



Scale: 5" / 100'
Measured Depth Log

Well Name	WAAg_2_Build_Lateral		
Location	Section 19, T 07N - R 65W		
State	Colorado	County	Weld
Country	United States of America		
API Number	05-123-40343	Rig Number	Xtreme #7
Region	DJ Basin	AFE #	14-163
Spud Date	1/11/2015	Field	Wattenburg
		Drilling Completed	1/17/2015
Surface Coordinates	40° 34' 5.065 N 104° 42' 34.121 W		
Bottom Hole Coordinates	40° 34' 4.934 N 104° 42' 33.802 W		
Ground Elevation	4918'	K.B. Elevation	4934'
Logged Interval	6600'	To	11822'
Formation	Niobrara	Total Depth	11822'
Type of Drilling Fluid	Fresh Water Based Mud		

Company Extraction Oil &
Address 1888 Sherman
Denver, Colora

Name Jared Rouse, V
Company Extraction Oil &
Address 1888 Sherman
Denver, Colora

2 Manned Logging Service

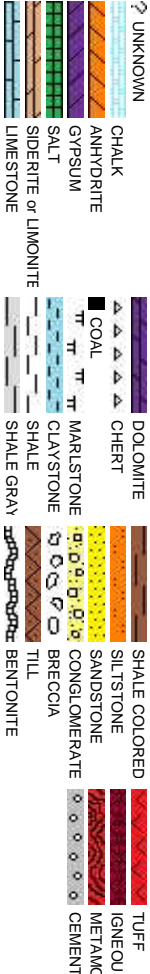
Start Logging Date - End Log
Equipment

Operator

Gas, LLC

Street, Suite 200
do 80203

Rock Types



Geologist

ivian Spiess

Gas, LLC

Street, Suite 200
do 80203

Accessories

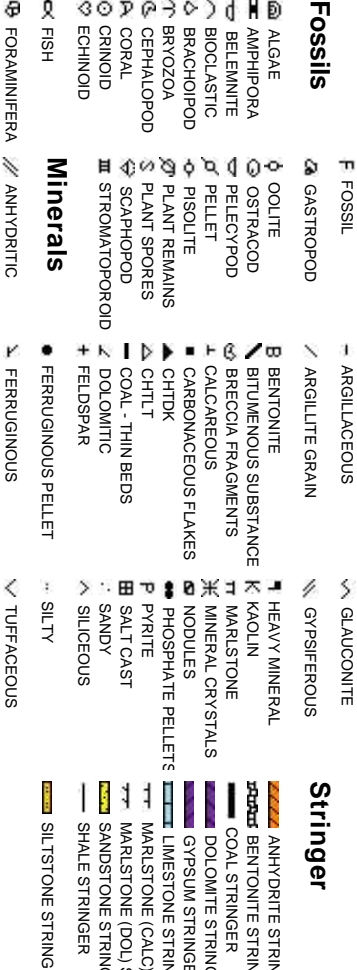
Other

Anthony Cox, Geoffrey Sterling
Empirica, LLC
6360 W Sam Houston Pkwy N. Ste 100
Houston, Tx 77041

gging / Release Date 01-12-015 / 01/17/2015

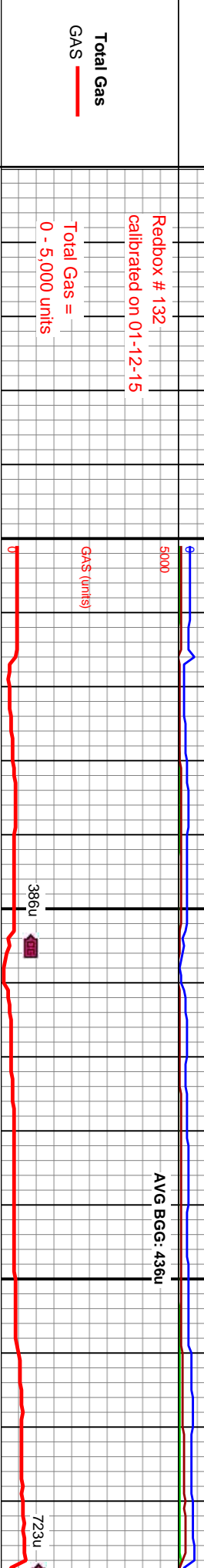
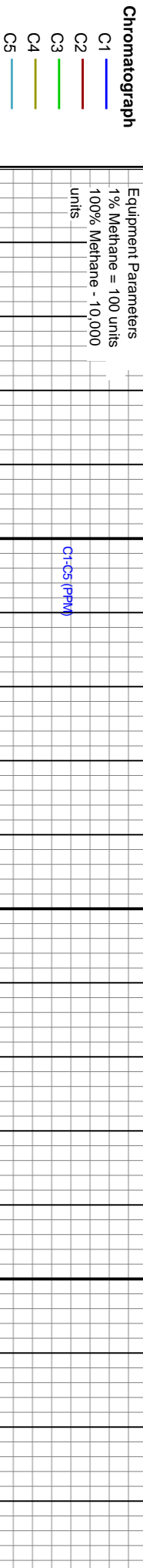
Mlogger Red Box #132
Calibration: Standard Calibration of Mlogger
1% Methane, 100% Methane, 1% Blend
Calibration Performed: 01-12-2014

Fossils



Other Symbols

Oil Show		Engineering		Rounding	
ORGANIC	PINPOINT	FAULT	FORMATION TOP	WIRELINE TESTED - LEFT	FINELYXLN
DEAD	VUGGY	CASING		WIRELINE TESTED - RT	GRAINSTONE
EVEN		GAS SHOW			LITHOGRAPHIC
QUESTIONABLE		MN DEPTH			MICROXLN
SPOTTED STAINING	BIT	NORMAL FAULT		ANGULAR	MUDSTONE
Porosity	CONNECTION (RIGHT)	CONNECTION (LEFT)		ROUNDED	PACKSTONE
	CONNECTION GAS	OIL SHOW		SUBANG	WACKESTONE
				SUBRND	
EARTHY	SLIDE	MN DOWN		Sorting	
FENESTRAL	MN DEPTH UP	OVERTURNED STRATA			
FRACTURE	CORE - LOST	REVERSE FAULT		BOUNDSTONE	POOR
INTERCRYSTALLINE	CORE - RECOVERED	SIDEWALL CORE (LEFT)		CHALKY	WELL
INTEROOLITIC	TRIP GAS	SIDEWALL CORE (RIGHT)		CRYPTOXLN	
MOLDIC	DST INTERVAL	SURVEY		EARTHY	MN Down



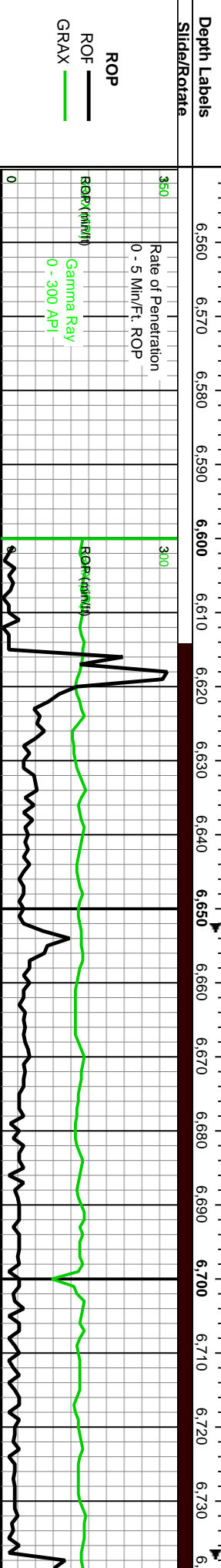
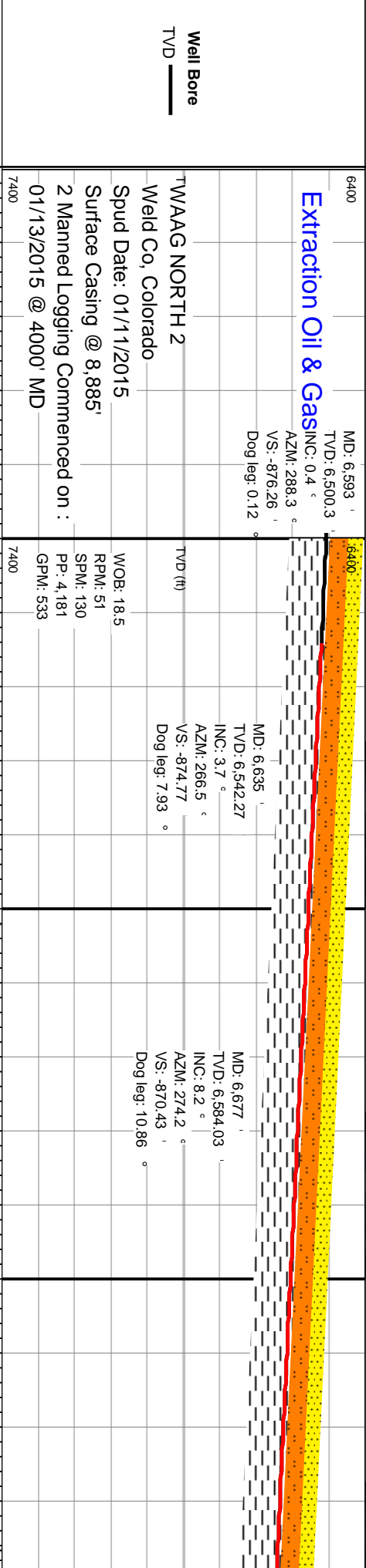
Lithology Descriptions

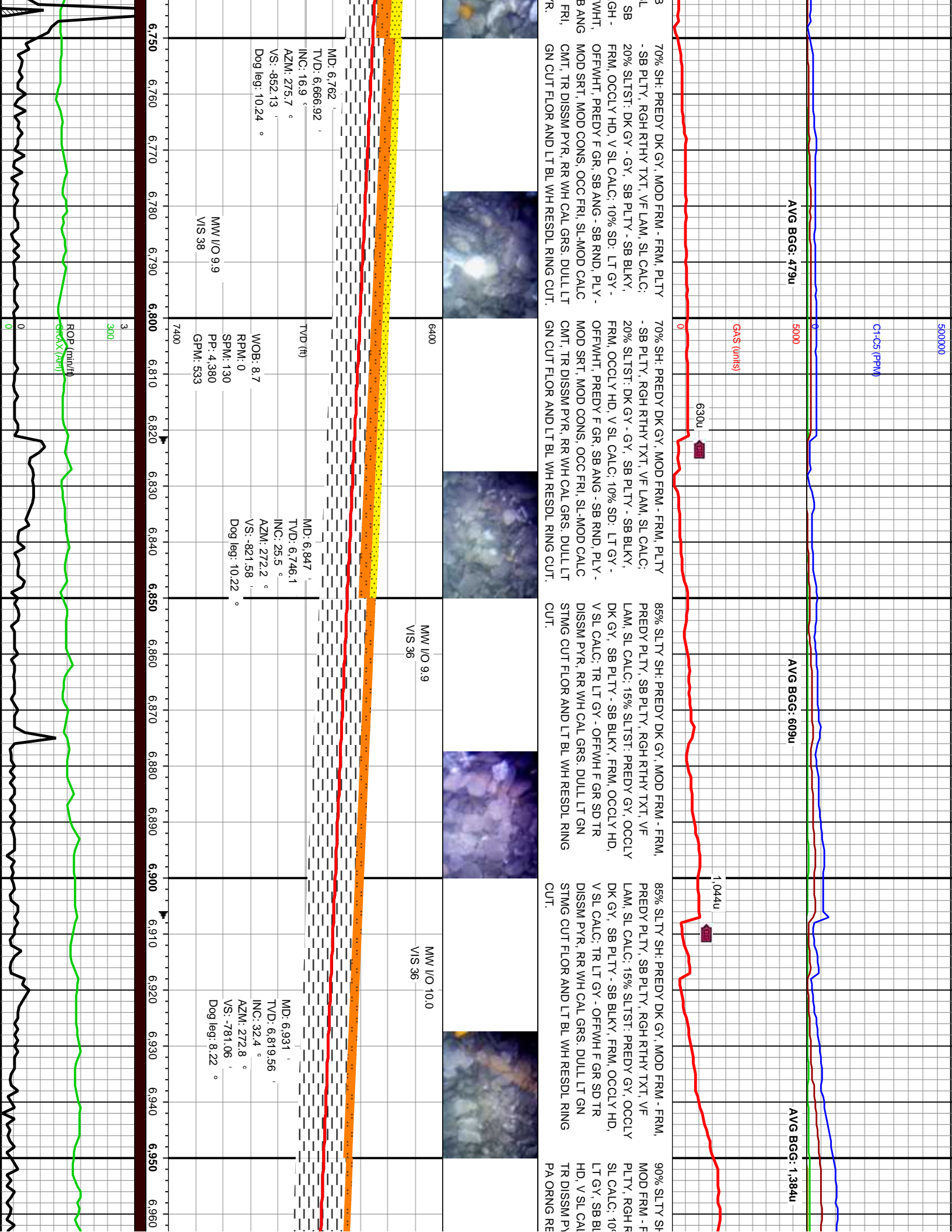
50' Lagged Intervals

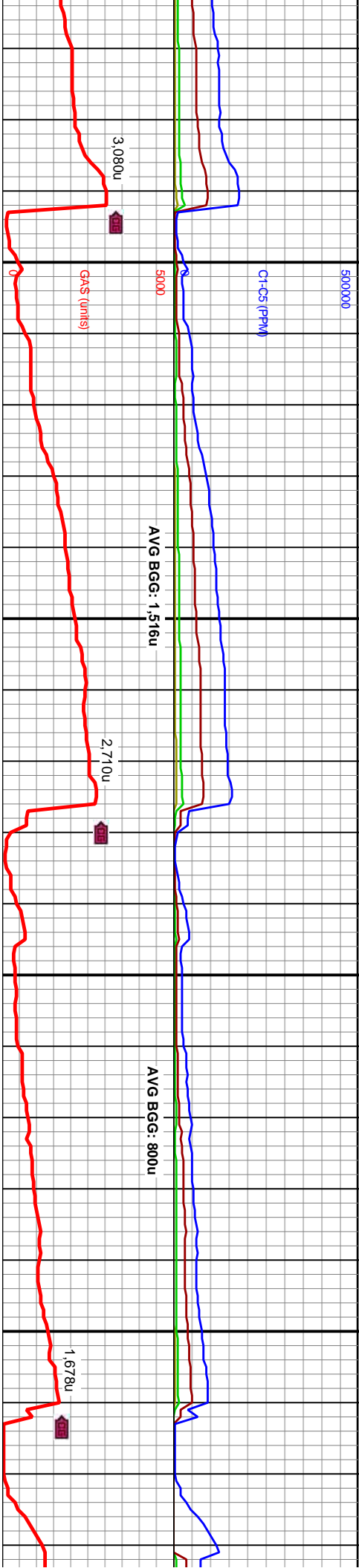
55% SH: PREDY GY, OCCLY DK GY, FRM, SB
PLTY - SB BLKY, RGH RTHY TXT, VF LAM, SL
CALC; 25% SLTST: PREDY GY, SME DK GY, SB
BLKY - SB PLTY, PREDY FRM, OCCLY HD, RGH -
SLTY - RTHY TXT, V SL CALC; 20% SD: OFFWHT,
OCCLY LT GY, OCC TRNSL, PREDY F GR, SB ANG
- SB RND, PLY - MOD SRT, MOD CONS, OCC FRI,
SL-MOD CALC CMT, TR GLAU, TR DISSM PYR.

55% SH: PREDY GY, OCCLY DK GY, FRM, SB
PLTY - SB BLKY, RGH RTHY TXT, VF LAM, SL
CALC; 25% SLTST: PREDY GY, SME DK GY, SB
BLKY - SB PLTY, PREDY FRM, OCCLY HD, RGH -
SLTY - RTHY TXT, V SL CALC; 20% SD: OFFWHT,
OCCLY LT GY, OCC TRNSL, PREDY F GR, SB ANG
- SB RND, PLY - MOD SRT, MOD CONS, OCC FRI,
SL-MOD CALC CMT, TR GLAU, TR DISSM PYR.

55% SH: PREDY GY, OCCLY DK GY, FRM, SB
PLTY - SB BLKY, RGH RTHY TXT, VF LAM, SL
CALC; 25% SLTST: PREDY GY, SME DK GY, SB
BLKY - SB PLTY, PREDY FRM, OCCLY HD, RGH -
SLTY - RTHY TXT, V SL CALC; 20% SD: OFFWHT,
OCCLY LT GY, OCC TRNSL, PREDY F GR, SB ANG
- SB RND, PLY - MOD SRT, MOD CONS, OCC FRI,
SL-MOD CALC CMT, TR GLAU, TR DISSM PYR.







90% SLTY SH: PREDY GY, OCCLY DK GY, MOD FRM - FRM, PREDY PLTY, SME SB PLTY, RGH RTHY TXT, VF LAM, ABNT SLT, SL CALC: 10% SLTST: PREDY GY, OCCLY LT GY, SB BLKY - SB PLTY, FRM, OCCLY HD, V SL CALC: TR LT GY - OFFWH F GR SD, TR DISSM PYR, BRL LT GN MLKY CUT FLOR, PA ORNG RING FLOR, LT BRN O RING.

90% SLTY SH: PREDY GY, OCCLY DK GY, MOD FRM - FRM, PLTY - SB PLTY, MOD FISS, RGH RTHY TXT, VF LAM, ABNT SLT, SL CALC: 20% SLTST: PREDY GY, SB BLKY - SB PLTY, FRM, OCCLY HD, GRDS TO V F SD, SL CALC: TR LT GY - OFFWH F GR SD, TR DISSM PYR, BRL LT GN STMG CUT FLOR, PA ORNG RESDL RING FLOR.

90% SLTY SH: PREDY GY, OCCLY DK GY, MOD FRM - FRM, PLTY - SB PLTY, MOD FISS, RGH RTHY TXT, VF LAM, ABNT SLT, WK CALC: 10% SLTST: PREDY GY, OCCLY LT GY, SB BLKY, FRM, GRDS TO V F SD, WK CALC: TR LT GY - OFFWH F GR SD, TR DISSM PYR, DULL - BRL LT GN STMG CUT FLOR, LT BRN O RING.

90% SLTY SH: PREDY GY, OCCLY FRM - FRM, SB PLTY - SB BLKY, R TXT, VF LAM, ABNT SLT, WK CALC: GY - OFFWHT, PREDY F GR, SB A MOD SRT, MOD CONS, OCC FRI, A CMT, TR DISSM PYR, DULL - BRL CUT FLOR, LT BRN O RING.



WOB: 10.9
RPM: 2
SPM: 120
PP: 3.796
GPM: 492

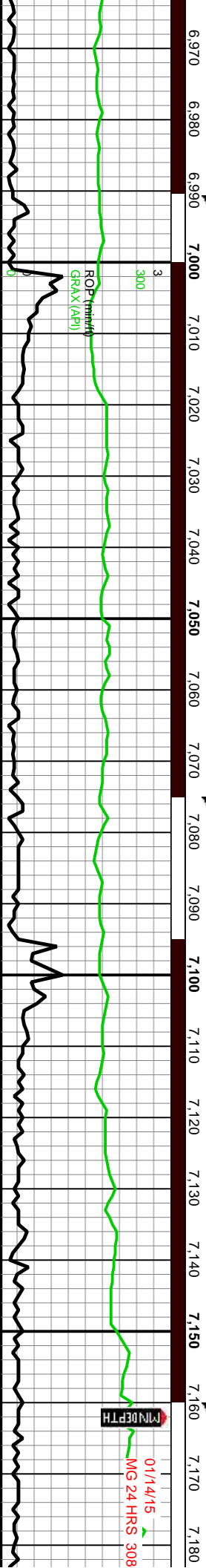
MD: 7.100
TV/D: 6.947.63
INC: 48.9 °
AZIM: 267.3 °
VS: -671.86
Dog leg: 10.35 °

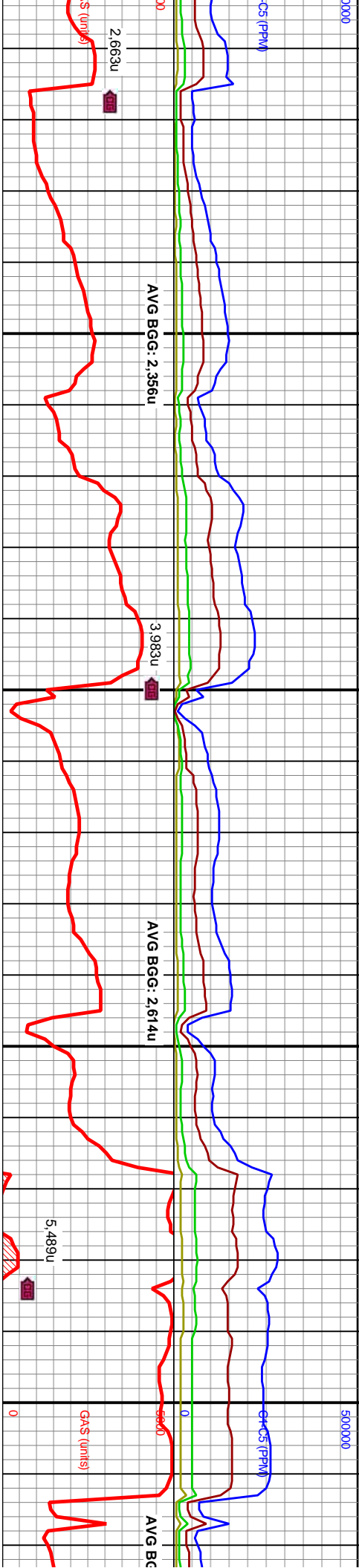
MD: 7.1
TV/D: 6
INC: 5
AZIM: 2
VS: -6
Dog leg: 10.35 °

MD: 7.016
TV/D: 6.887.92
INC: 40.4 °
AZIM: 269.9 °
VS: -730.77
Dog leg: 9.62 °

MM I/O 10.0
VIS 37

MM I/O 10.0
VIS 38





MOD FRM - FRM, RR HRD, PREDY SB BLKY,
BLKY, SFT-V SFT,
STR, SFT-V SFT,
FR-BRIT, SLTY, V
PYR, 50% CHK: L
BRN, LAM, MOT, V
- BLKY, V CALC, C

95% MARL: PREDY DK GY, STRI, PREDY
MOD FRM - FRM, RR HRD, PREDY SB
BLKY, SME SB PLTY, BRIT, VF DISSM AND
LAM PYR, V CALC, 5% CHK: WH - OFF WH,
SME GY BRN, SFT - MOD FRM, SB PLTY -
SB BLKY, V CALC, CRPTXL, LT GN DULL
MLKY CUT FLOR.

95% MARL: PREDY DK GY, STRI, PREDY
MOD FRM - FRM, RR HRD, PREDY SB
BLKY, SME SB PLTY, BRIT, VF DISSM AND
LAM PYR, V CALC, 5% CHK: WH - OFF WH,
SME GY BRN, SFT - MOD FRM, SB PLTY -
SB BLKY, V CALC, CRPTXL, LT GN DULL
MLKY CUT FLOR.

95% MARL: PREDY DK GY, STRI, PREDY
MOD FRM - FRM, RR HRD, PREDY SB
BLKY, SME SB PLTY, BRIT, VF DISSM AND
LAM PYR, V CALC, 5% CHK: WH - OFF WH,
SME GY BRN, SFT - MOD FRM, SB PLTY -
SB BLKY, V CALC, CRPTXL, LT GN DULL
MLKY CUT FLOR.



DOB: 10
M: 34
M: 110
M: 450

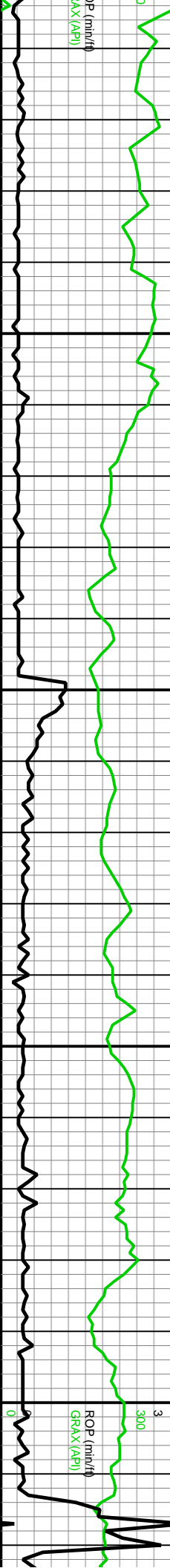
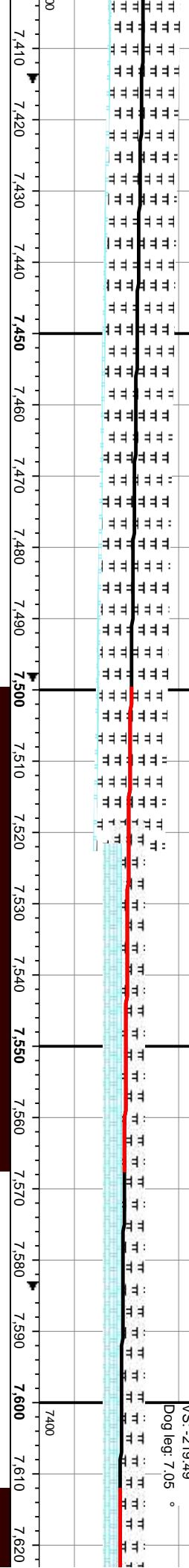
MD: 7,439
TV/D: 7,116.93
INC: 67.6 °
AZM: 264.9 °
VS: -380.09 °
Dog leg: 3.78 °

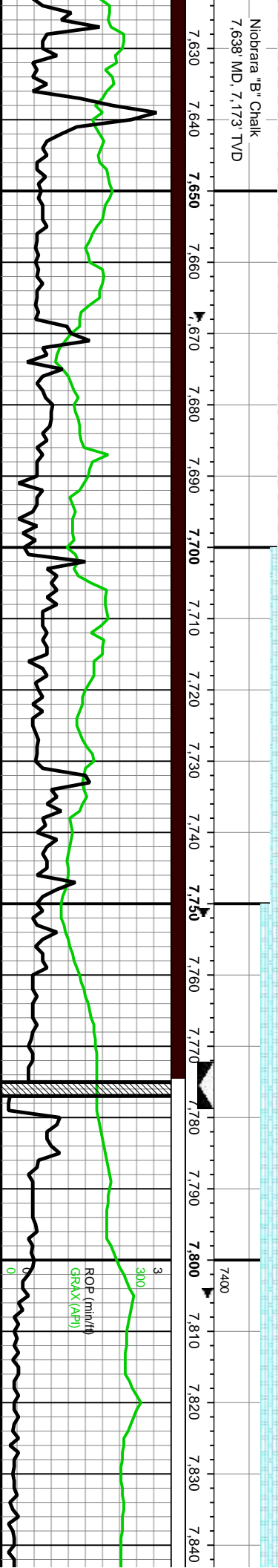
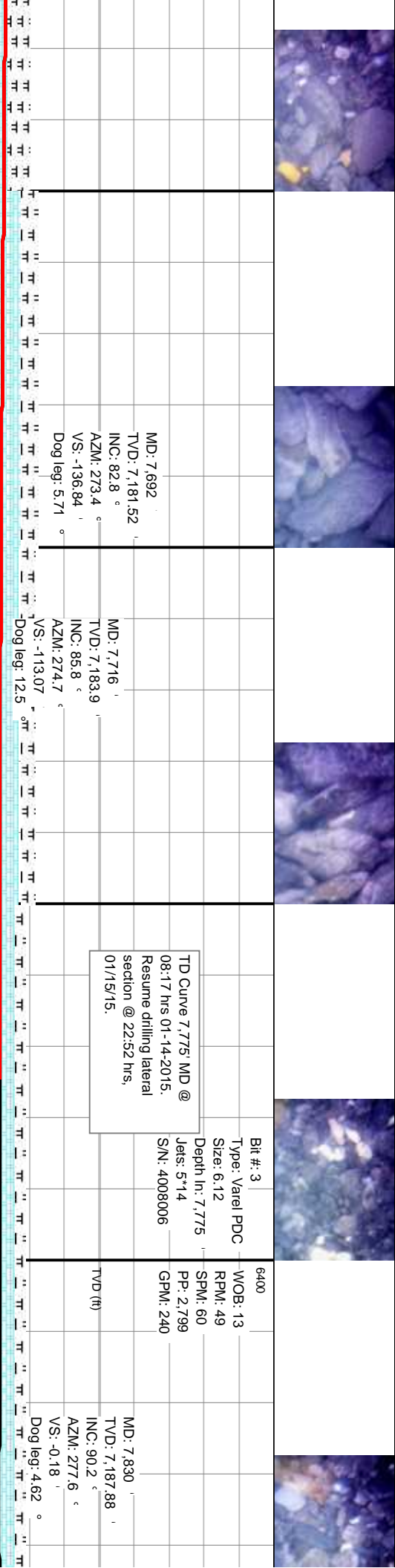
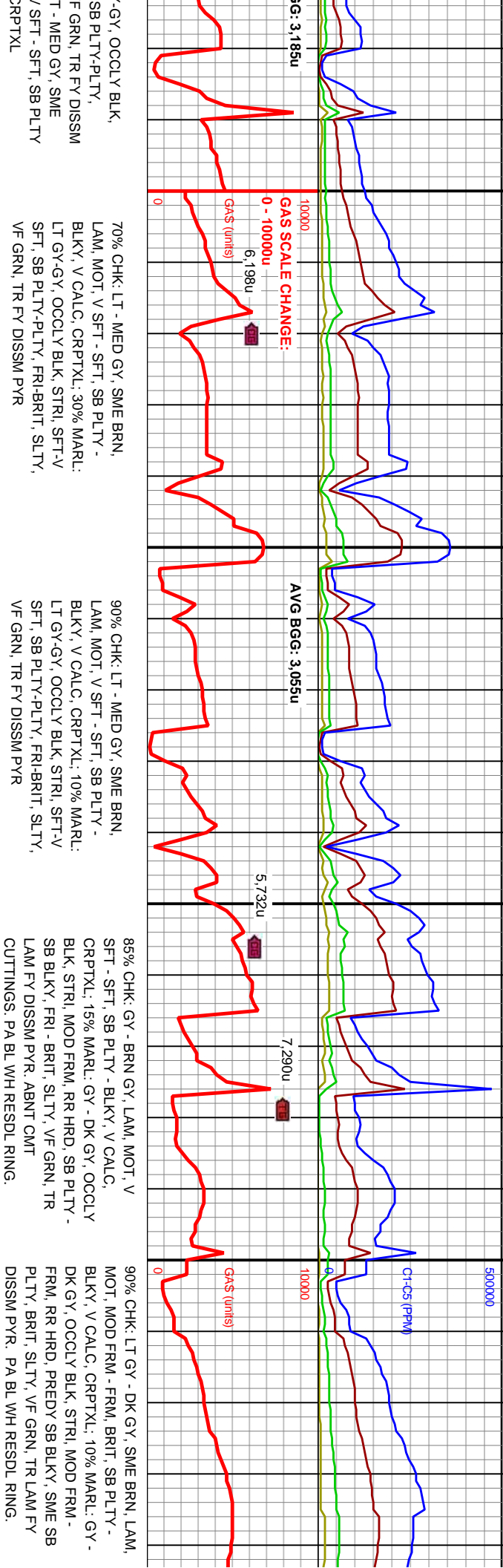
MMW I/O 10.2
VIS 36

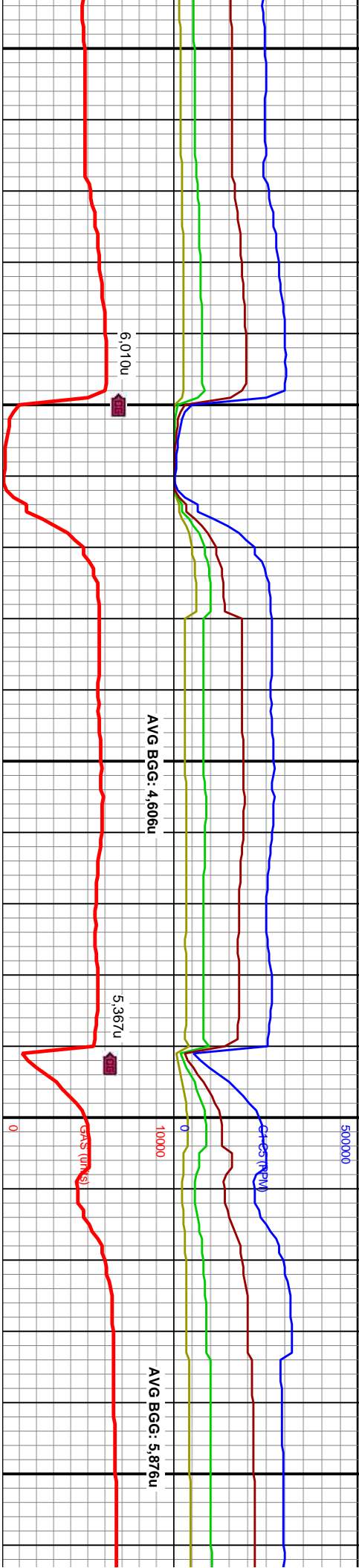
MD: 7,523
TV/D: 7,145.72
INC: 72.3 °
AZM: 264.3 °
VS: -301.43 °
Dog leg: 5.64 °

640WOB: 19.6
RPM: 34
SPM: 110
PP: 4.002
GPM: 450

MD: 7,608
TV/D: 7,167.49
INC: 78 °
AZM: 266.2 °
VS: -219.49 °
Dog leg: 7.05 °







90% CHK: LT GY - DK GY, SME BRN, LAM, MOT, MOD FRM - FRM, BRIT, SB PLTY - BLKY, V CALC, CRPTXL: 10% MARL: GY - DK GY, OCCLY BLK, STRI, MOD FRM - FRM, RR HRD, PREDY SB BLKY, SME SB PLTY, BRIT, SLTY, VF GRN, TR LAM FY DISSM PYR, PA BL WH RESDL RING.

90% CHK: LT GY - DK GY, SME BRN, LAM, MOT, MOD FRM - FRM, BRIT, SB PLTY - BLKY, V CALC, CRPTXL: 10% MARL: GY - DK GY, SME BLK, STRI, FRM, RR HRD, PREDY SB BLKY, SME SB PLTY, BRIT, SLTY, VF GRN, TR LAM FY DISSM PYR, RR QTZ GRS, WK HEM ON FEW FRACS, PA BL WH RESDL RING.

85% CHK: LT GY BRN - DK GY, LAM, MOT, MOD FRM - FRM, BRIT, SB PLTY - BLKY, CRPTXL, V CALC, 15% MARL: DK GY, SME BLK, STRI, FRM, RR HRD, SB BLKY - SB PLTY, BRIT, VF GRN, TR FY DISSM PYR, RR QTZ GRS WITH WK HEM ON FRACS, PA BL WH RESDL RING.

90% CHK: LT GY BRN - DK GY, LAM, MOT, MOD FRM - FRM, BRIT, SB PLTY - BLKY, CRPTXL, V CALC: 10% MARL: DK GY, SME BLK, STRI, FRM, RR HRD, SB BLKY - SB PLTY, BRIT, VF GRN, TR FY DISSM PYR, RR QTZ GRS WITH WK HEM ON FRACS, PA BL WH RESDL RING.

85% CHK: LAM, MOT PLTY - BL MARL: DK SB BLKY - DISSM PY LT GN ML



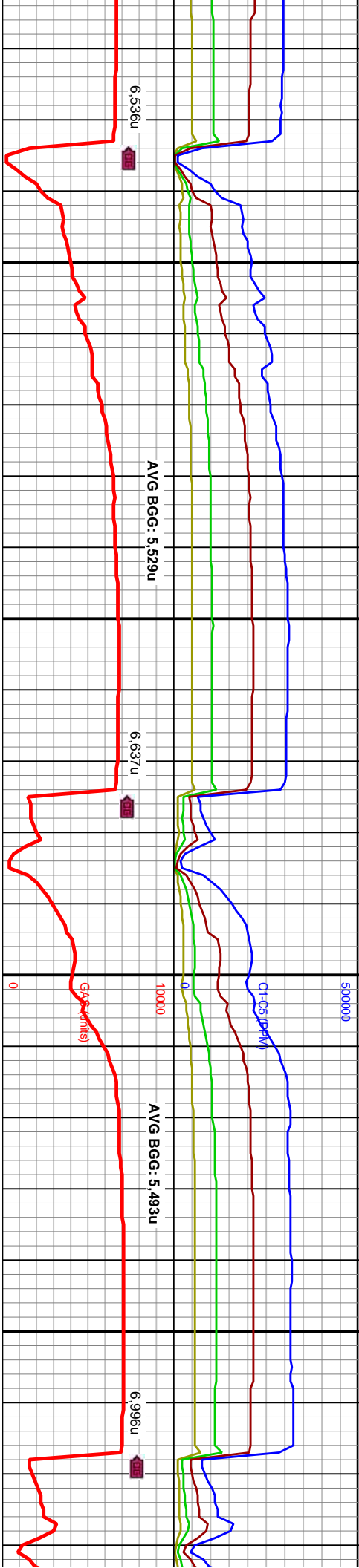
MD: 7.922
TVD: 7,186.84
INC: 91.1 °
AZM: 278 °
VS: 90.66
Dog leg: 1.07 °

MW I/O 9.3
VIS 37

6400
WOB: 13.7
RPM: 70
SPM: 80
PP: 3.973
GPM: 318
MD: 8.014
TVD: 7,184.59
INC: 91.7 °
AZM: 278.4 °
VS: 181.37
Dog leg: 0.78 °

01/16/15
MG 24 HRS 3851u
MINDEPTH

ROP (min/hr)
GRAX (AP)



LT GY - DK BRN GY, RR OFFWH,
MOD FRM - FRM, BRIT, SB
KY, CRPTXL, V CALC: 15%
GY, SME BLK, FRM, RR HRD,
SB PLTY, BRIT, VF GRN, TR FY
R, WK SP DULL YEL FLOR, WK
KY CUT FLOR.

85% CHK: LT GY - DK BRN GY, RR OFFWH,
LAM, MOT, MOD FRM - FRM, BRIT, SB
PLTY - BLKY, CRPTXL, V CALC: 15%
MARL: DK GY, SME BLK, FRM, RR HRD,
SB BLKY - SB PLTY, BRIT, VF GRN, TR FY
DISSM PYR. WK SP DULL YEL FLOR, WK
LT GN MLKY CUT FLOR.

90% CHK: LT GY - BRN GY, LAM, MOT, SFT
- MOD FRM, BRIT, PREDY SB PLTY, SME
SB BLKY, CRPTXL, V CALC: 10% MARL:
DK GY, SME BLK, FRM, RR SFT, SB BLKY,
BRIT, VF GRN, TR FY DISSM PYR. WK LT
GN MLKY CUT FLOR, DULL LT GN RESDL
RING.

90% CHK: LT GY - BRN GY, LAM, MOT, SFT -
MOD FRM, BRIT, PREDY SB PLTY, SME SB
BLKY, CRPTXL, V CALC: 10% MARL: DK GY,
SME BLK, FRM, RR SFT, SB BLKY, BRIT, VF
GRN, TR FY DISSM PYR. WK LT GN MLKY
CUT FLOR, DULL LT GN RESDL RING.

70% CHK: LT GY - BRN GY, RR WH
LAM, MOT, SFT - MOD FRM, BRIT,
PLTY, SME SB BLKY, CRPTXL, V
MARL: DK GY, SME BLK, MOD SF
SME HRD, PLTY - SB BLKY, BRIT,
DISSM PYR. RR QIZ GRS WITH W
FRACS. NO CUT FLOR, PA BL WH
RING.

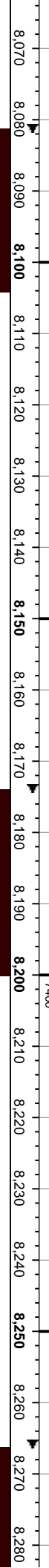


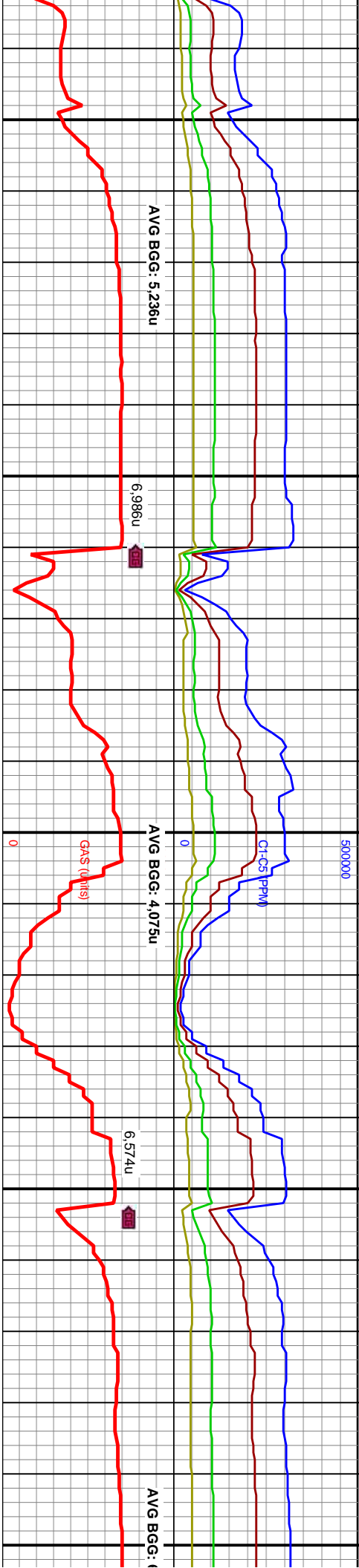
MD: 8,106 '
TVD: 7,181.54 '
INC: 92.1 °
AZM: 277.1 °
VS: 272.17 °
Dog leg: 1.48 °

MD: 8,199 '
TVD: 7,178.94 '
INC: 91.1 °
AZM: 275.2 °
VS: 364.34 °
Dog leg: 2.31 °

WOB: 10.6
RPM: 71
SPM: 80
PP: 3.779
GPM: 319

MW I/O 9.3
VIS 36





70% CHK: LT GY - BRN GY, RR WH - OFF WH, LAM, MOT, SFT - MOD FRM, BRIT, PREDY SB PLTY, SME SB BLKY, CRPTXL, V CALC: 30% MARL: DK GY, SME BLK, MOD SFT - MOD FRM, SME HRD, PLTY - SB BLKY, BRIT, VF GRN, TR FY DISSM PYR, RR QTZ GRS WITH WK HEM ON EW FRACS, NO CUT FLOR, PA BL WH - LT GN RESDL RING.

75% CHK: LT GY - BRN GY, RR WH - OFF WH, LAM, MOT, FRM - HRD, SME MOD SFT, BRIT, PREDY SB BLKY, SME SB PLTY, CRPTXL, V CALC: 25% MARL: PREDY DK GY, SME BLK, FRM, SME HRD, PLTY - SB PLTY, SME SB BLKY, BRIT, VF GRN, TR FY DISSM PYR, NO CUT FLOR, PA BL WH - LT GN RESDL RING.

85% CHK: LT GY - BRN GY, RR WH - OFF WH, LAM, MOT, FRM - HRD, SME MOD SFT, BRIT, SB PLTY - SB BLKY, CRPTXL, V CALC: 15% MARL: PREDY DK GY, SME BLK, FRM - SL HRD, PLTY - SB PLTY, BRIT, VF GRN, TR FY DISSM PYR, NO CUT FLOR, PA BL WH - LT GN RESDL RING.

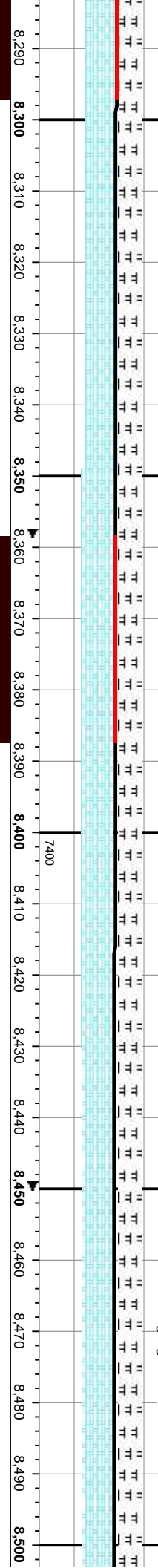


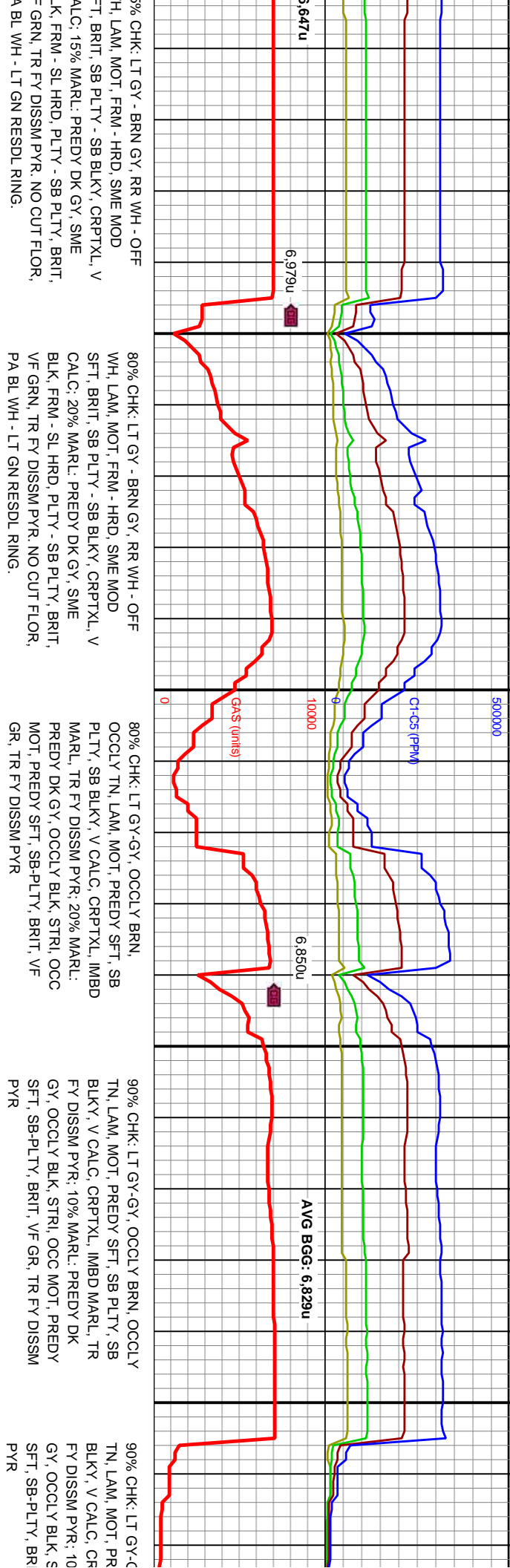
ID: 8.291
VD: 7.179.34
NC: 88.4
ZM: 27.4
S: 455.84
Dog leg: 3.21

MD: 8.383
TVD: 7.182.55
INC: 87.6
AZM: 270.7
VS: 547.57
Dog leg: 3.69

WOB: 15
RPM: 70
SPM: 80
PP: 4.096
GPM: 318

MD: 8.475
TVD: 7.185.68
INC: 88.5
AZM: 270.8
VS: 639.46
Dog leg: 0.98



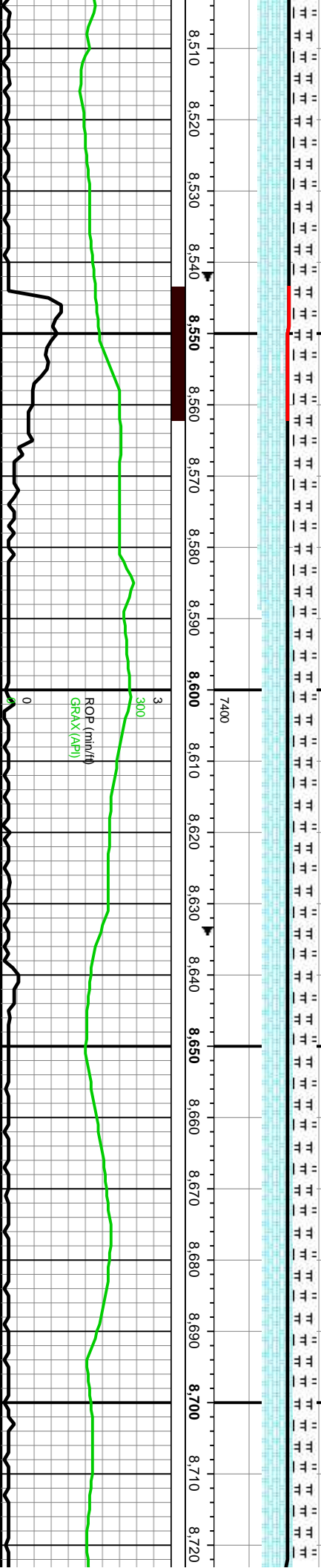


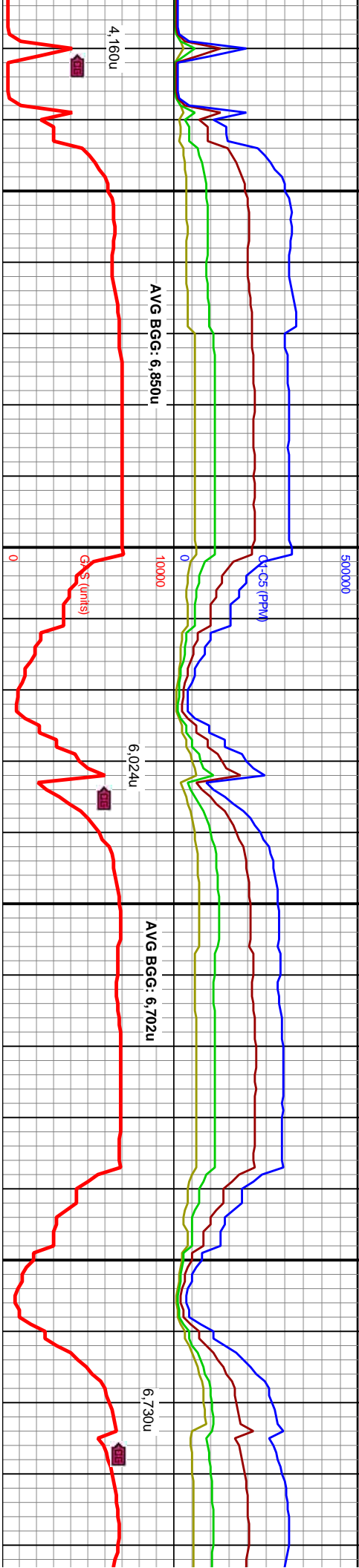
MD: 8,567 '
TVD: 7,188.25 '
INC: 88.3 °
AZM: 269.5 °
VS: 731.39
Dog leg: 1.43 °

WOB: 16.6
RPM: 70
SPM: 80
PP: 4.279
GPM: 318

TVD (ft)

MD: 8,659 '
TVD: 7,190.5 '
INC: 88.9 °
AZM: 269.9 °
VS: 823.34
Dog leg: 0.78 °





8Y, OCCLY BRN, OCCLY
EDY SFT, SB PLTY, SB
PLTY, IMBD MARL, TR
% MARL: PREDY DK
GY, OCCLY MOT, PREDY
SFT, VF GR, TR FY DISSM
PYR

90% CHK: LT GY-GY, OCCLY BRN, OCCLY
TN, LAM, MOT, PREDY SFT, SB PLTY, SB
BLKY, V CALC, CRPTXL, IMBD MARL, TR
FY DISSM PYR, 10% MARL: PREDY DK
GY, OCCLY BLK, STRI, OCC MOT, PREDY
SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM
PYR

80% CHK: LT GY-GY, OCCLY BRN,
OCCLY TN, LAM, MOT, PREDY SFT, SB
PLTY, SB BLKY, V CALC, CRPTXL, IMBD
MARL, TR FY DISSM PYR, 20% MARL:
PREDY DK GY, OCCLY BLK, STRI, OCC
MOT, PREDY SFT, SB-PLTY, BRIT, VF
GR, TR FY DISSM PYR

70% CHK: LT GY-GY, OCCLY BRN, OCCLY
TN, LAM, MOT, PREDY SFT, SB PLTY, SB
BLKY, V CALC, CRPTXL, IMBD MARL, TR
FY DISSM PYR, 30% MARL: PREDY DK
GY, OCCLY BLK, STRI, OCC MOT, PREDY
SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM
PYR

70% CHK: LT GY-GY, OCCLY BRN,
OCCLY TN, LAM, MOT, PREDY SFT, SB
PLTY, SB BLKY, V CALC, CRPTXL, IMBD
MARL, TR FY DISSM PYR, 30% MARL:
PREDY DK GY, OCCLY BLK, STRI, OCC
MOT, PREDY SFT, SB-PLTY, BRIT, VF
GR, TR FY DISSM PYR



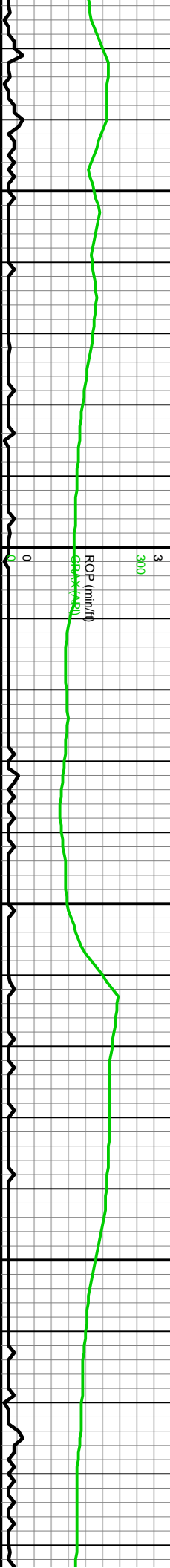
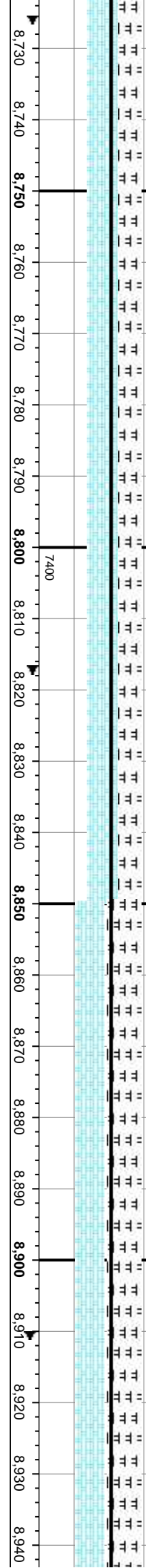
MD: 8.751
TV D: 7.192.43
INC: 88.7 °
AZM: 269.5 °
VS: 915.31
Dog leg: 0.49 °

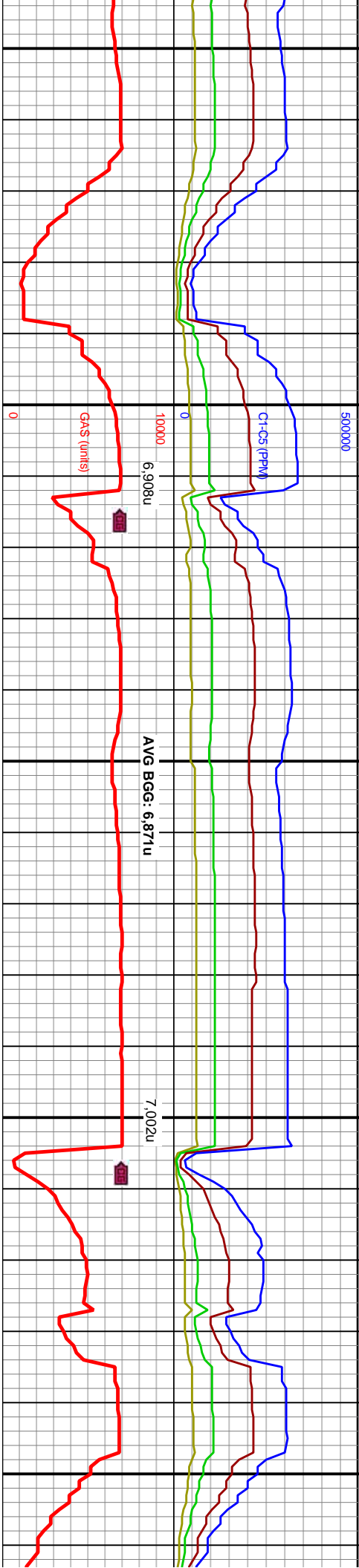
6400
WOB: 16.3
RPM: 70
SPM: 80
PP: 4.262
GPM: 318

MD: 8.844
TV D: 7.193.89
INC: 89.5 °
AZM: 270.1 °
VS: 1.008.28
Dog leg: 1.08 °

MW I/O 9.3
VIS 34

MD: 8.936
TV D: 7.194.13
INC: 90.2 °
AZM: 270.5 °
VS: 1.100.24
Dog leg: 0.88 °





70% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, IMBD MARL, TR FY DISSM PYR; 30% MARL: PREDY DK GY, OCCLY BLK, STRL, OCC MOT, PREDY SFT, SB PLTY, BRIT, VF GR, TR FY DISSM PYR; 40% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, TR FY DISSM PYR

70% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, IMBD MARL, TR FY DISSM PYR; 30% MARL: PREDY DK GY, OCCLY BLK, STRL, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR

70% MARL: PREDY DK GY, OCCLY BLK, STRL, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR; 30% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, TR FY DISSM PYR

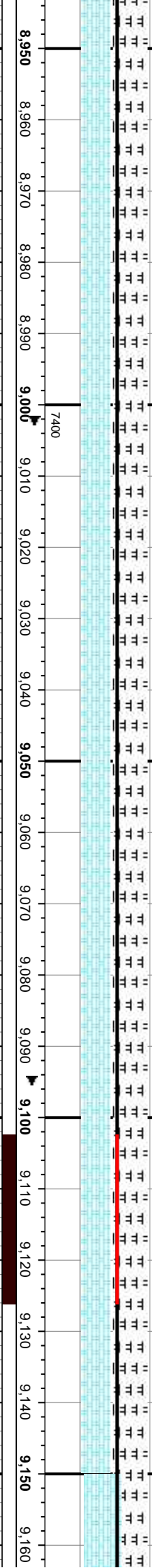
70% MAF: STRL, OC BRIT, VF CHK: LT LAM, MO BLKY, V PYR

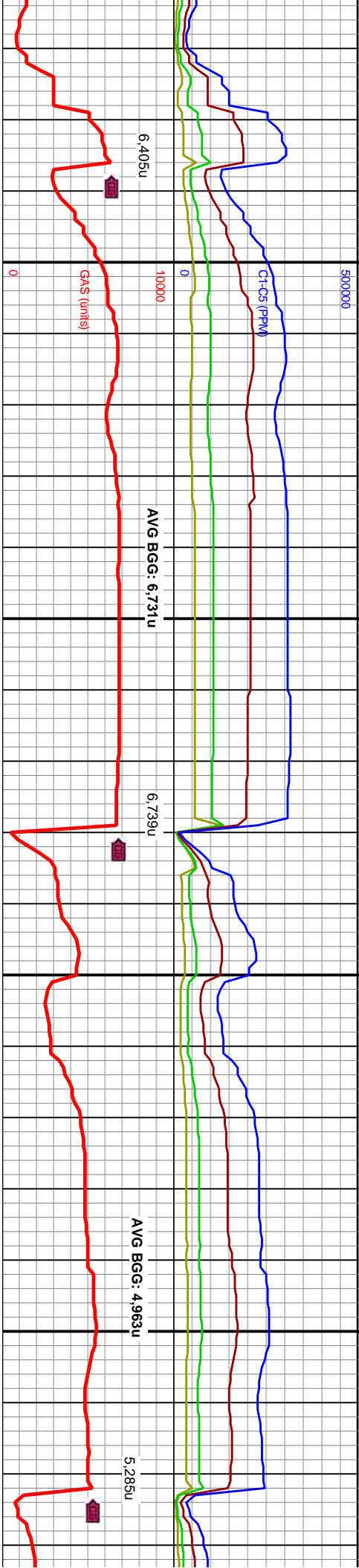


6400
WOB: 14.1
RPM: 70
SPM: 80
PP: 4.264
GPM: 318
MD: 9.028
TVD: 7.193.25
INC: 90.9 °
AZM: 270.6 °
VS: 1.192.19
Dog leg: 0.77 °

9.120
TVD: 7.192.36
INC: 90.2 °
AZM: 269.2 °
VS: 1.284.16
Dog leg: 1.7 °

MW I/O 9.3
VIS 34





70% MARL: PREDY DK GY, OCCLY BLK, STRI, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR: 30% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, TR FY DISSM PYR

70% MARL: PREDY DK GY, OCCLY BLK, STRI, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR: 30% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, TR FY DISSM PYR

70% MARL: LT-DK GY, STRI, SFT-V SFT, SB PLTY-PLTY, FRI- BRIT, SIL, VF GRN, RR VF TR PYR: 30% CHK: LT-MED GY, SME BRN, LAM, V SFT-SFT, SB PLTY-BLKY, V CALC, CRPTXL, INTBD W/MARL, SCAT BENT

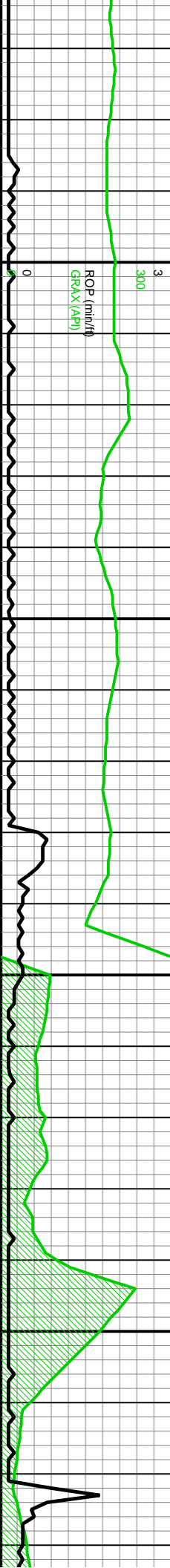
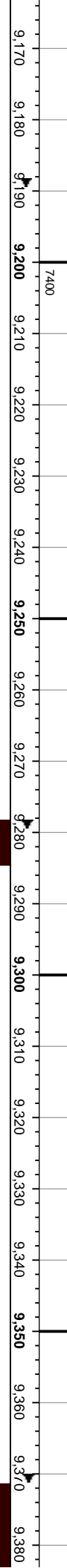
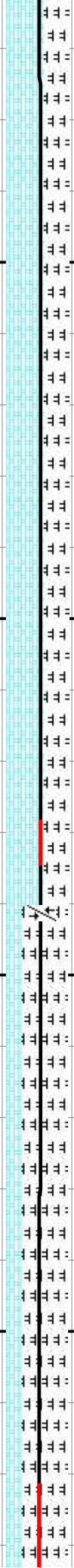
70% MARL: LT-DK GY, STRI, SFT-V SFT, SB PLTY-PLTY, FRI- BRIT, SIL, VF GRN, RR VF TR PYR: 30% CHK: LT-MED GY, SME BRN, LAM, V SFT-SFT, SB PLTY-BLKY, V CALC, CRPTXL, INTBD W/MARL, SCAT BENT

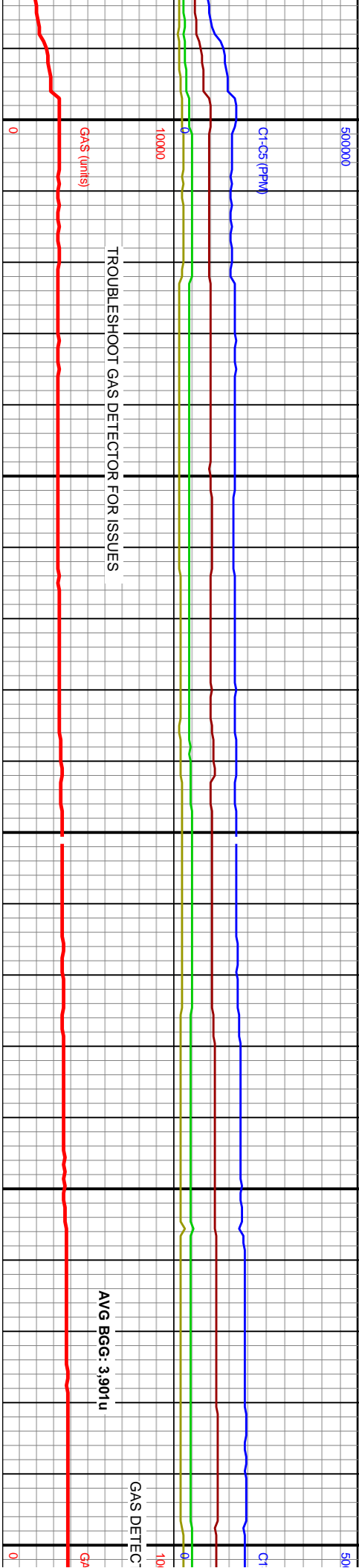


WOB: 13.1
RPM: 70
SPM: 80
PP: 4.315
GPM: 317

MD: 9.212
TVD: 7.191.48
INC: 90.9 °
TV/AZM: 269.3 °
VS: 1.376.15
Dog leg: 0.77 °

MD: 9.304
TVD: 7.191
INC: 89.7 °
AZM: 268.6 °
VS: 1.468.14
Dog leg: 1.51 °





80% MARL: LT-DK GY, STRI, SFT-V
SFT, SB PLTY-PLTY, FRI- BRIT, SIL, VF
GRN, RR VF TR PYR: 20% CHK:
LT-MED GY, SME BRN, LAM, V
SFT-SFT, SB PLTY-BLKY, V CALC,
CRPTXL, INTBD W/MARL, SCAT BENT

70% MARL: LT-DK GY, STRI,
SFT-V SFT, SB PLTY-PLTY, FRI-
BRIT, SIL, VF GRN, RR VF TR
PYR: 30% CHK: LT-MED GY, SME
BRN, LAM, V SFT-SFT, SB
PLTY-BLKY, V CALC, CRPTXL,
INTBD W/MARL, SCAT BENT

70% MARL: LT-DK GY, STRI, SFT-V
SFT, SB PLTY-PLTY, FRI- BRIT, SIL,
VF GRN, RR VF TR PYR: 30% CHK:
LT-MED GY, SME BRN, LAM, V
SFT-SFT, SB PLTY-BLKY, V CALC,
CRPTXL, INTBD W/MARL, SCAT BENT

50% CHK: LT-MED GY, SME BRN, LAM,
V SFT-SFT, SB PLTY-BLKY, V CALC,
CRPTXL, INTBD W/MARL, SCAT BENT:
50% MARL: LT-DK GY, STRI, SFT-V SFT,
SB PLTY-PLTY, FRI- BRIT, SIL, VF GRN,
RR VF TR PYR

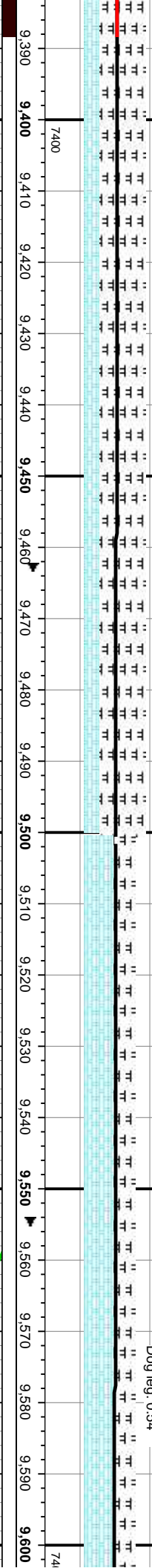


6400 WOB: 12
RPM: 70
SPM: 80
PP: 4,129
GPM: 318

TVD (ft)

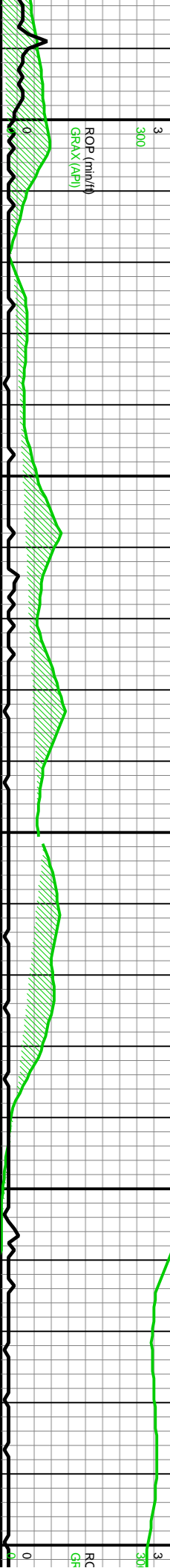
MD: 9,488
TVD: 7,196.86
INC: 87.8 °
AZM: 269.6 °
VS: 1,652.03
Dog leg: 0.58 °

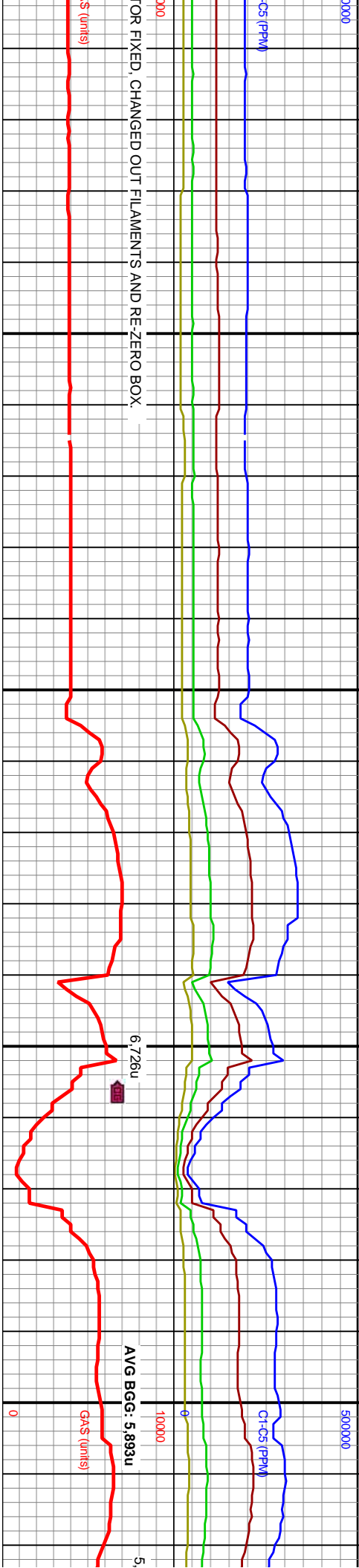
MD: 9,580
TVD: 7,200.07
INC: 88.2 °
AZM: 269.9 °
VS: 1,743.95
Dog leg: 0.54 °



3
300

ROP (min/ft)
GRAX (AP)





70% CHK: WH-GY, SME BRN, GY MOT LAM, SFT-V SFT, SB PLTY-BLKY, INTBDD WI MRLST, SCAT BENT INCL, SL CALC: 30% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, FR AMT FY DISSM PYR & BENT

70% CHK: WH-GY, SME BRN, GY MOT LAM, SFT-V SFT, SB PLTY-BLKY, INTBDD WI MRLST, SCAT BENT INCL, SL CALC: 30% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, FR AMT FY DISSM PYR & BENT

50% CHK: WH-GY, SME BRN, GY MOT LAM, SFT-V SFT, SB PLTY-BLKY, INTBDD WI MRLST, SCAT BENT INCL, SL CALC: 50% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, FR AMT FY DISSM PYR & BENT

70% MRLST: LT-MED SFT-FRM, MOT, SB F CALC, TR FY DISSM 30% CHK: WH-GY, SME LAM, SFT-V SFT, SB WI MRLST, SCAT BE



WOB: 14
RPM: 70
SPM: 78
PP: 4.134
GPM: 310

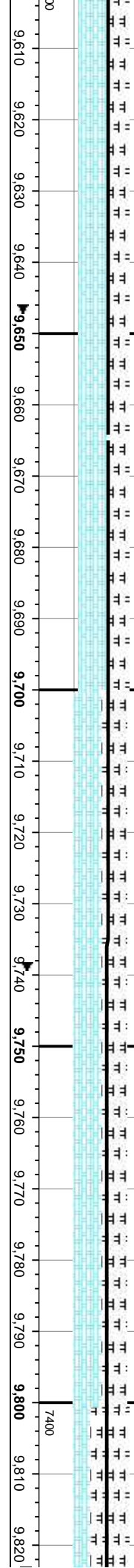
MW I/O 9.3
VIS 38

MD: 9.672
TVD: 7,202.64
INC: 88.6 °
AZM: 270.1 °
VS: 1.835.89
Dog leg: 0.49 °

MD: 9.757
TVD: 7,204.56
INC: 88.8 °
AZM: 270.6 °
VS: 1.920.84
Dog leg: 0.63 °

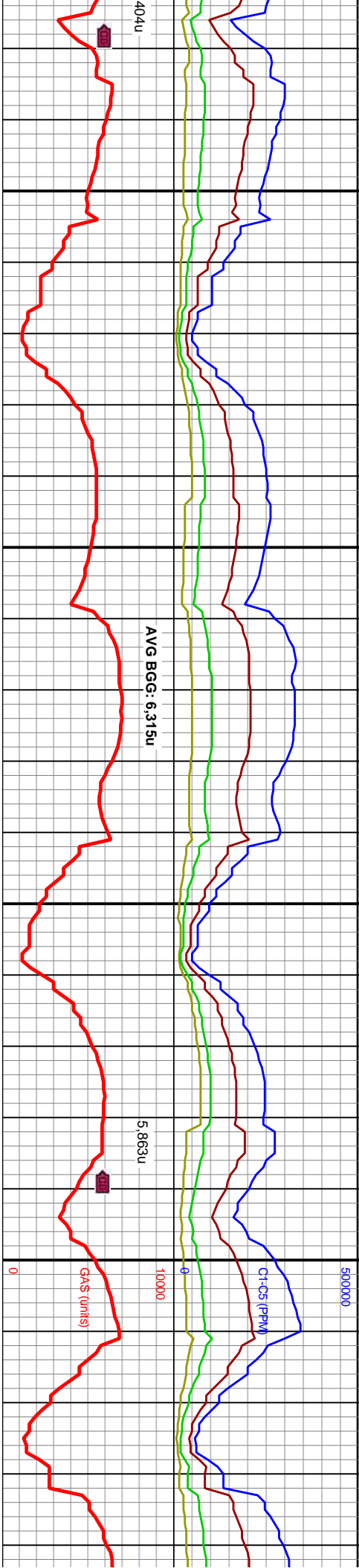
WOB: 15.9
RPM: 70
SPM: 77
PP: 4.255
GPM: 305

TVD (ft)



ROP (min./ft)
GA\$X (A/F)

ROP (min./ft)
GA\$X (A/F)



80% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, TR FY DISSM PYR, TR CHK STRG, 20% CHK, WH-GY, SME BRN, GY MOT LAM, SFT-V SFT, SB PLTY-BLKY, INTBDD WI MRLST, SCAT BENT INCL, SL CALC

70% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, TR FY DISSM PYR, TR CHK STRG, 30% CHK, WH-GY, SME BRN, GY MOT LAM, SFT-V SFT, SB PLTY-BLKY, INTBDD WI MRLST, SCAT BENT INCL, SL CALC

70% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, TR FY DISSM PYR, TR CHK STRG, 30% CHK, WH-GY, SME BRN, GY MOT LAM, SFT-V SFT, SB PLTY-BLKY, INTBDD WI MRLST, SCAT BENT INCL, SL CALC

60% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, TR FY DISSM PYR, TR CHK STRG, 40% CHK, WH-GY, SME BRN, GY MOT LAM, SFT-V SFT, SB PLTY-BLKY, INTBDD WI MRLST, SCAT BENT INCL, SL CALC



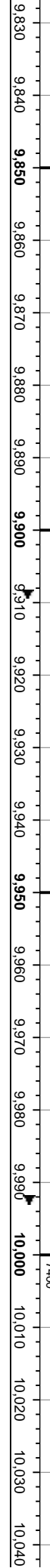
MD: 9.842 ' TVD: 7,206.2 ' INC: 89 ° AZM: 271 ° VS: 2,005.76 ' Dog leg: 0.53 °

MD: 9.926 ' TVD: 7,207.44 ' INC: 89.3 ° AZM: 271.2 ° VS: 2,089.68 ' Dog leg: 0.43 °

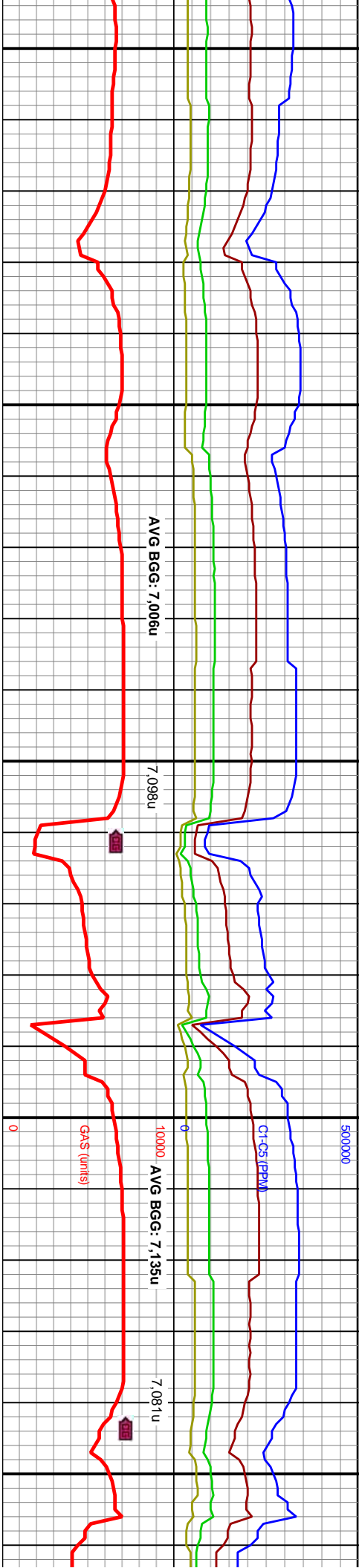
MD: 10.011 ' TVD: 7,208.11 ' INC: 89.8 ° AZM: 271.8 ° VS: 2,174.58 ' Dog leg: 0.92 °

WOB: 11.2 RPM: 70 SPM: 74 PP: 4.225 GPM: 294

MW I/O 9.3 VIS 36



ROP (min./ft) GRAX (AP)



60% MR.LST: LT-MEDGY, OCC LT TN, STRI,
SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY,
CALC, TR FY DISSM PYR, TR CHK STRG;
40% CHK: WH-GY, SME BRN, GY MOT LAM,
SFT-V SFT, SB PLTY-BLKY, INTBDD WI
MR.LST, SCAT BENT INCL, SL CALC

50% CHK: PREDY LT GY, OCCLY
OFFWHT, SFT-FRM, BRIT, BLKY, CALC;
50% MR.LST: LT-MEDGY, OCC LT TN,
STRI, SFT-FRM, MOT, SB PLTY,
BLKY-SB BLKY, CALC, TR FY DISSM
PYR

60% CHK: PREDY LT GY, OCCLY
OFFWHT, SFT-FRM, BRIT, BLKY,
CALC, 40% MR.LST: LT-MEDGY, OCC
LT TN, STRI, SFT-FRM, MOT, SB
PLTY, BLKY-SB BLKY, CALC, TR FY
DISSM PYR

70% CHK: PREDY LT GY, OCCLY
OFFWHT, SFT-FRM, BRIT, BLKY, CALC;
30% MR.LST: LT-MEDGY, OCC LT TN,
STRI, SFT-FRM, MOT, SB PLTY,
BLKY-SB BLKY, CALC, TR FY DISSM
PYR

80% CHK: PREDY LT GY, OCCLY
OFFWHT, SFT-FRM, BRIT, BLKY, CALC;
30% MR.LST: LT-MEDGY, OCC LT TN,
STRI, SFT-FRM, MOT, SB PLTY,
BLKY-SB BLKY, CALC, TR FY DISSM
PYR

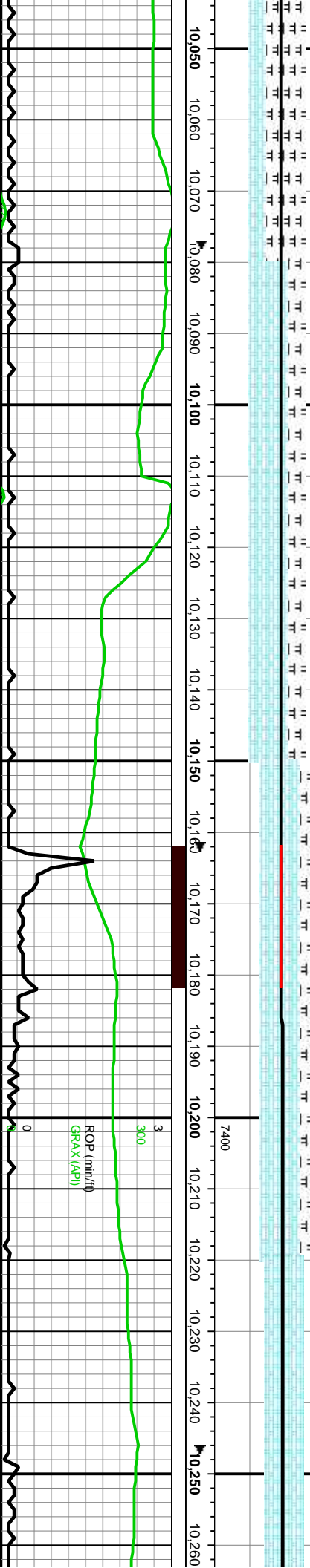


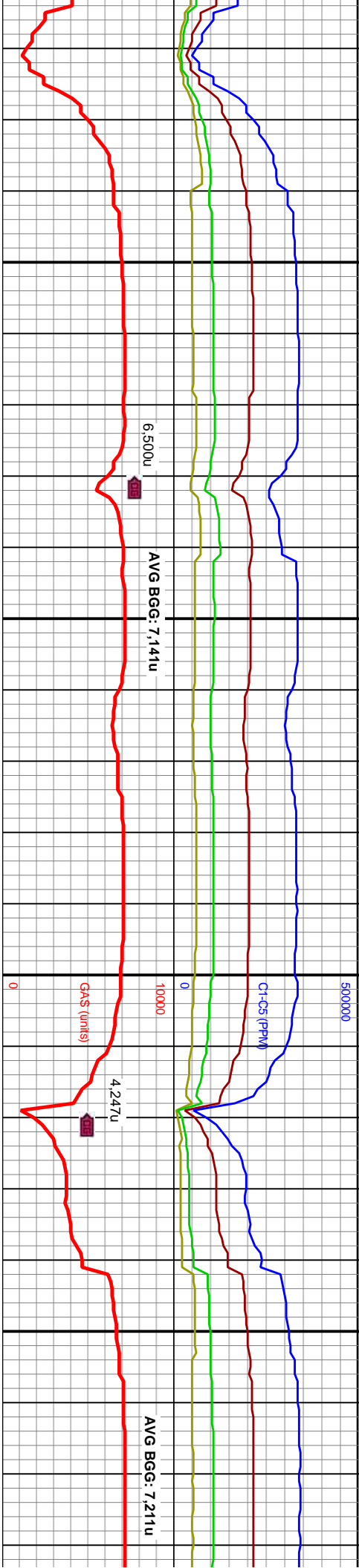
MD: 10,095
TVD: 7,208.33
INC: 89.9 °
AZM: 272 °
VS: 2,258.45
Dog leg: 0.27 °

MD: 10,180
TVD: 7,208.26
INC: 90.2 °
AZM: 269.9 °
VS: 2,343.37
Dog leg: 2.5 °

6400 WOB: 15.6
RPM: 70
SPM: 73
PP: 4.143
GPM: 290

MD: 10,
TVD: 7,
INC: 91,
AZM: 27
VS: 2,44
Dog leg





80% CHK: PREDY LT GY, OCCLY OFFWHT, SFT-FRM, BRIT, BLKY, CALC; 20% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, TR FY DISSM PYR

90% CHK: PREDY LT GY, OCCLY OFFWHT, SFT-FRM, BRIT, BLKY, CALC; 10% MRLST: LT-MEDGY, OCC LT TN, STRI, SFT-FRM, MOT, SB PLTY, BLKY-SB BLKY, CALC, TR FY DISSM PYR

70% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, IMBD MARL, TR FY DISSM PYR; 30% MARL: PREDY DK GY, OCCLY BLK, STRI, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR

70% CHK: LT GY-GY, OCCLY BR LAM, MOT, PREDY SFT, SB PLT CALC, CRPTXL, IMBD MARL, TR PYR; 30% MARL: PREDY DK GY STRI, OCC MOT, PREDY SFT, SI VF GR, TR FY DISSM PYR

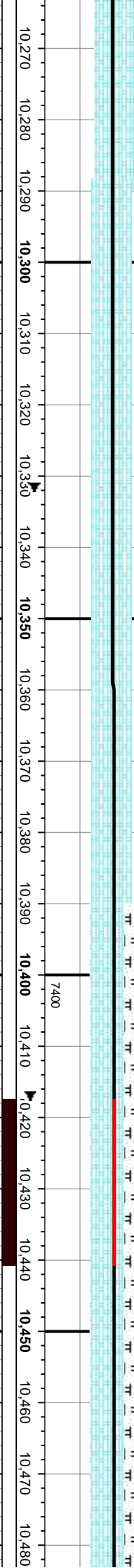


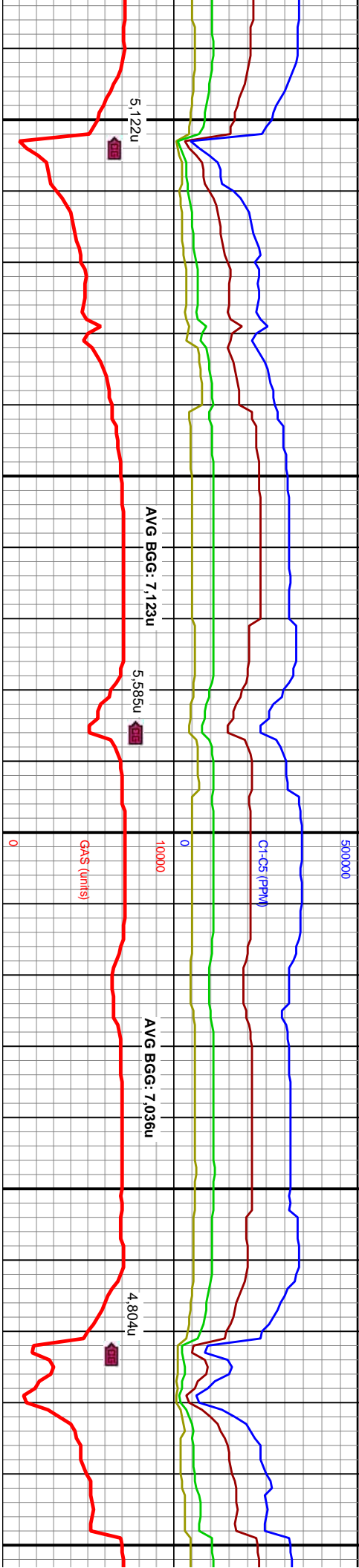
MMW I/O 9.4
VIS 35

WOB: 17.7
RPM: 70
SPM: 72
PP: 4.251
GPM: 286

MD: 10.349
TVD: 7,204.41
INC: 92.2 °
AZM: 270.6 °
VS: 2.512.25
Dog leg: 1.01 °

MD: 10.434
TVD: 7,201.67
INC: 91.5 °
AZM: 270.1 °
VS: 2.597.17
Dog leg: 1.01 °





70% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, IMBD MARL, TR FY DISSM PYR: 30% MARL: PREDY DK GY, OCCLY BLK, STRI, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR

60% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, IMBD MARL, TR FY DISSM PYR: 40% MARL: PREDY DK GY, OCCLY BLK, STRI, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR

50% MARL: PREDY DK GY, OCCLY BLK, STRI, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR: 50% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, IMBD MARL, TR FY DISSM PYR

60% MARL: PREDY DK GY, OCCLY BLK, STRI, OCC MOT, PREDY SFT, SB-PLTY, BRIT, VF GR, TR FY DISSM PYR: 40% CHK: LT GY-GY, OCCLY BRN, OCCLY TN, LAM, MOT, PREDY SFT, SB PLTY, SB BLKY, V CALC, CRPTXL, IMBD MARL, TR FY DISSM PYR

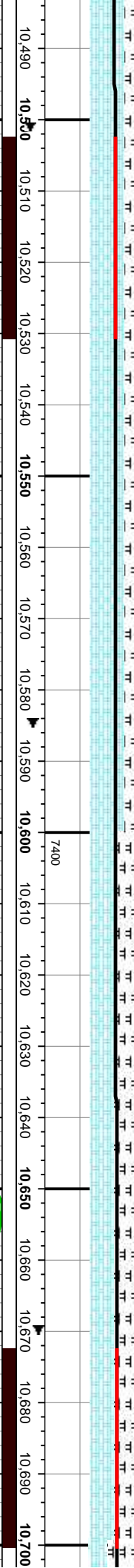


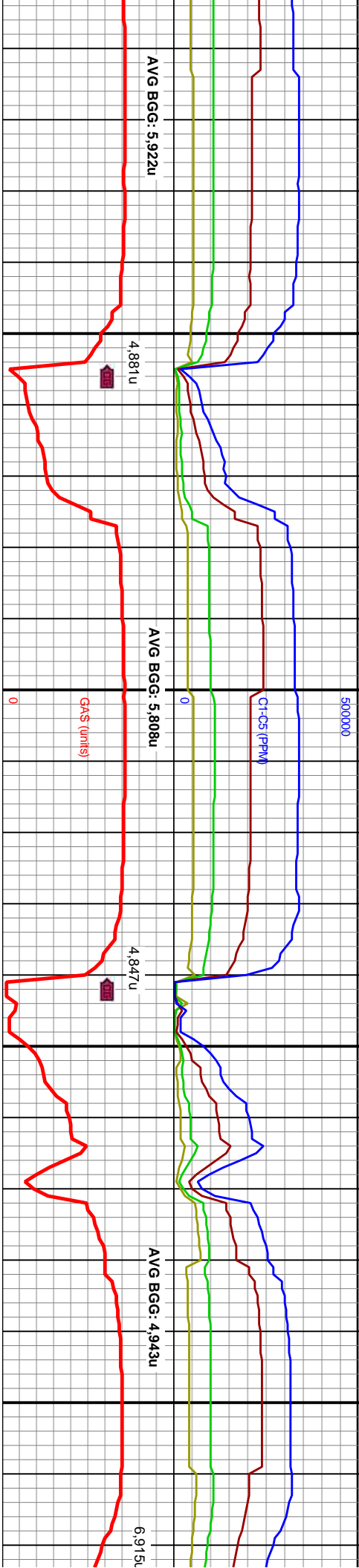
WOB: 13.6
RPM: 69
SPM: 70
PP: 4.258
GPM: 286

MD: 10.518 ' TVD: 7.199.4 ' INC: 91.6 ° AZM: 267.5 ° VS: 2.681.13 ' Dogleg: 3.1 °

MD: 10.603 ' TVD: 7.196.73 ' INC: 92 ° AZM: 267.2 ° VS: 2.766.06 ' Dogleg: 0.59 °

MD: 10.687 ' TVD: 7.194.75 ' INC: 90.7 ° AZM: 266.8 ° VS: 2.850 ' Dogleg: 1.62 °





70% MARL: PREDY DK GY, OCCLY BLK, LAM, 70% MARL: PREDY DK GY, OCCLY BLK, LAM, OCC MOT, PREDY SFT, SME FRM, SB PLTY - SB BLKY, BRIT, VF GR, TR FY DISSM PYR: 30% CHK: LT GY-GY, OCCLY BRN GY, LAM, MOT TXT, PREDY SFT, PREDY SB PLTY, SME SB BLKY, V CALC, CRPTXL, TR FY DISSM PYR. WK LT GN RESDL RING FLOR.

55% MARL: PREDY DK GY, OCCLY BLK, LAM, MOD FRM, SME SL HRD, SB PLTY - SB BLKY, BRIT, VF GR, TR FY DISSM PYR: 45% CHK: LT GY-GY, OCCLY BRN GY, F LAM, MOT, PREDY SFT, SME FRM, PREDY SB BLKY, SCAT SB PLTY, V CALC, CRPTXL, TR FY DISSM PYR. WK LT GN RESDL RING FLOR.

70% MARL: PREDY DK GY, OCCLY BLK, LAM, MOD FRM, SME SL HRD, SB PLTY - SB BLKY, BRIT, VF GR, TR FY DISSM PYR: 45% CHK: LT GY-GY, OCCLY BRN GY, F LAM, MOT, PREDY SFT, SME FRM, PREDY SB BLKY, SCAT SB PLTY, V CALC, CRPTXL, TR FY DISSM PYR. WK LT GN RESDL RING FLOR.

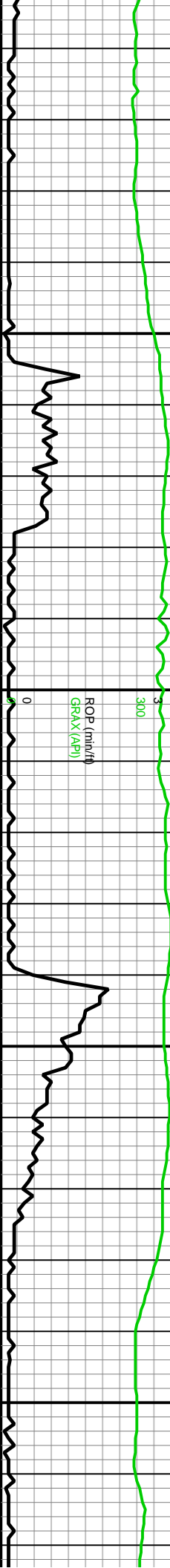
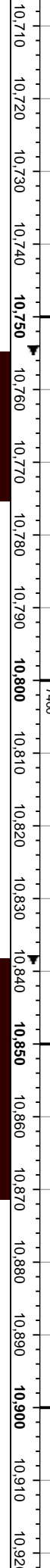


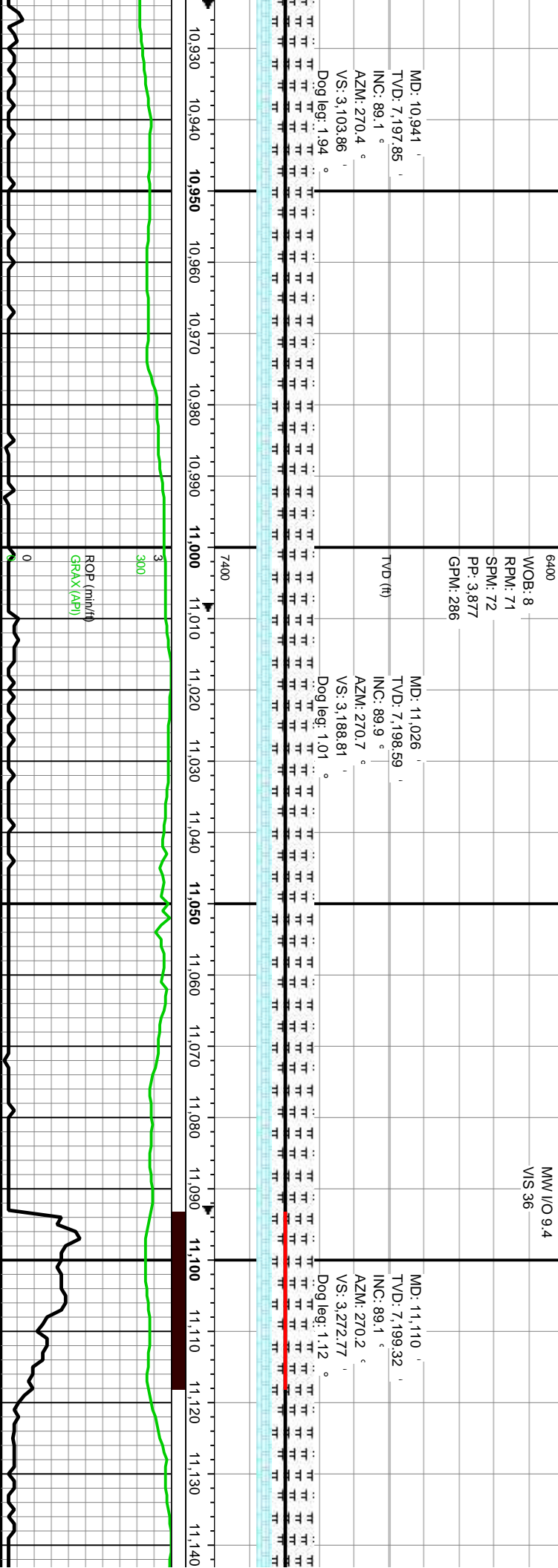
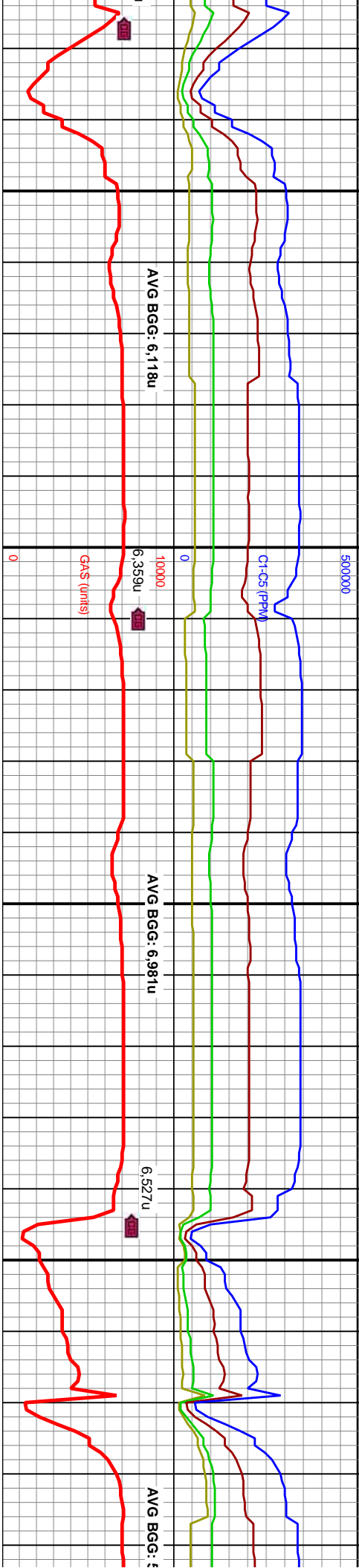
6400
WOB: 1
RPM: 70
SPM: 72
PP: 4.157
GPM: 286

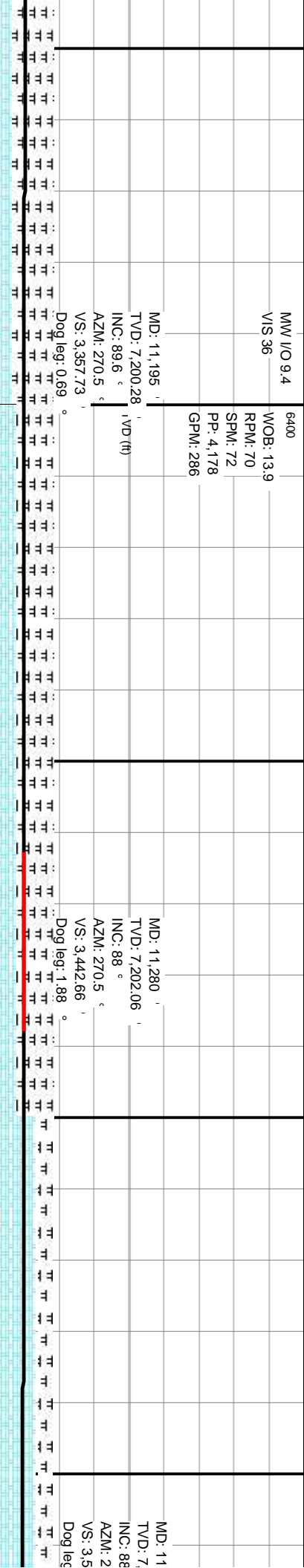
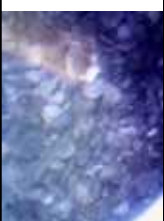
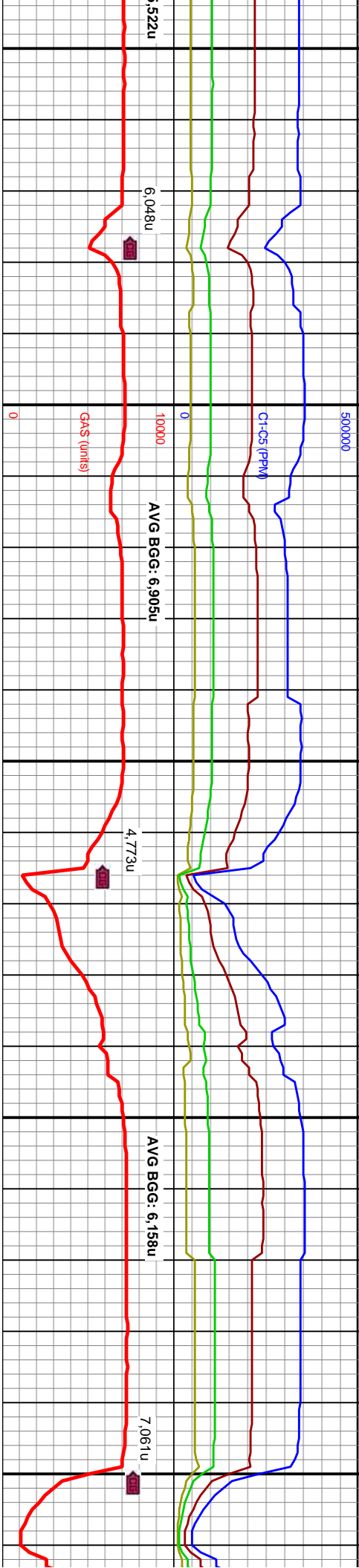
MW I/O 9.3
VIS 37

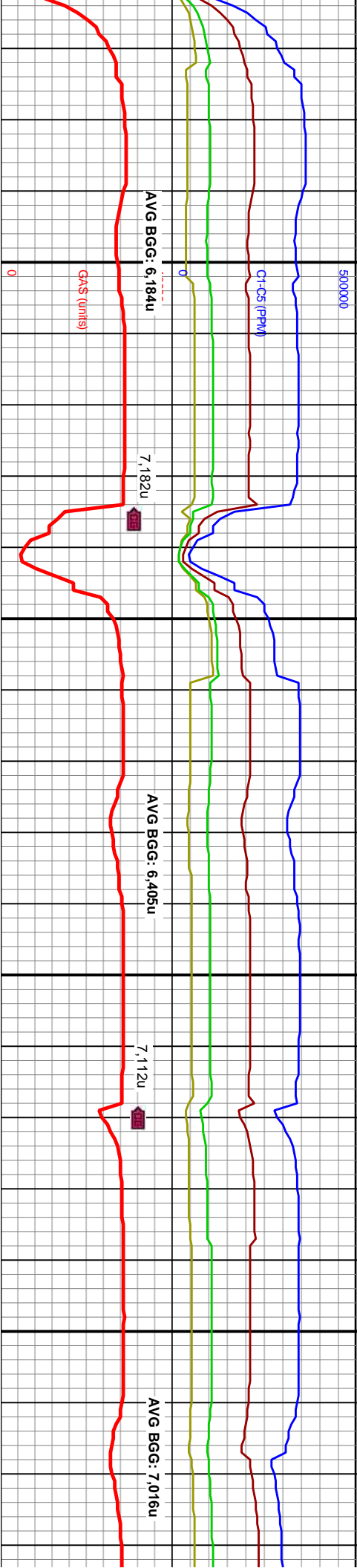
MD: 10.772 '
TVD: 7.194.82 '
INC: 89.2 °
AZM: 266.4 °
VS: 2.934.93 '
Dog leg: 1.83 °

MD: 10.857 '
TVD: 7.196.31 '
INC: 88.8 °
AZM: 268.8 °
VS: 3.019.89 '
Dog leg: 2.86 °









PREDY DK GY, OCCLY BLK,
FRM, RR SL HRD, PREDY PLTY,
TY, BRIT, VF GR, TR FY DISSM
CHK: PREDY LT GY, SME DK GY,
H, V SFT - SFT, PREDY PLTY, SB
M, V CALC, CRPTXL, PA BL-WH
G FLOR

20% MAAL: DK GY - BLK, LAM1, MOD SFT - FRM, RR SL HRD, PREDY SB PLTY, RR SB BLKY, BRIT, VF GR, TR FY DISSM PVR; 80% CHK: PREDY LT GY - DK GY, SME BRN, MOT, RR WH GRS, SFT, PREDY SB PLTY, F LAM, V CALC, CRPTXL, PA BL-WH RESD RING FLOR

20% MARL: DK GY - BLK, LAM, MOD SFT - FRM, RR SL HRD, PRE DY SB PLTY, RR SB BLKY, BRIT, VF GR, TR FY DISSB PYR: 80% CHK, PRE DY LT GY - DK GY, SME BRN, MOT, RR WH GRN, SFT, PRE DY SB PLTY, F LAM, V CALC, CRPTXL, PA BL-WH RESD, RING FLOR

15% MARL: DK GY - BLK, LAM, MOD SFT
- FRM, RR SL HRD, PLYT - SB PLYT,
BRIT, VF GR, TR FY DISSM PYR- 85%
CHK- PREDY LIT GY - DK GY, SME BRN,
MOT, MOD SFT -MOD FRM, OCCLY SL
HRD, PLYT - SB PLYT, F LAM, V CALC,
CRPTXL, PA BL-WH RESDL RING FLOR.

15% MARL: DK GY - BLK, LAN
- FRM, RR SL HRD, PLTY - SB
VF GR, TR FY DISSM PYR: 85
PREDY LT GY - DK GY, SME F
MOD SFT- MOD FRM, OCCLY
PLTY - SB PLTY, F LAM, V C₂
CRPTXL. PA BL-WH RESDL R



MM I/O 9.5
VIS 35

6400

RPM: 71
SPM: 72
PP: 4,160
GPM: 286

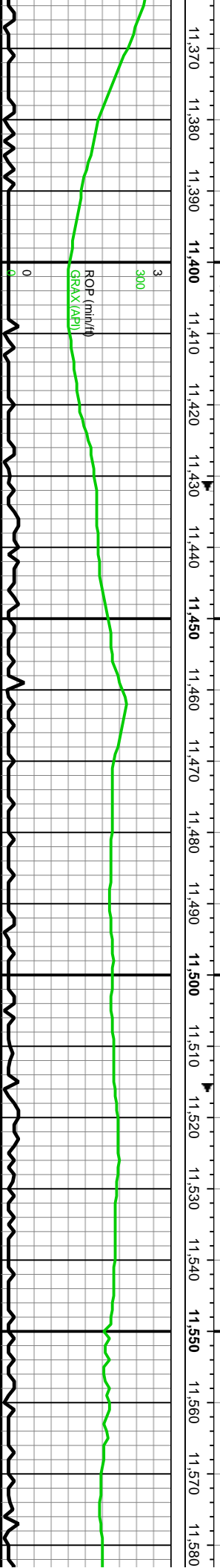
TVD (ft)

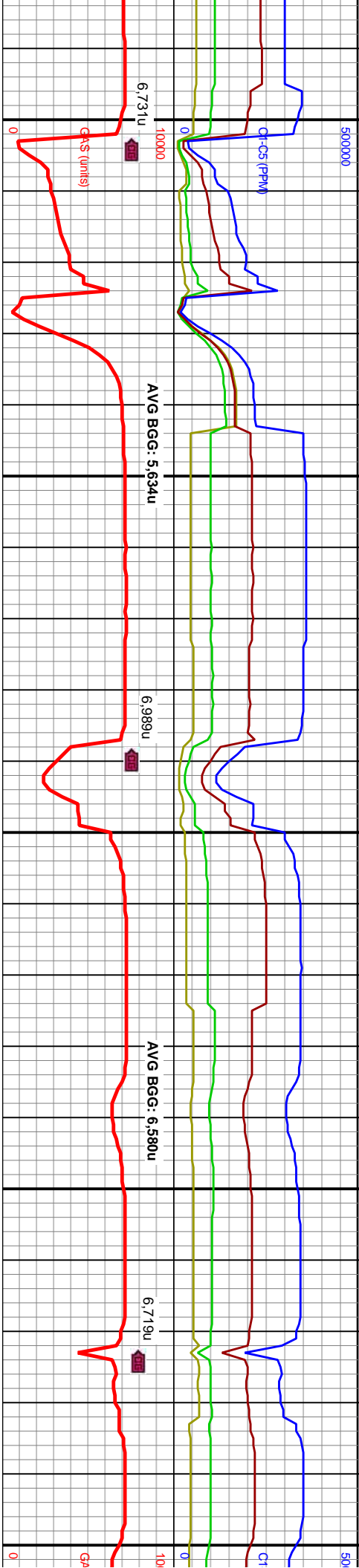
	MD: 11,449
	TVD: 7,207.59
	INC: 88.5
	AZM: 271.3
	VS: 3,611.46
	Dog leg: 1.01
TVD (ft)	

MD: 11,449
TVD: 7,207.59
INC: 88.5 °
AZM: 271.3 °
VS: 3,611.46
Dog leg: 1.01

MD: 11,533
TVD: 7,209.35
INC: 89.1 °
AZM: 272 °
VS: 3,695.33
Dog leg: 1.1 °

MD: 11,533
TVD: 7,209.35
INC: 89.1 °
AZM: 272 °
VS: 3,695.33
Dog leg: 1.1 °



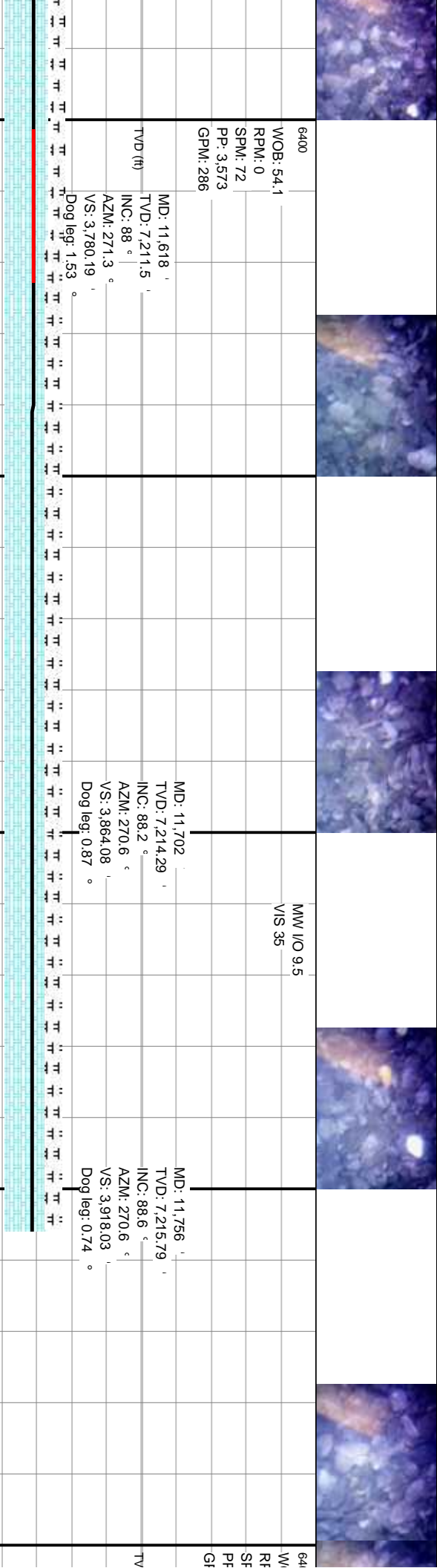


25% MARL: DK GY - BLK, LAM, FRM, RR
SL HRD, SB PLTY - SB BLKY, BRIT, VF GR,
TR FY DISSM PYR; 75% CHK: PREDY LT
GY - DK GY, SME BRN, MOT, MOD SFT-
FRM, PLTY - SB PLTY, F LAM, V CALC,
CRPTXL. PA BL-WH RESDL RING FLOOR.

25% MARL: DK GY - BLK, LAM, FRM, RR
SL HRD, SB PLTY - SB BLKY, BRIT, VF GR,
TR FY DISSM PYR; 75% CHK: PREDY LT
GY - DK GY, SME BRN, MOT, MOD SFT-
FRM, PLTY - SB PLTY, F LAM, V CALC,
CRPTXL. PA BL-WH RESDL RING FLOOR.

15% MARL: DK GY - BLK, LAM, MOD SFT - FRM,
RR SL HRD, SB PLTY, BRIT, VF GR, TR FY
DISSM PYR; 85% CHK: PREDY LT GY - DK GY,
RR BRN, MOT, MOD SFT- FRM, PREDY SB PLTY,
F LAM, V CALC, CRPTXL. PA BL-WH RESDL
RING FLOOR.

15% MARL: DK GY - BLK, LAM, MOD SFT - FRM,
RR SL HRD, SB PLTY, BRIT, VF GR, TR FY
DISSM PYR; 85% CHK: PREDY LT GY - DK GY,
RR BRN, MOT, MOD SFT- FRM, PREDY SB PLTY,
F LAM, V CALC, CRPTXL. PA BL-WH RESDL
RING FLOOR.

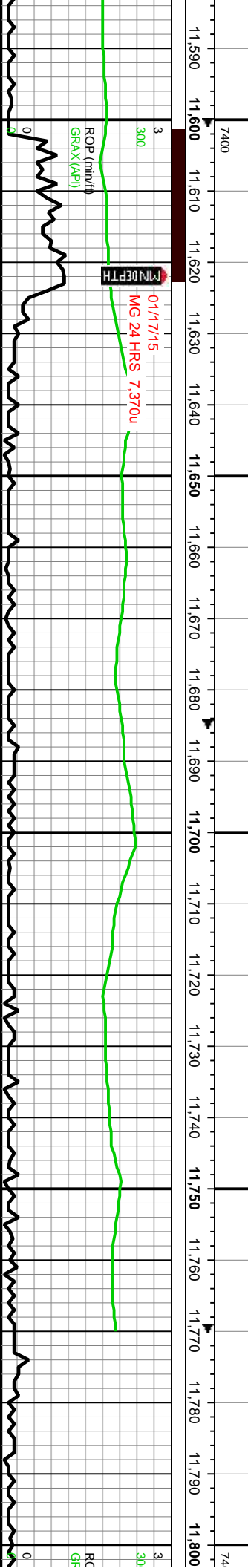


WOB: 54.1
RPM: 0
SPM: 72
PP: 3.573
GPM: 286

MD: 11,618
TVD: 7,211.5
INC: 88 °
AZM: 271.3 °
VS: 3,780.19
Dog leg: 1.53 °

MD: 11,702
TVD: 7,214.29
INC: 88.2 °
AZM: 270.6 °
VS: 3,864.08
Dog leg: 0.87 °

MD: 11,756
TVD: 7,215.79
INC: 88.6 °
AZM: 270.6 °
VS: 3,918.03
Dog leg: 0.74 °



ROP (min./hr)
GRAX (AP)

01/17/15
MG 24 HRS 7,370u



% MARL: DK GY - BLK, LAM, MOD
-T - FRM, RR SL HRD, SB PLTY,
RIT, VF GR, TR FY DISSM PYR; 86%
-HK: PREDY LT GY - DK GY, RR BRN,
OT, MOD SFT - FRM, PREDY SB
-TY, F LAM, V CALC, CRPTXL. PA
-WH RESDL RING FLOR.



DOB: 13.5				
MI: 71				
MI: 72				
MI: 286				
TD Well 11,822 MD @ 01:07 a.m. (MST).				
01 - 17 - 2015				
Thank You for Using				
ALS Empirica				
0				
11,810	11,820	11,830	11,840	11,850

