Schlumberger

Company: Lamont-Doherty Borehole Research

Well: IODP Expedition 311 CAS-05D

Field: Cascadia Margin

Rig: JOIDES Resolution State: Pacific Ocean

Rig: JOIDES Resolution
Field: Cascadia Margin
Location: Vancouver Island
Well: IODP Expedition 311 CAS-05D
Company: Lamont-Doherty Borehole Research

EcoScope Resistivity - Dual Frequency
1:240 Measured Depth
Recorded Mode Log

Location

Total depth:	1190 m
Spud date:	25-Sep-2005
Runs:	1 To 1

Elevation

K.B.	10.06 m
G.L.	-960 m
D.F.	9.60 m

Permanent datum: MEAN SEA LEVEL Elev.: 0 m
Log measured from: Kelly Bushing 10.06 m above Perm. datum
Depth reference: Driller's Depth

Service Order no.	NAD 27	Longitude	Latitude
40012416	UTM Zone 10 N	W 126.67862	N 48.78945

Depth logged:	970 m To 1184 m	Mag decl:	18.84 deg.
Date logged:	25-Sep-05 To 26-Sep-05	Mag dip:	69.35 deg.

Other services: geoVISION, sonicVISION, proVISION

Bore hole record

Hole size	from	to
9.875 in.	970 m	1190 m

Casing record

Size	Density	from	to

Mud record

Type	from	to
Seawater	970 m	1190 m

Borehole deviation record

Min	Max	from	to

Surface equipment

Unit	TWIS
Depth system	Geolograph

Software record

IDEAL Wis	ID10_2C_01		
SPM	hspm10_1c_05		
LWD	See Remarks		
MWD	9.0_C03		

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 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.

OTHER SERVICES FOR RUN

OTHER SERVICES FOR RUN 1
Real Time STC Projection
Annular Pressure While Drilling

OTHER SERVICES FOR RUN

REMARKS: RUN NUMBER

REMARKS: RUN NUMBER

REMARKS: RUN NUMBER 1
Run Objective: Drill and log sites CAS-05D to select the coring point.
Source of data: Recorded Mode
Reason POOH: Reach TD.

EcoScope gamma ray is not environmentally corrected.
EcoScope resistivity is borehole compensated and is environmentally corrected for bit size and mud resistivity.
Neutron Porosity was computed using a sandstone matrix of 2.65 g/cc and was corrected for bit size, temperature, borehole salinity and mud hydrogen index.
Barite was not present in the mud.

Tool Record Rates:
EcoScope Res, Density & Neutron @ 2 sec

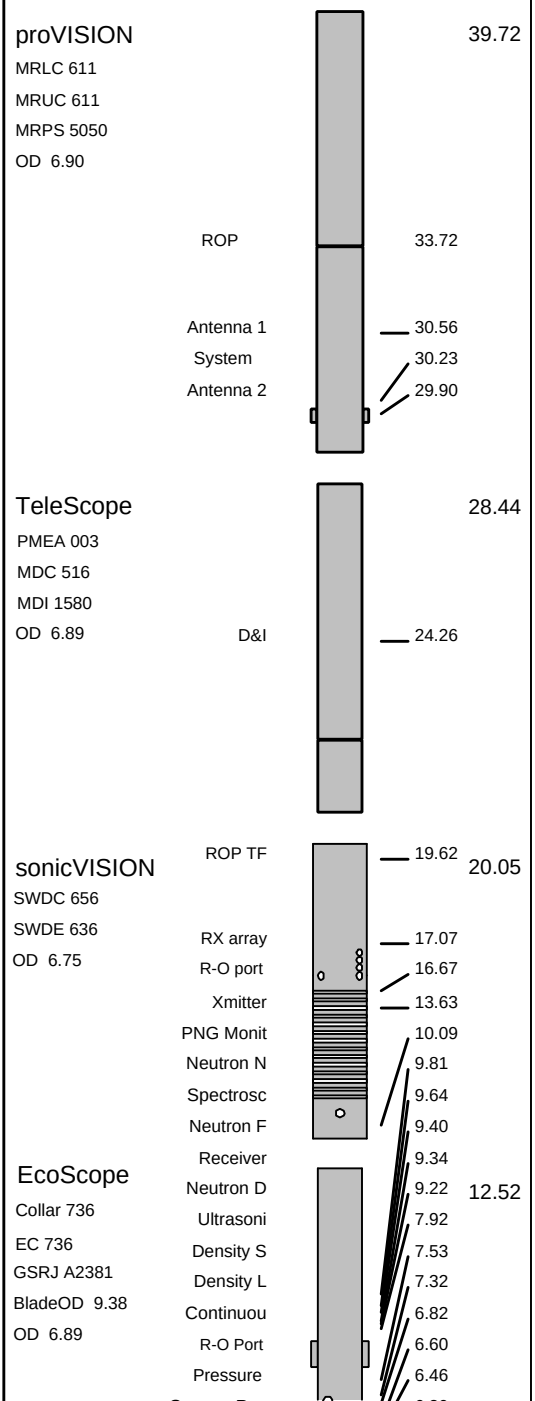
Tool Software Version:
TeleScope: 9.0_C03 EcoScope: 11

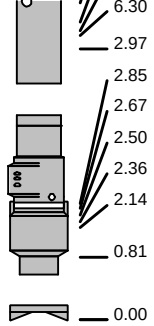
Crew: L. Loh and D. Buster

EQUIPMENT DESCRIPTION

RUN1	RUN	RUN

DOWNHOLE EQUIPMENT





geoVISION 4.47

RBDC 34621

RBEC 202

BladeOD 9.25

OD 6.75

Milled Tooth Bit 0.38

OD 9.88

Maximum string diameter 9.88 in.

All lengths in Meters

Bit Run Summary

Run number		1									
Bit size	in.	9.875									
Bit start depth	m	970									
Bit end depth	m	1190									
Top interval logged	m	970									
Bottom interval logged	m	1184									
Begin log: time		15:00									
Begin log: date		25-Sep-05									
End log: time		20:25									
End log: date		26-Sep-05									
Mud data											
Depth	m	970									
Type		Seawater									
Mud weight	ppg	8.5									
Solids	%	n/a									
Chlorides	mg/L	Seawater									
Rm	ohmmdegF	Seawater									
Rmf	ohmmdegF	Seawater									
Rmc	ohmmdegF	Seawater									
Potassium	ppm	n/a									
Environmental data											
GR											
Mud weight	ppg	8.5									
Bit size	in.	9.875									
Resistivity											
Neutron porosity											
Hole Size	in.	9.875									
Mud weight	ppg	8.5									
Temperature	degC	6									
Mud salinity	ppm	Seawater									
Formation salinity	ppm	n/a									
Recording rate 1	SEC	5 sec									
Recording rate 2	SEC	10 sec									
Filtering GR		3 points									
Filtering density		3 points									
Filtering Neutron		3 points									
Company representative		G. Myers									
Schlumberger D&M Personnel		L. Loh									

Variable Name	Variable Description	Run Name & Value

Run Number 1

General Information

BHT_RM	Bottom Hole Temperature (RM)	43.000000
BSAL_RM	Mud Salinity (RM)	0.000000
BS_RM	Bit Size (RM)	9.875000
COEF_M	User Defined FEXP in Clean Sand	1.650000
C_WS	Overpressure correction to Sw and M	1.000000
FEXP	Formation Factor Exponent(RM)	2.000000
FNUM	Formation Factor Enumerator(RM)	1.000000
FPHI_RM	Formation Factor Porosity Source (RM)	XPLOT
MST_RM	Mud Sample temperature (RM)	75.000000
MW_RM	Mud Weight (RM)	8.500000
OBMF_RM	Oil Based Mud (RM)	NO
RHOF_RM	Mud Filtrate Density (RM)	1.000000
RHOM_RM	Matrix density (RM)	2.650000
RMS_RM	Resistivity of Mud Sample (RM)	1.000000
RWA_COMP_M	Rwa computation model	BASIC
RWA_DEN_AD	Rwa Density Input ADN	RHOB
RWA_DEN_CD	Rwa Density Input CDN	RHOB
RWA_DEN_IN	Rwa Density Input	RHOB
RWA_FORM_M	Rwa computation formation model	CLASTIC
RWA_RES_IN	Rwa computation resistivity input	RT
RWS_RM	Resistivity of Connate Water (RM)	1.000000
SHT_RM	Surface Hole Temperature (RM)	12.700000
TD_RM	Total Measured Depth (RM)	3904.189941
TWS_RM	Temperature of Connate Water (RM)	75.000000
VF_ILLI	Fraction of illite in shales	0.500000
VF_KAOL	Fraction of kaolinite in shales	0.500000
VF_MONT	Fraction of montmorillonite in shales	0.000000
XPDM_RM	Cross plot density porosity multiplier	0.675000
XPNM_RM	Cross plot neutron porosity multiplier	0.325000

DVD

LWD_RM/STATION_FILE/PARAMETER	Station Time-frame file name	Station
---------- ----------Density Parameter----------	----------Density	
---------- ----------Neutron Parameter----------	----------Neutron	
---------- ---------Interpretation Parameter----------	---------Interpretation	
---------- ---------Sigma Parameter----------	---------Sigma	
A12A	ARC Air Cal Attenuation From T1 at 2 MHz	8.096470
A14A	ARC Air Cal Attenuation From T1 at 400 KHz	8.154540
A22A	ARC Air Cal Attenuation From T2 at 2 MHz	6.357980
A24A	ARC Air Cal Attenuation From T2 at 400 KHz	6.313930
A32A	ARC Air Cal Attenuation From T3 at 2 MHz	4.697780
A34A	ARC Air Cal Attenuation From T3 at 400 KHz	4.754960
A42A	ARC Air Cal Attenuation From T4 at 2 MHz	4.759350
A44A	ARC Air Cal Attenuation From T4 at 400 KHz	4.713040
A52A	ARC Air Cal Attenuation From T5 at 2 MHz	3.258230
A54A	ARC Air Cal Attenuation From T5 at 400 KHz	3.315620
ABNT	Abnormal Transmitter Indicator	No_Tx_Failed
ALPHA_DEN_	Density Enhanced Vertical Resolution Processing Switch	YES
ANISO_COMP	Anisotropy Computation Option	YES
ATMP_ARC	ARC Select Temperature Channel	Annulus_Temp
AZMF	Formation DIP Azimuth	0.000000
BH_COMPUTE	Borehole Inversion Computation Option	YES
CALG	DVDM Gamma Ray Cal Gain Factor	-1.000000
CDPTH_ARC	Process Start Depth	100.000000
DEVI	Well Section Deviation	0.100000
DIELEC_COM	Dielectric Computation Option	YES
DIPF	Formation DIP Angle	0.000000
DVDMDHS	DVDM Down Hole Software Version	0.000000
DYN_IMAGE_	Generate Dynamic Normalized Image?	YES
EDPTH	Wizard Process Stop Depth	50000
EN_WIZARD	Enable ARC Wizard Processing	NO
ERRCT	Percentage Error Cutoff	4.500000
EVRL	EVR Process averaging number of samples (RM)	49
FWVN	Firmware Version Number	1.100000
GCSE	Generalized Caliper Selection	BS
GRBC	RM: DVDM Gamma Ray Blanket (CPS)	75.000000
GRSH	GR Shale (Invasion Computation Cutoff)	1000.000000
GR_CF	Gamma Ray Correction Factor	2.250000
HIGH_BLEND	High Resistivity Threshold for Blending	2.000000
IDQT	Image Derived Quality Threshold	1.000000
IMAGE_MAX_	Image Density Caliper Right Scale	8.000000
IMAGE_MAX_	Image Density Quality Right Scale	1.000000
IMAGE_MAX_	Image PEF(Segment) Right Scale	6.000000
IMAGE_MAX_	Image RHOB(Segment) Right Scale	2.650000
IMAGE_MIN_	Image Density Caliper Left Scale	2.000000
IMAGE_MIN_	Image Density Quality Left Scale	0.000000
IMAGE_MIN_	Image PEF(Segment) Left Scale	2.000000
IMAGE_MIN_	Image RHOB(Segment) Left Scale	2.050000
IMAGE_ORIE	Image Orientation Options, e.g. Top of Hole or True North	NORTH
INCLIN_B0	ARC Bias Constant (mg)	0.000000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)	0.000000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)	0.000000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)	0.000000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	1.000000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)	0.000000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)	0.000000
INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)	0.000000

INVAS_COMP	Invasion Computation Option	YES
JSD	Acquisition start date	YES
JSD_ARC	ARC Acquisition start date	YES
LOW_BLEND	Low Resistivity Threshold for Blending	1.000000
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
MSWS	ARC Wizard Model Switch Window	5.000000
MULTIEFFEC	Multi Effect Option	YES
NEU_DCOR_O	Density Correction Source for Neutron Processing	Average
NEU_FTUBE_	Far Thermal Tube Selection	Both
NTIK_SEL	Neutron Tick Channel Name	FAZ1
OACF	O2 Activation Correction Factor (RM)	0.000000
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	1.143270
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	1.838910
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	-1.152680
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	-1.826430
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	1.064520
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	1.835500
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	-1.202580
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	-1.845070
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	1.092880
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	1.844270
PMUD	Potassium Concentration in Mud	0.000000
POFFSET	Pressure Offset	0.000000
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	P34B
PSOF_ADJ_T	ARC: User Input Phase offset	0.000000
RESTIK	ARC resistivity tick source	Phase
SDPTH	Wizard Process Start Depth	100
SIG_PCOR_O	Porosity Correction Source for Sigma Processing	Best
SPEC_CSG_D	Casing Depth for Spectroscopy Processing	100.000000
SPL_CLAY_M	SpectroLith Clay Model	ARENITE
SPL_COAL_O	SpectroLith Coal Processing Option	NONE
SPL_SULFUR	SpectroLith Sulfur Mineral Option	ANHYDRITE
STAB_SIZE	Stabilizer Size	9.375000
STOH	Density Top of Hole Sector (Left Boundary)	SECTOR_0
TRNO	Tool Run Number	3904.189941
TSIZ_ARC	ARC Tool Size	6.900000
TSNO	Tool Serial Number	6.900000
UNIFORM_CO	Uniform Rock Option	YES
VERS_ARC	ARC Down hole software version Number	1.100000
WRK	Way to Report Potassium Concentration	K_by_Wgt_%
WSDI	Window Size of Dynamic Normalization Image	50.000000

Schlumberger Drilling & Measurements Parameter Insert Header Software version 2.0c

IDEAL Version: ID10_2B_08

IDF

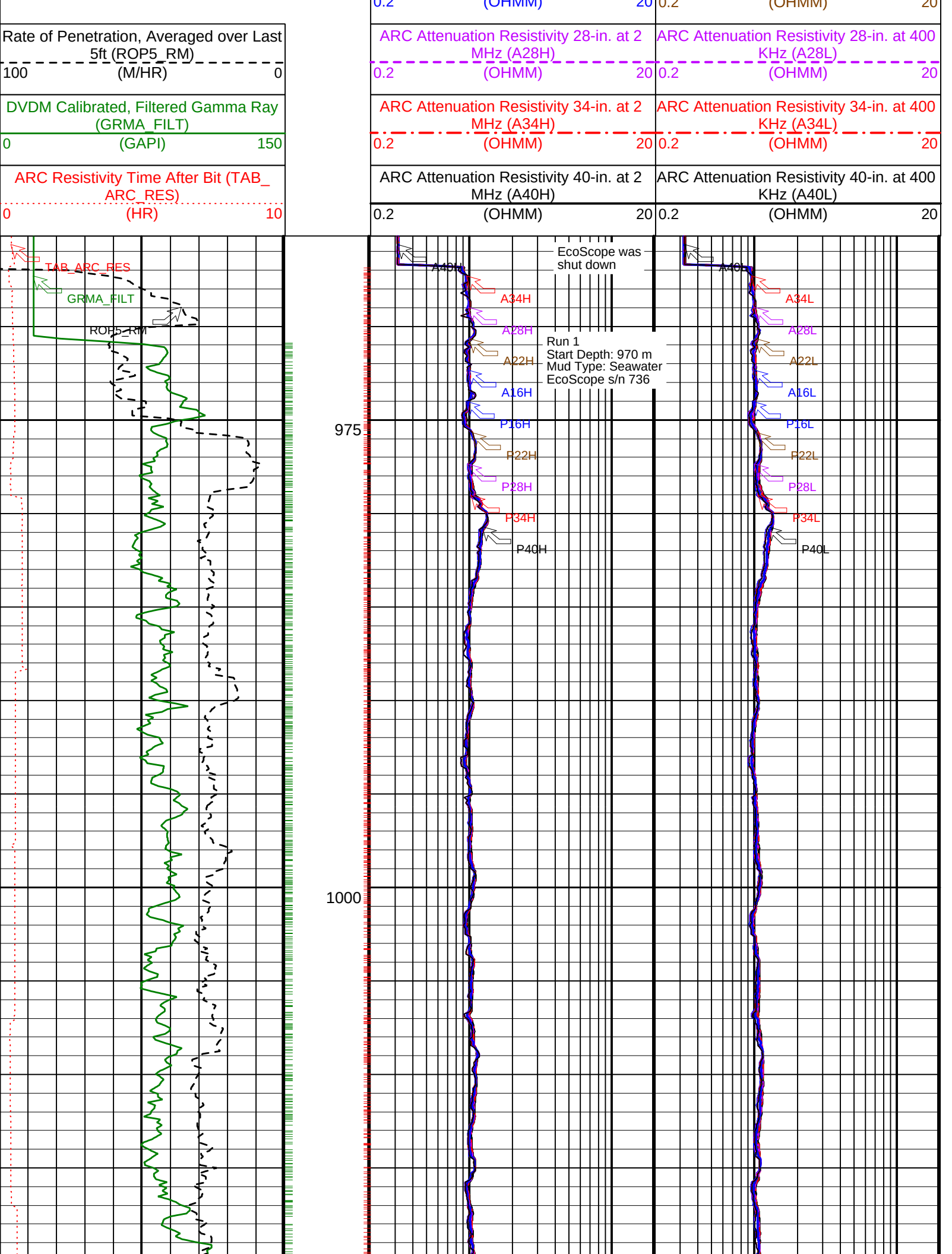
Format: 5 MD ARC DUAL FREQ Vertical Scale: 1:240 Graphics File Created: 03-Oct-2005 11:32

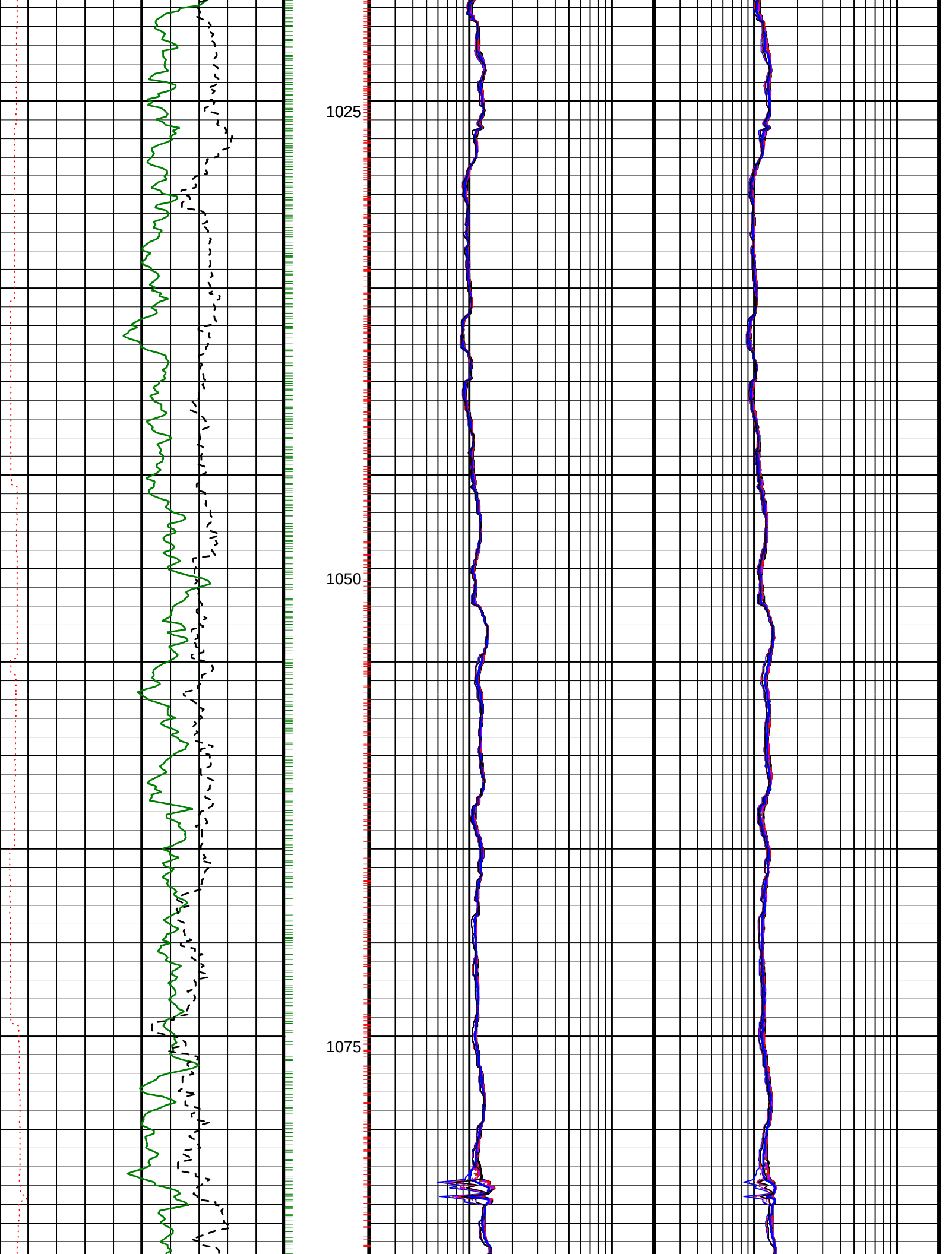
PIP SUMMARY

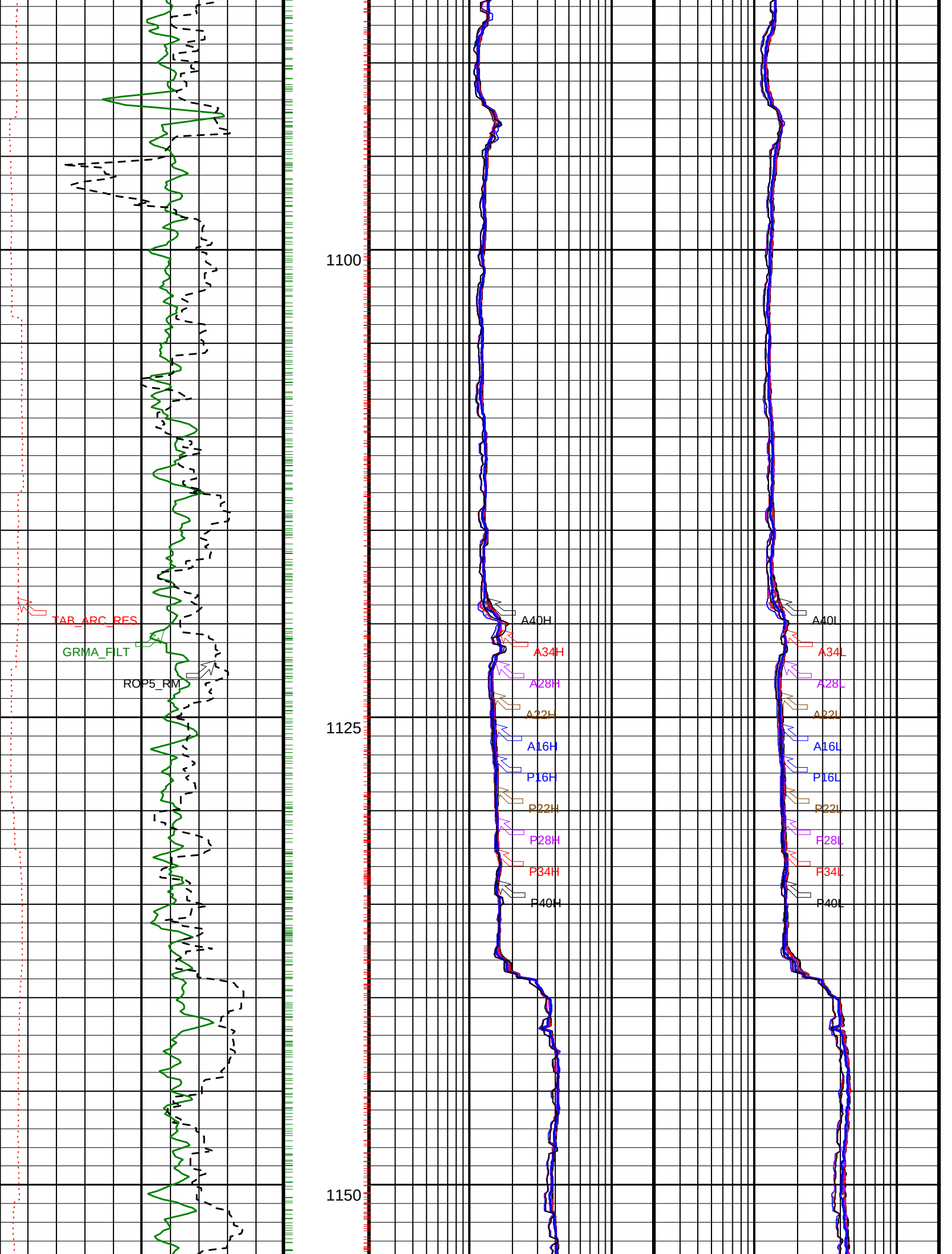
ARC Resistivity Samples

DVDM Gamma Ray Samples

ARC Attenuation Resistivity 16-in. at 2 MHz (A16H)	0.2	(OHMM)	20	ARC Phase-Shift Resistivity 40-in. at 400 KHz (P40L) 0.2 (OHMM) 20
ARC Attenuation Resistivity 22-in. at 2 MHz (A22H)	0.2	(OHMM)	20	ARC Phase-Shift Resistivity 34-in. at 400 KHz (P34L) 0.2 (OHMM) 20
ARC Phase-Shift Resistivity 40-in. at 2 MHz (P40H)	0.2	(OHMM)	20	ARC Phase-Shift Resistivity 28-in. at 400 KHz (P28L) 0.2 (OHMM) 20
ARC Phase-Shift Resistivity 34-in. at 2 MHz (P34H)	0.2	(OHMM)	20	ARC Phase-Shift Resistivity 22-in. at 400 KHz (P22L) 0.2 (OHMM) 20
ARC Phase-Shift Resistivity 28-in. at 2 MHz (P28H)	0.2	(OHMM)	20	ARC Phase-Shift Resistivity 16-in. at 400 KHz (P16L) 0.2 (OHMM) 20
ARC Phase-Shift Resistivity 22-in. at 2 MHz (P22H)	0.2	(OHMM)	20	ARC Attenuation Resistivity 16-in. at 400 KHz (A16L) 0.2 (OHMM) 20
ARC Phase-Shift Resistivity 16-in. at 2 MHz (P16H)				ARC Attenuation Resistivity 22-in. at 400 KHz (A22L)


Rate of Penetration, Averaged over Last 5ft (ROP5_RM)
100 (M/HR) 0
DVDM Calibrated, Filtered Gamma Ray (GRMA_FILT)
0 (GAPI) 150
ARC Resistivity Time After Bit (TAB_ARC_RES)
0 (HR) 10
0.2 (OHMM) 20
ARC Attenuation Resistivity 28-in. at 2 MHz (A28H)
0.2 (OHMM) 20
ARC Attenuation Resistivity 28-in. at 400 KHz (A28L)
0.2 (OHMM) 20
ARC Attenuation Resistivity 34-in. at 2 MHz (A34H)
0.2 (OHMM) 20
ARC Attenuation Resistivity 34-in. at 400 KHz (A34L)
0.2 (OHMM) 20
ARC Attenuation Resistivity 40-in. at 2 MHz (A40H)
0.2 (OHMM) 20
ARC Attenuation Resistivity 40-in. at 400 KHz (A40L)
0.2 (OHMM) 20
TAB_ARC_RES
GRMA_FILT
ROP5_RM
EcoScope was shut down
Run 1
Start Depth: 970 m
Mud Type: Seawater
EcoScope s/n 736
A40H
A34H
A28H
A22H
A16H
P16H
P22H
P28H
P34H
P40H
A40L
A34L
A28L
A22L
A16L
P16L
P22L
P28L
P34L
P40L
975
1000


1025
1050
1075


TAB_ARC_RES
GRMA_FILT
ROP5_RM
1100
1125
1150
A40H
A34H
A28H
A22H
A16H
P16H
P22H
P28H
P34H
P40H
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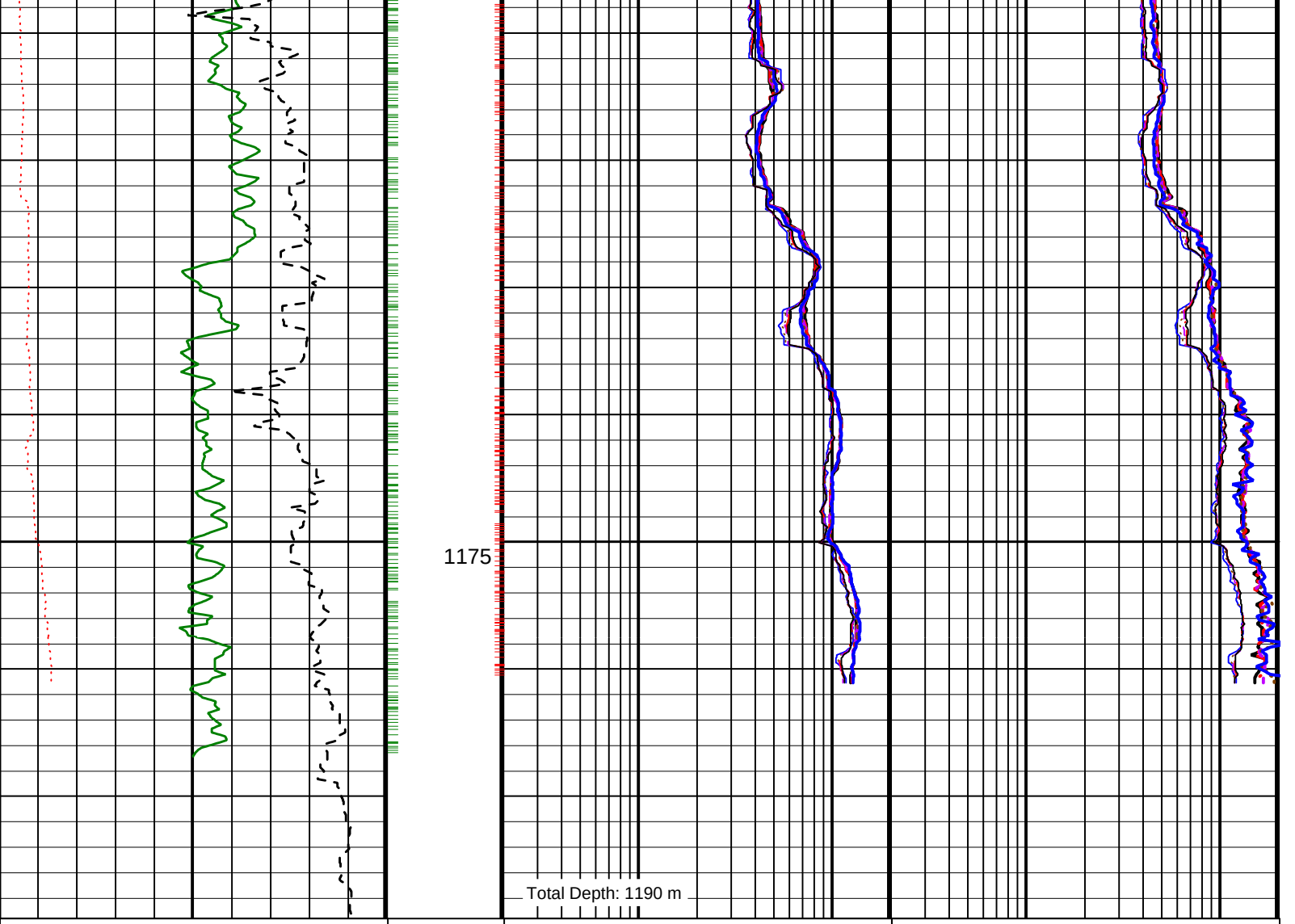
A22L
A16L
P16L
P22L
P28L
P34L
P40L



ARC Resistivity Time After Bit (TAB_ARC_RES)
0 (HR) 10

DVDM Calibrated, Filtered Gamma Ray (GRMA_FILT)
0 (GAPI) 150

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

ARC Attenuation Resistivity 40-in. at 2 MHz (A40H)
0.2 (OHMM) 20

ARC Attenuation Resistivity 34-in. at 2 MHz (A34H)
0.2 (OHMM) 20

ARC Attenuation Resistivity 28-in. at 2 MHz (A28H)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 16-in. at 2 MHz (P16H)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 22-in. at 2 MHz (P22H)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 28-in. at 2 MHz (P28H)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 34-in. at 2 MHz (P34H)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 40-in. at 2 MHz (P40H)
0.2 (OHMM) 20

ARC Attenuation Resistivity 22-in. at 2

ARC Attenuation Resistivity 40-in. at 400 KHz (A40L)
0.2 (OHMM) 20

ARC Attenuation Resistivity 34-in. at 400 KHz (A34L)
0.2 (OHMM) 20

ARC Attenuation Resistivity 28-in. at 400 KHz (A28L)
0.2 (OHMM) 20

ARC Attenuation Resistivity 22-in. at 400 KHz (A22L)
0.2 (OHMM) 20

ARC Attenuation Resistivity 16-in. at 400 KHz (A16L)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 16-in. at 400 KHz (P16L)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 22-in. at 400 KHz (P22L)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 28-in. at 400 KHz (P28L)
0.2 (OHMM) 20

ARC Phase-Shift Resistivity 34-in. at 400

			MHz (A22H)		KHz (P34L)
0.2	(OHMM)	20	0.2	(OHMM)	20
	ARC Attenuation Resistivity 16-in. at 2 MHz (A16H)			ARC Phase-Shift Resistivity 40-in. at 400 KHz (P40L)	
0.2	(OHMM)	20	0.2	(OHMM)	20

PIP SUMMARY

ARC Resistivity Samples

DVDM Gamma Ray Samples

IDEAL Version: ID10_2B_08

IDF

EcoScope Integrated Logging-While-Drilling Tool - 6.75 inch / Equipment Identification

Primary Equipment:

Tool Name and Serial Number	ECO - 675	736
Calibration Status	-	
Collar Type and Serial Number	ADDC - AA	
Chassis Type and Serial Number	ADSE - EA	
Stabilizer Type and Serial Number	ADCS - CA	
Neutron Logging Source	NSR - M	
Density Logging Source	GSR - J/Z	
Stabilizer Size	9.38 - in.	

Master: 22-Jul-2005 7:37

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

SSn LSn : Water Tank

Phase	SSn Gain	Value	Phase	SSn Offset	Value
Master		1.000	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: 22-Jul-2005 7:37

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

Neutron: Water Tank

Phase	Far 2 Gain	Value	Phase	Far 2 Offset	Value
Master		1.056	Master		-0.7620
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		1.055	Master		-0.4690
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		1.155	Master		-137.6
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)	-500.0 (Minimum)	0 (Nominal)	500.0 (Maximum)
Phase	Epithermal Near gain	Value	Phase	Eptithermal Near offset	Value
Master		1.221	Master		-13.57
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)	-300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)

Master: Calibration out of date 11-Apr-2005 14:14

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	Phase	SS window 3 - Mg CPS	Value
Master		2041	Master		5077	Master		11910
1000 (Minimum)	2000 (Nominal)	3000 (Maximum)	2500 (Minimum)	5250 (Nominal)	8000 (Maximum)	6000 (Minimum)	12000 (Nominal)	18000 (Maximum)

Master: Calibration out of date 11-Apr-2005 14:14

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

Gamma Density: Aluminum Block

Phase	LS window 3 - Al CPS	Value
Master		372.3
	200.0 (Minimum) 400.0 (Nominal) 600.0 (Maximum)	

Phase	SS window 1 - Al CPS	Value
Master		2692
	1500 (Minimum) 3000 (Nominal) 4500 (Maximum)	

Phase	SS window 3 - Al CPS	Value
Master		8750
	4000 (Minimum) 8500 (Nominal) 13000 (Maximum)	

Master: Calibration date not found

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

Gamma Density: Background

Phase	LS window 3 - Background CPS	Value
Master		57.82
	50.00 (Minimum) 70.00 (Nominal) 90.00 (Maximum)	

Phase	SS window 1 - Background CPS	Value
Master		85.68
	50.00 (Minimum) 75.00 (Nominal) 100.0 (Maximum)	

Phase	SS window 3 - Background CPS	Value
Master		413.0
	270.0 (Minimum) 370.0 (Nominal) 470.0 (Maximum)	

Master: Calibration date not found

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

Gamma Density: Water Block Check

Phase	Long spacing water density G/C3	Value
Master		1.047
	0.9000 (Minimum) 1.150 (Nominal) 1.400 (Maximum)	

Phase	Short spacing water density G/C3	Value
Master		1.262
	0.9000 (Minimum) 1.150 (Nominal) 1.400 (Maximum)	

Master: Calibration date not found

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

Resistivity: Air

Phase	Phase-Shift T1	Value
Master		1.143
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T2	Value
Master		-1.153
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T3	Value
Master		1.065
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T4	Value
Master		-1.203
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T5	Value
Master		1.093
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T1 at 400KHz	Value
Master		1.839
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T2 at 400KHz	Value
Master		-1.826
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T3 at 400KHz	Value
Master		1.836
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T4 at 400KHz	Value
Master		-1.845
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase-Shift T5 at 400KHz	Value
Master		1.844
	-4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Master: Calibration date not found

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

Resistivity: Air

Phase	Attenuation T1	Value
Master		8.096
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	Attenuation T2	Value
Master		6.358
	4.000 (Minimum) 6.000 (Nominal) 8.000 (Maximum)	

Phase	Attenuation T3	Value
Master		4.698
	3.500 (Minimum) 5.500 (Nominal) 7.500 (Maximum)	

Phase	Attenuation T4	Value
Master		4.759
	2.500 (Minimum) 4.500 (Nominal) 6.500 (Maximum)	

Phase	Attenuation T5	Value
Master		3.258
	2.000 (Minimum) 4.000 (Nominal) 6.000 (Maximum)	

Phase	Attenuation T1 at 400KHz	Value
Master		8.155
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	Attenuation T2 at 400KHz	Value
Master		6.314
	4.000 (Minimum) 6.000 (Nominal) 8.000 (Maximum)	

Phase	Attenuation T3 at 400KHz	Value
Master		4.755
	3.500 (Minimum) 5.500 (Nominal) 7.500 (Maximum)	

Phase	Attenuation T4 at 400KHz	Value
Master		4.713
	2.500 (Minimum) 4.500 (Nominal) 6.500 (Maximum)	

Phase	Attenuation T5 at 400KHz	Value
Master		3.316
	2.000 (Minimum) 4.000 (Nominal) 6.000 (Maximum)	

Master: Calibration date not found

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

Gamma Ray: Blanket

Phase	Gamma ray factor	Value
Master		2.250

2.000 (Minimum) — 2.500 (Nominal) — 3.000 (Maximum)

Company:	Lamont-Doherty Borehole Research
Well:	IODP Expedition 311 CAS-05D
Field:	Cascadia Margin
Rig:	JOIDES Resolution
State:	Pacific Ocean

Schlumberger

EcoScope Resistivity - Dual Frequency
1:240 Measured Depth
Recorded Mode Log

Geomarket	NGC	Location	Vancouver Island
Job Date	25-SEP-2005	Customer	Lamont-Doherty Boreh
Rig	JOIDES Resolution	Field/Well	Cascadia Margin/CAS-0
Engineer	Lake Loh	Job Number	40012416

Operation

Presentation

Description of Well - Names, Geometry, Services, Location and References; Ge Header, user of trademarks, directional data, well plot, order of components, spelli sensor to toolface angle recorded

Equiment and Software Description

Tool sketch, equipment numbers, software versions, data rates, filtering weights

Processing Traceability and Environment Description
Acquisition environment, parameters and key constants for each run or zone, comp remarks

Annotations, Presented Formats, QC Curves, Print Quality
Documented splice points; data gap explanations, mud changes, movement indica selection

Calibration and Verifications

Calibration / Before survey verification / After survey verification

Validity, completeness (includes equipment number), timeliness, unedited, descrep

Operating Procedures

Depth Control
Comparison with driller's depth, other logs, other bit runs, between RT and RM. De listing

Logging speed and sampling rates

As recommended in reference manual or job planner. No loss of data or spatial re

Data Comparison

Between runs and passes, with data from nearby wells, other conveyance, mud lo

Operating Anomalies/Failure/Missing Data/Sensor Orientation/Transmission L

Absence of noise and spurious variations, anomaly repeated, corrected, reported c

Digital Delivery

Digital Products
Labeled, verification listing with complete digital record, backup for archival; record hard copy.

Job Quality Rating (JQR)
Number of boxes without number X 10

Environmental effects

Irregular Operation

Excessive ROP or speed, high deviation, shocks, vibrations, sticking conditions

Borehole Geometry

Shape (caves, etc), rugosity, spiralled hole, mud induced fractures. Casing, tubing

Borehole Fluid

Barite, KCl, salinity, additives, gas cut, unstable

Interferences

External noise, nearby casing or drillpipe, debris, unusual formation composition

Operation Outside Tool Specifications
GeomarketTemperature, pressure, hole size, hole deviation, dog-leg severity, flow r value of parameter

Environmental Quality Rating (EQR)
Number of boxes without number X 20

Data Quality Report

ole Research	
05D	

Type of Measurement

	Res	GR	Neu	Den	APWD
eneral Content ng and style, units					
plete and relavant	1		3		
ator, color					
pency explained					
pth summary	2	2	2	2	
solution					
g and markers					
osses or explained.					
d matches					
	80	90	80	90	100
	1	1	1	1	1
g conditions	2		2	2	
rate, rpm, solids				3	
	60	80	60	40	80

When data does not meet standards, put a number in the colum corresponding to the measurement with a corresponding number and remark below. Use additional pages for remarks

Positive remarks are welcome; do not append them with a number.

Remarks

1. Correcting the resistivity data by assumming mud resistivity as 1 ohmm @ 75 degF.
2. Depth is not compensated for heave. The heave cause the spikes of ROP and this eventually cause the low data density and distortion on the image. The heave also cause the curves (gamma ray, resistivity, density and neutron porosity) do not correlate to each other very well and cause the resistivity curves blocky.
3. Correcting the Neutron Porosity data by assumming borehole salinity as 0 ppk.

1. Excessive ROP is causing low data density.
2. Borehole washouts cause the resistivity curves separation. EcoScope Neutron Porosity is only corrected for bit size. Large borehole washouts cause low density readings.
3. Low RPM during the early stage of the well reduce the image's resolution.

Cell Manager: Lake Loh FSM: Vijay Moras

DQR Header Utility ver 1.1c

Schlumberger Drilling & Measurements

Revised January 2002

Geomarket	NGC	Location	Vancouver Island
Job Date	25-SEP-2005	Customer	Lamont-Doherty Boreho
Rig	JOIDES Resolution	Field/Well	Cascadia Margin/CAS-0
Engineer	Lake Loh	Job Number	40012416

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Header, user of trademarks, directional data, well plot, order of components, spelli
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ble Research
05D

Data Quality Report

Type of Measurement

	Res	GR	Neu	Den	APWD
eneral Content					
ng and style, units					
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pth summary					
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g and markers					
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or explained.					
d matches					
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rate, rpm, solids					

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Remarks

Cell Manager: Lake Loh FSM: Vijay Moras

DQR Header Utility ver 1.1c

Schlumberger Drilling & Measurements

Revised January 2002