


LWD MEMORY LOG											
<div><div><div>BAKER HUGHES</div><div>a GE company</div></div><div></div></div>				Gamma Ray							
Scale:		Company: Verdad Oil & Gas Corporation									
1:1200 MD		Well: WARNER 01N-64W-17-2H									
Depth Reference:		Field: Weld County									
Driller's Depth		Country: Weld									
		State: Colorado									
Status:		Surface Location:						Other Services:			
Final Print		Latitude: 040° 02' 40.841" N Longitude: 104° 34' 32.542" W						Directional			
API No: 05-123-45163											
Job ID: 8742017											
Permanent Datum (P.D.):		Ground Level		Elevation:		5067.00 ft		Elev. KB:		N/A	
Log Measured From:		Rig Floor		Above P.D.		16.00 ft		Elev. DF:		5083.00 ft	
								Elev. GL:		5067.00 ft	
Dates				Interval Logged				Magnetic Field Reference			
Date From: 2017-09-16		Top: (ft) 1753.05		Azi Reference North: True		Dip Angle: (deg) 66.63					
Date To: 2017-09-19		Bottom: (ft) 17326.00		Total Magnetic Field Strength: (nT)		52210					
Spud Date: 2017-09-06				Mag to Reference North Correction: (deg)		8.23 E					
Borehole Record				Casing Record							
Hole Size (in)		From (ft)		To (ft)		Size (in)		Weight (lb/ft)		From (ft)	
13.500		16.00		1754.00		9.625		36.00		16.00	
8.500		1754.00		17326.00							

Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2017-09-16 05:00	2	1754.00	Oil Based Mud	9.5	22	N/A	10.0	72/28	Active Pit	45000	0.00
2017-09-17 05:30	2	6830.00	Oil Based Mud	9.8	19	N/A	8.6	77/23	Active Pit	40000	0.00
2017-09-18 05:00	2	11284.00	Oil Based Mud	9.8	19	N/A	8.6	77/23	Active Pit	42000	0.00
2017-09-19 05:00	2	15863.00	Oil Based Mud	9.9	19	N/A	8.0	77/23	Active Pit	39500	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
2	ATC_SU	1215165	Near Bit VSS	5.93	6.71	7.000	4.330
2	ATC_SU	1215165	Near Bit Inclination	5.93	6.71	7.000	4.330
2	ATC_MWD	12211066	Gamma (single)	2.73	12.88	7.000	3.250
2	ATC_MWD	12211066	Directional (mag)	12.26	22.41	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

Comments

1	Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
2	Baker Hughes LWD Run 2 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 1/2 inch bit and rotary steerable assembly from 1754 to 17326 feet MD (1725 to 7069 feet TVD).

Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	1754.00	8.500	2	Baker Hughes LWD began logging services at 1754 feet MD (1725 feet TVD) per client request.
2	1877.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 1877 to 1896 feet MD (1844 to 1863 feet TVD) due to a jump in the depth tracking system.
3	2147.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 2147 to 2166 feet MD (2106 to 2125 feet TVD) due to high penetration rate and downlinking while on bottom.
4	2323.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 2323 to 2344 feet MD (2277 to 2298 feet TVD) due to high penetration rate and downlinking while on bottom.
5	2402.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 2402 to 2428 feet MD (2354 to 2379 feet TVD) due to high penetration rate and downlinking while on bottom.
6	2500.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 2500 to 2516 feet MD (2449 to 2465 feet TVD) due to high penetration rate and downlinking while on bottom.
7	2588.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 2588 to 2605 feet MD (2535 to 2551 feet TVD) due to high penetration rate and downlinking while on bottom.
8	3480.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 3480 to 3495 feet MD (3400 to 3414 feet TVD) due to high penetration rate and downlinking while on bottom.
9	3515.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 3515 to 3573 feet MD (3434 to 3490 feet TVD) due to high penetration rate and downlinking while on bottom.
10	4814.00	8.500	2	Gap in memory data (GRAM, GRIM, and TCDM) in the interval from 4814 to 4830 feet MD (4692 to 4708 feet TVD) due to high penetration rate and downlinking while on bottom.
11	17326.00	8.500	2	The interval from 17313 to 17326 feet MD (7069 feet TVD) was not logged due to sensor to bit offset at well TD.

Curve Mnemonics

Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent - Memory 3 ft Average	API
TCDM	Downhole Temperature	degF



Company Verdad Oil & Gas Corporation

Well WARNER 01N-64W-17-2H

Interval Date From: 2017-09-16 05:54:53

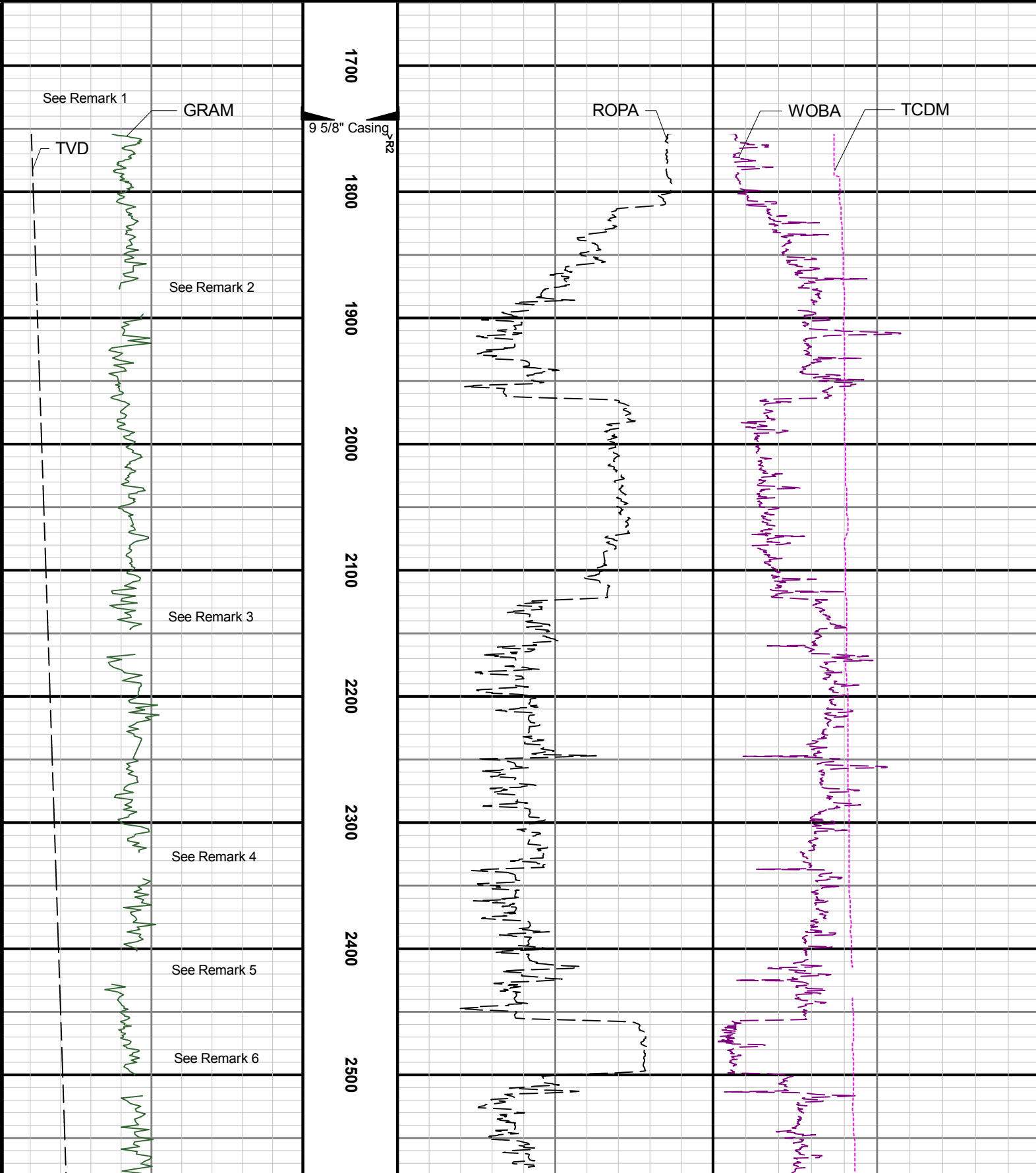
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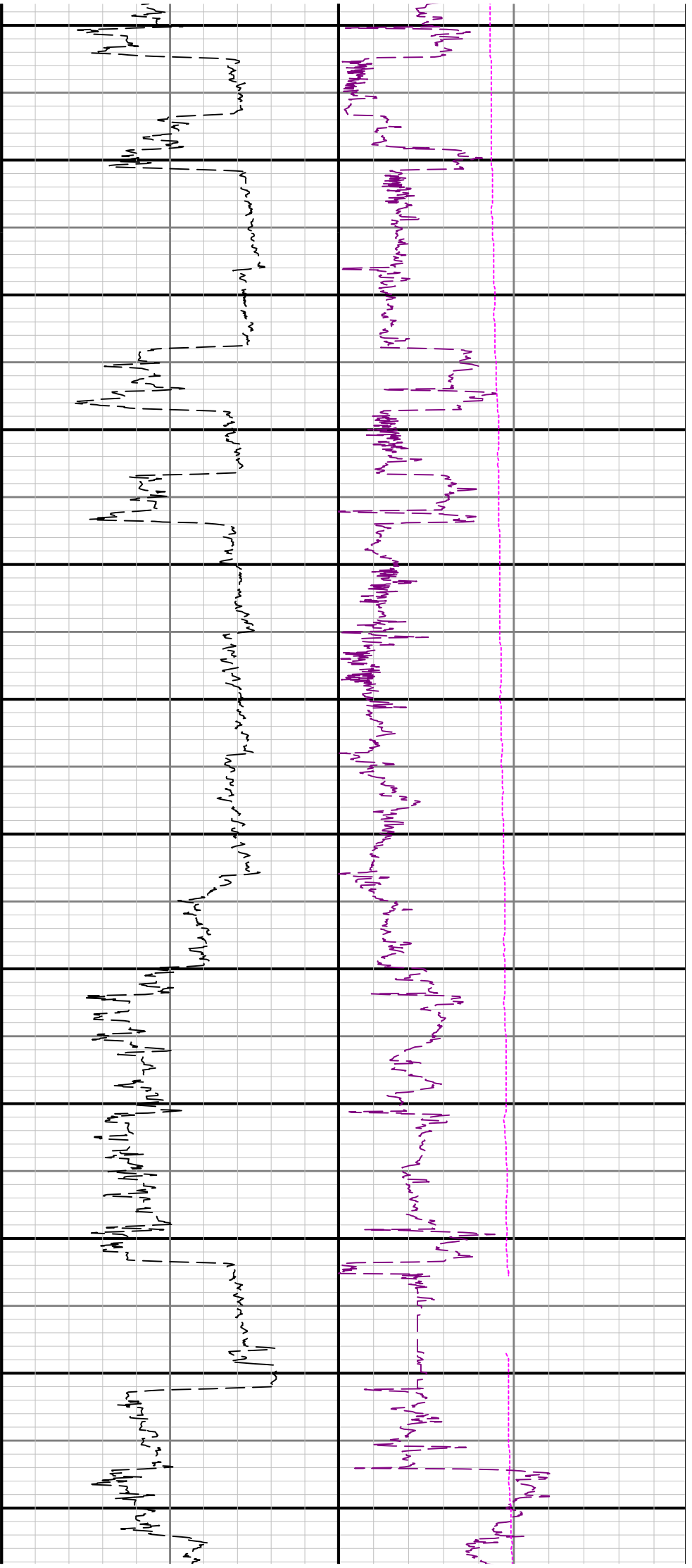
Date To: 2017-09-19 15:13:37

Bottom: 17326.00

Created 2017-09-20 14:49:55

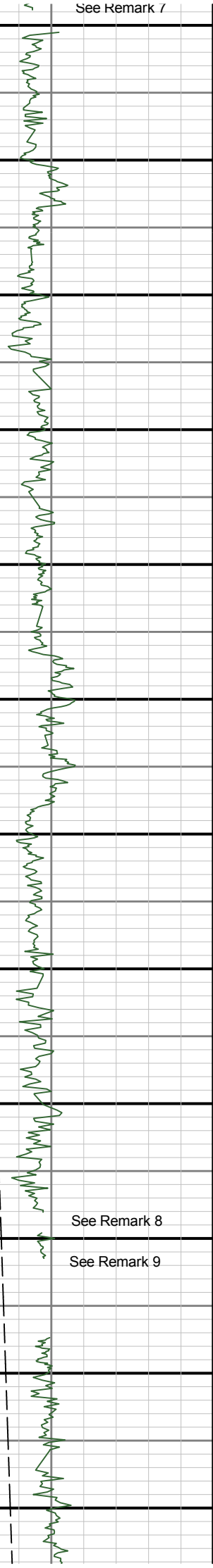
Gamma Ray Apparent 3 ft Average [GRAM] 0 250	MD 1:1200 feet	Depth Averaged ROP 3 ft Average [ROPA] 1200 0 ft/h	Weight On Bit 1 ft Average [WOBA] 0 50 klb	Downhole Temperature [TCDM] 0 250 degF
API True Vertical Depth [TVD] 1000 8000 ft				





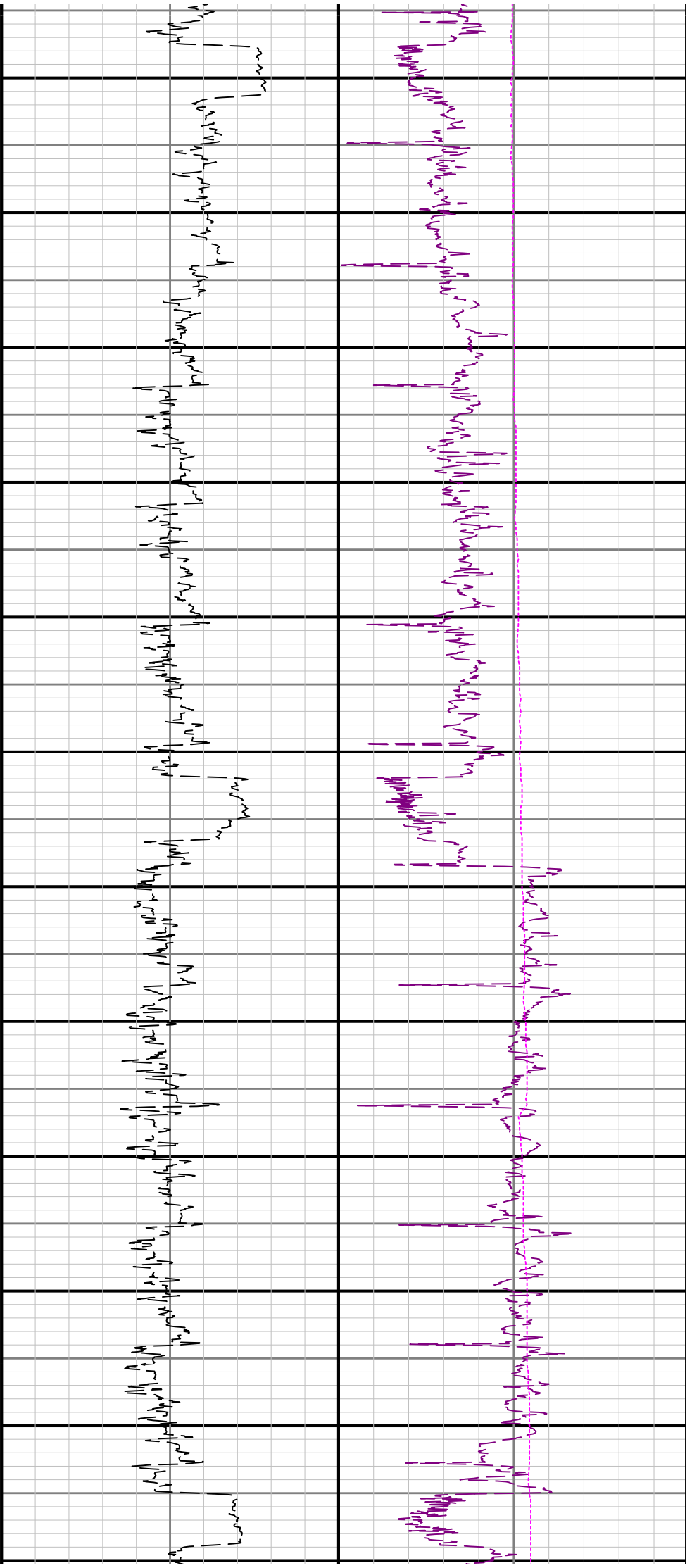
2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700

See Remark 7



See Remark 8

See Remark 9



3800

3900

4000

4100

4200

4300

4400

4500

4600

4700

4800

4900

See Remark 10

