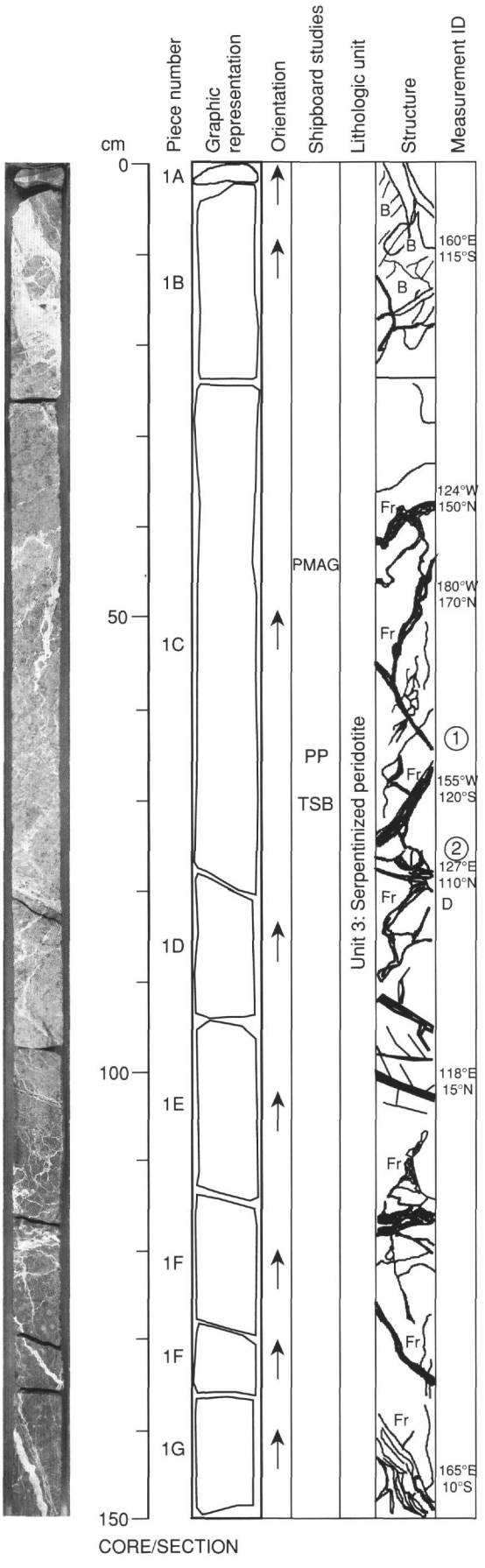
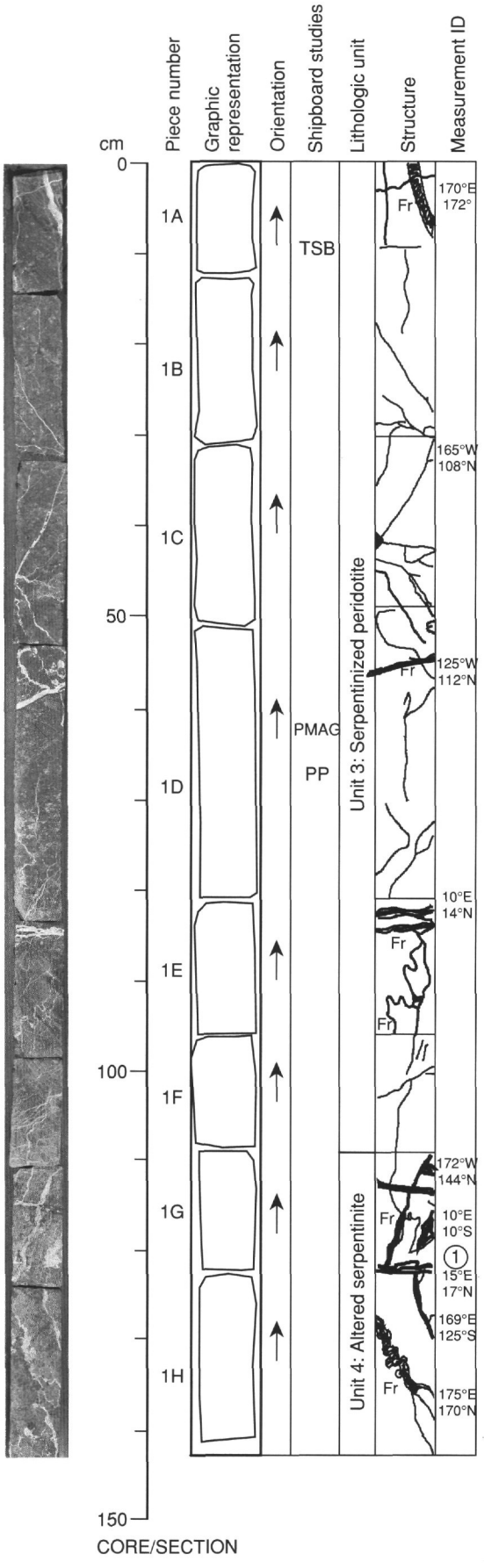
149-897D-16R-3



UNIT 3: SERPENTINIZED PERIDOTITE

Pieces 1A–1G

COLOR: Light brown (5YR 5/6) to dark yellowish brown (10YR 4/2).
LAYERING: *No obvious layering.*
DEFORMATION: No obvious ductile deformation. Late brittle deformation expressed by reticulate pattern of calcite-filled fractures that make 5% of the rock, locally up to 50% (brecciation).
PRIMARY MINERALOGY: Green pyroxene may be clinopyroxene and brown pyroxene may be orthopyroxene.
Olivine - Mode: 75%–80%.
Percent replacement: 100%.
Pyroxene - Mode: 20%–25%.
Percent replacement: ?.
Spinel - Mode: 1%.
Percent replacement: 0%.
SECONDARY MINERALOGY:
Total percent: 99%.
Texture: Mesh serpentinite.
Vein material: Calcite veins make over 50% of the rock in the interval 2–21 cm. Very thin pyrite veins occur in the dark greenish black section.
ADDITIONAL COMMENTS: This section is yellowish in color from 0–119 cm and this is considered as a minor limonite-altered zone within what is otherwise a mainly green serpentinite zone. A primary veinlet of pyroxenite(?), partly brecciated and replaced by calcite, occurs in Piece 1C (79–81 cm). Green serpentinized peridotite continues into Section 149-897D-16R-4.



149-897D-16R-4

UNIT 3: SERPENTINIZED PERIDOTITE

Pieces 1A to 1F

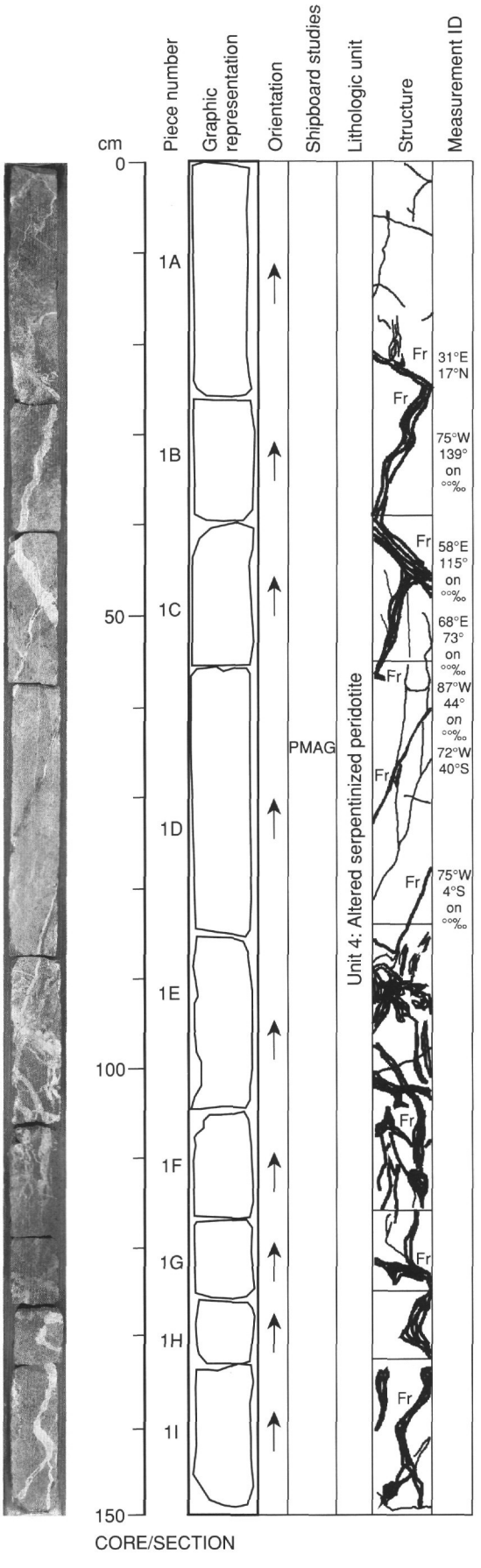
COLOR: Greenish black (5G 2/1) with dusky green (5G 3/2) pyroxene crystals.
LAYERING: No obvious primary layering.
DEFORMATION: No obvious ductile deformation. Late brittle deformation with the development of calcite/serpentine-filled fractures which make up about 5% of the rock.
PRIMARY MINERALOGY: In Piece 1D.
Olivine - Mode: 70%–75%.
Pyroxene - Mode: 20%–25%.
Spinel - Mode: 1%–2%.
SECONDARY MINERALOGY: The primary mineralogy is extensively destroyed by serpentinization and later calcite veining in the upper part of the section.
Total percent: 98%.
Texture: Mesh serpentinite.
ADDITIONAL COMMENTS: A 5 mm-thick primary veinlet of pyroxenite(?) extensively replaced by calcite and/or serpentinite in Piece 1G (123 cm). Unit 3 ends at the base of Piece 1F with a transition to a more limonite(?)-altered facies of the peridotite (Unit 4).

UNIT 4: ALTERED SERPENTINIZED PERIDOTITE

Pieces 1G and 1H

COLOR: Mottled, moderate yellowish brown (10YR 5/4), dusky yellowish brown (10YR 2/2) and dark yellowish orange (10YR 6/6).
LAYERING: No obvious layering.
DEFORMATION: No obvious ductile deformation. Late brittle deformation which developed calcite-filled and serpentine-filled fractures. These make up 5%–30% of the rock.
PRIMARY MINERALOGY: Some clinopyroxene may also be present (3%?) .
Olivine - Mode: 75%–80%.
Pyroxene - Mode: 20%–25%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY:
Total percent: 98%.
Texture: Mesh serpentinite.
ADDITIONAL COMMENTS: This is altered serpentinite at the top of the basement at this site. It continues in Section 149-897D-16R-5.

149-897D-16R-5

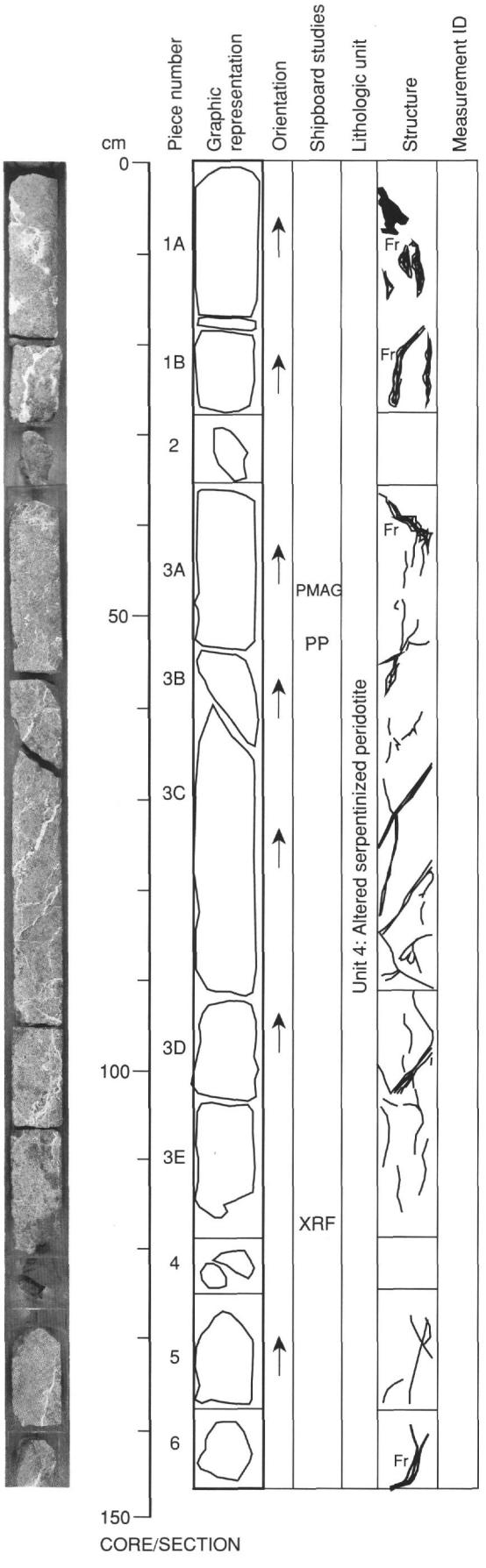


UNIT 4: ALTERED SERPENTINIZED PERIDOTITE

Pieces 1A to 1I

COLOR: Mottled, light brown (5YR 5/6), dark yellowish brown (10YR 4/2), dark yellowish orange (10YR 6/6) with green (5G 5/6) pyroxene crystals.
LAYERING: No obvious primary layering.
DEFORMATION: No obvious ductile deformation. Late brittle deformation with fractures filled with calcite and serpentinite (5%–30% of rock).
PRIMARY MINERALOGY: Rock may contain about 3% clinopyroxene.
Olivine - Mode: 75%–80%.
Pyroxene - Mode: 20%–25%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY: The primary mineralogy is largely destroyed by serpentinization. Brittle deformation is expressed as calcite and serpentinite veining. Pervasive alteration to limonite.
Total percent: 98%.
Texture: Mesh serpentinite
Vein material: Abundant calcite/serpentinite veins in Pieces 1B and 1C
ADDITIONAL COMMENTS: Unit continues from Section 149-897D-16R-4 and into Section 149-897D-16R-6. Unit represents part of the limonite(?)-altered serpentinite at the top of the basement.

149-897D-16R-6

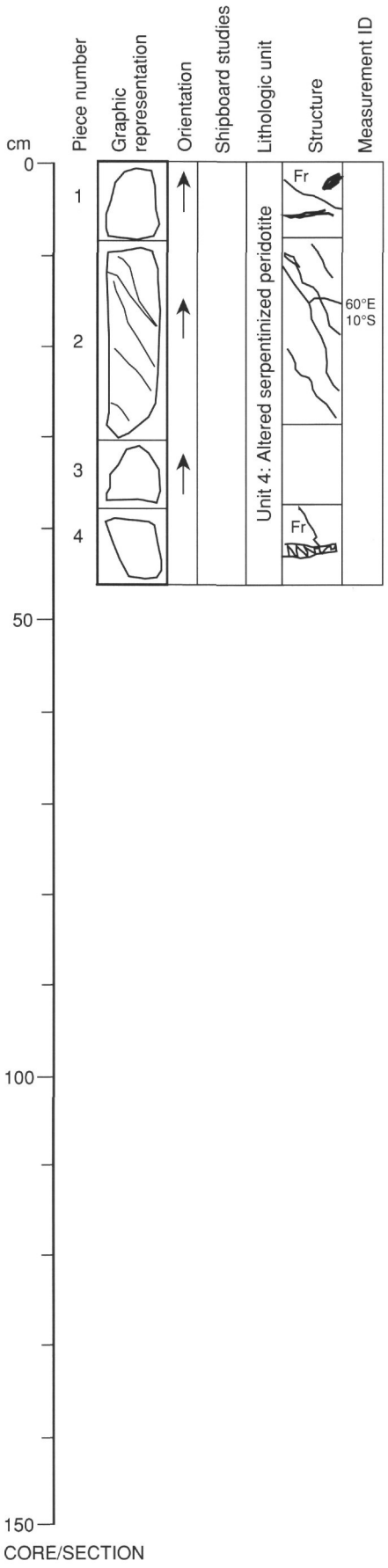


UNIT 4: ALTERED SERPENTINIZED PERIDOTITE

Pieces 1A to 6

COLOR: Mottled, light brown (5YR 5/6), dusky yellowish brown (10YR 2/2), dark yellowish orange (10YR 6/6).
LAYERING: No obvious primary layering.
DEFORMATION: No obvious ductile deformation. Obvious late brittle fracturing expressed as calcite, serpentine, and magnetite-filled fractures.
PRIMARY MINERALOGY: No plagioclase was observed, but it may be obscured by serpentinization.
Olivine - Mode: 75%–80%.
Pyroxene - Mode: 15%–20%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY: The primary mineralogy is largely destroyed by serpentinization and later calcite veining and limonite alteration.
Total percent: 98%.
Texture: Mesh serpentinite.
Vein material: Calcite/serpentinite veins make up 5%–10% of the rock.
ADDITIONAL COMMENTS: This unit continues from Section 149-897D-16R-4 and ends in Section 149-897D-16R-7. It appears to represent part of the limonite(?)-altered serpentinite on top of the basement at this site.

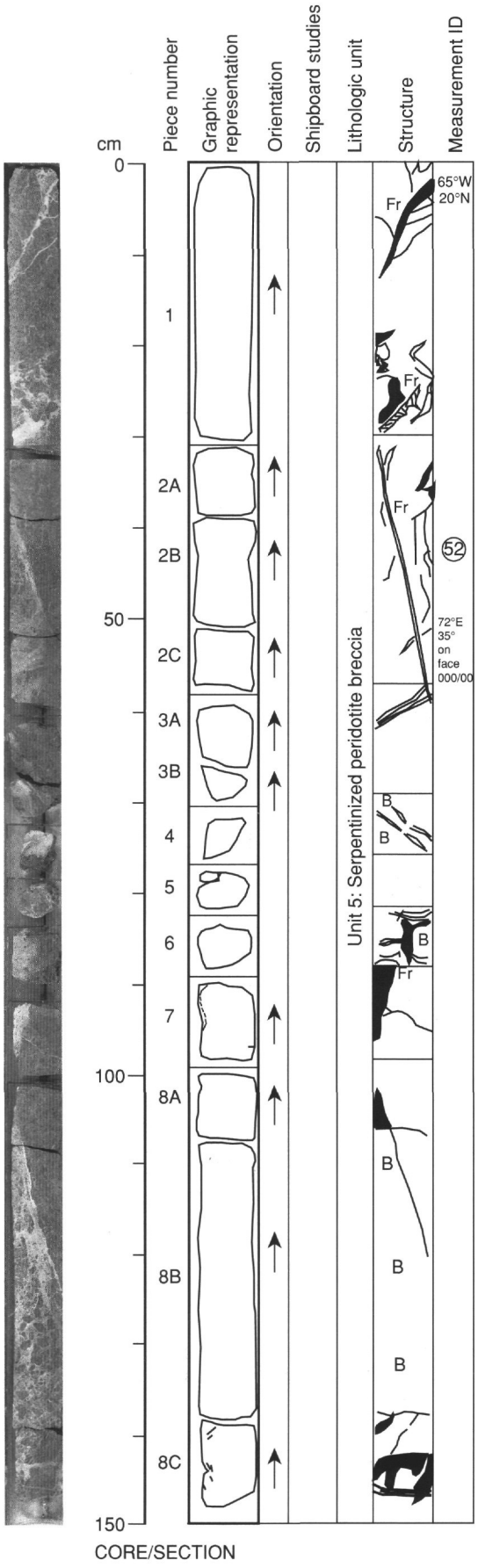
149-897D-16R-7



UNIT 4: ALTERED SERPENTINIZED PERIDOTITE

Pieces 1 to 4

COLOR: Mottled light brown (5YR 5/6), dark yellowish orange (10YR 6/6), dusky yellowish brown (10YR 2/2).
LAYERING: No obvious primary layering.
DEFORMATION: No obvious ductile deformation. Late brittle deformation which developed reticulate pattern of calcite and serpentine-filled fractures making up 2%–3% of the rock.
PRIMARY MINERALOGY: No plagioclase was observed, but it may be obscured by serpentinization.
Olivine - Mode: 75%–80%.
Pyroxene - Mode: 20%-25%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY: The primary mineralogy is largely destroyed by serpentinization and later calcite veining.
Total percent: 99%.
Texture: Mesh serpentinite.
Vein material: calcite/serpentinite.
ADDITIONAL COMMENTS: The boundary between Unit 4 and Unit 5 is drawn at the base of this section. The underlying unit is brecciated.



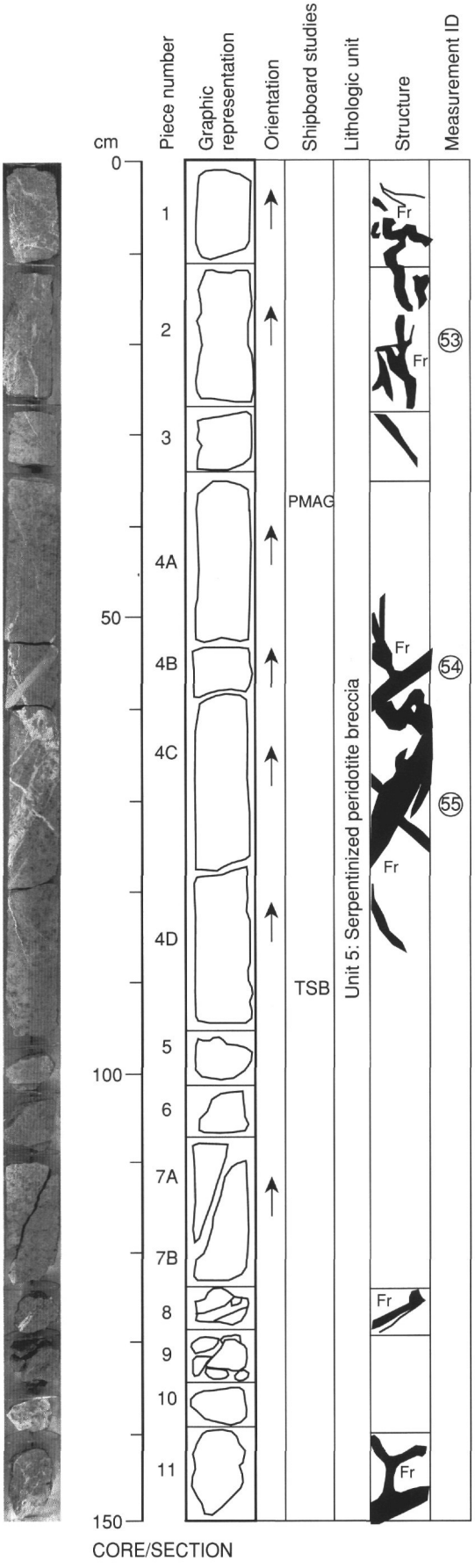
149-897D-17R-1

UNIT 5: SERPENTINIZED PERIDOTITE BRECCIA

Pieces 1 to 8C

COLOR: Mottled moderate brown (5YR 4/4), (5YR 3/4), and dark yellowish orange (10YR 6/6).
LAYERING: No obvious primary igneous layering in the blocks.
DEFORMATION: Late brittle deformation which developed irregular fractures filled with calcite and/or rare serpentine which make up about 5% of the rock.
PRIMARY MINERALOGY: Proportion of pyroxene is very variable and the mineral distribution is patchy. Clinopyroxene also present. No plagioclase observed but may be obscured by serpentinization.
Olivine - Mode: 25%–50%.
Pyroxene - Mode: 50%–75%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY: The primary mineralogy is largely destroyed by serpentinization and later calcite veining and limonite alteration.
Total percent: 98%.
Texture: Mesh serpentinite.
Vein material: Veining is so extensive in places that brecciation develops (Piece 1 (20–30 cm), Pieces 3B, 4, 5, 6, 8B (118–140 cm), and 8C.
ADDITIONAL COMMENTS: Unit continues starts in this section and continues into Section 149-897D-17R-2.

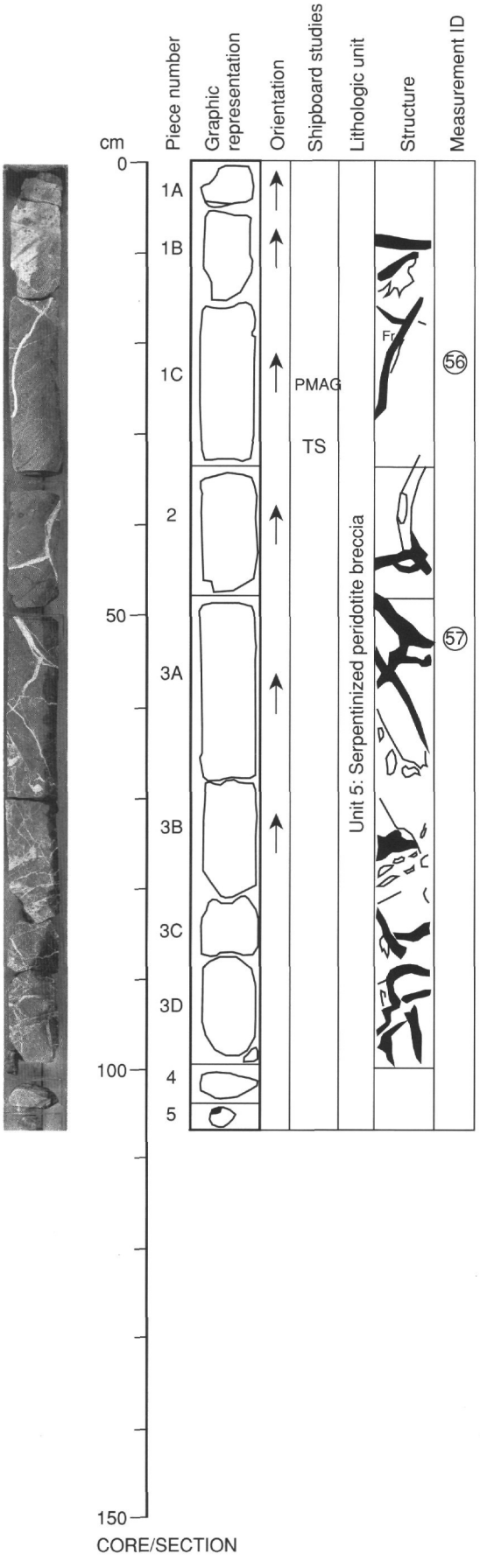
149-897D-17R-2



UNIT 5: SERPENTINIZED PERIDOTITE BRECCIA

Pieces 1 to 11

COLOR: Mottled moderate brown (5YR 4/4), (5YR 3/4), and dark yellowish orange (10YR 6/6).
LAYERING: No obvious primary igneous layering in the blocks.
DEFORMATION: Late brittle deformation which developed irregular fractures filled with calcite and/or serpentine which make up about 5% of the rock.
PRIMARY MINERALOGY: Proportion of pyroxene is very variable and the mineral distribution is patchy. Pieces 1 and 2 are pyroxene-rich(?). No plagioclase, but may be obscured by serpentinization.
Olivine - Mode: 20%–70%.
Pyroxene - Mode: 25%–75%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY: The primary mineralogy is largely destroyed by serpentinization and later calcite veining and limonite alteration.
Total percent: 98%.
Texture: Mesh serpentinite.
Vein material: Calcite/serpentine.
ADDITIONAL COMMENTS: Unit continues from Section 149-897D-17R-1 and continues into Section 149-897D-17R-3.

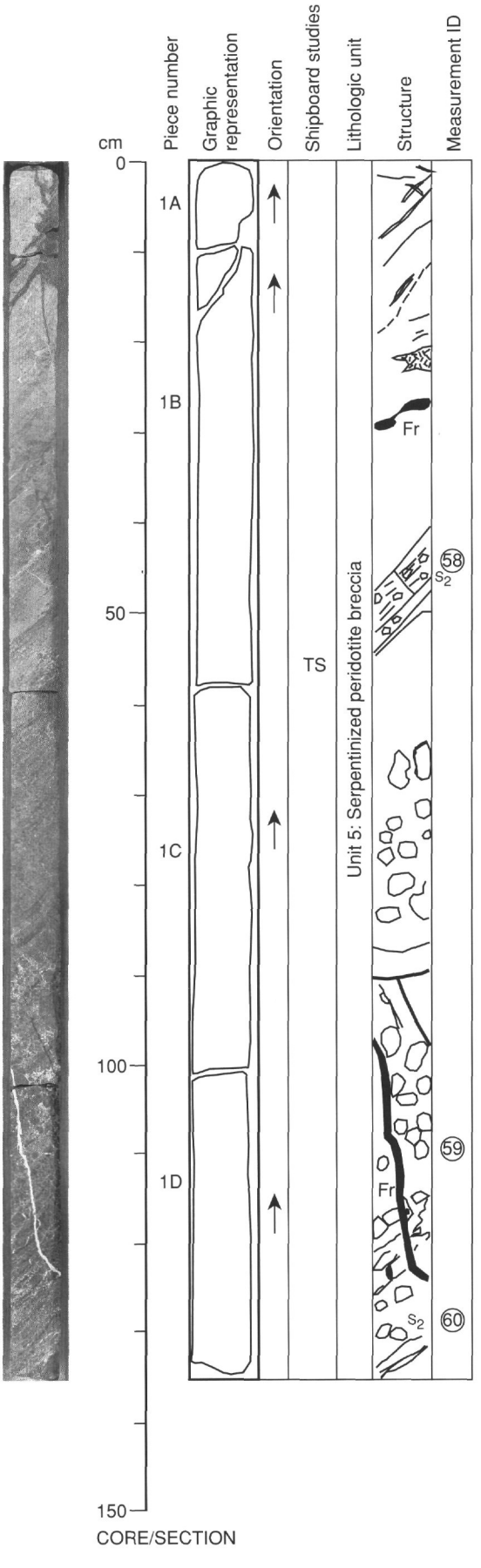


149-897D-17R-3

UNIT 5: SERPENTINIZED PERIDOTITE BRECCIA

Pieces 1A to 5

COLOR: Pieces 1A and1B are brown (5YR 5/6), Pieces 1C–4 are moderate brown (5YR 3/4).
LAYERING: No obvious primary igneous layering.
DEFORMATION: Late brittle deformation which developed irregular fractures filled with calcite and/or serpentine which make up about 5% of the rock.
PRIMARY MINERALOGY: Proportion of pyroxene is variable and the distribution is patchy. No plagioclase was observed, but it may be obscured by serpentinization.
Olivine - Mode: 70%–80%.
Pyroxene - Mode: 20%–30%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY: The primary mineralogy is largely destroyed by serpentinization and later calcite veining and limonite alteration.
Total percent: 98%.
Texture: Mesh serpentinite.
Vein material: Veining is so extensive in places that brecciation develops (Pieces 1A, 1B, part of 3A and 3B, 3C, 3D, 4, and 5.)
ADDITIONAL COMMENTS: Unit continues from Section 149-897D-17R-1 and continues into Section 149-897D-17R-4.

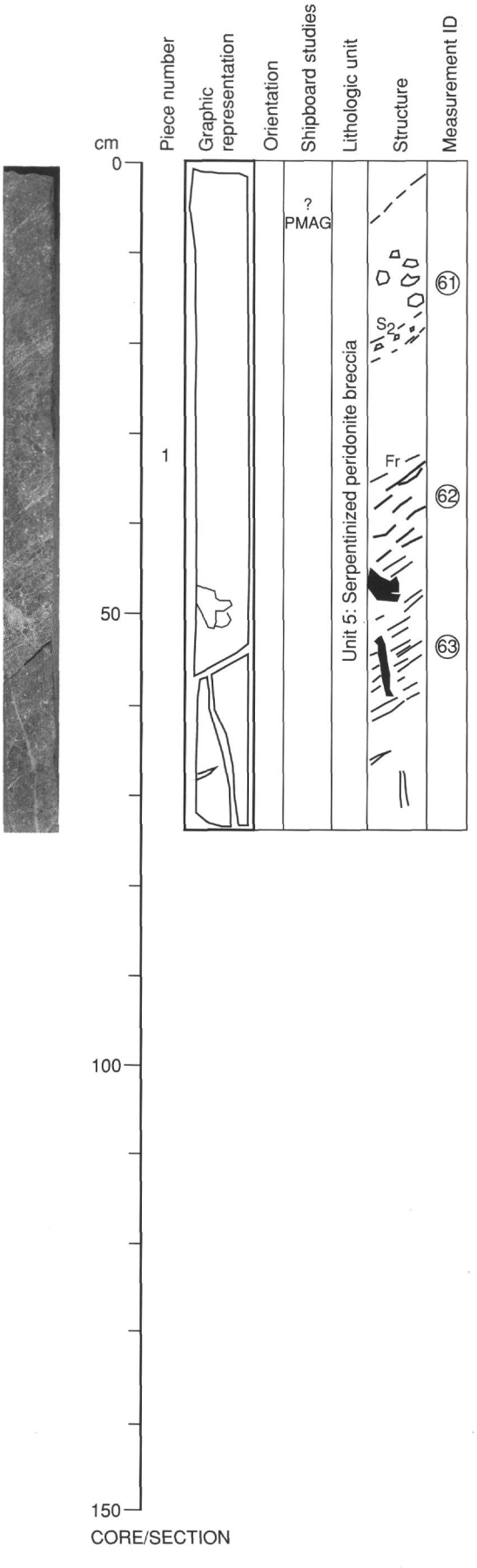


149-897D-17R-4

UNIT 5: SERPENTINIZED PERIDOTITE BRECCIA

Pieces 1A to 1D

COLOR: Lights brown (5YR 5/6), moderate brown (5YR 3/4 and 5YR 4/4).
LAYERING: None.
DEFORMATION: Cold shear deformation which completely brecciated the rock and developed a clear foliation in this breccia. Late brittle deformation which developed irregular fractures filled with calcite and/or serpentine which make up about 5% of the rock.
PRIMARY MINERALOGY: Proportion of pyroxene is variable and the mineral distribution is patchy. No plagioclase was observed, but it may be obscured by serpentinization.
Olivine - Mode: 70%–0%.
Pyroxene - Mode: 20%–30%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY: The primary mineralogy is largely destroyed by serpentinization and later calcite veining and limonite alteration.
Total percent: 98%.
Texture: Mesh serpentinite.
Vein material: Calcite.
ADDITIONAL COMMENTS: Unit continues from Section 149-897D-17R-1 and continues into Section 149-897D-17R-5. This breccia is consolidated by late calcitization.



149-897D-17R-5

UNIT 5: SERPENTINIZED PERIDOTITE BRECCIA

Piece 1 only

COLOR: Dusky yellowish green (10GY 3/2 and 5GY 5/2).
LAYERING: None.
DEFORMATION: Cold shear deformation which completely brecciated the rock and developed a clear foliation in this breccia. Late brittle deformation which developed irregular fractures filled with calcite and/or serpentine which make up about 5% of the rock. Rock has marked schistosity between 50 and 70 cm.
PRIMARY MINERALOGY: No plagioclase was observed, but it may be obscured by serpentinization.
Olivine - Mode: 70%–80%.
Pyroxene - Mode: 20%–30%.
Spinel - Mode: 1%.
SECONDARY MINERALOGY: The primary mineralogy is largely destroyed by serpentinization, later calcite veining and limonite alteration.
Total percent: 98%.
Texture: Mesh serpentinite.
Vein material: Calcite veining is extensive.
ADDITIONAL COMMENTS: Unit continues from Section 149-897D-17R-1 and continues into Section 149-897D-17R-6.