

Drilling Mechanics Log

DML

Single Run Log, Measured Depth 1:200

Schlumberger

Company: JAMSTEC

Well: C0002S

Field: C0002

Rig Name: D/V Chikyū

Prefecture: Wakayama

Country: Japan

Latitude: 33° 18' 3.042" N

Longitude: 136° 38' 12.174" E

Block:

UWID:

Rig Name:

Rig Type:

D/V Chikyū

Drill ship

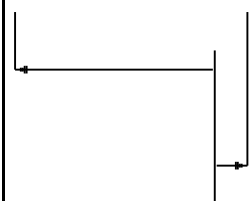
FL: Pacific Ocean

FL1: X = 652,382.39 m

FL2: Y = 3685,843.62 m

Log Measured From: - Drill Floor: 28.50 m
Permanent Datum: - Mean Sea Level

Ground Level: 1939.00 m



Acquisition Dates: 05-Feb-2019 -- 09-Feb-2019

Other Services:

Log Interval: 4789.00(m)MD - 4901.00(m) MD

Direction and Inclination

Index Types: Measured Depth

seismic/VISION

Index Scales: 1:200

Vortex and Xceed

Depth Source: Driller's Depth

Depth Sensor: DES

Print Type: Final

Spud Date: 26-OCT-2018

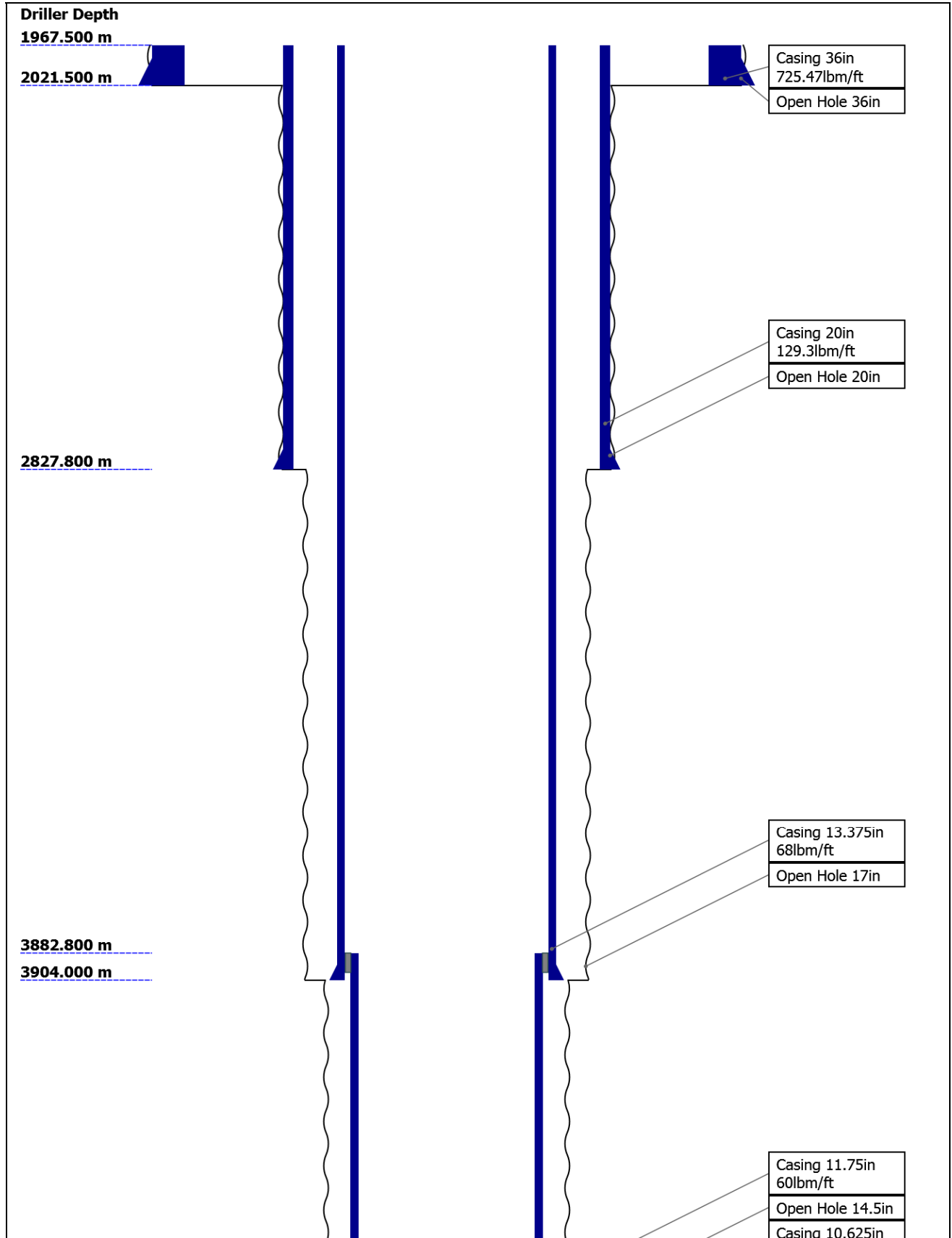
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Well Sketch



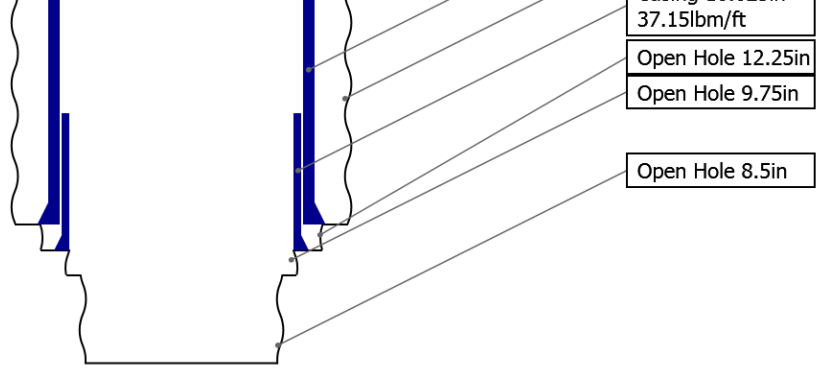
4603.500 m

4756.410 m

4770.220 m

4788.230 m

4901.000 m



Borehole Size/Casing Record

Bit						
Bit Size (in)	36	20	17	14.5	12.25	9.75
Top Driller (m)	1967.5	2021.5	2827.8	3904	4756.41	4770.22
Bottom Driller (m)	2021.5	2827.8	3904	4756.41	4770.22	4788.23
Casing						
Size (in)	36	20	13.375	11.75	10.625	
Weight (lbm/ft)	725.47	129.3	68	60	37.15	
Inner Diameter (in)	32	18.75	12.415	10.772	9.95	
Grade	X56	X56	N/A	N/A	N/A	
Top Driller (m)	1967.5	1967.5	1967.5	3882.8	4603.5	
Bottom Driller (m)	2021.5	2827.8	3904	4756.41	4770.22	
Bit						
Bit Size (in)	8.5					
Top Driller (m)	4788.23					
Bottom Driller (m)	4901					
Casing						
Size						
Weight						
Inner Diameter						
Grade						
Top Driller						
Bottom Driller						

Operational Run Summary


Parameter (unit)	Run2				
Date Log Started	05-Feb-2019				
Time Log Started	13:04:23				
Date Log Finished	09-Feb-2019				
Time Log Finished	08:34:49				
Bit Size (in)	8.500				
Bit Start Depth (m)	4789.00				
Bit Stop Depth (m)	4901.00				
Top Log Interval (m)	4789.00				

Bottom Log Interval (m)	4901.00					
Max Hole Deviation (deg)	2.89					
Azimuth of Max Deviation (deg)	257.63					
Logging Unit Number	OLU-MB8054					
Logging Unit Location	Zone2					
Recorded By	SMoriyama/Zhou Cai					
Witnessed By	Y.Sanada/Y.Kido					
Service Order Number	18JAP0007					

Borehole Fluids

Parameter(unit)	Run2					
Fluid Type	Water					
Max Recorded Temperatures (degC)	37					
Source of Sample	Active Tank					
Salinity (ppm)	119037.2					
Density (g/cm3)	1.38					
Funnel Viscosity (s)	59					
Fluid Loss (cm3)	6.7					
PH	10.8					
Source RMF	Pressed					
RMC	Pressed					
RM @ Meas Temp (ohm.m@degC)	0.07 @ 21.2					
RMF @ Meas Temp (ohm.m@degC)	0.05 @ 21.5					
RMC @ Meas Temp (ohm.m@degC)	0.07 @ 21.4					
RM @ BHT (ohm.m@degC)	0.06 @ 30					
RMF @ BHT (ohm.m@degC)	0.04 @ 30					
RMC @ BHT (ohm.m@degC)	0.06 @ 30					
Total Solid (%)	18					
High Gravity Solids (%)						

Remarks and Equipment Summary

Run2: Toolstring		Run2: Remarks	
Equip name X/O: 6 3/4"[2]:74 ET002-6/02	Length 58.69	MP name Schlumberger	Offset
seismicVISION675 :42835	58.2	Schlumberger	
		Depth Reference is driller's depth measured from Rotary Table.	
		Data presented is Recorded Mode data which was acquired while drilling.	
		MicroScope record rate is depending on RPM. APWD record rate is 10s.	
		arcVISION GR is environmentally corrected for bit size, mud weight, and potassium content in the mud (1.47% in Run3).	
		Reason of POOH: BHA failure	
		Drilling Time: 47.40 hrs	
		Pumping Time: 57.34 hrs	
		Connection in Lower CLink was twisted off and the lower part than this was left in hole.	

SONICSCOPE6:H03 53.74
42

Schlumberger



— ROP 50.84

— Delta-T 49.63



TELE675-IWOB:B1 43.79
755

Schlumberger

— D&I 39.44

● — ROP 37.09

● — IWOB 36.07

ARC6:1805 35.24 Schlumberger

ROP 33.03

GR 31.96
Resistivity 31.91

Pressure 31.2

MI6:708 29.57 Schlumberger

ROP 27.65

Resistivity 26.71

UHRI_Bt1 25.82
UHRI_Bt2 25.81
UHRI_Bt3 25.8
UHRI_Bt4 25.79
NBI 25.79
UHRI 25.79
UHRI_Bt5 25.78
UHRI_Bt6 25.77
UHRI_Bt7 25.77
UHRI_Bt8 25.76
Bit Res, OBM 0.00
Bit Res, WBM 12.81

CLNK675:30228 24.41

Fit Sub: 6 3/4":TH0 21.87 Schlumberger
915936-1

Motor: 6 3/4":6150 21.16 Schlumberger
778



Filtr Sub: 6 3/4":US 12.8 Schlumberger
KW867307-1

X/O: 6 3/4"[1]:LT 11.59 Schlumberger
GP622

CLNKL675:33751 10.97 Schlumberger

PDXCEED_675:314 8.03 Schlumberger
36

D&I 4.16

ROP 3.37

Bit: 8 1/2" 0.26 Smith

TOOL_ZERO

Lengths are in m
Maximum Outer Diameter = 8.500 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

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 :	0.90 deg		

Rig Location

Latitude :	33° 18' 3.042" N	Longitude :	136° 38' 12.174" E
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Tie In Point

Measured Depth:	4772.00 m	Inclination:	1.23 deg	Azimuth:	122.08 deg
True Vertical Depth:	4770.21 m	North Displacement:	3.67 m	East Displacement:	47.20 m
N-S VSec Origin:	3.67 m	E-W VSec Origin:	47.20 m	Vertical Section Azimuth:	160.00 deg

D&I Inits Computed and Values Used - Run2

Geomagnetic Model :	HDGM 2018	Geomagnetic Date :	01-Feb-2019
Computed Location B :	46172.13 nT +/- 300.00nT	Used Location B :	46172.13 nT +/- 300.00nT
Computed Location G :	998.92 mgn +/- 2.50mgn	Used Location G :	998.92 mgn +/- 2.50mgn
Computed Magnetic Dip :	47.02 deg +/- 0.45deg	Used Magnetic Dip :	47.02 deg +/- 0.45deg
Computed Magnetic Dec :	-7.17 deg	Used Magnetic Dec :	-7.17 deg
Computed Total Correction :	-8.07 deg	Used Total Correction :	-8.07 deg

D&I Inits Computed and Values Used - Run 4

Geomagnetic Model :	HDGM 2018	Geomagnetic Date :	01-Feb-2019
Computed Location B :	46172.13 nT +/- 300.00nT	Used Location B :	46172.13 nT +/- 300.00nT
Computed Location G :	998.92 mgn +/- 2.50mgn	Used Location G :	998.92 mgn +/- 2.50mgn
Computed Magnetic Dip :	47.02 deg +/- 0.45deg	Used Magnetic Dip :	47.02 deg +/- 0.45deg
Computed Magnetic Dec :	-7.17 deg	Used Magnetic Dec :	-7.17 deg
Computed Total Correction :	-8.07 deg	Used Total Correction :	-8.07 deg

Survey Quality Index

2 : Long Survey failed mag criteria	9 : Manual	28 : Tie-In Point
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Survey Correction Index

0 : No correction

Survey Description Index

0 : Not Flagged Survey	7 : Projection to Bit
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Seq	MD (m)	Incl (deg)	Azim (deg)	Course (m)	TVD (m)	V Sec (m)	N/ -S (m)	E/ -W (m)	Closure (m)	at Azim (deg)	DLS deg/30m	Tool Type	QI	CI	DI
1	4772.00	1.23	122.08	----	4770.21	0.00	3.67	47.20	47.34	85.55	0.00	TIP	28	0	0
2	4786.06	1.13	256.75	14.06	4784.27	0.10	3.56	47.19	47.33	85.69	4.65	TeleScope	2	0	0
3	4794.51	0.80	37.26	8.44	4792.71	0.06	3.59	47.15	47.28	85.65	6.46	TeleScope	2	0	0
4	4804.29	0.81	29.65	9.79	4802.50	-0.02	3.70	47.22	47.37	85.52	0.33	TeleScope	2	0	0
5	4809.67	1.10	31.96	5.38	4807.88	-0.08	3.78	47.27	47.42	85.43	1.61	TeleScope	2	0	0
6	4820.42	1.32	52.44	10.75	4818.63	-0.18	3.94	47.42	47.58	85.25	1.35	TeleScope	2	0	0
7	4829.98	1.42	56.81	9.56	4828.18	-0.24	4.07	47.61	47.78	85.11	0.46	TeleScope	2	0	0
8	4839.14	0.58	348.19	9.16	4837.34	-0.31	4.18	47.69	47.88	84.99	4.35	TeleScope	2	0	0
9	4846.61	1.57	281.65	7.47	4844.81	-0.40	4.24	47.59	47.77	84.91	5.78	TeleScope	2	0	0
10	4859.59	2.89	257.63	12.98	4857.78	-0.54	4.20	47.09	47.28	84.90	3.67	TeleScope	2	0	0
11	4901.00	2.89	257.63	41.41	4899.14	-0.81	3.76	45.05	45.21	85.23	0.00	Other	9	0	7

UDComposite 2

Run2_Log

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100

Composite Summary

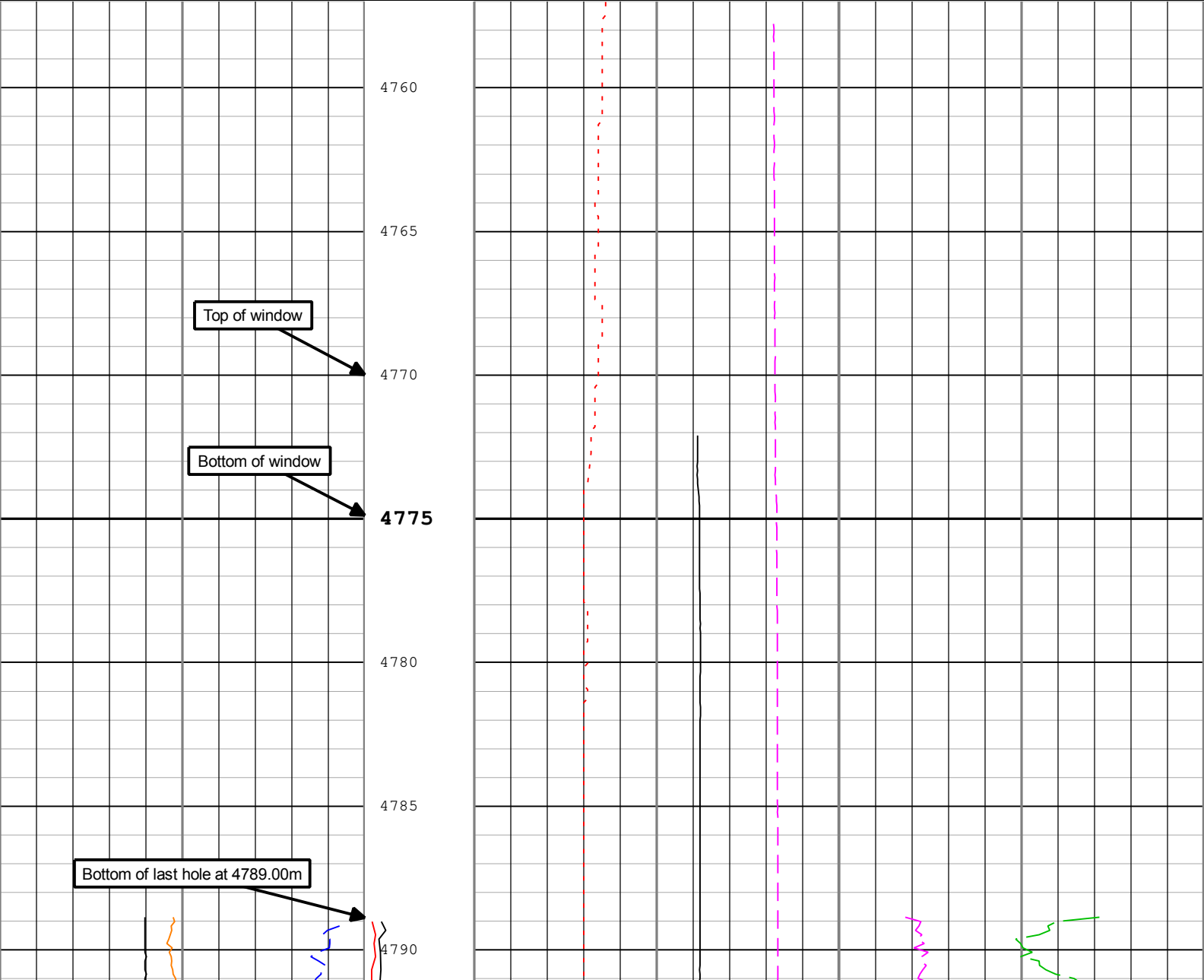
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run2	Ream Down 1	Down	4844.36 m	4850.23 m	07-Feb-2019	07-Feb-2019	No

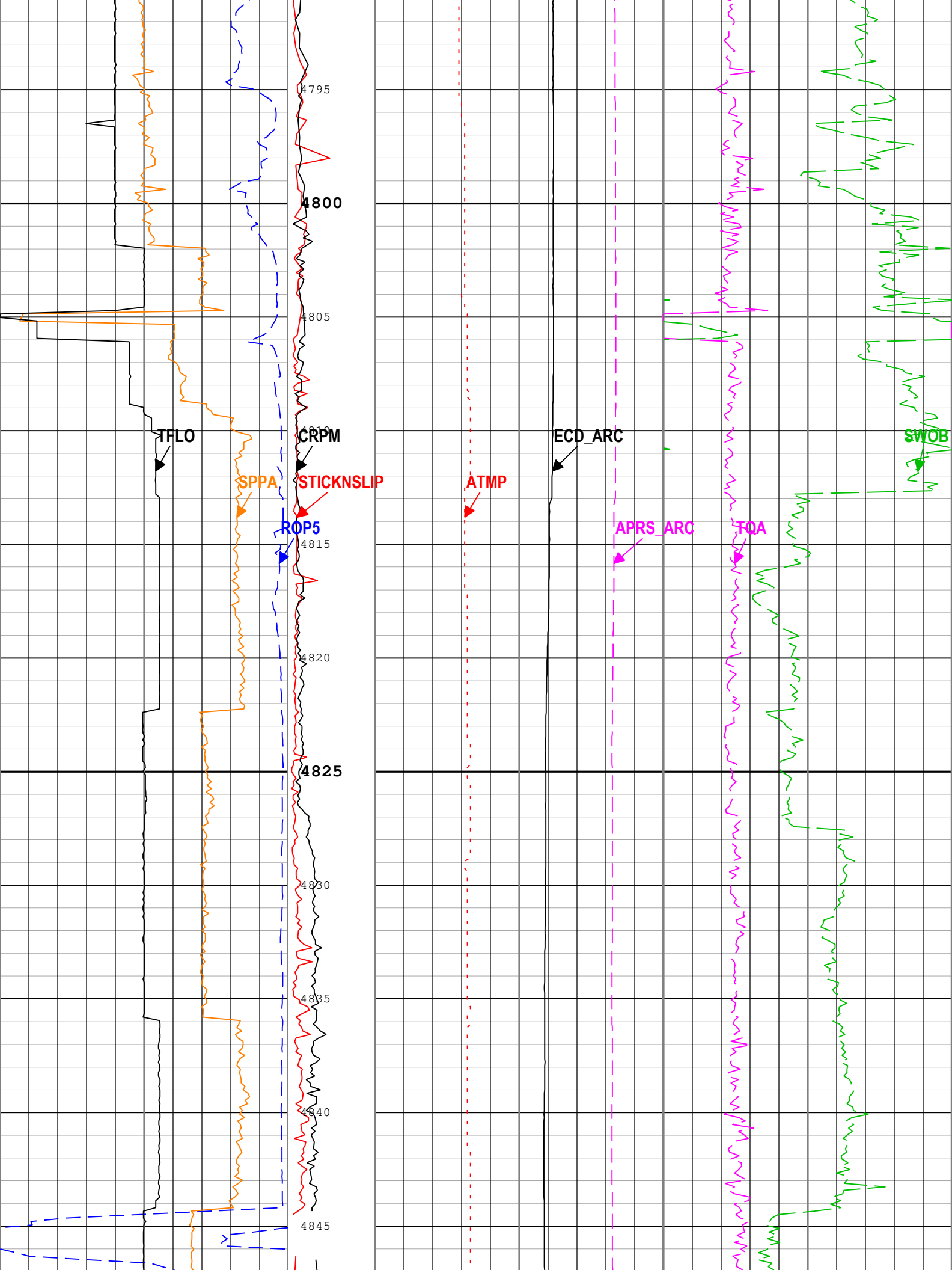
Run2	Drilling	Down	4788.92 m	4901.08 m	05-Feb-2019 1:04:23 PM	09-Feb-2019 8:34:49 AM	No
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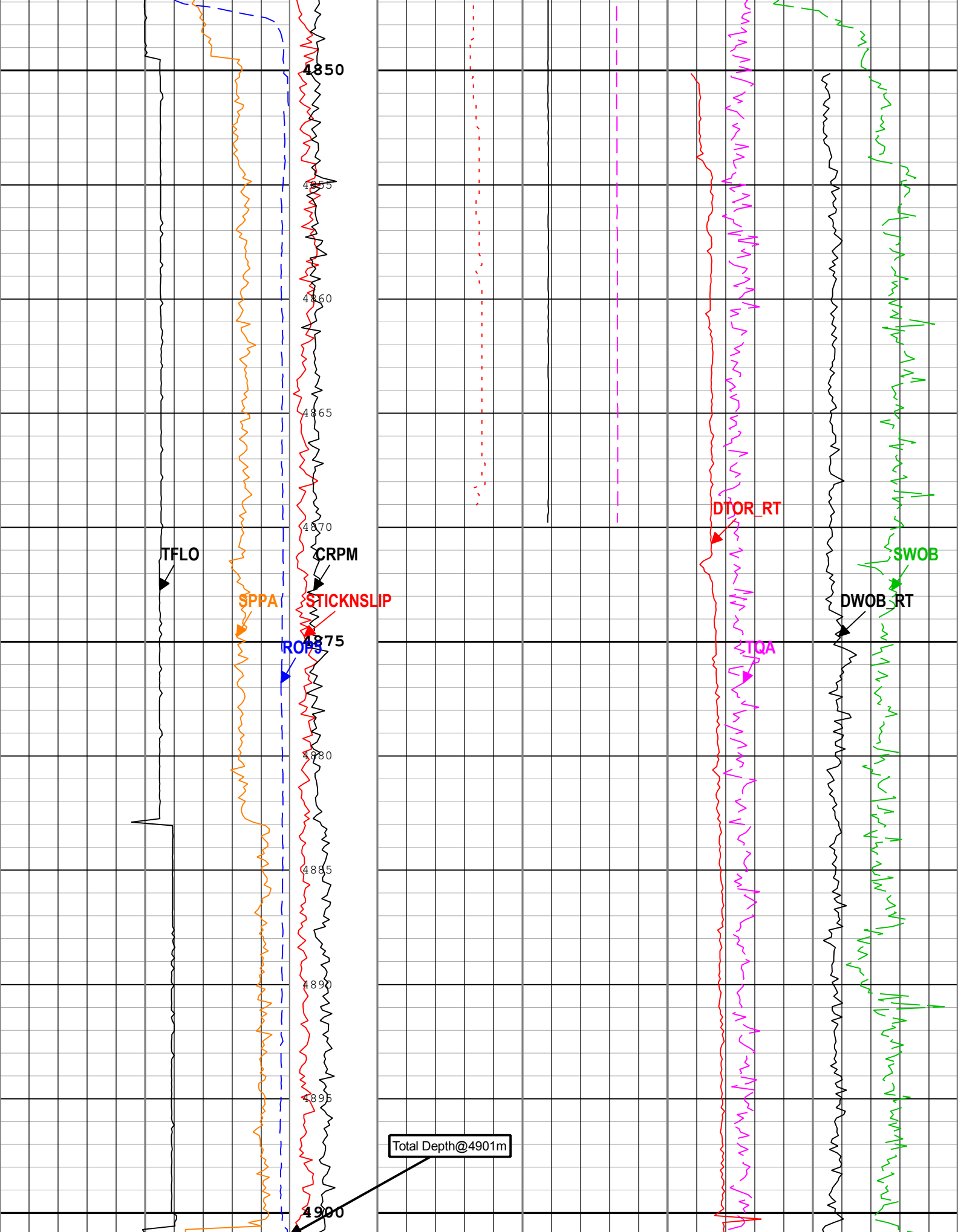
All depths are referenced to toolstring zero

Description: Format: Log (Drilling Mechanics Log 675 RM MD) Index Scale: 1:200 Index Unit: m Index Type: Measured Depth Creation Date: 28-Feb-2019 16:27:11

Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT 0 100 c/min 400	Stick Slip Indicator (STICKNSLI) P) TeleScope[1] RM	Downhole Annulus Pressure (APRS_ARC) ARC[1] RM 0 80000 kPa	Surface Torque (TQA) RT 0 50 kN.m
	Collar Rotational Speed (CRPM) TeleScope[1] RM	Downhole Annulus Temperature (ATMP) ARC[1] RM 0 100 degC	Downhole Weight on Bit (DWOB_RT) TeleScope[1] RT -300 300 kN
Standpipe Pressure (SPPA) RT 0 30000 kPa	Equivalent Circulating Density (ECD_ARC) ARC[1] RM 0.8 1.8 g/cm3	Downhole Torque (MWD) (DTOR_RT) TeleScope[1] RT 0 50 kN.m	Surface Weight On Bit (SWOB) RT -300 300 kN
Total flow rate of all active pumps (TFLO) RT 0 1000 gal/min			







Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT

Stick Slip Indicator

Downhole Annulus Pressure (APRS_ARC) ARC[1] RM

Surface Torque (TQA) RT
 0 kNm 50

100	m/h	0	(STICKNSLI P) TeleScope[1] RM	0	kPa	80000	0	KN.in	50
Standpipe Pressure (SPPA) RT			0	Downhole Annulus Temperature (ATMP) ARC[1] RM			Downhole Weight on Bit (DWOB_RT) TeleScope[1] RT		
0	kPa	30000		0			-300	kN	300
Total flow rate of all active pumps (TFLO) RT			0	degC			Surface Weight On Bit (SWOB) RT		
0	gal/min	1000		0			-300	kN	300
			Collar Rotational Speed (CRPM) TeleScope[1] RM	Equivalent Circulating Density (ECD_ARC) ARC[1] RM			Downhole Torque (MWD) (DTOR_RT) TeleScope[1] RT		
				0.8			0	kN.m	50
			0	c/min 200					

Description: Format: Log (Drilling Mechanics Log 675 RM MD) Index Scale: 1:200 Index Unit: m Index Type: Measured Depth Creation Date: 28-Feb-2019 16:27:11

Channel Processing Parameters

Run2: Parameters

Parameter	Description	Tool	Value	Unit
DEPTH_SEL	Depth Selection Parameter	DNMSESSION	Driller's Depth	
DFD	Drilling Fluid Density	Borehole	1.38	g/cm3
FLEV	Depth of Drilling Fluid Level to LMF (Log Measured From)	Borehole	3	m
RHO_SEAWATER	Density of the Sea Water	Borehole	1.022	g/cm3
SF_FLAG	Mud Return to Sea Floor (No Riser)?	Borehole	No	

Tool Control Parameters

Run2: Parameters

Parameter	Description	Tool	Value	Unit
DTOF	DTOR Offset	TELE675-IWOB	Time Zoned	kN.m
DWOB_BETA	DWOB Beta Pressure Correction Factor	TELE675-IWOB	Time Zoned	
DWOF	DWOB Offset	TELE675-IWOB	Time Zoned	kN
DWOB_ZEROTOOLP	DWOB Differential Pressure Drop at Zero Weight-on-Bit	TELE675-IWOB	Time Zoned	MPa
OFFBTM_TH	Threshold for deciding whether the bit is off bottom	DNMSESSION	Time Zoned	m

Run2Time Zoned Parameters

Pass Drilling

Parameter	Value	Start Time	Stop Time	Start Depth (m)	Stop Depth (m)
DTOF		05-Feb-2019 13:04:23	07-Feb-2019 16:41:28	4788.916	4850.232
DTOF	-22.82	07-Feb-2019 16:41:28	07-Feb-2019 21:58:26	4850.232	4860.773
DTOF	-22.94	07-Feb-2019 21:58:26	09-Feb-2019 08:34:49	4860.773	4901.082
DWOB_BETA		05-Feb-2019 13:04:23	07-Feb-2019 16:48:21	4788.916	4850.232
DWOB_BETA	4.48	07-Feb-2019 16:48:21	07-Feb-2019 22:01:47	4850.232	4860.773
DWOB_BETA	4.4	07-Feb-2019 22:01:47	07-Feb-2019 22:02:51	4860.773	4860.773
DWOB_BETA	4.39	07-Feb-2019 22:02:51	08-Feb-2019 05:53:13	4860.773	4880.661
DWOB_BETA	4.35	08-Feb-2019 05:53:13	09-Feb-2019 08:34:49	4880.661	4901.082
DWOF		05-Feb-2019 13:04:23	07-Feb-2019 16:48:21	4788.916	4850.232
DWOF	-449.27	07-Feb-2019 16:48:21	07-Feb-2019 22:01:47	4850.232	4860.773
DWOF	-444.82	07-Feb-2019 22:01:47	08-Feb-2019 05:53:13	4860.773	4880.661
DWOF	-453.72	08-Feb-2019 05:53:13	09-Feb-2019 08:34:49	4880.661	4901.082
DWOB_ZEROTOOLP		05-Feb-2019 13:04:23	07-Feb-2019 16:48:21	4788.916	4850.232
DWOB_ZEROTOOLP	4.23	07-Feb-2019 16:48:21	07-Feb-2019 22:01:47	4850.232	4860.773

DWOB_ZEROTOOLP	4.33	07-Feb-2019 22:01:47	07-Feb-2019 22:02:51	4860.773	4860.773
DWOB_ZEROTOOLP	4.34	07-Feb-2019 22:02:51	08-Feb-2019 05:53:13	4860.773	4880.661
DWOB_ZEROTOOLP	4.24	08-Feb-2019 05:53:13	09-Feb-2019 08:34:49	4880.661	4901.082
OFFBTM_TH	0.4	05-Feb-2019 13:04:23	06-Feb-2019 18:44:31	4788.916	4806.086
OFFBTM_TH	0.6	06-Feb-2019 18:44:31	09-Feb-2019 08:34:49	4806.086	4901.082

Pass Ream Down 1

DTOF		07-Feb-2019 15:05:21	07-Feb-2019 16:41:28	4844.364	4850.206
DTOF	-22.82	07-Feb-2019 16:41:28	07-Feb-2019 17:25:54	4850.206	4850.232
DWOB_BETA		07-Feb-2019 15:05:21	07-Feb-2019 16:48:21	4844.364	4850.206
DWOB_BETA	4.48	07-Feb-2019 16:48:21	07-Feb-2019 17:25:54	4850.206	4850.232
DWOF		07-Feb-2019 15:05:21	07-Feb-2019 16:48:21	4844.364	4850.206
DWOF	-449.27	07-Feb-2019 16:48:21	07-Feb-2019 17:25:54	4850.206	4850.232
DWOB_ZEROTOOLP		07-Feb-2019 15:05:21	07-Feb-2019 16:48:21	4844.364	4850.206
DWOB_ZEROTOOLP	4.23	07-Feb-2019 16:48:21	07-Feb-2019 17:25:54	4850.206	4850.232
OFFBTM_TH	0.6	07-Feb-2019 15:05:24	07-Feb-2019 17:25:54	4844.364	4850.232

All depth are at tool zero.

Calibration Report

ARC6 (Array Resistivity Compensated 675) Calibration - Run Run2

Primary Equipment :	Elec. Chassis HP with AIM Receiver	AREA	126
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RESAIRCAL - Resistivity: Air

Master (Time Frame File): 18:57:26 15-Nov-2018

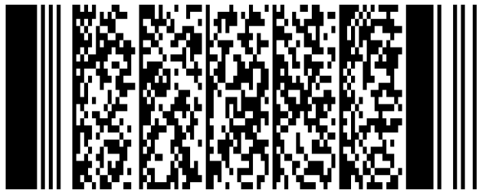
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Attenuation T1 at 2 MHz	dB	Master	8.500	6.500	8.275	10.500	
Attenuation T2 at 2 MHz	dB	Master	6.500	4.500	6.730	8.500	
Attenuation T3 at 2 MHz	dB	Master	4.500	2.500	4.874	6.500	
Attenuation T4 at 2 MHz	dB	Master	4.600	2.600	4.625	6.600	
Attenuation T5 at 2 MHz	dB	Master	3.600	1.600	3.419	5.600	
Phase Shift T1 at 2 MHz	deg	Master	0.100	-3.900	1.048	4.100	
Phase Shift T2 at 2 MHz	deg	Master	0.100	-3.900	-1.065	4.100	
Phase Shift T3 at 2 MHz	deg	Master	0.100	-3.900	0.993	4.100	
Phase Shift T4 at 2 MHz	deg	Master	0.100	-3.900	-1.095	4.100	
Phase Shift T5 at 2 MHz	deg	Master	0.100	-3.900	1.001	4.100	
Attenuation T1 at 400 KHz	dB	Master	8.500	6.500	8.324	10.500	
Attenuation T2 at 400 KHz	dB	Master	6.500	4.500	6.691	8.500	
Attenuation T3 at 400 KHz	dB	Master	4.500	2.500	4.919	6.500	
Attenuation T4 at 400 KHz	dB	Master	4.600	2.600	4.580	6.600	
Attenuation T5 at 400 KHz	dB	Master	3.600	1.600	3.477	5.600	
Phase Shift T1 at 400 KHz	deg	Master	0.100	-3.900	0.501	4.100	
Phase Shift T2 at 400 KHz	deg	Master	0.100	-3.900	-0.470	4.100	
Phase Shift T3 at 400 KHz	deg	Master	0.100	-3.900	0.493	4.100	
Phase Shift T4 at 400 KHz	deg	Master	0.100	-3.900	-0.501	4.100	
Phase Shift T5 at 400 KHz	deg	Master	0.100	-3.900	0.480	4.100	

GRGAIN - Gamma Ray: Blanket

Master (Time Frame File): 00:06:52 15-Nov-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Gamma Ray Calibration Gain		Master	1.000	0.580	1.081	1.250	

Company: JAMSTEC
Well: C0002S
Field: C0002
Rig Name: D/V Chikyu
Prefecture: Wakayama
Country: Japan



Drilling Mechanics Log

DML

Single Run Log, Measured Depth 1:200