



Scale 1:240 (5"=100') Metric
Measured Depth Log

Well Name: COPRC MIRROR LAKE P-20
Location: UWID: 300P206500126450 ; Surf. Loc: UNIT P-20 GRID 65-00 126-45
License Number: EL 470, ID# 2081
Spud Date: Jan 29, 2014 00:01hrs
Surface Coordinates: Lat / Long: N 64° 59' 57.98372", W 126° 47' 8.73410"
Grid N/E Y/X: N 7210027.780 m, E 604406.010 m
Bottom Hole Coordinates: 64.61m North 231.69m West of Well Center
Grid N/E Y/X: N 7210084.220m, E 604172.260m
Ground Elevation (m): 284.15 K.B. Elevation (m): 289.35
Logged Interval (m): 0 To: 2131 Total Depth (m): 2152
Formation: Lower Canol Fm
Type of Drilling Fluid: Gel Chem (Surface) Invert VersaClean C12 (Build; Lateral)
Printed by STRIP.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: ConocoPhillips Canada
Address: 2100, 401- 9 Ave SW
Calgary, Alberta
T2P 2H7

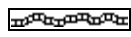
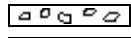
GEOLOGIST

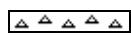
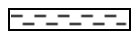
Name: Dave Lawrence / Gerald Pasveer
Company: Black Gold Geotechnical Services
Address: 2009 Colville Road
New Haven, P.E.
C0A 1H3

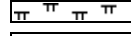
Drilling

Samples from: 0m to 3152mMD (Build and Lateral), washed and viald for Operator and NEB & NWT at 5m intervals;
AFE#: 10351812
Drilling Rig: Beaver #2
Drilling Supervisor: Richard Turgeon; Dave Oper
Gas Detection: MD Totco Gas Analyzer
Geological Services: David Lawrence; Black Gold Geotechnical Services LTD.
Gerry Pasveer; Coromandel Resources LTD.
Directional Services: Sperry Drilling Services
MWD Services: Extreme Engineering Services
Wireline Logs: Schlumberger (Vertical into Build)

ROCK TYPES

 Anhy
 Bent
 Brec
 Cement
 Cht gy
 Cht blk

 Cht
 Clyst
 Coal
 Congl
 Dol
 Gyp

 Igne
 Lmst
 Meta
 Mrlst
 Salt
 Shale

 Shcol
 Shblk
 Shgy
 Sltst
 Ss
 Till

ACCESSORIES

FOSSIL

	Algae
	Amph
	Belm
	Bioclst
	Brach
	Bryozoa
	Cephal
	Coral
	Crin
	Echin
	Fish
	Foram
	Fossil
	Gastro
	Oolite
	Ostra
	Pelec
	Pellet
	Pisolite
	Plant
	Strom

MINERAL

	Anhy
	Arggrn
	Arg
	Bent
	Bit
	Brecfrag
	Calc
	Carb
	Chtdk
	Chtlit
	Dol
	Feldspar
	Ferrpel
	Ferr
	Glau
	Gyp
	Hvymin
	Kaol
	Marl
	Minxl
	Nodule

	Phos
	Pyr
	Ls grs
	Sideritic
	Siderite
	Salt
	Sandy
	Silt
	Sil
	Sulphur
	Tuff
	fracture
	Micmica

STRINGER

 Anhy
 Arg
 Bent
 Coal
 Dol
 Gyp
 pebbles

 **Ls**
 **Mrst**
 **Pyric bands**
 **Shstgr dk**
 **Sltstrg**
 **Ssstrg**

TEXTURE

BS	Boundst
C	Chalky
CX	Cryxln
E	Earthy
FX	Finexln
GS	Grainst
L	Lithogr
MX	Microxln
MS	Mudst
PS	Packst
WS	Wackest
MS	Sh mudst

OTHER SYMBOLS

POROSITY

	Earthy
	Fenest
	Fracture
	Inter
	Moldic
	Organic
	Pinpoint
	Vuggy

OIL SHOW

	Even	Spotted	Ques	Dead
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				
76				
77				
78				
79				
80				
81				
82				
83				
84				
85				
86				
87				
88				
89				
90				
91				
92				
93				
94				
95				
96				
97				
98				
99				
100				

ROUNDING

	Rounded
	Subrond
	Subang
	Angular

EVENT

 **Rft**
 **Casing**
 **Top**
 **Bit trip**
 **Sidewall**

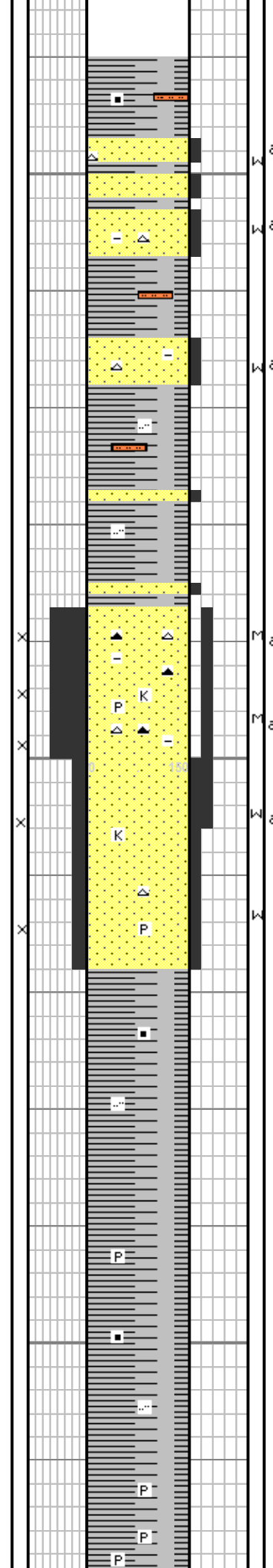
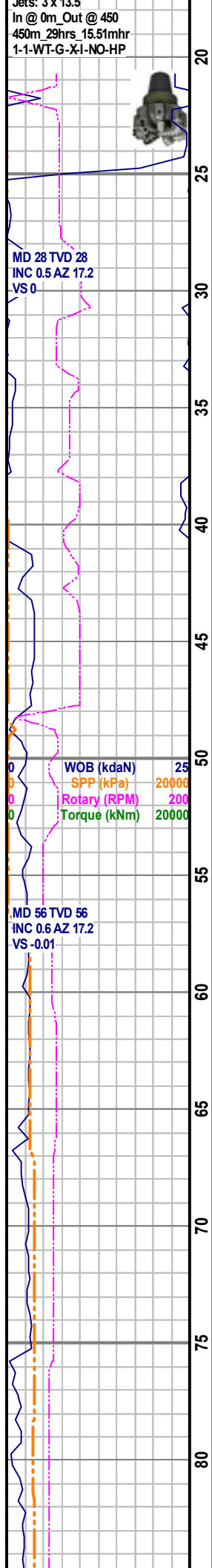
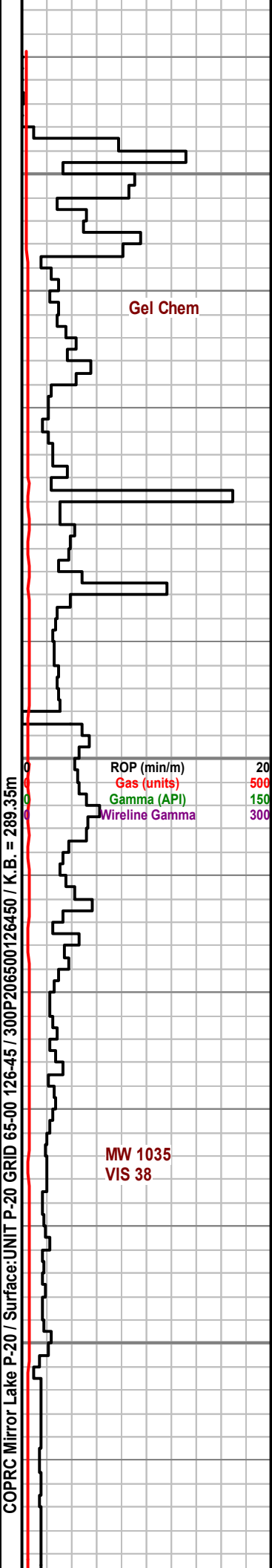
SORTING

 Well
 Moderate
 Poor

INTERVAL

Core
Dst

[illegible]



UNIT P-20 GRID 65-00 126-45
300P206500126450
Spud Well: Jan 29, 2014 @ 00:01 hrs
Conductor set @ 20 meters

20-30 SH: lt to med gy, blk, sly micmica, slty in pt, grds to shy Sltst in pt, sft to modly firm, tr carb mat with 20% intbdd SS lt gy, vf gr, sub ang, w srtd, cly mtx, mnr dk lithic gr, no vis por, no show. 20% cement in sample.

30-40 SH: lt to med gy, blk, sly micmica, slty in pt, grds to shy Sltst in pt, sft to modly firm, tr carb mat with intbdd SS lt gy, vf gr, sub ang, w srtd, cly mtx, mnr dk lithic gr, no vis por, no show. 10% cement in sample.

**Little Bear 43.00mMD,
(43.00mTVD, 245.50mSS.)**

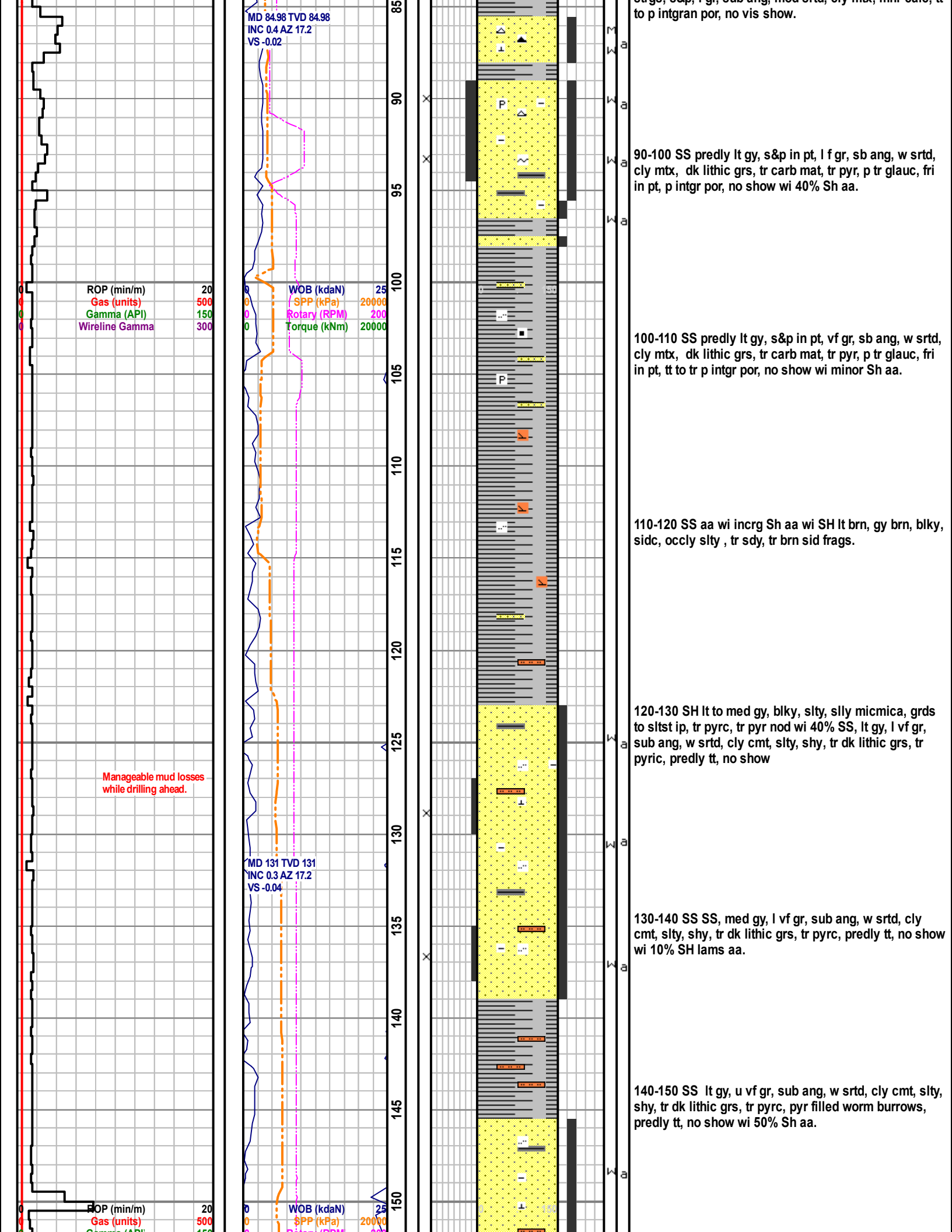
40-50 SS s&p, u f gr, sub ang, mod srtd, uncons, qtz & cht, dk lithic grs, tr pyr nod, g intgr por, no vis show

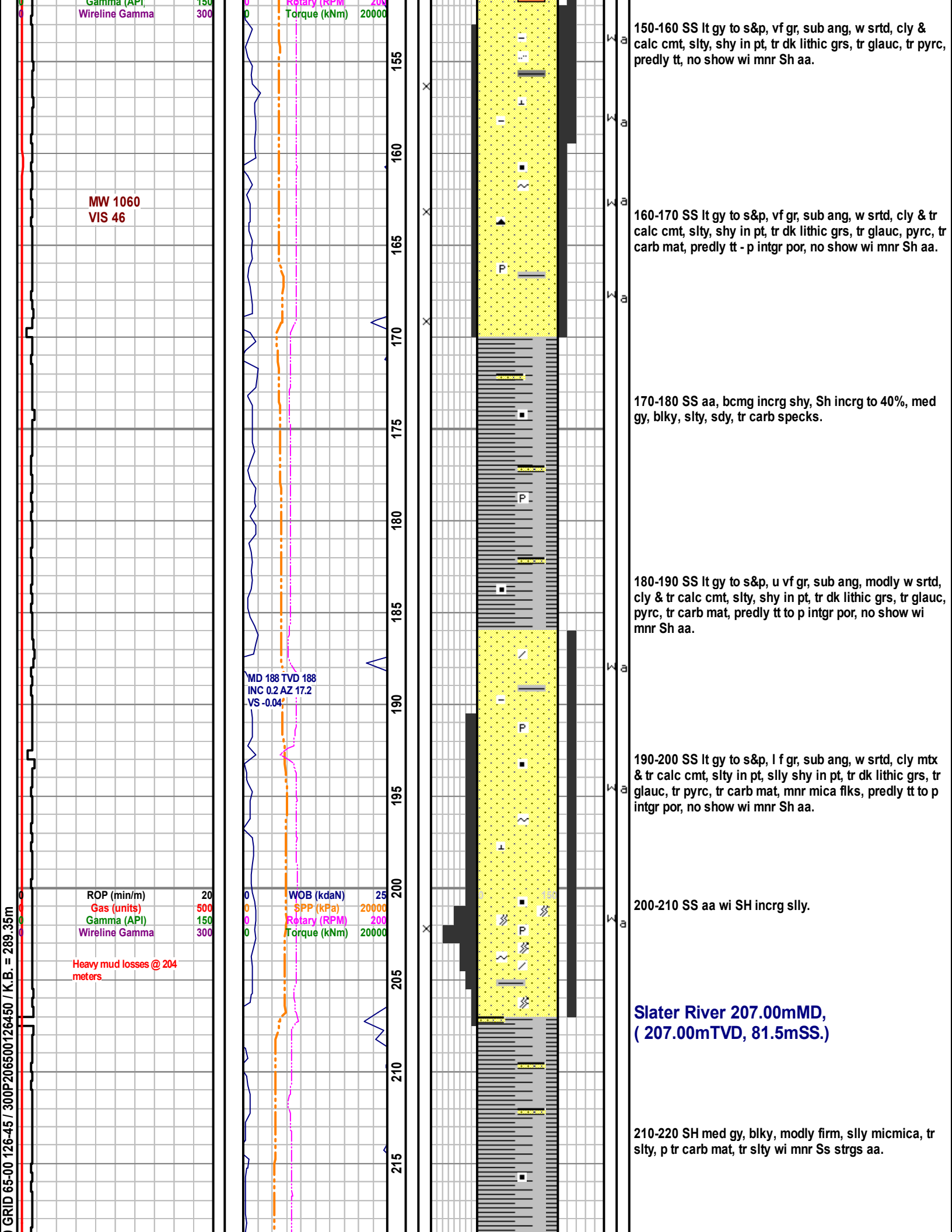
50-60m SS v lt gy, vf gr, sub ang, w srtd, qtz & lt col cht, cly mtx, occ wh kaol, sft, fri, tr dism pyr, tr dk lithic gr, p to fr intgr por, no vis show.

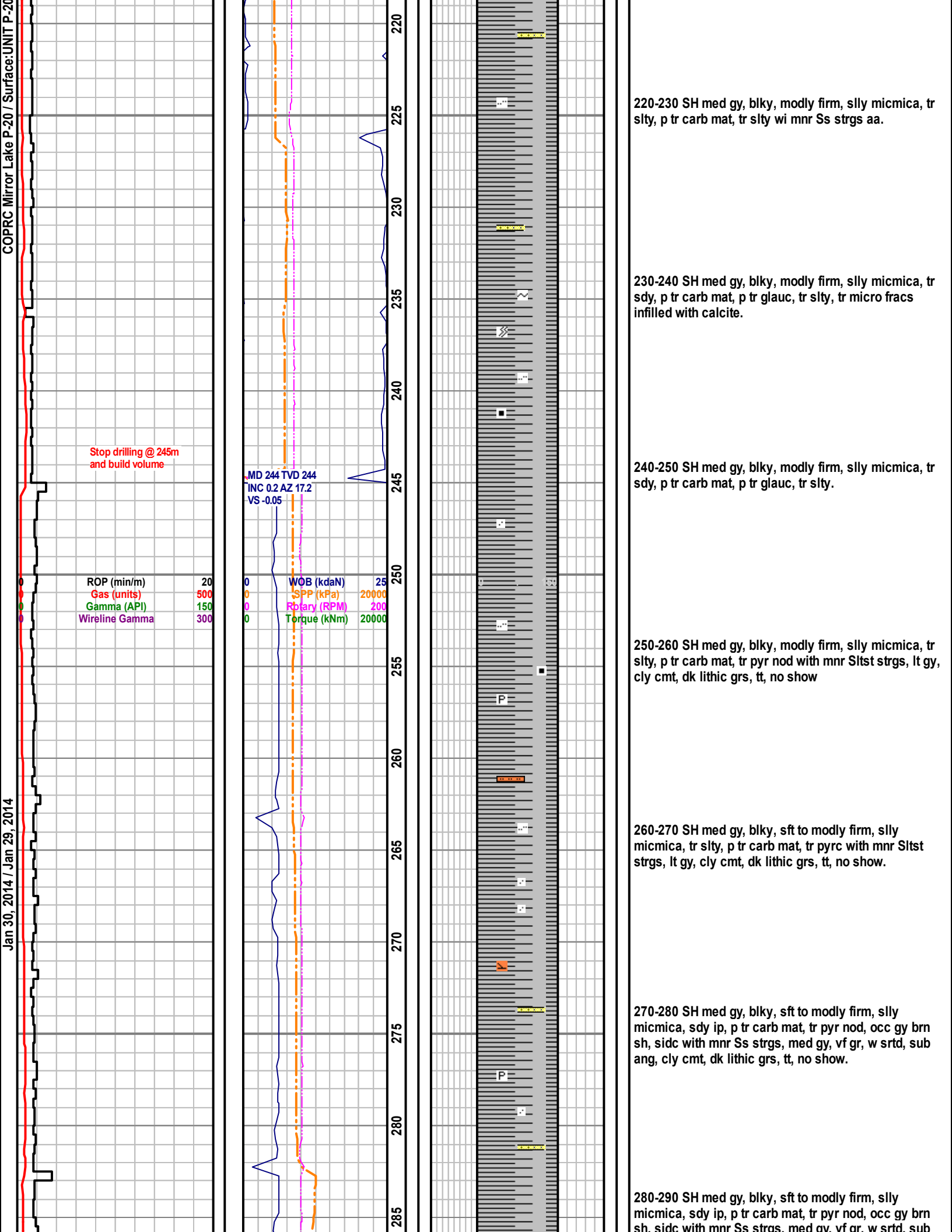
60-70 SH: med gy, blk, sft to firm, slty, grds to slty sh in pt, sly micmica, minor carb mat, tr dism pyr, tr mnr SS strgs aa.

70-80 SH: med gy, blk, sft to firm, slty, grds to slty sh in pt, sly micmica, minor carb mat, tr pyr nod, tr mnr SS strgs aa.

80-90 SH: med gy, blk, sft to firm, slty, grds to slty sh in pt, sly micmica, minor carb mat, v pyrc wi mnr SS strgs s&p for sub ang, mod srtd, cly mtx, mnr calc. ft

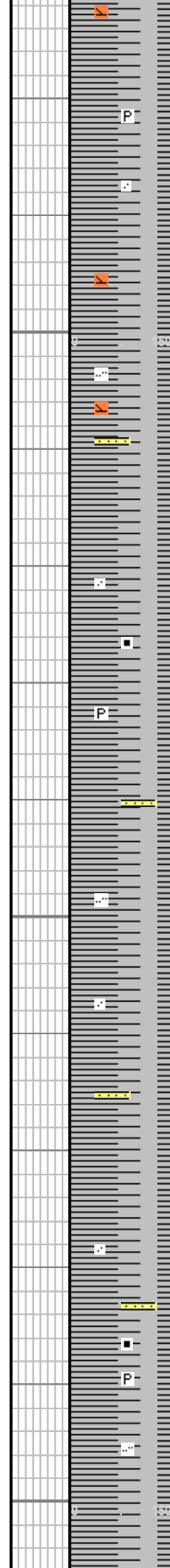
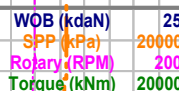




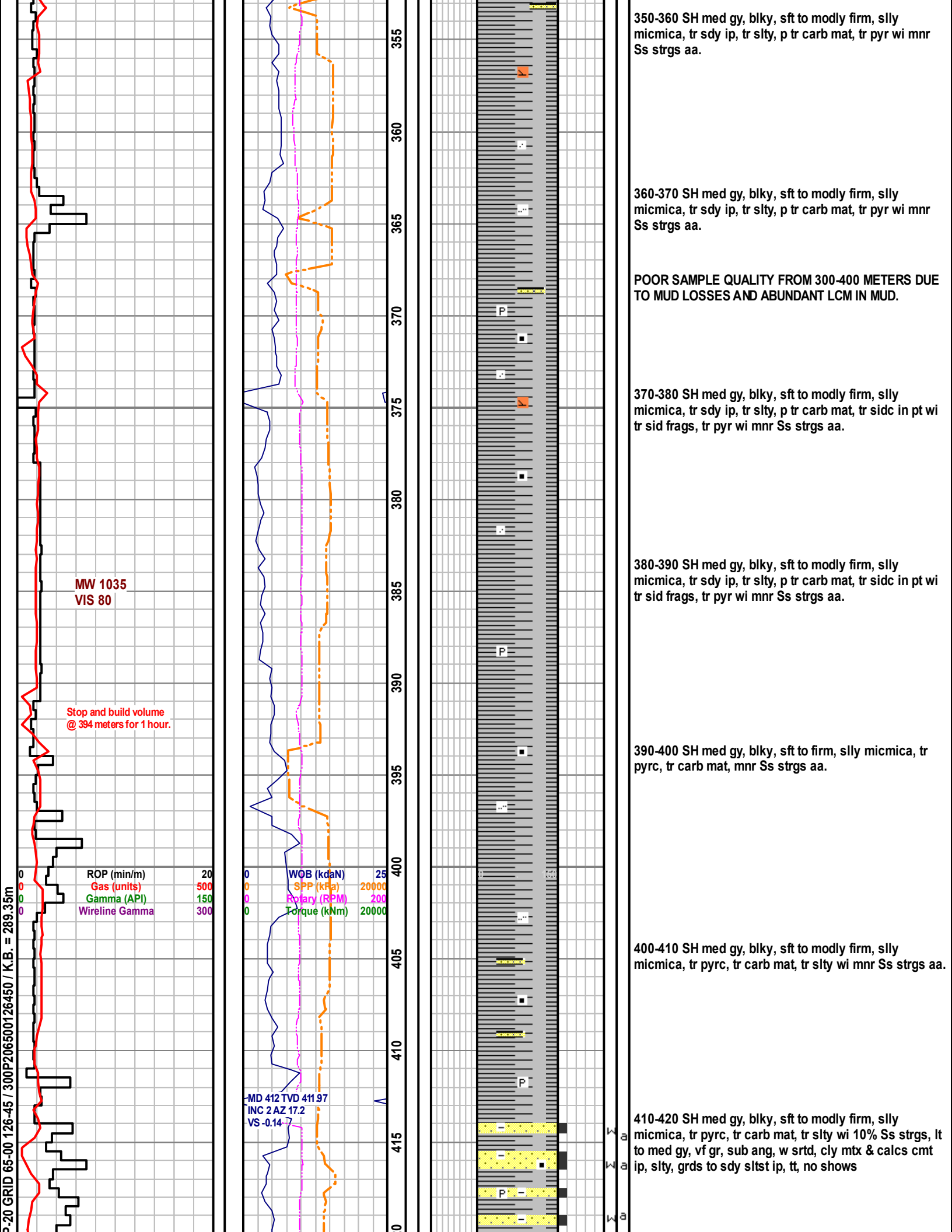


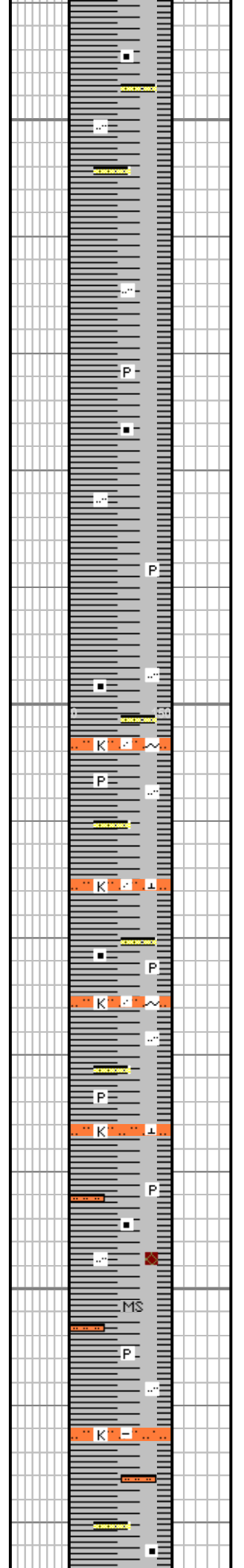
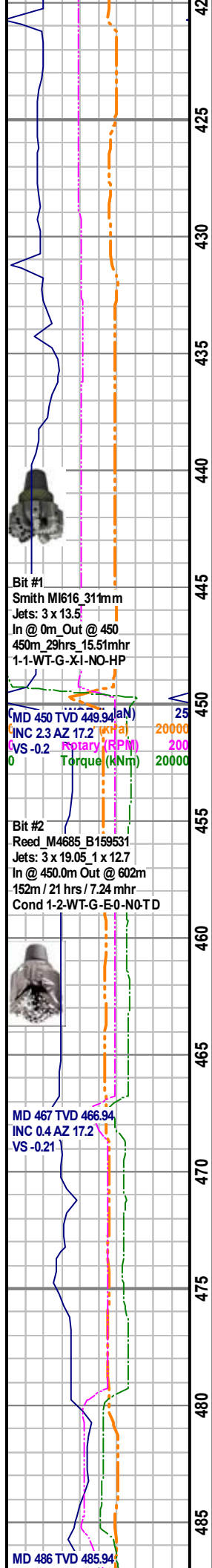
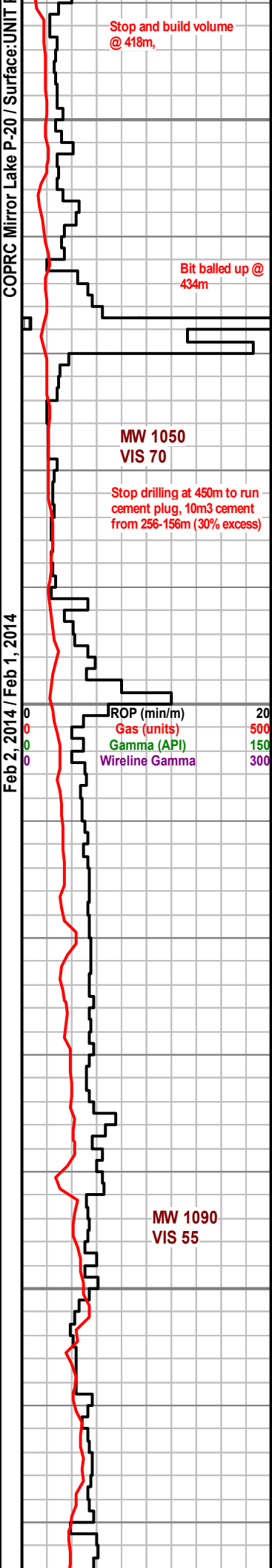
Jan 31, 2014 / Jan 30, 2014

ROP (min/m)		20
Gas (units)		500
Gamma (API)		150
Wireline Gamma		300



340-350 SH med gy, blky, sft to modly firm, slly
micmica, tr sdy ip, tr slty, p tr carb mat, tr pyr wi mnr
Ss strgs aa.





420-430 SH med gy, blkly, sft to modly firm, sily micmica, tr pyrc, tr carb mat, tr slty wi 10% Ss strgs & lams lt to med gy, vf gr, sub ang, w srtd, cly mtx & calcs cmt ip, tr pyric, slty, grds to sdy sltst ip, tt, no shows

430-440 SH med gy, blkly, sft to modly firm, sily micmica, tr pyrc, tr carb mat, tr slty.

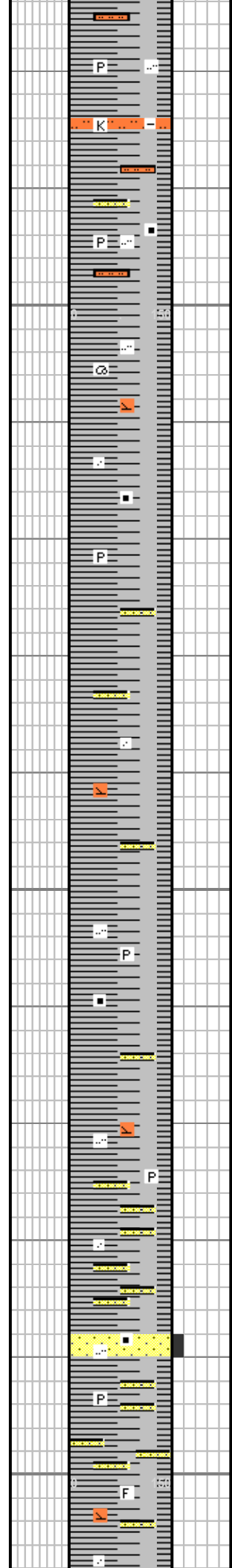
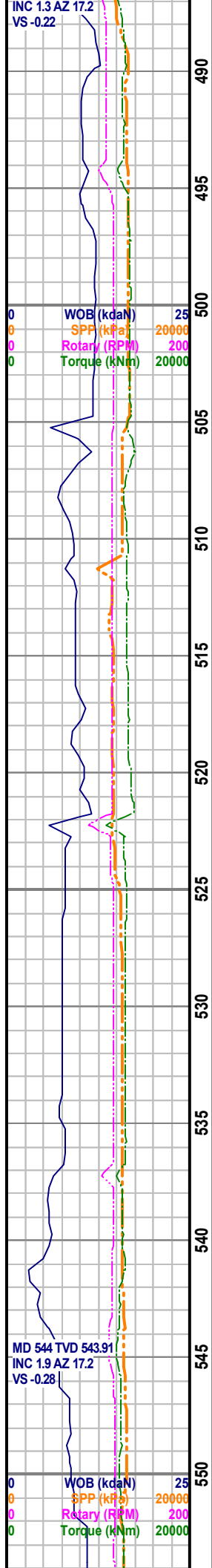
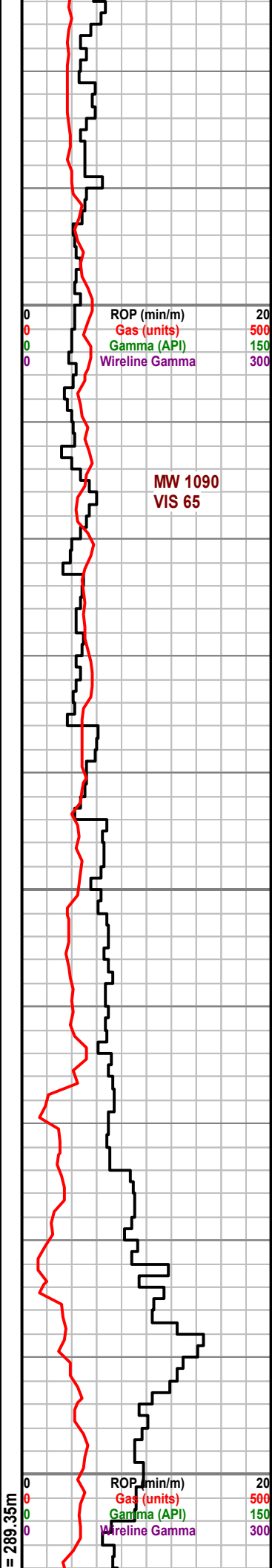
440-450 SH med gy, blkly, sft to modly firm, sily micmica, tr pyrc, tr carb mat, tr slty.

450-460 SH: med gy, blkly to sb blkly, micmica, occly pt carb, silty ip, firm to pt sft, tr pyric, pt finely laminated wi SLTST and occ SS; off wh - lt gy, s&p, l v f - tr l f, lithic, tr glauc & carb grns, modly - w cons, cly wi tr calcs cmt, fri ip, v mnr med gy silty mdstn pres, ns.

460-470 SH: med gy, blkly - sb blkly, micmica, occly pt carb, silty ip, firm - pt sft, tr pyrc, pt finely laminated wi SLTST and occ SS; off wh - lt gy, s&p, l v f - tr l f, lithic, tr glauc & carb grns, modly - w cons, cly wi tr calcs cmt, ns.

470-480 SH: med gy, tr dkr gy, blkly - sb blkly, micmica, locally pt silty, firm - pt sft, tr nod pyr, occ v f SLTST lams, tr mdstn, rr sid frags, arg smpl ws, tt, ns.

480-490 SH: med gy, blkly - sb blkly, pt plty, micmica, tr pt carbs, silty ip, firm - sft, tr v f micro lams of SLTST, lt - med gy, sily s&p, arg, tr sidic, mod - w ind, grdg - v f Ss ip, ns.



490-500 SH: med gy, blkly - sb blkly, pt plty, micmica, tr pt carb, silty ip, firm - sft, tr v f micro lams of SLTST.

500-510 SH: med gy, blkly, mntr plty ip, slly micmica, tr slty, slly carb wi mntr carb mat, unident fos frags (Gast?) p tr pyrc wi mntr Slstst lams aa, occly sdy, grds to vf gr Ss ip.

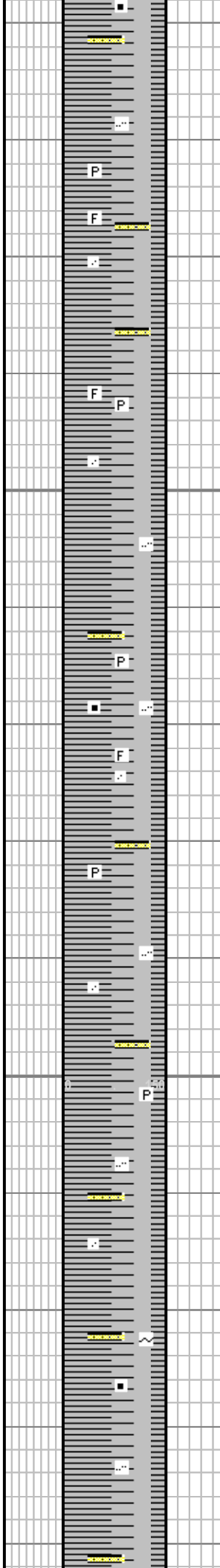
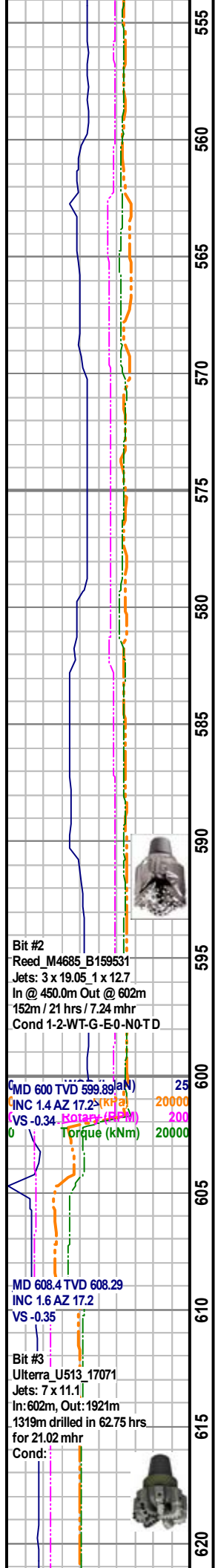
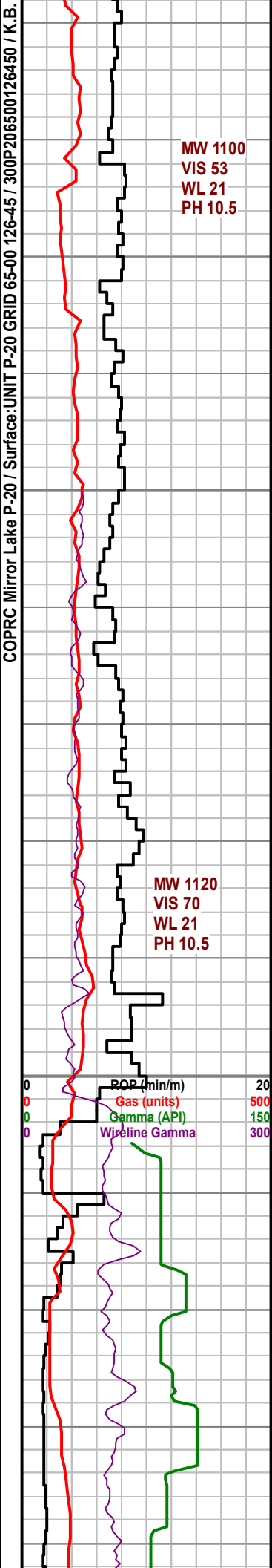
510-520 SH: aa, incrg aren with depth, tr sidc wi occ brn sid frags (nod?) 3% Ss strgs, med gy, vf gr, sub ang, w srted, cly mtb, tr calcs, dk lithic grs, pyrc pyr nod, tr glauc, slty, shy ip, no vis por, no shows.

520-530 SH: med gy, blkly, tr plty, slly micmica, tr slty in pt, tr sdy in pt, tr carb specks, tr sidc wi brn sid frags (nod + lams?) tr pyric wi occ Ss & Slstst strgs aa.

530-540 SH: med gy, blkly, tr plty, slly micmica, tr carb mat, pyr nod, tr sidc, tr sdy & slty in pt wi mntr Ss strgs, med gy, vf gr, sub ang, w srted, cly cmt, slly calcs, tr glauc, dk lithic grs, no vis por or shows.

540-550 SH: med gy, blkly, tr plty, slly micmica, tr carb mat, pyr nod, tr sidc, tr lnc. slly sdy & slty in pt wi 5%

550-560 SH: med gy, blkly, tr plty, slly micmica, tr carb mat, pyr nod, tr sidc, tr lnc. slly sdy & slty in pt wi 5%



555-560 SH: med gy, blk, mnr plty, slly micmica, tr carb mat, tr Inoc, tr pyrc, tr sdy & slty in pt wi mnr Ss strgs, med gy, vf gr, sub ang, w srtd, cly cmt, slly calcs, tr glauc, dk lithic grs, no vis por or shows.

560-570 SH: med gy, blk, mnr plty, slly micmica, tr carb mat, tr Inoc, tr pyrc, tr sdy & slty in pt wi mnr Ss strgs, med gy, vf gr, sub ang, w srtd, cly cmt, slly calcs, tr glauc, dk lithic grs, no vis por or shows.

570-580 SH: med gy, bcmg slly darker with depth, blk, incrg plty, slly micmica, tr carb mat, p tr pyrc, tr slty in pt.

580-590 SH: med to slly dkr gy, blk, plty in pt, slly micmica, tr carb mat, tr Inoc, tr pyr nod, tr sdy & slty in pt wi mnr Ss strgs aa.

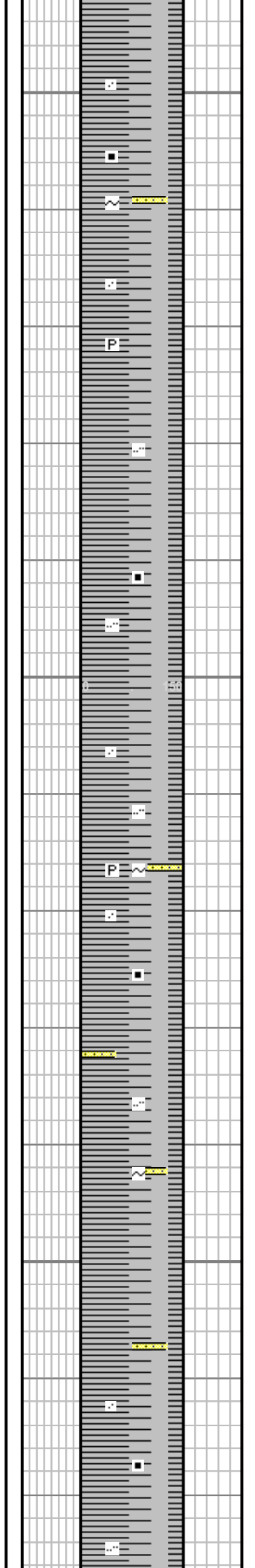
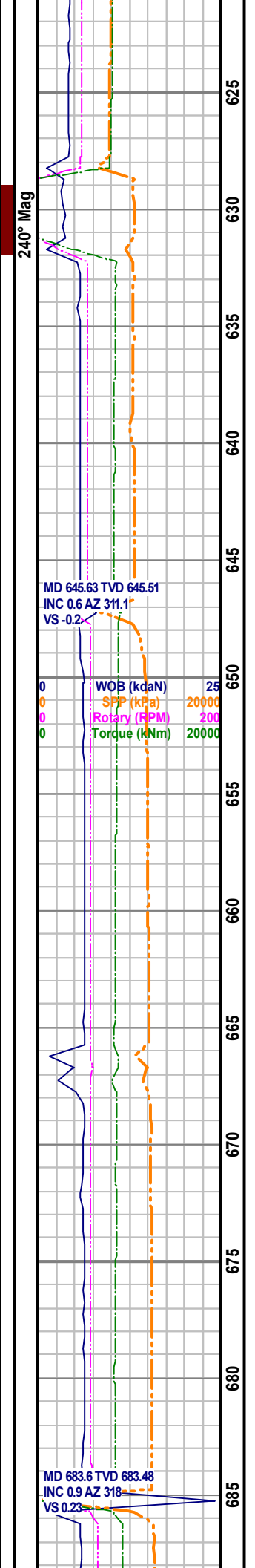
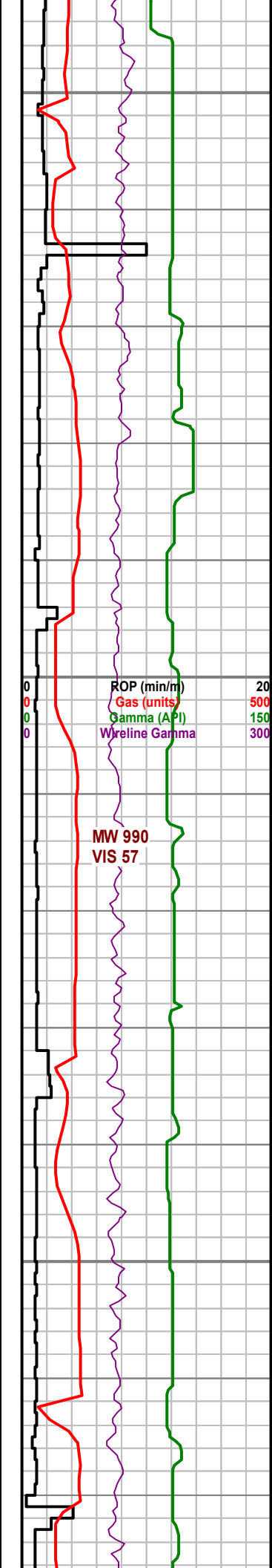
590-602 SH: med to pt dkr gy, blk, plty in pt, slly micmica, tr carb mat, tr Inoc, tr pyr nod, tr sdy & slty in pt wi occ Ss strgs aa.

Surface Casing Final total depth @ 602.0m reached on February 2nd 2014 at 19:48hrs

Drilled out through surface casing @ 602m on February 7th at 06:50 hrs

602-610 SH: med to dk gy, blk, plty in pt, slly micmica, tr carb mat, tr Inoc, tr pyr nod, tr sdy & slty in pt wi Ss strgs aa wi abnt cement in sample

610-620 SH: med to dk gy, blk, plty in pt, slly micmica, slly carb, slly slty, tr sdy in pt to mnr SS strgs, lt to med gy, l f gr, sub ang, w srt, cly mtx, tr calc cmt, occ dk lithic grs, p tr glauc, no vis por or show.



620-630 SH: med to dk gy, blk, plty in pt, slly micmica, slly carb, slly slty, tr sdy in pt wi mn SS strgs, lt - med gy, l f gr, sub ang, w srt, cly mt, tr calc cmt, occ dk lithic grs, p tr glauc, no vis por or show.

630-640 SH: med - dk gy, blk, plty in pt, slly micmica, slly carb, slly slty, tr sdy in pt wi tr SS strgs aa.

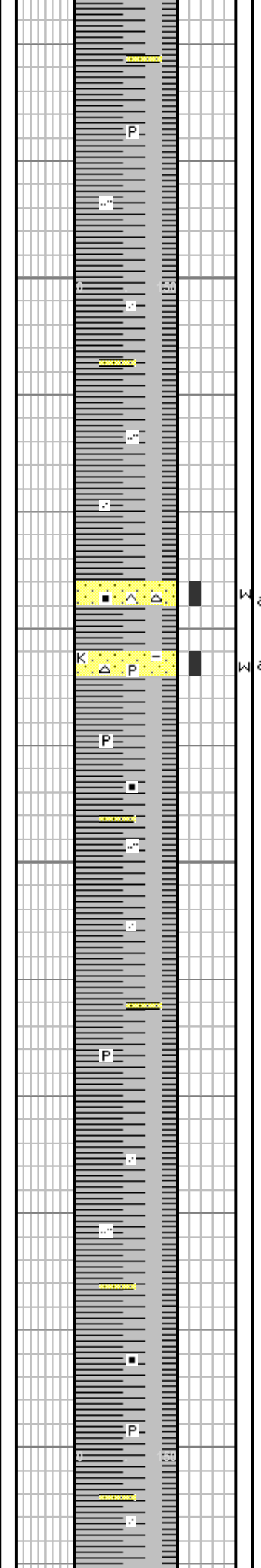
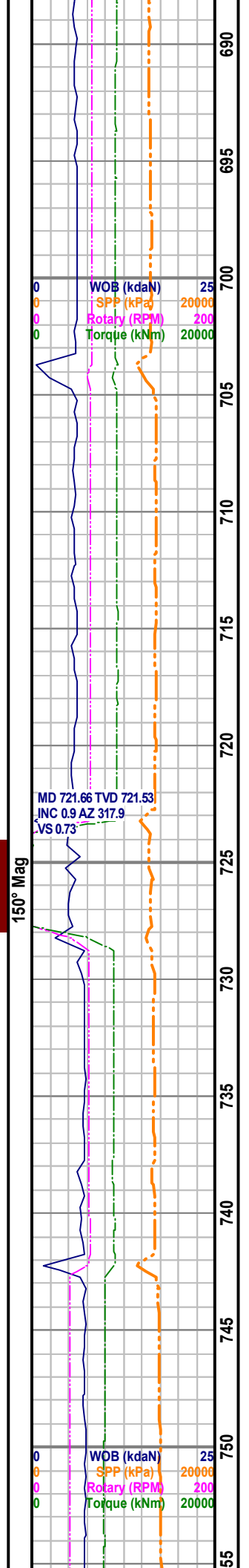
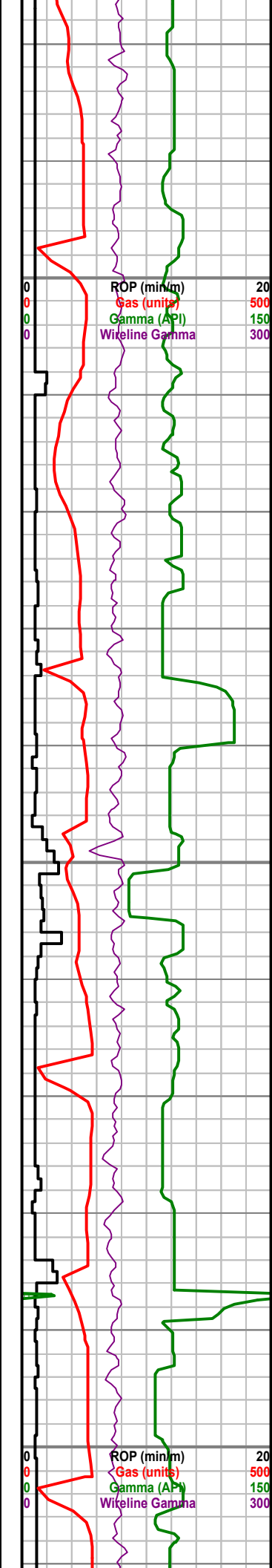
640-650 SH: med - dk gy, blk, plty in pt, micmica, slly carb, slly slty, tr sdy in pt.

650-660 SH: med - dk gy, blk, plty in pt, micmica, slly carb, p tr pyrc, slly slty, tr sdy in pt wi mn Ss strgs, lt - med gy, vf - f gr aa.

660-670 SH: med - dk gy, blk, plty in pt, micmica, slly carb, p tr pyrc, slly slty, tr sdy in pt wi mn Ss strgs, lt - med gy, vf - f gr aa.

670-680 SH: med - dk gy, blk, plty in pt, micmica, slly carb, p tr pyrc, slly slty, tr sdy in pt wi mn Ss strgs, lt - med gy, vf - f gr aa.

680-690 SH: med - dk gy, blk, plty in pt, micmica, slly carb, p tr pyrc, slly slty, tr sdy in pt wi mn Ss strgs, lt - med gy, vf - f gr aa.



690-700 SH: med - dk gy, blk, plty in pt, micmica, slly carb, p tr pyrc with occ pyr nod, slly slty, tr sdy in pt wi mnR Ss strgs aa.

700-710 SH: med - dk gy, blk & plty, micmica, slly carb, p tr pyrc with occ pyr nod, slly slty, tr sdy in pt wi mnR Ss strgs, lt - med gy, l f gr, sub ang, w srtd, qtz & cht, cly mt, slly calcs, tr sils, dk lithic grs, tr pyrc, shy ip, no vis por or shows.

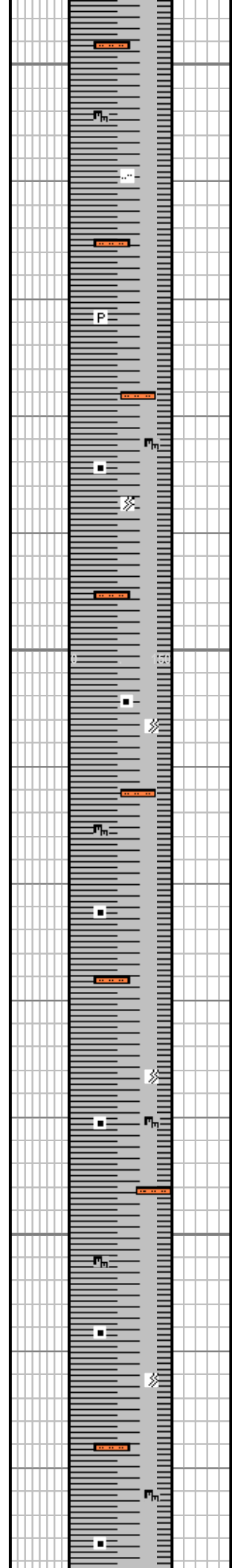
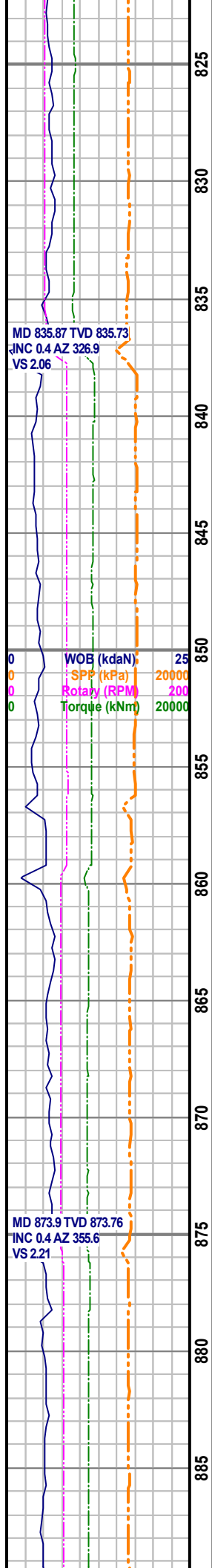
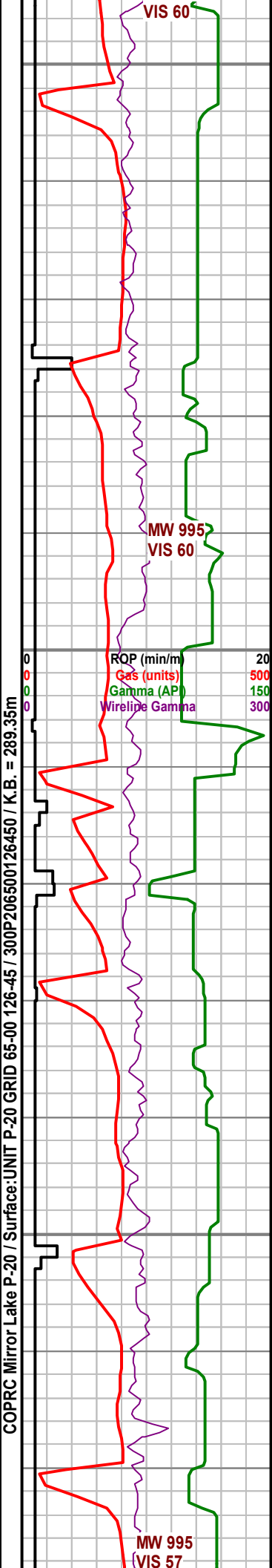
710-720 SH: med - dk gy, blk & plty, micmica, slly carb, p tr pyrc with occ pyr nod, slly slty, tr sdy in pt wi mnR Ss strgs, lt - med gy, l f gr, sub ang, w srtd, qtz & cht, cly mt, slly calcs, tr sils, dk lithic grs, tr pyrc, shy ip, no vis por or shows.

720-730 SH: med - dk gy, plty, blk ip, micmica, slly carb, sft - firm, p tr pyrc with occ pyr nod, slly slty, tr sdy in pt wi tr Ss lams aa.

730-740 SH: med - dk gy, blk & plty, slly micmica, slly carb, sft - firm, p tr pyrc with occ pyr nod, slly slty, tr sdy in pt, p tr pl rmn wi tr Ss lams aa.

740-750 SH: med - dk gy, blk & plty, slly micmica, slly carb, sft - firm, p tr pyrc with occ pyr nod, slly slty, tr sdy in pt, wi tr Ss lams, lt - med gy, u vf gr, sub ang, w srtd, cly mt, slly calcs, dk lithic grs, tr pyrc, tr glauc, shy ip, tt, no shows.

750-760 SH: med - dk gy, blk & plty, slly micmica, slly carb, sft - firm, p tr pyrc with occ pyr nod, slly slty, tr



820-830 SH: med - dk gy, blk & plty, slly micmica, slly carb, sft - modly firm, p tr pyrc with occ pyr nod, slly slty ip wi tr Slst strgs, med gy, cly cmt, slly shy, tr sdy, tt, no shows.

830-840 SH: med - dk gy, blk & plty, slly micmica, slly carb, sft - modly firm, tr pyr nod, tr microfracs infilled with pyr wi tr Slst strgs aa.

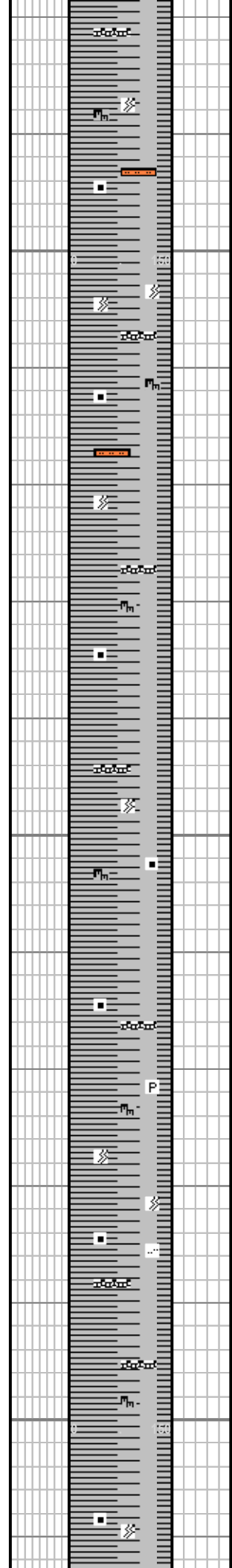
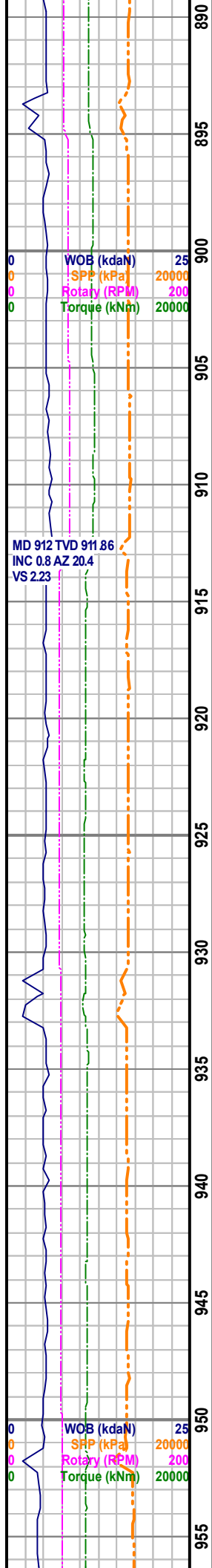
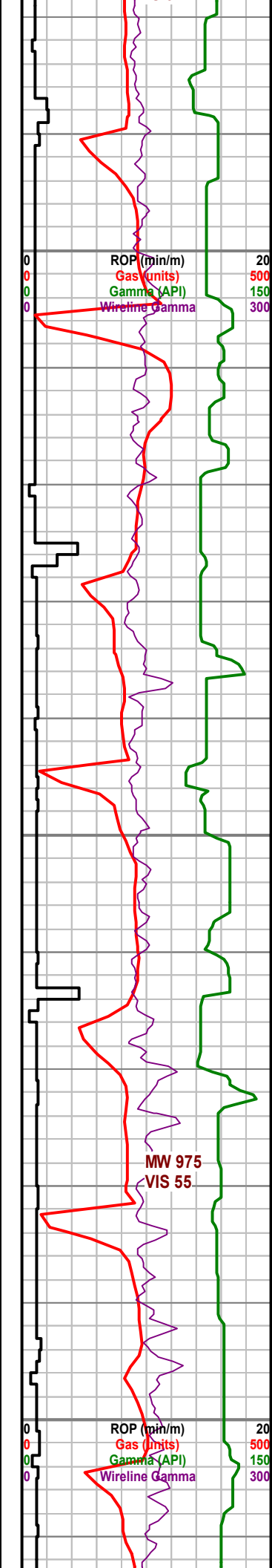
840-850 SH: med - pt dk gy, blk - plty & fis ip, pt modly carb, micmica ip, satiny tex ip, tr silty, firm, tr hd - pt sft, tr calc prtgs, tr loc calcite healing micro fracs, v mnr Slst strgs, tt, no shows.

850-860 SH: med - pt dk gy, blk - plty & fis ip, pt modly carb, micmica ip, satiny tex ip, tr silty, firm, tr hd - pt sft, tr calc prtgs, slt incr in calcite healing micro fracs, v mnr Slst strgs, tt, ns.

860-870 SH: med - pt dk gy, blk - plty & fis ip, pt modly carb, micmica ip, satiny waxy tex ip, tr silty, firm, tr hd - pt sft, occ calcite healing micro fracs, v mnr Slst strgs, tt, ns.

870-880 SH: med - pt dk gy, blk - plty & fis ip, pt modly carb, micmica ip, satiny waxy tex ip, tr silty, firm, tr hd - pt sft, tr acicular calcite, occ calcite healing micro fracs, v mnr Slst strgs, tt, ns.

880-890 SH: med - pt dk gy, blk - plty & fis ip, pt modly carb, micmica ip, satiny tex ip, firm, tr hd - pt sft, tr acicular calcite, mnr Clst, incr to com calcite healing micro fracs.



890-900 SH: med - pt dk gy, blkly - plty & fis ip, pt modly carb, micmica ip, satiny tex ip, firm, tr hd - pt sft, tr acicular calcite, incr to com calcite healing micro fracs.

900-910 SH: med - pt dk gy, blkly - plty & fis ip, pt modly carb, micmica ip, satiny tex ip, firm, tr hd, sft in pt, mnr grdg to silty, tr acicular calcite, mnr Clyst, com micro fracs, tr Bent strgs.

910-920 SH: med - pt dk gy, blkly - plty & fis ip, pt modly carb, micmica ip, satiny tex ip, firm, tr hd - pt sft, mnr grdg silty, mnr Clyst, tr acicular calcite, v mnr micro fracs, v rr Bent.

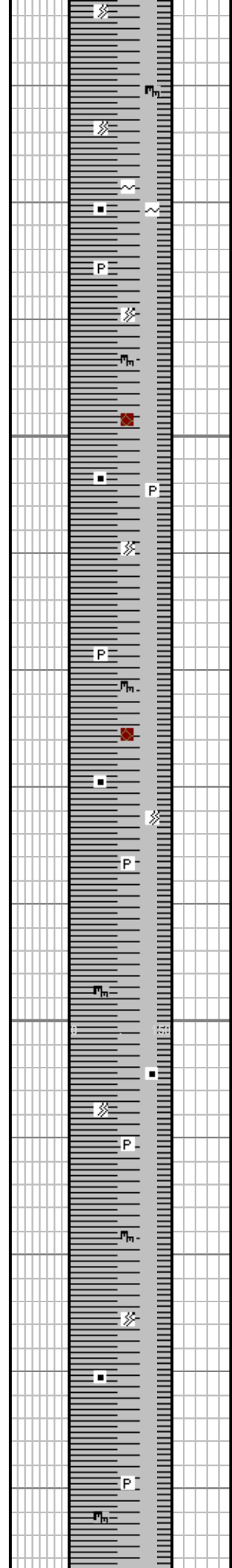
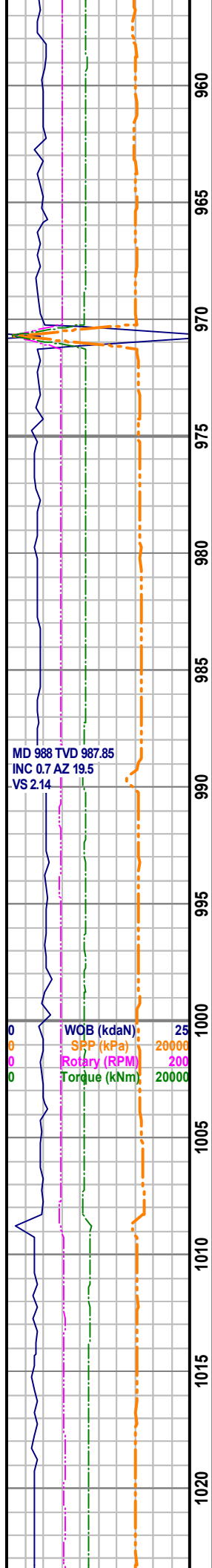
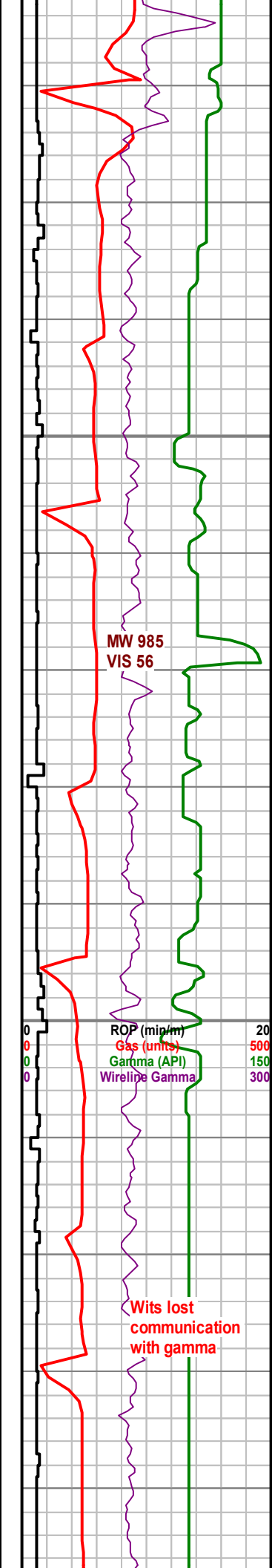
920-930 SH: med - pt dk gy, blkly - plty & fis ip, pt modly carb, micmica ip, satiny tex ip, firm, tr hd, sft in pt, v rr micro fracs, mnr Clyst, v rr Bent.

930-940 SH: med - dk gy, blkly - sbfis ip, pt modly carb, sllly slty, occly micmica, occ v f calcite healed micro fracs, v rr pyrc, occ dk brn mica flks.

940-954 SH: med - dk gy, blkly, sbfis ip, pt modly carb, sllly slty, pt micmica, occ micro fracs infilled with calcite wi occ Bent, tr brn mica flks, tt, no shows

**Arctic Red 954.00mMD,
(953.89mTVD, -664.54mSS.)**

954-960 SH: med wi dk gy, sb blkly, plty - fis ip, pt modly carb wi dkr gy, pt micmica, occ micro fracs infilled with calcite.



960-970 SH: med wi dk gy, sb blk, plty - fis ip, pt modly carb wi dkr gy, pt micmica, v rrlly glaucic, tr calcs prtgs, occ micro fracs healed with calcite.

970-980 SH: med wi dk gy, sb blk, plty - fis ip, pt modly carb when dkr gy, pt micmica, tr pyrc, tr sid fracs, mod micro fracs healed with calcite.

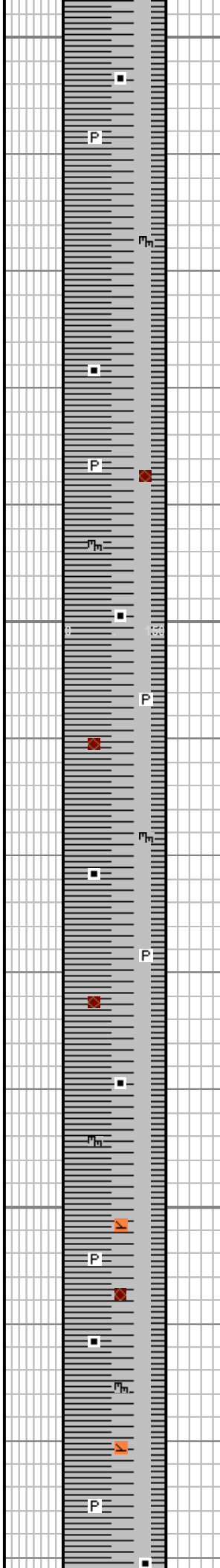
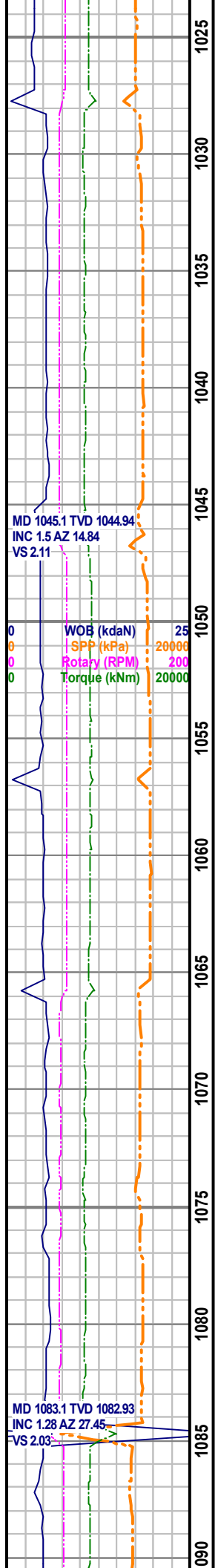
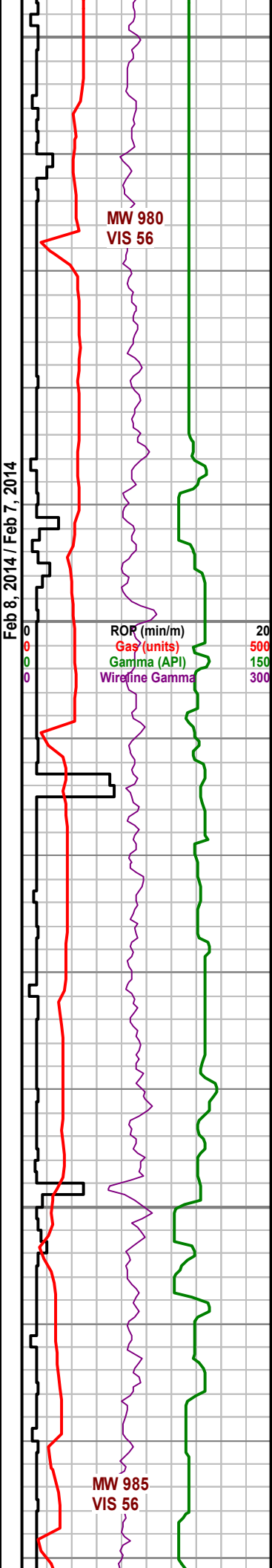
980-990 SH: med wi dk gy, sb blk, plty - fis ip, pt modly carb when dkr gy, loc micro lams vis, pt micmica, tr nod pyr, tr pyrc, v mntr sid fracs, mntr micro fracs vis.

990-1000 SH: med wi dk gy, sb blk, plty - fis ip, pt modly carb when dkr gy, pt micmica, tr nod pyr, tr pyrc, v mntr sid fracs, mntr micro fracs vis.

1000-1010 SH: med wi dk gy, sb blk, plty - fis ip, pt modly carb, micmica ip, tr nod pyr, tr pyrc, v mntr sid fracs, tr micro fracs vis.

1010-1020 SH: med wi dk gy, sb blk, plty - fis ip, pt modly carb, micmica ip, tr nod pyr, tr pyrc, v mntr sid fracs, tr micro fracs vis.

1020-1030 SH: med wi dk gy, sb blk, plty, pt carb & fis where dkr gy, micmica ip, tr nod pyr, tr pyrc.



1030-1040 SH: med wi dk gy, sb blky, plty, pt carb & fis when dkr gy, micmica ip, tr nod pyr, tr pyrc.

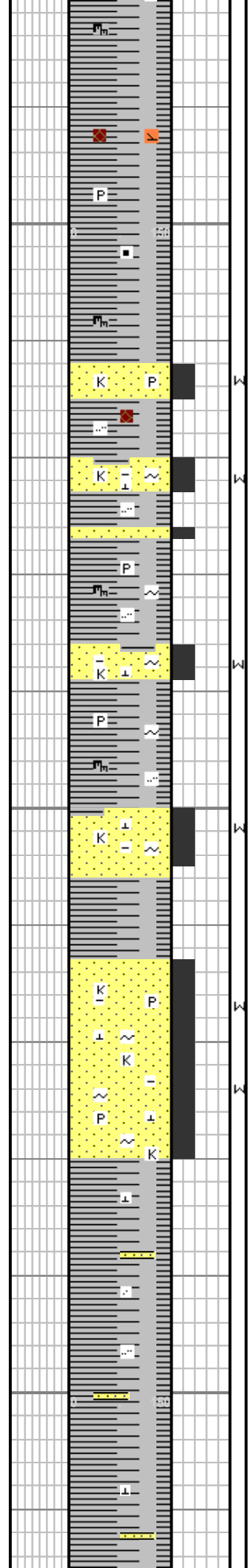
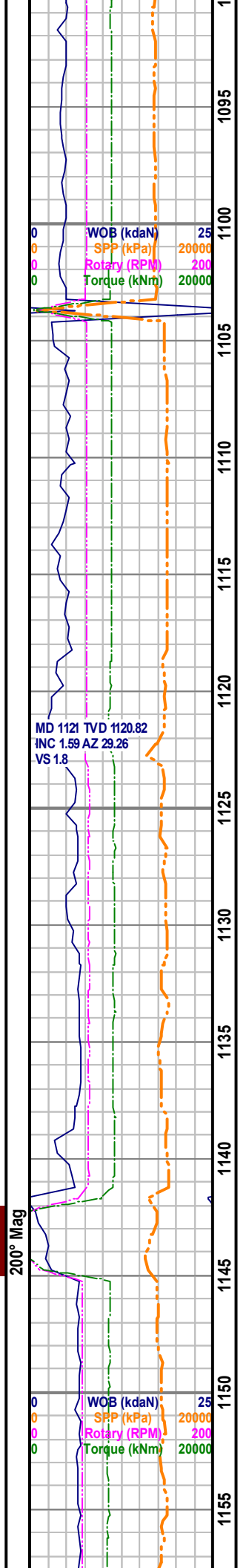
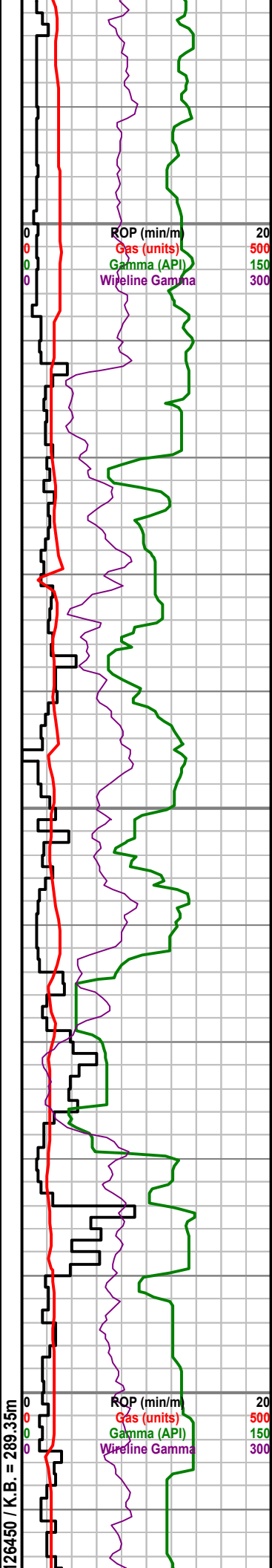
1040-1050 SH: med wi dk gy, sb blky, plty - fis ip, pt modly carb, firm - sft, micmica ip, tr nod pyr, tr pyrc, v mnr sid frags.

1050-1060 SH: med wi dk gy, sb blky, plty - fis ip, pt modly carb, firm - sft, micmica ip, tr nod pyr, v rrlly pyrc.

1060-1070 SH: med wi dk gy, sb blky, plty - fis ip, pt modly carb, firm - sft, micmica ip, tr sidc, tr nod pyr, v rrlly pyrc, v mnr dk brn sid frags.

1070-1080 SH: med wi dk gy, sb blky, plty - fis ip, pt modly carb, firm - sft, micmica ip, tr nod pyr, v rrlly pyrc, v mnr dk brn sid frags.

1080-1090 SH: med wi dk gy, sb blky, plty - fis ip, pt modly carb, firm - sft, tr sidc, micmica ip, tr nod pyr, v rrlly pyrc, v mnr dk brn sid frags.



1090-1100 SH: med wi dk gy, sb blk, pty - fis ip, pt modly carb, firm - sft, micmica ip, tr dk brn sid frags.

1100-1110 SH: med wi dk gy, sb blk, pty - fis ip, pt modly carb, firm - sft, tr sidc, micmica ip, tr dk brn sid frags.

**Martin House 1106.0mMD,
(1105.82mTVD, -816.47mSS.)**

1110-1120 SH; med wi dk gy, sb blk, pty - fis ip, pt modly carb, silty ip, micmica ip, tr - locally com glauc, tr dk brn sid frags; SS off wh - tr lt gy, silly s&p ip, slt - v f grnd, sub ang, v w srt, qtzs, slight - mod wi tr v calc with cly cmt, locally pt - v glauc, occly pt shaley, no vis por.

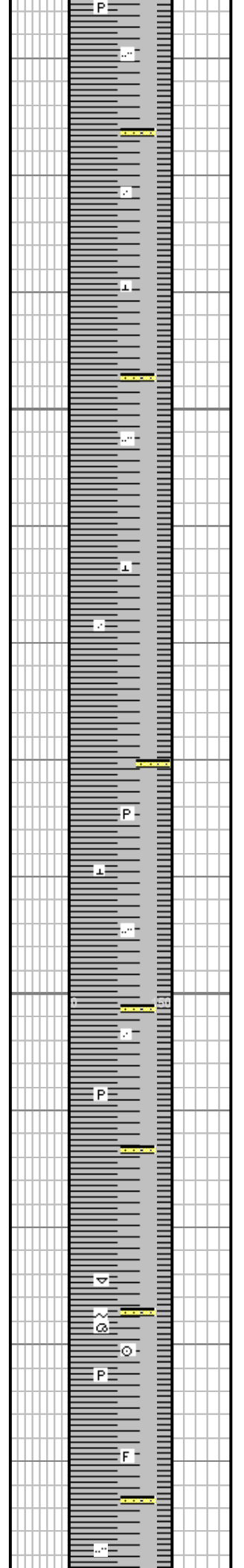
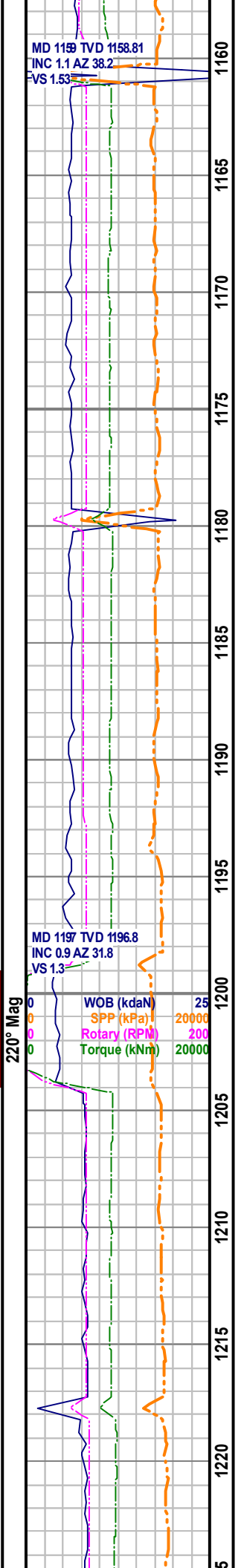
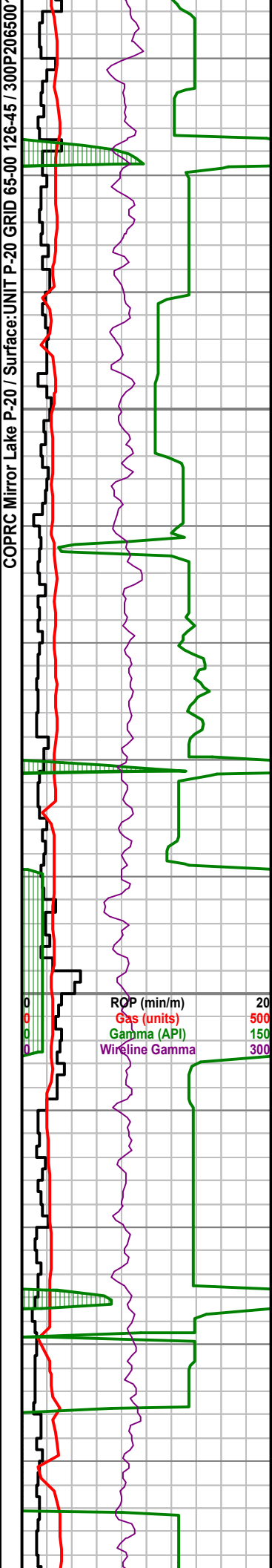
1120-1130 SH; med wi dk gy, sb blk, pty - fis ip, pt modly carb, silty ip, micmica ip, tr - locally com glauc, tr dk brn sid frags; SS off wh - occ gy grn, silly s&p ip, slt - v f grnd, sub ang, v w srt, qtzs, slight with mod & tr v calc with cly cmt, occ modly glauconitic, occly pty shaley, no vis por

1130-1140 SS: off wh - occ gy grn, silly s&p ip, slt - v f grnd, sub ang, v w srt, qtzs, slight with mod & tr v calc with cly cmt, pt glaucic, dense, tt, no vis por, SH; med wi dk gy, sb blk, pty - fis ip, pt modly carb, silty sandy ip, locally glauc, micmica ip. ns.

**Imperial 1140.00mMD,
(1139.81mTVD, -850.46mSS.)**

1140-1150 SH: lt to med gy gn, blk & pty, silly micmica, silly calcs, tr pyrc, abnt Ss lams aa.

1150-1160 SH: lt to med gy gn, gy, blk & pty, silly micmica, silly calcs, tr pyrc, abnt Ss lams lt gy, crm, qtz & lt col cht, f gr, sub ang, w srt, calc, cly cmt in pt, glauc. sidc ip. no vis por or show.



1160-1170 SH: lt to med gy gn, gy, blk & plty, silty micmica, silty calcs, sft to modly firm, tr pyrc, abnt Ss lams lt gy, crm, spy yel brn, qtz & lt col cht, f gr, sub ang, w srt, calc, cly cmt in pt, glauc, sidc ip, no vis por or show.

1170-1180 SH: lt to med gy gn, gy, blk & plty, silty micmica, silty calcs, sft to modly firm, tr pyrc, abnt Ss lams lt gy, crm, spy yel brn, qtz & lt col cht, vf gr, sub ang, w srt, calc, cly cmt in pt, glauc, sidc ip, no vis por or show.

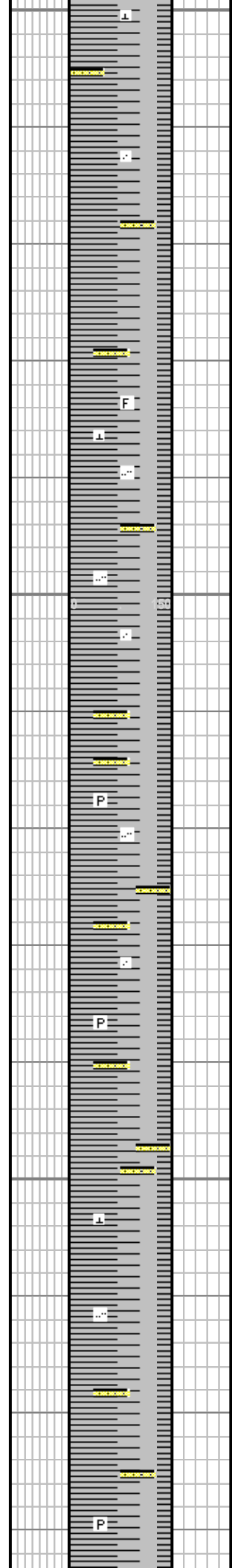
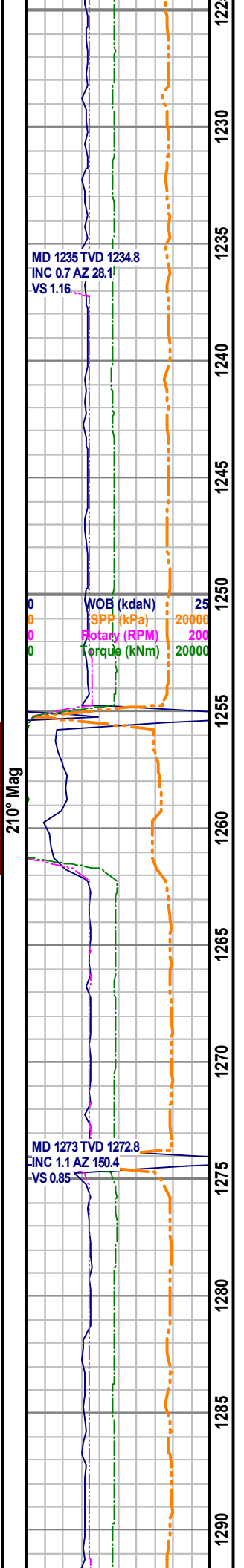
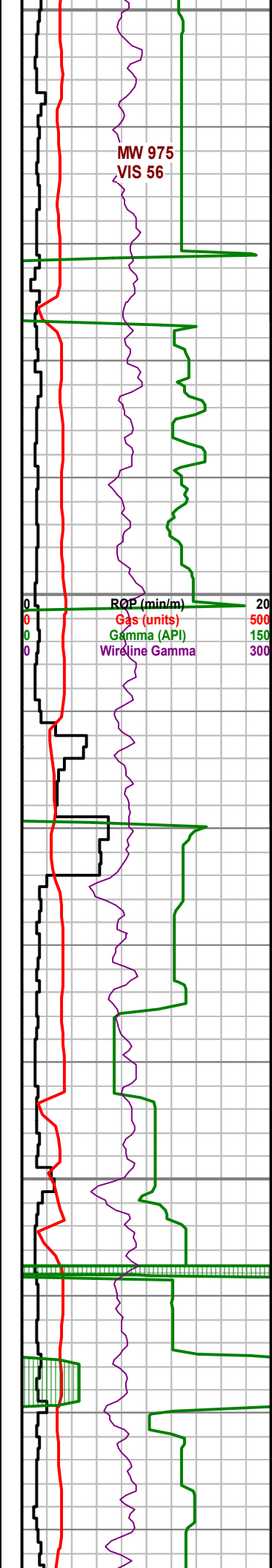
1180-1190 SH: med gy, gy gn ip, blk & plty, silty micmica, silty calcs, sft to modly firm, occlly sdy, tr slty, tr pyrc, abnt Ss lams lt to med gy, spy yel brn, qtz & lt col cht, vf gr, sub ang, w srt, calc, cly cmt in pt, glauc, sidc ip, no vis por or show.

1190-1200 SH: med gy, gy gn in pt, blk & plty, silty micmica, silty calcs, sft to modly firm, occlly sdy, tr slty, tr pyrc, abnt Ss lams med gy, qtz & lt col cht, vf gr, sub ang, w srt, calc, cly cmt in pt, glauc, tr sidc ip, no vis por or show.

1200-1210 SH: med gy, gy gn in pt, blk & plty, silty micmica, silty calcs, sft to modly firm, occlly sdy, tr slty, tr pyrc, abnt Ss lams med gy, qtz & lt col cht, vf gr, sub ang, w srt, calc, cly cmt in pt, glauc, tr sidc ip, no vis por or show.

1210-1220 SH: med gy, gy gn in pt, blk & plty, silty micmica, silty calcs, sft to modly firm, occlly sdy, tr slty, tr pyrc, tr plcy wi abnt Ss lams, gy, brn in pt, gy gn, f gr, sub ang, w srt, calc, cly & calcs cmt, tr pyrc, tr glauc, sidc in pt, Ost, Gast, shy in pt, tt, no shows.

1220-1230 SH: med gy, gy gn in pt, blk & plty, silty micmica, silty calcs, sft to modly firm, occlly sdy, tr slty, tr pyrc, tr plcy wi abnt Ss lams, lt to med gy, f gr, sub



tr pyrc, tr Plcy wi abnt Ss lams, lt to med gy, l f gr, sub ang, w srtd, cly & calcs cmt, tr pyrc, tr glauc, sidc in pt, shy in pt, tt, no shows.

1230-1240 SH: med gy, silty dkr in pt, gy gn in pt, blkly & plty, silty micmica, silty calcs, sft to modly firm, occly sdy, tr slty, tr pyrc, tr Plcy wi abnt Ss lams aa.

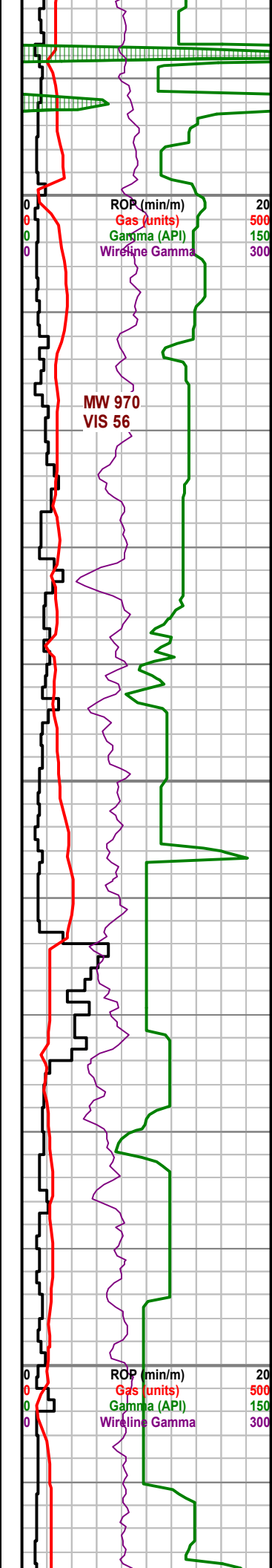
1240-1250 SH: med gy, silty dkr in pt, gy gn in pt, blkly & plty, silty micmica, silty calcs, sft to modly firm, occly sdy, tr slty, tr pyrc, wi mnr Ss lams aa.

1250-1260 SH: med gy, silty dkr in pt, gy gn in pt, blkly & plty, silty micmica, silty calcs, sft to modly firm, occly sdy, tr slty, tr pyrc, wi mnr Ss lams aa.

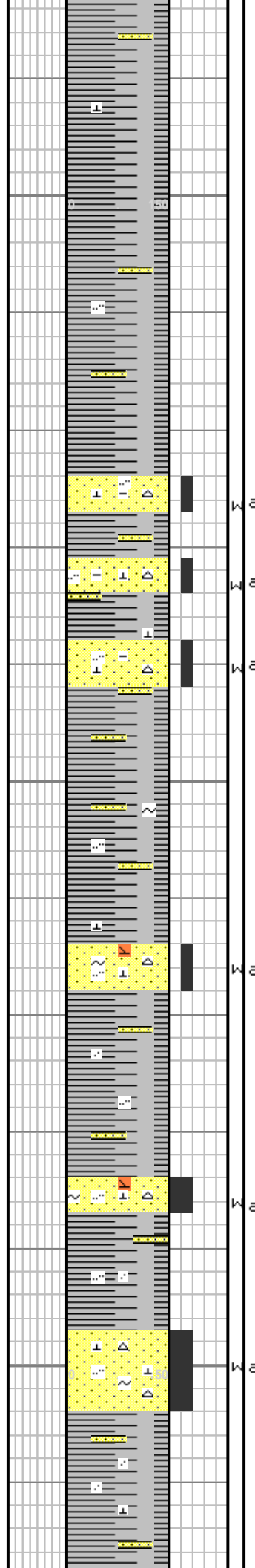
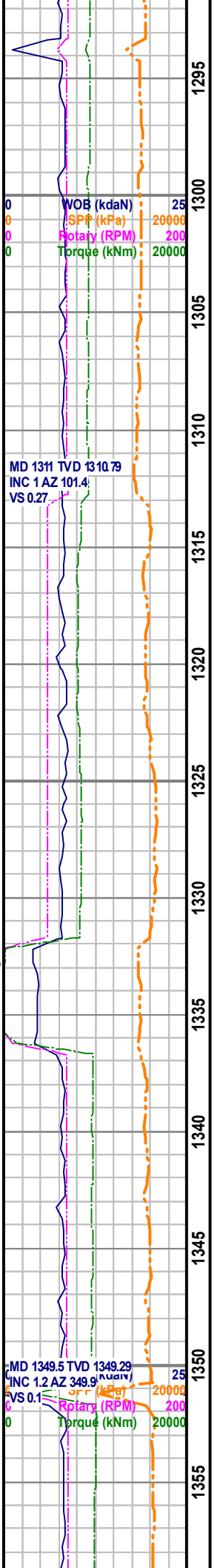
1260-1270 SH: med gy, blkly and plty, micmica, silty calcs, occly sdy wi 10% SS strgs, lt - med gy, l f gr, sub ang, w srtd, calc & cly cmt, tr dk lithic grs, slty, shy in pt, tt, no shows.

1270-1280 SH: med gy, blkly and plty, micmica, silty calcs, occly sdy wi 20% SS strgs, lt - med gy, l f gr, sub ang, w srtd, calc & cly cmt, tr dk lithic grs, slty, shy in pt, unident fos debris, tt, no shows.

1280-1290 SH: med gy, blkly and plty, micmica, silty calcs, occly sdy wi 15% SS strgs, lt - med gy, l f gr, sub ang, w srtd, calc & cly cmt, tr dk lithic grs, slty, shy in pt, unident fos debris, tt, no shows.



285° Mag



1290-1300 SH: med gy, blkly and plty, micmica, slly calcs, occly sdy wi 10% SS strgs, lt - med gy, l f gr, sub ang, w srted, calc & cly cmt, tr dk lithic grs, slty, shy in pt, unident fos debris, tt, no shows.

1300-1310 SH: med gy, blkly and plty, micmica, slly calcs, occly sdy wi 10% SS strgs, lt - med gy, l f gr, sub ang, w srted, calc & cly cmt, tr dk lithic grs, slty, shy in pt, unident fos debris, tt, no shows.

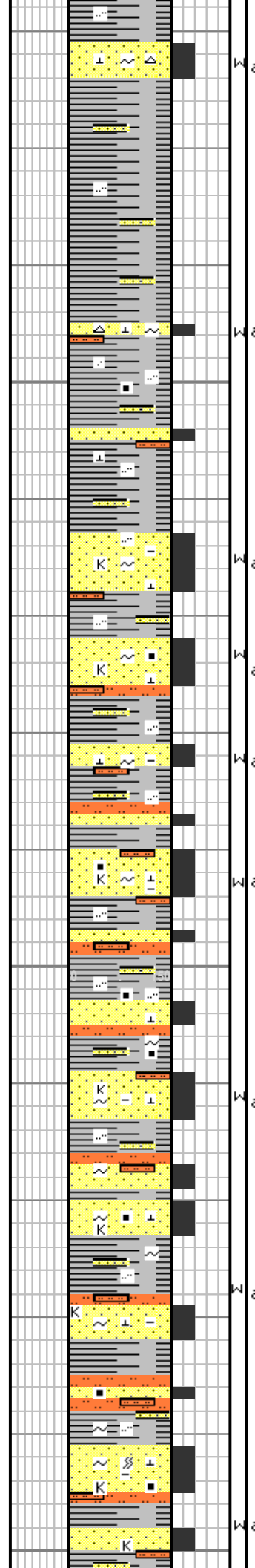
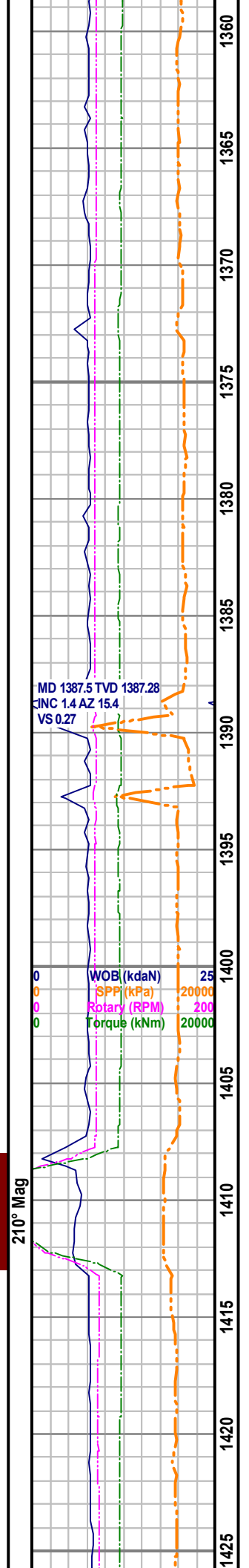
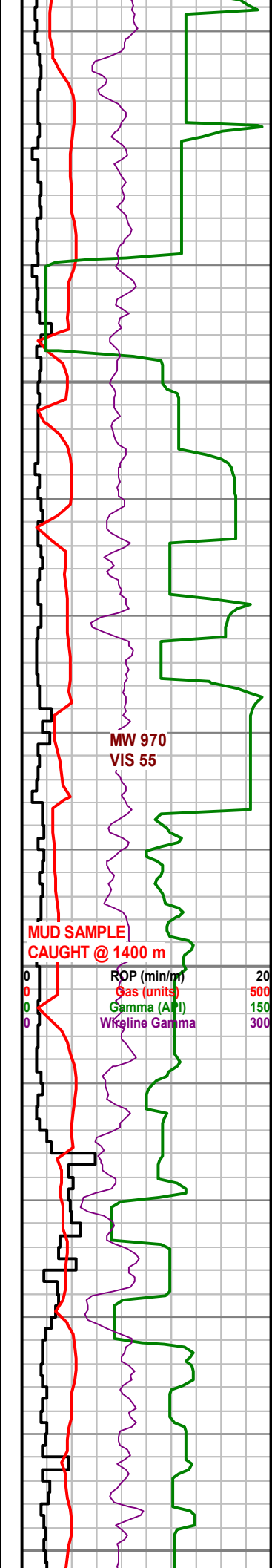
1310-1320 SH: med gy, blkly and plty, micmica, slly calcs, tr sdy & slty in pt, wi 10% SS strgs, lt - med gy, l f gr, sub ang, w srted, calc & cly cmt, tr dk lithic grs, slty, shy in pt, tt, no shows.

1320-1330 SH: med gy, blkly and plty, micmica, slly calcs, tr sdy & slty in pt, wi 40% SS strgs, lt - med gy, vf - l f gr, sub ang, w srted, calc & cly cmt, tr dk lithic grs, slly sidc, tr glauc, slty, shy in pt, tt, no shows.

1330-1340 SH: med gy, blkly and plty, micmica, slly calcs, tr sdy & slty in pt, wi 30% SS strgs, lt - med gy, vf - l f gr, sub ang, w srted, calc & cly cmt, tr dk lithic grs, slly sidc, tr glauc, slty, shy in pt, tt, no shows.

1340-1350 SH: med gy, blkly and plty, micmica, slly calcs, tr sdy & slty in pt, wi 40% SS strgs, lt - med gy, vf - l f gr, sub ang, w srted, calc & cly cmt, tr dk lithic grs, slly sidc, tr glauc, slty, shy in pt, tt, no shows.

1350-1360 SH: lt - med gy, blkly and plty, micmica, slly calcs, tr carb mat, tr sdy & slty in pt, grds to shy sltst ip, wi 10% SS strgs aa.



1360-1370 SH: lt - med gy, blkly and plty, micmica, sily calcs, tr carb mat, tr sdy & slty in pt, grds to shy sltst ip, wi 10% SS strgs aa.

1370-1380 SH: lt - med gy, blkly and plty, micmica, sily calcs, tr carb mat, tr sdy & slty in pt, grds to shy sltst ip, wi 30% SS strgs, lt - med gy, vf gr, sub ang, w srtd, calc & cly cmt, slty, shy ip, grds to sdy sltst ip, tr dk lithic grs, tr glauc, no vis por, no show.

1380-1390 SH: lt - m gy, pt dkr gy, blkly - plty, tr fis, pt micmica, tr carbs mat, frm brittle - pt sft, int bdd wi SS, off wh - med gy gn, sily s&p, silty - v f grnd, predly sb ang, tr dk lithic grns, occly slight - modly glauc, cly cmt, sily - modly calcs, dense, tt, pt grdg - SLTST, no shows.

1390-1400 SH: lt - m gy, pt dkr gy, blkly - plty, tr fis, pt micmica, frm brittle - pt sft, int bdd wi SS, off wh - med gy gn, sily s&p, silty - v f grnd, predly sb ang, tr dk lithic grns, occly slight - modly glauc, v rr fer, cly cmt, sily - modly calcs, dense, tt, pt grdg - SLTST, no shows.

1400-1410 SH: lt - m gy, pt dkr gy, tr gy gn, blkly - plty, tr fis, pt micmica, frm brittle - pt sft, int bdd wi SS, off wh - med gy gn, sily s&p, silty - v f grnd, predly sb ang, tr dk lithic grns, tr carbs mat, occly slight - modly glauc, cly cmt, sily - modly calcs, dense, tt, pt grdg - SLTST, no shows.

1410-1420 SS: off wh - gy gn, sily s&p, silty - v f grnd, sb ang, occ dk lithic grns, occly slight - modly glauc, cly cmt, sily - modly calcs, dense, tt, tr micro fracs, SH; lt - m gy, pt dkr gy, blkly - plty, tr fis, pt micmica, pt silty sandy, frm brittle - pt sft.

1420-1430 SS: off wh - gy gn, sily s&p, silty - v f grnd, sb ang, occ dk lithic grns, part slight - modly glauc, cly cmt, sily - modly calcs, tr v calcs, tt, SH; lt - m gy, pt dkr gy, blkly - plty, tr fis, pt micmica, tr carbs flks, pt silty sandy, frm brittle - pt sft.

COPRC Mirror Lake P-20 / Surface:UNIT P-20 GRID 65-00 126-45 / 300P206500126450 / K.B. = 289.35m

MW 980
VIS 58

ROP (mm/m) 20
Gas (units) 500
Gamma (API) 150
Wireline Gamma 300

MD 1425.5 TVD 1425.27
INC 0.4 AZ 0.1
VS 0.3

WOB (kdaN) 25
SPP (kPa) 20000
Rotary (RPM) 200
Torque (kNm) 20000

MD 1463.5 TVD 1463.27
INC 0.62 AZ 1.66
VS 0.38

1430 1435 1440 1445 1450 1455 1460 1465 1470 1475 1480 1485 1490

W a W a W a W a W a W a W a W a W a

1430-1440 SS: off wh - gy gn, silly s&p, silty - v f grnd, sb ang, occ dk lithic grns, occly slight - modly glauc, cly cmt, silly - modly calcs, tr v calcs, dense, tt, ns,

1440-1450 SLTST: lt gy, silly s&p, qtzs, cly wi slight - tr v calcs cmt, tr carbs flks, occly grdg - v f Ss, glauc ip, tt, no shows, intbdd wi SH; lt - m gy, sb blkly - plty, tr fis, pt micmica, mnr carbs flks, more comly silty sandy.

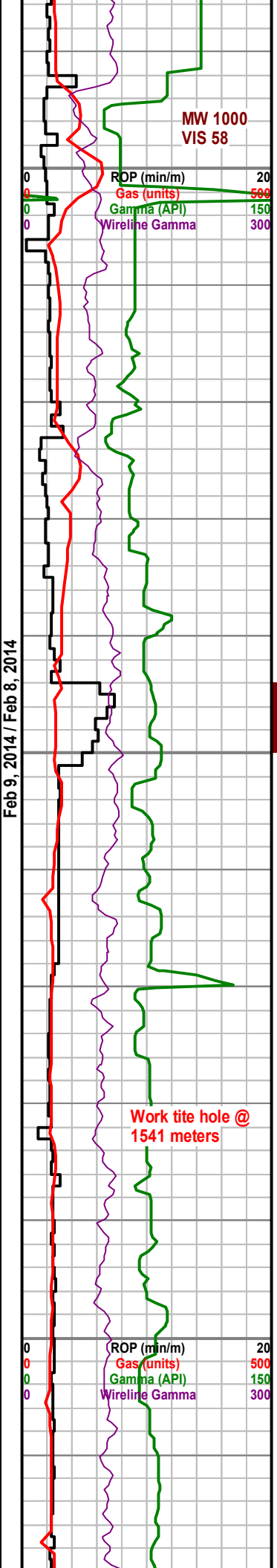
1450-1460 SLTST: off wh - lt gy, silly s&p, qtzs, cly wi slight - tr v calcs cmt, com scat carbs flks, occly grdg - v f Ss, glauc ip, tt, no shows, intbdd wi SH; lt - m gy, sb blkly - plty, tr fis, pt micmica, mnr carbs flks, more comly silty sandy.

1460-1470 SLTST: off wh - lt gy, tr bff wh, silly s&p, qtzs, cly wi slight - tr v calcs cmt, mod - tr v com carbs mat, occly grdg - v f Ss, glauc ip, tt, no shows, intbdd wi SH; lt - m gy, sb blkly - plty, tr fis, pt silty sandy, pt micmica, mnr carbs flks, satiny tex ip.

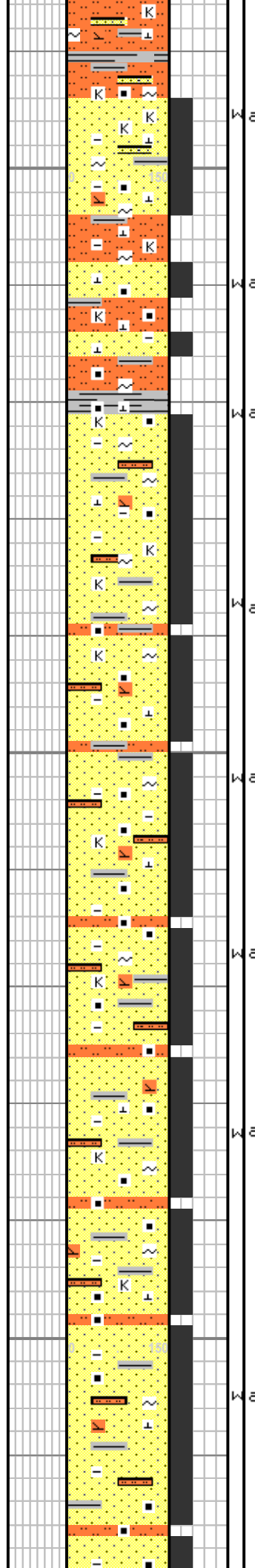
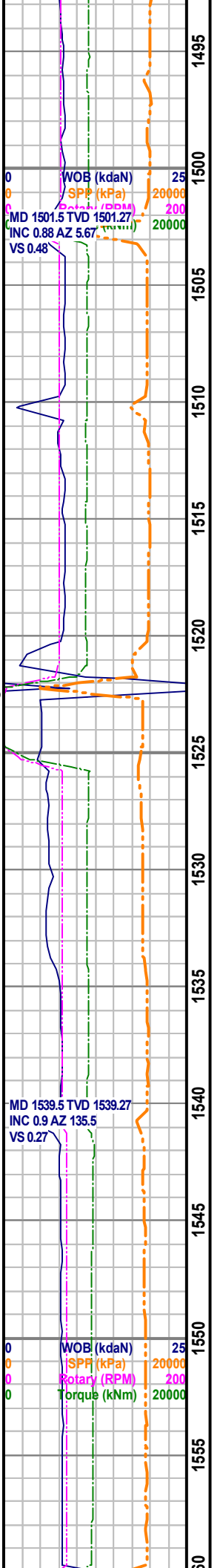
1470-1480 SLTST: off wh - lt gy, silly s&p, qtzs, cly wi pt calcs cmt, mod - tr v com carbs mat, tr glauc, tt, intbdd wi SH; lt - m gy, sb blkly - plty, tr fis, satiny tex ip.

1480-1490 SLTST: off wh - lt gy, silly s&p, qtzs, cly wi tr local calcs cmt, mod carbs mat, tr locly glauc, tt, tr grdg to SS; off wh - lt gy, silly s&p, v f qtz grns, sb ang, cly tr calcs cmt, tr carbs flks, intbdd wi SH; lt - m gy, sb blkly - plty, tr fis, satiny tex ip.

Feb 9, 2014 / Feb 8, 2014



160° Mag



1490-1500 SLTST: off wh - lt gy, pale gn gy, sily s&p, qtzs, cly wi more com calcs reaction, mod carbs mat, pt glauc, tt, grdg to SS; off wh - lt gy, pale gn gy, tr bff wh, sily s&p, lithic, v f qtz grns, sb ang, cly wi more com calcs cmt, mnr SH, ns.

1500-1510 SLTST: off wh - lt gy, pt pale gn gy, sily s&p, qtzs, lithic, cly wi slight wi tr v calcs reaction, mod carbs mat, pt modly - tr v glauc, tt, grdg ip to SS; off wh - lt gy, pale gn gy, tr bff wh, sily s&p, lithic, silt - v f qtz grns, sb ang, cly wi increasing calcs cmt, sidic, mnr SH, ns.

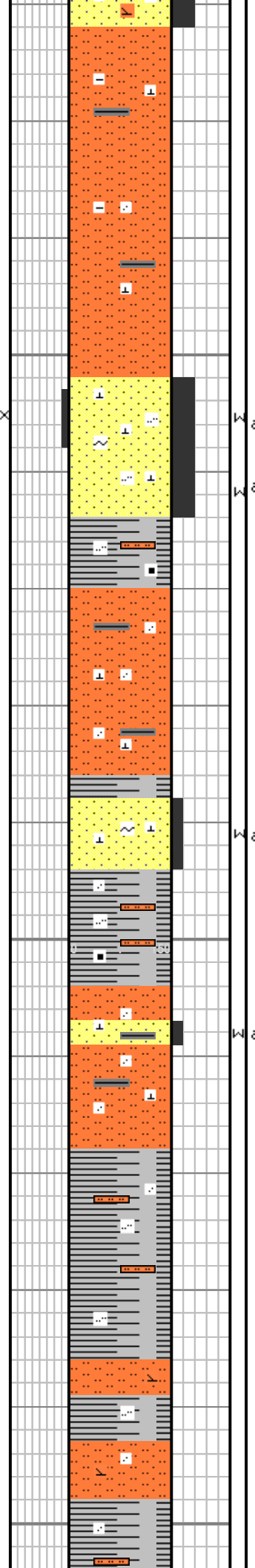
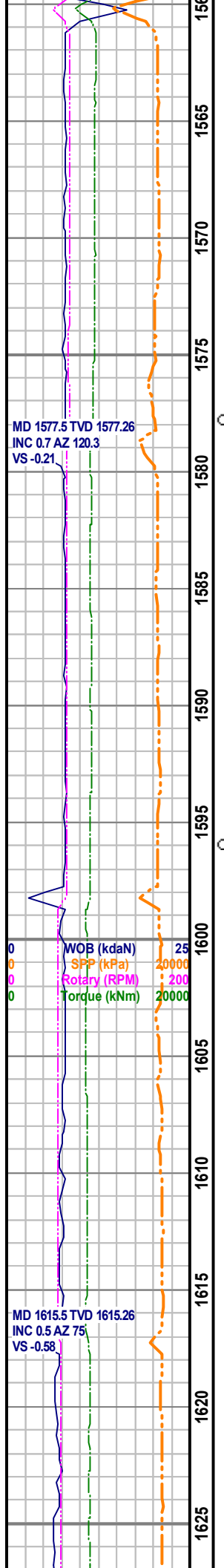
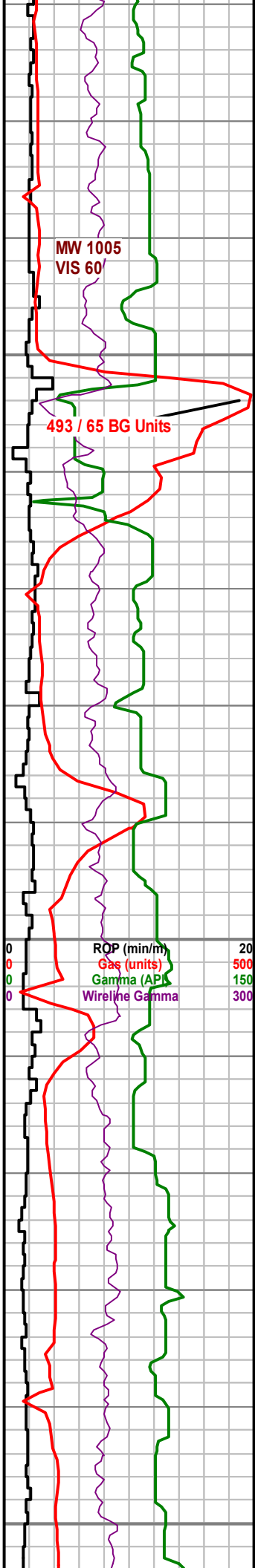
1510-1520 SS: off wh - lt gy, pt pale gn gy, tr bff wh, sily s&p, lithic, silt - l v f qtz grns, sb ang, cly wi slight and tr v calcs cmt, sidic, arg ip, mnr carbs flks, glauc ip, firm - pt hd, grdg - SLTST ip, mnr silty SH.

1520-1530 SS: off wh - lt gy, tr bff wh, sily s&p, lithic, silt - l v f qtz grns, sb ang, cly wi tr calcs cmt, sidic, arg ip, v f carbs mat seen through out, tr locly glauc, firm - pt hd, grdg ip - SLTST, mnr SH.

1530-1540 SS: off wh - lt gy, sily s&p, lithic, silt - l v f qtz grns, sb ang, predly cly cmt wi v mnr calcs cmt, arg ip, v f carbs mat, tr glauc, sidic, firm - pt hd, grdg ip - SLTST, mnr SH stgrs.

1540-1550 SS: off wh - lt gy, sily s&p, lithic, silt - l v f qtz grns, sb ang, predly cly cmt wi v mnr calcs cmt, arg ip, sidic, v f carbs mat, tr glauc, firm - pt hd, grdg ip - SLTST, mnr SH stgrs.

1550-1560 SS: off wh - lt gy, sily s&p, lithic, silt - l v f qtz grns, sb ang, predly cly cmt wi occ calcs cmt, arg ip, sidic, v f carbs mat, tr glauc, firm - pt hd, occly grdg - SLTST, mnr SH stgrs.



1560-1570 SLTST: lt - med gy, cly cmt, silly calcs in pt, sdy & shy in pt, occlly grds to silty vf gr ss in pt, occ carb mat, tr dk lithic grs, tt, no shows / mnr Sh lams, med - dk gy, blkly & plty, silly micmica, slty in pt, silly carb.

1570-1580 SS: crm - sp tan, qtzs, u vf gr, sub ang, w srtd, calc, minor dk lithic grs, p tr glauc, tt to p intgr por 2%, sp tan dd o stn, pale yel dry flor, pale yel v slow stmg cut flor, wi Sh & Slst aa.

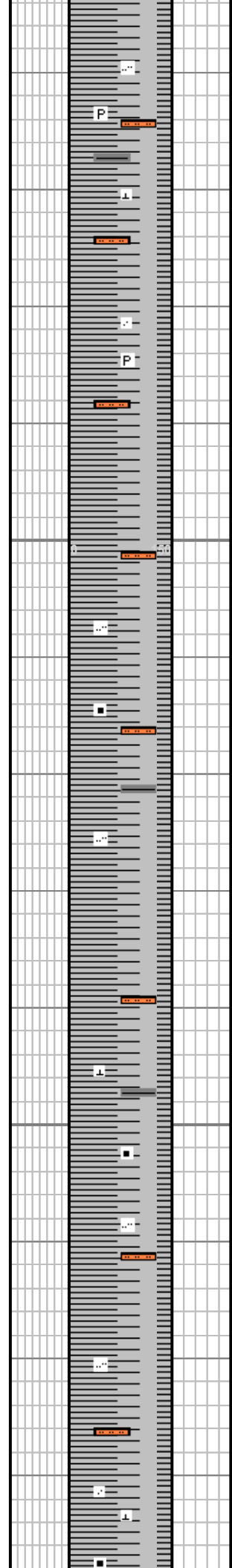
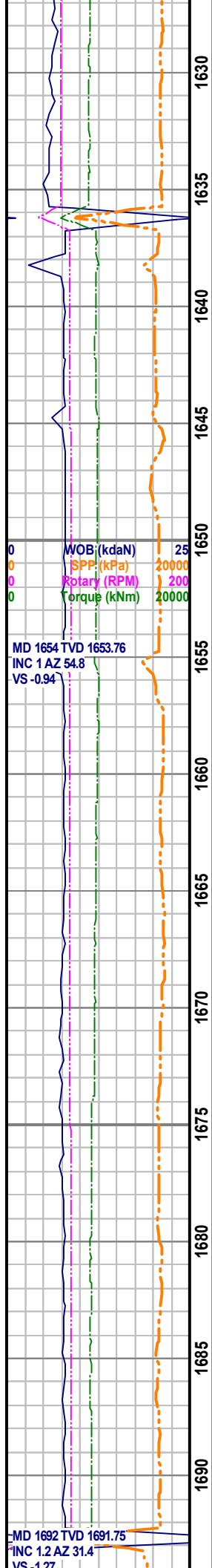
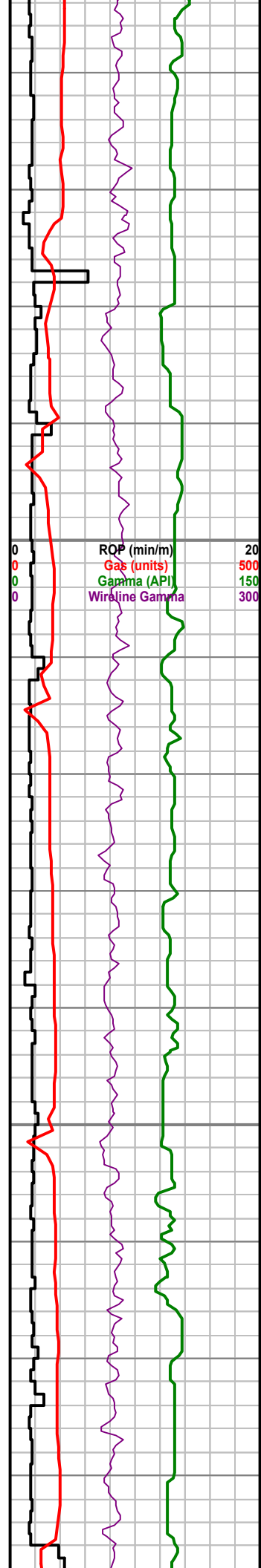
1580-1590 SS: aa wi Slst aa wi SH med gy, blkly, plty in pt, mic mica, occlly slty, silly carb.

1590-1600: SS crm - sp tan, qtzs, l vf gr, sub ang, w srtd, calc, minor dk lithic grs, tr glauc, no vis por, sp tan dd o stn, pale yel dry flor, pale yel v slow stmg cut flor, wi intbd Sh & Slst aa.

1600-1610 SH: med - silly dkr gy, blkly - sub plty, micmica, occlly slty, tr sidc in pt, minor carb specks, ssily sdy in pt, wi intbdd Slst & Ss aa.

1610-1620 SH: med - silly dkr gy, blkly - sub plty, micmica, occlly slty, tr sidc in pt, minor carb specks, silly sdy in pt, wi intbdd Slst lt - med gy, calc & cly cmt, sdy, grds to vf gr ss in pt, silly shy, tr dk lithic grs, tr carb mat, tr mica flakes, tt, no show / mnr Ss aa.

1620-1630 SH: aa wi Slst aa & occ brn Slst, sidc, silly calcs, sdy occlly grds to vf gr ss ip, occlly shy, tt, no show.



1630-1640 SH: med gy, sily dkr gy in pt, blk, sub fis in pt, sily micmica, tr slty ip, tr pyr nod wi intbdd Slstst strgs aa.

1640-1650 SH: med gy, sily dkr gy in pt, plty & sub fis, blk in pt, sily micmica, tr slty ip, tr pyr nod wi intbdd Slstst strgs aa.

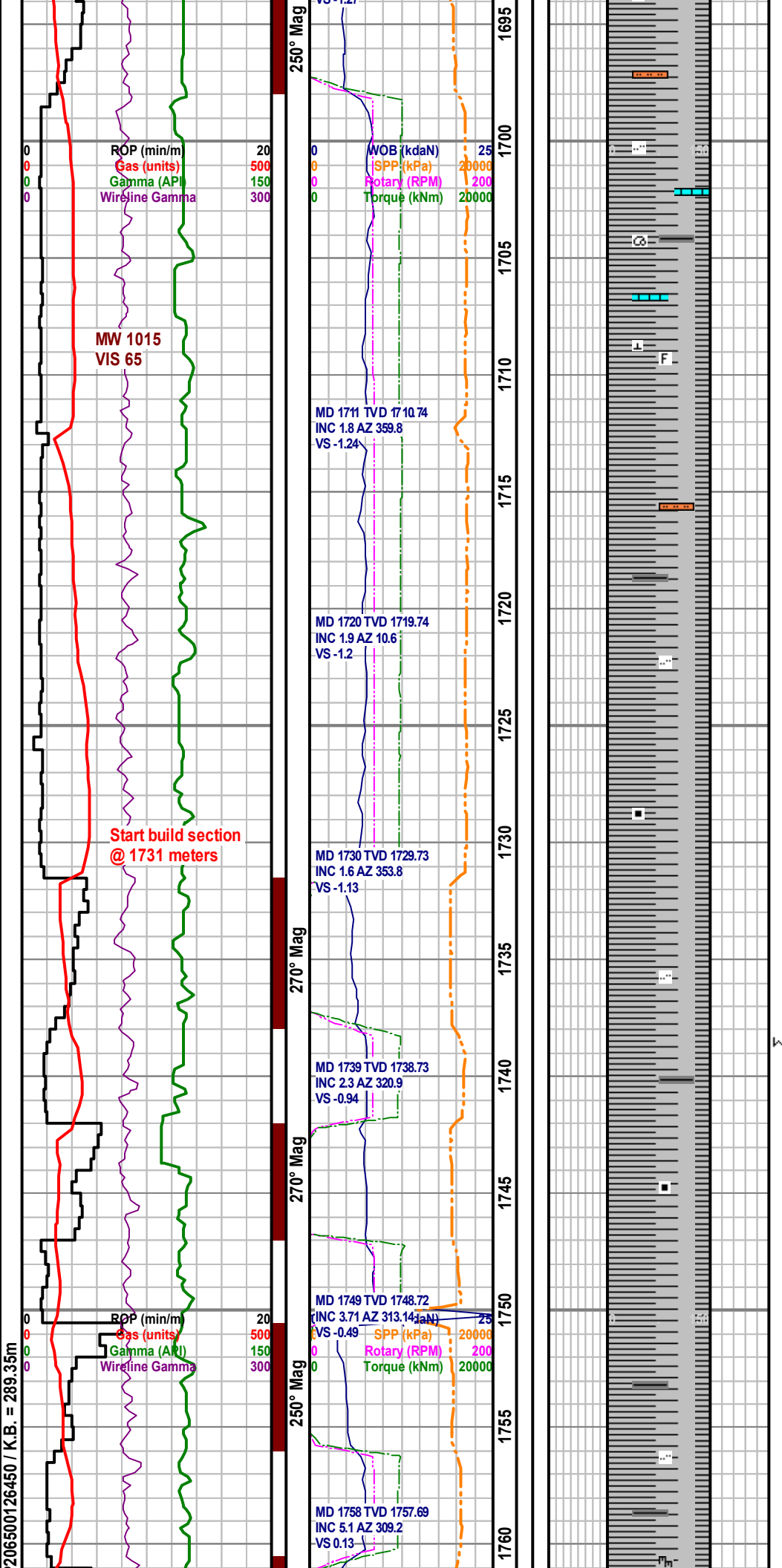
1650-1660 SH: med gy, sily dkr gy in pt, plty & sub fis, blk in pt, sily micmica, tr slty ip, tr minor carb mat, tr mnr slstst strgs aa.

1660-1670 SH: med gy, sily dkr gy in pt, plty & sub fis, blk in pt, sily micmica, tr slty ip, tr minor carb mat, tr mnr Slstst strgs, med gy, sily calcs & cly cmt, tr dk lithic grs, shy, tt, no shows.

1670-1680 SH: predly med gy, sily dkr gy in pt, plty & sub fis, blk in pt, sily micmica, slty ip, tr minor carb mat, tr mnr Slstst strgs aa.

1680-1690 SH: predly med gy, sily dkr gy in pt, plty & sub fis, blk in pt, sily micmica, slty ip, tr minor carb mat, tr mnr Slstst strgs aa.

1690-1700 SH: predly med gy, sily dkr gy in pt, plty &



1695-1700 SH: predly med gy, sly dkr gy in pt, plty & sub fis, blk in pt, sly micmica, slty ip, tr minor carb mat, tr mntr Slst strgs aa.

1700-1710 SH: predly med gy, sly dkr gy in pt, plty & sub fis, blk in pt, sly micmica, slty ip, tr minor carb mat, tr mntr Ls strgs, crm - bf, mudst - wkest, tr unident fos frags (Gast) dns, no shows.

1710-1720 SH: predly med gy, sly dkr gy in pt, plty & sub fis, blk in pt, sly micmica, slty ip, tr minor carb mat, tr mntr Slst strgs aa.

1720-1730 SH: predly med gy, sly dkr gy in pt, plty & sub fis, blk in pt, sly micmica, slty ip, tr minor carb mat.

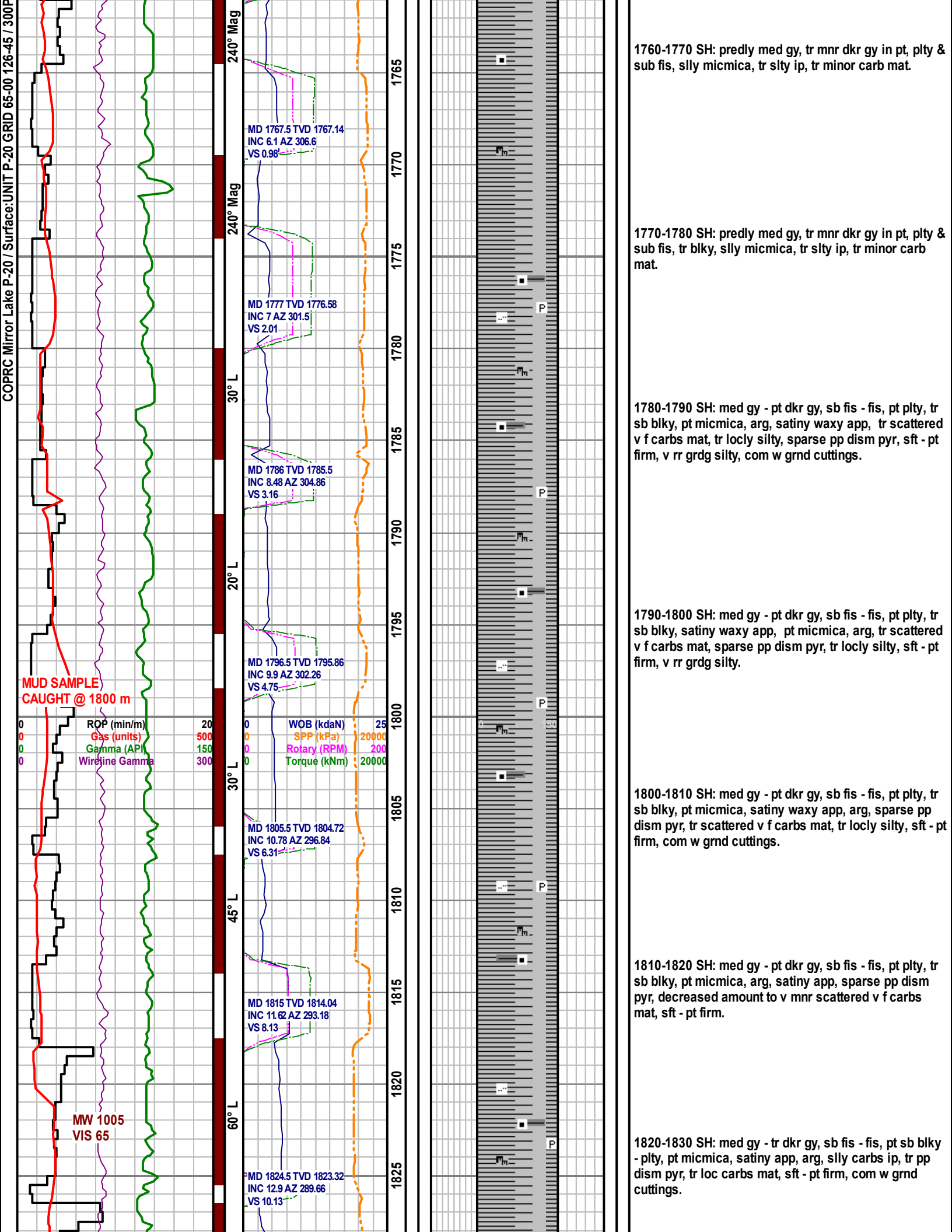
KOP (5°/30m)
1731.00mMD, (1730.73mTVD, -1441.38mSS.)
February 9th, 2014 @ 11:48 hrs

DIRECTIONAL:
Vertical Section Azimuth: 285.025°
Motor Bend: 1.59°
Magnetic Declination: 22.846°
Survey tool offset: 21.00m
Gamma offset: 14.97m

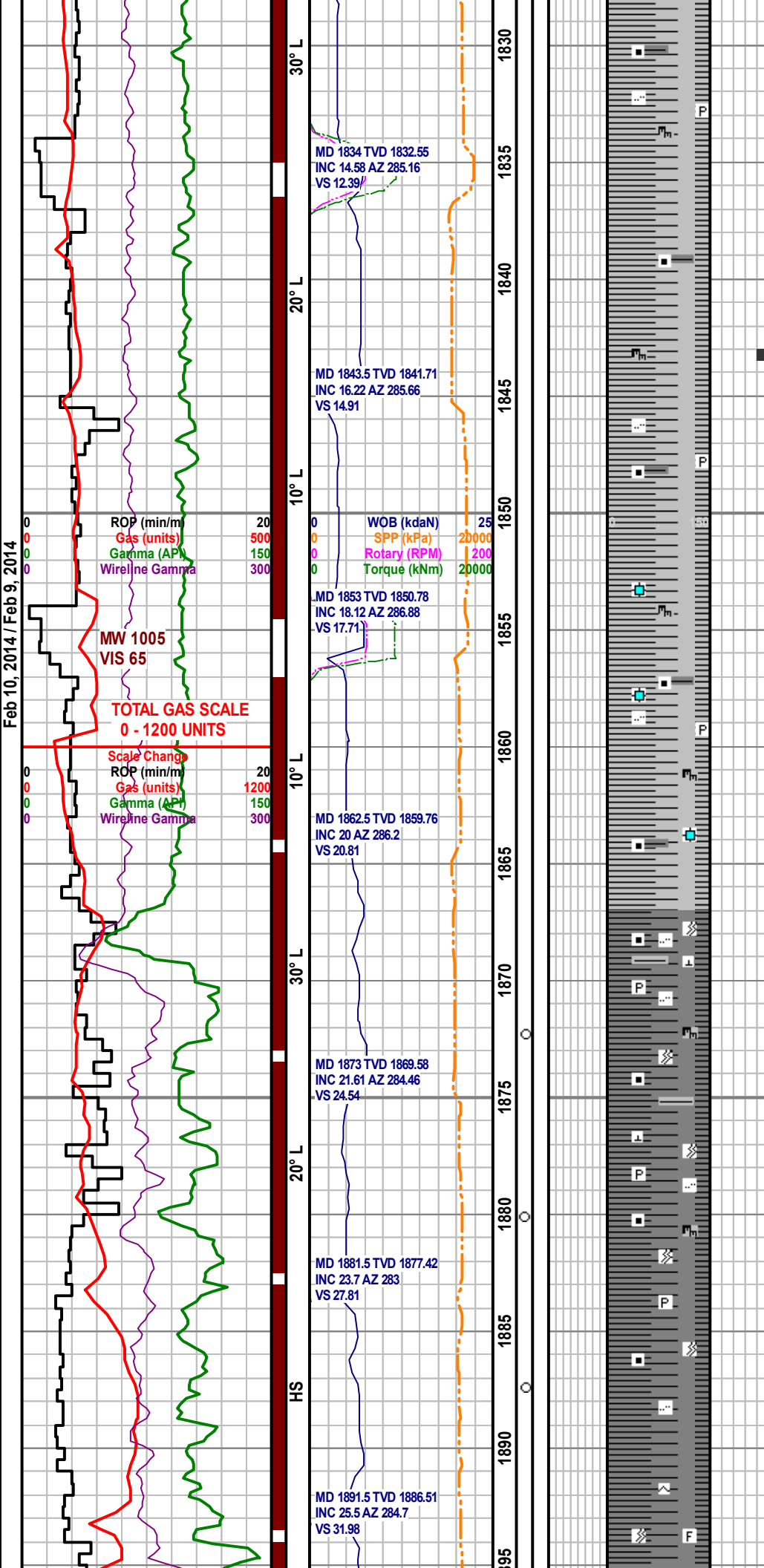
1730-1740 SH: predly med gy, sly dkr gy in pt, plty & sub fis, blk in pt, sly micmica, slty ip, tr minor carb mat.

1740-1750 SH: predly med gy, sly dkr gy in pt, plty & sub fis, blk in pt, sly micmica, tr slty ip, tr minor carb mat.

1750-1760 SH: predly med gy, sly dkr gy in pt, plty & sub fis, blk in pt, sly micmica, tr slty ip, tr minor carb mat.



Feb 10, 2014 / Feb 9, 2014



1830-1840 SH: med gy - tr dkr gy, sb fis - fis, pt sb blk
- plty, pt micmica, arg, slly silty ip, tr pp dism pyr, v
mnr grdg silty, sft - pt firm, com w grnd cuttings.

1840-1850 SH: med gy - tr dkr gy, sb fis - fis, pt sb blk
- plty, pt micmica, arg, slly carbs ip, tr pp dism pyr,
satiny app, v mnr grdg silty, sft - pt firm, com w grnd
cuttings.

1850-1860 SH: med gy - tr dkr gy, sb fis - fis, pt sb blk
- plty, pt micmica, arg, slly carbs ip, locly com v f LMST
grns (v gd calcs reac), tr pp dism pyr, satiny app, v
mnr grdg silty, sft - pt firm, com w grnd cuttings.

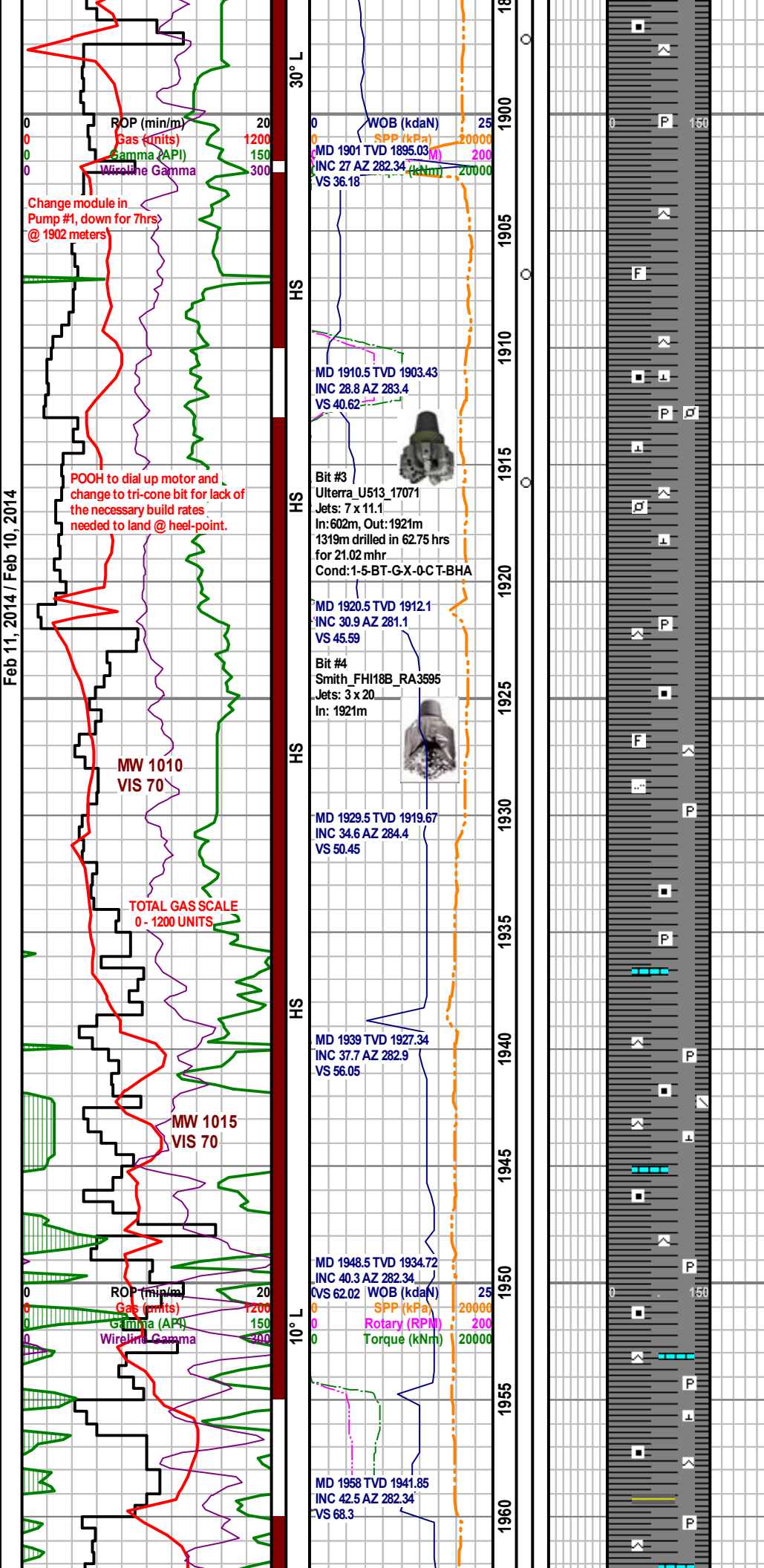
1860-1867 SH: med gy - tr dkr gy, sb fis - fis, pt sb blk
- plty, pt micmica, arg, slly carbs ip, locly com v f LMST
grns (v gd calcs reac), tr pp dism pyr, sft - pt firm.

1867-1880 SH: brn blk - blk, mnr med brn, rr med gy,
predly carbs, micmica ip, blk - sb blk - fiss ip, sft -
firm, tr locly calcitic, tr calcite filled micro fracs, tr
pyric, com dism pp pyr, silty tex ip, tr silty micro lams,
no flor, v slow wk pale halo cut.

1880-1890 SH: brn blk - blk, mnr med brn, predly carbs,
blk - sb blk - fiss ip, firm brittle - pt sft, tr calcite filled
micro fracs, tr pyric, silty tex ip, no flor, v slow wk pale
halo cut.

1890-1900 SH: v dk gy, blk, sub fis, slly micmica, sils,
hd, brit in pt, carb, slty tex, pyrc / pyr nod, g tr spic, tr
small frac infilled wi calcite, sh occlly brn & bits & soft
(bit damage?), v slow weak pale yel cloudy cut.

Feb 11, 2014 / Feb 10, 2014



Upper Canol 1902.7m MD, (1896.54mTVD, -1607.19mSS.)

1900-1910 SH: v dk gy, blk, sub fis, slly micmica, sils, hd, brit in pt, carb, slty tex, tr pyrc, tr spic, sh occly brn & bits (bit damage?), show aa.

1910-1920 SH: v dk gy, tr blk, blk, sub fis, slly micmica, sils, bcmg calc in pt, hd, brit in pt, carb, slty tex, tr pyrc / pyr nod, tr fos casts(pels?), wi tr mntr dk gy brn bits sh aa, wi show aa.

1920-1930 SH: dk gy - blk, blk, sub fis, slly micmica, sils, calc in pt, hd, brit in pt, carb, slty tex, tr pyrc / pyr nod, wi show aa.

DIRECTIONAL: In at 1921m
VS Azimuth: 285.025°
Motor Bend: 1.93°
Magnetic Dec: 22.846°
Survey tool offset: 21.00m
Gamma offset: 15.02m

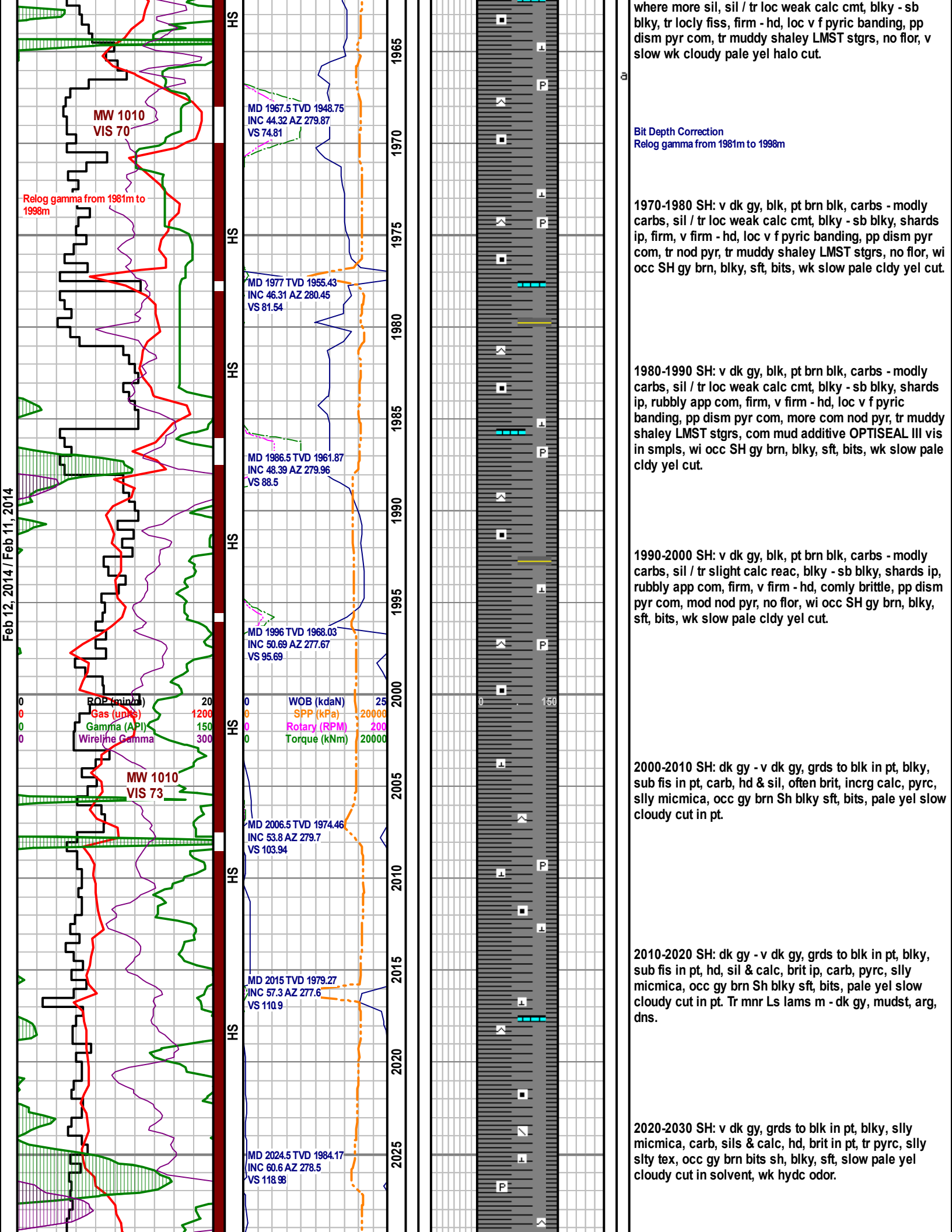
1930-1940 SH: dk gy, occly grds to blk, blk, sub fis in pt, sils, hd, occly brit, tr pyrc / occ pyr nods, slly calc in pt, pale yel cloudy flor in solvent, tr mntr Ls strgs, mot gy wh, arg, dns.

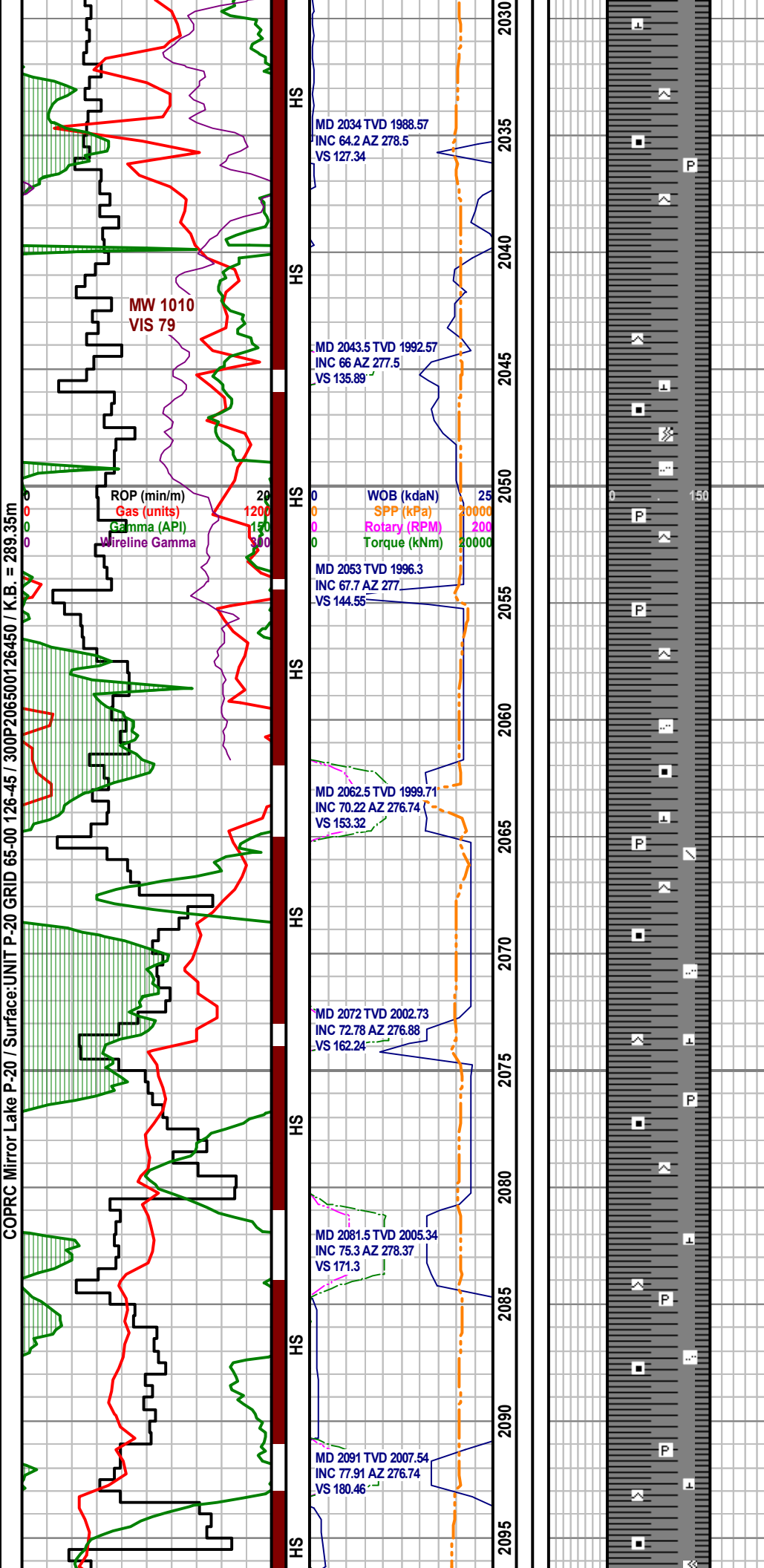
Lower Canol 1935.8m MD, (1924.75mTVD, -1635.4mSS.)

1940-1950 SH: dk gy, occly grds to blk, blk, sub fis in pt, sils, hd, occly brit, tr pyrc / occ pyr nods, slly calc in pt, brn sft bits sh in pt, pale yel cloudy flor in solvent, incrg hydc odor, tr Ls lams aa.

1950-1960 SH: v dk gy, brn blk - blk, mod - v carbs ip, sil cmt, blk - sb blk, tr fiss, firm - hd ang chips, rr calcs ptgs, tr pyric banding, tr pyritized, pp dism pyr com, no flor, wi occ SH gy brn, blk, sft, bits, wk slow pale cldy yel cut.

1960-1970 SH: v dk gy, blk, brn blk, carbs - less carbs





2030-2040 SH: v dk gy, grds to blk in pt, blk, sllly micmica, carb, sils & calc, hd, brit in pt, tr pyrc, sllly slty tex, occ gy brn bits sh, blk, sft, slow pale yel cloudy cut in solvent, wk hydc odor.

2040-2050 SH: v dk gy, blk, sllly micmica, carb, sils & calc, hd, brit in pt, tr pyrc wi tr pyr nod, slty tex in pt, occ gy brn bits sh, blk, sft, slow pale yel cloudy cut in solvent, wk hydc odor, tr micro frac infilled wi calcite.

2050-2060 SH: v dk gy, blk, sllly micmica, carb, sils & calc, hd, brit in pt, tr pyrc wi incrg pyr nod, slty tex in pt, occ gy brn bits sh, blk, sft, slow pale yel cloudy cut in solvent, hydc odor.

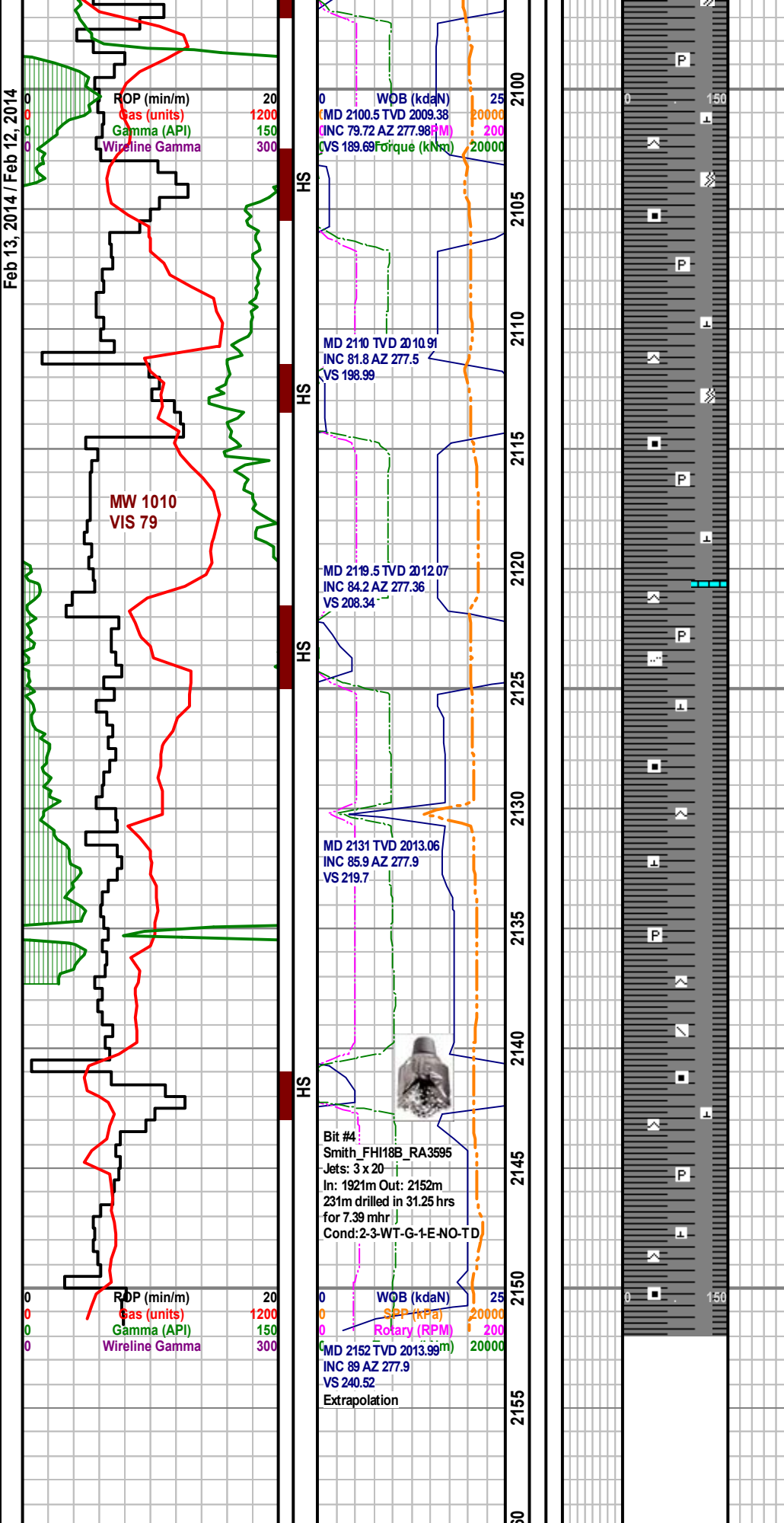
2060-2070 SH: v dk gy, blk, sllly micmica, carb, sils & calc, hd, brit in pt, tr pyrc wi pyr nod, slty tex in pt, occ gy brn bits sh, blk, sft, slow pale yel cloudy cut in solvent, hydc odor.

2070-2080 SH: v dk gy, blk, pt brn blk, carbs - modly carbs, sil wi pt v sllly calcs to tr modly calc, blk, rubbly, tr shards, silty app ip, firm, v firm - hd, comly brittle, pp dism pyr com, tr nod pyr, wi occ SH gy brn, blk, sft, bits, wk slow pale cldy yel cut.

2080-2090 SH: v dk gy, blk, pt brn blk, carbs - modly carbs, sil wi sllly - pt modly calc, blk, rubbly, firm, v firm - hd, comly brittle, pp dism pyr com, tr pyric, v rr calcite healing micro frac, mnr SH gy brn, blk, sft, bits, wk slow pale cldy yel cut.

2090-2100 SH: v dk gy, blk, pt brn blk, carbs - pt modly carbs when more sil, wi sllly - pt modly calc, blk, rubbly, firm, v firm - hd, comly brittle, pp dism pyr com, tr pyric, v rr calcite healing micro frac, mnr SH gy brn, blk, sft, bits, wk slow pale cldy yel cut.

Feb 13, 2014 / Feb 12, 2014



2100-2110 SH: v dk gy, blk, pt brn blk, carbs, sil, locly slight - modly calc, blk, firm, v firm - hd, brittle, pp dism pyr com, tr pyric, tr calcite healing micro fracs, mnr SH gy brn, sft, bits, wk slow pale cldy yel cut.

2110-2120 SH: v dk gy, blk, pt brn blk, carbs, sil, locly slight - modly calc, blk, firm, v firm - hd, brittle, pp dism pyr com, tr pyric, v rr micro fracs, occ SH gy brn, sft, bits, wk slow pale cldy yel cut.

2120-2130 SH: v dk gy, blk, carb, sils & calc, hd, com brit, sub fis in pt, slly micmica, tr pyrc, occ Sh brn, bits, sft. Pale yel slow cludy cut in solvent, wk hydc odor, wi tr minor Ls lams, mot m gy crm, mudst, arg, dns.

2130-2140 SH: v dk gy, blk, carb, sils, calc decrg, hd, com brit, sub fis in pt, slly micmica, tr pyrc, occ Sh brn, bits, sft. Pale yel slow cludy cut in solvent, hydc odor.

2140-2150 SH: v dk gy, blk, carb, sils & calc, hd, com brit, sub fis in pt, slly micmica, tr pyrc, occ Sh brn, bits, sft. Pale yel slow cludy cut in solvent, wk hydc odor, wi tr minor Ls lams, mot m gy crm, mudst, arg, dns.

Intermediate TD:
2152m MD, 2013.99m TVD @ 89 degrees,
277.9 AZ, 240.52m VS,
64.61m North, 231.69m West of well center
on Feb 13, 2014 @ 09:05hrs.

Grid N/E Y/X: N 7210084.220m, E 604172.260m