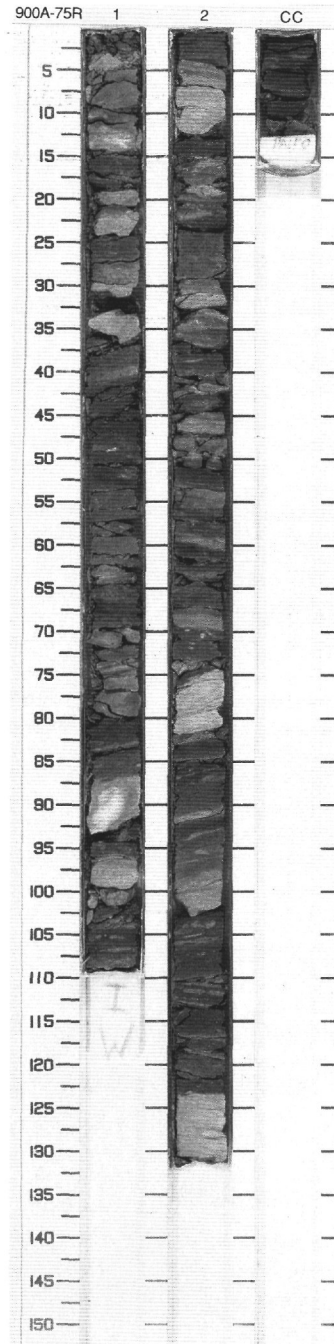


SITE 900 HOLE A CORE 75R

CORED 701.1 - 710.4 mbsf

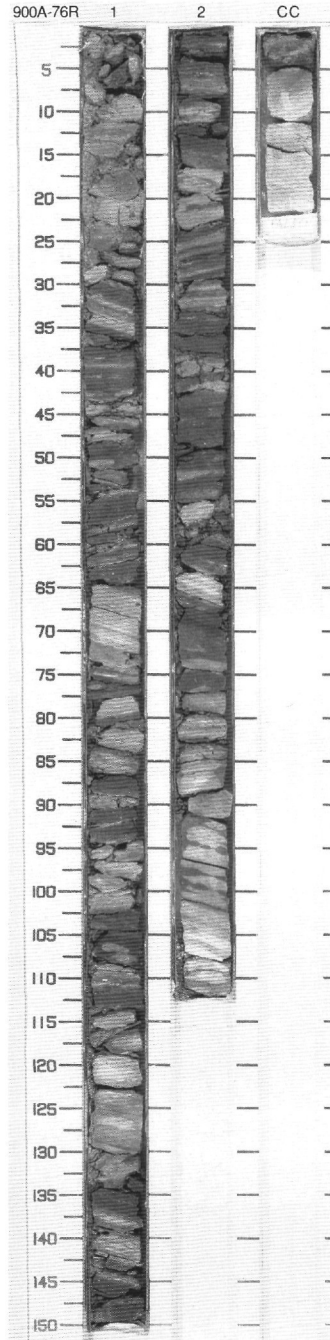
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1	[Dotted pattern]	1	middle Eocene	[Wavy lines]	[Wavy lines]	S	5G 6/1 To 5YR 3/4	<p>CLAYSTONE WITH SILT and CALCAREOUS SANDSTONE</p> <p>Major Lithologies: Moderate brown (5YR 3/4), greenish gray (5G 6/1), dark greenish gray (5G 4/1) CLAYSTONE WITH SILT forms 80% of the core, and medium gray (N5) calcareous SANDSTONE 20%.</p> <p>Minor Lithology: Light olive gray (5Y 6/1) CALCAREOUS CLAYSTONE forms less than 1% of the core.</p> <p>General Description: The core consists of alternating calcareous SANDSTONE and CLAYSTONE WITH SILT. Where not bioturbated, a sharp contact occurs between the SANDSTONE and the overlying CLAYSTONE. The SANDSTONE is laminated to bioturbated. Parallel laminations dominate in the SANDSTONE but in Section 1, at 100 cm, cross-laminations are encountered.</p>
2	[Dotted pattern]	2				I		
	[Dotted pattern]	CC	M					



SITE 900 HOLE A CORE 76R

CORED 710.4 - 720.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1	[Dotted pattern]	1	middle Eocene	[Wavy lines]	[Wavy lines]	P	5G 4/1 To 5YR 3/4	<p>CLAYSTONE WITH SILT</p> <p>Major Lithology: Moderate brown (5YR 3/4), dark greenish gray (5G 6/1), and greenish gray (5G 6/1) CLAYSTONE WITH SILT makes up about 90% of the core.</p> <p>Minor Lithologies: Medium gray (N5) CALCAREOUS SANDSTONE totals about 7% of the core, and moderate yellowish brown CALCAREOUS CLAYSTONE (10YR 5/4) about 3%.</p> <p>General Description: This core is similar to Core 75R, but it contains less SANDSTONE. Alternating CLAYSTONES WITH SILT and laminated to bioturbated SANDSTONES dominate. The CLAYSTONES also contain thin sandstone laminae. CALCAREOUS CLAYSTONE locally overlies the SANDSTONE.</p>
2		2				S		
		CC				M S		



SITE 900 HOLE A CORE 78R

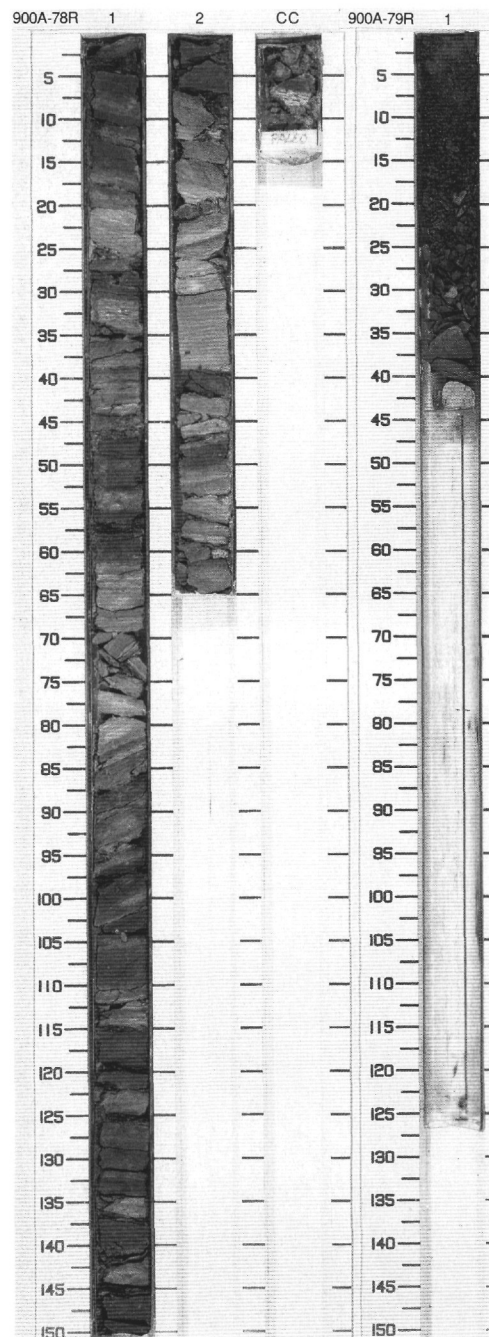
CORED 729.7 - 739.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1	Paleocene	} } }	} } }	P	N5 To 5YR 3/2	CLAYSTONE, SILTSTONE/CALCAREOUS SILTY CLAYSTONE, and FORAMINIFERAL CALCAREOUS FINE SANDSTONE Major Lithologies: Grayish brown (5YR 3/2) to bluish gray (5B 5/1) CLAYSTONE/SHALE forms 40% of the core, and medium gray (N5) SILTY CLAYSTONE TO SILTSTONE 30%. Finely laminated, medium bluish gray (5B 5/1) to medium gray (N5) FORAMINIFERAL CALCAREOUS FINE SANDSTONE forms 30% of the core. General Description: The core is highly brecciated by drilling, but despite this several upwards- darkening sequences are visible. The base of each sequence is marked by laminated, cross-, flaser-, or wavy- bedded SILTSTONE, and overlain by CLAYSTONE/SHALE.
2		2						

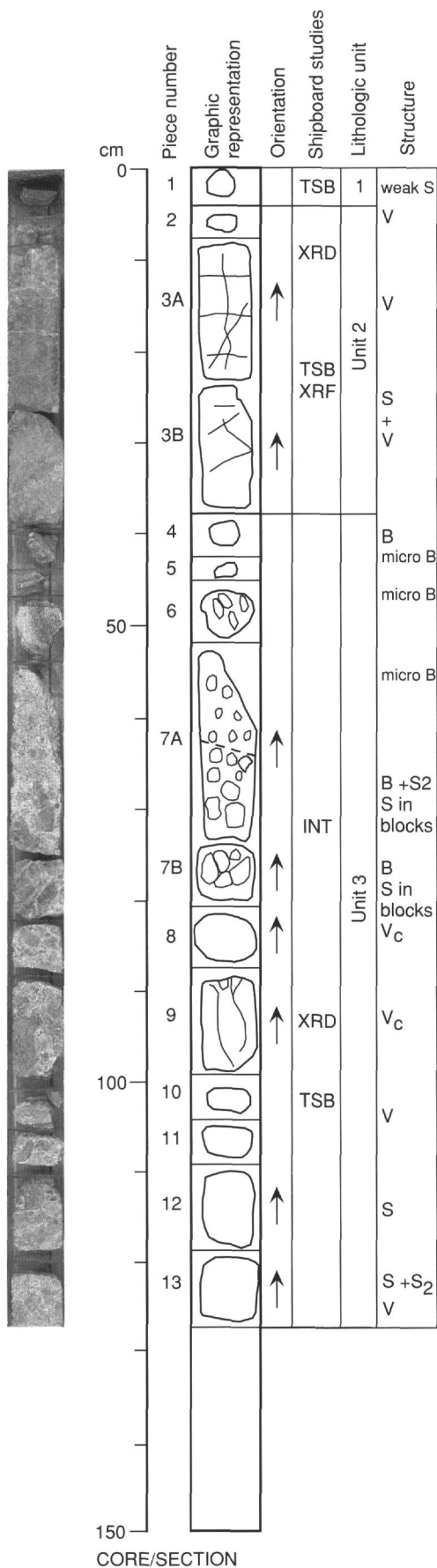
SITE 900 HOLE A CORE 79R

CORED 739.3 - 748.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1			XX	M		CLAYSTONE/SHALE and NANNOFOSSIL CLAYSTONE General Description: None of the pieces in this core appear to be in the correct stratigraphic order, for their size diminishes up the core from 0.5 to 5 cm. The mixture of lithologies consists of dark greenish gray (5GY 4/1) and moderate brown (5YR 3/4), and light green (5GY 6/1) CLAYSTONE/SHALE.



149-900A-80R-1



UNIT 1: MAFIC ROCK

Piece 1

COLOR: Dark gray (N3).
LAYERING: None.
DEFORMATION: Ductile foliation.
PRIMARY MINERALOGY: Minerals are partially altered.
 Plagioclase - Mode: 50%.
 Crystal size: 1-2 mm.
 Crystal shape: Equidimensional.
 Crystal orientation: None.
 Amphibole - Mode: 50%.
 Crystal size: 1 mm.
 Apatite - Mode: <1%.
 Garnet - Mode: <1%.
 Opaque - Mode: <1%.

SECONDARY MINERALOGY: Plagioclase is slightly altered.
 Total percent: 2%.
 Texture: Foliated.
 Vein material: Veins of chlorite and epidote?

ADDITIONAL COMMENTS: This single piece at the top of the core is of uncertain parentage. It may be a dropstone. It is an amphibolite facies metamorphic rock with a foliation.

UNIT 2: META-PLAGIOCLASE AND CHLORITE-BEARING ROCK

Pieces 2, 3A, and 3B

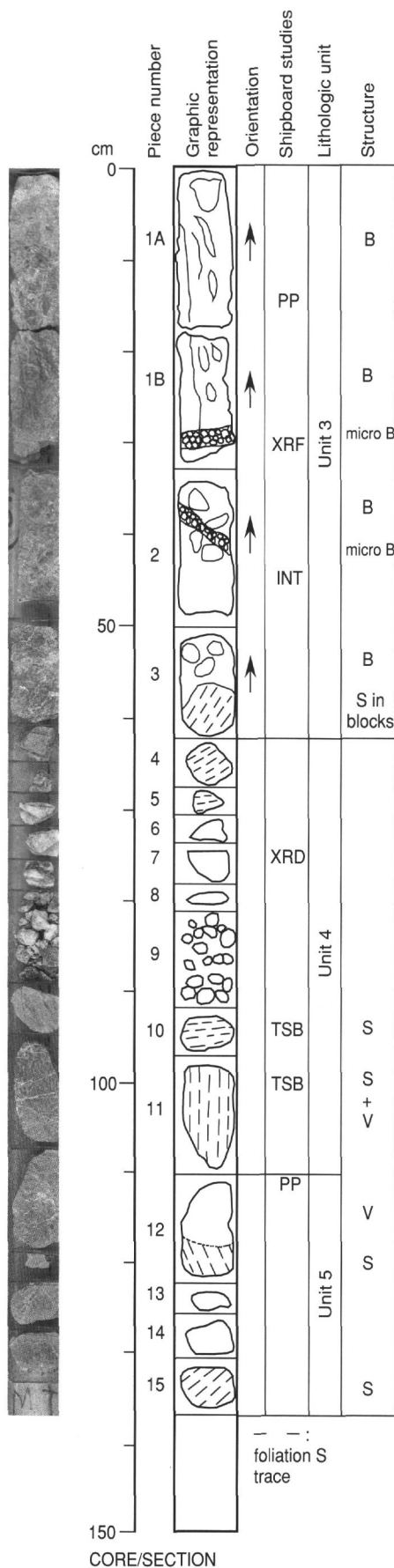
COLOR: Greenish gray (5GY 6/1) with white veins.
LAYERING: No primary igneous layering or banding.
DEFORMATION: Not deformed-only veined.
PRIMARY MINERALOGY: Primary mineralogy is obscured by alteration.
SECONDARY MINERALOGY: Rock is greenish in color - perhaps from chlorite but secondary mineralogy not obvious without XRD or thin section data.
 Texture: Massive?
 Vein material: Thin (~1 mm) veins of quartz(?) in reticulate pattern. Several generations.

ADDITIONAL COMMENTS: Rock is massive and appears structureless but otherwise similar to other pieces in the core which are brecciated. Irregular, dark veinlets (about 1 cm long) are conspicuous (altered opaque phases?)

UNIT 3: CHLORITE BRECCIA

Pieces 4-13

COLOR: Grayish green (5G 5/2).
LAYERING: No primary igneous layering. No metamorphic banding.
DEFORMATION: Rock is a breccia with fragments ranging in size from microscopic to 8 cm in diameter. Fragments are angular. Cemented by calcite and smaller amounts of other phases.
PRIMARY MINERALOGY: No primary minerals present.
SECONDARY MINERALOGY: Some late stage "limonite" alteration occurs along what appears to be a fault cutting Pieces 6 and 7A.
 Texture: The primary texture of the fragments is obscured by the alteration and syn- to post brecciation deformation.
 Vein material: Pieces 7B, 8, and 9 have the breccia fragments cemented and bounded by calcite. Some open spaces with "dogtooth" calcite. Calcite cement is pervasive in Pieces 10-13.
ADDITIONAL COMMENTS: Piece 6 and part of Piece 7 are further degraded and brecciated along a fault(?) zone cutting across the core.



UNIT 3: CHLORITE BRECCIA

Pieces 1A–3

COLOR: Light olive brown (5Y 5/6).

LAYERING: No layering visible.

DEFORMATION: Rock is a breccia with fragments ranging in size from microscopic to 5 cm in diameter. Fragments are angular. Cemented, foliated, and sheared by calcite and smaller amounts of other phases.

PRIMARY MINERALOGY: No primary minerals present.

SECONDARY MINERALOGY: Brown coloration indicates iron hydroxides developed on the greenish chlorite breccia.

Texture: Some fragments have internal preferred orientations and others may consist of brecciated fragments.

Vein material: Most of the veins are discontinuous and fragmented by the later brecciation although some are post-fragmentation and filled with calcite.

ADDITIONAL COMMENTS: This unit continues from 149-900A-80R-1.

UNIT 4: HETEROGENEOUS CHLORITE-PLAGIOCLASE ROCKS

Pieces 4–11

COLOR: Light olive gray (5Y 5/6).

DEFORMATION: Pieces 4, 5, 10, and 11 have a mylonitic fabric.

PRIMARY MINERALOGY: No primary minerals present.

SECONDARY MINERALOGY: The brownish color of iron hydroxides is present.

Texture: Mylonitic to massive.

Vein material: Veining is abundant in Piece 11, but scarce elsewhere.

ADDITIONAL COMMENTS: This unit is heterogeneous with adjacent pieces varying greatly.

UNIT 5: METAMORPHIC CHLORITE-PLAGIOCLASE ROCK

Pieces 12–15

COLOR: Medium bluish gray (5B 5/1).

LAYERING: No obvious layering.

DEFORMATION: Ductile shear deformation overprinted by cataclase and brecciations.

PRIMARY MINERALOGY: Primary mineralogy has been entirely replaced by secondary alteration.

SECONDARY MINERALOGY: Rock has a bluish cast more than green but the cause is not known.

Texture: Massive?

Vein material: A few thin veins are present.

ADDITIONAL COMMENTS: This unit is very similar to Unit 2 in 149-900A-80R-1.

149-900A-81R-1

UNIT 6: CHLORITIZED MAFIC ROCK

Piece 1 only

COLOR: Greenish gray (5GY 6/1) and white.
LAYERING: None visible.
DEFORMATION: No foliation, but rock is fractured and veined.
PRIMARY MINERALOGY: No primary minerals present.
SECONDARY MINERALOGY: Chlorite alteration is ubiquitous.
 Texture: Veined
 Vein material: ? This small piece appears to be veined by feldspar and brecciated.
ADDITIONAL COMMENTS: Nature and origin of this piece is obscure. May be drilling dropstone at top of core. Similar to Unit 2 in 149-900A-80R-1.

UNIT 7: MAFIC ROCK

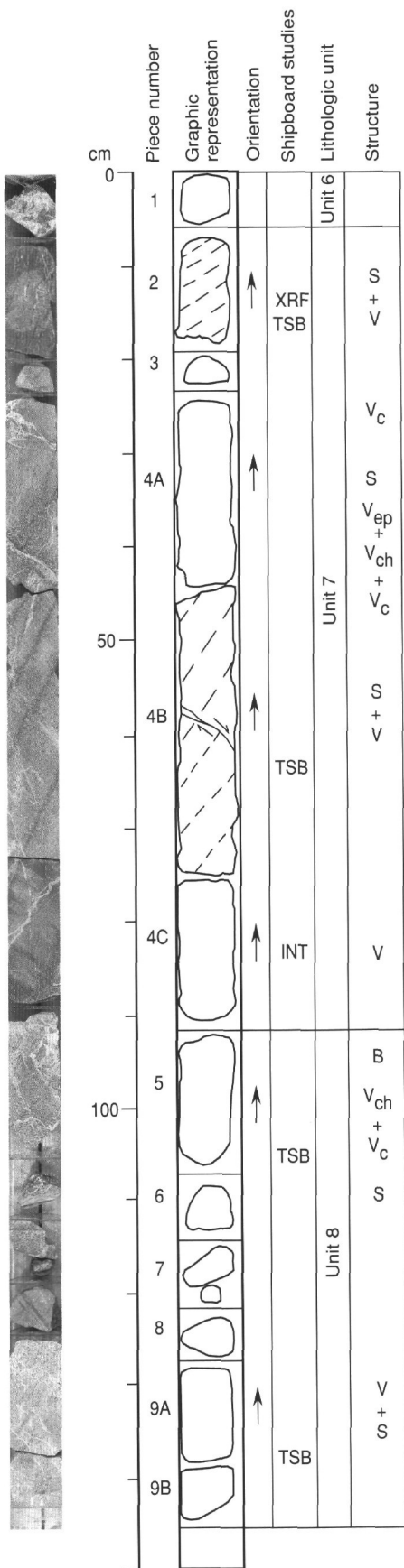
Pieces 2-4C

CONTACTS: Not observed.
PHENOCRYSTS: No phenocrysts.
GROUNDMASS: Fine-grained, recrystallized, altered to chlorite(?).
VESICLES: No vesicles?
COLOR: Dark greenish gray (5G 4/1).
STRUCTURE: Several distinct phases of veining and alteration are present overprinting the high temperature foliation. The earliest are dark bands of alteration marginal to thin veins. These are cut by thin veins of epidote material and veins of green chlorite, which in turn are cut by calcite brecciation.
ALTERATION: Amphibolite grade metamorphism.
VEINS/FRACTURES: Late stage calcite brecciation.
ADDITIONAL COMMENTS: These pieces contrast with the rest of this section and the next in that they are relatively unbrecciated.

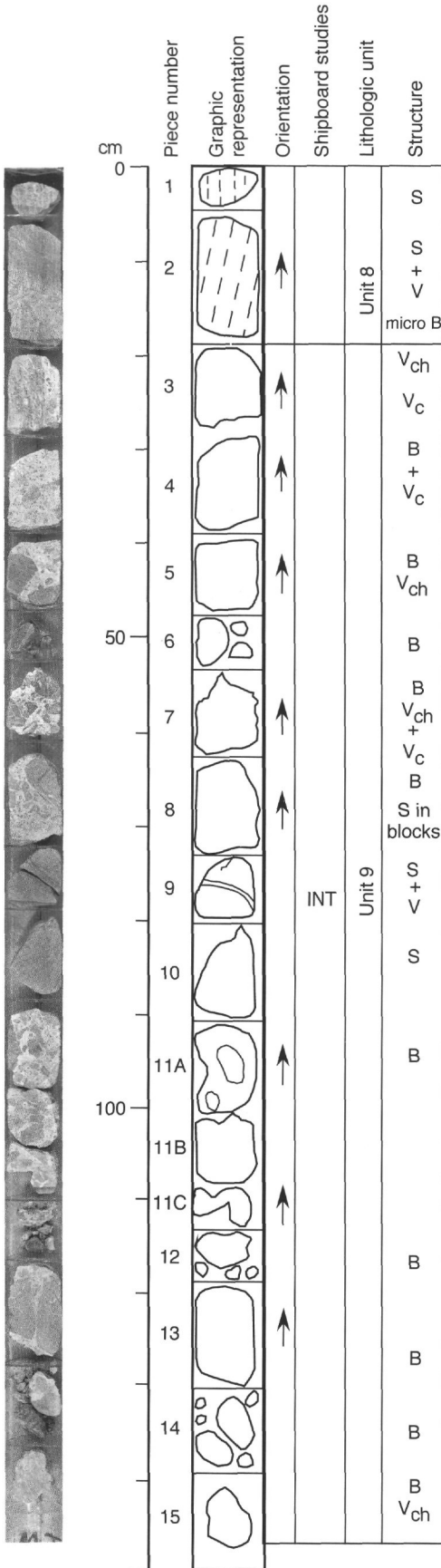
UNIT 8: BRECCIATED MAFIC ROCK

Pieces 5-9B

CONTACTS: Not observed.
PHENOCRYSTS: No phenocrysts.
GROUNDMASS: Metamorphosed to chlorite and amphibole.
VESICLES: None.
COLOR: Mottled, dusky green (5 G 3/2), but with paler calcite breccia matrix.
STRUCTURE: Ductile foliation overprinted by fracturing and brecciation.
VEINS/FRACTURES: Calcite veining filling fractures, with small amounts of Fe-oxides.
ADDITIONAL COMMENTS: The top of Piece 5 is particularly brecciated. Piece 9A is highly sheared. This unit is continued in 149-900A-81R-2.



CORE/SECTION



UNIT 8: MAFIC ROCK

Pieces 1 and 2

CONTACTS: None.
PHENOCRYSTS: No phenocrysts.
GROUNDMASS: Chlorite and amphibole.
VESICLES: No vesicles.
COLOR: Dusky green (5G 3/2).
STRUCTURE: Foliated during a high temperature shear deformation.
VEINS/FRACTURES: Complex meshwork of chlorite-filled fine veins (<1 mm) and fractures.
ADDITIONAL COMMENTS: These pieces lack the calcite brecciation seen in the rest of this section and in 149-900A-81R-1. Unit continues from 149-900A-81R1-1.

UNIT 9: METAMORPHOSED MAFIC ROCK

Pieces 3-15

CONTACTS: None.
PHENOCRYSTS: No phenocrysts.
GROUNDMASS: Recrystallized plagioclase and pyroxene partially metamorphosed to chlorite and amphibole.
VESICLES: No vesicles.
COLOR: Mottled dusky green (5G 3/2) and pale yellowish green (10GY 7/2) to white matrix to the breccia.
STRUCTURE: Highly brecciated with fragments up to 10 cm in diameter. Pieces 9 and 10 do not show brecciation but may be large fragments as they are similar to the rest of the unit.
VEINS/FRACTURES: Calcite veins with open spaces.

CORE/SECTION

149-900A-81R-3

UNIT 10: BRECCIA

Pieces 1-3

CONTACTS: None

PHENOCRYSTS: No phenocrysts observed.

GROUNDMASS: Fine-grained, altered to chlorite(?), sheared.

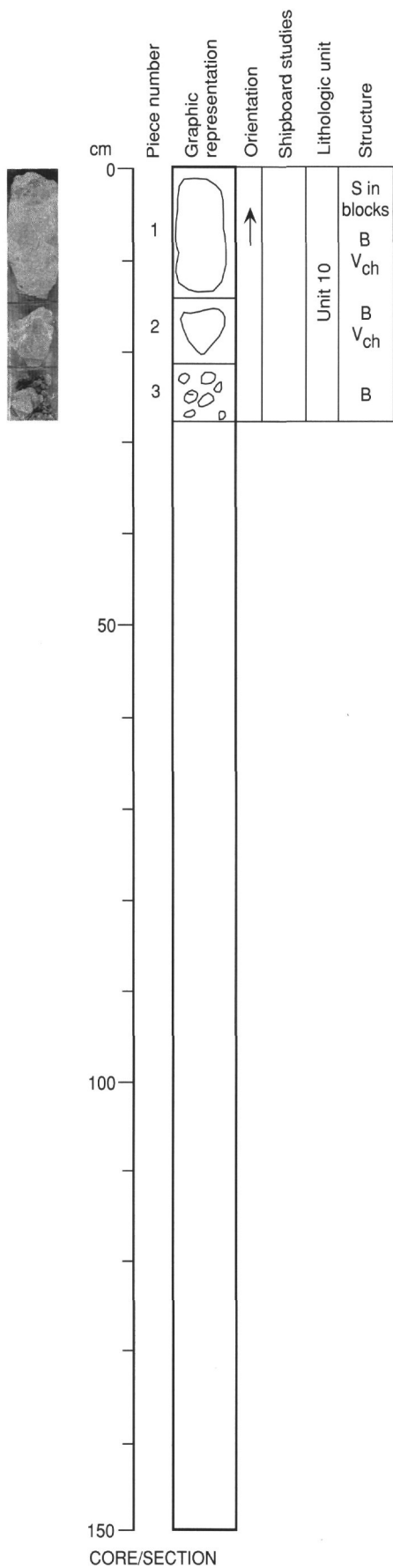
VESICLES: No vesicles observed.

COLOR: Grayish green (5G 5/2).

STRUCTURE: Brecciated but with chlorite matrix (not calcite as in Unit 8). Pieces are tightly fitted together.
Some fragments within the breccia appear foliated and sheared.

VEINS/FRACTURES: Some thin (1 mm) veins cut Piece 2.

ADDITIONAL COMMENTS: Piece 3 is a collection of drilling debris.



UNIT 11: MAFIC ROCK

Pieces 1-2C

CONTACTS: The upper contact is probably between Pieces 1 and 2. The lower contact is at 64 cm, between Pieces 2 and 3.

PHENOCRYSTS: No phenocrysts.

GROUNDMASS: Metamorphosed, chlorite and amphibole rich. Cut by veins.

VESICLES: None.

COLOR: Dusky green (5G 3/2).

STRUCTURE: The boundary between Pieces 2 and 3 is a zone of banded and brecciated material about 10 cm thick. This is a zone of low temperature shear deformation overprinting the high temperature foliation.

VEINS/FRACTURES: A few thin (1-2 mm) veins of calcite and earlier veins of chlorite. No preferred orientation.

ADDITIONAL COMMENTS: Piece 1 is interpreted as a drilling dropstone at the top of the core.

UNIT 12: METAMORPHOSED MAFIC ROCK

Pieces 3A-3C

CONTACTS: The upper contact is between Pieces 2 and 3. The lower contact is in 149-900A-82R-3.

PHENOCRYSTS: None.

GROUNDMASS: Metamorphosed, chlorite and amphibole rich.

VESICLES: No vesicles.

COLOR: Dusky green (5G 3/2).

STRUCTURE: The boundary between Pieces 2 and 3 is a zone of brecciated, altered material with marked banding. This is a zone of low temperature shear deformation overprinting the high temperature foliation.

VEINS/FRACTURES: At least two distinct generations of veins are present: an earlier light greenish brown set of 1-2 mm veins (epidote?). These are cut by a later set of white, noncarbonate veins (clinzoisite?).

ADDITIONAL COMMENTS: Unit 12 continues in Section 149-900A-82R-2.

