

Schlumberger

VISION\* Resistivity

12.25" Section

1:1000m MDRT

Company:

Woodside Energy Ltd

Well:

Somerset-1

Field:

T34P

Rig Name:

Ocean Patriot

State:

Tasmania

Country:

Australia

Latitude: 39° 20' 36.76" S Northing: N 5,643,640.360m

UWID: n.a

Longitude: 142° 44' 56.14" E Easting: E 650,712.400m

Rig Name: Ocean Patriot

Block: n.a

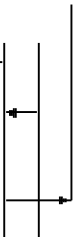
Rig Type: Semi-Submersible

FL: Otway Basin

FL1:

FL2:

Log Measured From - Drill Floor: 21.5 m  
Reference Datum - Mean Sea Level  
Permanent Datum - Least Astronomic Tide: 0.6 m



Ground Level: 503.0 m

Acquisition Dates: 24 Oct 09 to 02 Nov 09

Other Services:

Print Interval: 1275.0(m) to 2912.5(m)

PERFORM Drilling

Index Types:

Measured Depth

Directional Surveys

Index Scales:

1:1000

Shock & Vibrations

Depth Source:

Driller's Depth

Annular Pressure & Temperature

Depth Sensor:

DES

Conveyance:

Drill Pipe

Print Type:

Final

Spud Date:

19-Oct-2009

## Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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## Well Sketch

Driller(m)		Feature	OD(in)
524.50 524.50 529.00 570.60 572.50		BS 36 CSG 30 CSG 13.375 BS 17.5	
1279.00 1284.00		BS 12.25	

2912.00

Borehole Size/Casing Record

Bit						
Bit Size ( in )	36	17.5	12.25			
Bottom Driller ( m )	572.5	1284	2912			
Casing						
Size ( in )	30	13.375				
Weight ( kg/m )	169.64	71.92				
Inner Diameter ( in )	29.296	12.696				
Grade	H40	N80				
Top Driller ( m )	524.5	529				
Bottom Driller ( m )	570.6	1279				

Operational Run Summary

Parameter ( unit )	Run 2					
Date Log Started	24-Oct-2009					
Time Log Started	13:36:13					
Date Log Finished	02-Nov-2009					
Time Log Finished	09:45:09					
Bit Size ( in )	12.250					
Bit Start Depth ( m )	1274.72					
Bit Stop Depth ( m )	2912.69					
Top Log Interval ( m )	1279.00					
Bottom Log Interval ( m )	2903.38					
Max Hole Deviation ( deg )	1.54					
Azimuth of Max Deviation ( deg )	198.58					
Logging Unit Number	OLU-KC-0702					
Logging Unit Location						
Recorded By	Marganda/Mewan/Russell					
Witnessed By	David/Todd					
Service Order Number	09ASQ0030					

Borehole Fluids

Parameter ( unit )	Run 2					
Type Fluid	Water					
Max Recorded Temperature ( degC )	109					
Source of Sample	Active Tank					
Salinity ( ppm )	Zoned					
Density ( g/cm3 )	Zoned					

Density ( g/cm3 )	Zoned					
Viscosity ( s )						
Fluid Loss ( cm3 )						
pH	Zoned					
Source Rmf						
Source Rmc	Pressed					
Rm @ Meas Temp ( ohm.m@degC )	Zoned					
Rmf @ Meas Temp ( ohm.m@degC )	Zoned					
Rmc @ Meas Temp ( ohm.m@degC )	Zoned					
Rm @ BHT ( ohm.m@degC )	Zoned					
Rmf @ BHT ( ohm.m@degC )	Zoned					
Rmc @ BHT ( ohm.m@degC )	Zoned					


## Zoned Borehole Fluids

### Run 2

Parameter	Value	Start
Salinity	70000	10/24/2009 1:36:13 PM
Salinity	65000	10/25/2009 8:14:10 AM
Salinity	52000	10/26/2009 4:24:53 AM
Salinity	56000	10/27/2009 5:09:59 AM
Density	1.29	10/24/2009 1:36:13 PM
Density	1.26	10/26/2009 2:52:31 AM
Density	1.3	10/27/2009 5:10:29 AM
pH	8.5	10/24/2009 1:36:13 PM
pH	10.2	10/25/2009 8:14:10 AM
pH	10	10/26/2009 2:52:07 AM
pH	9	10/26/2009 4:24:53 AM
Meas Temp	19.4	10/24/2009 1:36:13 PM
Meas Temp	18.8	10/26/2009 4:24:53 AM
Meas Temp	20	10/27/2009 1:55:15 AM
Meas Temp	19.4	10/24/2009 1:36:13 PM
Meas Temp	18.9	10/26/2009 4:24:53 AM
Meas Temp	19.7	10/27/2009 1:55:15 AM
Rm @ Meas Temp	0.08 @ 19.4	10/24/2009 1:36:13 PM
Rm @ Meas Temp	0.09 @ 18.8	10/26/2009 4:24:53 AM
Rm @ Meas Temp	0.10 @ 20	10/27/2009 1:55:15 AM
Rmf @ Meas Temp	0.06 @ 19.4	10/24/2009 1:36:13 PM
Rmf @ Meas Temp	0.08 @ 18.9	10/26/2009 4:24:53 AM
Rmf @ Meas Temp	0.08 @ 19.7	10/27/2009 1:55:15 AM
Rmc @ Meas Temp	0.09 @ 20	10/24/2009 1:36:13 PM
Rmc @ Meas Temp	0.14 @ 20	10/26/2009 4:24:53 AM
Rmc @ Meas Temp	0.18 @ 20	10/27/2009 1:55:15 AM
Rm @ BHT	0.04 @ 62	10/24/2009 1:36:13 PM
Rm @ BHT	0.06 @ 62	10/26/2009 4:24:53 AM
Rm @ BHT	0.10 @ 62	10/27/2009 1:52:45 AM
Rm @ BHT	0.07 @ 62	10/27/2009 1:55:15 AM
Rmf @ BHT	0.03 @ 62	10/24/2009 1:36:13 PM
Rmf @ BHT	0.05 @ 62	10/26/2009 4:24:53 AM
Rmf @ BHT	0.08 @ 62	10/27/2009 1:53:02 AM
Rmf @ BHT	0.06 @ 62	10/27/2009 1:55:15 AM

Rmc @ BHT	0.00 @ 62	10/27/2009 1:35:13 AM
Rmc @ BHT	0.04 @ 62	10/24/2009 1:36:13 PM
Rmc @ BHT	0.13 @ 62	10/26/2009 4:24:53 AM
Rmc @ BHT	0.18 @ 62	10/27/2009 1:46:10 AM
Rmc @ BHT	0.12 @ 62	10/27/2009 1:55:15 AM

### Remarks and Equipment Summary

Run 2: Toolstring		Run 2: Remarks
<div><div><div>Cum. Length 39.36 SADN8:42709</div><div></div><div><div><div><i>sadrVISION825</i></div><div>— Neutron 35.49</div><div>— ROP 34.29</div><div>Density 33.51 UltraSonic 33.34</div><div>Cum. Length 30.51 Svr Sub::OSS0809</div><div><i>Saver Sub</i></div><div>Cum. Length 30.19 SONICVISIO:E1620</div><div><i>sonicVISION825</i></div><div>— Delta-T 27.56</div><div>— ROP 27.17</div></div></div></div></div>		



Cum. Length 23.31  
Stabiliz:SBD8068

*ILS*

Cum. Length 22.33  
TELE825:ZH-22

*TeleScope825*

— D&I 18.05

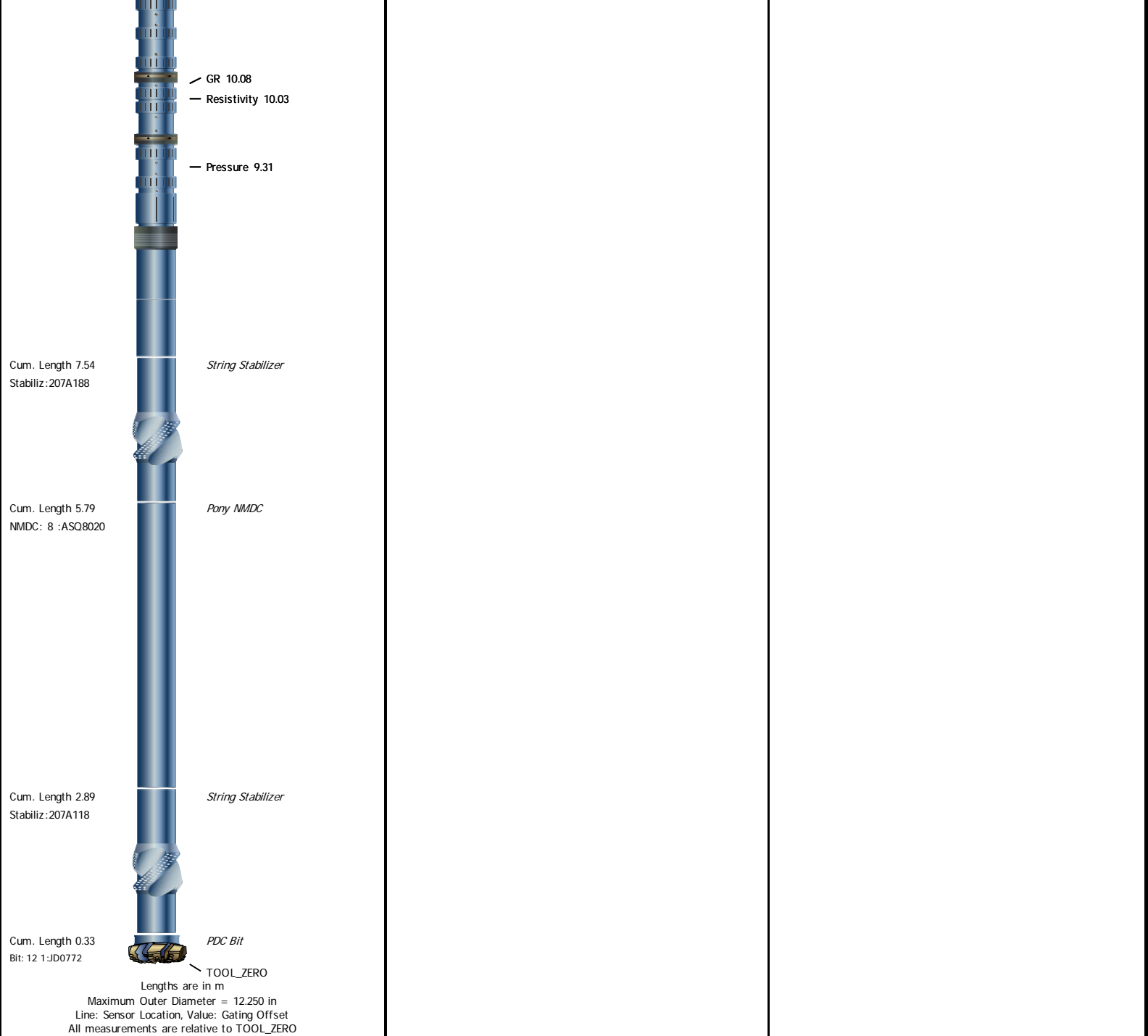
— Vibration 17.05

— ROP 15.70

Cum. Length 13.36  
ARC8:2724

*arcVISION825*

— ROP 11.15



Survey Record

Survey Calculation			
Method :	Minimum Radius of Curvature	DLS Method :	Lubinski
North Reference :	Grid North	Total Correction Formula :	Magnetic Dec - Grid Convergence
Grid Convergence :	-1.11 deg		

Rig Location					
Latitude :		39° 20' 36.76" S		Longitude :	
				142° 44' 56.14" E	
Tie In Point					
Measured Depth:		0.00 m		Inclination:	
				0.00 deg	
Azimuth:				0.00 deg	
True Vertical Depth:		0.00 m		North Displacement:	
				0.00 m	
East Displacement:				0.00 m	
N/-S VSec Origin:		0.00 m		E/-W VSec Origin:	
				0.00 m	
Vertical Section Azimuth:				0.00 deg	

D&I Inits Computed and Values Used - Run 2			
Geomagnetic Model :	BGGM 2009	Geomagnetic Date :	24-Oct-2009
Computed Location B :	61074.62 nT +/- 300.00nT	Used Location B :	61074.62 nT +/- 300.00nT
Computed Location G :	999.45 mgn +/- 2.50mgn	Used Location G :	999.45 mgn +/- 2.50mgn

Computed Magnetic Dip :	-70.38 deg +/- 0.45deg	Used Magnetic Dip :	-70.38 deg +/- 0.45deg
Computed Magnetic Dec :	11.03 deg	Used Magnetic Dec :	11.03 deg
Computed Total Correction :	12.14 deg	Used Total Correction :	12.14 deg

**Survey Quality Index**  
10 : DMAG-Corrected

Seq	MD (m)	Incl (deg)	Azim (deg)	Course (m)	TVD (m)	V Sec (m)	N/ -S (m)	E/ -W (m)	Closure (m)	at Azi (deg)	DLS deg/30m	Tool Type	QI	CI
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	TIP		
2	524.50	0.00	0.00	524.50	524.50	0.00	0.00	0.00	0.00	90.00	0.00	Manual	10	
3	599.08	0.58	120.59	74.58	599.08	-0.19	-0.19	0.32	0.38	120.59	0.23	Manual	10	
4	684.35	0.43	120.90	85.27	684.35	-0.58	-0.58	0.97	1.13	120.68	0.05	Manual	10	
5	713.04	0.53	133.63	28.69	713.03	-0.72	-0.72	1.16	1.37	121.94	0.15	Manual	10	
6	972.34	0.91	95.08	259.30	972.31	-1.73	-1.73	4.08	4.43	113.02	0.07	Manual	10	
7	1001.37	0.91	84.18	29.03	1001.34	-1.73	-1.73	4.54	4.86	110.87	0.18	Manual	10	
8	1059.78	0.95	75.47	58.41	1059.74	-1.56	-1.56	5.47	5.69	105.94	0.08	Manual	10	
9	1090.08	0.78	51.04	30.30	1090.04	-1.37	-1.37	5.87	6.03	103.12	0.40	Manual	10	
10	1117.31	0.70	46.36	27.23	1117.27	-1.14	-1.14	6.14	6.24	100.50	0.11	Manual	10	
11	1203.66	0.94	59.46	86.35	1203.61	-0.41	-0.41	7.13	7.14	93.32	0.11	Manual	10	
12	1251.88	0.96	60.07	48.22	1251.82	-0.01	-0.01	7.82	7.82	90.08	0.01	Manual	10	
13	1395.50	0.46	85.91	143.62	1395.43	0.63	0.63	9.44	9.46	86.18	0.12	Manual	10	
14	1423.48	0.37	96.26	27.98	1423.41	0.63	0.63	9.64	9.66	86.27	0.13	Manual	10	
15	1450.69	0.34	103.29	27.21	1450.62	0.60	0.60	9.80	9.82	86.49	0.06	Manual	10	
16	1739.63	0.23	147.23	288.94	1739.56	-0.08	-0.08	10.95	10.95	90.44	0.02	Manual	10	
17	1885.00	0.40	189.10	145.37	1884.92	-0.83	-0.83	11.03	11.06	94.31	0.06	Manual	10	
18	2029.52	0.77	194.71	144.52	2029.44	-2.27	-2.27	10.70	10.94	101.96	0.08	Manual	10	
19	2086.65	0.83	198.58	57.13	2086.56	-3.03	-3.03	10.47	10.90	106.14	0.04	Manual	10	
20	2201.88	0.95	193.38	115.23	2201.78	-4.75	-4.75	9.99	11.06	115.44	0.04	Manual	10	
21	2288.48	0.98	181.58	86.60	2288.37	-6.19	-6.19	9.80	11.59	122.28	0.07	Manual	10	
22	2316.76	1.03	184.29	28.28	2316.64	-6.69	-6.69	9.77	11.84	124.37	0.07	Manual	10	
23	2345.02	1.10	185.02	28.26	2344.90	-7.21	-7.21	9.73	12.11	126.53	0.08	Manual	10	
24	2374.64	1.28	185.91	29.62	2374.51	-7.82	-7.82	9.67	12.44	128.96	0.18	Manual	10	
25	2403.54	1.36	187.90	28.90	2403.40	-8.48	-8.48	9.59	12.80	131.48	0.10	Manual	10	
26	2518.96	1.54	189.36	115.42	2518.78	-11.37	-11.37	9.15	14.60	141.17	0.05	Manual	10	
27	2546.16	1.43	188.77	27.20	2545.98	-12.07	-12.07	9.04	15.08	143.15	0.12	Manual	10	
28	2604.71	1.38	184.64	58.55	2604.51	-13.49	-13.49	8.87	16.15	146.67	0.06	Manual	10	
29	2661.70	1.39	181.51	56.99	2661.48	-14.87	-14.87	8.80	17.27	149.38	0.04	Manual	10	
30	2691.87	1.33	180.69	30.17	2691.64	-15.58	-15.58	8.78	17.89	150.58	0.06	Manual	10	
31	2719.22	1.31	179.24	27.35	2718.99	-16.21	-16.21	8.79	18.44	151.55	0.04	Manual	10	
32	2748.22	1.24	175.26	29.00	2747.98	-16.86	-16.86	8.82	19.02	152.39	0.12	Manual	10	
33	2776.91	1.12	171.85	28.69	2776.66	-17.44	-17.44	8.88	19.57	153.02	0.15	Manual	10	
34	2806.83	1.09	179.52	29.92	2806.58	-18.02	-18.02	8.92	20.11	153.65	0.15	Manual	10	
35	2834.17	1.10	172.01	27.34	2833.91	-18.54	-18.54	8.96	20.59	154.19	0.16	Manual	10	
36	2863.33	1.17	161.51	29.16	2863.07	-19.10	-19.10	9.10	21.15	154.53	0.23	Manual	10	

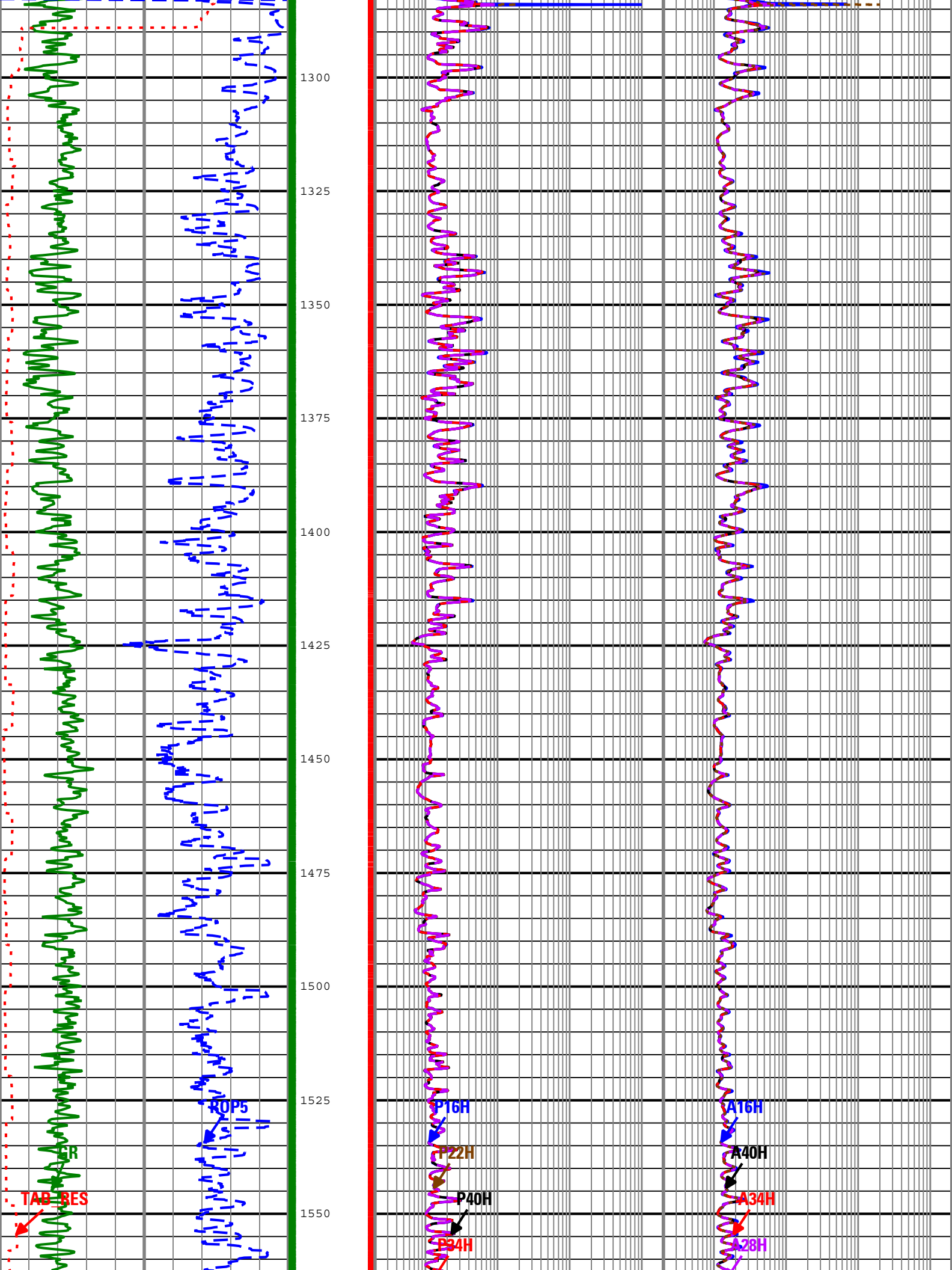
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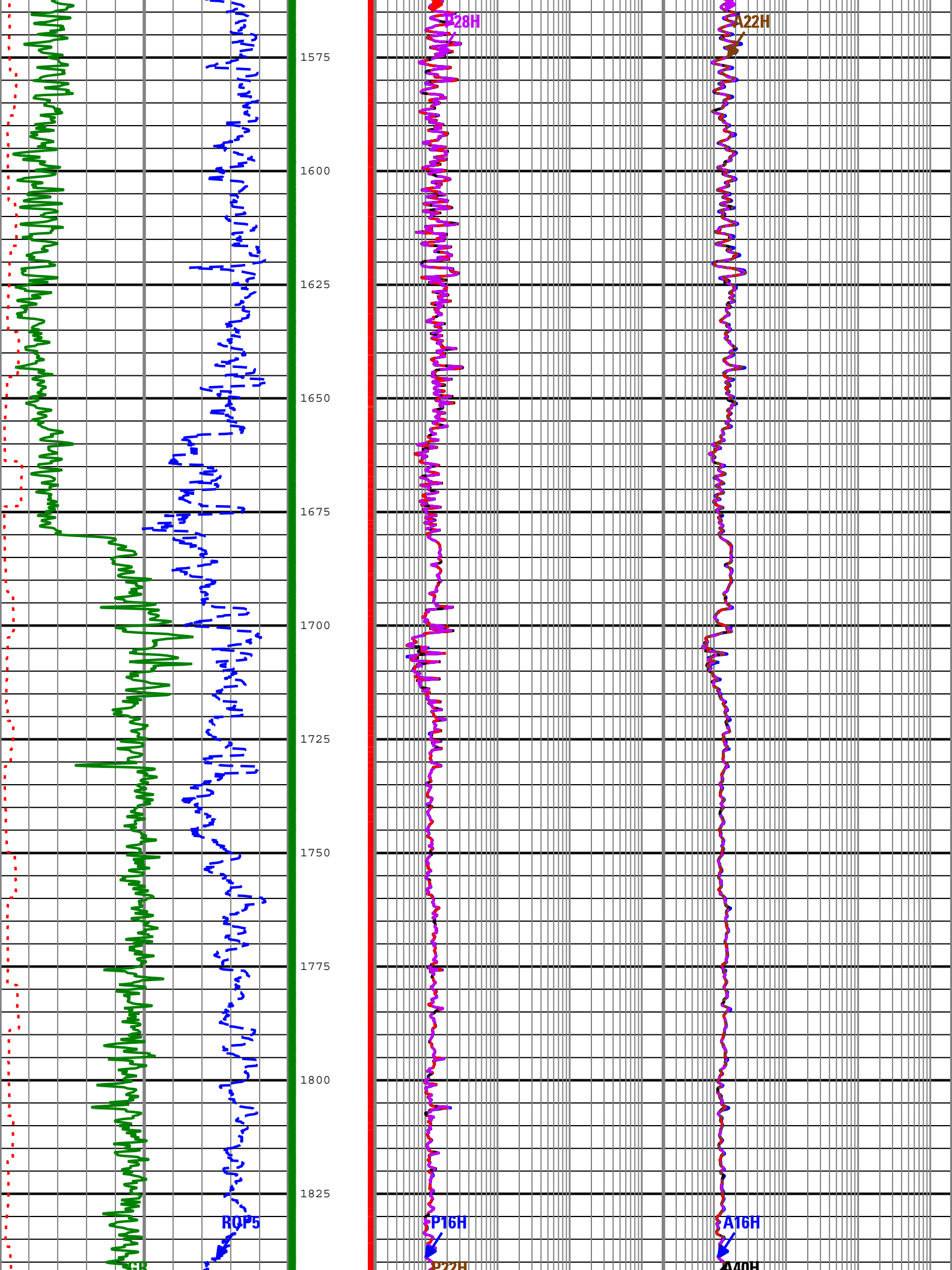
VISION\* Resistivity 1:1000m MDRT

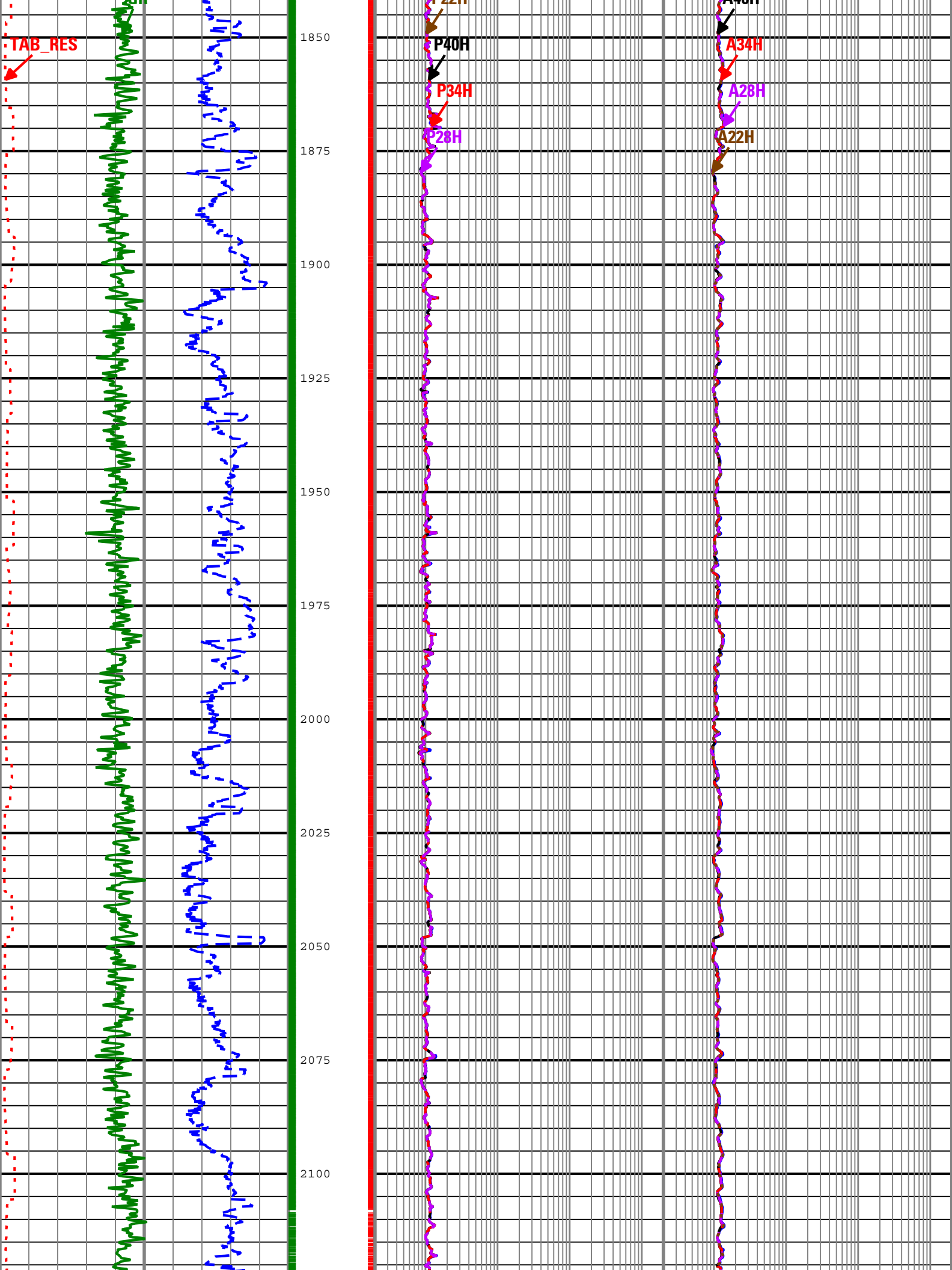
Software Version	
Acquisition System	Version
MaxWell	1.2.8706.0
Framework Patch	FWK-BGC-20090918-1.2.8706.1030
Application Patch	APL-BGC-DnM-1.2.8706.1021

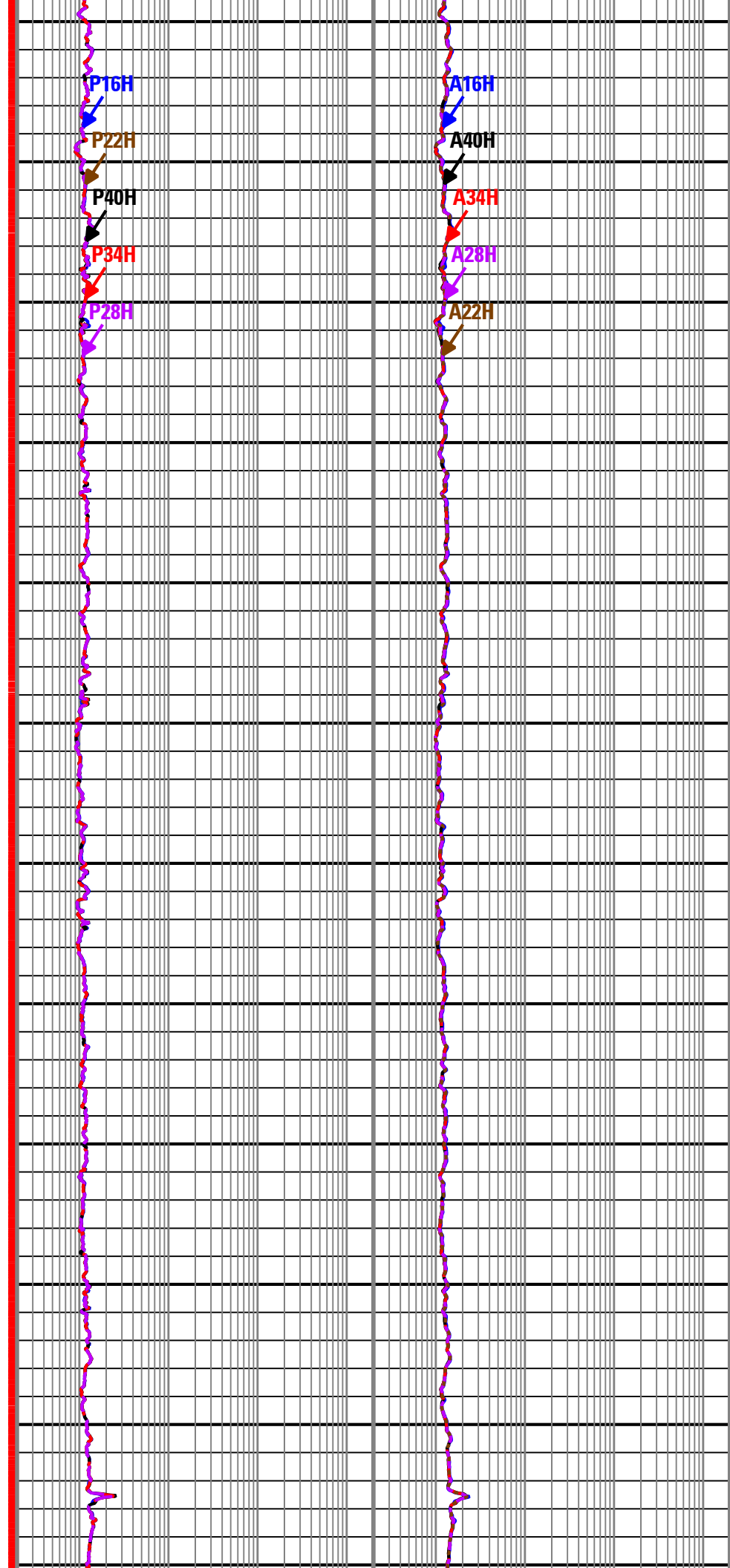
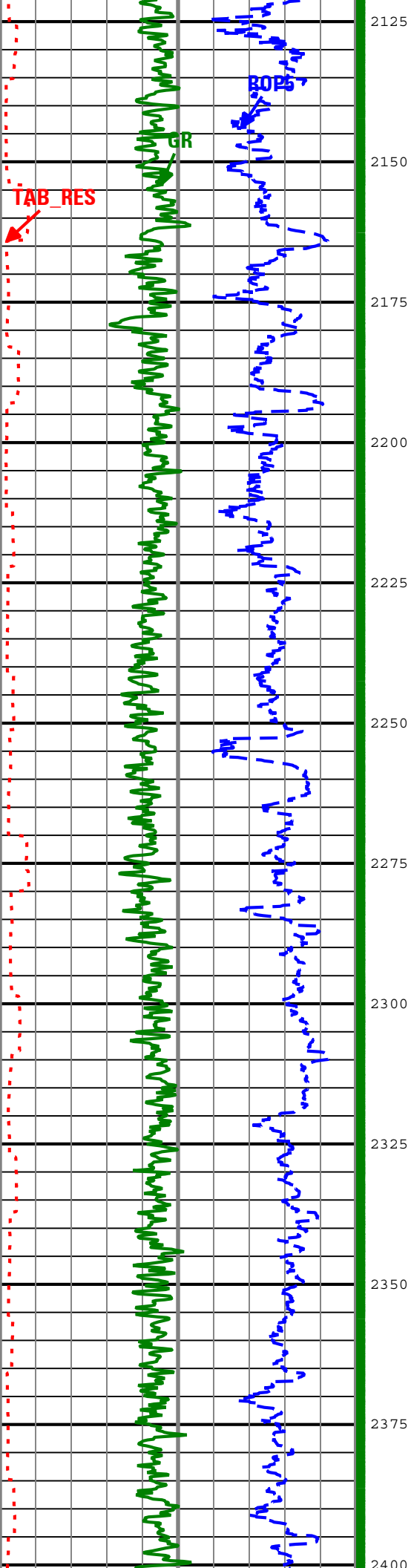


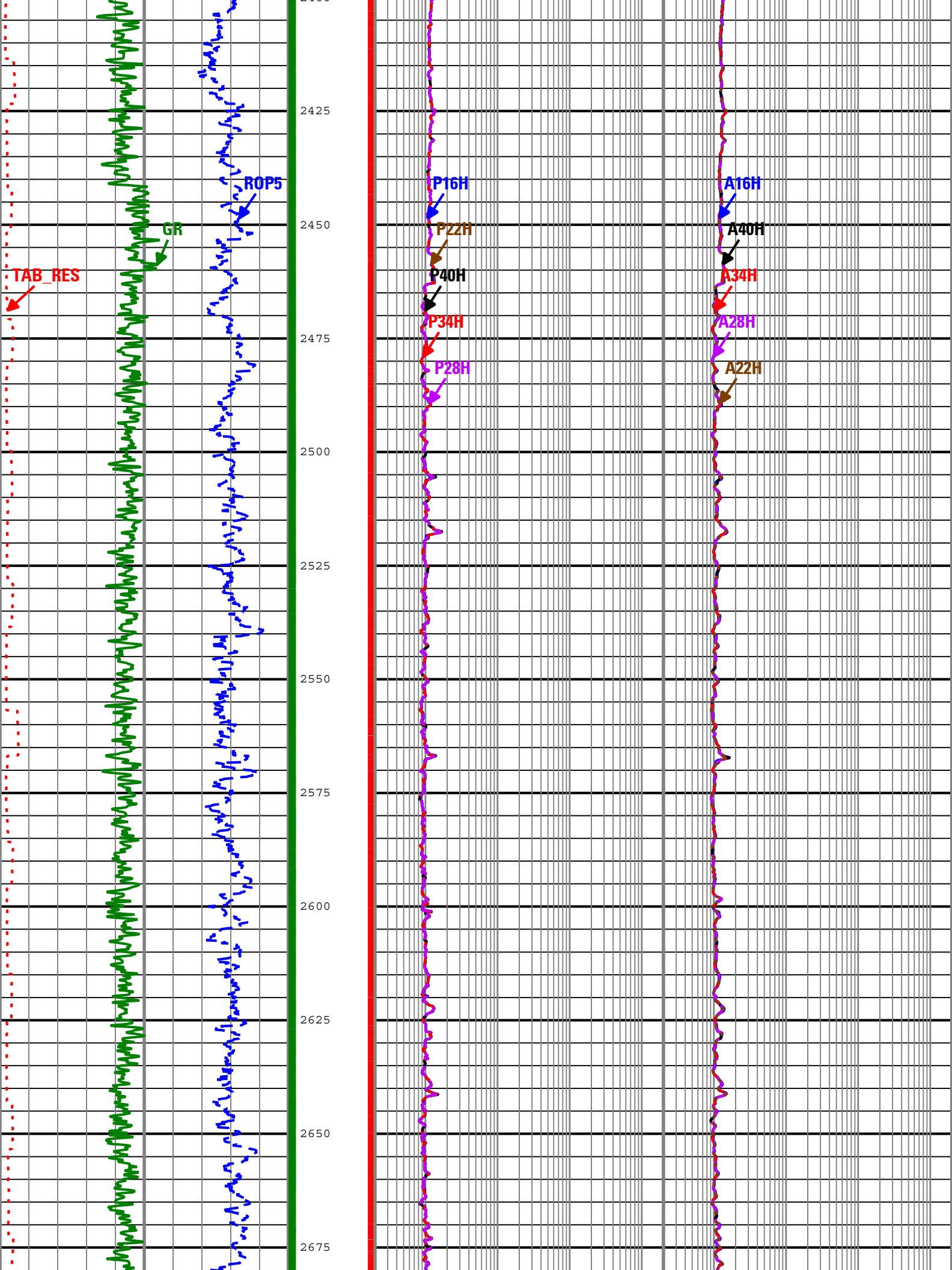


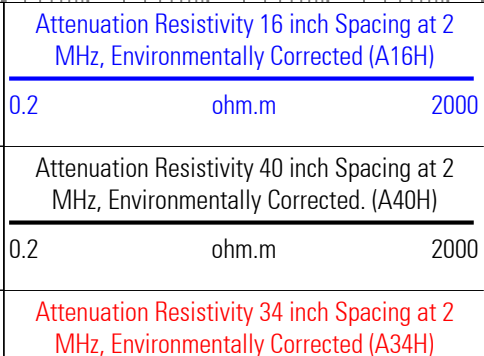
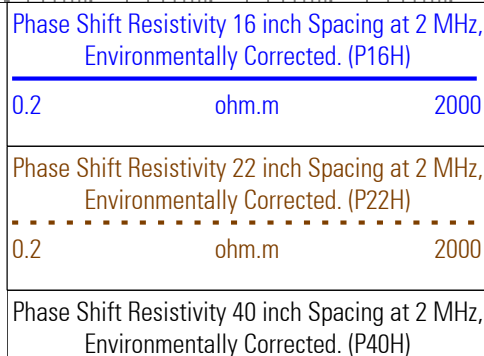
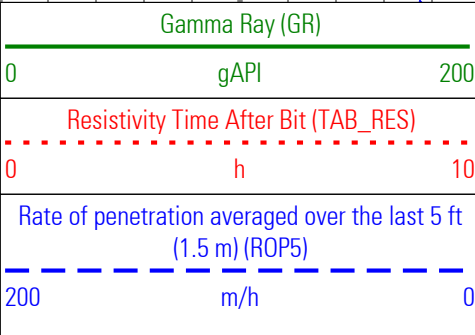
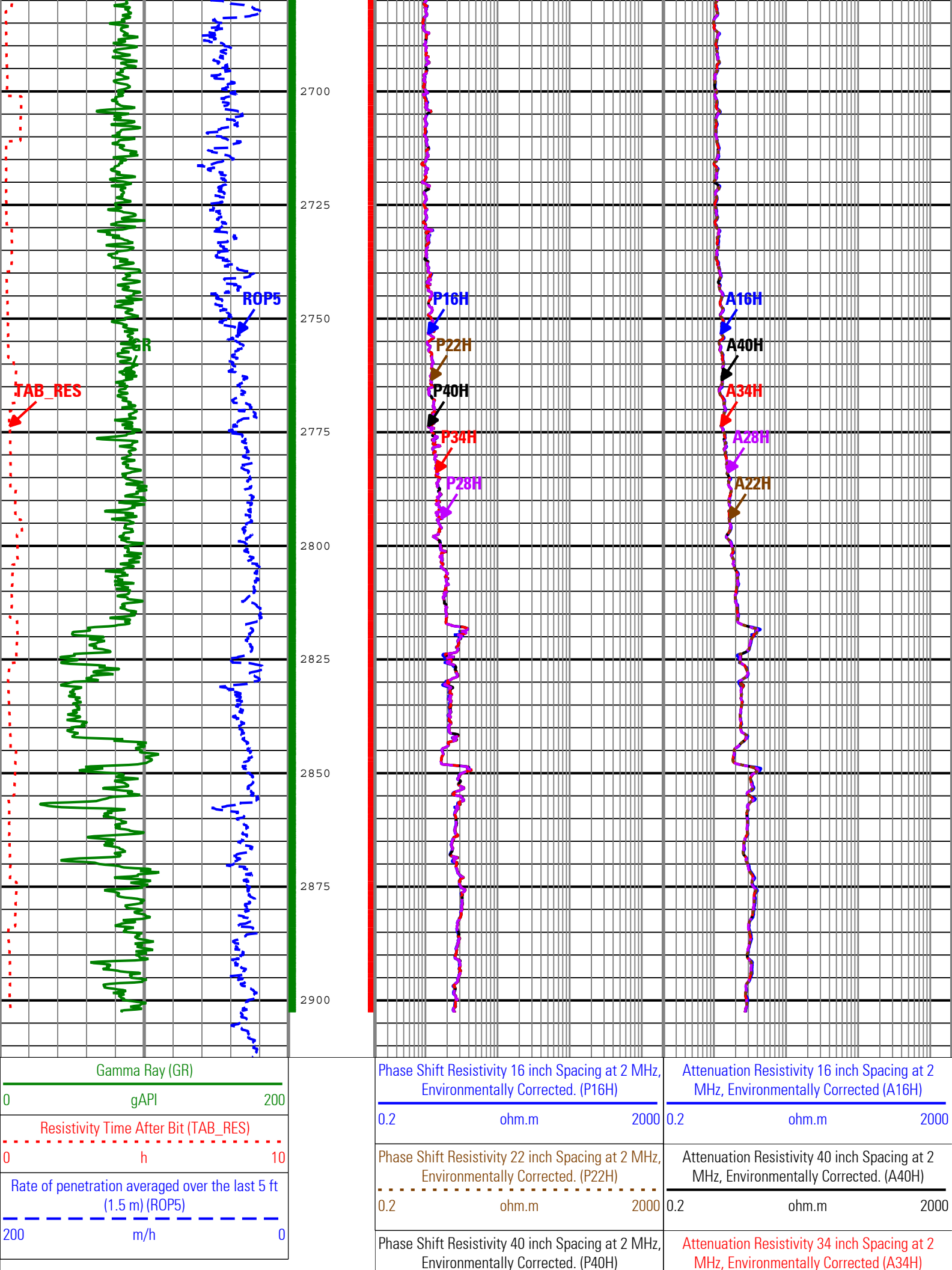


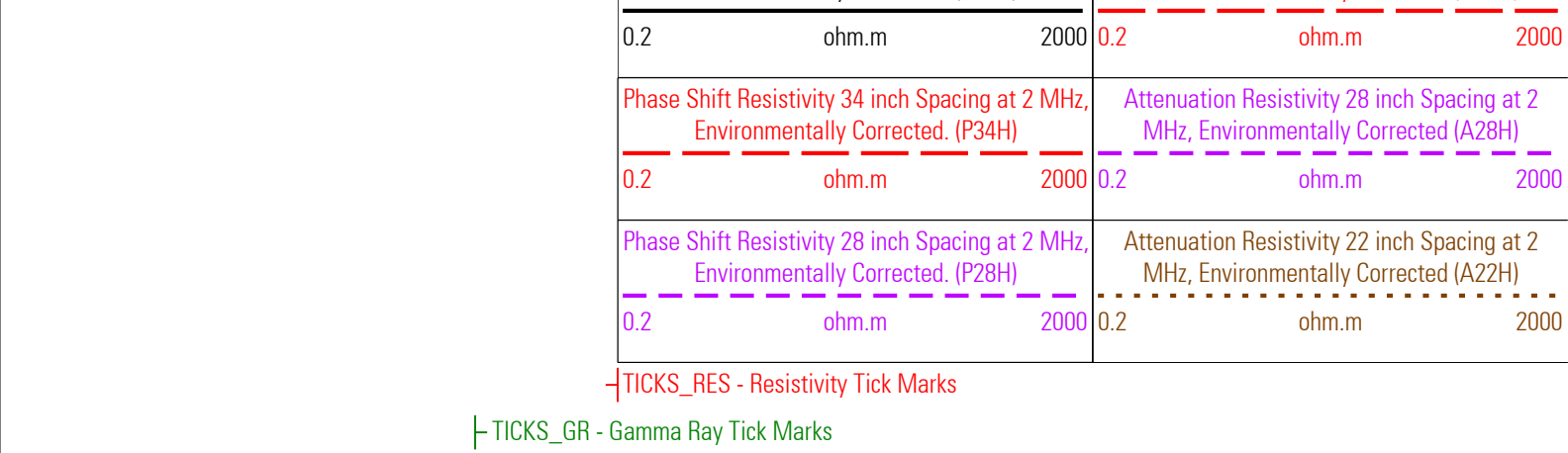












Channel Processing Parameters				
Parameter	Description	ToolPath	Value	Unit
BHK	Drilling Fluid Potassium Concentration	Borehole	Time Zoned	%
BHT	Bottom Hole Temperature	Borehole	62	degC
BS	Bit Size	COMPLETION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	g/cm3
DFT	Drilling Fluid Type	Borehole	Water	
GGRD	Geothermal Gradient	Borehole	1.1	degF/100ft
GRSE	Generalized Mud Resistivity Selection	Borehole	Computed (GEN-9)	
GTSE	Generalized Temperature Selection	Borehole	Gradient From Surface	
MST	Mud Sample Temperature	Borehole	Time Zoned	degC
RMS	Resistivity of Mud Sample	Borehole	Time Zoned	ohm.m
SHT	Surface Hole Temperature	Borehole	10	degC
TD	Total Measured Depth	Borehole	2912	m
TEMP_SEL_ARC	ARC Temperature Selection	ARC8:ARC8:ARDC	Annular	

Depth Zone Parameters			
Parameter	Value	Start ( m )	Stop ( m )
BS	17.5	1275	1284
BS	12.25	1284	2912.52
All depth are actual.			

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth ( m )	Stop Depth ( m )
BHK	5.77	24-Oct-2009 19:34:49	25-Oct-2009 08:14:10	1274.72	1278.41
BHK	5.77	25-Oct-2009 08:14:10	27-Oct-2009 05:09:59	1278.41	2451.68
BHK	4.52	27-Oct-2009 05:09:59	02-Nov-2009 09:45:08	2451.68	2912.69
DFD	1.29	24-Oct-2009 19:34:49	26-Oct-2009 02:52:31	1274.72	1626.54
DFD	1.26	26-Oct-2009 02:52:31	27-Oct-2009 05:10:29	1626.54	2451.68
DFD	1.3	27-Oct-2009 05:10:29	02-Nov-2009 09:45:08	2451.68	2912.69
MST	19.4	24-Oct-2009 19:34:49	26-Oct-2009 04:24:53	1274.72	1673.78
MST	18.8	26-Oct-2009 04:24:53	27-Oct-2009 01:55:15	1673.78	2342.67
MST	20	27-Oct-2009 01:55:15	02-Nov-2009 09:45:08	2342.67	2912.69
RMS	0.08	24-Oct-2009 19:34:49	26-Oct-2009 04:24:53	1274.72	1673.78
RMS	0.09	26-Oct-2009 04:24:53	27-Oct-2009 01:55:15	1673.78	2342.67
RMS	0.1	27-Oct-2009 01:55:15	02-Nov-2009 09:45:08	2342.67	2912.69




All depth are at tool zero.

Tool Control Parameters				
Parameter	Description	ToolPath	Value	Unit
OFFBTM_TH	Threshold for deciding whether the bit is off bottom	DnMWorkflow	Time Zoned	m


Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth ( m )	Stop Depth ( m )
OFFBTM_TH	0.6	24-Oct-2009 19:34:49	25-Oct-2009 23:15:02	1274.72	1529.56
OFFBTM_TH	0.5	25-Oct-2009 23:15:02	26-Oct-2009 00:11:46	1529.56	1558.04
OFFBTM_TH	0.4	26-Oct-2009 00:11:46	26-Oct-2009 18:26:10	1558.04	2126.79
OFFBTM_TH	0.5	26-Oct-2009 18:26:10	26-Oct-2009 18:26:39	2126.79	2127.1
OFFBTM_TH	0.6	26-Oct-2009 18:26:39	26-Oct-2009 18:36:19	2127.1	2132.63
OFFBTM_TH	0.4	26-Oct-2009 18:36:19	02-Nov-2009 09:45:08	2132.63	2912.69
All depth are at tool zero.					

Concise Calibration Record				
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### Run 2: ARC8 : Calibration Resistivity

Primary Set Components	Description	Tool Element	Serial Number
	DC without AIM	ARDC	2724
Calibration Dates	Shop Calibration		
Date & Time / Date Validity	05-Oct-2009 02:19:44 PM - Valid		
Calibration Source	Time Frame File		
Calibration Type: Resistivity: Air			
Description	Min/Nominal/Max	Shop	Unit
 All Resistivity: Air Measurements within Tolerance			

### Run 2: ARC8 : Calibration Gamma Ray

Primary Set Components	Description	Tool Element	Serial Number
	DC without AIM	ARDC	2724
Calibration Dates	Shop Calibration		
Date & Time / Date Validity	05-Oct-2009 09:57:16 AM - Valid		
Calibration Source	Time Frame File		
Calibration Type: Gamma Ray: Blanket			
Description	Min/Nominal/Max	Shop	Unit
 All Gamma Ray: Blanket Measurements within Tolerance			

Company:	Woodside Energy Ltd
Well:	Somerset-1
Field:	T34P
Rig Name:	Ocean Patriot
State:	Tasmania
Country:	Australia
