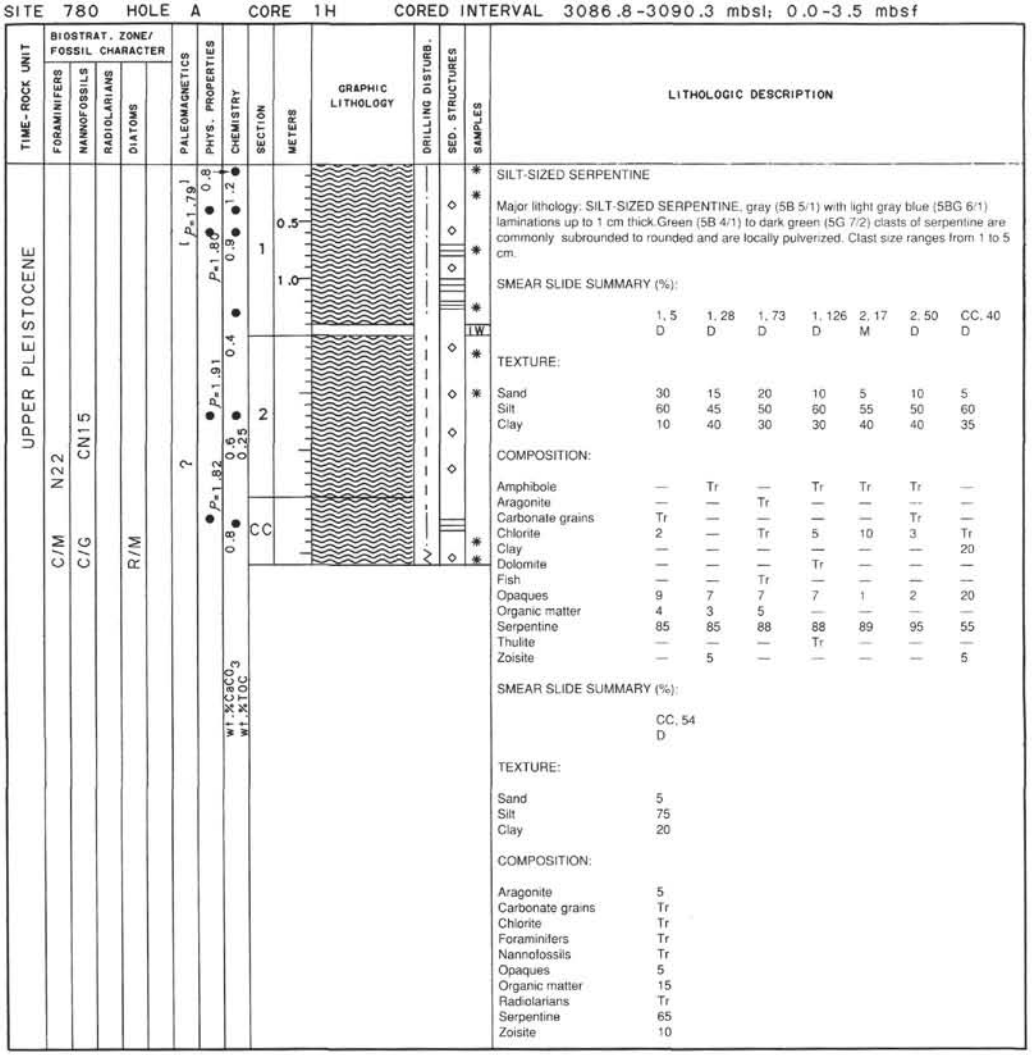
SITE 780 HOLE A CORE 1H CORED INTERVAL 3086.8-3090.3 mbsl; 0.0-3.5 mbsf



SILT-SIZED SERPENTINE

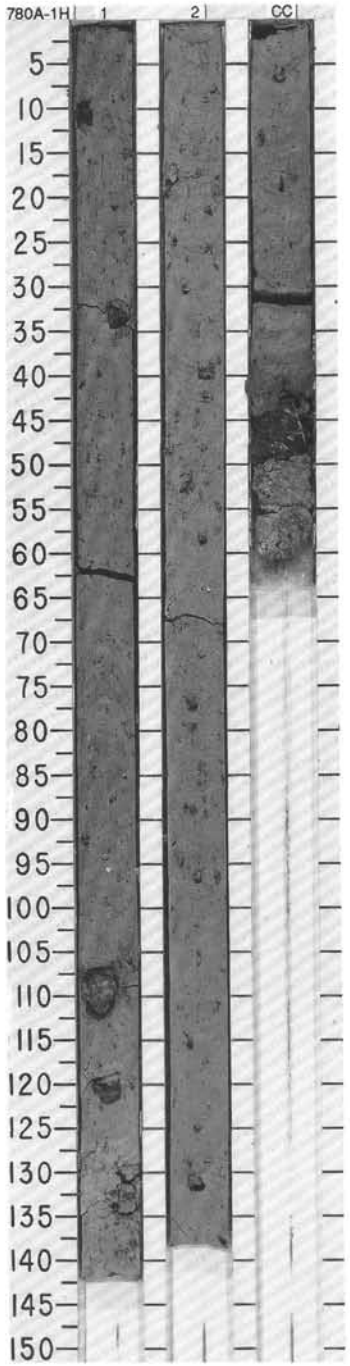
Major lithology: SILT-SIZED SERPENTINE, gray (5B 5/1) with light gray blue (5BG 6/1) laminations up to 1 cm thick.Green (5B 4/1) to dark green (5G 7/2) clasts of serpentine are commonly subrounded to rounded and are locally pulverized. Clast size ranges from 1 to 5 cm.

SMEAR SLIDE SUMMARY (%):

	1, 5 D	1, 28 D	1, 73 D	1, 126 D	2, 17 M	2, 50 D	CC, 40 D
TEXTURE:							
Sand	30	15	20	10	5	10	5
Silt	60	45	50	60	55	50	60
Clay	10	40	30	30	40	40	35
COMPOSITION:							
Amphibole	—	Tr	—	Tr	Tr	Tr	—
Aragonite	—	—	Tr	—	—	—	—
Carbonate grains	Tr	—	—	—	—	Tr	—
Chlorite	2	—	Tr	5	10	3	Tr
Clay	—	—	—	—	—	—	20
Dolomite	—	—	—	Tr	—	—	—
Fish	—	—	Tr	—	—	—	—
Opaques	9	7	7	7	1	2	20
Organic matter	4	3	5	—	—	—	—
Serpentine	85	85	88	88	89	95	55
Thulite	—	—	—	Tr	—	—	—
Zoisite	—	5	—	—	—	—	5

SMEAR SLIDE SUMMARY (%):

	CC, 54 D
TEXTURE:	
Sand	5
Silt	75
Clay	20
COMPOSITION:	
Aragonite	5
Carbonate grains	Tr
Chlorite	Tr
Foraminifers	Tr
Nannofossils	Tr
Opaques	5
Organic matter	15
Radiolarians	Tr
Serpentine	65
Zoisite	10



SITE 780 HOLE B CORE 1R CORED INTERVAL 3094.0-3102.7 mbsl; 0.0-8.7 mbsf

TIME-ROCK UNIT: UPPER PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS B; NANNOFOSSILS B, CN15, F/G; RADIOLARIANS; DIATOMS B; PALEOMAGNETICS ?; PHYS. PROPERTIES; CHEMISTRY wt.%CaCO3, wt.%TOC

SECTION 1–6, CC; METERS 0.5, 1.0

GRAPHIC LITHOLOGY; DRILLING DISTURB.; SED. STRUCTURES; SAMPLES (XRF, TW)

P=1.72 20.0; P=1.75 7.8; P=1.75 8.6; P=1.70 9.8 0.14; P=1.75 6.2; P=1.75 3.6 0.18

LITHOLOGIC DESCRIPTION

SILTY SAND-SIZED SERPENTINE, ARAGONITE-BEARING SERPENTINE SAND, AND ORGANIC REMAINS-RICH SILTY CLAY

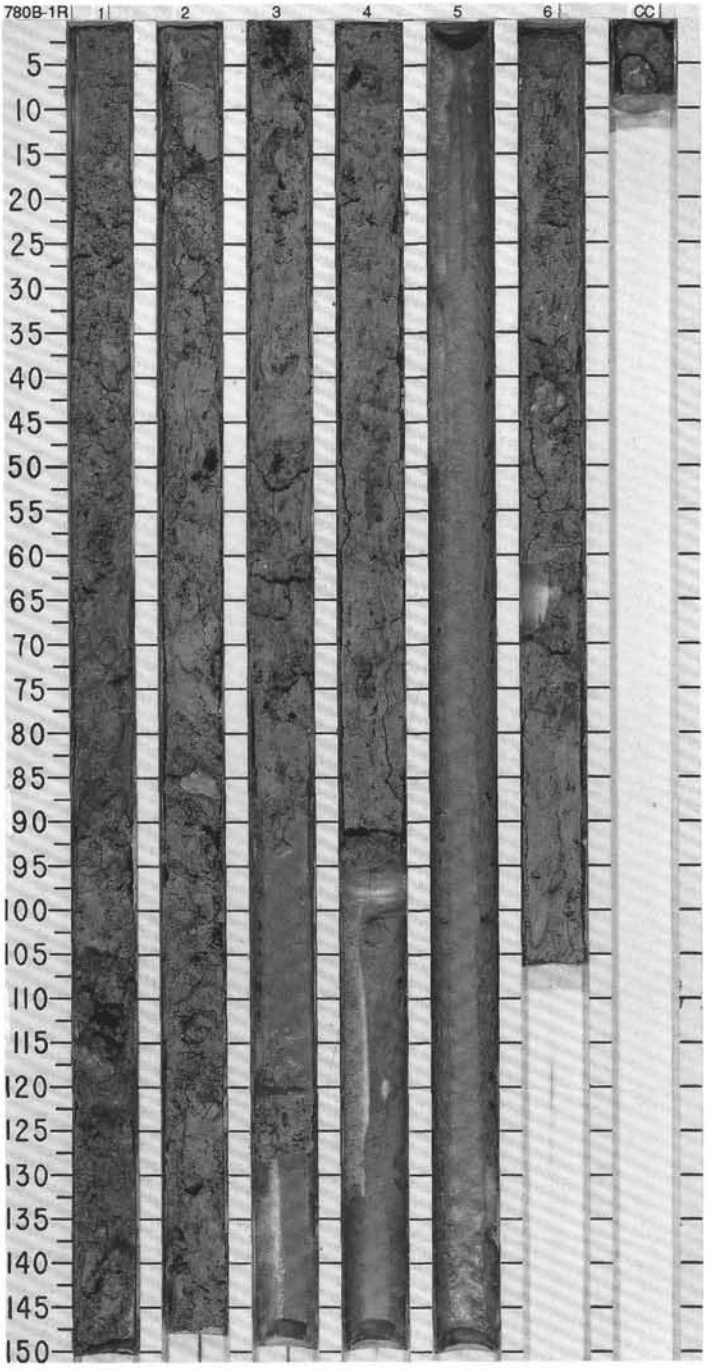
Major lithology: SILTY SAND-SIZED SERPENTINE, dark blue gray (5B 4/1) with light blue gray (5B 7/1) streaks and rare pockets and local layers of pale yellow (5Y 8/3) ARAGONITE-BEARING SERPENTINE SAND. Includes black (7.5YR 2/0) clasts up to 2 cm in diameter and rounded mm-size and smaller serpentine grains. Phacoidal flakes are present locally as detrital grains. The intervals from 110 to 117 cm in Section 2 and from 0 to 19 cm in the core catcher consist of ORGANIC-REMNANT-RICH SILTY CLAY, dark yellowish brown (10YR 3/6 to black (7.5YR 2/0) with subrounded grains of serpentine up to 3 mm in diameter and local concentrations of aragonite needles.

SMEAR SLIDE SUMMARY (%):

	1, 8 D	1, 49 D	1, 59 M	1, 77 M	1, 85 M	2, 42 D	2, 78 M
TEXTURE:							
Sand	10	15	15	15	10	10	20
Silt	30	25	25	25	40	20	30
Clay	60	60	60	60	50	70	50
COMPOSITION:							
Aragonite	1	—	15	5	1	—	1
Calcite	1	—	—	1	4	—	—
Carbonate	—	—	—	—	—	—	—
Chlorite	1	—	—	—	—	—	1
Diatoms	—	—	—	—	1	—	—
Foraminifers	1	—	—	10	36	—	—
Garnet	Tr	—	—	—	—	—	Tr
Nannofossils	1	—	—	2	10	—	3
Opaques	10	2	5	10	3	3	1
Organic matter	2	—	5	—	—	—	2
Radiolarians	1	—	—	—	—	—	—
Serpentine	78	98	75	68	40	97	92
Silicoflagellates	2	—	—	1	2	—	—
Spicules	—	—	—	3	2	—	—

SMEAR SLIDE SUMMARY (%):

	2, 115 M	3, 16 M	4, 72 M	4, 88 D
TEXTURE				
Sand	33	125	33	10
Silt	33	20	33	45
Clay	33	65	33	45
COMPOSION:				
Aragonite	15	—	—	5
Chlorite	—	1	—	Tr
Dolomite	Tr	—	—	—
Garnet	—	1	—	—
Nannofossils	—	—	—	Tr
Opaques	—	4	—	5
Organic matter	35	2	50	—
Serpentine	50	92	50	80
Zoisite	—	—	—	10



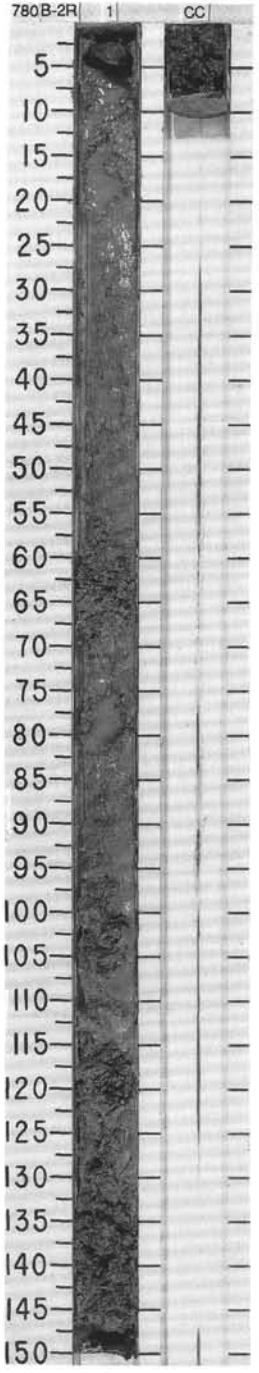
SITE 780 HOLE B CORE 2R CORED INTERVAL 3102.7-3112.2 mbsl; 8.7-18.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
	B	B		B	?			1 CC	0.5 1.0				* *	SILT-SIZED SERPENTINE

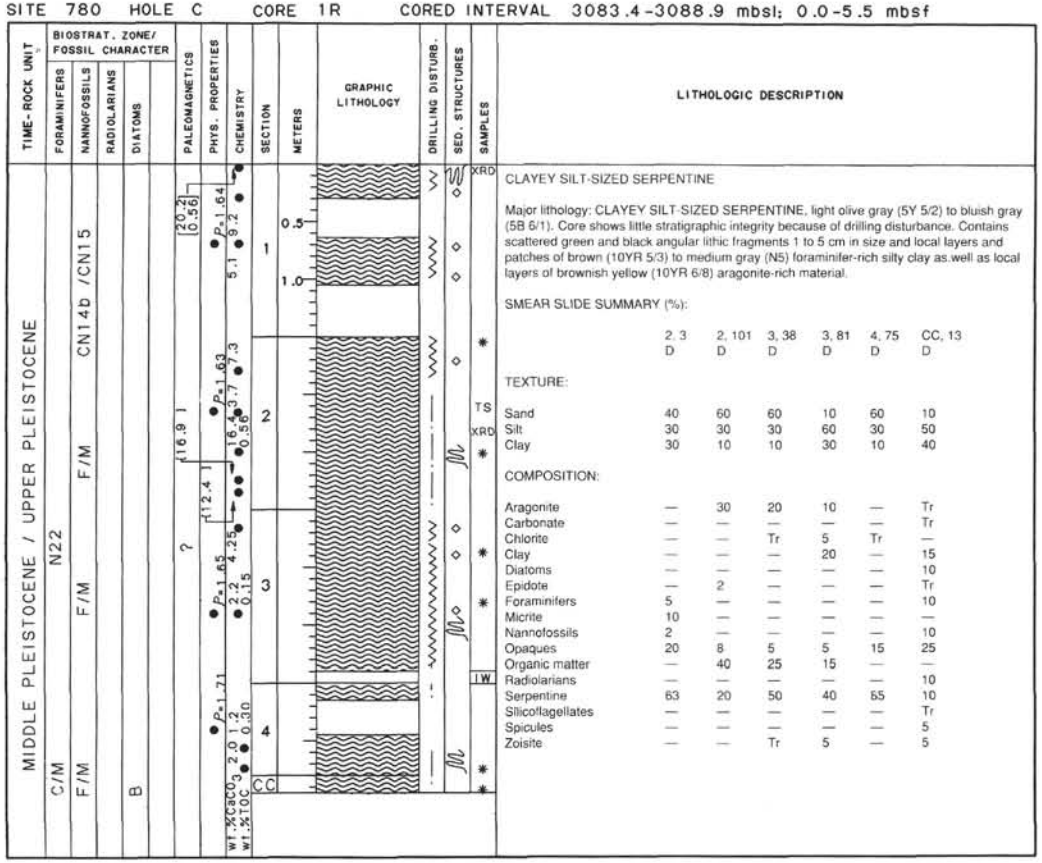
Major lithology: SILT-SIZED SERPENTINE, medium bluish gray (5B 5/1). Core has no stratigraphic integrity. One black clast (serpentinized ultramafic?) occurs in the upper portion of the core and fibrous debris (bacterial mats?) are scattered through the middle and lower sections, especially 60 to 67 cm, 97 to 106 cm, and 115 to 150 cm. Sand-to granular-sized black clasts (serpentine?) are scattered throughout the core.

SMEAR SLIDE SUMMARY (%):

	1, 60 M	1, 125 D
TEXTURE:		
Sand	10	10
Silt	50	45
Clay	40	45
COMPOSITION:		
Carbonate grains	Tr	Tr
Epidote	Tr	Tr
Opaques	30	10
Serpentine	65	80
Zoisite	5	10



SITE 780 HOLE C CORE 1R CORED INTERVAL 3083.4-3088.9 mbsl; 0.0-5.5 mbsf



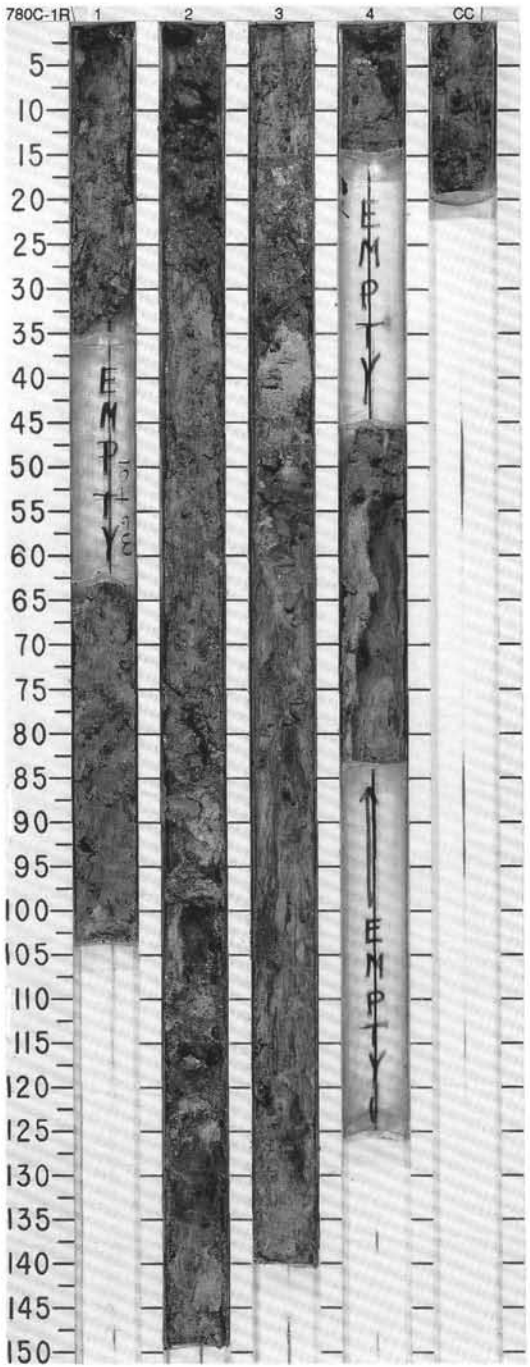
LITHOLOGIC DESCRIPTION

CLAYEY SILT-SIZED SERPENTINE

Major lithology: CLAYEY SILT-SIZED SERPENTINE, light olive gray (5Y 5/2) to bluish gray (5B 6/1). Core shows little stratigraphic integrity because of drilling disturbance. Contains scattered green and black angular lithic fragments 1 to 5 cm in size and local layers and patches of brown (10YR 5/3) to medium gray (N5) foraminifer-rich silty clay as well as local layers of brownish yellow (10YR 6/8) aragonite-rich material.

SMEAR SLIDE SUMMARY (%):

	2, 3 D	2, 101 D	3, 38 D	3, 81 D	4, 75 D	CC, 13 D
TEXTURE:						
Sand	40	60	60	10	60	10
Silt	30	30	30	60	30	50
Clay	30	10	10	30	10	40
COMPOSITION:						
Aragonite	—	30	20	10	—	Tr
Carbonate	—	—	—	—	—	Tr
Chlorite	—	—	Tr	5	Tr	—
Clay	—	—	—	20	—	15
Diatoms	—	—	—	—	—	10
Epidote	—	2	—	—	—	Tr
Foraminifers	5	—	—	—	—	10
Micrite	10	—	—	—	—	—
Nannofossils	2	—	—	—	—	10
Opaques	20	8	5	5	15	25
Organic matter	—	40	25	15	—	—
Radiolarians	—	—	—	—	—	10
Serpentine	63	20	50	40	65	10
Silicoflagellates	—	—	—	—	—	Tr
Spicules	—	—	—	—	—	5
Zoisite	—	—	Tr	5	—	5



SITE 780 HOLE C CORE 2R CORED INTERVAL 3088.9-3097.4 mbsl; 5.5-14.0 mbsf

TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
MIDDLE PLEISTOCENE /UPPER PLEISTOCENE	B	CN14b/CN15 F/M		R/M	?	P=1.71 ●	wt.%CaCO3 1.0 wt.%TOC 0.25 ●	1 CC				◇	* * *

LITHOLOGIC DESCRIPTION

SILTY SAND-SIZED SERPENTINE

Major lithology: SILTY SAND-SIZED SERPENTINE, dark blue gray (5B 5/1 and 5B 4/1) with streaks and mottles of lighter blue gray (5B 1/7 to N7) and light green (5G 7/2). Contains a few subangular pebbles up to 5 cm in diameter and scattered sand- to small pebble-sized clasts of serpentine. An interval of faint laminations (primary?) occurs at 10 cm in Section 1 and an interval of brown sandy laminae occurs at the base of the core.

SMEAR SLIDE SUMMARY (%):

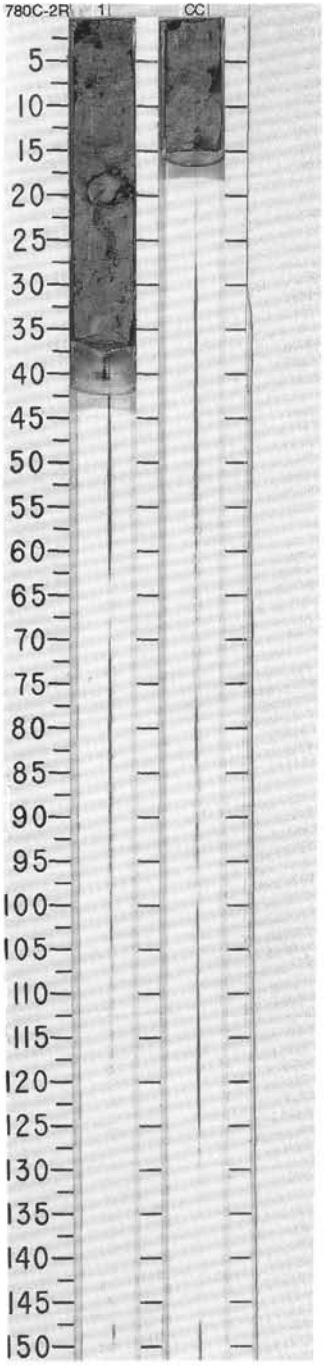
	1, 9 D	1, 25 D	CC, 6 D	CC, 8 D	CC, 14 D
TEXTURE:					
Sand	20	50	60	60	30
Silt	60	30	20	30	40
Clay	20	20	20	10	30
COMPOSITION:					
Aragonite	—	—	—	—	1
Carbonate grains	—	Tr	—	—	—
Chlorite	—	Tr	—	—	—
Diatoms	—	—	—	—	1
Epidote	5	—	—	—	—
Foraminifers	—	—	5	—	6
Opaques	10	5	10	5	7
Organic matter	20	20	15	10	20
Serpentine	65	75	70	85	65

SITE 780 HOLE C CORE 3R CORED INTERVAL 3097.4-3106.9 mbsl; 14.0-23.5 mbsf

TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
					?	P=2.06 ● V=4.2		1	0.5	IM			

LITHOLOGIC DESCRIPTION

No sedimentary material was recovered in this core.



SITE 780 HOLE C CORE 4R CORED INTERVAL 3106.9-3116.4 mbsl; 23.5-33.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
	B			B	?	● Φ=54.6 ρ=2.62	● wt.%CaCO3 1.4 wt.%TOC 0.29	1				◇	*	SANDY SILT-SIZED SERPENTINE

Major lithology: SANDY SILT-SIZED SERPENTINE, bluish gray (5B 6/1) with serpentine clasts from mm-size up to 1 cm. Core contains some aragonite.

SMEAR SLIDE SUMMARY (%):

	1, 8 D
TEXTURE:	
Sand	20
Silt	60
Clay	20
COMPOSITION:	
Carbonate	2
Opaques	5
Serpentine	93

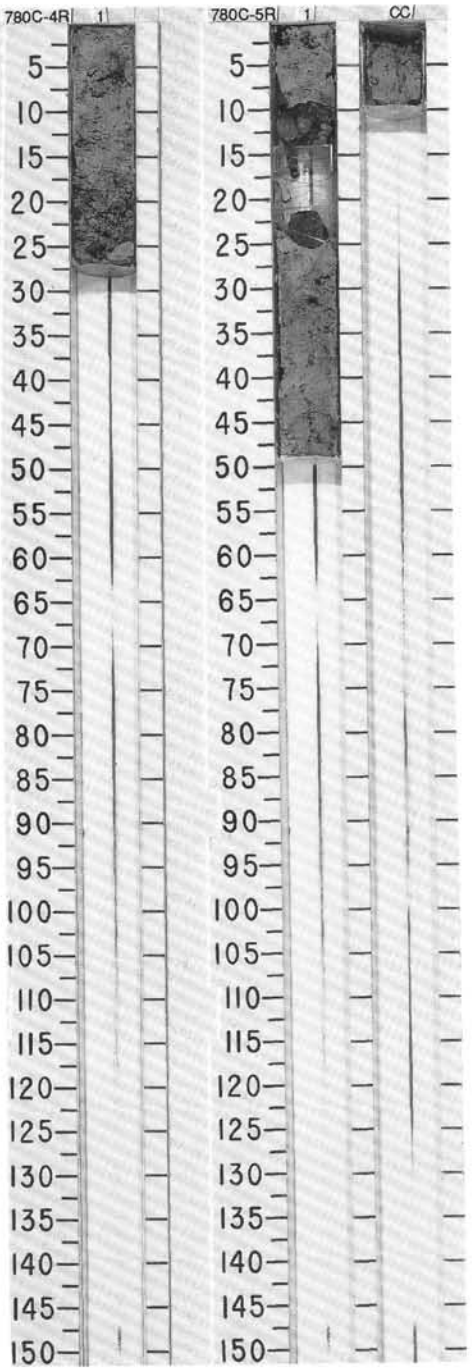
SITE 780 HOLE C CORE 5R CORED INTERVAL 3116.4-3125.9 mbsl; 33.0-42.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
	B			B	?	● ρ=1.83	● wt.%CaCO3 0.7 wt.%TOC 0.24	1	0.5			◇ ◇	* *	CLAYEY SILT-SIZED SERPENTINE

Major lithology:
CLAYEY SILT-SIZED SERPENTINE, greenish gray (5B 5/1) with scattered dark, sand to granule-sized lithic (probably serpentine) and 2 large (3 to 4 cm) clasts of serpentinized harzburgite. Aragonite needles are common throughout the core.

SMEAR SLIDE SUMMARY (%):

	1, 33 D	CC, 3 D
TEXTURE:		
Sand	20	10
Silt	50	60
Clay	30	30
COMPOSITION:		
Opaques	10	15
Serpentine	90	85
Thulite	Tr	—



SITE 780 HOLE C CORE 6R CORED INTERVAL 3125.9-3135.5 mbsl; 42.5-52.1 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
					?	ρ=2.70 ρ=0.1 ● V=5/3		1	0.5	IM	≈	◇	*

LITHOLOGIC DESCRIPTION

CLAYEY SILT-SIZED SERPENTINE

Major lithology: CLAYEY SILT-SIZE SERPENTINE, greenish gray (5BG 5/1) with several 2 to 3 cm clasts of serpentinized ultramafic rocks.

SMEAR SLIDE SUMMARY (%):

	1, 2 D
TEXTURE:	
Sand	10
Silt	60
Clay	30
COMPOSITION:	
Opaques	2
Serpentine	98

SITE 780 HOLE C CORE 7R CORED INTERVAL 3135.5-3144.9 mbsl; 52.1-61.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
					?	● ρ=2.05	● 0.7 0.17 wt.%CaCO3 wt.%TOC	1			≈	≈	TS *

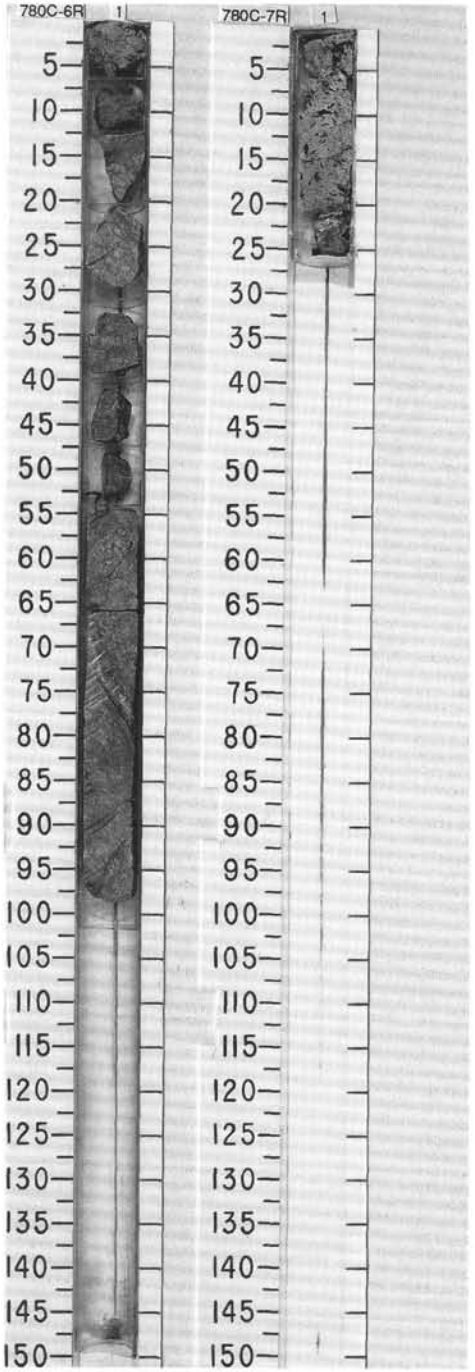
LITHOLOGIC DESCRIPTION

CLAYEY SILT-SIZED SERPENTINE

Major lithology: CLAYEY SILT-SIZED SERPENTINE, greenish gray (5G 6/1) with approximately 25% angular, small pebble-sized serpentine?) clasts and sand- to granule-sized clasts. Lithics vary from light greenish gray (10YR 7/1) to dark greenish gray (10YR 4/1). The basal portion of the core exhibits faint planar laminations (primary?) and the entire core coarsens upward; the size of the lithics progresses from coarse sand-size at the base to pebble-size at the top.

SMEAR SLIDE SUMMARY (%):

	1, 18 D
TEXTURE:	
Sand	10
Silt	30
Clay	60
COMPOSITION:	
Opaques	2
Serpentine	98



SITE 780 HOLE C CORE 8R CORED INTERVAL 3144.9-3154.5 mbsl; 61.5-71.1 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
					?	ϕ=0.2 ρ=2.67 V=5.6		1	0.5 1.0	IM			*	CLAYEY SILT-SIZED SERPENTINE

Major lithology:: CLAYEY SILT-SIZED SERPENTINE, greenish gray (5B 6/1) with scattered sand- to granular-sized dark lithics (serpentine?).

SMEAR SLIDE SUMMARY (%):

	1, 8 D
TEXTURE:	
Sand	10
Silt	60
Clay	30
COMPOSITION:	
Opaques	5
Serpentine	95

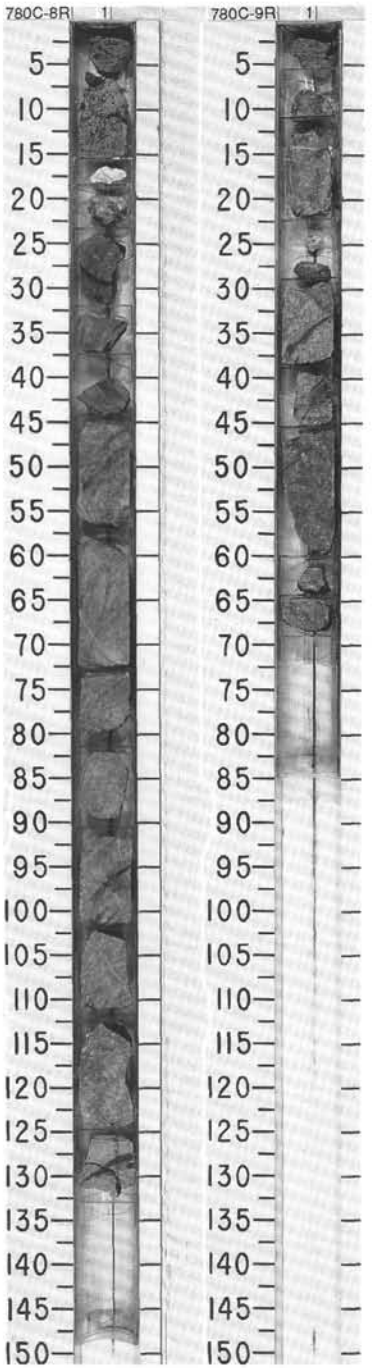
SITE 780 HOLE C CORE 9R CORED INTERVAL 3154.5-3164.2 mbsl; 71.1-80.8 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
					?	ϕ=0.95 ρ=2.78 V=5.7		1	0.5	IM		◇	*	CLAYEY SILT-SIZED SERPENTINE

Major lithology: Greenish gray (5B 5/1) with sand-sized clasts of serpentine and serpentinized ultramafics.

SMEAR SLIDE SUMMARY (%):

	1, 2 D
TEXTURE:	
Sand	10
Silt	60
Clay	30
COMPOSITION:	
Opaques	1
Serpentine	99



SITE 780 HOLE C CORE 10R CORED INTERVAL 3164.2-3173.9 mbsl; 80.8-90.5 mbsf

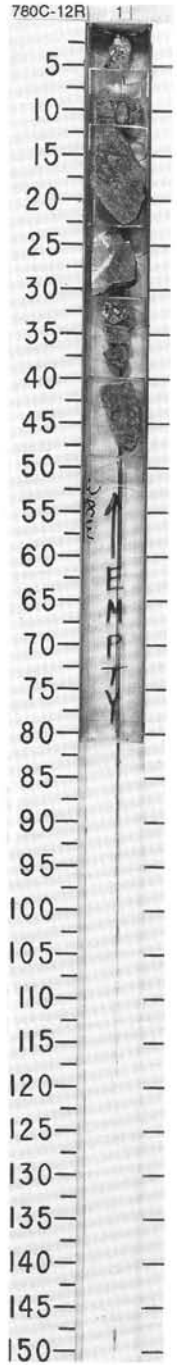
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
				B	?	Φ=0.42 ρ=2.74 ● V=5.2			1	IM				This core contained no sedimentary material.

SITE 780 HOLE C CORE 11R CORED INTERVAL 3173.9-3183.6 mbsl; 90.5-100.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
					?			1		IM				This core contained no sedimentary material.

SITE 780 HOLE C CORE 12R CORED INTERVAL 3183.6-3189.9 mbsl; 100.2-106.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
					?	Φ=0.6 ρ=2.64 ● V=5.3		1		IM / IM			*	SANDY SILT-SIZED SERPENTINE Major lithology: SANDY SILT-SIZED SERPENTINE, dark greenish gray (5B 5/1) with pebble-sized clasts. One clast is pale green (5G 7/2), the other is dark blue gray (5B 4/1). Both clasts are serpentinized ultramafics rocks. SMEAR SLIDE SUMMARY (%): 1, 6 D TEXTURE: Sand 40 Silt 40 Clay 20 COMPOSITION: Chlorite 5 Clay 10 Micrite Tr Opaques 5 Serpentine 75 Zoisite 5



SITE 780 HOLE C CORE 13R CORED INTERVAL 3189.9-3199.4 mbsl; 106.5-116.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
					?	ρ=2.92 ρ=2.1 V=6.2		1	0.5	IM / IM	—		*	SILTY SAND-SIZED SERPENTINE Major lithology: SILTY SAND-SIZED SERPENTINE, bluish gray (5B 6/1). Occurs as soft matrix material between two large pieces of ultramafic rock. SMEAR SLIDE SUMMARY (%): 1, 53 D TEXTURE: Sand 55 Silt 35 Clay 10 COMPOSITION: Chlorite 5 Clay 10 Micrite Tr Opaques 10 Serpentine 70 Zoisite 5

SITE 780 HOLE C CORE 14R CORED INTERVAL 3199.4-3208.9 mbsl; 116.0-125.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								1		IM				This core contained no sedimentary material.

SITE 780 HOLE C CORE 15R CORED INTERVAL 3208.9-3218.4 mbsl; 125.5-135.0 mbsf

TIME-ROCK UNIT | BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS, NANNOFOSSILS, RADIOLARIANS, DIATOMS | PALEOMAGNETICS | PHYS. PROPERTIES | CHEMISTRY | SECTION | METERS | GRAPHIC LITHOLOGY | DRILLING DISTURB. | SED. STRUCTURES | SAMPLES

DIATOMS: B

PALEOMAGNETICS: Φ=51.9 ?, ρ=1.81; Φ=43.4, ρ=1.96

PHYS. PROPERTIES: 0.6

CHEMISTRY: 0.7, 0.22

SECTION: 1

SAMPLES: IW

LITHOLOGIC DESCRIPTION

SANDY SILT-SIZED SERPENTINE

Major lithology: SANDY SILT-SIZED SERPENTINE, medium bluish gray (5B 5/1) with isolated 2 to 3 cm subrounded to subangular igneous clasts and scattered 1/2 to 2 cm serpentinized lithics.

SMEAR SLIDE SUMMARY (%):

	1, 25 D	CC, 10 D
TEXTURE:		
Sand	25	25
Silt	65	55
Clay	10	20
COMPOSITION:		
Carbonate grain	—	Tr
Chlorite	5	Tr
Garnet	2	—
Micrite	2	Tr
Opaques	5	10
Serpentine	86	85
Thulite	Tr	—
Zoisite	Tr	5

SITE 780 HOLE C CORE 16R CORED INTERVAL 3218.4-3228.0 mbsl; 135.0-144.6 mbsf

TIME-ROCK UNIT | BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS, NANNOFOSSILS, RADIOLARIANS, DIATOMS | PALEOMAGNETICS | PHYS. PROPERTIES | CHEMISTRY | SECTION | METERS | GRAPHIC LITHOLOGY | DRILLING DISTURB. | SED. STRUCTURES | SAMPLES

PALEOMAGNETICS: ?

PHYS. PROPERTIES: Φ=1.3, ρ=2.66

SECTION: 1

METERS: 0.5

GRAPHIC LITHOLOGY: IM, IM

SAMPLES: *

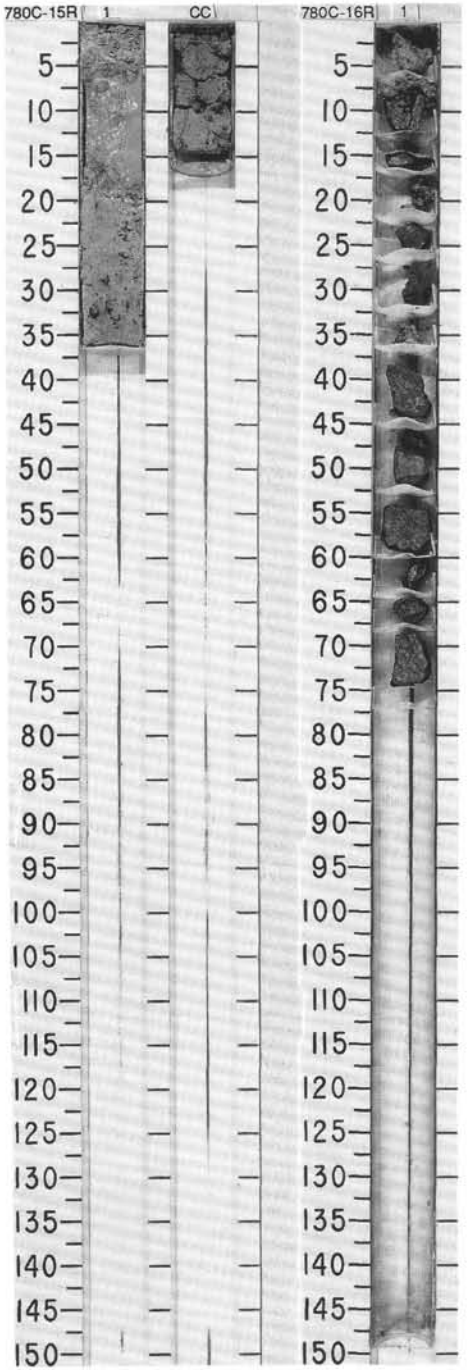
LITHOLOGIC DESCRIPTION

SILT-SIZED SERPENTINE

Major lithology: SILT-SIZED SERPENTINE, medium bluish gray (5B 5/1). Contains scattered, subangular igneous clasts 1/2 to 3 cm in size.

SMEAR SLIDE SUMMARY (%):

	1, 5 D
TEXTURE:	
Sand	15
Silt	65
Clay	20
COMPOSITION:	
Chlorite	Tr
Clay	5
Opaques	5
Serpentine	90
Thulite	Tr
Zoisite	Tr

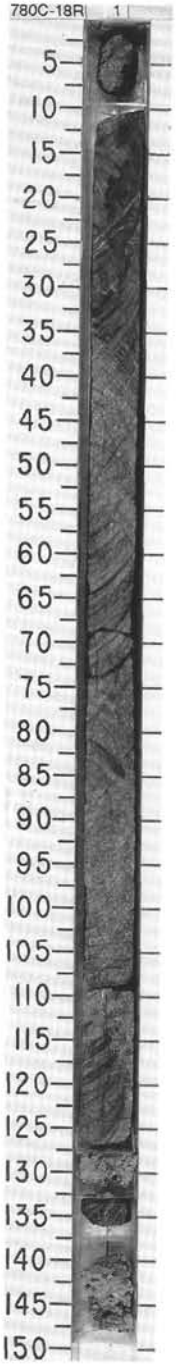


SITE 780 HOLE C CORE 17R CORED INTERVAL 3228.0-3237.4 mbsl; 144.6-154.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
						?			1		IM				This core contained no sedimentary material.

SITE 780 HOLE C CORE 18R CORED INTERVAL 3237.4-3246.9 mbsl; 154.0-163.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
					B	?	Φ=0.53 V=5.7 ● ρ=2.71		1	0.5 1.0	IM	>>	◇	*	SILT-SIZED SERPENTINE Major lithology: SILT-SIZED SERPENTINE, medium bluish gray (5B 5/1) with scattered 1/2 to 3 cm, subangular clasts. The interval from 137 to 150 cm contains two cobbles with a very thin coating of serpentine matrix material. SMEAR SLIDE SUMMARY (%): 1, 130 D TEXTURE: Sand 20 Silt 60 Clay 5 COMPOSITION: Chlorite Tr Clay 5 Opaques 5 Serpentine 90 Thulite Tr Zoisite Tr



SITE 780 HOLE D CORE 1X CORED INTERVAL 3088.9-3091.4 mbsl; 0.0-2.5 mbsf

TIME-ROCK UNIT: UPPER PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS R/M N19/20-N22; NANNOFOSSILS CG CN15; RADIOLARIANS —; DIATOMS B; PALEOMAGNETICS ?

PHYS. PROPERTIES: Φ=59.5 ρ=1.69; Φ=53.1 ρ=1.83; Φ=57.7 ρ=1.69; Φ=63.8 ρ=1.65

CHEMISTRY: wt.%CaCO3 9.5 0.9 1.08 3.4 0.18 7.3 31.4 0.01; wt.%TOC

SECTION: 1 2 3 CC

METERS: 0.5 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: IW IW

LITHOLOGIC DESCRIPTION

SILT-SIZED SERPENTINE

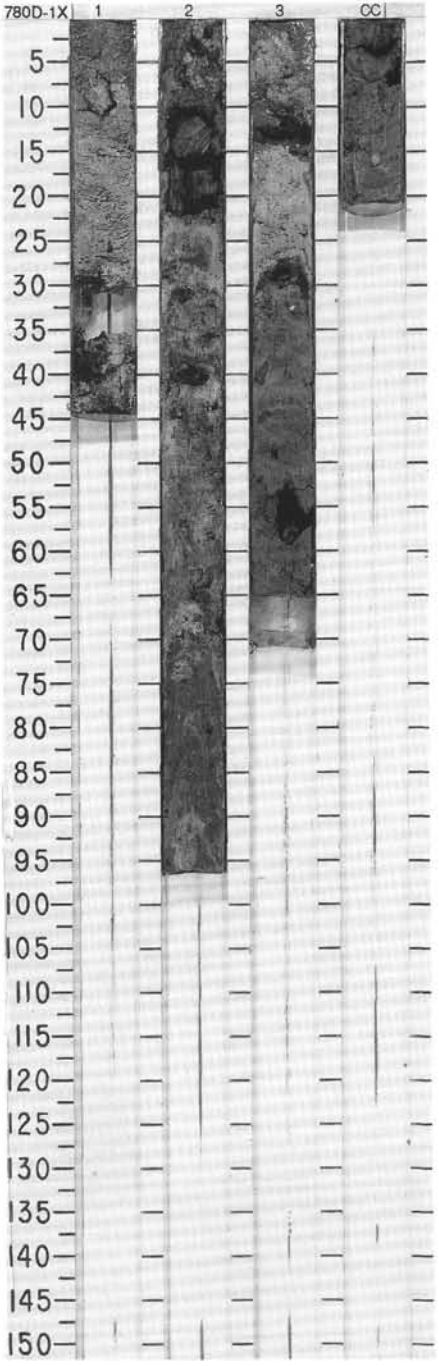
Major lithology: SILT-SIZED SERPENTINE, light gray (2.5Y 5/0) to dark blue gray (5B 4/1) with scattered angular to subangular black clasts 1 to 4 cm in size. Black sediment occurs in pockets and spots rather than forming distinct layers; it smells of H_2S. Aragonite needles are abundant in Section 1.

SMEAR SLIDE SUMMARY (%):

	1, 5 D	1, 20 D	1, 26 D	2, 2 D	2, 20 M	2, 80 D	3, 10 M
TEXTURE:							
Sand	10	5	30	20	35	—	80
Silt	60	65	40	60	55	80	15
Clay	30	30	30	20	10	20	5
COMPOSITION:							
Aragonite	20	40	5	5	Tr	1	—
Clay	—	5	—	—	—	—	—
Diatoms	—	—	—	1	—	—	—
Epidote	—	Tr	—	—	—	—	—
Foraminifers	5	—	—	10	Tr	—	—
Garnet	Tr	Tr	—	—	Tr	—	—
Nannofossils	Tr	—	—	1	—	—	—
Opaques	5	5	5	5	30	5	5
Organic matter	Tr	—	—	—	5	—	—
Radiolarians	Tr	—	—	—	—	—	—
Serpentine	70	50	90	76	65	94	95
Silicoflagellates	—	—	—	2	—	—	—

SMEAR SLIDE SUMMARY (%):

	3, 20 D	3, 50 D	CC, 10 D
TEXTURE:			
Sand	20	30	5
Silt	60	60	60
Clay	20	10	35
COMPOSITION:			
Aragonite	5	—	Tr
Epidote	—	—	Tr
Opaques	1	5	5
Organic debris	—	30	15
Serpentine	94	65	80



SITE 780 HOLE D CORE 2X CORED INTERVAL 3091.4-3100.9 mbsl; 2.5-12.0 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: R/P; NANNOFOSSILS: CN14-CN15; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: ?

PHYS. PROPERTIES: Ø=58.8 ρ=1.71; Ø=64.0 ρ=1.67; Ø=48.7 ρ=1.85

CHEMISTRY: wt.%CaCO3 0.7 0.7 0.5; wt.%TOC 0.3

SECTION: 1, 2, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURBS.

SED. STRUCTURES

SAMPLES: TW

LITHOLOGIC DESCRIPTION

SANDY SILTY SERPENTINE

Major lithology: SANDY SILTY SERPENTINE, medium bluish gray (5B 5/1) with local patches of black (2.5Y 2/0) and light gray (2.5Y 7/2). Faint laminae occur at the base of Section 1 and rare, 3 to 4 cm in diameter, rounded clasts are present.

SMEAR SLIDE SUMMARY (%):

	1, 2 D	1, 5 D	1, 25 D	2, 10 D	CC, 15 D
TEXTURE:					
Sand	10	30	20	20	20
Silt	80	60	60	60	60
Clay	10	10	20	20	20
COMPOSITION:					
Aragonite	20	10	—	—	—
Chlorite	10	—	—	—	—
Opaques	—	5	1	1	2
Serpentine	70	85	99	99	98

SITE 780 HOLE D CORE 3X CORED INTERVAL 3100.9-3104.3 mbsl; 12.0-15.4 mbsf

TIME-ROCK UNIT

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS; NANNOFOSSILS; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: ?

PHYS. PROPERTIES: Ø=60.2 ρ=1.47

CHEMISTRY: wt.%CaCO3 0.6 0.32; wt.%TOC

SECTION: 1

METERS

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES

LITHOLOGIC DESCRIPTION

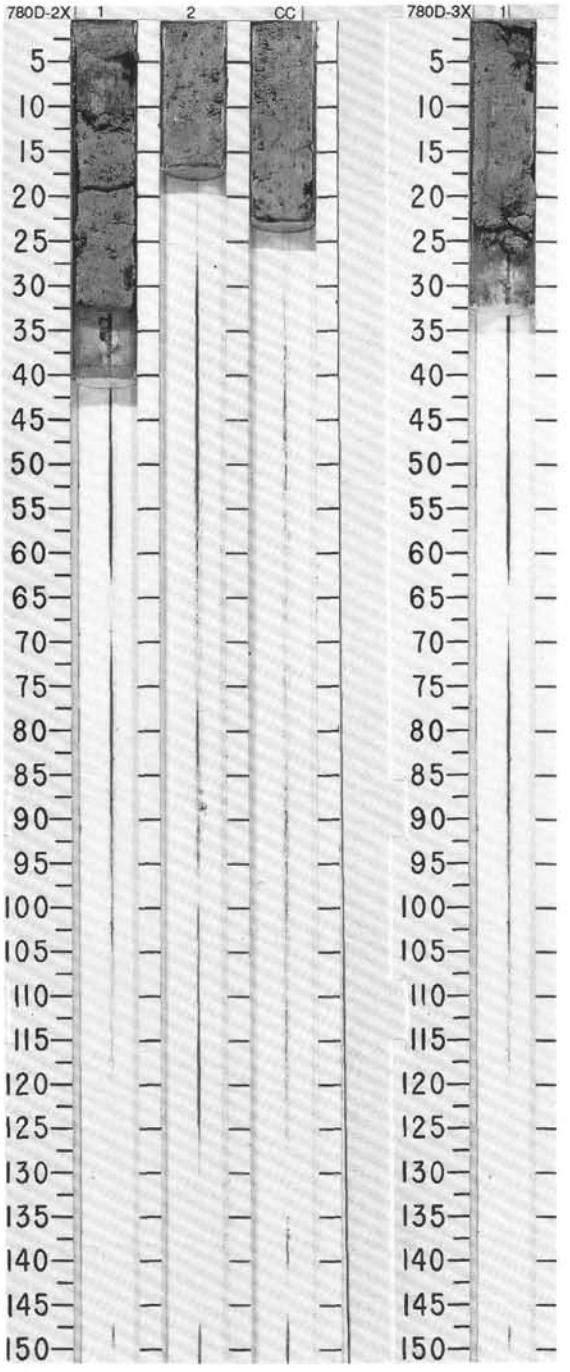
SILT-SIZED SERPENTINE

Major lithology: SILT-SIZED SERPENTINE, light gray, (2.5y 5/0), homogeneous,but with scattered, angular to sub-rounded black clasts 1.5 to 3 cm in diameter and smaller (approximately 1mm) white clasts.

SMEAR SLIDE SUMMARY (%):

	1, 9 M	1, 10 D
TEXTURE:		
Sand	5	30
Silt	70	60
Clay	25	10
COMPOSITION:		
Opaques	Tr	2
Serpentine	100	98

780 D 4X NO RECOVERY



SITE 780 HOLE D CORE 5X CORED INTERVAL 3105.8-3109.3 mbsl; 16.9-20.4 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
						ϕ=1.1 ρ=2.55		1	0.5	IM				This core contained no sedimentary material.

SITE 780 HOLE D CORE 6X CORED INTERVAL 3109.3-3116.3 mbsl; 20.4-27.4 mbsf

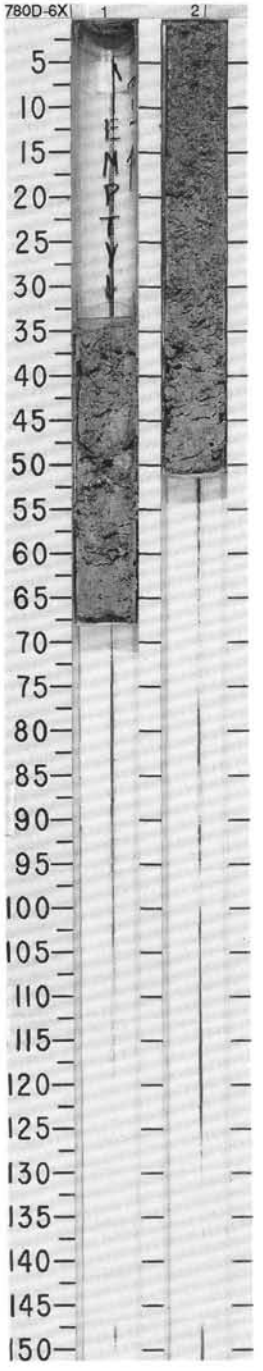
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
PLEISTOCENE		RP CN14-CN15			?	ϕ=60.4 ρ=1.67	0.7 0.31	1	0.5 1.0			◇	TW	CLAYEY SAND-SIZED SERPENTINE
						ϕ=66.7 ρ=1.64	1.4	2					*	

Major lithology: CLAYEY SAND-SIZED SERPENTINE, greenish gray (5BG 6/1) with subangular to subrounded clasts from coarse sand-size up to 2 cm. Clasts are black (N 2/0) and are probably serpentinized ultramafic rocks.

SMEAR SLIDE SUMMARY (%):

	2, 13 D
TEXTURE:	
Sand	50
Silt	10
Clay	40
COMPOSITION:	
Opaques	10
Serpentine	90

wt.%CaCO3
wt.%TOC



SITE 780 HOLE D CORE 7X CORED INTERVAL 3116.3-3121.3 mbsl; 27.4-32.4 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
					?	Φ=48.7 ρ=1.95	0.7 0.25	1	0.5 1.0				TS *
					?	Φ=62.6 ρ=1.68	0.6 0.24	2 3 4 5					
						Φ=68.5 ρ=1.72	0.6	5 6 CC					TS * IW *

wt.%CaCO3
wt.%TOC

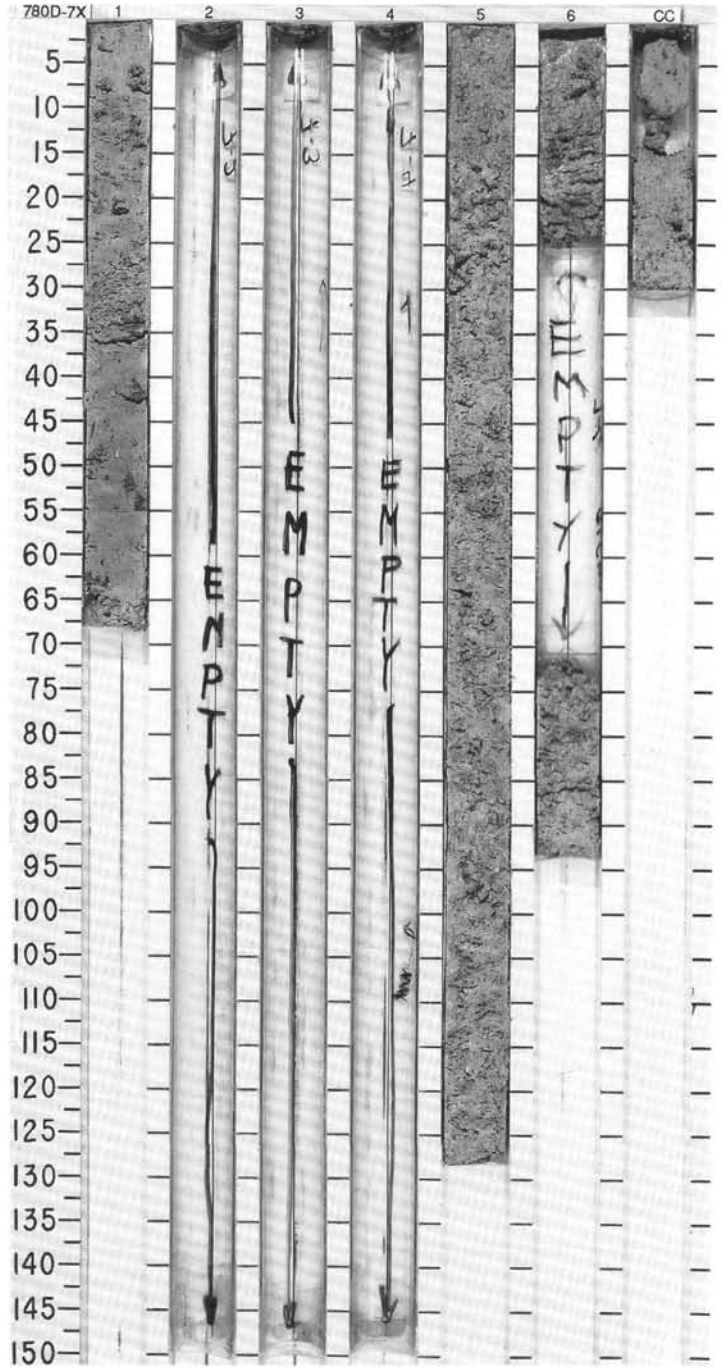
LITHOLOGIC DESCRIPTION

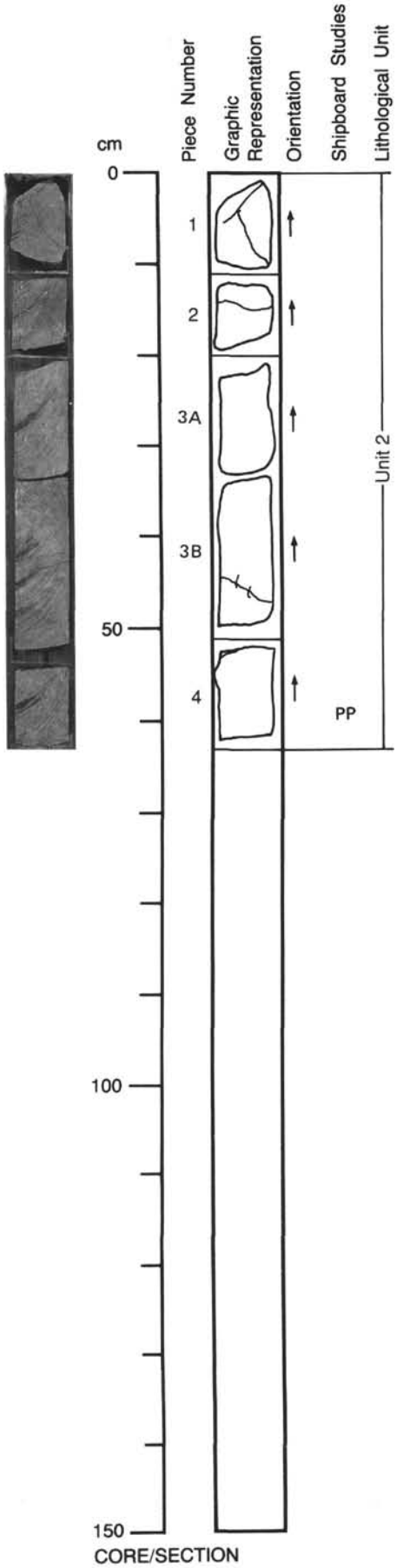
SANDY, CLAYEY, SILT-SIZED SERPENTINE

Major lithology: SANDY, CLAYEY, SILT-SIZED SERPENTINE, bluish gray (5B 6/1) with scattered coarse sand-and pebble-sized, black and grayish green (5G 6/2) clasts.Section 1 also contains a small patch of pale green (5G 6/2) silt- and sand-sized sediments at the interval between 54 and 57 cm.

SMEAR SLIDE SUMMARY (%):

	1, 53 D	5, 70 D	CC, 19 D
TEXTURE:			
Sand	50	30	30
Silt	30	40	40
Clay	20	30	30
COMPOSITION:			
Aragonite	—	5	—
Opaques	90	10	10
Serpentine	10	85	90





125-780C-3R-1

UNIT 2: SERPENTINIZED HARZBURGITE

Pieces 1-4

COLOR: Dark blue gray (5B 4/1).
LAYERING: None.
DEFORMATION: None visible.
PRIMARY MINERALOGY:

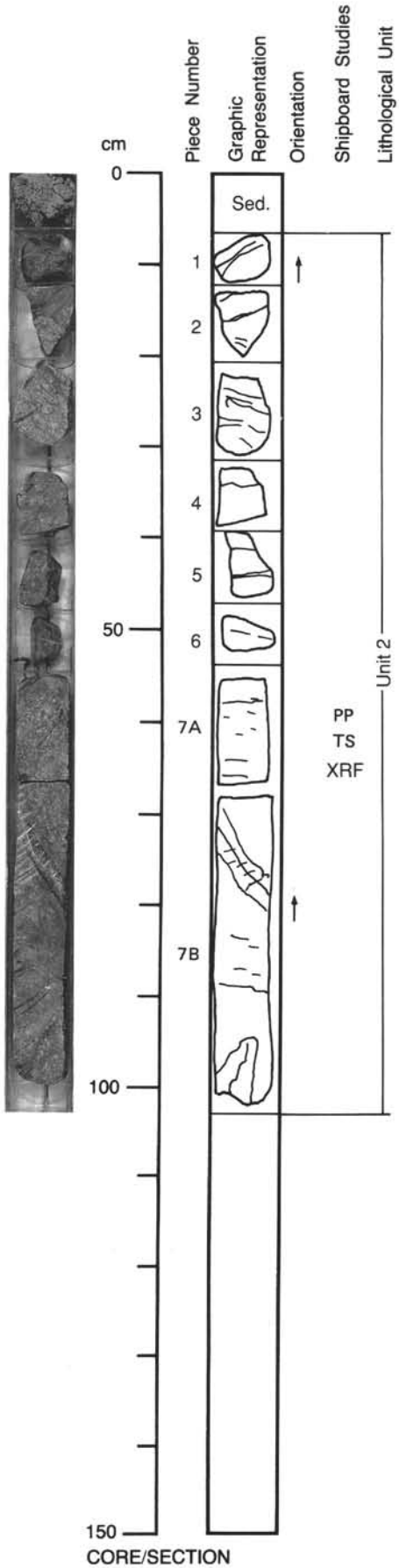
Olivine - Mode: 75-85%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None.
Percent replacement: Variable.

Orthopyroxene - Mode: 15-25%.
Crystal size: 2-4 mm.
Crystal shape: Equant-elongate.
Crystal orientation: None.
Percent replacement: Variable.

Spinel - Mode: Trace.
Crystal size: <2 mm.
Crystal shape: Equant.
Crystal orientation: None.
Percent replacement: Variable.

SECONDARY MINERALOGY:

Serpentine.
Total percent: 70%.
Texture: Bastitic in areas.
Vein material: <2-mm-wide black amorphous serpentine veins oriented at various angles to core barrel; pale-green serpentine (<1 mm) veins; Piece 1 has <1-cm-wide green serpentine "rind" on edge of sample



125-780C-6R-1

UNIT 2: SERPENTINIZED TECTONIZED HARZBURGITE

Pieces 1 to 7

COLOR: Dark greenish gray to dark bluish gray (5G 4/1 to 5B 4/1).
LAYERING: In Piece 3, a crude layering is apparently caused by elongation of olivine.
DEFORMATION: Wavy cleavage on pyroxene; some spinels are elongated; elongate deformed olivine.
PRIMARY MINERALOGY:

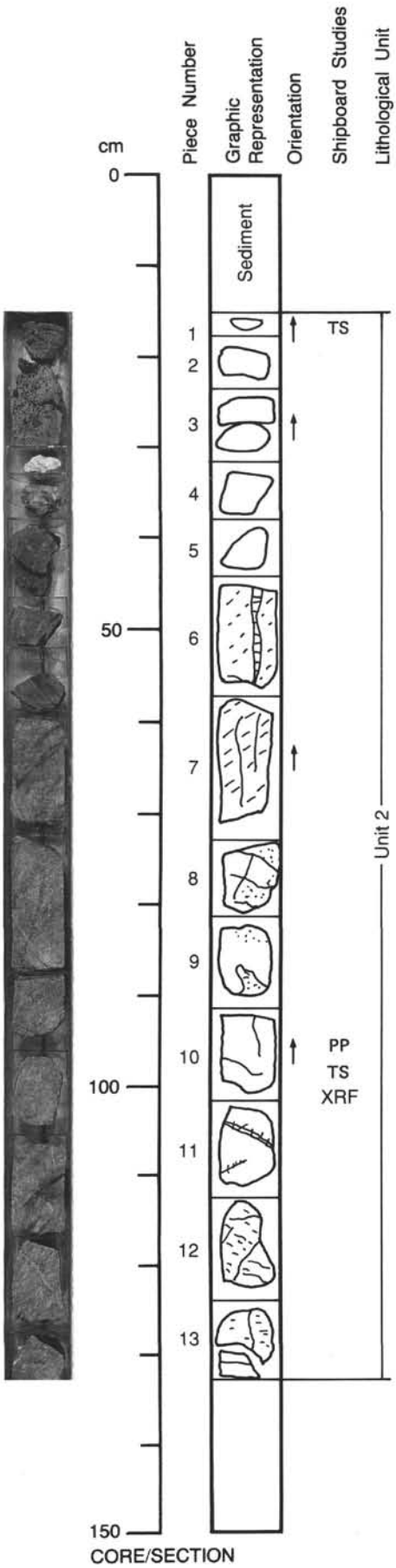
Primary silicates are variably serpentinized.
Olivine - Mode: 70-90%.
Crystal size: 5-14 mm.
Crystal shape: Equant to ragged and elongate.
Crystal orientation: None.
Percent replacement: 60-70.

Orthopyroxene - Mode: 10-30%.
Crystal size: 3-8 mm.
Crystal shape: Equant-ragged.
Crystal orientation: None.
Percent replacement: 60-70.

Spinel - Mode: Trace.
Crystal size: <3 mm.
Crystal shape: Equant-elongate.
Crystal orientation: None.
Percent replacement: 60-70.

SECONDARY MINERALOGY:

Intensity of serpentinization is higher closer to the veins.
Total percent: 60-70%.
Texture: N/A.
Vein material: Major polyphase vein cutting Piece 7B, dipping at 60-70 degrees, filled with dark gray-green serpentine and subsequent chrysotile. Latter mineral also forms cross-stitching ("Frankenstein") texture along this vein. Total vein width: <30 mm; other pieces of this section have veins <5 mm wide.



125-780C-8R-1

UNIT 2: CALCITE WITH SERPENTINE COATING

Piece 1

COLOR: Greenish white (5Y 8/1).
LAYERING: Result from impurities causing green bands that are irregular, 2-5 mm wide, and subparallel.
DEFORMATION: None.
PRIMARY MINERALOGY:
Calcite appears drusy.
Calcite - Mode: 95%.
Crystal size: 1-5 mm.
Crystal shape: Equant.
Crystal orientation: None.
Percent replacement: None.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 25?
Texture: N/A.
Vein material: Possibly serpentinous.

UNIT 2: SERPENTINIZED DUNITE

Pieces 2 to 5

COLOR: Greenish dark gray (5Y 2.5/1).
LAYERING: Massive.
DEFORMATION: Some mylonitization; elongate spinels.
PRIMARY MINERALOGY:
Primary minerals are extensively serpentinized.
Olivine - Mode: 99%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None.
Percent replacement: 50-60.

Spinel - Mode: Trace.
Crystal size: Equant-elongate.
Crystal shape: Not visible.
Crystal orientation: None.
Percent replacement: 10-20.

Orthopyroxene - Mode: 1%.
Crystal size: 2-5 mm.
Crystal shape: Equant.
Crystal orientation: None.
Percent replacement: 50-60.
SECONDARY MINERALOGY:
Serpentinite.
Total percent: 50-60%.
Texture: N/A.
Vein material: Two generations: (1) dark amorphous serpentinite, 0.5-1 mm wide; (2) white chrysotile crosscutting first set, 0.25-1.5 mm wide.

125-780C-8R-1 (continued)

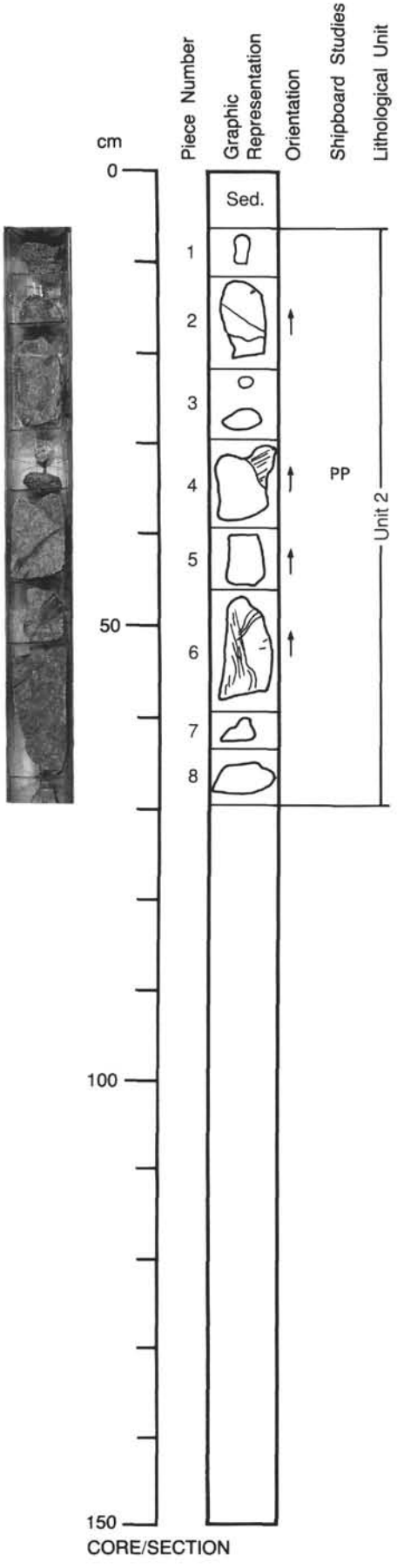
UNIT 2: SERPENTINIZED TECTONIZED HARZBURGITE

Pieces 6 to 13

COLOR: Greenish gray (5Y 2.5/3).
LAYERING: None.
DEFORMATION: Orthopyroxene foliation formed by alignment of elongate orthopyroxene with an apparent dip of 45 degrees; wavy cleavage on orthopyroxene; spinels in stringers.
PRIMARY MINERALOGY:
Primary silicates variably serpentinized
Olivine - Mode: 70-90%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None.
Percent replacement: Variable.

Orthopyroxene - Mode: 10-30%.
Crystal size: 3-7 mm.
Crystal shape: Elongate.
Crystal orientation: None.
Percent replacement: Variable.

Spinel - Mode: Trace.
Crystal size: 0.5-1.0 mm.
Crystal shape: Subelongate-equant.
Crystal orientation: None.
Percent replacement: Variable.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 70?
Texture: N/A.
Vein material: Two generations: subvertical, 0.1-0.5 mm wide, filled with black amorphous serpentine. Cut by white chrysotile veins forming cross-stitched texture as well as individual veins of variable orientation and between 0.1-3 mm wide.
ADDITIONAL COMMENTS: Serpentinization is maximized adjacent to first generation veins where it forms veins up to 8 mm wide.



125-780C-9R-1

UNIT 2: TECTONIZED SERPENTINIZED HARZBURGITE

Pieces 1 to 8

COLOR: Green olive gray to gray (5Y 5/2 to 2.5Y 4/5).
LAYERING: None.
DEFORMATION: Piece 2 appears to have deformed and elongate bastite after pyroxene.
PRIMARY MINERALOGY:

Olivine - Mode: 80-90%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None.
Percent replacement: 80-95.

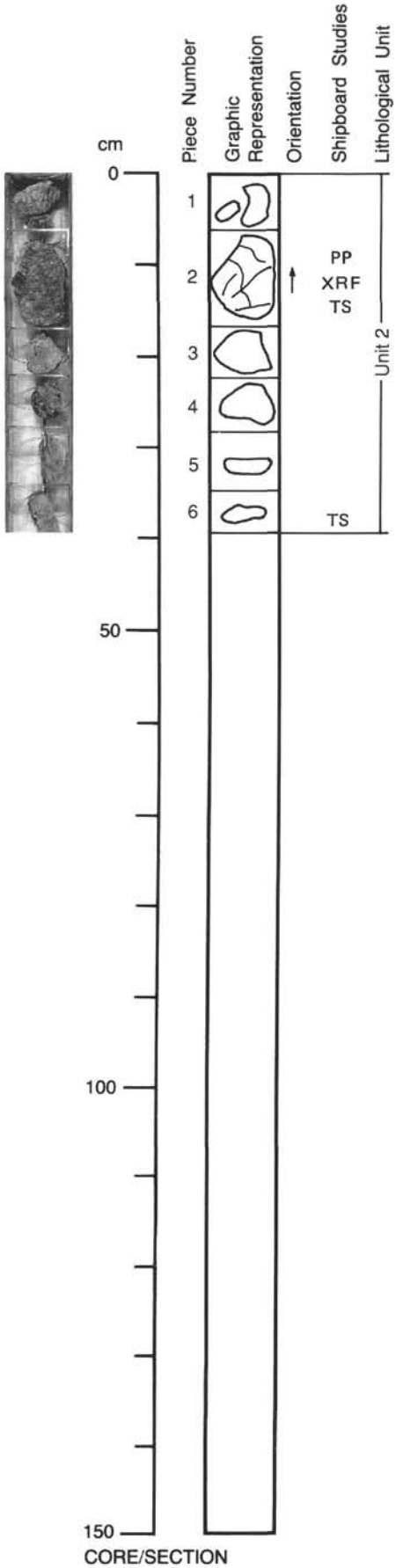
Orthopyroxene - Mode: 10-20%.
Crystal size: 0.2-6 mm.
Crystal shape: Ragged-elongate.
Crystal orientation: None.
Percent replacement: 80-95.

Spinel - Mode: Trace.
Crystal size: 0.9 mm.
Crystal shape: Equant.
Crystal orientation: None.
Percent replacement: 30-40.

SECONDARY MINERALOGY:

Serpentine.
Total percent: 80-95%.
Texture: N/A.
Vein material: Three generations: (1) steeply dipping filled with black amorphous serpentine 8-12 mm wide; (2) amorphous pale gray serpentine apparently at low angle in Piece 2 (1-5 mm wide); (3) small cross-stitched veins of chrysotile in various directions, 0.1 mm wide.

ADDITIONAL COMMENTS: Variable serpentinization appears to be controlled by position of veins.



125-780C-10R-1

UNIT 2: SERPENTINIZED DUNITE

Pieces 1, 3, 4

COLOR: Dark greenish gray (5BG 4/1).
LAYERING: None.
DEFORMATION: None.
PRIMARY MINERALOGY:
Primary silicates variably serpentinized.
Olivine - Mode: 90-95%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None.
Percent replacement: 90-95.

Orthopyroxene - Mode: <5%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None.
Percent replacement: 90-95.

Spinel - Mode: <2%.
Crystal size: <2 mm.
Crystal shape: Equant.
Crystal orientation: None.
Percent replacement: 20-40.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 90-95%.
Texture: N/A.
Vein material: <1-mm-wide black amorphous serpentine veins; <1-mm-wide white veins also.

UNIT 2: SERPENTINIZED HARZBURGITE

Piece 2

COLOR: Dark greenish gray (5G 4/1).
LAYERING: None.
DEFORMATION: None.
PRIMARY MINERALOGY: Primary silicates variably serpentinized.
Olivine - Mode: 70-80%.
Crystal size: 1-4 mm.
Crystal shape: Equant.
Crystal orientation: None.
Percent replacement: 70-80.

Orthopyroxene - Mode: 20-25%.
Crystal size: 1-3 mm.
Crystal shape: Equant.
Crystal orientation: None.
Percent replacement: 70-80.

Spinel - Mode: 1-2%.
Crystal size: <2 mm.
Crystal shape: Equant.
Crystal orientation: None.
Percent replacement: 10-30.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 70-80%.
Texture: Bastitic pseudomorphs after pyroxenes in areas?
Vein material: Anastomosing black-green serpentine veins at various orientations (<2 mm wide).

125-780C-10R-1 (continued)

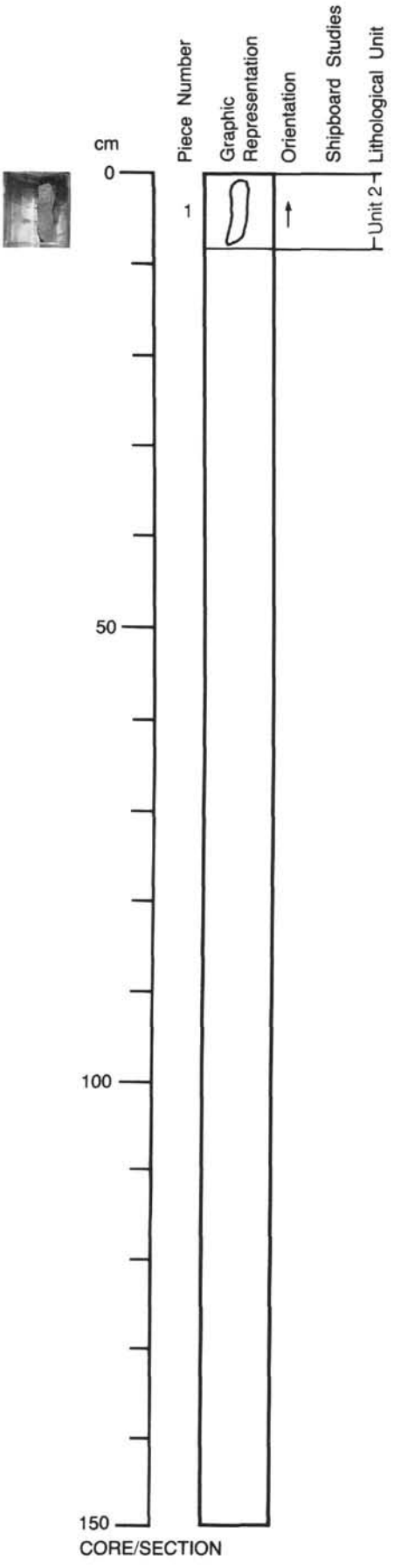
UNIT 2: TECTONIZED SERPENTINIZED DUNITE

Pieces 5, 6

COLOR: Dark greenish gray (5B 4/1).
LAYERING: None.
DEFORMATION: Appears tectonized; orthopyroxenes are elongated parallel to fabric.
PRIMARY MINERALOGY:
Olivine - Mode: 90-95%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None.
Percent replacement: 95-99.

Orthopyroxene - Mode: 5-10%.
Crystal size: 1-3 mm.
Crystal shape: Elongated.
Crystal orientation: None.
Percent replacement: 95-99.

Spinel - Mode: Trace.
Crystal size: <2 mm.
Crystal shape: Equant - elongated.
Crystal orientation: None.
Percent replacement: 20-40.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 95-99%.
Texture: N/A.
Vein material: <1-mm-wide veining.
ADDITIONAL COMMENTS: Piece 6 contains an olivine-rich area (1 cm X 1 cm).



125-780C-11R-1

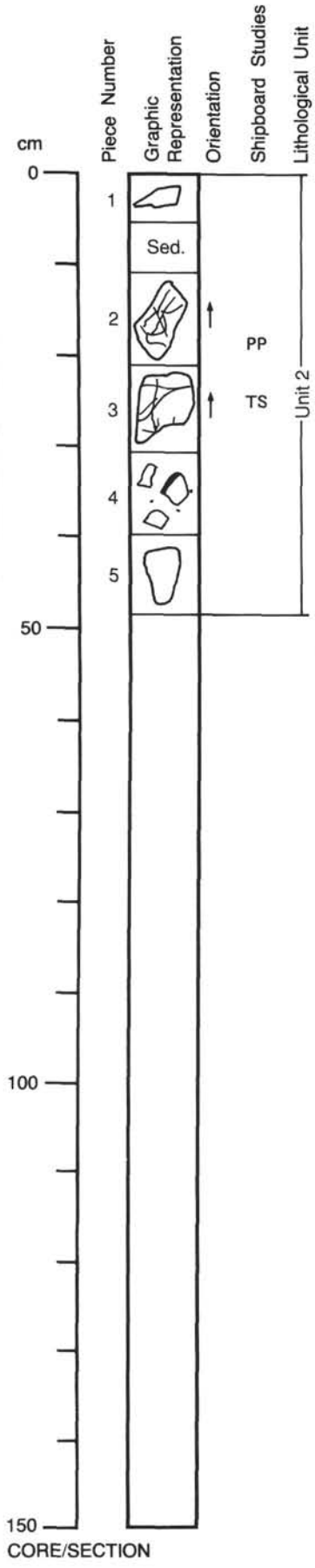
UNIT 2: SERPENTINIZED DUNITE

Piece 1

COLOR: Dark greenish gray (5BG 4/1).
LAYERING: None visible.
DEFORMATION: None visible.
PRIMARY MINERALOGY:
Olivine - Mode: 90-95%.
Crystal size: 1-2 mm.
Crystal shape: Equant.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: 5%.
Crystal size: <2 mm.
Crystal shape: Equant.
Crystal orientation: None visible.
Percent replacement: Variable.

Spinel - Mode: 2%.
Crystal size: <2 mm.
Crystal shape: Equant.
Crystal orientation: None visible.
Percent replacement: Not visible.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 60-70%.
Texture: N/A.
Vein material: <1-mm-wide black serpentine veins at no specific orientation.



125-780C-12R-1

UNIT 2: SERPENTINIZED DUNITE(?)

Piece 1

COLOR: Dark greenish gray (5BG 4/1).
LAYERING: None visible.
DEFORMATION: None visible.
PRIMARY MINERALOGY:
Olivine - Mode: 90-95%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: <5%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None visible.
Percent replacement: Variable.

Spinel - Mode: <2%.
Crystal size: <2 mm.
Crystal shape: Equant.
Crystal orientation: None visible.
Percent replacement: Variable.

SECONDARY MINERALOGY:
Serpentine.
Total percent: 90-95%.
Texture: N/A.
Vein material: <1-mm-wide black amorphous serpentine veins at no specific orientation.
ADDITIONAL COMMENTS: Similar to 780C 10R-1, Pieces 1, 3, and 4.

UNIT 2: SERPENTINIZED HARZBURGITE

Piece 2

COLOR: Dark gray (N 4/).
LAYERING: None.
DEFORMATION: Orthopyroxene appears slightly elongated and has possible wavy cleavages.
PRIMARY MINERALOGY:
Olivine - Mode: 75-80%.
Crystal size: 1-2 mm.
Crystal shape: Equant-elongate.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: 20-25%.
Crystal size: 2-3 mm.
Crystal shape: Equant-ragged.
Crystal orientation: None visible.
Percent replacement: Variable.

Spinel - Mode: <2%.
Crystal size: <2 mm.
Crystal shape: Equant-ragged.
Crystal orientation: None visible.
Percent replacement: Not visible.

SECONDARY MINERALOGY:
Serpentine.
Total percent: 60?
Texture: Bastitic pseudomorphs after orthopyroxene in areas but basically appear fresh.
Vein material: Anastomosing black serpentine veins <2 mm wide at no specific orientation.

125-780C-12R-1 (continued)

UNIT 2: CLAY-RICH SILTSTONE WITH CARBONATE VEINS

Piece 3

COLOR: Weak red (5R 5/2).
LAYERING: Possible layering defined by light red to dark red zones.
DEFORMATION: None.
PRIMARY MINERALOGY: Hard to discern crystals.
SECONDARY MINERALOGY:
Clays (red) 85%; carbonate 5%; quartz 15% (based on thin-section description).
Total percent: 100%.
Texture: N/A.
Vein material: Calcite (white) veins 1-5 mm wide.
ADDITIONAL COMMENTS: Clast appears to be hydrothermally altered. It may be an altered clay-rich siltstone. It contains 15% microfossils (foraminifers) which are silicified.

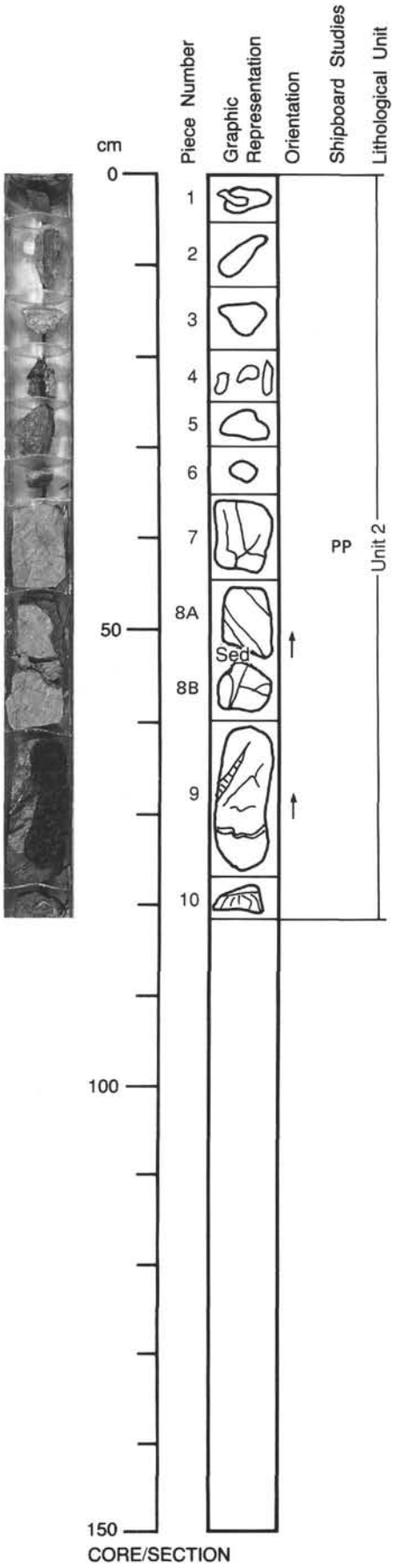
UNIT 2: SERPENTINIZED HARZBURGITE

Pieces 4A; 4B; 5

COLOR: Dark greenish gray (5BG 4/1).
LAYERING: Not visible.
DEFORMATION: None visible.
PRIMARY MINERALOGY:
Olivine - Mode: 80%.
Crystal size: 1-2 mm.
Crystal shape: Equant.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: 15-20%.
Crystal size: 1-3 mm.
Crystal shape: Equant-elongated.
Crystal orientation: None visible.
Percent replacement: Variable.

Spinel - Mode: Trace.
Crystal size: <1 mm.
Crystal shape: Equant.
Crystal orientation: None visible.
Percent replacement: Not visible.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 70%.
Texture: Bastitic-pseudomorphs after orthopyroxene in areas.
Vein material: <1-mm-wide white veins; Piece 4A has a 6-mm-wide pale-green amorphous serpentine vein.



125-780C-13R-1

UNIT 2: SERPENTINIZED DUNITE

Pieces 1; 2; 4; 6

COLOR: Dark greenish gray (5BG 4/1).
LAYERING: None visible.
DEFORMATION: None visible.
PRIMARY MINERALOGY:
Olivine - Mode: 90%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: <10%.
Crystal size: 1-2 mm.
Crystal shape: Not visible.
Crystal orientation: None visible.
Percent replacement: Variable.

Spinel - Mode: Trace.
Crystal size: <1 mm.
Crystal shape: Not visible.
Crystal orientation: Not visible.
Percent replacement: Not visible.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 80-90%.
Texture: N/A.
Vein material: <1-mm pale-green serpentine veins.

UNIT 2: SERPENTINIZED HARZBURGITE

Pieces 7, 8A, 8B

COLOR: Bluish gray (5B 6/1).
LAYERING: None visible.
DEFORMATION: None visible.
PRIMARY MINERALOGY:
Olivine - Mode: 80%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: 20%.
Crystal size: 1-3 mm.
Crystal shape: Equant-elongate.
Crystal orientation: None visible.
Percent replacement: Variable.

Spinel - Mode: Trace.
Crystal size: 1-3 mm.
Crystal shape: Elongate-ragged.
Crystal orientation: None visible.
Percent replacement: Variable.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 75%.
Texture: N/A.
Vein material: <2-mm-wide black amorphous serpentine oriented at various angles.

125-780C-13R-1 (continued)

UNIT 2: SERPENTINIZED HARZBURGITE

Pieces 3; 5; 9; 10

COLOR: Dark greenish gray (5BG 4/1).
LAYERING: None visible.
DEFORMATION: None visible.
PRIMARY MINERALOGY:

Olivine - Mode: 70%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None visible.
Percent replacement: Variable.

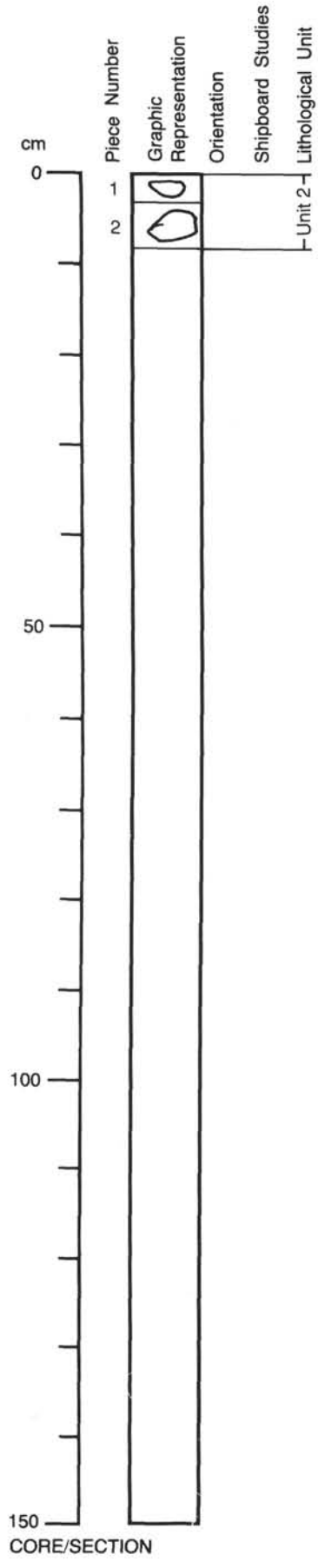
Orthopyroxene - Mode: 25-30%.
Crystal size: 1-3 mm.
Crystal shape: Equant-elongate.
Crystal orientation: None visible.
Percent replacement: Variable.

Spinel - Mode: <5%.
Crystal size: <2 mm.
Crystal shape: Equant-ragged.
Crystal orientation: None visible.
Percent replacement: Variable.

SECONDARY MINERALOGY:

Serpentine.
Total percent: 70%.
Texture: Bastitic pseudomorphs after orthopyroxene in areas.
Vein material: anastomosing black serpentine veins <2 mm wide; <1-mm-wide pale green-white veins.

ADDITIONAL COMMENTS: Piece 9 shows possible serpentinization halo; Piece 10 appears to be part of the halo.



125-780C-14R-1

UNIT 2: TECTONIZED SERPENTINIZED HARZBURGITE

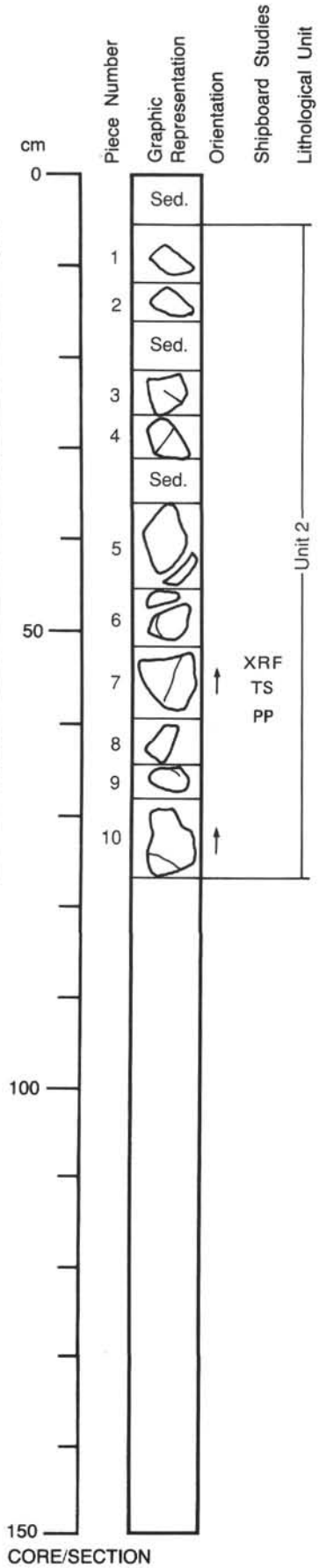
Pieces 1 and 2

COLOR: (Piece 1) grayish green (5G 4/2) to (Piece 20) greenish gray (5BG 5/1).
LAYERING: None.
DEFORMATION: Possible lamination/foliation of orthopyroxene.
PRIMARY MINERALOGY:
Olivine - Mode: 55-65%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: 35-45%.
Crystal size: 3-5 mm.
Crystal shape: Elongate-equant.
Crystal orientation: Possible lamination/foliation of grains.
Percent replacement: Variable.

Spinel - Mode: Trace.
Crystal size: <0.1 mm.
Crystal shape: Equant.
Crystal orientation: None visible.
Percent replacement: Variable.

SECONDARY MINERALOGY:
Serpentine.
Total percent: 50-80%.
Texture: N/A.
Vein material: N/A.
ADDITIONAL COMMENTS: Piece 2 is more completely serpentinized than most (almost talcose?).



125-780C-16R-1

UNIT 2: TECTONIZED SERPENTINIZED HARZBURGITE

Pieces 1 to 10

COLOR: Dark bluish gray to bluish gray (5B 4/1 to 5B 5/1).
LAYERING: None.
DEFORMATION: Wavy cleavage on orthopyroxene; elongate ragged spinel.
PRIMARY MINERALOGY:

Olivine - Mode: 80-90%.
Crystal size: 3-10 mm.
Crystal shape: Elongate-ragged.
Crystal orientation: None visible.
Percent replacement: 70-80.

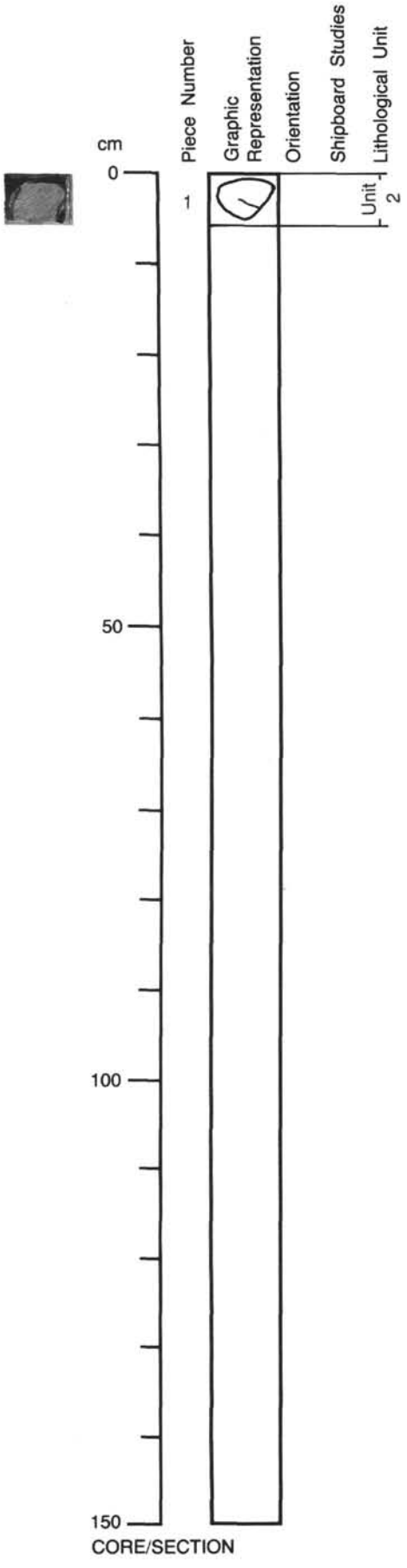
Orthopyroxene - Mode: 10-20%.
Crystal size: 3-5 mm.
Crystal shape: Ragged.
Crystal orientation: None visible.
Percent replacement: 50-70.

Spinel - Mode: <1%.
Crystal size: <2 mm.
Crystal shape: Equant-elongate.
Crystal orientation: None visible.
Percent replacement: Not visible.

SECONDARY MINERALOGY:

Serpentine.
Total percent: 70-80%.
Texture: N/A.
Vein material: <4 mm wide, filled with gray-green and black amorphous serpentine; small <1-mm chrysotile-filled veins.

ADDITIONAL COMMENTS: Pieces 3-6 appear more serpentinized than Pieces 7-10.



125-780C-17R-1

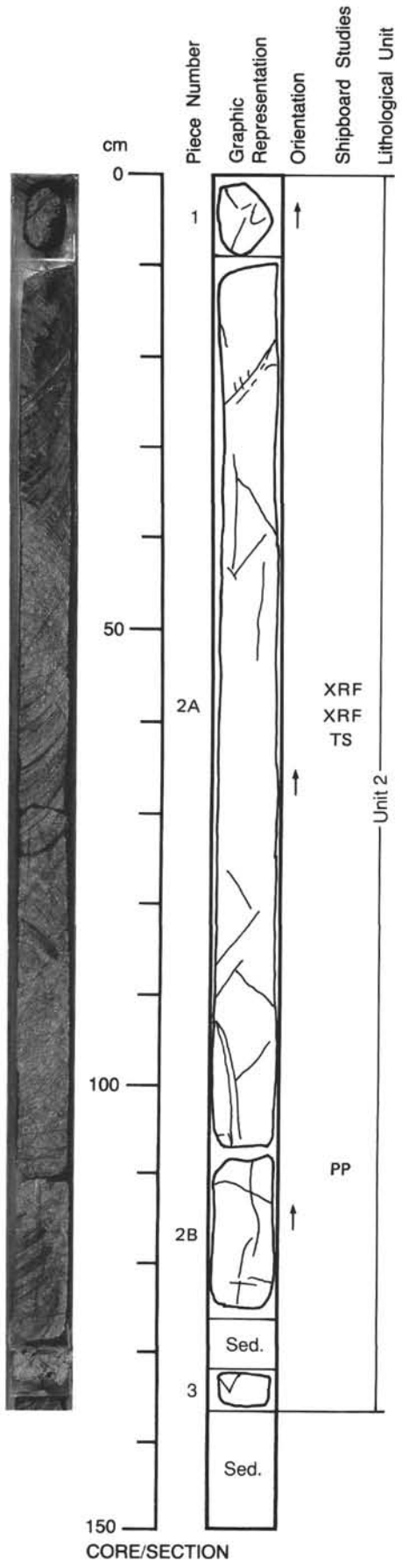
UNIT 2: SERPENTINIZED AND STRONGLY FOLIATED HARZBURGITE

Piece 1

COLOR: Bluish gray (5B 5/1).
LAYERING: Strong apparent layering defined by orthopyroxene cleavage and crystal alignment.
DEFORMATION: Strong preferred orientation of silicates; wavy cleavage surface of orthopyroxene; elongate spinels in stringers.
PRIMARY MINERALOGY:
Olivine - Mode: 50-80%.
Crystal size: 3-10 mm.
Crystal shape: Elongate-ragged.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: 20-50%.
Crystal size: 3-6 mm.
Crystal shape: Elongate-equant.
Crystal orientation: Defines layering.
Percent replacement: Variable.

Spinel - Mode: <3%.
Crystal size: <4 mm.
Crystal shape: Equant-elongate.
Crystal orientation: Arranged in stringers.
Percent replacement: Not visible.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 50-80%.
Texture: N/A.
Vein material: Thin (<0.5 mm), filled with a white serpentinous phase.
ADDITIONAL COMMENTS: Relatively orthopyroxene-rich rock with an eye-catching preferred orientation of the orthopyroxene.



125-780C-18R-1

UNIT 2: SERPENTINIZED TECTONIZED HARZBURGITE

Pieces 1-3

COLOR: Dark greenish gray to dark bluish gray (5G 4/1 to 5B 4/1).
LAYERING: None.
DEFORMATION: Orthopyroxene has wavy cleavage; some elongate spinels.
PRIMARY MINERALOGY:

Olivine - Mode: 80-90%.
Crystal size: 4-10 mm.
Crystal shape: Irregular-equant.
Crystal orientation: None visible.
Percent replacement: 70-80.

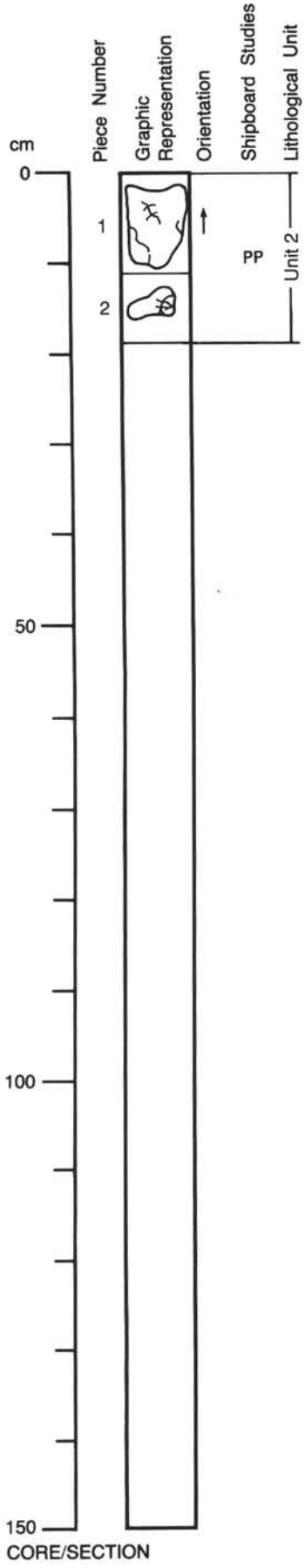
Orthopyroxene - Mode: 10-20%.
Crystal size: 3-6 mm.
Crystal shape: Equant-irregular.
Crystal orientation: None visible.
Percent replacement: 50-70.

Spinel - Mode: <1%.
Crystal size: <4 mm.
Crystal shape: Equant-irregular.
Crystal orientation: Some elongation of grains.
Percent replacement: Not visible.

SECONDARY MINERALOGY:

Serpentine.
Total percent: 50-80%.
Texture: N/A.
Vein material: At least two generations: (1) linear-anastomosing <4 mm wide filled with dark gray-black amorphous serpentine; (2) <1 mm wide, near top of Piece 2A, filled with chrysotile following and cross-stitching an earlier vein.

ADDITIONAL COMMENTS: Primary silicates are variably serpentinized with some fresh-looking areas left. Piece 2 is the largest single core piece recovered from Conical Seamount, and shows a gradation in degree of serpentinization from top to the middle.



125-780D-5X-1

UNIT 2: SERPENTINIZED HARZBURGITE

Pieces 1 and 2

COLOR: Dark bluish gray (5B 4/1).
LAYERING: None.
DEFORMATION: Some tectonized fabric defined by elongation of pyroxenes and some stringers of spinel.
PRIMARY MINERALOGY:
Olivine - Mode: 70-80%.
Crystal size: <2 mm.
Crystal shape: Not visible.
Crystal orientation: None visible.
Percent replacement: Variable.

Orthopyroxene - Mode: 20-25%.
Crystal size: 1-4 mm.
Crystal shape: Equant-elongate.
Crystal orientation: Defines a fabric.
Percent replacement: Variable.

Spinel - Mode: <5%.
Crystal size: <2 mm.
Crystal shape: Equant-ragged.
Crystal orientation: Some stringers.
Percent replacement: Not visible.
SECONDARY MINERALOGY:
Serpentine.
Total percent: 50-80%.
Texture: Bastitic pseudomorphs after pyroxenes in areas.
Vein material: <1-mm-wide white veins oriented mostly 45 degrees from core barrel. Also these veins are crosscut by smaller (<1-mm-wide and <3-mm-long) veins oriented 90 degrees to main vein; dark black amorphous serpentine veins <1 mm wide.

125-780C-6R-01 (Piece 7A, 61-62 cm) OBSERVER: SAB WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.1-5 mm

TEXTURE: Mesh

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	21	78	0.1-5		Anhedral	Altered to serpentine mesh; wavy extinction, kinked.
Clinopyroxene	1	1	0.1-0.4		Anhedral	Around orthopyroxene margins usually and lamellae.
Spinel	1	1	0.5-2	Cr	Anhedral	Red, altered to magnetite.
Orthopyroxene	15	20	0.5-3		Subhedral-anhedral	Wavy extinction, kink-banded, altered to serpentine bastite and chlorite(?).
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	2	Orthopyroxene	Blue-green to green pleochroism, anhedral patches forming around orthopyroxene cleavages and fractures.
Serpentine	60	Olivine, orthopyroxene	Lizardite and/or chrysotile forming mesh and bastite textures from olivine and orthopyroxene.
Magnetite	1	Spinel	Dusty 0.1-mm grains concentrated in serpentine vein.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Spinels sometimes form ragged trains; spinels have inclusions of orthopyroxene and olivine. Orthopyroxene have wavy extinction, kink-bands, exsolution lamellae of clinopyroxene which are bent; inclusions of olivine(?). Olivine grains are fractured, show wavy extinction, and have kink-banding. Some olivine and orthopyroxene have recrystallized into smaller microgranoblasts?? Many chrysotile and magnetite veins (1-2 mm wide) parallel each other at 40 degree angle to long axis of slide.

125-780C-7R-01 (17-20 cm) OBSERVER: MUR WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentine sandstone

GRAIN SIZE: Up to 2 mm

TEXTURE: Poorly sorted

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	0	N/A		N/A	
Plagioclase	0	0	N/A		N/A	
Clinopyroxene	1	3	N/A		N/A	
Spinel	1	1	0.1-0.5	Cr	N/A	
Orthopyroxene	0	4	1-3		N/A	
GROUNDMASS						
Serpentine	90	N/A	N/A		N/A	Forms very fine-grained unsorted matrix with brucite, serpentine grains are oriented (i.e. by bedding processes?).
Brucite	8	N/A	N/A		N/A	Forms very fine-grained unsorted matrix with serpentine.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: No piece number given.

125-780C-8R-01 (Piece 1,16-17 cm) OBSERVER: TER WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Carbonate rock

GRAIN SIZE: Fine, <2 mm

TEXTURE:

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Calcite	90	100	fine <2		Subhedral-euhedral	
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays (?)	10	Calcite	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Carbonate includes microfossils (radiolarians) and a greenish white section (5 cm by 2 cm) that may be part of a calcite vein.

125-780C-8R-01 (Piece 10,98-101 cm) OBSERVER: SAB WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentinized dunite

GRAIN SIZE: 0.1-3 mm

TEXTURE: Mesh (and cataclastic)?

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	38.5	92	1-2	Fo95	Anhedral	Altered to serpentine mesh; 2V=-85 degrees wavy extinction.
Spinel	0.5	1	0.1-1		Anhedral	Dark brown-red; altered to magnetite.
Orthopyroxene	0	7	1-3		Anhedral	Completely altered to serpentine bastite and chlorite.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	2		Pale-green to yellow pleochroism, located along bastite cleavages and grains.
Serpentine	55	Olivine, orthopyroxene	Lizardite and/or chrysotile forming mesh and bastite textures. Chrysotile and magnetite veins occur.
Magnetite	1	Spinel	Dusty, 0.1-mm grains concentrated mostly along serpentine veins.
Talc	3	Orthopyroxene, serpentine	High birefringence, fibrous, altering from serpentine bastite and olivine mesh throughout slide.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Olivine has wavy extinction, elongated and extremely fractured (almost cataclastic looking). Few spinels are rimmed by another phase (anomalous brown interference colors) and then rimmed by chlorite (anomalous deep-blue colors). Multiple vein sets have conjugate set orientation. First generation veins have elongate magnetite trails. Second generation cuts these trails. Orthopyroxene is completely altered although olivine is still present (highly fractured and broken up). Veins are 0.5-3 mm wide.

125-780C-10R-01 (Piece 2,13-16 cm) OBSERVER: SAB WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Tectonized serpentinized harzburgite

GRAIN SIZE: 0.1-4 mm

TEXTURE: Protocataclastic-mesh

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	15	76	1-3		Elongate-anhedral	Altered to serpentine mesh; wavy extinction.
Clinopyroxene	0.5	0.5	0.1-0.5		Subhedral-anhedral	As exsolution lamellae, as grains in and around orthopyroxene.
Spinel	1.5	1.5	0.1-1	Cr	Ragged-equant	Red brown, altered to magnetite.
Orthopyroxene	20	22	1-4		Elongate-anhedral	Altered to serpentine bastite, wavy extinction, fractures, strained; bent exsolution lamellae.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite(?)	<1	Serpentine	Very pale-green to yellow pleochroism; in anastomosing veins across slide.
Serpentine	62	Olivine, orthopyroxene	In veins, fractures, and shears. Mostly after olivine, amorphous microcrystalline aggregate-deformed mesh. Many coarse microscopic fiber veins (probably across fiber chrysotile). Lizardite and/or chrysotile mainly; probably antigorite(?).
Magnetite	<1	Spinel	Dusty 0.1-mm grains concentrated along serpentine veins.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: This rock has been tectonized. It has suffered brittle deformation, pervasive but with small total strain. The primary mineralogy has been disintegrated forming a proto-cataclastite. The serpentine (antigorite/lizardite) (?) has been sheared and pervasively deformed with serpentine laths now preferentially aligned indicating shearing. Spinels are disaggregated and strained and have serpentine pseudomorphs inclusions. Orthopyroxenes are deformed and have large number of olivine and clinopyroxene inclusions.

125-780C-10R-01 (Piece 6,36-37 cm) OBSERVER: SAB WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentinized dunite

GRAIN SIZE: Fine-grained serpentine

TEXTURE: Felted

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	96	Not visible		Not visible	Completely altered to serpentine blades; trace mesh serpentine visible.
Spinel	0.5	1	0.2-0.5	Cr	Ragged-anhedral	Forms stringers of 3-4 grains.
Orthopyroxene	0.5	3	0.1-0.5		Anhedral	Altered to serpentine bastite; broken grains relict in bastite which is commonly kink-banded.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	0.2	Orthopyroxene	Small patches forming along cleavages in orthopyroxene relics.
Serpentine	90.6	Olivine, orthopyroxene	Antigorite blades are the major phase present and forms a matted felt of splays of grain aggregates, lizardite and/or chrysotile. May appear in minor amounts (5%).
Magnetite	8	Olivine, spinel	Dusty 0.1-mm grains disseminated throughout serpentine.
Brucite(?)	0.2	Serpentine	Intermixed with serpentine but XRD is needed.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: This rock has suffered an unusual style of serpentinization with no/rare mesh texture preserved, and only a few bastite pseudomorphs. Instead the rock is almost entirely replaced by a felted texture of radiating laths of serpentine with no preferred orientation. All relic textures have been destroyed. Major serpentine phase is probably antigorite. No post-serpentinization deformation visible. Two thin sections made from this interval from the same piece.

125-780C-10R-01 (Piece 6,36-37 cm) OBSERVER: MUR WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentinized dunite

GRAIN SIZE: Fine-grained serpentine

TEXTURE: Felted

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	89.5	Not visible		Not visible	Completely altered to serpentine blades.
Spinel	1.5	1.5	0.1-0.8	Cr	Equant-anhedral	Forms stringers 3-4 grains, altered to magnetite.
Orthopyroxene	0	9	0.5-3		Anhedral	Completely altered to serpentine bastite.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Serpentine	96.5	Olivine, orthopyroxene	Antigorite felted laths in radiating aggregates throughout slide.
Magnetite	1.5	Olivine, orthopyroxene, spinel	Dusty 0.1-mm grains disseminated throughout.
Brucite	0.5	Serpentine	Distributed throughout slide intermixed with serpentine.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Rock is totally replaced by serpentine (antigorite). No post-serpentinization deformation is apparent in the slide. There are two thin sections made from this piece. This slide appears to be more orthopyroxene-rich, but is nonetheless a dunite. It is difficult to tell because of the degree of serpentinization and the fact that not all orthopyroxene forms bastite when being serpentinized! Spinels are altering to two phases-one with anomalous brown colors and one with anomalous blue.

125-780C-12R-01 (Piece 3,23-24 cm) OBSERVER: TER WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Siltstone with carbonate veins

GRAIN SIZE: Extremely fine-grained

TEXTURE: Sedimentary

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	80	?	Reddish brown.
Carbonate	5	?	
Silica	15	Fossils	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Reddish brown siltstone with white carbonate veins. It may be (hydrothermally?) altered clay-rich siltstone. Siltstone contains abundant microfossils (foraminifers and radiolarians), which are silicified.

125-780C-16R-01 (Piece 7,53-59 cm) OBSERVER: SAB WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.1-3.5 mm

TEXTURE: Granular-mesh

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	20	74	1-3		Anhedral	Altered to serpentine mesh texture, wavy extinction.
Clinopyroxene	Trace	Trace	0.1-0.2		Anhedral	As exsolution lamellae, minor grains near orthopyroxene.
Spinel	0.5	0.5	0.1-1	Cr	Ragged-anhedral	Red; elongated and disaggregated.
Orthopyroxene	15	24.5	1-3.5		N/A	Altering to serpentine bastite; exsolution lamellae of clinopyroxene strained, wavy extinction.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Serpentine	64.5	Olivine, orthopyroxene	Lizardite and/or chrysotile forming "proto" mesh texture. No antigorite visible; chrysotile forms minor veins (0.2-0.4 mm wide) across slide.
Brucite	Trace	Olivine, orthopyroxene, serpentine?	Concentrated in veins only.
Magnetite	1	Spinel, olivine	Dusty 0.2-mm grains distributed mostly along serpentine veins.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Rock shows only slight strain as wavy extinction. However, both olivine and orthopyroxene are compressionally fractured. This rock is tectonized.

125-780C-18R-01 (Piece 2A, 60-61 cm) OBSERVER: SAB WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.1-3 mm

TEXTURE: Granular, mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	15	76.5	0.5-3		Anhedral	Altering to serpentine mesh.
Clinopyroxene	1.5	1.5	0.1-0.6		Anhedral	Grains in and near orthopyroxene crystals.
Spinel	1.5	2	0.1-0.5	Cr	Anhedral	Red; altering to magnetite and chlorite(?).
Orthopyroxene	12	20	0.5-3		Subhedral-anhedral	Altering to serpentine bastite, wavy extinction, kink-banded.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	<1	Serpentine	Dusty brown clays throughout slide and mainly within serpentine veining.
Chlorite?	<1	Orthopyroxene	Pale-green to pale-yellow pleochroic; along orthopyroxene fractures and cleavages.
Serpentine	67	Olivine, orthopyroxene	Lizardite and/or chrysotile starting to form mesh and bastite textures throughout slide.
Magnetite	1	Olivine, orthopyroxene, spinel	Dusty 0.1-mm grains concentrated mostly in serpentine veins.
Talc	1	Orthopyroxene	High birefringence, fibrous, altering from orthopyroxene grains throughout slide.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Relatively clinopyroxene-rich harzburgite. Spinels are rimmed by phases which have anomalous brown and anomalous blue interference colors. Olivine and orthopyroxene show strain because of kink-banding and wavy extinction.

125-780D-2X-01 (7-8 cm) OBSERVER: MUR WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Metamorphosed serpentine sandstone

GRAIN SIZE: Very fine-grained, 1 mm

TEXTURE: Granular to pebbly sandstone with recrystallized matrix

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Serpentine	59-64	N/A	N/A		N/A	Makes up very fine grained matrix. Carbonate occurs as euhedral and anhedral grains as well as cavity.
Brucite	10	N/A	N/A		N/A	
CaCO3	10	N/A	N/A		N/A	
Chlorite	15-20	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	15-20		Located in clasts and in matrix. Pleochroism is very weak pale-green or even absent; much anomalous blue birefringence in thin section; some of it may be serpentine??
Hornblende	Trace	Detrital	One anhedral clast of brown hornblende.
Plagioclase	Trace	Detrital	One grain of plagioclase.
Opx pseudomorph		Detrital	Few clasts of serpentine pseudomorphs which may have previously been orthopyroxene; size ranges from 0.5 to 3 mm.
Magnetite	1	Detrital	0.1-0.5 mm; ragged to dusty clasts.
Spinel	0.5	Detrital	0.5-1 mm chrome spinel clasts; equant.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: A fascinating section that needs further analysis. Rock has a carbonate-rich layer/coating on one side of the section. Obviously a reworked sediment with detrital grains of serpentinized ultramafic rock. Some carbonate appears to replace earlier plagioclase. Some antigorite in clasts. Felted lath texture dominates the matrix and is undisturbed hence formation of this texture post-dates the clastic sedimentary history of sample (chlorite matrix?). No piece number given.

125-780D-7X-01 (25-26 cm) OBSERVER: TER WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentinite

GRAIN SIZE: 0.1-0.5 mm

TEXTURE: Interlocked patches of antigorite ribbons

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	?	N/A		N/A	
Spinel	0	?	N/A		N/A	
Orthopyroxene	0	?	N/A		N/A	
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Serpentine	94	Olivine, orthopyroxene	Antigorite blades throughout slide; ranging in size from 0.05 to 0.5 mm long.
Magnetite	3	Olivine	Dusty (0.3 mm) anhedral grains distributed throughout slide.
Brucite?	3	Olivine, orthopyroxene?	Distributed intermixed with serpentine throughout slide (0.1 to 0.3 mm).

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Completely serpentinized ultramafic rock. It is extremely difficult to determine primary mineralogy. Rock consists of antigorite blades and magnetite and brucite. No mesh or bastite serpentine textures are developed. Consists mostly of interlocking patches of antigorite. Estimate 40% primary olivine, 60% primary pyroxene. May have grains of bastite-looking bladed serpentine, (but very difficult to tell). No piece number given.

125-780D-7X-05 (94-96 cm) OBSERVER: SAB WHERE SAMPLED: Conical Seamount summit

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.1-2 mm

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	79	Not visible		Not visible	Altered completely to serpentine mesh.
Spinel	0.5	1	0.1-0.5		Anhedral	Red; some grains appear ragged.
Orthopyroxene	0	20	0.5-2		Subhedral-anhedral	Altered to serpentine bastite, wavy extinctions.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Serpentine	99	Olivine, orthopyroxene	Lizardite and/or chrysotile forming mesh and bastite. Numerous (0.5-1 mm wide) chrysotile veins at various orientations throughout slide.
Magnetite	<1	Olivine, orthopyroxene	Dusty, 0.1-mm, grains concentrated along serpentine veins.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Completely serpentinized harzburgite dominated by mesh and bastite textures. Numerous veins throughout slide at various orientations. No piece number given.