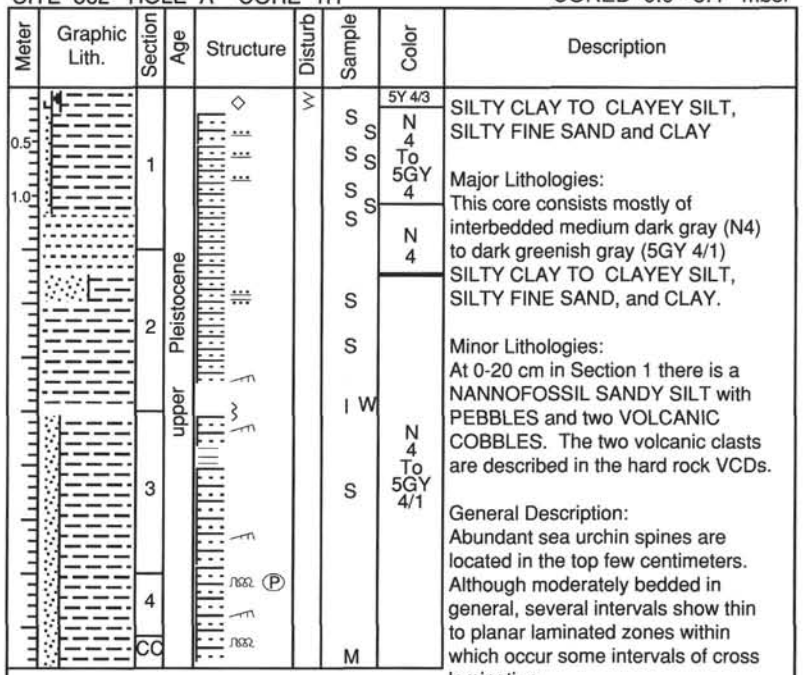
SITE 862 HOLE A CORE 1H CORED 0.0 - 5.4 mbsf

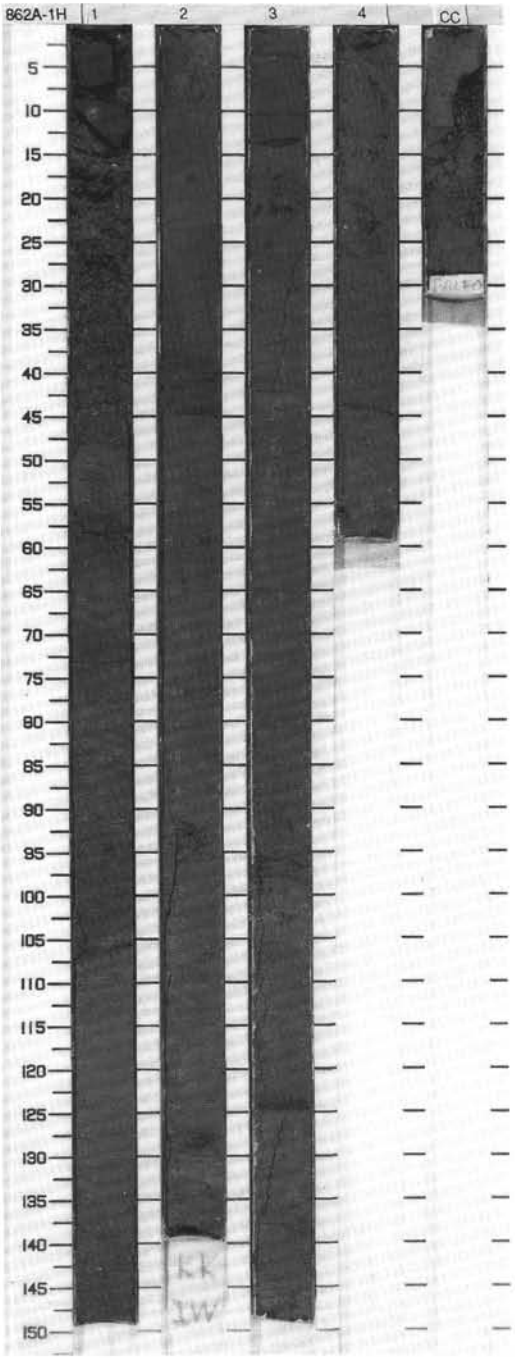


SILTY CLAY TO CLAYEY SILT, SILTY FINE SAND and CLAY

Major Lithologies:
This core consists mostly of interbedded medium dark gray (N4) to dark greenish gray (5GY 4/1) SILTY CLAY TO CLAYEY SILT, SILTY FINE SAND, and CLAY.

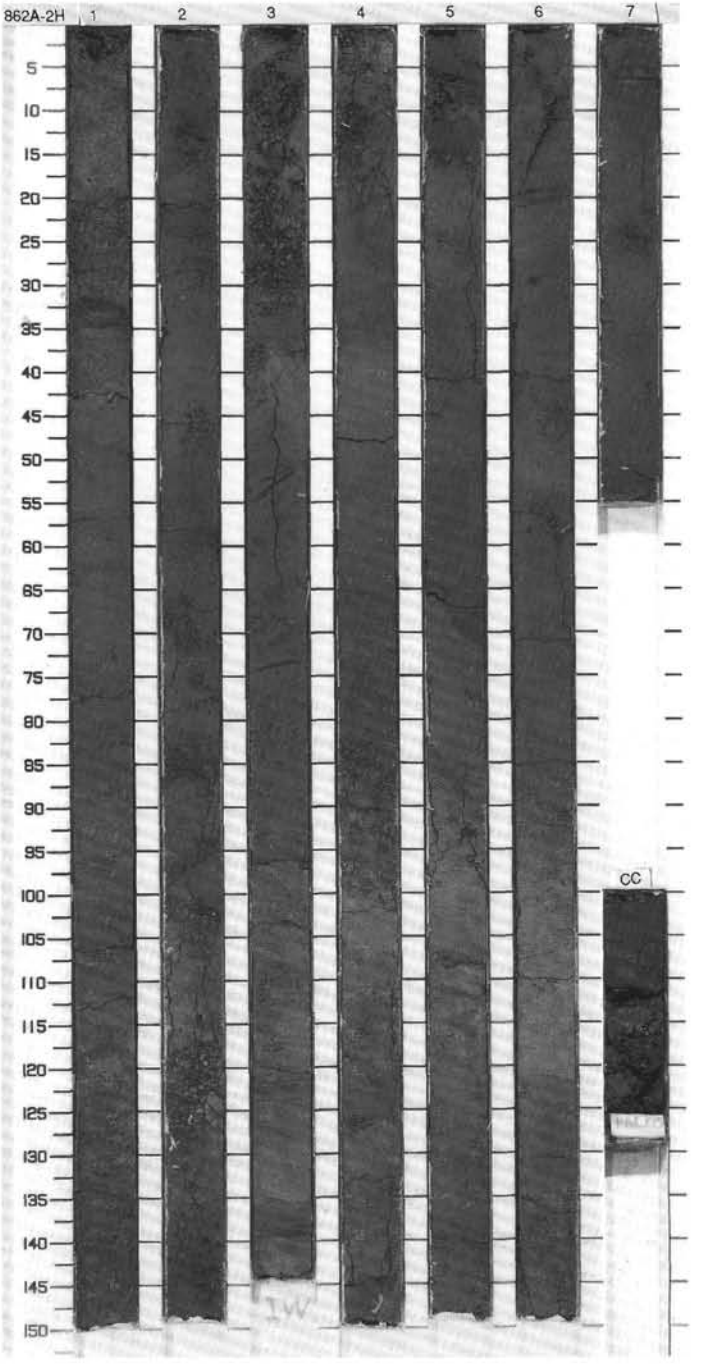
Minor Lithologies:
At 0-20 cm in Section 1 there is a NANNOFOSSIL SANDY SILT with PEBBLES and two VOLCANIC COBBLES. The two volcanic clasts are described in the hard rock VCDs.

General Description:
Abundant sea urchin spines are located in the top few centimeters. Although moderately bedded in general, several intervals show thin to planar laminated zones within which occur some intervals of cross lamination.



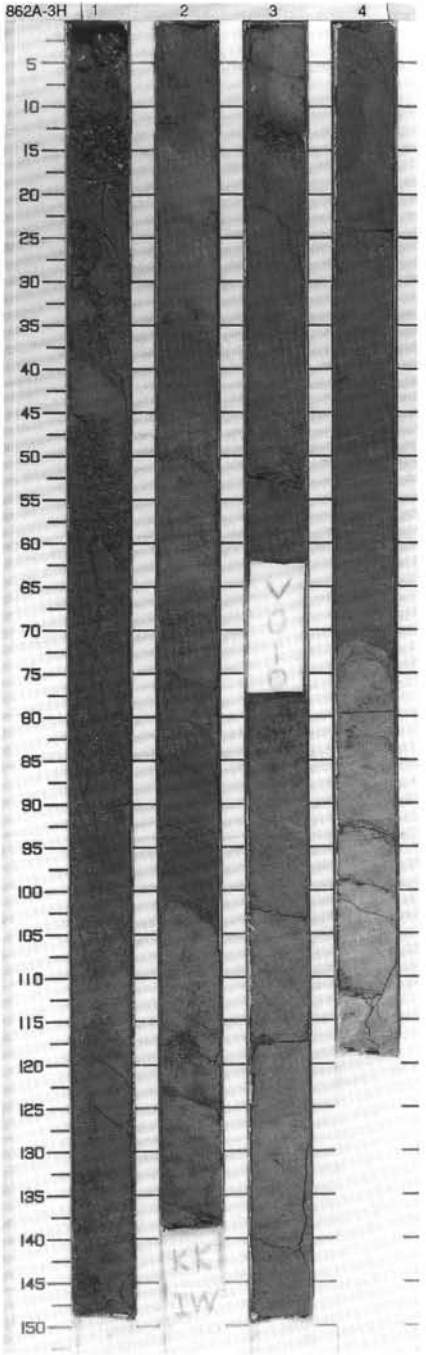
SITE 862 HOLE A CORE 2H CORED 5.4 - 14.9 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.5 1.0		1 2 3 4 5 6 7 CC				S S S S S S I S S S M	5Y 4/1 To 5GY 4/1 5Y 4/1 5Y 4/1 To 5GY 4/1	CLAY, CLAYSTONE AND SILTY CLAYSTONE and SAND TO SANDSTONE Major Lithologies: The core consists of olive gray (5Y 4/1) to dark greenish gray (5GY 4/1) massive to laminated CLAY, CLAYSTONE and SILTY CLAYSTONE which are moderately interbedded with horizontally laminated to cross-laminated olive black (5Y 2/1) to dark greenish gray (5GY 4/1) very fine- to medium-grained SAND to SANDSTONE. Minor Lithologies: One isolated sedimentary rock fragment (1 cm) occurs on the top of Section 1. A layer of very coarse sand with foraminifers and blocky volcanic glass is present in Section 1, 105-106 cm. Laminated sandy portions are generally 1-5 cm thick. Cross-bedded interval 58-61 cm in Section 2 shows low-angle reactivation surfaces and a scour-fill. Silty, 2-cm thick, clastic dike cuts horizontally bedded sand in Section 5, 2-6 cm. Concentrations of black (N1), volcanic, blocky-type glass fragments occur in Section 2, 23-24 cm, in Section 4, 12-13 cm, and in Section 6, 28-29 cm. In Section CC glass fragments are more dispersed. General Description: Sediments below Section 1 are mostly consolidated. The massive intervals of CLAYSTONE AND SILTY CLAYSTONE are predominantly brecciated in-situ due to deformation and normal faulting. Section 1 was cut by a wire and all the other sections by a saw.



SITE 862 HOLE A CORE 3H CORED 14.9 - 20.6 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.5 1.0		1 2 3 4	upper Pliocene	A A A F F		S S S S I W S S S S M S	5Y 4/1 To 5GY 4/1 2.5Y 4\2	CLAYSTONE AND SILTY CLAYSTONE and SAND TO SANDSTONE Major Lithologies: The core consists of olive gray (5Y 4/1) to dark greenish gray (5GY 4/1) CLAYSTONE and SILTY CLAYSTONE moderately interbedded with horizontally laminated thin layers of SAND TO SANDSTONE. Minor Lithologies: One isolated pebble of basalt occurs on the top of Section 1. Layer-like concentrations of black (N1), blocky-shaped, volcanic glass are present in the upper portions of claystone successions in Section 1, 6-8 cm, 23-25 cm, and 61-63 cm. These lapilli-rich portions are generally overlain by thin beds of laminated sandstone. Laminated sandy portions in Section 2, 80-100 cm and 130-140 cm fine upward and show some folding of internal laminae. Brownish to yellowish gray (2.5Y 4/2 , 2.5Y 3/2 to 2.5Y 5/2) CLAYSTONE and SANDSTONE succession in Section 4, 50-120 cm contains some iron-oxides as pigment on the clast surfaces and mixed with clay. General Description: The CLAYSTONE to CLAYEY SILTSTONE intervals are mostly brecciated in situ and the micro-faults are either normal or slightly inclined bedding-plane faults. Burrows are present in Section 3 and Section 4.



SITE 862 HOLE A CORE 4H CORED 20.6 - 21.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.5		1 CC				S S M	5Y 4/1 To 5Y 5/2	MATRIX-SUPPORTED CONGLOMERATE Major Lithology: This core consists of olive gray (5Y 4/1) to light olive gray (5Y 5/2) MATRIX-SUPPORTED CONGLOMERATE. Pebble-sized clasts range from very angular to very rounded. Matrix composition is silty claystone and matrix/gravel ratio is about 2/3. General Description: Pebble-sized clast are mostly slightly consolidated claytones to silty claystones, sedimentary rocks, rounded volcanogenic rocks, granodiorite, and vitric clasts. Sizes of these range from 0.5 to 6 cm (medium 1.5 cm).

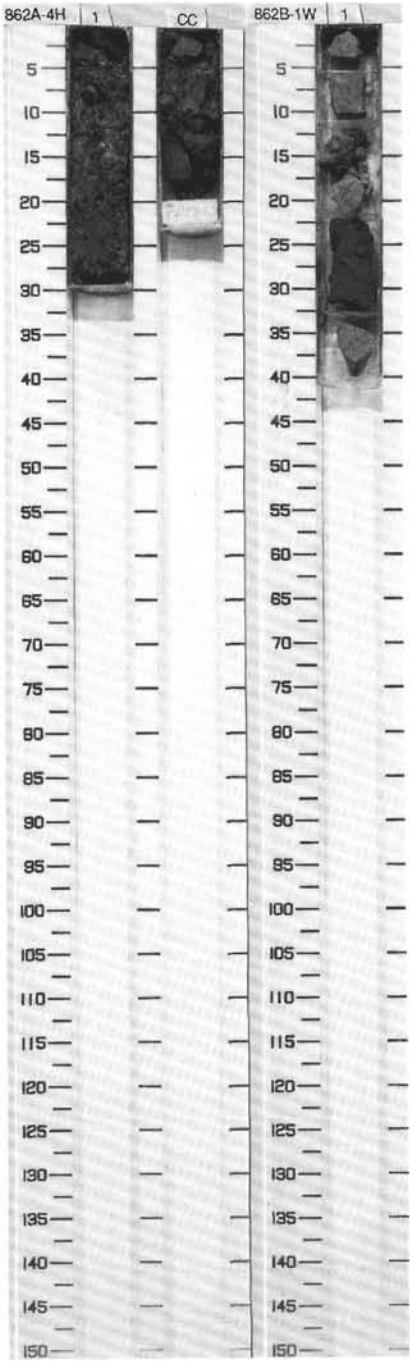
Note expanded vertical scale.

862A-5H NO RECOVERY

SITE 862 HOLE B CORE 1W CORED 0.0 - 17.5 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.1 0.2 0.3		1				S	5GY 4/1	SILTSTONE Major Lithology: Interval 21-32 cm in this core consists of dark greenish gray (5GY 4/1), structureless SILTSTONE. General Description: Rest of the core consists of igneous rock pieces.

Note expanded vertical scale.

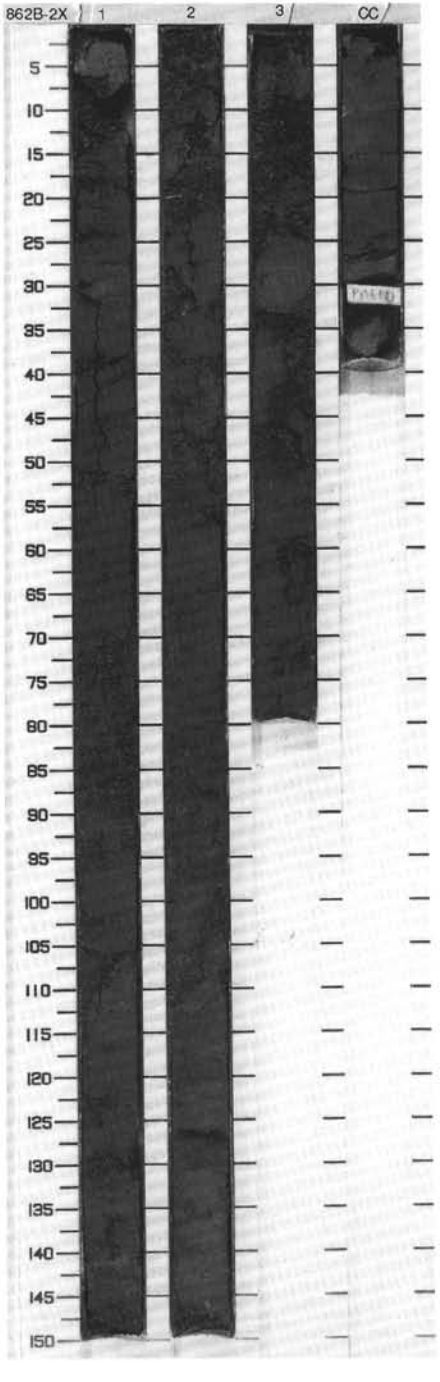


SITE 862 HOLE B CORE 2X CORED 17.5 - 27.1 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.5 1.0		1 2 3 CC				S S S S S S S S M	5Y 4/1	CLAYSTONE AND SILTY CLAYSTONE and SANDSTONE Major Lithologies: This core consists of olive gray (5Y 4/1) CLAYSTONE and SILTY CLAYSTONE moderately interbedded with thin layers of dark greenish gray (5GY 4/1), laminated to cross-bedded, very fine- to fine-grained SANDSTONE. Minor Lithologies: Sandstone interval 45-50 cm in Section 1 is trough cross-bedded but in 142-150 cm foreset laminae sets truncate at a relatively low angle. Layers of lapilli-sized, blocky shaped vitric fragments occur in Section 2, 11-12 cm, 85-86 cm, and 126-128 cm. Laminated fine- to medium-grained SANDSTONE occurs in Section CC, 21-27 cm. From 25 to 27 cm in CC, color is brownish (10 YR 3/4). Underlying SILTY CLAYSTONE in CC, 28-29 cm is brownish gray (10 YR 4/1) and has a lower contact against glassy-rimmed pillow basalt. Brownish colors are mostly due to iron-oxide pigment occuring in sandstone and silty claystone. General Description: Fine-grained portions of this core are predominantly brecciated in situ. Normal faulting is present in Section CC, 20-30 cm.

862B-3X HARD ROCK

862B-4X HARD ROCK

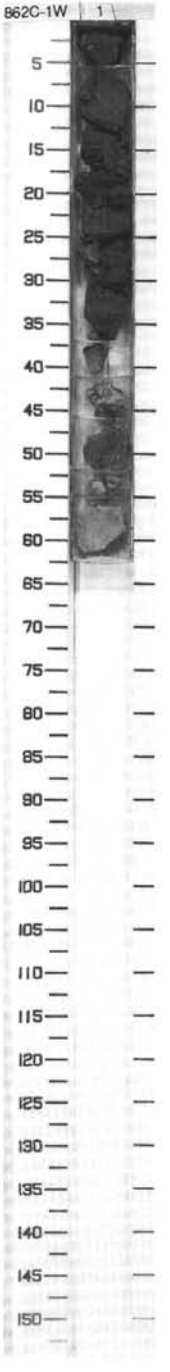


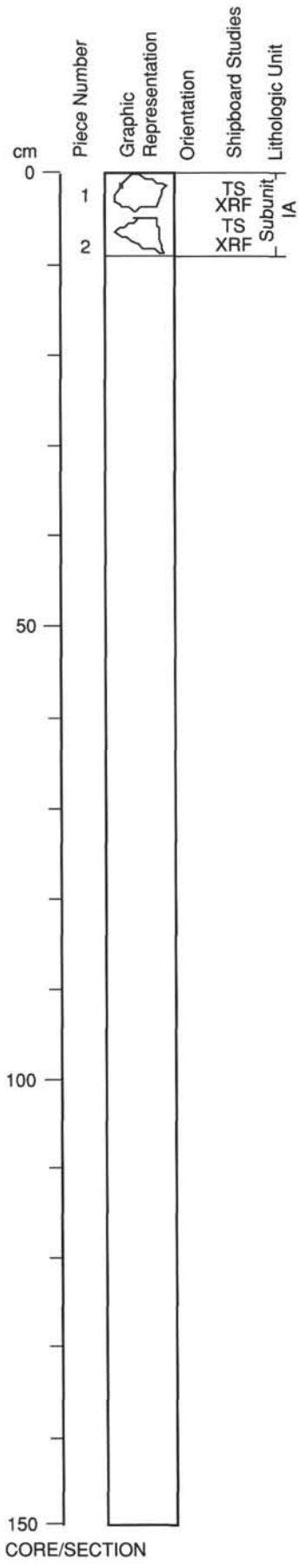
SITE 862 HOLE C CORE 1W CORED 0.0 - 40.0 mbsf

Meter	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
0.5		1				S S S	5Y 4/1	SILTY CLAYSTONE TO CLAYEY SILTSTONE Major Lithology: Interval 5–36 cm in this core consists of olive gray (5Y 4/1) SILTY CLAYSTONE with one fine-grained SANDSTONE interbed in 10-12 cm. Lower portion is slightly more silty. Interval between 25-36 cm is CLAYEY SILTSTONE. General Description: Rest of the core consists of igneous rock fragments.

Note expanded vertical scale.

862C-2R NO RECOVERY





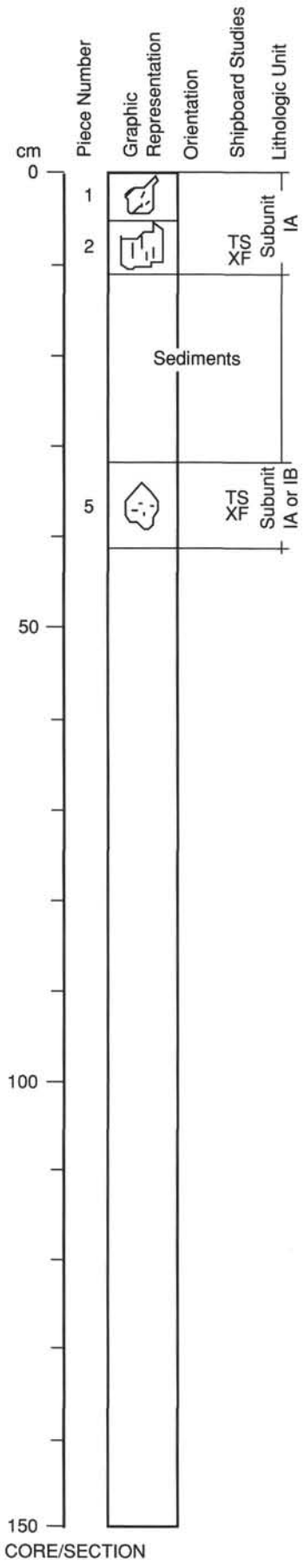
141-862A-1H-1

SUBUNIT IA: MODERATELY PLAGIOCLASE-HORNBLENDE PHYRIC RHYOLITE

Pieces 1 and 2

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 3%; 0.1–1.5 mm; euhedral to skeletal.
Hornblende - 1%; 0.1–2.0 mm; euhedral, but with resorption coronas.
GROUNDMASS: Very fine-grained pilotaxic to hyalopilitic groundmass with 40% plagioclase microliths.
VESICLES: *The miarolitic cavities are not filled or lined with secondary minerals.*
Miaroles: 3%, 0.1–3 mm, elongate and irregular.
COLOR: Gray.
STRUCTURE: A slight fabric is present from the aligned miaroles and phenocrysts.
ALTERATION: None (Piece 1) to slight (Piece 2) mottled brownish alteration.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: The rocks are found as cobbles at the top of the core within Subunit IA, and are likely out of place.

IA, IB = formal designations
IIa, IIb = informal designations



141-862B-1W-1

SUBUNIT IA: MODERATELY PLAGIOCLASE-HORNBLENDE PHYRIC RHYOLITE

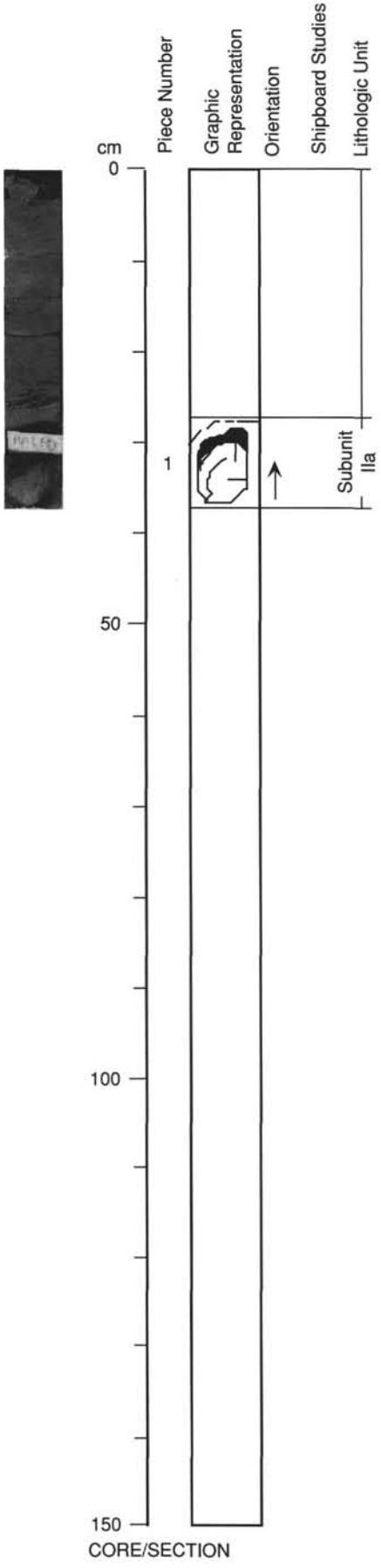
Pieces 1 and 2

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 1%; <1.0 mm; subhedral.
Hornblende - 0.3%; 0.3–1.0 mm; euhedral.
GROUNDMASS: Microcrystalline.
VESICLES: 5%; 0.5–3.0 mm; indeterminate. Vesicles are filled with quartz(?) or zeolites(?).
COLOR: Light gray (N5).
STRUCTURE: Massive.
ALTERATION: Unaltered.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: The fragments are found over marine sediments at the top of the wash core and are likely part of a surficial deposit.

SUBUNIT IA or IB: MODERATELY PLAGIOCLASE-HORNBLENDE PHYRIC DACITE

Piece 5

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 3%; <2 mm; subhedral.
Hornblende - 1.0%; 0.3–1.0 mm; euhedral.
GROUNDMASS: Microcrystalline.
VESICLES: 1%; 0.3–2.0 mm; rounded. Vesicles are filled with quartz(?), zeolites(?), calcite(?).
COLOR: Gray (N4).
STRUCTURE: Massive.
ALTERATION: Unaltered.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: The piece is found in the wash core and has uncertain stratigraphic origin within Subunit 1A or 1B.

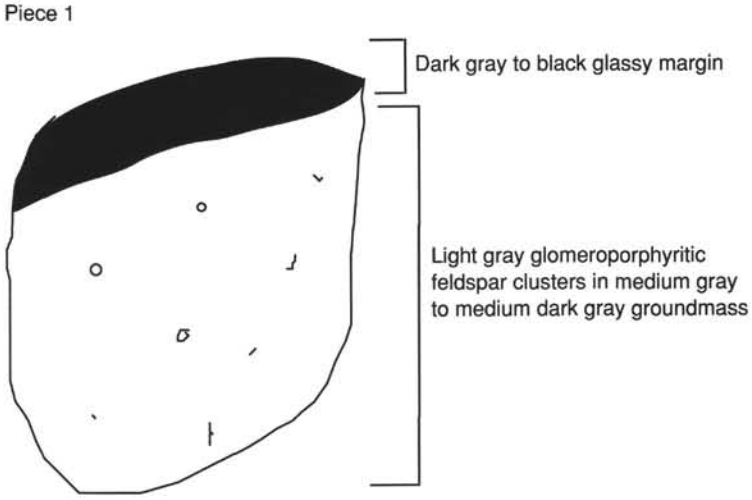


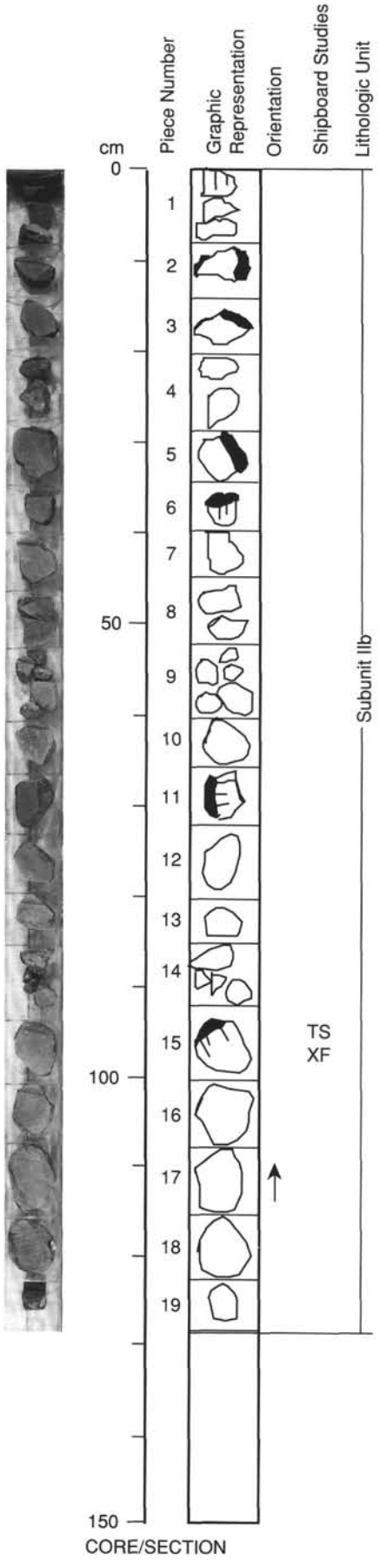
141-862B-2X-CC

SUBUNIT IIa: MODERATELY PLAGIOCLASE-OLIVINE PHYRIC BASALT

Piece 1

CONTACTS: None visible.
PHENOCRYSTS: Plagioclase occurs in glomerophyric clusters.
Plagioclase - 2%; 0.5–3.0 mm; subhedral glomerophyric to variolitic; euhedral tabular.
Olivine - 1%; 0.5–4.0 mm; euhedral, light olive green, glassy.
GROUNDMASS: Hypocrystalline.
VESICLES: None.
COLOR: Medium gray to black.
STRUCTURE: Pillow margin with chilled rim.
ALTERATION: Dark gray margins seen along fractures.
VEINS/FRACTURES: 20 mm; irregular.
ADDITIONAL COMMENTS: This fragment has an upright chilled glassy margin against the basal sedimentary strata of Subunit IC.



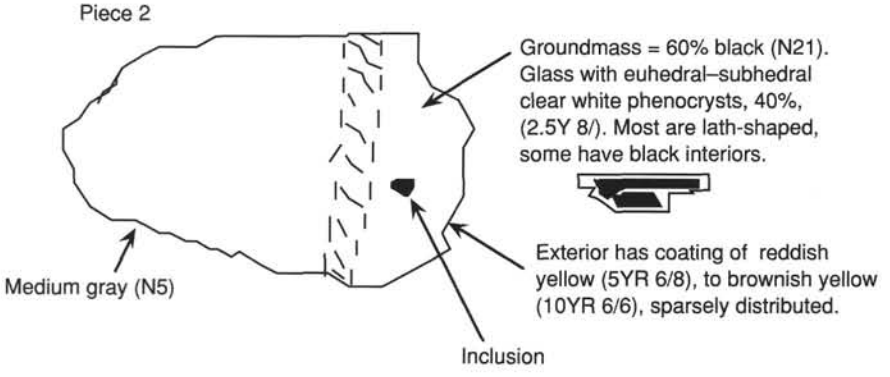


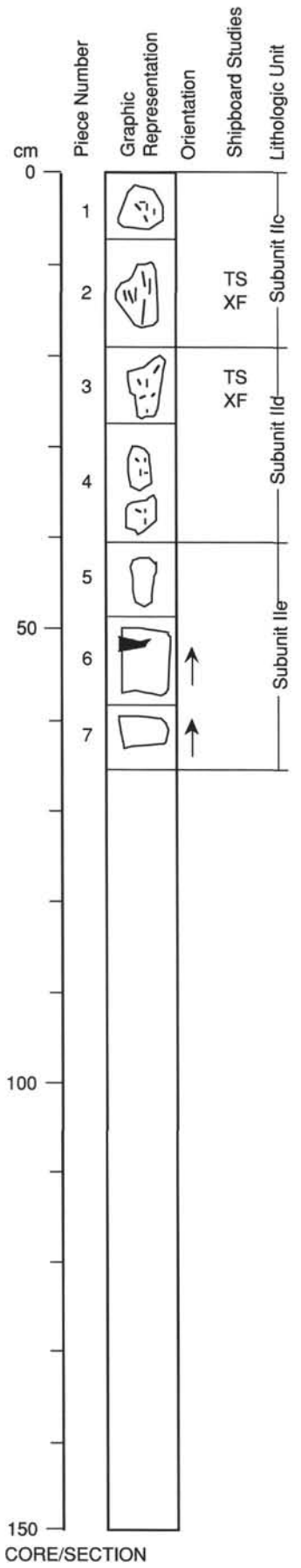
141-862B-3X-1

SUBUNIT IIb: HIGHLY PLAGIOCLASE-PYROXENE-OLIVINE PHYRIC BASALT

Pieces 1–19

CONTACTS: None visible.
PHENOCRYSTS: Radial clusters of plagioclase and pyroxene, unevenly distributed. Skeletal olivine.
Plagioclase - 25%; 0.1–1.5 mm; euhedral laths.
Olivine - 2%; 0.1–0.2 mm; subhedral to euhedral.
Pyroxene - 3%; 0.1–0.2 mm; subhedral to euhedral.
GROUNDMASS: Fine-grained felted to radial clusters of acicular plagioclase in altered glass.
VESICLES: 0–10%; 0.05–1.0 mm; irregular; uneven. Some pieces have 5%–10% vesicles lined with microcrystalline material; located either around rim or in center of piece.
COLOR: Medium gray with black glassy rims on some pieces.
STRUCTURE: Black glassy rims on Pieces 1–3, 5, 6, 11, and 15. Below glass is highly altered intersertal zone 2–4 mm wide. Fractures in Pieces 1, 2, 5, 6, 7, 11, and 15.
ALTERATION: Pale brown to light yellowish brown alteration of glassy groundmass.
VEINS/FRACTURES: 0.5%; 0.01 mm; radial. Fractures extend inward from glassy rim through altered zone and die out in fresher basalt.





141-862B-4X-1

SUBUNIT IIc: MODERATELY PLAGIOCLASE-HORNBLENDE PHYRIC RHYOLITE

Pieces 1 and 2

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 1%; <1.0 mm; subhedral.
GROUNDMASS: Fine-grained.
VESICLES: 10%; 0.5–10 mm; vertical. Vesicles are filled with clay minerals.
COLOR: Gray (N4).
STRUCTURE: Vesicular.
ALTERATION: Moderately altered.
VEINS/FRACTURES: None.

SUBUNIT IId: MODERATELY PLAGIOCLASE PHYRIC BASALT

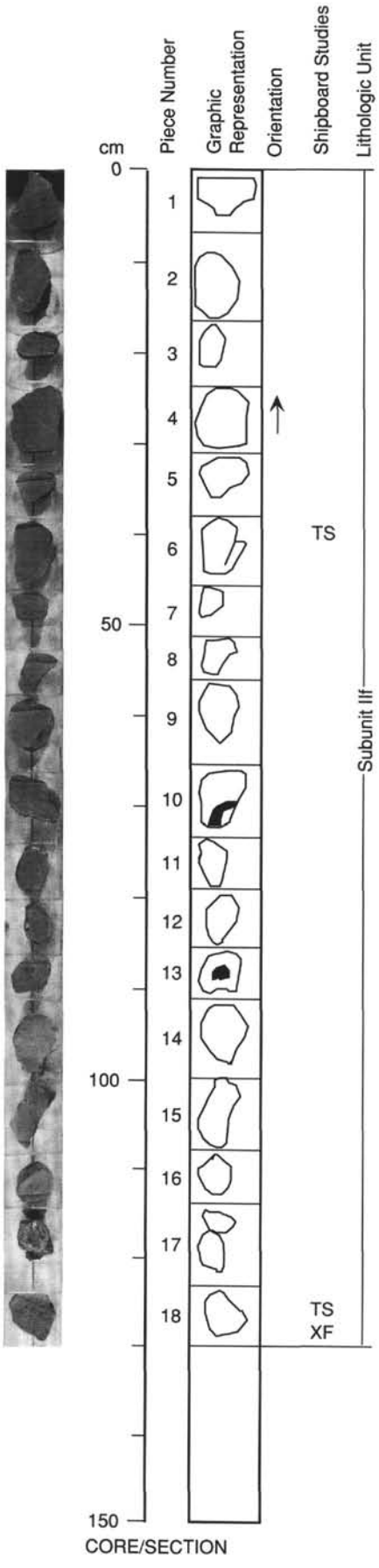
Pieces 3 and 4

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 2%; <1.0 mm; subhedral.
GROUNDMASS: Fine-grained.
VESICLES: 7%; 0.5–1.5 mm; rounded. Vesicles are filled with clay minerals.
COLOR: Light gray.
STRUCTURE: Vesicular.
ALTERATION: Moderately altered.
VEINS/FRACTURES: None.

SUBUNIT IIe: MODERATELY PLAGIOCLASE PHYRIC BASALT

Pieces 5–7

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 4%; <1.0 mm; subhedral.
GROUNDMASS: Fine-grained.
VESICLES: 1%; 0.5–2.0 mm, rounded. Vesicles are filled with clay minerals.
COLOR: Light gray (5/0).
STRUCTURE: Massive.
ALTERATION: Slightly altered.
VEINS/FRACTURES: None.



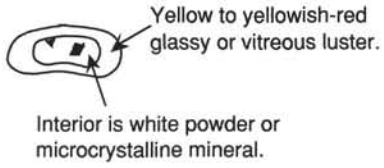
141-862B-4X-2

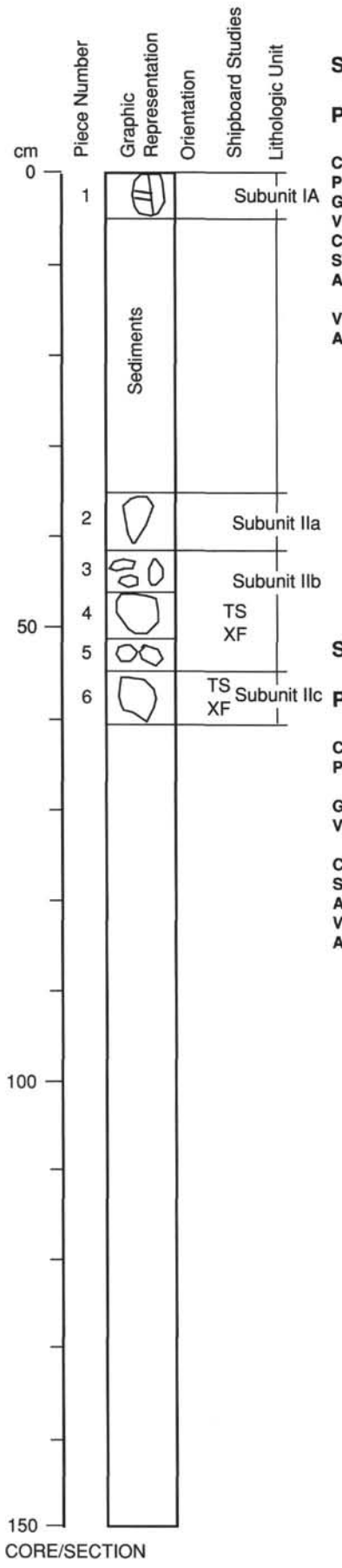
SUBUNIT IIf: HIGHLY PYROXENE-PLAGIOCLASE-OLIVINE PHYRIC BASALT

Pieces 1–18

CONTACTS: None visible.
PHENOCRYSTS: Ophitic to subophitic or radial acicular. Plagioclase intruded by groundmass.
Plagioclase - 30%; 0.05–1.5 mm; euhedral tabular.
Olivine - Trace to 5%; 0.1 mm; subhedral to euhedral.
Pyroxene - 35%–40%; 0.05–0.5 mm; subhedral.
GROUNDMASS: Highly altered cloudy palagonitic glass.
VESICLES: 0–10%; 0.5–1.0 mm; irregular; uneven. Some vesicles are lined with palagonitic glass or a white vitreous mineral.
COLOR: Dark gray.
STRUCTURE: None.
ALTERATION: Some pieces are coated with waxy to powdery, yellow to brownish yellow, or white alteration material.
VEINS/FRACTURES: None.

Piece 4: typical vesicle, <1 mm across.





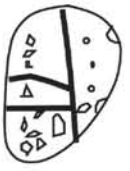
141-862C-1W-1

SUBUNIT IA: HYALOCLASTITE

Piece 1

CONTACTS: None visible.
PHENOCRYSTS: None.
GROUNDMASS: Cryptocrystalline.
VESICLES: None.
COLOR: Greenish black with pale greenish gray clasts.
STRUCTURE: Well rounded.
ALTERATION: Severely altered. This clast is well-rounded and totally removed from source; it likely bears no relationship to stratigraphy.
VEINS/FRACTURES: 1%; 6.0 mm. Sample rotated. Fractures are lined with pale green alteration products.
ADDITIONAL COMMENTS: Clastic texture: dispersed clasts ranging from angular to rounded (0.5–7.0 mm) within cryptocrystalline groundmass. Rock is found at top of wash core and is well rounded. It is likely out of place and stratigraphically similar to cobbles seen at top of Holes 862A and 862B.

Piece 1

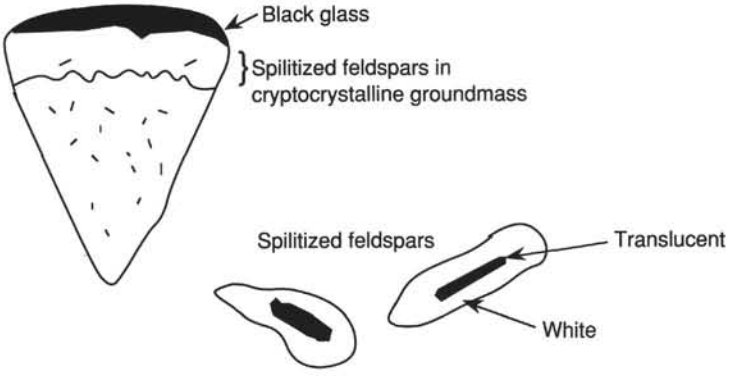


SUBUNIT IIa: MODERATELY PLAGIOCLASE PHYRIC PILLOW BASALT

Piece 2

CONTACTS: None visible.
PHENOCRYSTS: Variolitic.
Plagioclase - 5%; 0.1–0.7 mm; subhedral to euhedral; altered.
GROUNDMASS: Intersertal to hyalopilitic near glassy margin to homogeneous cryptocrystalline at base.
VESICLES: 1%–2%; 0.1–0.3 mm; spherical; evenly distributed. Some have a sparkly but microcrystalline lining.
COLOR: Medium gray with rim of black glass.
STRUCTURE: Glassy rim is probably pillow margin.
ALTERATION: Feldspar is altered, with albite aureoles. Probably spilitized.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: Glassy margin directly underlying and initially found in contact with greenish gray and brown interlayered clay; appears to be sediment/lava interface at Hole 862C.

Piece 2



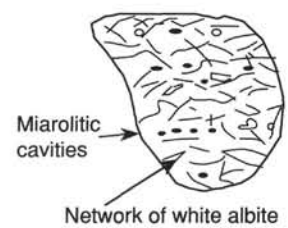
141-862C-1W-1

SUBUNIT IIb: SPARSELY PLAGIOCLASE-HORNBLENDE PHYRIC DACITE

Pieces 3–5

CONTACTS: None visible.
PHENOCRYSTS: Plagioclase forms variolitic clots of crystals to large isolated laths.
Plagioclase - 10%; 0.4–2.0 mm; subhedral, glomerophyric.
Hornblende - 3%; 0.3–3.0 mm; euhedral, prismatic.
GROUNDMASS: Cryptocrystalline.
VESICLES: None.
Miaroles: 3%–4%, 0.1–5.0 mm, irregular but crudely aligned.
COLOR: Gray.
STRUCTURE: Probably a rim on pillow lava.
ALTERATION: Hornblende phenocrysts altered and embayed where with groundmass, but unaltered where in contact with plagioclase.
VEINS/FRACTURES: None.

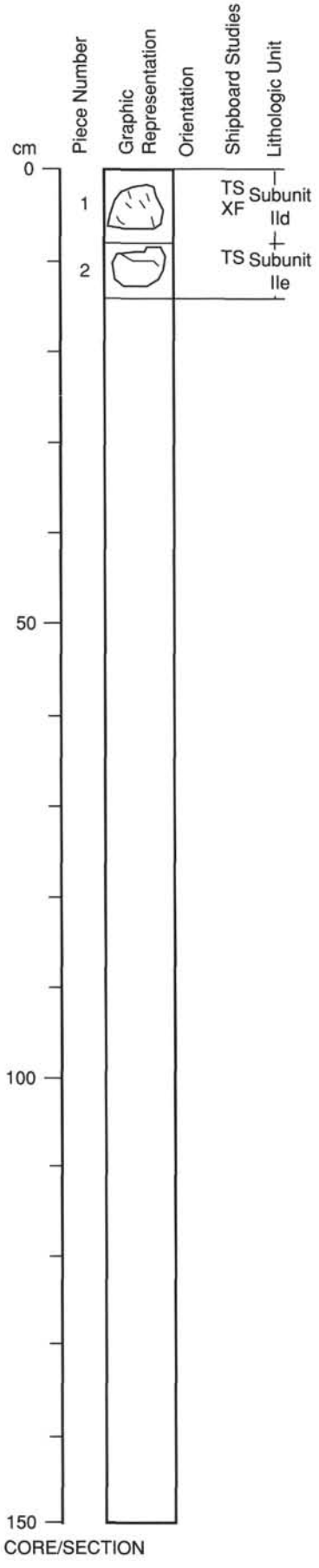
Piece 4A



SUBUNIT IIc: HIGHLY PLAGIOCLASE-PYROXENE PHYRIC BASALT

Piece 6

CONTACTS: None visible.
PHENOCRYSTS: Subophitic; interlocking mesh of crystals.
Plagioclase - 60%; 0.1–7.0 mm; fresh euhedral unoriented laths.
Olivine - Trace; 0.05–0.5 mm; fresh, subhedral.
Pyroxene - 10%; 0.4–1.0 mm; subhedral, tabular.
GROUNDMASS: Finely crystalline mesh of plagioclase and pyroxene in altered glass.
VESICLES: None.
COLOR: Medium-gray.
ALTERATION: Glass in groundmass is highly altered to palagonite(?).
VEINS/FRACTURES: None.



141-862C-3R-1

SUBUNIT IId: HIGHLY PLAGIOCLASE-HORNBLENDE PHYRIC DACITE

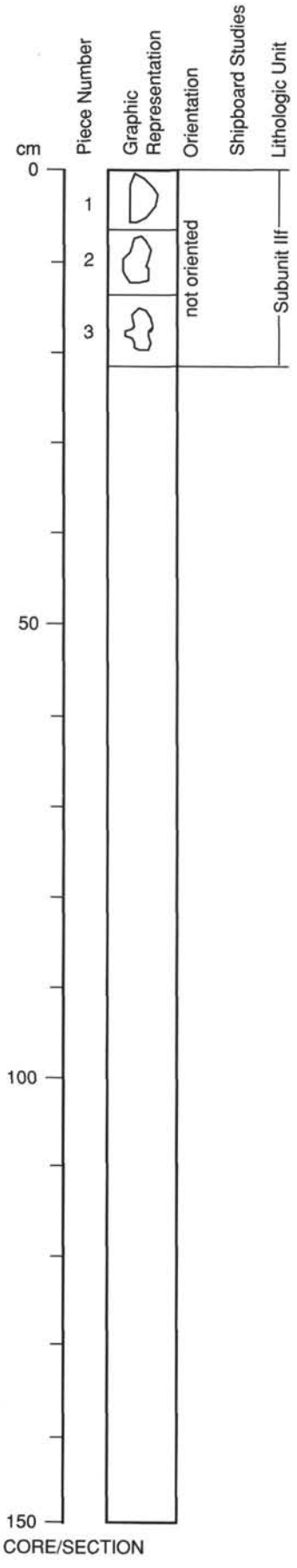
Piece 1

CONTACTS: None visible.
PHENOCRYSTS: The large hornblende crystals are resorbed and embayed where in contact with groundmass, but remain unaltered where in contact with plagioclase.
Plagioclase - 14%; 0.05–1.0 mm; fresh, euhedral, zoned inclusions.
Hornblende - 4%; 0.1–1.2 mm; subhedral, altered next to groundmass but fresh next to plagioclase.
Pyroxene - Trace; 0.1–0.4 mm; subhedral to euhedral, fresh.
Opaque - Trace; 0.2–0.4 mm; subhedral.
GROUNDMASS: Fine-grained plagioclase with minor pyroxene and opaque minerals in cloudy altered glass.
VESICLES: 7%; 0.5–5.0 mm; spherical to elongated; evenly distributed. Vesicles are lined with a clear gray vitreous material; some contain small clusters of white zeolite needles.
COLOR: Dark gray.
STRUCTURE: None.
ALTERATION: Glass in groundmass is largely altered to brownish-yellow palagonite.
VEINS/FRACTURES: None.

SUBUNIT IIe: MODERATELY PLAGIOCLASE-PYROXENE PHYRIC BASALT

Piece 2

CONTACTS: None visible.
PHENOCRYSTS: Skeletal olivine "snowflake" grains invaded by groundmass; plagioclase and pyroxene are also skeletal and invaded by groundmass.
Plagioclase - 6%; 0.2–1.0 mm; fresh, euhedral to subhedral laths.
Olivine - Trace; 0.2–0.4 mm; fresh, subhedral.
Pyroxene - 2%; 0.2–0.7 mm; fresh, euhedral to subhedral prisms.
GROUNDMASS: Fine-grained plagioclase laths with traces of pyroxene and opaque minerals in a highly altered palagonitic glass.
VESICLES: 5%; 0.05–4.0 mm; spherical; evenly distributed. Vesicles are lined with black glass.
COLOR: Gray.
STRUCTURE: None.
ALTERATION: Glass in groundmass is altered to palagonite.
VEINS/FRACTURES: 0.01%; 0.01 mm; inclined; A single very thin (0.5 mm) black irregular seam is inclined from margin into center of piece.

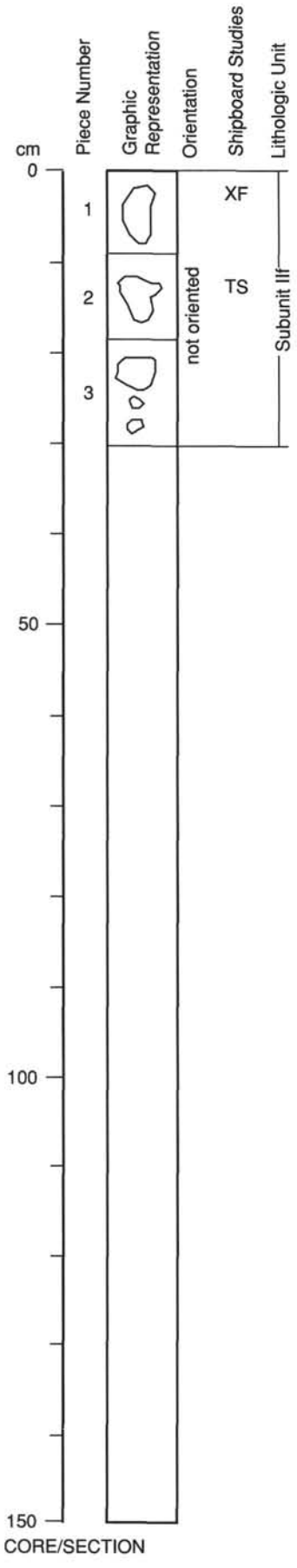


141-862C-4R-1

SUBUNIT IIf: HIGHLY PLAGIOCLASE-HORNBLENDE PHYRIC DACITE

Pieces 1–3

CONTACTS: None visible.
PHENOCRYSTS: Phenocrysts are partly aligned to vesicles and exhibit a slight trachytic texture.
Plagioclase - 25%; 0.5–4.0 mm; subhedral and glomerophyric.
Hornblende - 5%; 0.5–2.0 mm; stubby prismatic euhedral forms.
GROUNDMASS: hyalo- to cryptocrystalline intersertal texture.
VESICLES: 3%, with elongated forms up to 4 mm.
COLOR: Gray.
STRUCTURE: A slight planar fabric is present from the alignment of vesicles and phenocrysts.
ALTERATION: None.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: This subunit also includes pieces of Section 141-862C-5R-1.

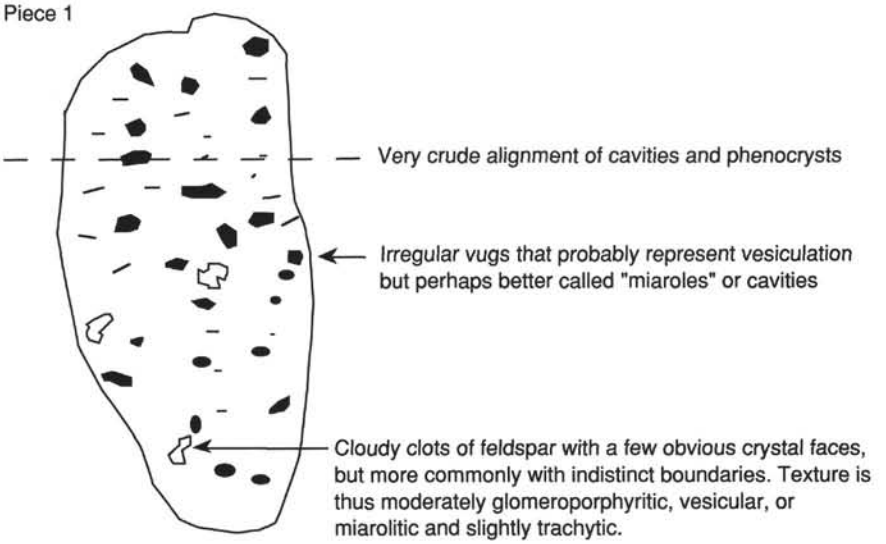


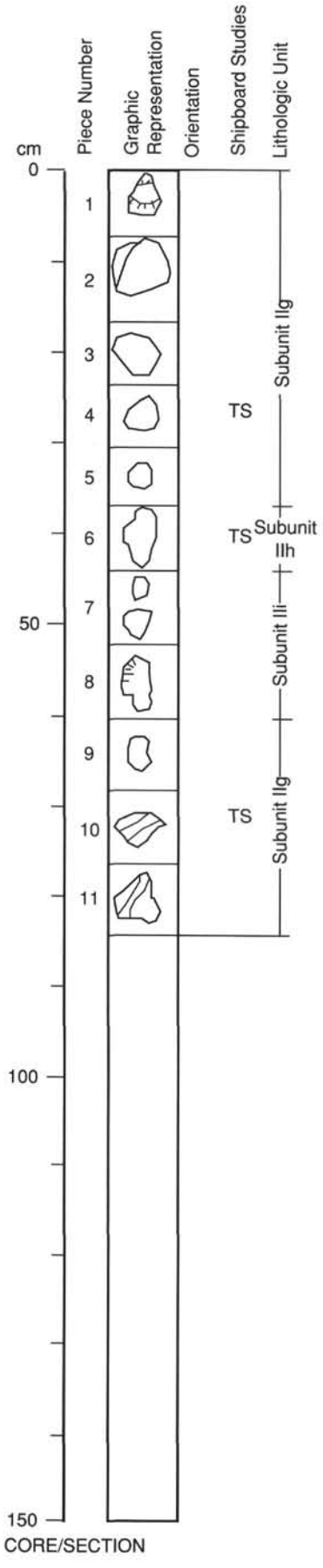
141-862C-5R-1

SUBUNIT IIIf: HIGHLY PLAGIOCLASE-HORNBLENDE PHYRIC DACITE

Pieces 1–3

CONTACTS: None visible.
PHENOCRYSTS: Crystals are partly aligned to miaroles and the rock has a slight trachytic texture.
Plagioclase - 25%; 0.5–4.0 mm; subhedral and glomerophyric.
Hornblende - 5%; 0.5–2.0 mm; stubby prismatic euhedral forms.
GROUNDMASS: Hyalo- to cryptocrystalline intersertal groundmass.
VESICLES: None.
Miaroles: 3%, up to 4.0 mm, elongate to irregular and crudely aligned.
COLOR: Gray.
STRUCTURE: A slight planar fabric is present by crude alignment of miaroles and phenocrysts.
ALTERATION: None present in hand specimen, but glass in groundmass may be idevitrified.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: This subunit also includes pieces of Section 141-862C-4R-1.





141-862C-6R-1

SUBUNIT IIg: MODERATELY PLAGIOCLASE-OLIVINE PHYRIC BASALT

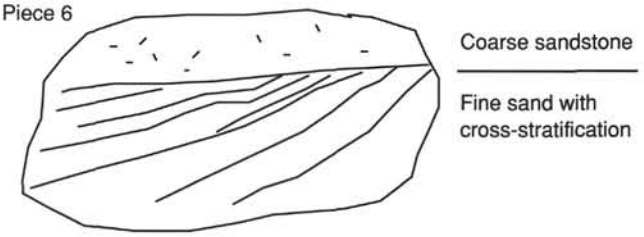
Pieces 1–5, 9–11

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 5%; 1.0–1.2 mm; euhedral.
Olivine - 2%; 0.5–1.0 mm; subhedral.
GROUNDMASS: Fine-grained; varies to microcrystalline in Pieces 9–11.
VESICLES: None.
COLOR: Dark gray (N4).
STRUCTURE: Massive.
ALTERATION: From fresh to moderately altered in Pieces 9–11. Alteration mineral light olive gray. Presence of opal(?), 1%, anhedral, only in Pieces 1–2 , secondary mineral(?).
VEINS/FRACTURES: 1%; 0.2 mm; subhorizontal. Filled with light olive gray color mineral, only in Pieces 9–11.
ADDITIONAL COMMENTS: Olivine increases in Pieces 3–4.

SUBUNIT IIh: INDURATED MEDIUM- TO COARSE-GRAINED CALCAREOUS METASANDSTONE

Piece 6

CONTACTS: None visible.
PHENOCRYSTS: None.
GROUNDMASS: Fossiliferous crossbedded medium- to coarse-grained sandstone with clay and micrite matrix.
VESICLES: None.
COLOR: Light brownish gray.
STRUCTURE: A sharp bedding plane is visible separating a lower cross-laminated portion of medium-grained sandstone from an upper coarse micrite-cemented sandstone.
ALTERATION: None.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: The sandstone contains many hyalo-to cryptocrystalline volcanic fragments.

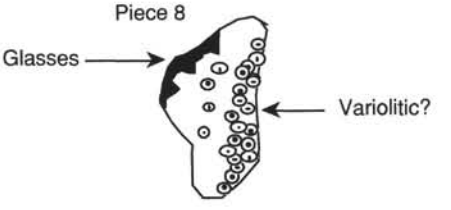


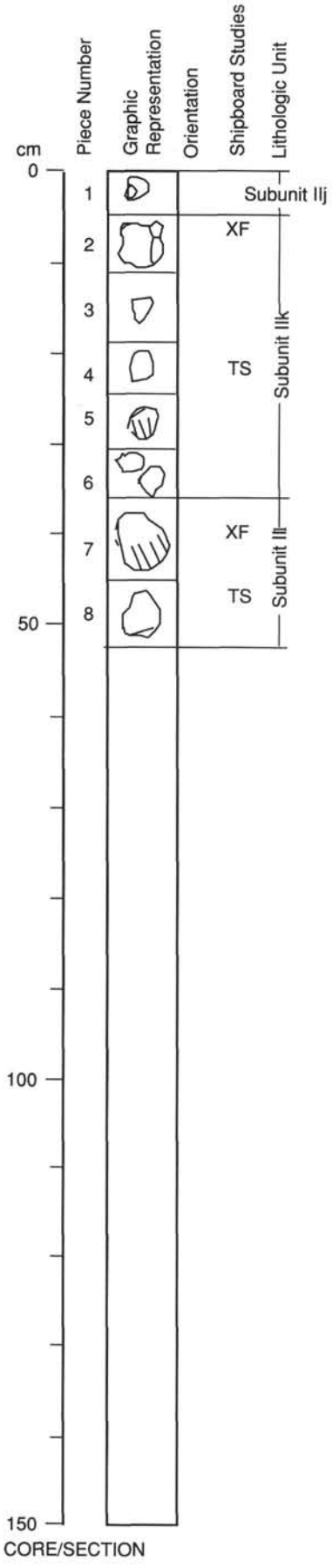
141-862C-6R-1

SUBUNIT IIi: MODERATELY PLAGIOCLASE PHYRIC BASALT

Pieces 7 and 8

CONTACTS: Not visible.
PHENOCRYSTS:
Plagioclase - 5%; 0.5–2.0 mm; anhedral. Present in inner radial texture with probable alteration; spherulitic in piece boundaries.
GROUNDMASS: Fine- to medium-grained. Piece 8 has a glassy rim, <1%.
VESICLES: 3%–5%; 0.5–1.0 mm; spherical; non-homogeneous. Irregular shaped, 2.0 mm, amygdules in Piece 7.
COLOR: Dark gray.
STRUCTURE: Massive.
ALTERATION: None.
VEINS/FRACTURES: 1%; 0.5 mm; subhorizontal. Thin (0.2 mm) open fracture observed only in Piece 8.
ADDITIONAL COMMENTS: Probable concentration of varioles in Piece 8. Although their sizes vary between 0.5 and 2.0 mm, most are concentrated in the boundaries.





141-862C-7R-1

SUBUNIT IIj: SPARSELY PLAGIOCLASE-PYROXENE PHYRIC BASALT

Piece 1

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 1%; 0.2–0.5 mm; euhedral.
Pyroxene - 1%; 0.2–0.5 mm; euhedral.
GROUNDMASS: Aphanitic to glassy.
VESICLES: 2%; 6.0 mm; irregular; uneven. A single vesicle is lined with pale brown to light yellow siliceous material.
COLOR: Medium-gray.
STRUCTURE: None.
ALTERATION: None.
VEINS/FRACTURES: None.

SUBUNIT IIk: HIGHLY TO MODERATELY PLAGIOCLASE-PYROXENE-OLIVINE PHYRIC BASALT

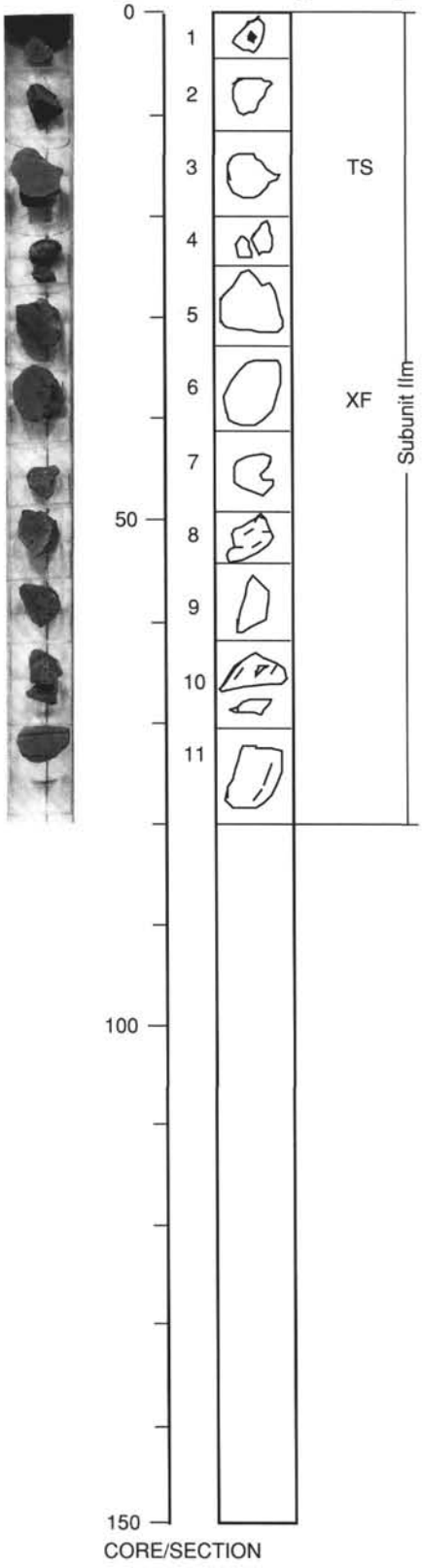
Pieces 2–6

CONTACTS: None visible.
PHENOCRYSTS: Subophitic.
Plagioclase - 40%; 0.02–3.5 mm; fresh, euhedral to skeletal laths embayed and injected by groundmass.
Olivine - 2%; 0.05–0.2 mm; fresh, subhedral to skeletal crystals embayed by groundmass.
Pyroxene - 18%; 0.02–1.5 mm; fresh, subhedral.
GROUNDMASS: Fine-grained pyroxene with minor plagioclase laths and opaque minerals in altered glass.
VESICLES: 2%; 0.2–1.0 mm; spherical; uneven. Vesicles present only in Piece 5 and larger fragment of Piece 6.
COLOR: Medium-gray.
STRUCTURE: None.
ALTERATION: Glass in groundmass is altered to palagonite.
VEINS/FRACTURES: 1%; 0.3 mm. Yellow to red palagonite veins in Piece 5.

SUBUNIT III: HIGHLY TO MODERATELY PLAGIOCLASE-PYROXENE-OLIVINE PHYRIC BASALT

Pieces 7–8

CONTACTS: None visible.
PHENOCRYSTS: Plagioclase phenocrysts are skeletal overgrowths about pyroxene and/or opaque minerals.
Plagioclase - 60%; 0.02–0.75 mm; euhedral crystals in fans of acicular needles and skeletal laths embayed by groundmass; fresh.
Olivine - 2%; 0.02–0.04 mm; altered, euhedral.
Pyroxene - 13%; 0.02–0.75 mm; fresh, subhedral.
Opaque - Trace; 0.02–0.04 mm; fresh, subhedral to anhedral.
GROUNDMASS: Finely crystalline pyroxene and plagioclase, subophitic, in altered glass.
VESICLES: 3%; 1.0–6.0 mm; spherical to oval; uneven. Lined with blue-green, opalescent silica and/or yellowish red palagonite. Some filled with white vitreous material.
COLOR: Medium-gray to medium-light gray.
STRUCTURE: None.
ALTERATION: On one edge, yellow to red palagonite replaces most of the groundmass.
VEINS/FRACTURES: 1%; 0.01 mm. Veins extend from altered edge towards the interior.

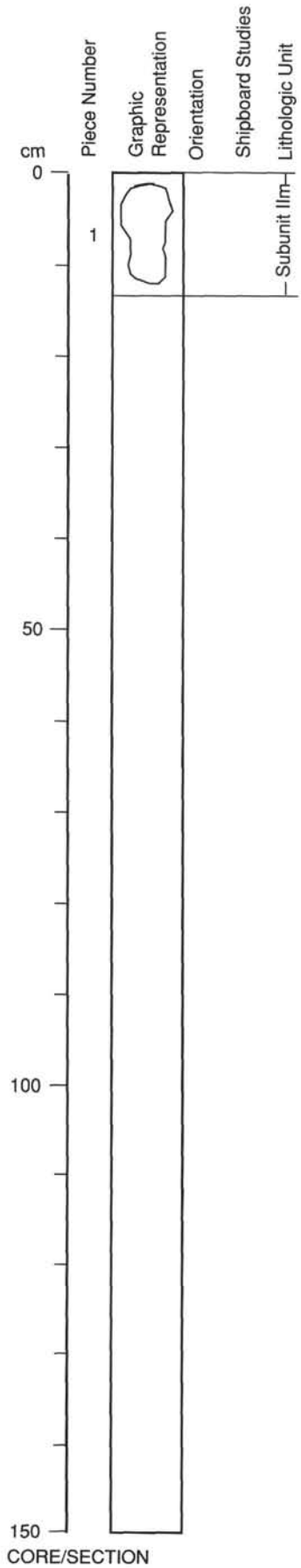


141-862C-8R-1

SUBUNIT IIm: MODERATELY PLAGIOCLASE-CLINOPYROXENE PHYRIC BASALT

Pieces 1–11

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 25%; <2 mm; subhedral.
Olivine - 1%; 0.5 mm; subhedral.
Pyroxene - 20%; 0.3 mm; skeletal.
GROUNDMASS: Microcrystalline.
VESICLES: 1%–5%; 0.2–5.0 mm; rounded. Walls of vesicles lined with blue, black, yellow minerals.
COLOR: Light gray (N5) to gray (N4).
STRUCTURE: Microcrystalline.
ALTERATION: Slightly to moderately altered.
VEINS/FRACTURES: 1%; <0.5 mm; oriented. Veins are filled with dark minerals, smectite(?).



141-862C-9B-1

SUBUNIT IIm: MODERATELY PLAGIOCLASE-CLINOPYROXENE PHYRIC BASALT

Piece 1

CONTACTS: None visible.
PHENOCRYSTS:
Plagioclase - 25%; <2 mm; subhedral.
Olivine - 1%; 0.5 mm; subhedral.
Pyroxene - 20%; 0.3 mm; skeletal.
GROUNDMASS: Microcrystalline.
VESICLES: 1%–5%; 0.2–5.0 mm; rounded. Walls of vesicles lined with blue, black, yellow secondary minerals.
COLOR: Light gray (N5) to gray (N4).
STRUCTURE: Microcrystalline.
ALTERATION: Slightly to moderately altered.
VEINS/FRACTURES: 1%; <0.5 mm; oriented. Veins are filled with dark minerals, smectite(?).
ADDITIONAL COMMENTS: Same subunit as base of Section 862C-8R-1.