

MicroScope HD Resistivity Image

Gamma Ray - Resistivity - HD Resistivity Image

Recorded Mode Log, True Vertical Depth Sub Sea
1:200



Company: JAMSTEC

Well: C0002Q

Field: C0002

Rig Name: D/V Chikyū

Prefecture: Wakayama

Country: Japan

Latitude: 33° 18' 3.042" N

Longitude: 136° 38' 12.174" E

Block: Pacific Ocean

FL1: X = 652,382.39 m

FL2: Y = 3,685,834.62 m

UWID:

Rig Name:

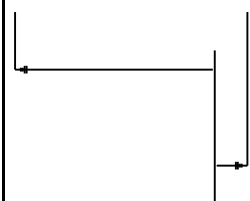
D/V Chikyū

Rig Type:

Drill ship

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

Ground Level: 1939.00 m



Acquisition Dates: 24-Nov-2018

Other Services:

Log Interval: 4860.70(m)MD-4898.90(m)MD

Direction and Inclination
seismic/VISION

Index Types: SSTVD

Index Scales: 1:200

SonicScope

Depth Source: Driller's Depth

Depth Sensor: DES

Print Type: Final

Spud Date: 26-Oct-2018



Disclaimer

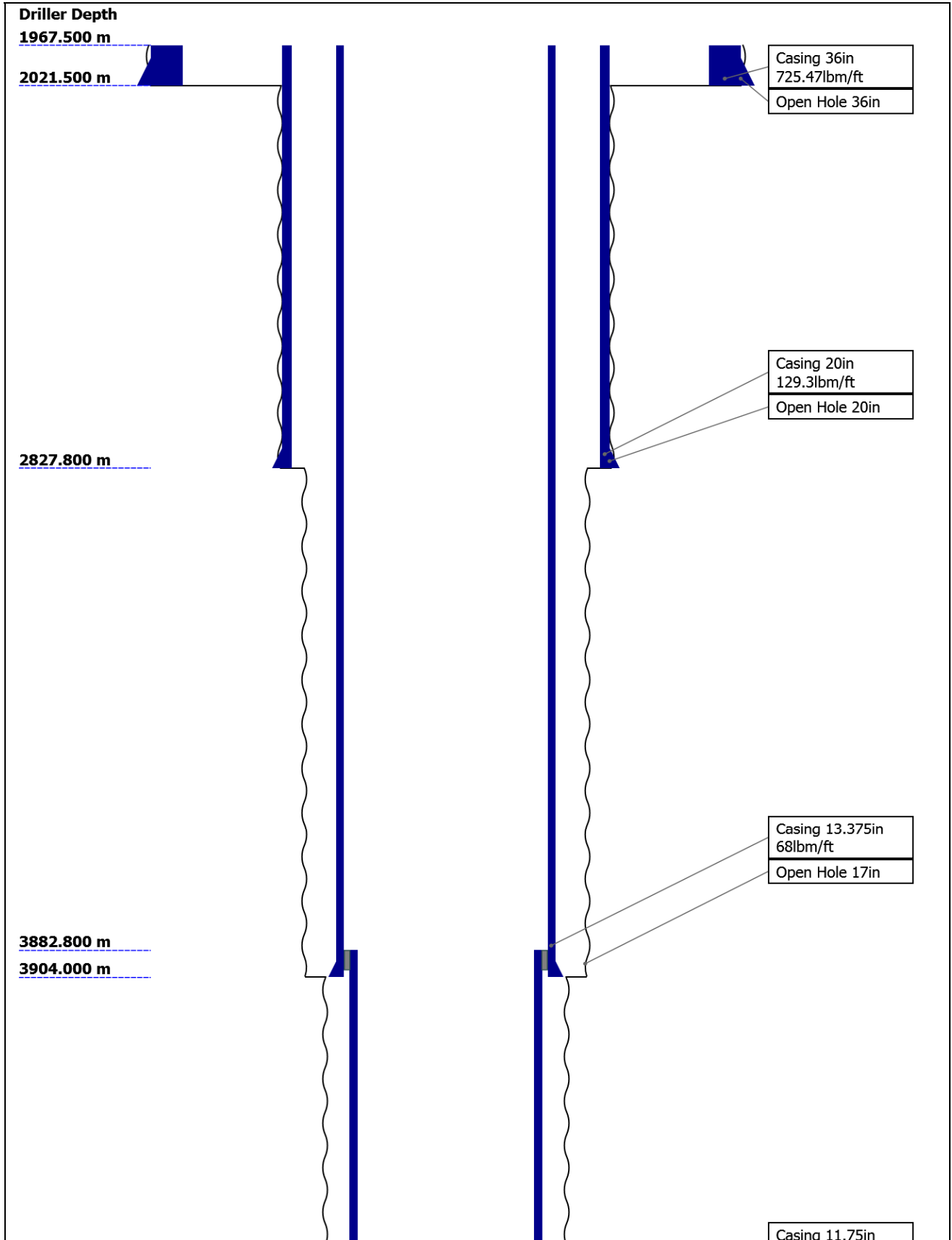
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (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.

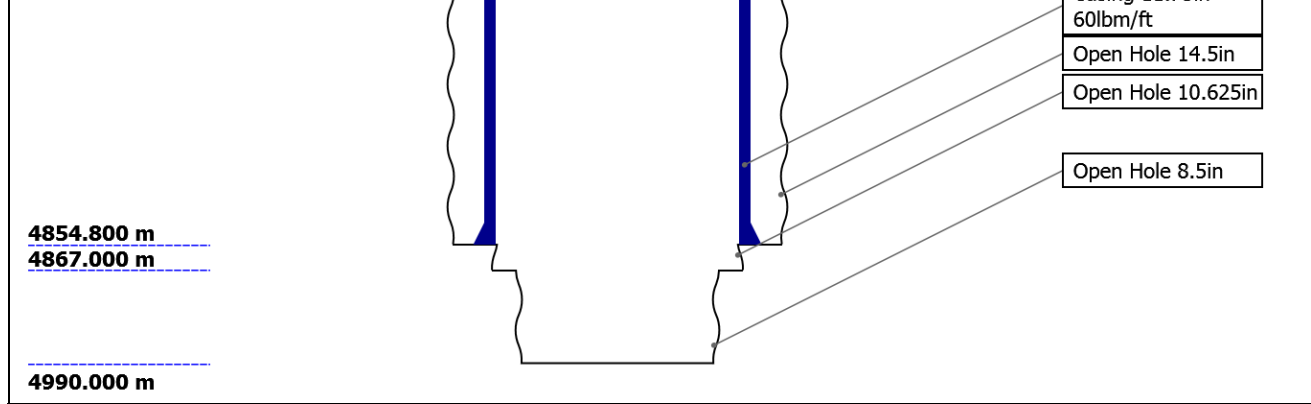
Contents

1. Header
2. Disclaimer
3. Contents
4. Well Sketch
5. Borehole Size/Casing/Tubing Record
6. Operational Run Summary
7. Borehole Fluids
8. Remarks and Equipment Summary
9. Survey Record
10. Run2 Run_2 LWD Log
 - 10.1 Integration Summary
 - 10.2 Software Version
 - 10.3 Composite Summary
 - 10.4 Log (MI6 Res, UHRI RM MD)
 - 10.5 Parameter Listing
11. Run2 Run_2 DML
 - 11.1 Integration Summary

- 11.2 Software Version
- 11.3 Composite Summary
- 11.4 Log (Drilling Mechanics Log 675 RM MD with ARC)
- 11.5 Parameter Listing
- 12. Calibration Report
- 13. Tail

Well Sketch





Borehole Size/Casing Record

Bit						
Bit Size (in)	36	20	17	14.5	10.625	8.5
Top Driller (m)	1967.5	2021.5	2827.8	3904	4854.8	4867
Bottom Driller (m)	2021.5	2827.8	3904	4854.8	4867	4990
Casing						
Size (in)	36	20	13.375	11.75		
Weight (lbm/ft)	725.47	129.3	68	60		
Inner Diameter (in)	32.099	18.779	12.415	10.772		
Grade	X56	X56	N/A	N/A		
Top Driller (m)	1967.5	1967.5	1967.5	3882.8		
Bottom Driller (m)	2021.5	2827.8	3904	4854.8		

Operational Run Summary

Parameter (unit)	Run2				
Date Log Started	22-Nov-2018				
Time Log Started	03:44:29				
Date Log Finished	25-Nov-2018				
Time Log Finished	08:28:02				
Bit Size (in)	8.500				
Bit Start Depth (m)	0.00				
Bit Stop Depth (m)	0.00				
Top Log Interval (m)	4860.70				
Bottom Log Interval (m)	4898.90				
Max Hole Deviation (deg)	1.64				
Azimuth of Max Deviation (deg)	90.69				
Logging Unit Number	OLU-MB 8054				
Logging Unit Location	Zone2				
Recorded By	SMoriyama/SMurakami/KBian				
Witnessed By	YSanada/YKido				
Service Order Number	18JAP0007				

Borehole Fluids

Parameter(unit)	Run2				
Fluid Type	Water				
Max Recorded Temperatures (degC)	50				
Source of Sample	Active Tank				
Salinity (ppm)	141288.5				
Density (g/cm3)	1.37				
Funnel Viscosity (s)	56				
Fluid Loss (cm3)	2.5				
PH	9.9				
Source RMF	Pressed				
RMC	Pressed				
RM @ Meas Temp (ohm.m@degC)	0.06 @ 21.1				
RMF @ Meas Temp (ohm.m@degC)	0.05 @ 20.2				
RMC @ Meas Temp (ohm.m@degC)	0.07 @ 19.8				
RM @ BHT (ohm.m@degC)	0.04 @ 50				
RMF @ BHT (ohm.m@degC)	0.03 @ 50				
RMC @ BHT (ohm.m@degC)	0.04 @ 50				
Total Solid (%)	16.5				
High Gravity Solids (%)	0				

Remarks and Equipment Summary

Run2: Toolstring				Run2: Remarks
Equip name seismicVISION675 :42835	Length 34.5	MP name Schlumberger	Offset	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.
				MicroScope GR is environmentally corrected for bit size, mud weight, and potassium content in the mud (1.56% in Run4).
				Reason of POOH: Hole Condition
				Drilling Time: 0.00 hrs
				Pumping Time: 34.04 hrs
				MicroScope GR data could not be plotted partially due to Maxwell bug.



TELE675-IWOB:G3 20.03
917

Schlumberger

— D&I 15.79

— GR 15.15

• — ROP 13.44

• — IWOB 12.43

ARC6:ZL37312 11.65

Schlumberger

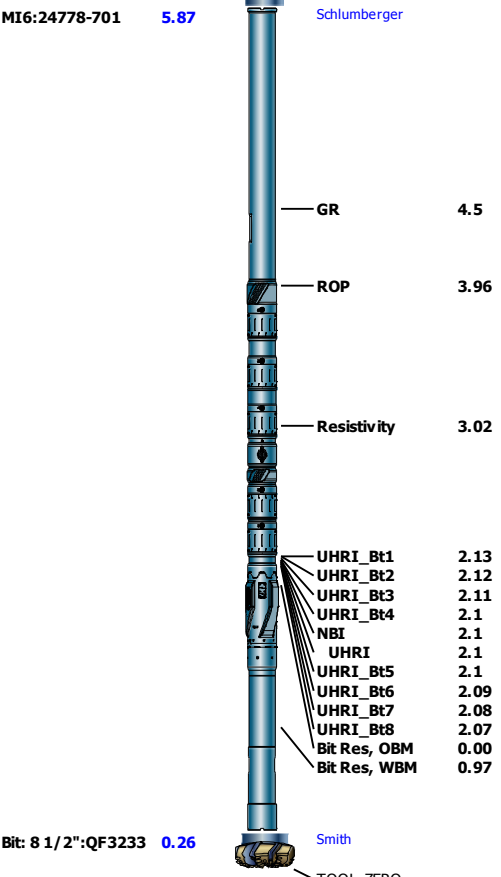
• — ROP 9.41

— GR 8.35

— Resistivity 8.3

— Pressure 7.58





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
------------	------------------	-------------	--------------------

Tie In Point

Measured Depth:	4853.87 m	Inclination:	1.64 deg	Azimuth:	90.69 deg
True Vertical Depth:	4852.02 m	North Displacement:	-0.27 m	East Displacement:	49.95 m
N/-S VSec Origin:	0.00 m	E/-W VSec Origin:	0.00 m	Vertical Section Azimuth:	90.28 deg

D&I Inits Computed and Values Used - Run5

Geomagnetic Model :	HDGM 2018	Geomagnetic Date :	17-Nov-2018
Computed Location B :	46164.86 nT +/- 300.00nT	Used Location B :	46164.86 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 :	-7.16 deg	Used Magnetic Dec :	-7.16 deg
Computed Total Correction :	-8.06 deg	Used Total Correction :	-8.06 deg

Survey Quality Index

2 : Long Survey failed mag criteria 28 : Tie-In Point

Survey Correction Index

0 : No correction

Survey Description Index

0 : Not Flagged Survey

Seq	MD	Incl	Azim	Course	TVD	V Sec	N/ -S	E/ -W	Closure	at Azim	DLS	Tool Type	QI	CI	DI
-----	----	------	------	--------	-----	-------	-------	-------	---------	---------	-----	-----------	----	----	----

	(m)	(deg)	(deg)	(m)	(m)	(deg)	(m)	(m)	(deg)	deg/30m					
1	4853.87	1.64	90.69	----	4852.02	49.95	-0.27	49.95	49.95	90.31	0.00	TIP	28	0	0
2	4870.63	3.61	138.88	16.76	4868.77	50.54	-0.67	50.54	50.54	90.76	5.00	TeleScope	2	0	0
3	4882.77	3.16	140.86	12.13	4880.88	51.00	-1.22	51.00	51.01	91.37	1.14	TeleScope	2	0	0
4	4897.67	0.64	145.72	14.91	4895.77	51.31	-1.60	51.30	51.33	91.79	5.07	TeleScope	2	0	0
5	4908.67	0.96	50.36	11.00	4906.77	51.42	-1.60	51.41	51.44	91.78	3.28	TeleScope	2	0	0

Run2

Run_2 LWD Log

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100
Application Patch	DnM_TestKit-PD-DHS31-2018-2_8.2.104864

Composite Summary

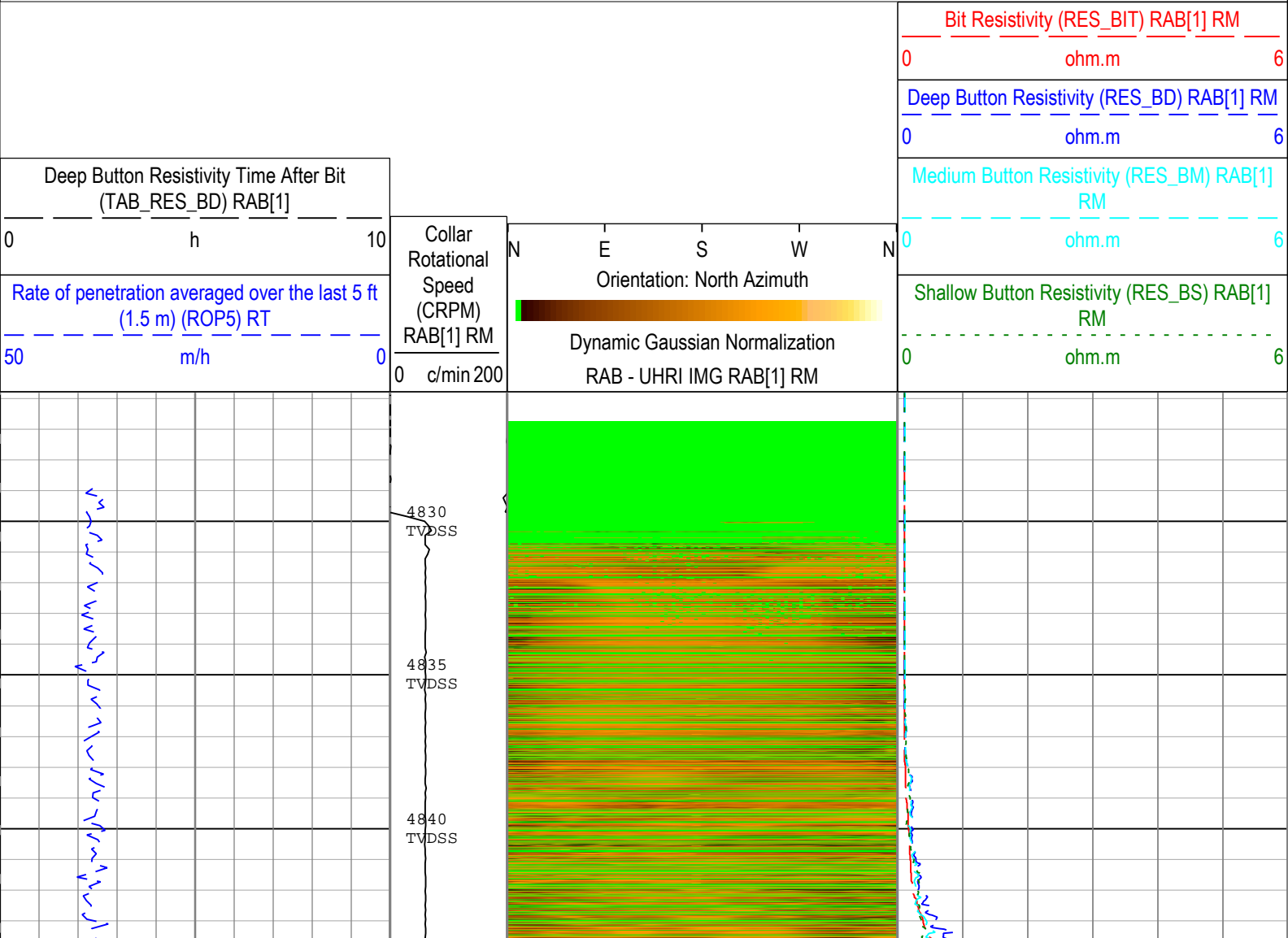
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run2	Ream Up 1	Up	4882.18 m	4898.90 m	24-Nov-2018 8:30:58 AM	24-Nov-2018 9:33:49 AM	No
Run2	Ream Up 4	Up	4854.55 m	4883.02 m	24-Nov-2018 10:10:55 AM	24-Nov-2018 11:00:13 AM	No

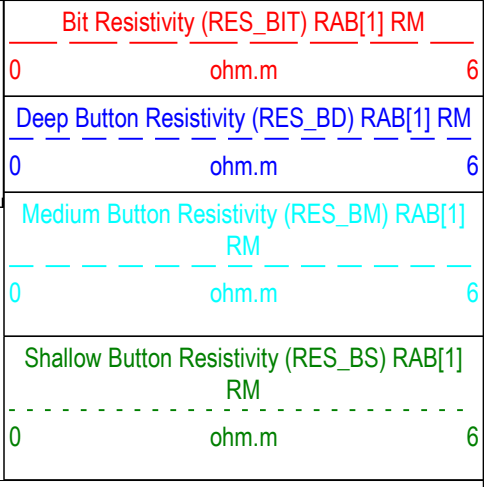
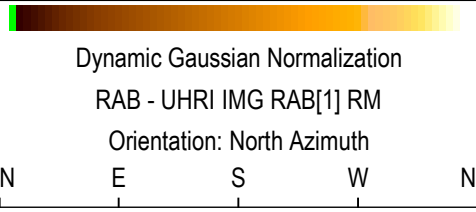
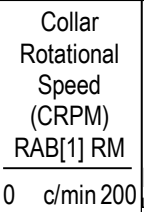
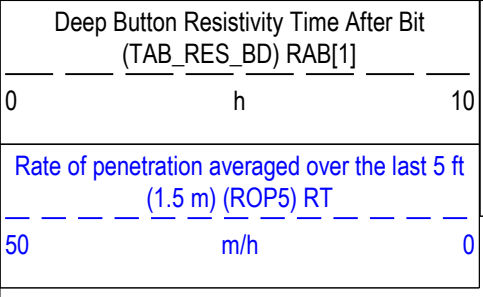
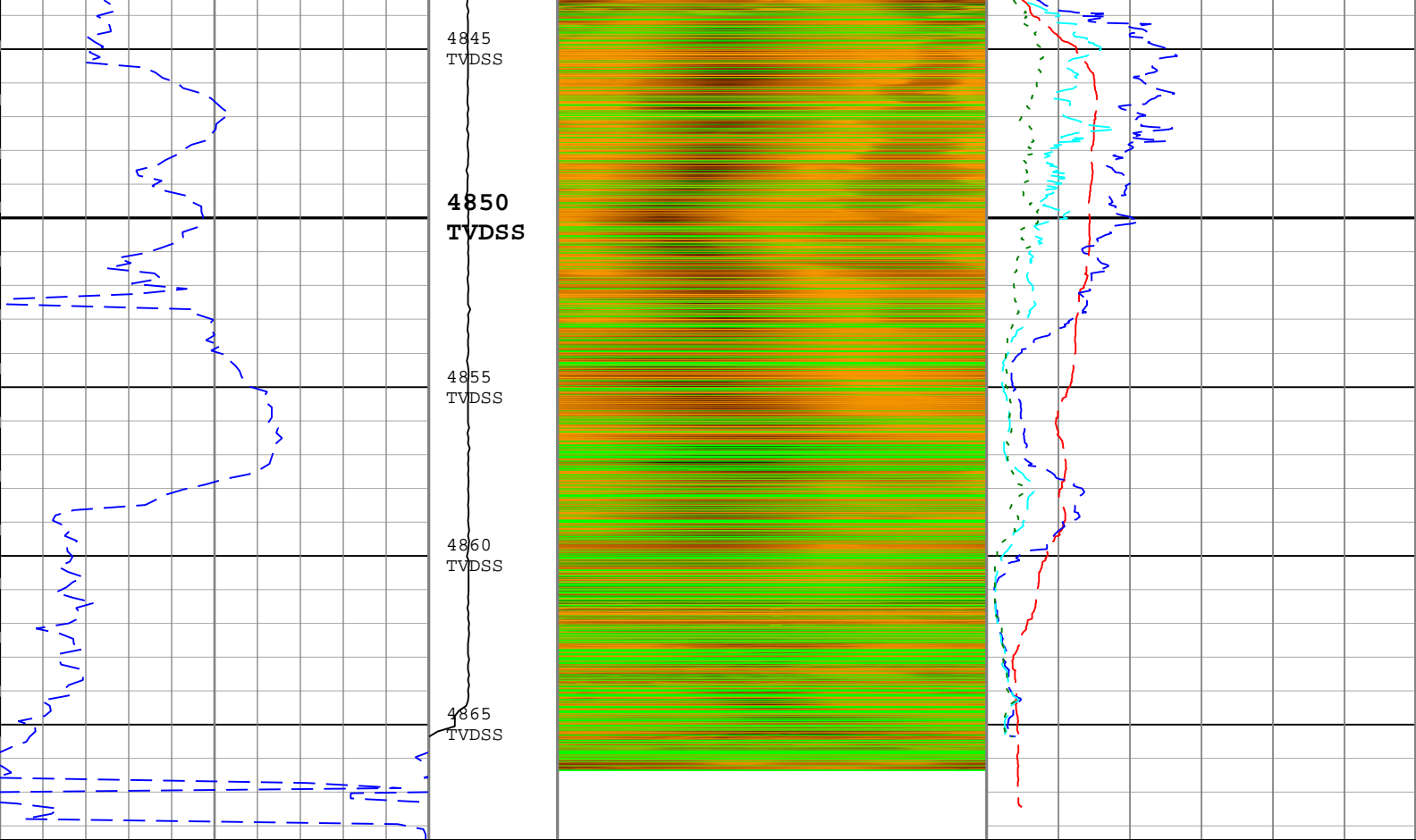
All depths are referenced to toolstring zero

Log

Company: JAMSTEC Well: C0002Q
Run2: S120

Description: MicroScope Resistivity, Deep Button Image RM Format: Log (MI6 Res, UHRI RM MD) Index Scale: 1:200 Index Unit: m Index Type: SSTVD Creation Date: 28-Feb-2019 17:21:46





Description: MicroScope Resistivity, Deep Button Image RM Format: Log (MI6 Res, UHRI RM MD) Index Scale: 1:200 Index Unit: m Index Type: SSTVD Creation Date: 28-Feb-2019 17:21:46

Channel Processing Parameters

Run2: Parameters

Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	50	degC
BS	Bit Size	DNMSESSION	Depth Zoned	in
DEPTH_SEL	Depth Selection Parameter	DNMSESSION	Driller's Depth	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
GCSE_RM	Generalized Caliper Selection for DnM recorded mode	Borehole	BS(RT)	
GRSE_RM	Generalized Mud Resistivity Selection for Recorded Mode	Borehole	REMS(RM)	
GTSE_RM	Generalized Temperature Selection for Recorded Mode	Borehole	DHAT(RM)	
JOBID	Job Identification	DNMSESSION	18JAP0007	
MST	Mud Sample Temperature	Borehole	21.1	degC
RMS	Resistivity of Mud Sample	Borehole	0.06	ohm.m
UHRI_IMG_T	UHRI Image Type	MI6	UHRI Raw	

Tool Control Parameters

Run2: Parameters

Parameter	Description	Tool	Value	Unit
OFFBTM_TH	Threshold for deciding whether the bit is off bottom	DNMSESSION	0.4	m

Run2

Run_2 DML

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100
Application Patch	DnM_TestKit-PD-DHS31-2018-2_8.2.104864

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run2	Ream Up 1	Up	4882.18 m	4898.90 m	24-Nov-2018 8:30:58 AM	24-Nov-2018 9:33:49 AM	No
Run2	Ream Up 4	Up	4854.55 m	4883.02 m	24-Nov-2018 10:10:55 AM	24-Nov-2018 11:00:13 AM	No

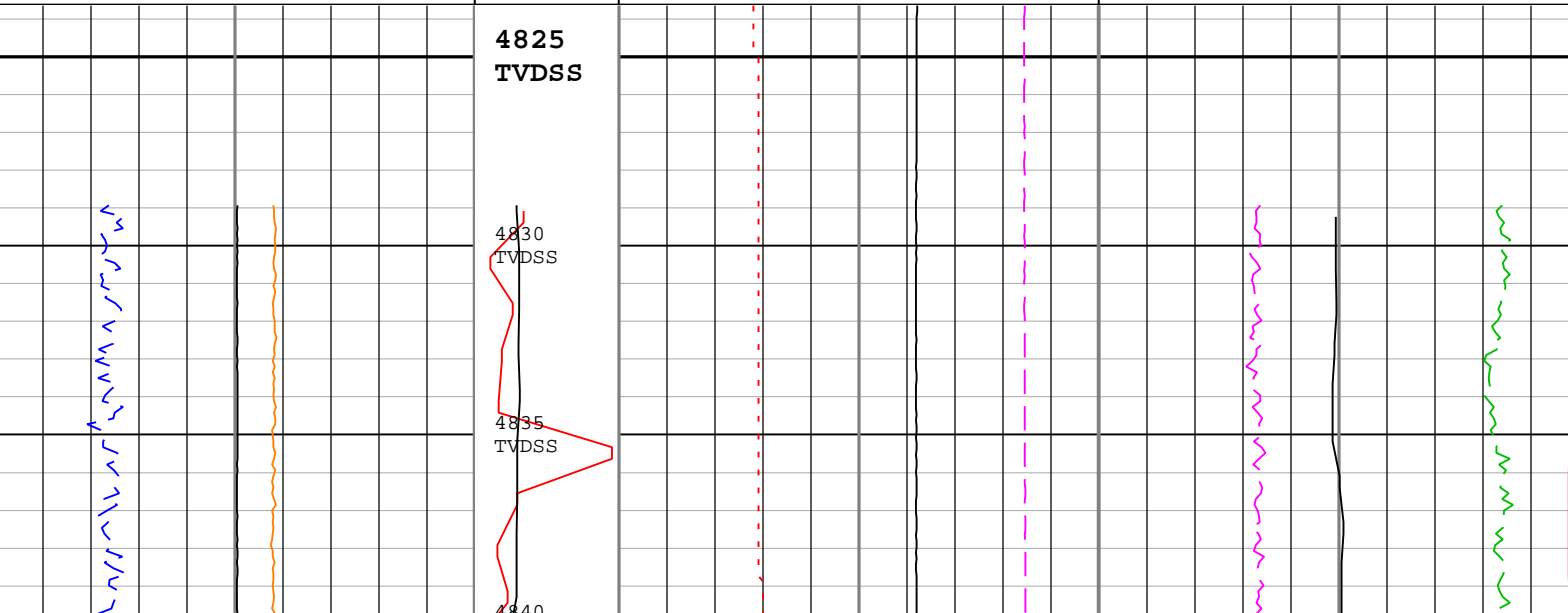
All depths are referenced to toolstring zero

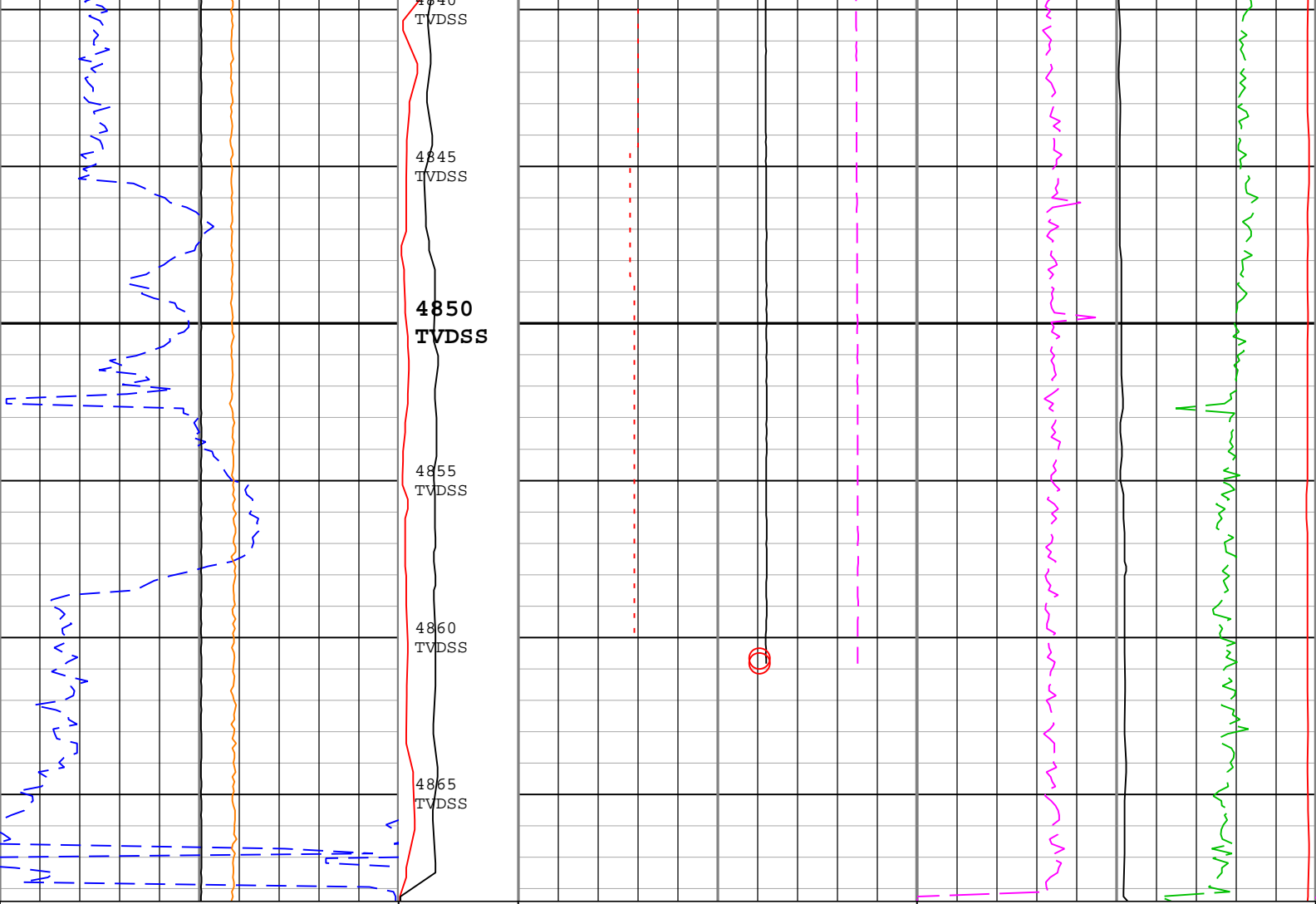
Log

Company: JAMSTEC Well: C0002Q
Run2: S120

Description: Format: Log (Drilling Mechanics Log 675 RM MD with ARC) Index Scale: 1:200 Index Unit: m Index Type: SSTVD Creation Date: 28-Feb-2019 17:21:49

Stick Slip Indicator (STICKNSLIP) TeleScope[1] RM	Equivalent Circulating Density (ECD_ARC) ARC[1] RM		Downhole Torque (MWD) (DTOR_RT) TeleScope[1] RT
	0.8	g/cm3 1.8	
Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT	Downhole Annulus Temperature (ATMP) ARC[1] RM		Surface Torque (TQA) RT
	0 c/min 400	0 degC 100	
Standpipe Pressure (SPPA) RT	Downhole Annulus Pressure (APRS_ARC) ARC[1] RM		Downhole Weight on Bit (DWOB_RT) TeleScope[1] RT
	0 MPa 30	0 MPa 80	
Total flow rate of all active pumps (TFLO) RT	Equivalent Static Density (ESD) ARC[1] RT		Surface Weight On Bit (SWOB) RT
	0 gal/min 1000	0.8 g/cm3 1.8	





Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT 50 m/h 0	Stick Slip Indicator (STICKNSLI P) TeleScope[1] RM 0 c/min 400	Equivalent Circulating Density (ECD_ARC) ARC[1] RM 0.8 g/cm3 1.8	Downhole Torque (MWD) (DTOR_RT) TeleScope[1] RT 0 kN.m 50
Standpipe Pressure (SPPA) RT 0 MPa 30	Collar Rotational Speed (CRPM) TeleScope[1] RM 0 c/min 200	Downhole Annulus Temperature (ATMP) ARC[1] RM 0 degC 100	Surface Torque (TQA) RT 0 kN.m 50
Total flow rate of all active pumps (TFLO) RT 0 gal/min 1000		Downhole Annulus Pressure (APRS_ARC) ARC[1] RM 0 MPa 80	Downhole Weight on Bit (DWOB_RT) TeleScope[1] RT -300 kN 300
		Equivalent Static Density (ESD) ARC[1] RT 0.8 g/cm3 1.8	Surface Weight On Bit (SWOB) RT -300 kN 300

Description: Format: Log (Drilling Mechanics Log 675 RM MD with ARC) Index Scale: 1:200 Index Unit: m Index Type: SSTVD Creation Date: 28-Feb-2019 17:21:49

Channel Processing Parameters

Run2: Parameters

Parameter	Description	Tool	Value	Unit
DEPTH_SEL	Depth Selection Parameter	DNMSESSION	Driller's Depth	
DFD	Drilling Fluid Density	Borehole	1.37	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	-16.47	kN.m
DWOB_BETA	DWOB Beta Pressure Correction Factor	TELE675-IWOB	3.62	
DWOF	DWOB Offset	TELE675-IWOB	-520.44	kN
DWOB_ZEROTOOLP	DWOB Differential Pressure Drop at Zero Weight-on-Bit	TELE675-IWOB	4.24	MPa
OFFBTM_TH	Threshold for deciding whether the bit is off bottom	DNMSESSION	0.4	m

Calibration Report

ARC6 (Array Resistivity Compensated 675) Calibration - Run Run2

Primary Equipment :

Elec. Chassis HP w/o AIM Receiver

AREA

570

RESAIRCAL - Resistivity: Air

Master (Time Frame File): 02:39:59 24-Oct-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Attenuation T1 at 2 MHz	dB	Master	8.500	6.500	8.784	10.500	
Attenuation T2 at 2 MHz	dB	Master	6.500	4.500	6.175	8.500	
Attenuation T3 at 2 MHz	dB	Master	4.500	2.500	5.413	6.500	
Attenuation T4 at 2 MHz	dB	Master	4.600	2.600	4.086	6.600	
Attenuation T5 at 2 MHz	dB	Master	3.600	1.600	3.965	5.600	
Phase Shift T1 at 2 MHz	deg	Master	0.100	-3.900	0.207	4.100	
Phase Shift T2 at 2 MHz	deg	Master	0.100	-3.900	-0.155	4.100	
Phase Shift T3 at 2 MHz	deg	Master	0.100	-3.900	0.147	4.100	
Phase Shift T4 at 2 MHz	deg	Master	0.100	-3.900	-0.186	4.100	
Phase Shift T5 at 2 MHz	deg	Master	0.100	-3.900	0.129	4.100	
Attenuation T1 at 400 KHz	dB	Master	8.500	6.500	8.782	10.500	
Attenuation T2 at 400 KHz	dB	Master	6.500	4.500	6.189	8.500	
Attenuation T3 at 400 KHz	dB	Master	4.500	2.500	5.402	6.500	
Attenuation T4 at 400 KHz	dB	Master	4.600	2.600	4.090	6.600	
Attenuation T5 at 400 KHz	dB	Master	3.600	1.600	3.966	5.600	
Phase Shift T1 at 400 KHz	deg	Master	0.100	-3.900	1.065	4.100	
Phase Shift T2 at 400 KHz	deg	Master	0.100	-3.900	-1.152	4.100	
Phase Shift T3 at 400 KHz	deg	Master	0.100	-3.900	1.103	4.100	
Phase Shift T4 at 400 KHz	deg	Master	0.100	-3.900	-1.162	4.100	
Phase Shift T5 at 400 KHz	deg	Master	0.100	-3.900	1.075	4.100	

GRGAIN - Gamma Ray: Blanket

Master (Time Frame File): 18:47:37 24-Oct-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Gamma Ray Calibration Gain		Master	1.000	0.580	1.155	1.250	

Company: JAMSTEC
Well: C0002Q
Field: C0002
Rig Name: D/V Chikyu
Prefecture: Wakayama
Country: Japan



MicroScope HD Resistivity Image

Gamma Ray - Resistivity - HD Resistivity Image

Recorded Mode Log, True Vertical Depth Sub Sea 1:200