FORMATION EVALUATION LOG

WELL : MANTA 2A

FROM (m): 150 TO (m): 3130 SCALE: 1/ 500

Country	: AUSTRALIA	**POSITION**		**HOLE / CASING INFO**			
Basin	: GIPPSLAND	Latitude	: 38°16'39.41"S	17 1/2" Hole to (mMDRT)	: 994m	Spud Date	: 23-01-2006
Field	: MANTA	Longitude	: 148°42'58.03"E	12 1/4" Hole to (mMDRT)	: 2715m	Total Depth Date	: 09-02-2006
Permit	: VIC/L26	UTM Co-ord X (m E)	: 650106.2	8 1/2" Hole to (mMDRT)	: 3113m	Total Depth (mRT)	3113m
Well Type	: DEVELOPMENT	UTM Co-ord Y (m N)	: 5761989.6	13 3/8" Shoe at (mMDRT)	: 984.5m	T.V.D. (mSS MSL)	2895.8m
Rig Name	: OCEAN PATRIOT	RT-LAT (m)	: 21.5	9 5/8" Shoe at (mMDRT)	: 2706.4m	Status	: STATUS
		RT-Seabed (m)	: 155.3	7" Shoe at (mMDRT)	:		

ABBREVIATIONS

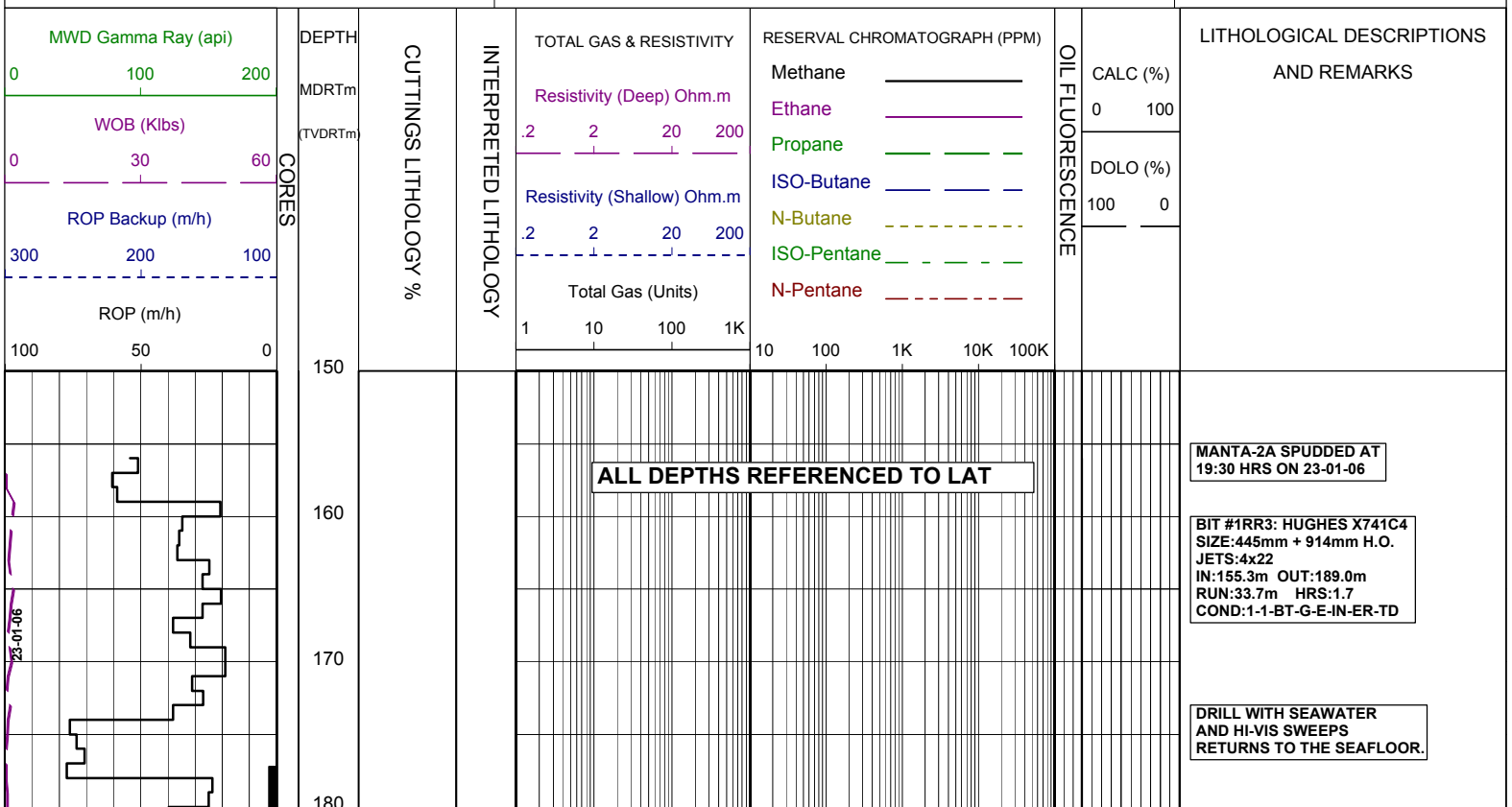
MW MUD WEIGHT	NB NEW BIT
FV FUNNEL VISCOSITY	RR RERUN BIT
PV PLASTIC VISCOSITY	CB CORE BIT
YP YIELD POINT	WOB WEIGHT ON BIT
FC FILTER CAKE	RPM REVS PER MINUTE
SOL SOLIDS	FLC FLOW CHECK
WL FILTRATE	CR CIRCULATE RETURNS
SD SAND - %	PR POOR RETURNS
S SALINITY - PPM	NR NO RETURNS
RM MUD RESISTIVITY	BG BACKGROUND GAS
RMF MUD FILTRATE	TG TRIP GAS
C CARBIDE TEST	STG SHORT TRIP GAS
LAT LOGGED AFTER TRIP	CG CONNECTION GAS
DS DEVIATION SURVEY	SG SWAB GAS
	SVG SURVEY GAS

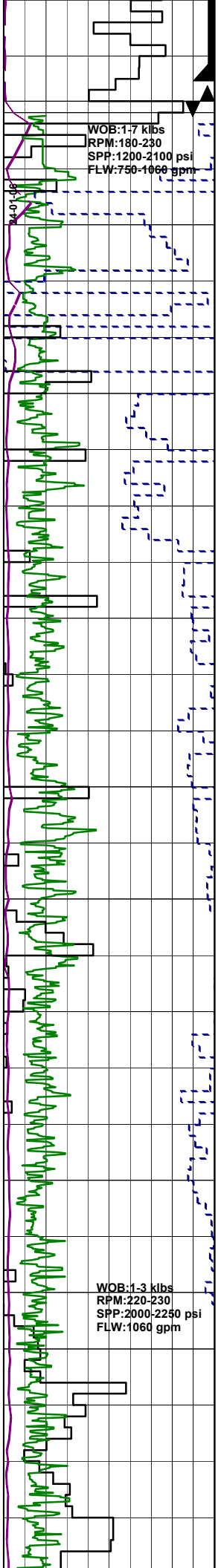
LITHOLOGY LEGEND

Claystone	Limestone	Brachiopoda
Siltstone	Dolomite	Cement
Arg. Siltstone	Coal	Sponges
Fine SST	Volcanics	Glauconite
Medium SST	Lithic Fragment	Pyrite
Coarse SST	Foraminifera	Iron Minerals
Marl	Fossils	Mica
Calc Claystone	Bryozoa	Carb Fragments

ENGINEERING LEGEND

Shoe	FIT
Bit Trip	Mud loss
Deviation survey	
DST	Mud gain
Test	
Sidewall Core	
Core	
Wiper Trip	
RFT	





190

200
(200

210

220

230

240

250
(250

260

270

280

290

300
(300

310

762mm x 508mm (30" x 20")
Conductor Shoe @ 187.2mMDRT

BIT #2: REED T11C
SIZE:445mm
JETS:1x16,1x20,1x24,1x25
IN: 188.9m OUT: 994m
RUN:805.1m HRS: 23.5
COND:1-1-ER-A-E-I-NO-TD

DRILL WITH SEAWATER
AND HI-VIS SWEEPS
RETURNS TO THE SEAFLOOR.

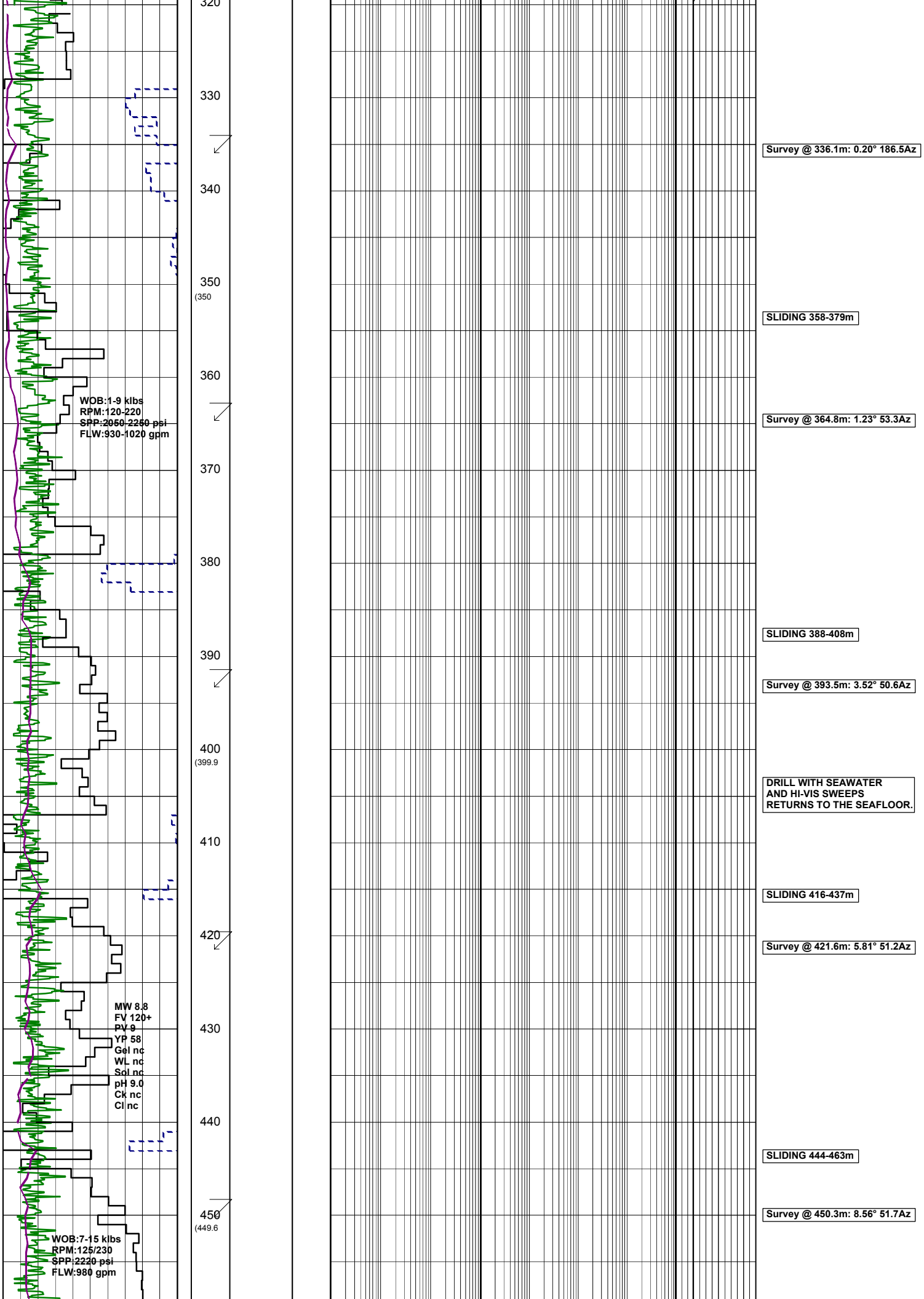
Survey @ 223.7m: 0.31° 174.5Az

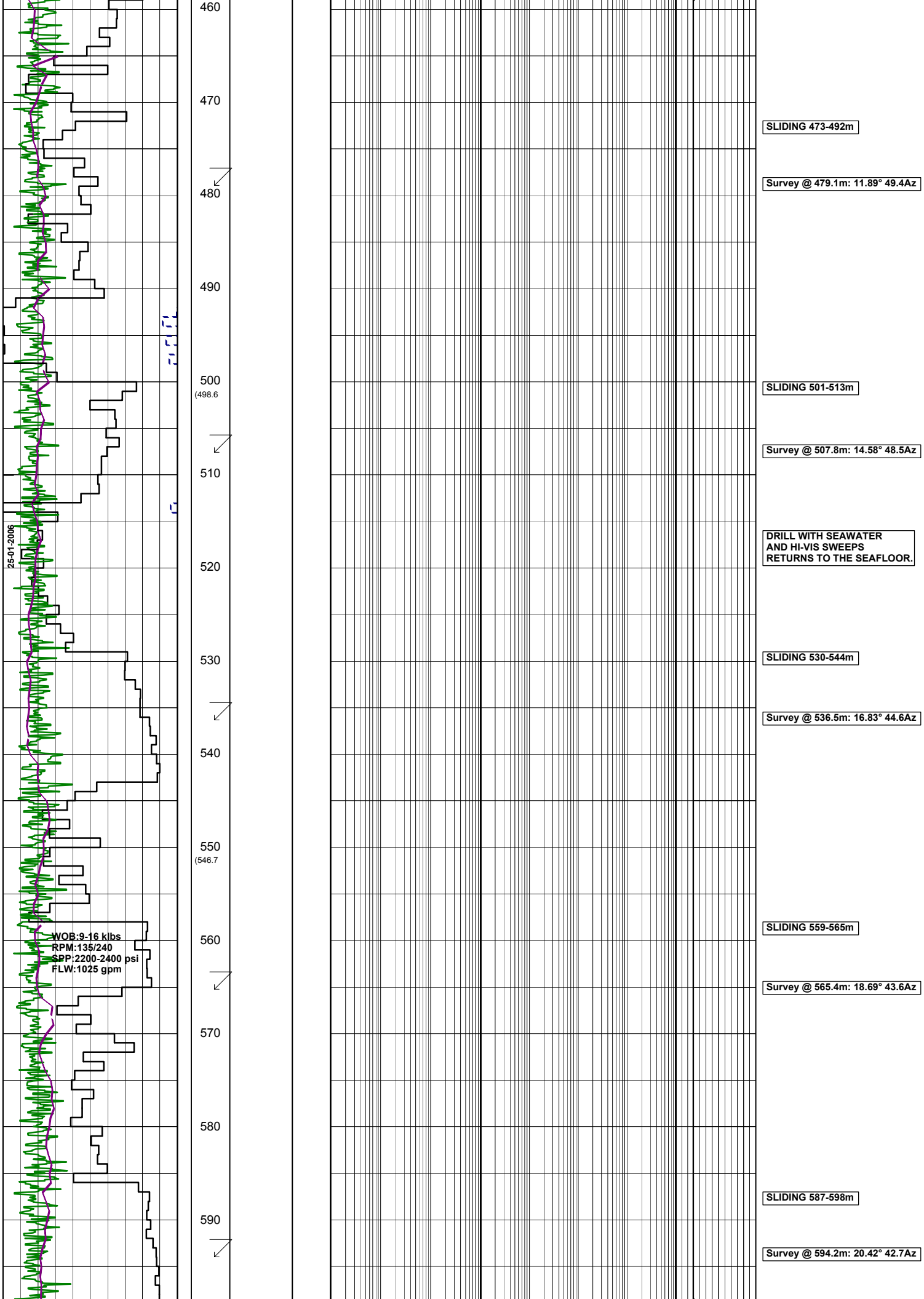
Survey @ 251.4m: 0.19° 202.8Az

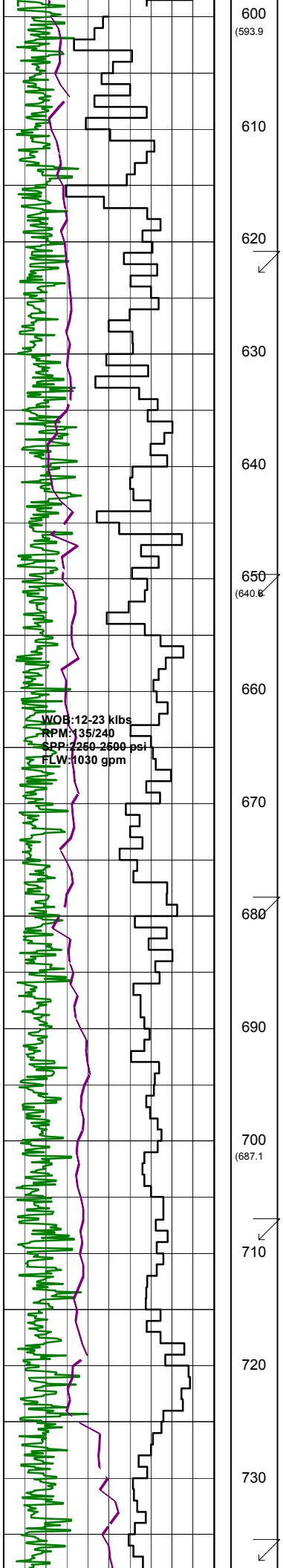
Survey @ 277.5m: 0.35° 175.9Az

DRILL WITH SEAWATER
AND HI-VIS SWEEPS
RETURNS TO THE SEAFLOOR.

Survey @ 307.4m: 0.22° 184.9Az


320
330
340
350
(350
360
370
380
390
400
(399.9
410
420
430
440
450
(449.6
WOB:1-9 klbs
RPM:120-220
SPP:2050-2250 psi
FLW:930-1020 gpm
MW 8.8
FV 120+
PV 9
YP 58
Gel nc
WL nc
Sol nc
pH 9.0
Ck nc
Cl nc
WOB:7-15 klbs
RPM:125/230
SPP:2220 psi
FLW:980 gpm
Survey @ 336.1m: 0.20° 186.5Az
SLIDING 358-379m
Survey @ 364.8m: 1.23° 53.3Az
SLIDING 388-408m
Survey @ 393.5m: 3.52° 50.6Az
DRILL WITH SEAWATER
AND HI-VIS SWEEPS
RETURNS TO THE SEAFLOOR.
SLIDING 416-437m
Survey @ 421.6m: 5.81° 51.2Az
SLIDING 444-463m
Survey @ 450.3m: 8.56° 51.7Az


460
470
480
490
500
(498.6
510
520
530
540
550
(546.7
560
570
580
590
25-01-2006
WOB:9-16 klbs
RPM:135/240
SPP:2200-2400 psi
FLW:1025 gpm
SLIDING 473-492m
Survey @ 479.1m: 11.89° 49.4Az
SLIDING 501-513m
Survey @ 507.8m: 14.58° 48.5Az
DRILL WITH SEAWATER
AND HI-VIS SWEEPS
RETURNS TO THE SEAFLOOR.
SLIDING 530-544m
Survey @ 536.5m: 16.83° 44.6Az
SLIDING 559-565m
Survey @ 565.4m: 18.69° 43.6Az
SLIDING 587-598m
Survey @ 594.2m: 20.42° 42.7Az



DRILL WITH SEAWATER
AND HI-VIS SWEEPS
RETURNS TO THE SEAFLOOR.

Survey @ 622.9m: 21.15° 43.5Az

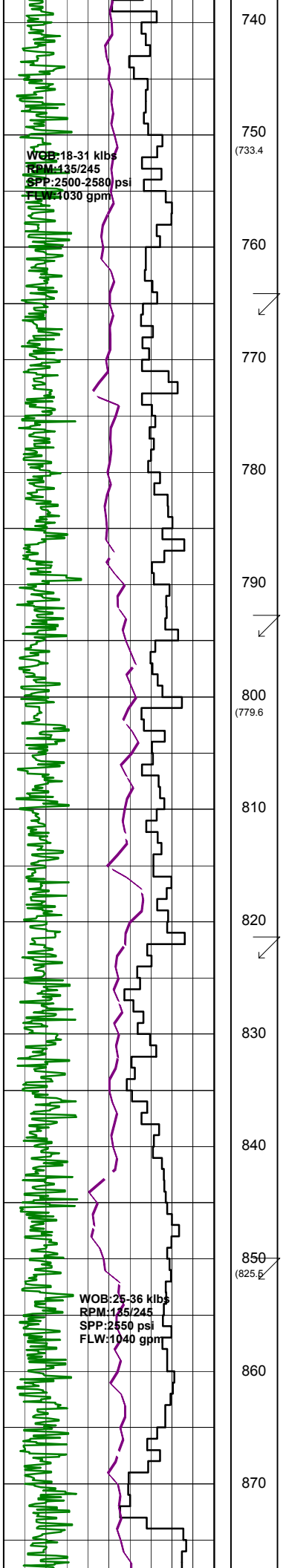
Survey @ 651.6m: 21.37° 43.1Az

Survey @ 680.3m: 21.51° 42.5Az

DRILL WITH SEAWATER
AND HI-VIS SWEEPS
RETURNS TO THE SEAFLOOR.

Survey @ 708.9m: 21.90° 43.0Az

Survey @ 737.5m: 22.26° 42.4Az



740

750
(733.4

760

770

780

790

800
(779.6

810

820

830

840

850
(825.5

860

870

Survey @ 766.2m: 22.56° 42.4Az

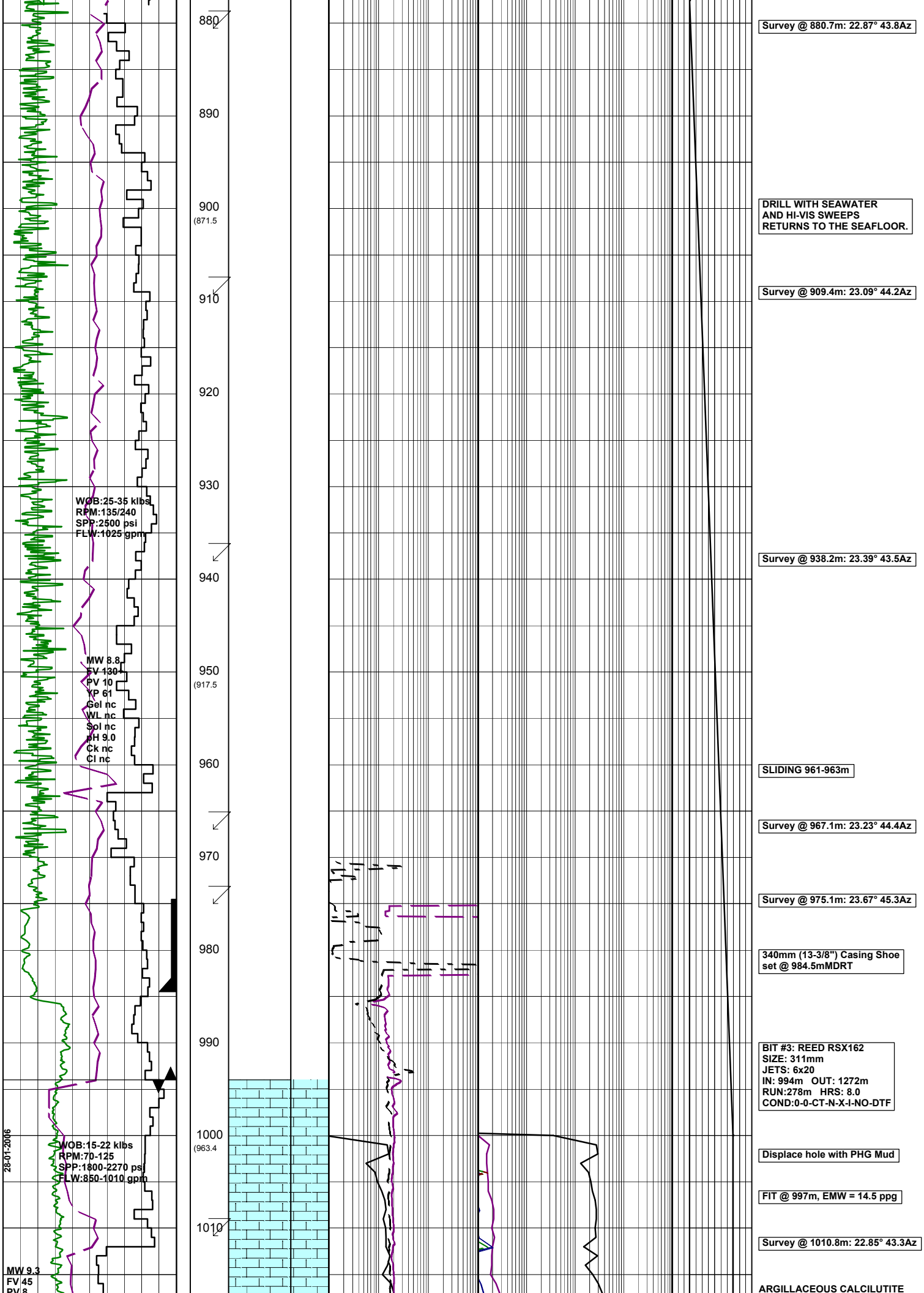
Survey @ 794.8m: 22.83° 43.0Az

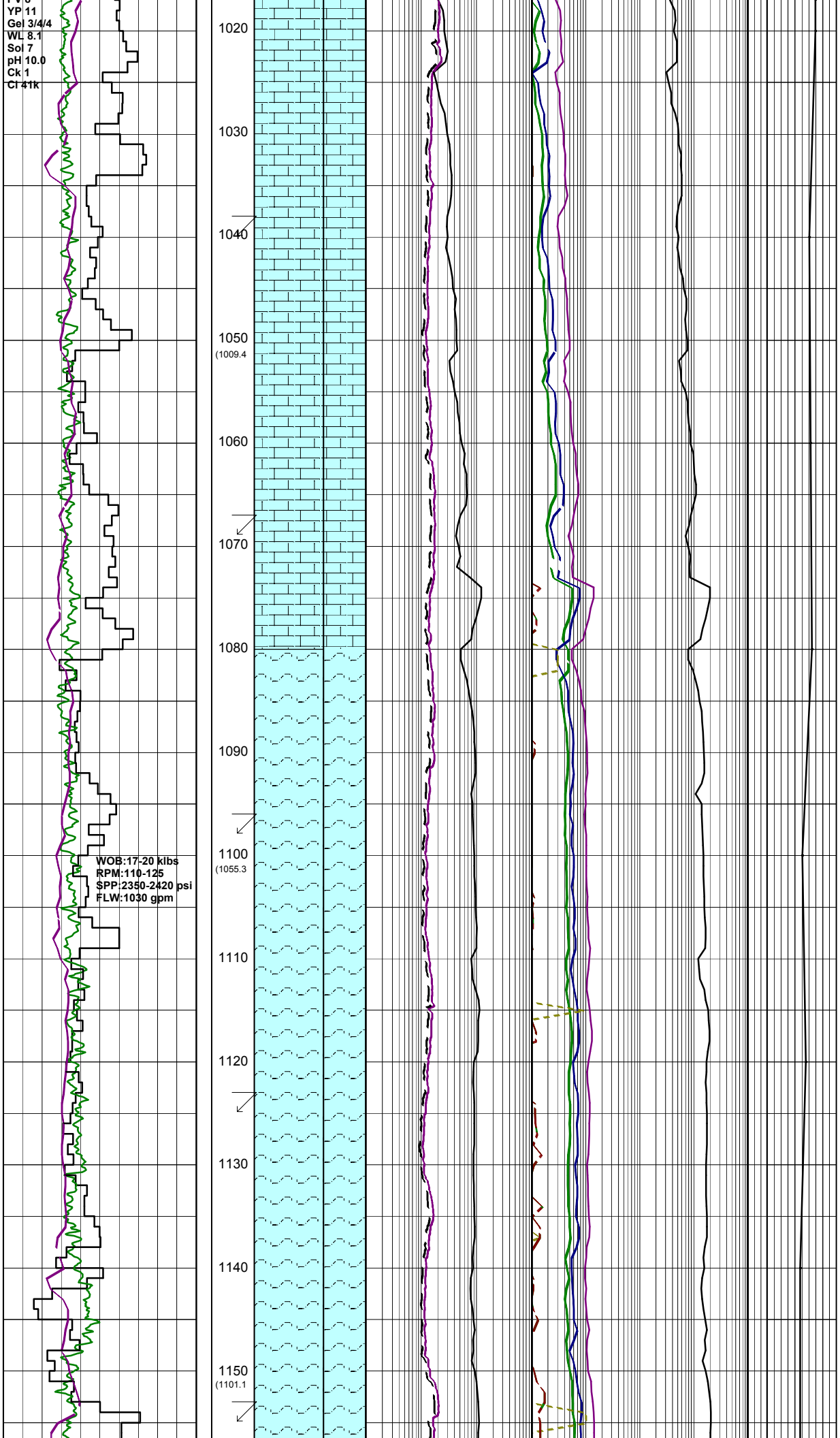
DRILL WITH SEAWATER
AND HI-VIS SWEEPS
RETURNS TO THE SEAFLOOR.

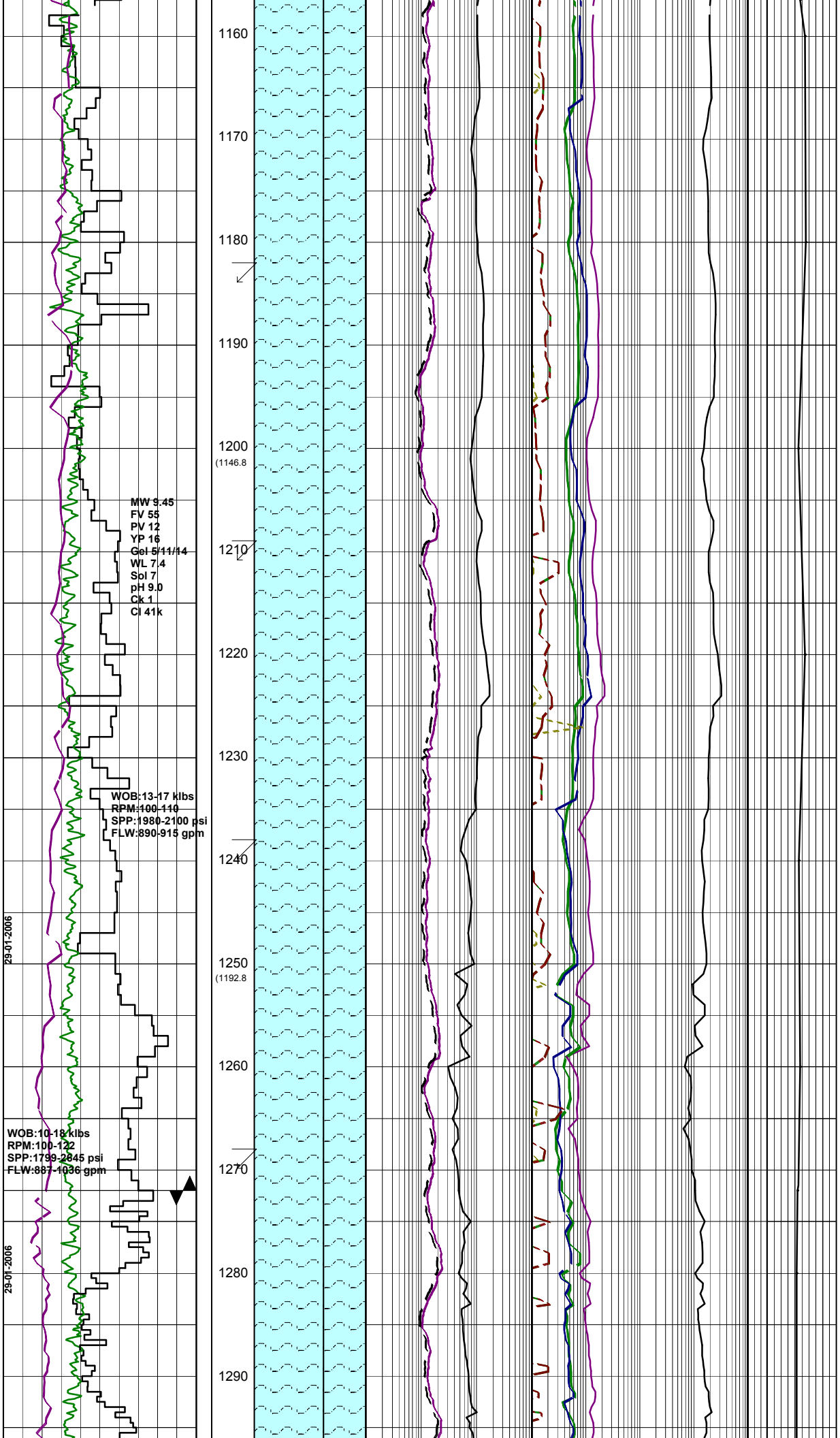
Survey @ 823.4m: 23.20° 43.0Az

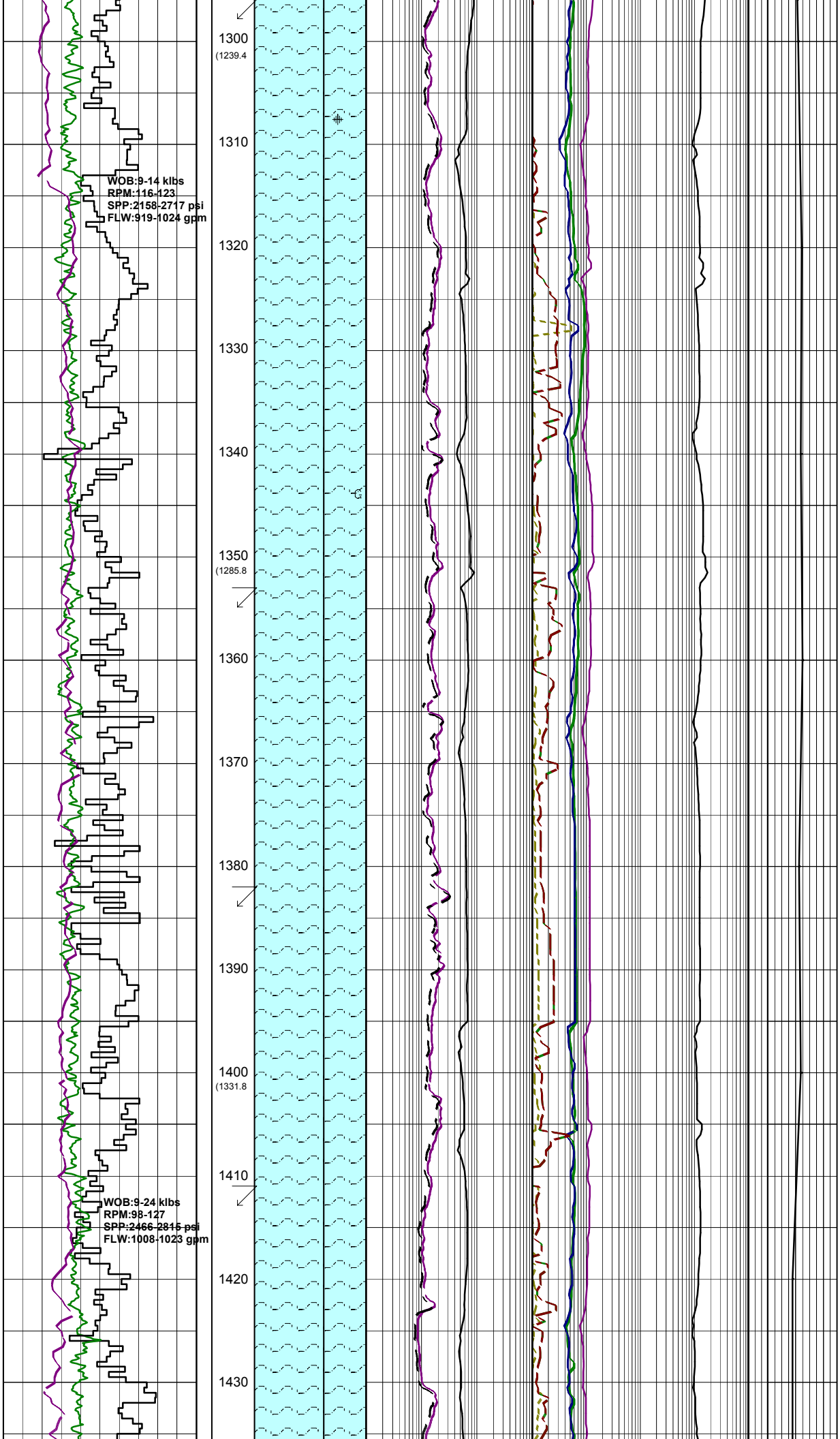
Survey @ 852.0m: 23.43° 42.1Az

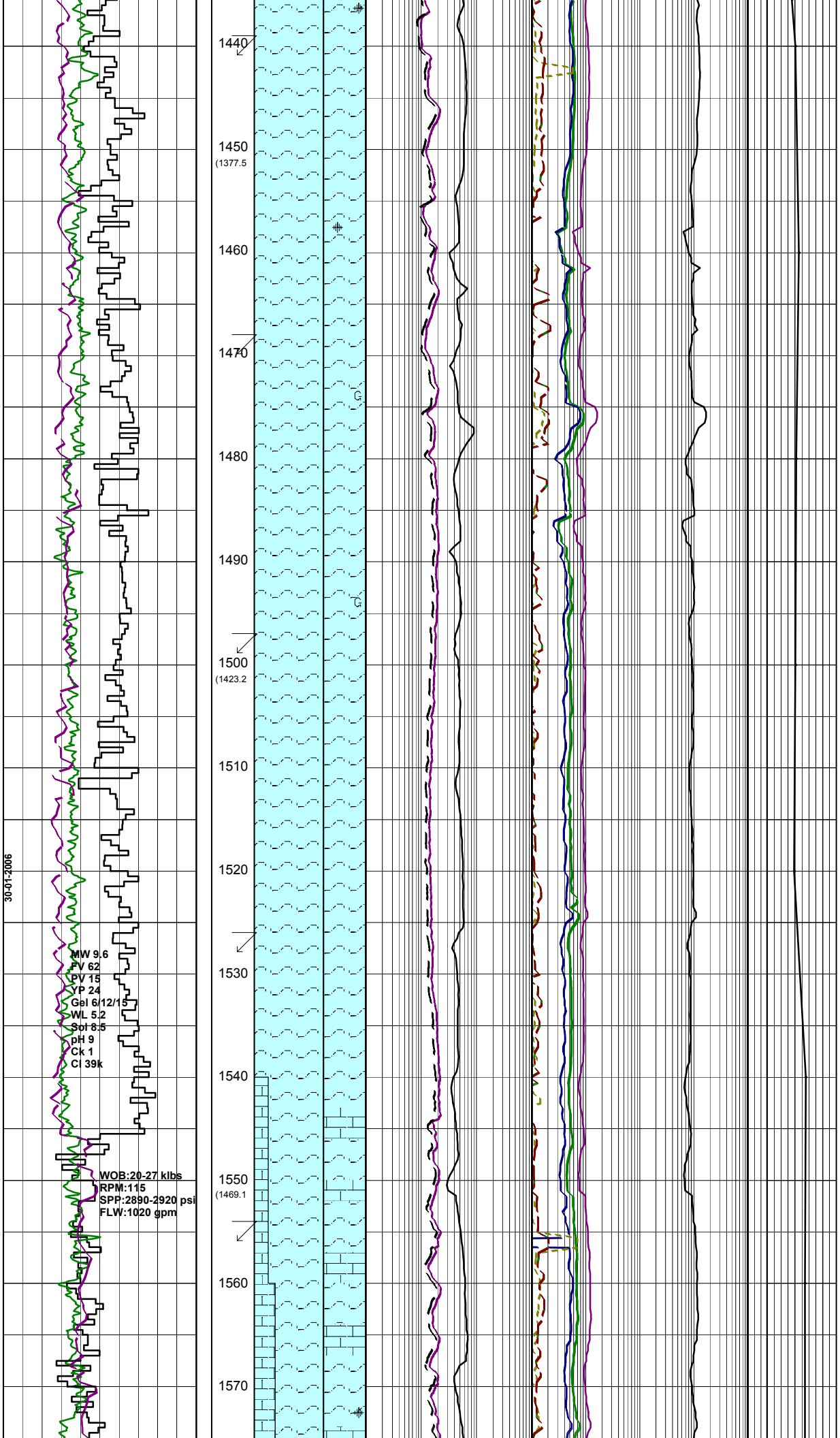
SLIDING 875-879m

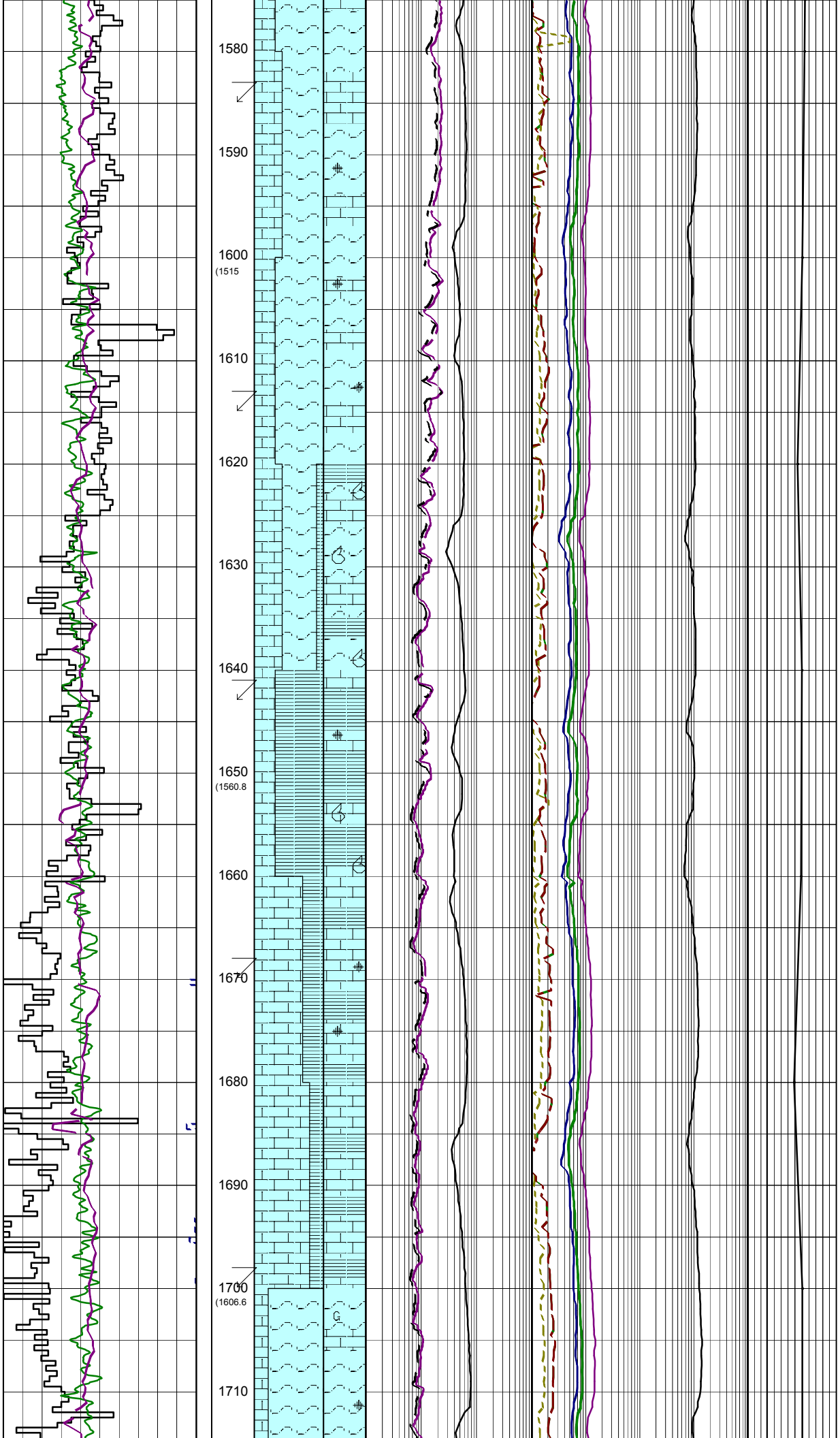

880
890
900
(871.5
910
920
930
940
950
(917.5
960
970
980
990
1000
(963.4
1010
WOB:25-35 klbs
RPM:135/240
SPP:2500 psi
FLW:1025 gpm
MW 8.8
FV 130
PV 10
YP 61
Gel nc
WL nc
Sol nc
pH 9.0
Ck nc
Cl nc
WOB:15-22 klbs
RPM:70-125
SPP:1800-2270 psi
FLW:850-1010 gpm
28-01-2006
MW 9.3
FV 45
PV 8
Survey @ 880.7m: 22.87° 43.8Az
DRILL WITH SEAWATER
AND HI-VIS SWEEPS
RETURNS TO THE SEAFLOOR.
Survey @ 909.4m: 23.09° 44.2Az
Survey @ 938.2m: 23.39° 43.5Az
SLIDING 961-963m
Survey @ 967.1m: 23.23° 44.4Az
Survey @ 975.1m: 23.67° 45.3Az
340mm (13-3/8") Casing Shoe
set @ 984.5mMDRT
BIT #3: REED RSX162
SIZE: 311mm
JETS: 6x20
IN: 994m OUT: 1272m
RUN:278m HRS: 8.0
COND:0-0-CT-N-X-I-NO-DTF
Displace hole with PHG Mud
FIT @ 997m, EMW = 14.5 ppg
Survey @ 1010.8m: 22.85° 43.3Az
ARGILLACEOUS CALCILUTITE

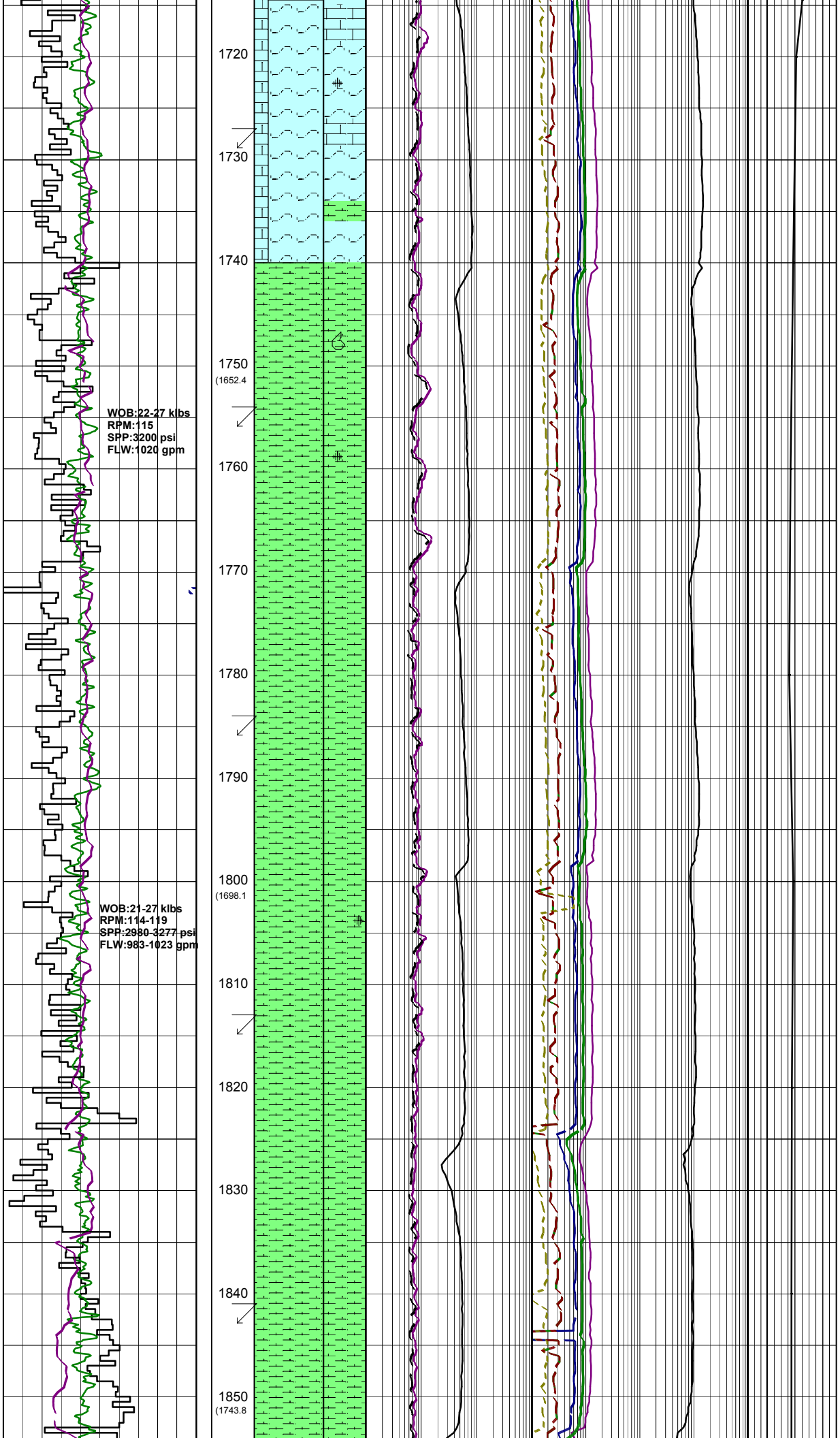

YP 11
Gel 3/4/4
WL 8.1
Sol 7
pH 10.0
Ck 1
Cl 41k
1020
1030
1040
1050
(1009.4
1060
1070
1080
1090
1100
(1055.3
1110
1120
1130
1140
1150
(1101.1
WOB:17-20 klbs
RPM:110-125
SPP:2350-2420 psi
FLW:1030 gpm
lt olv gry,tr clcar,tr mic pyr,
tr carb spks,tr foss,sft,pred amor,
occ sbblky.
Drill 12.25" Section with a
rotary-steerable BHA
Survey @ 1039.6m: 23.04° 44.5Az
ARGILLACEOUS CALCILUTITE:
lt olv gry,20-40% calc slt-vf sst,
tr carb spks,tr mic pyr,tr foss,sft,
pred amor,occ sbblky.
Survey @ 1068.2m: 23.27° 45.5Az
MARL:lt olv gry,20-40% calc,
slt vf sst,tr mic pyr,tr carb spk,
tr foss frags,tr glauc,sft,amor-
sbblky.
Survey @ 1097.0m: 23.65° 46.5Az
MARL:lt olv gry,20-40% calc,
slt vf sst,tr mic pyr,tr carb spks,
tr foss,tr glauc,sft,amor-sbblky.
Survey @ 1125.7m: 23.81° 47.0Az
Survey @ 1154.2m: 24.02° 47.2Az

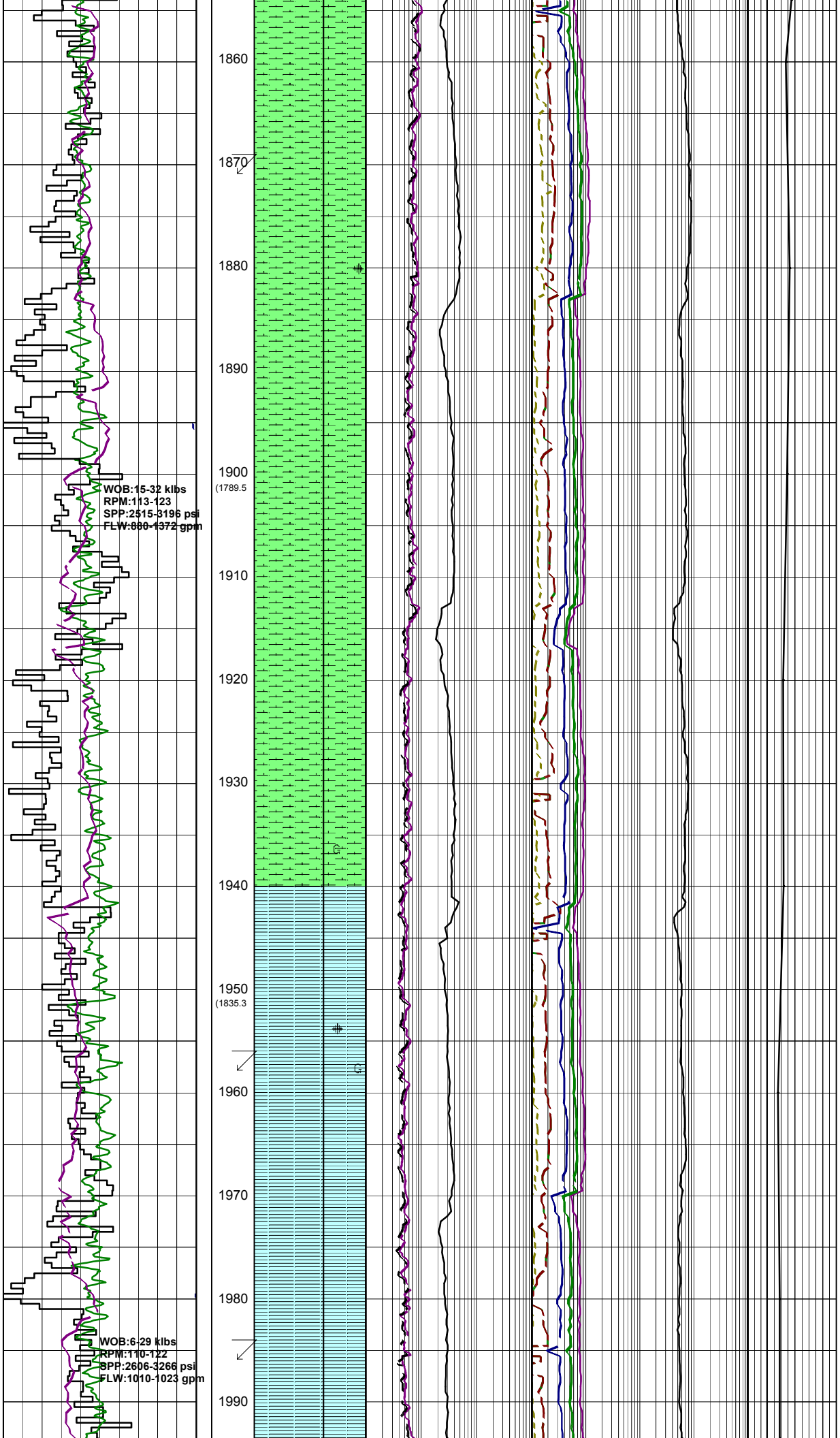

1160
1170
1180
1190
1200
(1146.8
1210
1220
1230
1240
1250
(1192.8
1260
1270
1280
1290
MW 9.45
FV 55
PV 12
YP 16
Gel 5/11/14
WL 7.4
Sol 7
pH 9.0
Ck 1
Cl 41k
WOB:13-17 klbs
RPM:100-110
SPP:1980-2100 psi
FLW:890-915 gpm
WOB:10-18 klbs
RPM:100-122
SPP:1799-2845 psi
FLW:887-1036 gpm
29-01-2006
29-01-2006
Survey @ 1183.0m: 23.70° 46.3Az
Survey @ 1211.8m: 23.47° 46.6Az
MARL:lt gry-olv gry,rr vf sst,
rr micro pyr & glauc,tr carb spk,
sft,amor-sbblky.
Survey @ 1240.5m: 22.58° 47.0Az
MARL:olv gry,rr vf sst,tr micro
carb spks,rr pyr,sft-frm i/p,
sbblky.
Survey @ 1269.3m: 20.88° 43.9Az
POOH @ 1272m DUE TO
GEOPILOT FAILURE
TRIP GAS AT 1272m: 88 UNITS
BIT #3RR: REED RSX162
SIZE: 311mm
JETS: 6x20
IN: 1272m OUT:2715m
RUN: 1443m HRS:50.7
COND: 3-3-WT-A-X-1/16-CT-TD

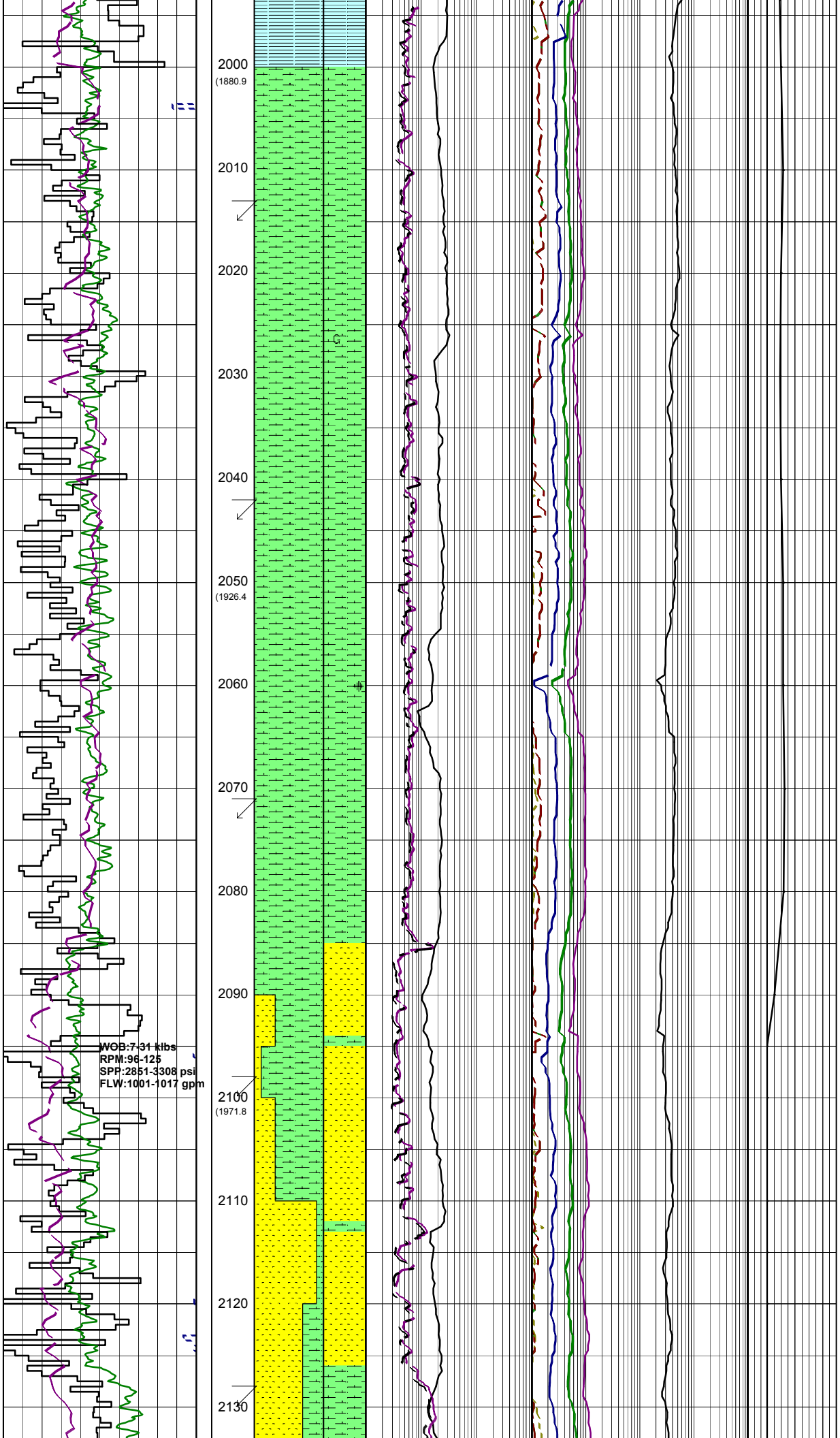

Survey @ 1297.8m: 20.93° 42.6Az
1300
(1239.4
MARL:lt olv gry-olv gry,
5% calc slt,5% calc snd,rr pyr,
rr glauc,tr carb spks,pred sft,
occ hd,amor-sbblky.
1310
WOB:9-14 klbs
RPM:116-123
SPP:2158-2717 psi
FLW:919-1024 gpm
1320
Survey @ 1326.5m: 21.78° 44.7Az
1330
1340
1350
(1285.8
Survey @ 1355.2m: 22.91° 47.3Az
1360
MARL:lt olv gry-olv gry,
5% calc slt,5% calc snd,rr pyr,
rr glauc,tr carb spks,pred sft,
occ hd,amor-sbblky.
1370
1380
Survey @ 1383.6m: 23.51° 47.8Az
1390
MARL:lt olv gry-olv gry,5-10%
calc slt grad to calc snd,
rr py,rr glauc, tr carb spks,
pred sft,occ hd,amor-sbblky.
1400
(1331.8
1410
Survey @ 1412.3m: 23.73° 48.7Az
WOB:9-24 klbs
RPM:98-127
SPP:2466-2815 psi
FLW:1008-1023 gpm
1420
1430

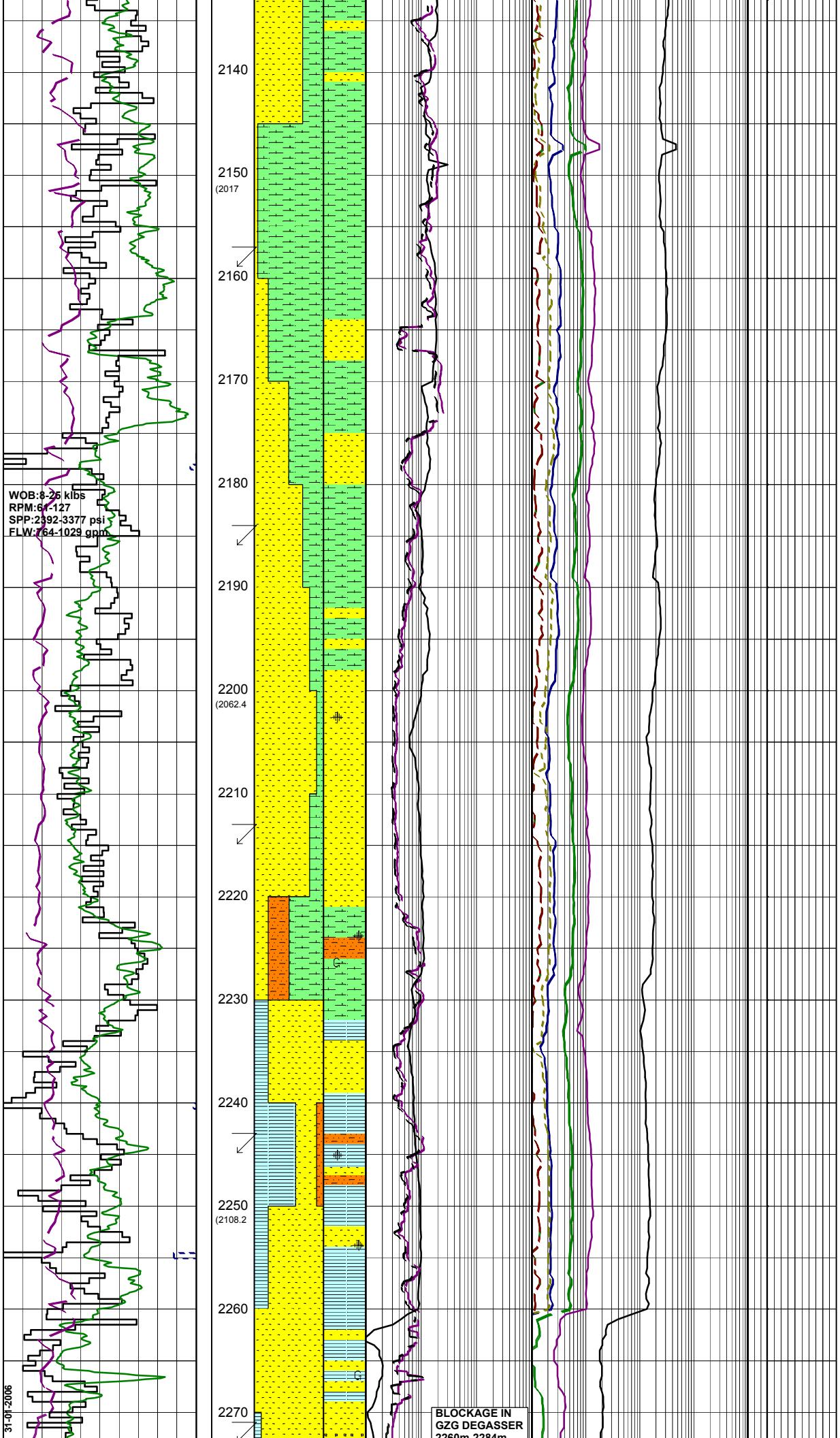

30-01-2006
MW 9.6
PV 62
PV 15
YP 24
Gel 6/12/15
WL 5.2
Sol 8.5
pH 9
Ck 1
Cl 39k
WOB:20-27 klbs
RPM:115
SPP:2890-2920 psi
FLW:1020 gpm
1440
1450
(1377.5
1460
1470
1480
1490
1500
(1423.2
1510
1520
1530
1540
1550
(1469.1
1560
1570
Survey @ 1441m: 23.96° 47.2Az
MARL:lt olv gry-olv gry,5-10% calc SLTST grad to calc SST,tr carb spks, rr frags pyr,rr glauc,rr Dol,sft-frm,amor-sbblky.
Survey @ 1469.7m: 23.99° 45.7Az
MARL:lt-pl gry,olv gry,tr grad to calc SST,tr micro carb spks, rr micro glauc,frm,sbblky.
Survey @ 1498.9m: 23.80° 44.7Az
Survey @ 1527.7m: 23.05° 44.1Az
MARL:lt-pl gry,olv gry,occ micro carb spks,tr nod & i/p dissem pyr,com sft,frm frags i/p, sbblky.
Survey @ 1555.8m: 23.40° 44.0Az
CALCARENITE:olv gry,tr vpl brn/ gry,vf,mod wl srt,sbrnd-rnd,com arg mtx,tr micro carb spks,frm-loc hd,vpr vis por,no fluor.


1580
1590
1600
(1515
1610
1620
1630
1640
1650
(1560.8
1660
1670
1680
1690
1700
(1606.6
1710
Survey @ 1584.6m: 23.17° 43.2Az
CALCARENITE:gry,tr vpl brn/ gry,vf-f,mod wl srt,sbrnd-rnd,com arg mtx,occ micro carb spks & i/p lam,tr nod pyr,fri-hd,vpr vis por, no fluor.
Rmf: 0.08ohm @ 75°F
Survey @ 1613.3m: 23.71° 42.9Az
MARL:lt-pl gry,micro carb spks i/p,tr nod & dissem pyr,foss, com sft,amor-sbblky.
Survey @ 1642.1m: 23.63° 43.3Az
CALCARENITE:gry-lt gry,vf-f,mod wl srt,sbrnd-rnd,occ arg mtx,tr micro carb spks & i/p micro lam, tr nod pyr,fri-frm,pr vis por, no fluor.
CLAYSTONE:lt gry,vsft,disp i/p, amor.
Survey @ 1670.9m: 23.84° 46.6Az
CALCARENITE:gry,pl bn/gry,vf,wl srt,sbrnd-rnd,occ arg mtx,occ micro carb spks,occ pyr,tr glauc, fri-frm,pr vis por,no fluor.
Survey @ 1699.5m: 23.43° 45.8Az


1720
1730
1740
1750
(1652.4
1760
1770
1780
1790
1800
(1698.1
1810
1820
1830
1840
1850
(1743.8
WOB:22-27 klbs
RPM:115
SPP:3200 psi
FLW:1020 gpm
WOB:21-27 klbs
RPM:114-119
SPP:2980-3277 psi
FLW:983-1023 gpm
MARL:lt gry,micro carb spks i/p,occ nod & dissem pyr,rr micro glauc,com sft,amorph-sbblky i/p.
Survey @ 1728.2m: 23.90° 45.8Az
CALCAREOUS CLAYSTONE:lt olv gry,pl gry,grd to MARL,slty,mnr vf aren,tr carb spks,rr foss,tr pyr,nods,rr glauc spks,v sft,occ frm,sbblky.
Survey @ 1756.7m: 24.27° 46.4Az
CALCAREOUS CLAYSTONE:med lt gry-lt olv gry,slty,mnr vf aren,rr carb spks,rr foss, sft,occ frm,blky-sbblky.
Survey @ 1785.4m: 23.65° 45.5Az
Survey @ 1814.0m: 24.24° 45.2Az
CALCAREOUS CLAYSTONE:lt olv gry,pl gry,grd to MARL i/p,tr vf aren,tr carb spks,tr nod pyr, v sft,occ frm,sbblky.
Survey @ 1842.8m: 23.71° 44.5Az


1860
1870
1880
1890
1900
(1789.5
1910
1920
1930
1940
1950
(1835.3
1960
1970
1980
1990
WOB:15-32 klbs
RPM:113-123
SPP:2515-3196 psi
FLW:880-1372 gpm
WOB:6-29 klbs
RPM:110-122
SPP:2606-3266 psi
FLW:1010-1023 gpm
CALCAREOUS CLAYSTONE:
med lt gry-med gry, dk gry i/p,
disp,slty,rr pyr,rr carb spks,
sft-frm,sbblky.
Survey @ 1900m: 23.68° 43.4Az
Survey @ 1928.8m: 23.89° 44.0Az
CALCAREOUS CLAYSTONE:
med lt gry-med gry, dk gry i/p,
disp,slty,rr pyr,rr carb spks,
sft-frm,sbblky,tr wl rnd,crs qtz gr.
Survey @ 1957.4m: 24.05° 43.9Az
CLAYSTONE:med lt gry-med gry,
grnsh gry i/p,slty,15-20% calc,
tr glauc,rr pyr,sft-frm,sbblky.
Survey @ 1986.1m: 24.35° 43.9Az


2000
(1880.9
2010
2020
2030
2040
2050
(1926.4
2060
2070
2080
2090
2100
(1971.8
2110
2120
2130
WOB:7-31 klbs
RPM:96-125
SPP:2851-3308 psi
FLW:1001-1017 gpm
Survey @ 2014.8m: 24.55° 46.0Az
CALCAREOUS CLAYSTONE:med lt gry-med gry,grnsh gry i/p, slty,15-20% calc,tr glauc,rr pyr,sft-frm,sbblky.
Survey @ 2043.47m: 24.45° 45.5Az
Survey @ 2072.1m: 24.44° 47.7Az
CALCAREOUS CLAYSTONE:med lt gry-med gry,grnsh gry i/p, slty,15-20% calc,tr glauc,rr pyr,sft-frm,sbblky.
SANDSTONE:clr-trnsl,f-v crs,lse, sbang-ang,pr srt,gd inf por, lt brnsh gry,sft agg,f-med,mod srt,sbang-sbrnd,tr mod sil & pyr cmt,loc com glauc,pr por, no fluor.
Survey @ 2100.8m: 25.25° 48.4Az
CALCAREOUS CLAYSTONE:brnsh gry,med lt gry-med gry,tr carb spks,pred sft,occ frm,amor, sbblky i/p.
Survey @ 2129.6m: 25.57° 44.1Az



Survey @ 2158.3m: 24.92° 42.3Az

CALCAREOUS CLAYSTONE:brnsh gry, sli slty i/p,tr f pyr,tr glauc, v sft,amor.

Survey @ 2186.9m: 24.73° 41.3Az

SANDSTONE:clr-trnsl,frstd,lse,lt gry,f-v crs,v pr srt,sbang-pred sbrnd,wk sil cmt,tr wk calc cmt, tr wh kaol & gry slty mtx,occ pyr, fr-gd inf por,no fluor.

Survey @ 2215.5m: 24.18° 43.0Az

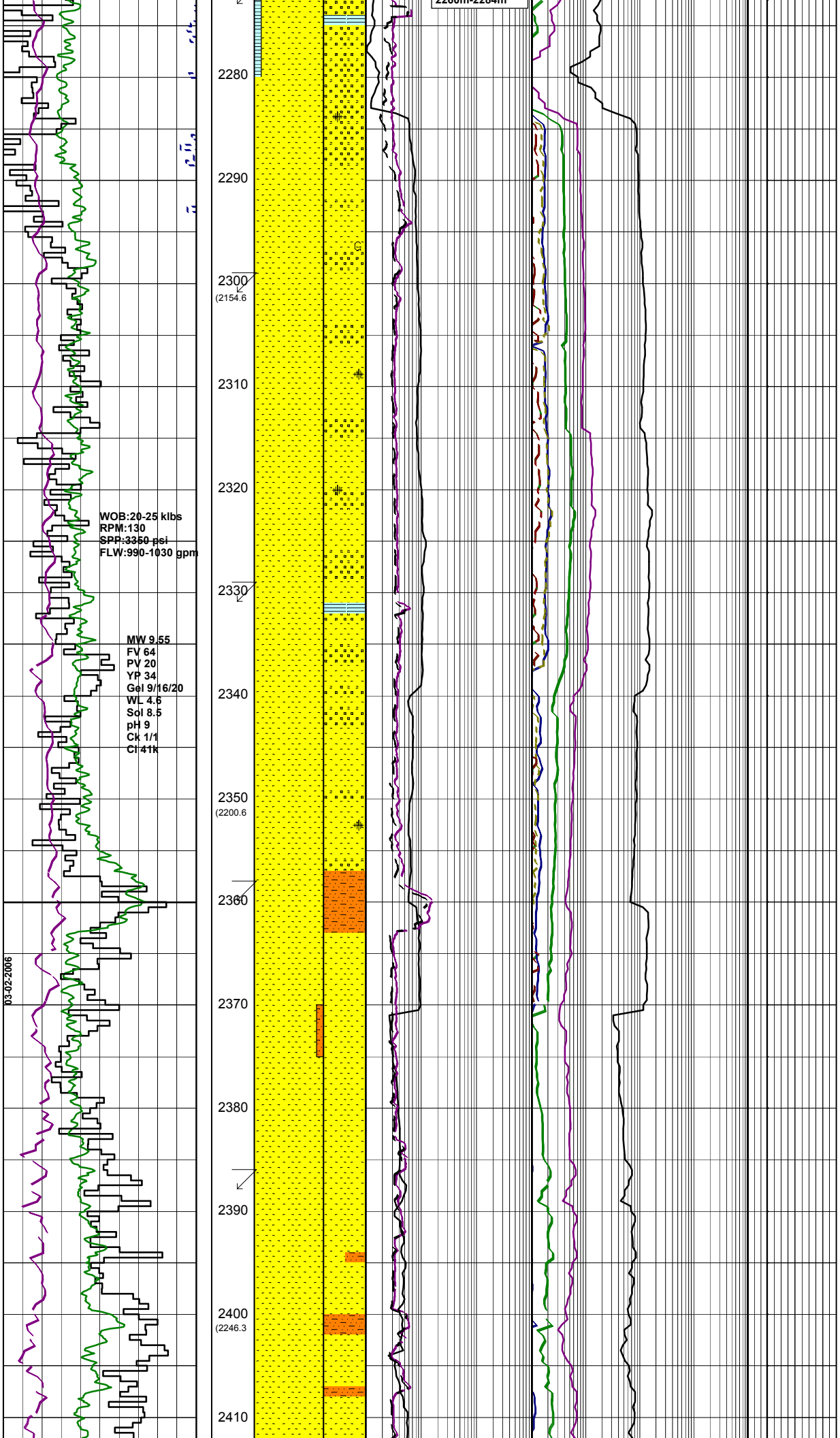
SILTSTONE:lt gry,olv gry,tr pl brn,occ mott wh/gry,pred aren grd to slty SST,com arg,tr calc, tr-occ carb spks,tr-occ dissem & nod pyr,rr glauc incls,v sft-disp,sbblky-amor.

CLAYSTONE:brnsh gry,med-lt gry, carb spks,tr micmic,sft,amor-sbblky i/p.

Survey @ 2244.2m: 22.33° 45.2Az

SANDSTONE:clr,trnsl,occ wh,occ yel stn grs,lse,vf-crs,dom f-med, mod srt,sbrnd-rnd,sbspher-spher, tr pyr cmt,tr carb grs,gd por, no fluor.

Survey @ 2272.8m: 21.89° 45.1Az



CLAYSTONE:lt gry-lt olv gry, com slty,aren i/p,calc i/p,tr pyr nods,rr carb spks & glauc incls, v sft-frm,sbblky-blky.

Survey @ 2301.5m: 22.34° 45.3Az

SANDSTONE:clr,trnsl,frstd,occ med gry,f-v crs,v pr srt,sbang-pred ang,wk sil cmt,wk dol cmt, occ pyr mtx,rr glauc,lse-occ fri,mod hd i/p,fr-gd inf por, fr vis por,no fluor.

Survey @ 2330.2m: 23.00° 43.9Az

SANDSTONE:clr-trnsl,tr frstd,rr opq,f-occ crs,pr srt,sbang-pred sbrnd,wk sil cmt,occ nod pyr, com lse,gd por,no fluor.

SANDSTONE:clr-trnsl,tr frstd, gen f-med,crs i/p,pr-mod srt, sbrnd,tr wk sil cmt,occ nod pyr, gen lse cln sand,gd inf por, no fluor.

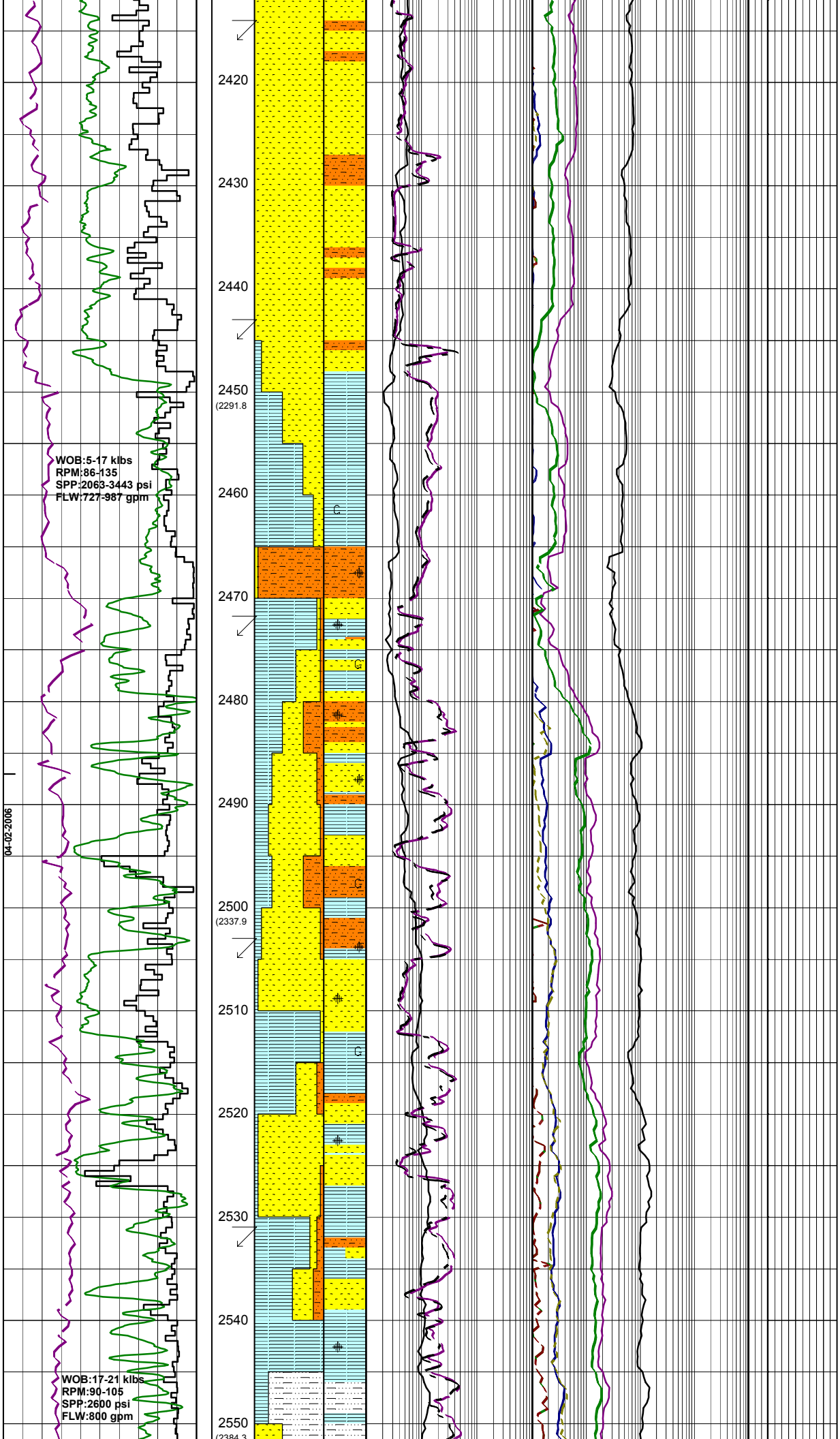
POOH @ 2360m TO SHOE
TO REPAIR TOP DRIVE MOTOR

Survey @ 2359.2m: 23.76° 44.1Az

SANDSTONE:clr-trnsl,med-crs,pr srt, sbang-sbrnd,pyr & sil cmt,tr rd lithic incls,rr glauc,v gd inf por, no fluor.

Survey @ 2387.8m: 24.24° 44.1Az

ARGILLACEOUS SILTSTONE:med dk gry-dk gry,mnr cly dec w/- dpth,tr carb spk, rr glauc,tr calc,frm-mod hd,sbblky-blky,sbfiss i/p.



Survey @ 2416.8m: 24.95° 43.9Az

SANDSTONE:clr-trnsl,pred f-med,occ crs,mod srt,sbang-sbrnd,pyr & calc cmt,mnr kao mtx,tr rd lithic incls, rr glauc,gd vis por,v gd inf por, tr dll yel-crm min fluor.

Survey @ 2444.5m: 24.15° 47.4Az

CLAYSTONE:brn/gry,med-dk gry, v sft-rr frm,amor-sbblky,occ vf snd,tr-com glauc,occ glauc nod.

SILTSTONE:brn/gry,grn spkld, sil i/p,aren,com f snd,com nod glauc,tr pyr,frm,sbblky-blky.

Survey @ 2472.7m: 22.73° 50.2Az

SANDSTONE:clr-trnsl,tr mlky,f-med, occ crs,mod-pr srt,sbang,pyr & calc cmt,mnr kaol mtx,tr rd lithic incls,rr glauc,fr vis por,v gd inf por,no fluor.

CLAYSTONE:med gry,lt gry,brn i/p, v sft-rr frm,occ pyr,rr glauc, rr glauc,amor-tr sbblky.

SILTSTONE:med brn,gry/brn,com arg, tr aren,occ micmic,com carb spks, carb lam i/p,nod pyr,sft-loc frm, sbblky-occ amor.

Survey @ 2501.2m: 21.95° 55.9Az

SANDSTONE:clr-trnsl,tr mlky,rr opq, f-occ med,crs i/p,mod-pr srt,sbang, occ pyr cmt,tr calcite cmt,tr kaol /slty mtx,rr glauc,com lse,pr vis por,fr-gd inf por,no fluor.

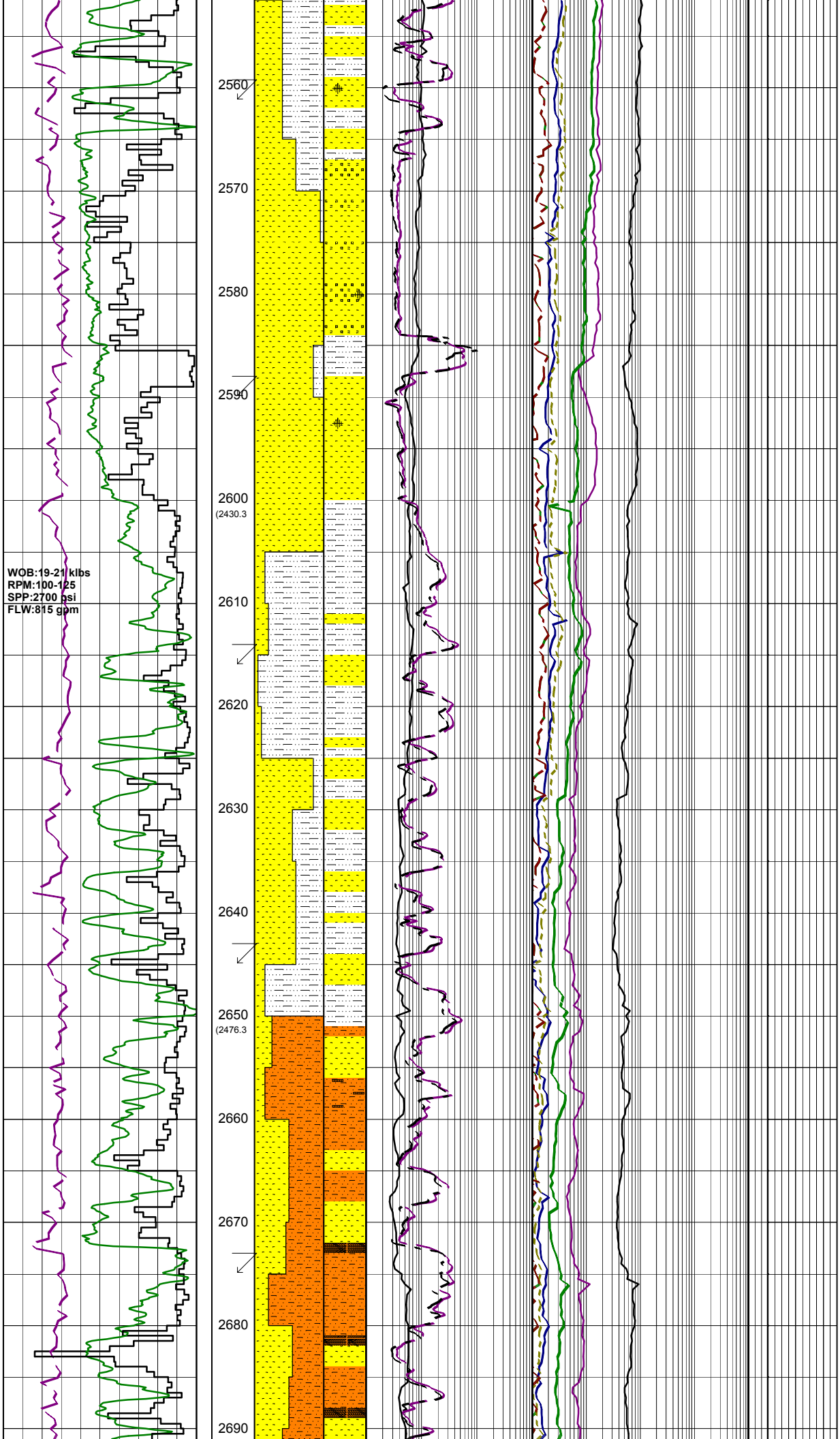
CLAYSTONE:med brn,gry/brn,pl gry i/p,com arg,occ carb & micmic i/p,glauc,tr nod pyr,sft,loc frm,amor-sbblky.

SANDSTONE:clr-trnsl,tr mlky,rr opq, f-occ med,crs i/p,mod-pr srt,sbang -occ sbrnd,tr pyr cmt,tr calcite cmt rr kaol/slty mtx,pred lse,hd aggs, pr vis por,fr inf por,no fluor.

Survey @ 2530.1m: 21.84° 59.8Az

SILTY CLAYSTONE:med gry, brn/gry,arg-tr aren,micmic,carb spks,tr lam,vsft-washing out, amor.

ARGILLACEOUS SILTSTONE:brn/gry, med brn,med gry/brn i/p,arg,occ



vf aren,com micmic,occ carb & i/p lam,occ pyr,vsft-sft,tr frm,amor-sbblky i/p.

Survey @ 2559.4m: 22.13° 63.7Az

ARGILLACEOUS SILTSTONE:lt gry-brn,com aren,arg i/p,carb i/p, occ carb lam,tr nod pyr,disp-sft,sbblky-amor.

Rmf:0.08 ohm @ 76°F

SANDSTONE:clr-trnsl,med-crs,occ v crs,mod pr srt,sbrnd-occ rnd,rr slty mtx,tr qtz ovgrth,gen cln lse sand,fr inf por,no fluor.

Survey @ 2588.0m: 23.56° 67.0Az

SANDSTONE:clr-trnsl,f-med,mod srt, sbrnd-sbang,tr calcite cmt,occ hd calc cmt,tr qtz ovgrth,occ pyr, gen cln lse snd,fr inf por,no fluor.

SANDSTONE:gen cl-trnsl,f-occ med, crs i/p,pr srt,sbang-sbrnd,tr calcite cmt,occ pyr dissem & nod, com lse,fr inf por,no fluor.

Survey @ 2616.1m: 23.24° 72.5Az

ARGILLACEOUS SILTSTONE:lt olv gry-olv gry,g/t dsky brn-brn/ blk,arg g/t Slty CLYST,tr carb mat,rr glauc,rr foss,disp-v sft, amor-sbblky.

SANDSTONE:clr-trnsl,m-v crs,mod -pr srt,sbang-sbrnd,pred sil cmt,tr pyr cmt,tr calc mtx,v gd inf por, no fluor.

Survey @ 2645.2m: 22.80° 79.1Az

CARBONACEOUS SILTSTONE: brn/blk,slty,frm-hd,sbblky -blky,sbfiss.

SILTSTONE:lt olv gry-olv gr, dsky brn-brn/blk,tr carb mat, rr glauc,rr foss,disp-v sft,amor -sbblky.

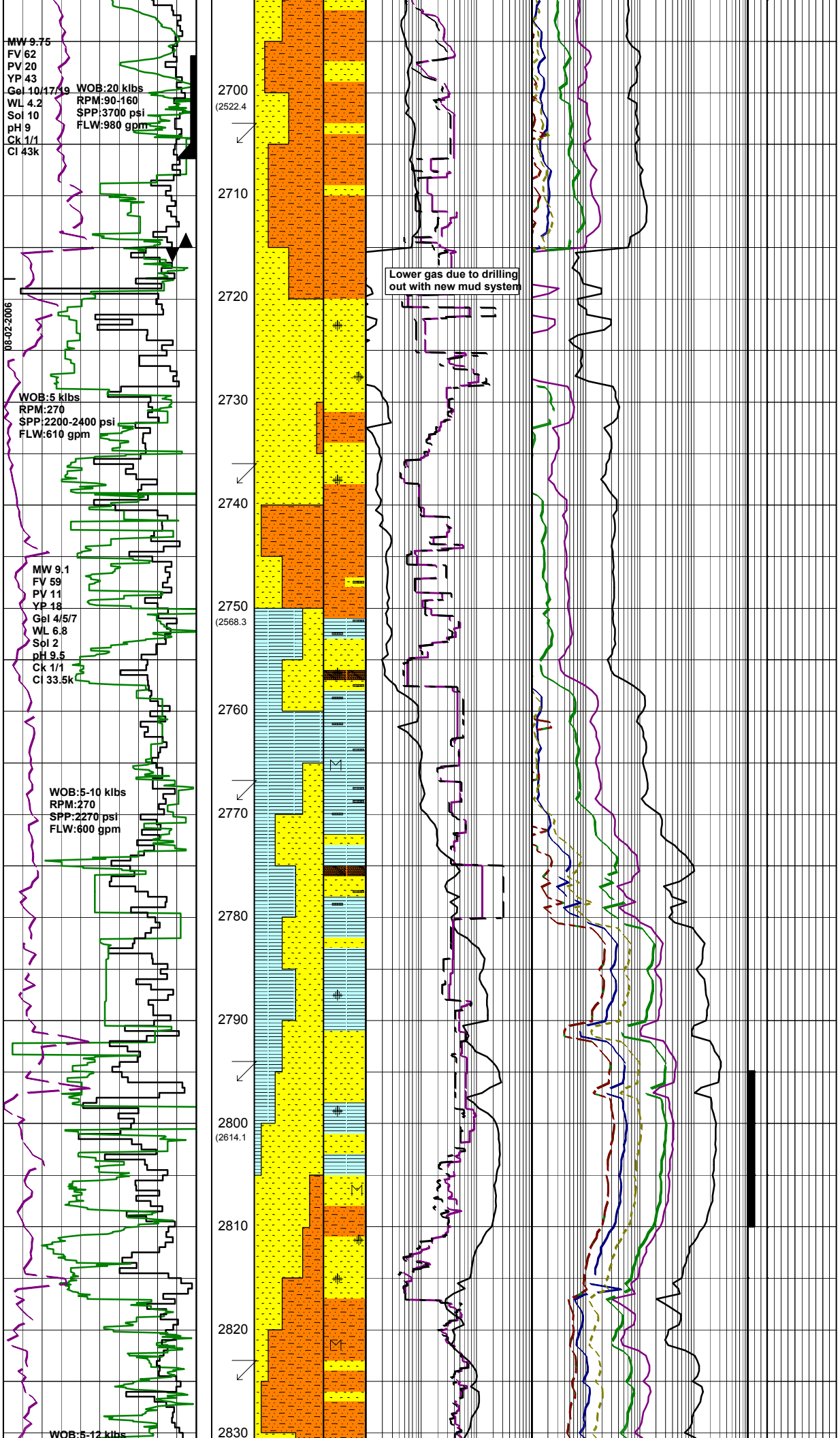
SANDSTONE:clr-trnsl,m-v crs,mod -pr srt,sbang-sbrnd,pred sil cmt,tr pyr cmt,kao mtx,fr-gd inf por, no fluor.

COAL:brn/blk-blk,vit i/p, blky-plty,sft-frm.

Survey @ 2674.3m: 23.09° 87.7Az

SANDSTONE:clr-trnsl,rr med gry, f-crs,pr srt,pred ang-sbang, occ sbrnd,sil & pyr cmt,kao mtx, tr carb incl,fr-gd inf por,no fluor.

SILTSTONE:brn/gry-dsky brn-brn/blk,carb frag,tr arg,sft,



sbblky-blky,splnty & sbfiss i/p.

Survey @ 2704.5m: 22.97° 91.8Az

9 5/8" CSG SHOE SET @ 2706.4m

BIT #4:Reed Hycalog RSX616M
SIZE: 216mm 8.5"
JETS: 6x14
IN: 2715m OUT:3113m
RUN: 398m HRS:19.8
COND: IN HOLE

FIT @ 2718m: 1.62sg (13.5ppg) EMW

SANDSTONE:clr-trnsl,lt gry,tr off wh,f-crs,pr srt,pred ang-sbang, occ sbrnd,occ calc cmt,pyr cmt i/p,kaol mtx,tr carb incl,fr-gd inf por,tr min fluor.

Survey @ 2737.7m: 23.49° 91.4Az

SILTSTONE:lt-med gry,brn/gry,com arg,occ aren,occ carb spks & lam i/p,micmic,frm-sft,loc hd,sbblky.

Rmf : 0.09 ohm @ 72°F

SILTSTONE:med-dk gry,occ brn/gry, arg,occ aren,abdt carb spks & lam i/p grad to carb SLTST,micmic,frm -pred sft,sbblky.

COAL(Tr):blk-gry blk,dll-ea,tr sbvit,slty grad to carb frags,sft-brit,sbblky-sbfiss,unevn-ang.

CARBONACEOUS CLAYSTONE:med -dk gry,occ brn/gry,arg,occ aren, abdt carb SLTST,COAL frags i/p, tr micmic,pred sft,occ frm,amor-sbblky.

Survey @ 2766.2m: 25.67° 91.8Az

SANDSTONE:clr,trnsl,opq,tr lt gry,tr off wh,f-med,com crs-v crs,mod pr srt,ang-sbrnd,wk sil cmt,tr wh arg mtx,tr gry slty mtx, rr pyr mtx,tr carb incls,v pr vis por,pr inf por,no fluor.

SILTY CLAYSTONE:lt brn,gry-brn, med lt gry,arg,tr aren,com carb spks & flks,tr carb frags,v sft amor-sbfiss.

SANDSTONE:off wh,trnsl,pl gry, vf-f,mod-v crs lse,pr srt,sbrnd, off wh arg-lt gry mtx,carb spks, mnr pyr,mod hd-fri aggs,gen lse, ti vis & fr inf por,no fluor.

Survey @ 2795.0m: 23.65° 91.1Az

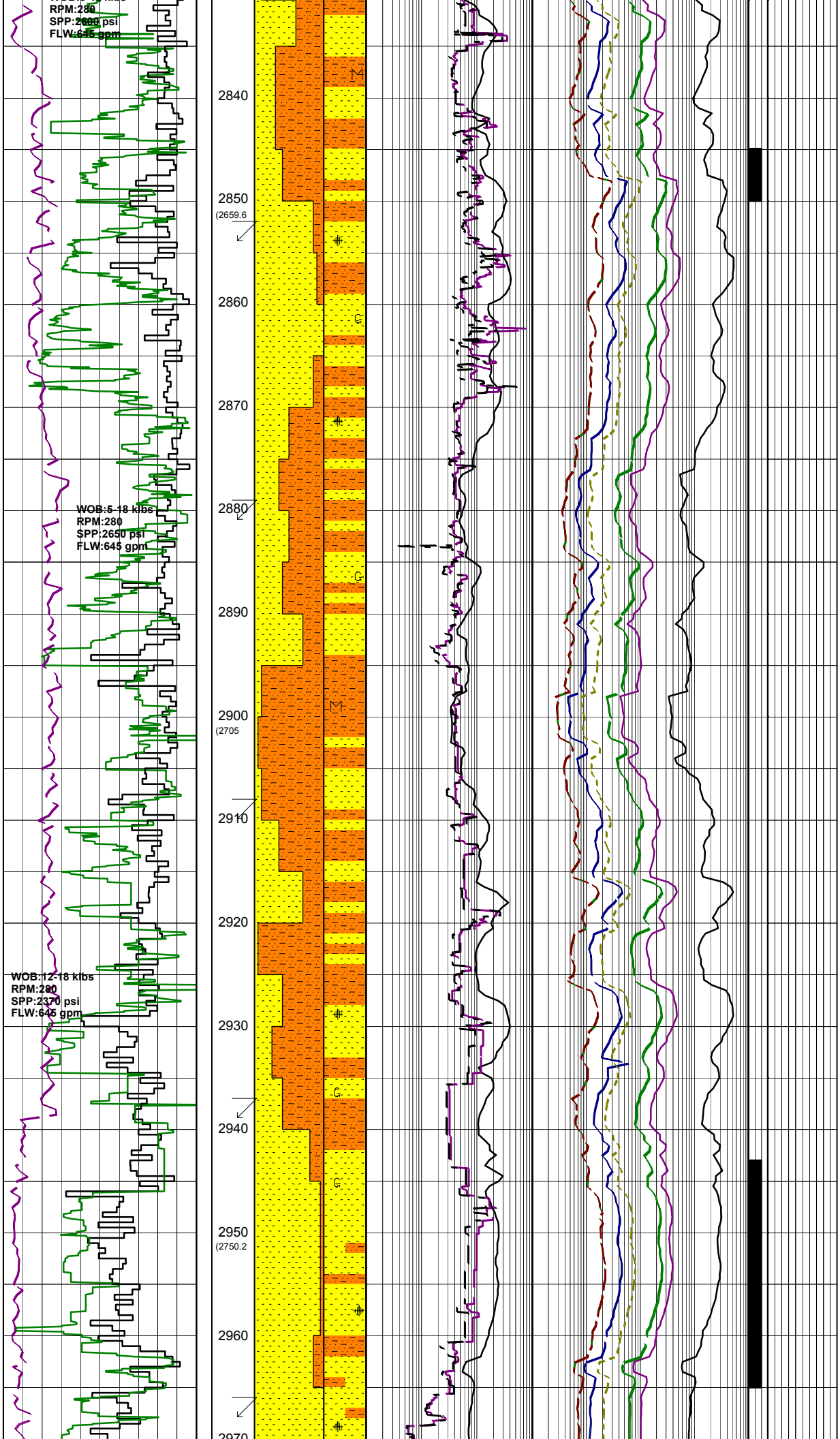
SANDSTONE:clr-trnsl,f-med,tr crs,pr-mod srt,sbrnd-sbang,tr sil cmt,tr-com wh-lt brn arg mtx,tr mod pyr,tr micmic,fri-occ mod hd,tr lse,v pr-pr vis por in f aggs, pr-fr inf por in lse grs,tr fluor.

FLUOR:2795m-2810m:Tr mod brt yelsh pnpnt fluor, dull blu-wh slw crush cut, pl wh-yel r/r.

SLIDING:2815m-2819m

ARGILLACEOUS SILTSTONE:lt gry, gry/brn,med lt gry,arg,occ vf aren,com carb spks & flks,tr carb frags,micmic,v sft-occ frm,sbfiss-sbblky.

Survey @ 2824.3m: 24.43° 91.0Az



SANDSTONE:clr-trnsl,opq,lt gry, vf-med,crs i/p,mod pr srt,pred sbrnd-com sbang,wk sil cmt,tr pyr cmt,tr gry slty mtx,wh arg mtx i/p,tr carb flaks,lse,rr fri, fr-pr inf por,pr vis por,no fluor.

FLUOR:2845m-2850m: 30% fluor,mod brit,lt grn,v slw cut & c/c,solid,mod brt grn/crm r/r.

SANDSTONE: lt gry-med lt gry, clr-trnsl,vf-mod, occ crs,mod srt, sil cmt,tr pyr cmt,tr arg mtx, tr carb mat,rr glauc,lse,sbrnd-sbang,gd inf por,fluor.

Survey @ 2853.1m: 24.76° 90.9Az

SILTSTONE:brn/gry-dk gry,gry/blk i/p g/t CARB SLTST,tr arg,bcm aren i/p,tr micmic,tr carb mat, sft-frm,occ hd,sbblky-blky,sbfiss i/p.

SANDSTONE:clr-trnsl,f-crs, mod pr srt,sbang-sbrnd,pred sil cmt,occ pyr cmt,wh arg mtx, lse,rr glauc,gd inf por,no fluor.

Survey @ 2881.5m: 25.09° 90.3Az

SANDSTONE:clr-trnsl,f-crs, com v crs,mod srt,sbang-sbrnd, sil & pyr cmt,wh arg mtx,rr glauc,rr rd lith incl,lse,v gd inf por,no fluor.

SILTSTONE:brn/gry-brn/blk, occ olv gry,tr arg,occ aren, tr micmic,tr-com carb mat,sft-frm,occ hd,sbblky-blky.

Survey @ 2910.0m: 25.18° 90.9Az

SILTSTONE:brn/gry-brn/blk, occ olv gry,tr arg,occ aren, tr micmic,tr-com carb mat,sft-frm,occ hd,sbblky-blky.

SANDSTONE:clr-trnsl,f-crs, com v crs,mod srt,sbang-sbrnd, sil & pyr cmt,wh arg mtx,rr glauc,rr rd lith incl,lse,v gd inf por,no fluor.

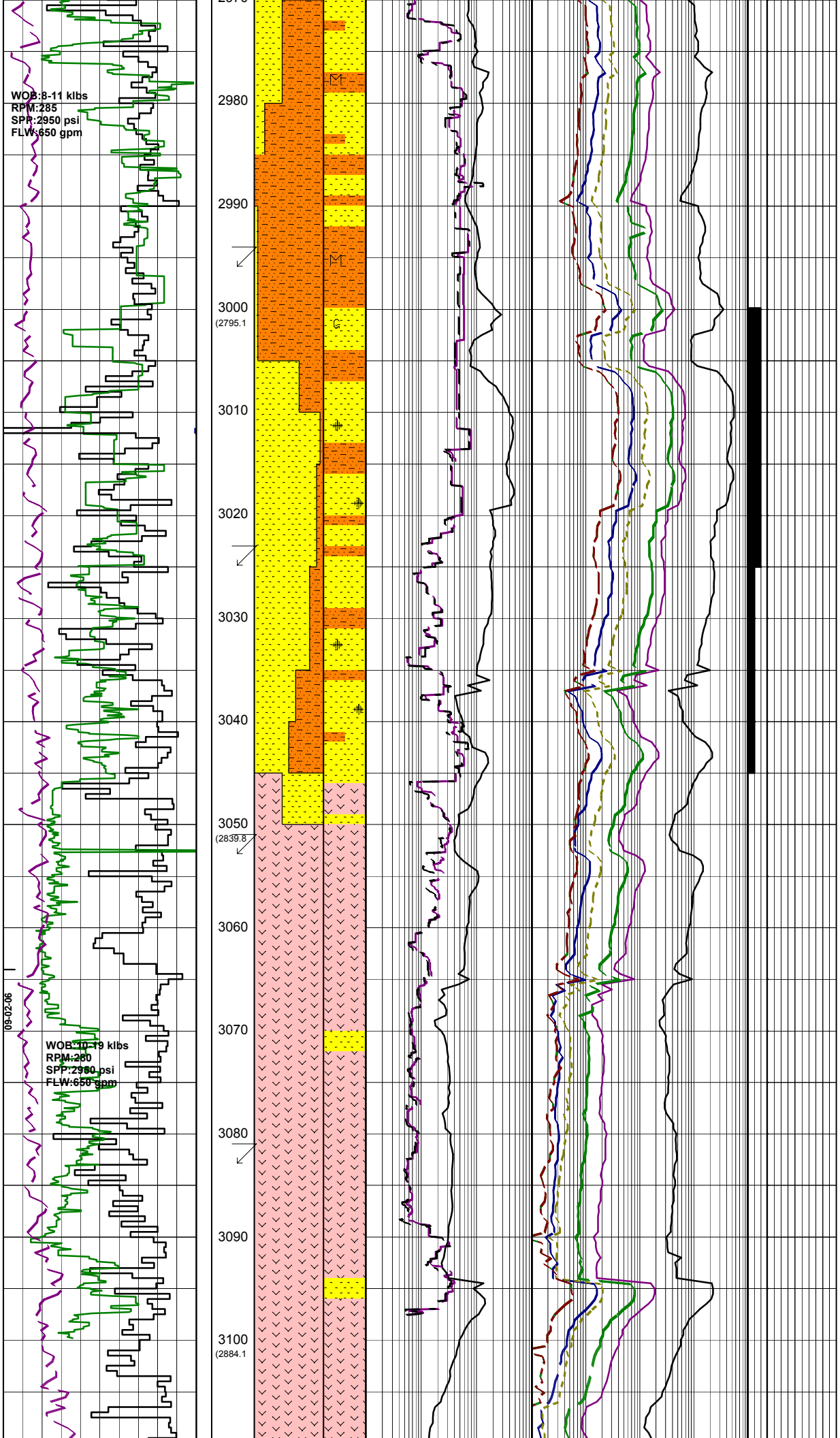
Survey @ 2938.5m: 25.39° 90.8Az

SANDSTONE:clr-trnsl,f-crs, occ v crs,mod srt,sbang-sbrnd, sil & pyr cmt,kaol mtx,rr glauc, rr rd lith incl,tr carb mat,lse, v gd inf por,fluor.

FLUOR:2943m-2965m,3-20%, mod brt crm/lt grn,pnpt,tr cut, tr c/c,r/r dll lt yel,indistinct.

SILTSTONE:med gry-olv gry, brn/gry-brn/blk,arg,occ aren, tr micmic,tr-com carb mat, sft-frm,sbblky.

Survey @ 2967.3m: 26.0° 90.2Az



SANDSTONE:clr-trnsl,f-crs, occ v crs,mod srt,sbang-sbrnd, sil & pyr cmt,tr kao mtx, glauc,rr rd lith incl,tr carb mat,lse,v gd inf por,no fluor.

SILTSTONE:med gry-olv gry, brn/gry-brn/blk,arg,occ aren, tr micmic,tr-com carb mat, sft-frm,sbblky.

Survey @ 2996.1m: 26.25° 89.7Az

SILTSTONE:med gry-olv gry, brn/gry-brn/blk,arg,occ aren, tr micmic,tr-com carb mat, sft-frm,sbblky.

SANDSTONE:clr-trnsl,f-v crs, pred med-crs,mod srt,tr pyr cmt,tr wh arg mtx wshg out, sbang-sbrnd,mod spher,v gd inf por,fluor.

Fluor:3000m-3045m:3-20% mod brit grn pnpnt-pachy fluor,mod fst cut,dull crm r/r.

Survey @ 3024.9m: 26.67° 89.2Az

SANDSTONE:clr-trnsl,f-v crs, pred med-crs,mod srt,tr pyr cmt,tr wh arg mtx wshg out, sbang-sbrnd,mod spher,v gd inf por,fluor.

SANDSTONE:lt gry-opq,wh i/p vf-med,mod srt,sbrnd-sbang,tr pyr cmt,tr arg mtx,tr calc,tr carb spks,mnr nod & tr dissem pyr, pred lse,tr hd aggs,pr vis por, ti inf por,no fluor.

VOLCANICS(weathered):lt gry-grn gry,lt grnsh-lt gry,com calc, alt to clay,v sft,amorph-mass.

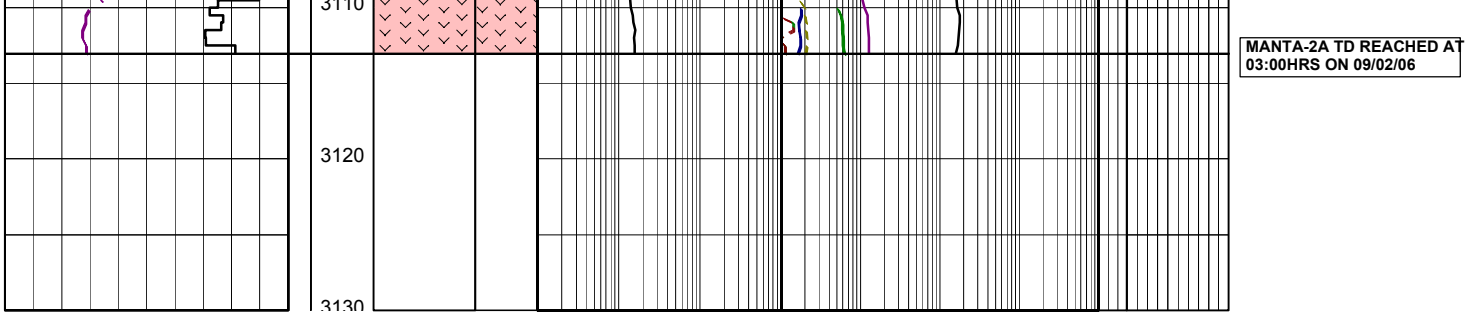
Survey @ 3053.4m: 27.18° 90.8Az

SILTSTONE:brn gry,arg,tr aren, carb spks & lams,v sft,sbblky.

VOLCANICS:grn blk,wh,calc,com qtz,mnr pyroxene,occ chlorite, sft-occ hd,sbblky.

Survey @ 3081.8m: 27.81° 86.2Az

VOLCANICS:gry/grn,wh-lt brn,occ calc,com weathered,occ chlorite, occ relict xln text,kaol?,sft-occ frm,loc hd,sbblky.


3110
3120
3130
MANTA-2A TD REACHED AT
03:00HRS ON 09/02/06