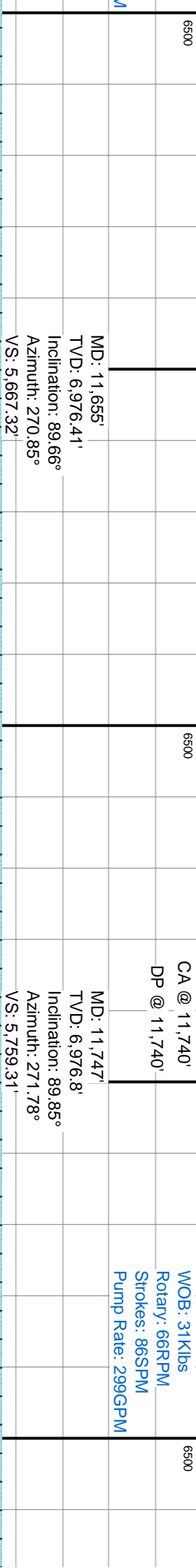
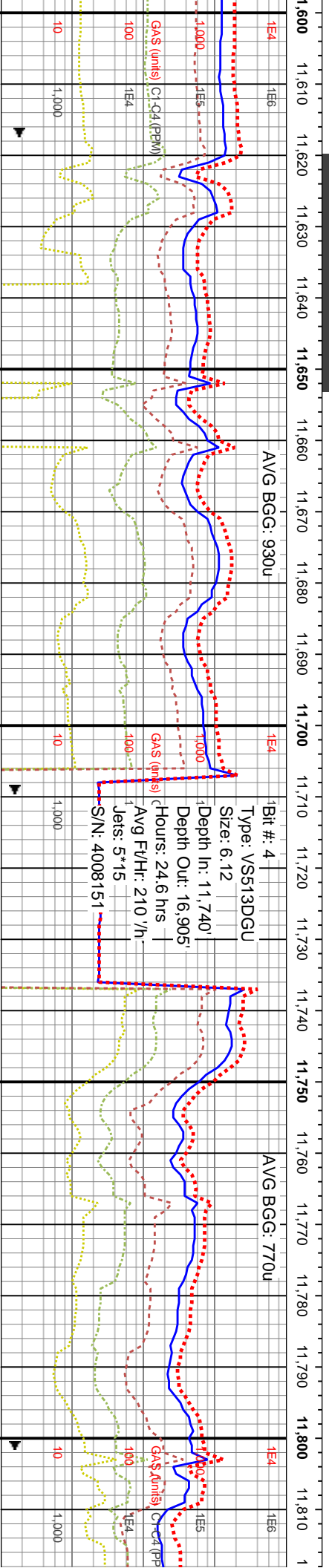
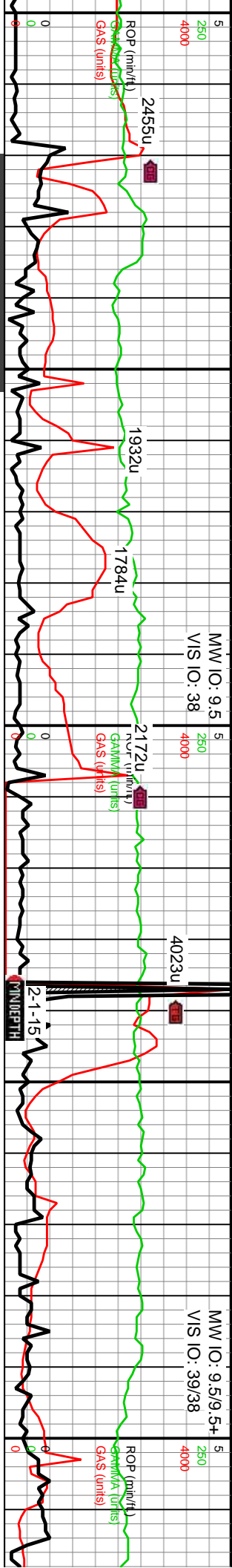


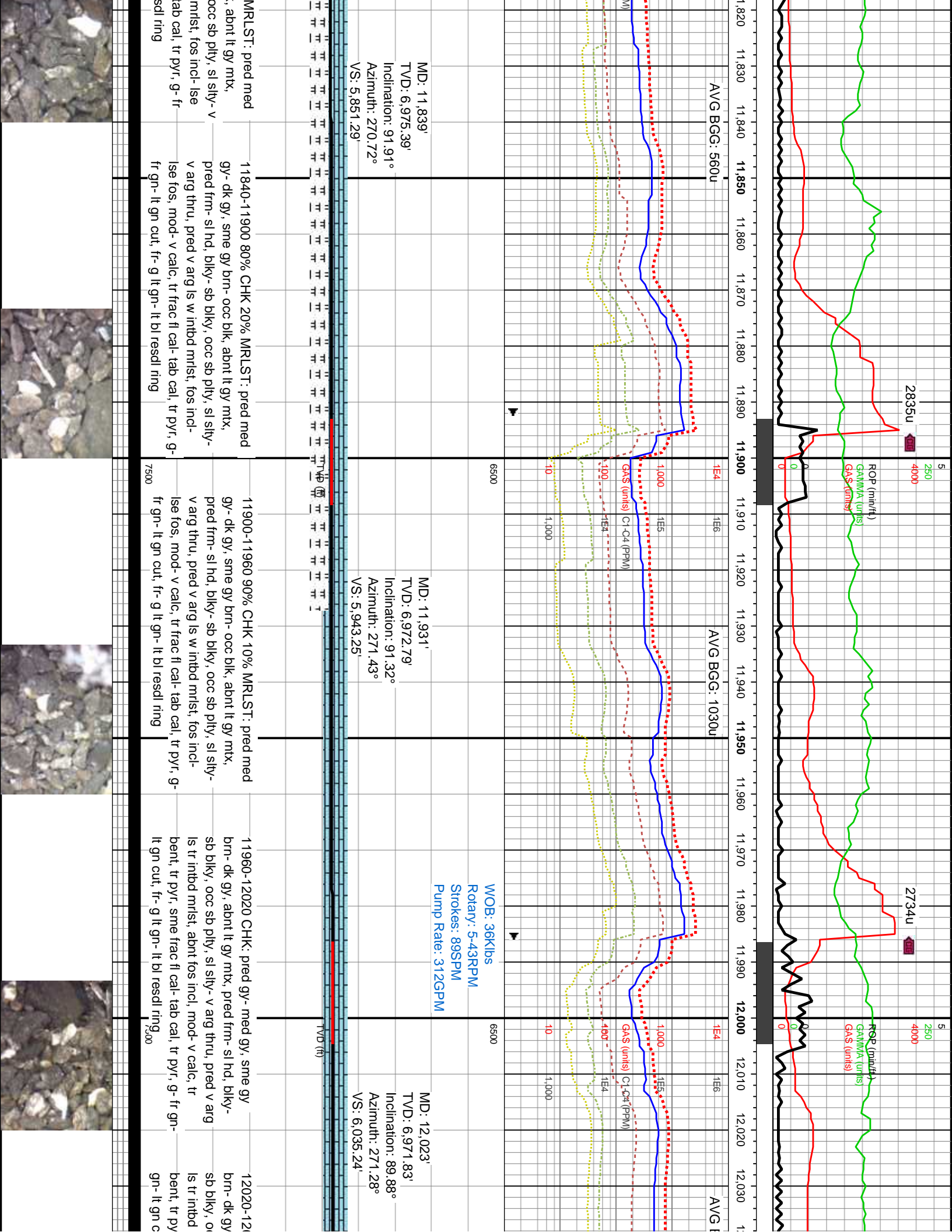


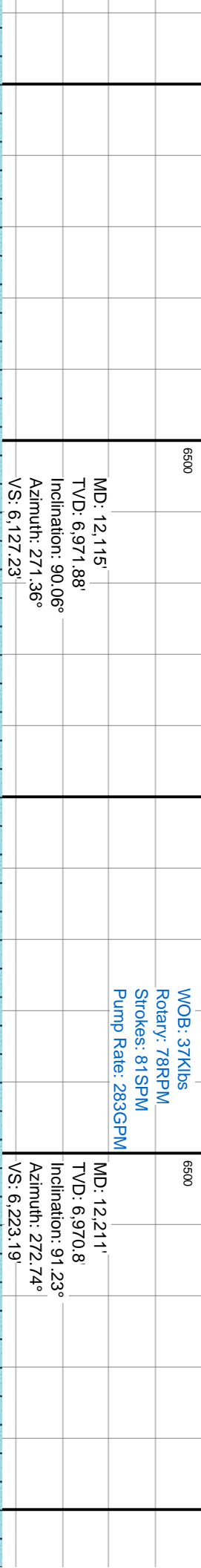
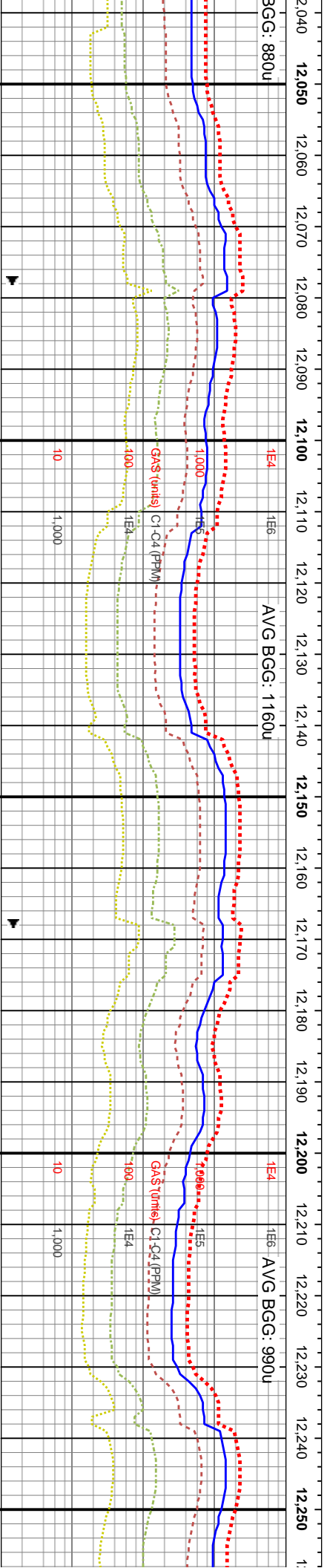
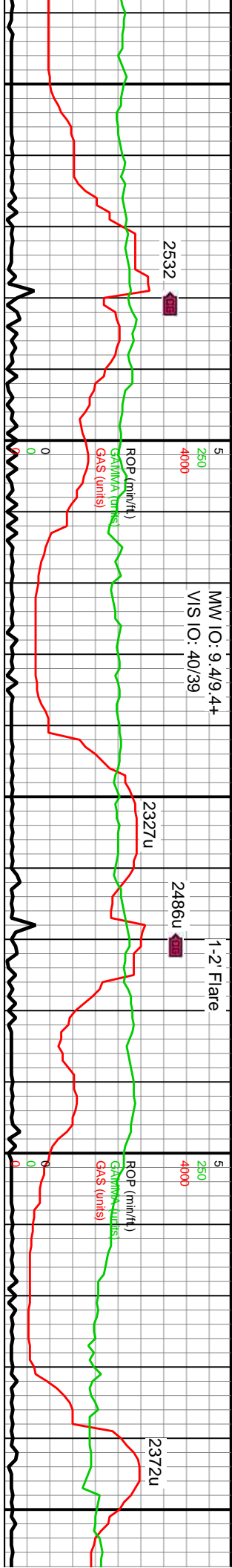
379'	WOB: 26Klbs	
367.5'	Rotary: 56RPM	
268.89°	Strokes: 86SPM	
	Pump Rate: 301GPM	
		MD: 11,471'
		TVD: 6,971.81'
		Inclination: 87.94°
		Azimuth: 267.94°
		VS: 5,483.49'

220 90% CHK 10% MRLST: pred med	11420-11480 90% CHK 10% MRLST: pred	11480-11540 90% CHK 10% MRLST: pred med	11540-11600 90% CHK 10% MRLST: pred med
ip dk gy- gy brn, sme blk, sme lt gy	med gy- dk gy, ip dk gy- gy brn, sme blk, sme lt	gy- dk gy, ip dk gy- gy brn, sme blk, sme lt gy mtz,	gy- dk gy, ip dk gy- gy brn, sme blk, sme lt gy mtz,
frm- sl hd, blk- sb blk, ip sb ply, sl	gy mtz, pred frm- sl hd, blk- sb blk, ip sb ply,	pred frm- sl hd, blk- sb blk, ip sb ply, sl sly- v	pred frm- sl hd, blk- sb blk, ip sb ply, sl sly- v
sl thru, pred arg ls w sme intbd mrlst,	sl sly- v arg thru, pred arg ls w sme intbd mrlst,	arg thru, pred arg ls w sme intbd mrlst, fos incl,	arg thru, pred arg ls w sme intbd mrlst, fos incl,
mod- v calc, tr frac fl cal, rr bent, tr pyr, g-	fos incl, mod- v calc, tr frac fl cal, rr bent, tr pyr,	mod- v calc, tr frac fl cal, rr bent, tr pyr, g- fr gn- lt	mod- v calc, tr frac fl cal, rr bent, tr pyr, g- fr gn- lt
cut, fr- g lt gn- lt bl resdl ring	g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring	gn cut, fr- g lt gn- lt bl resdl ring	gn cut, fr- g lt gn- lt bl resdl ring

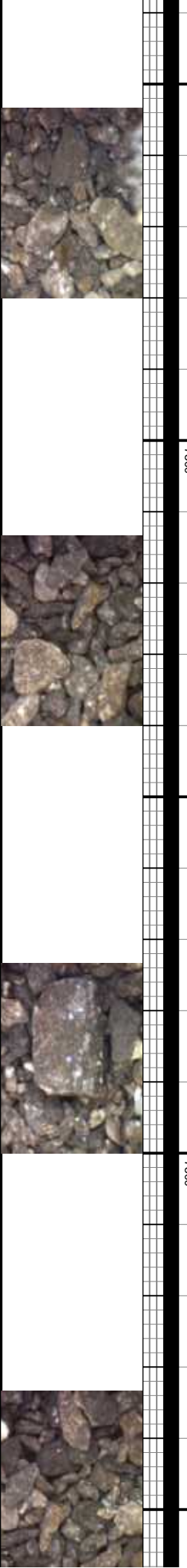


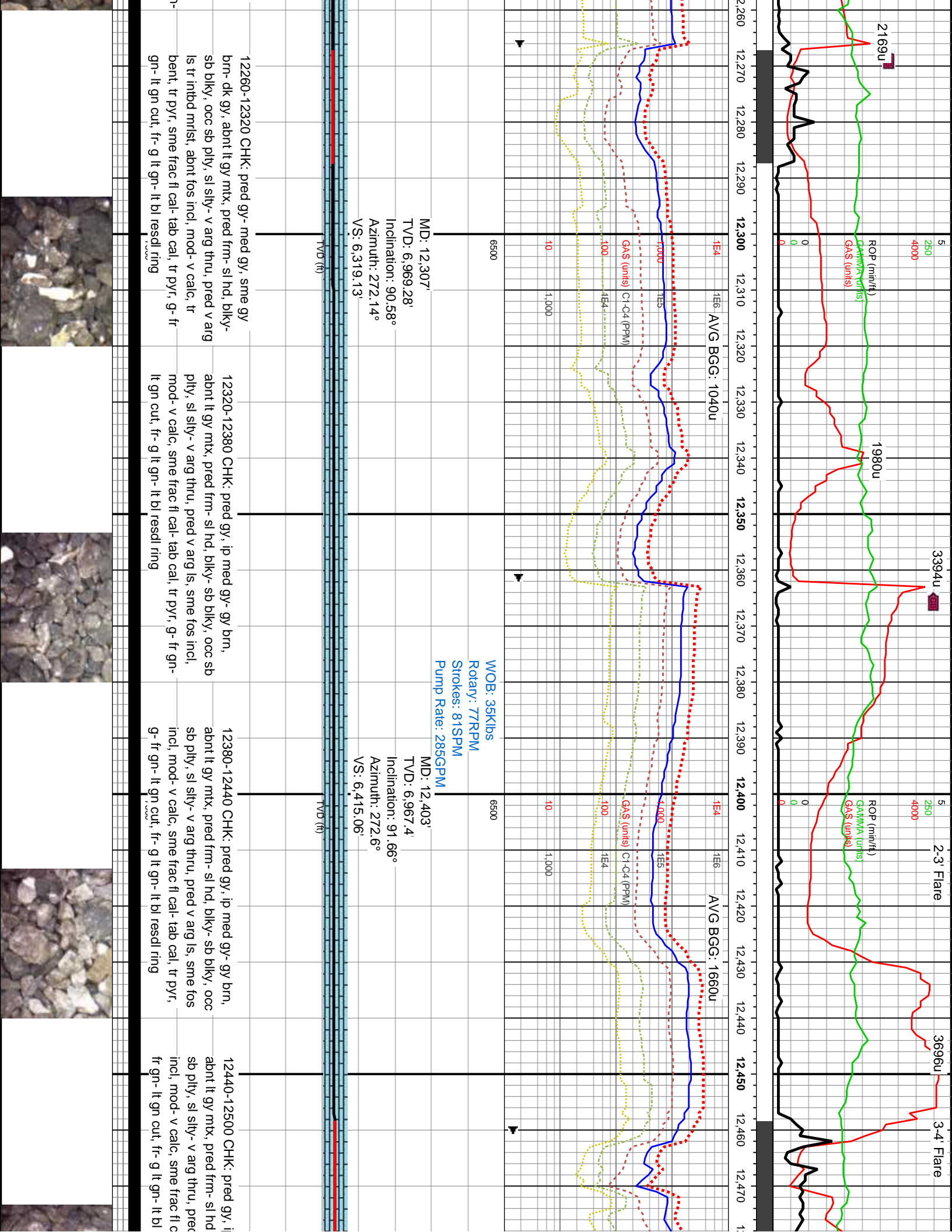




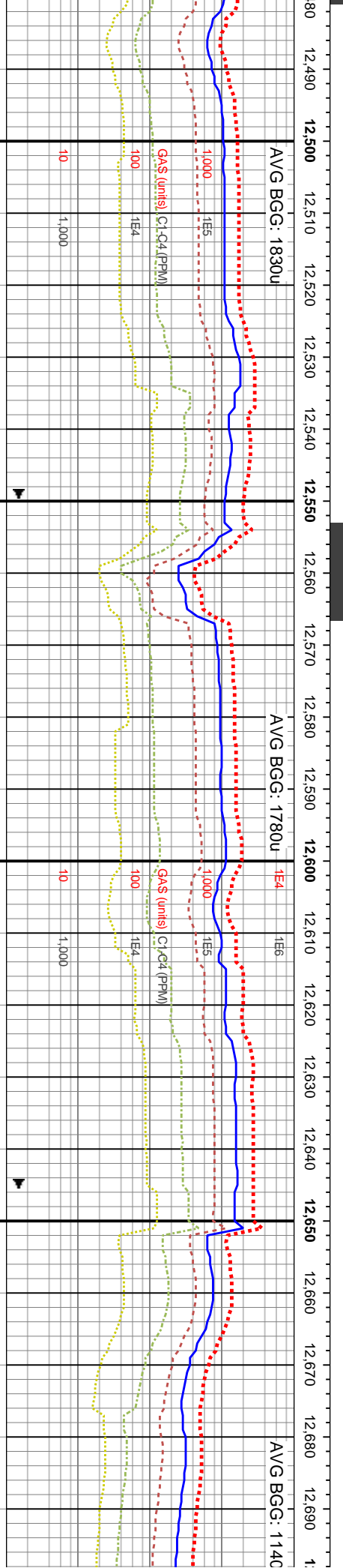
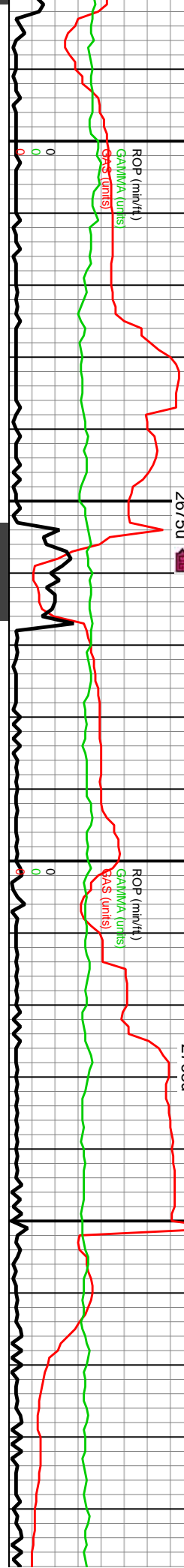


12080-12140 CHK: pred gy- med gy, sme gy brn- dk gy, about lt gy mtx, pred frm- sl hd, blkly- sb blkly, ooc sb ply, sl sily- v arg thru, pred v arg ls tr intbd mlist, about fos incl, mod- v calc, tr bent, tr pyr, sme frac fl cal- tab cal, tr pyr, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring		MD: 12,115' TVD: 6,971.88' Inclination: 90.06° Azimuth: 271.36° VS: 6,127.23'	WOB: 37Klbs Rotary: 78RPM Strokes: 81SPM Pump Rate: 283GPM	6500	TVD (ft)
12140-12200 CHK: pred gy- med gy, sme gy brn- dk gy, about lt gy mtx, pred frm- sl hd, blkly- sb blkly, ooc sb ply, sl sily- v arg thru, pred v arg ls tr intbd mlist, about fos incl, mod- v calc, tr bent, tr pyr, sme frac fl cal- tab cal, tr pyr, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring		MD: 12,211' TVD: 6,970.8' Inclination: 91.23° Azimuth: 272.74° VS: 6,223.19'		6500	TVD (ft)
12200-12260 CHK: pred gy- med gy, sme gy brn- dk gy, about lt gy mtx, pred frm- sl hd, blkly- sb blkly, ooc sb ply, sl sily- v arg thru, pred v arg ls tr intbd mlist, about fos incl, mod- v calc, tr bent, tr pyr, sme frac fl cal- tab cal, tr pyr, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring				7500	TVD (ft)





MW ID: 9.4/9.4+
VIS ID: 40/39



MD: 12,498'
TVD: 6,965.21'
Inclination: 90.99°
Azimuth: 272.01°
VS: 6,509.99'

MD: 12,594'
TVD: 6,964.53'
Inclination: 89.82°
Azimuth: 270.43°
VS: 6,605.98'

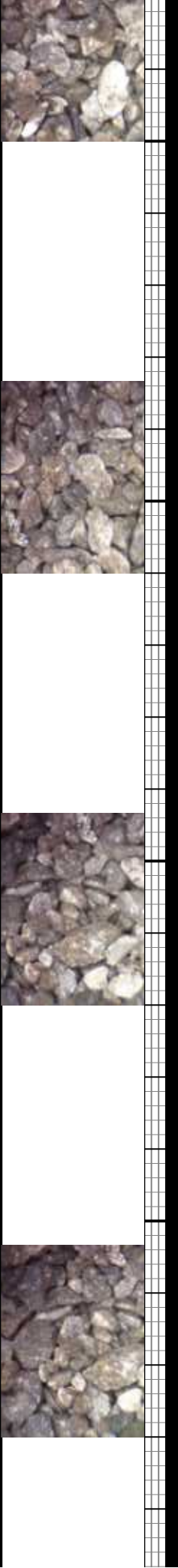
MD: 12,690'
TVD: 6,964.6'
Inclination: 90.09°
Azimuth: 271.21°
VS: 6,701.98'

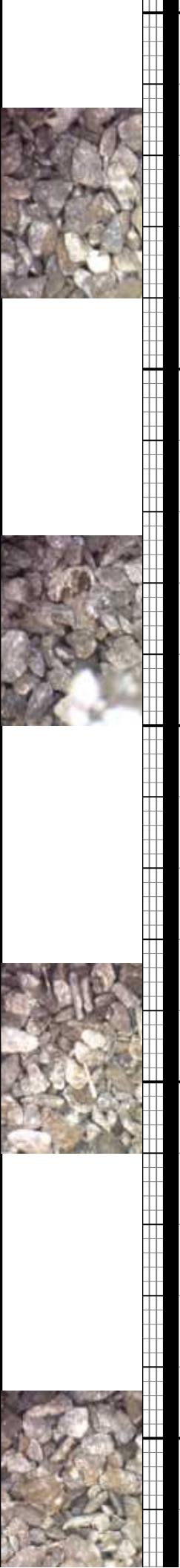
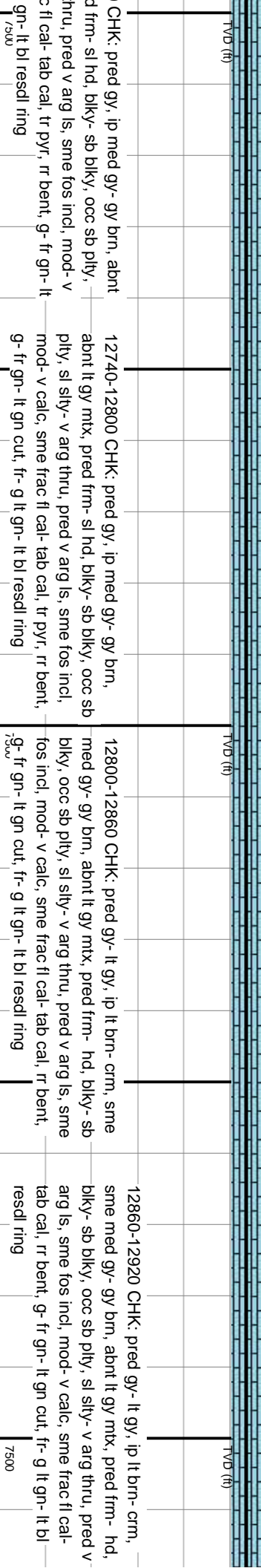
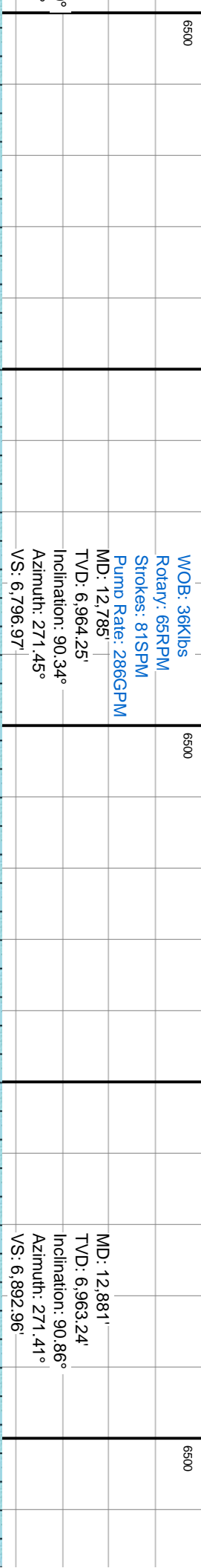
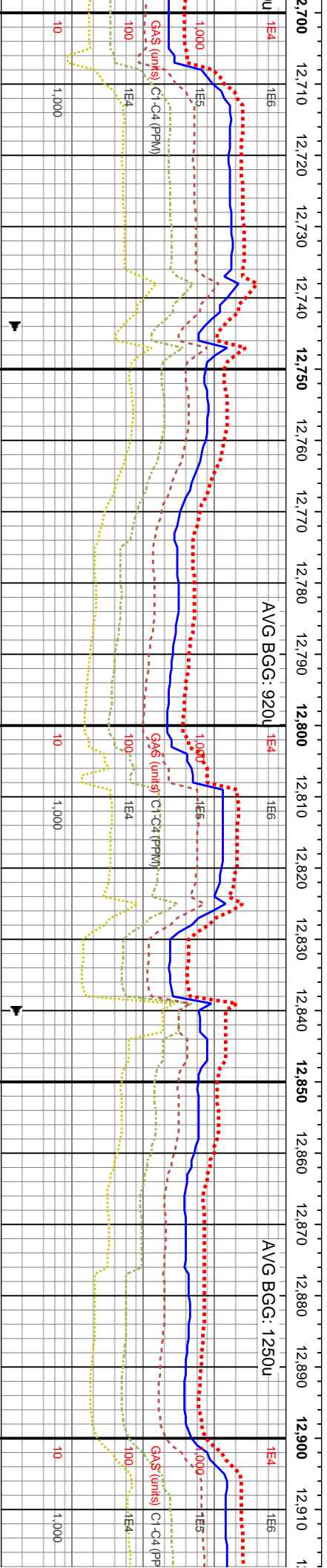
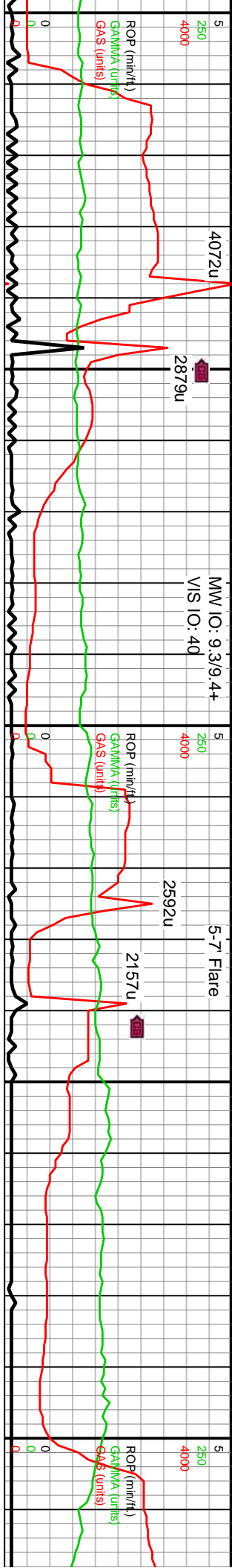
12500-12560 CHK: pred gy, ip med gy- gy brn, about lt gy mtx, pred frm- sl hd, blk- sb blk, occ sb ply, sl sily- v arg thru, pred v arg ls, sme fos incl, mod- v calc, sme frac fl cal- tab cal, tr pyr, g- fr gn- lt gn cut, fr- g lt gn- lt bl resd ring

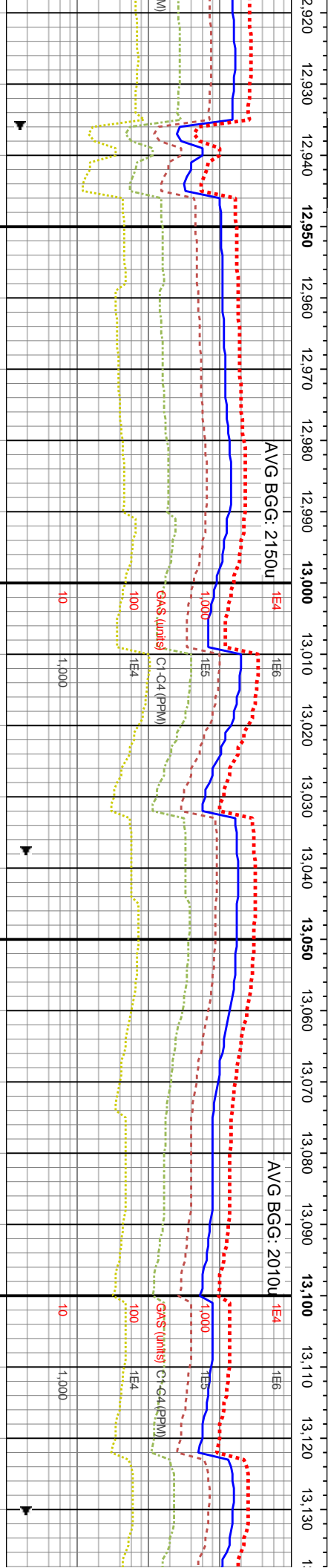
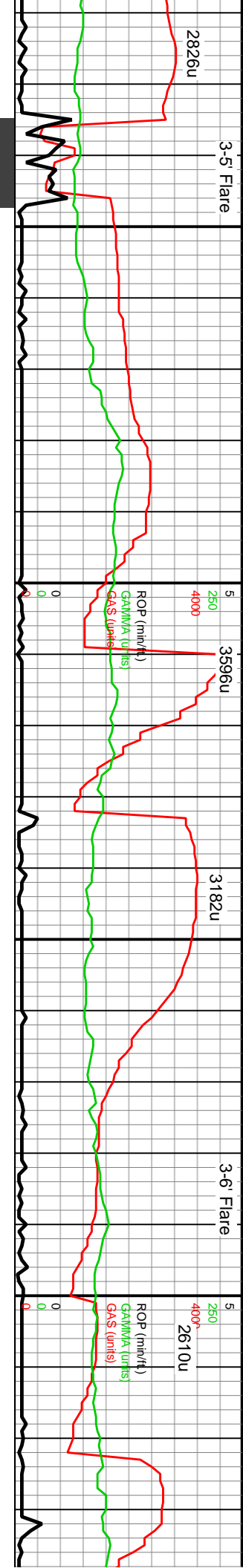
12560-12620 CHK: pred gy, ip med gy- gy brn, about lt gy mtx, pred frm- sl hd, blk- sb blk, occ sb ply, sl sily- v arg thru, pred v arg ls, sme fos incl, mod- v calc, sme frac fl cal- tab cal, tr pyr, g- fr gn- lt gn cut, fr- g lt gn- lt bl resd ring

12620-12680 CHK: pred gy, ip med gy- gy brn, about lt gy mtx, pred frm- sl hd, blk- sb blk, occ sb ply, sl sily- v arg thru, pred v arg ls, sme fos incl, mod- v calc, sme frac fl cal- tab cal, tr pyr, fr- g lt gn- lt gn cut, fr- g lt gn- lt bl resd ring

12680-12740 CHK: pred gy, ip med gy- gy brn, about lt gy mtx, pred frm- sl hd, blk- sb blk, occ sb ply, sl sily- v arg thru, pred v arg ls, sme fos incl, mod- v calc, sme frac fl cal- tab cal, tr pyr, g- fr gn- lt gn cut, fr- g lt gn- lt bl resd ring







WOB: 40Klbs
Rotary: 62RPM
Strokes: 81SPM
Pump Rate: 285GPM

MD: 12,977'
TVD: 6,963.04'
Inclination: 89.38°
Azimuth: 270.01°
VS: 6,988.95'

TVD (ft)

12920-12980 CHK: pred gy- lt gy, ip lt brn- crm, sme med gy- gy brn, about lt gy mtx, pred frm- hd, biky- sb biky, occ sb pily, sl sily- v arg thru, pred v arg ls, sme fos incl, mod- v calc, sme frac fl cal- tab cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring

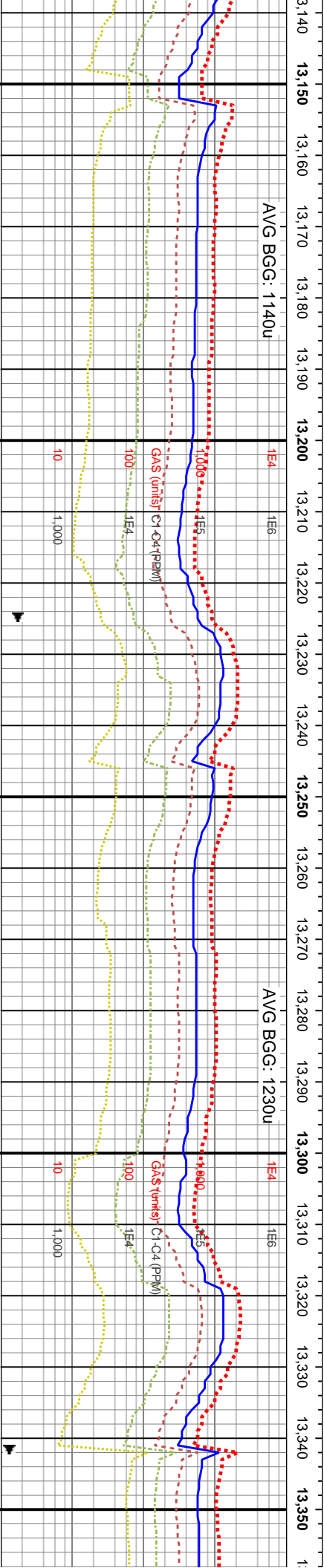
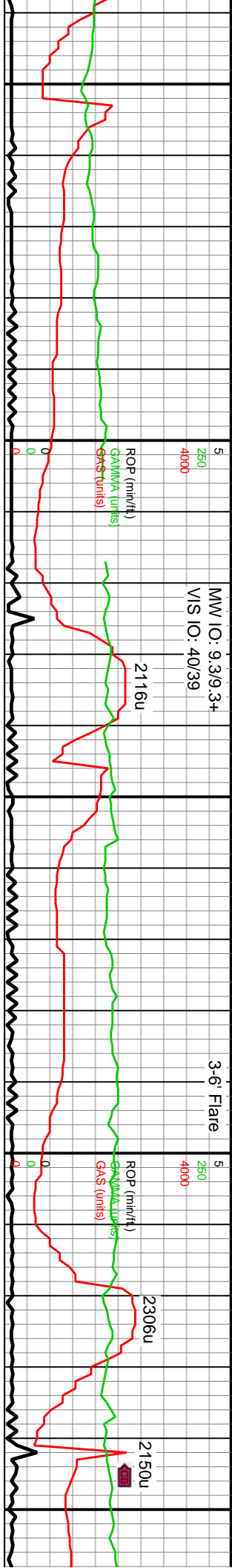
12980-13040 CHK: pred gy- lt gy, ip lt brn- crm, sme med gy- gy brn, about lt gy mtx, pred frm- hd, biky- sb biky, occ sb pily, sl sily- v arg thru, pred v arg ls, sme fos incl, mod- v calc, sme frac fl cal- tab cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring

13040-13100 CHK: pred gy- lt gy, ip lt brn- crm, sme med gy- gy brn, about lt gy mtx, pred frm- hd, biky- sb biky, occ sb pily, sl sily- v arg thru, pred v arg ls, sme fos incl, mod- v calc, sme frac fl cal- tab cal, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring

TVD (ft)

13100-13160 CHK: gysbhn, med gy, sl frm- sl hd, biky- ang, occ rc ip, sl pyrc thru, tr v pyrc frags, sme chk, mod- v calc, tr cal frags, fr- g rgn resdl ring





WOB: 41.7klbs
Rotary: 63RPM
Strokes: 81SPM
Pump Rate: 284GPM

MD: 13,168'
TVD: 6,965.01'
Inclination: 89.48°
Azimuth: 269.75°
VS: 7,244.54'

MD: 13,264'
TVD: 6,965.54'
Inclination: 89.88°
Azimuth: 269.79°
VS: 7,340.24'

MD: 13,340'
TVD: 6,965.54'
Inclination: 89.88°
Azimuth: 269.79°
VS: 7,340.24'

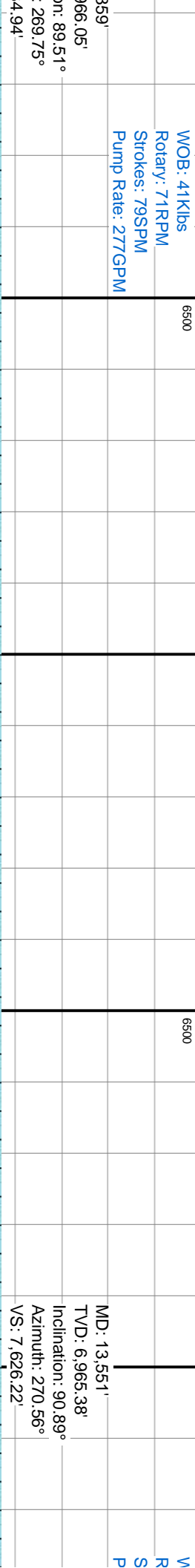
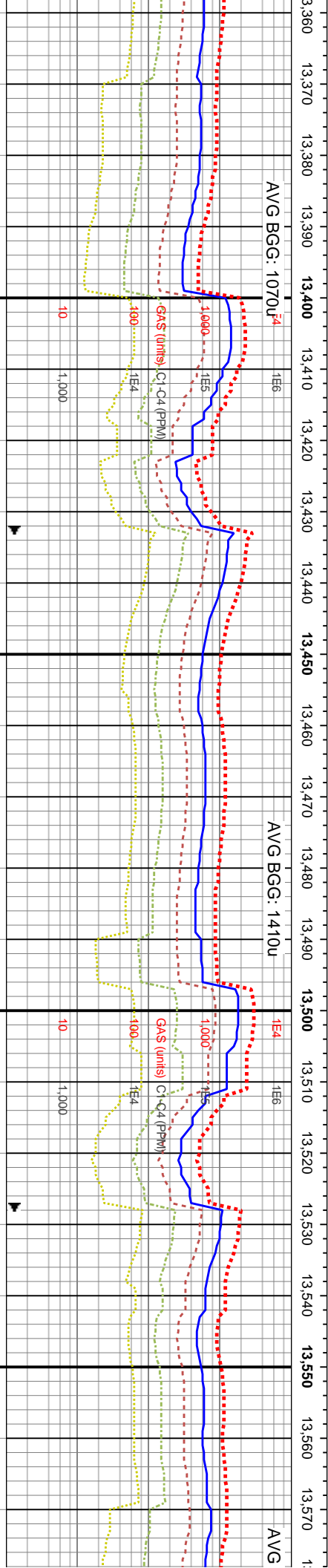
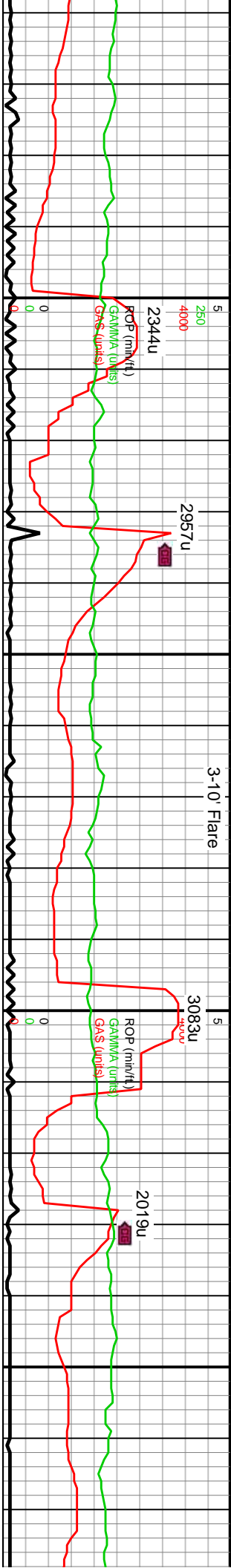
13160-13220 CHK: gysbhn, sme tn, sme med gy, occ dk gy - v dk gy, sl frm - sl hd, ang, occ blk, occ sl sily - arg, sl pyrc thru, tr v pyrc frags, occ intbdd wht micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn resd ring

13220-13280 CHK: gysbhn - tn, med gy - dk gy - v dk gy ip, sl frm - sl hd, ang, occ blk, occ sl sily - arg, sl pyrc thru, tr v pyrc frags, occ intbdd wht micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn resd ring

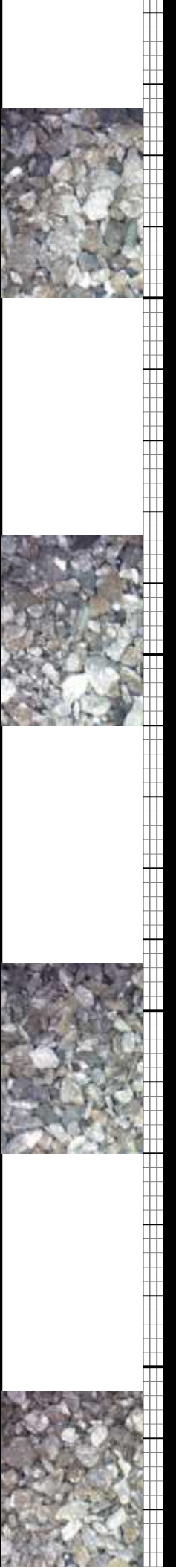
13280-13340 CHK: gysbhn, tn ip, sme med gy, occ dk gy - v dk gy, sl frm - sl hd, blk - ang, tr spl, sl sily - arg ip, sl pyrc thru, tr v pyrc frags, sme intbdd wht micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resd ring

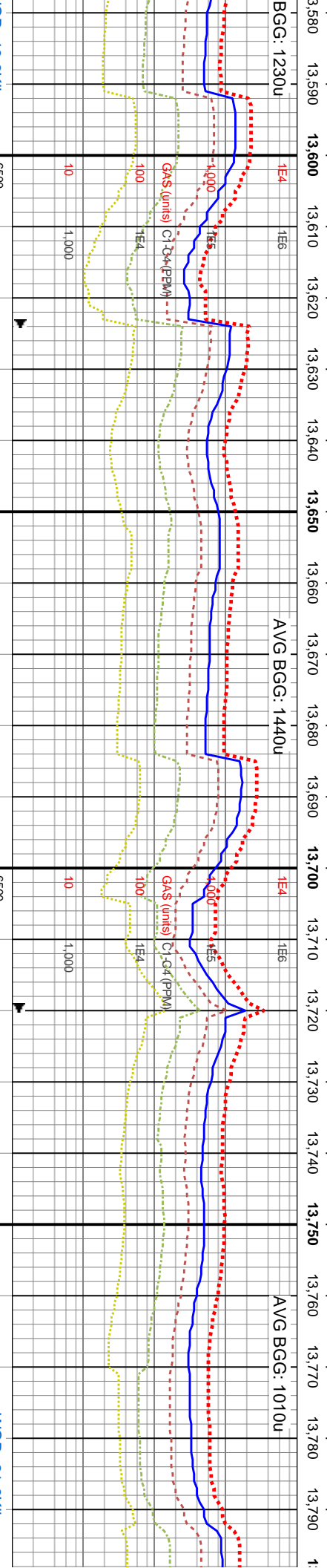
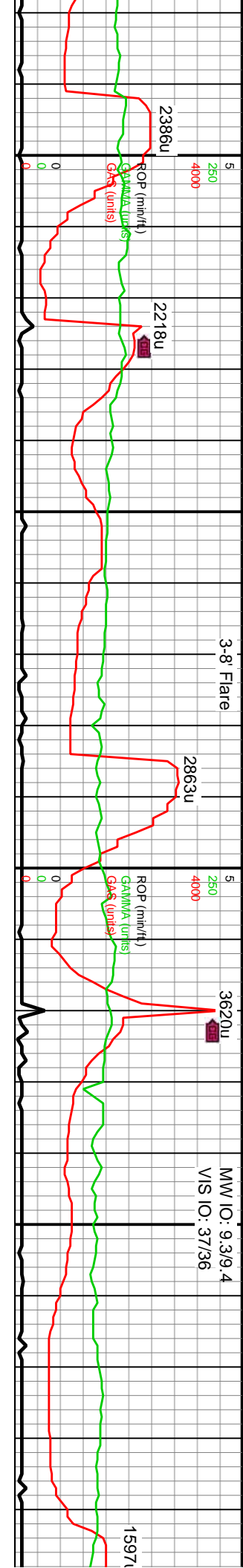
13340-13400 CHK: gysbhn, tn ip, sme med gy, occ dk gy, sl frm - sl hd, blk - ang, tr spl, sl sily - arg ip, sl pyrc thru, tr v pyrc frags, sme intbdd wht micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resd ring





13400-13460 CHK: gysbhn, sme tn, sme med gy, occ dk gy - v dk gy, sl frm - sl hd, ang, occ blk, occ sl silty - arg, sl pyrc thru, tr v pyrc frags, occ intbdd wht micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring	13460-13520 CHK: gysbhn - tn, med gy - dk gy - v dk gy ip, sl frm - sl hd, ang, occ blk, occ sl silty - arg, sl pyrc thru, tr v pyrc frags, occ intbdd wht micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring	13520-13580 CHK: gysbhn, tn ip, sme med gy, occ dk gy - v dk gy, sl frm - sl hd, blk, - ang, tr spl, sl silty - arg ip, sl pyrc thru, tr v pyrc frags, sme intbdd wht micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resdl ring
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OJB: 40.9klbs
Rotary: 71RPM
Strokes: 81SPM
Pump Rate: 283GPM

MD: 13.647'
TVD: 6,964.07'
Inclination: 90.68°
Azimuth: 270.28°
VS: 7.721.82

MD: 13.742'
TVD: 6,962.51'
Inclination: 91.2°
Azimuth: 270.74°
VS: 7.816.41'

WOB: 21.6klbs
Rotary: 68RPM
Strokes: 81SPM
Pump Rate: 286GPM

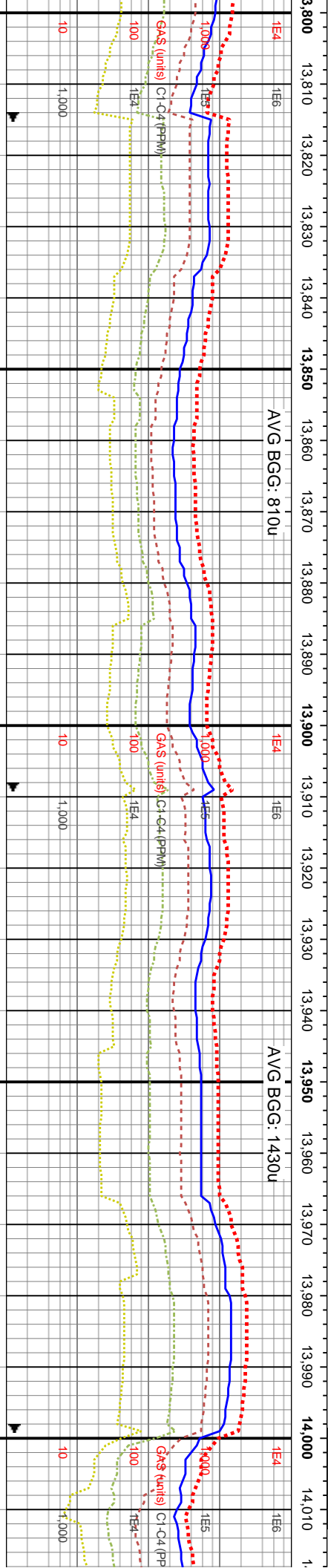
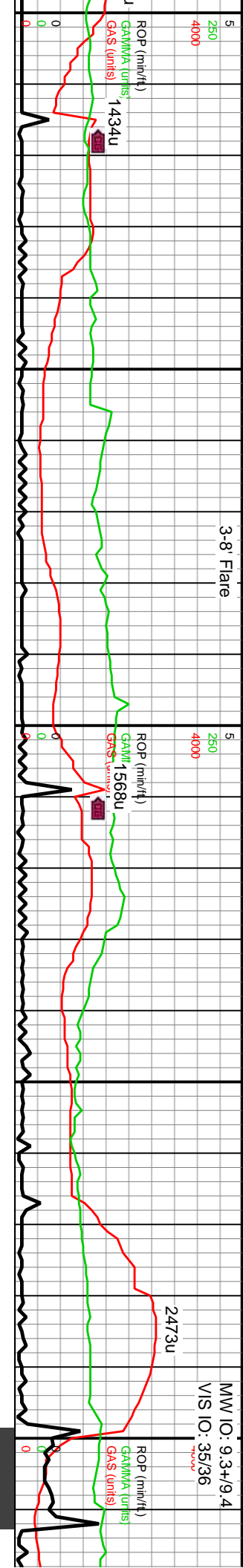
13580-13640 CHK: gysbhn, med gy ip, tr dk gy - v dk gy, sl frm - sl hd, blkly - ang, occ rd, tr split, sl sily - arg ip, sl pyrc thru, tr v pyrc frags, sme inbddd wht mickin chk, mod - v calc, tr cal frags, tr - g gn - lt gn cut, g lt gn resdl ring

13640-13700 CHK: gysbhn, sme tn, sme med gy, occ dk gy - v dk gy, sl frm - sl hd, ang, occ blkly, occ sl sily - arg, sl pyrc thru, tr v pyrc frags, occ inbddd wht mickin chk, mod - v calc, tr - g gn - lt gn cut, g lt gn resdl ring

13700-13760 CHK: gysbhn - tn, med gy - dk gy - v dk gy ip, sl frm - sl hd, ang, occ blkly, occ sl sily - arg, sl pyrc thru, tr v pyrc frags, occ inbddd wht mickin chk, mod - v calc, tr - g gn - lt gn cut, g lt gn resdl ring

13760-13820 CHK: gysbhn, tn ip, dk gy - v dk gy, sl frm - sl hd, blkly - arg ip, sl pyrc thru, tr v pyrc frags, mickin chk, mod - v calc, tr cal frags, g lt gn resdl ring





MD: 13,838'
TVD: 6,960.6'
Inclination: 91.08°
Azimuth: 270.68°
VS: 7.911.95'

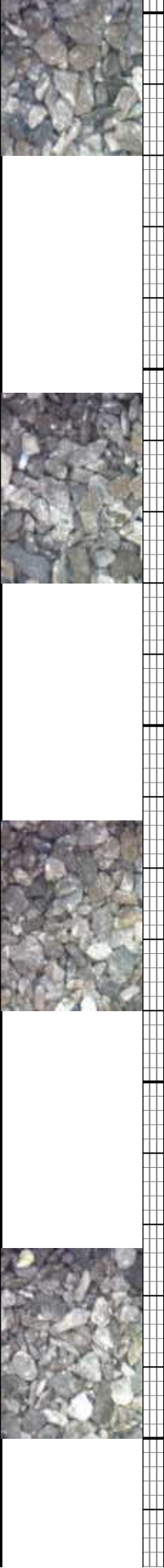
WOB: 45.8klbs
Rotary: 7-42RPM
Strokes: 82SPM
Pump Rate: 289GPM

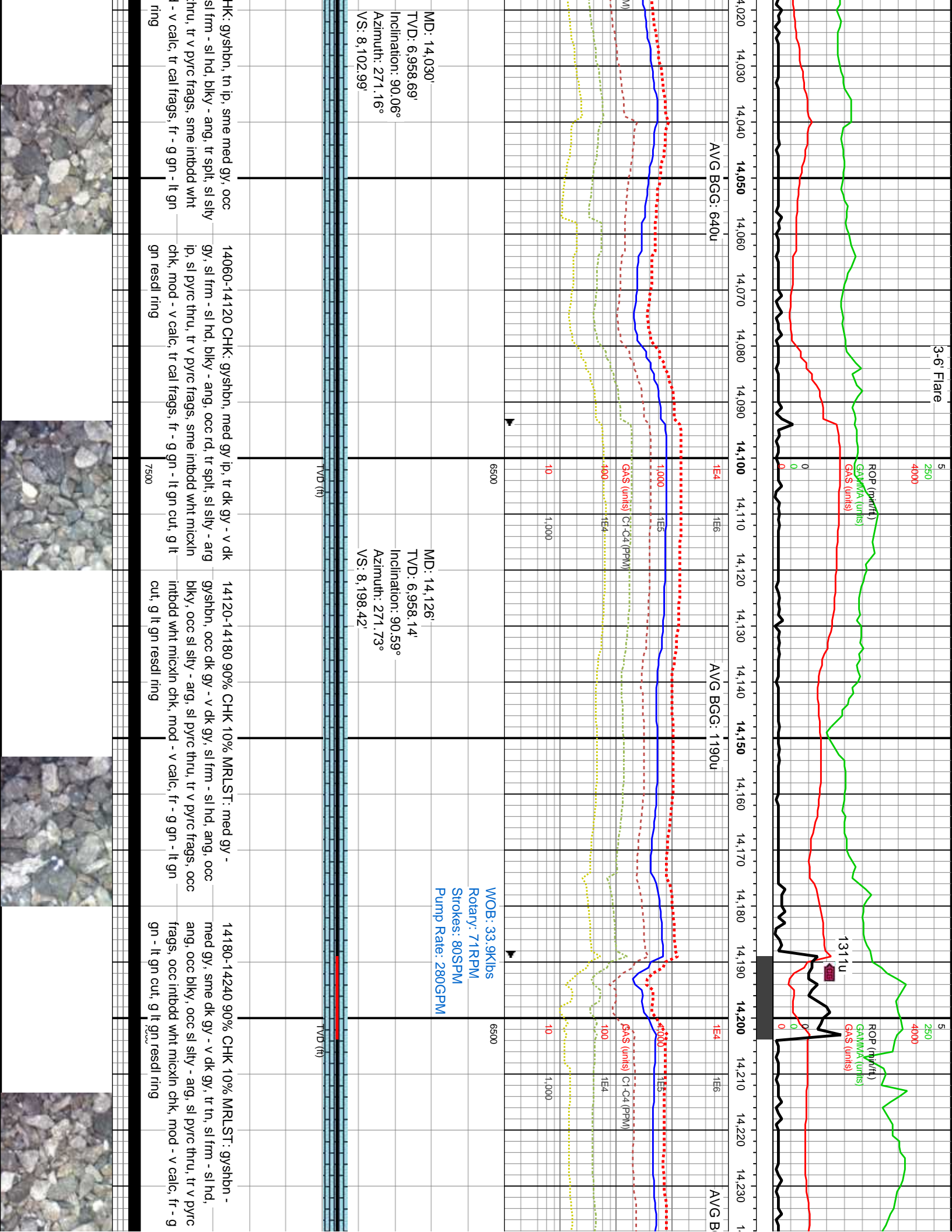
13820-13880 CHK: gysbhn, med gy ip, tr dk gy - v dk
- ang, tr spl, sl silty
gy, sl frm - sl hd, blkly - ang, occ rd, tr spl, sl silty - arg
ip, sl pyrc thru, tr v pyrc frags, sme inbddd wht micxn
chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt
gn resdl ring

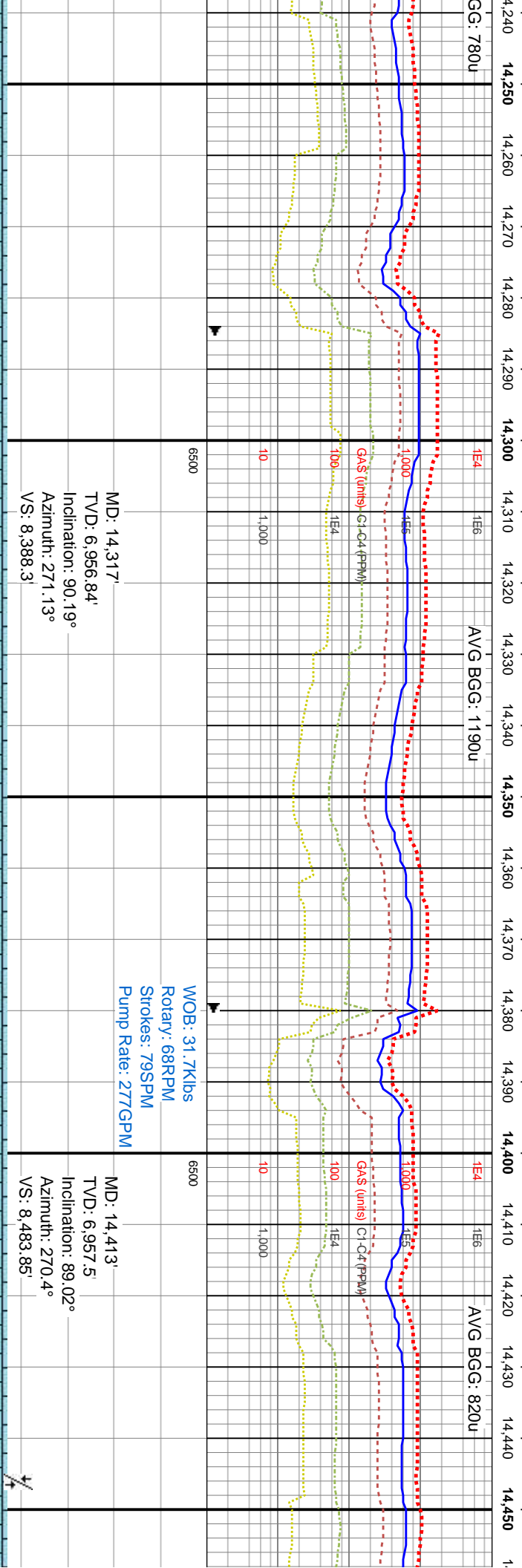
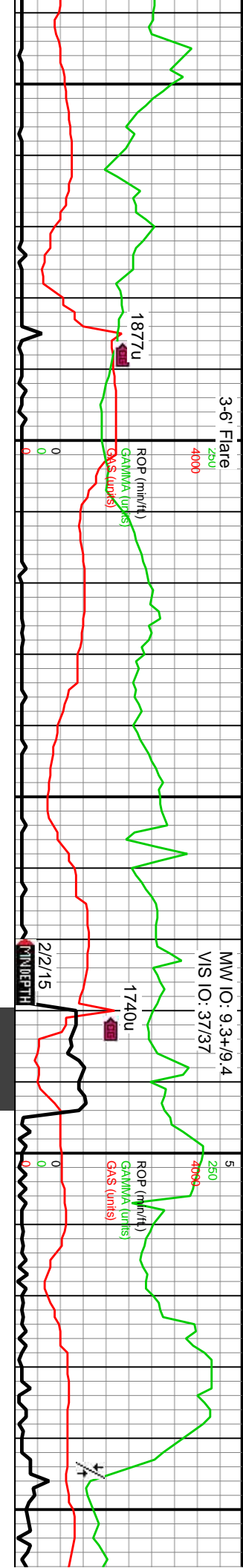
13880-13940 CHK: gysbhn, sme tn, sme med gy,
occ dk gy - v dk gy, sl frm - sl hd, ang, occ blkly, occ
sl silty - arg, sl pyrc thru, tr v pyrc frags, occ inbddd
wht micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt
gn resdl ring

13940-14000 CHK: gysbhn - tn, med gy - dk gy - v
dk gy ip, sl frm - sl hd, ang, occ blkly, occ sl silty -
arg, sl pyrc thru, tr v pyrc frags, occ inbddd wht
micxn chk, mod - v calc, fr - g gn - lt gn cut, g lt gn
resdl ring

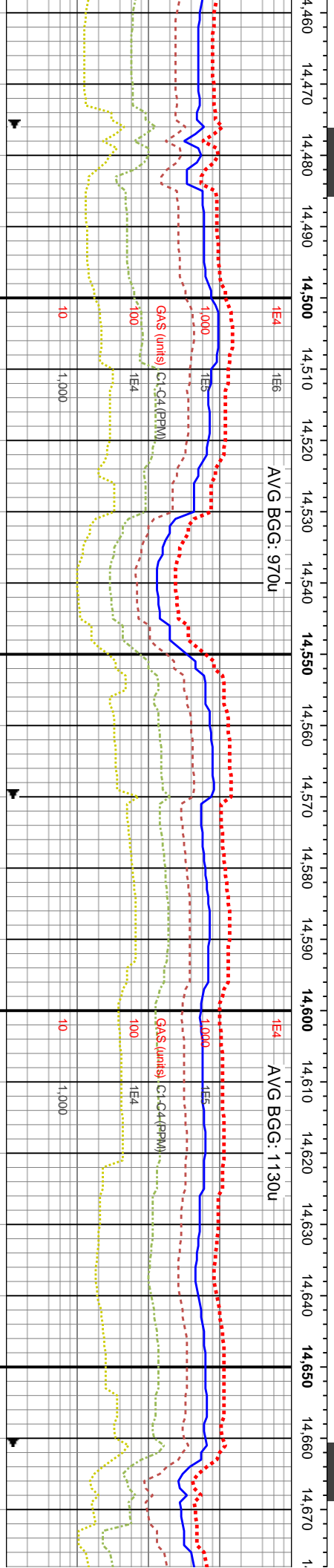
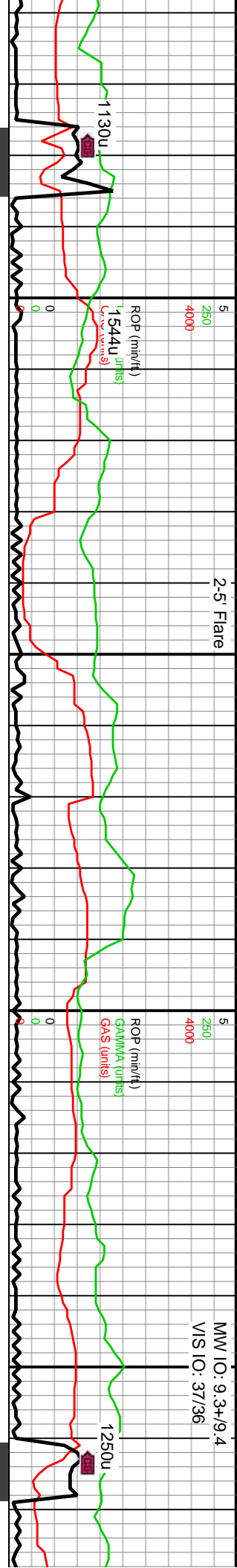
14000-14060 C
dk gy - v dk gy,
- ang ip, sl pyrc
micxn chk, mod
cut, g lt gn resdl







14240-14300 90% CHK 10% MRLST: med gy - gysbhn, rr tn, occ dk gy - v dk gy, sl frm - sl hd, blk y - ang, tr spl, sl sily - arg lp, sl pyrc thru, tr v pyrc frags, sme intbdd wnt micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resdl ring	14300-14360 90% CHK 10% MRLST: gysbhn - med gy, occ dk gy - v dk gy, sl frm - sl hd, blk y - ang, tr spl, sl sily - arg lp, sl pyrc thru, tr v pyrc frags, sme intbdd wnt micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resdl ring	14360-14420 90% CHK 10% MRLST: gysbhn - med gy, tr dk gy - v dk gy, sl frm - sl hd, ang, occ blk y, occ sl sily - arg, sl pyrc thru, tr v pyrc frags, occ intbdd wnt micxn chk, mod - v calc, fr - g gn - lt gn resdl ring	14420-14480 90% CHK 10% MRLST: med gy, sme dk gy - v dk gy, tr tr ang, occ blk y, occ sl sily - arg, sl frags, occ intbdd wnt micxn chk, gn - lt gn cut, g lt gn resdl ring

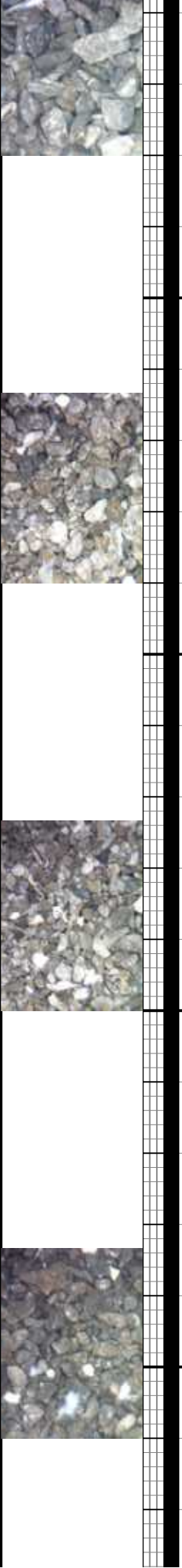


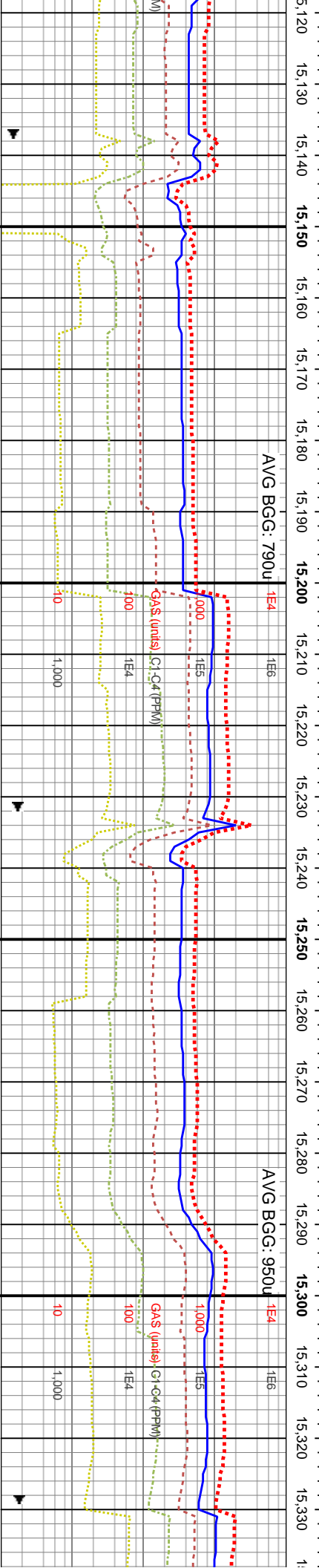
MD: 14,509'
TVD: 6,959.9'
Inclination: 88.12°
Azimuth: 270.11°
VS: 8,579.45'

WOB: 35.7klbs
Rotary: 69RPM
Strokes: 78SPM
Pump Rate: 273GPM

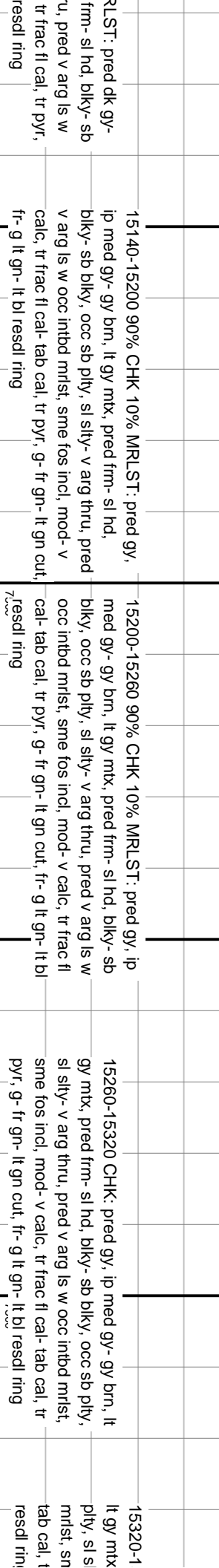
MD: 14,605'
TVD: 6,963.41'
Inclination: 87.69°
Azimuth: 270.13°
VS: 8,675.03'

14480-14540 CHK: gysbhn, med gy ip, tr dk gy - v dk gy, sl frm - sl hd, blk y - ang, occ rd, tr spl, sl slty - arg ip, sl pyrc thru, tr v pyrc frags, sme inbddd wht micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resdl ring	14540-14600 CHK: gysbhn, tn ip, sme med gy, occ dk gy - v dk gy, sl frm - sl hd, blk y - ang, tr spl, sl slty - arg ip, sl pyrc thru, tr v pyrc frags, sme inbddd wht micxn chk, mod - v calc, tr cal frags, fr - g gn - lt gn cut, g lt gn resdl ring	14600-14660 90% CHK 10% MRLST: gysbhn - dk gy, sme v dk gy, sl frm - sl hd, ang, occ blk y, occ sl slty - arg, sl pyrc thru, tr v pyrc frags, abnt lse wht micxn chk frags, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring	14660-14720 8 dk gy, sme gysl occ sl slty - arg wht micxn chk g lt gn resdl ring
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MD: 15,274'
TVD: 6,961.54'
Inclination: 90.86°
Azimuth: 269.99°
VS: 9,285.15'

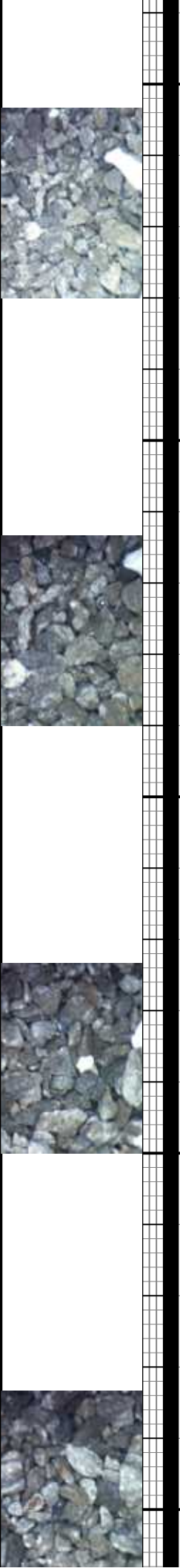
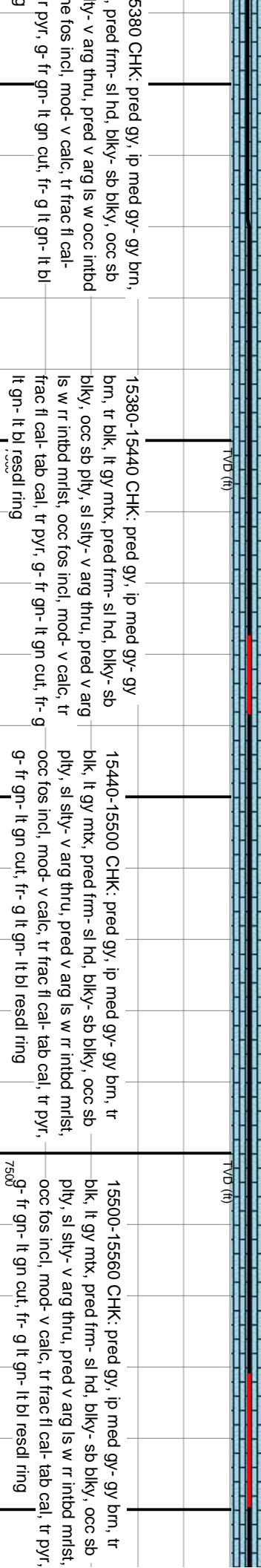
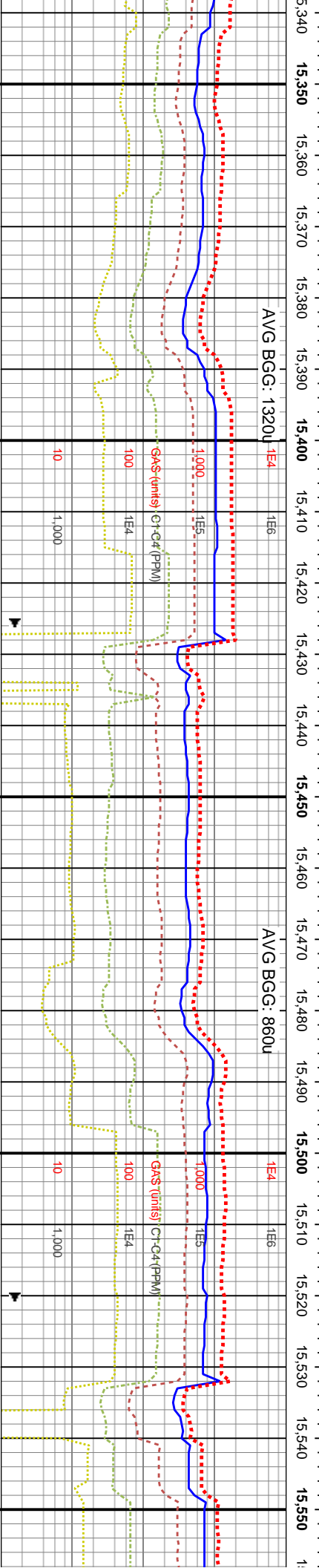


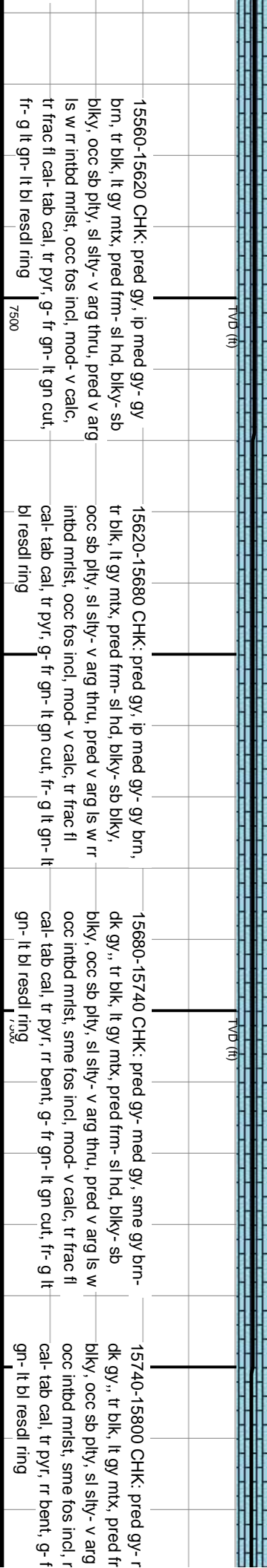
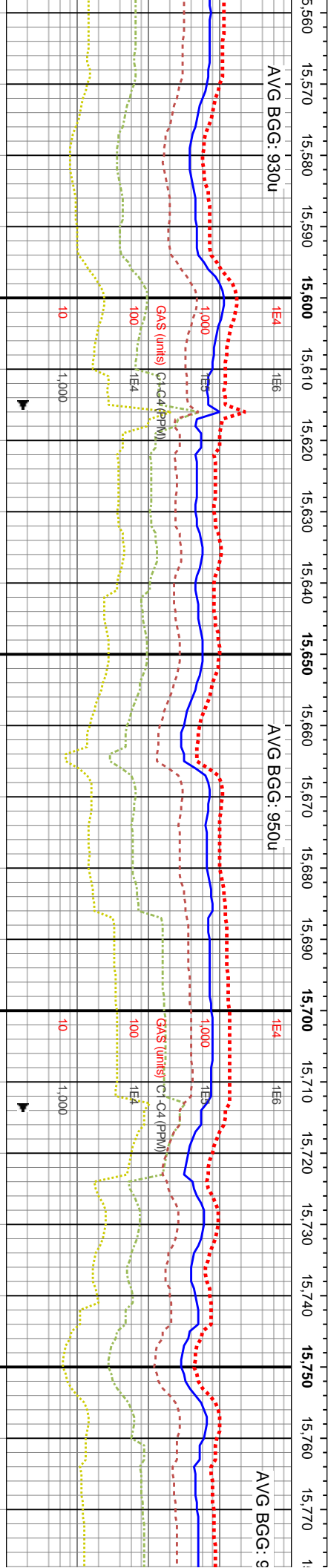
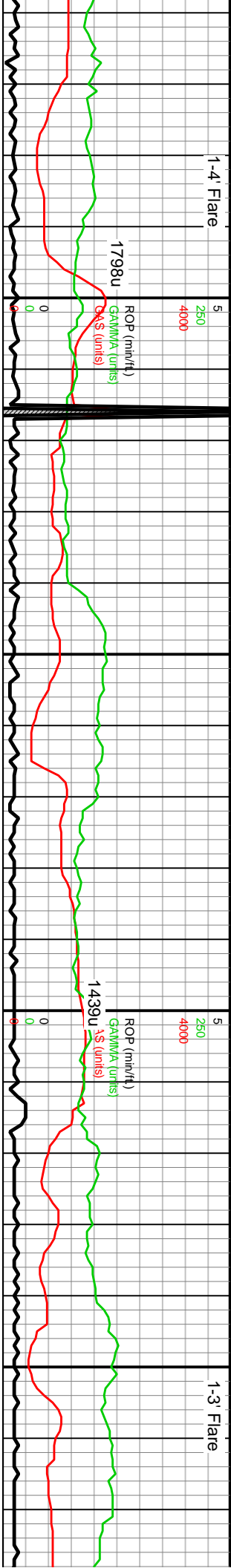
15140-15200 90% CHK 10% MRLST: pred gy,
ip med gy- gy btm, lt gy mtx, pred frm- sl hd,
blky- sb blky, occ sb pty, sl sity- v arg thru, pred
v argls w occ inbnd mltst, sme fos incl, mod- v
calc, tr frac fl cal- tab cal, tr pyr, g- fr gn- lt gn cut,
fr- g lt gn- lt bl fresdrl ring

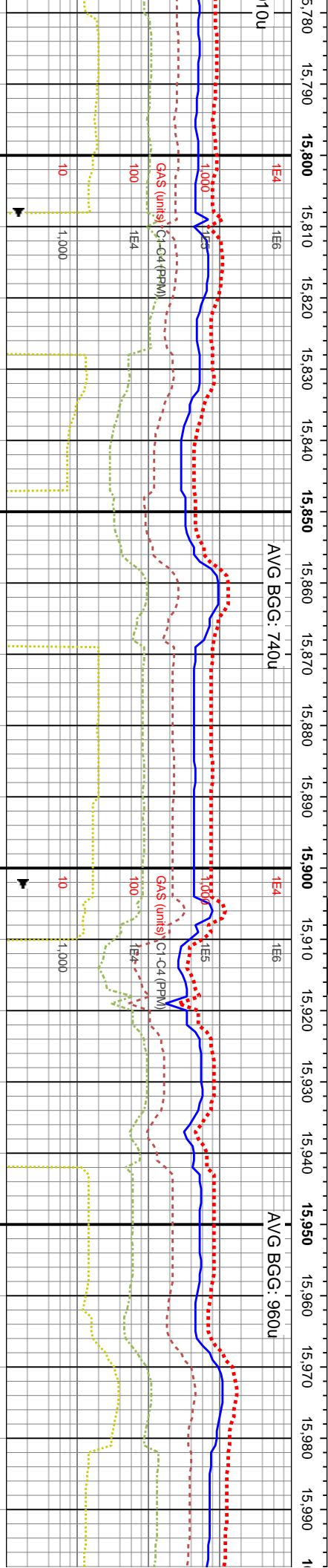
15200-15260 90% CHK 10% MRLST: pred gy, ip
med gy- gy brn, lt gy mtx, pred frm- sl hd, bly- sb
bly, occ sb ply, sl silty- v arg thru, pred v arg ls w
occ inbd mlst, sme fos incl, mod- v calc, tr frac fi
cal- tab cal, tr pyr, g- fr gn- lt gn cut, fr- g lt gn- lt bl
resd ring

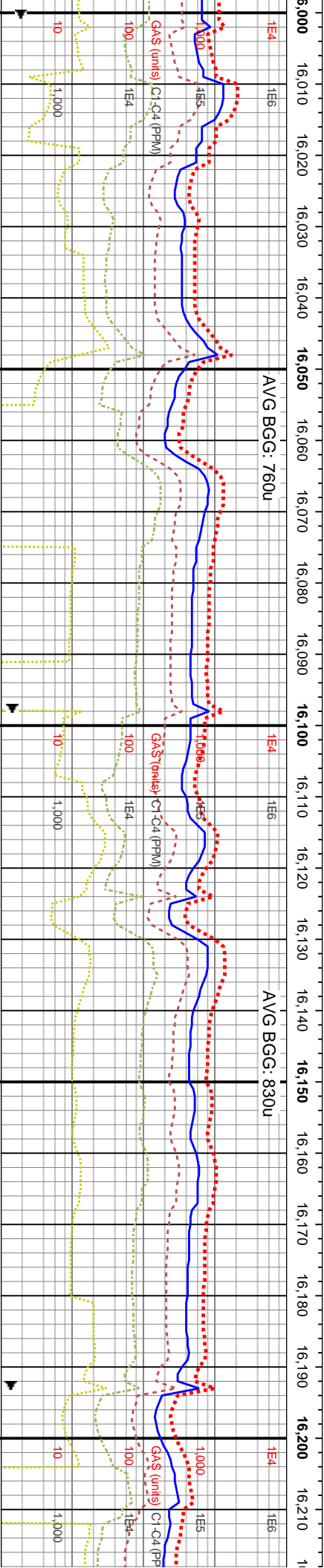
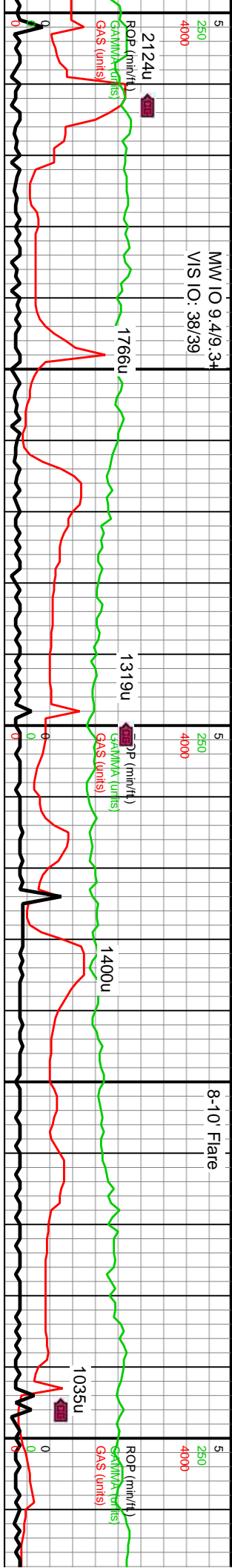
15260-15320 CHK: pred gy, ip med gy- gy brn, lt gy mtx, pred frm- sl hd, bkly- sb bkly, occ sb ply, sl silty- v arg thru, pred v arg is w occ inbtd mlst, sme fos incl, mod- v calc, tr frac fl cal- tab cal, tr pyr, g- fr gn- lt gn cut, fr- g lt gn- lt bl resd ring

15320-1
It gy mtx
ply, sl s
mrst, sn
tab cal, t
resd rin









MD: 16,041'
TVD: 6,966.45'
Inclination: 90.86°
Azimuth: 271.93°
VS: 10,051.79'

MD: 16,136'
TVD: 6,964.92'
Inclination: 90.98°
Azimuth: 271.3°
VS: 10,146.76'

WOB: 26Klbs
Rotary: 75RPM
Strokes: 84SPM
Pump Rate: 293GPM

6500 CA @ 16220

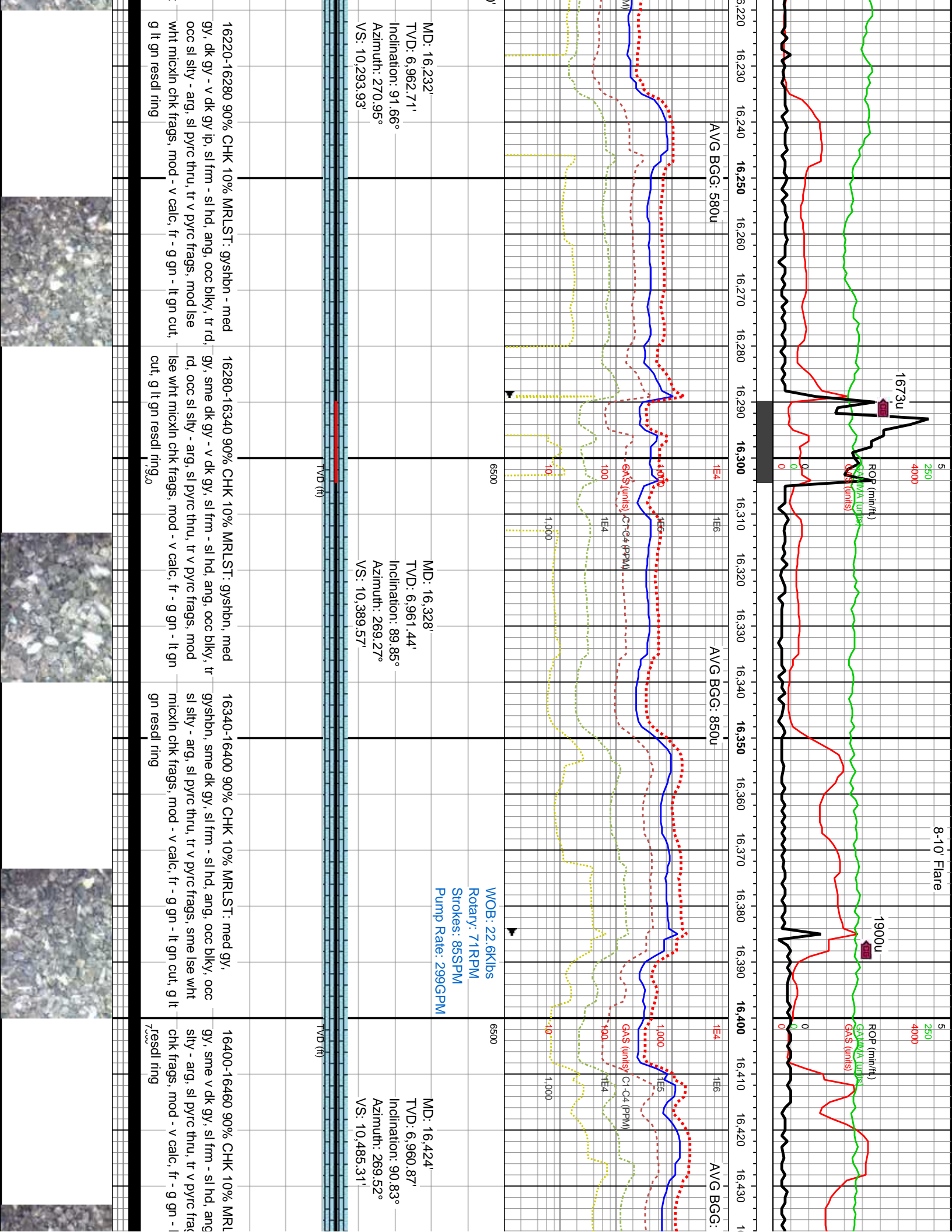
00 CHK: pred gy- med gy, sme gy brn- dk gy, tr blk, lt gy mtx, pred frm- sl hd, blkly- sb blkly, sl sily- v arg thru, pred v arg ls w ooc me fos incl, mod- v calc, tr frac fl cal- fr- g lt gn- lt gn cut, fr- g lt gn- lt

16040-16100 CHK: pred gy- med gy, sme gy brn- dk gy, tr blk, lt gy mtx, pred frm- sl hd, blkly- sb blkly, occ sb ply, sl sily- v arg thru, pred v arg ls w ooc intbd mrlst, sme fos incl, mod- v calc, tr frac fl cal- tab cal, tr pyr, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring

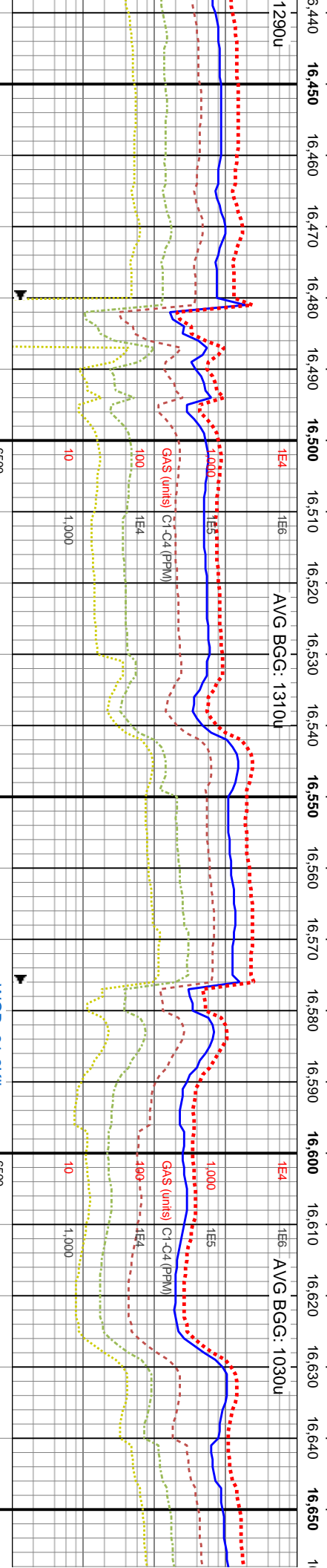
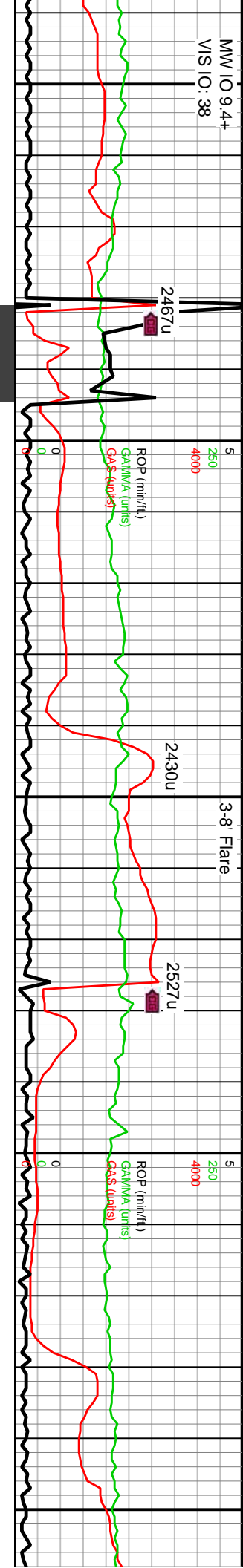
16100-16160 CHK: pred gy- med gy, ip gy brn- dk gy, sme blk, lt gy mtx, pred frm- sl hd, blkly- sb blkly, occ sb ply, sl sily- v arg thru, pred v arg ls w ooc intbd mrlst, sme fos incl, mod- v calc, tr frac fl cal- tab cal, tr pyr, rr bent, g- fr gn- lt gn cut, fr- g lt gn- lt bl resdl ring

16160-16220 90% CHK 10% MRLST: gysbhn - med gy, sme v dk gy, sl frm - sl hd, ang, occ blkly, occ sl sily - arg, sl pyrc thru, tr v pyrc frags, abnt lse wnt mickxn chk frags, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring





MW IO 9.4+
VIS IO: 38

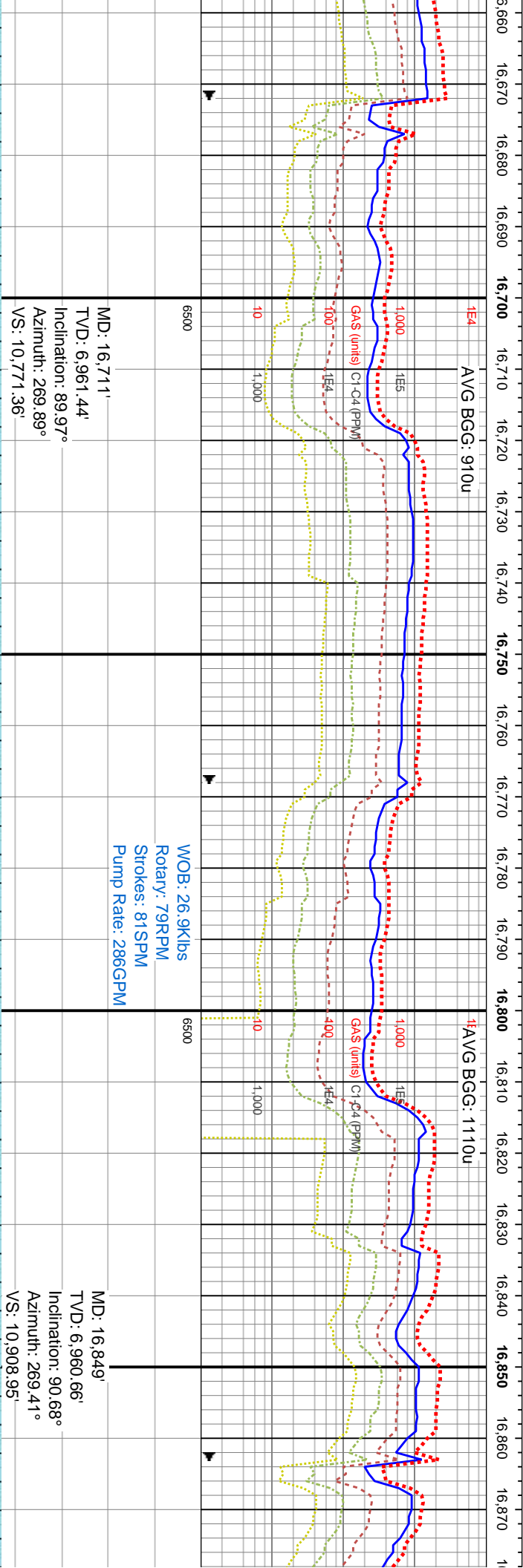
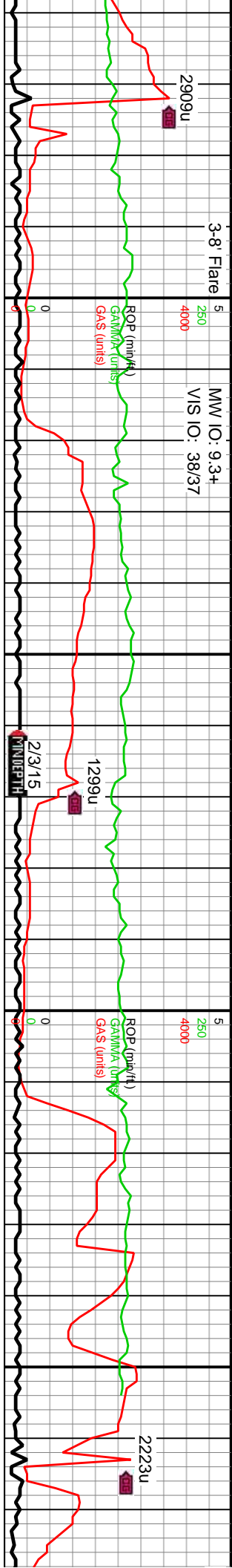






MD: 16,520'
TVD: 6,960.46'
Inclination: 89.66°
Azimuth: 270.11°
VS: 10,581'

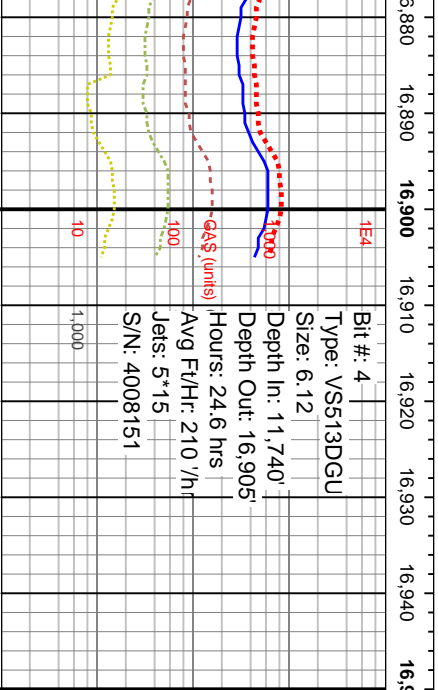
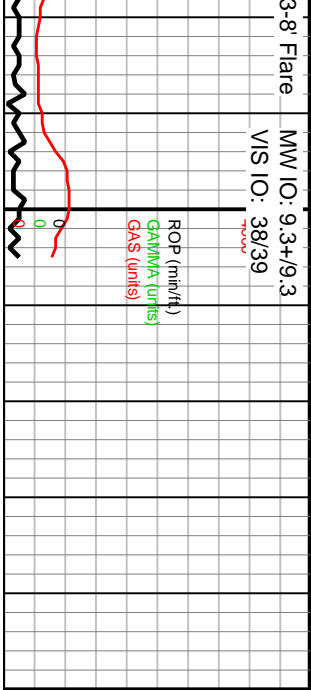
WOB: 31.8klbs
Rotary: 75RPM
Strokes: 83SPM
Pump Rate: 293GPM

MD: 16,615'
TVD: 6,961.08'
Inclination: 89.6°
Azimuth: 269.81°
VS: 10,675.68'

ST: gysbhn - med ip, occ blkly, occ sl pyrc thru, tr v pyrc frags, rr lse wht micxn mod - v calc, fr - g gn - lt gn cut, g lt gn resd ring	16460-16520 CHK: gysbhn - med gy, dk gy - v dk gy ip, sl frm - sl hd, ang, occ blkly, tr rd, occ sl silty - arg, sl pyrc thru, tr v pyrc frags, rr lse wht micxn chk frags, mod - v calc, fr - g gn - lt gn cut, g lt gn resd ring	16520-16580 CHK: gysbhn, sme med gy, sme dk gy - v dk gy, sl frm - sl hd, ang, occ blkly, tr rd, occ sl silty - arg, sl pyrc thru, tr v pyrc frags, rr lse wht micxn chk frags, mod - v calc, fr - g gn - lt gn cut, g lt gn resd ring	16580-16640 CHK: gysbhn, sme med gy, sme dk gy, sl frm - sl hd, ang, occ blkly, occ sl silty - arg, sl pyrc thru, tr v pyrc frags, rr lse wht micxn chk frags, mod - v calc, fr - g gn - lt gn cut, g lt gn resd ring	16640-16700 C frm - sl hd, ang, tr v pyrc frags, t calc, fr - g gn - l
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HK: gysbhn - med gy, sme v dk gy, sl occ blkly, occ sl silty - arg, sl pyrc thru, use wht micxn chk frags, mod - v gn cut, g lt gn resdl ring	16700-16760 90% CHK 10% MRLST: med gy, gysbhn, sme dk gy, sl frm - sl hd, ang, occ blkly, occ sl silty - arg, sl pyrc thru, tr v pyrc frags, sme ise wht micxn chk frags, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring	16760-16820 90% CHK 10% MRLST: gysbhn, med gy, sme dk gy - v dk gy, sl frm - sl hd, ang, occ blkly, tr rd, occ sl silty - arg, sl pyrc thru, tr v pyrc frags, mod ise wht micxn chk frags, mod - v calc, fr - g gn - lt gn cut, g lt gn resdl ring	16820-16905 90% CHK 10% MRLST: gy, sme v dk gy, sl frm - sl hd, ang, c silty - arg, sl pyrc thru, tr v pyrc frags, micxn chk frags, mod - v calc, fr - g gn resdl ring
			



Projected
MD: 16,905'
TVD: 6,959.99'
Inclination: 90.68°
Azimuth: 269.41°
VS: 10,964.8'

TD @ 16905' MD,
2/3/2015 @ 0120hrs

TVD (ft)

gys shn - med
occ blk y, occ sl
abt lse wht
gn - lt gn cut, g lt

7500

