



## RESERVOIR GROUP

Scale: 5" / 100'  
Measured Depth Log

**Well Name** Flaschenriem 1

**Location** Section 3, Township 4N, Range 68W

**State** Colorado

**County** Weld

**Country** USA

**Rig Number** Ensign 140

**API Number** 05-123-49813

**AFE #** N/A

**Geographic Region** Rockies

**Field** Wattenberg

**Spud Date** 3/20/2019

**Drilling Completed** 5/3/2019

**Surface Coordinates** 1,833FNL & 2,181FWL, Sec:3 T:4N R:68W

Latitude: 40.34418, Longitude: -104.99154

**Bottom Hole Coordinates** 2,185FSL & 460FEL, Sec:35 T:5N R:68W

Latitude: 40.35500 Longitude: -104.96611

**Ground Elevation** 5,068'

**K.B. Elevation** 5,091'

**Logged Interval** 8,050' To 15,567'

**Total Depth** 15,567'

**Formation** Niobrara A Marl

**Type of Drilling Fluid** Oil Based Mud

### Operator

**Company** Petro Operating Company, LLC

**Address** 9033 East Easter Place, Suite 112  
Centennial, CO 80112-2105

**Petro**  **operatin**  
**Company, LLC**

### Geologist

**Name** Michael Domenick

**Company** Petro Operating Company, LLC

**Address** 9033 East Easter Place, Suite 112  
Centennial, CO 80112-2105

**Petro**  **operatin**  
**Company, LLC**

Other

Loggers: Byron Pitulski/Greg Diefenbach  
Services Provided: 2 Man Logging, Geosteering  
Equipment: ML-585  
Start Date 05/01/2019  
Release Date: 05/03/2019  
Job #: 2072RK1904

Zone Color Coding

Oil

Note

Error

Condensate

Core

Water

Gas

Pressure

Seal

Rock Types

UNKNOWN

ANHYDRITE

GYPSUM

SALT

SIDERITE or LIMONITE

LIMESTONE

DOLOMITE

CHERT

COAL

MARLSTONE

CHALK

SHALE

SHALE GRAY

SHALE COLORED

SILTSTONE

SANDSTONE

CONGLOMERATE

BRECCIA

TILL

BENTONITE

TUFF

IGNEOUS

METAMORPHIC

CEMENT

Acc

F FOSSIL

GASTROPOD

ARGILLITE GRAY

B BENTONITE

BITUMENOUS

BRECCIA FRAC

CALCAREOUS

CARBONACEO

CHTDK

CHTLT

COAL - THIN BR

DOLOMITIC

FELDSPAR

FERRUGINOUS

FERRUGINOUS

F FOSSIL

GASTROPOD

ARGILLITE GRAY

B BENTONITE

BITUMENOUS

BRECCIA FRAC

CALCAREOUS

CARBONACEO

CHTDK

CHTLT

COAL - THIN BR

DOLOMITIC

FELDSPAR

FERRUGINOUS

FERRUGINOUS

Other

OIL SHOW

ORGANIC

P PINPOINT

V VUGGY

EVEN

QUESTIONABLE

SPOTTED STAINING

Engineering

CASING

CONNECTION (LEFT)

CONNECTION (RIGHT)

CONNECTION GAS

CORE - LOST

CORE - RECOVERED

DST INTERVAL

FAULT

Porosity

E EARTHY

F FENESTRAL

F FRACTURE

INTERCRYSTALLINE

INTEROOLITIC

MOLDIC

Accessories

S	GLAUCONITE	
AIN	GYPSIFEROUS	
	HEAVY MINERAL	ANHYDRITE STRINGER
	SUBSTANCE KAOLIN	BENTONITE STRINGER
MENTS	MARLSTONE	COAL STRINGER
	MINERAL CRYSTALS	DOLomite STRINGER
S FLAKES	NODULES	GYPSUM STRINGER
	PHOSPHATE PELLETS	LIMESTONE STRINGER
DS	PYRITE	MARLSTONE (CALC) STRG
	SALT CAST	MARLSTONE (DOL) STRG
	SANDY	SANDSTONE STRINGER
	SILICEOUS	SHALE STRINGER
PELLET	SILTY	SILTSTONE STRINGER
S	TUFFACEOUS	

Stringer

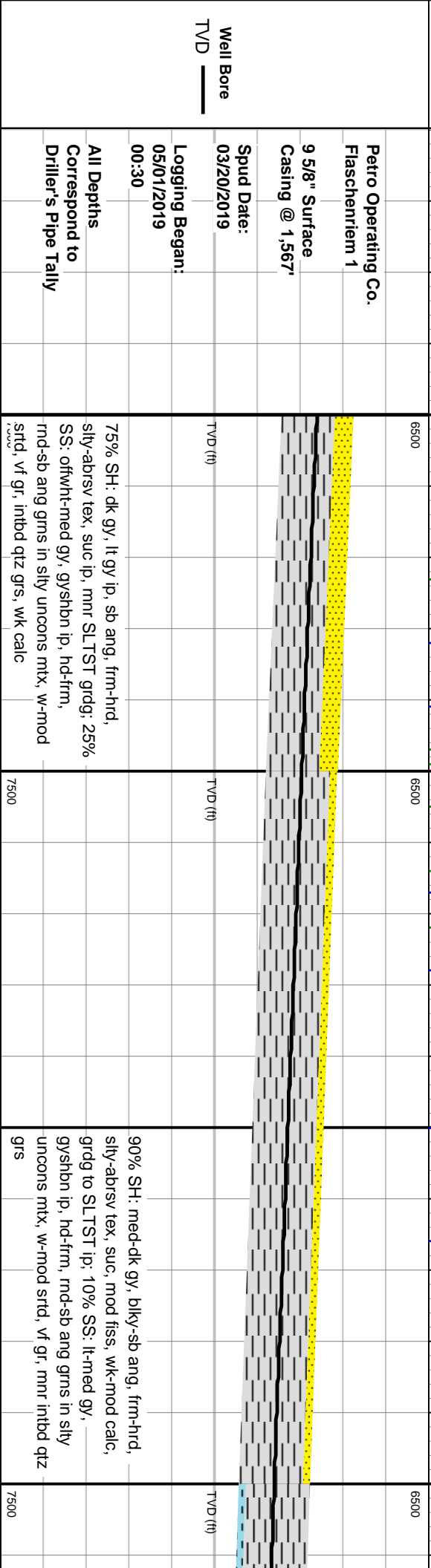
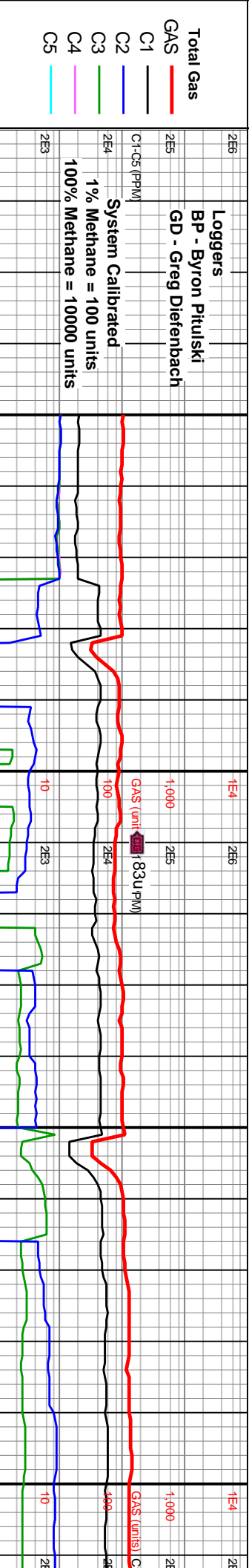
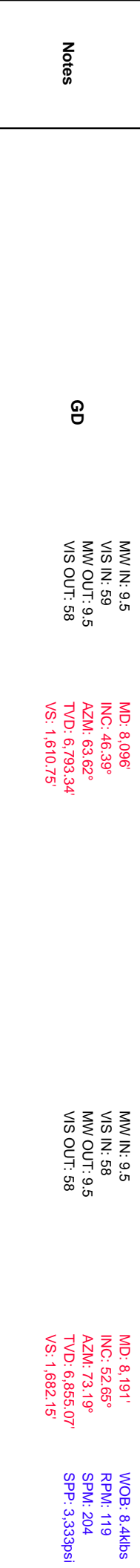
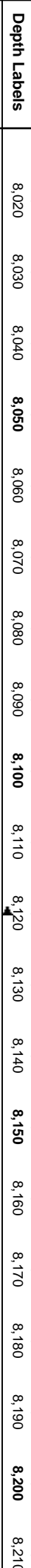
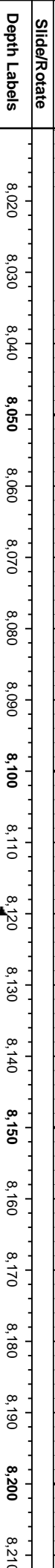
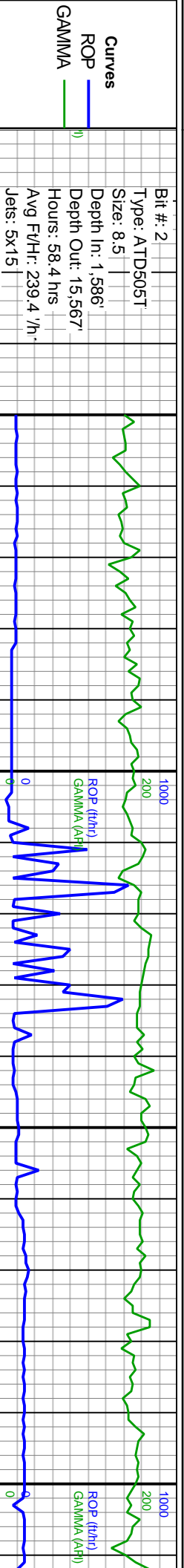
Symbols

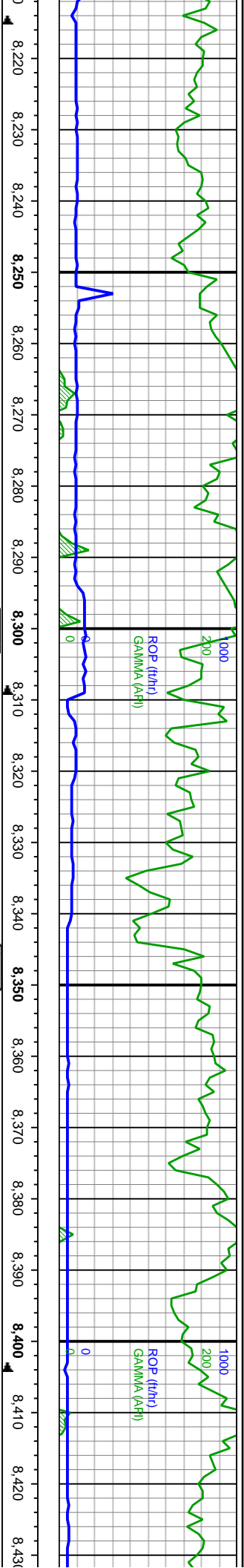
FORMATION TOP		L LITHOGRAPHIC
AS SHOW		MX MICROXLN
DEPTH	MIN DEPTH	MS MUDSTONE
ORMAL FAULT	R ROUNDED	PS PACKSTONE
L SHOW	S SUBANG	WS WACKESTONE
VERTURNED STRATA	SUBRND	
VERSE FAULT		
DE WALL CORE (LEFT)		M MODERATE
DE WALL CORE (RIGHT)	B BOUNDSTONE	P POOR
DE	C CHALKY	W WELL
SURVEY	CX CRYPTOXLN	
RIP GAS	E EARTHY	
RELINe TESTED - LEFT	FX FINELYYXLN	
RELINe TESTED - RT	GS GRAINSTONE	

Rounding

Sorting

Textures





MW IN: 9.5  
VIS IN: 56  
MW OUT: 9.5  
VIS OUT: 56

**Sharon Springs**  
8,260' MD / 6,894' TVD

MD: 8,285'  
INC: 58.71°  
AZM: 82.5°  
TVD: 6,908.12'  
VS: 1,756.13'

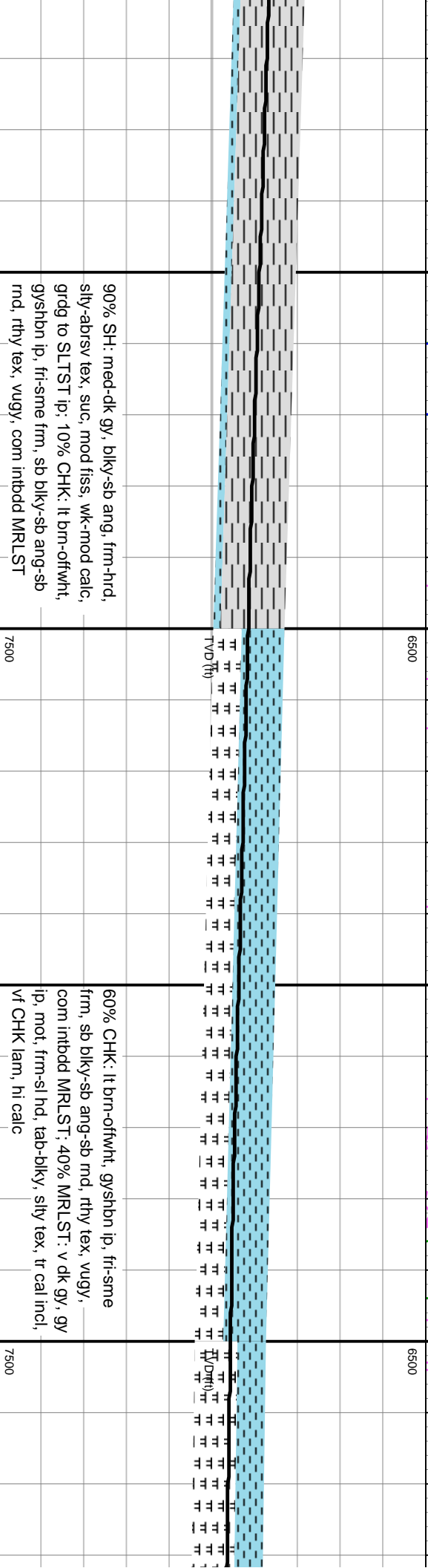
**Niobrara A**  
8,300' MD / 6,915' TVD

MW IN: 9.5  
VIS IN: 58  
MW OUT: 9.5  
VIS OUT: 55

**Niobrara A Base**  
8,348' MD / 6,936' TVD

MD: 8,380'  
INC: 68.02°  
AZM: 85.74°  
TVD: 6,950.67'  
VS: 1,833.96'

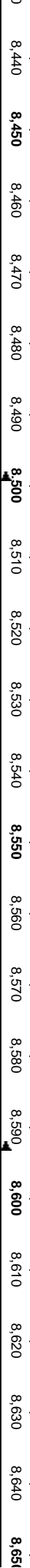
WOB: 12.6kbs  
RPM: 120  
SPM: 206  
SPP: 3,386psi



90% SH: med-dk gy, blk-y-sb ang, frm-hrd,  
sfty-abrsv tex, suc, mod fiss, wk-mod calc,  
grd to SLTST ip: 10% CHK: lt brn-offwht,  
gysbhn ip, frt-sme frm, sb blk-y-sb ang-sb  
rnd, rthy tex, vugy, com intbdd MRLST

60% CHK: lt brn-offwht, gysbhn ip, frt-sme  
frm, sb blk-y-sb ang-sb rnd, rthy tex, vugy,  
com intbdd MRLST; 40% MRLST: v dk gy, gy  
ip, mot, frm-sl hd, tab-blky, sfty tex, tr cal incl,  
vf CHK lam, hi calc





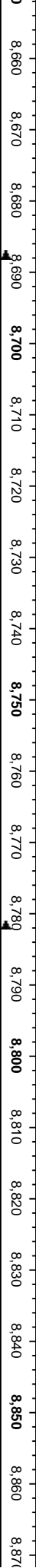
MD: 8,474'  
INC: 79.73°  
AZM: 86.64°  
TVD: 6,976.74'  
VS: 1,915.37'



750C



7500



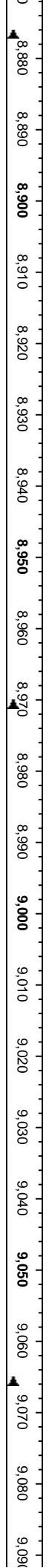
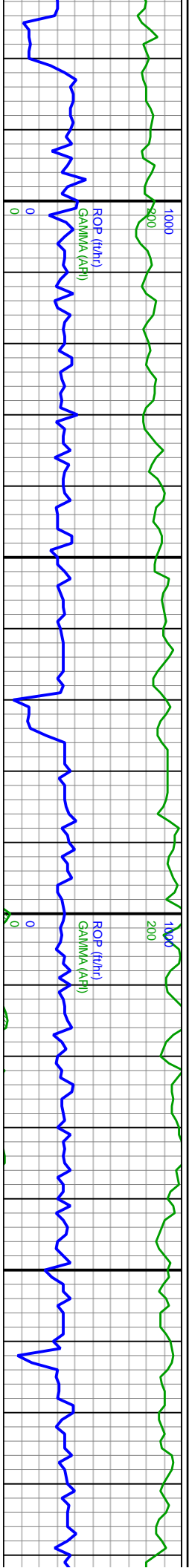
MD: 8.851'  
INC: 90.74°  
AZM: 89.97°  
TVD: 6,980.68'  
VS: 2,245.71'



7500

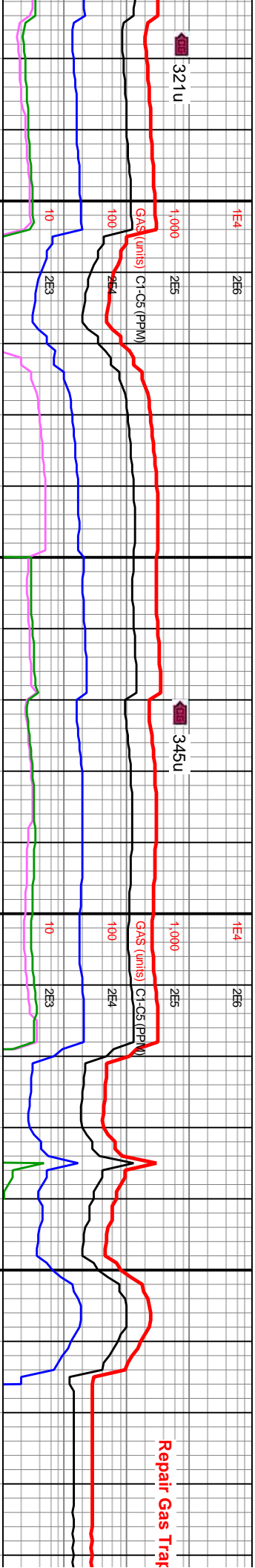






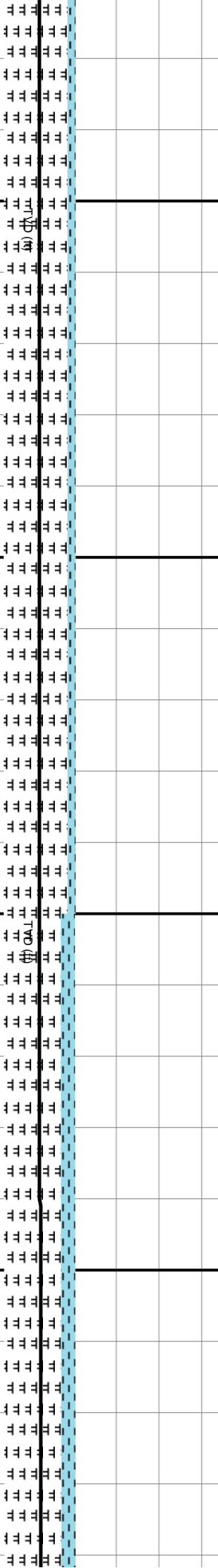
WOB: 22.4kbs  
RPM: 120  
SPM: 204  
SPP: 3,940psi

MD: 9,040'  
INC: 90.68°  
AZM: 90.66°  
TVD: 6,978.34'  
VS: 2,410.11'



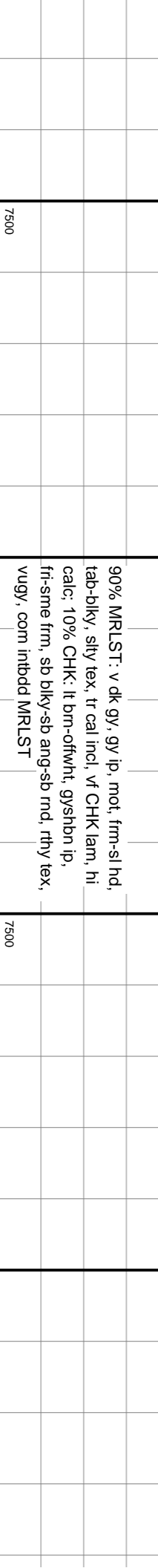
6500

6500



6500

6500



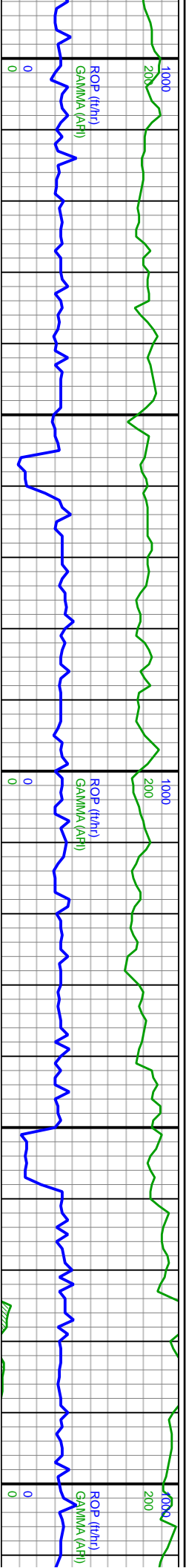
7500

7500



Repair Gas Trap



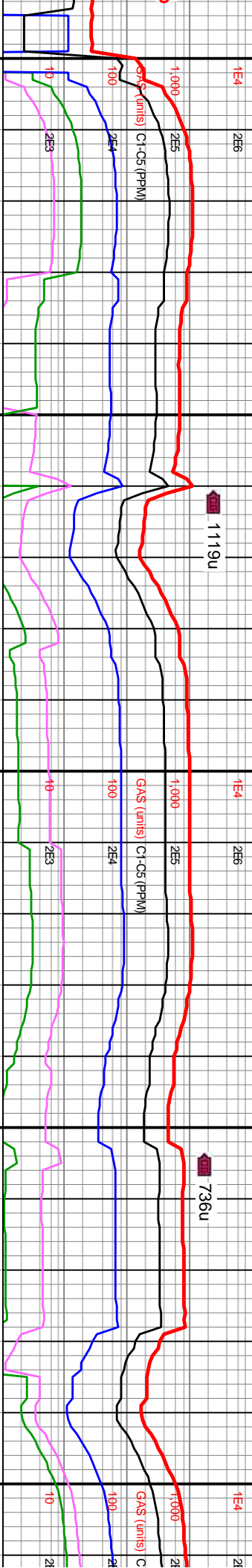


9,100 9,110 9,120 9,130 9,140 9,150 9,160 9,170 9,180 9,190 9,200 9,210 9,220 9,230 9,240 9,250 9,260 9,270 9,280 9,290 9,300 9,310

MD: 9,135'  
INC: 90.68°  
AZM: 90.5°  
TVD: 6,977.21'  
VS: 2,492.55'

BP  
MW IN: 9.6+  
VIS IN: 58  
MW OUT: 9.7  
VIS OUT: 55  
WOB: 31klbs  
RPM: 120  
SPM: 206  
SPP: 4,064psi

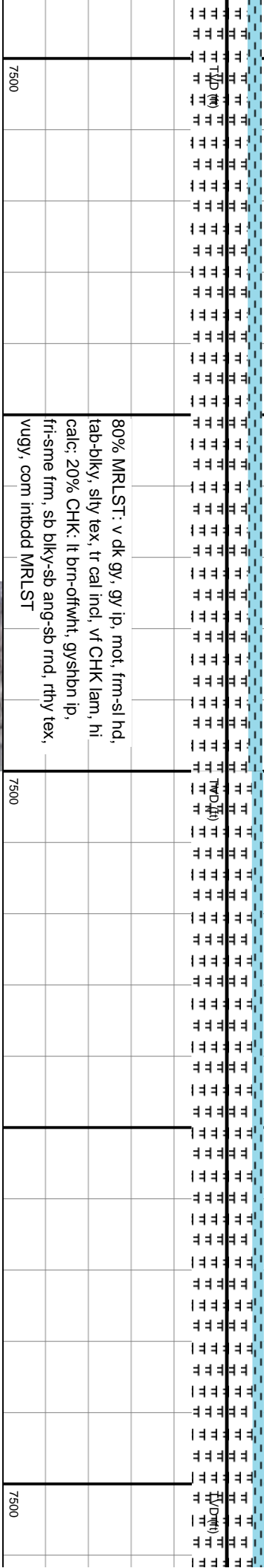
MD: 9,229'  
INC: 90.68°  
AZM: 91.13°  
TVD: 6,976.1'  
VS: 2,573.92'



6500

6500

6500



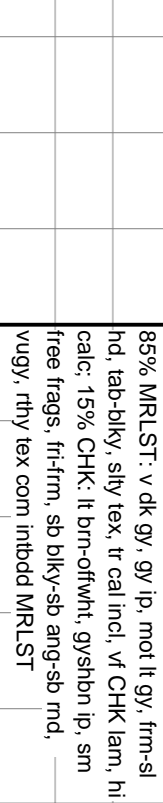
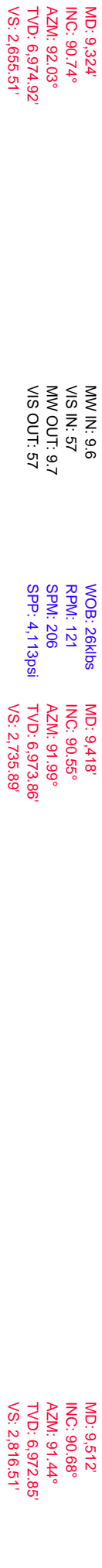
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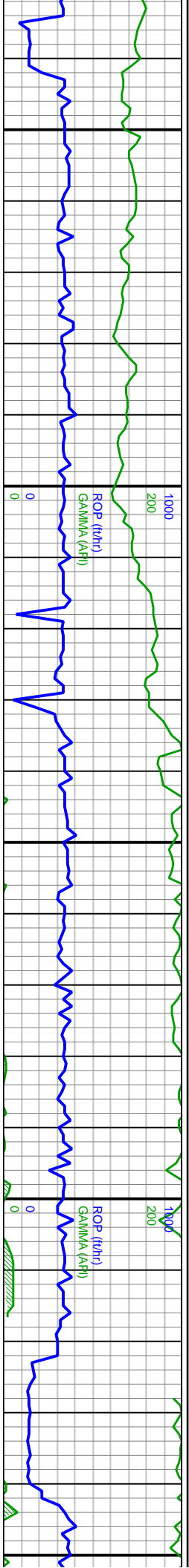
6500

6500

80% MRLST: v dk gy, gy ip, mot, frm-sl hd,  
tab-biky, silty tex, tr cal incl, vt CHK lam, hi  
calc: 20% CHK: lt brn-offwht, gyshbn ip,  
fri-sme frm, sb biky-sb ang-sb rnd, rthy tex,  
vugy, com intbodd MRLST

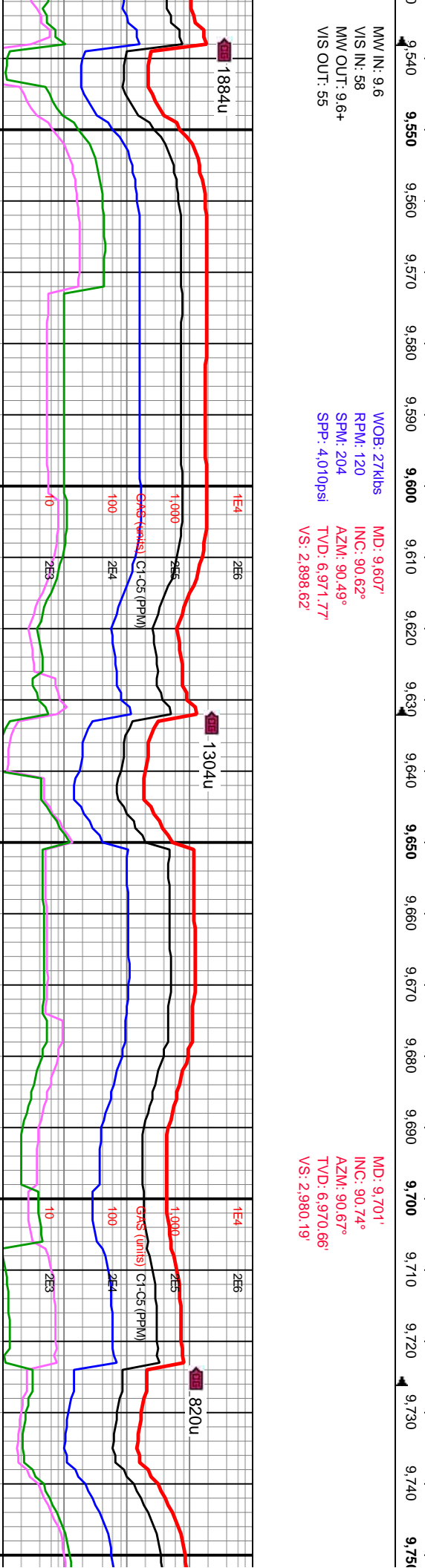






MMW IN: 9.6  
VIS IN: 58  
MMW OUT: 9.6+  
VIS OUT: 55

WOB: 27klbs	MD: 9,607'
RPM: 120	INC: 90.62°
SPM: 204	AZM: 90.49°
SPP: 4,010psi	TVD: 6,971.77'
	VS: 2,898.62'



MD: 9,701'  
INC: 90.74°  
AZM: 90.67°  
TVD: 6,970.66'  
VS: 2,980.19'

50% MRLST: v dk gy, gy ip, mot it gy, frm-sl  
hd, tab-biky, sily tex, tr cal incl, vf CHK lam, hi  
calc; 50% CHK: It brn-oftwht, gysbhn ip, sm  
free frags, fr-frim, sb biky-sb ang-sb mcl,  
vugy, rthy tex com intbdd MRLST, tr intbd mic  
pp pyr





MD: 9,796'      WOB: 20klbs  
INC: 89.75°      RPM: 120  
AZM: 84.91°      SPM: 202  
TVDD: 6,970.25'      SPP: 3,860psi  
VS: 3,064.79'

MD: 9.891°  
INC: 90.28°  
AZM: 81.35°  
TVD: 6.970.23°  
VS: 3.152.64°

MW IN: 9.5  
VS IN: 54  
MW OUT: 9.5+  
VS OUT: 52

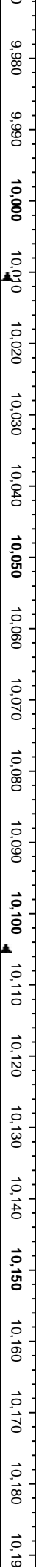


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[illegible]

					75% MR LST: v dk g hd, tab-dlky, slty tex calc; 25% CHK: lt br free frags, fri-frm, st vugy, rthy tex com i pyr incl
7500					





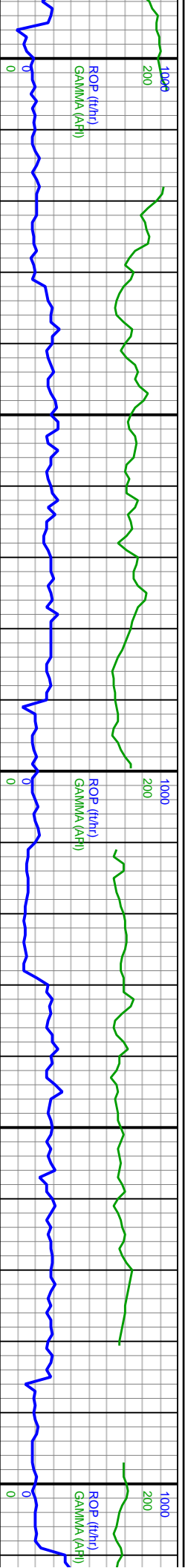
MD: 10,174'  
INC: 90.37°  
AZM: 91.3°  
TVD: 6,969.03'  
VS: 3,407.79'



7500

oyr incl





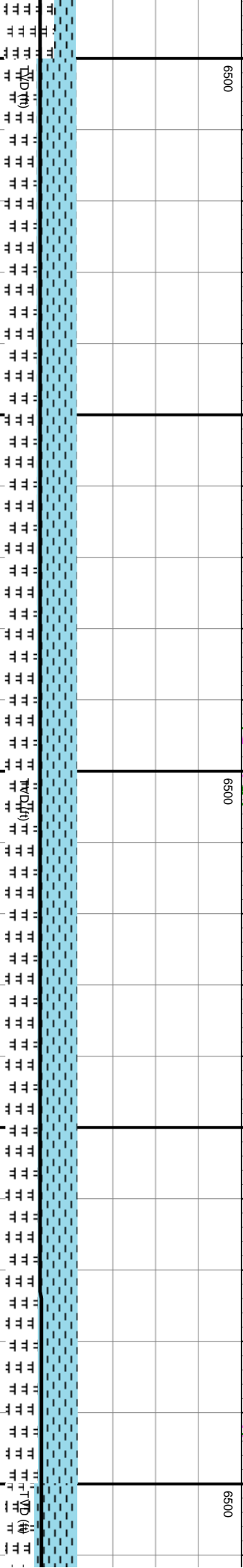
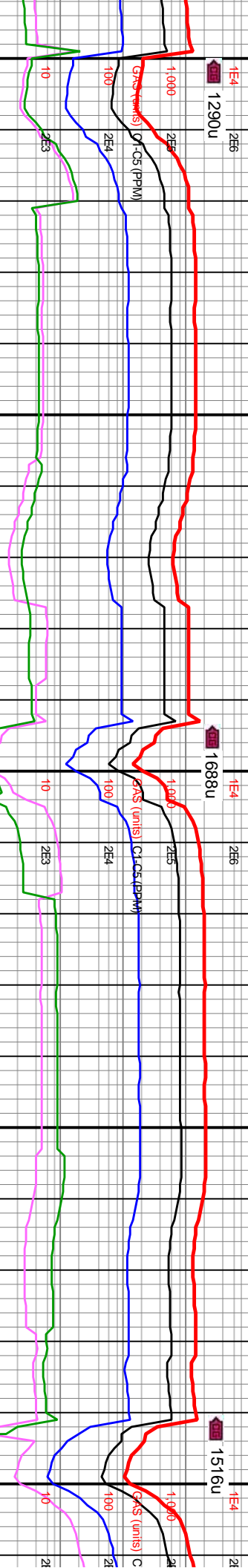
WOB: 21klbs  
RPM: 119  
SPM: 200  
SPP: 3.717psi

MD: 10.268'  
INC: 90.03°  
AZM: 94.64°  
TVD: 6.968.7'  
VS: 3.487.32'

MW IN: 9.4+  
VIS IN: 52  
MW OUT: 9.5  
VIS OUT: 50

MD: 10.363'  
INC: 90.37°  
AZM: 95.15°  
TVD: 6.968.37'  
VS: 3.565.98'

WOB: 22klbs  
RPM: 120  
SPM: 205  
SPP: 3.080psi



fractured, hi  
lam, hi  
sm  
d,  
ic pp

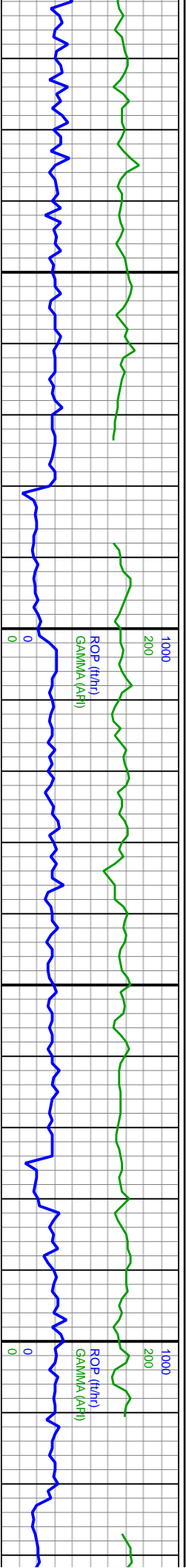
7500

7500

55% CHK: lt brn-offwht, gysbhn ip, sm free  
frags, fri-frn, vugy, rthy tex com inthbnd  
MRLST, tr mic pp pyr incl; 45% MRLST: v dk  
gy, gy ip, mot lt gy, frn-sl hd, tab-bkly, slty  
tex, tr cal incl, vf CHK lam, hi calc

7500



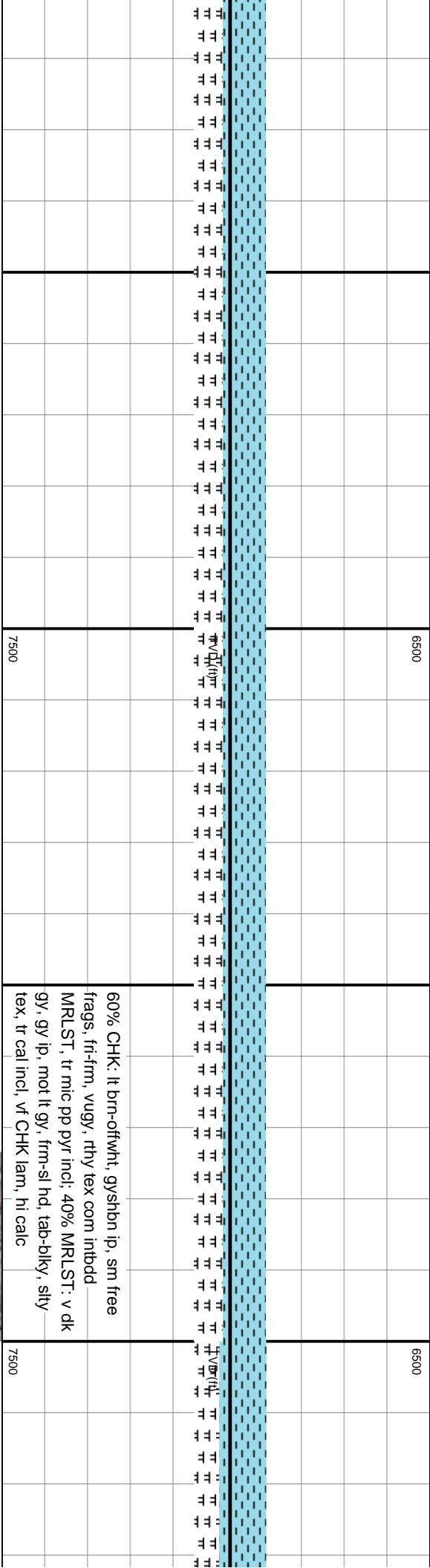
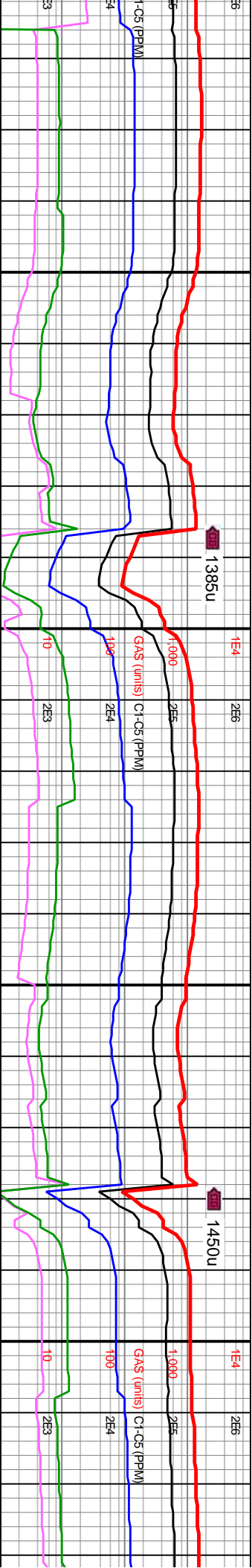


MD: 10,457'  
INC: 90.03°  
AZM: 92.32°  
TVD: 6,968.04'  
VS: 3,644.84'

MW IN: 9.5  
VIS IN: 53  
MW OUT: 9.4+  
VIS OUT: 51

MD: 10,552'  
INC: 90.03°  
AZM: 90.65°  
TVD: 6,968'  
VS: 3,726.52'

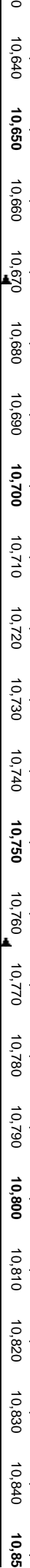
WOB: 30klbs  
RPM: 120  
SPM: 202  
SPP: 4,078psi



60% CHK: lt brn-offwht, gysbhn ip, sm free  
frags, fri-frm, vugy, rthy tex com intbdd  
MRLST, tr mic pp pyr incl; 40% MRLST: v dk  
gy, gy ip, mot lt gy, frm-sl hd, tab-blky, slty  
tex, tr cal incl, vf CHK lam, hi calc





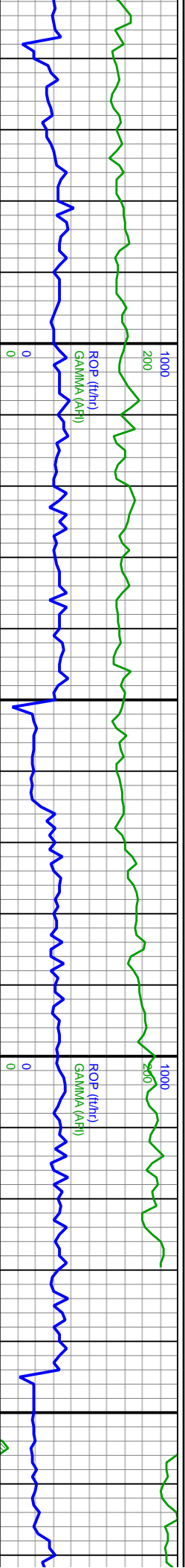


10.02.0350.029  
 VS.: 3.808,26  
 10.02.0350.029  
 VS.: 3.889,92  
 10.02.0350.029  
 VS.: 3.971,15  
 10.02.0350.029  
 VS.: 3.971,15



7500	7500
iam, hi calc	iam, hi calc



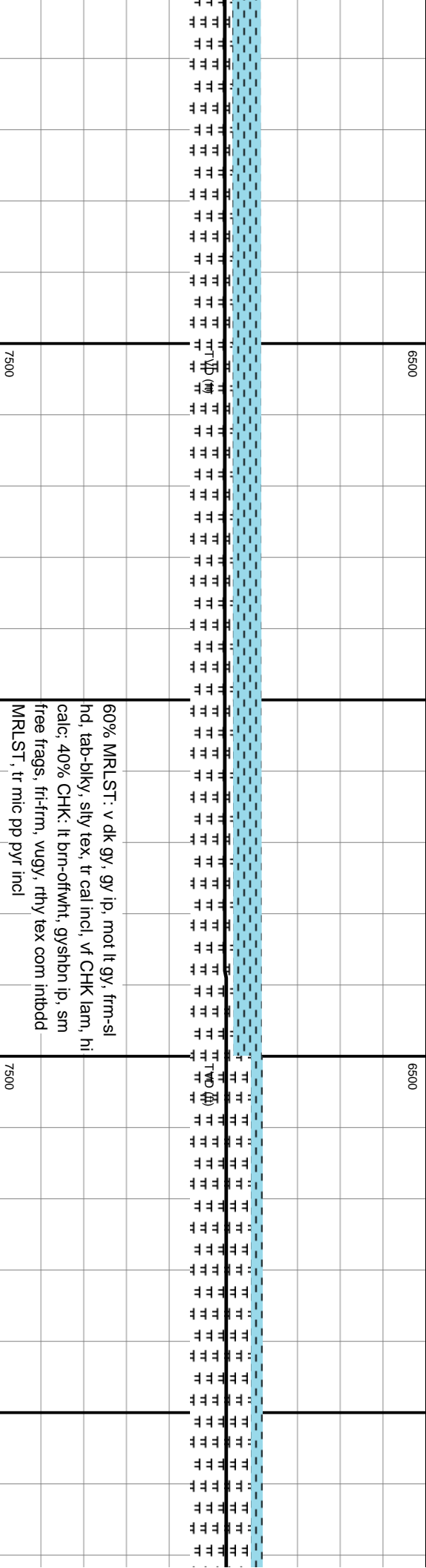
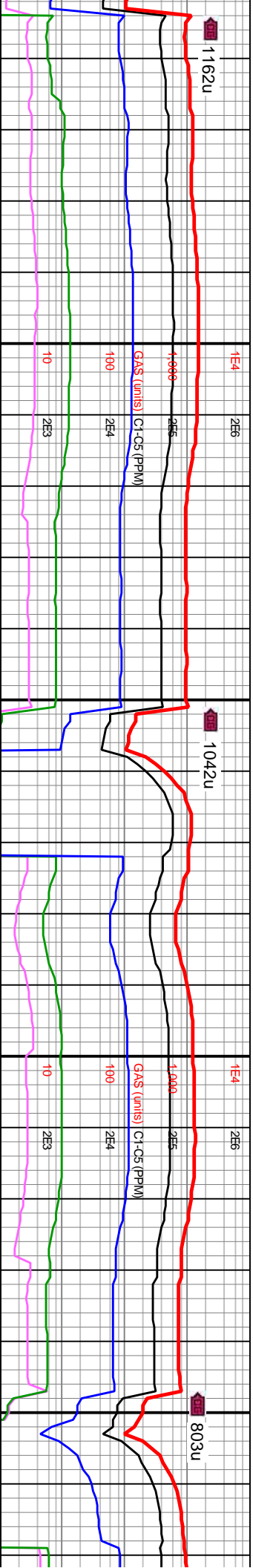


MW IN: 9.5  
VIS IN: 54  
MW OUT: 9.5  
VIS OUT: 52

MD: 10.928'  
INC: 90.12°  
AZM: 91.63°  
TVD: 6.968.46'  
VS: 4.052.05'

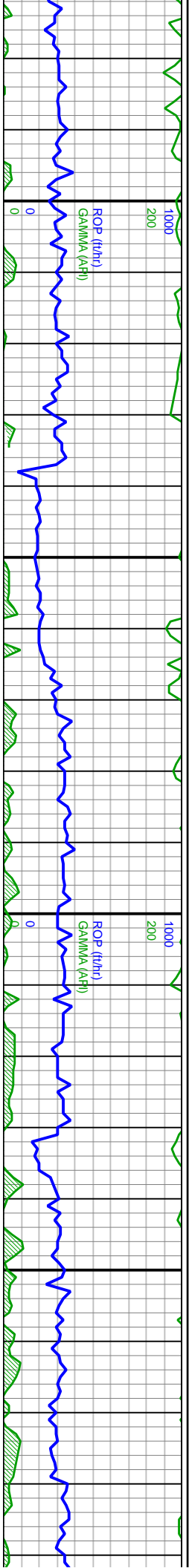
WOB: 29klbs  
RPM: 119  
SPM: 199  
SPP: 4.104psi

MD: 11.023'  
INC: 90.12°  
AZM: 93.33°  
TVD: 6.968.26'  
VS: 4.132.88'



60% MRLST: v dk gy, gy ip, mot lt gy, frm-sl  
hd, tab-blky, slty tex, tr cal incl, vf CHK lam, hi  
calc; 40% CHK: lt brn-offwht, gyshbn ip, sm  
free frags, fri-frm, wugy, rthy tex com intbdd  
MRLST, tr mic pp pyr incl



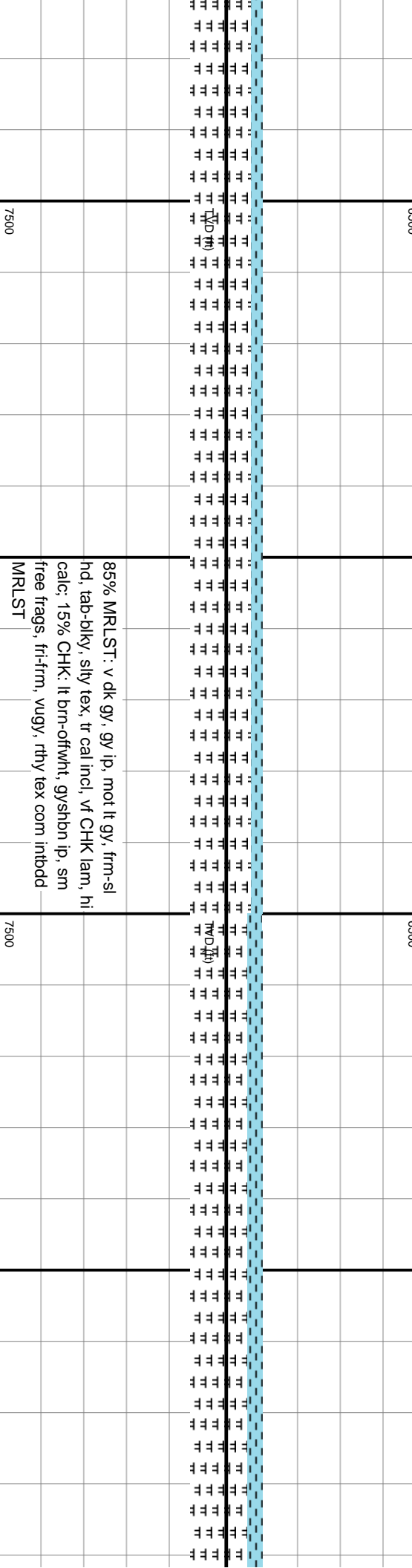
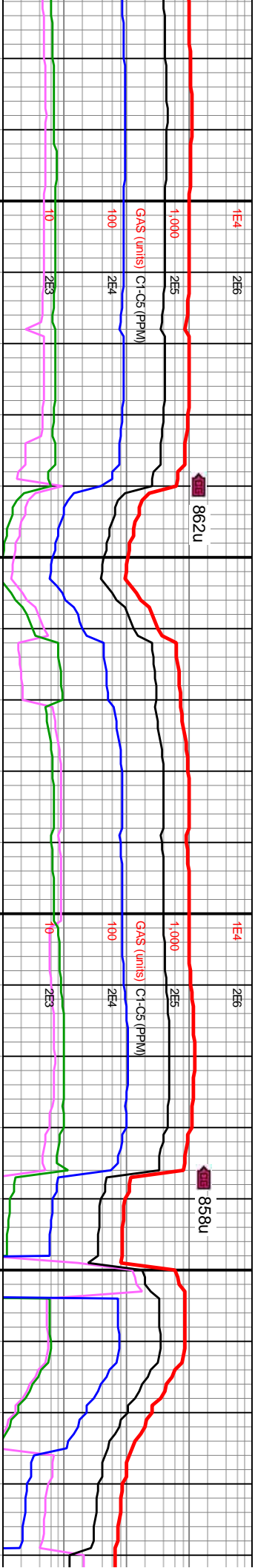


MD: 11,117'  
INC: 90.06°  
AZM: 93.61°  
TVD: 6,968.12'  
VS: 4,211.99'

MW IN: 9.5  
VIS IN: 5.4  
MW OUT: 9.5  
VIS OUT: 5.2

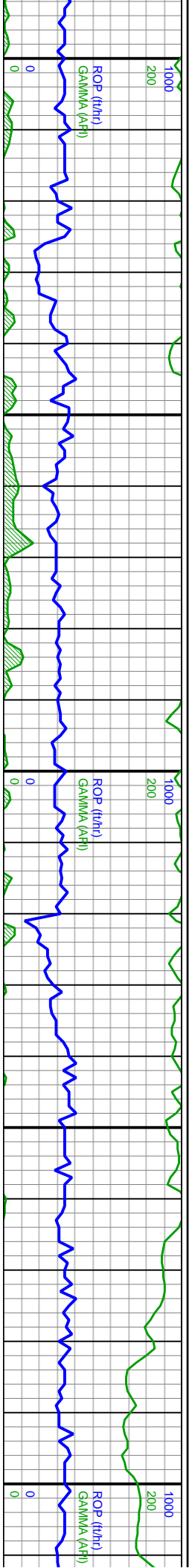
WOB: 28kbs  
RPM: 120  
SPM: 201  
SP: 4,172psi

MD: 11,211'  
INC: 90°  
AZM: 92.31°  
TVD: 6,968.07'  
VS: 4,291.55'



85% MRLST: v dk gy, gy ip, mot lt gy, frm-sl  
hd, tab-biky, slty tex, tr cal incl, vf CHK lam, hi  
calc; 15% CHK: lt brn-offwht, gyshbn ip, sm  
free frags, fri-frm, wugy, rthy tex com intbdd  
MRLST





MD: 11,305' INC: 89.97° AZM: 91.51° TVD: 6,968.09' VS: 4,372.01'

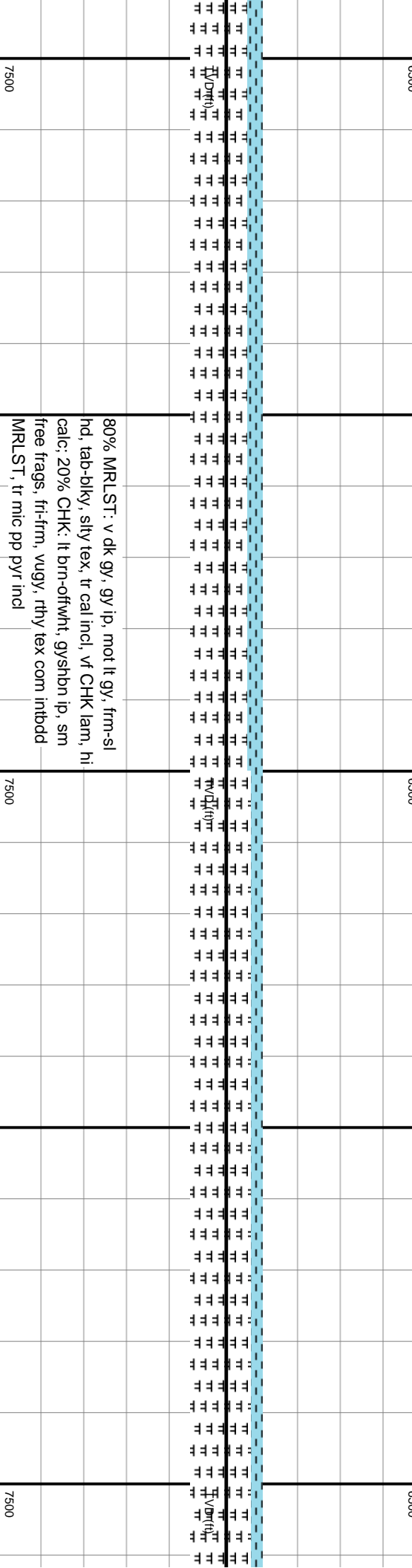
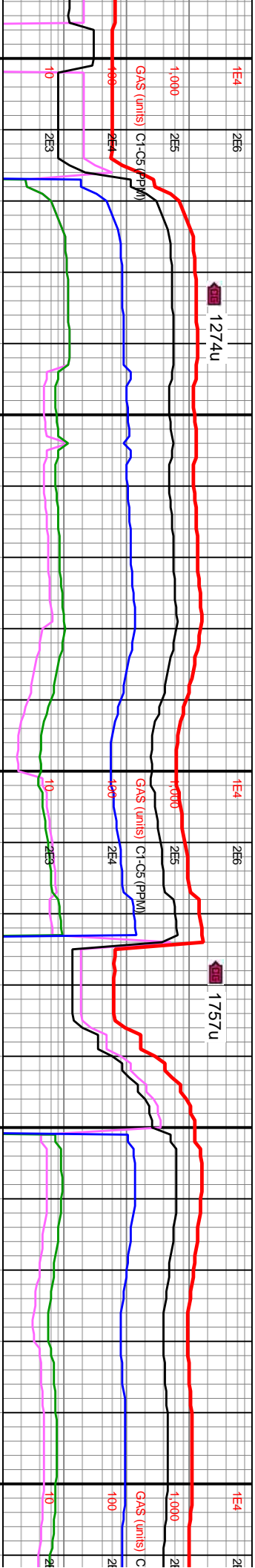
MW IN: 9.5 VIS IN: 52 MW OUT: 9.5+ VIS OUT: 50

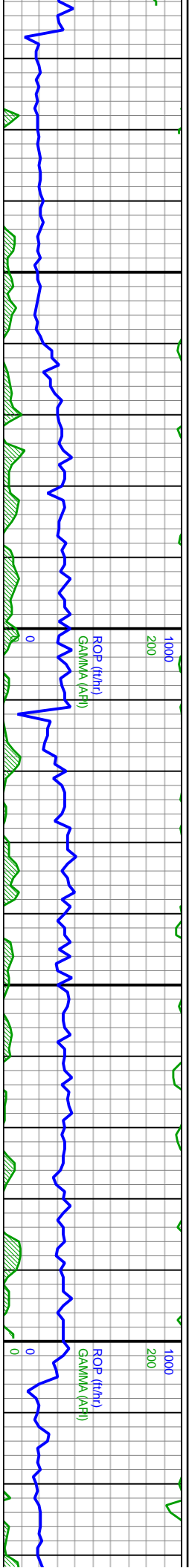
WOB: 29kbs RPM: 119 SPM: 200 SPP: 4,143psi

MD: 11,400' INC: 90° AZM: 90.63° TVD: 6,968.12' VS: 4,454.04'

MD: 11,494' INC: 90.03° AZM: 88.94° TVD: 6,968.09' VS: 4,536.25'

GD



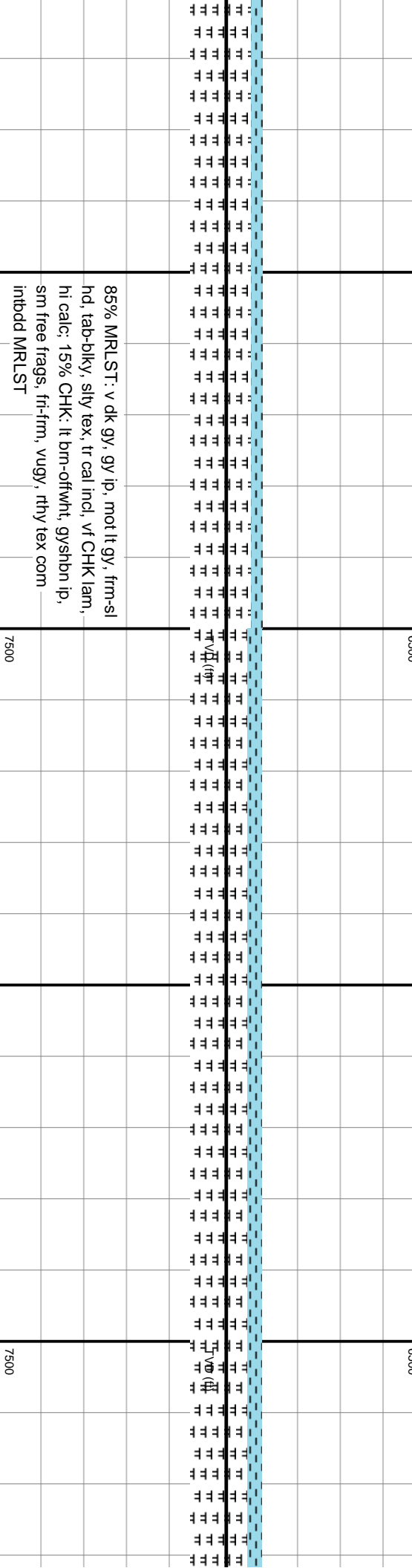
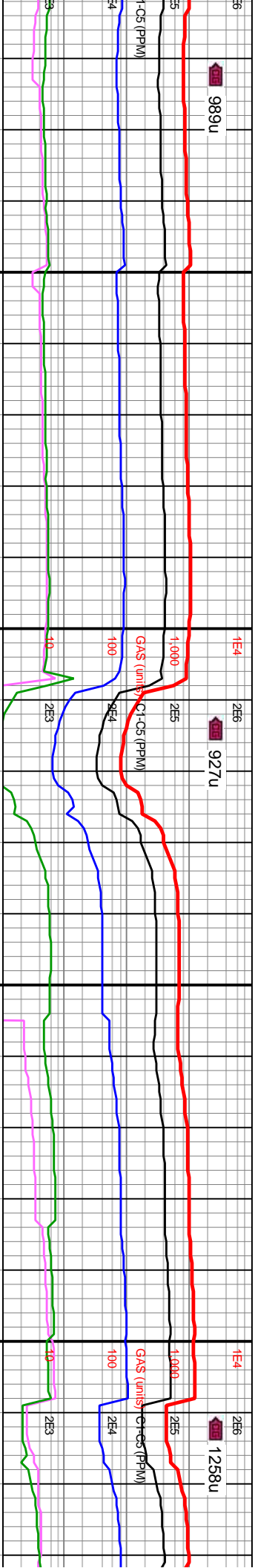


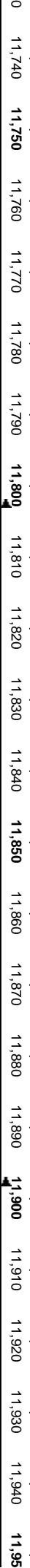
MD: 11,589'  
INC: 90.4°  
AZM: 92.85°  
TVD: 6,967.73'  
VS: 4,618.41'

WOB: 20.7klbs  
RPM: 120  
SPM: 200  
SPP: 3.925psi

MW IN: 9.5+  
VIS IN: 51  
MW OUT: 9.5+  
VIS OUT: 50

MD: 11,684'  
INC: 90.09°  
AZM: 95.14°  
TVD: 6,967.33'  
VS: 4,697.88'





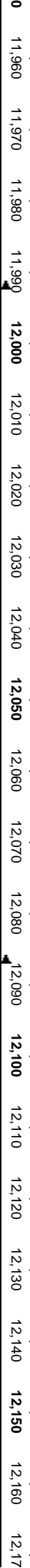
MD: 11.87'  
INC: 89.78°  
AZM: 94.18°  
TVD: 6,967.49'  
VS: 4,853.93'

MW IN: 9.5  
VS IN: 51  
MW OUT: 9.5  
VS OUT: 50



intbddd MRLST	7500	7500



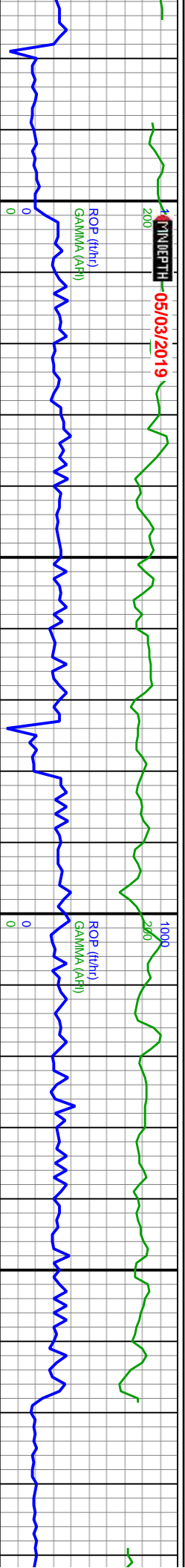


MD: 12,156'  
INC: 90.68°  
AZM: 88.33°  
TVD: 6,967.65'  
VS: 5,102.68'



80% MRLST: v dk g  
hd, tab-biky, silty tex  
calc; 20% CHK: lt br  
free frags, fri-frm, v  
MRLST, tr mic pp py



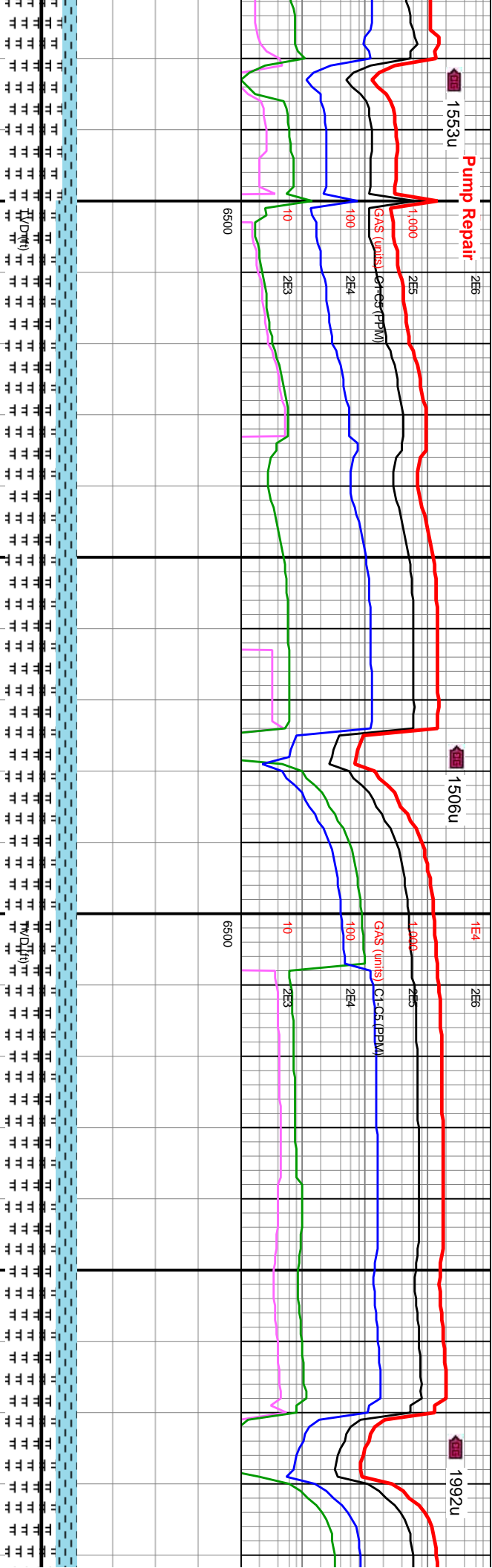


WOB: 11.6kbs  
RPM: 120  
SPM: 204  
SPP: 2,762psi

MD: 12,251'  
INC: 90.43°  
AZM: 88.64°  
TVD: 6,966.73'  
VS: 5,186.79'

MW IN: 9.5  
VIS IN: 51  
MW OUT: 9.6  
VIS OUT: 52

MD: 12,345'  
INC: 89.72°  
AZM: 85.25°  
TVD: 6,966.61'  
VS: 5,271.14'



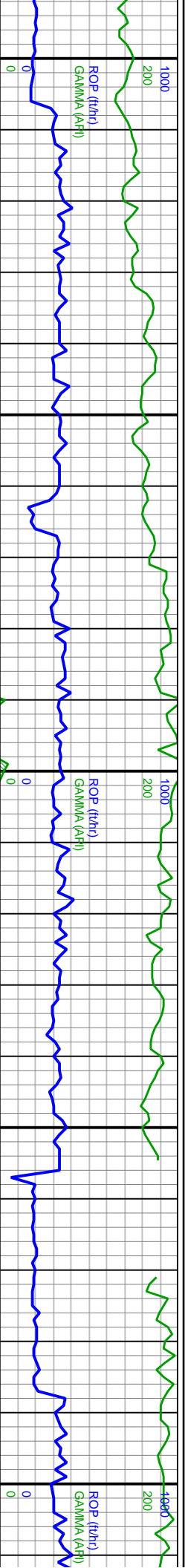
gy, gy ip, mot lt gy, frm-sl  
, tr cal incl, vf CHK lam, hi  
n-offwht, gyshbn ip, sm  
gy, rthy tex com intbdd  
r incl

7500

70% MRLST: v dk gy, gy ip, mot lt gy, v  
frm-sl hd, tab-dlky, slty tex, tr cal incl, v  
lam, dissim CHK, hi calc; 30% CHK: lt  
brn-offwht, gyshbn ip, sm free frags, fri  
vugy tex, rthy lstr, com intbdd MRLST,  
pp pyr incl

7500



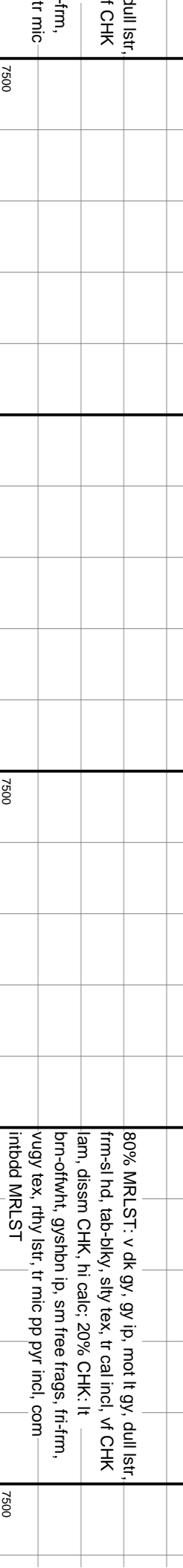
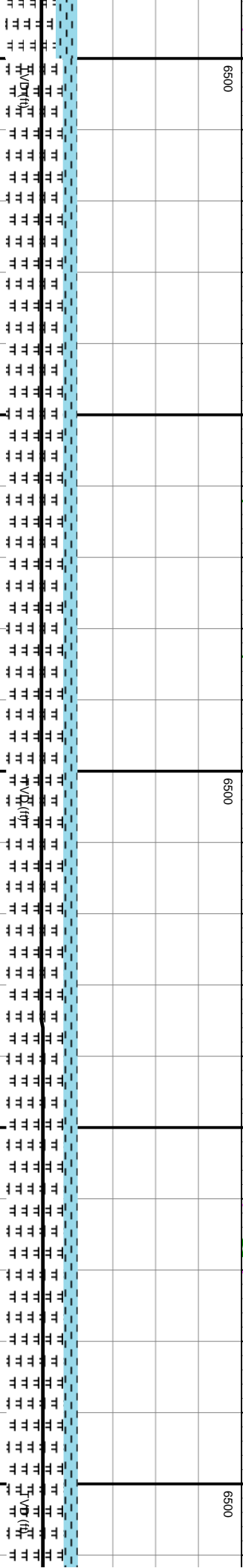
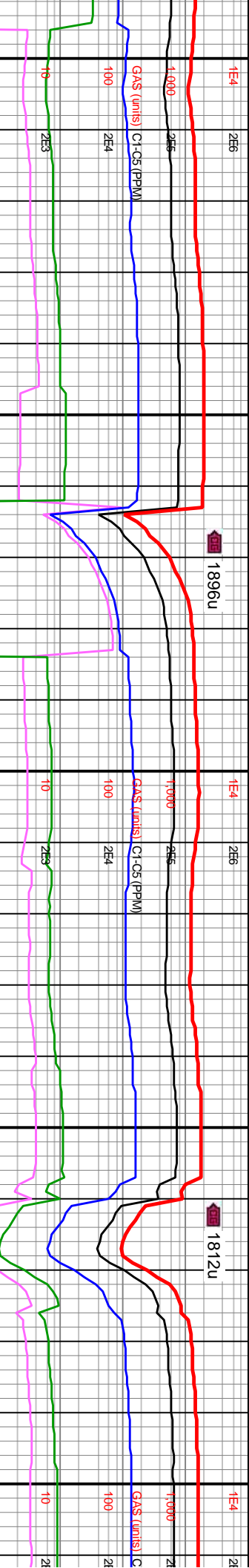


WOB: 17.7klbs  
RPM: 121  
SPM: 206  
SPP: 2.950psi

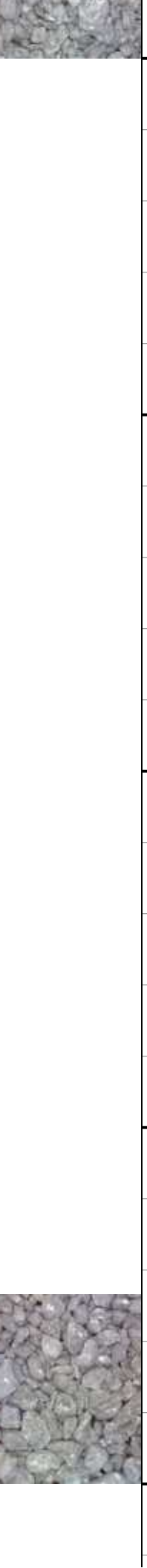
MD: 12,440'  
INC: 90.74°  
AZM: 84.85°  
TVD: 6,966.23'  
VS: 5.357.74'

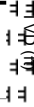
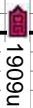
MD: 12,534'  
INC: 90.74°  
AZM: 85.01°  
TVD: 6,965.02'  
VS: 5.443.51'

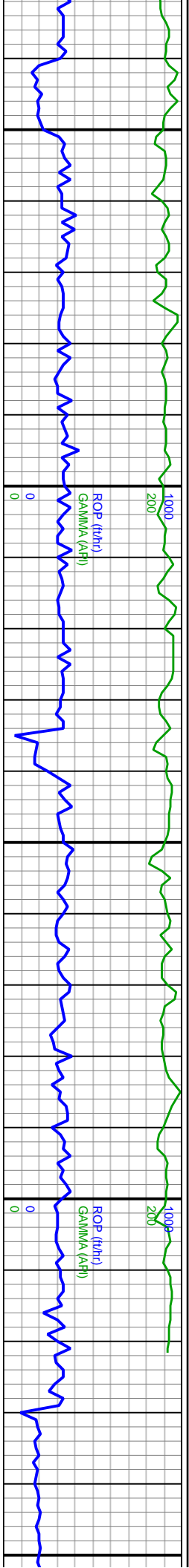
WOB: 26.8klbs  
RPM: 120  
SPM: 204  
SPP: 4.496psi



80% MRLST: v dk gy, gy ip, mot lt gy, dull lst, frm-sl hd, tab-dlky, slty tex, tr cal incl, vf CHK lam, dissm CHK, hi calc; 20% CHK: lt brn-oftwht, gysbhn ip, sm free frags, fr-fm, vugy tex, rthy lst, tr mic pp pyr incl, com intbdd MRLST







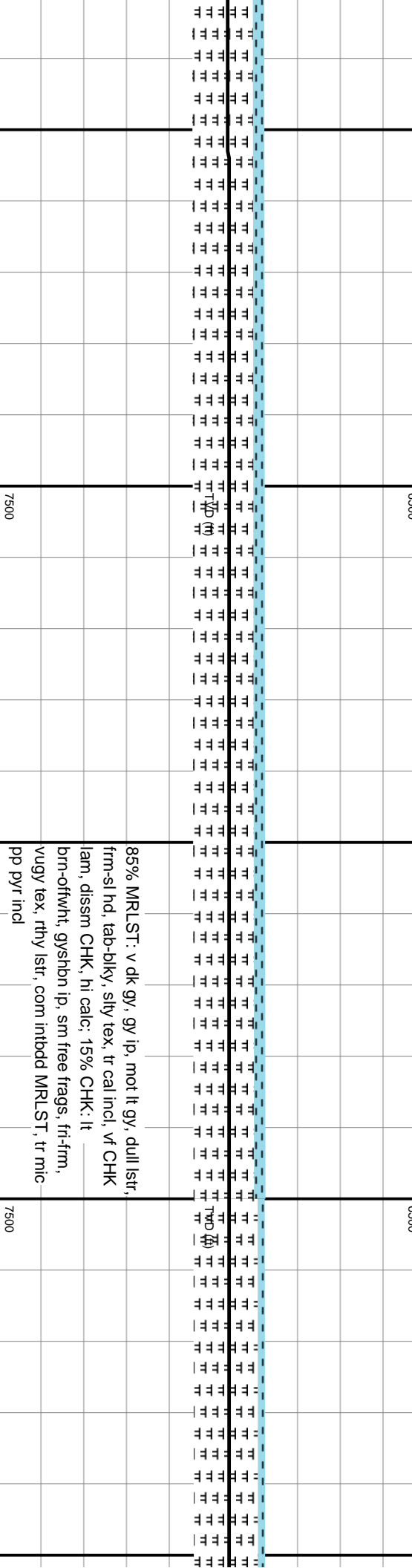
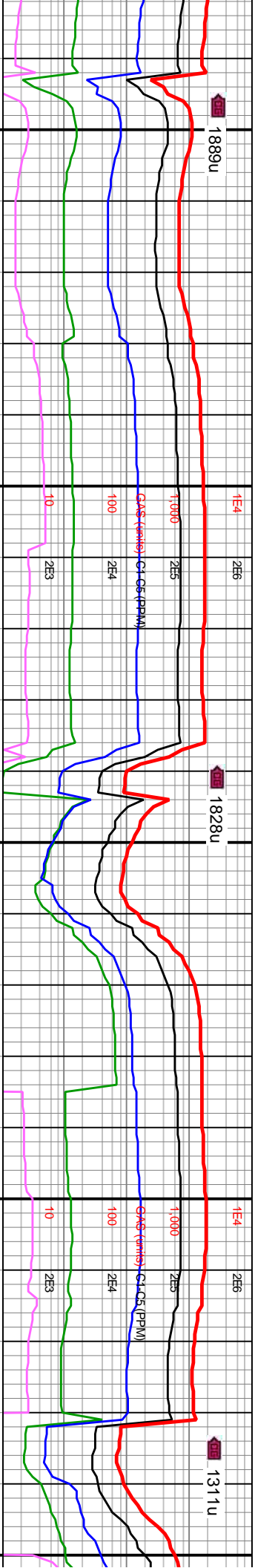
MW IN: 9.5  
VIS IN: 51  
MW OUT: 9.6  
VIS OUT: 50

MD: 12,913'  
INC: 90.58°  
AZM: 88.54°  
TVD: 6,961.01'  
VS: 5,784.6'

WOB: 29.3kbs  
RPM: 119  
SPM: 206  
SPP: 4.624psi

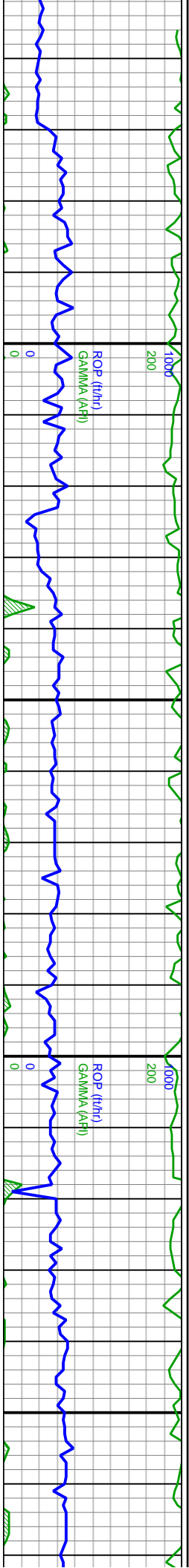
MD: 13,008'  
INC: 90.55°  
AZM: 91.12°  
TVD: 6,960.08'  
VS: 5,867.64'

MW IN: 9.5  
VIS IN: 51  
MW OUT: 9.6  
VIS OUT: 50



85% MRLST: v dk gy, gy ip, mot lt gy, dull lstr, frm-sl hd, tab-blky, slty tex, tr cal incl, vf CHK lam, dissim CHK, hi calc; 15% CHK: lt brn-oftwht, gysbhn ip, sm free frags, fir-fim, vugy tex, rthy lstr, com intbdd MRLST, tr mic pp pyr incl



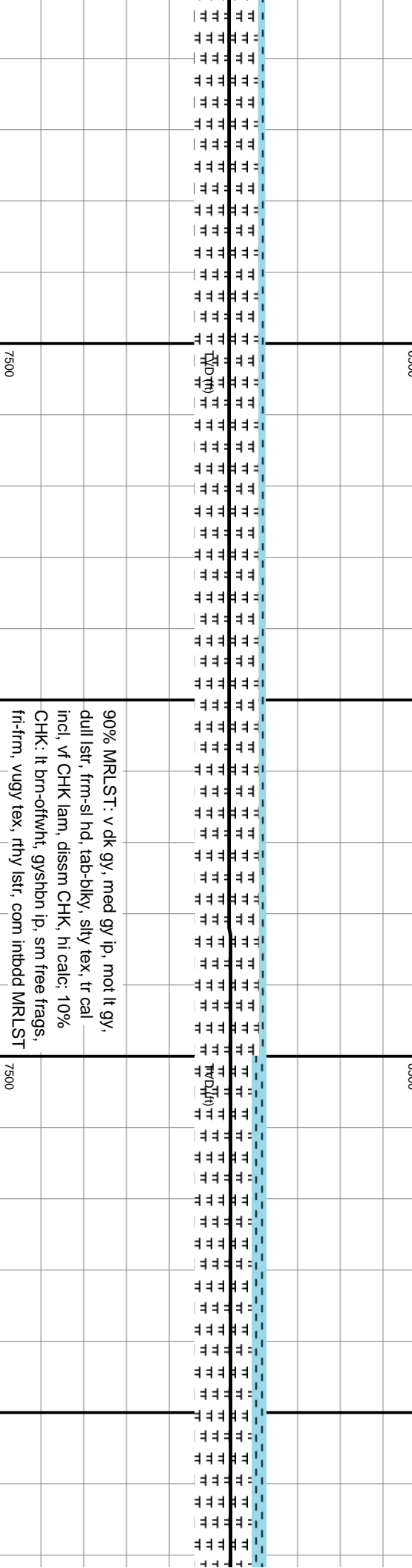
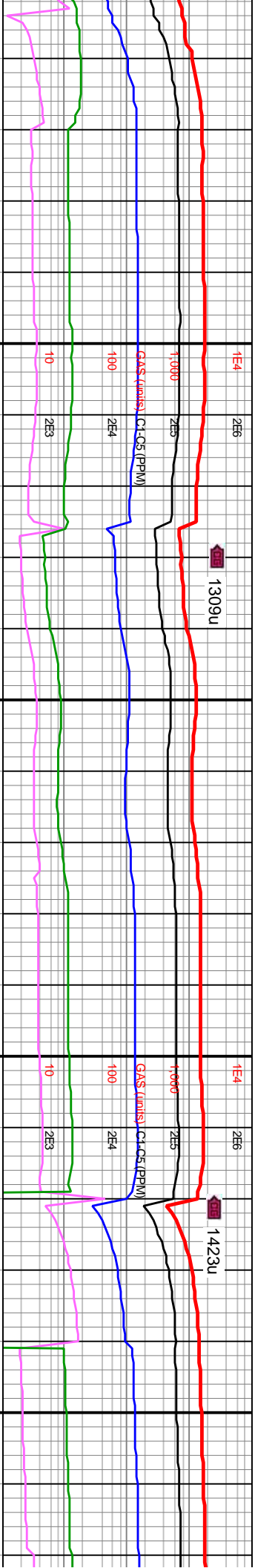


MD: 13,102'  
INC: 90.55°  
AZM: 93.35°  
TVD: 6,959.17'  
VS: 5,947.82'

MD: 13,197'  
INC: 90.65°  
AZM: 92.73°  
TVD: 6,958.18'  
VS: 6,028.15'

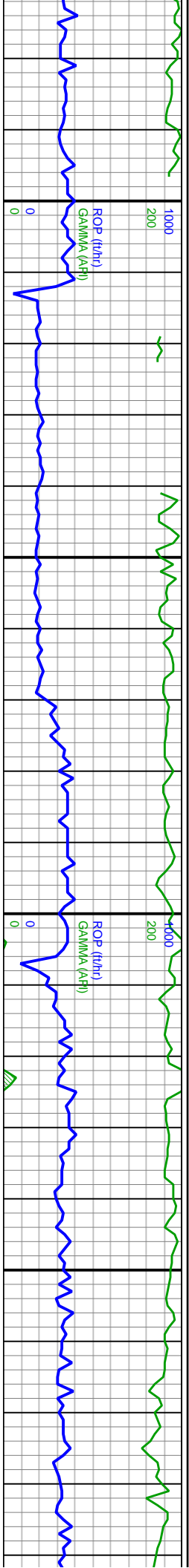
WOB: 31.6kbs  
RPM: 119  
SPM: 206  
SPP: 4,704psi  
MW IN: 9.5+  
VIS IN: 50  
MW OUT: 9.6  
VIS OUT: 50

BP



90% MRLST: v dk gy, med gy ip, mot lt gy,  
dull lstr, frm-sl hd, tab-bkly, silty tex, tr cal  
incl, vf CHK lam, dissn CHK, hi calc, 10%  
CHK: lt brn-offwht, gysbhn ip, sm free frags,  
fri-frm, vugy tex, rthy lstr, com intbdd MRLST





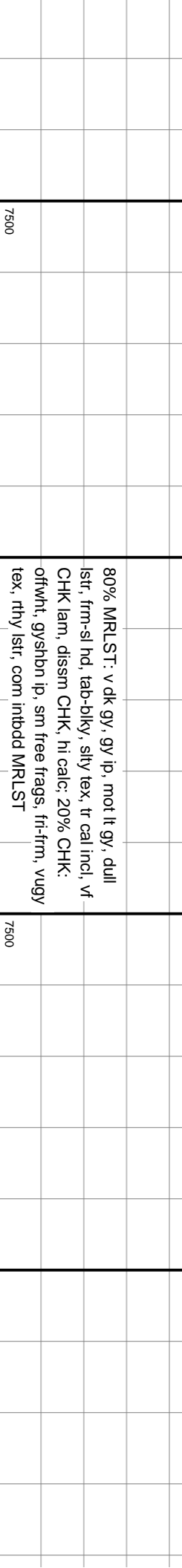
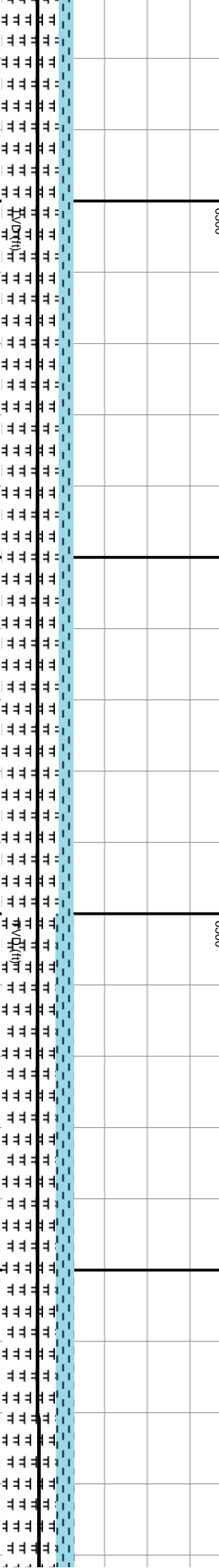
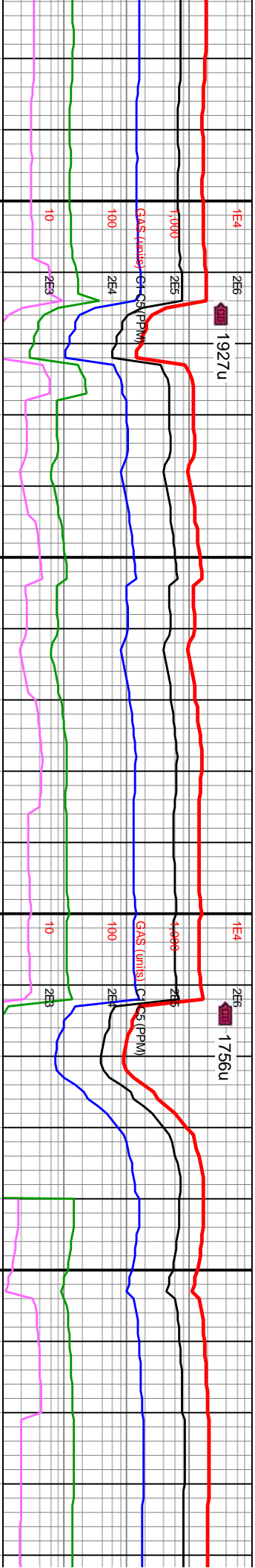
MD: 13,291'  
INC: 90.68°  
AZM: 93.16°  
TVD: 6,957.09'  
VS: 6,107.72'

MW IN: 9.6+  
VIS IN: 53  
MW OUT: 9.6+  
VIS OUT: 49

MD: 13,386'  
INC: 90.65°  
AZM: 92.48°  
TVD: 6,955.99'  
VS: 6,188.24'

WOB: 33.7klbs  
RPM: 120  
SPM: 204  
SPP: 4,708psi

MD: 13,480'  
INC: 90.68°  
AZM: 90.65°  
TVD: 6,954.89'  
VS: 6,268.99'

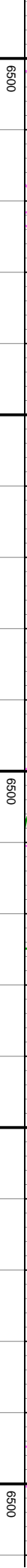


80% MRLST: v dk gy, gy ip, mot lt gy, dull  
lstr, frm-sl hd, tab-dlky, silty tex, tr cal incl, vf  
CHK lam, dissm CHK, hi calc, 20% CHK:  
offwht, gysbhn ip, sm free frags, fri-frm, vugy  
tex, rthy lstr, com intbdd MRLST

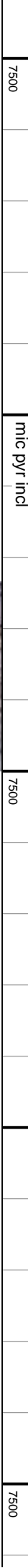




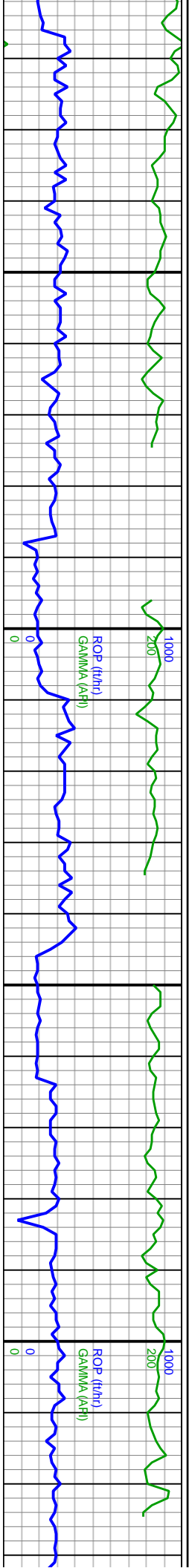
MD: 13.670'  
INC: 90.83°  
AZM: 86.75°  
TVD: 6,952.93'  
VS: 6,437.81'



mic pyr incl





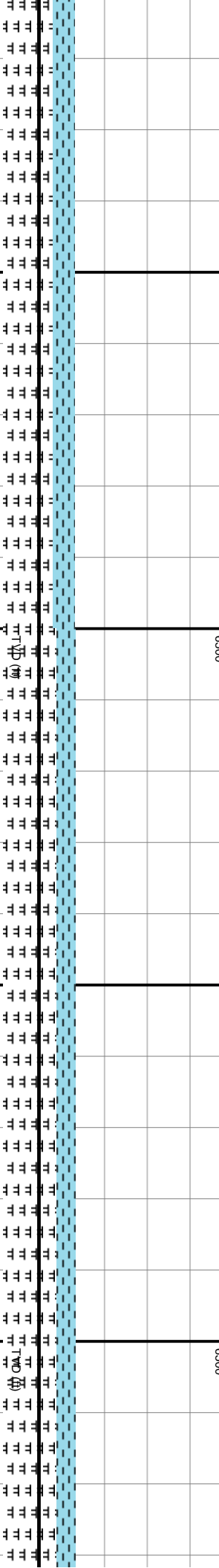
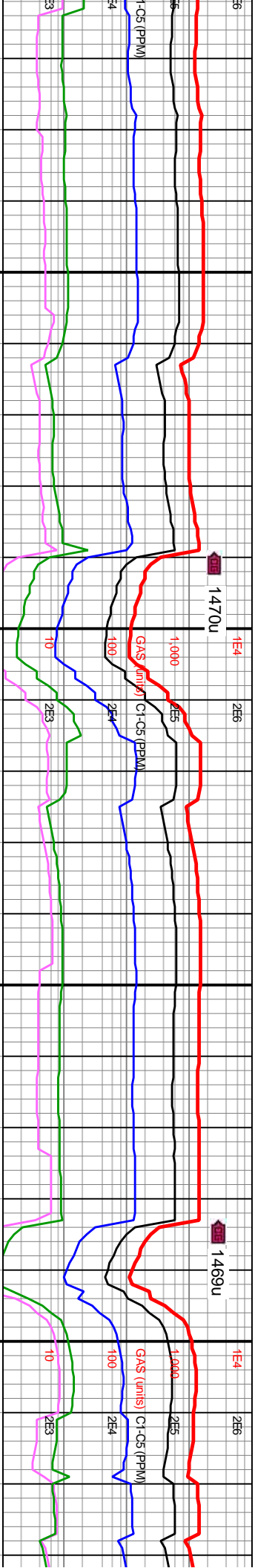


MD: 13,764'  
INC: 90.37°  
AZM: 89.78°  
TVD: 6,961.95'  
VS: 6,521.18'

WOB: 21klbs  
RPM: 119  
SPM: 202  
SPP: 3.582psi

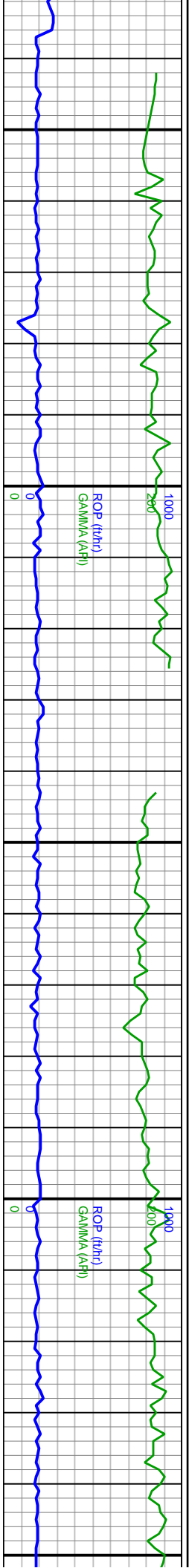
MW IN: 9.6  
VIS IN: 51  
MW OUT: 9.7  
VIS OUT: 50

MD: 13,859'  
INC: 89.29°  
AZM: 85.53°  
TVD: 6,962.23'  
VS: 6,605.9'



70% MRLST: v dk gy, gy ip, mot lt gy, dull  
lstr, frm-sl hd, tab-blky, slty tex, tr cal incl, vf  
CHK lam, dissm CHK, hi calc, tr pp mic pyr  
incl; 30% CHK: ofwht, gysbhn ip, sm free  
frags, fri-fm, vugy tex, rthy tex/lstr, com  
intbnd MRLST





MD: 13,953'  
INC: 88.37°  
AZM: 81.97°  
TVD: 6,954.15'  
VS: 6,692.42'

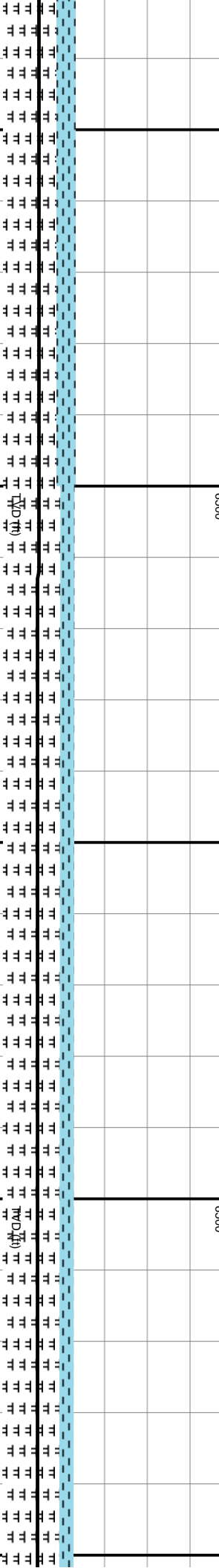
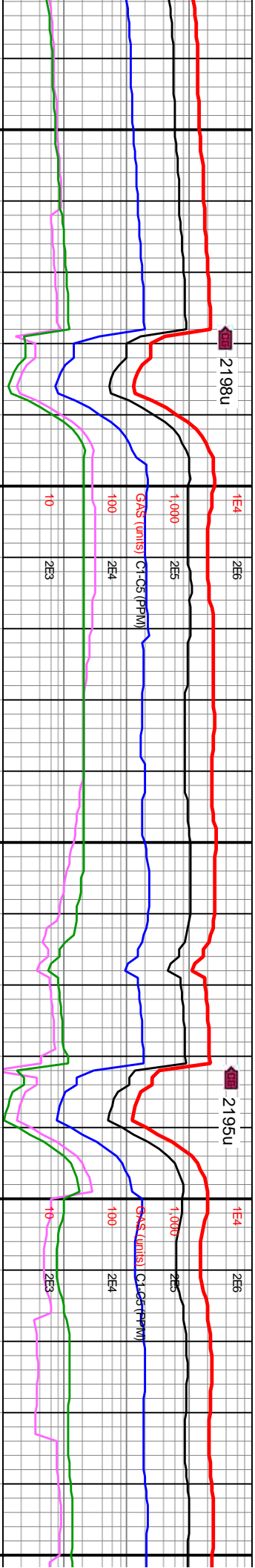
MW IN: 9.6  
VIS IN: 51  
MW OUT: 9.6+  
VIS OUT: 48

WOB: 20kbs  
RPM: 119  
SPM: 204  
SPD: 4.412psi

MD: 14,048'  
INC: 90°  
AZM: 83.9°  
TVD: 6,955.5'  
VS: 6,780.39'

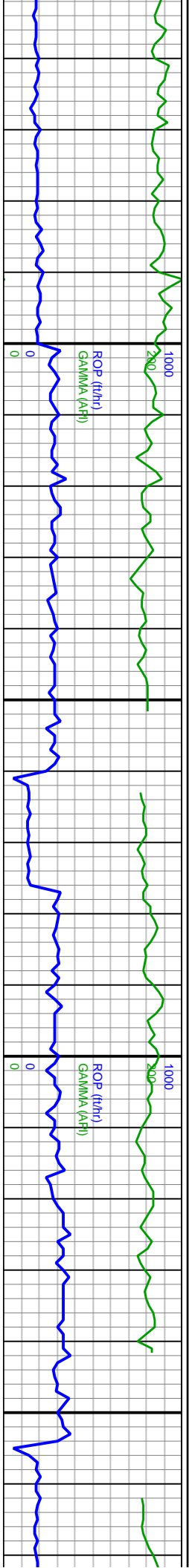
MW IN: 9.6  
VIS IN: 51  
MW OUT: 9.6+  
VIS OUT: 48

MD: 14,143'  
INC: 89.75°  
AZM: 87.92°  
TVD: 6,955.71'  
VS: 6,866.38'



75% MRLST: v dk gy, gy ip, mot lt gy, dull lstr, frm-sl hd, tab-blky, slty tex, tr cal incl, vf CHK lam, dissm CHK, hi calc; 25% CHK: ofwht, gysbn ip, sm free frags, fi-frm, vugy tex, rthy tex/lstr, com intbdd MRLST, tr pp mic pyr incl		7500	7500	7500
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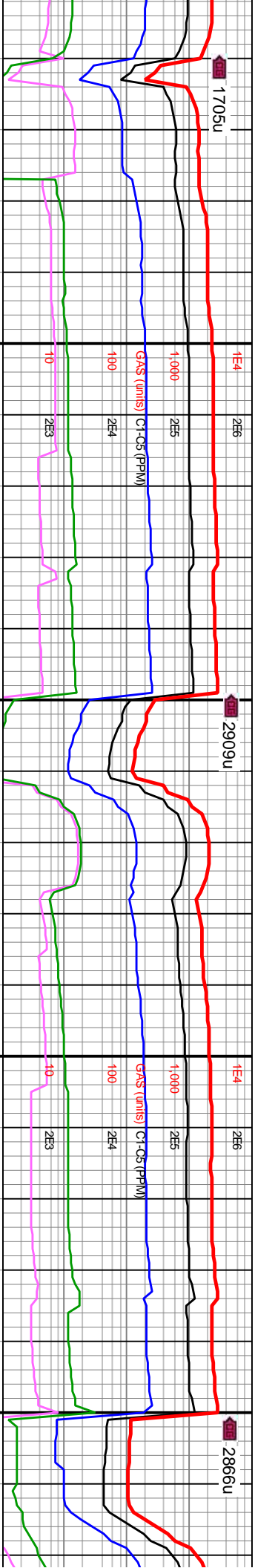


WOB: 21kbs  
RPM: 99  
SPM: 204  
SPP: 4.453psi

MD: 14,238'  
INC: 89.69°  
AZM: 91.52°  
TVD: 6,956.17'  
VS: 6,949.5'

MW IN: 9.6  
VIS IN: 50  
MW OUT: 9.6  
VIS OUT: 48

MD: 14,332'  
INC: 90.09°  
AZM: 90.85°  
TVD: 6,956.35'  
VS: 7,030.57'



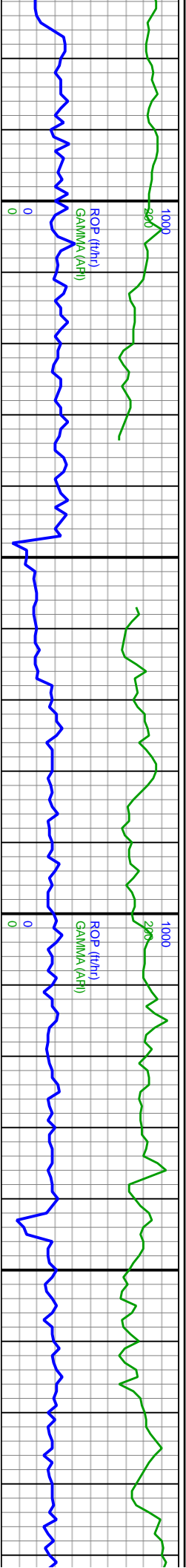
0% MRLST: v dk gy, gy ip, mot lt gy, dull lstr,  
m-sl hd, tab-bkly, silty tex, tr cal incl, v f CHK  
am, dissm CHK, hi calc; 20% CHK: offwht,  
yshbn ip, sm free frags, fri-frn, vugy tex, rthy  
ntt, com intbdd MRLST, tr pyr nod

7500

7500

75% MRLST: v dk gy,  
lstr, frm-sl hd, tab-b  
CHK lam, dissm Ch  
offwht-gyshbn ip, sr  
tex, rthy lstr, com in  
nod

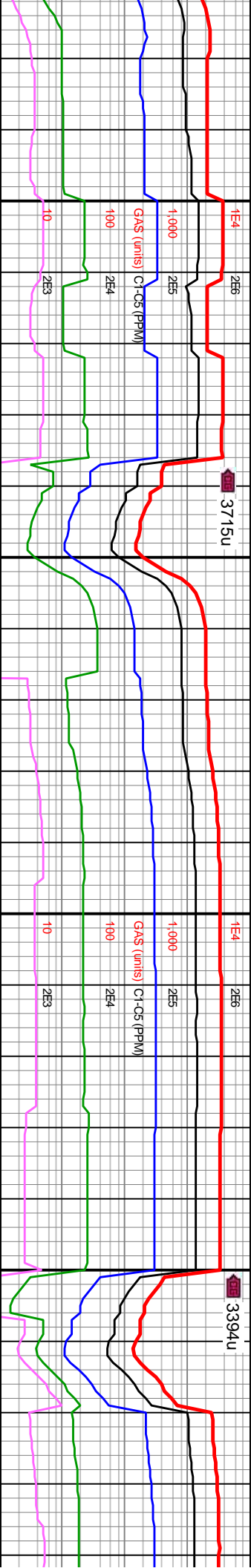




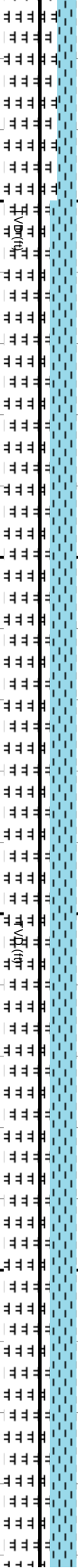
WOB: 31klbs  
RPM: 119  
SPM: 202  
SPP: 4,651psi

MD: 14,427'  
INC: 90.03°  
AZM: 88.37°  
TVD: 6,956.25'  
VS: 7,113.79'

MW IN: 9.6  
VIS IN: 50  
MW OUT: 9.6  
VIS OUT: 48



MD: 14,521'  
INC: 89.82°  
AZM: 89.01°  
TVD: 6,956.37'  
VS: 7,196.85'



gy, gy ip, mot lt gy, dull  
lky, stly tex, tr cal incl, vf  
CHK, hi cal; 25% CHK:  
n free frags, fri-frm, vugy  
tbd MRLST, tr intbd pyr

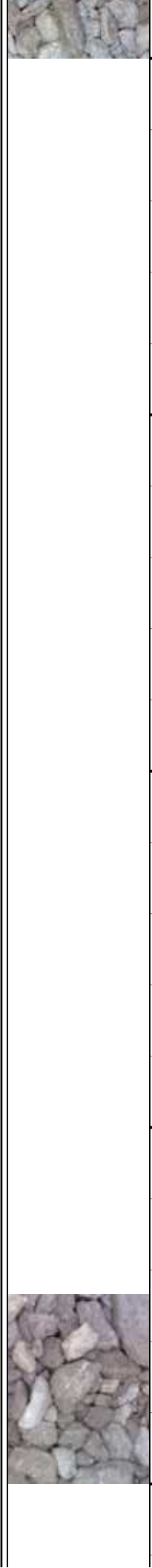
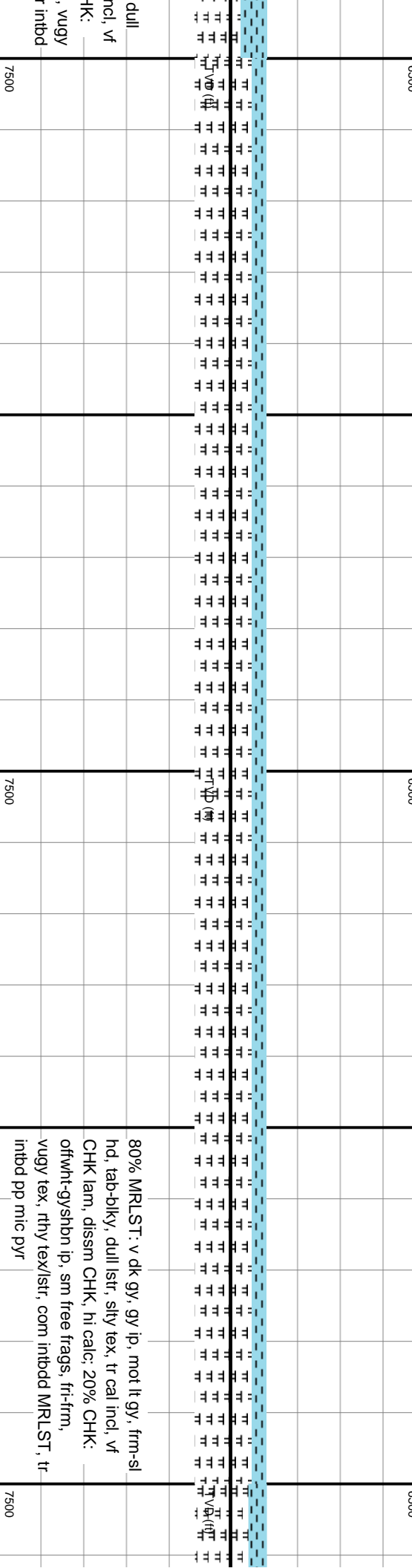
7500

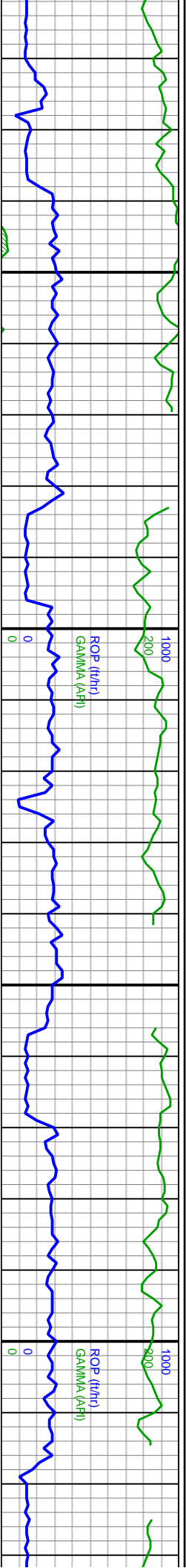
7500

65% MRLST: v dk gy, gy ip, mot lt gy,  
lstr, frm-sl hd, tab-dlky, stly tex, tr cal i  
CHK lam, dissm CHK, hi cal; 35% Ch  
offwht-gyshn ip, sm free frags, fri-frm  
tex, rthy tex/lstr, com intbd MRLST, t  
pp mic pyr

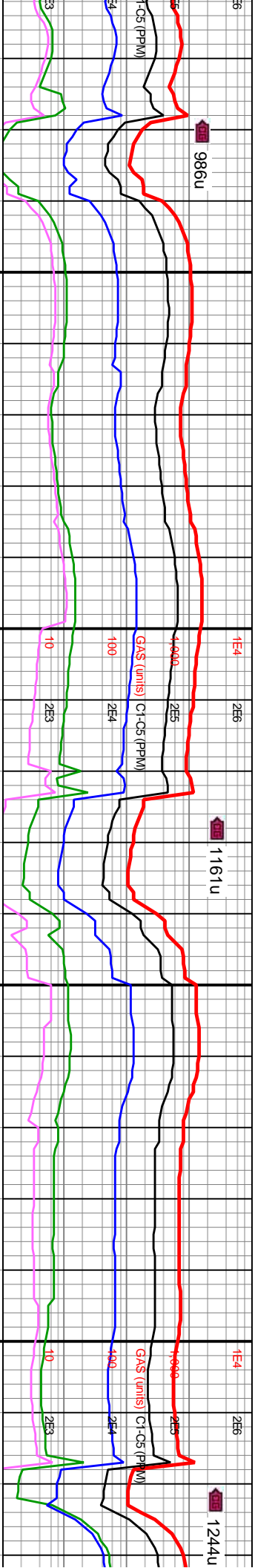
7500





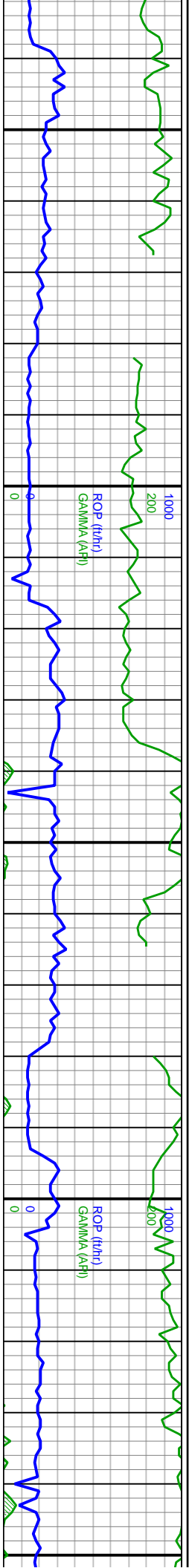


0	14,820	14,830	14,840	14,850	14,860	14,870	14,880	14,890	14,900	14,910	14,920	14,930	14,940	14,950	14,960	14,970	14,980	14,990	15,000	15,010	15,020	15,030
805'	MW IN: 9.6 VIS IN: 49 MW OUT: 9.6+ 956.3'										MD: 14,900' INC: 90.52° AZM: 95.03° TVD: 6,955.75 VS: 7,520.9'										WOB: 32klbs RPM: 120 SPM: 202 SPP: 4,706psi	
15°	GD																					
3.98°																						
956.3'	VIS OUT: 48										VIS OUT: 51											
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7500	7500
75% MRLST: v dk gy, gy ip, mot lt gy, dull lstr, frm-sl hd, tab-biky, stly tex, tr cal incl, vf CHK lam, dissm CHK, hi calc; 25% CHK: offwht-gyshbn ip, sm free frags, frt-frm, vugy tex, rthy tex/lstr, com intbdd MRLST	
7500	7500

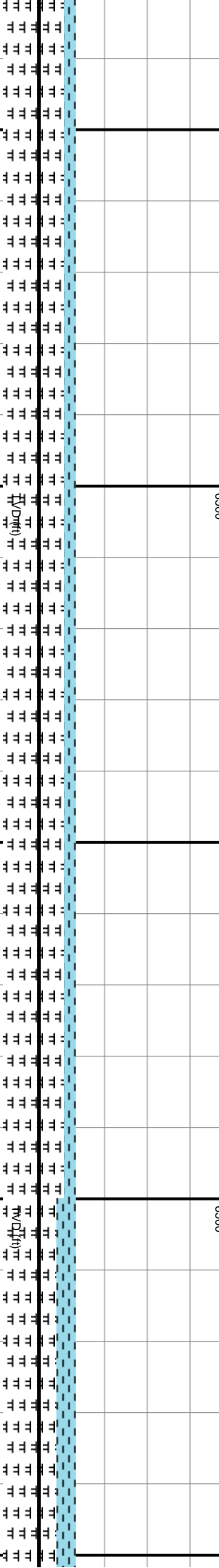
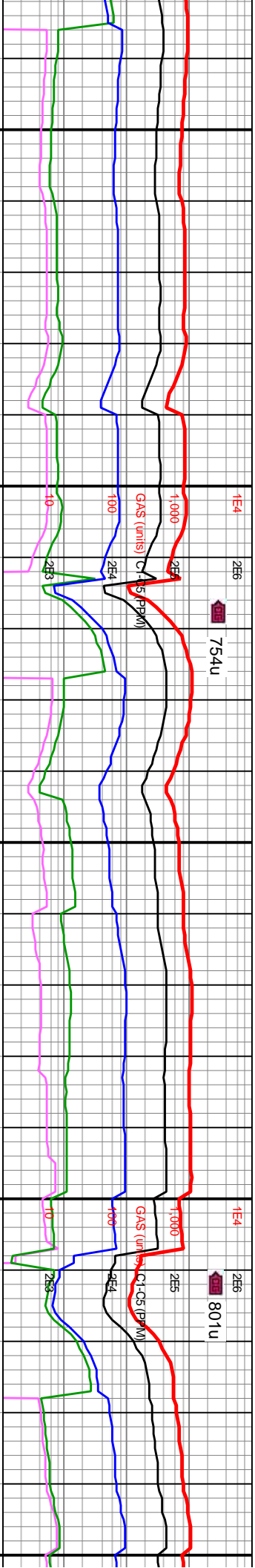


MD: 15,090'  
INC: 90.31°  
AZM: 94.42°  
TVD: 6,954.2'  
VS: 7.677.34'

MW IN: 9.6  
VIS IN: 51  
MW OUT: 9.6+  
VIS OUT: 48

MD: 15,184'  
INC: 90.22°  
AZM: 89.24°  
TVD: 6,953.76'  
VS: 7.757.84'

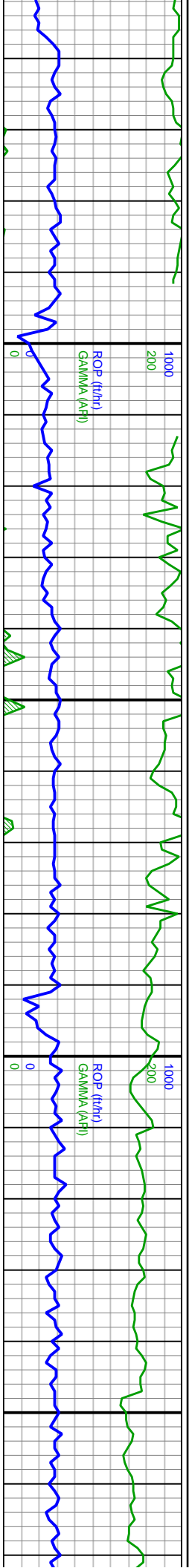
WOB: 22.1kbs  
RPM: 120  
SPM: 196  
SPP: 4.362psi



85% MRLST: v dk gy, gy ip, mot lt gy, dull lstr, frm-sl hd, tab-dlky, slty tex, tr cal incl, vf CHK lam, dissim CHK, hi calc, 15% CHK: ofwht-gyshn ip, sm free frags, fri-frm, vugy tex, rthy tex/lstr, com imbdd MRLST, tr pp pyr nod		7500
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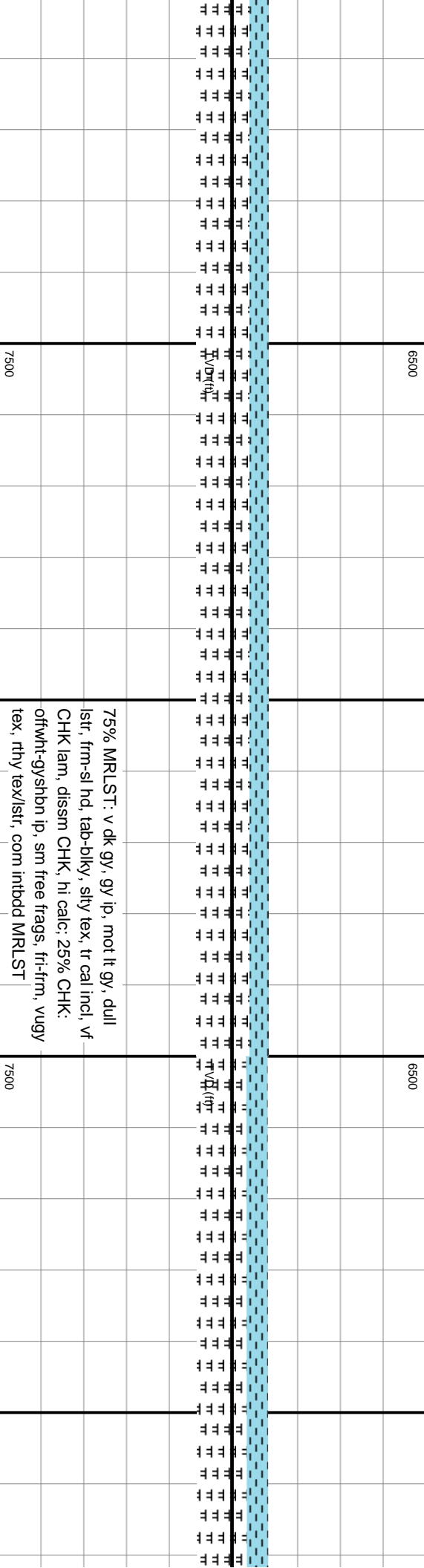
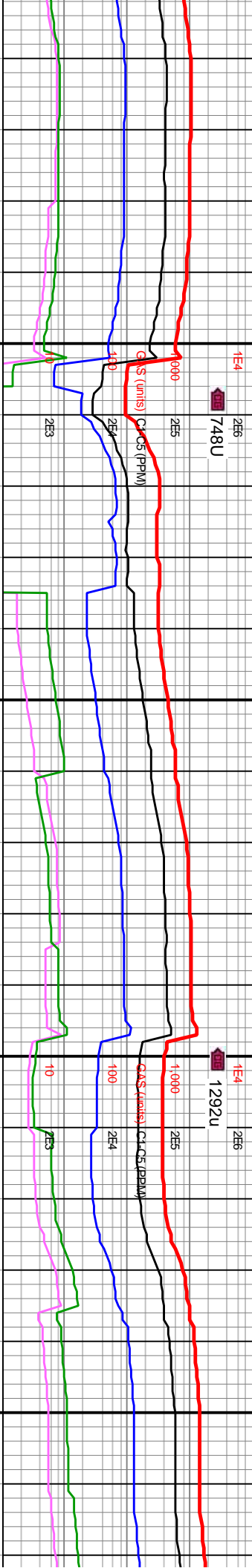


MD: 15,279'  
INC: 90.28°  
AZM: 87.69°  
TVD: 6,953.35'  
VS: 7,841.96'

MD: 15,373'  
INC: 90.31°  
AZM: 87.95°  
TVD: 6,952.86'  
VS: 7,925.68'

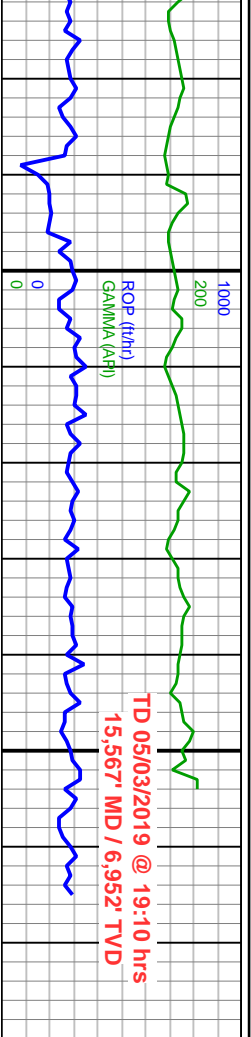
WOB: 25.6klbs  
RPM: 120  
SPM: 204  
SPP: 4.837psi  
MW IN: 9.6  
VIS IN: 50  
MW OUT: 9.6  
VIS OUT: 48

MD: 15,468'  
INC: 90.46°  
AZM: 87.49°  
TVD: 6,952.  
VS: 8,010.3



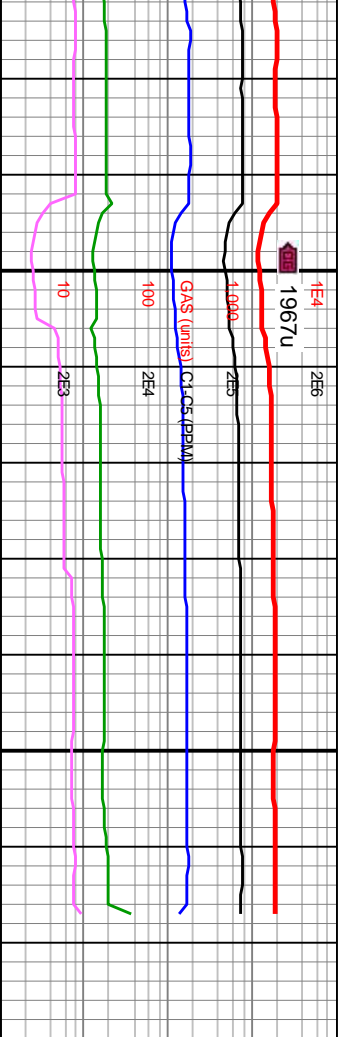
75% MRLST: v dk gy, gy ip, mot lt gy, dull  
lstr, frm-sl hd, tab-bkly, slty tex, tr cal incl, vf  
CHK lam, dissm CHK, hi calc; 25% CHK:  
offwht-gyshbn ip, sm free frags, fri-frm, vugy  
tex, rthy tex/lstr, com intbdd MRLST





MD: 15,543'  
INC: 90.25°  
AZM: 88.18°  
TVD: 6,951.76'  
VS: 8,077.16'

Projection to bit:  
MD: 15,567'  
INC: 90.25°  
AZM: 88.18°  
TVD: 6,951.66'  
VS: 8,098.47'



End of Horizontal Log

70% MRLST: v dk gy, gy ip, mot lt gy, dull lstr, frm-sl hd, tab-bkly, silty tex, tr cal incl, vf CHK lam, dissm CHK, hi cal; 30% CHK: offwht-gysbshn ip, sm free frags, fri-frm, vugy tex, rthy tex/lstr, com intbdd MRLST	
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