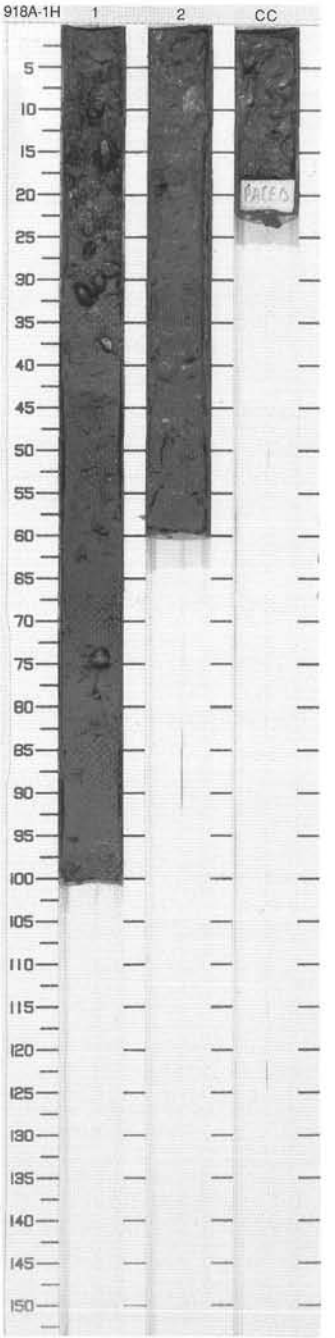
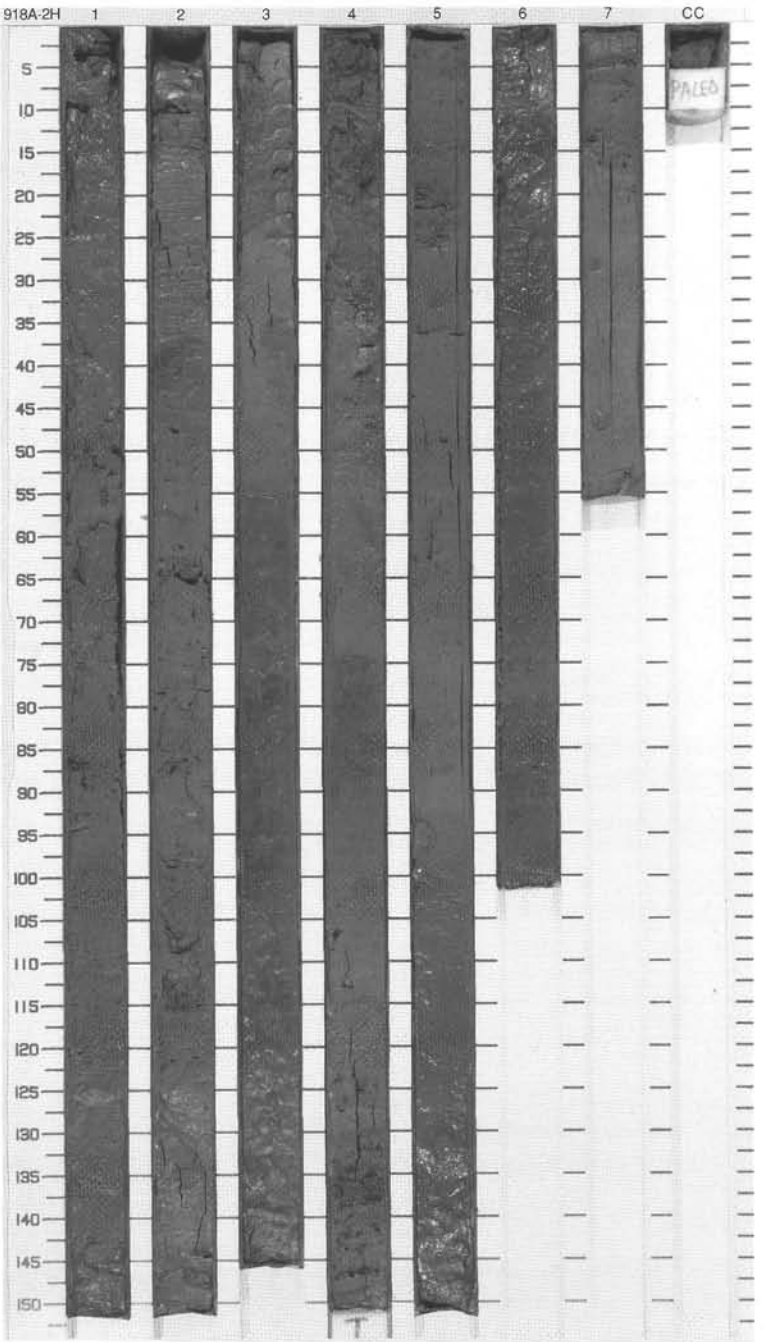
SITE 918 HOLE A CORE 1H CORED 0.0 - 1.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1	Holocene	◇ ◇ ◇		S S S S M	2.5Y 4/2	CLAY WITH SILT, SILTY CLAY WITH DROPSTONES and SILTY CLAY WITH SAND
		2					2.5Y N4/0	Major Lithologies: Dark gray (2.5Y 4/0) CLAY WITH SILT, SILTY CLAY WITH DROPSTONES and SILTY CLAY WITH SAND, slightly disturbed below 30 cm in Section 1 down to the bottom of the core. Below 29 cm depth in Section 1, dropstones (depth, size, lithology) occur in place: - 29.5 cm, 2 cm, gabbro; - 31 cm, 2.5 cm, basalt; - 37 cm, 1.5 cm, limestone; - 74 cm, 2.5 cm, gabbro.
		CC						Minor Lithologies: Dark grayish brown (2.5Y 4/2) CLAYEY SILT WITH SAND occuring as soupy sediment within the upper 30 cm of Section 1. GRAVEL dominates the upper 30 cm of Section 1. Glacial dropstones (depth, size, lithology) occur in a soupy sediment and therefore are probably removed from their original depth in core: - 9 cm, 2 cm, basalt; - 14 cm, 3 cm, basalt; - 14.5 cm, 1.5 cm, gabbro?; - 16 cm, 1 cm, gabbro?; - 23 cm, 2 cm, granitic rock; - 23 cm, 2 cm, granitic rock; - 25 cm, 1.5 cm, basalt.



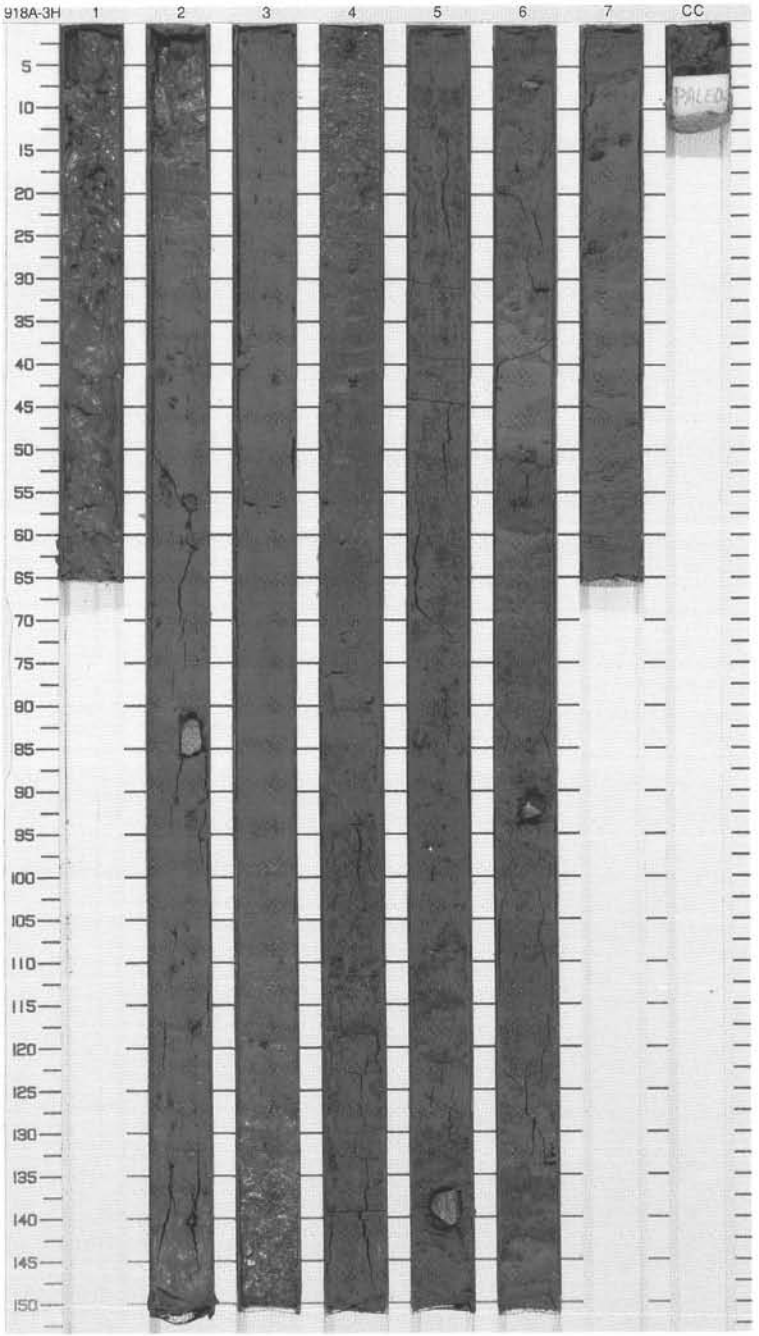
SITE 918 HOLE A CORE 2H CORED 1.8 - 11.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1–7, CC	Pleistocene-Holocene	↑F		S, S, I, S, M	5Y 3/1; 5Y 4/1; 5Y 3/1	SILT Major Lithology: SILT (Section 1, 0–126 cm, Section 1, 146 cm to Section 2, 146 cm, Section 3, 24–55 cm, Section 4, 28–75 cm, Section 4, 115 cm to Section 5, 16 cm, Section 5, 27–100 cm, and Section 7, 17 cm to CC), occurs as massive, homogeneous very dark gray (5Y 3/1) to dark gray (5Y 4/1) beds. Dropstones are very rare. Burrows of *Planolites* and unidentified larger forms are filled with the minor lithology FINE SAND and are seen in Section 7. Black lithic fragments (<1 mm), possibly of basalt, and foraminifers are commonly scattered throughout. Minor Lithologies: SILT WITH SAND (Section 1, 126–146 cm, Section 2, 37–40 cm, Section 2, 146 cm to Section 3, 24 cm, Section 3, 55 cm to Section 4, 75 cm, Section 4, 115 cm, Section 5, 16–27 cm, and Section 5, 100 cm to Section 7, 17 cm), occurs as homogeneous, very dark gray (5Y 3/1) beds. Small volumes of black lithic fragments (<1 mm), possibly of basalt, and foraminifers are scattered throughout. Fining-upward sequences and parallel laminations occur in Sections 4 and 6. FINE SAND is found as a darker layer in Section 2, 37–39 and 146–150 cm, and as the fill of burrows in Section 7.



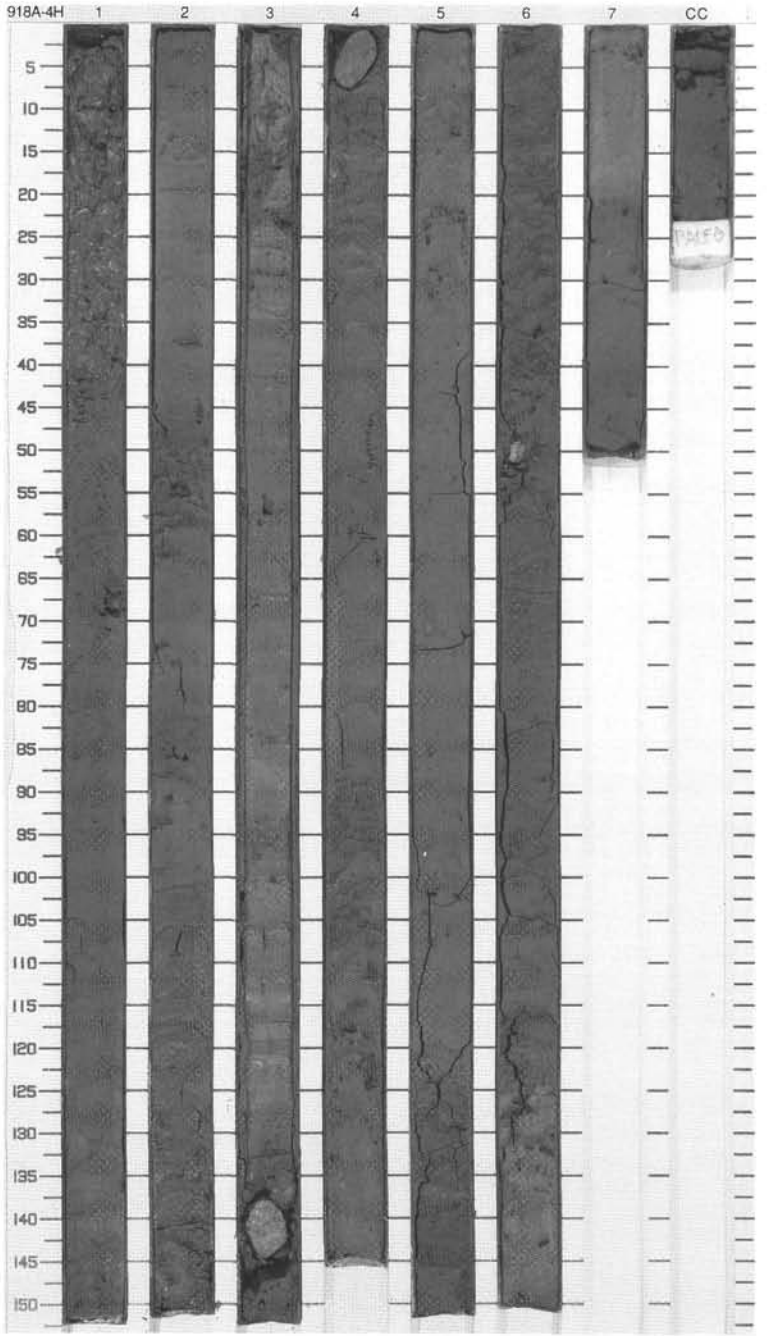
SITE 918 HOLE A CORE 3H CORED 11.3 - 20.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–8		1–7, CC	Pleistocene			S, S, S, S, S, S, M	5Y 3/1; 5Y 4/1 To 5Y 4/2; 5Y 3/1	SANDY SILT and SILT WITH SAND Major Lithologies: SANDY SILT and SILT WITH SAND are very dark gray (5Y 3/1), often disturbed by dewatering and deformation due to drilling. Contains occasional dropstones in a SANDY SILT matrix, and is locally thinly laminated, with beds from 1–7 mm thick. Some thin beds are slightly enriched in heavy minerals, including opaques and amphibole. Some areas appear to contain large foraminifers, visible to the naked eye. Contacts with overlying and underlying beds of silt are typically very sharp and linear. Minor Lithology: Dark gray (5Y 3/1) SILT is found in massive homogeneous layers from 10–70 cm thick. The gray silt occasionally contains dropstones or pods of fine sand, from 2–15 mm in diameter. Contacts with overlying and underlying sandy silt are mostly sharp and horizontal. General Description: Contains dropstones, including granite (1.5 cm across, Section 2, 55 cm), basalt (3.6 cm across, Section 2, 82 cm), basalt (1.1 cm across, Section 2, 140 cm), gneiss (4.2 cm across, Section 5,139 cm), limestone (2.2 cm across, Section 6, 6 cm), and basalt (2.8 cm across, Section 6, 91 cm).



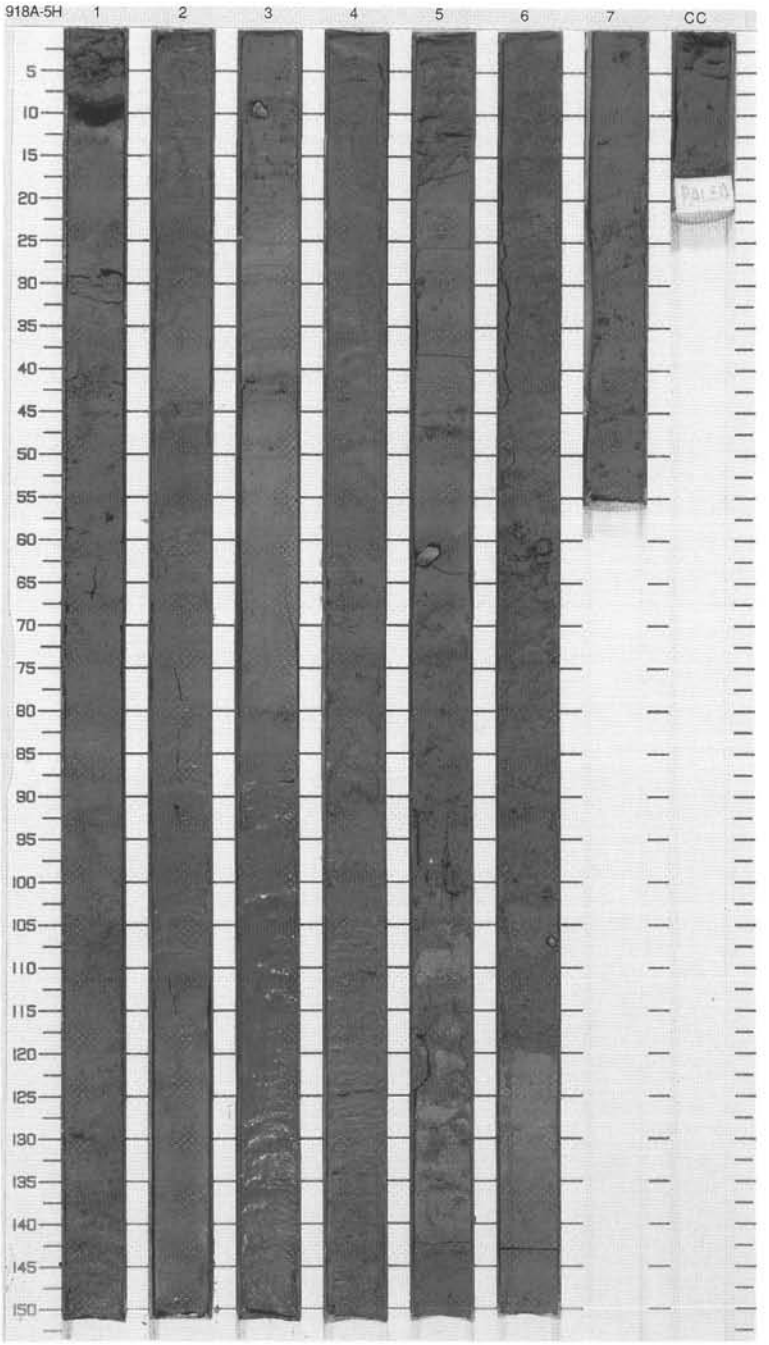
SITE 918 HOLE A CORE 4H CORED 20.8 - 30.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1–7, CC	Pleistocene			S, S, S, I, S, S, M	5Y 3/1; 5Y 4/1; 5Y 3/1	SILT WITH CLAY Major Lithology: SILT WITH CLAY (Section 1, 84 to 112 cm; Section 1, 113 cm to Section 2, 45 cm; Section 2, 59–78 and 90–101 cm; Section 3, 0–130 cm; Section 4, 42–50 cm and 57–86 cm; Section 4, 113 cm to Section 5, 120 cm; Section 5,136–137 cm and 145–150 cm; Section 6, 124 cm to Section 7, 2 cm; Section 7, 5–20 cm; and Section 7, 25 cm to CC), occurs as massive, quartz-rich, very dark gray (5Y 3/1) to dark gray (5Y 4/1) beds. Burrows filled with sand are commonly observed. Minor Lithologies: SILTY SAND (Section 1, 0–84 cm; Section 2, 45–59, 78–90, and 101–150 cm; Section 3, 130 cm to Section 4, 42 cm; Section 4, 50–57 and 86–113 cm), occurs as very dark gray, quartz-rich massive beds. Burrows filled with sand are common. Fining-upward sequences occur at Section 2, 45–59, 78–90, and 101–108 cm and Section 4, 86–113 cm. Foraminifers are scattered throughout. SILT WITH FORAMINIFERS (Section 5, 120–136 and 137–145 cm; Section 6, 0–124 cm), very dark gray (5Y 3/1), quartz rich. Foraminifers are very abundant (up to 10%). Small layers of SAND WITH SILT are noted in Section 5. They are associated with burrowing. General Description: Core contains dropstones, including metaconglomerate (6.5 cm long at Section 3, 138 cm), gneiss (6.7 cm long at Section 4, 0 cm), and limestone (2.7 cm long at Section 6, 48 cm).

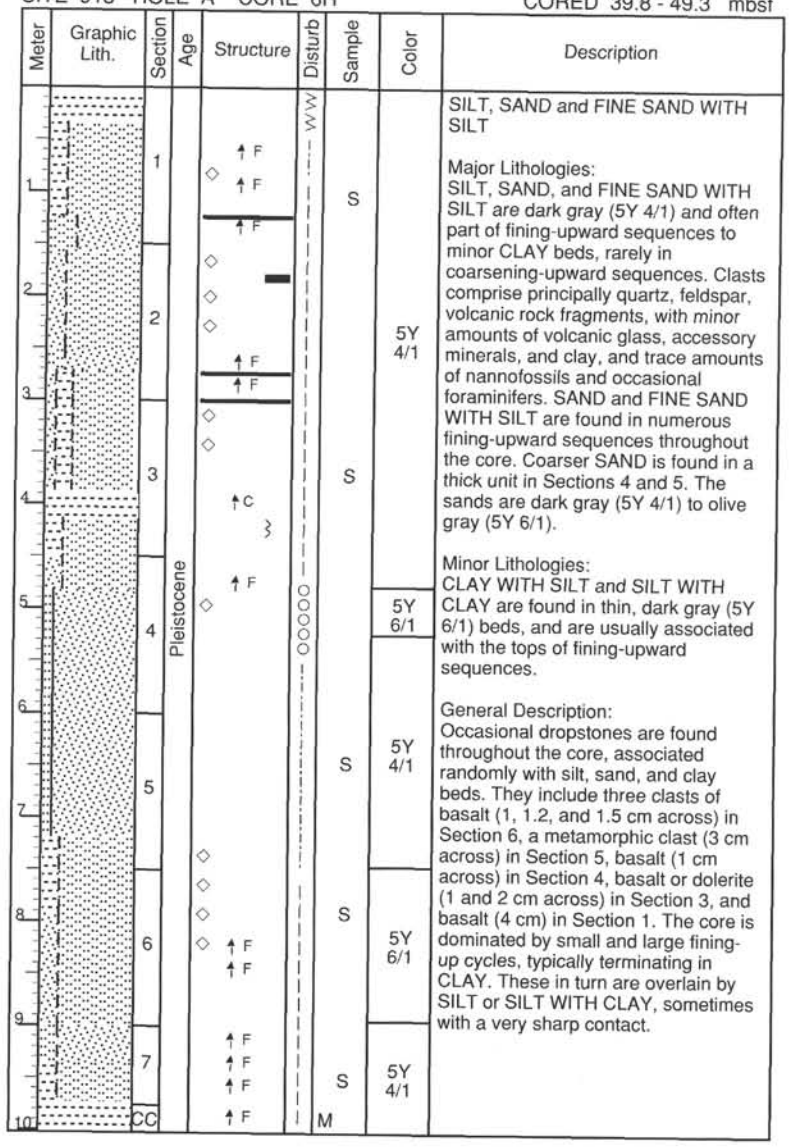


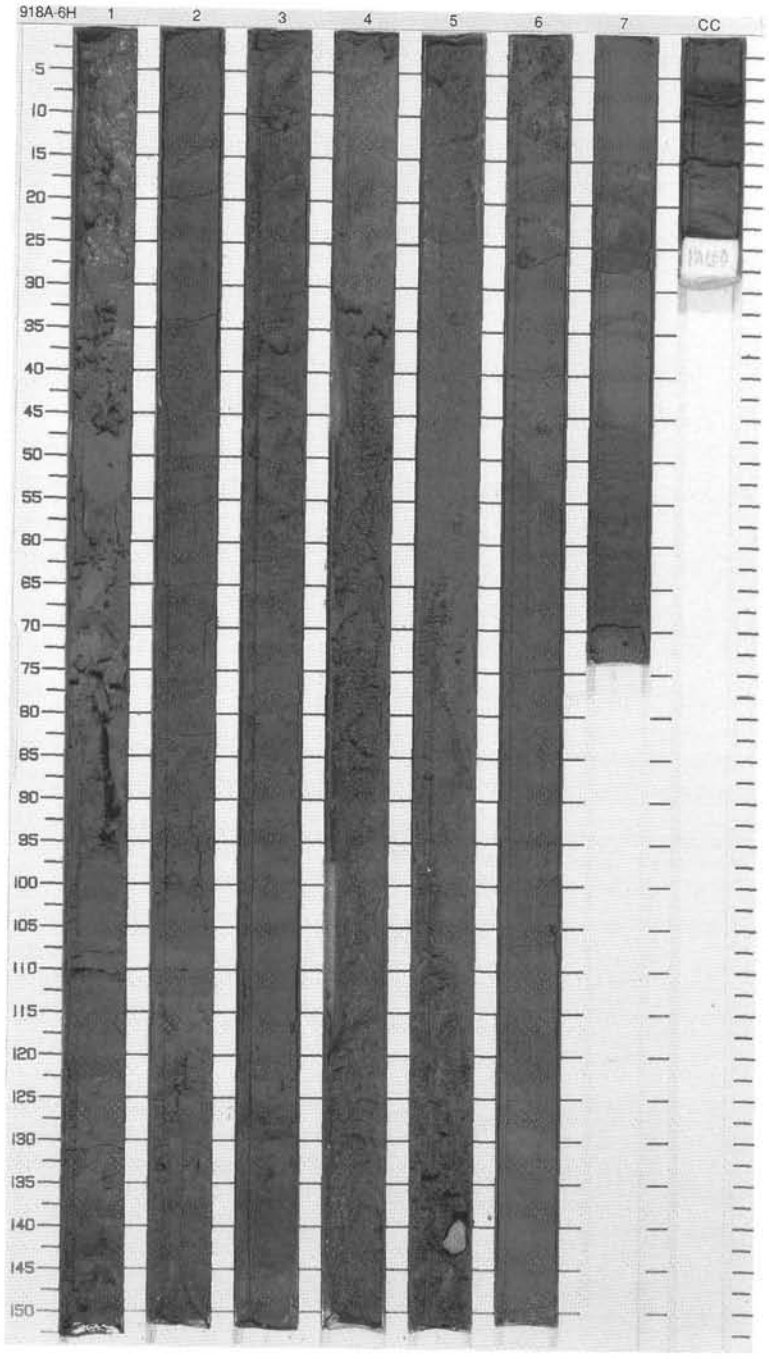
SITE 918 HOLE A CORE 5H CORED 30.3 - 39.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1	Pleistocene			S	5Y 4/1	SILTY SAND and SILT WITH SAND AND CLAY Major Lithologies: SILTY SAND (Section 1, 0–8 and 24–81 cm; Section 1, 88 cm to Section 2, 32 cm; and Section 2, 43–112 cm) and SILT WITH SAND (Section 3, 88 cm to Section 5, 16 cm; Section 5, 67–105 and 110–120 cm; and Section 5, 140 cm to Section 6, 120 cm), occurs as massive, homogeneous, very dark gray (5Y 3/1) beds. Limestone granules are commonly observed at Section 1, 146–150 cm. Foraminifers are abundant at Section 1, 24–31 cm. Minor Lithologies: SILT WITH SAND AND CLAY (Section 1, 11–24 and 81–88 cm; Section 2, 32–43 cm; and Section 2, 112 cm to Section 3, 88 cm) and SILT (Section 5, 16–67, 105–110, and 120–140 cm; Section 6, 120 cm to CC), occurs as massive, homogeneous, very dark gray (5Y 3/1) to dark gray (5Y 4/1) beds, slightly bioturbated. Foraminifers are common (up to 10 % in the smear slide) in Section 1, 11–24 cm. Fine-grained fraction may be a glacial flour. General Description: Contains dropstones, including ones of gneiss (2.2 cm long at Section 3, 9 cm), dolerite (3.0 cm long at Section 5, 61 cm), and basalt (1.2 cm long at Section 6, 106 cm).
							5Y 3/1	
							5Y 4/1	
		2				S		
							5Y 3/1	
						S		
							5Y 4/1	
		3				S		
							5Y 3/1	
		4						
							5Y 4/1	
		5						
							5Y 4/2	
		6				S		
							5Y 4/1	
		7					5Y 3/1	
		CC				M		



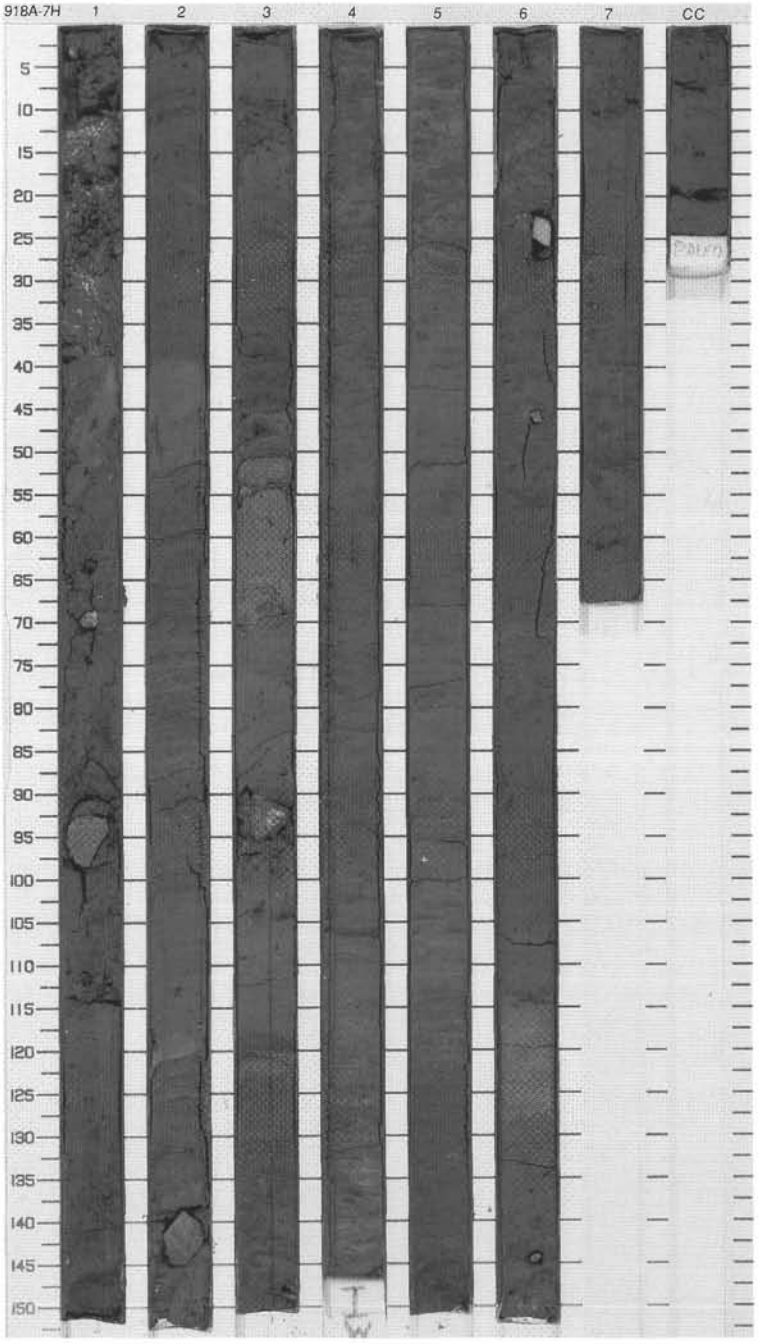
SITE 918 HOLE A CORE 6H CORED 39.8 - 49.3 mbsf





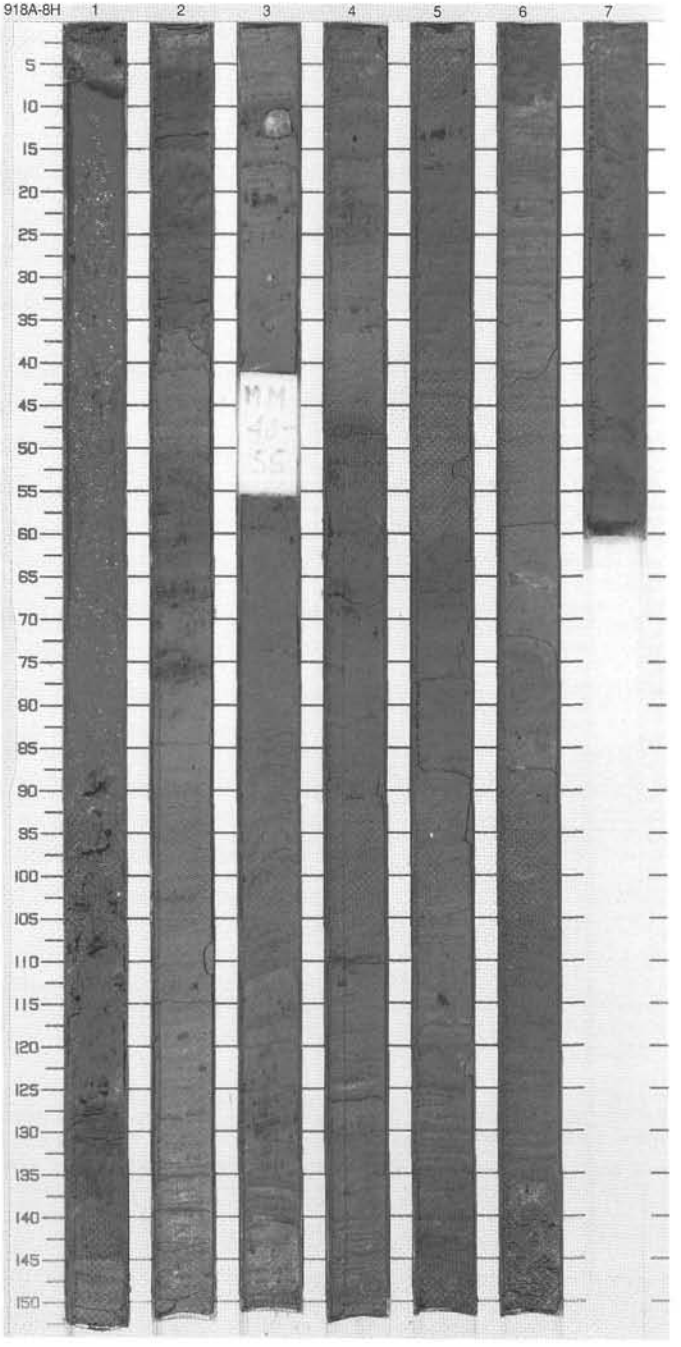
SITE 918 HOLE A CORE 7H Cored 49.3 - 58.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	Pleistocene	◇ ◇ ◇ ◇		S	5Y 4/1 To 5Y 5/1	QUARTZ SILT WITH NANNOFOSSILS and QUARTZ SILT WITH CLAY Major Lithologies: QUARTZ SILT WITH NANNOFOSSILS (Section 1, 0–40 and 52–151 cm; Section 2, 0–39, 53–118, and 122–151 cm; Section 3, 123–150 cm; Section 4, 0 cm to Section 5, 150 cm) occur predominantly as massive, dark gray beds. In the upper part of Section 5 this sediment includes QUARTZ SAND laminae, which are partly destroyed by burrowing. Slight bioturbation is visible in Section 2, as small white spots filled with coarser grained material (QUARTZ SAND). The following dropstones could be identified: basalt (Section 1, 3 cm, 1.5 cm across; 22 cm,1 cm across), sandstone (Section 1, 64 cm, 2 cm across; 95 cm, 6 cm across; 111 cm, 1 cm across; Section 2, 142 cm, 6 cm across; Section 3, 92 cm, 5 cm across) and quartzite (Section 1, 70 cm, 2 cm across). QUARTZ SILT WITH CLAY (Section 3, 0–15, 21–37, and 50–123 cm; Section 6, 0 cm to Section CC, 28 cm) occurs as massive, dark gray (5Y 4/1) to gray (4Y 5/1) beds. Rare bioturbation as described above is visible in Sections 2, 6, and 7. Faint sandy laminae, partly destroyed by burrowing, occur in Sections 6 and 7. The following dropstones could be identified: sandstone (Section 6, 23 cm, 3 cm across; 144 cm, 1 cm across) and quartzite (Section 6, 45 cm, 1 cm across). Minor Lithologies: SANDY SILT (Section 3, 37–50 cm) and QUARTZ SILT WITH SAND AND CLAY (Section 3, 15–21 cm) occur as massive, dark greenish gray (5GY 4/1) beds.
		2		◇		S		
		3		◇		S		
		4		◇		S	5Y 4/1	
		5				I		
		6				S		
		7					5Y 4/1 To 5Y 5/1	
		CC				M		



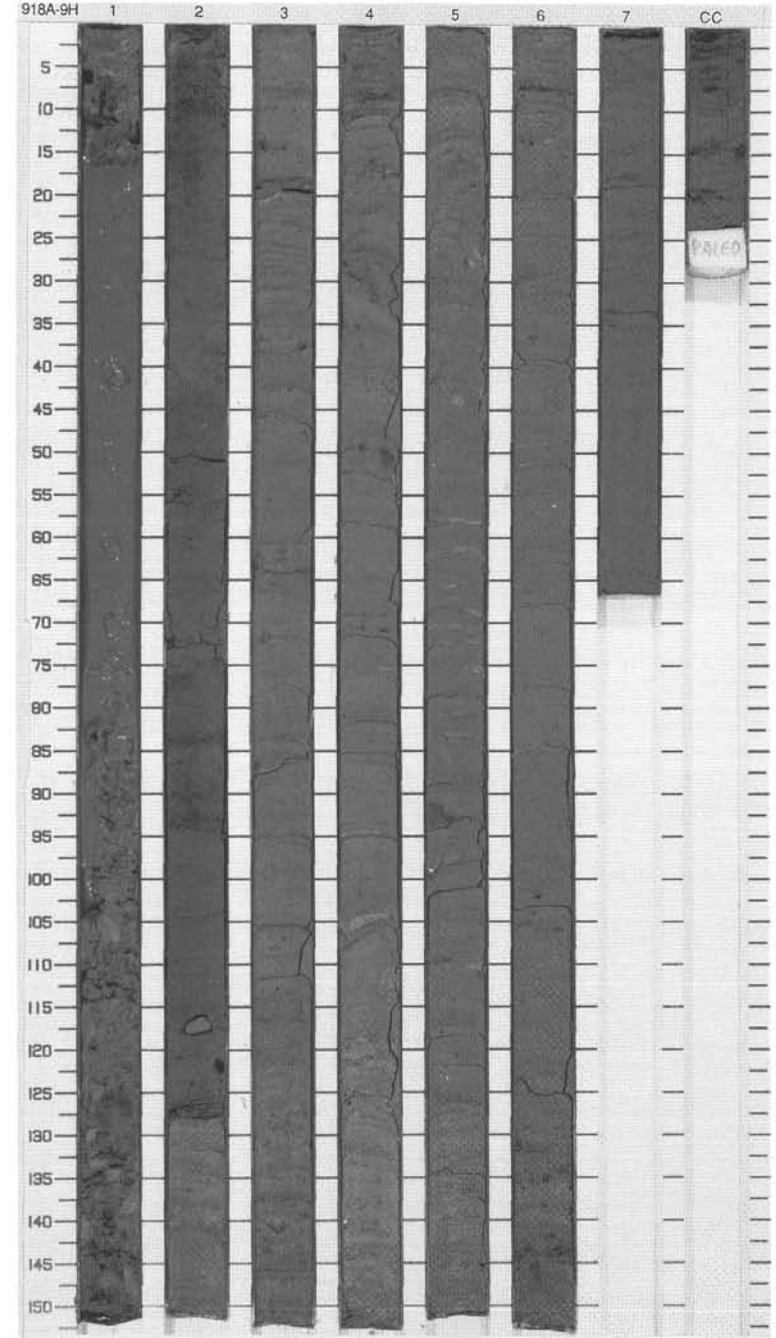
SITE 918 HOLE A CORE 8H CORED 58.8 - 68.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1–7, CC	Pleistocene	◇, F, C		S, W, M	5Y 4/1; 5Y 3/1 To 10Y 5/1; 5Y 4/1; 2.5Y N4/0; 2.5Y 4/2 To 5Y 4/2; 5Y 4/1 To 5Y 3/1; 5Y 3/1	CLAYEY SILT, CLAY and SILT WITH CLAY Major Lithologies: This core is characterized by thick sections of CLAYEY SILT, and SILT WITH CLAY. They are often homogenous and bioturbated by *Planolites* and *Chondrites*. Burrows generally are filled by a contrasting material, usually fine sand. While massive sections are common, fine-scale lamination with thin-bedded (5–25-mm-thick) fining-upward beds are visible. Each thin silt bed has a sharp base and grades up into a CLAYEY SILT top. CLAY is massive but is also faintly laminated locally. In Section 4, 45–100 cm a coarsening-upward interval is identified. Minor Lithologies: QUARTZ SILT WITH NANNOFOSSILS forms a minor part of the background sediment to the graded beds seen in the rest of the section. SILTY SAND is found as a minor lithology forming some of the thicker fining-upward beds dominated by silt. Interval 0–105 cm in Section 1 and 74–101 cm in Section 6 are distinguished by SILT WITH DROPSTONES. Dropstones include dark igneous rocks, probably basalt and felsic gneisses, range up to 1 cm across and are typically rounded. General Description: The sediments in Core 8H are characterized by the presence of fine-scale, fining-upward beds. The quantity and number of glacial dropstones is minor. In Sections 4 and 5, dark gray finer grained intervals contrast with very dark gray coarser intervals.



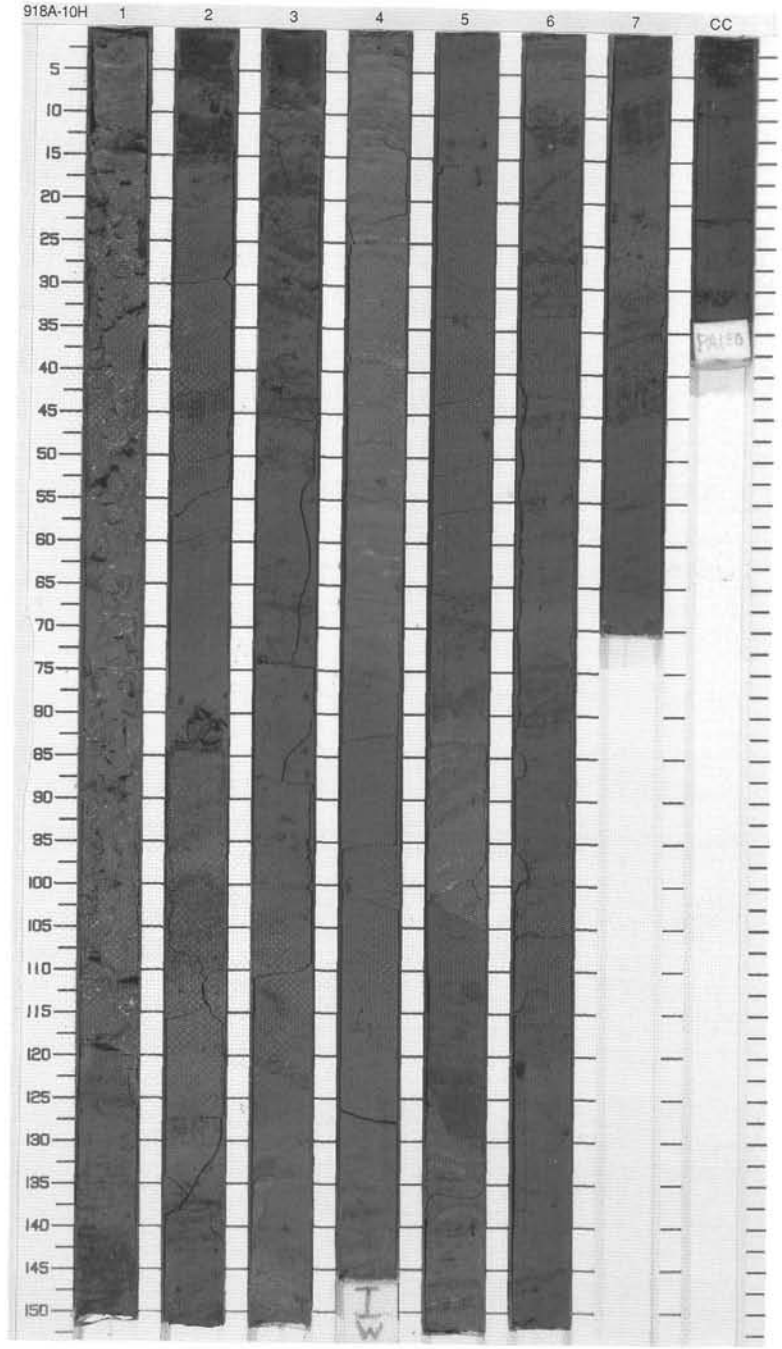
SITE 918 HOLE A CORE 9H CORED 68.3 - 77.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1	Pleistocene	◇			5Y 4/1 To 5Y 5/1	QUARTZ SILT, QUARTZ SAND and SANDY QUARTZ SILT Major Lithologies: Dark gray (2.5Y 4/0) QUARTZ SILT from Section 2, 130 cm, to Section CC. Planar, and sometimes lenticular, laminae of QUARTZ SAND occur throughout the core from Section 2, 130 cm, to Section 7, 35 cm. Frequency of planar laminae decreases with depth below Section 5, 90 cm. Locally, a transitional SANDY QUARTZ SILT is identified as part of the dominant lithology. Minor Lithologies: Dark gray (5Y 4/1) to gray (5Y 5/1) QUARTZ SILT WITH SAND occurs at 0 to 98 cm, Section 1, with dropstones less than 1 cm in size at the base. Between Section 1, 98 and 150 cm, streaks of black fine QUARTZ SAND are enriched in nannofossils with greener, nonfossiliferous QUARTZ SILT, FORAMINIFER OOZE WITH QUARTZ SAND and FORAMINIFER MIXED SEDIMENT WITH QUARTZ SAND. Sediment is very dark gray (2.5Y 3/0) between 0 and 128 cm depth in Section 2 to very dark grayish brown (2.5Y 3/2) between 13 and 20 cm, Section 2. One sandstone dropstone occurs in Section 2, 117 cm, and is 3 cm across.
		1					5GY 5/1	
		2		◇		S	2.5Y N4/0 To 2.5Y N3/0	
						S		
		3				S		
						S		
		4		∞		S		
		5		∞			2.5Y N4/0	
		6						
		7						
		CC				S M		



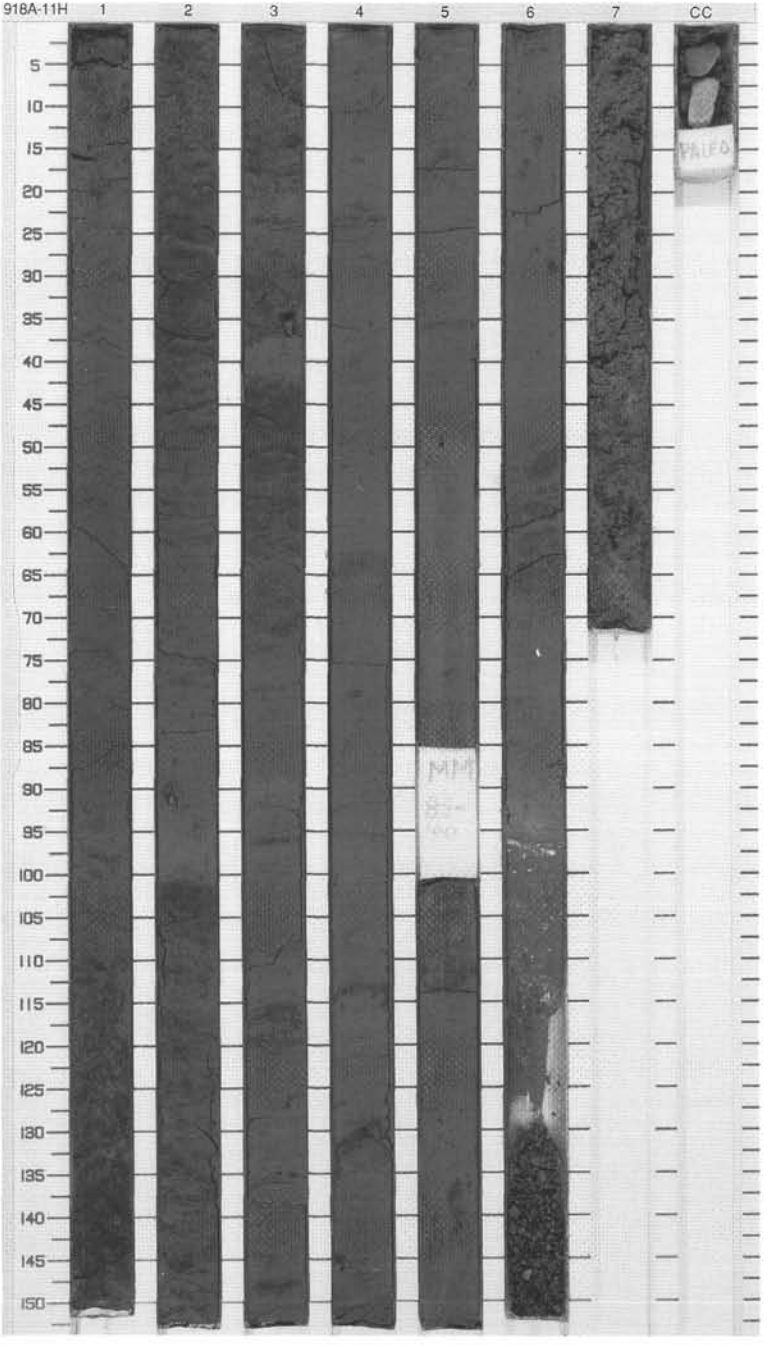
SITE 918 HOLE A CORE 10H CORED 77.8 - 87.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–10		1	Pleistocene				5Y 5/1	QUARTZ SILT Major Lithology: QUARTZ SILT, massive, dominantly dark gray (2.5YR N4) with gray (5Y 4/1) and dark greenish gray (5GY 4/1) mottles due to bioturbation, weakly calcareous except where noted. There is a trend to increasing carbonate content with increasing greenness of the sediment. Section 4, 67–146 cm is enriched in fresh volcanic glass, 5% to 10%. A dioritic dropstone is found in Section 2, 84 cm, and is 32.5 cm across and angular. Minor Lithologies: QUARTZ NANNOFOSSIL SILT WITH CLAY MIXED SEDIMENT, Section 2, 16 to 84 cm. QUARTZ SILT WITH CLAY, Section 2, 84 to 136 cm. Mottled FORAMINIFERAL OOZE, Section 3, 0–13 cm. QUARTZ SAND is found grading up into the dominant sediment, QUARTZ SILT at Section 4, 0–67 cm, Section 5, 80–101 and 129–150 cm, and Section 6, 0–9 cm. The fining-up laminae in Section 5, 80–101 cm dip, as if slumped. The QUARTZ SILT and QUARTZ SILT WITH CLAY of the fining-up sequences are noncalcareous. Foraminifer enrichment is observed in Section 6, 66–70 cm and Section 7, 25–30 cm.
							2.5Y N4/0	
		2		◇		S	2.5Y 3/2	
						S	2.5Y N4/0 To 5G 4/1	
		3				S		
		4		F F F			5G 4/1	
						S I	2.5Y N4/0 To 5G 4/1	
		5		F F				
		6					2.5Y N4/0	
		7						
		CC				M		



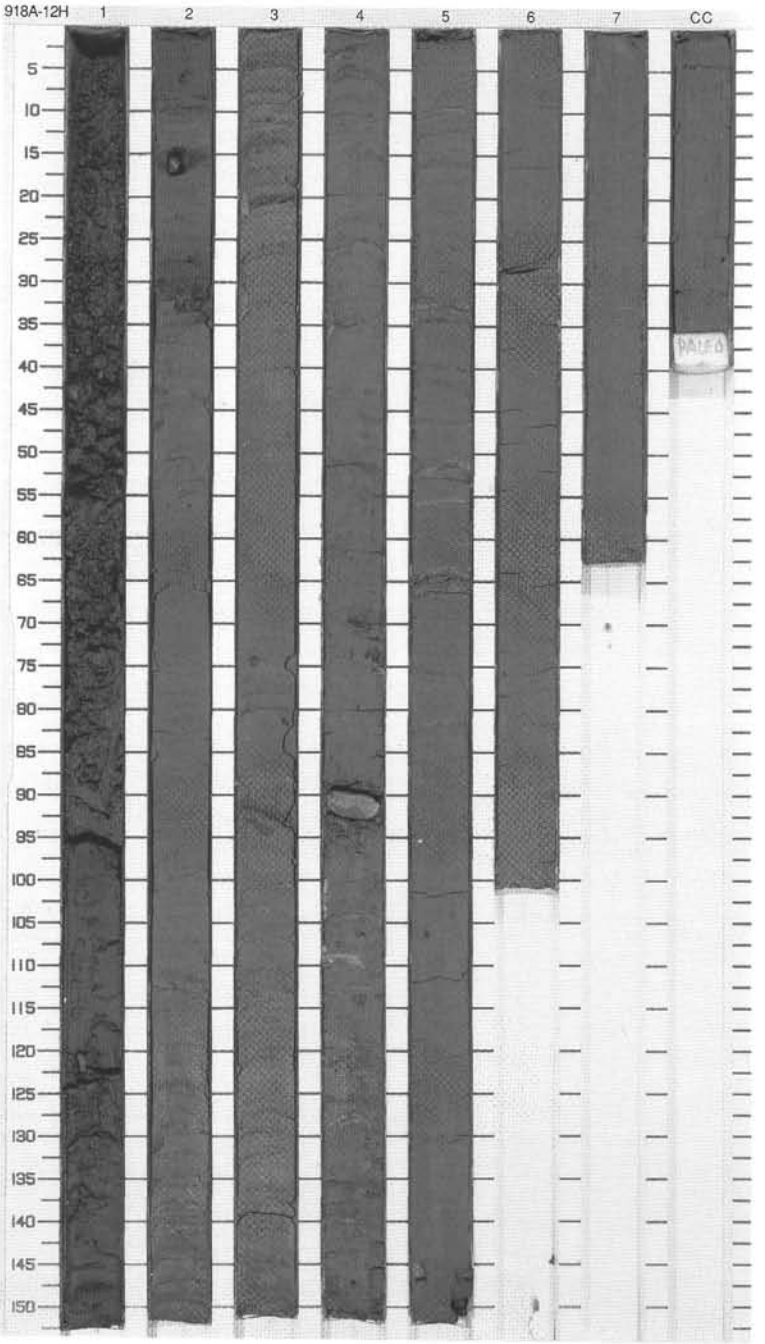
SITE 918 HOLE A CORE 11H CORED 87.3 - 96.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1–7, CC	late Pliocene			S, W, M	5Y 4/1; 5Y 3/1; 5GY 4/1	CLAYEY SILT, GRAVEL and QUARTZ SILT Major Lithologies: Much of this core is dominated by CLAYEY SILT and QUARTZ SILT showing a strongly to weakly bioturbated section with parallel lamination and common fine-scale, fining-upward cycles. GRAVEL is seen as a structureless bed at the base of the core, where it forms the basal portion of a fining-upward cycle. Above this lies a short interval of the minor lithology SAND which in turn passes up to CLAYEY SILT. No internal structure is visible. Minor Lithologies: QUARTZ SILT WITH OPAQUES AND VOLCANIC GLASS forms a 2-cm-thick layer of darker material within CLAYEY SILT Section 2, 24–26 cm. It has diffuse upper and lower boundaries. SILT WITH CLAY forms short sections towards the top of fining-upward beds above QUARTZ SILT. General Description: Bioturbation is common. Small burrows of *Chondrites* dominate and are infilled by a light colored SAND in places. The fillings are generally coarser than surrounding sediment. In Section 5, 75–55 cm, drilling seems to have caused local remobilization and flow of CLAYEY SILT. In Section 4, 21–22 cm, 61–64, 112–114, and 133–135 cm, and Section 5, 18–20 and 33–35 cm diffuse darker bands are visible but compositionally similar to the background. They have diffuse upper and lower contacts.

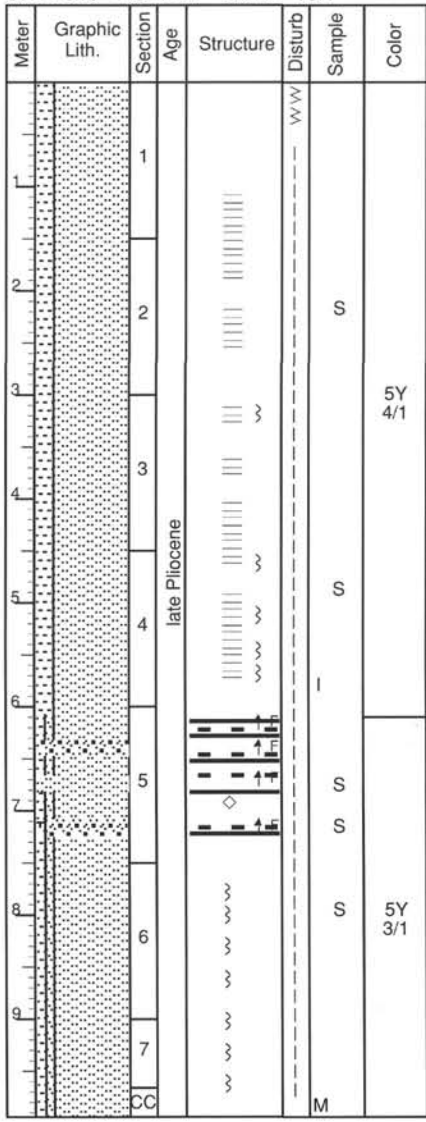


SITE 918 HOLE A CORE 12H CORED 96.8 - 106.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1, 2, 3, 4, 5, 6, 7, CC	late Pliocene	◇ ↑ F	ooooo	S, S, S, S, M	2.5YR N4/0; 2.5YR N3/0; 2.5YR N4/0	FINE QUARTZ SILT, QUARTZ SILT and COARSE QUARTZ SILT Major Lithologies: Very dark gray (2.5YR N3/0) FINE QUARTZ SILT at 0 to 34 cm, Section 2 passes into dark gray (2.5YR N4/0) QUARTZ SILT. FINE QUARTZ SILT grades into QUARTZ SILT and forms part of a sharp-based, fining-upward sequence. Planar laminae of COARSE QUARTZ SILT from about Section 2, 40 cm to Section 5, 85 cm. Minor Lithologies: GRAVEL at 0 to 89 cm, Section 1, forming a soupy, coarse, dark gray (2.5YR N4/0) sediment. No grading is visible. Dropstones: In Section 1, 122 cm, 2 cm across, basalt; In Section 2, 16 cm, 2 cm across, basalt; In Section 4, 91 cm, 6 cm across, calcite-cemented sandstone.



SITE 918 HOLE A CORE 13H CORED 106.3 - 115.8 mbsf

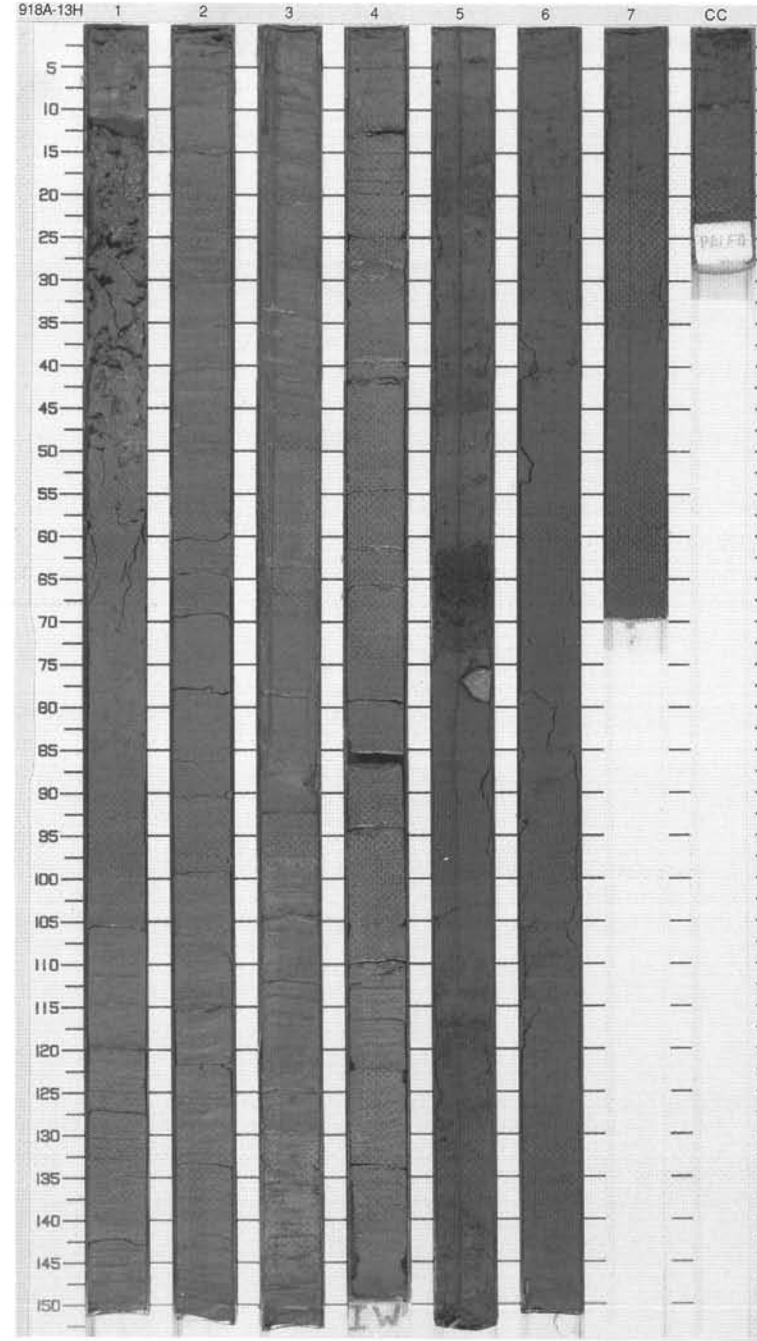


Description

CLAYEY SILT and SILT WITH SAND AND CLAY

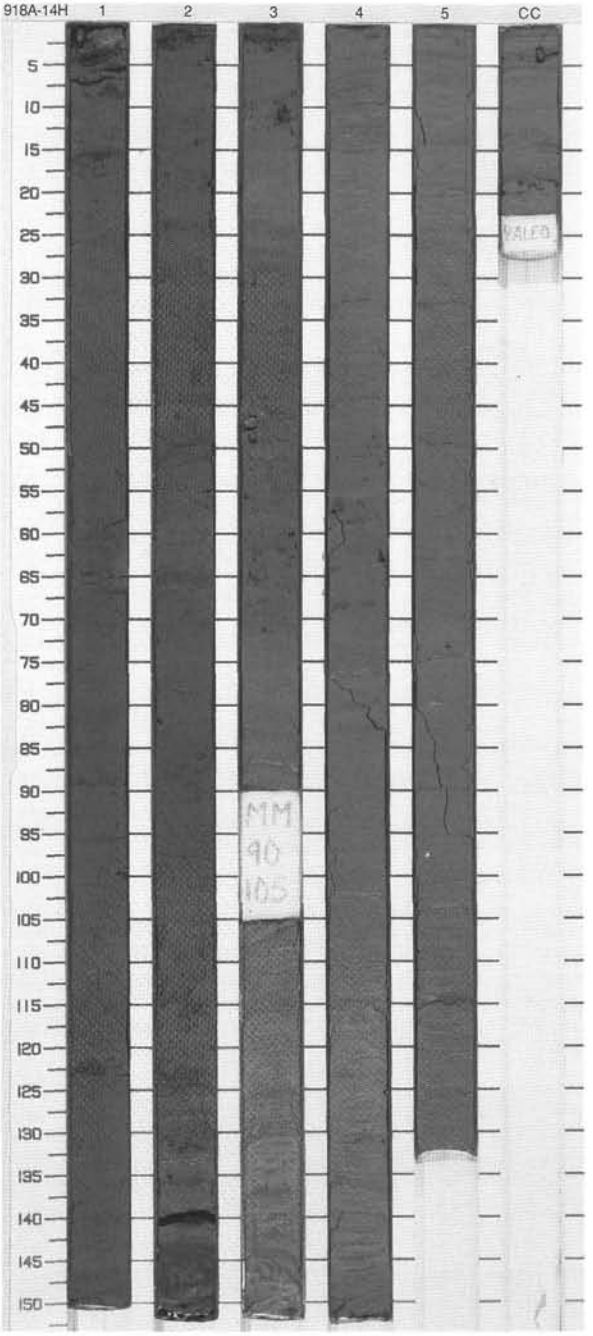
Major Lithologies:
CLAYEY SILT (Section 1, 0 cm to Section 5, 8 cm), occurs as massive, homogeneous, quartz-rich, dark gray (5Y 4/1) beds. Interbeds of SANDY SILT (1 to 10 mm in thickness; minor lithology) are abundant. Burrows, mostly of *Chondrites*-type, filled with light colored SANDY SILT, are common. SILT WITH SAND AND CLAY (Section 5, 8–17, 22–40, 44–60, 73–112, and 125 cm to CC), occurs as massive, volcanic glass-rich (up to 10%) dark gray (5Y 3/1) beds. Burrows filled with sandy silt are common in Sections 6 and 7. This lithology contains common microfossils including foraminifers, nannofossils, diatoms, and silicoflagellates. A dropstone occurs at Section 5, 78 cm, which is dolerite (4.2 cm long).

Minor Lithologies:
SANDY SILT (Section 1, 105 cm to Section 4, 140 cm), occurs as gray (5Y 5/1), quartz-rich, thin interbeds within the CLAYEY SILT. The thickness of these interbeds ranges from 1 to 10 mm. These interbeds exhibit fining-upward features. The lower boundaries are sharp. SILT (Section 5, 60 to 73 cm), SANDY SILT (Section 5, 17–22 and 40–44 cm), and SANDY SILT WITH FORAMINIFERS (Section 5, 112–116 cm), shows fining-upward sequence. Lower boundary of these beds are sharp.

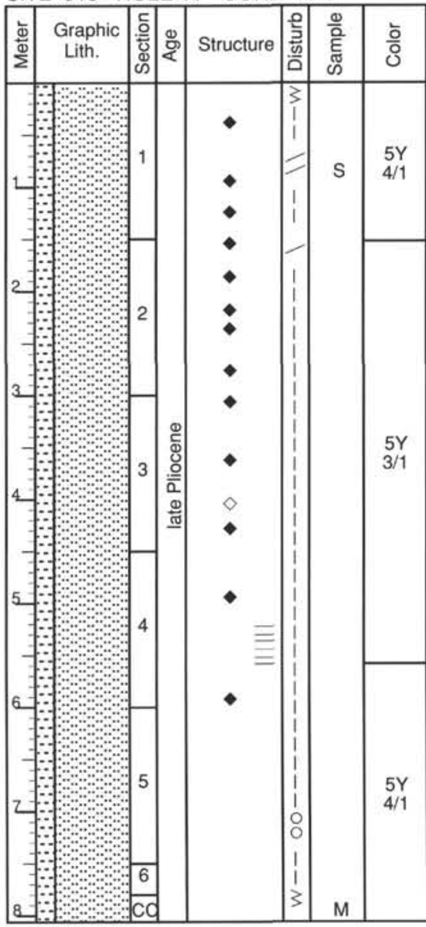


SITE 918 HOLE A CORE 14H CORED 115.8 - 125.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–7		1, 2, 3, 4, 5, CC	late Pliocene			S, S, S, S, W, S, S, M	5Y 3/1; 5Y 4/1; 5Y 5/1	SILT WITH CLAY and CLAYEY SILT Major Lithologies: SILT WITH CLAY (Section 1, 0 cm to Section 2, 122 cm, Section 3, 2–19, 24–26, and 29–45 cm), occurs as massive, quartz-rich, very dark gray (5Y 3/1) beds. Interbeds of sandy silt (up to 4 cm in thickness) are abundant. Burrows filled with SANDY SILT are observed throughout. Microfossils are common. CLAYEY SILT (Section 3, 19–22, 22–26, and 44 cm to CC), occurs as parallel-laminated, quartz-rich, gray (5Y 5/1) beds. Interbeds of sandy silt are abundant. Burrows filled with sandy silt are observed throughout. This lithology is more fossil-rich than SILT WITH CLAY. Minor normal faults with short offset (<1 cm) are common. Minor Lithologies: SANDY SILT (Section 1, 15–16, 60–61, 89–91, and 123–124 cm; Section 2, 54–55, 63–70, and 85–89 cm) and SILT WITH SAND AND CLAY (Section 2, 122–126, 127–129, 135–136, and 143 cm to Section 3, 2 cm), occurs as very dark gray (5Y 3/1), bioturbated, quartz-rich, interbeds ranging from 1 mm to 7 cm, which fine upwards. The lower boundaries are sharp. SANDY SILT, occurs as interbeds within the CLAYEY SILT, white to gray (5Y 7/1), quartz-rich beds. General Description: Dropstones: At Section 3, 55 cm, basalt 2.4 cm across; At Section 4, 55 cm, basalt 1.5 cm across.



SITE 918 HOLE A CORE 15H CORED 125.3 - 133.3 mbsf



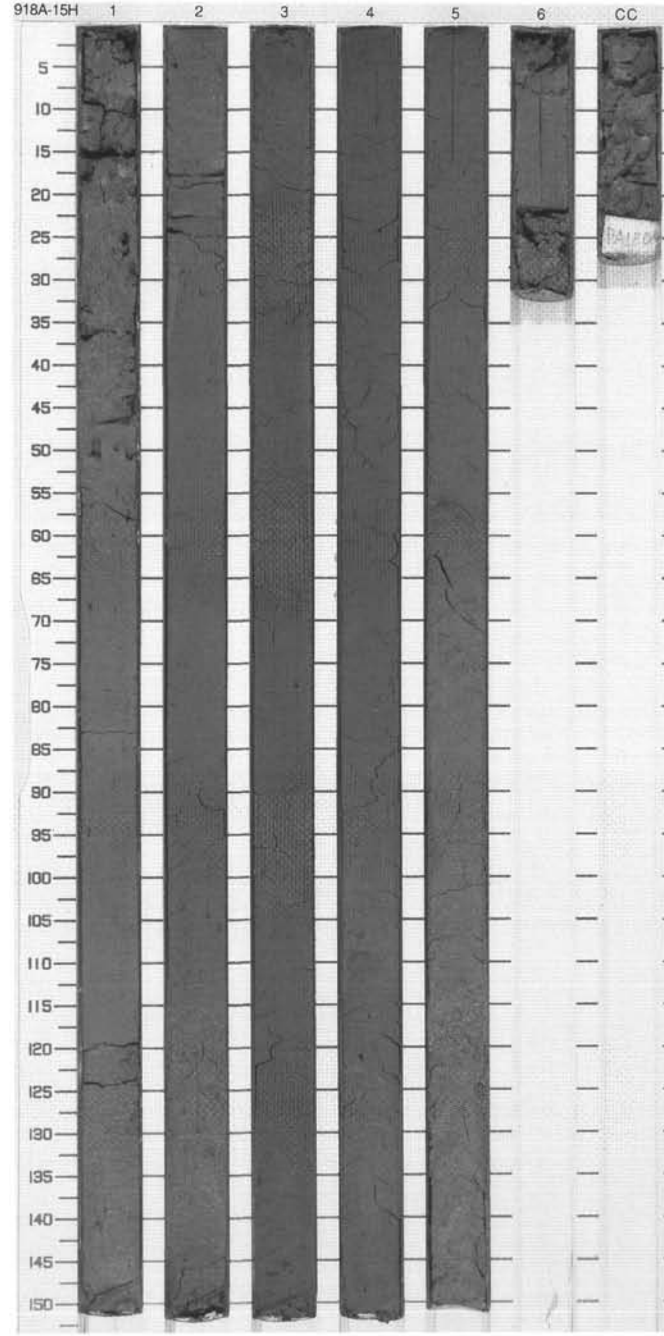
Description

SILT WITH CLAY and CLAYEY SILT

Major Lithologies:
Massive, generally featureless SILT WITH CLAY and CLAYEY SILT, gray (5Y 4/1), composed of fine mineral fragments, with minor quantities of micrite and nannofossils.

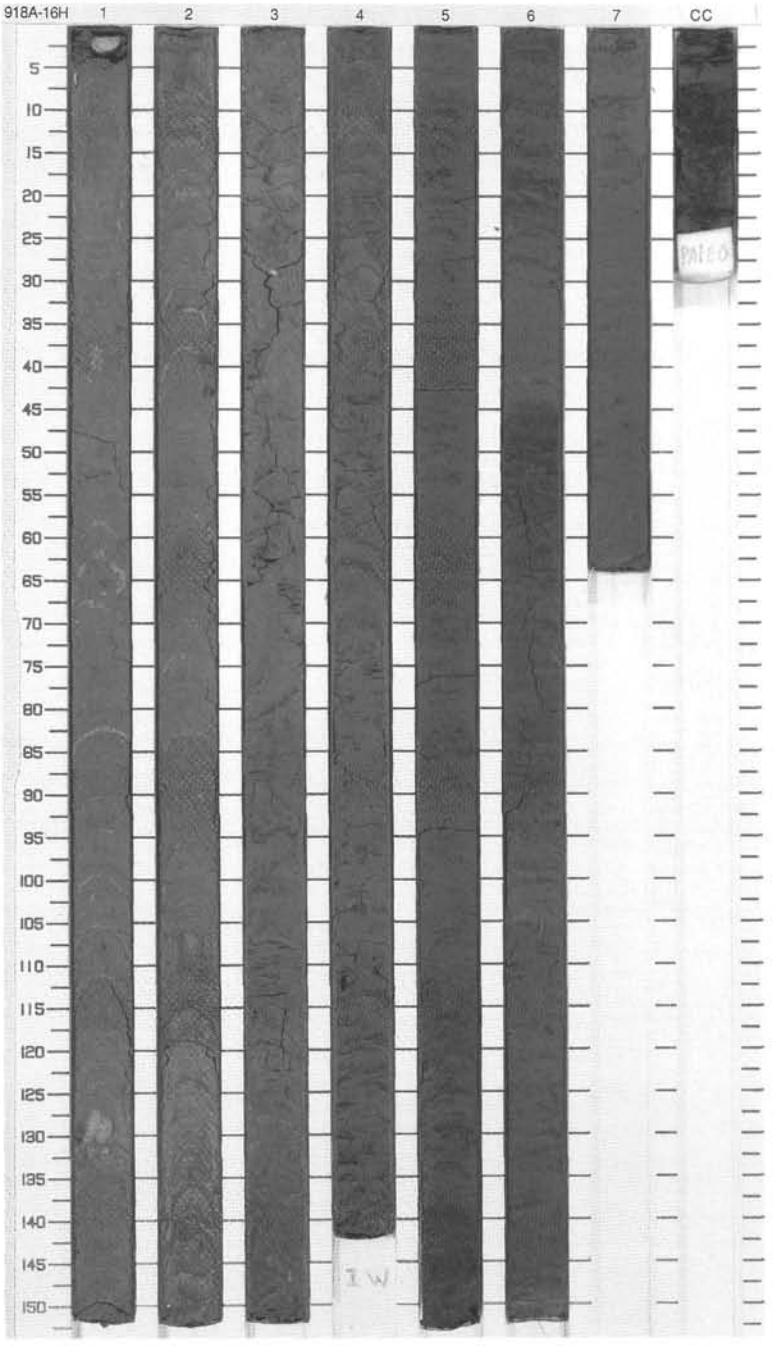
Minor Lithologies:
SILT WITH SAND occurs as lenticular blebs and more rarely as laminae within the dominant SILT WITH CLAY, especially noticable in Section 4, 100–120 cm. Laminae are warped downward at the edges by drilling disturbance. Some of the laminae show sharp basal contacts.

General Description:
One dropstone of mafic volcanic rock, 0.5 cm across, was found at Section 3.



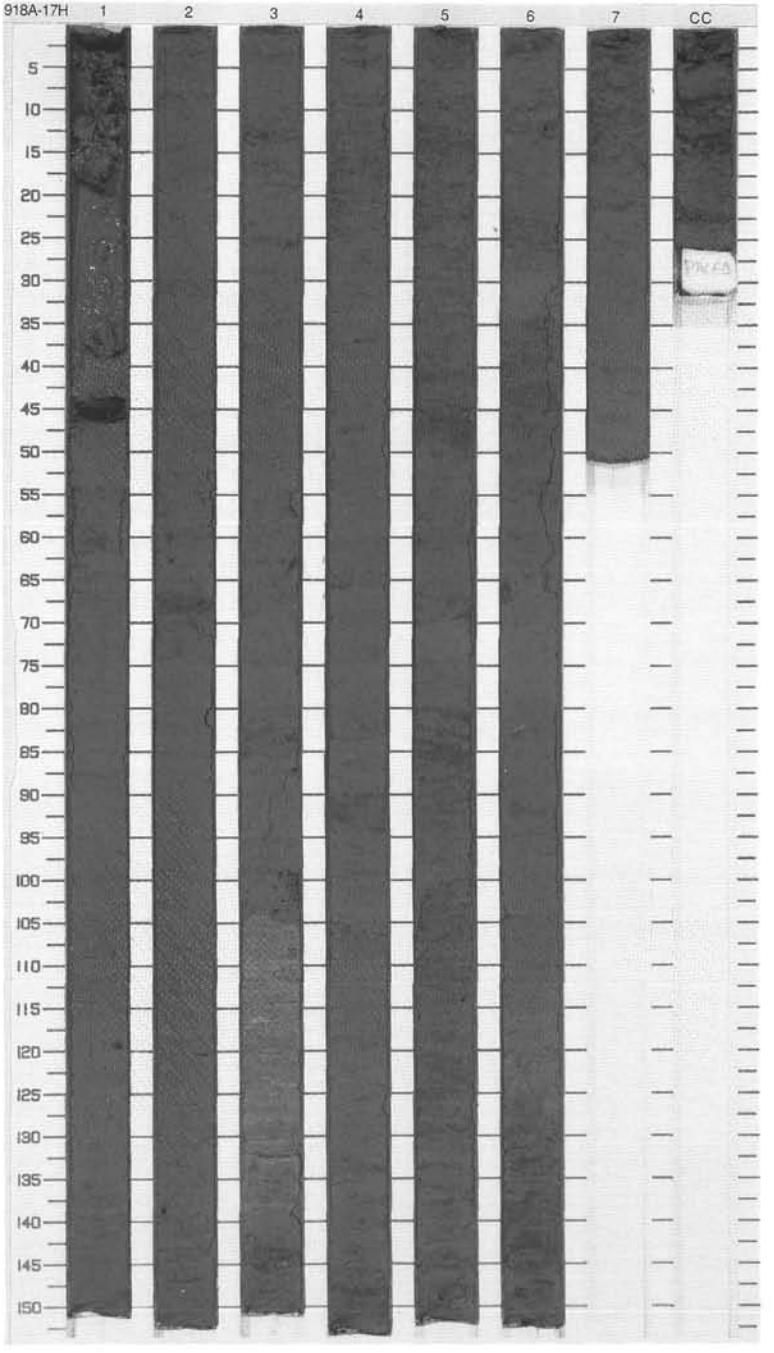
SITE 918 HOLE A CORE 16H CORED 133.3 - 142.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1	late Pliocene		W	S	5R 5/1	SILT WITH CLAY Major Lithology: SILT WITH CLAY, gray (5Y 5/1) generally massive, but with many thin planar laminae and small lenticular lenses of SANDY SILT. The SILT WITH CLAY beds and intercalated SANDY SILT laminae (minor lithology) have been disturbed by drilling, and are warped downward at the margin of the core for 2–10 cm, and in Section 3 are brecciated and mixed. Minor Lithologies: SILT WITH SAND is present as gray (5Y 5/1 to 5Y 4/1) laminae and lenses of SANDY SILT, repeating up through the sediments at irregular intervals of 2–10 cm. The laminae are 1–5 mm thick, and lenses of SILT WITH SAND are as much as 3 cm thick, although these may have been thickened by drilling disturbance. The base of the SILT WITH SAND laminae are often sharp, and locally show minor channelling, with relief of a few mm. General Description: One dropstone occurs at the top of this core, and consists of a dolerite clast 4 cm across. However, the location of this clast at the top of the core suggests downhole caving.
		2			W	S		
		3			W			
		4			W		5R 4/1	
		5			W	I	5R 3/1	
		6		F F	W			
		7			W			
		CC				M		



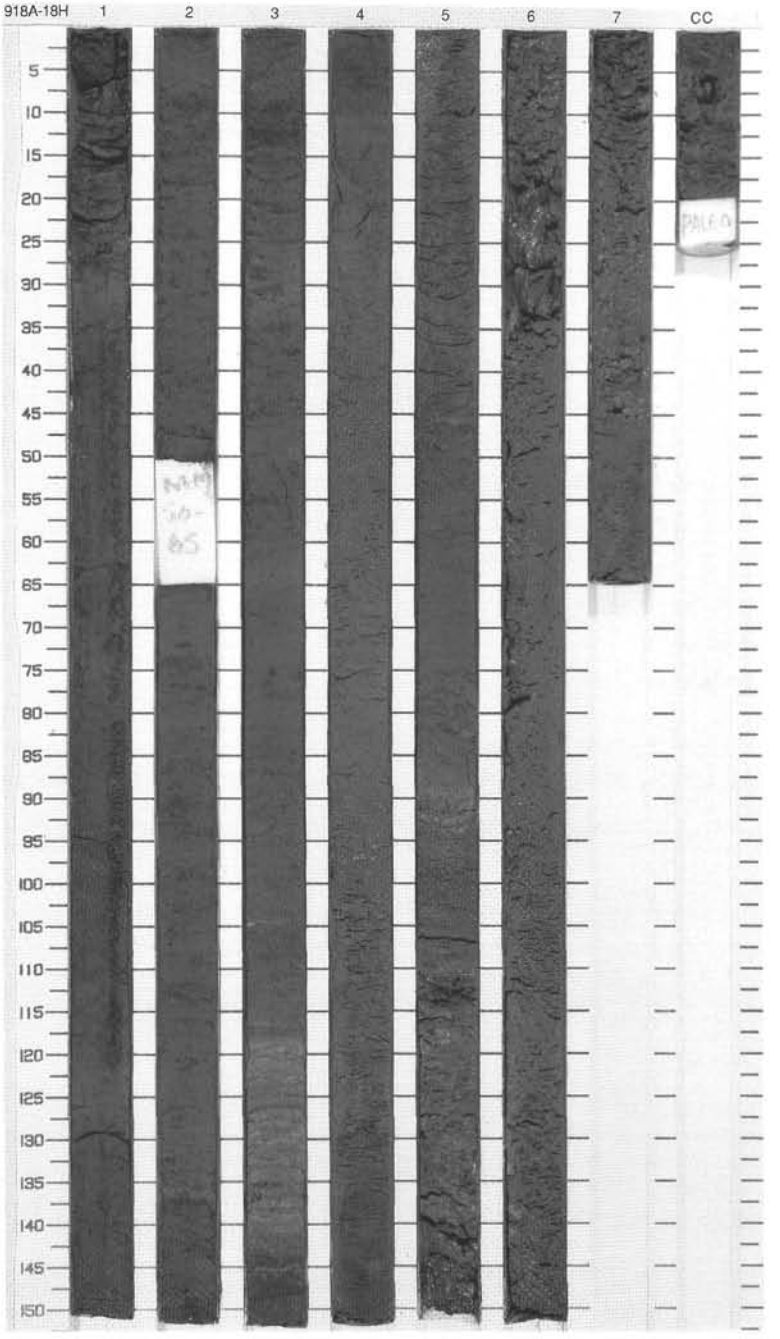
SITE 918 HOLE A CORE 17H CORED 142.8 - 152.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1–7, CC	late Pliocene	F		S, S, M	5Y 3/1, 5Y 4/1, 5Y 3/1	QUARTZ SILT Major Lithology: QUARTZ SILT (Section 1, 0 cm to Section 2, 66 cm; Section 2, 69 cm to Section 3, 100 cm; Section 3, 140 cm to Section 4, 90 cm; Section 4, 94 cm to Section 6, 28 cm; and Section 6, 33 cm to Section CC), occurs as massive, quartz-rich, very dark gray (5Y 3/1) beds, slightly bioturbated. Burrows (*Chondrites*-type), 1 mm to 3 cm across in size, are filled with very dark gray (5Y 3/1) silt or gray (5Y 5/1) SANDY SILT. Minor Lithologies: QUARTZ SILT WITH SAND (Section 2, 67–69 cm; Section 3, 100–105 cm; Section 4, 90–94 cm), occurs as quartz-rich, very dark gray (5Y 3/1) beds, intercalated within the QUARTZ SILT, and is highly bioturbated. The upper and lower boundaries are gradational. CLAYEY SILT (Section 3, 105–116, 117–120, 121–124, 125–129, and 132–140 cm, and Section 6, 29–34 cm), occurs as massive, homogeneous, quartz-rich, moderately bioturbated, dark gray (5Y 4/1) beds. QUARTZ SAND (Section 3, 129–132 cm), shows fining-upward from medium to fine grain-size, with sharp lower boundary. SANDY SILT is present as burrow fill within the dominant lithology.



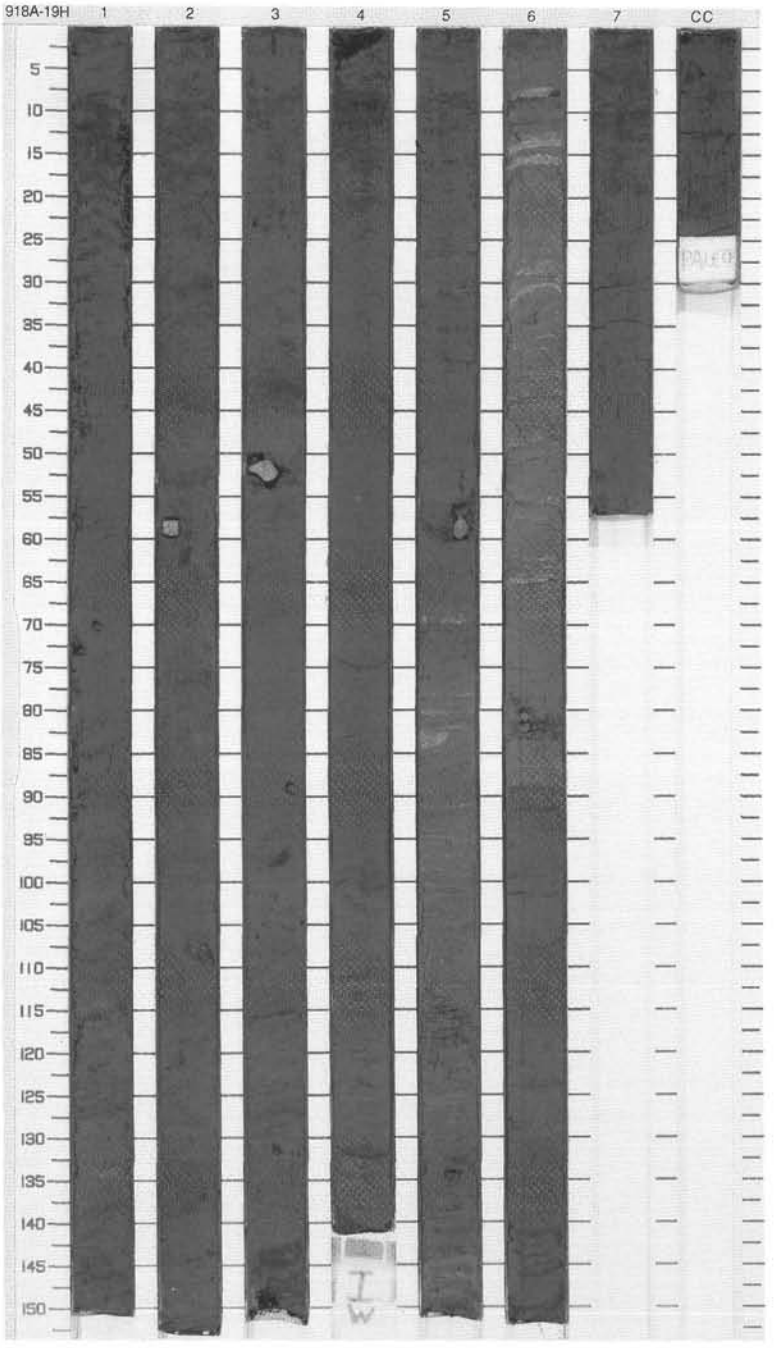
SITE 918 HOLE A CORE 18H CORED 152.3 - 161.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1	late Pliocene			S	5Y 3/1	QUARTZ SILT WITH CLAY, QUARTZ SANDY SILT and QUARTZ SILT Major Lithologies: QUARTZ SILT WITH CLAY, very dark gray homogeneous in Sections 1, 2, 6, and 7. Where visible there is a mottling due to burrowing, typically of *Chondrites*. The majority of the burrows are infilled by the QUARTZ SILT WITH CLAY but occasionally by the minor lithology QUARTZ SAND. QUARTZ SILT is (Section 3), very dark gray and finely laminated. Some of the laminae show small fining-upward features above sharp bases. QUARTZ SILT grades down into QUARTZ SANDY SILT with many of the same characteristics but generally fewer laminations and more bioturbation going downcore. Minor Lithologies: MICRITIC CHALK, gray white (10YR 6/1) is found as a 6-cm-thick bed at 89–95 cm in Section 5. Its lower boundary is disturbed by drilling. QUARTZ SAND is found infilling occasional *Chondrites* burrows within QUARTZ SILT WITH CLAY.
2		2				W		
3		3		↑ F ↑ F ↑ F			5GY 4/1	
4		4				S		
5		5				S	5Y 3/1	
6		6						
7		7			W			
		CC		◇		M		



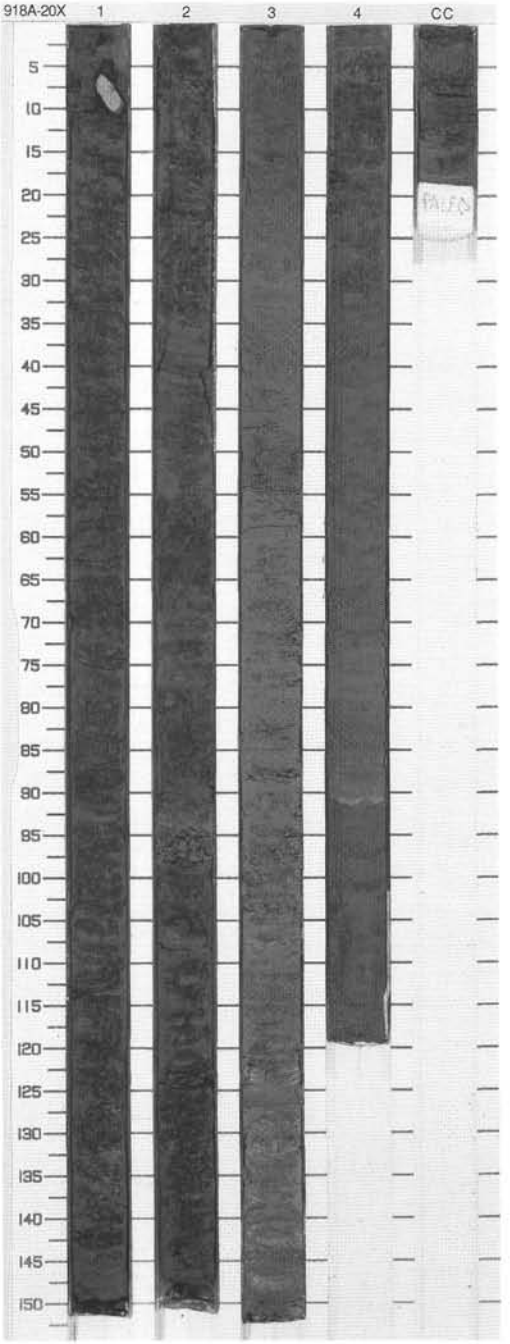
SITE 918 HOLE A CORE 19H CORED 161.8 - 171.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1–7, CC	late Pliocene			S, I, S, S, M	2.5Y N4/0; 5G 4/1; 2.5Y N4/0	QUARTZ SILT Major Lithology: QUARTZ SILT, dark gray (2.5Y N4), with faint dark greenish gray burrows (5G 4/1) throughout, massive. Small dropstones scattered throughout. Siliceous microfossils are minor components, sometimes increased where the beds are slightly darker. Dropstones larger than 1 cm are as follows: Section 2, 57–59 cm, 18 mm across, granite; Section 3, 50–53 cm, 32 mm across, lithic sandstone; Section 3, 88–89 cm, 20 mm across, lithic sandstone; Section 4, 0–1 cm, 10 mm across, basalt; Section 4, 0–1 cm, 20 mm across, basalt; Section 5, 57–60 cm, 25 mm across, gneiss; Section 5, 134–135 cm, 10 mm across, lithic sandstone; Section 6, 80–81 cm, 13 mm across, basalt. Minor Lithologies: QUARTZ SAND and QUARTZ SILT laminae (Section 5, 67 cm to Section 6, 89 cm) with sharp lower contacts and faint upper contacts (normal grading) or sharp upper contacts. Some QUARTZ SAND laminae are parallel-laminated or rippled internally. These laminated sediments are interpreted to be turbidites and are nonfossiliferous.



SITE 918 HOLE A CORE 20X CORED 171.3 - 181.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–5		1	late Pliocene	◇		S	2.5Y N3/0	QUARTZ SILT WITH SAND Major Lithology: QUARTZ SILT WITH SAND (Section 1, 0 cm to Section 3, 47 cm; Section 4, 0 to Section CC, 19 cm) occurs as dark gray to very dark gray (2.5Y N4/0 to 2.5Y N3/0) massive beds. One bed (Section 4, 0–118 cm) includes coarser grained, gray (2.5Y N5/0) to light gray (2.5Y N6/0) laminae, partly destroyed by bioturbation. Faint light gray (5Y 7/1) burrows occur in Sections 2 and CC. A light gray (5Y 5/1) hardground is visible at Section 2, 92–99 cm. One granitic dropstone (5 x 2 cm) occurs at Section 1, 8 cm. Minor Lithology: QUARTZ SILT WITH CLAY (Section 3, 47 to 152 cm) occurs as a dark greenish gray (5BG 4/1) massive bed with coarser grained laminae, partly destroyed by burrowing.
		2				S	2.5Y N4/0	
		3				S	5BG 4/1	
		4				S	2.5Y N4/0	
		CC				M		

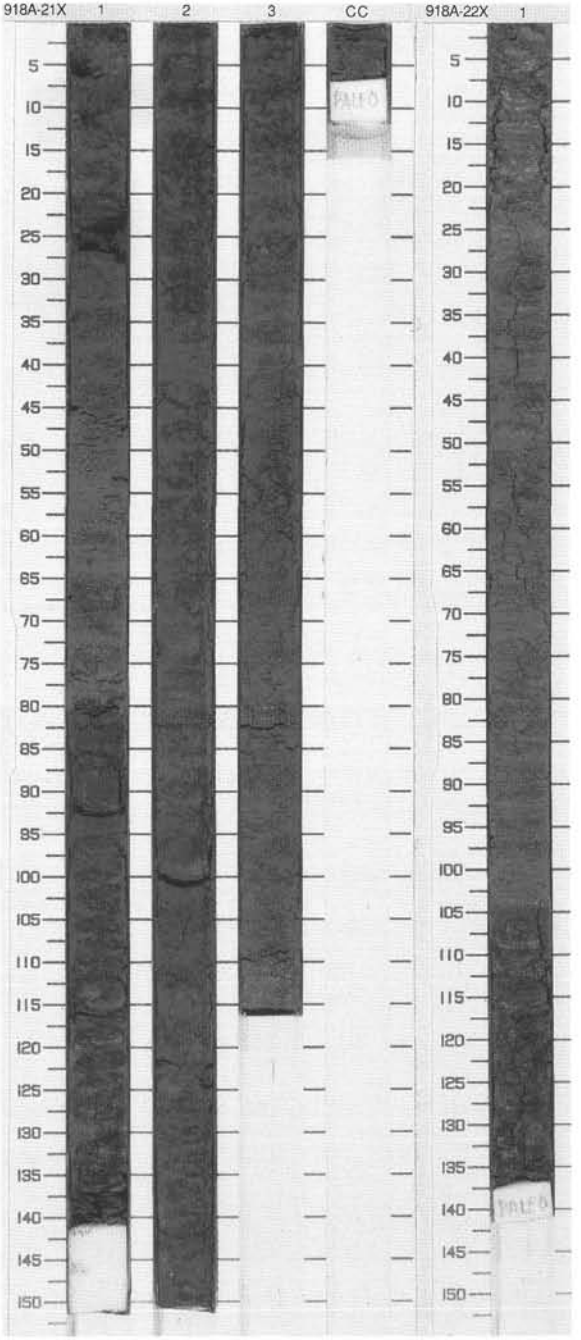


SITE 918 HOLE A CORE 21X CORED 181.5 - 190.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–4		1, 2, 3, CC	late Pliocene			S, S, S, M	5Y 3/1 To 2.5Y N4/0	QUARTZ SILT and QUARTZ SILT WITH CLAY Major Lithologies: QUARTZ SILT and QUARTZ SILT WITH CLAY, massive, mottled very dark gray (5Y 3/1), dark gray (2.5Y N4), very dark gray (2.5Y 3/0), and dark greenish gray (5G 4/1) by moderate bioturbation. Where it is very dark gray (5Y 3/1), the sediment is weakly calcareous (Section 1, 0–45 cm; Section 2, 0–47 cm; and Section 3, 0–116 cm). Where very dark gray (2.5Y 3/0), slightly elevated siliceous microfossils occur (Section 1, 80–141 cm and Section 2, 45–80 cm).

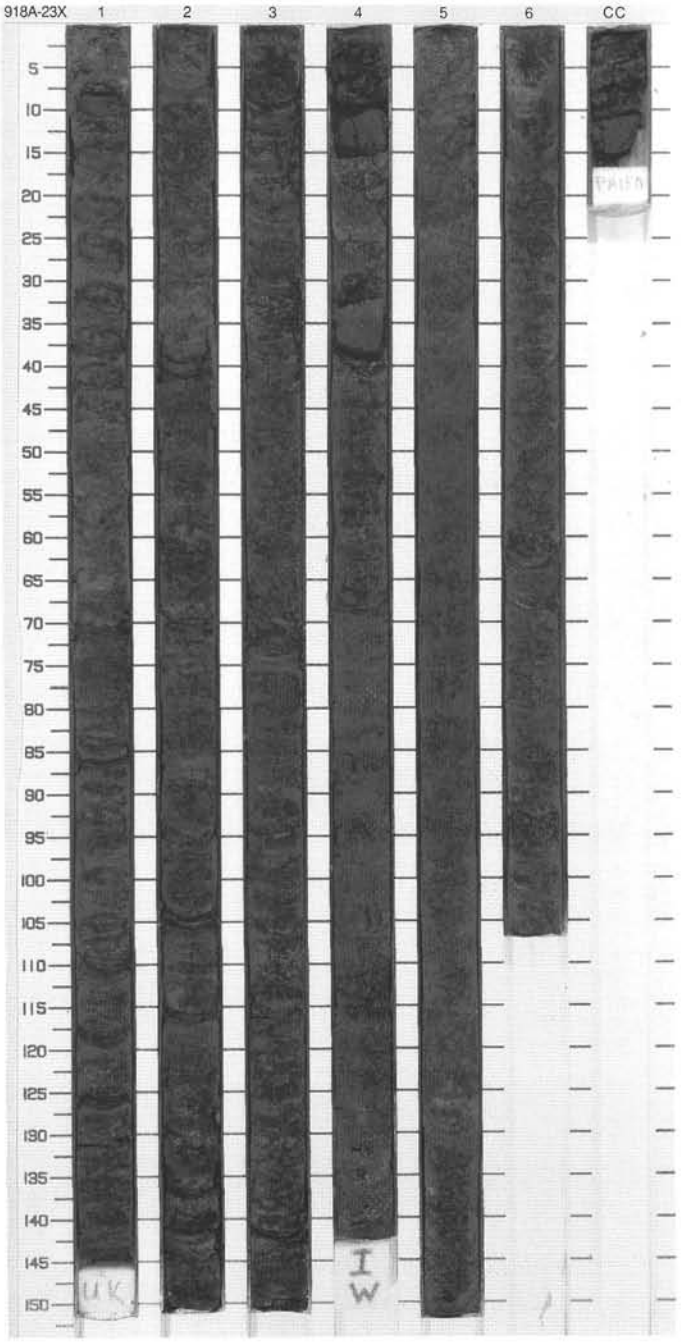
SITE 918 HOLE A CORE 22X CORED 190.9 - 199.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1	late Pliocene	F, F		S, S, M	5Y 3/1 To 5GY 4/1	QUARTZ SILT WITH CLAY Major Lithology: QUARTZ SILT WITH CLAY occurs throughout Section 1, but is marked by a strong, sharply defined color change at 104 cm. In the upper part of the section, the sediment is dark greenish gray and shows faint parallel lamination. Locally this lamination fines upward, with a sharp basal contact. Individual laminae vary from 5 to 25 mm across. Below the contact the sediment is massive and very dark gray. At 120–122 and 129–132 cm the sediment is hardened by early diagenetic cementation.



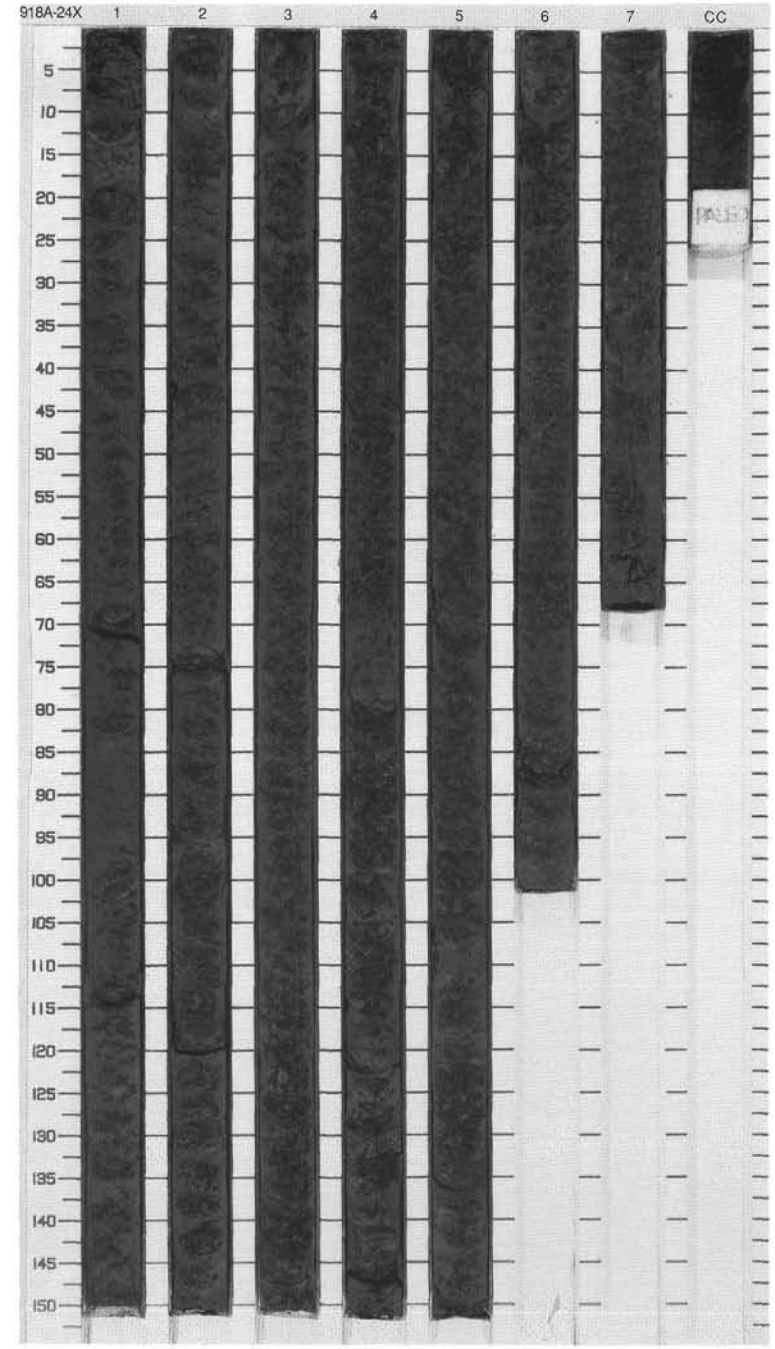
SITE 918 HOLE A CORE 23X CORED 199.8 - 208.7 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–8		1	late Pliocene				5Y 3/1	QUARTZ SILT WITH SILICEOUS MICROFOSSILS Major Lithology: QUARTZ SILT WITH SILICEOUS MICROFOSSILS (Section 1, 2–144 cm; Section 2, 0 cm to Section 4, 142 cm; Section 5, 0 cm to Section CC, 21 cm) occurs as massive, homogeneous very dark gray (5Y 3/1 and 2.5Y 3/0) to black (5Y 2.5/1) beds. This sediment shows rare and faint light gray burrows in Sections 2, 3, 4 (45–90 cm), 5, and 6. In Section 5, approximately 60–70 cm, the sediments contain a significant amount (8%–10%) of brown and colorless volcanic glass. Minor Lithology: SILTY CLAY (Section 1, 0 to 2 cm) occurs as a dark greenish gray (5BG 4/1) bed.
							5Y 2.5/1	
		2					5Y 3/1 To 5Y 2.5/1	
		3					5Y 3/1	
		4				I	5Y 3/1 To 2.5Y N3/0	
		5				S	5Y 3/1	
		6						
		CC				M		



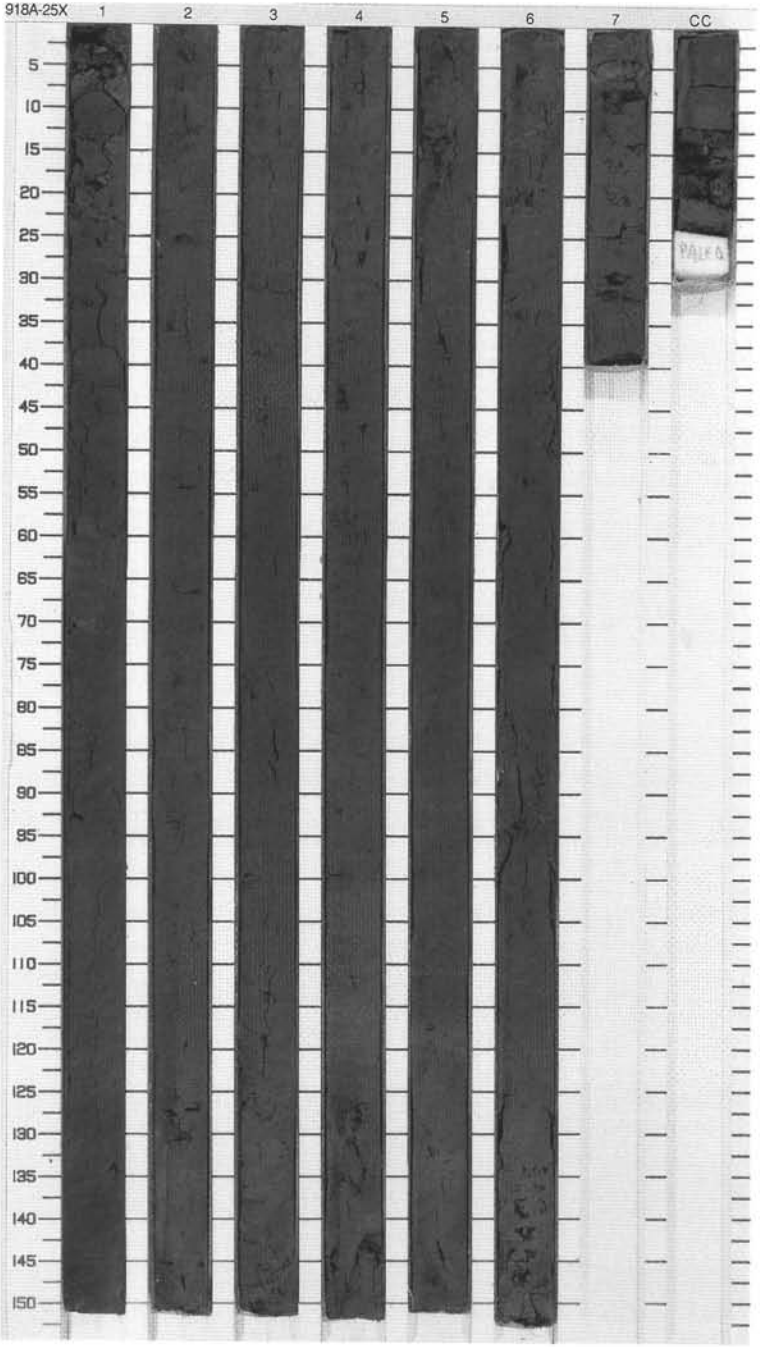
SITE 918 HOLE A CORE 24X CORED 208.7 - 217.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1	late Pliocene				2.5Y N3/0	QUARTZ SILT Major Lithology: QUARTZ SILT, very dark gray (2.5Y N3), uniform, massive, faintly bioturbated throughout. Scattered, rare, <1-mm-wide, horizontal burrows filled with clean QUARTZ SAND (minor lithology).
		2				S		
		3						
		4						
		5						
		6						
		7						
		CC				M		



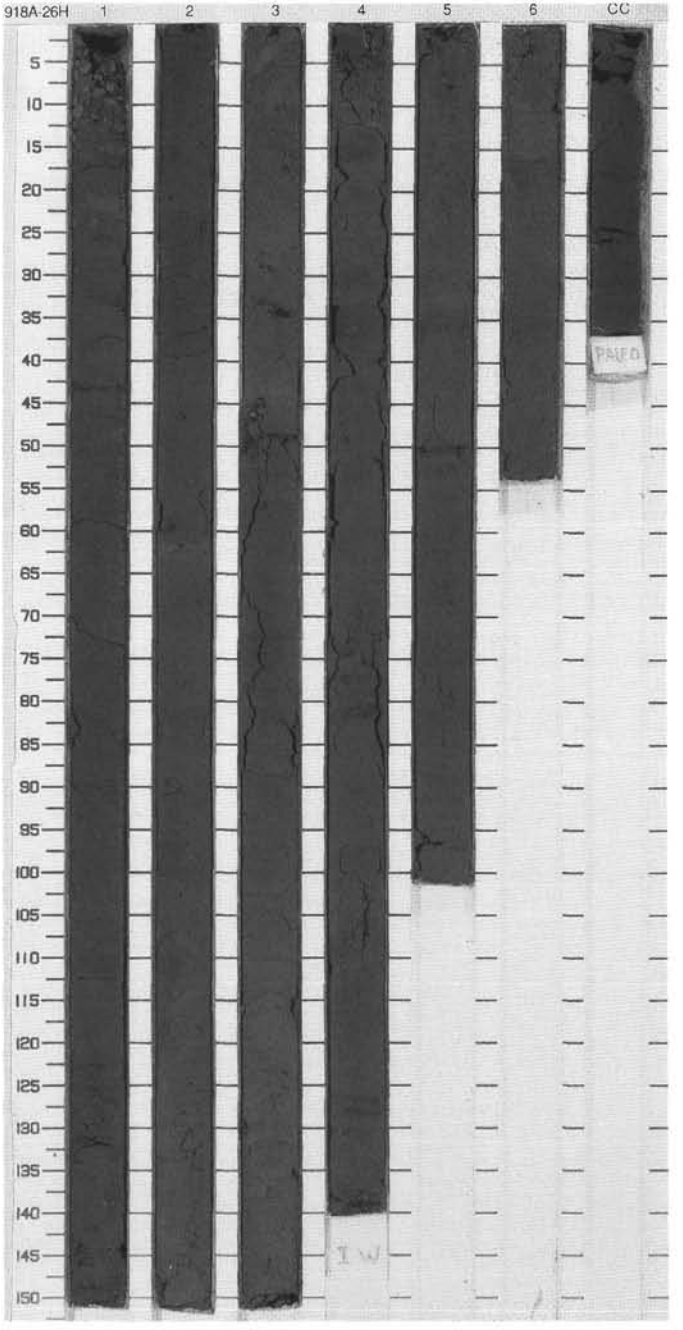
SITE 918 HOLE A CORE 25X CORED 217.6 - 226.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1	late Pliocene					QUARTZ SILT WITH CLAY Major Lithology: QUARTZ SILT WITH CLAY, very dark gray (2.5Y 3/1), with minor patches of very dark grayish brown (2.5Y 3/2) material in small beds in Sections 4 and 5. Slightly burrowed except in lighter colored beds which are moderately burrowed. Minor Lithologies: Lighter colored beds of QUARTZ SILT WITH SAND and SANDY QUARTZ SILT are coarser grained with high quartz contents. Small amounts of calcareous nannofossils occur. Calcareous cemented beds are present at Section 3, 34–35 cm and Section 4, 100–125 cm.
		2				S		
		2				S	2.5Y 3/1	
		3						
		4				S	2.5Y 3/2	
		5						
		6					2.5Y 3/1	
		7				S		
		CC				M		



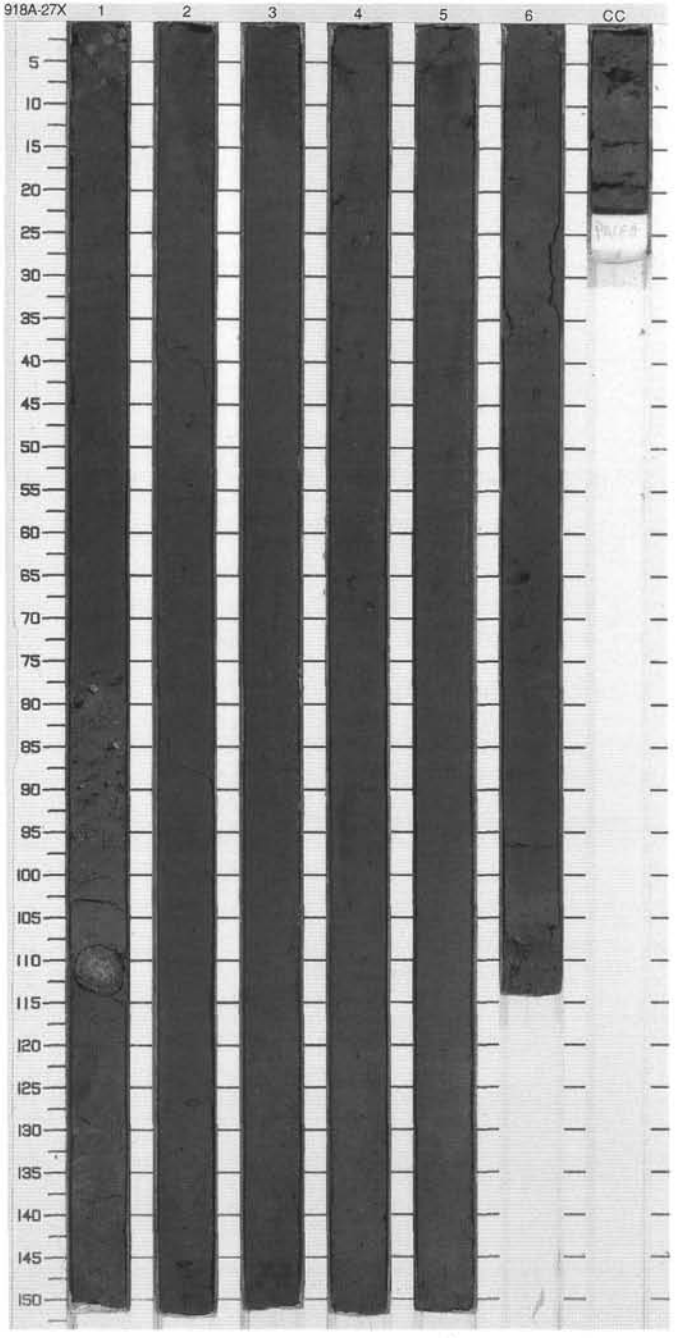
SITE 918 HOLE A CORE 26H CORED 226.5 - 235.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–7		1	late Pliocene		W		2.5Y 3/1	QUARTZ SILT WITH CLAY Major Lithology: Very dark gray (2.5Y 3/1) QUARTZ SILT WITH CLAY, with minor dark and light color bands (0.1–0.5 cm thick) in some areas. Locally contains echinoderm fragments, and a small (0.2 cm long) piece of wood occurs in Section 2. In most areas the QUARTZ SILT WITH CLAY appears massive and structureless. Locally intense bioturbation is associated with some color bands. Minor Lithology: QUARTZ SILT occurs in thin (0.1–0.5 cm) color bands, both light and dark. The bands contain 2%–3% fecal pellets, and small amounts of rock fragments and opaque minerals. General Description: This core was moderately disturbed throughout. About 50% of the core consists of drilling biscuits in a matrix of drilling-induced homogenized silt. The top 14 cm of Section 1 is a breccia. The structures of the silt could only be distinguished within the undisturbed blocks. This core contained one dropstone, 4 mm in diameter, at Section 4, 76 cm.
		2				S		
		3						
		4			W	I		
		5				S		
		6					5Y 2.5/1	
		CC				M		



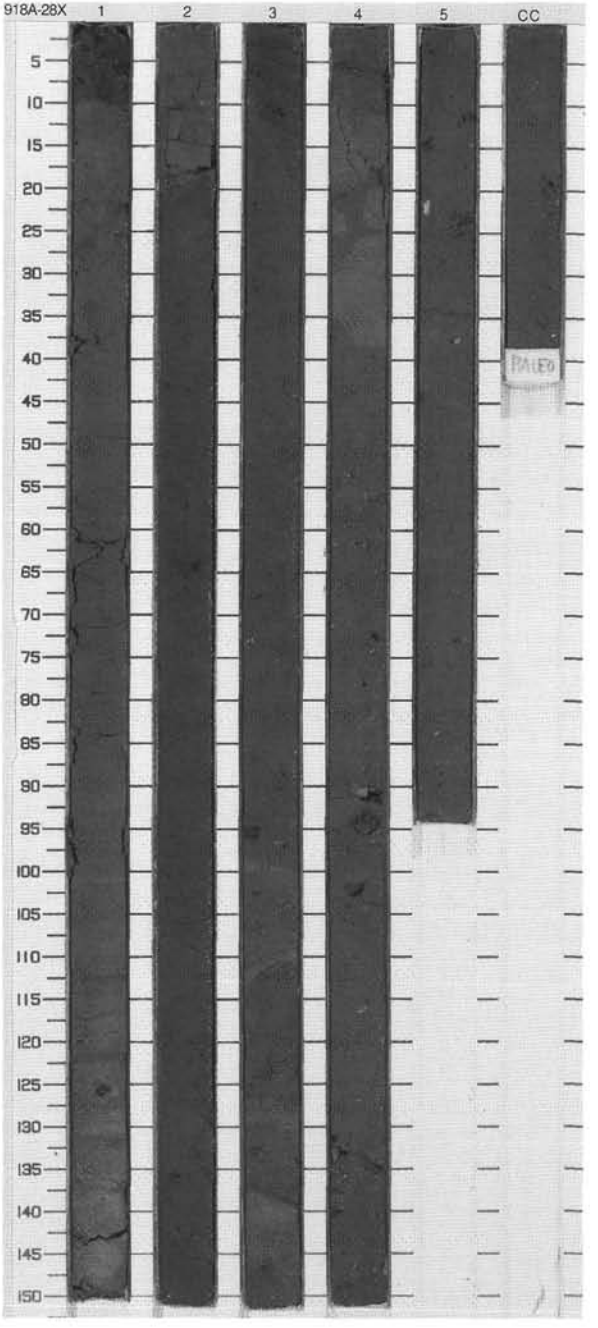
SITE 918 HOLE A CORE 27X CORED 235.2 - 244.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–8		1	late Pliocene		W	S	5Y 3/1	QUARTZ SILT Major Lithology: QUARTZ SILT (Section 1, 0–77 cm and Section 1, 112 cm to CC) occurs as massive, very dark gray (5Y 3/1) beds. Slightly bioturbated. Black, thin (1 to 2 mm) laminations are common. Pumice fragment (0.8 cm in diameter) at Section 4, 24 cm. Massive, homogeneous QUARTZ SILT, dark gray (5Y 4/1) in Section 1, 100–112 cm. Minor Lithologies: DIAMICTON (Section 1, 77–100 cm), occurs as homogeneous, dark gray (5Y 4/1), matrix-supported gravel. The matrix consists of QUARTZ SILT. The size of clasts ranges from 1 mm to 1.4 cm. The rock types are granite, gneiss, basalt, quartzite, and meta-sandstone. QUARTZ SILT WITH MICRITE occurs in Section 6, 103 cm. It is indistinguishable from the normal QUARTZ SILT in the core. General Description: Dropstones (depth, rock type, and size): Section 1, 78 cm, granite, 1.1 cm long; 88 cm, metasandstone, 1.0 cm long; 89 cm, gneiss, 1.1 cm long; 96 cm, granite, 1.0 cm long; 96 cm, basalt, 1.4 cm long; 101 cm, gabbro, 6.2 cm long.
		2					5Y 4/1	
		3						
		4				S	5Y 3/1	
		5						
		6						
		CC				S M		



SITE 918 HOLE A CORE 28X CORED 244.1 - 252.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–7		1	late Pliocene	◇	W	S	5Y 4/1	QUARTZ SILT and DIAMICTON Major Lithologies: QUARTZ SILT (Section 1, 0–9 cm, Section 2, 16 cm to Section 3, 45 cm), very dark gray (5Y 3/1), includes isolated dropstones and is slightly bioturbated. DIAMICTON (Section 3, 45 to 140 cm and Section 4, 40 cm to CC), occurs as homogeneous, dark gray (5Y 4/1), matrix-supported gravel. The matrix consists of QUARTZ SILT. The size of clasts ranges from 1 mm to 3 cm in diameter. Minor Lithologies: VOLCANIC ASH WITH QUARTZ SILT (Section 2, 64–65 cm), including up to 30% volcanic glass (brown and transparent). QUARTZ SILT WITH CLAY (Section 1, 9 cm to Section 2, 16 cm, Section 3, 99–101 and 111–113 cm, and Section 3, 141 cm to Section 4, 40 cm), occurs as dark gray (5Y 4/1) beds. Faint laminations and burrows are seen. General Description: Dropstones (depth, rock type, and size): Section 1, 24 cm, granite, 1.0 cm long; Section 3, 95 cm, basalt, 1.7 cm long; Section 4, 54 cm, basalt, 1.0 cm long; 61 cm, gneiss, 1.1 cm long; 90 cm, metasandstone, 1.5 cm long; 94 cm, gabbro, 3.0 cm long; 102 cm, metasandstone, 1.5 cm long; 104 cm, granite, 1.2 cm long; 116 cm, gneiss, 1.2 cm long; 133 cm, dolerite, 1.7 cm long; 145 cm, dolerite, 2.4 cm long; 140 cm, basalt, 1.4 cm long; 149 cm, basalt, 1.5 cm long.
		2		◇		S	5Y 3/1	
		3		◆			5Y 3/1 To 5Y 4/1	
		4		◇			5Y 3/1	
		5		◇		M		
		CC		◇				

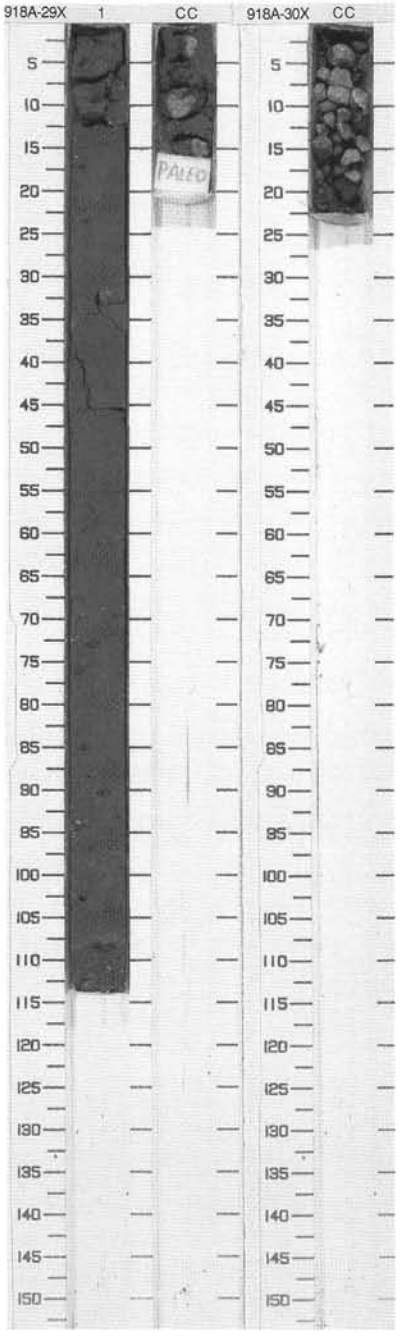


SITE 918 HOLE A CORE 29X CORED 252.8 - 261.7 mbsf

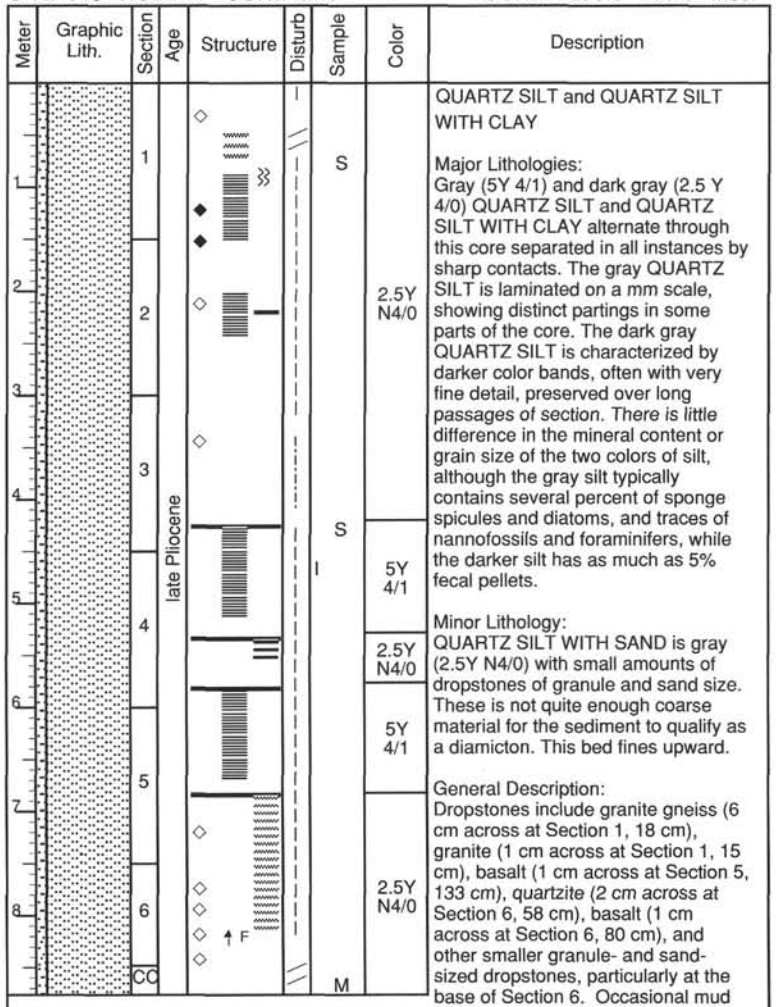
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1	late Pliocene	◇ ◇ ◇ ◇ ◇ ◇	\ — — — \	S	5Y 3/1	DIAMICTON Major Lithology: DIAMICTON, with a gray (5Y 3/1) matrix of sandy silt, containing 10%–20% gravel clasts. The clasts are generally isolated in the matrix, although occasional clusters of gravel are seen. There is no evidence of sorting or structure. General Description: Dropstones (depth, rock type, size): In Section 1: 1 cm, gneiss, 1 cm across; 4 cm, basalt 1.5 cm across; 7 cm, dolerite, 3 cm across; 11 cm, basalt, 1 cm across; 31 cm, gneiss, 2 cm across; 72 cm, basalt, 1 cm across; 75 cm, basalt,1.5 cm across; 85 cm, basalt, 1 cm across; 88 cm, basalt, 1 cm across; 90 cm, basalt, 1 cm across; 103 cm, basalt, 0.5 cm across; 108 cm, basalt, 1 cm across. In Section CC: 1 cm, basalt, 1 cm across; 4 cm, granitic gneiss, 3 cm across; 8 cm, basalt, 5 cm across; 13 cm, basalt, 4 cm across. Numerous smaller granules and coarse sand are also visible.
		CC			W	M		

SITE 918 HOLE A CORE 30X CORED 261.7 - 270.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC	late Pliocene	◇	W			GRAVEL Major Lithology: GRAVEL consisting of loose washed gravel in the core catcher. The clasts larger than 1 cm include basalt (15 clasts), dolerite (7 clasts), gabbro (10 clasts), diorite (6 clasts), quartz diorite (4 clasts), mafic gneiss/amphibolite (3 clasts), granodiorite (1 clast), limestone (1 clast), sandstone (1 clast) and unknown (2 clasts).



SITE 918 HOLE A CORE 31X CORED 270.6 - 279.5 mbsf

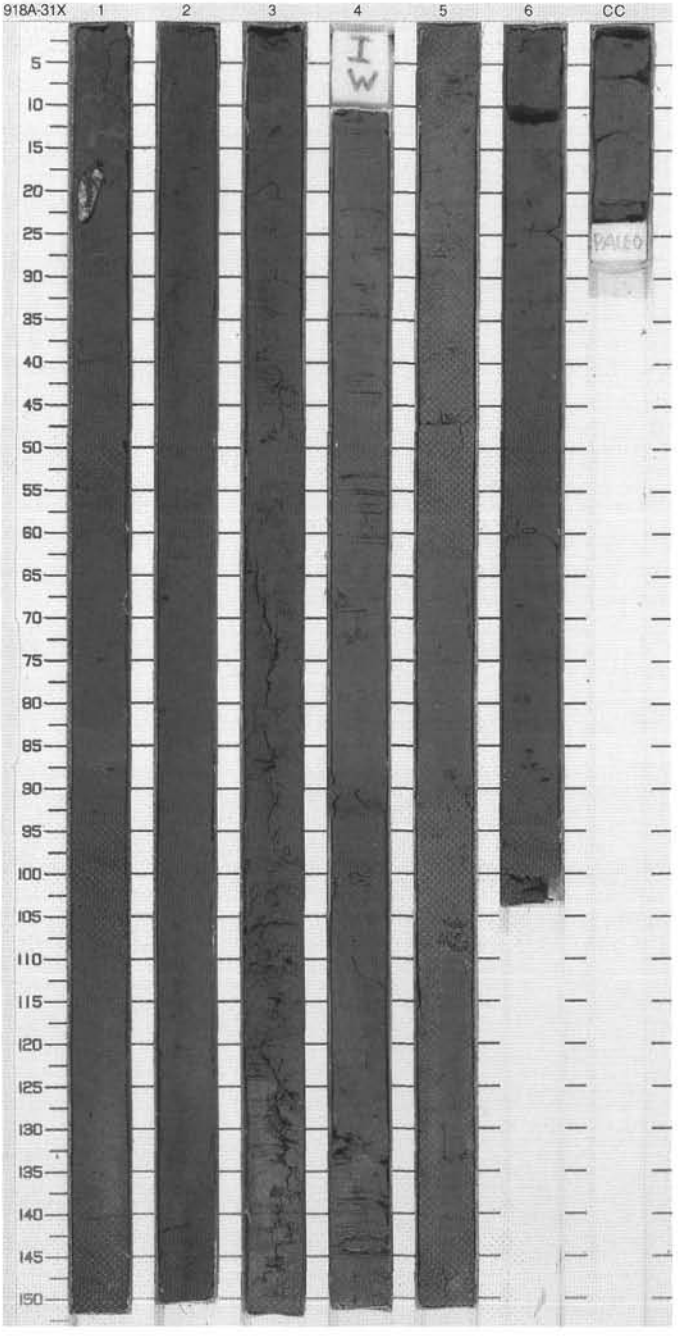


QUARTZ SILT and QUARTZ SILT WITH CLAY

Major Lithologies:
Gray (5Y 4/1) and dark gray (2.5 Y 4/0) QUARTZ SILT and QUARTZ SILT WITH CLAY alternate through this core separated in all instances by sharp contacts. The gray QUARTZ SILT is laminated on a mm scale, showing distinct partings in some parts of the core. The dark gray QUARTZ SILT is characterized by darker color bands, often with very fine detail, preserved over long passages of section. There is little difference in the mineral content or grain size of the two colors of silt, although the gray silt typically contains several percent of sponge spicules and diatoms, and traces of nannofossils and foraminifers, while the darker silt has as much as 5% fecal pellets.

Minor Lithology:
QUARTZ SILT WITH SAND is gray (2.5Y N4/0) with small amounts of dropstones of granule and sand size. These is not quite enough coarse material for the sediment to qualify as a diamicton. This bed fines upward.

General Description:
Dropstones include granite gneiss (6 cm across at Section 1, 18 cm), granite (1 cm across at Section 1, 15 cm), basalt (1 cm across at Section 5, 133 cm), quartzite (2 cm across at Section 6, 58 cm), basalt (1 cm across at Section 6, 80 cm), and other smaller granule- and sand-sized dropstones, particularly at the base of Section 6. Occasional mud clasts were also seen.



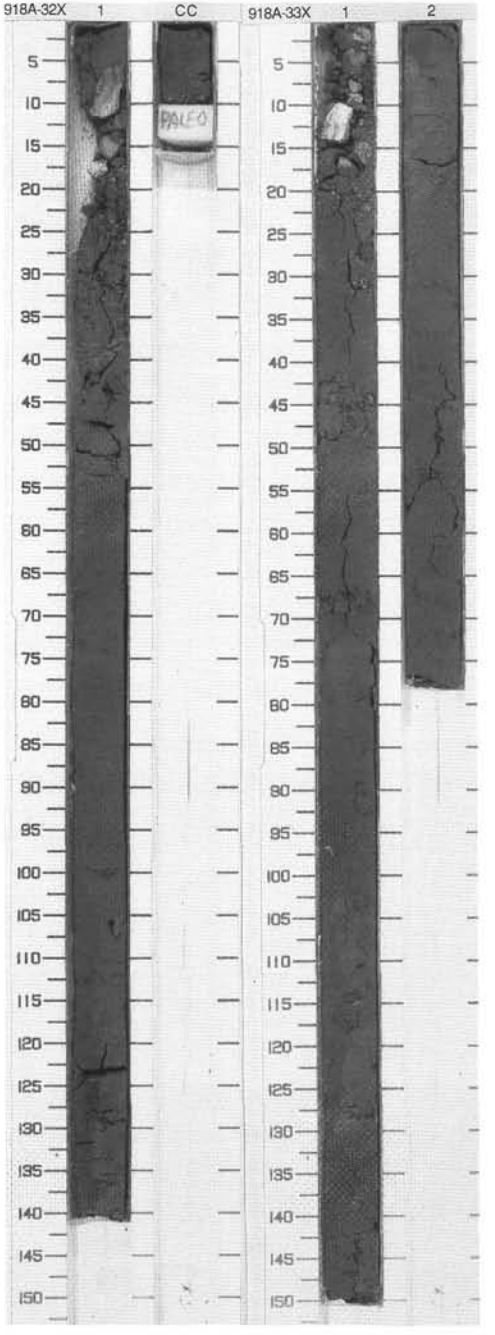
SITE 918 HOLE A CORE 32X CORED 279.5 - 288.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1 CC	Pliocene	◇ ◇ ◇ ◇		S M	5Y 3/1	DIAMICTON and QUARTZ SILT Major Lithologies: DIAMICTON gravel clasts in a silt and sand matrix, including clasts of gneiss (5 cm across at Section 1, 6–11 cm), basalt (3 cm across at Section 1, 14–16 cm), gneiss (3 cm across at Section 1, 16–18 cm), and granite (2 cm across at Section 1, 21–23 cm). QUARTZ SILT is gray (5Y 3/1), massive and displays numerous fine dark color bands at Section 1, 60–85 cm. It locally contains sand and small dropstones.

SITE 918 HOLE A CORE 33X CORED 288.4 - 297.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2		1 2 CC	late Pliocene	◇ ◇ ◇ ◇ ◇ =	W	S M	5Y 3/1	SILT WITH DROPSTONES Major Lithology: SILT WITH DROPSTONES (Section 1, 0–150 cm), occurs as massive, very dark gray (5Y 3/1) beds. Dropstones (depth, rock type, and size): 12 cm, gneiss, 4.5 cm; 14 cm, gneiss, 2.6 cm; 16 cm, quartzite, 2.9 cm; 21 cm, granite, 1.2 cm; 26 cm, diabase, 2.0 cm; 30 cm, gneiss, 1.5 cm; 41 cm, gneiss, 1.0 cm; 42 cm, gneiss, 1.0 cm; 43 cm, gneiss, 1.0 cm; 43 cm, gneiss, 1.7 cm; 44 cm, gneiss, 1.4 cm; 44 cm, gneiss, 1.2 cm; 46 cm, gneiss, 1.2 cm; 46 cm, gneiss, 1.0 cm. Minor Lithology: CRYSTAL ASH WITH QUARTZ (Section 2, 0–78 cm), occurs as a massive, very dark gray (5Y 3/1) bed. This bed is rich in brown, transparent, volcanic glass, feldspar, and pyroxene clasts.

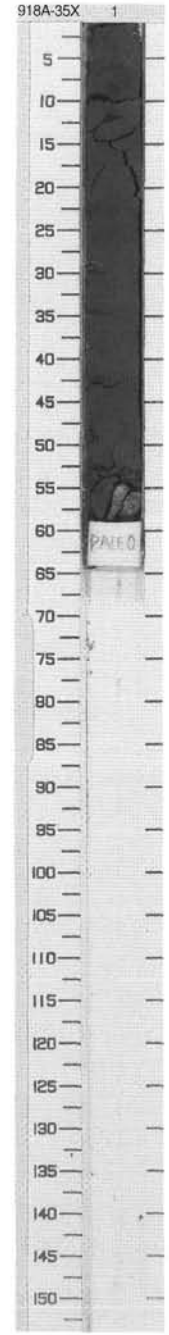
918A 34X NO RECOVERY



SITE 918 HOLE A CORE 35X CORED 306.2 - 309.1 mbsf

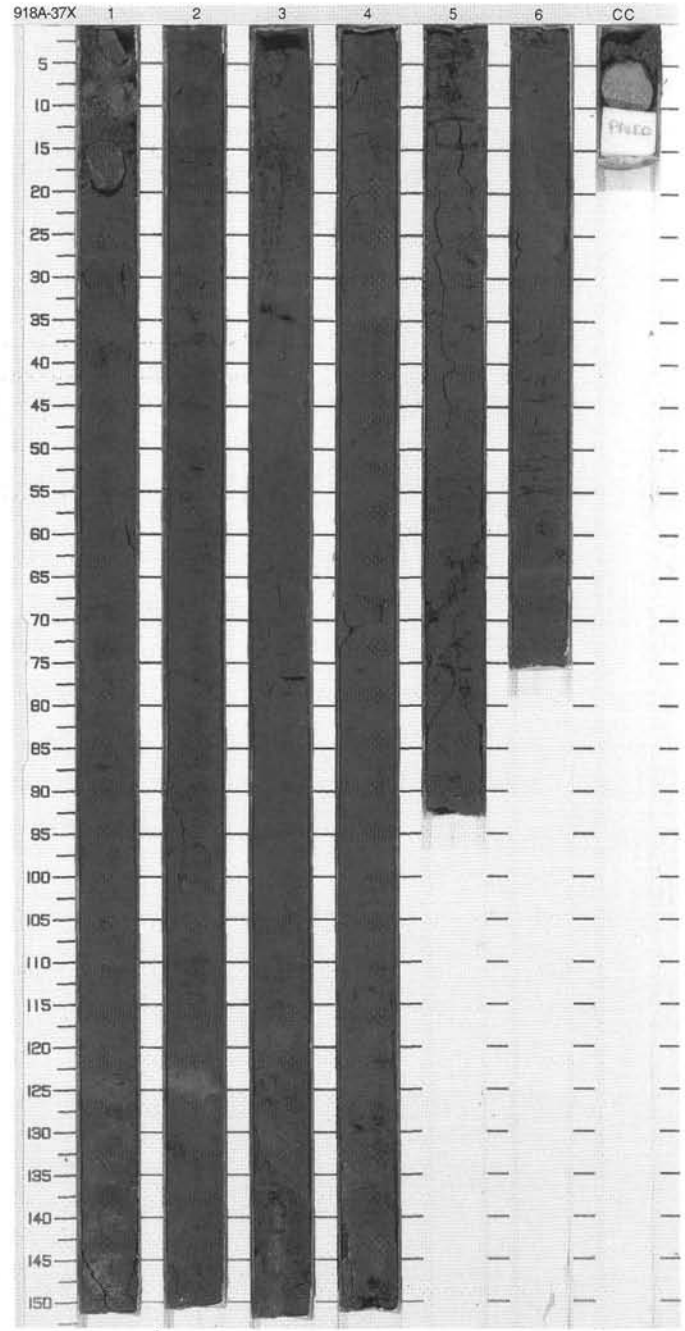
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	Pliocene			M	5Y 3/1	SILTSTONE Major Lithology: SILTSTONE (Section 1, 0–59 cm), massive, very dark gray (5Y 3/1) bed, with faint laminations. Dropstones identified are basalt (4.5 cm long) at Section 1, 55 cm and granite (3.2 cm long) also at 55 cm.

918A 36X NO RECOVERY



SITE 918 HOLE A CORE 37X CORED 315.1 - 323.9 mbsf

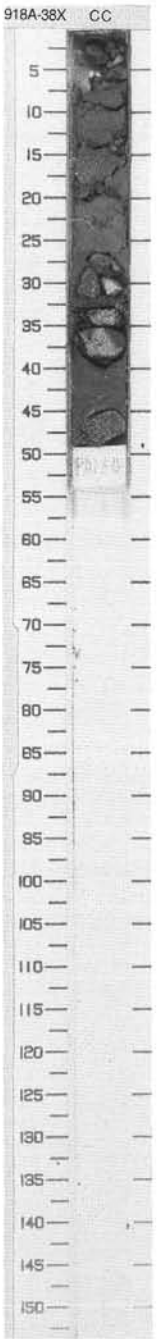
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–7	mmm	1–6, CC	Pliocene	◇ ≀ ↑F	V	S I S SM	5Y 3/1	QUARTZ SILT and QUARTZ SILT WITH CLAY Major Lithologies: Very dark gray (5Y 3/1) QUARTZ SILT massive or faintly laminated from Section 2 throughout the core. Very dark gray (5Y 3/1) QUARTZ SILT WITH CLAY (10%) with scattered sand- to granule-sized clasts floating in the matrix are identified at Section 1, 20–150 cm. Minor Lithologies: QUARTZ SILT WITH SAND (10%) at Section 6, 38–75 cm forms the base of a fining-upward sequence, grading up into QUARTZ SILT. SILTY SAND in Section CC may form the basal portion to this sequence. Structureless apart from the grading. MICRITE is present as a strongly bioturbated bed at Section 2, 122–128 cm. Both upper and lower contacts are rather diffuse. Dropstones (depth, size, lithology): - Section 1, 15 cm, 5 cm, gneiss (?); - Section CC, 10 cm, 4 cm, basalt. Drilling disturbance causes the formation of drilling biscuits characterized by faint dark green laminations throughout the core. Calcareous drilling biscuits showing no color variation in Section 3.



SITE 918 HOLE A CORE 38X CORED 323.9 - 332.7 mbsf

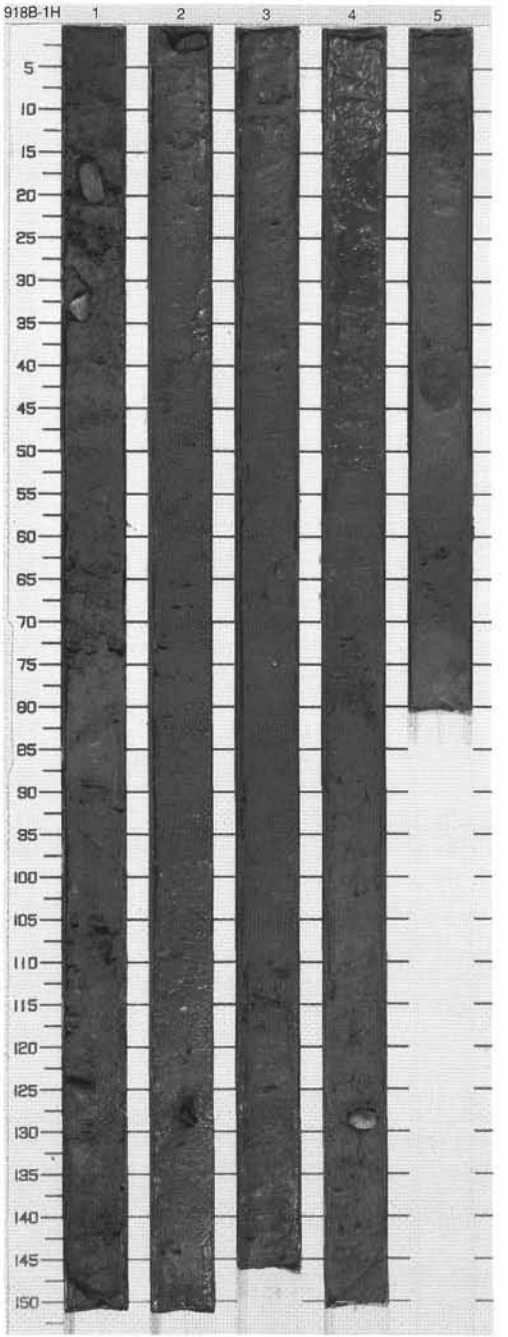
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC	Pliocene	◇ / ◇	○ / —	S / M S		MICRITIC MUDSTONE and QUARTZ SILT WITH CLAY AND GRAVEL

Major Lithologies:
MICRITIC MUDSTONE (Section CC, 0–26.5 cm) occurs as a gray (5Y 5/1), moderately indurated and massive bed with several polymict rock fragments ranging from 1 mm to 2 cm across.
QUARTZ SILT WITH CLAY AND GRAVEL (Section CC, 26.5–49 cm) occurs as a dark gray (2.5Y 4/0) massive bed, including rock fragments from 1 mm to >6 cm across. The upper contact of the sediment is sharp. Rock fragments greater than 1 cm across comprise the following from top to bottom (depth, lithology, dimensions):
14 cm, basalt, 1 cm across;
18.5 cm, granitic rock, 1.5 cm across;
18.5 cm, gabbro,1.5 cm across;
19 cm, gabbro, 2 cm across;
26.5 cm, metamorphic rock, 3 cm across;
28.5 cm, sandstone, 1 cm across;
30 cm, gneiss, 5 x 2 cm;
30 cm, sandstone, 4 x 3 cm;
35 cm, vesicular basalt (fractured), >6 cm across;
46 cm, gneiss, 5 cm across.



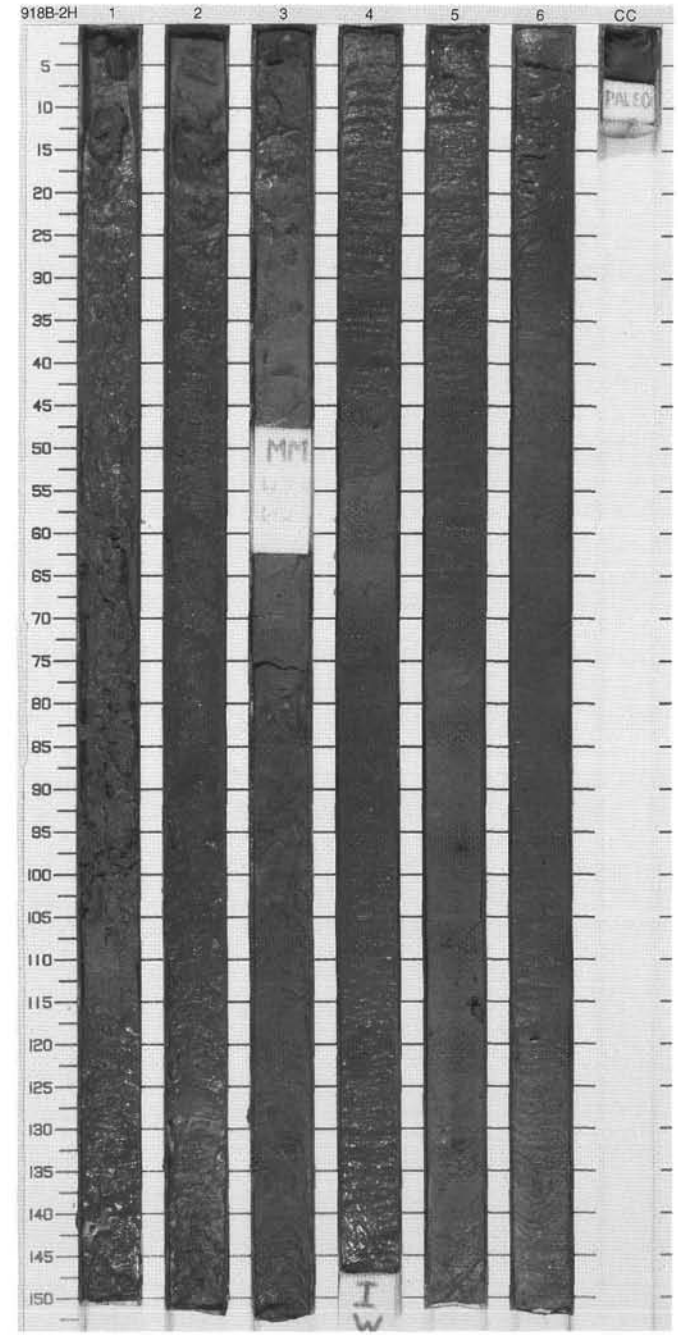
SITE 918 HOLE B CORE 1H CORED 0.0 - 6.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–6		1	Quaternary	◇ ◇	ooo	S S S	5Y 3/1	SILT WITH CLAY, SILT WITH SAND and SILT
							2.5Y N3/0	Major Lithologies: Core comprises SILT WITH CLAY, SILT WITH SAND and SILT dominantly present as massive beds. Different silt lithologies grade into one another. Mottling due to *Chondrites* burrowing is locally well developed. SILT WITH SAND intervals within the background SILT are found at Section 2, 0–150 cm; Section 3, 126–145 cm; Section 4, 0–80 cm. SILT WITH CLAY intervals occur at Section 1, 65–150 cm; Section 3, 0–126 cm; Section 4, 80–150 cm, and Section 5, 0–80 cm. Gravel- to sand-sized clasts are scattered throughout the matrix. A mollusk shell is found at Section 5, 60 cm.
		2		◇		S S		
		3		◇		S	5Y 4/1	
		4				I S		Minor Lithologies: An interval of SAND with abundant dropstones up to pebble size is present at Section 1, 0–50 cm. Individual dropstones are randomly arranged. In Section 4 clean SAND laminae are seen above a sharp base but are disturbed by drilling. The SAND has a high ferromagnesian mineral content. Locally the silt lithologies have high bioclastic contents such as Section 1, 50–65 cm which is a SILT WITH SAND AND NANNOFOSSILS.
		5		◇		M	5BG 4/1	General Description: Dropstones occur at: Section 1, 15–21 cm, 55 mm across, feldspathic granite; Section 1, 31–35 cm, 40 mm across, sandstone; Section 2, 0–3 cm, 40 m across, black cemented sandstone; Section 2, 126–130 cm, 28 mm across, muddy sandstone; Section 4, 127–129 cm, 45 mm across, orthoquartzite; Section 5, 60–61 cm, 11 mm across, basalt.
		CC						



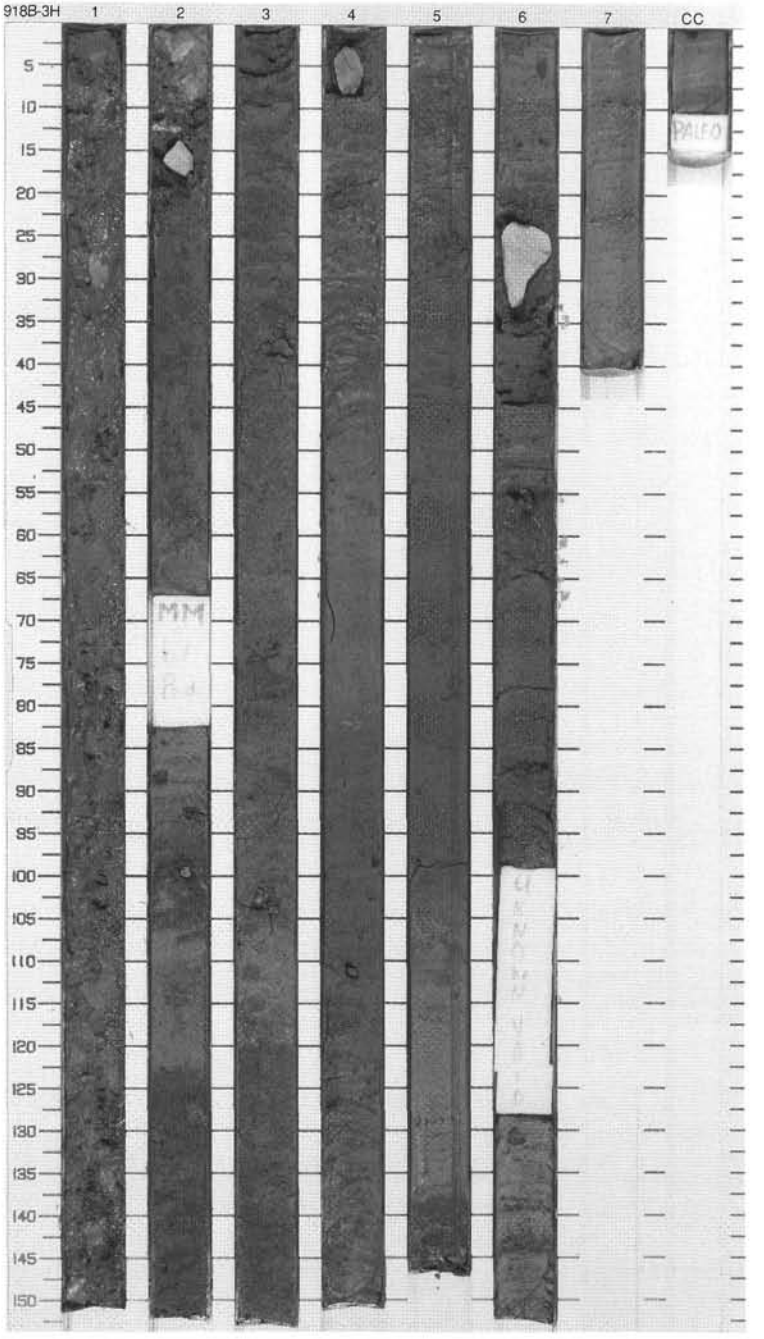
SITE 918 HOLE B CORE 2H CORED 6.8 - 16.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1	Quaternary		W		5Y 4/1	QUARTZ SILT WITH SAND Major Lithology: Dark gray (5Y 4/1) QUARTZ SILT WITH SAND in Section 1, 0–106 cm; Section 2, 0–150 cm; Section 3, 0–17 cm and 79–150 cm; Section 4, 0–47 cm and 71–150 cm; Section 5, 0–74 cm; Section 6, 0–34 cm. Sedimentary is generally massive with patchy parallel lamination visible. A sharp contact separates sequences of different color but similar lithology. Minor Lithology: Compact gray (5Y 5/1) QUARTZ SILT WITH CLAY in Section 3, 17–79 cm; Section 4, 47–71 cm; Section 5, 74–150 cm; Section 6, 34–150 m, and CC. Sediment is present as parallel-laminated beds within the dominant QUARTZ SILT WITH SAND. General Description: A sandstone dropstone (2 cm across) is found in Section 5, 117 cm.
		2				S		
		3				S W	5Y 5/1	
							5Y 4/1	
		4				S	5Y 5/1	
						I	5Y 4/1	
		5		◇			5Y 5/1	
							5Y 4/1	
		6					5Y 5/1	
		CC	??			M		



SITE 918 HOLE B CORE 3H CORED 16.3 - 25.8 mbsf

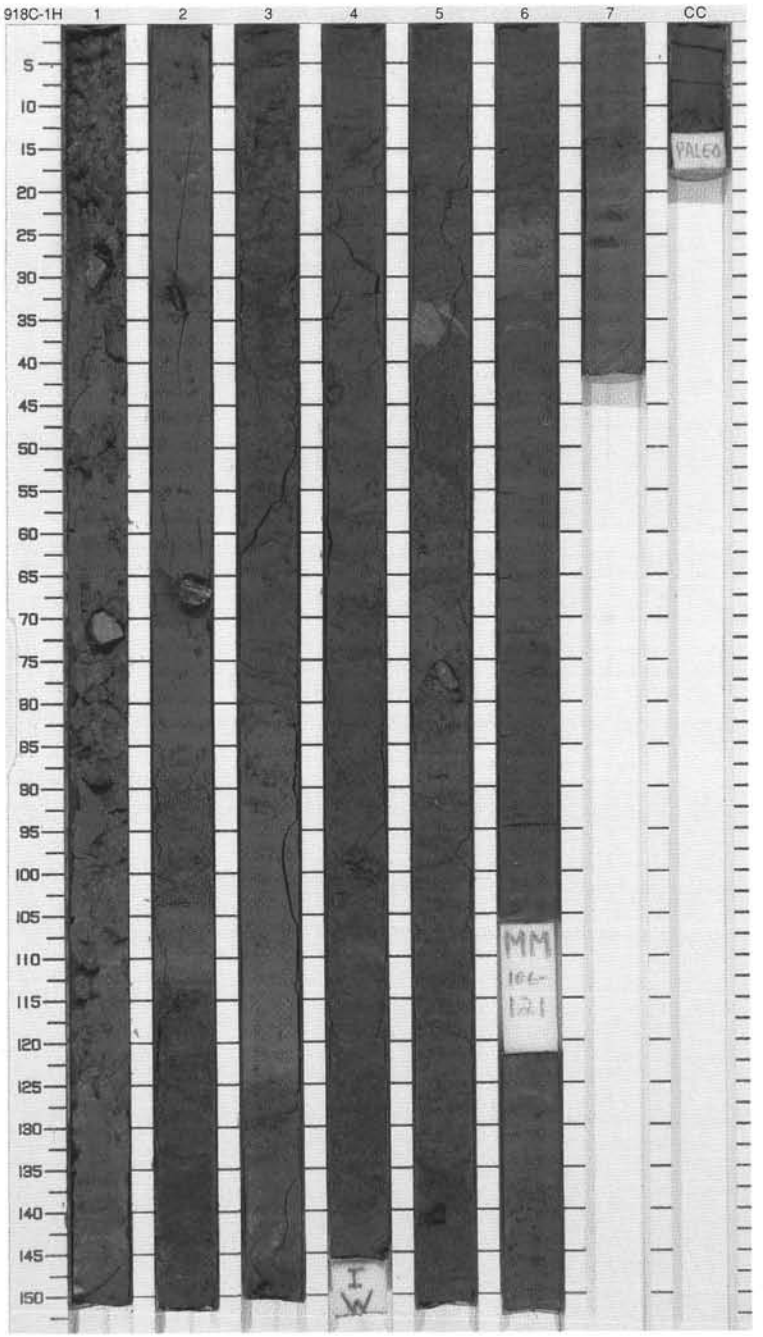
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9	Void	1–6, 7, CC	Quaternary			W, S, S, S, I, M	5Y 3/1; 5Y 4/1 To 2.5Y N4/0; 2.5Y 4/2; 5Y 2/1; 5BG 4/1; 5G 2/1; 5BG 4/1	SILT, SILTY QUARTZ SAND and QUARTZ SILT WITH CLAY Major Lithologies: SILT and SILTY QUARTZ SAND, of massive, with dropstones scattered throughout. The sediment is layered on a large scale showing a gradation between more sandy and more clayey types of silt. SILTY QUARTZ SAND is found at Section 2, 20–62 and 122–150 cm; Section 4, 0–46 and 85–150 cm; Section 5, 0–102 cm; Section 6, 32–99 cm. In the SILT sections burrows are seen infilled by coarser sandy material. Parallel lamination is locally developed above sharp basal contacts, where it is not destroyed by bioturbation. Minor Lithology: SILTY FORAMINIFER NANNOFOSSIL SAND, Section 3, 0–150 cm, is massive, well-sorted sediment with one dropstone. General Description: Dropstones recorded are (depth, lithology, size): Section 2, 13–18 cm, feldspathic granite, 41 mm across; Section 3, 36–39 cm, sandstone, 35 mm across; Section 3, 101–104 cm, meta-sandstone, 28 mm across; Section 4, 2–8 cm, basalt, 57 mm across; Section 4, 97–98 cm, shale, 17 mm across; Section 4, 110–112 cm, basalt, 17 mm across; Section 6, 22–32 cm, diorite, 10 cm across.



SITE 918 HOLE C CORE 1H CORED 25.8 - 35.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1–6, CC	Quaternary		W	S, I, W, M	5Y 4/1; 5Y 3/1; 5Y 4/1; 5Y 3/1; 10YR 3/1; 5Y 3/1; 5Y 4/1	QUARTZ SILT WITH CLAY Major Lithology: QUARTZ SILT WITH CLAY (Section 1, 0 cm to Section 2, 88 cm; Section 2, 103–113 cm; Section 3, 82–125 cm; Section 5, 32–38 cm; Section 6, 29–39 cm, and Section 6, 94 cm to CC), occurs as massive, homogeneous, dark gray (5Y 4/1) beds, slightly bioturbated throughout. Minor Lithologies: QUARTZ SILT (Section 2, 88–103 cm; Section 2, 113 cm to Section 3, 82 cm; Section 3, 125 cm to Section 4, 57 cm; Section 4, 95–150 cm, and Section 5, 52–142 cm) occurs as foraminifer-rich, massive, very dark gray (5Y 3/1), slightly bioturbated beds. FORAMINIFER SANDY SILT MIXED SEDIMENT (Section 4, 57–95 cm and Section 5, 0–16 cm), occurs as very dark gray (10YR 3/1), massive beds. Foraminifers are observed abundantly (up to 40%). SAND (Section 5, 18–52 cm), very dark gray (10 YR 3/1), fine- to coarse-grained, quartz-rich beds. SANDY QUARTZ SILT (Section 5, 142 cm to Section 6, 29 cm and Section 6, 39–94 cm), occurs as very dark gray (5Y 3/1), parallel-laminated, slightly burrowed beds. General Description: Dropstones (depth, rock type, and size): Section 1, 30 cm, granite, 4.1 cm long; Section 1, 70 cm, basalt, 4.2 cm long; Section 2, 31 cm, gneiss, 2.8 cm; Section 2, 66 cm, gneiss, 3.6 cm; Section 5, 75 cm, metaconglomerate, 3.9 cm; Section 5, 140 cm, sandstone, 1.5 cm long.

WASHED TO 25.8 mbsf.



SITE 918 HOLE C CORE 2H CORED 35.3 - 35.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC						GRAVEL Major Lithology: GRAVEL, found washed and loose in the core catcher. The gravel consists of (lithologic type, diameter): basalt, 6 cm; basalt, 3 cm; granite, 3 cm; basalt, 1 cm. There is also one clast of DIAMICTON. Minor Lithology: DIAMICTON, consists of gray mud (5Y 4/1) containing granule-sized clasts. General Description: Age: Pleistocene.

SITE 918 HOLE D CORE 1R CORED 253.2 - 262.0 mbsf

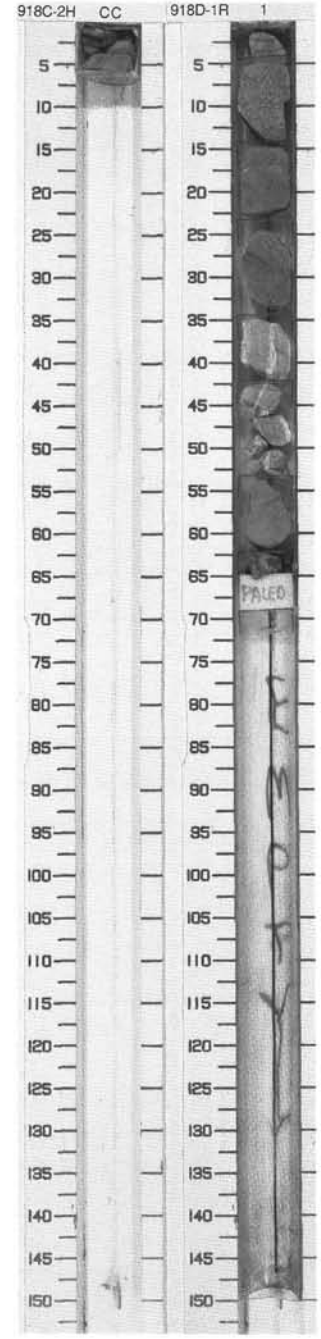
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1				M		GRAVEL General Description: This core is composed of eleven drilling fragments. From top to bottom (Piece 1 to Piece 8), the rock types are as follows: Piece 1: gneiss, 5 cm long; Piece 2: dolerite, 9 cm long; Piece 3: basalt, 7 cm long; Piece 4: basalt, 9 cm long; Piece 5: gneiss, 6 cm long; Piece 6: gneiss, 4 cm long, 4 peices; Piece 7: basalt, 8 cm long; Piece 8: basalt, 4 cm long, with clay and silt. Age: Unknown, presumed Pliocene.

WASHED TO 253.2 mbsf

918D 2R NO RECOVERY

918D 3R NO RECOVERY

DRILL 279.9–324.0mbsf



SITE 918 HOLE D CORE 4R CORED 324.0 - 332.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC	Pliocene			M		GRAVEL

Major Lithology:
GRAVEL, consists of nine small pieces including (lithologic type, diameter): granite, 2 cm; basalt, 1 cm; basalt, 1 cm; basalt, 1 cm; gneiss, 1 cm; gneiss, 1 cm; gneiss, 2 cm; gneiss, 2 cm; gneiss, 2 cm; basalt, 7 cm; basalt, 6 cm.

General Description:
Age: Unknown, presumed Pliocene.

SITE 918 HOLE D CORE 5R CORED 332.8 - 341.7 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC	Pliocene					GRAVEL

Major Lithology:
Four pieces of washed GRAVEL, including (lithology, diameter): gneiss, 7 cm; gneiss, 7 cm; conglomerate, 8 cm; conglomerate, 8 cm.

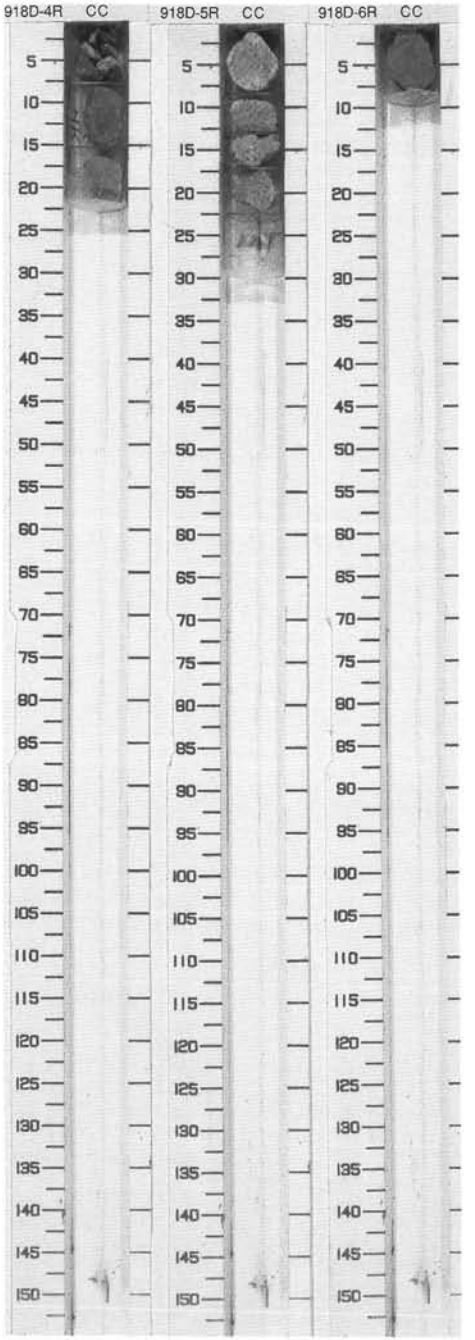
General Description:
Age: Unknown, presumed Pliocene.

SITE 918 HOLE D CORE 6R CORED 341.7 - 350.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC						GRAVEL

General Description:
This core consists of one drilling fragment of dolerite, 8 cm long.

Age: Unknown, presumed Pliocene.



SITE 918 HOLE D CORE 7R CORED 350.6 - 359.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC						GRAVEL

General Description:
This core consists of two drilling fragments.
Piece 1. gneiss, 6 cm across.
Piece 2. basalt, 4 cm across.

Age: Unknown, presumed Pliocene.

SITE 918 HOLE D CORE 8R CORED 359.5 - 368.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC	Pliocene			M		GRAVEL

Major Lithology:
Washed GRAVEL, consists of (lithology diameter)
Piece 1. dolerite, 7 cm.
Piece 2. gneiss, nine small pieces, all 1–2 cm across.

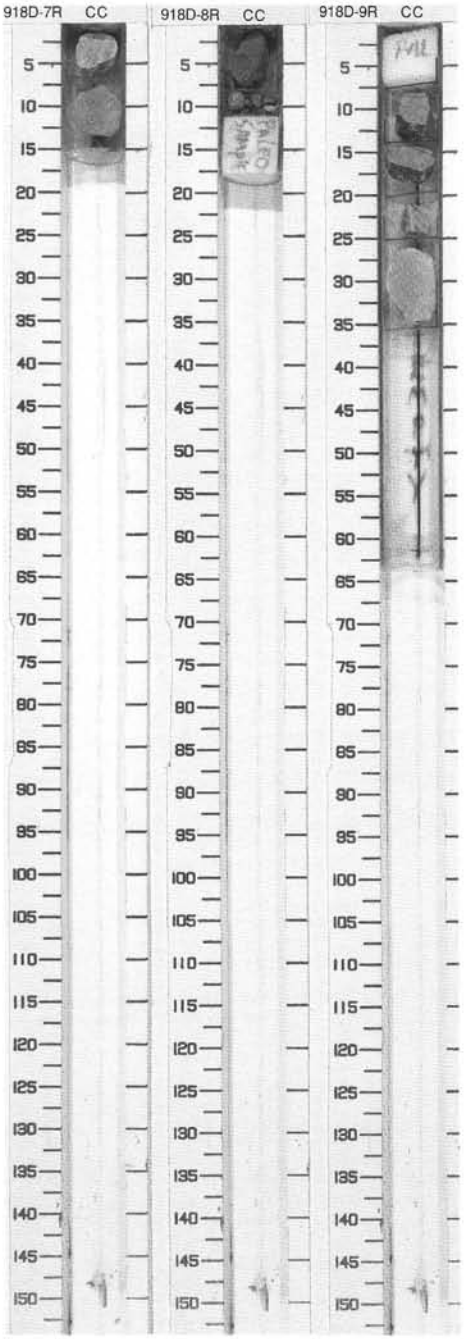
General Description:
Age: Unknown, presumed Pliocene.

SITE 918 HOLE D CORE 9R CORED 368.4 - 377.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC				M		GRAVEL

Major Lithology:
Washed GRAVEL consists of (lithology, diameter):
Piece 1. gabbro, 6 cm;
Piece 2. gabbro, 6 cm;
Piece 3a. siltstone, 3 cm;
Piece 3b. gneiss, 4 cm;
Piece 4. metasandstone, 9 cm.

Age: Pliocene.



SITE 918 HOLE D CORE 10R CORED 377.2 - 386.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC						GRAVEL

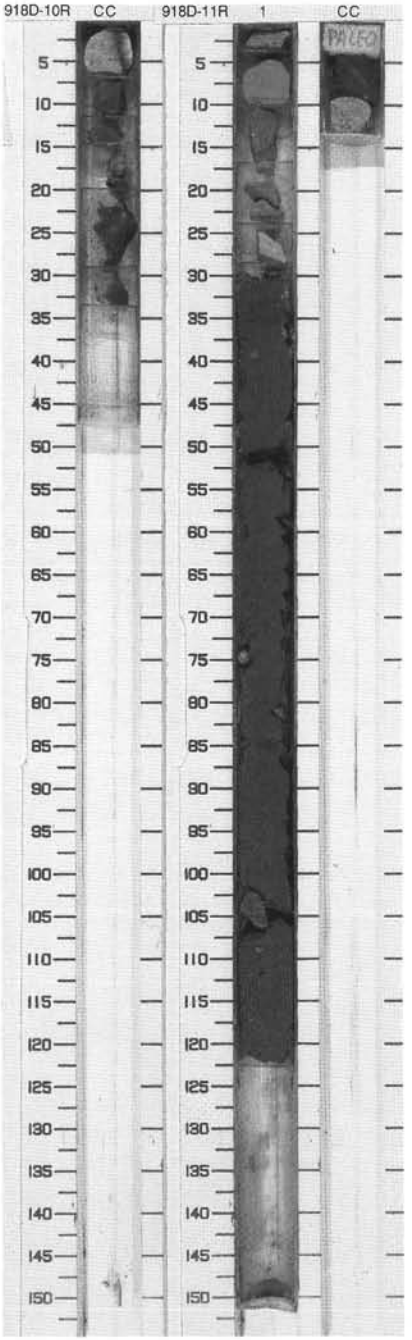
Major Lithology:
Washed GRAVEL consists of (lithology, diameter):
Piece 1. gneiss, 6 cm;
Piece 2. metasandstone, 3.5 cm;
Piece 3. gneiss, 5 cm;
Piece 4. sandstone, 3 cm;
Piece 5. metamorphic rock, 8 cm;
Piece 6. sandstone, 5.5 cm.

Age: Pliocene

SITE 918 HOLE D CORE 11R CORED 386.1 - 395.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1 CC	Pliocene			S M	7.5YR N3/0	GRAVEL and SANDY QUARTZ SILT WITH CLAY

Major Lithologies:
GRAVEL, Section 1, 0–28 cm, probably represents washed pebbles from a diamicton. The individual pebbles are as follows:
Piece 1. gneiss, 48 mm across;
Piece 2. basalt, 57 mm across;
Piece 3. diorite, 62 mm across;
Piece 4. granite, 42 mm across;
Piece 5. metasediment, 50 mm across.
SANDY QUARTZ SILT WITH CLAY (Section 1, 28–122 cm to CC). Very dark gray, massive, scattered with sand- to gravel-sized fragments. The individual pebbles are as follows (lithology, size, depth in Section 1):
quartzite, 1 cm, 39 cm;
basalt , 1.5 cm, 58 cm;
sandstone, 1.5 cm, 75 cm;
basalt, 1 cm, 80 cm;
granite, 4.5 cm, 104 cm;
granite, 1 cm, 109 cm.
A mollusk shell is seen at Section CC, 5 cm.

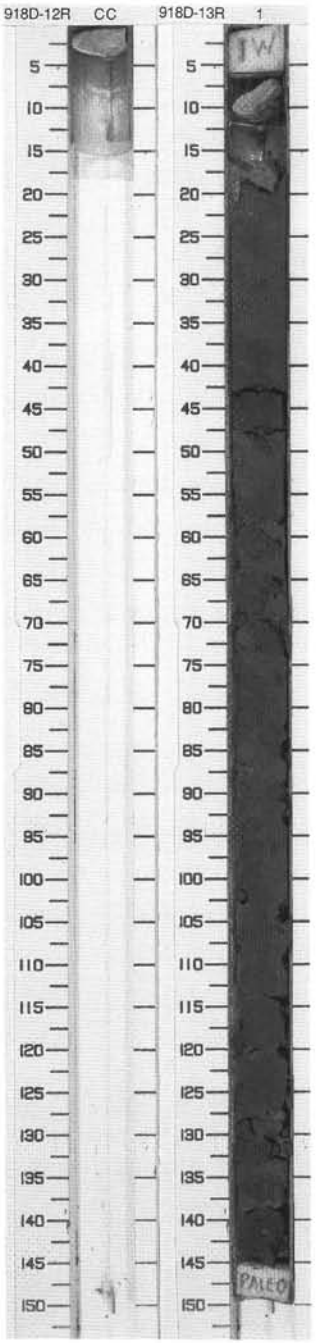


SITE 918 HOLE D CORE 12R CORED 395.0 - 403.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
								GRAVEL Major Lithology: Core 12R is one, 7-cm-long gneiss clast in GRAVEL. Probably a clast washed from a diamicton. Age: Pliocene

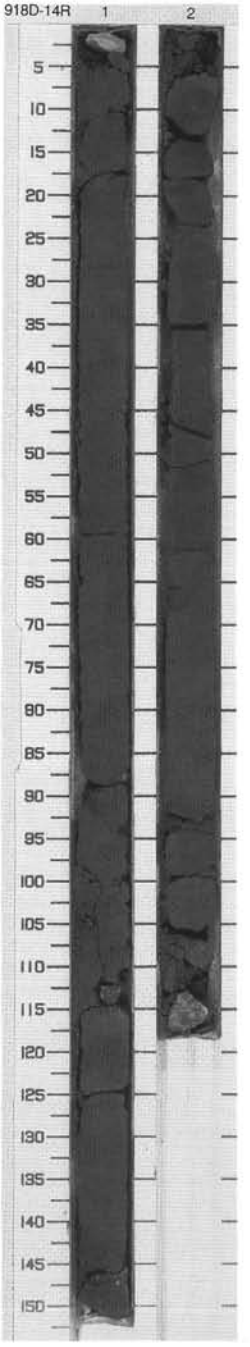
SITE 918 HOLE D CORE 13R CORED 403.9 - 412.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	Pliocene	◇ ◇ ◇ ◇		I S M	7.5YR 3/1	QUARTZ SILT WITH CLAY Major Lithology: QUARTZ SILT WITH CLAY, very dark gray, compact sediment. Well lithified between 17–148 cm. Dropstones are scattered throughout. These are (lithology, size, depth): gneiss, 6 cm, 14 cm; sandstone, 4 cm, 18 cm; quartzite, 2 cm, 87 cm; quartzite, 1.5 cm, 102 cm; gabbro, 3.5 cm, 130 cm; basalt, 1 cm, 143 cm.



SITE 918 HOLE D CORE 14R CORED 412.8 - 421.7 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
2		1 2 CC	early Pliocene	◇ ◇ ◇ ◇ ◇ ◇		S S S MT	5Y 3/1	QUARTZ SILT Major Lithology: QUARTZ SILT (Section 1, 0–88 and 90–145 cm, and Section 1, 48 cm to Section 2, 118 cm), occurs as massive, very dark (5Y 3/1) beds. Echinoid spines and burrows are rare. Granule-sized rock fragments are scattered throughout. Minor Lithology: SILT WITH GRANULES (Section 1, 88–90 and 145–148 cm) contains small quantities of rounded rock fragments. General Description: Dropstones (depth, rock type, and size): Section 1, 2 cm, gneiss, 4.8 cm; Section 1, 90 cm, sandstone, 3.0 cm; Section 1, 93 cm, sandstone, 1.5 cm; Section 1, 112 cm, gneiss, 2.6 cm; Section 2, 65 cm, sandstone, 1.5 cm; Section 2, 67 cm, sandstone, 2.2 cm; Section 2, 116 cm, gneiss, 4.9 cm.

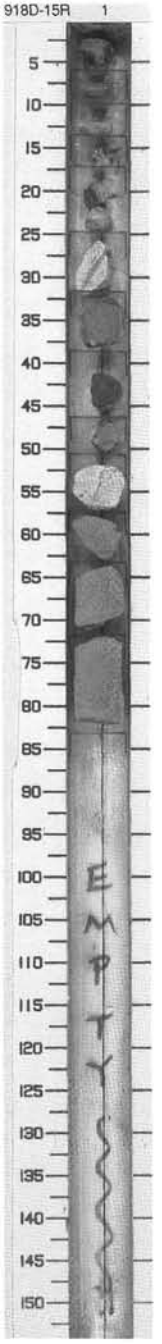


SITE 918 HOLE D CORE 15R CORED 421.7 - 430.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	early Pliocene		XXXX	S S		GRAVEL General Description: Washed GRAVEL, 15 pieces numbered 1–13 and described below (lithology, diameter). Piece 1. dolerite, medium grained, 4 cm. Piece 2. dolerite, dark gray, 3 cm. Piece 3. quartzite, white, 4 cm. Piece 4. quartz diorite, with large amphiboles, 2 cm. Piece 5. granite, 3 cm; amphibolite, 2 cm; gabbro, 4 cm. Piece 6. gneiss, 5 cm. Piece 7. sandstone, pebbly, 5 cm. Piece 8. basalt, plagiophyric, 4 cm. Piece 9. gneiss, mafic, 2 cm. Piece 10. gneiss, granitic, 3 cm. Piece 11. basalt, 4 cm. Piece 12. basalt, 6 cm. Piece 13. basalt, 9 cm.

918D 16R NO RECOVERY

918D 17R NO RECOVERY



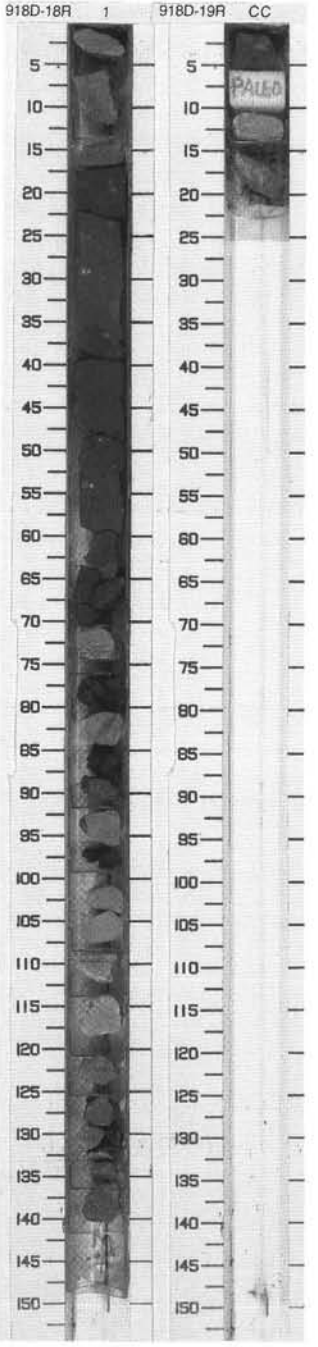
SITE 918 HOLE D CORE 18R CORED 448.2 - 457.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1	early Pliocene	◇ ◇ ◇ ◇ ◇ ◇	W W W W W W	S S M	5Y 3/1	GRAVEL and SILT WITH CLAY Major Lithologies: GRAVEL, consists of washed angular clasts, including (lithology, diameter): gabbro, 6 cm; gabbro, 6 cm; dolerite 5.8 cm; basalt, 1.2 cm; gneiss, 5.2 cm, dolerite, 5.2 cm; dolerite, 5.4 cm; dolerite, 5.6 cm; gneiss, 5 cm; gneiss, 5 cm; gneiss, 5 cm; gneiss, 4 cm; gneiss, 3 cm; gneiss, 3 cm; dolerite, 3 cm. SILT WITH SAND is also found in Section 1, 14–71 cm. This sediment is dark gray (5Y 3/1), and contains granules and occasional cobbles.

SITE 918 HOLE D CORE 19R CORED 457.1 - 466.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		CC	Pliocene	◇	X	S M		QUARTZ SILT Major Lithology: QUARTZ SILT is very dark gray (5Y 3/1), and present as one rounded clast, 5 cm in diameter. General Description: Three washed dropstones are present. These include (lithology, diameter): gabbro, 5.7 cm. gabbro, 6.7 cm. dolerite, 3.0 cm. Age: early Pliocene.

918D 20R NO RECOVERY

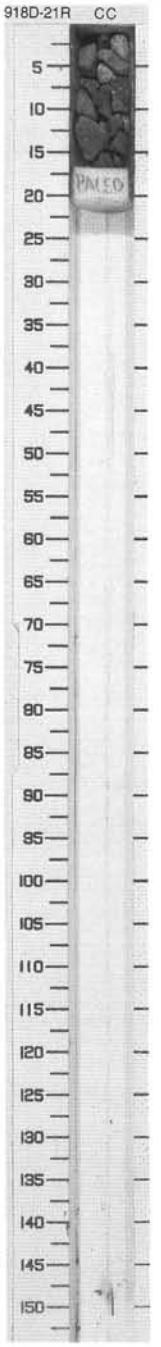


SITE 918 HOLE D CORE 21R CORED 474.9 - 483.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
	◆◇◆◇◆◇◆	CC	Pliocene	◇	X	S M		GRAVEL

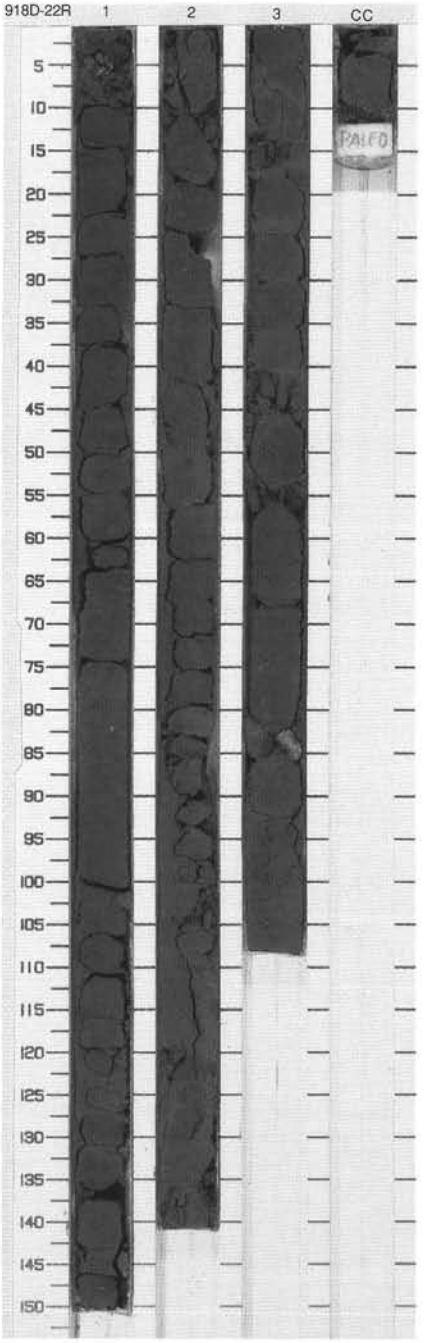
Major Lithology:
Twenty-seven clasts of assorted, washed GRAVEL. The clasts include (lithology, diameter):
gneiss, 3 cm; diorite, 3 cm; granite, 2 cm; gabbro, 4 cm; basalt, 4 cm; metaconglomerate, 2 cm; basalt, 4 cm; basalt, 5 cm; gneiss, 2 cm; gneiss, 2 cm; gabbro, 4 cm; gneiss, 2 cm; basalt, 3 cm; granite, 1 cm; basalt, 3 cm; granite, 2 cm; gneiss, 1 cm; dolerite, 2 cm; gneiss, 1 cm; gneiss, 1 cm; granite, 1 cm; quartzite, 1 cm; quartzite, 1 cm; basalt, 1 cm; silt with sand clast, 4 cm; silt with sand sediment clast, 3 cm; silt with sand sediment clast, 3 cm.

General Description:
Age: early Pliocene.



SITE 918 HOLE D CORE 22R CORED 483.8 - 493.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–4		1, 2, 3, CC	Pliocene ??	F		S, S, I, M	5Y 3/1; 5Y 4/1	QUARTZ SILT WITH CLAY Major Lithology: QUARTZ SILT WITH CLAY (Section 1, 0–150 cm, Section 2, 20–140 cm, and Section 3, 17 cm to CC), occurs as massive, homogeneous, very dark gray (5Y 3/1) to dark gray (5Y 4/1) beds, slightly bioturbated. Lithic granules are scattered. Section 1, 101–150 cm is weakly calcareous. Faint laminations are seen in Section 3, 55–82 cm. Minor Lithology: SANDY QUARTZ SILT WITH CLAY AND NANNOFOSSILS (Section 1, 61–63 cm, Section 2, 0–20 cm, and Section 3, 0–17 cm) shows a fining-upward sequence. General Description: Dropstones (depth, rock type, and size): Section 3, 50 cm, dolerite, 8 cm; Section 3, 62 cm, basalt, 1.0 cm; Section 3, 84 cm, gneiss, 4 cm. Drilling disturbance results in production of drilling biscuits in Section 3.

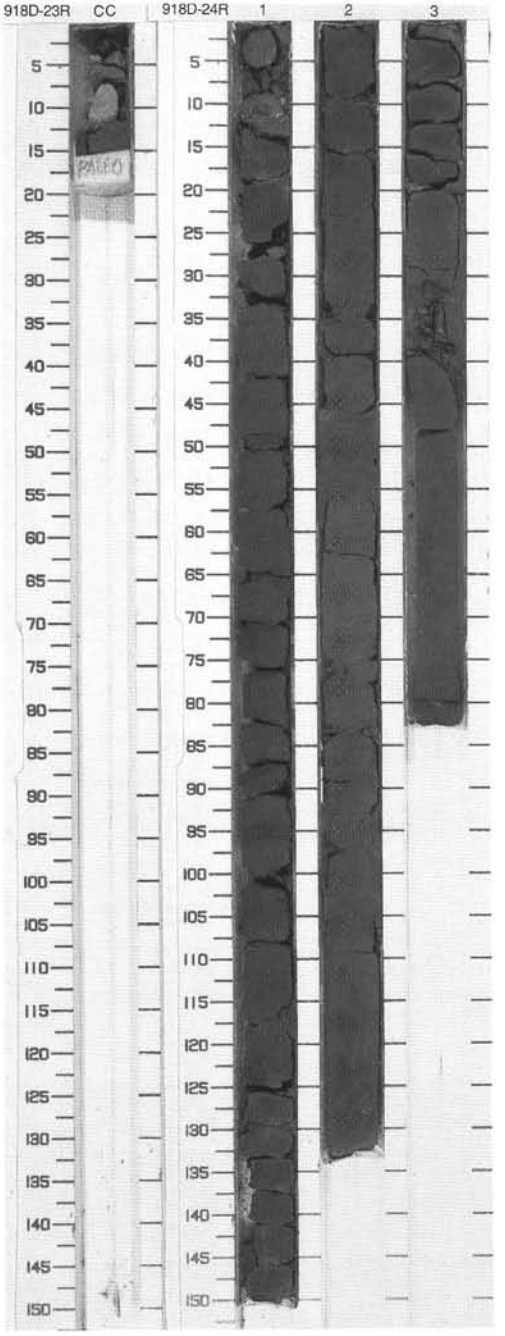


SITE 918 HOLE D CORE 23R CORED 493.6 - 503.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC				M		GRAVEL AND QUARTZ SILT Major Lithology: Dislocated GRAVEL (lithology, diameter) between 0 and 13 cm: - quartzite, 1.5 cm - basalt, 1.5 cm - basalt, 2.0 cm - basalt, 3.0 cm - sandstone, 5.0 cm - metamorphosed igneous rock, 3.5 cm - gabbro, 5.5 cm - basalt, 2.0 cm Very dark gray (5Y 3/1) compact QUARTZ SILT at 13–16 cm, showing slight drilling disturbance. Paleontology sample at 13–16 cm. Age: late Miocene.

SITE 918 HOLE D CORE 24R CORED 503.2 - 512.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2 3		1 2 3 CC	late Miocene	◇		S M	5Y 3/1	QUARTZ SILT Major Lithology: Very dark gray (5Y 3/1), compact QUARTZ SILT, highly fragmented (drilling biscuits), highly bioturbated with *Zoophycos*, *Planolites*, and *Chondrites*. Otherwise massive and structureless. Dropstones in Section 1 (lithology, diameter, depth): - granite, 2 cm, 8 cm. - quartzite, 1 cm, 11 cm.

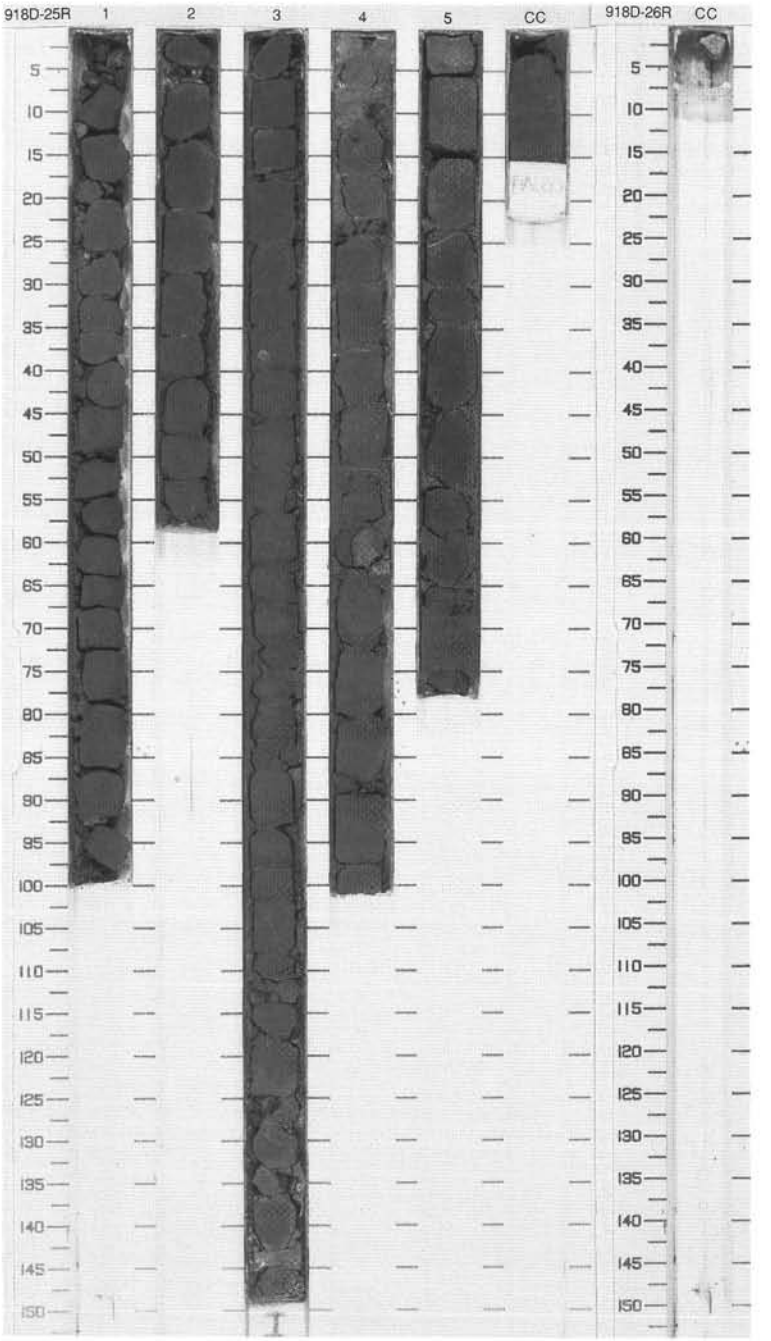


SITE 918 HOLE D CORE 25R CORED 512.8 - 522.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1 2 3 4 5 CC	late Miocene			S I S M	5Y 3/1	SANDY QUARTZ SILT WITH CLAY Major Lithology: Very dark gray (5Y 3/1) compact SANDY QUARTZ SILT WITH CLAY highly fragmented (drilling biscuits), highly bioturbated (*Zoophycos*, *Planolites*, *Chondrites*). Burrowed zones show higher carbonate content as nannofossils. Rare benthic foraminifers are dispersed throughout the core. Several dislocated dropstones (lithology, diameter) at the top of Section 1 as follows: - sandstone, 3 cm - granite, 3 cm - granite, 3 cm - granite, 2.5 cm - gneiss, 3.5 cm One dropstone in place at Section 3, 37 cm: - granite, 1.5 cm Minor Lithology: MUDSTONE WITH NANNOFOSSILS, Section 4, 58–63 cm depth.

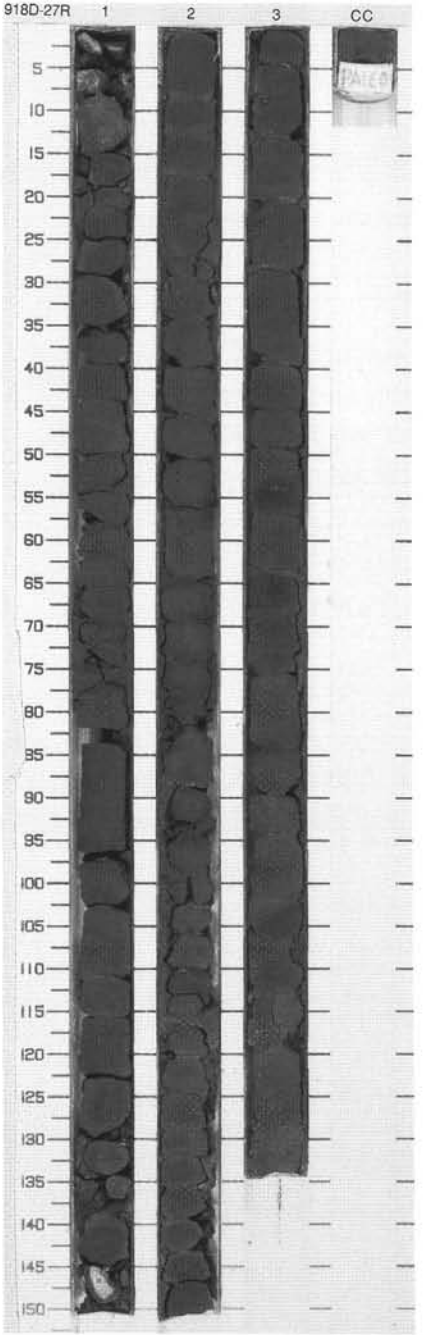
SITE 918 HOLE D CORE 26R CORED 522.5 - 532.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
								GRAVEL Major Lithology: Dislocated dropstone of granite, 3 cm across. Age: Presumed late Miocene.



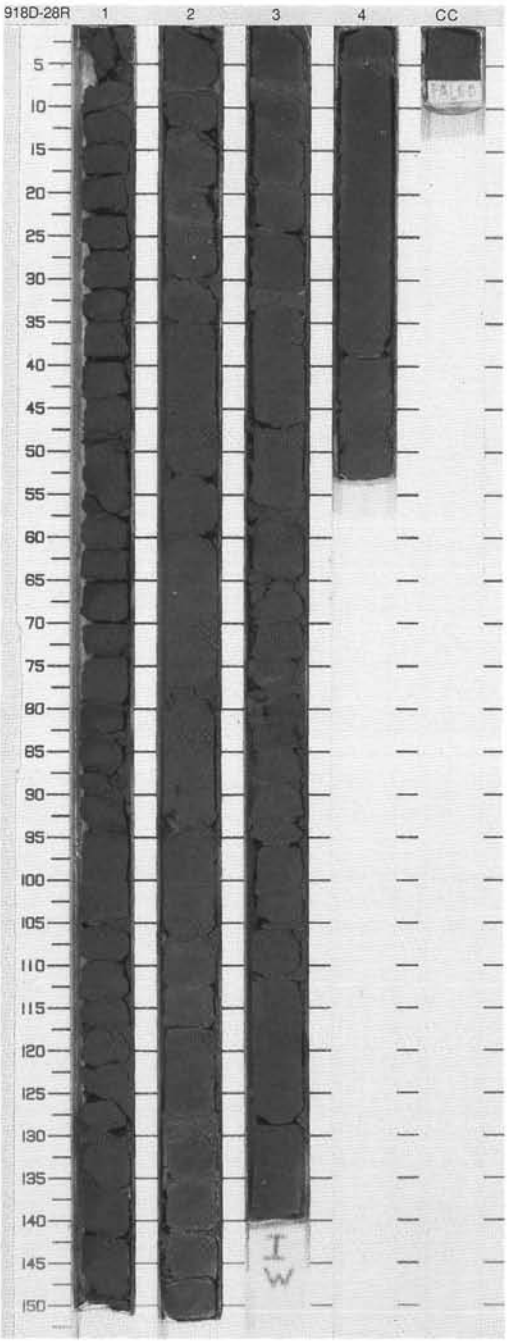
SITE 918 HOLE D CORE 27R CORED 532.1 - 541.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2 3 4		1 2 3 CC	late Miocene	◇ = ◇		S S S M	5Y 3/1	QUARTZ SILT Major Lithology: Massive, homogeneous, very dark gray QUARTZ SILT (5Y 3/1), moderately bioturbated with *Chondrites*, *Planolites*, *Thalassinoides* and rare *Zoophycos* burrows. Burrow in Section CC is pyritized. Some intervals, indistinguishable to the naked eye, have up to 10% feldspar. Minor Lithology: MUDSTONE, Section 1, 8–14 and 145–149 cm, intensely burrowed and weakly calcareous (probably hardground).



SITE 918 HOLE D CORE 28R CORED 541.8 - 551.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–5		1, 2, 3, 4, CC	late Miocene			S, S, I, M	5Y 3/1	QUARTZ SILT WITH FELDSPAR AND CLAY Major Lithology: Massive, homogeneous, very dark gray QUARTZ SILT WITH FELDSPAR AND CLAY (5Y 3/1), moderately bioturbated with *Chondrites*, *Thalassinoides*, and *Planolites* burrows. Scattered mollusk fragments (2–3-mm-size bivalves and 1 cm gastropods) and benthic foraminifers. Minor Lithologies: SILT WITH SAND, Section 2, 15–31 cm. Isolated polymict clasts floating in silty matrix, 8 mm across and smaller, including: quartzite, granite or gneiss, and basalt fragments. DRILLING RUBBLE, Section 1, 0–8 cm.



SITE 918 HOLE D CORE 29R CORED 551.4 - 561.0 mbsf

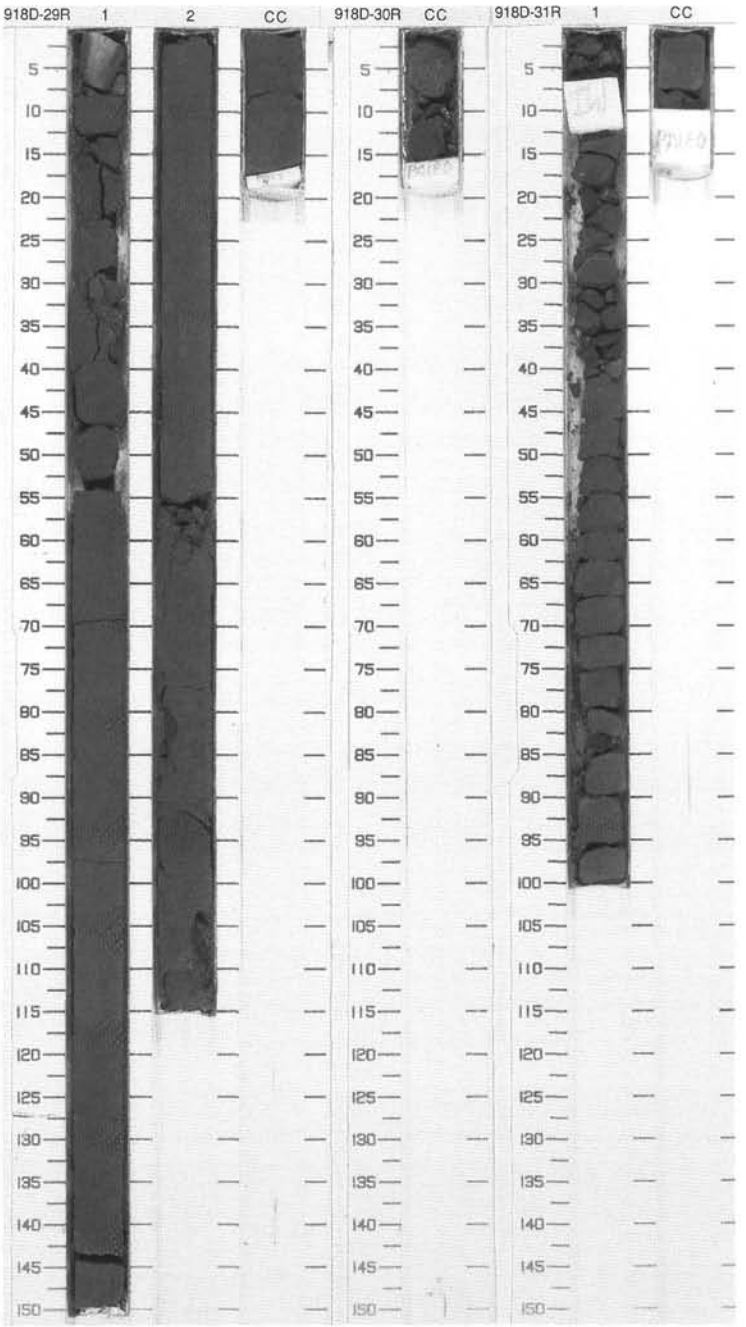
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2		1 2 CC	late Miocene	≀	⊢	S S M	5Y 3/1	SILT WITH CLAY Major Lithology: Very dark gray (5Y 3/1) compact SILT WITH CLAY, moderately to highly fragmented, slightly bioturbated, with benthic foraminifers in Section 2, 0–27 cm. Section 1, 0–7 cm is indurated as is Section CC, 7–16 cm.

SITE 918 HOLE D CORE 30R CORED 561.0 - 570.7 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC				M		GRAVEL and SILT Major Lithologies: Dislocated GRAVEL (lithology, diameter), 0–12 cm: - 3 sandstone clasts, 2, 2.5 and 10 cm - several granite clasts, 1–4 cm Very dark gray (5Y 3/1) SILT, slightly bioturbated,12–16 cm. Paleontology sample,16–18 cm. Age: Unknown, presumed late Miocene.

SITE 918 HOLE D CORE 31R CORED 570.7 - 580.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1 CC	late Mio.	≀	⊢	I S M	5Y 3/1	SILT Major Lithology: SILT, homogeneous, nearly structureless, rare burrows, very dark gray (5Y 3/1).

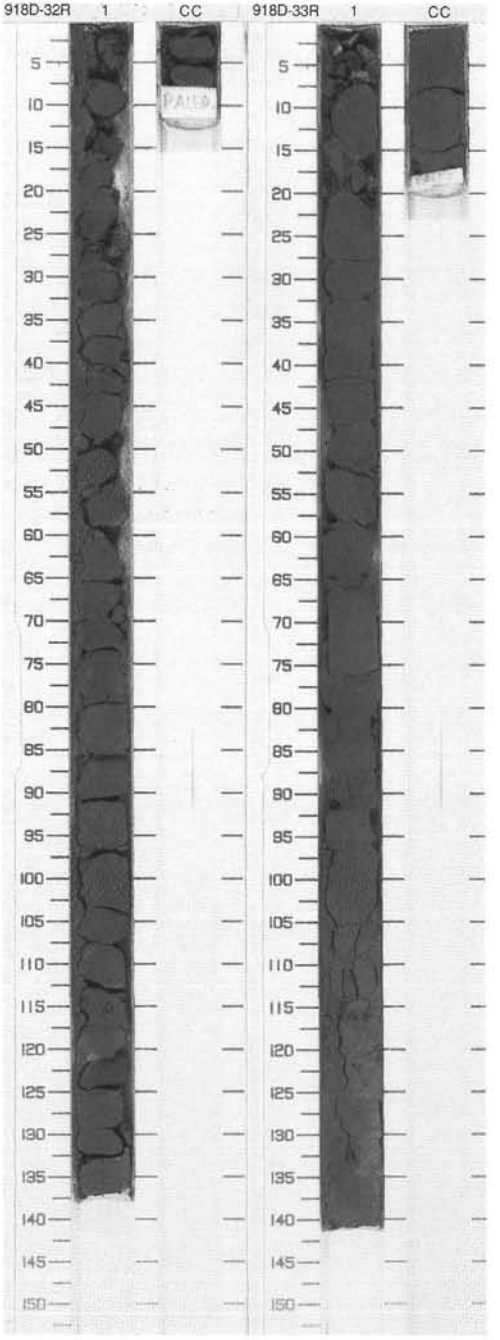


SITE 918 HOLE D CORE 32R CORED 580.3 - 590.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1 CC	late Miocene			S M	5Y 3/1	SILT WITH SAND Major Lithology: SILT WITH SAND, massive, homogeneous, very dark gray (5Y 3/1), slightly bioturbated. Section 1, 0–6 cm comprises downhole cavings of drilling rubble.

SITE 918 HOLE D CORE 33R CORED 590.0 - 599.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1 CC	late Miocene			S M	5Y 3/1	SILT WITH CLAY Major Lithology: SILT WITH CLAY (Section 1, 60 to CC), occurs as homogeneous, slightly bioturbated, very dark gray (5Y 3/1) bed. Minor Lithology: SILT WITH SAND (Section 1, 0–60 cm), occurs as homogeneous, slightly bioturbated very dark gray (5Y 3/1) bed.

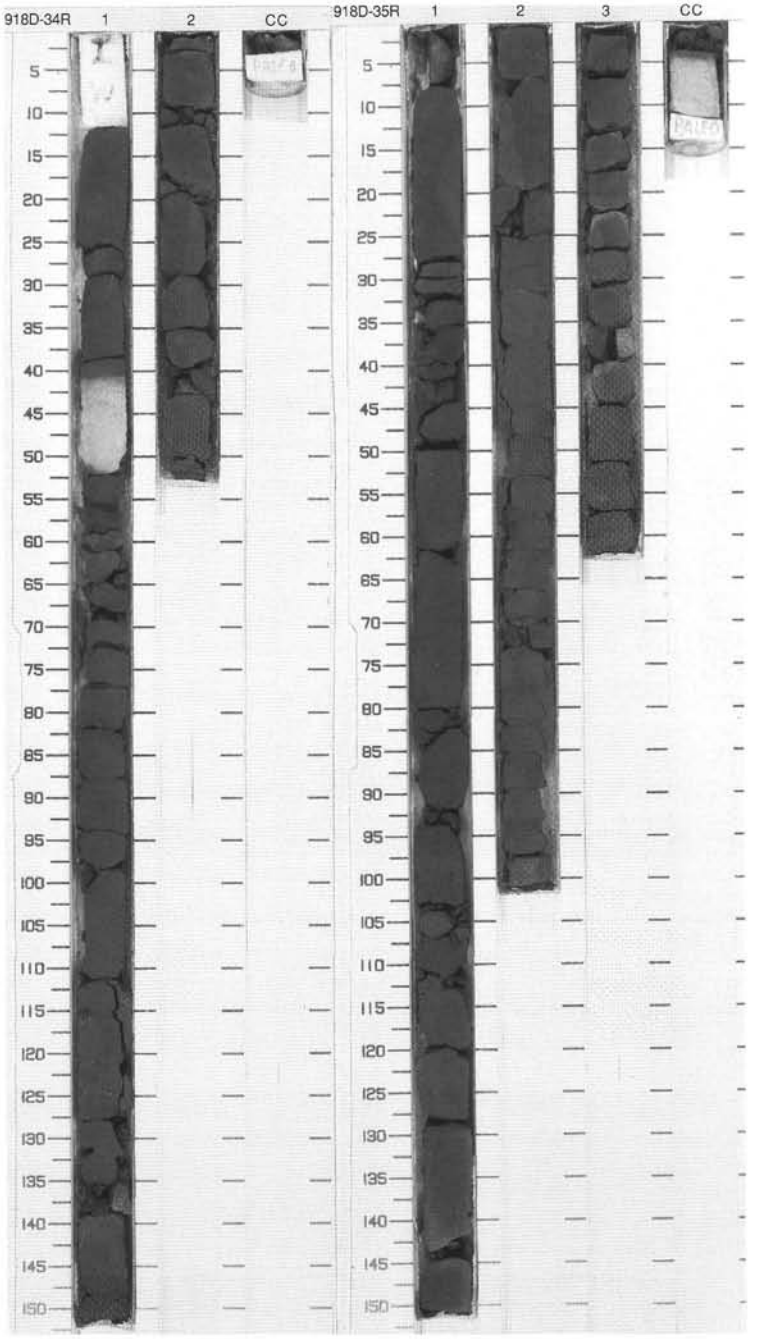


SITE 918 HOLE D CORE 34R CORED 599.6 - 609.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1, 2		1, 2, CC	late Miocene	F		I, S, S, M	5Y 3/1, 5Y 3/1	SILT WITH QUARTZ Major Lithology: SILT WITH QUARTZ, dark gray (5Y 3/1), with 20% volcanic rock fragments; massive, homogeneous. Minor Lithology: MUDSTONE WITH SILT, Section 1, 40–51 cm, white (10Y 8/1). This bed contains about 2% nannofossils, and much of the micrite may have been derived from nannofossil dissolution. The sediment appears to fine upward, and numerous burrows and fine laminae are visible in the middle and upper parts. It merges gradually with the underlying SILT.

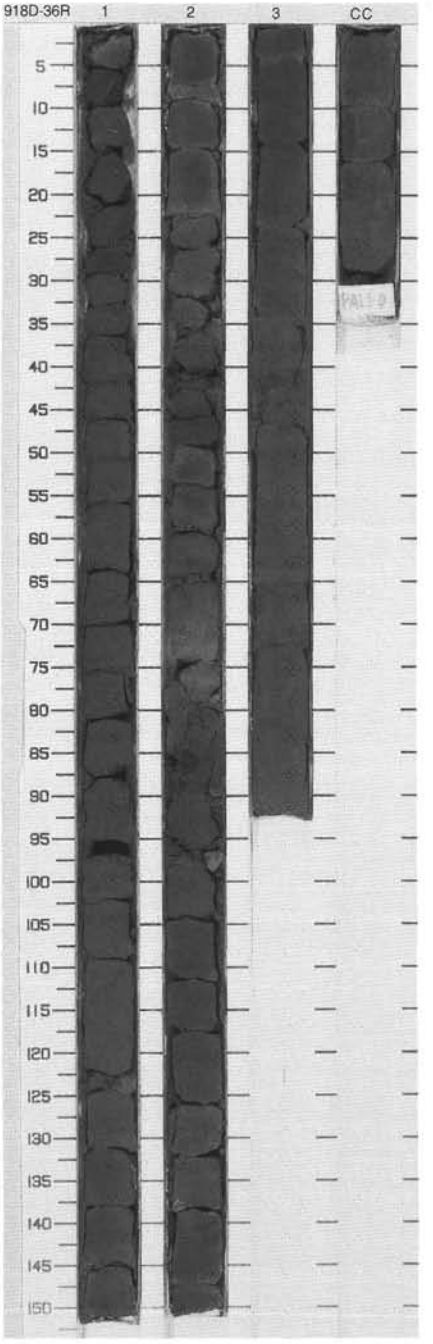
SITE 918 HOLE D CORE 35R CORED 609.2 - 618.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1, 2, 3		1, 2, 3, CC	late Miocene	F		S, S, T, M, S	5Y 3/1, 5Y 6/1	QUARTZ SILT Major Lithology: QUARTZ SILT WITH VOLCANIC ROCK FRAGMENTS (Section 1, 0–28 cm, Section 2, 25 cm to CC, 3 cm), occurs as homogeneous, massive, very dark gray (5Y 3/1) bed, slightly to moderately bioturbated. Minor Lithologies: QUARTZ SILT WITH SAND (Section 1, 28 cm to Section 2, 25 cm), occurs as homogeneous, massive, very dark gray (5Y 3/1) bed. This lithology is slightly to heavily bioturbated throughout. CALCAREOUS SILTSTONE WITH SAND (CC, 3–10 cm), light gray (5Y 6/1), massive, calcite-cemented, bioturbated bed.

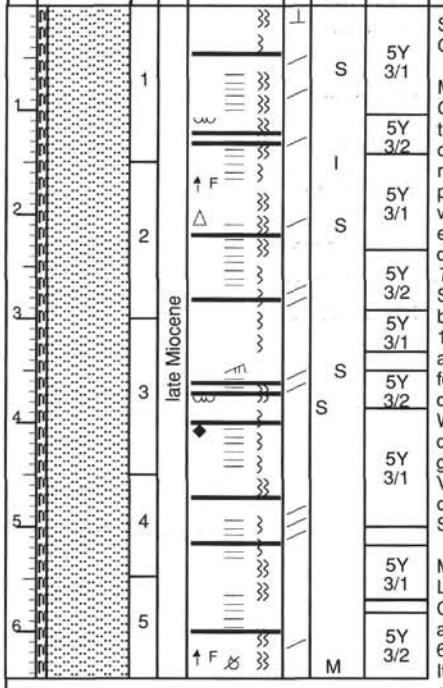


SITE 918 HOLE D CORE 36R CORED 618.9 - 628.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–4		1, 2, 3, CC	late Miocene			S, S, S, M	5Y 3/1	SILT WITH QUARTZ and VOLCANIC GLASS Major Lithology: SILT WITH QUARTZ and VOLCANIC GLASS (Section 1, 29 cm to Section 2, 22 cm, Section 2, 50–61 and 63–72 cm, Section 2, 79 cm to Section 3, 34 cm, Section 3, 46–62 cm, and Section 3, 68 cm to CC), massive, homogeneous, very dark gray (5Y 3/1), moderately bioturbated beds. Black laminae, Section 1, 100–120 cm. Minor Lithologies: QUARTZ SILT WITH SAND (Section 1, 0–30 cm, Section 2, 22–50 cm, Section 3, 34–46 cm and 62–66 cm), occurs as massive, homogeneous, dark olive gray (5Y 3/2), slightly bioturbated beds. NANNOFOSSIL CHALK WITH SILT (Section 2, 72–79 cm), dark gray (5Y 4/1) to gray (5Y 5/1), moderately bioturbated bed. VOLCANIC SILT WITH CLAY (Section 2, 61–63 cm and Section 3, 66–69 cm), occurs as black (5Y 2.5/1), bioturbated thin layers.



SITE 918 HOLE D CORE 37R CORED 628.6 - 638.2 mbsf

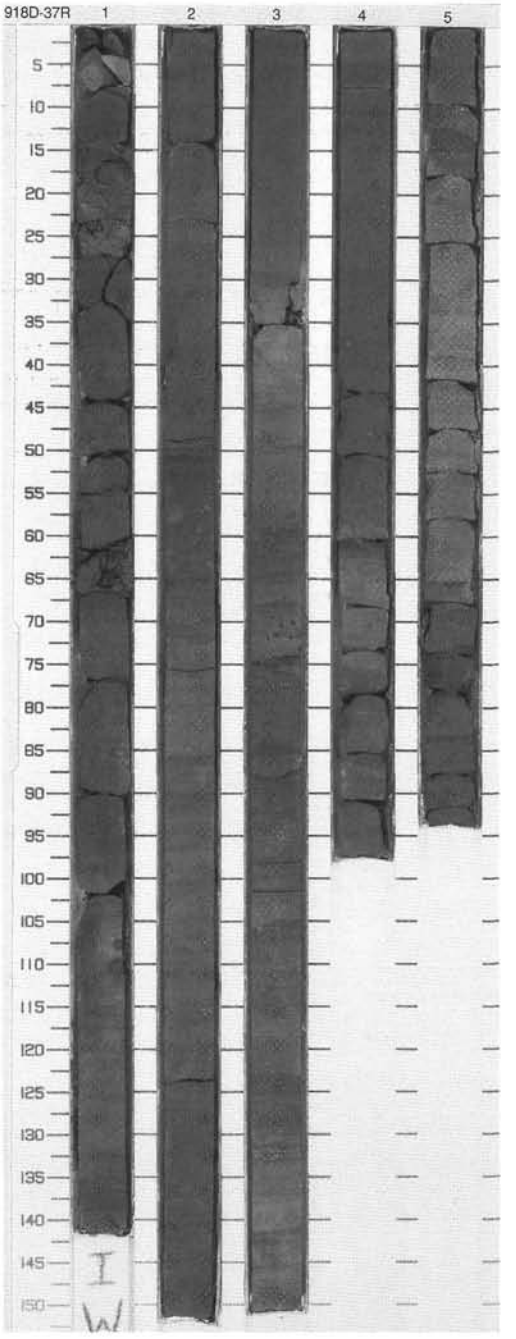


SILTSTONE and SILTSTONE WITH GLAUCONITE

Major Lithologies:
Gray (5Y 3/1) SILTSTONE occurs throughout Core 37R. It typically contains small amounts of nannofossils or micrite, and contains predominantly feldspar, quartz, and volcanic rock fragments. It is extensively bioturbated, and well-developed trace fossils of *Thalassinoides* are present in Section 1, 105–125 cm. *Chondrites* burrows are present in Section 3, 1–10 cm, and in Section 4, 5–35 cm, and traces of *Zoophycos* were found in Section 4, 80–93 cm. Very dark gray (5Y 3/2) SILTSTONE WITH GLAUCONITE beds, containing from 10%–20% glauconite, alternate with the VOLCANIC SILTSTONE, and are often capped by GLAUCONITIC SILTSTONE hardgrounds.

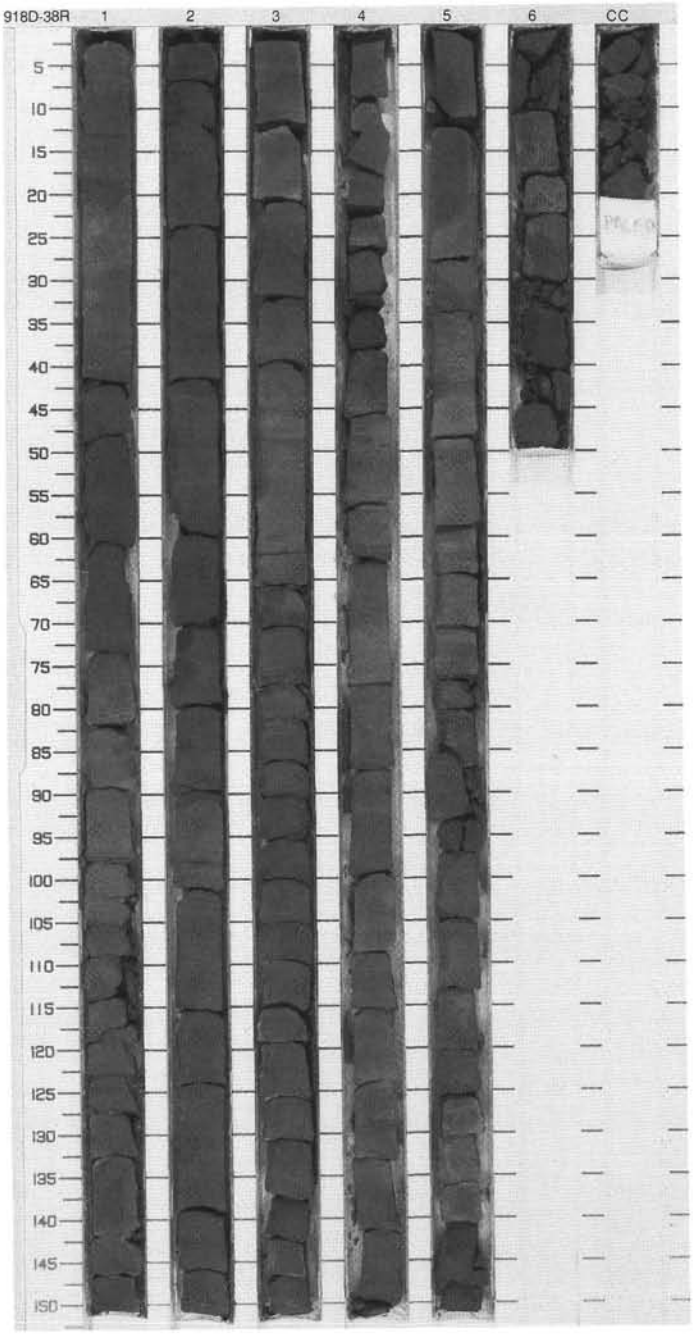
Minor Lithologies:
Light colored (10Y 7/1) MICRITIC CHALK WITH SILT is found in beds at Section 3, 25–35 cm, Section 4, 65–75 cm, and Section 5, 25–35 cm. It consists almost entirely of micrite and nannofossils, with a small amount of mineral grains. Dark gray (5Y 2.5/1) thin (0.5–2 cm) beds of GLAUCONITIC SILTSTONE typically cap the sequences of SILTSTONE WITH GLAUCONITE. They contain as much as 60% of silt-sized glauconite grains.

General Description:
Glauconite abundance increases upward through the beds of SILTSTONE WITH GLAUCONITE. These beds are often capped with the thin horizons of glauconitic hardground, which in turn are incised by cut-and-fill channels.



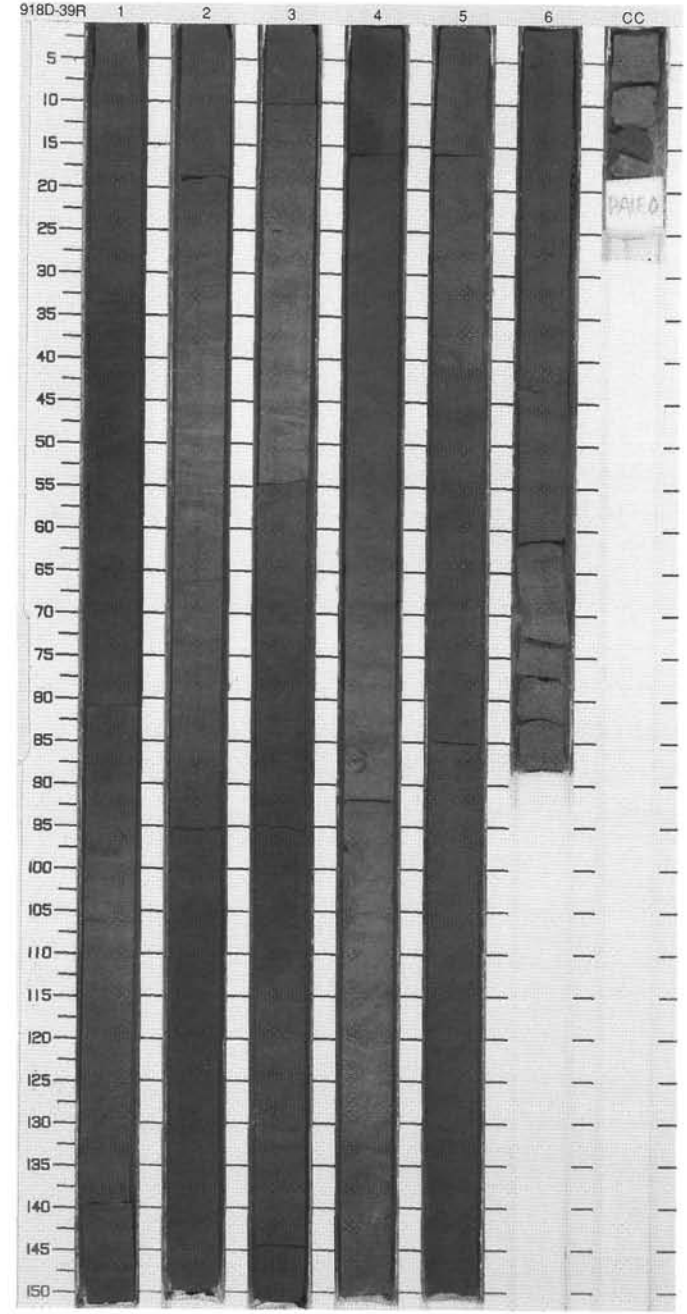
SITE 918 HOLE D CORE 38R CORED 638.2 - 647.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–8		1–6, CC	middle Miocene			S, S, S, M	5Y 3/1 To 5Y 4/1; 5Y 4/1; 5Y 3/1 To 5Y 4/1	VOLCANIC SILT WITH NANNOFOSSILS Major Lithology: VOLCANIC SILT WITH NANNOFOSSILS occurs as massive, dark gray (5Y 4/1) to very dark gray (5Y 3/1) beds. The sediment consists predominantly of altered grains of volcanic glass and feldspar, opaques and nannofossils. Moderate to heavy bioturbation throughout. Well-developed trace fossils of *Chondrites*, *Thalassinoides*, *Planolites*, and *Zoophycos* are present in Sections 1–5, and a *Turitella* burrow in Section 2, 12–16 cm. Faint trace fossils of *Zoophycos* and *Chondrites* in Section 6. Glauconitized hardgrounds are visible in Section 3, 5 cm, and Section 4, 61 and 128 cm. They are burrowed by *Thalassinoides* or are intact. Minor Lithologies: Greenish black (5G 4/1) VOLCANIC SILT, comprising mainly altered volcanogenic grains, occurs as thin beds (<5 cm) intercalated in the dominant lithology throughout the core. These beds are often partly disrupted by burrowing. Burrowed, massive SILTY SAND WITH QUARTZ, Section 4, 25–38 cm and Section 5, 68–71 and 110–116 cm, which contains small clasts (<3 mm) of green grains (glauconite?). Bed in Section 4 shows normal grading.



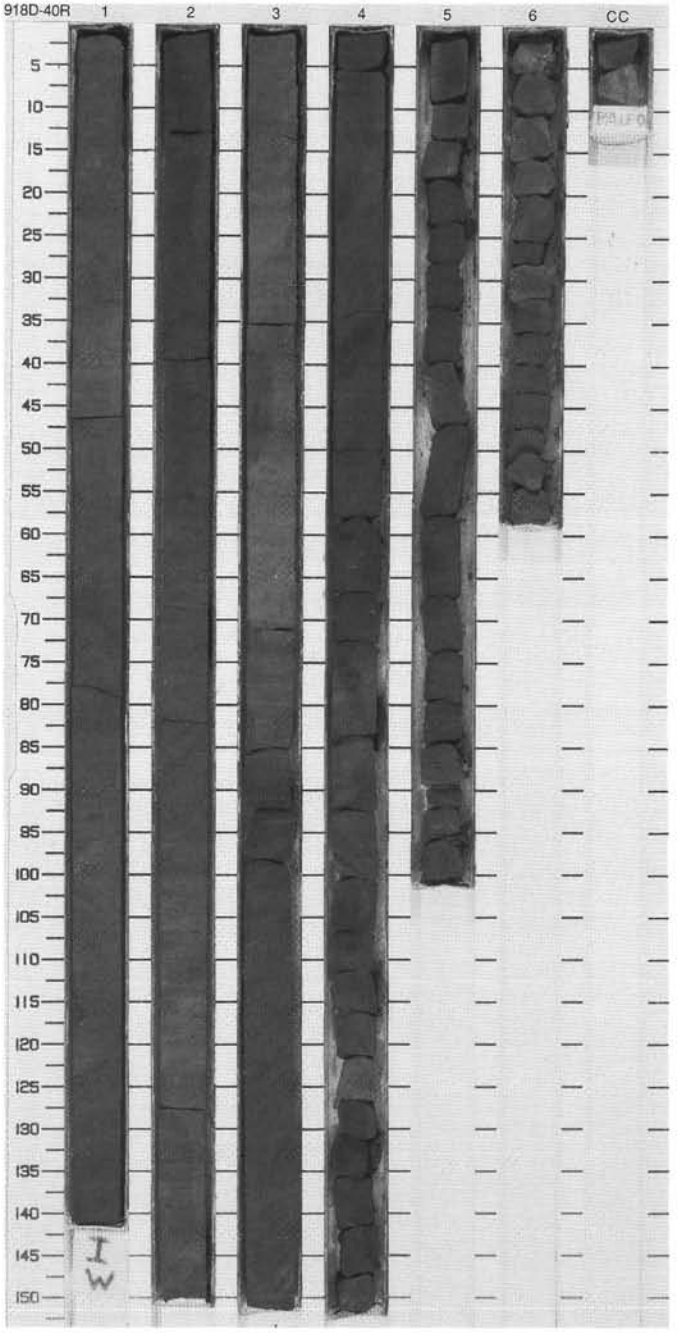
SITE 918 HOLE D CORE 39R CORED 647.9 - 657.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–8		1–6, CC	middle Miocene			S, S, M	5Y 3/1 To 5G 4/2	QUARTZ SILT WITH NANNOFOSSILS Major Lithology: QUARTZ SILT WITH NANNOFOSSILS, heavily mottled by bioturbation, very dark gray (5Y 3/1) to dark greenish gray (5GY 4/1), darkened intermittently by glauconite pellets, traces of pyrite and organic matter. *Zoophycos*, *Thalassinoides*, *Chondrites*, *Planolites*, and lined, subhorizontal burrows (*Ophiomorpha*?) occur throughout; a few intervals in each section have zones with only *Chondrites* burrows. Minor Lithology: NANNOFOSSIL CHALK, mottled by bioturbation, greenish gray (5G 5/1) to grayish green (5G 4/2) with the same assemblage of ichnofossils as the dominant lithology. Contacts between these are gradational.



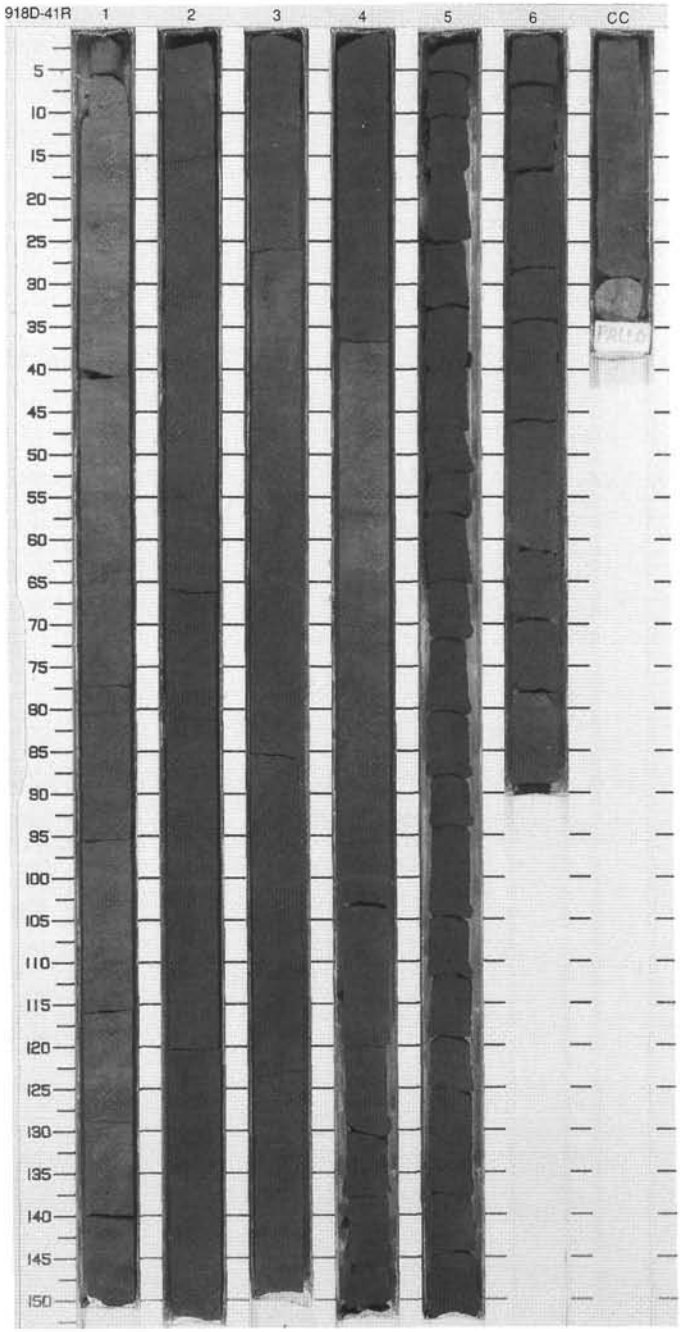
SITE 918 HOLE D CORE 40R CORED 657.5 - 667.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–7		1, 2, 3, 4, 5, 6, CC	middle Miocene	C & O		I, S, S, S, M	5Y 4/1 To 5G 4/1	NANNOFOSSIL CHALK WITH QUARTZ SAND AND CLAY and NANNOFOSSIL CHALK WITH SILT AND CLAY Major Lithologies: Dark gray (5Y 4/1) to dark greenish gray (5G 4/1) NANNOFOSSIL CHALK WITH SAND AND CLAY and NANNOFOSSIL CHALK WITH SILT AND CLAY, *slightly to moderately* fragmented, heavily bioturbated (*Chondrites, Zoophycos, Planolites, Thalassinoides*). The burrows show a large color range due to the presence especially of glauconite (greenish color) and organic matter or pyrite (dark color). Rare benthic foraminifers are dispersed throughout the sediment in Sections 2 and 3. Presence of large bivalves (up to 1 cm in size) fragmented or complete, Section 4, 56–67 cm. Minor Lithology: Dark gray NANNOFOSSIL SILT WITH SAND MIXED SEDIMENT in Section 4, 50–76 cm.

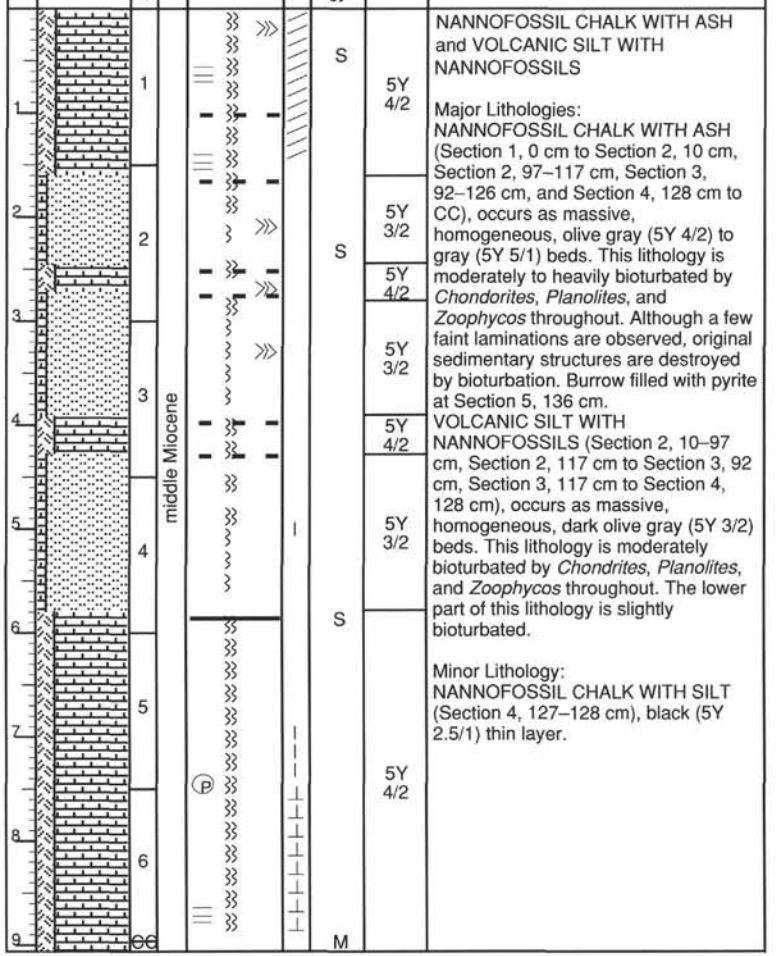


SITE 918 HOLE D CORE 41R CORED 667.2 - 676.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–8		1, 2, 3, 4, 5, 6, CC	middle Miocene			S, S, S, M	5Y 4/1 To 5G 4/2; 5Y 3/1	QUARTZ SILT WITH SAND AND NANNOFOSSILS Major Lithology: QUARTZ SILT WITH SAND AND NANNOFOSSILS, dark olive gray (5Y 3/2), massive, moderately bioturbated with *Chondrites*, *Planolites*, *Thalassinoides*, *Trichichnus* (?) and *Zoophycos* burrows. Unidentified vertical burrow filled with 1–2-mm-size glauconitized fecal pellets. Spiral *Zoophycos* burrow, Section 4, 73–88 cm. Abundance of ichnofossils decreases downward. Minor Lithologies: NANNOFOSSIL QUARTZ SILT MIXED SEDIMENT, mottled dark gray (5Y 4/1) to dark greenish gray (5G 4/1), moderately bioturbated with *Chondrites*, *Thalassinoides*, *Planolites*, and composite burrows, some lined with pyrite. Fragments of bivalves, Section 1, 80–85 cm. QUARTZ SILT WITH NANNOFOSSILS, very dark gray (5Y 3/1), moderately bioturbated with *Chondrites*, *Planolites*, and *Thalassinoides*, decreasing downward.



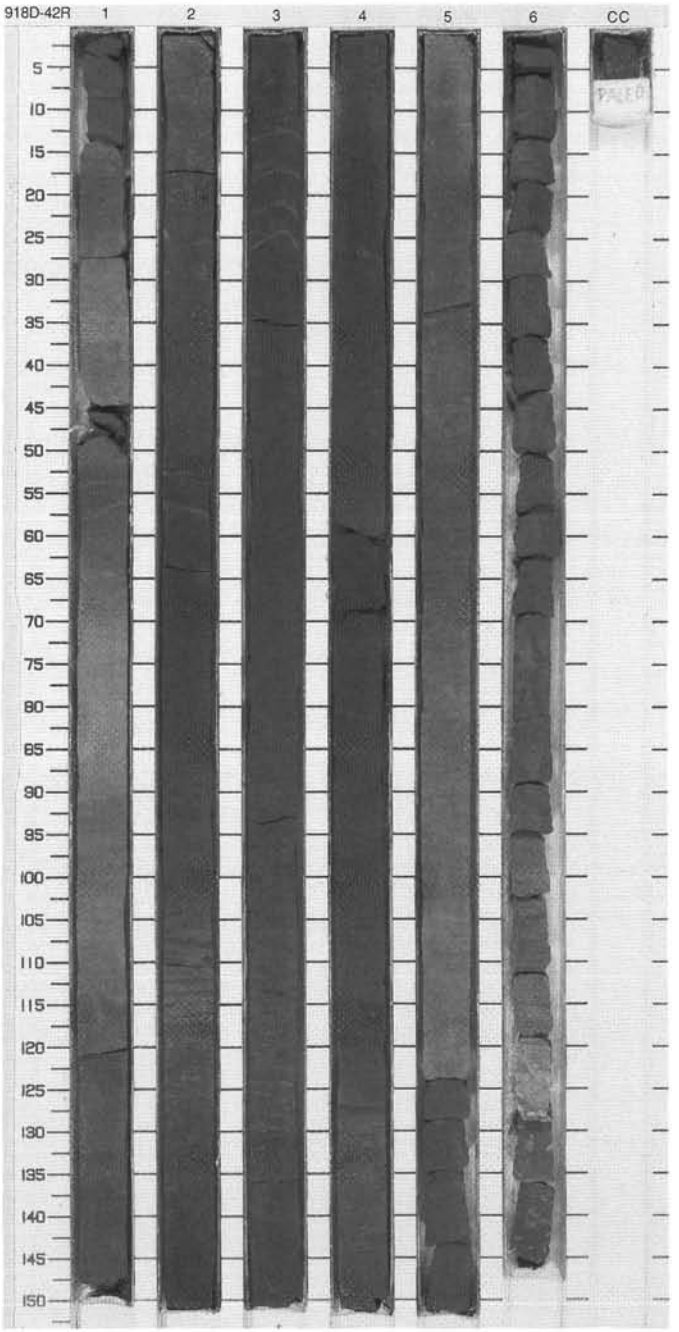
SITE 918 HOLE D CORE 42R CORED 676.8 - 686.4 mbsf



NANNOFOSSIL CHALK WITH ASH and VOLCANIC SILT WITH NANNOFOSSILS

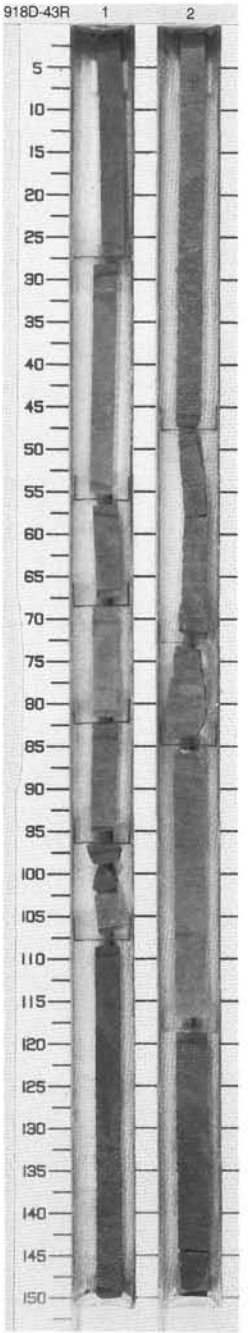
Major Lithologies:
NANNOFOSSIL CHALK WITH ASH (Section 1, 0 cm to Section 2, 10 cm, Section 2, 97–117 cm, Section 3, 92–126 cm, and Section 4, 128 cm to CC), occurs as massive, homogeneous, olive gray (5Y 4/2) to gray (5Y 5/1) beds. This lithology is moderately to heavily bioturbated by *Chondrites*, *Planolites*, and *Zoophycos* throughout. Although a few faint laminations are observed, original sedimentary structures are destroyed by bioturbation. Burrow filled with pyrite at Section 5, 136 cm.
VOLCANIC SILT WITH NANNOFOSSILS (Section 2, 10–97 cm, Section 2, 117 cm to Section 3, 92 cm, Section 3, 117 cm to Section 4, 128 cm), occurs as massive, homogeneous, dark olive gray (5Y 3/2) beds. This lithology is moderately bioturbated by *Chondrites*, *Planolites*, and *Zoophycos* throughout. The lower part of this lithology is slightly bioturbated.

Minor Lithology:
NANNOFOSSIL CHALK WITH SILT (Section 4, 127–128 cm), black (5Y 2.5/1) thin layer.

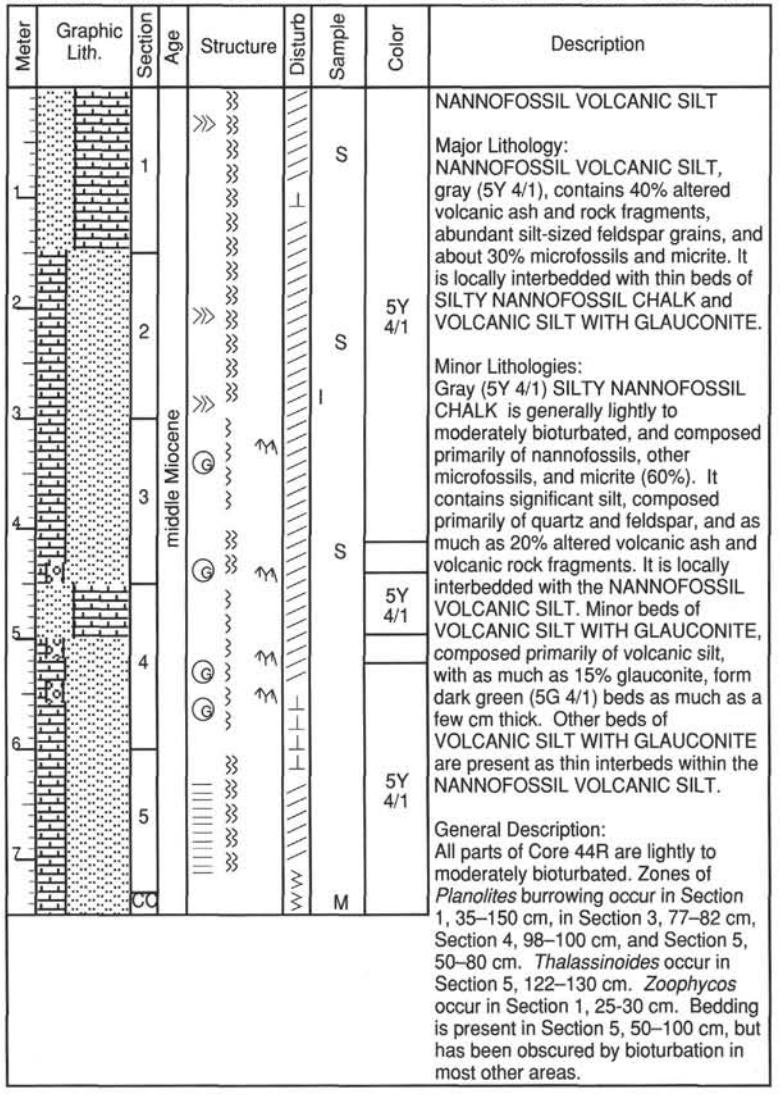


SITE 918 HOLE D CORE 43R CORED 686.4 - 696.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2		1 2 CC	middle Miocene			S M	5Y 4/1	NANNOFOSSIL CHALK WITH VOLCANIC SILT Major Lithology: Gray (5Y 4/1) NANNOFOSSIL CHALK WITH VOLCANIC SILT occurs throughout Core 43. It is moderately to extensively burrowed, with *Planolites* present in Section 1, 31–32 cm and Section 2, 1–50 cm. *Chondrites* are present in Section 1, 61–62 cm and Section 2, 120–135 cm. *Zoophycos* are abundant in Section 2, 55–150 cm. Slight variations in color correspond to changes in the abundance of nannofossils. General Description: This core consists of unusually narrow (3–4 cm wide) segments. They were found broken and occasionally juxtaposed in the core barrel. As a result, the orientation of each segment is known to be correct, but they may be out of sequence.



SITE 918 HOLE D CORE 44R CORED 696.1 - 705.3 mbsf

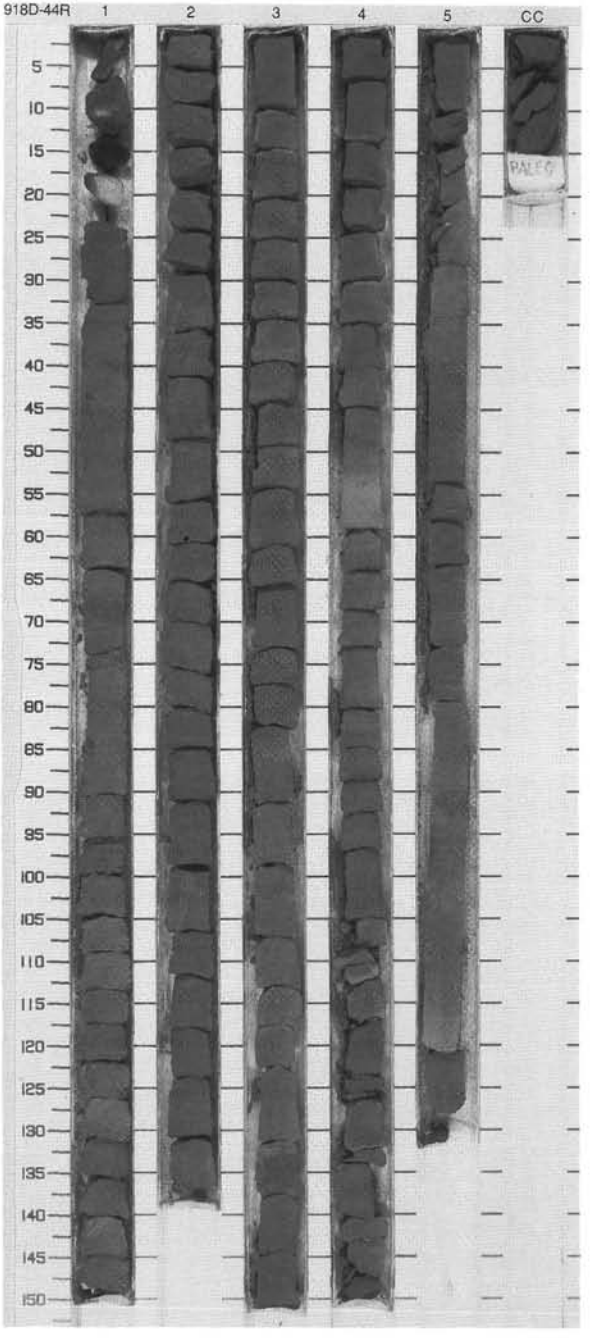


NANNOFOSSIL VOLCANIC SILT

Major Lithology:
NANNOFOSSIL VOLCANIC SILT, gray (5Y 4/1), contains 40% altered volcanic ash and rock fragments, abundant silt-sized feldspar grains, and about 30% microfossils and micrite. It is locally interbedded with thin beds of SILTY NANNOFOSSIL CHALK and VOLCANIC SILT WITH GLAUCONITE.

Minor Lithologies:
Gray (5Y 4/1) SILTY NANNOFOSSIL CHALK is generally lightly to moderately bioturbated, and composed primarily of nannofossils, other microfossils, and micrite (60%). It contains significant silt, composed primarily of quartz and feldspar, and as much as 20% altered volcanic ash and volcanic rock fragments. It is locally interbedded with the NANNOFOSSIL VOLCANIC SILT. Minor beds of VOLCANIC SILT WITH GLAUCONITE, composed primarily of volcanic silt, with as much as 15% glauconite, form dark green (5G 4/1) beds as much as a few cm thick. Other beds of VOLCANIC SILT WITH GLAUCONITE are present as thin interbeds within the NANNOFOSSIL VOLCANIC SILT.

General Description:
All parts of Core 44R are lightly to moderately bioturbated. Zones of *Planolites* burrowing occur in Section 1, 35–150 cm, in Section 3, 77–82 cm, Section 4, 98–100 cm, and Section 5, 50–80 cm. *Thalassinoides* occur in Section 5, 122–130 cm. *Zoophycos* occur in Section 1, 25-30 cm. Bedding is present in Section 5, 50–100 cm, but has been obscured by bioturbation in most other areas.



SITE 918 HOLE D CORE 45R CORED 705.3 - 715.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
								General Description: This core consists of one rock fragment probably washed from the borehole wall in the upper parts of Hole 918D.

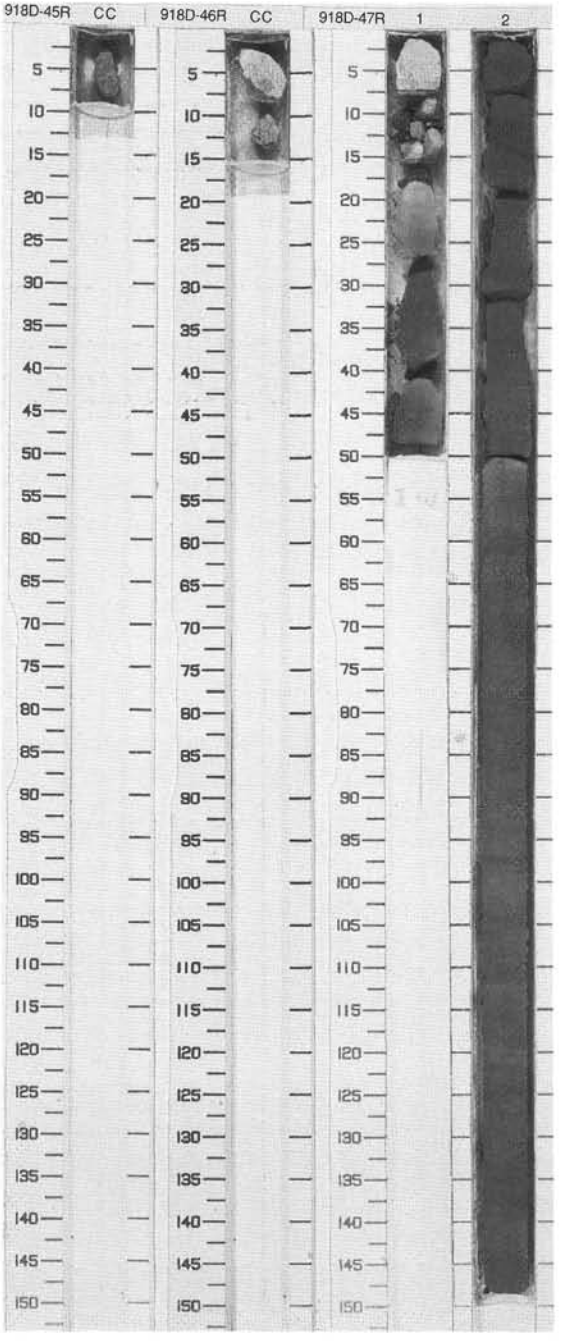
SITE 918 HOLE D CORE 46R CORED 715.0 - 724.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
								General Description: This core consists of two rock fragments probably washed from the borehole wall in the upper parts of Hole 918D.

SITE 918 HOLE D CORE 47R CORED 724.6 - 734.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2		1 2	middle Miocene ??			S S	5Y 4/1	VOLCANIC SILT Major Lithology: VOLCANIC SILT (Section 1, 15 cm to Section 2, 121 cm and Section 2, 124–150 cm), occurs as a massive, homogeneous, dark gray (5Y 4/1) bed. This core is moderately to heavily bioturbated by *Chondrites*, *Planolites*, and *Zoophycos* throughout. Microfractures, filled with fine-grained, dark material, are commonly observed. Mollusk shell fragments and echinoid spines are scattered throughout this core. Minor Lithology: VOLCANIC SILT WITH NANNOFOSSILS AND CLAY (Section 2, 121–124 cm), occurs as a gray (5Y 5/1 bed.

918D 48R NO RECOVERY



SITE 918 HOLE D CORE 49R CORED 743.9 - 753.6 mbsf

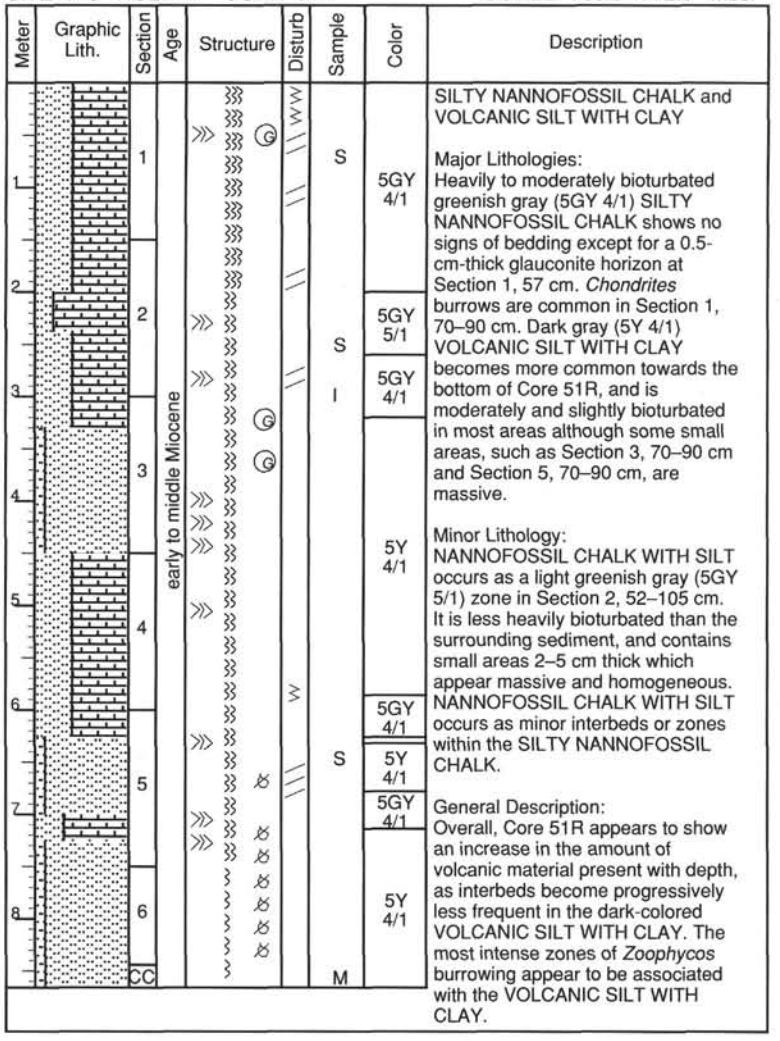
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC						VOLCANIC SILT

Major Lithology:
VOLCANIC SILT, occurs as massive, homogeneous, dark gray (5Y 4/1) bed moderately bioturbated by *Chondrites* and *Planolites*.

Age: possibly early Miocene.

918D 50R NO RECOVERY

SITE 918 HOLE D CORE 51R CORED 763.2 - 772.9 mbsf

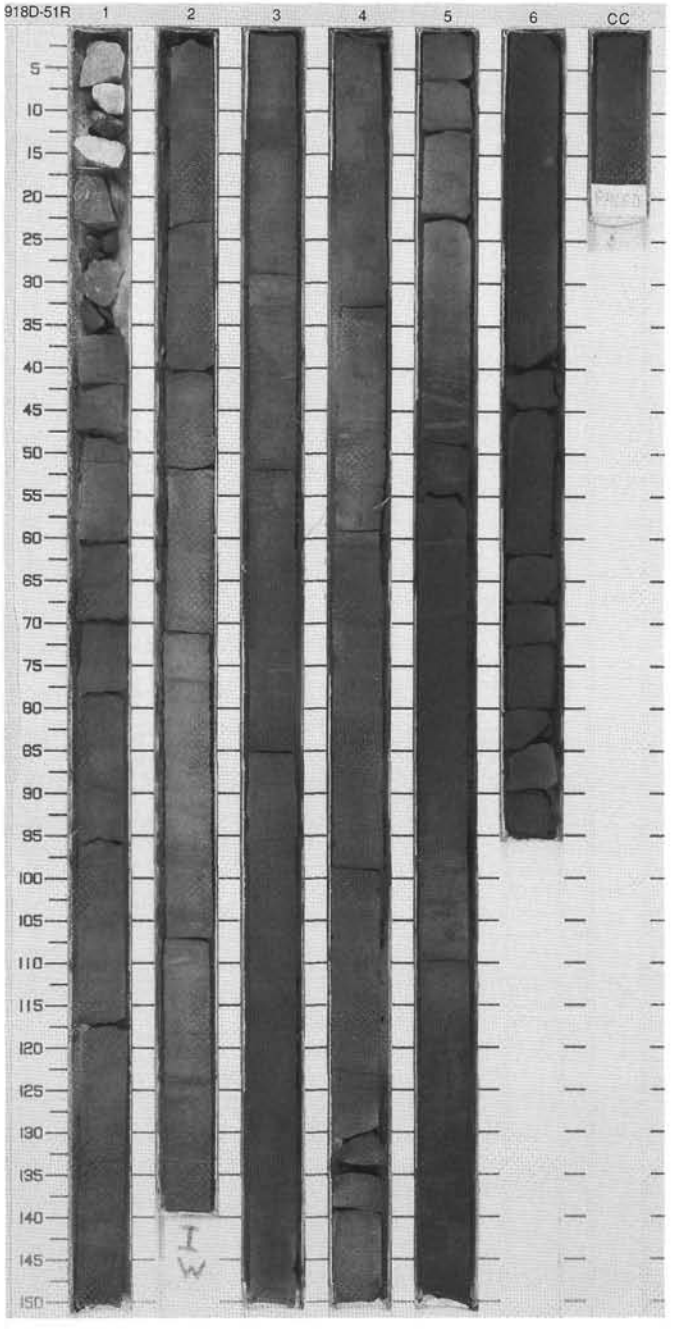


SILTY NANNOFOSSIL CHALK and VOLCANIC SILT WITH CLAY

Major Lithologies:
Heavily to moderately bioturbated greenish gray (5GY 4/1) SILTY NANNOFOSSIL CHALK shows no signs of bedding except for a 0.5-cm-thick glauconite horizon at Section 1, 57 cm. *Chondrites* burrows are common in Section 1, 70–90 cm. Dark gray (5Y 4/1) VOLCANIC SILT WITH CLAY becomes more common towards the bottom of Core 51R, and is moderately and slightly bioturbated in most areas although some small areas, such as Section 3, 70–90 cm and Section 5, 70–90 cm, are massive.

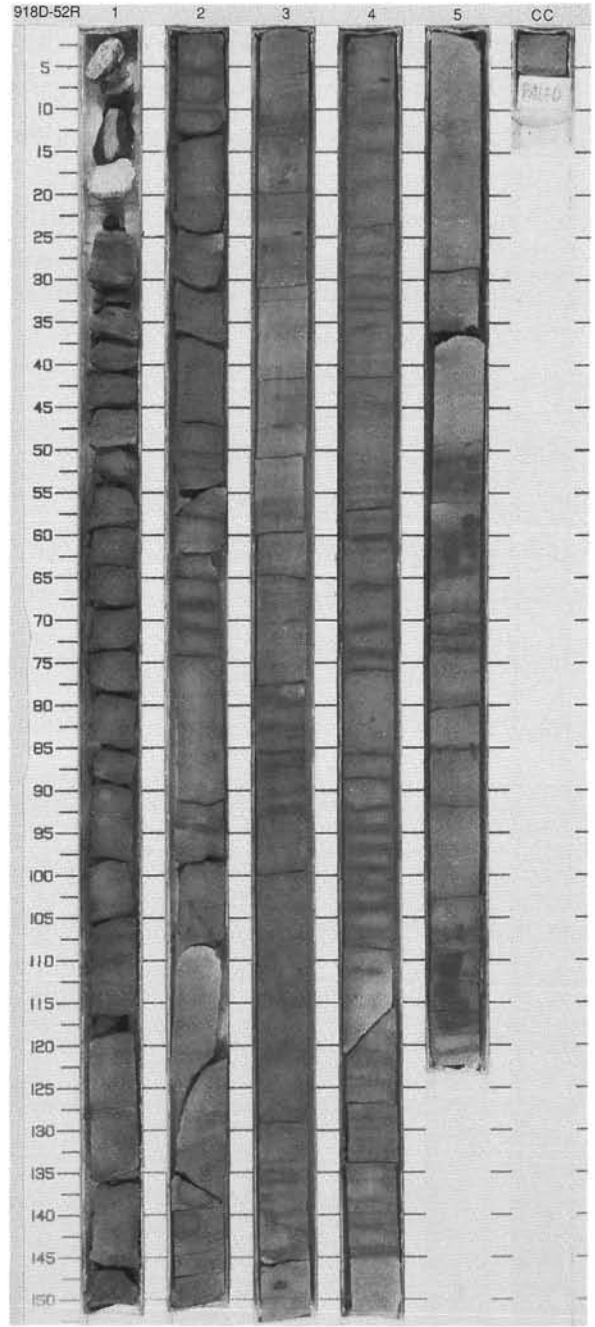
Minor Lithology:
NANNOFOSSIL CHALK WITH SILT occurs as a light greenish gray (5GY 5/1) zone in Section 2, 52–105 cm. It is less heavily bioturbated than the surrounding sediment, and contains small areas 2–5 cm thick which appear massive and homogeneous. NANNOFOSSIL CHALK WITH SILT occurs as minor interbeds or zones within the SILTY NANNOFOSSIL CHALK.

General Description:
Overall, Core 51R appears to show an increase in the amount of volcanic material present with depth, as interbeds become progressively less frequent in the dark-colored VOLCANIC SILT WITH CLAY. The most intense zones of *Zoophycos* burrowing appear to be associated with the VOLCANIC SILT WITH CLAY.



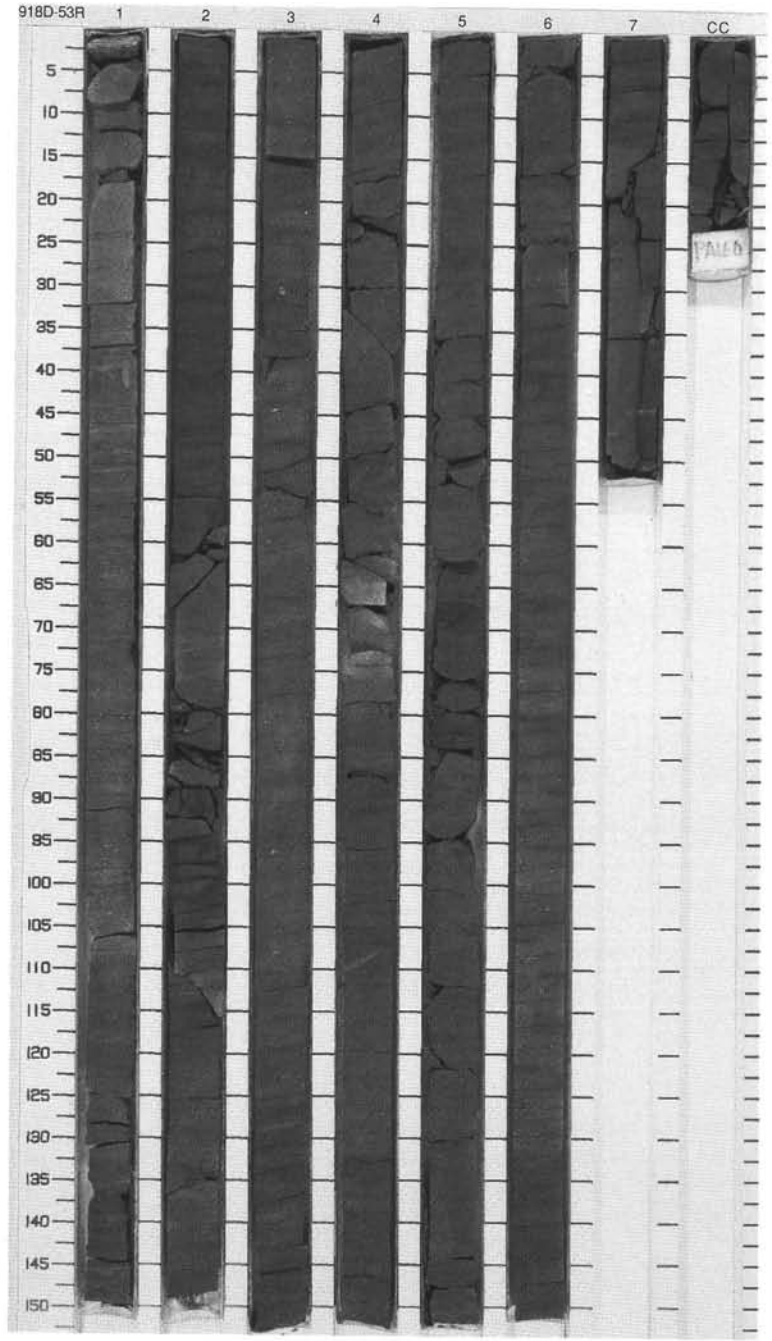
SITE 918 HOLE D CORE 52R CORED 772.9 - 782.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–7		1	early–middle Miocene				5Y 4/1	NANNOFOSSIL QUARTZ SILT MIXED SEDIMENT and GRAVEL Major Lithologies: Gray (5Y 5/1), dark gark (5Y 4/1) and greenish gray (5G 5/1) homogeneous and massive NANNOFOSSIL QUARTZ SILT MIXED SEDIMENT. Moderately to heavily bioturbated (*Zoophycos*, *Chondrites*, *Planolites*). Fragments of echinoid spines throughout, and shells fragments at Section 3, 142–145 cm. Moderately to highly fractured, and presence of GRAVEL in the upper 20 cm of Section 1 (dropstones washed out from the top). Mineral-filled fractures at Section 1, 45–50 cm (dipping at 60°), and at Section 2, 102–108 cm (dipping at 60°), and at Section 4, 115–121 cm (dipping 40°). Minor Lithology: SANDY GLAUCONITE SILT WITH CLAY occurs as lenses in Sections 1 and 4, and of rare pyrite nodules throughout the lithology.
		2					5Y 5/1	
		3				S		
		4				S	5Y 5/1 To 5G 5/1	
		5					5Y 5/1	
		CC				M		



SITE 918 HOLE D CORE 53R CORED 782.5 - 792.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–9		1–7, CC	early–middle Miocene			S, S, S, M	5Y 5/1 To 5G 5/1; 5Y 5/1; 5Y 4/1	MICRITIC MUDSTONE and NANNOFOSSIL CHALK *Major Lithologies:* Interbedded MICRITIC MUDSTONE and NANNOFOSSIL CHALK, gray (5Y 5/1) to greenish gray (5G 5/1) to dark gray (5Y 4/1), slightly to highly fragmented. Highly bioturbated (*Zoophycos*, *Planolites*, *Chondrites* burrows). Occurrence of debris of mollusks, benthic foraminifers, and echinoid spines. Glauconite hardgrounds and laminae at 43, 103, and 118 cm in Section 1; 48 and 71 cm in Section 2; 126 cm in Section 3; 40, 42, 48, 87, and 133–138 cm in Section 4; 43, 13 to 15, 43, 89–91, and 113–115 cm in Section 5; 6–8 cm in Section 7; 11 cm in Section CC. Mineral-filled fractures throughout the core. One cobble of gneiss at Section 1, 0–5 cm, downhole caving.

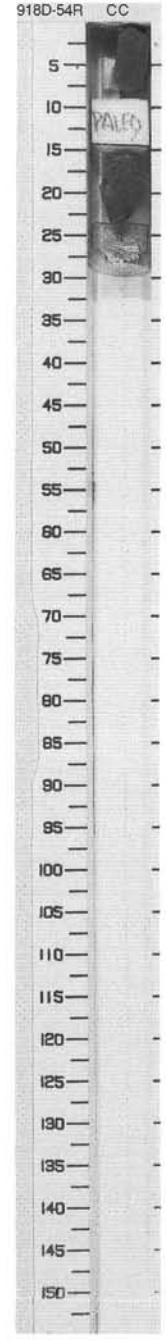


SITE 918 HOLE D CORE 54R CORED 792.1 - 801.8 mbsf

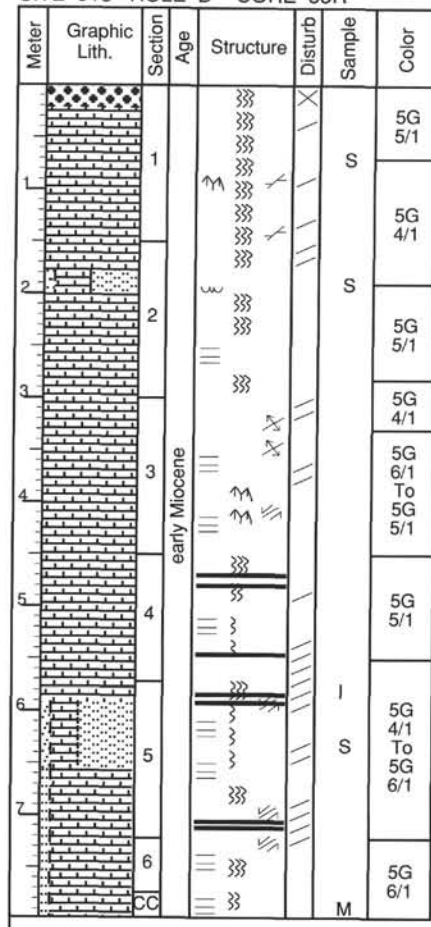
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC			X	M		GRAVEL

Major Lithology:
GRAVEL present as downhole cavings.
Lithologies identified are:
Piece 1. nannofossil chalk.
Piece 2. amphibolite.
Piece 3. gneiss.

Age: Unknown. Presumed early Miocene.



SITE 918 HOLE D CORE 55R CORED 801.8 - 811.4 mbsf



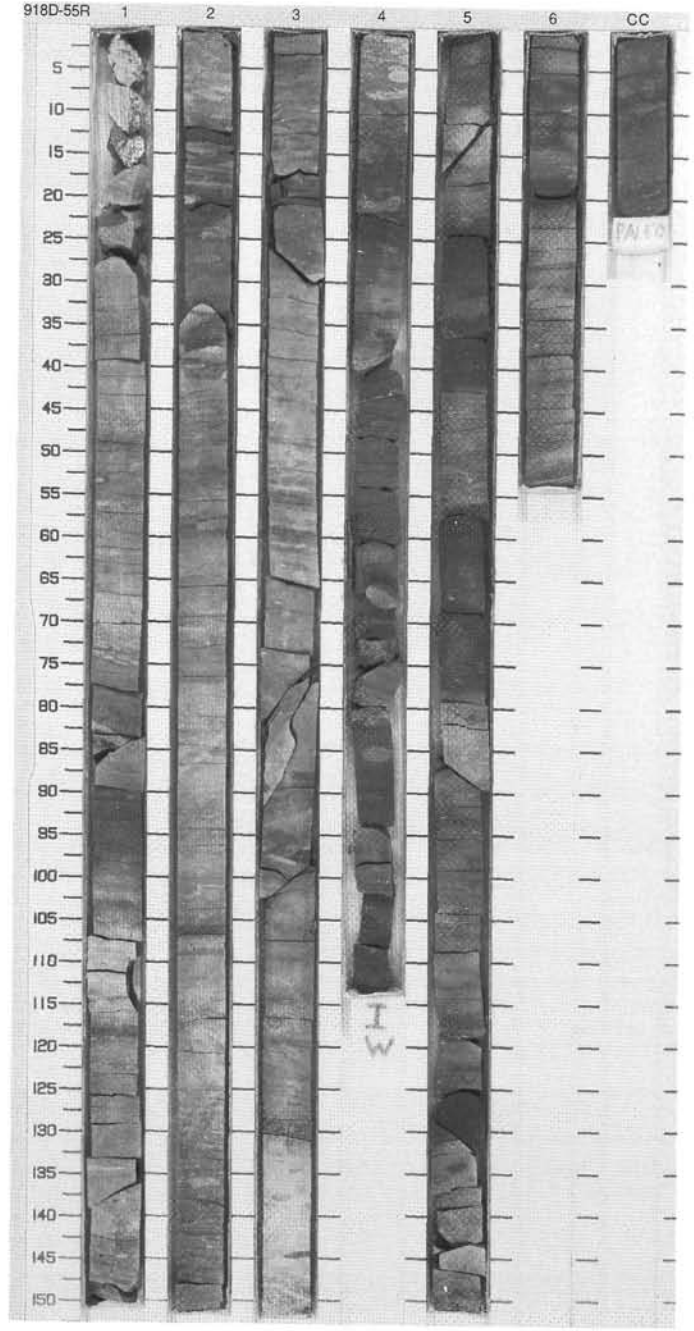
Description

NANNOFOSSIL CHALK

Major Lithology:
NANNOFOSSIL CHALK, greenish gray to dark greenish gray, dominates the core and is strongly bioturbated throughout by *Chondrites*, *Zoophychos*, *Planolites* and *Thalassinoides* burrows. One *Trichichnus* trace is found at Section 4, 66–81 cm. Bioclastic debris is common and comprises foraminifers, mollusks, and echinoids. The sediment shows frequent localized parallel laminations of a more glauconitic facies. Glauconitic hardgrounds are also identified.

Minor Lithologies:
NANNOFOSSIL GLAUCONITIC SILT MIXED SEDIMENT, dark greenish gray, is found overlying a scoured erosive surface at Section 2, 0–34 cm, within which glauconitic rip-up clasts are found suspended in the matrix. VOLCANIC SILT WITH QUARTZ SAND, dark green, is found interbedded with NANNOFOSSIL CHALK in Section 5 at 22–30, 36–42, 50–77, and 118–125 cm and in Section 6 at 15–20 cm. GRAVEL is present at Section 1, 0–15 cm and represents drilling rubble fallen from the borehole wall higher in the hole. Clasts identified are as follows:
Piece 1. granite;
Piece 2. feldspathic granite;
Piece 3. amphibolite.

General Description:
Core is affected by a considerable number of small factures and slickensided normal fault surfaces showing an unknown offset. Although not believed to be large, this has been sufficient to cause a juxtaposition of different beds.

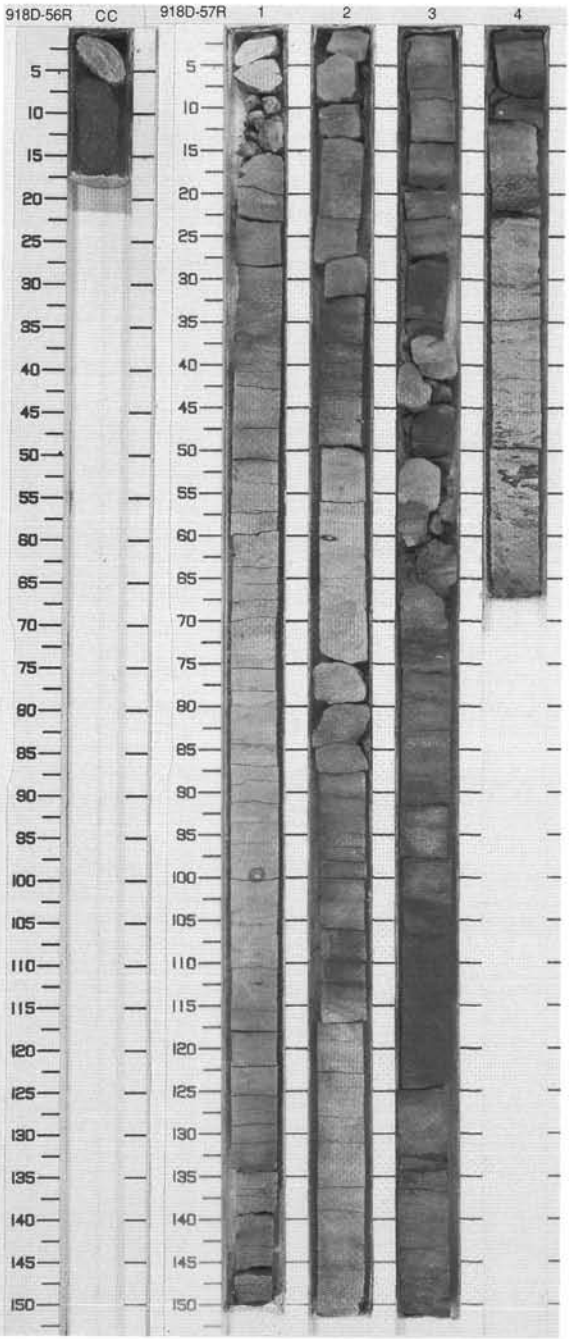


SITE 918 HOLE D CORE 56R CORED 811.4 - 821.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC						GRAVEL General Description: Two cobbles of drilling rubble are identified: a gneiss (8 cm across) and a metamorphic rock (12 cm across).

SITE 918 HOLE D CORE 57R CORED 821.0 - 830.7 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2 3 4 5		1 2 3 4	early Miocene	P	T	S S S	5Y 5/1 To 5G 5/1 5Y 5/1 To 5BG 4/1	MUDSTONE Major Lithology: Gray (5Y 5/1) to dark greenish gray (5BG 4/1) MUDSTONE slightly fragmented throughout the core, but highly fragmented in the upper 20 cm of Section 1. Drilling rubble comprising two pieces of quartzite (3 and 6 cm across) and one piece of gneiss (6 cm across). Heavily bioturbated (*Zoophycos*, *Chondrites*, *Planolites*), with fragments of echinoid spines scattered throughout. Rare burrows are filled with pyrite grains. High concentration of pyrite grains in Section 4, 25–26 and 28–30 cm. Glauconite occurs in large burrows or in fine laminae at 100 and 112 cm in Section 1, 60 cm in Section 2, 61–67, 71–79, 103–105, and 133–135 cm in Section 3, and 48–60 cm in Section 4. Minor Lithologies: Dark gray (5Y 4/1) SANDY QUARTZ NANNOFOSSIL SILT occurs at Section 3, 67–100 cm and at Section 4, 6–10 and 18–22 cm showing cross-bedding at the base and plane laminae (0.5 cm thick) separated by thin carbon-rich laminae. Carbon-rich clast (0.8 x 4 cm) occurs just below this last turbidite unit. At Section 3, 103–105 cm this lithology is observed in a bed with fine plane parallel laminae at the base. CALCAREOUS SILTSTONE WITH PLANT DEBRIS is identified at Section 4, 18–22 cm. Organic debris is present throughout this lithology and is concentrated as a thin layer within cross-bedded SANDY QUARTZ NANNOFOSSIL SILT turbidite.



SITE 918 HOLE D CORE 58R CORED 830.7 - 840.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	early Mio.			S S S S_M	5Y 4/1 5Y 3/1	BRECCIA, SPAR CHALK WITH SAND, NANNOFOSSIL CHALK WITH SILT and SILTY NANNOFOSSIL CHALK WITH SAND

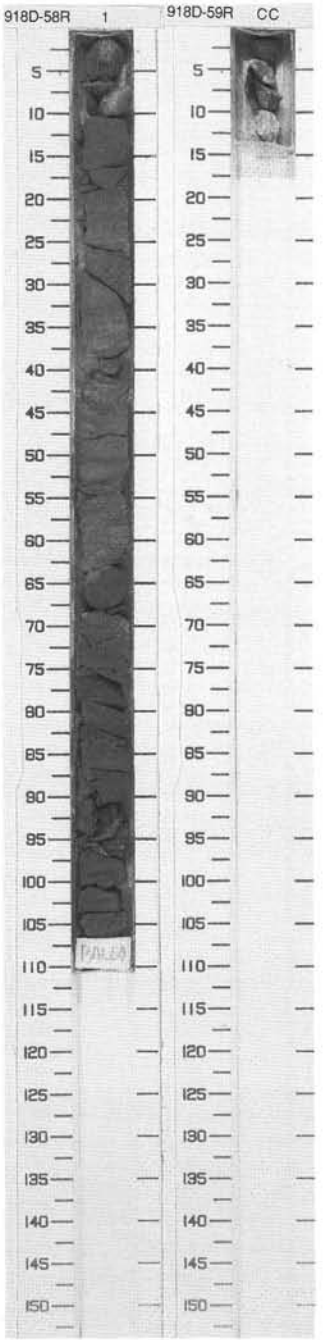
Major Lithologies:
BRECCIA (Section 1, 9–63 cm), occurs as mixture of gray (5Y 6/1) matrix and dark gray (5Y 4/1) clasts. The matrix is composed of SPAR CHALK WITH SAND. The clasts consist of NANNOFOSSIL CHALK WITH SILT, 1 mm to 3 cm in size, possibly originally burrows. The BRECCIA was probably derived by mass flow. Glauconite occurs throughout this core. SILTY NANNOFOSSIL CHALK WITH SAND (Section 1, 68–110 cm), occurs as very dark gray (5Y 3/1), moderately bioturbated (*Chondrites* and *Planolites*) bed. Burrows are filled with sandy material.

Minor Lithologies:
QUARTZ SAND WITH NANNOFOSSILS (Section 1, 63–68 cm), massive, homogeneous, very dark gray (5Y 3/1) bed. This sediment is rounded by drilling disturbance. GRAVEL drilling rubble (Section 1, 0–9 cm).

SITE 918 HOLE D CORE 59R CORED 840.4 - 850.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC						GRAVEL (DRILLING RUBBLE)

Major Lithology:
Consists of five small (1–2 cm diameter) pieces of basalt, gneiss, dolerite, siltstone, and gneiss. These are thought to be GRAVEL (DRILLING RUBBLE) which fell into the hole from above.



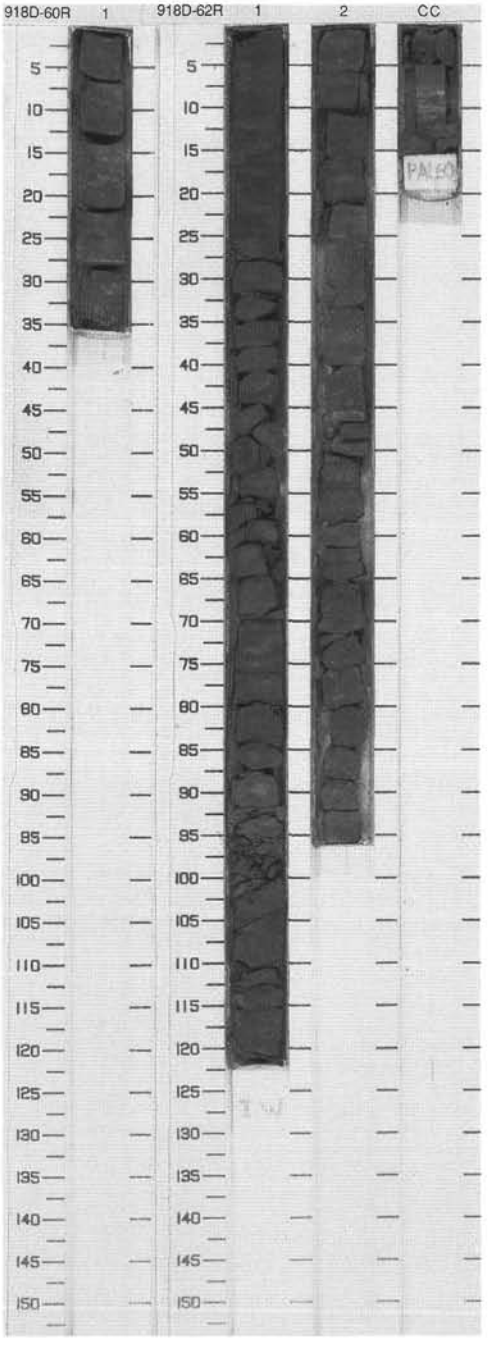
SITE 918 HOLE D CORE 60R CORED 850.0 - 859.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	early Miocene			M S		SILTY NANNOFOSSIL CHALK WITH SAND Major Lithology: SILTY NANNOFOSSIL CHALK WITH SAND forms a light green gray (5GY 4/1), locally massive sediment, somewhat bioturbated, but no distinctive trace fossils were observed.

918D 61R NO RECOVERY

SITE 918 HOLE D CORE 62R CORED 869.3 - 878.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2		1 2 CC	late Oligocene	F G		S S I M	5BG 4/1 5G 5/1 5BG 4/1 5G 5/1	SANDY SILTSTONE WITH NANNOFOSSILS and SILTSTONE WITH NANNOFOSSILS AND CLAY Major Lithologies: SANDY SILTSTONE WITH NANNOFOSSILS is greenish gray (5G 5/1) and poorly bedded, although lenticular beds of silt are visible in some areas. It is lightly bioturbated, although no distinctive trace fossils can be discerned. It contains numerous glauconitic clasts, usually about 1–4 mm in diameter. A fining-upward sequence occurs in Section 1, 95–60 cm. SILTSTONE WITH NANNOFOSSILS AND CLAY is dark greenish gray (5BG 4/1), and slightly burrowed but usually massive. It occasionally contains glauconitic rip-up clasts 1–2 mm in diameter.



SITE 918 HOLE D CORE 63R CORED 878.9 - 888.5 mbsf

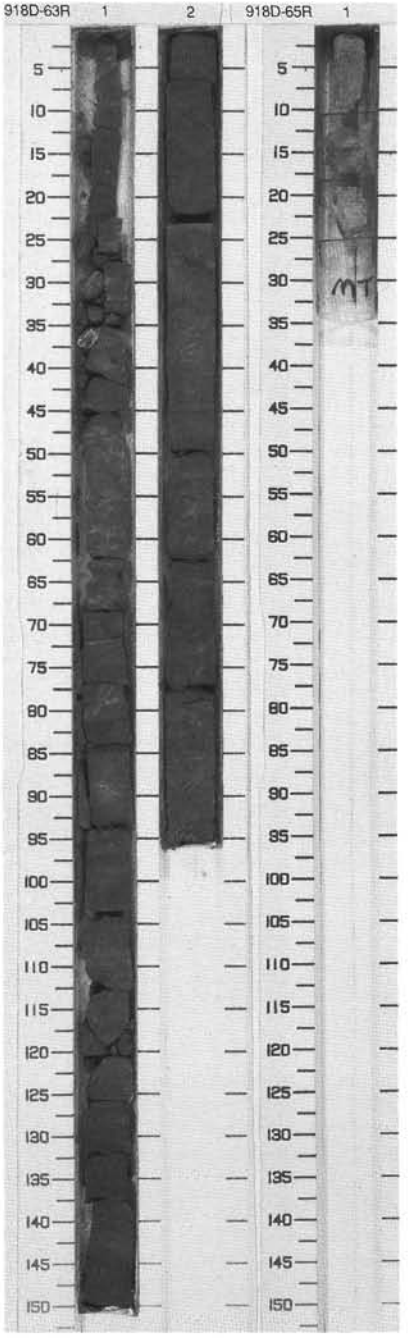
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2		1 2 CC	late Oligocene			S S M	5Y 3/1	SILTSTONE WITH NANNOFOSSILS Major Lithology: SILTSTONE WITH NANNOFOSSILS, occurs as massive, homogeneous, very dark gray (5Y 3/1), moderately to slightly bioturbated bed. Shell fragments and echinoid spines are scattered throughout. Glauconite occurs dispersed in sediment at Section 1, 115–145 cm and replacing burrows at Section 2, 27–28 and 78–79 cm.

SITE 918 HOLE D CORE 64R CORED 888.5 - 898.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1				M		General Description: 3 cm of recovery were all used for biostratigraphic determinations. Age: late Oligocene.

SITE 918 HOLE D CORE 65R CORED 898.1 - 905.7 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1						DRILLING RUBBLE Major Lithology: DRILLING RUBBLE is the only recovery of Core 65R, presumably downhole caving. These comprise: Piece 1. gabbro, 9 x 3.5 cm; Piece 2. gneiss, 6 cm across; Piece 3. granite, 6 x 4 cm. Age: Unknown.



SITE 918 HOLE D CORE 66R CORED 905.7 - 915.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1				S S		SILTY SANDSTONE

Major Lithology:
SILTY SANDSTONE, *mottled* dark gray, dark greenish gray (5G 4/1) and dark bluish gray (5B 4/1) due to bioturbation. Clay rip-up clasts are visible throughout. No discernable carbonate, but pieces of wood, replaced by glauconite are identified. Crude parallel lamination is seen.

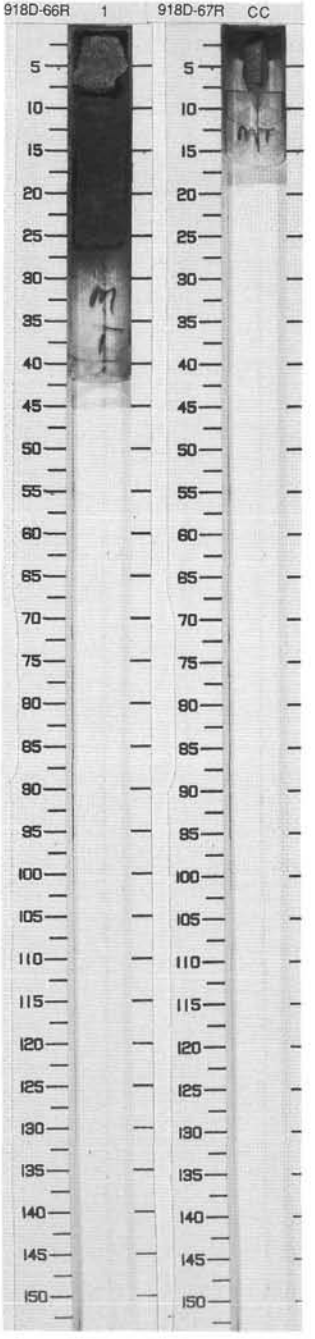
Minor Lithology:
At 0–8 cm DRILLING RUBBLE is present in the form of a single large clast of amphibolite.

General Description:
Age: late Oligocene.

SITE 918 HOLE D CORE 67R CORED 915.3 - 925.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
								GRAVEL

Major Lithology:
Core contains only one piece of drilling rubble: basalt, 6 x 2 cm.



SITE 918 HOLE D CORE 68R 925.0 - 934.7 mbsf

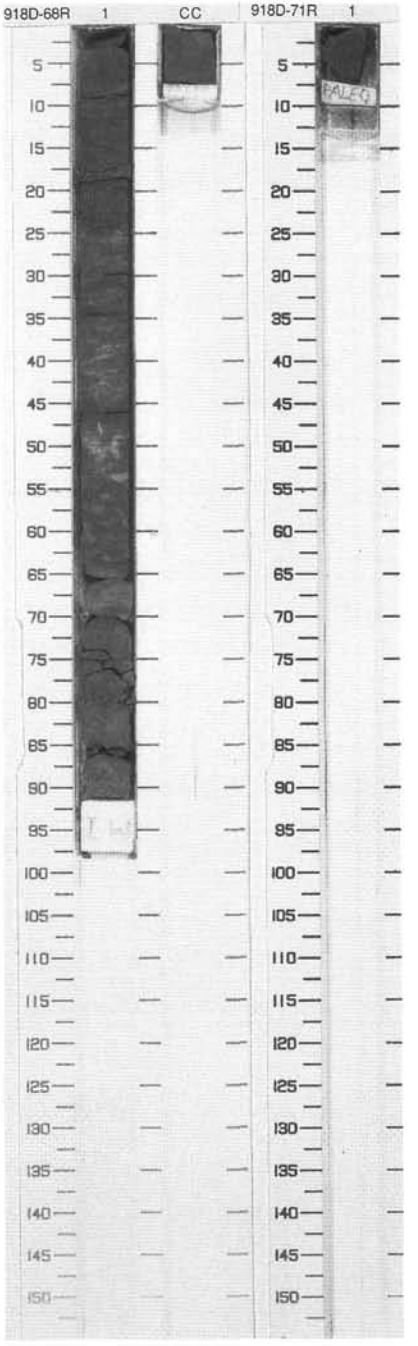
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1 CC	late Oligo.			S D S D M	N2 To N4	SILTSTONE WITH QUARTZ SAND Major Lithology: SILTSTONE WITH QUARTZ SAND is massive, homogeneous, volcanogenic-rich, mainly dark gray (N3) bed, moderately bioturbated by *Planolites*. Color ranges from grayish black (N2) to a dark gray (N4) color. Quartz grains, up to 2 mm in diameter, are scattered at Section 2, 40–92 cm. Pyrite replaces foraminifers. Minor Lithologies: VOLCANIC SILTSTONE WITH QUARTZ SAND is massive, homogeneous, grayish black (N2), moderately bioturbated (*Planolites*) bed. DRILLING GRAVEL (Section 1, 0–3 cm).

918D 69R NO RECOVERY

918D 70R NO RECOVERY

SITE 918 HOLE D CORE 71R CORED 954.0 - 963.7 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1				M S		SILTY SANDSTONE Major Lithology: SILTY SANDSTONE, occurs as massive, homogeneous, dark gray (5G 4/1) bed, moderately bioturbated by *Planolites*. Age: Unknown, presumably late Oligocene.



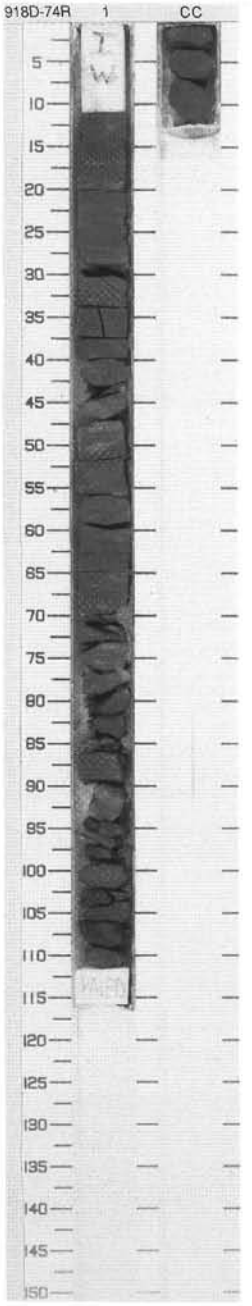
SITE 918 HOLE D CORE 72R CORED 963.7 - 973.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1	late Oligo.			S S S M S	N4	VOLCANIC SILTSTONE and VOLCANIC SILTSTONE WITH SAND Major Lithologies: VOLCANIC SILTSTONE (Section 1, 0–38, 58–68, and 69–72 cm), occurs as a massive, homogeneous, slightly bioturbated, medium dark gray (N 4) bed. Sand grains of quartz and feldspar and particles of glauconite (up to 2 mm in diameter) are scattered throughout. VOLCANIC SILTSTONE WITH SAND (Section 1, 45–57 cm), occurs as a homogeneous, medium dark gray (N 4), slightly bioturbated bed. Fine- to granule-grained quartz, feldspar, and muddy clasts (up to 1 cm in diameter) are scattered throughout. Glauconite particles are common. Minor Lithologies: GLAUCONITE (Section 1, 38–39 and 40–41 cm), grayish black (N 2), in the form of thin layers. Clasts, and small particles of GLAUCONITE commonly scattered as clasts throughout. DOLOMITIC VOLCANIC SILTSTONE (Section 1, 11–12, 19, 23, 24–25, 39–40, 41–45, 57–58, and 68–69 cm), occurs as a series of thin, dark olive gray (5Y 3/2), dolomite-rich layers. Current ripples are observed.

918D 73R NO RECOVERY

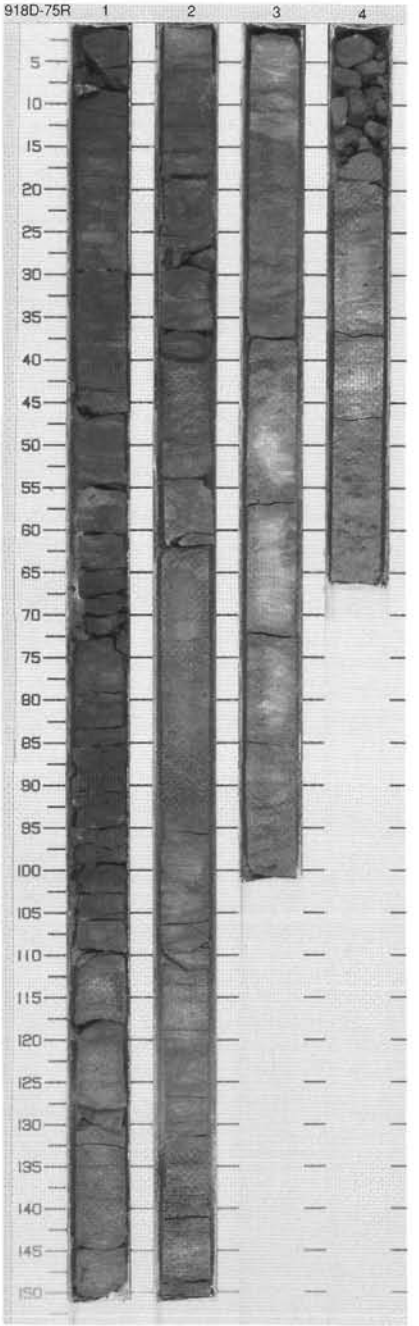
SITE 918 HOLE D CORE 74R CORED 982.7 - 992.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1 CC	late Oligo.			S S M S	5GY 2/1 5Y 4/1	SILTSTONE WITH NANNOFOSSILS Major Lithology: SILTSTONE WITH NANNOFOSSILS occurs as a dark green gray (5GY 2/1), slightly bioturbated but generally massive unit, with occasional glauconite clasts (0.1–0.3 mm in diameter) scattered throughout. Minor Lithology: DOLOMITE WITH SILT AND SAND appears light gray (5Y 4/1) and generally massive. Small lenticular silt beds or burrows are present in Section 1, 95–100 cm. General Description: Several small (0.3–0.7 cm), dark pellets of wood or plant debris occur in Section 1, 103–106 cm



SITE 918 HOLE D CORE 75R CORED 992.3 - 1002.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–4		1, 2, 3, 4, CC	late Oligocene	F		S, S, M	5G 6/1; 5GY 2/1; 5G 6/1; 5GY 2/1; 5G 6/1; 5GY 2/1; 5G 6/1	SANDY SILTSTONE WITH NANNOFOSSILS Major Lithology: Massive SANDY SILTSTONE WITH NANNOFOSSILS is dark greenish gray (5G 6/1) with areas of small glauconite rip-up clasts (0.1–0.3 mm in diameter), and occasional large grains (0.1 mm in diameter) of quartz, feldspar, or opaques. A large silt rip-up clast in Section 1, 125 cm, is 0.6 cm in diameter. SANDY SILTSTONE WITH NANNOFOSSILS also contains fragments of wood and plant debris, especially in Section 4, 55–67 cm. It also contains as much as 5%–10% glauconite. Minor Lithology: SILTY NANNOFOSSIL CHALK is dark greenish gray (5GY 2/1), and generally massive, although some small opaques and mineral fragments are occasionally seen. General Description: At least three normal faults were found in Core 75R, in Section 1, 10 and 128 cm, and Section 2, 110 cm. Thin glauconitic beds are seen near the top of a bed of SILTY NANNOFOSSIL CHALK in Section 2, 10 cm, and form a sharp contact with the overlying fining-upward sequence of SANDY SILTSTONE WITH NANNOFOSSILS.



SITE 918 HOLE D CORE 76R CORED 1002.0 - 1011.6 mbsf

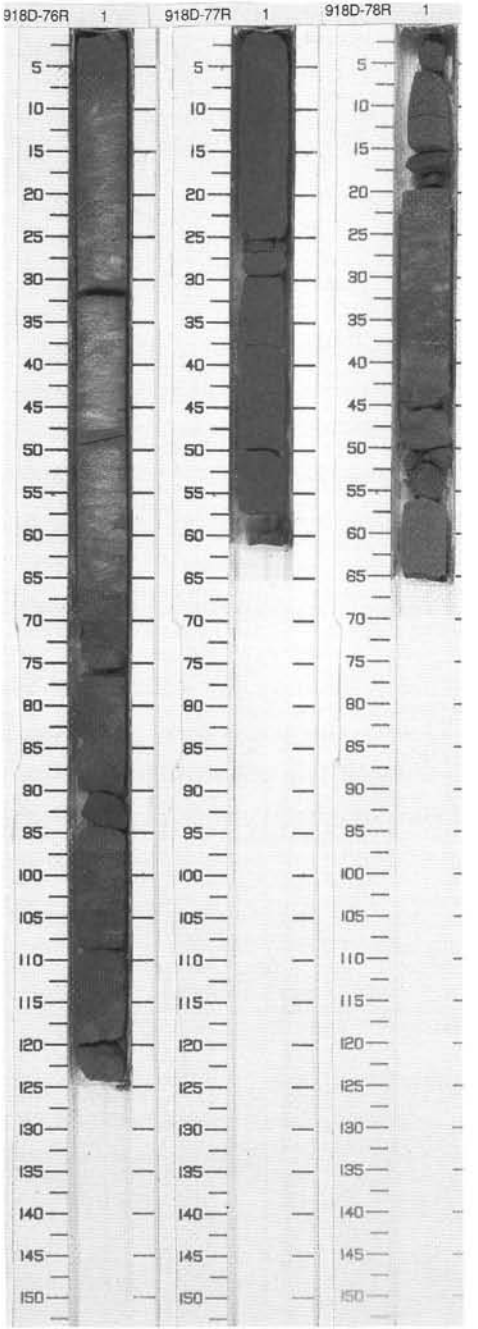
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1 CC	late Oligo.			S M	5G 5/1 5G 4/1	SILT, SAND AND NANNOFOSSIL MIXED SEDIMENT Major Lithology: SILT, SAND, AND NANNOFOSSIL MIXED SEDIMENT is greenish gray (5G 5/1) at 0–68 cm to dark greenish gray (5G 4/1) at 77–124 cm. Dark greenish gray (5G 4/1) color due to the presence of glauconite at 68–74 cm. Frequent cross-bedding observed, 0.5 to 1.5 cm thick, with relatively high nannofossil content. Fine parallel laminations are observed within the sediment at 0–68 cm, just above the glauconitic horizon. Structureless sediment at 77–98 and 114–124 cm, with small clasts of glauconite and possibly organic matter (<0.5 cm) scattered throughout.

SITE 918 HOLE D CORE 77R CORED 1011.6 - 1021.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1 CC	late Oligo.			S M	5G 4/1	QUARTZ SAND WITH SILT Major Lithology: Structureless dark greenish gray (5G 4/1) QUARTZ SAND WITH SILT, well sorted.

SITE 918 HOLE D CORE 78R CORED 1021.2 - 1030.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1 CC	late Oligo.			S M	5G 4/1	SILTY QUARTZ SAND Major Lithology: SILTY QUARTZ SAND, dark greenish gray (5G 4/1), massive, moderately bioturbated, crudely fining upward. Faint laminations outlined by linear wood fragments and glauconite pellets. Weakly consolidated.



SITE 918 HOLE D CORE 79R CORED 1030.9 - 1404.6 mbsf

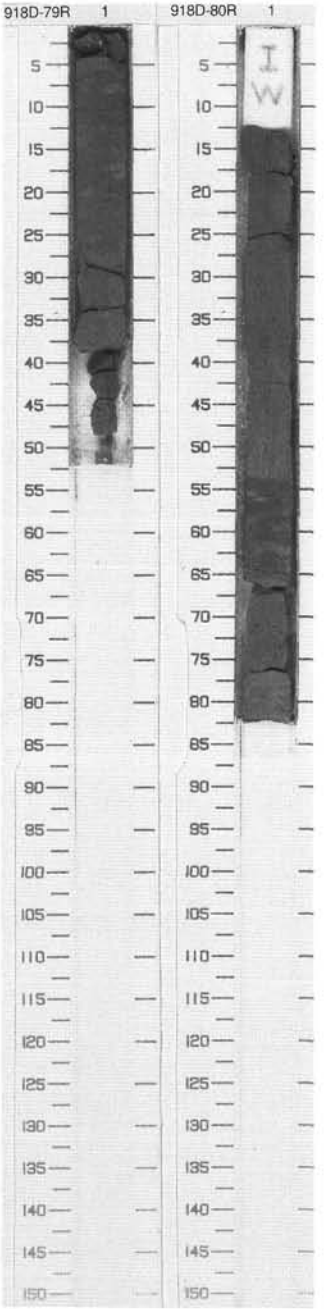
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1 CC	late Oligo.			S M	5G 4/1	QUARTZ SAND WITH SILT Major Lithology: QUARTZ SAND WITH SILT, dark green (5G 4/1), massive, moderately bioturbated, medium sand, poorly sorted, with glauconite pellets. 0–6 cm is drilling rubble, with downhole cavings of basalt and quartz sand and silts.

SITE 918 HOLE D CORE 80R CORED 1040.6 - 1050.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		1 CC	late Oligo.			S M	5G 4/1	QUARTZ SAND WITH SILT Major Lithology: QUARTZ SAND WITH SILT, dark greenish gray (5G 4/1), poorly sorted, massive, weakly consolidated with common glauconite pellets. Minor Lithologies: QUARTZ SAND WITH SILT AND CLAY, mottled very dark gray (5Y 3/1) to dark greenish gray (5G 4/1), poorly sorted, green color from glauconite pellets, 53–66 cm. QUARTZ SAND, dark greenish gray from glauconite pellets, coarser grained than overlying sand with abundant glauconitic rip-up clasts, 76–82 cm

918D 81R NO RECOVERY

918D 82R NO RECOVERY

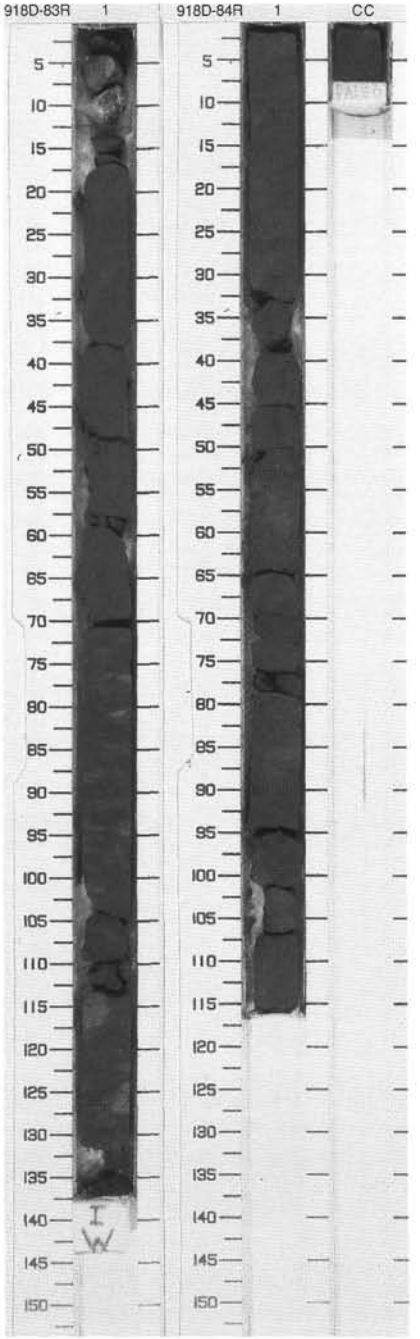


SITE 918 HOLE D CORE 83R CORED 1069.6 - 1079.3 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1	late Oligocene	G G		S S	5G 4/1	QUARTZ SAND WITH SILT Major Lithology: QUARTZ SAND WITH SILT, dark greenish gray (5G 4/1), massive, poorly sorted, medium size and finer. Minor Lithology: SANDY DOLOMITIC SILT WITH QUARTZ, mottled dark greenish gray to very dark gray (5Y 3/1), moderately bioturbated, 75–136 cm. Glauconitized hardground at 95 cm. General Description: 0–15 cm is filled by DRILLING RUBBLE, including two pieces of black sandstone, two pieces of granite, and one piece of dolerite.

SITE 918 HOLE D CORE 84R CORED 1079.3 - 1088.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1 CC	late Oligocene	G F		S S S M	5G 4/1 To 5BG 4/1	SILTY SAND WITH QUARTZ, DOLOMITE AND FELDSPAR Major Lithology: Dark greenish gray (5G 4/1 to 5BG 4/1) SILTY SAND WITH QUARTZ, DOLOMITE AND FELDSPAR, structureless and well sorted, with rare clasts of glauconite, at 0–56 and 87–117 cm. Fining-upward sequence at 90–117 cm, with fine brownish planar laminae at 97–98 cm. Minor Lithology: Dark greenish gray (5G 4/1 to 5BG 4/1) SANDY SILT WITH QUARTZ, DOLOMITE AND FELDSPAR, well sorted, showing parallel laminations between 56 and 87 cm with brownish color (10YR 4/2) at 80–87 cm. Sharp contact between the major and the minor lithology at 54–56 cm.



SITE 918 HOLE D CORE 85R CORED 1088.9 - 1098.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
		CC						DRILLING RUBBLE

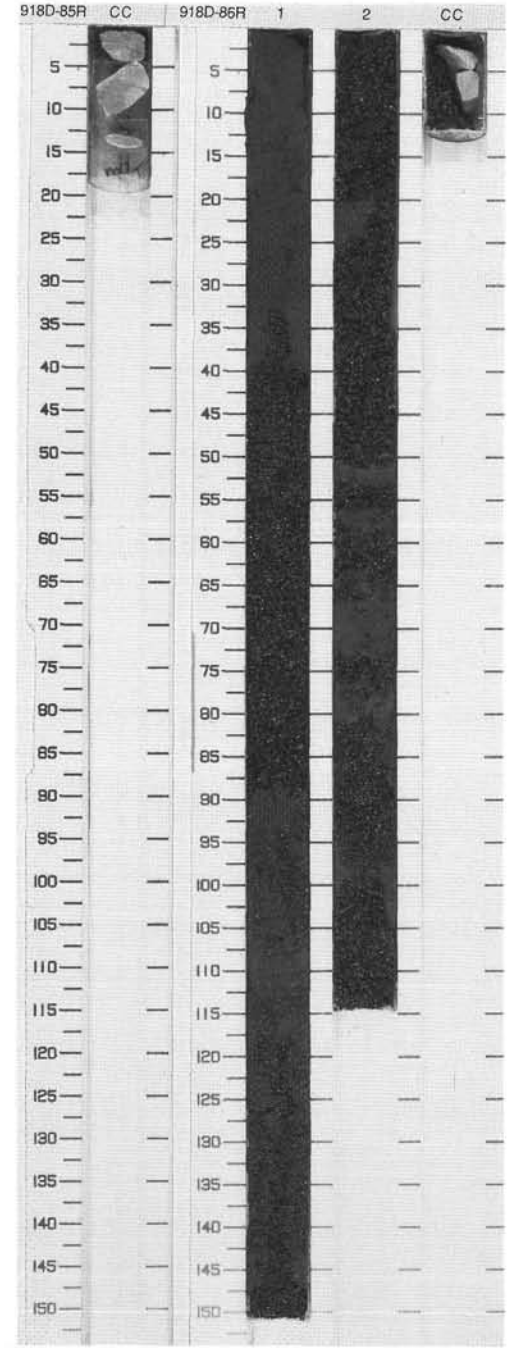
General Description:
Three peices of gneiss are found as DRILLING RUBBLE.

SITE 918 HOLE D CORE 86R CORED 1098.5 - 1108.2 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–2		1, 2, CC	late Oligocene		VVVVVV, VVV	S, T, S	5Y 4/2; 5Y 7/1 To 5Y 2.5/1	GRANULE GRAVEL WITH PEBBLES, SANDY QUARTZ SILT and SILTY QUARTZ SAND

Major Lithologies:
GRANULE GRAVEL WITH PEBBLES consists principally of grains of quartz and feldspar with a modal diameter of about 2 mm. Pebbles of basalt are common, and occasional clasts of metamorphic rocks are also seen. The pebbles are as large as 2 cm in diameter, and make up about 10% of the sediment. The color ranges from light tan (5Y 7/1) to dark gray (5Y 2.5/1), and reflects the color of the varied individual clasts. The GRANULE GRAVEL WITH PEBBLES is interbedded with gray (5Y 4/2) SANDY QUARTZ SILT and SILTY QUARTZ SAND, often along sharp contacts. The silt consists of 60%–70% quartz grains, and contains some nannofossils.

General Description:
The sediments recovered in Core 86R are unconsolidated, and have been stirred and mixed in Section 1, 0–40 and 90–150 cm, Section 2, 0–30 and 90–110 cm, and in the core catcher. Two large clasts in the core catcher may be drilling rubble.



SITE 918 HOLE D CORE 87R CORED 1108.2 - 1117.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		CC						DRILLING RUBBLE

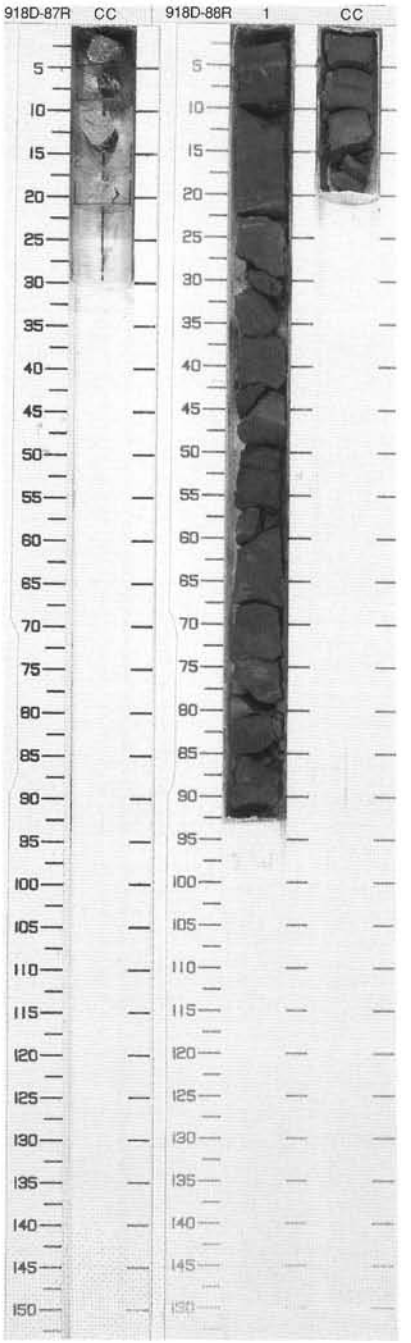
General Description:
This core consists of five fragments of DRILLING RUBBLE comprising lithologies probably derived from downhole caving.
Piece 1. granite.
Piece 2. granitic gneiss.
Piece 3. basalt.
Piece 4. gneiss.

SITE 918 HOLE D CORE 88R CORED 1117.8 - 1127.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1	middle Eocene			S T S D S S S S S	10YR 3/1	VOLCANIC ASH WITH GLAUCONITE and FE OXIDE SILT WITH NANNOFOSSILS
		CC				I SM	10YR 3/3	

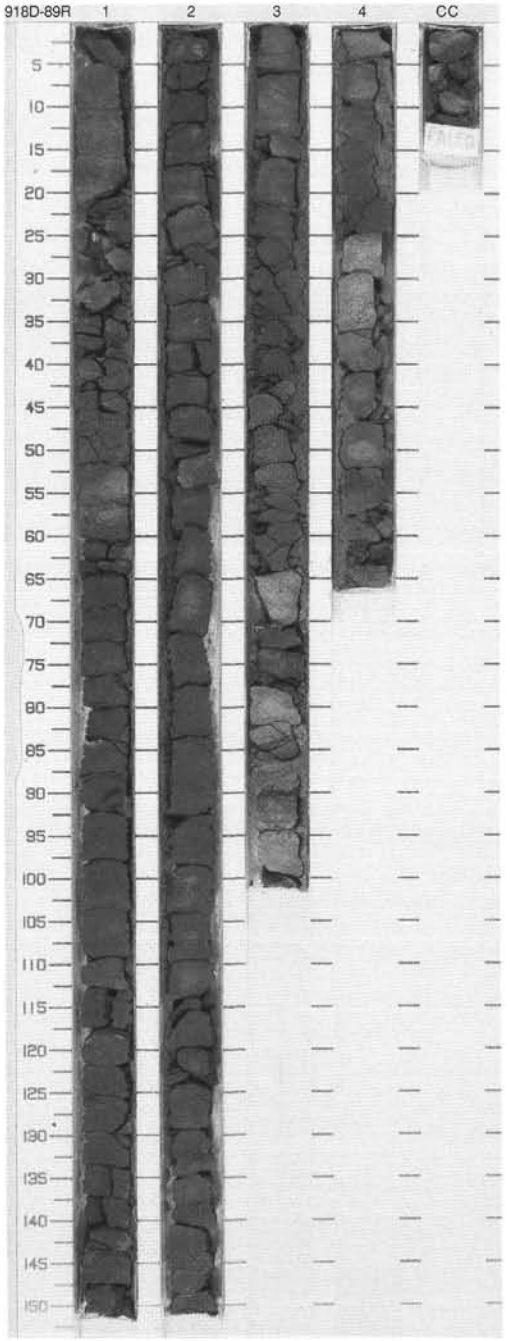
Major Lithologies:
VOLCANIC ASH WITH GLAUCONITE (Section 1, 4–46 cm), occurs as a homogeneous, very dark gray (10YR 3/1) bed, moderately to heavily bioturbated by *Chondrites* and *Planolites*, which are filled with brown (10YR 5/3) chalk. Thin bedding and load casts are observed at 4–8 cm. Cross-lamination is observed at 45–46 cm. FE OXIDE SILT WITH NANNOFOSSILS (Section 1, 46 cm to CC), occurs as massive, homogeneous, dark brown (10YR 3/3) bed, moderately bioturbated by *Chondrites* and *Planolites,* which are infilled with FE OXIDE CLAYEY SILT. Echinoid spines are scattered throughout.

Minor Lithologies:
Brown (10Y 5/3) NANNOFOSSIL CHALK, occurs as thin layer (Section 1, 3–4 and 19–20 cm), and occurs in burrows at 9–44 cm. Load cast at Section 1, 4 cm. VOLCANIC ASH (Section 1, 0–3 cm), parallel-laminated (1–2-mm-thick), very dark gray (10YR 3/1) bed. Volcanic glasses are altered. FE OXIDE CLAYEY SILT (CC, 13–19 cm), dark brown (10YR 3/3), moderately bioturbated.



SITE 918 HOLE D CORE 89R CORED 1127.4 - 1137.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–4		1, 2, 3, 4, CC	middle Eocene			S, S, S, S, M	10YR 3/3; 10YR 4/2 To 5GY 3/2	NANNOFOSSIL FE OXIDE SILTSTONE and SILTY NANNOFOSSIL CHALK WITH FORAMINIFERS Major Lithologies: NANNOFOSSIL IRON OXIDE SILTSTONE is reddish brown (10YR 3/3), and generally appears massive and homogeneous, slightly bioturbated, and contains numerous small (1–2 mm) glauconitic clasts. It is laminated in Section 1, 111–112 cm, and in Section 2, 96–97 cm. SILTY NANNOFOSSIL CHALK varies in color from reddish gray (10YR 4/2) to greenish gray (5GY 3/2) as it becomes more glauconite-rich. It locally contains glauconitic clasts 1–2 mm in diameter. Minor Lithology: ALTERED VOLCANIC ASH is dark brown (5YR 2/1) and consists largely of altered volcanic glass, smectite, and rock fragments. Slickensides are developed along small faults in ash horizons at Section 3, 71–77 cm and in Section 4, 61–63 cm. General Description: Zones of *Zoophycos* occur in SILTY NANNOFOSSIL CHALK in Section 3, 60–64 cm and Section 3, 85–95 cm.

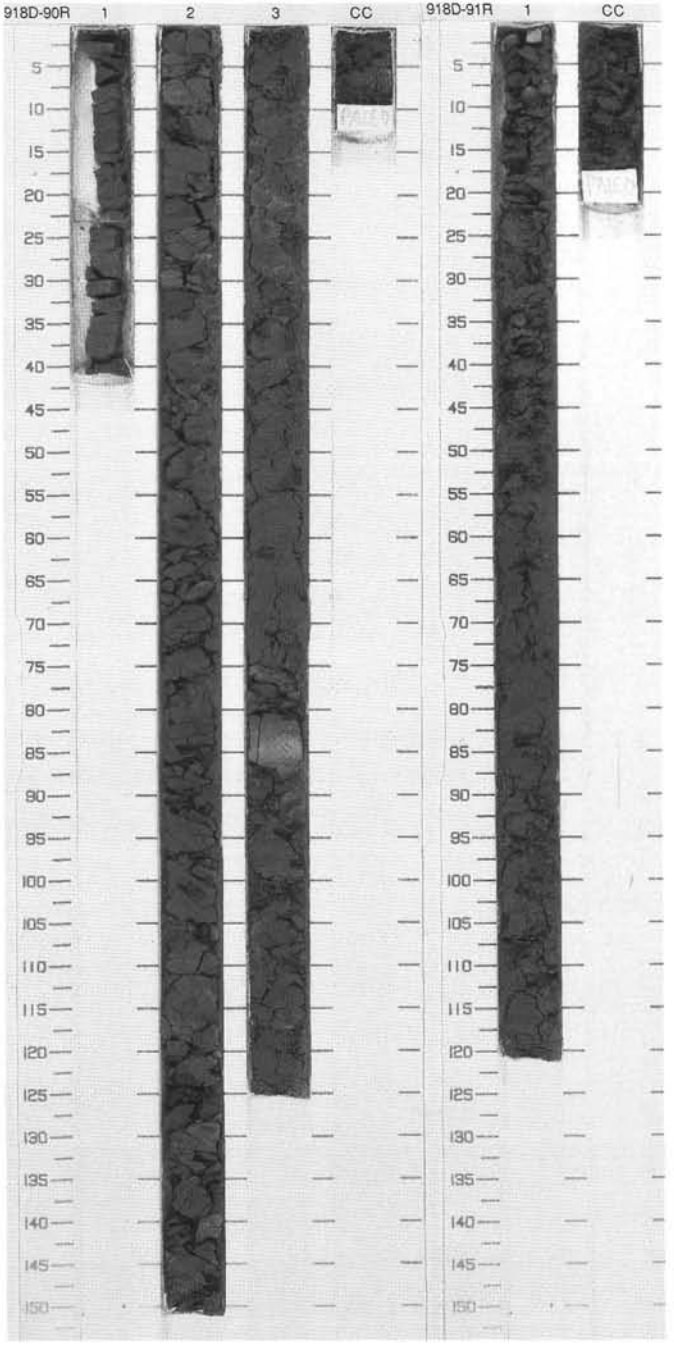


SITE 918 HOLE D CORE 90R CORED 1137.1 - 1146.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2 3		1 2 3 CC	middle Eocene			S S M	5Y 2/1	SILT WITH NANNOFOSSILS AND CLAY Major Lithology: SILT WITH NANNOFOSSILS AND CLAY is dark olive gray (5Y 2/1) and generally homogeneous. It locally contains small (<1 mm) glauconite pellets. Minor Lithology: SILTY NANNOFOSSIL CHALK WITH CLAY occurs as a light tan (5Y 5/2) indurated bed in Section 3, 81–86 cm. It appears homogeneous but is strongly disrupted by drilling. General Description: The SILT WITH NANNOFOSSILS AND CLAY is highly fractured, probably by drilling disturbance.

SITE 918 HOLE D CORE 91R CORED 1146.5 - 1156.2 mbsf

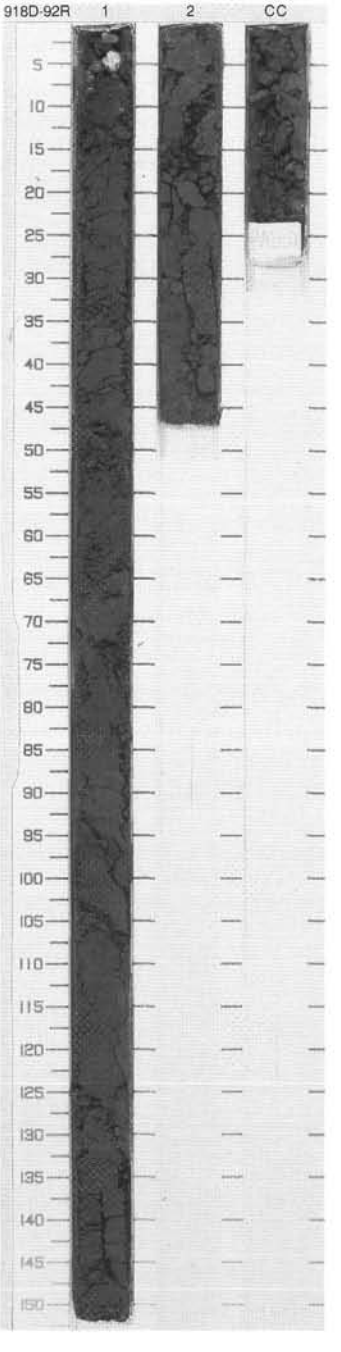
Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1		1 CC	middle Eocene			I M	5Y 2/1	SILT WITH NANNOFOSSILS AND CLAY Major Lithology: SILT WITH NANNOFOSSILS AND CLAY is dark olive gray (5Y 2/1) and generally massive and homogeneous. It locally contains small glauconite pellets. Section 1, 0–9 cm comprises DRILLING RUBBLE.



SITE 918 HOLE D CORE 92R CORED 1156.2 - 1165.8 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
2		1	early–middle Eocene			S	5B 4/1	NANNOFOSSIL CHALK WITH CLAY Major Lithology: NANNOFOSSIL CHALK WITH CLAY, dark bluish gray (5B 4/1), the color arising from glauconite pellets, rip-up clasts, and basaltic fragments up to granule size. Poorly sorted and highly mottled from moderate bioturbation by *Chondrites* and *Planolites* burrows.
		2				S	2.5YR N3/0	
		CC				S M	5B 4/1	

Minor Lithologies:
VOLCANIC CLAYEY SILT WITH NANNOFOSSILS, dark bluish gray (5B 4/1) to very dark gray (2.5YR 3/0), massive, Section 1, 126 cm to Section 2, 25 cm. Upper contact with dominant lithology is sharp, angular, and burrowed. Pyritized foraminifers and radiolarians occur in trace amounts.
VOLCANIC GLAUCONITIC CLAYEY SILT, Section 2, 25–46 cm. Mottled black to dark greenish gray, poorly sorted with granule- to clay-sized clasts, larger clasts floating in matrix. Massive, moderately bioturbated with common molluscan shell debris.
Section CC is comprised of drilling rubble with lithologies similar to others in this core.

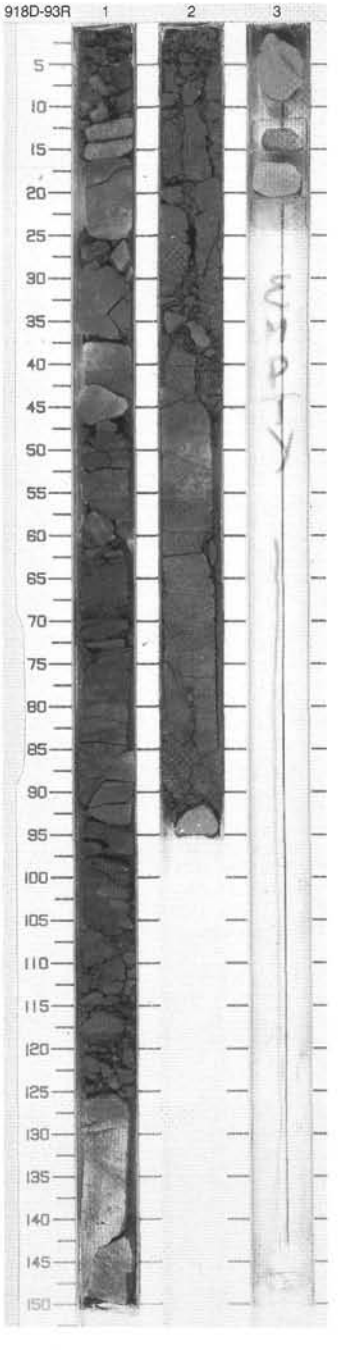


SITE 918 HOLE D CORE 93R CORED 1165.8 - 1175.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
2		1	early Eocene			S	5G 3/1	VOLCANIC CLAY WITH SILT AND SAND
						S	2.5YR N3/0	Major Lithology: VOLCANIC CLAY WITH SILT AND SAND, dark greenish gray (5G 3/1), massive, scattered, rare debris of bivalves, echinoids, and benthic foraminifers. Glauconitic rip-up clasts, fecal pellets and basalt clasts, granule to sand size, scattered throughout, floating in matrix. Slight bioturbation, although burrows of *Chondrites* and *Planolites* are often indistinct.
		2				S	5G 4/2 To 2.5YR N4/0	
						S		
		3			M	S		

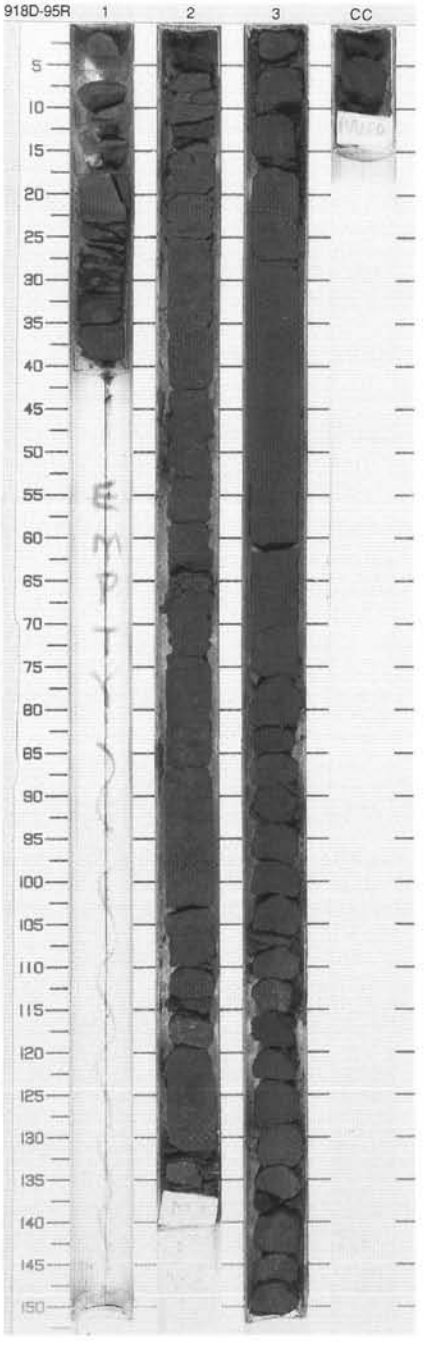
Minor Lithologies:
VOLCANIC CLAYEY SAND WITH SILT, Section 1, 60–128 cm, very dark gray (2.5YR N3), with rare, maroon *Chondrites* burrows, bivalve and benthic foraminifer tests scattered throughout. Speckled white with fecal pellets. VOLCANIC SAND-SILT-CLAY immediately overlies BASALT in CC, grading down from dominant lithology. Section 1, 0–18 cm is a DRILLING RUBBLE, including two 2 cm wide fragments of volcaniclastic sandstones.

918D 94R HARD ROCK

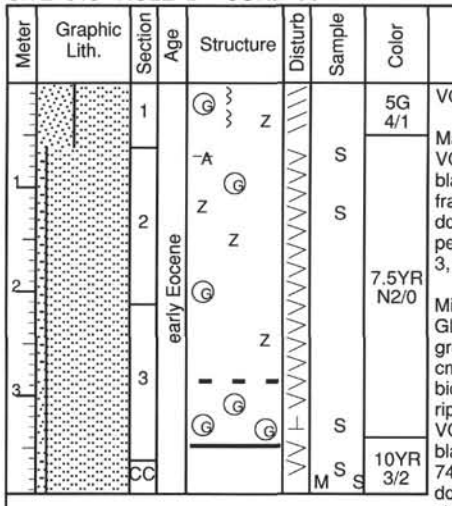


SITE 918 HOLE D CORE 95R CORED 1180.4 - 1185.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1 2 3		1 2 3 CC	early Eocene			S S S I S M	5G 4/1	GLAUCONITIC SANDY SILT Major Lithology: GLAUCONITE SANDY SILT, dark greenish gray, calcite-cemented, Section 2, 0–90 cm; massive, poorly sorted, moderately bioturbated with burrow abundance decreasing downcore. *Planolites*, *Thalassinoides* burrows, Section 2. Minor Lithologies: VOLCANIC SILT WITH SAND, Section 1, 18–40 cm. Calcareous, Section 1, 18–29 cm. Parallel and cross laminae, grading downward into dominant lithology. White speckles in noncalcareous interval are recrystallized radiolarions. VOLCANIC SILTY CLAY WITH SAND, Section 1, 0–12 cm. Possible downhole cavings, massive, noncalcareous. BASALT with prominant calcite vein, possible downhole caving, Section 1, 12–18 cm.



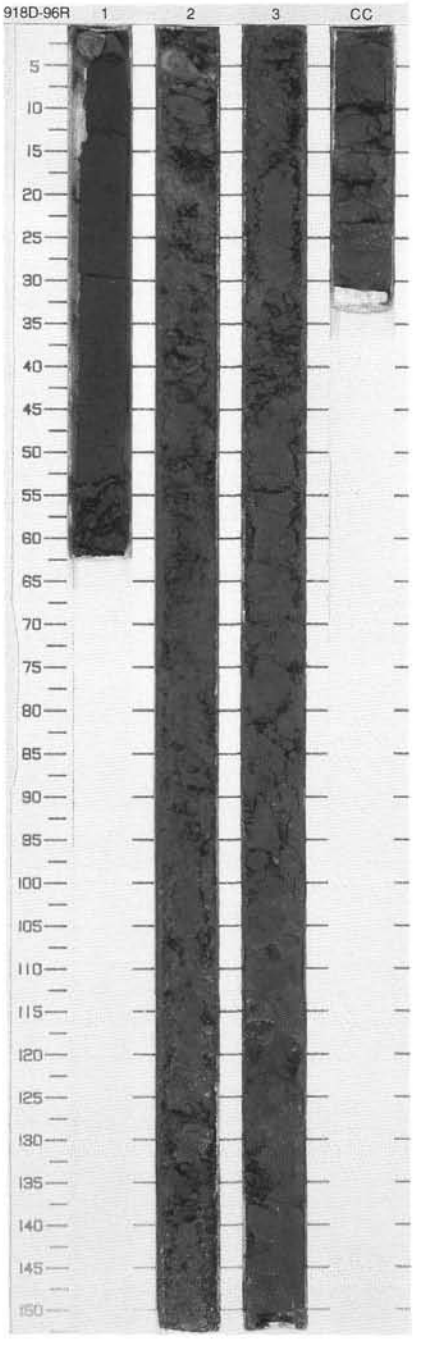
SITE 918 HOLE D CORE 96R CORED 1185.1 - 1194.7 mbsf



VOLCANIC ASH WITH ZEOLITES

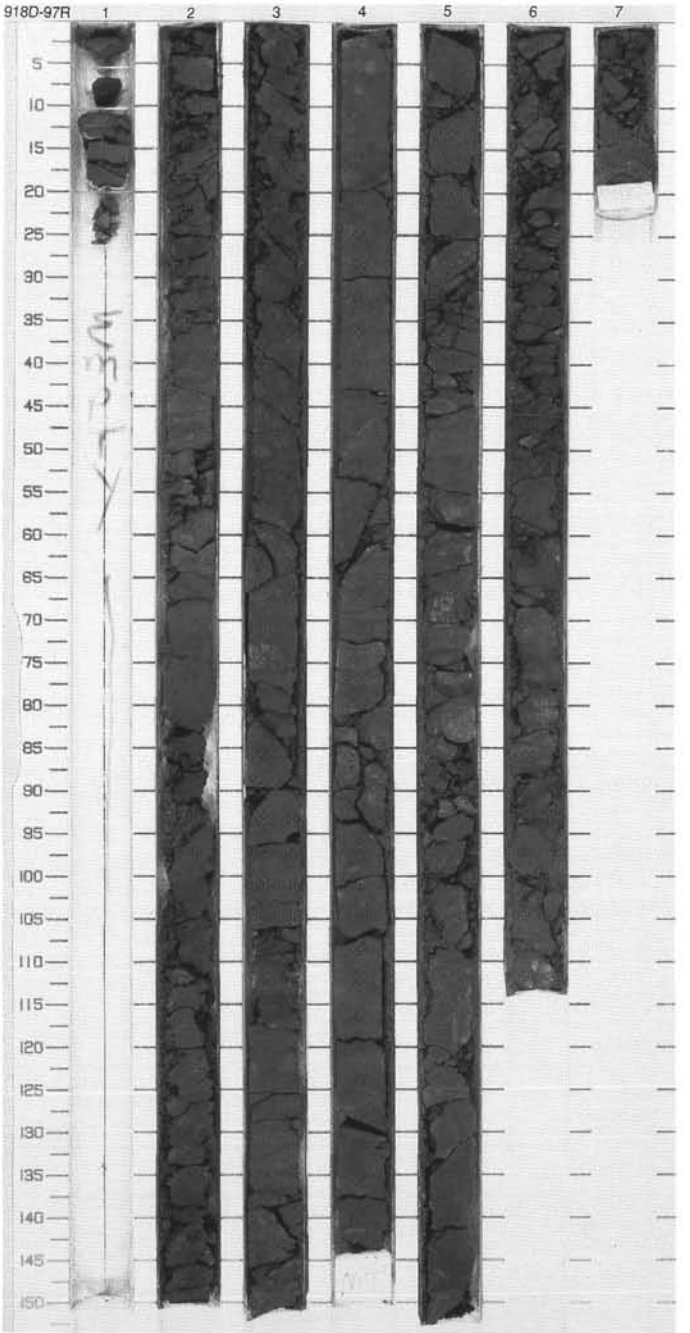
Major Lithology:
VOLCANIC ASH WITH ZEOLITES, black (7.5YR N2), fissile, highly fractured, gradually coarsens downward with increasing glauconitic pellets from Section 2, 0 cm to Section 3, 74 cm.

Minor Lithologies:
GLAUCONITIC SANDY SILT, dark greenish gray (5G 4/1), Section 1, 4–62 cm. Massive, poorly sorted, faintly bioturbated, with increasing glauconitic rip-up clasts downcore. GLAUCONITIC VOLCANIC SILT WITH QUARTZ, black (7.5YR N2), massive, Section 3, 74–128 cm, grades downward from the dominant lithology with increasing grain size, occurrence of glauconitic clay rip-up clasts, quartz and glauconitic pellet components. VOLCANIC IRON OXIDE SILT (HIGHLY ALTERED BASALT), mottled very dark grayish brown (10YR 3/2) to dusky red (7.5R 3/4), presents a sharp but uneven contact with the overlying GLAUCONITIC VOLCANIC SILT WITH QUARTZ, Section 3, 128 cm to CC, 30 cm. Base of Section 3 appears to comprise drilling biscuits in a drilling-induced mud. Biscuits comprise a dark brown clay with paleovesicles filled with alteration minerals, principally iron oxides and oxyhydroxides. One biscuit in the CC is a bright, light green breccia with angular, clay-rich clasts floating in a green clay matrix. This interval darkened to brown while the core was being described.

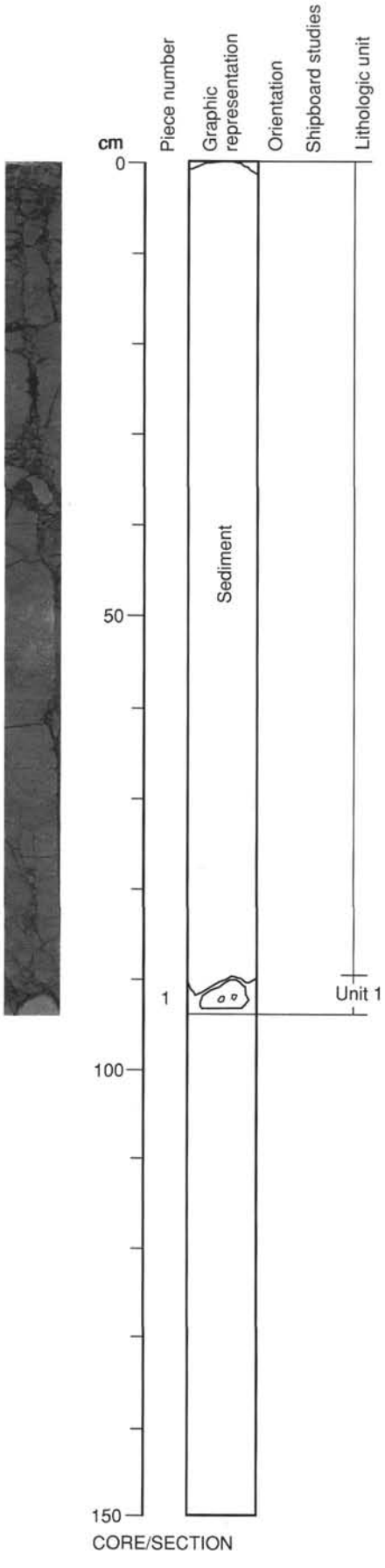


SITE 918 HOLE D CORE 97R CORED 1194.7 - 1204.4 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
1–7		1	early Eocene ??			M	7.5YR 3/2 To 7.5YR N2/0	ALTERED BASALT Major Lithology: Dark brown (10YR 3/3) ALTERED BASALT dominates this core and forms igneous Units 2, 3, and 4A, *equivalent to sedimentary Unit* VI. The rock shows color banding of bluish gray (5B 6/1) at Section 5, 52–71 and 93–126 cm, to weak red (5R 5/4) at Section 5, 80–93 cm, due to differential alteration. Small normal faults cut the rock locally. Sharp contacts between weathered flows are underlain by a 19-cm-thick very dusky red (7.5R 2.5/4) lateritized zone at Section 2, 81–100 cm. In addition, *vesicles within flows, fractures, and* the base of igneous Unit 2 show preferential alteration to red clay and iron oxides. Minor Lithologies: BLACK SAND is present as two pieces of drilling rubble at the top of the core, 0–10 cm. CLAY, mottled dark brown (7.5YR 3/2 to 3/4), at 10–20 cm in Section 1 represents the *strongest alteration of basalt* observed. Color suggests presence of limonite, cut by red, iron oxide-filled veins and vesicles.
		2					7.5R 2.5/4 To 5R 3/2	
		3					10YR 3/3	
		4					5R 5/4 To 10YR 3/3	
		5					5R 6/1 To 5R 5/4	
		6					10YR 3/3	
		7						



152-918D-93R-2



UNIT 1: PLAGIOCLASE-PYROXENE-PHYRIC BASALT

Piece 1

CONTACTS: No primary contact with the overlying sediment is preserved. The sediment is disturbed by drilling and completely churned up in a 1-cm-thick zone overlying the basalt. The basalt piece is rounded by the drilling process. It does not seem to represent a flow top. No reddening is seen in either sediment or basalt.

PHENOCRYSTS:

Plagioclase - 1%; 1–2 mm; tabular.

Pyroxene - 1%; 0.5–1 mm; subhedral to euhedral, equant.

GROUNDMASS: Moderately fine-grained. Plagioclase laths are discernible.

VESICLES: 2%; 4 mm; spherical; the piece contains two vesicles filled with calcite.

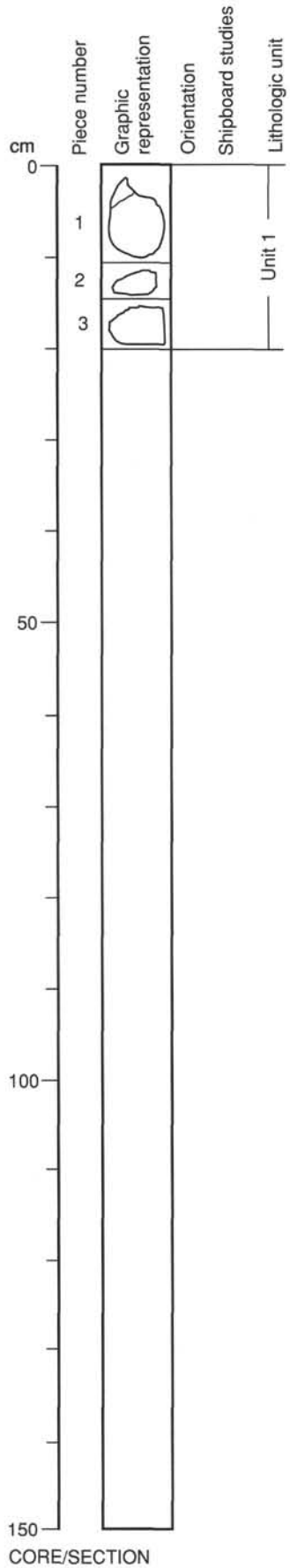
COLOR: Dark gray (N 4/0).

STRUCTURE: Massive.

ALTERATION: Fresh.

VEINS/FRACTURES: None.

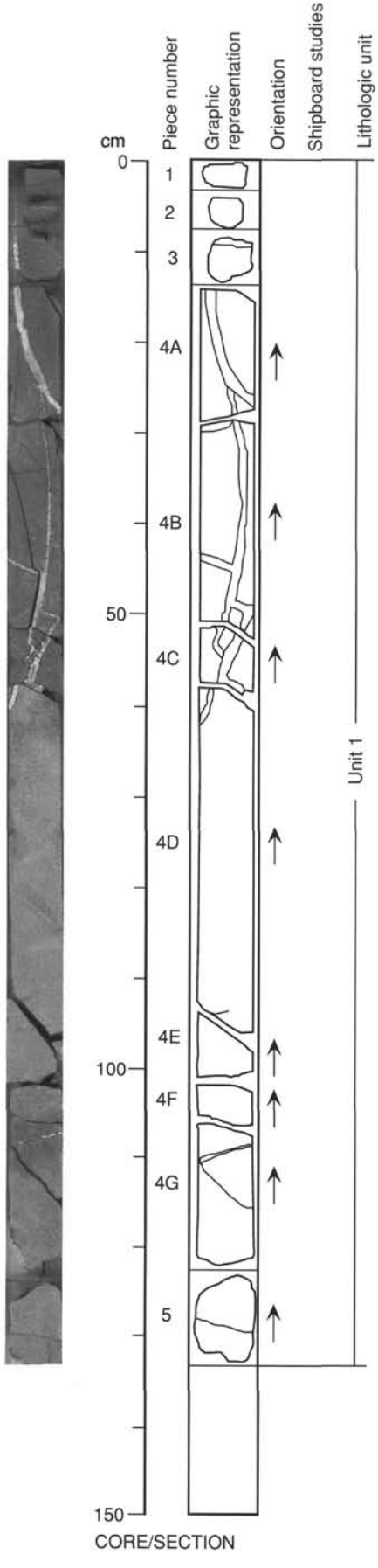
152-918D-93R-3



UNIT 1: PLAGIOCLASE-PYROXENE-PHYRIC BASALT

Pieces 1–3

PHENOCRYSTS:
Plagioclase - 1%; 1–2 mm; tabular.
Pyroxene - 1%; 0.5–1 mm; subhedral to euhedral, equant.
GROUNDMASS: Moderately fine-grained. Plagioclase laths are discernible.
VESICLES: None.
COLOR: Dark gray (N 4/0).
STRUCTURE: Massive.
ALTERATION: Fresh.
VEINS/FRACTURES: Piece 1 has a <1-mm-wide calcite-filled fracture.



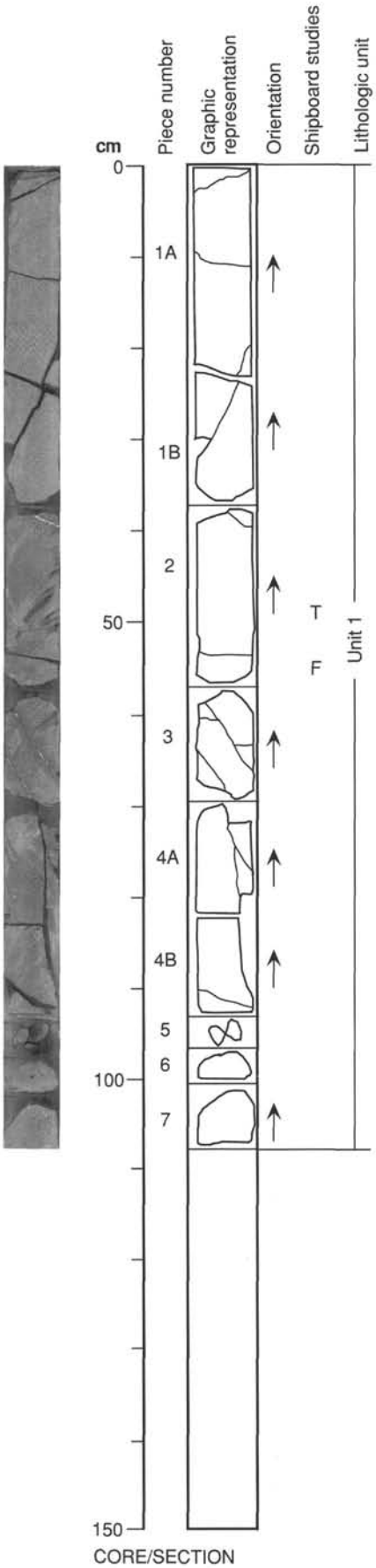
152-918D-94R-1

UNIT 1: PLAGIOCLASE-PYROXENE-PHYRIC BASALT

Pieces 1–5

PHENOCRYSTS:
Plagioclase - 1%; 1–2 mm; tabular.
Pyroxene - 1%; 0.5–1 mm; subhedral to euhedral, equant.
GROUNDMASS: Moderately fine-grained. Plagioclase laths are discernible.
VESICLES: None.
COLOR: Dark gray (N 4/0).
STRUCTURE: Massive.
ALTERATION: Fresh.
VEINS/FRACTURES: 2–10 mm; steep (65 degrees) to vertical, curved fractures, filled with two generations of calcite. 5% at 10–60 cm, 0% below 60 cm. One 3-mm-wide, calcite-filled vein dipping 15 degrees at 109 cm.

152-918D-94R-2

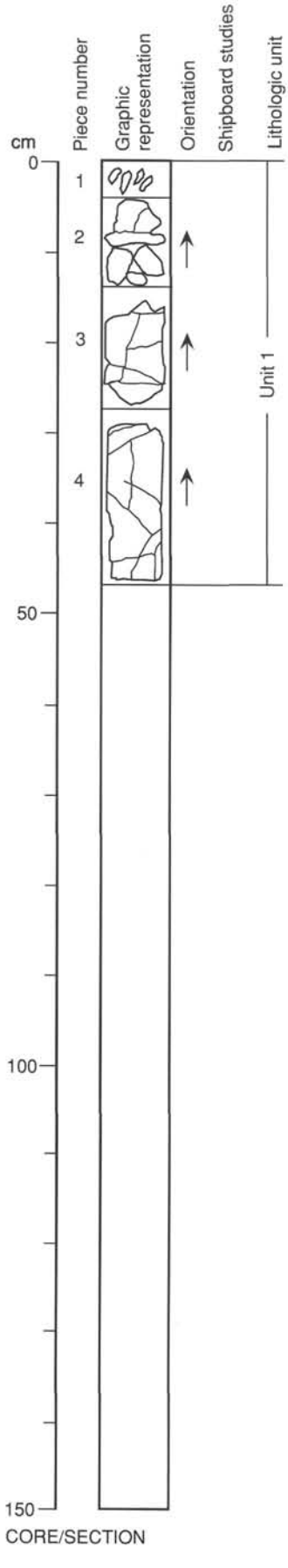


UNIT 1: PLAGIOCLASE-PYROXENE-PHYRIC BASALT

Pieces 1A–7

PHENOCRYSTS:
Plagioclase - 1%; 1–2 mm; tabular.
Pyroxene - 1%; 0.5–1 mm; subhedral to euhedral, equant.
GROUNDMASS: Moderately fine-grained. Plagioclase laths are discernible.
VESICLES: None.
COLOR: Dark gray (N 4/0).
STRUCTURE: Massive.
ALTERATION: Fresh.
VEINS/FRACTURES: <<1%; 1–3 mm; inclined 60 degrees; lined with green clay and filled with calcite; only in Pieces 2 and 3.

152-918D-94R-3

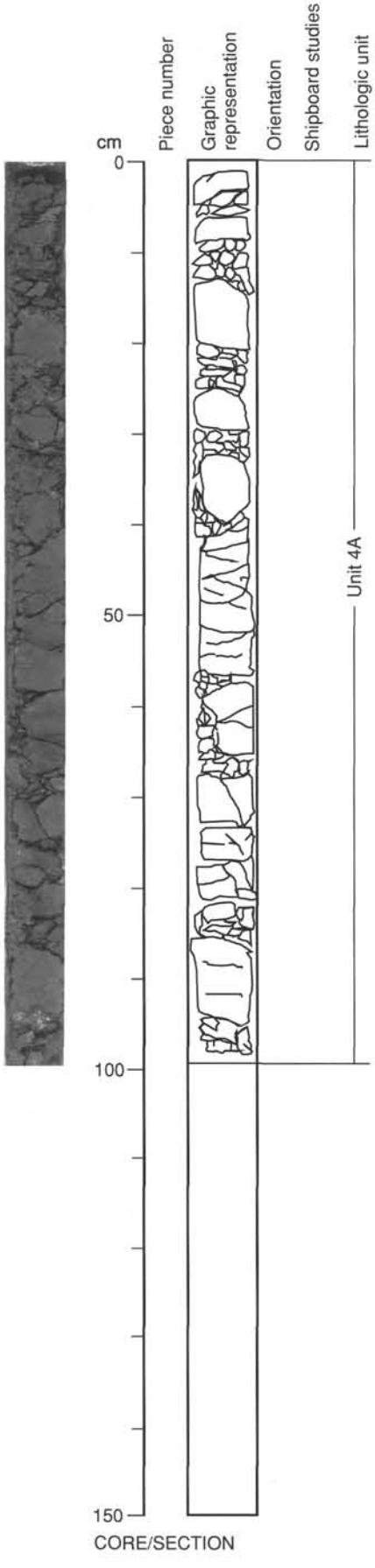


UNIT 1: PLAGIOCLASE-PYROXENE-PHYRIC BASALT

Pieces 1–4

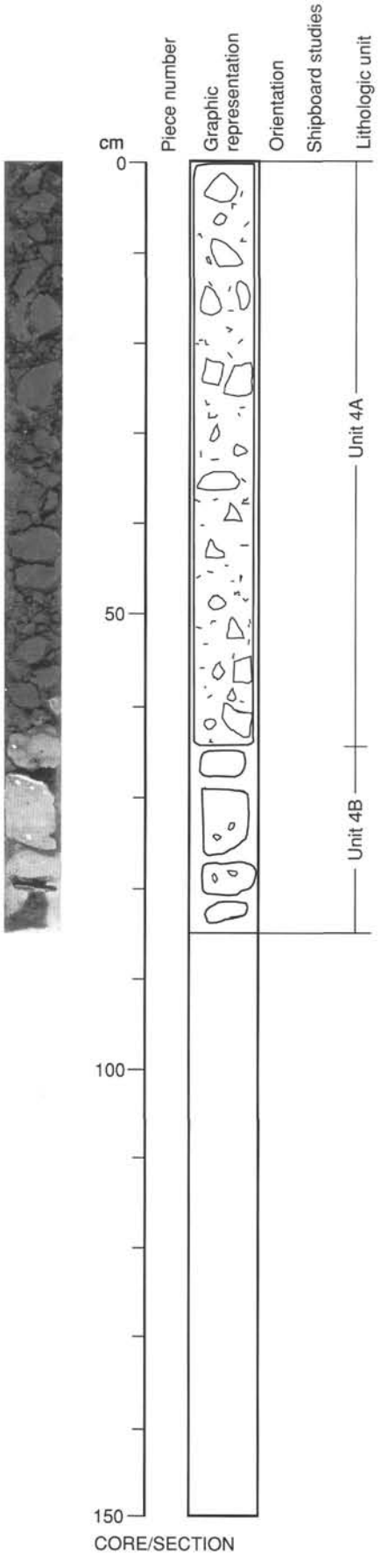
PHENOCRYSTS:
Plagioclase - 1%; 1–2 mm; tabular.
Pyroxene - 1%; 0.5–1 mm; subhedral to euhedral, equant.
GROUNDMASS: Moderately fine-grained. Plagioclase laths are discernible.
VESICLES: None.
COLOR: Dark gray (N 4/0).
STRUCTURE: Fresh.
ALTERATION: Slight.
VEINS/FRACTURES: 1%; 1–5 mm; horizontal to vertical; lined with green clay and filled with calcite and occasional small clumps of a sulfide mineral.

152-918D-98R-1



UNIT 4A: THOROUGHLY ALTERED BASALT

PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: None.
COLOR: Dusky brown (5YR 2/2).
ALTERATION: Complete. The rock consists of brown clay and iron hydroxides.
VEINS/FRACTURES: 1 mm; variable orientation; filled with iron hydroxide. Slickensides on fracture surfaces.
ADDITIONAL COMMENTS: Because of its friable nature, this core section was not labeled during curation.



152-918D-98R-2

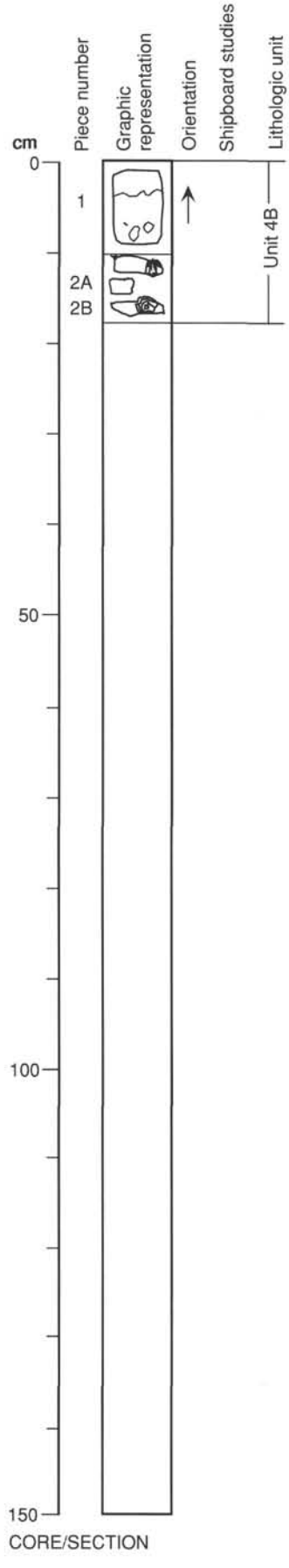
UNIT 4A: THOROUGHLY ALTERED BASALT

CONTACTS: The contact with the fresher rock (Unit 4B) below 64 cm is disrupted by the drilling.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 2%; 2–4 mm; ovoid; scattered; filled with iron hydroxide and clay.
COLOR: Dusky brown (5YR 2/2).
ALTERATION: Complete. The rock consists of brown clay and iron hydroxides.
VEINS/FRACTURES: Up to 1 mm; variable orientation; filled with iron hydroxide. Slickensides on fracture surfaces.
ADDITIONAL COMMENTS: The rock is highly disturbed by the drilling process. Pieces not labeled.

UNIT 4B: APHYRIC BASALT

CONTACTS: Unit 4B is the beginning of the fresh part of Unit 4. The transition is seen at 64 cm.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 1%; 5–10 mm; ovoid; a few scattered, calcite-filled vesicles.
COLOR: Dark gray (N 3/0).
STRUCTURE: Near-horizontal flow banding.
ALTERATION: Moderate.
VEINS/FRACTURES: <1%; 1–2 mm; random orientation; filled with dark gray material.
ADDITIONAL COMMENTS: Pieces not labeled.

152-918D-98R-3

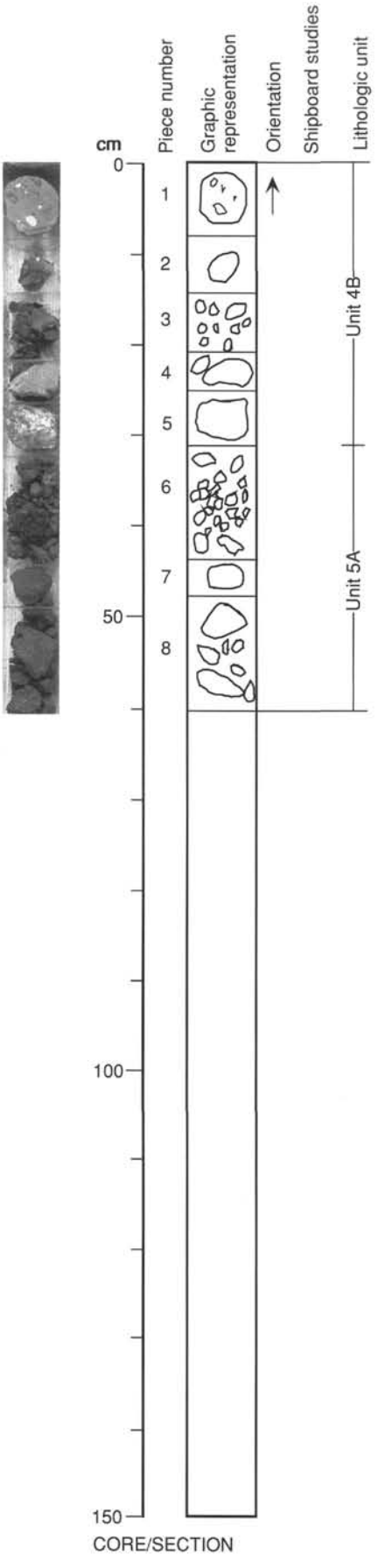


UNIT 4B: APHYRIC BASALT

Pieces 1–2B

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic; flecks of native copper.
VESICLES: 1%; 10–20 mm; ovoid; two vesicles in Piece 1 filled with calcite; 5-cm cavity in Piece 2 contains tan and white, banded calcite in concentric pattern, like onyx.
COLOR: Dark gray (N 3/0).
STRUCTURE: Near-horizontal flow banding.
ALTERATION: Moderate.
VEINS/FRACTURES: <1%; 1 mm; random orientation; filled with calcite or dark gray material.

152-918D-99R-1



UNIT 4B: APHYRIC BASALT

Pieces 1–5

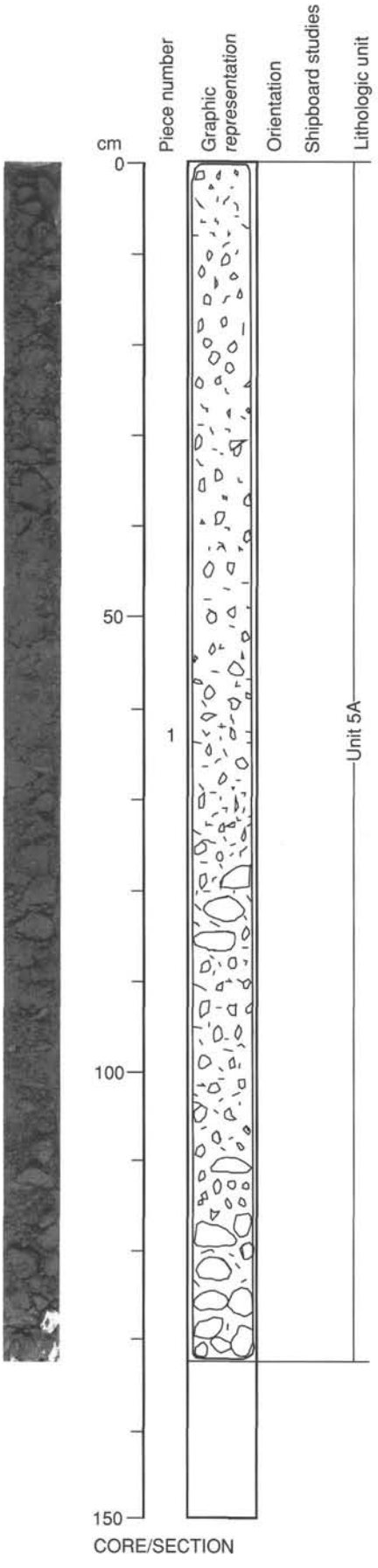
CONTACTS: Contact with Unit 5 not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic; some flecks of native copper.
VESICLES: 0–5%; 5–15 mm; spherical; restricted to Pieces 1 and 2; filled with green clay or concentric white and tan calcite.
COLOR: Greenish gray (5G 6/1).
STRUCTURE: Faint flow banding.
ALTERATION: Moderate.
VEINS/FRACTURES: <1%; 1 mm; fracture face on Piece 5 has remnants of concentric calcite.

UNIT 5A: ALTERED BASALT BRECCIA

Pieces 6–8

CONTACTS: Contact with Unit 4 not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Glassy; devitrified.
VESICLES: <1%; some very small, scattered vesicles.
COLOR: Dusky brown (5YR 2/2).
STRUCTURE: Fragmented.
ALTERATION: Strong; the glass is either devitrified or altered to reddish brown clay.
ADDITIONAL COMMENTS: Appears to be the glassy flow top of Unit 5.

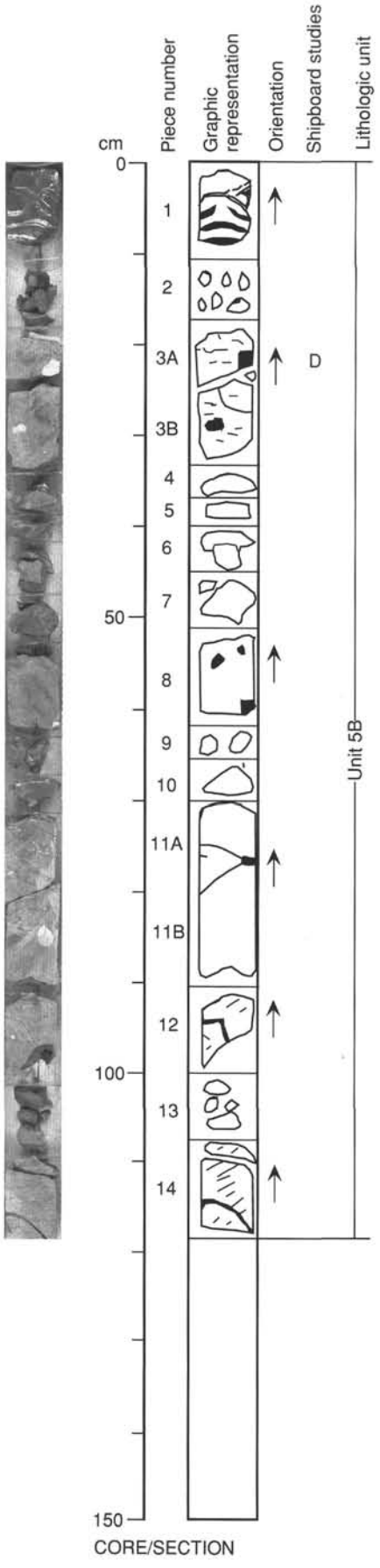
152-918D-99R-2



UNIT 5A: ALTERED BASALT BRECCIA

Piece 1

PHENOCRYSTS: None.
GROUNDMASS: Aphanitic to glassy.
VESICLES: Some very small, scattered vesicles.
COLOR: Very dusky red (10R 2/2).
STRUCTURE: Highly fragmented; possible slickensides on sides of clasts.
ALTERATION: Strong; the glass is either devitrified or altered to reddish brown clay; the degree of alteration decreases towards base of section.
ADDITIONAL COMMENTS: The section is composed of angular glassy basalt clasts in a matrix of clay.



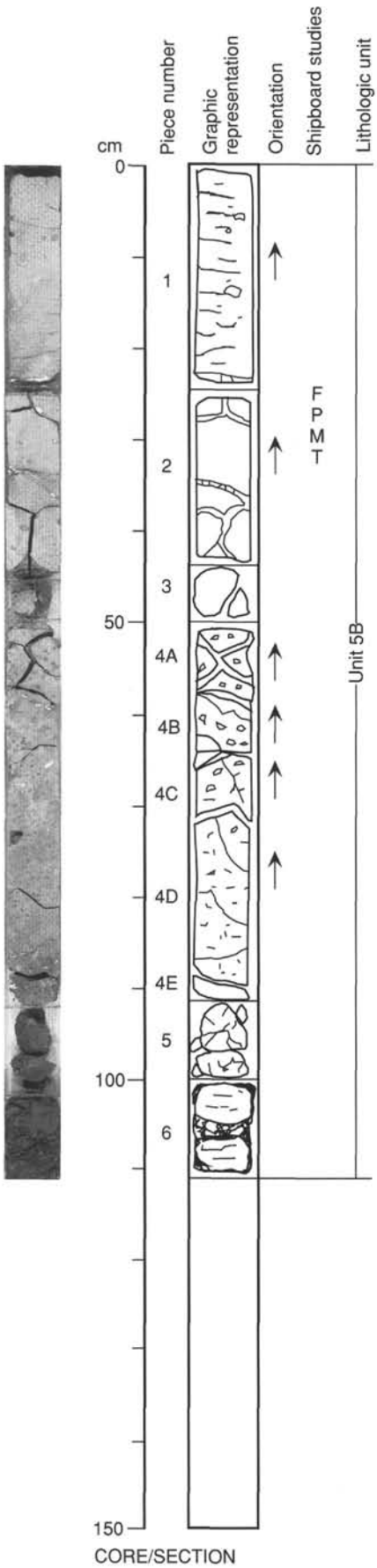
152-918D-99R-3

UNIT 5B: APHYRIC BASALT

Pieces 1–14

CONTACTS: The bottom of the fragmented flow top (Unit 5A) is seen in Piece 1.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic to fine-grained; flecks of native copper.
VESICLES: 0–2%; 5–20 mm; spherical to irregular; scattered; filled with green material and/or calcite; some native copper flecks.
COLOR: Dark greenish gray (5G 4/1).
STRUCTURE: Flow banding dipping around 10 degrees.
ALTERATION: Moderate; decreases below Piece 1.
VEINS/FRACTURES: 1%; 1–8 mm; random orientation; filled with calcite or green material; 10% sub-horizontal fractures in Piece 1.

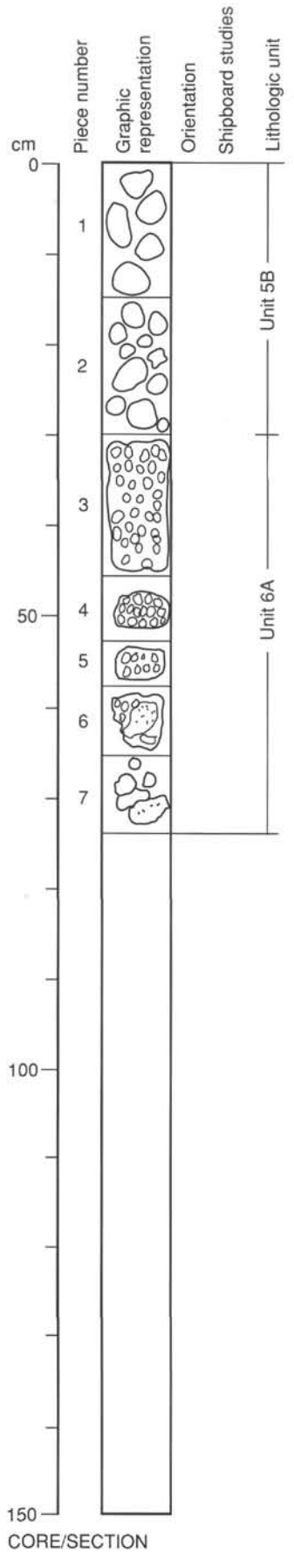
152-918D-99R-4



UNIT 5B: APHYRIC BASALT

Pieces 1–6

PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 1%–10%; 1–10 mm; spherical to ovoid; concentrated towards the base; lined with dark green clay and filled with calcite or pale green clay.
COLOR: Dark greenish gray (5G 4/1).
STRUCTURE: Massive with flow banding in Pieces 1 to 3; more vesicular near the base.
ALTERATION: Slight; stronger in Pieces 5 and 6, which correspond to the quenched base of the lava flow.
VEINS/FRACTURES: <1%; 1–2 mm; horizontal to inclined 20 degrees; lined with dark green clay and filled with calcite or pale green clay.
ADDITIONAL COMMENTS: Progressive decrease in size and increase in abundance of vesicles towards the bottom of the lava flow, seen in Piece 6.



152-918D-100R-1

UNIT 5B: APHYRIC BASALT

Pieces 1–2

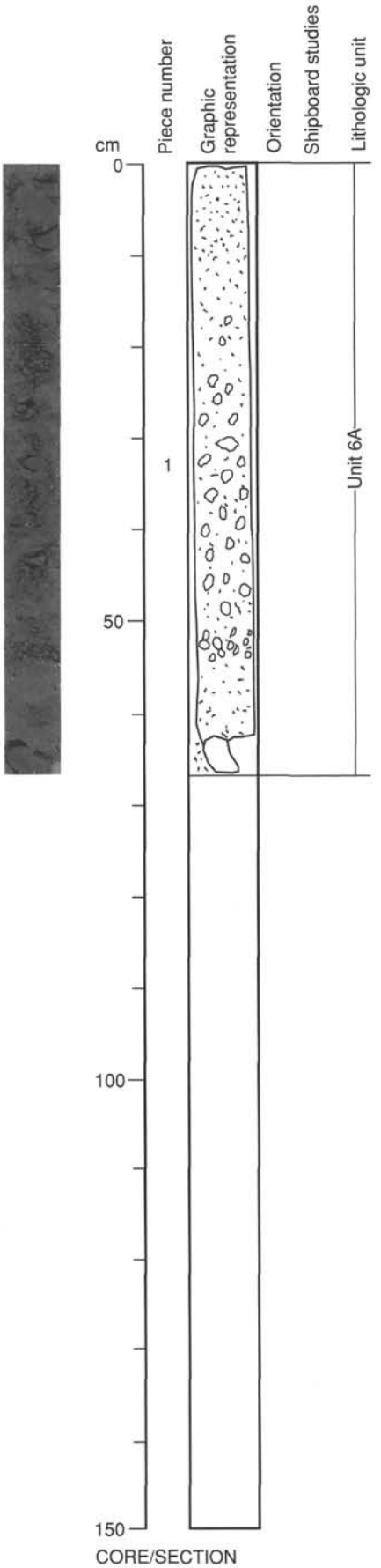
CONTACTS: Contact with Unit 6 not evident.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: None.
COLOR: Grayish brown (5YR 3/2).
STRUCTURE: Highly fragmented. The pieces are angular fragments of basalt with some glassy rims.
ALTERATION: Strong; coated with brown clay; glassy rims of fragments have waxy luster.

UNIT 6A: ALTERED BASALT BRECCIA

Pieces 3–7

PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: None.
COLOR: Grayish brown (5YR 3/2).
STRUCTURE: Highly fragmented. The material is a poorly consolidated mixture of small basalt clasts in a matrix of clay and altered glass.
ALTERATION: Strong; most material altered to clay; clasts in Piece 7 have waxy character.

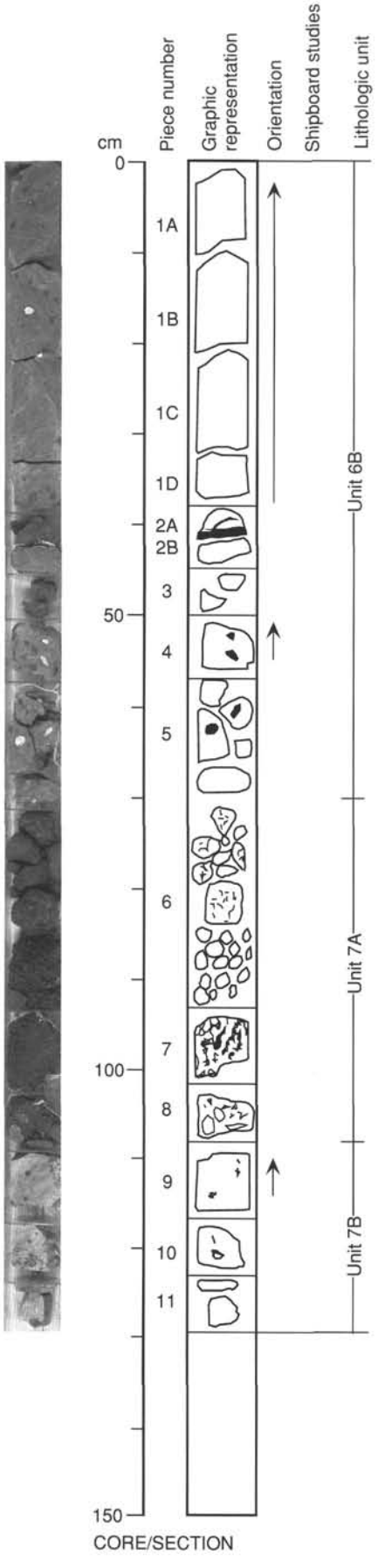
152-918D-100R-2



UNIT 6A: ALTERED BASALT BRECCIA

Piece 1

PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: None distinguished.
COLOR: Mottled reds, greens, and browns.
STRUCTURE: Highly fragmented. The material is a poorly consolidated mixture of small basalt clasts in a matrix of clay and altered glass.
ALTERATION: Strong; most material altered to clay.



152-918D-100R-3

UNIT 6B: APHYRIC BASALT

Pieces 1A–5

CONTACTS: Contact with Unit 7A not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 1%–5%; 1–10 mm; spherical; scattered; lined with dark green clay and filled with calcite or green clay.
COLOR: Dark greenish gray (5G 4/1).
STRUCTURE: Massive with small fissures.
ALTERATION: Moderate.
VEINS/FRACTURES: <1%; <1 mm; subhorizontal; filled with calcite or green material.
ADDITIONAL COMMENTS: Piece 2A is a quenched fragment indicating that Unit 6B is probably a compound flow; Pieces 4 and 5 are slightly more vesiculated. The base of Unit 6B is not well defined.

UNIT 7A: ALTERED BASALT BRECCIA

Pieces 6–8

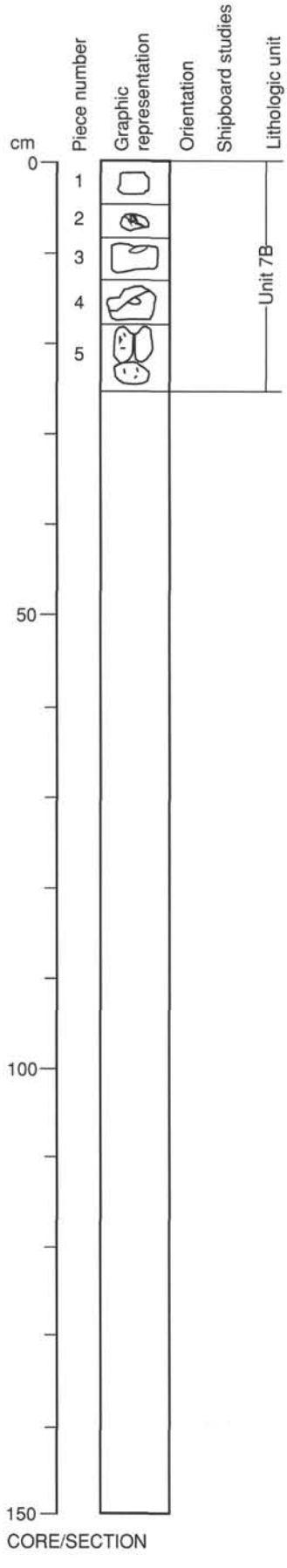
CONTACTS: The top contact is not well defined. The lower contact to Unit 7B is sharp, but may not be igneous (induced by drilling).
PHENOCRYSTS: None.
GROUNDMASS: Glassy.
VESICLES: None.
COLOR: Dusky brown (5YR 2/2).
STRUCTURE: Highly fragmented.
ALTERATION: Strong; altered to clay.
ADDITIONAL COMMENTS: Unit 7A represents the quenched and altered flow top of Unit 7.

UNIT 7B: APHYRIC BASALT.

Pieces 9–11

CONTACTS: Contact with Unit 7A in Piece 8.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 1%–5%; <1 to 10 mm; mainly spherical; scattered; numerous small vesicles on top of Piece 9 located near the quenched and fragmented flow top; blebs of native copper present in some vesicles.
COLOR: Dark greenish gray (5G 4/1).
STRUCTURE: Massive.
ALTERATION: Slight.
VEINS/FRACTURES: None.

152-918D-101R-1

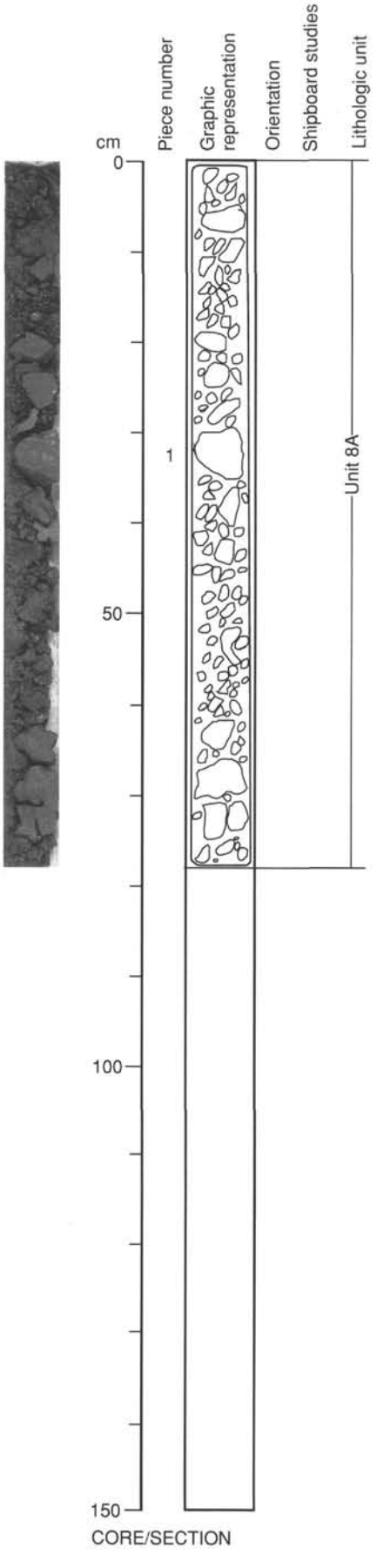


UNIT 7B: APHYRIC BASALT

Pieces 1–5

CONTACTS: Lower contact not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 5%–25%; 1–10 mm; spherical to ovoid; scattered; greatest abundance in Piece 5; lined with dark green clay and filled with medium green to yellowish green clay; Piece 2 has vesicle filled with silica, with flecks of native copper.
COLOR: Dark greenish gray (5G 3/1).
STRUCTURE: Faint flow banding in Pieces 3 and 4.
ALTERATION: Strong.
VEINS/FRACTURES: <<1%; <1 mm; in Pieces 1–4; filled with clay.

152-918D-101R-2

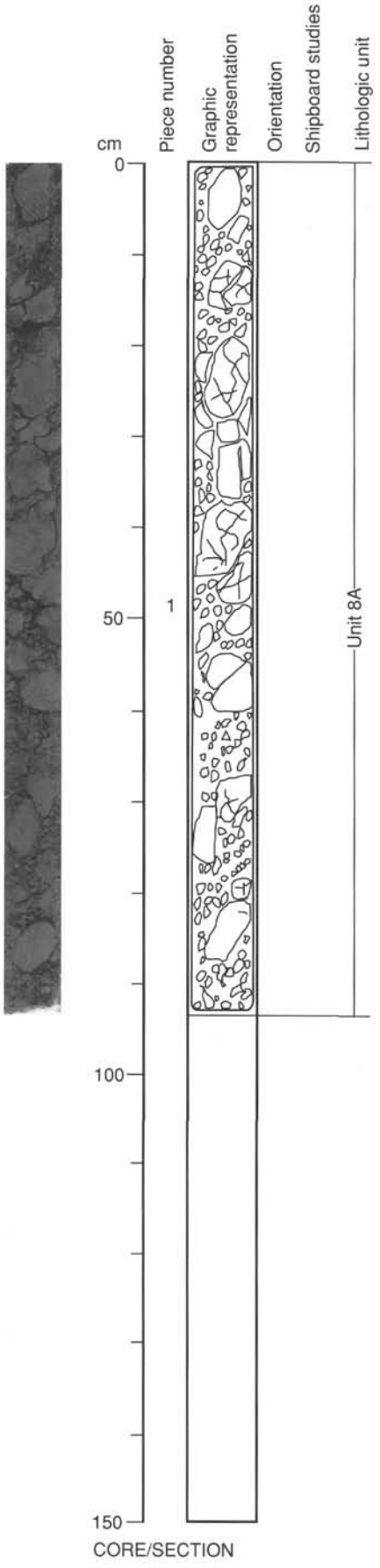


UNIT 8A: ALTERED BASALT BRECCIA

Piece 1

CONTACTS: Upper contact not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 0–10%; <1–2 mm; spherical to irregular; inhomogeneous distribution; filled with bright green mineral at 11–19 cm and white mineral elsewhere. Most of section is not visibly vesicular.
COLOR: Dusky reddish brown (10R 3/2).
STRUCTURE: Flow-brecciation visible from 62 to 78 cm, but probably present in whole section.
ALTERATION: Strong to complete; much clay. Native copper in matrix.
ADDITIONAL COMMENTS: The section is very muddy, broken up, and disturbed by the drilling process.

152-918D-101R-3

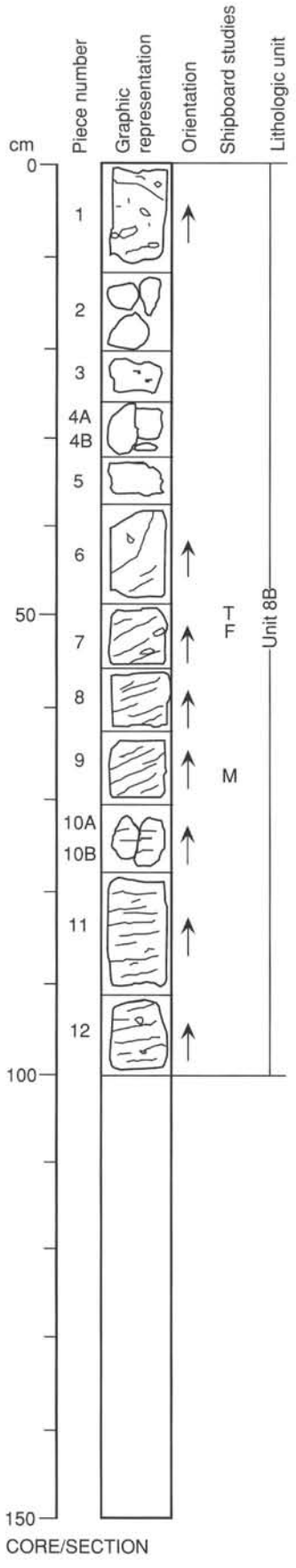


UNIT 8A: ALTERED BASALT HYALOCLASTITE

Piece 1

PHENOCRYSTS: None.
GROUNDMASS: Aphanitic to glassy.
VESICLES: Some clasts have abundant tiny vesicles with white fillings.
COLOR: Dusky red (10R 3/3) matrix; dark brown (10YR 4/3) to very dark gray (10 YR 3/1) clasts.
STRUCTURE: 1–40 mm pillow structures: rounded brown clasts with 1-mm dark brown to black rinds with wavy to angular margins in a matrix of red clay.
ALTERATION: Strong to complete.
ADDITIONAL COMMENTS: The section is very muddy, broken up, and disturbed by the drilling process.

152-918D-101R-4

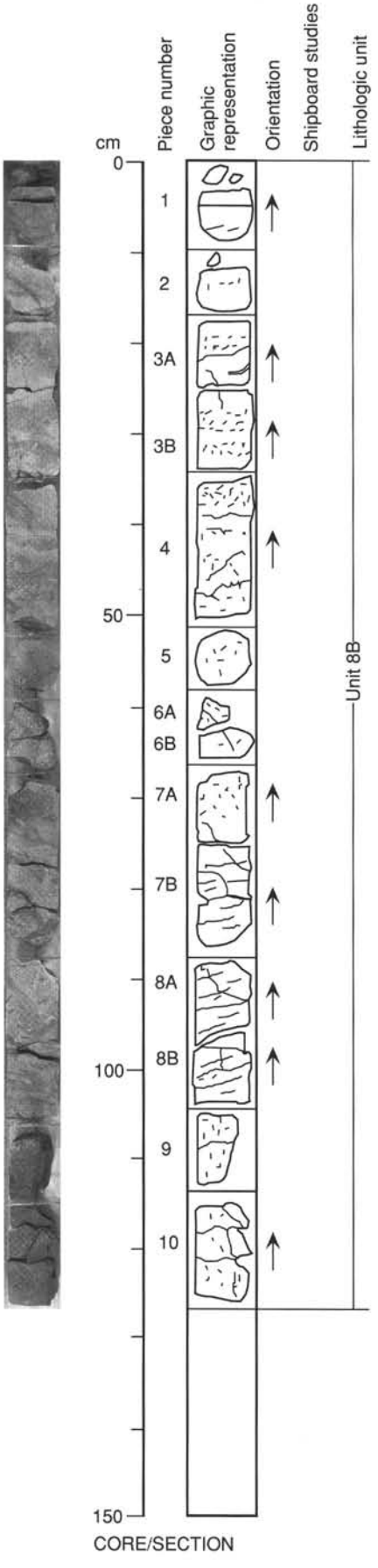


UNIT 8B: APHYRIC BASALT

Pieces 1–12

CONTACTS: Contact with Unit 8A is not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 0–10%; 1–20 mm; ovoid to ameboid; scattered; most abundant in Pieces 1–3; lined with grayish green clay and filled with calcite (Piece 1), silica (Piece 7), or grayish green clay (Pieces 1–12).
COLOR: Gray (N 5/0). Slightly darker and more greenish towards top of section.
STRUCTURE: Flow banding in Pieces 6–12, with dips of 8–15 degrees.
ALTERATION: Moderate to strong in Pieces 1–5; slight in Pieces 6–12.
VEINS/FRACTURES: One calcite-filled, 1–2-mm-wide vein dipping 20 degrees in Piece 1.

152-918D-102R-1

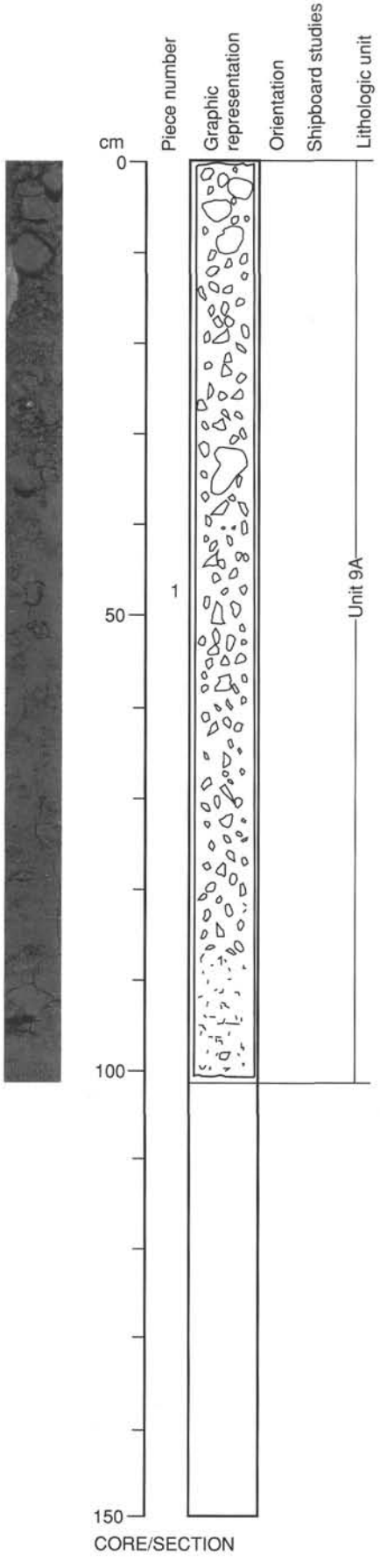


UNIT 8B: APHYRIC BASALT

Pieces 1–10

CONTACTS: No contacts preserved.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 0–20%; <1–2 mm; spheroidal; only in Pieces 1–7A; in 1–5 cm bands separated by 1-cm-wide vesicle-free bands; filled with dark green clay; a few filled with intergrown calcite and clay.
COLOR: Dark gray (N 4/0).
STRUCTURE: Flow banding defined by vesicles in upper half of section and by streaky groundmass in lower half of section; dips 5–10 degrees.
ALTERATION: Slight to moderate.
VEINS/FRACTURES: 1%; 0.5–2.0 mm; irregular, near-horizontal; filled with dark green clay; native copper in small fractures.

152-918D-102R-2

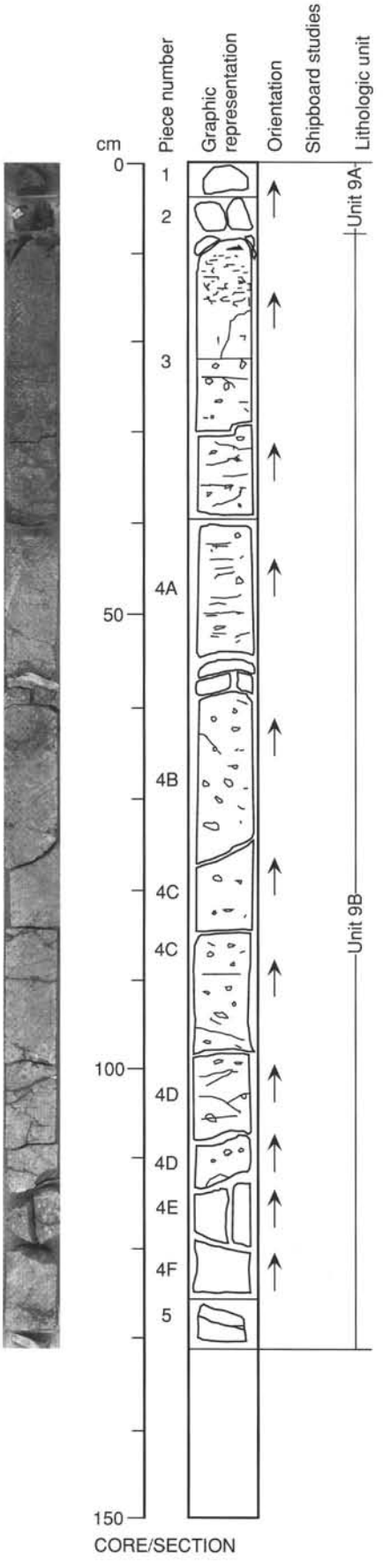


UNIT 9A: ALTERED BASALT BRECCIA

Piece 1

CONTACTS: Contacts with Units 8B and 9B are not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic to glassy.
VESICLES: Vesicles in clasts are <1–2 mm wide with thin linings of clay.
COLOR: Olive black (5Y 2/1) at top to very dusky red (10R 2.5/2) at base of section.
STRUCTURE: Brecciated; vesicular clasts of devitrified glass 1–30 mm across; matrix of clay (after glass?) and small shards.
ALTERATION: Complete. The section consists mainly of clay.
ADDITIONAL COMMENTS: The section is very muddy, broken up, and disturbed by the drilling.

152-918D-103R-1



UNIT 9A: ALTERED BASALT BRECCIA

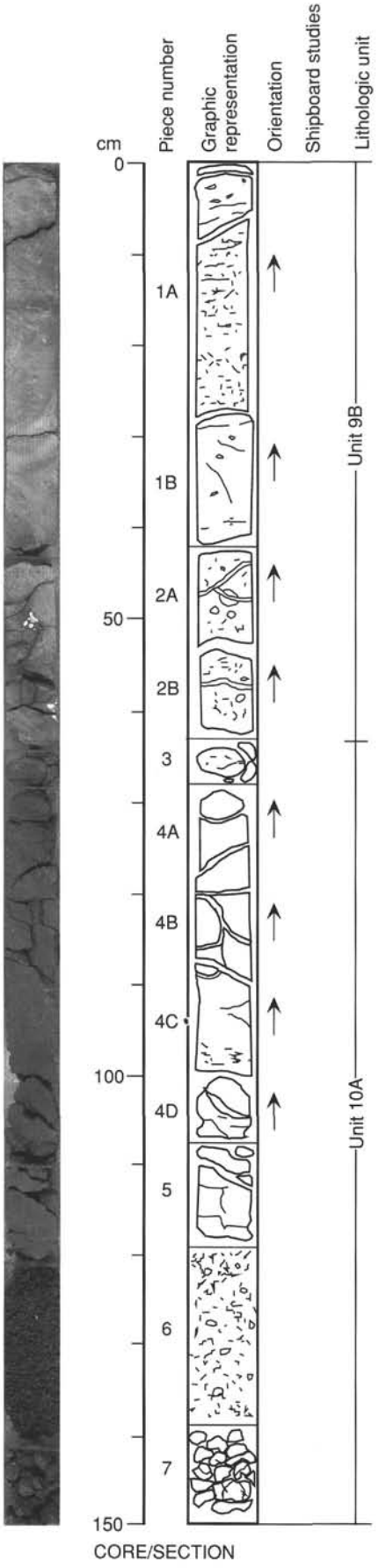
Pieces 1–2

CONTACTS: Contact not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Glassy, devitrified.
VESICLES: None.
COLOR: Very dusky red (10R 2/2).
STRUCTURE: Small pieces of hyaloclastite breccia composed of angular clasts, up to 20 mm.
ALTERATION: Complete.
VEINS/FRACTURES: None.

UNIT 9B: APHYRIC BASALT

Pieces 3–5

CONTACTS: Contact not preserved, but the rock is darker colored at top of Piece 3.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 2%–5%; up to 6 mm; spherical; filled with green clay or calcite.
COLOR: Dark gray (N 3/0) with greenish tinge.
STRUCTURE: Faint flow banding below 75 cm.
ALTERATION: Moderate.
VEINS/FRACTURES: 1%; up to 8 mm; inclined 10–20 degrees; filled with calcite and green clays; sporadic small flecks of native copper.



152-918D-103R-2

UNIT 9B: APHYRIC BASALT

Pieces 1A–2B

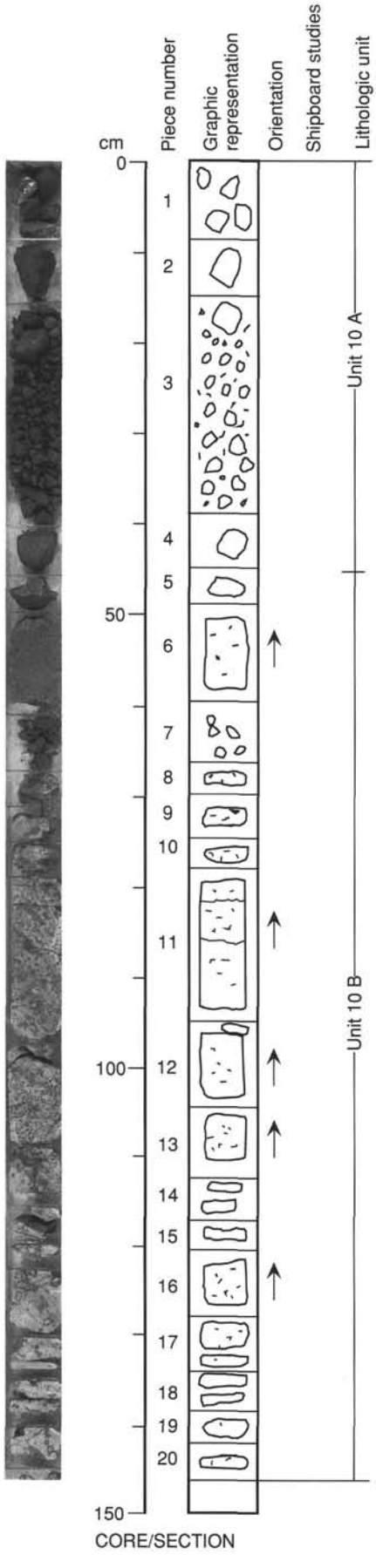
CONTACTS: Contact not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 2%–20%; up to 5 mm; spherical to irregular; in patches; smaller spherical vesicles filled with green clay, larger irregular ones with calcite.
COLOR: Greenish black (5G 2/1).
STRUCTURE: Faint flow banding in top 8 cm.
ALTERATION: Moderate.
VEINS/FRACTURES: <1%; up to 2 mm; inclined 10–30 degrees; filled with calcite and green clays.

UNIT 10A: ALTERED BASALT BRECCIA

Pieces 3–7

CONTACTS: Contact not preserved.
PHENOCRYSTS: None.
GROUNDMASS: Glassy, devitrified.
VESICLES: 0–20%; up to 2 mm; spherical to irregular; some clasts have vesicles filled with calcite and green clay.
COLOR: Very dusky red (10R 2/2).
STRUCTURE: Breccia; Pieces 3–5 are coherent, Pieces 6 and 7 are broken to gravel by drilling.
ALTERATION: Complete; grains of native copper at 96–101 cm.
VEINS/FRACTURES: None.

152-918D-104R-1



UNIT 10A: ALTERED BASALT BRECCIA

Pieces 1–4

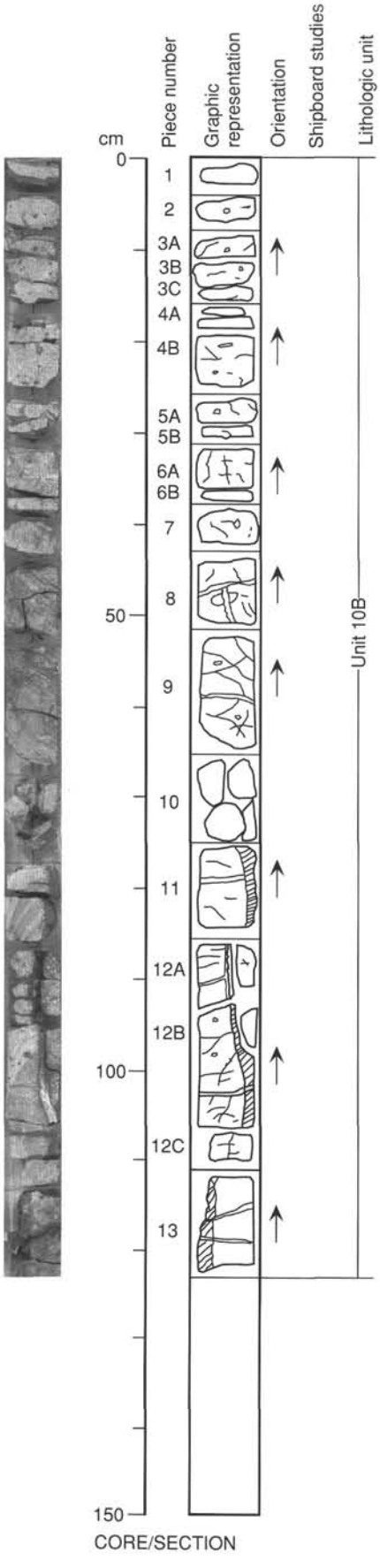
CONTACTS: None preserved.
PHENOCRYSTS: None.
GROUNDMASS: Glassy, devitrified.
VESICLES: 0–20%; <1 mm; irregular; some clasts have clay-filled vesicles, some have no vesicles.
COLOR: Very dusky red (10R 2/2) to black (N 1/0).
STRUCTURE: Breccia with clasts up to 5 cm across.
VEINS/FRACTURES: <<1%; up to 0.5 mm; some clasts have small calcite-filled veins.

UNIT 10B: APHYRIC BASALT

Pieces 5–20

CONTACTS: None preserved but Piece 5 may be close to top of unit.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 10%–30%; up to 8 mm; spherical to irregular; filled with green clay and some calcite.
COLOR: Greenish black (5G 2/1).
STRUCTURE: Massive.
ALTERATION: Moderate.
VEINS/FRACTURES: <<1%; up to 5 mm; inclined 10–20 degrees; filled with green clay and calcite.

152-918D-104R-2

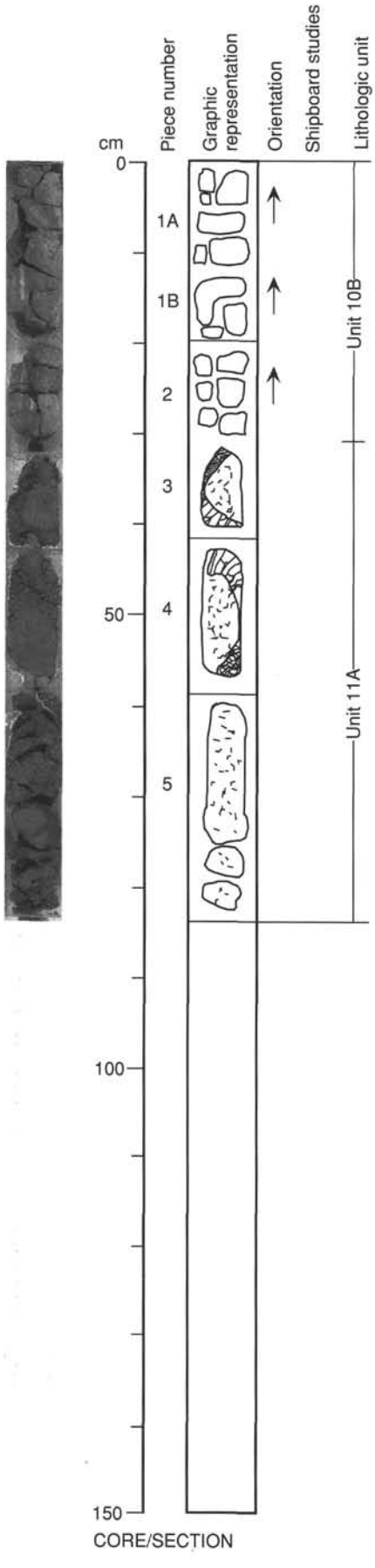


UNIT 10B: APHYRIC BASALT

Pieces 1–13

PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 5%; up to 6 mm; spherical; filled with green clay.
COLOR: Greenish black (5G 2/1).
STRUCTURE: Massive.
ALTERATION: Moderate.
VEINS/FRACTURES: 1%; up to 10 mm; random orientation; mostly small and filled with green clay; a single, large, vertical vein in Pieces 11–13 filled with hyaloclastite breccia, green clay, and calcite; host rock reddened at vein margins.

152-918D-104R-3



UNIT 10B: APHYRIC BASALT

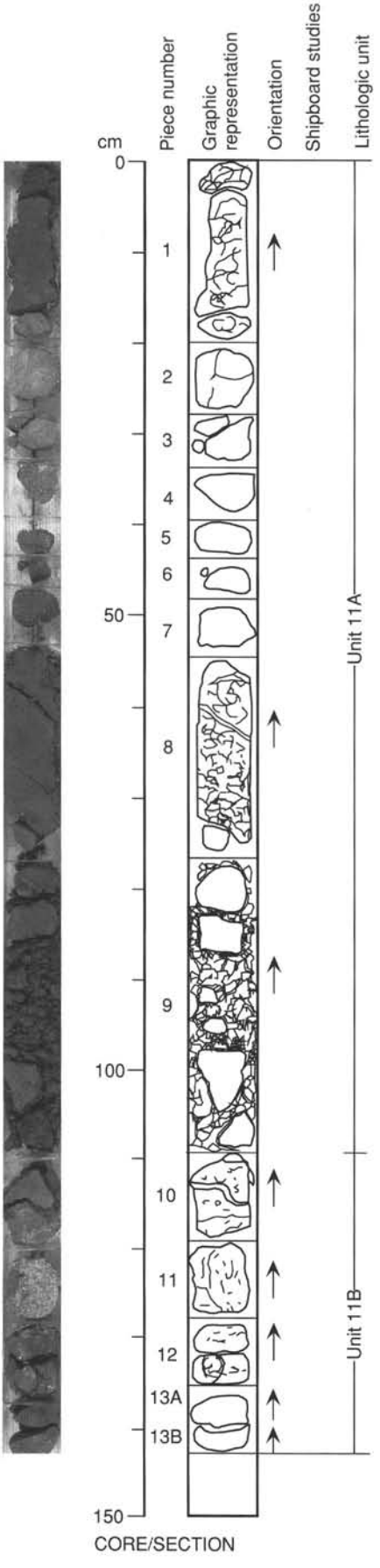
Pieces 1A–2

CONTACTS: None preserved but Piece 2 is close to base of unit.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic to glassy, devitrified.
VESICLES: 5%; up to 5 mm; spherical; filled with green clay.
COLOR: Black (N 1/0).
STRUCTURE: Massive.
ALTERATION: Moderate to strong.
VEINS/FRACTURES: 3%; up to 5 mm; vertical; small calcite-filled veins and a single large vein in both pieces filled with green clay, calcite, and some native copper; host rock reddened at vein margins.

UNIT 11A: ALTERED BASALT BRECCIA

Pieces 3–5

CONTACTS: None preserved.
PHENOCRYSTS: None.
GROUNDMASS: Glassy, devitrified.
VESICLES: 0–20%; up to 1 mm; spherical; some clasts have clay-filled vesicles, some have no vesicles.
COLOR: Blackish red (5R 2/2).
STRUCTURE: Breccia with clasts up to 20 mm across.
ALTERATION: Complete.
VEINS/FRACTURES: None.



152-918D-105R-1

UNIT 11A: ALTERED BASALT BRECCIA

Pieces 1–9

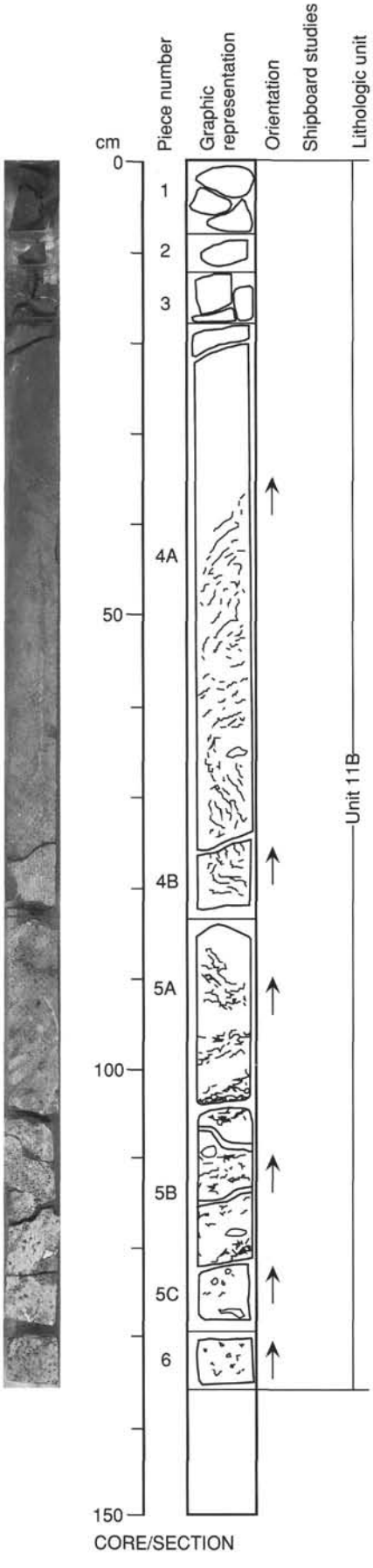
CONTACTS: None preserved but must be between Pieces 9 and 10.
PHENOCRYSTS: None.
GROUNDMASS: Glassy; devitrified.
VESICLES: 5%–20%; up to 2 mm; irregular; clasts generally have vesicles lined or filled with clay and calcite.
COLOR: Brownish black (5YR 2/1).
STRUCTURE: Breccia with clasts up to 5 cm across.
ALTERATION: Complete.
VEINS/FRACTURES: <<1%; up to 0.5 mm; random orientation; two irregular, calcite-filled veins in Piece 2.

UNIT 11B: APHYRIC BASALT

Pieces 10–13B

CONTACTS: None preserved but Piece 10 must be close to contact with Unit 11A.
PHENOCRYSTS: None.
GROUNDMASS: Glassy and devitrified to aphanitic.
VESICLES: 1%–10%; up to 2 mm; irregular; in patches; filled with green clay and calcite.
COLOR: Brownish black (5YR 2/1).
STRUCTURE: Glassy top of flow.
ALTERATION: Moderate to complete.
VEINS/FRACTURES: 1%; up to 1 mm; random orientation; filled with calcite.

152-918D-105R-2

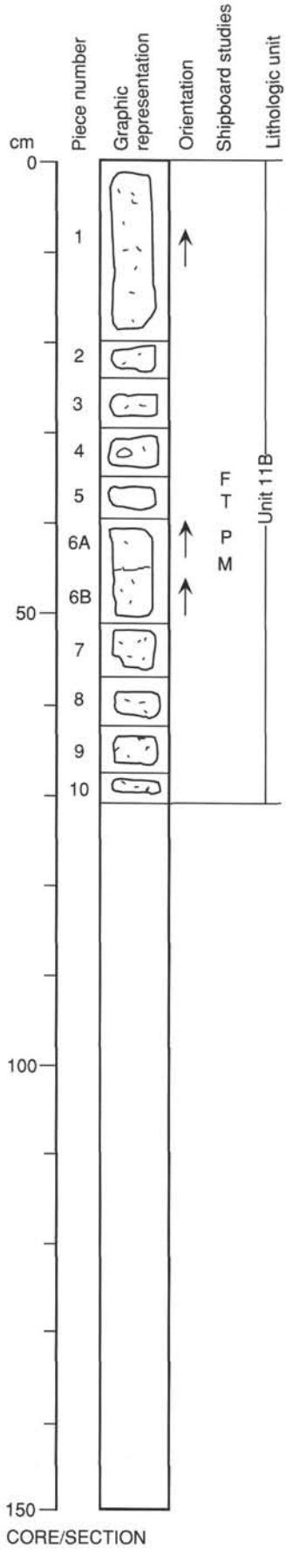


UNIT 11B: APHYRIC BASALT

Pieces 1–6

PHENOCRYSTS: None.
GROUNDMASS: Glassy and devitrified in Piece 1; aphanitic in rest of section.
VESICLES: 5%–20%; up to 10 mm; irregular; in patches; filled with green clay and calcite; flow-aligned between 50 and 100 cm.
COLOR: Dark greenish gray (5GY 6/1); black (N 1/0) in Piece 1.
STRUCTURE: Massive.
ALTERATION: Moderate.
VEINS/FRACTURES: <<1%; up to 1 mm; gently inclined; a few calcite-filled veins in Pieces 2 and 3.

152-918D-105R-3

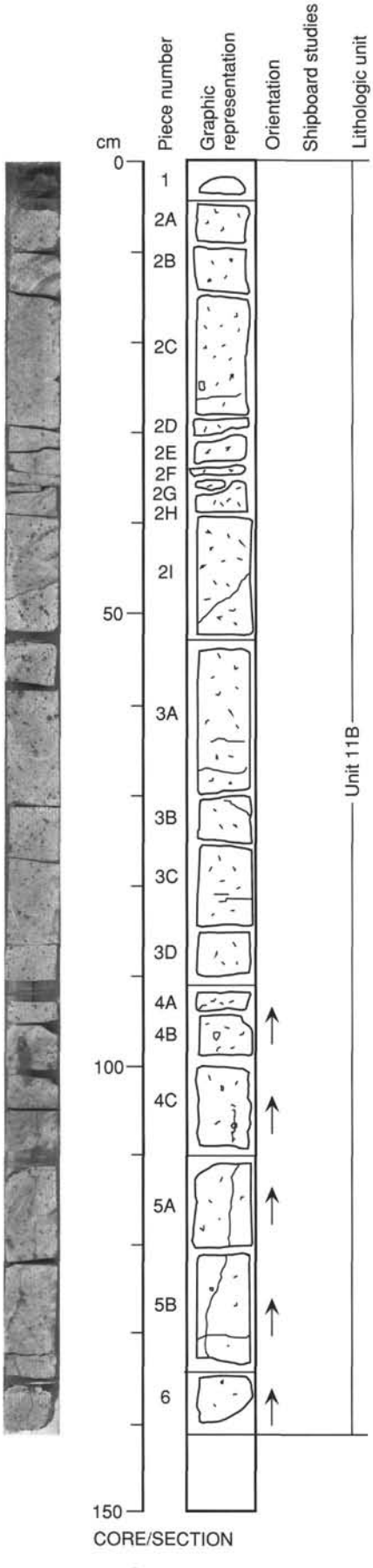


UNIT 11B: APHYRIC BASALT

Pieces 1–10

PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 15%–20%; smaller vesicles filled with green clay; occasional large ones with calcite.
COLOR: Dark greenish gray (5BG 4/1).
STRUCTURE: Massive.
ALTERATION: Moderate, specks of native copper in groundmass.
VEINS/FRACTURES: None.

152-918D-106R-1

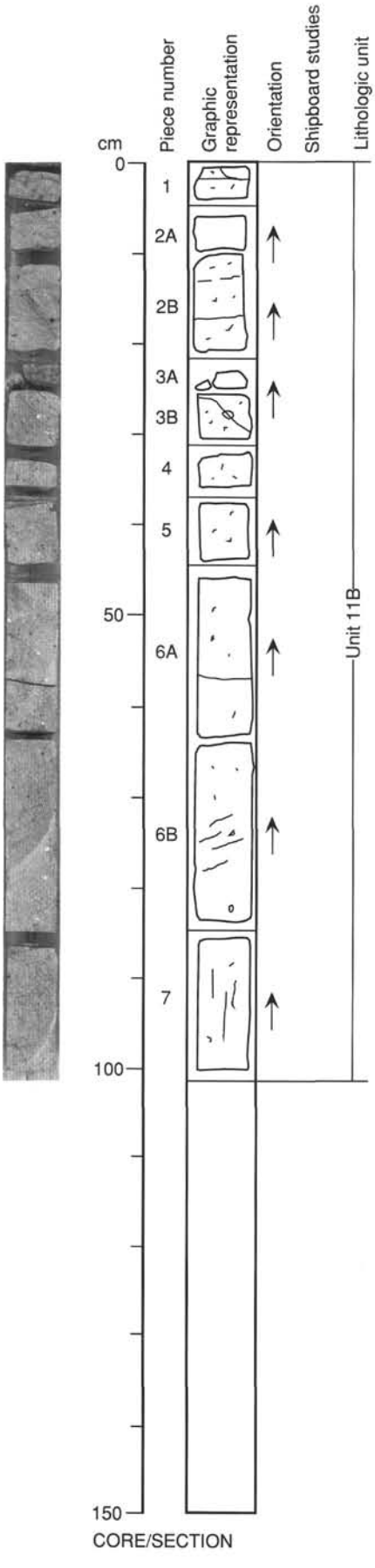


UNIT 11B: APHYRIC BASALT

Pieces 1–6

PHENOCRYSTS: None.
GROUNDMASS: Fine-grained.
VESICLES: 5%–10%; 0.5–5 mm; spherical; disseminated; lined and filled with successive generations of dark and light green clay. Frequent specks of native copper.
COLOR: Dark gray (10Y 4/1) with a greenish tinge.
STRUCTURE: Massive.
ALTERATION: Moderate. Specks of native copper in groundmass.
VEINS/FRACTURES: <<1%; hair-thin; horizontal; filled with white clay. Piece 2C has at the back side a 2-cm-wide, steeply inclined vein lined with calcite and filled with white opal-like silica.

152-918D-106R-2

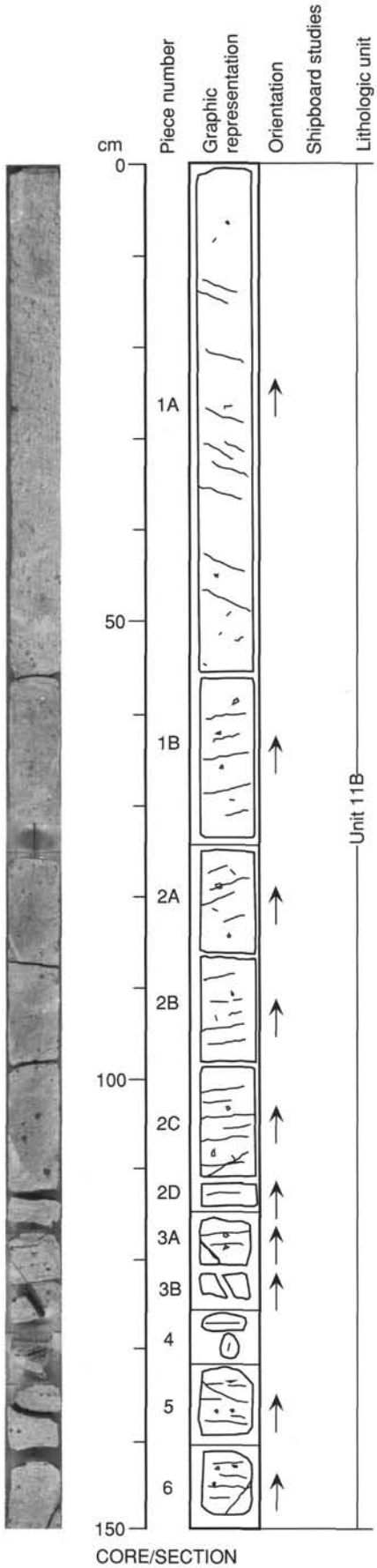


UNIT 11B: APHYRIC BASALT

Pieces 1–7

PHENOCRYSTS: None.
GROUNDMASS: Fine-grained.
VESICLES: 2%–5%; 0.5–7 mm; spherical; scattered; lined and filled with successive generations of dark and light green clay; larger ones filled with calcite.
COLOR: Dark gray (10Y 4/1) with a greenish tinge.
STRUCTURE: Faint irregular flow banding dipping 20–30 degrees.
ALTERATION: Moderate.
VEINS/FRACTURES: A few hair-thin horizontal fractures filled with white clay; Piece 3 has a 1-mm-wide irregular, inclined, calcite-filled vein.

152-918D-106R-3

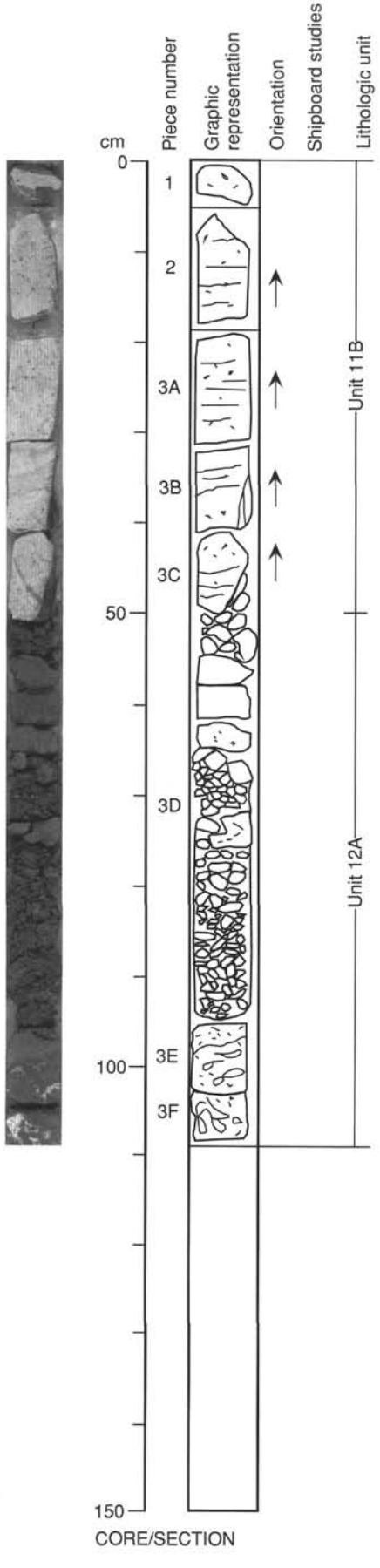


UNIT 11B: APHYRIC BASALT

Pieces 1A–6

PHENOCRYSTS: None.
GROUNDMASS: Fine-grained.
VESICLES: 0–5%; 1–6 mm; spherical; scattered; lined with dark green clay and filled with bright green clay; *a few are empty; a few specks of native copper.*
COLOR: Dark gray (10Y 4/1) with greenish tinge.
STRUCTURE: Faint, wispy flow banding dipping 10–20 degrees.
ALTERATION: Moderate; a few specks of native copper in the groundmass.

152-918D-106R-4



UNIT 11B: APHYRIC BASALT

Pieces 1–3C

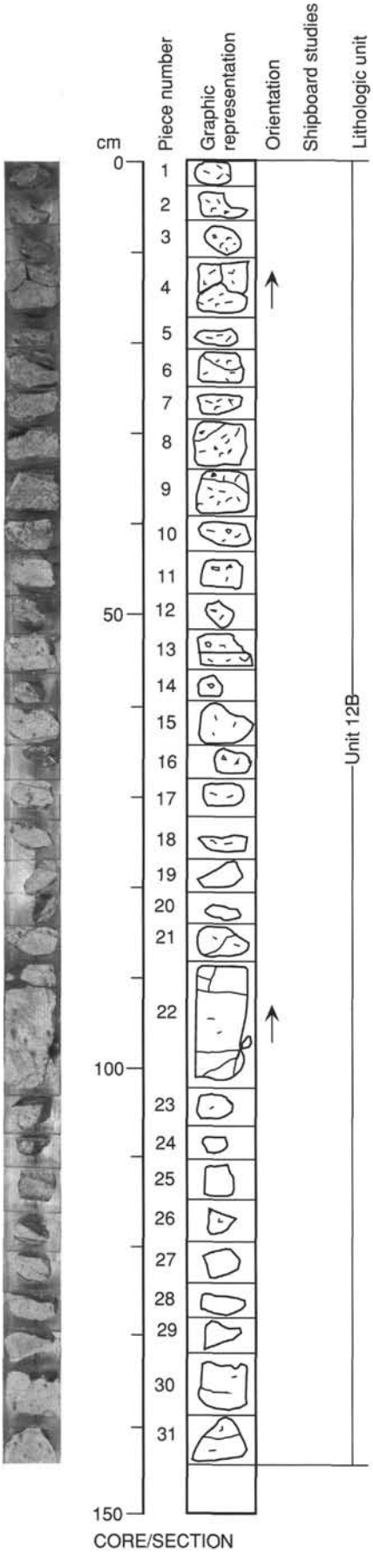
CONTACTS: Contact to underlying Unit 12A at 51 cm is disturbed by drilling but appears to be close to the base of the flow. Small brick-red clasts of oxidized material seen in the lower 20 cm of Unit 11B were probably picked up from the underlying Unit 12A.
PHENOCRYSTS: None.
GROUNDMASS: Fine-grained.
VESICLES: 5%; 0.5–2 mm; spherical; scattered; lined with dark green clay and filled with light green clay; specks of native copper.
COLOR: Dark gray (10Y 4/1) with greenish tinge.
STRUCTURE: Faint flow banding dipping 0–10 degrees.
ALTERATION: Moderate; specks of native copper in the groundmass.
VEINS/FRACTURES: One near-vertical, clay-filled, thin fracture splits Pieces 3B and 3C.

UNIT 12A: ALTERED BASALT BRECCIA

Pieces 3D–3F

CONTACTS: The upper contact at 51 cm is disturbed by drilling but is close to the original contact.
PHENOCRYSTS: None.
GROUNDMASS: Devitrified.
VESICLES: 10%–20%; 0.1 mm; spherical to irregular; disseminated in clasts; filled with white and green clay.
COLOR: Very dusky red (5R 2.5/2) at top grading to dusky red (2.5YR 3/2) at bottom.
STRUCTURE: Brecciated, with scoria-like clasts up to 1 cm across in red clay matrix.
ALTERATION: Complete; most of the material is clay; 1-mm-wide flakes of native copper at 60 cm.
VEINS/FRACTURES: Pieces 3E and 3F have 0.5–1-mm-wide, irregular, wispy, near-horizontal veins filled with light greenish clay, which seem to form part of the breccia matrix.
ADDITIONAL COMMENTS: Piece 3D is heavily disturbed by the drilling.

152-918D-107R-1

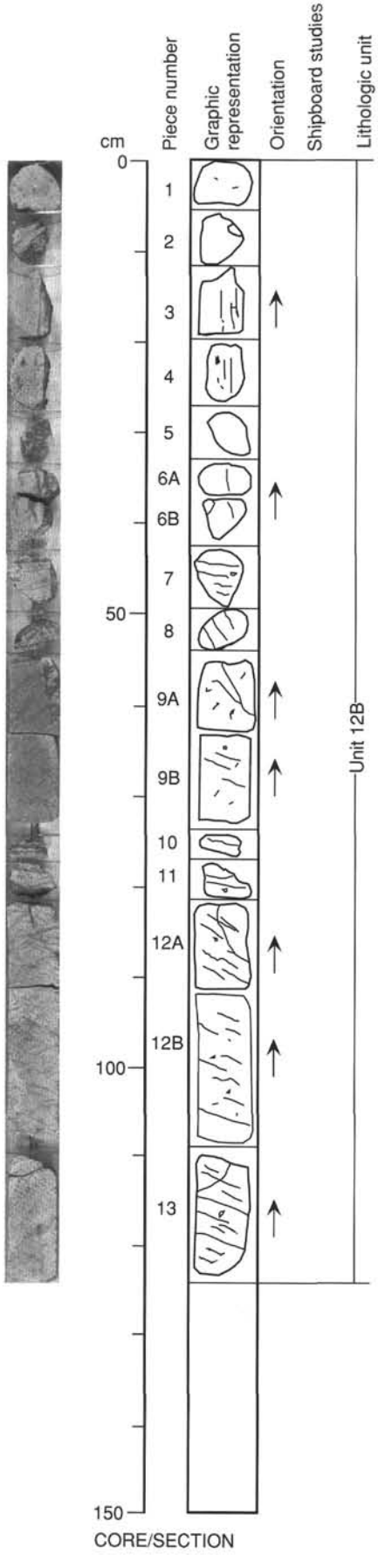


UNIT 12B: APHYRIC BASALT

Pieces 1–31

CONTACTS: Contact to Unit 12A not exposed.
PHENOCRYSTS: Very few microphenocrysts of plagioclase observed.
GROUNDMASS: Fine-grained to aphanitic.
VESICLES: 1%–10%; 1–8 mm; irregular shape; 10% in Pieces 1–10, diminishing in frequency downward to 1% in Pieces 25–31; thin linings of dark green clay and fillings of light green clay; a few large vesicles have empty centers; scattered specks of native copper.
COLOR: Dark gray (10Y 4/1) with a greenish tinge.
ALTERATION: Moderate.
VEINS/FRACTURES: Very few hair-thin, near-horizontal fractures filled with white clay.

152-918D-107R-2

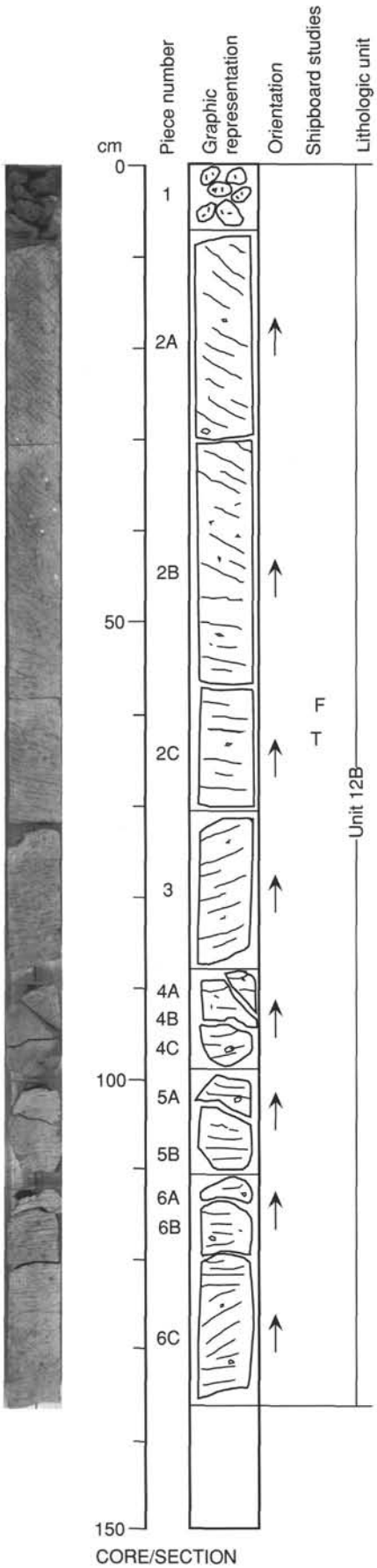


UNIT 12B: APHYRIC BASALT

Pieces 1–13

PHENOCRYSTS: None.
GROUNDMASS: Fine-grained.
VESICLES: 0–5%; 1–10 mm; ovoid; scattered; lined with dark green clay and filled with light green clay.
COLOR: Dark gray (10Y 4/1) with a greenish tinge.
STRUCTURE: Wispy flow banding defined by dark irregular streaks in the groundmass, dipping 10–25 degrees, mostly in Pieces 9–13.
ALTERATION: Moderate to slight; a few specks of native copper in the groundmass.
VEINS/FRACTURES: A steep, 1–2-mm-wide fracture filled with green clay cuts Pieces 3, 4, 6, and 9.

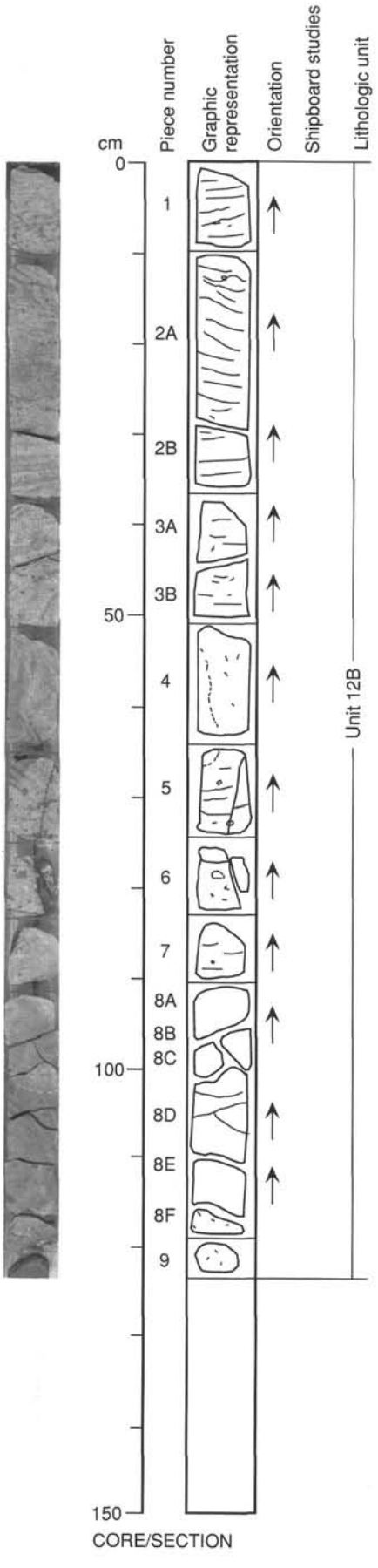
152-918D-108R-1



UNIT 12B: APHYRIC BASALT

Pieces 1–6C

PHENOCRYSTS: None.
GROUNDMASS: Fine-grained.
VESICLES: 2%; 1–7 mm; spherical; scattered; some lined with dark green clay and filled with light green clay; others filled with calcite.
COLOR: Dark gray (10Y 4/1) with a greenish tinge.
STRUCTURE: Wispy flow banding dipping 10–20 degrees.
ALTERATION: Slight.
VEINS/FRACTURES: One 2-mm-wide fracture in Pieces 4A–4B; filled with light green clay and dipping 60 degrees.
ADDITIONAL COMMENTS: Piece 1 consists of drilling rubble.



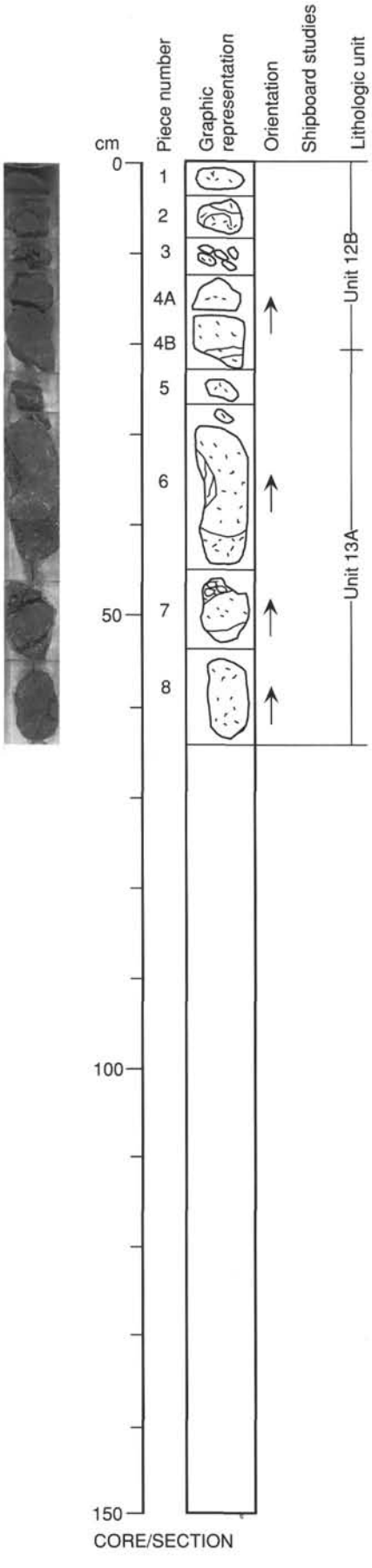
152-918D-108R-2

UNIT 12B: APHYRIC BASALT

Pieces 1–9

CONTACTS: Decreasing grain size and darkening color through Pieces 8–9 suggest base of flow is near bottom of section.
PHENOCRYSTS: None.
GROUNDMASS: Fine-grained in Pieces 1–7, decreasing to aphanitic through Pieces 8–9.
VESICLES: 0–5%; 1–3 mm; spherical; scattered; lined with dark green clay and filled with light green clay; a few specks of native copper in Piece 5; Piece 8 is nearly vesicle free.
COLOR: Dark gray (10Y 4/1) with a greenish tinge. Black (5Y 4/1) in Piece 9.
STRUCTURE: Irregular flow banding that dips 0–10 degrees in Pieces 1–3 and 5–7; Piece 4 shows no consistent banding; Pieces 8–9 are homogeneous.
ALTERATION: Slight.
VEINS/FRACTURES: One 0.5-mm-wide, near-vertical, curved fracture filled with green clay in Pieces 5–6.

152-918D-108R-3



UNIT 12B: OXIDIZED BASALT

Pieces 1–4B

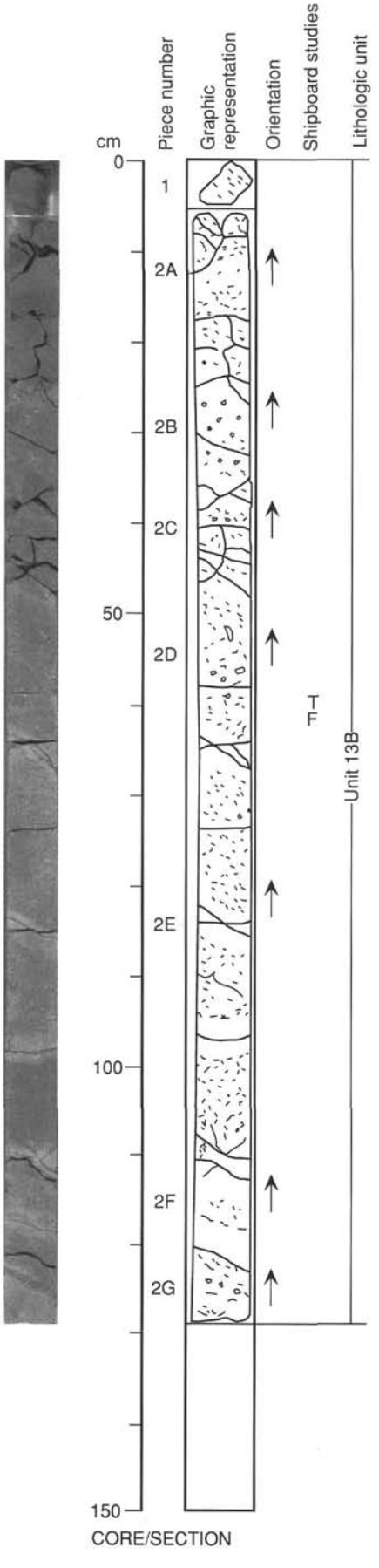
CONTACTS: The contact to the underlying Unit 13A is well preserved in Piece 4B at 20 cm.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 10%; 0.1–1 mm; irregular shapes; filled with greenish white clay; vesicle size decreases downward from 1 mm in Piece 1 to very tiny close to the contact in Piece 4B.
COLOR: Very dusky red (2.5YR 2.5/2).
STRUCTURE: Massive, not brecciated.
ALTERATION: Complete.
VEINS/FRACTURES: None.

UNIT 13A: ALTERED BASALT BRECCIA

Pieces 4B–8

CONTACTS: The contact with the overlying Unit 12B is well preserved in Piece 4B. The top of Unit 13A is brick red in a 1-cm-wide zone at the contact.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 5%; 0.5–1 mm; irregular; scattered; filled with calcite.
COLOR: Dusky red, variable between 10R 3/4 and 10R 3/2. Mottled due to greenish white clay in matrix.
STRUCTURE: Flow-brecciated with lots of <1-mm- to 1-cm-wide, angular to very irregular, brick-red shards and clasts in a greenish gray matrix.
ALTERATION: Complete.
VEINS/FRACTURES: None.

152-918D-109R-1

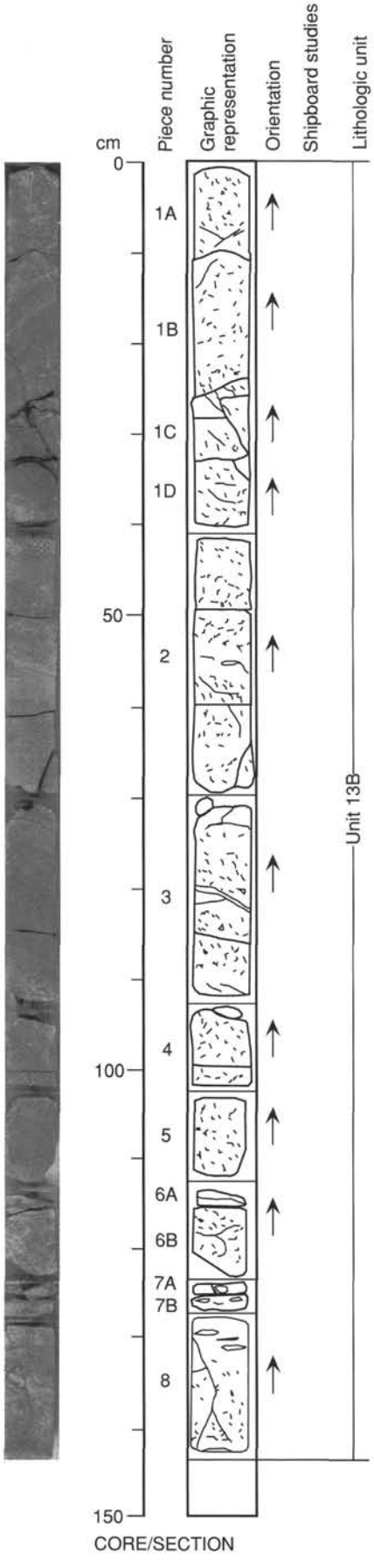


UNIT 13B: APHYRIC BASALT

Pieces 1–2G

CONTACTS: None preserved; concentration of small vesicles in Piece 2A.
PHENOCRYSTS: None.
GROUNDMASS: Fine-grained; 1% of 0.5-mm-wide oxidized olivine crystals.
VESICLES: 5%–30%; up to 5 mm; irregular; in patches; filled with green clay; larger ones with calcite in center; flecks of native copper on edges of vesicles.
COLOR: Dark greenish gray (5G 4/1).
STRUCTURE: Massive.
ALTERATION: Strong.
VEINS/FRACTURES: 1%; up to 2 mm; horizontal to inclined; filled with green clay.

152-918D-109R-2

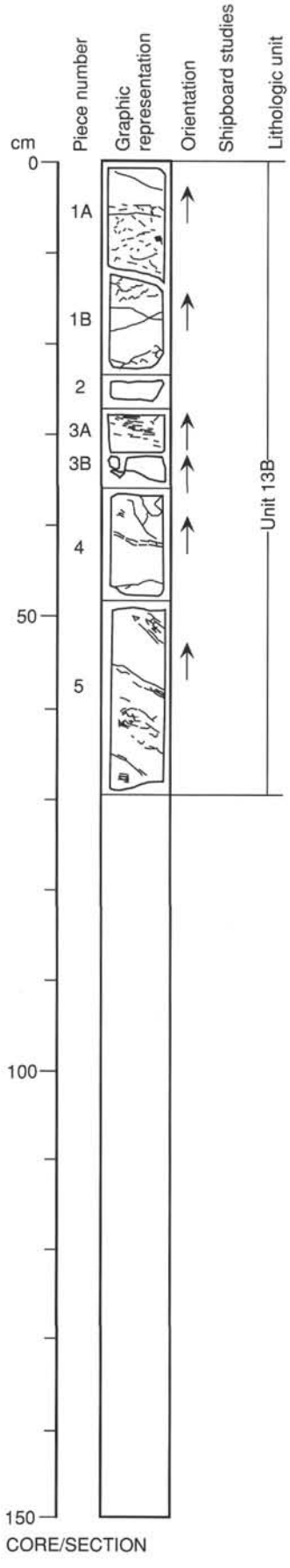


UNIT 13B: APHYRIC BASALT

Pieces 1A–8

PHENOCRYSTS: None.
GROUNDMASS: Fine-grained; 1% of 0.5-mm-wide oxidized olivine crystals.
VESICLES: 5%–30%; up to 2 mm; irregular; in patches; filled with green clay.
COLOR: Dark greenish gray (5G 4/1).
STRUCTURE: Massive.
ALTERATION: Strong; flecks of native copper in groundmass.
VEINS/FRACTURES: 1%; up to 3 mm; horizontal to inclined; filled with green clay; blebs of native copper in Pieces 1C and 3.

152-918D-109R-3

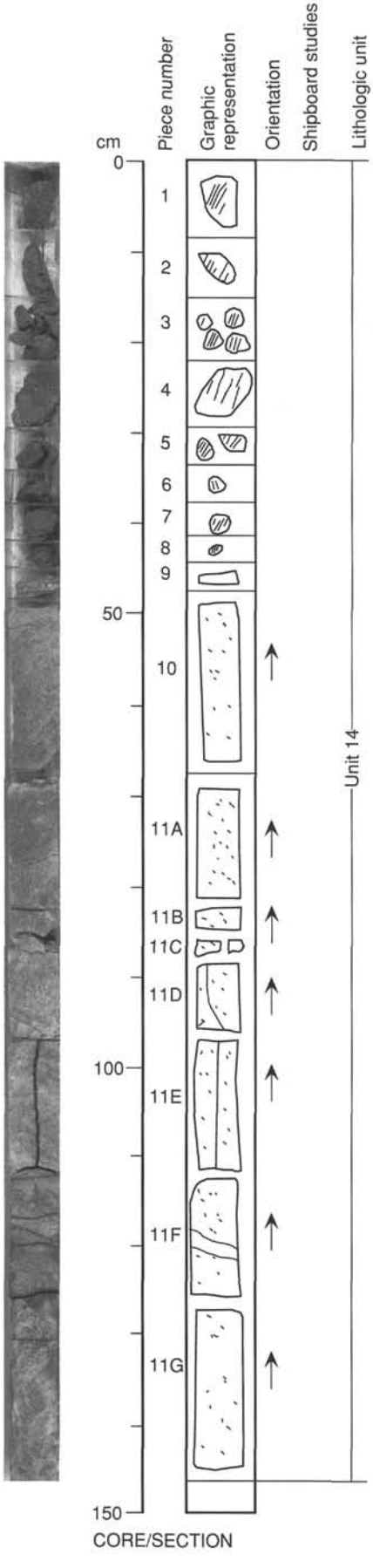


UNIT 13B: APHYRIC BASALT

Pieces 1A–5

PHENOCRYSTS: None.
GROUNDMASS: Fine-grained; 1% of 0.5-mm-wide oxidized olivine crystals.
VESICLES: 5%–30%; up to 5 mm; irregular; in patches; filled with green clay; flecks of native copper.
COLOR: Greenish gray (5GY 5/1).
STRUCTURE: Massive.
ALTERATION: Strong.
VEINS/FRACTURES: 1%; up to 2 mm; horizontal to inclined; filled with green clay.

52-918D-110R-1

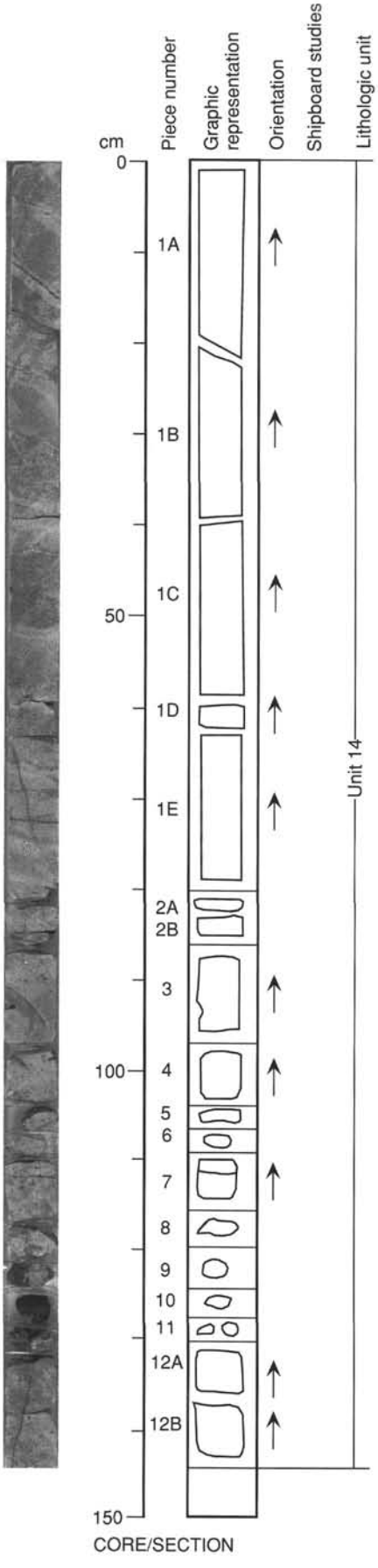


UNIT 14: APHYRIC BASALT

Pieces 1–11G

CONTACTS: None preserved, but Pieces 1–8 are part of oxidized flow top.
PHENOCRYSTS: None, but groundmass contains about 2% of <0.5-mm-wide olivine crystals.
GROUNDMASS: Aphanitic (Pieces 1–9) to fine-grained (Pieces 10–11).
VESICLES: 5%–30%; up to 3 mm; irregular; in patches; filled with green clay.
COLOR: Blackish red (5R 2/2; Pieces 1–8) to dark gray (N 3/0) with a greenish tinge (Pieces 9–11).
STRUCTURE: Vesicular flow top in Pieces 1–8 to massive in Pieces 9–11.
ALTERATION: Complete (Pieces 1–8) to moderate (Pieces 9–11); some tiny flecks of native copper visible in groundmass.
VEINS/FRACTURES: <1%; up to 2 mm; mostly gently inclined or vertical; filled with green clay; some flecks of native copper.

152-918D-110R-2

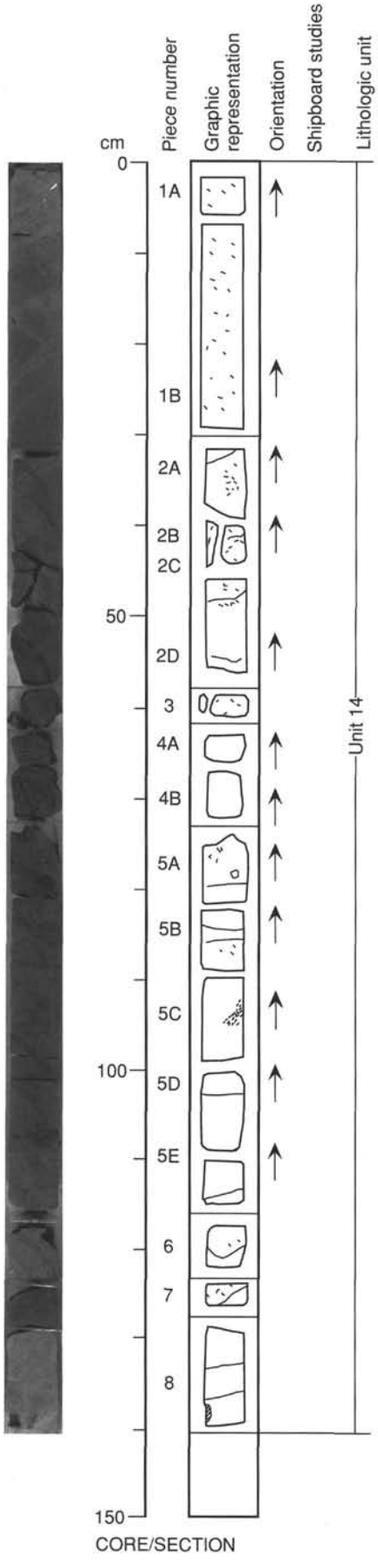


UNIT 14: APHYRIC BASALT

Pieces 1A–12B

PHENOCRYSTS: None, but groundmass contains about 2% of <0.5-mm-wide olivine crystals.
GROUNDMASS: Fine-grained.
VESICLES: 5%–30%; mostly up to 5 mm; spherical to irregular; in patches; filled with green clay, larger ones with calcite; some tiny flecks of native copper; 10-mm-wide, clay-lined vesicle in Piece 3.
COLOR: Dark gray (N 3/0) with a greenish tinge.
STRUCTURE: Massive.
ALTERATION: Slight to moderate.
VEINS/FRACTURES: 1%; up to 2 mm; variable orientation; filled with green clay; some flecks of native copper.

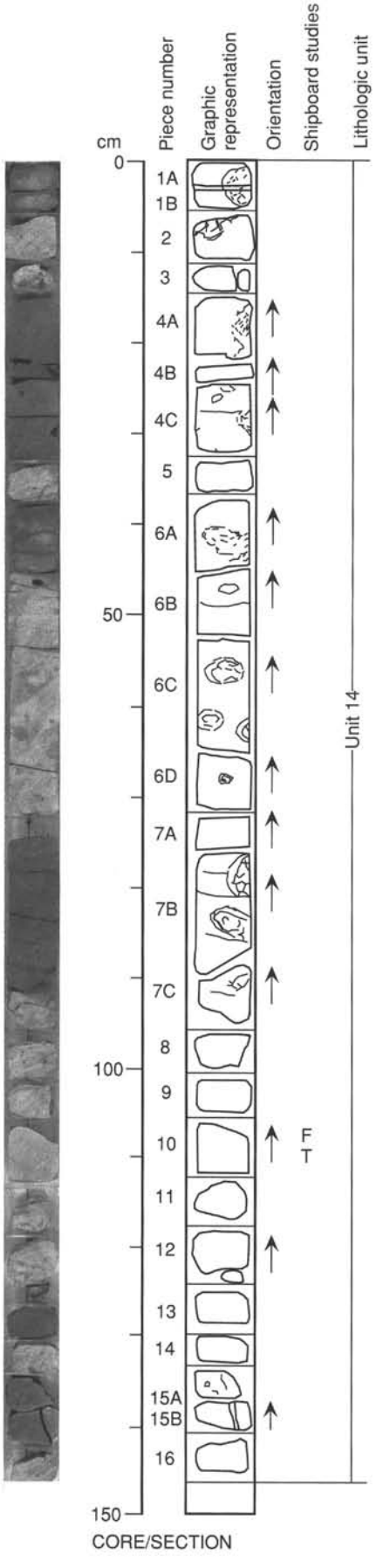
152-918D-110R-3



UNIT 14: APHYRIC BASALT

Pieces 1A–8

PHENOCRYSTS: None, but groundmass contains about 2% of <0.5-mm-wide olivine crystals.
GROUNDMASS: Fine-grained.
VESICLES: 0–30%; mostly up to 3 mm; irregular; in patches; filled with green clay; some tiny flecks of native copper; 10-mm-wide clay-lined vesicle in Piece 8.
COLOR: Dark gray (N 3/0); greenish tinge less pronounced than in Sections 1 and 2.
STRUCTURE: Massive.
ALTERATION: Slight.
VEINS/FRACTURES: <1%; up to 0.5 mm; variable orientation; filled with green clay.



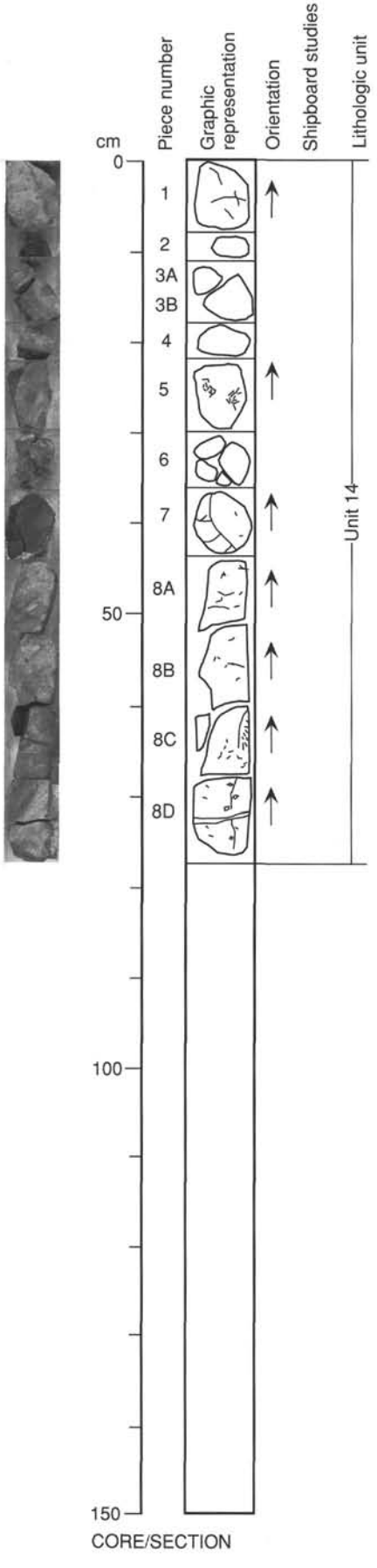
152-918D-110R-4

UNIT 14: APHYRIC BASALT

Pieces 1A–16

PHENOCRYSTS: None, but groundmass contains about 2% of <0.5-mm-wide olivine crystals.
GROUNDMASS: Fine-grained.
VESICLES: 0–30%; up to 10 mm; spherical to irregular; in patches; filled with green clay; some flecks of native copper.
COLOR: Dark gray (N 3/0).
STRUCTURE: Massive.
ALTERATION: Slight.
VEINS/FRACTURES: <<1%; <0.2 mm; near-horizontal; filled with green clay.

152-918D-110R-5

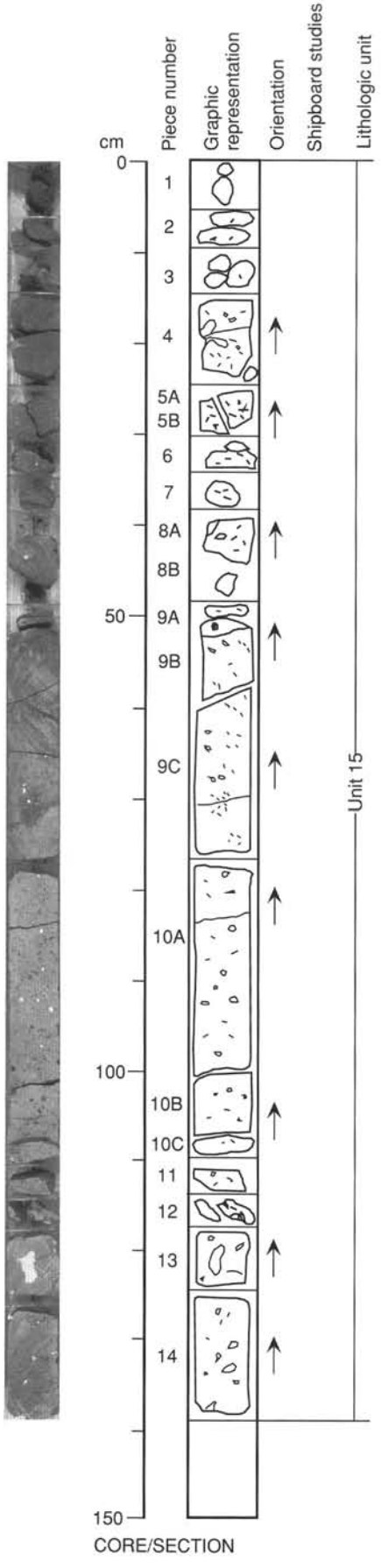


UNIT 14: APHYRIC BASALT

Pieces 1–8D

CONTACTS: None preserved, but groundmass becomes finer grained towards base of section.
PHENOCRYSTS: None, but groundmass contains about 2% of <0.5-mm-wide olivine crystals.
GROUNDMASS: Fine-grained (Piece 1) to aphanitic.
VESICLES: 50%–30%; up to 4 mm; spherical to irregular; in patches; filled with green clay.
COLOR: Dark gray (N 3/0).
STRUCTURE: Massive, probably close to flow-base.
ALTERATION: Moderate.
VEINS/FRACTURES: 1%; up to 2 mm; vertical; filled with green clay; blebs of native copper in Piece 3.

152-918D-111R-1

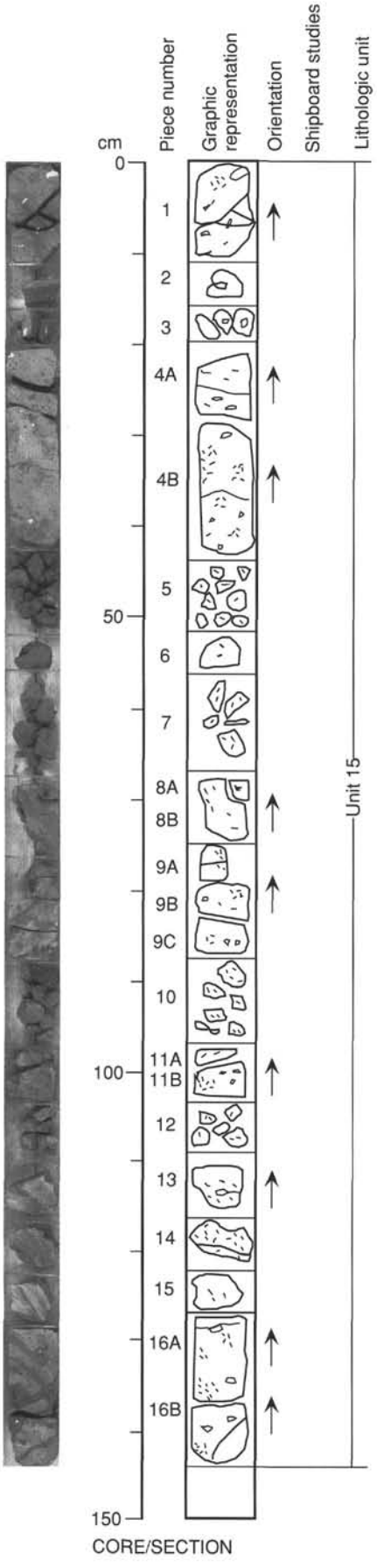


UNIT 15: APHYRIC BASALT

Pieces 1–14

CONTACTS: None, but top of section is aphanitic and reddened and must be close to a flow top. Piece 1 is brick red and clayey and may be either part of the flow top or drilling rubble.
PHENOCRYSTS: None, but the groundmass contains about 2% of <0.5-mm-wide olivine crystals.
GROUNDMASS: Aphanitic in Pieces 2–7, very fine-grained in Pieces 8–14.
VESICLES: 5%–20%; 1–10 mm; spherical to irregular; disseminated; 20% in Pieces 2–7, 5%–10% in Pieces 8–14; filled with light green clay; a few lined with green clay and filled with calcite; one 3-cm, irregular, calcite-filled vesicle in Piece 13.
COLOR: Dark reddish gray (10R 3/1) at top of section to dark gray (5YR 4/1) with a reddish tinge further down.
STRUCTURE: Scattered 1–3 cm, rounded segregation patches filled with tiny vesicles.
ALTERATION: Strong.
VEINS/FRACTURES: Piece 14 contains 0.5-mm-wide, horizontal veins filled with green clay.

152-918D-111R-2

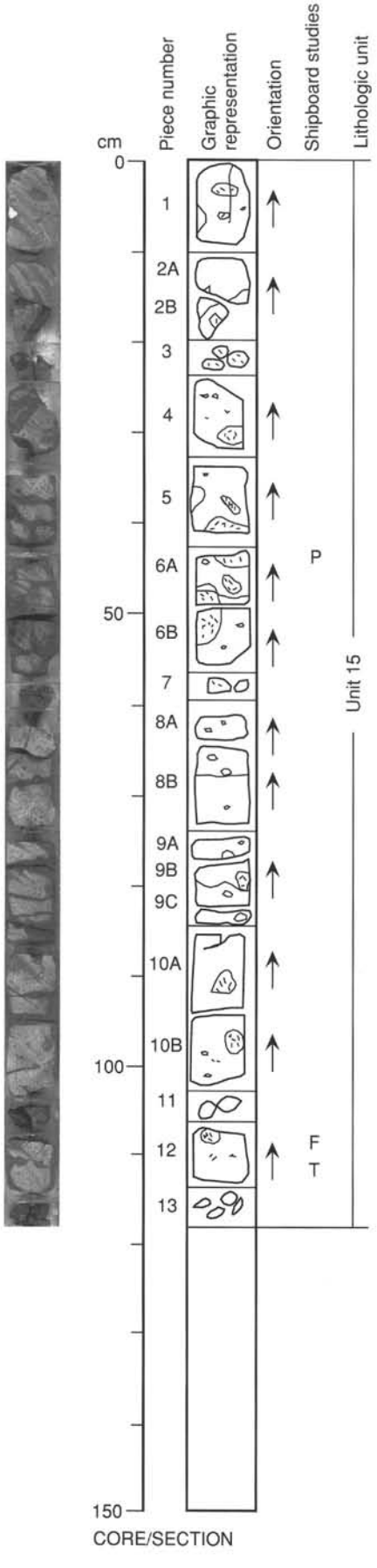


UNIT 15: APHYRIC BASALT

Pieces 1–16B

PHENOCRYSTS: None, but the groundmass contains about 2% of <0.5-mm-wide olivine crystals.
GROUNDMASS: Fine-grained.
VESICLES: 5%–10%; 1–10 mm; irregular; in patches; filled with light green clay; a few lined with clay and filled with calcite.
COLOR: Dark gray (5YR 4/1) with a reddish tinge at top of section to dark gray (10Y 4/1) further down.
STRUCTURE: Scattered, 1–4-cm-wide rounded segregation patches filled with small vesicles.
ALTERATION: Moderate.
VEINS/FRACTURES: A few 0.5–1-mm-wide, irregular, horizontal veins filled with green clay in Pieces 1 and 4.

152-918D-111R-3

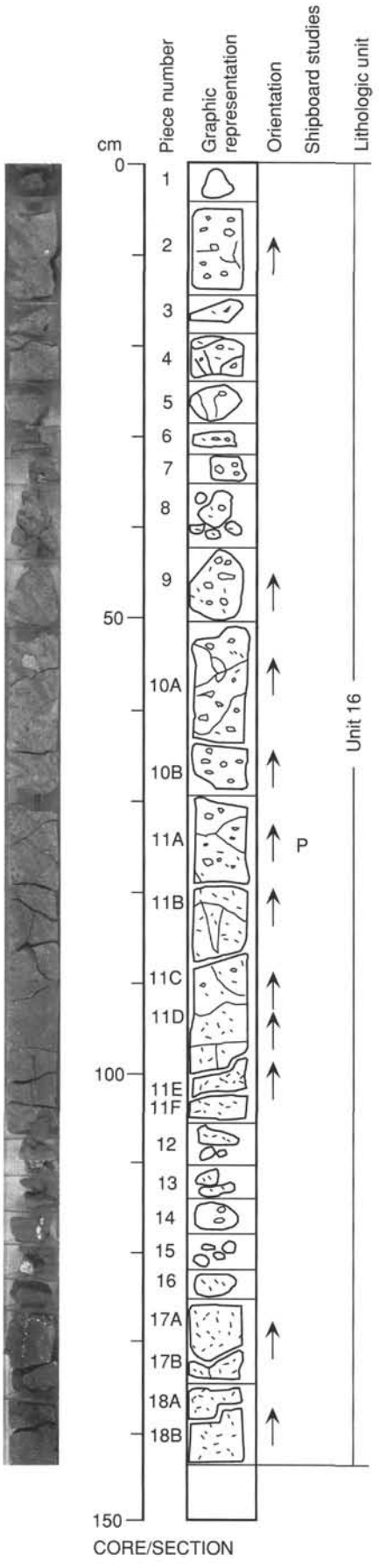


UNIT 15: APHYRIC BASALT

Pieces 1–13

PHENOCRYSTS: None, but the groundmass contains about 2% of <0.5-mm-wide olivine crystals.
GROUNDMASS: Fine-grained.
VESICLES: 0–5%; 1–7 mm; spherical to ovoid; scattered; filled with light green or blackish clay; a large vesicle in Piece 1 is filled with calcite; segregation patches have 20%–30%, up to 1-mm-wide, irregular vesicles filled with dark clay.
COLOR: Dark gray (10Y 4/1).
STRUCTURE: Scattered, 1–4-cm-across, rounded segregation patches filled with small vesicles.
ALTERATION: Moderate; segregation patches in Piece 6 show red oxidation.
VEINS/FRACTURES: Scattered 0.5 mm, irregular, near-horizontal veins filled with dark green clay.

152-918D-112R-1

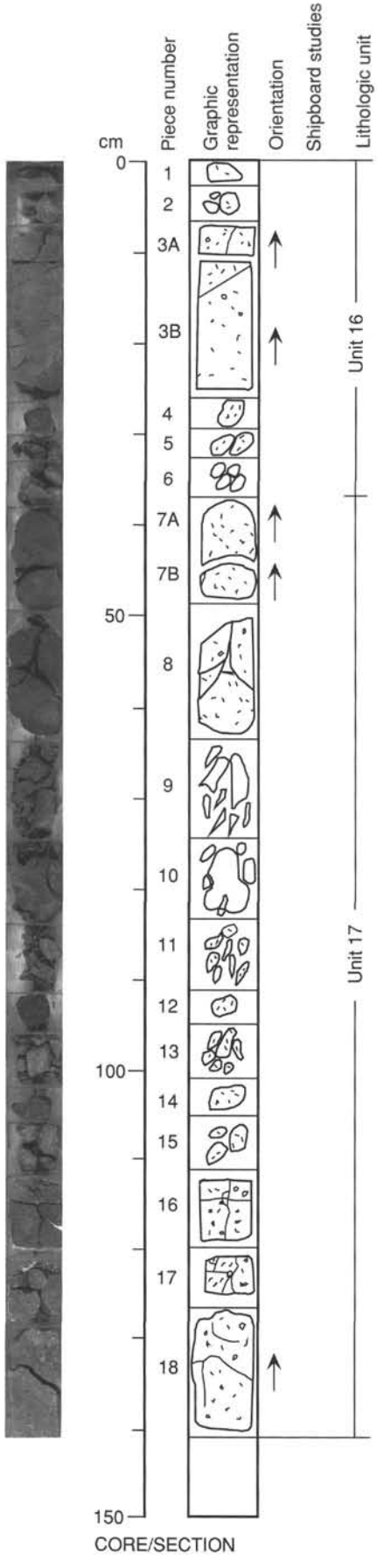


UNIT 16: APHYRIC BASALT

Pieces 1–18B

PHENOCRYSTS: None.
GROUNDMASS: Very fine-grained in Pieces 1–15; aphanitic in Pieces 16–18.
VESICLES: 10%–20%; 1–10 mm; ovoid to irregular; disseminated; Pieces 1–11A have 10%, up to 10-mm-wide vesicles; Pieces 11B–18 have 10%–20%, 1–3-mm-wide vesicles; lined with blackish clay and filled with light green clay; a few large calcite-filled vesicles in Pieces 2, 10A, 14, and 15; several small calcite-filled ones in Pieces 16–18.
COLOR: Dark gray (10Y 4/1) in Pieces 1–15; very dark gray (10Y 3/1) in Pieces 16–18.
STRUCTURE: A few 1–2-cm-across, rounded segregation patches.
ALTERATION: Moderate to strong.
VEINS/FRACTURES: A few hair-thin, near horizontal, clay-filled veins; one vertical, 1–2-mm-wide, irregular, clay-filled vein in Piece 11.
ADDITIONAL COMMENTS: This is defined as a separate lava unit because it has paleomagnetic properties distinctly different from Unit 15 above.

152-918D-112R-2



UNIT 16: APHYRIC BASALT

Pieces 1–6

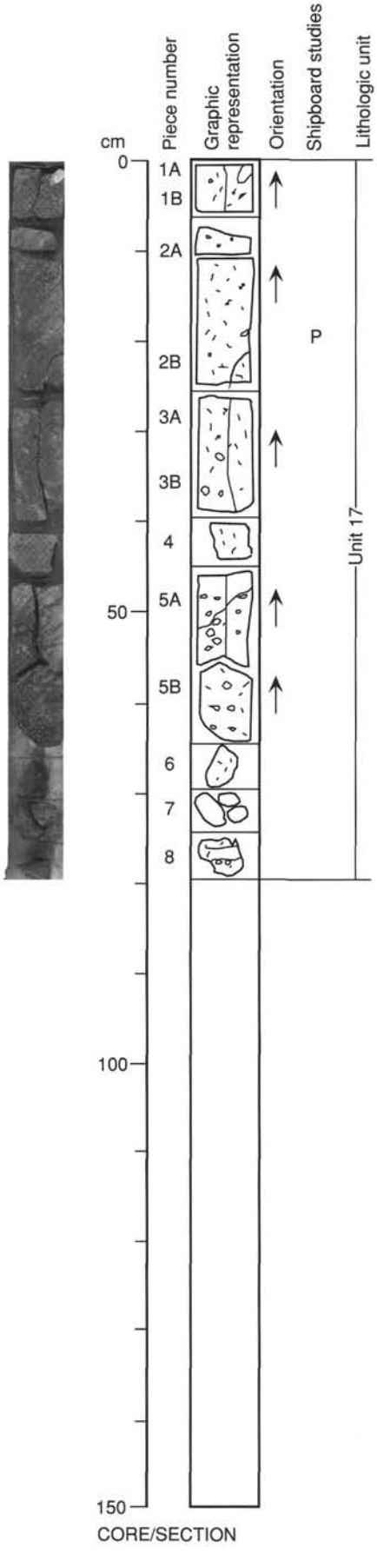
CONTACTS: None preserved, but grain size decreases and reddening increases in the rock towards the base of the unit at 38 cm. The contact to Unit 17 is disturbed by drilling.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 20%; 0.5–4 mm; irregular; disseminated; lined with blackish clay and filled with green clay.
COLOR: Very dark gray (10Y 3/1) with schlieren with tinges of red.
STRUCTURE: Slight flow alignment of vesicles near flow-base.
ALTERATION: Strong.
VEINS/FRACTURES: None.

UNIT 17: APHYRIC BASALT

Pieces 7A–18

CONTACTS: None preserved, but Piece 7 is very close to the flow top. Pieces 7–10 are strongly reddened and finely vesicular.
PHENOCRYSTS: None. Small (0.5 mm) stubby plagioclase crystals are visible in the groundmass.
GROUNDMASS: Aphanitic in Pieces 7–16; fine-grained in Pieces 17–18.
VESICLES: 10%–20%; 0.5–10 mm; irregular to ovoid; 20% very small vesicles in Pieces 7–9; fewer and larger vesicles down through section; filled with green clay.
COLOR: Mottled dusky red (10R 3/2) to dark reddish gray (10R 3/1) in Pieces 7–10; dark gray (2.5YR 3/1 to 10Y 4/1) in Pieces 11–18.
ALTERATION: Complete in Pieces 7–8; strong in Pieces 9–12; moderate in Pieces 13–18.
VEINS/FRACTURES: One 1-mm-wide, near-vertical vein filled with green clay in Piece 18.

152-918D-112R-3

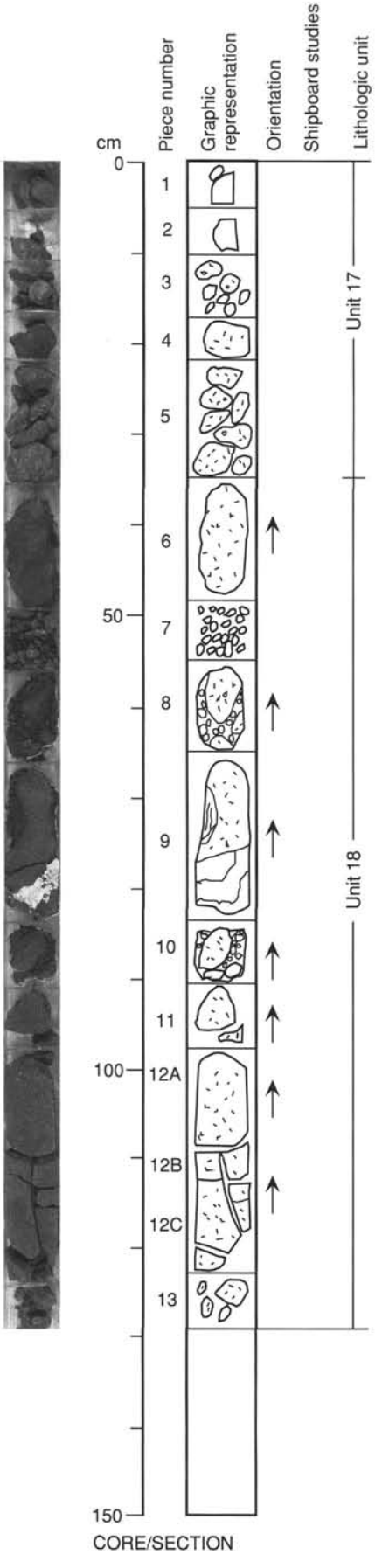


UNIT 17: APHYRIC BASALT

Pieces 1A–8

PHENOCRYSTS: None. Small (0.5 mm wide) stubby plagioclase crystals are visible in the groundmass.
GROUNDMASS: Fine-grained.
VESICLES: 2%–20%; 0.5–15 mm; ovoid to irregular; in patches; filled with green clay; one large vesicle in Piece 1 filled with an intergrowth of clay and calcite.
COLOR: Grades from dark gray (10Y 4/1) at top to very dark gray (10Y 3/1) towards base of section.
ALTERATION: Moderate.
VEINS/FRACTURES: A few 1-mm-wide, irregular, near-horizontal, clay-filled veins.

152-918D-113R-1



UNIT 17: APHYRIC BASALT

Pieces 1–5

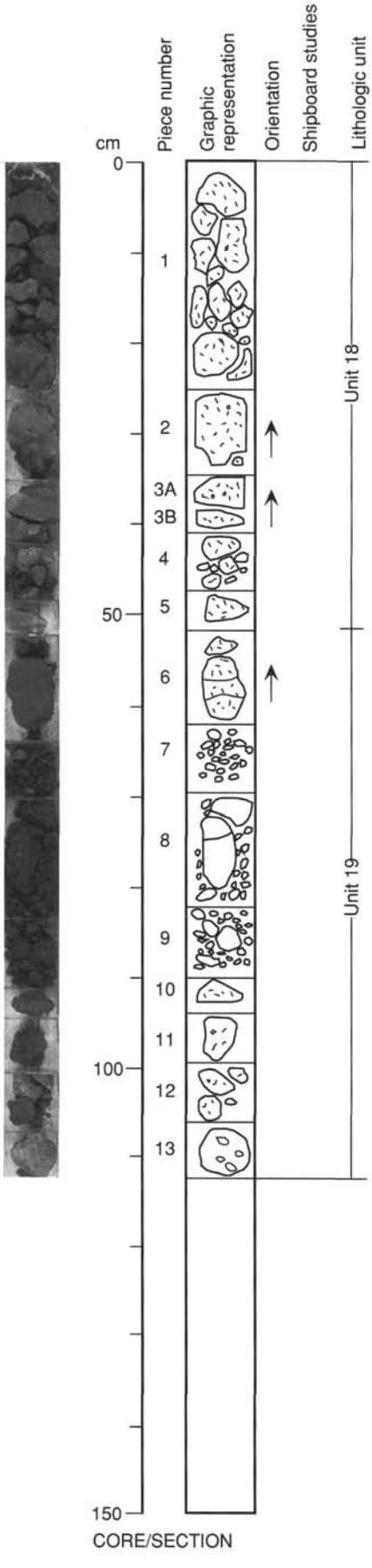
CONTACTS: None preserved, but Piece 5 is probably close to the flow-bottom.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 10%–20%; 0.5–2 mm; irregular; disseminated; lined with light green clay; many have empty centers.
COLOR: Dark reddish gray (10R 3/1).
STRUCTURE: Not flow-brecciated.
ALTERATION: Strong.
VEINS/FRACTURES: None.

UNIT 18: APHYRIC BASALT

Pieces 6–13

CONTACTS: None preserved, but Piece 6 is reddened and finely vesicular, and thus very close to the flow top.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 10%–20%; 0.5–1 mm; irregular; disseminated; smallest at top and growing larger down through section; lined or filled with light green clay.
COLOR: Reddish black (10R 2.5/1) at top grading to very dark gray (10Y 3/1) at bottom of section.
STRUCTURE: Slight near-horizontal flow alignment of vesicles in Pieces 8–12A.
ALTERATION: Strong to moderate through section.
VEINS/FRACTURES: Piece 9 has a 5 by 2 cm, irregular, probably primary cavity filled with calcite.

152-918D-113R-2



UNIT 18: APHYRIC BASALT

Pieces 1–5

CONTACTS: None preserved. There is a gradual decrease in vesicle size downsection, and there are a few wisps of red in the rock although the rocks are not reddened. Piece 5 may be close to the flow-bottom.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 20%; 0.5–1 mm; irregular; disseminated; largest at top and growing smaller down through section; lined or filled with light green clay.
COLOR: Very dark gray (10Y 3/1); a few wisps of red.
STRUCTURE: Not flow-brecciated.
ALTERATION: Strong to moderate.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: Unit 17 seems to be a thin pahoehoe tongue.

UNIT 19: APHYRIC BASALT

Pieces 6–13

CONTACTS: None preserved, but Piece 6 is reddened and finely vesicular and thus is very close to the flow top.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic.
VESICLES: 10%–20%; 0.5–10 mm; irregular to ovoid; disseminated; smallest at top and growing larger down through section; 10 mm size only in Piece 13; lined and filled with light green clay.
COLOR: Reddish black (10R 2.5/1) at top grading to dark greenish gray (10Y 4/1) at bottom of section.
ALTERATION: Complete in Pieces 6–9, strong in Pieces 10–12, moderate in Piece 13.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: Pieces 7–9 have disintegrated into fine rubble.