SITE 830 HOLE A CORE 1H CORED INTERVAL 0.0-7.0 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
PLEISTOCENE	C/G	N22				62.7 1.79 1607		1	0.5				*
	C/G	CN15				71.8 1.60 1538	14.1		1.0				
						25.2 0.4		2					
								3					* *
						60.1 1.81 1592							TW
						21.1		4					
								5					
								CC					

Φ 1/ρ FT. %CaCO3 WT. %TOC

LITHOLOGIC DESCRIPTION

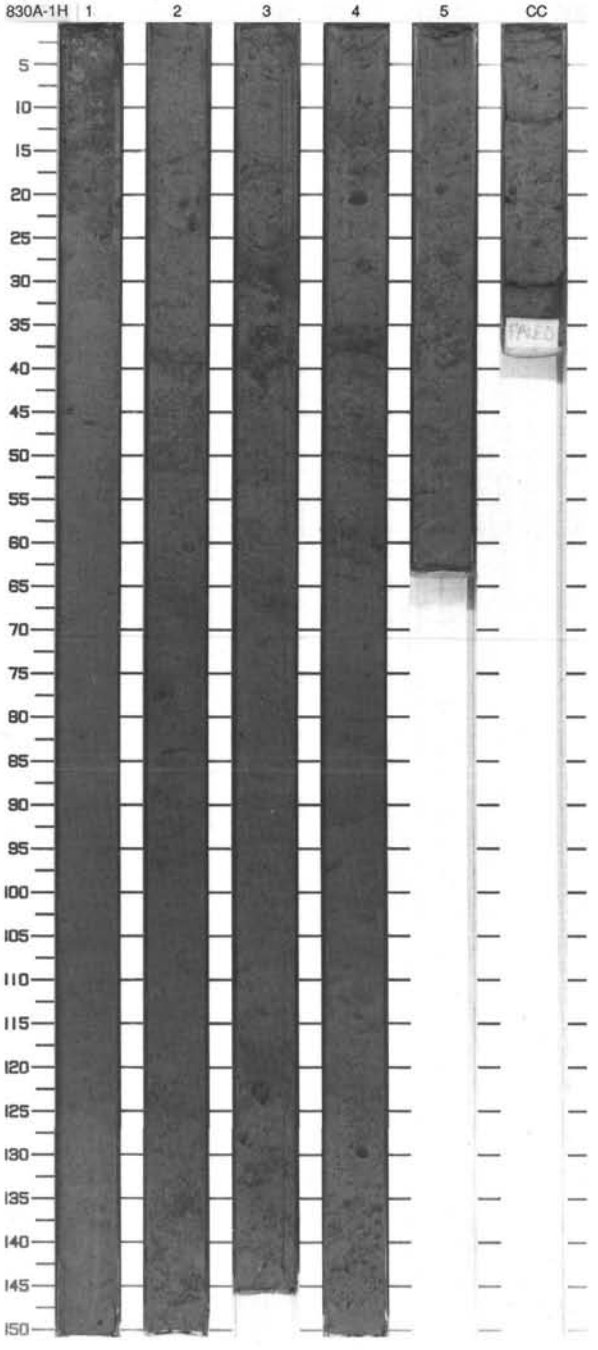
CALCAREOUS VOLCANIC SILT

Major lithology: The core consists of dark greenish gray (10Y 4/1) CALCAREOUS VOLCANIC SILT with clay. Intermittent shell fragments and thin shell fragment layers occur throughout the core.

Minor lithology: A 7 cm clast of pumice occurs in a thin ash layer at Section 3, 35–42 cm. Smaller pumice fragments and ash layers are scattered throughout the core.

SMEAR SLIDE SUMMARY (%):

	1, 121 D	3, 40 D	3, 68 M
TEXTURE:			
Sand	5	30	15
Silt	45	40	60
Clay	50	30	25
COMPOSITION:			
Calcite	12	---	24
Celadonite	1	2	---
Chlorite	8	5	1
Clay	20	8	---
Clinopyroxene	3	7	3
Feldspar	5	10	25
Foraminifers	10	10	20
Glass	---	15	10
Mica	---	---	Tr
Nannofossils	20	20	5
Opaques	5	8	5
Oxide	10	12	---
Quartz	1	3	5
Spicules	Tr	Tr	2



SITE 830 HOLE A CORE 2H CORED INTERVAL 7.0-16.5 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER
- FORAMINIFERS: A/G; C/G
- NANNOFOSSILS: N22; CN15; CN14
- RADIOLARIANS: C/G
- DIATOMS:

PALEOMAGNETICS: N

PHYS. PROPERTIES: ● 59.3 1644; ● 63.0 1566; ● 37.7 1585; Φ; β; Vp; 1.83; 1.82; 1.36

CHEMISTRY: ● 28.2; ● 15.7; ● 17.6; 0.2; wt. %CaCO3; wt. %TOC

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES

LITHOLOGIC DESCRIPTION

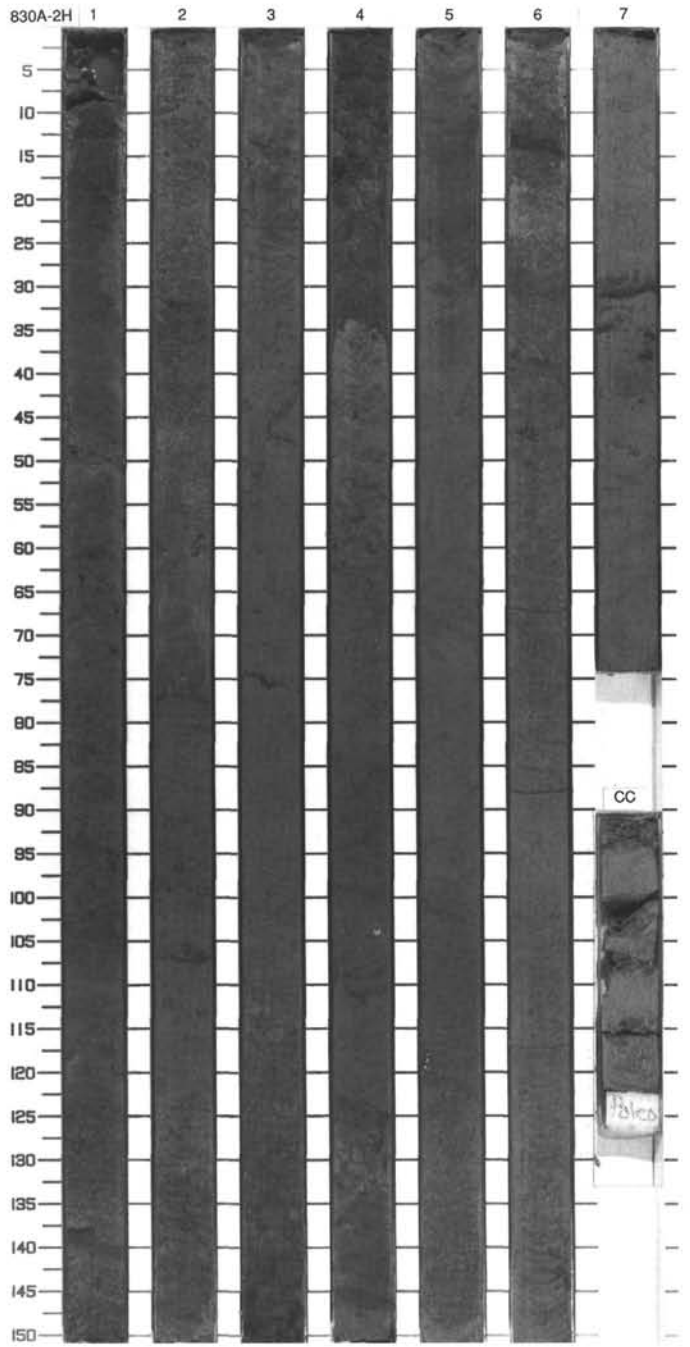
CLAYEY VOLCANIC SILT and VOLCANIC SILT

Major lithology: The core is primarily dark greenish gray (10Y 4/1) CLAYEY VOLCANIC SILT and VOLCANIC SILT, which is sometimes mottled.

Minor lithology: At Section 2, 25–75 cm, and Section 6, 0–15 cm, foraminiferal volcanic sands fining upward to volcanic silt occur; these sequences feature scoured lower contacts. A dark greenish gray to black (10Y 5/1 to 2.5Y 2/0), 34 cm layer of foraminiferal volcanic sand occurs at the top of Section 4, fining upward to silt in the bottom 35 cm of Section 3. The sand layer is underlain by an olive gray (5Y 5/2) clayey silt which grades downward in color to greenish gray (10Y 5/1). The sequence appears to be an oxidized former sediment-water interface overlain by a turbidite. The core contains numerous sandy pumice and ash layers, with bioturbated upper surfaces.

SMEAR SLIDE SUMMARY (%):

	1, 82 M	5, 61 D	6, 13 M
TEXTURE:			
Sand	20	3	90
Silt	30	60	5
Clay	50	37	5
COMPOSITION:			
Calcite	80	15	—
Chlorite	—	1	—
Clay	—	37	—
Clinopyroxene	Tr	2	10
Echinoid spine	Tr	—	—
Feldspar	3	10	19
Foraminifers	12	5	20
Glass	5	20	5
Nannofossils	—	3	—
Opaques	—	2	46
Pteropod	Tr	—	—
Quartz	—	3	—
Spicules	—	1	—



SITE 830 HOLE A CORE 3H CORED INTERVAL 16.5-26.0 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS C/G; NANNOFOSSILS N22 / CN14; C/G; RADIOLARIANS; DIATOMS; PALEOMAGNETICS N

PHYS. PROPERTIES: ● 56.8 1623 1.94; ● 49.1 1639 2.02; ● 28.2 1653 2.07; ● 44.5 2.17

CHEMISTRY: ● 16.5; ● 18.8 0.3; ● 22.1; ● 13.5; wt. %CaCO3; wt. %TOC

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES: F

SAMPLES: OG; FD; TW

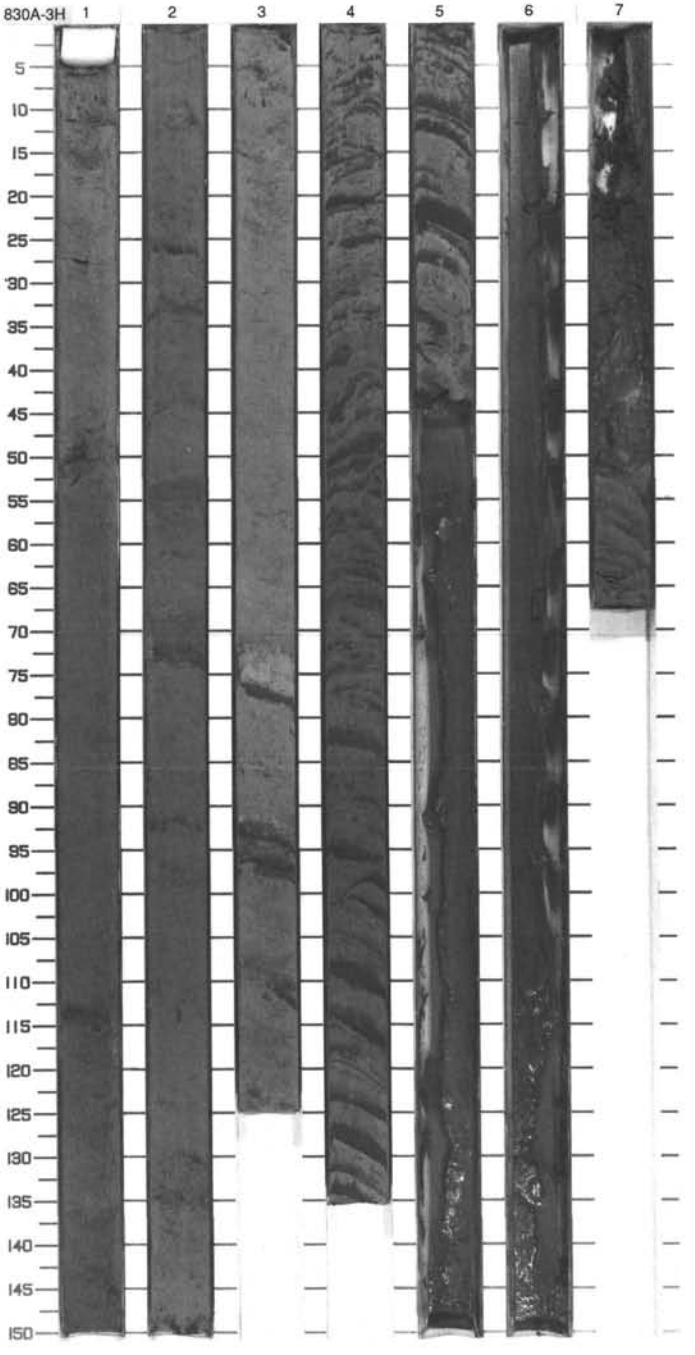
LITHOLOGIC DESCRIPTION

FINE VOLCANIC SAND and CLAYEY VOLCANIC SILT interbedded with FORAMINIFERAL VOLCANIC SAND

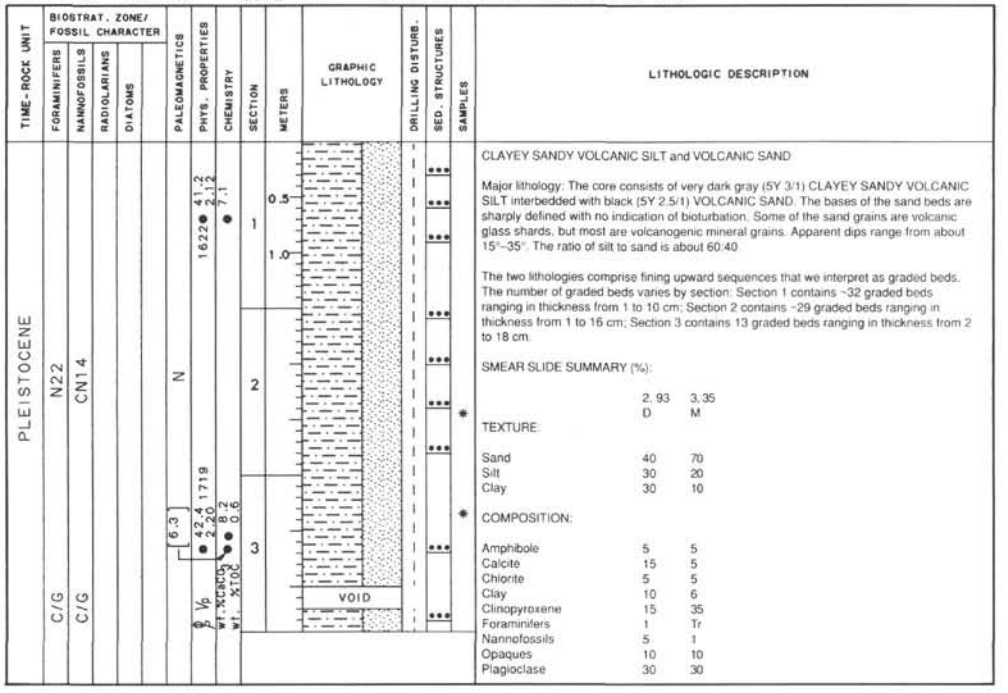
Major lithology:
a. Section 1–3 consist of dark greenish gray (10Y 4/1) CLAYEY VOLCANIC SILT with intermittent sandy ash layers and pumice fragments. Some ash layers have scoured bases. In Section 2, 65–74 cm, a sandy ash base grades up to light brownish gray (10YR 6/2) vitric ash. In Section 4, 0 cm, through Section 5, 45 cm, and in Section 7, 51–66 cm, the CLAYEY VOLCANIC SILT is interbedded with FORAMINIFERAL VOLCANIC SAND. 0.1– 1.5 cm thick. The interbeds occur at intervals of 1 to 5 cm, and the upper surfaces are bioturbated.
b. Section 5, 45 cm, through Section 7, 51 cm, consists of soupy, very dark gray (5Y 3/1), FINE VOLCANIC SAND, which has been highly disturbed by drilling.

SMEAR SLIDE SUMMARY (%):

	3, 15 M	3, 69 M	3, 76 M	7, 45 M
TEXTURE:				
Sand	10	5	0	70
Silt	70	45	40	20
Clay	20	50	60	10
COMPOSITION:				
Amphibole	---	---	---	1
Calcite	---	15	7	---
Celadonite	---	1	---	---
Chlorite	---	---	1	---
Clay	---	15	5	---
Clinopyroxene	---	2	2	20
Feldspar	---	15	25	10
Foraminifers	Tr	5	1	---
Glass	85	---	58	10
Nannofossils	---	35	Tr	---
Opaques	2	4	---	59
Orthopyroxene	7	---	---	---
Oxide	---	2	---	---
Plagioclase	6	---	---	---
Quartz	---	5	Tr	---
Spicules	---	Tr	Tr	---



SITE 830 HOLE A CORE 4H CORED INTERVAL 26.0-30.4 mbsf



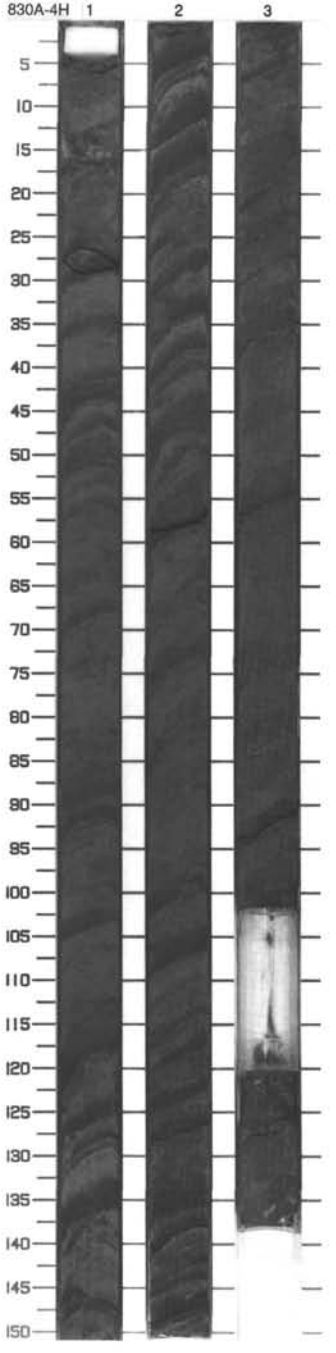
CLAYEY SANDY VOLCANIC SILT and VOLCANIC SAND

Major lithology: The core consists of very dark gray (5Y 3/1) CLAYEY SANDY VOLCANIC SILT interbedded with black (5Y 2.5/1) VOLCANIC SAND. The bases of the sand beds are sharply defined with no indication of bioturbation. Some of the sand grains are volcanic glass shards, but most are volcanogenic mineral grains. Apparent dips range from about 15°–35°. The ratio of silt to sand is about 60:40.

The two lithologies comprise fining upward sequences that we interpret as graded beds. The number of graded beds varies by section: Section 1 contains ~32 graded beds ranging in thickness from 1 to 10 cm; Section 2 contains ~29 graded beds ranging in thickness from 1 to 16 cm; Section 3 contains 13 graded beds ranging in thickness from 2 to 18 cm.

SMEAR SLIDE SUMMARY (%):

	2, 93 D	3, 35 M
TEXTURE:		
Sand	40	70
Silt	30	20
Clay	30	10
COMPOSITION:		
Amphibole	5	5
Calcite	15	5
Chlorite	5	5
Clay	10	6
Clinopyroxene	15	35
Foraminifers	1	Tr
Nannofossils	5	1
Opaques	10	10
Plagioclase	30	30



SITE 830 HOLE A CORE 5H CORED INTERVAL 30.4-39.9 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS F/M; NANNOFOSSILS N22, CN14; RADIOLARIANS F/G; DIATOMS

PALEOMAGNETICS

PHYS. PROPERTIES: • 1.706; • 46.1, 2.13, 8.0, 0.3; • 50.0, 2.08, 5.8

CHEMISTRY: • 6.7; wt. %CaCO3; wt. %TOC

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY: VOID

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: PW

LITHOLOGIC DESCRIPTION

VOLCANIC SAND and CLAYEY SANDY VOLCANIC SILT

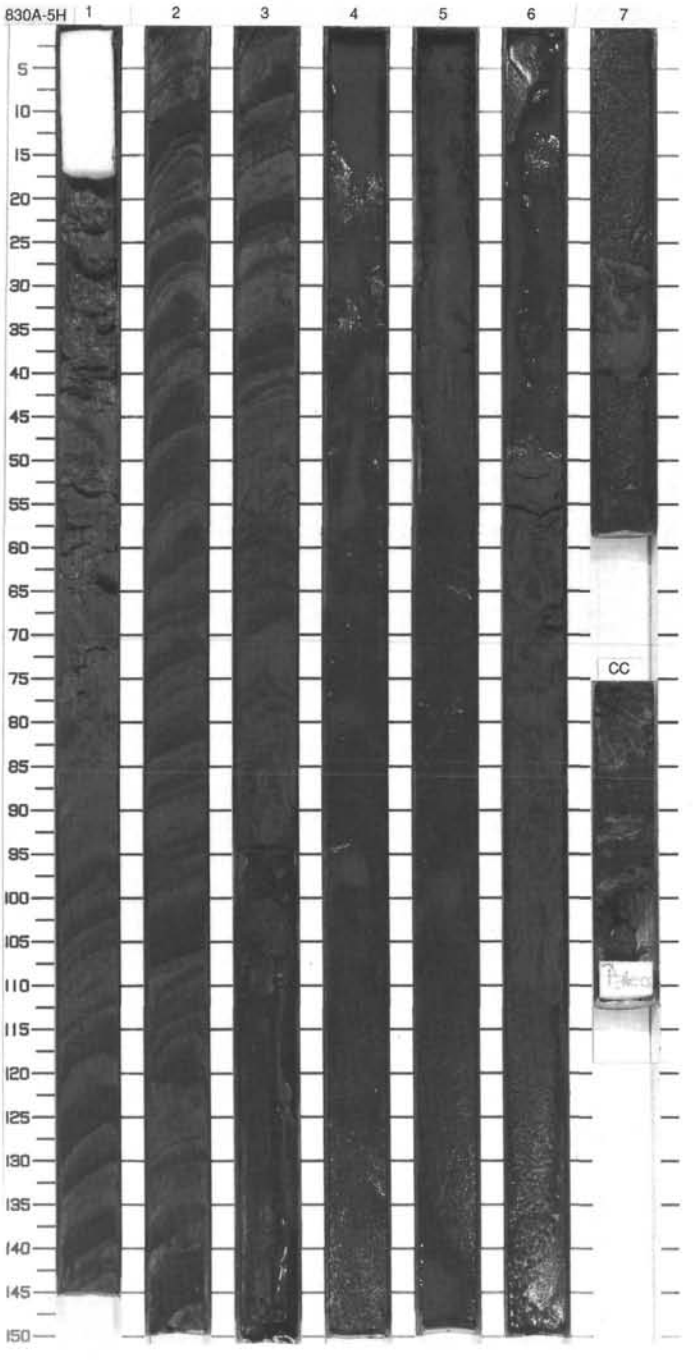
Major lithology:

a. About half of the core consists of very dark gray (5Y 3/1) CLAYEY SANDY VOLCANIC SILT usually or frequently interbedded with black (5Y 2.5/1) VOLCANIC SAND. The bases of the sand beds are sharply defined, with no indication of bioturbation, and with apparent dips in the range of 25° to 35°. Some of the sand grains are volcanic glass shards, but most are volcanogenic mineral grains. The top of Section 1 (17–95 cm) is CLAYEY SANDY VOLCANIC SILT that has been disturbed by drilling. These two lithologies comprise graded beds in the undisturbed sections of Core 5H, in which the ratio of silt to sand is about 60:40. Section 1, 45–145 cm, has 21 graded beds (21/m), ranging in thickness from 1 to 8 cm. Section 2 has 33 graded beds (22/m) ranging in thickness from 1–8 cm. Section 3 contains 18 graded beds (19/m) ranging in thickness from 1–8 cm. A load cast occurs in Section 2, 140 cm, and a volcanic ash layer occurs in Section 1, 89–90 cm.

b. Section 3, 95 cm, to Section 7, 60 cm (except Section 6, 50–110 cm, and Section 7, 28–36 cm), consists of soupy, black (5Y 2.5/1) VOLCANIC SAND, which has been highly disturbed by drilling.

SMEAR SLIDE SUMMARY (%):

	3, 30 D	7, 7 M
TEXTURE:		
Sand	40	80
Silt	30	20
Clay	30	-
COMPOSITION:		
Calcite	5	-
Chlorite	15	-
Clay	20	-
Clinopyroxene	15	40
Foraminifers	Tr	-
Nannofossils	5	-
Opaques	10	30
Plagioclase	30	25



SITE 830 HOLE A CORE 6H CORED INTERVAL 39.9-48.5 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
PLEISTOCENE	B / R/G	CN14			N	46.6 / 2.14 / 9.7 / 0.2 (●); 43.3 / 2.24 / 0.1 (●); wt. %CaCO3, wt. %TOC		1, 2, 3, 4, 5, 6, CC	0.5, 1.0	VOID			LEG

LITHOLOGIC DESCRIPTION

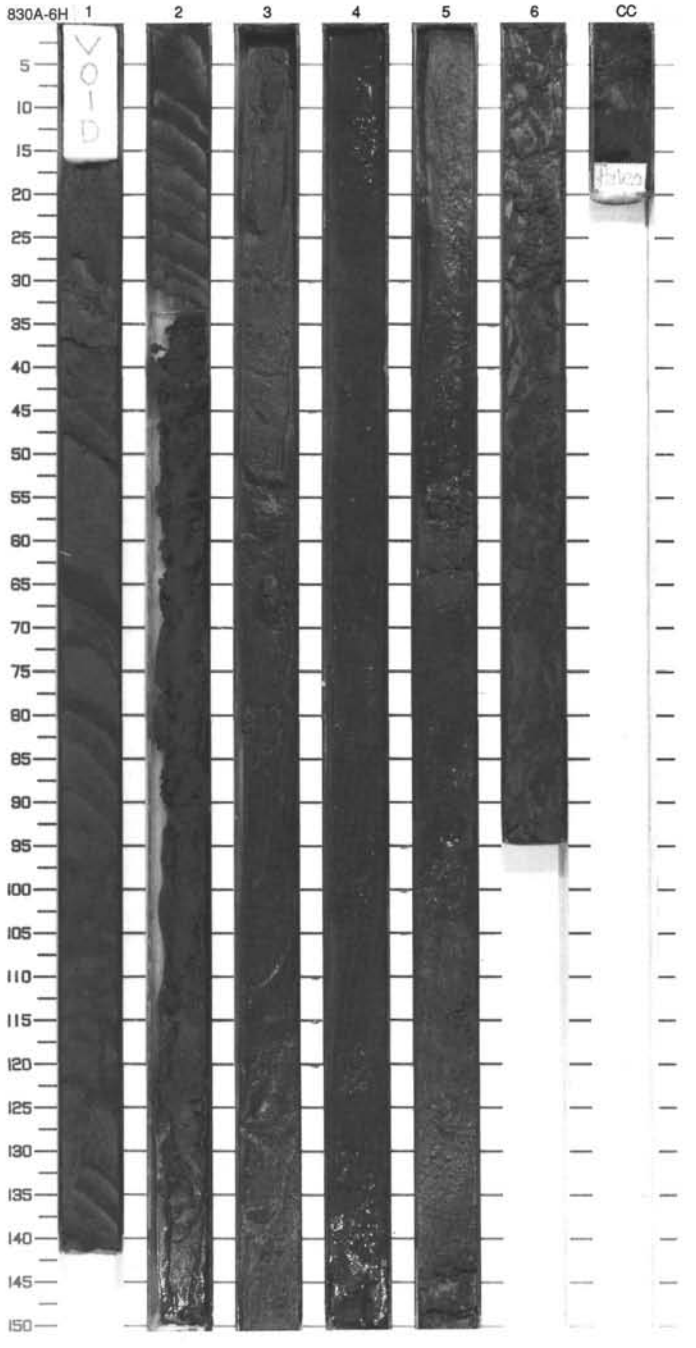
VOLCANIC SAND and CLAYEY SANDY VOLCANIC SILT

Major lithology:
a. Section 2, 33 cm, to Section 5, 110 cm, consists of soupy, black (5Y 2.5/1) VOLCANIC SAND, which has been highly disturbed by drilling.
b. The undisturbed section of the core consists of very dark gray (5Y 3/1) CLAYEY SANDY VOLCANIC SILT frequently interbedded with black (5Y 2.5/1) VOLCANIC SAND. The bases of the sand beds are sharply defined, with no indication of bioturbation and with apparent dips of 25–35°. Some of the sand grains are volcanic glass shards and about 1% are white carbonate grains of which many are *Amphistegina* sp. foraminifers and other unidentified microfossils. The ratio of silt to sand in the interbeds is about 60:40.

The frequency of identifiable graded beds is as follows: Section 1, 16–141 cm, 22 graded beds (18/m); Section 2, 0–33 cm, 9 graded beds (27/m); Section 6, 0–94 cm, 10–20 graded beds (11–21/m). A few graded beds are recognizable in Section 5, 110–150 cm although it is very disturbed.

SMEAR SLIDE SUMMARY (%):

	1, 60 D	1, 97 D	2, 58 D
TEXTURE:			
Sand	30	60	75
Silt	40	30	15
Clay	30	10	10
COMPOSITION:			
Amphibole	—	5	3
Calcite	20	20	3
Chlorite	10	5	10
Clay	25	—	—
Clinopyroxene	7	15	25
Foraminifers	1	5	5
Magnetite	—	8	20
Nannofossils	Tr	2	—
Opaques	15	10	10
Orthopyroxene	7	—	—
Plagioclase	15	25	20

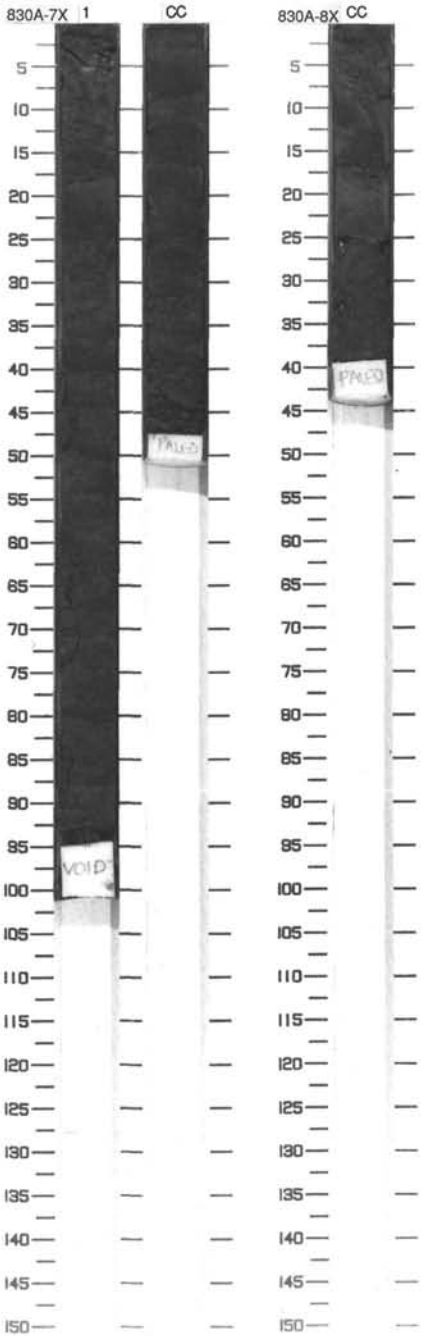


SITE 830 HOLE A CORE 7X CORED INTERVAL 48.5-58.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
PLEISTOCENE	R/G	N22 / CN14 R/G			N	● 63.5 2.61 ● 2.51 2.05 ● 9.4 9.7 φ β wt. %CaCO3 wt. %TOC		1 CC	0.5 1.0				*	CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND Major lithology: The core consists of interbeds of partially lithified, very dark gray (5Y 3/1), CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND. The ratio of silt to sand is 60:40. The two major lithologies occur as normally graded beds, with sharp bases indicating minimal bioturbation. Graded beds range in thickness from 3 to 10 cm. A 2 cm thick volcanic ash layer occurs in Section CC, 36 cm. SMEAR SLIDE SUMMARY (%): CC, 36 M TEXTURE: Sand 50 Silt 50 COMPOSITION: Amphibole 2 Clinopyroxene 5 Foraminifers Tr Glass 75 Nannofossils Tr Opaques 5 Plagioclase 10

SITE 830 HOLE A CORE 8X CORED INTERVAL 58.2-67.9 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
PLEISTOCENE	F/M	N22 / CN14 R/G				● 41.8 2.36 ● 2.36 10.5 φ β wt. %CaCO3 wt. %TOC		CC	0.3					CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND Major lithology: The core consists of interbeds of partially lithified, very dark gray (5Y 3/1), CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND. The ratio of silt to sand is 60:40. The two major lithologies occur as normally graded beds, with sharp bases indicating minimal bioturbation. About 4 graded beds are discernible, but others may have been obliterated by drilling. The beds are approximately horizontal.

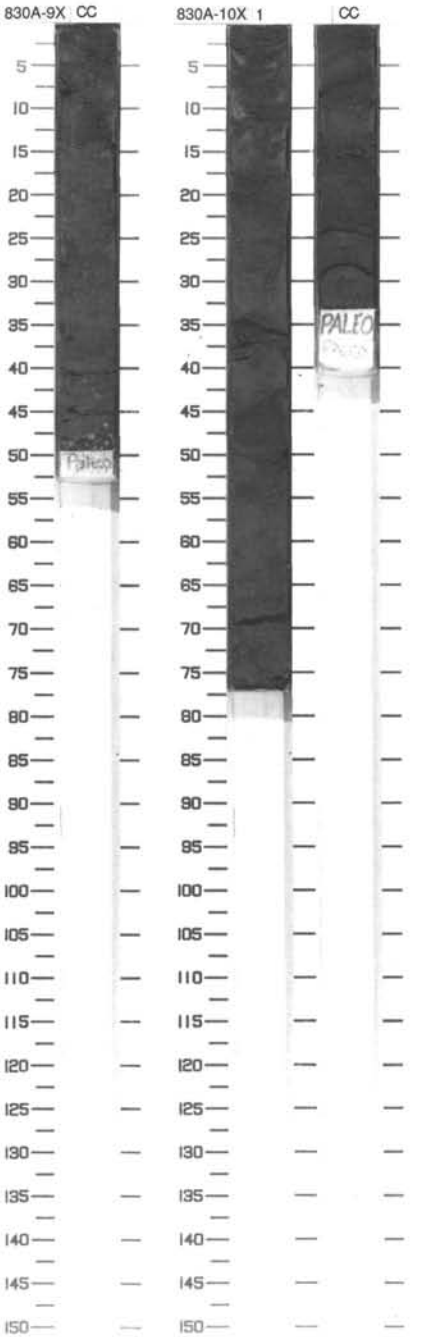


SITE 830 HOLE A CORE 9X CORED INTERVAL 67.9-77.6 mbsf

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
PLEISTOCENE	N22 F/M	R/G				44.5 ● 2.13 13.3 ● 0.2	wt. %CaCO3 wt. %TOC	CC						CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND Major lithology: The core consists of interbeds of partially lithified, very dark gray (5Y 3/1), CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND. The ratio of silt to sand beds is 60:40. The two major lithologies occur as normally graded beds, with sharp bases indicating minimal bioturbation.

SITE 830 HOLE A CORE 10X CORED INTERVAL 77.6-87.3 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
PLEISTOCENE	R/P N22					41.6 ● 3.26 6.7 ● 0.1	wt. %CaCO3 wt. %TOC	1 CC	0.5 1.0				**	CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND Major lithology: The core consists of interbeds of partially lithified, very dark gray (5Y 3/1) CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND. The ratio of silt to sand is about 60:40. (The two major lithologies occur as ~12 normally graded beds, ranging in thickness from 2 to 6 cm, with sharp bases indicating minimal bioturbation.) SMEAR SLIDE SUMMARY (%): 1, 25 D / 1, 36 M TEXTURE: Sand 65 80 Silt 25 20 Clay 10 - COMPOSITION: Amphibole Tr - Apatite Tr - Calcite 10 5 Chlorite 20 - Clay 10 - Clinopyroxene 10 40 Foraminifers 1 - Glass 20 30 Nannofossils Tr Tr Opaques 5 10 Plagioclase 20 15

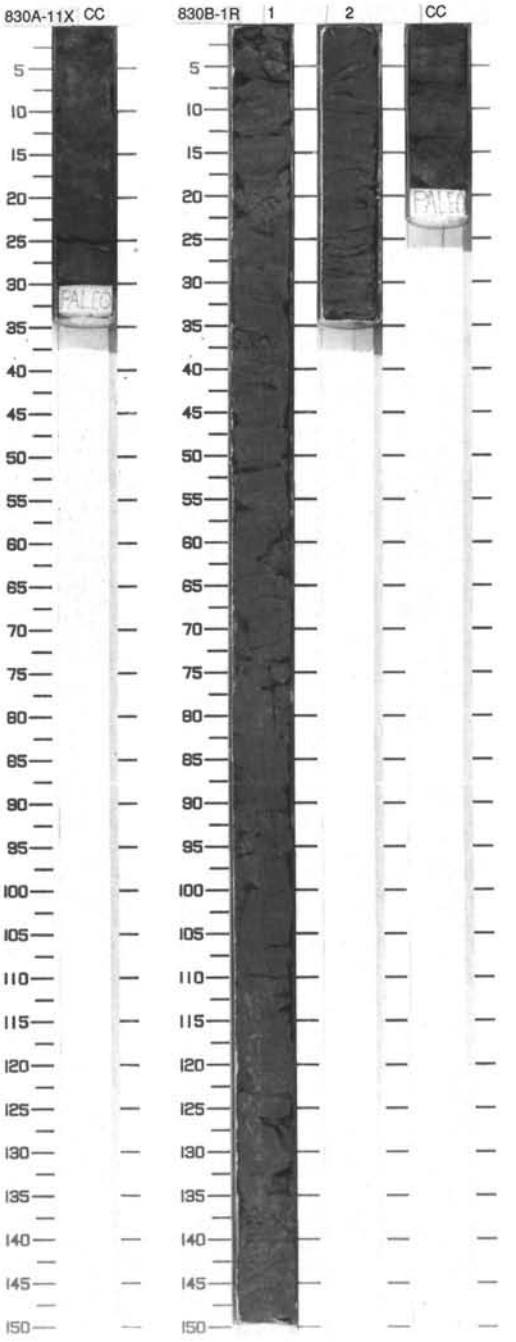


SITE 830 HOLE A CORE 11X CORED INTERVAL 87.3-96.9 mbsf

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
PLEISTOCENE	R/P	N22						CC						CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND Major lithology: The core consists of interbeds of partially lithified, very dark gray (5Y 3/1) CLAYEY SANDY VOLCANIC SILT and SILTY VOLCANIC SAND. The ratio of silt to sand is about 60:40. The two major lithologies occur as normally graded beds, with sharp bases indicating minimal bioturbation. Section CC, 23–29 cm, is well-lithified.

SITE 830 HOLE B CORE 1R CORED INTERVAL 48.5-58.1 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	LITHOLOGIC DESCRIPTION
PLEISTOCENE	B	R/G CN14				● 52.7 1636 2.64 ● 8.3 ϕ Vp wt.%$CaCO_3$		1 2 CC	0.5 1.0				*	CLAYEY VOLCANIC SILT Major lithology: The core consists of very dark gray (5Y 3/1) CLAYEY VOLCANIC SILT with calcareous grains. The silts occur in intervals 2–10 cm thick that are separated by thin (<1-cm) volcanic sand layers. Some wedge-planar and wavy laminations occur, and voids within laminated sequences suggest that sandy material has been washed out during the coring and cutting process. SMEAR SLIDE SUMMARY (%): 1, 105 D TEXTURE: Sand 5 Silt 65 Clay 30 COMPOSITION: Amphibole 1 Calcite 10 Celadonite 1 Chlorite 3 Clay 28 Clinopyroxene 2 Feldspar 12 Foraminifers 3 Glass 5 Nannofossils 15 Opaques 4 Oxide 8 Quartz 3 Rock fragment 5 Spicules Tr



SITE 830 HOLE B CORE 2R CORED INTERVAL 58.1-67.7 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
PLEISTOCENE	F/G	N22 / CN14	C/G			ϕ 46.2, ρ 2.15, wt. %CaCO3 8.3, wt. %TOC 0.2		1, 2, CC	0.5, 1.0			◆	TW, *

LITHOLOGIC DESCRIPTION

CLAYEY VOLCANIC SILT

Major lithology: The core consists of very dark gray (5Y 3/1) CLAYEY VOLCANIC SILT with a few thin (<1-cm) silty sand layers. The core has been fragmented by drilling.

SMEAR SLIDE SUMMARY (%):

	2, 54 D
TEXTURE:	
Sand	3
Silt	65
Clay	32
COMPOSITION:	
Calcite	25
Chlorite	2
Clay	40
Clinopyroxene	3
Feldspar	20
Foraminifers	1
Glass	1
Nannofossils	Tr
Opaques	5
Quartz	3

SITE 830 HOLE B CORE 3R CORED INTERVAL 67.7-77.5 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
PLEISTOCENE	F/G	N22 / CN14	F/G			1778 ϕ 48.4, Vp ● 2.06, wt. %CaCO3 9.8, wt. %TOC 0.2		1, 2, CC	0.5, 1.0			//	*

LITHOLOGIC DESCRIPTION

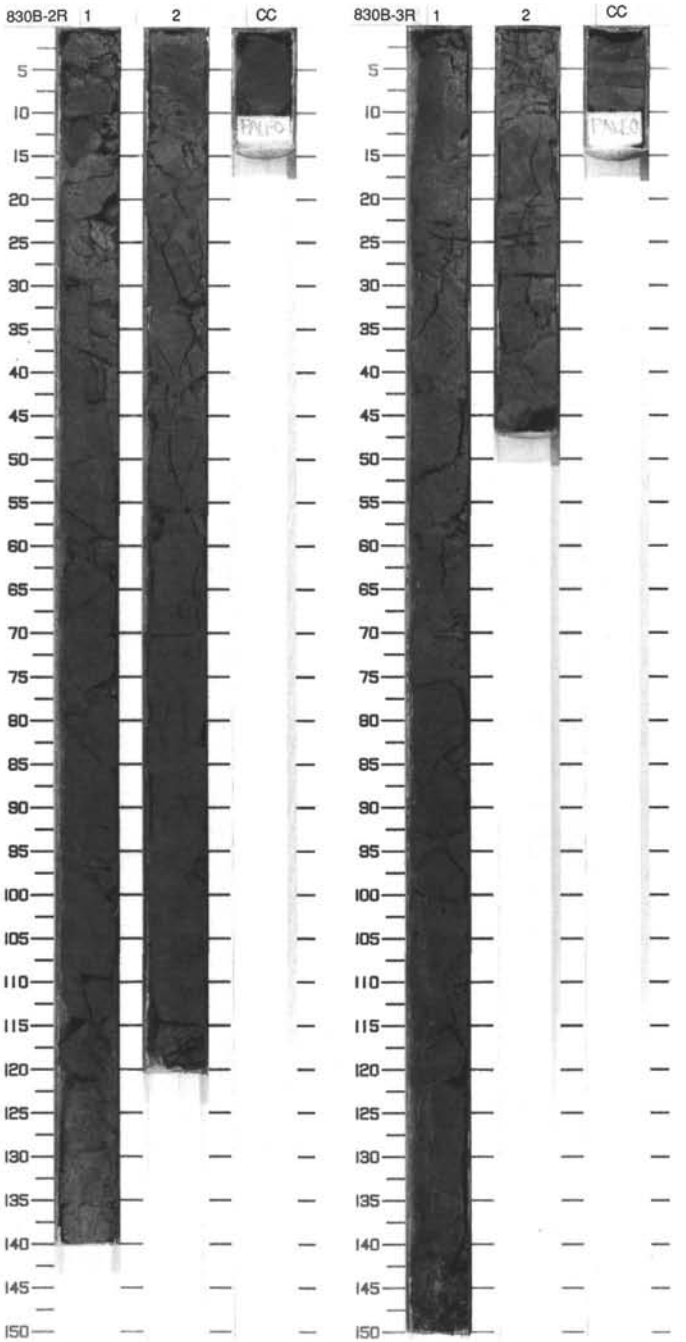
CLAYEY VOLCANIC SILT and SANDY VOLCANIC SILT

Major lithology: The core consists of very dark gray (5Y 3/1) CLAYEY VOLCANIC SILT (Section 1, 77 cm, to Section 2, 47 cm) and SANDY VOLCANIC SILT (Sections 1, 0–77 cm, and CC) with intermittent sandy and clayey laminated beds, some with wedge planar and wavy laminations.

Minor lithology: A 5 cm layer of gray vitric ash occurs in Section 2, 7–12 cm.

SMEAR SLIDE SUMMARY (%):

	2, 10 M
TEXTURE:	
Sand	2
Silt	78
Clay	20
COMPOSITION:	
Calcite	5
Celadonite	1
Clay	5
Clinopyroxene	Tr
Feldspar	2
Glass	74
Nannofossils	3
Opaques	Tr
Oxide	4
Quartz	3
Rock fragment	3
Spicules	Tr

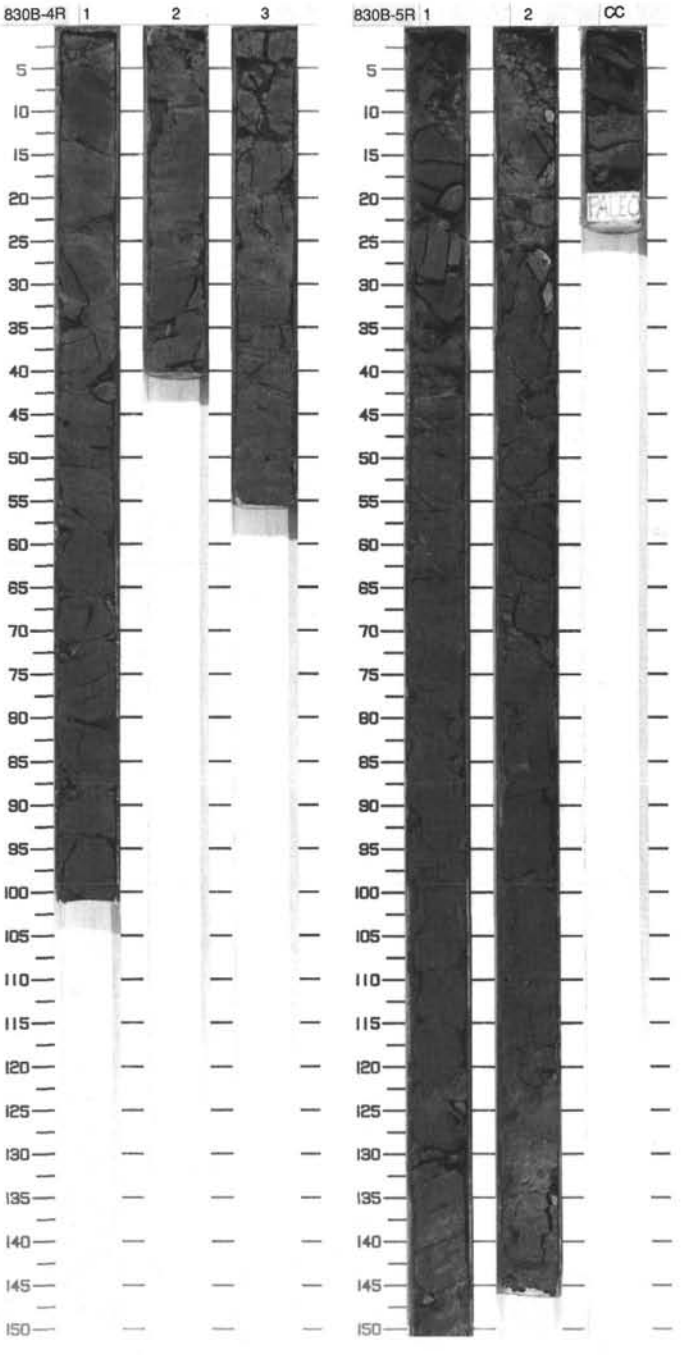


SITE 830 HOLE B CORE 4R CORED INTERVAL 77.5-87.4 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
PLEISTOCENE	F/G	CN14	F/G			● 44.1 1793 2.14 ● 0.2 0.2	wt. %CaCO3 wt. %TOC	1	0.5				IW	CLAYEY VOLCANIC SILT
	N22								1.0	VOID				Major lithology: The core consists of very dark gray (5Y 3/1) CLAYEY VOLCANIC SILT with sandy silt interbeds 2–8 cm thick, and thinly laminated layers. Trace fossils are clearly visible in Section 1, 17–23 cm, and the beds are structureless between laminations. Section 3, 29–38 cm, consists of repeated 1 cm intervals of laminae, 1–2 cm apart, some with wedge-planar bedding; the interval contains a 0.5 cm greenish blue, chloritic layer. Bedding planes of laminae are subhorizontal to about 19° from horizontal.
								2		VOID				
								3						

SITE 830 HOLE B CORE 5R CORED INTERVAL 87.4-97.1 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	LITHOLOGIC DESCRIPTION
PLEISTOCENE	C/G	C/G				● 44.5 1757 2.12 ● 0.4 0.2	wt. %CaCO3 wt. %TOC	1	0.5					CLAYEY VOLCANIC SILT
	N22	CN14							1.0					Major lithology: Most of this core consists of very dark gray (5Y 3/1) CLAYEY VOLCANIC SILT with sand.
								2						Minor lithology: There are numerous interbeds and laminations of very dark gray (5Y 3/1) sandy volcanic silt, and some layers and lenses of gray volcanic clay and volcanic sand. Laminations and interbeds occur in Section 1, 130–150 cm, at intervals of 1–3 cm, with apparent dips ranging from horizontal to 15°.
								CC						



SITE 830 HOLE B CORE 6R CORED INTERVAL 97.1-106.8 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
PLEISTOCENE	F/G	N22	R/G	CN14		41.1 1835 2.20 12.9 0.0	Vp ϕ wt. %CaCO3 wt. %TOC	1 2 CC	0.5 1.0				IW

LITHOLOGIC DESCRIPTION

CLAYEY VOLCANIC SILTSTONE and SANDY VOLCANIC SILTSTONE

Major lithology: About 75% of the core consists of partially lithified, very dark gray (5Y 3/1), thick-bedded (~40 cm) CLAYEY VOLCANIC SILTSTONE with calcareous grains. Partially lithified, medium-bedded (10–20 cm thick), very dark gray (5Y 3/1), SANDY VOLCANIC SILTSTONE with calcareous grains occurs as interbeds. Bedding planes, where determinable, are horizontal. Bioturbation is common.

SMEAR SLIDE SUMMARY (%):

	1, 82 D
TEXTURE:	
Sand	3
Silt	55
Clay	42
COMPOSITION:	
Amphibole	1
Calcite	15
Celadonite	2
Chlorite	5
Clay	22
Clinopyroxene	3
Feldspar	18
Nannofossils	15
Opaques	5
Oxide	7
Quartz	5
Rock fragment	2

SITE 830 HOLE B CORE 7R CORED INTERVAL 106.8-116.5 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
PLEISTOCENE	R/G	N22	F/G	CN14		39.9 2.21 8.7 0.2	ϕ wt. %CaCO3 wt. %TOC	1 CC	0.5 1.0				

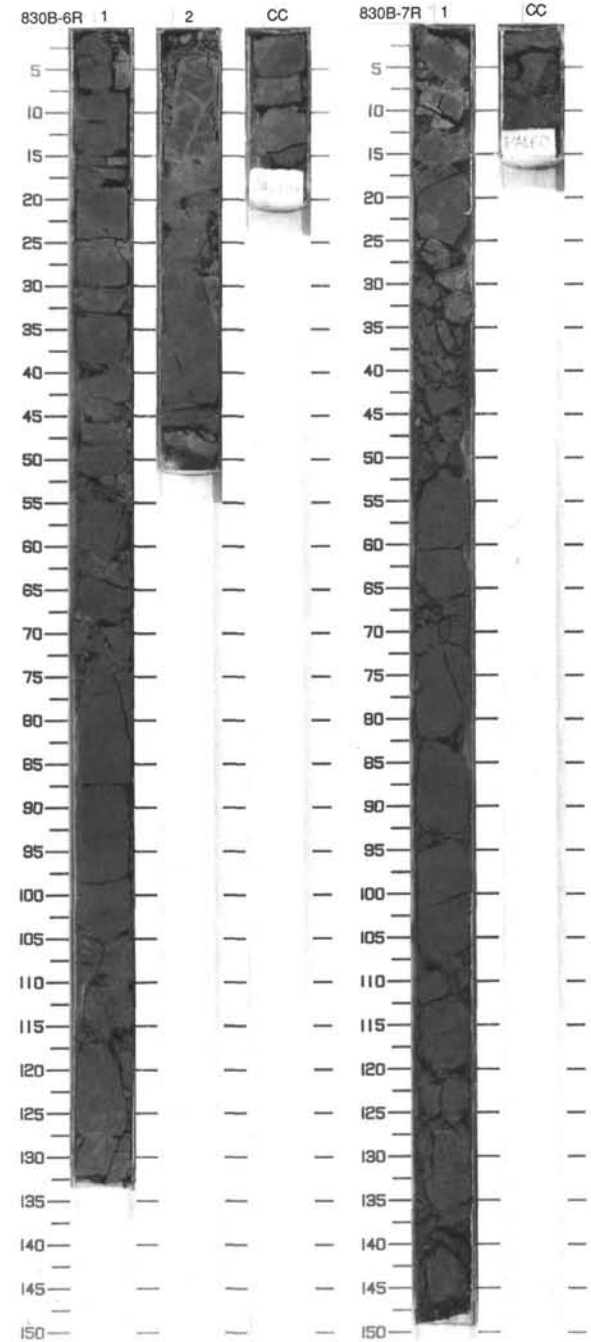
LITHOLOGIC DESCRIPTION

SANDY VOLCANIC SILTSTONE

Major lithology: The entire core consists of very dark gray (5Y 3/1), structureless, partially lithified, SANDY VOLCANIC SILTSTONE with calcareous grains and clay.

SMEAR SLIDE SUMMARY (%):

	1, 80 D
TEXTURE:	
Sand	30
Silt	50
Clay	20
COMPOSITION:	
Amphibole	1
Calcite	15
Celadonite	1
Chlorite	4
Clay	5
Clinopyroxene	8
Feldspar	13
Foraminifers	3
Glass	5
Nannofossils	10
Opaques	10
Oxide	15
Quartz	1
Rock fragment	9
Spicules	Tr



SITE 830 HOLE B CORE 8R CORED INTERVAL 116.5-126.2 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
PLEISTOCENE	R/G	N22 / CN14	F/G			1963 ● 41.9 2.21	● 12.1 0.4	1	0.5 1.0				* IW
								2					
								CC					

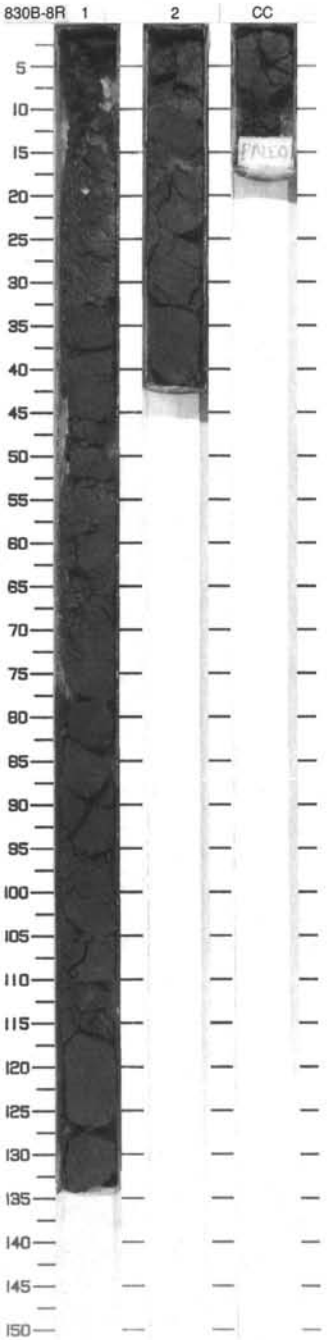
LITHOLOGIC DESCRIPTION

SANDY VOLCANIC SILTSTONE

Major lithology: Most of the core consists of virtually structureless, very dark gray (5Y 3/1), SANDY VOLCANIC SILTSTONE with calcareous grains. In Section 1, 20–30 cm, the silt is unlithified, probably as a result of drilling disturbance.

SMEAR SLIDE SUMMARY (%):

	1, 21 D
TEXTURE:	
Sand	35
Silt	50
Clay	15
COMPOSITION:	
Calcite	10
Celadonite	4
Chlorite	8
Clay	5
Clinopyroxene	10
Feldspar	15
Glass	2
Nannofossils	8
Olivine	5
Opaques	10
Oxide	8
Quartz	2
Rock fragment	12
Spicules	1



SITE 830 HOLE B CORE 9R CORED INTERVAL 126.2-135.9 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
PLEISTOCENE	N22	CN14				46.4 ● 2.23 ϕ	15.7 ● 0.3 wt. % CaCO3 wt. % TOC	1	0.5 1.0				*
	C/G F/G							2					*
								CC					

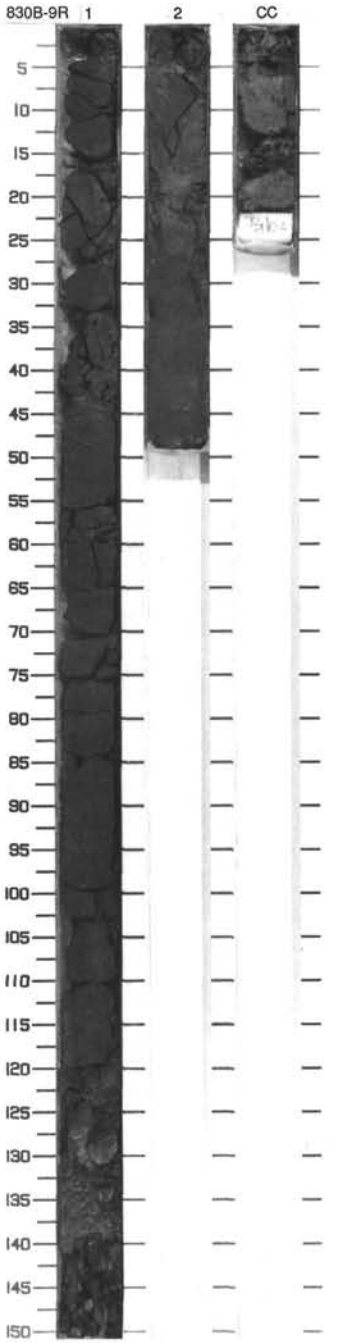
LITHOLOGIC DESCRIPTION

CLAYEY SANDY VOLCANIC SILTSTONE and SILTY VOLCANIC SANDSTONE

Major lithology:
a. Section 1 and Section 2, 0–4 cm, consist of partially lithified, very dark gray (5Y 3/1), SILTY VOLCANIC SANDSTONE with clay.
b. Sections 2, 4–49 cm, and CC consist of CLAYEY SANDY VOLCANIC SILTSTONE. No structures are discernible.

SMEAR SLIDE SUMMARY (%):

	1, 23 D	2, 26 D
TEXTURE:		
Sand	60	20
Silt	30	55
Clay	10	20
COMPOSITION:		
Amphibole	3	5
Chlorite	5	—
Clay	15	—
Clinopyroxene	10	10
Feldspar	30	20
Foraminifers	1	1
Glass	---	20
Inorganic calcite	25	35
Nannofossils	1	1
Opaques	5	5
Spicules	1	1



SITE 830 HOLE B CORE 10R CORED INTERVAL 135.9-145.6 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
PLEISTOCENE	F/G	N22	C/G	CN14		1442 ● 43.6 ● 2.32	● 16.2 0.3 φ Vp wt.%CaCO3 wt.%TOC	1	0.5 1.0		X		*
													IW
								2					*
								CC					

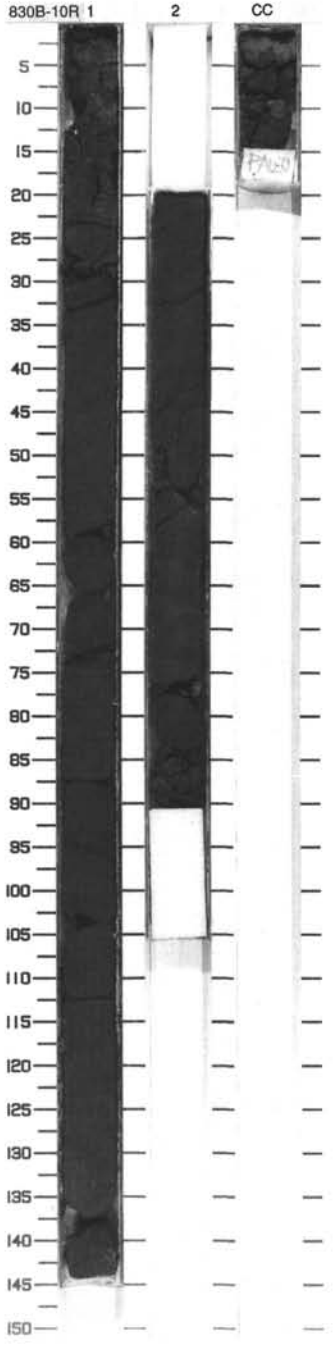
LITHOLOGIC DESCRIPTION

CLAYEY SANDY VOLCANIC SILTSTONE and SILTY VOLCANIC SANDSTONE

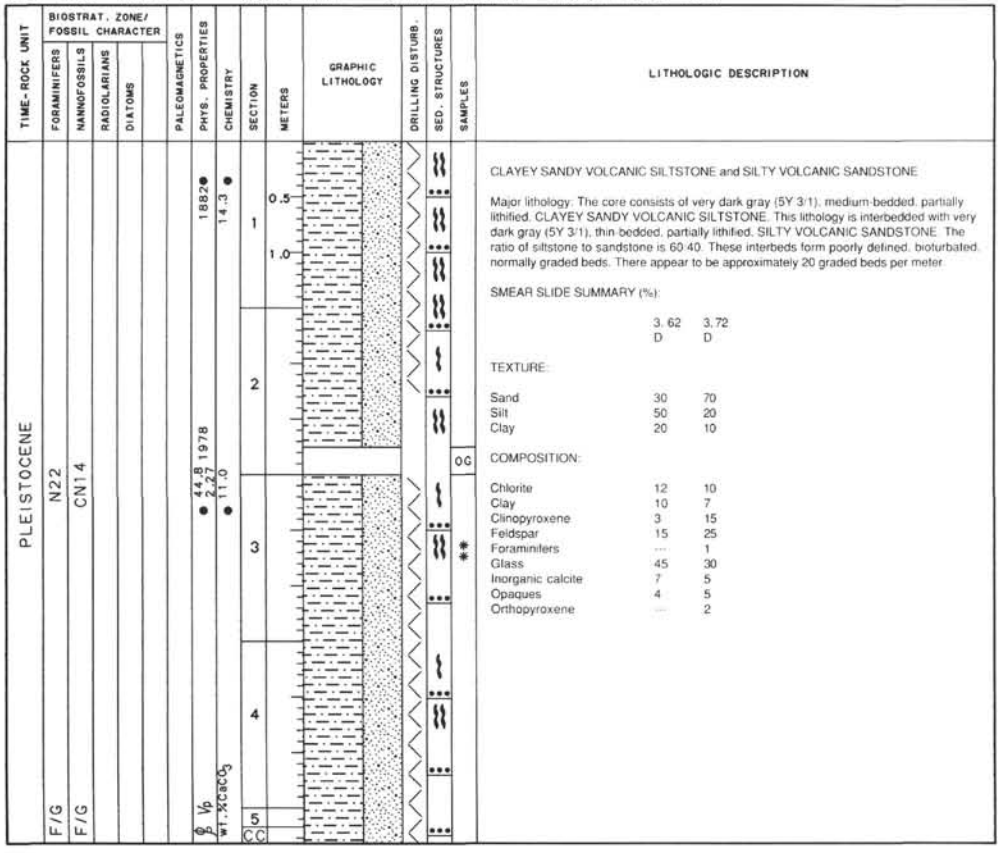
Major lithology: The core consists of very dark gray (5Y 3/1), medium-bedded, partially lithified, CLAYEY SANDY VOLCANIC SILTSTONE, with very dark gray (5Y 3/1), thin-bedded, partially lithified, SILTY VOLCANIC SANDSTONE. The ratio of siltstone to sandstone is 60:40. These interbeds form poorly defined, normally graded beds.

SMEAR SLIDE SUMMARY (%):

	1, 10 M	2, 62 D
TEXTURE:		
Sand	70	20
Silt	25	60
Clay	5	20
COMPOSITION:		
Amphibole	---	2
Chlorite	---	5
Clay	---	20
Clinopyroxene	---	10
Feldspar	60	20
Foraminifers	---	1
Glass	40	---
Inorganic calcite	---	25
Nannofossils	---	5
Opaques	---	5
Spicules	---	5



SITE 830 HOLE B CORE 11R CORED INTERVAL 145.6-155.3 mbsf



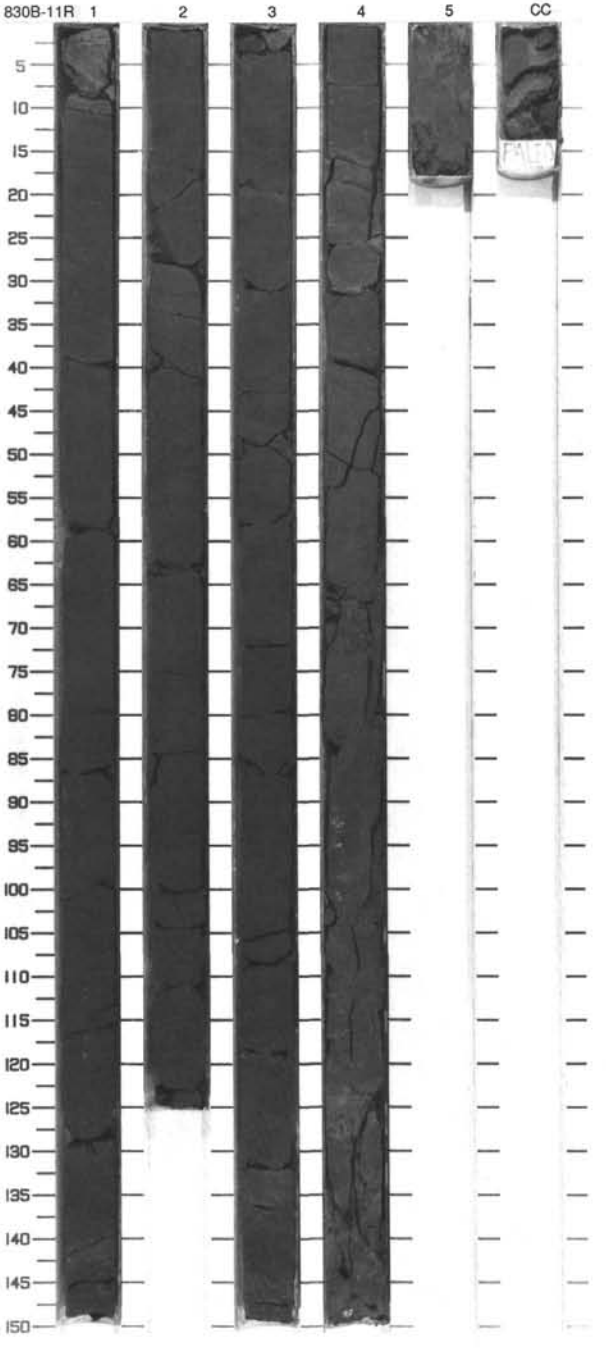
LITHOLOGIC DESCRIPTION

CLAYEY SANDY VOLCANIC SILTSTONE and SILTY VOLCANIC SANDSTONE

Major lithology: The core consists of very dark gray (5Y 3/1), medium-bedded, partially lithified, CLAYEY SANDY VOLCANIC SILTSTONE. This lithology is interbedded with very dark gray (5Y 3/1), thin-bedded, partially lithified, SILTY VOLCANIC SANDSTONE. The ratio of siltstone to sandstone is 60:40. These interbeds form poorly defined, bioturbated, normally graded beds. There appear to be approximately 20 graded beds per meter.

SMEAR SLIDE SUMMARY (%):

	3, 62 D	3, 72 D
TEXTURE:		
Sand	30	70
Silt	50	20
Clay	20	10
COMPOSITION:		
Chlorite	12	10
Clay	10	7
Clinopyroxene	3	15
Feldspar	15	25
Foraminifers	---	1
Glass	45	30
Inorganic calcite	7	5
Opaques	4	5
Orthopyroxene	---	2



SITE 830 HOLE B CORE 12R CORED INTERVAL 155.3-165.2 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
PLEISTOCENE	N22	CN14				1926 ● 41.6 2.4 ● 1.27 0.2	Vp, wt. %CaCO3, wt. %TOC	1, 2, CC	0.5, 1.0				IW

LITHOLOGIC DESCRIPTION

SANDY VOLCANIC SILTSTONE and SILTY VOLCANIC SANDSTONE

Major lithology: The core consists of very dark gray (5Y 3/1), medium-bedded, partially lithified, SANDY VOLCANIC SILTSTONE. This lithology is interbedded with very dark gray (5Y 3/1), very thin-bedded, partially lithified, SILTY VOLCANIC SANDSTONE. The ratio of siltstone to sandstone is 60:40.

Minor lithology: Section 1, 0–20 cm, is a single bed of volcanic sandstone containing angular to well-rounded clasts up to a few mm in diameter. A volcanic ash layer about 5 mm thick occurs at Section 2, 34 cm.

SMEAR SLIDE SUMMARY (%):

	1, 94 D	2, 34 M
TEXTURE:		
Sand	50	70
Silt	30	20
Clay	20	10
COMPOSITION:		
Calcite	15	—
Chlorite	10	6
Clay	20	5
Clinopyroxene	5	2
Feldspar	25	—
Foraminifers	2	—
Glass	15	80
Inorganic calcite	…	5
Nannofossils	1	—
Opaques	5	1
Orthopyroxene	…	1
Spicules	1	—

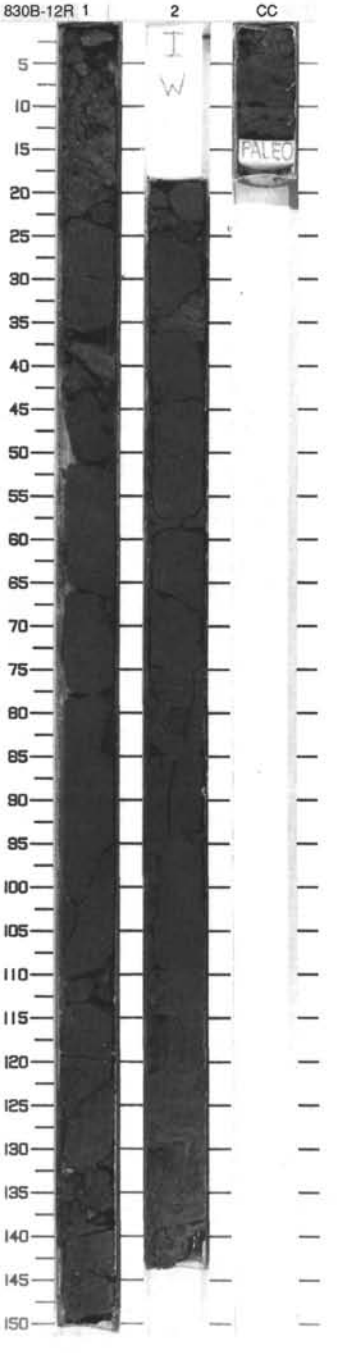
SITE 830 HOLE B CORE 13R CORED INTERVAL 165.2-174.9 mbsf

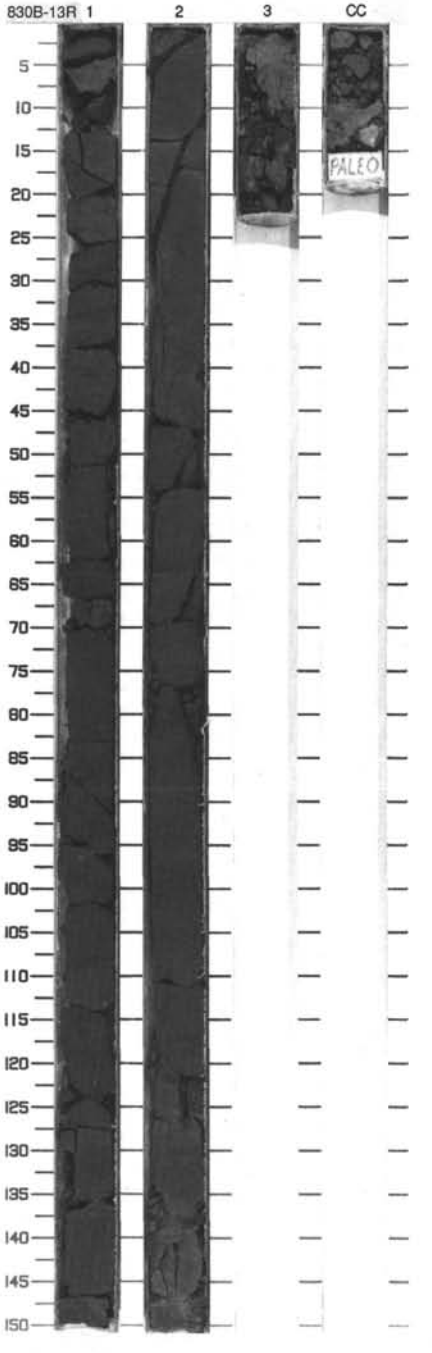
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
PLEISTOCENE	F/G	F/G				1962 ● 38.5 2.2 ● 16.0 0.4	Vp, wt. %CaCO3, wt. %TOC	1, 2, 3, CC	0.5, 1.0				

LITHOLOGIC DESCRIPTION

SANDY VOLCANIC SILTSTONE and SILTY VOLCANIC SANDSTONE

Major lithology: The core consists of very dark gray (5Y 3/1), poorly sorted, thin-bedded, partially lithified, SANDY VOLCANIC SILTSTONE. This lithology is interbedded with partially lithified, very thin-bedded, very dark gray (5Y 3/1), SILTY VOLCANIC SANDSTONE. The ratio of siltstone to sandstone is 70:30. Bedding planes are often indistinct from deformation, compaction, and bioturbation; but most appear to be horizontal. Section CC, 11–15 cm, contains an angular clast of well-lithified volcanic siltstone.





SITE 830 HOLE B CORE 14R CORED INTERVAL 174.9-184.6 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
	B ?	R/G ?				Vp-4358 ●		1	0.5 1.0				# # # ✱

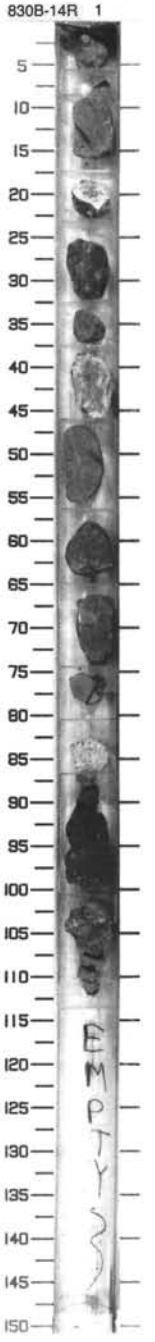
LITHOLOGIC DESCRIPTION

LITHIC BRECCIA

Major lithology: The core contains LITHIC BRECCIA comprised of 20 cobbles without matrix. Three pieces are igneous: two are ig-lithic breccia and one is basalt. Two pieces contain calcareous clasts and bioclasts. The deepest two pieces are moderately lithified volcanic conglomerate, 5–10 cm long. The rest are well-lithified volcanic sandstones and sed-lithic breccias.

SMEAR SLIDE SUMMARY (%):

	1, 107 M
TEXTURE:	
Sand	25
Silt	60
Clay	15
COMPOSITION:	
Amphibole	—
Chlorite	15
Clay	10
Clinopyroxene	20
Feldspar	10
Glass	20
Hematite	—
Lithic fragments	15
Olivine	—
Opaques	5
Orhopyroxene	2
Other	3
Rock fragment	—
Zeolite	—



SITE 830 HOLE B CORE 15R CORED INTERVAL 184.6-194.2 mbsf

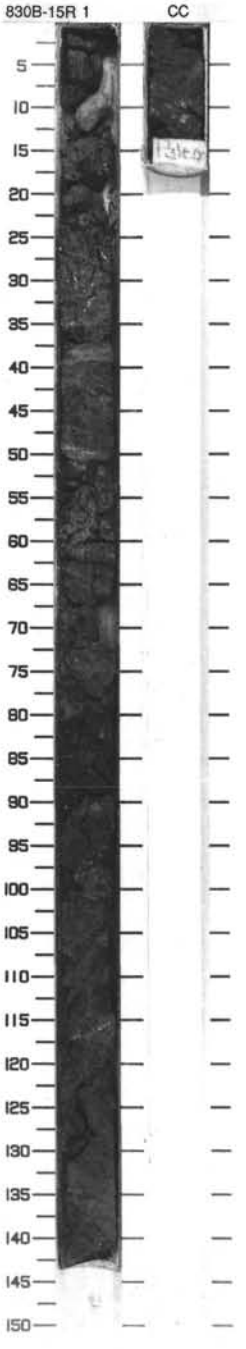
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
?	B						ϕ 37.8 ρ 2.20	wt. %CaCO3 0.7 wt. %TOC 0.1	1 CC	0.5 1.0				**	SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core consists of greenish gray (5G 5/1 to 5G 6/1), very poorly sorted, very coarse-grained, SILTY VOLCANIC SED-LITHIC SANDSTONE that has been tectonically brecciated. Clasts are mostly dark greenish gray (5G 6/1) volcanic siltstone, ranging in size from medium sand to granule. The matrix is light greenish gray chloritic silt with sand. Isolated clasts and thin layers are scattered through the core: In Section 1 at 10 cm, there is a clast of reddish sandstone; at 51 cm there is a moderately indurated clast of dark greenish gray sandy siltstone; a 1 cm layer of greenish gray chloritic silt occurs at 39 cm; and white lenses of zeolite occur sporadically. Bedding in Section 1, always poorly defined, is subhorizontal in the top 90 cm and below 90 cm has an apparent dip of 50°.

SMEAR SLIDE SUMMARY (%):

	1, 49 M	1, 59 D
TEXTURE:		
Sand	15	15
Silt	65	60
Clay	20	25
COMPOSITION:		
Chlorite	5	37
Clay	20	20
Clinopyroxene	2	3
Feldspar	22	30
Glass	---	5
Inorganic calcite	15	---
Opaques	2	---
Oxide	15	---
Quartz	19	5

830B 16R NO RECOVERY



SITE 830 HOLE B CORE 17R CORED INTERVAL 203.8-213.4 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
?	B	B				Vp 2234 27.8 2.43 ●	wt. %CaCO3 1.5 wt. %TOC 0.1 ●	1	0.5				*

LITHOLOGIC DESCRIPTION

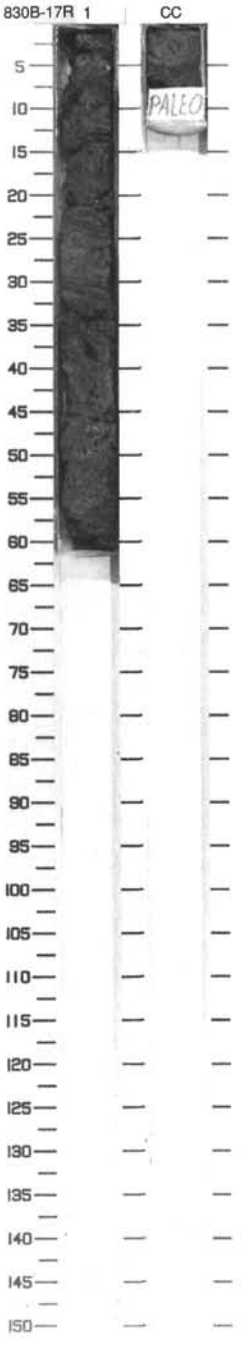
VOLCANIC SANDY SILT and SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core consists of irregularly alternating thin-bedded (2–10 cm) intervals of dark gray (2.5Y 4/0) VOLCANIC SANDY SILT and greenish gray (5G 5/1), very poorly sorted, very coarse-grained SILTY VOLCANIC SED-LITHIC SANDSTONE. The rocks have undergone tectonic brecciation and appear sheared. Clasts are mostly dark greenish gray (5G 6/1) volcanic siltstone, ranging in size from medium sand to granule. The matrix is light greenish gray chloritic silt with sand.

Minor lithology: A 7 cm lens of black siltstone occurs from 29–36 cm.

SMEAR SLIDE SUMMARY (%):

	1, 16 D
TEXTURE:	
Sand	35
Silt	35
Clay	30
COMPOSITION:	
Calcite	10
Chlorite	8
Clay	30
Clinopyroxene	9
Feldspar	16
Olivine	2
Opaques	6
Oxide	12
Quartz	2
Rock fragment	5



SITE 830 HOLE B CORE 18R CORED INTERVAL 213.4-223.1 mbsf

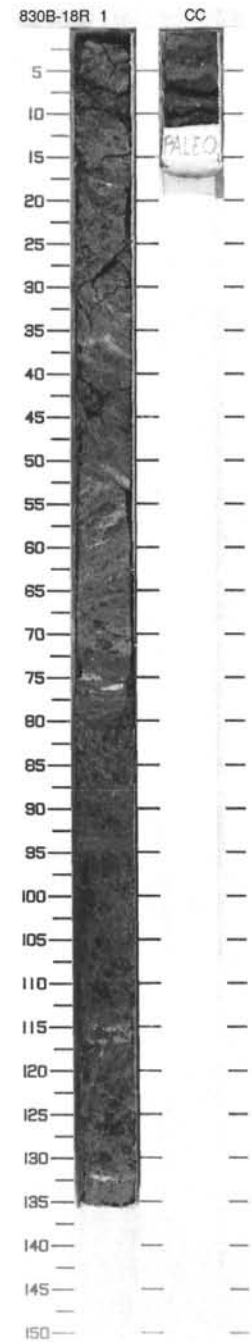
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
?	B	B					ρ Vp 1962 ● 31.8 ● 2.34 ● 1.2 ● 0.1 wt. %CaCO3 wt. %TOC		1 CC	0.5 1.0				* IW	SILTY VOLCANIC SED-LITHIC SANDSTONE and VOLCANIC SED-LITHIC BRECCIA

Major lithology:
a. Section 1, 0–80 cm, and CC,4–12 cm, consist of intervals, 0.2–5 cm thick, laminae, and lenses of gray (N4), white, greenish gray (5G 6/1), and weak red (2.5YR 4/2), very poorly sorted, coarse-grained SILTY VOLCANIC SED-LITHIC SANDSTONE. Sand-sized clasts are primarily volcanic siltstones; matrix is sandy volcanic silt or sandy volcanic silt with chlorite. Some white lenses and clasts are volcanic silts; some are calcareous. Bedding is roughly horizontal to 35°. The core has been tectonically brecciated.
b. Section 1, 80–136 cm, and CC, 0–4 cm, consist of dark gray (N4) VOLCANIC SED-LITHIC BRECCIA. Clasts are fine sand to gravel-sized angular fragments of black volcanic siltstone, and the matrix is volcanic silt.

Minor lithology: Throughout the core, there are scattered layers, 0.5 to 5 cm thick, of chloritic or ferric sandy silts.

SMEAR SLIDE SUMMARY (%):

	1, 46 D
TEXTURE:	
Sand	32
Silt	40
Clay	28
COMPOSITION:	
Chlorite	15
Clay	28
Clinopyroxene	3
Feldspar	10
Opaques	20
Oxide	22
Quartz	2



SITE 830 HOLE B CORE 19R CORED INTERVAL 223.1-232.9 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
?	B	B				2197 ● 30.6 2.36	● 0.7 0.1	1, 2, CC	0.5, 1.0				C, *

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core consists of various shades of greenish gray (5G 6/1, 5G5/1, 5G 4/1), very poorly sorted, very coarse-grained SILTY VOLCANIC SED-LITHIC SANDSTONE, which has been subjected to tectonic brecciation. Sand grains are volcanic siltstones and fine sandstone, and range in size from coarse sand to granule, with scattered gravel clasts. Matrix is chloritic sandy silt.

SMEAR SLIDE SUMMARY (%):

	1, 71 D
TEXTURE:	
Sand	30
Silt	40
Clay	30
COMPOSITION:	
Calcite	15
Chlorite	5
Clay	30
Clinopyroxene	6
Feldspar	15
Olivine	1
Opaques	10
Oxide	15
Quartz	3

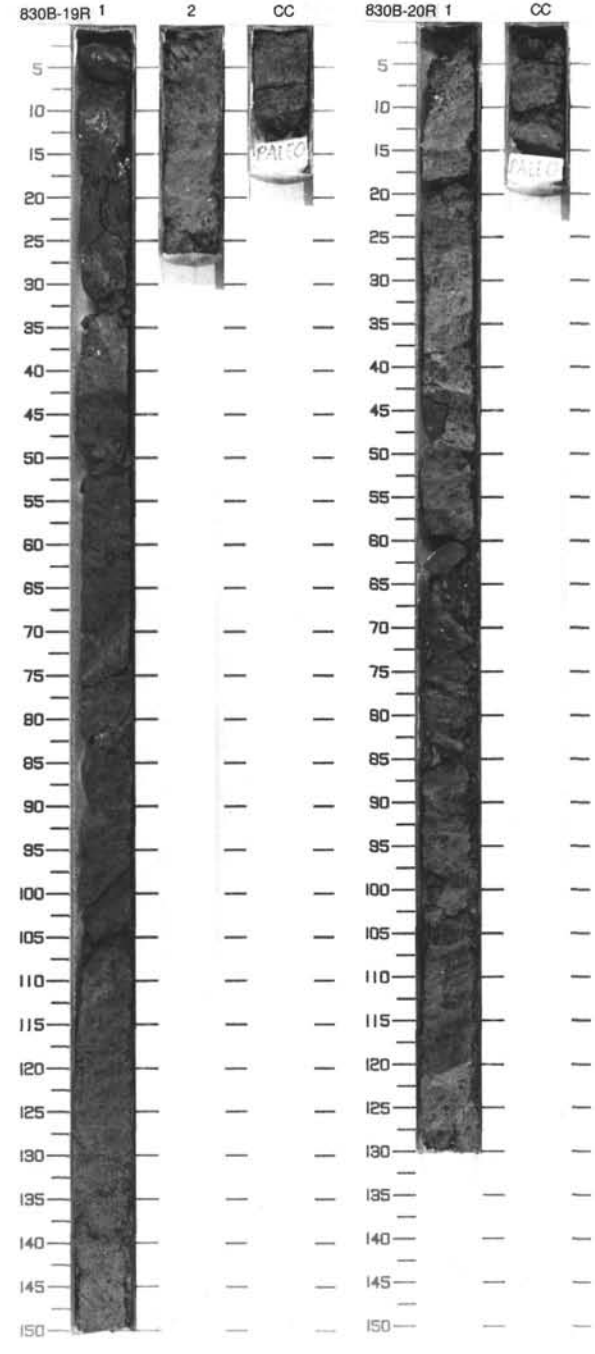
SITE 830 HOLE B CORE 20R CORED INTERVAL 232.9-242.6 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
	B	B				1998 ● 24.2 2.44	● 1.2 0.1	1, CC	0.5, 1.0				

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core consists of interbedded intervals of gray (N5 to N6) and greenish gray (5G 6/1 to 5GY 4/1) very poorly sorted, very coarse-grained SILTY VOLCANIC SED-LITHIC SANDSTONE. These rocks have been subjected to tectonic brecciation. Clasts are black sand- to granule-sized volcanic siltstones and fine sandstones; gravel-sized pieces occur occasionally. The matrix is sandy silt with chlorite or chloritic sandy silt. White clasts and layers of zeolites with calcite are scattered through the core. A 3 cm cobble of very fine-grained volcanic calcareous sandstone occurs at 60–63 cm.



SITE 830 HOLE B CORE 21R CORED INTERVAL 242.6-252.4 mbsf

TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
?	B	B				2281 ρ 23.5 2.40 ϕ 0.0	wt. %CaCO3 wt. %TOC	1	0.5			◇	*

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core consists of discrete pieces of well-lithified, black (2.5Y 2/0), very coarse-grained, SILTY VOLCANIC SED-LITHIC SANDSTONE, with streaks and veins of calcite and zeolites, chloritic silt, gray clays, and reddish clays. Matrix is sandy chloritic silt. The rocks in this core have been sheared and altered.

SMEAR SLIDE SUMMARY (%):

	1, 36 D
TEXTURE:	
Sand	25
Silt	60
Clay	15
COMPOSITION:	
Calcite	Tr
Chlorite	55
Clay	15
Clinopyroxene	2
Feldspar	5
Glass	20
Opaques	1
Quartz	1

SITE 830 HOLE B CORE 22R CORED INTERVAL 252.4-262.2 mbsf

TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
?	B	B				● 1.2 0.0	wt. %CaCO3 wt. %TOC	1	0.5				#
								CC	1.0				

LITHOLOGIC DESCRIPTION

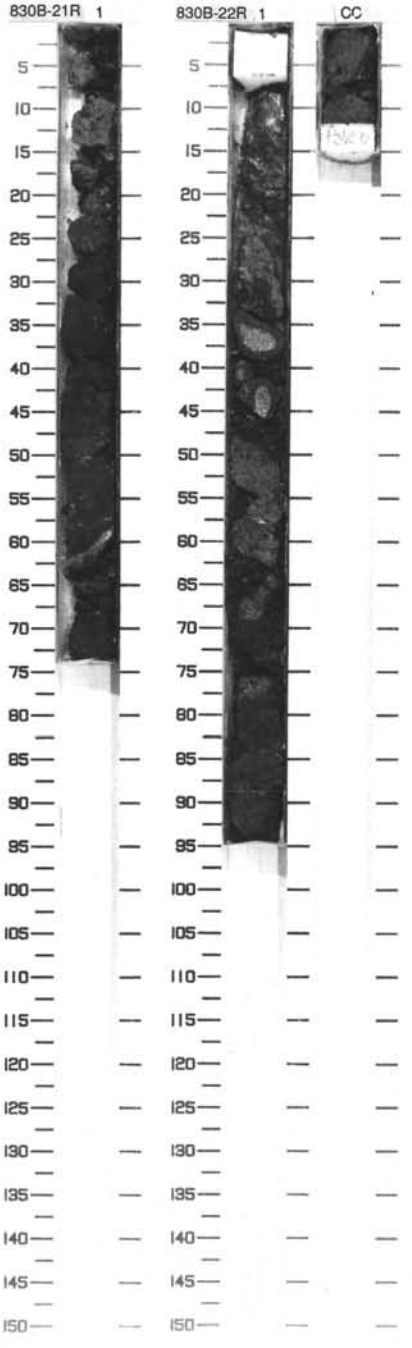
SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core primarily consists of interbedded intervals of gray (N5) and greenish gray (5G 6/1) very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE. The matrix is chloritic sandy silt, and the sand, which includes some gravel-sized clasts in places, is black volcanic siltstone. The core was tectonically brecciated.

Minor lithology: The interval from 33 to 45 cm contains 3 pieces of dark greenish gray (10Y 3/1) porphyritic basalt, 2–5 cm wide. Phenocrysts are mostly plagioclase with some clinopyroxene; groundmass is about 80% glass or microlites, and the rest is plagioclase, clinopyroxene and opaque minerals.

SMEAR SLIDE SUMMARY (%):

	1, 51 D	1, 52 M
TEXTURE:		
Sand	30	30
Silt	50	40
Clay	20	30
COMPOSITION:		
Chlorite	25	2
Clay	20	30
Clinopyroxene	Tr	5
Feldspar	20	25
Glass	30	--
Opaques	5	10
Rock fragment	---	28



SITE 830 HOLE B CORE 23R CORED INTERVAL 262.2-272.0 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
?	B	B				25.9 2.38	3.3 0.1	1	0.5 1.0	VOID			IW
						0.6		2					* *
								CC					

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core primarily consists of interbedded intervals of black (2.5YR 2.5/0), gray (N5), and very dark greenish gray (5G 6/1 and 10Y 3/1) very coarse-grained, very poorly sorted, *SILTY VOLCANIC SED-LITHIC SANDSTONE*. The matrix is chloritic sandy silt; and the sand grains, which include some gravel-sized clasts in places, are composed of black volcanic siltstone. The rocks are highly altered, and white veins of zeolite are common. The core appears to have been tectonically brecciated. A 5 cm thick layer of dark reddish gray (10R 3/1) sandy silt occurs at the top of Section CC.

SMEAR SLIDE SUMMARY (%):

	2, 17 D	2, 45 D
TEXTURE:		
Sand	70	70
Silt	25	25
Clay	5	5
COMPOSITION:		
Clay	---	7
Clinopyroxene	5	3
Feldspar	15	10
Glass	25	20
Opaques	5	--
Rock fragment	50	60

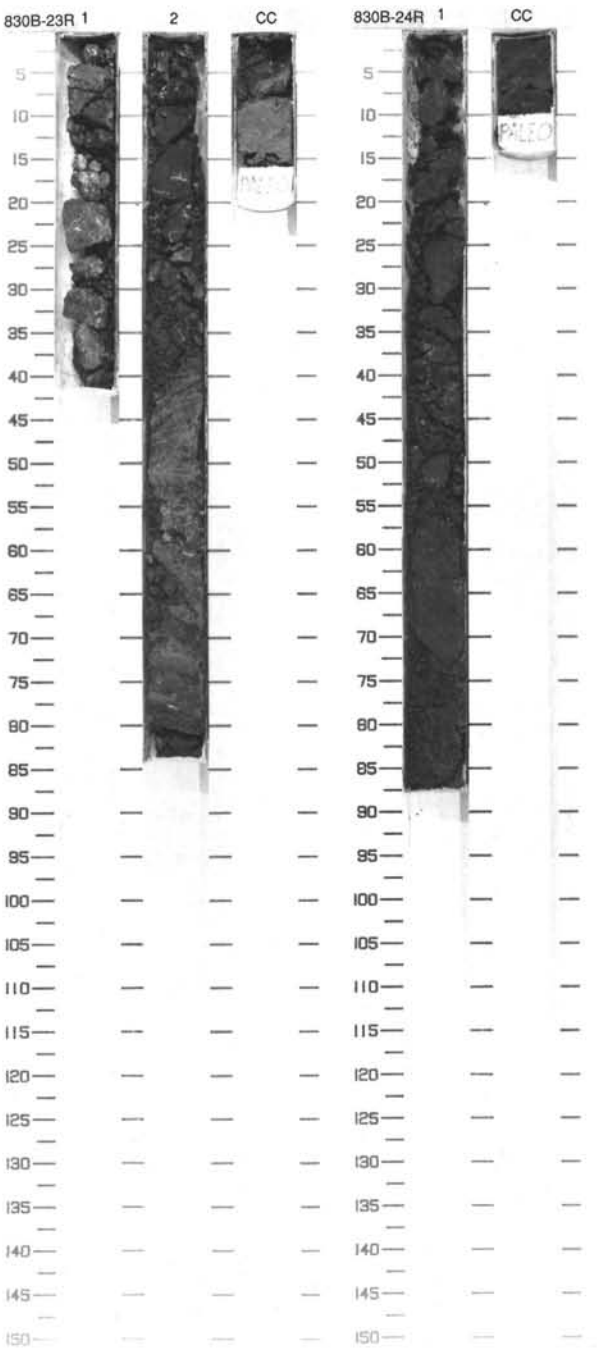
SITE 830 HOLE B CORE 24R CORED INTERVAL 272.0-281.7 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
?	B	B				29.9 2.35	3.3 0.1	1	0.5				
								CC					

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core primarily consists of dark greenish gray (10Y 3/1) very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE. The matrix is chloritic sandy silt. The sand, as well as scattered gravel-sized clasts and a 4 cm cobble at 60 cm, is composed of black volcanic siltstone. The rocks are highly altered and appear to have been tectonically brecciated.



SITE 830 HOLE C CORE 1R CORED INTERVAL 235.0-244.4 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
?	B	B				● 3632 Vp	● 10.2 0.1 wt. %CaCO3 wt. %TOC	1 CC	0.5			◇	# **

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core contains grayish green (5G 5/2) to dark greenish gray (5G 4/1), very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE. The matrix is sandy chloritic silt. The sand grains, as well as occasional gravel-sized clasts, consist of poorly sorted, silty volcanic sandstone. One sed-lithic clast has a vein of calcite. There is one clast, 2 x 3 cm, of sed-igneous breccia at Section 1, 45 cm.

SMEAR SLIDE SUMMARY (%):

	1, 72 D	1, 85 M
TEXTURE:		
Sand	35	30
Silt	40	63
Clay	25	7
COMPOSITION:		
Amphibole	1	---
Chlorite	8	---
Clay	24	7
Clinopyroxene	12	25
Feldspar	15	18
Glass	15	---
Olivine	---	2
Opaques	10	20
Oxide	15	---
Rock fragment	---	8

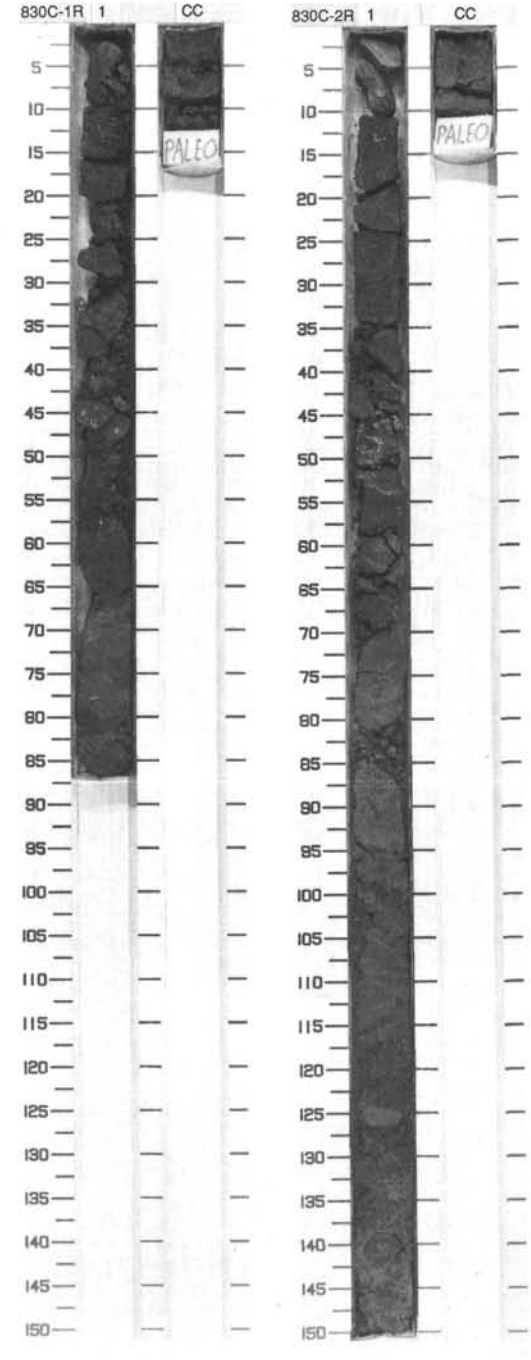
SITE 830 HOLE C CORE 2R CORED INTERVAL 244.4-254.1 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
	B	B				1576 ● Vp	13.2 ● 0.2 wt. %CaCO3 wt. %TOC	1 CC	0.5 1.0			◇	

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: The core contains very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE comprised of greenish gray (5G 5/2), volcanic sandy siltstone matrix enclosing very dark gray (5Y 3/1), sand- to granule-sized clasts of volcanic sandstone. Two pebbles of well-lithified volcanic sandstone up to 4 cm in diameter make up the top 10 cm of the core and two more occur surrounded by matrix in the bottom 20 cm of Section 1. Numerous veins or concretions of zeolite occur in the matrix. Below Section 1, 90 cm, the recovered rock appears to be drilling breccia. Above 90 cm, the core appears to have been tectonically brecciated.



SITE 830 HOLE C CORE 3R CORED INTERVAL 254.1-263.7 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
?	B	B				● 3220 Vp		1 CC	0.5 1.0			◇ ◇	# * # *

LITHOLOGIC DESCRIPTION

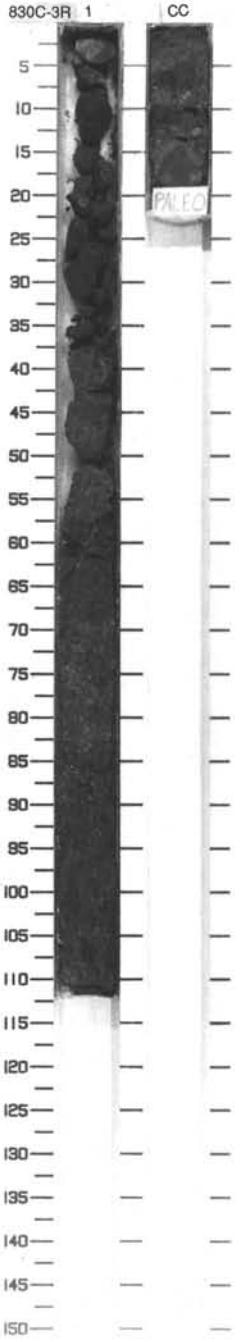
SILTY VOLCANIC SED-LITHIC SANDSTONE and VOLCANIC SANDSTONE

Major lithology:
a. Most of the core consists of partially lithified, grayish green (5G 5/2) to dark greenish gray (5G 4/1), fined-grained to very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE with occasional gravel-sized clasts. The sand grains are sed-lithic, composed of volcanic sandstone. The matrix is volcanic silty sandstone. Section CC is highly disturbed by drilling.
b. Section 1, 5–40 cm, contains angular fragments of very dark gray (5Y 3/1), very friable, coarse VOLCANIC SANDSTONE, 1–5 cm in diameter.

Minor lithology: Pieces of highly altered lava, 1 to 5 cm in diameter, occur in Section CC and at Section 1, 0–5 cm.

SMEAR SLIDE SUMMARY (%):

	1, 56 D
TEXTURE:	
Sand	35
Silt	55
Clay	10
COMPOSITION:	
Celadonite	---
Chlorite	35
Clay	10
Clinopyroxene	18
Feldspar	10
Opaques	2
Other	5
Rock fragment	---
Serpentine	---
Zeolite	20



SITE 830 HOLE C CORE 4R CORED INTERVAL 263.7-273.3 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
?	B	B				● 2646 ● 2736	● 10.6 0.0 Vp wt. %CaCO3 wt. %TOC	1 2 CC	0.5 1.0				*

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE and VOLCANIC SED-LITHIC BRECCIA

Major lithology:
a. This core primarily consists of very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE with sed-lithic sand grains composed of volcanic sandstone and matrix of sandy chloritic silt. The unit is quite variable in appearance and composition; it contains interbedded intervals of sandstones of various colors including grayish green (5G 5/2), dark greenish gray (5GY 4/1), black (7.5R 2.5/0), and reddish black (5R 2.5/1). These intervals are composed of chloritic silts and volcanic sandstones. The rocks are highly altered and sheared by tectonic brecciation. Some intervals have incipient parting along planes, showing slickensides which give the rocks a schisty appearance. Veins of zeolite are very common throughout the core.
b. The interval from 84–123 cm in Section 2 consists of dark greenish gray (5G 4/1) VOLCANIC SED-LITHIC BRECCIA with black clasts of volcanic siltstone ranging in size from gravel to pebble. The layer is highly altered and sheared.

SMEAR SLIDE SUMMARY (%):

	2, 33 D
TEXTURE:	
Sand	60
Silt	30
Clay	10
COMPOSITION:	
Chlorite	30
Clay	10
Clinopyroxene	2
Feldspar	Tr
Rock fragment	48
Zeolite	10

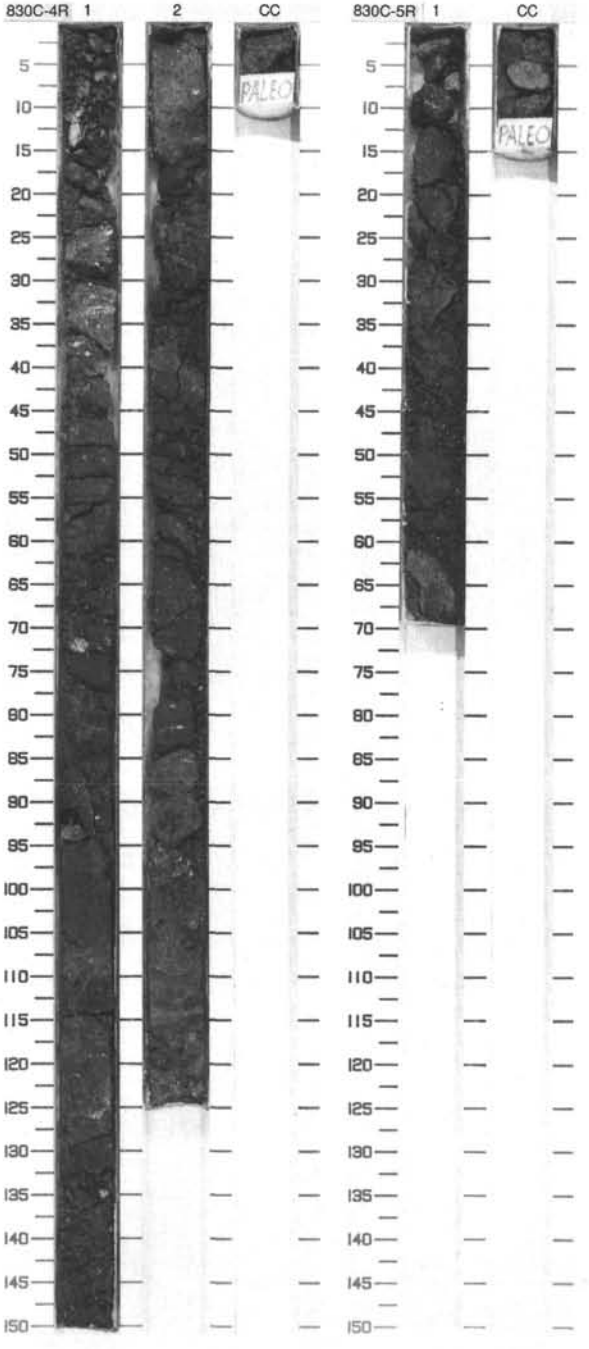
SITE 830 HOLE C CORE 5R CORED INTERVAL 273.3-282.9 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
?	B	B				27.2 ● 2.42 ● 2939 23.1 ●	Vp wt. %CaCO3	1 CC	0.5			◇	

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: This core consists of dark greenish gray (5G 4/1) to greenish black (10G 3/1), partially lithified, very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE with sed-lithic sand grains composed of volcanic sandstone and matrix of sandy chloritic silt. The rocks are highly altered and sheared by tectonic brecciation. Some veins of zeolite occur. Section CC contains a well-lithified pebble (5 x 3 cm) composed of altered volcanic breccia. The core has been highly fractured and disturbed by drilling.



SITE 830 HOLE C CORE 6R CORED INTERVAL 282.9-292.6 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
?	B	B				2703 23.5 ● 2.44		1, CC	0.5, 1.0				*

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: Most of the core consists of partially lithified, dark greenish gray (5GY 4/1), very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE. Sand grains are sed-lithic volcanic siltstone, ranging up to granule size, with scattered gravel-sized clasts. The matrix is volcanic silty sand. This sandstone includes streaks of (1) black (N 2.5), fine-grained volcanic silty sandstone; (2) grayish green (5G 6/2), fine-grained volcanic silty sandstone with 18% chlorite; and (3) white zeolitic veins and concretions. The unit has been highly sheared and altered. In Section 1, 80–120 cm, the sandstone is dark reddish brown (2.5YR 3/3) and the rocks are highly sheared. Scattered 1 cm pebbles of fine-grained volcanic sandstone and altered dark granules occur. The matrix is volcanic sandy silt.

SMEAR SLIDE SUMMARY (%):

	1, 105 D
TEXTURE:	
Sand	15
Silt	60
Clay	25
COMPOSITION:	
Chlorite	18
Clay	25
Epidote	12
Feldspar	23
Glass	4
Opaques	5
Quartz	10

SITE 830 HOLE C CORE 7R CORED INTERVAL 292.6-302.3 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
?	B	B				2042 ● 26.2 2.46	● 4.2	1, CC	0.5, 1.0				*

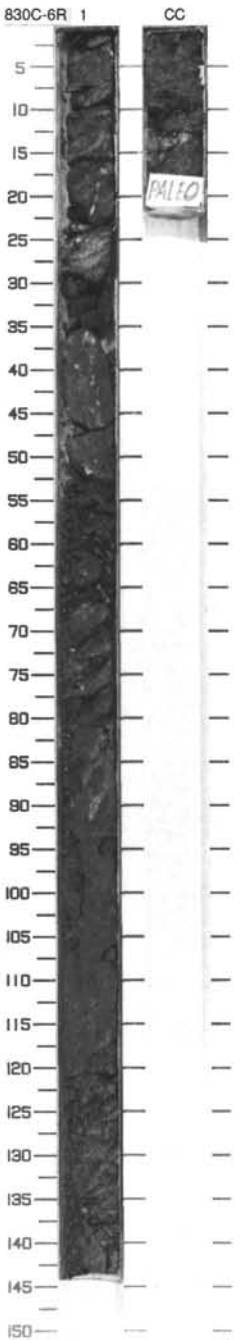
LITHOLOGIC DESCRIPTION

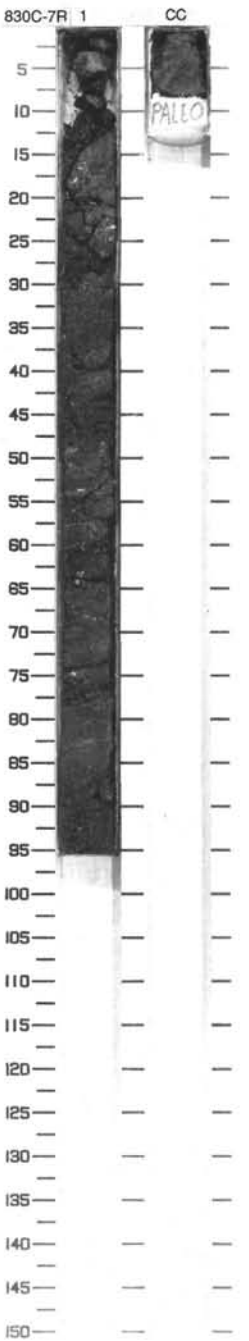
SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: This core primarily consists of dark greenish gray to greenish gray (5GY 4/1 to 5G 5/1) very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE with sed-lithic sand grains, many up to granule size, composed of volcanic siltstone in a matrix of sandy chloritic silt. Section 1, 0–10 cm, consists of andesitic breccia fragments.

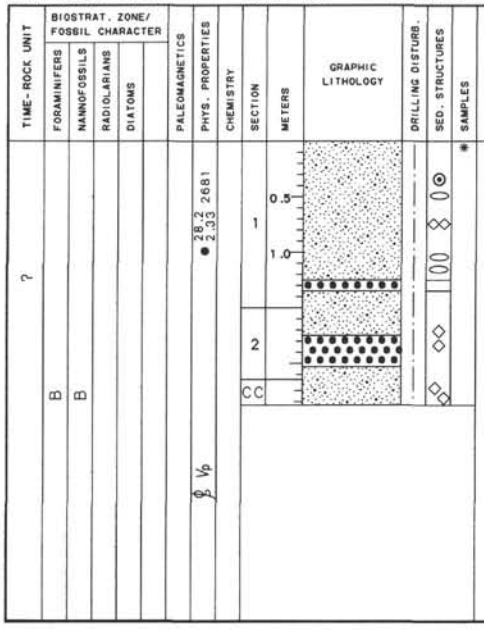
SMEAR SLIDE SUMMARY (%):

	1, 37 D
TEXTURE:	
Sand	20
Silt	65
Clay	15
COMPOSITION:	
Calcite	8
Chlorite	5
Clay	15
Feldspar	35
Opaques	10
Oxide	17
Quartz	5





SITE 830 HOLE C CORE 8R CORED INTERVAL 302.3-311.9 mbsf



LITHOLOGIC DESCRIPTION

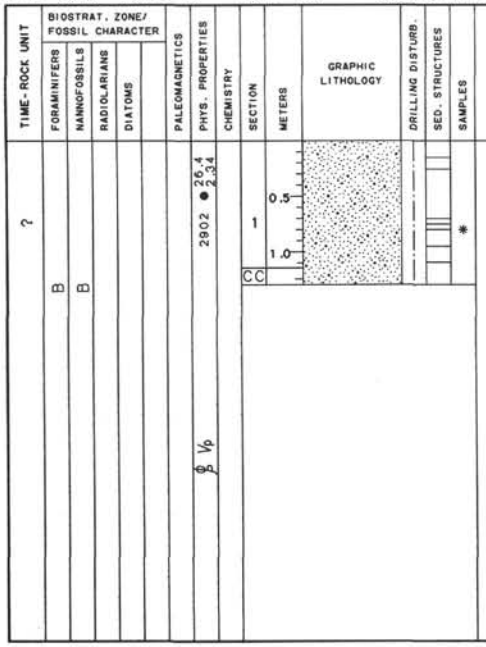
SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: This core primarily consists of dark greenish gray to greenish gray (5GY 4/1 to 5G 5/1) very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE. The sand grains range up to granule size, and are composed of volcanic siltstone. The matrix is sandy chloritic silt. Scattered zeolite concretions occur throughout the core. Two dark gray gravel-rich layers occur, at Section 1, 126–136 cm, and at Section 2, 24–52 cm. The core has been tectonically brecciated, and displays shearing and alteration.

SMEAR SLIDE SUMMARY (%):

	1, 7 D
TEXTURE:	
Sand	30
Silt	45
Clay	25
COMPOSITION:	
Chlorite	20
Clay	25
Clinopyroxene	12
Feldspar	10
Opaques	10
Oxide	13
Rock fragment	10

SITE 830 HOLE C CORE 9R CORED INTERVAL 311.9-321.5 mbsf



LITHOLOGIC DESCRIPTION

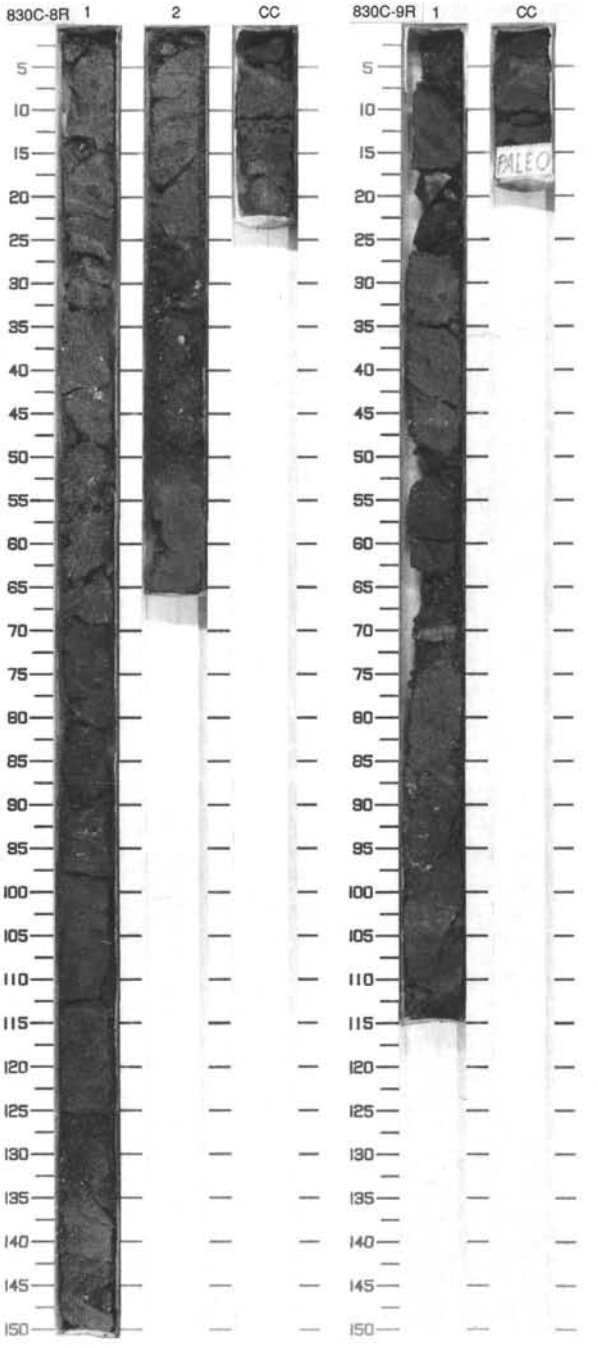
SILTY VOLCANIC SED-LITHIC SANDSTONE

Major lithology: This core primarily consists of alternating greenish gray (5GY 5/1) to grayish green (5G 5/2), black (7.5YR 3/0), and dark gray (N4),very coarse-grained, very poorly sorted SILTY VOLCANIC SED-LITHIC SANDSTONE. Sand grains range up to granule size and are composed of sed-lithic volcanic sands. The matrix is chloritic sandy silt.

Minor lithology: Section 1, 16–26 cm, contains fragments up to 4 cm of dark greenish gray (5G 4/1), well-indurated, fine-grained volcanic sandstone with minor calcite veins.

SMEAR SLIDE SUMMARY (%):

	1, 80 D
TEXTURE:	
Sand	20
Silt	60
Clay	20
COMPOSITION:	
Chlorite	9
Clay	20
Clinopyroxene	8
Feldspar	25
Opaques	10
Oxide	13
Zeolite	15



SITE 830 HOLE C CORE 10R CORED INTERVAL 321.5-331.2 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
?	B	B				23.7 4440 2.41 Vp		1, 2, CC	0.5, 1.0			◇	* TW

LITHOLOGIC DESCRIPTION

SILTY VOLCANIC SAND and SILTY VOLCANIC SANDSTONE

Major lithology: This core primarily consists of dark greenish gray (5GY 5/1) to greenish gray (5G 4/1), poorly sorted, coarse-grained, SILTY VOLCANIC SAND. Section 1, 0–90 cm, is highly sheared, gray (N5), coarse-grained SILTY VOLCANIC SANDSTONE with veins filled with gray clay. The grains are highly altered, and the rocks appear to have been sheared.

SMEAR SLIDE SUMMARY (%):

	1, 94 D
TEXTURE:	
Sand	30
Silt	40
Clay	30
COMPOSITION:	
Calcite	6
Clay	30
Clinopyroxene	15
Feldspar	10
Olivine	2
Opaques	12
Oxide	15
Zeolite	10

SITE 830 HOLE C CORE 11R CORED INTERVAL 331.2-340.9 mbsf

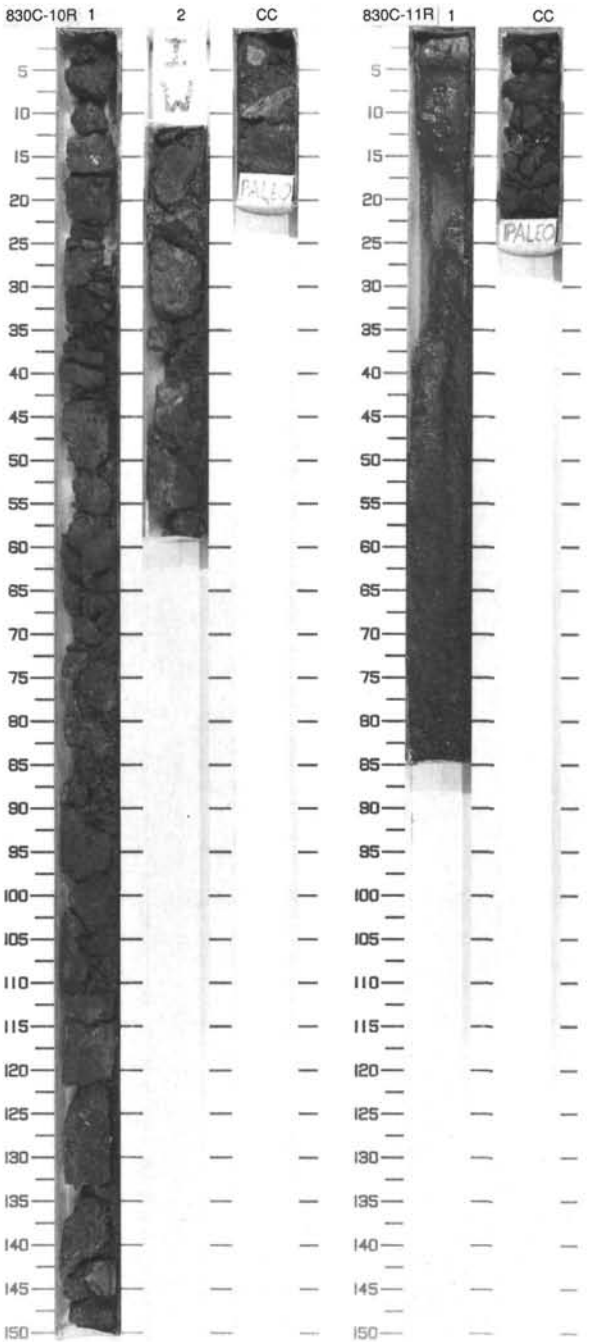
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
?	B	B						1, CC	0.5, 1.0				

LITHOLOGIC DESCRIPTION

VOLCANIC SAND, VOLCANIC SANDSTONE, and VOLCANIC SILT

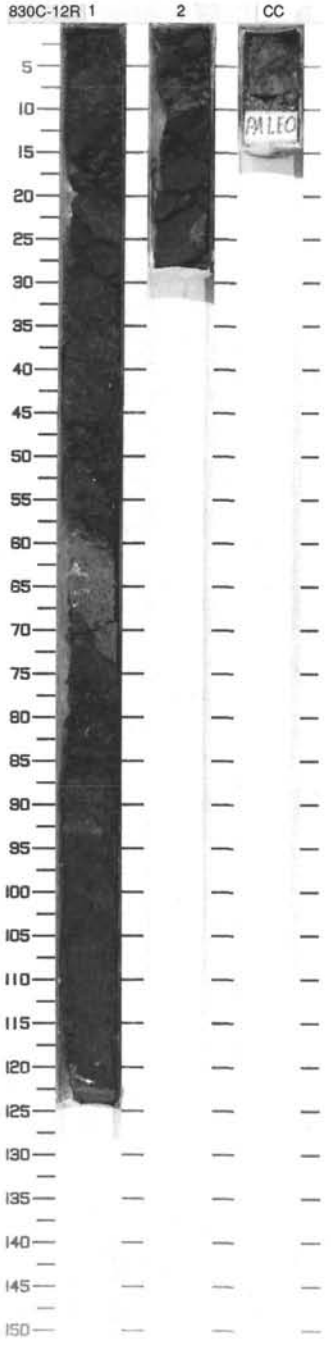
Major lithology:
a. Section 1, 0–25 cm, consists of very dark gray (5Y 3/1) VOLCANIC SILT.
b. Section 1, 25–85 cm, is coarse-grained black (5Y 2.5/1) VOLCANIC SAND that fines *upward from granule to sand size.*
c. Section CC, 0–20 cm, consists of broken pieces of coarse-grained black (5Y 2.5/1) VOLCANIC SANDSTONE with some zeolite concretions.

This material and its distribution in the core may be a product of drilling disturbance.



SITE 830 HOLE C CORE 12R CORED INTERVAL 340.9-350.6 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
?	B	B				● 34.4 2.34		1	0.5 1.0	VOID				SILTY VOLCANIC SED-LITHIC SANDSTONE Major lithology: This core primarily consists of very coarse-grained, very poorly sorted, SILTY VOLCANIC SED-LITHIC SANDSTONE. The sed-lithic sand grains are composed of volcanic siltstone; the matrix of sandy chloritic silt. The unit is quite variable in appearance and composition; it contains interbedded intervals of sandstones and sandy silts of various colors including grayish green (5G 5/1), dark greenish gray (5GY 4/1), greenish black (10G 7.5/1), and reddish black (10R 2.5/1). The rocks are highly altered and sheared by tectonic brecciation, and the apparent dip of the layers is about 35°–45°. Veins of zeolite occur in Section 1 at 63–65 and 122 cm.
								2					IW	
								CC						



134-830B-14R-1 (Piece 13, 12-17 cm) OBSERVER: HAS WHERE SAMPLED:

ROCK NAME: Highly olivine clinopyroxene phyric basalt.

GRAIN SIZE: Fine-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	-	8	0.3-0.6		Euhedral to subhedral.	Completely altered to calcite, chlorite, and serpentine.
Clinopyroxene	3	3	0.2-0.4		Subhedral.	
GROUNDMASS						
Plagioclase	23	26	0.1-0.4		Elongate laths.	
Clinopyroxene	16	16	0.05-0.2		Subhedral to granular.	
Opaque minerals	3	3	0.02-0.05		Cubic to irregular.	
Glass	12	24	N/A.		N/A.	Altered to chlorite and Clay minerals.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	23	Olivine, plagioclase, and glass.	
Calcite	15	Vesicles, olivine.	
Zeolites	3	Veins, vesicles, and olivine.	
Serpentine	2	Olivine.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	20	Groundmass.	0.3-1.0	Calcite and zeolites.	Irregular.

134-830B-22R-1 (Piece 1, 39-40 cm) OBSERVER: HAS WHERE SAMPLED:

ROCK NAME: Highly plagioclase phyric basalt.

GRAIN SIZE: Fine-grained.

TEXTURE: Porphyritic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	1	1	0.4-1.0		Subhedral and corroded.	Altered to chlorite.
Plagioclase	20	33	0.4-3.0		Euhedral to subhedral.	Altered to sericite and Clay minerals.
GROUNDMASS						
Plagioclase	4	5	0.1-0.3		Tabular.	
Clinopyroxene	10	10	0.05-0.3		Subhedral and granular.	
Opaque minerals	1	1	0.02-0.05		Cubic to rounded.	
Glass	-	45	N/A.		N/A.	Partly devitrified to acicular opaque minerals and acicular plagioclase. Partly altered to chlorite and Clay minerals.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	30	Olivine and glass.	
Clay minerals	24	Plagioclase and glass.	
Opaque minerals	5	Glass.	
Sericite	5	Plagioclase.	
Zeolites	1	Veins.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	5	Groundmass.	0.1-0.3	Chlorite, clay minerals and zeolites.	Irregular.

134-830C-1R-1 (Piece 1, 49-52 cm) OBSERVER: BAK WHERE SAMPLED:

ROCK NAME: Igneous breccia.

GRAIN SIZE: Fine-grained.

TEXTURE: Porphyritic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	8	10	1.0-3.0		Subhedral.	
Plagioclase	21	30	0.1-1.5		Subhedral.	
Clinopyroxene	10	15	0.3-1.0		Subhedral.	
Opaque minerals	5	5	0.1-0.2		Anhedral.	
GROUNDMASS						
Opaque minerals	5	5	0.005-0.1		Anhedral.	
Plagioclase	-	20	0.1-0.5		Laths.	
Glass	-	15	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay minerals	25	Glass/plagioclase.	
Chlorite	15	Pyroxene/glass.	
Calcite	8		
Sericite	3	Plagioclase.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	None.				

COMMENTS: This is a sheared igneous breccia with clasts of porphyritic basalt and andesite. The commonest clast type is described here.

134-830C-3R-1 (Piece 1, 1-2 cm) OBSERVER: HAS WHERE SAMPLED:

ROCK NAME: Plagioclase clinopyroxene phyric basalt.

GRAIN SIZE: Fine-grained.

TEXTURE: Porphyritic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	3	0.5-1.0			Inferred from morphology and alteration products.
Plagioclase	15	25	0.2-1.0		Subhedral and tabular.	Altered to sericite and Clay minerals.
Clinopyroxene	6	8	0.05-2.0		Subhedral.	Rim altered to chlorite.
GROUNDMASS						
Plagioclase	20	20	0.01-0.04		Laths.	
Clinopyroxene	8	8	0.02-0.05		Granular.	
Opaque minerals	7	7	0.05-0.02		Cubic, rounded.	
Glass	15	29	N/A.		N/A.	Devitrified and partly altered.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	15	Olivine, clinopyroxene.	
Clay minerals	10	Plagioclase, glass.	
Sericite	5	Plagioclase.	
Antigorite	3	Olivine.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	None.				

134-830C-3R-CC (Piece 1, 16-18 cm) OBSERVER: HAS WHERE SAMPLED:

ROCK NAME: Highly altered basalt.

GRAIN SIZE: Fine-grained.

TEXTURE: Porphyritic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	10	18	0.15-2.5		Euhedral.	Large grains are strongly altered and partly replaced by sericite and Clay minerals.
Clinopyroxene	5	5	0.15-0.5		Subhedral.	
Opaque minerals	3	3	0.2-0.5		Cubic to irregular.	
Orthopyroxene	2	2	0.15-0.5		Subhedral.	
GROUNDMASS						
Plagioclase	15	15	0.03-0.1		Laths.	
Clinopyroxene	3	3	0.03-0.1		Anhedral.	
Opaque minerals	4	4	0.01-0.1		Anhedral.	
Glass	10	35	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Alkali feldspar	20		Poikilitically includes groundmass minerals.
Chlorite	10	Groundmass.	
Clay minerals	5	Plagioclase and groundmass.	
Zeolites	5	Veins and cavities.	
Sericite	3	Plagioclase.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	15	Groundmass.	0.5-1.0	Mostly with zeolite and some clay minerals.	Irregular.