

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 Service 1:240 Measured Depth Recorded Mode Log

Total depth:	1190 m	K.B.	10.06 m
Spud date:	25-Sep-2005	G.L.	-960 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	Latitude
40012416	UTM Zone 10 N	W 126.67862	N 48.78945

Depth logged:	970 m	To	1184 m	Mag decl:	18.84 deg.	Other services:	
Date logged:	25-Sep-05	To	26-Sep-05	Mag dip:	69.35 deg.	geoVISION, sonicVISION, provision	

### Bore hole record

Hole size	from	to	Size	Density	from	to
9.875 in.	970 m	1190 m				

### Casing record

Type	from	to	Min	Max	from	to
Mud record						
Seawater	970 m	1190 m				

### Borehole deviation record

Surface equipment	Software record
Unit	IDEAL Wis
Depth system	SPM
	LWD
	MWD

Unit	TWIS	IDEAL Wis	ID10_2C_01
Depth system	Geolograph	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 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-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.

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

proVISION 39.72  
MRLC 611  
MRUC 611  
MRPS 5050  
OD 6.90

ROP 33.72

Antenna 1 30.56  
System 30.23  
Antenna 2 29.90

TeleScope 28.44  
PMEA 003  
MDC 516  
MDI 1580  
OD 6.89

D&I 24.26

sonicVISION 20.05  
SWDC 656  
SWDE 636  
OD 6.75

ROP TF 19.62

RX array 17.07  
R-O port 16.67  
Xmitter 13.63  
PNG Monit 10.09  
Neutron N 9.81  
Spectrosc 9.64  
Neutron F 9.40

EcoScope 12.52  
Collar 736  
EC 736  
GSRJ A2381  
BladeOD 9.38  
OD 6.89

Receiver 9.34  
Neutron D 9.22  
Ultrasoni 7.92  
Density S 7.53  
Density L 7.32  
Continuou 6.82  
R-O Port 6.60  
Pressure 6.46



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
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	2.6500000
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	Invasion Correction Option		YES	YES
JSD	Acquisition start date			
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 ADN/ARC

Vertical Scale: 1:240

Graphics File Created: 03-Oct-2005 11:30

### PIP SUMMARY

Density Ticks, 0.1-ft

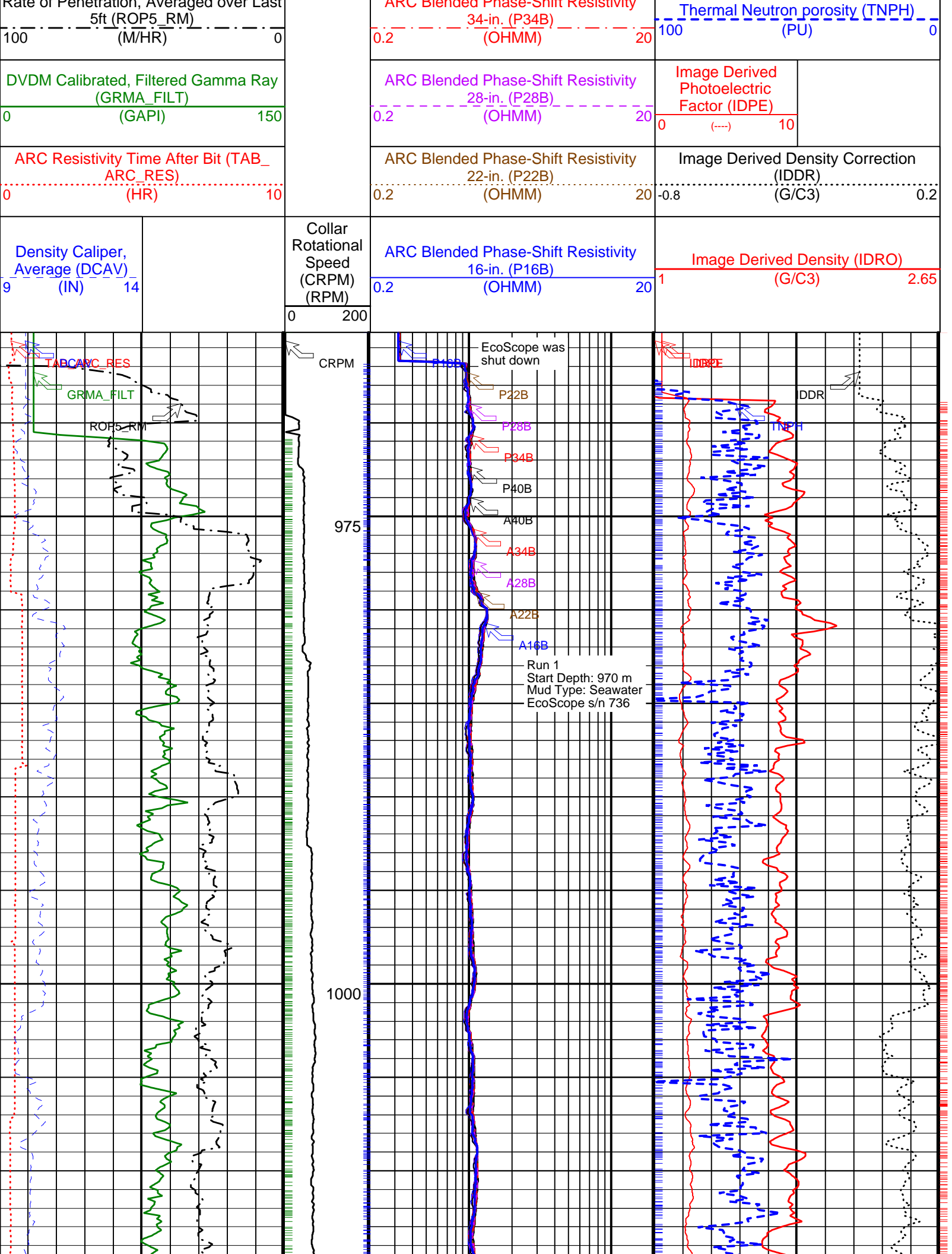
+ ARC Resistivity Samples

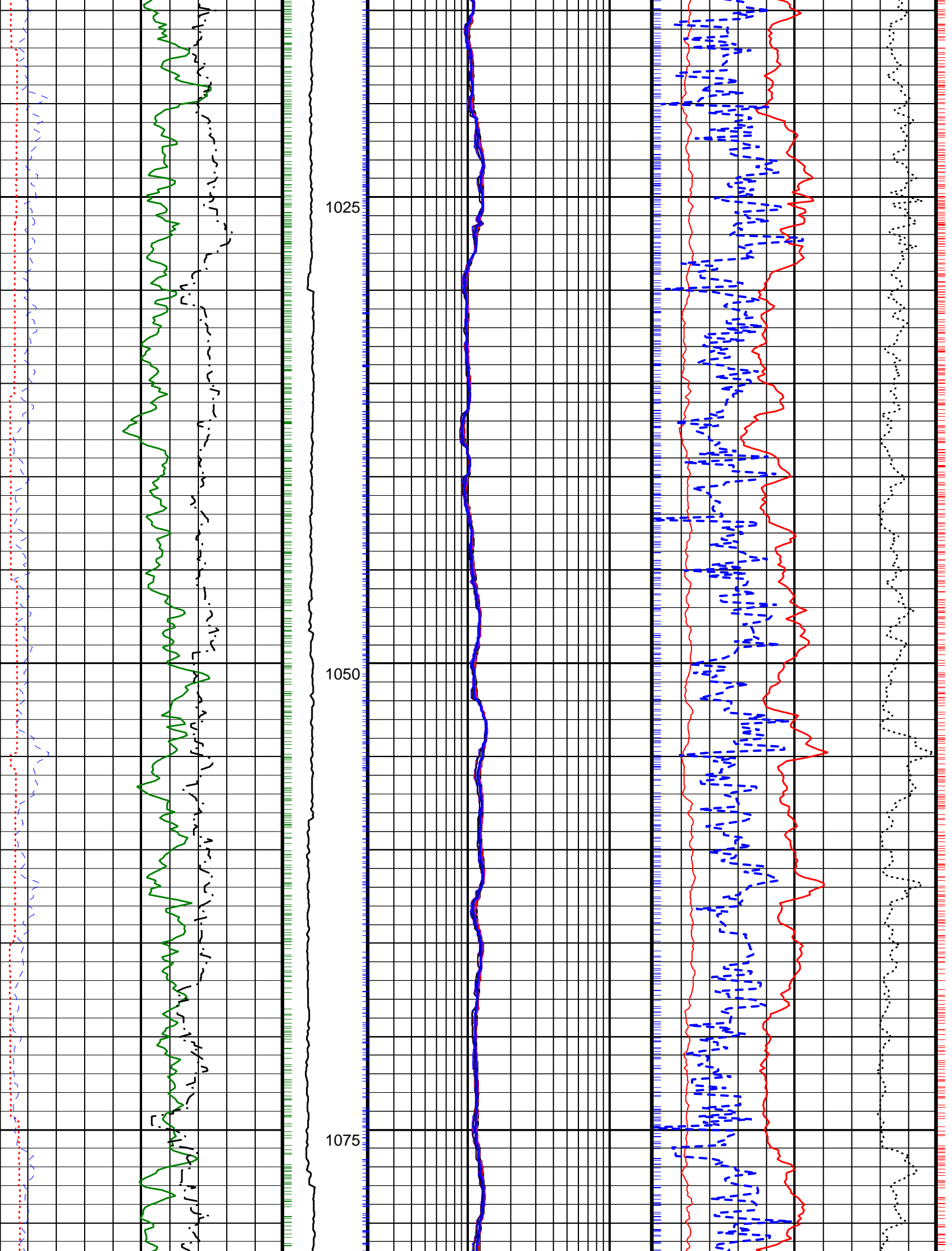
Neutron Ticks, 0.1 ft +

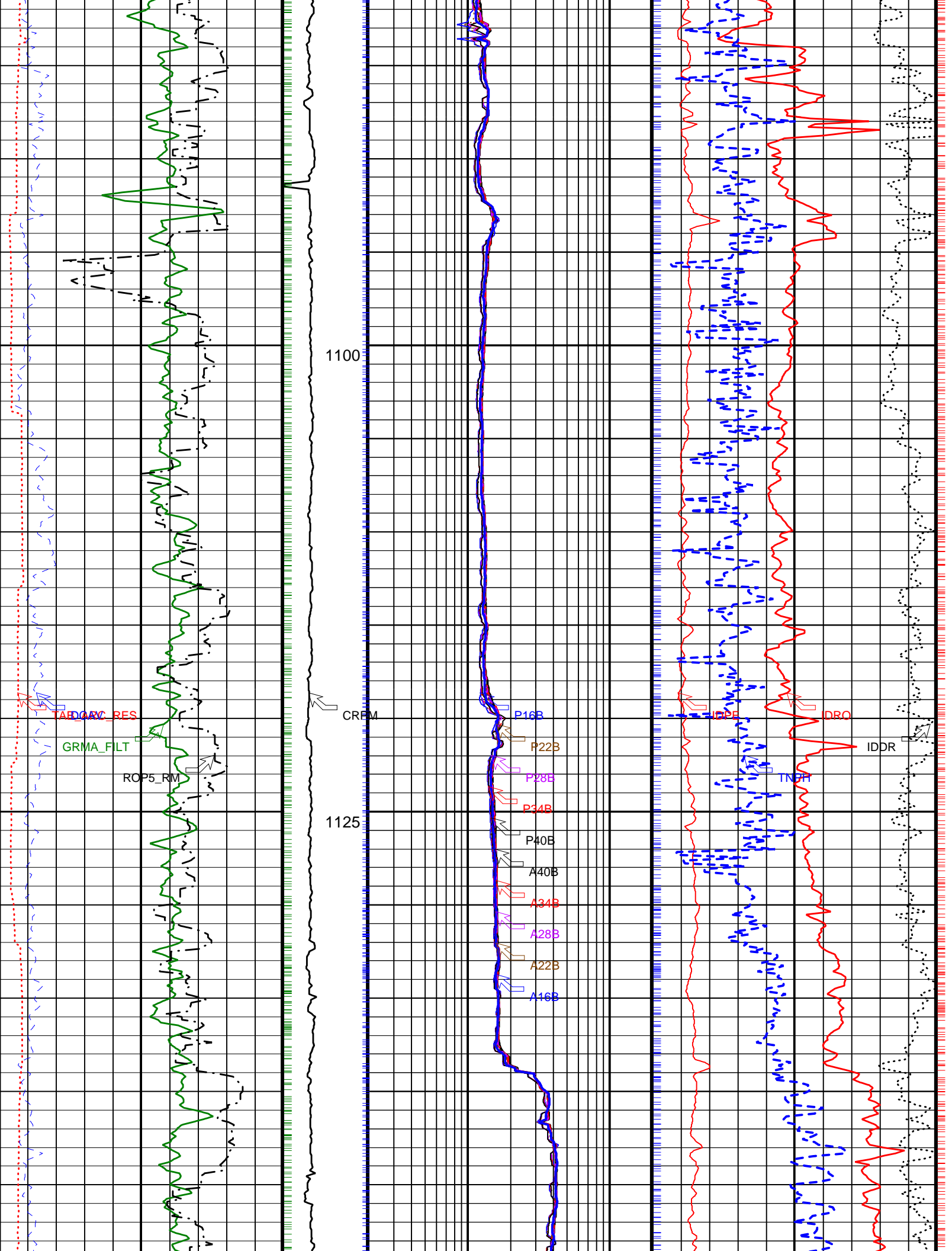
+ DVDM Gamma Ray Samples

ARC Blended Attenuation Resistivity		
16-in. (A16B)		
0.2	(OHMM)	20
ARC Blended Attenuation Resistivity		
22-in. (A22B)		
0.2	(OHMM)	20
ARC Blended Attenuation Resistivity		
28-in. (A28B)		
0.2	(OHMM)	20
ARC Blended Attenuation Resistivity		
34-in. (A34B)		
0.2	(OHMM)	20
ARC Blended Attenuation Resistivity		
40-in. (A40B)		
0.2	(OHMM)	20
ARC Blended Phase-Shift Resistivity		
40-in. (P40B)		
0.2	(OHMM)	20
ARC Blended Phase-Shift Resistivity:		

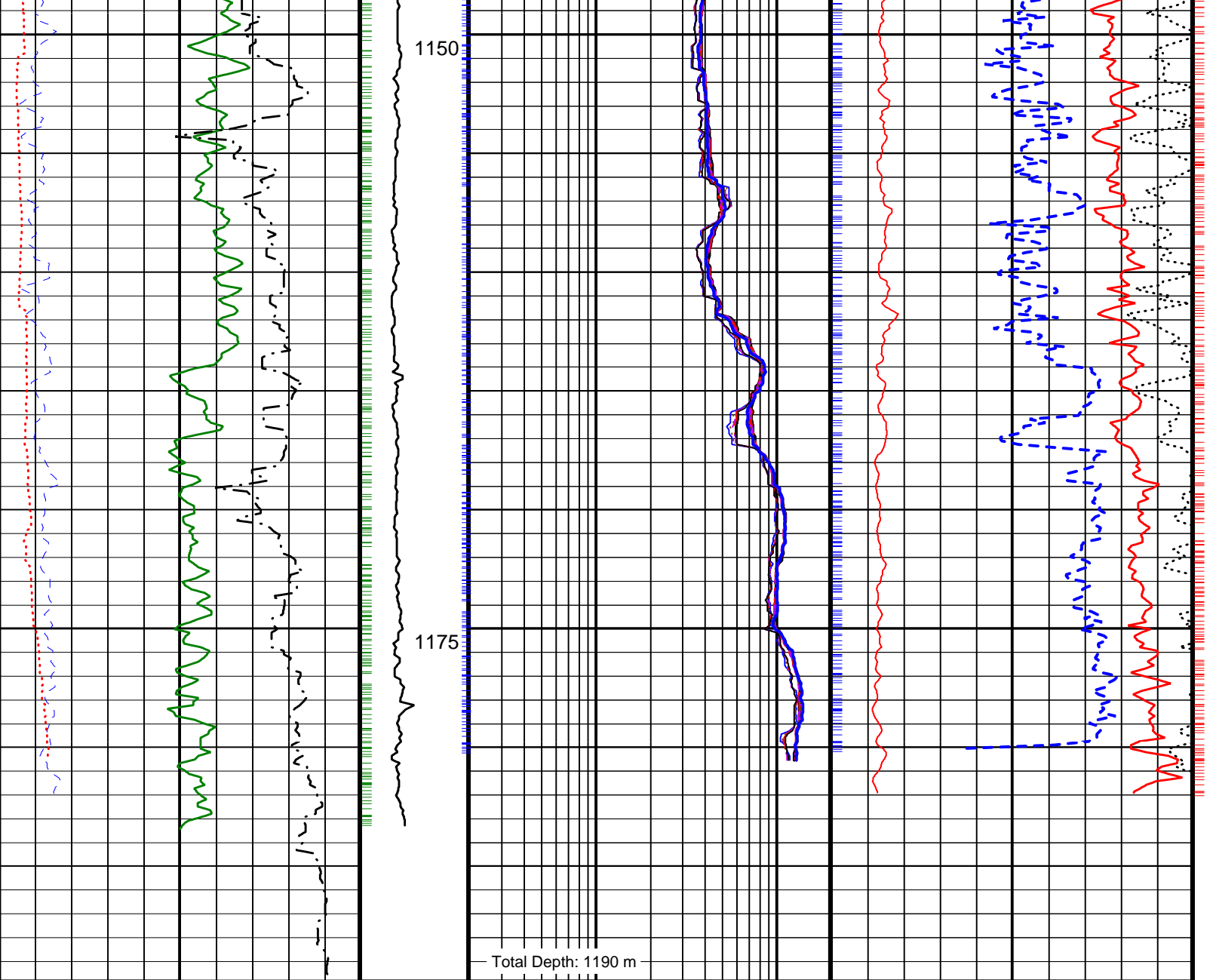
Date of Penetration: Averaged over Last











Density Caliper, Average (DCAV) (IN)	9 14	Collar Rotational Speed (CRPM) (RPM)	ARC Blended Phase-Shift Resistivity 16-in. (P16B) (OHMM)	Image Derived Density (IDRO) (G/C3)
ARC Resistivity Time After Bit (TAB_ARC_RES) (HR)	0 10		ARC Blended Phase-Shift Resistivity 22-in. (P22B) (OHMM)	Image Derived Density Correction (IDDR) (G/C3)
DVDM Calibrated, Filtered Gamma Ray (GRMA_FILT) (GAPI)	0 150		ARC Blended Phase-Shift Resistivity 28-in. (P28B) (OHMM)	Image Derived Photoelectric Factor (IDPE) (----)
Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR)	100 0		ARC Blended Phase-Shift Resistivity 34-in. (P34B) (OHMM)	Thermal Neutron porosity (TNPH) (PU)
			ARC Blended Phase-Shift Resistivity 40-in. (P40B) (OHMM)	
			ARC Blended Attenuation Resistivity 40-in. (A40B) (OHMM)	

ARC Blended Attenuation Resistivity		
0.2	34-in. (A34B) (OHMM)	20
ARC Blended Attenuation Resistivity		
0.2	28-in. (A28B) (OHMM)	20
ARC Blended Attenuation Resistivity		
0.2	22-in. (A22B) (OHMM)	20
ARC Blended Attenuation Resistivity		
0.2	16-in. (A16B) (OHMM)	20

PIP SUMMARY

Density Ticks, 0.1-ft

ARC Resistivity Samples

Neutron Ticks, 0.1 ft

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  
Calibration Status  
Collar Type and Serial Number  
Chassis Type and Serial Number  
Stabilizer Type and Serial Number  
Neutron Logging Source  
Density Logging Source  
Stabilizer Size

ECO - 675      736  
ADDC - AA  
ADSE - EA  
ADCS - CA  
NSR - M  
GSR - J/Z  
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	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 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

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	Phase	SS window 1 - Al CPS	Value	Phase	SS window 3 - Al CPS	Value
Master		372.3	Master		2692	Master		8750

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	Phase	SS window 1 - Background CPS	Value	Phase	SS window 3 - Background CPS	Value
Master		57.82	Master		85.68	Master		413.0

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

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
Master		-1.203	Master		1.093	Master		1.839
Master		-1.826	Master		1.836	Master		-1.845
Master		1.844						

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
Master		4.759	Master		3.258	Master		8.155
Master		6.844	Master		4.355	Master		4.710

Master	4.000 (Minimum)	6.000 (Nominal)	8.000 (Maximum)	6.314	Master	3.500 (Minimum)	5.500 (Nominal)	7.500 (Maximum)	4.755	Master	2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)	4.713
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

EcoScope Service  
1:240 Measured Depth  
Recorded Mode Log



Geomarket	NGC
Job Date	25-SEP-2005
Rig	JOIDES Resolution
Engineer	Lake Loh
Description of Well - Names, Geometry Header, user of trademarks, directional sensor to toolface angle recorded	
Equipment and Software Description	
Tool sketch, equipment numbers, software	
Processing Traceability and Environment Acquisition environment, parameters and remarks	
Annotations, Presented Formats, OCC Documented splice points, data gap explanation	
Calibration / Before survey verification Validity, completeness (includes equipment)	
Operational	
Depth Control Comparison with driller's depth, other log listing	
Logging speed and sampling rates	
As recommended in reference manual or Data Comparison	
Between runs and passes, with data from Operating Anomalies/Failure/Missing Data	
Absence of noise and spurious variations	
Digital Products Labeled, verification listing with complete hard copy.	
Job Quality Rating (Number of boxes with Env)	
Irregular Operation	
Excessive ROP or speed, high deviation.	
Borehole Geometry	
Shape (caves, etc), rugosity, spiralled borehole fluid	
Barite, KCl, salinity, additives, gas cut, ur Interferences	
External noise, nearby casing or drillpipe	
Operation Outside Tool Specifications Geomarket temperature, pressure, hole size value of parameter	
Environmental Qual Number of boxes with	



