



# RESERVOIR GROUP

Scale: 5" / 100'  
Measured Depth Log

**Well Name** 70 Ranch 10-12-3L

**Location** 40°20'05.208" N, 104°25'44.580" W

**State** Colorado

**Country** USA

**API Number** 05-123-50188

**County** Weld

**Rig Number** Ensign 140

**AFE #** 101034

**Geographic Region** Rockies

**Field** Wattenburg

**Spud Date** 6/2/2019

**Drilling Completed** 6/9/2019

**Surface Coordinates** 40°20'05.208" N, 104°25'44.580" W

**Bottom Hole Coordinates** 40°18'22.896" N, 104°25'29.748"

**Ground Elevation** 4,599'

**K.B. Elevation** 4,619.5'

**Logged Interval** 6,000' **To** 16,659'

**Total Depth** 16,659'

**Formation** Niobrara C Chalk

**Type of Drilling Fluid** Oil Based Mud

## Operator

**Company** CONFLUENCE DJ LLC

**Address** 621 17th St. STE. 1401  
DENVER, CO. 80293



## Geologist

**Name** Robin Swank

**Company** CONFLUENCE DJ LLC

**Address** 621 17th St. STE. 1401  
DENVER, CO. 80293



Other

**Service Type** Two Man Logging + ASW  
**Logger(s)** Robert Kelley/ Micah Morgan  
**Equipment** ML-570  
**Start Date** 6/4/2019  
**Release Date** 6/11/2019  
**Address** Reservoir Group  
6360 W Sam Houston Pkwy N  
Houston, TX 77041  
**Job#** 2243RK1906

Color Coding

Oil

Note

Error

Condensate

Core

Water

Gas

Pressure

Seal

Rock Types

UNKNOWN

ANHYDRITE

GYPSUM

SALT

CHALK

LIMESTONE

DOLOMITE

CHERT

COAL

MARLSTONE

CLAYSTONE

SHALE

SHALE GRAY

SHALE COLORED

SILTSTONE

SANDSTONE

CONGLOMERATE

BRECCIA

TILL

BENTONITE

TUFF

IGNEOUS

METAMORPHIC

CEMENT

Accesso

F FOSSIL

GASTROPOD

ALGAE

AMPHIPORA

BELEMNITE

BIOCLASTIC

BRACHIOPOD

BRYOZOA

CEPHALOPOD

CORAL

CRINOID

ECHINOID

FISH

FORAMINIFERA

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMENOUS SUBSTANCES

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKE

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

Other Syn

OIL SHOW

DEAD

EVEN

QUESTIONABLE

SPOTTED STAINING

ORGANIC

P PINPOINT

V VUGGY

Engineering

BIT

CASING

CONNECTION (LEFT)

CONNECTION (RIGHT)

CONNECTION GAS

CORE - LOST

CORE - RECOVERED

DST INTERVAL

FAULT

FORM

GAS SHOW

MINDEPTH MN

NORMAL FAN

OIL SHOW

OVERTURNED

REVERSE FAULT

SIDEWALL C

SIDEWALL COR

SLIDE

SURVEY


























TIP GAS

WIRELINE T

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## ries

# Stringer

	GLAUCONITE
	GYPSEIFEROUS
	HEAVY MINERAL
	KAOLIN
	MARLSTONE
	MINERAL CRYSTALS
	NODULES
	PHOSPHATE PELLETS
	PYRITE
	SALT CAST
	SANDY
	SILTACEOUS
	SILTY
	TUFFACEOUS
	ANHYDRITE STRINGER
	BENTONITE STRINGER
	COAL STRINGER
	DOLOMITE STRINGER
	GYPSPUM STRINGER
	LIMESTONE STRINGER
	MARLSTONE (CALC) STRG
	MARLSTONE (DOL) STRG
	SANDSTONE STRINGER
	SHALE STRINGER
	SILTSTONE STRINGER

# symbols

ATION TOP		L LITHOGRAPHIC
	<b>Rounding</b>	MX MICROXIN
DEPTH	A ANGULAR	MS MUDSTONE
ULT	R ROUNDED	PS PACKSTONE
	B SUBANG	WS WACKSTONE
ED STRATA	P SUBRND	
ULT		<b>Sorting</b>
ORE (LEFT)	<b>Textures</b>	M MODERATE
ORE (RIGHT)	B BOUNDSTONE	P POOR
	C CHALKY	W WELL
	CX CRYPTOXIN	
	E EARTHY	
ESTED - LEFT	FX FINELYXIN	
ESTED - RT	G GRAINSTONE	

CONFLUENCE DJ LLC.

70 Ranch West 10-12-3L

Weld Co. CO.

ROP  
GAMMA  
WOBX  
TORQX

All Depths Correspond to  
Driller's Pipe Tally

SYSTEM CALIBRATED  
1% Methane = 100 units  
100% Methane = 10000  
units

WOB: 18  
RPM: 80  
SPM: 200  
PP: 2146

Depth Labels

5,960

5,970

5,980

5,990

6,000

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MW I/O  
9.3/40  
9.3/39

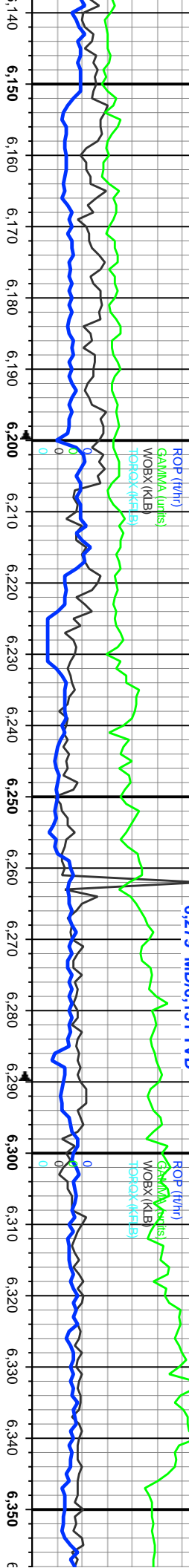
WOB: 23  
RPM: 100  
SPM: 202  
PP: 2779

MW I/O  
9.3/40  
9.3/39

SHARRON SPRINGS  
6,279' MD/6,151' TVD

WOB: 10  
RPM: 100  
SPM: 204  
PP: 2852

MW I/O  
9.7/43  
9.7/41



DTG: 504u

BG: 682u

GA\$ (units)  
C1-C4 (PPM)  
H2S (PPM)  
H2S (PPM)

GA\$ (units)  
C1-C4 (PPM)  
H2S (PPM)  
H2S (PPM)

EVIDENCE OF FRAC SAND

SH: 100% GY TO DK GY, SM TO SL  
GRITTY TEX, DL LSTR, SB WXY IP, RTHY  
IP, SFT TO FRM, SB BLKY TO SB PLTY,  
AMOR, SB FISS, SL SLTY IP, CALC IP, SL  
H2O SENS

SH: 100% GY TO DK GY, BLK IP, SM TO  
SL GRITTY TEX, DL LSTR, SB WXY IP,  
RTHY IP, SFT TO FRM, SB BLKY TO SB  
PLTY, AMOR, SB FISS, SL SLTY IP, N  
CALC

SH: 100% GY TO DK GY, BLK IP, SM TO SL  
GRITTY TEX, DL LSTR, SB WXY IP, RTHY  
IP, SFT TO FRM, SB BLKY TO SB PLTY,  
AMOR, SB FISS, SL SLTY IP, N CALC

MD: 6,175'  
Inclination: 24.99°  
Azimuth: 141.77°  
TVD: 6,059.41'  
VS: 242.44'

MD: 6,265'  
Inclination: 30.01°  
Azimuth: 158.95°  
TVD: 6,139.34'  
VS: 280.43'

MD: 6,355'  
Inclination: 37°  
Azimuth: 167.8°  
TVD: 6,214.09'  
VS: 329.67'

100% SH, MED GY TO DK GY, SB WXY  
TO SB GRITTY TEX, DL LSTR, SFT TO  
FRM, SB PLTY, SB FISS, AMOR, SL  
CALC IP

TVD (ft)



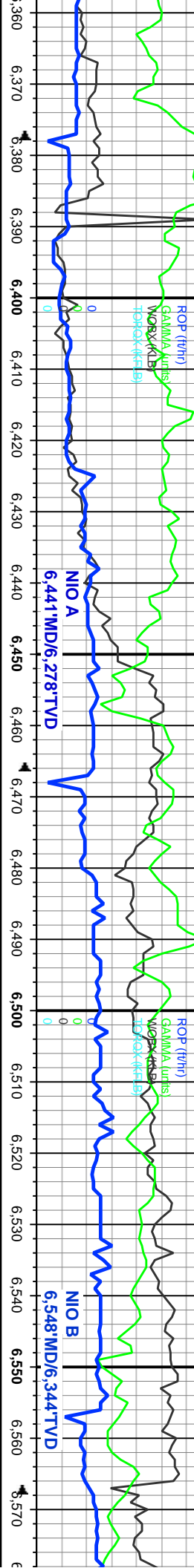
SH: 100%  
GRITTY  
IP, SF  
AMOR

WOB: 60  
RPM: 100  
SPM: 204  
PP: 2965

MW I/O  
9.7/43  
9.7/41

WOB: 60  
RPM: 100  
SPM: 204  
PP: 2965

MW I/O  
9.7/43  
9.7/41



CG: 639u

CG: 1,070u

BG: 1,241u

CG: 1,579u

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

RESTAR

SH: 100% GY TO DK GY, BLK IP, SM TO SL GRITTY TEX, DL LSTR, SB WXY IP, RTHY IP, SFT TO FRM, SB BLKY TO SB PLTY, AMOR, SB FISS, SL SLTY IP, N CALC

MR LST: MDSTN, DK GY TO BLK, MOTT IP, GRITTY TEX, RTHY LSTR, SFT TO FRM, HD IP, SB BLKY TO BLKY, AMOR, FISS, ARG, CALC, TR CALCT IN FRAC, TR SH

MD: 6,533'  
Inclination: 55.07°  
Azimuth: 170.93°  
TVD: 6,335.56'  
VS: 458.54'

MD: 6,444'  
Inclination: 47.15°  
Azimuth: 170.22°  
TVD: 6,279.73'  
VS: 389.43'



100% GY TO DK GY, BLK IP, SM TO SL GRITTY TEX, DL LSTR, SB WXY IP, RTHY IP, SFT TO FRM, SB BLKY TO SB PLTY, AMOR, SB FISS, SL SLTY IP, SL CALC

MR LST: MDSTN, DK GY TO BLK, MOTT IP, GRITTY TEX, RTHY LSTR, SFT TO FRM, HD IP, SB BLKY TO BLKY, AMOR, FISS, ARG, CALC, TR CALCT IN FRAC, TR SH

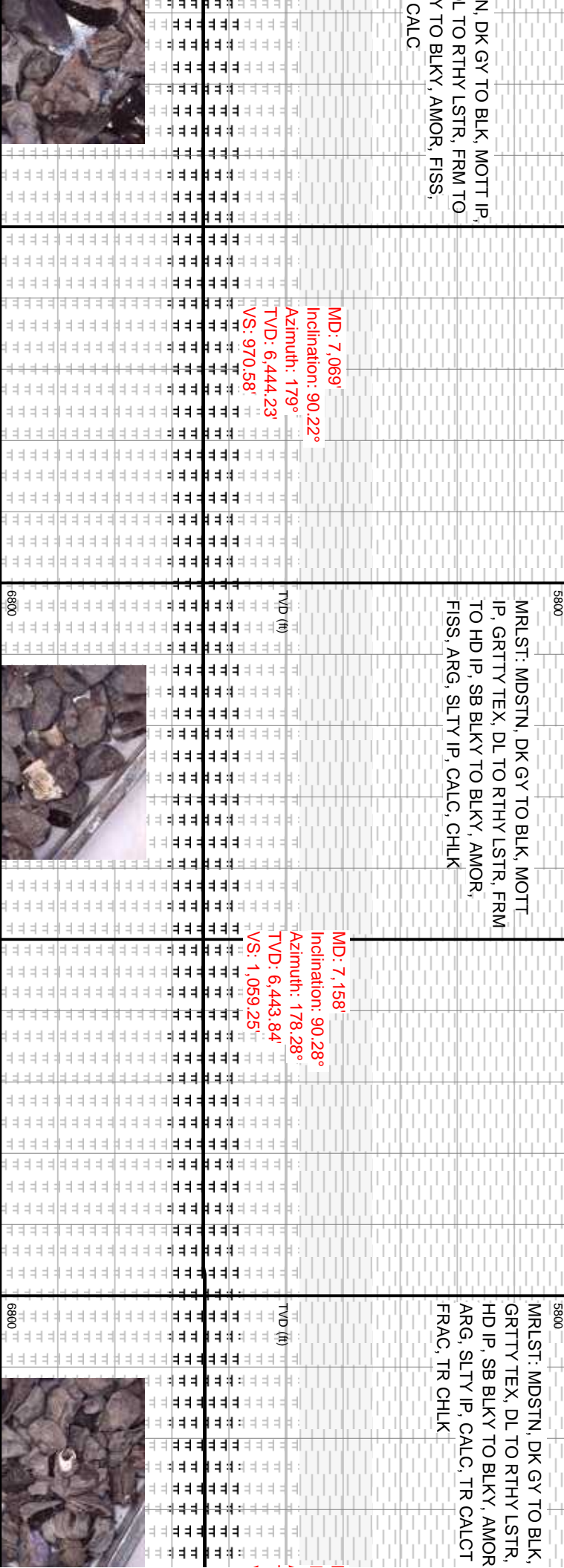
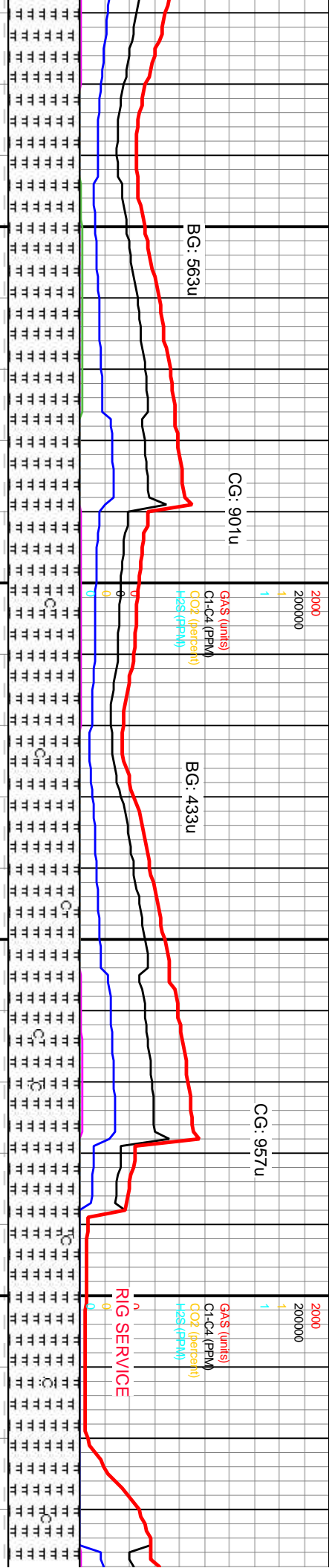
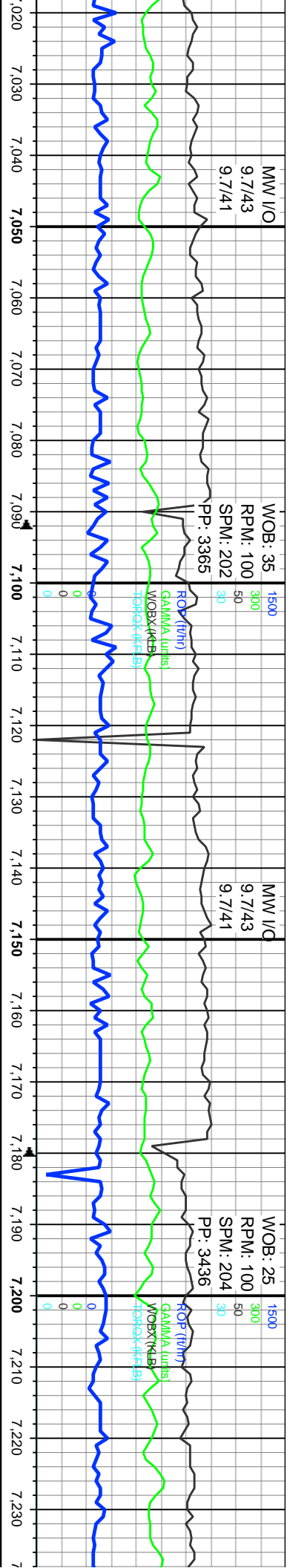
MR LST: MDSTN, DK GY TO BLK, MOTT IP, GRITTY TEX, RTHY LSTR, SFT TO FRM, HD IP, SB BLKY TO BLKY, AMOR, FISS, ARG, CALC, TR CALCT IN FRAC, TR SH

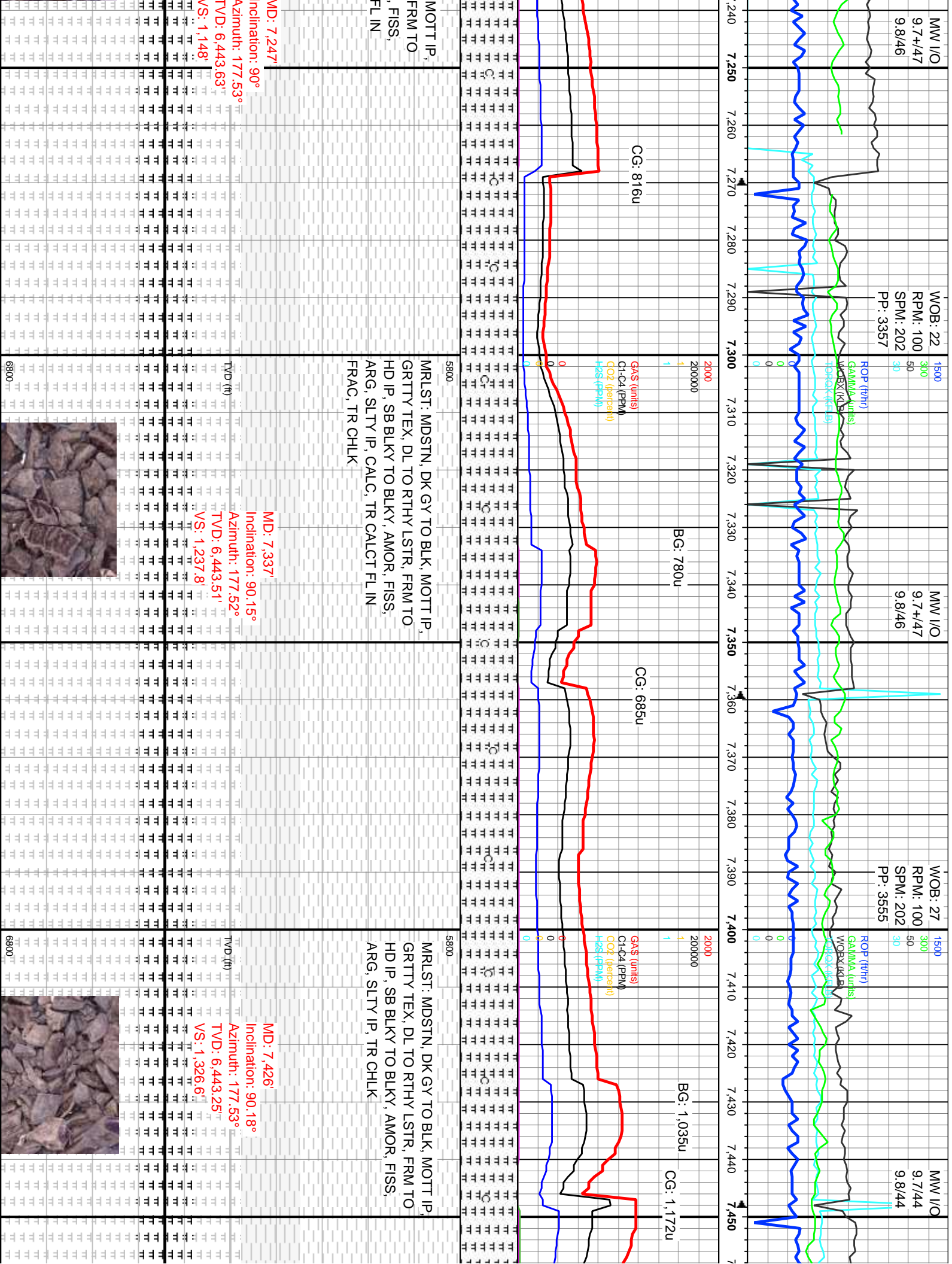












WOB: 23  
RPM: 100  
SPM: 202  
PP: 3311

MW I/O  
9.7/44  
9.8/44

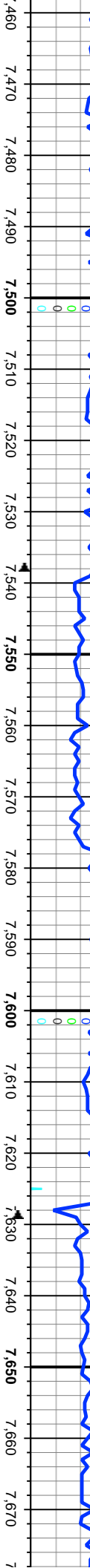
WOB: 27  
RPM: 100  
SPM: 202  
PP: 3330

ROP (ft/hr)

GAS (units)

WOBX (KLB)

TOPDRY (KLB)



BG: 1.025u

GAS (units)

G1.C4 (PPM)

G1.O2 (lbperbbl)

H2S (PPM)



CG: 1336u

5800

MM

90% MRLST: MDSTN, DK GY TO BLK IP,  
GRITTY TEX, RTHY LSTR, FRM, SB BLKY  
TO BLKY, AMOR, FISS, ARG, SLTY IP,  
10% CHK, MED GY, SB BLKY-BLKY, TR  
INTBDD MRLST, V CALC:

MD: 7.515'

Inclination: 90.18°

Azimuth: 177.24°

TVD: 6.442.97'

VS: 1.415.41'



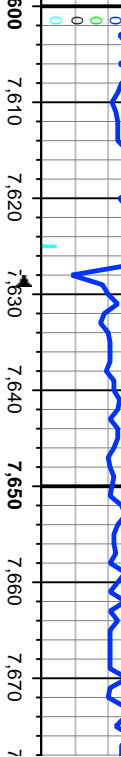
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RPM: 100  
SPM: 202  
PP: 3330

ROP (ft/hr)

GAS (units)

WOBX (KLB)

TOPDRY (KLB)



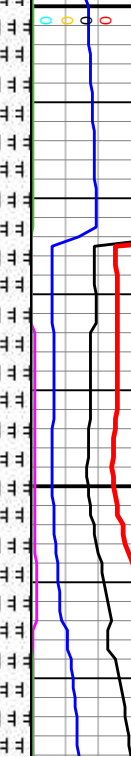
CG: 1155u

GAS (units)

G1.C4 (PPM)

G1.O2 (lbperbbl)

H2S (PPM)



5800

90% MRLST: MDSTN, DK GY, SL SM TO  
GRITTY TEX, RTHY LSTR, FRM, SB  
BLKY-BLKY, AMOR, SL FISS, ARG, SLTY  
IP,  
10% CHK, MED GY, SB BLKY-BLKY, TR  
INTBDD MRLST, V CALC:

MD: 7.605'

Inclination: 90.34°

Azimuth: 180.13°

TVD: 6.442.56'

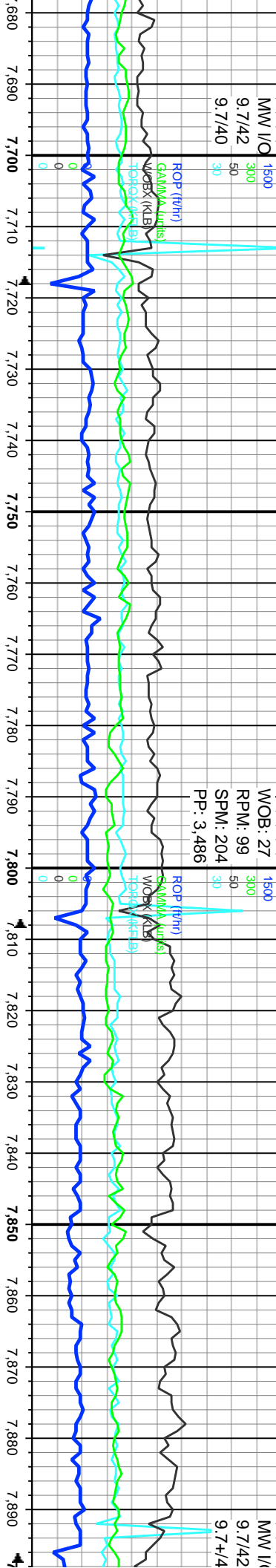
VS: 1.505.05'



MW I/O  
9.7/42  
9.7/40

1500  
300  
50  
30

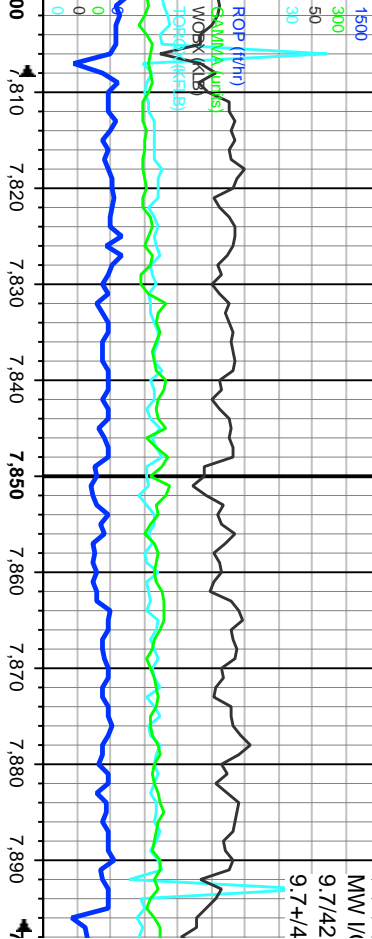
ROP (ft/hr)  
GAMMA (units)  
WOB (KLB)  
TORQ (KRB)



WOB: 27  
RPM: 99  
SPM: 204  
PP: 3.486

1500  
300  
50  
30

ROP (ft/hr)  
GAMMA (units)  
WOB (KLB)  
TORQ (KRB)



MW I/O  
9.7/42  
9.7+/4

CG: 1000

CG: 1042u

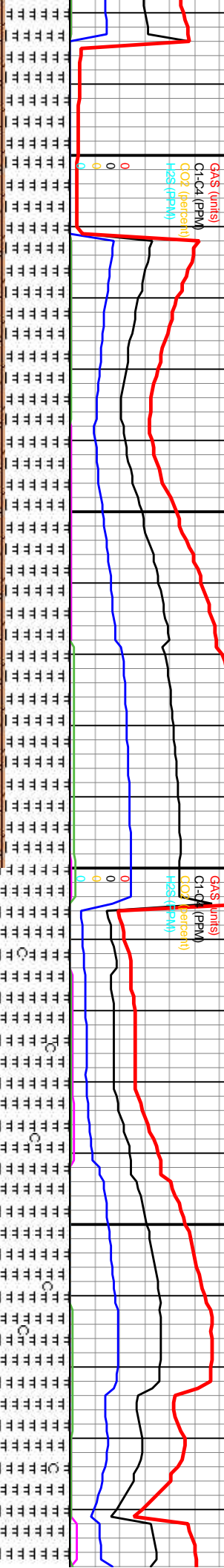
CG: 1482u

2000  
200000  
1  
1

2000  
200000  
1  
1

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)



5800  
90% MRLST: MDSTN, DK GY, SL SM TO  
GRITTY TEX, RTHY LSTR, FRM, SB  
BLKY-BLKY, AMOR, SL FISS, ARG, SLTY  
IP:  
10% CHK, MED GY, SB BLKY-BLKY, TR  
INTBDD MRLST, V CALC;

5800  
1000% MRLST: MDSTN, DK GY, SME BLK,  
SL SM TO GRITTY TEX, DULL-RTHY LSTR,  
FRM, SB BLKY-BLKY, AMOR, SL FISS, SL  
SLTY

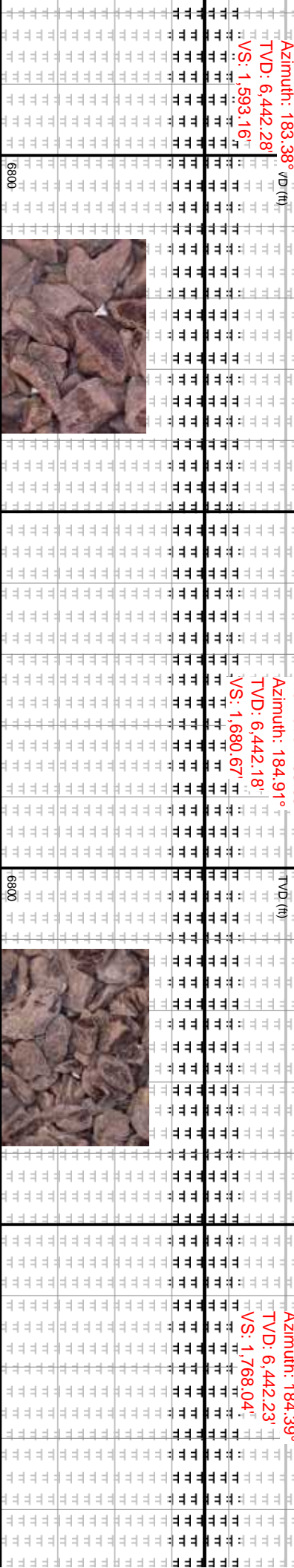
MD: 7.694'

Inclination: 90.03°

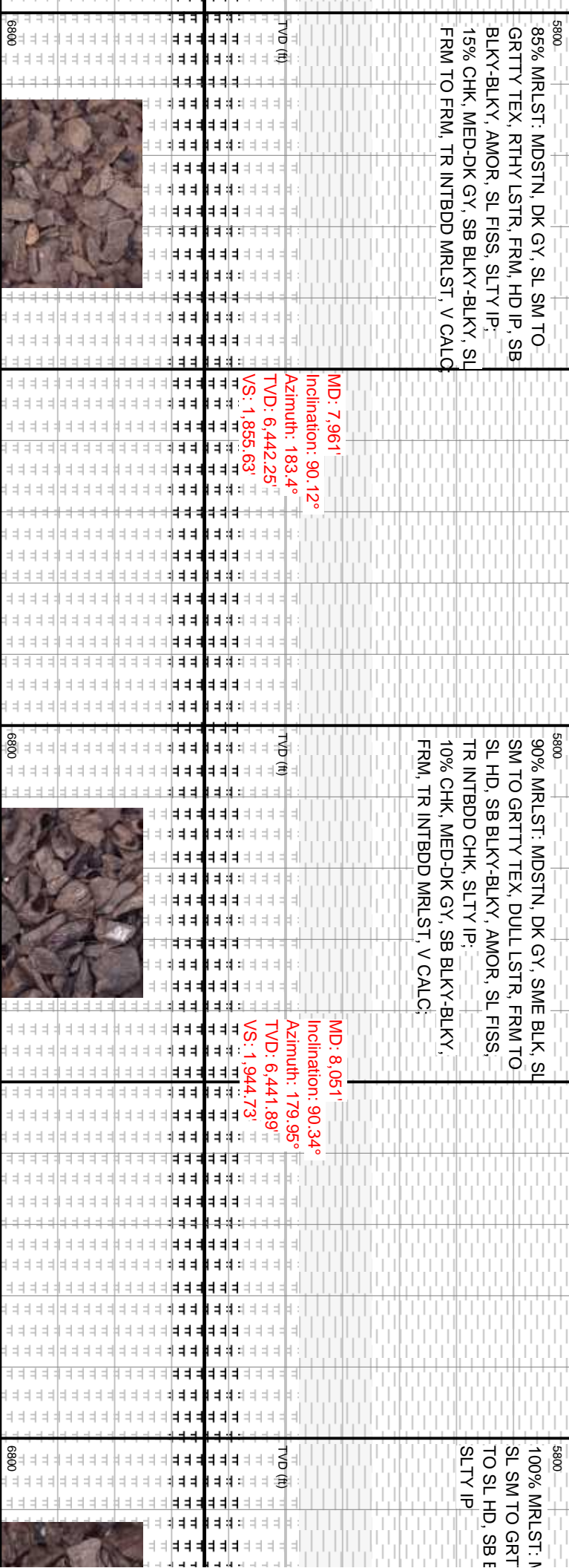
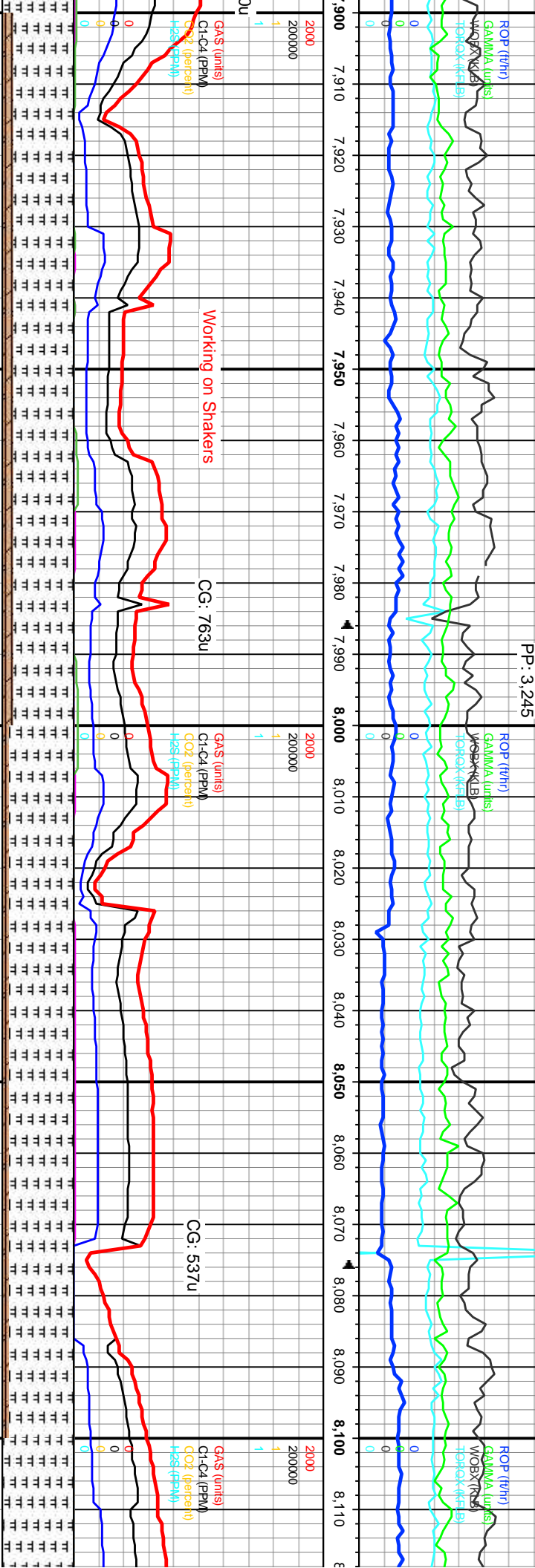
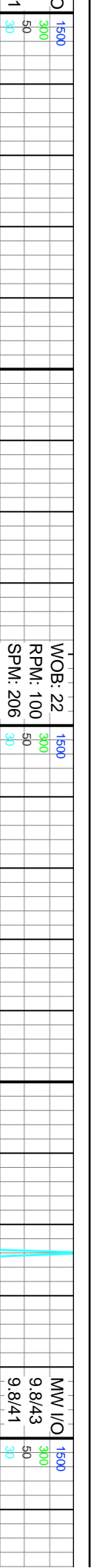
Azimuth: 183.38°

TVD: 6.442.28'

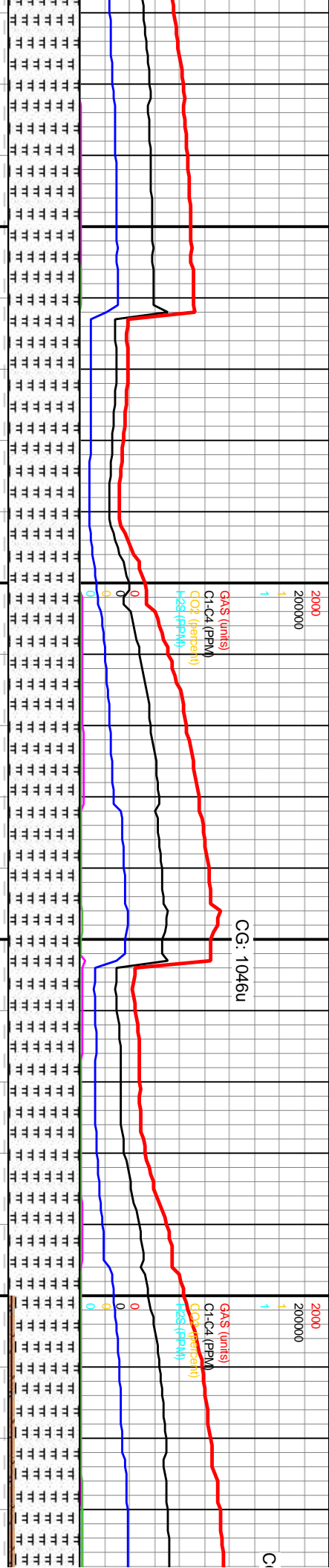
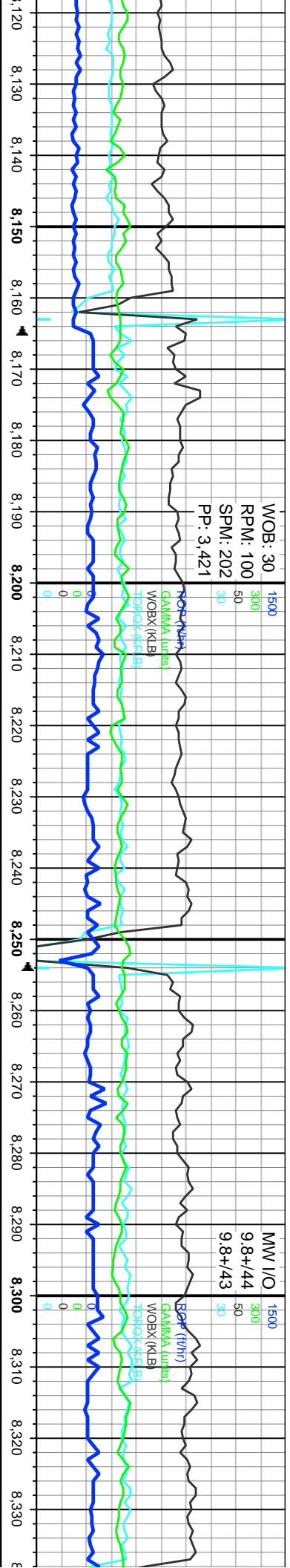
VS: 1.593.16'






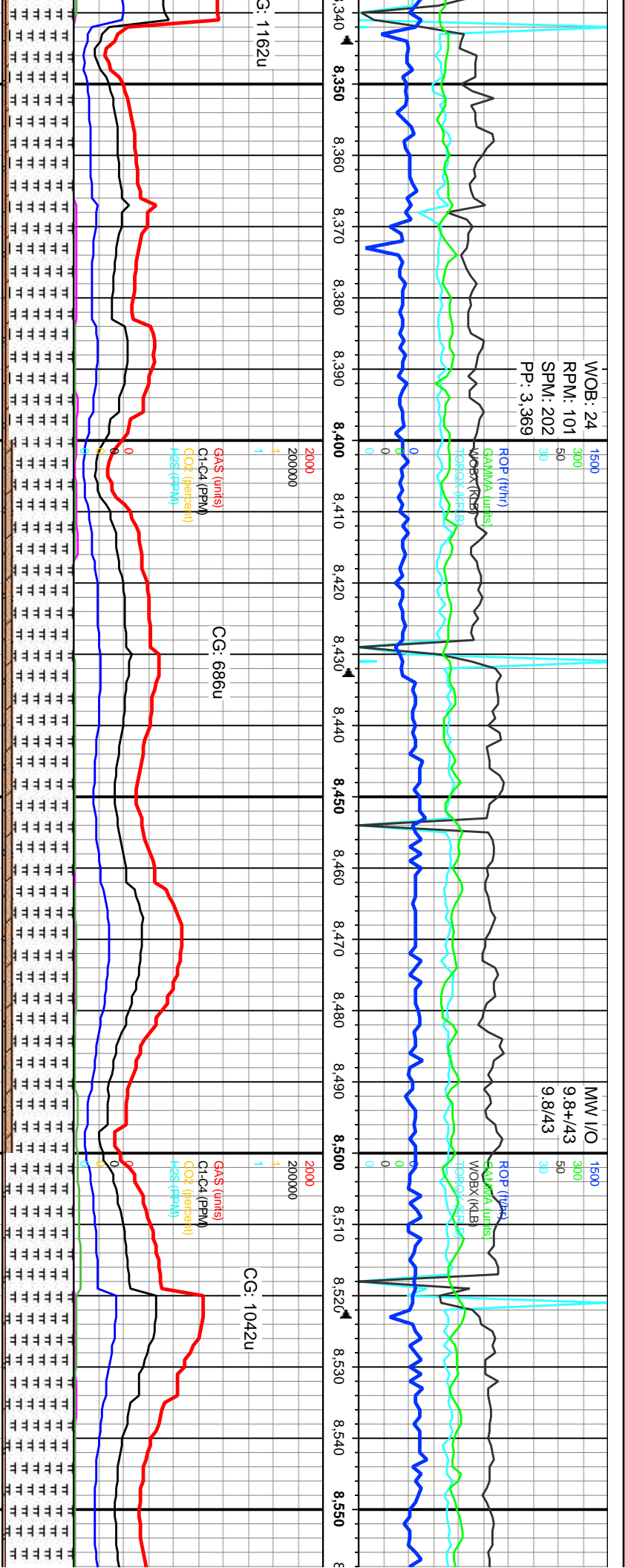








MDSTN, DK GY, SWE BLK, TY TEX, DULL LSTR, FRM BLKY-BLKY, AMOR, SL FISS,	MD: 8,140' Inclination: 90.15° Azimuth: 176.23° TVD: 6,441.51' VS: 2,033.45'		5800 100% MRLST: MDSTN, DK GY TO BLK, GRITTY TEX, DULL TO RTHY LSTR, FRM TO SL HD, SB BLKY-BLKY, AMOR, SL FISS, SL TY IP	
	TVD (ft)			
	VS: 2,033.45'			
MDSTN, DK GY, SWE BLK, TY TEX, DULL LSTR, FRM BLKY-BLKY, AMOR, SL FISS,	MD: 8,230' Inclination: 90.22° Azimuth: 174.31° TVD: 6,441.22' VS: 2,123.41'		5800 90% MRLST: MDSTN, DK GY TO BLK, GRITTY TEX, DULL TO RTHY LSTR, FRM TO SL HD, SB BLKY-BLKY, AMOR, SL FISS, SL TY IP	
	TVD (ft)			
	VS: 2,123.41'			
MDSTN, DK GY, SWE BLK, TY TEX, DULL LSTR, FRM BLKY-BLKY, AMOR, SL FISS,	MD: 8,319' Inclination: 89.78° Azimuth: 174.37° TVD: 6,441.22' VS: 2,212.41'		5800 90% MRLST: MDSTN, DK GY TO BLK, GRITTY TEX, DULL TO RTHY LSTR, FRM TO SL HD, SB BLKY-BLKY, AMOR, SL FISS, SL TY IP	
	TVD (ft)			
	VS: 2,212.41'			




MW I/O  
9.8+/43  
9.8/43


85% MRLST: MDSTN, DK GY, SL SM TO  
GRITTY TEX, RTHY LSTR, FRM, HD IP, SB  
BLKY-BLKY, AMOR, SL FISS, SLTY IP;  
15% CHK, MED-DK GY, SB BLKY-BLKY, SL  
FRM TO FRM, V CALC;

95% MRLST: MDSTN, DK GY TO BLK, SL  
SM TO GRITTY TEX, DULL TO RTHY LSTR,  
FRM TO SL HD, SB BLKY-BLKY, AMOR, SL  
FISS, SL SLTY IP;  
5% CHK, MED GY, SB BLKY-BLKY, SL FRM  
TO FRM IP, V CALC

MD: 8,409  
Inclination: 89.91°  
Azimuth: 176.68°  
TVD: 6,441.46'  
VS: 2,302.35'



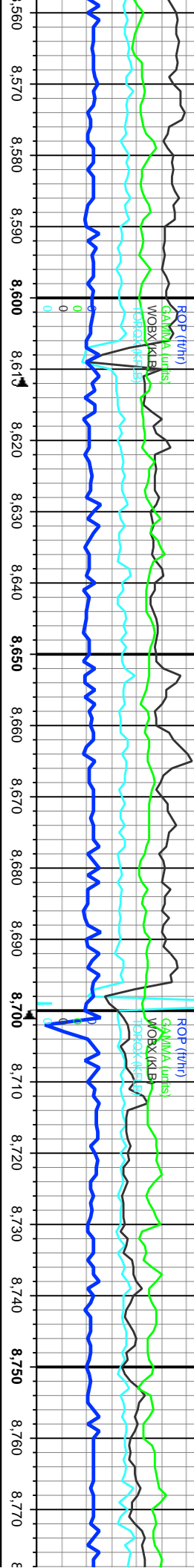
MD: 8,498  
Inclination: 89.85°  
Azimuth: 177.72°  
TVD: 6,441.66'  
VS: 2,391.18'



WOB: 27  
RPM: 100  
SPM: 202  
PP: 3.479

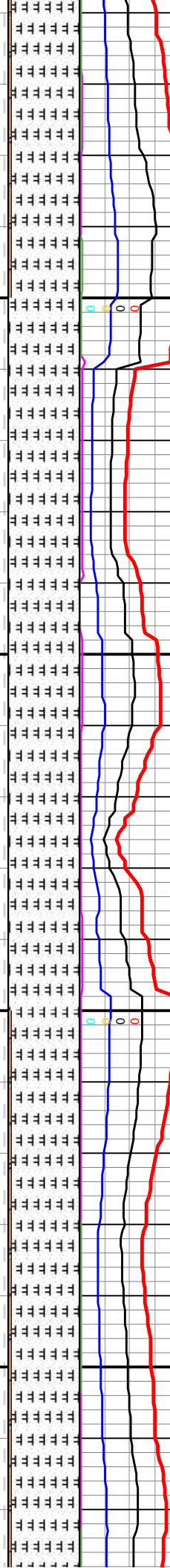
MINDEPTH  
6/7/2019  
8,637' MD

NW I/O  
9.8/44  
9.9/43



GAAS (units)  
C1-C4 (ppm)  
C02 (lb)  
CG: 735u

GAAS (units)  
C1-C4 (ppm)  
C02 (lb)  
CG: 763u



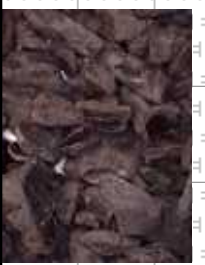
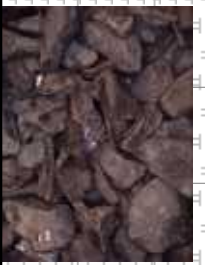
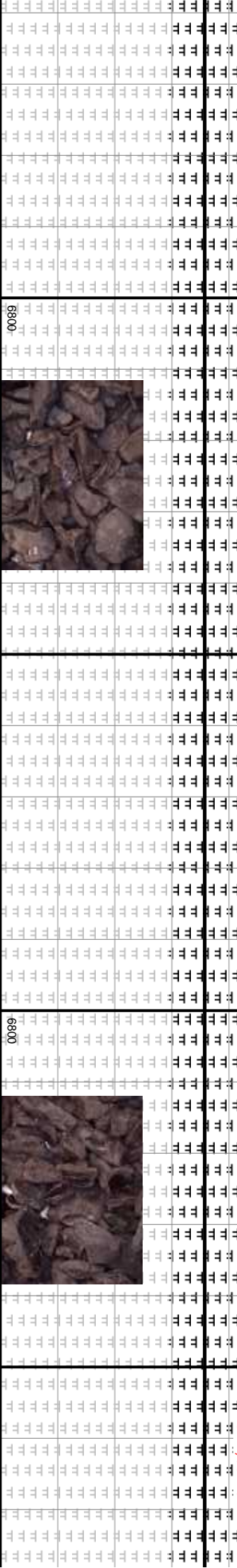
100% MR.LST: MDSTN, DK GY TO BLK,  
GR.TTY TEX, DULL TO RTHY LSTR, FRM  
TO SL HD IP, SB BLKY-BLKY, AMOR, SL  
FISS, SL SLTY IP

95% MR.LST: MDSTN, DK GY TO BLK, SL  
SM TO GR.TTY TEX, DULL TO RTHY LSTR,  
FRM TO SL HD, SB BLKY-BLKY, AMOR, SL  
FISS, SL SLTY IP:  
5% CHK, MED GY, SB BLKY-BLKY, SL FRM  
TO FRM IP, V CALC

MD: 8,588'  
Inclination: 89.51°  
Azimuth: 178.66°  
TVD: 6,442.15'  
VS: 2,480.9'

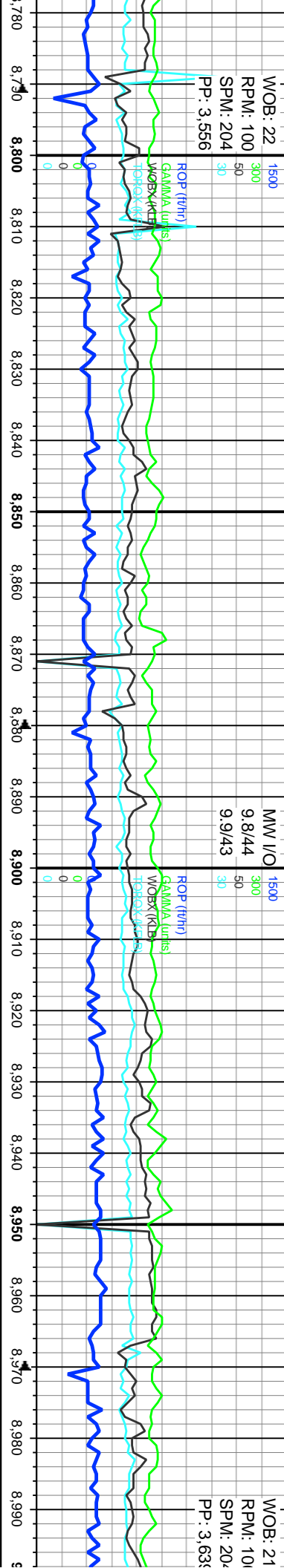
MD: 8,677'  
Inclination: 90.06°  
Azimuth: 179.87°  
TVD: 6,442.49'  
VS: 2,569.47'

MD: 8,766'  
Inclination: 90.28°  
Azimuth: 181.17°  
TVD: 6,442.22'  
VS: 2,657.84'



WOB: 22  
RPM: 100  
SPM: 204  
PP: 3.556

WOB: 21  
RPM: 100  
SPM: 204  
PP: 3.630



CG: 659u

CG: 646u

CG: 736u

Gas (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

Gas (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

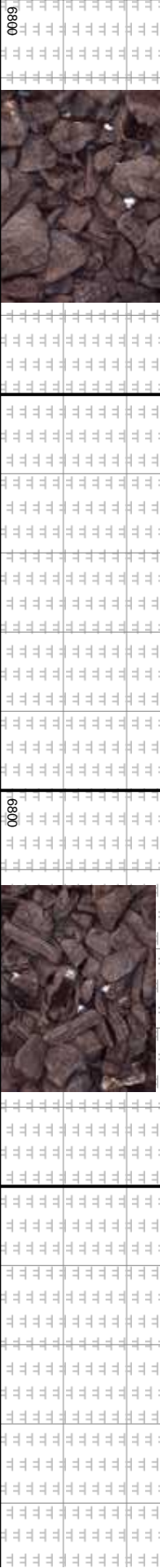
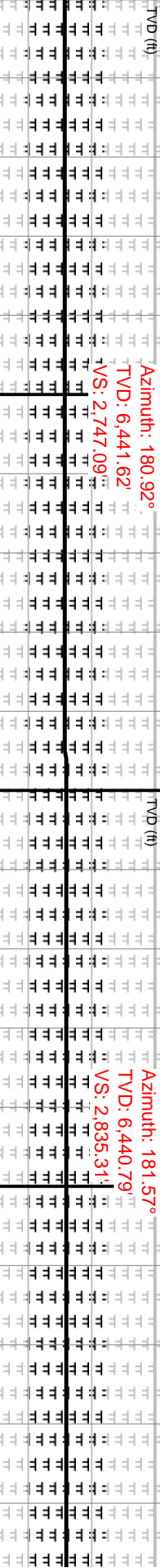
Gas (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

100% MRLST: MDSTN, DK GY TO BLK,  
GRITTY TEX, RTHY LSTR, FRM TO SL HD  
IP, SB BLKY-BLKY, AMOR, SL FISS, SL  
SLTY IP, TR CHK

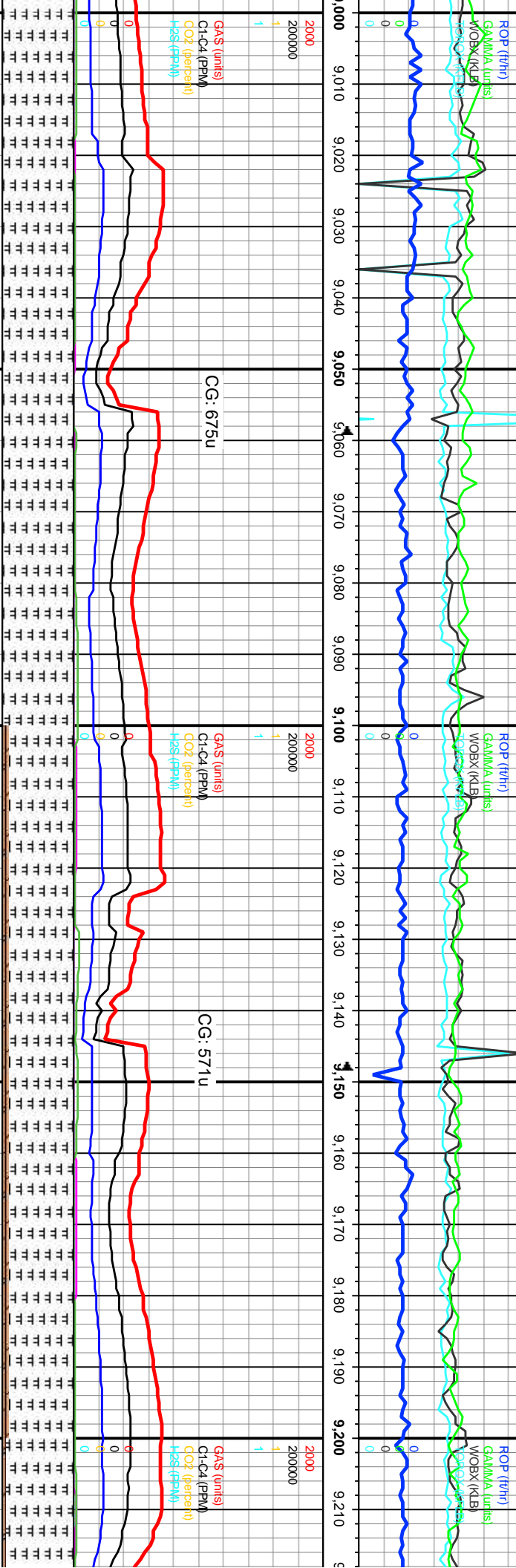
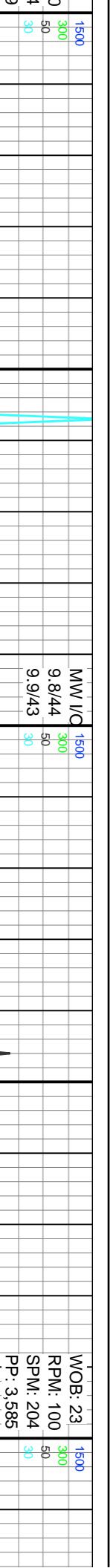
100% MRLST: MDSTN, DK GY TO BLK,  
GRITTY TEX, DULL LSTR, FRM TO SL HD,  
SB BLKY-BLKY, AMOR, SL FISS IP, SL  
SLTY IP, SL CHKY IP

MD: 8.856'  
Inclination: 90.49°  
Azimuth: 180.92°  
TVD: 6,441.62'  
VS: 2,747.09'

MD: 8.945'  
Inclination: 90.58°  
Azimuth: 181.57°  
TVD: 6,440.79'  
VS: 2,835.31'







5800

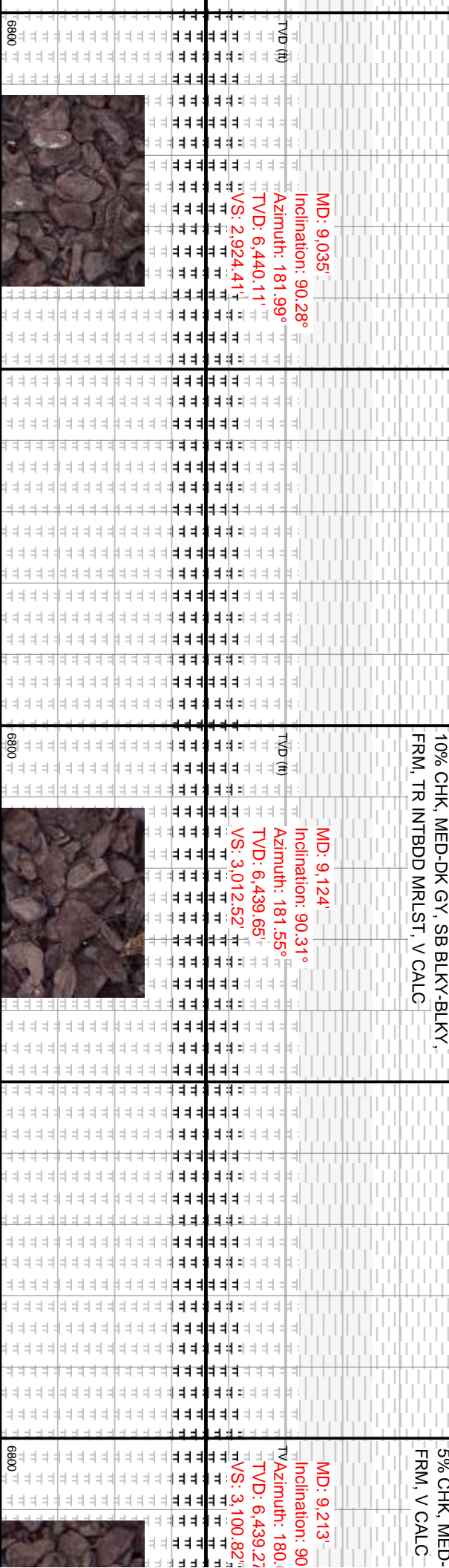
100% MRLST: MDSTN, DK GY, GRITTY  
TEX, RTHY LSTR, FRM TO SL HD, SB  
BLKY-BLKY, AMOR, SL FISS IP, SL SLTY  
IP, SL CHKY IP

5800

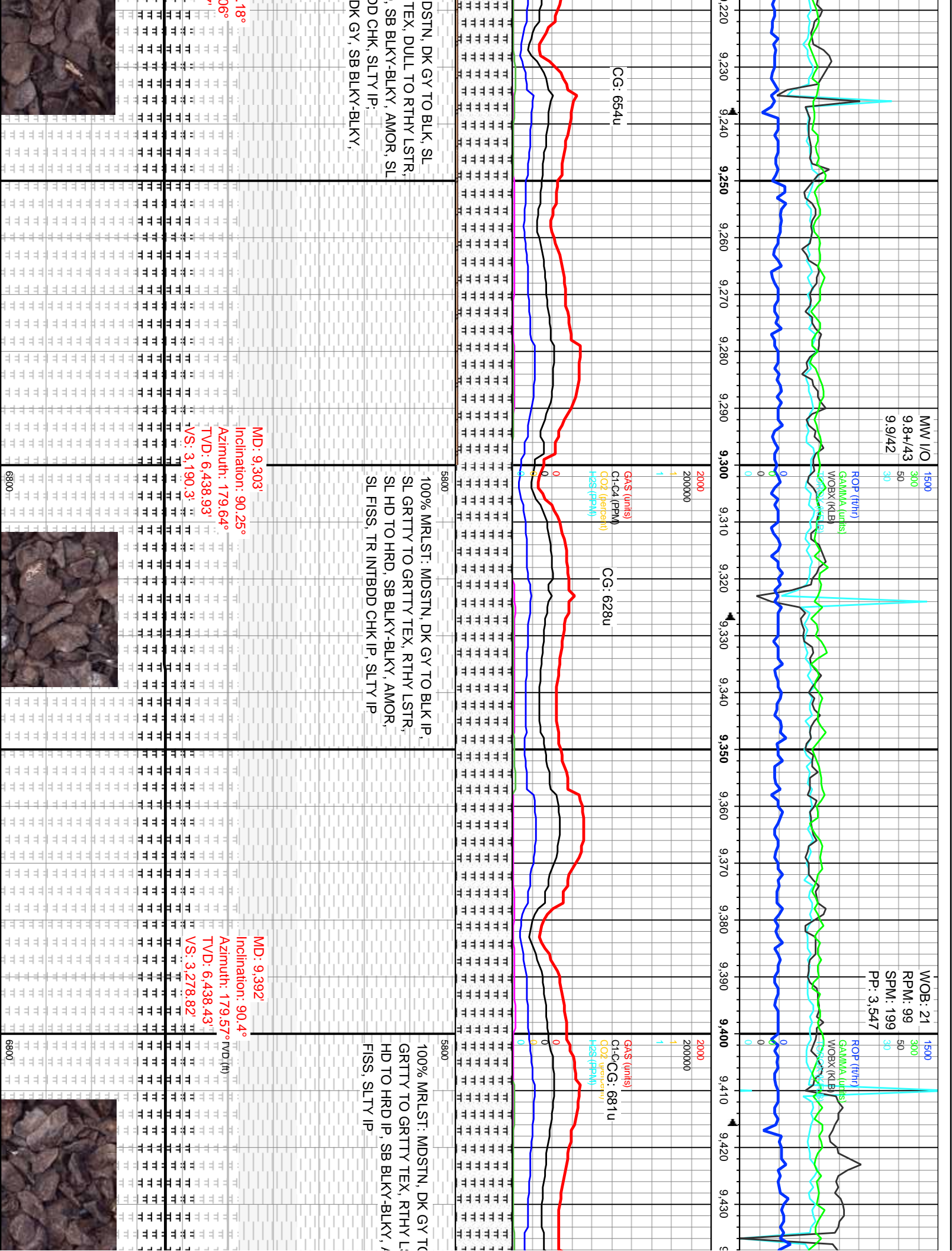
90% MRLST: MDSTN, DK GY, SME BLK, SL  
SM TO GRITTY TEX, DULL LSTR, FRM TO  
SL HD, SB BLKY-BLKY, AMOR, SL FISS,  
TR INTBDD CHK, SLTY IP:  
10% CHK, MED-DK GY, SB BLKY-BLKY,  
FRM, TR INTBDD MRLST, V CALC

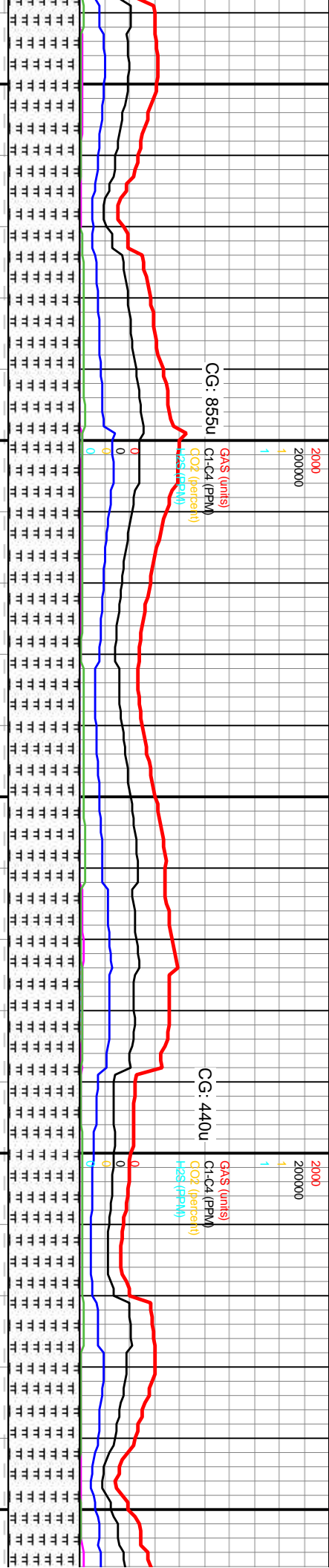
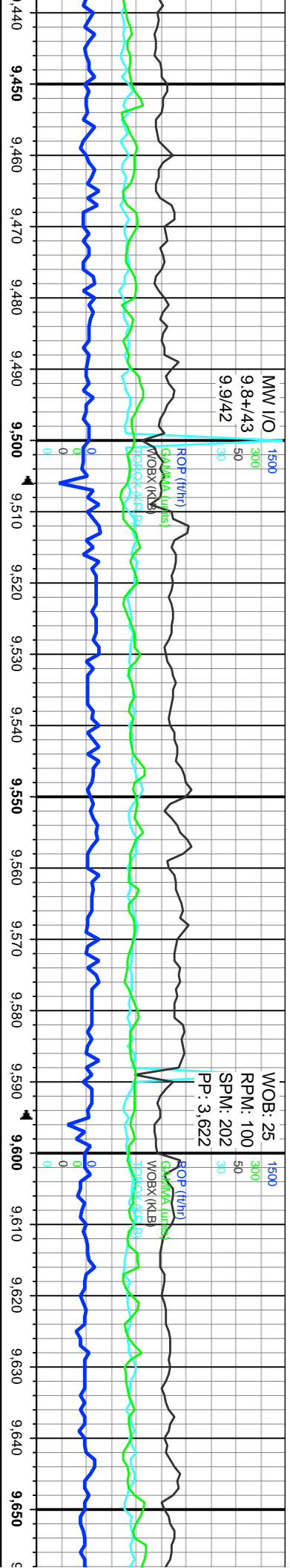
5800

95% MRLST: M  
SM TO GRITTY  
SL HD TO HRD  
FISS, TR INTB  
5% CHK, MED-  
FRM, V CALC









AMOR, SL

100% MRLST: MDSTN, DK GY TO BLK,  
SL GRITTY TO GRITTY TEX, DULL TO  
RTHY LSTR, SL HD, SB BLKY-BLKY,  
AMOR, SL FISS, SLTY IP

100% MRJST: MDSTN, DK GY TO BLK,  
SL GRITTY TEX, DULL LSTR, SL HD, SB  
BLKY-BLKY, AMOR, SL FISS, SLTY IP

MD: 9,481'  
Inclination: 90.46°  
Azimuth: 178.82°  
TVD: 6,437.76'  
VS: 3,367.41'

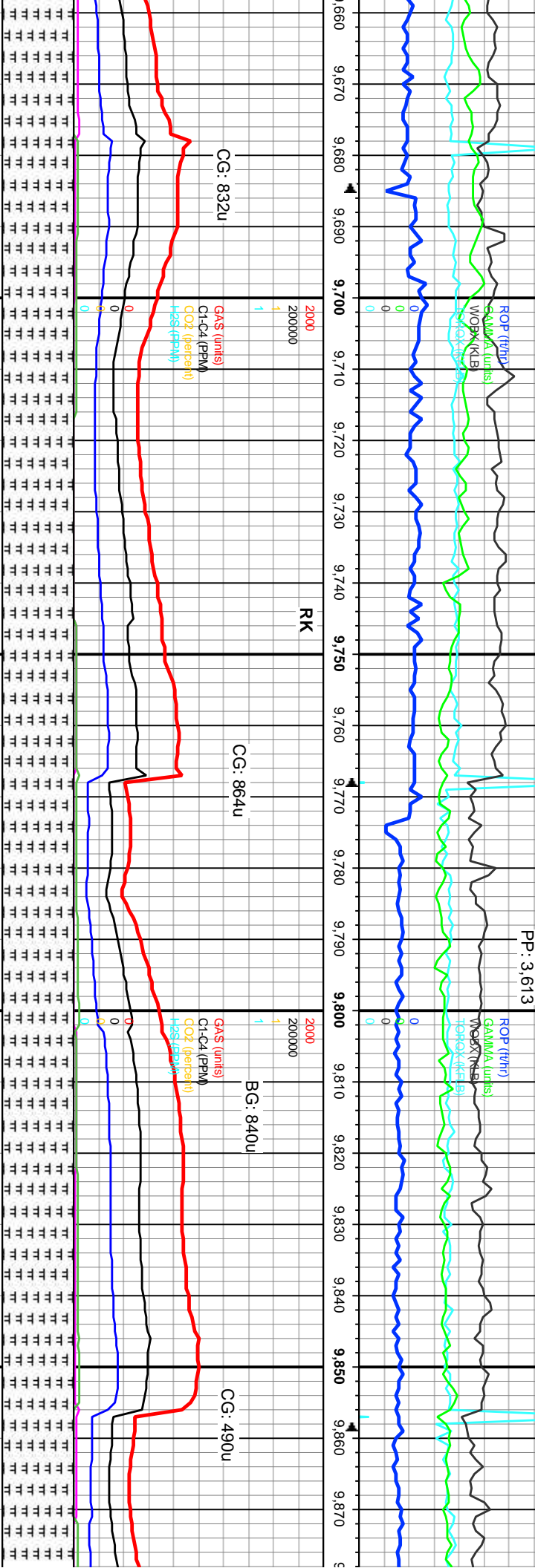
MD: 9,571'  
Inclination: 89.75°  
Azimuth: 177.42°  
TVD: 6,437.6'  
VS: 3,457.13'

MD: 9, €  
Inclinati  
Azimuth  
TVD: 6,  
VS: 3,5



NW I/O  
9.8/43  
9.9+/43

WOB: 22  
RPM: 100  
SPM: 204  
PP: 3.613



100% MRLST: MDSTN, DK GY TO BLK,  
SL GRITTY TEX, DULL LSTR, SL HD, SB  
BLKY-BLKY, AMOR, SL FISS, SLTY IP

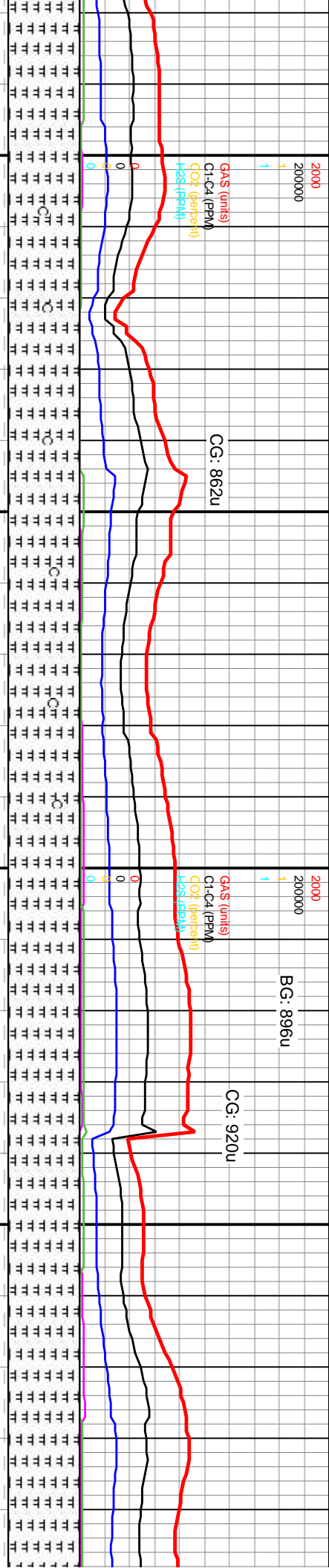
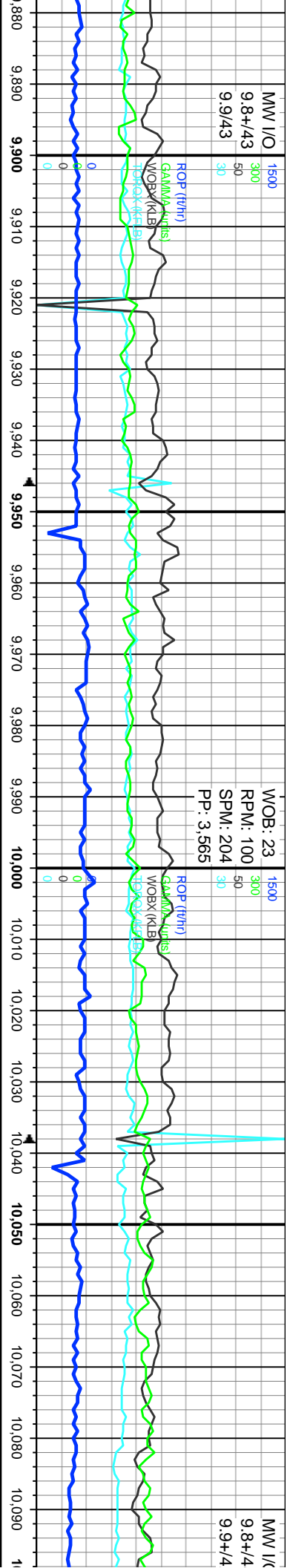


MD: 9,749'  
Inclination: 91.32°  
Azimuth: 176.21°  
TVD: 6,433.94'  
VS: 3,634.8'

100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, DULL LSTR, SL HD, SB  
BLKY-BLKY, AMOR, SL FISS, SLTY IP



MD: 9,839'  
Inclination: 89.54°  
Azimuth: 174.87°  
TVD: 6,433.26'  
VS: 3,724.75'



100% MRLST: MDSTN, DK GY TO BLK, SL  
GRTTY TEX, SM IP, DL TO RTHY LSTR,  
FRM TO MOD HD, SB BLKY TO BLKY,  
AMOR, SB FISS TO FISS, SLTY IP, CALC,  
TR CHLK

100% MRLST. MDSTN, DK GY TO BLK, SGRITTY TEX, SM IP, DL TO RTHY LSTR, FRM TO MOD HD, SB BLKY TO BLKY, AMOR, SB FISS TO FISS, SLTY IP, CALC

MD: 9,928'  
Inclination: 90.06°

MD: 10,018'  
Inclination: 89.69°

TVD (ft)      Azimuth: 175.7°  
 TVD: 6,433.57'

TVD (ft) Azimuth: 177.54  
TVD: 6,433.77'

VS: 3,813.71'

VS: 3,903.59'

[illegible]

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99	99	99
100	100	100

$$\begin{array}{r} 43 = \\ 44 = \\ \hline 45 = \\ 46 = \\ 47 = \\ \hline 48 = \\ 49 = \end{array}$$
[illegible]

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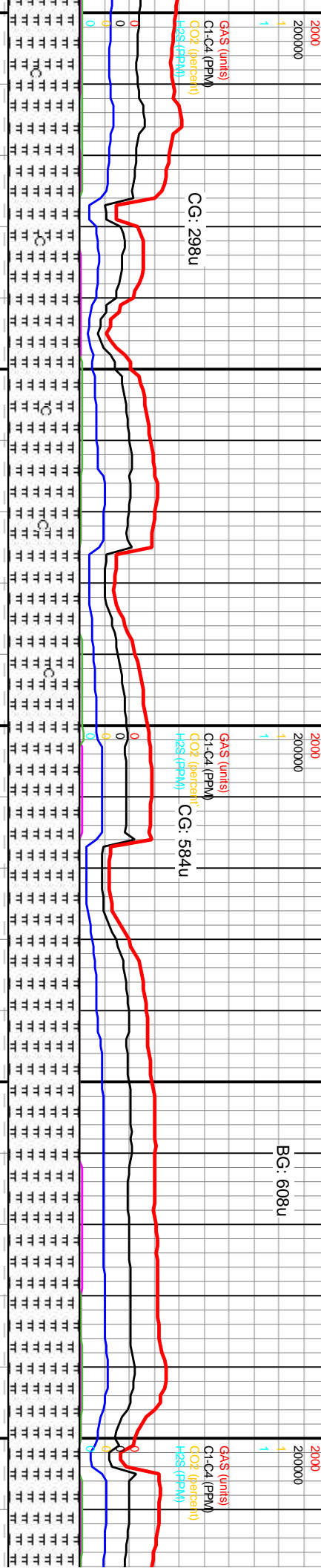
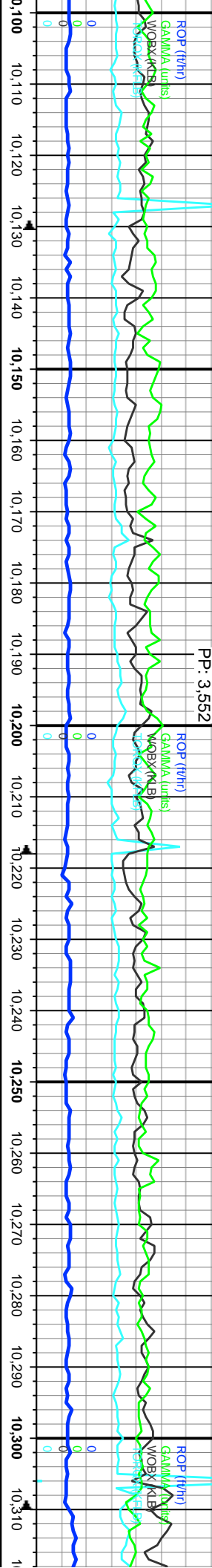
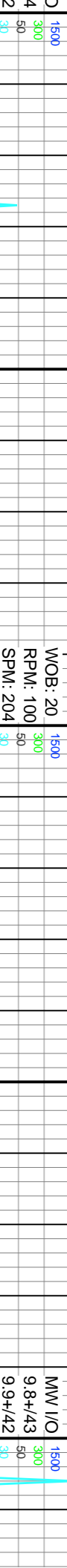
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10







5800

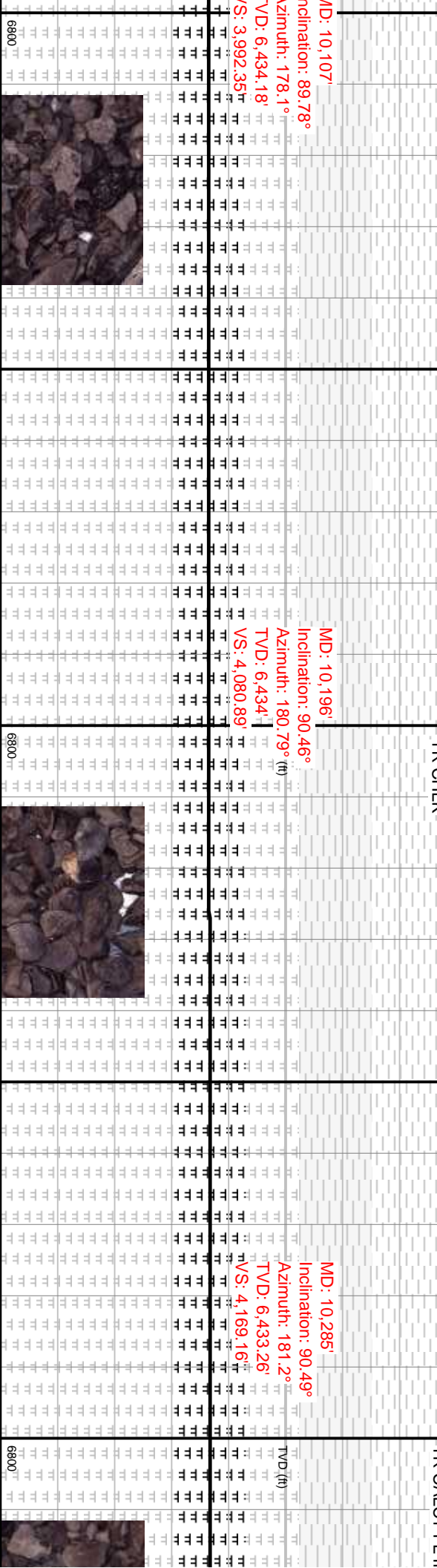
100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, DL TO RTHY LSTR,  
FRM TO MOD HD, SB BLKY TO BLKY,  
AMOR, SB FISS TO FISS, SLTY IP, CALC

5800

100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, DL TO RTHY LSTR,  
FRM TO MOD HD, SB BLKY TO BLKY,  
AMOR, SB FISS TO FISS, SLTY IP, CALC,  
TR CHLK

5800

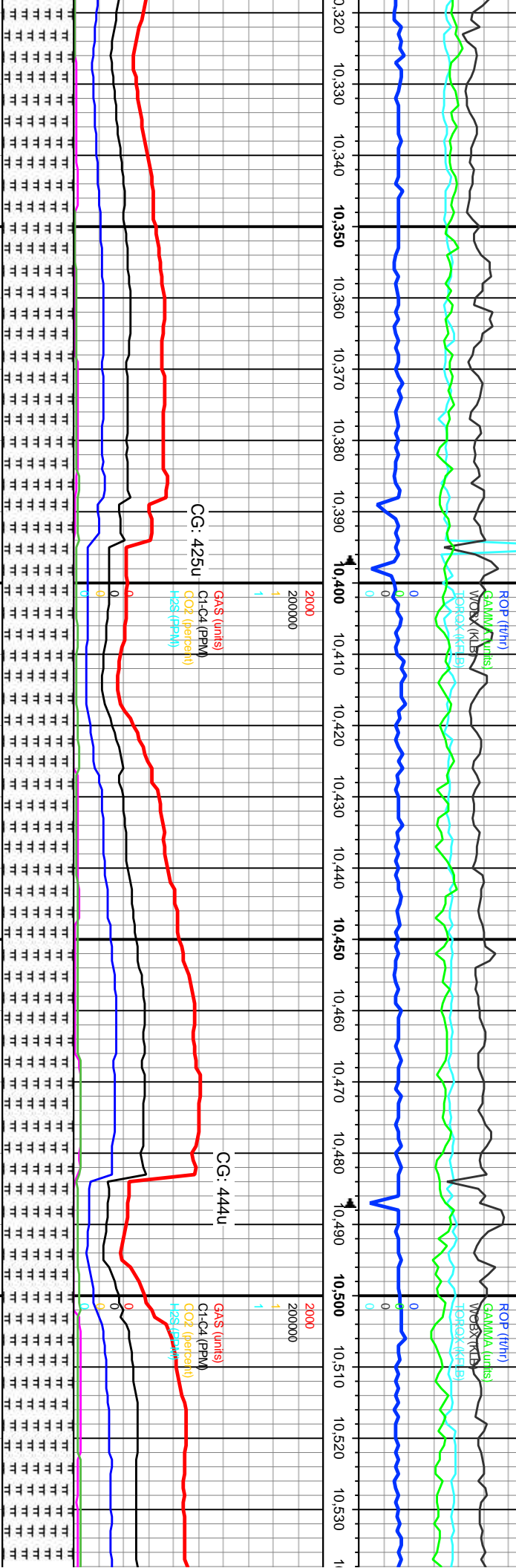
100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, DL TO RTHY LSTR,  
FRM TO MOD HD, SB BLKY TO BLKY,  
AMOR, SB FISS TO FISS, SLTY IP, CALC,  
TR CHLK





WOB: 25  
RPM: 100  
SPM: 202  
PP: 3.669

NW I/O  
9.9/43  
10.0/42



MDSTN, DK GY TO BLK, SL  
A IP, DL TO RTHY LSTR,  
ID, SB BLKY TO BLKY,  
TO FISS, SLTY IP, CALC,  
N FRAC

100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, DL TO RTHY LSTR, SB  
WXY IP, FRM TO MOD HD, SB BLKY TO  
BLKY, AMOR, SB FISS TO FISS, SLTY IP,  
CALC, TR CALC FL IN FRAC IP

100% MRLST: MDSTN, DK GY TO  
SL GRITTY TEX, SM IP, DL TO R  
LSTR, SB WXY IP, FRM TO MOD  
BLKY TO BLKY, AMOR, SB FISS  
SLTY IP, CALC, TR CALC FL IN

MD: 10,374'  
Inclination: 90.43°  
Azimuth: 182.42°  
TVD: 6,432.54'  
VS: 4,257.26'

MD: 10,464'  
Inclination: 90.43°  
Azimuth: 179.62°  
TVD: 6,431.87'  
VS: 4,346.51'

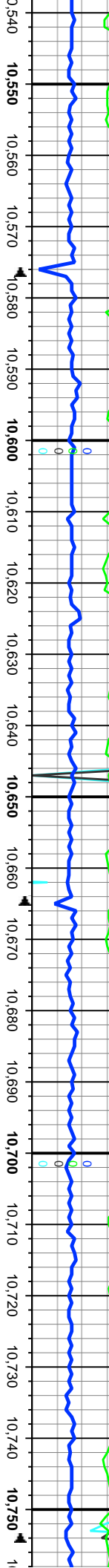


WOB: 24  
RPM: 100  
SPM: 202  
PP: 3.695

NW I/O  
9.9/43  
10.0/42

ROP (ft/h)  
GAMMA (units)  
WOBX (KLB)  
TDRX (KLB)

ROP (ft/h)  
GAMMA (units)  
WOBX (KLB)  
TDRX (KLB)



BG: 1,005u

BG: 1,037u

BG: .992u

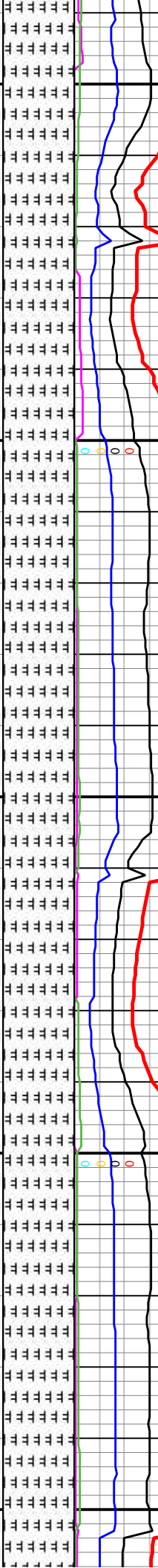
CG: 891u

CG: 894u

CG: 640u

GAS (units)  
C1-C4 (PPM)  
H2S (PPM)

GAS (units)  
C1-C4 (PPM)  
H2S (PPM)



100% MRLST: MDSTN, DK GY TO  
BLK, SL GRITTY TEX, SM IP, DL TO  
RTHY LSTR, SB WXY IP, FRM TO MOD  
HD, SB BLKY TO BLKY, AMOR, SB  
FISS TO FISS, SLTY IP, CALC, TR  
CALCT FL IN FRAC IP

100% MRLST: MDSTN, DK GY TO  
BLK, SL GRITTY TEX, SM IP, DL TO  
RTHY LSTR, SB WXY IP, FRM TO MOD  
HD, SB BLKY TO BLKY, AMOR, SB  
FISS TO FISS, SLTY IP, CALC, TR  
CALCT FL IN FRAC IP

100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, DL TO RTHY LSTR, SB  
WXY IP, FRM TO MOD HD, SB BLKY TO  
BLKY, AMOR, SB FISS TO FISS, SLTY IP,  
CALC, TR CALCT FL IN FRAC IP

MD: 10,553'

Inclination: 90.15°

Azimuth: 181.98°

TVD: 6,431.42'

VS: 4,434.81'

MD: 10,642'

Inclination: 90.37°

Azimuth: 183.94°

TVD: 6,431.01'

VS: 4,522.64'

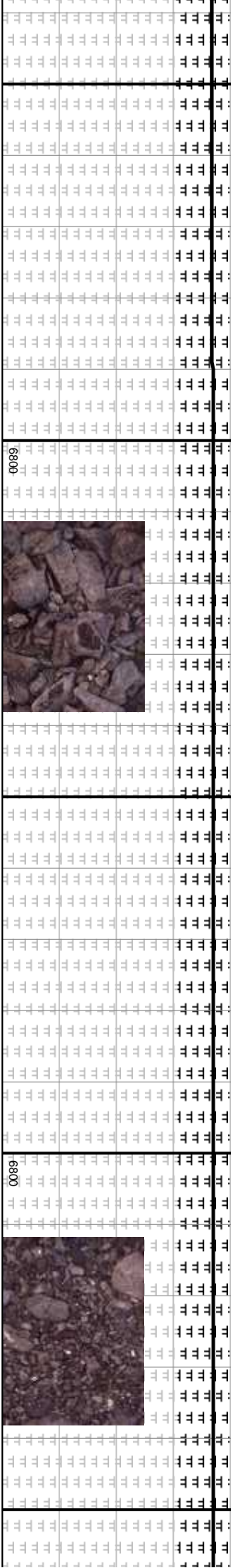
MD: 10,732'

Inclination: 90.31°

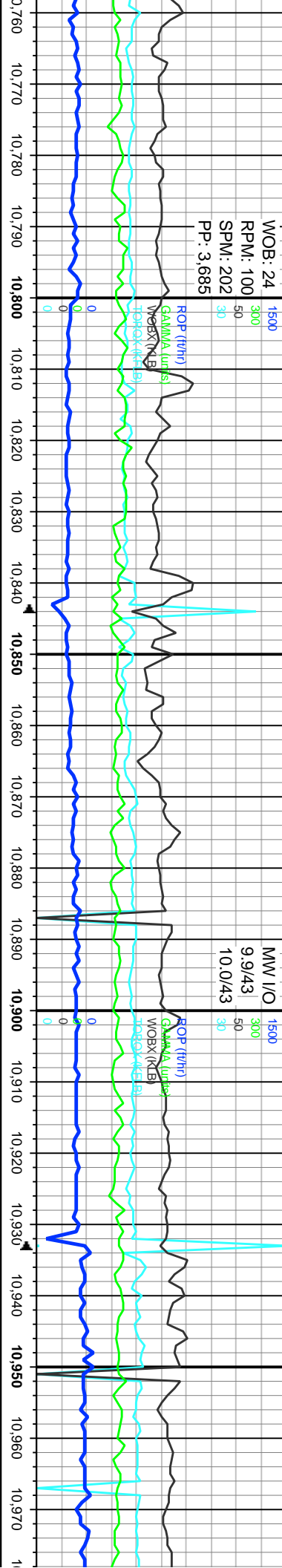
Azimuth: 184.41°

TVD: 6,430.48'

VS: 4,611.13'



WOB: 24  
RPM: 100  
SPM: 202  
PP: 3.685



NW I/O  
9.9/43  
10.0/43

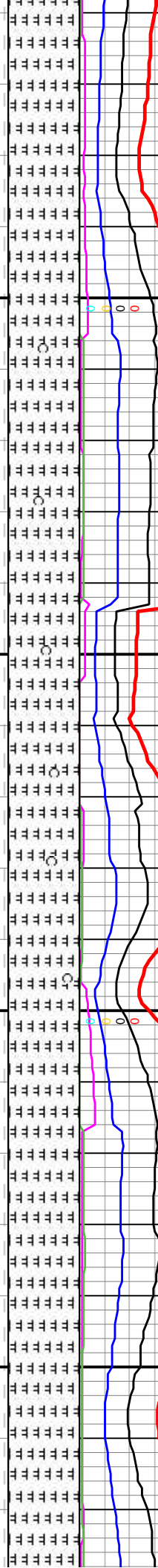
200  
200000  
BG: 1.006u

CG: 473u

GAS (units)  
C1-C4 (PPM)  
H2S (PPM)

GAS (units)  
C1-C4 (PPM)  
CO2 (PPM)  
H2S (PPM)

CG: 1.059u



100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, DL TO RTHY LSTR, SB  
WXY IP, FRM TO MOD HD, SB BLKY TO  
BLKY, AMOR, SB FISS TO FISS, SLTY IP,  
CALC, TR CALCT FL IN FRAC IP

100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, DL TO RTHY LSTR, SB  
WXY IP, FRM TO MOD HD, SB BLKY TO  
BLKY, AMOR, SB FISS TO FISS, SLTY IP,  
CALC, TR CALCT FL IN FRAC IP, TR  
CHLK

MD: 10.822'

Inclination: 90.37°

Azimuth: 183.78°

TVD: 6.429.95'

VS: 4.699.64'



MD: 10.911'

Inclination: 90.18°

Azimuth: 181.18°

TVD: 6.429.52'

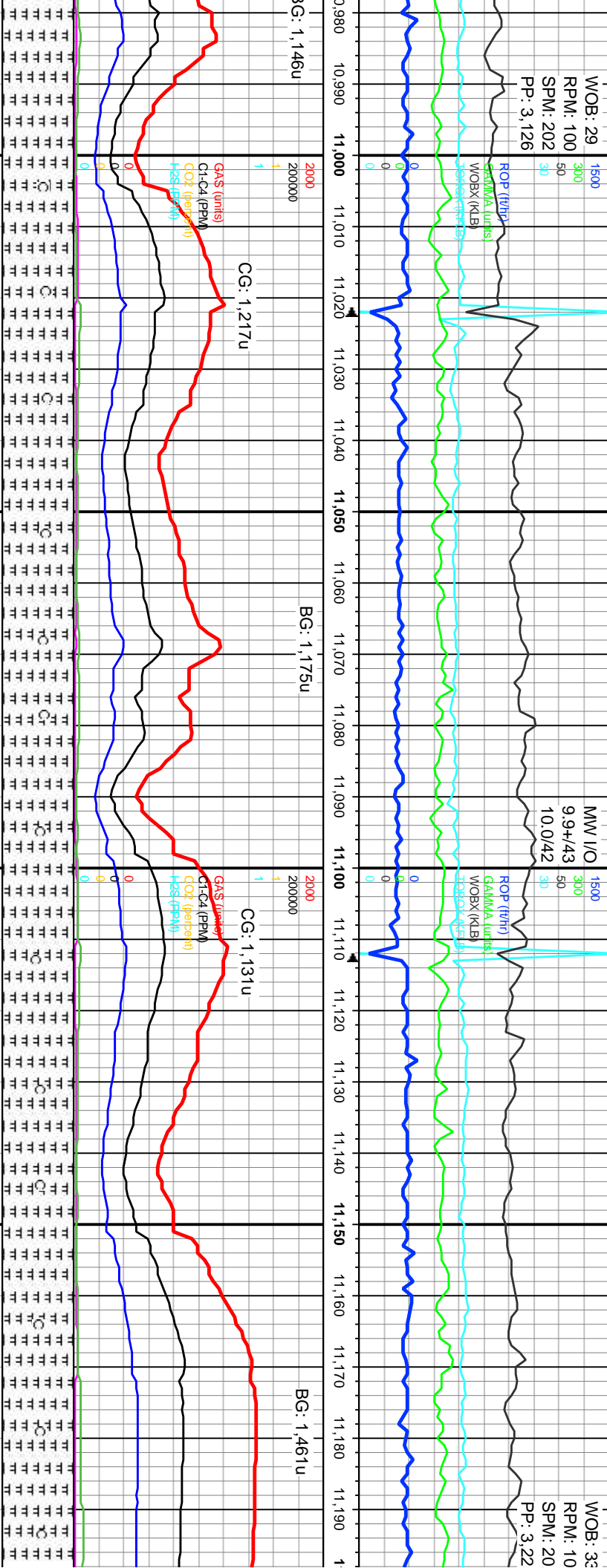
VS: 4.787.58'



WOB: 29  
RPM: 100  
SPM: 202  
PP: 3.126

MW I/O  
9.9+/43  
10.0/42

WOB: 33  
RPM: 10  
SPM: 20  
PP: 3.22



SAMPLE CONTAMINATED

MD: 11,000'  
Inclination: 90.03°  
Azimuth: 180.56°  
TVD: 6,429.36'  
VS: 4.875.88'

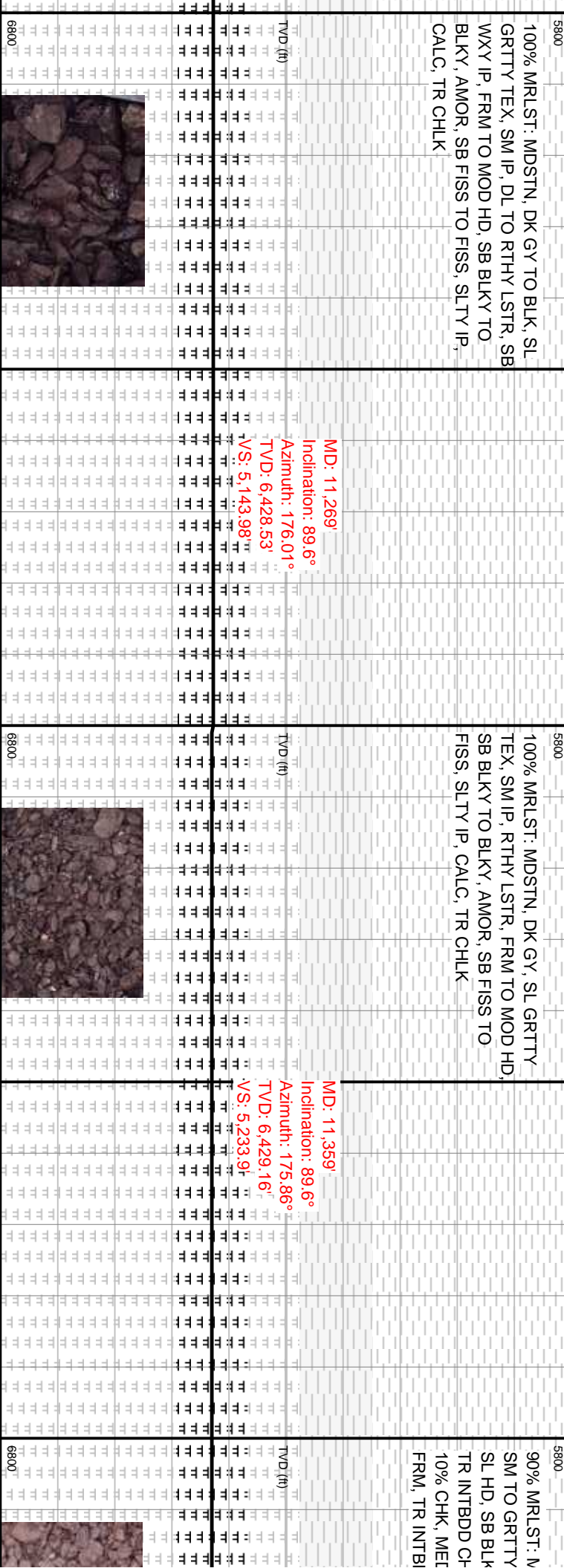
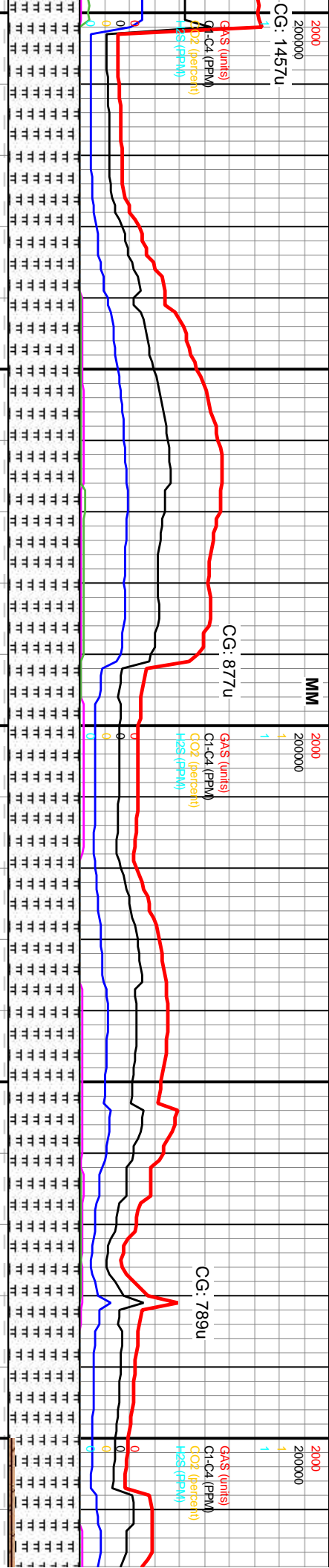
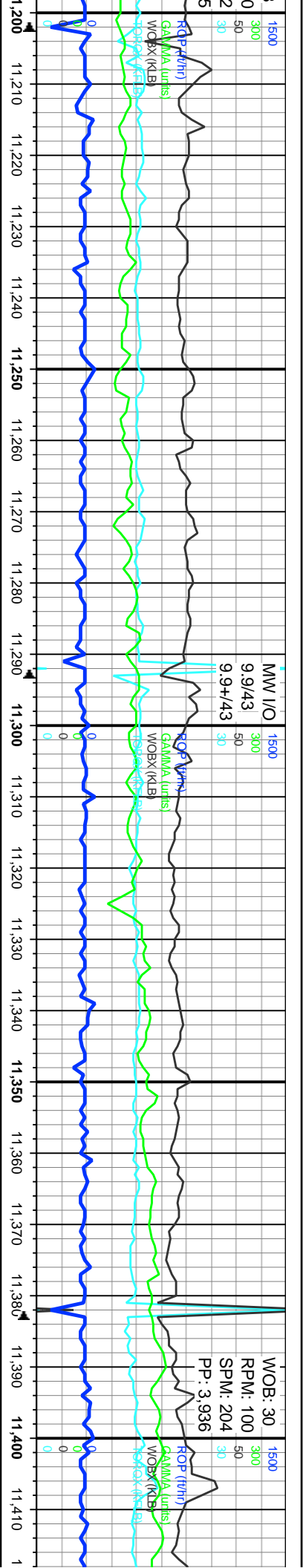
MD: 11,090'  
Inclination: 90.28°  
Azimuth: 178.96°  
TVD: 6,429.11'  
VS: 4.965.37'

100% MRIST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, DL TO RTHY LSTR, SB  
WXY IP, FRM TO MOD HD, SB BLKY TO  
BLKY, AMOR, SB FISS TO FISS, SLTY IP,  
CALC, TR CALC FL IN FRAC IP, TR CHLK

MD: 11,180'  
Inclination: 90.43°  
Azimuth: 177.25°  
TVD: 6,428.55'  
VS: 5.055.11'



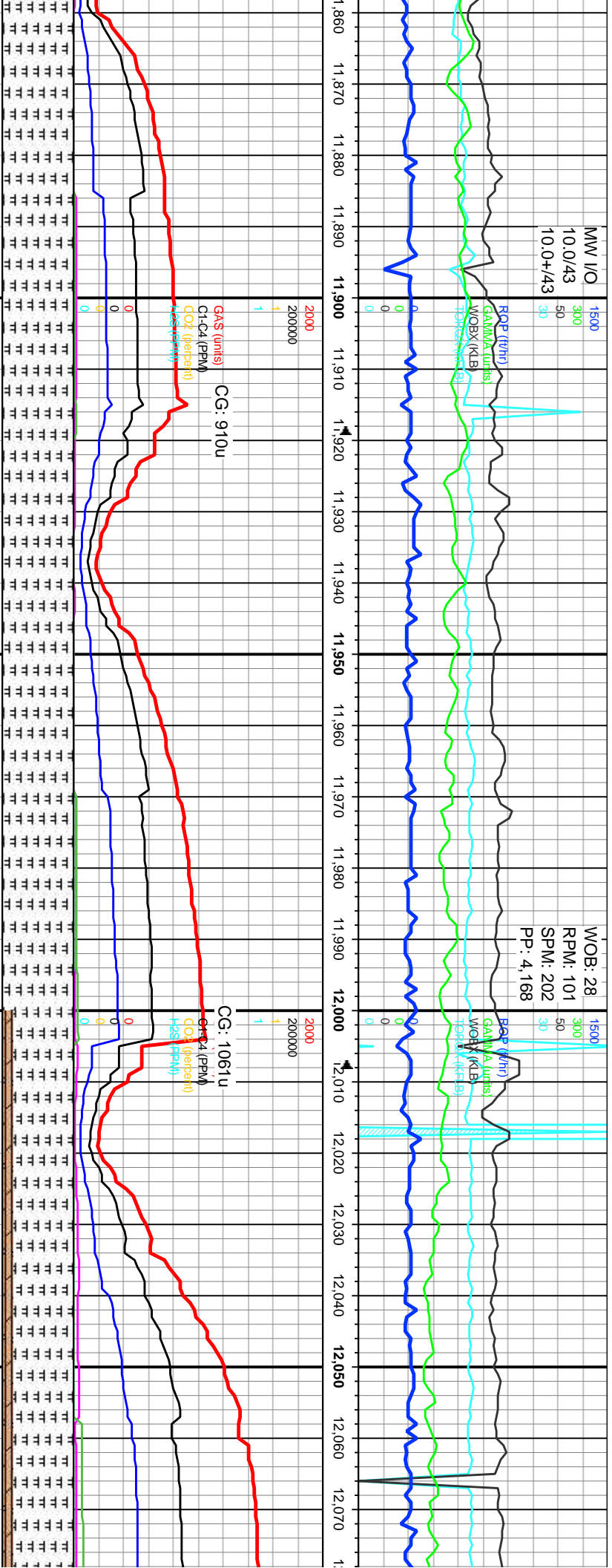




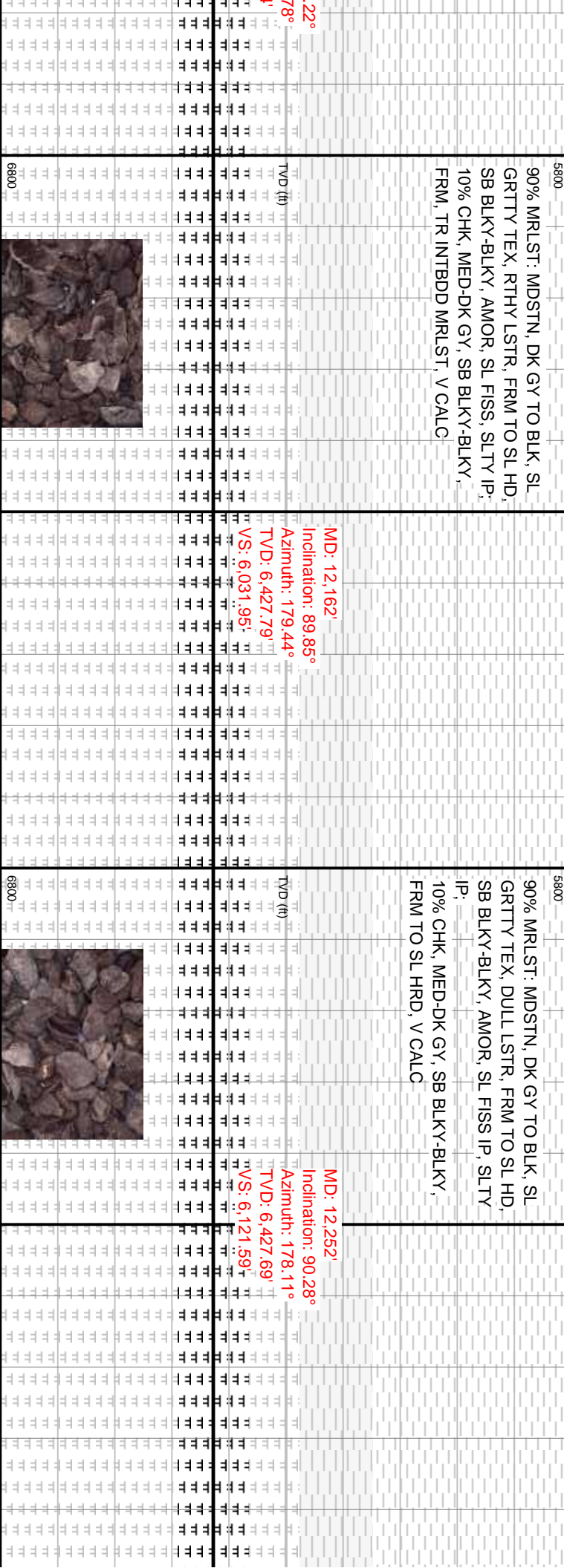
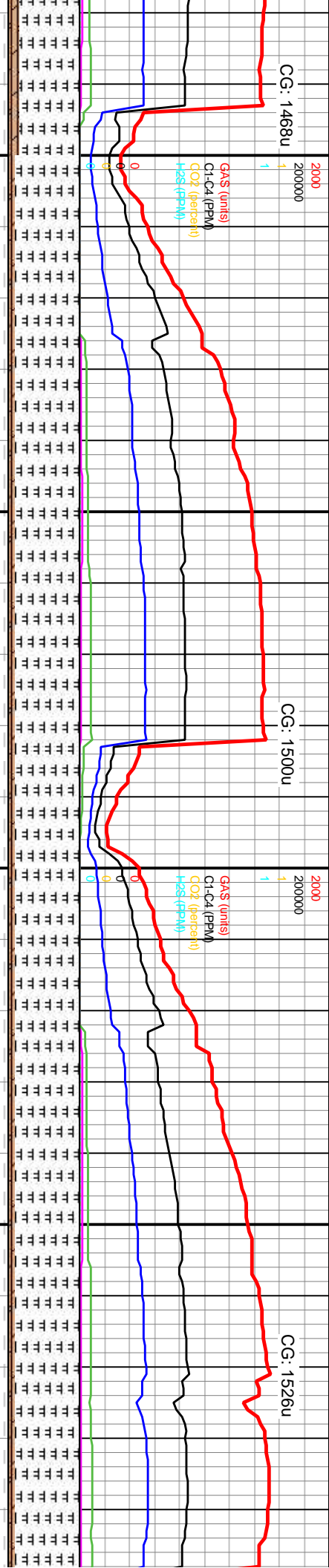
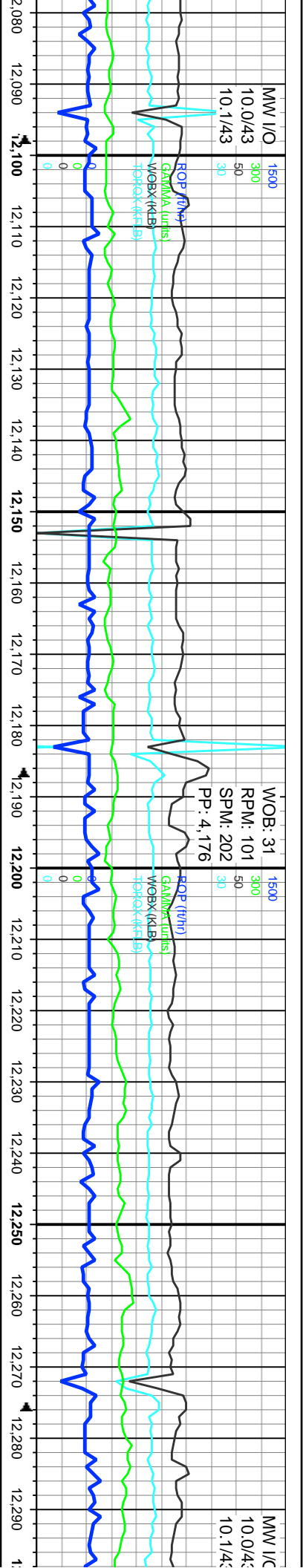






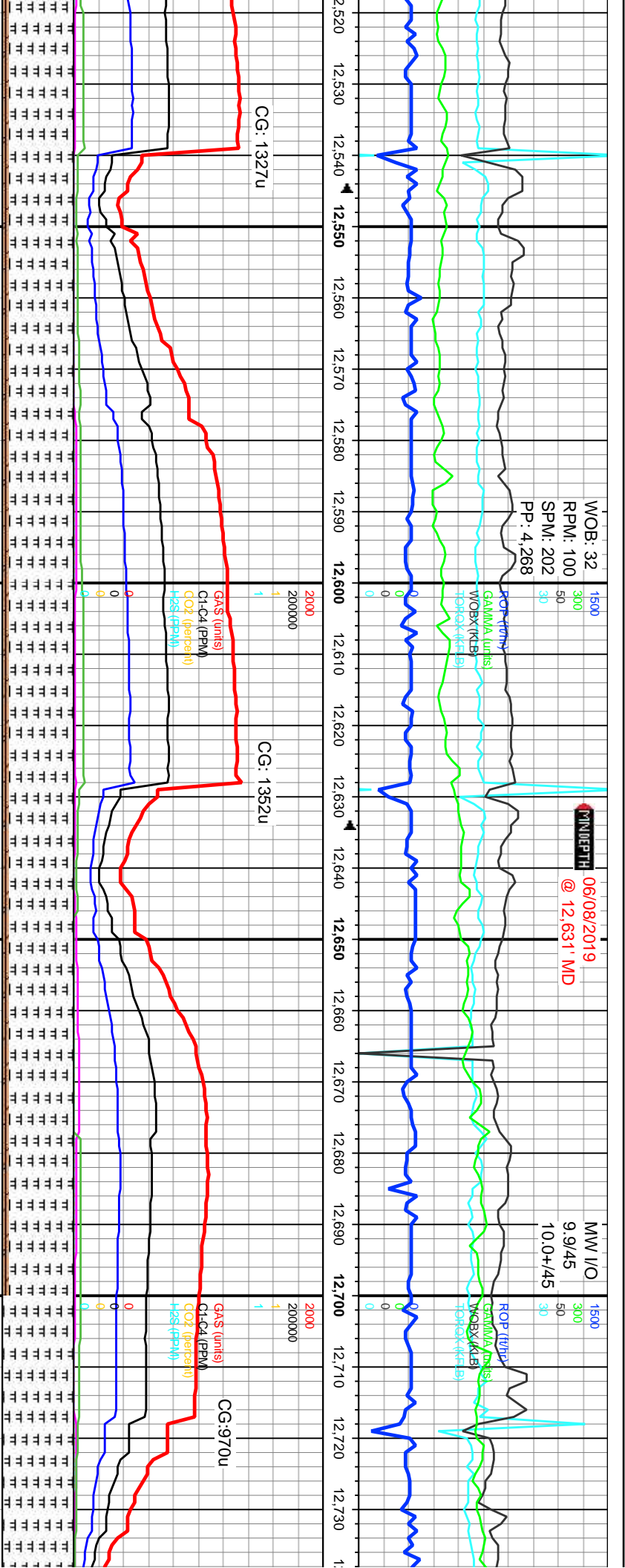


MD: 11,894' Inclination: 90.58° Azimuth: 180.89° TVD: 6,428.42' VS: 5.765.73'		MD: 11,984' Inclination: 89.97° Azimuth: 180.82° TVD: 6,427.99' VS: 5.855.02'		MD: 12,073' Inclination: 90° Azimuth: 179° TVD: 6,427.84' VS: 5.943.43'	
100% MRLST: MDSTN, DK GY, SL GRITTY TEX, SM IP, RTHY LSTR, FRM TO MOD HD, SB BLKY TO BLKY, AMOR, SB FISS, SLTY IP, CALC, TR CHLK		85% MRLST: MDSTN, DK GY, SME BLK, SL SM TO GRITTY TEX, DULL LSTR, FRM TO SL HD, SB BLKY-BLKY, AMOR, SL FISS, TR INTBDD CHK, SLTY IP, 15% CHK, MED-DK GY, SB BLKY-BLKY, FRM, TR INTBDD MRLST, V CALC			









DSTN, DK GY TO BLK, SL  
-SM IP, DULL TO RTHY  
SL HD, SB BLKY-BLKY,  
SL IP, SLTY IP,  
-DK GY, SB BLKY-BLKY,

90% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SL SM IP, DULL TO RTHY  
LSTR, FRM TO SL HD, SB BLKY-BLKY,  
AMOR, SL FISS IP, CALC, TR CALC FL IN  
FRAC IP, SLTY IP,  
10% CHK, MED-DK GY, SB BLKY-BLKY,  
FRM, V CALC

100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SM IP, RTHY LSTR,  
HD, SB BLKY TO BLKY, AMOR, S  
SLTY IP, CALC, TR CHLK

520'

on: 90.31°

i: 179.05°

426.98'

88.75'

MD: 12,609'

Inclination: 90.06°

Azimuth: 179.68°

TVD: 6,426.69'

VS: 6,477.31'

MD: 12,699'

Inclination: 90.15°

Azimuth: 180.17°

TVD: 6,426.53'

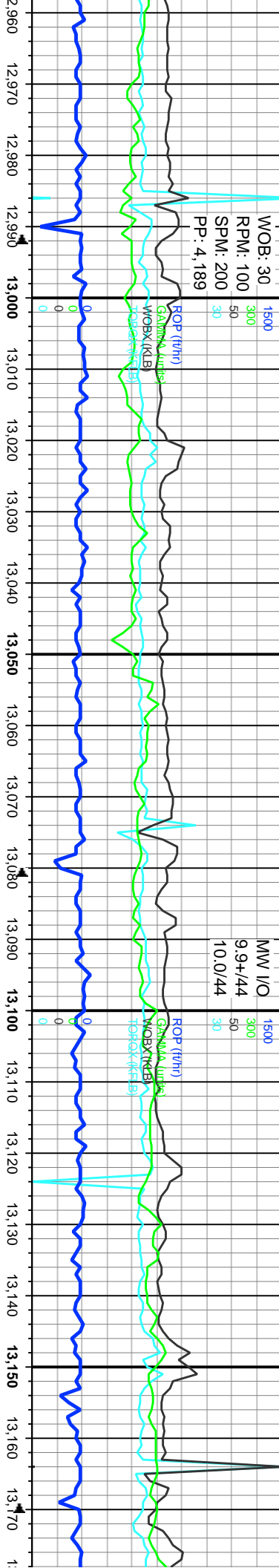
VS: 6,566.78'





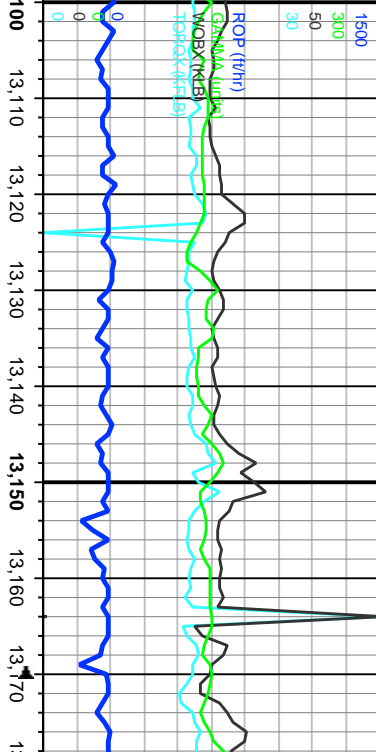
WOB: 30  
RPM: 100  
SPM: 200  
PP: 4,189

ROP (ft/hr)  
GAMMA (units)  
WOBX (KLB)  
TOPOX (KLB)



MW I/O  
9.9+/44  
10.0/44

ROP (ft/hr)  
GAMMA (units)  
WOBX (KLB)  
TOPOX (KLB)



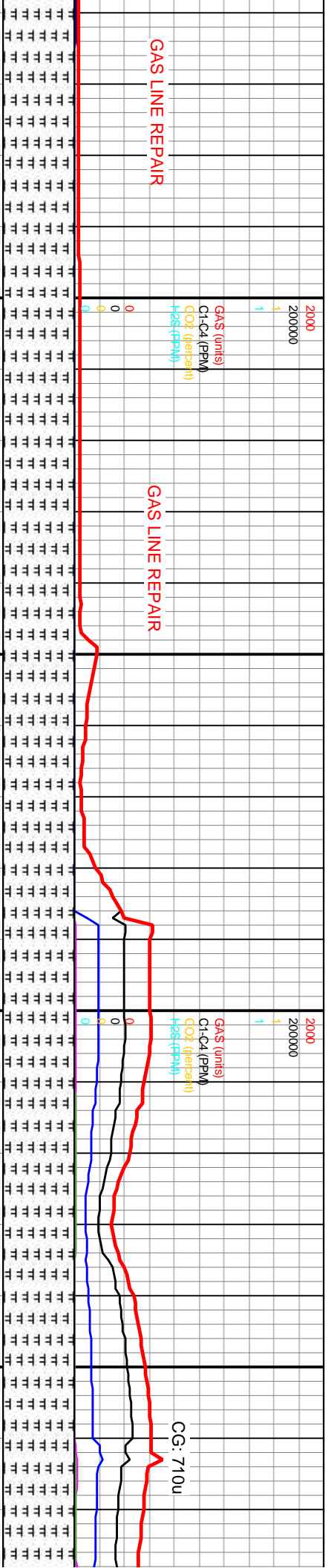
GAS LINE REPAIR

GAS LINE REPAIR

CG: 710u

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)



100% MRLST: MDSTN, DK GY, SME BLK,  
SL GRITTY TEX, SM IP, DULL LSTR, FRM  
TO SL HD, SB BLKY TO BLKY, AMOR, SB  
FISS, SLTY IP, CALC, TR CHLK

100% MRLST: MDSTN, DK GY, SL GRITTY  
TEX, DULL LSTR, FRM TO SL HD, SB  
BLKY TO BLKY, AMOR, SB FISS TO FISS,  
SLTY IP, CALC, TR CHLK

MD: 12,967'

Inclination: 89.97°

Azimuth: 179.39°

VD: 6,426.57'

VS: 6,833.24'

TVD (ft)

MD: 13,056'

Inclination: 90.22°

Azimuth: 179.12°

VD: 6,426.43'

VS: 6,921.81'

TVD (ft)

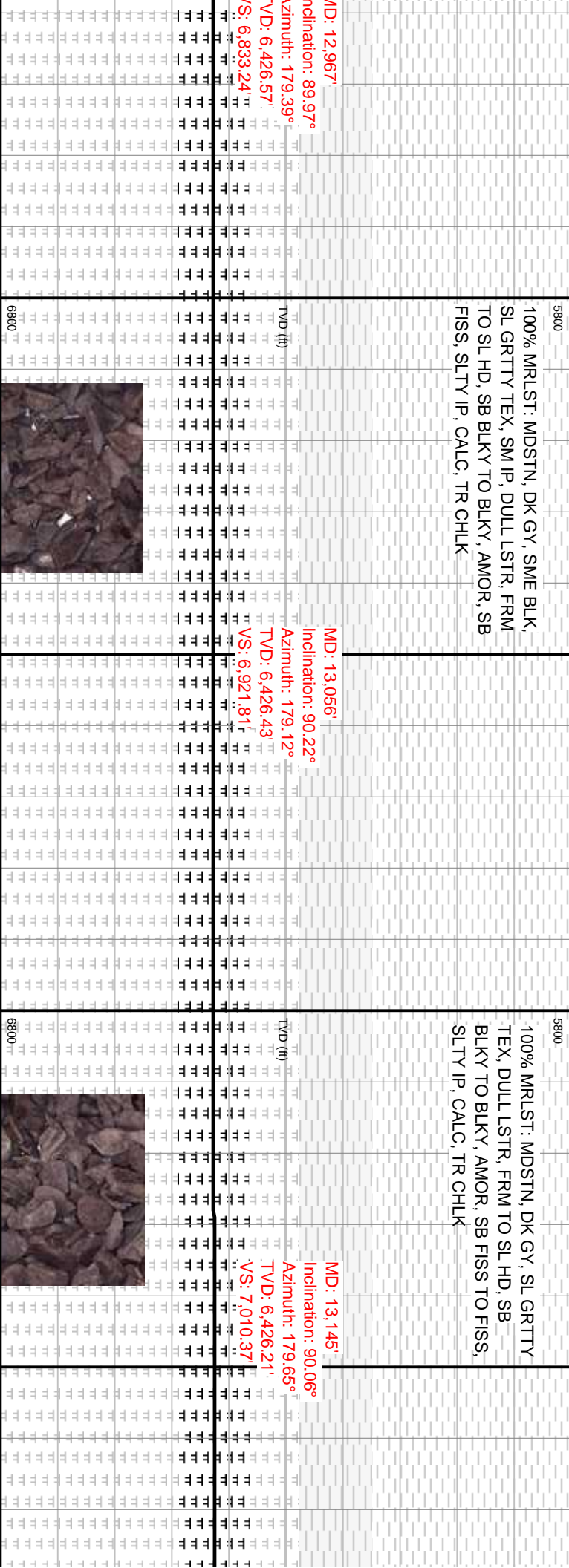
MD: 13,145'

Inclination: 90.06°

Azimuth: 179.65°

VD: 6,426.21'

VS: 7,010.37'





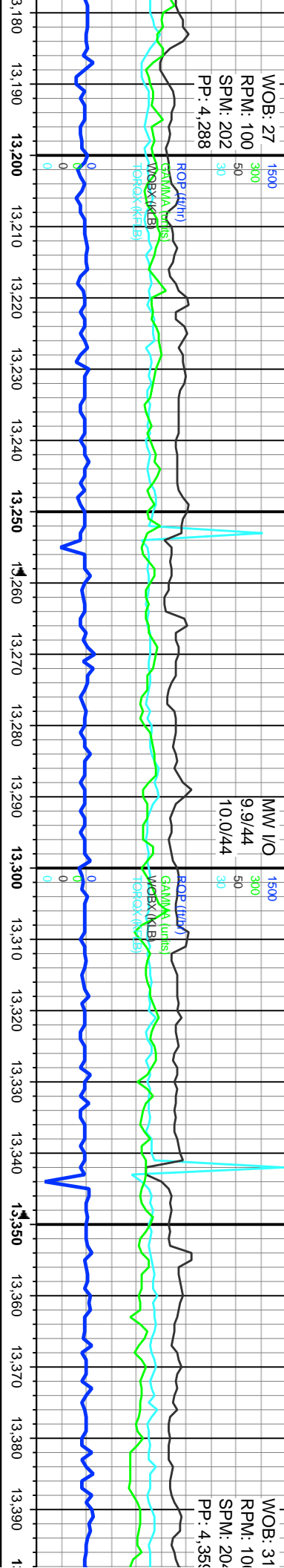
WOB: 27  
RPM: 100  
SPM: 202  
PP: 4.288

ROP (ft/hr)  
GAMA (units)  
MOBX (dB)  
HOPK (Hz)

MW I/O  
9.9/44  
10.0/44

ROP (ft/hr)  
GAMA (units)  
MOBX (dB)  
HOPK (Hz)

WOB: 31  
RPM: 10  
SPM: 20  
PP: 4.35



2000  
200000

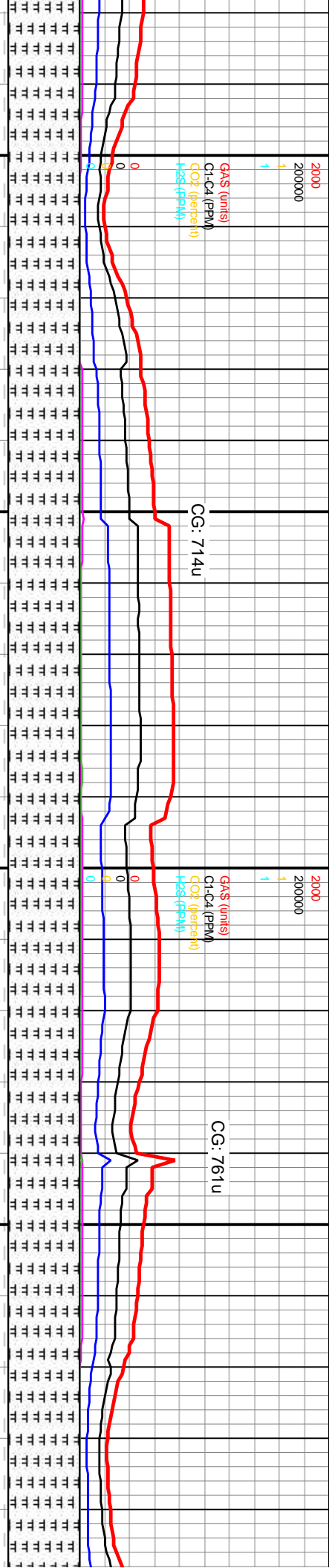
GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

CG: 714u

2000  
200000

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

CG: 761u

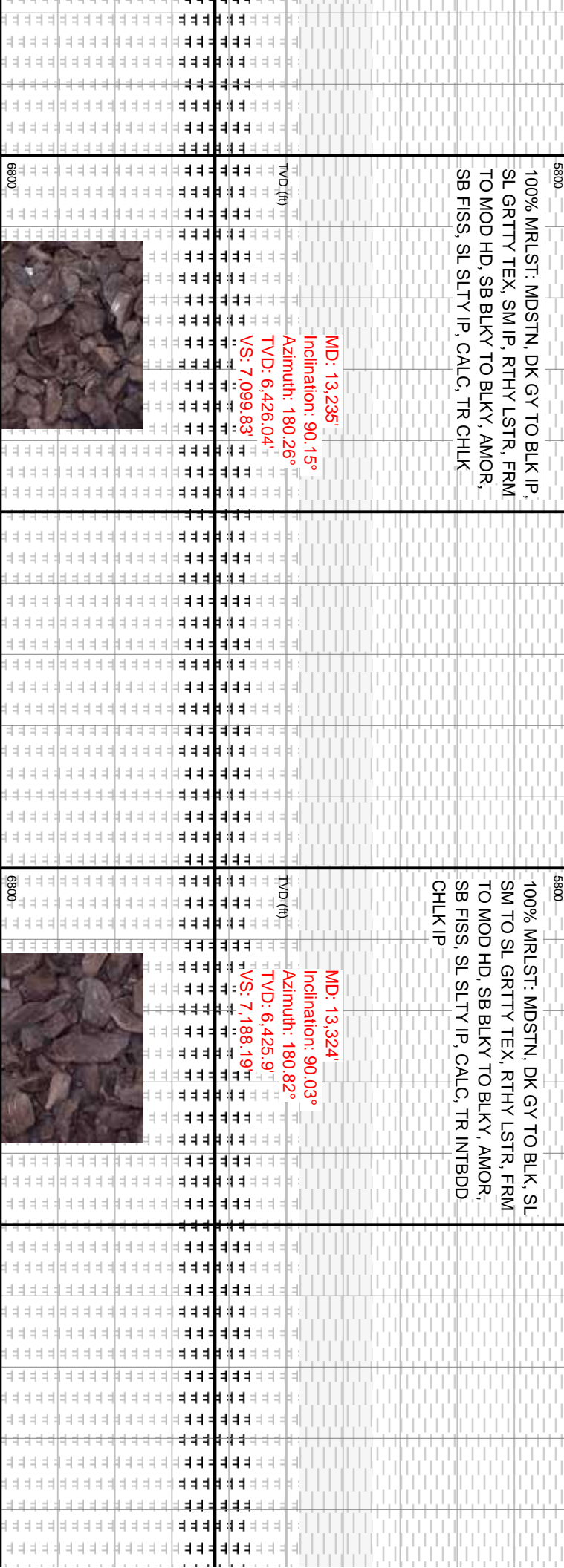


100% MRLST: MDSTN, DK GY TO BLK IP,  
SL GRITTY TEX, SM IP, RTHY LSTR, FRM  
TO MOD HD, SB BLKY TO BLKY, AMOR,  
SB FISS, SL SLTY IP, CALC, TR CHLK

100% MRLST: MDSTN, DK GY TO BLK, SL  
SM TO SL GRITTY TEX, RTHY LSTR, FRM  
TO MOD HD, SB BLKY TO BLKY, AMOR,  
SB FISS, SL SLTY IP, CALC, TR INTBDD  
CHLK IP

MD: 13,235'  
Inclination: 90.15°  
Azimuth: 180.26°  
TVD: 6,426.04'  
VS: 7,099.83'

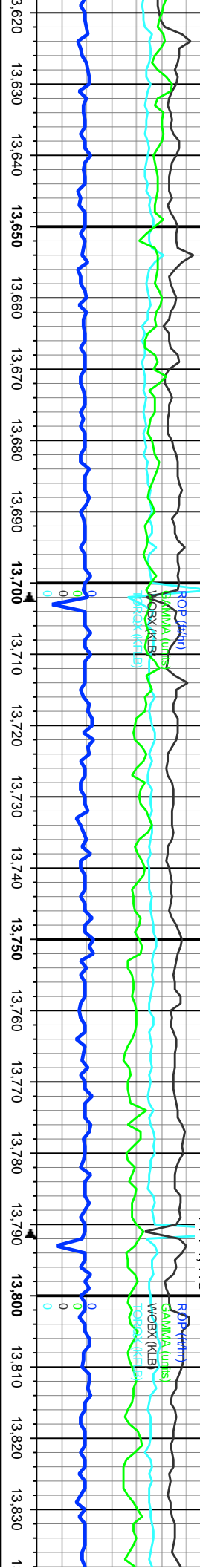
MD: 13,324'  
Inclination: 90.03°  
Azimuth: 180.82°  
TVD: 6,425.9'  
VS: 7,188.19'





MW I/O  
9.9/44  
10.0/44

WOB: 28  
RPM: 100  
SPM: 204  
PP: 4.415

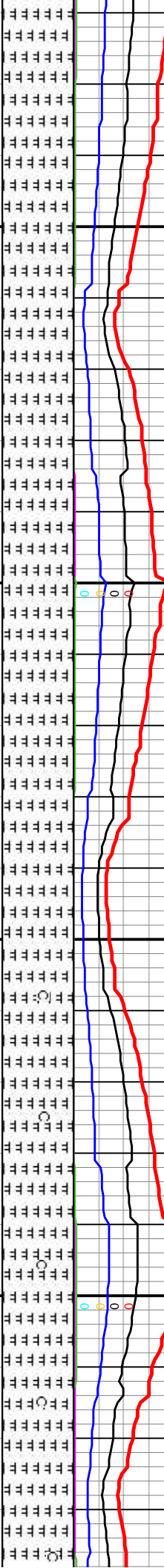


774u

CG: 780u (pept)

CG: 826u

CG: 826u



MDSTN, DK GY TO BLK, SL  
ULL LSTR, FRM TO MOD  
TO BLKY, AMOR, SB FISS  
SLTY IP, CALC, TR CHLK

100% MRLST: MDSTN, DK GY TO BLK, SM  
TO SL GRITY TEX, DL TO RTHY LSTR, FRM  
TO HD IP, SB BLKY TO BLKY, AMOR, SB  
FISS TO FISS, SL SLTY IP, CALC, TR CHLK

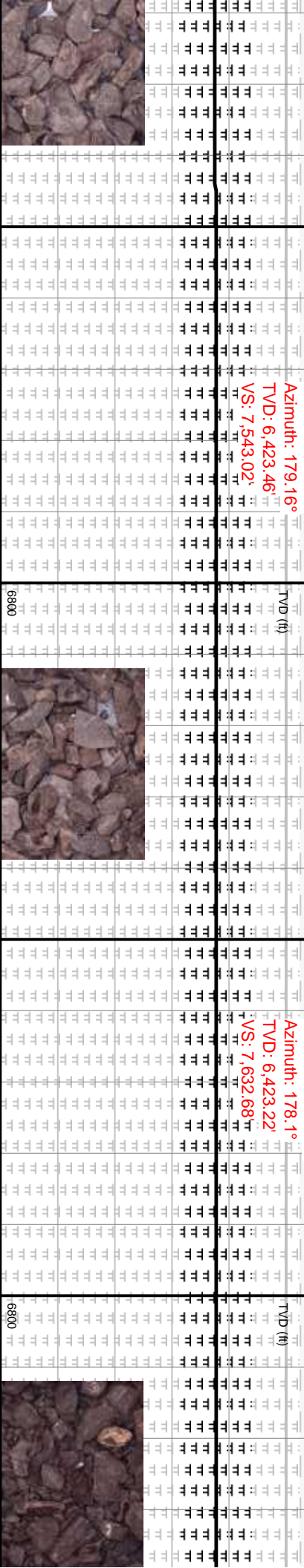
100% MRLST: MDSTN, DK GY TC  
TO SL GRITY TEX, DL TO RTHY  
FRM TO HD IP, SB BLKY TO BLK  
SB FISS TO FISS, SL SLTY IP, CA  
CHLK

MD: 13.681'  
Inclination: 90.4°

MD: 13.771'  
Inclination: 89.91°

Azimuth: 179.16°  
TVD: 6,423.46'  
VS: 7,543.02'

Azimuth: 178.1°  
TVD: 6,423.22'  
VS: 7,632.68'



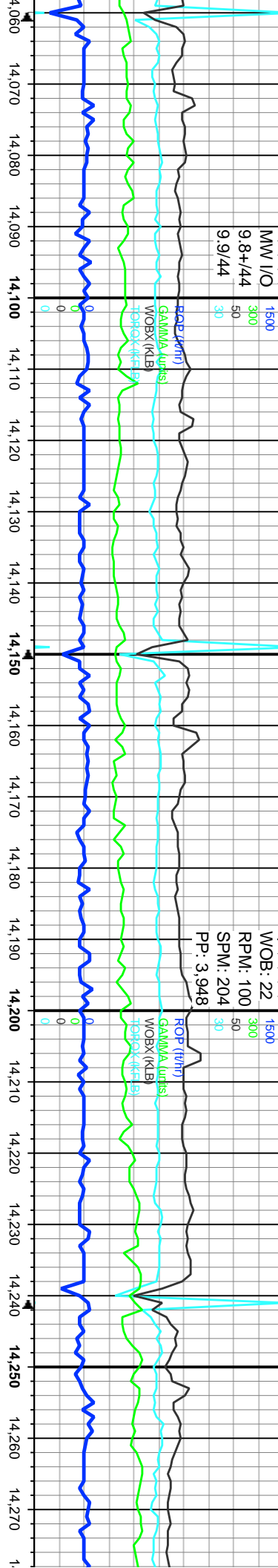




MW I/O  
9.8+/44  
9.9/44

1500  
300  
50  
30

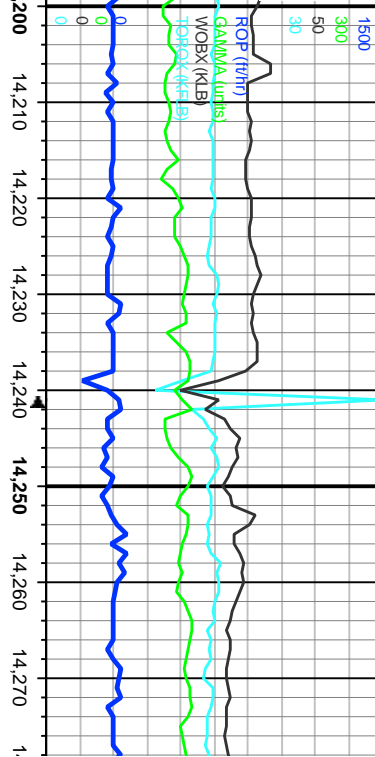
RCP (TVI)  
GAMMA (units)  
WOBX (KLB)  
TDRX (K/FB)



WOB: 22  
RPM: 100  
SPM: 204  
PP: 3.948

1500  
300  
50  
30

RCP (TVI)  
GAMMA (units)  
WOBX (KLB)  
TDRX (K/FB)

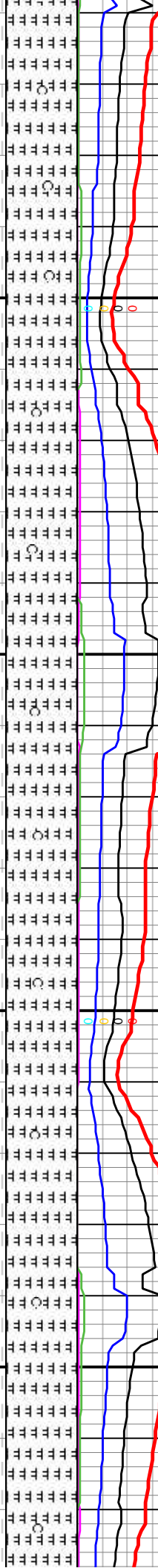


CG: 1.095u

CG: 1.150u

GAS (units)  
C1-C4 (PPM)  
CO2 (lbperbbl)  
H2S (PPM)

GAS (units)  
C1-C4 (PPM)  
CO2 (lbperbbl)  
H2S (PPM)



100% MRLST: MDSTN, DK GY TO BLK,  
SM TO SL GRITY TEX, DL TO RTHY  
LSTR, SB WXY IP, FRM TO HD IP, SB  
BLKY TO BLKY, AMOR, SB FISS TO FISS,  
SL SLTY IP, CALC, TR CHLK

100% MRLST: MDSTN, DK GY TO BLK, SM  
TO SL GRITY TEX, DL TO RTHY LSTR, SB  
WXY IP, FRM TO HD IP, SB BLKY TO  
BLKY, AMOR, SB FISS TO FISS, SL SLTY  
IP, CALC, TR CHLK

MD: 14.128

Inclination: 90.28°

Azimuth: 175.66°

TVD (ft)  
TVD: 6,422.5'

VS: 7.988 91'



MD: 14.217

Inclination: 90.22°

Azimuth: 175.87°

TVD (ft)  
TVD: 6,422.11'

VS: 8.077 84'



MW I/O  
9.8+/44  
9.9/44

1500  
300  
50  
30

ROF (mV)  
GAMMA (units)  
WOBX (K/B)  
TOFROK (K/F/B)

14,280 14,290 14,300 14,310 14,320 14,330 14,340 14,350 14,360 14,370 14,380 14,390 14,400 14,410 14,420 14,430 14,440 14,450 14,460 14,470 14,480 14,490 1

WOB: 21  
RPM: 100  
SPM: 204  
PP: 3.811

1500  
300  
50  
30

ROF (mV)  
GAMMA (units)  
WOBX (K/B)  
TOFROK (K/F/B)

14,280 14,290 14,300 14,310 14,320 14,330 14,340 14,350 14,360 14,370 14,380 14,390 14,400 14,410 14,420 14,430 14,440 14,450 14,460 14,470 14,480 14,490 1

MW I/C  
9.8+/44  
9.8+/44

1500  
300  
50  
30

ROF (mV)  
GAMMA (units)  
WOBX (K/B)  
TOFROK (K/F/B)

14,280 14,290 14,300 14,310 14,320 14,330 14,340 14,350 14,360 14,370 14,380 14,390 14,400 14,410 14,420 14,430 14,440 14,450 14,460 14,470 14,480 14,490 1

2000  
200000

GA\$ (units)  
C1-C4 (PPM)  
CO2 (lbperbbl)  
H2S (PPM)

CG: 896u

2000  
200000

GA\$ (units)  
C1-C4 (PPM)  
CO2 (lbperbbl)  
H2S (PPM)

CG: 792u

2000  
200000

GA\$ (units)  
C1-C4 (PPM)  
CO2 (lbperbbl)  
H2S (PPM)



5800

100% MRLST: MDSTN, DK GY TO BLK, SM  
TO SL GRITY TEX, DL TO RTHY LSTR, SB  
WXY IP, FRM TO HD IP, SB BLKY TO BLKY,  
AMOR, SB FISS TO FISS, SL SLTY IP, CALC,  
TR CHLK

5800

100% MRLST: MDSTN, DK GY TO BLK, SM  
TO SL GRITY TEX, DL LSTR, SB WXY IP,  
FRM TO HD IP, SB BLKY TO BLKY, AMOR,  
SB FISS TO FISS, SL SLTY IP, CALC, TR  
CHLK

MD: 14,307'

Inclination: 90°

Azimuth: 178.99°

TVD: 6,421.93'

VS: 8,167.64'



MD: 14,396'

Inclination: 90.12°

Azimuth: 179.97° (ft)

TVD: 6,421.84'

VS: 8,256.18'



MD: 14,485'

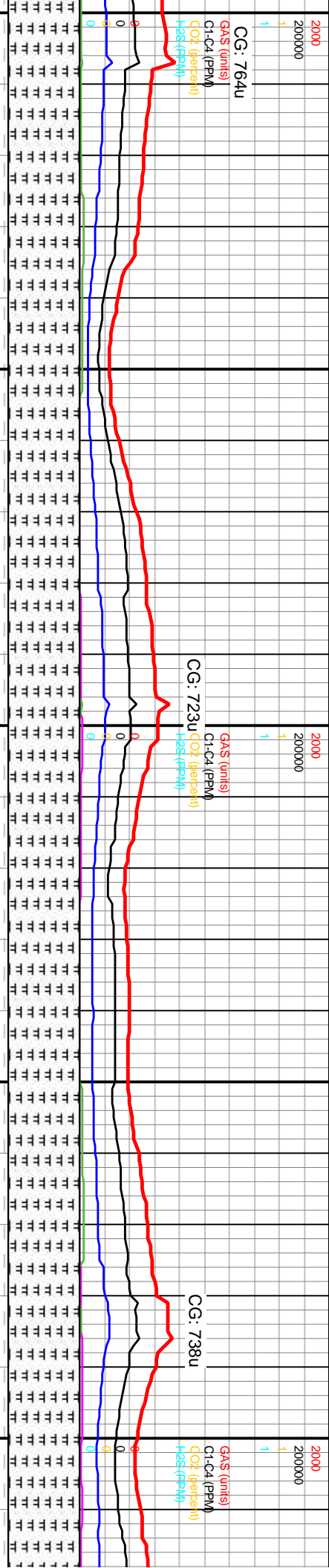
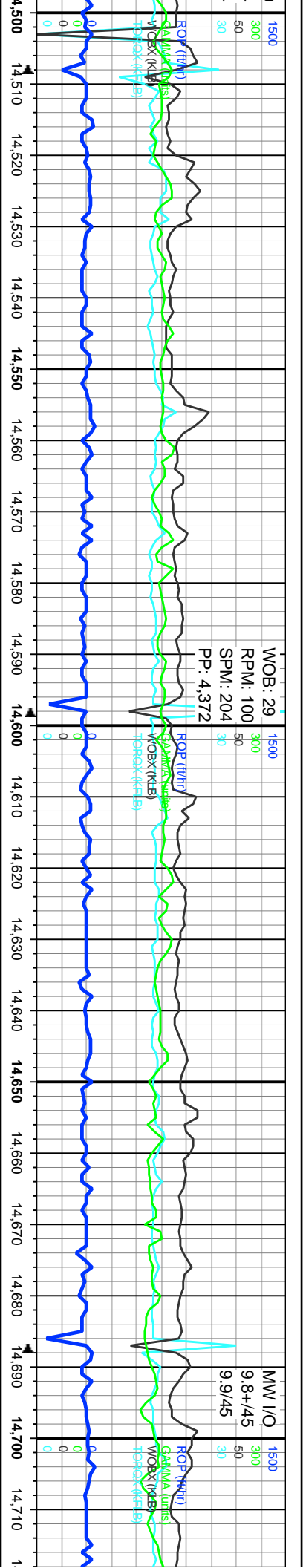
Inclination: 90.06°

Azimuth: 179.46°

TVD: 6,421.7'

VS: 8,344.69'





5800	100% MRLST: MDSTN, DK GY TO BLK, SM TO SL GRITY TEX, DL LSTR, SB WXY IP, FRM TO HD IP, SB BLKY TO BLKY, AMOR, SB FISS TO FISS, SL SLTY IP, CALC, TR CHLK IP	5800	100% MRLST: MDSTN, DK GY TO BLK, SM TO SL GRITY TEX, DL LSTR, SB WXY IP, FRM TO HD IP, SB BLKY TO BLKY, AMOR, SB FISS TO FISS, SL SLTY IP, CALC, TR CHLK IP	5800	100% MRLST: MDSTN, DK GY TO BLK, SM TO SL GRITY TEX, DL LSTR, SB WXY IP, FRM TO HD IP, SB BLKY TO BLKY, AMOR, SB FISS TO FISS, SL SLTY IP, CALC, TR CHLK IP
TVD (ft)		TVD (ft)		TVD (ft)	
6800		6800		6800	

MD: 14.575'  
Inclination: 90.06°  
Azimuth: 179.13°  
TVD: 6,421.61'  
VS: 8,434.25'

MD: 14.664'  
Inclination: 90.12°  
Azimuth: 179.5°  
TVD: 6,421.47'  
VS: 8,522.82'

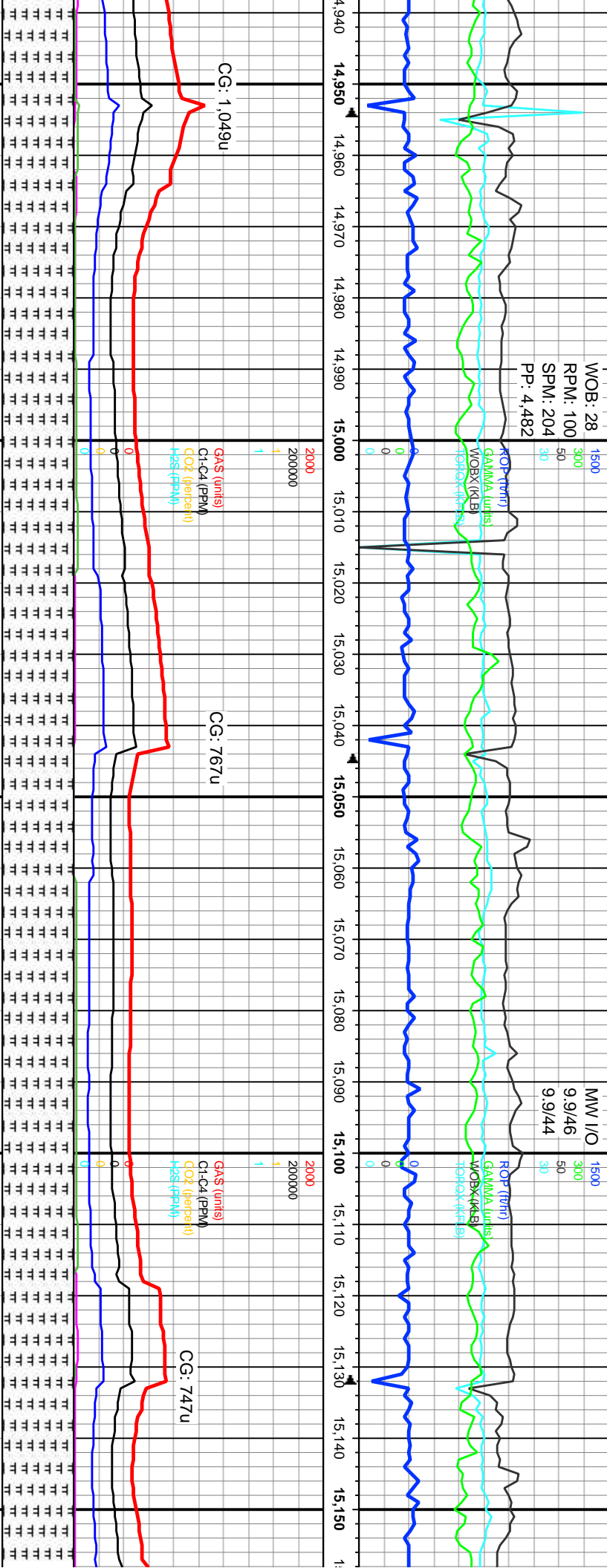






WOB: 28  
RPM: 100  
SPM: 204  
PP: 4.482

NW I/O  
9.9/46  
9.9/44



100% MRLST: MDSTN, DK GY TO BLK, SM  
TO SL GRITTY TEX, DL LSTR, SB WXY IP,  
FRM TO HD IP, SB BLKY TO BLKY, AMOR,  
SB FISS TO FISS, SHLY, SL SLTY IP,  
CALC

100% MRLST: MDSTN, DK GY TO BLK, SM  
TO SL GRITTY TEX, DL LSTR, SB WXY IP,  
FRM TO HD IP, SB BLKY TO BLKY, AMOR,  
SB FISS TO FISS, SHLY, SL SLTY IP, CALC

MD: 15.022°  
Inclination: 90.09°

MD: 15.111°  
Inclination: 90.12°

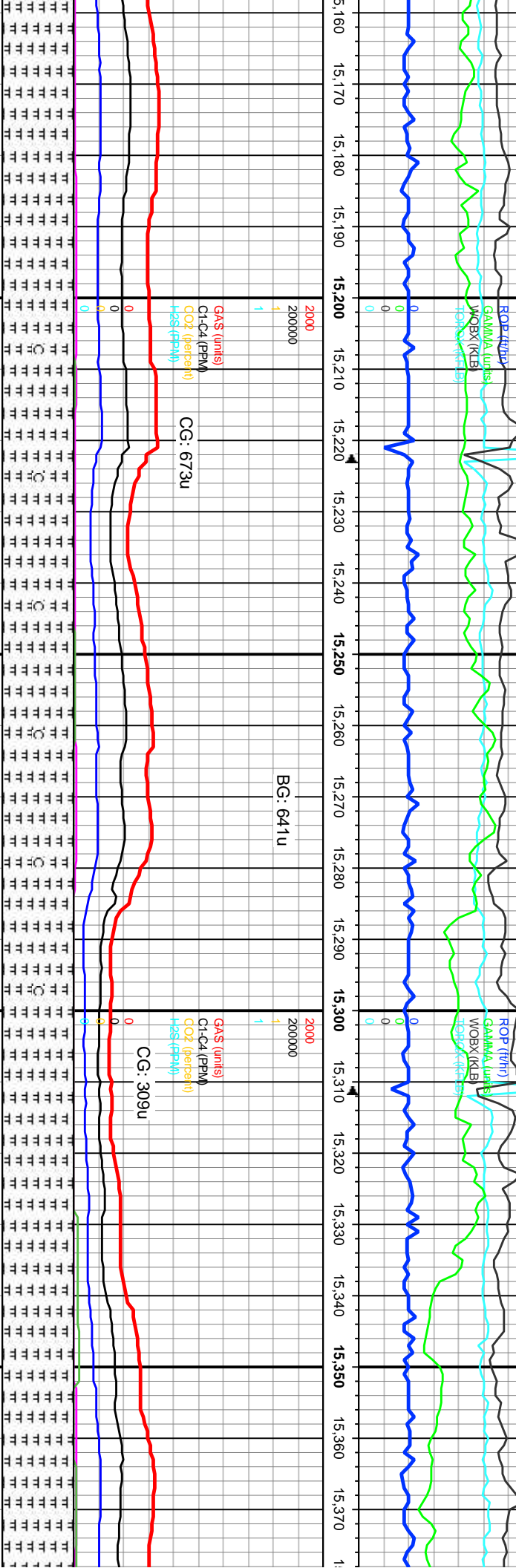
TVD (ft)  
Azimuth: 181.4°  
TVD: 6,420.1'  
VS: 8,878.51'

TVD: 6,419.94'  
VS: 8,966.69'



WOB: 30  
RPM: 100  
SPM: 204  
PP: 4.531

MW I/O  
9.9/45  
9.9/44



2000  
200000

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

CG: 673u

BG: 641u

2000  
200000

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

CG: 309u

100% MRLST: MDSTN, DK GY TO BLK, SM  
TO SL GRITTY TEX. DL LSTR, SB WXY IP,  
FRM TO HD IP, SB BLKY TO BLKY, AMOR,  
SB FISS TO FISS, SHLY, SL SLTY IP,  
CALC, TR CHLK

100% MRLST: MDSTN, DK GY TO BLK,  
SM TO SL GRITTY TEX. DL LSTR, SB  
WXY IP, FRM TO HD IP, SB BLKY TO  
BLKY, AMOR, SB FISS TO FISS, SHLY,  
SL SLTY IP, CALC

MD: 15,200'  
Inclination: 90.09°

Azimuth: 180.99°  
TVD: 6,419.77'  
VS: 9,054.9'

MD: 15,289'  
Inclination: 90.31°

Azimuth: 180.15°  
TVD: 6,419.46'  
VS: 9,143.26'

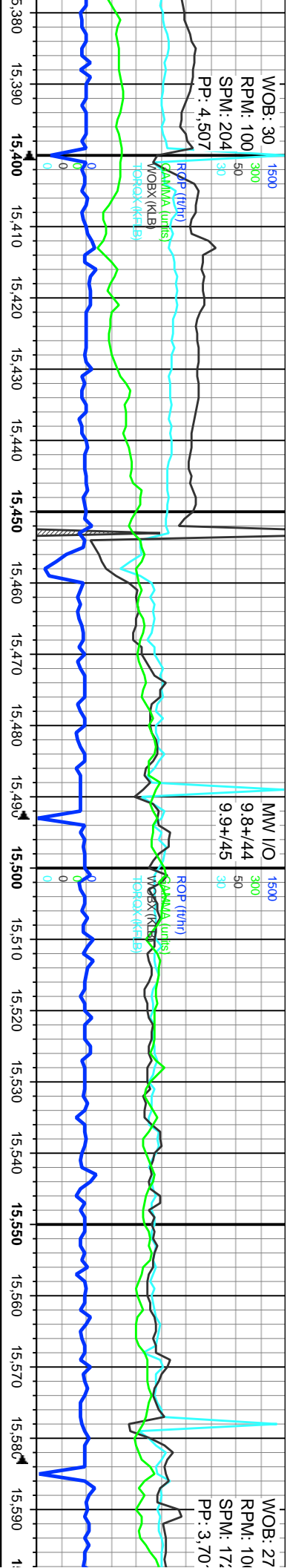


MD: 15,2

Inclination: 90.31°  
Azimuth: 180.15°  
TVD: 6,419.46'  
VS: 9,143.26'

WOB: 30  
RPM: 100  
SPM: 204  
PP: 4.507

WOB: 27  
RPM: 100  
SPM: 170  
PP: 3.700



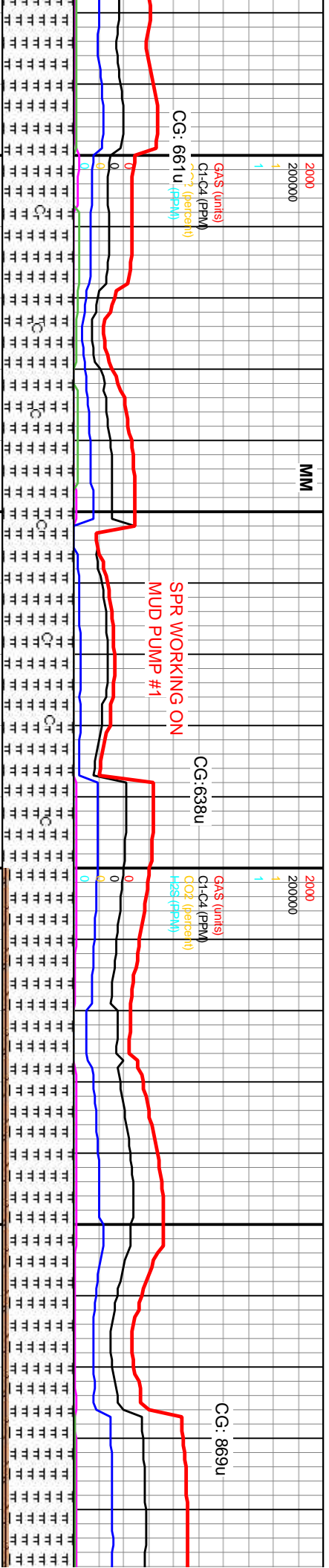
Gas (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)  
CG: 661u

SPR WORKING ON  
MUD PUMP #1

CG: 638u

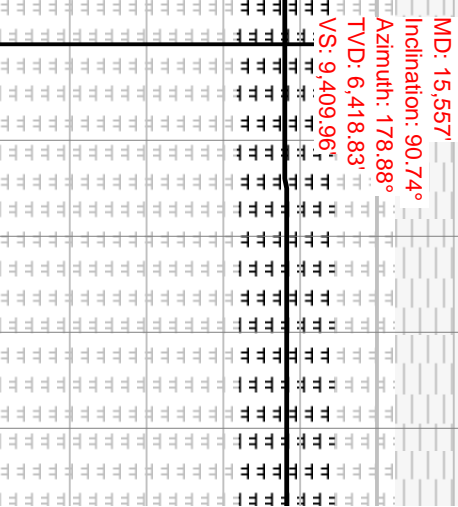
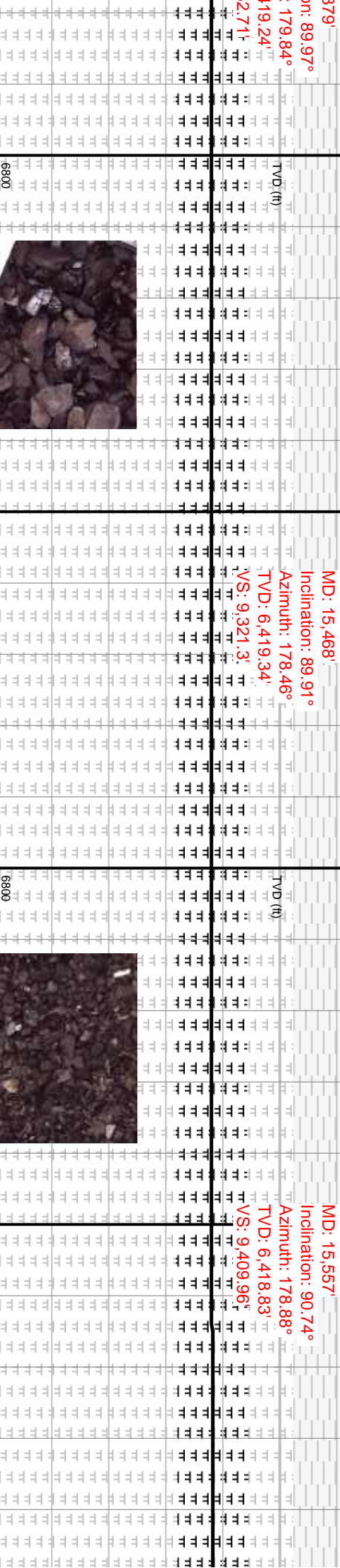
CG: 869u

MM



100% MRLST: MDSTN, DK GY TO BLK, SM  
TO SL GRITTY TEX, DL LSTR, SB WXY IP,  
FRM TO HD IP, SB BLKY TO BLKY AMOR,  
SB FISS TO FISS, SHLY, SL SLTY IP,  
CALC, TR CHLK IP

90% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SL SM IP, DULL TO RTHY  
LSTR, FRM TO SL HD, SB BLKY-BLKY,  
AMOR, SL FISS IP, SLTY IP, TR F PYR NOD  
IP,  
10% CHK, MED-DK GY, SB BLKY-BLKY,  
FRM, V CALC



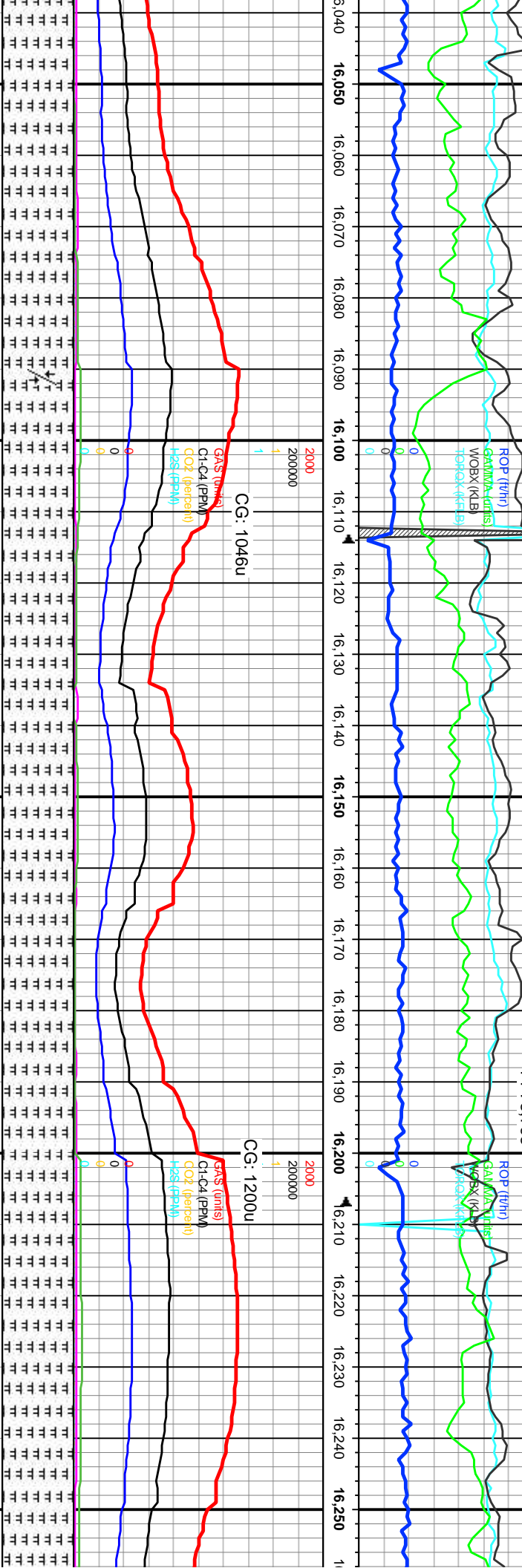






MW I/O  
9.8+51  
9.9+47

WOB: 27  
RPM: 101  
SPM: 172  
PP: 3.763



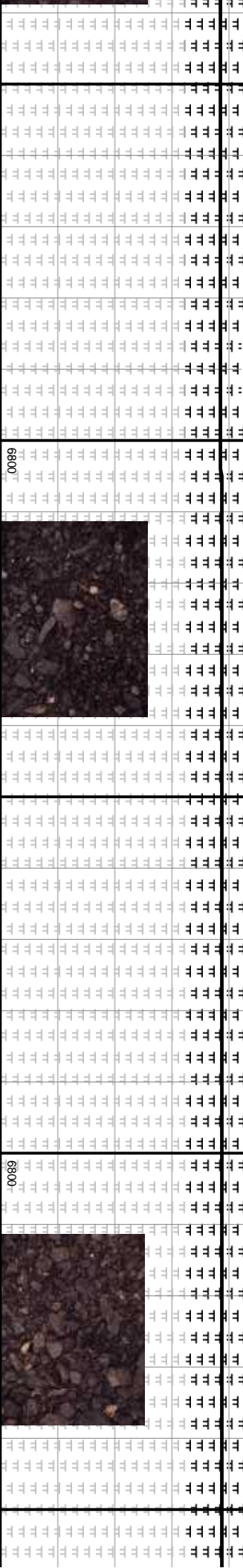
O BLK, SL  
THY  
BLKY,  
PYR NOD

100% MRLST: MDSTN, DK GY TO BLK, SL  
SM TO GRITTY TEX, DULL TO RTHY  
LSTR, FRM TO SL HD, SB BLKY-BLKY,  
AMOR, SL FISS, SLTY IP, TR F PYR NOD  
IP, TR CAL FRAC FL IP

100% MRLST: MDSTN, DK GY TO BLK,  
GRITTY TEX, RTHY LSTR, FRM TO SL HD,  
SB BLKY-BLKY, AMOR, SL FISS, SLTY IP,  
TR F PYR NOD IP, TR CHK IP

MD: 16.093'  
Inclination: 91.02°  
Azimuth: 177.96°  
TVD: 6,413.86'  
VS: 9,943.3'

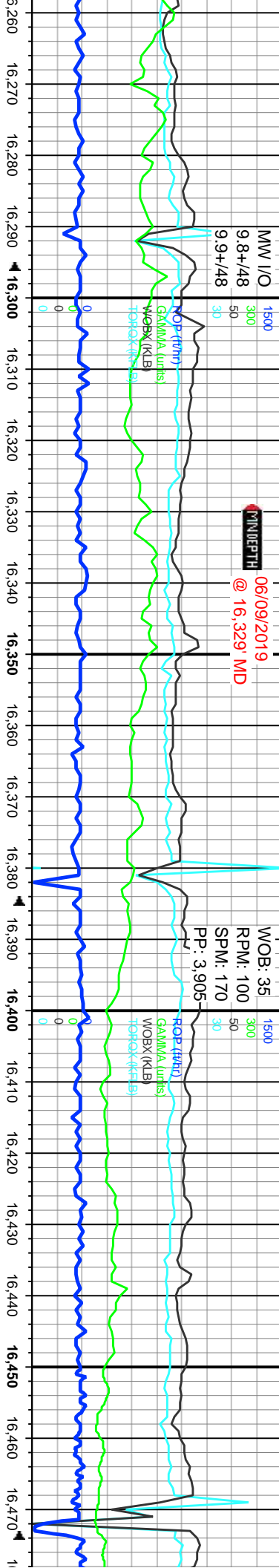
MD: 16.182'  
Inclination: 89.97°  
Azimuth: 178.39°  
TVD: 6,413.08'  
VS: 10,032.02'



MW I/O  
9.8+48  
9.9+48

DEPTH  
06/09/2019  
@ 16.329 MD

WOB: 35  
RPM: 100  
SPM: 170  
PP: 3.905



CG: 657u

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

CG: 886u

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

CG: 1652u

100% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, DULL LSTR, FRM TO MOD  
HD, SB BLKY-BLKY, AMOR, SL FISS, SL  
SLTY IP, TR F PYR NOD IP, TR CHK IP

90% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, RTHY LSTR, FRM TO SL HD,  
SB BLKY-BLKY, AMOR, SL FISS IP, SLTY  
IP.  
10% CHK, MED-DK GY, SB BLKY-BLKY,  
FRM TO SL HRD, V CALC

MD: 16,271'

Inclination: 89.82°

Azimuth: 179.71°

TVD: 6,413.25'

VS: 10.120.62

MD: 16,361'

Inclination: 89.97°

Azimuth: 180.62°

TVD: 6,413.41'

VS: 10.210.05

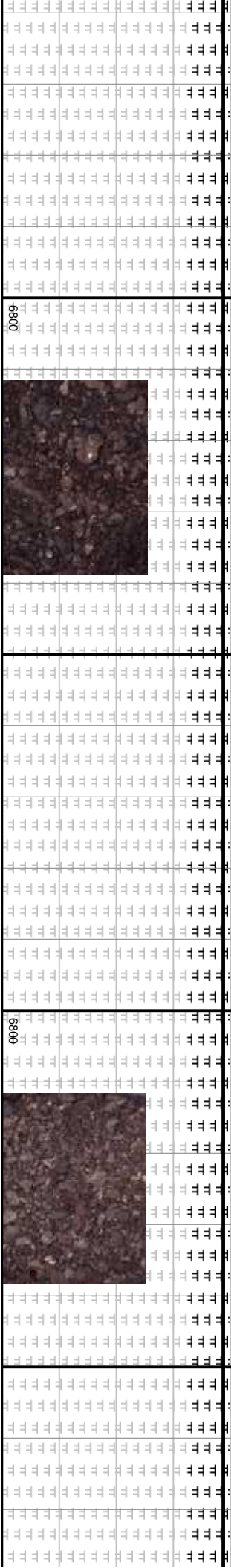
MD: 16,450'

Inclination: 90.68°

Azimuth: 180.73°

TVD: 6,412.91'

VS: 10.298.38



MW I/O  
9.8+50  
10.0/48

1500  
300  
50  
30

NOI (ft/d)  
GAMMA (units)  
WOB (KLB)  
TORQ (KFTLB)

16,480 16,490 16,500 16,510 16,520 16,530 16,540 16,550 16,560 16,570 16,580 16,590 16,600 16,610 16,620 16,630 16,640 16,650 16,660 16,670 16,680 16,690 1

WOB: 29  
RPM: 100  
SPM: 172  
PP: 3.926

1500  
300  
50  
30

NOI (ft/d)  
GAMMA (units)  
WOB (KLB)  
TORQ (KFTLB)

CG: 1193u

CG: 1740u

GAS (units)  
C1-C4 (PPM)  
CO2 (percent)  
H2S (PPM)

2000  
200000

1  
0  
0  
0

2000  
200000

1  
0  
0  
0

5800  
90% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, DULL TO RTHY LSTR, FRM  
TO MOD HD, SB BLKY-BLKY, AMOR, SL  
FISS, SLTY IP, TR F PYR NOD IP,  
10% CHK, MED-DK GY, SB BLKY-BLKY,  
FRM, V CALC

5800  
90% MRLST: MDSTN, DK GY TO BLK, SL  
GRITTY TEX, SL SM IP, DULL LSTR, FRM  
TO MOD HD, SB BLKY-BLKY, AMOR, SL  
FISS, SLTY IP, TR F PYR NOD IP,  
10% CHK, MED GY, SB BLKY-BLKY, FRM,  
V CALC

MD: 16,539'

Inclination: 90.58°

Azimuth: 182.55°

TVD: 6,411.93'

VS: 10,386.51'

MD: 16,628'

Inclination: 90.22°

Azimuth: 184.58°

TVD: 6,411.31'

VS: 10,474.18'

MD: 16,659'

Inclination: 90.22°

Azimuth: 184.58°

TVD: 6,411.19'

VS: 10,504.62'

TD Well @  
16,659' MD on  
6/9/2019





