

149-897C-70R-3

UNIT 9: SERPENTINIZED PERIDOTITE

SUBUNIT 9A

Pieces 1-4

ADDITIONAL COMMENTS: This unit continues from Section 149-897C-70R-2. Refer to previous description. It should be noted that Pieces 5A, 5B, and 5C are dunites, i.e., made only of spinel (1% to 2%) and olivine (98%), completely altered to serpentine and magnetite.

UNIT 9: SERPENTINIZED DUNITE

SUBUNIT 9B

Pieces 5-6

COLOR: Dark greenish gray (5GY 4/1).

LAYERING: None visible.

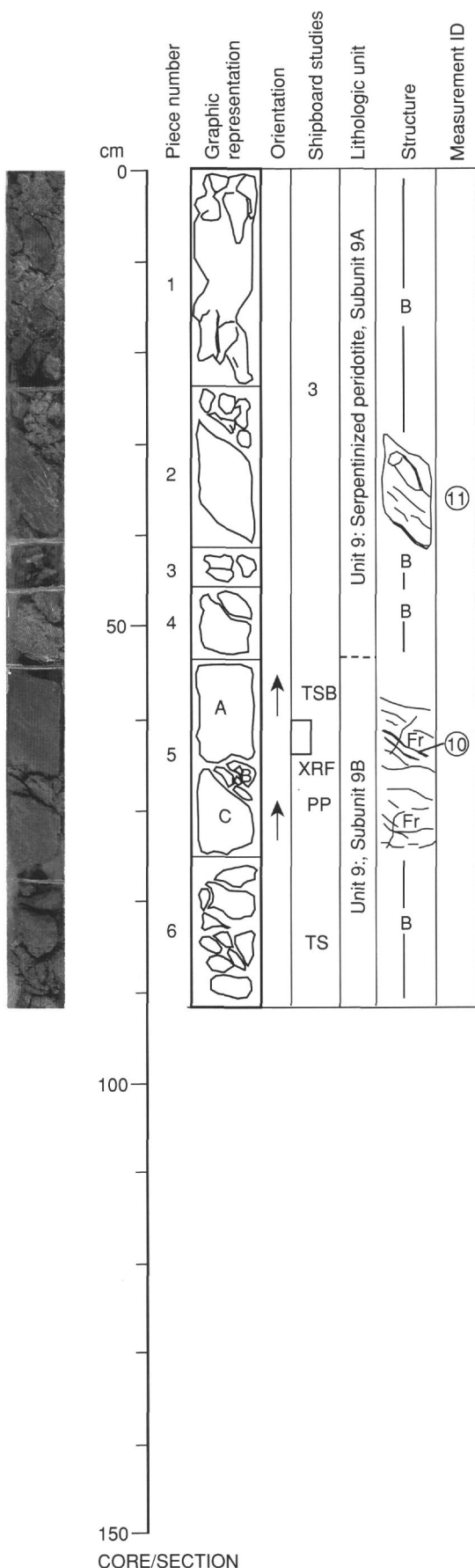
DEFORMATION: Late penetrative deformation is expressed as discontinuous veins filled with serpentine.

PRIMARY MINERALOGY:

- Olivine - Mode: 90%-98%.
Crystal size: <5 mm(?).
Crystal shape: Anhedral.
Crystal orientation: None(?).
Percent replacement: 100%.
Comments: Altered to serpentine.
- Spinel - Mode: 1%-2%.
Crystal size: 1-2 mm.
Crystal shape: Anhedral.

SECONDARY MINERALOGY:

- Total percent: >95%.
- Texture: Mesh serpentinite.



UNIT 10: SERPENTINIZED PERIDOTITE

Pieces 1–8

COLOR: Dark gray (N3) to dark greenish gray (5GY 4/1).

LAYERING: No obvious layering.

DEFORMATION: No obvious ductile deformation. Late brittle deformation which generated microfractures, particularly in Pieces 5, 6, and 7. Fractures filled with serpentine.

PRIMARY MINERALOGY: No obvious plagioclase rimming spinel, but plagioclase may be obscured by pervasive serpentinization. Both clinopyroxene and orthopyroxene present. Clinopyroxene shows clear exsolution.

Olivine - Mode: 70%–80%.

Crystal size: 1–5 mm.

Crystal shape: ?.

Crystal orientation: ?.

Percent replacement: 100%.

Comments: Entirely replaced by serpentine.

Pyroxene - Mode: 20%–25%.

Crystal size: 5–20 mm.

Crystal shape: Poikilitic.

Crystal orientation: None.

Percent replacement: >95%.

Spinel - Mode: 1%.

Crystal size: 1–3 mm.

Crystal shape: Subhedral to anhedral.

Crystal orientation: None.

Percent replacement: ?

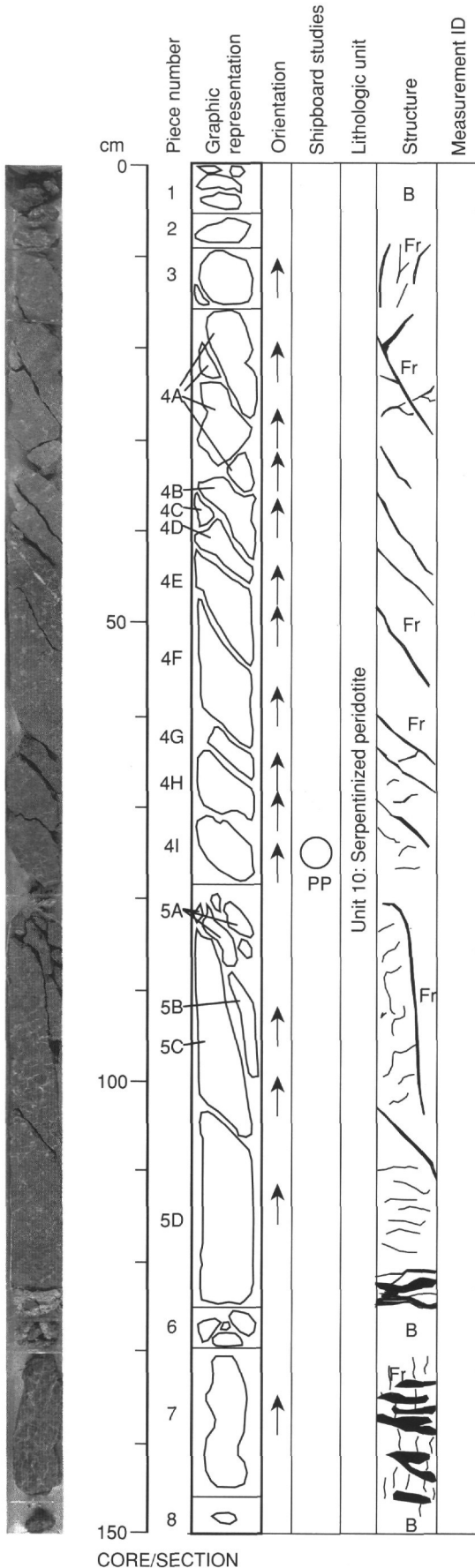
SECONDARY MINERALOGY: Serpentine and magnetite derived from olivine, pyroxenes, and spinel.

Total percent: >95%.

Texture: Mesh serpentinite.

Vein material: Thin randomly orientated veins of serpentinite are pervasive.

ADDITIONAL COMMENTS: Unit continues into Section 149-897C-71R-2 and from there to the base of Hole 897C.



CORE/SECTION

149-897C-71R-2

UNIT 10: SERPENTINIZED PERIDOTITE

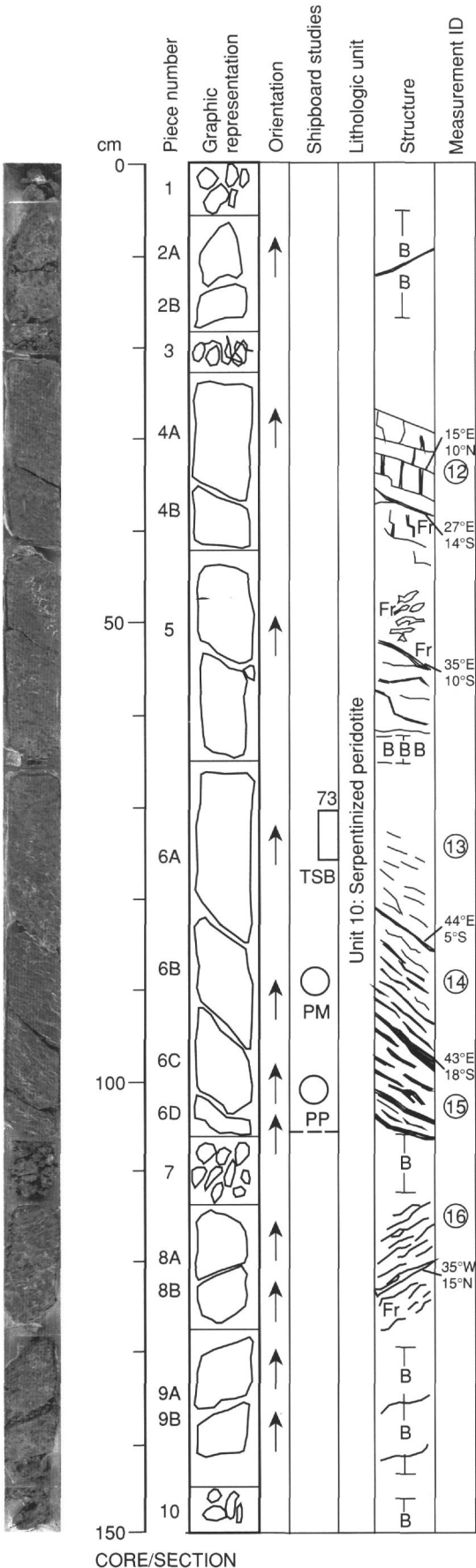
Pieces 1-10

COLOR: Dark gray (N3) to dark greenish gray (5GY 4/1).

LAYERING: No obvious primary layering.

DEFORMATION: No obvious ductile deformation. Late brittle deformation generates fracture cleavage in Pieces 4A and 4B, and more intense fabric in Pieces 6A to 6D, 8A, and 8B, where a secondary schistosity develops.

ADDITIONAL COMMENTS: Unit continues from Section 149-897C-71R-1. Refer to description of that section for details of primary and secondary mineralogy. Unit continues into Section 149-897C-71R-3 and from there to the base of Hole 897C. With this section there is a clear gradient of brittle deformation from slightly fractured (Piece 4B) to schistose (Pieces 8A and 8B) to completely disrupted (breccia; Pieces 2, 9A, and 9B).



CORE/SECTION

UNIT 10: SERPENTINIZED PERIDOTITE

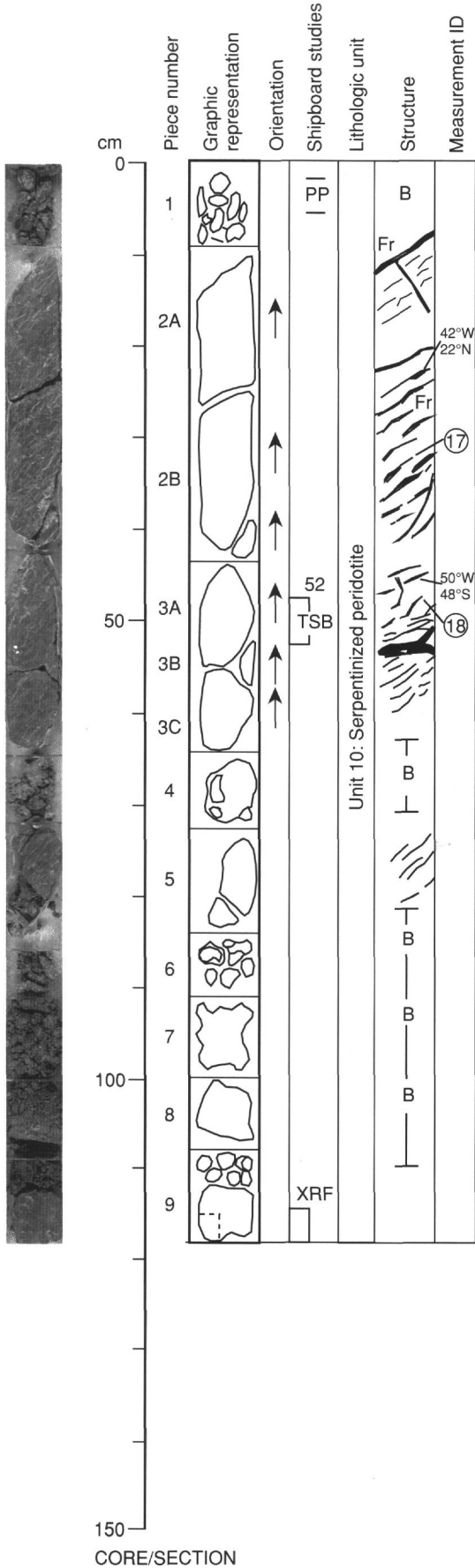
Pieces 1-9

COLOR: Dark gray (N3) to dark greenish gray (5GY 4/1).

LAYERING: No obvious primary layering.

DEFORMATION: No obvious ductile deformation, but late brittle deformation generates well-developed fracture cleavage or slight schistosity in Pieces 2A, 2B, 3A, 3B, and 5. Piece 9 shows no cleavage or schistosity.

ADDITIONAL COMMENTS: Unit continues from Section 149-897C-71R-1 through Section 149-897C-71R-2. Refer to description of the uppermost unit for details of primary and secondary mineralogy.

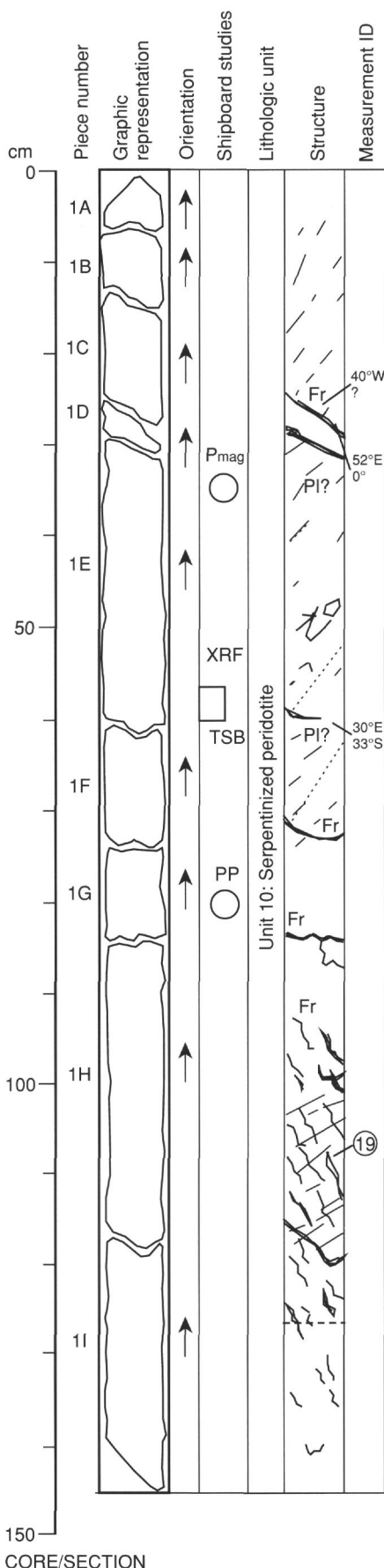


CORE/SECTION

149-897C-72R-1

UNIT 10: SERPENTINIZED PERIDOTITE

Pieces 1A-1I



COLOR: Dark greenish gray (5GY 4/1).

LAYERING: Faint primary layering marked by slightly elongated pyroxene crystals.

DEFORMATION: No obvious ductile deformation. Pieces 1H and 1I have late brittle deformation that generates weak fracture cleavage filled only with serpentine. Discontinuous veins are filled with pale serpentine.

PRIMARY MINERALOGY: No obvious plagioclase or altered plagioclase, may be obscured by serpentinization.

Olivine - Mode: 80%–85%.

Crystal size: 2 mm.

Crystal shape: ?.

Crystal orientation: ?.

Percent replacement: 100%.

Pyroxene - Mode: 15%–20%.

Crystal size: 2–10 mm.

Crystal shape: Subhedral to poikilitic.

Crystal orientation: Faint in Pieces 1A and 1H.

Percent replacement: 100%.

Spinel - Mode: 1%.

Crystal size: 0.5 mm.

Crystal shape: Subhedral to anhedral.

Crystal orientation: None.

Percent replacement: None.

SECONDARY MINERALOGY:

Total percent: 99%.

Texture: Mesh serpentine.

Vein material: Oriented veins in Pieces 1H and 1I, filled with serpentine and magnetite.

Some clay in Piece 1D.

ADDITIONAL COMMENTS: This unit continues into Section 149-897C-72R-2.

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CORE/SECTION

UNIT 10: SERPENTINIZED PERIDOTITE

Pieces 1–8

COLOR: Greenish olive gray (5GY 3/2) to dark greenish gray (5GY 4/1).

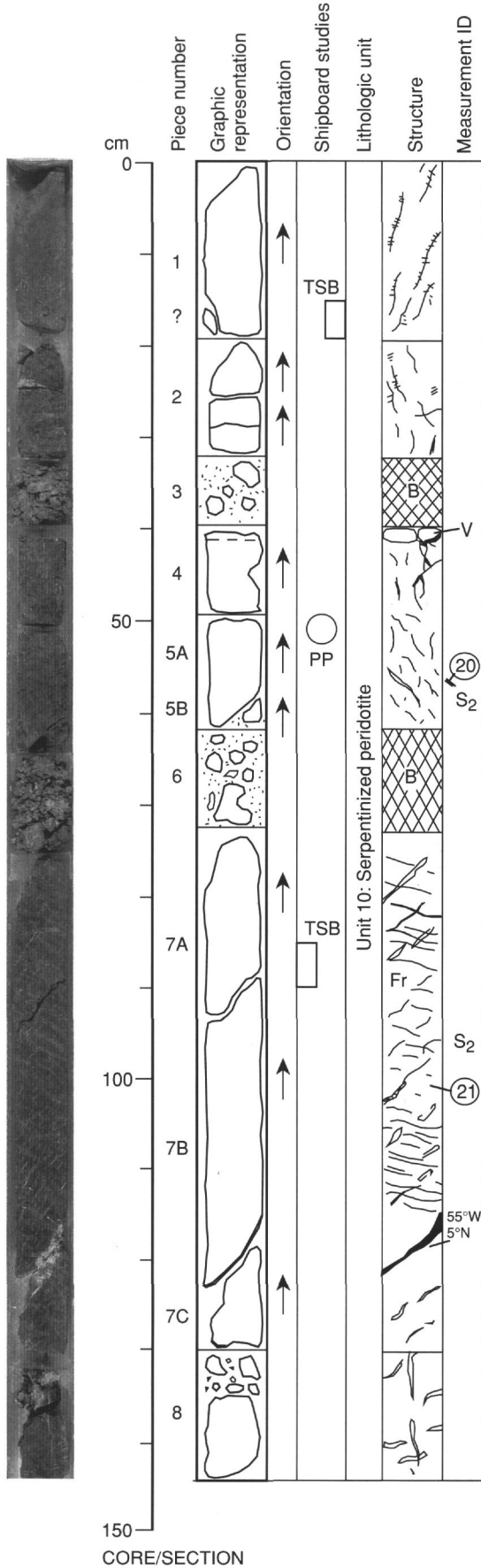
LAYERING: No obvious layering.

DEFORMATION: No obvious ductile deformation. A penetrative deformation, marked by discontinuous veins filled with pale serpentine, increases in intensity from Piece 2 to Piece 7C. An associated set of nearly orthogonal veins are filled with white serpentine. The late brittle deformation particularly effects pyroxene-rich bands in Pieces 1 and 2 and these are typically altered to serpentine.

SECONDARY MINERALOGY:

Vein material: Oriented serpentine-filled veins occur throughout but are best developed in Pieces 7A and 7B.

ADDITIONAL COMMENTS: Unit continues from Section 149-897C-72R-1. Refer to description of the upper part of this unit for details of primary and secondary mineralogy. Unit continues into Section 149-897C-72R-3.



149-897C-72R-3

UNIT 10: SERPENTINIZED PERIDOTITE

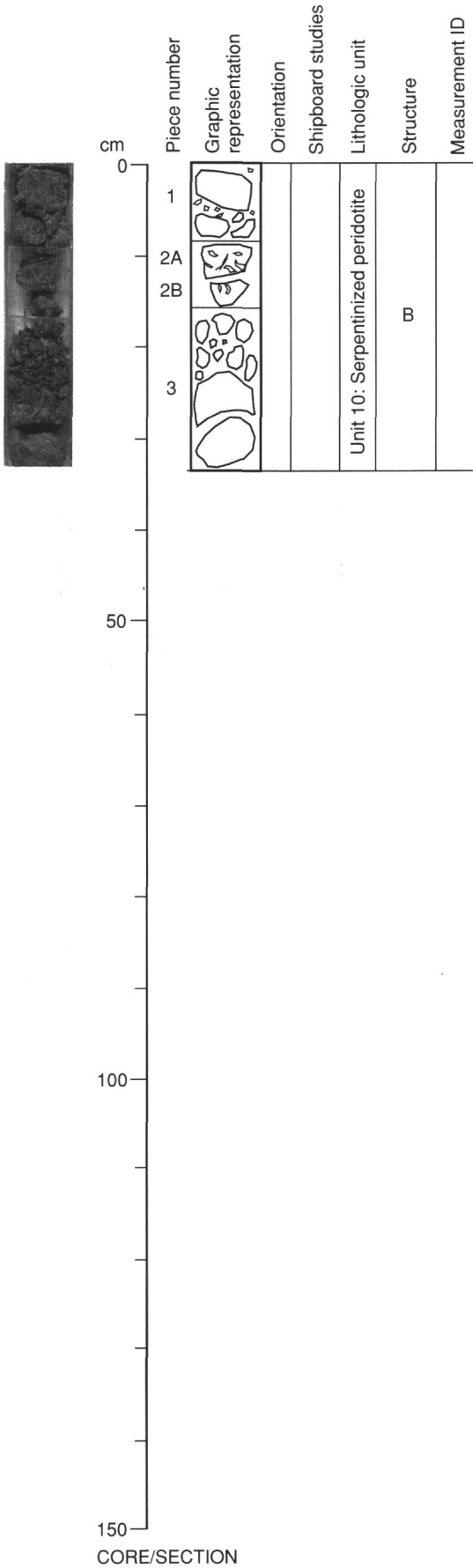
Pieces 1-3

COLOR: Greenish olive gray (5GY 3/2).

LAYERING: None observed.

DEFORMATION: Serpentinite veins due to late brittle deformation in Pieces 2A and 2B.

ADDITIONAL COMMENTS: Pieces 1 and 3 are drilling breccia. Unit continues from Section 149-897C-72R-2. Refer to the description of the upper part of this unit for details of the primary and secondary mineralogy.



149-897C-73R-1

UNIT 10: SERPENTINIZED PERIDOTITE

Pieces 1-10

COLOR: Dark greenish gray (5GY 4/1).

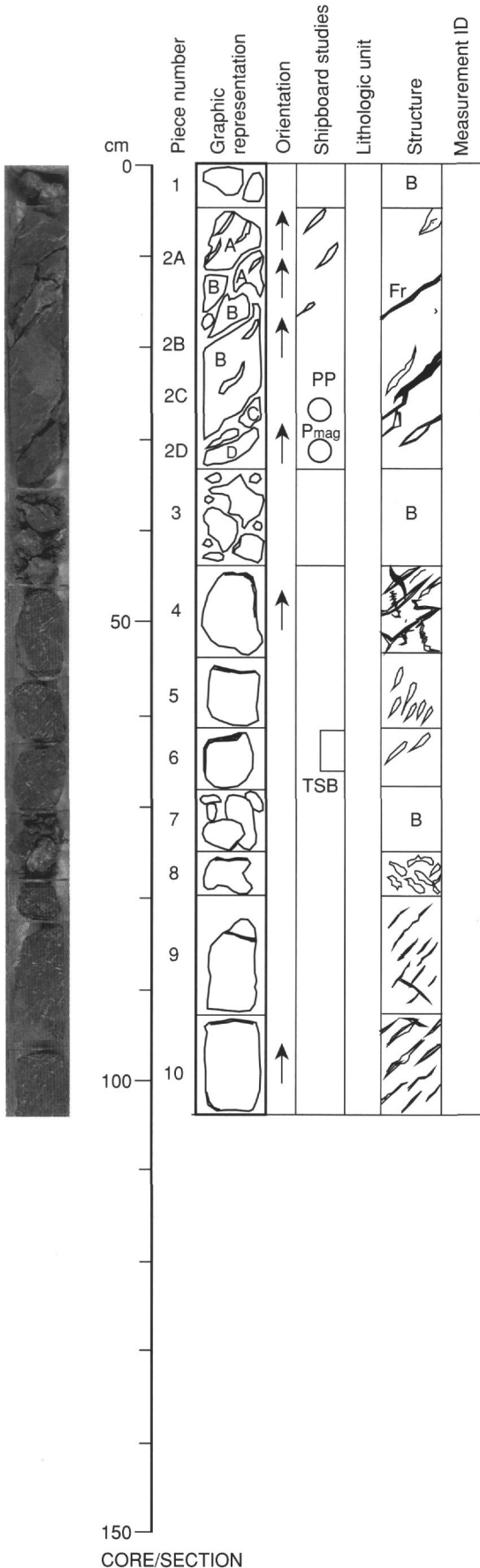
LAYERING: No obvious primary layering.

DEFORMATION: No obvious ductile deformation. Late brittle deformation filled with serpentine, two near orthogonal directions in Pieces 4-10.

SECONDARY MINERALOGY:

Vein material: Serpentine veins in one direction (Piece 2) or two orthogonal directions (Pieces 4-10).

ADDITIONAL COMMENTS: Unit continues from Section 149-897C-72R-3. Refer to the description of the upper part of this unit for details of the primary and secondary mineralogy.



149-897C-73R-2

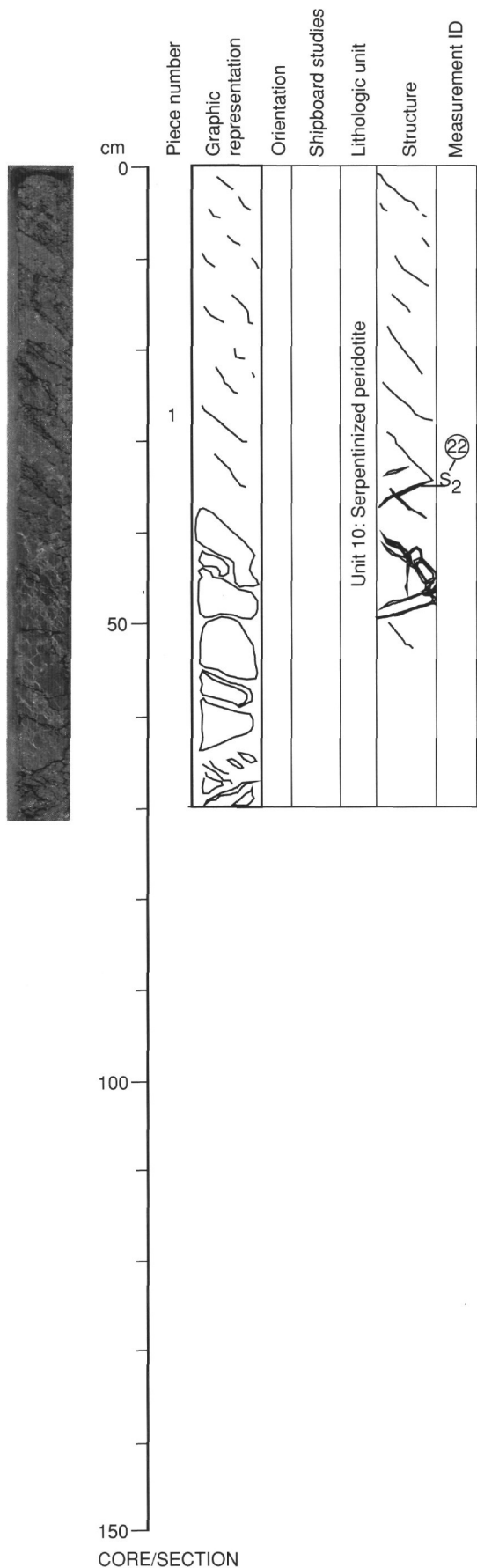
UNIT 10: SERPENTINIZED PERIDOTITE

Piece 1

COLOR: Dark greenish gray (5GY 4/1).
LAYERING: No obvious primary layering.

DEFORMATION: No obvious primary ductile deformation. Late deformation is expressed both by schistosity and by fractures filled with white serpentine. This schistosity is well-developed between 70 and 72 cm, where the rock appears to be a cold mylonitic serpentinite breccia.

ADDITIONAL COMMENTS: Unit continued from Section 149-897C-73R-1. Refer to description of primary and secondary mineralogy in upper part of this unit. Unit continues into Section 149-897C-73R-3. This section was brecciated during drilling.



UNIT 10: SERPENTINIZED PERIDOTITE

Piece 1

COLOR: Dark greenish gray (5GY 4/1).

LAYERING: No obvious primary layering.

DEFORMATION: No obvious ductile deformation. Late brittle deformation is marked by fractures filled with serpentine. Locally small fractures filled with white serpentine appear to radiate from pyroxene crystals.

ADDITIONAL COMMENTS: Unit continues from Section 149-897C-73R-1 through -2. Refer to the description of the upper unit for information on the primary and secondary mineralogy.

