



Company : Apache

Well : Elver-1

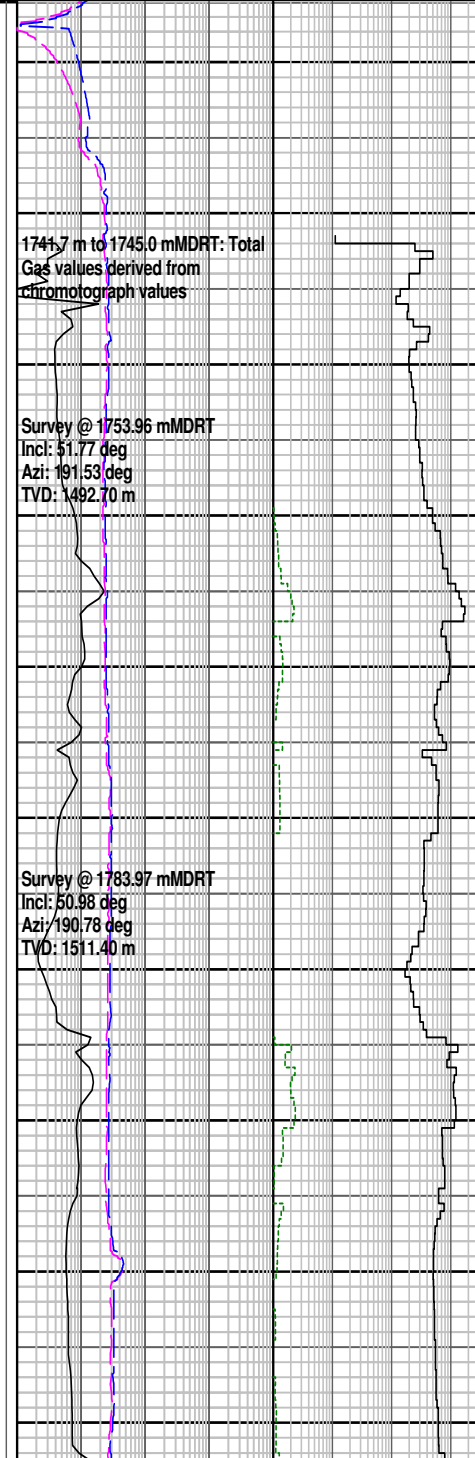
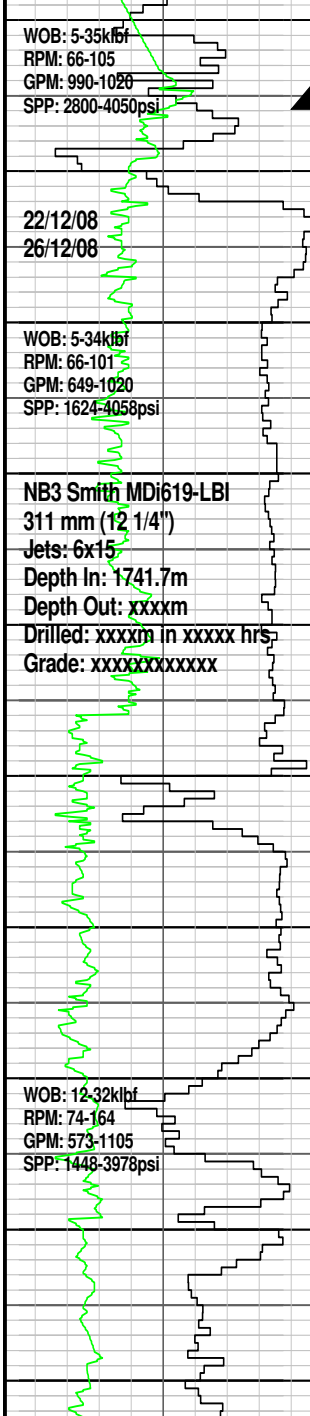
Interval : 1726.00 - 3175.20 meters

Created : 29/Dec/2008 8:21:28 AM

INTEQ

FORMATION EVALUATION LOG

Drilling Rate		MD meters	TVDRT meters	Cuttings Lithology	Oil Show	Visual Inferred Porosity	Gas Data		Chromatograph Data		Calcmetry	Interpreted Lithology	Lithology Description
ROP (m/hr)	ROP (m/hr)						Gas Hydrocarbon Avg %	Methane ppm	Ethane ppm	Propane ppm			
200	200	1730	1484.3				0.1 1 10 100	1	100000	1	100000		340mm (13 3/8") casing shoe @ 1735.9 mMDRT
180	180	1740	1496.7				Resistivity Shallow	1	1000	1	100000		Reached 406mm (16") Section TD @ 1741.7m at 22:50 hrs on 22/12/2008
160	160	1750	1509.2				OHMM	1	1000	1	100000		CALCARENITE: v lt gy-lt gnsh gy, off wh-pl yl or, tr med-crs sbang qtz grs, slt i/p grd to CLSLT, tr v f glauc gr, frm-mod hd, p vis por, no hydc fluor
140	140	1760	1521.8				Resistivity Deep	1	1000	1	100000		DOLOMITE: lt brn, dk yelsh brn, xln, v calc, grd to DOL LST, mod hd-hd, brit
120	120	1770	1534.4				OHMM	1	1000	1	100000		CALCILUTITE: v lt gy-lt gnsh gy, off wh, slty i/p, grd to CLSLT, tr v f glauc, tr lt brn hd dol frags, sft-frm, amor-sbbkly, sbfiss i/p
100	100	1780											MW: 1.15 FV: 65 PV: 15 YP: 30 pH: 11.3 CK: 5.9 GELS: 5/7/9 CL: 48000
80	80	1790											CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbbkly
60	60	1800											CALCARENITE: v lt gy-lt gnsh gy, off wh-pl yel org, tr f-crs sbang qtz grs, slty i/p grd to CLSLT, tr v f glauc grs, frm-mod hd, pr vis por, no hydc fluor
40	40	1810											
20	20	1820											



340mm (13 3/8") casing shoe @ 1735.9 mMDRT

Reached 406mm (16") Section TD @ 1741.7m at 22:50 hrs on 22/12/2008

CALCARENITE: v lt gy-lt gnsh gy, off wh-pl yl or, tr med-crs sbang qtz grs, slt i/p grd to CLSLT, tr v f glauc gr, frm-mod hd, p vis por, no hydc fluor

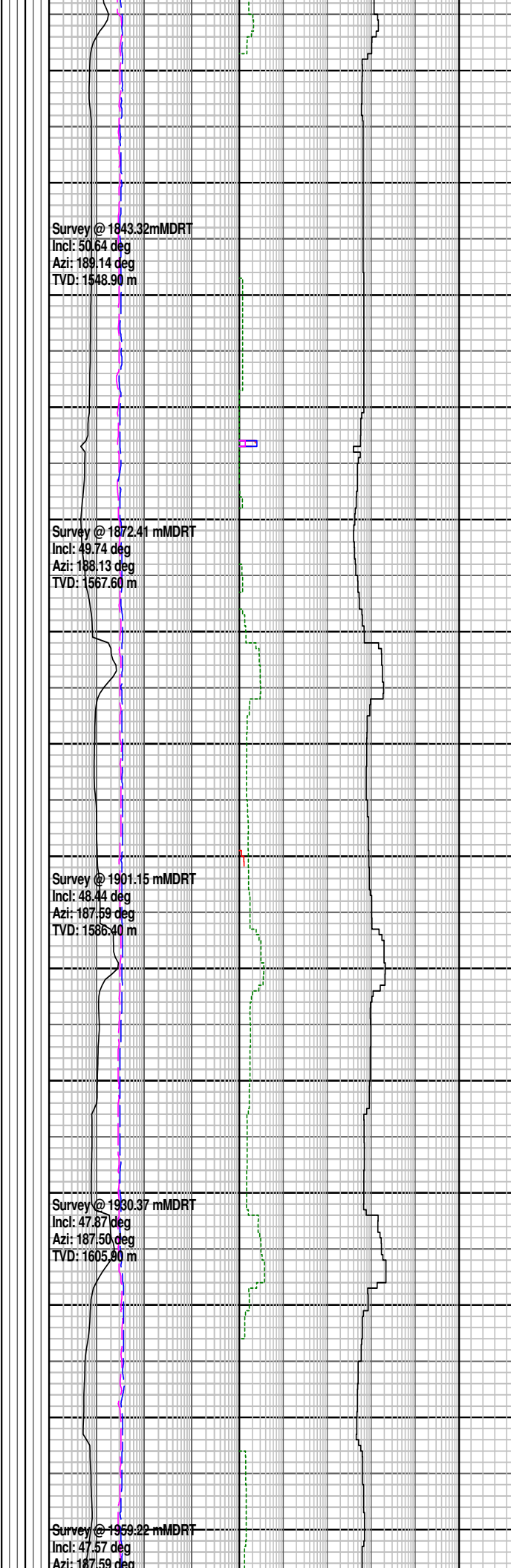
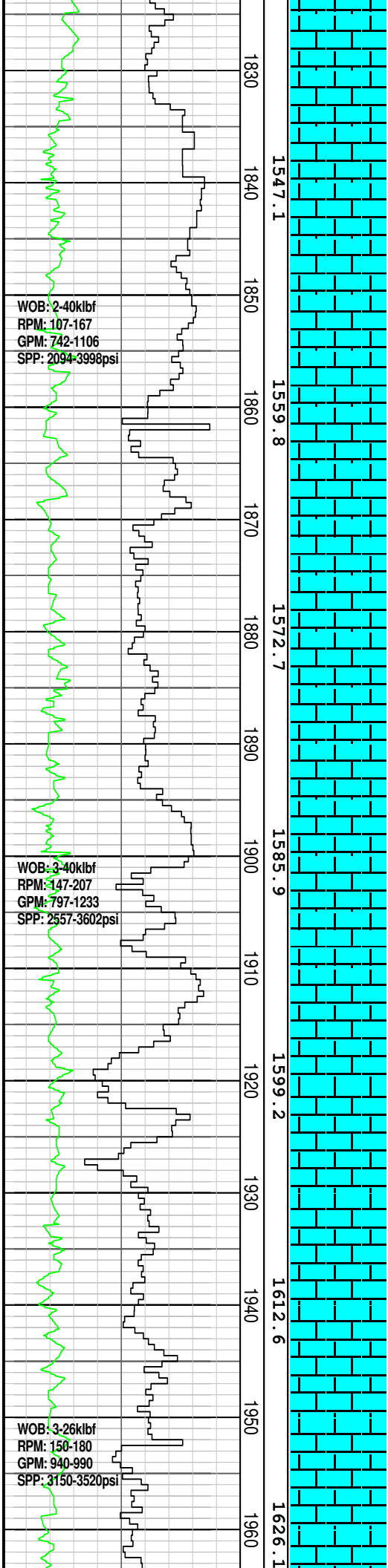
DOLOMITE: lt brn, dk yelsh brn, xln, v calc, grd to DOL LST, mod hd-hd, brit

CALCILUTITE: v lt gy-lt gnsh gy, off wh, slty i/p, grd to CLSLT, tr v f glauc, tr lt brn hd dol frags, sft-frm, amor-sbbkly, sbfiss i/p

MW: 1.15 FV: 65
PV: 15 YP: 30
pH: 11.3 CK: 5.9
GELS: 5/7/9 CL: 48000

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbbkly

CALCARENITE: v lt gy-lt gnsh gy, off wh-pl yel org, tr f-crs sbang qtz grs, slty i/p grd to CLSLT, tr v f glauc grs, frm-mod hd, pr vis por, no hydc fluor



CALCILUTITE: v lt gy-lt gnsh gy, off wh, slty i/p grd to CLSLT, tr v f glauc grs, tr forams, tr oo, sft-frm, amor-sbblky

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbblky

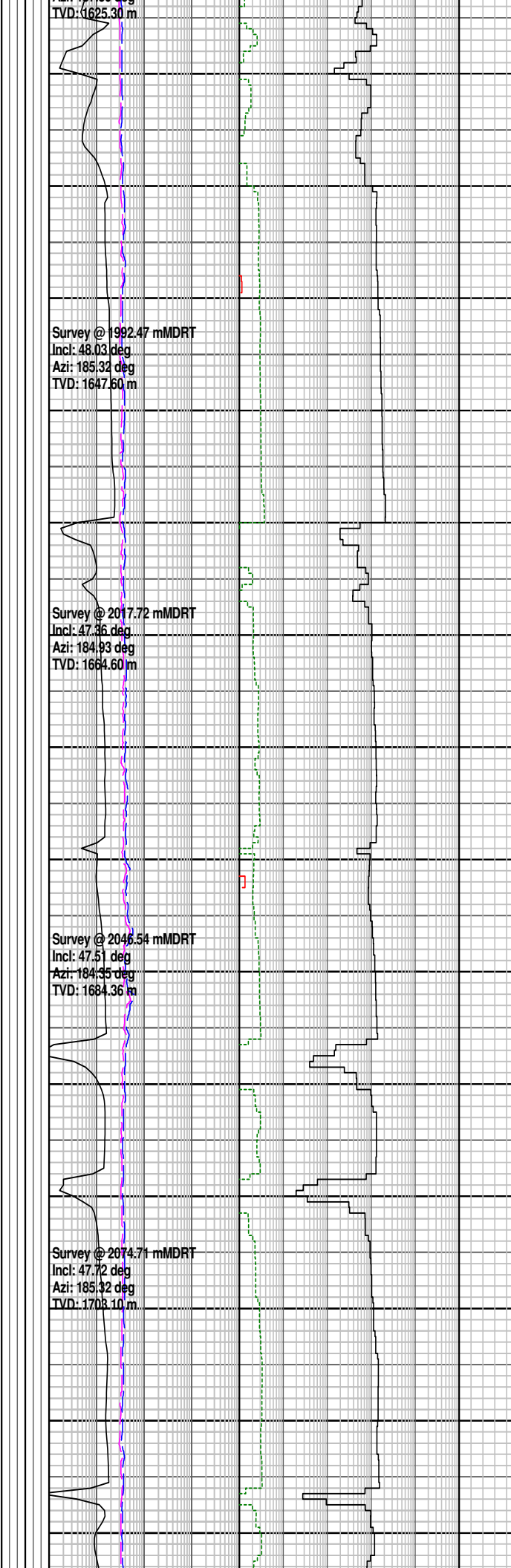
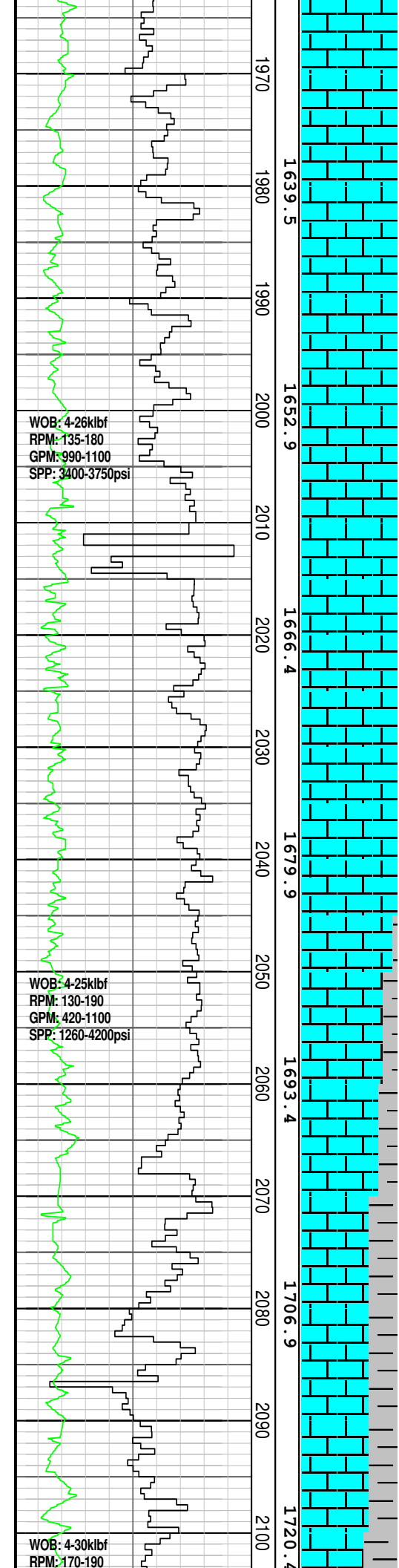
CALCILUTITE: v lt gy-lt gnsh gy, off wh, slty i/p grd to CLSLT, tr v f glauc grs, tr forams, tr oo, sft-frm, amor-sbblky

CALCARENITE: v lt gy-lt gnsh gy, off wh-pl yel org, tr f-crs sbang qtz grs, slty i/p grd to CLSLT, tr v f glauc grs, frm-mod hd, pr vis por, no hydc fluor

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbblky

CALCARENITE: v lt gy-lt gnsh gy, off wh-pl yel org, tr f-crs sbang qtz grs, slty i/p grd to CLSLT, tr v f glauc grs, frm-mod hd, pr vis por, no hydc fluor

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbblky



CALCARENITE: v lt gy-lt gnsh gy, off wh-pl yel org, tr f-crs sbang qtz grs, slty i/p grd to CLSLT, tr v f glauc grs, frm-mod hd, pr vis por, no hydc fluor

CALCILUTITE: v lt gy-lt gnsh gy, off wh, slty i/p grd to CLSLT, tr v f glauc grs, tr forams, tr oo, sft-frm, amor-sbblky

CALCARENITE: v lt gy-lt gnsh gy, off wh-pl yel org, tr f-crs sbang qtz grs, slty i/p grd to CLSLT, tr v f glauc grs, frm-mod hd, pr vis por, no hydc fluor

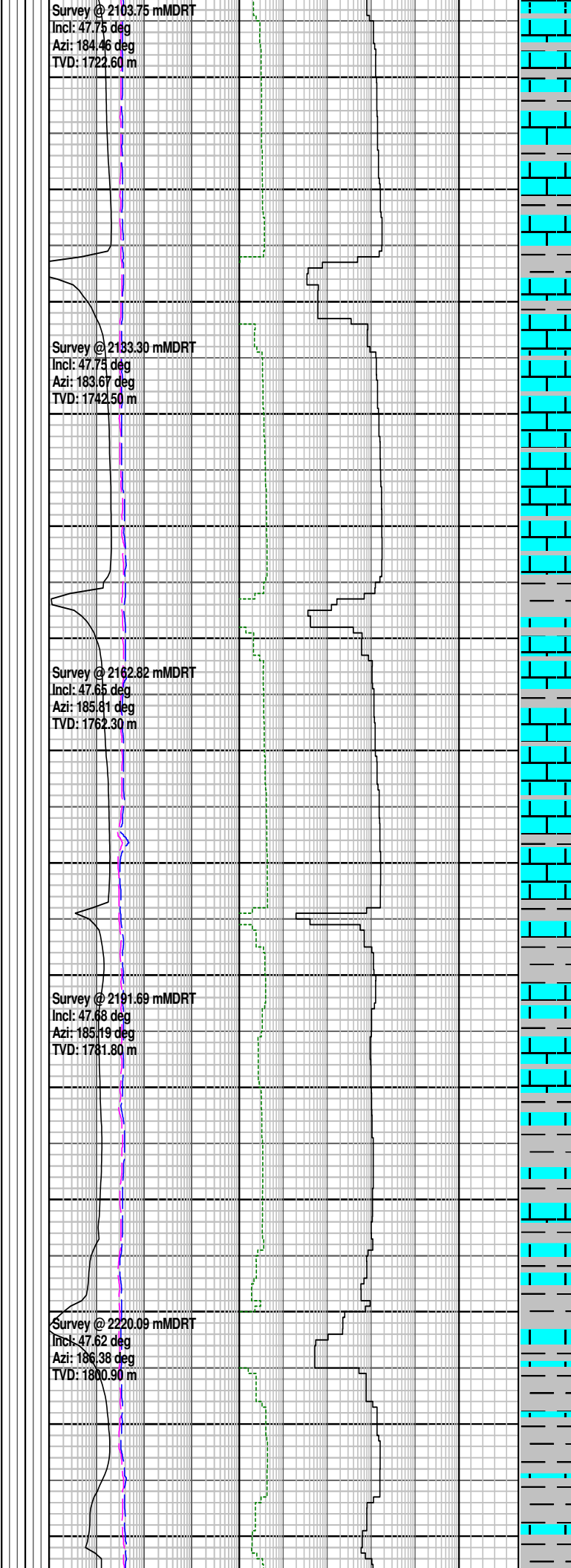
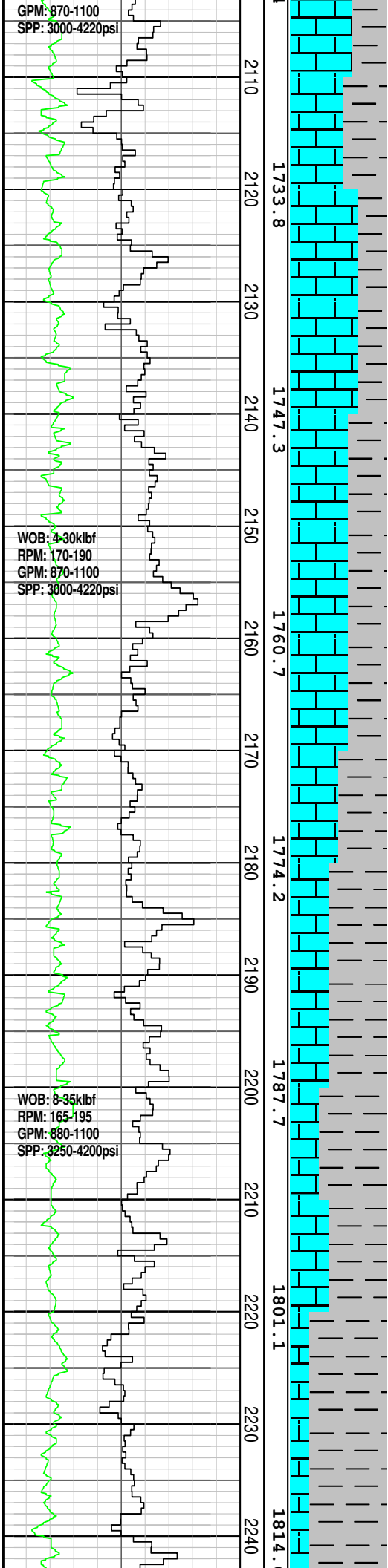
CALCILUTITE: v lt gy-lt gnsh gy, off wh, slty i/p grd to CLSLT, tr v f glauc grs, tr forams, tr oo, sft-frm, amor-sbblky

MW: 1.15	FV: 69
PV: 15	YP: 34
pH: 11.2	CK: 6.0
GELS: 8/9/11	CL: 48000

CALCAREOUS CLAYSTONE: med gy- lt olv gy, v calc grd to CLCLT, tr micmic, tr v f glauc, slty, sft-dom frm, sbblky-blky

CALCILUTITE: v lt gy-lt gnsh gy, off wh, slty i/p grd to CLSLT, tr v f glauc grs, tr forams, tr oo, sft-frm, amor-sbblky

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbblky



CALCAREOUS CLAYSTONE:
 med gy- lt olv gy, v calc grd to CLCLT, tr micmic, tr v f glauc, slty, sft-dom frm, sbbkly-blky

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbbkly

CALCAREOUS CLAYSTONE:
 med gy- lt olv gy, abdt calc grd to CLCLT, tr micmic, tr v f glauc, tr v f carb spks, sft-frm, sbbkly-blky

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, com slty, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbbkly

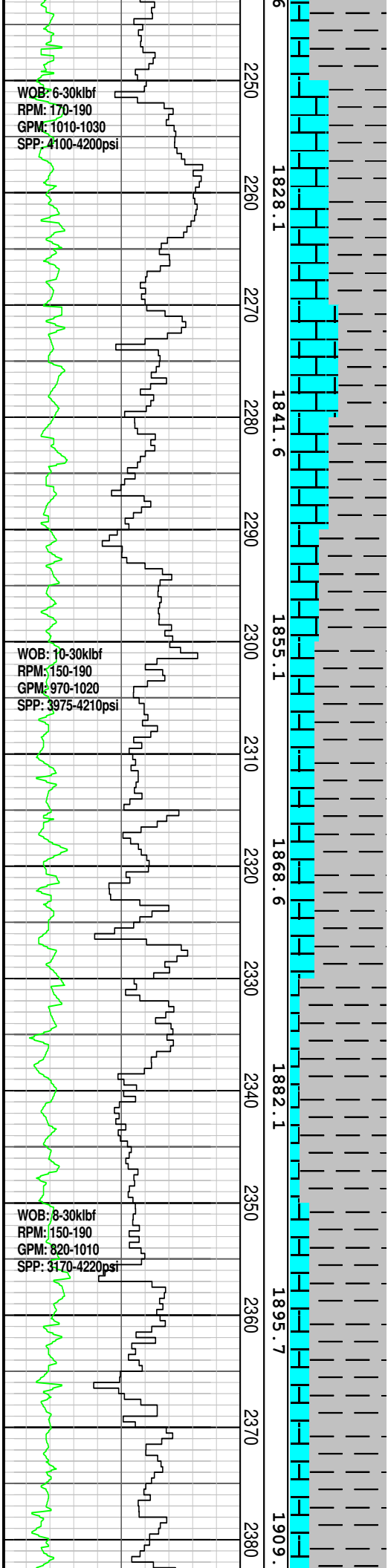
CALCILUTITE: v lt gy-lt gnsh gy, off wh, slty i/p grd to CLSLT, argl i/p grd to CALC CLYST, tr v f glauc grs, tr v f carb spks, sft-frm, amor-sbbkly

CALCAREOUS CLAYSTONE:
 lt gy- lt olv gy, abdt grd to CLCLT, tr micmic, tr v f glauc, tr v f carb spks, dom sft-frm, amor-sbbkly

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, com slty, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic, sft-frm, sbfiss-sbbkly

CALCAREOUS CLAYSTONE:
 med gy- lt olv gy, v calc grd to CLCLT, tr micmic, tr v f glauc, tr v f carb spks, dom sft-frm, amor-sbbkly

CALCISILTITE: med lt gy-lt olv gy, lt gnsh gy, com slty, argl i/p grd to CLCLT, tr v f sd grs, tr v f glauc, tr micmic,



Survey @ 2248.12 mMDRT
Incl: 47.60 deg
Azi: 188.35 deg
TVD: 1819.80 m

Survey @ 2276.75 mMDRT
Incl: 47.45 deg
Azi: 189.03 deg
TVD: 1839.20 m

Survey @ 2306.28 mMDRT
Incl: 47.57 deg
Azi: 190.10 deg
TVD: 1859.10 m

Survey @ 2335.22 mMDRT
Incl: 47.51 deg
Azi: 192.18 deg
TVD: 1878.70 m

Survey @ 2364.15 mMDRT
Incl: 47.44 deg
Azi: 194.61 deg
TVD: 1898.20 m

sft-frm, sbfiss-sbbkly

CALCAREOUS CLAYSTONE:
med gy- lt olv gy, v calc grd to CLCLT, tr micmic, tr v f glauc, tr v f carb spks, dom sft-frm, amor-sbbkly

CALCISILTITE: v lt gy-lt olv gy, grd to CLCLT, tr v f aren, tr v f glauc, tr micmic, tr v f carb spks, dom sft-frm, amor-sbbkly

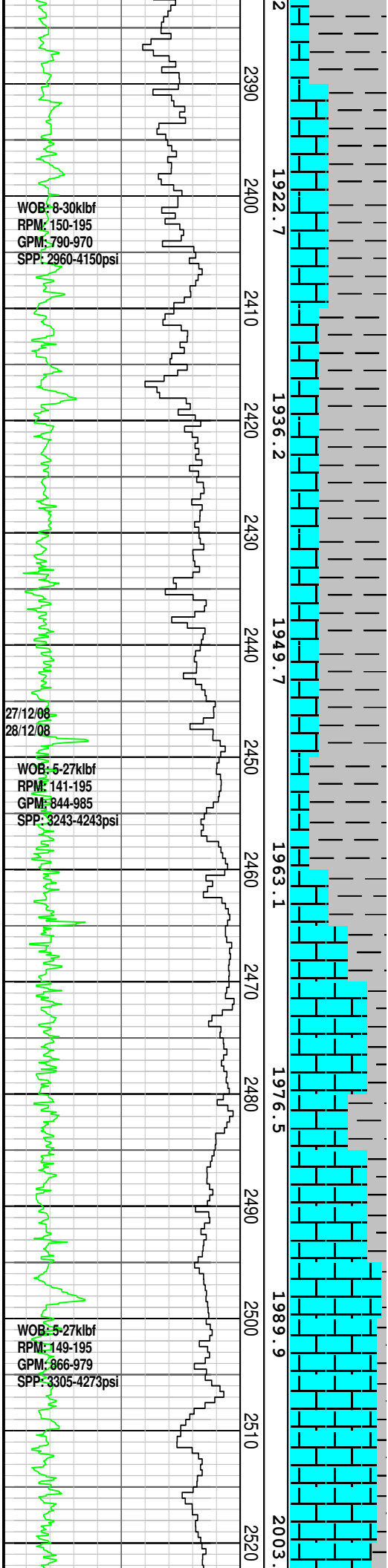
CALCAREOUS CLAYSTONE:
lt gy-lt olv gy, abdt calc grd to CLCLT, tr micmic, tr v f glauc, tr v f carb spks, dom sft-frm, amor-sbbkly

CALCAREOUS CLAYSTONE:
lt gy-med lt gy, lt olv gy, abdt calc grd to CALCILUTITE, tr micmic, tr v f glauc, tr v f carb spks, dom sft-frm, amor-sbbkly

MW: 1.16	FV: 64
PV: 19	YP: 35
pH: 11.0	CK: 4.8
GELS: 10/12/13	CL: 49000

CALCAREOUS CLAYSTONE:
lt gy-med lt gy, lt olv gy, abdt calc grd to CALCILUTITE, tr micmic, tr v f glauc, tr v f carb spks, dom sft-frm, amor-sbbkly

CALCAREOUS CLAYSTONE:
lt gy-med lt gy, lt olv gy, abdt calc grd to CLCLT, tr micmic, tr v f glauc, tr v f carb spks, dom sft-frm, amor-sbbkly



Survey @ 2393.50 mMDRT
Incl: 47.41 deg
Azi: 194.55 deg
TVD: 1918.10 m

Survey @ 2421.02 mMDRT
Incl: 47.62 deg
Azi: 193.04 deg
TVD: 1936.70 m

Survey @ 2450.66 mMDRT
Incl: 47.77 deg
Azi: 190.15 deg
TVD: 1956.60 m

Survey @ 2478.84 mMDRT
Incl: 48.04 deg
Azi: 188.36 deg
TVD: 1975.50 m

Survey @ 2508.14 mMDRT
Incl: 47.90 deg
Azi: 186.97 deg
TVD: 1995.10 m

SILTY CALCISILTITE: v lt gy-lt olv gy, grd to Argillaceous SILTSTONE, tr v f aren, tr v f glauc, tr micmic, tr v f carb spks, dom sft-frm, amor-sbblky

CALCAREOUS CLAYSTONE: lt gy-med lt gy, lt olv gy, abdt calc grd to CLCLT, tr micmic, tr v f glauc, tr v f carb spks, dom sft-frm, amor-sbblky

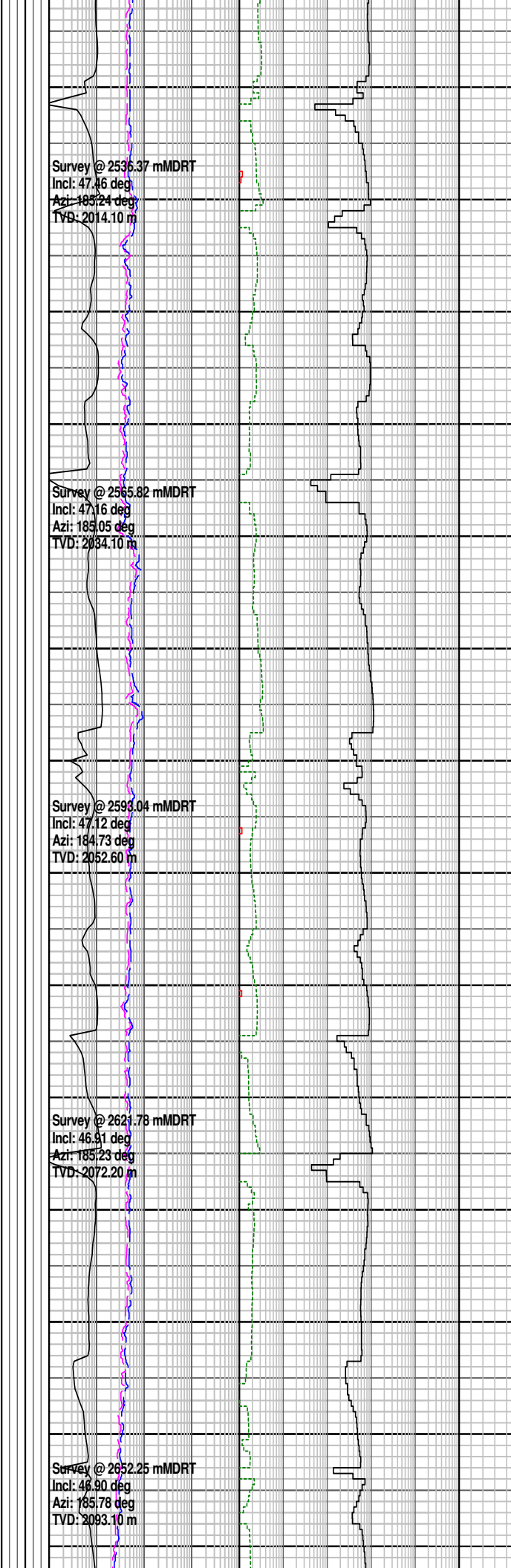
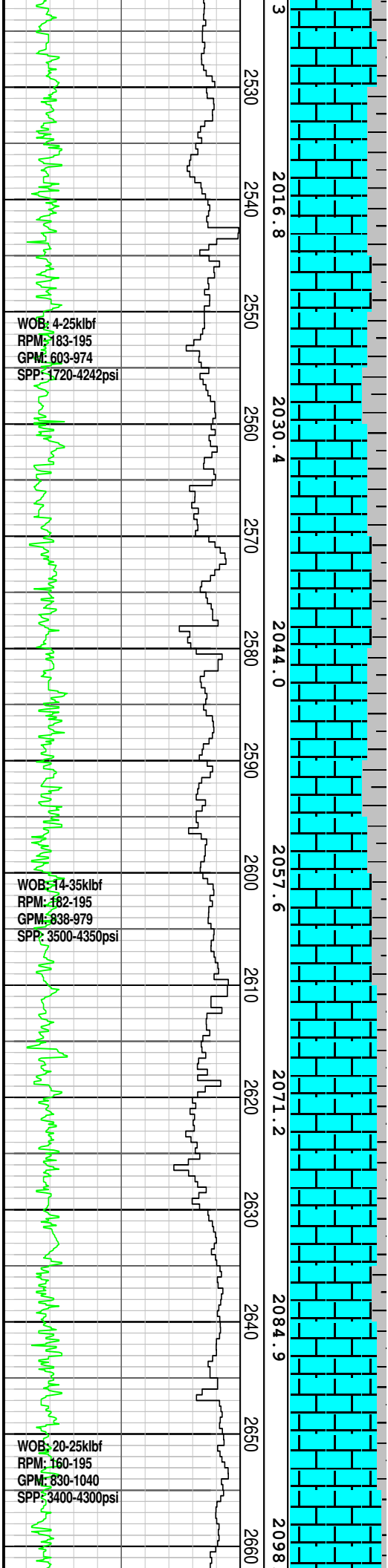
MW: 1.15	FV: 69
PV: 19	YP: 35
pH: 11.0	CK: 4.8
GELS: 10/12/13	CL: 49000

CALCARENITE: lt gy-med lt gy, v f-f, wl srt, slt i/p grd to CLSLT, tr v f glauc grs, mod hd, p vis por, no hycd fluor

CALCISILTITE: v lt gy-lt olv gy, grd to SLT CLCLT and CALC SLTST, tr v f aren, tr v f glauc, tr micmic, tr v f carb spks, dom sft-frm, amor-sbblky, tr blkly

CALCISILTITE: v lt gy-lt olv gy, grd to SLT CLCLT and CALC SLTST, tr v f aren, tr v f glauc, tr micmic, tr v f carb spks, dom sft-frm, amor-sbblky, tr blkly

CALCARENITE: lt gy-med lt



gy, v f-f, wl srt, slt i/p grd to CLSLT, tr v f glauc grs, mod hd, p vis por, no hydc fluor

CALCAREOUS CLAYSTONE:
med gy-med lt gy, lt olv gy, abdt calc grd to CLCLT, tr micmic, tr v f glauc, sft frm, amor-sbbkly

CALCISILTITE: v lt gy-lt olv gy, abdt slt grd to SLT CLCLT and CALC SLTST, tr v f aren, tr v f glauc, tr micmic, tr v f carb spks, dom sft frm, amor-sbbkly, tr blkly

CALCARENITE: lt gy-med lt gy, v f-f, wl srt, slt i/p grd to CLSLT, tr v f glauc grs, mod hd, p vis por, no hydc fluor

CALCAREOUS CLAYSTONE:
lt gy-med lt gy, lt olv gy, abdt calc grd to CLCLT, tr micmic, tr v f glauc, sft frm, amor-sbbkly

CALCISILTITE: v lt gy-lt olv gy, v slty grd to CALC SILTST, tr v f aren, tr v f glauc, tr micmic, sft frm, amor-sbbkly, tr blkly

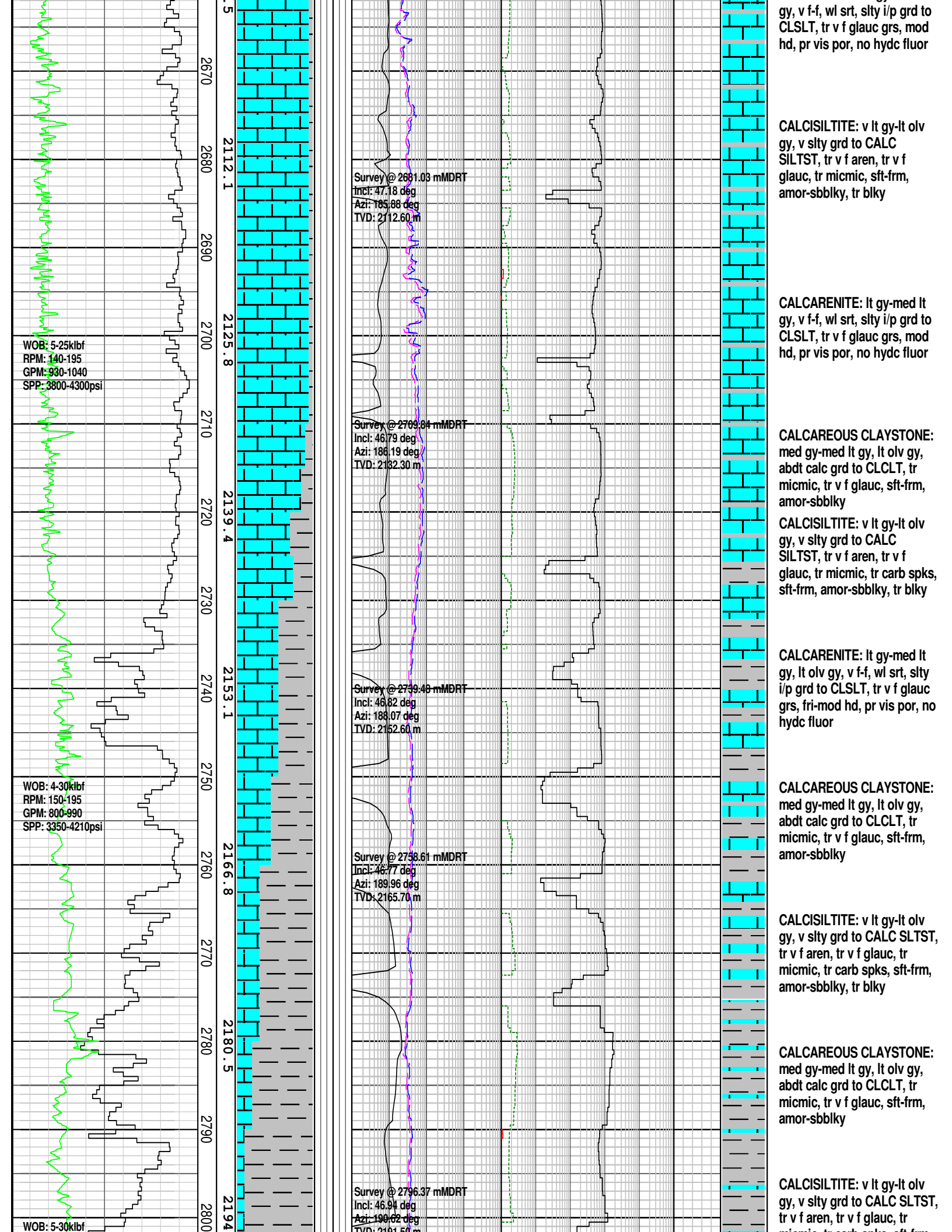
CALCARENITE: lt gy-med lt gy, v f-f, wl srt, slty i/p grd to CLSLT, tr v f glauc grs, mod hd, pr vis por, no hydc fluor

CALCAREOUS CLAYSTONE:
lt gy-med lt gy, lt olv gy, abdt calc grd to CLCLT, tr micmic, tr v f glauc, sft frm, amor-sbbkly

CALCISILTITE: v lt gy-lt olv gy, v slty grd to CALC SILTST, tr v f aren, tr v f glauc, tr micmic, sft frm, amor-sbbkly, tr blkly

CALCAREOUS CLAYSTONE:
med gy-med lt gy, lt olv gy, abdt calc grd to CLCLT, tr micmic, tr v f glauc, sft frm, amor-sbbkly

CALCARENITE: lt gy-med lt

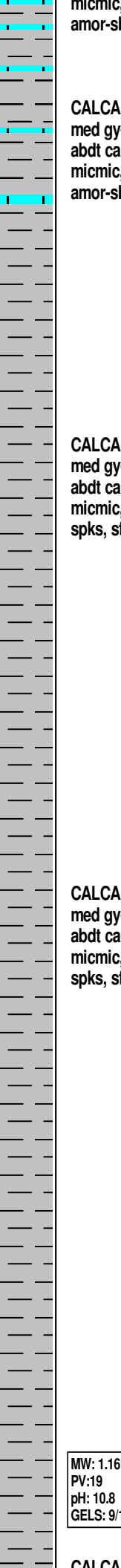
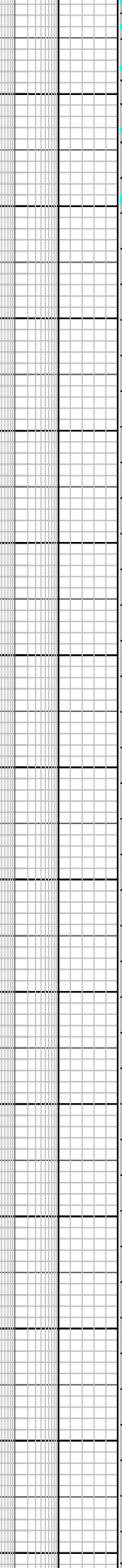
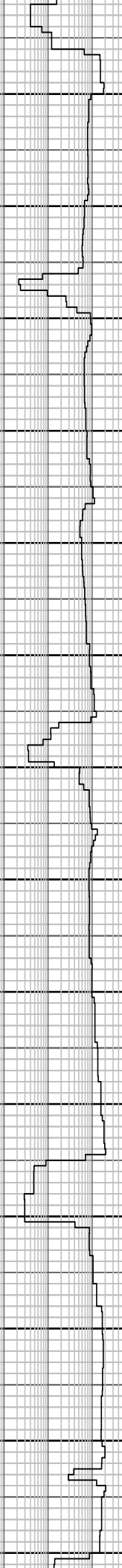
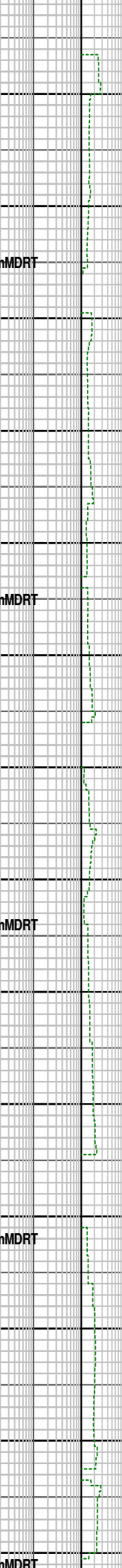
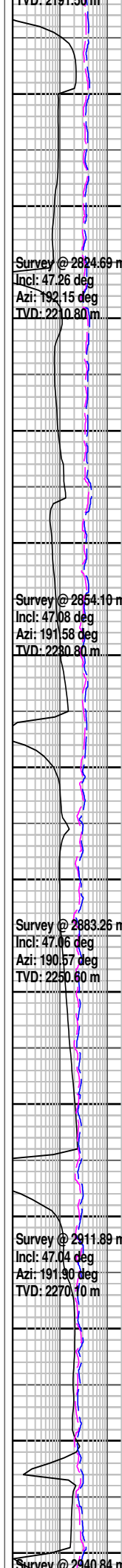
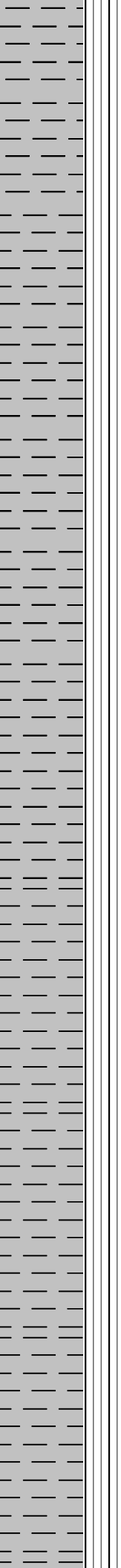
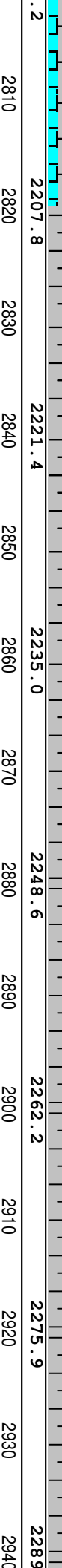
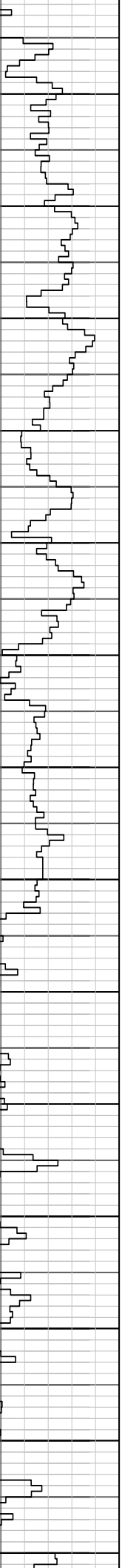


RPM: 120-195
GPM: 820-1050
SPP: 3200-4200psi

WOB: 6-30klbf
RPM: 100-195
GPM: 890-1200
SPP: 3820-4250psi

WOB: 7-30klbf
RPM: 129-194
GPM: 897-909
SPP: 4046-4194psi

28/12/08
08:48:00



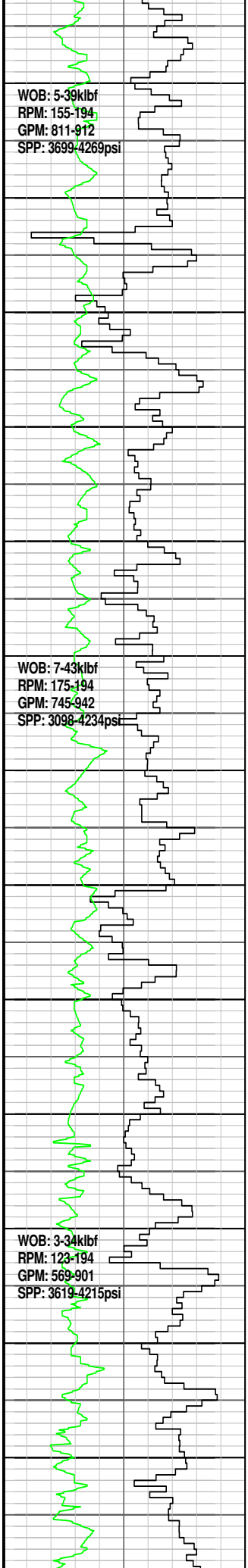
CALCAREOUS CLAYSTONE:
med gy-med lt gy, lt olv gy,
abdt calc grd to CLCLT, tr
micmic, tr v f glauc, sft frm,
amor-sbbiky

CALCAREOUS CLAYSTONE:
med gy-med lt gy, lt olv gy,
abdt calc grd to CLCLT, tr
micmic, tr v f glauc, tr v f carb
spks, sft frm, amor-sbbiky

CALCAREOUS CLAYSTONE:
med gy-med lt gy, lt olv gy,
abdt calc grd to CLCLT, tr
micmic, tr v f glauc, tr v f carb
spks, sft frm, amor-sbbiky

MW: 1.16	FV: 61
PV: 19	YP: 30
pH: 10.8	CK: 6.0
GELS: 9/12/15	CL: 51000

CALCAREOUS CLAYSTONE:



WOB: 5.39klbf
 RPM: 155-194
 GPM: 811-912
 SPP: 3699-4269psi

WOB: 7.43klbf
 RPM: 175-194
 GPM: 745-942
 SPP: 3098-4234psi

WOB: 3.34klbf
 RPM: 123-194
 GPM: 569-901
 SPP: 3619-4215psi

2950
2960
2970
2980
2990
3000
3010
3020
3030
3040
3050
3060
3070
3080

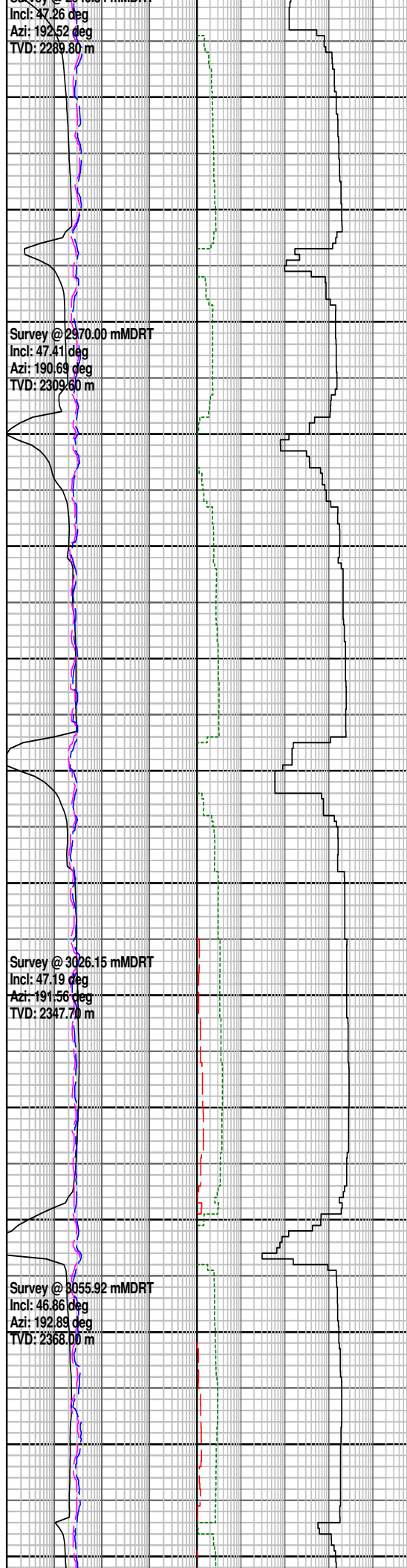
2303.0
2316.6
2330.1
2343.6
2357.1
2370.7
2384.2

Incl: 47.26 deg
 Azi: 192.52 deg
 TVD: 2289.80 m

Survey @ 2970.00 mMDRT
 Incl: 47.41 deg
 Azi: 190.69 deg
 TVD: 2309.60 m

Survey @ 3026.15 mMDRT
 Incl: 47.19 deg
 Azi: 191.56 deg
 TVD: 2347.70 m

Survey @ 3055.92 mMDRT
 Incl: 46.86 deg
 Azi: 192.89 deg
 TVD: 2358.00 m



CALCAREOUS CLAYSTONE:
 med gy-med lt gy, lt olv gy,
 abdt calc grd to CLCLT, tr
 micmic, tr v f glauc, tr v f carb
 spks, sft-frm, amor-sbblky

CALCAREOUS CLAYSTONE:
 med gy-med lt gy, lt olv gy,
 abdt calc grd to CLCLT, tr
 micmic, tr v f glauc, tr v f carb
 spks, sft-frm, amor-sbblky

CALCAREOUS CLAYSTONE:
 med gy-med lt gy, lt olv gy,
 abdt calc grd to CLCLT, tr
 micmic, tr v f glauc, tr v f carb
 spks, sft-frm, amor-sbblky

CALCAREOUS CLAYSTONE:
 med gy-med lt gy, lt olv gy,
 abdt calc grd to CLCLT, tr
 micmic, tr v f glauc, tr v f-med
 carb spks, sft-frm,
 amor-sbblky

