	OSTR	AT. CHA	ZONE/ RACTER	R 00	IES	Γ	Γ			IRB.	ES							
TIME-ROCK UN FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITH	OLOGIC	DESCRI	PTION	
	21		olus CIG	(T0C=0.59%)	WC=149 0-81	CaCO ₃ =0.9%	1	0.5			1 2 2 2	*	VOLCANIC CLAYEY SILT Major lithology: VOLCANIC throughout the volcanic cla 75 cm of the core is yellow dark grayish brown (2.5%) emainder of the core the v bioturbated; it is dominantly Minor lithology: Vitric ash of 22 cm. The core sch low	with inter CCLAYE ison brown M2). Biotu- rolcanic c y olive bro- poccurs in	rbedded Y SILT. S orming a n (10YR inbation i layey silt own (2.5 wery thin	very thin Silt-sized major cc 5/4), with n this upp t is thick-t Y 4/2). beds in S	volcanic and witric and perponent thick plan per interva bedded, s Section 1,	ash layers crystal ash is disseminated of the sediment. The upper ar laminae which are very al is moderate to slight. In th tructureless, and highly 73-75 cm, and Section 3, 6 were one is the functiones.
PLEISTOCENE N22	E. huxleyi NN:		Pseudoeunotia doli	Brunhes	WC=177 0-84	57% CaCO _{3"1} ,1%	2	a contraction			11 12 12 12 12 12 12	* *	73 cm. The upper ash bed are gray (SYR 7/1) and pre SMEAR SLIDE SUMMARY TEXTURE: Sand Silt Clay	(%): 1, 30 D 	1, 74 1, 74 M 10 90 —	2, 70 D 	2, 90 D 	3, 68 M 50 10
R/G•	F/G•		F/P•			10C=0.5	3				**	*	COMPOSITION: Accessory minerals Apatite Clay Diatoms Feldspar Foraminifers Glass Hornblende Mica Nanofossils Petlets Pyroxene Quartz Radiolarians Rock fragment Silicious sponge spicules	10 40 Tr 21 5 5 - - - - - - - - - - - - -	1 1 17 70 10 10 10 10	10 40 1 10 10 1 10 1 15 3		2 Tr 0
													Pellets Pyroxene Quartz Radiolarians Rock fragment Silicofiagellates Silicofiagellates Spicules Zircon			10 - 1 15 3 -	10 5 5 10	2 2 2 1 2 1 7 Tr

Information on Core Description Forms, for ALL sites, represents field notes taken aboard ship. Some of this information has been refined in accord with post-cruise findings, but production schedules prohibit definitive correlation of these forms with subsequent findings. Thus, the reader should be alerted to the occasional ambiguity or discrepancy.



III	BI0 FOR	STR	CHA	RAC	TER	9	ries					JRB.	ES		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION		р ру	DRILLING DIST	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
PLEISTOCENE	N22	E. huxleyi NN21		Pseudoeunotia doliolus Zone FIMeC/GeC/Ge		Brunhes	0=83 P=1.36 • WC=165	0.58% CaC03"1.3%	1 2 3 4	% % % %				*	VOLCANIC CLAYEY SILT with interbedded very thin volcanic ash layers Major lithology: VOLCANIC CLAYEY SILT. Silt-sized vitric and crystal ash is disseminated throughout the volcanic clayer silt, forming a major component of the sediment. The upper B5 cm of the core is yellowish brown (10YH 5/4), with slight to moderate bioturbation and some preserved thick laminae. In the remainder of the core the volcanic clayer silt is massive and moderately to highly bioturbated, with little or no preservation of primary layering; its color varies from dark gray (5Y 4/1) to olive gray (5Y 4/2) to dark greenish gray (10Y 4/2). Minor lithologies: a. Volcanic dash gray (5Y 4/1) to olive gray (5Y 4/2) to dark greenish gray (10Y 4/2). Minor lithologies: a. Volcanic dash torms very thin beds in Section 2, 76-80 cm; Section 5, 136-141 cm; Section 6, 115-116 cm and 125-126 cm. The ash beds are gray (5Y 5/1) and structureless. b. Volcanic clayey silt with nanofossils occurs in Section 4, 46-63 cm. SMEAR SLIDE SUMMARY (%): 1.77 3, 84 4, 50 D D Minor tithologies: 1.77 3, 84 4, 50 Clay 37 29 39 COMPOSITION: Accessory minerals — 10 Accessory minerals — 10 Accessory minerals — 10 Accessory minerals — 10 Accesso
	•R/M	eF/G		eF/P			P=1.35 • WC=178	• CaCO3*0 .6% • T0C+0	5 6 CC				************	OG LW	



SITE	7	67		HO	LE	В	_	_	CO	RE 2	2H CC	RE	DI	NT	ERVAL 9.0-18	.5 mbs	sf					
5	BIO FOS	STR	CHA	RACI	TER		5					88.	50									
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES		LITHO	LOGIC	DESCRIF	TION			
						TOC-0.73%	D=81 WC=162	CaC03*2.4%.	1	0.5				**	VOLCANIC CLAYEY SIL Major lithology: VOLCAN greenish gray (10Y 4/1) a beds. Altered vitric ash is minor amounts of feldspa Minor lithology: Vitric ash 55-65 cm, and black (5Y SMEAR SLIDE and THIN	T with inter IC CLAYEY and olive gra- a major co r and volca . A thin bed 2.5/1) vitric I SECTION	bedded SILT. May (5Y 4 mponen nic lithic of olive ash in S SUMM/	very thin Massive, /2) volcas t dissemi fragmen brown (2 Section 7, ARY (%):	volcanic i moderate nic clayey nated wit ts. 2.5Y 4/4) . 36-40 cm	layers ly to high silt occu hin the se vitric ash n.	lly bioturba irs in diffus adiment, a occurs in	ated, dark se thick long with Section 2
									2				55	*#		1,68 M	1, 79 D	2, 58 M	T 2, 58 M	2, 79 D	2, 128 M	4, 80 M
													**	*	Sand Silt Clay	 65 35	1 67 32	40 50	40 30 30	1 67 32	40 60	15 70
		yi NN21		iolus Zone					3				**		ComPosition: Accessory minerals Biotite Ciay Feldspar Foraminifers Glass Hornblende Magnetite		5 30 6 30 5	1 10 5 80 1	Tr 1 55 1		0	1 80 3 10 2
PLEISTOCENE		E. huxle		doeunotia dol		Brunhes		4%	4				:	*	Opaques Pellets Plagioclase Plant Pyroxene Rock fragment Spicules	2	1 10 		2 30 Tr 2 5	5 21	1 1 20 1	
				Pseu				● T0C=0.3		1111			1 22	IW	SMEAR SLIDE and THIN	5, 135 M	6, 76 M	ARY (%): 7, 38 M				
							•1.38	aCO3=0.5%	5				****		Sand Silt Clay COMPOSITION:	50 40 10	10 60 30	65 35				
							4.	•	_				**	*	Accessory minerals Bioclast Clay Feldspar	1 5 1	4	5				
									6	dintri			1 11	*	Foraminiters Glass Hornblende Magnetite Nannolossils Pellets Pyroxene Rock fragment Spicules	85 1 	5 	B5 1 1 5				
	•B	•R/G		•F/P					7				2 22	*								



TE	70	57		HOI	LEE	3	1	CO	RE 3	3H CC	RE	DI	NT	ERVAL 18.5-28	.0 mb	sf		_			
NIT	FOS	SIL	CHA	RACT	ER	TIES					URB.	SES									
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	DI LONGANGANO	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES		LITH	OLOGIC	DESCRIF	TION			
							100-0.39%	1	0.5			₩ ⊙	* **	VOLCANIC CLAYEY SILT Major lithology: VOLCANIC highly bioturbated, which c (10Y 4/1), with slightly calc show slight fining upward c	with inte CLAYE aused co areous o due to de	rbedded Y SILT. Ior motti live gray crease in	very inter This lithole ing. The d (5Y 4/2) in silt conte	bedded vi ogy is ma: fominant o beds. Son ant.	ery thin v ssive and color is da te decimi	olcanic a modera ark greer eter-scal	ash layer tely to hish gray e beds
						179	0 ³ 0.5%		1.0			**	***	Minor lithology: Vitric ash o Minor components of the a Color is variable: dark gray 109-114 cm, and gray (109	sh includ (2.5Y 4/ (R 5/1) in	thin (5-1) e lithic fr 1) in Sec Section	0 cm) bed agments, tion 1, 80 3, 60-65	is, with gra feldspars -90 cm, b cm.	iin size fr . clay, an rown (10'	om silt ti d sponge YR 4/2) i	o sand. e spicule n Sectio
ų						• wc-	CaC		1					SMEAR SLIDE and THIN S	SECTION	SUMM	ARY (%):				
						0-84 P-1-24		2				1	1		1, 30 D	1, 81 M	1, 90 M	T 1, 111 M	1, 112 D	2, 50 D	3, 62 M
												1		TEXTURE:							
									-			ľ		Sand Silt Clay	62 32	100	50	20 70 10	50	8 63 29	10 90
									1			12		COMPOSITION:	675			075		7.7.2	
				e				з			ł	1	*	Accessory minerals		-	5	+	-		-
				Zon					-			1		Feldspar Glass	15	95	85	7 75	5 80	40	90
Ļ		NN2 (sulo					3		Î.	5		Hornblende Magnetite	5	1	1		t	5	1
CE	~	Ca N		dolia		Sal						١,	*	Opaques Plagioclase Plagt	20	1	5	10		20	5
-EISI	N2	oceani		notia	1000			4				12		Pyroxene Rock fragment Silicious sponge spicules		1	1 2	3 Tr	2 10	5	1
ī		3		loeu			47		1 -		1 1	55	Ľ.	SMEAR SLIDE SUMMARY	(%):						
1				Pseud			D TOC=0		-			88	ıw		4, 30 D	4, 79 M	6, 60 D				
							1		1			1		TEXTURE:		2	2				
								5						Silt Clay	60 33	57 34	69 29				
												1		COMPOSITION:							
												0		Clay	-	20	-				
								-	-		1	12		Feldspar Glass	20	15	35 50				
												["		Hornblende	5		1				
						76	3=0.4%	6				88	*	Radiolarians Spicules	10 10	10	1 10				
						16 • WC=	• Caco					**									
						P=1.3		7				**									
	W/N	C/M		0/0				Ľ	-			11									
_	•	ě		•				cc	1												



NIT	BI0 FOS	STR	CHA	RACT	/ TER	cs	TIES					URB.	RES									
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETI	PHYS, PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES		LITHO	LOGIC C	ESCRIP	TION			
							37•0=82 57•WC=155	7%• T0C=0.79%•	1	0.5			*	*	VOLCANIC CLAYEY SII Major lithology: VOLCAN highly bioturbated, which (10Y 4/1), with slightly ci show slight fining upwar Minor lithology: Vitric asl grain size from siit to sar	LT with inter NIC CLAYEN I causes col alcareous of d due to dec n occurs in t nd.	bedded v r SILT. T or mottlir ive gray i rrease in hin (5-10	his lithol og. The (5Y 4/2) silt conte cm), ligt	volcanic i ogy is ma dominant beds. Soi ent. ht gray (5	ash layen ssive and color is d me decim YR 6/1) g	s I moderati lark green eter-scale raded bec	ely to ish gra beds is, with
							P=1	3=0.		-					SMEAR SLIDE and THI	N SECTION	SUMMA	RY (%):	2 92	2 00	4 194	E
								CaCO	2	1.1.1					TEXTURE:	M	M	M	M	D, 50	M	D, 41
										-					Sand	177	7	60	3	7	70	3
										1	出出出出		1	*	Silt Clay	70 30	65 28	40	73 24	62 31	30	71 26
										_			81		COMPOSITION:							
											alth hitch hitd			*	Accessory minerals	1	-		10	-	-	5
										-		1	"		Carbonate grains	=	30	_	-	-	5	-
									3	-		18	и		Clay	38	20	-	10	20	12.2	70
(0								1	141414141414	1		*	Feldspar	5	12	10	-	10	15	-
l		z								-			55		Fish	-	777		5	-	-	-
		z				\$						E.	"		Foraminifers	-	50	80	30	40	5	-
I		9				De	11			-	annana	1		1	Glauconite			-	1		-	-
		00				5				-	կկկկկկ	10	"		Hornblende	5		-	1	5	-	-
2		5				3L				-	666666666	1	11		Magnetite		255	2	5	-	1	-
1		ac				-				1	11111111111		11		Pellets	10			5			10
1					1				4	-	ներները		\$5		Plagioclase	5		-	2	-		-
1		D						×				11	"		Pyroxene	1		Tr	1	-	5	-
)								15		1	կկկկկ				Radiolarians Bock traament	25		5	5	1	5	5
1	1		1		- 1			0		1		12	51		Spicules	10		-	10	4	_	10
								SC		1		1	"	*	01/540 01/05	0.00						
l								-				1	"		SMEAR SLIDE and THI	N SECTION	SUMMA	HY (%):				
(- 1							-			"			5, 57	5,75					
I										-	կերերին			*		D	м					
									5	1			22	*	TEXTURE:							
1						2			10	1	CREER CREER	1		*	0.5 20							
										1	11111111111		65		Sand	1	2					
													"		Clay	29	25					
ļ										7	կերհերի				1999119900							
J										-	կկկկկն	1	11		COMPOSITION:							
															Accessory minerals	-	3					
								3%		-	ներիների	1			Clay	70	70					
							5	0		1		1	11		Foraminifers		5					
						2	01-	03	6	1	hillin	1			Glass	20	5					
							B-CA	Sac				1			Radiolarians	5	2					
						1.3	•	ě				1	11		Spicules	5	10					
							55			1	4866666688	1	1		3 Di Angelian Anna							
	5	0		0			- 0				կերհիրի	1										
	2	E		1			59		7			11	11									
								1.1	tee	-	ղերերերեր	1										



SITE 767

427

.....

LIN	BIO	STRA	T. :	ZONE/	ER		2				URB.	SB									
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PAL FOMAGNETIC		PHTS. PRUFER	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES		LITHO	LOGIC	DESCRIP	TION			
						T		2	1		1	1	*	VOLCANIC CLAYEY SIL	T with inter	bedded	very thin	volcanic	ash layers	3	
							35 TOC-0 38	1	0.5				*	Major lithology: thick bed CLAYEY SILT make up r fragments are disseminal (SY 5/2 to 4/2) to dark gr tion. Several layers in Se Minor lithology: Volcanic thin to very thin, have sha	s of massiv nost of this ted through eenish gray ctions 5 an ash layers arp bases,	e, slighti core. Sil out. The (10Y 4/2 d 6 conta of varied and are r	y to mode t-sized fel color vari 2/ to 4/1), ain calcari composit normally g	erately bio Idspar, gl ies from of with com eous bior tion are p graded; th	oturbated ass, and blive (5Y - imon mot clasts as a resent. They are co	VOLCAN volcanic 4/3) to oli tling due a major c he ash la omposed	VIC rock ve gray to biotur ompone yers are of pre-
						P=1.34 -0-85	7-2.62 WC=1	2				****	*	dominantly silt-sized grait grayish brown (10YR 5/2 these ashes. They occur cm: Section 5, 10-14 cm; (10YR 2/2), and contain r in Section 3, 69-71 cm, 1	ns. Vitric ar and 2.5Y 5 in Section and Section ninor amou 11-115 cm	Id lithic-v i/2 to 4/2 1, 16-17, in 7, 18-2 ints of fe , and 127	itric ash li); feldspa 21-22, 3(25 cm. Litt Idspar, ho 7-133 cm.	ayers are r grains f 0-40 and hic ash la problende	e light gray orm a min 40-52 cm ayers are and pyre	y (10YR I hor comp i; Section very dark oxene. Ti	5/1) to onent in 13, 20-2 1 brown hey occi
							CaCi					i		SMEAH SLIDE and THIN	1, 16	1, 21	1, 133	2, 40	3, 132	T 5, 10	5, 13
											Ī	,		TEXTURE:	м	М	М	D	М	м	м
									-			1		Cond		-76			20	70	0.00
							1	3			Ì			Sand Silt Clay	70	25	20 80	67 31	80	25 5	75
									-					COMPOSITION:							
		6							1 3			1		Annonnu minerala			3		2		32
ш		ī							-	HHHHHH	[`]		*	Biotite	-	-	_	-	-	-	2
Z		z												Clay			90	30	10	-	-
8					00	2			1			1		Foraminifers	-		-	1	10	-	
E					1		1	1.0		11111111111		5		Glass	70	40	-	39	-	90	85
2		es.			1.			4	-			1		Homblende Opaques	\Box	3	2	5	5	1	-
ات		20			1.	1		-				1		Organic matter	-	-	-	-	-	Tr	
r		5					C	3	1 3			i		Pyroxene	5	2	-	-	2	-	-
		130					1					1		Radiolarians Rock fragment	10	30	-	1	80	2	-
		~					P.		-			5	I W	Spicules	_	-		5	-	Tr	
		4					1		Ξ			1	***	SMEAR SLIDE SUMMA	₹Y (%):						
								5	111			8			5, 28 D	5, 89 D	5, 115 M	7, 25 M	7, 30 M		
									1 3	8.53		.1.	*	TEXTURE:							
1									1.5	23000000		(*	Sand	2	90	2	10	1		
	1								1 3			1		Silt	69	10	68	90	71		
	1							1		1,1,1,1,1,1,1,1,1		1		Clay	29	-	30	-	28		
									1 3			1		COMPOSITION							
							1	2	1 -			(Accessory minerals	_	5	3	1	1		
								6	1 -			1		Bioclast	45	80	50	-	30		
							8	0	1 3	Establish	1	2		Feldspar	40	6	2	6	-		
						a	0			231111111		1		Glass	5	-	5	90	50		
						1						6		Hornblende	-	6	10	10	Ξ		
						10	2		1.6			(Pellets	10	-	10	-	-		
						-	2		-	the constants				Plant	-	\rightarrow	-	-	5		
						a	2		1 3	կկկկկկ			*	Radiolarians Rock (reamont	10	-	-	0 — 0	5		
								7	1 4	IIIIIIIIIIIIIIIII				Silt	20	20	2	- 2			
	/C	Σ		٩										Spicules	10			-	10		
	m.	1				1			+		1		L								



115	/	67		но)LE	В	_		CO	RE 6H	4 CO	RE	DI	NT	ERVAL 47.0-56.5 mbsf	
11	BI0 FO	SSIL	CHA	ZONE	TER	0	IES					88.	00			
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION	
						inhes ToC=0.22%	P=1.37 •	1C03=0.7% •	1	0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,					VOLCANIC CLAYEY SILT with interbedded very thin volcanic ash layers Major lithology: Massive thick beds of VOLCANIC CLAYEY SILT make up most of th It is slightly to moderately bioturbated, with several large (1-2 cm diameter) ash-filled burrows. Silt-sized ash (glass, fieldspar, and homblende) is disseminated throughout sediment. The color is motified due to bioturbation: dark grav to gray (5Y 4/1-5/1) and gray to dark greenish gray (5Y 4/2 to 10Y 4/1) predominate. Several intervals in Seci contain abundant foraminifers and calcareous nannofossils; calcareous biogenic sed absent from the remainder of the core.	ils con the tolive tion 6 liment
						Bru		Ca	2					*	Section 4, 100-103 and 112-115 cm. The sah layers are paile olive (5K-64) to light b gray (2.5Y 6/2). They have sharp bases, gradational tops, and are normally graded. SMEAR SLIDE SUMMARY (%): 2, 108 3, 101 5, 76 6, 30 7, 10 D D D M D TEXTURE:	rownis
									3				* * *		Sand 5 — 60 3 Sitt 68 70 70 40 71 Clay 27 30 30 — 26 COMPOSITION: Bioclast 20 — 15	
CENE		6 I NN 1 8				ama	1	-0.6%					* * *	*	Clay 30 30 30 30 Diatoms 5 Feldspar 10 15. 20 50 Foraminiters 1 10 Glass 35 40 35 25 5 Hornblende 2 2 5 Pailere 1 1	
PLEISIO	N22	P. lacuno:				Matuya	Y=1.40 • 0=80	•caco3•	4					0G	Radiolarians — — — 10 Radiolarians — — — 10 Rock fragments — — 20 10 Silicious sponge spicules — 10 — — —	
								T0C=0.32%	5	monterio			* * * * *	*		
									6				1	*		
	R/M	C/M		В			-1.39 • 0 = 84 -2.40 • WC=162	•CaC03=0.7%	7					*		







A

T. ZONE/ HARACTER SUBJUC SU	It slightly to mo from dark ; are found in live (5Y 4/3 to components. turbidle dept d Section 4, omposed of d pyroxene.	xde o 4
SNUTTOODER Standard GRAPHIC LITHOLOGY Visite of Subscream Carapteric Subscream Lithologic Subscream	It slightly to mo from dark are found in live (5Y 4/3 to components. turbidle dept d Section 4, omposed of d pyroxene.	ode
VOLCANIC CLAYEY SILT with interbeds of volcanic ash and carbonate as Major ithology: VOLCANIC CLAYEY SILT is predominantly massive, and ately bioturbated. but thick taminae are locally preserved. The color varies greenish gray (10Y 4/1 to 4/2) to dark to very dark gray (5Y 4/1 to 3/1). Minor ithologies: a. A carbonate sill layer occurs in Section 3, and additional very thin layers Section 2, 64-69 cm, The section 3, and 56-69 cm. These layers are of this section 2, 64-69 cm, and 55-69 cm. These layers are of this section 2, 64-69 cm, and 55-69 cm. These layers are of this section 3, and additional very thin layers Section 2, 64-69 cm, and 55-69 cm. These layers are of this section 3, and additional very thin layers are normally graded and have sharp bases, they are interpreted as 23 cm. The ash layers have sharp bases and bioturbated tops. They are of predominantly sit-sized volcanic lithic fragments, feldspar, homblende, an SMEAR SLIDE SUMMARY (%): 1, 31 2, 22 2, 66 2, 119 3, 135 D M D D D	It slightly to mo from dark is are found in live (5Y 4/3 to components. turbidite depo vd Section 4, omposed of d pyroxene.	ode o 4
Major lithology: VOLCANIC CLAYEY SILT is predominantly massive, and ately bioturbated, but thick the minae are locally preserved. The color varies greenish gray (10' 4'1 to 4/2) to dark to very dark gray (5Y 4/1 to 3'). Minor lithologies: a. A carbonate sitt layer occurs in Section 3, and additional very thin layers in Section 3, and additional very thin layers section 2, 64-69 cm, and 65-69 cm. These layers are of contails propertions of pellots, biotasts and micrite as major layers are normally graded and have sharp bases; they are interpreted as 2 cm. The ash layers have sharp bases and bioturbated tops. They are c predominantly sit-sized volcanic lithic fragments, feldspar, homblende, an SMEAR SLIDE SUMMARY (%): 1, 31 2, 22 2, 66 2, 119 3, 135 D M D D D	slightly to mo from dark are found in live (5Y 4/3 to components, turbidite depond ad Section 4, omposed of d pyroxene.	ode o 4 . Tr
 Minor itribidges: A carbonate sill layer occurs in Section 3, and additional very thin layers. Section 2, 64-69 cm, and 65-69 cm. These layers are or and contain variable proportions of pellets, bioclasts and micrite as major years are normally graded and have sharp bases they are interpreted as b. Lithic-crystal ash occurs as very thin layers in Section 3, 132-136 cm at 23 cm. The ash layers have sharp bases and bioturbated tops. They are or predominantly sith sized volcanic lithic fragments, feldspar, homblende, an 23 cm. The ash layers bioclasts. SMEAR SLIDE SUMMARY (%): 	s are found in live (5Y 4/3 to components, turbidite depond nd Section 4, omposed of d pyroxene.	1 10 4
2 1	nd Section 4, omposed of d pyroxene.	osi
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		20
1, 31 2, 22 2, 66 2, 119 3, 135 D M D D D HILLING STREET		
TEXTIRE	4,23 4,67 M M	7
Sand 1 60 7 - 1	70 8	
Clay 20 - 18 35 36	- 28	
Accessory minerals 1 2 - 5 5	2 10	
	2 2	
Clay 50 - 10 35 20		
Feldspar 5 20 - 3 20	15 -	
Glass 5 20 5 - 5	5 10	
No. No. Here is a set of the set of the	5 -	
$\left \begin{array}{c} 2 \\ 3 \\ 3 \\ 3 \\ 4 \\ 3 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$		
	60	
Mannafassils Tr Tr -	- 1	
CC		
Pyroxene - 3	10 -	
Radiolarians — — 3 10 —	- 2	
Solution 20 - 2 5 -	- 10	
Unknown	2 2	
Unknown		
Unknown		



TE	7	67	-	H	DLE	В	_	_	CO	RE 9H	C	ORE	DI	NT	ERVAL 71.5-81	.0 mbs	f					
L I	FOS	SSIL	АТ. СНА	ZON	E/ TER	0	ES					88.	8									
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS, PROPERT	CHEMISTRY	SECTION	GRAI LITHO	HIC LOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES		LITH	LOGIC	DESCRIP	TION			
						atuyama			1	0.5				*	VOLCANIC CLAYEY SIL ash with foraminifers Major lithology: thick bed beds are slightly to mode laminae are preserved in quartz, mica, and lithic fr The color is mottled due 3/1) and olive gray (SY 4 Minor lithologies:	T with inte s of VOLC, erately biotu some inte- agments) a to bioturba /2).	ANIC CL irbated, i rvals. Sill nd silice tion, but	AYEY SIL and are th -sized gra ous spong s domina	volcanic a T make erefore r ains of vo ge spicule ntly gray	ash and r up most (nainly str lcanic as as are pre and very	edeposite of this con uctureless h (glass, f esent thro dark gray	d clayey a. The but thick eldspar, ughout. (5Y 5/1 t
	• C/S	•F/G				DD Mt. M.			2				- ++	*	a. Layers of gray (5Y 5/1 16-18 and 114-120 cm; 5 sharp bases and gradatic ash is primarily sili-sized, lithic ash layers are all pr pyroxene, and biolite. b. Clayey volcanic ash w greenish gray (10Y 52) sharp basal contacts, pla reworked ash deposited I SMEAD SLIPE SUMAGE	to 6/1) vol Section 3, 8 onal bloturb , and is var esent. Crys ith foramini o olive (5Y mar lamina by turbidity	canic ash 6-87 cm ated top fable in c stal phas fers occu 5/3); the tion, and currents	are pres and Sect s, but no i ompositio es in the a dominant normal ge	ent in Se tion 4, 30 nternal s n: lithic-v ashes inc s 10-20 c t grain siz rading; th	ction 1, 4 -31 cm. 1 tructures itric, crys lude feld m thick. 1 te is silt. tey are in	3-45 cm; The ash la are evide ital-vitric, i spar, horn These bed The beds terpreted	Section 2 yers have nt. The and vitric- blende, is are dar have as
						Cot			3			1	:	•	TEVTUDE	1, 92 D	2, 74 M	2. 121 M	3, 60 M	3, 86 M	3, 120 D	4, 31 M
4		19										1	* *	*	Sand Silt Clay	2 70 28	2 78 20	70 30 —	1 70 29	40 60	2 74 24	60 40
PLEISI UCEN		P. lacunosa NN							4				*	* 0G	COMPOSITION: Accessory minerats Biotite Clay Feldspar Foraminifers Glass Glass Glasconite Homblende Mica	1 65 1 2 5 Tr Tr	5 2 20 15 20 10 5	t 5 5 45	5 30 15 5	2 20 50 5	5 30 15 5 1 5	1
						Matuyama		-0.11%	5						Nannotossiis Pellets Pyroxene Radiolarians Rock fragment Silt Spicules Volcanic ash	1 20 1 	5 	2 40	5 2 5 25 3	10	3 2 5 25 5	
							33	.100				1	1		SMEAR SLIDE SUMMAR	3Y (%): 6, 90 D	7, 4 D					
							7-1-142 0 79	03=0.8Xe	6			1	1	•	Sand Silt Clay COMPOSITION:	2 70 25	2 54 43					
	~							CaC	7			1	1	*	Accessory minerals Clay Feldspar Glass Mica	5 30 15 5 5	10 20 10					
	•	•B			•8				cc			ļ	{	-	Pellets Radiolarians Rock fragment Silt Spicules	3 2 10 20 5	45 					



5 10 15 ∞ 20	
10- 15- ∞ 20-	
te 20-	
^{te} 20-	A REAL PROPERTY AND INCOME.
core	
e ash 25-	
3 cm; 30-	E STATE
^{sharp} 35—	
and 10	
in 40-	
p 45-	1990
50-	
122 -	
55-	North Contraction
60-	
65-	
70-	Ren Bill
75	
15-	
80-	
85-	
90-	
95-	
100	
100-	
⁹⁴ 105-	
110-	
ž II5—	
120-	Child Drift -
0 105	
123-	
130-	1975 - 24 St.
135	
155 -	
140-	
145-	
1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	and 20 $be ash$ 25 30^{-1} 30^{-1} 13 cm ; 30^{-1} 13 cm ; 35^{-1} $n.A$ 40^{-1} and 40^{-1} bin 45^{-1} bin 50^{-1} bin 60^{-1} bin 90^{-1} bin 90^{-1} bin 90^{-1} bin 90^{-1} bin 100^{-1} bin 100^{-1} bin 100^{-1} bin 100^{-1} bin 100^{-1}



II	BIO	STR	АТ. СНА	ZON	E/ TER		ES					RB.	55		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
	•R/S	•C/M							1 CC	0.5		3			VOLCANIC CLAYEY SILT Major lithology: VOLCANIC CLAYEY SILT. Dark grayish brown (2.5Y 3/2), mottled, very disturbed by drilling.
CENE		NN19													
PLEISTO		lacunosa													
		ď.													

767B-12X NO RECOVERY

SITE	7	67		HOL	EE	3		CO	RE 1	зх со	RE	D	INT	ERVAL 109.6-1	19.3	mbsf			
NIT	BIO	STR	CHA	CONE/	2 50	TIES					URB.	ES							
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTI	SED. STRUCTUR	SAMPLES		LITHO	LOGIC	DESCRIP	TION	
USTOCENE		Unosa NN19				P-1.45 0-78	• • • • • • • • • • • • • • • • • • •	1	0.5			***	*	VOLCANIC SILT and biot Major lithology: VOLCAN 2). Composed mainly of c ash. Minor lithologies: a. Volcanic clayey silt. Mi more silt grade material. I altered lithic ash. b. Bioclastic sand. Massik	clastic sand IC SILT. M clay materia assive, biot Composed ve, laminab	d assive, t al, altere urbated, mainly o ed and o	d vitric as dark gre altered ross lami	id, dark gr ih and smi enish gray vitric ash nated, oliv	eenish gray (5Y 4/1 - 10Y 4/ aller amounts of altered lithic (5Y 4/2- 10Y 4/2) containing and smaller amounts of re gray (5Y 5/3) and pale
PLE	•C/S	P. 1ac					0C=0.08%	2	- I	39.24.30		11	*	olive gray (5Y 6/3); made volcanic silt and bioclastic SMEAR SLIDE SUMMAR	i up of bloc c sand are RY (%):	astic ma interlam	iterial and inated (Si	f smaller a ection 1, 4	mounts of foraminifers. The 0-70 cm).
	•B	•B					F	CC				22	*	TEXTURE:	1, 103 M	2, 37 M	2, 63 D	2. 103 M	CC. 12 M
														Sand Silt Clay	10 80 5`	90 10	1 75 24	40 60	
														COMPOSITION:					
														Accessory minerals Biociast Biotite Clay Feldspar Foraminifers Glass	5 2 5 1 50	10 55 	1 20 10 5	5 5 	 70
														Glauconite Hornbiende Pellets Plagioclase Pyroxene Rock Iragment Soinules	3 5 2 25	10	1 5 5 40 5	5	

767B-11X	1 C	C	767B-13X	1	2	CC
5-			5-			
10-			10-			-
15-			15-		in the	-
20-			20-			-
25-		- 9	25-		1.13	-
30-			30-	99-	-	
35-		-	35-			
40-	-	-	40-	-		
45-	-	-	45-			- 1 -
50-	-	-	50-	-		
55-	-	-	55-	10.00	Sec. 94	
60-	-	-	60-		1.2	
65_	-	-	65-			
70-	1 -	-	70-	-		
75-	-	-	75-		-	
80-	-	-	80-		-	
85-	-	-	85_		2033) - 207 -	4 14
90-	-	-	90-			- 1 -
95-	-	-	95-	-	-	- 1'
100-	1-	1-	100-		in all	-
105-	-	-	105-	-	-	
110_		-	110-		-	
115_		-3	115_	-	-	
120-	-	-	120-	-		- 1 -
125-	-	-	125-	-	-	
130-	-		130-		-	
135-	-		135-	-	-	- ; -
140-	-	-	140-	-		- 1 -
145-	· 2-	-	145-	-	-	
150-	1	-	150-	1	1 -	

ITE	7	67	10	но	LE	В			CO	RE 14X	CORE	D	INT	RVAL119.3-128.9 mbsf	
н	BIO	STR	AT.	ZONE			8	Γ							
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTI	CHEMISTRY	SECTION	GRAPHI LITHOLO	DRILLING DISTUR	SED. STRUCTURE	SAMPLES	LITHOLOGI	C DESCRIPTION
PLEISTOCENE	R/S•	. lacunosa NN19 F/G.							1		<u>111</u> 2	1		VOLCANIC CLAYEY SILT Major lithology: VOLCANIC CLAYEY SILT 4/1) and olive gray (5Y 5/2).	7. Massive, bioturbated, dark greenish gray (10Y
ITE	7	67	s	но	LE	в				RE 15X	CORE	D	INT	RVAL 128.9-138.6 mbsf	· · · · · · · · · · · · · · · · · · ·
Ę	BIO	STR	АТ. СНА	ZONE	/ TER	60	ES	Γ	Γ		RB.	8	Γ		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERTI	CHEMISTRY	SECTION	GRAPHI LITHOLO S& J J J M	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGI	C DESCRIPTION
	s	NN 1 9					.38 • 0=80 58 • WC=145	× • • CaCO3=0.6×	1	0.5		*****	*	VOLCANIC CLAYEY SILT with carbonate Major lithology: VOLCANIC CLAYEY SILT by bioturbation dark gray (SY 4/1), dark gr Composed mainly of feldspar, altered vitri Minor lithologies: a. Bioclastic carbonate sands: olive gray (nannolossis and lithic fragments. b. Bioclastic clayey silt: Bioturbated, olive are interfaminated in places (core eacher)	sand and bioclastic clayey silt . Massive. Dark greenish gray (10Y 4/1), mottied ayish brown (SY 4/2) and grayish green (SG 4/2), c ash and lithic ash. SY 4/2), bioturbated. Contains foraminiters, gray (SY 4/2). Bioclastic and volcanic clayey silts).
	• C/	, lacunosa					P-1	T0C=0.34	2			*	*	SMEAR SLIDE SUMMARY (%): 1,48 1,1 M D TEXTURE:	20 2, 10 M
EISTOCENE	• 8	• R/G F							з сс			**		Sand 60 Sit 40 60 Clay 40 COMPOSITION: 80 Accessory minerals 5 Bioclast 15 Biotifie 2 Clay 30	70 30 5 45
PL														Feldspar 20 30 Foraminifers	10

767B-14X	1	767B-15X	1	2	3	CC
5-	9 -E	5-	-			
10-		10-		1.10-		
15-		15-				
20-	-	20-				
25-	-	25-		1910	58	
30-		30-				
35-	T-	35-				10000
40-	-	40-				
45-	1-	45-				1 1 -
50-	-	50-				- 1 -
55-	-	55-				
60-	-	60-				-
65-		65-	-		-	
70-	-	70-		-		-
75-	-	75-	34-1	-	-	• •
80-		80-	-		- 1	i (
85-		85-		-	-	
90-	-	90-		13		
95-	-	95-		-		[] _
100-	-	100-	-	-		-
105-	-	105-	-		-	-
110_	-	110-		-	1 -	
115_	-	115-	100 <u></u>	-	-	-
120-	-	120-		-	1 -	-
125-	-	125-		-		
130-	-	130-			-	<u> </u>
135-	Ha	135-	-	-	; -	-
140_	-	140-			_	-
145-	-	145-	-	- 15	_	
150-	1.1.	150-		A STREET	_	







SITE	7	67		HO	LE	В		_	CO	RE 1	18X CC	RE	DI	INT	RVAL 158.0-167.6 mbsf	
1	BIC FO	SSIL	АТ. СНА	ZONE	ER	01	Sal					RB.	sa			
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION	
								.2%	1	0.5			1	*	VOLCANIC CLAYEY SILT and BIOCLASTIC SANDY SILT Major lithologies: a. VOLCANIC CLAYEY SILT. Massive, medium bedded, biotu 1, 5/1) to greenish gray (51 4/2) and dark greenish gray (1014 gray (5Y 3/1) and grayish green (56 4/2). Contains isolated pu (e.g. Section 6, 110 cm). Principal clasts are altered volcanic li amounts of Ied8par and pyroxene; sponge spicules are comm b. BIOCLASTIC SANDY SILT. Occurs as thin bedded, well lan with sharp, efosive bases and frequently passes up into calcare bioclastic and calcareous lithic fragments. Gray (57 5/1) and li	bated, mainly dark gray (5Y 4/ 2) with motting of very dark mice clasts up to 1 cm across hic fragments with minor 20. inated, normally graded units sous clayey silt. Made up of hf gray (5Y 7/2) to light olive
							2.37 WC-115	CaC03=1	2	and the second					gray (5Y 6/2) and pale olive (5Y 6/1). Minor tihology: Clayey sill. Occurs in normally graded thin bed sandy sill beds below. Massive, bioturbated, olive gray (5Y 5/2) calcareous: These lithologies are interbedded on a fine scale in SMEAR SLIDE SUMMARY (%):	s continuous with bioclastic) to olive (5Y 5/3) in color and places.
							4:							*	1, 110 2, 119 3, 142 4, 67 D D D M	6, 112 D
									3	the last			~ 5 ~		TEXTURE: Sand 40 — 10 1 Silt 45 85 80 66 Clay 15 15 10 33	2 88 10
IOCENE		NN18											****	*	COMPOSITION: Accessory minerals — 2 2 — Bioclast 30 — — — Clay 20 10 — 30	2 10
IPPER PL		brouwer						×	4	the second second			· ·	*	Feidspar 15 10 10 Foraminiters 5 3 Glass 10 Hornblende 5 Intraclasts 40 20 Pyroxene 10 2	10 2
2		D.					6	OT0C=0.28					*		Radiotarians — — — 1 Rock fragment — 55 70 30 Spicules — 2 3 5	2
							P=1.39 . WC=1	CaCO3=3.6% ●	5				* * * * *			
									6				•	*		
	•R/S	•T/M							7]]}]} []]					



SITE 767

5115	BIG	O / OSTR	АТ.	ZONE	E/	в	53	Г	co	RE	a co	a a	D		ERVAL 167.6-177.3 mbsf
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTII	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
		intaradiatus NN18					6 • 0-77 8 • WC-118	CaCO3"4.4% TOC=0.30%	1	1.0			* * *	*	VOLCANIC CLAYEY SILT and CARBONATE SILTY CLAY Major lithologies: a. VOLCANIC CLAYEY SILT. Massive, medium bedded, bioturbated, mainly dark gray (5Y 4/1) and dark greenish gray (10Y 4/1) with additional motiling of gray green (5G 4/2). Composed largely of altered volcanic lithic material, leidspar and pyroxenie. Includes very thin beds of altered lithic ashes, silt to sand grade grain size. b. CARBONATE SILTY CLAY. Thinly to medium bedded, weakly bioturbated, normally graded with sharp erosive bases. Occurs very thinly interbedded with the volcanic clayey sil Major components are foraminifers and carbonate rock fragments with leidspars and spong spicules. Minor lithology: Foraminiferal sandy silt. Occurs in Section 7, 90-135 cm, at the base of a fining- up unit, continuous with overlying carbonate silty clay. Foraminifers are the principal constituent, Jus some fine bioclastic material. The carbonate layers appear to have a
		C/G D. Pe					P-1.4		2				1	*	turbiditic origin SMEAR SLIDE SUMMARY (%): 1,65 1,138 2,107 3,94 5,130 6,68 7,43 D D D D D D D D D D D
NE		•							3	and a colored			* * *	*	TEXTURE: Sand 10 2 1 90 80 40 Silt 80 59 65 63 10 20 60 Clay 10 41 32 35 COMPOSITION: Accessory minerals 5 5 1 2
UPPER PLIOCE		pentaradiatus NN1					-39 • 0-61 -39 • 0C-81	• •CaCO ₃ =0.4%	4				1 1		Bioclist
		D. I					P=1	T0C=0.08%	5	and and and a			*	*	Spicules 5 — 5 10 — 5 2 SMEAR SLIDE SUMMARY (%): 7, 44 D TEXTURE: Sand 50 Silt 50 COMPOSITION:
		• F/G							6	1 minuteria				*	Accessory minerals 5 Feldspar 10 Hornblende 5 Pyroxene 10 Rock fragment 65 Spicules 2
	• B	• B							7	ii nii		1		**	



NIT	BIO FO	SSIL	CHA	RACT	ER	57	LIES				-	CHB.	ŝ				
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	GRAPHIC LITHOLOG	Y	DHILLING DIST	SED. STRUCTUR	SAMPLES		LITH	OLOGIC DESCRIPTION
	• C/S						55 =68	@T0C=0.32%	1	0.5				* 0G IW	VOLCANIC CLAYEY SI Major lithologies: a. VOLCANIC CLAYEY mainly ledspar plus opa cm), dark grayish brown b. CARBONATE CLAYE gray (5Y 4/2) to light oliv Minor (ithology: Carbona libht olive gray (5Y 6/2)	LT and CAF SILT. Mass) and mottll que minera (10YR 4/2) Y SILT. Th e gray (5Y tte silty same	REONATE CLAYEY SILT with carbonate silty sand sive, medium to thick bedded clays and silts, bioturbates ed dark greensis gray (10Y 4/1). The silt component is als, pyroxene, and sponge spicules. Includes very thin (1 ash layer at Section 1, 90 cm. in bedded, weakly laminated and bioturbated silts, olive 5/2) in color. d. Thinly bedded and laminated with some bioturbation, more of biotestic material. a fee foremitters and re-
							18 7-2.64 WC	CaC03=3.7% ●	2			1			TEXTURE:	RY (%): 1, 32 M	3, 37 D
	• R/S	NN17					2.45 WC-11	21.8%	з				10	*	Sand Silt Clay COMPOSITION:	90 10 —	60 40
UPPER PLIOCENE		. pentaradiatus					β:	caco3=	cc						Accessory minerals Bioclast Clay Feldspar Foraminifers Opaques Pyroxene Rock fragment Spicules	10 70 10 10 10	10 55 10 10 10 5

767B-20X	1	2		3	CC
5-	4	-	-		Stal-
10-					-
15-		-			and a
20-					
25_					-
30-			-6		-
35-	340	- 50			-
40-		in the second			-
45-				-	-
50-					
55-					-
60-				F	
65-				-	a ha a
70-				_	
75-			E	-	
80-					1
85-					
90-		Pec.			
95-			.		
100-					
100-					10
115-					
120-				_	
125-					
130-	100				-
135-				-	
140-			-	1_	1
145-					
150-	ţ		_	-	1

SITE	7	67	T	HOL	EE	у Т —	-		RE 2	21X CC	RE	DI	NT	ERVAL 183.8-193.5 mbsf
UNIT	FOS	SSIL	CHA	RACTE	R	TIES					TURB.	RES		
TIME-ROCK	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNET	PHYS. PROPER	CHEMISTON	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTU	SAMPLES	LITHOLOGIC DESCRIPTION
						1.27 • 0-62	CaCO. 48 AV	1	0.5			1 1 1 F	*	VOLCANIC CLAYEY SILT and CARBONATE SILT Major lithologies: a. VOLCANIC CLAYEY SILT. Massive, medium bedded clays and silts, bioturbated, dark gray (5Y 4/1), dark olive gray (5Y 3/2) and dark greenish gray (10Y 4/1). The silt componen is mainly volcanic lithic fragments plus feldspar and some sponge spicules. b. CARBONATE SILT. Laminated or massive carbonate silts which are variably sandy to clayey in normally graded thin bods, olive gray (5Y 6/2) and gray (5Y 6/1) in color. Composed mainly of bioclastic material, with foraminifers, rock fragments and feldspars. There is little or no biourbation in these carbonate beds, which are inter- preted as turbidite deposits.
		NN1 7				-2	21	2				*	*	SMEAR SLIDE SUMMARY (%): 1, 107 2, 140 4, 103 6, 139 7, 19 M D M D M TEXTURE: Sand 80 - 4 - 8 Silt 20 70 71 70 75 Clay - 30 25 30 17
ENE		NN16					30	3				1 1 1		COMPOSITION: Accessory minerals 10 5 10 5 10 Bioclast 40 - 10 - 50 50 Clay - 20 40 25 - Feldspar 10 15 115 10 Foraminifers 20 - 5 - 20
UPPER PLIOCE		D. surculus				€=1.45 • 0=78	00-0 02% CSC0 7	4	and the second second			{ } 	*	Procente 20
							T	5	and see to see			*	*	
						E=1.44 . 9-77	7=2.62 WC=121	6	and set of set o					
	•R/S	eF/M						7 CC					*	



SITE	E 7	67		H	DLE	В			co	RE :	22X CC	RE	DI	INT	ERVAL 193.5-203.3 mbsf
F	BIG	STR	AT.	ZONE		Γ	50		Γ						
TIME-ROCK UNI	FORAMINIFERS	MANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTIE	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
						T0C=0.28%	P-1.64 0 67	CaC03-0.2% .	1	0.5			*	*	VOLCANIC CLAYEY SILT and CARBONATE SILT with carbonate sand Major lithologies: a. VOLCANIC CLAYEY SILT. Massive, medium bedded clays and silts, slight to intense bioturbation causing a motiling of dark gray (5Y 4/1), dark olive gray (5Y 3/2) and dark greenish gray (10Y 4/1). The silt component is mainly volcanic lithic fragments plus letds pyroxene, hornblende and rare sponge spicules. b. CARBONATE SILT. Normally graded medium to thin beds, laminated at the bases and bioturbated at the tops of the beds. Olive gray (5Y 4/2) to light olive gray (5Y 6/1) in color. Composed mainly of bioclastic material and variable amounts of clay.
									2				1	*	Minor lihologies: Carbonate sand. Massive to well laminated, with alternations of pale olive (5Y 6/3) and gi (5Y 6/1) silty sand. Occurs in a major carbonate unit in Sections 4 and 5. SMEAR SLIDE SUMMARY (%):
								XL.		1.1.1.1					1, 96 1, 136 2, 36 3, 30 4, 20 D D D D D TEXTURE:
							0-76 WC-102	CaCO3=39.					1	*	Sand 2 70 Silt 70 65 60 30 70 Clay 28 35 40 30
OCENE		NN16					P-1 54		3				1		COMPOSITION: Accessory minerals 10 5 2 5 Bioclast 10 - - - Biothe - Tr 2 - Clav 40 30 35 15
UPPER PLI								×	4				- F	*	Feldspar - 15 10 15 25 Hornblende - 7 2 3 - Pyroxene - 7 3 7 10 Rock fragment - 30 40 55 45 Silt 40 - - - - Spicules - 2 Tr Tr
								OT0C=0.05					ŧF		
						CaCO ₂ =88.5%	0-1.83 0-57	.1%	5				ŧF		
		V					ſ	CaCO ₃ .	6						
	8	·F/							cc		EEEE				



5	BIO	STR	AT. :	ZONE/	2 0	ES I	Γ				- 88	8		ENTRE 200.0 2	10.11	1001				
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITHO	LOGIC	DESCRIP	TION		
ENE		4N16				P-1.62 • 0-70	•CaCO3=3.0%	1	0.5			***	* *	VOLCANIC CLAYEY SIL Major lithologies: This core contains VOLC The volcanic clayer silt for proserved laminae. It con ments, glass, and feldspic very dark gray (SY 41 an at a silt are 10-30 cm thicl variable proportions of ca of volcanic ash (rock frag siliceous spicules are pre	ANIC CLA orms thick, ntains disse ar, as well a ind 3/1) to v k, with sha arbonate per gments, feld asent. The o	YEY SIL slightly t eminated as siliceo ery dark rp basal allets, for dspars, a carbonat	E SILT T with int o modera silt-sized pus spong greenish contacts aminifers nd biotite e silt laye	erbedded ately biotu t ash, incl gray (10' and norm , and mic); in some rs are into	CARBO rbated be uding vol s. Color v (3/1). Th al grading rite, with a layers ri erpreted a	NATE SILT layers, eds with a few canic rock frag- varies from dark and e layers of carbon- g. They contain a minor component adiolarians and as turbidite depositi
R PLIOCE		2					0.17%	2				1	*	TEXTURE:	1, 77 M	2.20 D	2, 56 M	3, 11 D	3, 62 M	CC. 25 D
UPPE		F/G				.52 • 0=74	• TOC=0	3					0G IW *	Sand Silt Clay COMPOSITION:	6 71 23	10 50 35	10 50 35	53 47	7 70 22	3 66 31
	•R/S	• 8•		8		P-1	C03-1.70	cc				Ĩ	*	Accessory minerals Bioclast Biotite Clay Feldspar	5 5 10 1	10 	5 	5 30 	5 5	10 3
							%Ca(Foraminifers Glass Intraclasts Micrite Nannofossils Pellets	50 5	5 5 6 Tr 15	5 25 10	- - - 10	25 25	-
														Radiolarians Rock fragment Silt Spicules	10 Tr	1 10 10	5 10 10 5	50 5	15 15 	2 60
																		_		



SILE		6/		HC	LE	в	_	_	CO	RE 2	24X CC	DRE	D	INT	ERVAL 213.1-222.9 mDst
TIN	BIO FO	SSIL	AT. CHA	ZONE	TER	0	ES					RB.	s		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
UPPER PLIOCENE	•R/S	NN16				CaCO3 = 0.5%	P-1.51 0-74	CaCO3-74.6%	1	1.0				*	VOLCANIC CLAYEY SILT and CLAYEY SILTSTONE with CARBONATE SILT and CAR- BONATE SAND Major lithologies: a. VOLCANIC CLAYEY SILT, becoming SILTSTONE below Section 2. These lithologies form thick beds which are slightly to moderately bioturbated, and range from dark gray (SY 41) and olive gray (SY SZE to 42) to dark greenish gray (109 4/1 to 52). Silt-sized ash particles are found throughout, and include rock fragments, glass, feldspar, and biotite. b. CARBONATE SILT and CARBONATE SAND layers are light olive gray (SY 6/2), have sharp bases and gradational tops, and exhibit planar and convolute lamination. They consist of carbonate pellets, foraminifers, and micrite, with a minor component of volcanic rock fragments. These beds are interpreted as turbidite deposits. Drilling disturbance: Sections 3 and 4 are moderately to highly fractured.
								3%	2			ł	i		SMEAR SLIDE SUMMARY (%):
ENE	• C/S						0-74 VC-95	aco3=2				i	5		1,80 2,20 4,32 M D D
LOWER PLIOC		NN15					P=1.55 •	TOC=0.10%0 0C	3			VVVVXXX VVV			TEXTURE: Sand 2 10 1 Silt 68 25 62 Clay 30 60 37 COMPOSITION: - 5 5 Biother - 5 - Clay - 45 30 Peidsspar - 10 - Foraminifiers 15 - - Glass - 20 Tr
									4	Ţ		1	1	*	Micrite 60 Peilets 10 10 Rock fragment 10 40
	•R/S	•R/P							cc				۱		
		R. pseudoumbilica													



SITE 767

SITE	: 7	67	_	HC	LE	в		_	COP	RE 2	25X C0	RE	DI	NT	ERVAL 222.9-232.6 mbsf
=	BIO	STR	AT	ZONE	E/ TER		ES						67		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
							P=1.55 • 0=72	€CaCO ₃ =24.1%	1	0.5			*****	*	VOLCANIC CLAYEY SILTSTONE with clayey silistone and carbonate sandstone Major lithology: VOLCANIC CLAYEY SILTSTONE occurs in thick, highly bioturbated beds, with almost no primary structure preserved. Sili-sized ash particles occur throughout; rock fragments are the most common grains, followed by feldspar and biotite. The color of the sediment is motified due to bioturbation; it ranges from olive gray (5Y 4/2) to dark greenish gray (10Y 4/1) to dark gray (2.5Y 4/0) to very dark gray (5Y 3/1 to 2.5Y 4/0). Minor lithologies: Clayey carbonate siltstone and carbonate sandstone occur in several medium beds as well as 1-2 thin layers in each section of the core. These layers are light olive gray (5Y 6/2); some have planar and wavy lamination, but bioturbation has destroyed primary sedimentary structures in most of the thinner beds. Several beds exhibit normal grading from silt or sand at the base to clayey silt at the top. Foraminifers and pellets are th most commo coarser grains, along with volcanic rock tragments, ledspar, and radiolarians
									2	- to			522 -		These layers are interpreted as turbidite deposits. SMEAR SLIDE SUMMARY (%): 1, 40 3, 125 4, 70 5, 55 6, 48 6, 135 M M D M M M
							0-69 WC=78	cac03=1.2%					1 22		TEXTURE: Sand 1 4 3 1 3 5 Sitt 60 69 66 30 65 85
							P-1.62	acog 81.8% @(3	Trenda		1	**		Clay 39 27 31 65 31 5 COMPOSITION: Accessory minerals 10 - 2 10 15 - Clay 39 27 31 65 31 5
CENE								0.05% 00					222	*	City 40 5 50 10 15 10 Feidspar 10 5 15 — — 5 Foraminifers — 40 — 5 20 30 Hornblende — 5 1 — — — Mica 5 — — — — — Micrite — — — 60 — —
PLIO		NN15						-0.23% @TOC-	4				****	•	Nanodossils Tr Peliets 15 10 10 15 Pyroxene 1
							55 • 0-74	OK TOC.	-	1			::	*	
							5:1		5			~~~~	**		
									6	- diam			**	*	
	•R/S												**	*	
	•C/M	eR/M							7 CC			X//	8		



ITE	7	67		HOL	EB	5		co	RE 2	26X CC	RE	DI	NT	ERVAL 232.6-24	42.2 m	nbsf					
ц.	BIO FOS	STR	CHA	ZONE/	R	Es					· 8	40									
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURE	SAMPLES		LITH	LOGIC	DESCRIP	TION			
						P-1.55 0-72	2% CaC03=0.7%	1	0.5			*****	*	VOLCANIC CLAYEY SIL Major lithologies: a. VOLCANIC CLAYEY SI to highly bioturbated, with olive gray and dark olive gray (10Y 4/1). Sill grains feldspar and biotite. b. CLAYEY CARBONATI distributed through the cc B/3) and olive gray to light	SILTSTONE a SILTSTONE of Chondrite gray (5Y 4/ s include co E SILTSTO ore, with an at olive gray	E occurs s, Plano 2 and 3/ ommon a NE beds average (5Y 6/2	YEY CAF in thick to lites, and 2) to very ish partic s are 4-15 of 3 bed to 4/2); r	BONATE Zoophyc dark gra es, chieff 5 cm thick s per Sec iormal gra	60 cm) wf cos. Thes y (5Y 3/1 y rock fra , and are tion. The iding and	DNE sich are n e beds ra) and darl gments w fairty uni y are pak i planar la	toderately nge from k greenish ith minor formly e olive (5Y mination
						P=1.53 0-73	•CaCO ₃ =1.	2	the best		11/1/1/1		* **	are present in some, but beds grade from clayey o contain foraminifers, pelle volcanic rock fragments. SMEAR SLIDE SUMMAR	bioturbatic arbonate s ats, and min These bed RY (%): 1, 30 D	n has co ilt at the nor comp s are inte 2, 40 D	2, 79 M	obscured alcareou: f radiolari as turbidit 2, 84 M	their inte s clay in t ans, silic e deposit 3, 26 M	rnal struc he upper eous spic s. 4, 60 M	ture. Mos part: they ules, and 5, 62 M
								3				~ ~~~	*	TEXTURE: Sand Silt Clay COMPOSITION:	3 68 29		4 60 35		3 65 32	10 40 45	25 40 30
PLIOCENE	• A/G	NN15	• C/G					4	1		エーノノノイ	*	*	Accessory minerals Biotite Clay Feldspar Foraminifers Glass Mica Micrite Nannofossiis	2 5 40 10	5 10 15 	 15 5 40 			10 15 5 00 Tr	7 10 5 10
	20						•T0C=0.13%	-			-// //	***	OG I W	Opaques Pellets Radiolarians Rock fragment Spicules	2		5 20 10 5		2 30		5
	N19/1							5			~ ~ ~ ~ ~ ~ ~ ~ ~	******	*								
	• C/G							6			~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	****									
	0	8						7		6666666											



	٠.		HU	LE	D	-	- 8	COL	RE 2	27X C	DRE	DI	NT	ERVAL 242.2-251.9 MDSt
BIO	SSIL	CHA	ZONE	TER	5	IES					RB.	SP 1		
FORAMINIFERS	NANNOFOSSILS	RADI OLARI ANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
						P-1.55 WC-95	IC=0.2%	1	0.5		1111 111111			VOLCANIC CLAYEY SILTSTONE and CLAYEY CARBONATE SILTSTONE Major lithology: a. Thick-bedded (30-60 cm) VOLCANIC CLAYEY SILTSTONE is the predominant litholog in this core. It is slightly to moderately biotubated, with common <i>Chondrites</i> , <i>Planolites</i> , <i>Skolithos, Zoophycos</i> , and other trace tossils. Color ranges from olive gray (5Y 4/2) to da gray (5Y 4/1) to very dark gray (5Y 3/1). Minor amounts of silt-sized ash occur disseminati- through the sediment, and include feldspar, rock fragments, mica, and quartz. b. Thin beds (3-14 cm) of CLAYEY CARBONATE SILTSTONE occur throughtout the core, with a frequency of 3-5 beds per Section. They are olive gray (5Y 5/2), and commonly slightly bioturbated, obscuring primary structures. Planar termination and sharp basal contacts are preserved in a number of beds. Carbonate silt
• A/S							0 ₃ =85.9	2			、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、			grains are concentrated near the base of the beds, which are normally graded and decrea in carbonate content upward. These beds are interpreted as turbidite deposits. SMEAR SLIDE SUMMARY (%): 5, 65 D
	•8						• %CaC(3			~~~~~			Sand 2 Silt 60 Clay 35 COMPOSITION:
N19/20	• C/M						×				~~~~~	*****		Accessory minerals 5 Clay 40 Feldspar 5 Homblende 5 Rock fragment 20 Silt 20
• A/G	NN15					.65 • 0-69	CaC03=0.2	4	- dimention		、 、 、 、 、 、 、 、 、 、 、 、 、 、 、 、 、 、 、 、			
						P=1	T0C=0.35%	5	ed and and a		~~~~~~~		*	
	●F/P				A set and the set	-1.65 • 0-51	•CaCO3=0.2%	6	- to dreet		、ノノンノンノ	****		
	Ь					d'A		7	1		1	1 1 1		
	●A/G N19/20 ●A/S Foreward A/S Foreward	ФА/G N19/20 ФА/S Forautivirens A/S Forautivirens A/S Page 100 Page	PIO121411 A/G N19/20 A/S Forauminetine PO ●F/P NN15 • C/M • B A/S Autorotation	Postir crammineries advice N19/20 e.G/M e.B e.F/P NN15 e.G/M e.B e.B e.A/S posterior cossilis costantineries advice the post of the cost o	Postri Caravacture a A/S • A/S	ВПОЗТИВИТ. ТАВИТ COMMUNITY Community	Φ Φ/G N19/20 Φ/S Formunifiers Formunifiers	P ●A/G N19/20 ●A/S Formunifiers Formunifiers <td>P -A/G N19/20 -A/S Foruminens Foru</td> <td>POINT 15 A/G N19/20 A/S F/P Formulation Formulation</td> <td>BIODITAT. ZONE/ POSIL CHARACTER ILTROLOGY O//C O//C<</td> <td>A/G NU115 C/M B PI-10 NU115 C/M B Dataset is a second s</td> <td>A/G NU15 C/M A/G NU15 C/M A/G P MU15 C/M B MU15 C/M B Monorossis B</td> <td>PAIG AIG NU15 C/M B AIG NU15 C/M B P</td>	P -A/G N19/20 -A/S Foruminens Foru	POINT 15 A/G N19/20 A/S F/P Formulation Formulation	BIODITAT. ZONE/ POSIL CHARACTER ILTROLOGY O//C O//C<	A/G NU115 C/M B PI-10 NU115 C/M B Dataset is a second s	A/G NU15 C/M A/G NU15 C/M A/G P MU15 C/M B MU15 C/M B Monorossis B	PAIG AIG NU15 C/M B AIG NU15 C/M B P



TIL	. /	0/	<u> </u>	HU	LE	D	_	_	CO	RE Z	8X CL	RE	0		ERVAL 251.9-261	.4 m	DST		
III	BI0 FOS	STR	CHA	RAC	TER	s	LIES					CRB.	ES						
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITHO	LOGIC	DESCRIP	TION
		Σ								1		T	12		VOLCANIC CLAYEY SILT	STONE a	nd CARI	BONATE	SILTSTONE
		•C/					94	×6.0=6	1	1.0			*****	*	Major lithologies: a. VOLCANIC CLAYEY SII which vary from olive gray dark greenish gray (102 4/ this lithology, and include n b. CARBONATE SII.TSTO out the core; 1-4 beds are i gradational tops, with plana disrupted by bioturbation. 1 radiolarians and volcanic a	LTSTONE and dark 1). Disper ock fragm NE occurs found per ar laminat The major sh (rock f	forms to olive gra- sed silt- nents, fel- s as com Section, ion and r compon ragments	hick, sligh y (5Y 4/2 sized ash dspar, an mon thin The thick normal size ents are p a, hornble	It to moderately bioturbated beds to 2.5/2) to very dark gray (SY 3/1) to particles are a major component of d mica, beds and rare medium beds through- ker beds have sharp bases and to grading; thinner beds are highly pellets and foraminilers, with minor nde, and mica. The sittstones are
							WC-71	CaCO		-		I	1		olive gray to light olive gray turbidite deposits.	(5Y 4/2 1	to 6/2) to	pale oliv	e (5Y 6/3), and are interpreted as
							P-1.59	•	2	liiili		111	2220	*	Minor lithology: Two very th primarily of silt-sized grains cm; the crystal phases are occurs in Section 2, 108-11	nin beds c 3. Black (2 feldspar a 10 cm; it c	f volcani 2.5Y 3/0) and biotit ontains f	c ash oco vitric-cry e. Light o eldspar ir	cur in the core; both are composed stal ash occurs in Section 1, 133-137 live gray (5Y 6/2) crystal-lithic ash addition to lithic fragments.
										-		ĺ,	1:		SMEAR SLIDE SUMMARY	(%):			
		•R/P								-		Ĺ	:			1, 135 M	2, 110 M	3, 106 M	5, 77 D
NE									3	-		Ľ			TEXTURE:				
CE										=		1	**		Sand	1	70	5	1
LIC		15						0.2%		-	ក្រក្រក្រក្	1	5	*	Clay	32	30	26	30
P P		NN					-79	·03=(-		L	1		COMPOSITION:				
WE							0.0	•CaC	Ĩ	-	SHARE AR		1		Accessory minerals Bioclast	-	-	1	3
L0							199	1		-		1	11		Biotite	15	Ξ.	-	
									4	3			1		Feldspar	10 20	10 25	10 5	60 5
		N						X		-		1t	11		Foraminifers	25	-	20	-
								0.3				11	1		Hornblende	-	-	3	2
								-		1			12		Mica	5	10	3	-
								1 O	-	-		1	11		Pellets	-	-	40	-
											44444444444	1	11		Pyroxene Radiolarians	1	Ξ.	10	-
												1	12		Rock fragment	20	50	5	20
									5	-	կնկկներ	1	i		Sitt	_	_	_	10
										-		1	12	-					
								×			նիկիրիի	1	1						
	S	e.						0.2		-	կիկկիկի		11						
	A						00	-20	-	-		1							
	–						00	CaC		3	<u>titertiterti</u>	1	3						
								•		-		1	12						
									6	1		1	11						
							2			-		1	1						
										3	<u>lih Hilihi</u>	K	1						
										3	the second	1)	1						
									-			1	1						
									7	1		1	1	1					
	S	Σ							\vdash	-		1	1	1					
	AI	14							cc	1			i	1					
	•	•								1		ľ	1						



.

447

......

SITE	7	67	_	HOL	ΕB	į		CO	RE 2	29X CC	RE	DI	NT	ERVAL 261.4-	271.0	mbsf
E	810 F05	STR	CHA	ONE/		ŝ						00				
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURE	SAMPLES		LITH	LOGIC DESCRIPTION
					Τ						1	1		VOLCANIC SILTY CLAY	YSTONE wit	h very thin beds of carbonate siltstone
	0	C/G				P-1.61 0-79	CaCO311.3%	1	0.5		111111	*****		Major lithology: VOLCA bioturbated with distinct dark gray (SY 3/1) and d (SG 4/2). Composed larg includes very thin beds o cm). Minor lithology: Carbona laminated with some mo	NIC SILTY (burrows up lark greenisl gely of clay v of altered liti- ite siltstone.	CLAYSTONE. Massive, medium to thick bedded, to 1 cm in diameter. Mainly dark gray (5Y 4/1) to very 1 gray (10Y 4/1) with additional mottling of gray green with some altered volcanic lithic material and feldspar, aic ashes, silt to sand grade grain size (core catcher, 12 Thin bedded (5-10 cm thick), normally graded and well biblinthation. Olive gray (5Y 4/2) to gate give (5Y 6/2).
	•R/S						1.5%				>	2		color. Occurs interbedde SMEAR SLIDE SUMMA	nd with the v RY (%):	olcanic sity claystone throughout the core.
							03-8	2	-		1	i			3, 111	5. 53
		-14					CaC				2	1		TEXTURE:	м	D
		12			L		×				1	1		Sand	3	-
		NN					0.2	\vdash	-		1	1		Silt	69 26	30
						0-64 VC-7	aco3				二	1		COMPOSITION:	20	
						•	ě	3			İ	201		Accessory minerals	5	2
	15	P/				1010					1	5		Biotite Clay	30	1 70
					1	2	f I				1	1	*	Feldspar	5	10
ш											1	1		Homblende	2	1
Z									-		1	1		Pellets	10	
CI										10000000	1	i		Pyroxene	_	1
Ě	1								2	11111111111	1			Rock fragment	45	10
đ	1							4		;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	1	m		oiit	40	-
œ	2			1			×			111111111	1	•••				
Ň							10			11111111111	1	1				
Lo							i.			<u> </u>			OG			
							E		-				IW			
		Σ					5			1444444	1					
		ì					1			100000	Η					
		•				44	3.	5	1.5	1111111111	1	55	*			
						00	ac	ľ		16666666	I	"				
						•			1 2		1					
	1/S					000					1	11				
						4-1	1									
					1						江	\$				
								6			1	'				
								1			1-	ш				
									-		1					
								cc		111111111	X	F				



SITE	E 7	67		HC	LE	В			co	RE 3	30X CC	RE	DI	NT	ERVAL 271.0-28	0.7 n	nbsf	
TIME-ROCK UNIT	FORAMINIFERS 3 8	NANNOF OSSILS	RADIOLARIANS 2 .	ZONE	TER	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES		LITH	DLOGIC	DESCRIPTION
	•C/S	eF/M				T 0C=0.21% 7	P=1.60 0-68	CaCO3-0.6%	1	0.5		111111111	~ ======		VOLCANIC CLAYEY SILTS sandstone Major lithology: VOLCANIC bated (<i>Chondrites</i>), motiled Composed of clay, altered v Minor lithologies: a. Carbonate clayey siltston laminated, cross laminated, stones. Bioturbation is well b. Carbonate silty sandston	STONE v CLAYE ¹ dark gre volcanic l ne. Olive normally displayee e. Lamin	y SILTS enish gr lithic mat gray (5Y graded d, includi ated, cro	Peds of carbonate siltstone and carbonate silty FONE. Massive, medium bedded, and biotur- ay (10Y 4/1) and dark gray (5Y 4/1) in color. erial. feldspar, biotite and hornblende. 4/2) and light olive gray (5Y 6/3), thin bedded, and continuous with underlying silty sand- ng <i>Chandrities</i> and <i>Planolites</i> .
		5/0						6%	2			1111111	1		scoured bases continuous V 6/3) in color. The carbonate with the volcanic clayey sits SMEAR SLIDE SUMMARY	with over beds an stones (%): 3, 45 D	lying car e interpri 3, 55 M	bonate clayey sitstone. They are pale olive (5Y teted as thin turbidites which occur interbedded 5, 97 M
LIOCENE		-/P NN12-14 •(7-2.73 WC-78	·•coco3•.	3			11/1/1/11		**	TEXTURE: Sand Silt Clay COMPOSITION: Accessory minerals Biotite Chiorite		40 60 5 15	2 1
LOWER P		•F/P •F						CaCO3=81.6%	4						Clay Feldspar Hornblende Pyroxene Rock fragment	35 20 10 15	20 10 45	50 10 2 30
		•F/M					68 • 0-62 52 • WC-60	2X • TOC=0.26X•	5			イノノノノノイ		*				
	•R/S	•R/P		•B			P-1.	CaC03=1.2	6 cc	the dama		444 ///	~~~					



SITE 767

s	ITE	7	67		HO	LE	В			CO	RE 3	1 X	CC	RE	DI	NT	ERVAL 280.7-290.4 mbsf
Γ	NIT	BIO	STR	CHA	RACI	/ TER	0	LIES						URB.	ES		
	TIME-ROCK UI	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	G	RAPHIC	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
	LOWER PLIOCENE TIME	B (A. tricorniculatus) R/S R/S	•CM • R/P• NN12-14 F/P• NANN	RADIO	01470		bale	PHYS 0 00-05 PHYS	TOC=0.21% • CaCo3=6.0% CHEM	1 2 3 CCC	0.5 1.0			XXXX H H H V V V V V V V V X X X H H H V V V V	· · · · · · · · · · · · · · · · · · ·	* * SAMP	VOLCANIC CLAYEY SILTSTONE with thin beds of CARBONATE CLAYEY SILTSTONE and carbonate silly sandstone. Major lithologies: a. VOLCANIC CLAYEY SILTSTONE. Massive, medium bedded, and biolurbated, dark greenish gray (10Y 41) and dark olive gray (5Y 4/2) in color. Composed largely of clay with some altered volcanic lithic material and feldspar, Includes very thin beds of altered lithic ashes, very dark gray (5Y 3/1) and black (5Y 2.5/2), between 100 cm and 125 cm in Section 2 and at 43 cm in Section 3. b. CARBONATE CLAYEY SILTSTONE. Olive gray in color (5Y 5/2 and 5Y 4/2), thin bedded liminated, normally graded and continuous with underlying silly sandstones. Foraminifers and bioclasts are the principal constituents, with clay and some lithic tragments. Bioturbation is very well displayed, including <i>Chandriles, Zoophycos,</i> and <i>Planolites.</i> Minor lithology: Carbonate silly sandstone. Laminated, cross laminated, normally graded this beds with socured bases continuous with overlying carbonate clayey siltstone. They are paid olive (5Y 6/3 and 5Y 6/2) in color and become darker as they become liner. The carbonate beds are interpreted as thin turbidites which occur interbedded with the volcanic clayey siltstones. SMEAR SLIDE SUMMARY (%): 1, 24 2, 125 M M TEXTURE: Sand Sand 60 20 20 Sill Sill 30 70 Clay COMPOSITION: 2 5 Accessory minerals 2 5 Bloclast 25 — Bloclast 25 — Glass — Gloste
																	Rock fragment 20 50



ITE	7	67	_	но	LE	В	_	_	co	RE	32X CC	RE	DI	NT	ERVAL 290.4-300.1 mbsf
TIN	FO	SSIL	CHA	ZONE	TER	-	168					RB.	ŝ		
TIME-ROCK UI	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
		/W					P=1.66 • 0=66	aC03=0.3% •	1	0.5		////// イイ	1 1 1	*	CARBONATE SILTSTONE and VOLCANIC CLAYEY SILTSTONE Major lithologies: a. CARBONATE SILTSTONE. Olive (5Y 4/3) and gray (5Y 5/1) in color, medium bedded, laminated, cross laminated, and normally graded. It is made up of micritic pellet and lithic material. Moderately bioturbated, including <i>Chordribes and Zoophycos</i> . b. VOLCANIC CLAYEY SILTSTONE. Massive and weakly laminated, medium to thin bedded and bioturbated (<i>Zoophycos</i>); they are motiled dark grae(is'4/1) and vary dark gray (5Y 4/1) and vary dark gray (5Y 3/1). Composed largely of clay with some alterer volcanic lithic material and feldspar.
		4 • C						0	2			インノンノーー	1 1月 1	*	Minor lithology: Carbonate sitly sandstone. Laminated, cross laminated, normally graded the beds, continuous with overlying carbonate clayey sitlstone, pale olive (5V 63) in color. Occurs as thin beds at the base of fining-up sequences amongst the carbonate sitlstones Section 4. Very thin, black (5V 63), lithic ash beds occur throughout this core. The carbonate beds are interpreted as turbidites. SMEAR SLIDE SUMMARY (%): 1.40 1.123 2.35 3.112 4.51
		NN12-1										++++	11		TEXTURE: Sand 60 30 70 30
IOCENE		• A/M							3				•	*	Clay 60 20 70 30 10 COMPOSITION:
LOWER PL								2%	4			444		*	Clay 60 15 65 30 10 Feldspar 20 10 10 20 Hornblende 2 2 Infractasts 25 Pellets 20 Pyroxene 1 2 Radicipations Tr
								TOC=0.1	_		nonnan Triatain	11-	· ·	og I W	Rock fragment 10 70 10 — 60
		•C/M							5	- to the set of the		1//////	1 1 1		
		A/G					.37 • 0=57 81 • WC=75	•CaCO3=0.5%	6			14444	****		
	•8	•B					P=1		cc			××× -×	11		



	810	/O	AT.	HOLI		B	Г	co	RE	33X C	DRE	D	INT	ERVAL 300.1-309.8 mbsf
TIME-ROCK UNI	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIE	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
WER PLIOCENE	• A/S N17 FORMINI	NN12-14 •C/M •A/G MANNOFOS	RADIOLAR	DIATONS	PALEONAG	0 46 46 WC=78 PHYS. PR	•T0C=0.38%	1 2 3 3 4 5	wrens			4 ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	* * SAMPLES	LINECODE DESCRIPTION VOLCANIC SILTY CLAYSTONE and CLAYSTONE Major lithologies: a. VOLCANIC SILTY CLAYSTONE. Massive, thick bedded claystones with variable amounts of sift, dark gray (SY 4/1) and dark olive gray (SY 4/2) in color. Composed of clay, took tragments and fieldspar, with small amounts of sprite, hornbinde and biotite. Bioturbation is very variable in this tithology. b. CLAYSTONE. Massive, dark greenish gray (10Y 4/1) claystones. motifed dark grayish green (SG 4/2), very dark gray (SY 3/1) and olive gray (SY 5/2) due to intense bioturbation is Chondrites and Planoites. The composition is apparently similar to the silty claystone. Minor tithology: Carbonate silty claystone. Occurs in thin beds, 5-10 cm thick, interbedded with the volcanic silty claystone in Sections 2 and 3: olive gray (SY 4/2) in color. A very thir black ash bed occurs at 140 cm in Section 5. SMEAR SLIDE SUMMARY (%): 1, 60 2, 68 5, 117 7, 10 TEXTURE: Sand - - - Sitt 40 - 60 - - Sitt 40 - 60 - - - Sitt 40 - - 5 - - - - Composition is apparently similar to the silty claystone. Cathorameters biotecometers biotecometers biotecometers biotecometers biotecometers biotecometers biotec
	•8	•R/P				$\gamma_{-2.57}^{\text{WC}=72} p_{-1.63}^{\text{He6}} = p_{-1.63}^{\text{He5}} p_{-1.627}^{\text{WC}=70}$	caco ₃ =2.7% Caco ₃₌ 0.3%	6 7 CC			イ / / / / / / / / / / / / / / / / / / /	****	*	



-		OTO		TONE	. 1	0.0				-		—	-	-	
N	FOS	SSIL	CHA	RACI	TER	cs	TIES					URB.	SES		
TIME-ROCK L	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
LOWER PLIOCENE		•C/M NN12-14					• P=1.65 WC=70	●CaCO ₃ =2.5%	1	0.5		/////////////	*********		VOLCANIC SILTY CLAYSTONE and carbonate silty claystone Major lithology: VOLCANIC SILTY CLAYSTONE occurs in massive, thick beds, mottled dark gray (5Y 4/1), dark greenish gray (10Y 4/2) and dark olive gray (5Y 4/2) in color. Composed principally of clay, rock fragments and feldspar. Bioturbation is moderate when present. Minor lithology: Carbonate silty claystone. It occurs as thin, laminated, normally graded beds, interbedded with the major lithology throughout the core. It is olive gray (5Y 4/2) in color cand is composed of foraminifers, micritic carbonate pellets and feldspars. These beds are interpreted as distal carbonate turbilet deposits. There are some very thin beds of altered ash in Section 3 between 120 and 140 cm. SMEAR SLIDE SUMMARY (%): 4, 38 5, 51 6, 7 6, 76 M D D TEXTURE: 20 30 —
UPPER MIOCENE		D. quinqueramus NN11					• 0=67 WC=76	10% CaC0 ₃ =1.2%	3			X HVVVVVX X X VVV		*	Sit 60 50 15 30 Clay 20 20 85 70 COMPOSITION: 3 5 3 5 Accessory minerals 5 - 3 5 Biotte - 3 - - Clay 20 20 75 60 Feldspar 10 20 10 20 Foraminifers - 40 - - Hornblende Tr - - - Pellets - 20 - - Rock fragment 60 - 5 10
	•B	•B					• 2 • 0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 • 0	•CaCO ₃ =0.3% •ToC=0.1	5 6 CC			~~~ + + / / / + + / / / / / / / / / / /	21日	*	



SITE 767

Image: State Chanket Ere Image: State Ere Image: State Chanket Ere Image: State Chanket Ere Image: State Ere <th< th=""><th>T</th><th>B</th><th>BIO</th><th>STR</th><th>AT.</th><th>ZON</th><th>NE/</th><th>E</th><th>E</th><th>0</th><th>Г</th><th>CO</th><th>RE</th><th>35x CC</th><th>RE</th><th></th><th></th><th>ERVAL 319.4-329.1 mbst</th></th<>	T	B	BIO	STR	AT.	ZON	NE/	E	E	0	Г	CO	RE	35x CC	RE			ERVAL 319.4-329.1 mbst
Unit Unit <th< th=""><th></th><th>- additionation</th><th>FORAMINIFERS</th><th>NANNOFOSSILS</th><th>RADIOLARIANS</th><th>DIATOMS</th><th>CTE</th><th>H</th><th>PALEOMAGNETICS</th><th>PHYS. PROPERTIE</th><th>CHEMISTRY</th><th>SECTION</th><th>METERS</th><th>GRAPHIC LITHOLOGY</th><th>DRILLING DISTUR</th><th>SED. STRUCTURES</th><th>SAMPLES</th><th>LITHOLOGIC DESCRIPTION</th></th<>		- additionation	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	CTE	H	PALEOMAGNETICS	PHYS. PROPERTIE	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
International of the second										-63 WC-67		1	0.5		トトト く	1	*	VOLCANIC SILTY CLAYSTONE and nannotossii chaik Major lithology: VOLCANIC SILTY CLAYSTONE occurs in massive units with some lamina- tion, but no clear bedding. It is moderately to intensely bioturbated (e.g. <i>Chondrites</i>) which causes a motiling of colors - dark olive gray (5Y 3/2), dark greenish gray (10Y 4/1) and dark gray (5Y 4/1). It is pryritous in places. The main components are clay minerals, volcanic lithic fragments and feldspar.
And Drown (SY 2:5/1) ash bed in Section 2 at 30 to 31 cm. Single and the section 2 at 30 to				111					(100	64 •	aco3=0.7%				+++-	11		Minor lithology: Nannolossil chalk, which may be micritic or foraminiferal. These chalks occur in thin (5 to 10 cm) massive or graded beds in this core. The graded beds fine up from a foraminifer-rich base to a more micritic top. There is also some fine bioclastic material present in this lithology. The beds are biothrabid (<i>Chaordites</i>) and range in color from gray (SY 5/1, 6/1) to olivo gray (SY 5/2) and light greenish gray (10Y 7/2). There is a very thin.
Construction Construction Construction Construction Constreline Constreline				NN SUM							0	2	- trends		1///	1	*	dark brown (5Y 2.5/1) ash bed in Section 2 at 30 to 31 cm. SMEAR SLIDE SUMMARY (%): 1, 56 2, 80 4, 50 4, 56 D M M M
Q 3				quinquera								-				****		TEXTURE: Silt 55 20 30 50 Clay 45 80 70 50 COMPOSITION: 20 20 20 20
Comminitiers — — — — 15 Foraminitiers — — — — 15 Societ				D.						c=20 =2.63	×6. 6	3				**		Accessory minerals 2 2 Bioclast - 20 Bioclast 1 Tr Clay 40 5 5
				0						• Stade	•CaC03=65	4			1///	1 1F.	ŧ	Foraminiters 15 Micrite -75 50 Nannofossits 80 20 30 Rock fragment 25
				1/3.						C-66	TOC=0.10%						0G IW	G V
										-P=65 W	.6%	5			1111	11 11 P		
			•							1	CaCO ₃ =0	cc			1	1		-



SITE F	810	STR	AT.	ZONE	Ľ	0	Γ							
TIME-ROCK UNI	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIE	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
					- Andrew State	55 WC=71	C03=0.7%	1	0.5		X / / / X		*	VOLCANIC SILTY CLAYSTONE and rare nannolossil chalk Major lithology: VOLCANIC SILTY CLAYSTONE which varies from claystone to clayey sitistone. It occurs in massive units with some lamination, but no clear bedding. It is biotur- bated throughout (<i>Chondrites and Zoophycos</i>) and mettled dark olive gray (5Y 3/2), dark greenish gray (10Y 4/1, 4/2) and dark gray (5Y 3/1, 4/1). Some of the mottling is associated with prite. The main components are clay minerals, volcanic lithic fragments, feldspar and rare pyroxene. Minor lithology: Chalk with nannolossils, which occurs in three thin (5 cm) beds in Section 2
UPPER MIOCENE		D. quinqueramus NN11					•Cat	2			 	~ = - = - ₹ ⊙д-+; д.	*	25-30 cm. Section 3, 98-103 cm and in the core catcher (30-35 cm). The chail is olive (5Y 4/3), pale (biller (5Y 6/3) or (1) gilter (ay (5Y 7/1)). There are liminated, every thin beds of dark brown (5Y 2.5/1) lithic ash at 120 cm in Section 1 and at 30 cm in Section 2. SMEAR SLIDE SUMMARY (%): 1, 55 2, 33 4, 118 CC, 33 D M D M TEXTURE: Silt 30 - 20 10 Clay 70 - 80 90 COMPOSITION: Accessory minerals 2 5 5 - Chlorite - 5 - Chlorite - 5 - Feldspar 10 10 10 - Hornblende 5 90 Micrite - 90
	8.	•C/P				0 = 8 WC=78	T0C=0.21% CaC03=1.0%	4 5 cc			/ //////////////////////////////////	* * * * * * * *	*	Nampolosiis <u>– – – 10</u> Pyroxene <u>3 – 2 –</u> Rock fragment <u>10 60 – –</u>



SITE	810	76	7 AT. 1	HOLE	-	B	T	co	RE	37X CC	DRE	DI	INT	ERVAL 338.8-348.5 mbsf
TIME-ROCK UNIT	FORAMINIFERS	NANNOF OSSIL 9	RADIOLARIANS	SWOLVIG	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	WETERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								1	0.5		$+ + \times \times \times \times \times$	2		VOLCANIC SILTY CLAYSTONE and claystone Major lithology: VOLCANIC SILTY CLAYSTONE occurs in massive units with no clear bedding. It is bioturbated throughout (Chondrites) and mottled dark olive gray (5Y 3/2), dark greenish gray (10Y 4/1, 4/2) very dark and dark gray (5Y 3/1, 4/1). It is composed mainly of clay minerais, with some feldspar, nannofossis and bioclasts. Minor lithology: Claystone, which is dark olive gray in color (5Y 3/2), massive and biotur- bated. This lithology appears to be a finer equivalent of the volcanic sitty claystones. There are two very thin, dark brown (5Y 2.5/1) ash layers in Section 5, at 10 cm and at 132 cm.
E		I I NN I I						2			XXXXXXX	*****		SMEAR SLIDE SUMMARY (%): 3.14 5, 115 M D COMPOSITION: Accessory minerals - 5 Bioclast 15 - Biothe 5 - Chlorite - 3
UPPER MIOCEN		quinqueramus						3			$\dashv \dashv \dashv \dashv \dashv \dashv \dashv$	+	*	Clay 50 80 Feldspar 10 10 Foraminifers 5 Nancolossiis 10 Pyroxene 5
		D.					•T0C=0.15%	4			XXXXXXX	1 1 1		
	•B	•C/G				D-1 65 WC-80	03=1.7%	5 CC			XXVVVV	****	*	
							CaC							



NIT	BIO FO	SSIL	CHA	RACTE	R	LES	Γ				JRB.	SED. STRUCTURES				
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST		SAMPLES		LITH	OLOGIC DESCRIPTION
UPPER MIOCENE	•	R/MeeB NN11 eA/G	(D. quinqueramus)			WC=70 0=68 WC=11 0=24 7=2:54 0=1:68 7=2 8100=24	TOC=0.15% CaCO3=0.6% CaCO3=76.9%	1 2 3 cc	1.0			■ ■ ■ ■ ■ ■ ■ ■ ■ ■	*	VOLCANIC SILTY CLA Major lithology: VOLCA units with no clear bede 4/1) and dark gray (5Y posed of clay minerals, Minor lithology: Carbon laminated beds, gray (5 1 and as a very thin bed SMEAR SLIDE SUMM/ TEXTURE: Silt Clay COMPOSITION: Accessory minerals Clay Feldspar Foraminilers Hornblende Pyroxene Rock fragment Silt	VSTONE INIC SILTY / ding. It is ger 4/1) with an event ate silty clay if some for d in Section : 1, 74 M 20 80 	CLAYSTONE occurs in massive or vaguely laminated herally bioturbated and colored dark greenish gray (10Y hottling of grayish bilve green (56 3/2). It is mainly com eldspar and rock fragments. s with foraminifers which occur in thin, bioturbated and it gray (5Y 6/1) in color. This lithology occurs in Section 2, 92-97 cm 3, 63 D 2 70 10



SITE 767

| | | - | | - | - | _ | _ |

 | | 00A 44 | T | -
 | 141
 | LAVAL 0200.0
 | -0270 | .0 111 | 531; 5 | 50.1-507.0 11031 |
|--------------|---------------------------|--|---|---|--|---|---
--
--|---|--|--

---|--|--
---|--|
| FOS | STR | CHA | ZONE/ | ER | 8 | Es | |

 | | | RB. | s
 |
 |
 | | | | |
| FORAMINIFERS | NANNOFOSSILS | RADIOLARIANS | DIATOMS | | PALEOMAGNETIC | PHYS. PROPERT | CHEMISTRY | SECTION

 | METERS | GRAPHIC
LITHOLOGY
SX
UI
UI | DRILLING DISTU | SED. STRUCTURE
 | SAMPLES
 |
 | LITH | OLOGIC | DESCRIF | PTION |
| | | | | | | | 0.9% | 1

 | 0.5 | | | * *
 | *
 | VOLCANIC SILTY CLA'
Major lithologies:
a. VOLCANIC SILTY CL
(Chondriles and Planoli
and olive gray (5Y 42)
clay minerals, with some
b. CLAYSTONE. This is
The claystone is massiv
main colors are dark gre
1). There are rare occur
 | LCANIC SILTY CLAYSTONE and CLAYSTONE
or lithologies:
(OLCANIC SILTY CLAYSTONE occurs in massive or laminated units. It is bid
ondrites and Planolites) and colored dark greening stray (10° 41) and dark g
lolve gray (SV 42) with a motting ol grayish green (10G 4/2). It is mainly co-
rminerals, with some rock fragments.
2LAYSTONE. This is very similar to the silly claystone but with a smaller prop
claystone is massive, parallel or wavy laminated and bioturbated by <i>Chondr</i>
in colors are dark greenish gray (10V 4/1 and 10V 4/2) and dark grayish gree
There are rare occurrences of pyrite. | e or laminated units. It is bioturbated
gray (10Y 4/1) and dark gray (5Y 4/1)
in (10G 4/2). It is mainly composed of
one but with a smaller proportion of sill
and bioturbated by <i>Chondnites</i> . The
4/2) and dark graysh green (10GY 3/ | | |
| | | | | | | Y=1.65 • WC=69 | • caco3- | 2

 | and solutions | | | ****
 | *
 | Minor tithology: Foraminiferal chaik. Very thin and thin beds of toraminiferal chaik, containing
some nannolossils, rare radiolarians and sponge spicules occur throughout this core
(Section 2, 52-55 cm, Section 3, 26-29 cm and Section 3 108-113 cm, in addition to the two
10 cm beds indicated. The silty claystone frequently grades up into claystone, suggesting a
turbiditic origin for these lithologies. A very thin tuff bed occurs at 90 cm in Section 4.
SMEAR SLIDE SUMMARY (%):
1, 73 2, 9 5, 28 6, 75
 | | | | |
| | •C/G D. quinqueramus NN11 | | | | $1 = W_{-2.50}^{C=74} = W_{-2.71}^{C=85} = 1.57 = P_{-1.64}^{-71} = W_{-2.69}^{-71}$ | 5% • • CaCO ₃ =0.8% TOC=0.61% • CaCO ³ • • TOC=0.17% | 3 |

 | | | | TEXTURE:
Sand
Silt
Clay
COMPOSITION:
Accessory minerals
Chiorite
Clay
Diatoms
Foraminifers
Mica
Micrite
Nannofossils
Pyrite
Quartz
Radiolarians
Rock tragment
Silt
Spar cement '
Spicules
 | 1, 73 2, 9 5, 28 6, 75 D D M D EXTURE: 20 30 50 40 iti 20 30 50 40 iay 80 70 30 55 OMPOSITION:
 |
 | | | | |
| | | C/G D, quinqueramus NN11 N111 NAMAR Series 2 | • B • C/G D. quinqueramus NN11 Revealed to the second se | C/G D. quinqueramus NN11 mission intrems interesting introduce interesting introduce interesting introduce interesting introduce interesting introduce interesting introduce interesting interest | C//G D. quinqueramus NN11 Advantations Antionersatus Advantations Advantations Advantations Advantations | Oc/G D. quinqueramus NN11 Action of the second of | ● B
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produktiversis
Produkti | ● B • C/G D. quinqueramus NN11 remaining solutions remaining solutions <th< td=""><td>• B • C/G D. quinqueramus NN11 • силинтеста • nanoresties • C/G D. quinqueramus NN11 • палона • nanoresties • C/G D. quinqueramus NN11 • палона • nanoresties • C/G D. quinqueramus NN11 • палона • nanoresties • 0.0 • 0.0 • 0.0 • nanoresties • nanoresties • 0.0 • 0.0 • 0.0 • nanoresties • 0.1 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0</td><td>• B
• C/G D. quinqueramus NN11
• C/G D. quinqueramus NN11
• C/G D. quinqueramus NN11
• C/G D. quinqueramus NN11
• Autorossita
• Autoros</td><td>B C/G D. quinqueramus NN11 Parametric Automos Automos Parametric Parametric Parametric Par</td><td>B C/G D. quinqueramus NN11 Participation Participation Participation Participation Participation Participation Participation<!--</td--><td>• B • C/G D. quinqueramus NN11 • C/G D. quinqueramus • 0 • C/G D. quinqueramus • 0 <t< td=""><td>• B • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus P. queramus • Ougo 0.3X • Geoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • D D • Ougo 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X <td>OPGELL CHARACTER SUBJECT SUBJE</td><td>Operation CHARACTER Displayed
biology <thdiology< th=""></thdiology<></td><td>1058LC CHARACTER UNITHOLOGIC 008LC 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 000000 000000 000000 000000 000000 000000 000000 000000 000000 0000000 00000000 0000</td><td>Source Example <th< td=""></th<></td></td></t<></td></td></th<> | • B • C/G D. quinqueramus NN11 • силинтеста • nanoresties • C/G D. quinqueramus NN11 • палона • nanoresties • C/G D. quinqueramus NN11 • палона • nanoresties • C/G D. quinqueramus NN11 • палона • nanoresties • 0.0 • 0.0 • 0.0 • nanoresties • nanoresties • 0.0 • 0.0 • 0.0 • nanoresties • 0.1 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 • 0.0 | • B
• C/G D. quinqueramus NN11
• C/G D. quinqueramus NN11
• C/G D. quinqueramus NN11
• C/G D. quinqueramus NN11
• Autorossita
• Autoros | B C/G D. quinqueramus NN11 Parametric Automos Automos Parametric Parametric Parametric Par | B C/G D. quinqueramus NN11 Participation Participation Participation Participation Participation Participation Participation </td <td>• B • C/G D. quinqueramus NN11 • C/G D. quinqueramus • 0 • C/G D. quinqueramus • 0 <t< td=""><td>• B • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus P. queramus • Ougo 0.3X • Geoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • D D • Ougo 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X <td>OPGELL CHARACTER SUBJECT SUBJE</td><td>Operation CHARACTER Displayed
biology <thdiology< th=""></thdiology<></td><td>1058LC CHARACTER UNITHOLOGIC 008LC 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 000000 000000 000000 000000 000000 000000 000000 000000 000000 0000000 00000000 0000</td><td>Source Example <th< td=""></th<></td></td></t<></td> | • B • C/G D. quinqueramus NN11 • C/G D. quinqueramus • 0 • C/G D. quinqueramus • 0 <t< td=""><td>• B • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus P. queramus • Ougo 0.3X • Geoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • D D • Ougo 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X <td>OPGELL CHARACTER SUBJECT SUBJE</td><td>Operation CHARACTER Displayed
biology <thdiology< th=""></thdiology<></td><td>1058LC CHARACTER UNITHOLOGIC 008LC 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 000000 000000 000000 000000 000000 000000 000000 000000 000000 0000000 00000000 0000</td><td>Source Example <th< td=""></th<></td></td></t<> | • B • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus NN11 • C/G D. quinqueramus P. queramus • Ougo 0.3X • Geoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • D D • Ougo 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X • Ceoga 0.3X <td>OPGELL CHARACTER SUBJECT SUBJE</td> <td>Operation CHARACTER Displayed
biology <thdiology< th=""></thdiology<></td> <td>1058LC CHARACTER UNITHOLOGIC 008LC 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 000000 000000 000000 000000 000000 000000 000000 000000 000000 0000000 00000000 0000</td> <td>Source Example <th< td=""></th<></td> | OPGELL CHARACTER SUBJECT SUBJE | Operation CHARACTER Displayed
biology Displayed
biology <thdiology< th=""></thdiology<> | 1058LC CHARACTER UNITHOLOGIC 008LC 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 000000 000000 000000 000000 000000 000000 000000 000000 000000 0000000 00000000 0000 | Source Example Example <th< td=""></th<> |


	FOS	SIL	CHA	RACTE	R	s	TIES					URB.	Sa								
	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETI	PHYS, PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTI	SED. STRUCTUR	SAMPLES		LITH	OLOGIC	DESCRIF	TION		
1					1						= w u = u w u = u	1		*	CLAYSTONE and VOLCA	VIC SILT	Y CLAYS	STONE			
									1	0.5		ベイノーー	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Major lithologies: a. CLAYSTONE occurs in i laminated beds of dark to w moderately to highly bioluri occur in Section 2, 40-60 c feldspar of volcanic origin. b. VOLCANIC SILTY CLAY thin basal zones of parallel the beds are moderately to	alternatir ery dark bated wi m. The c /STONE laminate highly b	ng thick, r greenish th <i>Chond</i> claystone occurs in ad and no ioturbate	nassive a gray (10 rites and is compo n thick be ormally gr d. The be	Ind very the Y 5/1 to 3 rare <i>Plans</i> sed of cland ds with sh aded silts ds are oli	hinty lam V1). The olites; sn ly minen harp bas tone; ab ve gray	ninated or wavy massive beds a nall pyrite nodule als with minor al contacts and ove this basal zo (5Y 5/2) to dark a
		NN11								1		X	===	*	very dark greenish gray (10 silt-sized grains, along with spicules, and biotite. These)Y 4/1 to pellets, beds a	3/1). Vol foraminifi re probab	icanic roc ers, and v ly very fir	k fragmer very mino ne-grained	nts and f r radiola d turbidit	eldspar are the r rians, sponge e deposits.
		snu							2			1>-	**	*	Minor lithologies: a. Crystal-lithic and lithic-cr 4, 37-42 cm. The tuffs have Feldspar is the major cryst b.Very thin layers of clayey	ystal tuff a sharp t al phase carbona	layers or bases and , with less ate siltsto	ccur in Se d are norr ser biotite ne to calo	ection 1, 0 nally grad and horn areous cl	-5 and 5 ed from blende, aystone	5-19 cm, and Ser sand to silty clay occur in Section
		inqueral								-		- + /	1		33-36 and 54-57 cm, and in 5/2) to light gray (5Y 7/2), v deposits.	the corvith shar	e catcher p basal c	(19-21 a ontacts. 1	nd 25-30 These lay	cm). The ers are p	ey are olive gra probably turbidit
		ηp								14		Ż	5		SMEAN SLIDE SUMMART	(%):	161.22		07-05	(2024)	2715
		0.						\$10×	3			2	1			1.2 M	1, 18 M	2,22 M	2,60 M	4.4 D	4, 41 M
								0C=0		1		2	1		TEXTURE:						
						e	44	0.1				2	5		Sand	30	30	15	2		50
						5	2	Ĕ	-			1	۰.	*	Silt	50	35	70	45	5	35
		N S				Þ	2					L			Clay	20	30	10	50	95	15
	-1					-	.62	•				1	de	*	COMPOSITION:						
		•				1	17	-	4	-		1	OP	1	Biotite		15	-	1		Tr
					11	ſ	\sim	-				1	5		Clay	10	10	-	20	95	15
		- 1						8		1		-	1		Feldspar	20	20	20	15	2	7
L	- 1	- 1						Ca		-		1	•••		Foraminifers	Te	Tr	10	10		5
										1		1	\$9		Homblende	5	2	3	5	Tr	2
										-		1	"		Mica	2	1	<u> </u>	<u> </u>	_	-
						- 1		11		-		1	14		Micrite	-		-		-	5
												1	11		Opaques	20	20	77	111		-
										1 8		1	120		Pellets		_	15	20		
										-		1	~~		Plagioclase	-	-	-	-	-	40
						- 1			5	-		T			Pynte	-	-	_	_	11	Te
										1.5					Pyroxene		1	5			11
										-		1	~		Rock fragment	40	30	35	25	_	-
						- L			00	1		12	5	1	Silt	_	-	_	-	3	-
									cc	1.1.8		1	+		Spicules	_	-	2	2	_	-
													1 1	-	Volcanic ash					-	30
- I	- 1	- 1			1	- 1	- 1	n 1							Zaalita					Te	



SITE	7	67		HO	LE	E	3	_	CO	RE	41X CC	DRE	DI	NT	ERVAL 5282.7-5	292.	3 mb	sl; 3	77.5-	387.1 mbsf
F	BIO	STR	T	RACT	/ ER		sa													
TIME-ROCK UNI	FORAMINIFERS	NANNOF OSSILS	RADIOLARIANS	DIATOMS	<u>en</u>	PALEOMAGNETICS	PHYS, PROPERTIE	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURES	SAMPLES		LITHO	LOGIC	DESCRIP	TION	
		S/G							1	0.5		11111111	**	*	CLAYEY SILTSTONE and C Major lithologies: a. CLAYEY SILTSTONE for planar or convolute laminativ (10Y 4/1). A thin zone of cal- siltstone with sharp basal co b. CLAYSTONE occurs in th The massive, structureless to planar lamination just above and dark greenish gray (10) layers may be turbidite deop:	ms thick on. They careous ibits a re- intacts; t nick inter- beds are- the bas (4/1) cla osits inter-	one , highly b r are gen clayey s petition o these ber vals of a e dark olive, and g aystone v rcalated	ioturbate erally dar litstone ir of mediur ds are pro lternating ve gray (rade upw with Plane with bioto	d beds w k gray (5 1 Section n-bedded obably tur massive 5Y 3/2), h ard into b bilites and urbated h	ith thin intervals preserving Y 4/1) to dark greenish gray 1 contains minor dissemi- graded beds of clayey bidite deposits. and bioturbated claystone. are sharp bases with local ioturbated green (5G 3/1) Zoophycos. The massive emipelagic claystone.
		•					• Y-2.90	CaCO3=16.1%	2	and a set of a		くくくく	****	•	Minor lithology: Pelletal micr 5, 116-119 cm. The beds an have sharp basal contacts, a SMEAR SLIDE SUMMARY	rite occu e light ol and are (%): 1, 10	rs as ver live gree probably 2, 95	y thin ber n (10Y 6 turbidite 3, 29	ds in Sect 3/2) to ligh deposits 5, 10	tion 1, 8-11 cm, and Section It greenish gray (10Y 7/4), 5, 117
MIOCENE		• C/G					\$=61 \$=1.8		3			ノノノノノ	2 1 1 1 1	*	TEXTURE: Sand Silt Clay COMPOSITION: Accessory minerals	M 10 90	D 40 60	M 15 70 10	D 10 50 40	M 15 5 80
UPPER A		amus NN11							4		VOID	1/////	1	og	Biotite Clay Feldspar Homblende Micrite Nannofossils Opaques Pellets Ouartz Rock tragment Spar cement	1 	10 30 	10 4 30 50	1 60 10 25	Tr 1 5 65
	• C/S	D. quinquer							5				#	W * *	Sparite	-	5			-
								10-0.21%	6			-								
				• 8				010	co			1.1.1	11							



ITE	7	67	1	HC	DLE	E	3	_	CO	RE	42X CC	RE	D	INT	ERVAL 5292.3-5302.0 mbsl; 387.1-396.8 mbst
III	FO	STR	CHA	ZONE	TER	99	LES					JRB.	ŝ		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTI	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
		nus							1	0.5		XXXX 4X	*****		CLAYSTONE and VOLCANIC SILTY CLAYSTONE Major lithologies: a. CLAYSTONE occurs in thick, highly bioturbated beds with common Zoophycos, Planolites, and Chordnize. Its color is mottled due to bioturbation; dark greenish gray (10 4/2, 3/2), dark olive gray (SY 3/2), and grayish olive green (SGY 3/2) predominate. The claystone consists of clay with minor volcanic ash components (plagioclase and rock tragments). b. VOLCANIC SILTY CLAYSTONE is similar to the claystone but contains a higher propo tion of admixed silt-sized ash particles. It is dusky yellowish green (10GY 4/2) to dark olive gray (5Y 3/2), and highly bioturbated. Minor lithologies:
	•B	D. quinquerar	101 000				P=73 WC=85	 CaCO₃=2.2% 	2	and the second se		11111111111	**	*	a. Very thin little volcanic unit layers occur in section 6, 21-25, be-67, and 94-101 cm. In a layers are dark gray (2,5 Y 40), with sharp basal contacts and normal grading. b. Volcanic tuff with foraminifers occurs as thin beds in Section 4, 0-8 cm. This layer has sharp basal contact and planar lamination throughout, and is composed of volcanic rock fragments with minor feldspar, foraminifers, and radiolarians. Based on its composition an structures, this bed is interpreted as a turbidite deposit. c. Clayer carbonate sillstone and calcareous claystone form thin beds with sharp bases a local planar lamination. Thick beds grade from carbonate sillstone at the base to calcareous claystone at the top. The beds are signify to moderately biolurbated, and are gray to light gray (5Y 5/1 to 7/2), light olive gray (5Y 6/2) and pale yellow (5Y 7/3).
ENE	A/S	• C/G							3			1111111111	**		SMEAR SLIDE SUMMARY (%): 2,50 4,6 D M TEXTURE: Sand
UPPER MIOC	• 717 •	NN11						• T0C=0.25%	4	and much services					Clay 90 10 COMPOSITION:
		NN1 O							5			11/1/1-			Radiolarians — 5 Rock fragment 3 45
		D. calcaris						2%	6	the sector of th			2 2 2 2 2		
	• B	• C/G						OTOC=0.4	7			1	12		-



SITE		16	7	HC	LE	E	3	_	co	RE	43X CC	RE	D	INT	ERVAL 5302.0	-5311.	7 mbsl; 396.8-406.5 mbsf
1	FOS	STR	CHA	RAC	TER	5	IES					JRB.	Es				
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITH	DLOGIC DESCRIPTION
		0 I NN							1	0.5		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	********	*	VOLCANIC SILTY CLAY Major lithologis VOLCAY These lithologies intergr particles, primarily volca massive and highly bloch Small pyrite nodules occ SMEAR SLIDE SUMMA	(STONE to NIC SILTY (ade due to nic lithic fra irbated, and ur in Sectio RY (%): 1, 64 D	VOLCANIC CLAYEY SILTSTONE CLAYSTONE to VOLCANIC CLAYEY SILTSTONE. Cuarying proportions of disseminated silt-sized ash gments with lesser plagloclase and biotite. They are d dark olive gray (5Y 3/2) to dark greenish gray (10Y 4/1) in 3. 3, 25 D
PPER MIOCENE		D. calcaris						TOC=0.27%	2			1111-) == OP == -	*	TEXTURE: Sand Silt Clay COMPOSITION: Accessory minerals	5 20 75 3	2 70 25
5	• B	• C/G							3			4 4 4 4 4 4 4	* * * * *		Biotne Clay Feldspar Homblende Micrite Opaques Plagioclase Pyrite Rock tragment	40 10 Tr 15 30	5 225 3 10 20



I I E	81	OSTR	AT.	ZON			0	<u> </u>	0	RE	447 0	I.			ERVAL 5311.7	-5321	.4 mt	JSI; 4	06.5	-416.2 mbst
TIME-ROCK UNIT	FORAMINIFERS	NANNOF OSSILS	RADIOLARIANS	SWOLVIO	TER	PALEOMAGNETICS	PHYS, PROPERTIE	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB	SED. STRUCTURES	SAMPLES		LITH	DLOGIC	DESCRI	PTION	
							• WC=69	• CBC03=1.7%	1	0.5		×>>> 4 4 4 4		*	CLAYSTONE and VOLC Major lithologies: a. CLAYSTONE forms m and mottled dark olive gr structure is preserved in b. Interbedded with the c CLAYEY SILTSTONE to overlain by thin zones wi for a few burrows in the u greenish gray (10Y 4/1).	ANIC CLA edium to It ay (5Y 3/2) these beds laystone ar VOLCANIC th planar la upper few c The silt cor	YEY SIL to dark Rare s e mediu C SILTY mination entimetre nponent	TSTONE s which a greenish mall pyrit m beds w CLAYST t; the mai ers. They of these	t o VOL re slightly gray (10) e nodules which grac ONE. The n body of are very o layers co	CANIC SILTY CLAYSTONE to moderately bioturbated (41). Little or no primary occur in Sections 1 and 2. le vertically from VOLCANI ses beds have sharp bases each bed is massive excep dark gray (5Y 311) to dark nsists of volcanic rock
							P=1.75		2				0		Iragments, plagociase, a suggests that they are tur Minor lithologies: a. A thick graded bed of a 3. It is dark olive gray (SY except for intermixed mic b. Thin beds of light olive and 96-100 cm. These be consists of pellets, foramit which decents.	nd radiolar rbidite depo calcareous ' 3/2), and rite. gray (5Y 6 eds,are gra inifers, radi	clayey s clayey s appears /2) claye ded, wit olarians	e structur siltstone to similar to ey carbon h sharp b , and plag	e and cor o silty clay the grad ate siltsto asal conti gioclase. 1	vstone occurs in Sections 2 ed units described above, ane occur in Section 5, 30-3 acts; the silt component They are interpreted as
		NN10						0.44%	3	muthing		XXXXX	1	•	SMEAR SLIDE SUMMAR	t, 133 M	2, 67 M	3, 30 D	3, 89 M	5, 39 M
								. TOC=		1111111		<	1	0G I W	Sand Silt Clay COMPOSITION:	5 40 55	50 20 30	2 30 65	10 80 5	25 25 50
		D. calcaris					2.76	%6'0= ⁶ 0;	4			くくくく	* * *		Accessory minerals Biotite Clay Foraminifers Glass Homblende Micrite	55 Tr	1 20 Tr Tr 2	5 10 40 	10 5 	
	• R/S	• R/G					P=1.64 Y-	• CaC	5	""			1	*	Nannotossiis Opaques Pellets Plagioclase Pyrite Radiolarians Rock fragment Silicoflagellates	10 5 30	20 15 20 20 Tr	10 10 10	5 15 - 60	15 10
	• 8								cc	11111		イト	* *							



OITE

1101 5

. . .

TE	76	7	H	OLE	В		_	CO	RE	45X (ORE	D	INT	ERVAL 5321.4-5	331.0	ombsi	; 416	.2 -4	25.8r	nbsf	767B-45X	1
LIN F	055	SIL C	HARAC	TER	cs	TIES					URB.	SBE									5	
OCK I	FERS	SSILS	RIANS		GNETI	ROPER	RY			GRAPHIC	DIST	NCTUR			LITH	LOGIC	DESCRIP	TION			3-	-40
ME-R	RAMIN	NNOFO	ATOMS		LEOMA	YS. P	EMIST	CTION	TERS	LITHOLOGY	TLING	D. STF	NPLES								10-	
F	2	YZ I	A IO	-	PA	Hd	÷	ŝ	N		B	SE I	SAI								15-	
											K	u		CALCAREOUS CLAYSTO	NE to CA	LCAREO	OUS SILT	Y CLAY	STONE a	IND CLAYSTONE	20-	10
									0.5		彭			a. CALCAREOUS CLAYST	ONE to (CALCAR	EOUS SI	LTY CLA	YSTONE	occurs in several	25	
								1	1.0		5			bations. They range from d (10Y 5/1). They have sharp	ark gray to basal co	to very d intacts, r	ark gray (normal gra	5Y 4/1 to ading, pla	3/1) to c inar lamit	lark greenish gray nation near the base.	20-	
													Ĩ	and grade upward into biot and contain minor foramini	urbated c fers, volci	laystone anic rock	. They co	nsist of c ts, and pl	lay with r ant debri	micrite and bioclasts, s. These units are	30-	
								\vdash						b. CLAYSTONE forms med contacts which grade upwa	osits. fium to th ard into th	ick, mas	sive, unbi	ioturbate	d beds w	th sharp basal	35-	
														the massive units is locally thicker, massive beds are i	silty clay	stone, and as turb	nd commo	only has posits which	arallel la h grade	mination. The upward into biotur-	40-	
								2		-				bated hemipelagic clayston very dark greenish gray (10	ne. These DY 5/1 to	beds an 3/1).	e gray to	dark gray	(5Y 5/1	to 4/1) and dark to	45-	
									5			1		SMEAR SLIDE and THIN S	SECTION	SUMMA	ARY (%):				F0 -	
										-	K	~			1, 100	T 3,96	3, 102	4, 97	6, 49	6, 54	50-	
							3%					φ		TENTUDE	м	М	м	м	м	M	55-	
	1	0				4	=75.8							Sand		_	_	_	_	60	60-	
1		NN				2.7	caco ₃	3						Silt Clay	5 95	95 5	100	Ξ	10 90	35 3	65-	
						· 89	•					G	#*	COMPOSITION							70-	
		Lis				P=2				-	K			Accessory minerals	-	-	1	-	-	-	75	
		alca					%L.				K			Bioclast Calcite	_	_	Ξ	15 5	_	-	(5-	
5		0.				3.07	C03=7				K			Chlorite Clay Enidete	70	5	—	5 20	40	2	80-	
	ľ				1	• Y ^c	• Cat	-			K			Feldspar Foraminifers		Tr	-	20 15	20	 10	85-	
						9-69				h		-		Hornblende Mica	5	_	_	Tr —	-	-	90-	
							•		_		타			Micrite Opaques Omanic matter	10	-	Ξ	0	10	15	05	
						4	.36%				14/			Oxide Plagioclase	5		5	Ξ	10	20	00-	
		AlG				VC=56	0C=0	5				1		Radiolarians Rock fragment	-	Ξ	Ξ	10	15	10 40	100-	
		•				•	1 % 1							Spante Spicules	-	90	90	Ξ	2	1	105-	
						P=65	-44					1									110-	
							Caco				1										115-	
													*								120-	
								6				1	*								120-	
									- 20	1	1	OF									125-	-
							\$65					8									130-	
							0=00	7			-	52									135-	
	•			•			L.	cc				"									140-	
								-	_		-	1										-34 3



NIT	BIO FOR	SSIL	AT. CHA	ZONE	TER	s	IES					RB.	sa	Γ	
TIME-ROCK UI	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
									1	0.5		X X V H H H	P * *		CLAYSTONE and thin, graded silty claystone Major lithology: CLAYSTONE occurs in massive bioturbated units in this core; ichnofauna include <i>Chondrites</i> . It is made up of clay minerais, feldspar and lithic fragments with pyrito occurring in nodular concentrations throughout the core. It is mottied, varying from dark gra (SY 4/1) through dark greenish gray (10Y 4/1, 5G 4/1) to dark olive gray (5Y 3/2). Minor lithology: Silty claystones occur in thin beds which grade up into claystone in Section 6. They are variable in color from pale olive (SY 6/3) to dark olive gray (5Y 3/2) and dusky green (2:5G 5/2). These graded, jaminated thin beds are considered to be turbidite depositi
		• R/M							2				~ P ~ P ~ P ~ P ~	*	SMEAR SLIDE SUMMARY (%): 2, 26 2, 60 4, 62 M D D TEXTURE: 311
AI OCENE		NN1 O							з	and reactions		ンシンシン	1		Accessory minerals - 1 - Bioclast - 5 - Chlorite 2 - - Clay 20 50 85 Feldspar 5 - 10 Mica - 10 - Opaques - 5 Oxide Ovale 50 1 -
UPPER		D. calcaris						T0C=1.02%	4			/ ーーーー / /	W ** P ~ ~ ~ ~	*	Rock fragment 20 15 —
		• C/G						•	5	terration of the second		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1		
IOCENE		hamatus					2.87 • Y=2.65 P=1.26	• CaCO3=1.4%	6	and the data is		~~~~~~	H: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1:		
MIDDLE MI	• B	NN9 B D.					B=1.71 • Y=	caco_6 0.6% •	7 CC				P		



L.	BIO	SSIL	AT. CHA	ZONE	/ ER	en	ES					RB.	s	Γ			
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITH	DLOGIC	DESCRIPTION
								×	1	0.5-		××××××××	1.	*	CLAYSTONE and silty claystone Major lithology: CLAYSTONE occur of clay minerals, a high proportion o (SY 4/1), dark olive gray (SY 3/2), vi green (10G 4/2). Minor lithology: Silty claystones occ and grayish green (10G 4/2) in colo SMEAR SLIDE SUMMARY (%):	s in mas (pyrite (ery dark ur in thin r,	sive homogeneous units in this core. It consists up to 20%) and some feldspar. It is dark gray greenish gray (10Y 3/1) and mottled grayish beds in Section 1. They are pale olive (SY 6/3)
ENE		s NN9					P=1.44 • Y=2.75	• CaCO ₃ =2.2	2					OG	1,51 M TEXTURE: Silt — Clay — COMPOSITION:	1.68 M	3, 75 D 15 85
MIDDLE MIOC		D. hamatu					16	2.7% TOC=0.76%	3					*	Bioble Tr Clay 75 Feldspar 2 Hematite — Nannofossiis — Opaques — Pynite 20 Rock fragment 0 Unpecified minerals —	90 2 Tr 5	80 5 Tr 5 5
	• R/M	• C/M					-2.02 WC-3	• TOC=	4 cc			44/	P				



ITE	7	67		HOL	E	B		COP	RE	48X CC	RE	DI	INT	ERVAL 5350.3-	5360.	3 mb	sl: 44	5.1 -	-454.8	3 mbs	f
NIT	FOS	STR	CHAP	CNE/	R	LIES					BB.	ŝ									
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITHO	LOGIC	DESCRIP	TION			
		• C/M					1%	1	0.5		XXXXX			CLAYSTONE with silly cl Major lithology: The CLA' with some silt at the base a sparse fauna (foraminif gray (5Y 3/2), dark green 4/2) in color. Small (<1 m Minor lithologies: a. Silty claystones are a c sition. b. Carbonate siltstones o throughout this core. Biot and area (72 7/1 K 5/2)	aystone ar YSTONE is so of the be ers and ca ish gray (1 m) specks coarser equi- cour as lan urbation is SGY 3/2 a	id carbon s mediun ds. It cou- lcareous OY 4/2), of zeolit uivalent of variable of 5G 5	nate siltsto n bedded, nsists of c nannofos very dark e occur in of the clay or cross la . They are (2). These	either b lay mine sils). It i gray (5' places. stones v minated various	ioturbated arals, som s dark gra dark gra dark gra dark gra dark gra with simila	l or homo e feldspa iy (5Y 4/1 grayish (r colors a r graded t of pale oli	geneous, r, pyrite ar), dark olin green (100 nod compo hin beds ve green
						11	3=3.	2	19		L		*	turbidites.	501 3/2 8	10 20 2	(2). These	are cor	ISIDEFED II) be thin (caroonate
						WC-3	CaCO	-			4	1	*	SMEAR SLIDE SUMMAR	ł¥ (%):						
						48 1,94	•								2,60 M	2, 87 D	2, 142 M	3, 6 M	4, 24 M	6, 90 D	CC, 5 M
						60		_		12.5 M.	1		*	TEXTURE:							
								3						Silt Clay COMPOSITION	100	11	Ξ	11	10 90	20 80	Ξ
101		6NN									1			Accessory minerals	-		-	-	5		-
ENE		~							1		1	T		Biotite Calcite		1	Tr	Tr	_	Ξ.	_
00		Σ									H			Clay Feldspar	80	95 Tr	95 1	80 5	85	75 20	=
Σ		C/I									H	10		Foraminifers	_		_	Ξ.	5	=	-
Щ		•					6%				T		*	Magnetite	문	3	-	-	-		공감
DD						82	3=0	4	1		1			Opaques	\Box	\Box	1	\square	5	5	
Σ		SD				C=5	aco				1			Pyrite	20	-	Tr	10	-	10	\equiv
		. hamatu				-63 • W	•		1.000			1		Zeolite	_	-	-	-	-	1. 	100
		0				1	33%				1	-	¢								
						4-C	00		1		1	F									
						0=56 W	• ×9.53.6% •	5													
							CaCt	-				IJ									
								6			////	53	*								
											4										
	8	8						7			1	"									
	•	•						1CC	1		12	E	*	-							



L.	BI0 FOS	STR	CHA	RACT	/ ER	00	ES					88.	0		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
MIDDLE MIDCENE	•B	• F/G D. hamatus NN9					WC=30 0=47 • WC=62 0=64 Y=2.86 P=2.08 • Y=2.66P=1.74	CaCO3 =57.6% • CaCO3 • TOC=0.81%	1 2 CC	0.5			*******		CLAYSTONE with carbonate claystone and carbonate Major lithology: The CLAYSTONE is medium bedded, either slightly bioturbated or homoge- neous. It consists of clay minerals, with rare feldspar and nannolossils. It is dark gray (5Y 4/ 1), dark greenish gray (10Y 5/2), very dark gray (5Y 3/1) and dark greenish gray (5G 4/1) in color. Minor lithologies: a. Carbonate claystone occurs in a single laminated bed which fines up into an overhying carbonate claystone bed. It is light dive gray in color (5Y 6/2) and moderately bioturbated. b. Carbonate claystone bed. It is light dive gray in color (5Y 6/2) and moderately bioturbated. b. Carbonate claystone bed. It is light dive gray in color (5Y 6/2) and moderately bioturbated. carbonate claystone bed. It is light dive gray in color (5Y 6/2) and moderately bioturbated. b. Carbonate claystone bed. It is light dive gray in color (5Y 6/2) and moderately bioturbated. b. Carbonate claystone bed. It is light dive gray in color (5Y 6/2) and moderately bioturbated. b. Carbonate claystone bed. It is light dive gray in color (5Y 6/2) and moderately bioturbated. b. Carbonate claystone bed. It is light dive gray in color (5Y 6/2) and moderately bioturbated. b. Carbonate claystone bed. b.

767B-49X	1	2	CC
5-	-		
10-		Sec.	-
15-			-
20-		100	-
25-			
30-	-		
35-		20 1	-62-
40-			
45-		and the	
50-	The second		- 1
55-			
60-		245	
70-			
75-		in a start	
80-		1	
85-			
90-		193	
95-			
100-	1. A		_
105-		1	
110-			
115-		-	- 1
120-			- 1 -
125-	-		
130-		4.170	
135-		and the second second	
140-			- 1 -
145-			
100-			the second second second

SITE	7	67		HO)LE	E	3	_	COF	RE	50X CC	RE	DI	NT	ERVAL 5369.3-5329.0 mbsl: 464.1-474.8 mbsf
=	BIO FOS	STRA	T. Z	RAC	TER		S					38.	\$		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
									1	0.5		ノンナナイン	1 W		CLAYSTONE with sitly claystone and chalk sitly claystone and chalk with nannolossils Major lithology: CLAYSTONE occurs in medium bedded or massive units in this core. It is only bloturbated in places. It is made up of clay minerals, some feldspar, pyrite and a sparse fauna (foraminifers and calcareous nannordossils). It is dark gray (5Y 4/1), dark greenish gray (5G 4/1), and very dark gray (5Y 3/1) in color. Minor lithologies: a. Sitly claystone occurs in normally graded thin beds in Section 6. The sitt material is principally feldspar, pyrite and chiorite. It is dark gray (5Y 4/1) and very dark love gray (5Y 3/
								2=0.10%	2	and and and		NNNNN			2) In color, b. Chalk with nannofossils is found in the lower part of this core in thin, graded, laminated and cross laminated beds with sharp or scoured bases. These beds are light olive gray (10Y 6/2) and olive gray (SY 5/2) in color. These chalks are considered to be redeposited material (turbidites). SMEAR SLIDE SUMMARY (%): 3, 30 5, 96 6, 29 6, 130 CC, 15 D M D D M TEXTURE:
ALOCENE		s NN9					\$=1.82 WC=49	CaCO3=5.9% • TOC	3	often southerd and		/ / / / / / / / / / / / / / / / / / /		*	Silt 40 10 10 25 20 Clay 60 90 90 75 80 COMPOSITION: Chiorite - - 5 - - Clay 60 - 80 75 85 Feldspar 10 5 - 5 5 Foraminifers 5 - - Tr Micrite - <th< td=""></th<>
MIDDLE		D. hamatu					P=1.98 WC=390=52	3-7.2% • CaCO3-60.1% • TOC=0.42%	5	and		× >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>		0G 1W *	
	• A/S	• C/G					WC=33	CaCO	6 7 cc	and the second				* *	



NIT	FO	SSIL	CHA	ZONE/	8	TIES					URB.	SS					
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	CRAPH LITHOL	HC OGY	DRILLING DIST	SED. STRUCTUR	SAMPLES		LITHO	LOGIC	DESCRIPTION
		19				=30	co ₃ =3.3%	1	0.5		XXXXX		*	CLAYSTONE with quarta Major lithology: The CLA minerals, but also contain gray (5Y 4/1) to olive gra slightly silty. Minor litholo the core catcher. It is dar This core is somewhat di SMEAD SLIDE SLIMMAT	z silty clayst YSTONE is ns pyrite, pla y (5Y 4/2) ir gy: quartz s k gray in co isturbed by BY (%)-	one homogi ant mate h color. I ility clay: lor (5Y - drilling, o	eneous in this core. It is mainly made up of clay rital, rare spores and dinoftagellates. It is dark in the lower part of Section 4 (80-105 cm) it is stone is found in linely faminated, thin beds in W1). destroying any bedding detail in the claystones
OCENE		hamatus NN				0-46 WC	T0C=0.67% • Cal	2						TEXTURE: Sand Silt Composition-	1, 146 D — 15 85	4, 26 D 	CC, 17 M 90 10
MIDDLE MI		• R/G D. I				C=27 =2.69	sco ₃ =3.2%	3						Accessory minerals Clay Dinotlagellate Plant Pyrite Quartz Spores Unpecified minerals	75 Tr 20 5 —	60 Tr 15 5 Tr 20	10
	8	F/G				P=2.07 • W	• Ca	4					*				



BIO	STR	CHA	RAC	TER	5	IES				RB.	8						
FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITHO	LOGIC (DESCRIP	TION
								1	0.5				CLAYSTONE, QUARTZ SIL sandstone, siltstone and cla Major lithologies: a. The CLAYSTONE is hom up of clay minerals, but also fossils. The color varies from (5Y 3/2), olive gray (5Y 4/2) QUARTZ CLAYEY SILTSTC rarely cross laminated) finin variations in the concentrati species present, occurring at	TY SAN ystone contain n very da and gra DNE occ g-up me pons of bl us round	us and eil s pyrite, p ark gray (y 5Y 5/1) ur as poo dium bed ack plant ed, well s	E and CL ther mas plant mai 5Y 3/1) t . b. QUA orly cons is. The la fragmen corted gra blaco. T	AYEY SILTSTONE with carbonate sive or bioturbated. It is mainly made terial, rare dinoftagellates and nanno- to dark gray (5Y 4/1), dark olive gray RTZ SANDY SILTSTONE and olidated, thickly planar laminated (or iminae are sharply picked out by ts. Quartz is the dominant iminaral ains in the laminae. The sand grade
								2			\$ \$	*	material contains a nch near in the upper part of this core Minor lithologies: Carbonate up sequences in Sections 4 are light olive gray (5Y 62; 2, becomes finer. A few forami The quartz-rich clastics are tion as turbidites. The textur area.	y miner , down t sandsto and 5 ai 6/3) to gi nifers ar in planar al and m	o Section ones, silts nd interbe ray (5Y 5 id calcare laminate ineralogi	tiones ar added wi (1) in col aous nar ad fining- cal matu	nese quarz-nch sediments are found n. dd claystones occur in 20-40 cm fining th dark claystones in Section 3. They or, becoming darker as the material nofossiis are found in this lithology. up sequences which indicate deposi- rity indicates a continental source
								3			Ø		SMEAR SLIDE SUMMARY	(%): 2, 83 D	2, 130 M	4, 56 D	6, 21 D
	B						%0.						TEXTURE: Sand Silt Clay	80 20	80 20		
• C/S	• F/					• Y=2.71	• CaCO ₃ =30	4			1	*	COMPOSITION: Accessory minerals Apatite Clay	Tr 		10 	90
/S	6NN9					P=2.60	TOC =0.41%				1		Dinoflagellate Epidote Feldspar Foraminifers Glauconite Horphondo	- - Tr		 5	Te
• 4	hamatus							5					Monazite Nannofossils Opaques Plant Pyrite	- - 10 5	Tr Tr 5 5	5 	Tr 5 5
	D.					Wc=395	CaCO3=4.4%				1		Quartz Radiolarians Rock fragment Rutile Silt Titopite	85 Tr —	66 	70	
						P=1.43	•	6			***	*	Tourmaline Zircon	-	Tr Tr		
8								7		⊥ ××							



SITE 767

-	810 F05	STR	AT.	ZONE	ER		83						6		
TIME-ROCK UNI	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTIL	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
		F/M •							1	0.5		F F F N N X X X X X	P	*	CLAYSTONE with quartz sitistone Major lithology: CLAYSTONE makes up most of the sequence in this core. It is apparently homogeneous with only rare signs of bioturbation and occurrences of pyrite, although drillin disturbance is quite severe. It is manity made up of clay minerals, but also contains pyrite, plant material, rare spores and nannolossils. The color is dark gray (5Y 4/1), dark greenish gray (5G 4/1) and gray 5Y 5/1). Minor lithology: Quartz silistones occur in Section 1, 34-58 cm. They are poorly consoli- dated, thickly laminated alternations of clayey and sandy silt, composed of rounded quartz grains, pyrite, feldspar and rare plant material. The laminations are very dark gray (5Y 4/2) and olive oray (5Y 4/2). A thirdhigh origin is suppested for these silts: some of the claystone
									2						may be of the same origin. SMEAR SLIDE SUMMARY (%): 1, 50 1, 93 3, 59 M M D TEXTURE:
OCENE		6NN9							3					•	Sand 80 Silt 20 10 10 Clay - 90 90 COMPOSITION: - - 5 Clay - 80 70 Feldspar 5 - - Nannolossils Tr Tr Plant Tr 15 20
MIDDLE MI		D. hamatus					P=2.07 • 7-2.71	 CaCO₃=3.7% 	4			+ + + + + +		OG	Pynie 5 5 5 Quartz 90 — —
								100-0.75%	5			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		IW	
									6	and mediated		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
	•	• 8							7 CC			2			



111	BIO	STR	CHA	RAC	E/ TER	s	IES					88.	s	Γ							
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES		LITH	OLOGIC	DESCRIP	TION		
										-		Π	Ø	*	SILTY QUARTZ SANDST	TONE					
									1	0.5			:•\$\$\$.•	*	Major lithology: SILTY QL gray (5Y 5/1) to dark gree most are homogeneous, 1 siltstone. The sandstone fragments, mudclasts, an nent of the sandy siltstone	JARTZ SA mish gray but some a is compose d carbonae e intervals.	NDSTON (10Y 5/1) are normated of sub ceous pla	NE occurs). The bec ally grade angular q ant debris	in thick is have s d, and lo uartz wit Plant de	to very thi harp bas cally grad h some fe ebris form	ick beds which are al contacts, and le into sandy eldspar, rock s a major compo-
								0C=2.61%	2			-1/1/1/1/	\$ \$ \$	*	Minor lithologies: a. Conglomerate forms a and contains well-roundle a matrix of quartz silly sa and induration to claystor b. A single layer of clayey above a sharp basal cont pellets. This beds are inte c. A single thin layer of co greenish gray, and contail upper and lower contacts	thick bed i d pebbles indstone to espresen carbonate act. It is oli erpreted as alcareous c ins foramin , and may	n Section of grayisi sandy si t in unde a silt grac ive (5Y 5 a turbid claystone ilfers, nai be a turb	hs 3 and 4 h green (1 ltstone. T rlying corr fing to cla (3), and is te deposi occurs in nnofossils idite depo	I. It is da OGY 5/1 he clayst es, and n yey micro s compose t. Section , and rac osit.	rk grayish) claystor ione clast nay there ite is pres ied of clay 1. 46-51 liolarians.	green (10GY 5/1), he and black coal in s are similar in color fore be rip-up clasts ent in Section 3 μ , micrite, and cm. It is dark The bed has sharp
NE								•	_	-		K			SMEAR SLIDE SUMMAF	RY (%):					
OCE										1		1				1, 14 D	1, 48 M	1, 136 D	3, 50 D	3, 98 D	4, 60 D
×		9/C							3			li	Ø	*	TEXTURE:						
MIDDLE		• 6N						C=0.65%				-<>>-	H Ch	*	Sand Silt Clay	60 40	10 90	60 40	20 75 5	30 40 30	65 20 15
		S S						10		-	200000	1	The second secon		Accessory minerals	2	3	-	5	-	10
		atu								-		-			Bioclast	_	60	_	_	1 40	10
		am							4	-		1-		*	Feldspar	20		15	30	1	
		2								1		1	F		Mica	5	5	5	Tr	4	5
		0								-					Micrite	-	15	1	2	20	-
	13									11 - 3		1-	1		Pellets	-	-	100	1	35	-
									5	-		1	F		Plant	20	_	10 40	10	Tr	20 35
	8	8											1		Radiolarians		5	-	-	_	_
	•	•							cc						Rock fragment	10	-	30	15	-	20



NIT	810 F05	STR	CHA	RACT	ER	9	IES					JRB.	83			
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION	
	• A/S	• C/G							1	0.5		。くくくノーノノーくく	Ø 	*	CLAYSTONE and QUARTZ SILTY SANDSTONE Major lithologies: a. CLAYSTONE is present primarily as thick, structureless beds with sharp basal is they are dark gray (5Y 4/1) to dark olive gray (5Y 3/2). At the base of Section 5, m claystone grades downward into silty sandstone, forming the upper part of a very I fining-upward sequence. These massive claystone beds are interpreted as turbidit its. They consist of clay minerals with very minor quartz, leidspar. and rock fragme Locally separating these beds are thin beds of dusky velice green (10GY 3/2), hig bioturbated claystone, which probably are hemipelagic deposits. b. QUARTZ SILTY SANDSTONE is dark gray (5Y 4/1), and occurs at the base of as the lower part of a very thick fining-upward sequence, grading upward into clay sitly sandstone has planar talmination, and is composed of quartz, leidspar., rock fr	contacts; assive hick e depos- nts. hly the core stone. The agments,
									2	- International -				*	and carbonized plant fragments. Minor tihology: Carbonate siltstone to clayey micrite occurs as thin graded beds w basal contacts in Section 1, 60-72 and 73-89 cm, and Section 4, 29-34 cm. The br ight olive gray (5Y 3/2); the basal silty portion of the beds has planar famination. To consist of clay, micrite, bioclasts, and minor quartz, feldspar, and rock fragments. beds are interpreted as turbidle deposits. SMEAR SLIDE SUMMARY (%):	ith sharp Ids are hey These
MIOCENE		natus NN9						C=0.52%	3	and and and		<>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	8	*	1, 82 2, 100 3, 140 CC, 5 M D D D TEXTURE: Sand 5 1 50 Sitt 40 5 5 50 Clay 55 94 95	
MIDDLE		D. ham						CaCO3 =59.7% • • TO	4			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			COMPOSITION: Accessory minerals - - 5 2 Bioclast 10 1 - - - Clay 30 80 80 - - Feldspar 5 1 10 20 Foraminifers 1 - - - Mica 5 1 1 - Plant 5 5 - 15 Quartz 5 3 - 40	
									5				¢		Radioarians — — — 2 Rock fragment 10 5 — 20 Silicoftagellates 5 — — —	
	• B								6 CC					*		



TIN	810 F01	STR	AT. CHA	RACI	/ TER	99	IES					RB.	S		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
									1	1.0		メノノノノノノノ	0	*	CLAYSTONE Major lithology: CLAYSTONE makes up essentially all of this core. It occurs mainly in very thick, structureless beds with local planar to wavy lamination. One such bed has a very thin zone of planar-laminated clayey sit at the base, containing abundant quartz and minor teldspar, rock tragments, main, radiolarians, and foraminifers. The claystone consists of cla with minor feldspar and mica, and locally contains siliceous spicules and abundant carbon- ized plant fragments. These beds are dark greenish gray (10Y 4/1), and locally show minor bloturbation; they are interpreted as turbibile deposits. Interbedded with them are thinner beds of dusky yellowish green (10GY 3/2), highly bloturbated claystone, which are probably hemipelagic deposits. Minor lithology: In the drilling breccia at the top of the core there are fragments of carbonats sitistone which are dark greenish gray (10Y 5/4).
ш		19							2			222	**	*	SMEAR SLIDE SUMMARY (%): 2, 10 2, 22 2, 139 3, 70 D M M D TEXTURE:
MIDDLE MIDCEN		D. hamatus NN						0C=0.85%	3			~~~~	Ø	*	Silt 10 60 80 15 Clay 85 40 20 85 COMPOSITION:
									4			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	***	IW	Mica 15 7 10 Micrite 10 Plant 5 Guantz 50 5 Radiolarians 25 Rock tragment 15 Spicules 1
									5			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Ø.		
	• 8	• R/G							cc	11111		2	100		



CK UNIT	FO	SSIL	CHI SNY	ZONE/	R	ME LICO	DERTIES			GRAPHIC	DISTURB.	CTURES			-		
TIME-RO	FORAMINIF	NANNOFOS	RADIOLARI	DIATOMS	DAI EAMAG	TALEOWAG	PHYS. PR	CHEMISTR	METERS	LITHOLOGY	DRILLING	SED. STRU	SAMPLES		LIN	LOUIC	DESCRIPTION
		6							0.5		XVVVVV	©₽ ₩ ₩	*	CLAYSTONE and CALC Major lithologies: a. CLAYSTONE occurs a tureless beds alternating The structureless beds ho claystone consists mostly pyrite nodules are commo b. CALCAREOUS CLAY3 rock fragments. In additio 1, 51-57 cm. The thicker	AREOUS C as thick, dar with thin to ave sharp b or loay mir on in the str STONE cor on to the thir bed has a s	k gray (thick, du basal cor nerals wi ructurele isists of ck bed s sharp ba	ONE 5Y 4/1) to dark greenish gray (10Y 4/1) struc- usky yellowish green (5G 3/2) bioturbated bed tacts, and may be turbidite deposits. The th some feldspar and rock fragments. Small iss beds. clay with lesser pellets, bioclasts, and minor hown in Section 3, a thin bed occurs in Sectio al contact overlain by a thin zone with planar
MIOCENE		D. hamatus NN							2			OP OP OP OP	*	lamination, and is normal SMEAR SLIDE SUMMAR TEXTURE: Sand Silt	lly graded. ` TY (%): 1, 105 D 	2, 70 D 20	ads are interpreted as turbidite deposits. 3, 70 D 25 50
MIDDLE		• C/W				0-54 W.C=41	P=1.91 7=2.64		3			•••	*	Clay COMPOSITION: Accessory minerals Clay Feldspar Foraminifers Mica Opaques Pellets	70 30 20 10 10	80 3 50 25 	25 40 1 Tr
	•R/S	В						0 10C=0.86%			 	©₽ ©₽		Plant Quartz Radiolarians Rock tragment Silicoflagellates		 10	5 1 1 10 5



SITE		0/	2	HO	LE	-	3	_	CO	RE	58X CC	RE	DI	NI	ERVAL 5445.7-5455.4 mbsi: 540.5-550.2 mbst
INIT	FOS	STRA	CHAN	RACI	/ ER	cs	TIES					URB.	SBS		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
									1	0.5			©F ∳F ⊙P ⊙P		CLAYSTONE, CLAYEY SILTSTONE, QUARTZ SANDSTONE, and CALCAREOUS CLAY- STONE Major lithologies: a. CLAYSTONE occurs primarily in thick to very thick, dark gray (5Y 4/1), homogeneous and structureless beds. Several of these intervais grade downward into clayey siltstone, and lorm the upper part of very thick fining upward sequences. They are interpreted as turbidite deposits. Thin beds of bioturbated dusky green (GG 32) claystone occur locally in the core, and are probably hemipelagic deposits. b. CLAYEY SILTSTONE occurs as medium to thick beds which grade upward into massive
									2					*	claystone, forming part of very thick liming-upward sequences interpreted as turbidite deposits. The clayes sitistone is dark gray (5V 4/1), and consists of clay minerals and quartz, with minor rock fragments, feldspar, and carbonized plant fragments. c. OLARTZ SANDSTONE occurs in Section 2 as a single fine-grained bed with planar lamination, which forms the basal unt of a very thick fining-upward sequence interpreted as a turbidite deposit. In addition to quartz, it contains feldspar and plant fragments, and is dark gray (5V 4/1), d. CALCAREOUS CLAYSTONE occurs as a very thick bed which is black (5Y 2.5/1) and structureless except for small horizontal burrows in the upper part. It consists of clay minerals and minor micrite, rock fragments, quartz, and mica. The base of the bed is sharp, overlying bioturbated claystone. The bed may be a turbidite deposit.
NE		6N1							3			+ $+$ $+$ $+$ $+$ $+$ $+$ $+$ $+$ $+$	©₽	*	SMEAR SLIDE SUMMARY (%): 2, 13 2, 103 3, 73 5, 40 7, 23 D D D D D D D TEXTURE: Sand 2 70 10 3 - Sait 70 20 40 15 20 80
MIDDLE MIOCE		D. hamatus N)=57 • WC=45	T0C=0.49%	4				1		COMPOSITION: Accessory minerals 5 - 2 - - Bioclast - - - 1 1 Clay 15 - 60 60 20 Feldspar 40 15 15 - - Foraminifers - - 1 - 1 Mica 5 5 - 5 - Mica 5 Micritie - - - 20 75 - -
							-2.66	•	5			H H H X H H H		*	Plant 10 20 5 — — Quartz 3 40 10 5 — Rock Iragment 20 20 5 5 —
							P=57 + W		6	a contractory					
	• C/S	• C/G							7 CC	in the second	ուրդուրդուրդ	1	1		



477

LIN	FOS	SSIL	CHA	RACT	ER	\$	IES					88.	8		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
MIDDLE MIDCENE	• A/S	R/G NN9 D. hamatus	œ.	<u>a</u>		<u>a</u>	P=47 = WC=03 = WC=26 #44	3 = 72.4 x ● 62sCo ₃ =1.3 x ● CsCo ₃ =2.4 x ● ToC=0.78 x	3 3 4 5 CCC	0.5		N HHHHHHH//// /////////////////////////	00 22 22 22 22 22 22 22 22 22 22 22 22 2	s og 1w * *	CLAYSTONE and limestone Major lithology: CLAYSTONE makes up most of the sequence in this core. It is generally homogeneous with some bioturbation and liamination in Section 5 (36-53 and 113-124 cm), its mainly made up of clay minerals, but it also contains quarz sill, plant material, fieldspar and trare nannolossils. The color is dark gray (5Y 41), dark greenish gray (5G 41, 10Y 42) and gray (5Y 51) with grayish green (10GY 42) where laminated. Minor lithology: Limestone is found in the core catcher between 14 and 31 cm. It is a highly indurated micritic limestone with vague laminations at the top and bottom of the bed. SMEAR SLIDE and THIN SECTION SUMMARY (%): 4, 113 5, 23 5, 53 CC, 29 D D M M M TEXTURE: Silt







NIT	BIO FOS	STR	CHARA	NE/ CTER	cs	TIES					URB.	SES		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS		PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTI	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
							0.73%	1	0.5		XX//////	* *		CLAYSTONE, siltstone and silty sandstone Major lithology: CLAYSTONE makes up most of the sequence in this core. It is generally homogeneous with some bioturbation; pyrite occurs disseminated in the rock or concen- trated in burrows. The color is dark greenish gray (5G 4/1, 10Y 4/1) and olive gray (5Y 4/2) Minor lithologies: a. The siltstone at the top of Section 1 is colored olive (5Y 4/3), normally graded and of a similar character to the finer claystones below. b. Silty sandstone at the base of Section 3 is in a 20 cm normally graded dark december for the site disconced dark december for the finer claystone below.
E MIOCENE		C. coalitus			2	B=41 • WC=25	• TOC • CaCO ₃ =2.6% • 0.68% • CaCO ₃ =7.0C=	2			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	P P		SMEAR SLIDE and THIN SECTION SUMMARY (%): T 3, 125 M TEXTURE: Silt 10
MIDDL		NN8				60	TOC=0.39%	3	dan han		/	1 1		COMPOSITION: Micrite 90 Opaques 5 Plant 4 Ouartz 1
	• B	• B				0=55 WC=4	0.8%3 •	сс				**	#	



E	810	SSIL	АТ СНА	ZONE	E/ TER		ES				021 00		50		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
		•F/G					P=1.96 Y=2.71	• CaCO ₃ =9.2%	1	0.5		XXX XXXX		#	CLAYSTONE and sitty claystone Major lihology: CLAYSTONE is the dominant lihology in this core. It is generally homogen ous with acress bioturbation: pyrile occurs disseminated in the rock or concentrated in burrows. The color is very dark and dark gray (5Y 3/1 and 5Y 4/1) and dark greenish gray (5G 4/1) in the more bioturbated beds (Section 2, 10-70 cm). This lithology is slightly calcareous in the upper part of the core. The principal component is clay, with some of pyrite, plant debris and quartz plus rare nannofossils and dinoftagellates. Minor lithology: Clayey sitistones at the bottom of the core catcher form a normally graded, the principal component is clay.
									2			シンシン	# # P		Imminuted and cross amminuted min bed. SMEAR SLIDE and THIN SECTION SUMMARY (%): T 1, 42 1, 95 3, 79 M D D TEXTURE: 5 10
ALCCINE .		s NNB							3			~~~~~	P P P P P P P	*	Silt 10 10 Clay 100 90 80 COMPOSITION: Tr Tr Accessory minerals Tr Dinoflageliate Dinoflageliate Tr Marnofossiis Organic matter 5 Plant
MIUULE		C. coalitus					Y-2.73	T0C=0.09%	4			くくく	P	OG	Quartz — Tr 10
							P=2.15	sco ₃ =2.2% •	5	Li tali tali ta		2222	PPP		
								Ca	6	hundred 6		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	4		
	8.						• 7-2.62 P=1.50	CaCO ₃ =2.3%	7 CC	tellar lar		~~~~	P		



SITE 767

SITE	1	767	7	HOL	EE	3		CO	RE	63X CC	RE	D	NT	ERVAL 5494.0	-5503	.7 mt	sl; 5	88.8	-598.	5 mbs	f
ta	FO	STR	AT.	ZONE/	2 00	ES					RB.	5									
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES		LITH	OLOGIC	DESCRIP	PTION			
					1	\square			-	HURBER	×	88		CLAYSTONE and SILT	Y CLAYSTO	ONE with	silty sand	dstone			
		S NN8 . F/G						1	0.5		XXXXX	**	*	Major lithologies: The C composed principally of material; there are rare a claystones are intensely wavy lamination (betwee from very dark and dark and olive gray (5Y 4/2).	LAYSTONE clay minera spores and bioturbated an Section 2 gray (5Y 3/	and SIL als with a dinoflage d and mo 2, 120 cm 1 and 5Y	TY CLAY silty com ellates. Py ttled; the n and Sec 7 4/1) to d	STONE a ponent of vrite occur claystone ction 3, 81 bark green	are very s feldspar rs in Sect is show b cm). The tish gray	similar. Th s, quartz a lion 3. The both parall sy range i (5G 4/1, 1	ey are and plant e sity el and n color 0Y 4/2)
		alitu				14			-		2	12	#	Minor lithology: Silty san well laminated, the lamin mainly of sub-rounded of	idstories oc nae defined juartz.	cur in the by conce	e core cat entrations	cher. The s of plant	y are dar debris. Ti	k gray (5) hey are co	(4/1) and imposed
ENE		. 00				P=39	%6.	2	1		2	11		SMEAR SLIDE and THI	N SECTION	SUMM	ARY (%):				
MIOC		16 0				C=23	aco3 =1	2			5	1			1, 59 M	1, 59 D	T 2, 16 M	2, 18 M	3, 45 D	3, 108 D	CC, 36 D
DLE		•				•	•				2	-		TEXTURE:							
						AN	2%		-		\geq			Sand	-	-	-	-	5	-	80
2						40	25		1		1			Silt	10	10	1	5	90	15	20
		u				· Wo	•	3	1		5		*	COMPOSITION:	90	90	99	92	_	85	-
						0	×	1				百								~	
						10	2		- 4		-	a	1	Accessory minerals	-	-		1	3	5	5
		0					-				1	3	*	Amphibole	11	11	-	-	<u>.</u>	-	
	~	2				-	0	0.0	-			7×		Chlorite		-	Te	1	_		
	-	-					a	cc	1.1			χP		Clay	90	94	50	90	90	80	-
	•	•					0					-	*	Dinofianellate		-		_	Tr	_	_
														Feldspar	5	5	2	5	2	-	-
														Mica	-	<u></u>	20	2	-		
														Opaques	1	1	1		-	-	-
								Í						Plant	-	-	-	-	2	10	10
														Pyrite	-		-	-	2	10	10
														Quartz	-	-	105	Tr	Tr	5	85
														Rock fragment	_	-	2	-	-	-	-
						1 1								Spores		-	-	-	Ir	-	-
														ZICON	10	11	-	-	-	-	



IE	BIO	STR	AT . 1	ZONE	ULE.					AE 0	4X CC	I.			ERVAL 5503.7-	5513.4	4 most	598	5.5-00	38.20	IDST	
	FOS	SIL	CHA	RAC	TER	ICS	RTIES					TURB	RES									
	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNET	PHYS. PROPES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIS'	SED. STRUCTU	SAMPLES		LITH	OLOGIC	DESCRIP	PTION			
										0.5		3		*	CLAYSTONE to SILTY (SANDSTONE and carbo	CLAYSTON mate sands	IE and Qi itone	JARTZ S	SILTY SAI	NDSTON	IE to QUA	RTZ
							59	3=1.6%	1	1.0		/	1	*	Major inhologies; a. CLAYSTONE to SILT 1) Medium to thick beds are bioturbated, with son thicker bioturbated zone: mica. 2) Medium to thick tureless and lack bioturb	Y CLAYSTO of dark gre ne thin zono s. They are beds of da ation; they	ONE mak enish gra es with pl compose rk gray (5 have sha	es up ma y (10Y 4 anar to w id of clay y 4/1) cl rp bases	ost of this /1) to dusi vavy lamin minerals laystone to or grade	core, oc ky green hation pro with min o silty cla downwa	curring in (5G 3/2) eserved b or feldsp stone a rd into sil	two forms claystone etween ar and re struc- ty sand-
							Y=2.	aco	H			K	1	*	stone, and locally grade with minor rock fragment	upward into	bioturba	ted clays	stone. The	y consis	t of clay represent	ninerals turbidite
							p=62 • 1	•	2			1-1-1-			deposits, whereas the bi b. QUARTZ SILTY SANI monly has planar lamina upward sequences intern claystone. The sandstore	oturbated c DSTONE to tion through preted as tu e is made u	aystones QUART, hout, and irbidite de up of quar	are proi Z SANDS forms the posits; it tz, clay r	bably hen STONE is te basal un grades un minerals, s	hipelagic dark gra nit in sev pward in and mino	deposits. y (5Y 4/1 eral thick to silty cli ir feldspa), com- fining- aystone al r and
										-		1	IF.		Missellthology A this los	ints. A layer	or sarios	cone in 3	ection 4 i	s nigniy c	Antientieu	by calcin
										-		1	E	*	base of the core-catcher	ver of nard,	calcite-o	amenteo	carbonat	e sanoste	one occui	s at the
										-		K	Ē	*	SMEAR SLIDE and THI	N SECTION	SUMMA	RY (%):				
1										-								0.5	0.404		T	T
									3	3						1,2/ D	1, 123 D	2, 5 D	2, 121 D	3, 22 D	4,59 M	4,60 M
										1		li			TEXTURE:							
								*				li			Sand	-	3	-	-	20	60	50
4							o	13.		_		1	-		Clay	10 90	15 80	-	_	50 30	20 20	20 30
							2.6	-E00		1		K			COMPOSITION:							
							×	Ca		14		15	+	1	Accessory minerals	-	5	Tr	5			1
							-		4			K		177	Amphibole	75	75	Tr 95	Tr 65	40		
							00	133				1/	1		Dinoflagellate	-	-		Tr		20	
							10	0		1.1					Feldspar	15	10	2	5	1	-	1
						L .:		5		1		K	1		Hornblende				_	-		Tr
								E				$\frac{1}{1}$			Mica	2	5					50
						1.1		1		-		1	4		Opaques	5	3	-	-	-	-	
										1		11	1		Plant	-	-	-	5	4	-	-
4					1	1				-		$\left(\right)$		13	Pore space			224	15	50	3	2
H									5	1		K	-	1	Rutile				-	Tr		-
									1.1			1/	1		Sparite		-				15	20
													L		Zircon			-	Tr	Tr	-	-
										3			1		SMEAH SLIDE SUMMA	HY (%):						
										-		1)	F			M						
												12	OP		TEXTURE:							
									6			1	L		Silt	10 90						
										-		15		*	COMPOSITION:	992						
												15	Ŧ		Accessory minerals	Tr						
	0	m		1				1	-	-		1	11		Clay	80						
				1	1			1	CC			-	121		Feldspar Beek keeps	10						
	15	1	1	1		1						1_			HOCK tragment	2						



N XOC SR01YIO SR01YIO	
CLAYSTONE with siltstone and sandstone Major lithology: This core contains CLAYSTONE which is gray (10% (1) 647) and slightly to moderately bioturban This zones with very thin planar lamination separate thic levels. Intercalated with the bioturbated claystone in Section the bioturbation; these lawyers may be turbidite deposits. A thin layer may be turbidite deposits. a A thin layer of siltstone occurs in Section 2, 16-21 cm. a A thin layer of siltstone, accompanied by clay, rock b. A thin zone of that clacte-cemented fine sandstone of SMEAR SLIDE SUMMARY (%): 2, 17 M TEXTURE: Sand 20 Sift 50 Clay 30 COMPOSITION:	ION
a. A thin layer of slitstone occurs in Section 2, 16-21 cm. a. A thin layer of slitstone occurs in Section 2, 16-21 cm. a. A thin layer of slitstone occurs in Section 2, 16-21 cm. a. A thin layer of slitstone occurs in Section 2, 16-21 cm. a. A thin layer of slitstone occurs in Section 2, 16-21 cm. a. A thin layer of slitstone occurs in Section 2, 16-21 cm. a. A thin layer of slitstone occurs in Section 2, 16-21 cm. a. A thin layer of slitstone occurs in Section 2, 16-21 cm. a. A thin layer of slitstone occurs in Section 2, 16-21 cm. b. A tim zone of the slitstone, accompanied by clay, rod b. A thin zone of the slitstone, accompanied by clay, rod b. A thin zone of that, calcite-cemented fine sandstone of SMEAR SLIDE SUMMARY (%): 2, 17 M TEXTURE: Sand 20 Sift 50 Clay 30 COMPOSITION:	is primarily light to dark greenish ated, with <i>Chondrites</i> and <i>Planolites</i> . icker bioturbated zones at some ction 2 are several medium to thick (10Y 4/1) claystone which lack
	 It is dusky green (SG 3/2), has a by burrowing. Altered feldspar grains ck fragments, and biotite. occurs at the top of Section 3.
Accessory minerals 2 Biothe 1 Clay 5 Feldspar 80 Rock fragment 10	



. 1

FO	SSIL	CHA	RACTER	ce	TIES				URB.	RES									
FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTU	SAMPLES		LITH	OLOGIC	DESCRIP	TION			
						• T0C-0.02%	1	0.5 1.0 1.0	XX XXX H H H		*	CLAYSTONE and CLAYE Major lithologies: a. CLAYSTONE forms thil taminated zones separatir to dark greenish gray (10) These layers are interpret b. CLAYEY SULTSTONE I SULTSTONE I (SY4/2) to very dark gray i into massive to bioturbate and rock fragments; a very	ck beds w ng mediun Y 4/1), and ed as prin to SILTY ((5Y 3/1). (d silty clay y thin laye	hich are in n to thick d consists narily hen CLAYSTC Clayey sil ystone. The r rich in c	SILTY CL moderate bioturbat of clay r hipelagic NE occu istone is hese dep arbonize	AYSTON ly bioturb ed intervi ninerals, in origin, r in thick planar lai osits con d plant fr	IE ated, with als. It is of feldspar, i beds white minated, a sist of cla agtments	i some ve ive green and rock i ch are oliv ind grade y, quartz, occurs in	ry thi (5G) fragm re gra s upv fedis the c
							2		NNNN	1 1		Minor lithologies: a. A thin layer of micritic c micrite, and minor feldspa b. A thin piece of hard, cal catcher. SMEAR SLIDE SUMMAR	laystone o r. lcite-ceme	accurs in	Section 2 clayston	. 131-13 e occurs	2 cm. It co at the bot	nsists of tom of the	elay. e core
									1	1	*		1, 40 D	1, 120 D	1, 131 D	3, 12 M	CC. 15 M	CC, 42 M	M
							3		亡	1		TEXTURE:							
	r i				20		- 1			1	- 1	Sand		20		22			
					55					5	- 1	Sit	30	20	5	25	5	80	
	8	•			• *	[cc		1	'	•	COMPOSITION:	70	60	95	75	90	20	
	1 1			11	57	H	_				*	Accessory minerals	5	1	3	10	5		
l					50							Clay	70	40	45	60	35		
					64							Feldspar	15	20	10		10	Tr	
												Glauconite		1	444	***			
				1 1								Mica	з	***	***	***	****	***	
												Micrite		***	40	****		114	
1			1.1			11						Opaques		3		****	111	1	
			1.11								- 1	Plant		5		***	50		
												Quartz		20		****	+***		
												Quartz Rock fragment	5	20 10			***	-	

767B-66X	1	2	3	00
5-	8-9			-
10-	- 19	1		-63-
15-	-	-		- 200-
20-		11		-
25				
30-				
35-				
40-		-		LA
45-	-			
50-				- -
55-			i j	
60-				
65-				
75			1955	
15-				
85				
90-			(a the	
95-				
100-				the first in
105-				_
110-				- -
115-		-	-	
120-			-11	
125-			-	_
130-		-		-
135-				
140-			- 1	-
145-		par -		
150-		-	- 1	

Е 767 НО	LE B	-	COF	٤E	67X C	OF	ED	INT	ERVAL 5532.6-554	2.3	mb	sl: 62	27.4-	637.	mbs	f	767B-67X 1	-	3	4	5	1990
BIOSTRAT. ZONE FOSSIL CHARACT SUBJUCT SUBJUCT SUBJUCT SUBJUCT SUBJUCT SUBJUCT SUBJUCT SUBJUCT	PALEOMAGNETICS PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY		DRILLING DISTURB.	SAMPLES	LI	THOLO	GIC	DESCRIP	TION				5- 10- 15-					-
			1	0.5-					CLAYSTONE and siltstone to silt Major lithology: Most of this core dark greenish gray (10Y 5/1 to 4 highly bioturbated, alternating wi interpreded as hemplealigic depor- massive claystone occur in the m Small nodules of pyrite occur in 1 Small nodules of pyrite occur in 1 nodules are pyrite occur in 1 nodules are present at several le Minor lithologies: A few thin to m with the claystone. They are gray with fine planar lamination and n quartz and clay with minor fields turbidite deposits. SMEAR SLIDE SUMMARY (%): 1, 3 M	Ity clays e consis (/2); it fo iht very osits. M middle clay evels. hedium hormal g par and : 31 1, D	stone ts of C prms n thin b ledium of the d die of rstone beds o ve gre grading opaq	CLAYSTC nedium to eds with beds of core, and the core, in Sectio of siltston en (5GY g upward ue minera 2, 116 D	DNE which planar lar dark to ve may repi and may nn 1, and le to sitly (3/3) to da into clays als. These 3, 32 M	h is grayi ds which mination, rry dark (resent tu represe larger dit claystom who green stone. The layers a 4, 30 D	sh green are mod These in ray (5Y - bidite de t turbidit fuse anhr e occur in sh gray f e occur in sh gray f e occur in sh gray f sh gray f f sh gray f f g g g g g g g g g g g g g g g g g g	(5G 5/1) to arately to tervals are 4/1 to 3/1) posits. e deposits. dritle(?) terbedded 10Y 4/1), st of 5, 19 M	20 25 30 35 40 45 50					
			3					*	TEXTURE: Silt 40 Clay 60 COMPOSITION: Accessory minerals Anhydrite 45 Clay 50 Feldspar 2 Opaques	1 9 2 	9	10 90 2 85 5 7	2 98 1 75 20 Tr	70 30 3 10 5	75 25 5 15 	90 10 5 	60 65 70 75					
	-47, • • ^{WC=28}	ו•• • CaCO ₃ =0.6%	4					(= * }	Quartz Tr SMEAR SLIDE SUMMARY: 5, 1 D TEXTURE: Silt 2 Clay 98	1 144 6 D 2 8	, 139) 0	7, 5 M 2 98	1 CC. 32 M	70	80	90	80 85 90 95					
		T0C=0.17	5					*	COMPOSITION: Accessory minerals Calcite	T 8 1	Fr 80 10	98 	Tr 5 90				100- 105- 110- 115-					
B B	p.e5 . ₩C=45	•xcaco3= 0.7%	6 7 CC					*									120 125 130 135 140				N. M. M.	

7

CC

-

- 1	810 F05	STR	AT.	ZON	NE/	FR	Ĺ	T	50						5		ERVAL 5542.5-5551.5 mbst: 057.1-040.5 mbst	767B-68X	
TIME-HUGE UNI	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		LA	DAI FOUNCHETICO	PALEUMAGNETICS	PHYS. PROPERTIE	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION	5- 10- 15-	
		×							P=2.1 + 7-2.3 P=2.10 + 7-2.84 P=2.12 + 7-2.75	T0C=0.12X€ ● CaC0 ₃ =0.8X ● CaC0 ₃ =5.9X ● CaC0 ₃ =5.9X ● CaC0 ₃ =5.9X	1 2 2 3 3 4 5 6 7	0.5			· · · · · · · · · · · · · · · · · · ·	0 * 1 W	 CLAYSTONE and silly classione: Major lifthology: CL AYSTONES made up almost exclusively of clay immerate occur in massive, moduline bedded units. Bioturbation is common and there income weak parallel tamination in places. The coloration of the chystone rowing variable. The principal colors, are dark greenistic gray (53 4-16 50 50 51 and oblive or oliving caps (54 60 or 55 4-07). There are many occurrences of reddish and brown layers in the claystones: pinkish gray (735078 721) to brown (75978 511) in Section 1, 26 57 cm; strong brown (75978 464) in Section 1, 26 57 cm; strong brown (75978 656) in Section 1, 26 57 cm; strong brown (75978 656) in Section 1, 26 57 cm; strong brown (75978 657) in Section 2, 25 9 7 (13) and 111 117 cm and in the core catcher. 17-20. Minor tithology: Sity claystonesw occur at the base of Section 2 and in Section 7. They are dark greenish gray (105 4471) in Section 6, 21-26, 97 103 and 111 117 cm and in the core catcher. 17-20. Minor tithology: Sity claystonesw occur at the base of Section 2 and in Section 7. They are dark greenish gray (105 4471) in Section 2 and dark yellowish brown in Section 7. They are dark greenish gray (105 4471) in Section 2 and dark yellowish brown in Section 7. They site grade material in the latter is all crystalline calcite. 	$\begin{array}{c} 15\\ 20\\ 25\\ 30\\ 35\\ 40\\ 1\\ 50\\ 55\\ 60\\ 65\\ 70\\ 75\\ 80\\ 95\\ 100\\ 105\\ 110\\ 120\\ 125\\ 130\\ 135\\ 135\\ 1\end{array}$	
	•	•									cc			\geq	1	#		140-	1



IE		6 /		HO	LE	E	3	_	CO	RE	69X CC	RE	D	INT	ERVAL 5551.5-5561.2 mbsl; 646.3-656.0 mbsf
IN	FOS	SIL	CHA	RACI	ER	ce	TIES					URB.	SES		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
									1	0.5		XVVVV	P		CLAYSTONE Major lithology: Medium bedded CLAYSTONES made up of clay minerals with minor amounts of feldspar and pyrite occur in massive bioturbated units. The lighter colored bec (olive - SY 4/3) contain small amounts of bioclastic material. The majority of the beds are dark g eensity for the beds are Section 2, 111-115 cm (5R 4/2). Section 4, 47-50 and 110-115 cm (10R 4/1). Section 5, 1 119 cm (5YR 4/3) and Section 6, 93-96 cm (10R 4/2). Slightly silty, laminated, graded ber occur in Section 3, suggesting that some of his material may have been deposited as mu- turbidites.
								0.6%		1		\geq	1		SMEAR SLIDE SUMMARY (%):
							WC=33 7-2.82	CaCO ₃ =	2	-		R	1		4,52 5,71 M D
							• 8	•	-			K	1		COMPOSITION:
							5-50					K	1		Bioclast — 15 Calcite — 3
							0					K	;		Clay 80 80 Feldspar 5 Tr
										1		K	4	•	Pyrite 10 Quartz Tr
								0.5%	3	theory of the		XXX	1 1		
							=31	03=C				1	1		
							9=48 WC	cac	4	to the second		+ + + -	2 2 2	*	
								TOC=0.103		1		1 1 1	2 2		
								•				111	12		
									5			くユユユ	1 1	*	
												+++++++++++++++++++++++++++++++++++++++	1		
							WC=28 7=2.82	CaCO3 = 0.35	6	1		くユユ	12 2		
							•	•				4	1		
							0-46		7			L	1		
	•	•							cc	-		K	5		



LIN NI L	FO	SSIL	АТ. СНА	ZONE/	2 0	ES I					88.	8		
TIME-ROCK UI	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PAL FOMADNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURI	SAMPLES	LITHOLOGIC DESCRIPTION
							4%	1	0.5		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	****	*	CLAYSTONE with sity claystone Major lithology: Medium bedded CLAYSTONES made up of clay minerals with minor amounts of sity crystalline calcite. Pyrite is moderately common. The majority of the beds are olive gray (SY 4/2), dark greenish gray (SG 4/1), greenish gray (SG 5/1) or very dark g (SY 3/1) in color in places. The laminae are various shades of brown (10/3 2/1, 4/2, and SY 4/4, 5/3). Minor lithology: the sity claystones at the top of Section 5 are similar to the claystones but contain sitg grade crystalline calcite. These beds are weakly laminated, graded and dark olive green in color (SY 4/2). SMEAR SLIDE SUMMARY (%):
						P=44 WC=27	• CaCO3 =0.4	2			くくくく	1 1 1 1 1 1		1, 140 3, 73 5, 37 D D M TEXTURE: Sand — — 5 Silt 30 10 90 Clay 70 90 5
							TOC=0.12%	3			>>>>+		*	Accessory minerals — — Tr Calcite 60 20 100 Clay 40 80 —
						05 WC=34	• CaCO ₃ =0.2%	4			+ + + + + +	*****		
	• 8	• B				Ø=50	TOC=0.46%	5			+ + <	1	*	



ITE	76	7	H	OLE	В			CO	RE 1	71X CO	RED) 11	NT	ERVAL 5570.8mbsl	66	65.6	-675.3mbsf	767B-71X 1	2	3
TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	ZON HARAC SWOLDIG	E/ CTER	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	WETERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	1	LITHO	DLOGIC	DESCRIPTION	5- 10- 15-		
											X	5		CLAYSTONE with silty claysto	ne			20-	130	
									0.5		x	;		Major lithology: Medium bedde amounts of quartz. The majorit 4(1) and greenish gray (SGX 5	d CLA y of th	AYSTON te beds	IES made up of clay minerals with minor are olive gray (5Y 4/2), dark greenish gray (5G usee beds are moderately biotychated through	25	1	
								1	1.0		\leq	i		out the core, including Zoophy laminations in Section 3 and S	cos in ection	Section 6 and a	6, 70-100 cm. The claystones have thick also show normal grading (Section 6, 45-50 cm).	20	192	
											X	1		Minor lithology: Silty claystone	occur	s in Sec	tion 1 and there are silt laminae in the clay-	75		12
											X	1		stone beds in Section 3, 45-65 quartz. These beds are weakly These beds are considered to	cm ar y lamir be mu	nd Secti nated, g ud turbid	on 6, 24-65 cm. The silt grade material is mainly raded and dark olive gray in color (5Y 3/2). ite deposits on the basis of the grading and	55		a state
											3	1		lamination present in many par	ts of the	he core		40-	1000	
								2			\leq	1		SMEAR SLIDE SUMMARY (%): 104	6, 23	6, 100	45	-	1
		1	1	11							\geq	1		D TEXTURE:		М	D	50-		
								-			Ì	1		Sand 5		7	5	55-	2.2	
									-4			1		Clay 15	5	95	85	60	-	-03-
								3			Ş	٤		COMPOSITION: Accessory minerals 20	0	Tr	5	65-	•	-
											1			Clay — Quartz 80		100 Tr	90 5	70-	- And	-
									-			1						75-		
											2	1						80-	1000	
							%0	4			2	1						85-		
							0C=0.1					1	OG					90-	-	
							• 10	-		-	1	۱	W					95		had
											1	1						100-	- Charles	
								5				i						105-	5	
											+	٤						110-		10000
								_			+	1						115		
												=	*					100		
								6			Ļ	1						120-	- 6303	and the second second
											Ì		*					125-		
												1						130-	-	
								7			+	1						135-	10-2	
	•	•						cc			İ.	! .						140-		-
					_													145-	-	-
																		150-	1000	- AL -

6

7

ccl

BI0 FOS	STR	CHA	ZON	E/		ŝ					88.	50		
 FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS, PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED, STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
						D=1.96 • Y=2.72	• CaCO ₃ =0.2%	1	0.5		XXXXXXX	* *	#*	CLAYSTONE and SILTY CLAYSTONE with carbonate siltstone Major fithologies: CLAYSTONE and SILTY CLAYSTONE occur in diffusely laminated, normally graded thin to medium beds. The silt grade material is quartz and feldspar plus small amounts of chlorite, pyrite and rock fragments. Typically, the beds have a sharp bar and grade up from a very thin dark gray (5Y 41) siltstone to olive gray (5Y 42) claystone Bioturbation, which is widespread, may cause the bedding planes or laminations to be diffuse. The thicker beds are olive (5Y 5/3) 4/2) or dark olive gray (5Y 3/2). These beds are considered to be distal muddy turbidite deposits.
								2				****		Decis composed of crystalline calcite and a small amount of quartz. It is greenish gray (5 5/1) in color. SMEAR SLIDE and THIN SECTION SUMMARY (%): T T, 28 1, 29 3, 82 4, 83 4, 93 4, 108 51, D D D M D M M TEXTURE:
							*	3				1 1 1	*	Sand 1 10 1 Silt 70 10 25 50 40 Clay 100 30 90 74 40 59 COMPOSITION: 1 1 Accessory minerals 1 1 Chaphitotic 2 1 Choirite 50 50 5 10
						P=49 WC=33	0C=0.05% CaC03=0.4	4				1 1 P	±	Composition Composition <thcomposition< th=""> <thcomposition< th=""></thcomposition<></thcomposition<>
							1.	5			1//////		#	Sparite Tr - - - - 15 Zircon - Tr - - - 15 SMEAR SLIDE SUMMARY (%): 5, 12 - -
						52 WC=37	• CaCO3=0.4%	6			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			COMPOSITION: Accessory minerals 2 Calcite 95 Plant Tr Quartz 3
• B	•B					0		7 cc			~~~~	2 2		



ITE	76	57	н	OLE	В		CO	RE 7	3X COR	ED	INT	ERVAL 5590.1-5	599.	8mbsl	: 684	.9-694	.6mbsf	767B-73X 1	2	3	4
LIN	BIOS FOS	STRAT	HARAC	E/	89	ES				Sa								5	95	1	
OCK O	FERS	SSILS	IIANS		GNETIC	ROPER			GRAPHIC	UCTUR	1		LITH	OLOGIC	DESCRIP	TION	1				
ME-R(INIWE	NOFO	TOMS		EOMA	MISTE	CTION	TERS	LITHOLOGY	D. STR	APLES							10-		1 A	-
Ē	FOF	NAD	DIA		PAI	PH PH	SEC	W		SEC	SAM							15-	1-1-1-		-
												CLAYSTONE, SILTY CLA	YSTONE	and SIL	ISTONE			20-		Er T	
			Ť.				1.	0.5				Major lithologies: GLAYST medium beds. The silt gra variable amounts of crysta	ONE, SIL de materi alline calc	al is mair ite. The b	IV quartz	and SILTST feldspar ar ally have a s	TONE occur as thin to nd rock fragments with sharp base and grade up	25		Fred.	2
							1	1.0				from a very thin, very dark wavy, convolute and cross	gray (5Y s laminati	3/1) silts on are co	tone to ol mmon an	ive gray (5Y d are well p	(4/2) claystone. Planar, preserved in the silty beds.	20-12			10
												Bioturbation, which is wide diffuse. The silty claystone calcareous: these beds ar	spread, r at the to a olive in	nay caus p of Sect color (5Y	e the bec on 1 (0-3 4/3), larr	ding planes 8 cm) and in inated at the	or laminations to be n Section 5 (65-150 cm) is e base, normally graded	50-		21	100
							F			7		and bioturbated. These be deposits.Interbedded with	ds are co dark gray	nsidered (5Y 4/1)	to be dis beds tow	al muddy tu ards the ba	urbidite use of this core are clay-	35-	- Start	Real of	ALC: NOT
					1						*	stones of more brownish h (2.5Y 4/4), 71-124 cm (10)	YR 4/2).	ection 5, 5 These be	55-65 cm ds show I	(10YR 3/3) ess bioturba	and Section 6, 10-48 cm ation, and are not laminated	40-		-	
							2					SMEAR SLIDE SUMMAR	Y (%):					45-		-	-
						-0.3 ⁵							2.28	6, 147	7,28	7.31		50-			100
					VC=3	Y=2.7	L					TEXTURE:	(m)	2	0			55-	A Della	Part	Xis
					ſ					> "		Sand	95 5	8	8	-		60-	1	E.J	
					0-40	P=2.0	3			1		Clay	-	-	100	95		00		15 de	
								1				COMPOSITION:	2					60-	- Jane	Service of the servic	K
				11					·	1		Apatite Calcite	Tr 5	2	3	-		70-	127	The state	-
							F			٤,		Chlorite Clay	-Tr	75	100	95		75-		5. 7	-
						-0.6%		1		> `		Feldspar Glass	20 3	15	Ξ	Ξ		80-	1-1-1-		NAME OF TAXABLE
					- 3 e	-2.6 aco.	4			F	ł	Opaques Quartz	5 30	5 5	Ξ	5		85-	100	1	1
					ľ	•				1		Hock tragment	30	_		-		90-		The second	-
					121		L			1								05-		ST	
					ſ	06%				1								100		AL ST	
						00=0	5	1			5							100-		5	How we have
						1												105-			
											7							110-	-	-	
																		115-	- DE-	10	-
										1							1	120-		the state	1
						2%	ľ			21								125-		E	1
						12.0	-			1								130-			
						Y=2 Caco	-		-	1	7							135		1400 Fe	
	8	8	80 0	n		.05 .	7			L	*							155-		123	in the
	•	•	•	•		9=0	CC							_				140-	- Made	200	-
																		145-	1-1-2-	- Antonia	- 22
																		150-		ALC: NO	100

5

6

7

CC

.

-

μ <u>α</u>	0	0	1	00	12	RT				12	URE		
FORAMINIFE	NANNOFOSSIL	RADIOLARIAN	DIATOMS	ICHTHYOLITH	PALEOMAGNET	PHYS. PROPE	CHEMISTRY	SECTION	GRAPHIC LITHOLOGY	DRILLING DIS	SED. STRUCTI	SAMPLES	LITHOLOGIC DESCRIPTION
						0=64 WC=49	•CaCO ₃ =3.8%	2	0.5 	ーーーー ノノノーー		* * *	CLAYSTONE to SILTY CLAYSTONE Major lithologies: This core consists of CLAYSTONE to SILTY CLAYSTONE. A gradual I significant change in color and structures occurs within Section 3. The upper part of the c- consists of medium to thick bods of dark gray (54 /1) to very dark grayish brown (2.5 Y claystone grading to sitty claystone, interbedded with light olive brown (2.5 Y S/4) bioturbs darystone. The darker claystone and sitty claystone occur in fining upward sequences with sharp bases overfain in some cases by planar laminated sitty claystone grading to massi homogeneous claystone; these units are interpreted as turbidite deposits. The interbeddi bioturbated claystone layers are probably hemipelagic deposits. With Slettin 3 the claystone becomes homogeneous and structureless, with slight bioturbation at a few leve and the color changes gradually downward trem olive brown (2.5 Y 4/4) to brown (7.5 YR 4). Small green reduction spots surrounding reddish yellow metallic sulfide grains (chalco rife?) occur at various levels. Fish teeth occur in washed residues of brown claystone for claystone. The brown clays in the lower part of the core are interpreted as pelagic clay deposits.
						• = 45 WC=27	●CaC0 _{3"} 0.3%	3					SMEAR SLIDE SUMMARY (%): 1, 55 1, 112 1, 140 2, 35 5, 123 D M M M D TEXTURE:
		•B	8.				OT0C=0.29%	4				OG IW	Clay 85 50 80 30 98 Feldspar 5 5 2 Tr — … Deck fragment — 5 5 1 — …
				00 01/P 10				6 7 000		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		*	



1	BIO: FOS	STR	CHA	RAC	TER		ES					88.	s		
	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	GRAPHIC LITHOLOGY	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
									1	0.5 1.0 11		/ イイーイ//		*	CLAYSTONE and clayey tuff Major lithology: This core contains CLAYSTONE, which is homogeneous and structure with slight bioturbation evident at a few levels. It is brown (7.5YR 5/4 to 4/4 and 10YR 4 with local pale green reduction spots surrounding grains of a reddish-yellow metallic mi (chalcopyrite?). SMEAR SLIDE SUMMARY (%):
							• P=2.14 7 2.70		2			~ + + + + + -			1, 49 2, 86 6, 30 7, 30 D M D D TEXTURE: Sand 20 5 1 Silt 10 7 30 20 Clay 70 90 65 75 COMPOSITION: Accessory minerals Tr 5 5 Clay 75 90 75 Feldspar Tr 3 Plant Tr Radiolarians 2 2 Rock fragment 20 Silt 15 15
					0										
								03~0.2%	4					IW	
			•B	•B				•CaC	5						
					C/P				6					*	
4	90	•B	8 •	•B	•				7 CC			11/1		*	


		10	<u></u>	HQ	LE	1	5	_	COF	RE	76X CC	RE	D	INT	ERVAL 713.5-723.2 mbsf
E.	BIO FOS	STR	CHA	RACI	TER	0	ES					88.	s		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	ICHTHYOLI THS	PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
									1	0.5		ンンンン	1		CLAYSTONE and clayey tuff Major lithology: CLAYSTONE is dark brown (7.5YR 4/4) in Sections 1 and 2, becoming strong brown to dark brown (7.5YR 4/4 is to 3/4) in Sections 3 and 4, and reddish brown (5YR 5/4 to 7.5YR 5/4) in Section 5 and below. It consists of clay minerals with minor opaque min- erals, apatite, and feldspar, fish teeth and radiolarians are present in washed residues. From Section 3 down there is a cyclic vertical repetition of claystone lithologies, with each cycle beginning with a thin tuff layer: 1) reddish brown claystone with red mottling; 2) structureless red claystone; 3) reddish brown claystone with scattered small black nodules and streaks of manganese oxide: at the top of some cycles there are additional layers of structureless red and mottled reddish brown claystone. The thickness of the cycles varies from 20-70 cm.
									2	lt		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1		Minor lithology: Very thin clayey tulf layers are light greenish gray (10Y 6/2), in places mottled with reddish brown (2.5YR 5/6), and have line planar lamination. They consist of plagioclase feldspar and clay, with minor rock fragments. They probably represent turbidite deposits. SMEAR SLIDE and THIN SECTION SUMMARY (%):
												>>>		*	3, 23 3, 97 4, 76 4, 108 6, 30 6, 85 6, 96 M D D M M M M
									3	hundre		1		*	Sand 30 20 5 Silt 10 5 5 30 50 35 30 Clay 90 95 95 40 30 60 70 COMPOSITION:
MIOCENE			•8	•B•						1.1.1		~~~~	1		Accessory minerals 1 1 2 Apatite 10 10 Tr Biotite 1 Tr Clay 85 80 95 20 30 60 60 Feldspar 1 65 30 20
LOWER			elongata				2.47	0.18%	4			1	TT I	*	Orasis
		yris ateuchus)	L ychnocanoma		11+15		• 0=24 WC	CaCO3=0.2%0 0100	5			~ + + + + + +	×⊙ ×⊙		Rock fragment — — — 10 25 — 1 Silt — — — — 25 —
_			M/M	9					6	Turnin 1		44444		*#	
GOCENE			W		3/M				7			4444			
ER OLI	•8	B•	/MeeA/	B••B	C/Me eF				сс	-		1			



SITE 767

E	1	67		HOL	E	В	_	CO	RE	77X C	ORE	D	INT	ERVAL 723.2-732.9 mbsf	767B-77X
-	BIO FOS	STRA	CHAP	ONE/	R ,	ES					RB.	s			5
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	DAI SOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURI	SAMPLES	LITHOLOGIC DESCRIPTION	10- 15-
			S				0.2%				X	T	T	CLAYSTONE and clayey tuff Major lithology: CLAYSTONE is reddish brown (5Y 4/3 to 5/3) with minor vellowish red (5Y	20-
			steuchu			0=48 D 0 0 1	•caco ₃	1	0.5		×			4/6) and dark brown (7.5YR 3/2). Most of the claystone is massive and structureless, but a number of thin zones exhibit mottling of light brown to red within the overall reddish brown color. Thin zones of dark reddish brown (5YR 3/2) claystone with black streaks of manga- nese oxide are also present. The claystone contains clay minerals with minor fieldsnar.	25-
CENE			yris a		M	WC=31			1.0		X X X X X X X		*	opaque minerals, rock fragments, and radiolarians. Minor lithology: A thin layer of clayey tuff is present in Section 1, It is light brown with streaks of pale green, and has glanar lamination. It is composed of rock fragments, feldspar, and	35-
OFIGG			cados		2		-0.22%						*	clay. SMEAR SLIDE SUMMARY (%):	40-
JPPER			Dor	-	+		TOO	2					*	1, 103 2, 36 2, 70 CC, 23 M D M D	45-
	B.	B•	A/M.	•B				CC			2E	L	*	Sand 5 — — — — Sitt 60 10 — — Clay 30 90 — — COMPOSITION:	55- 60-
														Apatite Tr — Tr Tr Clay 30 90 90 70 Feldspar 25 — 5 5 Opaques 2 — 2 5 Plant — Tr — —	65- 70-
														Ouartz 5 Radiolarians 5 10 Rock fragment 40 5	75_
ITE	-	767	7	HOL	E	в	_	co	RE	78X C	ORE	D	INT	ERVAL 732.9-739.0 mbsf	80-
UNIT	FO	SIL	CHAI	RACTE	R	RTIES					TURB.	BES			00
TIME-ROCK	FORAMINIFER	NANNOFOSSIL	RADIOLARIANS	DIATOMS	ICHTHYOLITHS	PALEOMAGNET	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIS	SED. STRUCTL	SAMPLES	LITHOLOGIC DESCRIPTION	90-
			01Pe	•	Σ		07%	1				1		CLAYSTONE and SILTY CLAYSTONE Major lithologies: The CLAYSTONE and SILTY CLAYSTONE in this core are reddish brown (5YR 4/3) and dark reddish brown (5YR 3/2) respectively. Little structure apart from some bit shock are able detected in Section to Instrume of earsene difficult discuss to the core	100-
F	-	-	-		R/		00-00				×	1		catcher, the claystone is motted light gray (5VR 7/1) and there are distinct black (5YR 2.5/1) nodules of manganese oxide up to 2 mm in diameter.	110-
berosa.	•B	8	A/M•	•	R/M		T.	cc			31	C		Charles and the Street and the Construction of the Street and the Street and the Street and St	115-
T. tut					4										125-
~					+										130-
															135-
_							-					-			1 TU



SITE		767	7	HC	LE	(0		CO	RE	1R CC	RE	DI	NT	ERVAL 680.0-	689.5	mbsf	
	BIO	STR	AT	ZONE	1													
1	FOS	SSIL	CHA	RAC	TER	57	ũ.	(1	[]		BB	8					
5	BS	Ls l	NS		\$	Ĕ	ERT					STL	LUN B					
1 S	E	SSI	SI A		15	No.	l &	ž			GRAPHIC	ō	2			LITH	OLOGIC I	DESCRIPTION
a l	N	E	F	WS	ž	N.	a	ST S	S	8	LITHOLOGI	N S	ST	E S				
W	RA I	X	ŝ	2	Ę	Ĕ	ŝ	E.	Ē	E I		크		The second				
F	5	NA	RA	ā	ĝ	PA	E	E S	SE	¥		DR	SE	SA				
			1	-		-	-	-	-		VOID	-	-	-				
															CLAYSTONE, VOLCAN	NIC SILTSTO	ONE and	SANDSTONE
							33	X		1		Ľ.	1		Major lithologies: The C		S and V/	OLCANIC SILTSTONES in this care are dark
						1	10-	0		0.5	1111111111111	X	-		greenish gray (5G 4/1 t	o 10Y 4/1).	The sedim	nents are arranged in thin and medium bedded.
							60	2	1.			1			normally graded beds d	fisplaying sh	arp bases	s. In places, planar, wavy and cross lamination
							13	0.0	Ľ.	13		-	1	*	is preserved in the base	al silty interv	al; the up	per paler clayey part is bioturbated. The silty
							Re	Se		1.0-	E	1-			component is character	rized by felds	spar, rock	fragments and opaques. The gray olive green
							B>	-		1		1	5		(5GY 4/1) VOLCANIC S	SANDSTON	ES are sh	harp-based, normally graded and medium
							8			1.		1	1		lamination The sandet	ures include	planar lar	mination, ripple and climbing, ripple cross
							12			-		ľ.			minor amounts of hornb	plende, pyro	xene. volo	canic class and calcite. There are small
1 1			11		11	(13	ê		1.1	1111	1			quantities of plant mate	rial present.	The grad	ed siltstones and sandstones are considered to
								0.		- 33		1	***		be distal turbidites.			
							4	5		-	1111		1		BANGLARD STATES TO A DATA	0.000		
1 1	1.1	- 0	0.1		Q ()		50	8	1			1	11	1.0	SMEAR SLIDE and TH	IN SECTION	N SUMMA	ARY (%):
1 1							60	Ca	2	1	1111	1/					Ŧ	
							6	•		-		1				1.85	3 18	3.19
						1	5		1			1	•••			D	M	D
							22			-				OG				
							10			1				IW	TEXTURE:			
		1.5	1.5		8.1		12			-	· · · [26235	1	1		Court .			**
							1	8			· · · ·	Ľ.	4.4.4	#*	Sand	20	20	30
								2		1	1-11 (\$\$\$\$\$\$	1	÷.		Clav	70	30	10
								X		-		11	\mathcal{T}					
				11			[]	ě	3	1		1	1	10	COMPOSITION:			
										- 8		1/	1					
										2		1			Amphibole	-	2	
		1.5	6.1							1		1	1	1.0	Chlorite	-		5
		1.1								-					Clay	50	10	10
	m	m	m	m	m							1	1		Epidote	-	-	Tr
1 1	•					1	1		CC		կկկկկկ		•		Feldspar	20	-	15
									-	-		-			Foraminiters	-	1	2
1 1									1					- 0	Glauconite	-	Tr	7
									1						Hornblende	_		5
															Michte	5	1	10
															Planinclase		20	10
						1									Plant	223	5	-
					1										Pyroxene	-	-	2
															Quartz	-		5
															Rock fragment	20	8	40
															Smectite		15	
			÷												Zircon	_		II.



SITE 767

NIT	BI0 FOS	SSIL	CHA	RAC	TER	8	LIES					URB.	ES		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADI OLARI ANS	DIATOMS	ICHTHYOLITHS	PALEOMAGNETIC	PHYS. PROPER	CHEMISTRY	SECTION	ME TERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
	6 B	•8	•8	•B	• VR/P 11		V=1.98 WC=41 D=54 D=49 D=49 WC=32 V=1.78	CaCO3*0.02% CaCO3*0.02% TOC*0.13%	1 2 CC	1.0		F		*	CLAYSTONE and SILTY CLAYSTONE Major lithologies: The CLAYSTONE and SILTY CLAYSTONE in this core is dark gray (5Y 4/1), dark greenist gray (5G 4/1) and dark olive gray (5Y 4/2). The sediments show a medium, rhythmic bedding: tanthy laminated silty claystone grades up into motified and bioturbated paler claystone. Bioturbation increases towards the top of each graded bed, with <i>Chondrises</i> and <i>Zoophycos</i> recognizable. A very thin (5 mm) black silty ash layer at 15 cm in the core catcher is disrupted by bioturbation. The silty component is polygenetic, containing volcame material (lithic fragments, fedspar, provene and hornblende), continential material (rounde quartz, metamorphic lithic clasts) and carbonate material (calcitic clasts of uncertain origin). These beds are considered to be line polygenetic distal turbidites. SMEAR SLIDE SUMMARY (%): 2, 76 Xint 70 Clay 10 COMPOSITION: 2 Calcite 25 Clay 10 Hornbende 3 Opaques 5 Pyrokene 2 Pidspar 20



IN .	810 F05	STR	CHA	RACI	TER	ŝ	LIES					JRB.	S		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	ICHTHYOLI THS	PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
					11		-46 WC=29	T0C=0.07%	1	0.5		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	11 11 0G	*	CLAYSTONE Major lithology: Two distinct types of CLAYSTONE are recognized in this core. a. Dark greenish gray (SG 4/1) to clive gray (SY 4/2), strongly bioturbated claystone occurs in Section 1, 0-38 cm. b. Grayish brown (10YR 5/2) claystone between 38 and 70 cm in Section 1 is moderately bioturbated. Below this, the claystone is dark brown (7.5YR 4/2), homogeneous and not bioturbated. These claystones are composed of clay minerals with very rare quartz and opaque minerals. Native cooper occurs localized in small (1-3 mm) nodules (Section 1, 140 145 cm). The change in color and the degree of bioturbation of the sediment at 38 cm in Section 1 is concidered an important bioundary.
	8	•B	8	•B•	•C/P		•	03=0.01%	2 CC			×××		*	SMEAR SLIDE SUMMARY (%): 1,122 CC.6 D D
								CaCO							TEXTURE:
															Silt 5 5 Clay 95 95
1															COMPOSITION:
															Biotite 1 -
- i	1			1		- 1								- 1	Calcite Tr -
- 1	1		1	_ I											Clay 95 95
	- 1		- 1	- 1											Opaques 2 1
- 1			- 1	- 1											Ouartz — 1
- 1	- 1		1												Rock fragment — 2



SITE 767

NIT	BI0 FOS	STR	CHA	RAC	TER	8	LIES					URB.	Es		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	ICHTHYOLITHS	PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTI	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
					3/P 10		V=1.88 WC=26 0=43	TOC-0.09% CaC03=0.01%	1 2 3	0.5		HHHXXX ////////////////////////////////		* 0G IW *	CLAYSTONE and clayey siltstone Major lihology: dark yellowish brown (10YR 4/4) CLAYSTONE is the dominant lihology. It is sightly to moderately biokurbated. Native copper occurs in small (1:3 mm) nodules, around which the claystone is colored greenish gray (5G 7/1). Other small difluse patches of greenish gray may also be related to copper mineralization. The claystone is otherwise homogeneous and composed entirely of clay minerals. Minor lihology: Clayey sittstone occurs in a single bed in Section 1 (65:67 cm). It is greenish gray (5G 6/1, 5/1) and weakly laminated, alternating with weak red (10Y 5/2) sitly claystone It grades up into motiled, bioturbated dark gray (10R 4/1) claystone which in turn grades up into the dark yellowish brown claystone. The sitl component includes quartz. feldspar, rock fragments and some calcite (which may be diagenetic). SMEAR SLIDE SUMMARY (%):
	9	•	•	•	•				cc				11		Calcite 10 Clay 50 100 Feldspar 20 Opaques Tr Quartz 5 Rock fragment 15



NIT	BIO	STR	CHA	ZONE	TER		LIES					URB.	ES		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	ICHTHYOLITHS	PALEOMAGNETIC	PHYS. PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
							D 46 WC=27 V-1.83	•CaCO3=0.03%	1	0.5	VOID	X//////		*	CLAYSTONE and clayey tuff Major lithology: CLAYSTONE is the dominant lithology in this core. It is dark brown (7.5YR 3/2) to reddish brown (7.5YR 5/4 to 5YR 4/4), with color mottling due to slipht to moderate bioturbation. At several levels in the core there is a medium bodded alteration of three claystone lithologies: nearly structureless reddish brown claystone, burrow-mottled reddish- brown claystone, and dark brown mottled claystone with small (few mm diameter) black manganese nodules and disseminated black streaks of manganese oxide. The contacts between these different types of claystone are gradational. The claystones are composed o clay minerals with minor silt-sized plagioclase, rock fragments, and opaque minerals.
					11		WC=28	0.02%	2	and and and		XXXXXXX			Minor itibiology: clayey fulf grading to feldspathic sitly claystone. In addition to the bed show at the bottom of Section 2, thin beds of this lithology occur in Section 1, 12-16, 119-124, and 137 cm; and Section 2, 22-24 and 103-108 cm. These beds have sharp basal contacts and normal grading, with basal fulf with planar lamination (clayey sand to sandy sill grade) grading upward into massive or bioturbated feldspathic sitly claystone. The sith- to sand- sized grains in these beds are chiefly twinned and zoned plagioclase, with rock fragments, opaque minerals, and biotite. These beds are interpreted as volcanogenic turbidites. SMEAR SLIDE SUMMARY (%): 1, 14 1, 101 2, 24 2, 148
	•B	•B	•B	•B	•C/M		• 0=47	21%0 CaCO3"0	3	and a colored		× イイノンノイ	2 2	*	M M M M TEXTURE: Sand 40 15 15 Silt 20 5 60 45 Clay 40 95 25 40 COMPOSITION: Accessory minerals 1
								T0C=0.2							Biotitie 1 Calcite 5 Chorite 5 Clay 50 95 60 40 Feldspar 2 Mica 1 Opaques 20 1 2 2 Plagioclase 50 25



ITE	8.3	767	7	но	LE	(C		CO	RE	6R CC	RE	D	INT	ERVAL 726.2-735.8 mbsf
5	BIO FOI	STR	AT.	RAC	TER		S3					38.	0		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	ICHTHYOLITHS	PALEOMAGNETICS	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION
							T					1	Ŧ	*	CLAYSTONE and clayey tuff
						-0.12%	WC=35 0=52	CaCO3=0.01%	1	0.5		111111	2 2 2 1	*	Major lithology: CLAYSTONE is the dominant lithology in this core. It is dark brown (7.5YR 3/2) to reddish brown (7.5YR 5/4 to 5YR 4/4), with color mottling due to slight to moderate bioturbation. At several levels in the core there is a medium-bedded alteration of three classtone lithologies: nearly structureless reddish brown claystone, and dark brown mottled claystone with small (few mm diameter) black manganese nodules and disseminated black streaks of manganese oxide. The contacts between these different types of claystone are gradational. The claystones are composed of clay minerals with minor silt-sized plagioclase, rock fragments, and opaque minerals.
0						TOC	.06 Y=27 0=46	CaCO _{3"} 0.01%	2	ter beer beer				*	Minor lithology: clayey full grading to feldspathic sitty claystone. In addition to the bed shown at the bottom of Section 2, thin beds of this lithology occur in Section 1, 12-16, 119- 124, and 137 cm; and Section 2, 22-24 and 103-108 cm. These beds have sharp basal contacts and normal grading, with basal tuff with planar lamination (clayey sand to sandy sitted grade) grading upward into massive or bioturbated feldspathic sitty claystone. The sith - to sand-sized grains in these beds are chiefly twinned and zoned plagioclase, with rock fragments, opaque minerals, and biotite. These beds are interpreted as volcanogenic turbidites. SMEAR SLIDE SUMMARY (%):
							V-2		-	-	<u></u>	I		*	1 14 1 101 2 24 2 148
R OLIGOCENE		is ateuchus)	•B	•	~				з		VOID	111	1		1, 14 1, 101 2, 24 2, 148 M M M M M TEXTURE: Sand 40 15 15 Silt 20 5 60 45 Clay 40 95 25 40 COMPOSITION:
UPPEI		- (Dorcadospyr.	W		2+11				4		V01D	×	1		Accessory minerals 1 Biotite 1 Calcine 5 Chionite 5 Cilay 50 95 60 40 Feidspar 2 Mica 1 Opaques 20 1 2 2 Plagicclase 20 20 30 Rock fragment 5 1 5 25
			•C/I	•					5			××××			
			M/M	0						-	VOID				
	B.	B	Ne el	B• •E	Me				6			×××			
			A/A	5	R/N										



NI 1	BIC FO	SSIL	AT. CHA	RAC	TER	0	LIES					URB.	ES			
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	ICHTHYOLI THS	PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTI	SED. STRUCTUR	SAMPLES	LIT	HOLOGIC DESCRIPTION
	₽	eB	•8	9	•R/M 10	(CaCO ₃ *0.01%)	$\gamma_{-2.73}^{c=27} \beta_{-2.16}^{a=45} = V_{-1.83} \gamma_{-2.84}^{c=27} = \beta_{-4.61}^{a=46}$	CaCOg=0.04%0 0TOC=0.10% 0-	1 2 CCC	0.5		~~~ × × ~~~ ×		**	CLAYSTONE and sandy claystone Major lithology: CLAYSTONE, vary brown (SYR 5/4, 4/4, 4/6), is the mi to medium bedded with concentry places. Clay minerals are predomir Minor lithology: feldspathic sandy of It is thinky laminated and bioturbate (7.5YR 6/2), Plagioclase feldspar of fragments, opaques and biotite. Th as a thin turbidite of volcanogenic r muds. SMEAR SLIDE SUMMARY (%): CC, 6 M TEXTURE: Sand 25 Sitt 15 Clay 60 COMPOSITION: Accessory minerals 1 Biotite 1 Clay 60	ing from dark brown (10YR 3/3, 7.5YR 3/2) to reddish ain lihology. It is slightly to moderately bioturbated, thin ons of copper and disseminated manganese oxide in sant, with rare quartz and opaques. Iaystone occurs in a thin, graded bed in the core catcher d towards the top of the bed; the color is light brown cours in this bed as sand grade grains, along with rock e graded coarser bed in the core catcher is interpreted naterial in an otherwise uniform sequence of pelagic red CC, 19 D
															Opaques 3 Plagioclase 30 Quartz -	1

767C-7R	1	2	CC
5-		- 22	
10-	Â.	- 52	
15-	1.0	-83	200
20-			-
25-			
30-	1		
35-			
40-			
45-			
50-			
55-		-	<u> </u>
60-		-	
65-		10	
70-			-
75-		-	
80-		-	- 1 -
85-		-	
90-		-	- -
95-			- 1 -
100-			
105-			
110-		-	
115_		-	
120-		-, ,	- 1 -
125-		-	一一个
130-			
135-			
140-	1-1		
145_		-	1,1
150-			

SITE 767

NIT	FOS	STRA	CHA	RACI	ER	8	TIES					URB.	ES		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	ICHTHYOLITHS	PALEOMAGNETH	PHYS. PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
							V-1.95 Y-2.79 9-46	CaCO3=0.01%	1	0.5	VOID	XXHHVV		*	CLAYSTONE Major lithology: Dark reddish brown (5YR 3/4 to 4/4) CLAYSTONE with faint mottling due to common but obscure biolurbation. The claystone is otherwise structureless and homogene- ous. It contains small manganese micronodules which vary in abundance: decimeter-thick layers with very scattered micronodules are separated by Jayers a lew cm thick which contain abundant (and generally larger) micronodules. Small white biogenic grains which may be agglutinated foraminifers are widely dispersed through the claystone. Several clasts of claystone with wavy cark gray to black streaks (manganese oxide?) are present in drilling breccia at the top and bottom of the core.
S OLIGOCENE			yrtis tuberosa		13	(CaCO ₃ =0.01%)	Y=2.71 P=2.19]	2	***********		4 4 4 4 4	~ <u>≦0</u> ≦00	OG IW	Minor tithology: A clast of porcellanite occurs in drilling breccia near the top of the core. It is pinkish gray (SYR 7/2) and laminated, and consists of microcrystalline silica with minor kaolinite and opaque mineralis. Section 2 and 3 of this core are only moderately tractured, but the remaining sections consist of drilling breccia, cuttings, and slurry. SMEAR SLIDE SUMMARY (%): 1, 37 1, 75 M M
LOWER			Theoc				V-2.13	TOC=0.30%	3	- and the first of	VOID	⊥ ⊥ ⊥ ⊥ ⊥ ⊥	0505		TEXTURE: Sand 20 2 Silt 20 5 Clay 60 93 COMPOSITION: Clay 70 — Kaolinite Tr 3
	•B	•B	•C/M	•B	eR/M				4	- Production		< *********			Opaques 15 3 Plagioclase 2 1 Silicia 10 90



41 L	810 F05	STR	АТ. СНА	ZONE	E/ TER	00	ES		Γ			RB.	s		
TIME-ROCK UI	FORAMINIFERS	NANNOF OSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTL	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
	8	8	er/P R/Pe	-B		ICaCO3=0.01%1	V-1.94 Y-2.80 P-2 200	T0C=0.22%	1 2 3 7 7 7	1.0	VOID	XXXXXXXXXX FFFFX	\$	*	CLAYSTONE with sandy siltstone and porcellanite Major lithology: This core consists chiefly of CLAYSTONE which is reddish brown (5YR 4/3) to dark brown (7.5YR 3/2) and massive, with faint traces of biofurbation at some levels. One darker layer contains streaky black motiling of possible manganese oxide. Green reduction spots occur locally surrounding small streaks of a black metallic mineral. Minor lithologies: a. Several clasts of calcareous sandy siltstone grading into claystone are present in drilling brecia in the lower part of the core. These clasts are pale yellowish green (16GY 7/2), with minor opaque minerals. They probably represent fragments of volcanicatic turbidite layers. b. Several clasts of pinkish gray (7.5YR 6/2) to light gray (7.5YR 7/0) laminated porcellanite occur is drilling breccia; only Section 1 contains moderately tractured but stratigraphically coherent material. SMEAR SLIDE SUMMARY (%): 1, 71 3, 8 D M TEXTURE: 30 50 Clay 69 20
															COMPOSITION: Biotite Tr — Calcite — 30 Chlorite — 2 Clay 90 30 Kaolinite 5 — Opaques — 5 Oxide — 10 Plagioclase 1 20

767C-10R NO RECOVERY

767C-9R	1	2	3	CC
5-	5-			- Ball-
10-	5-		-	-
15-	Et-		-	1.00
20-	91		-	
25-			- 33	
30-	-			-
35-	1-1-		-	- Andrew Control of the second
40-	2-		- 22	1
45-	24-		-0-	
50-	6 -		-05-	
55-		1	-	
60-	-	1	-	-
65-		Dedice. The	-	
70-		-		
75-	-		-189	
80-	MS-	Card I	-83-1-	
85-	~5-		The Party of the	1 -
90-			- -	
95-	5	No.		
100-	56			-
105-		R		-
110-	-		and the second second	-
115-			- 1 -	-
120-				
125-				
130-	-	200	-	1
135-				- · -
140-				-
145-	-			1
150-	-	- Total		-

	_	0,	· · · · ·					-	001		111 00	REI			ERVAL 772.4-702.1 11031			
-	BIO FOS	STRA	CHAI	ONE	ER	-20	ŝ		T				\$					
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	ICHTHYOLITHS	PALEOMAGNETICS	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION			
							22	×		-		X			CLAYSTONE			
			R/P.	B	13		V-2.03 \$ = 2.24 7 = 2	CaCO3=0.01	1	1.0		×××××		*	Major fithology: CLAYSTONE is the only lithology represented in this core, occurring as clasts in drilling breccia. The clasts are structureless but variable in color from brown and dark brown (7.5/YR 4/4 to 4/2) to reddish brown (5/YR 4/3) to yellowish red (5/YR 4/8). Small manganese micronodules occur in some of the clasystone clasts, along with rare very small biogenic grains which could be agglutinated foraminities. The clasystone consists of clay minerals with very minor plagioclase and oxide grains. SMEAR SLIDE SUMMARY (%):			
	: []			5	+			2%0				×		W	1, 93			
					=			•0.2		-		×			D			
								TOC	2			×			TEXTURE			
									1	1	VOID	×			Clay 100			
	ē	'n	P•	8	·W				_	_		\sim	_	Ч	COMPOSITION:			
			œ		2										Clay 99 Oxide Tr			
					_					_					Plagioclase 1			
UNIT			CHA	RAC	rER 9	TICS	ERTIES				1	STURB.	URES					
RAMINIFERS	SILS	IANS	1	ę	E	ERT					STU	I III		LITHOLOGIC DESCRIPTION				
IME-ROC	RAMINIS	NNOF OS	DIOLAR	ATOMS	HTHYOLITH	LEOMAGNE	IYS. PROF	EMISTRY	CTION	ETERS	GRAPHIC LITHOLOGY	ILLLING DI	D. STRUCT	MPLES	LITHOLOGIC DESCRIPTION			
TIME-ROC	FORAMINIS	NANNOFOS	RADIOLAR	DIATOMS	ICHTHYOLITH	PALEOMAGNE	PHYS. PROF	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	- DRILLING DI	SED. STRUCT	SAMPLES	LITHOLOGIC DESCRIPTION			
TIME-R00	FORAMINI	alara)	A/P. RADIOLAR	B• DIATOMS	(CaCO3=0.01%) ICHTHYOLITH	Y=2.56 P=2.05	33 2 2.1 7-2.60	• • TOC=0.01% •• CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	P P P P P P P P P DUILLING DI	H S OF STRUCT	SAMPLES	LITHOLOGIC DESCRIPTION CLAYSTONE CLAYSTONE CLAYSTONE CLAYSTONE CLAYSTONE CLAYSTONE CLAYSTONE CLAYSTONE CLAYSTONE CONSTULTED AND CONTRACT C			
ENE TIME-ROO	FORAMINI	/ P. Chalara)	•A/P A/P• RADIOLAR	Be DIATOMS	(CaCO3=0.01%) ICHTHYOLITH	(V-1.93 WC=27 D=42 (V-1.93 Y=2.56 D=2.05) PALEOMAGNE	V-1.930 -43 WC=27	ICO3=0.01%0 010C=0.01% 0-0 CHEMISTRY	1 SECTION	0.5 1.0	GRAPPIIC LITHOLOGY			SAMPLES * SAMPLES	LITHOLOGIC DESCRIPTION CLAYSTONE CLAYSTONE Major lithology: Dark gravish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY- STONE constitutes all of Sections 1-3. These daystones are thickly laminated and the laminae are picked out by color variations. Manganese oxide occurs as discrete nodules in most of this core, and the darker brown coloration of some laminae may be due to manga- nese minerals. While sill to fine sand sized particles occur scattered or concentrated in laminae: these appear to be grains of zoolfue (phillipstef). A light greenish gray (55 7/1) concretion 8 mm in diameter occurs at 93 cm in Section 3, which appears to be fine silica. The claystone is otherwise composed of day minerals and rare plagioclase feldspar. Bioturbation is slight, but occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 3 the dig ranges from 5/200. These dips cannot be			
E EOCENE TIME-ROC	FORAMINI	theana / P. chalara)	•A/P A/P• RADIOLAR	B DIATOMS	11 (CaCO3=0.01×1	(V=1.93 WC=27 0=42 (V=1.93 Y=2.56 P=2.05)	2-2.08 V-1.93 C=27 V-1 PHYS. PROF	.01% CaCO3*0.01% 010C*0.01% 04 CHEMISTRY	1 SECTION	NETERS				TUPTING TO THE STATE OF THE S	LITHOLOGIC DESCRIPTION CLAYSTONE CLAYSTONE Major lithology: Dark grayish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY- STONE constitutes all of Sections 1-3. These claystones are thickly laminated and the laminae are picked out by color variations. Manganese exide occurs as discrete nodules in most of this core, and the darker brown coloration of some laminae may be due to manga- nese minerals. While sill to fine sand sized particles occur scattered or concentrated in laminae: these appear to be grains of zoolite (phillipsite?). A light greenish gray (5G 7/1) concretion 8 mm in diameter occurs at 93 cm in Section 3, which appears to be fine silica. The claystone is otherwise composed of clay minerals and rare plagloclase feldspar. Bioturbation is slight, but occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 1 it is 25-300, in Section 2 the dips are consis- tently steeper, 450 and in Section 3 the dip ranges from 5-200. These dips cannot be accounted for by deviation of the drill string (around 100) and must represent some variabl rotation of the original bedding by local faulting. Disturbance of the sediments and micro- faults are recognized in Section 1, 45-70 cm, and are further indication of tectonic distur- bance.			
DDLE EOCENE	FORAMINI	goetheana / P. chalara)	P •A/P A/P• RADIOLAR	•B DIATOMS	11 (CaCO ₃ =0.01%) ICHTHYOLITH	.93) (V-1.93 WC=27 D=42.05	27 0-43 -41 V=1.93 - 43 WC=27 - 1 PHYS. PROF	03-0.01% CaCO3-0.01% 0100=0.01% 0-0 CHEMISTRY	2 t section	SE 1.0				SAMPLES * SAMPLES	LITHOLOGIC DESCRIPTION CLAYSTONE CLAYSTONE Major ilithology: Dark grayish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY- STONE constitutes all of Sections 1-3. These claystones are thickly laminated and the laminae are picked out by color variations. Manganese oxide occurs as discrete nodules in most of this core, and the darker brown coloration of some laminae may be due to manga- nese minerals. While sill to line sand sized particles occur scattered or concentrated in laminae: these appear to be grains of 2 acolite (phillipsiet)-A. lipht greenish gray (56 7/1) concretion 8 mm in diameter occurs at 93 cm in Section 3, which appears to be fine silica. The claystone is otherwise composed of clay minerals and rare plagioclase leddpar. Bioturbation is slight, but occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 1 it is 25-300, in Section 2 the dips are consis- tently steeper, 450 and in Section 3 the dip ranges from 5-200. These dips cannot be accounted for by deviation of the drill string (around 100) and must represent some variabl rotation of the original bedding by local faulting. Disturbance of the sediments and micro- faults are recognized in Section 1, 45-70 cm, and are further indication of tectonic distur- bance. Drilling disturbance is slight and Section 3 is almost intact throughout.			
MIDDLE EOCENE	FORAMINI	is goetheana / P. chalara)	•A/P •A/P A/P• RADIOLAR	•B B• DIATOMS	11 (CaCO ₃ =0.01%) 10HTHYOLITH	(V=1.93) (V=1.93 Y=2.56 P=2.05) PALEOMAGNE	WC=27 0-43 - V=1.9300 -43 WC=27 - PHYS. PROF	CaCO3*0.01% CaCO3*0.01% 010C*0.01% 04 CHEMISTRY	2 section	RETERS					LITHOLOGIC DESCRIPTION CLAYSTONE CLAYSTONE Major lithology: Dark gravish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY- STONE constitutes all of Sections 1-3. These claystones are thickly laminated and the laminae are picked out by color variations. Manganese oxide occurs as discrete nodules in most of this core, and the darker brown coloration of some laminae may be due to manga- nese minerals. While sill to the sand sized particles occur scattered or concentrated in laminae: these appear to be grains of zeotile (phillipsief)-A. light greenish grav (55 7/1) concretion 8 mm in diameter occurs at 93 cm in Section 3, which appears to be fine silica. The claystone is otherwise composed of day minerals and rare plagioclase feldspar. Bioturbation is slight, but occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 1 tit ±25-300, in Section 2 the dips are consis- rotation of the original bedding by local faulting. Disturbance of the sediments and micro- faults are recognized in Section 1, 45-70 cm, and are further indication of tectonic distur- bance. Dnilling disturbance is slight and Section 3 is almost intact throughout. SMEAR SLIDE SUMMARY (%):			
MIDDLE EOCENE	FORAMINI	docyrtis goetheana / P. chalara)	•A/P • A/P A/P• RADIOLAR	•B B• DIATOMS	11 (CaCO3=0.01%) ICHTHYOLITH	(V=1.93) (V=1.93 WC=27 0=42 (V=1.93) (V=1.93 Y=2.56 P=2.05) [PALEOMAGNE	3 WC=27 0-43 V-1.93 0 = 43 WC=27 0 - 1 PHYS. PROF	11 X CaCO3"0.01 X CaCO3"0.01 X 0 010 0.01 X 0 0 01 X 0 0 0 0 0 0 0 0 0 0 0 0 0	2 1 SECTION	0.5					LITHOLOGIC DESCRIPTION CLAYSTONE Major lithology: Dark gravish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY- STONE constitutes all of Sections 1-3. These claystones are thickly laminated and the laminea are picked out by color variations. Manganese oxide occurs as discrete nocludes in most of this core, and the darker brown coloration of some laminae may be due to manga- nese minerals. While sill to fine sand sized particles occur scattered or concoludes in lamines: these appear to be grains of zeotile (philligstef). A light greenish gray (50 7/1) concretion 8 mm in diameter occurs at 93 cm in Section 3. which appears to be fine silea. The claystone is otherwise composed of day minerals and rare plagioclase feldspar. Bioturbation is slight, but occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 1 this 25-300, in Section 2 the dips are consid- rotation of the original bedding by local faulting. Disturbance of the sediments and micro faults are recognized in Section 1, 45-70 cm, and are further indication of tectonic distur- bance. Drilling disturbance is slight and Section 3 is almost intact throughout. SMEAR SLIDE SUMMARY (%): 1, 55 3, 139 M D TEXTURE:			
MIDDLE EOCENE	FORAMINI	(Podocyrtis goetheana / P. chalara)	21P • A/P • A/P RADIOLAR	9 •B • DIATOMS	11 (CaCO3=0.01%) ICHTHYALITH	(V=1.93) (V=1.93 Y=2.56 P=2.05) Paleomagne	0 443 WC=27 0 43 V=1.93 0 43 WC=27 0 1 PHYS. PROF	=0.01% CaCO3*0.01% CaCO3*0.01% 010C=0.01% 04 CHEMISTRY	C 2 25CTION	0.5					CLAYSTONE Major ilitology: Dark gravish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY-STONE constitutes all of Sections 1-3. These claystones are thickly laminated and the laminea are picked out by color variations. Manganese oxide occurs as discrete nocludes in most of this core, and the darker brown coloration of some laminae may be due to manganese minerals. While sill to line sand sized particles occur scattered or concentrated in laminae: these appear to be grains of zeotide (philligslet) - A light greenish grav (5G 7/1) concretion 8 mm in diameter occurs at 93 cm in Section 3. which appears to be line silea. The claystone is otherwise composed of day minerals and rare plagioclase feldspar. Bioturbation is slight, but occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 1 this 25:300, in Section 2 the dips are consistently steeper, 450 and in Section 1 this 1 is 25:300, and the darker on an incorfaults are recognized in Section 1, 45-70 cm, and are further indication of tectonic disturbance. Dinling disturbance is slight and Section 3 is almost intact throughout. SMEAR SLIDE SUMMARY (%): 1, 55 3, 139 M D TEXTURE: Clay — 100			
MIDDLE EOCENE	FORAMINI	(Podocyrtis goetheana / P. chalara)	••R/P •A/P •A/P A/P• RADIOLAR	00B 0B 0B DIATOMS	11 (CaCO3=0.01%) ICHTHYOLIT	(V=1.93) (V=1.93 WC=27 0=42 (V=1.93 WC=27 0=2.05) PALEOMAGNE	-26 0 -43 WC-27 0 -43 - V-1.93 0 -43 WC-27 0 - PHYS. PROF 2.69 -2.14 V-2.59 -2.08 - V-1.93 0 -2.17 -2.60 - PHYS. PROF	3C03=0.01% CaC03=0.01% CaC03=0.01% 0.01% 0.01% 0.01% 0.01%	2 1 SECTION	0.5					LITHOLOGIC DESCRIPTION CLAYSTONE Major ilitology: Dark grayish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY-STONE constitutes all of Sections 1-3. These claystones are thickly laminated and the lamines are picked out by color variations. Manganese oxide occurs as discrete nocules in most of this core, and the darker brown coloration of some laminae may be due to manganese minerals. While sill to line sand sized particles occur scattered or concentrated in laminae: these appear to be grains of zeolite (phillipsier)-A. Fight greenish gray (50 /1) concretion 8 mm in diameter occurs at 93 cm in Section 3, which appears to be fine silica. The claystone is otherwise composed of day minerals and rare plagioclase feldspar. Bioturbation is slight, but occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 1 it is 255-300, in Section 2 the dips are consistently steeper, 450 and in Section 1 at the dip ranges from 5-200. These dips cannot be accounted for by deviation of the dril string (around 100) and must represent some variabl rotation of the orginal bedding by local faulting. Disturbance of the sediments and micro faults are recognized in Section 1, 45-70 cm, and are further indication of tectonic disturbance. Drilling disturbance is slight and Section 3 is almost intact throughout. SMEAR SLIDE SUMMARY (%): 1, 55 3, 139 M D TEXTURE: Clay Clay 100			
MIDDLE EOCENE	B. FORAMINI	Be (Podocyrtis goetheana / P. chalara)	R/POR/P A/P A/P A/P RADIOLAR	800B 0B 0B 01ATOMS	II (Сасоз=0.01%) ICHTHYOLIT	(1/-1.93) (1/-1.93 7 2-27 0-42) Paleomagne	11 WC = 26 0 = 43 WC = 27 0 = 43 WC = 27 0 = 43 WC = 27 0 = 0 PHYS. PROF	CaCO3=0.01% CaCO3=0.01% CaCO3=0.01% 010C=0.01% 0-	2 1 SECTION	0.5				* IIIII VII UKA UUUUUPUPUUUUUPUPUUUUUPUPUUPUUPUUPUU	LITHOLOGIC DESCRIPTION CLAYSTONE Major ilthology: Dark grayish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY-STONE constitutes all of Sections 1-3. These classtones are thickly laminated and the lamines are picked out by color variations. Manganese oxide occurs as discrete nocules in most of this core, and the darker brown coloration of some laminae may be due to manganese minerals. While sill to line sand sized particles occur scattered or concentrated in laminae: these appear to be grains of zeolite (phillipsier)-A. lipht greenish gray (50 7/1) concretion 8 mm in diameter occurs at 93 cm in Section 3, which appears to be fine silica. The claystone is otherwise composed of day minerals and rare plagioclase feldspar. Bioturbation is slight, thut occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 1 it is 25-300, in Section 2 the dips are consistently steeper, 450 and in Section 3 is edip ranges from 5-200. These dips cannot be accounted for by deviation of the drill sting (around 100) and must represent some variabl rotation of the orginal badding by local faulting. Disturbance of the sediments and micro-faults are recognized in Section 1, 45-70 cm, and are further indication of tectonic disturbance. Drilling disturbance is slight and Section 3 is almost intact throughout. SMEAR SLIDE SUMMARY (%): 1, 55 3, 139 M D TEXTURE: Clay Clay 100 COMPOSITION: 55			
MIDDLE EOCENE	Be	Bo (Podocyrtis goetheana / P. chalara)	RIPORIP AIP AIP AIP RADIOLAR	800B 0B 0B 01 010000	R/M• 11 (CaCO3=0.01%) ICHTHYOLITH	(V=1.93) (V=1.93 N=2.76 D=42) PALEOMAGNE		CaCO3+0.01% CaCO3+0.01% CaCO3+0.01% 0100+0.01% 0+	2 CC	0.5					LITHOLOGIC DESCRIPTION CLAYSTONE Major ilithology: Dark grayish brown (10YR 4/2, 5/3) and reddish brown (5YR 5/3) CLAY-STONE constitutes all of Sections 1-3. These claystones are thickly laminated and the laminea are picked out by color variations. Manganese oxide occurs as discrete nocules in most of this core, and the darker brown coloration of some laminae may be due to manganese minerals. While sill to line sand sized particles occur scattered or concentrated in laminae: these appear to be grains of zeotile (phillipsiet)-A. lipht greenish gray (50 7/1) concretion 8 mm in diameter occurs at 93 cm in Section 3. which appears to be fine silica. The claystone is otherwise composed of clay minerals and rare plagloclase feldspar. Bioturbation is sight, but occurs throughout the core. Minor lithology: A basic igneous rock occurs in the core catcher. Structure: The true dip of the bedding varies in this core. In Section 1 it is 25-300, in Section 2 the dips are consistently steeper, 450 and in Section 3 the dip ranges from 5-200. These dips cannot be accounted for by deviation of the drill string (around 100) and must represent some variabl rotation of the original bedding by local faulting. Disturbance of the sediments and micro faults are recognized in Section 1, 45-70 cm, and are further indication of tectonic disturbance. Drilling disturbance is slight and Section 3 is almost intact throughout. SMEAR SLIDE SUMMARY (%): 1, 55 3, 139 M D TEXTURE: Clay 100 COMPOSITION: 2			



5-

10-

65-

70-

80-

95-

125-

130-

135-

140-



124-767C-12R-CC (Piece 1, 9-11 cm)

OBSERVER: SPA

WHERE SAMPLED:

ROCK NAME: Olivine basalt

GRAIN SIZE: Fine to very fine-grained

TEXTURE: Variolitic with plate-shaped olivine

PRIMARY	PERCENT	PERCENT	SIZE	COMPO-					
MINERALOGY	PRESENT	ORIGINAL	(mm)	SITION		ORPHOLOGY		COMMENTS	5
Olivine	0	5	1.5		P	late	Skeletal	relict f	forms.
Plagioclase	10	10	Max. 0.5		L	oths			
Clinopyroxene	5	5	Max. 0.0	7	S	keletal micro	liths		
Fe-Ti oxides	5	5	0.0051		N,	/A			
Devitrified	58	72	N/A		N,	/A	Includin	g crystal	llites, varioles ~1 mm
glass			20				in diame	ter.	
SECONDARY		REPL	ACING/						
MINERALOGY	PERCENT	FILL	ING				COMMENTS	6	
Clays	2	Olivine							
Clays	15	Glass,	fracture	s, vesicles		Replacing vesicles.	glassy mesostasi	s — fill	ing fractures and
Carbonate	2	Fractur	es and v	esicles					
Fe-oxides	3	Olivine	,						
VESICLES/			SIZE						
CAVITIES	PERCENT	LOCATIO	N (mm)		FILLING		S	HAPE	COMMENTS
Vesicles	3	Even	0.5-0	.1	Calcite,	smectite	S	pherical	Partly filled.

COMMENTS: The habit of the relict olivine and the microvariolitic texture of the groundmass indicate rapid chilling. (NO UNIT NUMBER GIVEN).

124-767C-12R-CC (Piece 2, 18-20 cm) OBSERVER: SPA WHERE SAMPLED:

ROCK NAME: Olivine basalt

GRAIN SIZE: Fine to very fine-grained

TEXTURE: Arborescent/variolitic

PRIMARY MINERALOGY	PERCENT	PERCENT	SIZE (mm)	COMPO- SITION	MORPHOLOGY	COMMENTS		
Olivine	0	3	1-0.5		Plate	Skeletal form, irregularly distributed.		
Plagioclase	25	25 1	Max. 0.6	Labradorite	Lath			
Clinopyroxene	10	10 1	Max. 0.1		Microliths, skeletal, crystals			
Fe-Ti oxides	5	5	.015002		Subhedral grains			
Dev. glass	48	55 1	N/A		N/A	Dense irresolvable radiate aggregates with crystallites.		
SECONDARY		REPL	ACING/					
MINERALOGY	PERCENT	FILLING Glass				COMMENTS		
Clays	5			Replacing glassy mesostasis.				
Clays	2	Fracture			Sinuoos veinlets	l - Constantina e constantina e constantina e constantina e constantina e constantina e constantina e constanti		
Fe-oxide	3	Olivine						
Fe-oxide, clay	2	Fracture	es		?Smectites, hemo	atitized p.p. magnetite.		
VESICLES/			SIZE					
CAVITIES	PERCENT	LOCATIO	N (mm)		FILLING	SHAPE		
Vesicles	2	Even	an ann an 1997. An 1997		Clay, Fe-oxides	Spherical		

COMMENTS: Texture is transitional between varialitic and arborescent. (NO UNIT NUMBER GIVEN).

124-767C-12R-CC (Piece 3A, 26-28 cm)

OBSERVER: SPA

WHERE SAMPLED:

ROCK NAME: ?olivine basalt

GRAIN SIZE: Fine to very fine-grained

TEXTURE: Arborescent, with plate-shaped olivine and skeletal clinopyroxene

VESICLES/ CAVITIES	PERCENT	LOCATIO	ON (IZE		FILLING	SHAPE	COMMENTS			
Zeolites	2	Caviti	es, co es ovides	witie	3	Fibro-radiate	aggregates.				
Clays	10	Olivin	•			Mostly orange	yellow, also pale gre	en.			
SECONDARY MINERALOGY	PERCENT	REP FIL	LACING LING	1			COMMENTS				
	1030310313 00 00 N/A				clino pyroxene wi devitrified glass	ith interstitial 3.					
Mesostasis	60	60	N/A			N/A	Feathery aggregat	e of plagioclase and			
Fe-Ti ovidee 3		5 few place		lerer		crystals Small arein	clinopyroxene wit devitrified glass Partly altered	th interstitial 3.			
Pyroxene	oxene 5 5 Max01 N.D.			N.D.	microliths Prisms, skeletal Feathery aggregate of plagioclase						
Plagioclase	10	10	Max.	0.1	N.D.	Laths, P.P., or					
Olivine	0	10	5-1			Plates	Completely altered.				
MINERALOGY	PRESENT	ORIGINA	L (mm)		SITION	MORPHOLOGY	COMMENTS				

WHERE SAMPLED:

COMMENTS: Texture and resolvable mineralogy suggest an origin by rapid chilling. (NO UNIT NUMBER GIVEN).

124-767C-12R-CC (Piece 4, 36-39 cm) OBSERVER: SPA

ROCK NAME: Olivine basalt

GRAIN SIZE: Fine

TEXTURE: Aphyric, intersertal radiate, with granular olivine and p.p. skeletal clinopyroxene and plagioclase

PRIMARY MINERALOGY	PERCENT	PERCENT	SIZE . (mm)	COMPO- SITION	M	ORPHOL	OGY		COMMENTS
Plagioclase	55	55	2-0.03	An65-55	La	th, sk	eletal	Fresh,	poorly zoned with rare twinning.
Clinopyroxene	30	30	0.1-0.01		Mi	crolit	h, skeletal	Fresh,	skeletal crystals frequent.
Fe-Ti oxides	3	3	.03007		Eu	hedral	grains	Dissem	inated in groundmass.
Olivine	0	5	0.3-0.2		Eu	hedral	prism	Comple	tely altered to iddingsite.
Mesostasis	0	2	N/A		N/	A	A 60.00 (1810)	Altere	d glass.
SECONDARY		REPI	LACING/						
MINERALOGY	PERCENT	FIL	LING					COMMEN	TS
Clays	5	Olivin				Gree	n or orange	brown, m	esh texture frequent.
Clays	7	Mesoste	asis, amyg	dules		Gree	n, in amygd	ules ofte	n orange yellow in color.
VESICLES/			SIZE						
CAVITIES	PERCENT	LOCATIO	ON (mm)		FILLING				SHAPE
Vesicles	5	Even	0.5-1.	0	Clay				Lobate
					CONSIGNATION CONTRACTOR OF				circular

COMMENTS: Texture suggests rapid chilling (occurrence of skeletal crystals of plagioclase and clinopyroxene).