IN	FOS	STRA	T. Z	ONE/	s	TIES					URB.	RES					
TIME-ROCK L	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTU	SAMPLES		LITH	OLOGIC	DESCRIPTION
NE	M/M	•C/G				0-81.10 P-1 30	(WC=148) (Y=2.69)	1	0.5			1 11 1	* *	NANNOFOSSIL CLAY an Major lithology: Dark gree the clay and it is bioturba volcanic detritus (plagioc rich in clay.	nd nannolo enish gray ited throug lase, glass	(10Y 5/1) hout. It is and lithic	with foraminiters ) NANNOFOSSIL CLAY. Mottling is common in composed of clay with nannofossils and sity c fragments). Dark green (5G 3/3) patched also
ER PLIOCE	N21	C/0				2.0 9-80.2	J (WC=136) J		1.0			2 2	TW	Minor lithology: Nannofor sharp bases and gradatic greenish gray (10Y 6/1) a amounts of volcanic silt, thin calcareous turbidites	ssil marl wi onal contac and are co The sedim s.	th forami its with th mposed o ents in th	nifers occurs in two thin to medium beds with the overlying clay. These graded beds are light of clay, namofossils, foraminfers and small is core are dominantly pelagic/hemipelagic with
UPP	ec/M	NN16				76.5 0-78.	12) WC-126	2	- I I -			1.		TEXTURE:	нү (%): 1, 47 М	1, 91 D	2, 130 M
	eR/P	€/M	8	e		-	(Y=2.	ct	-			:	*	Sand Silt Clay	20 20 60	20 80	
														Accessory minerals Biothe Clay Discoaster Foraminifers Glass Horrblende Nannofossils Plagioclase Quartz Rock fragment	40 20 5 1 30 2	2 8 2 2 5 2 2	

771A-18	1	2	3	0	x
5-					_
10-					- 12
15-				-	-
20-	Ta an			-	-
25-	-	E BIA		-	777
30-			-	-	-
35-		1	-	-	-
40-			- 1	-	
45-			- 1	-	-
50-	and the second	In call	-	-	-
55-			- 1	-	-
60-			-	-	—
65-				—	-
70-	Sector	2.81	- 1	-	i -
75-				-	-
80-				-	—
85-				-	-
90-	Carles -	12		-	-
95-			- 1	-	. 🗁
100-	Sil and		-	-	-
105-			- 1		-
110-				-	-
115-			-	-	-
120-		AN THE		-	-
125-		15.0			
130-	Et con	4	1.1		
135-					1
140-					
145-	1	No.	<b>D</b> .1		
150-	1.1			_	-

**SITE 771** 

PTION
CLAY WITH NANNOFOSSILS occur rayish and greenish throughout. Ver portion of carbonate in the form of ant throughout and is more concen- se deposits are interpreted as hem- ic carbonate.

771A-2R	1	2	CC	1
5-		1		1000
10-				
15-	Constant-	-	15-ac	Non-L
20-	1		1 mil	
25-	Lawre			
30-	-			
35-		1-	-	est se
40-		and the		
45-	-			
50-	and the	Carl-		
55-		5	-	file and
60-		12	-	
65-	44	LE SAL	-	
70-			-	
75-			-	100
80-			-	
85_		<b>T</b> -		in a second
90-	-		1 -	
95-		- 1	-	and and a second
100-		11-	-	Paras -
105-	-	-	1 -	
110-			-	
115-			-	
120-				
125-	1000	-	-	
130-		-	-	in the
135-			-	
140-	E.	-	-	1
145-			1	ALL STREET
150-	and the second	1.1	1	1

SITE	5 3	//1	<u> </u>	HO	LE	A			CO	RE	3R CO	RE.	D	NT	ERVAL 154.0-164.2 MDSt
L IN	BI0 FOS	STR	CHA	RACI	/ TER	51	168					JRB.	ES		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTI	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
DCENE									1	0.5			* * * *	*	CLAY WITH NANNOFOSSILS Major lithology: CLAY WITH NANNOFOSSILS is greenish gray (5GY 6/1) to light greenish gray (10GY 6/1) and massive, with local thin bedding defined by slight color variations. The clay is slightly to highly bioturbated, with green and gray mottling. It is composed of clay with variable proportions of nannofossils (mainly discoasters) and very minor plagicolase. The clay with nannofossils is interpreted as a mixture of hemipelagic clay and minor pelagic biogenic carbonate. Minor lithologies: a. Nannofossil clay occurs as thin to medium intervals oradational with the dominant clay
UPPER MIC	N17	I I NN I					Y-2.72-9-67.5	L-(1/-1.54)	2	and and an			* *		with nannofossils, and differs from it by its slightly higher proportion of nannofossils. b. A thin bed of day with zeolites occurs in Section 1, 117-121 cm. It consists of day with 10% analoime crystals and very minor plagioclase. c. Thick laminae of silly day occur in Section 2. They are grayish green (5G 5/2), and may represent altered ash layers. SMEAR SLIDE SUMMARY (%): 1, 75 1, 119 3, 13 D M D
	eR/P	•C/G	eT/P				11 9=66.6 .61 P=1.54	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	3 CC			! 	11 11	*	TEXTURE: Silt 2 15 5 Clay 98 85 95 COMPOSITION:
							7-2								Analcime          10            Clay         65         75         30           Foraminilers         1             Nannołossils         30         5         65           Organic matter          5            Plagioclase         1         3         Tr           Pyrite         Tr         Tr            Spanite          1



**SITE 771** 

SITE		771		HOL	E	Α		CO	RE	4R CC	DRE	D	INT	ERVAL 164.2-1	173.9	mbsf
1.	BIO	STRA	CHAP	ONE/	1 07	163	Γ				RB.	s	Γ			
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITI	OLOGIC DESCRIPTION
UPPER MIOCENE	N16 C/Me (N17) C/M	A/Ge C/Ge C/G	Be[(NN10)	(111N)		WC=78 0 = 9.10 WC=77	(Ye2-15 0-68-2) (Y=2-75 0-16-2)		0.5			20 1001 1001 20	*	NANNOFOSSIL MARL a Major lithologies: NANNO interbedded in this core, gray (537/71) to light gr 10Y 6/1). Both lithologies sils, very minor foraminifi mainly in nannofossil cor consisting of plagioclase, nannofossil clay are inter biogenic carbonate sedin SMEAR SLIDE SUMMAT TEXTURE: Sift Clay COMPOSITION: Apatite Carbonate grains Clay Dinoftagitate Foraminifers Glass Nannofossils Opaques Plagioclase Zeolite	nd NANN DFOSSIL formig the y(SY 7/1 are mass, and si intent. volcanic preted as nent. RY (%): 1, 24 D 5 5 95 	OFOSSIL CLAY WARL and NANNOFOSSIL CLAY are gradationally in to thick beds. The nannotossil mari is light greenish , and the nannotossil dia greenish grag (SGY &I to ive and slightly bioturbated, consisting of clay, nannotos testad calcile grains of uncertain origin; they differ e of the nannotossil clay contains a minor sill componen glass, and opaque minerals. The nannotossil mari and variable mixtures of hemipelagic clay and pelagic 1, 108 M 10 90 Tr 1 1 35 3 5

SITE 7/1 HOLE A CORE SR CORED INTERVAL 1/3.9-183.0	mbsf
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LI .	BIO	STRA	CHA	RACI	/ ER	50	IES.					RB.	ES		
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
	2								1		in the second		1	*	NANNOFOSSIL CLAY
ENE	R/N	M/O	Ш					67 9=66.			<u>Lenned</u>			_	Major lithology: NANNOFOSSIL CLAY found in the core catcher is the only lithology recovered in this core. It is dark greenish gray (10Y 5/1), homogeneous, and slightly bioturbated. It is composed of clay minerals and nannotossils (mostly coccolitis with some discoasters), with very minor plagioclase and sit-sized calcite grains.
00								N.C.							SMEAR SLIDE SUMMARY (%):
LE M	N15	NN9													1, 11 M
DD															TEXTURE:
ž															Silt 10 Clay 90
															COMPOSITION:
															Carbonate grains     2       Clay     65       Nannofossils     30       Opaques     1       Plagioclase     1       Plant     Tr

771A-4R	1	CC	7/1A-5R	1	
5-		1997	5-	La-	
10-		Rend	10-		
15-	A A		15-	-	
20-	A.A.	-	20-	-	
25-	ALC: NO	-	25-		
30-	and and	- 1	30-		
35-			35-	-	
40-			40-		
45-	A		45-	-	
50-	The second		50-	-	
55-	- Cast		55-	-	
60-			60-	-	
65-	$\sim$		65-	-	
70-			70-		
75-	-		75-		
80-			80-	-	
85-			85-	-	ł.
90-	-		90-	-	
95-			95-	-	
100-	A STATE		100-	-	
105-	NT Hat		105-	-	2
110-			110_	-	
115_	-		115_	-	
120-		-	120-	-	
125-			125-	SIL T	
130-		-	130-	-	
135-	-	1	135-	-	
140-		-	140-	-	1
145-	-		145-	-	
150-			150-	-	

	_	_	_		-	-	-	Ť	-			_	-					
Ĩ	BIO FOS	STR	CHA	RACTI	ER	20	IES					JRB.	ES					
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITH	OLOGIC	DESCRIPTION
	N15					Δ_64 1 WC=65	P=1.677-2.67		1	0.5			+ + + *	*	NANNOFOSSIL CLAY a Major lithologies: a. NANNOFOSSIL CLA greenish gray (10Y 6/1) bation. The nannofossil plagioclase, and opaque foraminifers. b. NANNOFOSSIL MAR Sections 5 and 6. ht is lig	Y is the dom with green a clay consist minerals. A IL occurs at ght greenish	FOSSIL inant lith and gray s of clay, tew thir the top c gray (10	MARL lology in this core. It is massive and light motiling, resulting from slight to heavy biotur- nannofossis, and very minor foraminiters, a zones contain slightly higher proportions of of Section 1, and as a very thick interval in Y 7(1), with motiling of light clive gray and da
	C/M.								2				****	TW	gray, and is nighty botu mail from the overlying nannotossils, and up to foraminiters. The nannot mixtures of hemipelagic SMEAR SLIDE SUMMA	nannofossil 10% foramir ossil clay an clay and pe .RY (%): 1, 100 D	4, 63	A sharp coor channolossi action 5. The nannolossi mari consistsol clay 5 sith-sized bioclasts which may be fragments fossi mari in this core are considered to be genic carbonate sediment. 5, 110 D
	N14					R7R_W.C=61	P=1.70 7=2.65		3				- 0-0-	2	TEXTURE: Sand Silt Clay COMPOSITION: Biotlast Biotlast Cathonata grains	20 80	5 95     2	2 25 73 5 Tr
IIDDLE MIOCENE	C/M.	6NN9				10-66	-2.78 • 1-1.60		4				*****	*	Clay Foraminifers Nannolossils Opaques Plagioclase Plant Zeolite	60 1 25 Tr Tr Tr Tr	60 3 30 2 2 Tr	50 5 40 — —
2						0-85 A V	69.1=d	Erect.	5				* * *	*				
	• C/W						2		6				**					
	N13	30 A/G	30 L-(NNB)			69-10 1 2-W	-F=1.73 7=2.7		7				1 1 1					



**SITE 771** 

	FOS	SIL	CHA	RACI	ER	s	TIES					URB.	RES				
TIME-ROCK U	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	METERS	THOLOGY	DRILLING DIST	SED. STRUCTU	SAMPLES		LITH	NOLOGIC DESCRIPTION
DLE MIOCENE	N13	NN8	petterssoni				P=1.76 7-2.71		1	0.5			****	*	NANNOFOSSIL MARL a Major lithologies: NANN range in color from light massive and bioturbated lithologies consist predo abundance of these com carbonate grains, and pi marl in this core are cons carbonate sediment.	and NANNO OFOSSIL M greenish gr f, with comm minantly of aponents. V agjoclase a sidered to b	DFOSSIL CLAY MARL and NANNOFOSSIL CLAY. These lithologies ay (10° 6'1) to dark greenish gray (10Y 5'1). They are mon grayish green and very dark gray mottling. Both clay and nanotossils, and differ only in the relative lery minor amounts of foraminifers, unidentified silt-sized re also present. The nanofossil clay and nanofossil se mixtures of hemipelagic clay and pelagic biogenic
MIDO		•C/M	D.				27 0-38. 14 P=1.8				}– ↓_ ↓		+-+-+	*	SMEAR SLIDE SUMMA	RY (%): 1, 58 D	2, 10 D
	•C/M	•A/G	•W	/Pe			=1.82 7-3		2				- <del>1</del> -		TEXTURE: Silt Clay	5 95	10 90
			R/	T			7=2.62 P								COMPOSITION: Bioclast Carbonate grains Clay Foraminifers Nannofossils Opaques Plagioclase Rock fragment Zeolite	1 3 55 Tr 40 	

771A-7R	1	1	2	
5-				-
10-			1	-
15-		_		1
20-				
25-				-
30-				1
35-				
40-	l		Sec.	
45-		_		
50-		_		-
55-		_		100
60-		_		-
65-	-	2		100
70-	the st	-		-
75-		1		-
80-		-		-
85-		_		100
90-		-		
95-		-		-
100-		_		-
105-	-			-
110-				-
115-				-
120-				1
125-	-	-		-
130-				-
135-	Carlo a	-		-
140-		-		-
145-	10 mg	-	1	1
150-		-	1	-

LI N	B10 F05	STRA	CHA	CONE/		SEL				JRB.	S						
TIME-ROCK U	FORAMINIFERS	NANNOF OSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	GRAPHIC LITHOLOGY	DRILLING DISTI	SED. STRUCTUR	SAMPLES	L	THOLOGIC	DESCRI	PTION	
	•A/M		B			P=1.82 • V-1.64		1	).5		* *	*	NANNOFOSSIL CLAY and CL/ Major lithologies: NANNOFOSS ing very thick bads with gradatic greenish gray (10Y 6/1 to 511), moderate biothrabion. They are boundaries occur in the clay with lithologies consist primarily of cl proportions of these component carbonate grains are also press boitte. The nannofossil clay an	W WITH NAM SIL CLAY and a primarily may a primarily may h nannofossi ay minerals a is. Minor amo is. Minor amo d clay with na	NNOFOS CLAY V Both lith olive gra assive, bi ls, define and nann bunts of a n trace an nnofossi	SILS VITH NAN tologies a ay mottling ut some th of by subt ofossils, of ith-sized b mounts of Is in this of	INOFOSSILS form alternat- re light greenish gray to dark indicative of slight to ini layers with gradational le color variations. These differing mainly in the relative isoclasts and unidentified plagioclase, hornblende, and core are considered to be
MIDDLE MIOCENE	N13	LNN7				7=56 0=61.4 WC=50		2			1 11	*	mixtures of hemipelagic clay an SMEAR SLIDE SUMMARY (%) 1, 5 D TEXTURE: Sand	d pelagic bio : :8 2, 120 D 1 10	genic cal 3, 83 D 	3, 90 M 5	ediment. CC, 11 D
	N10-12					22.75 P=1.73		3			***	**	Clay 95 COMPOSITION: Bioclast 1 Biothe - Carbonate grains - Clay 83 Feldspar - Foraminifers 1	89 	95 5 75 Tr	95 2 Tr 85 -	88 
	ec/M	•A/G	€R/P			WC.		4 CC			1	*	Hornblende — Nannotossils 15 Opaques — Plagioclase Tr Pyrite —	40 Tr 2	Tr 20 — Tr	Tr 10 1	



SITE 771

TE	7	71		HOL	E	Α			CO	RE 9R	COF	REC	DI	NT	ERVAL 212.6-2	2.3 r	nbsf			
Ę	810 F05	STR	CHA	ZONE/	R		Es					IRB.	ES							
TIME-ROCK U	FORAMINIFERS	NANNOF OSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERI	CHEMISTRY	SECTION	GRAPHI LITHOLO	C GY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LIT	10L0GIC	DESCRI	PTION	
AIDDLE MIOCENE	N10-12	NN6 C/M C/G.	90 (NN7)			0 L0 9 3L-UR 7 1 L0 9 1 L-UR 92	2.72 7+2.72 P=1.66 7-2.51 P=1.60		1	0.5		2	~ ~ ~ ~ ~ ~ ~ ~ ~	*	NANNOFOSSIL CLAY/CLJ FOSSIL MARL/MARLSTOI Major lithologies: NANNOF SILS, NANNOFOSSIL MAR of these lithologies are man upper part of the core. The claystone with nannofossis light greenish gray (10Y 67) relative proportion of clay a They also contain very min carbonate biolitis are also locally hemipelagic clay and pelag volcanic ash. The dagree o SMEAR SLIDE SUMMARY	AYSTON NE OSSIL ( RL/MAR ssive and nannof( s is olive 1 to 6/2), nd nann or amou agioclas present, jic bioge of indura (%): 1, 80 D	IE, CLAY/ CLAY/CL/ LSTONE d structur ssil clay/i gray (10' The mail ofossils, mts of for; e. Very m The sedii nic carbo tion increa 2, 69 D	STONE V AYSTON form thicless, with claystone ( 5/2), an differen which are aminifers inor amo ments in 1 nate sedi uses irreg 3, 96 D	VITH NAM E. CLAYS k beds wh h slight bi is dark g d the nan and other and other and other unts of vo this core a ment, alor juliarly dow 4, 104 D	INOFOSSILS, and NANNO- TONE WITH NANNOFOS- icin intergrade vertically. All plurbation evident in the object of the series of the series of the object of the series of the series of the residement components. undentified sitt-sized learning glass, hormblende, tree interpreted as mixtures of mixed through this core.
×	•C/M	A/Mei C/M	•T/P			0	b=1.62 7=2.67 • p=1.78 7=2		3			S	•	•	TEXTURE: Sand Silt Clay COMPOSITION: Apatite Biotrate Carbonate grains Clay Foraminiters Glass			10 90 1 2 55 2 1		2 10 88 
	W/	NN5	Ð				• V-1.86		4		-			*	Homblende Nannofossils Opaques Plagioclase Plant Rock tragment	$\frac{-30}{1}$	15 	30 2 3 -		30 Tr 1 Tr



1	BIO	STR	CHA	ZONE/	R	S S	Γ	T		1	88.	-	Γ					
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	A 1 THIN 1 I HAVE A 1	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES		LITH	OLOGIC	DESCRIF	TION
	R/P•					40V-1.65			0.5		K	11	*	NANNOFOSSIL MARLS Major lithology: NANNO olive gray (5Y 6/2). The	STONE with FOSSIL M maristone	a clayston ARLSTOI is massiv	e and tuff NE which e and stru	aceous claystone is light greenish gray (10Y 6/2) to ligh ictureless, except for sparse thin to
	6N		•C/P			=26 0-35	1.1	1	1.0		×××	1		thick laminae present lo nannofossils, very mino opaque minerals. The m biogenic carbonate sedi	cally, and is r foraminife naristone is iment.	s slightly t rs, and tra interprete	o modera ace amou ad as a m	tely bioturbated. It consists of clay, ints of glass, plagioclase, zeolites, an ixture of hemipelagic clay and pelagic
						MC		┝			1	1		Minor lithologies: Clayst cm, Section 2, 29-32 cm volcanic glass, feldspar.	one and tur n, and Secti , biotite, and	faceous o on 5, 128 d less tha	claystone I-130 cm. n 10% na	occur as interbeds in Section 1, 39-5 They consist of clay, up to 25% nnotossils.
	•W/W							2				1		SMEAR SLIDE SUMMA	(RY (%): 1, 52	3, 10	5, 128	6, 90
	-					Ø-63.8	1=1					1		TEXTURE:	М	D	м	М
	Σ					C=53	01.7-			-			0G I W	Sand	10	10	20 20	5
	•A/					×					K	+	*	Clay COMPOSITION:	90	90	60	95
INE			٩					3		-	15	1		Accessory minerals Biotite	_		1	-
11 OCI		0	A/						-		2			Carbonate grains Clay	1 65	1 50	40	3 50
м Ш	Σ	NN						L			K	1	1	Feldspar Foraminifers Glass	20	7	25	
NIDD	•A										K	:		Nannofossils Opaques Plagioclase	10 Tr 1	40	5	40 2 2
~								4			2	1		Rock fragment Zeolite	1	_	Ξ	1
						66				<u></u>	K	1						
						1.					K	1						
			æ			VC-44	1.7.1				Ĥ							
	18		ostal			56.9	R	5			li							
	2		0.0				-		-	-	Ľ							
											1		*					
										調子	1	1	1					
								6			Ľ	5						
									-		1	i	*					
	•A/M	•A/G	eA/P					co		「「「」		1						



l	FOS	SIL	CHA	RACT	ER	ce	TIES				URB.	RES		
	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETI	PHYS. PROPER	CHEMISTRY	SECTION	GRAPHIC LITHOLOGY	DRILLING DIST	SED. STRUCTU	SAMPLES	LITHOLOGIC DESCRIPTION
~~~~	N8	NN5	C/M A/Me				13 0-60.3	V-1.62)	1	0.5	× / / / >	- 11		NANNOFOSSIL MARL, CLAYSTONE and BASALT with fine vitric tuff Major lithologies: a. Light greenish gray (10Y 6/2) NANNOFOSSIL MARL occurs in medium to thick beds in Section 1, interbedded with fine vitric tuff. the mart is bioturbated or structureless. b. CLAYSTONE occurs as a drilling breccia in Section 1, 91-150 cm and in Section 2, 0-41 cm. It is dark greenish gray (5GY 41, 5G 5/2) and no structures are visible. Light greenish
UNCE MIC	•C/P	•A/G	/0C/M		costata)-		9 WC=2	)			· · · · · · · · · · · · · · · · · · ·			gray (10Y 6/2) daystone with nannotossils occurs bedded with the claystone in Section 2. The claystone contains a minor volcanic component of glass, plagioclase and opeque minerals, c. BASALT occurs in Section 2, 41-94 cm and in Section 3. It is vesicular and aphanitic with sparse plagioclase phenocrysts. The vesicles are up to 5 mm in diameter and are partly tilled with silica.
			F/I	(F/M)	(C.		37 •V-4.2		2					Minor lithology: dark gray (5Y 4/1) line vitric tuff occurs interbedded with nannolossil marl in Section 1, 17-23, 87-91 cm. The beds have sharp bases, show lamination and are micro- faulted. It contains glass and opaque minerals. The clay and marl are considered to be hemipelagic clay mixed with pelagic biogenic carbonate. The basalt units in Sections 2 and 3 are lava flow(s).
1							V-4 .							SMEAR SLIDE SUMMARY (%).
							•		3	1 V 1 V 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4	-		0	2, 35 D
										I		I		TEXTURE: Silt 15 Clay 85 COMPOSITION:
														Apatite     Tr       Carbonate grains     1       Clay     55       Glass     15       Nannofossils     20       Opaques     2       Planineface     7



LI A	BI0 FO	SSIL	CHJ	ZONE/	ER	00	IES					88.	ŝ		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTURI	SAMPLES	LITHOLOGIC DESCRIPTION
LOWER - MIDDLE MIDCENE		eF/P NN5					V-2.96 7-226 9-11.90 9-41.9 WC-36 9-45.8	(V-2.61 Y=2.27) [(V-2.60)]	1 2 3	0.5		\/\     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/     \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/    \/	[3][冬][[ → [ ★ [ ×       ] ] [ → [35:4+2]		BASALT, COARSE TUFF, FINE TUFF and volcanic silty claystone Major lithologies: a. Brecciated vesicular BASALT occurs in Saction 1, 0-47 cm. The vesicles are around 1 mm across and are filled with bluish silica in places. It is probably the lower part of the laws litw observed of Core b. COARSE TUFF and FINE TUFF occur in medium beds which are normally graded in places. In Section 3, 38-45 cm, a coarse tuft bed displays reverse grading in the basal 1 cn and is massive in the upper part of the bed. The basal contacts of the coarse tuft beds are common, particularly in the upper parts of the fine tuff beds. The fractures are filled with tul or with a white mineral. The tuffs are dark greenish gray to greenish gray (SBG 4/1, 5/1, 6/ 1). Minor lithologies: Silty claystone occurs in placed along the fractures. The tuff beds and silty claystone are interpreted as turbidites of redeposited volcanic ash.

SITE 771 HOLE A CORE 13R CORED INTERVAL 251.3-261.0 mbsf BIOSTRAT. ZONE/ PHYS. PROPERTIES UNIT FOSSIL CHARACTER DRILLING DISTURB. TICS STRUCTURES FORAMINIFERS NANNOFOSSILS RADIOLARIANS DIATOMS PALEOMAGNET TIME-ROCK GRAPHIC CHEMISTRY LITHOLOGIC DESCRIPTION LITHOLOGY ES METERS SED. SAMP 1 COARSE TUFF and FINE TUFF V-3.01 Y-2.43 - 9-33.3 Major lithology: Dark gray to dark greenish gray (5G 4/1, 5BG 4/1)) COARSE TUFF and MIOCENE FINE TUFF occur interbedded in thin to medium beds in this core. The coarse tuff beds have sharp bases and are massive and graded, fining-upwards into laminated fine tuff. Reverse grading occurs at the base of the coarse tuff beds. The beds are highly fractured and microfaulted throughout. The fractures are filled with ash to form sedimentary dikes in 1 ..... and microlautice of the analysis of the analysis are and the analysis of the fractures and faults in the fine tult places, others are filled with a white mineral. Many of the fractures and faults in the fine tult beds appear to have formed very soon after deposition. The tufts are dominantly vitric with some plagioclase crystals and opaque minerals. These beds are interpreted as a sequence of turbidites of reduposited volcanic ash material. MIDDLE NN5 SMEAR SLIDE SUMMARY (%): 1 2 2, 116 LOWER D 2 /-3.45 VC=21 - 9-33.2 TEXTURE: Ħ Sand 80 Silt 20 COMPOSITION: •C/M Glass 75 Opaques 5 10 Plagioclase Rock fragment 10

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TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTI	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTUR	SED. STRUCTURE	SAMPLES	LITHOLOGIC DESCRIPTION	5- 10- 15-	
LOWER - MIUULE MIUULINE		NN3 NN5 C/Met					• \$ 2.21 7 = 163 V-3.39 • \$ 2.17 7 2.64 V-3.38		2	0.5	V01D	XX/// ///// //////	X X XX		LAPILLISTONE, coarse tuff, fine tuff, claystone and siltstone Major lithology: Massive, dark greenish gray (5BG 4/1) LAPILLISTONE occurs from Section 1, 66 m to the bottom of the core. It is composed of lithic clasts of plagioclase-clinopyrox- ene phyric andesite, andesite with a brown glassy groundmass, and plagicclase-clinopyrox- ene phyric andesite, andesite with a brown glassy groundmass, and plagicclase-clinopyrox- ene phyric andesite, andesite with a brown glassy groundmass, and plagicclase-clinopyrox- ene phyric andesite, andesite with a brown glassy groundmass, and plagicclase-clinopyrox- ene phyric andesite, andesite with a brown glassy groundmass, and plagicclase-clinopyrox- endesito bassil. The clasts are up to 15 mm in diameter. The finer material includes crystals of altered olivine and pyroxene. The larger clasts are generally vesicular. There are no evident depositional structures, but the unsorted, massive character of the sediments suggests mass-flow deposition. Fractures filled with a white mineral occur in the upper part of Section 2. Minor lithologies: a. Coarse tuff overlain by fine tuff occur above the massive lapillistone in Section 1. These beds are also fractured and veined by a white mineral. b. Greenish gray (SGY 6/1) claystone and light greenish gray to pale yellow (10Y 6/1, SY 7/ 3) sitstone occur in the dnilling breccia at the top of Section 1.	20 25 30 35 40 45 50 55 60 65 70	



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FORAMINIFERS	NANNOF OSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION	
						49 7-2, 61 9-2, 21 2		1	0.5		XX///			LAPILLISTONE Major lithology: Massive, poorly sorted LAPILLISTONE occurs throughout this core. There are no structures to indicate bedding. The grains are mostly 1-5 mm in diameter, with common larger clasts of highly vesicular volcanic rock up to 8 cm in diameter. The lapilis- tone is dark grayish green (7.5G 3/1, 3/2) when wet. The lapilistone is composed of lithic clasts of plagioclase-cinopyroxene phyric andesite, andesite with a brown glassy ground- mass, and plagioclase-pyroxene andesitic basalt: other grains include crystals of pyroxene and sulfides. Native copper occurs as line grains in Section 1, 65-100 cm. There are fractures present in Section 4, 15-60 cm. These sediments were deposited as mass-flows of	
						13 7=2.55 V=3.39 V=3		2			1111111			volcanic material. Drilling disturbance is slight except in Section 6, which is a breccia of volcanic material.	
						V=3.23		3	and and and and		111111				
						7 • \$ 37.6 WC=22		4			11/1/1/	XXX	0		
						D=30.7 WC=16 V-3.4		5			111111				
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LOSTINII, LARACTER LOSTINII, LARACTER KWMOCOSSIL CANADOL CONTACT LARACTER LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LOSTINII LESS LESS LOSTINII LESS LOSTINII LESS LESS LOSTINII LESS LESS LOSTINII LESS LOSTINII LESS LESS LOSTINII LESS LESS LOSTINII LESS LESS LOSTINII LESS LESS LOSTINII LESS LESS LOSTINII LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS LESS		FORAMINIFERS A MANWOOOSSILS MANWOOOSSILS RADIOLARIANS PL-2017 WC-16 V-2.47 P-2.63 V-3.23 P-2.65 V-3.39 V-3.49 V-2.61 P-2.11 P-2.69 V-3.23 P-2.61 P-2.11 P-2.63 V-3.23 P-2.61 P-2.	PP-00.7 WC-16         V-0.47         P0.22.0         V-0.45         WC-20         V-0.40         P0.21.1         P1.1200017         P1.150012         P1.150012 <th p1.150012<="" td=""><td>Резол. WC-16         Историинтера         Резол. 2002 V-3.23         Резол. 2002 V-3.33         Резол. 2002 V-3.33</td><td>1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1</td><td></td><td>ВОЗИЦИТЕ ТОЛОВИ ВОЗО ИЛАТ ТОЛОВИ РАКОСИТЕТА ПОСО СОССА 1 10000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 1000000 1 100000 1 100000 1 100000 1 100000 1 100000 1 1000000 1 1000000 1 1000000 1 10000000 1 1000000000 1 10000000000</td><td>ВОЗИНИТАТ. 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WC-16         Историинтера         Резол. 2002 V-3.23         Резол. 2002 V-3.33         Резол. 2002 V-3.33</td> <td>1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1</td> <td></td> <td>ВОЗИЦИТЕ ТОЛОВИ ВОЗО ИЛАТ ТОЛОВИ РАКОСИТЕТА ПОСО СОССА 1 10000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 1000000 1 100000 1 100000 1 100000 1 100000 1 100000 1 1000000 1 1000000 1 1000000 1 10000000 1 1000000000 1 10000000000</td> <td>ВОЗИНИТАТ. 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WC-16         Историинтера         Резол. 2002 V-3.23         Резол. 2002 V-3.33         Резол. 2002 V-3.33	1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1		ВОЗИЦИТЕ ТОЛОВИ ВОЗО ИЛАТ ТОЛОВИ РАКОСИТЕТА ПОСО СОССА 1 10000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 100000 1 1000000 1 100000 1 100000 1 100000 1 100000 1 100000 1 1000000 1 1000000 1 1000000 1 10000000 1 1000000000 1 10000000000	ВОЗИНИТАТ. 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5	FOS	STR	CHA	RAC	TER		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
							, V-3 .64		1	0.5		11111	0		LAPILLISTONE Major lithology: Massive, poorly sorted LAPILLISTONE occurs throughout this core. There are no structures to indicate bedding. The grains are mostly 1-5 mm in diameter, with common larger, angular classt of highly vesicular volcanic rock up to 10 cm in diameter. There is a general lendency towards coarser sediments towards the bottom of the core. The lapillistone is dark grayish green (7.5G 3/1, 3/2) when wet. The lapillistone is composed of lithic clasts of plagioclase-clinopyroxene phyric andesile, andesile with a brown glassy.
									2	a management of the	V01D	11/1/1	× • •		groundmass, and plagloclase-pyroxene andesitic basalt: other grains include crystals of pyroxene and sullides. Native copper occurs as fine grains in Section 3. There are fracture: present in Section 2, 90-110 cm. These sediments were deposited as mass-flows of volcanic material. Drilling disturbance is slight.
							3 V=4 .03		з		Vold	11/1/1			
							• P=16.9 WC=8		4	and the form		1111	•		
							22.38 V-3.46		5		VAID	11/11	0		
							-0-20.8 N		6	1 million from		11/1/1			(cont.



	BI0 FOS	SSIL	CHA	RAC	E/ TER	50	ES					RB.	8		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
							42 V-3.31		7			11111			(cont.)
							D=22.4 WC=1		8			11/11	°X°		

771A-16R (cont.)	7	8
5-		
10-		
10 -		
20	194	
20-		- 60% -
20-	44.	
50-		197351 -
35-	公園	
40-		
45-	- 18 -	
50-		-
55-	and the second	
60	Sugar T	- 1991 -
65-		
70-	Saver Internet	
75-		
80-		_
_85-		- 88 E
.90-	General	- 1939 -
95-		
100-		1972
105-	and the second	
110-		
115-		
120-		
125-	the second	FF-
120		THE F
130		-
150-		
140-		
145-	alle	
150-	and the second	

**SITE 771** 

SITE 771 HO	LE A	co	RE 1	7R C0	RED	INT	ERVAL 284.8-294.4 mbsf	771A-17R 1 2	3	4 5	6	7
BIOSTRAT. ZONE/ FOSSIL CHARACT SIL SIL SIL SIL SIL SIL SIL SIL SIL SIL	AGNETICS PROPERTIES	TRY		GRAPHIC LITHOLOGY	NG DISTURB.	Sa S	LITHOLOGIC DESCRIPTION	5				
TIME- FORAMI NANNOF RADIOL DIATOM	PALEON	CHEMIS	METERS		DRILLI	SAMPLE	LAPILLISTONE	15				
	● 0.20.7 WC=18 V-3.52	2			1111111111	> 0	Major lithology: Massive, poorly sorted LAPILLISTONE occurs throughout this core. There are no structures to indicate bedding. The grains are mostly 1-10 mm in diameter, with common larger, angular clasts of highly vesicular volcanic rock up to 3 cm in diameter. There are some variations in the grain size of the lapilistone with a distinctly finer unit (maximum clasts size 5 mm) in Section 3, 33-70 cm, and a fining-upwards through Section 4, with maximum elasts size decreasing from 10 to 5 mm. The lapilistone is dark grayish green (7:56 31:32) when well. It is composed of lithic clasts of plagioclase-phyroxene phyric andesite, andesite with a brown glassy groundmass, and plagioclase-phyroxene andesitic basalt: other grains include crystals of pryxome, sulfides and native copper. There are fractures present in Section 4, 80-90 cm. These sediments were deposited as mass- flows of volcanic material. Drilling disturbance is slight.	20- 25- 30- 35- 40- 45- 50-				
	WC=10 V=3.47	3	ALL ALASSANTIN	<u>V010</u> V010	1 1111			55- 60- 65- 70-				
	€19.9 ₽=2.15	4		VOID	11111	<		75				
	-3.16	5		VOID	111111			95 100 105 110				のないであるというないで
	•0=3.21 WC=18	6		VOID	11111	•		115 120 125 130				
		7			111111	0		135- 140- 145- 150-				の一部で「「「「



SITE 771

-	BIO	STRA	CHA	RAC	TER		ES					88.	s		
TIME-ROCK UN	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETIC	PHYS. PROPERT	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTU	SED. STRUCTUR	SAMPLES	LITHOLOGIC DESCRIPTION
									7	and northern		11/1/1		0 0 0	
									8		4 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			0	
Ì															(con)



OBSERVER: SPA

WHERE SAMPLED: Lapillus within tuff

ROCK NAME: Highly plagioclase-clinopyroxene-olivine phyric basalt

GRAIN SIZE: Fine-grained

TEXTURE: Phyric, hypocrystalline

Vesicles	1	Even	0.2		Clay	Spherical
VESICLES/ CAVITIES	PERCENT	LOCATIO	SIZE N (mm)		FILLING	SHAPE
Zeolites	trace	Glass				
Clays	9	Plagioo	lase - gl	385		
Clay	4	Olivine			Reddish iddin	gsite replaced by green clays.
MINERALOGY	PERCENT	FILL	ING			COMMENTS
SECONDARY		REPL	ACING/			
Glass					2253260	pyroxene microlites dusted with opaques with interposed partly altered glass (clear).
GROUNDMASS Plag + Cpx +	70	76	N/A		N/A	Hypocrystalline aggregate of plag and
Clinopyroxene	4	4	2.0-0.3		Euhedral, prism	
	12220	012 2				glomerophyric insets.
Plagioclase	13	15	1.5-0.2		Lath	Rich with alass inclusions, coarse
PHENOCRYSTS	0	4	1.0-0.2		Fubedral, arain	Altered to clavs.
WINERALOGY	PRESENT	ORIGINAL	(mm)	SITION	MORPHOLOGY	COMMENTS
- REIMART	PERCENT	PERCENT	SILL	COMPO-		

124-771A-17R-02 (Piece 1, 108-110 cm) OBSERVER: SPA WHERE SAMPLED: Lapillus

ROCK NAME: Highly plagioclase-clinopyroxene-olivine phyric basalt

GRAIN SIZE: Fine-grained

.

TEXTURE: Phyric, hypocrystalline

Vesicles	20	Even	2.0-0.2	2	Qtz., clay, zeolite	Spherical, Lined by thin festoons lobate of clays or fibrous zeolite.
VESICLES/ CAVITIES	PERCENT	LOCATIO	SIZE N (mm)		FILLING	SHAPE COMMENTS
Apophillite	6	Vesicle	3			
Gristobalite(?)	2	Vesicle	5		Rosettes.	
K-Telaspar	2	Plagioc	lase			
Clays	4	Olivine			Mesh texture.	
Clays	2	Vesicle	5		Similar to cl	ays after glass.
Clays	38	Gloss,	plagioclas	e	Yellow-green,	very fine-grained.
MINERALOGY	PERCENT	FILL	ING			COMMENTS
SECONDARY	120220-010-000	REPL	ACING/			
		1450 U				plag.
Mesostasis	18	54 1	N/A		N/A	Hypohyaline: Glass + skeletal cpx +
Clinopyroxene	2	2	0.2-0.02		Prism	riven, rerery carmies.
GROUNDMASS	8	8	0 2-0 01		Lath	Fresh rozely twinned
Clinopyroxene	2	2	0.3-0.2	Augite	Euhedral prism	Isolated micro-phenocrysts.
Fidgiocidse	10	20	2.0-0.2	Labradorite -	Euhedral lath	Altered at core, twinned.
Olivine	0	4	1.0-0.3		Euhedral prism	Completely altered.
DUCKOONCTO						
MINERALOGY	PRESENT	ORIGINAL	(mm)	SITION	MORPHOLOGY	COMMENTS
I ILLING HALF	1 LIIOLIII	FERGENI	SIZE	COMPO-		

COMMENTS: Isolated phenocrysts of plagioclase, orthopyroxene, and clinopyroxene. Groundmass mostly consisting of glass and quench pyroxene, with plagioclase and clinopyroxene microlites. Glass altered to clays. (NO PIECE OR UNIT NUMBER GIVEN).

## **SITE 771**

124-771A-18R-03 (Piece 1, 31-33 cm) OBSERVER: SPA

WHERE SAMPLED: 0.8 x 3.0 cm lopillus

ROCK NAME: Highly plagioclase-clinopyroxene phyric basalt

GRAIN SIZE: Fine-grained

TEXTURE: Phyric, hyalopilitic-fluidal

CAVITIES Vesicles	PERCENT Ø	LOCATIO	SIZE DN (mm)		FILLING	SHAPE
					or drige ite	
Clavs	3	Oliving			Orange is	idingsite replaced by green smectite.
Clays	15	Glass			Olive gre	en smectite.
MINERALOGY	PERCENT	FIL	LING			COMMENTS
SECONDARY		REPI	LACING/			
Mesostasis	45	60	N/A		N/A	Devitrified glass, altered, fractured.
Opaques	1	1	0.05-0.02		N/A	Partly hematitized magnetite.
Clinopyroxene	4	4	0.1-0.01		Euhedral-pris	im i
Plagioclase	10	10	0.3-0.02		Euhedral-lath	1
GROUNDMASS						
Clinopyroxene	3	3	0.8-0.1	Augite	Euhedral pris	im .
Plagioclase	10	12	1.5-0.3	An60-65	Lath	
Olivine	0	trace	0.3		Subhedral gro	ins Replaced by iddingsite/clay.
PHENOCRYSTS						
MINERALOGY	PRESENT	ORIGINAL	_ (mm)	SITION	MORPHOLOGY	COMMENTS
PRIMARY	PERCENT	PERCENT	SIZE	COMPO-		

COMMENTS: The described rock is the dominant lithology among lapilli. Texture is hypohyaline with moderate fluidal arrangement of plagioclase phenocrysts and groundmasss microlites. Glass shows spherical non-concentric perlitic cracks, along which clay alteration develops. (NO UNIT OR PIECE NUMBER GIVEN).

124-771A-18R-03 (Piece 1, 129-132 cm) OBSERVER: SPA WHERE SAMPLED: Clast of lapillistone

ROCK NAME: Moderately olivine-clinopyroxene phyric basalt

GRAIN SIZE: Fine-grained

TEXTURE: Phyric, intersertal-pilotaxitic

VESICLES/ CAVITIES Vesicles	PERCENT 5	LOCATIC Irregul	SIZE N (mm) ar 10-0.2		FILLING Clay, zeolite	SHAPE Spherical, lobate, pipe(coars e
Zeolites	5	Vesicle	s, plagio	clase		
Clays	20	Mesosta	sis e olivie	2		
MINERALOGY	PERCENT	FILL	ING			COMMENTS
SECONDARY		REPL	ACING/			
Magnetite	3	3	0.04-0.01		Euhedral grains	attraction magnetices
M020210212	28	48	N/A		N/A	clinopyroxene, magnetite.
Ulivine	0	3	0.1-0.03		Subhedral grains	
Clinopyroxene	10	10	0.1-0.01		Subhedral prism	
GROUNDMASS Plagioclase	27	30	0.4-0.1	An65–55	Lath	
Clinopyroxene	2	2	1.0-0.5		N/A	
PHENOCRYSTS Olivine	0	2	0.6-0.2		N/A	Altered to iddingsite.
MINERALOGY	PRESENT	ORIGINAL	(mm)	SITION	MORPHOLOGY	COMMENTS
PRIMARY	PERCENT	PERCENT	SIZE	COMPO-		

COMMENTS: This sample comes from a coarse lapillus. There is evidence that the rock chilled after fragmentation and degassing: Texture changes rather abruptly from intersertal to hyalopilitic (both fluidal) around pipe-shaped amygdules and at margins at the contact with fine lapilli - two-stage vesiculation evident. (NO UNIT OR PIECE NUMBER GIVEN). 124-771A-18R-07 (Piece 1, 57-59 cm)

OBSERVER: SPA

WHERE SAMPLED: Lopillus

ROCK NAME: Plagioclase-clinopyroxene-olivine phyric basalt

GRAIN SIZE:

TEXTURE: Phyric, hypocrystalline, amygdaloidal

PRIMARY	PERCENT	PERCENT	SIZE	COMPO-		
MINERALOGY	PRESENT	ORIGINAL	. (mm)	SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	3	0.2-0.1		Euhedral-prism	Replaced by serpentine and clays.
Plagioclase	25	25	2.0-0.2	Bytownite - Labradorite	Euhedral lath	> An65, Glass & devitrified melt inclusion.
Clinopyroxene	2	N/A	3.0-0.2	Augite	Euhedral-subhedra prism	Inclusions of opx, olivine, plag, magnetite glass.
Spinel	trace	N/A	0.2-0.4	Magnetite	Euhedral grains	
GROUNDMASS						
Mesostasis	30	50	N/A		N/A	Plagioclase + clinopyroxene + magnetite
						+ glass.
SECONDARY		REPL	ACING/			
MINERALOGY	PERCENT	FILL	ING			COMMENTS
Clays	1	Olivine	•		Similar to cl	lays from glass and within amygdules.
Clays	38	Vesicle	s, glass		Pale brown-ar	reen, optically (+) and (-).
Serpentine(?)	2	Olivine			Pleochroic or	range to yellow green, optically (-).
Chalcedony(?)	2	Vesicle	8			
VESICLES/			SIZE			
CAVITIES	PERCENT	LOCATIO	ON (mm)		FILLING	SHAPE COMMENTS
Vesicles	30	Even	3.0-0.	15	Clays, Qtz.	Spherical. Filling arranged in pipe concentric layers.

COMMENTS: Graded porphyritic texture, hypocrystalline groundmass with partly fresh glass. Melt inclusions (brown, fresh or devitrified glass) within plagioclase and clinopyroxene phenocrysts common. Orthopyroxene included within clinopyroxene phenocrysts is optically bronzite. (NO UNIT OR PIECE NUMBER GIVEN).

124-771A-18R-07 (Piece 1, 120-124 cm) OBSERVER: SPA

WHERE SAMPLED: Lapillus

ROCK NAME: Highly plagioclase-clinopyroxene-olivine phyric basalt

GRAIN SIZE: Fine-grained

TEXTURE: Phyric, hypocrystalline

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT	SIZE L (mm)	COMPO- SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	3	1.0-0.3		Euhedral/subhedral	Altered to clays.
Plagioclase	30	30	1.2-0.3		Euhedral lath	Fresh, inclusion-free.
Clinopyroxene	5	5	1.0-0.2	Augite	Euhedral-prism	
Spinel	trace	trace	0.1	Magnetite	Euhedral-grains	
GROUNDMASS						
Mesostasis	30	60	N/A		N/A	Hypocrystalline, composed of plag + cpx + magnetite + glass (oxidized and altered to clays)/
SECONDARY		REPI	LACING/			
MINERALOGY	PERCENT	FIL	LING			COMMENTS
Clays	32	Glass	73 CA ( 75 A			
Clays	3	Olivine				
Zeolites	1	Vesicle				
VESICLES/			SIZE			
CAVITIES	PERCENT	LOCATIO	(mm) NC		FILLING	SHAPE COMMENTS
Vesicles	7	Even	1.2-0.3	3	Clays	Spherical, Lobate outlines related elliptical to lining with clays.

COMMENTS: Less than 1% plagioclase phenocrysts contain melt inclusions. Glomerophyric aggregates plus or minus plagioclase. Marked variations in texture (decreasing content of plagioclase microphenocrysts and increasing skeletal pyroxene) toward vesicles. (NO UNIT OR PIECE NUMBER GIVEN). 124-771A-18R-07 (Piece 1, 142-144 cm) OBSERVER: SPA

WHERE SAMPLED: Lapillus

ROCK NAME: Highly plagioclase-olivine-pyroxene phyric basalt

GRAIN SIZE: Fine-grained

TEXTURE: Phyric hyalopilitic/pilotaxitic

PRIMARY	PERCENT	PERCENT	SIZE	COMPO-			
MINERALOGY	PRESENT	ORIGINA	L (mm)	SITION	k	ORPHOLOGY	COMMENTS
PHENOCRYSTS							
Olivine	trace	5	1.0-0.15		Eu	hedral-grains	Pseudomorphosed by iddingsite.
Plagioclase	30	30	3.0-0.2	An65-55	Lo	ath	
Clinopyroxene	4	4	3.0-0.2	Augite	Su	ubhedral-prism	
Spinel	trace	trace	0.5-0.05	Magnetite	Eu	uhedral-grains	
Orthopyroxene	1	1	.03-0.2	Hyperstheme	Su	ubhedral, anhedral	Intergrown with olivine.
GROUNDMASS							
Mesostasis	58	58	N/A		N	A	Glass plus
			5K				plagioclase-clinopyroxene-magnetite
							microlites and crystallites.
SECONDARY		REP	LACING/				
MINERALOGY	PERCENT	FIL	LING				COMMENTS
Clays	1	Vesicl	es				
Clays	5	Olivin	e			Orange yellow o	ptically (+) iddingsite.
Zeolites	1	Vesicl	05				
VESICLES/			SIZE				
CAVITIES	PERCENT	LOCATI	ON (mm)		FILLING		SHAPE
Vesicles	2	Even	0.7		Clay		

COMMENTS: Thin (0.02 mm thick) veins filled with clays and zeolite. (NO UNIT OR PIECE NUMBER GIVEN).

124-771A-18R-08 (Piece 1, 21-23 cm) OBSERVER: SPA

WHERE SAMPLED:

ROCK NAME: Highly plagioclase-olivine phyric basalt

GRAIN SIZE: Fine-grained

TEXTURE: Phyric-hyalopilitic/pilotaxitic

PRIMARY	PERCENT	PERCENT	SIZE	COMPO-		
MINERALOGY	PRESENT	ORIGINAL	(mm)	SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	3	1.5-0.3		Euhedral-prism	Isolated or glomerophyric.
Plagioclase	15	15	2.0-0.3	Labradorite-Bytownit	Lath	Oscillatory zoning.
Clinopyroxene	1	1	0.5-0.3		Subhedrol-prism	Glomerophyric.
Spinel	trace	trace	0.2	Magnetite	Euhedral	
GROUNDMASS						
Plagioclase	30	30	0.3-0.02		N/A	
Olivine	trace	10	0.3-0.02		N/A	
Clinopyroxene	10	10	0.3-0.02		N/A	
Mesostasis	12	22	N/A		N/A	Incipiently devitrified and altered glass with clinopyroxene and magnetite microlites and crystallites
Spinel	4	4	0.03-0.015		N/A	
SECONDARY		REPL	ACING/			
MINERALOGY	PERCENT	FILL	ING			COMMENTS
Clays	10	Olivine			Orange brown "	iddingsite"
Clays	13				Greenish, brow	nish replacing glass and iddingsite.
Zeolites	3	Vesicle	5			
Clays	2	Vesicle	5		Lining vesicle	5.
VESICLES/			SIZE			
CAVITIES	PERCENT	LOCATIO	N (mm)	FILL	ING	SHAPE
Vesicles	8	Irregul	or 0.05-30	x30 Clay,	zeolite	Spherical- lobate,
						pipe

COMMENTS: (NO UNIT OR PIECE NUMBER GIVEN).