

Company: Anadarko E&P Onshore LLC

Well: Murphy 1-31 M

Field: Greenwood

County: Morton State: Kansas

SPECTRAL GAMMA RAY
HOSTILE NATURAL GAMMA RAY SONDE

County:	Morton			
Field:	Greenwood			
Location:	497.46' FEL & 1335.13' FSL			
Well:	Murphy 1-31 M			
Company:	Anadarko E&P Onshore LLC			
		Location:		
		497.46' FEL & 1335.13' FSL	Elev.:	K.B. 3538.19 ft
		SW,SE,NE,SW		G.L. 3545.19 ft
		SE/4 SEC.31, T32S-R42W		D.F.
		Permanent Datum:	Mean Sea Level	0.00 ft
		Log Measured From:	Ground Level	3538.19 ft above Perm.Datum
		Drilling Measured From:	Ground Level	
		API Serial No. 15-129-21957	Section: 31	Township: 32S Range: 42W
Logging Date	12-Dec-2013			

Run Number	One			
Depth Driller	5250.00 ft			
Schlumberger Depth	5255.00 ft			
Bottom Log Interval	5255.00 ft			
Top Log Interval	1494.00 ft			
Casing Driller Size @ Depth	8.625 in @ 1480.00 ft			
Casing Schlumberger	1494 ft			
Bit Size	7.875 in			
Type Fluid In Hole	Fresh Water			
Density	8.8 lbm/gal	Viscosity	60 s	
Fluid Loss	6.2 cm3	PH	10.5	
Source of Sample	Active Tank			
RM @ Meas Temp	0.72 ohm.m @ 55 degF			
RMF @ Meas Temp	0.62 ohm.m @ 55 degF			
RMC @ Meas Temp	1.01 ohm.m @ 55 degF			
Source RMF	Calculated	RMC	Calculated	
RM @ BHT	0.34 @ 123.4 @ 123.4	RMF @ BHT	0.29 @ 123.4	
Max Recorded Temperatures	123.4 degF 123			
Circulation Stopped	12-Dec-2013 07:15:00			
Logger on Bottom	12-Dec-2013 12:02:29			
Unit Number	2367	Location:	Elk City, OK	
Recorded By	Matt Cramer			
Witnessed By	Tom Bingel			

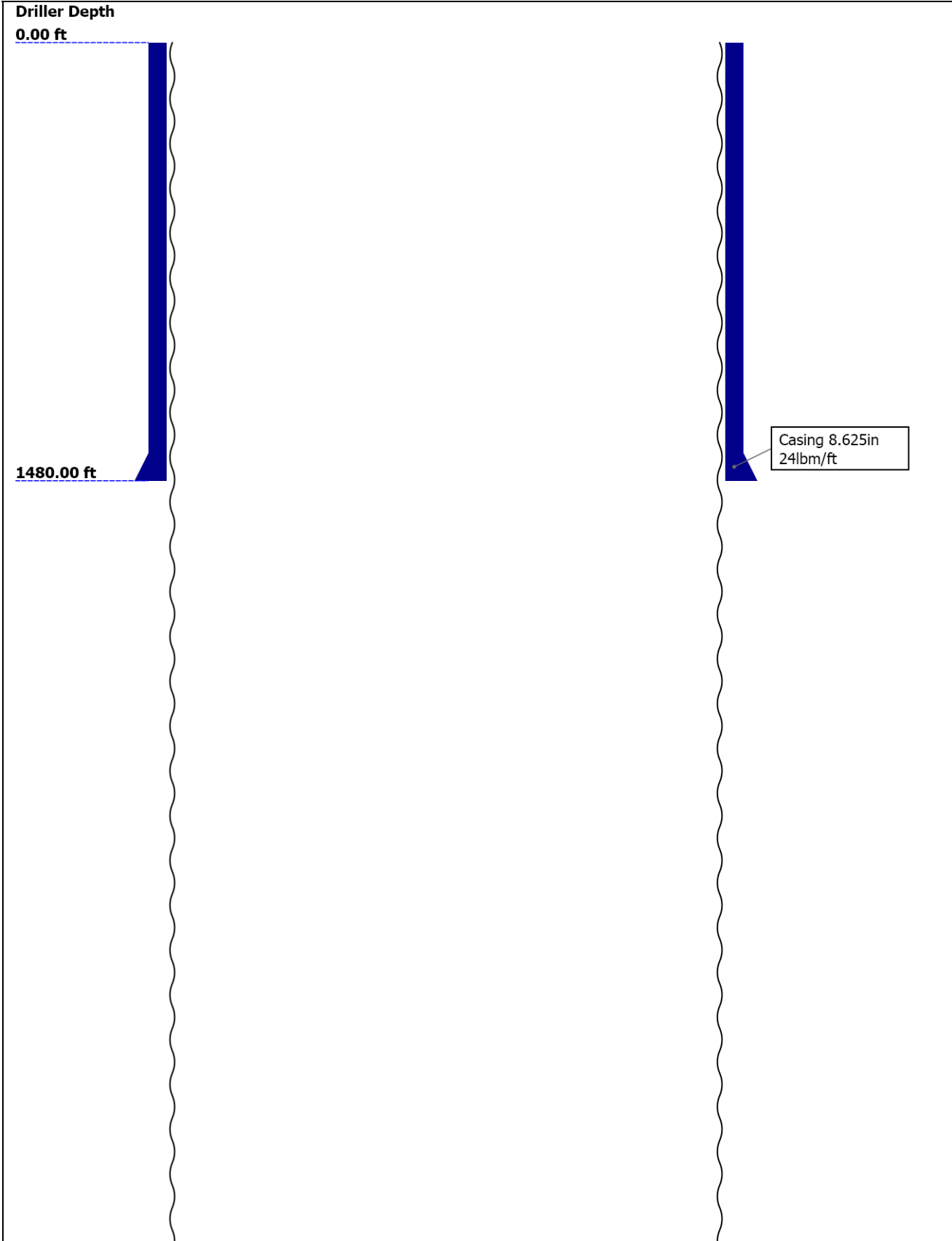
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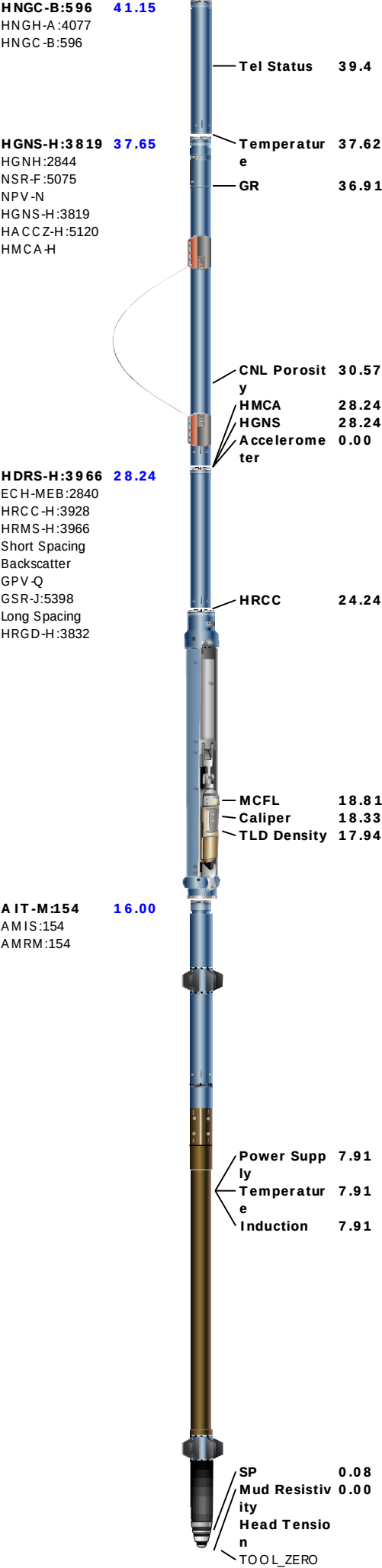
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Well Sketch



5250.00 ft

One: Toolstring				One: Remarks
Equip name LEH-QT LEH-QT	Length 58.76	MP name	Offset	Thank you for choosing Schlumberger of Elk City, OK- 580-339-6535
				Tools ran as per toolsketch.
				All logs and presentations as per client's request.
EDTC-B EDTH-B EDTG-A EDTC-B	55.84			Logging measured from ground level as per client's request. Drilling measured from drill floor at 7' above ground level.
		CTEM	52.34	Logged on limestone matrix (MDEN=2.56,DTM=47.6)
		ACCZ	0.00	
		HV	0.00	Standoff correction & Hole size correction were applied.
		Gamma Ray	50.47	
		TelStatus	49.34	Caliper check inside casing within tolerance.
HNGS-BA :328 HEH-K:328 HNGS-BA:328	49.34			Source of maximum recorded temperature is HNGS temperature sensor.
		GR	46.35	



Maximum Outer Diameter = 9.000 in		
Line: Sensor Location, Value: Gating Offset		
All measurements are relative to TOOL_ZERO		

Depth Summary

Depth Control Parameters	One		
Conveyance Type	Wireline		
Log Sequence	ONE		
Depth Remark Parameters	One		
Depth Remark 1	First run in hole, All Schlumberger Depth control procedures were followed.		
Depth Remark 2	IDW used as primary depth control & Z-Chart used as secondary.		
Depth Remark 3	Main Log was correlated to the Down log.		
Depth Remark 4	Logging measured from ground level as per client's request. Drilling measured from drill floor at 7' above ground level.		
Depth Measuring Device	One		
Type	IDW-JA		
Serial Number	6650		
Calibration Date	25-Apr-2013		
Calibrator Serial Number	33		
Calibration Cable Type	7-39P-LXS		
Wheel Correction 1	-6		
Wheel Correction 2	-3		
Tension Device	One		
Type	CMTD-B/A		
Serial Number	2549		
Calibration Date	25-Sep-2013		
Calibrator Serial Number	1018		
Calibration Points	10		
Calibration RMS	12		
Calibration Peak Error	19		
Logging Cable	One		
Type	7-39P-LXS		
Serial Number	U712016		
Logging Cable Length (ft)	16100.00		

One

Main Pass

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
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Pass Summary	
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Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	256.43 ft	5269.80 ft	12-Dec-2013 12:17:33 PM	12-Dec-2013 2:41:47 PM	9.93 ft	

All depths are referenced to toolstring zero

Log

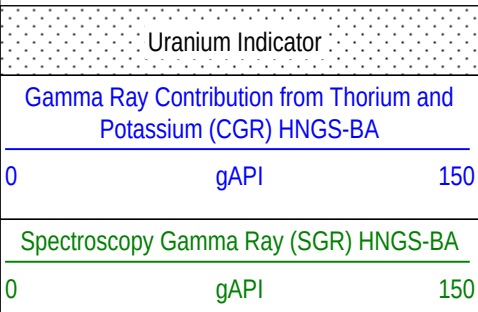
One: Log[4]:Up

Log

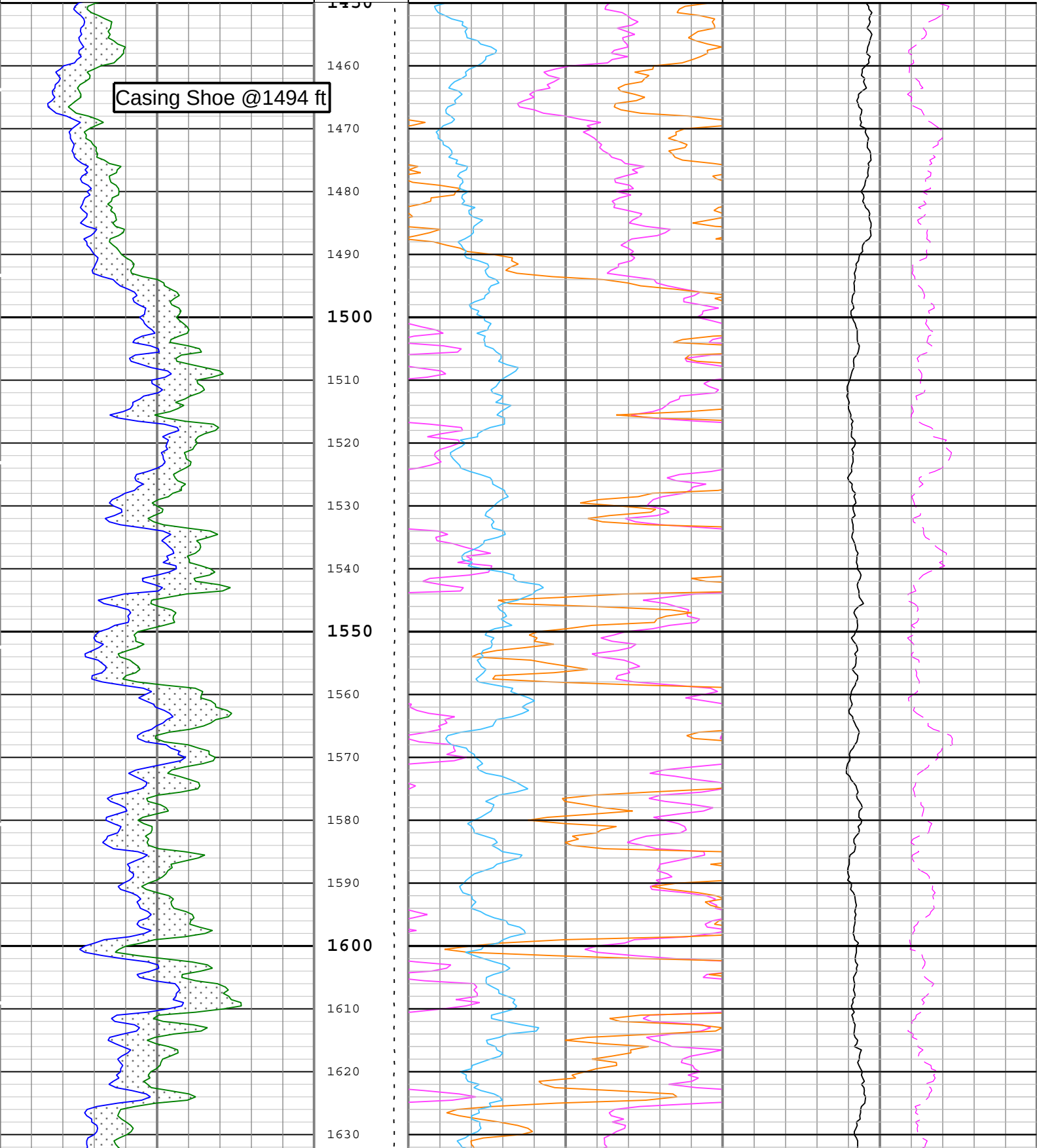
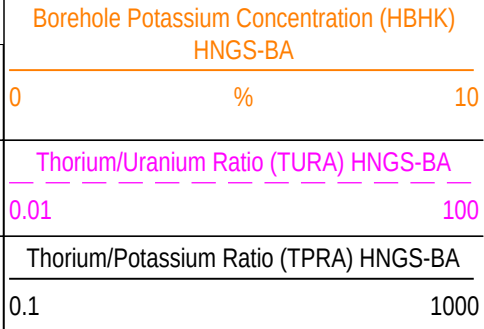
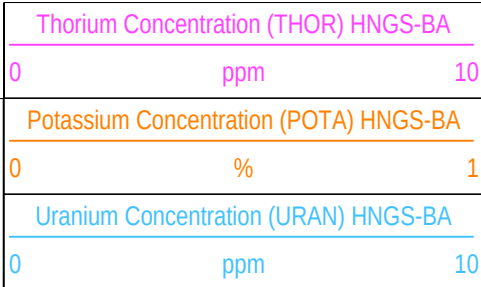
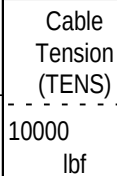
One: Log[4]:Up

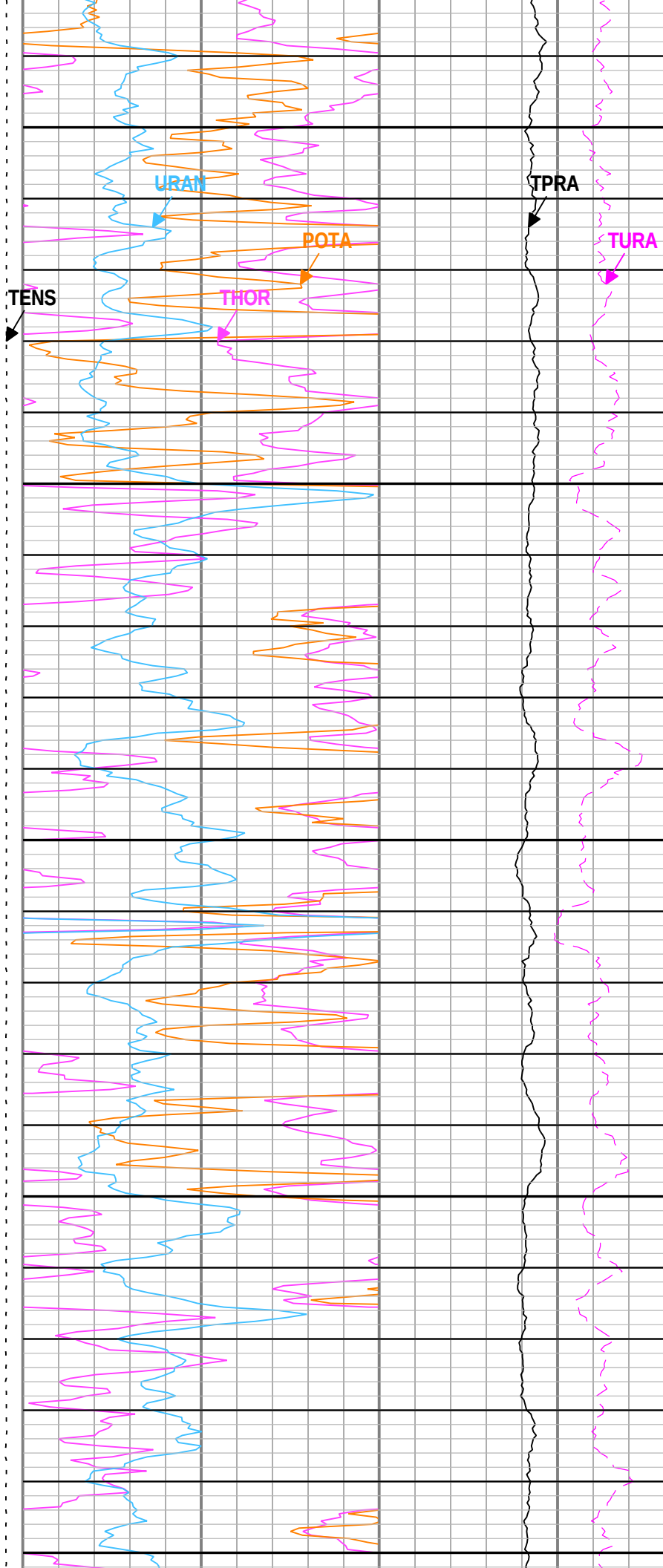
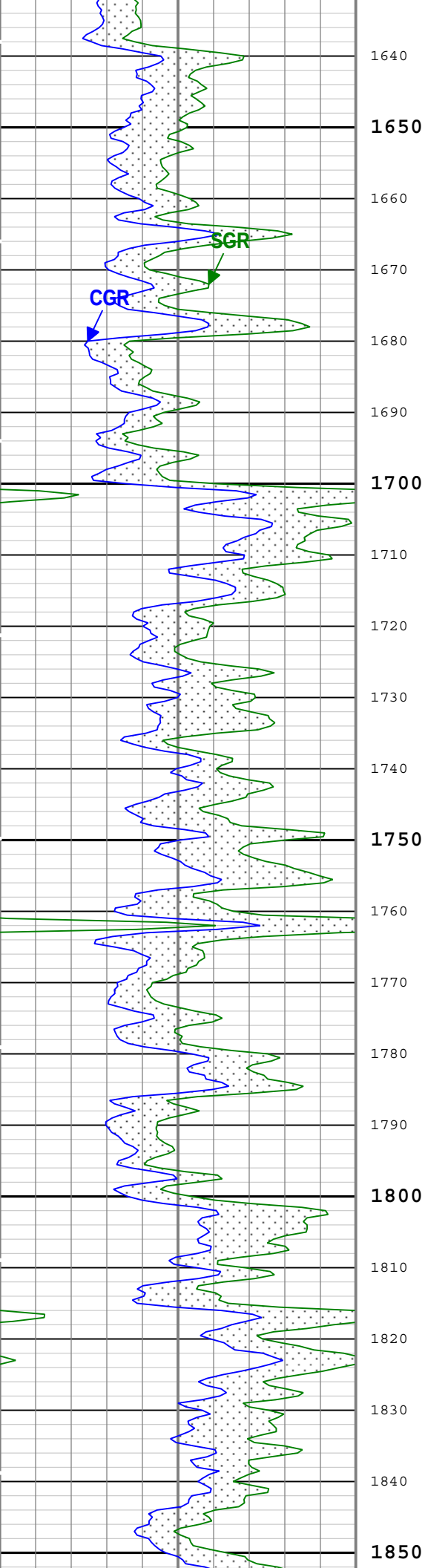
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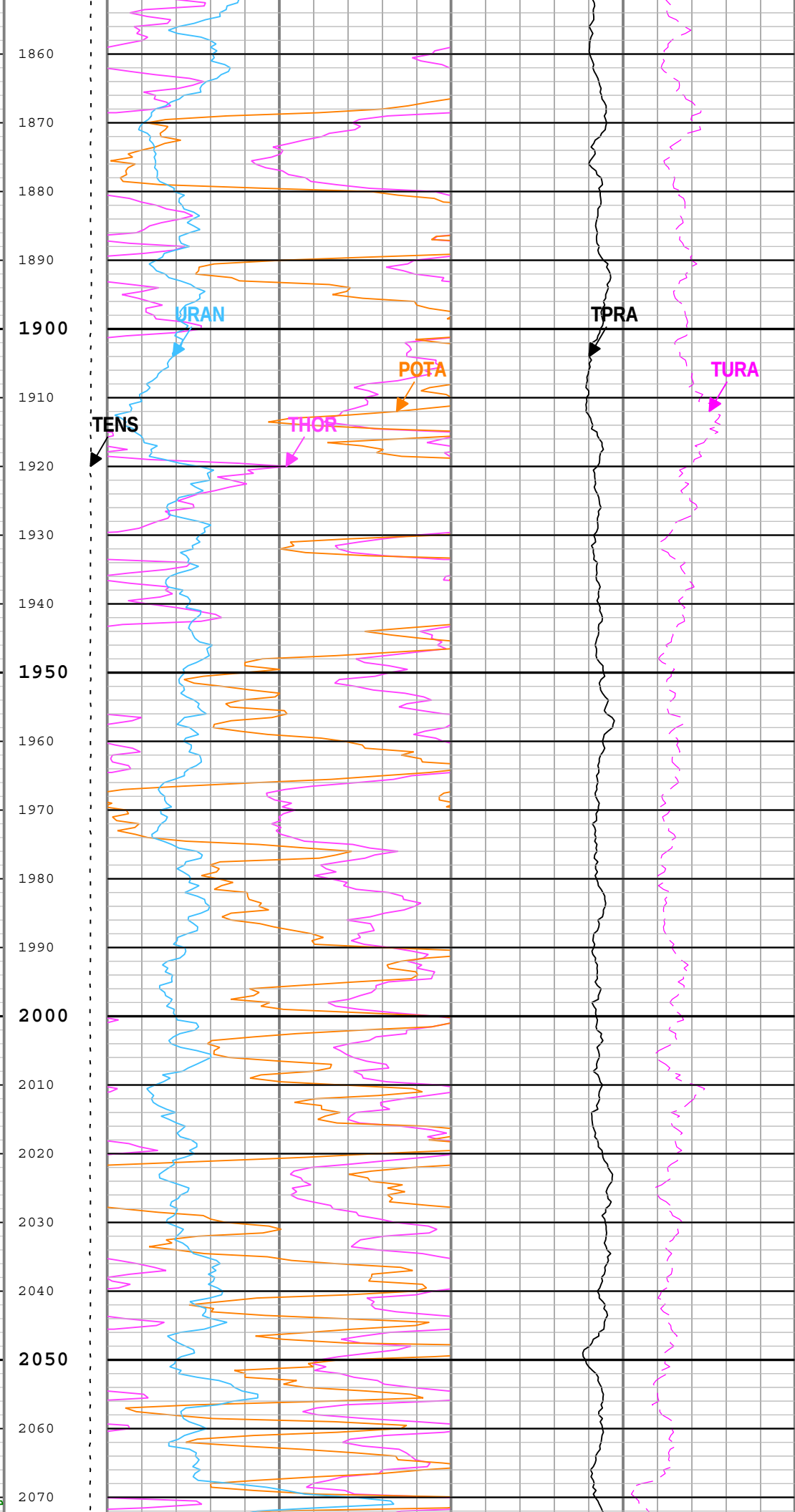
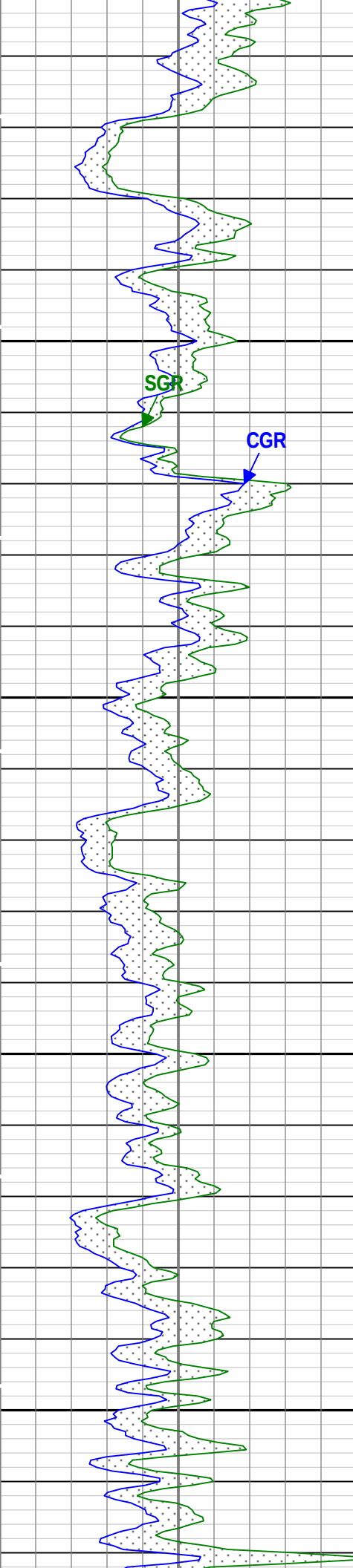
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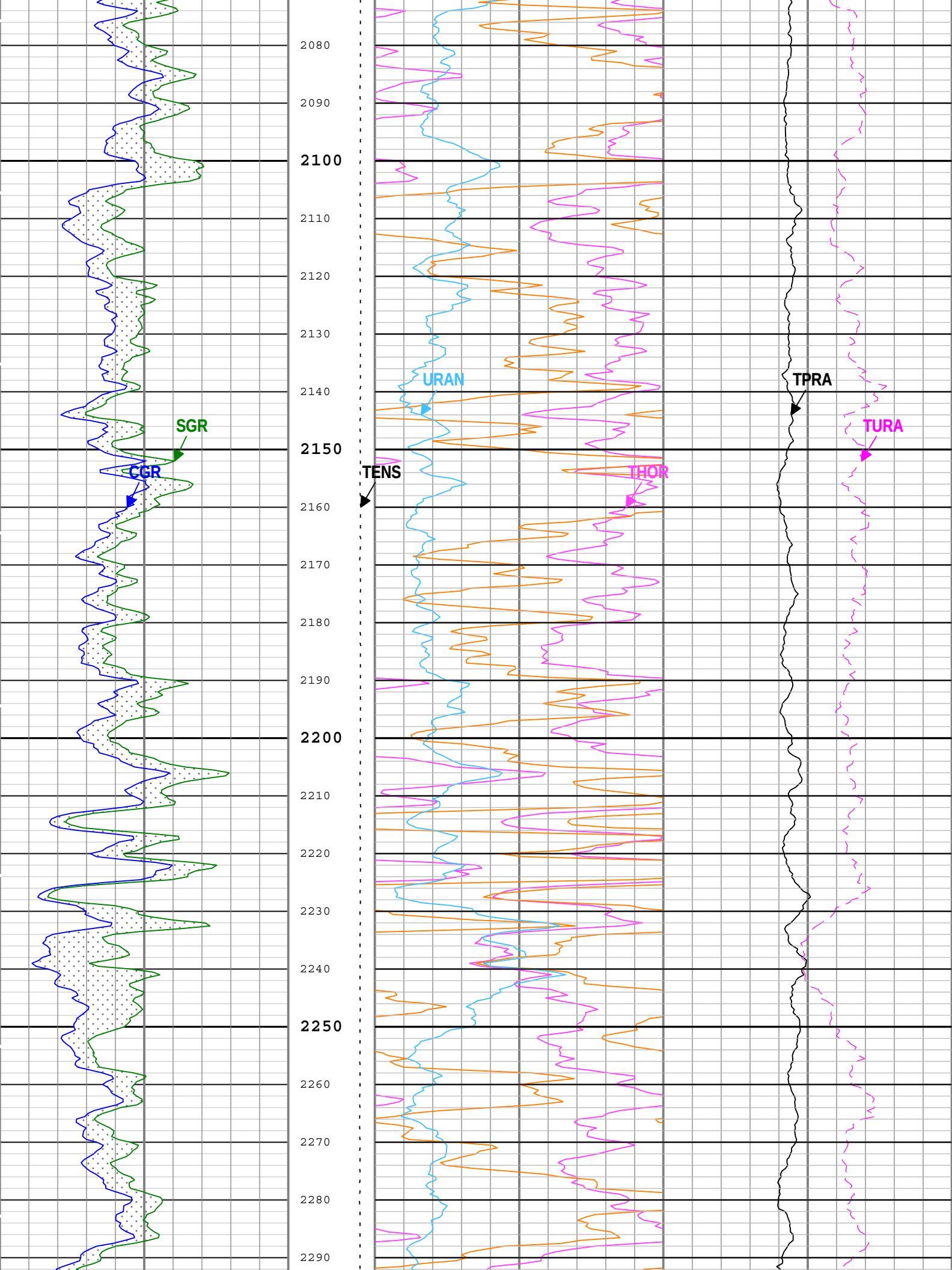


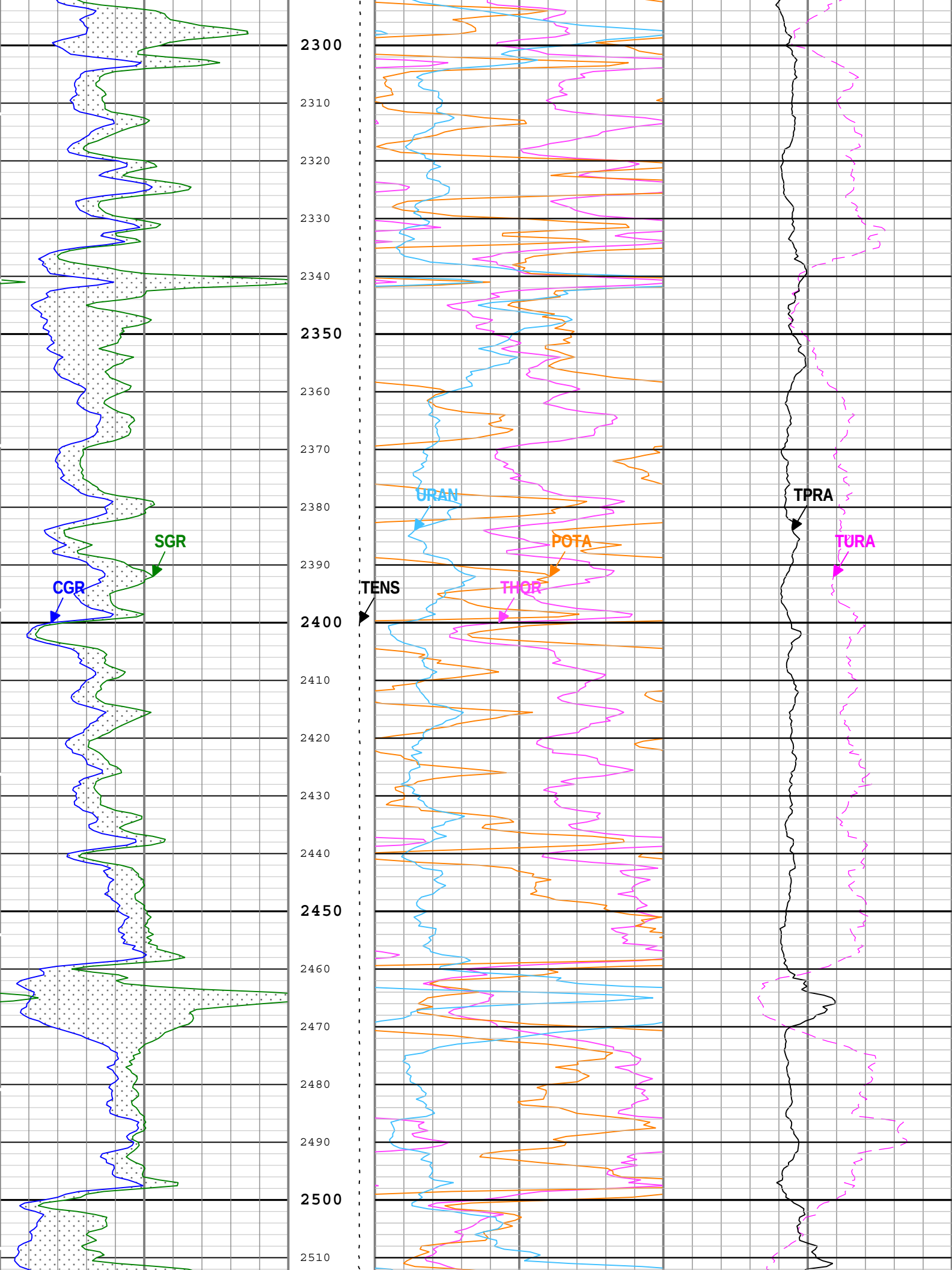
Casing Shoe @1494 ft

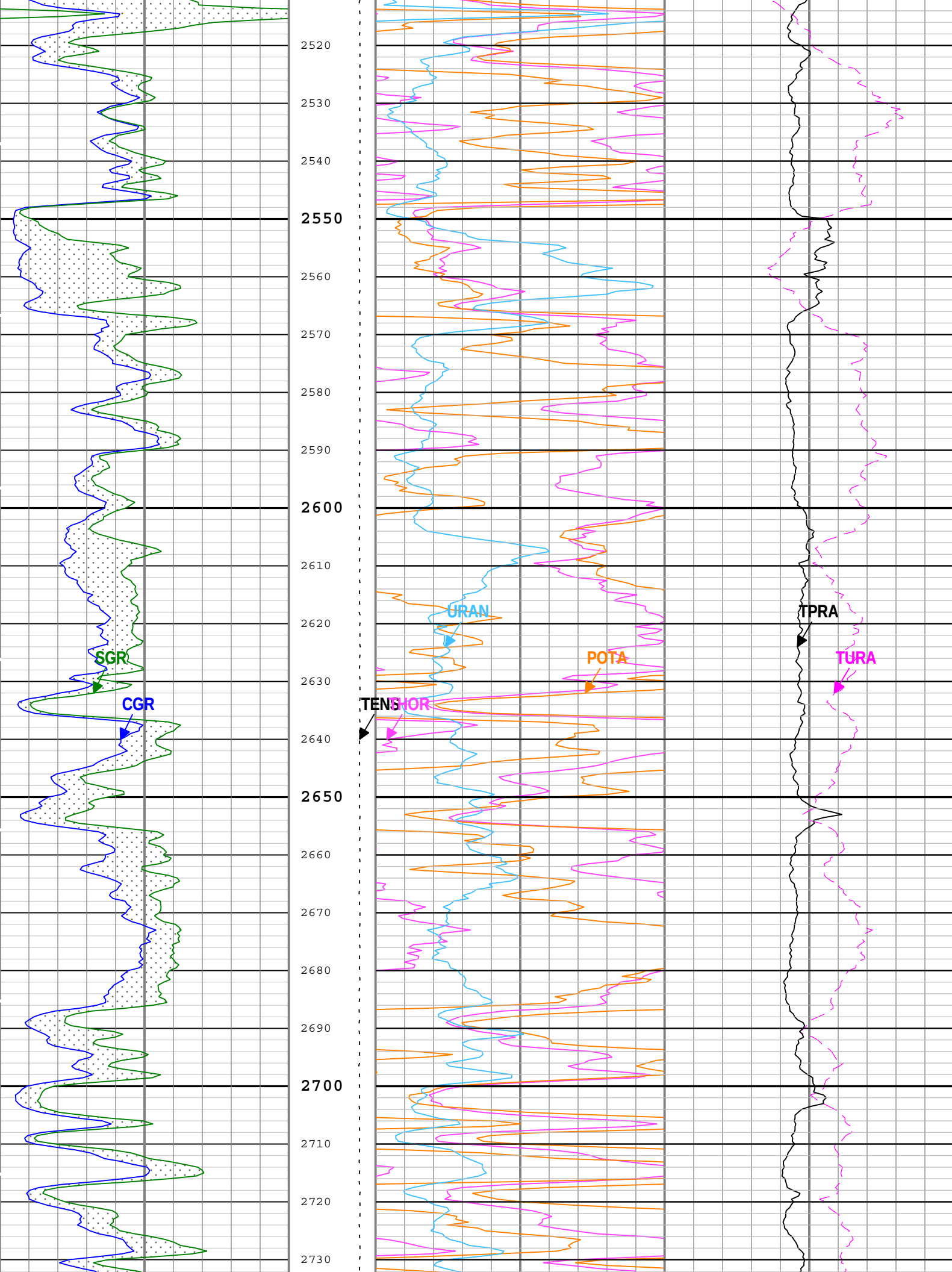


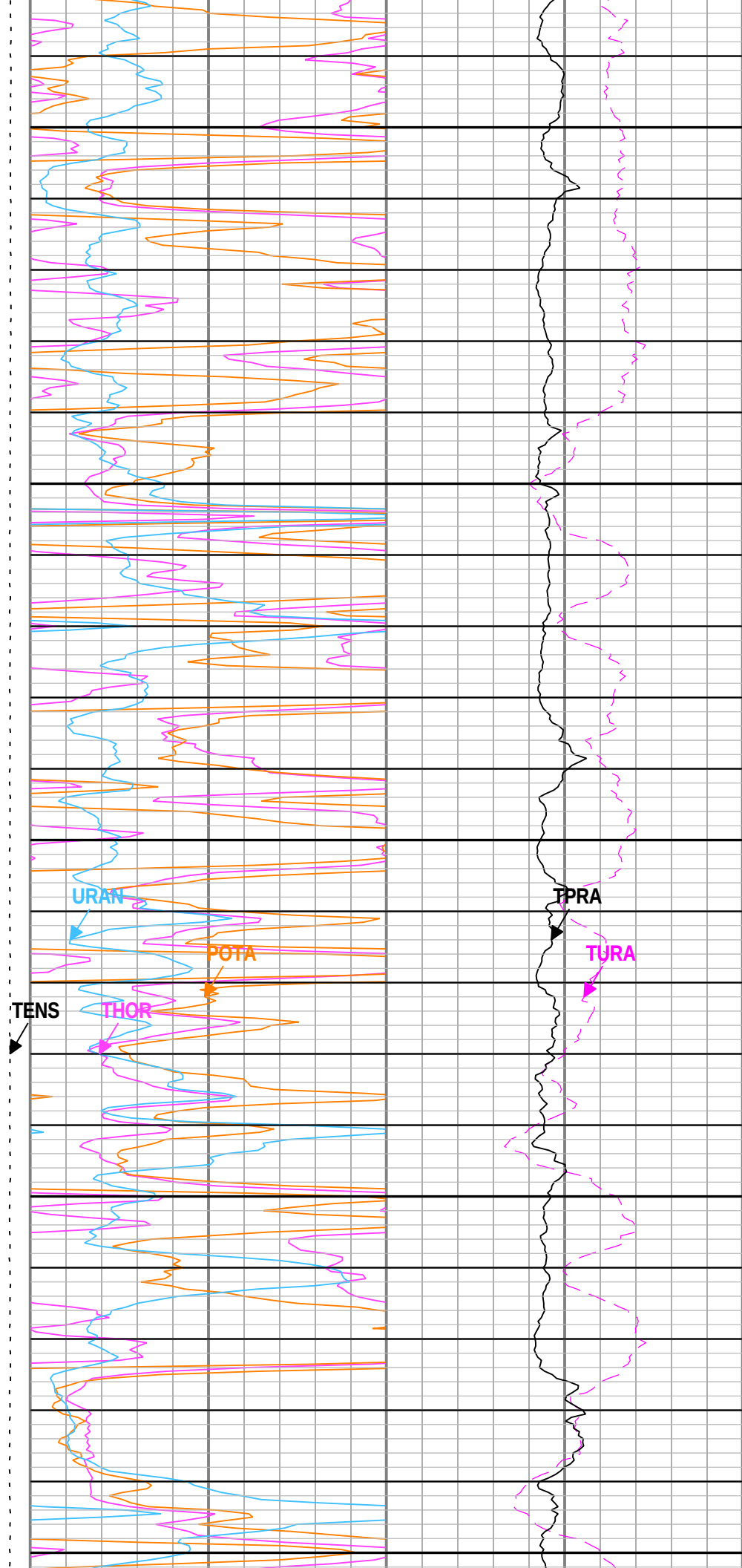
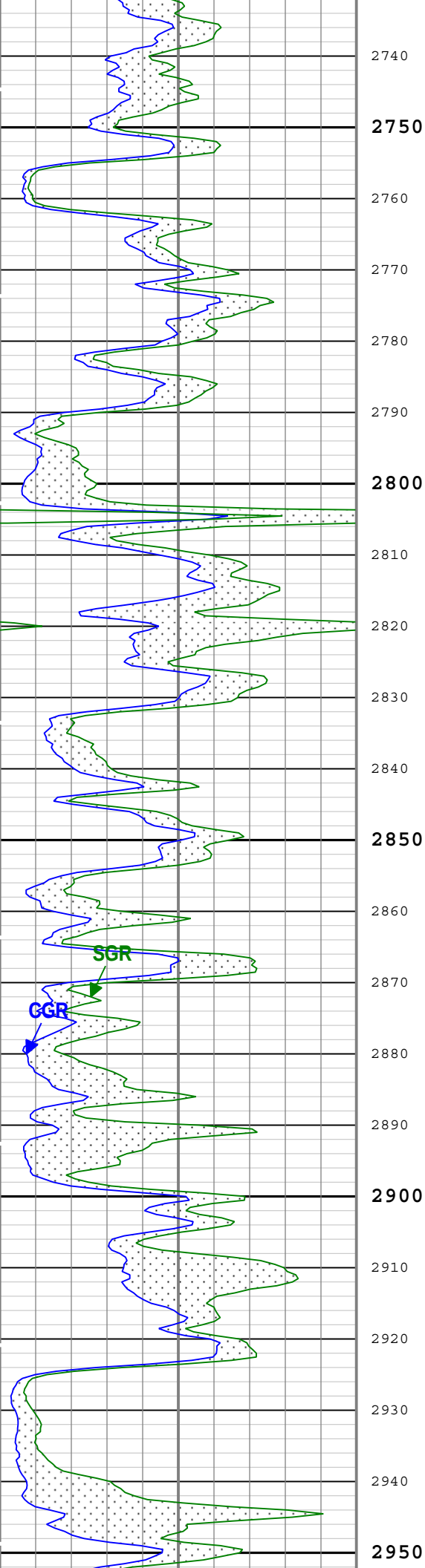


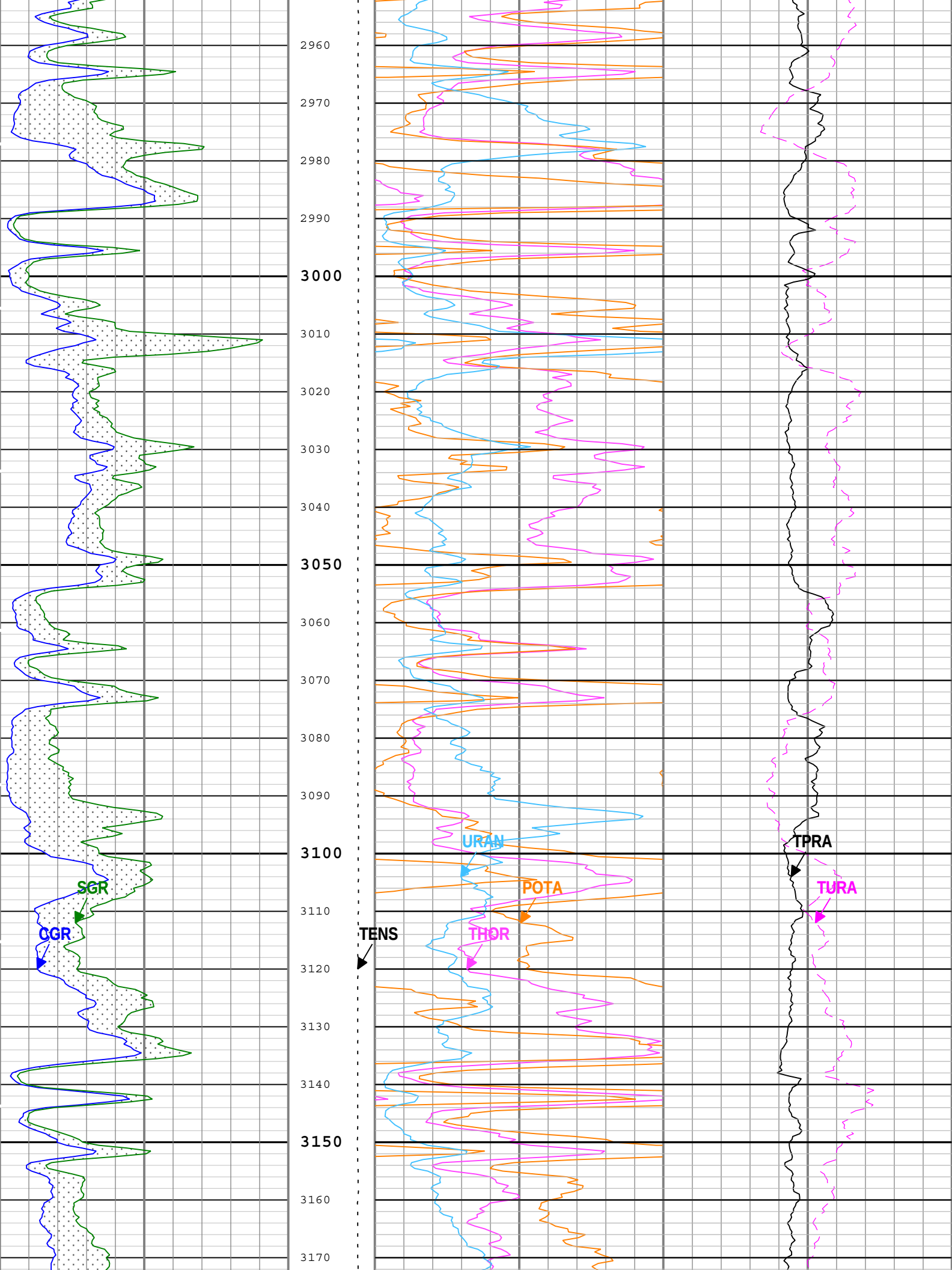


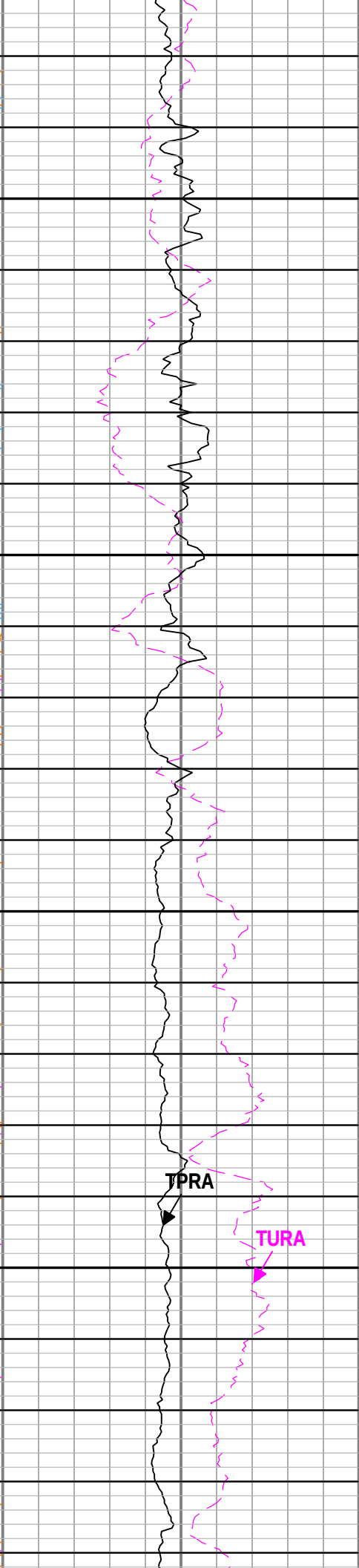
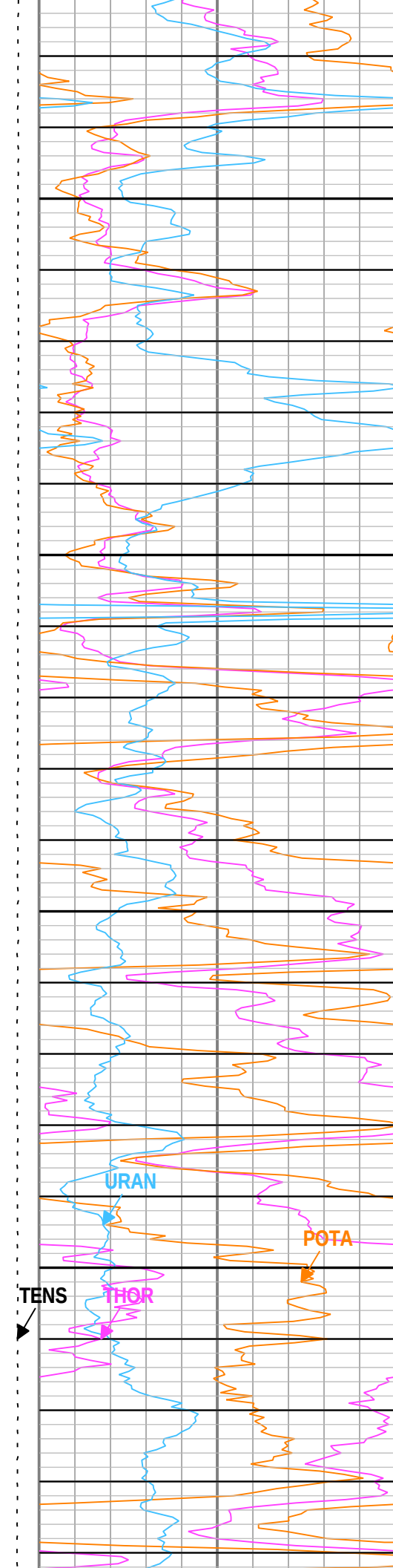
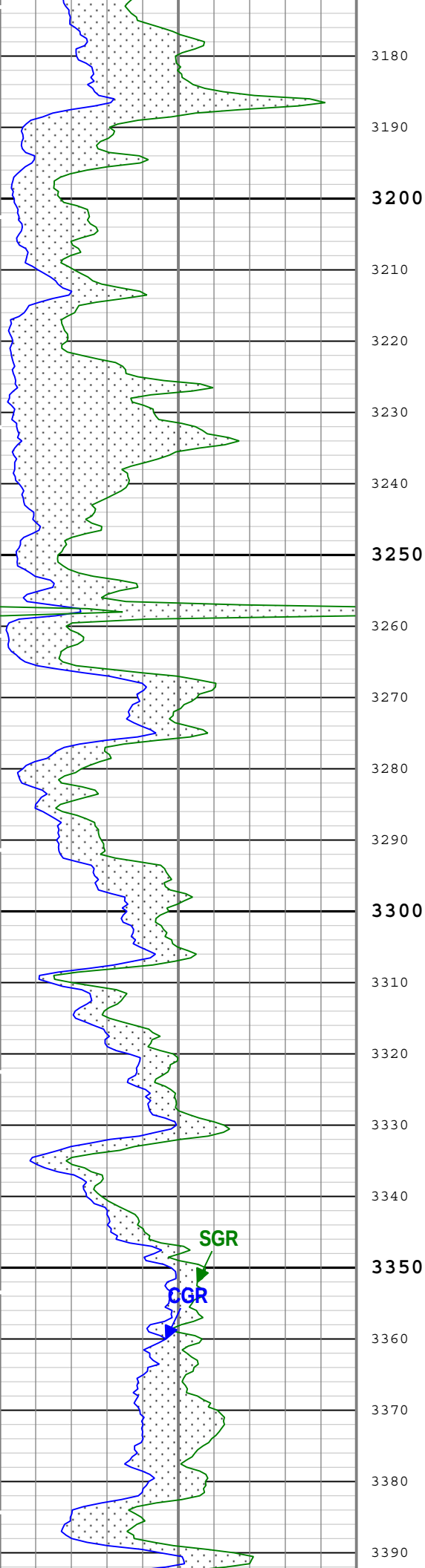












SGR

CGR

URAN

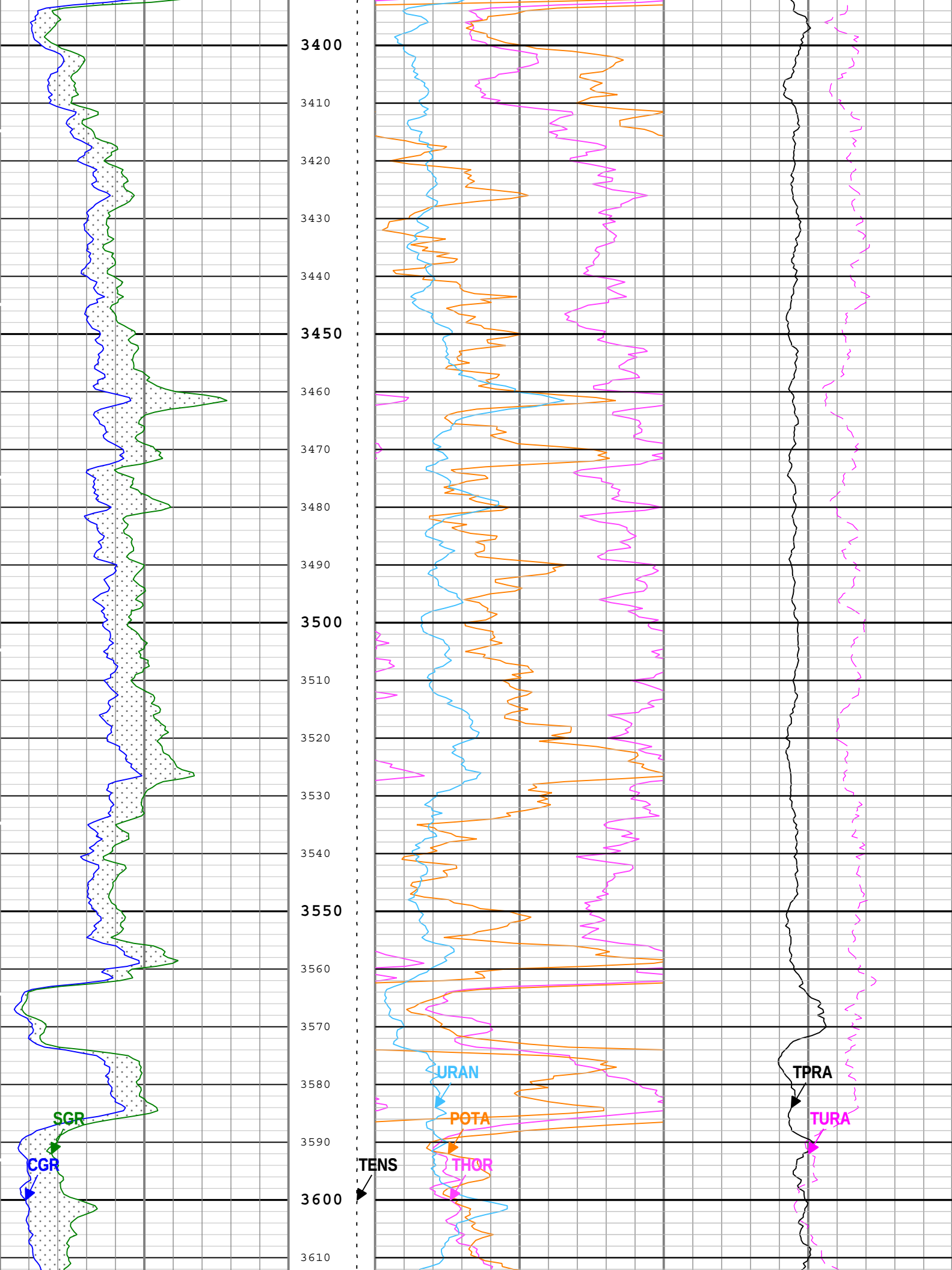
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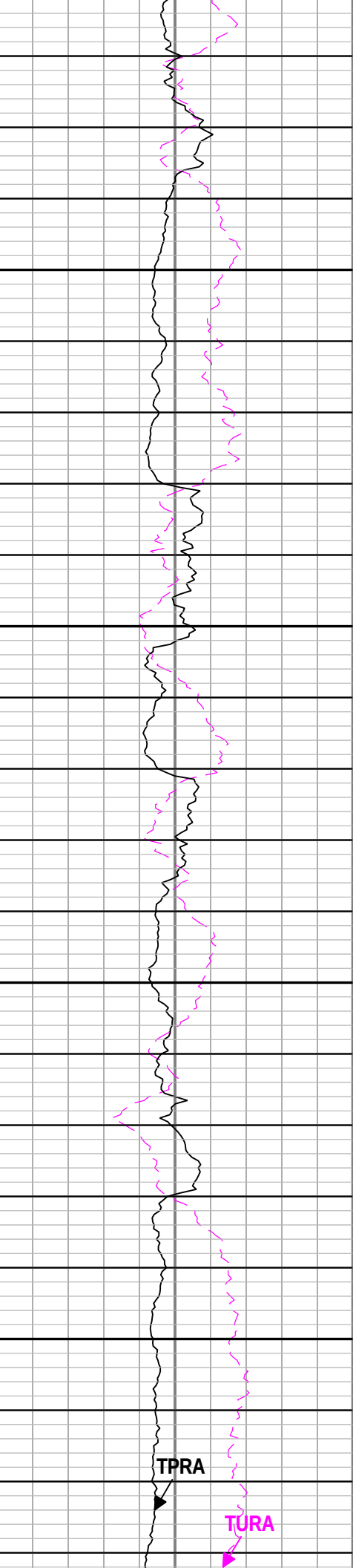
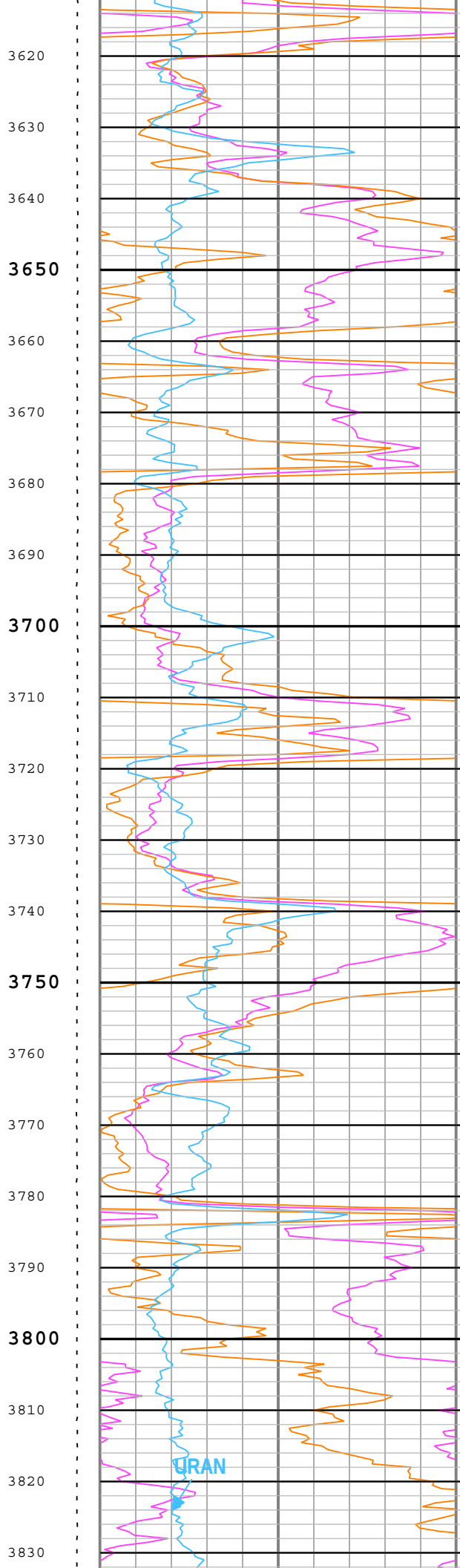
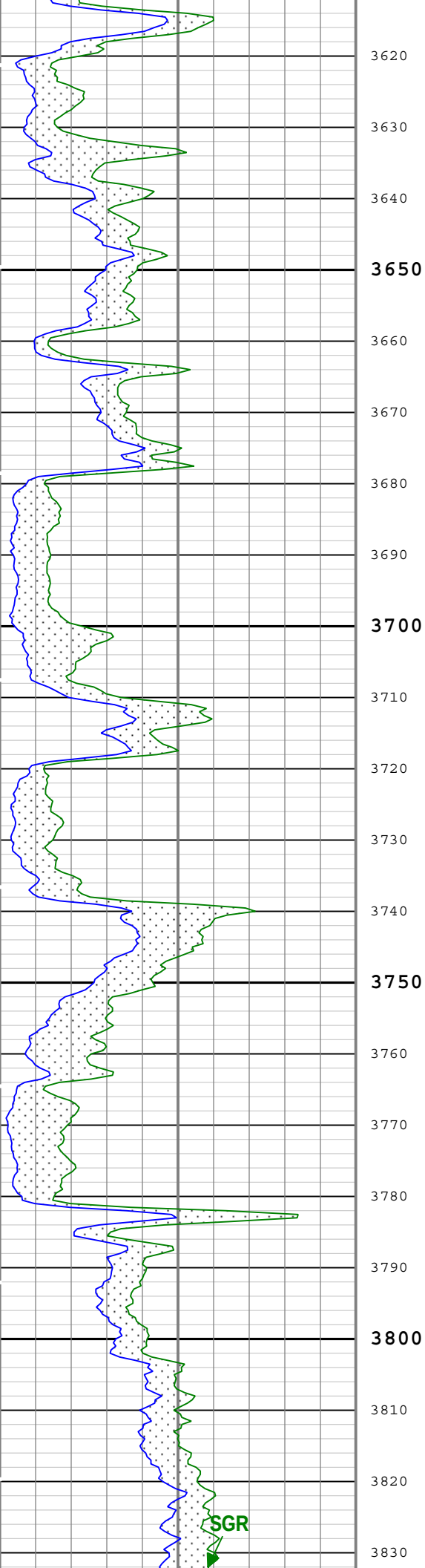
TENS

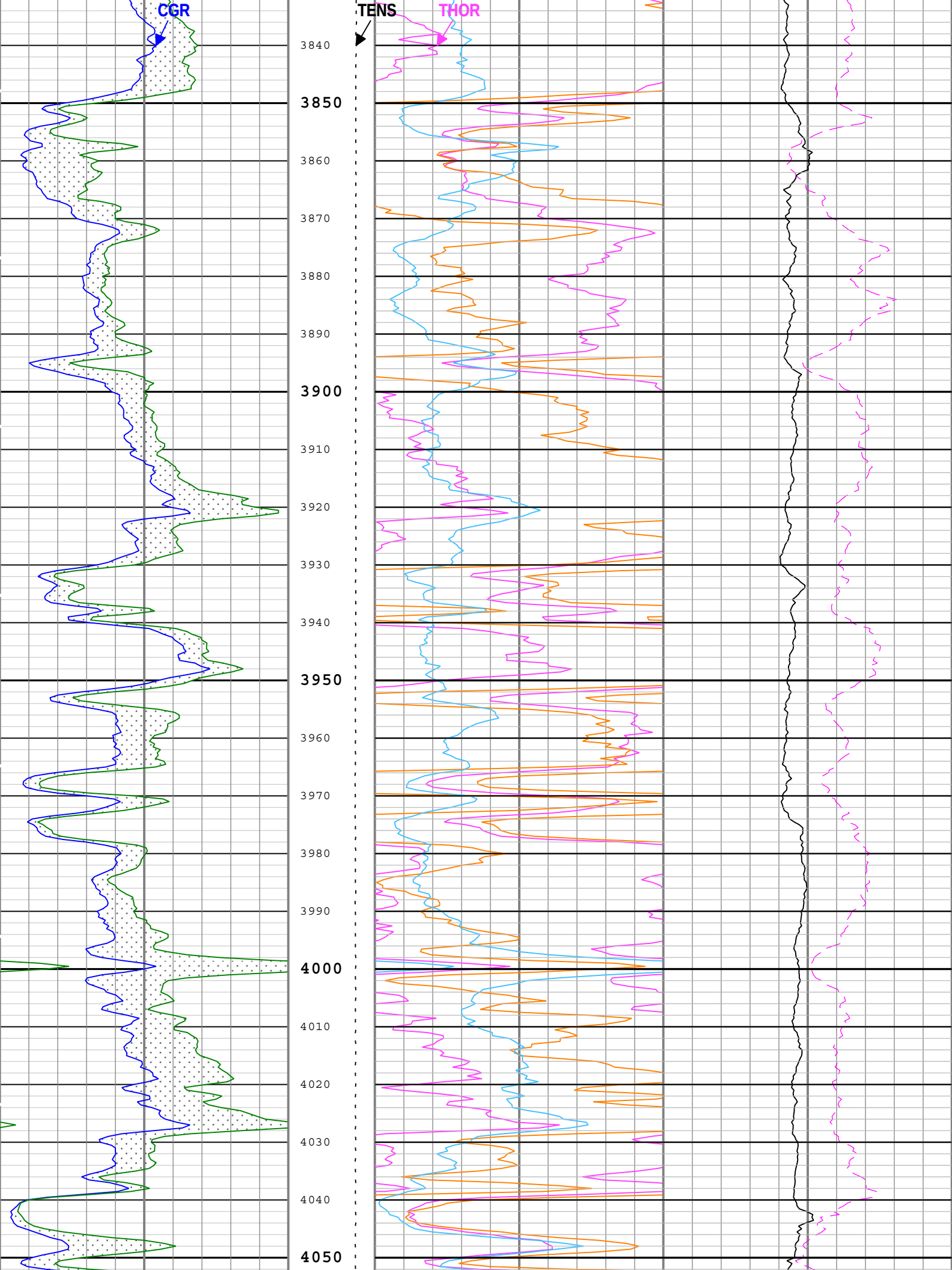
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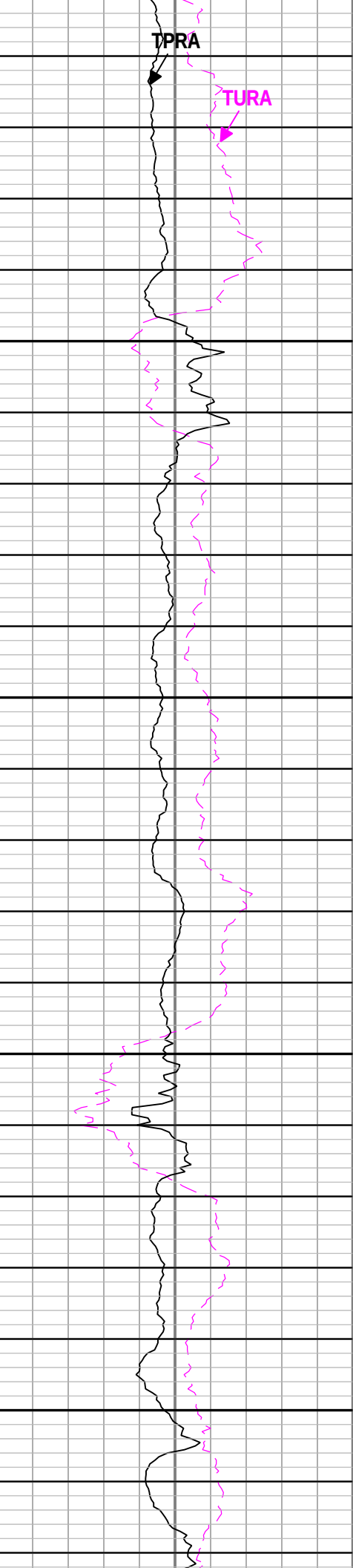
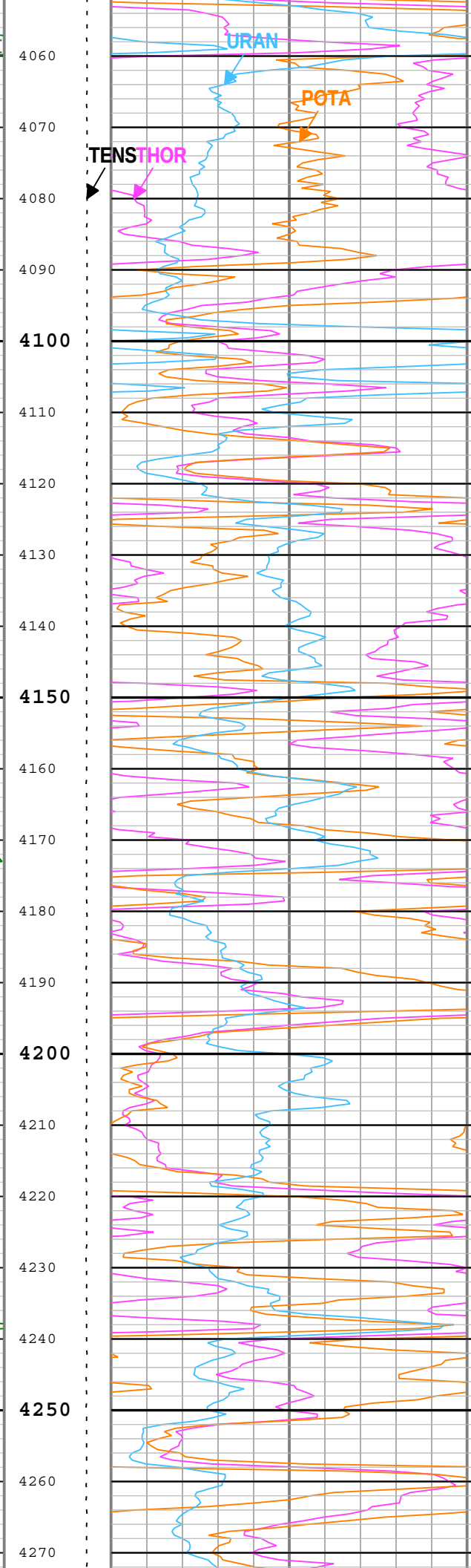
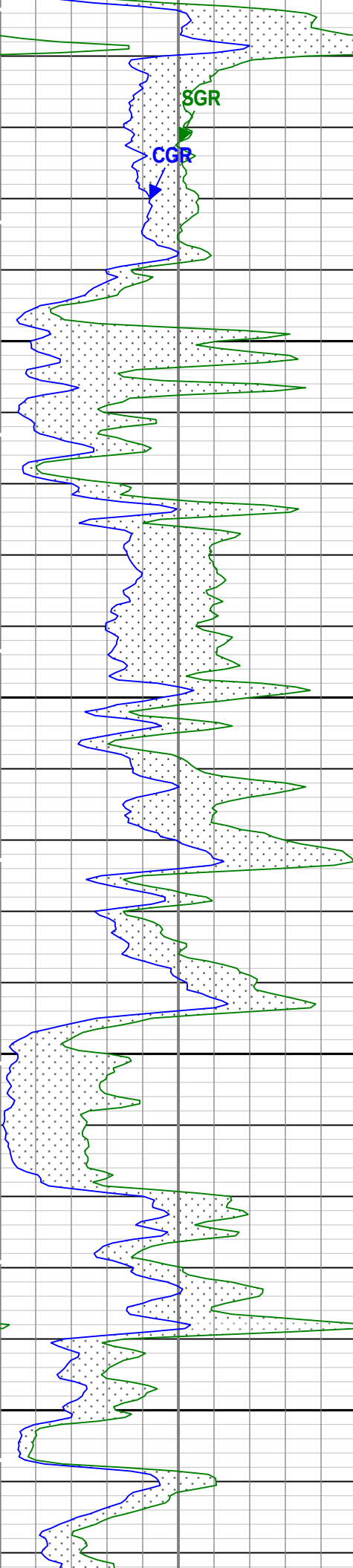
TPRA

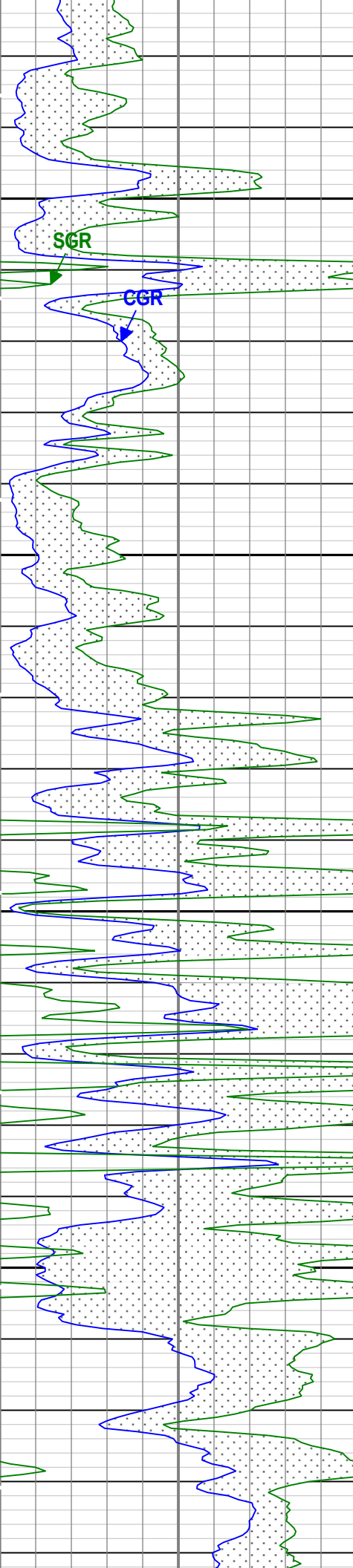
TURA



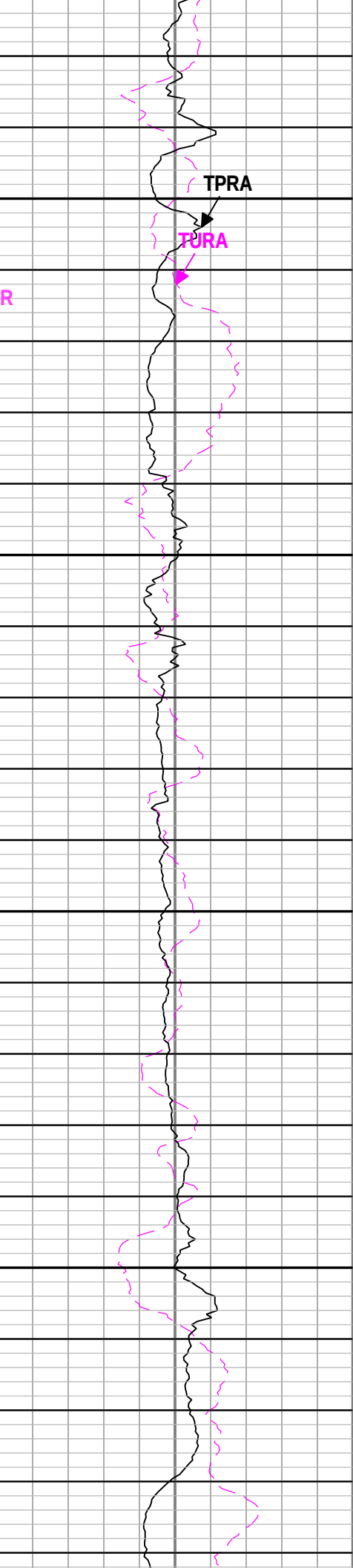


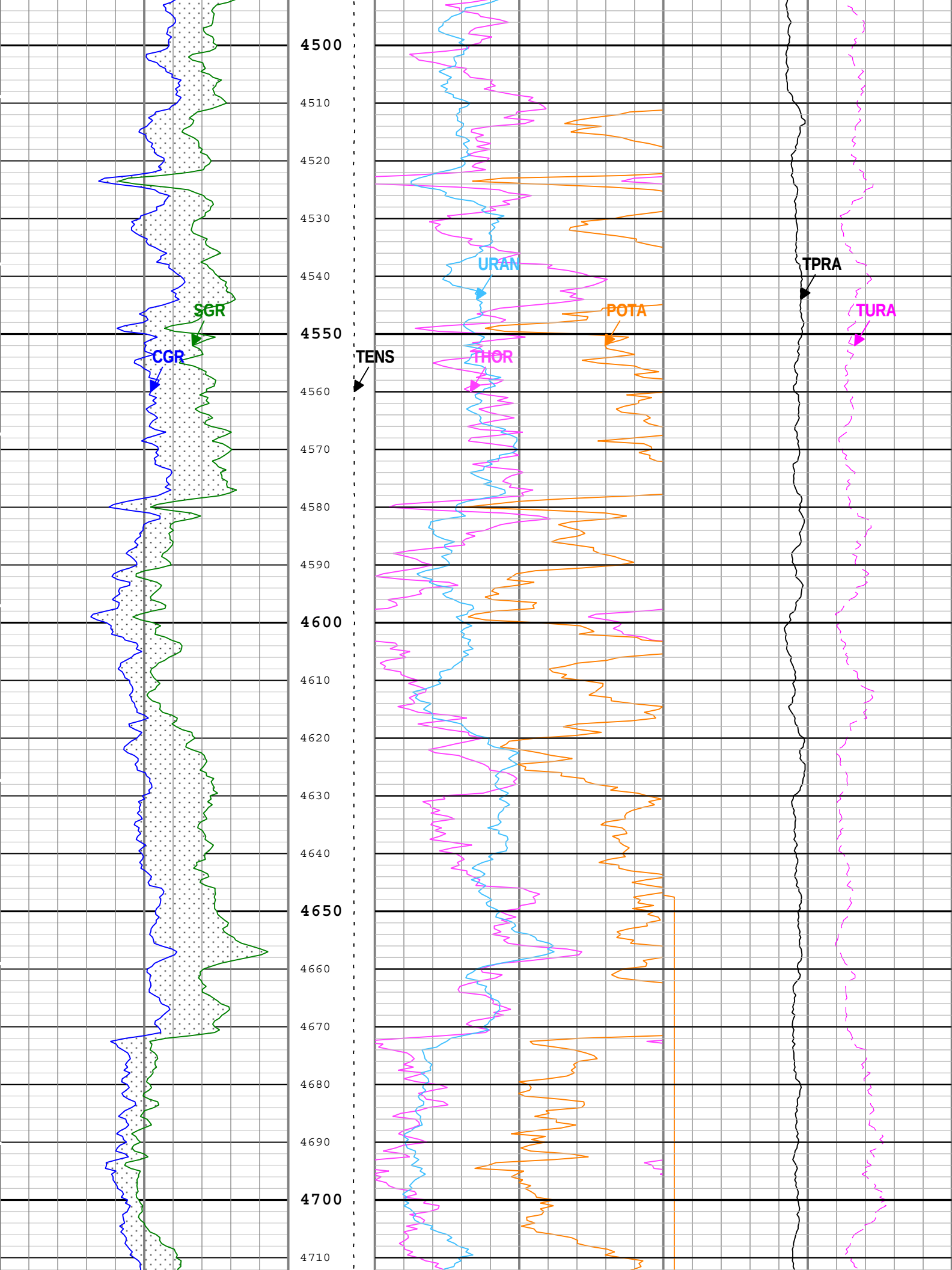


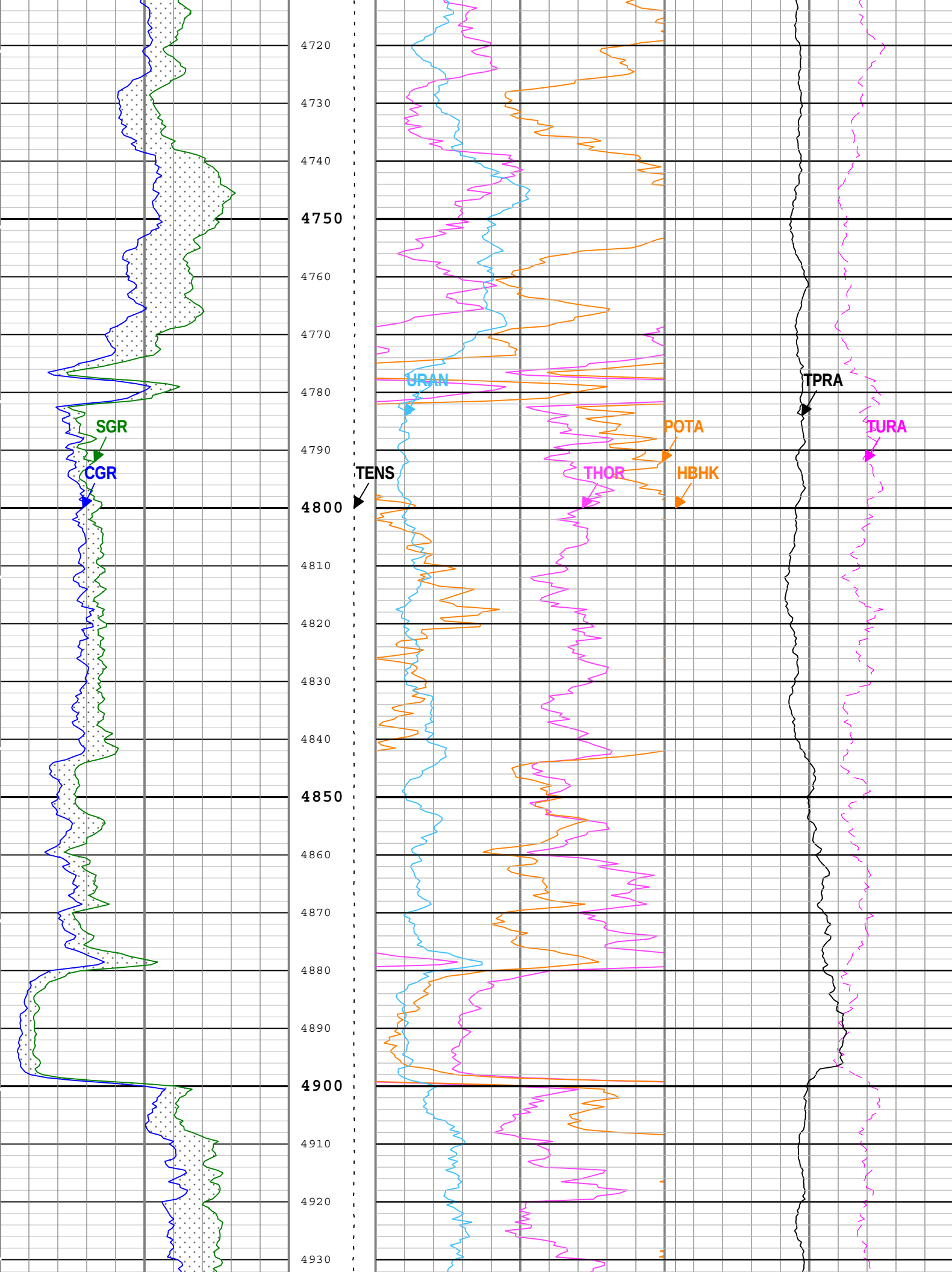


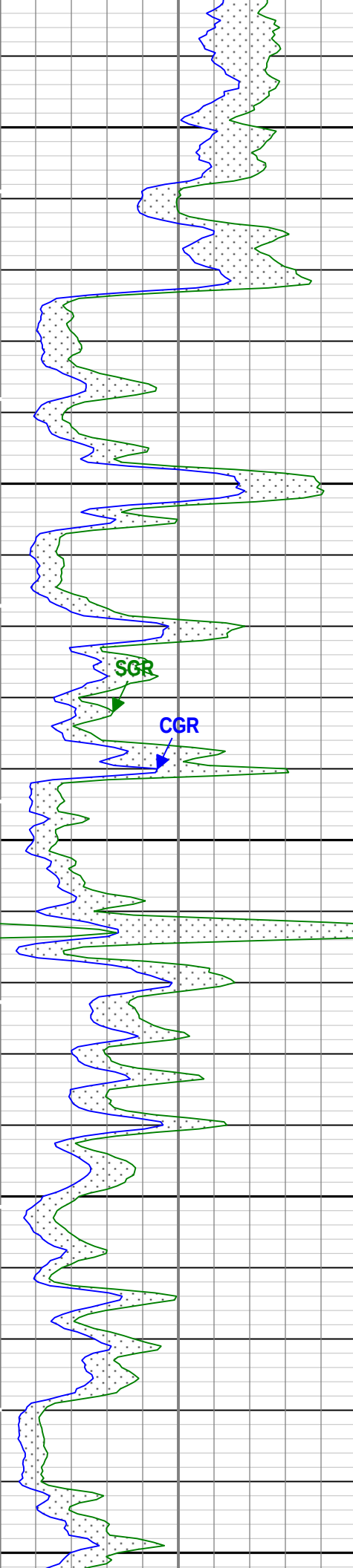


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4490









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4990

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5140

5150

TENS

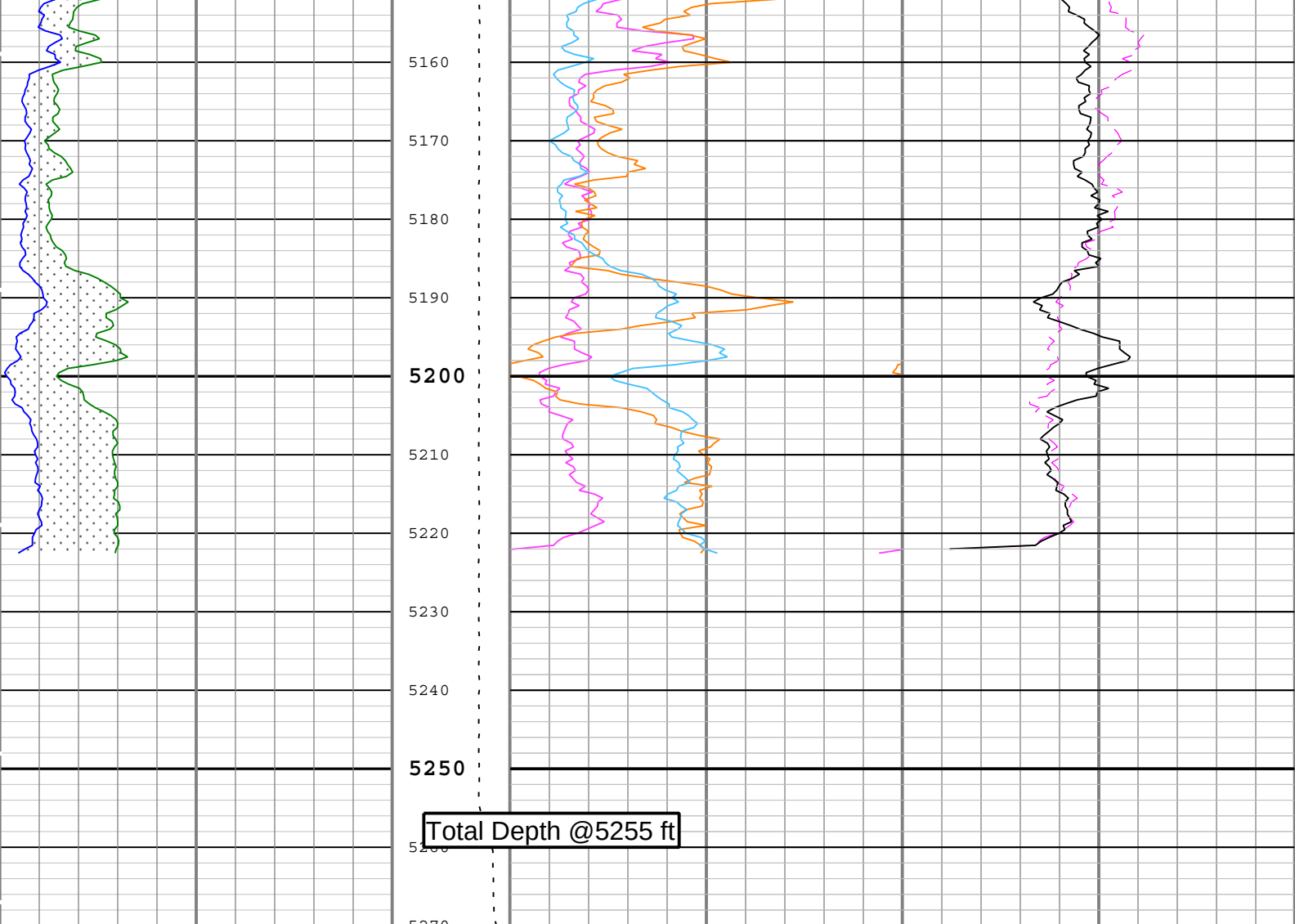
URAN

POTA

THOR

TPRA

TURA

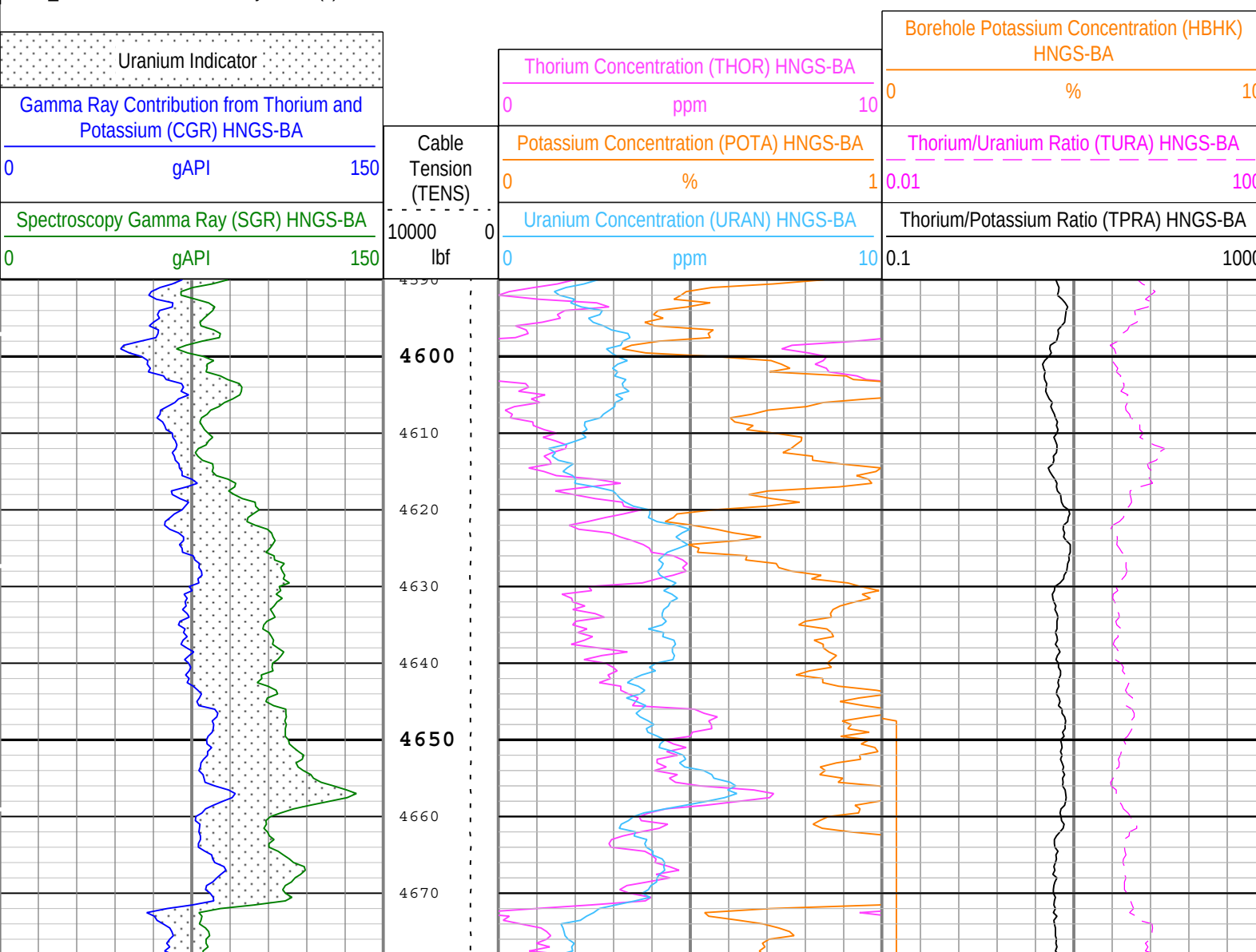


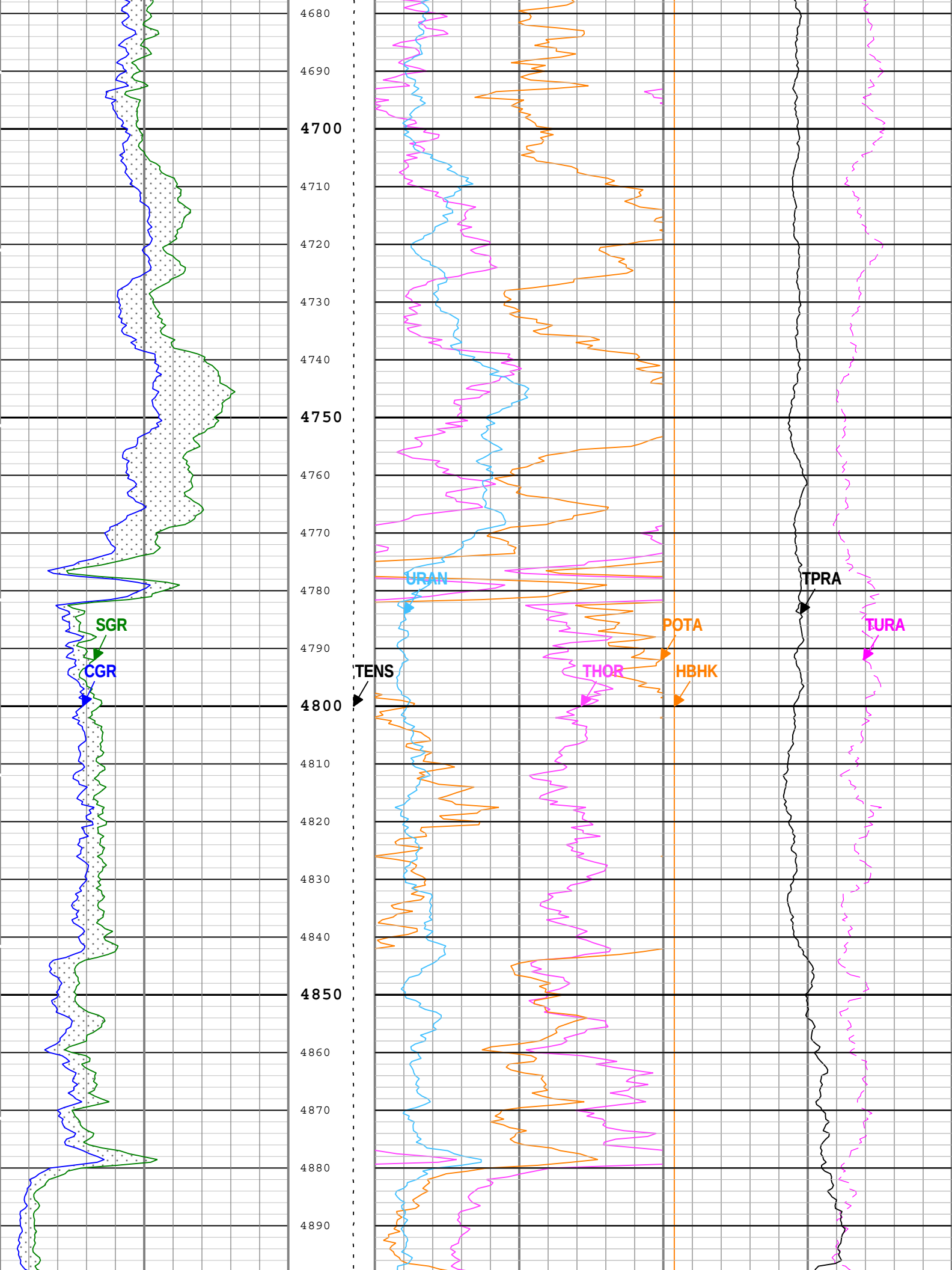
Uranium Indicator			Cable Tension (TENS) 10000 lbf	Thorium Concentration (THOR) HNGS-BA		Borehole Potassium Concentration (HBHK) HNGS-BA				
Gamma Ray Contribution from Thorium and Potassium (CGR) HNGS-BA				0	ppm	10	0	%	10	
gAPI				0	%	1	Thorium/Uranium Ratio (TURA) HNGS-BA			
Spectroscopy Gamma Ray (SGR) HNGS-BA				Uranium Concentration (URAN) HNGS-BA			0.01			100
gAPI				0	ppm	10	Thorium/Potassium Ratio (TPRA) HNGS-BA			0.1

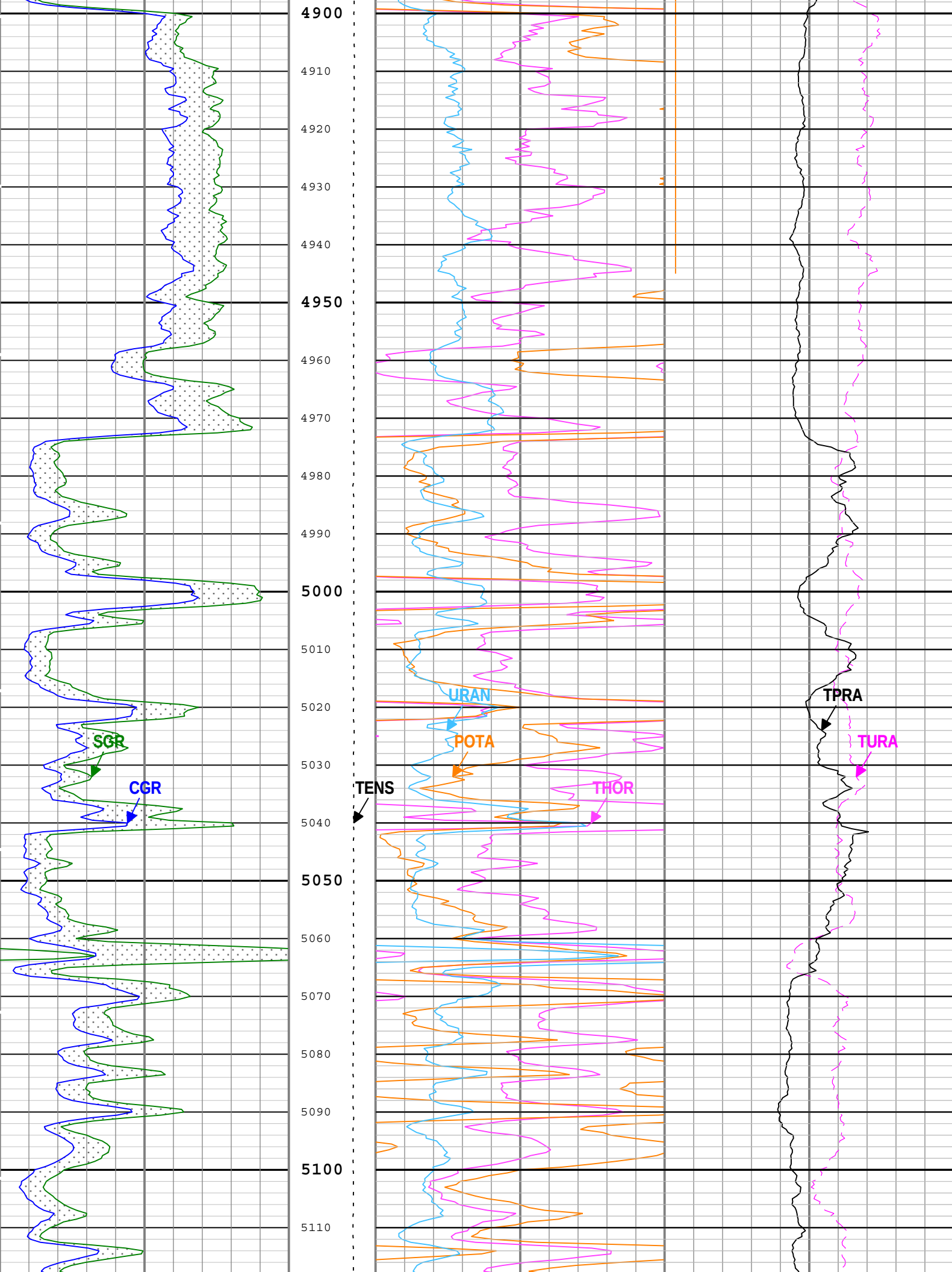
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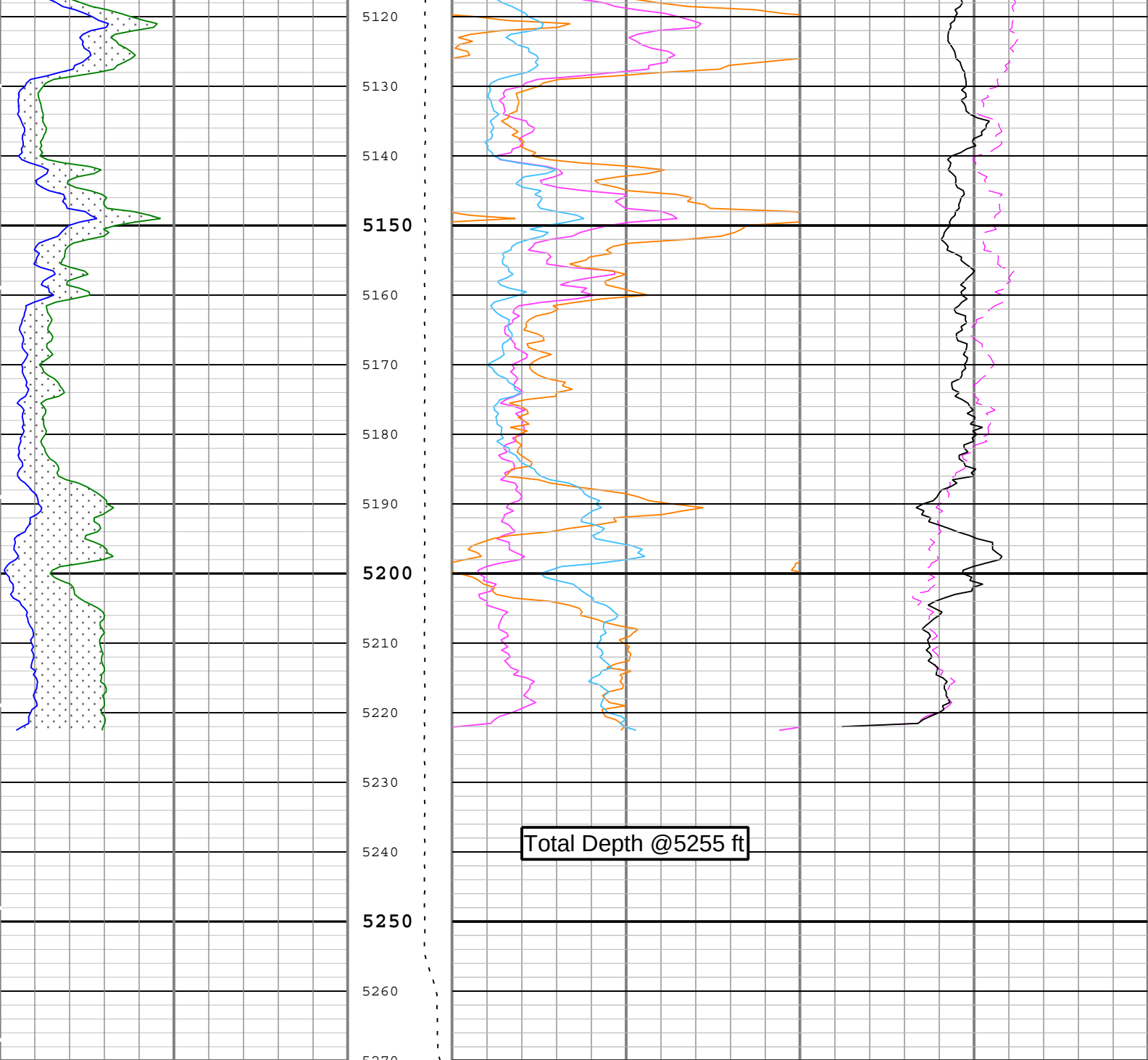
Description: HNGS Basic Format: Log (HNGS Basic) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Dec-2013 15:58:05

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHK	Drilling Fluid Potassium Concentration	Borehole	0	%
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	7.875	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	1494	ft
DBCC	Barite Constant Correction Flag	HNGS-BA	None	
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	









Uranium Indicator Gamma Ray Contribution from Thorium and Potassium (CGR) HNGS-BA 0gAPI150 Spectroscopy Gamma Ray (SGR) HNGS-BA 0gAPI150	Cable Tension (TENS) 10000 lbf	Thorium Concentration (THOR) HNGS-BA 0ppm10	Borehole Potassium Concentration (HBHK) HNGS-BA 0%10
		Potassium Concentration (POTA) HNGS-BA 0%1	Thorium/Uranium Ratio (TURA) HNGS-BA 0.01100
		Uranium Concentration (URAN) HNGS-BA 0ppm10	Thorium/Potassium Ratio (TPRA) HNGS-BA 0.11000

TIME_1900 - Time Marked every 60.00 (s)

Description: HNGS Basic Format: Log (HNGS Basic) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Dec-2013 15:58:08

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHK	Drilling Fluid Potassium Concentration	Borehole	0	%

BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	7.875	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	1494	ft
DBCC	Barite Constant Correction Flag	HNGS-BA	None	
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
HCRB	Apply Borehole Potassium Correction	HNGS-BA	None	
HEMA	Hematite Presence Flag	Borehole	No	
SGRC	Standard Gamma Ray Correction Flag	HNGS-BA	Yes	

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h

Calibration Report				
AIT-M (Array Induction Tool - M) Calibration - Run One				
Primary Equipment :				
Array Induction Sonde - M		AMIS	154	
Auxiliary Equipment :				
AITM Rm/SP Bottom Nose		AMRM	154	

AIT Sonde Calibration - Test Loop Gain							
Master (EEPROM):		13:53:29 16-Oct-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Test Loop Gain - 0		Master	1.000	0.950	1.016	1.050	
Test Loop Phase - 0	deg	Master	0	-3.000	0.598	3.000	
Test Loop Gain - 1		Master	1.000	0.950	1.017	1.050	
Test Loop Phase - 1	deg	Master	0	-3.000	0.750	3.000	
Test Loop Gain - 2		Master	1.000	0.950	1.013	1.050	
Test Loop Phase - 2	deg	Master	0	-3.000	0.051	3.000	
Test Loop Gain - 3		Master	1.000	0.950	1.007	1.050	
Test Loop Phase - 3	deg	Master	0	-3.000	0.149	3.000	
Test Loop Gain - 4		Master	1.000	0.950	0.992	1.050	
Test Loop Phase - 4	deg	Master	0	-3.000	0.095	3.000	
Test Loop Gain - 5		Master	1.000	0.950	0.983	1.050	
Test Loop Phase - 5	deg	Master	0	-3.000	-0.119	3.000	
Test Loop Gain - 6		Master	1.000	0.950	0.993	1.050	
Test Loop Phase - 6	deg	Master	0	-3.000	0.290	3.000	
Test Loop Gain - 7		Master	1.000	0.950	1.008	1.050	
Test Loop Phase - 7	deg	Master	0	-3.000	-0.060	3.000	

AIT Sonde Calibration - Sonde Error Correction							
Master (EEPROM):		13:53:29 16-Oct-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-102.514	119.000	
Sonde Error Correction Quad - 0		Master	-----	-2250.000	-165.193	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	152.862	204.000	
Sonde Error Correction Quad - 1		Master	-----	-625.000	156.352	625.000	
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	105.127	156.000	
Sonde Error Correction Quad - 2		Master	-----	-350.000	-67.600	350.000	
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	58.910	89.000	
Sonde Error Correction Quad - 3		Master	-----	-250.000	92.322	250.000	
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	24.933	35.000	
Sonde Error Correction Quad - 4		Master	-----	-63.000	47.414	63.000	
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	12.207	24.000	
Sonde Error Correction Quad - 5		Master	-----	-50.000	-25.021	50.000	
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.503	15.000	
Sonde Error Correction Quad - 6		Master	-----	-30.000	0.642	30.000	
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-1.991	5.000	

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM):		13:53:29 16-Oct-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	1.000	0.800	1.023	1.200	
Fine Gain		Master	1.000	0.800	1.023	1.200	

AIT Electronics Check - Thru Calibration Check

Master (EEPROM):	13:53:29 16-Oct-2013	Before (Measured):	21:00:04 03-Feb-2014	After:
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Master	----	0.366	0.597	0.854	
		Before	----	0.366	0.596	0.854	
		After	----	----	----	----	
		Before-Master	----	----	-0.001	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 0	deg	Master	----	137.000	-170.441	-103.000	
		Before	----	137.000	-164.390	-103.000	
		After	----	----	----	----	
		Before-Master	----	----	6.051	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 1	V	Master	----	0.762	1.222	1.778	
		Before	----	0.762	1.222	1.778	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 1	deg	Master	----	136.000	-171.517	-104.000	
		Before	----	136.000	-165.460	-104.000	
		After	----	----	----	----	
		Before-Master	----	----	6.057	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 2	V	Master	----	0.372	0.607	0.868	
		Before	----	0.372	0.606	0.868	
		After	----	----	----	----	
		Before-Master	----	----	-0.001	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 2	deg	Master	----	132.000	-175.054	-108.000	
		Before	----	132.000	-169.001	-108.000	
		After	----	----	----	----	
		Before-Master	----	----	6.053	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 3	V	Master	----	0.420	0.684	0.980	
		Before	----	0.420	0.684	0.980	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 3	deg	Master	----	131.000	-175.807	-109.000	
		Before	----	131.000	-169.753	-109.000	
		After	----	----	----	----	
		Before-Master	----	----	6.054	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 4	V	Master	----	0.804	1.280	1.876	
		Before	----	0.804	1.279	1.876	
		After	----	----	----	----	
		Before-Master	----	----	-0.001	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 4	deg	Master	----	125.000	178.088	-115.000	
		Before	----	125.000	-175.853	-115.000	
		After	----	----	----	----	
		Before-Master	----	----	-353.941	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 5	V	Master	----	1.176	1.864	2.744	
		Before	----	1.176	1.863	2.744	
		After	----	----	----	----	
		Before-Master	----	----	-0.001	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 5	deg	Master	----	122.000	176.493	-118.000	
		Before	----	122.000	-177.445	-118.000	

		After					
		Before-Master					
		After-Before					
Thru Cal Mag - 6	V	Master	----	1.176	1.865	2.744	
		Before	----	1.176	1.864	2.744	
		After	----	----	----	----	
		Before-Master	----	----	-0.001	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 6	deg	Master	----	121.000	176.477	-119.000	
		Before	----	121.000	-177.461	-119.000	
		After	----	----	----	----	
		Before-Master	----	----	-353.938	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 7	V	Master	----	0.846	1.340	1.974	
		Before	----	0.846	1.340	1.974	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 7	deg	Master	----	115.000	175.810	-125.000	
		Before	----	115.000	-178.098	-125.000	
		After	----	----	----	----	
		Before-Master	----	----	-353.908	----	
		After-Before	----	----	----	----	
SPA Zero	mV	Master		-50.000	-0.427	50.000	
		Before		-50.000	-0.421	50.000	
		After	----	----	----	----	
		Before-Master	----	----	0.006	----	
		After-Before	----	----	----	----	
SPA Plus	mV	Master		941.000	991.321	1040.000	
		Before		941.000	991.149	1040.000	
		After	----	----	----	----	
		Before-Master	----	----	-0.172	----	
		After-Before	----	----	----	----	
Temperature Zero	V	Master		-0.050	0.000	0.050	
		Before		-0.050	0.000	0.050	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
		After-Before	----	----	----	----	
Temperature Plus	V	Master		0.870	0.918	0.960	
		Before		0.870	0.918	0.960	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
		After-Before	----	----	----	----	

Before (Measured):		11:15:31 12-Dec-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3868	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3799	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3816	4136	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run One			
Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	3819	
Auxiliary Equipment :			
HGNS Accelerometer, 150 degC	HACCZ-H	5120	
AmBe Neutron Logging Source	NSR-F	5075	
Calibration Parameter :			
Water Temperature			
Housing Size			
JIG-BKG (Jig minus background reference)	165		

HGNS Accelerometer Calibration - Accelerometer Accumulations							
Before (Measured):		11:16:03 12-Dec-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.1	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read							
Master (EEPROM):		00:00:00 15-May-2006					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	----	----	519.600	----	
Accelerometer Coefficients - 1		Master	----	----	33.360	----	
Accelerometer Coefficients - 2		Master	----	----	-0.009	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.719	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	298.600	----	
Accelerometer Coefficients - 9		Master	----	----	0.997	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations							
Master (EEPROM):		11:02:48 16-Oct-2013	Before (Measured):		14:56:08 05-Dec-2013 Expired by 5 days	After:	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	26.3	40.0	
		Before	0	5.0	27.7	40.0	
		After	----	----	----	----	
		Before-Master	----	-3.9	1.4	3.9	
		After-Before	----	----	----	----	
Far Zero Measurement	1/s	Master	0	5.0	29.2	40.0	
		Before	0	5.0	28.1	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.4	-1.1	4.4	
		After-Before	----	----	----	----	
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	5447.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2281.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

Near Corrected Plus Measurement - 0	1/s	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	4700.0 ----- ----- ----- -----	5553.0 ----- ----- ----- -----	6900.0 ----- ----- ----- -----	
Far Corrected Plus Measurement - 0	1/s	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1900.0 ----- ----- ----- -----	2338.0 ----- ----- ----- -----	2900.0 ----- ----- ----- -----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 14:53:52 05-Dec-2013 Expired by 5 days After:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	22.6	120.0	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	176.1	206.3	
		After	-----	-----	NOT DONE	-----	
		After-Before	-----	-----	-----	-----	
GR Calibration Gain		Before	0.89	0.80	0.94	1.05	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

HNGS-BA (Hostile-environment Natural Gamma-ray Sonde) Calibration - Run One

Primary Equipment :							
	HNGS Sonde Element		HNGS-BA		328		
Auxiliary Equipment :							
	Hostile Natural Gamma Ray Cartridge		HNGC-B		596		
	HNGS Housing Element		HEH-K		328		
					0		

HNGS Background and Na22 Set Point Determination - Detector 1 Check

Master (EEPROM): 16:37:03 16-Nov-2013 Before: After:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Location - 0		Master			39.685		
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Na 511 Peak Resolution - 0	%	Master			14.671		
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
High Voltage DAC Value - 0	V	Master			0.000		
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Na 1785 Peak Location - 0		Master			142.226		
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Na 1785 Peak Resolution - 0	%	Master			8.213		
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Temperature - 0	degF	Master					
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Na Count Rate - 0	CPS	Master	45.000	10.000	24.611	100.000	

Na Count Rate - 0	CPS	Master Before After Before-Master After-Before	45.000 ----- ----- ----- -----	10.000 ----- ----- ----- -----	24.611 ----- ----- ----- -----	100.000 ----- ----- ----- -----	
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HNGS Background and Na22 Set Point Determination - Detector 2 Check

Master (EEPROM): 16:37:03 16-Nov-2013		Before:		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Location - 0		Master			39.668		
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Na 511 Peak Resolution - 0	%	Master			15.246		
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
High Voltage DAC Value - 0	V	Master			0.000		
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Na 1785 Peak Location - 0		Master			141.964		
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Na 1785 Peak Resolution - 0	%	Master			8.671		
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Temperature - 0	degF	Master					
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Na Count Rate - 0	CPS	Master	45.000	10.000	24.616	100.000	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HNGS Background and Na22 Set Point Determination - Ratio of Detector 1 to Detector 2

Master (EEPROM): 16:37:03 16-Nov-2013		Before:		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coincidence Count Rate Ratio - 0		Master			0.000		
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HNGS Background and Na22 Set Point Determination - Detector 1 Calibration

Master (EEPROM): 16:37:03 16-Nov-2013		Before:		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Th Peak Location - 0		Master	209.630	201.000	213.899	218.250	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Th Peak Resolution - 0	%	Master	7.000	5.000	6.729	9.000	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Background Count Rate - 0	CPS	Master			0.000		
		Before	----	----	----	----	

		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Gain Ratio - 0		Master	1.000	0.940	1.025	1.060	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HNGS Background and Na22 Set Point Determination - Detector 2 Calibration

Master (EEPROM): 16:37:03 16-Nov-2013		Before:		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Th Peak Location - 0		Master	209.630	201.000	214.368	218.250	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Th Peak Resolution - 0	%	Master	7.000	5.000	7.705	9.000	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Background Count Rate - 0	CPS	Master			0.000		
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Gain Ratio - 0		Master	1.000	0.940	1.028	1.060	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HNGS Background and Na22 Set Point Determination - Detector 1 Calibration

Master (EEPROM): 16:37:03 16-Nov-2013		Before:		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point - 0		Master	40.000	38.000	40.000	43.500	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HNGS Background and Na22 Set Point Determination - Detector 2 Calibration

Master (EEPROM): 16:37:03 16-Nov-2013		Before:		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point - 0		Master	40.000	38.000	40.000	43.500	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

Company:	Anadarko E&P Onshore LLC	Schlumberger
Well:	Murphy 1-31 M	
Field:	Greenwood	
County:	Morton	
State:	Kansas	

SPECTRAL GAMMA RAY

HOSTILE NATURAL GAMMA RAY SONDE

