

Scale: 4.88" / 100'
Measured Depth Log

Well Name	State Pronghorn 41-29-30XRNLNB		
Location	NWNW Sec.28 T5N R61W		
State	Colorado	County	Weld
Country	United States	Rig Number	Xtreme 19
API Number	05-123-44111-00	AFE #	18008
Geographic Region	D.J. Basin	Field	Wattenberg
Spud Date	2/26/2018	Drilling Completed	3/4/2018
Surface Coordinates	NWNW Sec.28 T5N R61W 1318 FNL 548 FWL		
Bottom Hole Coordinates	NWNW Sec.28 T5N R61W 590 FNL 470 FWL		
Ground Elevation	4,618	K.B. Elevation	4,635
Logged Interval	6,000 To 16,112	Total Depth	16,112
Formation	Niobrara B Chalk		
Type of Drilling Fluid	Oil Based Mud		

Operator

Company Bonanza Creek
Address Bonanza Creek Energy
410 17th Street
Suite 1400
Denver, CO 80202

Geologist

Name Paul McKay
Company Bonanza Creek Energy
Address Bonanza Creek Energy
410 17th Street
Suite 1400
Denver, CO 80202

Other

Robert Davis Wellsite Geologist
Dan Kabala Wellsite Geologist

Zone Color Coding

Oil
Noise
Error

Condensate
Core
Water

Ga
Pre
Se

Rock Types

UNKNOWN	MARLSTONE	SILTSTONE	BENTONITE
GYPSUM	CLAYSTONE	SANDSTONE	TUFF
LIMESTONE	SHALE	CONGLOMERATE	CEMENT
CHERT	SHALE GRAY	BRECCIA	CHALK
COAL	SHALE COLORED	TILL	SILTY SHALE

Accessories

FORAMINIFERA	GLAUCONITE	COAL STRINGER
FOSSIL	ANHYDRITIC	DOLOMITE STRINGER
ALGAE	BENTONITE	GYPSUM STRINGER
AMPHIPORA	BITUMENOUS SUBSTANCE	LIMESTONE STRINGER
BELEMNITE	CALCAREOUS	MARLSTONE (CALC) STRG
BIOCLASTIC	CARBONACEOUS FLAKES	MARLSTONE (DOL) STRG
BRACHIOPOD	CHTDK	SANDSTONE STRINGER
BRYOZOA	PISOLITE	SHALE STRINGER
CEPHALOPOD	COAL - THIN BEDS	SILTY STRINGER
CORAL	PLANT SPORES	SILTY SHALE STRINGER
CRINOID	SCAPHOPOD	
ECHINOID	STROMATOPOROID	
FISH	FERRUGINOUS PELLET	
	FERRUGINOUS	

Minerals

Other Symbols

MOLDIC	ORGANIC	OIL
DEAD	PINPOINT	SIDE
EVEN	VUGGY	SIDE
QUESTIONABLE		SLIDE
SPOTTED STAINING		SU
	Engineering	
Porosity		
EARTHY	CONNECTION (RIGHT)	WIRE
FENESTRAL	CONNECTION GAS	
FRACTURE	CORE - LOST	
INTERCRYSTALLINE	CORE - RECOVERED	ANGULAR
INTEROOLITIC	FAULT	ROUND

Symbols

FORMATION TOP **BS** SUBANG **PS** PACKSTONE

SHOW **PS** SUBRND **MS** WACKESTONE

WALL CORE (LEFT)

Textures Sorting

WALL CORE (RIGHT)

BS BOUNDSTONE **M** MODERATE

C CHALKY **P** POOR

CG GAS **CM** CRYPTOXLN **W** WELL


ELINE TESTED - LEFT **E** EARTHY

ELINE TESTED - RT **FX** FINELYXLN

Cut

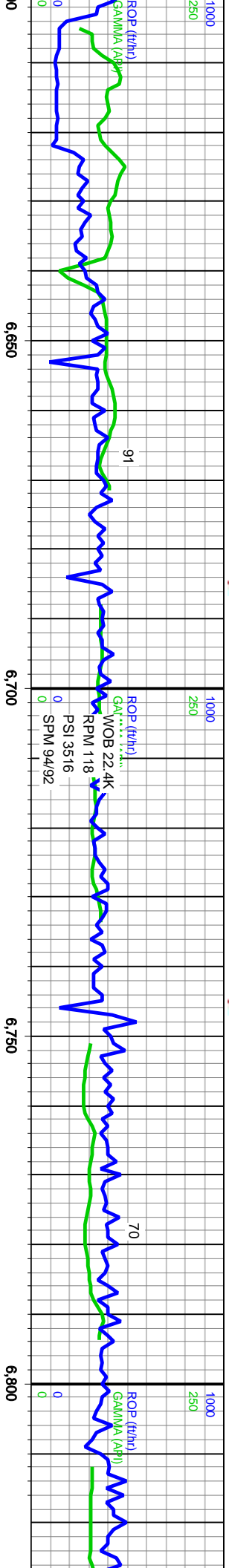
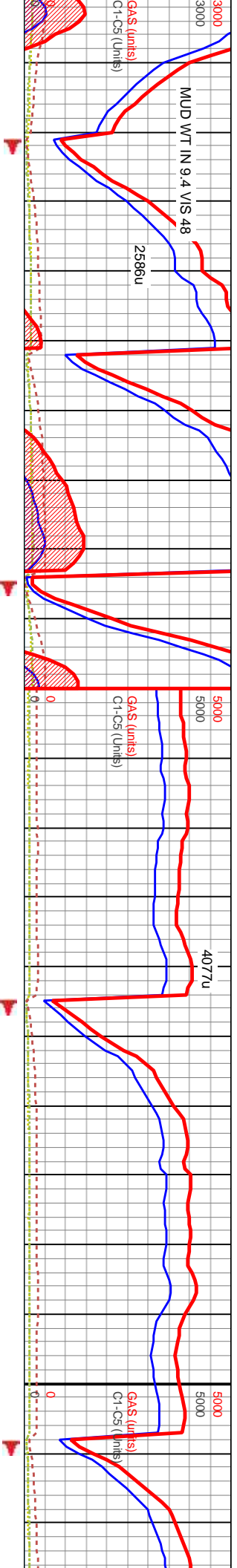
ES GRAINSTONE  No Cut

L LITHOGRAPHIC  Fair Cut

MX MICROXLN  Good Cut

MS MUDSTONE Blank

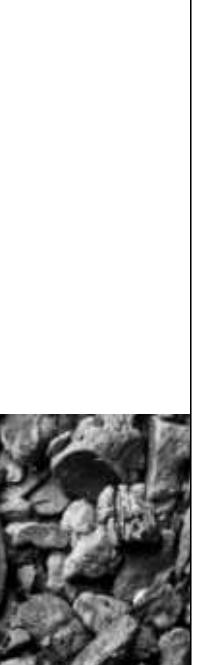
Binding



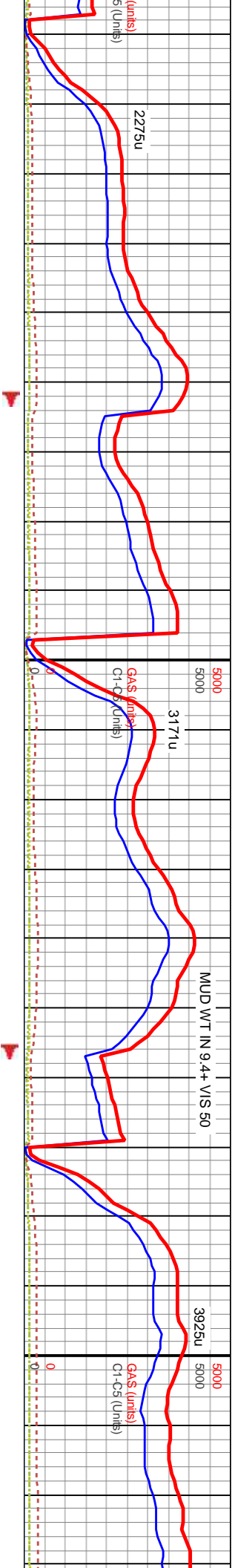
Landed Curve @ 6651' MD 6083' TVD

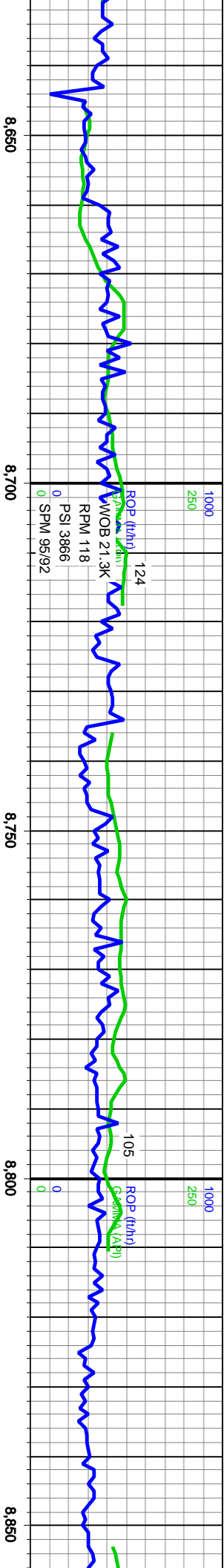
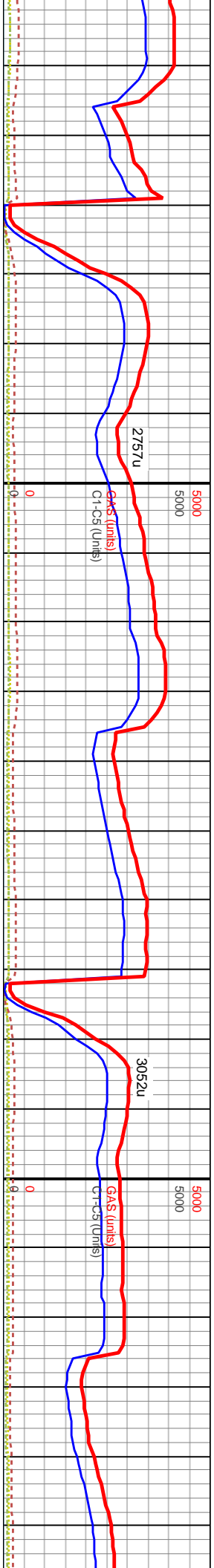
[illegible]

87°	MD: 6,660'	Inclination: 90°	MD: 6,723'	Inclination: 90°	MD: 6,785'
84°	Azimuth: 266°	Azimuth: 265°	Azimuth: 265°	Azimuth: 265°	Azimuth: 265°
	TVD: 6,083'	TVD: 6,084'	TVD: 6,084'	TVD: 6,084'	TVD: 6,084'
	VS: 1,223'	VS: 1,285'	VS: 1,285'	VS: 1,346'	

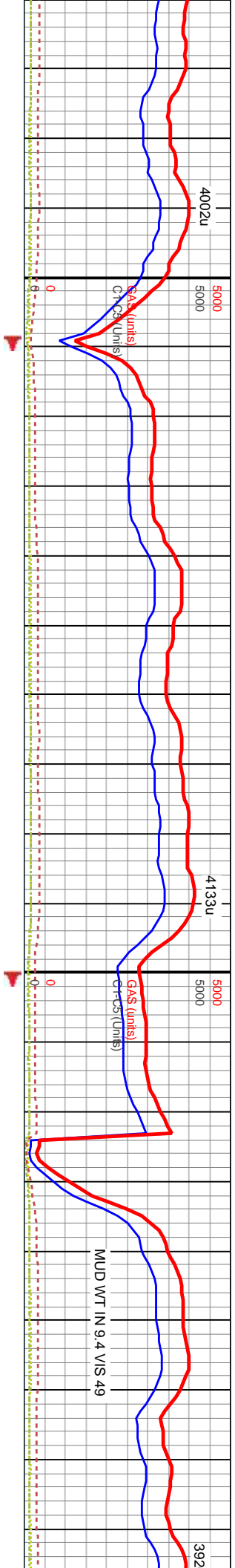
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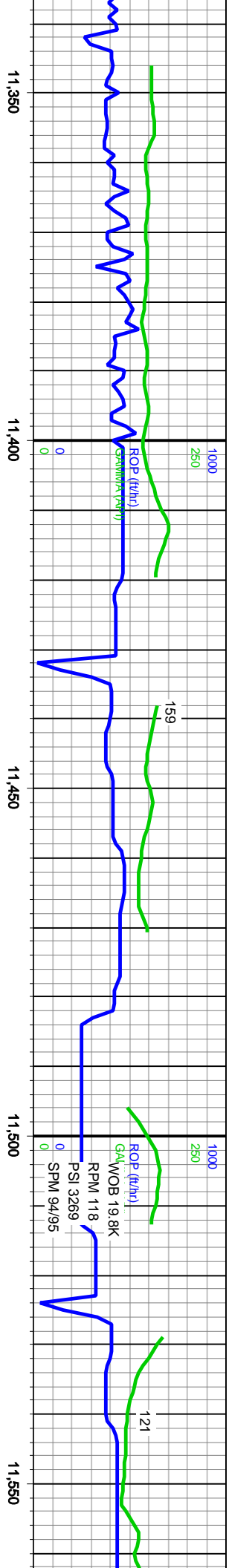
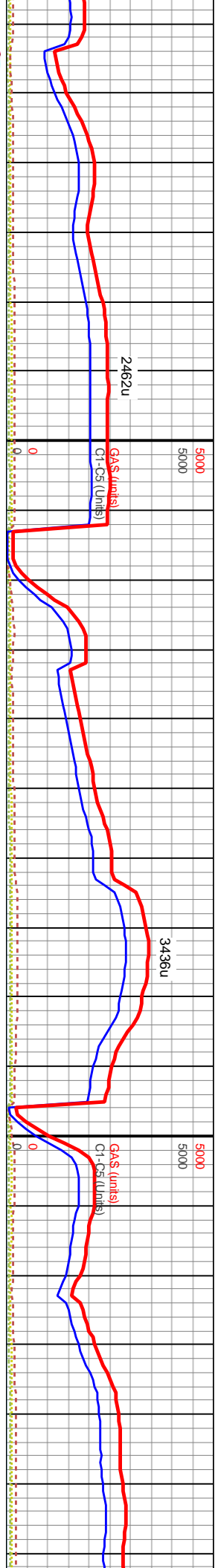
90°	MD: 7,787'	MD: 7,850'	MD: 7,913'
	Inclination: 90°	Inclination: 90°	Inclination: 90°
5°	Azimuth: 268°	Azimuth: 270°	Azimuth: 268°
	TVD: 6,084'	TVD: 6,085'	TVD: 6,085'
	VS: 2,337'	VS: 2,400'	VS: 2,463'





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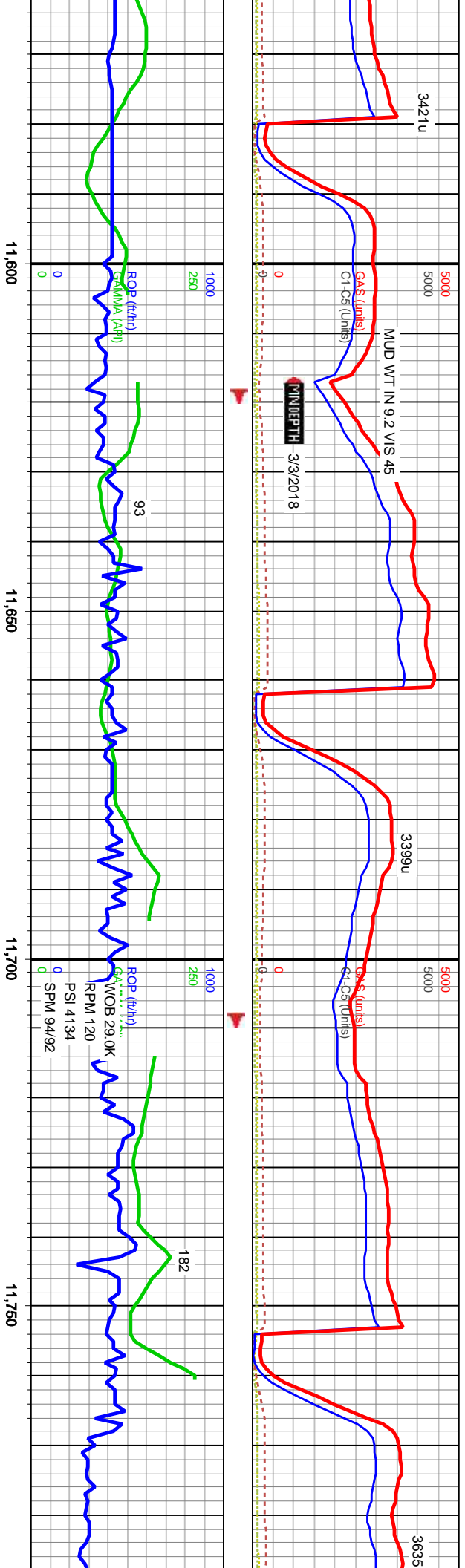
w, mod frm-frm, sbbiky, rthy spking lstr ip, occ calc									
carb mat (SH), mttld w whi mrtc spks, MRLY CHLK:									
b pty-sb blk, dll rthy lstr, dns crmbly ten, v carb, mic xln									
(phylio)									
MARL: (60%) med brwn-brwn, mod frm-frm, sbbiky, rthy spking lstr ip, occ calc									
incls, intrbd w med gry-blk carb mat (SH), mttld w whi mrtc spks, MRLY CHLK:									
(40%) lt brwn-lt gry brwn, sb pty-sb blk, dll rthy lstr, dns crmbly ten, v carb, mic xln									
sug txt, frm, abn alt BENT (phylio)									
CARB CHALK: (60%) med gry - lt gry whi ip, mttld									
lstr, blk-y-rthy frac, elong-wdglk, dn-brit, pred clin, bil									
MRLY CHALK: (30%), MARL: (10%),									

New Target 6093' TVD

Niobrara B Chalk Target

MD: 11,409'
Inclination: 90°
Azimuth: 270°
TVD: 6.088'
VS: 5.946'

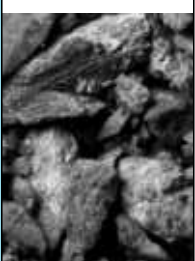
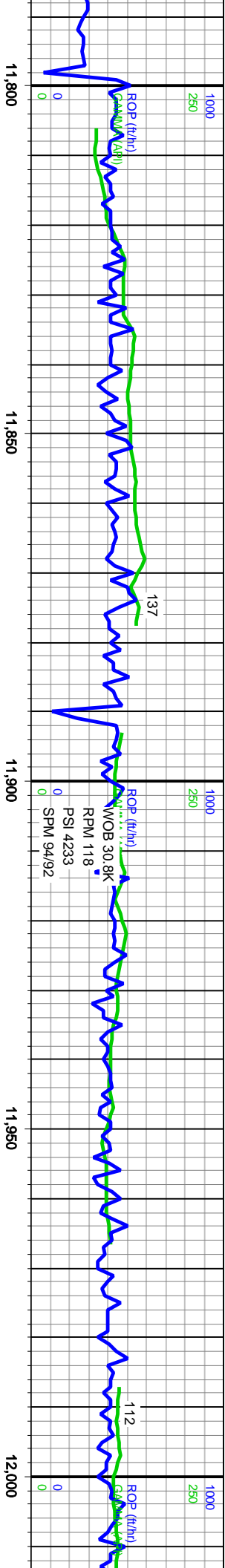
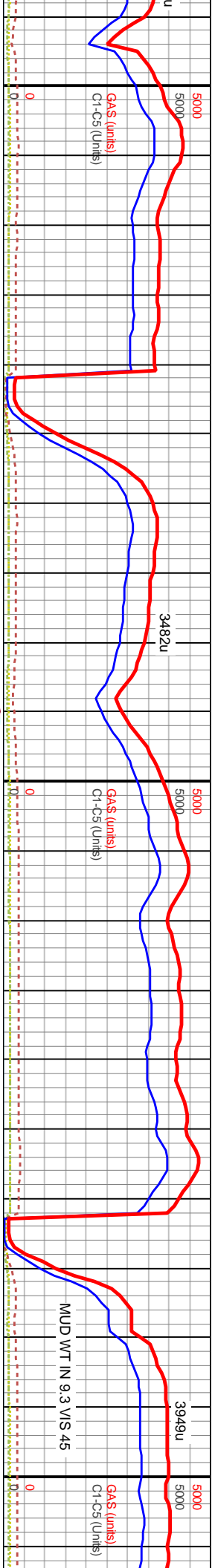
MD: 11,501'
Inclination: 90°
Azimuth: 270°
TVD: 6.088'
VS: 6.038'

[illegible]

MD: 11,593'
Inclination: 89°
Azimuth: 271°
TVD: 6,089'
VS: 6,130'

MD: 11,683'
Inclination: 89°
Azimuth: 271°
TVD: 6,091'
VS: 6,220'

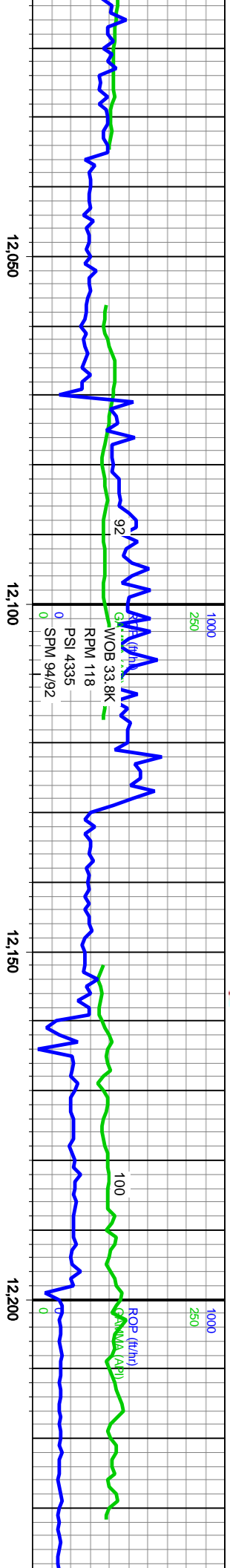
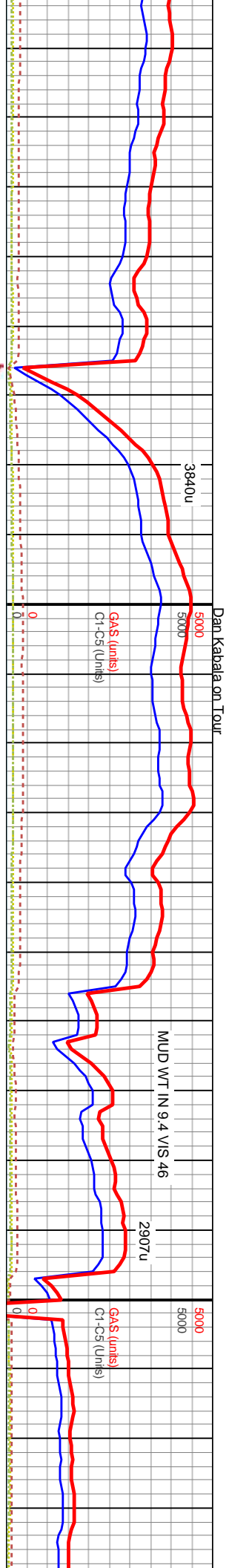
MD: 11,775'
Inclination: 89°
Azimuth: 273°
TVD: 6,092'
VS: 6,312'

[illegible]

Niobrara B Chalk Target

MD: 11,867
Inclination: 90°
Azimuth: 272°
TVD: 6,093'
VS: 6,404'

MD: 11.959'
Inclination: 90°
Azimuth: 273°
TVD: 6.093'
VS: 6.496'



5600	TOOH on 3/3/2018 @ 03:30 due to MWD Failure. Resume drilling on 3/3/2018 @ 23:35 Bit #3: BHL, TYPE: GT55, SERIAL #: 12993758 IN @ 2301' MD out on 2/27/2018 @ 2617' MD Bit #4: BHL, TYPE: GT55, SERIAL #: 12993758 IN @ 2617' MD out on 2/28/2018 @ 12196' MD Bit 2RR: BHL, TYPE: GT55, SERIAL #: 12986144 IN @ 12196' MD out on 3/4/2018 @ 16112' MD	5600
CHALK: (90%) med gry - lt gry whi ip, mttld w whi mcrtc spks, chiky txt, dll rthy Ky-rthy frac, elong-wdglk, dn-brit, pred clin, blk carb mat to ip, infer chlk por, CHALK: (10%), MARL: (10%),	CHALK: (95%) med gry - lt gry whi ip, mttld w whi mcrtc spks, chiky txt, dll rthy lstr, blk-y-rthy frac, elong-wdglk, dn-brit, pred clin, blk carb mat to ip, infer chlk por, MRLY CHALK: (tr), MARL: (5%),	CHALK: (95%) med gry - lt gry whi ip, mttld w whi mcrtc spks, chiky txt, dll rthy lstr, blk-y-rthy frac, elong-wdglk, dn-brit, pred clin, blk carb mat to ip, infer chlk por, MRLY CHALK: (tr), MARL: (5%),

MD: 12,043'
Inclination: 90°
Azimuth: 271°
TVD: 6,093'
VS: 6,580'

MD: 12,131'
Inclination: 91°
Azimuth: 279°
TVD: 6,092'
VS: 6,668'

MD: 12,223'
Inclination: 90°
Azimuth: 280°
TVD: 6,092'
VS: 6,759'

TIMEDEPTH 3/4/2018

5000
5000

1921u

2999u

MUD WT IN

GAS (units)

CI-GS (units)

GAS (units)

CI-GS (units)

0

0

▲

▲

▲

1000

1000

250

250

ROP (ft/hr)

GAMMA (abn)

ROP (ft/hr)

GAMMA (abn)

WOB 21.8K

97

RPM 118

0

PSI 4009

0

SPM 94/92

0

12,250

12,300

12,350

12,400

12,450



y - lt gry whi ip, mttld w whi mcrtc spks, chiky txt, dll rthy									
blk, dn-brit, pred cin, blk carb mat to ip, infer chlk por,									
5%),									
CARB CHALK: (90%) med gry - lt gry whi ip, mttld w whi mcrtc spks, chiky txt, dll rthy									
ist, blk-y-rthy frac, elong-wdglik, dn-brit, pred cin, blk carb mat to ip, infer chlk por,									
MARL: (10%), abn ls calc frag.									
6600									
CARB CHALK: (90%) med gry - lt gry whi ip, mttld w whi mcrtc spks, chiky txt, dll rthy									
ist, blk-y-rthy frac, elong-wdglik, dn-brit, pred cin, blk carb mat to ip, infer chlk por,									
MARL: (10%), abn ls calc frag.									
6600									

MD: 12,313'

Inclination: 90°

Azimuth: 275°

TVD: 6,092'

VS: 6,849'

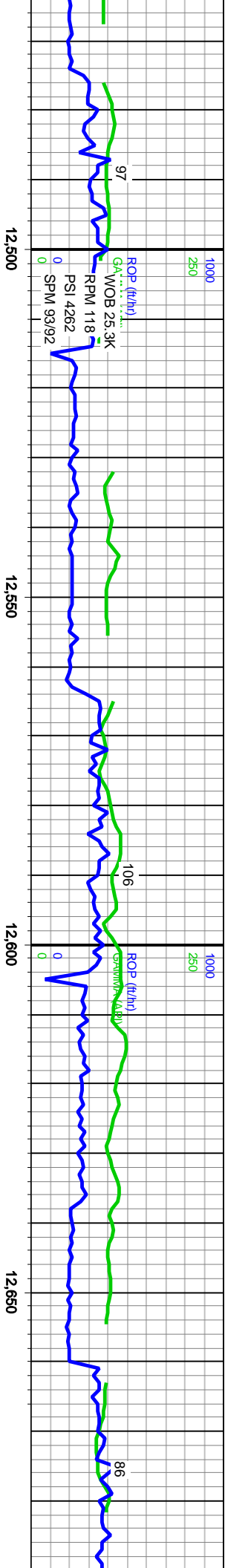
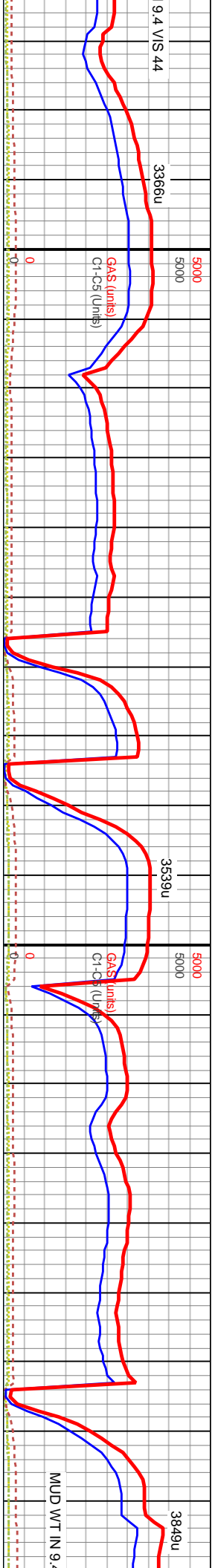
MD: 12,404'

Inclination: 90°

Azimuth: 275°

TVD: 6,092'

VS: 6,940'

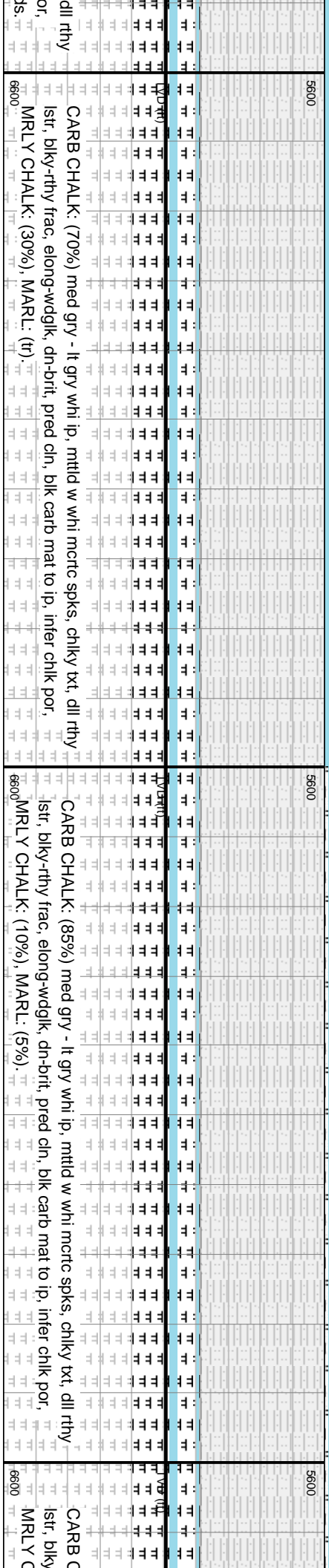
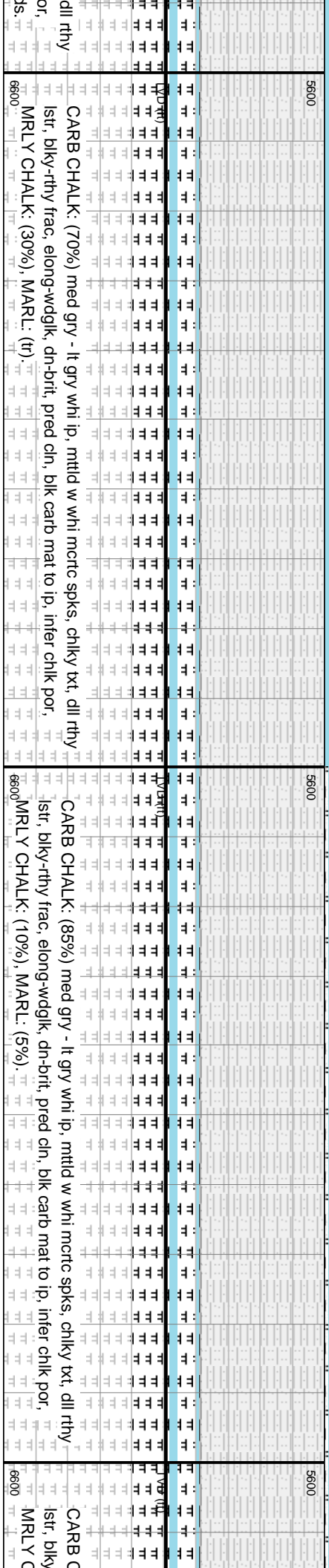
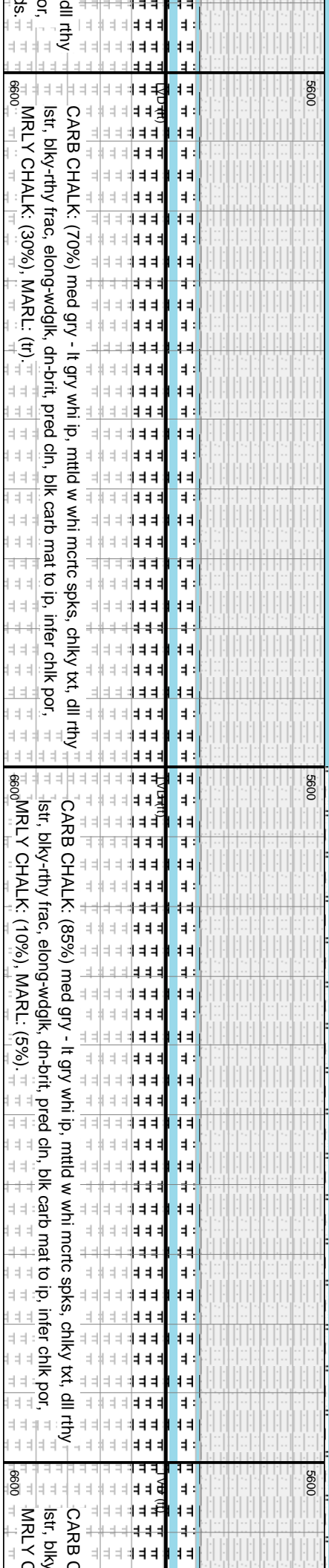
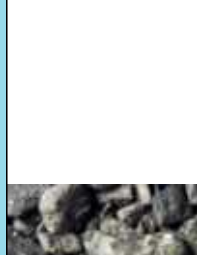
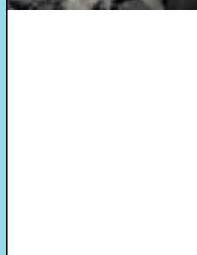
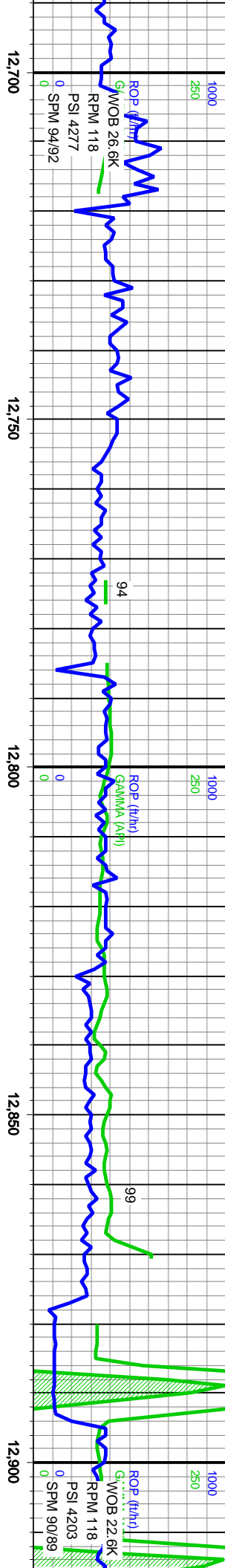
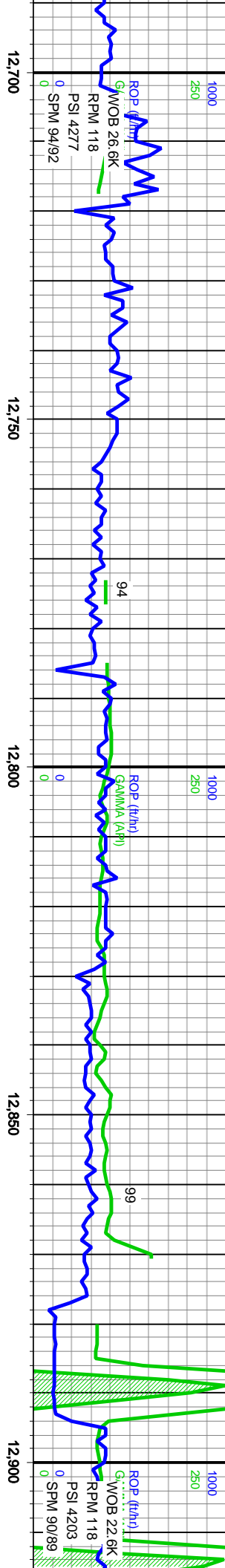
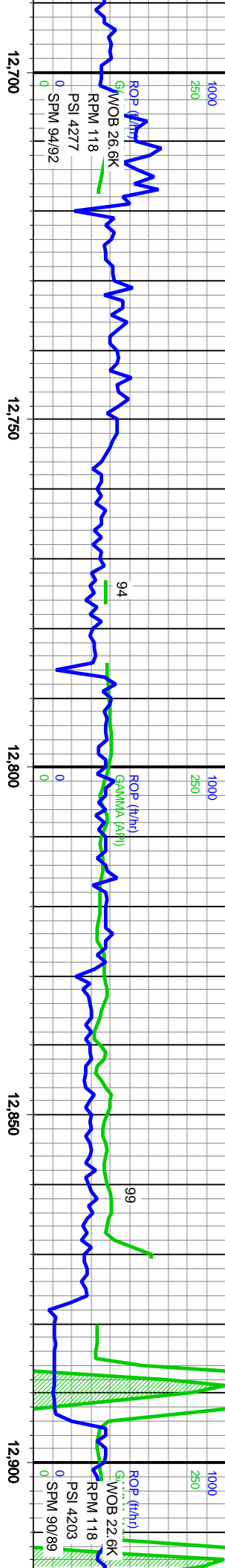
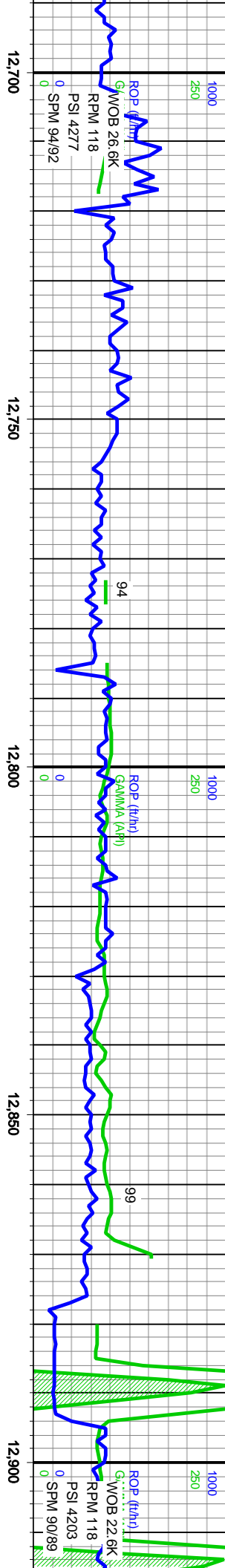
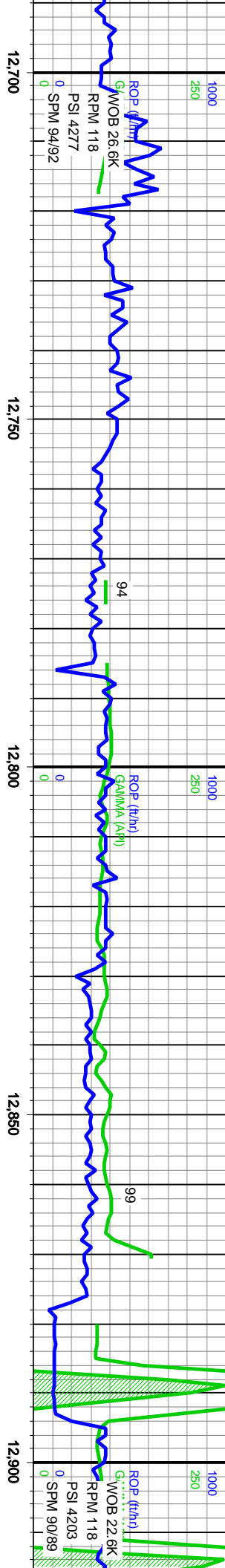
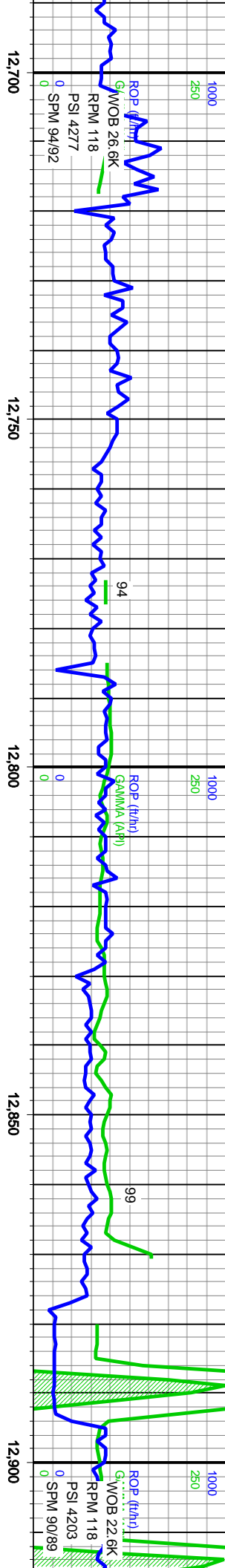
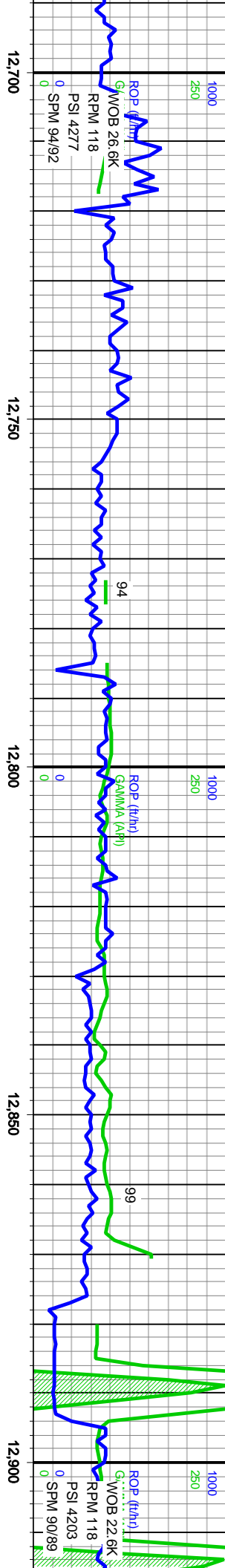
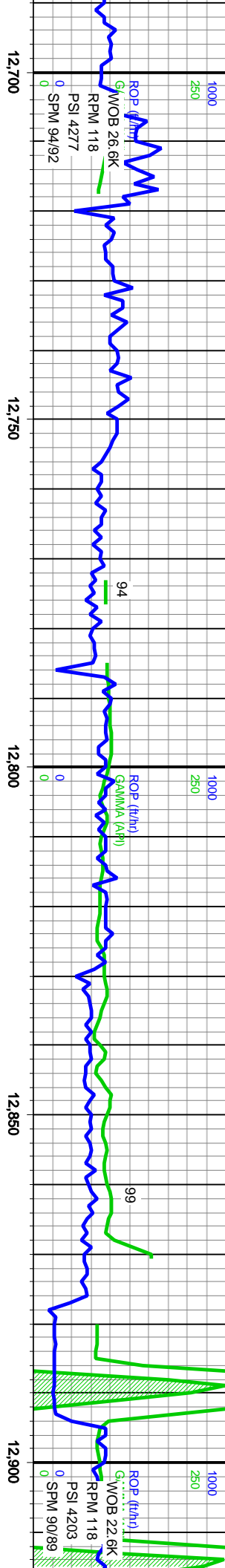
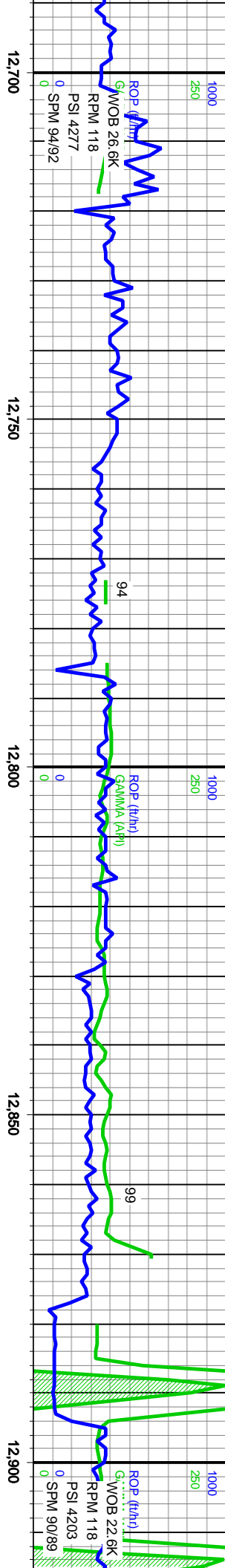
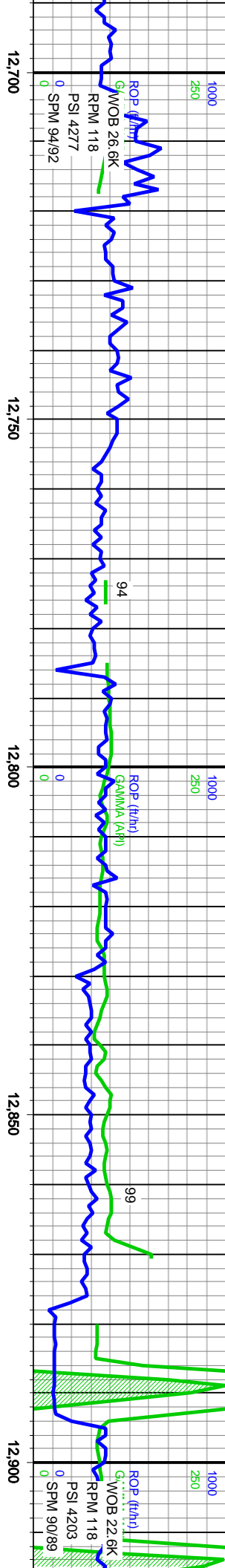
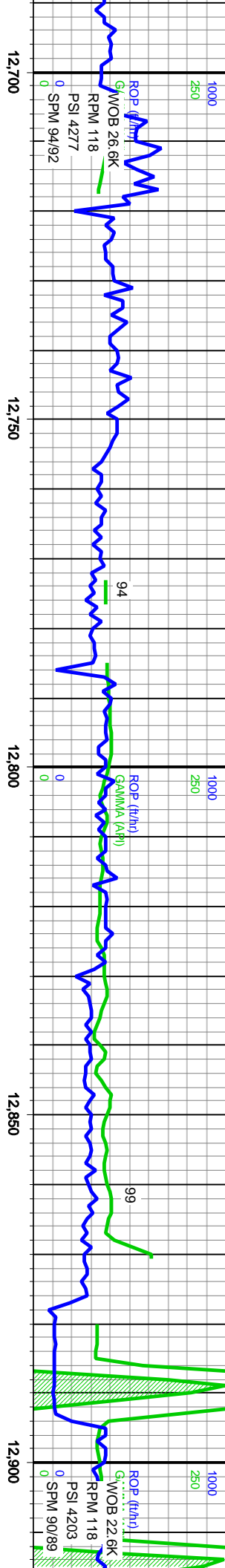
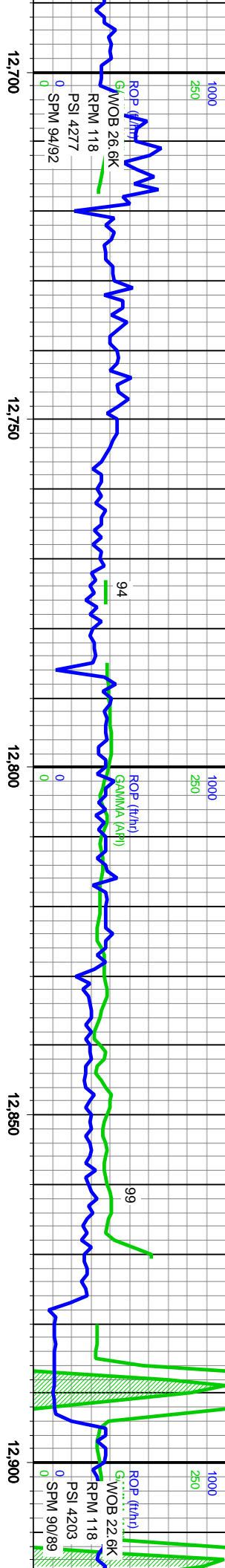
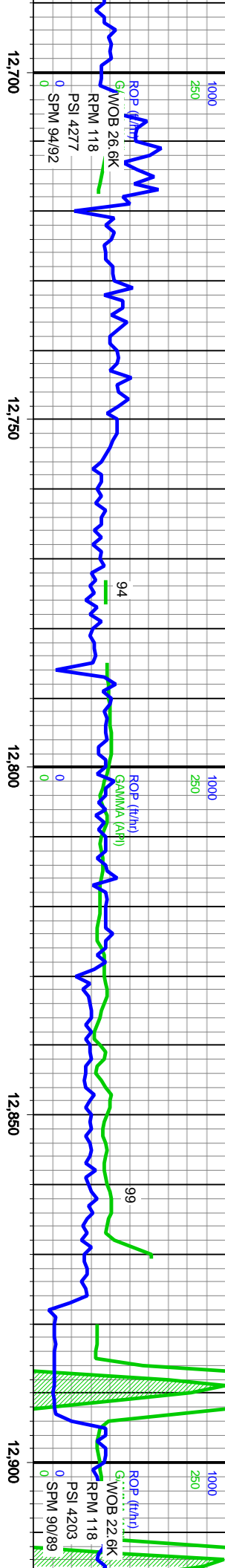
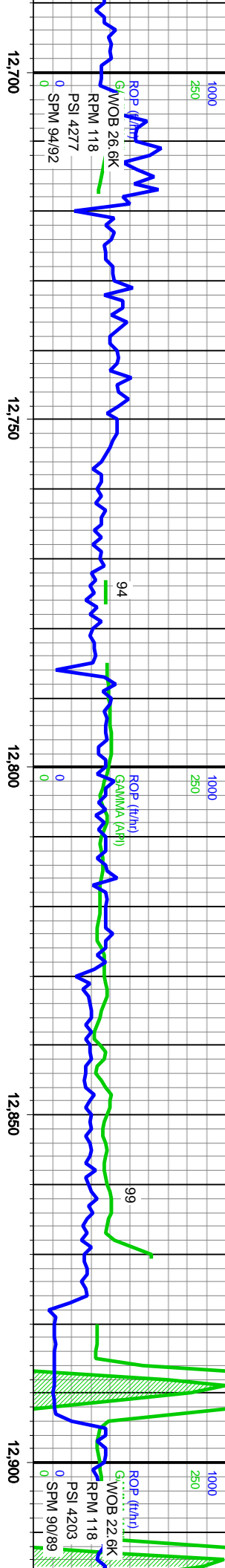
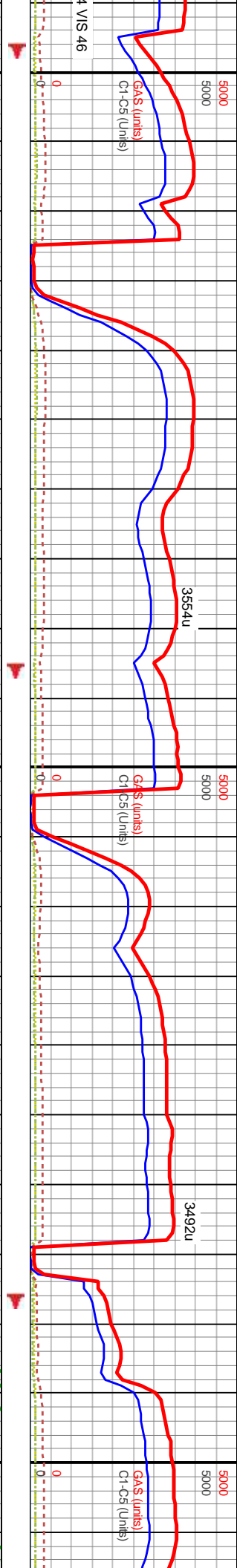
[illegible]

Niobrara B Chalk Target

MD: 12,493'
Inclination: 90°
Azimuth: 270°
TVD: 6,092'
VS: 7,029'

MD: 12,581'
Inclination: 90°
Azimuth: 271°
TVD: 6,092'
VS: 7,117'

MD: 12,671'
Inclination: 90°
Azimuth: 269°
TVD: 6,092'
VS: 7,206'



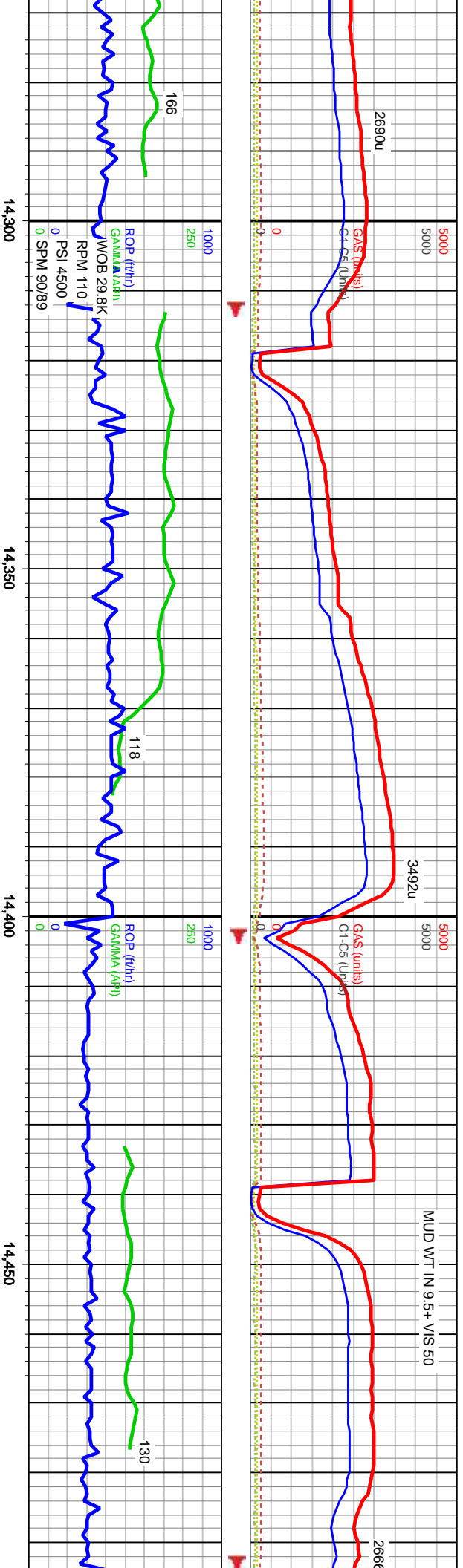
CARB CHALK: (70%) med gry - lt gry whi ip, mittl w whi mcatc spks, chiky xti, dll rthy
 1st, blk-y rthy frac, elong-wdgk, dn-brit, pred cln, blk carb mat to ip, infer chlk por,
 MRL Y CHALK: (30%), MARL: (tr).

CARB CHALK: (85%) med gry - lt gry whi ip, mttld w whi mctc spks, chlkxy txt, all rthy
 istr, blkly-rthy frac, elong-wdglk, dn-brit, pred cln, blk carb mat to ip, infer chlk por,
 MRLY CHALK: (10%), MARL: (5%).

6600

MD: 12,762'
Inclination: 90°
Azimuth: 263°
TVD: 6,092'
VS: 7,297'

MD: 12,852'
Inclination: 90°
Azimuth: 262°
TVD: 6,092'
VS: 7,385'

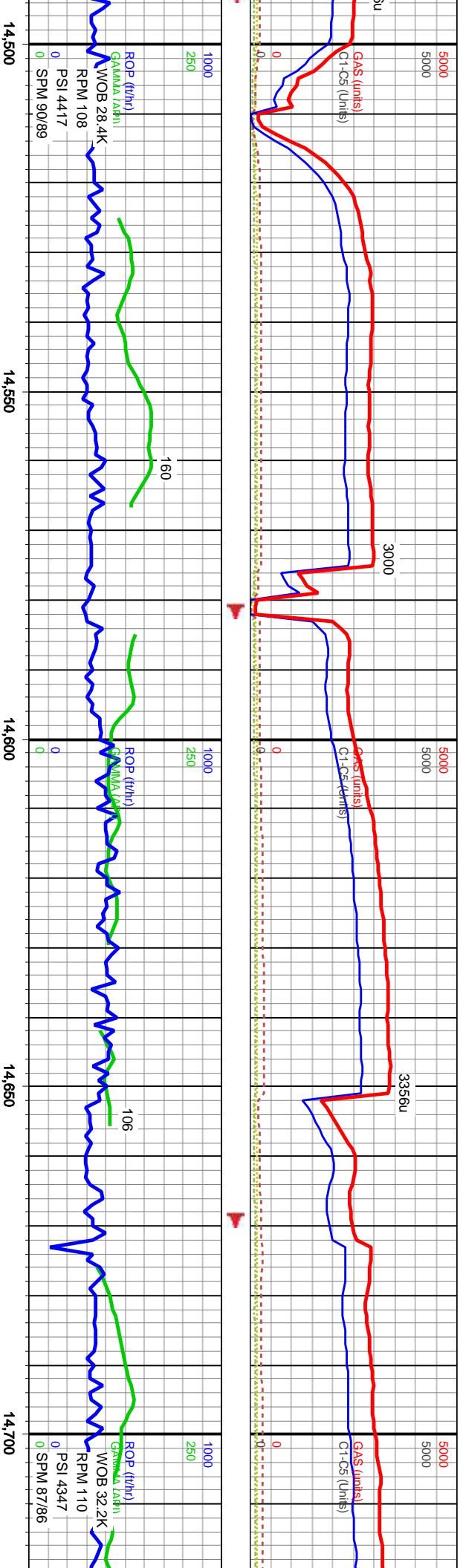
[illegible]

MD: 14,288'
Inclination: 89°
Azimuth: 270°
TVD: 6,095'
VS: 8,816'

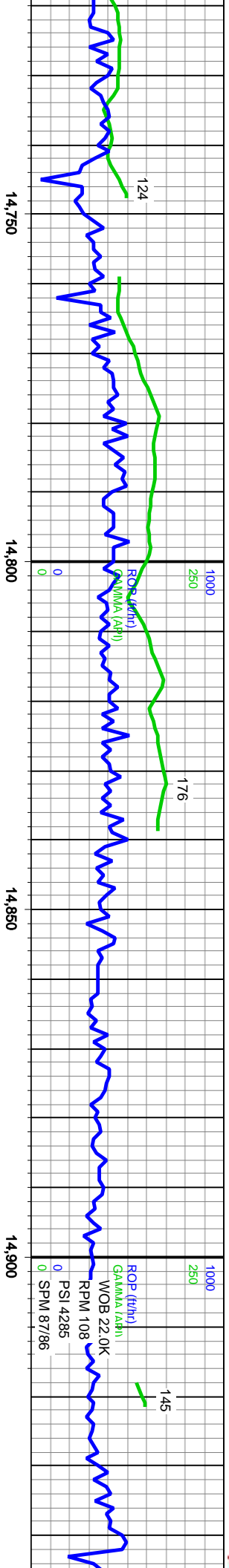
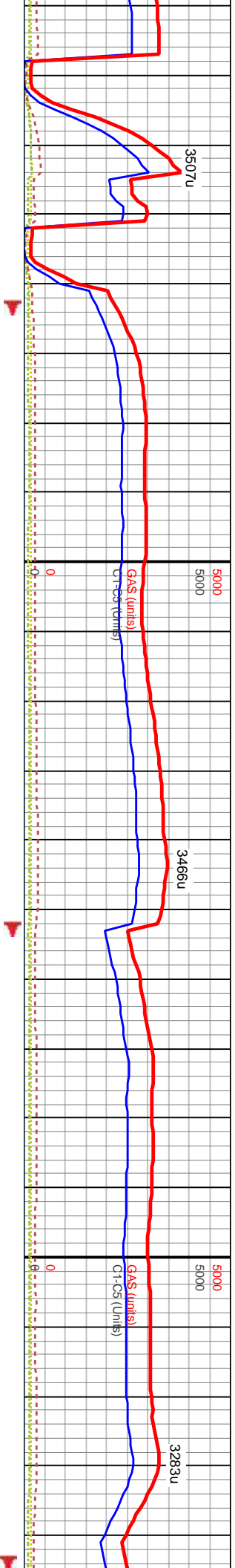
MD: 14,379'
Inclination: 89°
Azimuth: 270°
TVD: 6,097'
VS: 8,907'

MD: 14,469'
Inclination: 90°
Azimuth: 268°
TVD: 6,098'
VS: 8,997'

Niobrara B Chalk Target

[illegible]

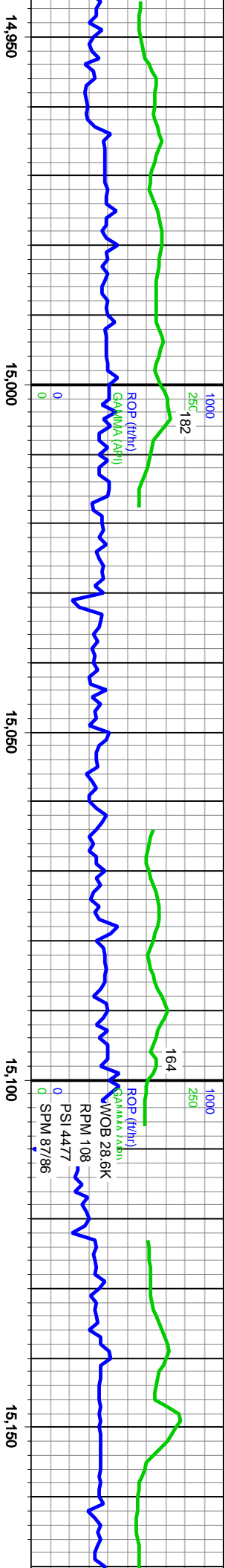
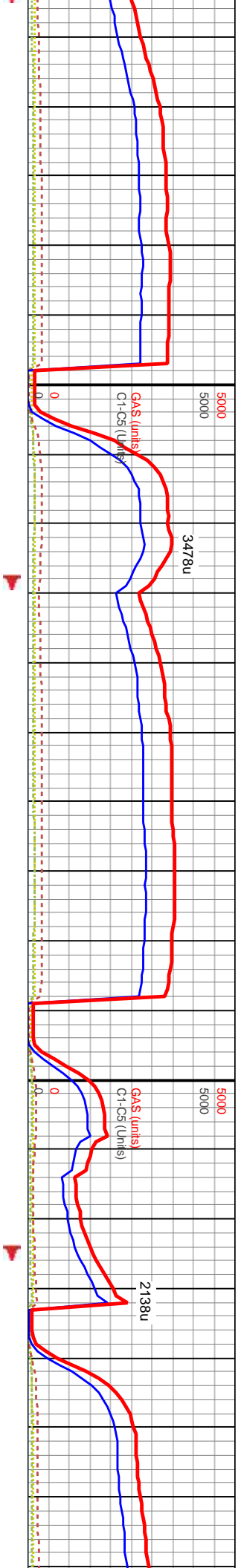
MD: 14,559'
Inclination: 90°
Azimuth: 268°
TVD: 6,098'
VS: 9,086'

[illegible]

MD: 14,739'
Inclination: 90°
Azimuth: 269°
TVD: 6,098'
VS: 9,266'

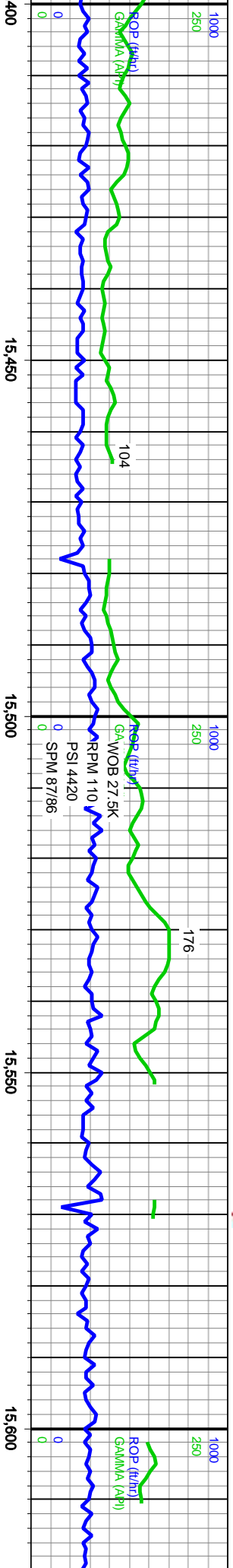
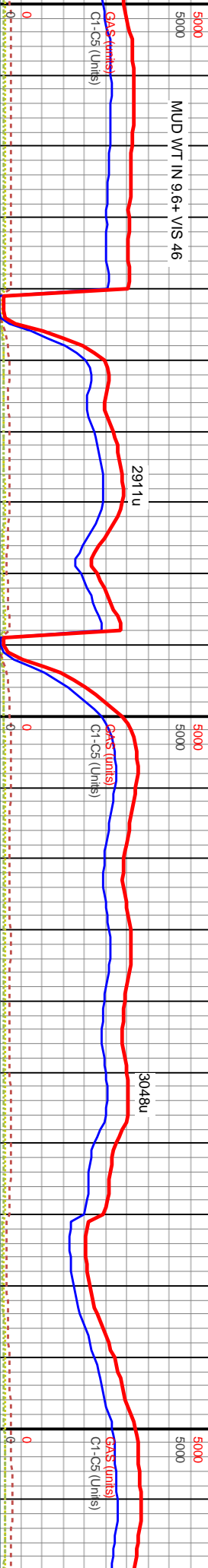
MD: 14,829'
Inclination: 90°
Azimuth: 270°
TVD: 6,099'
VS: 9,355'

MD: 14,920'
Inclination: 90°
Azimuth: 269°
TVD: 6,100'
VS: 9,446'

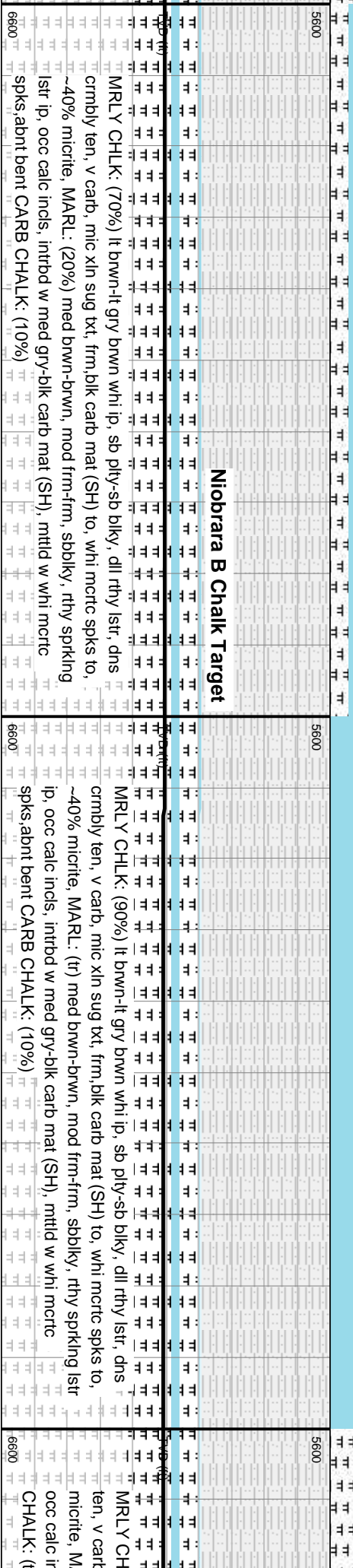


Niobrara B Chalk Target										5600										5600									
own, mod frm-frn, sbblky, rthy sprking lstr										MARL: (65%) med brwn-brwn, mod frm-frn, sbblky, rthy sprking lstr ip, occ calc incs, intbd w med gry-blk carb mat (SH), mtlld w whi micrite spks to, MRLY CHLK: (35%) lt brwn-it gry brwn, sb ply-sb blky, dll rthy lstr, dns crmbly ten, v carb, mic xln sug txt, frm, blk carb mat to, est 30-40% micrite.										MARL: (70%) med brwn-brwn, mod frm-frn, sbblky, rthy spr incs, intbd w med gry-blk carb mat (SH), mtlld w whi micrite (30%) lt brwn-it gry brwn, sb ply-sb blky, dll rthy lstr, dns crmbly ten, v carb, mic xln sug txt, frm, blk carb mat to, est 30-40% micrite.									
6600										6600										6600									

Dan Kabala on Tour



Niobrara B Chalk Target



MD: 15,455

Inclination: 89°

Azimuth: 273°

TV D: 6,103

VS: 9,979"

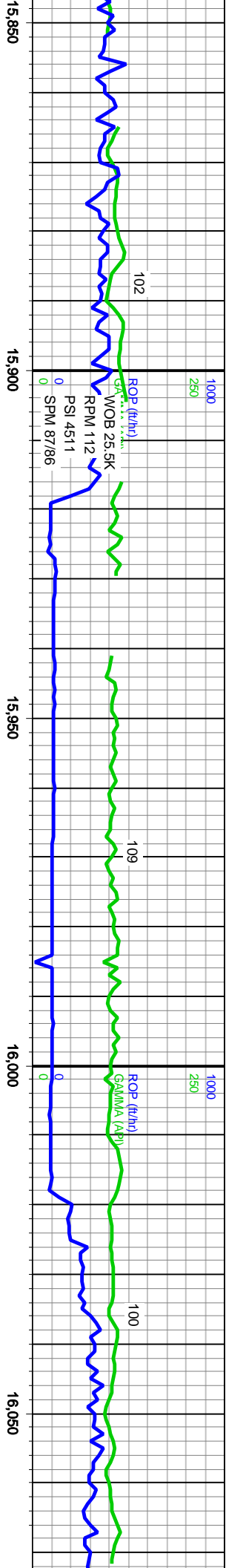
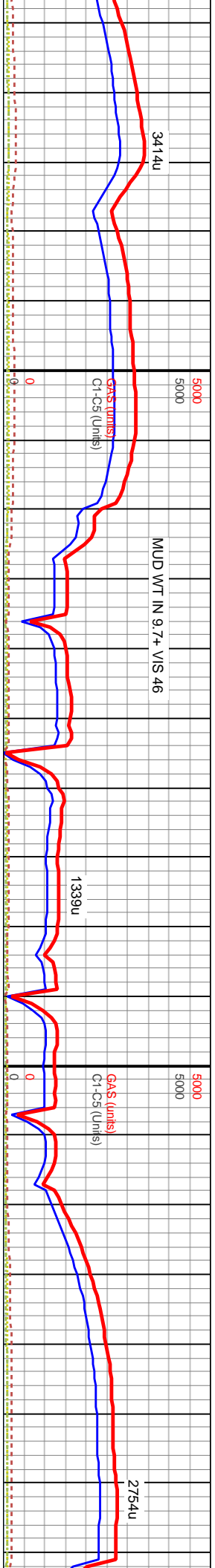
MD: 15,546

Inclination: 89°

Azimuth: 271°

TV D: 6, 105"

VS: 10,070

[illegible]

MD: 15,903'
Inclination: 90°
Azimuth: 263°
TVD: 6,108'
VS: 10,426'

MD: 15,995'
Inclination: 90°
Azimuth: 258°
TVD: 6,107'
VS: 10,516'

