


LWD MEMORY LOG										
<div><div>BAKER HUGHES</div></div>			Gamma Ray							
Scale: 1:1200 MD			Company: Noble Energy							
Depth Reference:			Well: Freedom Federal LC21-640							
Driller's Depth			Field: Wattenberg Field							
Status: Final Print			County: Weld							
API No: 0512342804			State: Colorado							
Job ID: 8597125			Country: United States							
Permanent Datum (P.D.): Ground Level			Other Services:							
Log Measured From: Rig Floor			Wellbore Surveys							
Elevation: 4883.00 ft			Elev. KB: N/A							
Above P.D. 30.00 ft			Elev. DF: 4913.00 ft							
Elev. GL: 4883.00 ft										
Dates			Magnetic Field Reference							
Interval Logged										
Date From: 2017-07-21			Azi Reference North: Grid							
Top: (ft) 1929.00			Dip Angle: (deg) 67.08							
Date To: 2017-07-23			Total Magnetic Field Strength: (mT) 52606							
Bottom: (ft) 11210.00										
Spud Date: 2017-07-20			Mag to Reference North Correction: (deg) 6.71 E							
Borehole Record			Casing Record							
Hole Size (in)			From (ft)		To (ft)		Size (in)		Weight (lb/ft)	
8.500			1941.00		11210.00		9.625		36.00	

Service and Tool Mnemonics

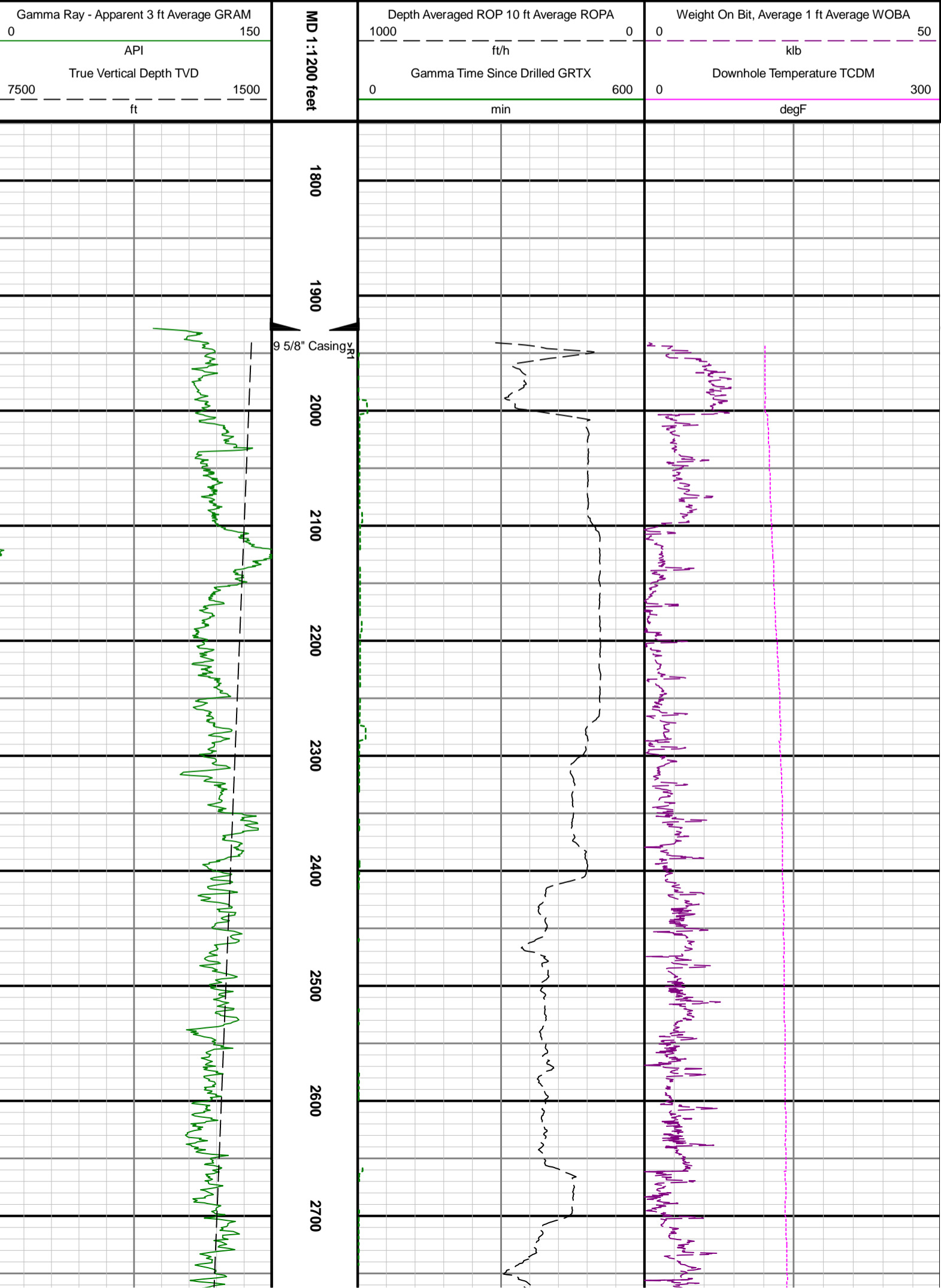
Mnemonic	Name	Description
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

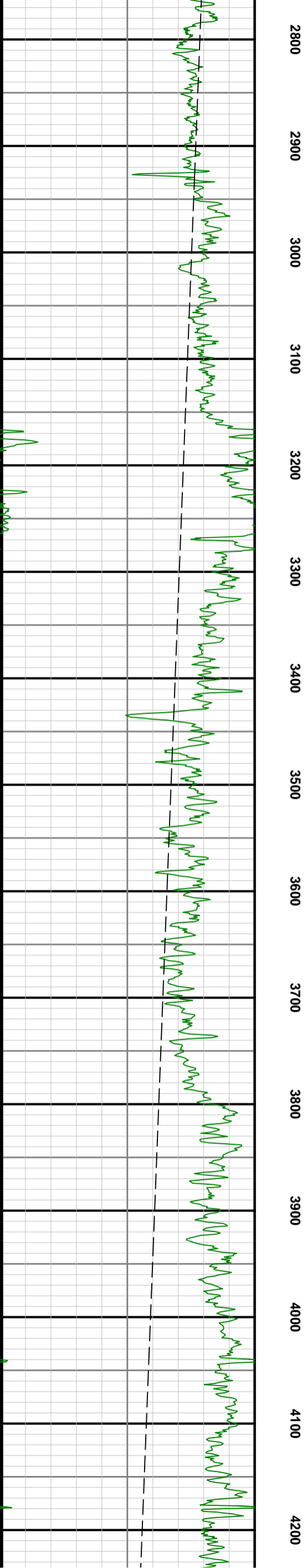
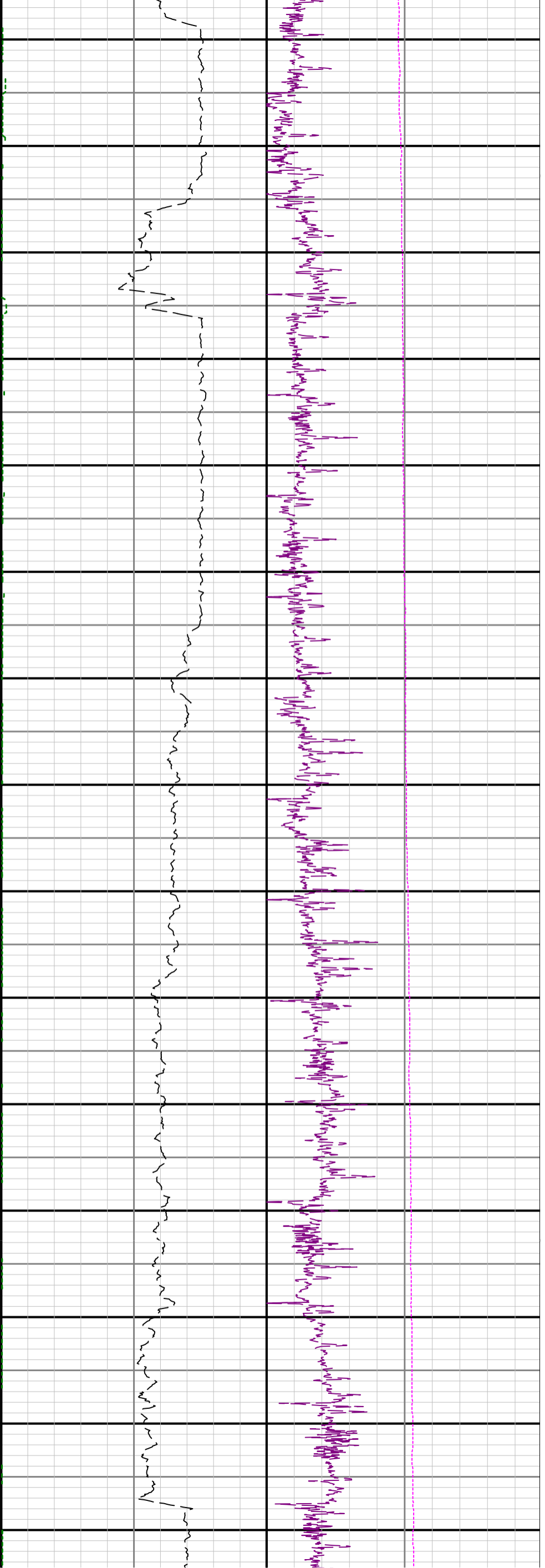
Comments

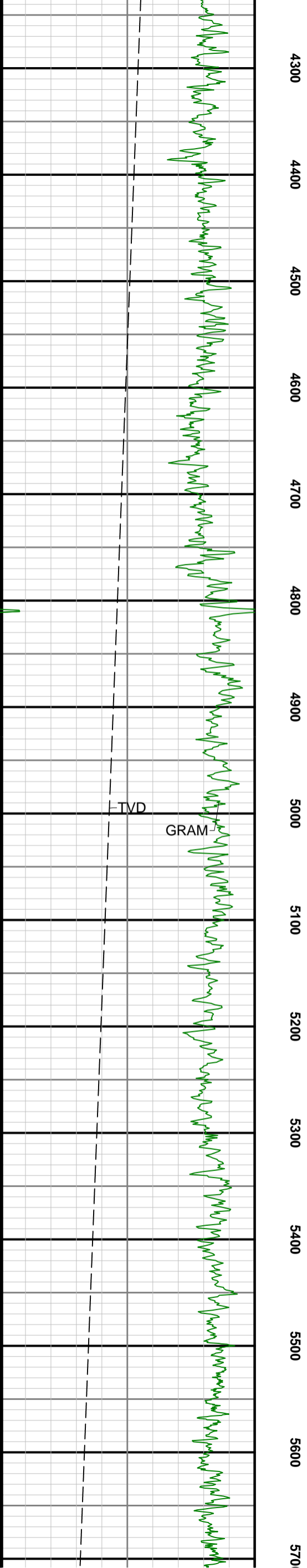
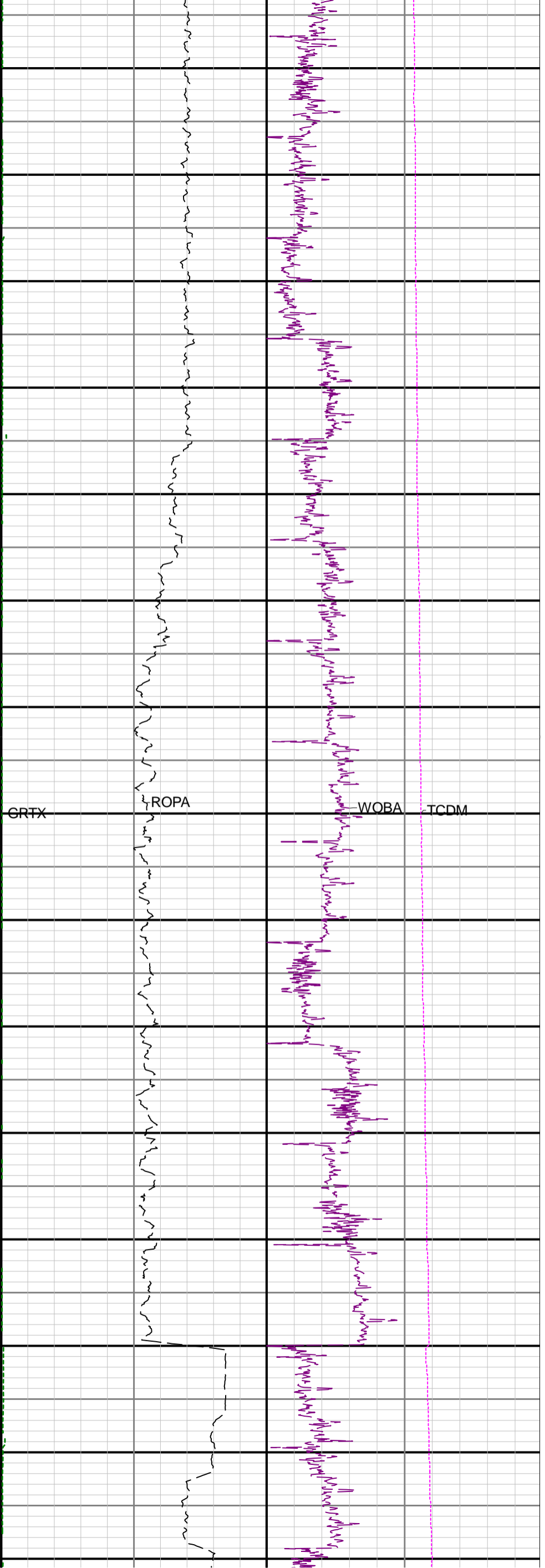
- 1
- Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified
- 2
- Baker Hughes LWD run 1 utilized a 6 3/4 inch Navigamma service (Gama Ray and Directional) behind a 8 1/2 inch bit and rotary steerable from 1941 to 11210 feet MD (1940 to 6057 feet TVD).

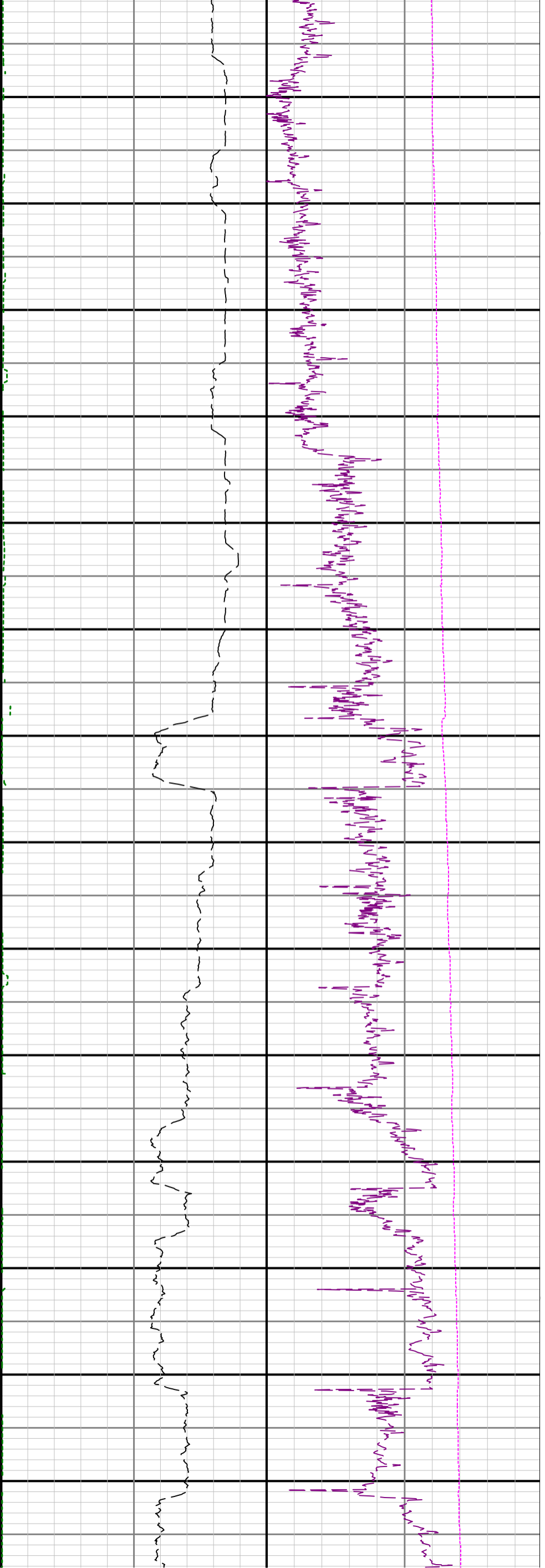
Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	11198.00	8.500	1	The interval from 11198 to 11210 feet MD (6057 feet TVD) was not logged due to sensor offset at well TD.









0 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100

