SITE 756 HOLE A CORE 1H CORED INTERVAL 0-9.7mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
LOWER PLIOCENE	A/G	A/G	Barren	Indeterminate				1	0.5				
	N19 - N20	CN10c						1	1.0				
								2					
								3					
								4					*
								5					
								6					IW
								7					
								CC					

LITHOLOGIC DESCRIPTION

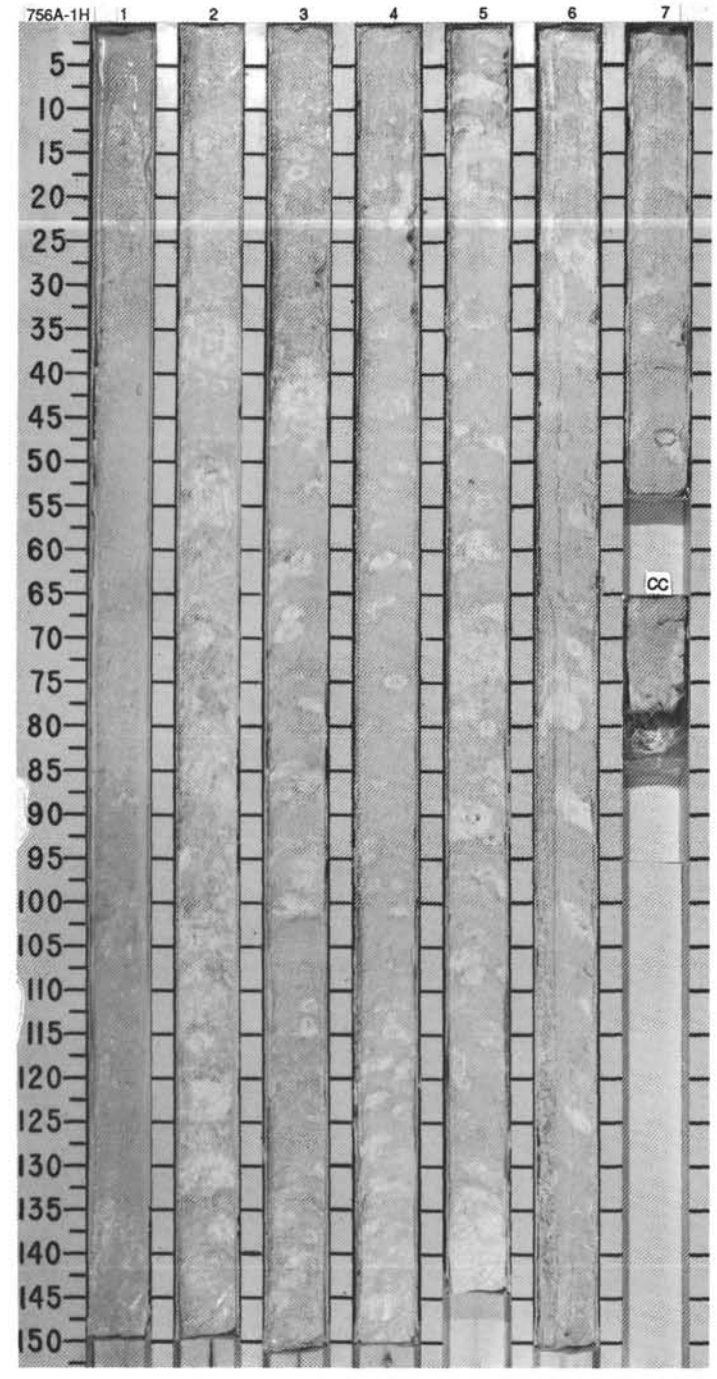
NANNOFOSSIL OOZE WITH FORAMINIFERS

Section 1, 0-20 cm is soupy.Core catcher is slightly disturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS, white (10YR 8/1 to 10YR 8/2), moderately to heavily mottled, and bioturbated. Well developed burrow structures occur throughout core.Shell fragments, 0.3 by 0.5 millimeters dimension, occur in Sections 1, 14 cm and 5, 53 cm.Dark blebs, smeared, which occur throughout the core, may be volcanic ash.

SMEAR SLIDE SUMMARY (%):

	4, 20 D
TEXTURE:	
Sand	15
Silt	70
Clay	15
COMPOSITION:	
Foraminifers	15
Glass	Tr
Nannofossils	85



SITE 756 HOLE B CORE 1H CORED INTERVAL 0-8.5 mbsf

TIME-ROCK UNIT: (PLEISTOCENE) — A/G; UPPER PLIOCENE — A/G; LOWER PLIOCENE — A/G

BIOSTRAT. ZONE/FOSSIL CHARACTER
- FORAMINIFERS: A/G N21 (N21 - N22) A/G; N19 - 20 A/G; CN12 A/G; CN11 A/G
- NANNOFOSSILS: A/G (CN13)
- RADIOLARIANS: Barren
- DIATOMS: Barren

PALEOMAGNETICS: Indeterminate

PHYS. PROPERTIES: ● 0-60.8 ● 0-60.4 ● 1-1.73 ● 1-1.73

CHEMISTRY: ● 95.8 ● 96.5

SECTION: 1, 2, 3, 4, 5, 6, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE WITH FORAMINIFERS

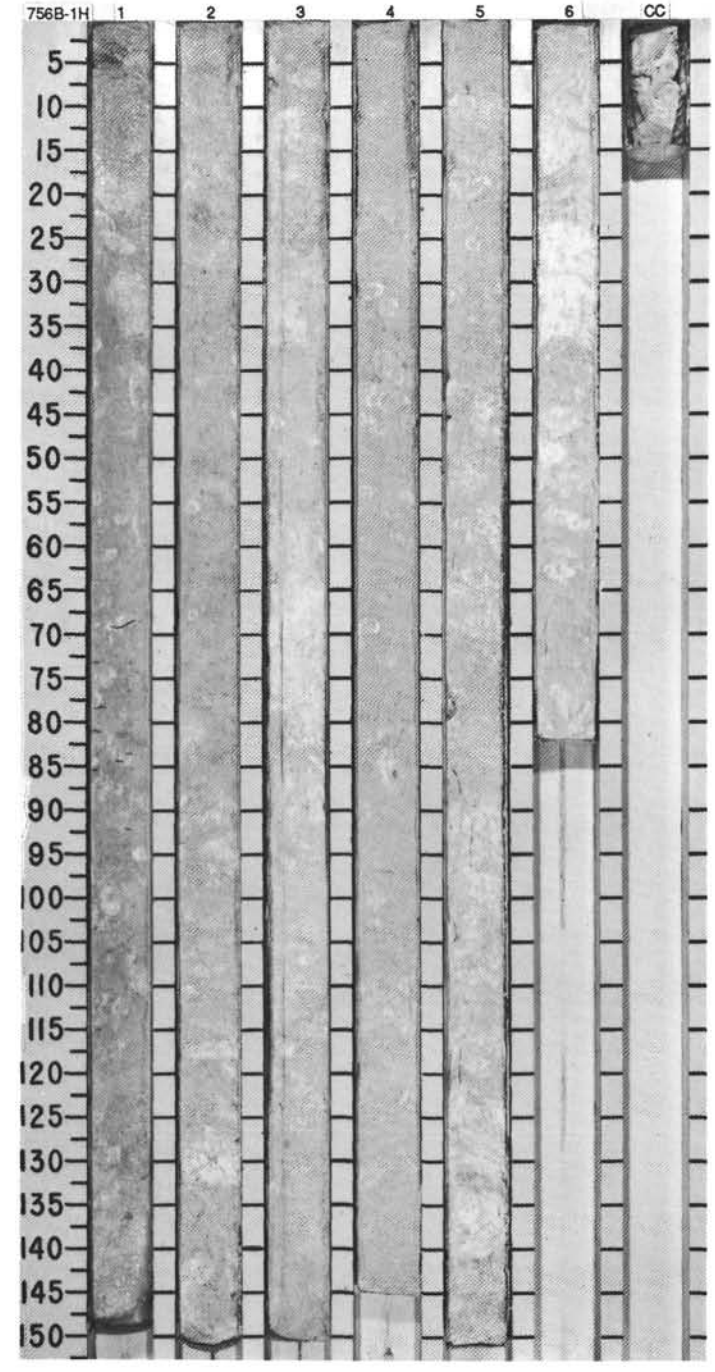
The core is undisturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS white (10YR 8/1) and heavily bioturbated. The core is moderately mottled with lighter colors and darker flecks. A shell fragment was noted in Section 5, at 8 cm. Rust contamination is present in Section 1, 1-4 cm.

Grain size: The mean grain size in Section 2, 90 cm is 20.1 µm; in Section 4 90 cm, is 15.5 µm and in the CC is 16.7 µm.

SMEAR SLIDE SUMMARY (%):

	1, 90 D	3, 90 D
TEXTURE:		
Sand	10	5
Silt	85	95
Clay	5	—
COMPOSITION:		
Foraminifers	15	10
Glass	Tr	Tr
Nannofossils	85	90
Radiolarians	Tr	—
Silicoflagellates	Tr	Tr
Spicules	Tr	Tr



SITE 756 HOLE B CORE 2H CORED INTERVAL 8.5-18.1 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
LOWER PLIOCENE	A/G N18	A/G CN10	Barren		Indeterminate	● 0-59.9 ● 1-1.73 ● 96.9		6					
	A/G N18 - N19	A/G CN11				● 0-57.9 ● 1-1.74 ● 96.5		4					
						● 0-59.0 ● 1-1.75 ● 97.1		2					
								1	0.5				
								1	1.0				
								3					
								5					
								7					
								CC					PP

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE

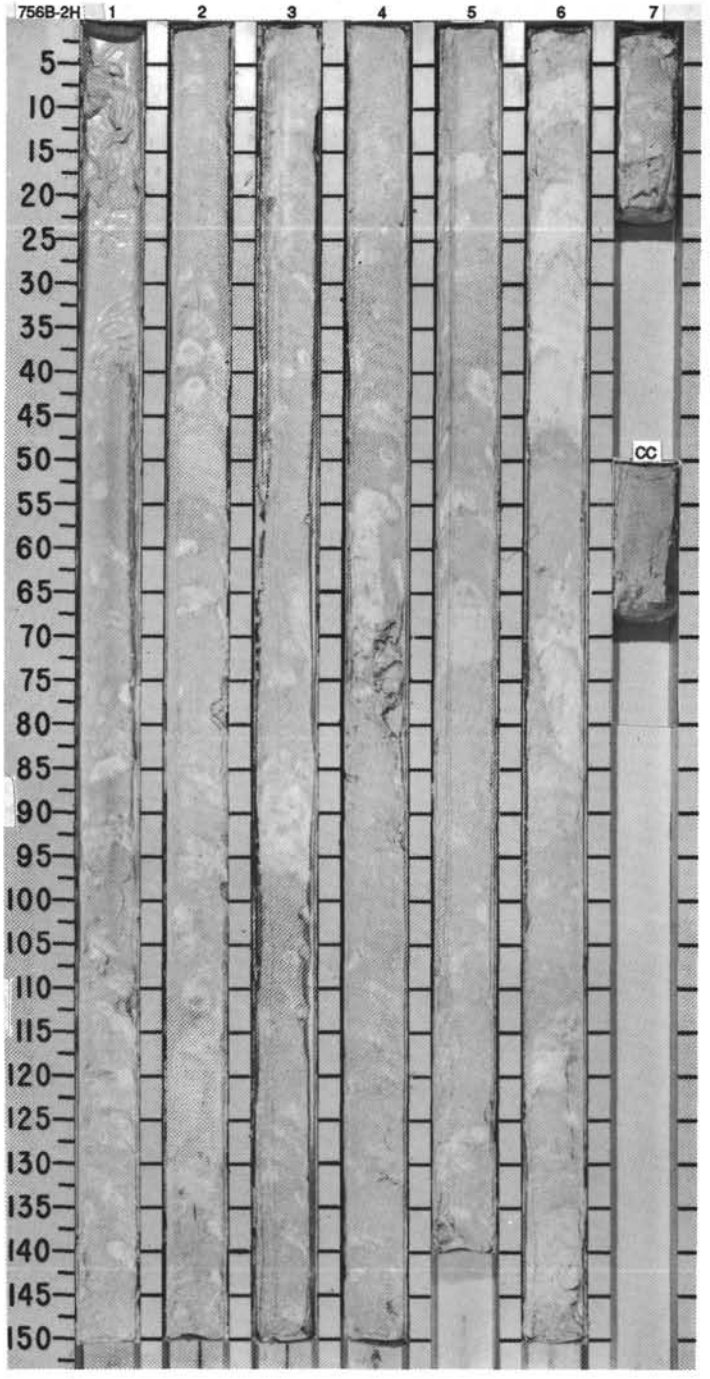
The core is soupy in Section 1,0-35 cm, and moderately disturbed in the remaining sections.

Major lithology: NANNOFOSSIL OOZE, white (10YR 8/1 and 10YR 8/2) and heavily bioturbated. The core is heavily mottled, with the mottles concentrated in discrete intervals in Sections 5-7. Faint reaction rims are noted around mottles.

Grain size: The mean diameter of particles in Section 2, 90 cm, is 19.8 µm; in Section 4, 90 cm is 15.6 µm and in the CC is 14.9 µm.

SMEAR SLIDE SUMMARY (%):

	4, 90 D
TEXTURE:	
Sand	8
Silt	90
Clay	2
COMPOSITION:	
Foraminifers	8
Glass	Tr
Nannofossils	92



SITE 756 HOLE B CORE 3H CORED INTERVAL 18.1-27.7 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
UPPER MIOCENE / LOWER PLIOCENE	A/G N17 / A/G CN9 / CN10a	Barren	Barren	Barren	Indeterminate	● 0-59.1 7-1.75 ● 0-59.2 7-1.73 ● 0-58.8 7-1.75	● 96.8 ● 96.5 ● 96.8	1 2 3 4 5 6 7 CC	0.5 1.0			*	IW PG

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE WITH FORAMINIFERS

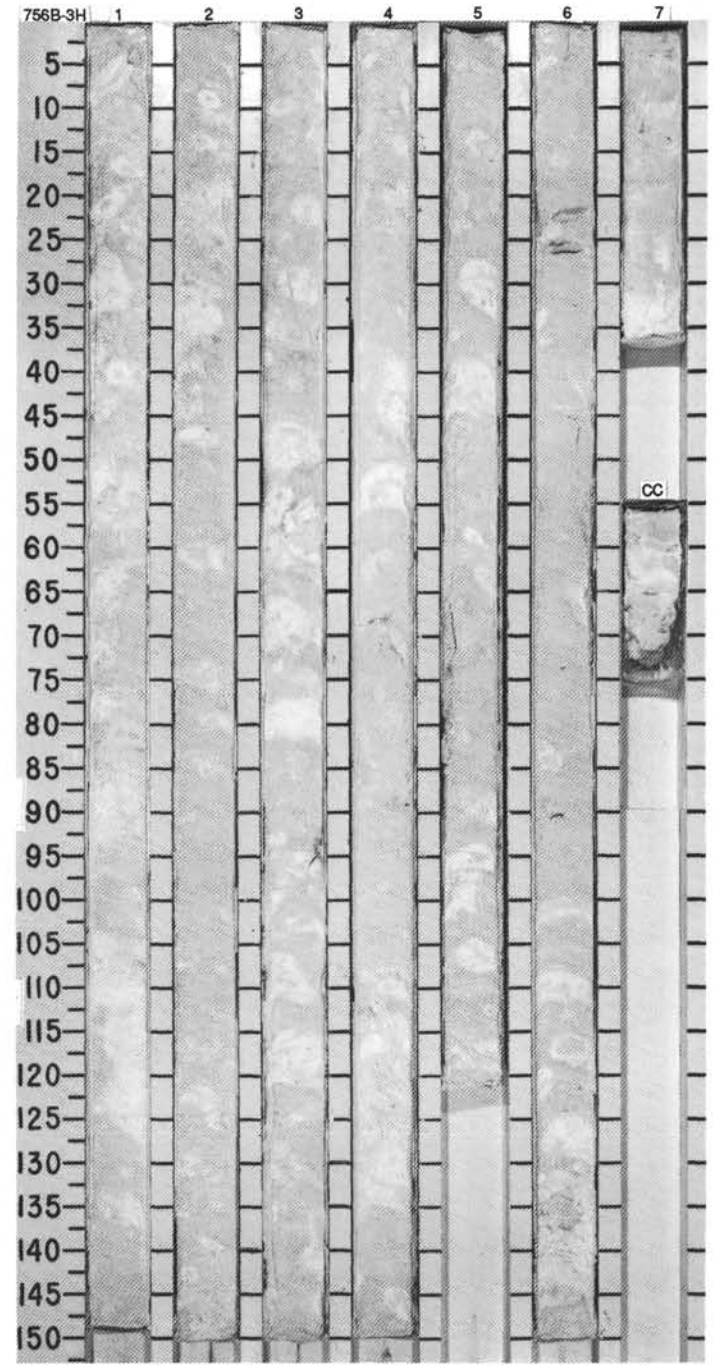
The core is undisturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS, white (10YR 8/2), moderately to heavily mottled and bioturbated. The mottles are whiter (10YR 8/1) than the surrounding material. In burrow structures, the innermost core is darker than the surrounding burrow halo. Faint, darker reaction rims are noted around the mottles.

Grain size: The mean diameter of particles in Section 2, 90 cm, is 23.4 µm; in Section 4, 90 cm, is 26.5 µm; and in the CC in 21.4 µm.

SMEAR SLIDE SUMMARY (%):

	4, 90 D
TEXTURE:	
Sand	7
Silt	83
Clay	10
COMPOSITION:	
Foraminifers	14
Glass	1
Nannofossils	85



SITE 756 HOLE B CORE 4H CORED INTERVAL 27.7-37.3 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
UPPER MIOCENE	A/G	A/G	Barren		Indeterminate	● 60.0 1.71 ● 96.5		1	0.5 1.0		---		
	N16 / CN8 / CN7					● 61.1 1.71 ● 96.5		2					
						● 60.1 1.72 ● 96.9		3					
								4					*
								5					
								6					
								7					
								CC					

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE WITH FORAMINIFERS

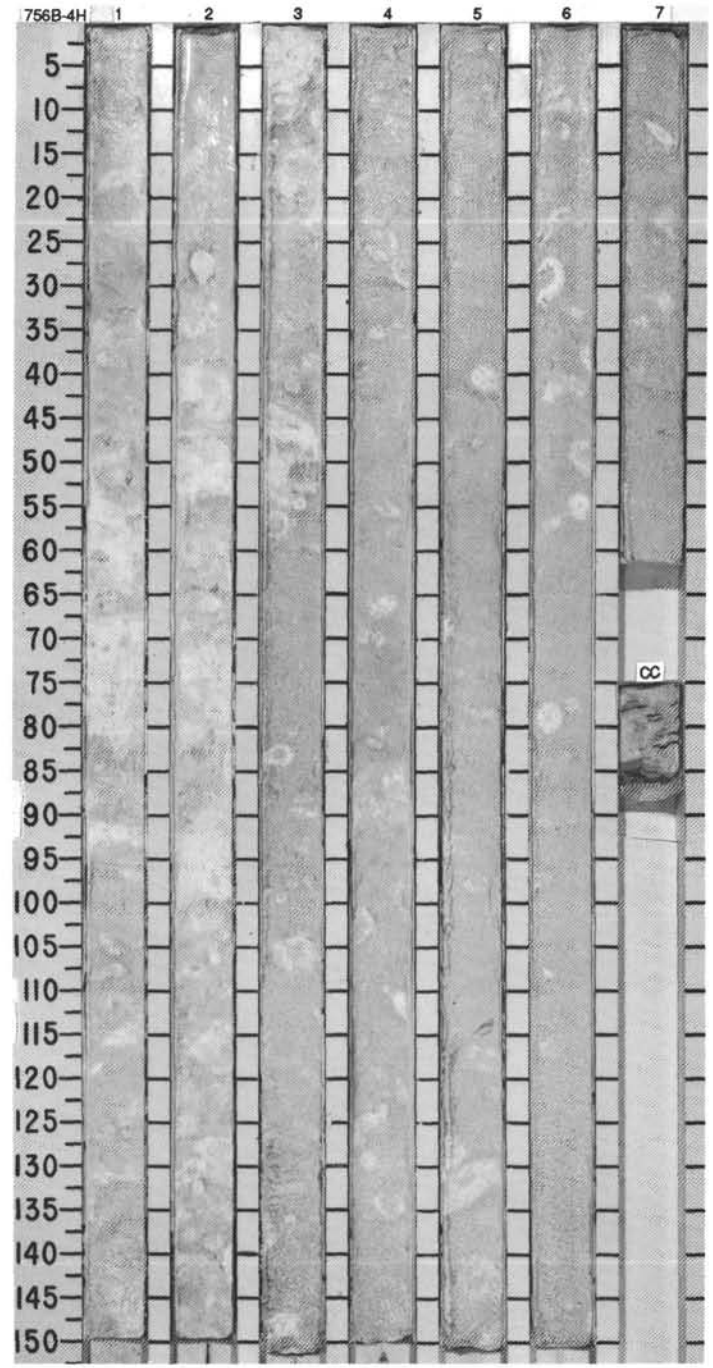
The core is slightly disturbed in Section 1, 0-30 cm, otherwise undisturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS, white (10YR 8/2) in color with lighter white (10YR 8/1) mottles. Weak reaction rims are noted around visible burrows in Sections 1, 2, 3, 6, and 7. The entire core is heavily bioturbated.

Grain size: The mean diameter of particles in Section 2, 90 cm, is 23.5 µm; in Section 4, 90 cm, is 20.3 µm; and in the CC is 19.21 µm.

SMEAR SLIDE SUMMARY (%):

	4, 90 D
TEXTURE:	
Sand	10
Silt	83
Clay	7
COMPOSITION:	
Foraminifers	15
Glass	Tr
Nannofossils	85



SITE 756 HOLE B CORE 5H CORED INTERVAL 37.3-46.9 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
MIDDLE MIOCENE	A/G	N15						1	0.5				
									1.0				
	A/G	N14						2					*
		CN6						3					
	A/G							4					
								5					
	N10												PP
								6					
	CN5												
								7					
								CC					

Indeterminate

Barren

● 9-60.2
● 7-1.70

● 9-58.3
● 7-1.75

● 96.4

● 95.7

● 9-59.7
● 7-1.72

● 95.9

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE

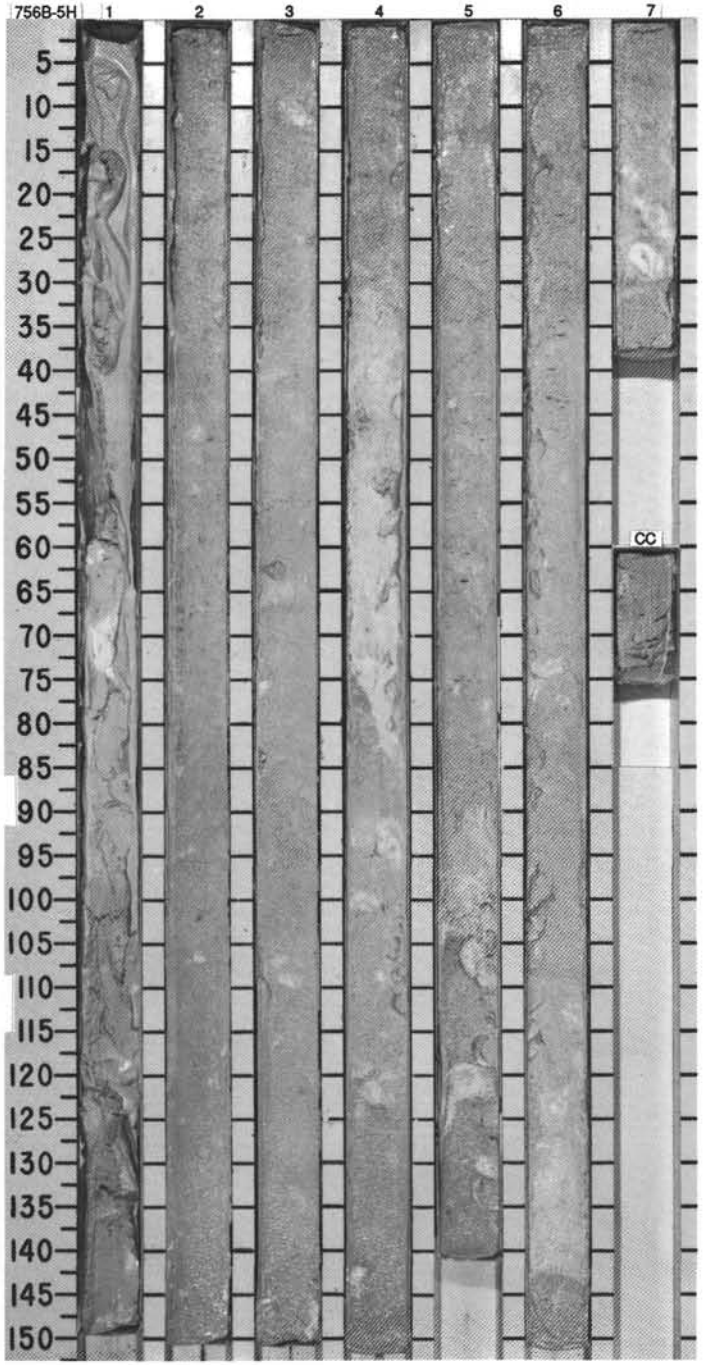
Core is soupy and highly disturbed in Section 1.Remainder of core is slightly disturbed.

Major lithology: NANNOFOSSIL OOZE, white (10YR 8/2) with white (10YR 8/1) mottles scattered throughout the core. The entire core is heavily bioturbated.

Grain Size: The mean grain size in Section 2, 90 cm is 22.3 µm; in Section 4, 90 cm is 10.9 µm; and in the CC, 1 cm is 22.0 µm.

SMEAR SLIDE SUMMARY (%):

	2, 90 D
TEXTURE:	
Sand	3
Silt	92
Clay	5
COMPOSITION:	
Foraminifers	3
Glass	1
Nannofossils	96



TIME-ROCK UNIT: LOWER MIOCENE / MIDDLE MIOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER:
- FORAMINIFERS: A/G; N7; A/G; CN2
- NANNOFOSSILS: CN4 - CN3; CN5
- RADIOLARIANS: Barren
- DIATOMS: Barren
- PALEOMAGNETICS: Indeterminate
- PHYS. PROPERTIES: ● 0-67.5 / 1.64; ● 0-68.3 / 1.62; ● 0-60.0 / 1.71
- CHEMISTRY: ● 82.6; ● 86.1; ● 95.6
- SECTION: 1, 2, 3, 4, 5, 6, 7, CC
- METERS: 0.5, 1.0
- GRAPHIC LITHOLOGY
- DRILLING DISTURB.
- SED. STRUCTURES
- SAMPLES: *, IW, OG

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE AND NANNOFOSSIL OOZE WITH FORAMINIFERS

Core is slightly disturbed

Major lithology: NANNOFOSSIL OOZE. White (10YR8/3) with white (10YR 8/1) mottles in Section 1 and 2. Nannofossil ooze with foraminifers, very pale brown (10YR 7/3) with faint white (10YR 8/2) mottles in Sections 3-CC. The entire core is heavily bioturbated.

Grain Size: The mean grain size in Section 2, 90 cm is 21.6 µm; in Section 5, 90 cm is 41.0 µm; and in the CC is 37.0 µm.

SMEAR SLIDE SUMMARY (%):

	3, 90 D
TEXTURE:	
Sand	20
Silt	75
Clay	5
COMPOSITION:	
Foraminifers	14
Glass	1
Nannofossils	85

SITE 756 HOLE B CORE 7H CORED INTERVAL 56.2-65.6 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
LOWER MIOCENE	A/G N4	A/G CN1	Barren		Indeterminate	● 91.5 ● 91.7 ● 95.5		1 2 3 4 5 6 7 CC	0.5 1.0				*

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE

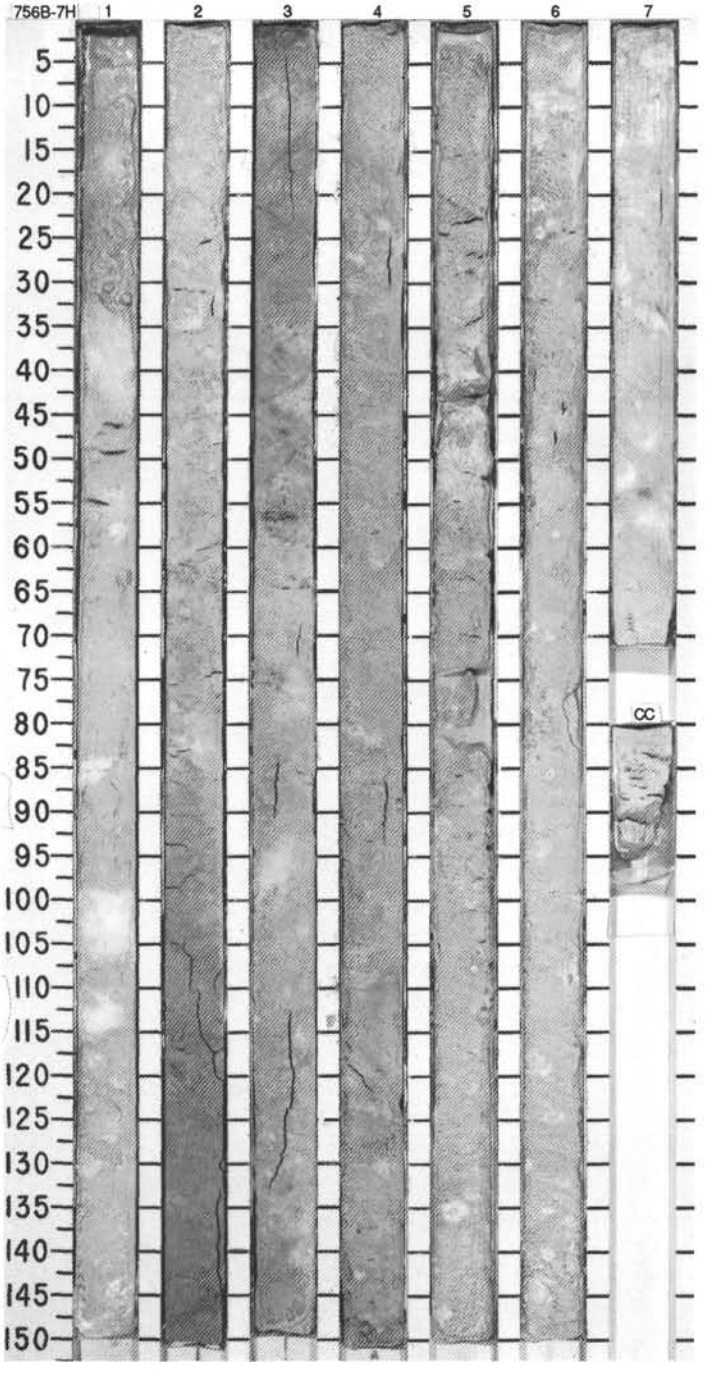
The core is slightly disturbed with an occasional soupy interval.

Major lithology: NANNOFOSSIL OOZE. Very pale brown (10YR 7/3) color with a yellowish brown (10YR 6/8) interval beginning in Section 2 at 100 cm and continuing until Section 4, 15 cm. The core is strongly bioturbated, and the occasional mottles are white (10YR 8/2).

Grain Size: The mean grain size in Section 2, 90 cm is 27.9 µm; in section 4, 90 cm is 40.4 µm; and in the CC is 17.5 µm.

SMEAR SLIDE SUMMARY (%):

	2, 90 D
TEXTURE:	
Sand	5
Silt	90
Clay	5
COMPOSITION:	
Foraminifers	7
Glass	Tr
Nannofossils	92



SITE 756 HOLE B CORE 8H CORED INTERVAL 65.6-75.2 mbsf

TIME-ROCK UNIT	UPPER OLIGOCENE / UPPER OLIGOCENE to LOWER MIOCENE
BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	A/G ← P21a / P21a-N4
NANNOFOSSILS	A/G ← (CP19) / CN1
RADIOLARIANS	Barren
DIATOMS	
PALEOMAGNETICS	Indeterminate
PHYS. PROPERTIES	Φ=55.8, γ=1.84 / Φ=57.7, γ=1.81 / Φ=59.3, γ=1.75
CHEMISTRY	96.0 / 94.5 / 95.1
SECTION	CC, 7, 6, 5, 4, 3, 2, 1
METERS	1.0, 0.5
GRAPHIC LITHOLOGY	
DRILLING DISTURB.	
SED. STRUCTURES	
SAMPLES	* PP *

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE WITH FORAMINIFERS, AND NANNOFOSSIL OOZE

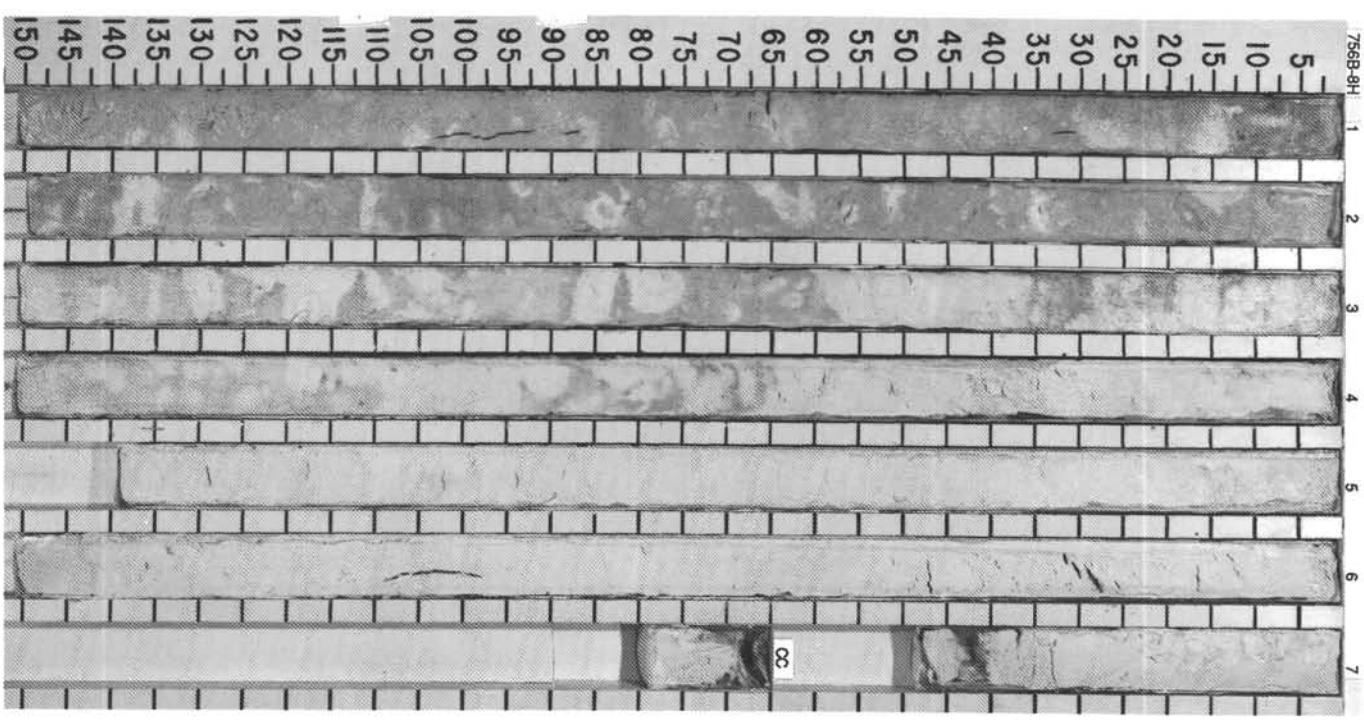
Core is slightly disturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS, Sections 1-3, very pale brown (10YR 7/3) with white (10YR 8/1) mottles. Nannofossil ooze, Sections 4-CC, white (10YR 8/2) with light gray (10YR 7/2) mottles in Section 4 and the top of Section 5. The entire core is strongly bioturbated.

Grain size: The mean grain size for Section 2, 90 cm is 30.5 µm; Section 4, 90 cm is 28.8 µm; and 8 CC is 23.0 µm.

SMEAR SLIDE SUMMARY (%):

	2, 90 D	6, 90 D
TEXTURE:		
Sand	10	10
Silt	60	80
Clay	30	10
COMPOSITION:		
Foraminifers	14	3
Glass	1	2
Nannofossils	85	95



SITE 756 HOLE B CORE 9H CORED INTERVAL 75.2-84.9 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
UPPER OLIGOCENE	A/G P21a	A/G CP19	Barren		Indeterminate	● 0-57.6 ● 7-1.79 ● 0-55.4 ● 7-1.82 ● 0-53.7 ● 7-1.86	● 95.4 ● 94.3 ● 94.8	1 2 3 4 5 6 7 CC	0.5 1.0				IW OG

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE

The core is slightly disturbed.

Major lithology: NANNOFOSSIL OOZE. Sections 1-3 are white (10YR 8/2) with pale brown (10YR 8/3) mottles. Sections 4 and 5 are white (10YR 8/2) with no signs of mottling. Section 6 is very pale brown (10YR8/3) with white (10YR 8/2) mottles, grading into white (10YR 8/2) at the base of Section 6, and for the remainder of the core. The core is strongly bioturbated.

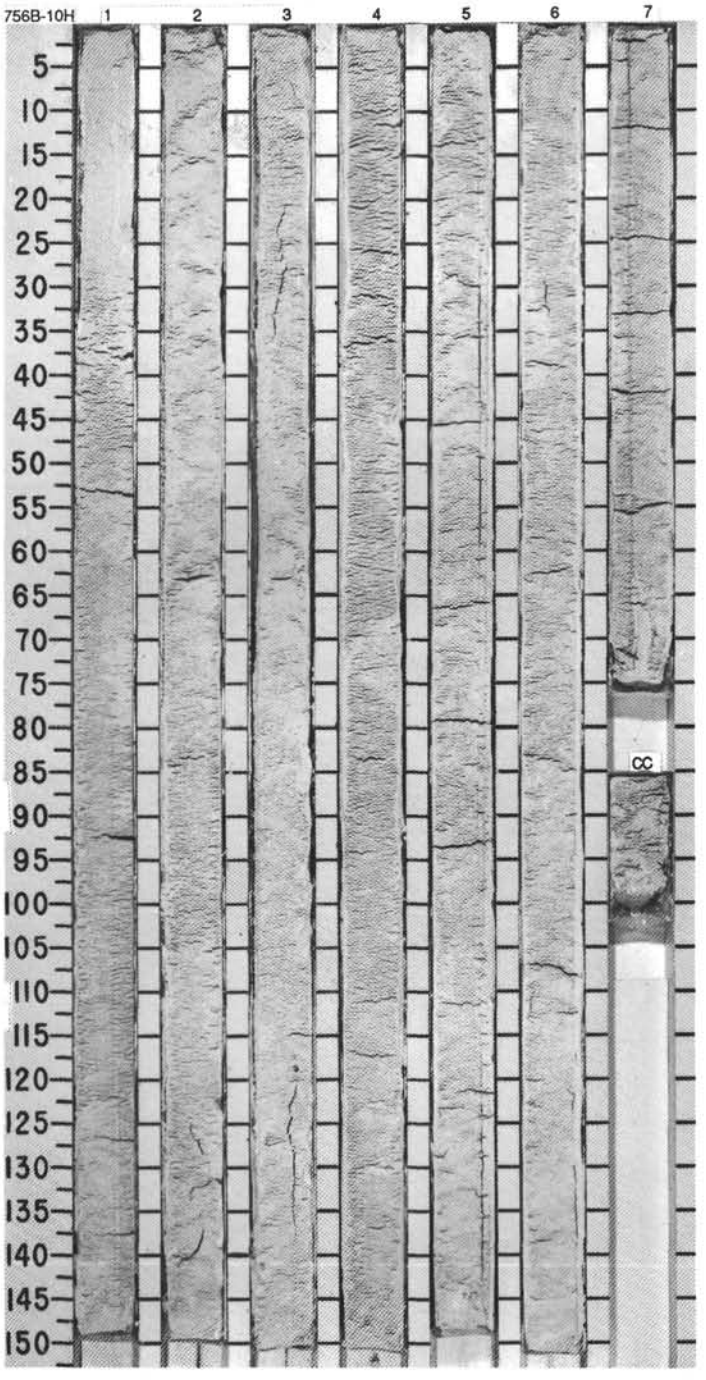
Grain Size: The mean grain size in Section 1, 90 cm is 18.9 µm; in Section 3, 90 cm is 21.9 µm, and in the CC is 17.9 µm.

SMEAR SLIDE SUMMARY (%):

	1, 90 D
TEXTURE:	
Sand	10
Silt	85
Clay	5
COMPOSITION:	
Foraminifers	9
Glass	Tr
Nannofossils	91

SITE 756 HOLE B CORE 10H CORED INTERVAL 84.9-94.6 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
LOWER - UPPER OLIGOCENE	A/G	A/G		Barren	Indeterminate	● ρ=54.1 ● 1.84	● 94.2	1	0.5 1.0					NANNOFOSSIL OOZE The core is slightly disturbed. Major lithology: NANNOFOSSIL OOZE.White color (10YR 8/1, or 10YR 8/2) throughout. The core is strongly bioturbated, and very homogeneous. Grain Size: The mean grain size for Section 1, 90 cm interval is 14.2 µm, and for section 3,90 cm interval it is 12.9 µm, and in the CC the mean grain size is 13.6 µm. SMEAR SLIDE SUMMARY (%): 4, 90 D TEXTURE: Silt 90 Clay 10 COMPOSITION: Foraminifers 1 Glass Tr Nannofossils 95
	P20-21a	CP19				● ρ=53.9 ● 1.87	● 94.4	2						
								3						
								4					*	
						● ρ=54.5 ● 1.89	● 93.9	5						
								6						
								7						
								CC						



SITE 756 HOLE B CORE 11H CORED INTERVAL 94.6-104.3 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
LOWER OLIGOCENE	P18-19	CP18	Barren		Indeterminate	● 0-55.1 1.82	● 93.6	1	0.5				
									1.0				
								2					*
						● 0-57.7 1.81	● 92.8	3					
								4					
						● 0-54.9 1.86	● 95.3	5					IW
								6					
								7					
	A/G	A/G						CC					

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE

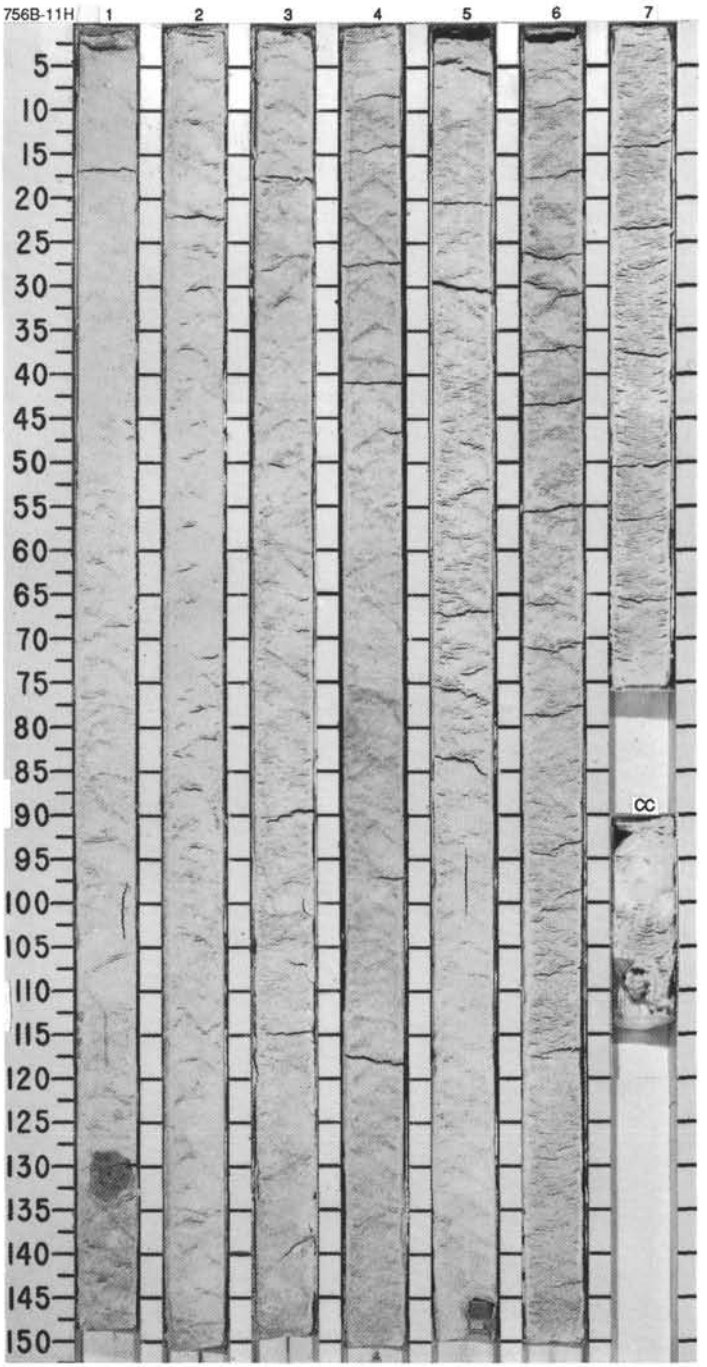
The core is slightly disturbed

Major lithology: NANNOFOSSIL OOZE. White (10YR8/2) in all sections except Section 4 which is very pale brown (10YR 8/3). The core is strongly bioturbated and homogeneous. A large (4 cm) yellowish brown mottle occurs in Section 1, 130-136 cm.

Grain Size: The mean grain size for Section 2, 90 cm is 19.5 µm; for Section 4, 90 cm is 18.2 µm; and CC is 14.5 µm.

SMEAR SLIDE SUMMARY (%):

	2, 90 D
TEXTURE:	
Sand	1
Silt	84
Clay	15
COMPOSITION:	
Foraminifers	5
Glass	Tr
Micrite	2
Nannofossils	92



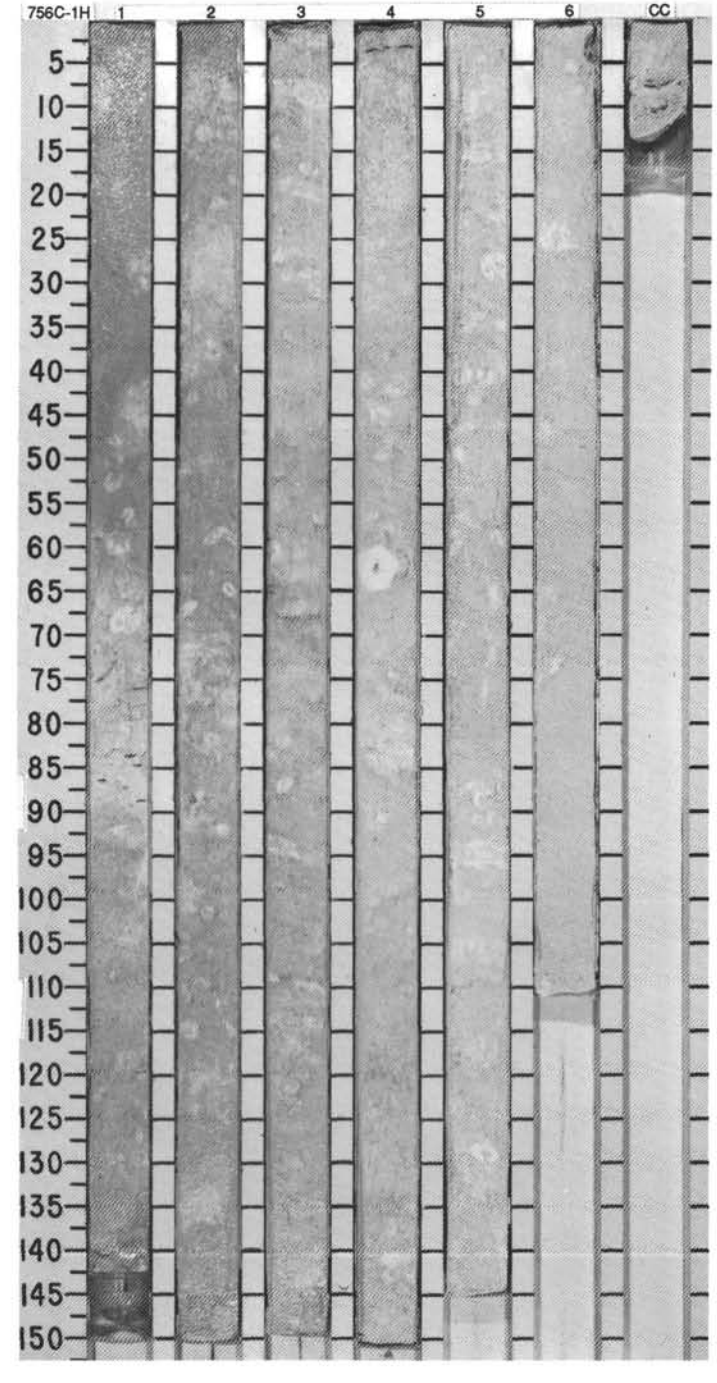
SITE 756 HOLE C CORE 1H CORED INTERVAL 0-8.8 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
UPPER PLIOCENE	A/G	N21			Indeterminate	● 60.8 ρ 1.70	● 96.8	6						
	A/G	CN12a				● 62.0 ρ 1.70	● 95.7	5						
								4						
				Barren		● 61.3 ρ 1.71	● 96.1	3						
								2						
								1	0.5 / 1.0					
								CC						

NANNOFOSSIL OOZE WITH FORAMINIFERS

The core is slightly disturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS. White (10YR 8/2) with white (10YR8/1) mottles. Bioturbated throughout. Several mottles show grayer centers and lighter rims; Section 4, 61-64 cm has a large example of structure and coloration.



SITE 756 HOLE C CORE 2H CORED INTERVAL 68.9-78.6 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
LOWER MIOCENE	A/G	A/G		Barren	Indeterminate	● 64.2 ● 1.69 ● 95.2		1 2 3 4 5 6 CC	0.5 1.0			* *	1W

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE WITH FORAMINIFERS

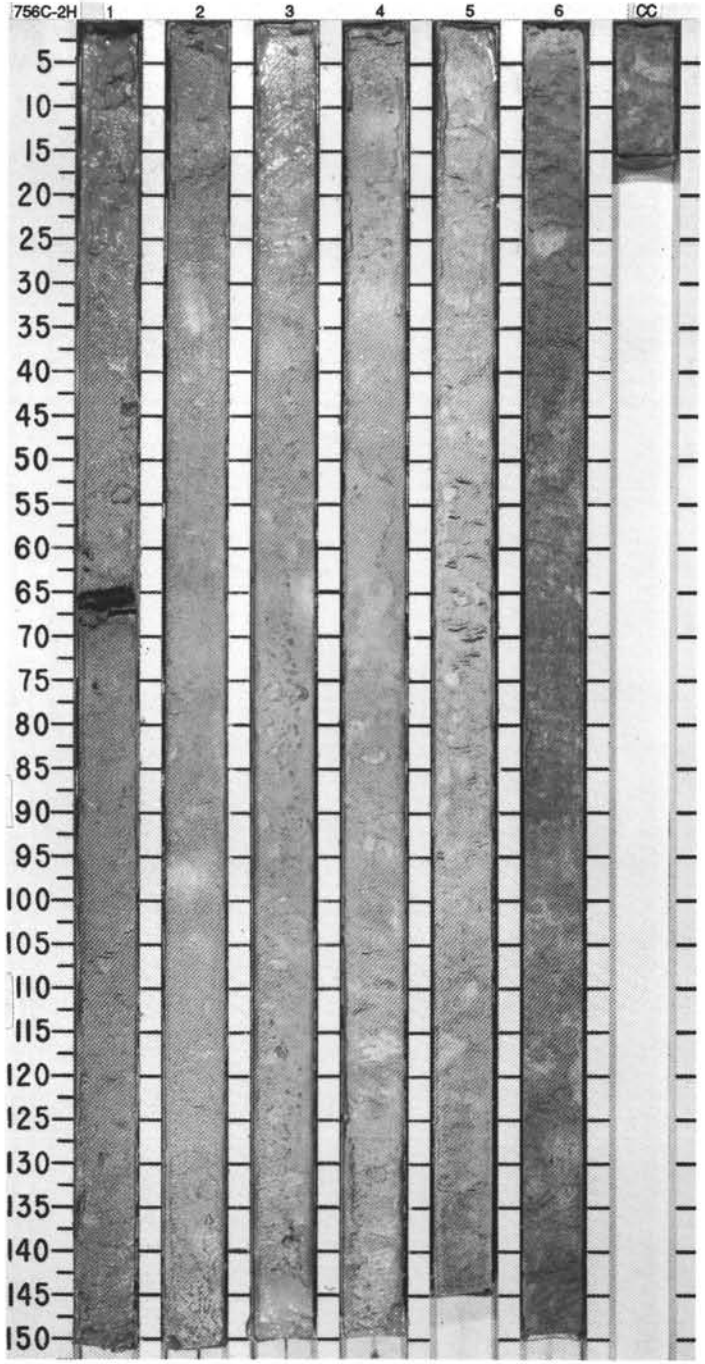
The core is slightly disturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS. Very pale brown (10YR 7/3) with rare mottles of very pale brown (10YR 8/3). Color darkens down core so that Section 6 and the CC are brownish yellow (10YR 6/6). Strongly bioturbated throughout.

Minor lithology: Ash. Dark grayish brown (10YR 3/2) layer at Section 1, 64-67 cm, and rare other blebs. Strong color results from intense alteration of the glass and presence of opaque minerals. Resembles a "brownie" in the core. Sharp lower and upper contacts, possible turbidite.

SMEAR SLIDE SUMMARY (%):

	1, 65 M	4, 90 D
TEXTURE:		
Sand	7	13
Silt	83	80
Clay	10	7
COMPOSITION:		
Feldspar	3	—
Foraminifers	—	15
Glass	90	Tr
Nannofossils	2	85
Opaques	5	—



SITE 756 HOLE C CORE 3W CORED INTERVAL 1605.3-1627.6 mbsl; 78.6-100.9 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
UPPER OLIGOCENE - LOWER PLIOCENE	A/G	P22 - N4			B				CC						
	A/G	CN1													

SITE 756 HOLE C CORE 4X CORED INTERVAL 100.9-110.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
LOWER OLIGOCENE	A/G P19 / 20	A/G CP18	Barren		Indeterminate	● ϕ=57.1 ρ=1.80 ● ϕ=54.8 ρ=1.80 ● 95.5 ● 94.8 ● ϕ=56.8 ρ=1.80 ● 94.6		1 2 3 4 5 6 7 CC	0.5 1.0			*	IW OG

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE WITH FORAMINIFERS

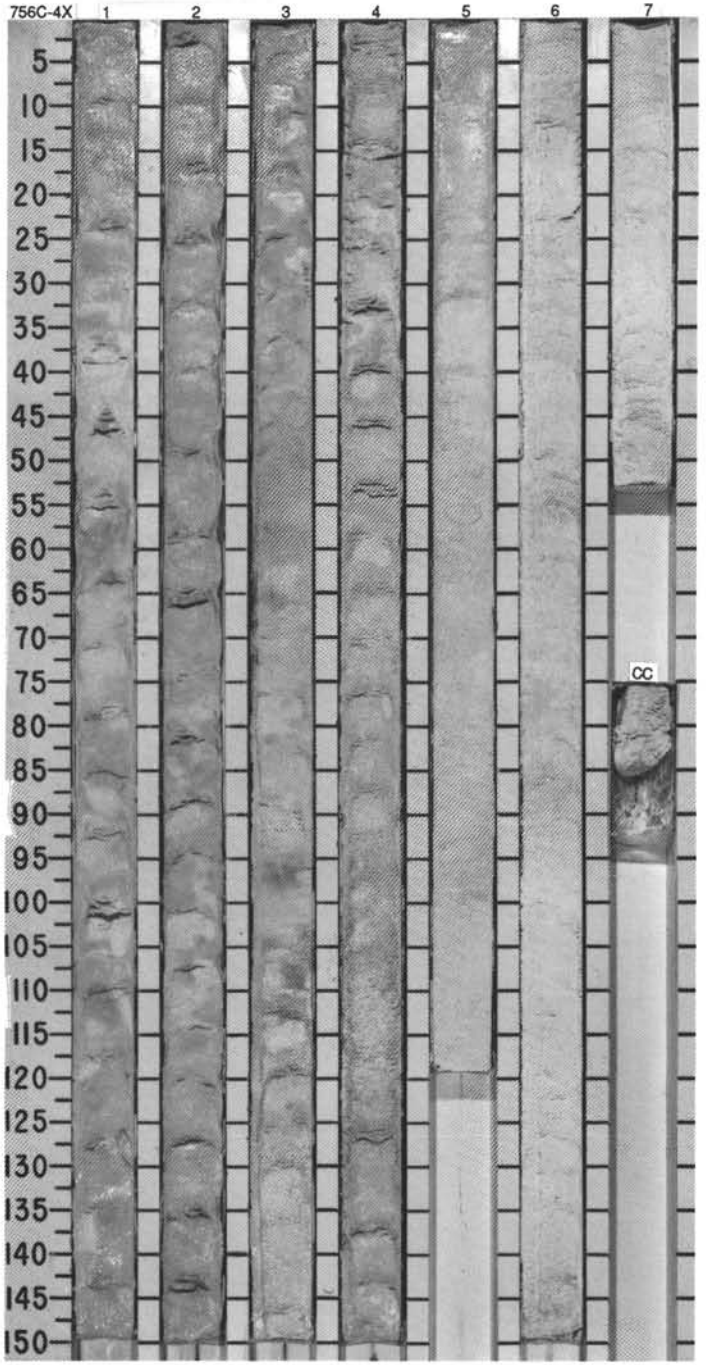
The core is slightly disturbed.

Major lithology:NANNOFOSSIL OOZE with FORAMINIFERS, white (10YR 8/1 and 10YR 8/2) to very pale brown (10TR 8/3), mottled and bioturbated. Subtle changes in the degree of induration result in pull apart structures which separate the ooze into "proto-biscuits".

Grain size: The mean particle diameter in Section 2, 90 cm, is 21.7 µm; in Section 4, 90 cm, is 13.0 µm; and in the CC is 12.0 µm.

SMEAR SLIDE SUMMARY (%):

	4, 90 D
TEXTURE:	
Sand	9
Silt	83
Clay	8
COMPOSITION:	
Foraminifers	12
Glass	Tr
Nannofossils	88



SITE 756 HOLE C CORE 5X CORED INTERVAL 110.5-120.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
LOWER OLIGOCENE	A/G P18	A/G CP18	Barren		Indeterminate	● 54.8 1.81 ● 55.2 1.81	● 95.0	1	0.5	VOID	///	≈≈	
	A/G CP17					● 54.8 1.85	● 94.9	2	1.0	VOID	/// /// ///	≈≈ ≈≈	
								3	1.5		/// /// /// /// /// ///	≈≈ ≈≈ ≈≈	
								4	2.0	VOID	/// /// ///	≈≈ ≈≈	
								5	2.5	VOID	/// /// ///	≈≈ ≈≈	*
						● 54.8 1.80	● 93.5	6	3.0	VOID	/// /// /// ///	≈≈ ≈≈ ≈≈	
							● 92.3	7	3.5		/// /// /// /// /// /// /// ///	≈≈ ≈≈ ≈≈ ≈≈	
								8	4.0		/// /// /// /// /// /// /// ///	≈≈ ≈≈ ≈≈ ≈≈	
								CC			/// /// /// /// /// /// /// ///	≈≈ ≈≈ ≈≈ ≈≈	

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE WITH FORAMINIFERS

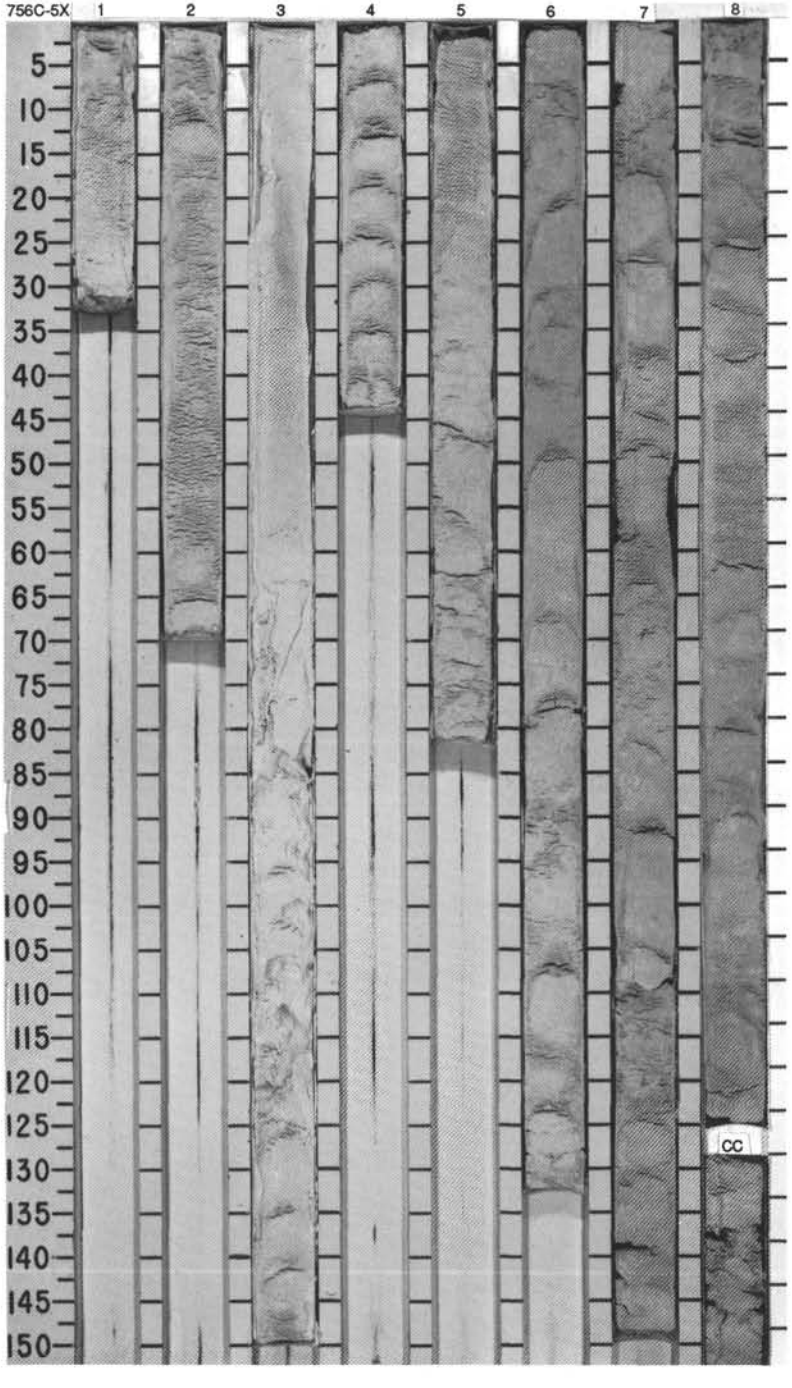
The core is very disturbed because a core liner was accidently excluded from the core barrel.

Major lithology: NANNOFOSSIL OOZE, white (10YR 8/2) to very pale brown (10YR 8/3), homogeneous and heavily bioturbated. The 8.15 meters of core are divided into 8 sections and a CC.

Grain size: The mean particle diameter in Section 2, 90 cm, is 12.9 µm; in Section 4, 10 cm, is 19.4 µm; and in the CC is 32.3 µm.

SMEAR SLIDE SUMMARY (%):

	5, 60 D
TEXTURE:	
Sand	10
Silt	85
Clay	5
COMPOSITION:	
Foraminifers	15
Nannofossils	85



SITE 756 HOLE C CORE 6X CORED INTERVAL 120.2-129.8 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: NANNOFOSSILS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: RADIOLARIANS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
UPPER EOCENE / LOWER OLIGOCENE	A/G P16 / A/G P17	A/G CP16		Barren	Indeterminate	● 56.7 1.79	● 92.1	1 2 3 4 5 CC	0.5 1.0				*

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE

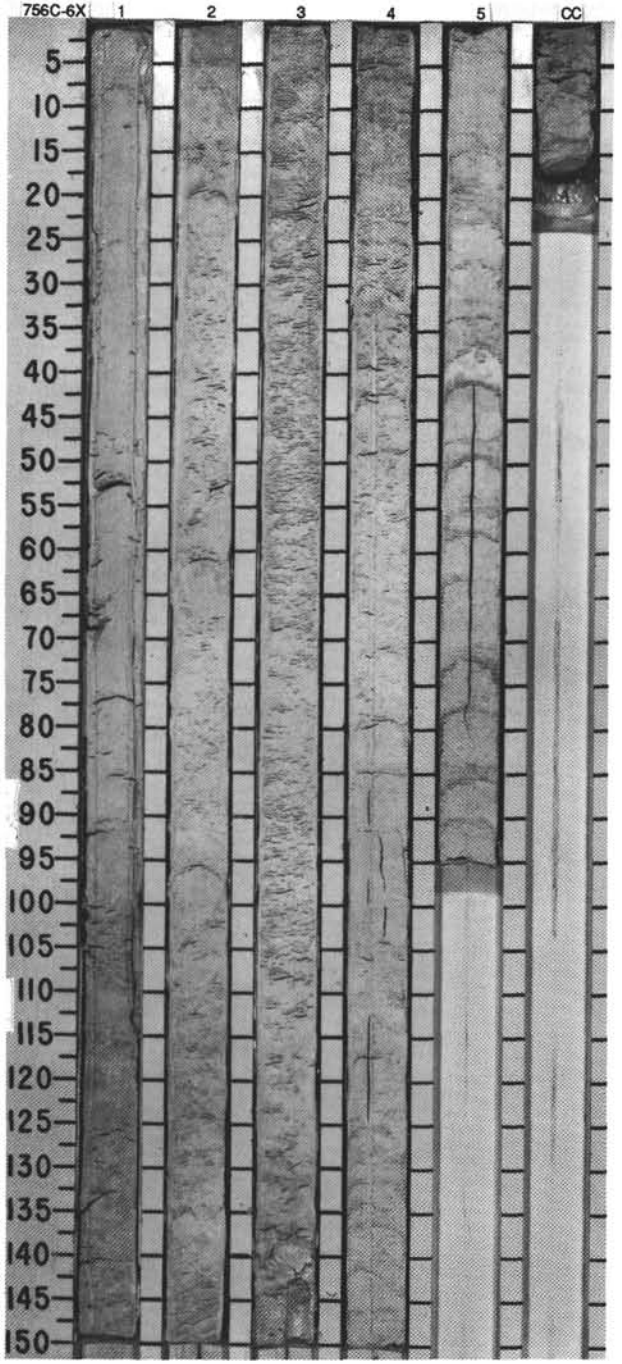
The core is only slightly disturbed.

Major lithology: NANNOFOSSIL OOZE, very pale brown (10YR 8/3) in color. The core is homogeneous and appears heavily bioturbated.The ooze is becoming very fine grained and stiff in this core.

Grain size: The mean particle diameter in Section 2, 90 cm is 15.2 µm; in Section 4, 90 cm is 12.2 µm;and in the CC is 12.4 µm.

SMEAR SLIDE SUMMARY (%):

	3, 90 D
TEXTURE:	
Sand	3
Silt	87
Clay	10
COMPOSITION:	
Foraminifers	5
Glass	Tr
Glauconite	Tr
Nannofossils	95
Silicoflagellates	Tr
Spicules	Tr



SITE 756 HOLE C CORE 7X CORED INTERVAL 129.8-139.4 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
UPPER EOCENE	A/G P16	CP16	Barren		Indeterminate	● 0-59.5 ● 1-1.76	● 91.9	1	0.5 1.0				
								2					
	P15 C/M					● 0-58.4 ● 1-1.76	● 93.8	3					
	A/G	CP15b						4				*	IW OG
	C/M					● 0-60.2 ● 1-1.72	● 88.3	5					
								6					
								CC					

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE WITH FORAMINIFERS

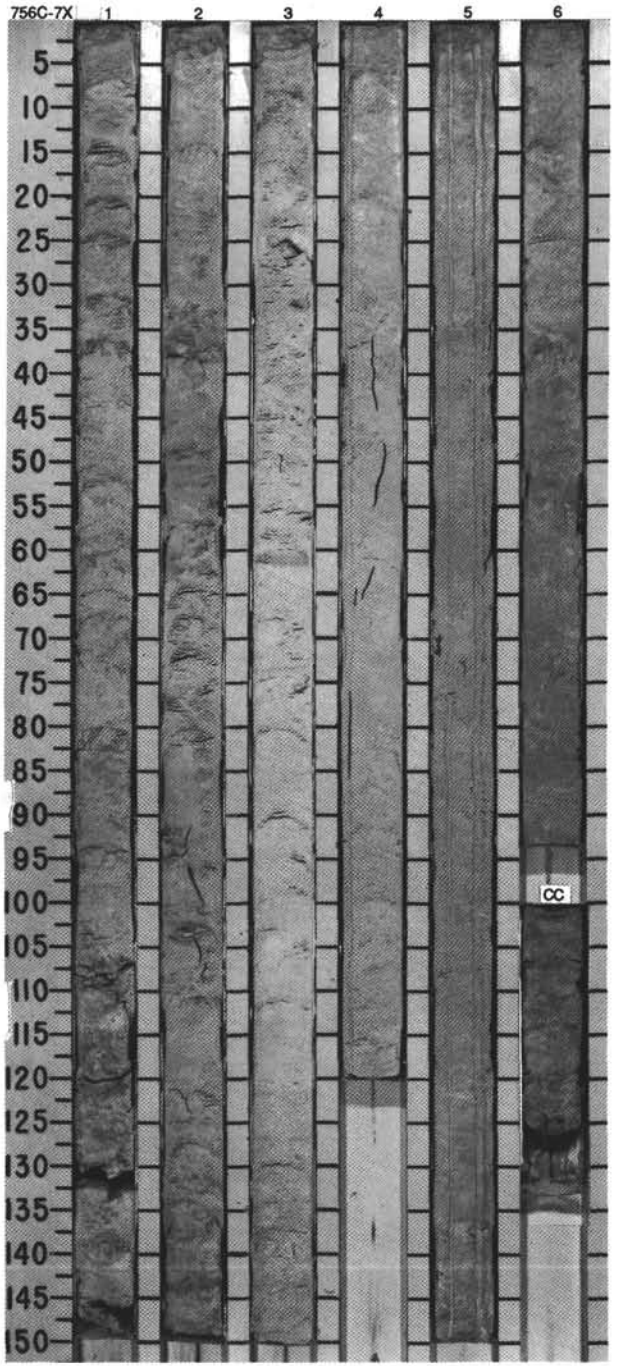
The core is slightly disturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS, white (10YR8/2) grading to pinkish white (7.5YR 8/2) in Section 3. The ooze is homogeneous save for very faint mottling in Section 4 and three very pale brown (10YR 8/4) layers in Section 3 at 62, 75, and 128 cm. The entire core is heavily bioturbated.The ooze is becoming stiff, and demonstrates a "proto-biscuit" structure.

Grain size: The mean particle diameter in Section 2, 90 cm, is 18.4 µm; in Section 4, 90 cm, is 20.0 µm; and in the CC in 28.4 µm.

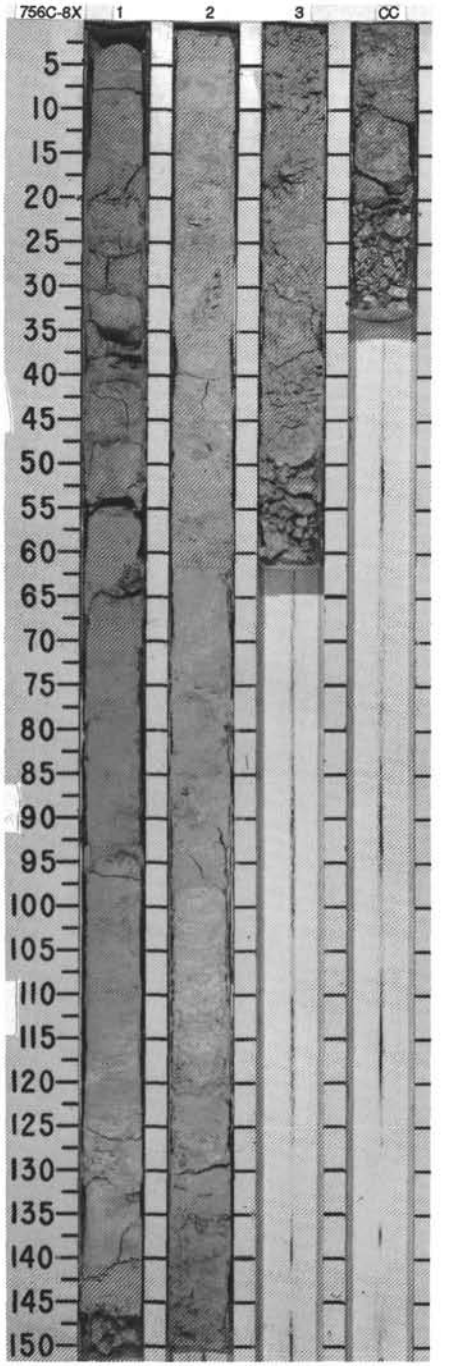
SMEAR SLIDE SUMMARY (%):

	4, 90 D
TEXTURE:	
Sand	10
Silt	85
Clay	5
COMPOSITION:	
Foraminifers	20
Glass	Tr
Nannofossils	80



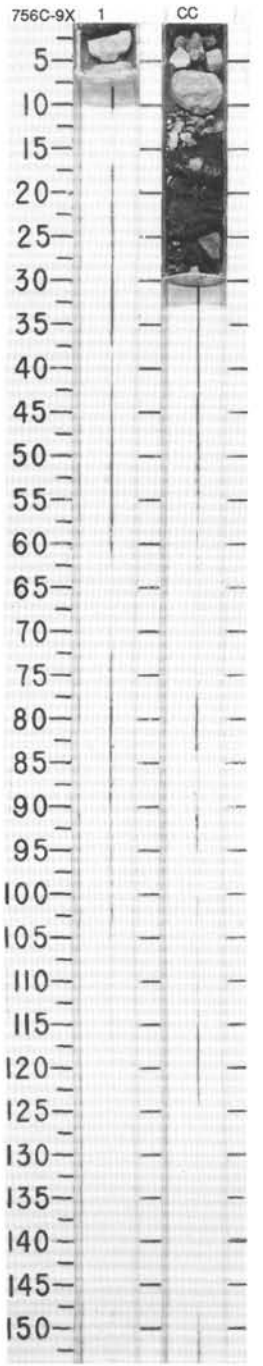
SITE 756 HOLE C CORE 8X CORED INTERVAL 139.4-144.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: NANNOFOSSILS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: RADIOLARIANS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
UPPER EOCENE	P15 A/G	CP15b A/G	Barren		Indeterminate	● 0-57.5 ● 1.177 ● 90.7		1 2 3 CC	0.5 1.0		mm			NANNOFOSSIL OOZE WITH FORAMINIFERS, AND NANNOFOSSIL CHALK WITH FORAMINIFERS The core grades from slightly to very disturbed in the CC. Major lithology: Sections 1 and 2 consist of NANNOFOSSIL OOZE with FORAMINIFERS, very pale brown (10YR 8/3 to 10YR 8/4), homogeneous and bioturbated. The sediment is stiff, parted, and contains"proto-biscuits". Section 3 and the CC are nannofossil chalk with foraminifers, very pale brown (10YR 8/4), homogeneous and bioturbated. Grain size: The mean particle diameter in Section 2, 90, cm is 55.8 µm.



SITE 756 HOLE C CORE 9X CORED INTERVAL 144.5-150.3 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
UPPER EOCENE	A/G P15	A/G CP15b		Barren	Indeterminate	ρ=1.9.0 ● V=4579 ↑=2.61	94.5 ●	1 CC						FORAMINIFERAL LIMESTONE AND BASALT Major lithology: FORAMINIFERAL LIMESTONE, very pale brown (10YR 7/4), mostly foraminifers with fragments of glass in Section 1 and the first 15 cm of the CC. Basalt begins in the CC at 15 cm and extends to the bottom at 30 cm.



SITE 756 HOLE D CORE 1R CORED INTERVAL 0-9.6 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
UPPER MIOCENE / LOWER PLIOCENE	A/G	A/G	Barren		Indeterminate		● 0.3	1 2 3 4 5 6 7	0.5 1.0				*

LITHOLOGIC DESCRIPTION

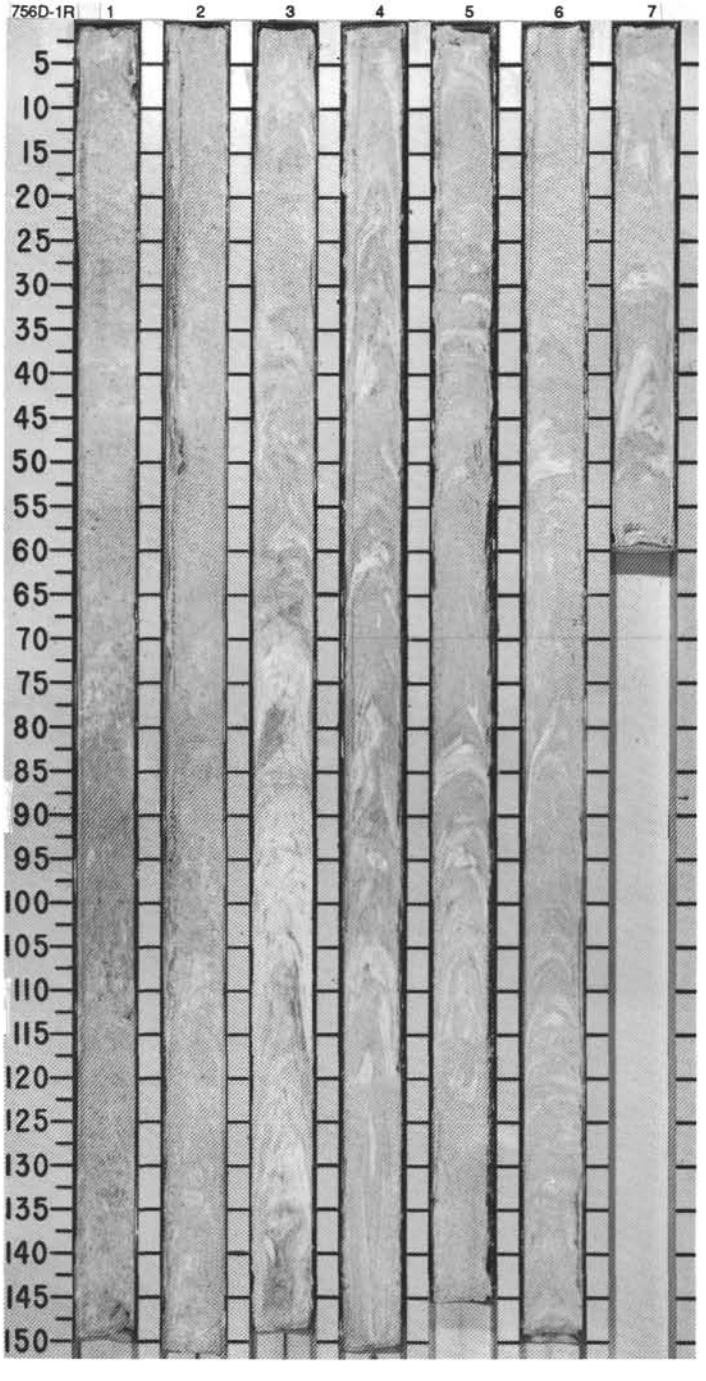
NANNOFOSSIL OOZE WITH FORAMINIFERS

The core is slightly disturbed in Sections 1 and 2, the rest is moderately disturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS, white (10YR 8/1, 10YR 8/2). Sections 1 and 2 are nearly homogeneous with only faint mottles. Sections 3 through 7 exhibit parabolic layers/mottles in intertwined patterns, presumably a result of drilling disturbance. The layers/mottles are lighter white(10YR 8/1) in the darker white shade (10Y@ 8/2) matrix. The entire core is heavily bioturbated.

SMEAR SLIDE SUMMARY (%):

	3, 90 D
TEXTURE:	
Sand	10
Silt	85
Clay	5
COMPOSITION:	
Foraminifers	10
Nannofossils	90



SITE 756 HOLE D CORE 2R CORED INTERVAL 70.1-79.7 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
LOWER MIOCENE	N6?	CN1 - CN3	Barren		Indeterminate			1	0.5 / 1.0				LW
	A/G	A/G						2					
								3					*
								4					LW
								5					
								6					
								7					LW
								CC					

LITHOLOGIC DESCRIPTION

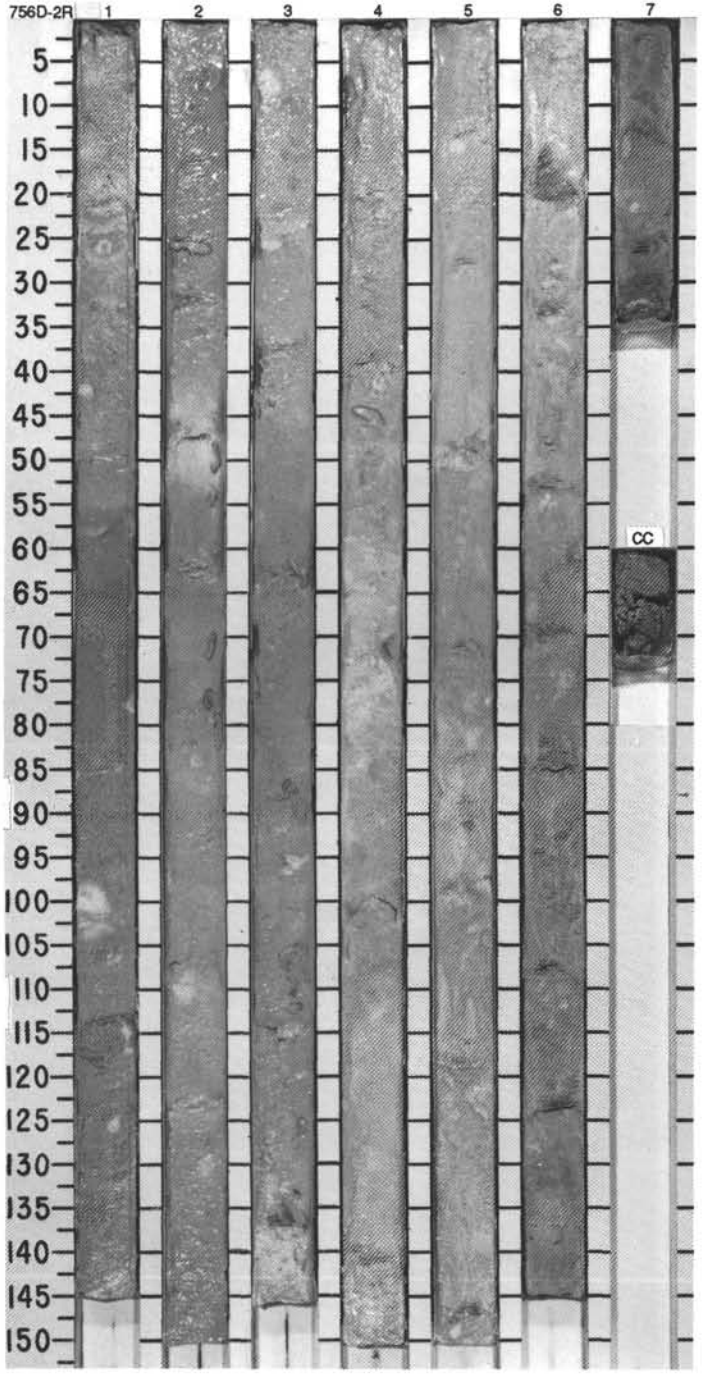
NANNOFOSSIL OOZE WITH FORAMINIFERS

The core is slightly disturbed in Sections 1-3, the remainder is moderately disturbed.

Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS,very pale brown (10YR 7/3 to 7/4)), with occasional, lighter colored, white (10YR 8/2) mottles. Sediment is nearly homogeneous, heavily bioturbated.

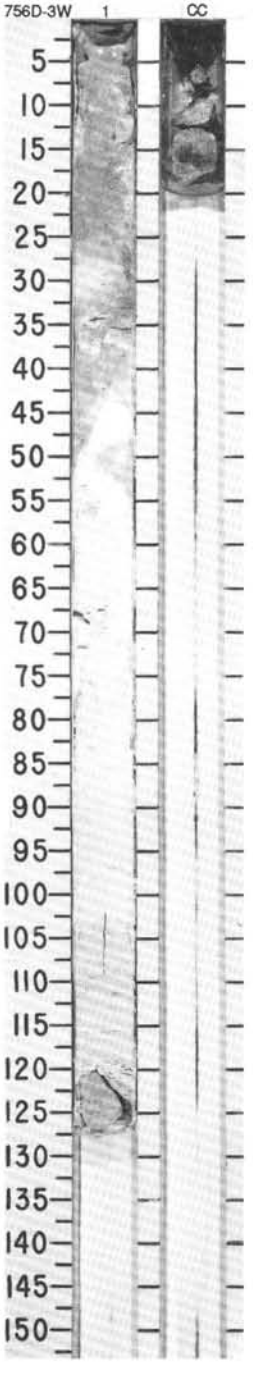
SMEAR SLIDE SUMMARY (%):

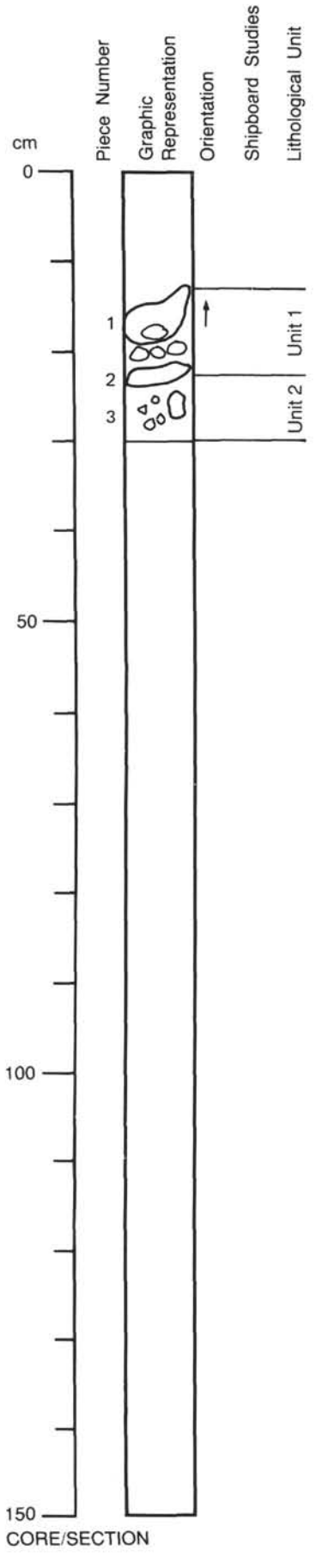
	3, 90 D
TEXTURE:	
Sand	20
Silt	80
COMPOSITION:	
Foraminifers	20
Glass	Tr
Nannofosils	80
Quartz	Tr



SITE 756 HOLE D CORE 3W CORED INTERVAL 79.7-139.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
UPPER EOCENE	P16	CP16 / CP15b		Barren	Indetermin ate			1	0.5					NANNOFOSSIL OOZE WITH FORAMINIFERS, AND LIMESTONE The core is moderately disturbed. Major lithologies: a. NANNOFOSSIL OOZE with FORAMINIFERS, grading from light gray (10YR7/1) to white (10YR 8/2) in Section 1, 0-120 cm. Although occasional mottles and smeared burrows occur, the ooze is nearly homogeneous, and bioturbated. b. LIMESTONE begins as a 7 cm pebble in Section 1, 120-127, and continues as pebbles through the core catcher. The lone pebble at the bottom of Section 1 contains only a few microscopic black speckles, microfossil fragments, including benthic foraminifers, the remainder of the limestone is a rather homogeneous, very pale brown (10YR 7/4) color. The pebbles in the core catcher contain a heterogeneous mixture of many minerals including plagioclase, amphibole, pyroxene(?), hematite, and calcite.
	A/G	A/M							1.0					
								CC						





121-756C-9X-CC

0 - 15 cm: Foraminifer limestone.

UNIT S0: VOLCANIC BRECCIA ??

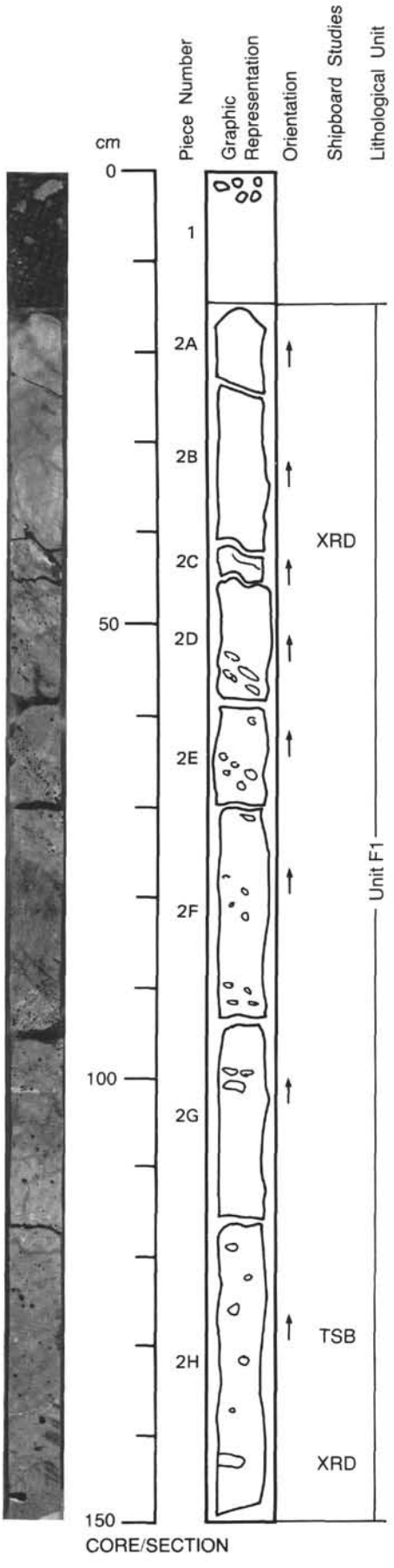
PIECES: 1 - 2.

COLOR: Brown green.

ALTERATION: Highly altered.

COMMENTS: Piece 1 contains a 1.5 cm limestone xenolith.

Piece 3: Drilling rubble including a basalt fragment.



121-756C-10N-1

PIECE 1: Drilling breccia.

UNIT F1: APHYRIC BASALT (121-756C-10N-1 Piece 2A to Section 3 Piece 4).

PIECES: 2A - 2H.

CURATED LENGTH: 4.35 m.

GROUNDMASS: Microcrystalline.

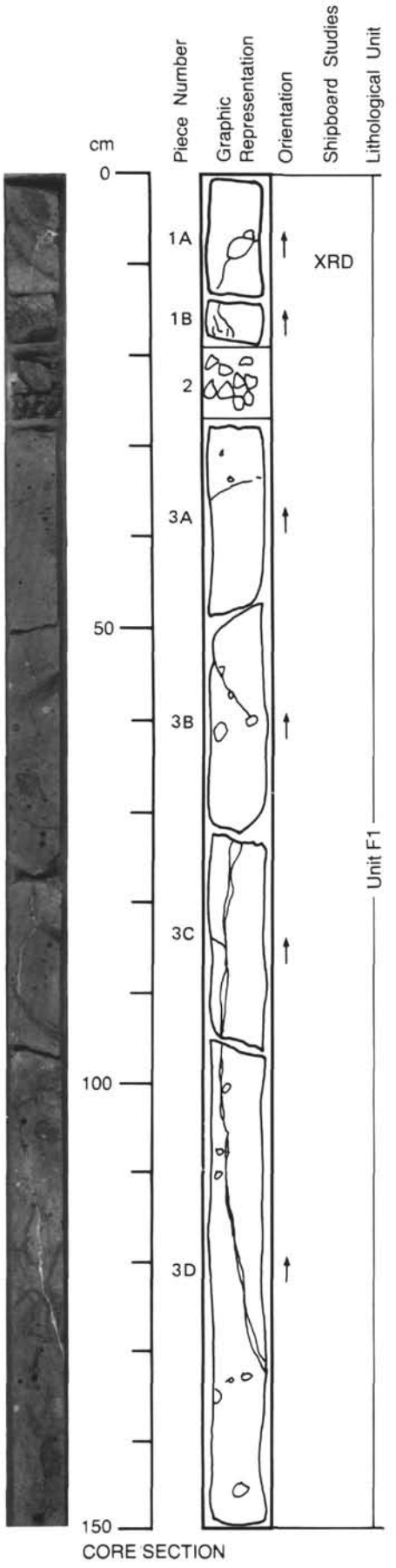
COLOR: Variable. Medium gray to orange gray (10YR6/3 to 10YR4/6).

VESICLES: Unevenly distributed about 15% in 2E. Vesicles are aligned and elongate, particularly in Pieces 2D and 2E. Large size range from 0.1 mm to 5 + cm. Approximately 25% of the vesicles are filled with calcite. Larger vesicles are only partially full with calcite deposited preferentially at the bottom of the vesicle.

STRUCTURE: Thin flow.

ALTERATION: Variable. Moderate (about 30%) to highly (about 80%) altered with particularly along veins and joints.

VEINS/FRACTURES: Randomly orientated calcite filled veins up to 2 mm in diameter.

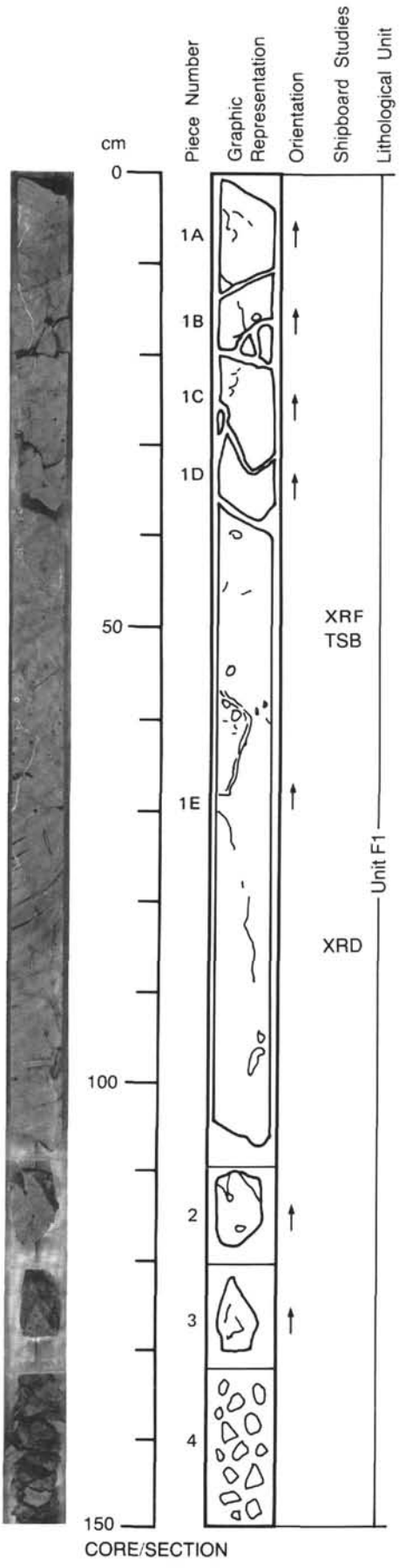


121-756C-10N-2

UNIT F1: APHYRIC BASALT (Cont.).

PIECES: 1A - 3D.

See description for Section 121-756C-10N-1.



121-756C-10N-3

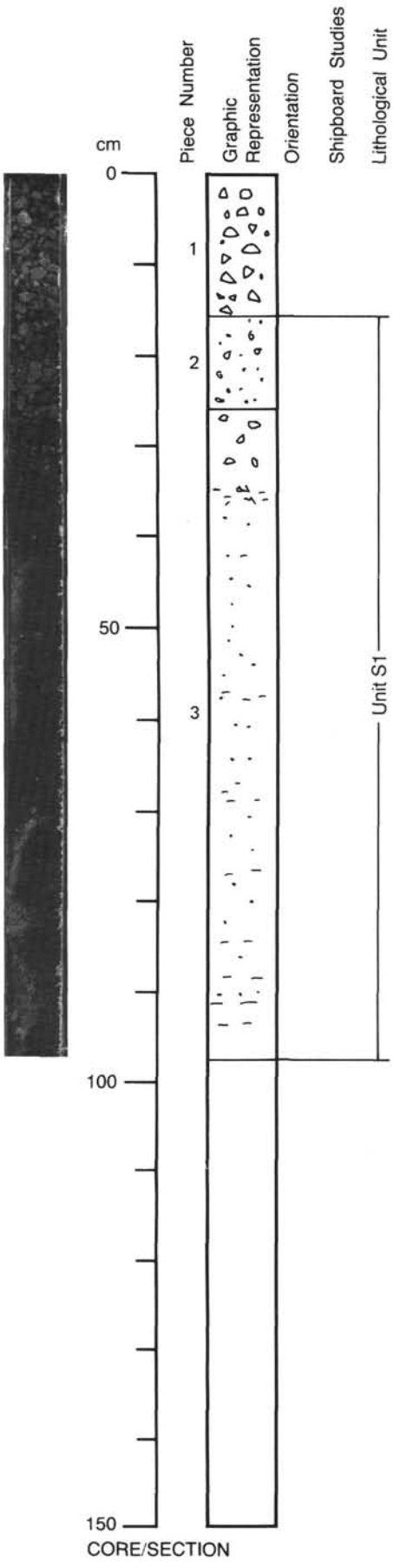
UNIT F1: APHYRIC BASALT (Cont.).

PIECES: 1 - 4.

COMMENT: See description for Section 121-756-10N-1. In addition:

VESICLES: Piece 1 highly vesicular (30%), vesicles about 1 mm in size are filled with green brown clay-like mineral. Pieces 3 and 9 are sparsely vesicular (about 5% vesicles). Larger,1-2 mm vesicles are all filled with greenish yellow clay minerals (smectite). Larger rounded cavities (10 mm) are not filled but have a limonitic coating.

ALTERATION: Highly altered "smectite" infillings to vesicles and veins. Pervasive yellow brown, sub-parallel veins with a sub-horizontal orientation. (Flow structure?).



121-756C-11N-1

UNIT S1: AGGLOMERATE (15 to 30 cm) grading downwards into LAPILLISTONE (30 to 100 cm) with some bedded ash layers (37-38 cm and 79-80 cm).

PIECES:

CURATED LENGTH: 0.82 m.

COLOR: Dusky red, with some red orange ash layers.

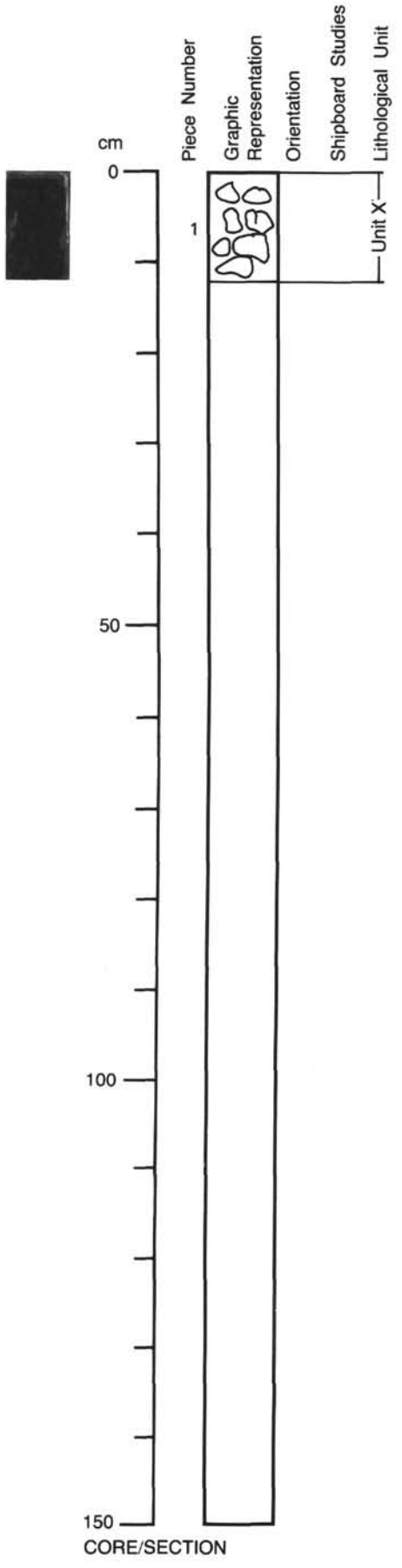
STRUCTURE: The upper 15 cm of the unit is an agglomerate with angular basalt fragments up to 3 cm in diameter, set in finer ash matrix. This grades downwards into finer lapillistone. Finer ash layers with pronounced bedding occur at 37-38, 79-80, and 93-94 cm. Fragments in the lapillistone are angular, basaltic in composition, hematized. No sorting. Grain size from very fine to 50 mm.

FRAGMENTS: The larger fragments are aphyric, microcrystalline with 1 mm vesicles containing carbonate.

VEINS: None.

ALTERATION: The whole unit is hematized and altered to clays.

COMMENTS: The first 0 to 15 cm of the section is a drilling breccia.



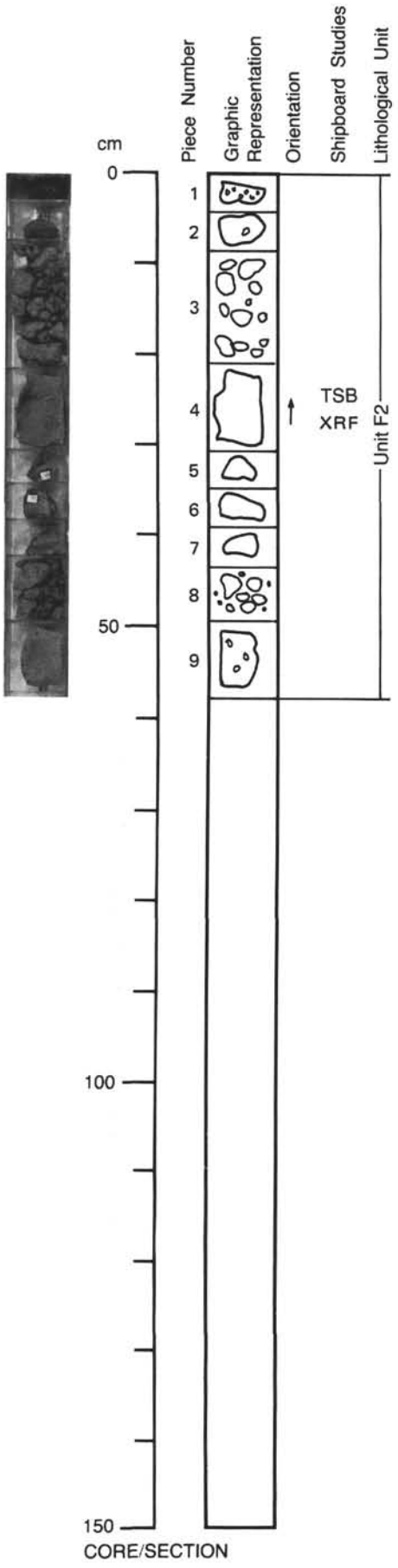
121-756C-11N-CC

UNIT: HEMATIZED CLAY.

CURATED LENGTH: 0.15 m.

COLOR: Dark red.

COMMENTS: The clay contains sparse basaltic material (drill disturbance ?). XRD identifies smectite + hematite.



121-756C-12N-1

UNIT F2: SPARSELY PLAGIOCLASE PHYRIC BASALT (121-756C-12N-1 Pieces 1 to 9).

PIECES: 1 - 9.

CURATED LENGTH: 0.57 m.

PHENOCRYSTS: Plagioclase 1-2 mm. Homogeneous distribution. Less than 1%. Subhedral, rounded.

GROUNDMASS: Microcrystalline to fine grained.

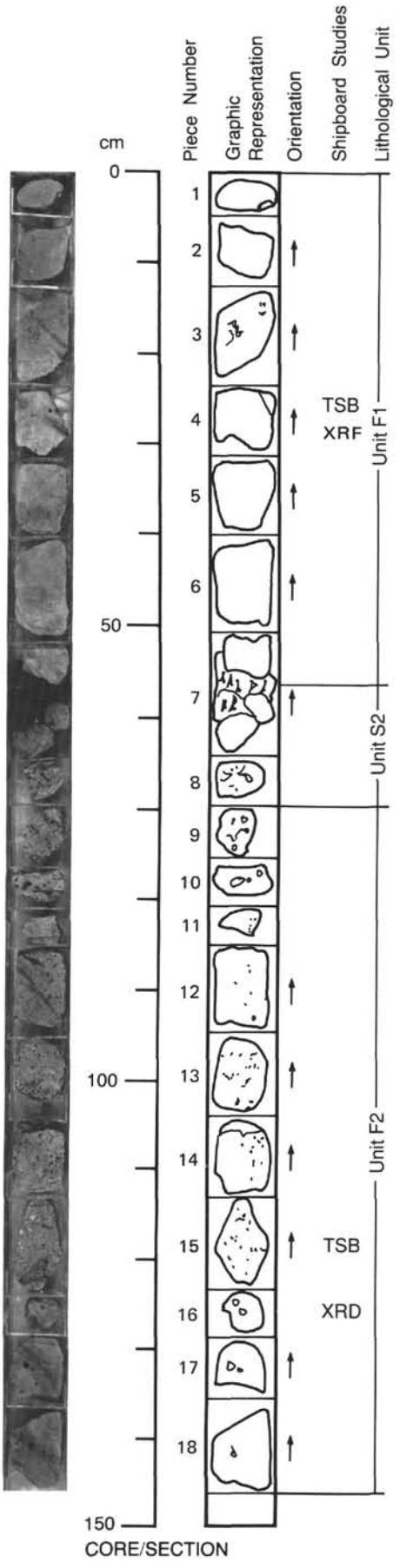
COLOR: Gray yellow.

VESICLES: Piece 1: Highly vesicular (30%), 1 mm diameter. About 50% are filled with green brown smectite. Pieces 3 and 9: Sparsely vesicular (~5%), 1-2 mm; all filled with greenish yellow smectite. Some 10 mm, rounded cavities have limonitic coatings.

ALTERATION: Highly altered. Smectite infillings to vesicles.

FRACTURES: Pervasive yellow brown, sub-parallel veins. Sub-horizontal orientation.

COMMENTS: Pieces 3 and 8 are drilling breccias. Upper and lower contact not exposed.



121-756D-4R-1

UNIT F1: SPARSELY PLAGIOCLASE-PYROXENE PHYRIC BASALT (121-756D-4R-1 Pieces 1-7).

PIECES: 1 - 7.

CURATED LENGTH: 0.57.

PHENOCRYSTS: Rare plagioclase (<1%), 1 mm or less with a random distribution. Rarer pyroxene, altered, <1 mm. Olivine completely altered.

GROUNDMASS: fine-grained (<1 mm).

COLOR: Gray to yellowish brown.

VESICLES: About 5%, size variable but less that 2 mm. Partially filled by alteration minerals (calcite, smectites, iron oxides or hydroxides). In Piece 3: The local concentration of vesicles is higher - up to 40%.

STRUCTURE: Thin flow.

ALTERATION: Moderate.

COMMENTS: Upper contact not exposed. Lower contact not exposed. Rests on drilling-disturbed soil or breccia.

UNIT S1: SOIL - VOLCANIC BRECCIA.

PIECES: Middle of Piece 7.

CURATED LENGTH: 0.13 m.

COLOR: Reddish brown.

THICKNESS: 2 to 7 cm.

FRAGMENTS: Rare and small (<0.5 cm) basalt fragments.

COMMENTS: This may be drilling breccia. For description of remaining pieces in this section, see under Core 121-756D-4R-2.

UNIT F2: APHYRIC BASALT (121-756D-4R-1, Piece 7 to 121-756D-5R-1, Piece 11).

PIECES: 7 - 18.

CURATED LENGTH: 2.56 m.

PHENOCRYSTS: Very rare plagioclase, small 1 to 2 mm.

GROUNDMASS: fine-grained (0.1-1 mm), with some variation through the unit.

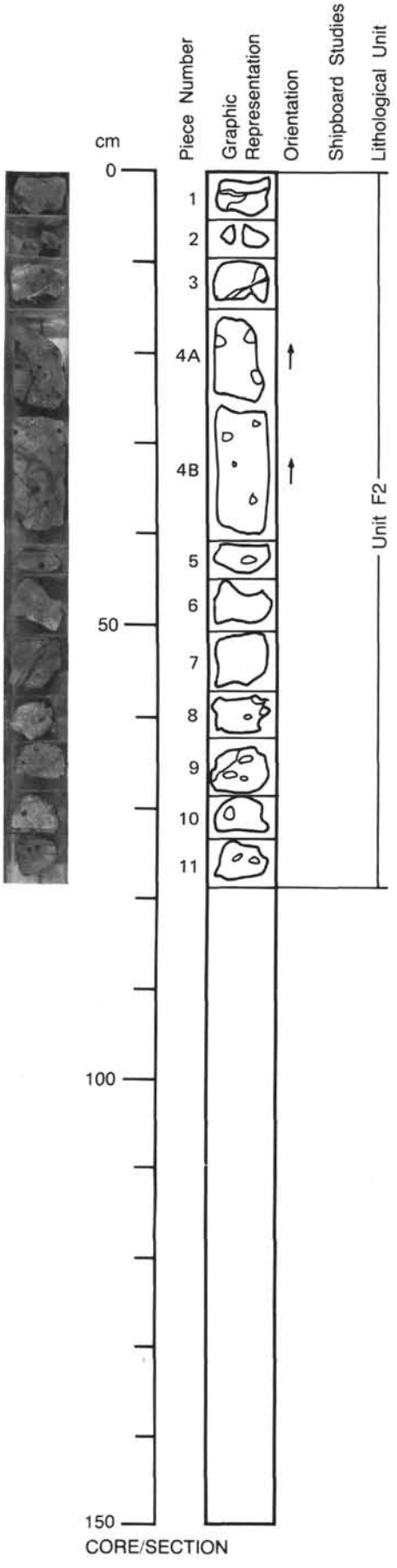
COLOR: Gray to yellowish brown more gray for Pieces 7 to 15.

VESICLES: Pieces 7 to 15: 20-50%, variable sizes and partially filled with alteration minerals (including Fe oxides or hydroxides), except Piece 15 which has 10 to 20% filled by calcite.

STRUCTURE: Thin flow.

ALTERATION: Moderate.

COMMENTS: Upper contact: Sharp contact with the soil (drilling disturbance), the basalt is fragmented into small Pieces.

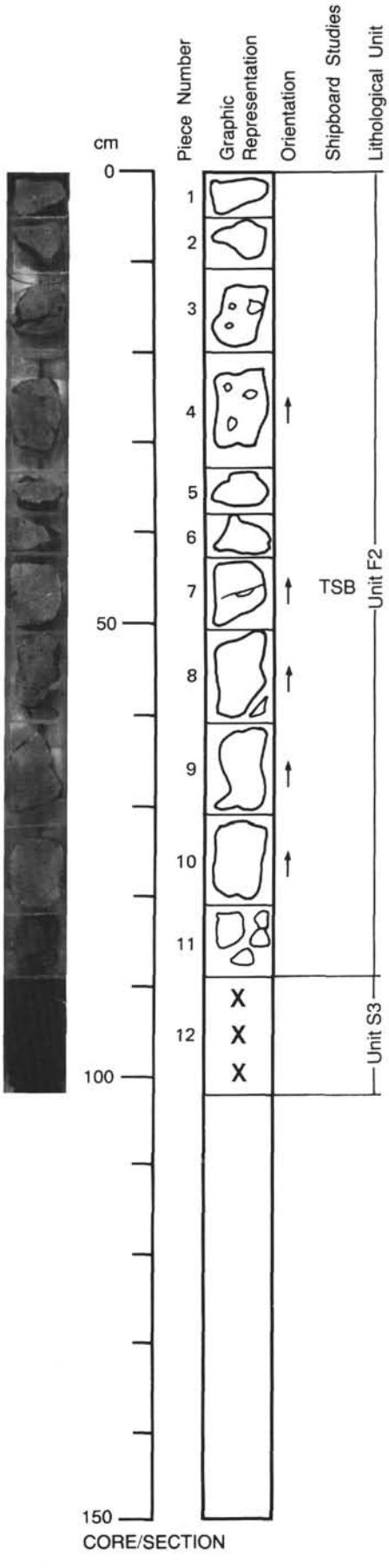


121-756D-4R-2

UNIT F2: APHYRIC BASALT (Cont.).

PIECES: 1 to 11.

COMMENTS: Continuation of Unit F2 from previous section. The only changes involve the appearance of bigger (1-5 mm), but rare vesicles in Pieces 4 to 11, empty or filled with Fe oxides or hydroxides. Also, appearance of carbonate filled veinlets.



121-756D-5R-1

UNIT F2: APHYRIC BASALT (Cont.).

PIECES: 1 - 11.

PHENOCRYSTS: None.

GROUNDMASS: Fine grained to microcrystalline.

COLOR: Gray yellowish, greenish brown. Piece 11 is dark gray.

VESICLES: Pieces 8-10, planar horizontal vesicles 1-2% with a random distribution. Otherwise unit contains about 1% vesicles with 5% vesicles in Piece 2. Vesicle fillings are yellow smectite.

STRUCTURE: Thin flow.

ALTERATION: Moderate, but less than in Section 121-756D-4R-1.

VEINS/FRACTURES: Vein (<2 mm) in Piece 7.

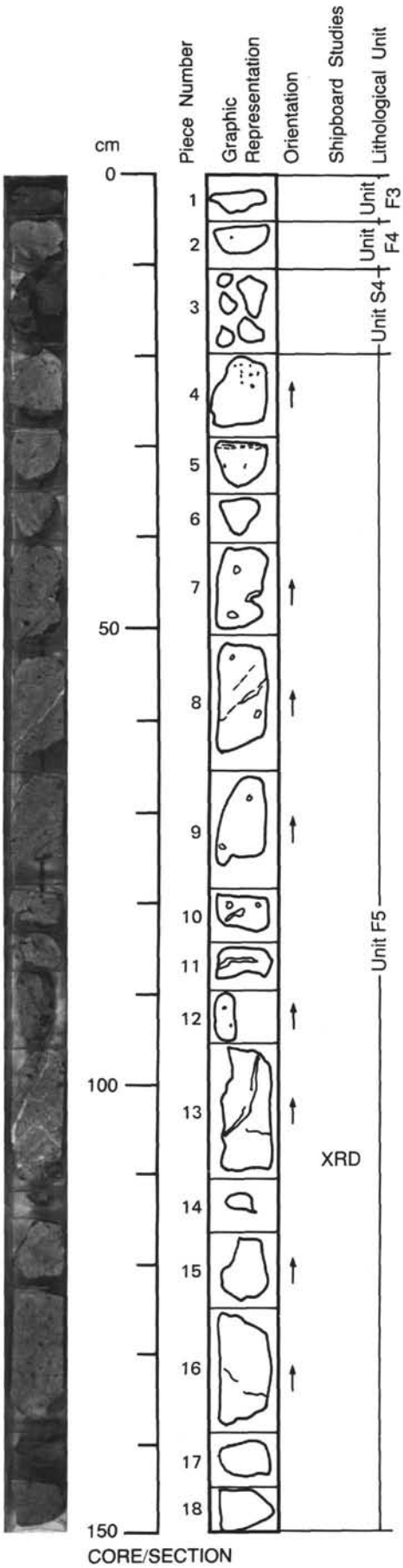
COMMENTS: Lower contact not exposed.

UNIT S3: SOIL?

PIECE: 12.

CURATED LENGTH: 0.13 m.

COMMENTS: Highly disturbed and brecciated unit.



121-756D-6R-1

UNIT F3: ALTERED PLAGIOCLASE-PHYRIC BASALT (121-756D-6R-1 Piece 1 only).

PIECE: 1.

CURATED LENGTH: 0.04 m.

PHENOCRYSTS: Relict plagioclase?

GROUNDMASS: Microcrystalline.

COLOR: Red brown.

ALTERATION: Completely altered, hematized.

COMMENTS: Unit consist of one Piece only.

UNIT F4: APHYRIC BASALT (121-756D-6R-1 Piece 2 only).

PIECES: 2.

CURATED LENGTH: 0.05 m.

PHENOCRYSTS: None.

GROUNDMASS: Fine grained, almost microcrystalline.

COLOR: Pale brown gray.

VESICLES: <5%, <1 mm on cut surfaces. Up to 8 mm on external core surface.

STRUCTURE: Thin flow.

ALTERATION: Limonite linings to vesicles. Moderately altered iron staining throughout.

COMMENTS: Unit consist of one Piece only.

UNIT S3: BASALTIC AGGLOMERATE (121-756D-6R-1 Piece 3 only).

PIECE: 3.

CURATED LENGTH: 0.09 m.

COLOR: Dark purple red brown.

ALTERATION: Extensive hematite alteration.

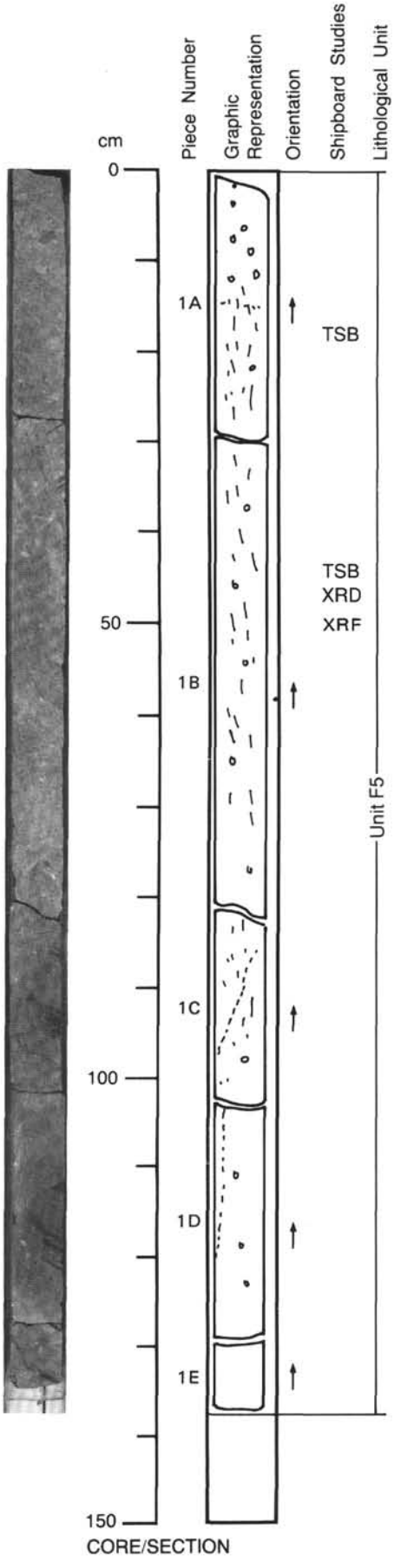
COMMENTS: Unit consist of one Piece only. It may be a highly altered flow breccia.

UNIT F5: SPARSELY PLAGIOCLASE-PHYRIC BASALT (121-756D-6R-1, Piece 4 to 121-756D-7R-1, Piece 5).

PIECES: 4 - 18.

CURATED LENGTH: 3.46 m.

COMMENTS: Upper contact not exposed. For description of Unit F5, see Section 6R-2.



121-756D-6R-2

UNIT F5: SPARSELY PLAGIOCLASE-PHYRIC BASALT (cont.).

PIECES: 1A - 1E.

PHENOCRYSTS: Plagioclase, <1%, 0.5-1 mm, euhedral, no obvious alteration.

GROUNDMASS: Fine grained. No apparent variation in grain size. Small dark pyroxene-plagioclase clots (2-8 mm in diameter). Glomerocrysts (?) occur throughout the unit.

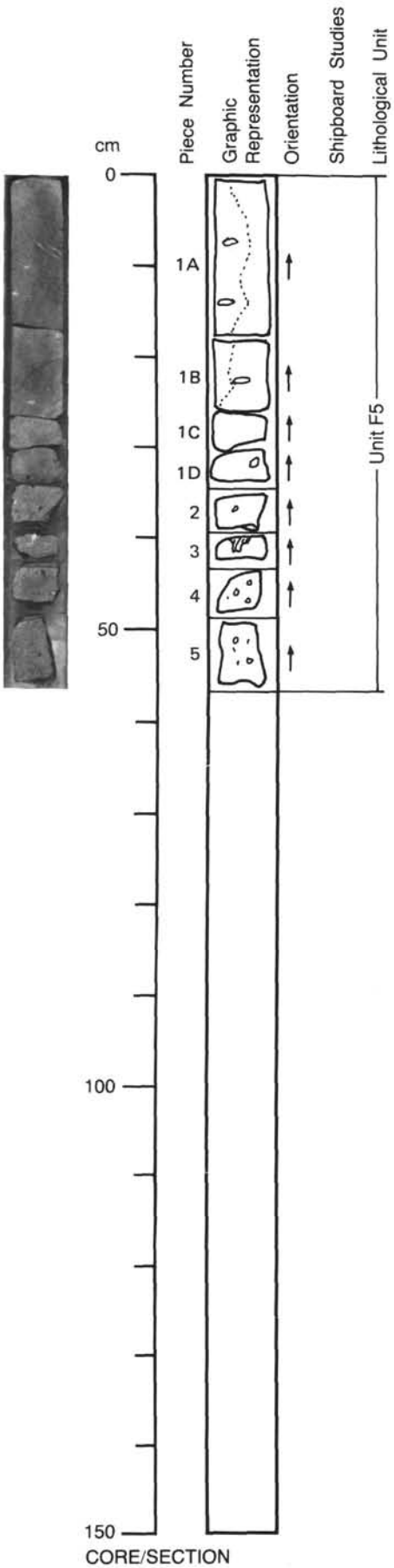
COLOR: Variable. All of Unit F5 in Section 6R-1, 0-15 and 90-137 cm in Section 6R-2, is pale brown gray (10YR 6/1 and 10YR 6/2). Between 50 and 90 cm in Section 6R-2 the color is medium gray (75YR 5/0). Color reflects zonation of alteration center of unit is medium gray, with upper and lower portions being apparently oxidized with limonite staining.

VESICLES: Approximately 10%, unevenly distributed through unit. Range from <1 mm, well rounded, up to irregular 2 cm cavities. Commonly filled: Limonite smectite in oxidized zones. Pale green smectites in reduced flow centers. High frequency of unfilled vesicles at top of unit in Section 6R-1.

STRUCTURE: Thin lava flow.

ALTERATION: Highly altered. Pervasive alteration of the groundmass in all of Unit F5 in Section 6R-1, 0-15 cm and in Section 6R-2, 90-137 cm , and all of Unit F5 in Section 6R-3, to produce orange staining of feldspars. Pyroxenes appear unaffected. Vertical microfractures pervade Section 6R-2, 10-120 cm. These fractures and adjacent vesicles are filled with a pale green mineral (5GY 7/1). No limonite staining in this central zone.

VEINS/FRACTURES: Mostly in Sections 6R-1 and 6R-2. Sub-vertical fractures with zoned assemblage of calcite with limonitic margins and horizontal fractures coated with limonite predominate in Section 6R-1. Central zone of flow has sub-vertical discontinuous hairline fractures filled with green smectite (XRD).

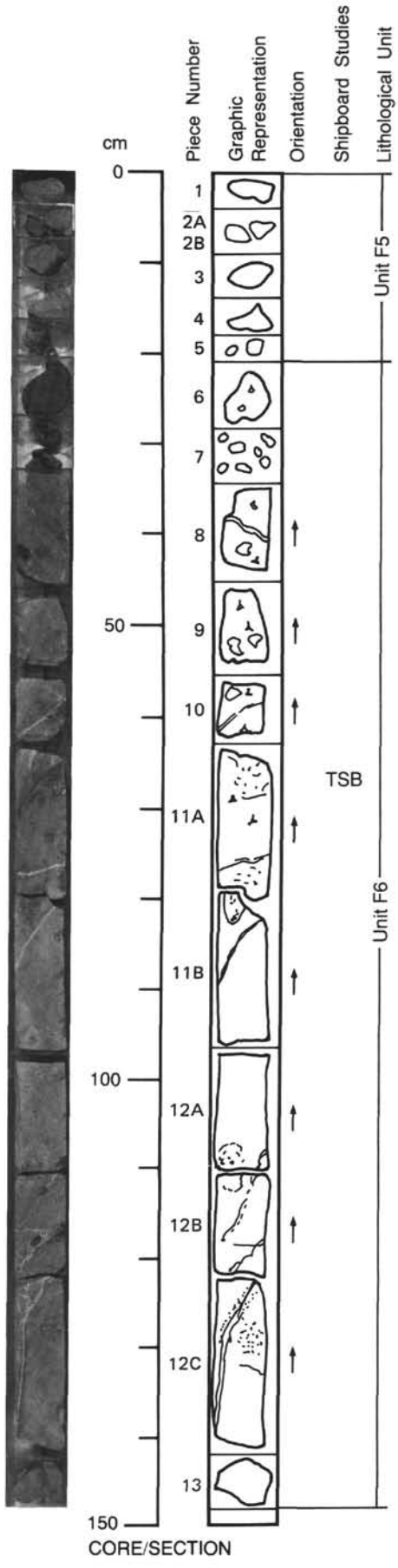


121-756D-6R-3

UNIT F5: SPARSELY PLAGIOCLASE-PHYRIC BASALT (Cont.).

PIECES: 1A - 5.

COMMENTS: Unit continues from 121-756D-6R-2. For description, see Section 6R-2.



121-756D-7R-1

UNIT F5: SPARSELY PLAGIOCLASE-PHYRIC BASALT (Cont.).

PIECES: 1 - 5.

COMMENTS: Unit continues from 121-756D-6R-3. For description, see Section 6R - 2.

UNIT F6: SPARSELY PLAGIOCLASE-PHYRIC BASALT (121-756D-7R-1 Piece 6 to Section 7R-4, Piece 9E).

PIECES: 6-13. Pieces 6-11A are basaltic breccia or agglomerate with vesicular basaltic fragments, embedded in a basalt matrix. Several fragments are scoriaceous. Brecciated flow top? Fragment size is 1-30 mm. Section 7R-1, Pieces 11B to 13, and Sections 7R-2, 7R-3 and 7R-4 are massive basalt.

CURATED LENGTH: 5.39 m.

PHENOCRYSTS: Scarce (<<1%) plagioclase; 0.5-1 mm, subhedral, fresh.

GROUNDMASS: Fine grained. No discernible variation in grain size through unit apart from brecciation. Occasional mafic clots (eg, Section 7R-2, Piece 2B; Section 7R-3, Piece 5B).

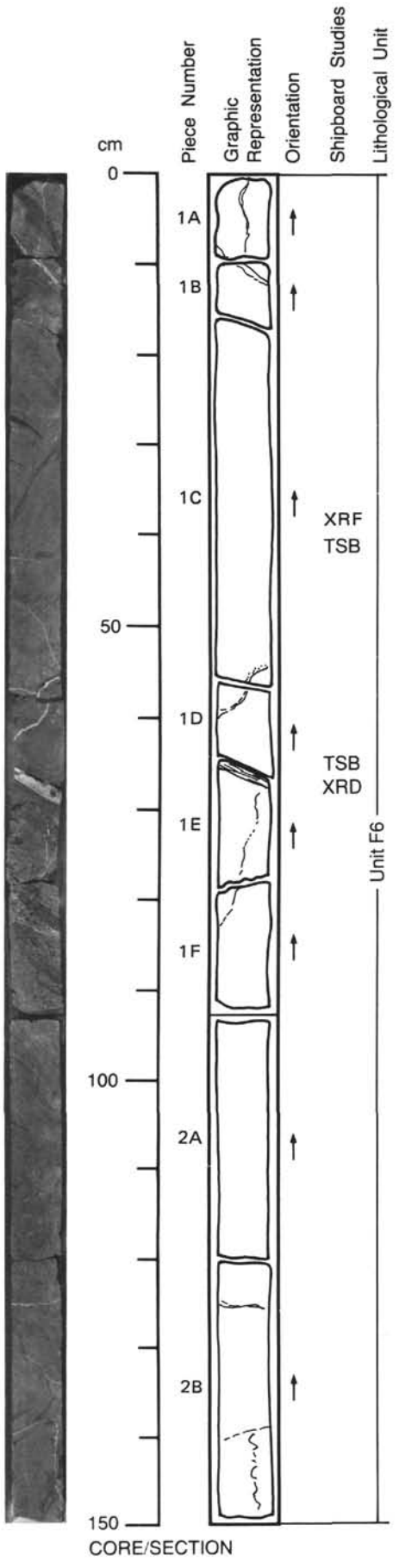
COLOR: Predominantly brown gray (10YR 6/1 to 10YR6/2) but portions of the core are gray (7.5YR 5/0). Section 121-756D-7R-4 grades to gray (5YR 6/1) and to pinkish gray (5YR 6/2).

VESICLES: Generally scarce, but fragments near top of unit have about 50% irregular vesicles partially filled with limonite(?). Some larger random cavities occur up to 3 cm across. (e.g. Piece 5A) filled with limonite or smectite.

STRUCTURE: Massive flow with brecciated upper zone.

ALTERATION: Highly altered, with limonite staining. Pieces 2A, 2B, and 2C, in Section 121-756D-7R-3 are in part medium gray suggesting local reducing conditions (cf Unit F5).

COMMENTS: Upper contact not exposed; unit continues into Section 121-756D-7R-2. Detailed description of Unit F6 continues below.



121-756D-7R-2

UNIT F6: SPARSELY PLAGIOCLASE-PHYRIC BASALT (Cont.).

PIECES: 1A - 2B.

COMMENTS: Unit F6 starts in Section 7R-1 and description continues here:

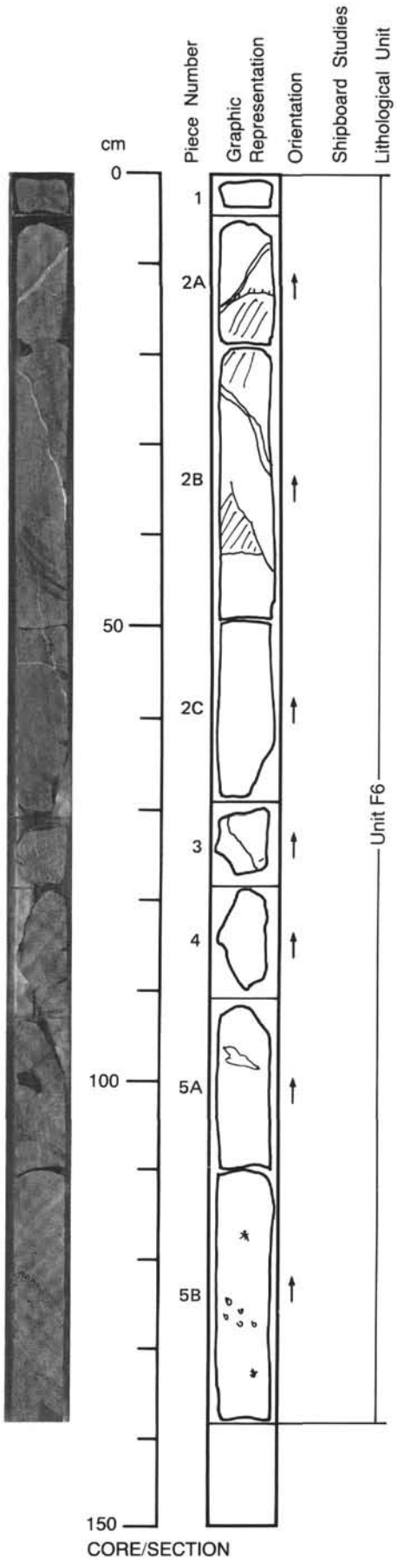
VEINS: Numerous veins of calcite.

121-756D-7R-1
Piece 8 2 mm Dip 30
Piece 10 3 mm Dip 30
Piece 11A 3 mm Dip 10
Piece 11B 4 mm Dip 20-50
Pieces 12A,B,C 1 - 5 mm Anastomosing Dip 10 - 90

121-756D-7R-2
Piece 1A 1-2 mm Dip 90
Piece 1B 4 mm Dip 30
Piece 1C,1D 1-3 mm Anastomosing
Pieces 1D, 1E 13 mm Dip 30
Piece 2B 1 mm Dip 0 and Dip 90

121-756D-7R-3
Piece 2A 5 mm Dip 50
Piece 2B 3 mm Dip 70 and Dip 0

121-756D-7R-4
Piece 3 4 mm Dip 0

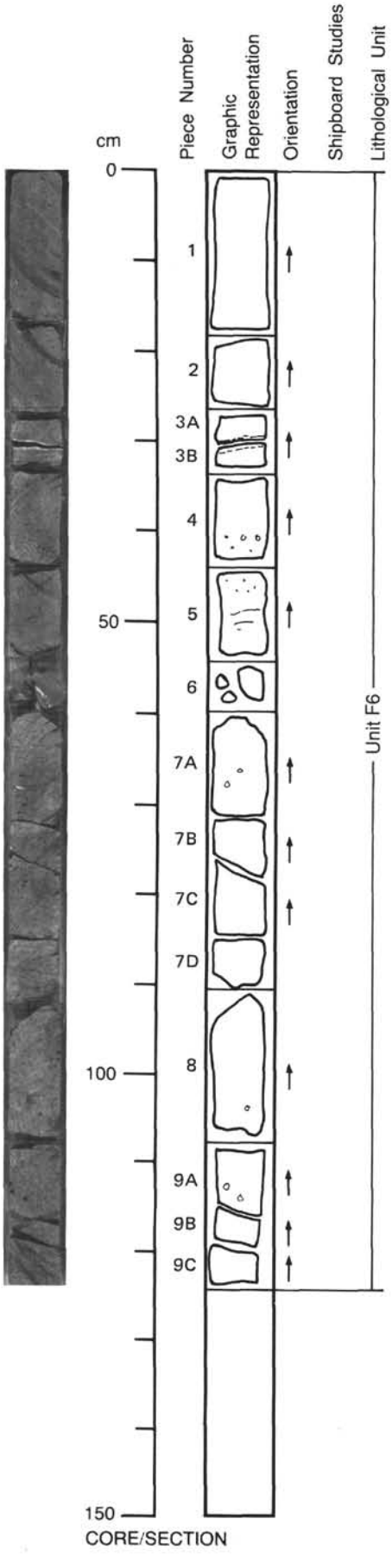


121-756D-7R-3

UNIT F6: SPARSELY PLAGIOCLASE-PHYRIC BASALT (Cont.).

PIECES: 1-5B.

COMMENTS: Detailed description of Unit F6 is given under Sections 7R-1 and 7R-2.

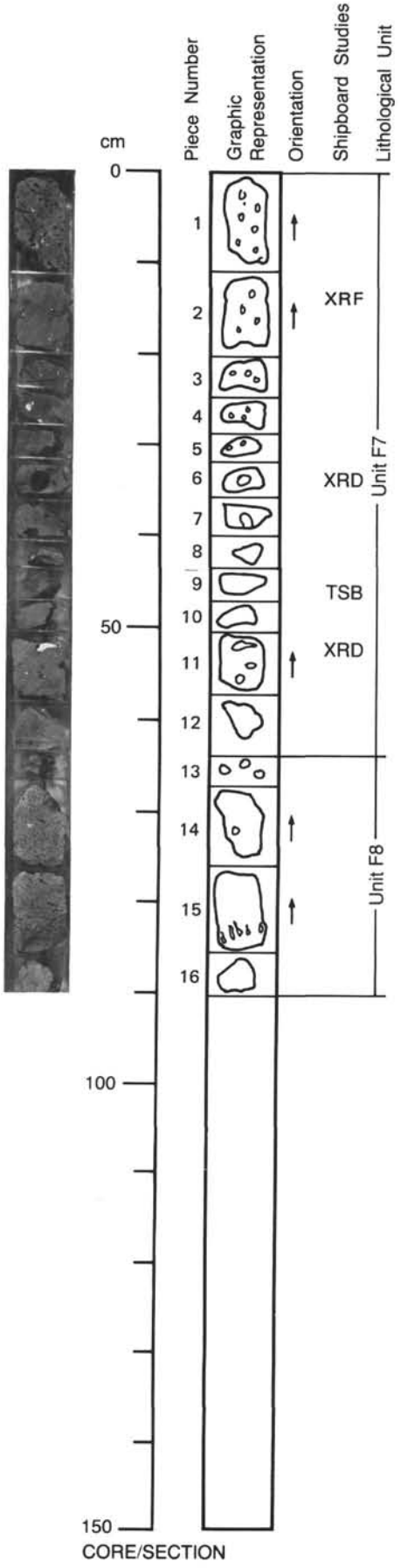


121-756D-7R-4

UNIT F6: SPARSELY PLAGIOCLASE PHYRIC BASALT (Cont.)

PIECES: 1 - 9C.

COMMENTS: Unit continues from 121-756D-7R-3 and continues down as far as 121-756D-7R-4 Piece 9C. Detailed description of Unit F6 is given under Sections 7R-1 and 7R-2.



121-756D-8R-1

UNIT F7: APHYRIC BASALT (121-756D-8R-1 Pieces 1 - 12).

PIECES: 1 - 12.

CURATED LENGTH: 0.64 m.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline, homogeneous.

COLOR: Purplish reddish gray (10R 4/1).

VESICLES: Piece 1: 20% vesicles. Round to elongate - 0.5-8 mm. 80% empty. 20% filled with calcite. Pieces 2-12, variable 10-20%, rounded, some large cavities (Pieces 2,6,7) up to 20 mm. Cavity fillings are variable and include green smectite and white calcite in approximately equal proportions.

ALTERATION: Moderately altered; oxidized.

VEINS/FRACTURES: Two calcite filled veins in Piece 11.

UNIT F8: APHYRIC BASALT (121-756D-8R-1 Pieces 13-16).

PIECES: 13 - 16.

CURATED LENGTH: 0.27 m.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline homogeneous.

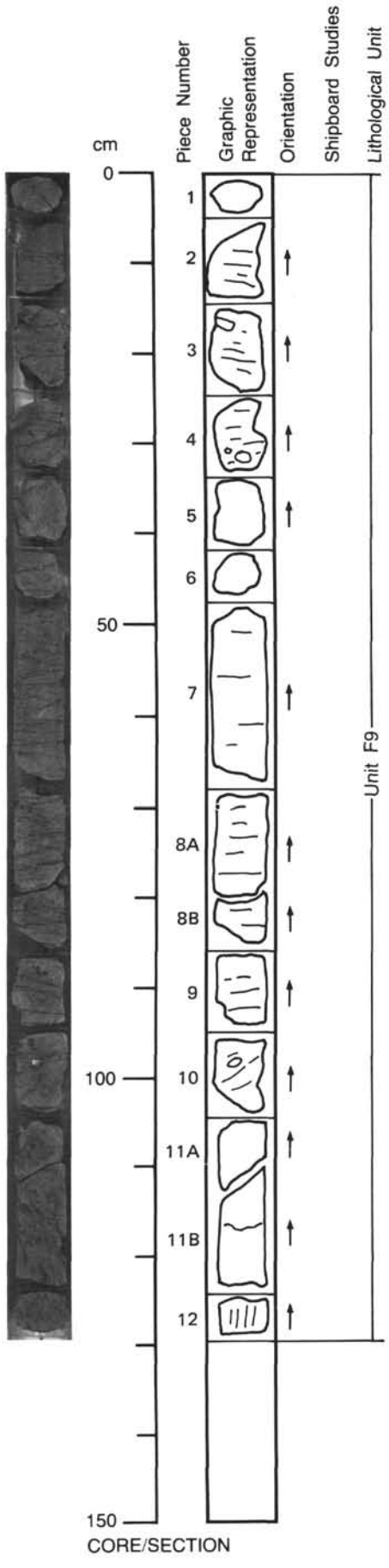
COLOR: Gray brown (10YR 5/1 to 10YR 5/2) with pinkish tint.

VESICLES: 20-50%: Highest in Piece 15 where there is a sub-horizontal zone of elongate vesicles (1 x 10 mm). May be a contact the base of Piece 16. 60% of vesicles are empty except for limonite lining. Remainder are filled with limonite and calcite.

STRUCTURE: Thin flow?

ALTERATION: Highly oxidized.

VEINS/FRACTURES: None seen.



121-756D-9R-1

UNIT F9: APHYRIC BASALT (121-756D-9R-1 Piece 1 to Section 9R - 4, Piece 1).

PIECES: 1 - 12.

CURATED LENGTH: 4.2 m.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline; heterogeneous, banded (see Structure).

COLOR: Gray brown (10YR 5/1-5/2), except Section 9R-1 (Piece 12), Section 9R-2 (Piece 1) and Section 9R-3 (Piece 4E) which are medium gray (7.5 YR 4/0).

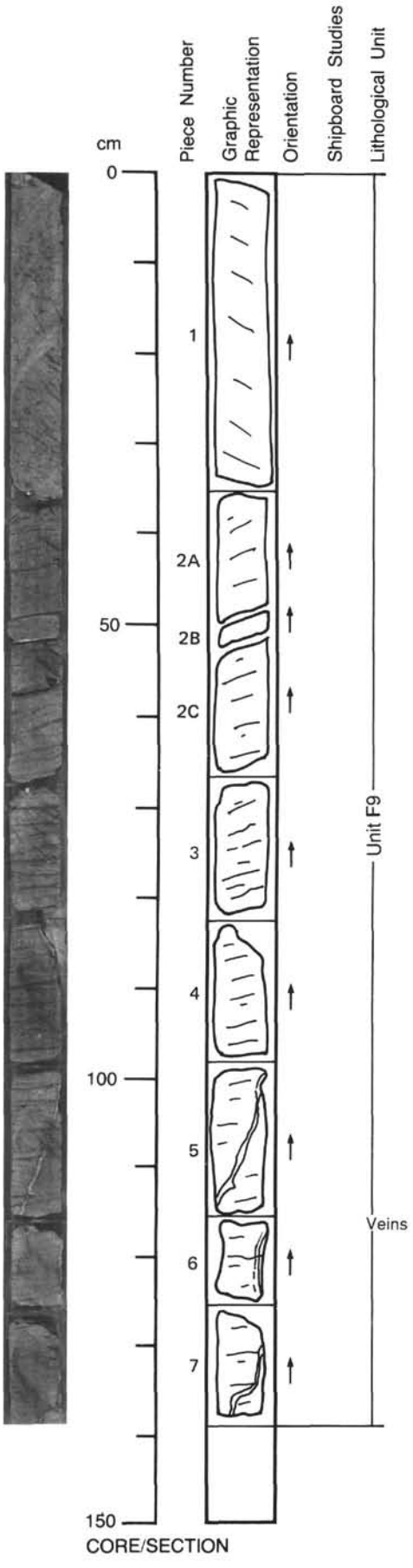
VESICLES: Some (<1%) large cavities (2-10 mm) filled with limonite (?) scattered through Section 9R-1 and 9R-2 (Piece 2C). Green smectite filled vesicles (1-5 mm; < 5% of rock) in Section 9R-1 Piece 12, 9R-2 Piece 1, and 9R-3 Piece 4E.

STRUCTURE: Massive flow; vesicular fragments in Section 9R-4 are interpreted as the top of the next flow unit. The basalt is flow banded, with thin 1-2 mm wide, discontinuous, sub-horizontal mafic laminae.

ALTERATION: Moderately altered. Pervasive limonite(?) staining except Section 9R-2 Piece 1 and 9R-3 Piece 4E where alteration is more greenish.

VEINS/FRACTURES: Section 9R-2 Pieces 2A and 2B: Composite calcite and limonite vein, sub-horizontal. Section 9R-2, Piece 5: Composite calcite vein, Dip 80 Section 9R-3, Pieces 1B,C,D & E: Composite calcite and limonite vein, Dip 80. Fe-rich vein (1 mm) is cut and split by the later calcite-zeolite(?) vein. Section 9R-3, Pieces 4A,B,C: Composite calcite and limonite vein, Dip 50.

COMMENTS: Unit F9 continues into Section 9R-2.

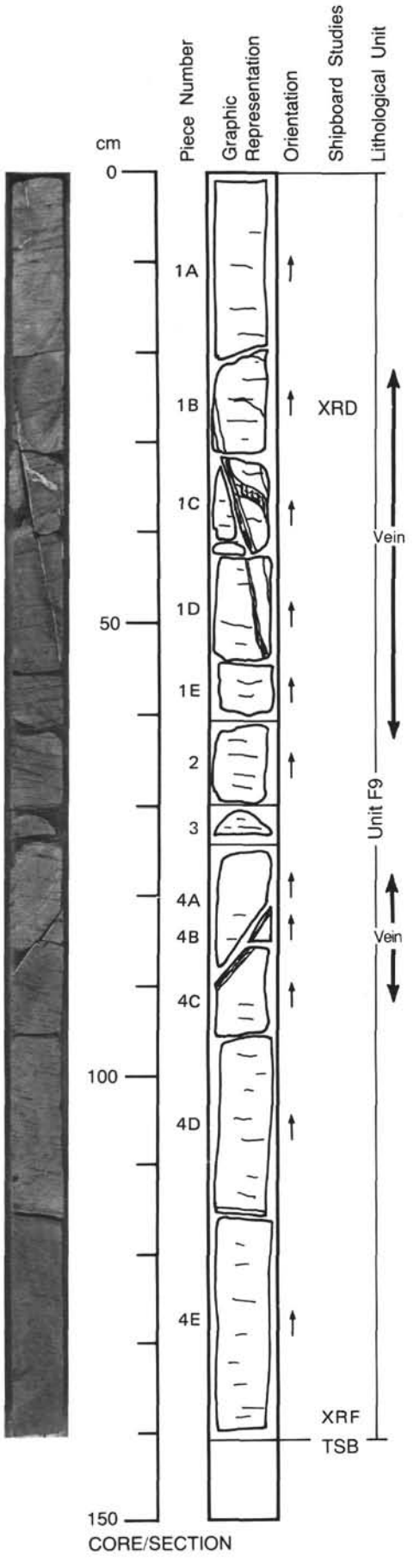


121-756D-9R-2

UNIT F9: APHYRIC BASALT (Cont.).

PIECES: 1 - 7.

COMMENTS: Unit continues from 121-756D-9R-1 and to 121-756D-9R-3. Description of this unit is given in Section 121-756D-9R-1.

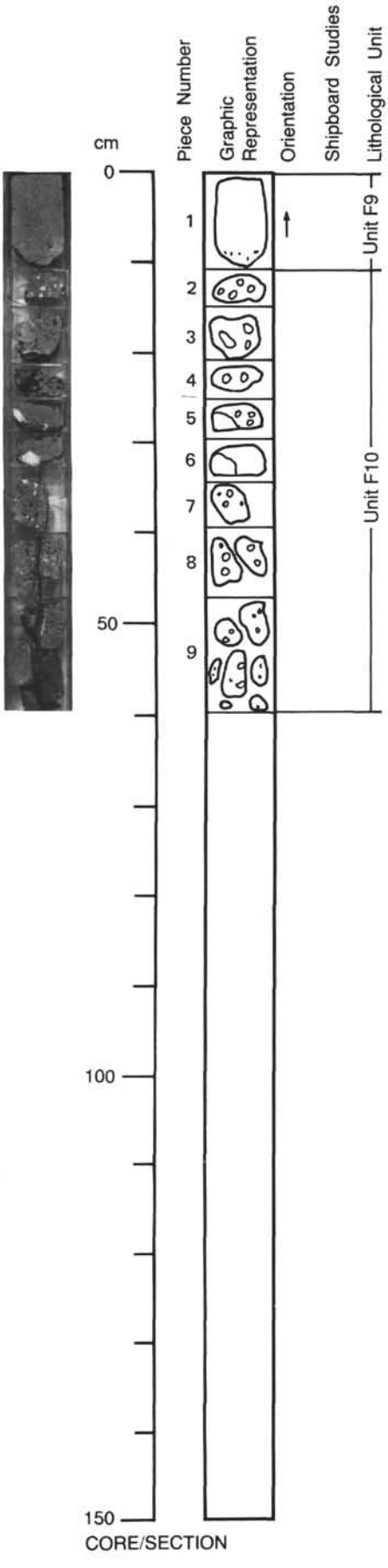


121-756D-9R-3

UNIT F9: APHYRIC BASALT (Cont.)

PIECES: 1A-4E

COMMENTS: Unit continues from 121-756D-9R-2 and to 121-756D-9R-4. Description of this unit is given in Section 121-756D-9R-1.



121-756D-9R-4

UNIT F9: APHYRIC BASALT (Cont.).

PIECE: 1.

COMMENTS: Unit continues from 121-756D-9R-3. This is the last Piece of this unit. Basal contact not observed. Description of this unit is given in Section 121-756D-9R-1.

UNIT F10: APHYRIC BASALT (121-756D-9R-4 Pieces 2-9).

PIECES: 2 - 9.

CURATED LENGTH: 0.50 m.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline.

COLOR: Gray (10YR 5/1) to gray-brown (10YR 5/2).

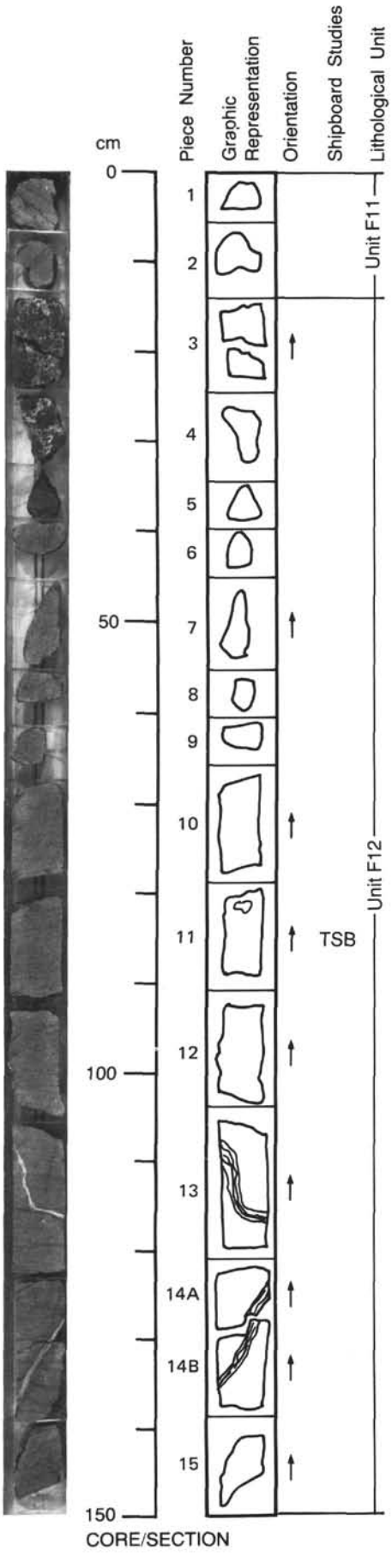
VESICLES: Highly vesicular, with approximately 30% rounded vesicles, 0.5-10 mm in diameter. Some large cavities (20 mm diameter). Fillings: None (iron-stained lining) (70%); calcite (20%); soft, green smectite (10%).

STRUCTURE: Thin flow.

ALTERATION: Moderate to high.

VEINS/FRACTURES: 1 mm wide calcite vein in Piece 9.

COMMENTS: Upper and lower contact not exposed.



121-756D-10R-1

UNIT F11: APHYRIC BASALT (121-756D-10R-1 Pieces 1-2 only).

PIECES: 1 - 2.

CURATED LENGTH: 0.14 m.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline.

COLOR: Gray (10YR 5/1) to gray brown (10YR 5/2).

VESICLES: 1-2%, 5-10 mm, filled with yellowish brown smectite.

STRUCTURE: Thin flow.

ALTERATION: Moderately altered with limonite staining.

VEINS/FRACTURES: Wispy <1 mm wide veins with brown smectite fillings.

COMMENTS: Unit F11 comprises two Pieces only.

UNIT F12: APHYRIC BASALT (121-756D-10R-1 Piece 3 to Core 121-756D-10R-3 Piece 10).

PIECES: 3A - 15.

CURATED LENGTH: 3.95 m.

CONTACTS: Upper and lower contact not exposed. Pieces 3A, 3B and 4 are dark red (2.5YR 4), highly altered breccia of vesicular basalt. Vesicles are partially filled, and basalt fragments are cemented with calcite.

PHENOCRYSTS: None.

GROUNDMASS: Fine grained. There are 10 mm diameter coarse-grained plagioclase-pyroxene clots in the top of Piece 11; and scattered 0.5 mm clinopyroxene crystals in this Piece.

COLOR: Gray (10YR 5/1) to grayish brown (10YR 5/2).

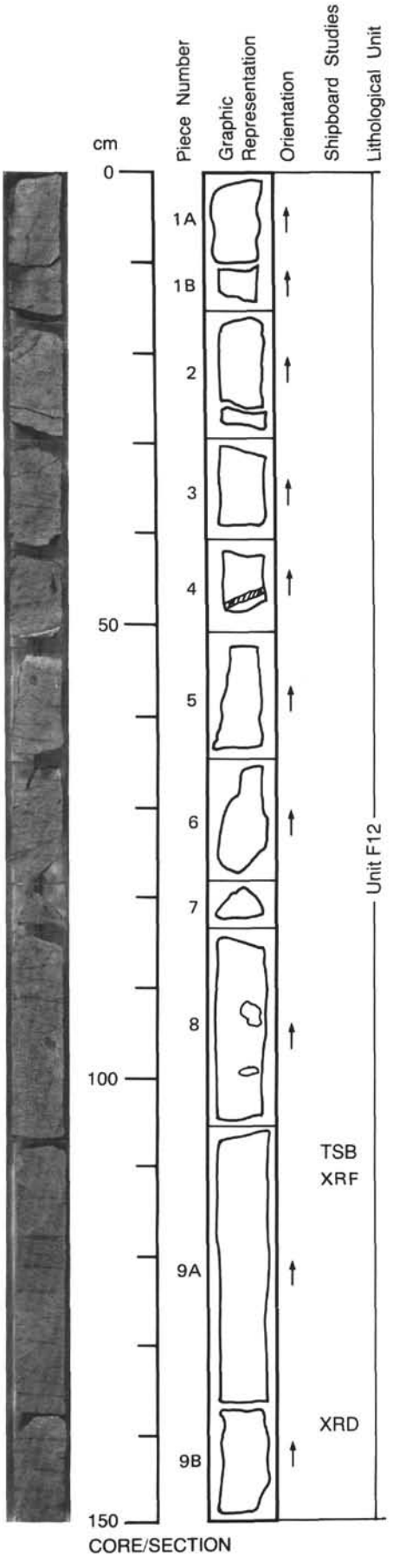
VESICLES: Approximately 10%, most filled with yellow brown mineral. Diameter about 1 mm. Single 5 mm diameter vesicle filled with blue green smectite, in Piece 13.

STRUCTURE: Thin flow.

ALTERATION: Highly altered. Pervasive limonite stains especially in <1 mm horizontal bands in Pieces 10-15.

VEINS/FRACTURES: 5 mm thick calcite veins in Pieces 13, 14A and 14B.

COMMENTS: Upper and lower contact not exposed. Pieces 3A, 3B and 4 are dark red (2.5YR 4), highly altered breccia of vesicular basalt. Vesicles are partially filled, and basalt fragments are cemented with calcite.



121-756D-10R-2

UNIT F12: APHYRIC BASALT (Cont.).

PIECES: 1A - 9B.

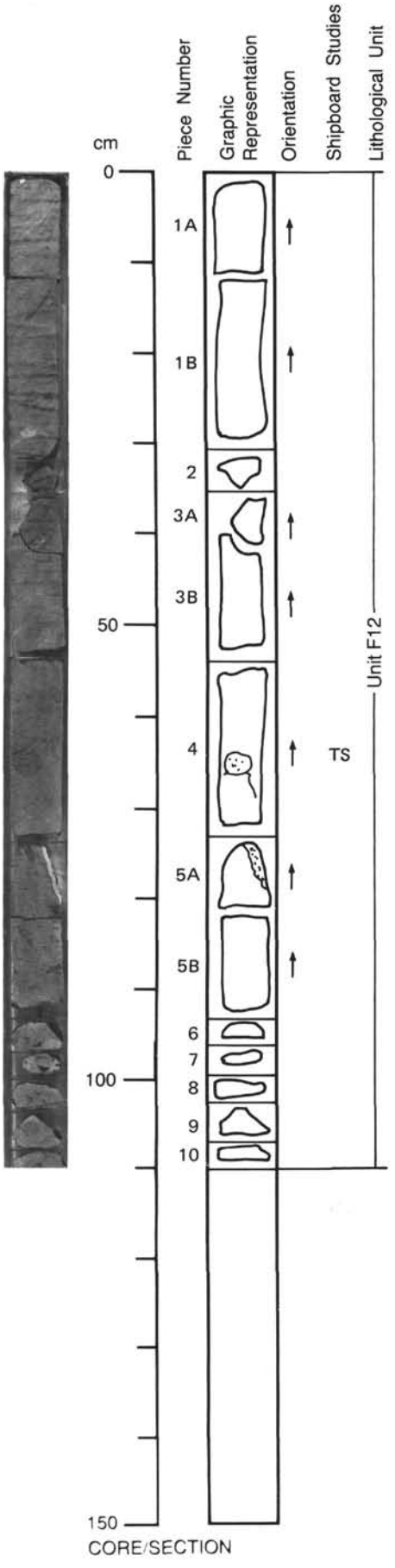
COMMENTS: Unit continues from Section 121-756D-10R-1 to 121-756D-10R-3. Description given for Section 121-756D-10R-1 applies, and:

GROUNDMASS: Coarse-grained clots of crystals occur in Piece 8.

COLOR: Color begins to change to uniform gray in Pieces 6, 7 and 8. Pieces 9A and 9B are uniform gray.

VESICLES: Yellow brown fillings where limonite stained, but 2-3 mm vesicles in Pieces 9A and 9B are filled with light green smectite.

VEINS/FRACTURES: 3 mm wide calcite vein in Piece 4.



121-756D-10R-3

UNIT F12: APHYRIC BASALT (Cont.).

PIECES: 1A - 10.

COMMENTS: Unit continues from 121-756D-10R-2. Description for given for Core 10R-1 applies, and:

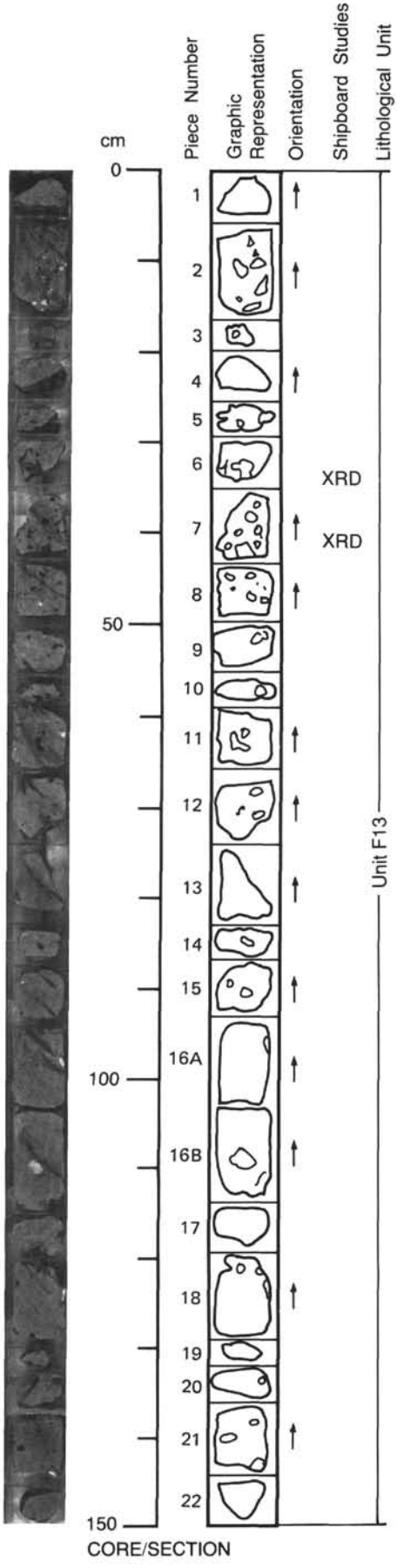
GROUNDMASS: 20 x 30 mm coarse-grained xenolith in Piece 4.

COLOR: Pieces 1 through 4 are gray. Pieces 5A through 10 are gray brown with limonite staining.

VESICLES: Abundance = 5% approximately. Larger in diameter (up to 10 mm) in Pieces 5A through 10. Partially to completely filled with smectite.

ALTERATION: Limonite alteration absent in Pieces 1 through 4.

VEINS/FRACTURES: 5 mm, Dip 80, calcite vein on edge of Piece 5A. Fine, 0.1 mm Cu vein appears to emanate from xenolith in Piece 4 and continues for 40 mm. (<0.5 mm patches of Cu also occur on outer surface of Piece 3A).



121-756D-11R-1

UNIT F13: APHYRIC BASALT (121-756D-11R-1 Piece 1 to Section 11R-2 Piece 9).

PIECES: 1 - 22.

CURATED LENGTH: 2.0 m.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline (<0.5 mm) plagioclase, pyroxene, completely altered olivine slight random changes in the grain sizes (0.1-0.5 mm).

COLOR: Piece 1: Gray brown (10YR 5/1 to 10Y 5/2) with a pinkish tint above Piece 18 in Section 11R-1.

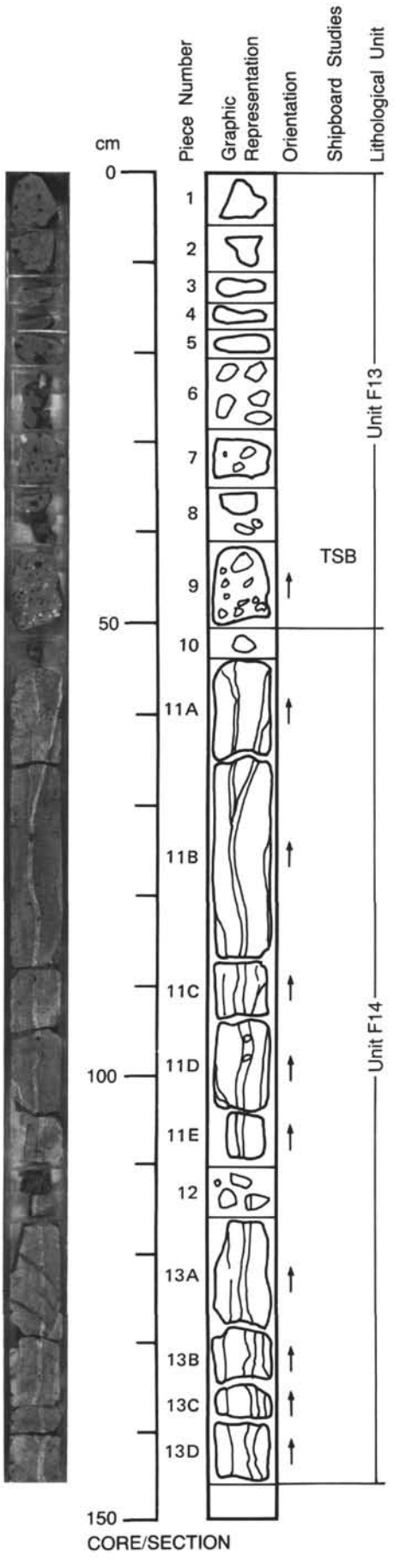
VESICLES: Variable size (1 to 10 mm) and abundance (Piece 2, 30-40% - Pieces 6-7, 20% decrease of the vesicle density from Pieces 9 to 22, 20-10% to <5%) variable fillings to none: Carbonate, green smectite, usually dark greenish gray in Piece 1, greener in Pieces 6 to 10 and more olive in Pieces 11 to 14.

STRUCTURE: Thin flow.

ALTERATION: From highly (40-80%) in Pieces 1 to 11 to moderately (10-40%) in Pieces 11 to 22.

VEINS/FRACTURES: None.

COMMENTS: Thin flow, top not seen, continues in Section 11R-2.



121-756D-11R-2

UNIT F13: APHYRIC BASALT (Cont.).

PIECES: 1 through 9.

COMMENTS: Unit continues from Section 121-756D-11R-1 and lower contact is not exposed. Unit is as in higher section with the following exceptions.

VESICLES: Vesicles are larger in Pieces 7-9 (5-10 mm). Most are partially filled with calcite and green smectite.

ALTERATION: Pieces 5-9, light reddish brown 5YR 6/3, are highly altered, oxidized.

UNIT F14: APHYRIC BASALT (121-756D-11R-2 Piece 10 to Section 12-3, Piece 4G).

PIECES: 10 - 13D.

CURATED LENGTH: 6.37 m.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline.

COLOR: Variable gray to light olive gray (5Y 6/1 to 5Y 6/2) with iron staining.

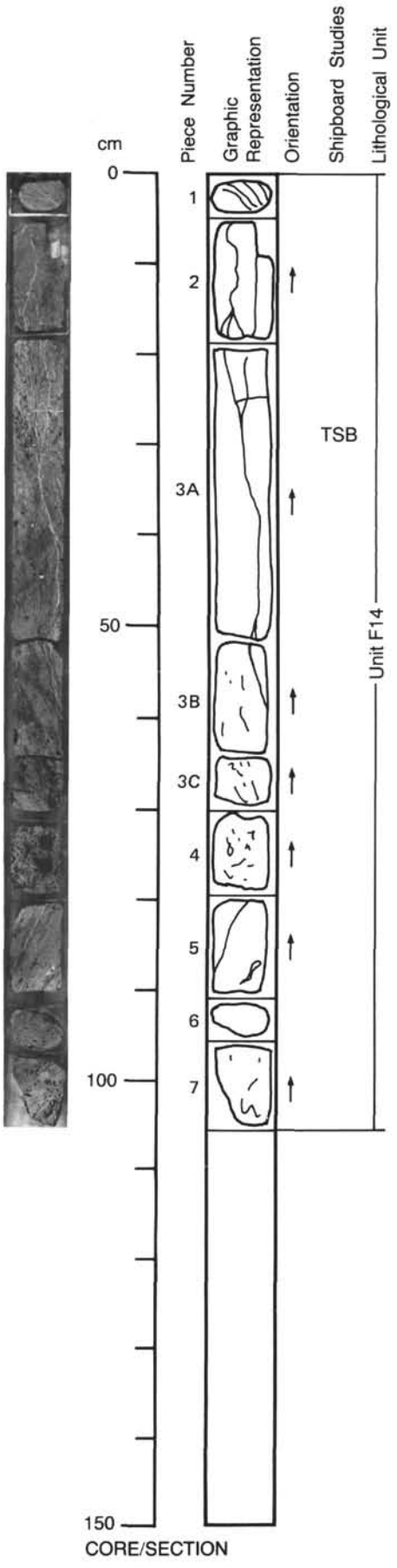
VESICLES: Abundance variable 5-25%, mostly less than 1 mm and only partially filled with red brown and blue green smectite.

STRUCTURE: Thin flow.

ALTERATION: Highly altered, especially in 2 cm wide iron stained alteration halo around vertical calcite vein.

VEINS/FRACTURES: 5 mm wide calcite vein extends downwards from Piece 11E and probably into 121-756D-11R-3. Smaller branching veins occurs in Pieces 11A and 11B.

COMMENTS: Upper contact not exposed. Unit continues down into 121-756D-11R-3.



121-756D-11R-3

UNIT F14: APHYRIC BASALT (Cont.).

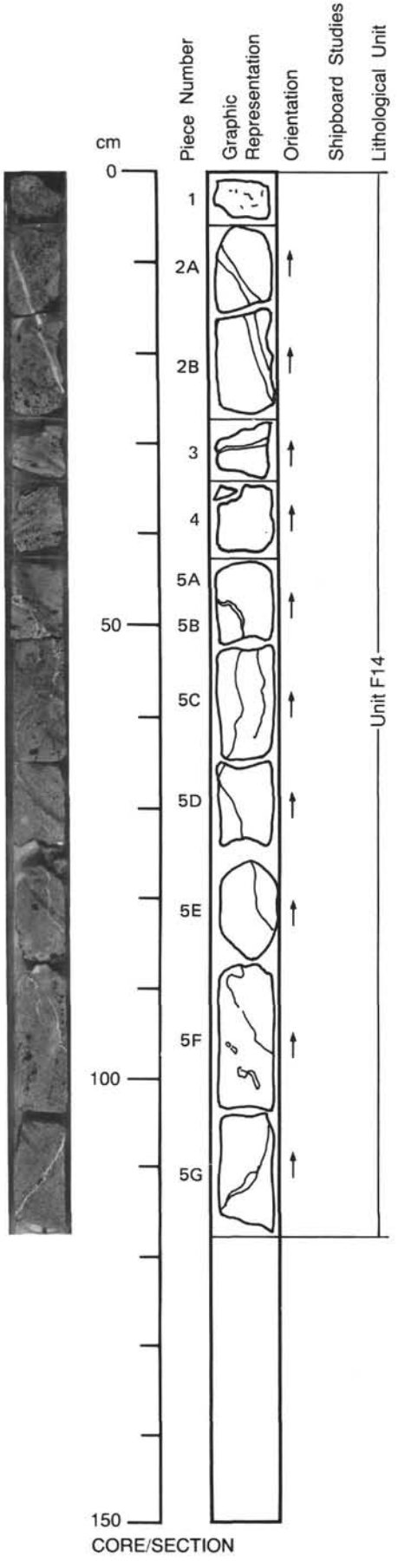
PIECES: 1 through 7.

CONTACTS: Unit continues from 121-756D-11R-02. Lower contact not exposed. Description as for upper part of unit in 121-756D-11R-02 with the following exceptions:

COLOR: Greenish blue gray with brown staining around vesicles and veins.

VESICLES: Pieces 3A-3C have numerous (40%) planar flow oriented vesicles dipping at 40 degrees. Piece 5 has only 10% vesicles. Pieces 6 and 7 have 40% vesicles.

VEINS/FRACTURES: Only one thinner calcite vein in Pieces 1 to 3B.



121-756D-12R-1

UNIT F14: APHYRIC BASALT (Cont.).

PIECES: 1 to 5G.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline.

COLOR: Greenish gray, with areas more orange around vesicles and veins. Also, around the calcite veinlet of Piece 2, there is, on both sides, brown, orange staining.

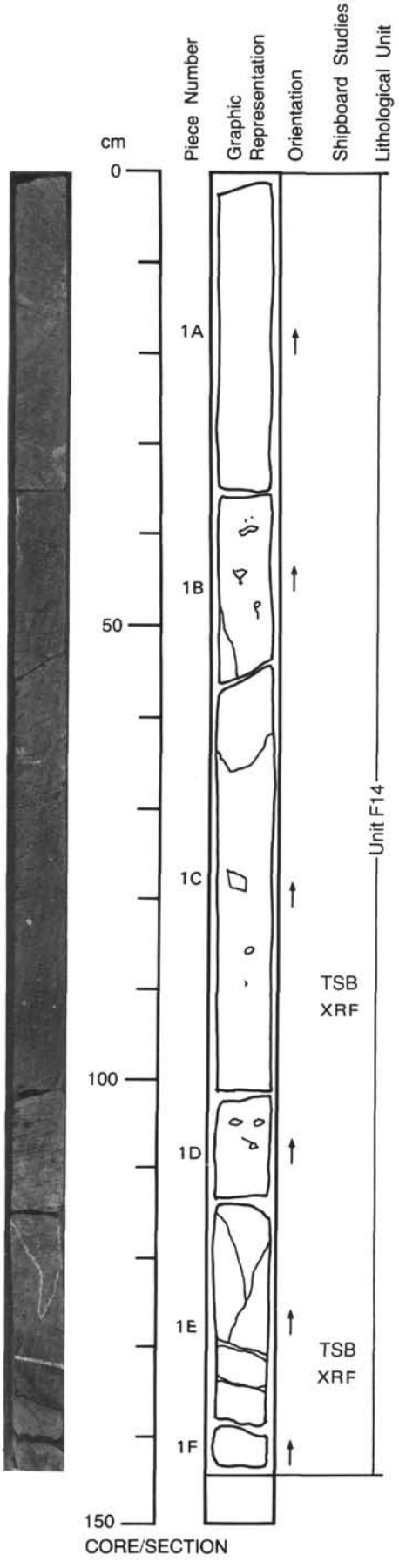
VESICLES: Pieces 1 to 5: Vesicles 30-40%. Most of the vesicles are empty or partially filled with smectites, calcite, and iron hydroxides.

STRUCTURE: Thin flow.

ALTERATION: Highly altered (40 to 80%).

VEINS/FRACTURES: One single steep dipping carbonate vein 2 to 8 mm thick, cuts the whole length of the section.

COMMENTS: Unit continues from 121-756D-11R-02 and 03 with the same characteristics as Section 11R-3. Piece 2 of 12R-2, fits with Piece 5G of Section 12R-1.



121-756D-12R-2

UNIT F14: APHYRIC BASALT (Cont.).

PIECES: 1A to 1F.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline.

COLOR: See 121-756D-12R-01 except from 69 to 105 cm, dark grayish blue color.

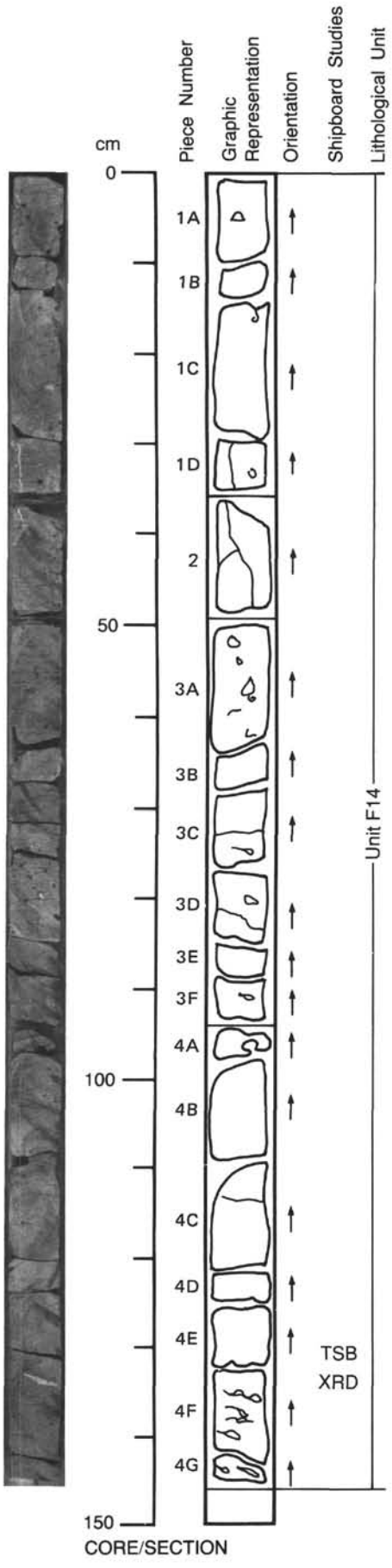
VESICLES: Comparable to Section 12R-1. Piece 1C, 69 to 105 cm, has vesicles filled by green smectite except that the carbonate veinlets are surrounded by more usual orange, brown limonite staining.

STRUCTURE: Thin flow.

ALTERATION: Moderately, to slightly from 69 to 105 cm otherwise highly altered.

VEINS/FRACTURES: Thin (<1 mm) to 8 mm carbonate filled veinlets.

COMMENTS: This unit continues in Sections 121-756D-12R-3 and 4.



121-756D-12R-3

UNIT F14: APHYRIC BASALT (Cont.).

PIECES: 1A to 4G.

PHENOCRYSTS: None.

GROUNDMASS: Microcrystalline.

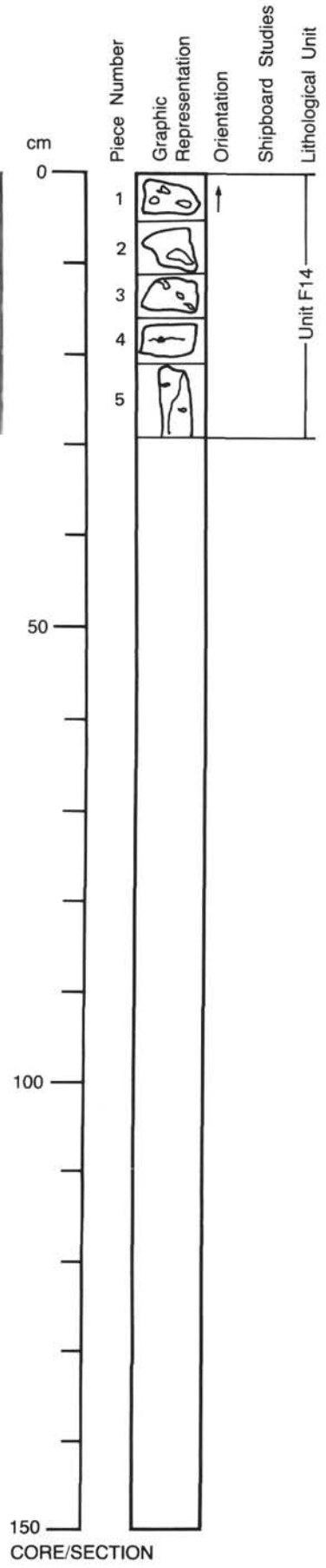
COLOR: Greenish, bluish gray becoming more orange in places.

VESICLES: Usually brown color, reflecting oxidation except in Piece 4F where the basalt contains horizontal, planar vesicles filled with pale green smectites. These vesicles are 0.2 to 0.6 mm thick and 1 to 3 cm long.

STRUCTURE: Thin flow.

ALTERATION: Moderately to highly altered for most of the section.

COMMENTS: Unit F14 has typical features of a flow, with a decrease of vesicle density away from the contacts. This character is also indicated by the general flow orientation, giving an horizontal structure through most of the unit (the alteration has a tendency to obliterate these primary features).



121-756D-12R-4

UNIT F14: APHYRIC BASALT (Cont.).

PIECES: 1 to 5.

COLOR: The color varies from dark blue gray in Piece 1 to brownish gray in Piece 5).

VESICLES: Piece 1 has big vesicles filled by smectite and calcite. Piece 2 also shows a patch (3 by 4 cm) of altered basalt with small (1-2 mm) vesicles.

STRUCTURE: Thin flow.

ALTERATION: From moderately altered in Piece 1 to highly altered in Piece 5.

COMMENTS: End of Hole 756D.

THIN SECTION DESCRIPTION — 121-756C-10N-01 (Piece 2H, 130-132 cm)

ROCK NAME: SPARSELY PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F1

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-subophitic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	<5	-	1		Euhedral	Highly altered and corroded showing traces of zonation.
GROUNDMASS						
Plagioclase	40-50	-	0.1-0.4		Euhedral laths	
Clinopyroxene	25	-	0.1-0.2		Anhedral	Typically in between plagioclase microlites.
Magnetite(?)	10-15	-	0.1-0.2		Anhedral to subhedral	Essentially associated with the large smectite filling vesicles.
Olivine	1(?)	5-10	0.5-1.5		Anhedral	Olivine altered to vermiculite, chlorite, goethite and iddingsite. Smectites also present as fillings of gas cavities 0.5 to 1.5 mm.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: 10-15% volcanic groundmass glass completely recrystallized in the groundmass, as smectite microcrystalline - holocrystalline - hypidiomorphic - granular - subophitic texture - more basic than 10N-3 but also more altered (vermiculite shows better crystallization features) - alteration 20-30%. TSB 56.

THIN SECTION DESCRIPTION — 121-756C-10N-03 (Piece 1E, 48-49 cm)

ROCK NAME: APHYRIC BASALT

WHERE SAMPLED: Unit F1

TEXTURE: Microcrystalline, holocrystalline, hypidiomorphic-granular subophitic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
GROUNDMASS						
Plagioclase	45	-	0.1-0.4		Euhedral laths with simple twins	
Magnetite(?)	10-15	-	0.1-0.3		Anhedral	Large crystals.
Clinopyroxene	30	-	0.1-0.2		Anhedral	Typically in between plagioclase microlites.
Olivine	-	<5	-		-	Altered to smectite and iddingsite brown, green color in PPL associated with the cpx in between the plagioclase microlites. Other alteration minerals of olivine like serpentine, vermiculite, chlorite and Fe oxides of hydroxides also present.
Glass	-	10	-		-	All recrystallized and altered to smectite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Alteration 10-20%. TSB 55.

THIN SECTION DESCRIPTION 121-756C-12N-01 (Piece 4 , 29-30 cm)

ROCK NAME: SPARSELY PLAGIOCLASE-OLIVINE PHYRIC BASALT

WHERE SAMPLED: Unit F2

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-microlitic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	<5	-	1-2		Euhedral to subhedral	Some are partially altered, especially the centers which can contain a green material (smectites?)
Olivine	-	<1	1-5		Anhedral	Completely replaced by vermiculite, chlorite.
GROUNDMASS						
Plagioclase	20-30	-	0.1-0.2		-	
Clinopyroxene	10	10	0.1-0.2		Anhedral	Typically in between plagioclase microlites, relatively altered.
Opaque	5-10	-	0.1-0.2	Magnetite(?)	Anhedral to subhedral	Associated with the clinopyroxene in between the plagioclase microlites.
Olivine	0	5	<0.1		Anhedral	Includes associated vermiculite, chlorite, iron oxides, hydroxides and iddingsite. A few small anhedral olivine crystals present.
Glass	0	25	-		-	Recrystallized entirely to smectite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: More basic than 10N-3 but also slightly more altered (vermiculite, chlorite and smectites show better crystallization features) - alteration 20-30%. TSB 61.

THIN SECTION DESCRIPTION 121-756D-4R-01 (Piece 4 , 22-26 cm)

ROCK NAME: SPARSELY PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F2

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-subophitic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	<5	-	0.5-2.0		Euhedral	Altered and rare. Also euhedral plagioclase glomerocrysts (1-2%), 1 mm.
Clinopyroxene	0	<1	-		-	Completely altered and replaced by vermiculite, smectites.
GROUNDMASS						
Plagioclase	30-40	-	0.1-0.2		Sub- to anhedral	
Clinopyroxene	0	30	-		Anhedral	Very small crystals, completely altered to a reddish, greenish, brown material without extinction (Fe oxides or hydroxides and iddingsite).
Opaques	10	-	0.1-0.2		Subhedral	Associated with secondary iron oxides or hydroxides.
Olivine	1	4	-		Anhedral	Vermiculite, chlorite, smectite and small biotites(?) (50 microns) from the alteration of olivine. Only very small crystals remain.
Glass	-	10	-		-	Altered to smectites.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Cavities	10-20			Empty		Frequently lined with smectite and/or calcite.

COMMENTS: More basic than 10N-3 but also much more altered (both cpx and olivine are completely altered to vermiculite, chlorite and serpentine) which is also shown by the general coloration of the rock, even in thin section, i.e. brownish, reddish gray (at least 50% altered). TSB 58.

THIN SECTION DESCRIPTION — 121-756D-6R-02 (Piece 1A, 17-18 cm)

ROCK NAME: PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F5

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	>5	-	2		Subhedral	No zonation but typical alteration pattern which starts in the middle of the crystal.
GROUNDMASS						
Plagioclase	30	-	0.2		Euhedral to subhedral	Simple binary twinning also some microphenocrysts (2%), 1 mm.
Opaque	7-10	-	0.05-0.2	Ilmenite(?)	Subhedral to euhedral	Entirely interstitial, some crystals are very elongated (ilmenite?)
Clinopyroxene	30	-	0.05-0.1		Anhedral	
Glass	-	20	-		-	Completely recrystallized to smectite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	5			Smectite		Also present along small fractures (1 mm).

COMMENTS: This basalt includes another basalt, appearing as a darker patch, which is basically the same rock, much more altered (>70%) with groundmass smectites reaching 65% and no pyroxene left and opaque more altered (5%), iron oxides or hydroxides (veinlet 20-50 microns thick) and iddingsite 5%. Alteration 20-40%. Color bluish, greenish gray. TSB 63.

THIN SECTION DESCRIPTION — 121-756D-6R-02 (Piece 1B, 49-52 cm)

ROCK NAME: SPARSELY PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F5

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphyic-granular-subophitic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	<2	-	0.5-2.0		Euhedral to subhedral	With zonation and some centers of the crystals altered.
GROUNDMASS						
Plagioclase	35-45	-	0.1-0.5		Euhedral-subhedral	Microlites with simple twinning.
Opaque	5-10	-	<0.15		Anhedral	In between the plagioclase microlites and cpx.
Clinopyroxene	25	-	0.1-0.2		Anhedral	Typically between plagioclase microlites.
Olivine	-	<5	-		Subhedral	Altered to vermiculite, chlorite, serpentine and iddingsite. Brown-green color in PPL associated with the cpx in between the plagioclase microlites.
Glass	-	15	-		-	Recrystallized and altered groundmass glass. Mostly smectites.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	5			Smectite		Almost all completely filled with smectite.

COMMENTS: Alteration 20-30%. TSB 65.

THIN SECTION DESCRIPTION 121-756D-7R-01 (Piece 11A, 66-67 cm)

ROCK NAME: SPARSELY PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F6

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-subophitic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	<5	-	0.5-2.0		Euhedral to subhedral	With zonation and centers of the crystals completely altered to saussurite and calcite.
GROUNDMASS						
Plagioclase	35	-	0.05-0.1		Euhedral - subhedral	Microlites with simple twinning.
Clinopyroxene	20-25	-	0.1-0.2		Anhedral	Very altered.
Opaque	5-10	-	<0.05 -0.1		Anhedral	Associated with cpx, vermiculite, smectite and olivine between the plagioclase microlites.
Olivine	-	5	-		Subhedral	Altered to vermiculite, serpentine and iddingsite. Brown-green color in PPL. Microphenocryst.
Glass	-	15	-		-	Recrystallized and altered groundmass glass. Mostly smectites.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	20			Smectite, calcite, and vermiculite		10-20% partially filled with smectite, vermiculite, or more rarely calcite. One veinlet (2 mm) almost completely filled by calcite.

COMMENTS: Alteration 40-60%. TSB 64.

THIN SECTION DESCRIPTION 121-756D-7R-02 (Piece 1C, 38-40 cm)

ROCK NAME: SPARSELY PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F6

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-subophitic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	<1	-	1		Subhedral	Show seriate texture and are surrounded by the smaller crystals with no intergrowth.
GROUNDMASS						
Plagioclase	40	-	0.1-0.2		Subhedral	
Opaque	10-15	-	0.05-0.1		Subhedral to euhedral	Relatively homogeneous distribution. Associated with the cpx and smectite in the altered recrystallized glass.
Clinopyroxene	20-30	-	0.05-0.1		Anhedral	
Glass	-	25-30	-		-	Completely recrystallized and forming the groundmass.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Alteration 10-20%. TSB 67.

THIN SECTION DESCRIPTION — 121-756D-7R-02 (Piece 1E, 67-68 cm)

ROCK NAME: CALCITE VEIN CUTTING APHYRIC BASALT

WHERE SAMPLED: Unit F6

TEXTURE:

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
GROUNDMASS						
Plagioclase	30	–	–		–	Microlites with simple twinning.
Opaque	10	–	–		Subhedral	
Clinopyroxene	30	–	–		Subhedral	
Glass	–	30	–		–	Recrystallized and altered groundmass glass. Mostly smectites and iddingsite. Some may be altered olivine.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	?		0.5	Smectites		There are two vesicles.

COMMENTS: Thin section of a calcite vein (>1 cm) cutting basalt (which takes a characteristic brownish color, while the basalt distant, i.e. 3 or 4 cm, from the vein is greener, grayer). The vein shows clearly different generations of fillings e.g. of calcite (different crystal sizes, from 2 to <0.1 mm), iron oxides or hydroxides (goethite – hematite), rare vermiculite, and smectites. TSB 66.

THIN SECTION DESCRIPTION — 121-756D-8R-01 (Piece 9 , 44-46 cm)

ROCK NAME: APHYRIC BASALT

WHERE SAMPLED: Unit F7

TEXTURE: Aphanitic, cryptocrystalline–hypocrystalline–hypidiomorphic–granular

GRAIN SIZE: Homogeneous

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
GROUNDMASS						
Plagioclase	30–40	–	0.1–0.2		Subhedral to anhedral	Microlites and some small anhedral crystals, both very homogeneously distributed through the rock.
Clinopyroxene	15–25	–	0.05–0.1		Anhedral	Very small crystals in the groundmass.
Opaques	5–10	–	<0.07	Ilmenite(?)	Elongate anhedral	Crystal borders show alteration rims of deep red hematite or goethite.
Olivine	–	5–10	–		Anhedral	Altered to iddingsite and smectites, associated with the opaques and cpx.
Glass	–	35–40	–		–	Groundmass volcanic glass altered to smectite and surrounding the plagioclase, opaques, iddingsite and cpx

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE
Vesicles	?	5–10		Smectite and iron oxides or hydroxides	

COMMENTS: The sample is cut by a thin veinlet of smectite (0.5 mm thick) which passes through a vesicle (0.5 to 1 cm), partially filled with smectite and iron oxides or hydroxides. Alteration 20–40% – color pale brown. TSB 68.

THIN SECTION DESCRIPTION 121-756D-9R-03 (Piece 4E, 137-140 cm)

ROCK NAME: APHYRIC BASALT

WHERE SAMPLED: Unit F9

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-subtrachytic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
GROUNDMASS						
Plagioclase	30-40	-	0.1		Euhedral	Microlites with simple twinning showing flow orientation. Rare microphenocrysts, < 1 mm
Clinopyroxene	20-25	-	<0.1		Anhedral	Very small crystals in the groundmass.
Opaque	10-15	-	.02-.05		Subhedral to anhedral	Associated with cpx, iddingsite, smectite, and vermiculite in the groundmass.
Glass	-	25	-		-	Groundmass volcanic glass altered to vermiculite and smectite. Less than in previous sample (121-756D-7R-2, Piece 1C, 38-40 cm).

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	5			Smectites		All partially or totally filled by smectites and aligned parallel to the flow orientation of the rock shown by the plagioclase microlites.

COMMENTS: Groundmass is microcrystalline-holocrystalline-hypidiomorphic-granular-subtrachytic texture.Color gray-green. Alteration 20-30%. TSB 69.

THIN SECTION DESCRIPTION 121-756D-10R-02 (Piece 9A, 108-111 cm)

ROCK NAME: APHYRIC BASALT

WHERE SAMPLED: Unit F12

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-subtrachytic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
GROUNDMASS						
Plagioclase	30-40	-	0.1		Euhedral	Microlites with simple twinning showing flow orientation. Rare microphenocrysts, < 1 mm.
Clinopyroxene	20-25	-	<0.1		Anhedral	Very small crystals in the groundmass. Very fresh.
Opaque	10-15	-	0.02-0.05		Subhedral to anhedral	Associated with cpx, iddingsite, smectite, and vermiculite in the groundmass.
Glass	-	20-25	-		-	Groundmass volcanic glass altered to smectite. Less than in (121-756D-7R-2, Piece 1C, 38-40 cm).

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Small fractures cut the rocks and are marked by a higher degree of alteration (up to 80%), appearing much greener and grayer because of the abundance of vermiculite and smectite. These fractures parallel the orientation shown by the plagioclase microlites and define the darker linear patterns of the bluish gray basalt. Alteration 30-40%. Color gray-green. TSB 71.

THIN SECTION DESCRIPTION 121-756D-10R-03 (Piece 4 , 63-67 cm)

ROCK NAME: APHYRIC BASALT

WHERE SAMPLED: Unit F12

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
GROUNDMASS						
Plagioclase	30-40	-	0.1-0.5		Euhedral	Microlites with simple twinning. Rare microlites 1 mm long.
Clinopyroxene	20-25	-	<0.1		Anhedral	Very small crystals in the groundmass.
Opaque	10-15	-	0.05-0.1		Subhedral to anhedral	Associated with cpx, iddingsite, smectite, and vermiculite in the groundmass.
Glass	-	<30	-		-	Groundmass volcanic glass altered to vermiculite and smectite. Less than in 121-756D-7R-2, Piece 1C, 38-40 cm. More altered than sample 9R-3 (piece 4E, 137-140 cm).

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Vesicles		In an inclusion	2-5	Smectites		30% of the inclusion is made up of vesicles completely filled by smectites, with rare associated biotites, and including plagioclase microlites.

COMMENTS: Alteration 30-40%. Color gray-green. Sample contains inclusion of vesicular aphyric basalt with: Plagioclase microlites 20-30%, 50-100 microns sub to euhedral, equant crystals; Clinopyroxene 20-30%, 40-80 microns small anhedral crystals in the groundmass; Opaque 5-10%, small (< 100 microns) anhedral crystals in the groundmass. The rest of the inclusion (30%) is made of vesicles (2-5 mm) completely filled by smectites, with rare associated biotites, and including plagioclase microlites. These are to volcanic glass vesicles which have entirely devitrified to smectites. TSB 70.

THIN SECTION DESCRIPTION 121-756D-11R-02 (Piece 9 , 47-50 cm)

ROCK NAME: HIGHLY VESICULAR SPARSELY PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F13

TEXTURE: Microcrystalline-holocrystalline-highly vesicular

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	2	-	2-3		Subhedral	Glomerocrysts, altered.
GROUNDMASS						
Plagioclase	15	-	0.1		Subhedral	Microlites.
Clinopyroxene	15	-	<0.1		Anhedral	Strongly altered.
Opaque	10	-	-	Hematite-geothite(?)	-	Red internal reflections. Hematite - geothite(?)
Olivine(?)	-	10	-		Subhedral to euhedral crystals	Altered to iddingsite.
Glass	-	18	-		-	Completely recrystallized to smectite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	30			20% filled with calcite		Lined with smectite and sometimes (20%) are filled by calcite.

COMMENTS: Red, brown color because of high alteration (>80%). TSB 72

THIN SECTION DESCRIPTION 121-756D-11R-03 (Piece 3A, 49-51 cm)

ROCK NAME: SPARSELY PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F14

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-subtrachytic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	1	-	2		Subhedral	Zoned.
GROUNDMASS						
Plagioclase	35	-	0.2-0.5		Subhedral	Microlites.
Clinopyroxene	35	-	0.05		Anhedral	
Opaque	8	-	0.02-0.2	Magnetite...	Some cubes	Magnetite(?) plus others.
Olivine(?)	-	10	-		Subhedral to euhedral crystals	Altered to iddingsite.
Glass	-	10-18	-		-	Completely recrystallized to smectite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	5		2-3	Smectites		Lined with smectites. Smectites also occur as "blobs" (6%), 0.5 to 1 mm in diameter, which are completely filled vesicles.

COMMENTS: Alteration >50%. TSB 73.

THIN SECTION DESCRIPTION 121-756D-12R-03 (Piece 4F, 129-131 cm)

ROCK NAME: SPARSELY PLAGIOCLASE PHYRIC BASALT

WHERE SAMPLED: Unit F14

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular-subtrachytic

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	<1	-	0.5		Subhedral	
GROUNDMASS						
Plagioclase	40	-	0.05-0.2		Subhedral - euhedral	Microlites.
Clinopyroxene	30-35	-	0.05		Anhedral	
Opaque	10	-	0.02-0.2		Some elongate	Ilmenite(?)
Olivine(?)	-	<1	-		-	Altered to iddingsite.
Glass	-	14	-		-	Completely recrystallized to smectite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE
Vesicles	<1		<1	Smectite	

COMMENTS: Color greenish, bluish gray with dark stripes. Alteration 30-40%. TSB 74.

THIN SECTION DESCRIPTION 121-756D-12R-02 (Piece 1E, 128-131 cm)

ROCK NAME: ALTERED BASALT WITH THICK CALCITE VEIN

WHERE SAMPLED: Unit F14

TEXTURE: Microcrystalline-holocrystalline-hypidiomorphic-granular

GRAIN SIZE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE RANGE (mm)	APPROX. COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	<2	-	1		Subhedral	
GROUNDMASS						
Plagioclase	25	-	0.1-0.2		Subhedral - euhedral	Microlites.
Clinopyroxene	25	-	0.05		-	Very altered.
Opaque	15	-	-	Magnetite, Ilmenite	-	Alteration to iron oxide or hydroxide causes a brown color.
Olivine	-	<1	-		-	Altered to iddingsite.
Glass	-	30	-		-	Completely altered.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE RANGE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: This section shows a well developed calcite vein (up to 1 cm wide) which has stained the enclosing material to a much more orange color. The calcite vein itself is surrounded by a thin lamellae of iron hydroxides and vermiculites. Alteration 60-70%. TSB 76.