



**PALADIN GEOLOGICAL**

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

Well Name: Sample 3-17-4H      MCWL PALADIN GEOLOGICAL  
Well Id: 35653245370000  
Location: Section: 23 - T12N - R8W Of Anywhere, USA  
License Number:      Region:  
Spud Date: 09/23/2019      Drilling Completed: 10/10/2019  
Surface Coordinates: 340' FNL, 265' FEL, Section: 23 - T12N - R8W Of Anywhere, USA SE-NE-NE-NE, Latitude: 37.6567222° N, Longitude: -96.6540313° W  
Bottom Hole (PROJECTED) - 50' FSL, 380' FEL, Section: 23 - T12N - R8W Of Anywhere, USA, SW-SE-SE-SE, Latitude: 36.25677481°  
Coordinates: N, Longitude: -95.65654462° W  
Ground Elevation (ft): 1,289'      K.B. Elevation (ft): 1,312  
Logged Interval (ft): 11,650'      To: 21,438'      Total Depth (ft): 21,438'  
Formation: Middle Mayes / Sycamore  
Type of Drilling Fluid: Native Gels/Water/Oil Base Mud

Printed by HorizontalLog from WellSight Systems 1-800-447-1534 www.WellSight.com

**OPERATOR**

Company: MCWL PALADIN GEOLOGICAL  
Address: 717 26TH AVE NW  
Norman OK 73069  
405-360-7333 (office)

**GEOLOGIST**

Name: GUY PRYOR  
Company: MCWL PALADIN GEOLOGICAL  
Address: 717 26TH AVE NW  
Norman OK 73069  
405-360-7333 (office)

**Cores**

**DSTs**

## Comments

MCWL PALADIN GEOLOGICAL  
 717 26TH AVE NW  
 Norman OK 73069  
 405-360-7333 (office)

**BIG RIG #1**

**Rig Managers:**

**Directional Drillers:**

**MWD Operators:**

**Mud Engineers:**

**Mid Continent Well Logging Services, Inc.; Norman Ok. Logging Unit:**


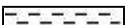

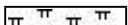
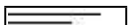

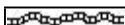





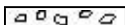
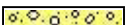
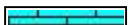






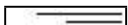


**Equipment: MCWL 1021 IR**

**Loggers: Nick Wier**

**Began Logging: 09/27/2019 @ 8,410' MD**

**Finished Logging: 10/10/2019 @ 14,307'**

## ROCK TYPES

	Anhy		Clyst		Gyp		Mrlst		Shgy		Till
	Bent		Coal		Igne		Salt		Sltst		Hotsh
	Brec		Congl		Lmst		Shale		Sltst2		Sndylm
	Cht		Dol		Meta		Shcol		Ss		New symbol

## ACCESSORIES

<b>MINERAL</b>			
 Anhy	 Ferr	 Sulphur	 Fish
 Arggrn	 Glau	 Tuff	 Foram
 Arg	 Gyp	<b>FOSSIL</b>	 Fossil
 Bent	 Hvymin	 Algae	 Gastro
 Bit	 Kaol	 Amph	 Oolite
 Brecfrag	 Marl	 Belm	 Ostra
 Calc	 Minxl	 Bioclst	 Pelec
 Carb	 Nodule	 Brach	 Pellet
 Chtdk	 Phos	 Bryozoa	 Pisolite
 Chtlt	 Pyr	 Cephal	 Plant
 Dol	 Salt	 Coral	 Strom
 Feldspar	 Sandy	 Crin	<b>STRINGER</b>
 Ferrpel	 Sil	 Echin	 Sndyls
			<b>TEXTURE</b>
			 Boundst
			 Chalky

**OTHER SYMBOLS**

**POROSITY**  
E Earthy  
□ Fenest  
F Fracture  
X Inter  
⊗ Moldic

□ Organic  
P Pinpoint  
V Vuggy

**SORTING**  
W Well

M Moderate  
P Poor

**ROUNDING**  
R Rounded  
F Subrnd

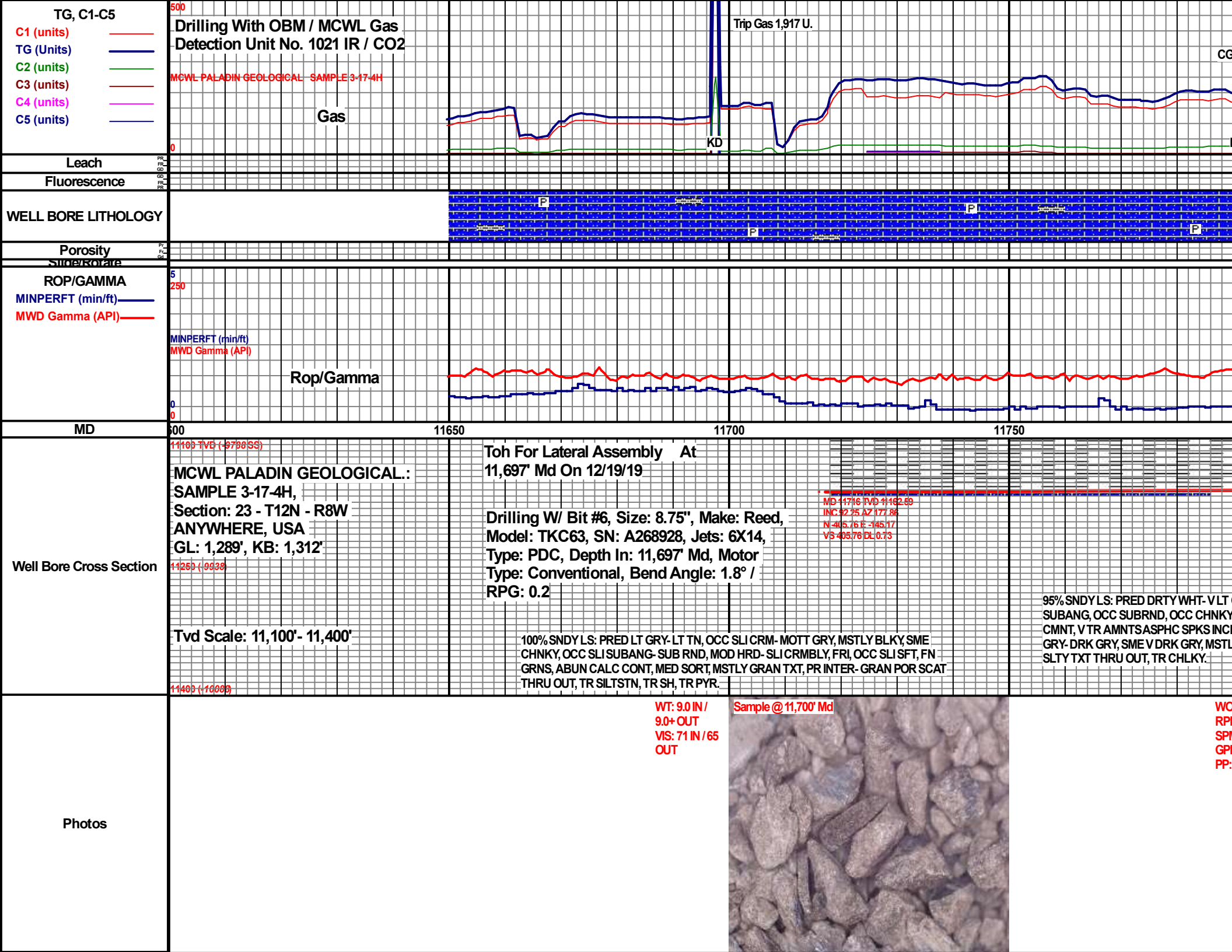
a Subang  
A Angular

**OIL SHOW**  
● Even  
① Spotted

Q Ques  
D Dead

**INTERVAL**  
■ Core  
□ Dst

**EVENT**  
▽ Rft  
▾ Sidewall



TG, C1-C5  
 C1 (units) —  
 TG (Units) —  
 C2 (units) —  
 C3 (units) —  
 C4 (units) —  
 C5 (units) —

Drilling With OBM / MCWL Gas  
 Detection Unit No. 1021 IR / CO2

Trip Gas 1,917 U.

MCWL PALADIN GEOLOGICAL - SAMPLE 3-17-4H

Gas

KD

Leach  
 Fluorescence

WELL BORE LITHOLOGY

Porosity  
 Sinter/Barite

ROP/GAMMA  
 MINPERFT (min/ft) —  
 MWD Gamma (API) —

Rop/Gamma

MD

Well Bore Cross Section

11100 TVD (-9788 SS)  
 MCWL PALADIN GEOLOGICAL.:  
 SAMPLE 3-17-4H,  
 Section: 23 - T12N - R8W  
 ANYWHERE, USA  
 GL: 1,289', KB: 1,312'  
 11250 (-9938)  
 Tvd Scale: 11,100' - 11,400'  
 11400 (-10089)

Toh For Lateral Assembly At  
 11,697' Md On 12/19/19  
 Drilling W/ Bit #6, Size: 8.75", Make: Reed,  
 Model: TKC63, SN: A268928, Jets: 6X14,  
 Type: PDC, Depth In: 11,697' Md, Motor  
 Type: Conventional, Bend Angle: 1.8° /  
 RPG: 0.2

MD 11716 TVD 11482.89  
 INC 82.25 AZ 177.86  
 N 405.76 E -145.17  
 VS 403.76 DL 0.73

100% SNDY LS: PRED LT GRY-LT TN, OCC SLI CRM- MOTT GRY, MSTLY BLKY, SME  
 CHNKY, OCC SLI SUBANG- SUB RND, MOD HRD- SLI CRMBLY, FRI, OCC SLI SFT, FN  
 GRNS, ABUN CALC CONT, MED SORT, MSTLY GRAN TXT, PR INTER- GRAN POR SCAT  
 THRU OUT, TR SILTSTN, TR SH, TR PYR.

95% SNDY LS: PRED DRTY WHT- VLT  
 SUBANG, OCC SUBRND, OCC CHNKY  
 CMNT, V TR AMNTS ASPHC SPKS INCL  
 GRY- DRK GRY, SME V DRK GRY, MSTL  
 SLTY TXT THRU OUT, TR CHLKY.

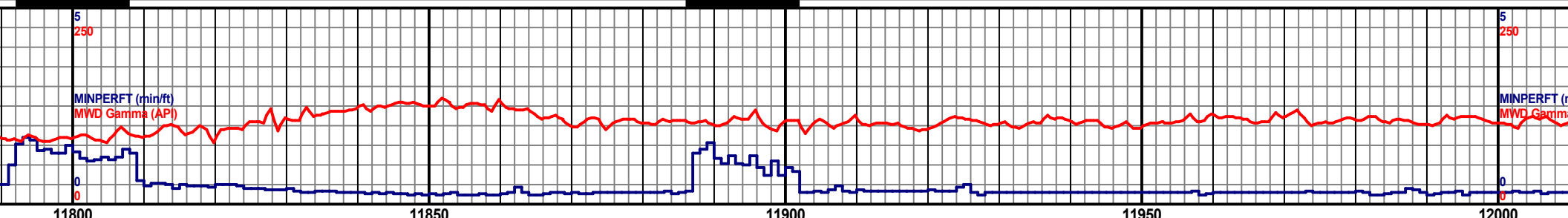
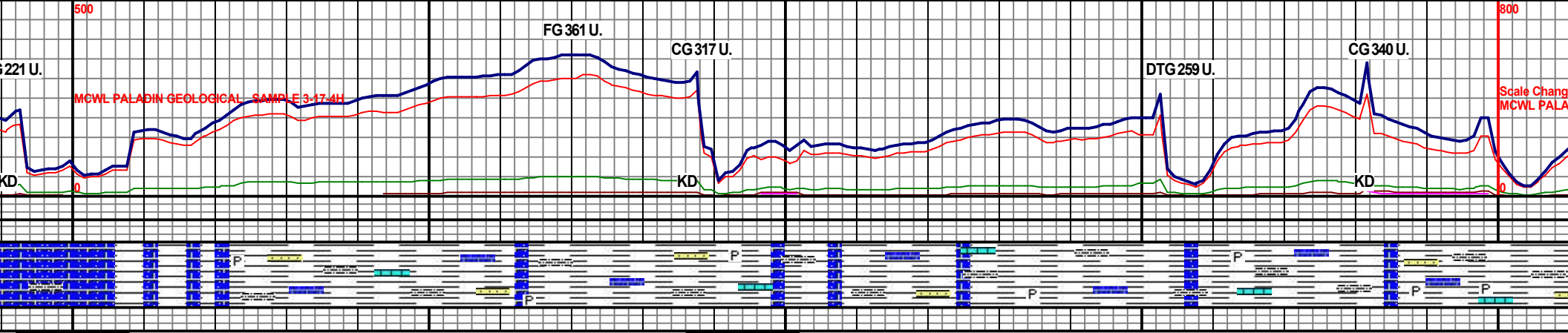
WT: 9.0 IN /  
 9.0+ OUT  
 VS: 71 IN / 65  
 OUT

Sample @ 11,700' Md

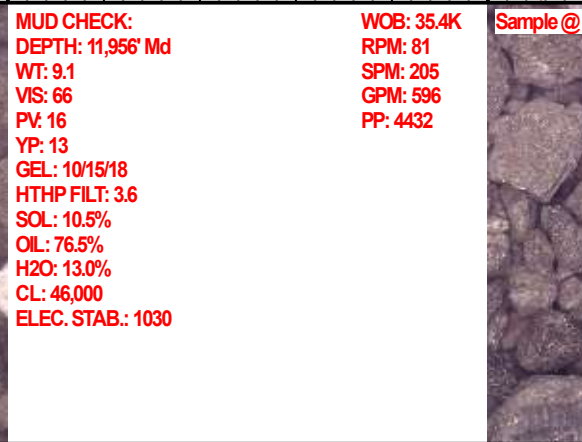
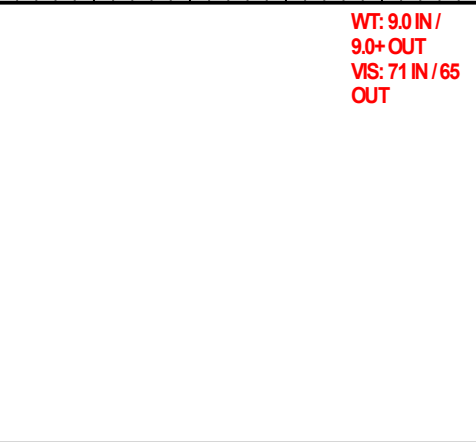


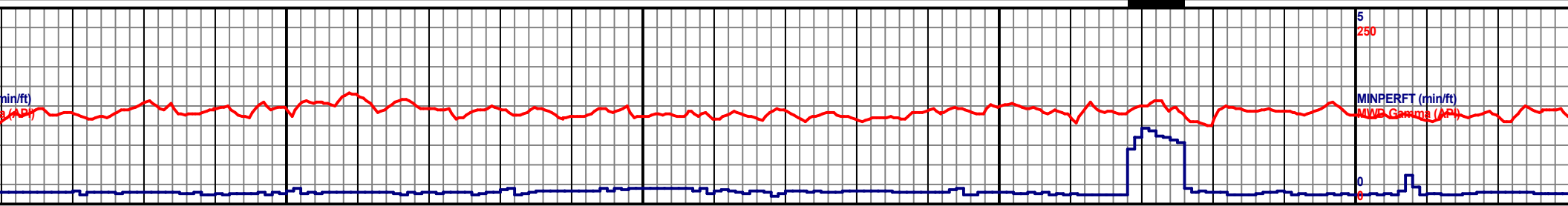
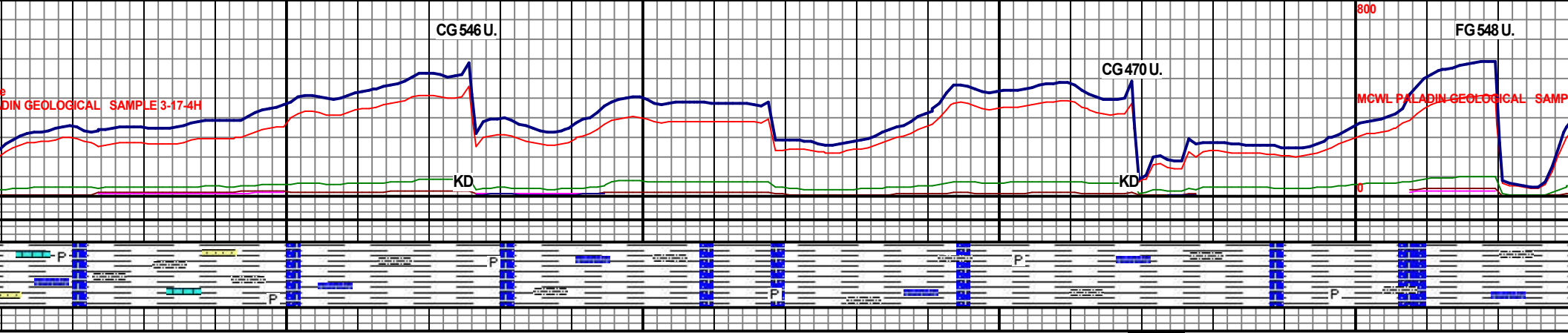
Photos

WC  
 RPI  
 SPI  
 GPI  
 PP:

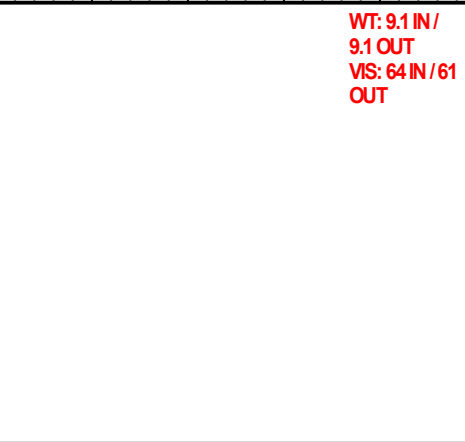


<p>11188 TVB (-8788 SS)</p> <p>MD 11811 TVD 11160.21 INC 90.62 AZ 118.1 N 500.67 E 141.83 VS 699.67 DL 1.73</p> <p>11253 (-9938)</p> <p>85% SH: PRED V DRK GRY-V DRK BRN, SME V DRK BRN- BLK, OCC DRK GRY, OCC DRK BRN, TR MED GRY- MED BRN, MSTLY BLKY, SME SLI PLTY, OCC FLKY, OCC CHNKY, TR SUBRND- SUBANG, TR SPLNTRY, MOD FRM- SLI HRD, OCC CRMBLY, OCC FRI, SLI BRIT, V SCS AMNTS CHLKY, TR LIN STRIAS W/ LSE UNCONS QTZ GRNS EMBD, 15% SNDY LS: PRED DRTY WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR PYR.</p> <p>11403 (-10083)</p>	<p>MD 11906 TVD 11160.86 INC 88.61 AZ 177.99 N 595.61 E 138.73 VS 698.61 DL 2.12</p> <p>90% SH: PRED LT- MED GRY, MSTLY BLKY, SME PLTY, OCC SLTY TXT THRU OUT, TR CHLKY, TR PYR, 10% SNDY LS: PR SLI OPQ, MSTLY BLKY- SUBANG, OCC SUBRND- SLI CHNKY, TR FRM, V BRIT, TR CRMBLY, MOD CONS, WELL SORT, SLI DCF, TR INTERGRAN POR.</p> <p>11403 (-10083)</p>	<p>11188 TVB (-8788 SS)</p> <p>MD 12030 TVD 11160.86 INC 87.36 AZ 177.99 N 689.49 E 138.73 VS 689.49 DL 2.12</p> <p>11253 (-9938)</p> <p>11403 (-10083)</p>
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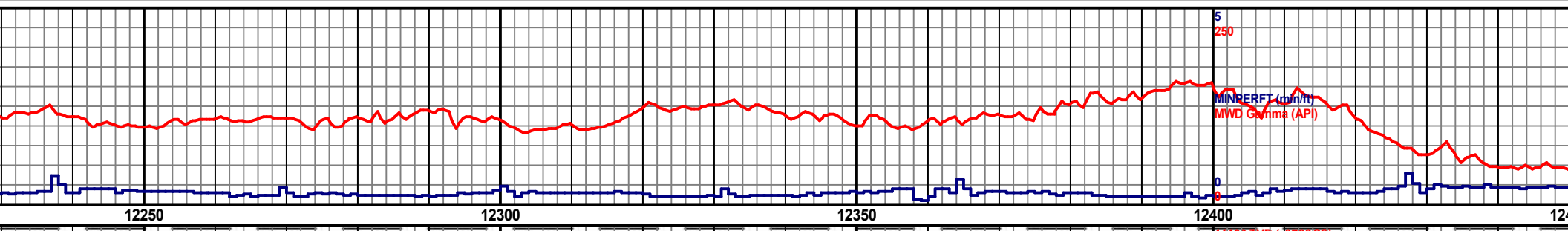
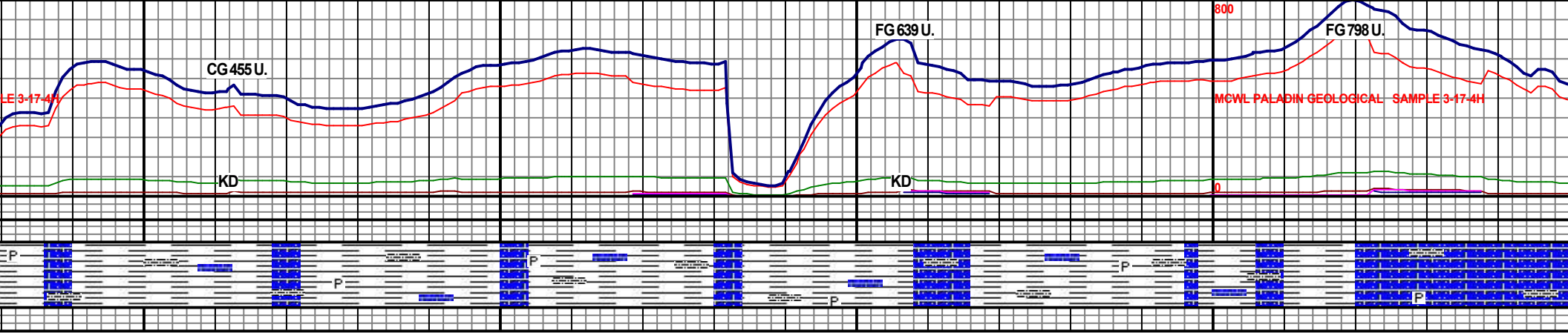


Depth (SS)	MD (TVD)	INC (AZ)	N (E)	VS (DL)	Description
12050	11164.24	177.95	35.4	1.24	80% SH: PRED LT- MED GRY, OCC DRK GRY, OCC BRN, MSTLY PLTY, OCC CHNKY, OCC SPLNTRY, MOD FRM, OCC SLI HRD, OCC CRMBLY, SCAT V BRIT- FRI, TR CHLKY, V GRAN TXT SCAT THRU OUT, TR MICRO EMBD PYR FLKS, 20% SNDY LS: PRED LT GRY, OCC DRK WHT, MSTLY BLKY - SUBANG, MOD HRD - V HRD, OCC SLI FRM, V BRIT, TR CRMBLY, MOD CONS, WELL SORT, MSTLY GRAN TXT, PR INTERGRAN POR.
12100	12094	170.84	37.3	1.78	
12150	12188	170.67	30.65	1.81	90% SH: GRY- DRK GRY, SME V DRK GRY, MSTLY BLKY- PLTY, OCC CHNKY, MOD HRD, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 10% SNDYLS: DRTY OFF WHT, OCC DRTY LT BRN- MED BRN, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR M FLKS, TR LS.
12200	12140	170.56	37.7	1.31	



WOB: 35.3K  
RPM: 80  
SPM: 204  
GPM: 593  
PP: 4549





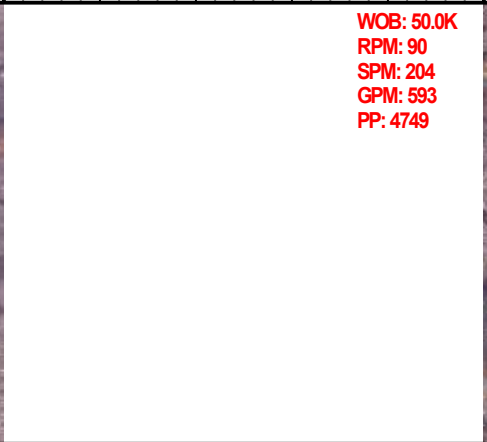
<p>MD 12282 IVD 11169.38 INC 90.92 AZ 180.04 N -971.28 E -131.86 VS 074.28 DL 0.29</p> <p>90% SH: PRED MED GRY- MED BRN, LT GRY - GRY, SME DRK GRY- BLK, MSTLY BLKY- CHNKY, SME PLTY, OCC SUBANG- SUBRND, MOD HRD- SLI FRM, OCC CRMBLY, TR HRD, MSTLY SLTY TXT THRU OUT, CRS - RGH TXT, 10% SNDY LS: MSTLYDRTY OFF WHT - V LT GRY, OCC LT BRN- MED BRN, SUBANG- SUBRND, CRMBLY, WELL SORT, V PR CALC CMNT, TR MICRO EMBD PYR FLKS, AREN TXT, TR LS.</p>	<p>MD 12376 IVD 11167.74 INC 91.08 AZ 180.48 N -1065.27 E -132.00 VS 1065.27 D_ 0.5</p> <p>85% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 15% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC VLT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR CALC.</p>	<p>11188 TVB (-8788 SS)</p> <p>11263 (-9938)</p> <p>11403 (-10089)</p>
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WT: 9.1 IN / 9.1  
OUT  
VIS: 64 IN / 61  
OUT



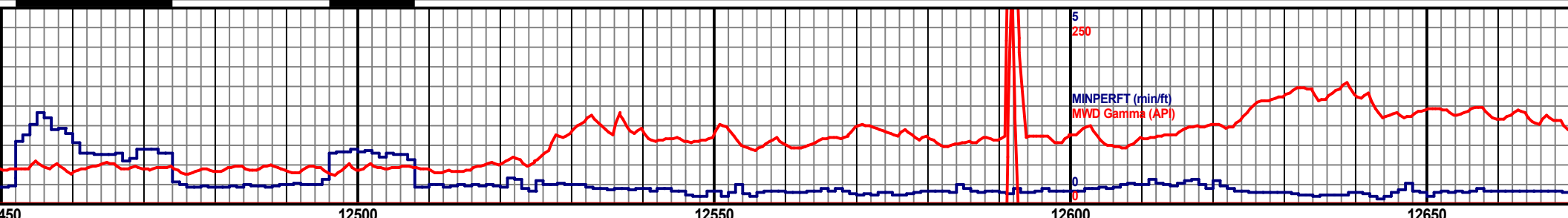
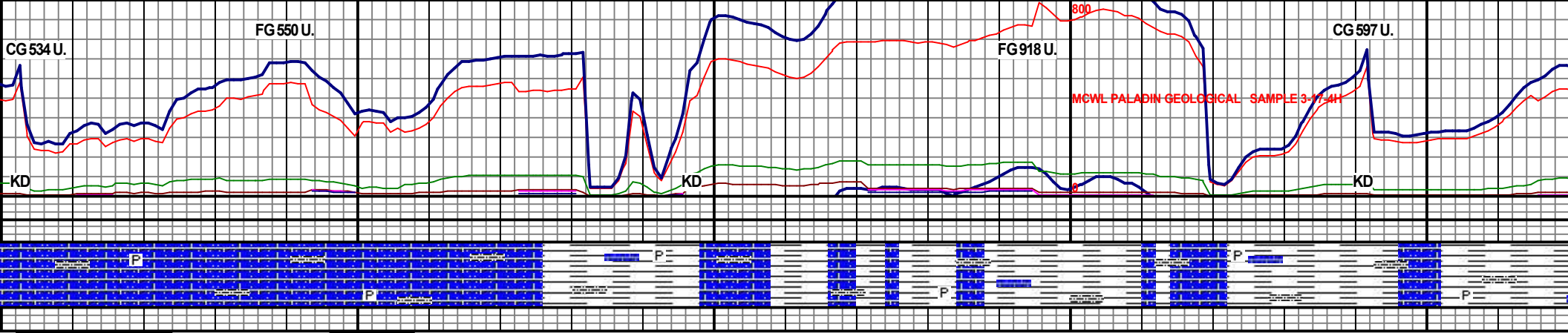
Sample @ 12,300' Md



WOB: 50.0K  
RPM: 90  
SPM: 204  
GPM: 593  
PP: 4749



Sample @ 12,400' Md



<p>MD 12471 TVD 11167.76          NC 88.89 AZ 179.94          N -1160.26 E -132.43          VS 1450.26 DL 2.37</p> <p>65% SNDY LS: PRED V LT GRY, SME V LT TN, MSTLY BLKY, SME SUBANG- SUBRND, MOD HRD, OCC CRMBLY, V CALC, SCAT ARG INCLS, WELL SORT, FN- MED GRNS, PR INTER- GRAN POR, TR PYR, 35% SH: PRED MED- DRK GRY, OCC LT GRY, MSTLY PLTY, SME CHNKY, OCC BLKY, OCC SPLNTRY, MOD FRM, OCC SLI SFT, V SLTY TXT SCAT THRU OUT.</p>	<p>MD 12565 TVD 11172.82          NC 84.94 AZ 179.68          N -1254.1 E 432.12          VS 1254.1 DL 4.21</p> <p>65% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 35% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.</p>	<p>11380 TVD (-9790.55)</p> <p>11253 (-9938)</p>	<p>MD 12650 TVD 11173.82          NC 83.6 AZ 179.68          N -1248.64 E 432.12          VS 1248.64 DL 4.21</p> <p>90% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 35% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.</p>	<p>11403 (-10083)</p>
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WT: 9.1 IN / 9.1 OUT  
 VS: 64 IN / 61 OUT

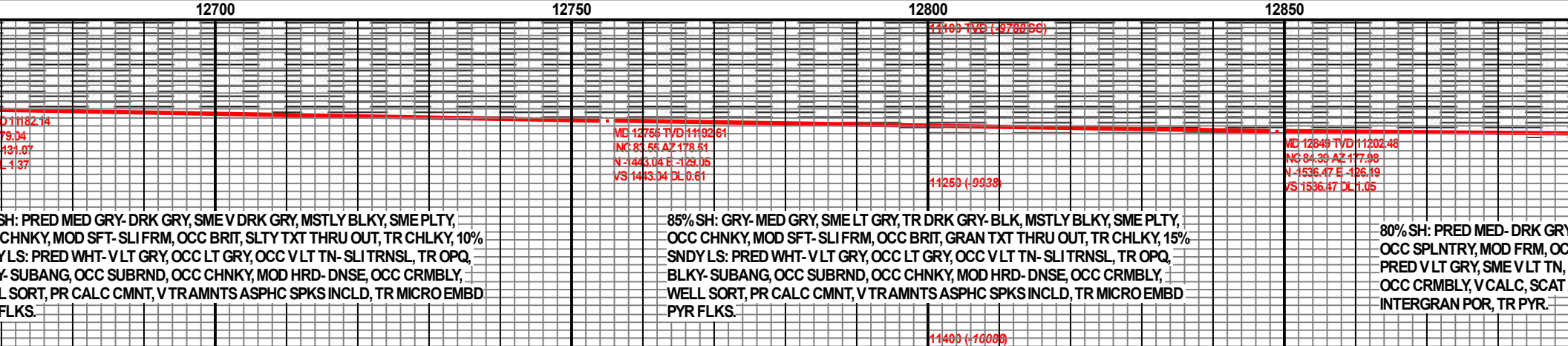
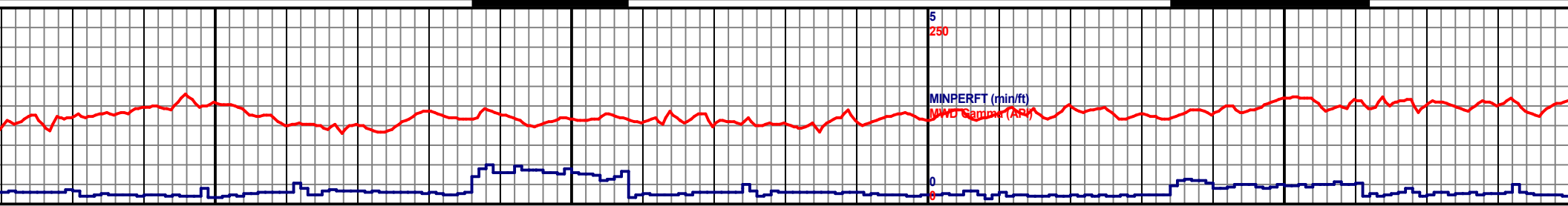
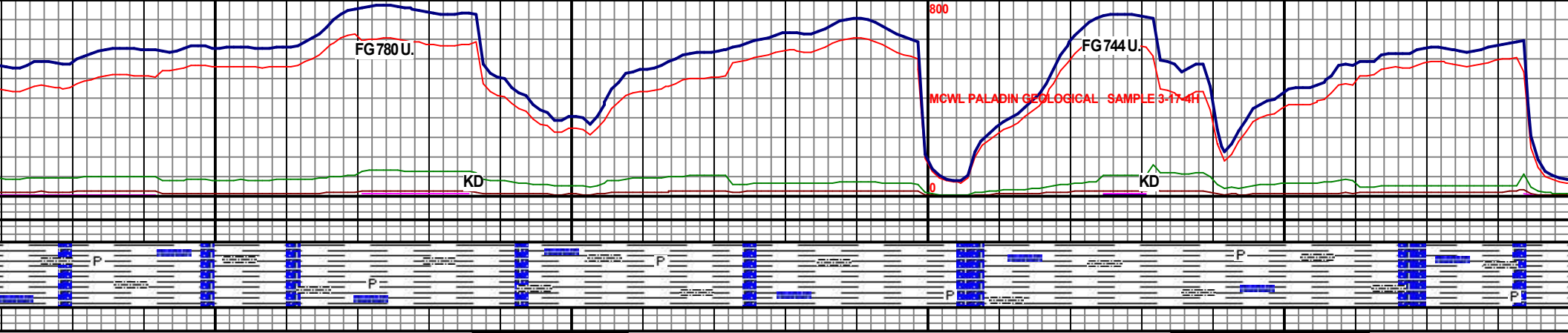


WOB: 60.0K  
 RPM: 90  
 SPM: 204  
 GPM: 593  
 PP: 4542



MUD CHECK:  
 DEPTH: 12,615' Md  
 WT: 9  
 VS: 64  
 PV: 16  
 YP: 14  
 GEL: 11/14/16  
 HTHP FILT: 3.4  
 SOL: 10.2%  
 OIL: 76.8%  
 H2O: 13.0%  
 CL: 46,000  
 ELEC. STAB.: 1035





SH: PRED MED GRY- DRK GRY, SME V DRK GRY, MSTLY BLKY, SME PLTY, CHNKY, MOD SFT- SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 10% YLS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, Y- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, L SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD FLKS.

85% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 15% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.

80% SH: PRED MED- DRK GRY, OCC SPLNTRY, MOD FRM, OCC PRED V LT GRY, SME V LT TN, OCC CRMBLY, V CALC, SCAT INTERGRAN POR, TR PYR.

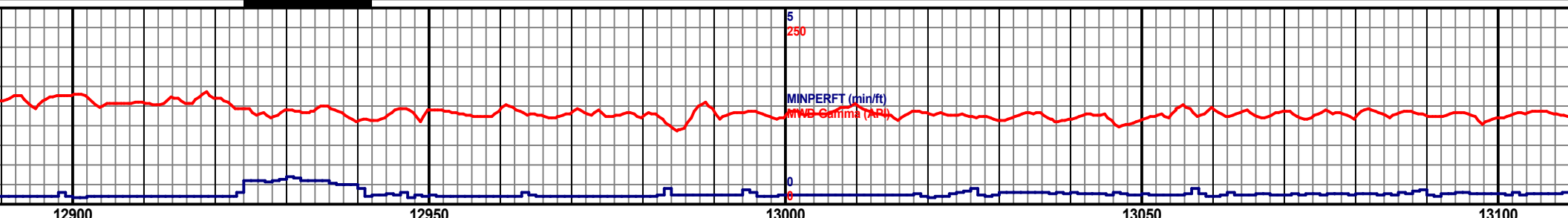
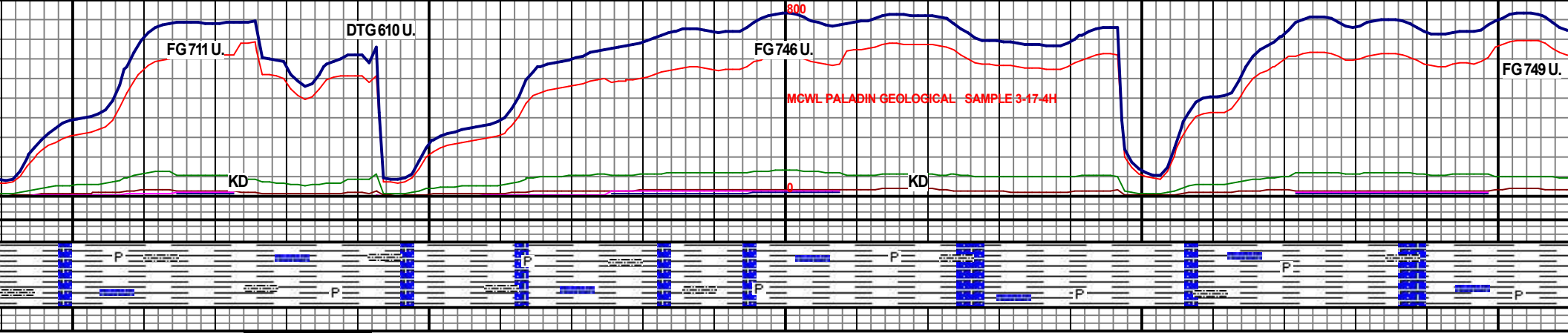
WT: 9.1 IN / 9.1 OUT  
VS: 64 IN / 61 OUT



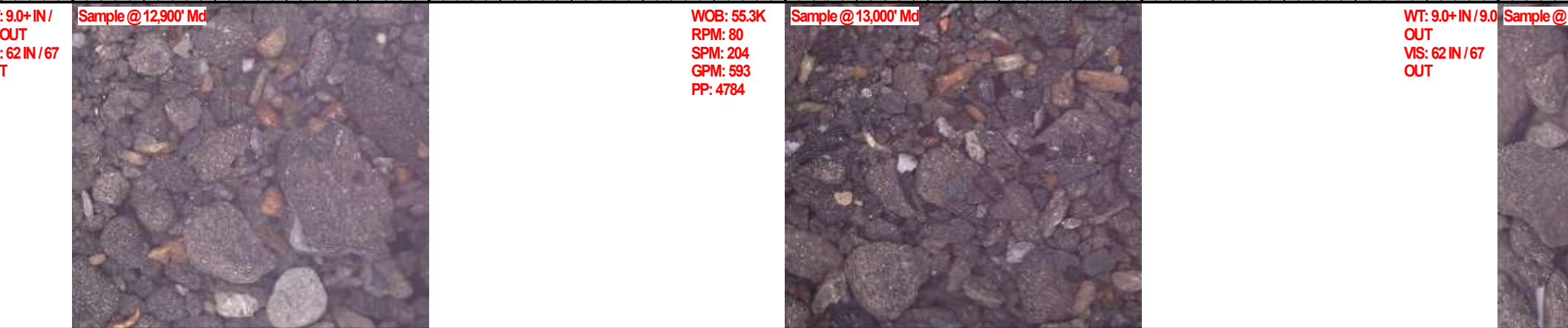
WOB: 60.4K  
RPM: 70  
SPM: 204  
GPM: 593  
PP: 4977



WT: 9.0  
VS: 61  
OU

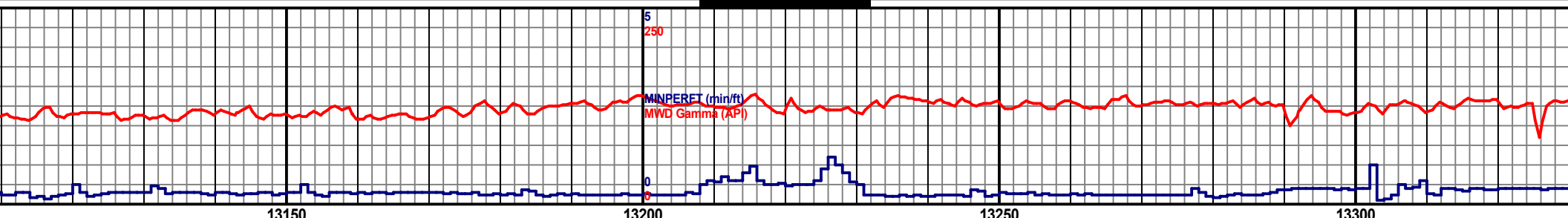
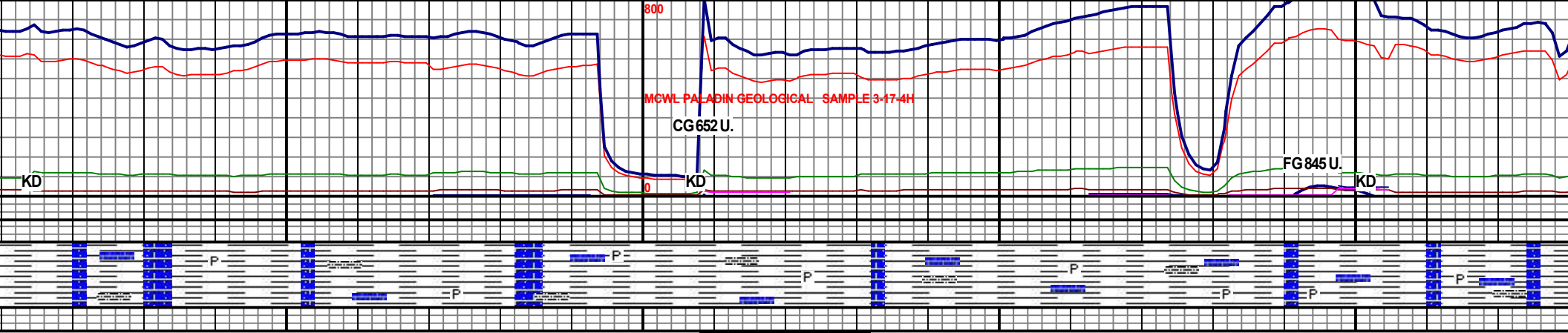


Depth (ft)	MD (ft)	INC (ft)	N (ft)	VS (ft)	Description
12941	11207.64	89.33	1630.29	1638.29	85% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY-BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 15% SNDY LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR CALC.
13038	11210.47	67.26	1725.22	1725.22	80% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY-BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 15% SNDY LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.

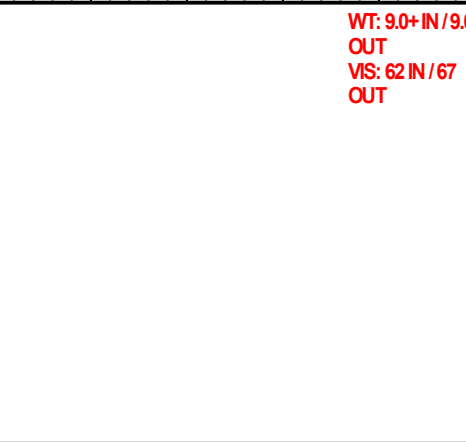
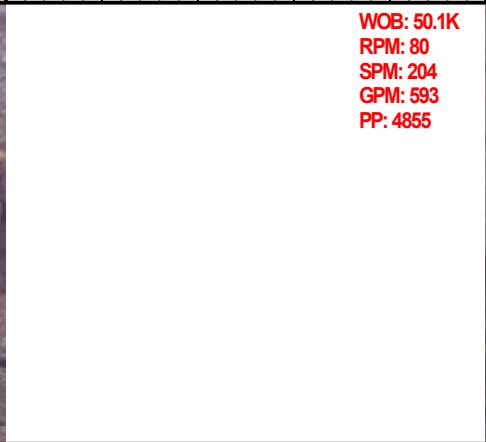


WOB: 55.3K  
RPM: 80  
SPM: 204  
GPM: 593  
PP: 4784

WT: 9.0+ IN / 9.0  
OUT  
VS: 62 IN / 67  
OUT

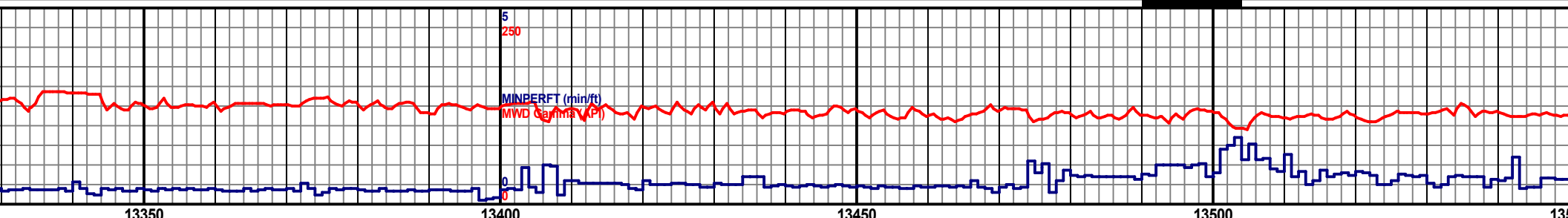
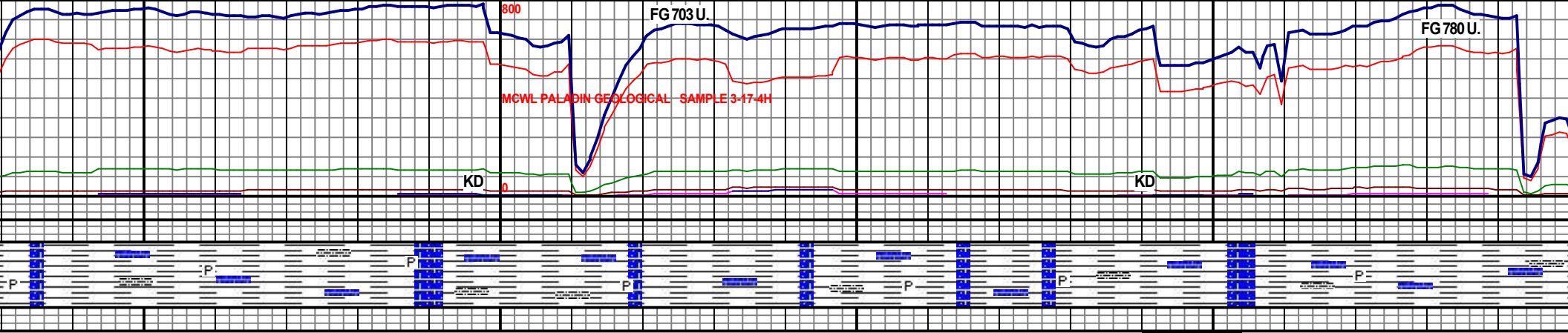


<p>MD 13182 IVD 11215.47          INC 86.64 AZ 177.32          N-1819.01 E-119.76          VS 1819.01 D.L. 1</p> <p>BLK, MSTLY BLKY, SME PLTY,          XT THRU OUT, TR CHLKY, 20%          LT TN-SLI TRNSL, TR OPQ,          HRD- DNSE, OCC CRMBLY,          PKS INCLD, TR MICRO EMBD</p>	<p>11380 IVD (-9790.55)          11250 (-9938)</p> <p>75% SH: PRED MED- DRK GRY, OCC LT GRY, MSTLY PLTY, SME CHNKY, MOD          FRM, OCC SLI SFT, V SLTY TXT SCAT THRU OUT, 25% SNDY LS: PRED VLT          GRY, SME V LT TN, MSTLY BLKY, SME SUBANG- SUBRND, MOD HRD, OCC          CRMBLY, V CALC, SCAT ARG INCLS, WELL SORT, FN- MED GRNS, PR          INTERGRAN POR, TR PYR.</p>	<p>MD 13226 IVD 11218.81          INC 89.29 AZ 176.28          N-1912.87 E-146.16          VS 1912.87 D.L. 3</p> <p>70% SH: PRED MED - DRK GRY, OCC LT GRY, MSTLY PLTY, SME CH          FRM, OCC SLI SFT, V SLTY TXT SCAT THRU OUT, 30% SNDY LS: PR          SME VLT TN, MSTLY BLKY, SME SUBANG- SUBRND, MOD HRD, OC          CALC, SCAT ARG INCLS, WELL SORT, FN- MED GRNS, PR INTERGR          PYR.</p>	<p>MD 13324 IVD 11218.81          INC 87.65 AZ 176.28          N-2007.77 E-146.16          VS 2007.77 D.L. 3</p>
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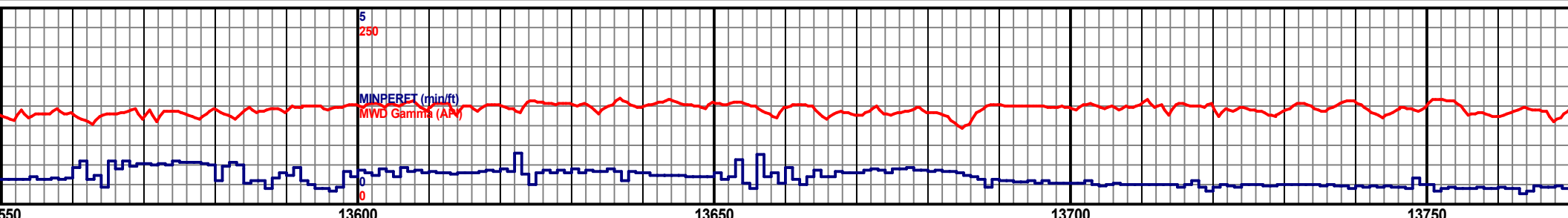
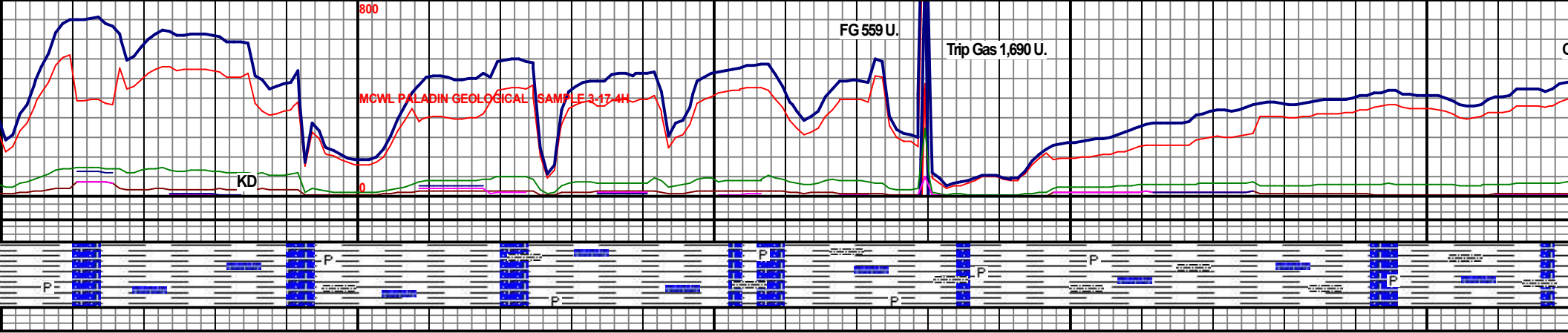
WOB: 50.1K  
 RPM: 80  
 SPM: 204  
 GPM: 593  
 PP: 4855

WT: 9.0+ IN / 9.0  
 OUT  
 VS: 62 IN / 67  
 OUT



13350	13400	13450	13500	13550
MD 13321 T/D 11221.31 INC 2177.37 N -112.55 VS 1.94	13400 (-8788.55) MD 13415 T/D 11223.06 INC 90.19 AZ 178.04 N -2101.67 E -108.79 VS 2101.37 DL 2.75	13450 (-10088) MD 13415 T/D 11223.06 INC 90.19 AZ 178.04 N -2101.67 E -108.79 VS 2101.37 DL 2.75	13500 (-10088) MD 13510 T/D 11224.64 INC 87.9 AZ 178.76 N -2196.61 E 106.13 VS 2196.61 DL 2.53	13550 (-10088) MD 13510 T/D 11224.64 INC 87.9 AZ 178.76 N -2196.61 E 106.13 VS 2196.61 DL 2.53
75%SH: PRED DRK GRY, SME MED GRY, MSTLY BLKY, SME PLTY, MOD FRM, MSTLY CRS TXT, SCAT SILTY TXT, TRAMNTS OF MICRO EMBD PYR SPKS SCAT THRU OUT, 25% SNDY LS: PRED DRTY WHT, OCC LT BRN, MSTLY BLKY, OCC CHNKY, MOD HRD- SLI FRI, MED- FN GRNS.			85%SH: PRED MED- DRK GRY, OCC LT GRY, MSTLY PLTY, SME CHNKY, OCC BLKY, OCC SPLNTRY, MOD FRM, OCC SLI SFT, V SLTYTXT SCAT THRU OUT, 15% SNDY LS: PRED V LT GRY, SME V LT TN, MSTLY BLKY, SME SUBANG- SUBRND, MOD HRD, OCC CRMBLY, V CALC, SCAT ARG INCLS, WELL SORT, FN- MED GRNS, PR INTERGRAN POR, TR PYR.	

<p>WOB: 57.1K          RPM: 80          SPM: 204          GPM: 593          PP: 4760</p>	<p>Sample @ 13,400' Md</p>	<p>MUD CHECK:          DEPTH: 13,400' Md          WT: 9.0          VIS: 59          PV: 17          YP: 13          GEL: 10/15/18          HTHP FILT: 3.6          SOL: 10.5%          OIL: 75.5%          H2O: 14.0%          CL: 45,000          ELEC. STAB.: 1100</p>	<p>WT: 9.1 IN / 9.1          OUT          VS: 67 IN / 64          OUT</p>	<p>Sample @ 13,500' Md</p>
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<p>13188 TVB (-8788 SS)</p> <p>MD 13604 IVD 11228.41          11259 INC 87.5 AZ 179.2          N -2290.52 E -104.46          VS 2290.52 DL 0.63</p> <p>14403 (-16083)</p>	<p>Toh For New BHA @ 13,678'          Md On 12/21/2019.</p> <p>Drilling W/ Bit #7, Size: 8.75", Make: Varel, Model: FY616, SN: 4011160, Jets: 6X14, Type: PDC, Depth In: 13,678' Md, Motor Type: Conventional, Bend Angle: 1.8° / RPG: 0.2</p>	<p>MC 13699 TVD 11231.02          NC 89.35 AZ 179.84          N -2385.48 E -103.57          VS 2335.48 DL 2.06</p>
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90% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY-BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 10% SNDY LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR CALC.

85% SH: PRED MED GRY-DRK GRY, SME V DRK GRY, MSTLY BLKY, SME PLTY, MOD SFT-SLI FRM, SLTY TXT THRU OUT, TR CHLKY, 15% SNDY LS: PRED DRTYWHT - V LT GRY, BLKY, OCC CHNKY, MOD HRD - DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR

80% SH: PRED SPLNTRY, MOD GRY, SME V LT SCAT ARG INC

WOB: 57.1K  
 RPM: 80  
 SPM: 204  
 GPM: 593  
 PP: 4760



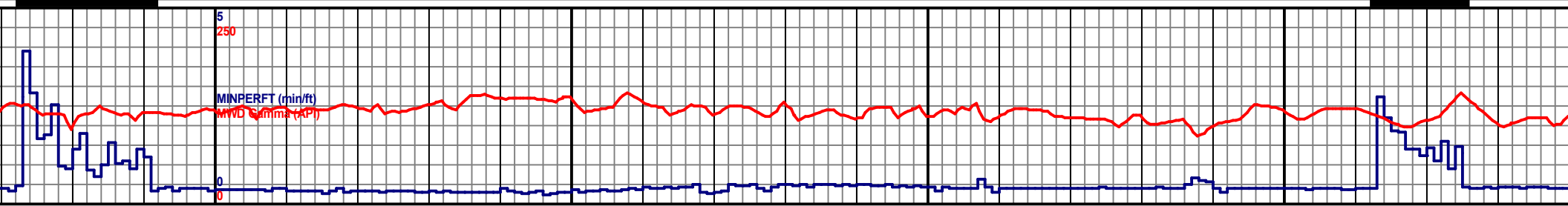
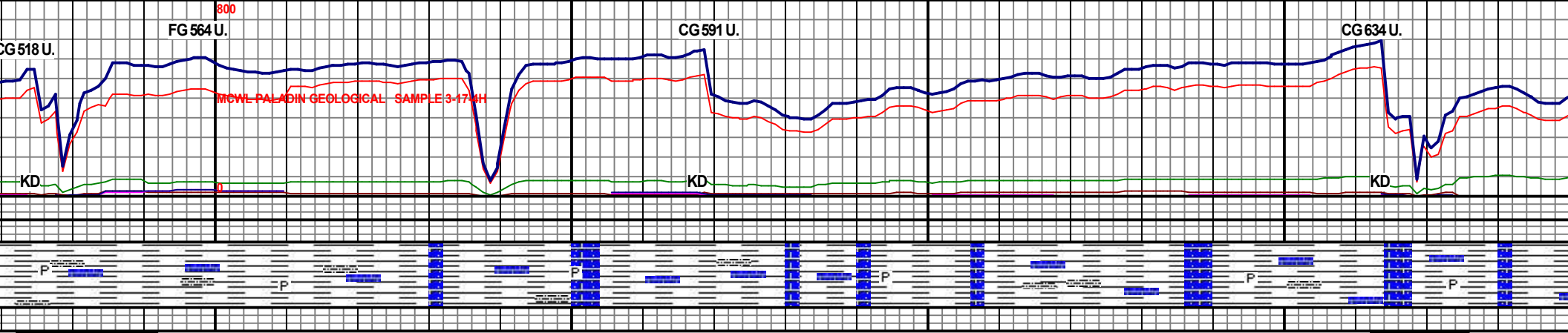
Sample @ 13,600' Md

MUD CHECK:  
 DEPTH: 13,610' Md  
 WT: 9.0  
 VIS: 65  
 PV: 17  
 YP: 15  
 GEL: 11/1621  
 HTHP FILT: 3.8  
 SOL: 10.2%  
 OIL: 76.8%  
 H2O: 13.0%  
 CL: 47,000  
 ELEC. STAB.: 980



Sample @ 13,700' Md

WT: 9.1 IN / 9.1  
 OUT  
 VIS: 67 IN / 64  
 OUT



<p>13800</p> <p>14180 TVD (-9790.55)</p> <p>WD 1379° TVD 11233.69          NG 87.5° AZ 177.58          N 2479.41 E 434.55          VS 2479.41 DL 3.1</p> <p>MED- DRK GRY, OCC LT GRY, MSTLY PLTY, SME CHNKY, OCC BLKY, OCC FRM, OCC SLI SFT, V SLTYTXT SCAT THRU OUT, 20% SNDY LS: PRED VLT TN, MSTLY BLKY, SME SUBANG- SUBRND, MOD HRD, OCC CRMBLY, V CALC, LS, WELL SORT, FN- MED GRNS, PR INTERGRAN POR, TR PYR.</p> <p>14400 (-10089)</p>	<p>13850</p> <p>95% SLTSTN: PRED DRK GRY, SME MED GRY, TR V DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MSTLY SLI CRMBLY, OCC MOD SFT- SLI FRM, OCC V BRIT, V GRAN TXT SCAT THRU OUT, TR CHLKY, V TR AMNTS OF MICRO EMBD PYR FLKS SCAT THRU OUT, 5% SNDY LS: PRED DRTY OFF WHT, OCC V LT CRM, MSTLY BLKY, SME SUBRND, OCC SUBRND -SUBANG, MOD HRD- SLI FRI, OCC CRMBLY, TR SLI DNSE, MOD SORT, V FN- FN GRNS.</p>	<p>13900</p> <p>MD 1388° TVD 11237.52          INC 87.5° AZ 178.14          N 2574.26 E 98.01          VS 2574.26 DL 0.64</p>	<p>13950</p> <p>98% SH/SLTSTN: PRED LT- MED GRY, CHNKY, OCC SPLNTRY, MOD FRM, O GRAN TXT SCAT THRU OUT, TR MICR GRY, BLKY- SUBANG, OCC SUBRND, PR CALC CMNT, V TR AMNTS ASPHC</p>	<p>14280 TVD (-)</p> <p>MD 13902°          INC 87.23°          N 2868.15 E          VS 2868.15</p> <p>Scale Chang          14350 (-1003)</p> <p>14500 (-1018)</p>
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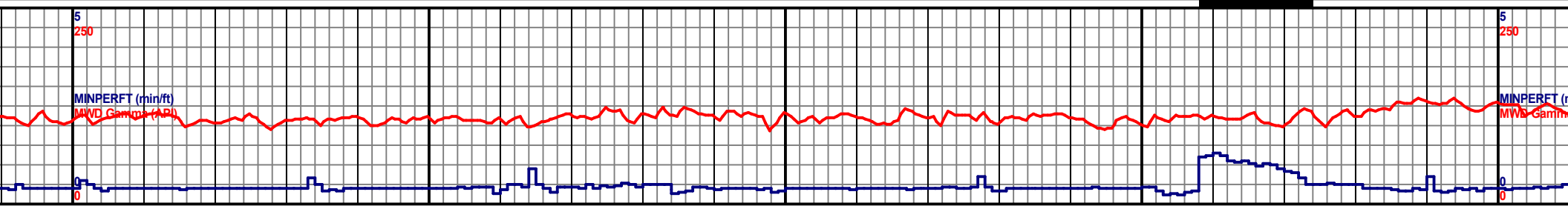
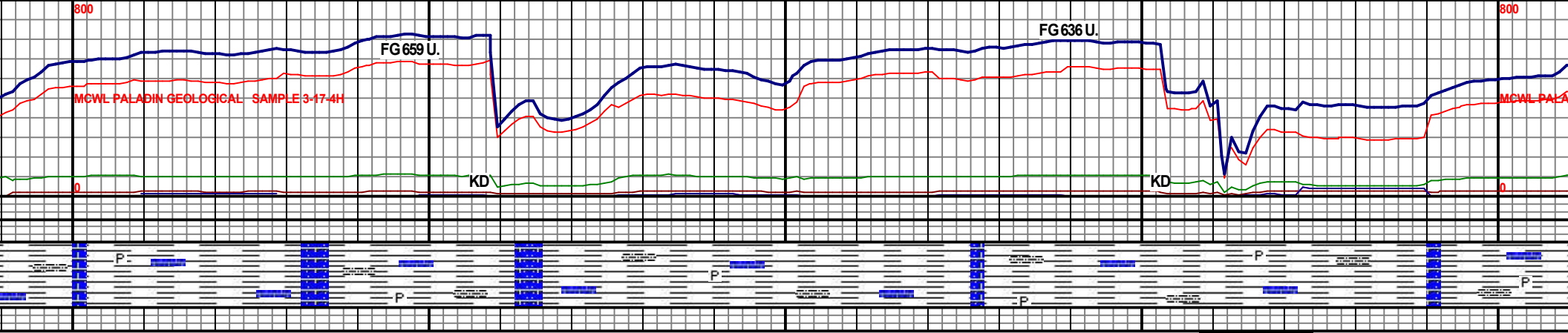
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 RPM: 85  
 SPM: 206  
 GPM: 590  
 PP: 4627



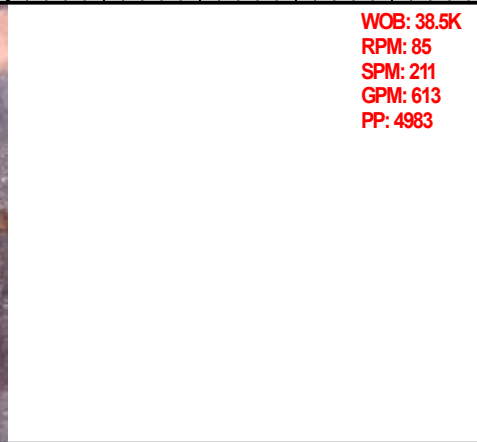
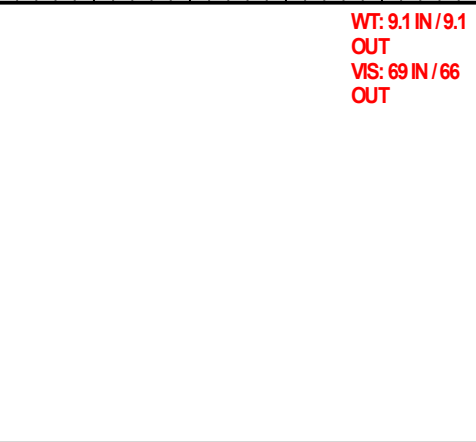
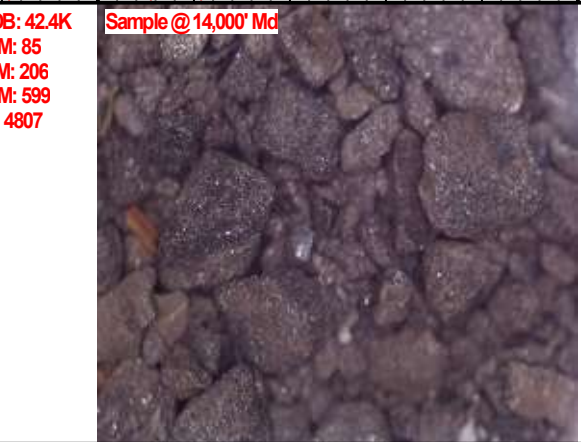
WT: 9.1 IN /  
 9.1+ OUT  
 VS: 74 IN /  
 71 OUT



WOB:  
 RPM:  
 SPM:  
 GPM:  
 PP:

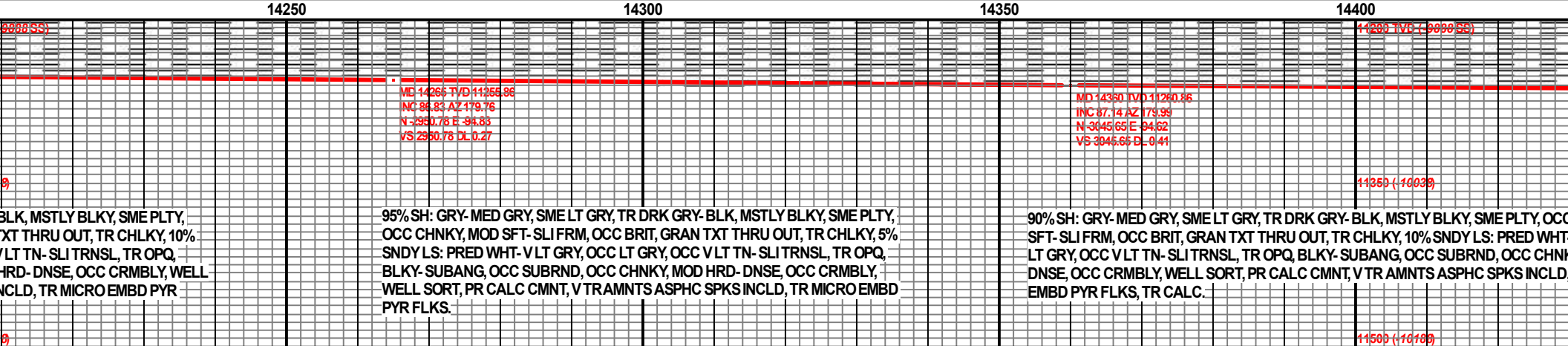
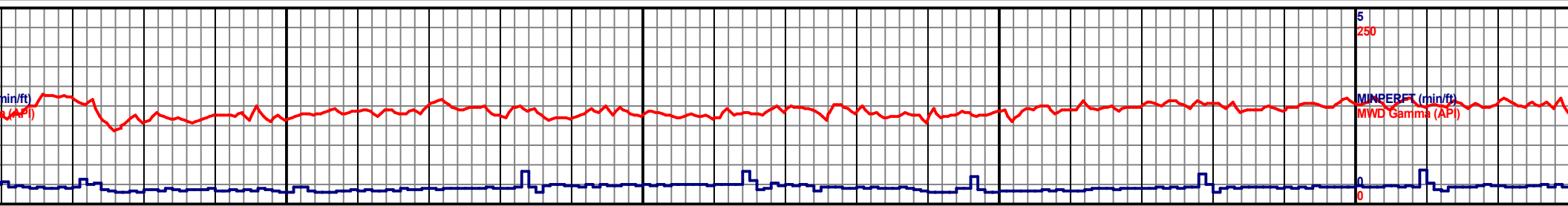
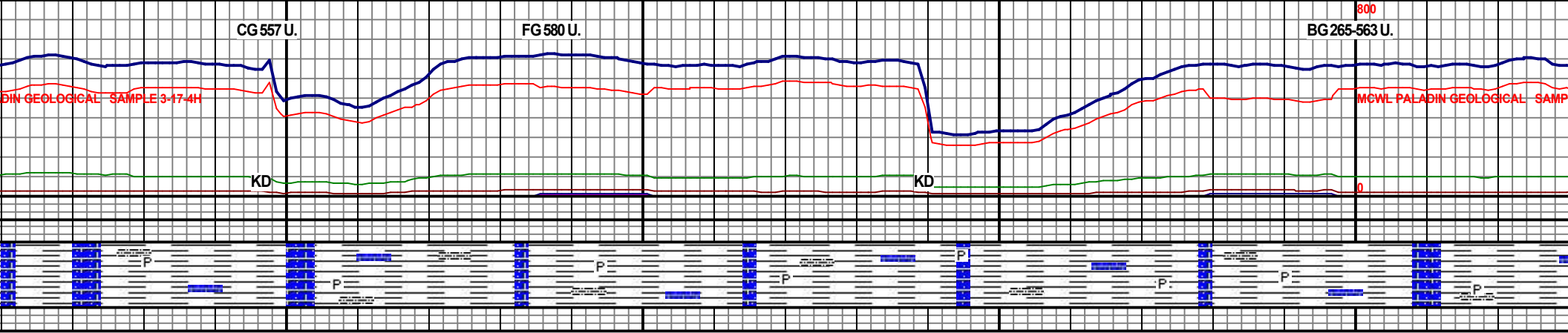


Distance (M)	Well ID	MD (ft)	INC (ft)	N (ft)	VS (ft)	MC (ft)	NC (ft)	N (ft)	VS (ft)	Description
14000	11200 (10000)	11241.64	179.49	2179.04	126					OCC DRK GRY, OCC BRN, MSTLY PLTY, SME BLKY, OCC SLI HRD, OCC CRMBLY, SCAT V BRIT-FRI, TR CHLKY, V RO EMBD PYR FLKS. W/ 2% SNDY LS: PRED DRTY WHT-V LT OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, C SPKS INCLD, TR MICRO EMBD PYR FLKS.
14050	14076	11246.04	179.83	2182.04	126					95% SH: PRED MED - DRK GRY, OCC LT GRY, MSTLY PLTY, SME CHNKY, MOD FRM, OCC SLI SFT, V SLTY TXT SCAT THRU OUT, 5% SNDY LS: PRED V LT GRY, SME V LT TN, MSTLY BLKY, SME SUBANG-SUBRND, MOD HRD, OCC CRMBLY, V CALC, SCAT ARG INCLS, WELL SORT, FN-MED GRNS, PR INTERGRAN POR, TR PYR.
14150	14171	11256.73	189	2856.92	126					90% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY-FR, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, GRAN T, SNDY LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD H SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS IN FLKS, TR CALC.
14200	11200 (10000)									



WT: 9.1 IN / 9.1  
OUT  
VIS: 69 IN / 66  
OUT

WOB: 38.5K  
RPM: 85  
SPM: 211  
GPM: 613  
PP: 4983



MUD CHECK:  
DEPTH: 14,246' Md  
WT: 9.1  
VIS: 68  
PV: 17  
YP: 15  
GEL: 11/16/21  
HTHP FILT: 3.6  
SOL: 10.5%  
OIL: 76.5%  
H2O: 13.0%  
CL: 46,000  
ELEC. STAB.: 1100

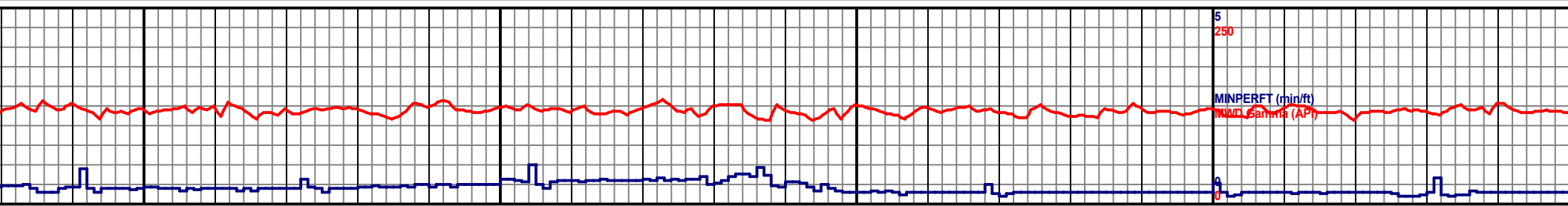
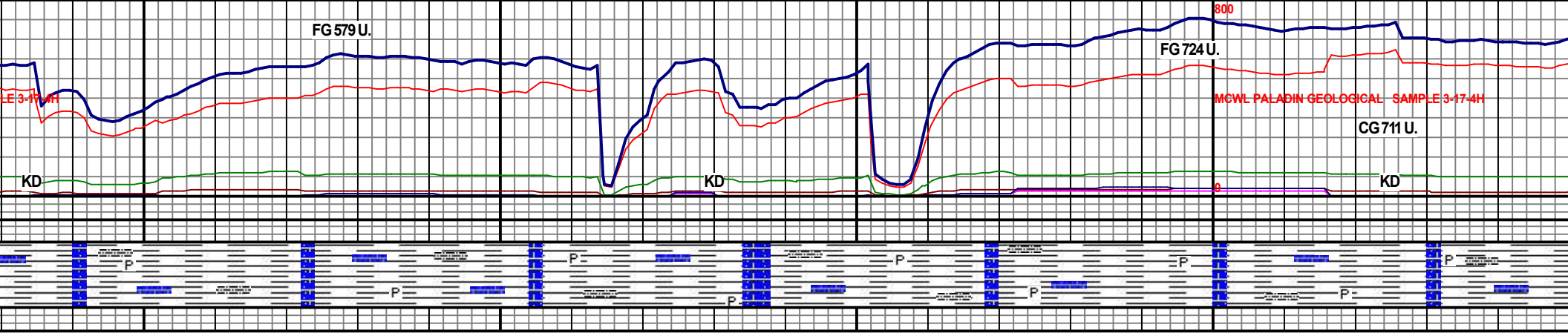
WT: 9.1 IN / 9.1+ OUT  
VS: 68 IN / 65 OUT



WOB: 43.4K  
RPM: 85  
SPM: 211  
GPM: 613  
PP: 4833







<p>14450</p> <p>C CHNKY, MOD V LT GRY, OCC CHNKY, MOD HRD-TR MICRO</p>	<p>14500</p> <p>MD 14454 TVD 11264.09 INC 88.42 AZ 180.73 N 3139.59 E 95.21 VS 3139.59 DL 2.05</p> <p>95% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY-BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 5% SNDY LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR CALC.</p>	<p>14550</p> <p>MD 14549 TVD 11266.44 INC 88.24 AZ 179.13 N 3234.66 E 95.03 VS 3234.56 DL 1.83</p> <p>95% SH: PRED LT-MED GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, TR PYR, 5% SNDYLS: PRED FNT GRY, OCC WHT-SLI TRNSL, TR SLI OPQ, MSTLY BLKY-SUBANG, OCC SUBRND-SLI CHNKY, OCC ANG, MOD HRD-V HRD, OCC SLI FRM, V BRIT, TR CRMBLY, MOD CONS, WELL SORT, SLI DCRS IN FREE QTZ GRNS, MSTLY GRAN TXT, PR INTERGRAN POR.</p>	<p>14600</p> <p>11263 TVD (-8888.66)</p> <p>11353 (-10039)</p> <p>11503 (-10189)</p>	<p>14650</p> <p>MD 14644 TVD 11268.88 INC 88.24 AZ 179.13 N 3328.33 E 95.03 VS 3328.33 DL 1.83</p>
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WT: 9.1 IN / 9.1+ OUT  
VS: 68 IN / 65 OUT

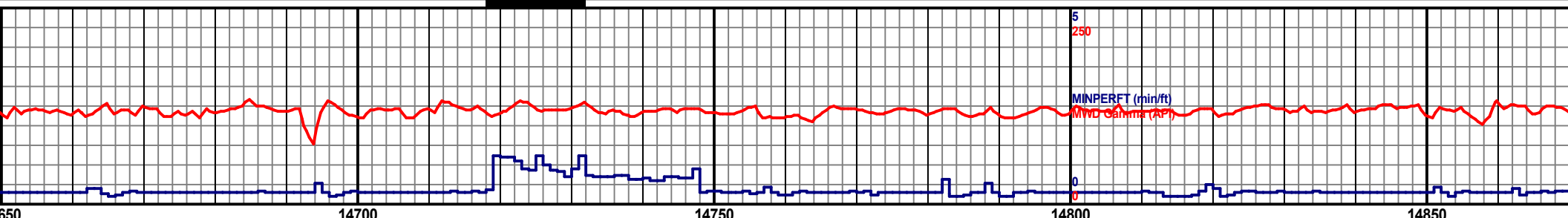
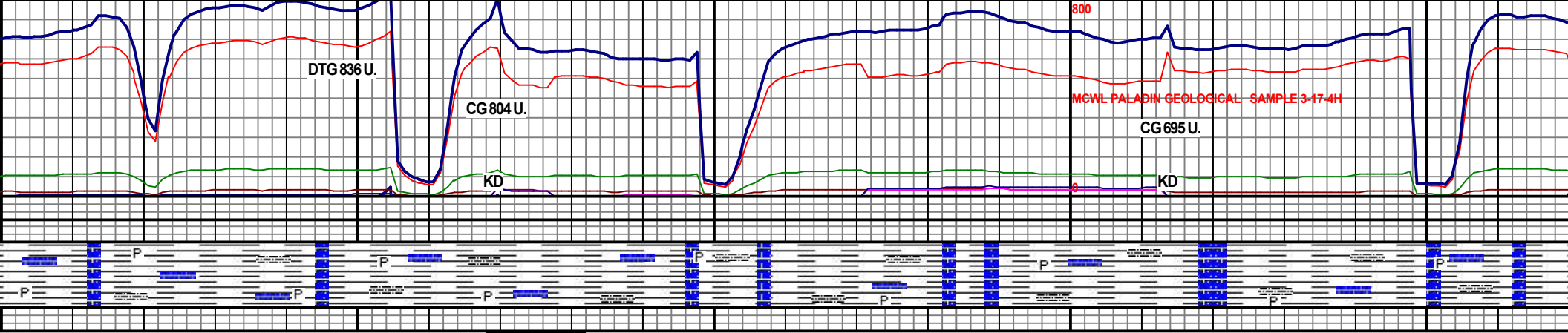


Sample @ 14,500' Md

WOB: 50.7K  
RPM: 66  
SPM: 213  
GPM: 619  
PP: 5178



Sample @ 14,600' Md



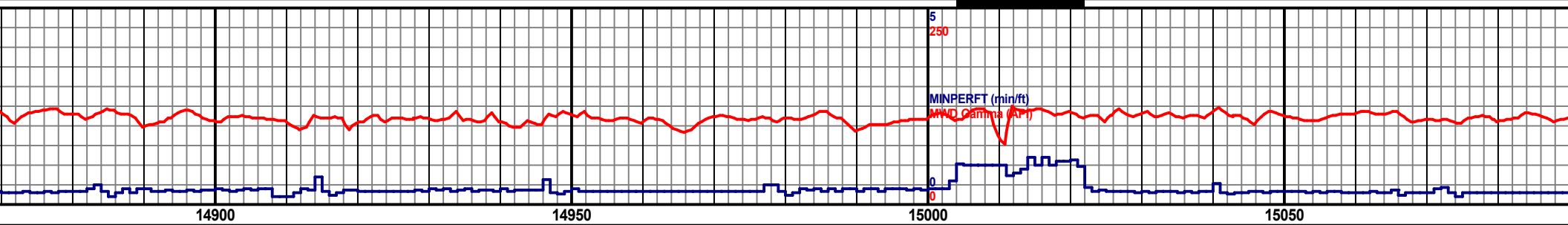
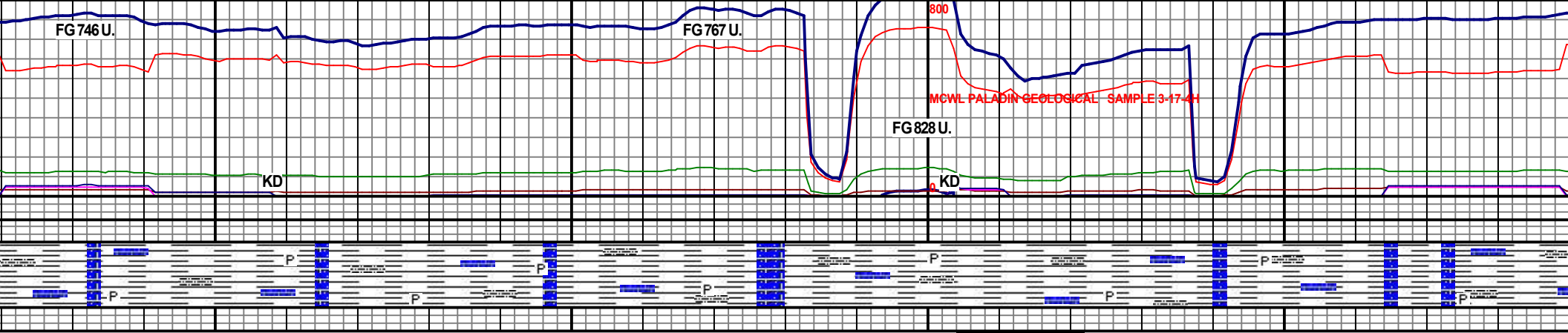
<p>2 TVD 11270.48 AZ 176.33 IE -91.39 DL 3.33</p> <p>95% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 5% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.</p>	<p>ML 1473' TVD 11275.23 INC 67.36 AZ 180.91 N -3422.21 E -88.87 VS 3422.21 DL 4.63</p> <p>95% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 5% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR CALC.</p>	<p>11200 TVB (-8888 SS)</p> <p>11350 (-10039)</p> <p>11500 (-10189)</p> <p>98% SH: PRED MED GRY- ME TR SPLNTRY, STRIAS W LLS OCC V LT TN- OCC CRMBLY</p>	<p>MD 14802 TVD 11279.17 INC 87.87 AZ 183.53 N -3517.06 E 92.3 VS 3517.06 DL 3.11</p>
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WT: 9.1 IN / 9.1+ OUT  
VS: 68 IN / 65 OUT



WOB: 50.5K  
RPM: 65  
SPM: 191  
GPM: 555  
PP: 4552





<p>14900 14950</p> <p>MD 14927 TVD 11281.98          INC 86.74 AZ 183.45          N 3641.84 E 93.03          VS 3611.94 DL 0.92</p> <p>V DRK GRY-V DRK BRN, SME V DRK BRN-BLK, OCC DRK GRY, OCC DRK BRN, TR D BRN, MSTLY BLKY, SME SLI PLTY, OCC FLKY, OCC CHNKY, TR SUBRND-SUBANG, MOD FRM-SLI HRD, OCC CRMBLY, OCC FRI, SLI BRIT, V SCS AMNTS CHLKY, TR LIN E UNCONS QTZ GRNS EMBD, 2% SNDY LS: PRED DRTY WHT-VLT GRY, OCC LT GRY, SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR PYR.</p>	<p>15000 15050</p> <p>MD 15021 TVD 11285.29          INC 87.23 AZ 182.23          N 3705.66 E 102.74          VS 3705.96 DL 2.06</p> <p>95% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY-BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 5% SNDY LS: PRED WHT-VLT GRY, OCC LT GRY, OCC VLT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.</p>	<p>95% SH: MED GRY, SME DRK GR FRM, OCC BRIT, GRAN TXT TH OCC LT GRY, BLKY-SUBANG, C CRMBLY, WELL SORT, PR CALC EMBD PYR SPKS.</p>
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WT: 9.0 IN / 9.0+ OUT  
 VS: 70 IN / 67 OUT

Sample @ 14,900' Md

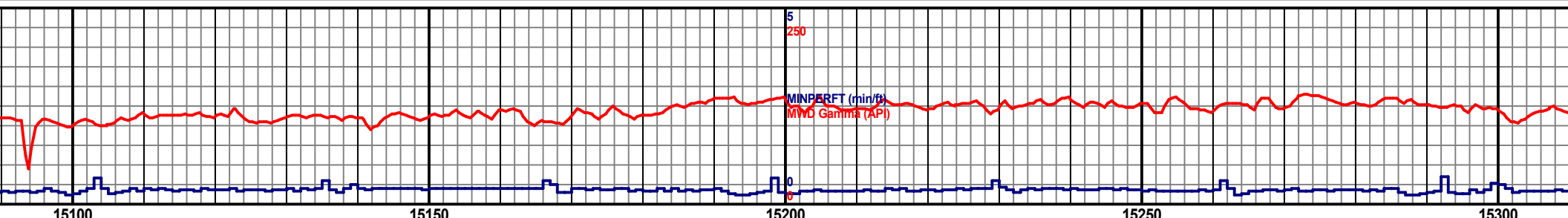
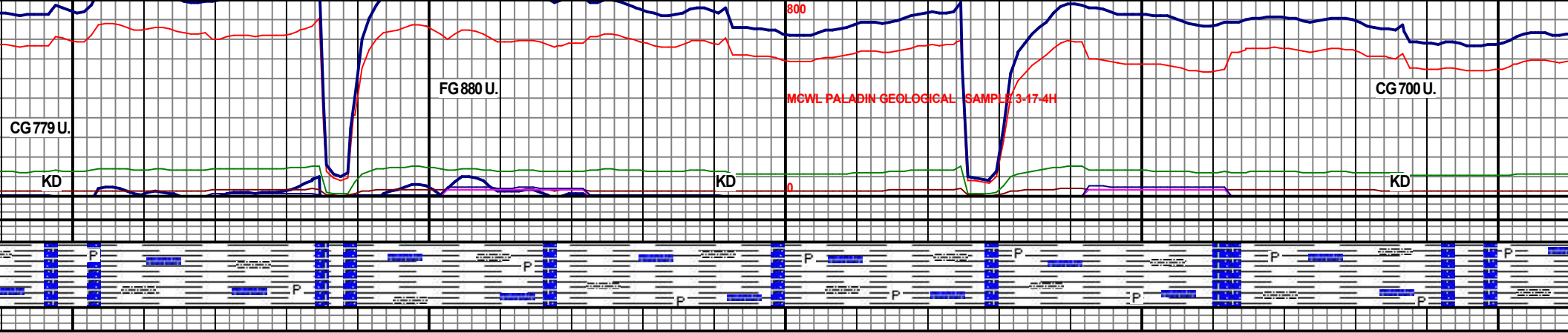


WOB: 50.1K  
 RPM: 65  
 SPM: 191  
 GPM: 555  
 PP: 4450

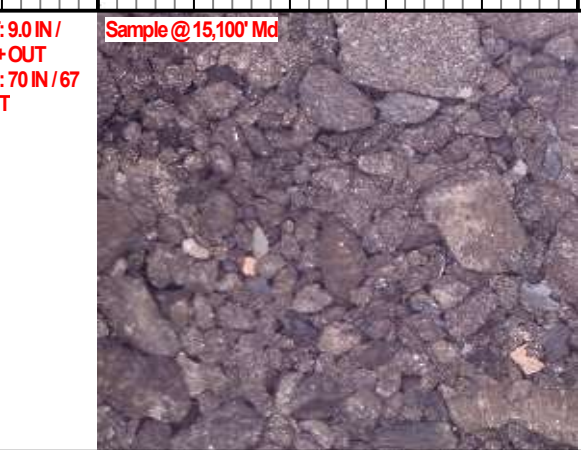
Sample @ 15,000' Md



WT: 9.0+ OUT  
 VS: 70 IN / 67 OUT

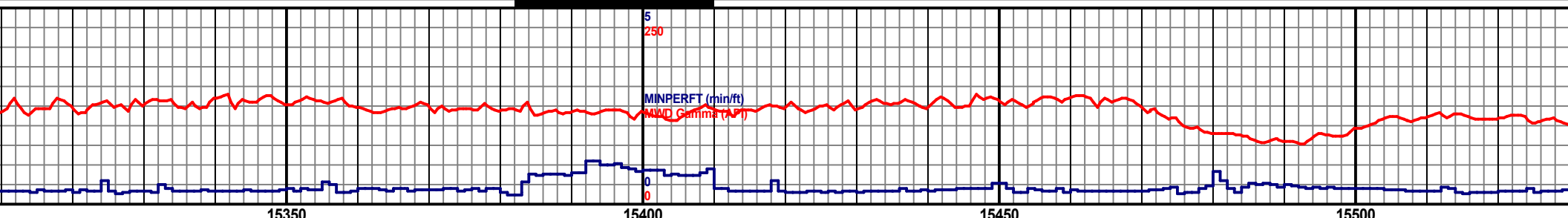
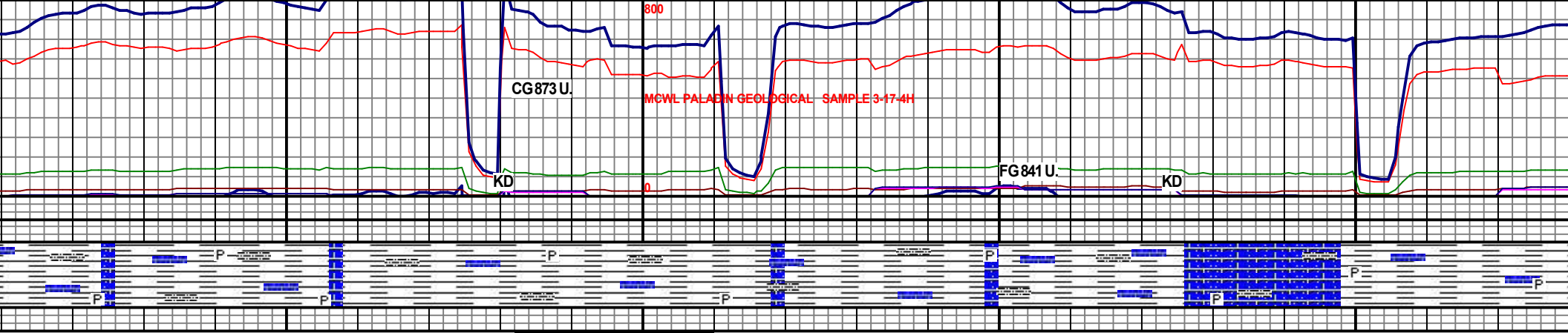


<p>MD 15116 TVD (-8288.56) INC 06.7 AZ 181.82 N 3890.47 E -106.00 VS 3890.47 DL 0.7</p> <p>RY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI RU OUT, TR CHLKY, 5% SNDYLS: PRED WHT-VLT GRY, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC C CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO</p>	<p>MD 15210 TVD (-8288.56) INC 07.26 AZ 181.77 N 3894.29 E -109.03 VS 3894.29 DL 0.6</p> <p>95% SH: PRED MED-DRK GRY, OCC LT GRY, MSTLY PLTY, SME CHNKY, OCC BLKY, OCC SPLNTRY, MOD FRM, OCC SLI SFT, V SLTY TXT SCAT THRU OUT, 5% SNDY LS: PRED VLT GRY, SME VLT TN, MSTLY BLKY, SME SUBANG- SUBRND, MOD HRD, OCC CRMBLY, WELL SORT, FN-MED GRNS, PR INTERGRAN POR, TR PYR.</p>	<p>MD 153 INC: 88.7 N: 3888 VS 388</p> <p>90% SH: PRED MED GRY-DRK GRY, SME V DRK GRY, MSTLY SFT-SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 10 GRY, OCC LT GRY, OCC V LT BRN, TR V DRK BRN, BLKY-SU MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT TR MICRO EMBD PYR FLKS, TR LS.</p>
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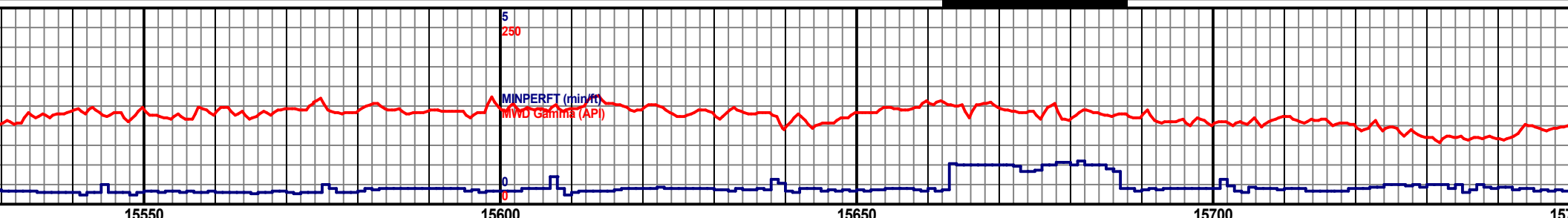
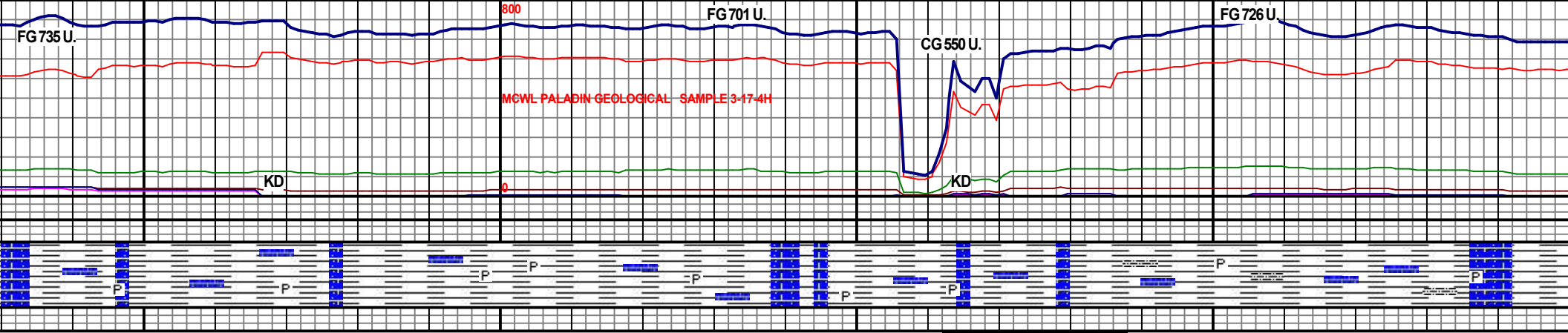
WOB: 49.1K  
RPM: 66  
SPM: 189  
GPM: 549  
PP: 4541



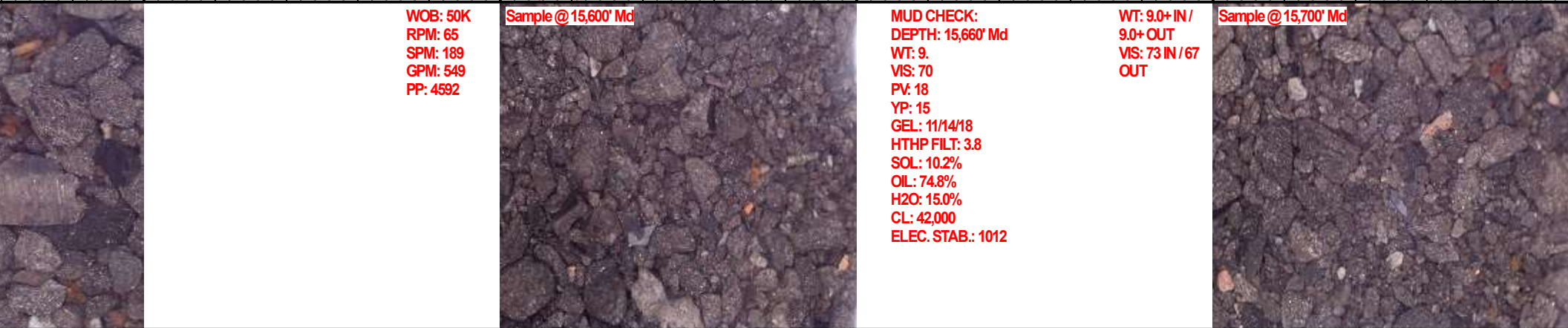


15350	15400	15450	15500
11200 TVB (-8888 SS)	11200 TVB (-8888 SS)	11200 TVB (-8888 SS)	11200 TVB (-8888 SS)
14 TVD 11208.45 16 AZ 182.25 17 E -112.32 21 D -1.78	MC 15399 TVD 11301.97 NC 86.89 AZ 180.35 N -4176.87 E -114.48 VS 4176.87 DL 1.39	MC 15409 TVD 11308.13 NC 86.6 AZ 180.15 N -4176.87 E -114.89 VS 4176.87 DL 1.39	MC 15409 TVD 11308.13 NC 86.6 AZ 180.15 N -4176.87 E -114.89 VS 4176.87 DL 1.39
BLKY, SME PLTY, OCC CHNKY, MOD 10% SNDY LS: PRED DRTY WHT- VLT BANG, OCC SUBRND, OCC CHNKY, NT, V TRAMNTS ASPHC SPKS INCLD,	95% SH: DRK GRY, SME MED GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 5% SNDY LS: PRED WHT- VLT GRY, OCC LT GRY, OCC VLT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC FLKS INCLD, TR MICRO EMBD PYR SPKS.	95% SH: PRED DRK- MED GRY, OCC LT GRY, OCC DRK BRN, MSTLY PLTY, OCC CHNKY, OCC SPLNTRY, MOD FRM, OCC SLI HRD, OCC CRMBLY, SCAT V BRIT- TR CHLKY, V GRAN TXT SCAT THRU OUT, TR MICRO EMBD PYR SPKS, 5% SN LS: PRED VLT GRY, OCC BRT WHT, MSTLY BLKY- SUBANG, MOD HRD- V HRD OCC SLI FRM, V BRIT, TR CRMBLY, MOD CONS, MED SORT, MSTLY GRAN TXT, INTERGRAN POR.	95% SH: PRED DRK- MED GRY, OCC LT GRY, OCC DRK BRN, MSTLY PLTY, OCC CHNKY, OCC SPLNTRY, MOD FRM, OCC SLI HRD, OCC CRMBLY, SCAT V BRIT- TR CHLKY, V GRAN TXT SCAT THRU OUT, TR MICRO EMBD PYR SPKS, 5% SN LS: PRED VLT GRY, OCC BRT WHT, MSTLY BLKY- SUBANG, MOD HRD- V HRD OCC SLI FRM, V BRIT, TR CRMBLY, MOD CONS, MED SORT, MSTLY GRAN TXT, INTERGRAN POR.





15550	15600	15650	15700	15750
	11280 TVD (-9000 SS)			
	MD 15538 TVD 11316.42 INC 84.39 AZ 173.6 N 4273.51 E 111.68 VS 4271.51 DL 14		MD 15682 TVD 11325.58 INC 84.42 AZ 173.93 N 4365.05 E 113.48 VS 4365.08 DL 0.71	
	95% SH: GRY- MED GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MSTLY FRM, OCC BRIT, CRS - RGH TXT. 5% SNDY LS: PRED WHT - LT GRY, BLKY - CHNKY, MOD HRD - DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR CALC.		90% SH: PRED MED GRY- DRK GRY, SME V DRK GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 10% SNDYLS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR LS.	
	11500 (-10180)			



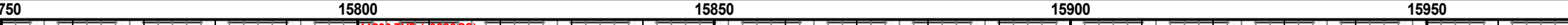
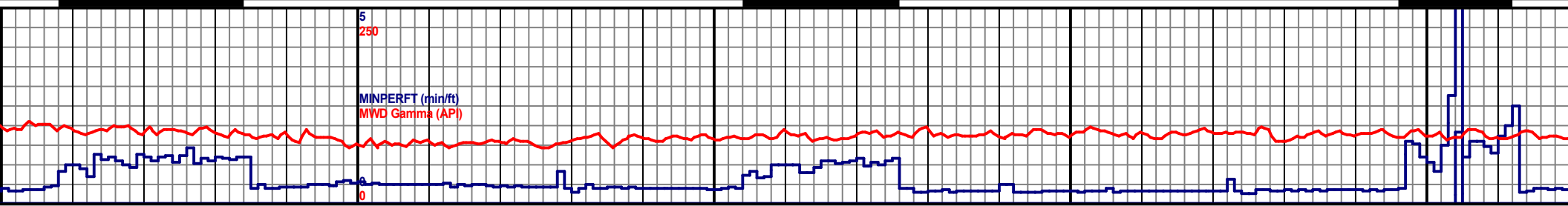
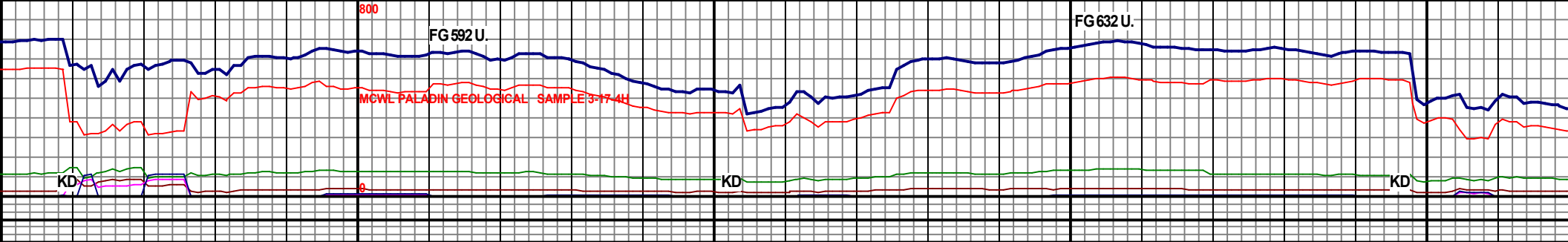
WOB: 50K  
RPM: 65  
SPM: 189  
GPM: 549  
PP: 4592

Sample @ 15,600' Md

MUD CHECK:  
DEPTH: 15,660' Md  
WT: 9  
VIS: 70  
PV: 18  
YP: 15  
GEL: 11/14/18  
HTHP FILT: 3.8  
SOL: 10.2%  
OIL: 74.8%  
H2O: 15.0%  
CL: 42,000  
ELEC. STAB.: 1012

WT: 9.0+ IN /  
9.0+ OUT  
VS: 73 IN / 67  
OUT

Sample @ 15,700' Md



750	15800	15850	15900	15950
<p>11200 TVD (-8888.56)</p> <p>MD 15777 TVD 11333.77 INC 89.69 AZ 178.88 N 4489.68 E -111.67 VS 4459.58 DI 1.34</p> <p>80% SH: PRED MED GRY - GRY, MSTLY BLKY, SME PLTY, MSTLY FRM, OCC BRIT, SLTY TXT THRU OUT, OCC CRS TXT. 20% SNDYLS: WHT - LT GRY, OCC BLKY - CHNKY, MOD HRD - DNSE, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.</p> <p>11350 (-10039)</p> <p>MD 15874 TVD 11338.16 INC 87.75 AZ 179.3 N 4553.51 E -110.18 VS 4533.31 DI 2.24</p> <p>85% SH: GRY - MED GRY, SME LT GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT - SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 15% SNDYLS: PRED LT GRY, OCC GRY, BLKY - SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD - DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.</p> <p>11500 (-10189)</p> <p>85% SLTSTN/SH: P V FRM - SLI HD, SM WHT, OCC V LT CR CRMBLY, TR FREE</p>				

WOB: 50.7K  
RPM: 65  
SPM: 209  
GPM: 549  
PP: 4537

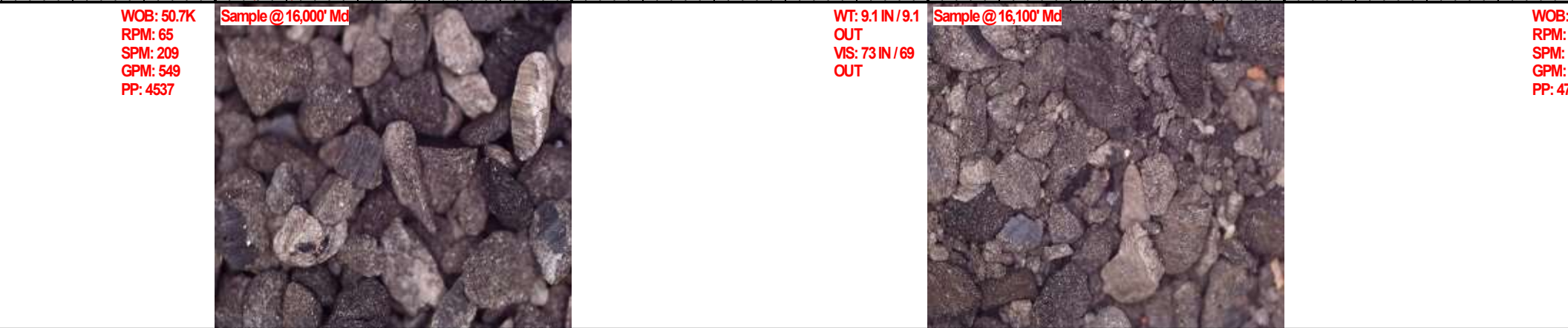
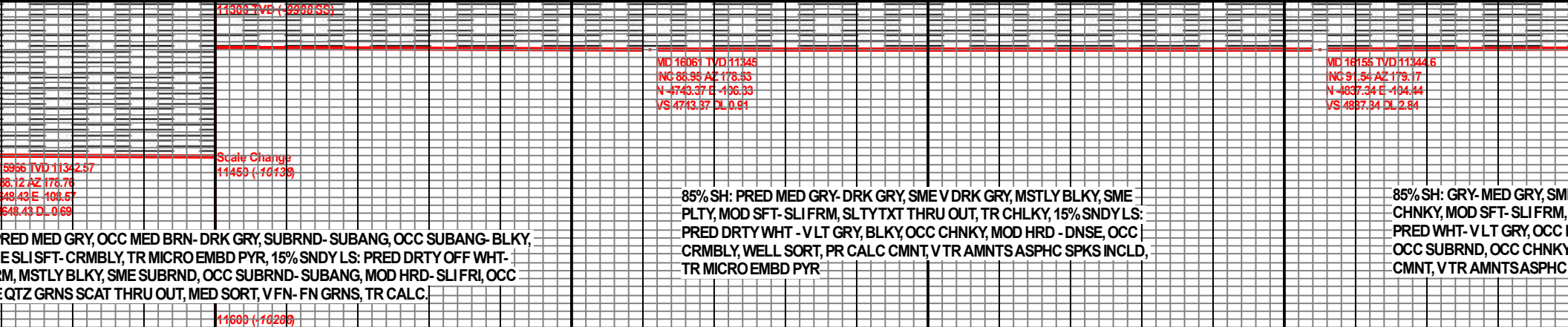
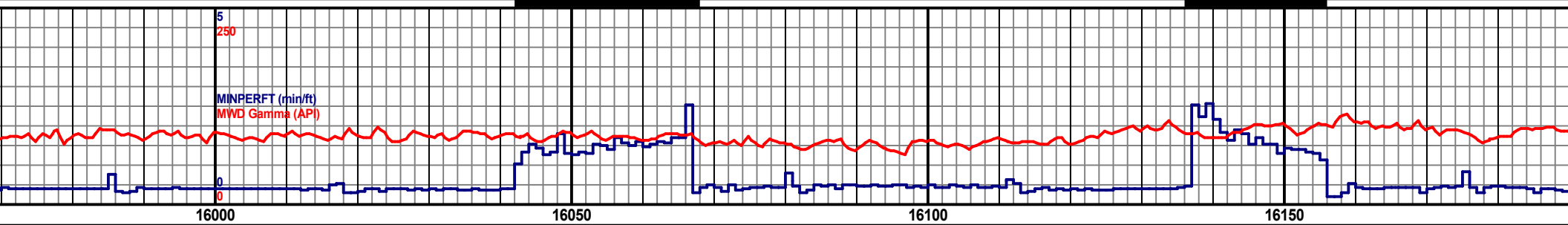
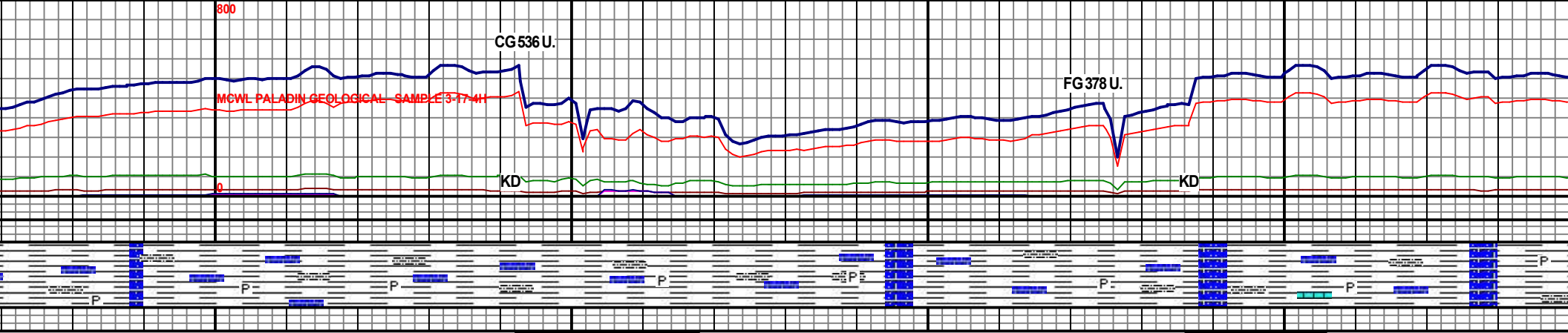
Sample @ 15,800' Md



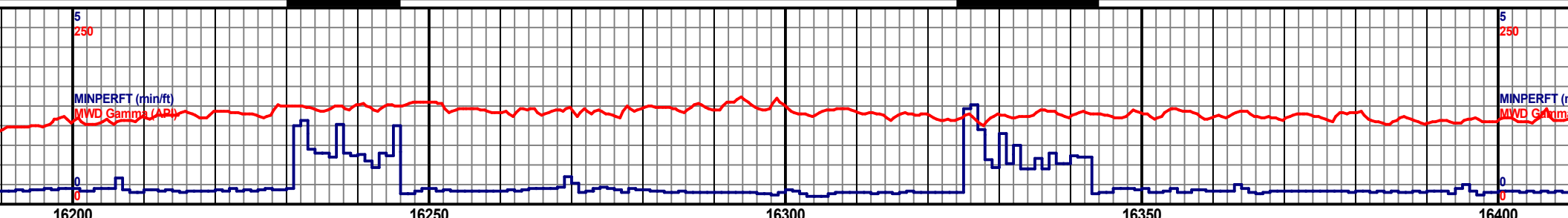
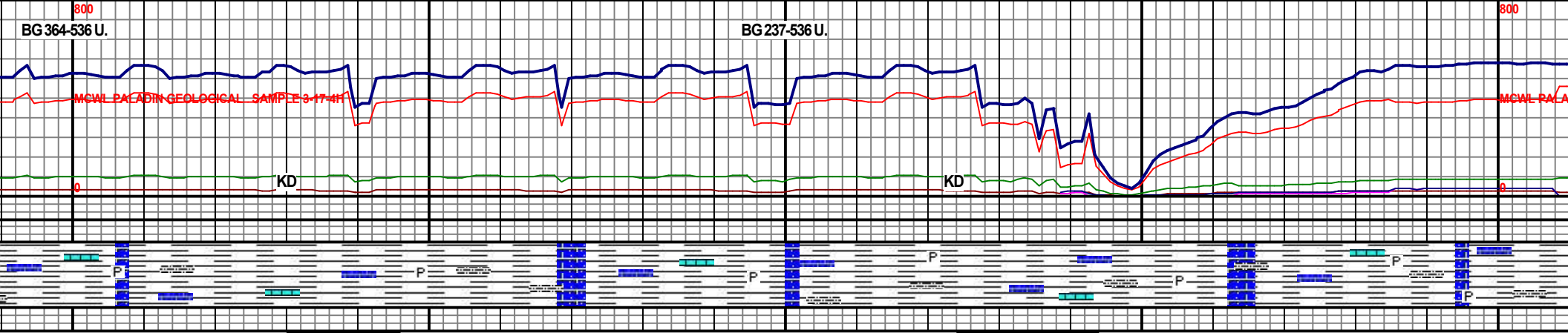
WT: 9.1 IN /  
9.0+ OUT  
VS: 75 IN / 69  
OUT

Sample @ 15,900' Md









11380 TVD (-9999.55)	MD 16250 TVD 11342.48 INC 89.62 AZ 178.76 N 49323.3 E 402.73 VS 4932.3 DCL 0.7	MD 16344 TVD 11342.09 INC 89.65 AZ 179.79 N 50262.29 E 404.54 VS 5026.29 DCL 2	11380 TVD (-9999.55)
11460 (-10139)	75% SH: PRED LT- MED GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, TR PYR, 25% SNDYLS: PRED FNT GRY, OCC WHT- SLI TRNSL, TR SLI OPQ, MSTLY BLKY- SUBANG, OCC SUBRND- SLI CHNKY, OCC ANG, MOD HRD- V HRD, OCC SLI FRM, V BRIT, TR CRMBLY, MOD CONS, WELL SORT, SLI DCRS IN FREE QTZ GRNS, MSTLY GRAN TXT, PR INTERGRAN POR.	85% SH: PRED MED GRY- DRK GRY, SME V DRK GRY, MSTLY V DRK GRY, SFT- SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 15% V DRK GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC ANG, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMN EMBD PYR FLKS, TR LS.	11460 (-10139)
11600 (-10289)			11600 (-10289)

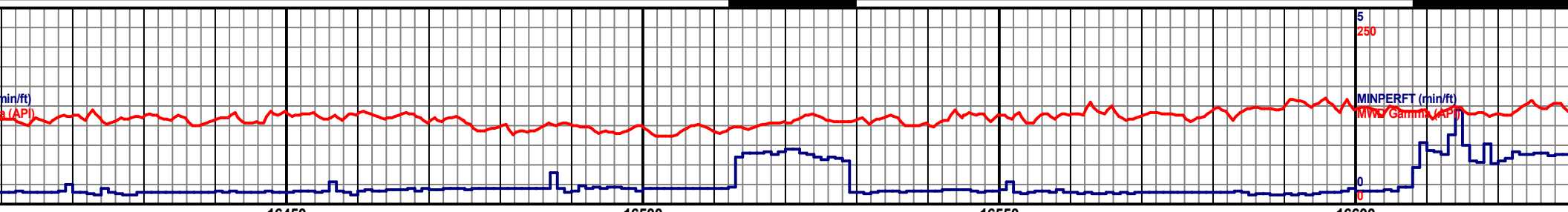
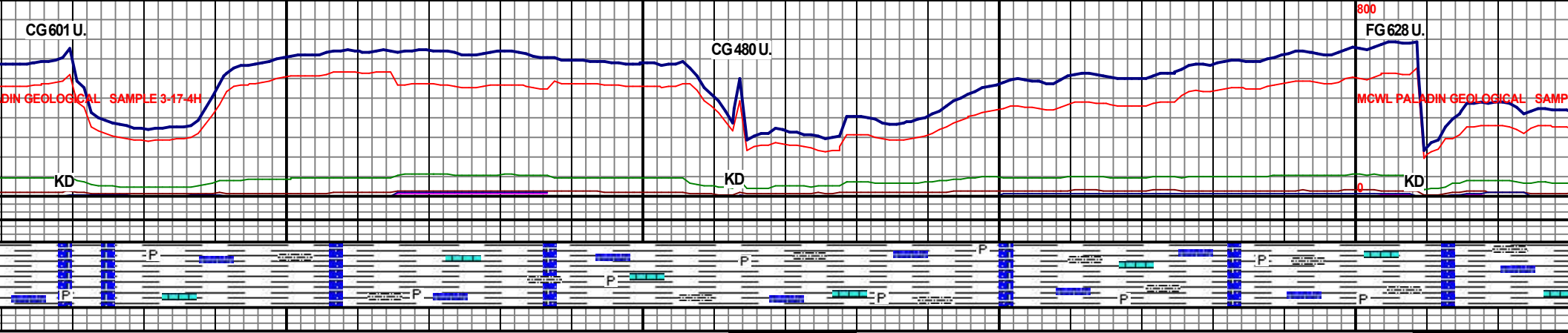


WT: 9.1 IN /  
9.1 OUT  
VS: 67 IN / 65  
OUT



WOB: 49.9K  
RPM: 80  
SPM: 189  
GPM: 549  
PP: 4668

Sample @



16450	16500	16550	16600
MD 16438 TVD 11343.15 INC 89.26 AZ 188.04 N 5120.28 E 101.4 VS 8120.28 DL 0.33		MD 16533 TVD 11347.49 INC 88.5 AZ 178.73 N 6215.16 E -100.38 VS 5215.16 DL 4.19	MD 16600 TVD 11347.49 INC 88.5 AZ 178.73 N 6215.16 E -100.38 VS 5215.16 DL 4.19
BLKY, SME PLTY, OCC CHNKY, MOD % SNDY LS: PRED WHT- V LT GRY, OCC OCC SUBRND, OCC CHNKY, MOD HRD- NTS ASPHC SPKS INCLD, TR MICRO	90% SH: PRED MED GRY- DRK GRY, SME V DRK GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, TR MICRO EMBD PYR FLKS, 10% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD.		80% SH: PRED MED GRY, OCC MED BRN- DRK GRY, SUBRND- SUBANG, OCC S BLKY, V FRM- SLI HD, SME SLI SFT- CRMBLY, TR MICRO EMBD PYR, 15% SNDY DRTY OFF WHT- WHT, OCC V LT CRM, MSTLY BLKY, SME SUBRND, OCC SUBR SUBANG, MOD HRD- SLI FRI, OCC CRMBLY, TR FREE QTZ GRNS SCAT THRU C SORT, V FN- FN GRNS, APPX. 5% LS.

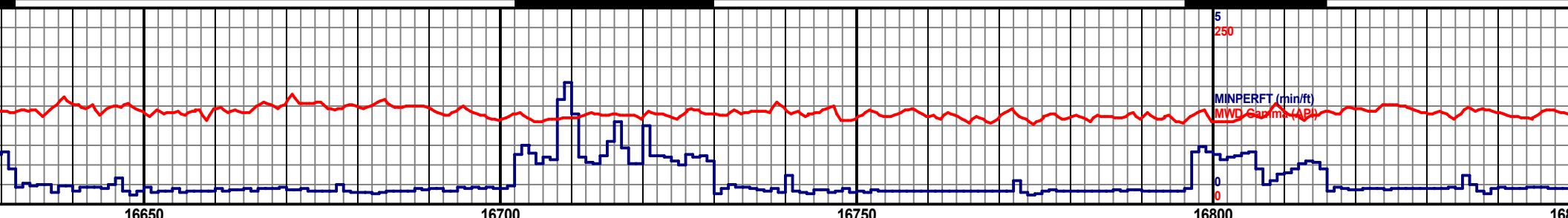
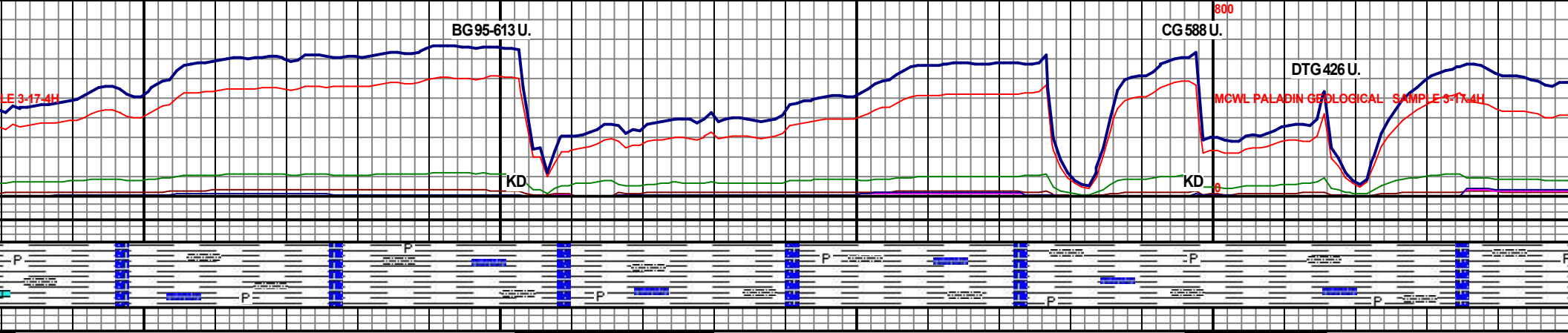


WT: 9.1 IN /  
9.1 OUT  
VS: 67 IN / 65  
OUT

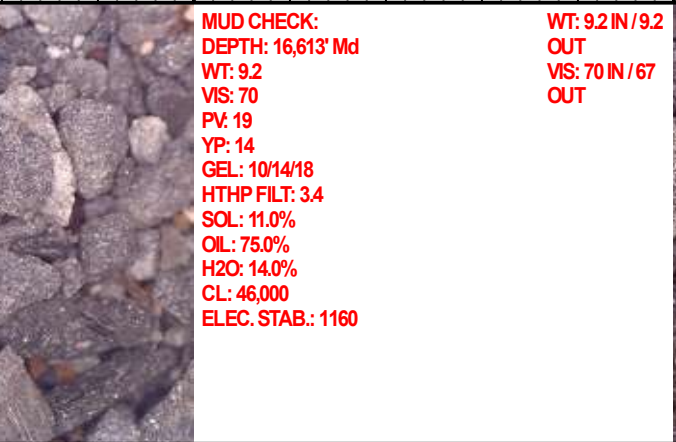


WOB: 48.4K  
RPM: 71  
SPM: 189  
GPM: 549  
PP: 4645





<p>16627 TVD 11354.13          88.4 AZ 179.05          8308.91 E -98.57          5308.91 D- 1.82</p> <p>95% SH: PRED DRK GRY, SME MED GRY, TR V DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MSTLY SLI CRMBLY, OCC MOD SFT- SLI FRM, OCC V BRIT, V GRAN TXT SCAT THRU OUT, TR CHLKY, V TR AMNTS OF MICRO EMBD PYR FLKS SCAT THRU OUT, 5% SNDY LS: PRED DRTY OFF WHT, OCC V LT CRM, MSTLY BLKY, SME SUBRND, OCC SUBRND -SUBANG, MOD HRD- SLI FRI, OCC CRMBLY, TR SLI DNSE, MOD SORT, V FN- FN GRNS.</p>	<p>MD 16722 TVD 11359.52          INC 87.1 AZ 173.01          N 5403.74 E 96.96          VS 5403.74 D- 0.74</p> <p>Sample @ 16,700' Md</p>	<p>16800 TVD (-9988.55)</p> <p>98% SH: PRED LT- MED GRY, OCC DRK GRY, OCC BRN, MSTLY PLTY, SME BLKY, OCC CHNKY, OCC SPLNTRY, MOD FRM, OCC SLI HRD, OCC CRMBLY SCAT V BRIT- FRI, TR CHLKY, V GRAN TXT SCAT THRU OUT, APPX. 2% SNDYLS: PRED DRTY WHT- V LT GRY, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.</p>	<p>MD 16816 TVD 11362.6          INC 89.26 AZ 175.02          N 5497.67 E -95.34          VS 5497.67 D- 2.3</p> <p>Sample @ 16,800' Md</p>
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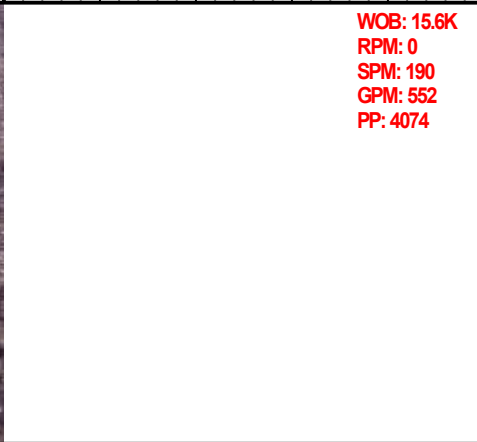


MUD CHECK:  
 DEPTH: 16,613' Md  
 WT: 9.2  
 VIS: 70  
 PV: 19  
 YP: 14  
 GEL: 10/14/18  
 HTHP FILT: 3.4  
 SOL: 11.0%  
 OIL: 75.0%  
 H2O: 14.0%  
 CL: 46,000  
 ELEC. STAB.: 1160

WT: 9.2 IN / 9.2  
 OUT  
 VIS: 70 IN / 67  
 OUT

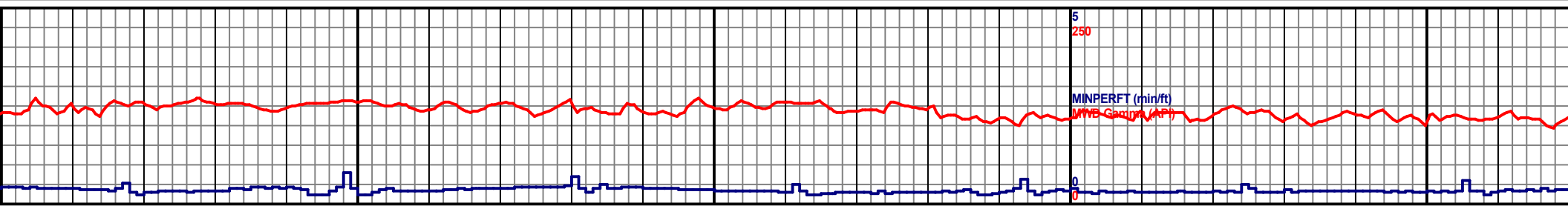
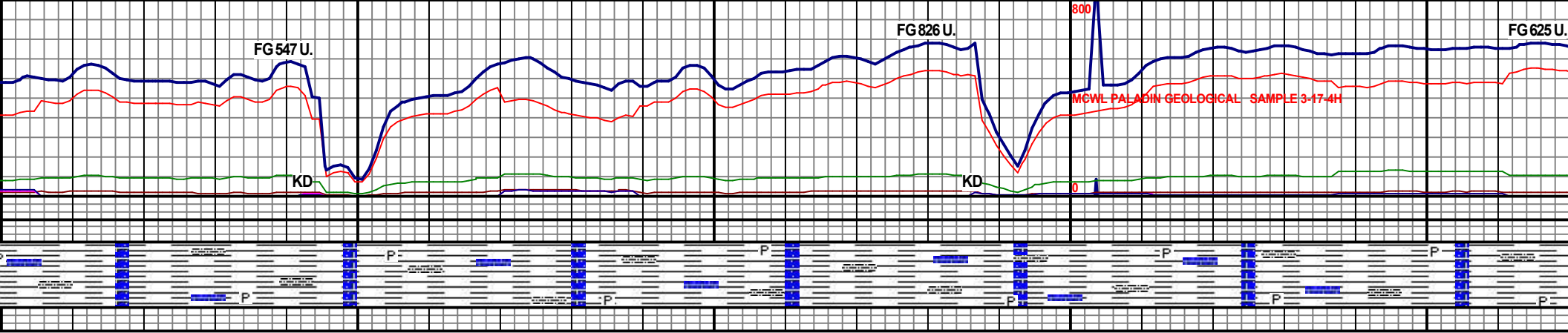


Sample @ 16,700' Md



WOB: 15.6K  
 RPM: 0  
 SPM: 190  
 GPM: 552  
 PP: 4074

Sample @ 16,800' Md



16900	16950	17000	17050
ME 16911 T/D 11363.63 NC 89.38 AZ 178.02 N 5592.63 E 92.87 VS 5592.63 DL 1.05		ME 17005 T/D 11364.21 NC 89.91 AZ 178.28 N 5595.98 E 89.84 VS 5596.98 DL 0.63	
95% SH: PRED MED GRY-DRK GRY, SME V DRK GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 5% SNDY LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR LS.		98% SH: GRY - MED GRY, SME LT GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 2% SNDY LS: PRED LT GRY, OCC GRY, BLKY - SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.	95% SH: CHNKY LS: PR SUBAN PR CAL LS.

WT: 9.2 IN / 9.2  
OUT  
VS: 70 IN / 67  
OUT

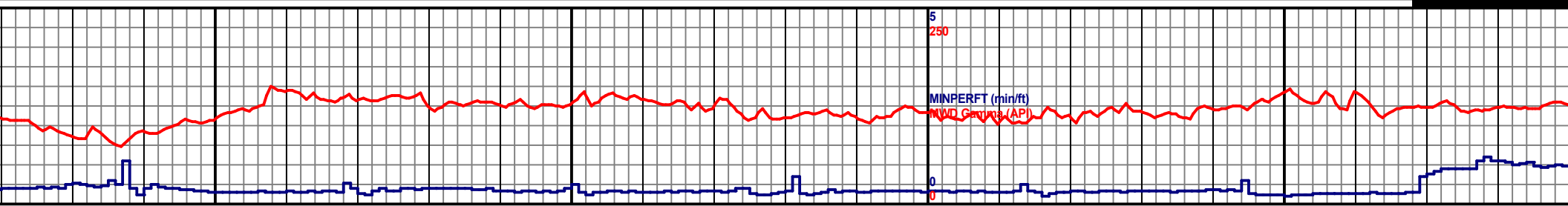
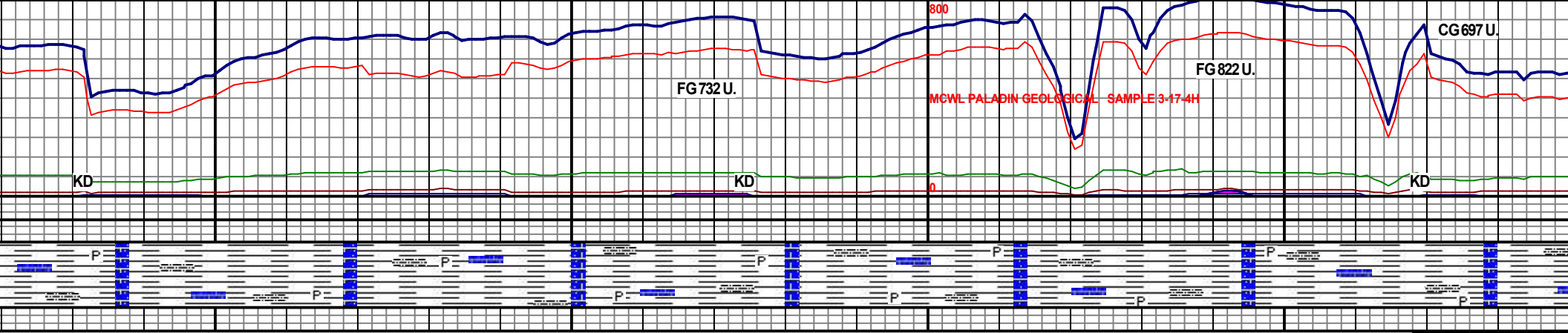
Sample @ 16,900' Md



WOB: 50.3K  
RPM: 61  
SPM: 189  
GPM: 549  
PP: 4791

Sample @ 17,000' Md





17100 17150 17200 17250

ME 17099 TVD 11364.24  
 NC 90.06 AZ 117.52  
 N 5780.52 E 85.4  
 VS 5780.52 DL 0.82

ME 17193 TVD 11364.06  
 NC 90.14 AZ 117.37  
 N 5874.43 E 82.21  
 VS 5874.43 DL 0.19

81% SH: PRED MED GRY- DRK GRY, SME V DRK GRY, MSTLY BLKY, SME PLTY, OCC  
 Y, MOD SFT- SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 5% SNDY  
 ED DRTY WHT- VLT GRY, OCC LT GRY, OCC VLT BRN, TR V DRK BRN, BLKY-  
 IG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT,  
 LC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR

90% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY,  
 OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 10%  
 SNDY LS: PRED WHT- VLT GRY, OCC LT GRY, OCC VLT TN- SLI TRNSL, TR OPQ,  
 BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY,  
 WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD  
 PYR FLKS, TR CALC.

98% SH: GRY- MED GRY, SME L  
 OCC CHNKY, MOD SFT- SLI FRM  
 SNDY LS: PRED WHT- V LT GRY  
 BLKY- SUBANG, OCC SUBRND  
 WELL SORT, PR CALC CMNT, V  
 PYR FLKS.

WT: 9.2 IN /  
 9.2 OUT  
 VS: 70 IN / 67  
 OUT

Sample @ 17,100' Md

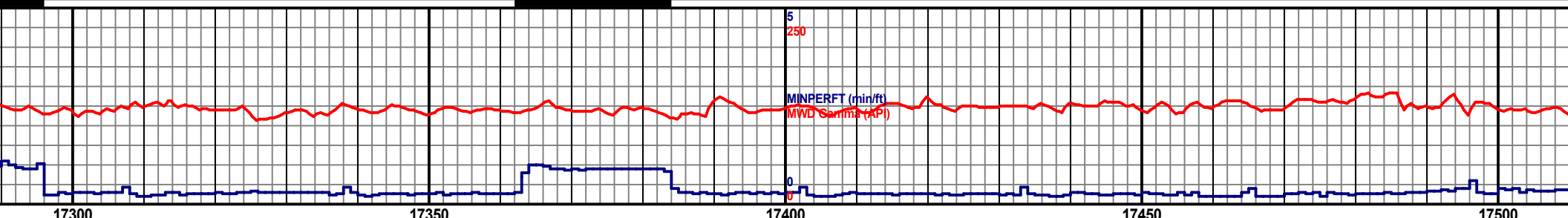
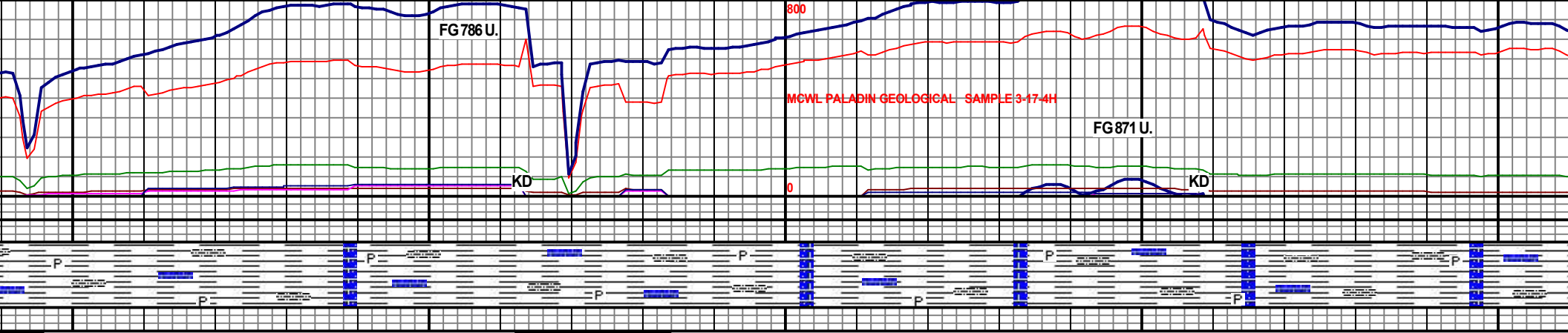


WOB: 53.2K  
 RPM: 80  
 SPM: 189  
 GPM: 549  
 PP: 4813

Sample @ 17,200' Md



WT:  
 OU:  
 VS:  
 OU:

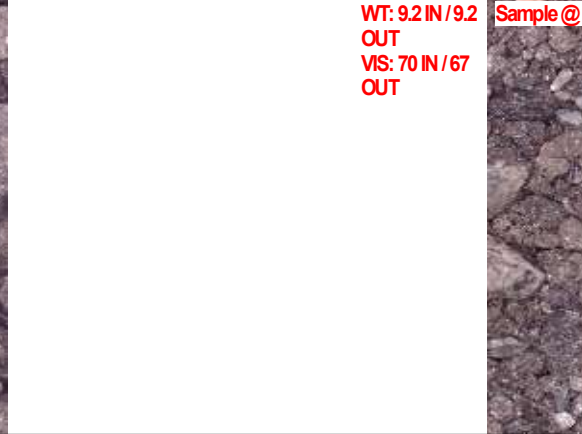
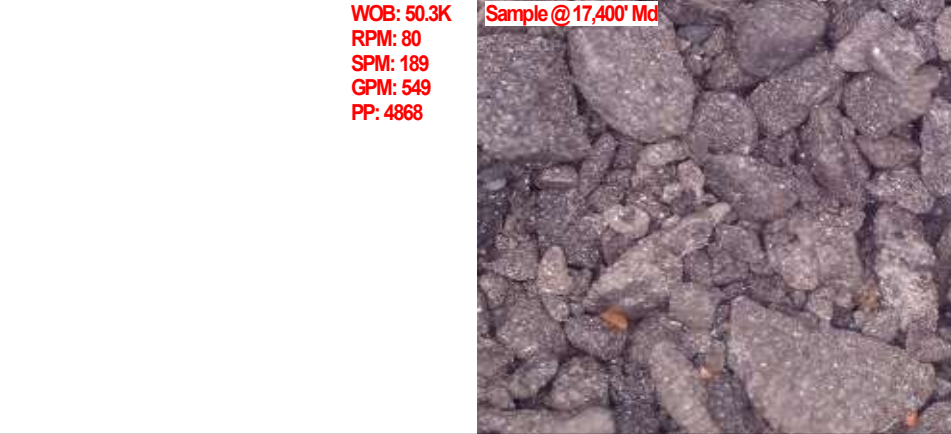
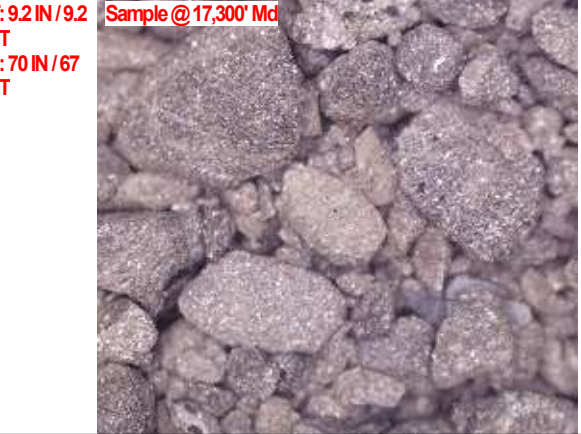


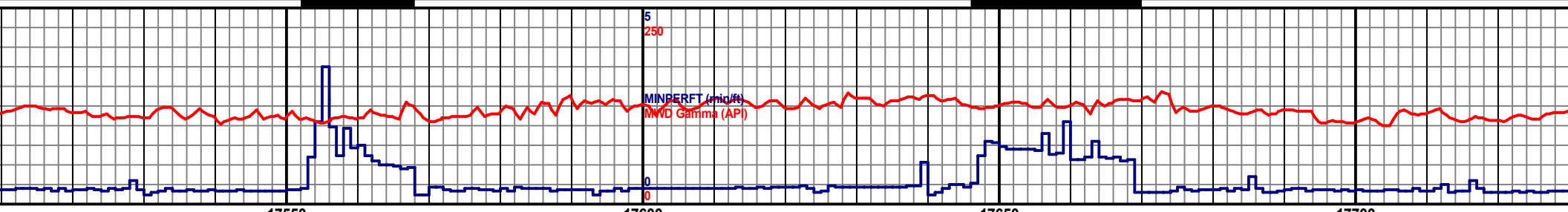
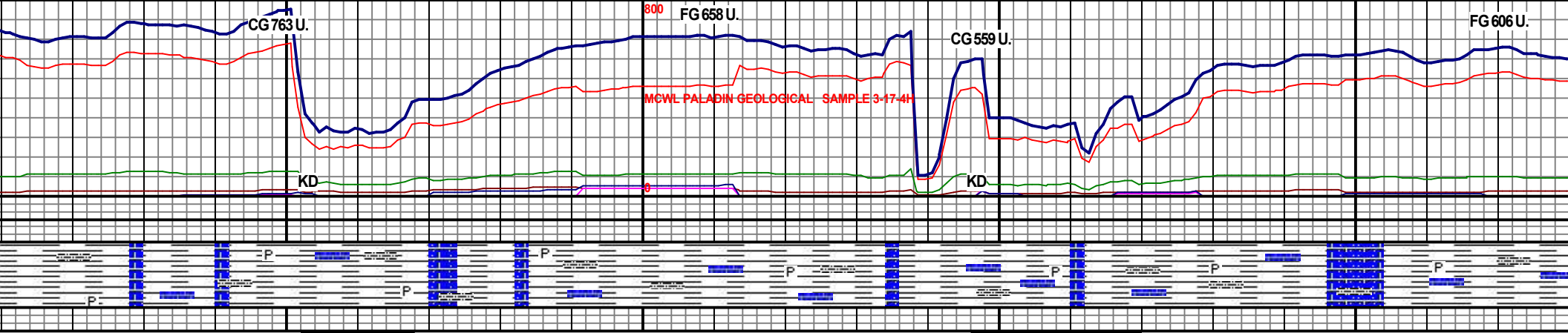
<p>17287 TVD 1164.42          INC 86.42 AZ 178.19          N 6968.37 E -79.22          VS 6968.37 DL 1.89</p>	<p>17382 TVD 11367.53          INC 86.85 AZ 176.84          N 6663.3 E -77.42          VS 6663.3 DL 2.73</p>	<p>17477 TVD 11373.27          INC 86.24 AZ 179.43          N 6168.4 E 75.49          VS 6158.1 DL 0.62</p>
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T GRY, TR DRK GRY-BLK, MSTLY BLKY, SME PLTY, M, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 2% Y, OCC LT GRY, OCC V LT TN-SLI TRNSL, TR OPQ, O, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, / TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD

97% SH: PRED MED-DRK GRY, OCC LT GRY, MSTLY PLTY, SME CHNKY, OCC BLKY, OCC SPLNTRY, MOD FRM, OCC SLI SFT, V SLTYXT SCAT THRU OUT, 3% SNDY LS: PRED V LT GRY, SME V LT TN, MSTLY BLKY, SME SUBANG-SUBRND, MOD HRD, OCC CRMBLY, V CALC, SCAT ARG INCLS, WELL SORT, FN-MED GRNS, PR INTERGRAN POR, TR PYR.

90% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY-BL CHNKY, MOD SFT-SLI FRM, OCC BRIT, GRAN TXT THR LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V LT TN-S SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR CALC.





<p>17550</p> <p>MC 17571 TVD (-8928.56)          NC 86.37 AZ 178.88          N 6251.89 E 73.62          VS 6251.89 D 0.15</p>	<p>17600</p> <p>14463 (-10138)</p>	<p>17650</p> <p>MD 17656 TVD (-8931.19)          INC 90.82 AZ 180.4          N 6346.83 E 73.02          VS 6346.83 D 4.65</p>	<p>17700</p>
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K, MSTLY BLKY, SME PLTY, OCC  
 U OUT, TR CHLKY, 10% SNDY  
 LI TRNSL, TR OPQ, BLKY-  
 SE, OCC CRMBLY, WELL SORT,  
 MICRO EMBD PYR FLKS, TR

98% SH/SLTSTN: PRED LT- MED GRY, BLKY, OCC CHNKY, OCC SPLNTRY, MOD FRM,  
 CRS TXT, SILTY TXT SCAT THRUOUT. TR MICRO EMBD PYR FLKS. W/ 2% SNDY LS:  
 PRED DRTY WHT- V LT GRY, BLKY, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY,  
 WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD  
 PYR FLKS.

95% SLTSTN: PRED DRK GRY, SME MED GRY, TR V DRK GRY- BLK, MSTLY  
 MSTLY SLI CRMBLY, OCC MOD SFT- SLI FRM, OCC V BRIT, V GRAN TXT S  
 AMNTS OF MICRO EMBD PYR FLKS SCAT THRU OUT, 5% SNDY LS: PRE  
 CRM, MSTLY BLKY, SME SUBRND, OCC SUBRND -SUBANG, MOD HRD-  
 DNSE, MOD SORT, V FN- FN GRNS.



**17,500' Md**

**MUD CHECK:**  
 DEPTH: 17,585'  
 WT: 9.15  
 VIS: 64  
 PV: 18  
 YP: 13  
 GEL: 9/13/16  
 HTH: 4  
 SOL: 10.7%  
 OIL: 73.6%  
 H2O: 13.0%  
 CL: 42,000  
 ES: 1014

**WOB: 52.1 K**  
**RPM: 70**  
**SPM: 189**  
**GPM: 549**  
**PP: 4655**

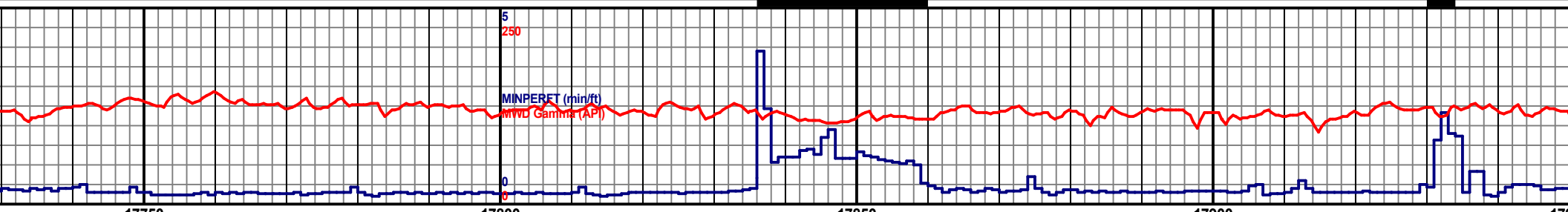
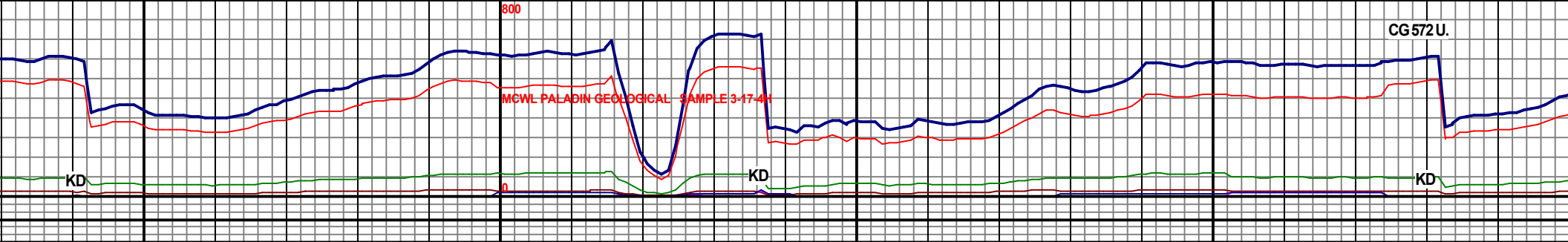


**Sample @ 17,600' Md**

**WT: 9.1 IN /**  
**9.1+ OUT**  
**VIS: 65 IN / 59**  
**OUT**



**Sample @ 17,700' Md**



17750

17800

17850

17900

17950

MD 17780 TVD 11380.64  
 INC 91.02 AZ 187.49  
 N 6440.81 E 74.57  
 VS 6440.81 DL 1.28

MD 17855 TVD 11379.82  
 INC 88.97 AZ 101.72  
 N 6535.76 E 77.24  
 VS 6535.76 DL 1.13

90% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 10% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, TR CALC.

97% SH: PRED MED- DRK GRY, OCC LT GRY, MSTLY PLTY, SME CHNKY, OCC BLKY, OCC SPLNTRY, MOD FRM, OCC SLI SFT, V SLTY TXT SCAT THRU OUT, 3% SNDY LS: PRED V LT GRY, SME V LT TN, MSTLY BLKY, SME SUBANG- SUBRND, MOD HRD, OCC CRMBLY, V CALC, SCAT ARG INCLS, WELL SORT, FN- MED GRNS, PR INTERGRAN POR, TR PYR.

WOB: 48.4 K  
 RPM: 85  
 SPM: 189  
 GPM: 549  
 PP: 4712

Sample @ 17,800' Md

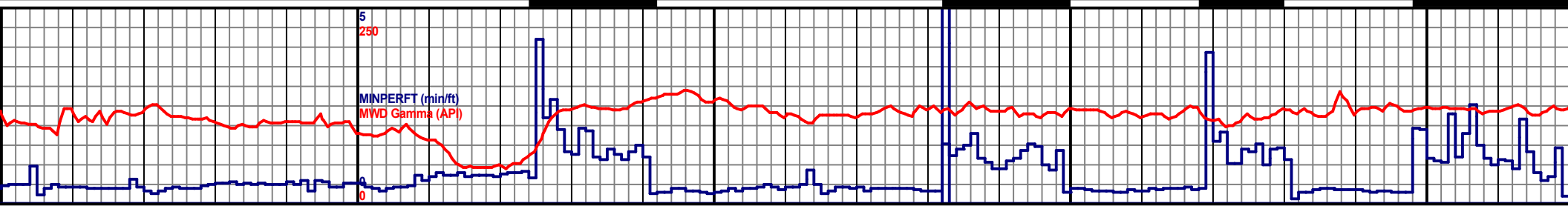
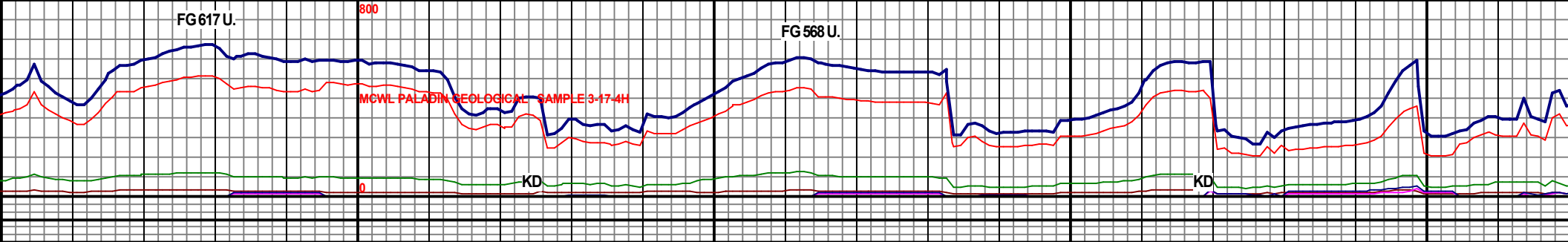


WT: 9.1 IN /  
 9.1+ OUT  
 VS: 65 IN / 59  
 OUT

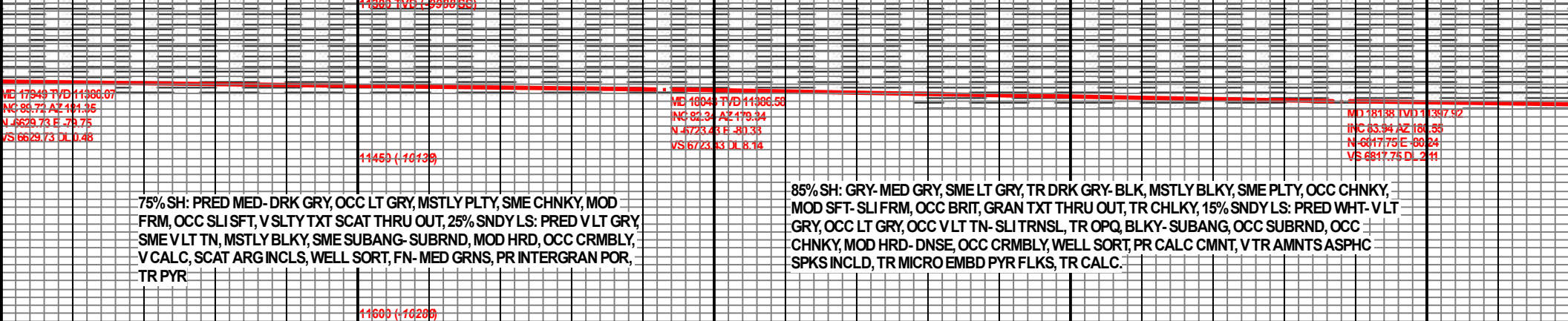
Sample @ 17,900' Md







18000      18050      18100      18150

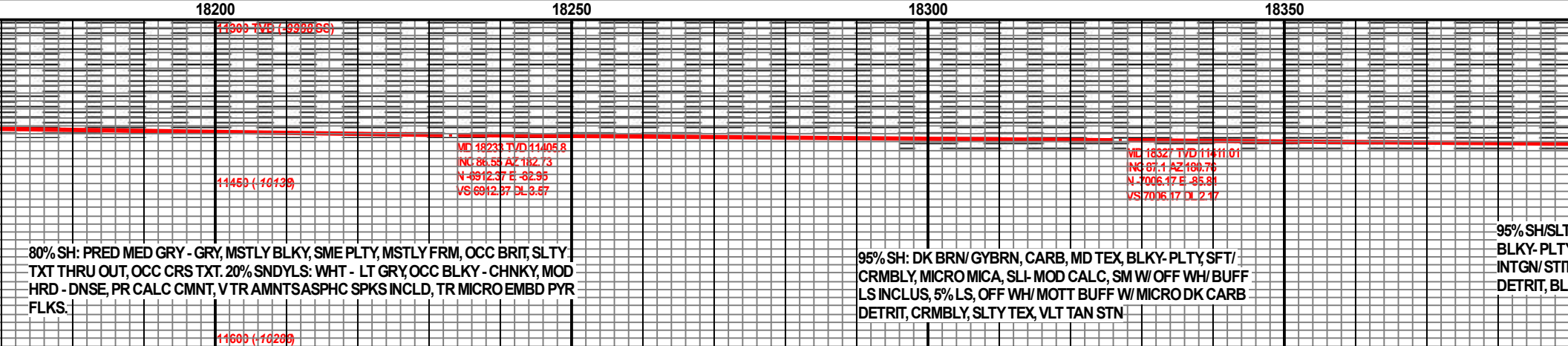
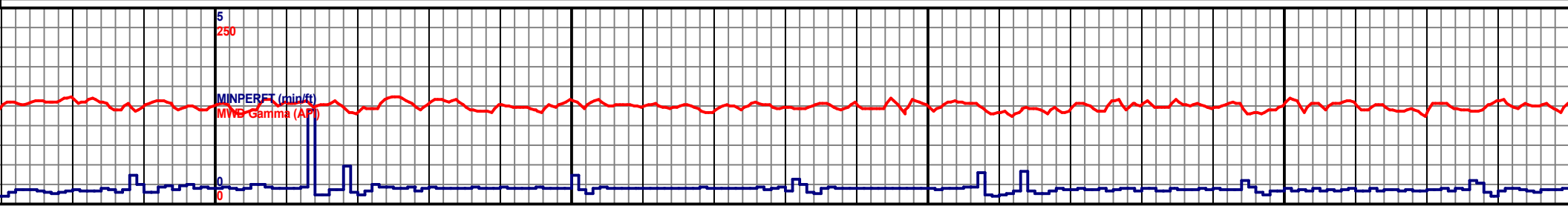
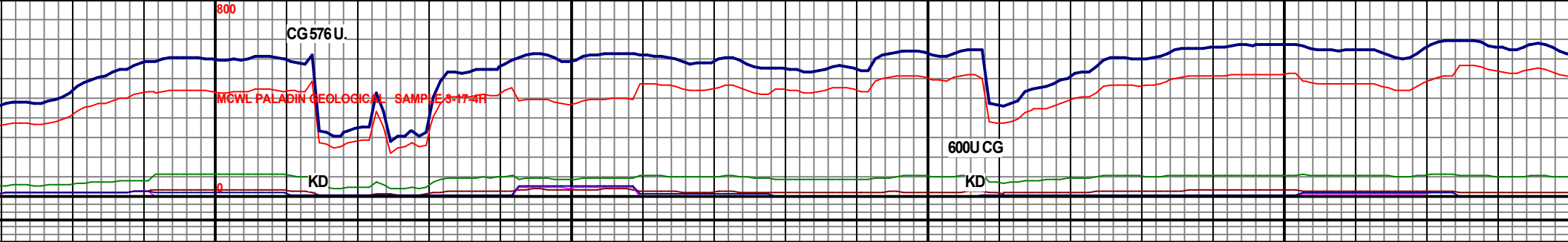


WOB: 25.1 K  
 RPM: 85  
 SPM: 189  
 GPM: 549  
 PP: 4044



WT: 9.1 IN / 9.1+  
 OUT  
 VS: 65 IN / 59  
 OUT





80% SH: PRED MED GRY - GRY, MSTLY BLKY, SME PLTY, MSTLY FRM, OCC BRIT, SLTY, TXT THRU OUT, OCC CRS TXT. 20% SNDYLS: WHT - LT GRY, OCC BLKY - CHNKY, MOD HRD - DNSE, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS.

95% SH: DK BRN/ GYBRN, CARB, MD TEX, BLKY-PLTY, SFT/ CRMBLY, MICRO MICA, SLI- MOD CALC. SM W/ OFF WH/ BUFF LS INCLUS, 5% LS, OFF WH/ MOTT BUFF W/ MICRO DK CARB DETRIT, CRMBLY, SLTY TEX, VLT TAN STN

95% SH/SLT  
 BLKY-PLTY  
 INTGN/STN  
 DETRIT, BL

WOB: 52 K  
 RPM: 65  
 SPM: 189  
 GPM: 549  
 PP: 4691

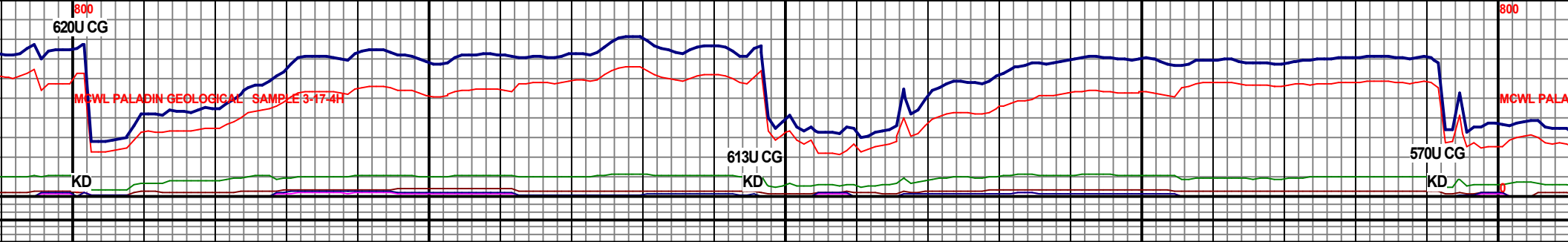
Sample @ 18,200' Md



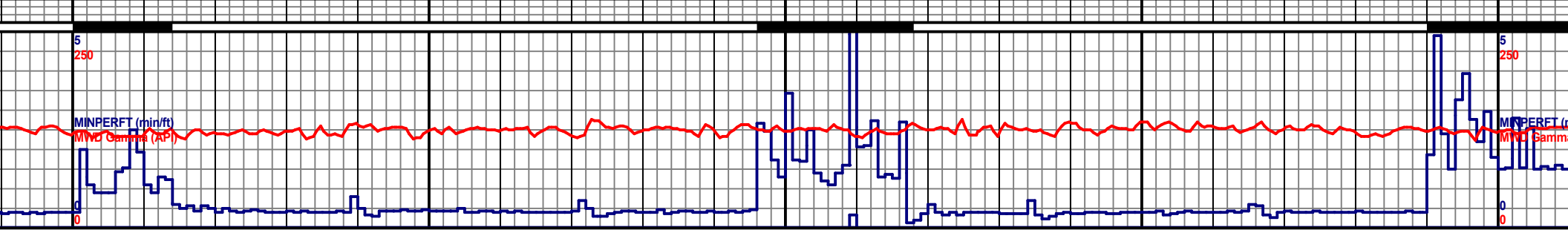
Sample @ 18,300' Md



WOB: 51 K  
 RPM:  
 DRIVE 65  
 MOT. 109  
 SPM: 189  
 GPM: 549  
 PP: 4691

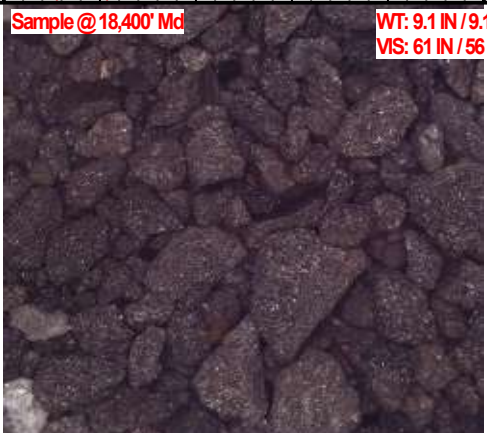


18400	18450	18500	18550	18600
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18400 18450 18500 18550 18600

11388 TVB (-8288 SS)	11463 (-10139)	11503 (-10289)	11503 (-10289)	11603 (-10289)
MD 18422 IVD 11416.12 INC 86.73 AZ 178.4 N 7 101.03 E 85.11 VS 7 101.03 D 2.51			MD 18516 IVD 11421.15 INC 87.13 AZ 177.3 N 7 194.83 E 81.59 VS 7 194.83 D 1.24	11463 (-10139)
STN, DK BRN/ GYBRN/ SM BLK CARB DETRIT, Y CRMBLY, MICRO MICA, SLI- MOD CALC, TR VIS T POR, 5% LS, OFF WH W/ SCAT MICRO DK CARB KY, CRMBLY, SLTY TEX, TR INTSTIT POR		95% SH: DK BRN/ GYBRN, CARB, MD TEX, BLKY- PLTY, SFT/ CRMBLY, MICRO MICA, SLI- MOD CALC, GRD TO SLTSTN IP, SM W/ OFF WH/ BUFF LS INCLUS, 5% LS, OFF WH/ MOTT BUFF W/ MICRO DK CARB DETRIT, CRMBLY, SLTY TEX, VLT TAN STN, TR CRYPTOXLN PYR		95% SH, DK BRN/ GYBRN/ SM BLK CARB DETRIT, BLKY- PLTY, CRMBLY, MICRO MICA, SLI- MOD CALC, TR VIS INTGN/ STIT PO SM GRD TO SLTSTN, 5% LS, OFF WH W/ SCAT MICRO DK CARB DETRIT, BLKY, CRMBLY, SLTY TEX, TR INTSTIT POR



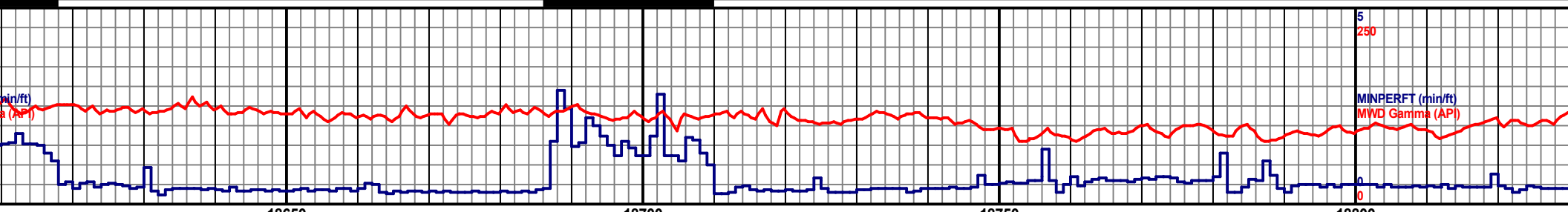
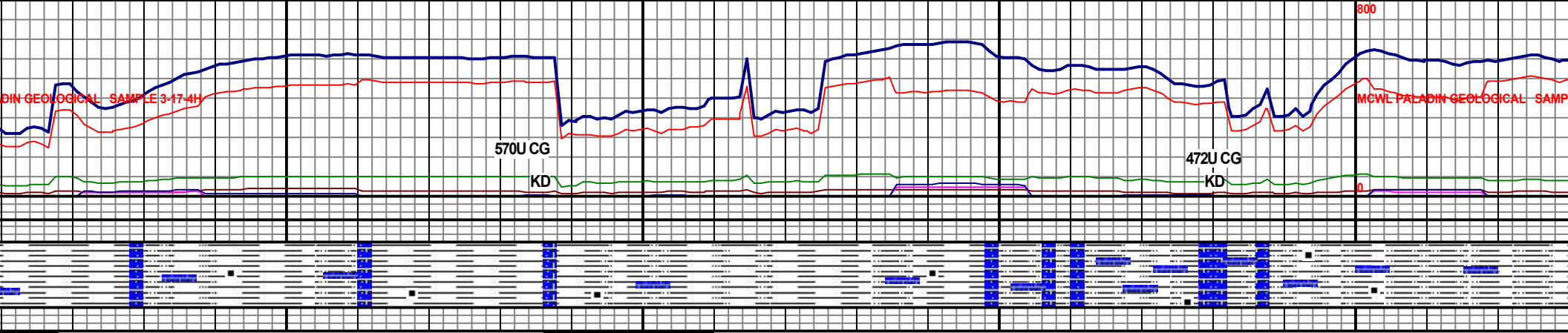
WT: 9.1 IN / 9.1 OUT  
VIS: 61 IN / 56 OUT

MUD CHECK:  
DEPTH: 18,521'  
WT: 9.15  
VIS: 62  
PV: 17  
YP: 13  
GEL: 10/14/18  
HTHP: 3.8  
SOL: 11%  
OIL: 76%  
H2O: 13.0%  
CL: 42,000  
ES: 1130



WOB: 51K  
RPM:  
DRIVE 85  
MOT. 109  
SPM: 189  
GPM: 549  
PP: 4685

Sample @



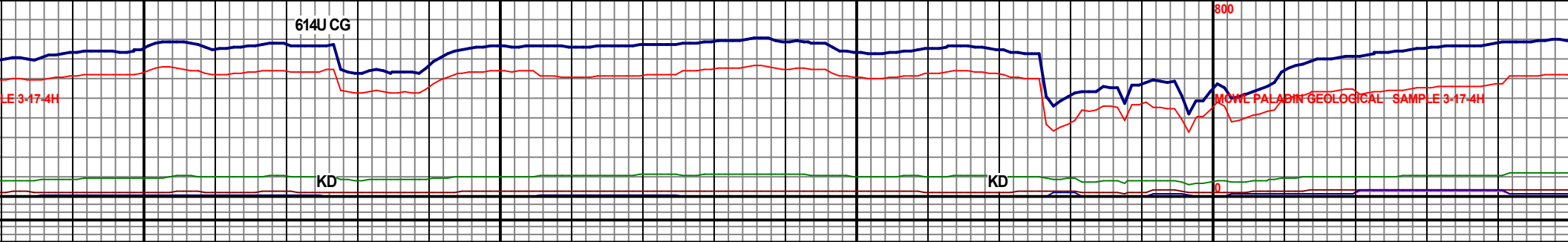
<p>ME 18611 TVD 11423.66          INC 89.88 AZ 177.97          N - 7289.7 E 77.67          VS 7289.7 DL 2.95</p>	<p>ME 18705 TVD 11423.76          INC 90 AZ 179.86          N - 7383.68 E - 75.89          VS 7383.68 DL 2.02</p>	<p>ME 18800 TVD 11426.15          INC 87.14 AZ 180          N - 7478.64 E 75.78          VS 7478.64 DL 3.01</p>
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95% SH: DK BRN/GYBRN, CARB, MD TEX, BLKY-PLTY,SFT/  
 CRMBLY, MICA, SLI-MOD CALC, GRD TO SLTSTN IP, SM W/  
 OFF WH/BUFF LS INCLUS, 5% LS, OFF WH/ MOTT BUFF W/  
 MICRO DK CARB DETRIT, CRMBLY, SLTY TEX, VLT TAN STN

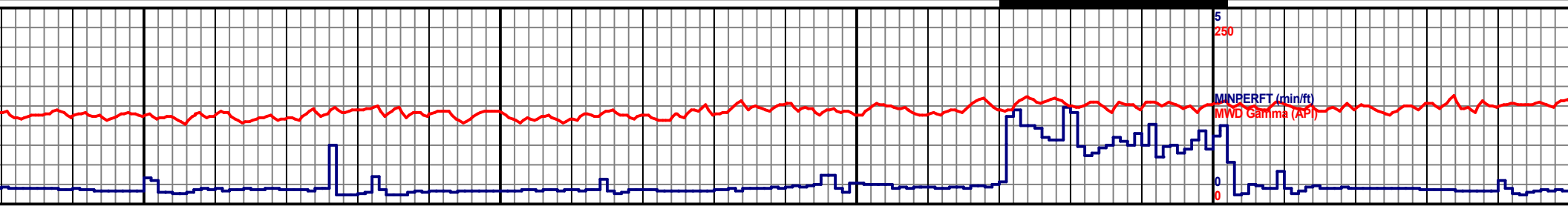
SH: NOW INC IN BRN/LT GYBRN CTTNGS, BLKY-  
 IRREG, CARB/MICA, SM DRTY GYBRN LS, MOTT/  
 SPEC, BLKY, CRMBLY, TR LT GYGRN SH, BLKY,  
 BRTL, FN TEX

SLTSTN: DRTY  
 CRMBLY, CARB,  
 TO SH IP, SM GRN  
 CARB DETRIT, T





18850	18900	18950	19000
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18850	18900	18950	19000	19050
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18850	18900	18950	19000	19050
BRN/ GYBRN/ DK GYBRN, MD/ SLTY TEX, BLKY, MICA, SLI- MOD CALC, TR VIS INTGN/ STIT POR, GRD TO ARG SLTY LS, DRTY GY/ GYTAN W/ MICRO DK TR INTSTIT POR	97% SH, DK BRN/ GYBRN/ SM BLK CARB DETRIT, BLKY- PLTY, CRMBLY, MICRO MICA, SLI- MOD CALC, TR VIS INTGN/ STIT POR, SM GRD TO SLTSTN, 3% LS, OFF WH W/ SCAT MICRO DK CARB DETRIT, BLKY, CRMBLY, SLTY TEX, TR INTSTIT POR	95% SH, DK BRN/ GYBRN/ SM BLK CARB DETRIT, BLKY- PLTY, CRMBLY, MICRO MICA, SLI- MOD CALC, TR VIS INTGN/ STIT POR, SM GRD TO SLTSTN, 5% LS, OFF WH W/ SCAT MICRO DK CARB DETRIT, BLKY, CRMBLY, SLTY TEX, TR INTSTIT POR, TR LT GY IRREG SH, CRMBLY	11388 TVB (-8288 SS)	11603 (-16289)

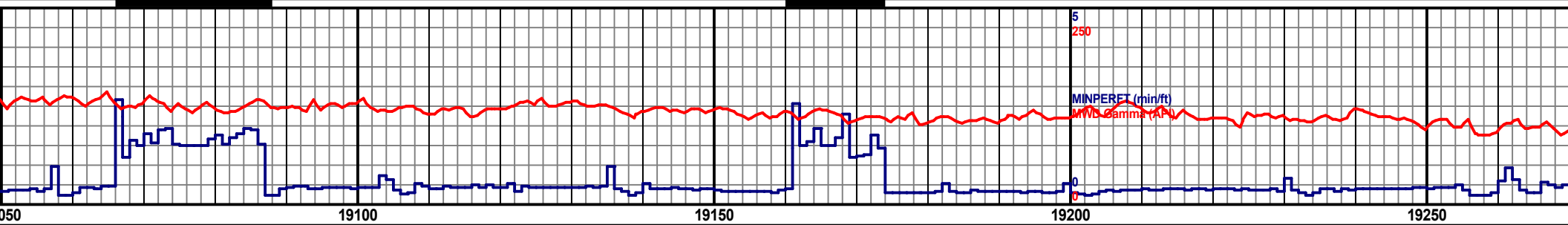
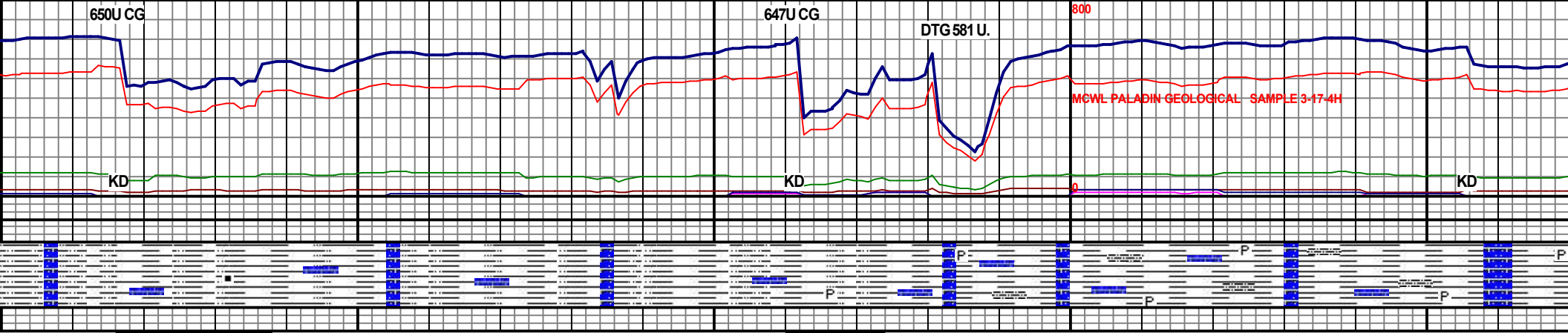


WOB: 53K  
 RPM:  
 DRIVE 80  
 MOT. 109  
 SPM: 189  
 GPM: 549  
 PP: 4690

Sample @ 18,900' Md

WT: 9.1 IN /  
 9.1+ OUT  
 VS: 64 IN / 68  
 OUT

Sample @ 19,000' Md



19050 19100 19150 19200 19250

11483 (1000255)

Scale Change  
11559 (-10239)

11703 (-10389)

95% SH, DK BRN/GYBRN/SM BLK CARB DETRIT, BLKY-PLTY, CRMBLY, MICRO MICA, SLI-MOD CALC, TR VIS INTGN/STIT POR, SM GRD TO SLTSTN, 5% LS, OFF WH W/ SCAT MICRO DK CARB DETRIT, BLKY, CRMBLY, SLTY TEX, TR INTSTIT POR

90% SH/SLTSTN: PRED DRTY BRN/DK GYBRN, BLKY, BRTL- CRMBLY, CARB, MICA, MOD CALC, TR/ MOD INTGN/STIT POR, SCAT MICRO CARB DETRIT, GRD TO MOTT BRN/LT- MD GYBRNARG LS, IRREG- BLKY CTTNGS, BRTL- CRMBLY, TR CRYPTOXLN, SM LS, OFF WH W/ SCAT MICRO DK CARB DETRIT, BLKY, CRMBLY, SLTY TEX, TR INTSTIT POR

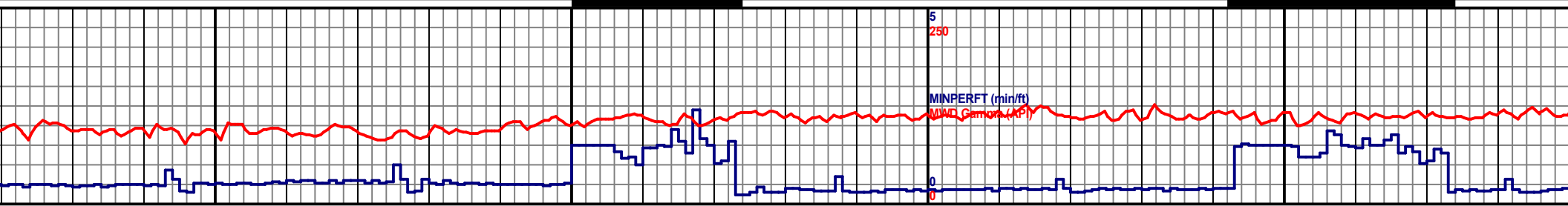
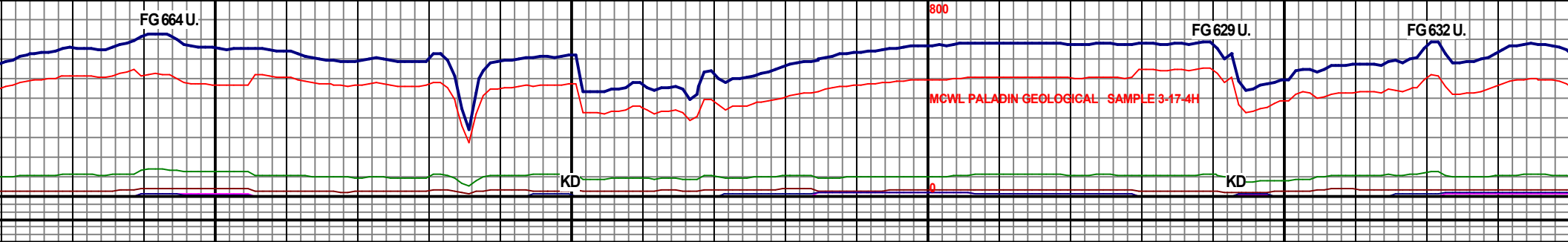
95% SH: PRED SFT- SLI FRM, LT GRY, OCC DNSE, OCC EMBD PYR FL

WOB: 53K  
RPM:  
DRIVE 80  
MOT. 109  
SPM: 189  
GPM: 549  
PP: 4690



WT: 9.1 IN / 9.1  
OUT  
VIS: 58 IN / 54  
OUT





<p>MC 19277 TVD 11439.96 INC 89.97 AZ 179.66 N - 1951.09 E - 76.82 VS 7951.99 DL 1.8</p> <p>MED GRAY-DRK GRAY, SME V DRK GRAY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 5% SNDRY LS: PRED WHT-V LT GRAY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO KS, TR LS.</p>	<p>MC 19367 TVD 11441.96 INC 87.6 AZ 179.66 N - 8045.06 E - 75.25 VS 8045.06 DL 2.52</p> <p>90% SH: PRED MED GRAY-DRK GRAY, SME V DRK GRAY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, TR MICRO EMBD PYR FLKS, 10% SNDRY LS: PRED WHT-V LT GRAY, OCC LT GRAY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD.</p>	<p>MC 19462 TVD 11443.69 INC 90.31 AZ 181.53 N - 8140.02 E - 77.23 VS 8140.02 DL 3.47</p> <p>90% SH: PRED MED GRAY-DRK GRAY, SME V DRK GRAY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, TR MICRO EMBD PYR FLKS, 10% SNDRY LS: PRED WHT-V LT GRAY, OCC LT GRAY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD.</p>
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WOB: 53.5K  
RPM: 80  
SPM: 189  
GPM: 549  
PP: 4616

Sample @ 19,300' Md



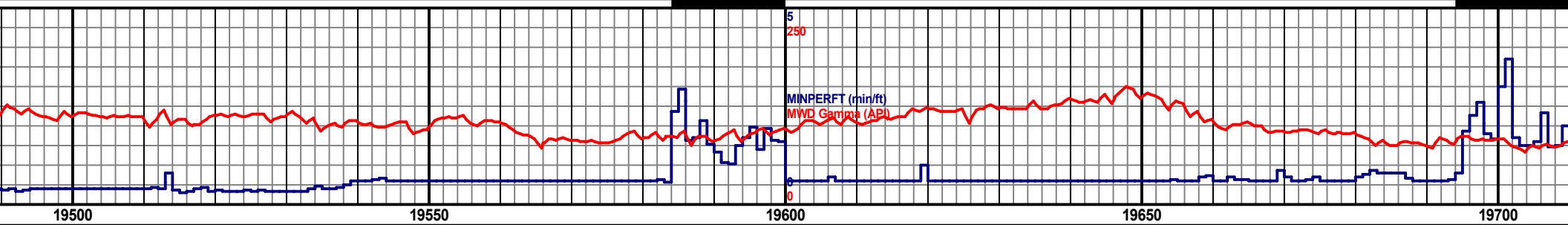
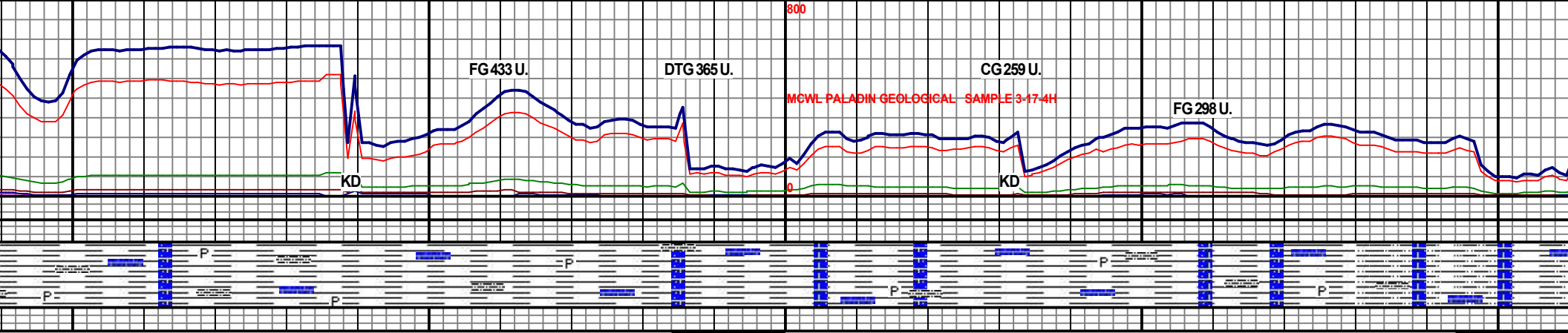
WT: 9.1 IN / 9.1  
OUT  
VS: 58 IN / 54  
OUT

Sample @ 19,400' Md



MUD CHECK:  
DEPTH: 19,440' Md  
WT: 9.1  
VIS: 58  
PV: 17  
YP: 12  
GEL: 9/13/16  
HTHP FILT: 3.6  
SOL: 10.8%  
OIL: 77.2%  
H2O: 12.0%  
CL: 41,000  
ELEC. STAB.: 930

WOB:  
RPM:  
SPM:  
GPM:  
PP:



**SWEEP/  
CONDITION HOLE  
AT 19,538'**

ML 1955' TVD 11443.91  
 NG 89.42 AZ 100.46  
 N -0235.01 E -79.89  
 VS 8235.01 DI 1.47

ML 1965' TVD 11444.18  
 NG 90.25 AZ 100.01  
 N -0329 E -79.27  
 VS 8329 DI 1

ME V DRK GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD  
 HRU OUT, TR CHLKY, 10% SNDY LS: PRED DRTY WHT-VLT  
 V DRK BRN, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD  
 TRT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR

85% SH: PRED MED GRY, SME DRK GRY, MSTLY BLKY-SLI SPLNTRY, MOD  
 FRM-SLI CRMBLY, SCAT MIC, TR MICRO EMBD PYR SPKS, 15% SNDY LS:  
 PRED DRTY OFF WHT- LT TN, OCC LT GRY- LT BRN, MSTLY SUBANG-  
 SUBRND, MOD HRD-SLI CRMBLY, ABUN GRAN TXT, TR LS, TR UNCONS  
 QTZ GRNS.

80% SH: PRED MED GRY, SME DRK- V DRK GRY, MST  
 SPLNTRY, MOD FRM-SLI HRD, OCC CHLKY, MOD SL  
 PYR FLKS SCAT THRU OUT, 20% SNDY LS: PRED OF  
 MSTLY CHNKY-SLI BLKY, OCC SUBRND-SUBANG,  
 HRD, TR FRI, ABUN GRAN TXT, PR INTERGRAN POR  
 TR CALC CHNKS.

OB: 53.2K  
 M: 80  
 V: 189  
 M: 549  
 4815

Sample @ 19,500' Md



WT: 9.1 IN / 9.1  
 OUT  
 VS: 58 IN / 54  
 OUT

**Performed Pre-Fault  
 Clean-Up Cycle, Prior to  
 Drilling Ahead Under  
 Fault Protocols. Total  
 Duration = 3 Hrs.**

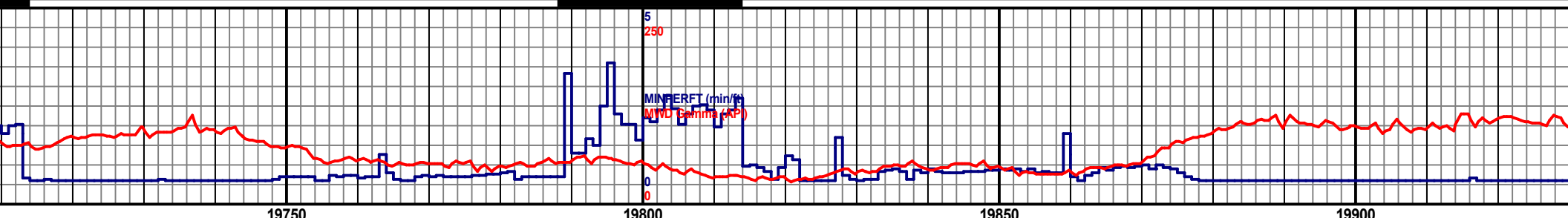
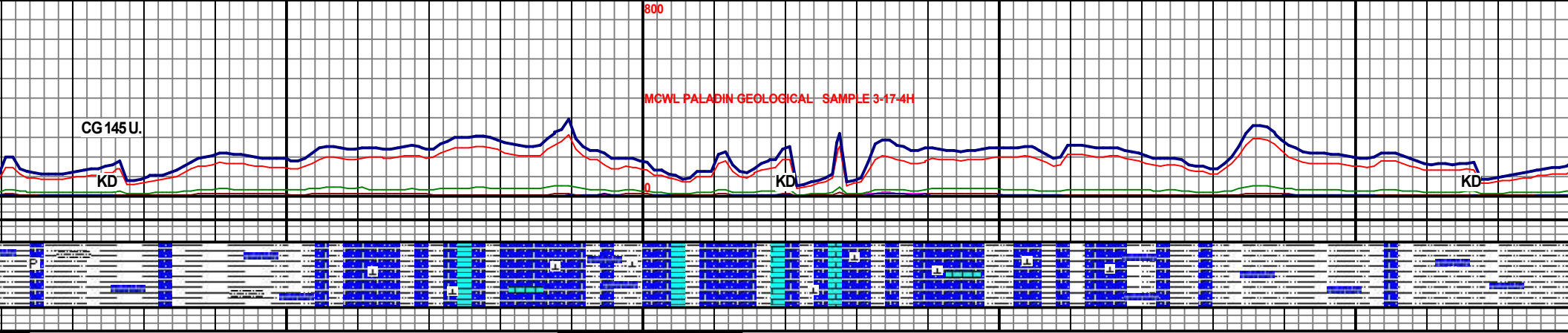
Sample @ 19,600' Md



WOB: 41.7K  
 RPM: 0  
 SPM: 190  
 GPM: 552  
 PP: 4127

Sample @





<p>11480 TVD (-1000 SS)</p> <p>MD 19745 TVD 11443.65          INC 96.4 AZ 180.4          N 8423 E 79.67          VS 8423 DL 0.52</p>	<p>11550 (-10230)</p> <p>SLTSTN/SH: DRTY BRN/GYBRN, SM BLK, PRED SLTY/MD-CRSE TEX, MICA, ABUND CALC INCLUS, GRD TOARG LS IP, BLKY- IRREG CTTNGS, SM SPKLD W/DK MICRO CARB DETRIT, TR- MOD VIS INTGN/STIT/ TR FRAC POR, TR GY CRYPTOXLN LS, ANG/ FRM- HD</p> <p>11700 (-10380)</p>	<p>11200 TVD (-9880 SS)</p> <p>MD 19840 TVD 11441.04          INC 94.78 AZ 184          N 8417.97 E 80.9          VS 8517.97 DL 1.55</p> <p>NOTE: SCALE CHANGE</p> <p>Scale Change          11350 (-10030)</p> <p>LS: PRED MOTT LT DRTY GY/GYBRN, SCAT MICRO DK CARB DETRIT, ANG/IRREG CTTNGS, SLTY- VFN AREN, SLI- VRY ARG, SM OFF WH/LT GSH WH CRYPTOXLN LS, FLKY, SFT, SM CALC FILLED FRACS, SM GRD TO MRL/SLTSTN, GYBRN, TR INTGN/FRAC POR, SM BLK CARB SH, BLKY, CRMBLY,</p> <p>11500 (-10180)</p>
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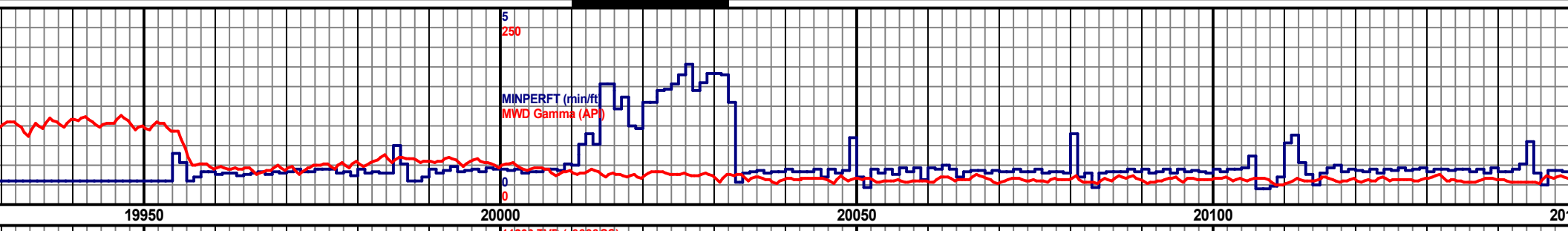
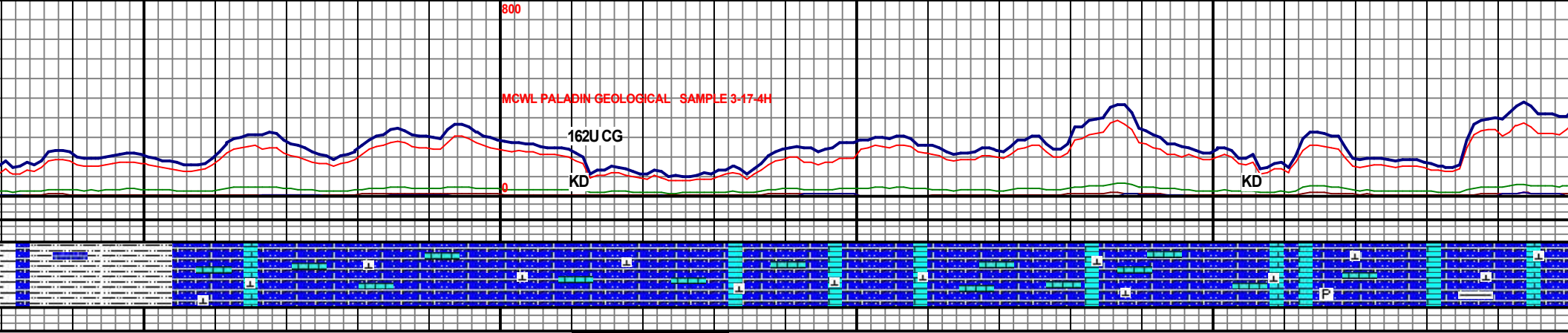


WT: 9.1 IN / 9.1  
 OUT  
 VIS: 58 IN / 54  
 OUT



LY BLKY, OCC FLKY, OCC SLI  
 TYXT, ABUN MIC SONT, TR  
 F WHT- V LT GRY, TR BLK,  
 MOD HRD- SLI FRM, OCC V  
 TR LSE UNCONS SS GRNS,

SLTSTN: DRTY BRN/GY  
 CRMBLY, CALC, PRED  
 LS IP, BLKY- IRREG CTT



19950 20000 20050 20100

11200 TVB (-9888 SS)

55% LS: SM DRTY MOTT GYTAN/BRN, VFN AREN, BLKY-PLTY/SM IRREG, MOD- VRY ARG, CRMBLY/BRTL, ABUND LT TAN STN, SM GRD TO CALC SLTSTNDK BRN/ GYBRN, BLKY, CRMBLY, SM LT GY LS, MC- CRYPTOXLN, SCAT CALC XL FRAGS

85% LS: MOTT/SPKLED GYTAN/DRTY GY W/ SCAT MICRO DK CARB DETRIT, SLTY-VFN AREN, MOD ARG, SM W/ CALC FILLED FRACS, SM W/ VFN SHLY LAMS, ABUND W/VLT TAN OIL STN, TR VIS INTGN/FRAC POR, SM WH CALC, SM BLK-VDK GYBRN SH, CARB, BLKY, CRMBLY

90% LS: MOTT/SPKLED GYTAN/DRTY GY W/ SCAT MICRO DK CARB DETRIT, SLTY-VFN AREN, MOD ARG, SM W/ CALC FILLED FRACS, SM W/ VFN SHLY LAMS, ABUND W/VLT TAN OIL STN, TR VIS INTGN/FRAC POR, SM WH CALC, SM BLK-VDK GYBRN SH, CARB, BLKY, CRMBLY

MD 19836 TVD 11441.27  
 NC: 90.17 A2 180.26  
 N -8612.95 E -81.94  
 VS 8612.95 DL 1.81

MD 20029 TVD 11438.31  
 NC: 91.26 A2 180.43  
 N -8706.92 E -82.91  
 VS 8796.92 DL 2.3

MD 20125 TVD 11434.25  
 NC: 91.56 A2 180.57  
 N -8802.85 E -85.34  
 VS 8892.83 DL 0.33

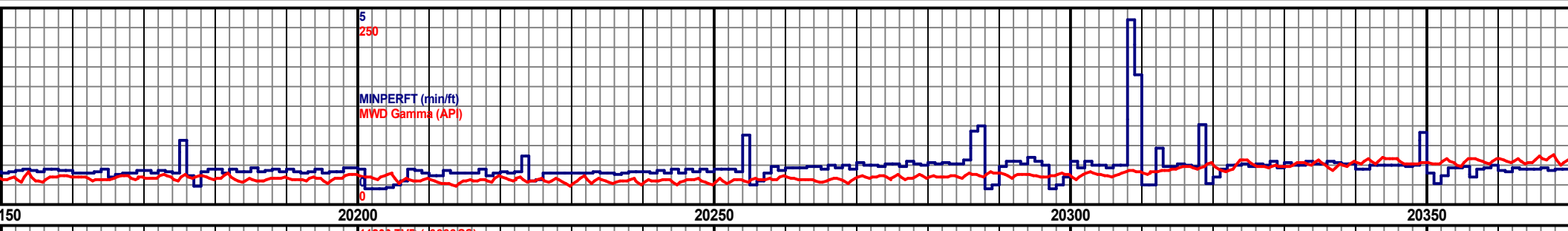
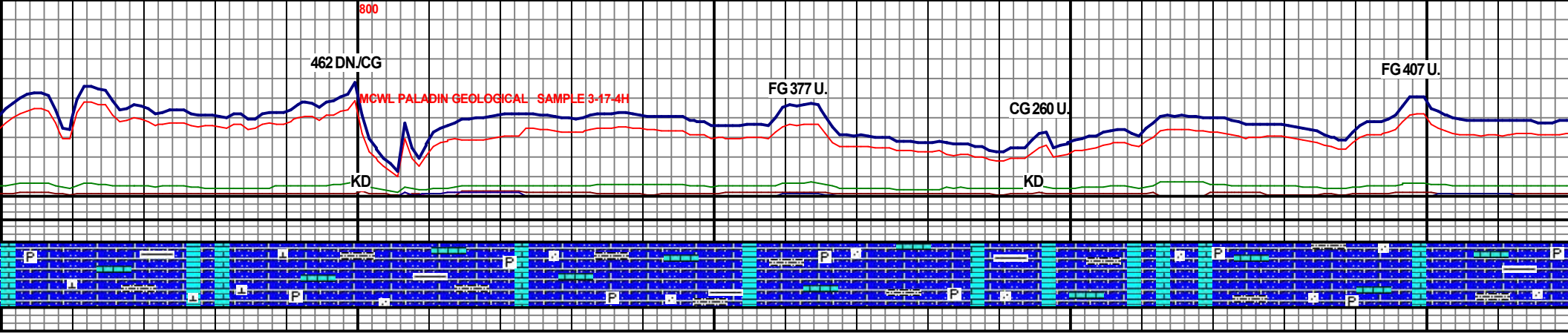
WOB: 40K  
 RPM:  
 DRIVE 80  
 MOT. 109  
 SPM: 189  
 GPM: 549  
 PP: 4406

Sample @ 20,000' Md

WT: 9.1+ IN /  
 9.1+ OUT  
 VIS: 62 IN / 58  
 OUT

Sample @ 20,100'

MUD CHECK:  
 DEPTH: 19,915'  
 WT: 9.1  
 VIS: 58  
 PV: 17  
 YP: 13  
 GEL: 10/14/18  
 HTHP: 3.4  
 SOL: 10.8%  
 OIL: 76.2%  
 H2O: 13.0%  
 CL: 43,000  
 ES: 1070



AN/DRTY GY W/ SCAT MICRO DK  
 REN, MOD ARG, SM W/ VFN SHLY  
 OIL STN, TR VIS INTGN/FRAC POR,  
 GYBRN SH, CARB, BLKY,

**SWEEP/ CIRC.  
 HOLE AT  
 20,200'.**

95% LS: NOW BUFF-MOTT TAN/ GYBRN, BLKY- IRREG CTNGS, CRMBLY-  
 BRTL, SLTY-VFNAREN, DK VFN/ MICRO CARB DETRIT THRU, ABUND TAN  
 STN, SM MLKY WH MCXLN LS, ANG, BRTL, TR VIS INTGN/ VUG POR, 5% GRD  
 TO LMY SH/ MRL, DRTY BRN/SLTY

90% SNDY LS: PRED V LT GRY, OCC BRT WHT, MSTLY BLKY-  
 HRD, OCC SLI FRM, V BRIT, TR CRMBLY, MOD CONS, MED SC  
 PR INTERGRAN POR, 10% SH: PRED DRK- MED GRY, OCC LT  
 MSTLY PLTY, OCC CHNKY, OCC SPLNTRY, MOD FRM, OCC SI  
 SCAT V BRIT- FRI, TR CHLKY, V GRAN TXT SCAT THRU OUT,  
 SPKS.

11200 TVB (-9888 SS)

11350 (-10030)

MD 20220 TVD 11430.06  
 INC 92.49 AZ 180.75  
 N -8897.73 E -84.44  
 VS 8897.73 DL -0.2

MD 20314 TVD 11425.87  
 INC 92.62 AZ 181.37  
 N -8891.62 E -86.17  
 VS 8891.62 DL -0.67

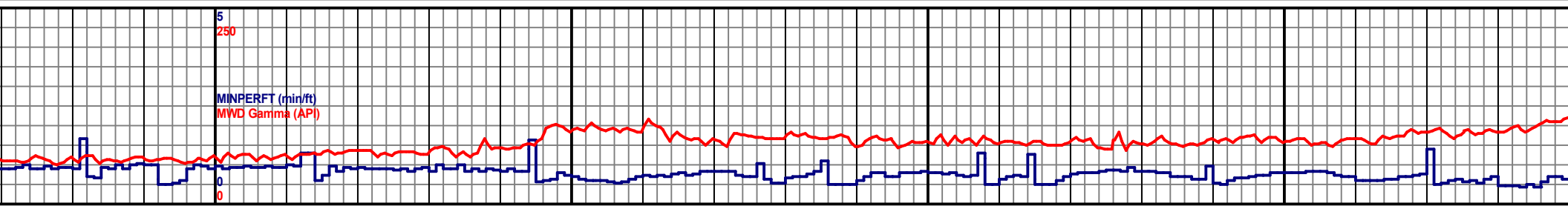
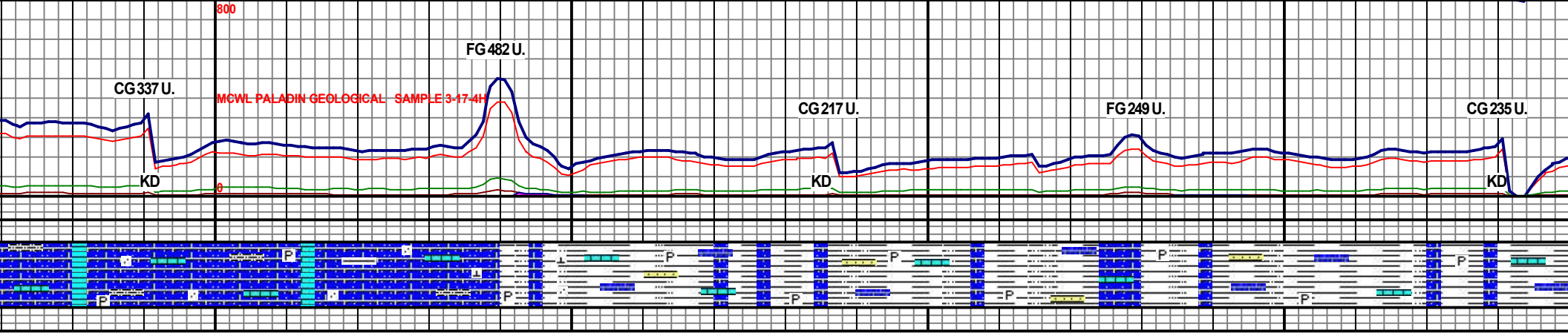
11500 (-10180)



WOB: 55K  
 RPM:  
 DRIVE 75  
 MOT. 109  
 SPM: 189  
 GPM: 549  
 PP: 4466



WT: 9.1+ IN /  
 9.1+ OUT  
 VIS: 62 IN / 58  
 OUT



<p>20400          SUBANG, MOD HRD-V          SORT, MSTLY GRAN TXT,          GRY, OCC DRK BRN,          I HRD, OCC CRMBLY,          TR MICRO EMBD PYR</p>	<p>11200 TVD (-9888 SS)          11350 (-10030)          ME 20400 TVD 11426.77          INC 93.54 AZ 181.75          N 3086.45 E 38.75          VS 9036.45 DL 1.05          11500 (-10180)</p>	<p>20450          75% SNDY LS: PRED DRTY OFF WHT- WHT, OCC V LT CRM, MSTLY BLKY, SME SUBRND,          OCC SUBRND- SUBANG, MOD HRD- SLI FRI, OCC CRMBLY, TR FREE QTZ GRNS SCAT          THRU OUT, MED SORT, V FN- FN GRNS, TR CALC, 25% SH: PRED MED GRY, OCC MED          BRN- DRK GRY, SUBRND- SUBANG, OCC SUBANG- BLKY, V FRM- SLI HD, SME SLI SFT-          CRMBLY, TR MICRO EMBD PYR.</p>	<p>20500          20550          65% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY,          OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 35%          SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ,          BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY,          WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD          PYR FLKS.</p> <p>MD 20504 TVD 11414.29          INC 94.28 AZ 181.41          N 3181.19 E 31.37          VS 9181.19 DL 0.86</p>
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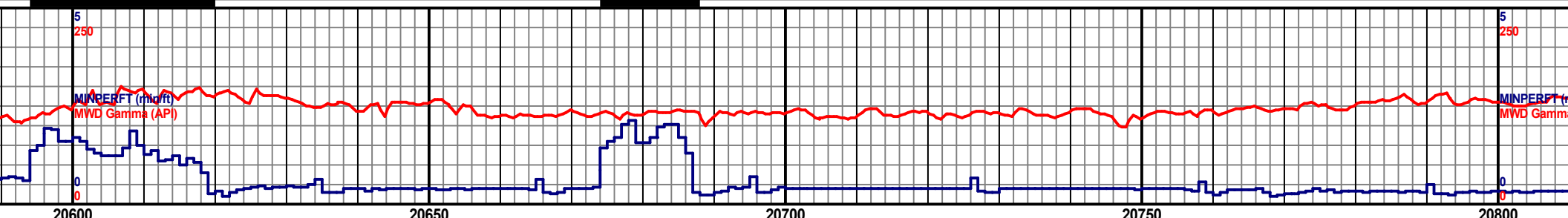
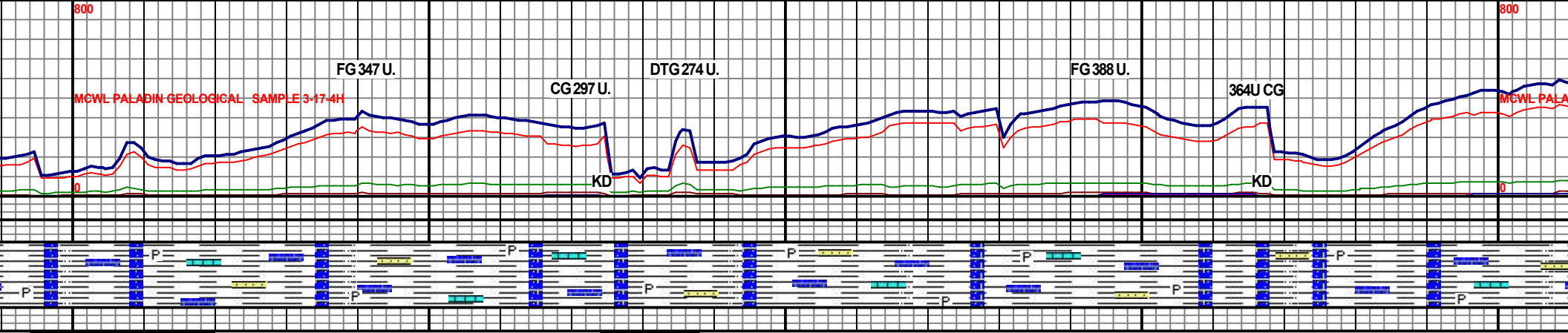


WOB: 59.6K  
 RPM: 80  
 SPM: 189  
 GPM: 549  
 PP: 4451



WT: 9.1+ IN /  
 9.1+ OUT  
 VIS: 62 IN / 58  
 OUT





<p>11200 TVD (-9888 SS)</p> <p>75% SH: PRED MED GRY- DRK GRY, SME V DRK GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 20% SNDY LS: PRED DRTY WHT- V LT GRY, OCC LT GRY, OCC V LT BRN, TR V DRK BRN, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, APPX. 5% LS.</p> <p>11350 (-10030)</p> <p>MD 20598 TVD 11407.32 INC 94.32 AZ 184.16 N 9274.91 E -93.47 VS 9274.91 DL 0.27</p> <p>11500 (-10180)</p>	<p>70% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 25% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, APPX. 5% LS.</p> <p>MD 20692 TVD 11403.41 INC 90.55 AZ 180.85 N 9368.8 E -95.12 VS 9368.8 DL 3.92</p>	<p>11200 TVD (-9888 SS)</p> <p>70% SH: GRY- MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 25% SNDY LS: PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, APPX. 5% LS.</p> <p>11350 (-10030)</p> <p>MD 20787 TVD 11403.79 INC 88.99 AZ 181.4 N 9463.78 E -95.77 VS 9463.78 DL 1.67</p> <p>11500 (-10180)</p>
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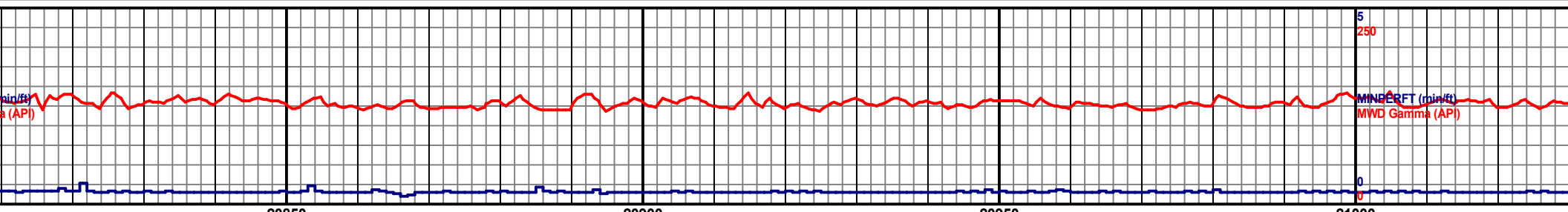
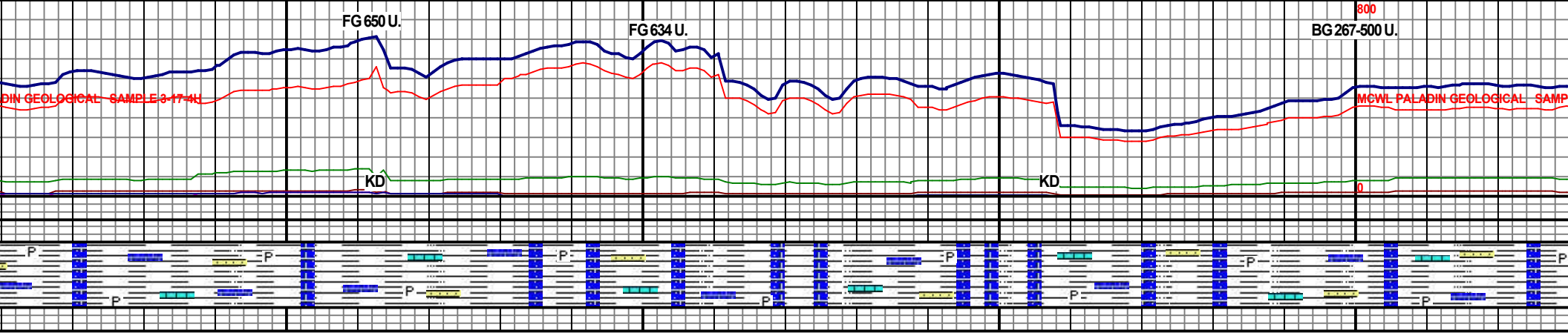


WOB: 33.8K  
RPM: 0  
SPM: 189  
GPM: 549  
PP: 4286



WT: 9.1+ IN /  
9.1+ OUT  
VIS: 62 IN / 58  
OUT





20850 20900 20950 21000

9888 SS) 75% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY-BLK, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 20% SNDY LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, 5% CALC.

80% SH: PRED MED GRY-DRK GRY, SME V DRK GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT-SLI FRM, OCC BRIT, SLTY TXT THRU OUT, TR CHLKY, 15% SNDY LS: PRED WHT-V LT GRY, OCC LT GRY, OCC V LT TN-SLI TRNSL, TR OPQ, BLKY-SUBANG, OCC SUBRND, OCC CHNKY, MOD HRD-DNSE, OCC CRMBLY, WELL SORT, PR CALC CMNT, V TRAMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, 5% LS.

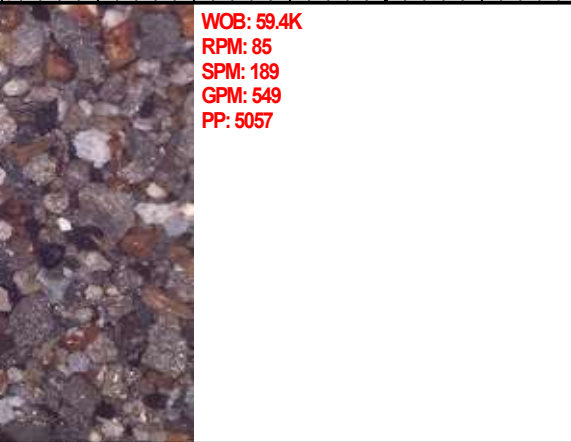
11200 TVB (-9888 SS) 75% SH: PRE FRM, OCC B GRY, OCC W CHNKY, OCC CONS, WELL INTERGRAN

MC 20881 TWD 11404.52  
INC 90.12 AZ 181.34  
N -9957.75 E -96.8  
VS 9557.75 DL 1.22

MD 20976 TWD 11404.63  
INC 89.69 AZ 178.06  
N -9652.74 E -96.3  
VS 9652.74 DL 3.48

11350 (-10039)

11500 (-10189)

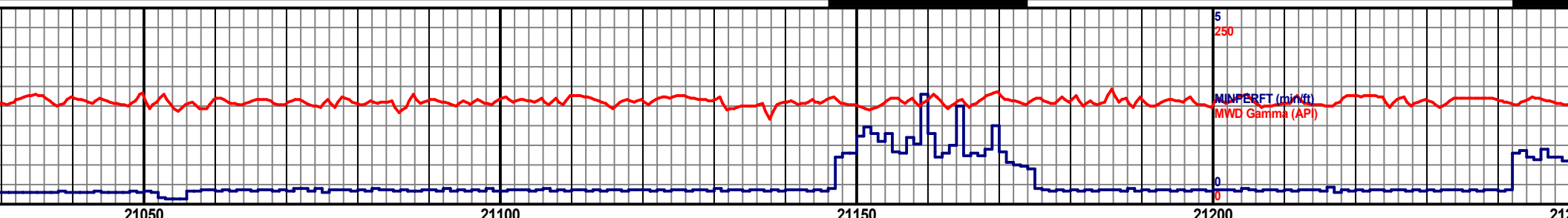
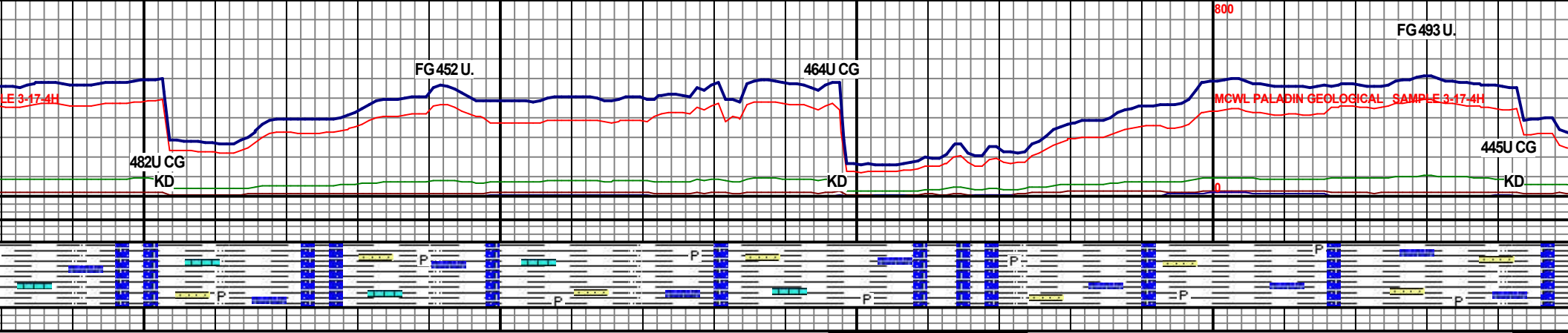


WOB: 59.4K  
RPM: 85  
SPM: 189  
GPM: 549  
PP: 5057



WT: 9.1+IN /  
9.1+ OUT  
VIS: 62 IN / 58  
OUT





ED LT-MED GRY, MSTLY BLKY, SME PLTY, OCC CHNKY, MOD SFT- SLI  
BRIT, SLTY TXT THRU OUT, TR CHLKY, TR PYR, 20% SNDYLS: PRED FNT  
HT- SLI TRNSL, TR SLI OPQ, MSTLY BLKY-SUBANG, OCC SUBRND- SLI  
ANG, MOD HRD- V HRD, OCC SLI FRM, V BRIT, TR CRMBLY, MOD  
SORT, SLI DCRS IN FREE QTZ GRNS, MSTLY GRAN TXT, PR  
POR, 5% LS.

85% SH: GRY-MED GRY, SME LT GRY, TR DRK GRY- BLK, MSTLY BLKY, SME PLTY, OCC  
CHNKY, MOD SFT- SLI FRM, OCC BRIT, GRAN TXT THRU OUT, TR CHLKY, 10% SNDY LS:  
PRED WHT- V LT GRY, OCC LT GRY, OCC V LT TN- SLI TRNSL, TR OPQ, BLKY- SUBANG,  
OCC SUBRND, OCC CHNKY, MOD HRD- DNSE, OCC CRMBLY, WELL SORT, PR CALC  
CMNT, V TR AMNTS ASPHC SPKS INCLD, TR MICRO EMBD PYR FLKS, 5% LS, TR  
MRLSTN.

11200 TVB (-9888 SS)  
SLTSTN: DRTY BRN/ GYBRN/ DK GYBRN, MD/ SI  
BLKY, CRMBLY, CARB, MICA, SLI- MOD CALC, T  
INTGN/ STIT POR, GRD TO SH IP, SM GRD TO ARC  
LS, DRTY GY/ GYTAN W/ MICRO DK CARB DETR  
INTSTIT POR

11350 (-10030)  
11500 (-10180)

MC 21071 TVD 11404.99  
INC 89.94 AZ 175.2  
N 9747.57 E -92.72  
VS 9747.57 DL 3.02

MD 21156 TVD 11405.65  
INC 89.38 AZ 174.54  
N 9842.18 E -84.23  
VS 9842.18 DL 0.91

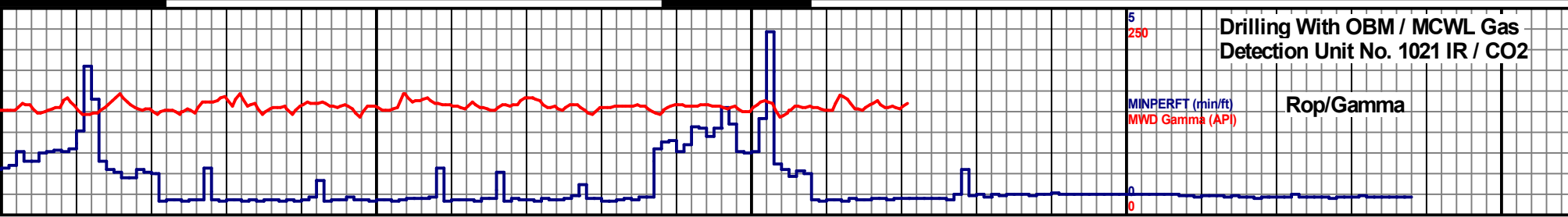
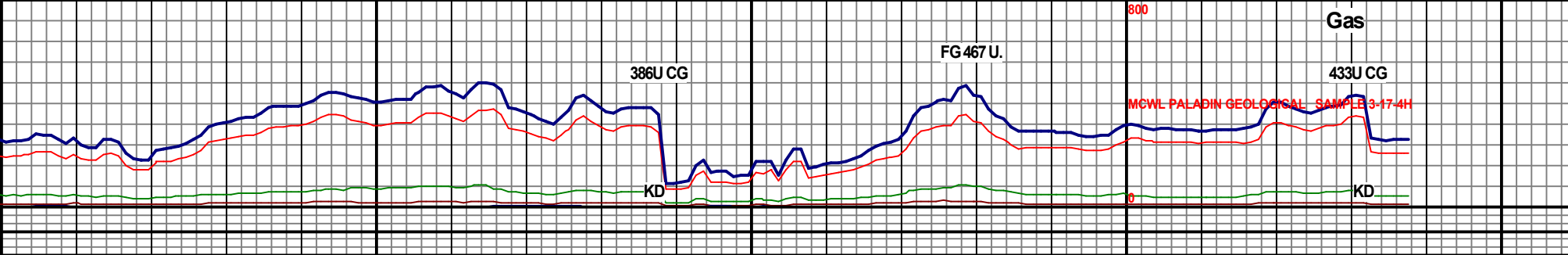
WOB: 51.4K  
RPM: 85  
SPM: 189  
GPM: 549  
PP: 5035



WT: 9.1 IN / 9.2  
OUT  
VIS: 57 IN / 53  
OUT



WOB: 43.7K  
RPM: 90  
SPM: 189  
GPM: 549  
PP: 5463



21250 21300 21350 21400 21450

SLTSTN/SH: DRTY BRN/ GYBRN, SM BLK, CARB, PRED SLTY/  
 MD- CRSE TEX, MICA, ABUND CALC INCLUS, GRD TOARGLS  
 IP, BLKY- IRREG CTTNGS, SM SPKLD W/DK MICRO CARB  
 DETRIT, TR- MOD VIS INTGN/ STIT/ TR FRAC POR, TR GY  
 CRYPTOXLN LS, ANG/ FRM- HD

SLTSTN: DRTY BRN/ GYBRN/ DK GYBRN, MD/ SLTY TEX, BLKY,  
 CRMBLY, CARB, MICA, SLI- MOD CALC, TR VIS INTGN/ STIT POR, GRD  
 TO SH IP, SM GRD TO ARG SLTY LS, DRTY GY/ GYTAN W MICRO DK  
 CARB DETRIT, TR INTSTIT POR

11200 TVD (-9888SS)

Reached Driller's Td Of  
 21,438' Md On 12/26/2019

MCWL PALADIN  
 GEOLOGICAL:  
 SAMPLE 3-17-4H,  
 Section: 23 - T12N - R8W  
 ANYWHERE, USA  
 GL: 1,289', KB: 1,312'

MC 21261 TVD 11406.85  
 INC 89.88 AZ 173.74  
 N 39336.68 E 74.53  
 VS 9936.68 DL 0.91

MD 21363 TVD 11408.28  
 INC 89.35 AZ 175.48  
 N 40038.21 E 54.95  
 VS 10038.21 DL 1.73

MD 21438 TVD 11409.13  
 INC 89.35 AZ 175.46  
 N 40142.97 E 54.94  
 VS 10142.97 DL 1.73

Tvd Scale: 11,200' - 11,500'

Projected



WT: 9.1 IN/  
 9.2 OUT  
 VIS: 57 IN / 53  
 OUT

