

Company: Lamont-Doherty Borehole Research

Well: IODP Expedition 311 CAS-03C
 Field: Cascadia Margin
 JOIDES Resolution State: Pacific Ocean

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

Rig: JOIDES Resolution
 Field: Cascadia Margin
 Location: Vancouver Island
 Well: IODP Expedition 311 CAS-03C
 Company: Lamont-Doherty Borehole Research

Location		Total depth:	2139 m	K.B.	10.06 m
		Spud date:	22-Sep-2005	G.L.	-1829 m
		Runs:	1 To 1	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	W 127.05055	Latitude	N 48.62722
40012416	UTM Zone 10 N				

Depth logged: 1839 m To 2133 m Mag decl: 18.83 deg. Other services:
 Date logged: 22-Sep-05 To 23-Sep-05 Mag dip: 69.14 deg. geoVISION, sonicVISION, provision

Bore hole record Casing record

Hole size	from	to	Size	Density	from	to
9.875 in.	1839 m	2139 m				
Mud record						
Type	from	to	Min	Max	from	to
Seawater	1839 m	2139 m				
Borehole deviation record						

Surface equipment			Software record		
Unit	TWIS	IDEAL Wis	ID10_2C_01		
Depth system	Geolograph	SPM	hsmp10_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 1 Real Time STC Projection Annular Pressure While Drilling	OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN
REMARKS: RUN NUMBER 1 Run Objective: Drill and log sites CAS-03C to select the coring point. Source of data: Recorded Mode Reason POOH: Move to next drill site. 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.	REMARKS: RUN NUMBER	REMARKS: RUN NUMBER

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

Tool Software Version:
TeleScope: 9.0_C03 EcoScope: 11

Crew: L. Loh and D. Buster

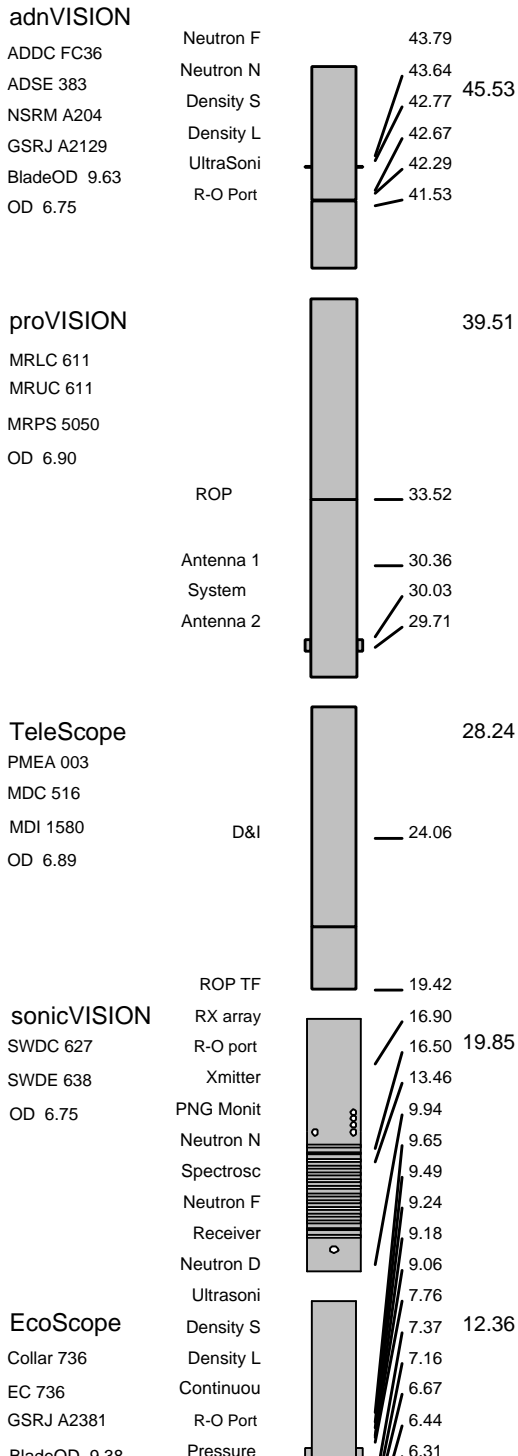
EQUIPMENT DESCRIPTION

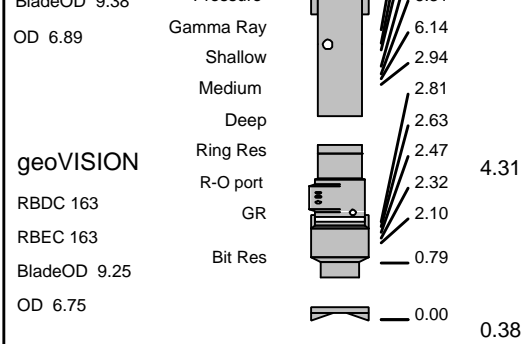
RUN1

RUN

RUN

DOWNHOLE EQUIPMENT





Milled Tooth Bit
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	1839								
Bit end depth	m	2139								
Top interval logged	m	1839								
Bottom interval logged	m	2133								
Begin log: time		14:50								
Begin log: date		22-Sep-05								
End log: time		04:10								
End log: date		23-Sep-05								
Mud data										
Depth	m	1839								
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	4								
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
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Run Number

1

General Information

BHT_RM	Bottom Hole Temperature (RM)	39.200001
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)	15.000000
TD_RM	Total Measured Depth (RM)	7017.700195
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
DVDM DHS	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
FVVN	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 Second-order Coefficient (mg/degC)	0.000000
INCLIN_B3	ARC Bias Third-order Coefficient (mg/degC)	0.000000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	1.000000
INCLIN_C1	ARC Scale First-order Coefficient (mA/g/degC)	0.000000
INCLIN_C2	ARC Scale Second-order Coefficient (mA/g/degC)	0.000000
INCLIN_C3	ARC Scale Third-order Coefficient (mA/g/degC)	0.000000

INVAS_COMP Invasiion Correction 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
 STO_H Density Top of Hole Sector (Left Boundary) SECTOR_0
 TRNO Tool Run Number 7017.700195
 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

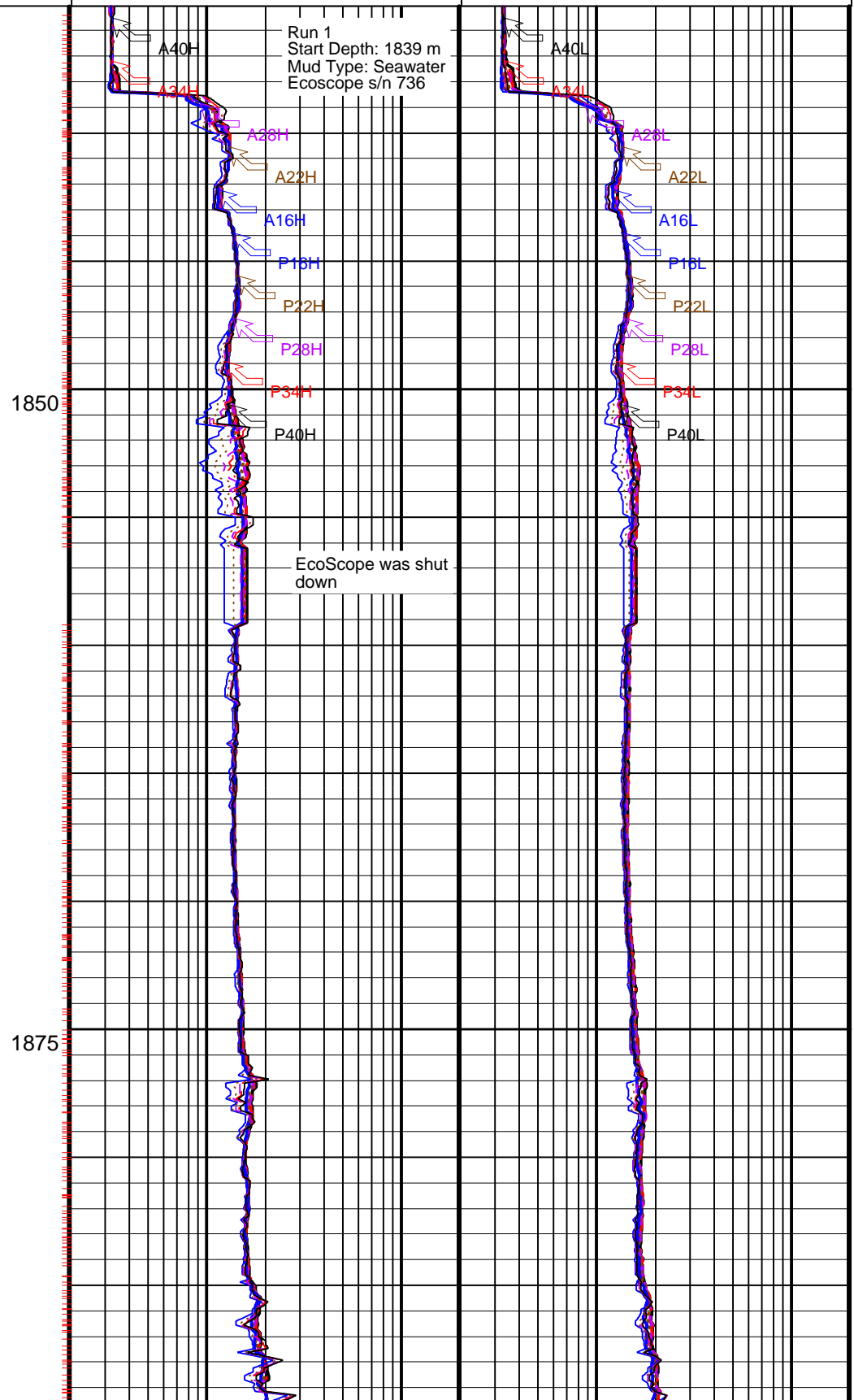
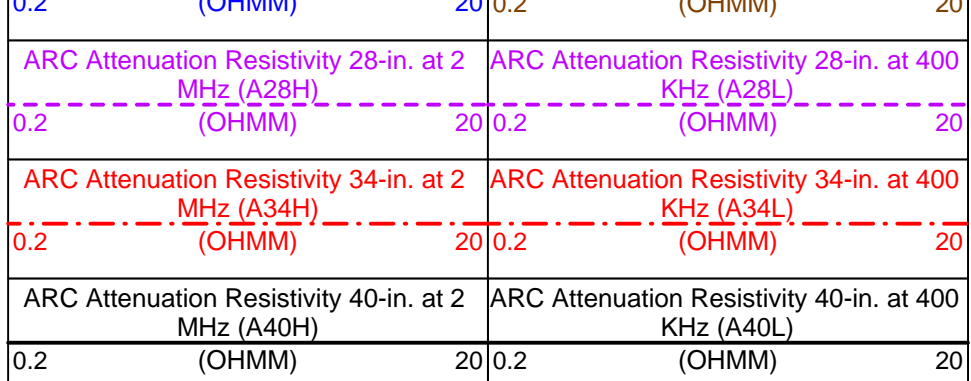
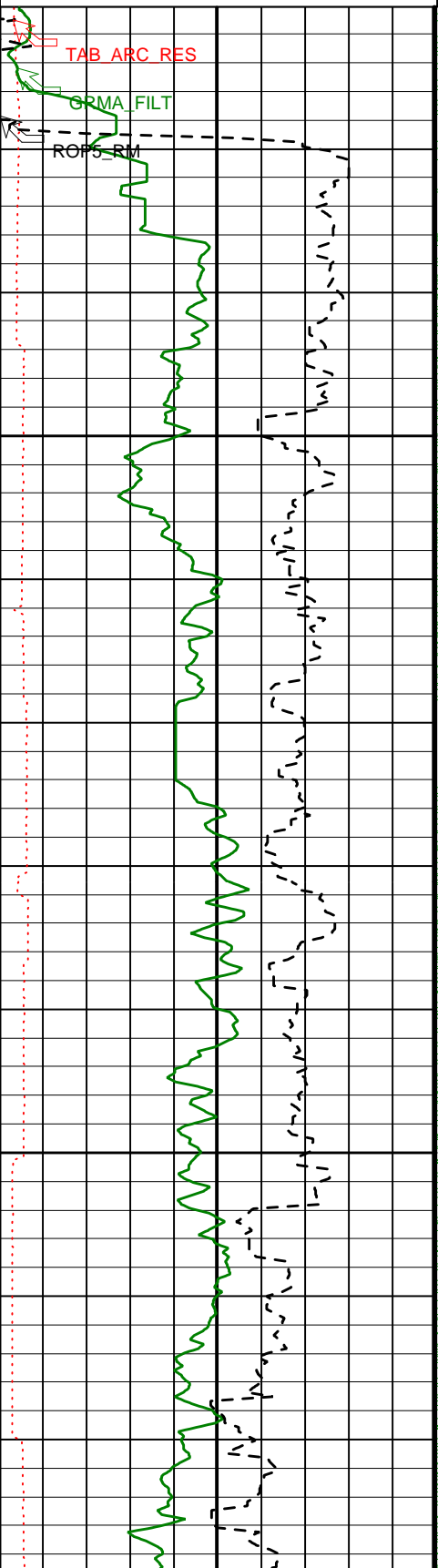
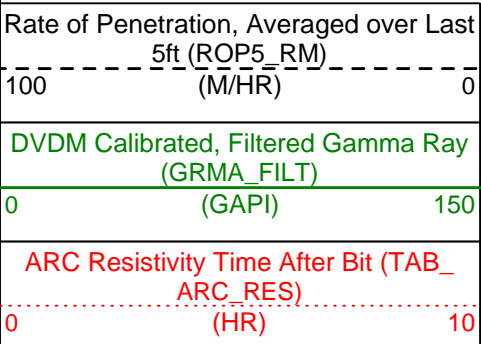
IDEAL Version: ID10_2B_08
IDF

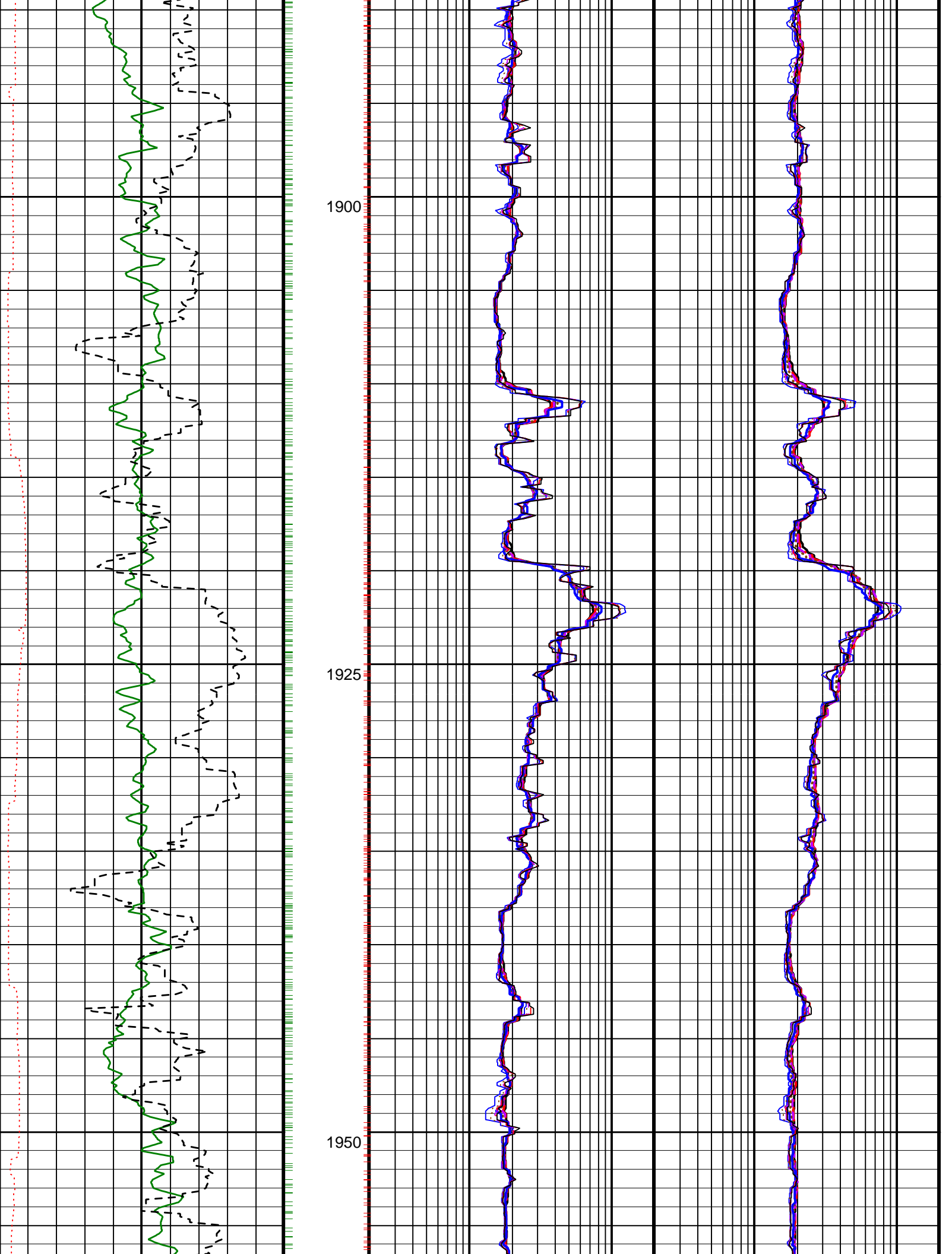
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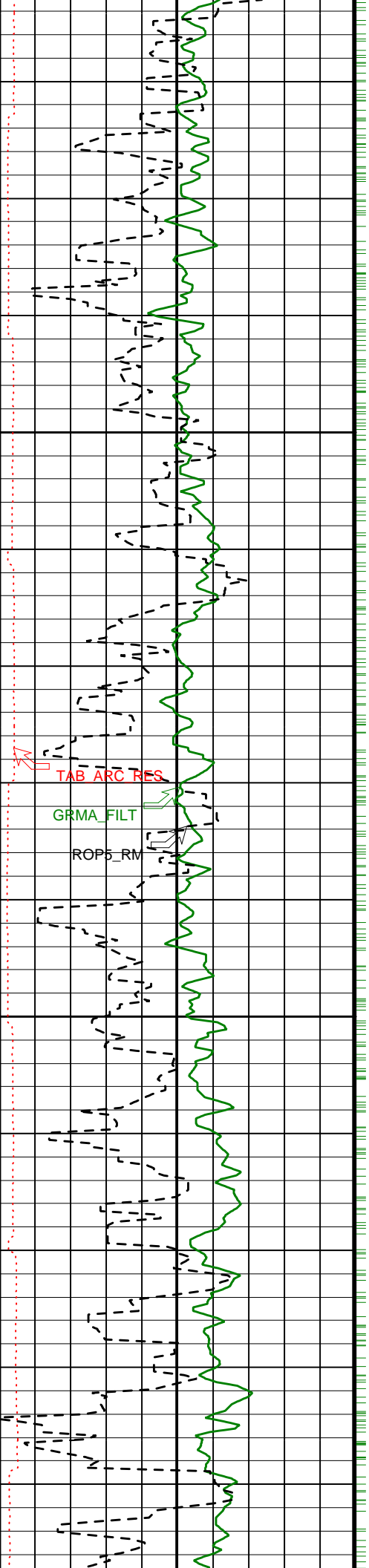
PIP SUMMARY

+ ARC Resistivity Samples
 - DVDM Gamma Ray Samples

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

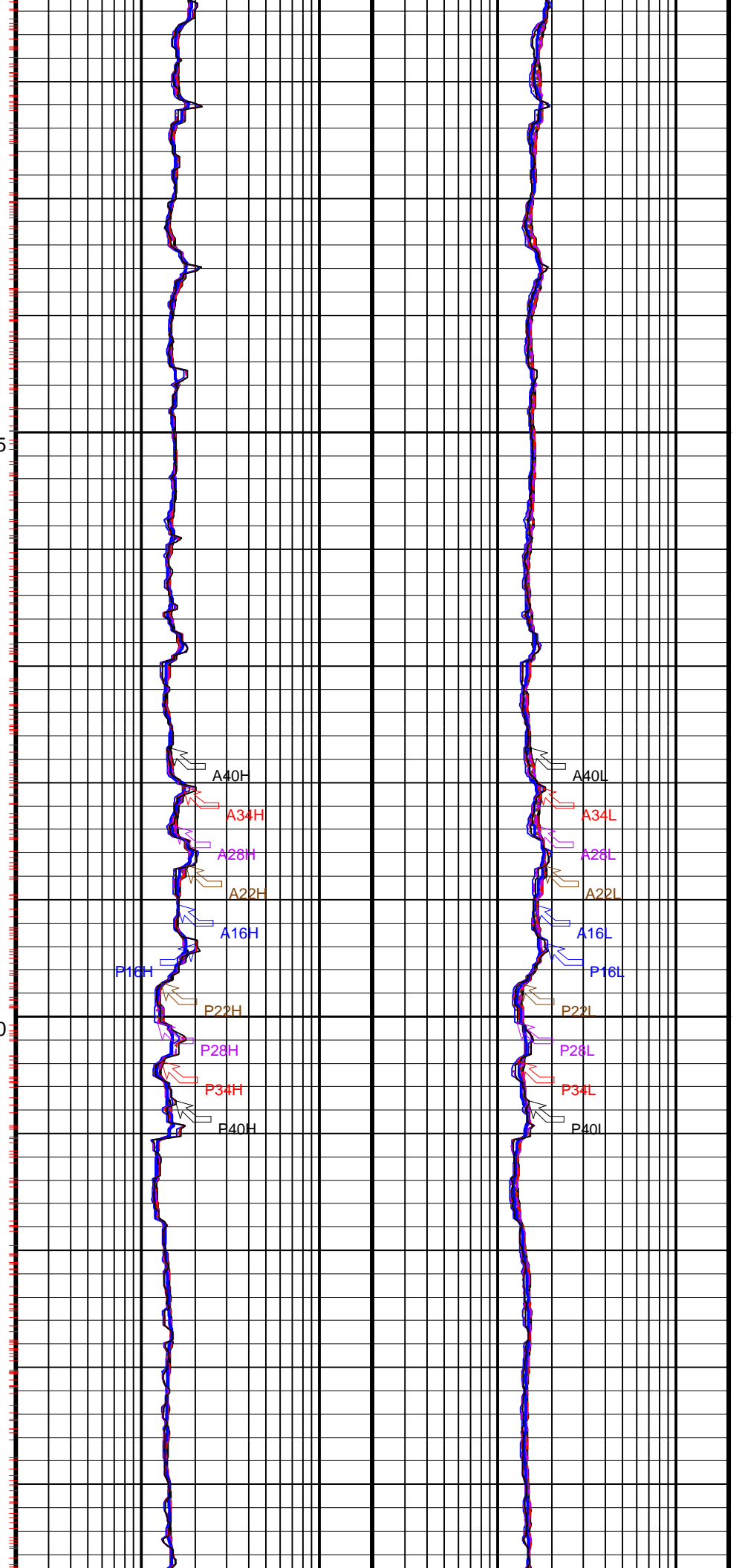


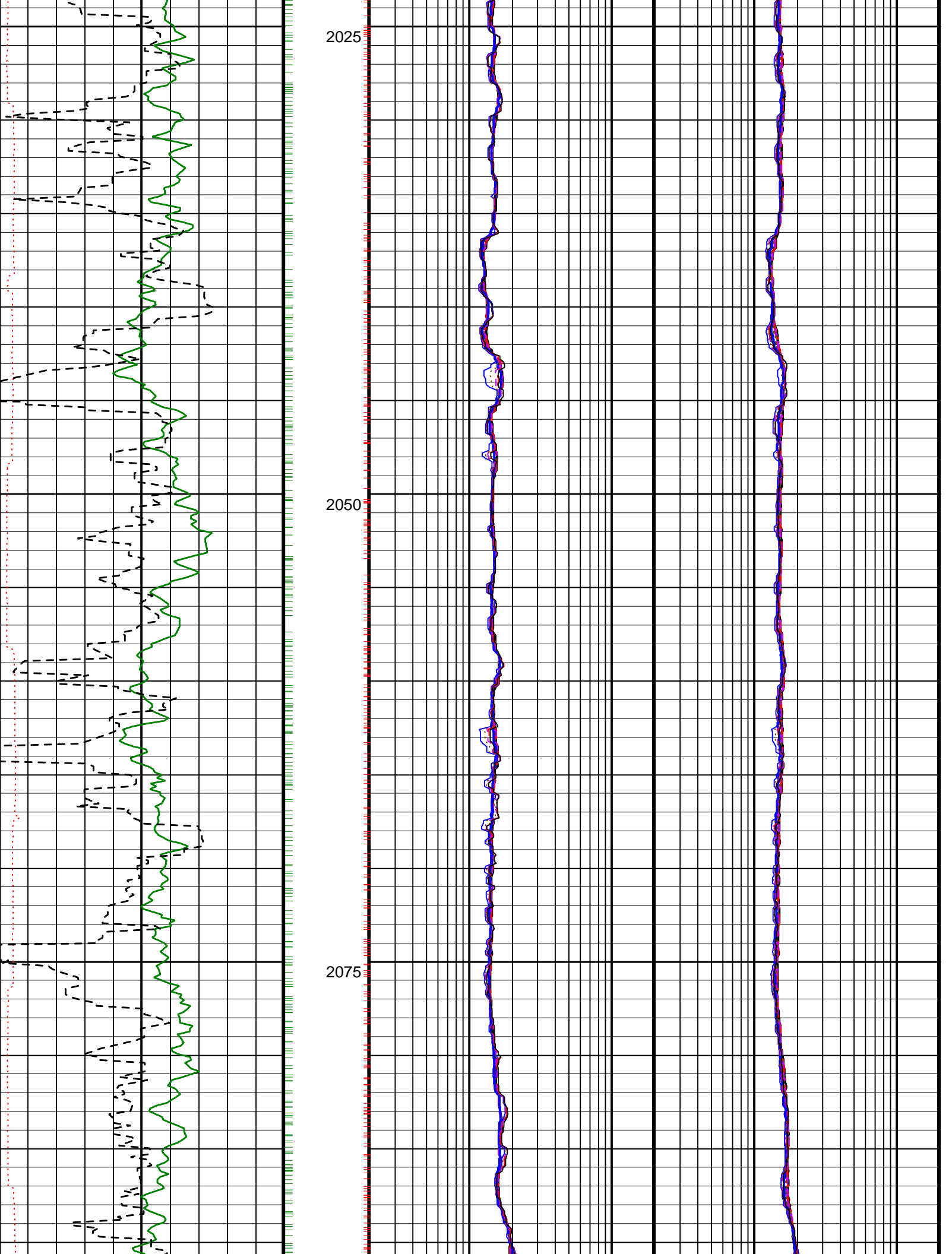


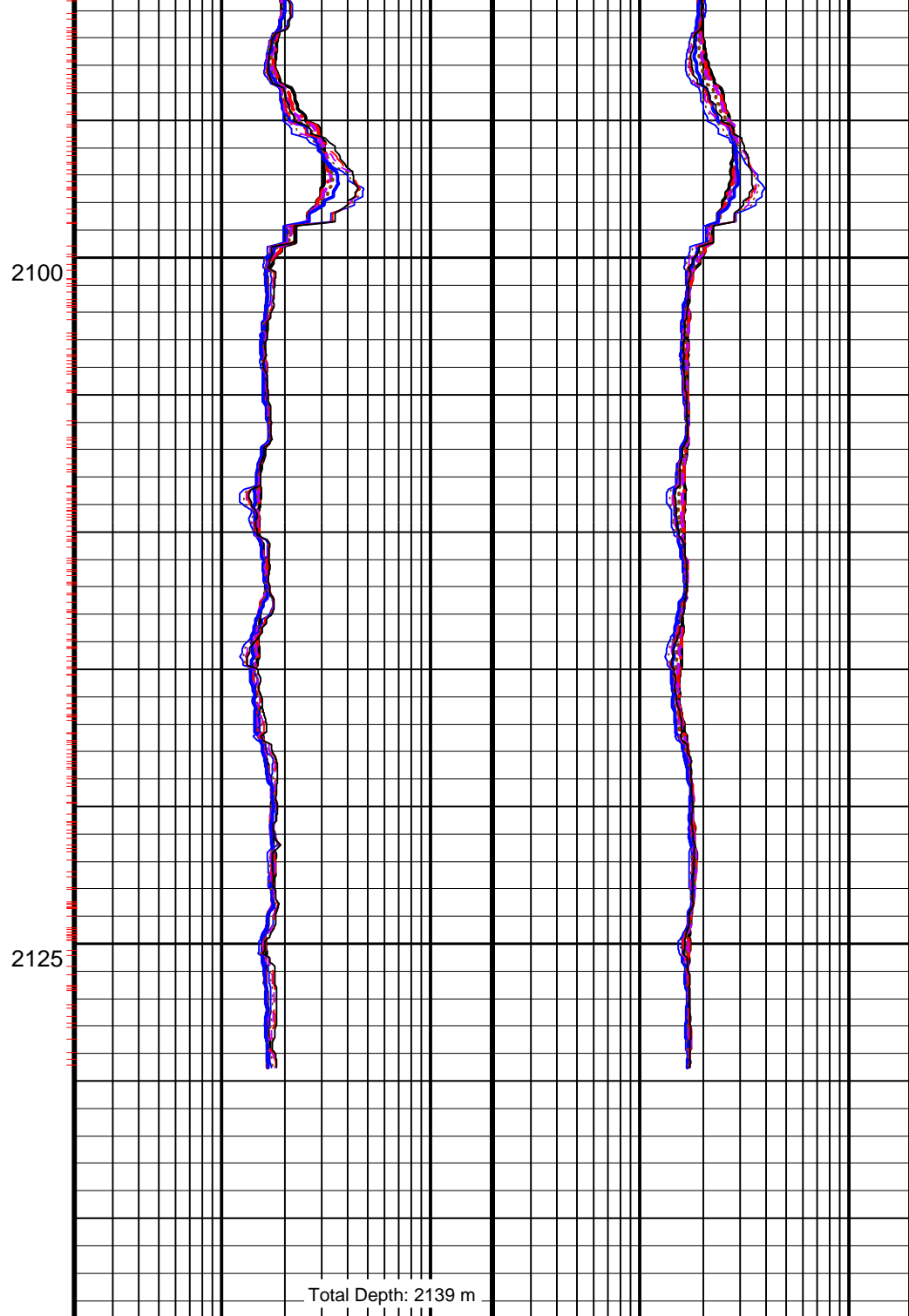
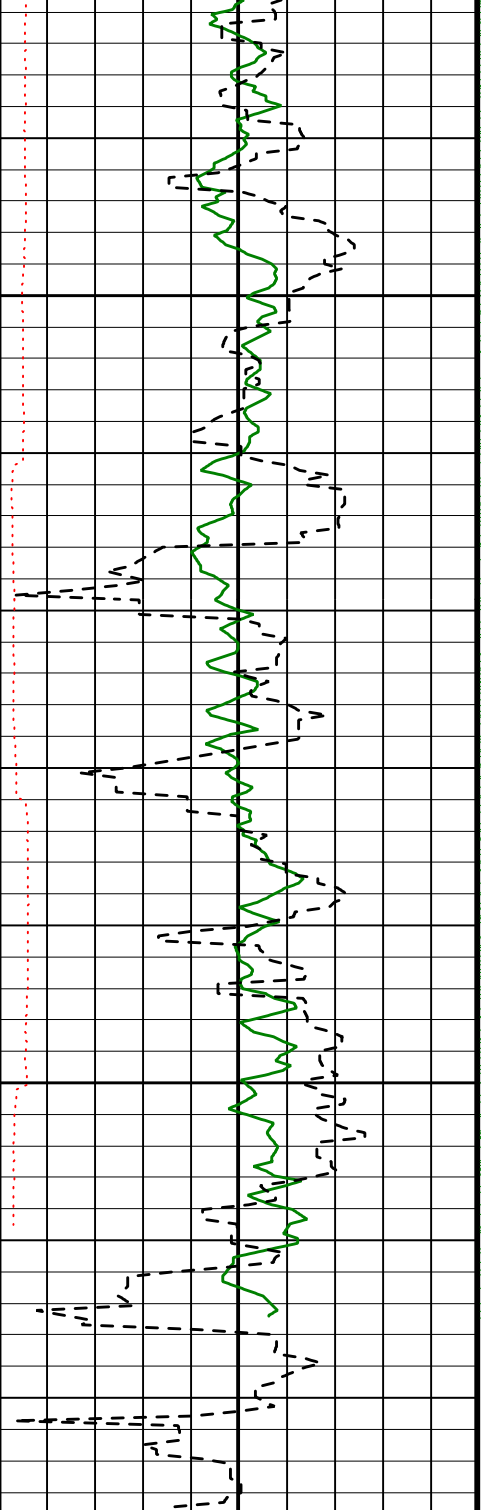


1975

2000







ARC Resistivity Time After Bit (TAB_ ARC_RES) (HR)	0	10
DVDM Calibrated, Filtered Gamma Ray (GRMA_FILT) (GAPI)	0	150
Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR)	100	0

ARC Attenuation Resistivity 40-in. at 2 MHz (A40H) (OHMM)	0.2	20	ARC Attenuation Resistivity 40-in. at 400 KHz (A40L) (OHMM)	0.2	20
ARC Attenuation Resistivity 34-in. at 2 MHz (A34H) (OHMM)	0.2	20	ARC Attenuation Resistivity 34-in. at 400 KHz (A34L) (OHMM)	0.2	20
ARC Attenuation Resistivity 28-in. at 2 MHz (A28H) (OHMM)	0.2	20	ARC Attenuation Resistivity 28-in. at 400 KHz (A28L) (OHMM)	0.2	20
ARC Phase-Shift Resistivity 16-in. at 2 MHz (P16H) (OHMM)	0.2	20	ARC Attenuation Resistivity 22-in. at 400 KHz (A22L) (OHMM)	0.2	20
ARC Phase-Shift Resistivity 22-in. at 2 MHz (P22H) (OHMM)	0.2	20	ARC Attenuation Resistivity 16-in. at 400 KHz (A16L) (OHMM)	0.2	20

ARC Phase-Shift Resistivity 28-in. at 2 MHz (P28H) (OHMM)	20	ARC Phase-Shift Resistivity 16-in. at 400 KHz (P16L) (OHMM)	20
ARC Phase-Shift Resistivity 34-in. at 2 MHz (P34H) (OHMM)	20	ARC Phase-Shift Resistivity 22-in. at 400 KHz (P22L) (OHMM)	20
ARC Phase-Shift Resistivity 40-in. at 2 MHz (P40H) (OHMM)	20	ARC Phase-Shift Resistivity 28-in. at 400 KHz (P28L) (OHMM)	20
ARC Attenuation Resistivity 22-in. at 2 MHz (A22H) (OHMM)	20	ARC Phase-Shift Resistivity 34-in. at 400 KHz (P34L) (OHMM)	20
ARC Attenuation Resistivity 16-in. at 2 MHz (A16H) (OHMM)	20	ARC Phase-Shift Resistivity 40-in. at 400 KHz (P40L) (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:	ECO - 675	736
Tool Name and Serial Number	ADDC - AA	
Calibration Status	ADSE - EA	
Collar Type and Serial Number	ADCS - CA	
Chassis Type and Serial Number	NSR - M	
Stabilizer Type and Serial Number	GSR - J/Z	
Neutron Logging Source	9.38 - in.	
Density Logging Source		
Stabilizer Size		

Master: 22-Jul-2005 12:37

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 12:37

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	Epithermal 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 19:14											
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)





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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	Phase	SS window 3 - Al	CPS	Value
Master			372.3	Master			2692	Master			8750
	200.0 (Minimum)	400.0 (Nominal)	600.0 (Maximum)		1500 (Minimum)	3000 (Nominal)	4500 (Maximum)		4000 (Minimum)	8500 (Nominal)	13000 (Maximum)

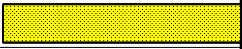
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EcoScope Integrated Logging-While-Drilling Tool - 6.75 inch Calibration											
Gamma Density: Background											
Phase	LS window 3 - Background	CPS	Value	Phase	SS window 1 - Background	CPS	Value	Phase	SS window 3 - Background	CPS	Value
Master			57.82	Master			85.68	Master			413.0
	50.00 (Minimum)	70.00 (Nominal)	90.00 (Maximum)		50.00 (Minimum)	75.00 (Nominal)	100.0 (Maximum)		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	Phase	Short spacing water density	G/C3	Value				
Master			1.047	Master			1.262				
	0.9000 (Minimum)	1.150 (Nominal)	1.400 (Maximum)		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	Phase	Phase-Shift T2	Value	Phase	Phase-Shift T3	Value			
Master		1.143	Master		-1.153	Master		1.065			
	-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)
Master		-1.203	Master		1.093	Master		1.839			
	-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)
Master		-1.826	Master		1.836	Master		-1.845			
	-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)		-4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)
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	Phase	Attenuation T2	Value	Phase	Attenuation T3	Value			
Master		8.096	Master		6.358	Master		4.698			
	7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)		4.000 (Minimum)	6.000 (Nominal)	8.000 (Maximum)		3.500 (Minimum)	5.500 (Nominal)	7.500 (Maximum)
Master		4.759	Master		3.258	Master		8.155			
	2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)		2.000 (Minimum)	4.000 (Nominal)	6.000 (Maximum)		7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)

Phase	Attenuation T2 at 400KHz	Value	Phase	Attenuation T3 at 400KHz	Value	Phase	Attenuation T4 at 400KHz	Value	
Master		6.314	Master		4.755	Master		4.713	
	4.000 (Minimum)	6.000 (Nominal)	8.000 (Maximum)	3.500 (Minimum)	5.500 (Nominal)	7.500 (Maximum)	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-03C

Field: Cascadia Margin

Rig: JOIDES Resolution

State: Pacific Ocean

Schlumberger

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

Geometrical	NGC
Job Date	22-SEP-2005
Rig	JOIDES Resolution
Engineer	Lake Loh
Description of Well - Names, Geoc Header, user of trademarks, direct sensor to toolface angle recorded	
Equipment and Software Description	
Tool sketch, equipment numbers, s	
Processing Traceability and Environment	
Acquisition environment, parameter remarks	
Annotations, Presented Formats, Documented splice points, data ge selection	
Ca	
Calibration / Before survey verification	
Validity, completeness (includes e	
C	
Depth Control	
Comparison with driller's depth, ot listing	
Logging speed and sampling rate	
As recommended in reference man	
Data Comparison	
Between runs and passes, with da	
Operating Anomalies/Failure/Mis	
Absence of noise and spurious var	
Digital Products	
Labeled, verification listing with co hard copy.	
Job Quality Rating	
Number of boxes	
Irregular Operation	
Excessive ROP or speed, high dev	
Borehole Geometry	
Shape (caves, etc), rugosity, spira	
Borehole Fluid	
Barite, KCl, salinity, additives, gas	
Interferences	
External noise, nearby casing or d	
Operation Outside Tool Specific	
Geometrical temperature, pressure, value of parameter	
Environmental	
Number of boxes	

Location	Vancouver Island
Customer	Lamont-Doherty Borehole Research
Field/Well	Cascadia Margin/CAS-03C
Job Number	40012416

Type of Measurement

Res	GR	Neu	Den	APWD

When data does not meet standards, put a number in the column 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.

Data Quality Report

Operation

Presentation
 Summary, Services, Location and References: General Content
 Additional data, well plot, order of components, spelling and style, units
 Presentation
 Software versions, data rates, filtering weights
 Presentation Description
 Parameters and key constants for each run or zone, complete and relevant
 QC Curves, Print Quality
 Appendix explanations, mud changes, movement indicator, color

Calibration and Verifications

Calibration / After survey verification
 (equipment number), timeliness, unedited, discrepancy explained

Operating Procedures

Operator logs, other bit runs, between RT and RM, Depth summary
 Manual or job planner. No loss of data or spatial resolution

Data from nearby wells, other conveyance, mud log and markers
 Logging Data/Sensor Orientation/Transmission Losses
 Corrections, anomaly repeated, corrected, reported or explained.

Digital Delivery

Complete digital record, backup for archival, record matches

Logging (QOR)

Runs without number X 10

Environmental effects

Vibration, shocks, vibrations, sticking conditions
 Mud logging, mud induced fractures: Casing, tubing conditions
 Mud cut, unstable
 Mud fill: pipe, debris, unusual formation composition
 Mud hole size, hole deviation, dog-leg severity, flow rate, rpm, solids

Quality Rating (EQR)

Runs without number X 20	60	80	60	40	100

Remarks

1. Correcting the resistivity data by assuming 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. No power supply from TeleScope cause the EcoScope shut down.
4. Correcting the Neutron Porosity data by assuming borehole salinity as 0 ppk.

DQR Header Utility ver 1.1c

Schlumberger Drilling & Measurements

Revised January 2002

Geonmarket	NGC
Job Date	22-SEP-2005
Rig	JOIDES Resolution
Engineer	Lake Loh

Description of Well - Names, Geographic Header, user of trademarks, direct sensor to toolface angle recorded
Equipment and Software Description
 Tool sketch, equipment numbers, software
Processing Traceability and Environment Acquisition environment, parameter remarks
Annotations, Presented Formats
 Documented splice points, data gap selection

Calibration / Before survey verification
 Validity, completeness (includes equipment number)

Depth Control
 Comparison with driller's depth, other listing
Logging speed and sampling rate
 As recommended in reference manual

Data Comparison
 Between runs and passes, with data
Operating Anomalies/Failure/Miscellaneous
 Absence of noise and spurious variations

Digital Products
 Labeled, verification listing with good hard copy.

Job Quality Rating

Number of boxes

Irregular Operation
 Excessive ROP or speed, high deviation
Borehole Geometry
 Shape (caves, etc), rugosity, spirals
Borehole Fluid
 Barite, KCl, salinity, additives, gas
Interferences
 External noise, nearby casing or drilling
Operation Outside Tool Specifics
 Geomark temperature, pressure, value of parameter

Environmental

Number of boxes

Location	Vancouver Island
Customer	Lamont-Doherty Borehole Research
Field/Well	Cascadia Margin/CAS-03C
Job Number	40012416

Type of Measurement

Res	GR	Neu	Den	APWD

Data Quality Report

When data does not meet standards, put a number in the column 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

Operation

Presentation
 Geometry, Services, Location and References; General Content
 Additional data; well plot; order of components; spelling and style; units
 Location
 Software versions, data rates, filtering weights
 Formation Description
 Parameters and key constants for each run or zone; complete and relevant
 QC Curves, Print Quality
 App explanations; mud changes; movement indicator; color

Calibration and Verifications

Calibration / After survey verification
 Equipment number), timeliness, unedited, discrepancy explained

Operating Procedures

Other logs; other bit runs; between RT and RM; Depth summary
 Issues

General

Manual or job planner. No loss of data or spatial resolution
 Data from nearby wells; other conveyance; mud log and markers
 Logging Data/Sensor Orientation/Transmission Losses
 Corrections; anomaly repeated; corrected; reported or explained.

Digital Delivery

Complete digital record; backup for archival; record matches

Logging (QAR)

Runs without number X 10

Environmental effects

Excavation; shocks; vibrations; sticking conditions
 Sealed hole; mud induced fractures. Casing; tubing conditions
 Mud cut; unstable
 Drillpipe; debris; unusual formation composition
 Mud filtrations
 Hole size; hole deviation; dog-leg severity; flow rate; rpm; solids

Quality Rating (EQAR)

Cell Manager: _____ Lake Loh _____
 FSM: _____ Vijay Moras _____