

# MicroScope HD Resistivity Image

Gamma Ray - Resistivity - HD Resistivity Image

Recorded Mode Log, Measured Depth 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:

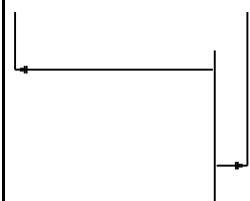
Rig Type:

D/V Chikyū

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

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

Index Types: Measured Depth

Index Scales: 1:200

Depth Source: Driller's Depth

Depth Sensor: DES

Print Type: Final

Spud Date: 26-Oct-2018

Other Services:

Direction and Inclination

seismicVISION

SonicScope



## Disclaimer

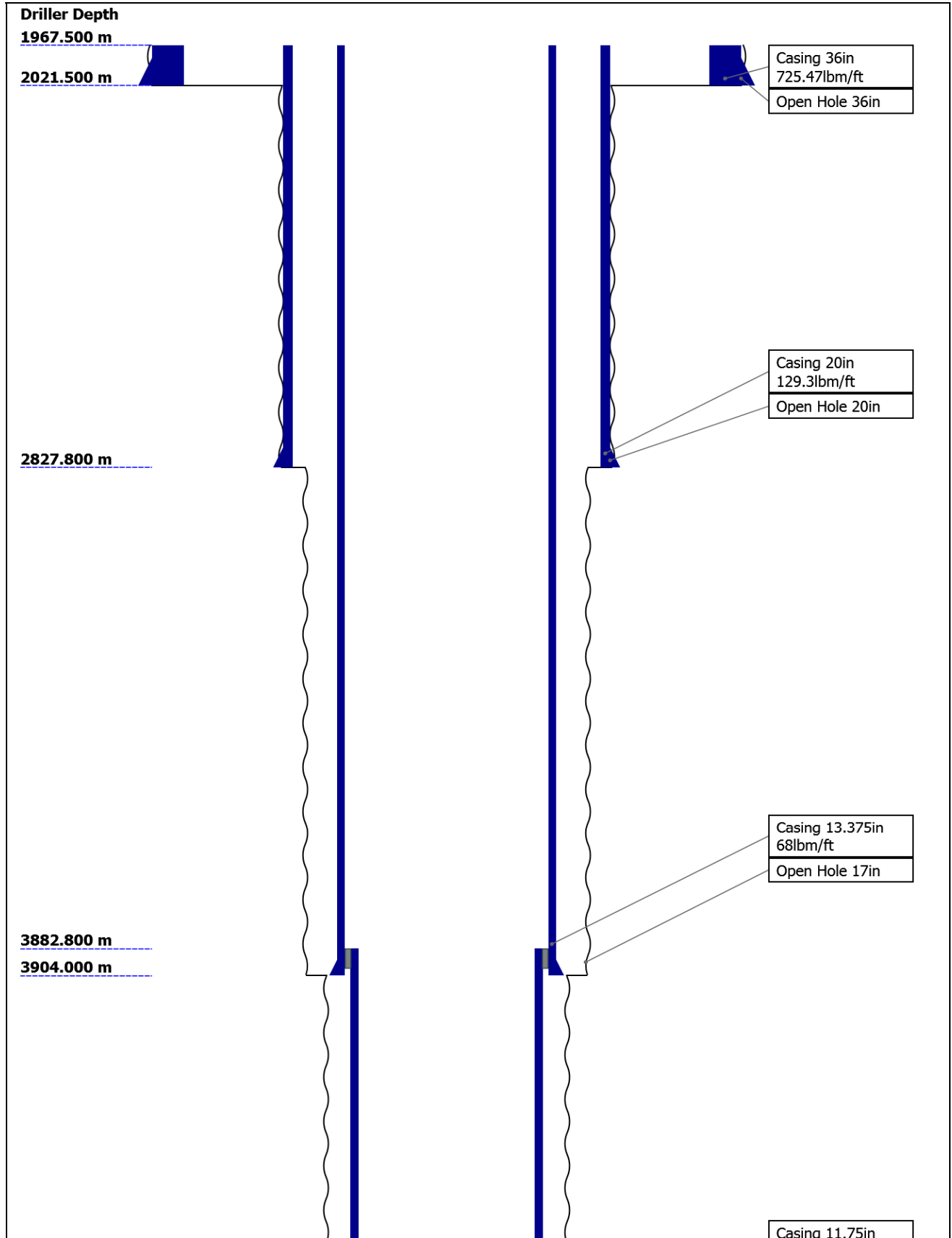
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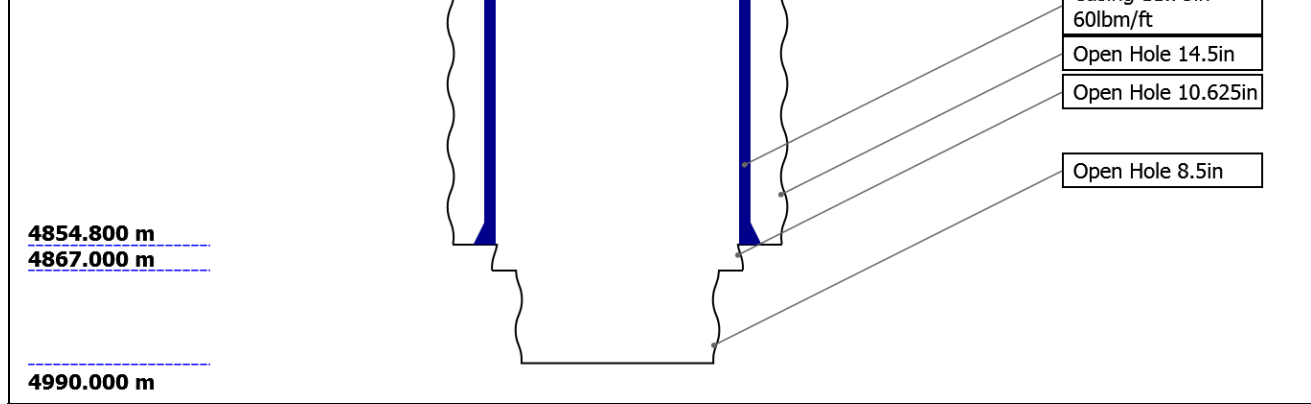
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## Well Sketch





## 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		

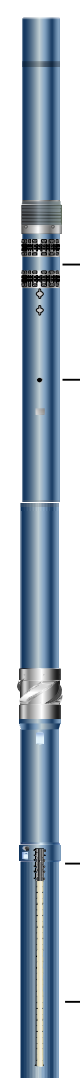
## Operational Run Summary

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	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><b>Equip name</b> seismicVISION675 :42835</p> <p><b>Length</b> 34.5</p> </div> <div style="width: 30%; text-align: center;">  </div> <div style="width: 30%;"> <p><b>MP name</b> Schlumberger</p> <p><b>Offset</b></p> </div> </div> <div style="margin-top: 10px;"> <p><b>SONICSCOPE6:H03</b> 30.04 36</p> <p style="color: blue; font-size: small;">Schlumberger</p> </div> <div style="margin-top: 10px;"> <p><b>ROP</b> 27.11</p> <p><b>Delta-T</b> 25.9</p> </div>	<p>Depth Reference is driller's depth measured from Rotary Table.</p> <p>Data presented is Recorded Mode data which was acquired while drilling.</p> <p>MicroScope record rate is depending on RPM. APWD record rate is 10s.</p> <p>MicroScope GR is environmentally corrected for bit size, mud weight, and potassium content in the mud (1.56% in Run4).</p> <p>Reason of POOH: Hole Condition</p> <p>Drilling Time: 0.00 hrs</p> <p>Pumping Time: 34.04 hrs</p> <p>MicroScope GR data could not be plotted partially due to Maxwell bug.</p>	
	<p>Seismic 32.18</p>	<p>ROP 31.27</p>



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

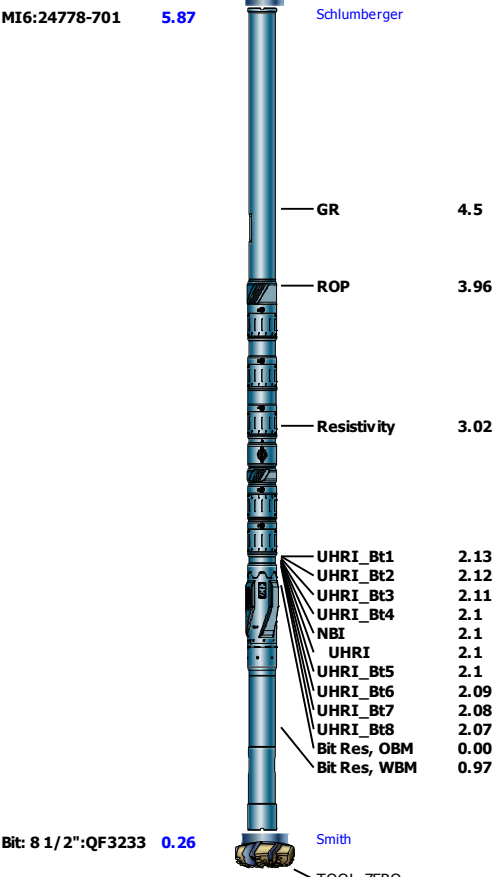
• ROP 9.41

— 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
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### 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
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	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(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

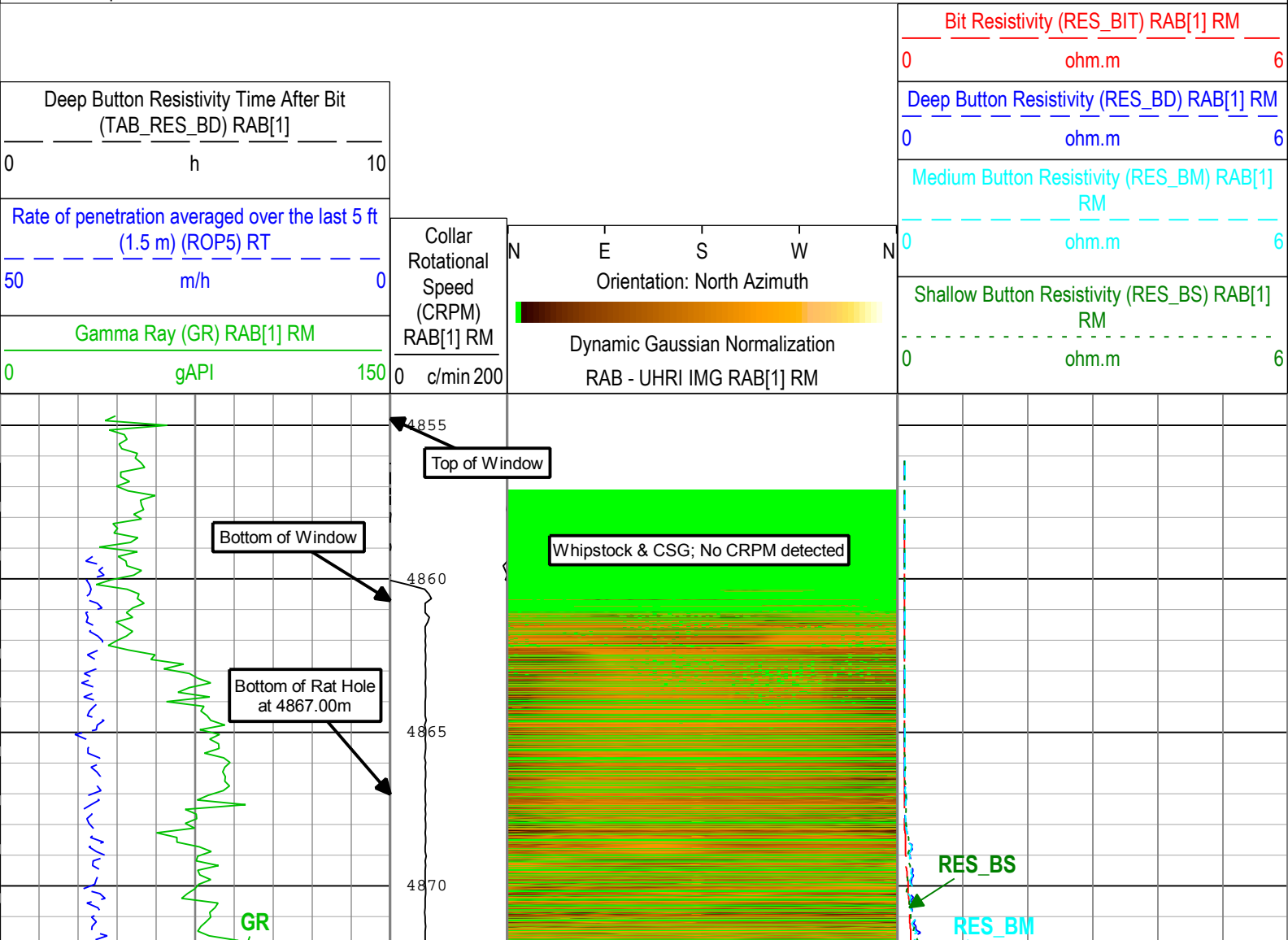
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run2	Ream Up 1	Up	4882.18 m	4898.90 m	24-Nov-2018 8:30:58 AM	24-Nov-2018 9:33:49 AM	No
Run2	Ream Up 4	Up	4854.55 m	4883.02 m	24-Nov-2018 10:10:55 AM	24-Nov-2018 11:00:13 AM	No

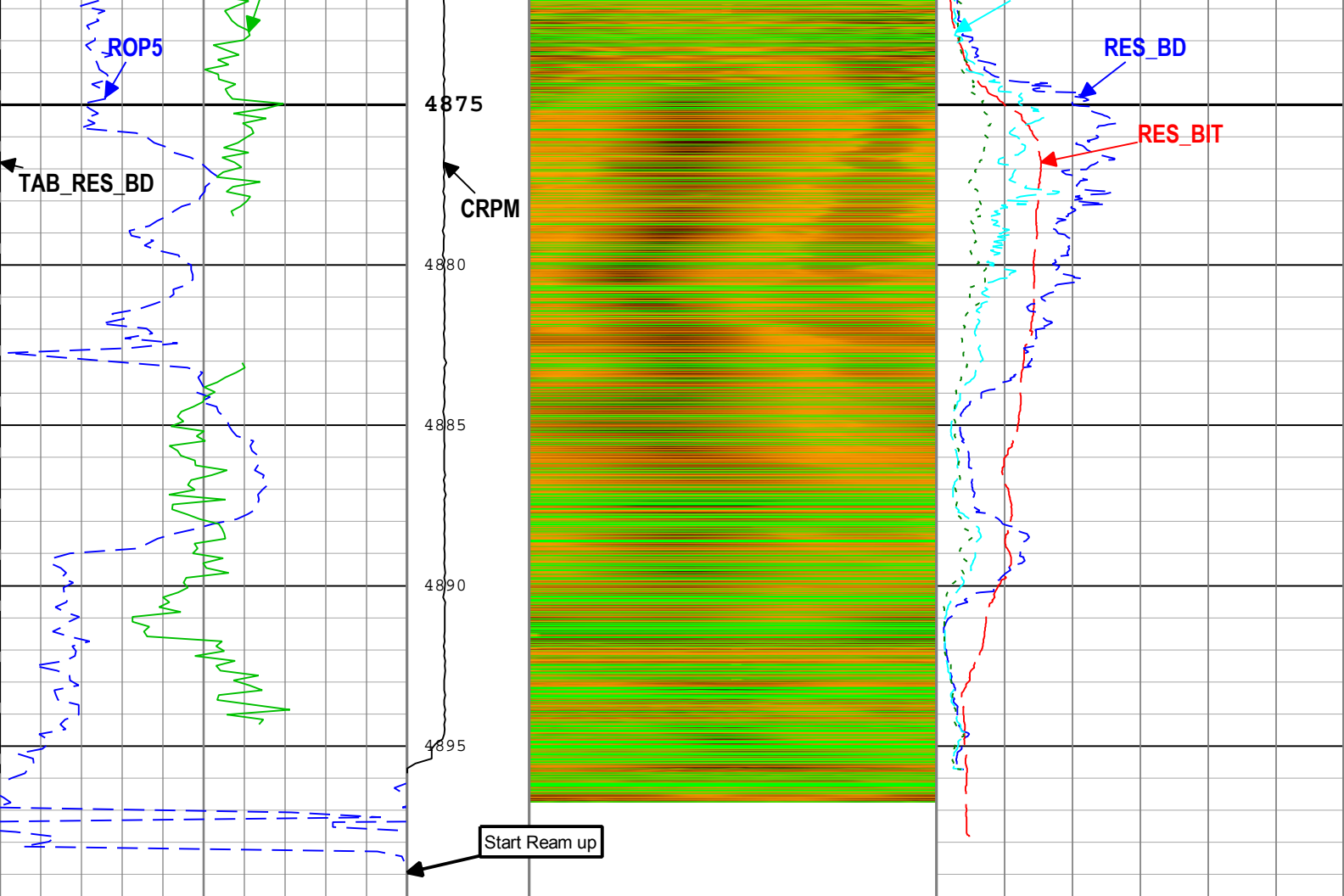
All depths are referenced to toolstring zero

### 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: Measured Depth Creation Date: 28-Feb-2019 17:15:07





Deep Button Resistivity Time After Bit (TAB_RES_BD) RAB[1] RM 0 h 10	Collar Rotational Speed (CRPM) RAB[1] RM 0 c/min 200	Dynamic Gaussian Normalization RAB - UHRI IMG RAB[1] RM Orientation: North Azimuth N E S W N	Bit Resistivity (RES_BIT) RAB[1] RM 0 ohm.m 6
Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT 50 m/h 0			Deep Button Resistivity (RES_BD) RAB[1] RM 0 ohm.m 6
Gamma Ray (GR) RAB[1] RM 0 gAPI 150			Medium Button Resistivity (RES_BM) RAB[1] RM 0 ohm.m 6
			Shallow Button Resistivity (RES_BS) RAB[1] RM 0 ohm.m 6

Description: MicroScope Resistivity, Deep Button Image RM Format: Log ( MI6 Res, UHRI RM MD ) Index Scale: 1:200 Index Unit: m Index Type: Measured Depth Creation Date: 28-Feb-2019 17:15:07

## Channel Processing Parameters

### Run2: Parameters

Parameter	Description	Tool	Value	Unit
BHK	Drilling Fluid Potassium Concentration	Borehole	1.56	%
BHT	Bottom Hole Temperature	Borehole	50	degC
BS	Bit Size	DNMSESSION	Depth Zoned	in
DEPTH_SEL	Depth Selection Parameter	DNMSESSION	Driller's Depth	
DFD	Drilling Fluid Density	Borehole	1.37	g/cm3
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	

### Run2Depth Zoned Parameters

Parameter	Value	Start ( m )	Stop ( m )
BS	14.5	4854	4854.8
BS	10.625	4854.8	4867
BS	8.5	4867	4898.898

All depth are actual.

### 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

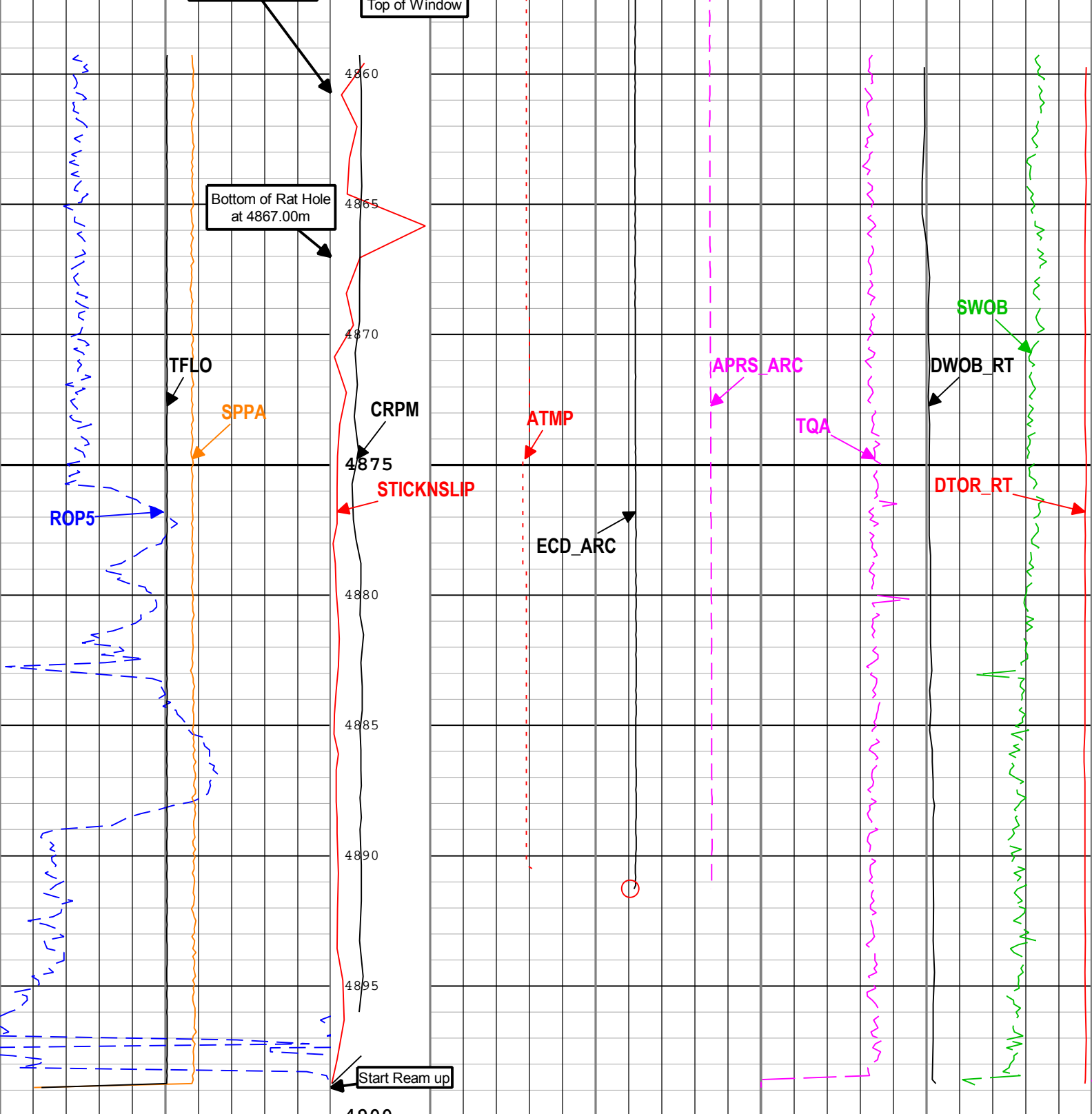
### Log

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: Measured Depth Creation Date: 28-Feb-2019 17:15:09

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	degC 100	
50 m/h 0	Downhole Annulus Pressure (APRS_ARC) ARC[1] RM		Downhole Weight on Bit (DWOB_RT) TeleScope[1] RT
	0	MPa 80	
Standpipe Pressure (SPPA) RT	Equivalent Static Density (ESD) ARC[1] RT		Surface Weight On Bit (SWOB) RT
	0 MPa 30	0.8 g/cm3 1.8	
Total flow rate of all active pumps (TFLO) RT			
	0 gal/min 1000	0 c/min 200	-300 kN 300

Bottom of Window



Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT 50 m/h 0	Stick Slip Indicator (STICKNSLIP) RT 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	Equivalent Static Density (ESD) ARC[1] RT 0 c/min 200	Downhole Annulus Pressure (APRS_ARC) ARC[1] RM 0 MPa 80	Downhole Weight on Bit (DWOB_RT) TeleScope[1] RT -300 kN 300
			Surface Weight On Bit (SWOB) RT -300 kN 300

## 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, Measured Depth 1:200