SITE	1021	HOLE	А	CORE	1⊦

	SIT	TE 1021	НС	DLE	A COR	RE	1H		CORED 0.0 - 9.5 mbsf	
GRAPE density (g/cm <sup>3</sup> )	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description	
- And	1 3 4 5 6 7		1 2 3 4 5	Quaternary		00	s	5Y 6/1 To 5GY 5/2	CLAY WITH NANNOFOSSILS Major Lithology: This core consists of gray to greenish gray (5Y 6/1 to 5GY 5/2) CLAY WITH NANNOFOSSILS. Thin dark green and black color banding, mottling, and reduction haloes occur throughout. Fine-grained pyrite is disseminated throughout the sediment. General Description: The sediment is moderately bioturbated.	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	8 - - - - - - - - - - - - - - - - - - -		6 7 CC		^ <sup>3</sup>		S	5Y 6/1 To 5GY 5/1		

1.4 1.6 1.8



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SITE 1021 HOLE B CORE 1H CORED 0.0 - 8.0 mbsf Sample Disturb GRAPE Magnetic Color Graphic Reflectance Mete suscept. ₽ġ. Description density Structure (%) (450–500 nm Lith. (10<sup>-6</sup> SI) (g/cm<sup>3</sup>) 10YR CLAY S 4/3 Major Lithology: }} This core consists of CLAY. In Section 1, 44 cm, a strong color change occurs }} }} from reddish brown to dark yellowish brown (5YR 3/4 to 10YR 4/3) above to pale olive to light grayish olive (10Y 6/1 to 10Y 5/1) below. The uppermost }} 3 }} 33 10Y 33 brownish interval contains about 10% organic debris. Burrow cavities are 6/1 33 2 33 often filled with a soupy, dark gray (N3) 33 mud throughout the core. 33 Minor Lithologies: Thin layers (<1 cm) of dark greenish gray (10Y 4/2) CLAY showing sharp . 33 Т 33 - 33 basal contacts are frequently 10Y - 33 intercallated throughout the main 5/1 Quatern lithology. General Description: The sediment is moderately bioturbated and often shows diagenetic haloes surrounding burrows. s }} Note: The photo for this core was }} taken before being scraped to preserve details in color and structural features. }} 10Y Is 6/1 To 33 }} 10Y **Ξ**<sup>™</sup> 5/1 \_ }} Ξ× 33 33 33 33 6 33

Μ

1 1.5 0 10 0 50 100

			Sľ	TE 1021	HC	)LE	B COR	E	2H		CORED 8.0 - 17.5 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
MMM			1		1		33 33 			10Y 5/1 To 10Y 6/1	CLAY, CLAY WITH NANNOFOSSILS and NANNOFOSSIL OOZE WITH CLAY AND FORAMINIFERS Major Lithologies: This core consists of alternations between light grayish olive to pale olive (10Y 5/1 to 10Y 6/1) CLAY, CLAY
www.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		2		2					10Y 6/1	WITH NANNOFOSSILS, and NANNOFOSSIL OOZE WITH CLAY AND FORAMINIFERS. Color changes are gradationally interbedded (10-50 cm scale) with lighter values reflecting increased carbonate content.
MM		$\langle \rangle$	- 4_		3					10Y 5/1 To 10Y 6/1	Minor Lithology: Thin layers (< 1cm) of dark greenish gray CLAY are frequently intercalated throughout the main lithologies. Section 4, 127-140 cm, contains a silty interval of CLAY WITH VOLCANIC GLASS.
howing			- 5		4	Quaternary			S		General Description: The sediment is moderately bioturbated and often shows diagenetic haloes surrounding burrows.
Manna	M.		6		5				s <sub>s</sub> d	10Y 6/1	Note: The photo for this core was taken before being scraped to preserve details in color and structural features.
			8						S	107	
			9		6		»» »» — »»			5/1 To 10Y 6/1	
$\sim$	}			14-5 74-5 74-5 74-5 74-5 74-5	7 CC		»» »»		М		

1.5 1.6 10 20 0 50 100

SITE 1021 HOLE B CORE 3H CORED 17.5 - 27.0 mbsf Sample -2 Meter Section GRAPE Magnetic Graphic Color Reflectance Age Structure density suscept. Description (%) (450–500 nm Lith. (10<sup>-6</sup> SI) (g/cm<sup>3</sup>) CLAY WITH NANNOFOSSILS 33  $\leq$ 33 Major Lithology: This core consists of light grayish olive to pale olive (10Y 5/1 to 10Y 6/1) CLAY WITH NANNOFOSSILS. Color changes are gradual and faintly mottled over the entire core. 333 33 10Y s 5/1 **\_** 33 \_\_\_\_ }}? 33 Minor Lithologies: Thin dark gray (N4) color bands and thin layers (<1 cm) of dark greenish gray (10Y 4/2) CLAY showing sharp MM - 33 33 . . . . . Ž 2 \_ 33 Ś basal contacts are frequent throughout the main lithology. 10Y 333 6/1 }}} }} s . . . . . . . . General Description: The sediment is moderately to heavily bioturbated and often shows reduction 3 haloes surrounding burrow structures. 3 . . . . . Note: The photo for this core was taken before being scraped to preserve details in color and 33 MMM Т 10Y Quaternary 33 5/1 M 33 A• structural features. s 33 33 33 33 10Y 6/1 33 }} }} <u>. . . . . . .</u> P 10Y 5/1 }} }} ₹ 5 ........ 10Y 6/1 10Y 5/1 . . . . . . 6 333 10Y 6/1 A 333 ŝŝ 33 Ž 33 10Y 5/1 33 - 33 Μ

CC

1.4 1.6 10 15 20 40 60

			SI	ΓE 1021	HC	LE	B COR	E	4H		CORED 27.0 - 36.5 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
	- mmmmmmmmmmm		- 1_ - 3_ - 4_ - 5_		1	Quaternary		>	S S I	10Y 6/1 10Y 6/1 10Y 6/1 10Y 5/1 10Y 6/1 10Y 5/1	NANNOFOSSIL CLAY MIXED SEDIMENT Major Lithology: This core consists of light grayish olive to light yellowish gray (10Y 5/1 to 10Y 7/1) NANNOFOSSIL CLAY MIXED SEDIMENT. Color change is gradual and faintly mottled by bioturbation. Lighter color values correspond to slightly increased nannofossil content. Minor Lithologies: Near the top of Section 6 are two thin layers of CLAYEY VITRIC ASH. Thin dark gray (N4) color bands and thin layers (<1 cm) of dark greenish gray (10Y 4/2) CLAY are frequent throughout the main lithology. General Description: The sediment is moderately bioturbated. Reduction haloes surrounding burrows are common in the middle part of the core.
	why my my -		6 7 8 9		5 6 7 CC				S	10Y 6/1 10Y 5/1 10Y 7/1 10Y 5/1 To 10Y 6/1	

1.4 1.6 10 15 0 50 100

			SIT	E 1021	HC	DLE	B COR	E	5H		CORED 36.5 - 46.0 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
John Marine -	- Anna Many Many Many Many Many -		1 2 3 		1 2 3 4 5 6 7	Quaternary - late Pliocene	→     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     →     → </td <td></td> <td>s s c</td> <td>10Y 5/1 10Y 6/1 10Y 5/1 10Y 5/1 10Y 6/1 10Y 5/1 10Y 7/1 10Y 7/1 10Y 7/1 10Y 5/1</td> <td>CLAY WITH NANNOFOSSILS and NANNOFOSSIL OOZE WITH CARBONATE GRAINS Major Lithologies: This core consists of alternations between light grayish olive (10Y 5/1) CLAY WITH NANNOFOSSILS and pale olive to light yellowish gray (10Y 6/1 to 10Y 7/1) NANNOFOSSIL OOZE WITH CARBONATE GRAINS. Color is slightly mottled by bioturbation and boundaries are gradational. Minor Lithology: Numerous thin, dark gray (N4) color bands occur throughout the main lithologies. Section 1, 24-26 cm, contains light brownish gray (5YR 6/1) ASH. In Section 3, two small (cm-size) DOLOMITE concretions occur. General Description: The sediment is heavily bioturbated. Many burrows show reduction haloes.</td>		s s c	10Y 5/1 10Y 6/1 10Y 5/1 10Y 5/1 10Y 6/1 10Y 5/1 10Y 7/1 10Y 7/1 10Y 7/1 10Y 5/1	CLAY WITH NANNOFOSSILS and NANNOFOSSIL OOZE WITH CARBONATE GRAINS Major Lithologies: This core consists of alternations between light grayish olive (10Y 5/1) CLAY WITH NANNOFOSSILS and pale olive to light yellowish gray (10Y 6/1 to 10Y 7/1) NANNOFOSSIL OOZE WITH CARBONATE GRAINS. Color is slightly mottled by bioturbation and boundaries are gradational. Minor Lithology: Numerous thin, dark gray (N4) color bands occur throughout the main lithologies. Section 1, 24-26 cm, contains light brownish gray (5YR 6/1) ASH. In Section 3, two small (cm-size) DOLOMITE concretions occur. General Description: The sediment is heavily bioturbated. Many burrows show reduction haloes.



			211	E 1021	нc	νLΕ	B COR		эп		CORED 46.0 - 55.5 MDST
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
	M. M				1 2 2 3 3 3 4 4 5 5 6 6 7 7 CCC	Quaternary - late Pliocene			S S M	10Y 6/1	CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS Major Lithology: This core consists of pale olive (10Y 6/1) CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS. Foraminifer content is about 10%. Dark gray (N3) and dark greenish gray (5GY 4/1) mottling occurs throughout. Minor Lithology: Several thin, faint dark gray and dark green color bands and stringers composed of CLAY occur throughout the core. General Description: The sediment is heavily bioturbated, often showing reduction haloes surrounding burrow structures.

1.4 1.6 10 15 0 20 40

			SIT	E 1021	HC	LE	B COR	E	7H		CORED 55.5 - 65.0 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					1		***	Ŵ		10Y 6/1	NANNOFOSSIL OOZE WITH CLAY AND FORAMINIFERS and CLAY WITH FORAMINFERS AND NANNOFOSSILS
www.	A A A A A A A A A A A A A A A A A A A	Z							S	10Y 7/1	Major Lithologies: This core consists of light yellowish gray to light grayish olive (10Y 7/1 to 10Y 5/1) NANNOFOSSIL OOZE WITH CLAY AND FOR ANNUFERS and
	MMM		3 3		2				S	10Y	CLAY WITH FORAMINE ICS and NANNOFOSSILS. Diatoms are also present in minor amounts (5%-10%). Color and composition changes gradationally with slightly darker color values reflecting increased day
	MMM		4		3					6/1 To 10Y 5/1	content. Also mottled throughout the main lithologies are small spots of dark gray and dark green colors.
		Ş				iocene	***********************************				Thin dark gray (N4) color bands and thin layers (<1 cm) of dark greenish gray (10Y 4/2) CLAY are frequently interrelated throughout the order
	M	$\left\{ \right\}$	, , , , , ,		4	late PI	-A			10Y 6/1	Section 4, 67-74 cm, contains a light gray (N4) ASH.
	A A A A A A A A A A A A A A A A A A A		6				≫		D	10Y 6/1 To 10Y 5/1	The sediment is moderately to heavily bioturbated. Many burrow structures show diagenetic haloes.
		}	7		5		—			10Y 7/1	
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	8		6		****		S	10Y 6/1 10Y 7/1	
			9		7					10Y 6/1 To 10Y	
٢		Ì	<u>10</u>		СС			1	м	5/1	

1.4 1.6 10 15 0 10 20

			Sľ	TE 1021	HC	)LE	B COR	E	8H		CORED 65.0 - 74.5 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450-500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)		Graphic Lith.		late Pliocene Age	Structure	- WWW WWWWWWWW WW 00000000	cs Sampl	10Y 5/1 10Y 5/1 10Y 5/1 10Y 7/1	Description CLAY NANNOFOSSIL MIXED SEDIMENT WITH DIATOMS Major Lithology: This core consists of light grayish olive (10Y 5/1) CLAY NANNOFOSSIL MIXED SEDIMENT WITH DIATOMS. Black streaks and redox haloes of unidentified fine opaque mineral (Mn oxide?) are common. The core is generally mottled throughout. Minor Lithologies: The core contains 2 medium beds of pale olive (10Y 6/1) to light yellowish gray (10Y 7/1) NANNOFOSSIL OOZE and numerous individual laminations of greenish gray (7.5GY 4/2) CLAY. The greenish gray layers are probably altered ash. General Description: The core is evenly mottled throughout, with small amounts of distinct bioturbation.
	www.www.www.		7 8 9						D	10Y 5/1	
			10				,	ľ	S M		

1 1.5 10 15 0 20 40

			SIT	E 1021	HC	LE	в со	RE	g	ЭН		CORED 74.5 - 84.0 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structur	Disturb	LISIUID	Sample	Color	Description
	- ~~~~				1				3	s	10Y 7/1	CLAY WITH DIATOMS and CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			1 2 3		2		 ∭			D	5GY 6/1	Major Lithologies: This core consists of greenish gray (5GY 6/1) CLAY WITH DIATOMS and pale olive (10Y 6/1), light yellowish gray (10Y 7/1) or light gray (N7) CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS. Thin beds and laminations of greenish gray clay are scattered throughout, as are dark gray laminations with abundant opaques.
werthan we		}	4		3						N7	General Description: The sediments are slightly to moderately bioturbated and mottled. Zoophycos are present in the lower half of the core.
Mar Marina	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				4	late Pliocene				I	5GY 6/1	
			<b>]</b>		5		 			S	10Y	
m Martin					6			                 		S	6/1 5GY 6/1 10Y 6/1	•
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			9 10		7				***	D M	5GY 6/1	

1.5 1.6 0 10 0 20 40

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			211		ПC	νLE	B COR	E	TUH		CORED 84.0 - 93.5 MDSI
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
			2 		1 2 3	eu		M M M M M M M M M M M M	s s s	5GY 5/1 5Y 5/1 5Y 7/1 5GY 5/1 5Y 7/1 5Y 6/1	CLAY NANNOFOSSIL MIXED SEDIMENT and NANNOFOSSIL OOZE WITH CLAY Major Lithologies: This core consists of greenish gray (5GY 5/1) to gray (10Y 5/1) CLAY NANNOFOSSIL MIXED SEDIMENT and light gray (5Y 6/1 to 5Y 7/1 to N7) NANNOFOSSIL OOZE WITH CLAY. Thin dark beds and laminations are present in Sections 1, 2, and 7, and contain ~4% opaques (Mn oxides?). Individual greenish gray clay laminations are present in Section 6. General Description: This core is badly disturbed by flow-in in Sections 3, 4, and 5. Slight bioturbation and mottling is evident in the rest of the core.
			5		4	late Plioce		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		5Y 5/1	
mar and a second			8		5 6 7			MMMM M		5/1 5/1 5/1 5/1 5/1 5/1 5/1 5/1 5/1 8/1 N7 5GY	

1.4 1.6 0 20 0 10 20

			SIT	E 1021	HC	LE	в	COR	Е	11H		CORED 93.5 - 103.0 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Struc	ture	Disturb	Sample	Color	Description
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\left\{ \right\}$				1				M		5GY 5/1	NANNOFOSSIL CLAY, CLAYEY NANNOFOSSIL MIXED SEDIMENT and NANNOFOSSIL OOZE
			2 3 4		2	ene				S	5GY 6/1	Major Lithologies: This core consists of greenish gray (5GY 5/1 to 5GY 6/1) to gray (5Y 6/1) NANNOFOSSIL CLAY to CLAYEY NANNOFOSSIL MIXED SEDIMENT, and light greenish gray (5GY 7/1) to light gray (5Y 7/1) NANNOFOSSIL OQZE. The sediment is mottled and displays numerous redox haloes around burrows. General Description: The sediment is slightly bioturbated and mottled to heavily bioturbated. Zoophycos are common in the lower half of the core.
			5 		4	late Plio		<i>&gt;&gt;&gt;</i>		S	5GY 7/1	
{		Ì	- - - 7		5		33 333 333	3			5GY 6/1	
}		<					333 333				5GY 7/1	
			8		6		***	° ≫ ? ≫			5GY 6/1 5Y 7/1	
ł		Ţ	9		7		****		/		5Y 6/1	
$\leq$		<i>≼</i>			ćc		3		$\sim$	М	5Y 7/1	

1 1.5 0 20 0 10 20

			SII	E 1021	HC	νLΕ	B COR	E	12H		CORED 103.0 - 112.5 mbst
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
Munun			1 1 3		2			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	S	5GY 5/1 5G 7/1 5G 4/1 5G 7/1 5G 6/1 5G	NANNOFOSSIL OOZE WITH CLAY and CLAY WITH NANNOFOSSILS Major Lithologies: This core consists of sediments ranging from light gray (5Y 7/1) to light greenish gray (5G 7/1) NANNOFOSSIL OOZE WITH CLAY to dark greenish gray (5GY 4/1) to dark gray (5Y 4/1) CLAY WITH NANNOFOSSILS. The core is mottled with black redox patches and haloes. Minor Lithologies: Individual laminations of green CLAY are intercalated throughout
			4 5 6		3	early Pliocene - late Pliocene	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		1	5G 5/1 5GY 5/1	General Description: The core is generally mottled to slightly bioturbated. Section 1 and 2 are more intensely burrowed. Zoophycos are common.
					5		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		S	5GY 4/1	
			9 10		7 CC		■ 333 >>>> 333 >>>> 33		D	5Y 4/1 5GY 4/1	

1.4 1.6 0 20 0 20 40

SITE	
102	

			SI	ΓE 1021	HC	DLE	B C	OR	E	13H		CORED 112.5 - 122.0 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structu	ure	Disturb	Sample	Color	Description
			1		1		3 3 3		w		5GY 5/1	CLAY and CLAYEY NANNOFOSSIL OOZE Major Lithologies: This core consists mostly of greenish
			2		2					S	5G 6/1 5GY 5/1	gray (5GY 5/1) CLAY that is mottled with reduction haloes, patches, and laminae. Greenish gray (5G 6/1) CLAYEY NANNOFOSSIL OOZE is less common and a little lighter in color. A 2 cm-diameter pyrite
			3		2		3				5G 6/1	concretion is located in Section 6. General Description: This core is mottled and slightly bioturbated. Mm-scale black laminations are well developed in
			4		3	ite Pliocene	3	>>> >>>>		S		several places in this core. They do not appear to be primary features, but are probably diagenetic self- organization patterns.
			5		4	Iy Pliocene -la						7.
			6		5	ear	3			S	5GY 5/1	
			7		· · ·		3	~~~~				
			9		6			P		Ľ		
-	5				7 CC		>		M	м		

1 1.5 0 20 10 20 30

			Sľ	TE 1021	HC	)LE	B COR	Е	14H		CORED 122.0 - 131.5 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		from	- - 1		1			wwwwwww		5GY 4/1	CLAY and NANNOFOSSIL CLAY Major Lithologies: This core consists of dark greenish gray (5GY 4/1) to greenish gray (5G 5/1) CLAY and greenish gray 5GY 5/1) to light greenish gray (5G 6/1) NANNOFOSSIL CLAY Bedratics
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	2 3 4		2		— —		S	5G 5/1	MANNOFOSSIL CLAF. Reduction mottles are common. General Description: The core is mostly homogeneous to mottled.
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	5		4	early Pliocene	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	/\ht	S	5GY 5/1	
			- - 7		5					5G 6/1	
			8		6		≣ }			5GY 5/1	
15			20		7 60		<u> </u>		S M		

CORED 131.5 - 141.0 mbsf SITE 1021 HOLE B CORE 15H Sample Meter Section GRAPE Magnetic Graphic Color Reflectance Age Structure density suscept. Description (%) (450–500 nm) Lith. (g/cm<sup>3</sup>) (10<sup>-6</sup> SI) CLAY WITH DIATOMS 333 5GY 333 333 \$ 2020 6/1 Major Lithology: This core consists of greenish gray (5GY 5/1 to 5GY 6/1) CLAY WITH DIATOMS. Color is mottled 5GY 5/1  $\gg$ 202424242424 5GY 6/1 throughtout the core and diagenetic haloes are common. 5GY Minor Lithologies: 5/1 A layer of WOOD occurs in Section 3, 89-91 cm. Dark gray to black pyrite is found filling some of the pore space in }} }} }} 8.34<u>.41.414</u> 2  $\gg$  $\gg$ 5GY 6/1 the wood.  $\leq$  $\gg$ General Description: The sediment is heavily bioturbated. Zoophycos are common. 5GY 2424242424  $\leq$ 5/1 333 333 3 's s **-**}}} Ø 5GY 6/1 (2)(2)(2)(2)(2)(2) 333 333 I. early Pliocene 33 5GY 5/1 3 1224242424 333 4 5GY 6/1 04040404040 5GY 5/1 5GY 6/1 5 s 3 Ş (4)(4)(4)(4)(4) 5GY 5/1 }} }} 5GY 6/1 6 5GY 5/1 5GY 6/1 2022020

33 >>>>

cc

5GY 5/1

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1.4 1.6 5 10 0 10 20

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1204

			SIT	E 1021	HC	DLE	B COR	E	16H		CORED 141.0 - 150.5 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
show when we have a			1 2 3 4 6 7 7 7 8 8 9 9		1 2 3 4 5 6 7	early Pliocene		≫	S C S S M	5GY 5/1 To 5GY 6/1 5GY 6/1 5GY 6/1 10Y 8/1 10Y 8/1 5GY 5/1	CLAY WITH DIATOMS and NANNOFOSSIL OOZE WITH CLAY Major Lithologies: This core consists of greenish gray (SGY 5/1 to 5GY 6/1) CLAY WITH DIATOMS and white (10Y 8/1) NANNOFOSSIL OOZE WITH CLAY. Color is mottled throughout with dark gray diagenetic color bands and haloes. Minor Lithology: A thin (0.5 cm) black later of WOOD WITH PYRITE is found in Section 6, 65 cm. General Description: The sediment is heavily bioturbated with abundant Zoophycos and Planolites trace fossils.

1.4 1.6 0 20 0 10 20

		SIT	E 1021	HC	)LE	B C	OR	Εŕ	17H		CORED 150.5 - 160.0 mbsf
Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structu	ure	Disturb	Sample	Color	Description
		1 2 3 4 5		1 2 3 4	arly Pliocene				S	5GY 6/1 5GY 7/1 5GY 5/1 To 5GY 6/1 5GY 6/1 5GY 7/1 5GY 7/1	DIATOM CLAY and NANNOFOSSIL OOZE WITH CLAY Major Lithologies: This core consists of greenish gray (5GY 5/1 to 5GY 6/1) DIATOM CLAY interbedded with light greenish gray (5GY 7/1) NANNOFOSSIL OOZE WITH CLAY. Color changes are gradational and mottled. Numerous thin black to dark green diagenetic color bands occur throughout the core. General Description: The sediment is moderately to heavily bioturbated. Zoophycos trace fossils are abundant and cut across diagenetic haloes and color lamination.

	5		1	- 3	vv			33			5GY	DIATOM CLAY and NANNOFOSSIL
	$\mathbf{i}$	$\mathbf{i}$						}}	$\gg$		6/1	OOZE WITH CLAY
	{	$\langle \rangle$	5		192222	1		55			7/1	Major Lithologies:
	<pre></pre>		{	1	V.	1'		55	$\gg$			This core consists of greenish grav
	<	l		-	vv			55	$\gg$			(5GY 5/1 to 5GY 6/1) DIATOM CLAY
	ζ	1	}					55	$\gg$		5GY	interbedded with light greenish gray
		l			vv.	H		55	$\gg$		5/1	(5GY 7/1) NANNOFOSSIL OOZE
	ş	5	$\sum$						>>>			WITH CLAY. Color changes are
	2	{	\	2 <u>-</u>	v.v.				_ >>>		6/1	gradational and mottled. Numerous
	ş	(	l {		V.	2		55	Ś			color bands occur throughout the core
	)		5	-	v.v.			55	Ś			
	>	$\geq$	)		VV			55	Ś			General Description:
	Í			3 .	v.v.	Ш		55	5			The sediment is moderately to heavily
	2	\$	$\geq$		VV.				>>>			bioturbated. Zoophycos trace fossils
	5	$\langle \rangle$	]		v.v				>>>		5GY	are abundant and cut across
	< label{eq:starter}	5	) }		VVI	3		······ >>	, ///	S		
	}			4	v.v.			······ >>>	)			
	$\mathbf{i}$	$\square$						33	~~~	~	5GV	
		1	3				۵	33	/1>	5	7/1	
	$\leq$	<	4			·	en l	}}	>>>		5GY	
	5	$\leq$	Z	5	v v v v		<u>[0</u>	38	8		6/1	
	2	$\leq$					Ē				5GY	
	5		3			4	arl	S	$\gg$		7/1	
	Z	<			××		Ð					
	- A	$\leq$		6	v.v.			<u>                                     </u>	$\gg$			
	}	5		<u> </u>	vv-	Η		······ >>	-1		5GY	
	5	5	2		vv.			······ >>	~~~		6/1	
	}	)	3	-	vv			<b> −</b> <sub>≈</sub>	- 71> - V_1			
	>	$\geq$	}			5			> //		501	
	Ş	(	}	7_					>		5GY	
	Ź	2	$\leq$		v.v.				2			
	/	}		-		Н			2			
	}	4	Z		×.v			<b> —</b> 👸	2			
	}	3	>	8 .	vv.							
	8	2	5		vv	6		····· }}	8			
	>	3	$\geq$		vv.			\$5	~~~		501	
	ł	5	\$		vv-				- 71> - V_1		6/1	
	}	Ś	{	9	vv			······ 33	-//			
		ξ			vv.			33	$\gg$			
	$\langle \rangle$	1	1		v.v.	7		}}	~~~			
	5		1					33	//>			
				10	v.v	cc			/12 \\\\	м		
1	4 16 (	) 10 (	) 10 2	<u>1</u> 20	V.VI	100			/12	IVI		1
	(		10 2									

GRAPE

density (g/cm<sup>3</sup>)

			SIT	E 1021	HC	)LE	B COR	Е	18H		CORED 160.0 - 169.5 mbsf
GRAF densit (g/cm	PE y (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
					1 2 3 4 5 6 7	late Miocene -early Pliocene			I S S	5GY 5/1 5GY 6/1 5GY 5/1 10Y 4/2 5GY 5/1 To 5GY 6/1 5GY 5/1 5GY 6/1 5GY 6/1 5GY 6/1	CLAY WITH DIATOMS, NANNOFOSSIL OOZE WITH CLAY and DIATOM CLAY Major Lithologies: This core consists of light greenish gray (5GY 5/1) DIATOM CLAY, grayish olive (10Y 4/2) CLAY WITH DIATOMS, and light greenish gray (5GY 6/1) NANNOFOSSIL OOZE WITH CLAY. Color and compositional changes are gradual throughout the core and diagentic color banding is common. General Description: The sediment is heavily bioturbated. Zoophycos trace fossils are abundant and often cut across diagenetic color banding.
						_					

1 1.5 0 10 0 25 50

			SIT	FE 1021	HC	)LE	B COR	E	19X		CORED 169.5 - 175.4 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
hanne	- Martin Martin -		1 2 3 5 6 7		1 2 3 4	late Miocene -early Pliocene	→ → → → → → → → → → → → → → → → → → →		s s	5GY 5/1 5GY 6/1 5GY 6/1 5GY 6/1 5GY 6/1 5GY 6/1 5GY 6/1	CLAY WITH NANNOFOSSILS and DIATOM CLAY Major Lithologies: This core consists of greenish gray (5GY 5/1) DIATOM CLAY gradationally interbedded with lighter colored (5GY 6/1) CLAY WITH NANNOFOSSILS. Numerous thin black to dark green diagenetic color bands occur throughout the core. Minor Lithology: Section 3, 41-43 cm, contains a thin layer of gray VOLCANIC GLASS. General Description: The sediment is moderately bioturbated and Zoophycos trace fossils are common. Moderate fracturing of the sediment by coring operations makes observation of sedimentary structures difficult.

1.4 1.6 5 10 0 20 40

SITE 1021 HOLE B CORE 20X CORED 175.4 - 185.0 mbsf Structure District Section Meter Sample GRAPE Magnetic Graphic Color Reflectance Age density suscept. Description (%) (450–500 nm) Lith. . (10<sup>-6</sup> SI) (g/cm<sup>3</sup>) SW S CLAY WITH DIATOMS  $\leq$ 33 \* 33 - 33 - 33 S D Major Lithology: This core consists of greenish gray (5GY 5/1 to 5GY 6/1) CLAY WITH DIATOMS. Color is mottled by bioturbation and dark gray (N3) diagenetic haloes are common. Burrows are often filled with olive gray (5Y 5/2) sediment.  $\gg$ late Miocene 5GY 5/1 To 5GY 6/1  $\gg$ 2 cc M 1.4 1.5 0 10 15 10 20 General Description: The sediment is moderately bioturbated. Zoophycos are abundant.

1208



1 1.5 10 15 0 20 40







1 2 0 10 0 20 40

			SIT	E 1021	HO	LE	В	COR	Е 2	24X		CORED 214.0 - 223.6 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Stru	icture	Disturb	Sample	Color	Description
2 14			1 2 3 3 4 6 7 7 7 8 8 9 9		1 2 3 4 5 6 7 CC	late Miocene				S S M	5GY 6/1 5Y 5/2 5GY 6/1 5Y 5/2 10Y 7/1 To 10Y 6/1 5Y 5/4 10Y 5/2 5Y 5/4 10Y 5/2 5Y 5/4 5/4 5G 6/1 5Y 5/4 5GY 5/4	DIATOM OOZE, DIATOM NANNOFOSSIL OOZE and CLAY WITH DIATOMS Major Lithologies: This core consists of decimeter to meter alternations between olive (5Y 5/4) DIATOM OOZE, pale olive (10Y 6/1) to light yellowish gray (10Y 7/1) DIATOM NANNOFOSSIL OOZE, and gray (5Y 6/1) to greenish gray (5GY 6/1) CLAY WITH DIATOMS. All lithologies contain color mottling and diagenetic haloes that both obscure and enhance primary features. General Description: The sediments are fractured and plastically deformed between stiffer fragments. Overall, the core is slightly to moderately bioturbated (including Zoophycos) and burrows are modifed by diagenetic fronts.





			SIT	E 1021	HC	)LE	B COR	E	26X		CORED 233.2 - 242.8 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
4	'(	>	-					2		2.5Y	DIATOM CLAY MIXED SEDIMENT,
}	$ $ $\langle$ $ $	>	-		1			Ś		N6	WITH CLAY and NANNOFOSSIL
}		{	1				_			N8	Major Lithologies:
{		<pre>}</pre>	-		$\vdash$			$\leq$		N7	meter-scale alternations between
}		}	2					1		N4 5Y	DIATOM CLAY MIXED SEDIMENT
{	$ \zeta $	}			2			1		4/1	and white (5Y 8/2) to light gray (5Y 7/1 to N7) DIATOM NANNOFOSSIL
}		}	-					$\leq$		5Y 6/1	CHALK WITH CLAY or NANNOFOSSIL DIATOMITE WITH
Ş		ζ	<u>3 -</u>		$\vdash$			$\leq$	s	5Y	CLAY. Dark gray to black bands and arcuate haloes are generally
3		<pre>{</pre>	-				>	Ś		1/2	composed of mm-scale, Liesegang-
}		}	4 -		3	Je	> >>> >> >>	\^	S r		General Description: The core is badly fractured and
{	$\sum$					Miocer				5Y 8/2	plastically deformed by XCB coring. Distinct bioturbation is not common, however, redox mottling is pervasive
{	5	}	5		4	late		$\leq$		5Y 7/1	and influenced by true burrows.
}		}						$\leq$			
ζ	Ξ	ł	6 <u>-</u>		-			K			
$\leq$		\$						Ś		εV	
{		Į	7		5			Ś		7/2	
Ş		}		· · · · · · · · · · · · · · · · · · ·				$\geq$		5G	
{		}	-					$\geq$		5/1	
)		5	8 -					2	D	10Y 7/1	
$\rangle$	$\left  \right\rangle$	ſ	-		6			5		N4	
\ \		Ź	9 -					5	S	5GY 6/1	
]		)	-		7			Ś	м	5G 4/1	

1 1.5 0 20 -25 0 25

1214

			211	IE 1021	HC	LΕ	B COR	E.	21 X		CORED 242.8 - 252.4 MDSI
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10-6 SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
			- - - - - - - - - - - - - - - - - - -		1		<b>–</b> ®		S	N3 10Y 7/1 N6	CLAYSTONE WITH DIATOMS, CLAYEY DIATOMITE, NANNOFOSSIL DIATOMITE WITH CLAY and DIATOM NANNOFOSSIL CLAY MIXED SEDIMENT
		}	2							5Y 6/1 5G 5/1	Major Lithologies: This core consists of alternations among olive gray (5Y 5/2) to greenish gray (5GY 5/1)
			3		2		— 3 3 3			5GY 6/1	CLAYSTONE WITH DIATOMS, dark gray (N4) CLAYEY DIATOMITE, light olive gray (5Y 6/2) to greenish gray (5GY6/1) NANNOFOSSIL DIATOMITE WITH CLAY, and very
	$\int$	}					<b>—</b> 3	$\leq$		5G 5/1	light gray (10Y 7/1) DIATOM NANNOFOSSIL CLAY MIXED
	l {		4		3			$\leq$		5Y 6/2	mottled and banded with black, Mn- oxide (?), mm-scale Liesegang-
	5			*** ***		ocene			I	5G 5/1	rings, laminations and haloes. Some thin laminations and coatings of dark green clay occur.
	$\left  \right\rangle$	{	5 <u>-</u>		4	late Mi	_		S	5Y	Minor Lithologies: A thin layer of black PUMICE is present at the top of Section 1.
	$\left\{ \right\}$	{	6					$\leq$		6/2	General Description: The core is badly disturbed by
							_		S	5Y 5/2	fracturing and plastic flow. Mottling is extensive, but distinct bioturbation is rare.
		{	7		5						
	$\left\{ \right\}$		-						S	5G 5/1 To	
			8 -		6					5GY 5/1	
	5	$\left\{ \right.$	- 9 -				_	$\sum$			
		{			7 CC			$\leq$	М	N4 5Y 6/2	

1 1.5 0 20 0 100 200

GRAPE density (n/cm <sup>3</sup> ) (so concern) (n/cm <sup>3</sup> ) (so concern) (so concern) (n/cm <sup>3</sup> ) (so concern) (so concer	
0       0	ATOM CLAY NOFOSSIL and CLAY meter inish gray ATOMS, CLAYEY ay (5G 5/1) EDIMENT, INNOFOSSIL The cores d banded by s, typically lamination, ure column. INVITRIC esent in the d and CB coring. e, except in



1 1.5 

			SIT	E 1021	HO	LE	В	COR	E 3	30X		CORED 271.7 - 281.3 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Stru	cture	Disturb	Sample	Color	Description
1 5	$\left  \right\rangle $		-				3	P			5GY	CLAY and NANNOFOSSIL CHALK
	$\left  \begin{array}{c} \\ \\ \\ \\ \end{array} \right $		1		1		<u> </u>	© -A			5/1 To 5GY 6/1	Major Lithologies: In the upper part, this core consists of submeter scale alternations between greenish grav (5GY 5/1 to 5GY 6/1)
		ζ					3	>>>>	$\geq$		5GY 7/1	CLAY and light greenish gray (5GY 7/1 to 5GY 8/1) NANNOFOSSIL CHALK. No black Mn-oxides are
Ę	È	2	2		2		>		Ś		5GY	visible.
		}					3		$\geq$		5GY	Minor Lithology: A 1-cm thick gray VITRIC ASH layer is present in Section 1
		(	3 -				>		$\geq$		5GY	General Description:
$\left  \right\rangle$		{			3	ene			$\leq$		5GY 7/1	The sediments are homogeneous to heavily burrowed. Zoophycos and Chondrites are abundant. The core is
	7	Ş	4			Mioce	<b>—</b> }		$\leq$			severely disturbed by XCB coring and biscuits and interbiscuit slurry are
		2			$\square$	niddle	_		$\geq$	I	5GY 6/1	developed.
		>	5		4	sene -r	3	3 6	Ś		5GY	
5	5				7	e Mioc	3	;; >>> ;; >>> ;; >>>> ;; >>>>	Ś	S	8/1	
Ę			6			late			$\geq$		6/1 To	
		>					>	>> >>	$\geq$	S	5GY 5/1	
$\left  \right  $		5	7		5		3	» /// }} }}	Ś		5GY 7/1	
5	<u>}</u>	{		· · · · · · · · · · · · · · · · · · ·					Ś			
		}	8 -						$\geq$			
		$\langle \rangle$			6				$\geq$		5GY	
		$\left( \right)$	9 -						Ś			
<		~		a a a	7 CC				$\leq$	М		
1.4 1.6	0 20 0	100 2	00									

		SI	ΓE 1021	HC	DLE	B COR	E :	31X		CORED 281.3 - 290.9 mbsf
GRAPE density (g/cm <sup>3</sup> )	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		2 - - - - - - - - - - - - - - - - - - -		1	ene	A	$\times$ ++++++++++++++++++++++++++++++++++++	S	10GY 5/1 5GY 4/1	CLAYSTONE WITH DIATOMS Major Lithology: This core consists of grayish green (10GY 5/1) to dark greenish gray (5GY 4/1) CLAYSTONE WITH DIATOMS. Infrequent thin laminations of dark green clay occur within this sediment. Two sub-cm diameter, black Mn-oxide(?) concretions occur in Sections 3 and 4. Minor Lithology: A thin bed of brownish gray (5YR 4/1) VITRIC ASH occurs in Section 3. General Description: The core is moderately fractured and biscuited throughout. There is no detectable bioturbation.
		5 6 7 8 9		4 5 6 7 CC	middle Mioc			S M	10GY 5/1 5/1	

1 1.5 0 50 100

SITE 1021



1 1.5 0 20 0 20 40

			511	E 1021	нc	)LE	B COR	KE -	33X		CORED 300.5 - 310.2 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
					1 2 3 3 4 5 6 6	middle Miocene			s s s	5Y 4/1 5GY 7/1 10GY 7/0 N7 5G 6/1 To 5G 6/1 To 5G 5/1 N8 5G 5/1 N9 5G 5/1 N9 5G 5/1 N9 5G 5/1 N9 5G 5/1 N9 5G 5/1 N9 5G 5/1 N7 N7 7/1 N8 5G 6/1 7/1 N8 5G 5/1 8/1 N8 5G 5/1 8/1 N9 5G 5/1 7/1 N8 5G 5/1 8/1 N9 5G 5/1 8/1 N9 5G 5/1 7/1 N9 5G 5/1 8/1 N9 5G 5/1 8/1 N9 5G 5/1 8/1 N9 5G 5/1 8/1 N9 5G 5/1 8/1 N9 5G 5/1 8/1 N9 5G 5/1 8/1 N9 5G 5/1 8/1 N9 5 5G 5/1 8/1 N9 5 5 5 7 8/1 8/1 8/1 8/1 8/1 8/1 8/1 8/1 8/1 8/1	CLAYEY DIATOMITE, DIATOM NANNOFOSSIL CHALK and DIATOMITE WITH CLAY Major Lithologies: This core consists of interbedded greenish gray to light greenish gray (SG 5/1 to SG 7/1) CLAYEY DIATOMITE, dark gray to dark greenish gray (SY 4/1 to SGY 4/1) DIATOMITE WITH CLAY, and light gray to white (N7 to 5Y 8/1) DIATOM NANNOFOSSIL CHALK. Contacts between lithologies are gradationally mixed by bioturbation. Dark gray, green, and black diagenetic color laminations are abundant throughout the core. General Description: The sediment is variably bioturbated. Zoophycos and Chondrites trace fossils are common.



			SIT	E 1021	HC	<b>LE</b>	C COR	E	2H		CORED 2.6 - 12.1 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
					1		>> >> >> >> >> >>		s	10Y 5/2	CLAY Major Lithology: This core consists of light grayish olive to pale olive (10Y 5/2 to 10Y 6/1)
Ę		2	-							10Y 6/2	CLAY. Color changes are gradational.
E .	$\left \right\rangle$	Ş	- - 2 -							10Y 5/2	Minor Lithologies: Burrow structures in Sections 1
~~~~~	-	Ş	-		2						through 4 are often filled with a dark gray soupy material.
}	$\sum_{i=1}^{n}$	}	3 -							10Y 6/1	General Description: The sediment is moderately bioturbated.
	- And	ł			3		— »»			10Y 5/2	
ξ		}								10Y 6/1	
Ş	1 miles	$\left\{ \right.$	5			aternary					
Ę					4	ğ	<b>—</b> <sup>333</sup>		s	10Y 5/2	
1			6 -								
~~~~~	Į	{	- - 7		5		— »» >>>			10Y 7/1	
Ź	5	$\langle$	-				<b>—</b> <sup>33</sup>			10Y 6/1	
	$\left  \right\rangle$		8 -								
S A		\$	-		6					10Y	
Ì	$\left  \right\rangle$		9 -							5/1	
Ş	3	}	-								

1.4 1.6 10 15 0 50 100





			SI	TE 1021	HC	LE	C COR	E	4H		CORED 21.6 - 31.1 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
- Marine Marine -	- Murrow www.www.www.www.www.		2 3 4 6 - 7 - 8 - 8		1 2 2 3 3 4 6 6	Quaternary			S	10Y 6/1 To 10Y 7/1	CLAY and CLAY WITH NANNOFOSSILS AND FORAMINIFERS Major Lithologies: This core consists of pale olive to light yellowish gray (10Y 6/1 to 10Y 7/1) CLAY and CLAY WITH NANNOFOSSILS AND FORAMINIFERS. Color and compositional changes are gradational. Diagenetic color banding and haloes are common throughout the core. General Description: The sediment is moderately bioturbated.

1.4 1.6 10 15 0 50 100

			SIT	E 1021	HO	LE	C COR	Е	5H		CORED 31.1 - 40.6 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
4 16	WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW				1 2 3 4 5 6 6 7 7 CCC	late Pliocene -Quaternary			S S M	5GY 6/1 To 5GY 8/1 5/2 5GY 6/1 5GY 8/1 5GY 7/1 5GY 6/1 5GY 6/1 5GY 6/1 5GY 6/1 5GY 6/1	CLAY and NANNOFOSSIL OOZE WITH FORAMINFERS AND CLAY Major Lithologies: This core consists of decimenter scale alternations between greenish gray (5GY 6/1 to 5Y 5/1) CLAY and light greenish gray to white (5GY 7/1 to 5GY 8/1) NANNOFOSSIL OOZE WITH FORAMINFERS AND CLAY. Color is uniformly mottled throughout the core. Color and compositional boundaries are gradational. Minor Lithology: Olive gray (5Y 5/2) CLAY-rich intervals containing abundant VOLCANIC GLASS occur in Section 2, and Section 4. General Description: The sediment is moderately to heavily bioturbated. Burrow structures commonly show diagenetic haloes.

1226

GRAPH density (g)       Reflection (10-9 B)       Magnetic Bit Bit (10-9 B)       Bit Bit Bit (10-9 B)       Graphic Bit Bit (10-9 B)       Structure Bit Bit (10-9 B)       Description         Image: Structure (g)       Image: Structure Bit (10-9 B)				SIT	E 1021	HO	LE	C COR	E	6H		CORED 40.6 - 50.1 mbsf
Image: space of the system	GRAPE density (g/cm <sup>3</sup> ) (4	eflectance (%) 150–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		- Marman marker - Marman - Marker - Marke		2 2 3 3 5 5 7 7 9		1 2 3 4 5 6 7	late Pliocene -Quaternary			SS	5GY 6/1 5GY 7/1 5GY 7/1 5GY 6/1 5GY 7/1 5GY 6/1 5GY 7/1 5GY 6/1 5GY 7/2 5GY 6/1	CLAY, CLAYEY NANNOFOSSIL OOZE and NANNOFOSSIL OOZE WITH CLAY AND FORAMINIFERS Major Lithologies: This core consists of greenish gray (5GY 6/1) CLAY gradationally interbedded with light greenish gray (5GY 7/1) CLAYEY NANNOFOSSIL OOZE and light gray (5Y 7/2) NANNOFOSSIL OOZE WITH CLAY AND FORAMINIFERS. Light gray diagenetic color bands are abundant throughout the core. Intervals containing a slightly increased silt component occur in Section 3, 55-90 cm, Section 4, 20-20 cm, and throughout Sections 5 and 6. General Description: The sediment is moderately bioturbated and commonly shows diagenetic haloes surrounding burrow structures.

1.4 1.6 10 15 0 25 50

			SI	FE 1021	HC	LE	C COR	Е	7H		CORED 50.1 - 59.6 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
The second and the second seco		_ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	- - - - - - - - - - - - - - - - - - -		1 2 3 4 5 6 7 CC	late Pliocene -Quaternary			S S W	5GY 5/1 To 5GY 6/1 5GY 7/1 5GY 7/1 5GY 6/1 5GY 7/1	NANNOFOSSIL OOZE WITH FORAMINIFERS and CLAY Major Lithologies: This core consists of light greenish gray (5GY 5/1 to 5GY 6/1) CLAY interbedded with light greenish gray (5GY 7/1) NANNOFOSSIL OOZE WITH FORAMINIFERS. Diatoms are also present in minor amounts (<5%). Numerous thin dark green color bands occur throughout the main lithologies. Minor Lithology: A light gray ASH layer occurs in Section 6, 83-92 cm. General Description: The sediments are moderately bioturbated. Horizontal burrows are common in Section 6. Note that Sections 1 and 2 are highly disturbed and may represent flow-in.



			SIL	= 1021 I	HO	LE	C COR	E	8H		CORED 59.6 - 69.1 mbst
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
American and the second and the seco		$\mathcal{N}$			1 2 2 3 4 5 6 7 CC	late Pliocene	●	00000	S 800 M	10Y 5/1	CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS and CLAY Major Lithologies: This core consists of light gravish olive (10Y 5/1) CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS and CLAY. The sediment contains abundant black Mn-oxide(?) redox bands, haloes, and laminations. Minor Lithology: Thin dark (N4) color bands and dark greenish gray (10Y 4/2) CLAY are intercalated throughout the core. A pale brown dolomitic cemented burrow is present in the debris near the top of the core. General Description: The core is mottled and displays slight bioturbation throughout. Burrows are highlighted and obscured by redox haloes and bands. Zoophycos and rind burrows are present.

1.4 1.6 0 10 0 10 20

			SIT	FE 1021	HC	DLE	СС	COR	E 9	ЭH		CORED 69.1 - 78.6 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Struc	ture	Disturb	Sample	Color	Description
	- martin		1		2				0000	w	5GY 5/1	DIATOM CLAY and NANNOFOSSIL OOZE WITH CLAY Major Lithologies: This core consists of greenish gray (5GY 5/1) DIATOM CLAY and pale olive (10Y 6/1) to light greenish gray (5GY 7/1) NANNOFOSSIL OOZE WITH CLAY. Black redox bands, laminations, and haloes of Mn-oxide (?) are common. The sediment includes scattered individual laminations of dark greenish gray (10Y 4/2) CLAY.
			4		3						10Y 6/1	General Description: The core is mottled and is homogeneous to moderately bioturbated in Section 5 where Chondrize is present
{	-	Ę				cene				S	5GY 7/1	chondines is present.
			5		4	late Plio				S		
			7		5			6			5GY 5/1	
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	8 		6							
}	\$	ξ		vv vv	( cc				_ ≫	М		



			SIT	E 1021	HC	)LE	C COR	Е	10H		CORED 78.6 - 88.1 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		WWW WWW	1		1			MM		5GY 5/1	CLAY WITH DIATOMS OR NANNOFOSSILS and NANNOFOSSIL OOZE Major Lithologies: This core consists of greenish gray (5GY 5/1) CLAY WITH DIATOMS OR NANNOFOSSILS and light greenish
3		$\left  \right  \leq 1$	2				3			10Y 6/1	gray (5GY 7/1) to pale olive (10Y 6/1) NANNOFOSSIL OOZE. Black Mn-
Murran		mun man man	3 4 5 7 8		2	late Pliocene			S	5GY 5/1	oxide(?) redox haloes and bands are present, but less common than in overlying cores. Individual green clay laminations are scattered throughout the sediment. General Description: The sediments are slightly bioturbated throughout. The core is only slightly disturbed.
		5	111		6		3			5GY	
ξ				· · · · · · · · · · · · · · · · · · ·			3	Ľ.		10Y	
$\geq$	$\sum_{i=1}^{n}$	2	9 -	-] -]:-:-:-:-:-	-		š	li.		5/1 10Y	
Š		٤							s	7/1 5GY	
1				(H)	CC			15	М	5/1	

1.4 1.6 0 20 10 15 20

			SIT	E 1021	HC	DLE	C COR	Е	11H		CORED 88.1 - 97.6 mbsf	
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description	
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450-500 nm)	Magnetic suscept. (10-6 SI)	A 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Graphic Lith.	1 2 3 4 5 6 J	late Pliocene Age	Structure	Disturb	S Sample	Log SO Log SO Log SG SG SG SG SG SG SG SC SC SC SC SC SC SC SC SC SC SC SC SC	Description NANNOFOSSIL OOZE, NANNOFOSSIL CLAY MIXED SEDIMENT and CLAY Major Lithologies: This core consists of sub-meter scale alternations between light gray (5Y 7/1 to N7) to light greenish gray (5GY 7/1) NANNOFOSSIL OOZE, greenish gray (5G 6/1 to 5GY 6/1) to pale olive (10Y 6/1) NANNOFOSSIL CLAY MIXED SEDIMENT, and greenish gray (5GY 5/1) to light grayish olive (10Y 5/1) CLAY. General Description: The sediments are slightly to moderately bioturbated, with abundant Zoophycos trace fossils.	
	, 7	{	-		cc		— »»		S M	7/1		

1.4 1.6 0 20 0 10 20

			SIT	E 1021	HC	)LE	C COR	E	12H		CORED 97.6 - 107.1 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
-Maria Maria -		han marked and the second of t			1 2 3 4 5 6 7 7 CCC	early Pliocene -late Pliocene		W WW WINDOW WW WINDOW WINDOW WW WINDOW WW WINDOW WW W	S	5Y 7/1 5G 6/1 5G 7/1 5G 6/1 5G 6/1 5G 6/1 5G 6/1 5G 6/1 5G 6/1 5G 6/1 5G 6/1 5G 6/1 5G 6/1 5G 5/1 5G 6/1	NANNOFOSSIL OOZE, NANNOFOSSIL CLAY and CLAY Major Lithologies: This core consists primarily of light gray (5Y 7/1) to light greenish gray (5G 7/1) NANNOFOSSIL OOZE, greenish gray (5G 6/1 to 5GY 6/1) NANNOFOSSIL CLAY, and dark greenish gray (5GY 4/1) to greenish gray (5GY 5/1) CLAY. Minor Lithologies: Mn-oxide haloes, bands, and laminations are scattered throughout the core, as are a few green CLAY laminations. General Description: The core is heavily bioturbated, with abundant Zoophycos and some Chondrites.

1.5 1.75 0 20 0 10 20

			SI	TE 1021	HC	LE	C COR	Е	13H		CORED 107.1 - 116.6 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
			- 1_ - 2_		1		***	MM		5GY 4/1	CLAY Major Lithology: This core consists primarily of dark greenish gray (5GY 4/1) to greenish gray (5GY 5/1) CLAY. Black, Mn- oxide(?) reduction mottles, haloes and bands are prominent features. Minor Lithology: A few medium thick beds of light
me man man market			- 3_ - 4_ - 5_ - 6_ - 7_ - 8_ - 9_		2 3 4 5	late Pliocene			S	5GY 5/1 5GY 5/1 5GY 5/1 5GY 5/1 5Y 5/1 N5	greenish gray (5GY 7/1 to 5G 7/1) CLAYEY NANNOFOSSIL OOZE are present in this core. General Description: The sediments are slightltly to heavily burrowed. The most intense bioturbation is in Sections 2, 3, and 4, where Zoophycos are common.
}		) 	-		7 CC			M	м	4/1	

1.5 1.75 0 20 0 20 40

			SIT	FE 1021	HC	)LE	C COR	E	14H		CORED 116.6 - 126.1 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
Marman			2 		1	Pliocene -late Pliocene		MMM	S	5G 5/1	CLAY Major Lithology: This core consists primarily of greenish gray (5G 5/1) CLAY with abundant black, MnO2(?) redox mottling, haloes, and laminated bands. Minor Lithologies: Individual thin laminations of darker green CLAY are also present in places. Minor Lithology: Two beds of greenish gray (5G 6/1) NANNOFOSSIL CLAY have gradational, bioturbated contacts with the CLAY. General Description: The core is irregularly bioturbated, with distinct burrows present in meter- long intervals. Zoophycos and abundant rind burrows are also present.
\$	$\sum_{i=1}^{n}$	5	6			early F		1	s	5G 6/1	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	MMMM	- Marine Marine	7		5	- -	**************************************			5G 5/1	
}		{	-		-		— »			5G 6/1	
			y		7			M	м	5G 5/1	

\_

1.4 1.6 5 10 10 20 30

			SI	TE 1021	HC	LE	C COR	Е	15H		CORED 126.1 - 135.6 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
	- man man and a second and a se		1 2 3 4 6 6 7 7		1 2 3 4 5 6 7 CC	early Pliocene		00	S S M	5G 5/1	CLAY and CLAY WITH DIATOMS Major Lithologies: This core consists of greenish gray (5G 5/1) CLAY and CLAY WITH DIATOMS. The sediment exhibits pervasive mottling, bands and haloes of black, Mn-oxide(?). Many bands appear to form around obscured Zoophycos trace fossils. A 1.5 cm-diameter piece of wood in Section 4, 134 cm, is surrounded by a large reduction halo. Minor Lithology: A thin bed of dark gray (N4) VITRIC ASH WITH PUMICE is present in Section 1. General Description: The sediment is slightly to heavily bioturbated, with abundant Zoophycos trace fossils.

1 1.5 5 10 0 10 20

			SIT	E 1021	HC	LE	C COR	Е	16H		CORED 135.6 - 145.1 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
$\geq$	}	}	-	Y 			}} }}	≥		10Y 6/2	CLAY WITH DIATOMS
	Š	Ş		ч Ч	1		<b>-</b> ﷺ ≫			10Y 5/2	Major Lithology: This core consists of light grayish olive to pale olive (10Y 5/2 to 10Y 6/2) CLAY WITH DIATOMS. Color
		}	-	V V V	-					10Y 6/2	changes are gradational and darker color values reflect slightly increased
5		$\leq$	2_	¥			33			10Y 5/2	General Description:
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	T T	<pre>{</pre>	- - - -	Y 	2				S	10Y 6/2	The sediment is moderately bioturbated. Darker intervals show
$\left \zeta\right $		Ş	3_	v.	-		≫ 				colored intervals. Zoophycos are abundant.
		Ş		,			**			10Y 5/2	
3		}	4_	4	3		>>> >>>		s		
K	5	{		y		e	****			10Y 6/2	
1 mg	Ş	>	5	Y Y	-	Pliocer	>>> >>> >>>			10Y 5/2	
×		$\left\{ \right\}$	-		4	early	>>> >>> >>>			10Y 6/2	
2		$\langle \rangle$	6_		-		>>>> >>>		w		
3	Ę	ł	-	v v			>> >> >> >>			10Y 5/2	
ξ		{	7_	ý.			\$\$ }}				
E S		Ę	-	V 			***			10Y 6/2	
	5	Ę	-	v v	6					10Y 5/2	
Z		$\langle$	9			2	}			10Y 6/2	
Mr		}		1 	7	,			м	10Y 5/2	

1.5 1.6 5 10 0 10 20

			SIT	E 1021	HC	LE	с с	OR	E	17H		CORED 145.1 - 154.6 mbsf	
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structu	ure	Disturb	Sample	Color	Description	
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450-500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	φ β β β β β β β β β β β β β β β β β β β	Graphic Lith.	2 3 4 Section	early Pliocene Age	Structu	× ( ال	Disturb	s sample	bold           10Y           6/2           10Y           6/2           10Y           6/2           10Y           6/2           10Y           6/2           10Y           6/2           10Y           5/1           10Y           5/2           10Y           5/2           10Y           5/2           10Y           5/2           10Y           6/2           10Y           6/2	Description CLAY WITH DIATOMS and NANNOFOSSIL OOZE WITH CLAY Major Lithologies: This core consists of light grayish olive to pale olive (10Y 5/2 to 10Y 6/2) CLAY WITH DIATOMS and grayish yellow to white (10Y 7/2 to 10Y 8/1) NANNOFOSSIL OOZE WITH CLAY. Color changes are gradational and mottled. Diagenetic haloes are common surrounding burrow structures. General Description: The sediment is moderately to heavily bioturbated and Zoophycos trace fossils are abundant.	
{		$\leq$		X 	7 CC		33	>>>		М	10Y 6/2		

1.4 1.6 0 20 10 15 20

			SIT	E 1021	HC	<u>LE</u>	C COR	E	18H		CORED 154.6 - 164.1 mbsf
GRAPE density (g/cm <sup>3</sup> )	Reflectance (%) (450–500 nm)	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
	WWWWWWWWWW				1 2 3 4 5 6 6 7 7 CCC	late Miocene -early Pliocene			w s s s	10Y 5/2 To 10Y 6/2	CLAY WITH DIATOMS and CLAY NANNOFOSSIL MIXED SEDIMENT Major Lithologies: This core consists of light grayish olive (10Y 5/2) CLAY WITH DIATOMS gradationally interbedded with pale olive (10Y 6/2) CLAY NANNOFOSSIL MIXED SEDIMENT. Dark gray diagenetic haloes are common in the CLAY WITH DIATOMS layers, but the sediments are homogeneously mottled elsewhere. General Description: The sediment is moderately to heavily bioturbated with more intense bioturbation present in nannofossil-rich intervals.

1.4 1.6 5 10 0 20 40



1240

		SIT	E 1021	ΗО	)LE	D COR	E :	2H		CORED 5.5 - 15.0 mbsf
GRAPE M density s (g/cm <sup>3</sup> ) (	Vagnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
=				3         1           2         3           4         5           6         7           CC	Quaternary			Sc. No. 1	10Y 5/1 10Y 6/1 10Y 7/1 10Y 7/1 10Y 7/1	CLAY and NANNOFOSSIL OOZE WITH FORAMINIFERS AND CLAY Major Lithologies: This core consists of light grayish olive to pale olive (10Y 5/1 to 10Y 6/1) CLAY and light yellowish gray (10Y 7/1) NANNOFOSSIL OOZE WITH FORAMINIFERS AND CLAY. Color changes are subtle and gradational. Diagenetic features are common. Minor Lithologies: Thin layers of dark greenish CLAY occur throughout the core. General Description: The sediment is moderately bioturbated. Note: Liner collapsed in Section 7.

1.5 1.6 0 50 100

		51	IE 1021	HC	JLE	D COR	E	3H		CORED 15.0 - 24.5 MDST
GRAPE density (g/cm <sup>3</sup> )	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		-		1			-		10Y 6/1	CLAY and CLAY WITH NANNOFOSSILS AND FORAMINIFERS Major Lithologies: This core is composed of pale olive
		2		2		**************************************			10Y 7/1	(10Y 6/1) to light yellowish gray (10Y 7/1) CLAY and CLAY WITH NANNOFOSSILS AND FORAMINIFERS. Color changes are gradational.
		3							10Y 6/1	Minor Lithology: Thin layers of dark greenish gray (10Y 4/2) CLAY WITH VITIRIC ASH occur in Sections 1, 2, 3, and 5.
		4_ - 5_		3	iternary	 ≫ @			10Y 7/1	General Description: The core is homogeneous to mottled due to moderate to heavy bioturbation. Dark gray (N3) diagenetic color banding and haloes are common. Very small pyritized burrows are found in Sections 4 and 7.
		6		4	Qua	***			10Y 6/1	
		7		5		— <sup>≫</sup> — ≫			10Y 7/1	
		8 9		6		P			10Y 6/1	

1 1.5 0 40 60

	SITE 1021	HOL	E D COR	ε	4H		CORED 24.5 - 34.0 mbsf
GRAPE density (g/cm <sup>3</sup> ) (10 <sup>-6</sup> SI)	Graphic E	Section	Structure	Disturb	Sample	Color	Description
				000		10Y 5/2	CLAYEY NANNOFOSSIL MIXED SEDIMENT Major Lithology: This core consists of light grayish olive to light yellowish gray (10Y 5/2 to 10Y 7/1) CLAYEY NANNOFOSSIL MIXED SEDIMENT. Color changes are gradational and gray to dark green diagenetic haloes and color bands are common. General Description: The sediment is moderately bioturbated. Note: The world record core recovery of 6730.74 m was broken with this core!!
		7 CC	33 33 33 33 33	>	M	10Y 7/1	

1 1.5 0 40 60

	SI	IE 1021	HC	)LE	D COR	E	5H		CORED 34.0 - 43.5 mbst
GRAPE Magnetic density suscept. (g/cm <sup>3</sup> ) (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
	- - - - - - - - - - - - - - - - - - -		1 1 2 2 2 3 3 3 4 4 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	late Pliocene -Quaternary	┃	M/M		10Y 5/1 To 10Y 6/1 10Y 7/1 10Y 6/1 10Y 7/1 10Y 6/1	NANNOFOSSIL CLAY MIXED SEDIMENT and NANNOFOSSIL OOZE WITH FORAMINIFERS AND CLAY Major Lithologies: This core consists of light grayish olive to pale olive (10Y 5/1 to 10Y 6/1) NANNOFOSSIL CLAY MIXED SEDIMENT alternating with light yellowish gray (10Y 7/1) NANNOFOSSIL OOZE WITH FORAMINIFERS AND CLAY. Dark green color banding is common. Minor Lithologies: Section 2, 106-124 cm, contains abundant VITRIC ASH mixed with the surrounding lithology. General Description: The sediment is heavily bioturbated.

0 1 0 50 100

	S	ЯT	E 1021	HC	LE	D COR	E	6H		CORED 43.5 - 53.0 mbsf
GRAPE Magu density susc (g/cm <sup>3</sup> ) (10-	netic cept. - <sup>6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
Month Mark Mark Mark Mark Mark Mark Mark Mark				1 2 2 3 4 5 6 7 CCC	late Pliocene -Quaternary	│		Μ	10Y 7/1 10Y 5/1 10Y 6/1 10Y 5/1 10Y 6/1 10Y 6/1 10Y 5/1	CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS and CLAY WITH FORAMINIFERS AND NANNOFOSSILS Major Lithologies: This core consists of light yellowish gray (10Y 7/1) CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS and pale olive to light grayish olive (10Y 6/1 to 10Y 5/1) CLAY WITH FORAMINIFERS AND NANNOFOSSILS. Color changes are subtle and gradational. Diagenetic color banding occurs throughout the core. Minor Lithology: Thin layers (cm) of dark greenish CLAY are common throughout both lithologies. General Description: The sediment is moderately bioturbated. Redox haloes around burrows are common.

1.5 1.6 0 20 40

11031	CORED 53.0 - 62.5 r		/H	(E	D COR	<b>JLE</b>	HC	IE 1021	211		
	Description	Color	Sample	Disturb	Structure	Age	Section	Graphic Lith.	Meter	Magnetic suscept. (10 <sup>-6</sup> SI)	GRAPE density (g/cm <sup>3</sup> )
	NANNOFOSSIL OOZE WITH FORAMINIFERS and CLAY	10Y 6/1		3	— »» »»				-	×~~~	3
grayish gray ZE	Major Lithologies: This core is composed of light gray olive (10Y 5/1 to 6/1) CLAY interbedded with light yellowish gra (10Y 7/1) NANNOFOSSIL OOZE	10Y 5/1					1		1		
	WITH FORAMINIFERS. Color changes are gradational.	10Y 6/1			>> >>> >>>				2	}	
; ASH ) cm.	Minor Lithologies: A light gray VITRIC VOLCANIC AS layer occurs in Section 5, 72-80 cr	10Y 5/1 10Y			— <u>»</u>		2				
ay (10Y occur	Thin layers of dark greenish gray ( 4/2) CLAY WITH VITRIC ASH occ throughout the core.	6/1							3		
e to (N3)	General Description: The core is mottled by moderate to heavy bioturbation. Dark gray (N3	10Y 7/1			333	nary	3		- - 4	~	
nds are	diagenetic haloes and color bands abundant.				>>> >>>	-Quater		·		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-
		10Y 5/1				Pliocene	4		5		
					— <sup>33</sup>	late			6	5	
		10Y 6/1			>>> >>> >>> -A		5		- - - - - - - - - -	$\left\{ \right\}$	
					ـــــــــــــــــــــــــــــــــــــ					Ş	E
		10Y 6/1			>> >> >> >>		6		- 8 - - -		
		10Y 5/1			>>> >>> >>>				- - 9	~	
				I	>> >> >>		7			$\leq$	
e t N	Thin layers of dark greenish gray 4/2) CLAY WITH VITRIC ASH oct throughout the core. General Description: The core is mottled by moderate t heavy bioturbation. Dark gray (N diagenetic haloes and color bands abundant.	10Y 7/1 10Y 5/1 10Y 6/1 To 10Y 5/1	Μ			late Pliocene -Quaternary	3 4 5 6 7		3 4 5 7 7	han han have -	

1.4 1.6 0 10 20

	51	TE 1021	HC	νLE	D COR	E	8H		CORED 62.5 - 72.0 mbst
GRAPE density (g/cm <sup>3</sup> ) (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
	- 2		1 2 3 4 5 6 7	late Pliocene			Μ	10Y 5/1 10Y 6/1 10Y 5/1 10Y 6/1 10Y 6/1 10Y 6/1 10Y 6/1 10Y 5/1	CLAYEY NANNOFOSSIL OOZE WITH FORAMINIFERS and CLAY Major Lithologies: This core consists of light grayish olive (10Y 5/1) CLAY interbedded with pale olive (10Y 6/1) CLAYEY NANNOFOSSIL OOZE WITH FORAMINFERS. Color changes gradually. Diagenetic color banding is common throughout the core. Minor Lithologies: Thin, dark green layers of CLAY occur throughout the core. General Description: The sediment is moderately bioturbated.

1.5 1.6 0 10 20

		51	E 1021			D COR		90		CORED 72.0 - 01.3 110SI
GRAPE density (g/cm <sup>3</sup> )	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1		1			M		10Y 5/1 10Y 6/1	NANNOFOSSIL OOZE WITH CLAY AND FORAMINIFERS, DIATOM CLAY and CLAY
						33 33 33 33			10Y 5/1	This core consists of pale olive (10Y 6/1) to light yellowish gray (10Y 7/1) NANNOFOSSIL OOZE WITH CLAY
		2		2		— <sup>※</sup> ※ …			10Y 7/1 10Y	AND FORAMINIFERS and light grayish olive (10Y 5/1) DIATOM CLAY. Black, Mn-oxide(?) redox mottles, haloes, and bands are present
		3				— <sup>※</sup>			6/1 10Y 7/1	throughout. Thin lamination of dark greenish gray (10Y 4/2) CLAY are intercalated throughout the sediment.
				3		» » »			10Y	General Description: The core is moderately to heavily bioturbated throughout and contains a
		4			ene	— <sup>%</sup> — <sup>%</sup>				single Zoophycos trace tossil.
-		5		4	late Plioc	>> >> >>			10Y 6/1	
		6				— <sup>33</sup> 33				
		-		5		— <sup>*</sup> ***				
						— <sup>33</sup>			10Y 5/1	
		8		6		>>> >>> >>>				
		9				»» »» »»			107	
				7		>> >> >> >>	>	м	7/1	

1.4 1.6 0 10 20

		SI	ΓE 1021	HC	DLE	D COR	E	10H		CORED 81.5 - 91.0 mbsf
GRAPE density (g/cm <sup>3</sup> )	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
				1			MM		5GY 5/1 5GY 7/1	CLAY WITH DIATOMS OR NANNOFOSSILS and NANNOFOSSIL OOZE
									5GY 5/1 To 5GY	Major Lithologies: This core consists of greenish gray (5GY 5/1) to dark greenish gray (5GY 4/1) CLAY WITH DIATOMS OR
	have	2		2		3 3			4/1	NANNOFOSSILS and greenish gray (5GY 6/1) to light greenish gray (5GY 8/1) NANNOFOSSIL OOZE. Color bands and laminations are mostly redox
		3				— <u>}</u>				precipitated nucleated on Zoophycos traces.
		4		3		3				The sediments are slightly bioturbated throughout. Reduction haloes form common rind burrows.
	Ś				cene				5GY 5/1	
		5		4	late Plio	— <sup>3</sup>				
}		6								
		- - - - - - - - - - - - - - - - - - -		5		3 3 3			5GV	
						3			6/1 5G	
$\left  \right\rangle$		8 · · ·		6		3			5/1 5GY 8/1	
		9		7		33 22			5GY 5/1	
	ļ š		N	) cc		33 33		м	5GY 4/1	

1.4 1.6 0 10 20

GRAPE density (g/cm <sup>3</sup> )	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
						3	~~~ -		5GY 6/1	NANNOFOSSIL OOZE, NANNOFOSSIL CLAY MIXED
		- - -		1		— » »»			5GY 7/1 To N7	Major Lithologies: This core consists of interbedded light greenish gray (5G 7/1) to light gray (N7) NANNOFOSSIL OOZE, greenish gray (5GY 6/1) NANNOFOSSIL CLAY
5		2		2		}}}			5GY 5/1	MIXED SEDIMENT, and greenish gray (5GY 5/1) to dark greenish gray (5GY 4/1) CLAY. Black redox mottles and
			······································			>>			5G 7/1	haloes are common features. Scattered black and green individual
5		3		╞					5GY 5/1	laminations are Mn-oxide- or clay-rich.
		4		3		— »»			5GY 4/1	General Description: The sediments are homogeneous to heavily bioturbated in places.
$\left  \right\rangle$						,,			5G 6/1	
		5		4	late Pliocene	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>			N7	
		7		5		»»			5GY 5/1	
	Ι ξ	-	- * + + + + + + + + + + + + + + + + + +	-		>>>			N7	
		8_				33			5GY 5/1	
5	<pre>}</pre>	-		6		\$\$ }}			N7	
		9		7		33 >>> 3 3 3 3 3			5GY 5/1	
		10		СС			$\geq$	м	5GY 6/1	

1.4 1.6 0 10 20

		511	E 1021	HC	ᇿᆮ	D COR		12日		CORED 100.5 - 110.0 MDSI
GRAPE density (g/cm <sup>3</sup> )	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
M year marine				1	0	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~			5Y 7/1	NANNOFOSSIL OOZE, NANNOFOSSIL CLAY and CLAY Major Lithologies: This core consits of light gray (5Y 7/1 to N7) to light greenish gray (5G 7/1) NANNOSFOSSIL OOZE, greenish gray (5G 6/1) to gray (5Y 6/1) NANNOFOSSIL CLAY, and dark
		2		2		>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>			6/1 5Y 7/1 5Y	greenish gray (5GY 4/1) to greenish gray (5GY 5/1) CLAY. There are a reduced number of reduction mottles. General Description:
		3							6/1 5Y 7/1 5Y 6/1	The sediments are slightly to heavily bioturbated. Zoophycos are abundant in Sections 2, 3, and 5. Chondrites is abundant in Sections 4 and 5.
		4			ate Pliocene				N7 5Y 6/1	
		5		4	ly Pliocene -I	~~~~ ⊗«			N7	
The second secon		6			earl	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>			5G 6/1	
		7 - - -		5					N7 5G 5/1	
Mun	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			6					5G 7/1 To 5G 6/1	
4	}			7 CC			M	M	5GY 5/1 5GY 4/1	

1.6 1.7 0 10 20

		SI	IE 1021	HC	)LE	D COR	E	13H		CORED 110.0 - 119.5 mbst
GRAPE density (g/cm <sup>3</sup> )	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
(g/cm <sup>3</sup> )		2 2 3 4 4 7 7 8 8		95       1       2       3       4       5       6       7	early Pliocene -late Pliocene			Sa	Ö 5Y 4/1 5G 6/1 5GY 5/1 5GY 5/1 5GY 6/1 5GY 6/1 5GY 5/1 5GY 5/1 5GY 5/1 5GY 5/1 5GY 5/1	CLAY Major Lithology: This core consists primarily of dark gray (5Y 4/1) to greenish gray (5GY 5/1) CLAY with abundant black redox mottling, bands and burrow haloes. Minor Lithologies: A few beds of greenish gray (5GY 6/1 to 5G 6/1) NANNOFOSSIL CLAY and light gray (5Y 7/1) NANNOFOSSIL OOZE are intercalated with the CLAY. General Description: The sediments are intensely bioturbated throughout most of the core. Note: Core liner collapsed in Section 7, 45-65 cm.
				cc			Ś	м		

1.4 1.6 0 20 40

	311L 1021	HOLE	D CORE	140		CORED 119.3 - 129.0 11051
GRAPE density (g/cm <sup>3</sup> ) Magnetic suscept. (10 <sup>-6</sup> SI)	Graphic E	Section Age	Structure	Disturb Sample	Color	Description
mon when we we we we we want the second of t		2 2 9 2 6 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		·	5G 5/1 5G 7/1 5G 5/1 N7 5G 5/1	CLAY Major Lithology: This core consists primarily of greenish gray (5G 5/1) CLAY with abundant black, Mn-oxide(?) redox haloes and mottles. Individual laminations of dark greenish gray CLAY are intercalated in the major sediment. Minor Lithologies: Two thin beds of white (N8) VITRIC ASH and gray (N4) VITRIC ASH WITH PYRITE occur near the base of Section 5. In the middle of the core, there are two beds of light gray (N7) to light greenish gray (5G 7/1) NANNOFOSSIL OOZE. General Description: The sediments are homogeneous to moderately bioturbated. Zoophycos are fairly common.

1.4 1.6 10 15 20

GRAPEE       Magnetic big       big       Graphic       big       Big<			SI	IE 1021	HC	<b>LF</b>	D COP	Ľ	15H		CORED 129.0 - 138.5 mbst
CLAY and CLAY WITH DIATOMS Major Lithologies: This core consists of greenish gray (GGV 5/t to 5G 6/1) CLAY and CLAY WITH DIATOMS. Major Lithologies: This core consists of greenish gray (GGV 5/t to 5G 6/1) CLAY and CLAY WITH DIATOMS. A few darker green CLAY laminations are included in the sedement. Minor Lithology: A 1-cm thick bed of light gray (5Y 6/1) VITRIC ASH occurs in Section 1. General Description: The core is homogeneous to heavily bioturbated. Zoophycos and circular rind burrows are quite abundant.	GRAPE density (g/cm <sup>3</sup> )	Magnetic suscept. (10 <sup>-6</sup> SI)	Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$	TV-Marine Marine		- - 2 - 3 - - 4 - - - - - - - - - - - - - - -		3	early Pliocene		M		5GY 5/1	CLAY and CLAY WITH DIATOMS Major Lithologies: This core consists of greenish gray (5GY 5/1 to 5G 6/1) CLAY and CLAY WITH DIATOMS. The sediment is severely mottled with black Mn- oxide(?) redox haloes, bands, and patches. A few darker green CLAY laminations are included in the sediment. Minor Lithology: A 1-cm thick bed of light gray (5Y 6/1) VITRIC ASH occurs in Section 1. General Description: The core is homogeneous to heavily bioturbated. Zoophycos and circular rind burrows are quite abundant.
$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$			7	N N N N N N N N N N N N	5					5G 6/1	
			8 - 9_		6		333 333 - 200 333 - 200			5GY 5/1	
			20	м	րը			>	M		<u> </u>

## Key to symbols used in the "Graphic Lithology" column on the core description sheets.



## Key to symbols used in the "Structures" column on the core description sheets.

Dr sy	illing disturbance	Se	dimentary structures cont	•	
	Soft sediments				
1	Slightly disturbed	∱F	Fining-upward sequence	$\diamond$	Isolated pebbles/cobbles
1	Madarataly disturbed	↑	Interval over which primary sedimentary structure occur	•	Isolated mud clasts
- /		_	Planar laminae		Slump blocks or slump folds
Ş	Highly disturbed	$\geq$	Wedge-planar laminae/beds	2	Contorted slump
0	0	•••	Graded bedding (normal)	X	Probable compaction
0	Soupy	•••	Graded bedding (reversed)		fracture
	Hard sediments		Sharp contact	1/2	Microfault (normal)
$\geq$	Slightly fractured		Gradational contact	7/	Microfault (thrust)
$\sim$	0,	$\mathcal{M}$	Scoured, sharp contact		
+	Moderately fractured	w.	Scoured contact with graded bed	-	Macrofault
$\geq$	Highly fragmented		Thick color bands (sharp contact)	<b></b>	Fracture
××	Drilling breccia		Thick color bands (gradational contact)	×	Totally fractured
$\times$			Medium color bands (sharp contact)	₹.	Vein structures
Sec	limentary structures	*****	Medium color bands (gradational contact)	ß	Color mottles
3	(<30% surface area)	$\equiv$	Thin color bands (sharp contact)		Dolomite nodule/concretion
33	Burrows, common (30%–60% surface area)		Thin color bands (gradational contact)	D	Disseminated dolomite
333	Burrows, abundant (>60% surface area)		Laminations (mm scale)	P	Pyrite nodule/concretion
>>>	Discrete Zoophycos trace fossil		Individual thick color band	Р	Disseminated pyrite
6	Discrete Chondrites		Individual medium color band	G	Glauconite
9	Sagarites sponge		Individual lamination	$   \mathbf{\bullet} $	Concretions/nodules
A	Gastropods	####	Wavy lamination		
7	Other bivalves		Cross laminae	(Ba)	Barite nodule/concretion
0		$\mathbb{Z}$	Cross stratification	Ba	Disseminatedbarite
X	Shell fragments	<u></u>	Cross bedding	Ca	Calcite nodule/concretion
Ø	Wood framents	ושנ	Convoluted/contorted bedding		
δ	Fish debris		Fraser bedding		Carbonatenoquie/concretion
			Veins	Ch	Chert nodule/concretion
		à	Water escape structure	A	Ash/pumice pods
		$\bigcirc$	Scour	-A	Ashlayer
		L		·	1

## Drilling disturba

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