HALLIBURTON | Sperry Drilling

AFR Azimuthally Focused Resistivity

Powered by INSITE

1 : 500

Country	: Japan
Field	: Nankai Trough
Location	: Lat: 33° 18' 3.04" North Long: 136° 38' 12.17" East
Well	: C0002P
Company	: JAMSTEC
Rig	: CHIKYU

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Well : C0002P
Field : Nankai Trough
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DOE Number :

LOCATION
Latitude : 33° 18' 3.04" North
Longitude : 136° 38' 12.17" East
UTM Easting = 652382.4 m
UTM Northing = 3685834.6 m

Other Services
Directional Drilling
DDSr Drillstring Dynamics

Permanent Datum : Mean Sea Level   Elevation : 0.00 m
Log Measured From : Drill Floor   28.50 m Above Permanent Datum
Drilling Measured From : Drill Floor

TVDss LOG

Elev. KB 0.00 m
DF 28.50 m
GL 0.00 m
WD 1939.00 m

Depth Logged : 4,186.00 m To 4,995.60 m
Date Logged : 26-Dec-13 To 02-Jan-14
Total Depth MD : 5,026.00 m TVD : 5,024.10 m
Spud Date : 11-Oct-13

Unit No. : 0003501   Job No. : JP-XX-0900526576
Plot Type : Final
Plot Date : 25-Jan-14

Run No.	Borehole Record (TVDss) Size	From	To
4	12.250 in	4,156.12 m	4,995.60 m

Run No.	Borehole Record (TVDss) Size	From	To

Casing Record (TVDss) Size	Weight	From	To
36.000 in	822.35 kgpm	1,934.32 m	1,992.50 m
20.000 in	192.39 kgpm	1,934.32 m	2,799.30 m
13.375 in	101.19 kgpm	2,799.30 m	3,874.40 m

WELL INFORMATION

MWD Run Number	400
Date run completed	02-Jan-14
Rig Bit Number	4
Bit Size (in)	12.250
Tool Nominal OD (in)	8.000
Log Start Depth (TVD, m)	4,184.618
Log End Depth (TVD, m)	5,024.101
Drill or Wipe	Drill
Drill/Wipe Start Date and Time	26-Dec-13 10:00
Drill/Wipe End Date and Time	31-Dec-13 00:15
Min Inc (deg) @ Depth (TVD, m)	1.40 @ 4,947.862
Max Inc (deg) @ Depth (TVD, m)	2.93 @ 4,152.412
Bit TFA(cm2) / Bit Type	6.8 / PDC
Flow Rate (m3pm)	3.03
Max AV (mps) / CV (mps) @ MWD	1.3 / 3.1
Fluid Type	Polymer
Density (ppg) / Viscosity (spl)	10.68 / 107.81
Filtrate CL (ppm)	120,700.00
pH / Fluid Loss (m3pm)	11.10 / 0
PV (mPsec) / YP (pa)	44 / 27.29
% Solids / % Sand	14 / 0.2
% Oil / Oil:Water Ratio	N/A / N/A
Rm @ Measured Temp (degC)	.110 @ 24.00
Rmf @ Measured Temp (degC)	.080 @ 24.00
Rmc @ Measured Temp (degC)	.140 @ 24.00
Max Tool Temp (degC) / Source	43.14 / HCIM
Rm @ Max Tool Temp (degC)	.0774 @ 43.14
Lead MWD Engineer	Alex Munro
Customer Representative	Dr Moe

SENSOR INFORMATION

Downhole Processor Information

Tool Type	HCIM
Software Version	88.56
Sub Serial Number	11952679
Insert Serial Number	11790865
Date and Time Initialized	26-Dec-13 16:50
Date and Time Read	02-Jan-14 05:24
ECMB SW Version	N/A

Directional Sensor Information

Tool Type	PCDC
Distance From Bit (m)	31.450
Software Version	6.21
Sub Serial Number	11025002
Sonde Serial Number	11902126
Sensor ID Number	N/A
Toolface Offset (deg)	0

Gamma Ray Sensor Information

Tool Type	AGR
Distance From Bit (m)	16.230
Recorded Sample Period (sec)	10
Software Version	9.23
Sub Serial Number	11952679
Insert/Sonde Serial Number	239879

Resistivity Sensor Information

Tool Type	EWR-M5
Distance From Bit (m)	19.030
Recorded Sample Period (sec)	12
Software Version	1.56
Sub Serial Number	11952679
Receiver Insert Serial Number	208050
Transmitter Insert Serial Number	239879
Receiver Orientation	Down

Sonic Sensor Information

Tool Type	XBAT
Distance From Bit (m)	26.84
Recorded Sample Period (sec)	20
Sub Serial Number	N/A
Receiver Insert Serial Number	12108405
Transmitter Insert Serial Number	11215811
MIT File	4:M11_D5
Config File	N/A
Real-Time Window (us/m)	N/A - N/A
Battery Insert Serial Number	11816955
MCM Software Version	N/A
DAQ1/DAQ2 Software Version	N/A / N/A
DSM Software Version	N/A

AFR Sensor Information

Tool ID	8016
Distance From Bit (m)	13.790
Software Version	37.83
Standard-Res Sample Period (sec)	2
High-Res Sample Period (sec)	1
Tool Size	8.00"
Stabilizer Size (in)	12.00
Button Blade Size (in)	12.00
Collar Tech ID	11693898
Insert Tech ID	11576832

REMARKS

1. All depths are referenced to driller's pipe tally. No correction has been made for pipe stretch or squat.

2. Curve Mnemonics used are:
   - ABR : Smoothed At Bit Resistivity, ohmm
   - AFRSC : Smoothed AFR Shallow Resistivity BC, ohmm
   - AFRDC : Smoothed AFR Deep Resistivity BC, ohmm
   - RH48PC : Smoothed 48in 2 MHz Phase Resistivity BC, ohmm
   - AFXT : Smoothed AFR Formation Exposure Time, hour
   - AFRSLHM: Smoothed AFR Shallow HR Res LT Magnetic
   - AFRSLSM: Smoothed AFR Shallow SR Res LT Magnetic
   - AFRSUSM: Smoothed AFR Shallow SR Res UT Magnetic

3. The following smoothing parameters have been applied to the data:
   Resistivity curves 0.1524m interval, 0.60960 coercion distance
   AFR Image 0.1m interval, 0.4 coercion distance

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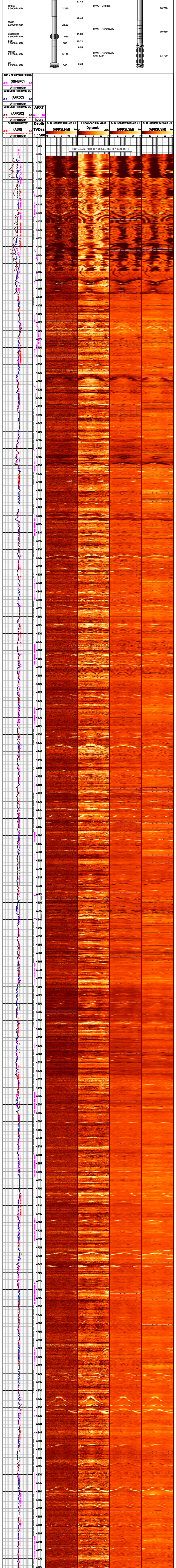
MWD RUN 400 - BHA

Component	Component Length (m)	Cumulative Length (m)
		5251.15
Drill Pipe 6.6250 in OD	940.000	
		4311.15
Sub 8.5000 in OD	.800	
		4310.35
Drill Pipe 5.5000 in OD	902.400	
		3407.95
Sub 7.5000 in OD	.800	
		3407.15
Drill Pipe 5.5000 in OD	789.600	
		2617.55
Drill Pipe 5.0000 in OD	2,331.200	
		286.35
Sub 8.5000 in OD	.910	
		285.44
Drill Pipe 5.6800 in OD	108.390	
		177.05
Sub 8.5000 in OD	.610	
		176.44
Collar 8.5000 in OD	18.540	
		157.90
Jar 8.0000 in OD	9.370	
		148.53
Collar 8.5000 in OD	111.050	
		37.48
Collar 8.0000 in OD	2.360	
		35.12
MWD 8.0000 in OD	23.23	
		11.89
Stabilizer 8.5000 in OD	1.680	
		10.21
Sub 8.0000 in OD	.680	
		9.53
Motor 9.6250 in OD	9.190	
		0.34
Bit 7.7500 in OD	.340	

MWD RUN 400 - MWD

Sensor	Sensor Measure Point Distance To Bit (m)
MWD - Directional SN# 11902126	31.450
MWD - Processor SN# 10996871	
MWD - Telemetry SN# 10450009	
MWD - Sonic SN# 1234	
MWD - Processor	
MWD - Gamma Ray SN# 1234	16.230
MWD - Drilling	16.020
MWD - Drilling	16.790
MWD - Resistivity	19.030
MWD - Resistivity SN# 1234	13.790

48in 2 MHz Phase Res BC (RH48PC) 0.2 – 20 ohm-metre
AFR Deep Resistivity BC (AFRDC) 0.2 – 20 ohm-metre
AFR Shall Resistivity BC (AFRSC) 0.2 – 20 ohm-metre
AFXT 0 – 10 hours
At-Bit Resistivity (ABR) 0.2 – 20 ohm-metre
Depth TVDss 1 : 500
AFR Shallow HR Res LT (AFRSLHM) 1 – 10 N E S W N
Enhanced HR AFR Dynamic 0 – 255 N E S W N
AFR Shallow SR Res LT (AFRSLSM) 1 – 10 N E S W N
AFR Shallow SR Res UT (AFRSUSM) 1 – 10 N E S W N



At-Bit Resistivity (ABR) 0.2 – 20 ohm-metre
Depth TVDss 1 : 500
AFR Shallow HR Res LT (AFRSLHM) 1 – 10 N E S W N
Enhanced HR AFR Dynamic 0 – 255 N E S W N
AFR Shallow SR Res LT (AFRSLSM) 1 – 10 N E S W N
AFR Shallow SR Res UT (AFRSUSM) 1 – 10 N E S W N
AFR Shall Resistivity BC (AFRSC) 0.2 – 20 ohm-metre
AFXT 0 – 10 hours
AFR Deep Resistivity BC (AFRDC) 0.2 – 20 ohm-metre
48in 2 MHz Phase Res BC (RH48PC) 0.2 – 20 ohm-metre

INSITE

HALLIBURTON

DIRECTIONAL SURVEY REPORT

JAMSTEC
C0002P
Nankai Trough
Japan
JP-XX-0900526576

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
2827.800	0.00	0.00	2827.800	0.000 N	0.000 E	0.000	TIE-IN
2861.970	1.43	169.41	2861.966	0.419 S	0.078 E	-0.419	1.26
2890.590	3.40	159.39	2890.559	1.565 S	0.443 E	-1.565	2.10
2928.740	5.12	140.76	2928.604	3.942 S	1.918 E	-3.942	1.72
2966.900	5.18	106.59	2966.619	5.753 S	4.647 E	-5.753	2.38
3010.810	5.07	76.58	3010.362	5.869 S	8.434 E	-5.869	1.81
3043.630	5.11	51.56	3043.056	4.624 S	10.990 E	-4.624	2.01
3084.170	5.36	38.78	3083.429	2.025 S	13.590 E	-2.025	0.88
3123.580	4.98	25.39	3122.680	0.955 N	15.477 E	0.955	0.96
3162.080	4.18	4.38	3161.059	3.864 N	16.300 E	3.864	1.44
3199.710	2.00	1.06	3198.632	5.889 N	16.417 E	5.889	1.74
3238.190	0.31	209.19	3237.105	6.469 N	16.379 E	6.469	1.78
3276.890	0.44	239.16	3275.804	6.302 N	16.200 E	6.302	0.18
3314.850	0.41	269.76	3313.763	6.226 N	15.939 E	6.226	0.18
3353.040	0.12	310.15	3351.953	6.251 N	15.772 E	6.251	0.26
3391.260	0.50	336.21	3390.172	6.430 N	15.674 E	6.430	0.31
3429.140	0.50	334.26	3428.051	6.730 N	15.536 E	6.730	0.01
3468.360	0.62	352.84	3467.269	7.095 N	15.435 E	7.095	0.17
3505.570	0.31	333.27	3504.478	7.384 N	15.365 E	7.384	0.28
3544.480	0.19	98.24	3543.388	7.469 N	15.381 E	7.469	0.34
3581.980	0.25	209.19	3580.887	7.389 N	15.403 E	7.389	0.29
3620.060	0.31	210.19	3618.967	7.227 N	15.310 E	7.227	0.05
3657.980	0.84	245.28	3656.885	7.022 N	15.006 E	7.022	0.48
3691.660	0.36	224.61	3690.563	6.844 N	14.708 E	6.844	0.46
3729.630	0.25	132.00	3728.533	6.703 N	14.686 E	6.703	0.35
3767.900	0.44	166.60	3766.802	6.505 N	14.782 E	6.505	0.21
3887.570	0.31	300.87	3886.471	6.224 N	14.610 E	6.224	0.17
3904.000	0.22	301.45	3902.901	6.263 N	14.545 E	6.263	0.16
3996.760	2.38	94.61	3995.636	6.201 N	16.316 E	6.201	0.83
4010.460	1.46	75.41	4009.328	6.222 N	16.769 E	6.222	2.44
4039.634	3.59	105.91	4038.473	6.065 N	18.008 E	6.065	2.51
4074.322	3.88	104.24	4073.087	5.479 N	20.190 E	5.479	0.27
4114.770	2.47	97.13	4113.472	5.034 N	22.381 E	5.034	1.08
4153.753	2.93	97.28	4152.412	4.803 N	24.202 E	4.803	0.35
4190.770	2.85	92.40	4189.382	4.645 N	26.060 E	4.645	0.21
4228.710	2.82	92.05	4227.276	4.572 N	27.936 E	4.572	0.03
4267.620	2.72	91.98	4266.140	4.506 N	29.817 E	4.506	0.08
4305.530	2.53	93.65	4304.010	4.422 N	31.551 E	4.422	0.16
4343.840	2.36	93.75	4342.285	4.316 N	33.183 E	4.316	0.13
4382.200	2.25	92.32	4380.614	4.234 N	34.724 E	4.234	0.10
4416.740	1.97	92.61	4415.131	4.179 N	35.996 E	4.179	0.24
4458.160	2.10	92.74	4456.524	4.111 N	37.467 E	4.111	0.09
4494.780	2.10	91.96	4493.120	4.056 N	38.807 E	4.056	0.02
4535.180	1.97	89.62	4533.495	4.035 N	40.240 E	4.035	0.11
4572.710	1.83	90.94	4571.004	4.029 N	41.483 E	4.029	0.12
4610.770	1.73	90.61	4609.046	4.013 N	42.665 E	4.013	0.07
4649.220	1.82	89.80	4647.477	4.009 N	43.857 E	4.009	0.07
4686.700	1.70	90.44	4684.939	4.007 N	45.010 E	4.007	0.10
4724.760	1.62	93.01	4722.983	3.975 N	46.113 E	3.975	0.09
4762.960	1.72	95.87	4761.167	3.888 N	47.223 E	3.888	0.10
4801.260	1.71	92.70	4799.450	3.802 N	48.367 E	3.802	0.07
4838.540	1.67	90.73	4836.714	3.769 N	49.467 E	3.769	0.06
4913.640	1.53	90.52	4911.784	3.746 N	51.565 E	3.746	0.06
4949.730	1.40	87.84	4947.862	3.758 N	52.490 E	3.758	0.12
4990.290	1.74	80.10	4988.408	3.882 N	53.592 E	3.882	0.29
5026.000	1.74	80.10	5024.101	4.068 N	54.659 E	4.068	0.00

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 0.00 DEGREES (GRID)
A TOTAL CORRECTION OF -7.66 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 5026.000 METRES
IS 54.811 METRES ALONG 85.74 DEGREES (GRID)

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