



NNE_Boggess_9H– Job Summary

7th June 2019

Prepared by:
Dmitry Avdeev

DRILLING
OPERATIONS

DRILLING
SOLUTIONS

DRILLING
EQUIPMENT

 **PetroMar**
A NABORS COMPANY

NNE_Boggess_9H– Job Summary. Outline. Sections & Passes



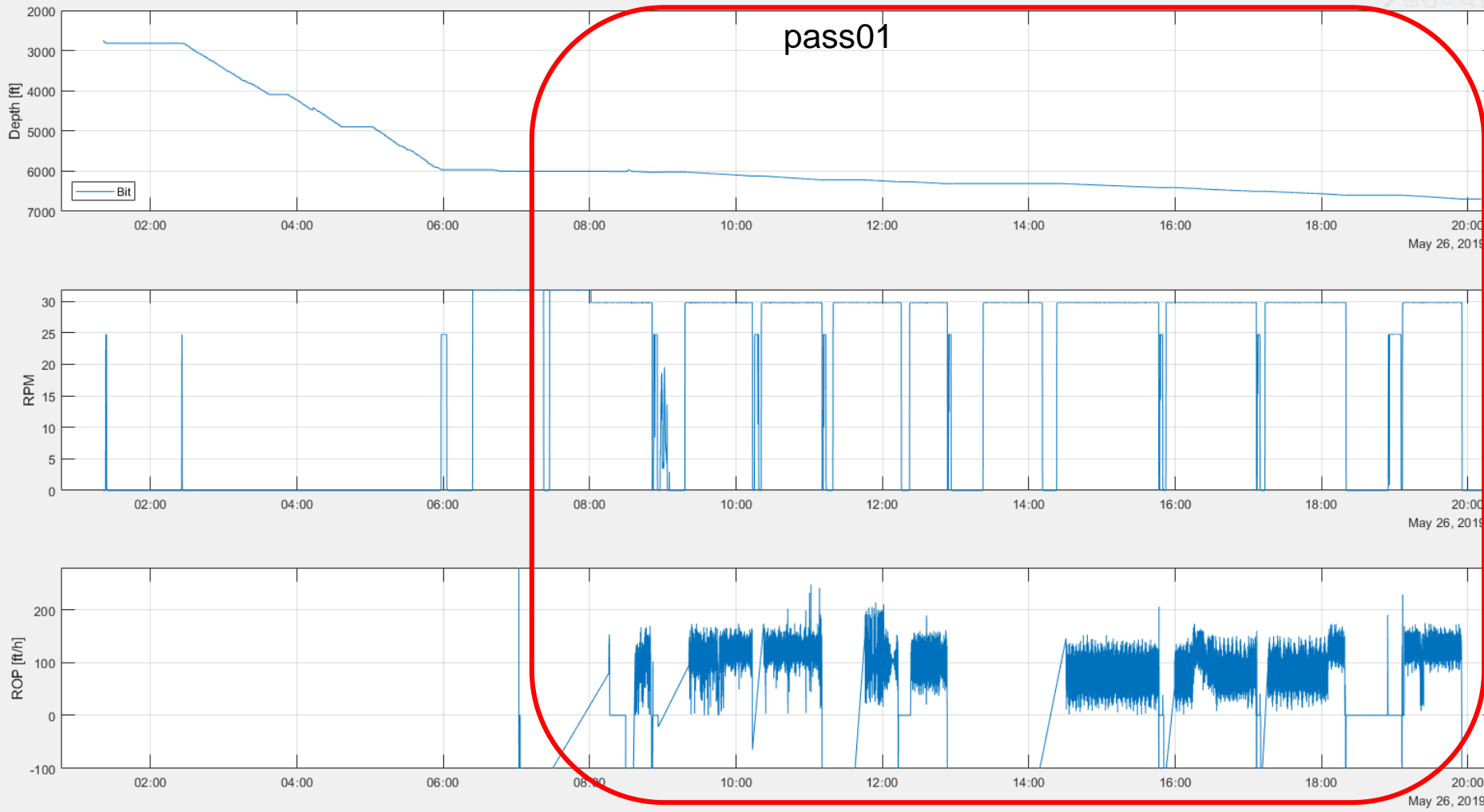
- **Section 01 (vertical)**
 - Pass01 (drill)
- **Section 02 (vertical + lateral)**
 - Pass01 (drill)
- **Section 03 (lateral)**
 - Pass01 (drill)
 - Pass02 (drill)

NNE_Boggess_9H– Job Summary. Outline.

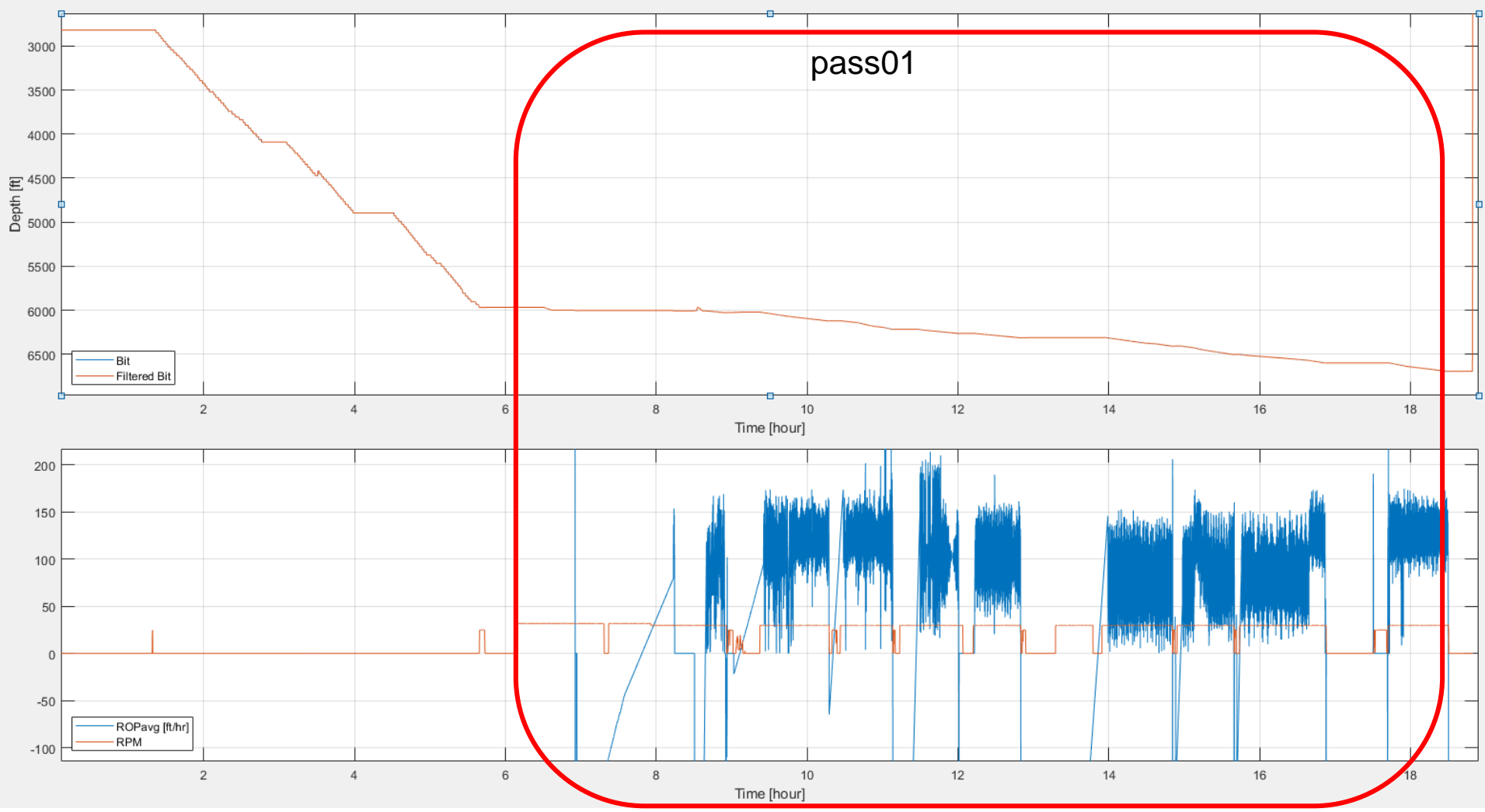


- **Section 01 (Vertical)**
 - **Pass01 (drill)**

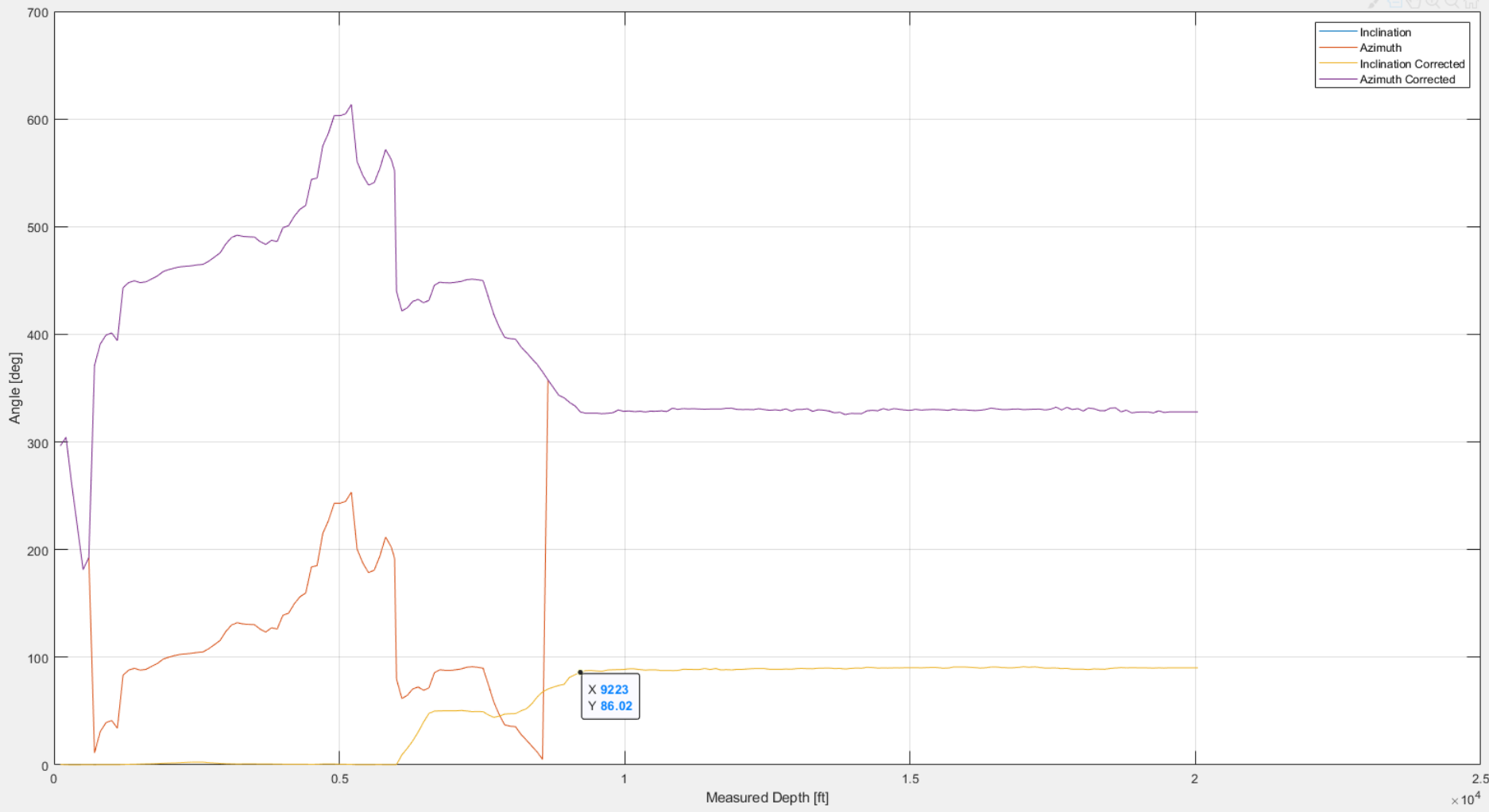
NE_Bogges_9H- Job Summary. Section01. Pass01.



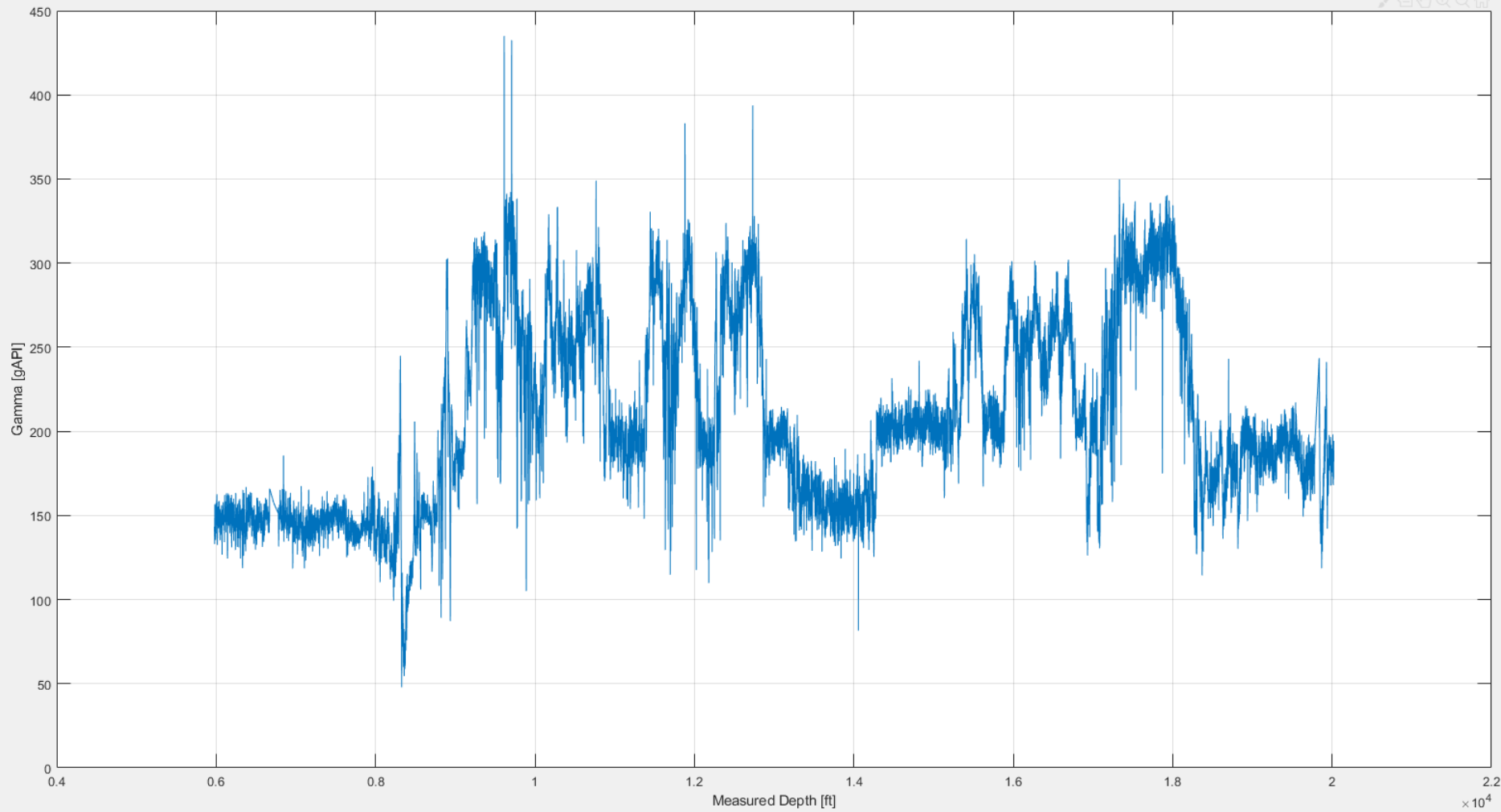
NNE_Boggess_9H- Job Summary. Section01. Pass01.



NNE_Boggess_9H– Job Summary. Inclination & Azimuth.



NNE_Boggess_9H– Job Summary. Gamma API (GRC_D).



NNE_Boggess_9H– Job Summary.

Section 01. Pass01 (drill)

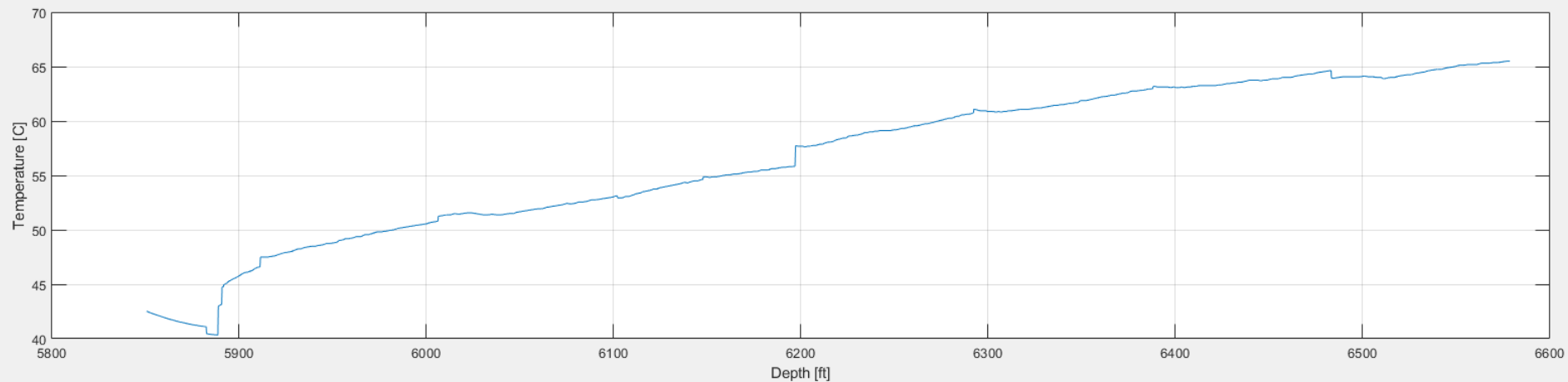
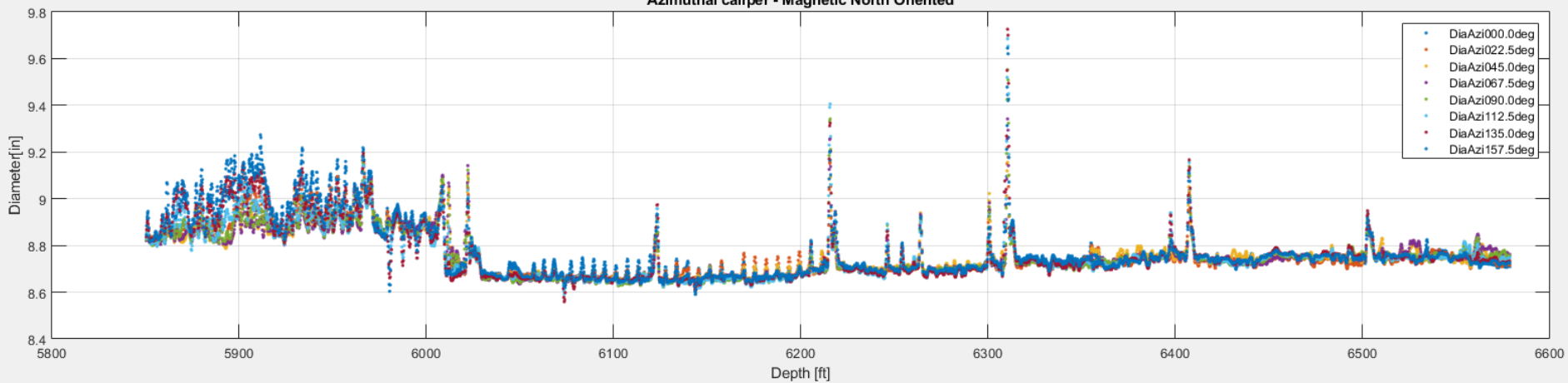


- **FV Sensor at 5,850 to 6,580 ft**
- **FV Sensor to Bit Distance ~ 116.5 ft**
- **Stick-Slip**

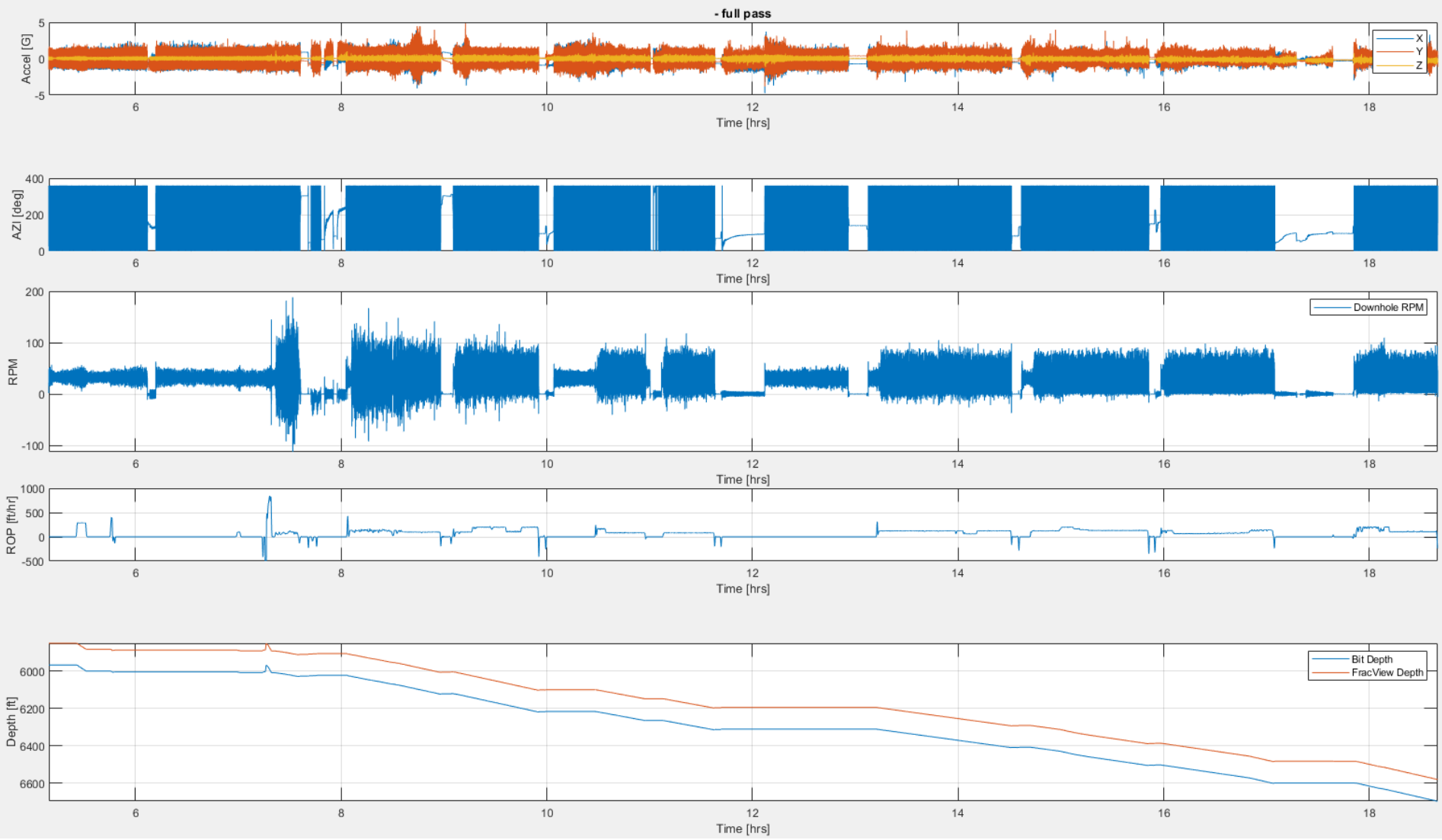
NNE_Boggess_9H- Job Summary. Section01. Pass01. Azimuthal Calipers.



Azimuthal caliper - Magnetic North Oriented

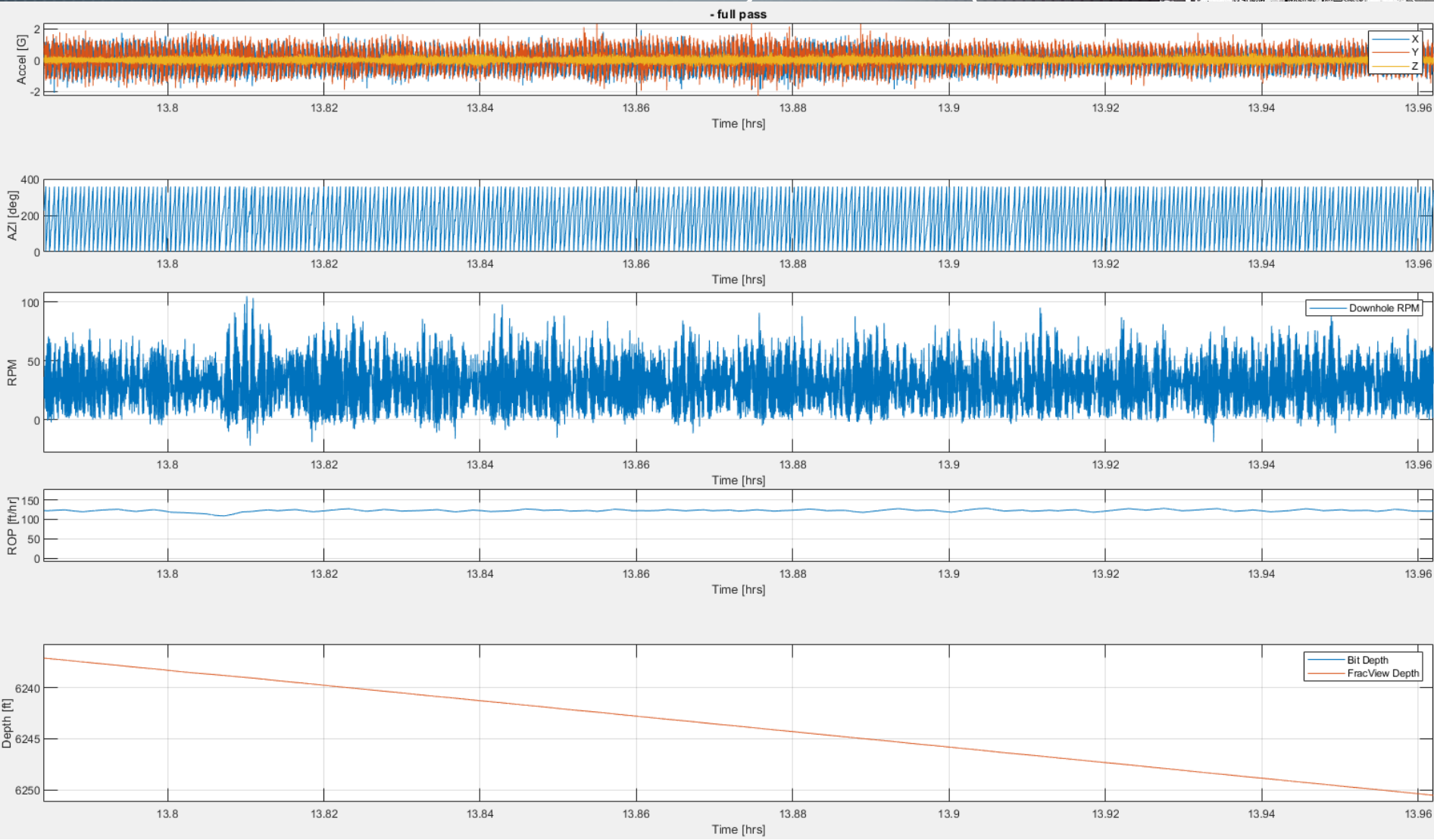


NE_Bogges_9H- Job Summary. Section01. Pass01. Motion Dynamics.



NE_Bogges_9H- Job Summary.

Section01. Pass01. Motion Dynamics (Stick Slip zoom)



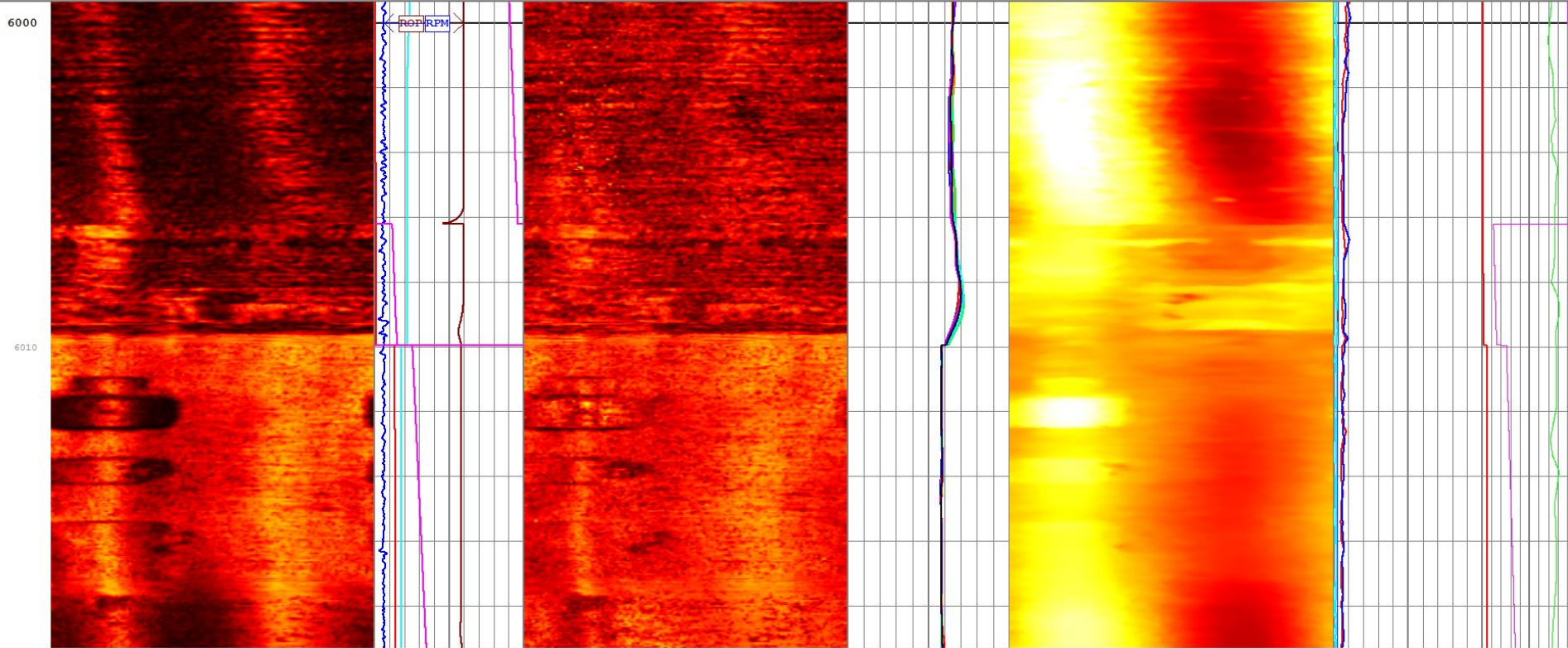
NEE_Bogges_9H- Job Summary.

Section01. Pass01. BHC MAG S1 vs S2



Bogges 9H_Section01_Pass01_5850-6579ft_FracView_AmplMerg_DB_MAG_BHC_S12_LIN.dllis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]

File Edit View Window Help



0.000	0.0398	0.072	0.117	0.158	0.204	0.254	0.302	0.352	0.400	0.450	0.500	0.550	0.600	0.650	0.700	0.750	0.800	0.850	0.900	1.000
FV S1 MAG BHC Merged Tx12 (AmpMrgS1)																				
()																				

ROP (ROP)	
-500	500
ft/hr	
RPM_Filtered (RPM)	
0	500
rpm	
Hole Deviation (DEVI)	
0	100
deg	

0.000	0.078	0.117	0.158	0.204	0.254	0.302	0.352	0.400	0.450	0.500	0.550	0.600	0.650	0.700	0.750	0.800	0.850	0.900	1.000	
FV S2 MAG BHC Merged Tx12 (AmpMrgS2)																				
()																				

BH Diameter 0deg (CalAzi1)	
6.8	10
in	
BH Diameter 22.5deg (CalAzi2)	
6.8	10
in	
BH Diameter 45deg	

3.400	3.626	3.850	4.072	4.293	4.515	4.738	4.959	5.181	5.400	5.619	5.838	6.057	6.276	6.495	6.714	6.933	7.152	7.371	7.590	7.809	8.028	8.247	8.466	8.685	8.904	9.123	9.342	9.561	9.780	10.000
FV S1 MAG Caliper Image (Radius) (CalMrgS1)																														
()																														

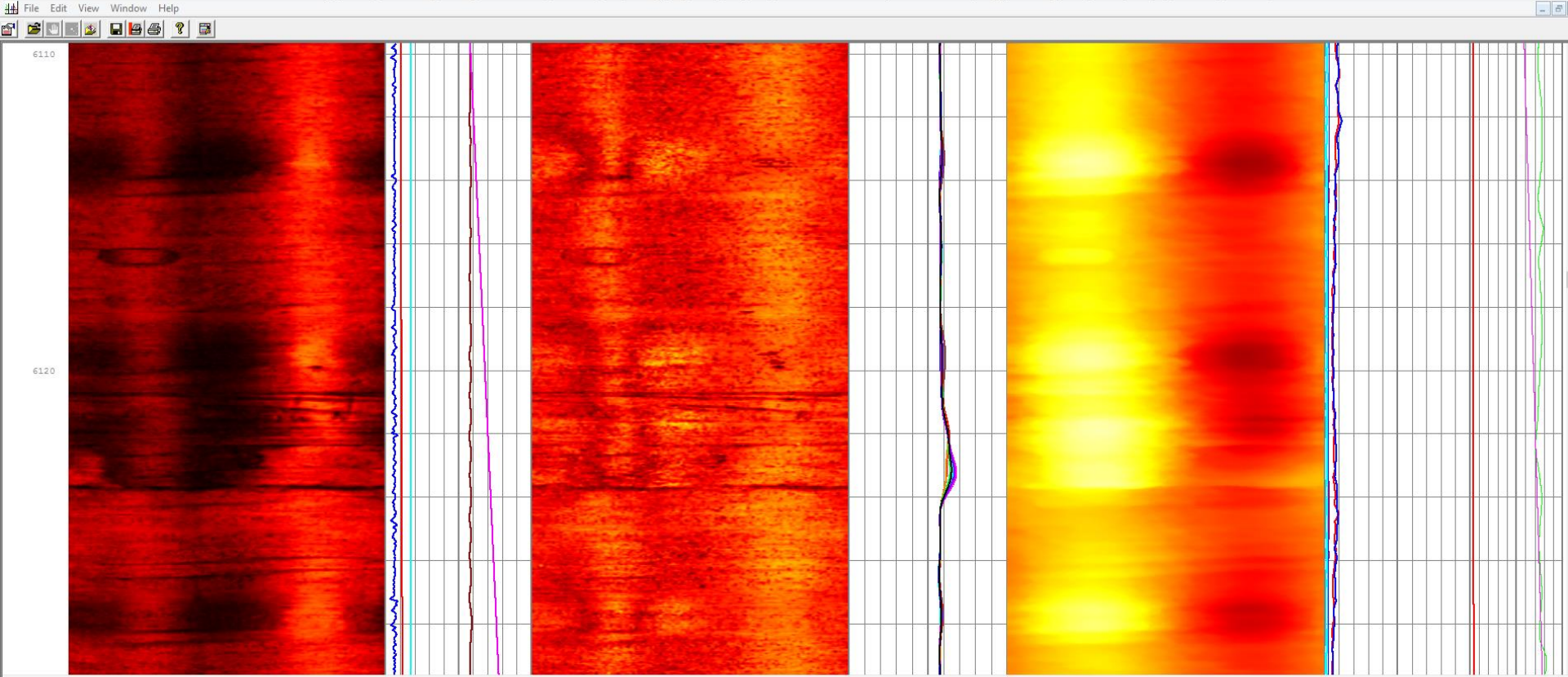
Shock X Accel (SHOCKX)	
0	25
g	
Shock Y Accel (SHOCKY)	
0	25
g	
Shock Z Accel (SHOCKZ)	
0	25
g	

GAMMA RAY API (GR)	
0	200
API	
Tool Temperature (TEMPC)	
50	150
C	

NE_Bogges_9H- Job Summary. Section01. Pass01. BHC MAG S1 vs S2



Bogges 9H_Section01_Pass01_5850-6579ft_FracView_AmplMerg_DB_MAG_BHC_S12_LIN.dlis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]



0.000	0.000
0.078	0.078
0.156	0.156
0.234	0.234
0.312	0.312
0.391	0.391
0.469	0.469
0.500	0.500
0.531	0.531
0.562	0.562
0.593	0.593
0.624	0.624
0.655	0.655
0.686	0.686
0.717	0.717
0.748	0.748
0.779	0.779
0.810	0.810
0.841	0.841
0.872	0.872
0.903	0.903
0.934	0.934
0.965	0.965
0.996	0.996
1.000	1.000

FV S1 MAG BHC Merged Tx12 (AmpMrgS1)
()

ROP (ROP)	
-500	500
ft/hr	
RPM_Filtered (RPM)	
0	500
rpm	
Hole Deviation (DEVI)	
0	100
deg	

0.000	0.000
0.078	0.078
0.156	0.156
0.234	0.234
0.312	0.312
0.391	0.391
0.469	0.469
0.500	0.500
0.531	0.531
0.562	0.562
0.593	0.593
0.624	0.624
0.655	0.655
0.686	0.686
0.717	0.717
0.748	0.748
0.779	0.779
0.810	0.810
0.841	0.841
0.872	0.872
0.903	0.903
0.934	0.934
0.965	0.965
0.996	0.996
1.000	1.000

FV S2 MAG BHC Merged Tx12 (AmpMrgS2)
()

BH Diameter 0deg (CalAzi1)	
6.8	10
in	
BH Diameter 22.5deg (CalAzi2)	
6.8	10
in	
BH Diameter 45deg	

3.462	3.462
3.595	3.595
3.650	3.650
3.712	3.712
3.837	3.837
3.962	3.962
4.025	4.025
4.150	4.150
4.271	4.271
4.338	4.338
4.463	4.463
4.525	4.525
4.650	4.650
4.713	4.713
4.838	4.838
5.000	5.000

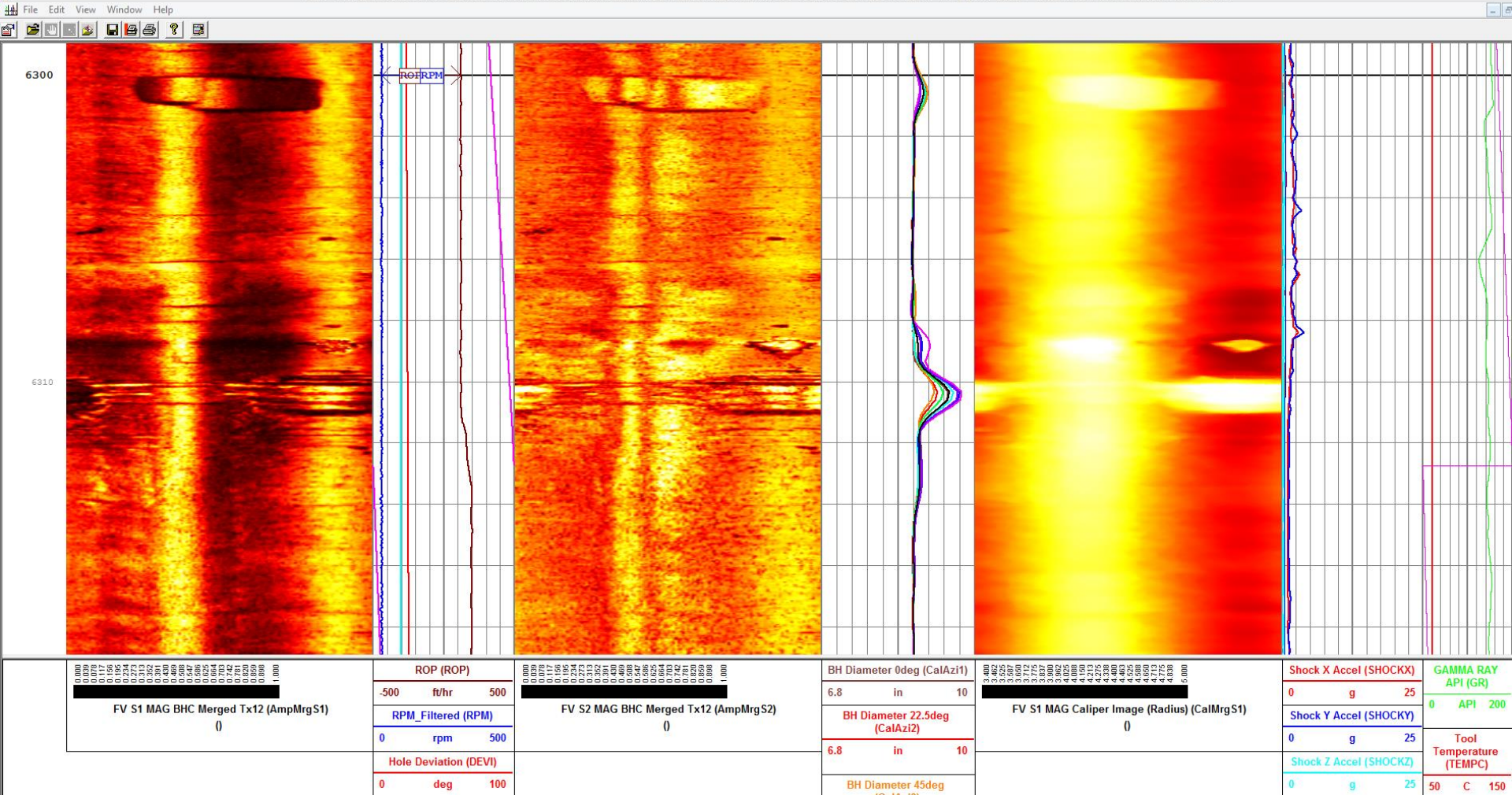
FV S1 MAG Caliper Image (Radius) (CalMrgS1)
()

Shock X Accel (SHOCKX)		GAMMA RAY API (GR)	
0	25	0	200
g		API	
Shock Y Accel (SHOCKY)		Tool Temperature (TEMPC)	
0	25	50	150
g		C	
Shock Z Accel (SHOCKZ)			
0	25		
g			

NE_Bogges_9H- Job Summary. Section01. Pass01. BHC MAG S1 vs S2



Bogges 9H_Section01_Pass01_5850-6579ft_FracView_AmplMerg_DB_MAG_BHC_S12_LIN.dlls - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]

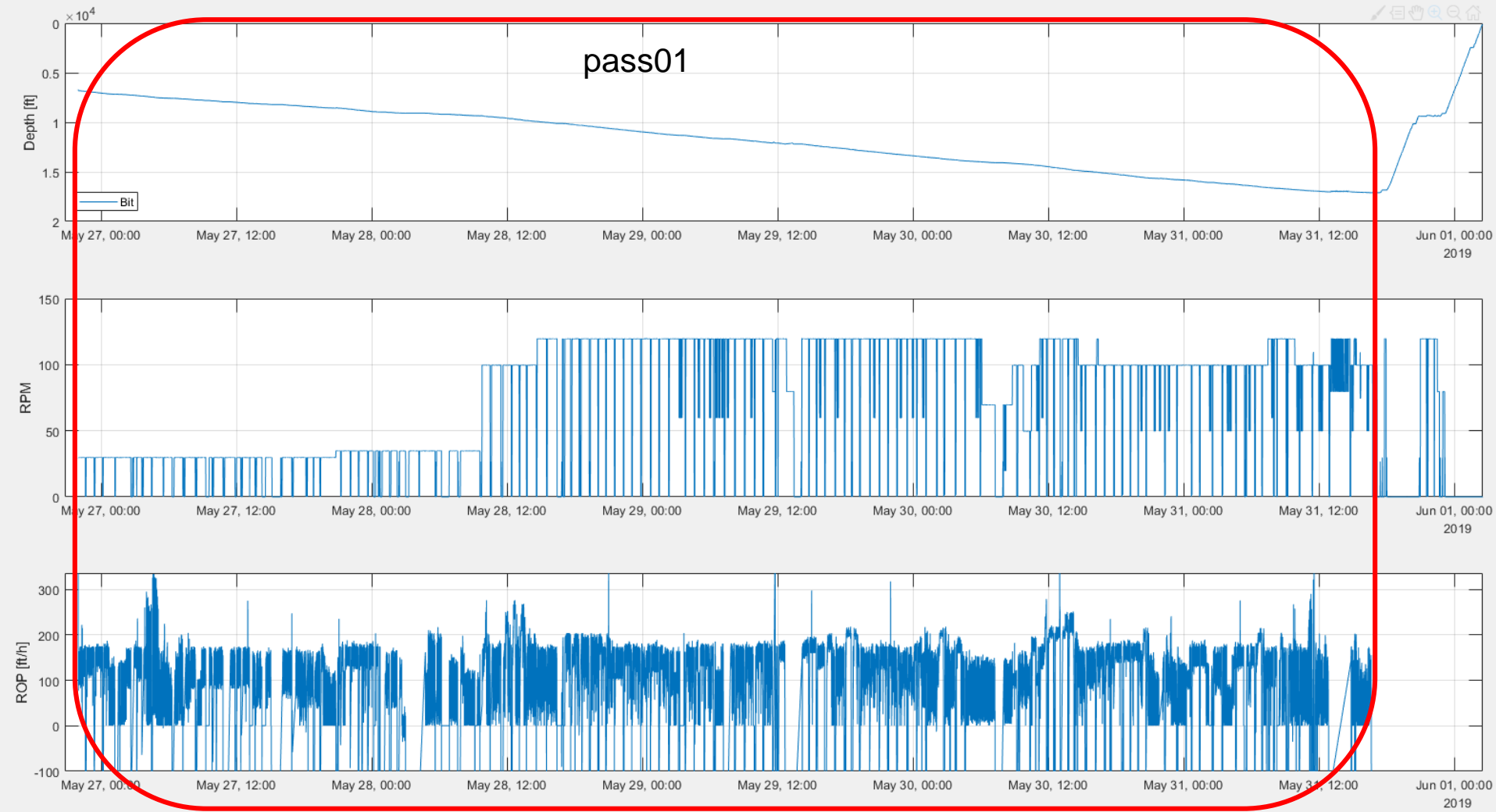


NNE_Boggess_9H– Job Summary. Outline.

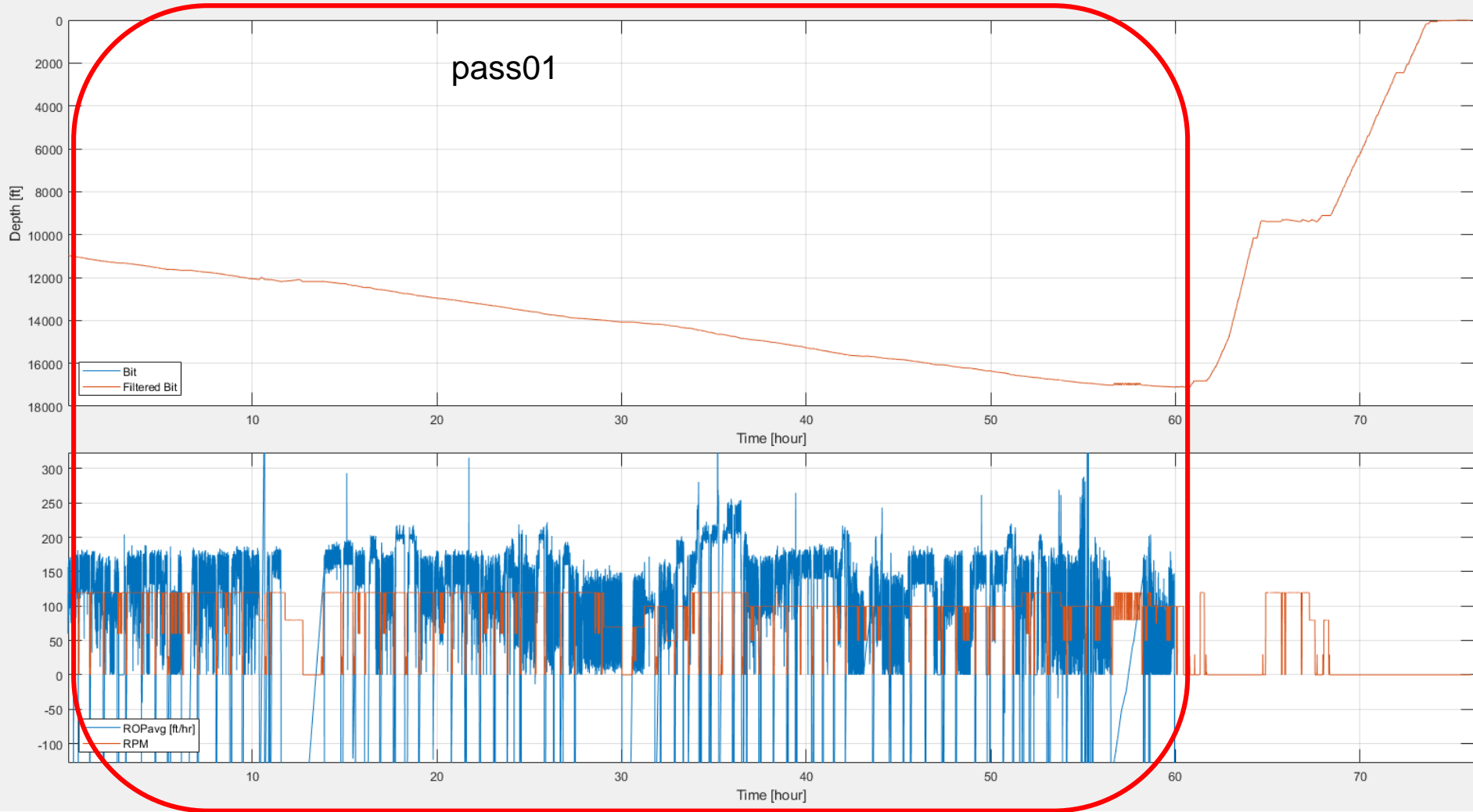


- **Section 02 (vertical, lateral)**
 - **Pass01 (drill)**

NE_Bogges_9H- Job Summary. Section02. Pass01.



NNE_Bogges_9H- Job Summary. Section02. Pass01. RPM etc.



NNE_Boggess_9H– Job Summary.

Section 02. Pass01 (drill, vertical/lateral)



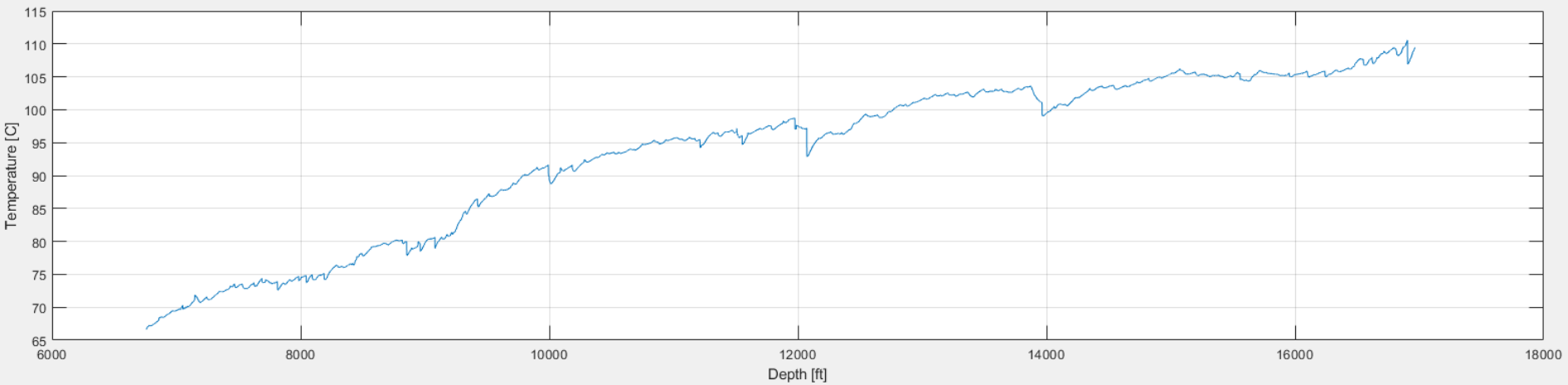
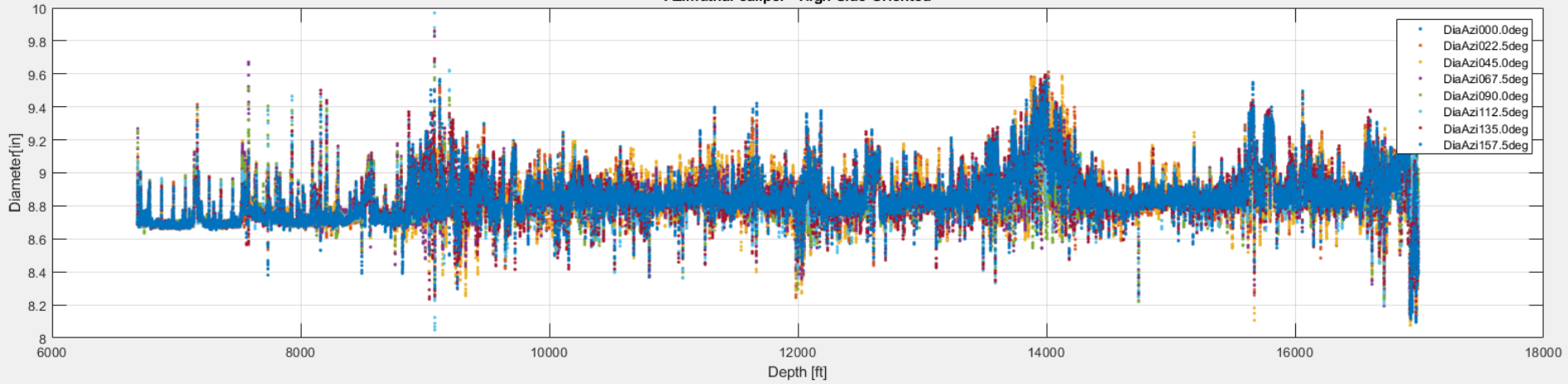
- **FV Sensor at 6,686 to 16,993 ft**
- **FV Sensor to Bit Distance ~ 116 ft**
- **Tasteful Stick-Slip in ‘vertical’ section**

NNE_Bogges_9H- Job Summary.

Section02. Pass01. Azimuthal Calipers.



Azimuthal caliper - High Side Oriented



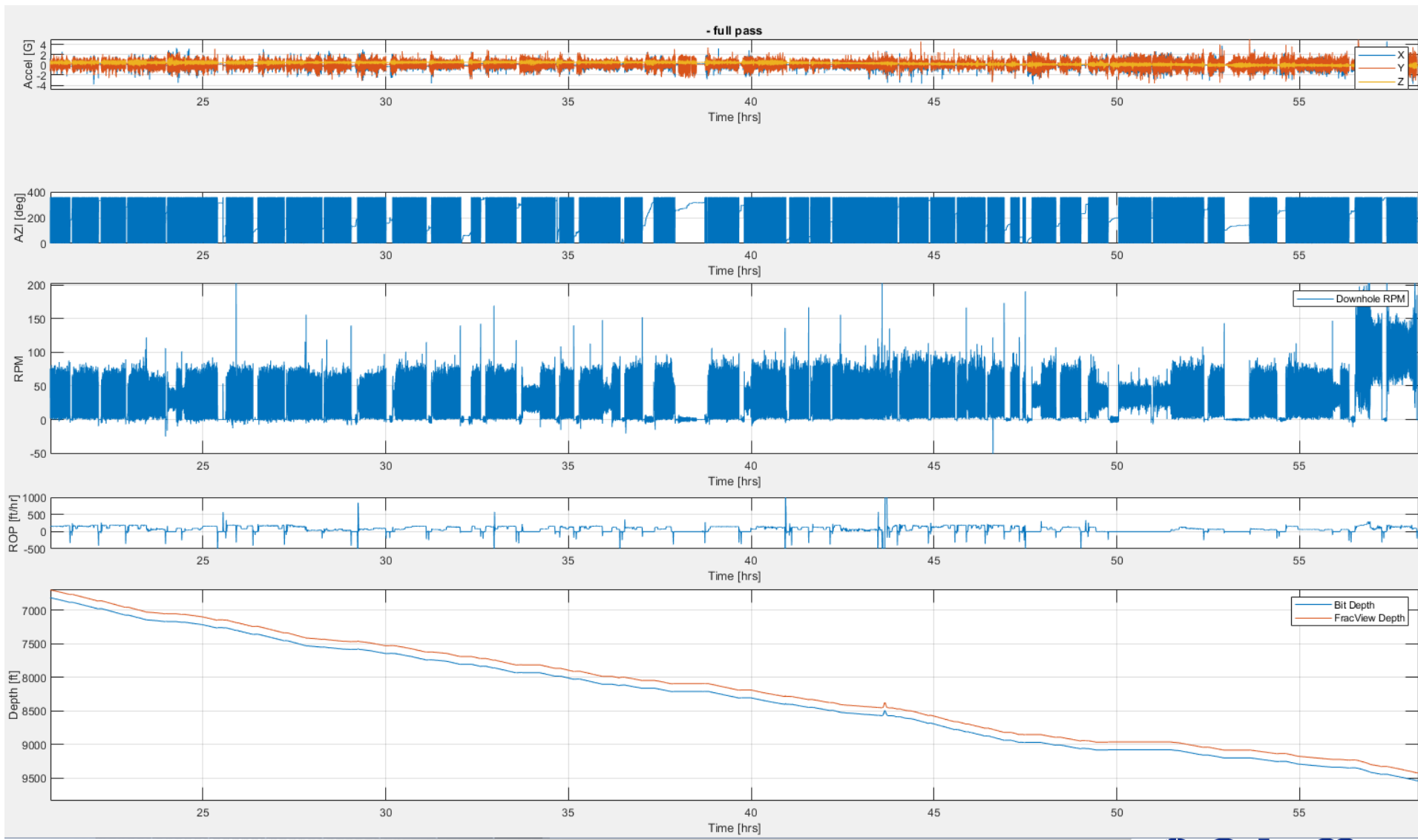
NE_Bogges_9H- Job Summary.

Section02. Pass01. Motion Dynamics.



NE_Bogges_9H- Job Summary.

Section02. Pass01. Motion Dynamics (zoom in)

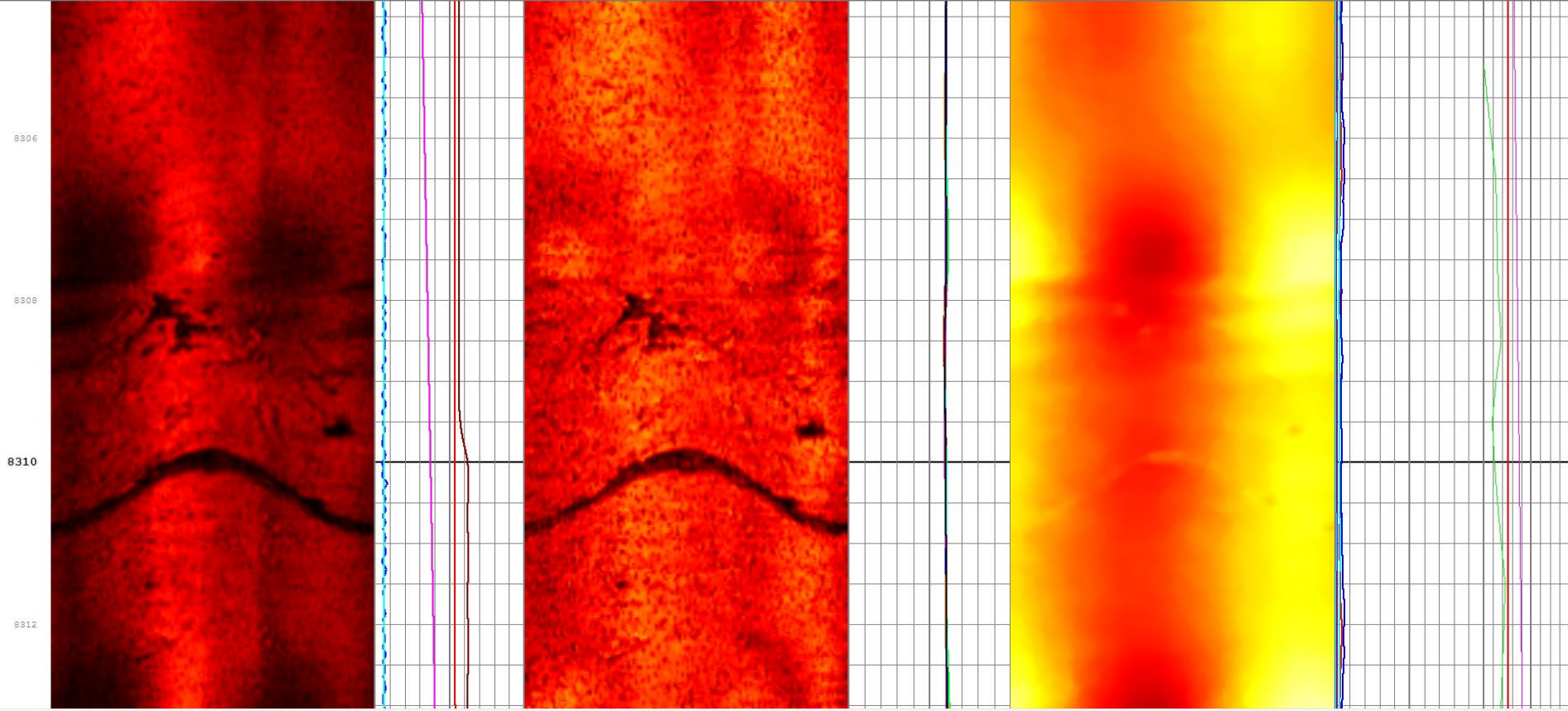


NNE_Bogges_9H- Job Summary. Section02. Pass01. BHC HS S1 vs S2



Bogges 9H_Section02_Pass01_6686-16993ft_FracView_AmpMerg_DB_HS_BHC_S12_LIN.dllis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]

File Edit View Window Help



0.000	0.020	0.117	0.156	0.234	0.273	0.321	0.400	0.450	0.540	0.586	0.654	0.703	0.820	0.898	1.000
FV S1 HS BHC Merged Tx12 (AmpMrgS1)															

ROP (ROP)	
-500	500
ft/hr	
RPM_Filtered (RPM)	
0	500
rpm	

0.000	0.020	0.117	0.156	0.234	0.273	0.321	0.400	0.450	0.540	0.586	0.654	0.703	0.820	0.898	1.000
FV S2 HS BHC Merged Tx12 (AmpMrgS2)															

BH Diameter 0deg (CalAzi1)	
6.8	10
in	
BH Diameter 22.5deg (CalAzi2)	

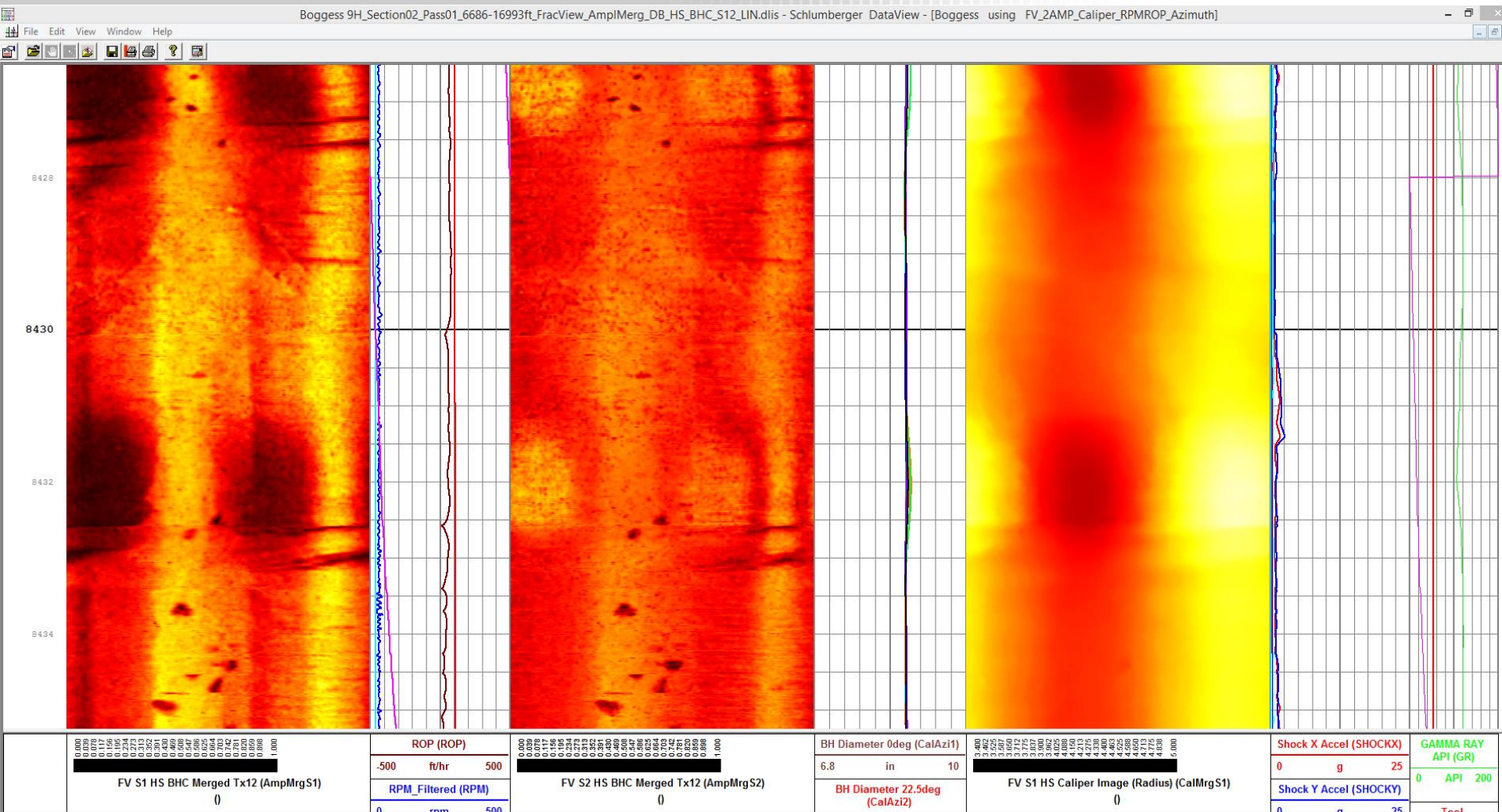
3.400	3.500	3.600	3.712	3.817	3.900	4.000	4.088	4.213	4.336	4.400	4.525	4.588	4.775	4.900	5.000
FV S1 HS Caliper Image (Radius) (CalMrgS1)															

Shock X Accel (SHOCKX)	
0	25
g	
Shock Y Accel (SHOCKY)	
0	25
g	

GAMMA RAY API (GR)	
0	200
API	

NEE_Boggess_9H- Job Summary.

Section02. Pass01. BHC HS S1 vs S2

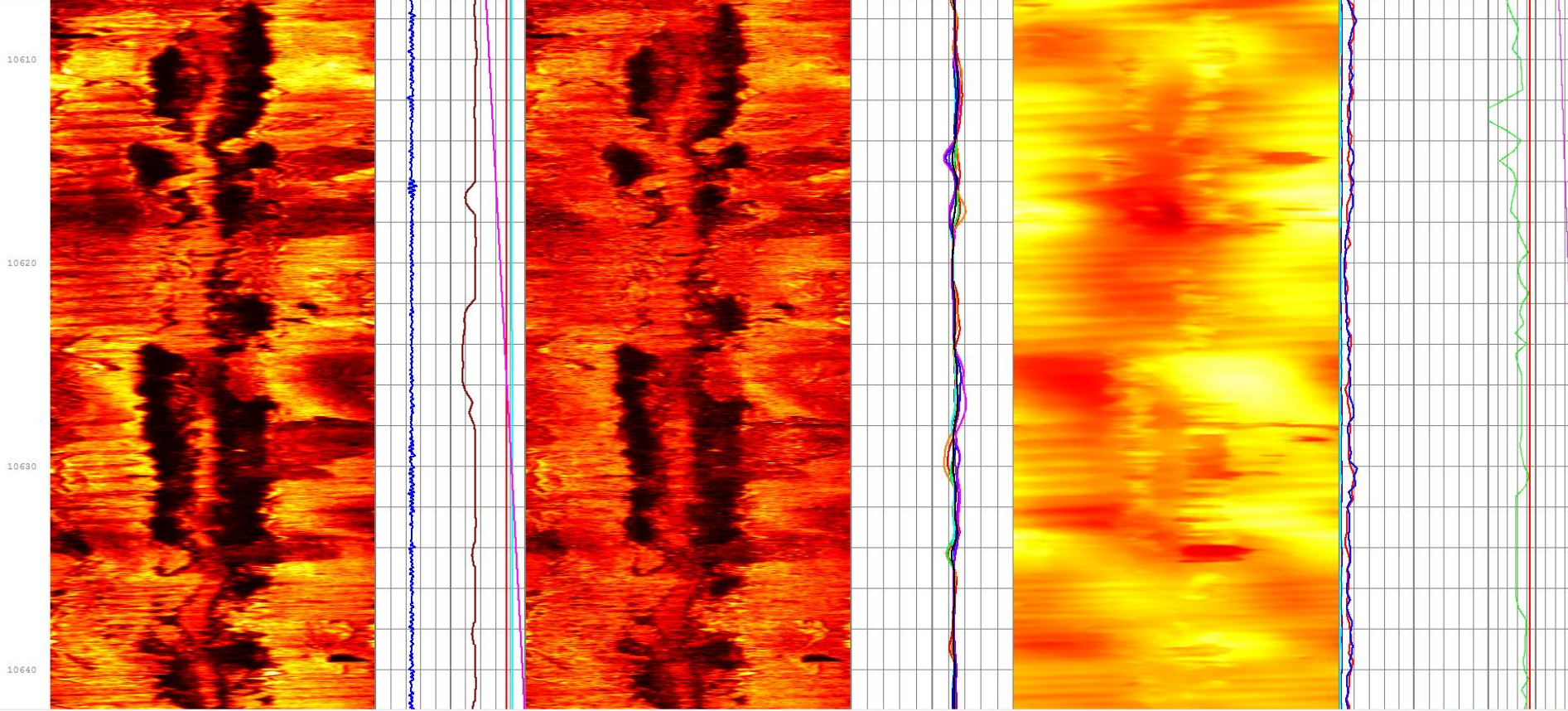


NNE_Bogges_9H- Job Summary. Section02. Pass01. BHC HS S1 vs S2



Bogges 9H_Section02_Pass01_6686-16993ft_FracView_AmpMerg_DB_HS_BHC_S12_LIN.dlis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]

File Edit View Window Help



0.000
 0.029
 0.117
 0.186
 0.234
 0.273
 0.352
 0.431
 0.469
 0.548
 0.586
 0.624
 0.703
 0.781
 0.820
 0.858
 1.000
 FV S1 HS BHC Merged Tx12 (AmpMrgS1)
 0

ROP (ROP)
 -500 ft/hr 500
 RPM_Filtered (RPM)

0.000
 0.039
 0.117
 0.186
 0.234
 0.273
 0.352
 0.431
 0.469
 0.548
 0.586
 0.624
 0.703
 0.781
 0.820
 0.858
 1.000
 FV S2 HS BHC Merged Tx12 (AmpMrgS2)
 0

BH Diameter 0deg (CalAzi1)
 6.8 in 10
 BH Diameter 22.5deg (CalAzi2)

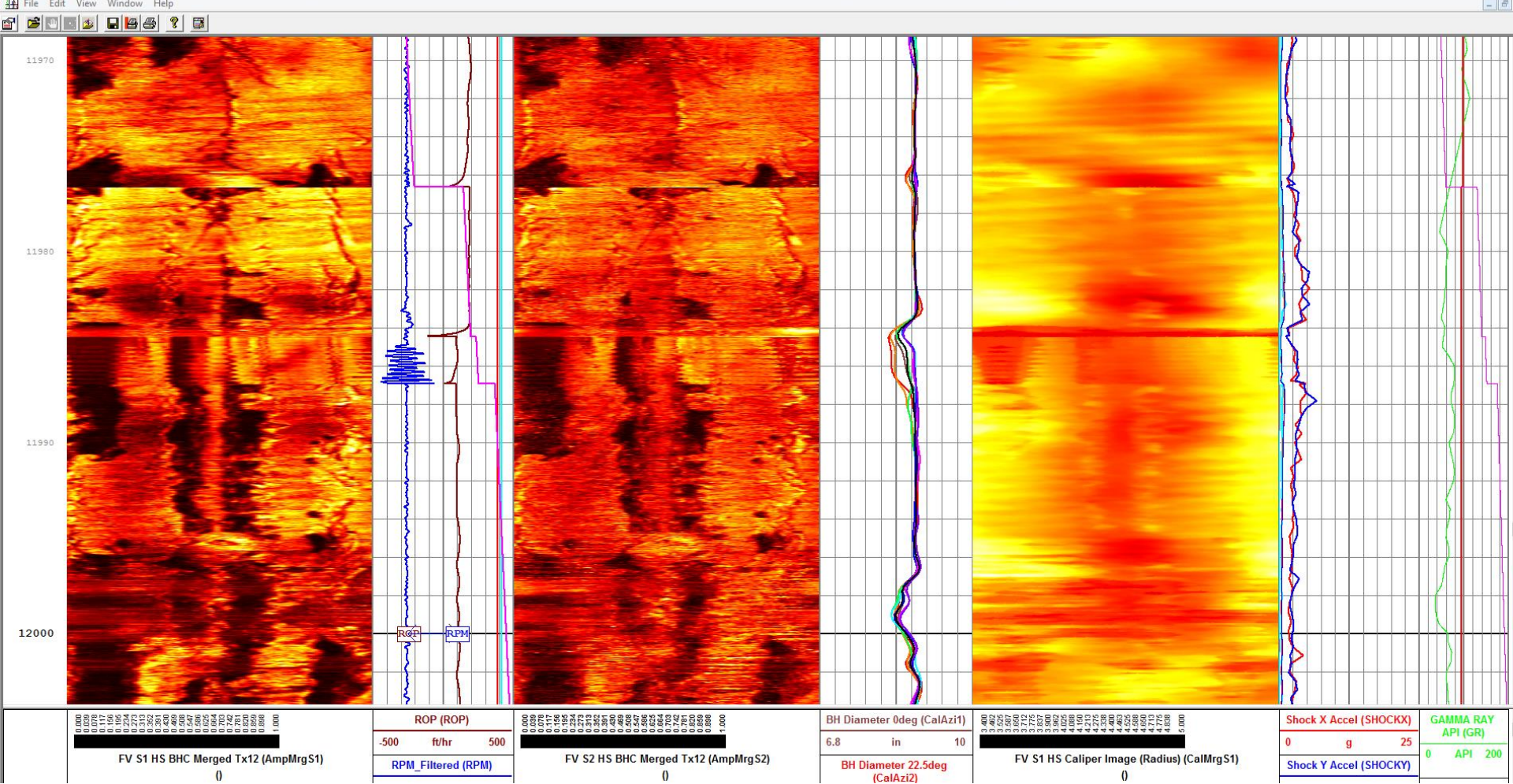
3.400
 3.625
 3.697
 3.710
 3.710
 3.775
 3.852
 3.852
 4.088
 4.110
 4.215
 4.275
 4.400
 4.400
 4.463
 4.558
 4.650
 4.775
 4.838
 5.000
 FV S1 HS Caliper Image (Radius) (CalMrgS1)
 0

Shock X Accel (SHOCKX) 0 g 25
 Shock Y Accel (SHOCKY)
 GAMMA RAY API (GR) 0 API 200

NNE_Bogges_9H- Job Summary. Section02. Pass01. BHC HS S1 vs S2



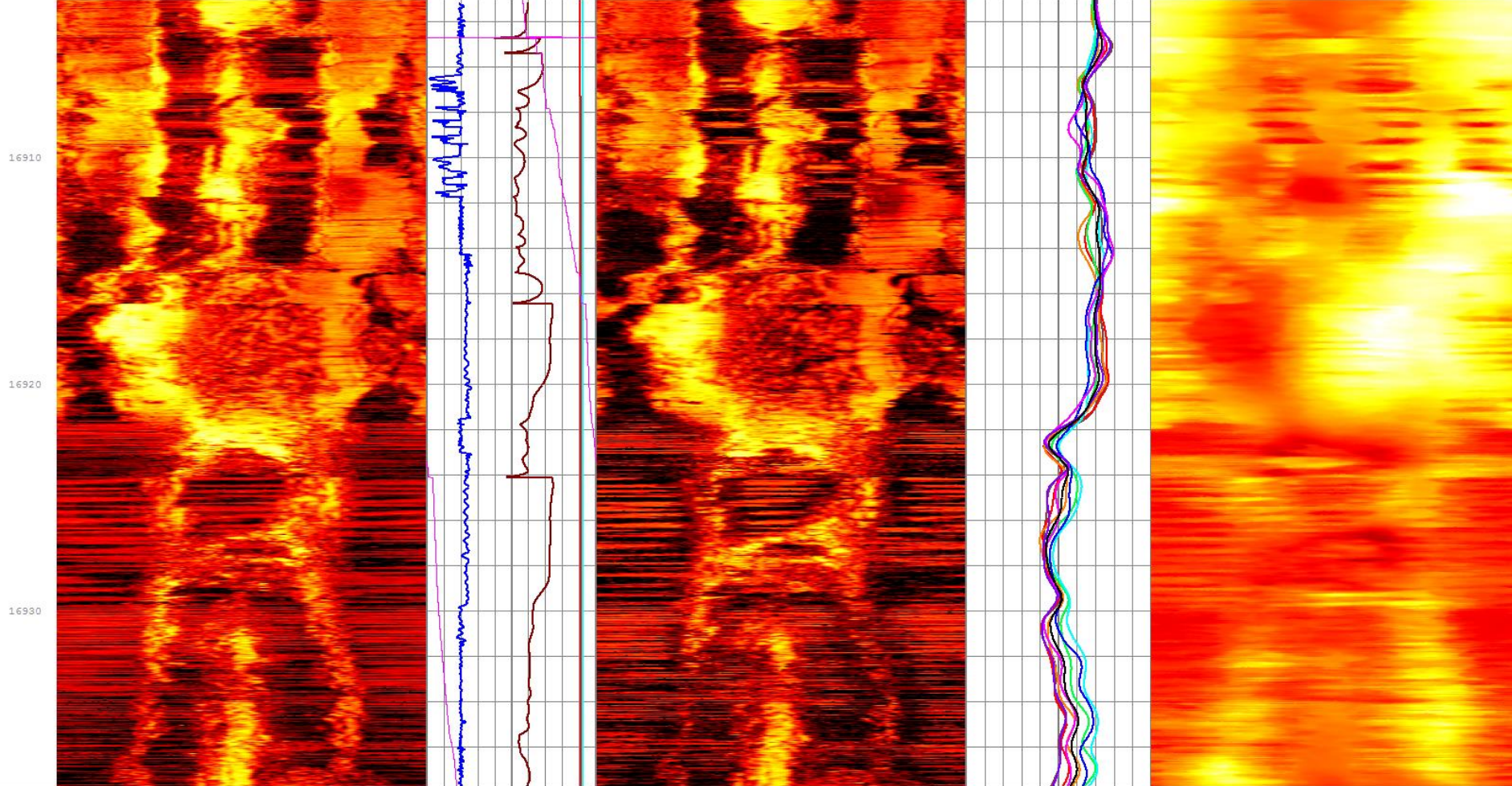
Bogges 9H_Section02_Pass01_6686-16993ft_FracView_AmpMerg_DB_HS_BHC_S12_LIN.dllis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]



NNE_Bogges_9H- Job Summary. Section02. Pass01. NC HS S1



Bogges 9H_Section02_Pass01_6686-16993ft_FracView_Ampl_DB_HS_NC_TX12_S1_LOG.dlis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_AzimuthC]



0.000
 0.0078
 0.117
 0.196
 0.234
 0.273
 0.301
 0.352
 0.430
 0.508
 0.547
 0.626
 0.703
 0.782
 0.820
 0.859
 0.898
 1.000
 FV S1 HS NC Tx1 (AmpTx1S1)
 ()

ROP (ROP)
 -500 ft/hr 500
 RPM_Filtered (RPM)
 0 rpm 500

0.000
 0.0078
 0.117
 0.196
 0.234
 0.273
 0.301
 0.352
 0.430
 0.508
 0.547
 0.626
 0.703
 0.782
 0.820
 0.859
 0.898
 1.000
 FV S1 HS NC Tx2 (AmpTx2S1)
 ()

BH Diameter 0deg (CalAzi1)
 6.8 in 10
 BH Diameter 22.5deg (CalAzi2)

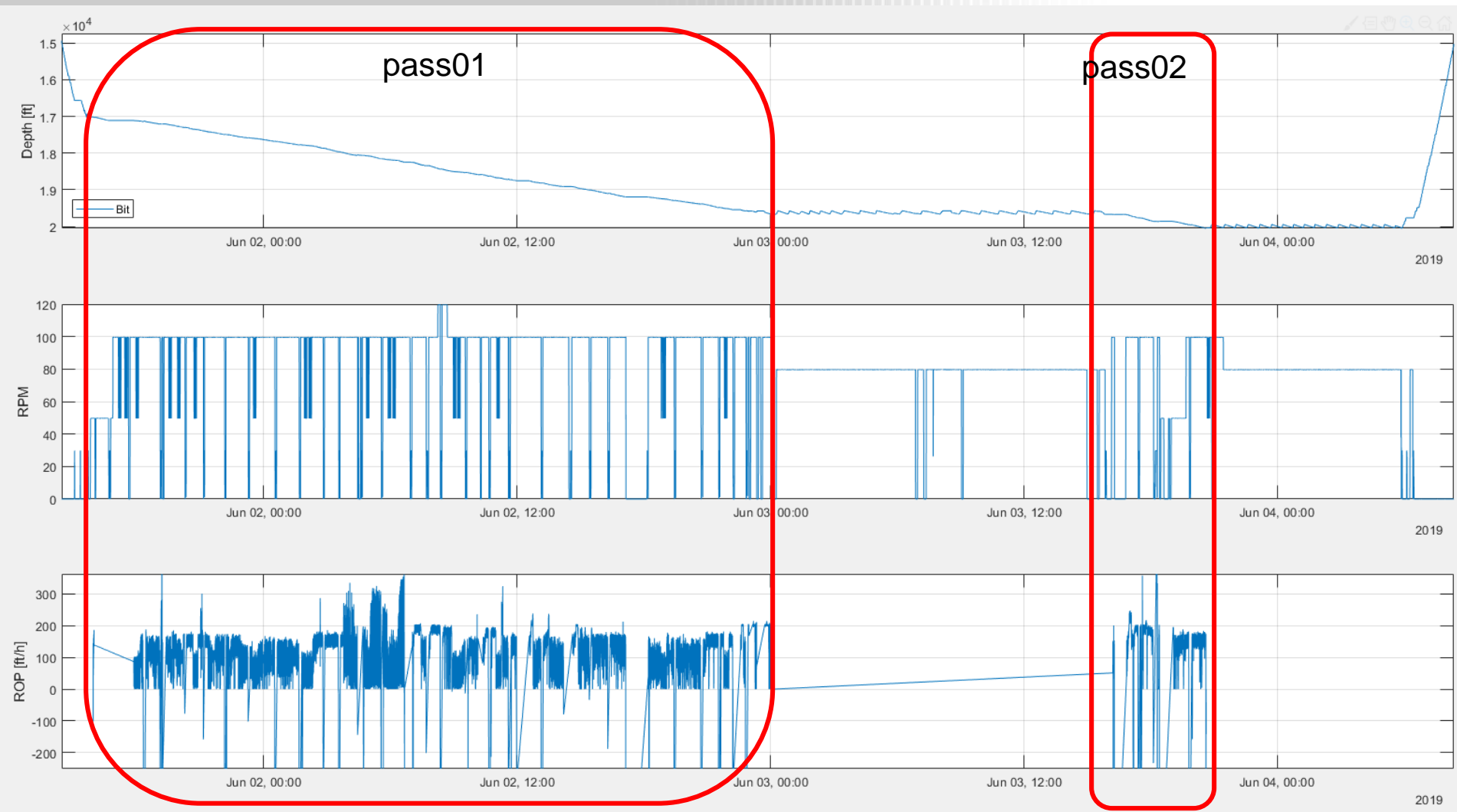
3.400
 3.622
 3.687
 3.690
 3.772
 3.837
 3.900
 4.025
 4.088
 4.150
 4.275
 4.338
 4.400
 4.462
 4.525
 4.588
 4.650
 4.713
 4.775
 4.838
 5.000
 FV S1 HS Caliper Image (Radius) (CalMrgS1)
 ()

NNE_Bogges_9H– Job Summary. Outline.

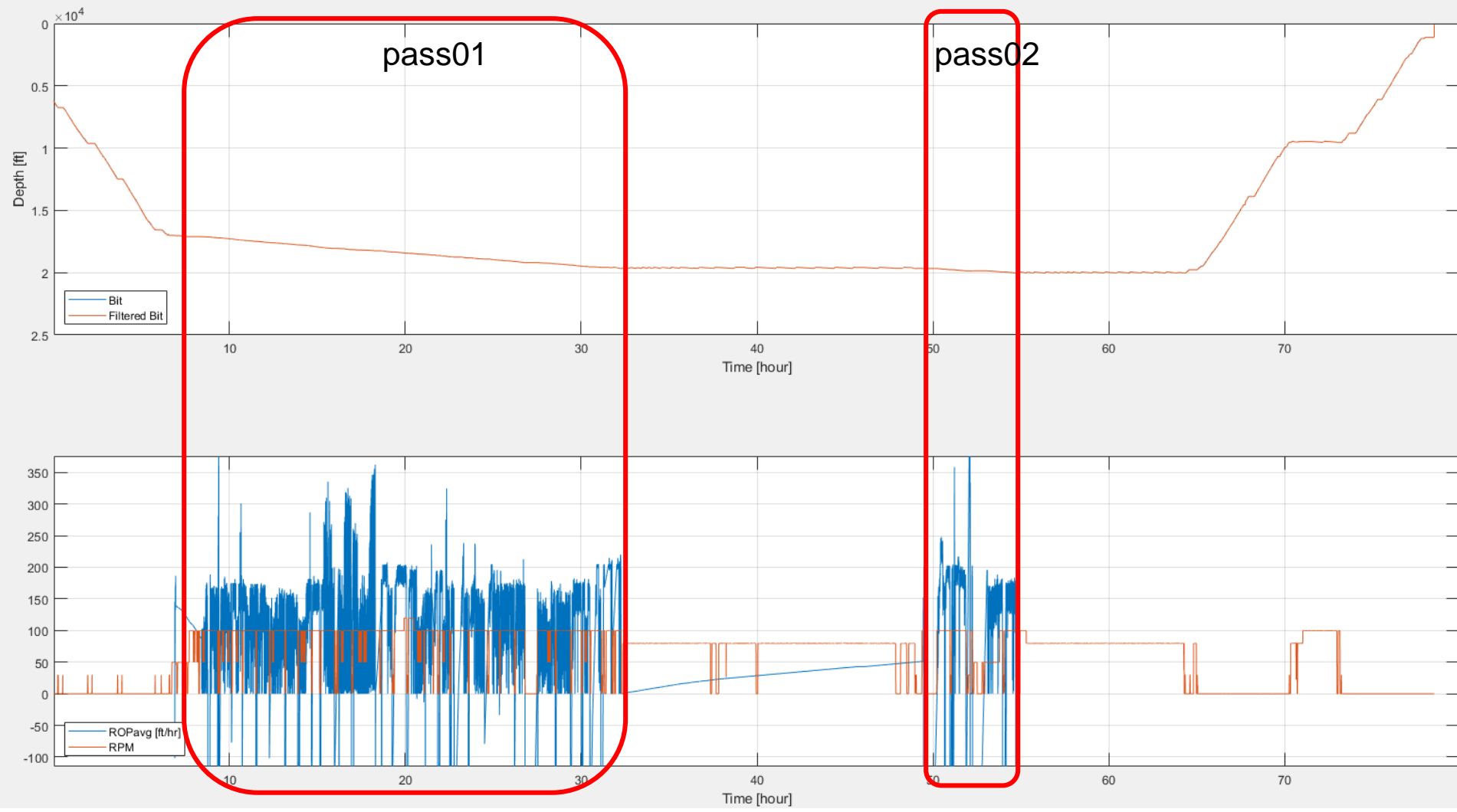


- **Section 03 (lateral)**
 - **Pass01 (drill)**
 - **Pass02 (drill)**

NNE_Boggess_9H- Job Summary. Section03. Pass01 & Pass02.



NEE_Bogges_9H- Job Summary. Section03. Pass01 & Pass02.



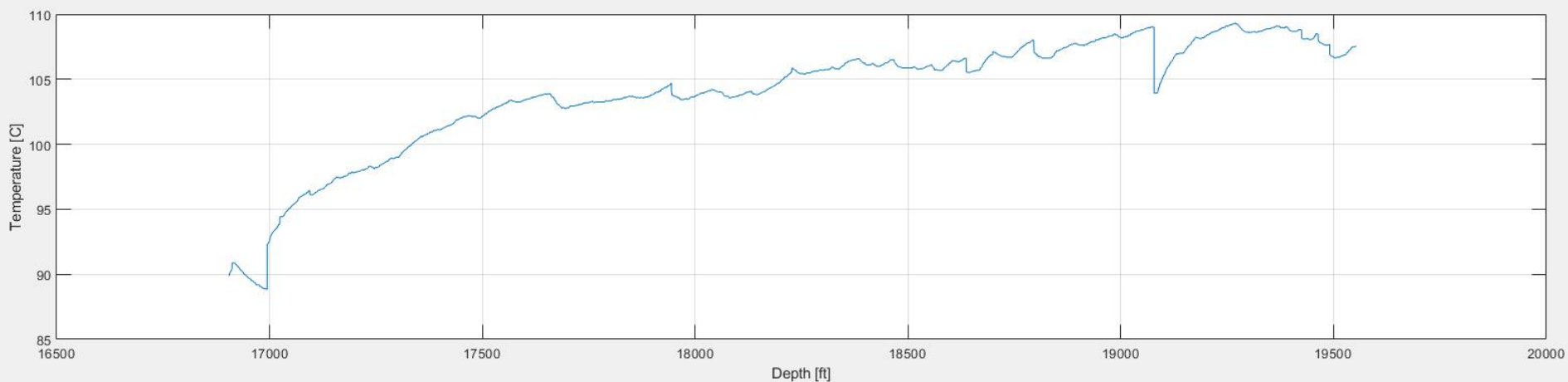
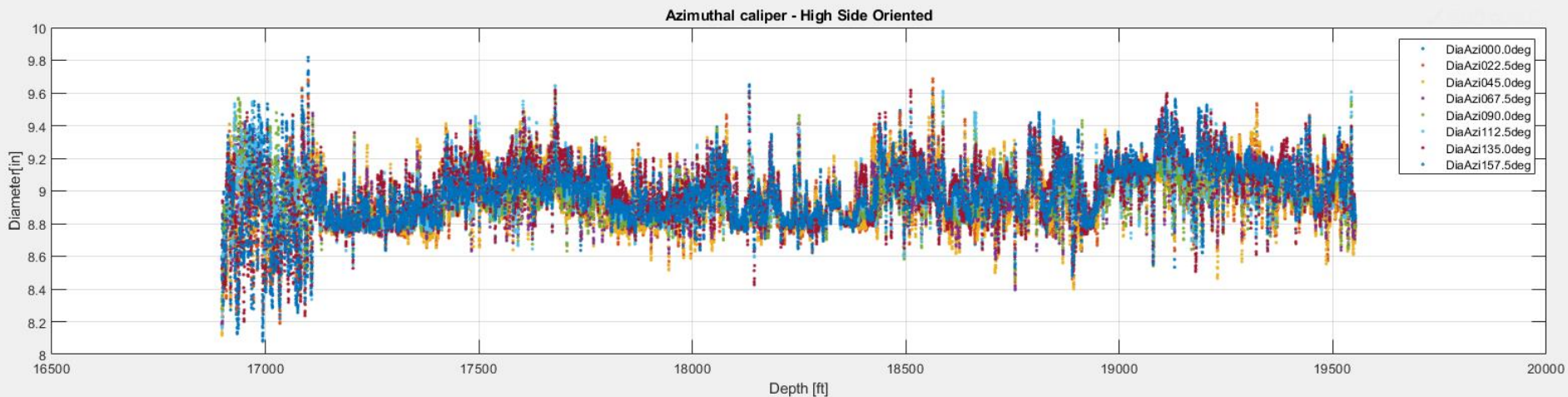
NNE_Boggess_9H– Job Summary.

Section 03. Pass01 (drill, lateral)

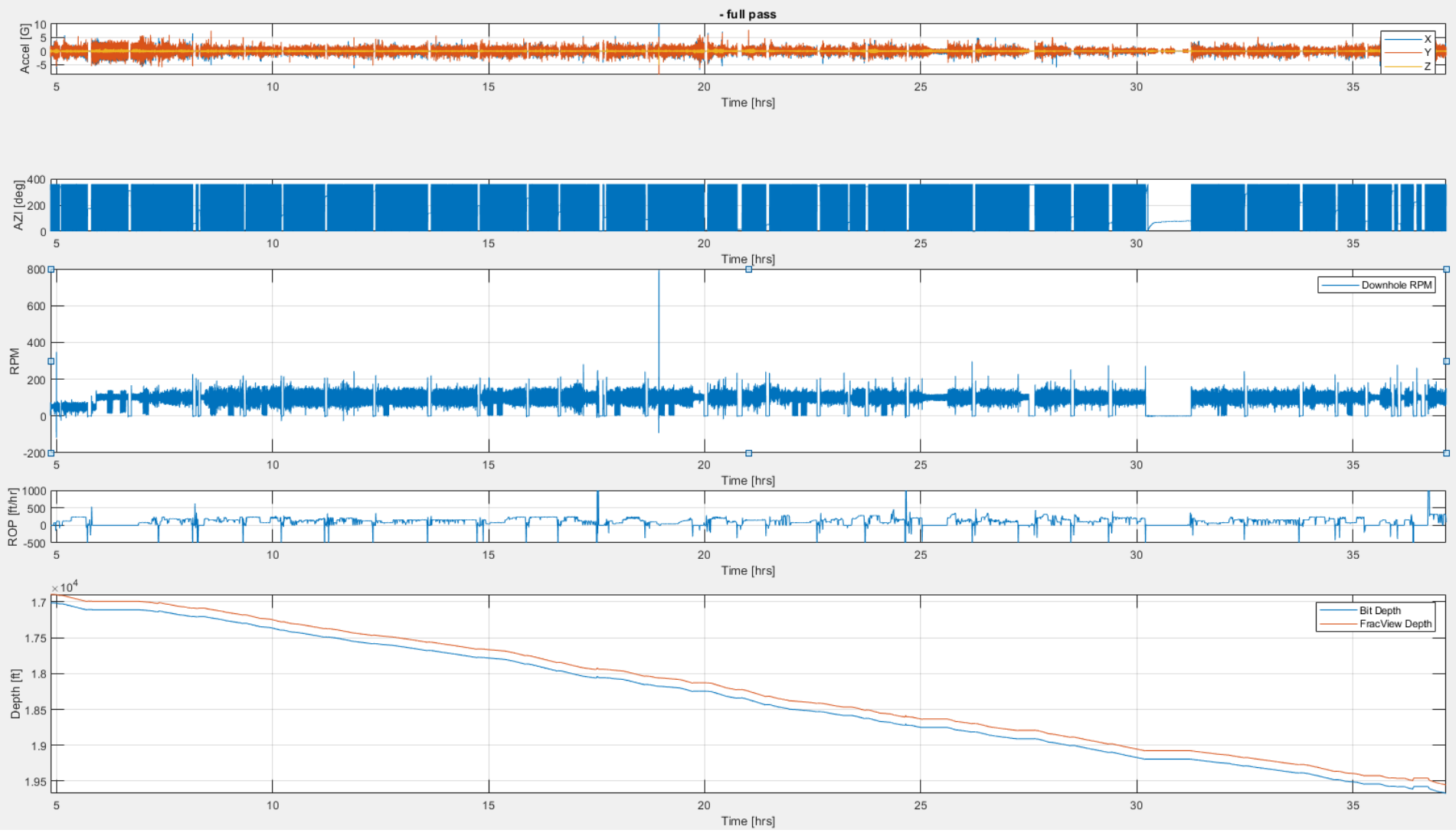


- **FV Sensor at 16,899 to 19,552 ft**
- **FV Sensor to Bit Distance ~ 117 ft**
- **Tasteful Stick-Slip**

NE_Bogges_9H- Job Summary. Section03. Pass01. Azimuthal Calipers.



NE_Bogges_9H- Job Summary. Section03. Pass01. Motion Dynamics.



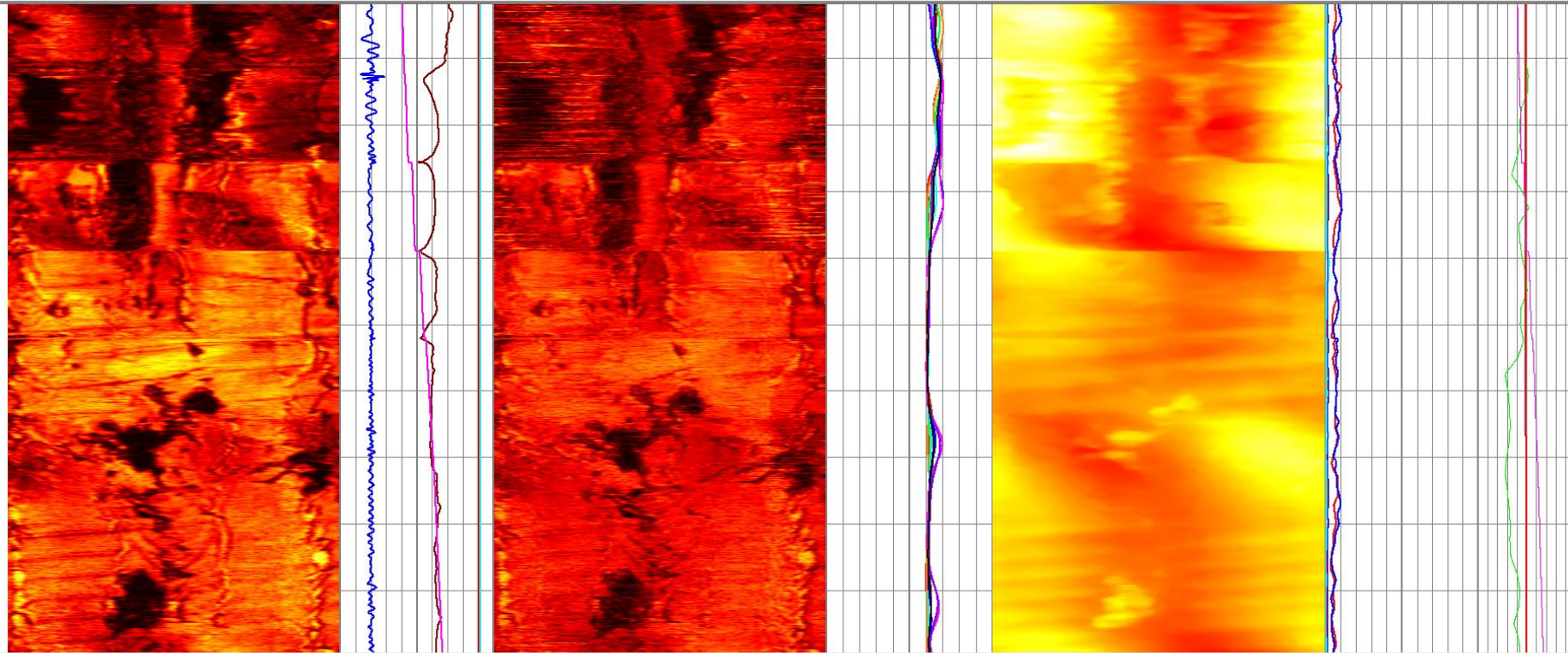
NNE_Bogges_9H- Job Summary.

Section03. Pass01. BHC HS S1 vs S2



Bogges 9H_Section03_Pass01_16898-19553ft_FracView_AmpMerg_DB_HS_BHC_S12_LIN.dllis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]

17310



0.000	0.070	0.156	0.185	0.273	0.313	0.301	0.460	0.208	0.252	0.242	0.200	0.103	0.088	0.000
FV S1 HS BHC Merged Tx12 (AmpMrgS1)														
()														

ROP (ROP)	
-500	500
f/hr	
RPM_Filtered (RPM)	
0	500
rpm	
Hole Deviation (DEVI)	
0	100
deg	
Hole Azimuth (HAZ1)	

0.000	0.039	0.117	0.156	0.234	0.273	0.262	0.469	0.208	0.252	0.242	0.200	0.103	0.088	0.000
FV S2 HS BHC Merged Tx12 (AmpMrgS2)														
()														

BH Diameter 0deg (CalAzi1)	
6.8	10
in	
BH Diameter 22.5deg (CalAzi2)	
6.8	10
in	
BH Diameter 45deg (CalAzi3)	

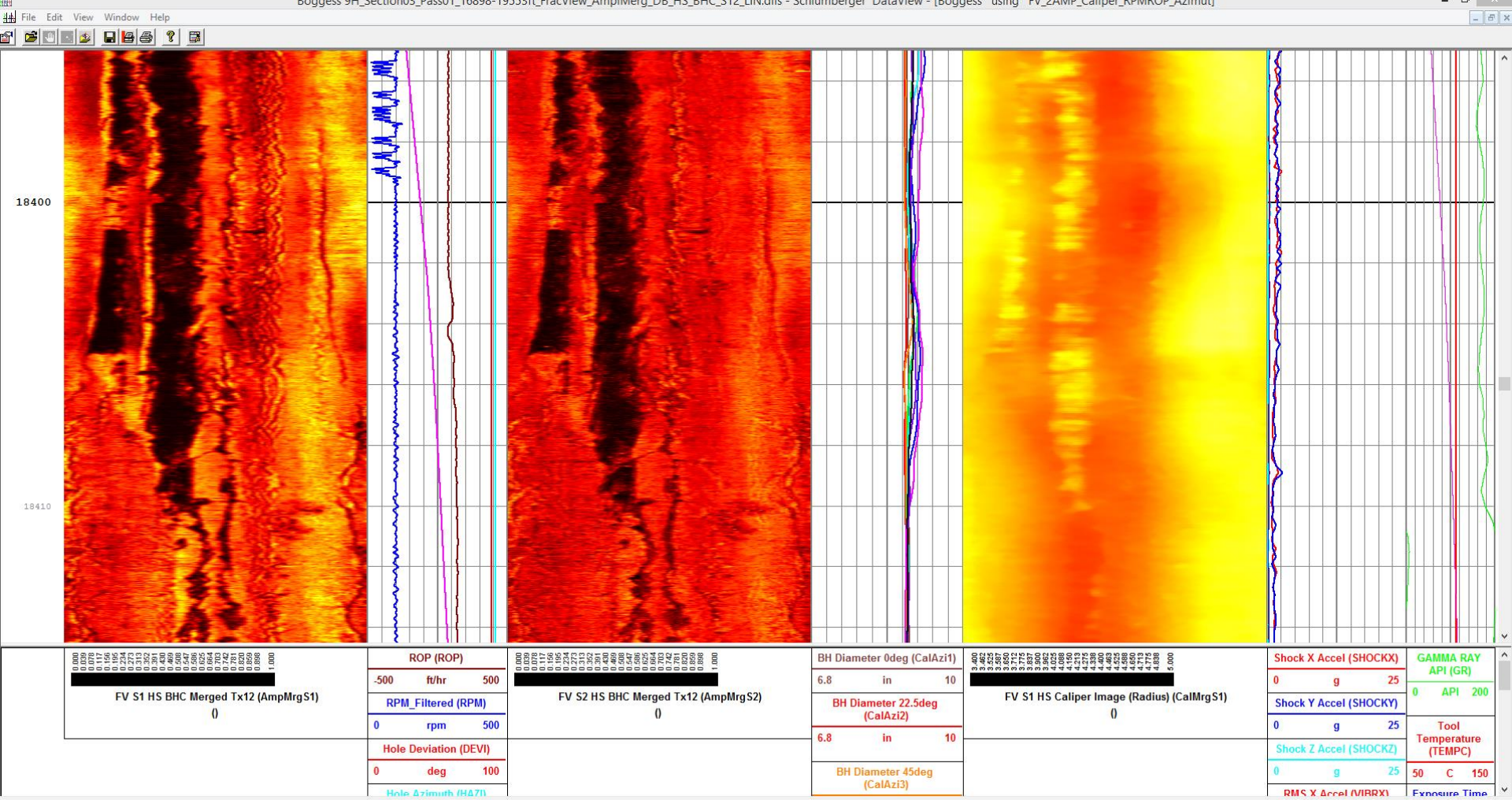
3.400	3.425	3.650	3.712	3.837	3.800	4.080	4.119	4.239	4.400	4.289	4.265	4.313	4.219	4.219
FV S1 HS Caliper Image (Radius) (CalMrgS1)														
()														

Shock X Accel (SHOCKX)		GAMMA RAY API (GR)	
0	25	0	200
g		API	
Shock Y Accel (SHOCKY)		Tool Temperature (TEMPC)	
0	25	50	150
g		C	
Shock Z Accel (SHOCKZ)		RMS X Accel (VBRX)	
0	25	Exposure Time	
g			

NNE_Bogges_9H- Job Summary. Section03. Pass01. BHC HS S1 vs S2



Bogges 9H_Section03_Pass01_16898-19553ft_FracView_AmpMerg_DB_HS_BHC_S12_LIN.dlis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]



0.000	0.009	0.017	0.024	0.031	0.038	0.045	0.052	0.059	0.066	0.073	0.080	0.087	0.094	0.101	0.108	0.115	0.122	0.129	0.136	0.143	0.150	0.157	0.164	0.171	0.178	0.185	0.192	0.199	0.206	0.213	0.220	0.227	0.234	0.241	0.248	0.255	0.262	0.269	0.276	0.283	0.290	0.297	0.304	0.311	0.318	0.325	0.332	0.339	0.346	0.353	0.360	0.367	0.374	0.381	0.388	0.395	0.402	0.409	0.416	0.423	0.430	0.437	0.444	0.451	0.458	0.465	0.472	0.479	0.486	0.493	0.500	0.507	0.514	0.521	0.528	0.535	0.542	0.549	0.556	0.563	0.570	0.577	0.584	0.591	0.598	0.605	0.612	0.619	0.626	0.633	0.640	0.647	0.654	0.661	0.668	0.675	0.682	0.689	0.696	0.703	0.710	0.717	0.724	0.731	0.738	0.745	0.752	0.759	0.766	0.773	0.780	0.787	0.794	0.801	0.808	0.815	0.822	0.829	0.836	0.843	0.850	0.857	0.864	0.871	0.878	0.885	0.892	0.899	0.906	0.913	0.920	0.927	0.934	0.941	0.948	0.955	0.962	0.969	0.976	0.983	0.990	0.997	1.000
ROP (ROP)		-500	ft/hr	500																																																																																																																																											
RPM_Filtered (RPM)		0	rpm	500																																																																																																																																											
Hole Deviation (DEVI)		0	deg	100																																																																																																																																											
Hole Azimuth (HAZI)																																																																																																																																															

0.000	0.009	0.017	0.024	0.031	0.038	0.045	0.052	0.059	0.066	0.073	0.080	0.087	0.094	0.101	0.108	0.115	0.122	0.129	0.136	0.143	0.150	0.157	0.164	0.171	0.178	0.185	0.192	0.199	0.206	0.213	0.220	0.227	0.234	0.241	0.248	0.255	0.262	0.269	0.276	0.283	0.290	0.297	0.304	0.311	0.318	0.325	0.332	0.339	0.346	0.353	0.360	0.367	0.374	0.381	0.388	0.395	0.402	0.409	0.416	0.423	0.430	0.437	0.444	0.451	0.458	0.465	0.472	0.479	0.486	0.493	0.500	0.507	0.514	0.521	0.528	0.535	0.542	0.549	0.556	0.563	0.570	0.577	0.584	0.591	0.598	0.605	0.612	0.619	0.626	0.633	0.640	0.647	0.654	0.661	0.668	0.675	0.682	0.689	0.696	0.703	0.710	0.717	0.724	0.731	0.738	0.745	0.752	0.759	0.766	0.773	0.780	0.787	0.794	0.801	0.808	0.815	0.822	0.829	0.836	0.843	0.850	0.857	0.864	0.871	0.878	0.885	0.892	0.899	0.906	0.913	0.920	0.927	0.934	0.941	0.948	0.955	0.962	0.969	0.976	0.983	0.990	0.997	1.000
ROP (ROP)		-500	ft/hr	500																																																																																																																																											
RPM_Filtered (RPM)		0	rpm	500																																																																																																																																											
Hole Deviation (DEVI)		0	deg	100																																																																																																																																											
Hole Azimuth (HAZI)																																																																																																																																															

BH Diameter 0deg (CalAzi1)		6.8	in	10
BH Diameter 22.5deg (CalAzi2)		6.8	in	10
BH Diameter 45deg (CalAzi3)				

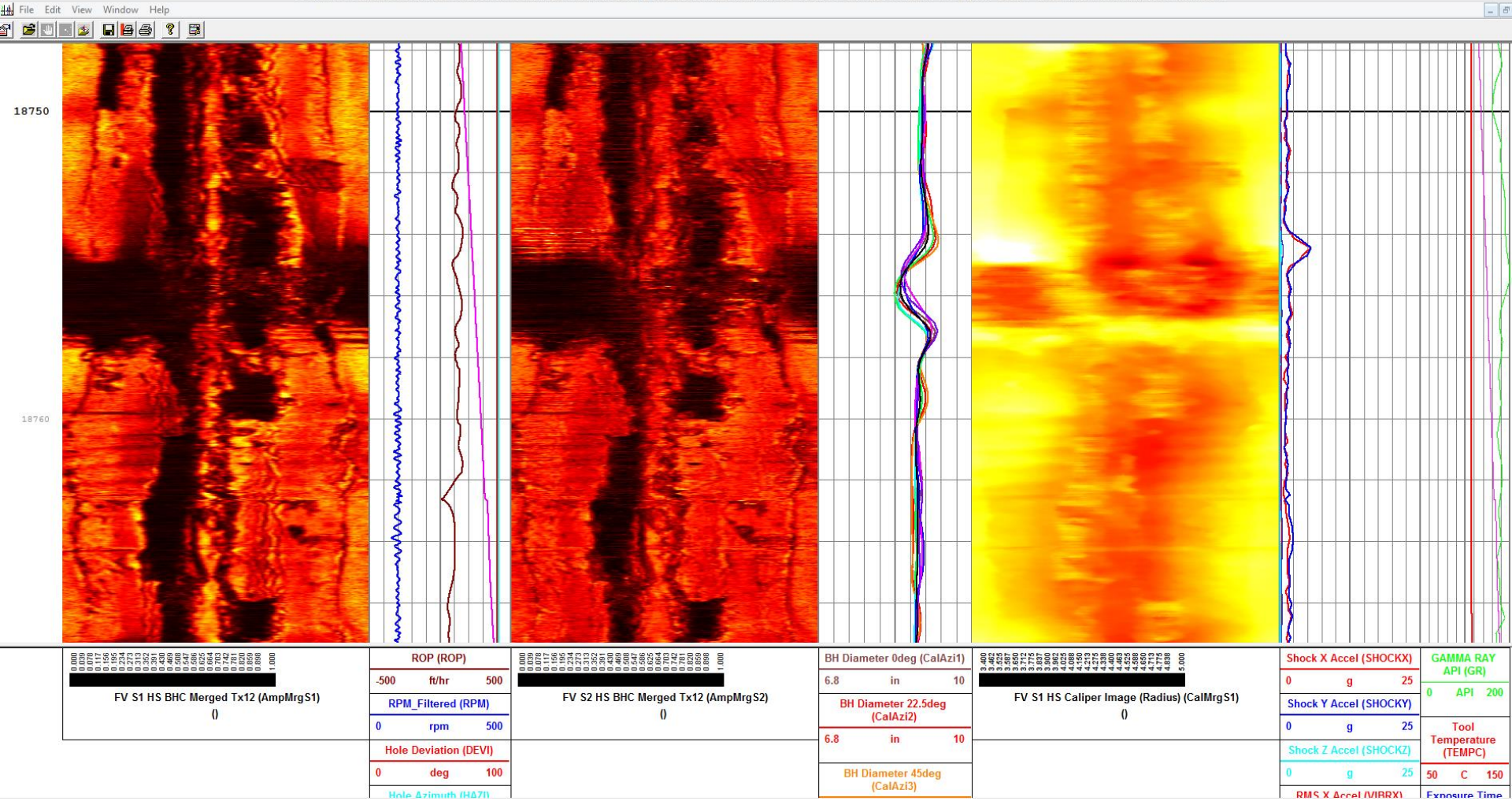
3.400	3.425	3.450	3.475	3.500	3.525	3.550	3.575	3.600	3.625	3.650	3.675	3.700	3.725	3.750	3.775	3.800	3.825	3.850	3.875	3.900	3.925	3.950	3.975	4.000	4.025	4.050	4.075	4.100	4.125	4.150	4.175	4.200	4.225	4.250	4.275	4.300	4.325	4.350	4.375	4.400	4.425	4.450	4.475	4.500	4.525	4.550	4.575	4.600	4.625	4.650	4.675	4.700	4.725	4.750	4.775	4.800	4.825	4.850	4.875	4.900	4.925	4.950	4.975	5.000
FV S1 HS Caliper Image (Radius) (CalMrgS1)																																																																

Shock X Accel (SHOCKX)		0	g	25
Shock Y Accel (SHOCKY)		0	g	25
Shock Z Accel (SHOCKZ)		0	g	25
RMS X Accel (MIBRX)				
GAMMA RAY API (GR)		0	API	200
Tool Temperature (TEMPC)		50	C	150
Exposure Time				

NE_Bogges_9H- Job Summary. Section03. Pass01. BHC HS S1 vs S2



Bogges 9H_Section03_Pass01_16898-19553ft_FracView_AmplMerg_DB_HS_BHC_S12_LIN.dllis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]



0.000	0.039	0.078	0.117	0.156	0.195	0.234	0.273	0.312	0.351	0.390	0.429	0.468	0.507	0.546	0.585	0.624	0.663	0.702	0.741	0.780	0.819	0.858	0.897	0.936	0.975	1.000	
FV S1 HS BHC Merged Tx12 (AmpMrgS1)																											

ROP (ROP)	
-500	500
ft/hr	
RPM_Filtered (RPM)	
0	500
rpm	
Hole Deviation (DEVI)	
0	100
deg	
Hole Azimuth (HAZ1)	

0.000	0.039	0.078	0.117	0.156	0.195	0.234	0.273	0.312	0.351	0.390	0.429	0.468	0.507	0.546	0.585	0.624	0.663	0.702	0.741	0.780	0.819	0.858	0.897	0.936	0.975	1.000	
FV S2 HS BHC Merged Tx12 (AmpMrgS2)																											

BH Diameter 0deg (CalAzi1)	
6.8	10
in	
BH Diameter 22.5deg (CalAzi2)	
6.8	10
in	
BH Diameter 45deg (CalAzi3)	

0.000	0.039	0.078	0.117	0.156	0.195	0.234	0.273	0.312	0.351	0.390	0.429	0.468	0.507	0.546	0.585	0.624	0.663	0.702	0.741	0.780	0.819	0.858	0.897	0.936	0.975	1.000	
FV S1 HS Caliper Image (Radius) (CalMrgS1)																											

Shock X Accel (SHOCKX)		GAMMA RAY API (GR)	
0	25	0	200
g		API	
Shock Y Accel (SHOCKY)		Tool Temperature (TEMPC)	
0	25	50	150
g		C	
RMS X Accel (MIBRX)		Exposure Time	

NNE_Boggess_9H– Job Summary.

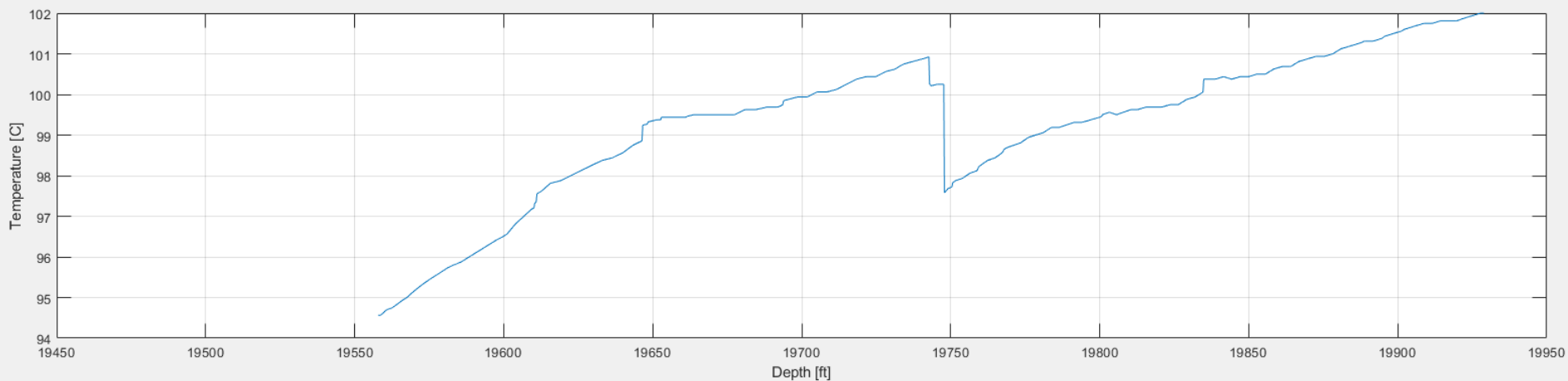
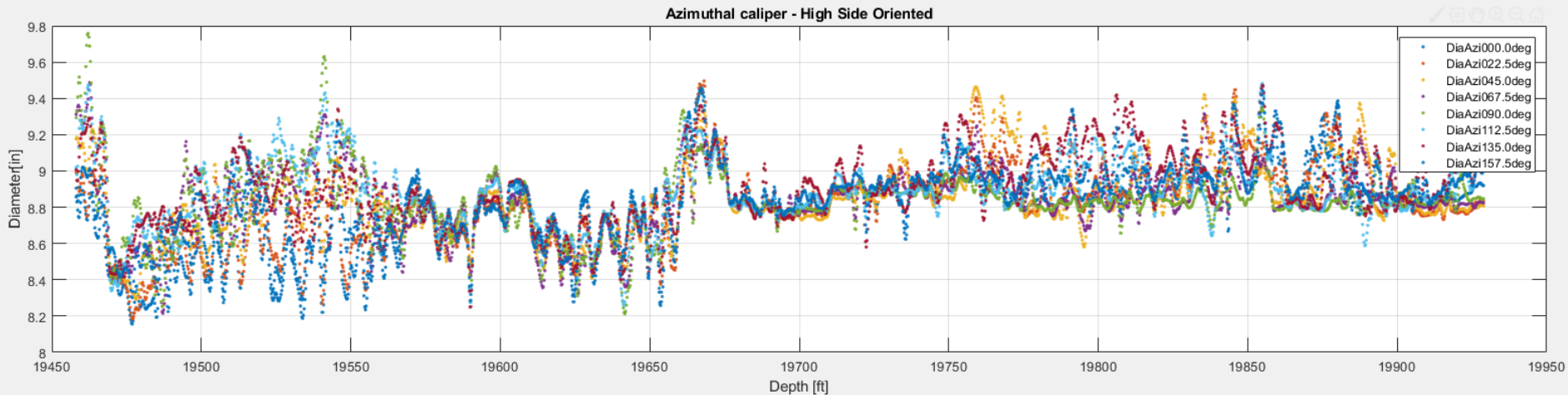
Section 03. Pass02 (drill, lateral)



- **FV Sensor at 19,460 to 19,930 ft**
- **FV Sensor to Bit Distance ~ 117 ft**
- **Tasteful Stick-Slip**

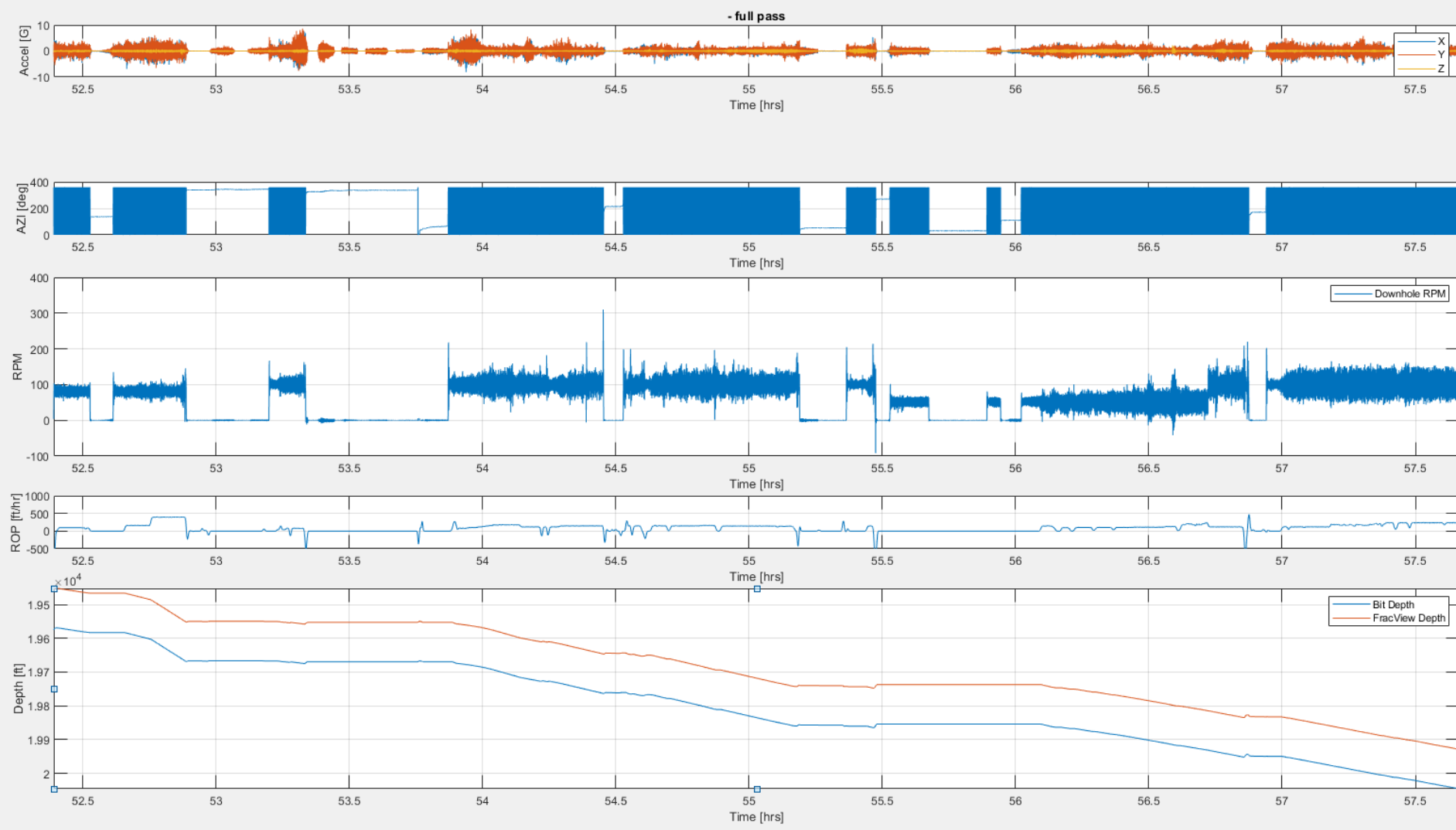
NNE_Bogges_9H- Job Summary.

Section03. Pass02. Azimuthal Calipers.



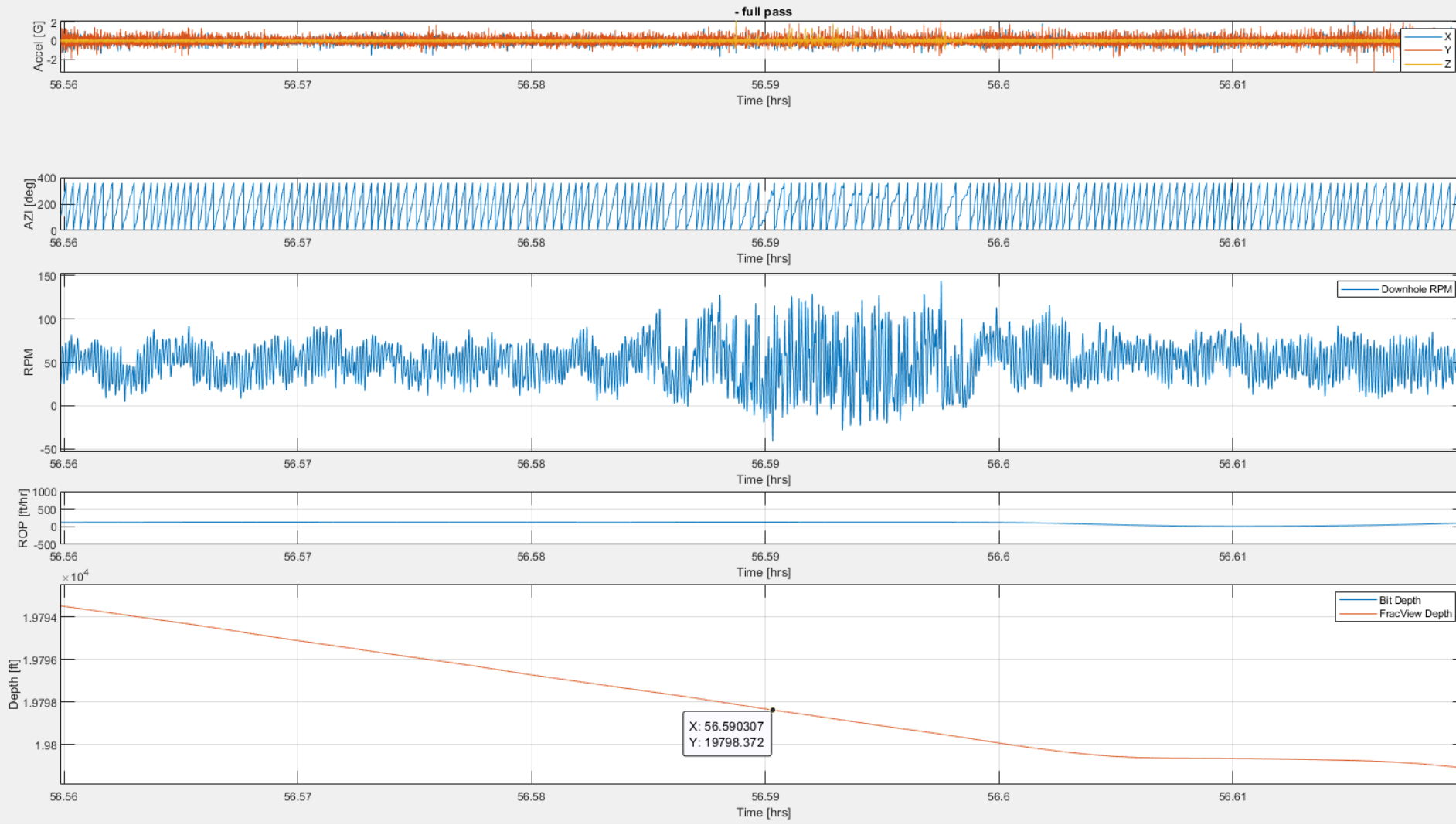
NE_Bogges_9H- Job Summary.

Section03. Pass02. Motion Dynamics.



NE_Bogges_9H- Job Summary.

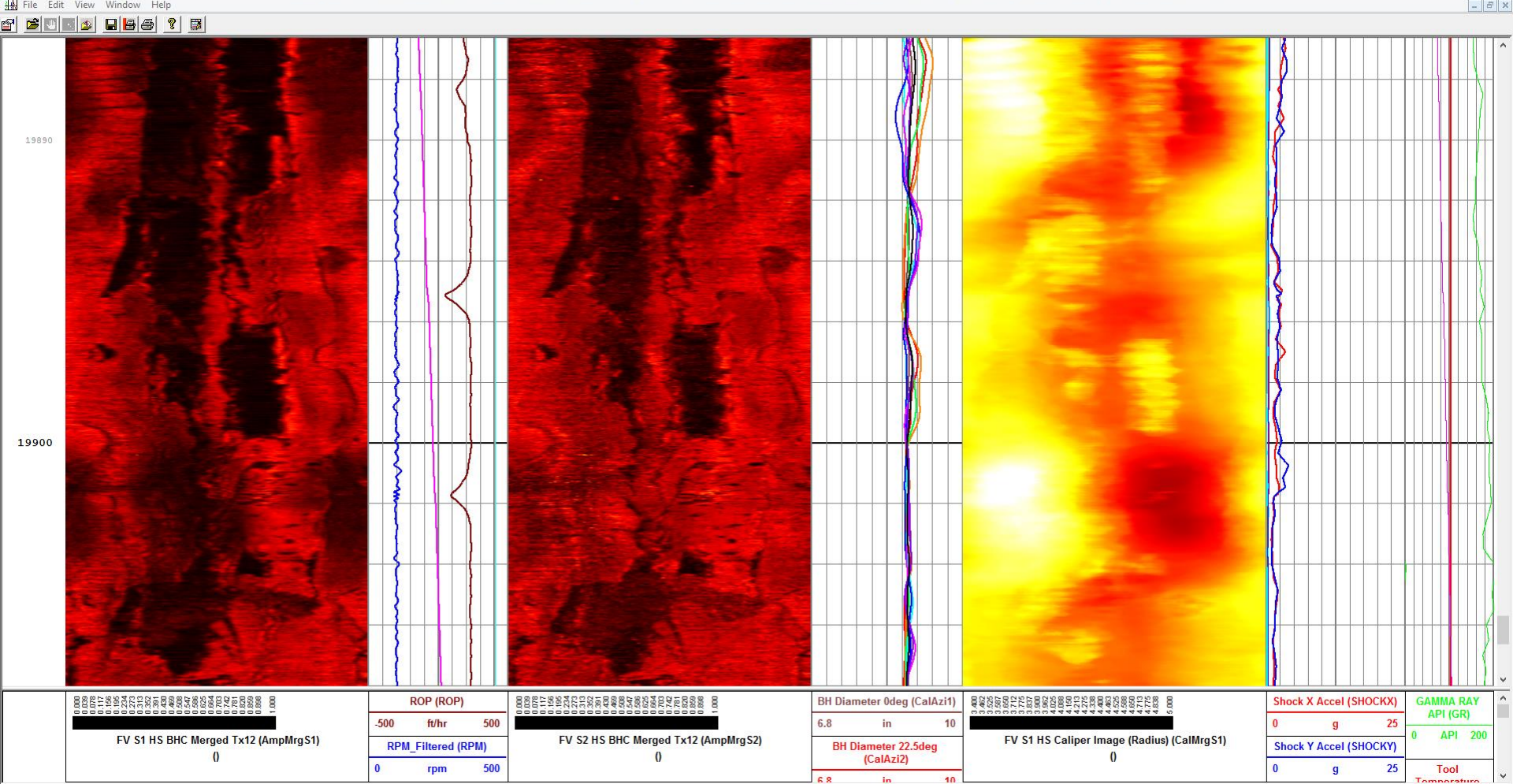
Section03. Pass02. Motion Dynamics (zoom in)



NNE_Bogges_9H- Job Summary. Section03. Pass02. BHC HS S1 vs S2



Bogges 9H_Section03_Pass02_19458-19929ft_FracView_AmplMerg_DB_HS_BHC_S12_LIN.dlis - Schlumberger DataView - [Bogges using FV_2AMP_Caliper_RPMROP_Azimuth]





Thank You