Schlumberger

Company: **ESSO Australia Pty Ltd**

8.50 In. Section

Well: **SNA A11A−st**

Field: **Snapper**

Rig: **ISDL 175** State: **Victoria**

Rig: ISDL 175
Field: Snapper
Location: Bass Strait
Well: SNA A11A−st
Company: ESSO Australia Pty Ltd

EcoScope* Density Neutron
1:200 Measured Depth
Recorded Mode Log

Location

Total depth:	5204.0 m
Spud date:	09−Sep−08
Runs:	6 To 6

Elevation

K.B.	Top Drive
G.L.	−55.0 m
D.F.	41.7 m

Permanent datum:	Mean Sea level	Elev.:	0.0 m
Log measured from:	Drill Floor	41.7 m	above Perm. datum
Depth reference:	Driller's Depth		

Service Order no.	X = E 589,789.423 m	Longitude Latitude
08ASQ0028	Y = N 5,772,182.764 m	E 148° 1′ 31.373″ S 38° 11′ 37.762″

Depth logged:	4460.8 m To 5194.3 m	Mag decl:	13.001 deg.	Other services:	
Date logged:	23−Oct−08 To 27−Oct−08	Mag dip:	−68.688 deg.	See Remarks	

Bore hole record

Hole size	from	to
8.50 in.	4474.0 m	5204.0 m

Casing record

Size	Density	from	to
10.75 in.	55.5 lb/ft	0 m	913.0 m
9.625 in.	47.0 lb/ft	913.0 m	4358.0 m

Mud record

Type	from	to
Accolade SBM	4474.0 m	5204.0 m

Borehole deviation record

Min	Max	from	to
25.60 deg	84.45 deg.	1002.9 m	5204.0 m

Surface equipment

Unit	OLU−KC−0801
Depth system	PDA/CLT

Software record

IDEAL Wis	ID14_0c_02
SPM	hspm13_1c_04
LWD	See Remarks
MWD	9.2C02

Bit Run Summary

Run number		6
Bit size	in	8.50
Bit start depth	m	4474.0
Bit end depth	m	5204.0
Top interval logged	m	4460.0
Bottom interval logged	m	5194.3
Begin log: time		03:21
Begin log: date		23−Oct−08
End log: time		05:45
End log: date		27−Oct−08
Mud data		
Depth	m	5204.0
Type		Accolade SBM
Mud weight	ppg	10.6
Solids	%	17.4
Chlorides	mg/L	45,595
Rm	Ohm.m@°C	n.a
Rmf	Ohm.m@°C	n.a
Rmc	Ohm.m@°C	n.a

Potassium	%	n.a									
Environmental data											
GR											
Mud weight	ppg	10.6									
Bit size	in	8.50									
Resistivity											
Neutron porosity											
Hole Size	in.	8.50									
Mud weight	ppg	10.6									
Temperature	°C	20									
Mud salinity	ppk	70.878									
Formation salinity		n.a									
Recording rate 1	SEC	6 (arcVISION)									
Recording rate 2	SEC	2 (EcoScope)									
Filtering GR		3 pts.									
Filtering density		3 pts.									
Filtering Neutron		3 pts.									
Company representative		R. Spence	A. Zernov	D. Daniels							
Anadrill personnel		M. Amarasena	B. Low	D. Perkins	P. Sellathurai	C. Soper	D. B. Khanh	D. O'Brien			

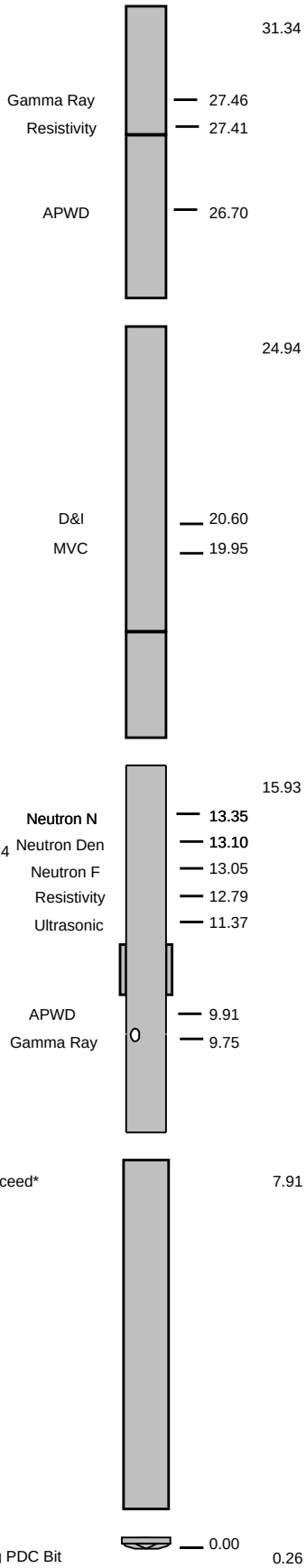
OTHER SERVICES FOR RUN6	OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN
Directional Drilling Direction Surveys Annular Pressure & Temperature Shock & Vibrations		

REMARKS: RUN NUMBER 6	REMARKS: RUN NUMBER	REMARKS: RUN NUMBER
Depth is referenced to Driller's depth Gamma ray is corrected for mud weight, tool size and bit size Resistivity is borehole compensated and environmentally corrected Neutron porosity is corrected for the effects of borehole size (i.e. bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure) Neutron porosity is calculated by using a limestone matrix density of 2.71 g/cm3 The SNA−A11A original hole was drilled to 4592m and as the BHA could not be fished out, the hole was plugged back and SNA−A11A−st was drilled. The EcoScope has a 7−7/8'' Stabilizer The EcoScope sourceless density was pulsed in real−time The arcVISION Gamma ray reads higher as the arcVISION was above the EcoScope PNG which activated the formation prior to the arcVISION tool logging the same section. The section above 4474m was a reamed section In the reamed section above 4474m, there was a data loss of 2m. This was due to a calibration issue with the hookload sensor. The depths above and below this section is correct. Depth was not adjusted but reset to the drilling pipe tally.		

EQUIPMENT DESCRIPTION

RUN6	RUN	RUN

DOWNHOLE EQUIPMENT



6−3/4'' arcVISION* — 31.34
DHS: V9.3B13
S/N: 1191

Gamma Ray — 27.46
Resistivity — 27.41
APWD — 26.70

6−3/4'' TeleScope* — 24.94
DHS: 9.2C02
S/N: V875

D&I — 20.60
MVC — 19.95

6−3/4'' EcoScope* — 15.93
DHS: Lagerfeld V23
S/N: 960
PNG S/N: 2353−41524

Neutron N — 13.35
Neutron Den — 13.10
Neutron F — 13.05
Resistivity — 12.79
Ultrasonic — 11.37
APWD — 9.91
Gamma Ray — 9.75

6−3/4'' PowerDrive Xceed* — 7.91
S/N: 267

8−1/2'' Reed Hycalog PDC Bit — 0.26
S/N: 219967

0.00

Maximum string diameter 8.50 in.

All lengths in Meters

Variable Name	Variable Description	Run Name & Value		
	Run Number			6
	General Information			
BHT_RM	Bottom Hole Temperature (RM)		DEGC	98.000
BSAL_RM	Mud Salinity (RM)		PPK	70.878
BS_RM	Bit Size (RM)		IN	8.500
COEF_M	User Defined FEXP in Clean Sand		----	1.650
C_WS	Overpressure correction to Sw and M		----	1.000
FEXP	Formation Factor Exponent(RM)		----	2.000
FNUM	Formation Factor Enumerator(RM)		----	1.000
FPHI_RM	Formation Factor Porosity Source (RM)		----	XPLOT
MST_RM	Mud Sample temperature (RM)		DEGC	60.000
MW_RM	Mud Weight (RM)		LB/G	10.600
OBMF_RM	Oil Based Mud (RM)		----	YES
RHOF_RM	Mud Filtrate Density (RM)		G/C3	1.000
RHOM_RM	Matrix density (RM)		G/C3	2.710
RMS_RM	Resistivity of Mud Sample (RM)		OHMM	1000.000
RWA_COMP_M	Rwa computation model			
RWA_DEN_AD	Rwa Density Input ADN			
RWA_DEN_CD	Rwa Density Input CDN			
RWA_DEN_IN	Rwa Density Input			
RWA_FORM_M	Rwa computation formation model			
RWA_RES_IN	Rwa computation resistivity input			
RWS_RM	Resistivity of Connate Water (RM)		OHMM	1.000
SHT_RM	Ground Level Temperature (Mud-Line When Offshore) (RM)		DEGC	10.000
TD_RM	Total Measured Depth (RM)		M	5204.000
TWS_RM	Temperature of Connate Water (RM)		DEGF	23.889
VF_ILLI	Fraction of illite in shales		----	0.500
VF_KAOL	Fraction of kaolinite in shales		----	0.500
VF_MONT	Fraction of montmorillonite in shales		----	0.000
XPDM_RM	Cross plot density porosity multiplier		----	0.675
XPNM_RM	Cross plot neutron porosity multiplier		----	0.325
	DVD			
----------	Parameters----------	Parameters----------	----------	---------Sigma
----------	Parameters----------	Parameters----------	----------	---------Sigma
A12A	ARC Air Cal Attenuation From T1 at 2 MHz		DB	8.039
A14A	ARC Air Cal Attenuation From T1 at 400 KHz		DB	8.069
A22A	ARC Air Cal Attenuation From T2 at 2 MHz		DB	6.410
A24A	ARC Air Cal Attenuation From T2 at 400 KHz		DB	6.390
A32A	ARC Air Cal Attenuation From T3 at 2 MHz		DB	4.637
A34A	**ARC Air Cal Attenuation From T3 at 400 KHz**		**DB**	**4.664**
A42A	**ARC Air Cal Attenuation From T4 at 2 MHz**		**DB**	**4.805**
A44A	ARC Air Cal Attenuation From T4 at 400 KHz		DB	4.778
A52A	ARC Air Cal Attenuation From T5 at 2 MHz		DB	3.194
A54A	ARC Air Cal Attenuation From T5 at 400 KHz		DB	3.226
ABNT	Abnormal Transmitter Indicator		----	No_Tx_Failed
ALPHA_DEN_OPT	Density Enhanced Vertical Resolution Processing Switch		----	NO
AM2A	ARC Air Cal Amplitude Offset at 2 MHz		----	-50000.000
ANISO_COMPUTE	Anisotropy Computation Option		----	YES
ATMP_ARC	ARC Select Temperature Channel		----	Annulus_Temp
AZMF	Formation DIP Azimuth		DEG	0.000
BH_COMPUTE	Borehole Inversion Computation Option		----	YES
CDPTH_ARC	Process Start Depth		M	30.480
CHI_RM	Caliper High Limit from BS (RM)		IN	10.000
CLO_RM	Caliper Low Limit from BS (RM)		IN	-5.000
DIELEC_COMPUTE	Dielectric Computation Option		----	YES
DIPF	Formation DIP Angle		DEG	0.000
DTMUD	Delta-T for Mud (RM)		US/F	206.000
DTMUD_DH	Delta-T for Mud Downhole (RT)		US/F	227.000
DVDMDHS	DVDM Down Hole Software Version		US/F	227.000
DVDM_DATA_LTB	DVDM: Create An DVDM LTB Data File		----	NO
DVD_DATA_FIX	DVDM: Create A Corrected DVDM Time Data File		----	NO
DYN_IMAGE_OPT	Generate Dynamic Normalized Image?		----	YES
EDPTH	Wizard Process Stop Depth		----	50000
EN_WIZARD	Enable ARC Wizard Processing		----	NO
ERRCT	Percentage Error Cutoff		----	4.500
EVRL	EVR Process averaging number of samples (RM)		----	49
FWVN	Firmware Version Number		----	2.300
GCSE	Generalized Caliper Selection		----	BS
GRSH	GR Shale (Invasion Computation Cutoff)		GAPI	1000.000
GR_CF	Gamma Ray Correction Factor		----	1.800
GR_O2COR_OPT	Enable Gamma Ray Oxygen Activation Correction		----	NO
HIGH_BLEND	High Resistivity Threshold for Blending		OHMM	2.000
IDQT	Image Derived Quality Threshold		----	2.000
IMAGE_MAX_DCRA	Image Density Caliper Right Scale		IN	8.000
IMAGE_MAX_IDDQ	Image Density Quality Right Scale		----	1.000
IMAGE_MAX_SPEF	Image PEF(Segment) Right Scale		----	6.000
IMAGE_MAX_SRHOB	Image RHOB(Segment) Right Scale		G/C3	2.650
IMAGE_MIN_DCRA	Image Density Caliper Left Scale		IN	2.000
IMAGE_MIN_IDDQ	Image Density Quality Left Scale		----	0.000
IMAGE_MIN_SPEF	Image PEF(Segment) Left Scale		----	2.000
IMAGE_MIN_SRHOB	Image RHOB(Segment) Left Scale		G/C3	2.050
INCLIN_B0	ARC Bias Constant (mg)		----	0.000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)		----	0.000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)		----	0.000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)		----	0.000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)		----	1.000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)		----	0.000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)		----	0.000

INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)	----	0.000
INVAS_COMPUTE	Invasion Computation Option	----	YES
JSD	Acquisition start date	----	23-Oct-08
JSD_ARC	ARC Acquisition start date	----	23-Oct-08
LOW_BLEND	Low Resistivity Threshold for Blending	OHMM	1.000
MATR	Rock Matrix for Neutron Porosity Corrections	----	LIMESTONE
MSWS	ARC Wizard Model Switch Window	M	1.524
MULTIEFFECT_COM	Multi Effect Option	----	YES
NEU_DCOR_OPT	Density Correction Source for Neutron Processing	----	Neutron
NEU_FTUBE_OPT	Far Thermal Tube Selection	----	Both
NEU_PRESCOR_OPT	Pressure Correction Source for Neutron Processing	----	Annulus_Press
NEU_TEMPCOR_OPT	Temperature Correction Source for Neutron Processing	----	Tool_Temp
NTIK_SEL	Neutron Tick Channel Name	----	FAZ1
OACF	Oxygen Activation Correction Factor (RM)	----	8.000
P11AC_RM	ARC: Air Calibration For Phase T1 to R1	DEG	-999.250
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	DEG	0.624
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	DEG	2.530
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	DEG	-0.731
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	DEG	-2.565
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	DEG	0.593
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	DEG	2.542
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	DEG	-0.719
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	DEG	-2.559
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	DEG	0.626
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	DEG	2.564
PMUD	Potassium Concentration in Mud	----	0.000
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	----	P34B
PSOF_ADJ_T1	ARC: User Input Phase offset	DEG	0.000
RESTIK	ARC resistivity tick source	----	Phase
RSD	LWD run start date dd-mmm-yy	OHMM	23-Oct-08
RUN_DURATION_OP	Run Duration Type ?	----	Normal
RWA_COMP_MOD	Rwa computation model	----	BASIC
RWA_DEN_ADN	Rwa Density Input	----	RHOB
RWA_DEN_CDN	Rwa Density Input	----	RHOB
RWA_DEN_INPUT	Rwa Density Input	----	RHOB
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC
RWA_RES_INPUT	Rwa computation resistivity input	----	RT
SDPTH	Wizard Process Start Depth	----	100
SIG_PCOR_OPT	Porosity Correction Source for Sigma Processing	----	Best
SPEC_CSG_DEPTH	Casing Depth for Spectroscopy Processing	M	30.480
SPEC_K_OPT	Potassium standard used during acquisition?	----	NO
SPL_CLAY_MODEL	SpectroLith Clay Model	----	SUBARKOSE
SPL_MG_OPT	Magnesium Flag Switch ?	----	OFF
SPL_NL_COEFF	Non Linearity Coefficient for Downhole Spectroscopy Processing	----	147.000
SPL_SULFUR_MIN	SpectroLith Sulfur Mineral Option	----	PYRITE
STAB_SIZE	Stabilizer Size	IN	7.875
STOH	Top of Hole Sector	----	SECTOR_0
TRNO	**Tool Run Number**	**M**	**5204.000**
TSIZ_ARC	**ARC Tool Size**	**IN**	**6.900**
TSNO	Tool Serial Number	IN	6.900
UNIFORM_COMPUTE	Uniform Rock Option	----	YES
VERS_ARC	ARC Down hole software version Number	----	2.300
WPPV	Water Phase as Percent of Total Volume in OBM	----	26.100
WPSL	Salinity of the Water Phase Emulsified within the OBM	PPK	271.562
WRK	to Report Potassium Concentration	----	K_by_Wgt_%
WSDI	Window Size of Dynamic Normalization Image	M	4.572

Variable Name	Variable Description	Run Name & Value	
	Run Number		6
	General Information		
BHT_RM	Bottom Hole Temperature (RM)	DEGC	98.000
BSAL_RM	Mud Salinity (RM)	PPK	n/a
BS_RM	Bit Size (RM)	IN	8.500
COEF_M	User Defined FEXP in Clean Sand	----	1.650
C_WS	Overpressure correction to Sw and M	----	1.000
FEXP	Formation Factor Exponent(RM)	----	2.000
FNUM	Formation Factor Enumerator(RM)	----	1.000
FPHI_RM	Formation Factor Porosity Source (RM)	----	XPLOT
MST_RM	Mud Sample temperature (RM)	DEGC	23.889
MW_RM	Mud Weight (RM)	LB/G	10.600
OBMF_RM	Oil Based Mud (RM)	----	YES
RHOF_RM	Mud Filtrate Density (RM)	G/C3	1.000
RHOM_RM	Matrix density (RM)	G/C3	2.710
RMS_RM	Resistivity of Mud Sample (RM)	OHMM	1000.000
RWA_COMP_M	Rwa computation model		
RWA_DEN_AD	Rwa Density Input ADN		
RWA_DEN_CD	Rwa Density Input CDN		
RWA_DEN_IN	Rwa Density Input		
RWA_FORM_M	Rwa computation formation model		
RWA_RES_IN	Rwa computation resistivity input		
RWS_RM	Resistivity of Connate Water (RM)	OHMM	1.000
SHT_RM	Ground Level Temperature (Mud-Line When Offshore) (RM)	DEGC	10.000
TD_RM	Total Measured Depth (RM)	M	5204.000
TWS_RM	Temperature of Connate Water (RM)	DEGC	23.889
VF_ILLI	Fraction of illite in shales	----	0.500

VF_KAOL	Fraction of kaolinite in shales	----	0.500
VF_MONT	Fraction of montmorillonite in shales	----	0.000
XPDM_RM	Cross plot density porosity multiplier	----	0.675
XPNM_RM	Cross plot neutron porosity multiplier	----	0.325
	ARC		
A12A	ARC Air Cal Attenuation From T1 at 2 MHz	DB	8.277
A14A	ARC Air Cal Attenuation From T1 at 400 KHz	DB	8.262
A22A	ARC Air Cal Attenuation From T2 at 2 MHz	DB	6.700
A24A	ARC Air Cal Attenuation From T2 at 400 KHz	DB	6.726
A32A	ARC Air Cal Attenuation From T3 at 2 MHz	DB	4.897
A34A	ARC Air Cal Attenuation From T3 at 400 KHz	DB	4.872
A42A	ARC Air Cal Attenuation From T4 at 2 MHz	DB	4.598
A44A	ARC Air Cal Attenuation From T4 at 400 KHz	DB	4.611
A52A	ARC Air Cal Attenuation From T5 at 2 MHz	DB	3.446
A54A	ARC Air Cal Attenuation From T5 at 400 KHz	DB	3.429
ABNT	Abnormal Transmitter Indicator	----	No_Tx_Failed
ADHS	ARC Down Hole Software Version	----	9.3b13
AM2A	ARC Air Cal Amplitude Offset at 2 MHz	----	-50000.000
ANISO_COMPUTE	Anisotropy Computation Option	----	YES
APICG	ARC5 Gamma Ray Gain Factor	----	1.030
APIG	ARC Gamma Ray API Gain Factor	----	-1.000
ARC_DATA_FIX	ARC: Create A Corrected ARC Time Data File	----	NO
ARC_DATA_LTB	ARC: Create An ARC LTB Data File	----	NO
ATMP_ARC	ARC Select Temperature Channel	----	Annulus_Temp
ATRN	ARC Tool Run Number	----	6
ATSN	ARC Tool Serial Number	----	1191
AZMF	Formation DIP Azimuth	DEG	0.000
BH_COMPUTE	Borehole Inversion Computation Option	----	YES
CALG	ARC Gamma Ray Cal Gain Factor	----	1.030
CALI_SLCT_ARC	ARC Caliper Selection	----	BITSIZE
CDPTH_ARC	Process Start Depth	M	30.480
DIELEC_COMPUTE	Dielectric Computation Option	----	YES
DIPF	Formation DIP Angle	DEG	0.000
ERRCT	Percentage Error Cutoff	----	4.500
GRSH	GR Shale (Invasion Computation Cutoff)	GAPI	1000.000
HIGH_BLEND	High Resistivity Threshold for Blending	OHMM	2.000
INCLIN_B0	ARC Bias Constant (mg)	----	0.000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)	----	0.000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)	----	0.000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)	----	0.000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	----	1.000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)	----	0.000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)	----	0.000
INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)	----	0.000
INVAS_COMPUTE	Invasion Computation Option	----	YES
JSD_ARC	ARC Acquisition start date	----	23-Oct-08
KPER	**Potassium Concentration (RM)**	**----**	**0.000**
LOW_BLEND	**Low Resistivity Threshold for Blending**	**OHMM**	**1.000**
MSWS	ARC Wizard Model Switch Window	M	1.524
MULTIEFFECT_COM	Multi Effect Option	----	YES
P11AC_RM	ARC: Air Calibration For Phase T1 to R1	DEG	-999.250
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	DEG	-0.408
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	DEG	0.855
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	DEG	0.479
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	DEG	-0.950
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	DEG	-0.470
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	DEG	0.884
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	DEG	0.447
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	DEG	-0.940
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	DEG	-0.492
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	DEG	0.879
POFFSET_ARC	ARC: Pressure Offset	PSI	0.000
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	----	P34B
PSOF_ADJ_T1	ARC: User Input Phase offset	DEG	0.000
RESTIK	ARC resistivity tick source	----	Phase
RSD	LWD run start date dd-mmm-yy		23-Oct-2008
RWA_COMP_MOD	Rwa computation model	----	BASIC
RWA_DEN_ADN	Rwa Density Input	----	RHOB
RWA_DEN_CDN	Rwa Density Input	----	RHOB
RWA_DEN_INPUT	Rwa Density Input	----	RHOB
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC
RWA_RES_INPUT	Rwa computation resistivity input	----	RT
SHIG	ARC High Shock Risk Level	CPS	0.500
SMED	ARC Medium Shock Risk Level	CPS	0.330
SMIN	ARC Minimum Shock Risk Level	CPS	0.160
SUPD	ARC Real Time Shock Update Rate	S	30.000
TCODE_ARC	ARC Tool File Code	S	30.000
TSIZ_ARC	ARC Tool Size	IN	6.750
UNIFORM_COMPUTE	Uniform Rock Option	----	YES
VERS_ARC	ARC Down hole software version Number	----	9.300
WRK	to Report Potassium Concentration (RM)	----	K_by_Wgt_%

Schlumberger Drilling & Measurements ID13 Parameter Insert Header Software version 3.0c

IDEAL Version: ID14_0C_02

IDF

Format: VISION Density Neutron RM Log Vertical Scale: 1:200 Graphics File Created: 09−Apr−2009 13:07

PIP SUMMARY

Neutron Samples

Density Samples

Gamma Ray Samples

Rate of Penetration, Averaged over Last 5ft (ROP5_RM)
200 (M/HR) 0

Ultrasonic Caliper, Vertical Diameter (UCVE)
6 (IN) 16

Ultrasonic Caliper, Horizontal Diameter (UCHO)
6 (IN) 16

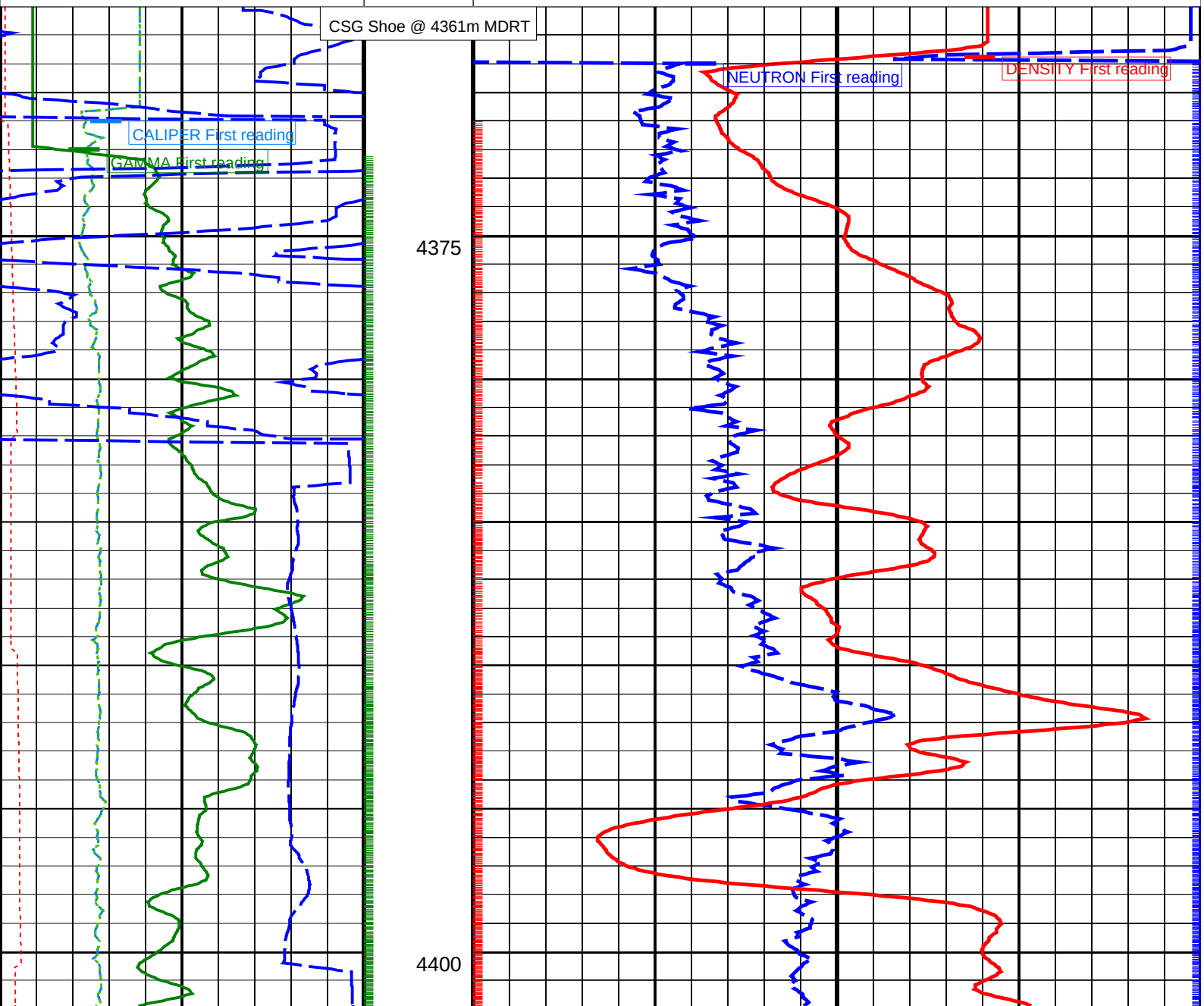
Time after BIT (between drilling and measurement) (TAB_DEN)
0 (HR) 10

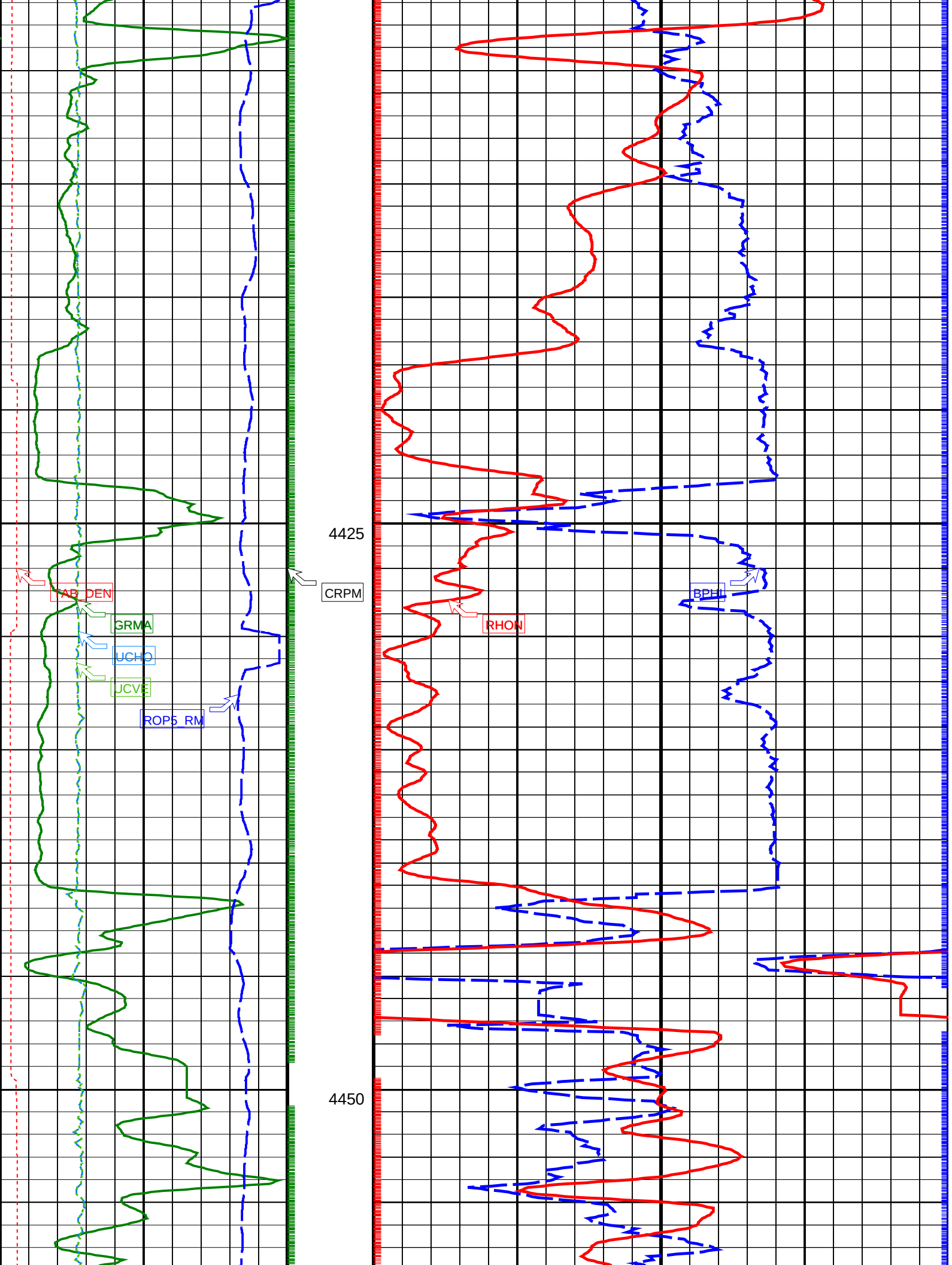
Bulk Density from Neutron, Average (RHON)
1.85 (G/C3) 2.85

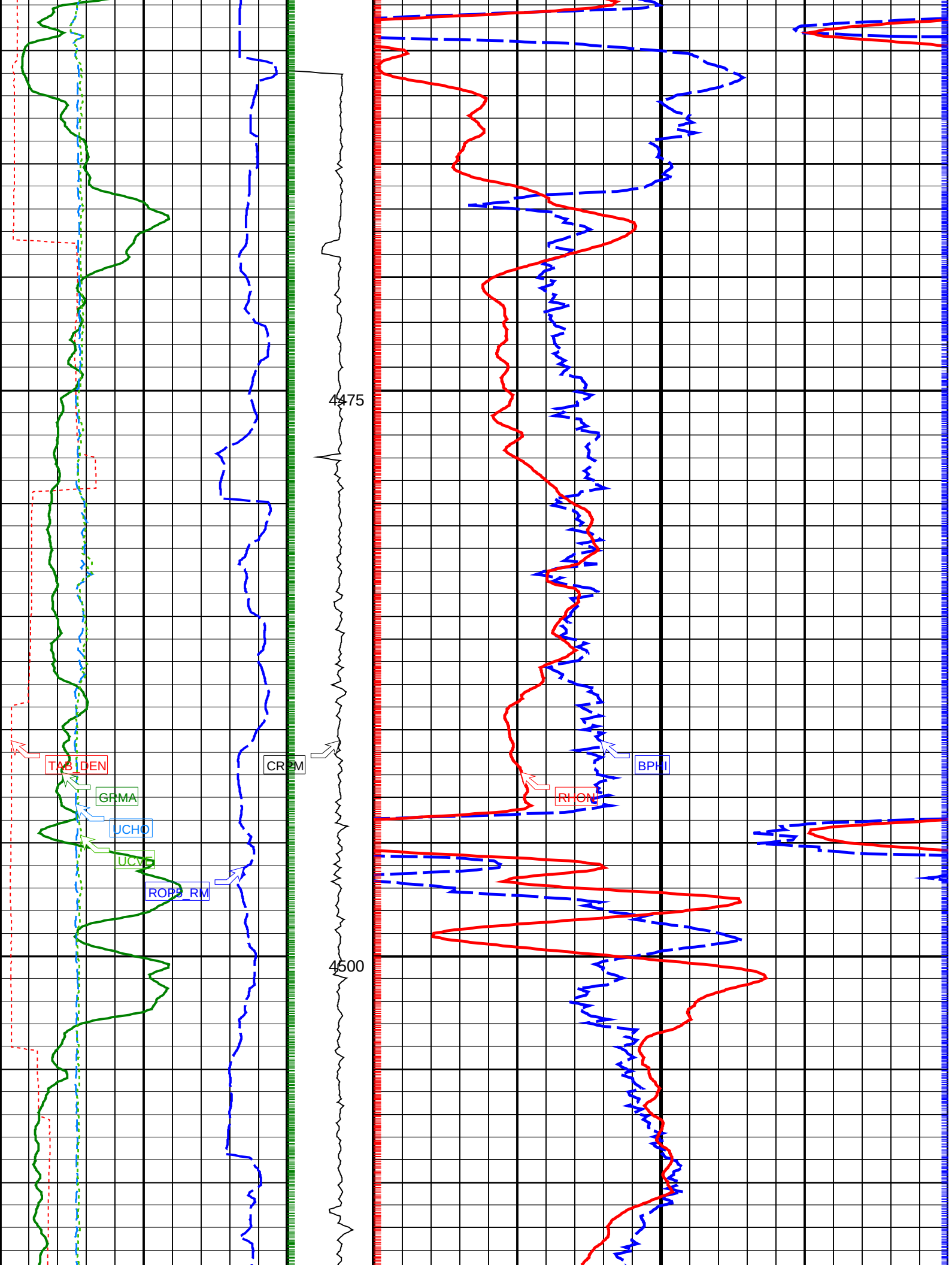
Gamma Ray, Average (GRMA)
0 (GAPI) 200

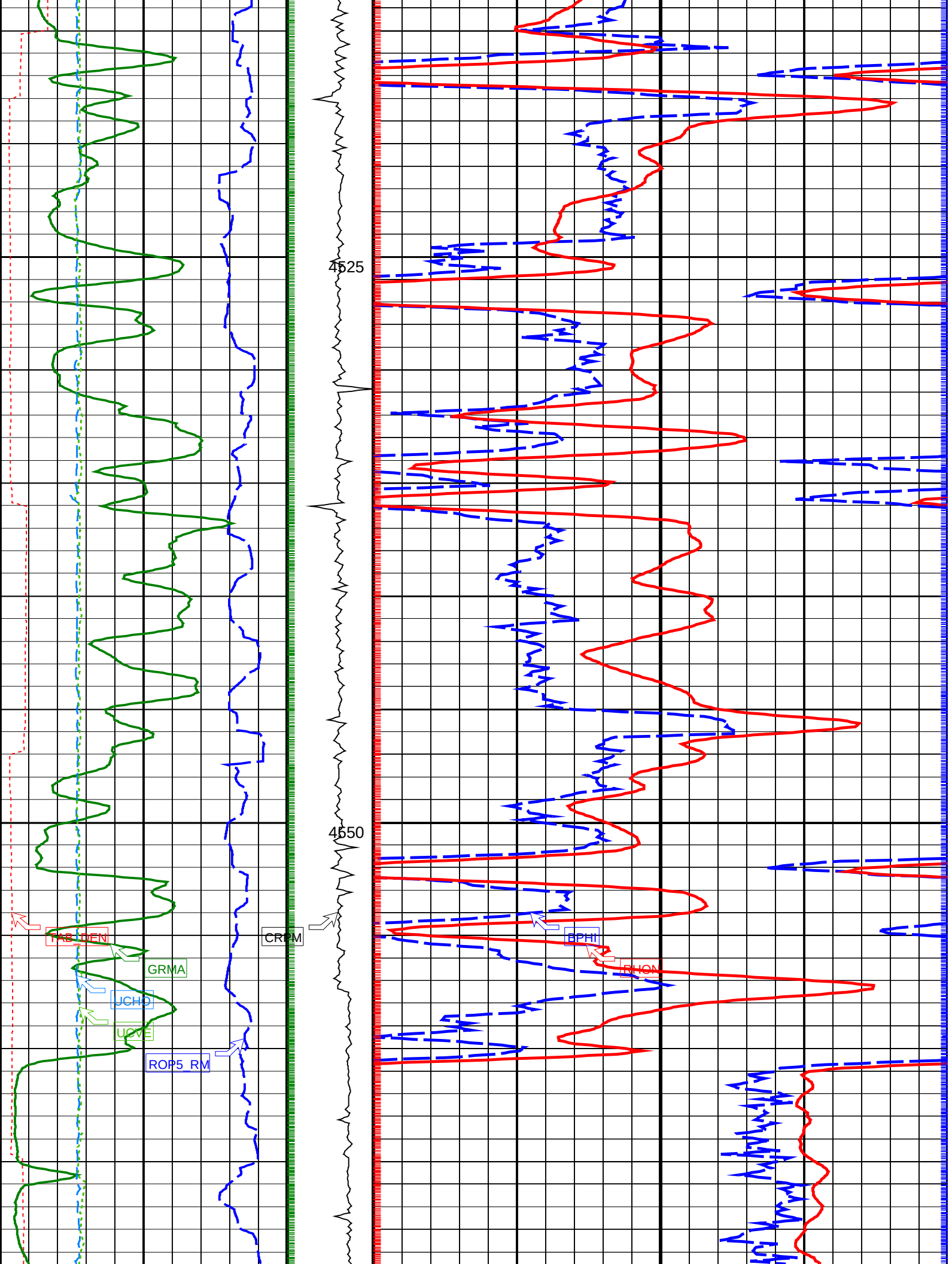
Collar Rotational Speed (CRPM) (RPM)
0 200

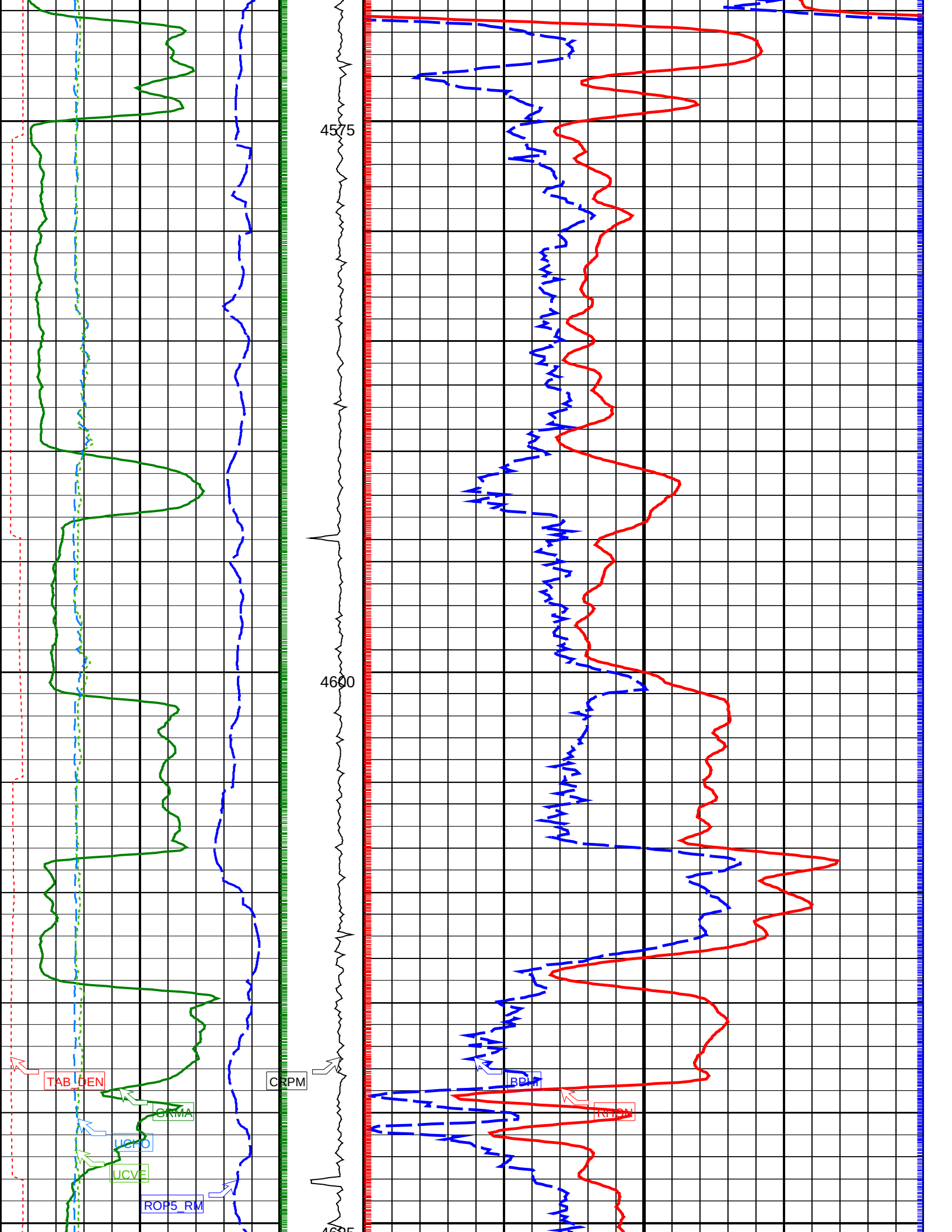
Best Thermal Neutron Porosity, Average (BPHI)
45 (PU) −15

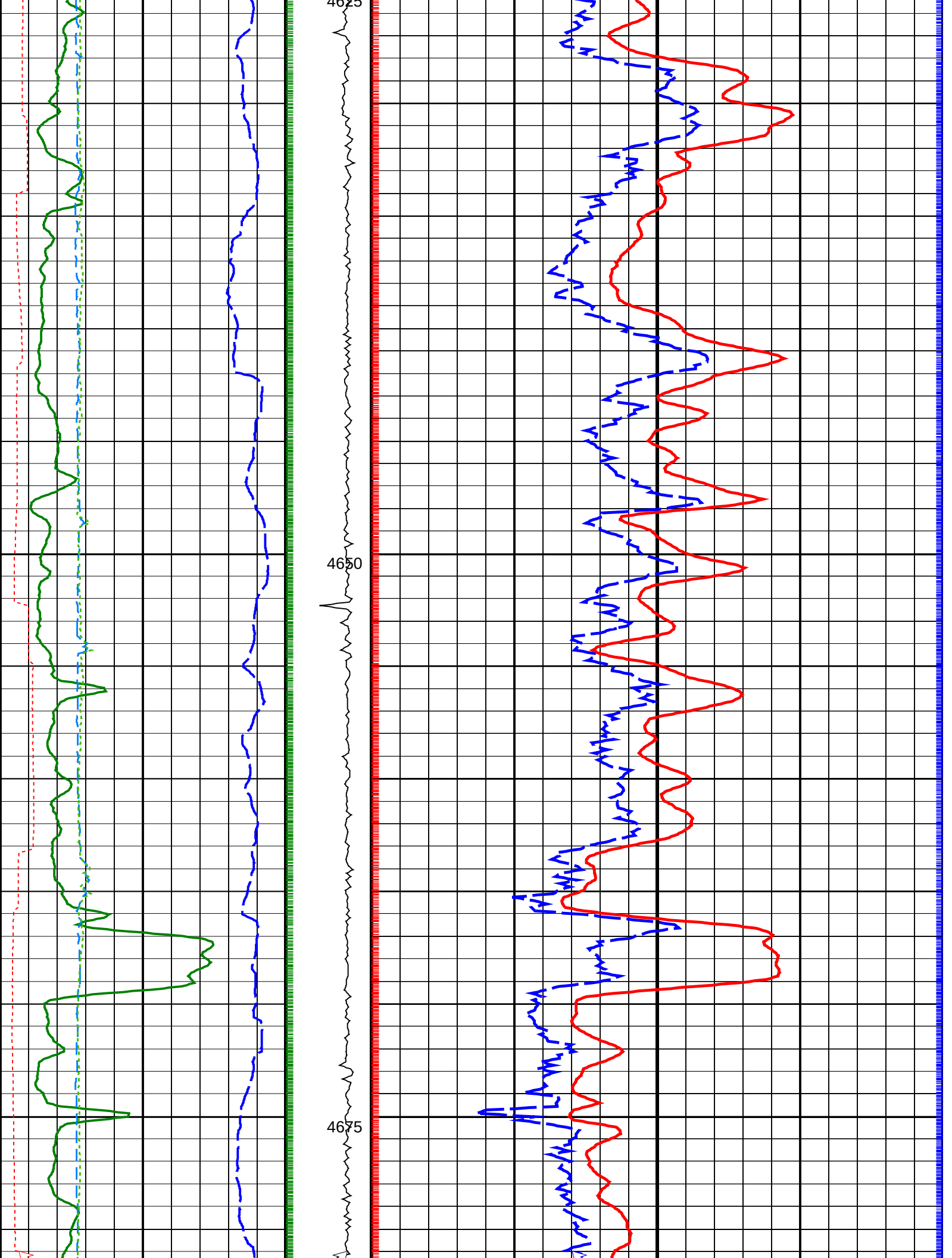



4425
4450
AB_DEN
GRMA
UCHO
UCVE
ROP5_RM
CRPM
RHON
BPHI


4475
4500
TAB_DEN
GRMA
UCHO
UCVD
ROPB_RM
CR_2M
RHON
BPHI


4525
4550
TAB_DEN
GRMA
UCHO
UCVE
ROP5_RM
CRPM
BPHI
RHON


4575
4600
TAB_DEN
GRMA
UCHO
UCVE
ROP5_RM
CRPM
BPHI
RHOM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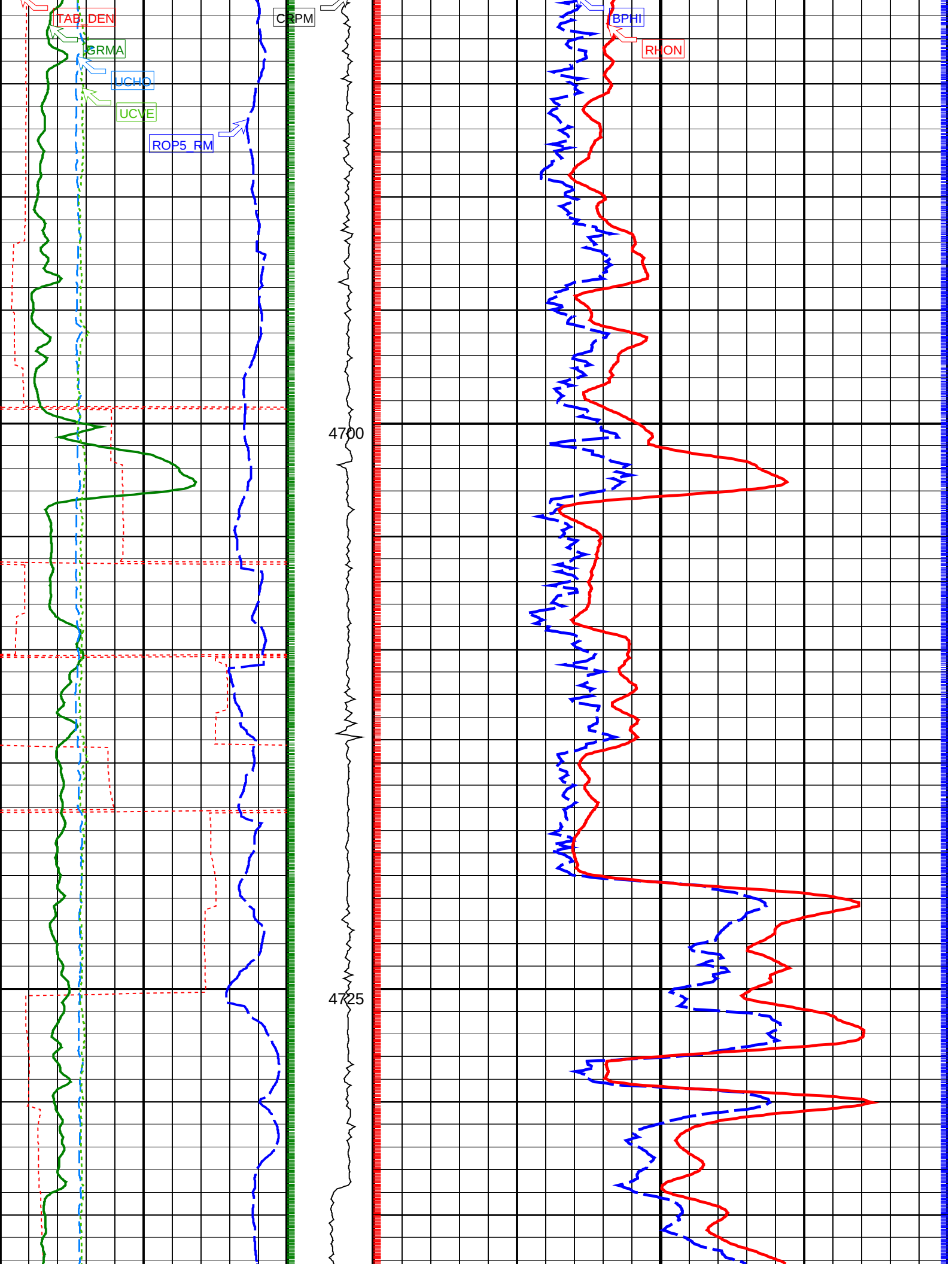
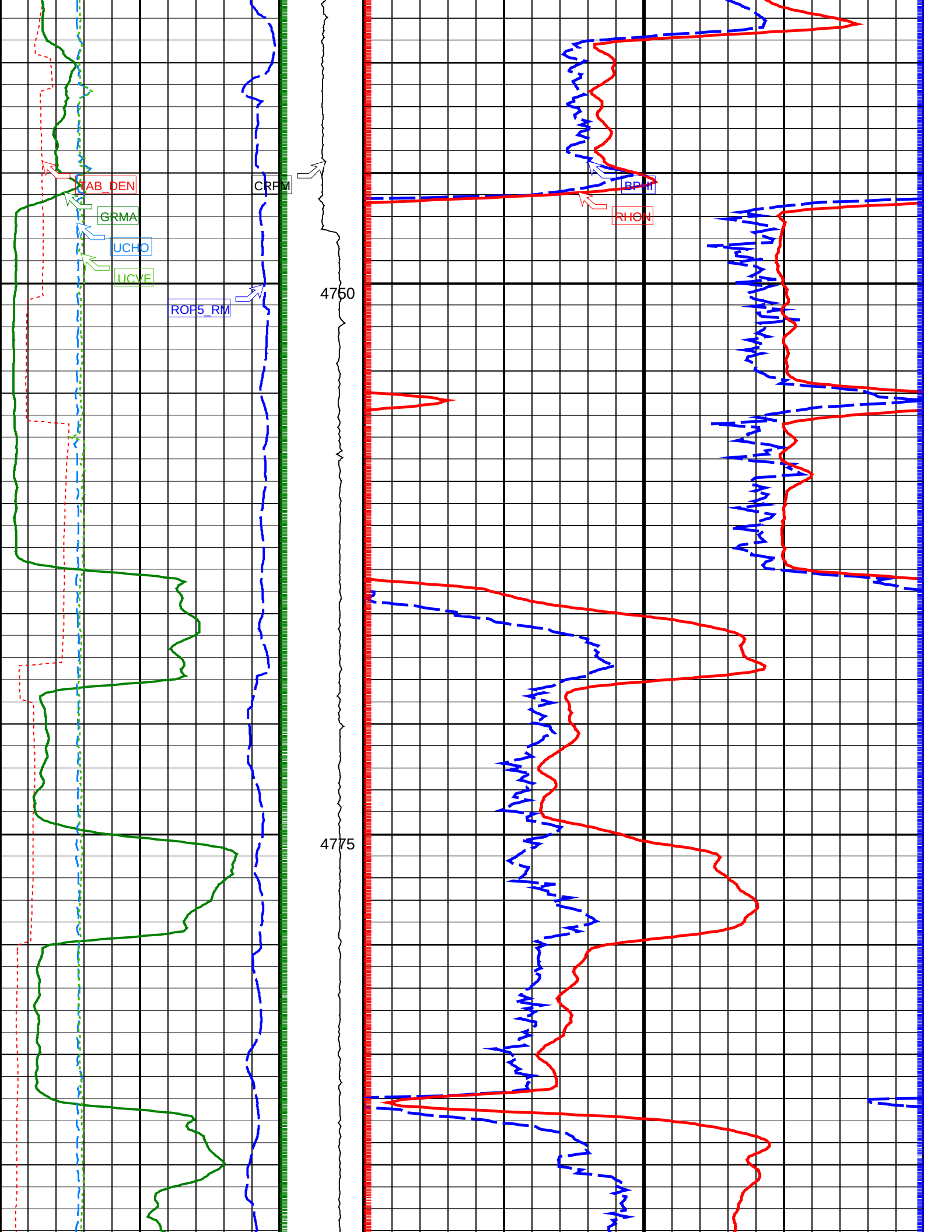
4650
4675


TAB_DEN
GRMA
UCHO
UCVE
ROP5_RM
CRPM
BPHI
RHON
4700
4725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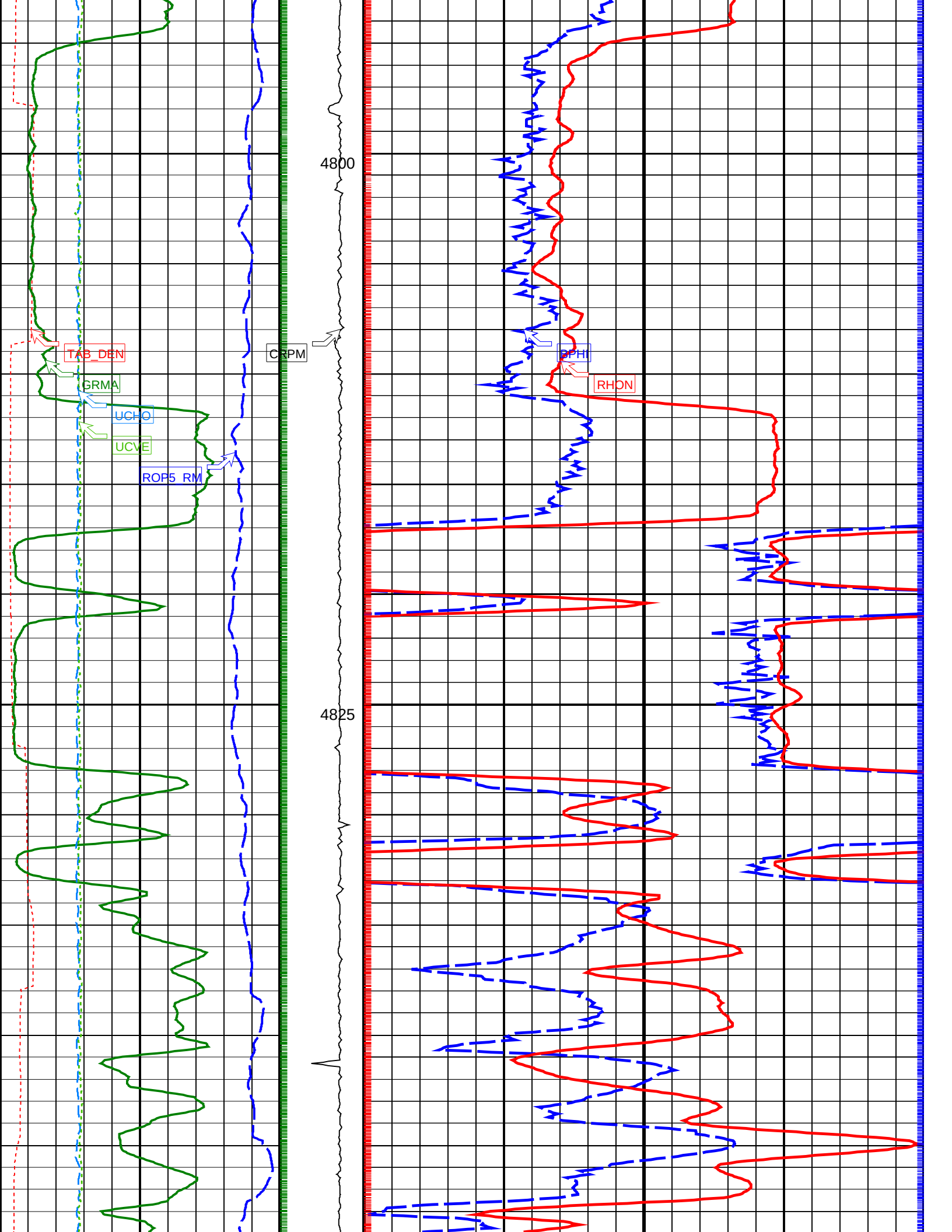
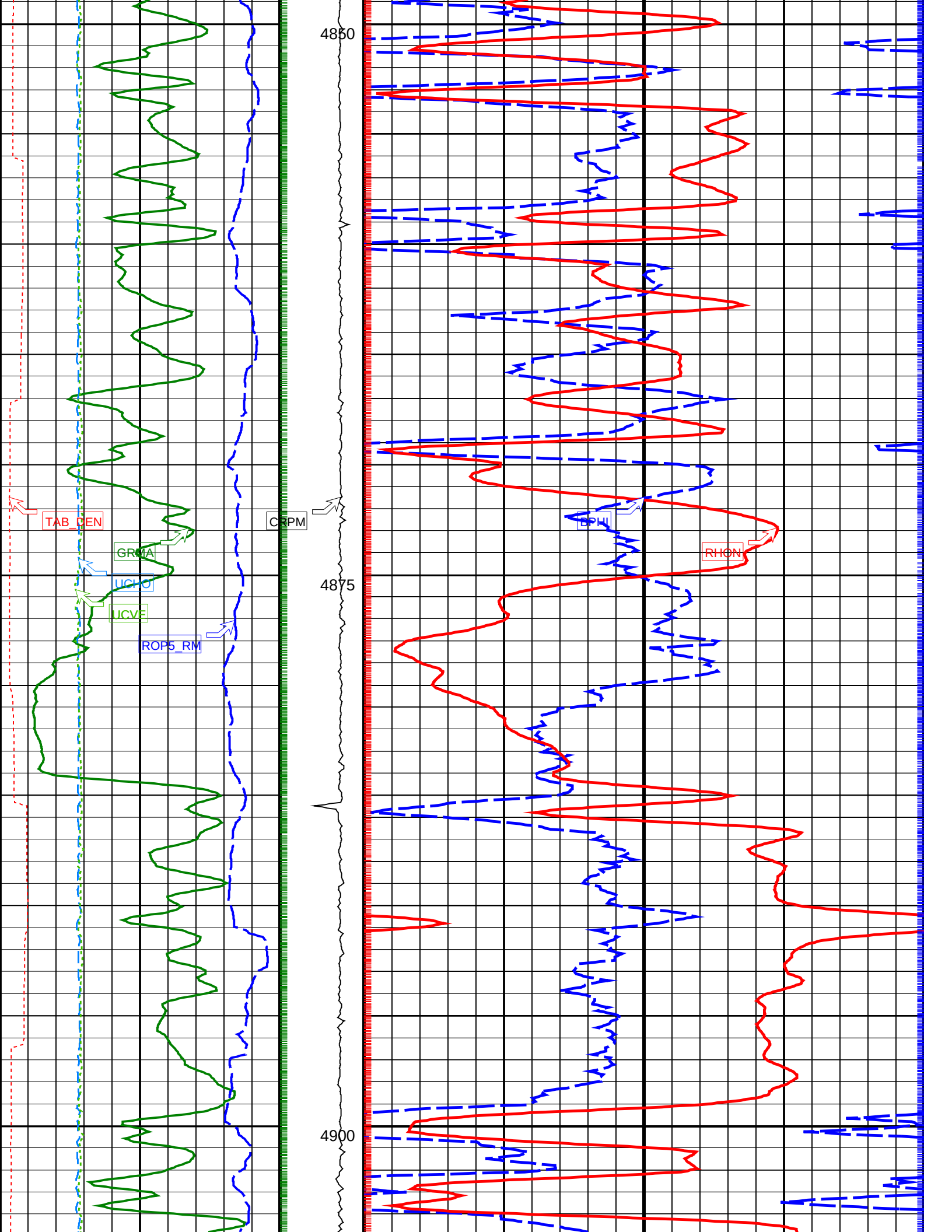
GRMA
UCHO
UCVE
ROP5_RM
CRPM
BPHI
RHOB
4750
4775


4800
4825
TAB_DEN
GRMA
UCHO
UCVE
ROP5_RM
CRPM
DPHI
RHON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4875
4900
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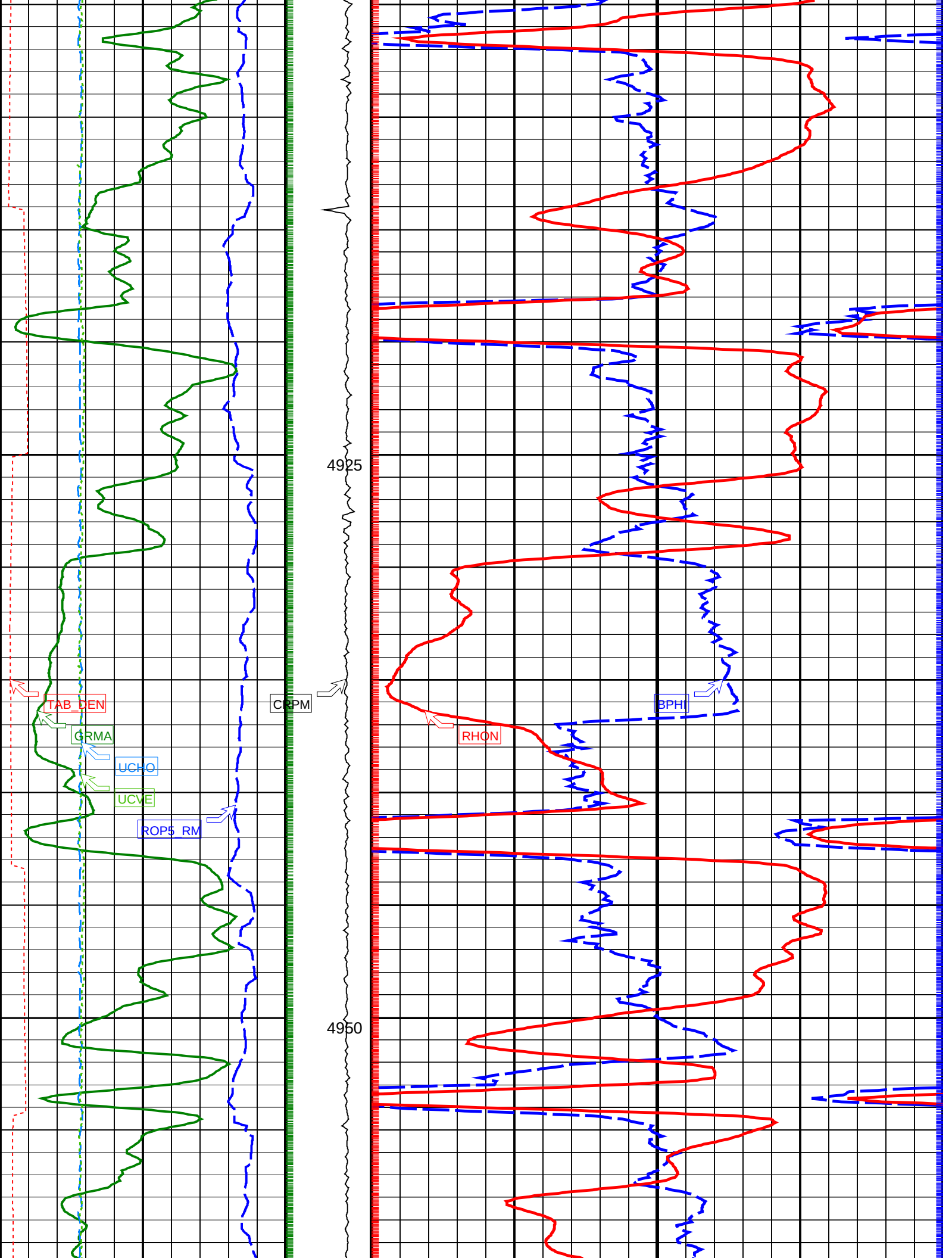
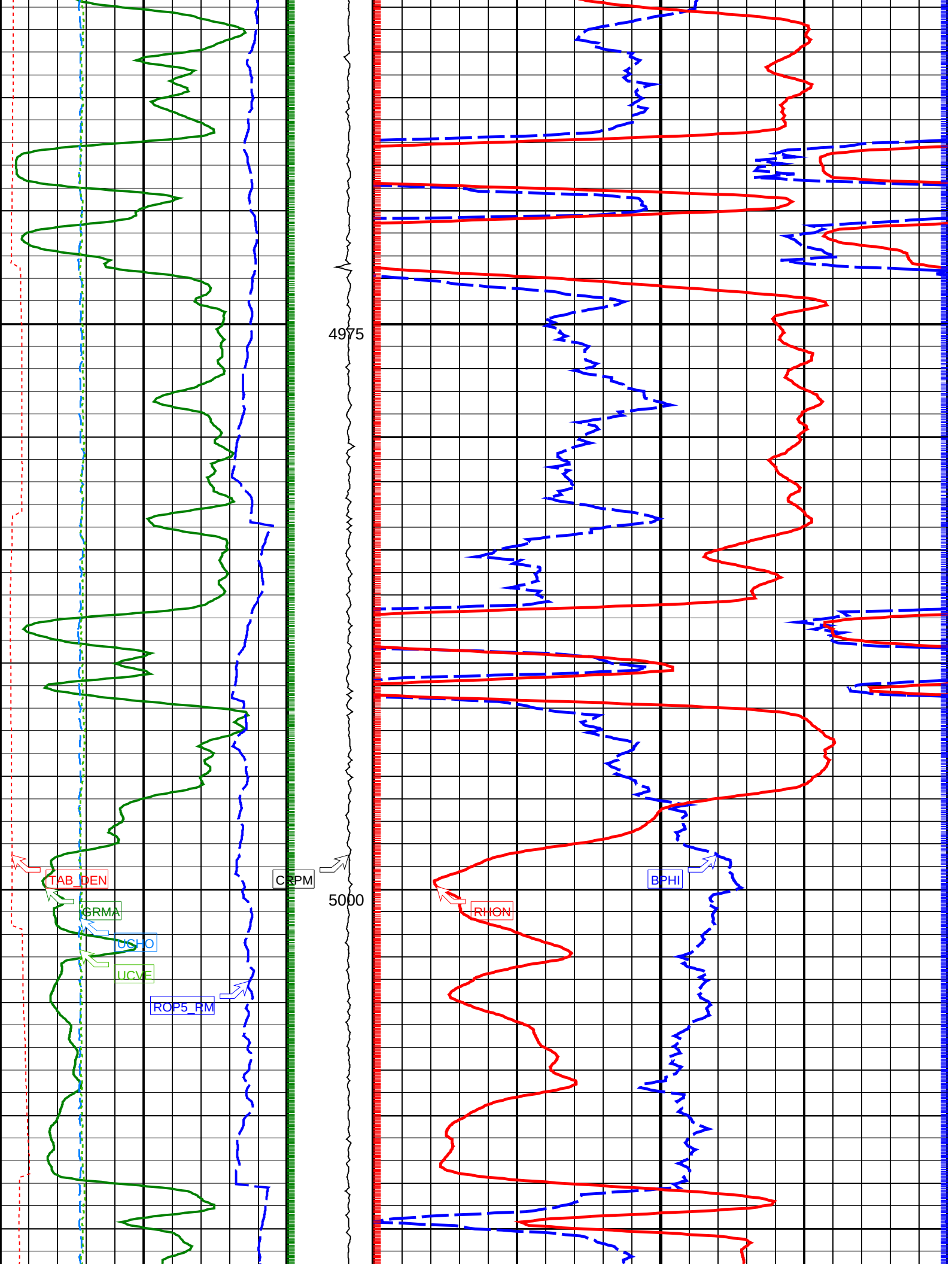
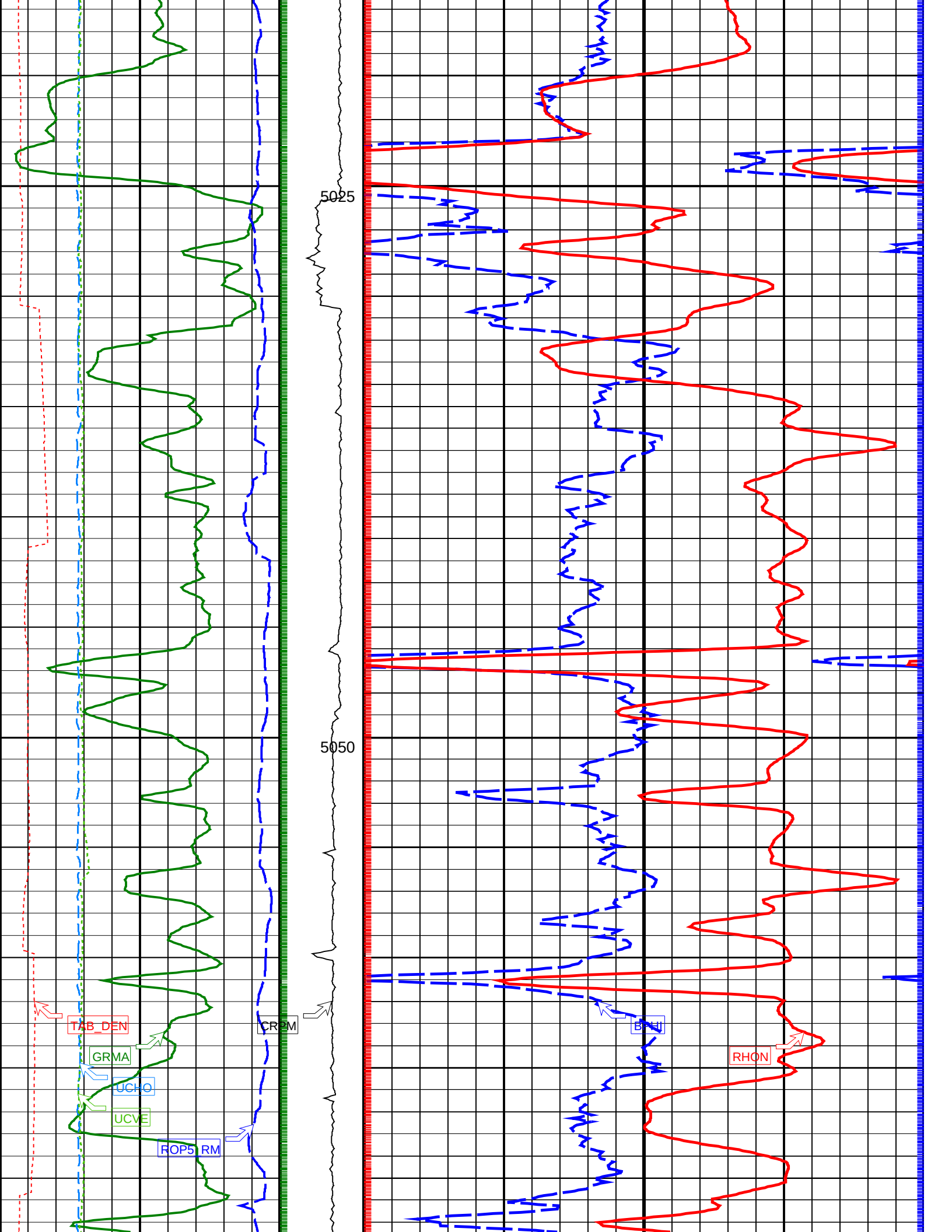
CRPM
GRMA
UCHO
UCVE
ROP5_RM
DPHI
RHON


4925
4950
TAB_DEN
GRMA
UCHO
UCVE
ROP5_RM
CRPM
RHON
BPHI


4975
5000
TAB_DEN
GRMA
UCHO
UCVE
ROP5_RM
CRPM
RHON
BPHI


5025
5050
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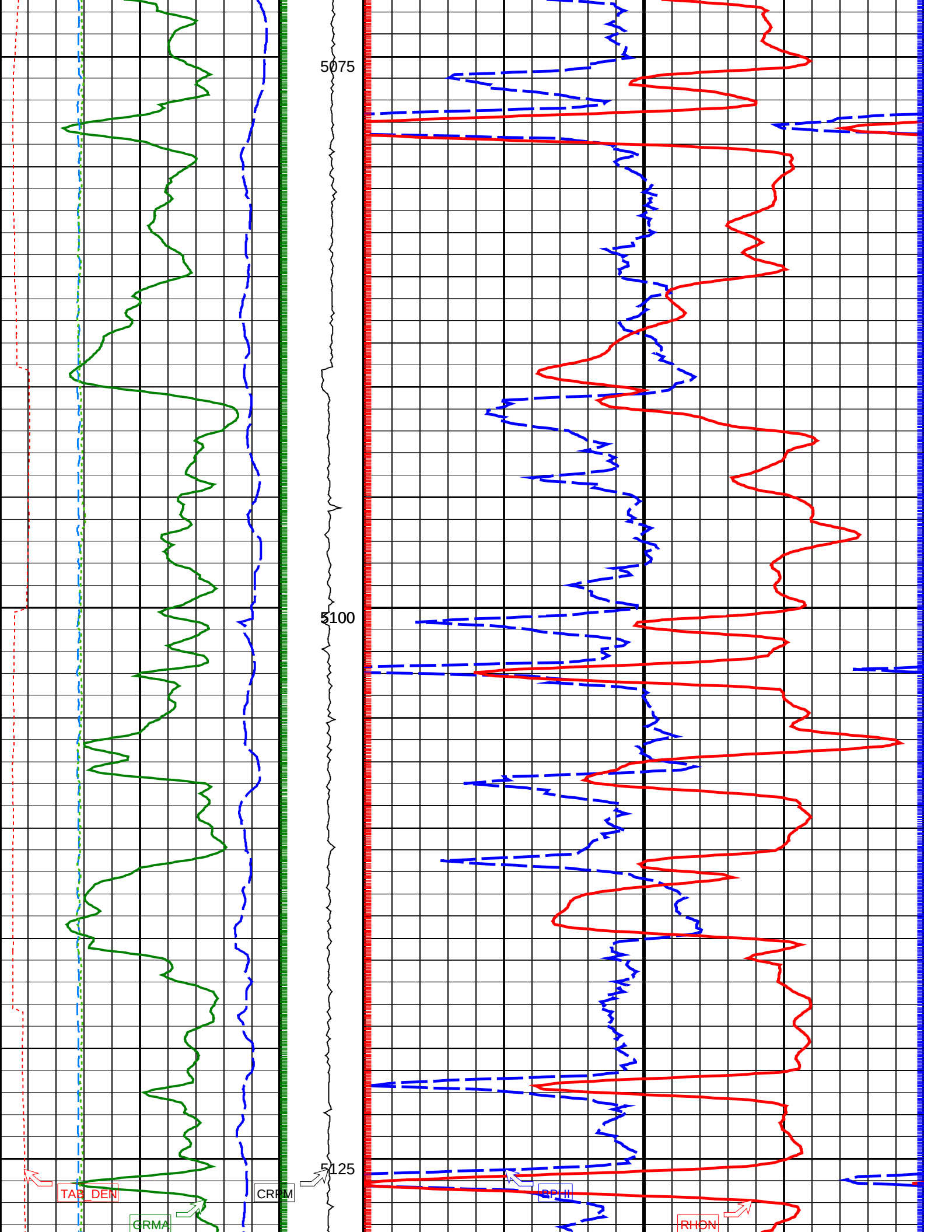
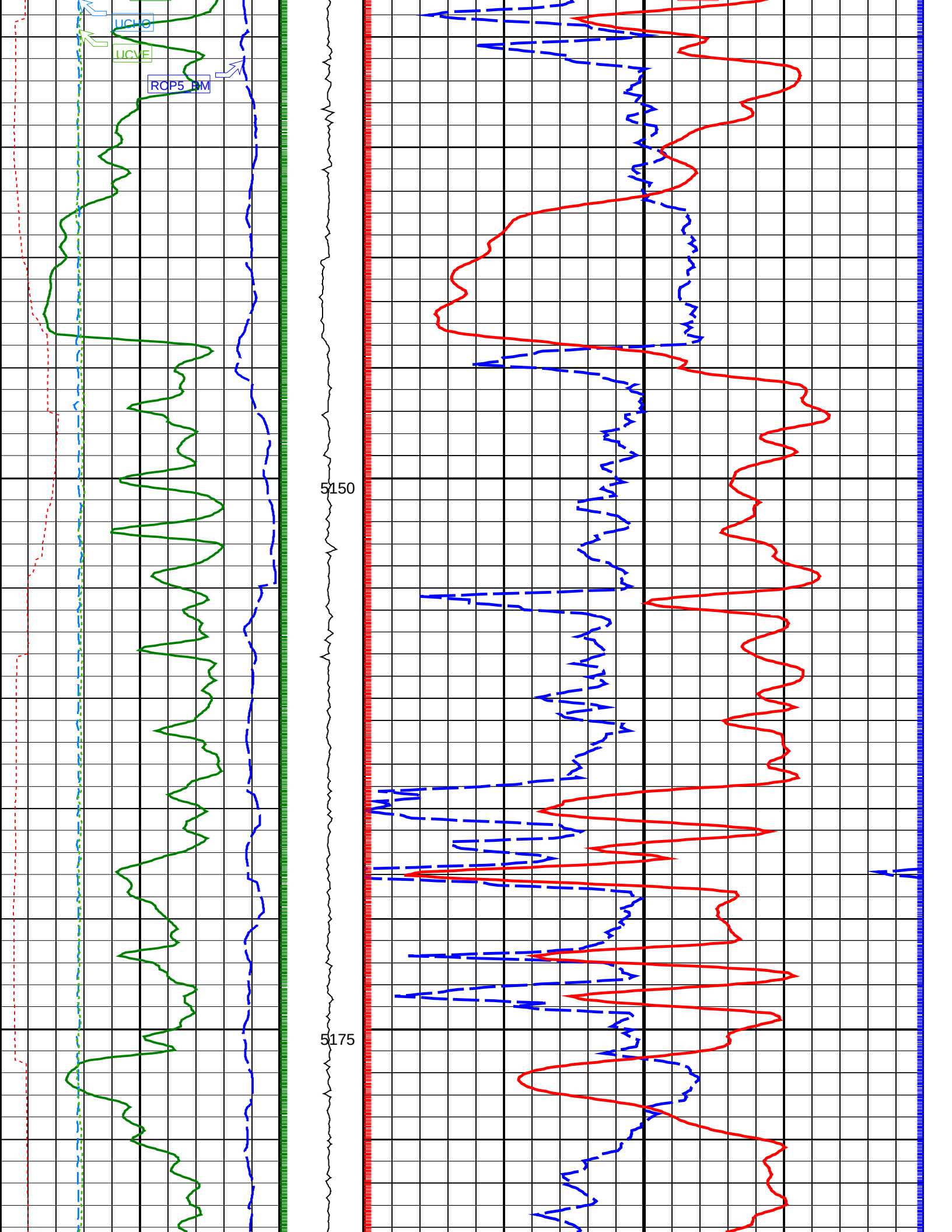
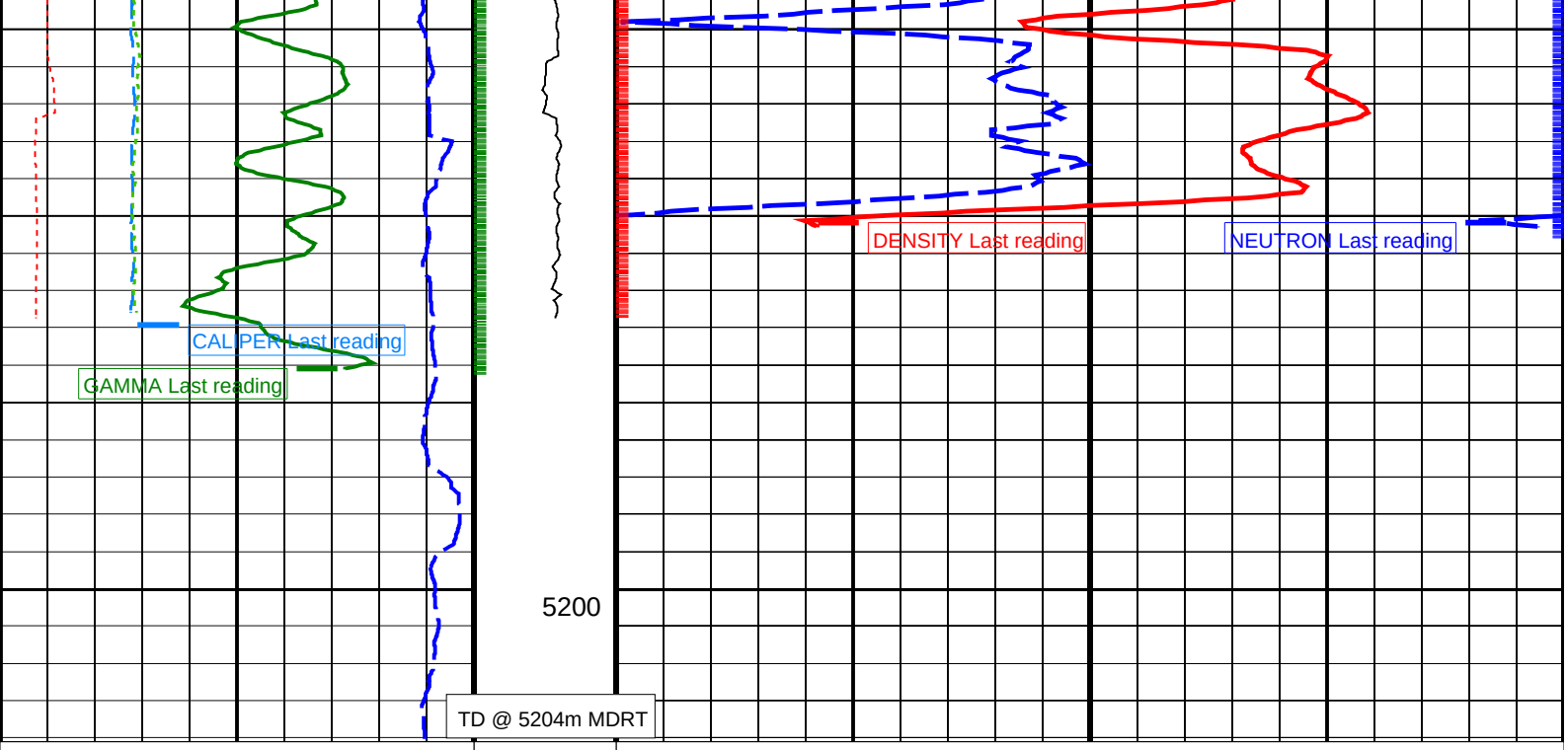
GRMA
UCHO
UCVE
ROP5_RM
CRPM
BPHI
RHON


5075
5100
5125
TAB_DEN
GRMA
CRPM
RPHI
RHOB


UCHO
UCVE
RCP5_BM
5150
5175



Gamma Ray, Average (GRMA)	Collar Rotational Speed (CRPM) (RPM)	Best Thermal Neutron Porosity, Average (BPHI)
0 (GAPI) 200	0 200	45 (PU) −15
Time after BIT (between drilling and measurement) (TAB_DEN)		**Bulk Density from Neutron, Average (RHON)**
0 (HR) 10		1.85 (G/C3) 2.85
Ultrasonic Caliper, Horizontal Diameter (UCHO)		
6 (IN) 16		
Ultrasonic Caliper, Vertical Diameter (UCVE)		
6 (IN) 16		
Rate of Penetration, Averaged over Last 5ft (ROP5_RM)		
200 (M/HR) 0		

PIP SUMMARY

Neutron Samples

Density Samples

Gamma Ray Samples

IDEAL Version: ID14_0C_02

IDF

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch / Equipment Identification

Primary Equipment:

Tool Name and Serial Number	ECO − 675	954
Calibration Status	−	
Neutron Logging Source	PNG − C	
Density Logging Source	GSR − J/Z	
Stabilizer Size	7.88 − in.	

Master: 29−Sep−2008 22:18

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

SSn LSn : Water Tank

Phase	SSn Gain -----	Value	Phase	SSn Offset -----	Value

Phase		Value
Master		1.047
	0.9300 (Minimum) 1.060 (Nominal) 1.190 (Maximum)	

Phase		Value
Master		266.6
	−137.0 (Minimum) 535.5 (Nominal) 1208 (Maximum)	

Phase	LSn Gain	Value
Master		1.013
	0.9100 (Minimum) 1.060 (Nominal) 1.210 (Maximum)	

Phase	LSn Offset	Value
Master		0
	−45.00 (Minimum) 31.50 (Nominal) 108.0 (Maximum)	

Master: 29−Sep−2008 22:18

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Neutron: Water Tank

Phase	Far 2 Gain	Value
Master		0.9622
	0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum)	

Phase	Far 2 Offset	Value
Master		0.7549
	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	

Phase	Far 1 Gain	Value
Master		0.9848
	0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum)	

Phase	Far 1 Offset	Value
Master		1.378
	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	

Phase	Thermal Near gain	Value
Master		0.9940
	0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum)	

Phase	Thermal Near offset	Value
Master		112.0
	−500.0 (Minimum) 0 (Nominal) 500.0 (Maximum)	

Phase	Epithermal Near gain	Value
Master		1.018
	0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum)	

Phase	Epithermal Near offset	Value
Master		13.24
	−300.0 (Minimum) 0 (Nominal) 300.0 (Maximum)	

Master: Calibration out of date 30−Jul−2008 7:52

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Gamma Density: Magnesium Block

Phase	LS window 3 − Mg CPS	Value
Master		3498
	2200 (Minimum) 3350 (Nominal) 4500 (Maximum)	

Phase	SS window 1 − Mg CPS	Value
Master		7040
	4560 (Minimum) 6830 (Nominal) 9100 (Maximum)	

Phase	SS window 3 − Mg CPS	Value
Master		16810
	11100 (Minimum) 16700 (Nominal) 22300 (Maximum)	

Master: Calibration out of date 30−Jul−2008 7:52

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Gamma Density: Aluminum Block

Phase	LS window 3 − Al CPS	Value
Master		567.7
	350.0 (Minimum) 575.0 (Nominal) 800.0 (Maximum)	

Phase	SS window 1 − Al CPS	Value
Master		3539
	2300 (Minimum) 3550 (Nominal) 4800 (Maximum)	

Phase	SS window 3 − Al CPS	Value
Master		11490
	7600 (Minimum) 11550 (Nominal) 15500 (Maximum)	

Master: Calibration out of date 30−Jul−2008 7:52

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Gamma Density: Background

Phase	LS window 3 − Background CPS	Value
Master		60.36
	50.00 (Minimum) 70.00 (Nominal) 90.00 (Maximum)	

Phase	SS window 1 − Background CPS	Value
Master		82.50
	50.00 (Minimum) 75.00 (Nominal) 100.0 (Maximum)	

Phase	SS window 3 − Background CPS	Value
Master		396.0
	270.0 (Minimum) 370.0 (Nominal) 470.0 (Maximum)	

Master: Calibration out of date 30−Jul−2008 7:52

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Gamma Density: Water Block Check

Phase	Long spacing water density G/C3	Value
Master		1.056
	0.9000 (Minimum) 1.150 (Nominal) 1.400 (Maximum)	

Phase	Short spacing water density G/C3	Value
Master		1.264
	0.9000 (Minimum) 1.150 (Nominal) 1.400 (Maximum)	

Master: 26−Sep−2008 15:56

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Resistivity: Air

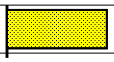
Phase	Phase−Shift T1	Value
Master		0.6237

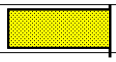
Phase	Phase−Shift T2	Value
Master		−0.7313

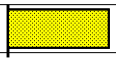
Phase	Phase−Shift T3	Value
Master		0.5926

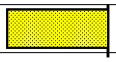
Phase	Phase−Shift T4	Value
Master		−0.7194
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

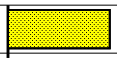
Phase	Phase−Shift T5	Value
Master		0.6257
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T1 at 400KHz	Value
Master		2.530
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T2 at 400KHz	Value
Master		−2.565
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T3 at 400KHz	Value
Master		2.542
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T4 at 400KHz	Value
Master		−2.559
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T5 at 400KHz	Value
Master		2.564
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Master: 26−Sep−2008 15:56

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Resistivity: Air

Phase	Attenuation T1	Value
Master		8.039
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	Attenuation T2	Value
Master		6.410
	4.000 (Minimum) 6.000 (Nominal) 8.000 (Maximum)	

Phase	Attenuation T3	Value
Master		4.637
	3.500 (Minimum) 5.500 (Nominal) 7.500 (Maximum)	

Phase	Attenuation T4	Value
Master		4.805
	2.500 (Minimum) 4.500 (Nominal) 6.500 (Maximum)	

Phase	Attenuation T5	Value
Master		3.194
	2.000 (Minimum) 4.000 (Nominal) 6.000 (Maximum)	

Phase	Attenuation T1 at 400KHz	Value
Master		8.069
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	Attenuation T2 at 400KHz	Value
Master		6.390
	4.000 (Minimum) 6.000 (Nominal) 8.000 (Maximum)	

Phase	Attenuation T3 at 400KHz	Value
Master		4.664
	3.500 (Minimum) 5.500 (Nominal) 7.500 (Maximum)	

Phase	Attenuation T4 at 400KHz	Value
Master		4.778
	2.500 (Minimum) 4.500 (Nominal) 6.500 (Maximum)	

Phase	Attenuation T5 at 400KHz	Value
Master		3.226
	2.000 (Minimum) 4.000 (Nominal) 6.000 (Maximum)	

6.75−in. Array Resistivity Compensated / Equipment Identification

Primary Equipment:		
Tool Name and Serial Number	ARC6 − BA	1191
ARC675 Calibration Status	AUTO −	

Master: 27−Sep−2008 12:15

6.75−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Phase−Shift T1	Value
Master		−0.4084
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T2	Value
Master		0.4792
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T3	Value
Master		−0.4701
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T4	Value
Master		0.4472
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T5	Value
Master		−0.4916
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T1 at 400KHz	Value
Master		0.8553
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T2 at 400KHz	Value
Master		−0.9504
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T3 at 400KHz	Value
Master		0.8843
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T4 at 400KHz	Value
Master		−0.9397
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Phase	Phase−Shift T5 at 400KHz	Value
Master		0.8794
	−3.900 (Minimum) 0.1000 (Nominal) 4.100 (Maximum)	

Master: 27−Sep−2008 12:15

6.75−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Attenuation T1	Value
Master		8.277
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2	Value
Master		6.700
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3	Value
Master		4.897
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4	Value
Master		4.598
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5	Value
Master		3.446
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Phase	Attenuation T1 at 400KHz	Value
Master		8.262
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2 at 400KHz	Value
Master		6.726
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3 at 400KHz	Value
Master		4.872
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4 at 400KHz	Value
Master		4.611
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5 at 400KHz	Value
Master		3.429
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Master: 26−Sep−2008 18:10

6.75−in. Array Resistivity Compensated Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor (equals Calibration Gain multiplied by API Gain Factor) CPS	Value
Master		4.942
2.780 (Minimum)	4.800 (Nominal)	6.000 (Maximum)

SCHLUMBERGER

Survey report 5-Nov-2008

```
Client....................: ESSO AUSTRALIA PTY LTD.
Field.....................: SNAPPER

Well......................: SNA A11A-st
API number................: 08ASQ0028
Engineers.................: MA/BL/DOB/DP

RIG:......................: ISDL 175
STATE:....................: VICTORIA

----- Survey calculation methods-------------
Method for positions.....: Minimum curvature
Method for DLS...........: Mason & Taylor

----- Depth reference -----------------------
Permanent datum..........: Mean Sea Level
Depth reference..........: Driller's Depth
GL above permanent.......:  -55.00 m
KB above permanent.......: Top Drive
DF above permanent.......:   41.70 m

----- Vertical section origin----------------
Latitude (+N/S-).........:     -1.85 m
Departure (+E/W-).........:      2.38 m

Azimuth from Vsect Origin to target:  225.66 degrees
```

```
Spud date.................: 09-Sep-08
Last survey date.........: 28-Oct-08
Total accepted surveys...: 320
MD of first survey.......:     0.00 m
MD of last survey........:  5204.00 m

----- Geomagnetic data ----------------------
Magnetic model...........: BGGM version 2008
Magnetic date............: 21-Oct-2008
Magnetic field strength..:    1198.04 HCNT
Magnetic dec (+E/W-).....:      13.00 degrees
Magnetic dip.............:     -68.69 degrees

----- MWD survey Reference Criteria ---------
Reference G..............:    1000.02 mGal
  Reference H............:    1198.04 HCNT
  Reference Dip..........:     -68.69 degrees
  Tolerance of G.........: (+/-) 2.50 mGal
  Tolerance of H.........: (+/-) 6.00 HCNT
  Tolerance of Dip.......: (+/-) 0.45 degrees

----- Corrections ---------------------------
  Magnetic dec (+E/W-).....:      13.00 degrees
  Grid convergence (+E/W-).:      -0.63 degrees
  Total az corr (+E/W-)....:      13.63 degrees
    (Total az corr = magnetic dec - grid conv)
  Survey Correction Type ...:
     I=Sag Corrected Inclination
     M=Schlumberger Magnetic Correction
     S=SORSl Magnetic Correction
     F=Failed Axis Correction
     R=Magnetic Resonance Tool Correction
     D=Dmag Magnetic Correction
```


SCHLUMBERGER Survey Report

Seq #	Measured depth	Incl angle	Azimuth angle	Course length	TVD depth	Vertical section	Displ +N/S-	Displ +E/W-	Total displ	At Azim	DLS (deg/	Srvy tool Corr

#	depth (m)	angle (deg)	angle (deg)	length (m)	depth (m)	Section (m)	+N/-S (m)	+E/-W (m)	displ (m)	Azim (deg)	10m)	tool type	corr (deg)
1	0.00	0.00	0.00	0.00	0.00	0.00	-1.85	2.38	3.01	127.86	0.00	TIP	None
2	9.08	0.00	0.00	9.08	9.08	0.00	-1.85	2.38	3.01	127.86	0.00	MWD	None
3	64.08	0.64	256.16	55.00	64.08	0.26	-1.92	2.08	2.83	132.74	0.12	MWD	None
4	69.08	0.63	260.84	5.00	69.08	0.31	-1.93	2.03	2.80	133.66	0.11	MWD	None
5	74.08	0.65	250.94	5.00	74.08	0.36	-1.95	1.97	2.77	134.63	0.22	MWD	None
6	79.08	0.64	252.60	5.00	79.08	0.41	-1.97	1.92	2.75	135.67	0.04	MWD	None
7	84.08	0.66	258.82	5.00	84.08	0.46	-1.98	1.87	2.72	136.71	0.15	MWD	None
8	89.08	0.67	251.56	5.00	89.08	0.51	-1.99	1.81	2.69	137.79	0.17	MWD	None
9	94.08	0.60	249.24	5.00	94.08	0.56	-2.01	1.76	2.67	138.89	0.15	MWD	None
10	99.08	0.58	241.17	5.00	99.08	0.61	-2.03	1.71	2.66	139.95	0.17	MWD	None
11	104.08	0.62	228.30	5.00	104.08	0.66	-2.06	1.67	2.65	141.07	0.28	MWD	None
12	109.08	0.70	211.44	5.00	109.08	0.72	-2.11	1.63	2.67	142.27	0.42	MWD	None
13	114.08	0.89	192.04	5.00	114.08	0.78	-2.17	1.61	2.70	143.50	0.65	MWD	None
14	119.08	1.08	185.88	5.00	119.07	0.85	-2.26	1.59	2.76	144.76	0.43	MWD	None
15	124.08	1.46	178.13	5.00	124.07	0.93	-2.37	1.59	2.85	146.09	0.83	MWD	None
16	129.08	1.89	174.10	5.00	129.07	1.02	-2.51	1.60	2.98	147.48	0.89	MWD	None
17	134.08	2.10	170.15	5.00	134.07	1.12	-2.69	1.63	3.14	148.80	0.50	MWD	None
18	139.08	2.49	169.82	5.00	139.06	1.24	-2.88	1.66	3.33	150.04	0.78	MWD	None
19	144.08	2.77	169.43	5.00	144.06	1.36	-3.11	1.70	3.54	151.29	0.56	MWD	None
20	149.08	3.04	169.81	5.00	149.05	1.51	-3.36	1.75	3.79	152.49	0.54	MWD	None
21	154.08	3.26	170.56	5.00	154.05	1.66	-3.63	1.80	4.05	153.68	0.45	MWD	None
22	159.08	3.50	173.03	5.00	159.04	1.84	-3.92	1.84	4.33	154.89	0.56	MWD	None
23	164.08	3.80	175.77	5.00	164.03	2.03	-4.24	1.87	4.63	156.21	0.69	MWD	None
24	169.08	3.96	177.49	5.00	169.01	2.26	-4.58	1.89	4.95	157.58	0.40	MWD	None
25	174.08	4.35	183.02	5.00	174.00	2.51	-4.94	1.89	5.28	159.10	1.12	MWD	None
26	179.08	4.62	185.30	5.00	178.99	2.80	-5.33	1.86	5.64	160.78	0.65	MWD	None
27	184.08	4.97	188.80	5.00	183.97	3.13	-5.74	1.81	6.02	162.55	0.91	MWD	None
28	189.08	5.34	192.30	5.00	188.95	3.50	-6.18	1.72	6.42	164.43	0.97	MWD	None
29	194.08	5.61	194.26	5.00	193.93	3.90	-6.65	1.61	6.84	166.36	0.66	MWD	None
30	199.08	5.84	193.73	5.00	198.90	4.33	-7.13	1.49	7.29	168.18	0.47	MWD	None
31	204.08	6.01	195.66	5.00	203.87	4.77	-7.63	1.36	7.75	169.89	0.52	MWD	None
32	209.08	6.40	199.47	5.00	208.84	5.25	-8.14	1.20	8.23	171.64	1.13	MWD	None
33	214.08	6.67	202.29	5.00	213.81	5.76	-8.68	0.99	8.73	173.46	0.84	MWD	None
34	219.08	6.96	204.15	5.00	218.78	6.31	-9.22	0.76	9.25	175.29	0.73	MWD	None
35	224.08	7.40	207.94	5.00	223.74	6.90	-9.78	0.49	9.79	177.16	1.29	MWD	None
36	229.08	7.84	209.45	5.00	228.69	7.53	-10.36	0.17	10.37	179.08	0.97	MWD	None
37	234.08	8.37	211.17	5.00	233.64	8.21	-10.97	-0.19	10.97	180.99	1.17	MWD	None
38	**239.08**	**8.88**	**212.23**	**5.00**	**238.59**	**8.94**	**-11.61**	**-0.58**	**11.62**	**182.88**	**1.07**	**MWD**	**None**
39	**244.08**	**9.43**	**212.07**	**5.00**	**243.52**	**9.71**	**-12.28**	**-1.01**	**12.32**	**184.68**	**1.10**	**MWD**	**None**
40	249.08	10.25	212.50	5.00	248.45	10.55	-13.01	-1.46	13.09	186.42	1.65	MWD	None
41	254.08	10.81	212.64	5.00	253.37	11.44	-13.78	-1.95	13.91	188.08	1.12	MWD	None
42	259.08	11.55	212.86	5.00	258.27	12.38	-14.59	-2.48	14.80	189.64	1.48	MWD	None
43	264.08	12.12	212.88	5.00	263.16	13.38	-15.45	-3.04	15.75	191.12	1.14	MWD	None
44	269.08	12.69	212.49	5.00	268.05	14.43	-16.36	-3.62	16.75	192.47	1.15	MWD	None
45	274.08	13.36	212.57	5.00	272.92	15.52	-17.31	-4.22	17.81	193.71	1.34	MWD	None
46	279.08	14.13	212.66	5.00	277.78	16.68	-18.31	-4.86	18.94	194.87	1.54	MWD	None
47	284.08	14.63	212.45	5.00	282.62	17.89	-19.35	-5.53	20.13	195.95	1.01	MWD	None
48	289.08	15.27	212.31	5.00	287.45	19.15	-20.44	-6.22	21.37	196.93	1.28	MWD	None
49	294.08	16.00	211.97	5.00	292.26	20.46	-21.58	-6.94	22.67	197.82	1.47	MWD	None
50	299.08	16.98	211.90	5.00	297.06	21.84	-22.79	-7.69	24.05	198.64	1.96	MWD	None
51	304.08	17.56	211.94	5.00	301.83	23.28	-24.05	-8.47	25.50	199.41	1.16	MWD	None
52	309.08	18.41	211.96	5.00	306.59	24.78	-25.36	-9.29	27.01	200.12	1.70	MWD	None
53	314.08	19.09	211.99	5.00	311.32	26.34	-26.72	-10.14	28.58	200.78	1.36	MWD	None
54	319.08	19.84	211.85	5.00	316.04	27.96	-28.14	-11.02	30.22	201.39	1.50	MWD	None
55	324.08	20.38	211.77	5.00	320.73	29.63	-29.60	-11.93	31.91	201.95	1.08	MWD	None
56	329.08	21.36	211.76	5.00	325.41	31.36	-31.11	-12.87	33.67	202.47	1.96	MWD	None
57	334.08	22.08	211.69	5.00	330.05	33.15	-32.69	-13.84	35.49	202.95	1.44	MWD	None
58	339.08	22.85	211.55	5.00	334.67	35.00	-34.31	-14.84	37.38	203.39	1.54	MWD	None
59	344.08	23.62	211.57	5.00	339.27	36.92	-35.99	-15.87	39.34	203.80	1.54	MWD	None
60	349.08	24.89	211.82	5.00	343.82	38.91	-37.74	-16.95	41.37	204.19	2.55	MWD	None
61	354.08	25.22	211.39	5.00	348.35	40.97	-39.54	-18.06	43.47	204.55	0.75	MWD	None
62	359.08	26.19	211.56	5.00	352.86	43.07	-41.39	-19.19	45.63	204.88	1.95	MWD	None
63	364.08	26.52	211.53	5.00	357.34	45.22	-43.29	-20.36	47.83	205.19	0.66	MWD	None
64	369.08	26.97	211.34	5.00	361.80	47.40	-45.21	-21.53	50.07	205.47	0.92	MWD	None
65	374.08	27.48	211.43	5.00	366.25	49.62	-47.16	-22.72	52.35	205.72	1.02	MWD	None
66	379.08	28.09	211.41	5.00	370.67	51.88	-49.15	-23.94	54.67	205.97	1.22	MWD	None
67	384.08	28.40	211.27	5.00	375.08	54.17	-51.17	-25.17	57.02	206.19	0.63	MWD	None
68	389.08	28.95	211.53	5.00	379.46	56.50	-53.22	-26.42	59.41	206.40	1.13	MWD	None
69	394.08	29.37	211.43	5.00	383.83	58.86	-55.29	-27.69	61.84	206.60	0.85	MWD	None
70	399.08	29.94	211.44	5.00	388.18	61.26	-57.40	-28.98	64.30	206.79	1.14	MWD	None
71	404.08	30.23	211.47	5.00	392.50	63.69	-59.54	-30.29	66.80	206.96	0.58	MWD	None
72	409.08	30.54	211.55	5.00	396.82	66.14	-61.70	-31.61	69.32	207.13	0.63	MWD	None
73	414.08	30.93	211.56	5.00	401.11	68.62	-63.88	-32.95	71.87	207.28	0.78	MWD	None
74	419.08	31.27	211.61	5.00	405.39	71.12	-66.08	-34.30	74.45	207.43	0.68	MWD	None
75	424.08	31.61	211.56	5.00	409.66	73.65	-68.30	-35.66	77.05	207.57	0.68	MWD	None
76	429.08	31.97	211.57	5.00	413.91	76.21	-70.54	-37.04	79.68	207.71	0.72	MWD	None
77	434.08	32.35	211.61	5.00	418.14	78.79	-72.81	-38.44	82.33	207.83	0.76	MWD	None

78	439.08	32.76	211.64	5.00	422.36	81.40	-75.10	-39.85	85.02	207.95	0.82	MWD	None
79	444.08	33.16	211.66	5.00	426.55	84.04	-77.42	-41.28	87.73	208.07	0.80	MWD	None
80	449.08	33.49	211.84	5.00	430.73	86.70	-79.75	-42.72	90.47	208.18	0.69	MWD	None
81	454.08	33.93	211.75	5.00	434.89	89.40	-82.11	-44.18	93.24	208.28	0.89	MWD	None
82	459.08	34.32	211.71	5.00	439.03	92.12	-84.50	-45.66	96.04	208.39	0.78	MWD	None
83	464.08	34.71	211.67	5.00	443.15	94.87	-86.91	-47.15	98.87	208.48	0.78	MWD	None
84	469.08	35.15	211.63	5.00	447.25	97.65	-89.34	-48.65	101.73	208.57	0.88	MWD	None
85	474.08	35.60	211.64	5.00	451.33	100.45	-91.81	-50.17	104.62	208.65	0.90	MWD	None
86	479.08	36.06	211.71	5.00	455.38	103.29	-94.30	-51.70	107.54	208.74	0.92	MWD	None
87	484.08	36.50	211.72	5.00	459.41	106.17	-96.82	-53.26	110.50	208.82	0.88	MWD	None
88	489.08	36.99	211.72	5.00	463.42	109.07	-99.36	-54.83	113.49	208.89	0.98	MWD	None
89	494.08	37.46	211.80	5.00	467.40	112.01	-101.93	-56.42	116.51	208.97	0.94	MWD	None
90	499.08	37.90	211.80	5.00	471.35	114.97	-104.53	-58.03	119.56	209.04	0.88	MWD	None
91	504.08	38.35	211.81	5.00	475.29	117.97	-107.15	-59.66	122.64	209.11	0.90	MWD	None
92	509.08	38.99	211.91	5.00	479.19	121.00	-109.81	-61.31	125.76	209.18	1.29	MWD	None
93	514.08	39.45	211.97	5.00	483.07	124.08	-112.49	-62.98	128.92	209.24	0.92	MWD	None
94	519.08	39.98	211.97	5.00	486.91	127.18	-115.20	-64.67	132.11	209.31	1.06	MWD	None
95	524.08	40.39	212.08	5.00	490.73	130.31	-117.93	-66.39	135.34	209.38	0.83	MWD	None
96	529.08	40.95	212.15	5.00	494.52	133.48	-120.69	-68.12	138.59	209.44	1.12	MWD	None
97	534.08	41.48	212.20	5.00	498.28	136.69	-123.48	-69.87	141.88	209.50	1.06	MWD	None
98	539.08	41.93	212.23	5.00	502.02	139.92	-126.30	-71.65	145.20	209.57	0.90	MWD	None
99	544.08	42.36	212.26	5.00	505.73	143.19	-129.14	-73.44	148.56	209.63	0.86	MWD	None
100	549.08	42.84	212.31	5.00	509.41	146.48	-132.00	-75.24	151.94	209.68	0.96	MWD	None
101	554.08	43.36	212.39	5.00	513.06	149.80	-134.88	-77.07	155.35	209.74	1.05	MWD	None
102	559.08	43.91	212.47	5.00	516.67	153.16	-137.79	-78.92	158.80	209.80	1.11	MWD	None
103	564.08	44.39	212.54	5.00	520.26	156.55	-140.73	-80.79	162.27	209.86	0.96	MWD	None
104	569.08	44.88	212.59	5.00	523.82	159.97	-143.69	-82.68	165.78	209.92	0.98	MWD	None
105	574.08	45.35	212.68	5.00	527.35	163.43	-146.68	-84.59	169.32	209.97	0.95	MWD	None
106	579.08	45.99	212.81	5.00	530.84	166.91	-149.68	-86.53	172.89	210.03	1.29	MWD	None
107	584.08	46.34	212.87	5.00	534.31	170.43	-152.71	-88.49	176.50	210.09	0.71	MWD	None
108	589.08	46.91	212.92	5.00	537.74	173.97	-155.77	-90.46	180.13	210.15	1.14	MWD	None
109	594.08	47.52	212.90	5.00	541.14	177.55	-158.85	-92.45	183.79	210.20	1.22	MWD	None
110	599.08	48.11	212.89	5.00	544.49	181.17	-161.96	-94.46	187.49	210.25	1.18	MWD	None
111	604.08	48.55	212.90	5.00	547.82	184.81	-165.09	-96.49	191.22	210.31	0.88	MWD	None
112	609.08	48.99	212.94	5.00	551.11	188.48	-168.25	-98.54	194.98	210.36	0.88	MWD	None
113	614.08	49.61	213.03	5.00	554.37	192.17	-171.43	-100.60	198.77	210.41	1.25	MWD	None
114	619.08	49.96	213.14	5.00	557.60	195.90	-174.63	-102.68	202.58	210.46	0.72	MWD	None
115	624.08	50.61	213.13	5.00	560.80	199.65	-177.85	-104.79	206.42	210.51	1.30	MWD	None
116	629.08	51.13	213.28	5.00	563.95	203.44	-181.09	-106.91	210.30	210.56	1.07	MWD	None
117	634.08	51.57	213.33	5.00	567.07	207.26	-184.36	-109.06	214.20	210.61	0.88	MWD	None
118	639.08	52.25	213.45	5.00	570.16	211.10	-187.64	-111.22	218.13	210.66	1.37	MWD	None
119	644.08	52.76	213.55	5.00	573.20	214.98	-190.95	-113.41	222.09	210.71	1.03	MWD	None
120	649.08	53.34	213.68	5.00	576.21	218.89	-194.28	-115.62	226.08	210.76	1.18	MWD	None
121	654.08	53.70	213.68	5.00	579.18	222.82	-197.62	-117.85	230.10	210.81	0.72	MWD	None
122	659.08	54.45	213.76	5.00	582.11	226.78	-200.99	-120.10	234.14	210.86	1.51	MWD	None
123	664.08	54.97	213.82	5.00	585.00	230.78	-204.38	-122.37	238.22	210.91	1.04	MWD	None
124	669.08	55.76	213.80	5.00	587.84	234.80	-207.80	-124.66	242.33	210.96	1.58	MWD	None
125	674.08	56.38	213.73	5.00	590.64	238.86	-211.25	-126.96	246.47	211.01	1.25	MWD	None
126	679.08	56.97	213.77	5.00	593.38	242.95	-214.73	-129.29	250.64	211.05	1.18	MWD	None
127	684.08	57.55	213.86	5.00	596.09	247.07	-218.22	-131.63	254.84	211.10	1.17	MWD	None
128	689.08	58.12	213.83	5.00	598.75	251.21	-221.73	-133.98	259.07	211.14	1.14	MWD	None
129	694.08	58.80	213.81	5.00	601.36	255.38	-225.27	-136.36	263.33	211.19	1.36	MWD	None
130	699.08	59.51	213.82	5.00	603.93	259.58	-228.84	-138.74	267.62	211.23	1.42	MWD	None
131	704.08	60.06	213.82	5.00	606.44	263.81	-232.43	-141.15	271.93	211.27	1.10	MWD	None
132	709.08	60.74	213.81	5.00	608.91	268.06	-236.04	-143.57	276.28	211.31	1.36	MWD	None
133	714.08	61.41	213.80	5.00	611.33	272.35	-239.68	-146.00	280.65	211.35	1.34	MWD	None
134	719.08	62.00	213.77	5.00	613.70	276.66	-243.34	-148.45	285.05	211.39	1.18	MWD	None
135	724.08	62.60	213.80	5.00	616.03	280.99	-247.02	-150.91	289.47	211.42	1.20	MWD	None
136	729.08	63.20	213.78	5.00	618.30	285.34	-250.72	-153.39	293.92	211.46	1.20	MWD	None
137	734.08	63.89	213.68	5.00	620.53	289.72	-254.44	-155.87	298.39	211.49	1.39	MWD	None
138	739.08	64.17	213.74	5.00	622.72	294.12	-258.18	-158.37	302.88	211.53	0.57	MWD	None
139	744.08	64.56	213.70	5.00	624.88	298.53	-261.93	-160.87	307.39	211.56	0.78	MWD	None
140	749.08	64.79	213.71	5.00	627.02	302.95	-265.69	-163.38	311.90	211.59	0.46	MWD	None
141	754.08	64.83	213.72	5.00	629.15	307.38	-269.45	-165.89	316.42	211.62	0.08	MWD	None
142	759.08	64.85	213.69	5.00	631.28	311.81	-273.22	-168.40	320.95	211.65	0.07	MWD	None
143	764.08	64.76	213.66	5.00	633.41	316.23	-276.98	-170.91	325.47	211.68	0.19	MWD	None
144	769.08	64.66	213.65	5.00	635.54	320.65	-280.75	-173.42	329.99	211.70	0.20	MWD	None
145	774.08	64.49	213.66	5.00	637.69	325.07	-284.50	-175.92	334.50	211.73	0.34	MWD	None
146	779.08	64.35	213.70	5.00	639.85	329.48	-288.26	-178.42	339.01	211.76	0.29	MWD	None
147	784.08	64.25	213.74	5.00	642.01	333.89	-292.00	-180.92	343.51	211.78	0.21	MWD	None
148	789.08	64.16	213.77	5.00	644.19	338.30	-295.75	-183.42	348.01	211.81	0.19	MWD	None
149	794.08	64.18	213.81	5.00	646.37	342.70	-299.49	-185.93	352.51	211.83	0.08	MWD	None
150	799.08	64.02	213.83	5.00	648.55	347.10	-303.22	-188.43	357.00	211.86	0.32	MWD	None
151	804.08	63.78	213.83	5.00	650.75	351.50	-306.95	-190.93	361.49	211.88	0.48	MWD	None
152	809.08	63.63	213.83	5.00	652.97	355.88	-310.68	-193.42	365.97	211.91	0.30	MWD	None
153	814.08	63.55	213.85	5.00	655.19	360.27	-314.40	-195.92	370.44	211.93	0.16	MWD	None
154	819.08	63.63	213.90	5.00	657.42	364.65	-318.12	-198.41	374.92	211.95	0.18	MWD	None
155	824.08	63.72	213.95	5.00	659.63	369.04	-321.83	-200.91	379.40	211.98	0.20	MWD	None
156	829.08	63.97	213.97	5.00	661.84	373.43	-325.56	-203.42	383.88	212.00	0.50	MWD	None
157	834.08	64.27	213.98	5.00	664.02	377.84	-329.29	-205.94	388.38	212.02	0.60	MWD	None

158	839.08	64.53	213.97	5.00	666.18	382.25	-333.03	-208.46	392.89	212.04	0.52	MWD	None
159	844.08	65.01	214.01	5.00	668.31	386.68	-336.78	-210.98	397.41	212.07	0.96	MWD	None
160	849.08	65.47	214.01	5.00	670.41	391.13	-340.54	-213.52	401.95	212.09	0.92	MWD	None
161	854.08	65.90	214.04	5.00	672.46	395.59	-344.32	-216.07	406.50	212.11	0.86	MWD	None
162	859.08	66.47	214.04	5.00	674.48	400.07	-348.11	-218.63	411.07	212.13	1.14	MWD	None
163	864.08	66.94	214.05	5.00	676.46	404.57	-351.91	-221.21	415.66	212.15	0.94	MWD	None
164	869.08	67.48	214.10	5.00	678.40	409.09	-355.73	-223.79	420.27	212.17	1.08	MWD	None
165	874.08	67.94	214.10	5.00	680.29	413.62	-359.56	-226.38	424.89	212.19	0.92	MWD	None
166	879.08	68.48	214.12	5.00	682.15	418.17	-363.41	-228.99	429.53	212.22	1.08	MWD	None
167	884.08	68.97	214.15	5.00	683.96	422.74	-367.26	-231.60	434.19	212.24	0.98	MWD	None
168	889.08	69.43	214.15	5.00	685.74	427.32	-371.13	-234.22	438.86	212.26	0.92	MWD	None
169	894.08	69.84	214.17	5.00	687.48	431.91	-375.01	-236.86	443.54	212.28	0.82	MWD	None
170	899.08	70.11	214.19	5.00	689.19	436.51	-378.90	-239.49	448.24	212.30	0.54	MWD	None
171	904.08	70.37	214.22	5.00	690.88	441.12	-382.79	-242.14	452.94	212.32	0.52	MWD	None
172	909.08	70.40	214.29	5.00	692.56	445.74	-386.68	-244.79	457.65	212.34	0.14	MWD	None
173	914.08	70.50	214.38	5.00	694.23	450.36	-390.57	-247.45	462.36	212.36	0.26	MWD	None
174	929.77	69.92	213.75	15.69	699.55	464.82	-402.80	-255.72	477.12	212.41	0.53	MWD	None
175	958.90	70.38	217.36	29.13	709.44	491.79	-425.09	-271.65	504.47	212.58	1.18	MWD	None
176	1031.43	71.86	227.29	72.53	732.96	560.20	-475.73	-317.81	572.12	213.74	1.31	MWD	None
177	1061.56	72.45	230.93	30.13	742.20	588.82	-494.50	-339.48	599.81	214.47	1.17	MWD	None
178	1090.97	72.64	236.97	29.41	751.03	616.57	-511.00	-362.15	626.32	215.33	1.96	MWD	None
179	1119.77	72.71	242.74	28.80	759.61	643.21	-524.80	-385.92	651.42	216.33	1.91	MWD	None
180	1149.27	72.81	246.25	29.50	768.36	669.87	-536.93	-411.34	676.38	217.46	1.14	MWD	None
181	1178.56	73.01	249.35	29.29	776.96	695.80	-547.50	-437.26	700.68	218.61	1.01	MWD	None
182	1207.68	73.11	252.09	29.12	785.45	721.03	-556.70	-463.55	724.43	219.78	0.90	MWD	None
183	1236.43	73.19	255.64	28.75	793.79	745.27	-564.35	-489.98	747.37	220.97	1.18	MWD	None
184	1265.97	73.19	259.34	29.54	802.33	769.29	-570.47	-517.58	770.28	222.22	1.20	MWD	None
185	1295.26	75.10	260.12	29.29	810.33	792.63	-575.49	-545.30	792.81	223.46	0.70	MWD	None
186	1324.52	77.31	260.06	29.26	817.31	816.07	-580.38	-573.29	815.79	224.65	0.76	MWD	None
187	1353.14	80.46	259.60	28.62	822.83	839.30	-585.34	-600.93	838.89	225.75	1.11	MWD	None
188	1382.46	83.82	258.62	29.32	826.84	863.53	-590.83	-629.45	863.30	226.81	1.19	MWD	None
189	1411.86	84.45	254.99	29.40	829.84	888.56	-597.50	-657.92	888.74	227.76	1.25	MWD	None
190	1438.99	84.34	253.00	27.13	832.49	912.32	-604.95	-683.87	913.04	228.50	0.73	MWD	None
191	1469.73	84.22	251.43	30.74	835.56	939.68	-614.29	-712.99	941.12	229.25	0.51	MWD	None
192	1495.08	83.10	249.56	25.35	838.36	962.55	-622.70	-736.74	964.65	229.80	0.86	MWD	None
193	1524.61	83.35	248.29	29.53	841.84	989.48	-633.25	-764.10	992.40	230.35	0.44	MWD	None
194	1557.55	81.71	246.72	32.94	846.12	1019.80	-645.74	-794.28	1023.65	230.89	0.69	MWD	None
195	1586.20	81.97	245.06	28.65	850.19	1046.41	-657.32	-820.16	1051.07	231.29	0.58	MWD	None
196	1615.69	82.06	242.94	29.49	854.29	1074.13	-670.13	-846.41	1079.57	231.63	0.71	MWD	None
197	**1645.11**	**82.29**	**241.37**	**29.42**	**858.29**	**1102.07**	**-683.74**	**-872.18**	**1108.24**	**231.91**	**0.53**	**MWD**	**None**
198	**1674.05**	**82.03**	**240.31**	**28.94**	**862.24**	**1129.74**	**-697.71**	**-897.21**	**1136.57**	**232.13**	**0.37**	**MWD**	**None**
199	1703.12	82.32	238.35	29.07	866.20	1157.72	-712.40	-921.98	1165.15	232.31	0.68	MWD	None
200	1732.30	82.20	236.84	29.18	870.13	1186.01	-727.89	-946.39	1193.94	232.44	0.51	MWD	None
201	1761.47	82.34	235.21	29.17	874.05	1214.44	-744.05	-970.36	1222.79	232.52	0.56	MWD	None
202	1790.91	82.17	232.75	29.44	878.02	1243.30	-761.20	-993.96	1251.95	232.55	0.83	MWD	None
203	1819.75	82.34	230.57	28.84	881.91	1271.72	-778.92	-1016.37	1280.52	232.53	0.75	MWD	None
204	1849.17	82.20	228.35	29.42	885.86	1300.81	-797.87	-1038.52	1309.63	232.47	0.75	MWD	None
205	1878.57	82.21	225.34	29.40	889.85	1329.93	-817.79	-1059.77	1338.62	232.34	1.01	MWD	None
206	1907.72	83.13	222.85	29.15	893.57	1358.83	-838.56	-1079.89	1367.23	232.17	0.90	MWD	None
207	1936.37	83.16	219.37	28.65	896.99	1387.18	-859.98	-1098.59	1395.16	231.95	1.21	MWD	None
208	1965.65	83.33	216.22	29.28	900.44	1415.98	-882.96	-1116.40	1423.36	231.66	1.07	MWD	None
209	1994.86	83.27	219.15	29.21	903.85	1444.70	-905.91	-1134.13	1451.53	231.38	1.00	MWD	None
210	2024.29	83.27	221.55	29.43	907.30	1473.80	-928.19	-1153.06	1480.23	231.17	0.81	MWD	None
211	2053.19	83.24	220.75	28.90	910.69	1502.41	-949.80	-1171.94	1508.50	230.98	0.28	MWD	None
212	2082.34	82.86	221.32	29.15	914.22	1531.26	-971.62	-1190.94	1537.01	230.79	0.23	MWD	None
213	2111.43	82.87	221.69	29.09	917.83	1560.04	-993.24	-1210.07	1565.50	230.62	0.13	MWD	None
214	2140.76	82.95	221.72	29.33	921.45	1589.08	-1014.97	-1229.43	1594.26	230.46	0.03	MWD	None
215	2169.42	83.04	221.71	28.66	924.95	1617.46	-1036.20	-1248.36	1622.38	230.31	0.03	MWD	None
216	2198.60	82.92	221.88	29.18	928.51	1646.36	-1057.80	-1267.66	1651.03	230.16	0.07	MWD	None
217	2227.83	82.95	222.43	29.23	932.11	1675.31	-1079.30	-1287.13	1679.76	230.02	0.19	MWD	None
218	2257.56	83.07	223.04	29.73	935.73	1704.78	-1100.97	-1307.15	1709.03	229.89	0.21	MWD	None
219	2286.54	82.81	223.64	28.98	939.29	1733.52	-1121.89	-1326.89	1737.61	229.79	0.22	MWD	None
220	2315.08	82.92	223.72	28.54	942.83	1761.82	-1142.37	-1346.45	1765.77	229.69	0.05	MWD	None
221	2344.40	82.93	223.65	29.32	946.44	1790.90	-1163.41	-1366.55	1794.71	229.59	0.02	MWD	None
222	2373.54	82.81	224.10	29.14	950.06	1819.80	-1184.26	-1386.59	1823.48	229.50	0.16	MWD	None
223	2402.26	82.90	224.09	28.72	953.63	1848.28	-1204.72	-1406.42	1851.85	229.42	0.03	MWD	None
224	2431.99	82.78	224.18	29.73	957.34	1877.77	-1225.89	-1426.96	1881.23	229.33	0.05	MWD	None
225	2461.30	83.07	224.67	29.31	960.95	1906.85	-1246.67	-1447.32	1910.21	229.26	0.19	MWD	None
226	2490.43	82.98	224.61	29.13	964.49	1935.76	-1267.24	-1467.64	1939.03	229.19	0.04	MWD	None
227	2519.16	82.90	225.31	28.73	968.02	1964.27	-1287.41	-1487.78	1967.47	229.13	0.24	MWD	None
228	2548.71	82.84	225.23	29.55	971.68	1993.59	-1308.05	-1508.61	1996.72	229.07	0.03	MWD	None
229	2576.88	82.89	224.82	28.17	975.18	2021.54	-1327.81	-1528.39	2024.61	229.02	0.15	MWD	None
230	2606.68	83.04	223.80	29.80	978.83	2051.11	-1348.97	-1549.05	2054.08	228.95	0.34	MWD	None
231	2635.65	82.75	223.17	28.97	982.42	2079.84	-1369.83	-1568.83	2082.70	228.87	0.24	MWD	None
232	2665.14	83.07	222.28	29.49	986.06	2109.06	-1391.32	-1588.68	2111.80	228.79	0.32	MWD	None
233	2694.34	82.87	221.77	29.20	989.63	2137.98	-1412.85	-1608.09	2140.58	228.70	0.19	MWD	None
234	2723.69	83.10	221.82	29.35	993.22	2167.05	-1434.57	-1627.50	2169.50	228.61	0.08	MWD	None
235	2752.63	82.64	221.29	28.94	996.81	2195.69	-1456.06	-1646.55	2198.01	228.51	0.24	MWD	None
236	2781.37	83.01	221.24	28.74	1000.40	2224.12	-1477.49	-1665.36	2226.30	228.42	0.13	MWD	None
237	2810.86	83.04	221.21	29.49	1003.98	2253.31	-1499.51	-1684.65	2255.34	228.33	0.01	MWD	None

238	2840.20	83.07	221.43	29.34	1007.53	2282.35	-1521.38	-1703.88	2284.25	228.24	0.08	MWD	None
239	2868.83	83.12	221.37	28.63	1010.97	2310.69	-1542.70	-1722.67	2312.47	228.15	0.03	MWD	None
240	2898.20	82.98	221.17	29.37	1014.52	2339.76	-1564.62	-1741.90	2341.42	228.07	0.08	MWD	None
241	2926.78	82.87	221.21	28.58	1018.04	2368.04	-1585.96	-1760.58	2369.58	227.99	0.04	MWD	None
242	2956.18	83.01	221.48	29.40	1021.66	2397.13	-1607.86	-1779.86	2398.56	227.91	0.10	MWD	None
243	2984.65	82.72	221.70	28.47	1025.19	2425.31	-1628.99	-1798.61	2426.64	227.83	0.13	MWD	None
244	3014.30	83.21	223.15	29.65	1028.82	2454.69	-1650.71	-1818.46	2455.94	227.77	0.51	MWD	None
245	3043.56	82.55	223.31	29.26	1032.45	2483.70	-1671.87	-1838.34	2484.88	227.72	0.23	MWD	None
246	3073.02	83.12	223.13	29.46	1036.12	2512.90	-1693.17	-1858.36	2514.03	227.66	0.20	MWD	None
247	3112.02	82.84	222.53	39.00	1040.89	2551.56	-1721.55	-1884.68	2552.60	227.59	0.17	MWD	None
248	3131.41	82.98	222.60	19.39	1043.28	2570.77	-1735.73	-1897.69	2571.77	227.55	0.08	MWD	None
249	3160.44	83.13	223.05	29.03	1046.79	2599.55	-1756.86	-1917.28	2600.49	227.50	0.16	MWD	None
250	3198.90	82.95	223.10	38.46	1051.45	2637.69	-1784.75	-1943.35	2638.55	227.44	0.05	MWD	None
251	3228.02	82.72	222.88	29.12	1055.09	2666.55	-1805.88	-1963.05	2667.36	227.39	0.11	MWD	None
252	3248.06	83.01	223.06	20.04	1057.58	2686.42	-1820.43	-1976.61	2687.18	227.36	0.17	MWD	None
253	3277.44	82.87	223.02	29.38	1061.19	2715.54	-1841.74	-1996.51	2716.26	227.31	0.05	MWD	None
254	3306.48	82.84	222.85	29.04	1064.80	2744.32	-1862.84	-2016.14	2744.99	227.26	0.06	MWD	None
255	3335.61	82.98	222.85	29.13	1068.39	2773.20	-1884.03	-2035.79	2773.81	227.22	0.05	MWD	None
256	3365.04	82.93	222.99	29.43	1072.00	2802.37	-1905.42	-2055.68	2802.94	227.17	0.05	MWD	None
257	3393.88	83.02	223.15	28.84	1075.53	2830.97	-1926.33	-2075.23	2831.49	227.13	0.06	MWD	None
258	3423.18	82.93	223.14	29.30	1079.11	2860.02	-1947.55	-2095.12	2860.50	227.09	0.03	MWD	None
259	3452.58	82.87	223.46	29.40	1082.75	2889.17	-1968.78	-2115.13	2889.61	227.05	0.11	MWD	None
260	3481.86	83.04	222.77	29.28	1086.34	2918.20	-1989.99	-2134.99	2918.60	227.01	0.24	MWD	None
261	3510.74	83.04	222.63	28.88	1089.84	2946.83	-2011.06	-2154.43	2947.19	226.97	0.05	MWD	None
262	3539.69	83.04	222.63	28.95	1093.35	2975.52	-2032.20	-2173.89	2975.84	226.93	0.00	MWD	None
263	3568.44	83.04	222.48	28.75	1096.83	3004.02	-2053.23	-2193.19	3004.30	226.89	0.05	MWD	None
264	3598.02	82.98	222.36	29.58	1100.43	3033.33	-2074.90	-2212.99	3033.57	226.84	0.05	MWD	None
265	3627.49	82.92	222.68	29.47	1104.05	3062.54	-2096.46	-2232.76	3062.74	226.80	0.11	MWD	None
266	3656.73	83.01	222.80	29.24	1107.63	3091.52	-2117.77	-2252.46	3091.68	226.77	0.05	MWD	None
267	3685.30	82.90	222.67	28.57	1111.13	3119.83	-2138.60	-2271.70	3119.97	226.73	0.06	MWD	None
268	3714.76	82.81	222.80	29.46	1114.80	3149.03	-2160.07	-2291.53	3149.13	226.69	0.05	MWD	None
269	3743.85	82.92	222.70	29.09	1118.41	3177.86	-2181.26	-2311.13	3177.93	226.66	0.05	MWD	None
270	3772.89	82.90	222.71	29.04	1121.99	3206.63	-2202.44	-2330.67	3206.68	226.62	0.01	MWD	None
271	3802.03	82.78	222.85	29.14	1125.63	3235.51	-2223.66	-2350.31	3235.52	226.59	0.06	MWD	None
272	3831.57	82.95	222.73	29.54	1129.30	3264.79	-2245.17	-2370.22	3264.77	226.55	0.07	MWD	None
273	3860.84	82.93	222.76	29.27	1132.89	3293.80	-2266.50	-2389.94	3293.76	226.52	0.01	MWD	None
274	3890.43	83.01	222.65	29.59	1136.52	3323.12	-2288.08	-2409.86	3323.06	226.48	0.05	MWD	None
275	3918.61	83.10	222.98	28.18	1139.92	3351.06	-2308.60	-2428.87	3350.98	226.45	0.12	MWD	None
276	3948.60	82.95	222.88	29.99	1143.56	3380.80	-2330.40	-2449.14	3380.69	226.42	0.06	MWD	None
277	**3977.32**	**83.01**	**222.99**	**28.72**	**1147.07**	**3409.27**	**-2351.27**	**-2468.56**	**3409.14**	**226.39**	**0.04**	**MWD**	**None**
278	**4006.70**	**82.69**	**222.84**	**29.38**	**1150.73**	**3438.39**	**-2372.62**	**-2488.41**	**3438.24**	**226.36**	**0.12**	**MWD**	**None**
279	4036.26	81.37	222.53	29.56	1154.83	3467.62	-2394.14	-2508.25	3467.45	226.33	0.46	MWD	None
280	4066.07	77.51	221.67	29.81	1160.29	3496.87	-2415.87	-2527.90	3496.67	226.30	1.33	MWD	None
281	4095.39	73.91	220.89	29.32	1167.53	3525.19	-2437.22	-2546.64	3524.97	226.26	1.25	MWD	None
282	4123.52	70.84	220.51	28.13	1176.04	3551.90	-2457.54	-2564.12	3551.65	226.22	1.10	MWD	None
283	4153.05	68.11	220.64	29.53	1186.40	3579.44	-2478.55	-2582.11	3579.17	226.17	0.93	MWD	None
284	4182.48	65.88	220.41	29.43	1197.90	3606.42	-2499.14	-2599.71	3606.13	226.13	0.76	MWD	None
285	4211.99	62.57	221.14	29.51	1210.73	3632.89	-2519.26	-2617.06	3632.59	226.09	1.14	MWD	None
286	4241.13	58.93	221.72	29.14	1224.96	3658.24	-2538.32	-2633.88	3657.92	226.06	1.26	MWD	None
287	4270.18	55.34	222.42	29.05	1240.73	3682.59	-2556.43	-2650.22	3682.26	226.03	1.25	MWD	None
288	4299.75	51.76	223.11	29.57	1258.29	3706.34	-2573.89	-2666.37	3706.00	226.01	1.23	MWD	None
289	4328.84	50.02	223.66	29.09	1276.64	3728.90	-2590.30	-2681.87	3728.55	226.00	0.62	MWD	None
290	4343.75	49.03	223.86	14.91	1286.32	3740.23	-2598.49	-2689.72	3739.88	225.99	0.67	MWD	None
291	4375.03	46.72	224.47	31.28	1307.30	3763.42	-2615.13	-2705.88	3763.07	225.98	0.75	MWD	None
292	4409.02	44.64	229.95	33.99	1331.06	3787.71	-2631.65	-2723.69	3787.36	225.98	1.31	MWD	None
293	4439.57	42.43	234.55	30.55	1353.21	3808.60	-2644.54	-2740.31	3808.27	226.02	1.26	MWD	None
294	4467.26	40.39	234.69	27.69	1373.97	3826.69	-2655.15	-2755.24	3826.38	226.06	0.74	MWD	None
295	4496.80	38.49	228.76	29.54	1396.79	3845.33	-2666.74	-2769.97	3845.03	226.09	1.43	MWD	None
296	4525.38	35.88	222.81	28.58	1419.57	3862.59	-2678.76	-2782.36	3862.29	226.09	1.55	MWD	None
297	4554.24	31.86	216.90	28.86	1443.53	3878.57	-2691.06	-2792.69	3878.26	226.06	1.80	MWD	None
298	4583.39	30.81	215.42	29.15	1468.43	3893.53	-2703.30	-2801.63	3893.19	226.02	0.45	MWD	None
299	4612.48	28.25	214.95	29.09	1493.74	3907.62	-2715.01	-2809.90	3907.28	225.98	0.88	MWD	None
300	4641.67	27.28	217.64	29.19	1519.57	3921.04	-2725.97	-2817.94	3920.68	225.95	0.54	MWD	None
301	4670.31	28.09	221.37	28.64	1544.93	3934.26	-2736.23	-2826.40	3933.89	225.93	0.67	MWD	None
302	4699.87	29.95	224.25	29.56	1570.78	3948.58	-2746.74	-2836.15	3948.21	225.92	0.79	MWD	None
303	4728.68	28.23	221.81	28.81	1595.96	3962.57	-2756.97	-2845.72	3962.20	225.91	0.73	MWD	None
304	4758.13	28.58	221.72	29.45	1621.86	3976.54	-2767.42	-2855.05	3976.17	225.89	0.12	MWD	None
305	4786.95	28.82	221.74	28.82	1647.14	3990.35	-2777.75	-2864.26	3989.97	225.88	0.08	MWD	None
306	4816.25	29.13	222.14	29.30	1672.77	4004.52	-2788.31	-2873.75	4004.13	225.86	0.12	MWD	None
307	4845.55	28.83	222.33	29.30	1698.40	4018.69	-2798.82	-2883.29	4018.30	225.85	0.11	MWD	None
308	4874.56	28.62	222.20	29.01	1723.84	4032.60	-2809.14	-2892.66	4032.21	225.84	0.08	MWD	None
309	4903.59	28.33	221.77	29.03	1749.36	4046.42	-2819.42	-2901.92	4046.02	225.83	0.12	MWD	None
310	4932.77	28.30	221.56	29.18	1775.05	4060.22	-2829.76	-2911.12	4059.83	225.81	0.04	MWD	None
311	4961.88	28.49	221.34	29.11	1800.66	4074.03	-2840.14	-2920.29	4073.63	225.80	0.07	MWD	None
312	4991.15	27.69	220.96	29.27	1826.48	4087.77	-2850.52	-2929.36	4087.37	225.78	0.28	MWD	None
313	5019.77	27.96	221.01	28.62	1851.79	4101.08	-2860.60	-2938.12	4100.68	225.77	0.09	MWD	None
314	5049.02	27.60	221.26	29.25	1877.67	4114.67	-2870.87	-2947.09	4114.27	225.75	0.13	MWD	None
315	5078.44	27.22	221.04	29.42	1903.79	4128.17	-2881.07	-2956.00	4127.77	225.74	0.13	MWD	None
316	5107.87	26.88	221.08	29.43	1930.00	4141.52	-2891.16	-2964.79	4141.11	225.72	0.12	MWD	None

317	5136.34	26.35	221.16	28.47	1955.45	4154.23	-2900.77	-2973.18	4153.82	225.71	0.19	MWD	None
318	5165.69	26.07	220.89	29.35	1981.78	4167.15	-2910.55	-2981.69	4166.74	225.69	0.10	MWD	None
319	5179.82	25.80	220.52	14.13	1994.49	4173.31	-2915.23	-2985.72	4172.90	225.68	0.22	MWD	None
320	5204.00	25.60	220.25	24.18	2016.28	4183.75	-2923.22	-2992.51	4183.34	225.67	0.10	Proj. to TD	

Company: **ESSO Australia Pty Ltd**

Schlumberger

Well: **SNA A11A−st**

Field: **Snapper**

Rig: **ISDL 175**

8.50 In. Section

State: **Victoria**

EcoScope* Density Neutron
1:200 Measured Depth
Recorded Mode Log