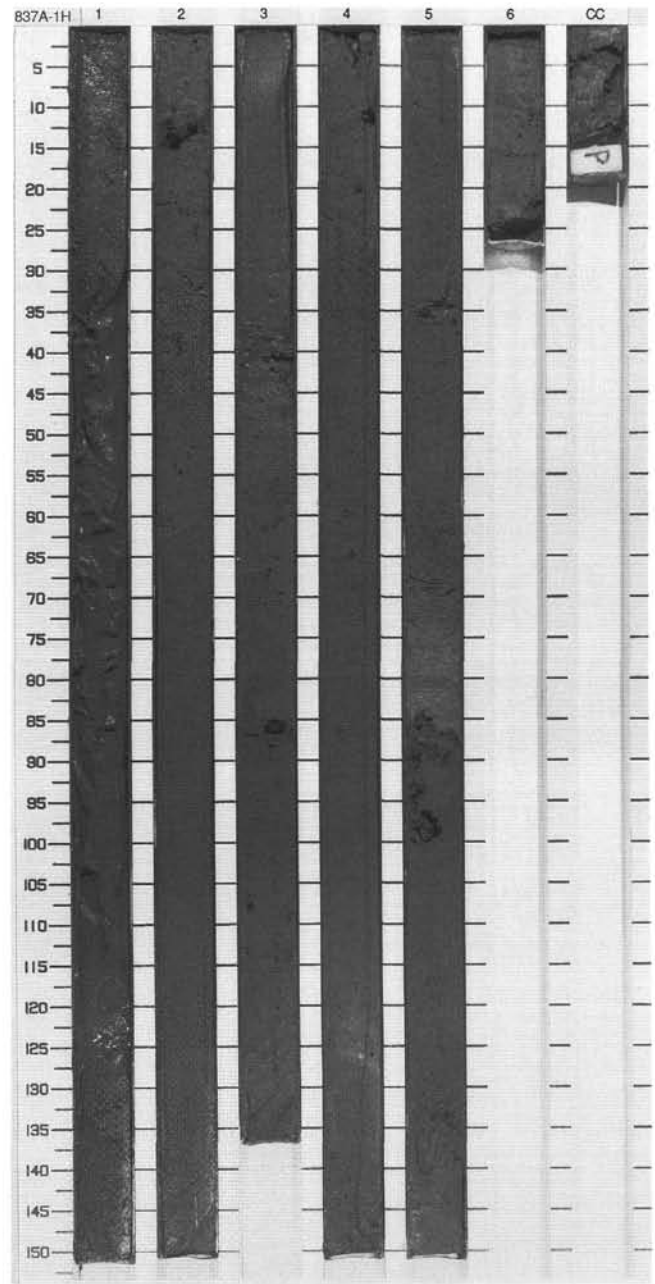


136-837A-1H  
SMEAR SLIDE SUMMARY (%):

	1, 125 M	2, 23 M	5, 84 M
<b>TEXTURE:</b>			
Sand	95	20	15
Silt	5	5	80
Clay	---	75	5
<b>COMPOSITION:</b>			
Accessory minerals	Tr	---	5
Clay	---	20	5
Foraminifers	90	15	10
Glass	10	15	80
Nannofossils	Tr	50	---
Silicoflagellates	---	Tr	---

SITE 837 HOLE A CORE 1H		CORED 0.0 - 8.0 mbsf						
Meter	Graphic Lth.	Section	Age	Structure	Disturb	Sample	Color	Description
0.0		1				10YR 3/4		<p>CLAYEY NANNOFOSSIL OOZE</p> <p>Major lithology: CLAYEY NANNOFOSSIL OOZE, dark yellowish brown (10YR 3/4 to 10YR 4/4), generally homogenous with scattered pumice pebbles and mottling.</p> <p>Minor lithologies: CLAYEY VITRIC NANNOFOSSIL MIXED SEDIMENT WITH FORAMS occurs within the major lithology as burrow infillings. This lithology may comprise up to 10% of the sediment volume. A graded layer of FORAM OOZE WITH GLASS occurs in Section 1, 122-126 cm. A discontinuous, normally graded layer of FORAM OOZE occurs in Section 4, 23-127 cm. A fining-upward bed of VITRIC SILT WITH FORAMS occurs in Section 5, 69-86 cm.</p>
1.0		2				10YR 4/3		
		3						
		4						
		5				10YR 4/4		
		6						



135-837A-2H  
SMEAR SLIDE SUMMARY (%):

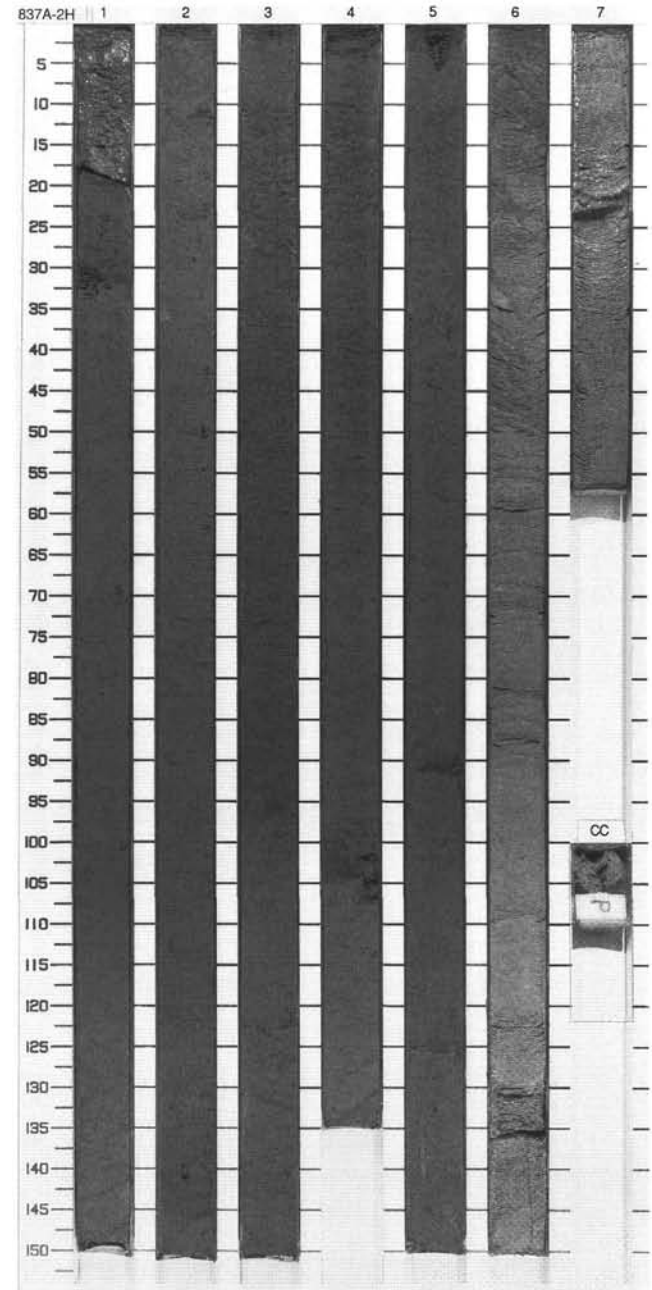
TEXTURE:	1, 16	1, 31	4, 103	6, 102
	M	M	M	D
Sand	20	5	10	—
Silt	75	85	75	—
Clay	5	30	15	—

COMPOSITION:				
	Tr	3	5	—
Accessory minerals	Tr	3	5	—
Clay	—	25	15	5
Feldspar	5	7	5	Tr
Foraminifers	5	10	Tr	Tr
Glass	85	50	75	95
Nannofossils	5	5	—	—

SITE 837 HOLE A CORE 2H  
CORED 8.0 - 17.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.5	[Graphic Lithology: Clayey nannofossil ooze with forams]	1	1	↑ F ↑ F	—	S	S	CLAYEY NANNOFOSSIL OOZE and CLAYEY NANNOFOSSIL OOZE WITH FORAMS
1.0								
1.5								
2.0								
2.5								
3.0								
3.5								
4.0	[Graphic Lithology: Vitric silty sand]	2	2	}	—	S	10YR 4/3	Major lithologies: CLAYEY NANNOFOSSIL OOZE, brown (10YR 4/3) to dark brown (10YR 3/3), generally structureless and homogeneous with slight mottling due to burrows. The sediment contains pumice pebbles up to 8 mm in diameter. CLAYEY NANNOFOSSIL OOZE WITH FORAMS, brown (10YR 4/3).
4.5								
5.0								
5.5	[Graphic Lithology: Vitric silty sand]	3	3	}	—	S	10YR 3/3	Minor lithologies: VITRIC SANDY SILT and VITRIC SILTY SAND, light brownish gray (10YR 6/2) to light yellowish brown (10YR 6/4) occur in a series of fining-upward intervals with sharp basal contacts. Graded layers of VITRIC SILT, very dark grayish brown (10YR 4/3) occur in Section 4, 97-104 cm, and in Section 5, 88-91 cm and 120-126 cm.
6.0								
6.5	[Graphic Lithology: Vitric silty sand]	4	4	}	—	S	10YR 4/3	
7.0								
7.5	[Graphic Lithology: Vitric silty sand]	5	5	}	—	S	10YR 4/3	
8.0								
8.5	[Graphic Lithology: Vitric silty sand]	6	6	}	—	S	10YR 6/4 To 10YR 6/2	
9.0								
9.5	[Graphic Lithology: Vitric silty sand]	7	7	}	—	S	10YR 6/4 To 10YR 6/2	
10.0								
10.5	[Graphic Lithology: Core catcher]	CC						



135-837A-3H  
SMEAR SLIDE SUMMARY (%):

	1,50 D	1,95 D	1,110 M	2,60 D	2,118 D	3,22 D	3,50 M
TEXTURE:							
Sand	---	30	---	---	---	---	---
Silt	94	60	20	83	91	87	5
Clay	6	10	80	17	9	13	96

COMPOSITION:

Accessory minerals	---	---	Tr	Tr	---	Tr	Tr
Clay	3	5	30	10	5	6	30
Feldspar	2	Tr	---	---	Tr	2	Tr
Foraminifers	2	2	10	3	1	2	5
Glass	90	88	8	80	90	85	Tr
Nannofossils	3	5	52	7	4	5	65

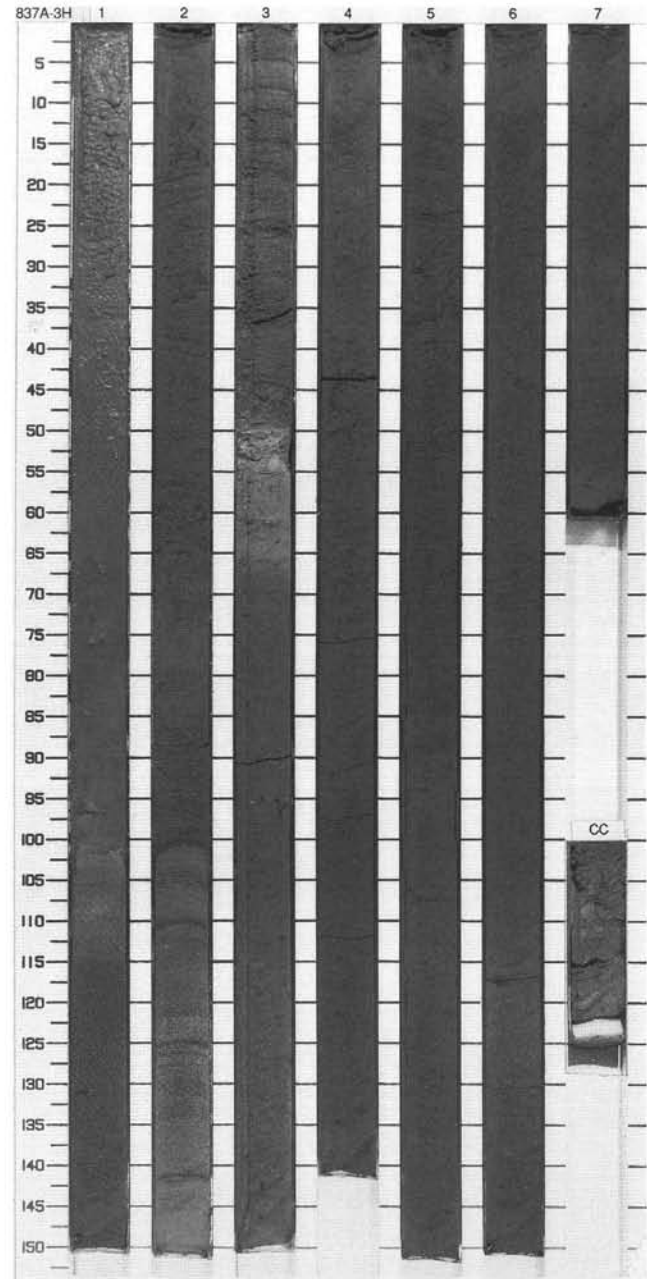
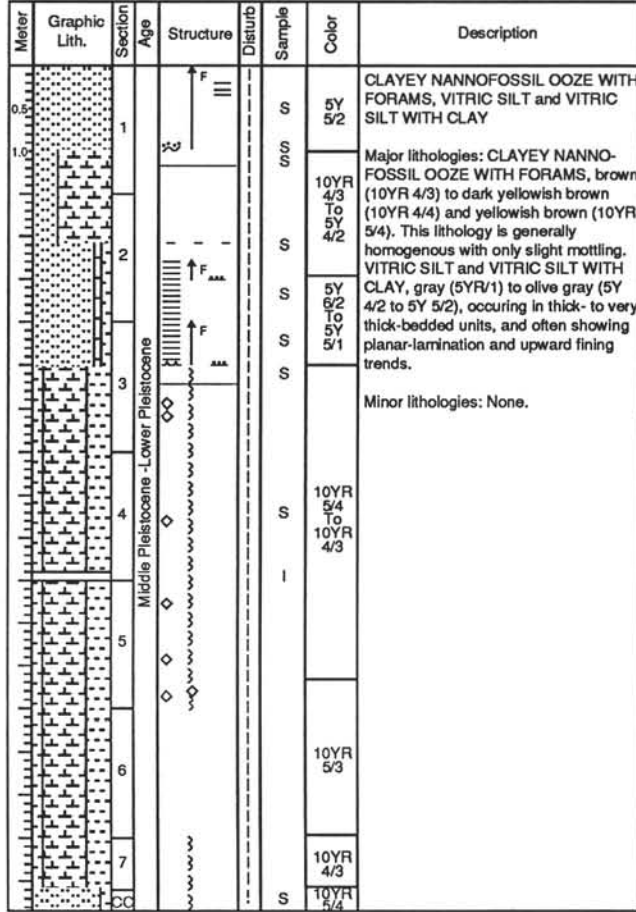
SMEAR SLIDE SUMMARY (%):

	4,70 D	CC, 10 M
TEXTURE:		
Sand	---	---
Silt	10	40
Clay	90	60

COMPOSITION:

Accessory minerals	Tr	Tr
Clay	30	10
Feldspar	---	Tr
Foraminifers	8	Tr
Glass	2	85
Nannofossils	60	5

SITE 837 HOLE A CORE 3H CORED 17.5 - 27.0 mbsf



135-837A-4H

SMEAR SLIDE SUMMARY (%):

	1, 10	1, 145	2, 124	3, 61	3, 84	3, 142	4, 95
	D	D	D	D	D	D	D

TEXTURE:

Sand	---	---	---	10	35	20	35
Silt	75	90	85	80	55	70	55
Clay	25	10	15	10	10	10	10

COMPOSITION:

Accessory minerals	---	Tr	Tr	Tr	Tr	Tr	Tr
Clay	6	6	6	6	6	6	6
Feldspar	---	Tr	Tr	Tr	Tr	Tr	Tr
Foraminifers	1	Tr	Tr	Tr	1	1	Tr
Glass	90	90	90	90	90	90	90
Nannofossils	3	4	4	4	3	3	4

SMEAR SLIDE SUMMARY (%):

	5, 14	6, 70	8, 84	CC, 21
	D	D	D	D

TEXTURE:

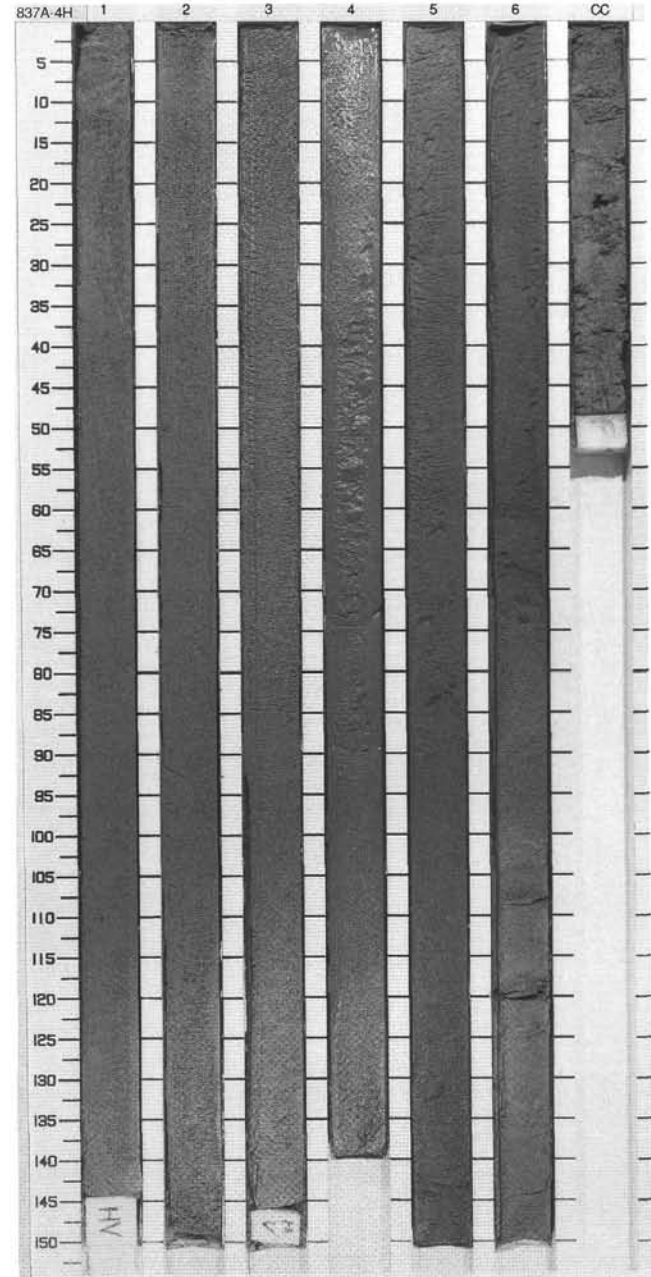
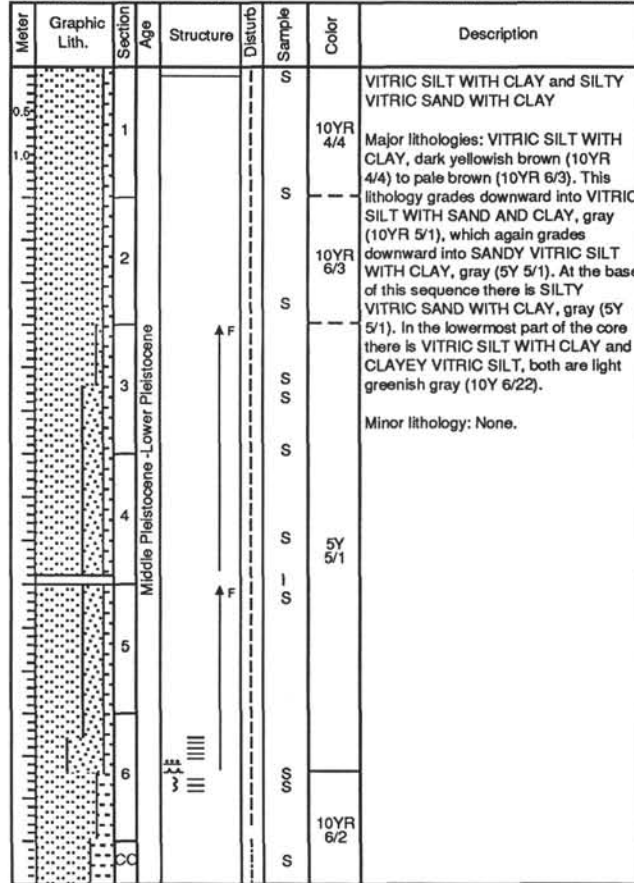
Sand	20	50	---	---
Silt	70	42	85	70
Clay	10	8	15	30

COMPOSITION:

Accessory minerals	---	1	Tr	Tr
Clay	6	3	10	10
Feldspar	Tr	2	---	Tr
Foraminifers	1	2	Tr	---
Glass	90	88	85	85
Nannofossils	3	4	5	5
Rock fragment	Tr	---	---	---

SITE 837 HOLE A CORE 4H

CORED 27.0 - 36.5 mbsf



135-837A-5H  
 SMEAR SLIDE SUMMARY (%):

	1, 10 D	1, 81 D	2, 140 D	3, 140 D	4, 139 D	5, 140 D	6, 140 D
TEXTURE:							
Sand	---	5	15	10	25	15	10
Silt	85	70	60	75	60	70	80
Clay	15	25	25	15	15	15	10

COMPOSITION:

Accessory minerals	Tr	Tr	Tr	Tr	Tr	Tr	Tr
Clay	10	10	10	10	10	10	5
Feldspar	Tr	Tr	Tr	Tr	Tr	Tr	Tr
Foraminifers	Tr	Tr	Tr	Tr	Tr	Tr	Tr
Glass	85	85	85	85	85	85	91
Nannofossils	5	5	5	5	5	5	4

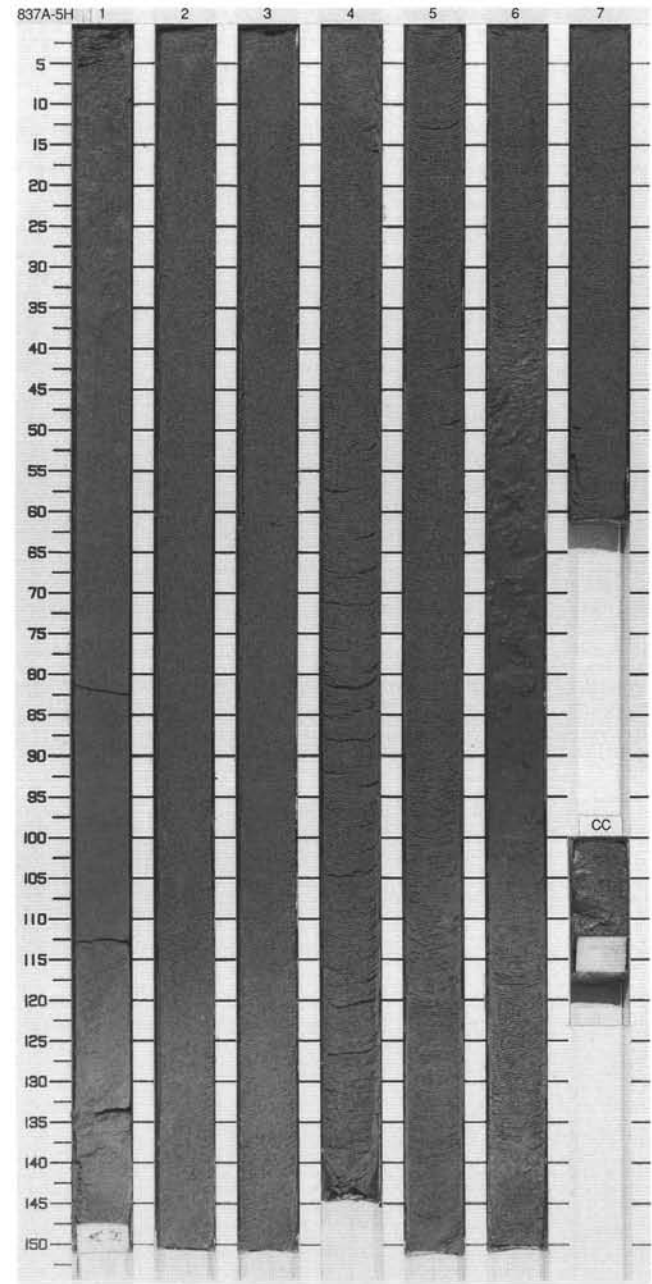
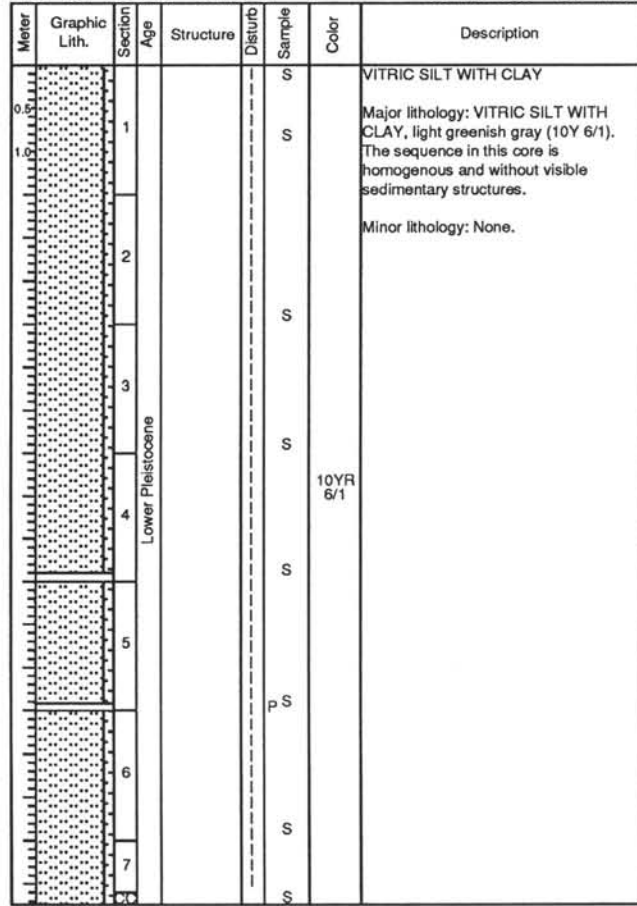
SMEAR SLIDE SUMMARY (%):

	CC, 5 D
TEXTURE:	
Sand	25
Silt	65
Clay	10

COMPOSITION:

Accessory minerals	Tr
Clay	6
Feldspar	Tr
Foraminifers	Tr
Glass	90
Nannofossils	4

SITE 837 HOLE A CORE 5H CORED 36.5 - 46.0 mbsf



135-837A-6H  
SMEAR SLIDE SUMMARY (%):

	1, 80 D	2, 20 D	3, 70 D	4, 40 D	4, 100 D	4, 146 D	5, 28 D
TEXTURE:							
Sand	40	60	50	55	60	70	73
Silt	52	33	40	40	35	25	15
Clay	8	7	10	5	5	5	12

COMPOSITION:

Accessory minerals	1	1	1	10	10	10	30
Clay	5	5	5	3	3	3	8
Feldspar	1	2	1	10	10	10	15
Foraminifers	Tr	Tr	Tr	Tr	Tr	Tr	—
Glass	90	90	90	75	75	75	44
Nannofossils	3	2	3	2	2	2	3

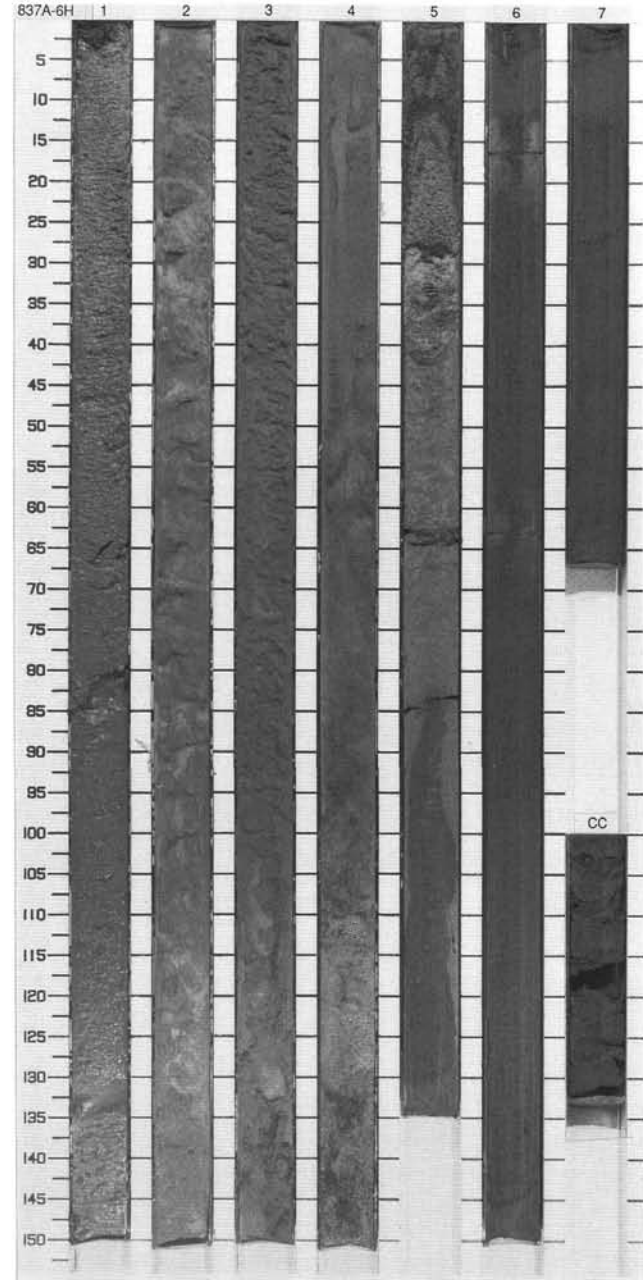
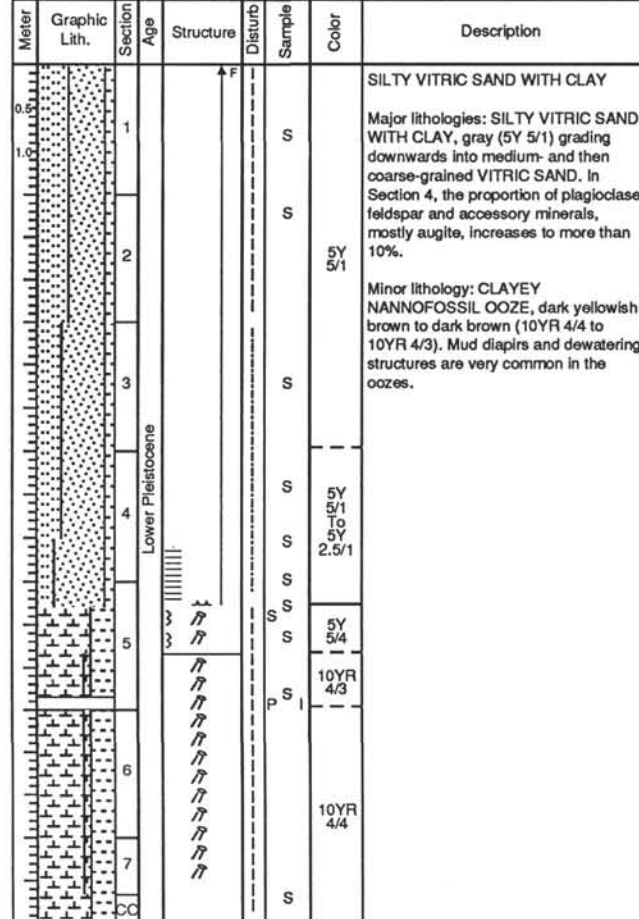
SMEAR SLIDE SUMMARY (%):

	5, 37 D	5, 63 D	5, 130 D	6, 87 D	CC, 7 D
TEXTURE:					
Sand	---	---	---	---	---
Silt	2	5	8	10	3
Clay	98	95	92	90	97

COMPOSITION:

Accessory minerals	---	Tr	Tr	Tr	---
Clay	30	30	30	30	30
Feldspar	Tr	Tr	---	---	---
Foraminifers	2	5	8	10	3
Nannofossils	68	65	62	60	67

SITE 837 HOLE A CORE 6H CORED 46.0 - 55.5 mbsf



135-837A-7H  
SMEAR SLIDE SUMMARY (%):

	1, 65 D	2, 120 D	2, 141 M	2, 144 D	3, 25 D	3, 66 M	3, 69 D
TEXTURE:							
Sand	---	---	50	---	---	70	---
Silt	8	55	35	70	60	20	45
Clay	92	45	15	30	40	10	55

COMPOSITION:

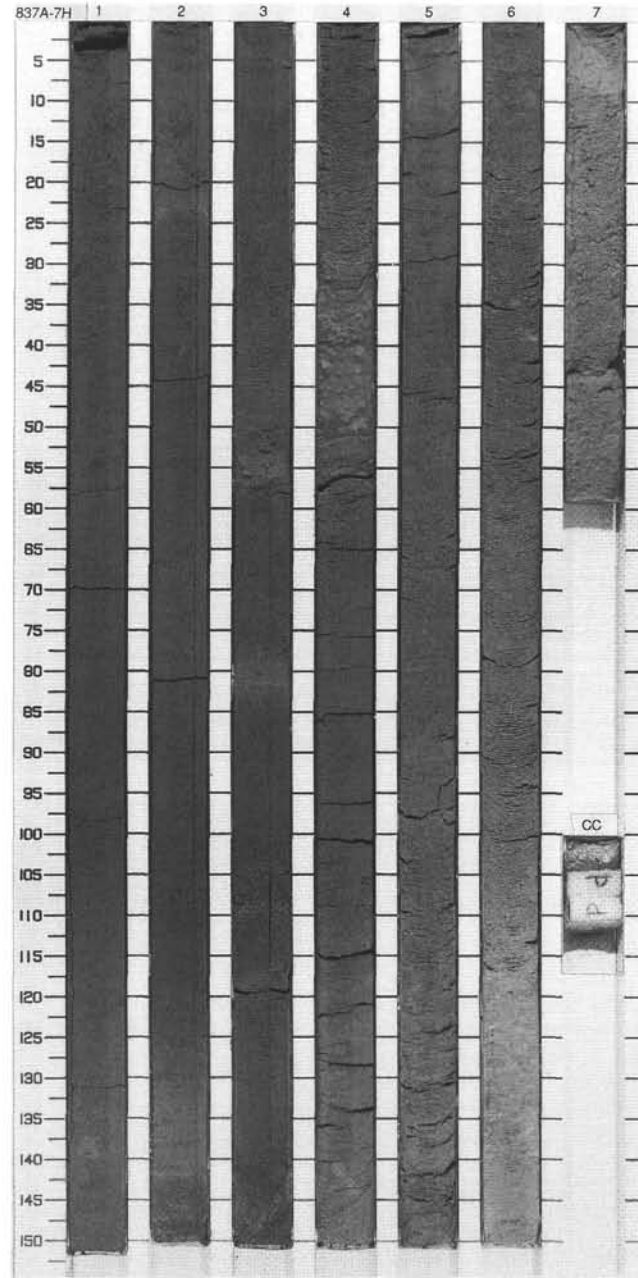
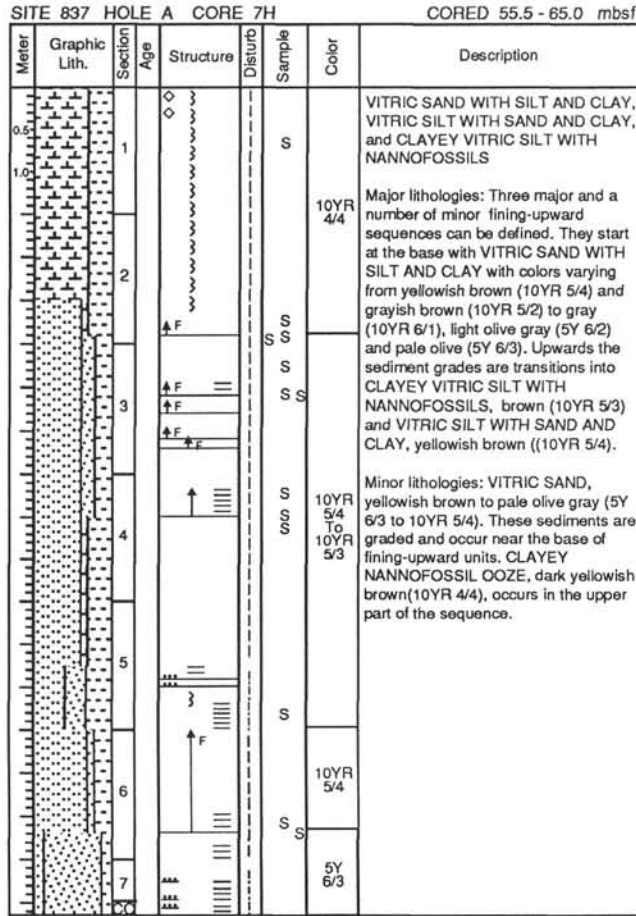
	Tr	Tr	Tr	---	Tr	Tr	Tr
Accessory minerals	Tr	Tr	Tr	---	Tr	Tr	Tr
Clay	30	35	10	20	30	6	25
Dolomite	---	---	---	Tr	---	---	---
Feldspar	Tr	Tr	Tr	Tr	Tr	Tr	Tr
Foraminifers	3	Tr	Tr	Tr	Tr	8	Tr
Glass	5	55	85	72	60	82	45
Nannofossils	62	10	5	8	10	4	30

SMEAR SLIDE SUMMARY (%):

	4, 21 D	4, 47 M	4, 62 D	5, 130 D	6, 108 D	6, 119 D
TEXTURE:						
Sand	---	50	---	30	45	45
Silt	70	40	50	45	35	43
Clay	30	10	50	25	20	12

COMPOSITION:

	Tr	Tr	Tr	Tr	Tr	Tr
Accessory minerals	Tr	Tr	Tr	Tr	Tr	Tr
Clay	15	5	30	21	12	8
Feldspar	Tr	1	Tr	Tr	Tr	Tr
Foraminifers	Tr	3	Tr	4	3	8
Glass	73	88	60	65	60	79
Nannofossils	8	3	10	10	5	5

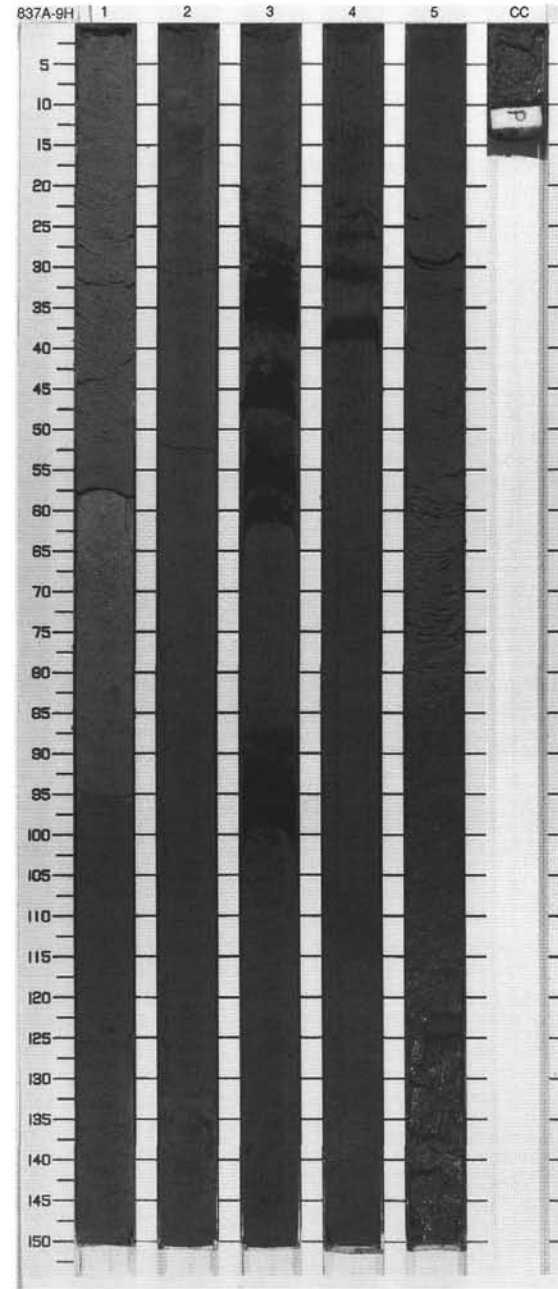
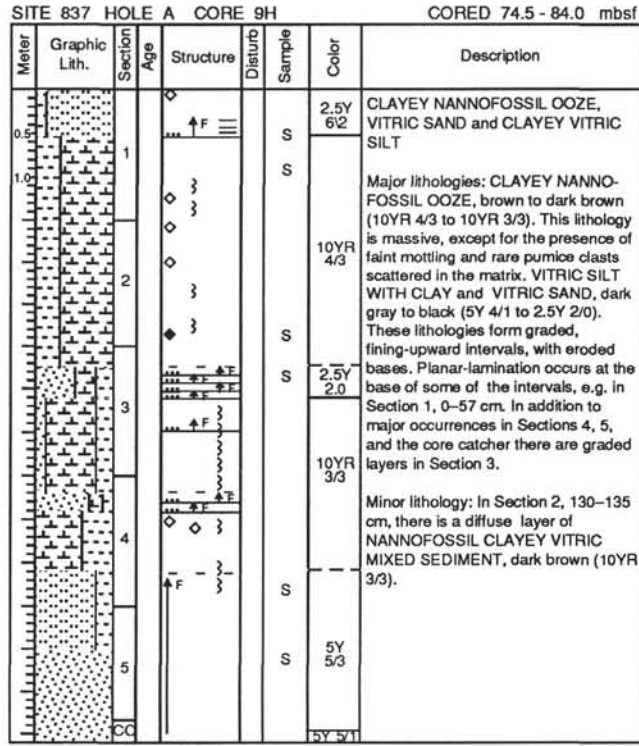






135-837A-9H  
SMEAR SLIDE SUMMARY (%):

	1, 50 D	1, 90 D	2, 135 M	3, 34 M	4, 130 D	5, 60 D
TEXTURE:						
Sand	80	5	20	80	30	66
Silt	15	---	25	15	50	34
Clay	5	95	55	5	20	1
COMPOSITION:						
Accessory minerals	Tr	---	5	5	Tr	Tr
Clay	5	30	30	5	20	1
Feldspar	5	---	5	---	Tr	2
Foraminifers	5	5	5	Tr	Tr	2
Glass	85	Tr	30	90	80	96
Nannofossils	---	65	25	---	---	---



135-837B-1R  
SMEAR SLIDE SUMMARY (%):

	1,75 D	2,40 M	3,70 D
TEXTURE:			
Sand	---	---	---
Silt	15	15	15
Clay	85	85	85

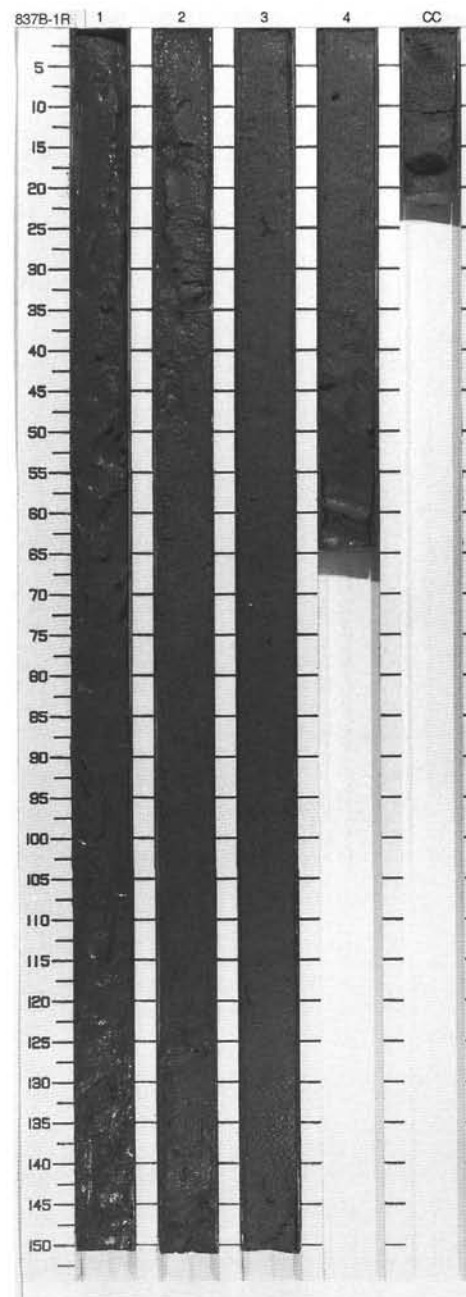
## COMPOSITION:

	---	Tr	---
Accessory minerals	---	Tr	---
Clay	30	30	30
Feldspar	---	Tr	---
Foraminifers	10	15	10
Glass	5	Tr	5
Nannofossils	55	55	55
Spicules	---	Tr	---

## SITE 837 HOLE B CORE 1R CORED 0.0 - 5.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.5	[Graphic Lithology: Pattern of small triangles and dots]	1				S	10YR 3/4	CLAYEY NANNOFOSSIL OOZE WITH FORAMS Major lithology: CLAYEY NANNOFOSSIL OOZE WITH FORAMS, dark yellowish brown (10YR 3/4) to dark brown (10YR 4/3). The sediment contains pumice clasts up to 7 cm in diameter in Section 2 and up to 2 cm in diameter in Section 3. Mottling is common in Sections 2 and 3.
1.0		2	AAA ↑		S			
		3		↑		S	10YR 4/3	Minor lithology: CLAYEY FORAM OOZE WITH GLASS occurs in Section 1, 117-130 cm.
		4						
		CC						

WASHED 5.5-70.5 mbsf



SITE 837 HOLE B CORE 2R CORED 70.5 - 80.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.0 0.5 1.0		1						CLAYEY NANNOFOSSIL CHALK Major lithology: CLAYEY NANNOFOSSIL CHALK, brown (10YR 5/3). Mottled and poorly sorted with grain sizes varying from clay to coarse sand. Minor lithology: None.



**UNIT 1: SPARSELY TO MODERATELY PHYRIC CLINOPYROXENE PLAGIOCLASE BASALT**

**Pieces 1-17**

**CONTACTS:** None.

**PHENOCRYSTS:**

Plagioclase: 1%-3%; up to 5.5 mm; euhedral to subhedral; tabular; some contain small, included clinopyroxene crystals.

Clinopyroxene: 1%-2%; up to 2.0 mm; subhedral, isolated crystals.

**GROUNDMASS:** Very fine-grained, with vitreous linings to some of the larger vesicles.

**VESICLES:** 10%-15%; <0.1-5.0 mm; rounded to coalescive; evenly disseminated (for smaller ones); vesicles dominantly <0.3 mm, rare larger vesicles erratically present throughout core. Conspicuous fine darker colored vesicle strings cut across nearly all pieces. These strings are 1 to 2 mm wide and have subhorizontal to 45° dips.

Miaroles: No infillings.

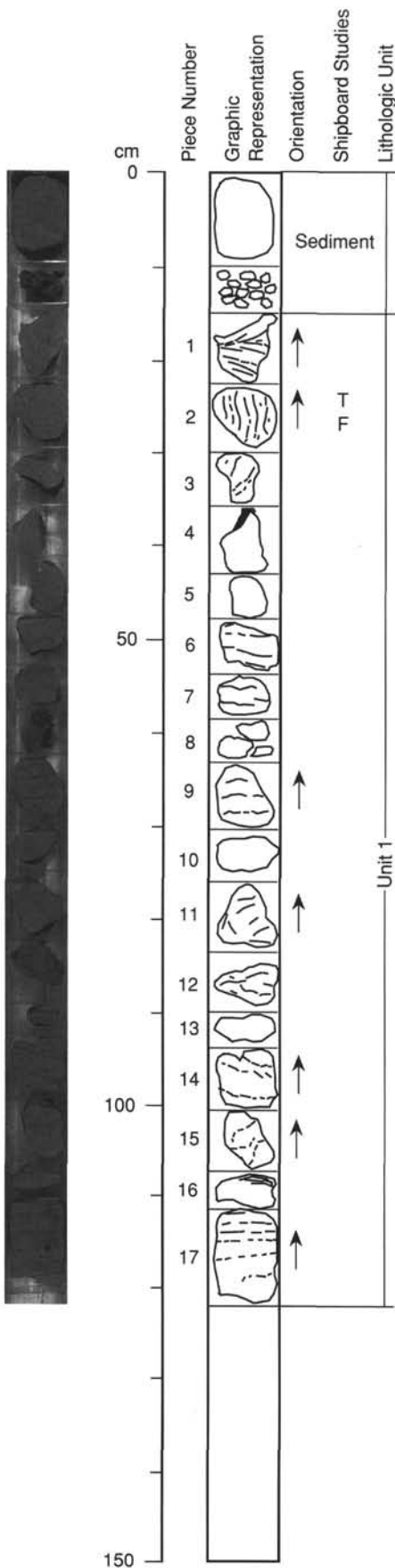
**COLOR:** 2.5Y 3/0, very dark gray.


**STRUCTURE:** Massive.

**ALTERATION:** Fresh.

**VEINS/FRACTURES:** <<1%; <<1 mm width; random orientations; fractures are rare and very thin; lined by brownish clayey material.

**ADDITIONAL COMMENTS:** Pieces 1, 8, 12, and 13 are finer grained than other fragments.



 Fine scale vesicle grains

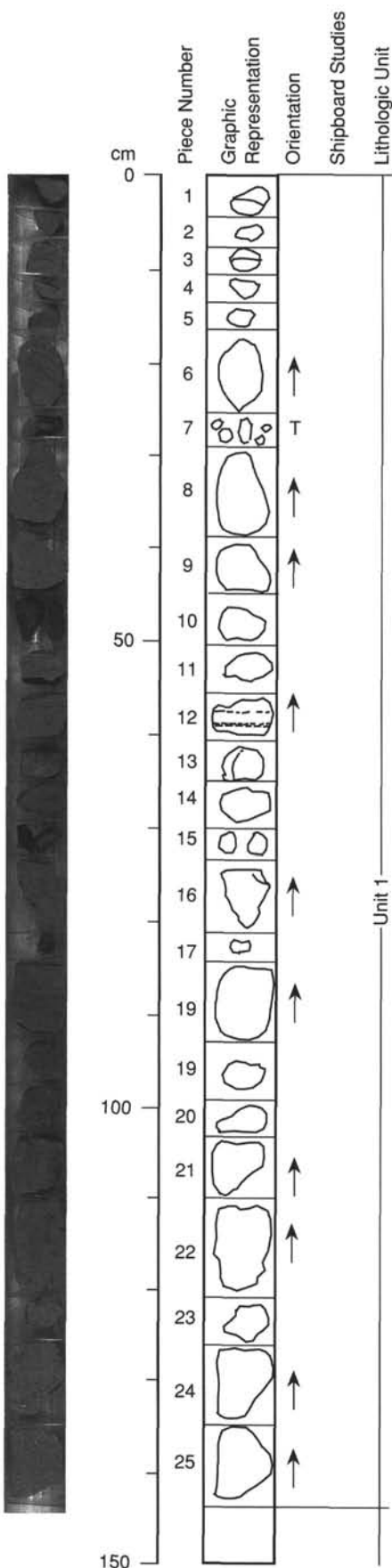
135-837B-3R-1

**UNIT 1: SPARSELY TO MODERATELY PHYRIC  
CLINOPYROXENE PLAGIOCLASE  
BASALT**

**Pieces 1-25**

**CONTACTS:** None visible.  
**PHENOCRYSTS:** Phenocrysts appear to be unaltered.  
 Plagioclase: 1%; 2x3 mm; euhedral  
 Clinopyroxene: <1%; 1.5x2.2 mm; euhedral to subhedral, isolated grains.  
**GROUNDMASS:** Fine-grained.  
**VESICLES:** 10%-20%; <0.1 to 4 mm; rounded and coalescing; distributed throughout; form lines; vesicles often lined up in tracks and are sometimes elongated (see VCD); vesicles are very rarely lined by a green smectite (?) material; most vesicles , 0.4 mm  
**COLOR:** 2.5YR 4/0 dark gray.  
**STRUCTURE:** Massive.  
**ALTERATION:** Fresh.  
**VEINS/FRACTURES:** Some brownish clay(?) coatings on surfaces of some fragments. These may represent breaking of fragments along small fractures.  
**ADDITIONAL COMMENTS:** Fractures are sometimes covered by a thin layer of a light brown soft material. Pieces 1, 7, and 17 are finer grained than other fragments.

 Vesicle lines



**UNIT 1: SPARSELY TO MODERATELY PHYRIC CLINOPYROXENE PLAGIOCLASE BASALT**

**Pieces 1-16**

**CONTACTS:** None.

**PHENOCRYSTS:**

Plagioclase: 1%-2%; up to 4.0 mm; euhedral to subhedral, tabular, commonly with intergrown or included clinopyroxene.

Clinopyroxene: <1%; up to 2.0 mm; euhedral to subhedral, isolated crystals and intergrown with plagioclase.

**GROUNDMASS:** Fine-grained, holocrystalline.

**VESICLES:** 10%-15%; <0.1 to 17.0 mm; rounded to elongated; evenly distributed; vesicles predominantly <0.4 mm. Large vesicles very sporadically distributed.

Miaroles: Rare linings with brown clay(?) and reddish brown Fe-oxyhydroxides.

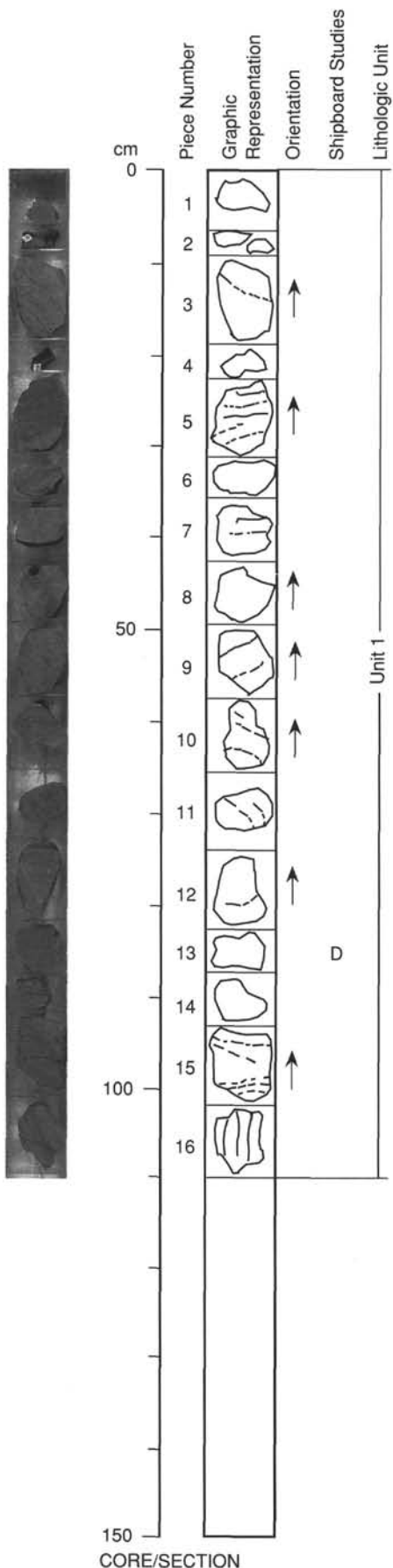
**COLOR:** 2.5YR 3/0 very dark gray.

**STRUCTURE:** Massive.

**ALTERATION:** Fresh.

**VEINS/FRACTURES:** Some surfaces of fragments have thin coating of brown clay(?) material, suggesting that these have broken along small fractures.

**ADDITIONAL COMMENTS:** Piece 1 is finer grained than other fragments.



Fine scale vesicle trains

135-837B-5R-1

**UNIT 1: SPARSELY TO MODERATELY PHYRIC  
CLINOPYROXENE PLAGIOCLASE  
BASALT**

**Pieces 1-10**

**CONTACTS:** None visible.

**PHENOCRYSTS:**

Plagioclase: 1%-2%; up to 5 mm; euhedral; tabular to equant; some contain small pyroxene inclusions.

Clinopyroxene: <1%; up to 1 mm; euhedral to subhedral isolated crystals.

**GROUNDMASS:** Fine grain holocrystalline to very fine-grained.

**VESICLES:** 10%-15%; <0.1 to 4 mm; rounded to elongated and ininterlocking; distributed throughout; most vesicles are <0.5 mm in diameter. Larger vesicles confined to vesicle trains or erratically distributed.

Miaroles: Fine yellow-brown clay. Encrustations and red-brown globular lining (Fe-oxyhydroxides?) within vesicles in weathered zones and in some vesicle trains; zeolites also occasionally present.




**COLOR:** 10YR, 3/1, very dark gray to 10YR, 4/3, dark brown in Pieces 5 to 7.

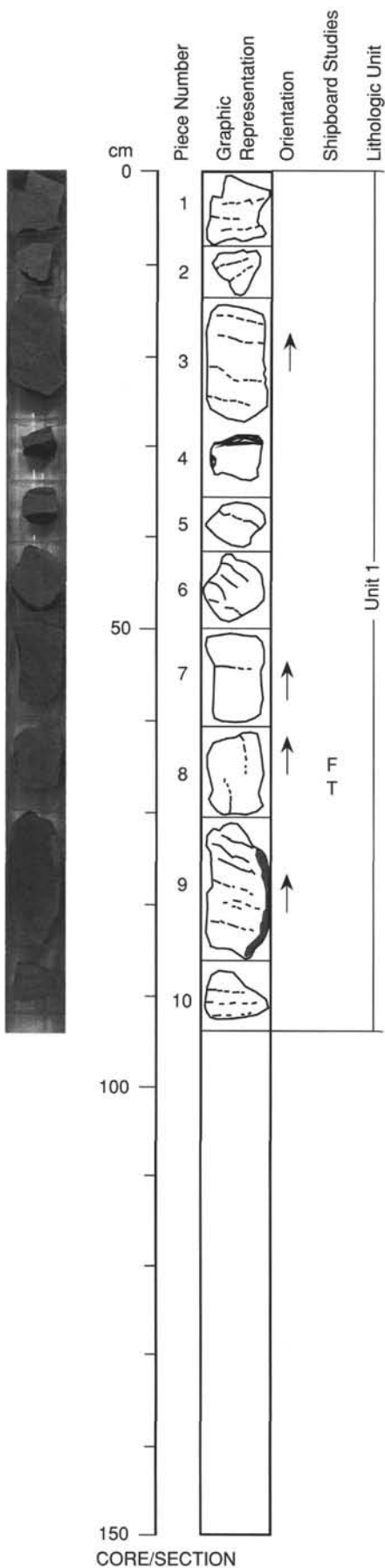
**STRUCTURE:** Massive.

**ALTERATION:** Slightly altered.

**VEINS/FRACTURES:** Some fragment surfaces have fine yellow-brown to brown coatings, suggesting that they fracture along very fine fractures.

**ADDITIONAL COMMENTS:** Piece 4 contains a glassy selvage. Piece 10 is very fine-grained. Pieces 5 to 7 are more brownish in color due to slight alteration. Pieces 4 and 10 are finer grained than other fragments.

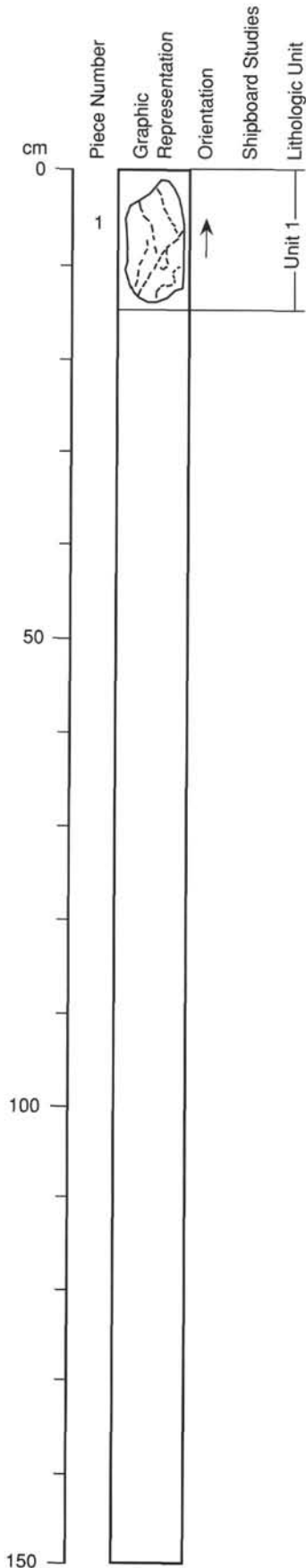
-  Fine scale vesicle trains
-  Glassy margin (piece 4)
-  Weathered zone (piece 9)



135-837B-6R-1

**UNIT 1: SPARSELY PHYRIC CLINOPYROXENE  
PLAGIOCLASE BASALT**

**Piece 1**



**CONTACTS:** None.

**PHENOCRYSTS:**

Plagioclase: Trace-1%; up to 1 mm; euhedral.

Clinopyroxene: Trace-1%; up to 1.2 mm; anhedral.

**GROUNDMASS:** Fine-grained, microcrystalline.

**VESICLES:** 5%-10%; <0.5 and >1 mm; round to subrounded in shape; see comments for distribution; small vesicles are uniformly distributed throughout this rock, with the larger cavities (up to 2.5 mm across) more randomly distributed. Wispy, irregular trails of very fine vesicles cut across Piece 1.

**COLOR:** 2.5Y 4/0, dark gray.

**STRUCTURE:** Vesicle tracks are aligned as if they had been controlled by magma flow.

**ALTERATION:** Fresh to slightly altered.

**VEINS/FRACTURES:** None.

**ADDITIONAL COMMENTS:** The vesicle bands observed in this one piece are typical of the basalts from Site 837 in general. Most tracks observed in the Site 837 basalts are horizontally oriented, but steeply dipping cases are not uncommon.



135-837B-2R-01 (Piece 2,24-26 cm)

OBSERVER: KRI

WHERE SAMPLED: Unit 1

ROCK NAME: Sparsely phyrlic clinopyroxene-plagioclase basalt

GRAIN SIZE: Fine grained

TEXTURE: Microcrystalline, vesicular

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
<b>PHENOCRYSTS</b>						
Plagioclase	1	1-2	0.3-0.7		ehedral	many are very corroded and have resorbed cores; strong sodic rims common; tendency towards glomeroporphyritic clusters of <5 grains
Clinopyroxene	1	1	.3		subhedral	most are isolated, equant grains; twinning and sector zoning common
<b>GROUNDMASS</b>						
Plagioclase	20	20	<0.5		ehedral to subhedral	randomly oriented elongate laths, some zoned
Clinopyroxene	7-10	7-10	<0.2		subhedral	mostly equant grains but some acicular, quench grains are present as well
Orthopyroxene	tr-1	tr-1	<0.1		subhedral	fresh, quench morphologies, identified by parallel extinction and distinct green-pink pleochroism.
Magnetite	5-7	5-7	<0.1		skeletal to ehedral	mostly skeletal interstitial grain, but one region has high density of equant grains
Olivine	tr	tr	<0.1		subhedral to anhedral	mostly present as small, isolated grains in the groundmass; grains have higher clarity and higher relief than other phases. Some grains show some breakdown along cracks.
<b>SECONDARY MINERALOGY</b>						
yellow clays	PERCENT 1-2	REPLACING/ FILLING replacing mesostasis				COMMENTS very rare and localized replacement of mesostasis
<b>VESICLES/ CAVITIES</b>						
Vesicles	PERCENT 15-20	LOCATION throughout	SIZE (mm) <0.5	FILLING empty	SHAPE rounded, subrounded	COMMENTS a few larger vesicles associated with "quench stringers"

COMMENTS: Extremely fresh, often glassy mesostasis makes up 40-50 percent of this sample. There are three 0.5 mm wide elongate stringers of dark, quenched, highly vesicular material running across the entire slide. These are very similar in appearance to the filled vesicle globs of other sections except for their shape. Fresh glass is still present in these zones. Rock is extremely fresh. 880 point count (small section, excluding large crack in center) clinopyroxene groundmass 7.6%; plagioclase groundmass 18.9%; plagioclase phenocrysts 1.3%; clinopyroxene phenocrysts 0.4%; opaques 5.7%; mesostasis 50.4%; vesicles 15.2%. Rock is slightly altered.

SITE 837

135-837B-3R-01 (Piece 7,26-29 cm)

OBSERVER: LP

WHERE SAMPLED: Unit 1

ROCK NAME: Sparsely to moderately phyrlic clinopyroxene-plagioclase basalt

GRAIN SIZE: Fine grained

TEXTURE: Porphyritic, vesicular

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
<b>PHENOCRYSTS</b>						
Plagioclase	2	2	1-1.2		subhedral	some rounded margins, zoned at rims; irregular glass inclusions up to 0.1 mm across in some cores; other phenocrysts clear or with subordinate clinopyroxene? inclusions; rare cruciform intergrowths, rare embayments (resorption?)
Clinopyroxene	1	1	0.6		subhedral to anhedral	fresh, tabular; some minor alteration to clays at rims; idiomorphic basal sections; rare subophitic intergrowths with plagioclase tablets (glomerocrysts); twinning in basal sections
<b>GROUNDMASS</b>						
Plagioclase	10-15	15-18	0.1-0.15		bladed, acicular laths	
Clinopyroxene	5-10	12	0.05		euhedral to subhedral laths	
Orthopyroxene	2	2	to 0.5		anhedral, granular	fresh laths
Magnetite	4	4	to 0.35		subhedral rhombs	microgranular magnetite occurs in groundmass in addition to the larger grains; some larger subhedral rhombs are clustered and rounded skeletal grains; larger euhedral grains have inclusion of lathlike opaque (?) 0.15 mm by 0.1mm (possibly exsolution?)
Mesostasis	20	25-30	n/a		interstitial	fresh and altered glass
<b>SECONDARY MINERALOGY</b>						
	PERCENT	REPLACING/FILLING				COMMENTS
Brown smectite	7-10	replacing mesostasis/glass				brown smectite pervasive through mesostasis compared to red-brown smectite
Red-brown smectite	5	replacing mesostasis/glass				clots and patches scattered through mesostasis; clots coalesce and become dominant phase in finer grained to glassy portion of thin section; locally 60% of rock
Fe-stained clay	1-2	replacing glass, infilling vesicles				
Orangey brown clays	2	preferentially altering laminae				foxy red clays concentrated in bands
<b>VESICLES/CAVITIES</b>						
	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	5	throughout	0.5	empty (see notes)	subrounded	rare glass-filled, probably plucked; highly quenched vesicular glass filling; rims of quench fill have concentrated vesicles, cores have coalesced and irregular voids
Vesicles	3-4	in laminae	0.1-0.15	empty	rounded, coalesced to elongate	localized in discrete laminae, spaced at between 1-3 mm; laminae filled with glass altered to brown clays; the glass filling has elongate and coalesced vesicles

COMMENTS: Minor plagioclase alteration on rims; locally pilotaxitic texture with aligned plagioclase blades; continuous microvesicle tracts present throughout 50% of specimen spaced at 1-3 mm; spacing decreases to less than 0.5 mm towards the glassier portion (pillow margin/cooling margin); in hand specimen laminae have no vesicles/voids at <0.5 mm spacing but still marked by pervasive laminar fabric; plagioclase/clinopyroxene glomerocrysts are rare, grains more commonly are clustered near each other.

135-837B-4R-01 (Piece 10,58-60 cm)

OBSERVER: KRI

WHERE SAMPLED: Unit 1

ROCK NAME: Sparsely phyrlic plagioclase basalt

GRAIN SIZE: Fine grained

TEXTURE: Porphyritic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
<b>PHENOCRYSTS</b>						
Plagioclase	1-2	1-2	0.5-1		euohedral	tabular isolated grains with narrow sodic rims; melt inclusions in many; some are strongly zoned
Orthopyroxene	tr	tr	0.2-0.4		euohedral to subhedral	pale pink-green pleochroism; isolated or in small glomeroporphyritic clusters with plagioclase
<b>GROUNDMASS</b>						
Plagioclase	30	30	<0.5		euohedral	randomly oriented microlites; some with sodic rims
Clinopyroxene	7-10	7-10	<0.2		subhedral to anhedral	often occur in small microglomeroporphyritic clusters
Orthopyroxene	3-5	3-5	0.1-0.2		subhedral	identification difficult but most of the groundmass crystallites appear to be clinopyroxene, while the more equant or euohedral grains are often orthopyroxene
Mesostasis	38	40	n/a		interstitial	mostly glassy and extremely fresh with some minor breakdown; includes some plagioclase and clinopyroxene crystallites
Magnetite	3-5	3-5	<0.8		equant to skeletal	rare ilmenite lamellae in some
<b>SECONDARY MINERALOGY</b>						
Yellow clays	PERCENT 1-2	REPLACING/ FILLING replacing mesostasis				COMMENTS rare breakdown of mesostasis to yellow-orange in isolated patches

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	15-20	throughout	<1mm	most are empty	subrounded	bimodal size distribution; large ones (>0.5 mm) are rare, while small (<0.2 mm) impart relatively high porosity to the rock; glassy selvages line some vesicles

COMMENTS: Dark, quenched, highly vesicular, occasionally glassy material fills or lines some vesicles and fractures. Quench material in these is dominantly clinopyroxene crystallites with rare plagioclase. There doesn't appear to be any olivine in this section.

SITE 837

135-837B-5R-01 (Piece 8,60-69 cm)

OBSERVER: KRI

WHERE SAMPLED: Unit 1

ROCK NAME: Sparsely phyrlic clinopyroxene-plagioclase basalt

GRAIN SIZE: Fine grained

TEXTURE: Microcrystalline, vesicular

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
<b>PHENOCRYSTS</b>						
Plagioclase	1-2	2-3	0.3-1		euhedral	some with melt inclusions and distinct sodic rims
Clinopyroxene	tr-1	tr-1	0.3-1		subhedral-anhedral	tend to occur in small clusters with plagioclase; mostly equant but some laths; many are twinned
<b>GROUNDMASS</b>						
Plagioclase	20	20	<0.6		euhedral	elongate laths, randomly oriented
Clinopyroxene	7-10	7-10	<0.2		subhedral	mostly isolated equant grains, some elongated
Orthopyroxene	tr-1	tr-1	<0.1		subhedral	fresh, quenched grain occur throughout the groundmass; identified by parallel extinction and pink-green pleochroism.
Magnetite	4-5	4-5	<0.1		euhedral-skeletal	large, equant grains with very rare ilmenite lamellae
Olivine	tr	tr	<0.1		subhedral to anhedral	small, isolated grains with high clarity and high relief; some show breakdown along fractures and rims.
<b>SECONDARY MINERALOGY</b>						
yellow-orange clays	PERCENT 1	REPLACING/FILLING fill				COMMENTS along alteration front vesicles are partially to completely filled with light yellow along edges to dark orange interiors

VESICLES/CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	15-20	disseminated	<3 mm	empty to completely filled	subrounded	filled along alteration front (see below); some vesicles have thin glassy linings

COMMENTS: Extremely fresh, often glassy, interstitial mesostasis comprises 40-50 % of this sample. Alteration front crosses section, seen as "line" of infilled to partially filled vesicles with yellow to orange to brown amorphous material. Degree of alteration of the rock is the same on either side of the alteration front. Yellowish material has infiltrated the altered cores of the plagioclase grains. Small glomeroporphyritic clusters of plagioclase, clinopyroxene, and large equant magnetite. 1018 point count gives: Plagioclase phenocrysts 1.1%; Clinopyroxene phenocrysts 0.7%; Plagioclase groundmass 19.9%; Clinopyroxene groundmass 11.2%; Mesostasis 46.2%; Opaques 4.7%; Empty vesicles 13.6%; Filled vesicles 2.1%; Total vesicles 15.7%