

Company: **Santos Limited**

Well:
Netherby 1DW1

Field: Otway

Rig: Ocean Patriot

State:

Victoria

EcoScope * Resistivity
1:200 True Vertical Depth
Recorded Mode Log

Rig:		Ocean Patriot	
Field:		Otway	
Location:		Bass Strait	
Well:		Netherby 1DW1	
Company:		Santos Limited	
<div style="text-align: center;"> EcoScope * Resistivity 1:200 True Vertical Depth Recorded Mode Log </div>			
Location			
Job name no.	X = E 142 38' 25.745"	Longitude	Latitude
08ASQ0003	Y = S 38 40' 48.578"	E 142° 38' 25.745	S 38° 40' 48.578
Total depth:	2517.0 m	K.B.	Top Drive
Spud date:	02–Aug–2008	G.L.	–66.10 m
Runs:	5 To 6	D.F.	20.80 m
Permanent datum:	Mean Sea Level	Elev.:	0 m
Log measured from:	Rig Floor	66.10 m above Perm. datum	
Depth reference:	Driller's Depth		

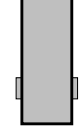
Depth logged: 1936.0 m To 2504.0 m		Mag decl: 10.777 deg.		Other services:	
Date logged: 8-Aug-08 To 11-Aug-08		Mag dip: -69.86 deg.		See Remarks	
Bore hole record				Casing record	
Hole size	from	to	Size	Density	from to
36.00	88.0 m	130.9 m	30.000	310.0 lbm/m	88.0 m 130.9 m
17.50	130.9 m	647.5 m	13.375	223.0 lbm/m	88.0 m 642.0 m
12.25	647.5 m	1944.5 m	9.625	154.0 lbm/m	642.0 m 1936.0 m
8.50	1944.5 m	2517.0 m			
Mud record			Borehole deviation record		
Type	from	to	Mln	Max	from to
WBM	1936.0 m	2517.0 m	0.0 deg.	12.15 deg.	0.0 m 919.0 m
			12.93 deg.	59.64 deg.	948.9 m 1773.5 m
			64.78 deg.	98.3 deg.	1804.1 m 2517.0 m
Surface equipment			Software record		
Unit	OLU-KC-0702	IDEAL Wis	ID13_OC_08		
Depth system	Geograph+GTE+CLT	HSPM	13_OC_03		
		EcoScope	Kar12-V2.2		
		TeleScope	9.2C02		

Bit Run Summary

Run number		5	6							
Bit size	in	12.25	8.5							
Bit start depth	m	1421	1944							
Bit end depth	m	1944	2517							
Top interval logged	m	1420	1936							
Bottom interval logged	m	1932	2505							
Begin log: time		20:52	13:43							
Begin log: date		2-Aug-08	7-Aug-08							
End log: time		13:43	01:03							
End log: date		7-Aug-08	13-Aug-08							
Mud data										
Depth	m	1421	1944							
Type		WBM	WBM							
Mud weight	ppg	11.1	9.5							
Solids	%	11.1	1.62							
Chlorides	mg/L	45000	89000							
Rm	ohmm @ °C	0.13@22.1	0.08@15.9							
Rmf	ohmm @ °C	0.19@22.9	0.13@16.5							
Rmc	ohmm @ °C	0.10@22.4	0.08@15.7							

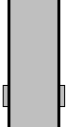
Potassium	%	4.35	N/A								
Environmental data											
GR											
Mud weight	ppg	11.1	9.5								
Bit size	in	12.25	8.5								
Resistivity											
Neutron porosity											
Hole Size	in	12.25	8.5								
Mud weight	ppg	11.1	9.5								
Temperature	°C	80.0	65.0								
Mud salinity	ppk	N/A	130.7								
Formation salinity	N/A	N/A	N/A								
Recording rate 1	SEC	RES/GR 6	RES/GR 2								
Recording rate 2	SEC	N/A	DEN/POR 4								
Filtering GR		3 points	3 points								
Filtering density		N/A	3 points								
Filtering Neutron		N/A	3 points								
Company representative		C.Roots	N.Peri								
Anadrill personnel		J.Oldrige	U.Hassan	A.Kohli	Z.Rudd						

<p style="text-align: center;">DISCLAIMER</p> <p>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 OF 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.</p>		
OTHER SERVICES FOR RUN5 Directional Survey. APWD. Ultrasonic Caliper.	OTHER SERVICES FOR RUN6 Directional Survey. APWD Ultrasonic Caliper.	OTHER SERVICES FOR RUN
REMARKS: RUN NUMBER 5 Depth is referenced to Driller's Pipe Tally. ARC Gamma Ray is corrected for mud weight, bit size, Potassium and tool collar size. ARC Resistivities are borehole compensated and Environmentally corrected for bit size, mud resistivity.	REMARKS: RUN NUMBER 6 Depth is referenced to Driller's Pipe Tally. EcoScope Gamma Ray is corrected for mud weight, bit size and potassium content. EcoScope Resistivities are borehole compensated and Environmentally corrected. EcoScope Thermal Neutron Porosity (TNPH) is corrected for effects of borehole size, temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud pressure, and mud temperature). Neutron Porosity is calculated using a limestone matrix density of 2.71 g/cm3. Geolograph cable broke at 2165m Relogged from 2165-2180m due to broken Geolograph Cable. A16L, A22L, A28L Saturated after 1963m MD	REMARKS: RUN NUMBER



BIT-PDC SN#215850
OD 12.25

Maximum string diameter 12.25 in.
All lengths in Meters



BIT-PDC SN # JX0574
OD 8.50

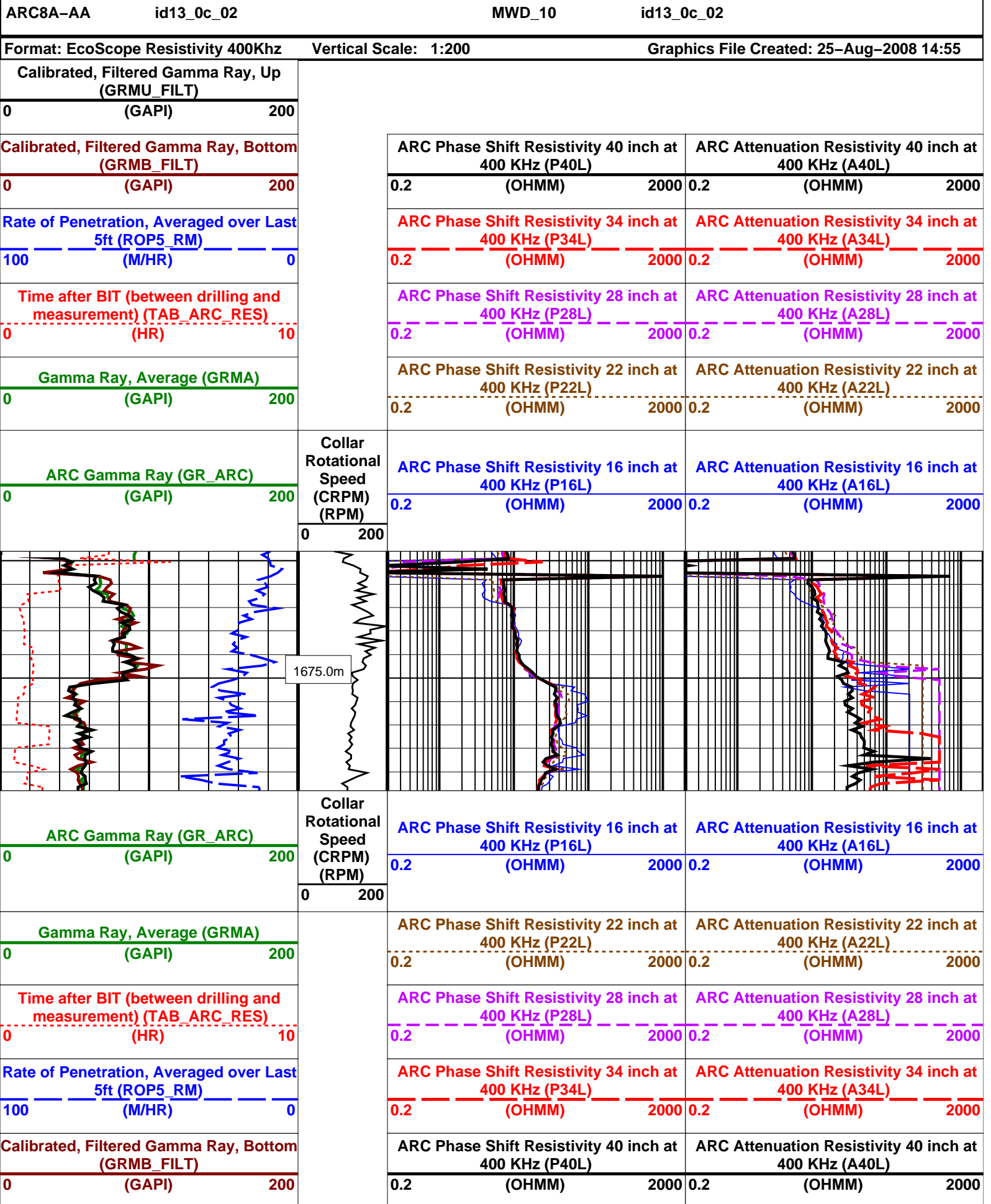
Maximum string diameter 8.50 in.
All lengths in Meters

Variable Name	Variable Description	Run Name & Value		
	Run Number		5	6
	General Information			
BHT_RM	Bottom Hole Temperature (RM)	DEGC	80.000	65.000
BSAL_RM	Mud Salinity (RM)	PPK	NA	130.746
BS_RM	Bit Size (RM)	IN	12.250	8.500
COEF_M	User Defined FEXP in Clean Sand	----	1.650	1.650
C_WS	Overpressure correction to Sw and M	----	1.000	1.000
FEXP	Formation Factor Exponent(RM)	----	2.000	2.000
FNUM	Formation Factor Enumerator(RM)	----	1.000	1.000
FPHI_RM	Formation Factor Porosity Source (RM)	----	XPLOT	XPLOT
MST_RM	Mud Sample temperature (RM)	DEGC	22.100	18.700
MW_RM	Mud Weight (RM)	LB/G	11.100	9.500
OBMF_RM	Oil Based Mud (RM)	----	NO	NO
RHOF_RM	Mud Filtrate Density (RM)	G/C3	1.000	1.000
RHOM_RM	Matrix density (RM)	G/C3	2.710	2.710
RMS_RM	Resistivity of Mud Sample (RM)	OHMM	0.128	0.073
RWA_COMP_M	Rwa computation model			
RWA_DEN_AD	Rwa Density Input ADN			
RWA_DEN_CD	Rwa Density Input CDN			
RWA_DEN_IN	Rwa Density Input			
RWA_FORM_M	Rwa computation formation model			
RWA_RES_IN	Rwa computation resistivity input			
RWS_RM	Resistivity of Connate Water (RM)	OHMM	1.000	1.000
SHT_RM	Ground Level Temperature (Mud-Line When Offshore) (RM)	DEGC	10.000	10.000
TD_RM	Total Measured Depth (RM)	M	1944.500	2517.100
TWS_RM	Temperature of Connate Water (RM)	DEGC	23.889	23.889
VF_ILLI	Fraction of illite in shales	----	0.500	0.500
VF_KAOL	Fraction of kaolinite in shales	----	0.500	0.500
VF_MONT	Fraction of montmorillonite in shales	----	0.000	0.000
XPDM_RM	Cross plot density porosity multiplier	----	0.675	0.675
XPNM_RM	Cross plot neutron porosity multiplier	----	0.325	0.325
	ARC			
A12A	ARC Air Cal Attenuation From T1 at 2 MHz	DB	8.267	8.169
A14A	ARC Air Cal Attenuation From T1 at 400 KHz	DB	8.197	8.157
A22A	ARC Air Cal Attenuation From T2 at 2 MHz	DB	6.374	6.249
A24A	ARC Air Cal Attenuation From T2 at 400 KHz	DB	6.450	6.267
A32A	ARC Air Cal Attenuation From T3 at 2 MHz	DB	4.991	4.775
A34A	ARC Air Cal Attenuation From T3 at 400 KHz	DB	4.915	4.757
A42A	ARC Air Cal Attenuation From T4 at 2 MHz	DB	4.337	4.656
A44A	ARC Air Cal Attenuation From T4 at 400 KHz	DB	4.410	4.669
A52A	ARC Air Cal Attenuation From T5 at 2 MHz	DB	3.582	3.332
A54A	ARC Air Cal Attenuation From T5 at 400 KHz	DB	3.513	3.317
ABNT	Abnormal Transmitter Indicator	----	No_Tx_Failed	No_Tx_Failed
ADHS	ARC Down Hole Software Version		V9.3B13	----
AM2A	ARC Air Cal Amplitude Offset at 2 MHz	----	-50000.000	-50000.000
ANISO_COMPUTE	Anisotropy Computation Option	----	YES	YES
APICG	ARC5 Gamma Ray Gain Factor	----	1.078	
APIG	ARC Gamma Ray API Gain Factor	----	-1.000	
ARC_DATA_FIX	ARC: Create A Corrected ARC Time Data File	----	NO	
ARC_DATA_LTB	ARC: Create An ARC LTB Data File	----	NO	
ATMP_ARC	ARC Select Temperature Channel	----	Annulus_Temp	Annulus_Temp
ATRN	ARC Tool Run Number	----	5	----
ATSN	ARC Tool Serial Number	----	2724	----
AZMF	Formation DIP Azimuth	DEG	0.000	0.000
BH_COMPUTE	Borehole Inversion Computation Option	----	YES	YES
CALG	ARC Gamma Ray Cal Gain Factor	----	1.078	
CALI_SLCT_ARC	ARC Caliper Selection	----	BITSIZE	
CDPTH_ARC	Process Start Depth	M	30.480	30.480
DIELEC_COMPUTE	Dielectric Computation Option	----	YES	YES
DIPF	Formation DIP Angle	DEG	0.000	0.000
ERRCT	Percentage Error Cutoff	----	4.500	4.500
GRSH	GR Shale (Invasion Computation Cutoff)	GAPI	1000.000	1000.000
HIGH_BLEND	High Resistivity Threshold for Blending	OHMM	2.000	2.000
INCLIN_B0	ARC Bias Constant (mg)	----	0.000	0.000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)	----	0.000	0.000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)	----	0.000	0.000
INCLIN_B3	ARC Bias Third-order Coefficient (mg/degC)	----	0.000	0.000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	----	1.000	1.000

INCLIN_C1	ARC Scale First-order Coefficient (mA/g/degC)	----	0.000	0.000
INCLIN_C2	ARC Scale Second-order Coefficient (mA/g/degC)	----	0.000	0.000
INCLIN_C3	ARC Scale Third-order Coefficient (mA/g/degC)	----	0.000	0.000
INVAS_COMPUTE	Invasion Computation Option	----	YES	YES
JSD_ARC	ARC Acquisition start date	----	1-Aug-08	----
KPER	Potassium Concentration (RM)	----	4.356	
LOW_BLEND	Low Resistivity Threshold for Blending	OHMM	1.000	1.000
MSWS	ARC Wizard Model Switch Window	M	1.524	1.524
MULTIEFFECT_COM	Multi Effect Option	----	YES	YES
P11AC_RM	ARC: Air Calibration For Phase T1 to R1	DEG	-999.250	-999.250
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	DEG	-1.295	-1.296
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	DEG	1.663	2.074
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	DEG	1.364	1.203
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	DEG	-1.688	-1.994
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	DEG	-1.375	-1.336
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	DEG	1.672	2.082
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	DEG	1.321	1.213
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	DEG	-1.701	-1.913
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	DEG	-1.400	-1.294
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	DEG	1.648	1.915
POFFSET_ARC	ARC: Pressure Offset		0.000	
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	----	P34B	P34B
PSOF_ADJ_T1	ARC: User Input Phase offset	DEG	0.000	0.000
RESTIK	ARC resistivity tick source	----	Phase	Phase
RSD	LWD run start date dd-mmm-yy	OHMM	0.128	0.073
RWA_COMP_MOD	Rwa computation model	----	BASIC	BASIC
RWA_DEN_ADN	Rwa Density Input	----	RHOB	RHOB
RWA_DEN_CDN	Rwa Density Input	----	RHOB	RHOB
RWA_DEN_INPUT	Rwa Density Input	----	RHOB	RHOB
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC	CLASTIC
RWA_RES_INPUT	Rwa computation resistivity input	----	RT	RT
SHIG	ARC High Shock Risk Level	CPS	0.500	
SMED	ARC Medium Shock Risk Level	CPS	0.330	
SMIN	ARC Minimum Shock Risk Level	CPS	0.160	
SUPD	ARC Real Time Shock Update Rate	S	30.000	
TCODE_ARC	ARC Tool File Code	S	30.000	
TSIZ_ARC	ARC Tool Size	IN	8.250	6.900
UNIFORM_COMPUTE	Uniform Rock Option	----	YES	YES
VERS_ARC	ARC Down hole software version Number	----	9.300	2.200
WRK	to Report Potassium Concentration (RM)	----	K_by_Wgt_%	K_by_Wgt_%

DVD				
-----	Parameters-----	Parameters-----	Parameters-----	-----Sigma
-----	Parameters-----	Parameters-----	Parameters-----	-----Sigma
ALPHA_DEN_OPT	Density Enhanced Vertical Resolution Processing Switch	----		NO
CHI_RM	Caliper High Limit from BS (RM)	IN		10.000
CLO_RM	Caliper Low Limit from BS (RM)	IN		-5.000
DTMUD	Delta-T for Mud (RM)	US/F		190.000
DTMUD_DH	Delta-T for Mud Downhole (RT)	US/F		190.000
DVDMHDS	DVDM Down Hole Software Version	US/F		190.000
DVDM_DATA_LTB	DVDM: Create An DVDM LTB Data File	----		NO
DVD_DATA_FIX	DVDM: Create A Corrected DVDM Time Data File	----		NO
DYN_IMAGE_OPT	Generate Dynamic Normalized Image?	----		YES
EDPTH	Wizard Process Stop Depth	----		50000
EN_WIZARD	Enable ARC Wizard Processing	----		NO
EVRL	EVR Process averaging number of samples (RM)	----		49
FWVN	Firmware Version Number	----		2.200
GCSE	Generalized Caliper Selection	----		BS
GR_CF	Gamma Ray Correction Factor	----		1.800
GR_O2COR_OPT	Enable Gamma Ray Oxygen Activation Correction	----		YES
IDQT	Image Derived Quality Threshold	----		1.000
IMAGE_MAX_DCRA	Image Density Caliper Right Scale	IN		8.000
IMAGE_MAX_IDDQ	Image Density Quality Right Scale	----		1.000
IMAGE_MAX_SPEF	Image PEF(Segment) Right Scale	----		6.000
IMAGE_MAX_SRHOB	Image RHOB(Segment) Right Scale	G/C3		2.650
IMAGE_MIN_DCRA	Image Density Caliper Left Scale	IN		2.000
IMAGE_MIN_IDDQ	Image Density Quality Left Scale	----		0.000
IMAGE_MIN_SPEF	Image PEF(Segment) Left Scale	----		2.000
IMAGE_MIN_SRHOB	Image RHOB(Segment) Left Scale	G/C3		2.050
JSD	Acquisition start date	----		9-Aug-08
MATR	Rock Matrix for Neutron Porosity Corrections	----		LIMESTONE
NEU_DCOR_OPT	Density Correction Source for Neutron Processing	----		Bottom
NEU_FTUBE_OPT	Far Thermal Tube Selection	----		Both
NEU_PRESOR_OPT	Pressure Correction Source for Neutron Processing	----		Annulus_Press
NEU_TEMPOR_OPT	Temperature Correction Source for Neutron Processing	----		Tool_Temp
NTIK_SEL	Neutron Tick Channel Name	----		FAZ1
OACF	Oxygen Activation Correction Factor (RM)	----		8.000
PMUD	Potassium Concentration in Mud	----		0.000
RUN_DURATION_OP	Run Duration Type ?	----		Normal
SDPTH	Wizard Process Start Depth	----		100
SIG_PCOR_OPT	Porosity Correction Source for Sigma Processing	----		Best
SPEC_CSG_DEPTH	Casing Depth for Spectroscopy Processing	M		30.480
SPL_CLAY_MODEL	SpectroLith Clay Model	----		SUBARKOSE
SPL_MG_OPT	Magnesium Flag Switch ?	----		OFF
SPL_SULFUR_MIN	SpectroLith Sulfur Mineral Option	----		PYRITE
STAB_SIZE	Stabilizer Size	IN		8.250
STOH	Top of Hole Sector	----		SECTOR_0
TRNO	Tool Run Number	----		6
TSNO	Tool Serial Number	----		987
WPPV	Water Phase as Percent of Total Volume in OBM	----		100.000
WPSL	Salinity of the Water Phase Emulsified within the OBM	PPK		130.746
WSDI	Window Size of Dynamic Normalization Image	M		4.572

EcoScope Resistivity RM 200TVD Inc < 90 Deg, 1930–2115m MD



Calibrated, Filtered Gamma Ray, Up (GRMU_FILT)		
0	(GAPI)	200

IDEAL Version: ID13_0C_08			
IDF			
ARC8A-AA	id13_0c_02	MWD_10	id13_0c_02

EcoScope Resistivity RM 200TVD Inc > 90 Deg, 2115–2517m MD			
ARC8A-AA	id13_0c_02	MWD_10	id13_0c_02

Format: EcoScope Resistivity 400Khz	Vertical Scale: 1:200	Graphics File Created: 25–Aug–2008 14:56
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Calibrated, Filtered Gamma Ray, Up (GRMU_FILT)		
0	(GAPI)	200

0	(GAPI)	200
---	--------	-----

Calibrated, Filtered Gamma Ray, Bottom (GRMB_FILT)		
0	(GAPI)	200

0	(GAPI)	200
---	--------	-----

Rate of Penetration, Averaged over Last 5ft (ROP5_RM)		
100	(M/HR)	0

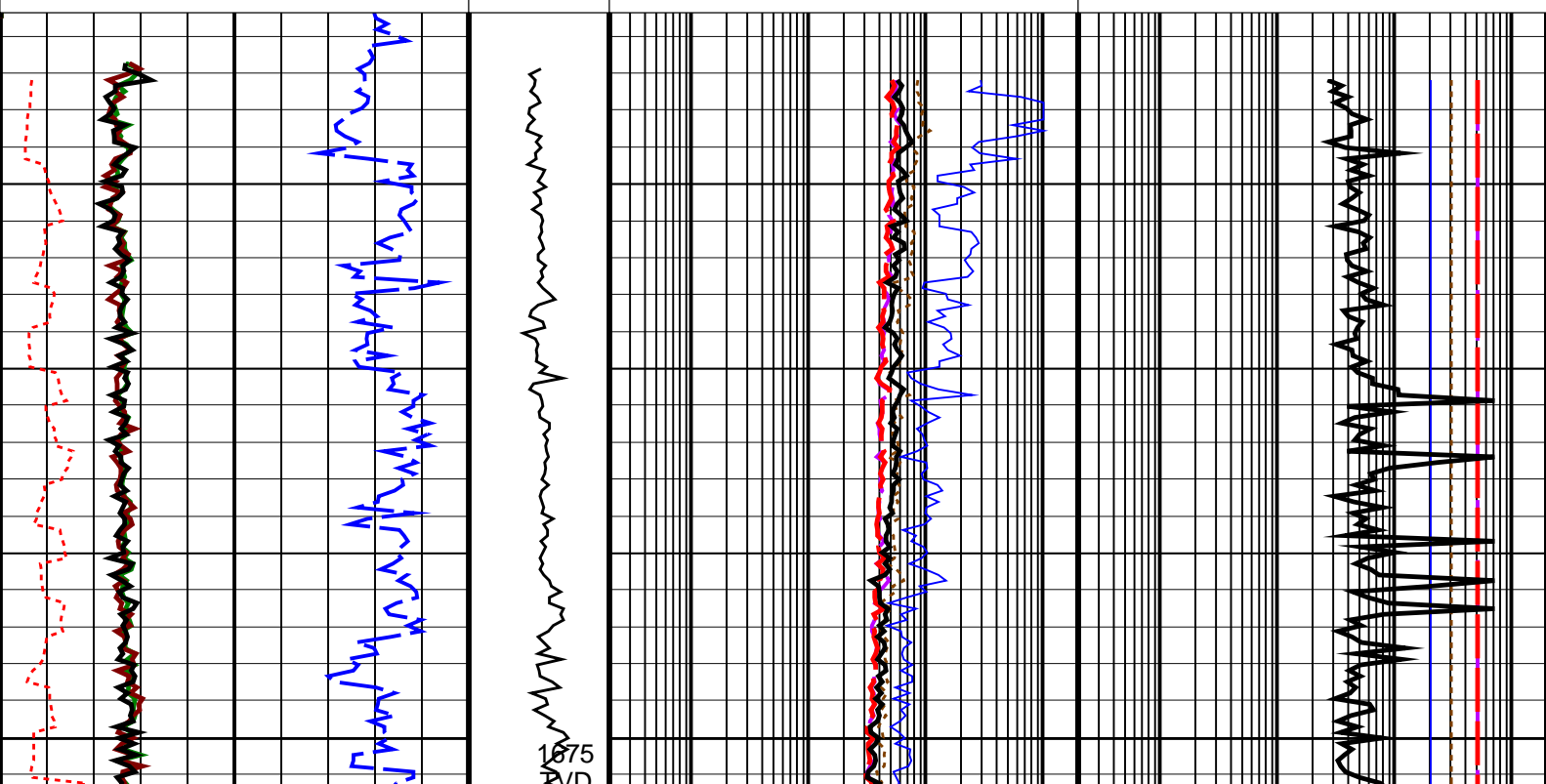
Time after BIT (between drilling and measurement) (TAB_ARC_RES)		
0	(HR)	10

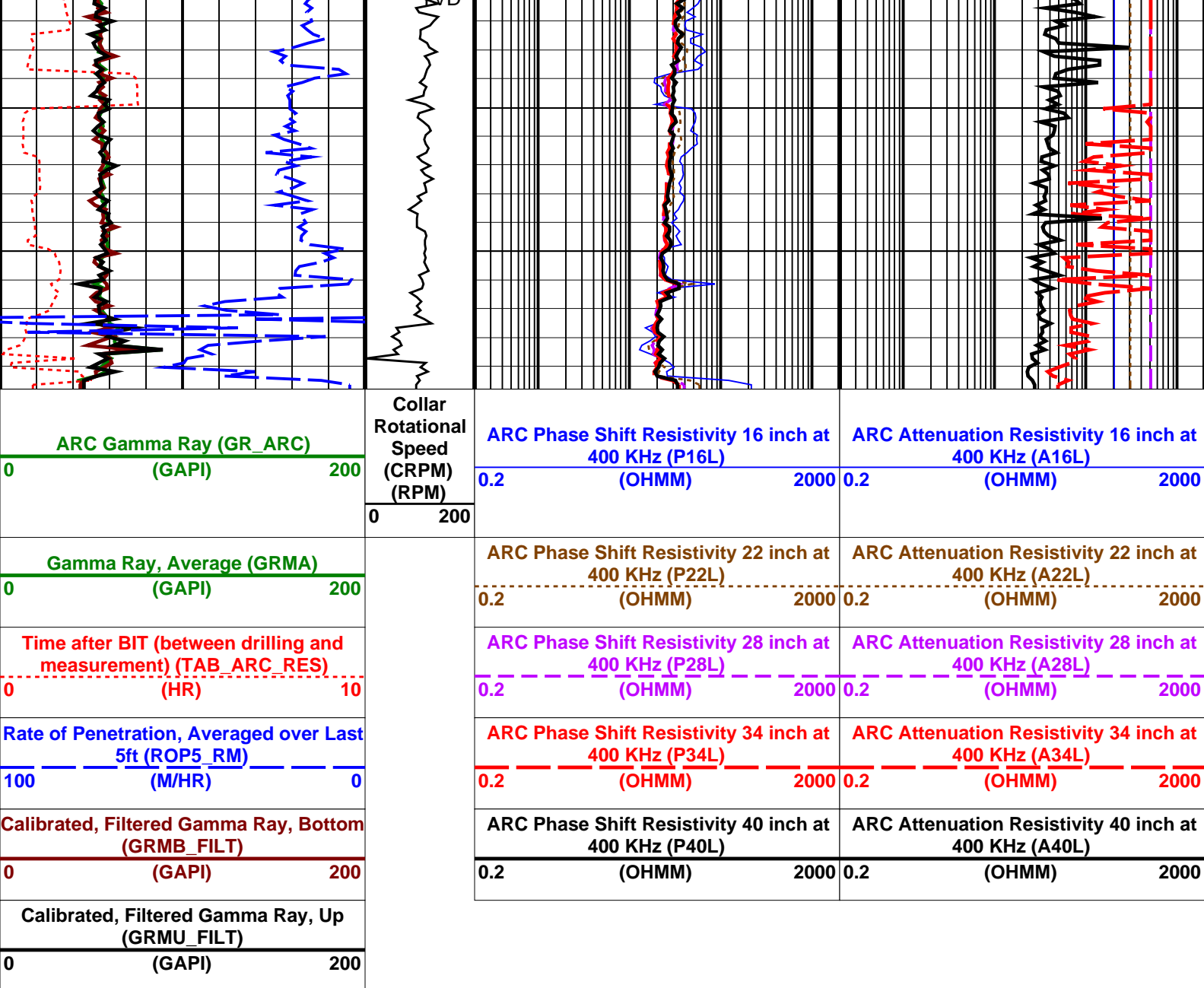
Gamma Ray, Average (GRMA)		
0	(GAPI)	200

ARC Gamma Ray (GR_ARC)		
0	(GAPI)	200

0	(GAPI)	200
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ARC Phase Shift Resistivity 40 inch at 400 KHz (P40L)		ARC Attenuation Resistivity 40 inch at 400 KHz (A40L)	
0.2	(OHMM)	2000	0.2 (OHMM) 2000
ARC Phase Shift Resistivity 34 inch at 400 KHz (P34L)		ARC Attenuation Resistivity 34 inch at 400 KHz (A34L)	
0.2	(OHMM)	2000	0.2 (OHMM) 2000
ARC Phase Shift Resistivity 28 inch at 400 KHz (P28L)		ARC Attenuation Resistivity 28 inch at 400 KHz (A28L)	
0.2	(OHMM)	2000	0.2 (OHMM) 2000
ARC Phase Shift Resistivity 22 inch at 400 KHz (P22L)		ARC Attenuation Resistivity 22 inch at 400 KHz (A22L)	
0.2	(OHMM)	2000	0.2 (OHMM) 2000
ARC Phase Shift Resistivity 16 inch at 400 KHz (P16L)		ARC Attenuation Resistivity 16 inch at 400 KHz (A16L)	
0.2	(OHMM)	2000	0.2 (OHMM) 2000
Collar Rotational Speed (CRPM) (RPM)			
0	200		









IDEAL Version: ID13_0C_08
IDF











ARC8A-AA id13_0c_02 MWD_10 id13_0c_02

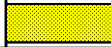
8.25-in. Array Resistivity Compensated / Equipment Identification

Primary Equipment:
Tool Name and Serial Number ARC8 – AA 8316
ARC825 Calibration Status





Master: 17-Jul-2008 15:03											
8.25-in. Array Resistivity Compensated Calibration											
Resistivity: Air											
Phase	Phase-Shift T1		Value	Phase	Phase-Shift T2		Value	Phase	Phase-Shift T3		Value
Master			-1.295	Master			1.364	Master			-1.375
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)
Phase	Phase-Shift T4		Value	Phase	Phase-Shift T5		Value	Phase	Phase-Shift T1 at 400KHz		Value
Master			1.321	Master			-1.400	Master			1.663
	-3.900	0.1000	4.100		-3.900	0.1000	4.100		-3.900	0.1000	4.100



(Minimum) (Nominal) (Maximum)			(Minimum) (Nominal) (Maximum)			(Minimum) (Nominal) (Maximum)					
Phase	Phase-Shift T2 at 400KHz		Value	Phase	Phase-Shift T3 at 400KHz		Value	Phase	Phase-Shift T4 at 400KHz		Value
Master			-1.688	Master			1.672	Master			-1.701
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)
Phase	Phase-Shift T5 at 400KHz		Value								
Master			1.648								
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)								

Master: 17-Jul-2008 15:03											
8.25-in. Array Resistivity Compensated Calibration											
Resistivity: Air											
Phase	Attenuation T1		Value	Phase	Attenuation T2		Value	Phase	Attenuation T3		Value
Master			8.267	Master			6.374	Master			4.991
	6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)		4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)		2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)
Phase	Attenuation T4		Value	Phase	Attenuation T5		Value	Phase	Attenuation T1 at 400KHz		Value
Master			4.337	Master			3.582	Master			8.197
	2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)		1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)		6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)
Phase	Attenuation T2 at 400KHz		Value	Phase	Attenuation T3 at 400KHz		Value	Phase	Attenuation T4 at 400KHz		Value
Master			6.450	Master			4.915	Master			4.410
	4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)		2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)		2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)
Phase	Attenuation T5 at 400KHz		Value								
Master			3.513								
	1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)								

Master: 17-Jul-2008 20:12											
8.25-in. Array Resistivity Compensated Calibration											
Gamma Ray: Blanket											
Phase	Gamma ray factor (equals Calibration Gain multiplied by API Gain Factor) CPS										Value
Master											7.763
	4.960 (Minimum)					7.200 (Nominal)				9.650 (Maximum)	

EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch / Equipment Identification		
Primary Equipment:		
Tool Name and Serial Number	ECO – 675	979
Calibration Status	–	
Neutron Logging Source	PNG – C	
Density Logging Source	GSR – J/Z	
Stabilizer Size	8.25 – in.	

Master: 3-Aug-2008 15:58											
EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration											
SSn LSn : Water Tank											
Phase	SSn Gain ----			Value	Phase	SSn Offset ----			Value		
Master				1.069	Master				0		
	0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)			
Phase	LSn Gain ----			Value	Phase	LSn Offset ----			Value		
Master				1.000	Master				0		
	0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)			

Master: 3-Aug-2008 15:58											
EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration											
Neutron: Water Tank											
Phase	Far 2 Gain ----			Value	Phase	Far 2 Offset ----			Value		
Master				0.9674	Master				1.349		

0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
Phase	Far 1 Gain ----		Value	Phase	Far 1 Offset ----		Value
Master			1.003	Master			1.235
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
Phase	Thermal Near gain ----		Value	Phase	Thermal Near offset ----		Value
Master			1.015	Master			108.6
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)		-500.0 (Minimum)	0 (Nominal)	500.0 (Maximum)	
Phase	Epithermal Near gain ----		Value	Phase	Epithermal Near offset ----		Value
Master			1.019	Master			91.49
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)		-300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)	

Master: 3-Aug-2008 18:01									
EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration									
Gamma Density: Magnesium Block									
Phase	LS window 3 – Mg CPS			Value	Phase	SS window 1 – Mg CPS			Value
Master				3690	Master				7502
2200 (Minimum)	3350 (Nominal)	4500 (Maximum)			4560 (Minimum)	6830 (Nominal)	9100 (Maximum)		
Phase	SS window 3 – Mg CPS			Value					
Master				17740					
	11100 (Minimum)	16700 (Nominal)	22300 (Maximum)						

Master: 3-Aug-2008 18:01									
EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration									
Gamma Density: Aluminum Block									
Phase	LS window 3 – Al CPS			Value	Phase	SS window 1 – Al CPS			Value
Master				602.5	Master				3842
350.0 (Minimum)	575.0 (Nominal)	800.0 (Maximum)			2300 (Minimum)	3550 (Nominal)	4800 (Maximum)		
Phase	SS window 3 – Al CPS			Value					
Master				12300					
	7600 (Minimum)	11550 (Nominal)	15500 (Maximum)						

Master: 3-Aug-2008 18:01									
EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration									
Gamma Density: Background									
Phase	LS window 3 – Background CPS			Value	Phase	SS window 1 – Background CPS			Value
Master				62.16	Master				84.83
50.00 (Minimum)	70.00 (Nominal)	90.00 (Maximum)			50.00 (Minimum)	75.00 (Nominal)	100.0 (Maximum)		
Phase	SS window 3 – Background CPS			Value					
Master				402.9					
	270.0 (Minimum)	370.0 (Nominal)	470.0 (Maximum)						

Master: 3-Aug-2008 18:01									
EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration									
Gamma Density: Water Block Check									
Phase	Long spacing water density G/C3			Value	Phase	Short spacing water density G/C3			Value
Master				1.059	Master				1.264
1.026 (Minimum)	1.043 (Nominal)	1.059 (Maximum)			1.221 (Minimum)	1.256 (Nominal)	1.291 (Maximum)		











Master: 1-Aug-2008 12:53									
EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration									
Resistivity: Air									
Phase	Phase-Shift T1			Value	Phase	Phase-Shift T2			Value
Master				-1.296	Master				1.203
-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)			-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		
Phase	Phase-Shift T4			Value	Phase	Phase-Shift T5			Value
Master				1.213	Master				-1.294
-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)			-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		
Phase	Phase-Shift T2 at 400KHz			Value	Phase	Phase-Shift T3 at 400KHz			Value
Master				-1.994	Master				2.082
-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)			-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		
Phase	Phase-Shift T4 at 400KHz			Value					
Master				-1.913					
-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)							
Phase	Phase-Shift T5 at 400KHz			Value					
Master				1.915					
-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)							

(Minimum) (Nominal) (Maximum)

Master: 1-Aug-2008 12:53

EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration

Resistivity: Air

Phase	Attenuation T1	Value	Phase	Attenuation T2	Value	Phase	Attenuation T3	Value
Master		8.169	Master		6.249	Master		4.775
	7.000 (Minimum)	9.000 (Nominal)		4.000 (Minimum)	6.000 (Nominal)		3.500 (Minimum)	5.500 (Nominal)
		11.00 (Maximum)			8.000 (Maximum)			7.500 (Maximum)
Phase	Attenuation T4	Value	Phase	Attenuation T5	Value	Phase	Attenuation T1 at 400KHz	Value
Master		4.656	Master		3.332	Master		8.157
	2.500 (Minimum)	4.500 (Nominal)		2.000 (Minimum)	4.000 (Nominal)		7.000 (Minimum)	9.000 (Nominal)
		6.500 (Maximum)			6.000 (Maximum)			11.00 (Maximum)
Phase	Attenuation T2 at 400KHz	Value	Phase	Attenuation T3 at 400KHz	Value	Phase	Attenuation T4 at 400KHz	Value
Master		6.267	Master		4.757	Master		4.669
	4.000 (Minimum)	6.000 (Nominal)		3.500 (Minimum)	5.500 (Nominal)		2.500 (Minimum)	4.500 (Nominal)
		8.000 (Maximum)			7.500 (Maximum)			6.500 (Maximum)
Phase	Attenuation T5 at 400KHz	Value						
Master		3.317						
	2.000 (Minimum)	4.000 (Nominal)						
		6.000 (Maximum)						

SCHLUMBERGER

Survey report

Client..... Santos Ltd
Field..... Otway
Well..... Netherby-1 DW1
Job number..... 08ASQ0003
Engineer..... J. Oldridge / Z. Rudd
RIG..... Ocean Patriot
STATE..... Victoria

Spud date..... 02-Aug-08
Last survey date..... 12-Aug-08
Total accepted surveys... 86
MD of first survey..... 0.00 m
MD of last survey..... 2517.00 m

----- Survey calculation methods-----
Method for positions..... Minimum curvature
Method for DLS..... Mason & Taylor

----- Depth reference -----
Permanent datum..... Mean Sea Level
Depth reference..... Driller's Depth
GL above permanent..... -66.10 m
KB above permanent..... 20.80 m
DF above permanent..... 20.80 m

----- Vertical section origin-----
Latitude (+N/S-)..... 0.00 m
Departure (+E/W-)..... 0.00 m

----- Platform reference point-----
Latitude (+N/S-).....
Departure (+E/W-).....

Azimuth from Vsect Origin to target: 0.00 degrees

----- Geomagnetic data -----
Magnetic model..... BGGM version 2007
Magnetic date..... 01-Aug-2008
Magnetic field strength... 1215.17 HCNT
Magnetic dec (+E/W-)..... 10.78 degrees
Magnetic dip..... -69.86 degrees

----- MWD survey Reference Criteria -----
Reference G..... 1000.07 mGal
Reference H..... 1215.17 HCNT
Reference Dip..... -69.86 degrees
Tolerance of G..... (+/-) 2.50 mGal
Tolerance of H..... (+/-) 6.00 HCNT
Tolerance of Dip..... (+/-) 0.45 degrees

----- Corrections -----
Magnetic dec (+E/W-)..... 10.78 degrees
Grid convergence (+E/W-).. -1.03 degrees
Total az corr (+E/W-)..... 11.81 degrees
(Total az corr = magnetic dec - grid conv)
Survey Correction Type ...:
I=Sag Corrected Inclination
M=Schlumberger Magnetic Correction
S=Shell Magnetic Correction
F=Failed Axis Correction
R=Magnetic Resonance Tool Correction
D=Dmag Magnetic Correction

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SCHLUMBERGER Survey Report

Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/100f)	Srvy tool type	Tool Corr (deg)
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIP	None
2	87.00	0.00	0.00	87.00	87.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD_M	None
3	110.29	0.34	228.85	23.29	110.29	-0.05	-0.05	-0.05	0.07	228.85	0.44	MWD_M	None
4	139.31	0.48	70.38	29.02	139.31	-0.06	-0.06	-0.00	0.06	182.21	0.85	MWD_M	None
5	168.50	0.56	302.02	29.19	168.50	0.06	0.06	-0.01	0.06	351.63	0.98	MWD_M	None
6	196.58	0.62	250.43	28.08	196.58	0.08	0.08	-0.27	0.28	286.10	0.56	MWD_M	None
7	224.66	0.70	303.64	28.08	224.66	0.12	0.12	-0.55	0.57	282.37	0.65	MWD_M	None
8	252.74	0.64	294.72	28.08	252.73	0.28	0.28	-0.84	0.88	288.58	0.13	MWD_M	None
9	280.80	0.72	298.73	28.06	280.79	0.43	0.43	-1.14	1.22	290.84	0.10	MWD_M	None
10	309.51	0.65	287.17	28.71	309.50	0.57	0.57	-1.45	1.56	291.36	0.16	MWD_M	None
11	337.98	0.69	292.15	28.47	337.97	0.68	0.68	-1.76	1.89	291.08	0.08	MWD_M	None
12	366.89	0.70	359.25	28.91	366.88	0.92	0.92	-1.93	2.14	295.57	0.81	MWD_M	None
13	395.80	0.92	12.26	28.91	395.78	1.32	1.32	-1.88	2.30	305.19	0.30	MWD_M	None

14	424.75	0.87	19.30	28.95	424.73	1.76	1.76	-1.76	2.49	315.04	0.13	MWD_M	None
15	453.68	0.56	88.31	28.93	453.66	1.97	1.97	-1.54	2.50	321.94	0.89	MWD_M	None
16	482.49	0.59	96.35	28.81	482.47	1.96	1.96	-1.26	2.33	327.35	0.09	MWD_M	None
17	511.36	0.65	96.56	28.87	511.34	1.92	1.92	-0.94	2.14	333.84	0.06	MWD_M	None
18	540.27	0.70	100.87	28.91	540.24	1.87	1.87	-0.61	1.97	341.99	0.08	MWD_M	None
19	569.05	0.71	112.99	28.78	569.02	1.77	1.77	-0.27	1.79	351.27	0.16	MWD_M	None
20	597.90	0.69	128.34	28.85	597.87	1.59	1.59	0.03	1.59	1.05	0.20	MWD_M	None
21	617.15	0.84	123.17	19.25	617.12	1.44	1.44	0.24	1.46	9.38	0.26	MWD_M	None
22	634.46	0.94	124.68	17.31	634.42	1.29	1.29	0.46	1.37	19.65	0.18	MWD_M	None
23	660.03	0.52	130.06	25.57	659.99	1.10	1.10	0.72	1.31	33.35	0.51	MWD_M	None
24	745.26	2.31	160.81	85.23	745.19	-0.77	-0.77	1.58	1.76	116.04	0.67	MWD_M	None
25	773.50	4.27	158.54	28.24	773.39	-2.29	-2.29	2.15	3.14	136.73	2.12	MWD_M	None
26	801.23	5.89	157.85	27.73	801.01	-4.57	-4.57	3.07	5.50	146.11	1.78	MWD_M	None
27	831.43	7.57	152.25	30.20	831.00	-7.76	-7.76	4.58	9.01	149.47	1.82	MWD_M	None
28	859.94	9.31	137.33	28.51	859.20	-11.12	-11.12	7.02	13.15	147.75	2.98	MWD_M	None
29	889.70	11.19	126.87	29.76	888.49	-14.63	-14.63	10.96	18.28	143.15	2.70	MWD_M	None
30	919.19	12.15	123.94	29.49	917.37	-18.08	-18.08	15.82	24.02	138.80	1.17	MWD_M	None

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SCHLUMBERGER Survey Report

Seq # -	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/ 100f)	Srvy tool type	Tool Corr (deg)
31	948.90	12.93	122.08	29.71	946.37	-21.59	-21.59	21.23	30.28	135.47	0.90	MWD_M	None
32	979.41	13.44	120.85	30.51	976.07	-25.22	-25.22	27.17	37.07	132.86	0.58	MWD_M	None
33	1007.51	14.16	120.45	28.10	1003.36	-28.63	-28.63	32.94	43.64	131.00	0.79	MWD_M	None
34	1036.14	14.55	118.54	28.63	1031.10	-32.13	-32.13	39.12	50.62	129.40	0.65	MWD_M	None
35	1065.20	14.60	118.24	29.06	1059.22	-35.60	-35.60	45.55	57.81	128.01	0.09	MWD_M	None
36	1096.08	14.09	118.27	30.88	1089.14	-39.23	-39.23	52.29	65.37	126.88	0.50	MWD_M	None
37	1124.66	14.01	116.68	28.58	1116.87	-42.43	-42.43	58.44	72.22	125.98	0.42	MWD_M	None
38	1153.50	15.82	116.95	28.84	1144.73	-45.78	-45.78	65.07	79.56	125.13	1.91	MWD_M	None
39	1182.04	19.92	117.65	28.54	1171.89	-49.80	-49.80	72.84	88.24	124.36	4.38	MWD_M	None
40	1210.10	23.56	117.60	28.06	1197.95	-54.62	-54.62	82.05	98.57	123.65	3.95	MWD_M	None
41	1239.36	25.76	114.79	29.26	1224.54	-59.99	-59.99	93.01	110.68	122.82	2.60	MWD_M	None
42	1267.39	29.36	115.62	28.03	1249.39	-65.52	-65.52	104.74	123.54	122.03	3.94	MWD_M	None
43	1294.27	33.74	116.12	26.88	1272.29	-71.66	-71.66	117.39	137.53	121.40	4.98	MWD_M	None
44	1322.42	33.97	116.49	28.15	1295.67	-78.61	-78.61	131.45	153.16	120.88	0.33	MWD_M	None
45	1350.13	34.69	115.42	27.71	1318.55	-85.44	-85.44	145.50	168.73	120.42	1.03	MWD_M	None
46	1379.95	34.59	115.60	29.82	1343.08	-92.74	-92.74	160.80	185.63	119.98	0.15	MWD_M	None
47	1408.27	35.05	116.50	28.32	1366.33	-99.85	-99.85	175.32	201.76	119.66	0.74	MWD_M	None
48	1429.41	34.97	116.54	21.14	1383.65	-105.26	-105.26	186.17	213.87	119.48	0.12	MWD	None
49	1487.90	35.17	112.27	58.49	1431.53	-119.14	-119.14	216.76	247.35	118.79	1.28	MWD	None
50	1505.00	35.50	109.55	17.10	1445.48	-122.67	-122.67	226.00	257.14	118.49	2.86	MWD_M	None
51	1517.15	35.81	105.68	12.15	1455.35	-124.81	-124.81	232.75	264.10	118.20	5.71	MWD	None
52	1543.44	37.54	107.13	26.29	1476.43	-129.25	-129.25	247.81	279.49	117.54	2.24	MWD	None
53	1569.82	39.74	109.42	26.38	1497.04	-134.42	-134.42	263.44	295.75	117.03	3.03	MWD	None
54	1600.60	42.06	111.11	30.78	1520.30	-141.40	-141.40	282.34	315.77	116.60	2.55	MWD	None
55	1629.46	44.65	112.85	28.86	1541.29	-148.82	-148.82	300.71	335.52	116.33	3.01	MWD	None
56	1657.18	47.47	114.86	27.72	1560.52	-156.90	-156.90	318.96	355.46	116.19	3.49	MWD	None
57	1686.89	50.14	117.99	29.71	1580.09	-166.86	-166.86	338.97	377.81	116.21	3.65	MWD	None
58	1715.23	52.55	119.95	28.34	1597.79	-177.58	-177.58	358.32	399.91	116.36	3.07	MWD	None
59	1744.26	55.92	121.19	29.03	1614.76	-189.56	-189.56	378.60	423.41	116.60	3.69	MWD	None
60	1773.52	59.64	122.89	29.26	1630.36	-202.70	-202.70	399.57	448.05	116.90	4.15	MWD	None

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SCHLUMBERGER Survey Report

Seq # -	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/ 100f)	Srvy tool type	Tool Corr (deg)
61	1804.17	64.78	123.05	30.65	1644.64	-217.45	-217.45	422.31	475.01	117.24	5.11	MWD	None
62	1832.79	69.15	123.30	28.62	1655.84	-231.86	-231.86	444.35	501.21	117.56	4.66	MWD	None
63	1860.88	73.78	123.07	28.09	1664.76	-246.43	-246.43	466.64	527.71	117.84	5.03	MWD	None
64	1889.08	77.80	122.38	28.20	1671.68	-261.21	-261.21	489.63	554.95	118.08	4.40	MWD	None
65	1919.55	79.76	122.50	30.47	1677.61	-277.24	-277.24	514.85	584.75	118.30	1.96	MWD	None
66	1946.54	80.97	122.53	26.99	1682.13	-291.54	-291.54	537.29	611.29	118.49	1.37	PUP	None
67	1973.95	83.60	122.37	27.41	1685.81	-306.12	-306.12	560.21	638.39	118.65	2.93	PUP	None
68	2011.18	87.85	121.02	37.23	1688.58	-325.62	-325.62	591.79	675.46	118.82	3.65	PUP	None
69	2031.41	89.37	120.87	20.23	1689.08	-336.02	-336.02	609.14	695.67	118.88	2.30	PUP	None
70	2060.00	89.80	121.67	28.59	1689.28	-350.85	-350.85	633.57	724.23	118.98	0.97	PUP	None
71	2089.29	89.46	120.38	29.29	1689.47	-365.95	-365.95	658.67	753.50	119.06	1.39	PUP	None
72	2112.91	89.48	119.43	23.62	1689.69	-377.73	-377.73	679.14	777.12	119.08	1.23	PUP	None
73	2148.38	93.04	121.22	35.47	1688.91	-395.63	-395.63	709.75	812.57	119.14	3.42	PUP	None
74	2177.62	94.65	120.61	29.24	1686.95	-410.62	-410.62	734.78	841.73	119.20	1.79	PUP	None
75	2204.98	96.37	120.79	27.37	1684.32	-424.52	-424.52	758.20	868.96	119.24	1.93	PUP	None
76	2234.16	96.29	119.97	29.17	1681.11	-439.19	-439.19	783.21	897.95	119.28	0.86	PUP	None
77	2262.48	94.85	119.65	28.32	1678.36	-453.20	-453.20	807.67	926.13	119.30	1.59	PUP	None
78	2291.13	95.36	119.68	28.65	1675.81	-467.32	-467.32	832.46	954.67	119.31	0.54	PUP	None
79	2321.31	95.04	119.36	30.18	1673.07	-482.13	-482.13	858.62	984.72	119.32	0.46	PUP	None
80	2350.32	93.87	118.72	29.00	1670.82	-496.16	-496.16	883.90	1013.63	119.31	1.40	PUP	None
81	2378.82	94.18	118.17	28.51	1668.82	-509.71	-509.71	908.90	1042.07	119.28	0.67	PUP	None
82	2407.67	94.16	117.99	28.85	1666.72	-523.25	-523.25	934.29	1070.84	119.25	0.19	PUP	None
83	2436.52	94.22	117.82	28.85	1664.61	-536.72	-536.72	959.72	1099.60	119.22	0.19	PUP	None
84	2465.68	95.68	118.34	29.16	1662.10	-550.39	-550.39	985.35	1128.65	119.19	1.62	PUP	None
85	2494.27	98.42	119.26	28.59	1658.59	-564.06	-564.06	1010.21	1157.02	119.18	3.08	PUP	None
86	2517.00	98.30	119.30	22.73	1655.28	-575.06	-575.06	1029.82	1179.50	119.18	0.17	Proj.	To TD

Company: **Santos Limited**

Schlumberger

Well: **Netherby 1DW1**

Field: **Otway**

Rig: **Ocean Patriot**

State: **Victoria**

**EcoScope * Resistivity
1:200 True Vertical Depth
Recorded Mode Log**