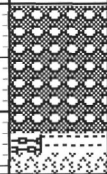
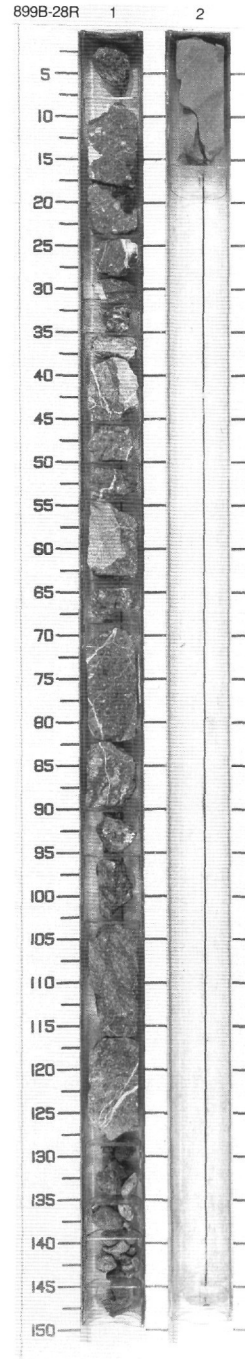


SITE 899 HOLE B CORE 28R

CORED 482.9 - 492.1 mbsf

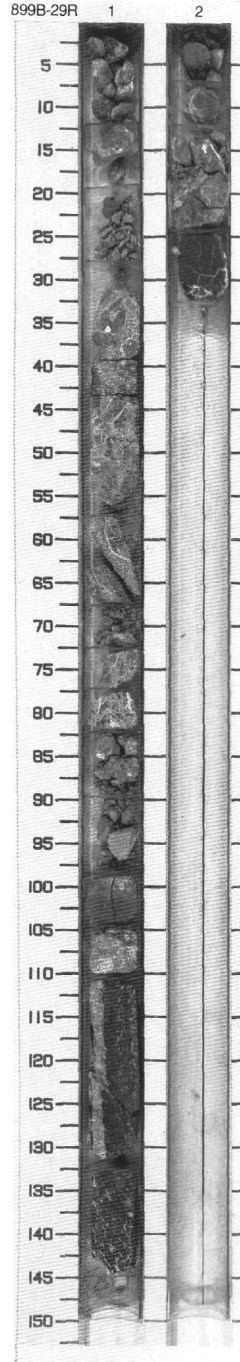
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0-1		1	early Aptian	∠ ∠ X		S	5G 2/1 To N4	<p>BRECCIA and PERIDOTITE</p> <p>Major Lithologies: Greenish black (5G 2/1) matrix-supported BRECCIA makes up 55% of the core and contains silt- to pebble-sized grains. Both the matrix and the clasts of the BRECCIA consist mostly of SERPENTIZED PERIDOTITE. Nonbrecciated PERIDOTITE and BASALT pieces together form 30% of the core.</p> <p>Minor Lithology: Pieces (1-4 cm in diameter) of medium dark gray (N4) CALCAREOUS CLAYSTONE occur in Section 1, 129 to 148 cm, and constitute about 15% of the core.</p> <p>General Description: One CALCAREOUS CLAYSTONE piece appears highly sheared and contains small clasts of PERIDOTITE.</p>
1-2		2				S		



SITE 899 HOLE B CORE 29R

CORED 492.1 - 501.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0-1		1	Early Cretaceous	$\frac{N4}{1}$	—	S S	5G 2/1 To N4	PERIDOTITE and BRECCIA Major Lithologies: Greenish black (5G 2/1) PERIDOTITE pieces make up about 50% of the coarse and matrix-rich BRECCIA with very angular clasts makes up 40%. The BRECCIA is composed of SERPENTINIZED PERIDOTITE.
1-2		2		<1	—	S S		Minor Lithology: Medium gray (N4) CLAYSTONE makes up 10% of the core and it occurs as several small pieces (2-4 cm in diameter) in the upper and lower parts of the core. General Description: Pieces 4 and 5 in Section 1 show CLAYSTONE vertically injected into the BRECCIA. CLAYSTONE also coats a rounded BASALT clast. Alteration of the BASALT occurs when it contacts the claystone.



SITE 899 HOLE B CORE 30R

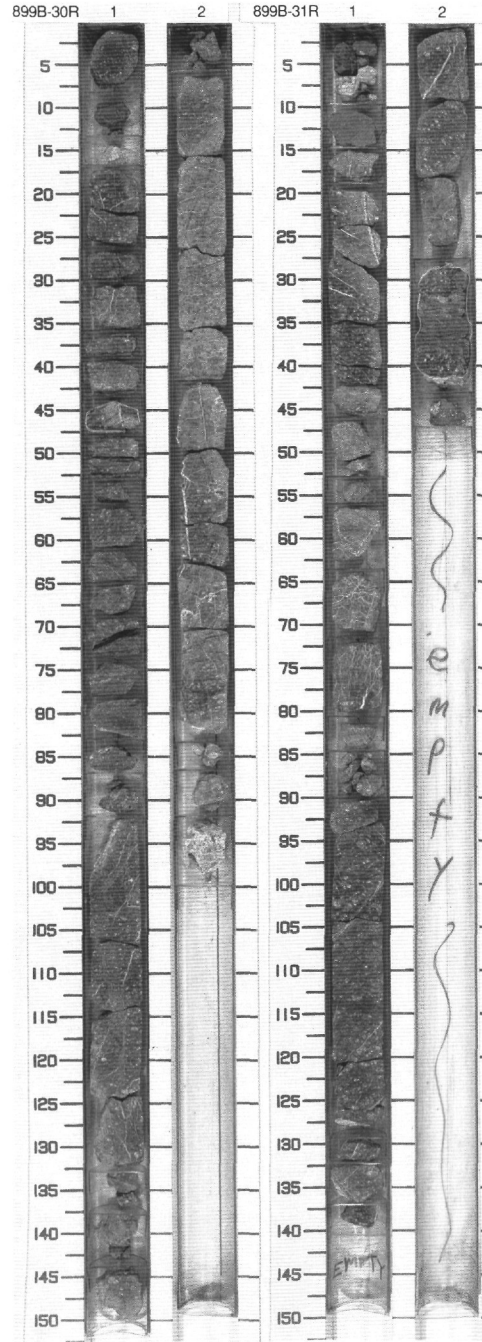
CORED 501.3 - 510.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1	[Stippled pattern]	1	Early Cretaceous			S	5G 2/1 To N4	<p>PERIDOTITE</p> <p>Major Lithology: PERIDOTITE forms 98% of the core.</p> <p>Minor Lithologies: Fragments of BASALT and CLAYSTONE form about 2% of the core.</p> <p>General Description: The CLAYSTONE occurs as a small (4 cm in diameter) medium dark gray (N4) fragment exhibiting parallel laminations.</p>
2		2						

SITE 899 HOLE B CORE 31R

CORED 510.5 - 520.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1	[Stippled pattern]	1	Early Cretaceous			S	5G 2/1 To N4	<p>PERIDOTITE</p> <p>Major Lithology: Nonbrecciated PERIDOTITE makes up 90% of the core.</p> <p>Minor Lithologies: BASALT and CLAYSTONE together form about 10% of the core.</p> <p>General Description: BASALT occurs as a fragment in Section 1, between 10–15 cm. Several small pieces (less than 4 cm in diameter) of medium dark gray (N4) color. CLAYSTONE occurs in Section 1, 0–10 cm. The CLAYSTONE fragments probably result from drilling disturbance.</p>
2		2						



SITE 899 HOLE B CORE 32R

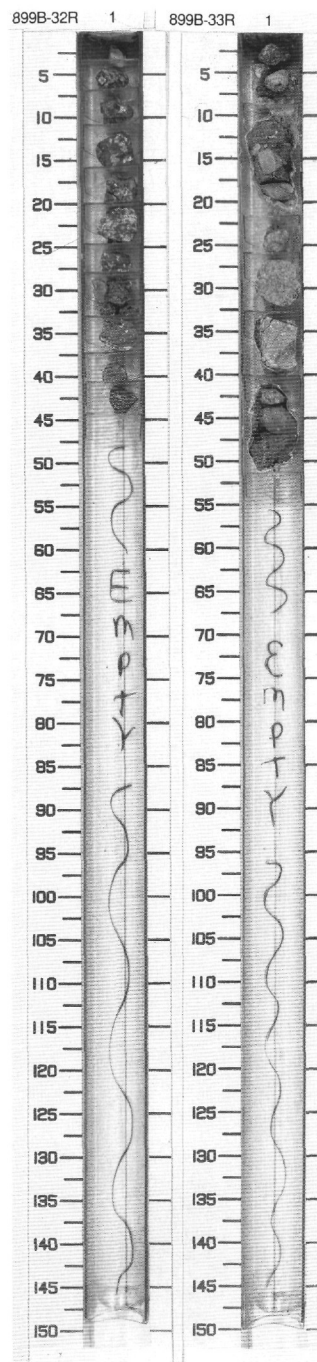
CORED 520.0 - 529.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	Early Cret.		— —	S	5G 2/1	<p>PERIDOTITE</p> <p>Major Lithology: PERIDOTITE forms 99% of the core.</p> <p>Minor Lithologies: Medium dark gray (N4) CALCAREOUS CLAYSTONE and BASALT together form about 1% of the core.</p> <p>General Description: This core consists of small (less than 6 cm in diameter) fragments of mostly PERIDOTITE and a fragment each of BASALT and CLAYSTONE. The CLAYSTONE fragment is 2 cm in diameter.</p>

SITE 899 HOLE B CORE 33R

CORED 529.5 - 538.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	Early Cret.		— —	S	5G 2/1	<p>PERIDOTITE BRECCIA and PERIDOTITE</p> <p>Major Lithologies: Finely ground PERIDOTITE and fragmented PERIDOTITE BRECCIA together form about 75% of the core.</p> <p>Minor Lithologies: Medium gray (N5) CLAYSTONE forms 25% of the core and occurs as fragments, 1–9 cm in diameter, between 0 and 20 cm. BASALT fragments occur mixed with the CLAYSTONE at 10–20 cm and 33–40 cm.</p>



SITE 899 HOLE B CORE 34R

CORED 538.9 - 548.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	Early Cret.				5G 2/1	PERIDOTITE General Description: This core consist of 11 pieces of PERIDOTITE and mylonitized PERIDOTITE. Sediments are absent in the core.

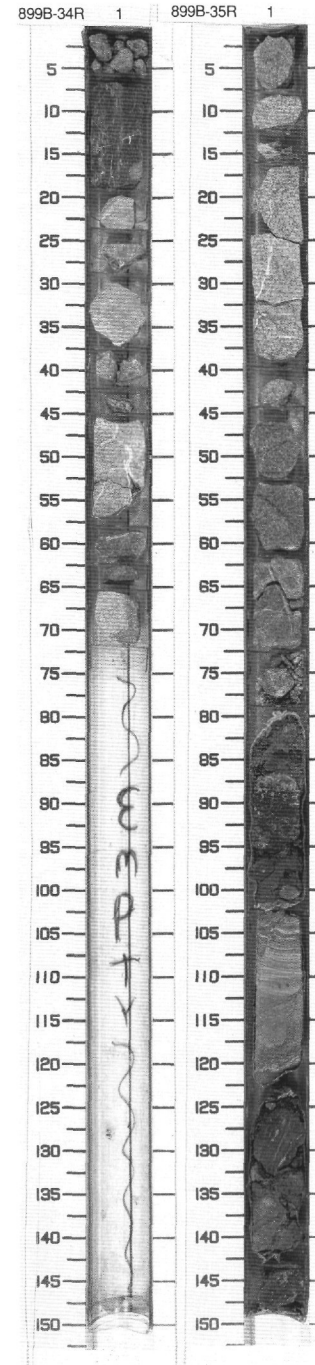
SITE 899 HOLE B CORE 35R

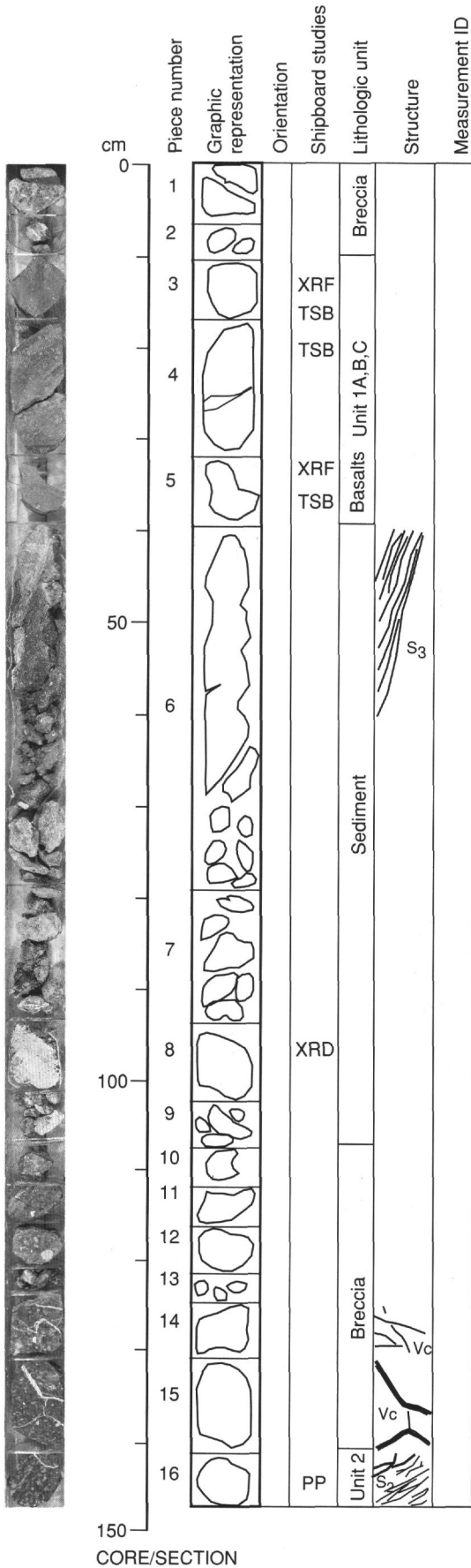
CORED 548.4 - 557.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	Early Cret.			S S SS	5G 2/1 To N2	PERIDOTITE Major Lithology: PERIDOTITE forms about 70% of the core. Minor Lithologies: Medium gray (N6) SANDSTONE to SILTSTONE and dark gray (N3) CLAYSTONE each form 14% of the core and BASALT about 1% General Description: The PERIDOTITE occurs mostly as nine fragments in the core. Claystone occurs between 95 and 100 cm, as does a fragment of BASALT. Parallel-laminated and inverse-graded fine SANDSTONE to SILTSTONE occurs at 102-122 cm. At 122 to 144 cm sheared grayish black (N2) CLAYSTONE is present.

899B 36W WASH CORE

899B 37R HARD ROCK





UNIT 1A: APHYRIC BASALT

Piece 3 only

CONTACTS: None observed.
PHENOCRYSTS: None.
GROUNDMASS: Fine-grained aphyric groundmass.
VESICLES: <1%; <1 mm; spherical; irregular; vesicles are completely filled with white secondary mineral (calcite?)
MIAOLES: None.
COLOR: Grayish black (N2).
STRUCTURE: Not deformed, no flow structure.
ALTERATION: Not visible.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: Isolated fragment. May be from a lava or a clast from the overlying breccia unit.

UNIT 1B: PORPHYRITIC BASALT

Piece 4 only

CONTACTS: None.
PHENOCRYSTS: Randomly distributed in the rock.
 Plagioclase - 20%; 3-8 mm; laths, glomoporphyritic aggregates.
 Olivine - 3%; <1; sparse equant grains, altered.
GROUNDMASS: Fine-grained, approximately 50% plagioclase, 50% mafic phases.
VESICLES: <1%; about 0.5 mm; spherical; irregular; filled with white secondary minerals.
MIAOLES: None.
COLOR: Grayish black (N2) with moderate red (5R 4/6) oxidized zones.
STRUCTURE: Not deformed, no flow structure.
ALTERATION: Clearly delineated portions of the rock are oxidized.
VEINS/FRACTURES: <1%; 1 mm; irregular; irregular vein crosses piece.
ADDITIONAL COMMENTS: Isolated fragment. May be from a lava or dike, or may be a clast from the overlying breccia.

UNIT 1C: APHYRIC BASALT

Piece 5 only

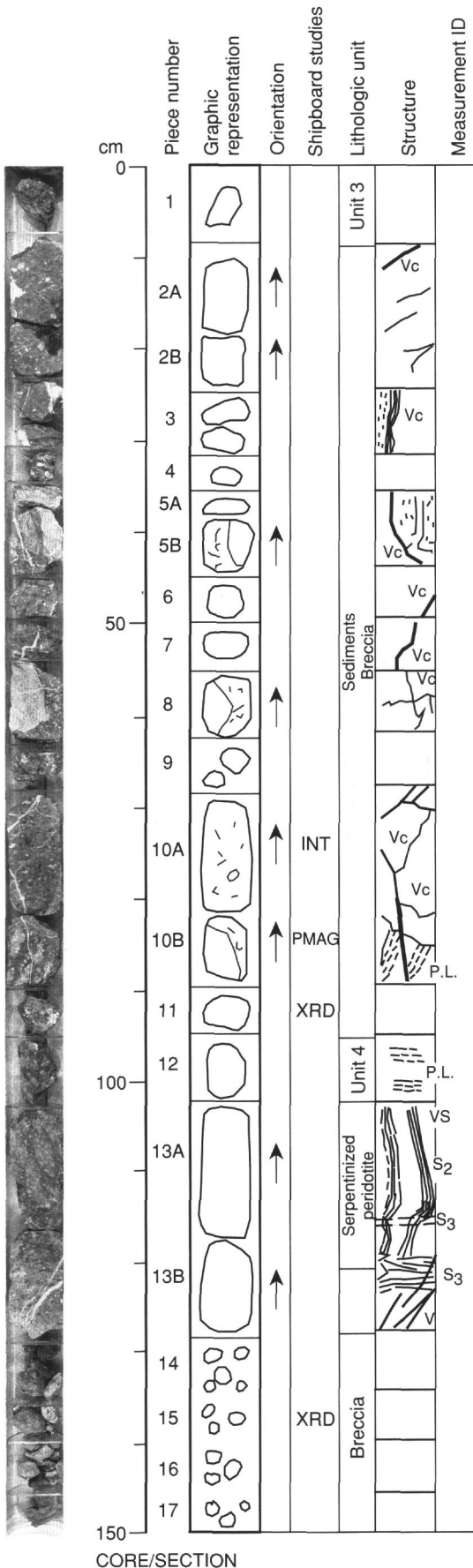
CONTACTS: None
PHENOCRYSTS: Very rare. A few individual crystals of plagioclase.
GROUNDMASS: Fine-grained, plagioclase and pyroxene?
VESICLES: None.
COLOR: Dark gray (N3).
STRUCTURE: Not deformed, no flow structure
ALTERATION: Not apparent.
VEINS/FRACTURES: <1%; <1 mm; irregular; calcite-filled?
ADDITIONAL COMMENTS: Isolated fragment. May be from a lava or a clast from the overlying breccia unit.

UNIT 2: SERPENTINIZED PERIDOTITE

Piece 16 only

COLOR: Mottled, mainly grayish black (N1) with greenish gray (5GY 6/1).
LAYERING: None.
DEFORMATION: Planar fabric overprinted by serpentine and calcite veins.
PRIMARY MINERALOGY: All primary phases are serpentinized.
 Pyroxene - Mode: 20%-25%.
 Crystal size: 2-8 mm.
 Crystal shape: Anhedral.
 Crystal orientation: None.
 Percent replacement: 100%.
 Olivine - Mode: 75%-80%.
 Crystal size: ?
 Crystal shape: ?
 Crystal orientation: None?
 Percent replacement: 100%.
SECONDARY MINERALOGY:
 Total percent: 100%.
 Texture: Mesh serpentine.
 Vein material: Thin (1-2 mm) vein of calcite.
ADDITIONAL COMMENTS: Isolated fragment. Probably a clast from the overlying breccia unit.
 Breccia continues in the next section (149-899B-27R-2).

149-899B-28R-1



UNIT 3: SERPENTINIZED PERIDOTITE

Pieces 1-11

COLOR: Mottled, mainly grayish black (N1) with greenish gray (5GY 6/1).

LAYERING: None.

DEFORMATION: Weak planar fabric overprinted by a few veins.

PRIMARY MINERALOGY: All primary minerals altered to serpentine.

- Olivine - Mode: 70%.
- Crystal size: ?
- Crystal shape: ?
- Crystal orientation: ?
- Percent replacement: 100%.
- Pyroxene - Mode: 25%-30%
- Crystal size: 2-5 mm.
- Crystal shape: Anhedral.

SECONDARY MINERALOGY:

- Total percent: 100%.
- Texture: Mesh serpentinite.
- Vein material: None.

ADDITIONAL COMMENTS: Isolated fragment; probably a clast from the overlying breccia unit. Pieces 2 to 11 are demonstrably fragmental and constitute a continuation of the breccia unit in which the matrix and clasts are veined by calcite.

UNIT 4: SERPENTINIZED PERIDOTITE

Pieces 12-13B

COLOR: Mottled. Grayish black (N1) with greenish gray (5GY 6/1).

LAYERING: None. Banding marked by pyroxene-rich and -poor zones.

DEFORMATION: The foliation of the peridotite clast is divided along a narrow shear zone (Piece 13A). The breccia shows a marked shear fabric along the boundary of the peridotite fragment (Piece 13B).

PRIMARY MINERALOGY: All primary minerals are altered to serpentine.

- Olivine - Mode: 70%.
- Crystal size: ?
- Crystal shape: ?
- Crystal orientation: ?
- Percent replacement: 100%.
- Pyroxene - Mode: 25%-30%
- Crystal size: 3-8 mm.
- Crystal shape: Anhedral.

SECONDARY MINERALOGY:

- Total percent: 100%.
- Texture: Mesh serpentinite.
- Vein material: Dark serpentine in thin (<1 mm) veins parallel to the foliation.

ADDITIONAL COMMENTS: This piece is almost certainly a fragment of a clast from the breccia unit as it is very similar to the adjacent piece (13) in this section. Piece 13 is a portion of the breccia unit containing a large serpentinized peridotite fragment.

CORE/SECTION

UNIT 5: APHYRIC BASALT

Piece 1 only

CONTACTS: None observed.

PHENOCRYSTS: None.

GROUNDMASS: Fine-grained with laths of plagioclase and altered mafic phases (pyroxene and perhaps olivine.)

VESICLES: None.

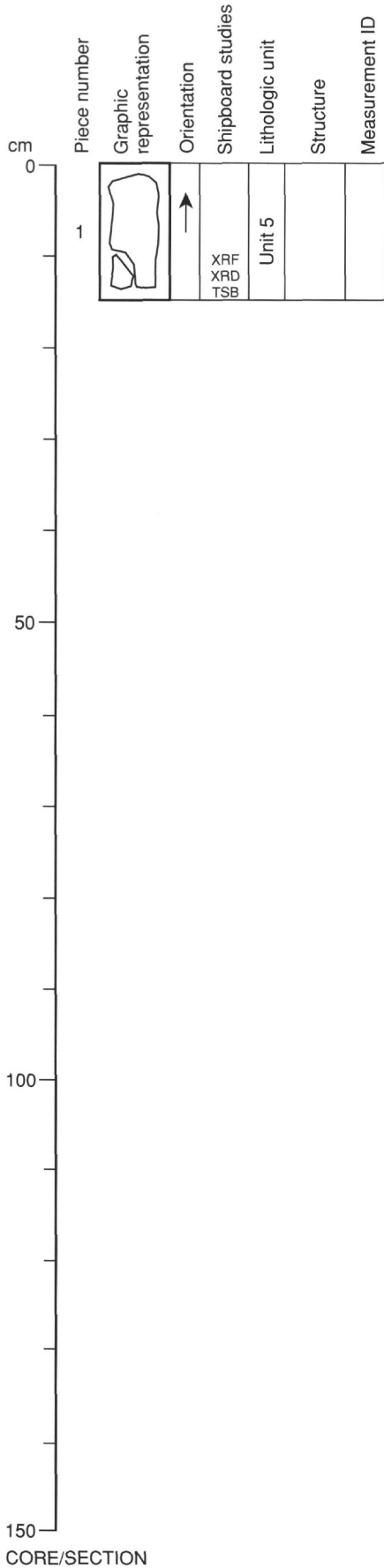
COLOR: Dark gray (N3).

STRUCTURE: Not deformed, no flow structure.

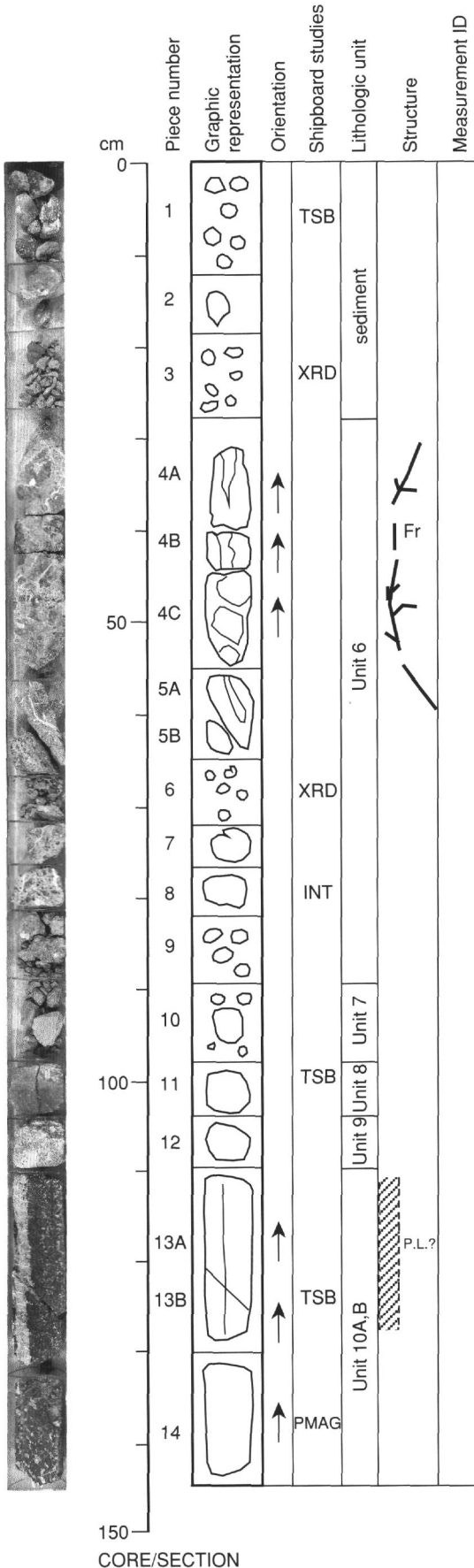
ALTERATION: Groundmass is altered to an unknown extent.

VEINS/FRACTURES: None.

ADDITIONAL COMMENTS: Isolated fragment. Piece may be from a lava or a clast from the breccia unit.



149-899B-29R-1



UNIT 6: SEDIMENT/SERPENTINITE COMPLEX

Pieces 4A–9

CONTACTS: These pieces contain a complex intermixing of serpentinite and sediment (See comments below).

ADDITIONAL COMMENTS: Pieces 4 and 5 contain a complex intermixing of sediment and serpentinite. This is not the result of drilling disturbance and indicates clearly that the two contrasting lithologies were intermixed during breccia formation. Carbonate veins in Piece 4 clearly cut both the serpentinite and the mud and post-date the intermixing. Pieces 6 thru 9 are fragments of green serpentinite.

UNIT 7: APHYRIC BASALT

Piece 10 only

CONTACTS: None.

PHENOCRYSTS: None.

GROUNDMASS: Felted plagioclase with interstitial mafic phases.

VESICLES: None.

COLOR: Medium gray (N5).

STRUCTURE: Not deformed. Weak flow orientation of plagioclase groundmass laths.

ALTERATION: Probably extensively altered to epidote.

VEINS/FRACTURES: No fractures.

ADDITIONAL COMMENTS: Subunit 6B (Piece 10 only) is an isolated basalt fragment below a sediment/serpentinite Unit (6A). The fragment may be part of a larger flow/dike or a fragment in a breccia. Piece 11 is also a basaltic fragment, but clearly of a different composition. The two pieces (10 and 11) may be cobbles from within a conglomeratic sediment?

UNIT 8: AMYGDALOIDAL PORPHYRITIC BASALT

Piece 11 only

CONTACTS: None.

PHENOCRYSTS:

Plagioclase - 5%; 0.5–2 mm; equant altered and zoned laths.

Olivine - 2%; 0.5 mm; altered to brown smectites?

GROUNDMASS: Very fine-grained and altered but microlites of (?) plagioclase are clearly visible.

VESICLES: 1%; 1–2 mm; spheroidal; random; vesicles are filled with smectites and clays.

COLOR: Medium dark gray (N4).

STRUCTURE: No flow structure. Not deformed.

ALTERATION: Altered with complex secondary mineral assemblage in both the groundmass and amygdales.

VEINS/FRACTURES: 1%; 1–2 mm fractures; no preferred orientation.

ADDITIONAL COMMENTS: Differs significantly from Piece 10.? Cobble from conglomerate. Piece might be derived from a local flow or from a breccia unit (unlikely?).

UNIT 9: DIABASE

Piece 12

CONTACTS: None.

PHENOCRYSTS: None.

GROUNDMASS: Plagioclase (65%) and pyroxene (30%) plus additional phase (altered olivine or second pyroxene).

VESICLES: None.

COLOR: Moderate red (5R 4/6) from alteration.

STRUCTURE: Not deformed, no flow structure.

ALTERATION: The plagioclase is altered and stained red (hematite?). Pyroxenes (some ophitic?) are also altered.

VEINS/FRACTURES: Small veins are present, 1 mm thick (calcite?).

ADDITIONAL COMMENTS: Rock is intensely stained and oxidized.

149-899B-29R-1

UNIT 10A: SERPENTINIZED PERIDOTITE

Pieces 13A and 13B

COLOR: Black (N3) with serpentinized pyroxene zone (greenish gray 5GY 6/1).

LAYERING: Subvertical banding marked by pyroxene-rich zone.

DEFORMATION: None.

PRIMARY MINERALOGY: Pyroxene is unevenly distributed in with a zone of pyroxenite running down the length of the piece, bordered by a zone of relatively pyroxene-free peridotite and more normal pyroxene-bearing peridotite.

Olivine - Mode: 75%.

Pyroxene - Mode: 20%–25%.

Spinel - Mode: 1%.

Plagioclase - Mode: 1%.

SECONDARY MINERALOGY:

Total percent: 100%.

Texture: Mesh serpentinite.

Vein material: Numerous serpentine rich veins in pyroxene-rich areas.

UNIT 10B: SERPENTINIZED PERIDOTITE

Piece 14 only

COLOR: Black (N3) with pale pyroxene grains.

LAYERING: Clearly visible.

DEFORMATION: None.

PRIMARY MINERALOGY:

Olivine - Mode: 75%.

Pyroxene - Mode: 2%.

SECONDARY MINERALOGY:

Total percent: 100%.

Texture: Mesh serpentinite.

Vein material: Thin (1 mm and less) crosscut the piece.

ADDITIONAL COMMENTS: Relatively uniform pyroxene-bearing serpentinite.