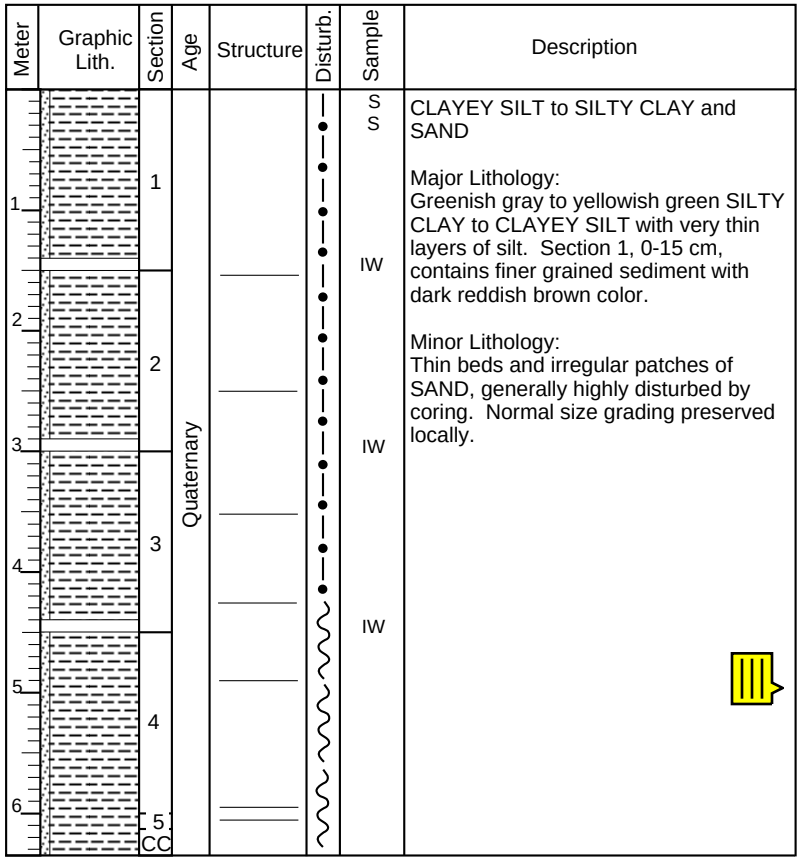
SITE 1025 HOLE A CORE 1H CORED 0.0 - 6.3 mbsf



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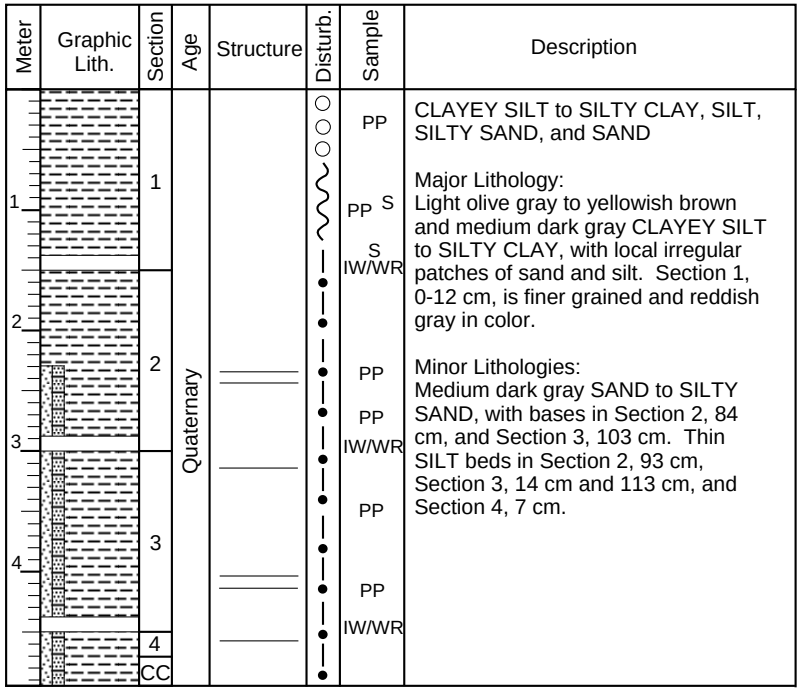
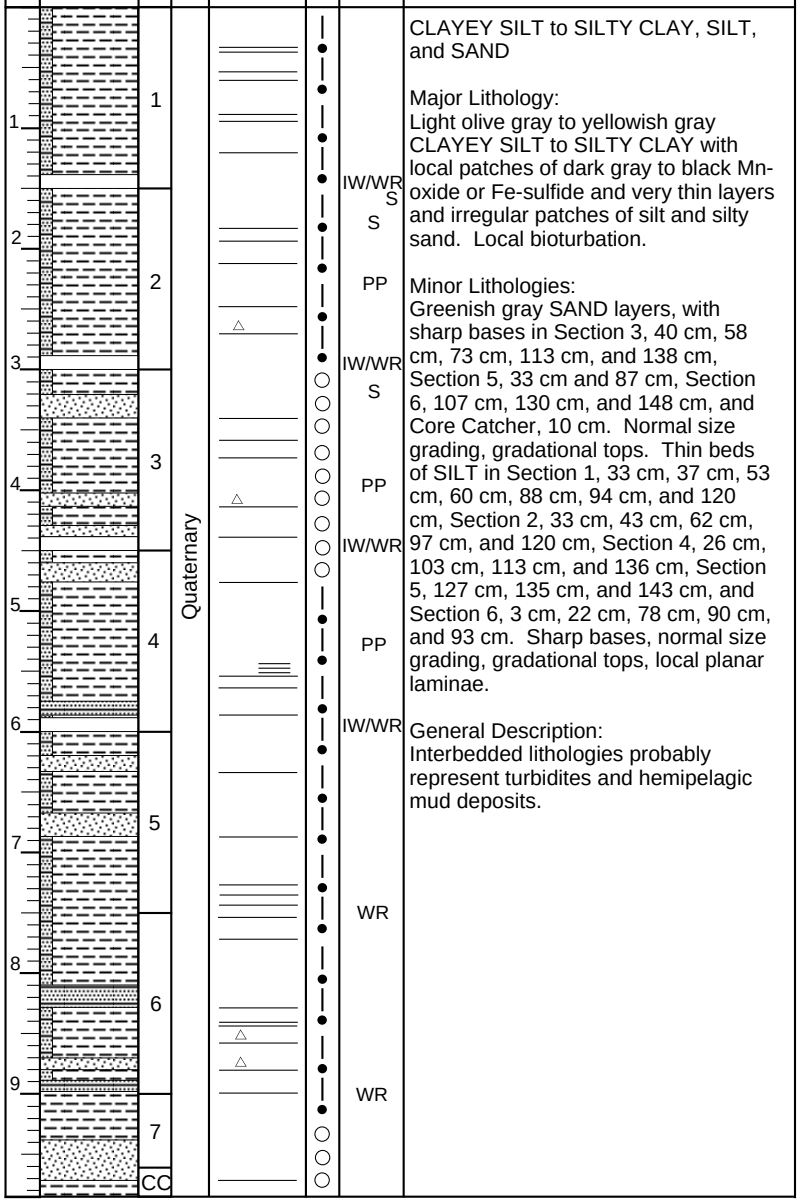
SITE 1025 HOLE B CORE 1H CORED 0.0 - 5.0 mbsf



SITE 1025 HOLE B CORE 2H CORED 5.0 - 14.5 mbsf



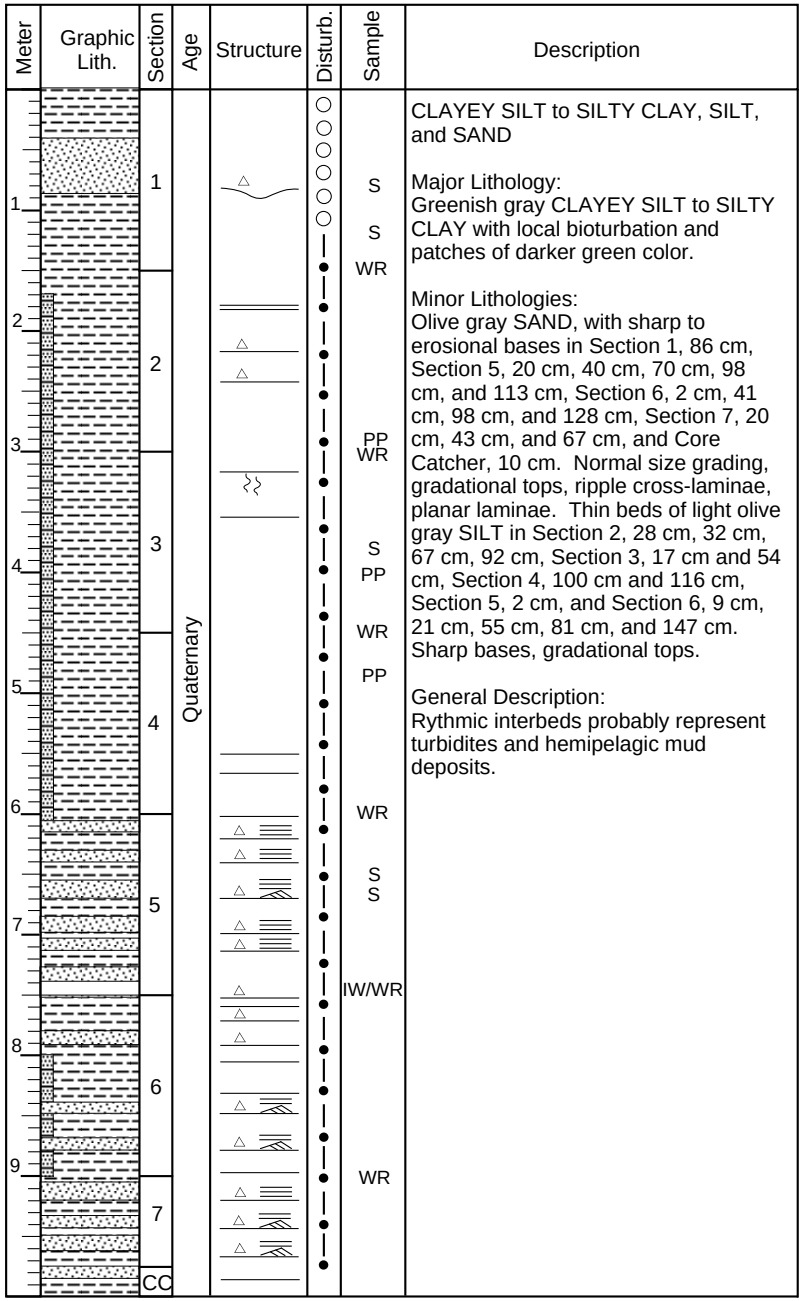
CLAYEY SILT to SILTY CLAY, SILT, and SAND

Major Lithology:
Light olive gray to yellowish gray CLAYEY SILT to SILTY CLAY with local patches of dark gray to black Mn-oxide or Fe-sulfide and very thin layers and irregular patches of silt and silty sand. Local bioturbation.

Minor Lithologies:
Greenish gray SAND layers, with sharp bases in Section 3, 40 cm, 58 cm, 73 cm, 113 cm, and 138 cm, Section 5, 33 cm and 87 cm, Section 6, 107 cm, 130 cm, and 148 cm, and Core Catcher, 10 cm. Normal size grading, gradational tops. Thin beds of SILT in Section 1, 33 cm, 37 cm, 53 cm, 60 cm, 88 cm, 94 cm, and 120 cm, Section 2, 33 cm, 43 cm, 62 cm, 97 cm, and 120 cm, Section 4, 26 cm, 103 cm, 113 cm, and 136 cm, Section 5, 127 cm, 135 cm, and 143 cm, and Section 6, 3 cm, 22 cm, 78 cm, 90 cm, and 93 cm. Sharp bases, normal size grading, gradational tops, local planar laminae.

General Description:
Interbedded lithologies probably represent turbidites and hemipelagic mud deposits.

SITE 1025 HOLE B CORE 3H CORED 14.5 - 24.0 mbsf



Description

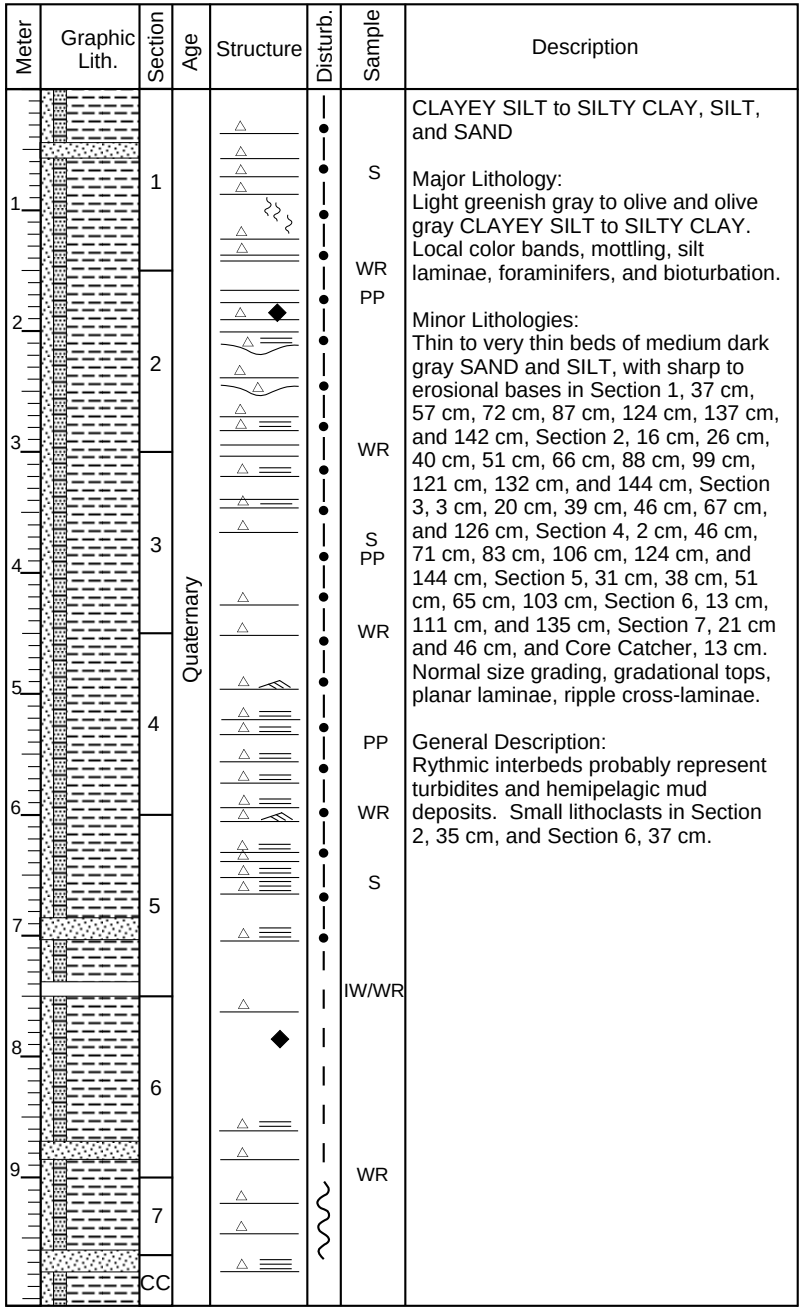
CLAYEY SILT to SILTY CLAY, SILT, and SAND

Major Lithology:
Greenish gray CLAYEY SILT to SILTY CLAY with local bioturbation and patches of darker green color.

Minor Lithologies:
Olive gray SAND, with sharp to erosional bases in Section 1, 86 cm, Section 5, 20 cm, 40 cm, 70 cm, 98 cm, and 113 cm, Section 6, 2 cm, 41 cm, 98 cm, and 128 cm, Section 7, 20 cm, 43 cm, and 67 cm, and Core Catcher, 10 cm. Normal size grading, gradational tops, ripple cross-laminae, planar laminae. Thin beds of light olive gray SILT in Section 2, 28 cm, 32 cm, 67 cm, 92 cm, Section 3, 17 cm and 54 cm, Section 4, 100 cm and 116 cm, Section 5, 2 cm, and Section 6, 9 cm, 21 cm, 55 cm, 81 cm, and 147 cm. Sharp bases, gradational tops.

General Description:
Rythmic interbeds probably represent turbidites and hemipelagic mud deposits.

SITE 1025 HOLE B CORE 4H CORED 24.0 - 33.5 mbsf



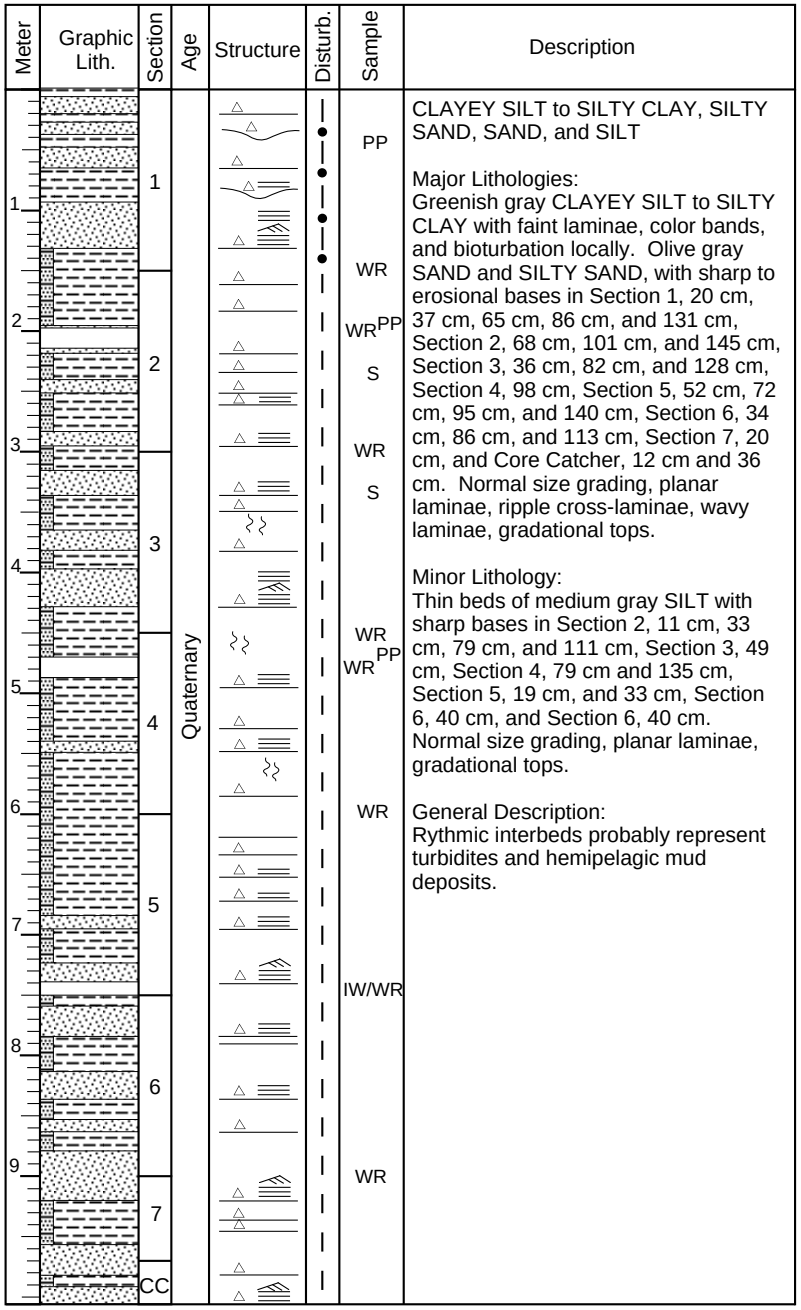
CLAYEY SILT to SILTY CLAY, SILT, and SAND

Major Lithology:
Light greenish gray to olive and olive gray CLAYEY SILT to SILTY CLAY. Local color bands, mottling, silt laminae, foraminifers, and bioturbation.

Minor Lithologies:
Thin to very thin beds of medium dark gray SAND and SILT, with sharp to erosional bases in Section 1, 37 cm, 57 cm, 72 cm, 87 cm, 124 cm, 137 cm, and 142 cm, Section 2, 16 cm, 26 cm, 40 cm, 51 cm, 66 cm, 88 cm, 99 cm, 121 cm, 132 cm, and 144 cm, Section 3, 3 cm, 20 cm, 39 cm, 46 cm, 67 cm, and 126 cm, Section 4, 2 cm, 46 cm, 71 cm, 83 cm, 106 cm, 124 cm, and 144 cm, Section 5, 31 cm, 38 cm, 51 cm, 65 cm, 103 cm, Section 6, 13 cm, 111 cm, and 135 cm, Section 7, 21 cm and 46 cm, and Core Catcher, 13 cm. Normal size grading, gradational tops, planar laminae, ripple cross-laminae.

General Description:
Rythmic interbeds probably represent turbidites and hemipelagic mud deposits. Small lithoclasts in Section 2, 35 cm, and Section 6, 37 cm.

SITE 1025 HOLE B CORE 5H CORED 33.5 - 43.0 mbsf



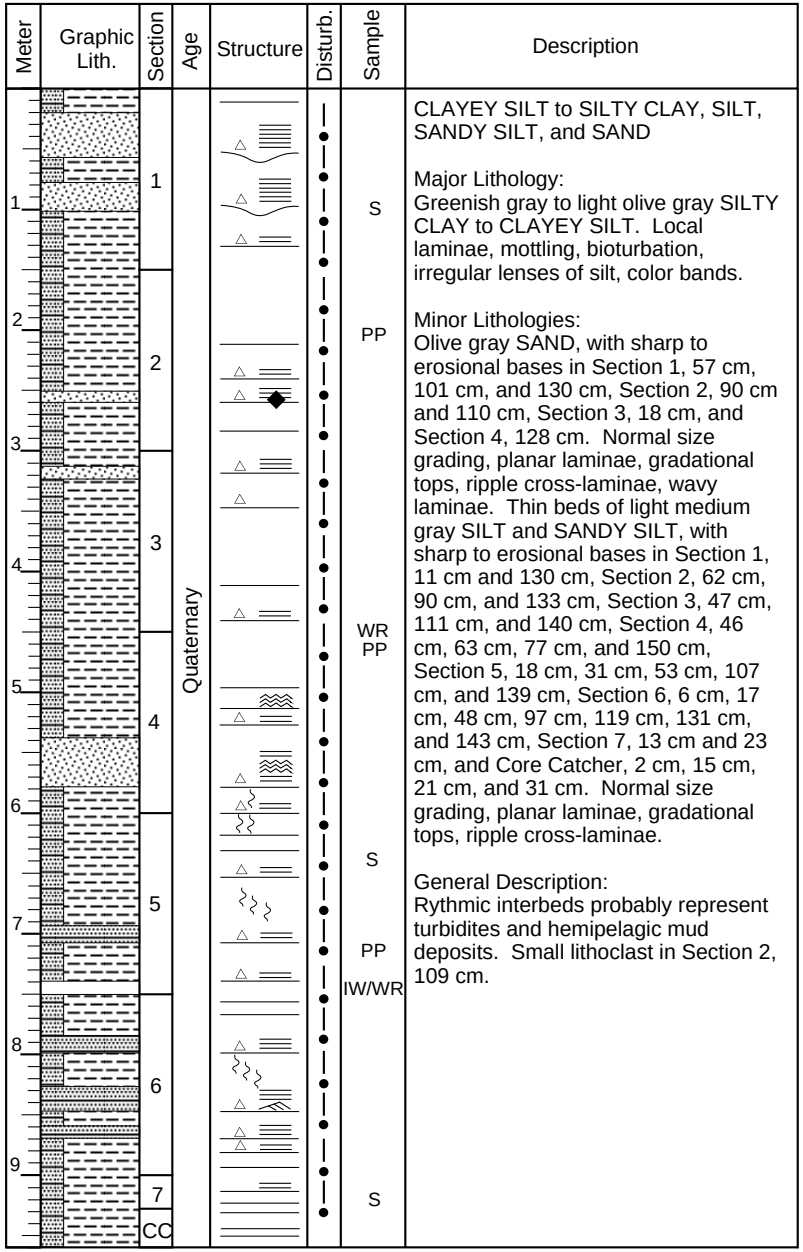
CLAYEY SILT to SILTY CLAY, SILTY SAND, SAND, and SILT

Major Lithologies:
Greenish gray CLAYEY SILT to SILTY CLAY with faint laminae, color bands, and bioturbation locally. Olive gray SAND and SILTY SAND, with sharp to erosional bases in Section 1, 20 cm, 37 cm, 65 cm, 86 cm, and 131 cm, Section 2, 68 cm, 101 cm, and 145 cm, Section 3, 36 cm, 82 cm, and 128 cm, Section 4, 98 cm, Section 5, 52 cm, 72 cm, 95 cm, and 140 cm, Section 6, 34 cm, 86 cm, and 113 cm, Section 7, 20 cm, and Core Catcher, 12 cm and 36 cm. Normal size grading, planar laminae, ripple cross-laminae, wavy laminae, gradational tops.

Minor Lithology:
Thin beds of medium gray SILT with sharp bases in Section 2, 11 cm, 33 cm, 79 cm, and 111 cm, Section 3, 49 cm, Section 4, 79 cm and 135 cm, Section 5, 19 cm, and 33 cm, Section 6, 40 cm, and Section 6, 40 cm. Normal size grading, planar laminae, gradational tops.

General Description:
Rythmic interbeds probably represent turbidites and hemipelagic mud deposits.

SITE 1025 HOLE B CORE 6H CORED 43.0 - 52.5 mbsf



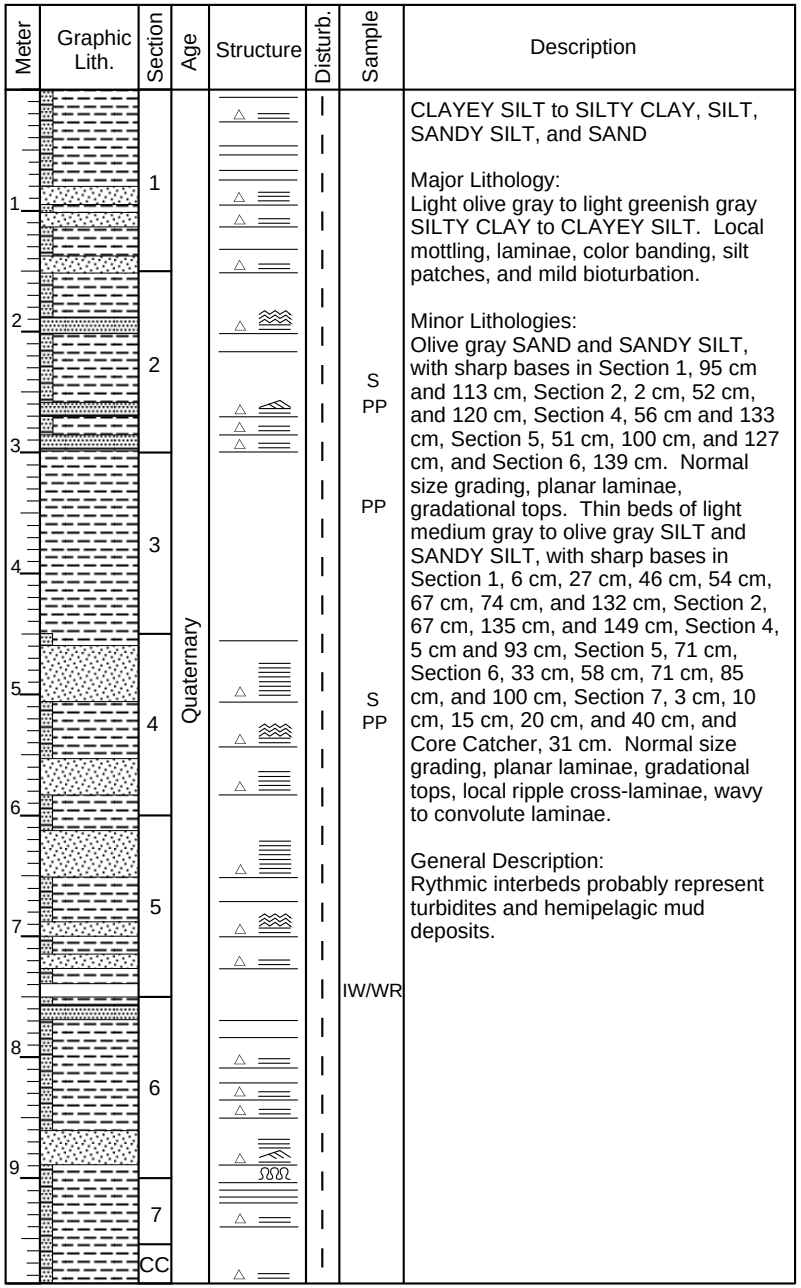
CLAYEY SILT to SILTY CLAY, SILT, SANDY SILT, and SAND

Major Lithology:
Greenish gray to light olive gray SILTY CLAY to CLAYEY SILT. Local laminae, mottling, bioturbation, irregular lenses of silt, color bands.

Minor Lithologies:
Olive gray SAND, with sharp to erosional bases in Section 1, 57 cm, 101 cm, and 130 cm, Section 2, 90 cm and 110 cm, Section 3, 18 cm, and Section 4, 128 cm. Normal size grading, planar laminae, gradational tops, ripple cross-laminae, wavy laminae. Thin beds of light medium gray SILT and SANDY SILT, with sharp to erosional bases in Section 1, 11 cm and 130 cm, Section 2, 62 cm, 90 cm, and 133 cm, Section 3, 47 cm, 111 cm, and 140 cm, Section 4, 46 cm, 63 cm, 77 cm, and 150 cm, Section 5, 18 cm, 31 cm, 53 cm, 107 cm, and 139 cm, Section 6, 6 cm, 17 cm, 48 cm, 97 cm, 119 cm, 131 cm, and 143 cm, Section 7, 13 cm and 23 cm, and Core Catcher, 2 cm, 15 cm, 21 cm, and 31 cm. Normal size grading, planar laminae, gradational tops, ripple cross-laminae.

General Description:
Rythmic interbeds probably represent turbidites and hemipelagic mud deposits. Small lithoclast in Section 2, 109 cm.

SITE 1025 HOLE B CORE 7H CORED 52.5 - 62.0 mbsf



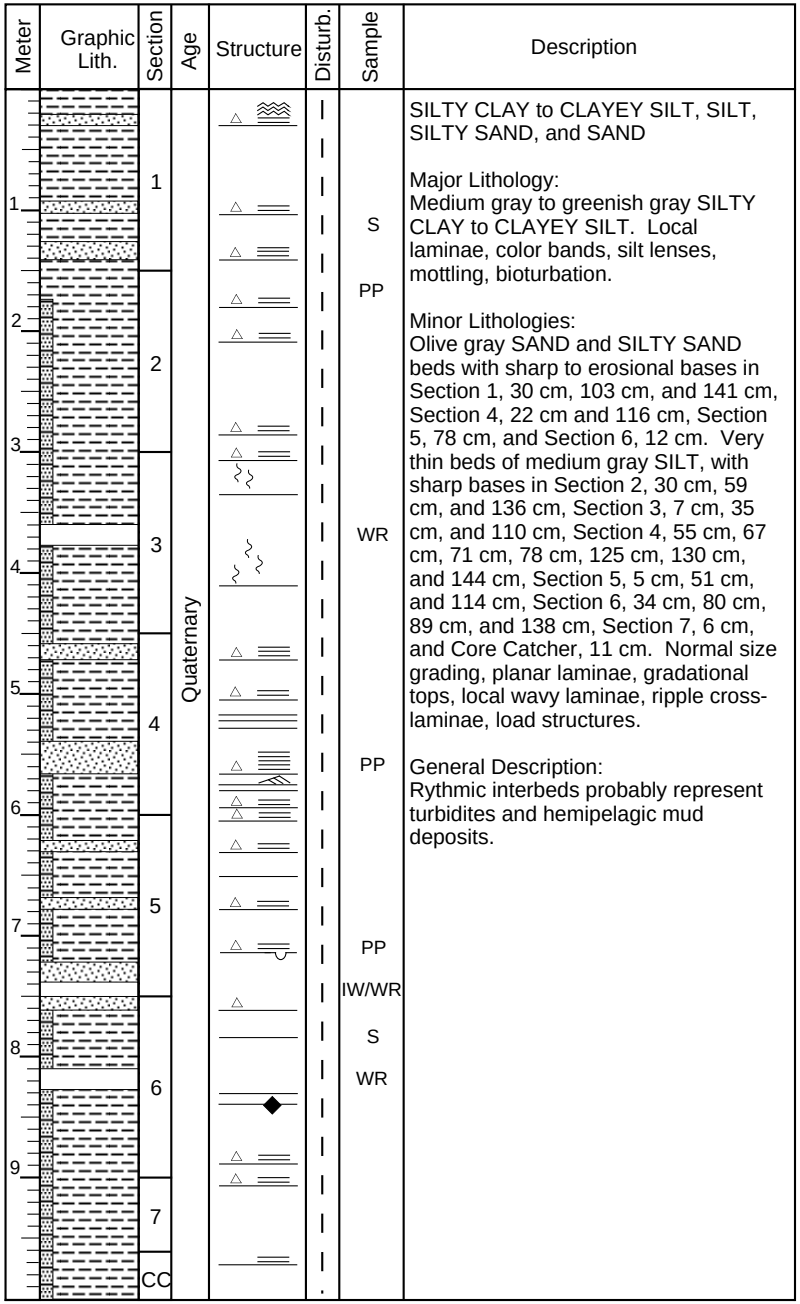
CLAYEY SILT to SILTY CLAY, SILT, SANDY SILT, and SAND

Major Lithology:
Light olive gray to light greenish gray SILTY CLAY to CLAYEY SILT. Local mottling, laminae, color banding, silt patches, and mild bioturbation.

Minor Lithologies:
Olive gray SAND and SANDY SILT, with sharp bases in Section 1, 95 cm and 113 cm, Section 2, 2 cm, 52 cm, and 120 cm, Section 4, 56 cm and 133 cm, Section 5, 51 cm, 100 cm, and 127 cm, and Section 6, 139 cm. Normal size grading, planar laminae, gradational tops. Thin beds of light medium gray to olive gray SILT and SANDY SILT, with sharp bases in Section 1, 6 cm, 27 cm, 46 cm, 54 cm, 67 cm, 74 cm, and 132 cm, Section 2, 67 cm, 135 cm, and 149 cm, Section 4, 5 cm and 93 cm, Section 5, 71 cm, Section 6, 33 cm, 58 cm, 71 cm, 85 cm, and 100 cm, Section 7, 3 cm, 10 cm, 15 cm, 20 cm, and 40 cm, and Core Catcher, 31 cm. Normal size grading, planar laminae, gradational tops, local ripple cross-laminae, wavy to convolute laminae.

General Description:
Rythmic interbeds probably represent turbidites and hemipelagic mud deposits.

SITE 1025 HOLE B CORE 8H CORED 62.0 - 71.5 mbsf



SILTY CLAY to CLAYEY SILT, SILT, SILTY SAND, and SAND

Major Lithology:
Medium gray to greenish gray SILTY CLAY to CLAYEY SILT. Local laminae, color bands, silt lenses, mottling, bioturbation.

Minor Lithologies:
Olive gray SAND and SILTY SAND beds with sharp to erosional bases in Section 1, 30 cm, 103 cm, and 141 cm, Section 4, 22 cm and 116 cm, Section 5, 78 cm, and Section 6, 12 cm. Very thin beds of medium gray SILT, with sharp bases in Section 2, 30 cm, 59 cm, and 136 cm, Section 3, 7 cm, 35 cm, and 110 cm, Section 4, 55 cm, 67 cm, 71 cm, 78 cm, 125 cm, 130 cm, and 144 cm, Section 5, 5 cm, 51 cm, and 114 cm, Section 6, 34 cm, 80 cm, 89 cm, and 138 cm, Section 7, 6 cm, and Core Catcher, 11 cm. Normal size grading, planar laminae, gradational tops, local wavy laminae, ripple cross-laminae, load structures.

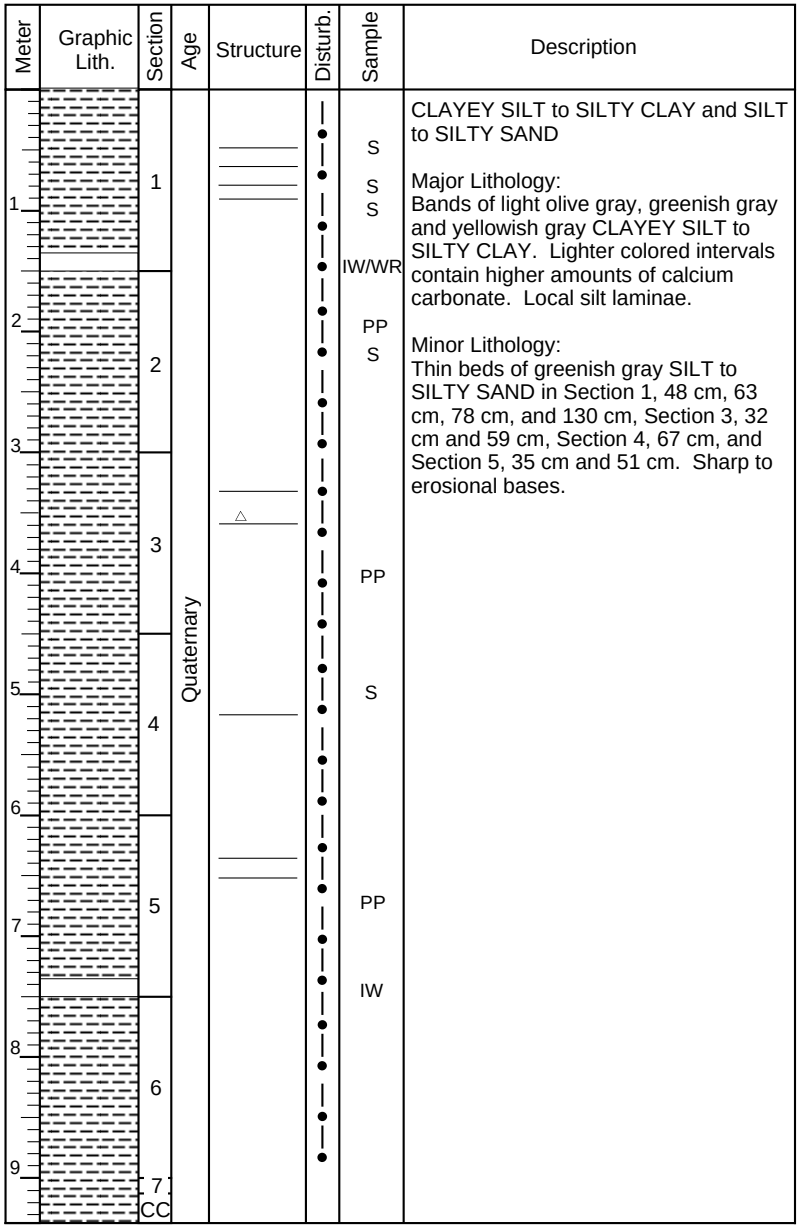
General Description:
Rythmic interbeds probably represent turbidites and hemipelagic mud deposits.

SITE 1025 HOLE B CORE 9X CORED 71.5 - 81.1 mbsf

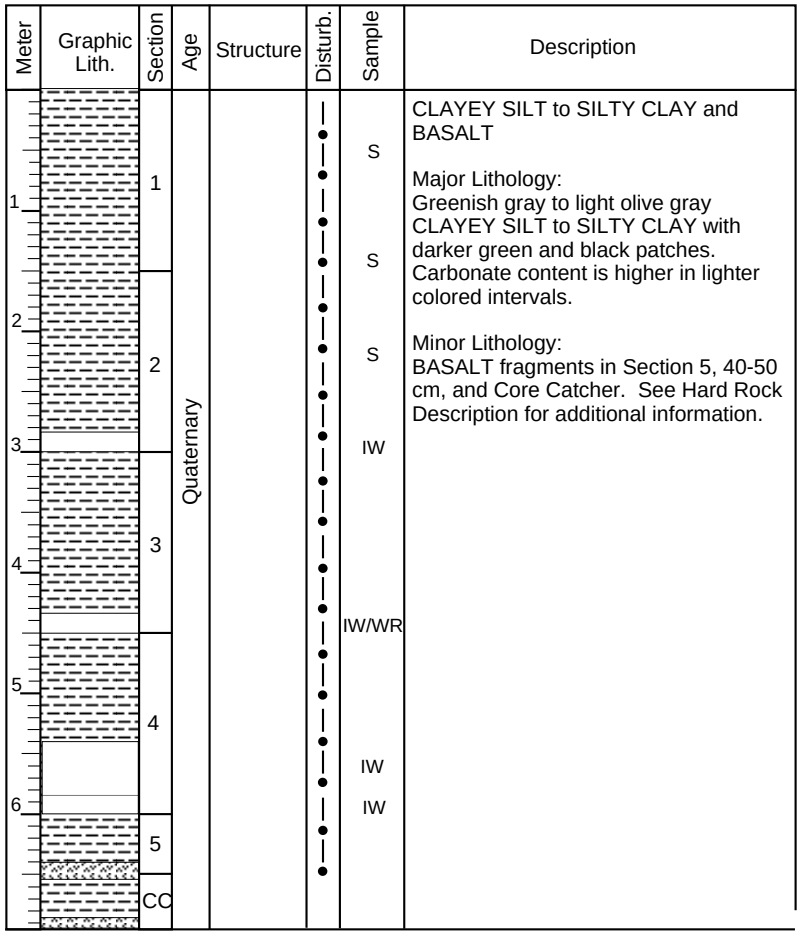
Meter	Graphic Lith.	Section	Age	Structure	Disturb.	Sample	Description
		CC					CLAYEY SILT, SILT, and SAND

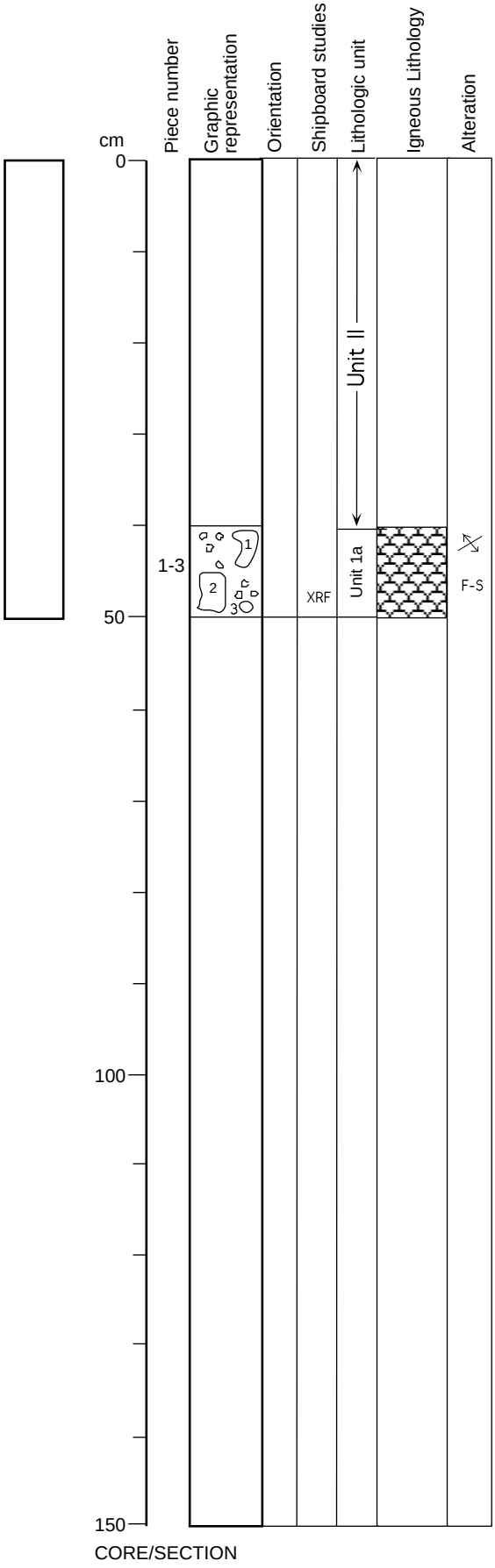
General Description:
Core Catcher contains thin interbeds of CLAYEY SILT to SILTY CLAY, SILT, and SAND.

SITE 1025 HOLE B CORE 10X CORED 81.1 - 90.7 mbsf



SITE 1025 HOLE B CORE 11X CORED 90.7 - 100.3 mbsf





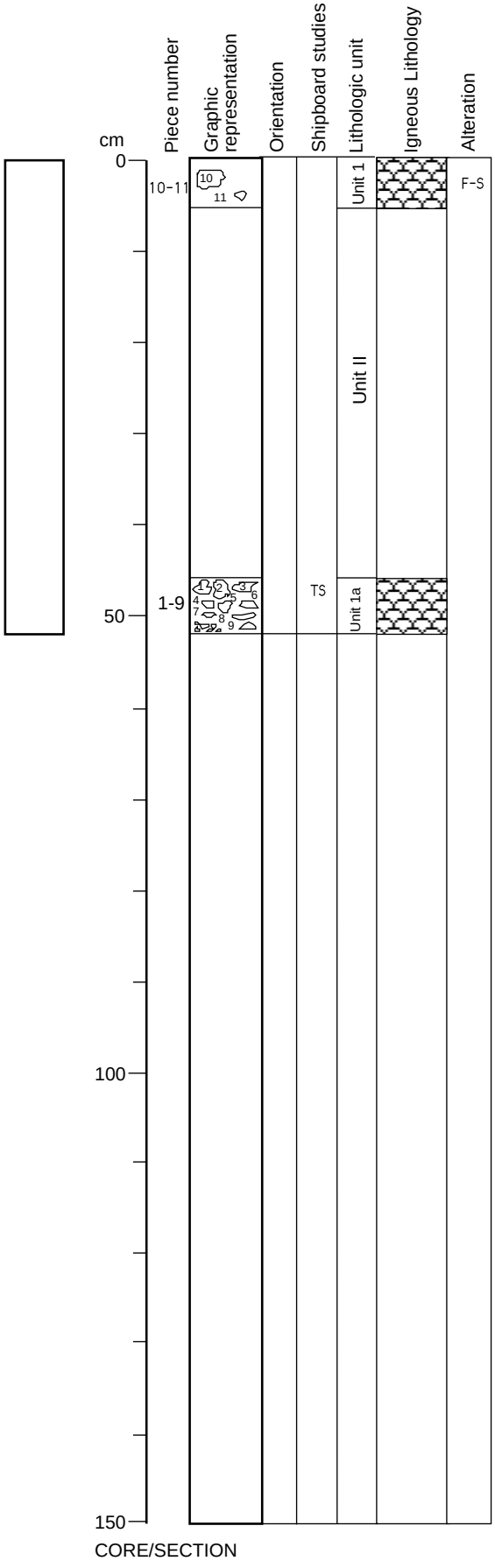
168-1025B-11X-05

UNIT II: Sediments (see Sedimentary VCD).

UNIT 1a: APHYRIC BASALT

PIECES 1-3

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Cryptocrystalline to microcrystalline.
VESICLES: ≤1%, ≤1mm
COLOR: Medium to dark blue-gray, 7.3PB 1.4/0.2 to 7.8 PB 2.2/0.1
STRUCTURE: Pillow fragments.
ALTERATION: Blue-gray minerals and irregular patches of fine grained pyrite partially coat outer surfaces (pieces 1-3). Most vesicle interiors are coated with a light-blue mineral (probably clay). In piece 2, some vesicle interiors are partially coated with a white slightly fibrous mineral (zeolite?).
VEINS/FRACTURES: Fracture on piece 1 (no alteration minerals).
ADDITIONAL COMMENTS: Glass rim on piece 3.



168-1025B-11X-CC

Note: Pieces 10-11 were discovered and curated after pieces 1-9.

UNIT II: Muddy lithology (see Sedimentary VCD.)

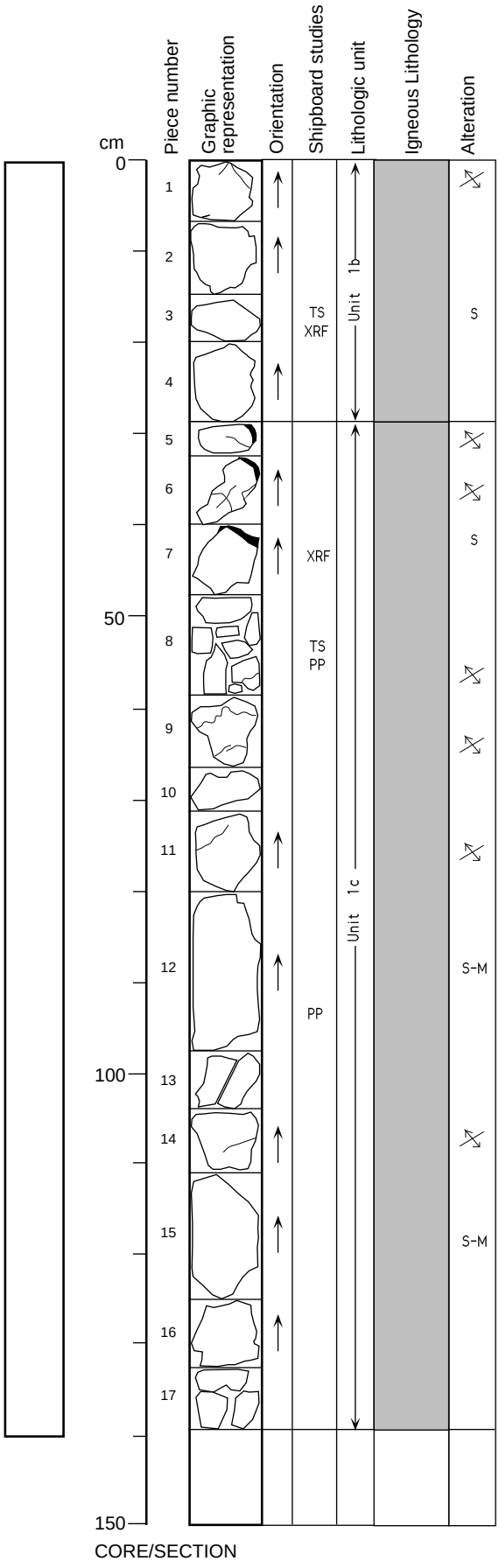
UNIT 1a: APHYRIC BASALT

PIECES 1-2

CONTACTS: None.
PHENOCRYSTS: Traces of plagioclase and olivine.
GROUNDMASS: Microcrystalline to microlitic.
VESICLES: ≤1%, ≤0.2mm
COLOR: Medium to dark blue-gray colour, 5.4PB 1.5/0.2 to 9.7PB 1.4/0.1
STRUCTURE: Pillow fragments.
ALTERATION: Blue-gray clay and irregular patches of pristine fine-grained pyrite partially coat outer surfaces. This clay mineral, pyrite, as well as clear tabular crystals (zeolites?) partially fill vesicles.
VEINS/FRACTURES: Fractures (no alteration minerals).

PIECES 3-11

CONTACTS: None.
PHENOCRYSTS: Traces of plagioclase and olivine.
GROUNDMASS: Microcrystalline.
VESICLES: ≤1%, ≤0.2mm
COLOR: Medium to dark blue-gray colour, 5.4PB 1.5/0.2 to 9.7PB 1.4/0.1
STRUCTURE: Pillow fragments.
ALTERATION: Blue-gray clay ± irregular patches of pristine fine-grained pyrite partially coat outer surfaces on pieces 3, 4, 5 & 6. Piece 8 has traces of pyrite. Piece 3 exhibits bands of alteration (clay, oxidized layer, pyrite layer) parallel to the glassy rim.
VEINS/FRACTURES: Fractures (no alteration minerals).
ADDITIONAL COMMENTS: Glassy rim fragments (smooth texture) on pieces 3 & 4.



168-1025C-01R-01

UNIT 1b: APHYRIC BASALT

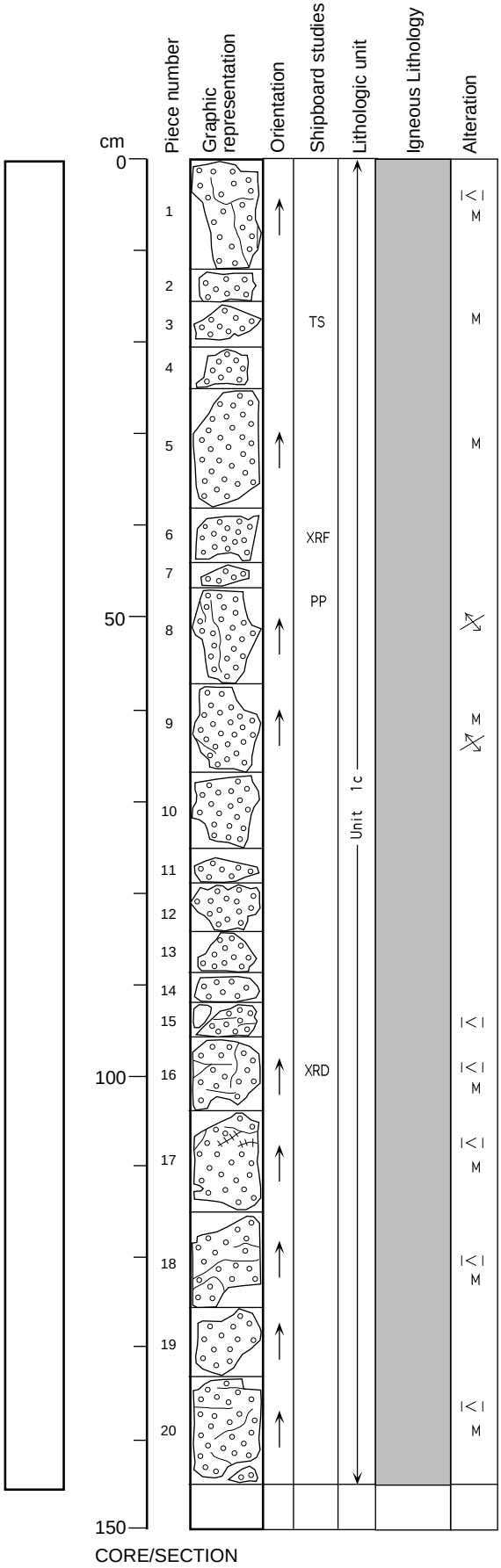
PIECES 1-4

CONTACTS: None.
PHENOCRYSTS: Trace amount of euhedral plagioclase (≤ 2mm) and olivine (≤ 1mm, replaced by blue clay ± carbonate).
GROUNDMASS: Aphanitic, intersertal to intergranular. Decrease in grain size from microcrystalline to cryptocrystalline from pieces 1 to 4.
VESICLES: Segregation and gas vesicles (≤2%; ≤0.8 mm and ≤0.4 mm respectively).
COLOR: Medium gray; 2.7PB 1.9/0.3 to 3.1 PB 1.9/0.2
STRUCTURE: Massive basalt.
ALTERATION: Slight (2-5%). Blue to light blue clay plus carbonate; alteration limited to infill of vesicles and replacement of olivine. Sparse millimetric blue clay patches and rare orange oxidation spots on external surfaces.
VEINS/FRACTURES: Fracture on pieces 1 and 5 (<<1mm).

UNIT 1c: APHYRIC BASALT

PIECES 5-17

CONTACTS: Subunits defined by presence of chilled margins on top of pieces 5, 6, 7 and on one fragment of piece 8.
PHENOCRYSTS: Trace amount of euhedral plagioclase (≤ 3mm), olivine (≤ 3mm; replaced by blue clay ± carbonate) and pyroxene.
GROUNDMASS: Aphanitic, intersertal to intergranular. Increases in grain size (from cryptocrystalline to microcrystalline) and in crystallinity from pieces 5 to 17.
VESICLES: Progressive increase in abundance (from 2 to 5%) and in size (from ≤ 0.75 to ≤ 1.75 mm). Partially to completely filled by clay mineral ± carbonate.
COLOR: Light gray; 4.3 PB 2.5/0.2 to 5.8 PB 2.2/0.1
STRUCTURE: Massive basalt.
ALTERATION: Slight to moderate (10%). Blue to light blue clay and carbonate fill/line vesicle and replace olivine. Sparse blue clay patches and rare oxidation spots on external surfaces. Trace pyrite on surfaces of pieces 6-9 and 12-17. Pyrite patches (1mm-1cm) on surfaces of pieces 8 and 9; pyrite trace on pieces 12-17.
VEINS/FRACTURES: Fracture in pieces 5, 6, 8, 9, 11 and 14 (<1mm).
ADDITIONAL COMMENTS: Centimetric chilled margin on pieces 5-8. The increase in alteration is strictly related to the vesicle amount.

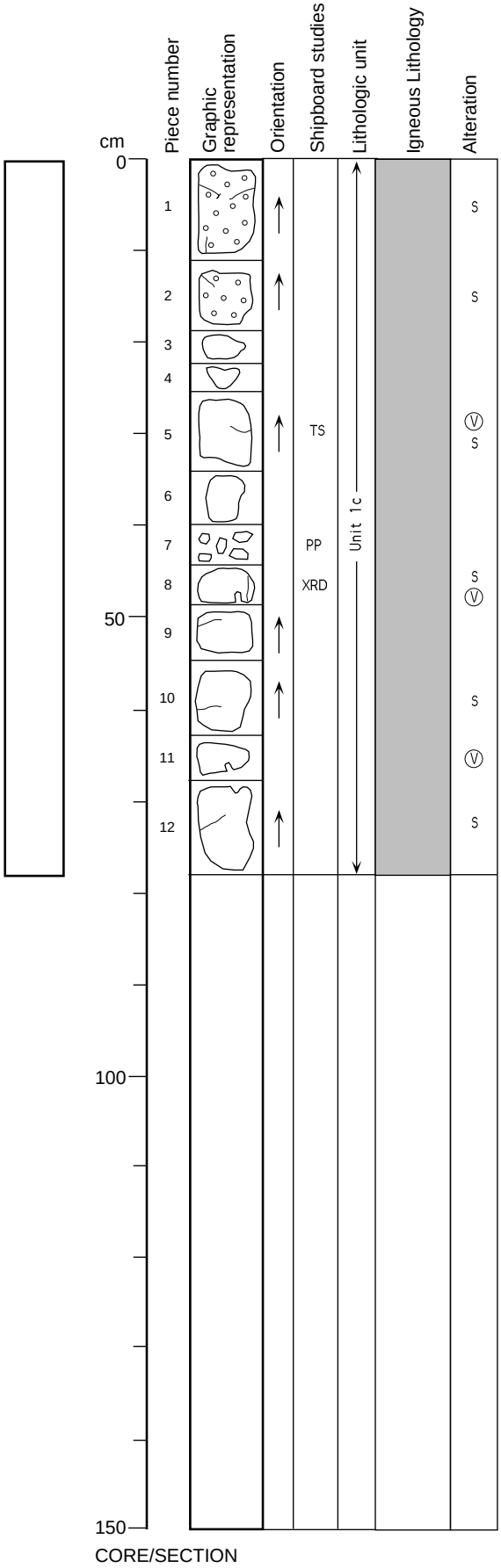


168-1025C-01R-02

UNIT 1c: APHYRIC BASALT

PIECES 1-20

CONTACTS: None.
PHENOCRYSTS: Rare plagioclase and altered olivine.
GROUNDMASS: Microcrystalline.
VESICLES: Overall abundant; (the abundance refers to empty to partially filled gas vesicles, but does not include the segregation vesicles which are present in a trace amount.) Abundance varies smoothly from c.5% at the top (piece 1), to 10-12% in pieces 2-10, to c.10% in pieces 11-15, and c.7% at the bottom (pieces 16-20) of the section. There is also a gradual increase in the average diameter of the vesicles from the top to bottom of the section. Vesicles increase in size from ≤1mm (round) in piece 1, to 1-3mm (rounded to ovoid) in pieces 2-7, to 1-6mm (ave 2mm; rounded to ovoid) pieces 8-15, to 1-6mm (ave 3mm; rounded to ovoid to irregular, and partly coalesced) pieces 16-20.
COLOR: Light gray; 6.0G 2.0/0.2 to 2.2PB 2.0/0.1
STRUCTURE: Massive basalt; highly vesicular.
ALTERATION: Green clay ± carbonate replaces olivine in the groundmass and rare euhedral olivine phenocrysts. Vesicles are lined by blue clay grading to dark green clay in the middle of the section where the vesicles are more abundant. Many vesicles also contain multicrystalline, drusy balls of pyrite. Light to dark green clay coats many outer rock surfaces.
VEINS/FRACTURES: None, except for sub-millimetric discontinuous cracks in several pieces that produced localized tiny salt deposits during drying.
ADDITIONAL COMMENTS: Slight increase in grain size from the top to the bottom of the section (plagioclase microlite varies from <1mm up to 1mm).

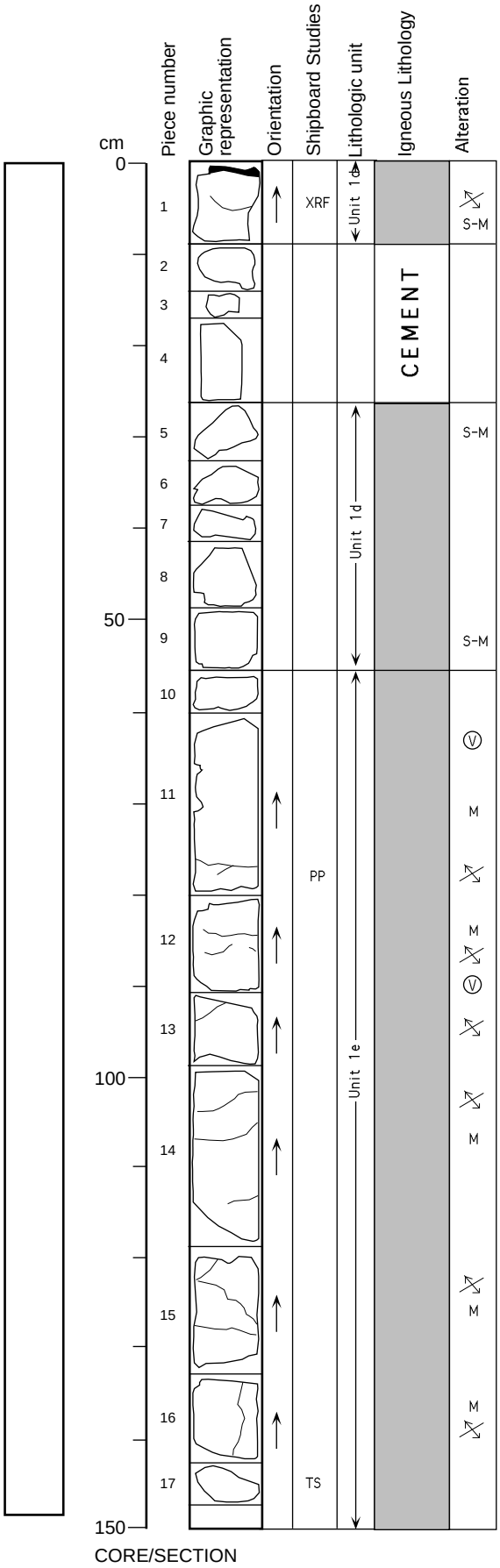


168-1025C-01R-03

UNIT 1c: APHYRIC BASALT

PIECES 1-12

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Microcrystalline; plagioclase laths, olivine (altered) and pyroxene.
VESICLES: Variable abundance, from about 5% (pieces 1 and 2) to <1% (pieces 3-12); spherical and irregular, typically 2-5mm, some as large as 15mm. Some vesicles exhibit menisci of aphanitic cryptocrystalline material (i.e., they are segregation vesicles).
COLOR: Light gray; 8.5G 2.5/0.1; 7.5BG 2.5/0.1
STRUCTURE: Massive basalt.
ALTERATION: Green clay replaces microcrystalline euhedral olivines in groundmass. Vesicles are lined by pale blue clay. In addition, some vesicles contain an earlier lining of dark green clay and/or pyrite. The surface of piece 7 is stained a yellow-green color.
VEINS/FRACTURES: None, except for sub-millimetric discontinuous cracks in several pieces that produced localized tiny salt deposits during drying.
ADDITIONAL COMMENTS: Pieces 1 and 2 are vesicular and similar to the bottom of Core 1R–02.



168-1025C-02R-01

UNIT 1d: APHYRIC BASALT

PIECES 1, 5-9

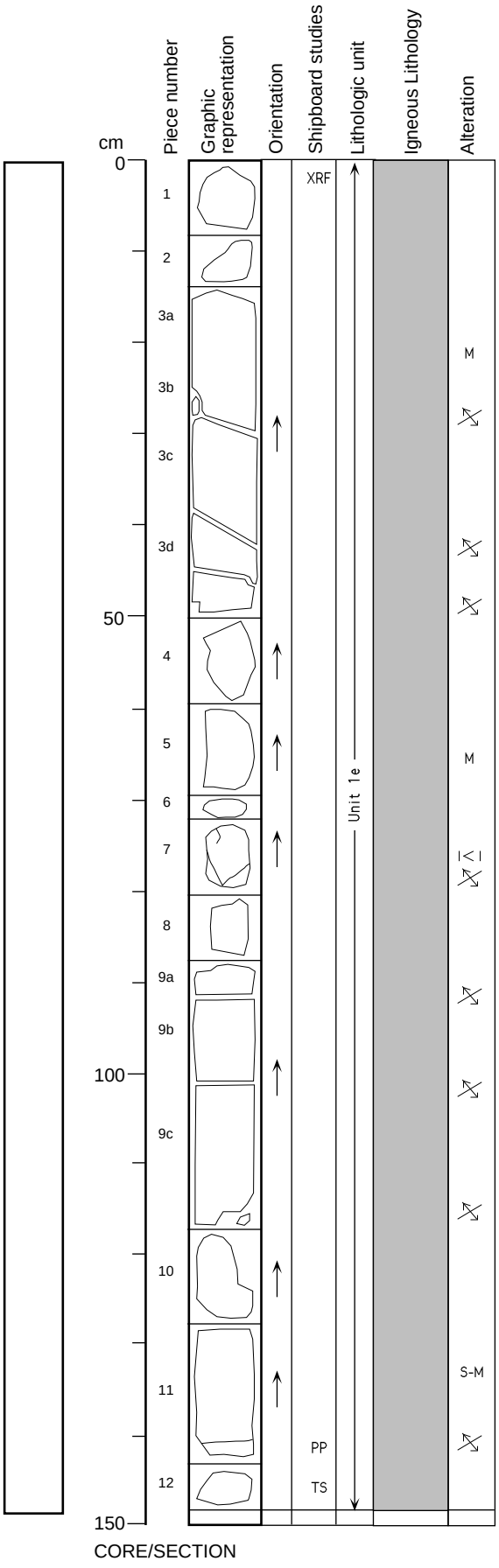
CONTACTS: Subunit defined by the presence of a chilled margin on top of piece 1.
PHENOCRYSTS: Trace amount of plagioclase ± olivine ± pyroxene.
GROUNDMASS: Aphanitic, cryptocrystalline to microcrystalline.
VESICLES: Around 3%, <<1mm. Mostly round, gas vesicles (diameter <<0.5mm), empty to partially filled by white, granular clay and a trace light bluish-green clay. Some segregation vesicles are present in piece 9.
COLOR: Dark gray; 5.2PB 3.4/0.1 to 3.7PB 1.6/0.2
STRUCTURE: Massive basalt.
ALTERATION: Alteration limited to lining of vesicles.
VEINS/FRACTURES: One small black veinlet in piece 1.
ADDITIONAL COMMENTS: Quenched margin in piece 1.

UNIT 1e: APHYRIC BASALT

PIECES 10-17

CONTACTS: Subunit defined by an abrupt change in grain size and color.
PHENOCRYSTS: Rare euhedral plagioclase laths up to 3mm long.
GROUNDMASS: Aphanitic, microcrystalline. Intergranular texture probably enhanced by pervasive alteration, i.e. rock looks fresh, but minerals are soft. White plagioclase laths up to 1mm long, small light brown, fresh granular pyroxene (<<1mm) and black olivine pseudomorphed completely by clay.
VESICLES: Low to variable, ranging from 1% in the top of the subunit to trace amounts at the bottom. Rounded to irregular shape; size ranges from 1mm up to 20mm in diameter. Lined by a light blue-green spongy clay mineral.
COLOR: Light gray; 0.5BG 2.3/0.1 to 6.0PB 3.0/0.1
STRUCTURE: Massive basalt.
ALTERATION: Moderate; approximately 30% of the rock is altered. Groundmass olivine is replaced and vesicles are infilled by light-blue to green clay.
VEINS/FRACTURES: Minor fractures in pieces 11, 12, 13, 14, 15 and 16.
ADDITIONAL COMMENTS: No quenched margins.

PIECES 2-4
Anthropogenic cement clasts which have fallen in from the surrounding pipe casing.

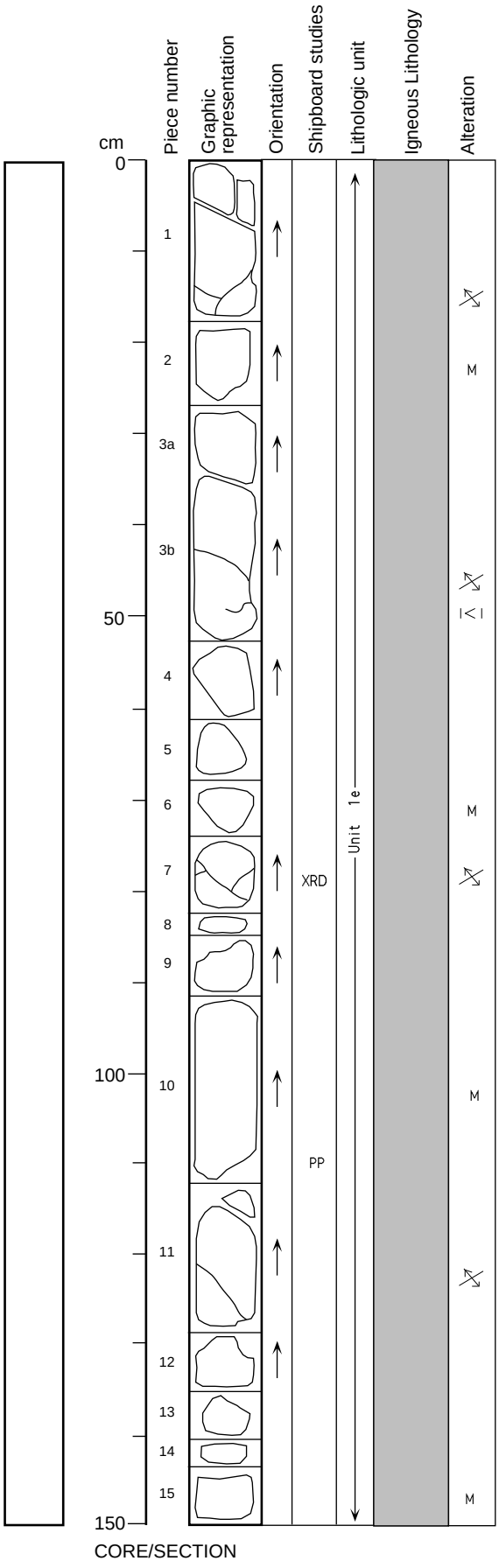


168-1025C-02R-02

UNIT 1e: APHYRIC BASALT

PIECES 1-12

CONTACTS: None.
PHENOCRYSTS: Rare plagioclase prisms; ≤2mm.
GROUNDMASS: Aphanitic, microcrystalline. Consists of white plagioclase laths, olivine pseudomorphs and brown pyroxene. Intergranular texture.
VESICLES: Pieces 1-5 have trace amounts of vesicles (≤1.5mm; round); pieces 6-12 have no vesicles.
COLOR: Light gray; 4.2Y 2.1/0.7 to 9.4Y 1.7/0.1
STRUCTURE: Massive basalt.
ALTERATION: Pale greenish-blue clay replaces the groundmass and olivine, as well as filling vesicles. It also coats fractures and external rock surfaces. Carbonate patches occur on top of green clay along the fractures in piece 9.
VEINS/FRACTURES: Centimetric fractures in pieces 3, 7, 9 and 11. Millimetric veins in piece 7 are filled by greenish clay. Centimetric veins in pieces 10 and 11 contain drusy quartz crystals on top of the greenish clay.

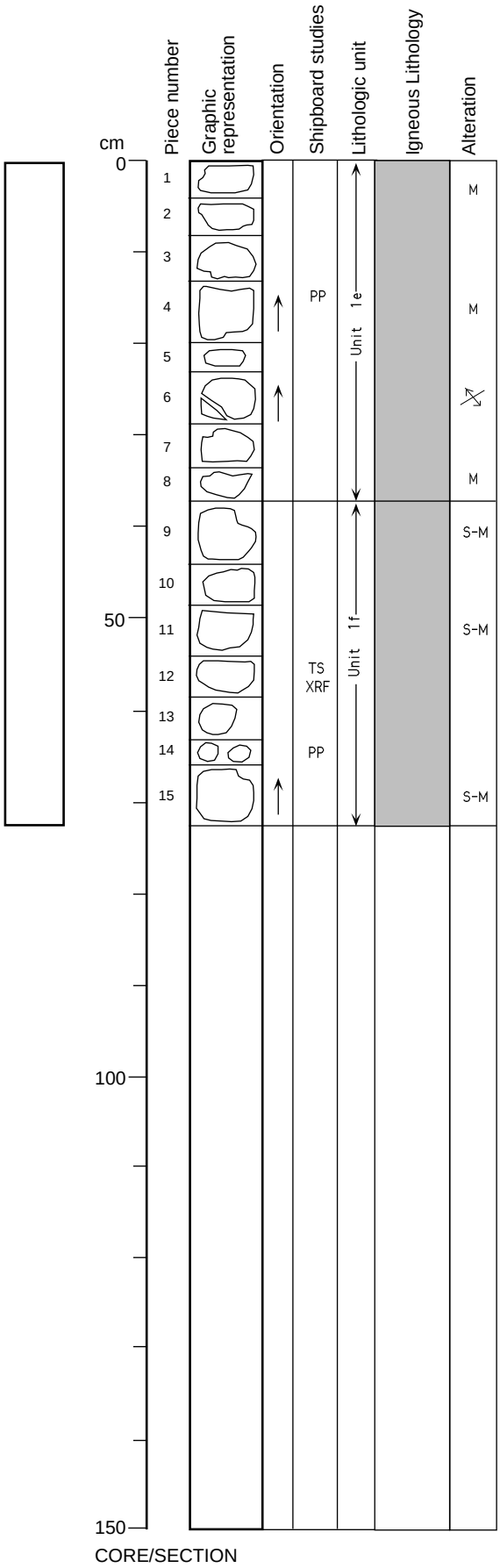


168-1025C-02R-03

UNIT 1e: APHYRIC BASALT

PIECES 1–15

CONTACTS: None.
PHENOCRYSTS: Rare plagioclase prisms; ≤2mm.
GROUNDMASS: Aphanitic, microcrystalline. Consists of white plagioclase laths + olivine pseudomorphs + brown pyroxene. Intergranular texture.
VESICLES: None.
COLOR: Light gray; 8.0B 2.2/0.1 to 6.6BG 1.7/0.1
STRUCTURE: Massive basalt.
ALTERATION: Pale greenish-blue clay replaces the groundmass and olivine, as well as coating fractures and external surfaces. Carbonate patches (aragonite and calcite, as determined by XRD) occur along fractures and on the external surfaces of pieces 2, 6-8 and 11, forming on top of green clay.
VEINS/FRACTURES: Carbonate veinlet (<1mm) in piece 3b. Millimetric fractures in pieces 1, 3, 7 and 11.



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UNIT 1e: APHYRIC BASALT

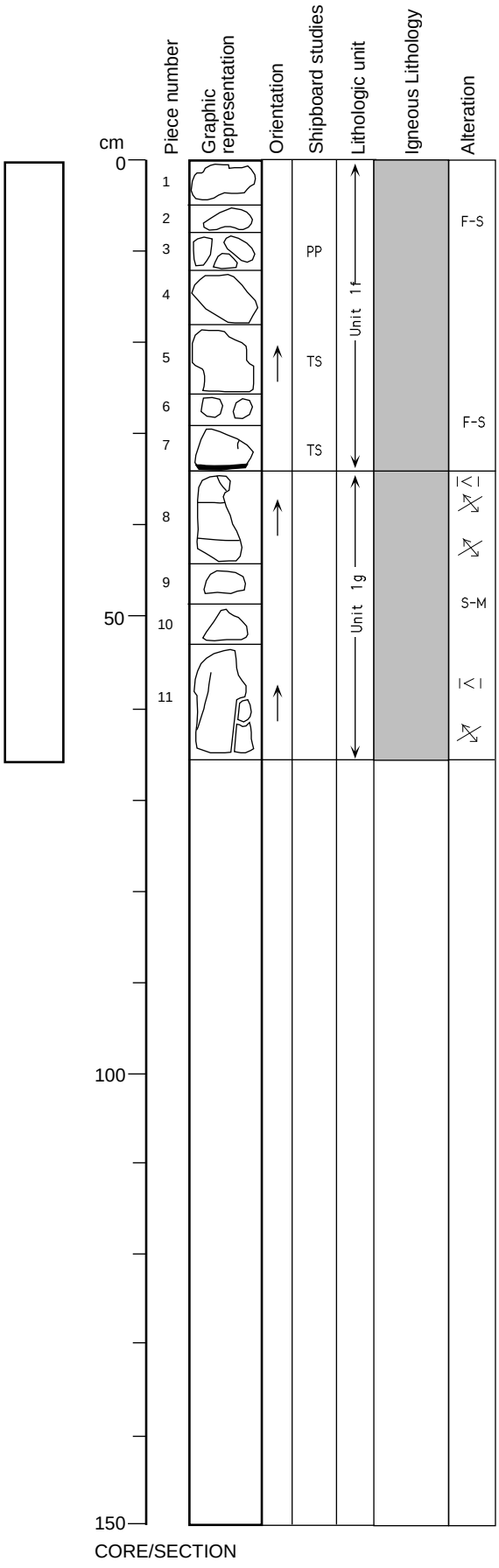
PIECES 1-8

CONTACTS: None.
PHENOCRYSTS: Rare euhedral plagioclase laths; ≤3mm.
GROUNDMASS: Aphanitic, microcrystalline. Intergranular texture possibly enhanced by pervasive alteration, i.e. rock looks fresh, but minerals are soft. White plagioclase laths up to 1mm long + small, light brown, fresh granular pyroxene (<<1mm) and black olivine pseudomorphed completely by clay.
VESICLES: Trace amount; round, lined by light blue-green spongy clay.
COLOR: Light gray; 9.8G 2.8/0.1 to 9.8BG 2.4/0.1
STRUCTURE: Massive basalt.
ALTERATION: Pale greenish-blue clay replacing the groundmass and olivine, as well as coating fractures and external surfaces. Carbonate patches coat fractures in pieces 3-6.
VEINS/FRACTURES: Fracture in piece 6.

UNIT 1f: APHYRIC BASALT

PIECES 9-15

CONTACTS: Subunit defined by an abrupt change in grain size and color.
PHENOCRYSTS: Trace amount of plagioclase (≤2mm) ± olivine ± pyroxene.
GROUNDMASS: Aphanitic, cryptocrystalline to microcrystalline.
VESICLES: Around 3%; <<1mm. Mostly rounded gas vesicles (diameter <<0.5mm), empty to partially filled by white, granular clay and trace amounts of light bluish green clays.
COLOR: Medium gray; 1.8PB 3.0/0.1 to 1.6PB to 2.8/0.1
STRUCTURE: Massive basalt.
ALTERATION: Vesicles filled or lined by pale greenish-bluish and/or whitish clays. Some vesicles are completely filled by carbonate. Centimetric microcrystalline pyrite patches on external surfaces of pieces 11 and 12, associated with clay minerals and microcrystalline grains in some vesicles. Oxidation spots on piece 10.
VEINS/FRACTURES: None.
ADDITIONAL COMMENTS: Similar lithology to subunit 1c.



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UNIT 1f: APHYRIC BASALT

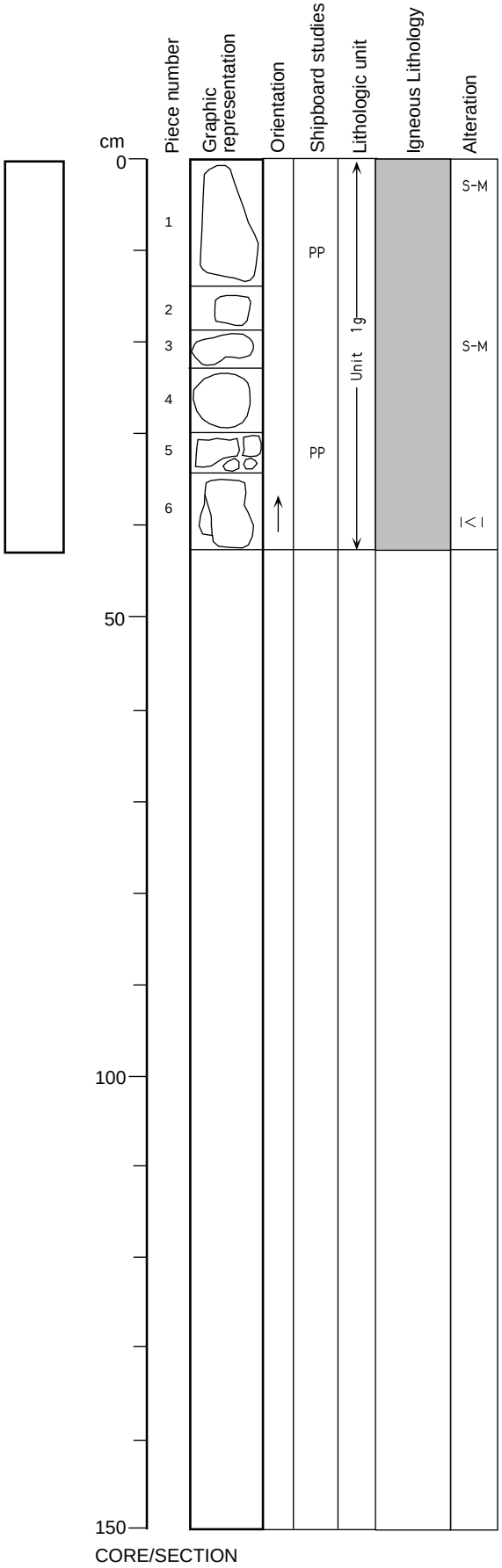
PIECES 1-7

CONTACTS: Subunits defined by presence of chilled margin on piece 7.
PHENOCRYSTS: Trace amounts of plagioclase (euhedral, fresh; 1.25-2mm), olivine (euhedral, altered to green-gray clay; ≤1mm) ± pyroxene (subhedral; ≤1mm).
GROUNDMASS: Microcrystalline (piece 7 cryptocrystalline); plagioclase microlaths (≤0.1mm) form an intergranular texture, with microcrysts of olivine (altered) ± pyroxene ± trace pyrite between.
VESICLES: Gas vesicles are round–ovoid, and 0.2-1.25mm (in piece 4, a few extend up to 3mm). In pieces 1-6, the vesicles are lined by pale blue granular clay ± white rhomboid crystals. Segregation vesicles occur in a trace amount; 0.5-0.75mm. Total abundance decreases from ≤3% in piece 1, to 1-2% in pieces 4-5. Piece 7 has ovoid-round vesicles (≤1mm; <1%) which are lined to infilled by fibrous white clay.
COLOR: Pieces 1-5: 2.0PB 4.1/0.3 to 4.9G 4.3/0.1; piece 7 1.2PB 4.2/0.3.
STRUCTURE: Massive basalt.
ALTERATION: Pieces 1-6 are fresh to slightly altered; alteration haloes occur on pieces 3 and 4. Fractured surfaces are coated by blue-green clay ± carbonate.
VEINS/FRACTURES: Minor unlined fractures in piece 7.
ADDITIONAL COMMENTS: Piece 7 (unoriented) has a chilled margin (but no glass), with a slight variolitic to subvariolitic texture.

UNIT 1g: APHYRIC BASALT

PIECES 8-11

CONTACTS: Subunits defined by presence of chilled margin on piece 7, forming the base of the subunit above.
PHENOCRYSTS: Euhedral, fresh plagioclase (≤0.5mm average; 3%); euhedral olivine (≤1mm; 2%) partially replaced by green-gray clay.
GROUNDMASS: Cryptocrystalline to microcrystalline.
VESICLES: Trace, round–ovoid, 0.2-1.25mm, lined to filled by fibrous pale green to green-gray clay.
COLOR: 7.9G 4.3/0.2 to 0.4G 4.2/0.2
STRUCTURE: Massive basalt.
ALTERATION: Pervasive slight to moderate alteration, with green-gray clay replacing olivine. Orange oxidation spots occur on all pieces. Alteration haloes occur on piece 8, whilst piece 11 has a yellow-green clay staining the outer surface. Fractured surfaces are coated by blue-green clay ± carbonate.
VEINS/FRACTURES: Hairline veins lined by blue-green clay and unlined fractures occur in pieces 8 and 11.



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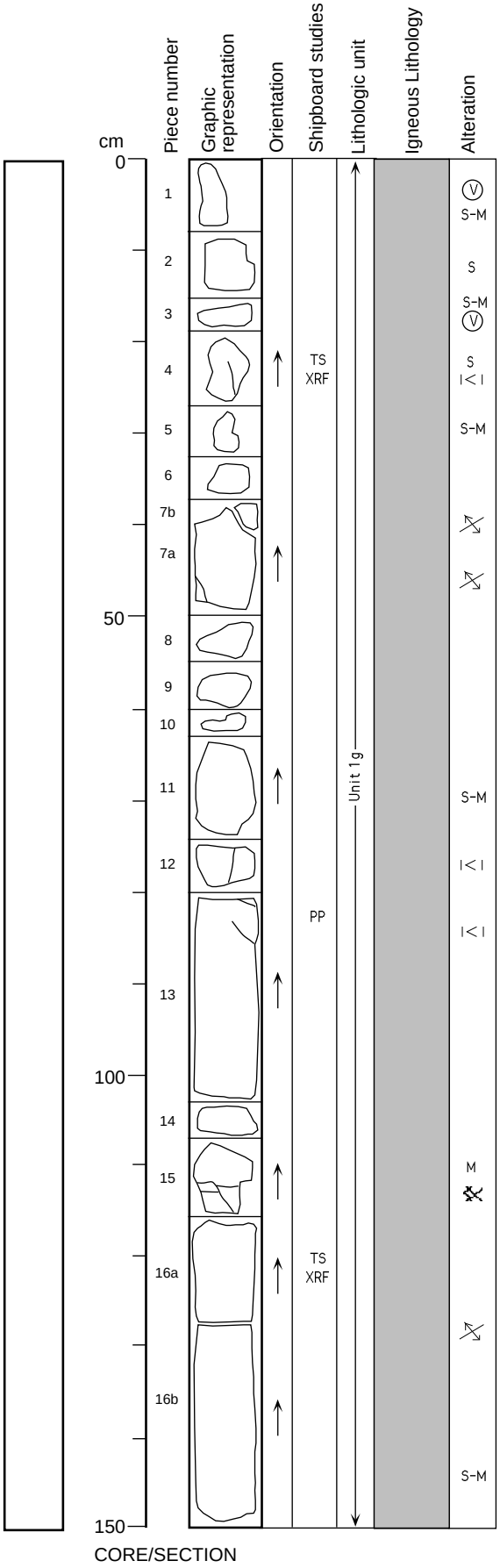
UNIT 1g: APHYRIC BASALT

PIECES 1–6

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Microcrystalline, intergranular; microlaths of euhedral, fresh plagioclase (1mm) form an intergranular framework, with euhedral olivine (0.25-1mm; partially to totally altered to dark green-gray clay) ± subhedral pyroxene (0.25-1mm) between.
VESICLES: None; one irregular cavity (1.25mm long) coated by green-gray clay.
COLOR: 1.5G 4.1/0.2 to 9.3GY 4.3/0.2
STRUCTURE: Massive basalt.
ALTERATION: Slight to moderate; pervasive through the rock, altering olivine to green-gray clay. Orange oxidation spots occur around pyrite.
VEINS/FRACTURES: Vertical veinlet lined by green-gray clay in piece 6.
ADDITIONAL COMMENTS: The section has no stratigraphical order, as the core was dropped out of the core barrel.



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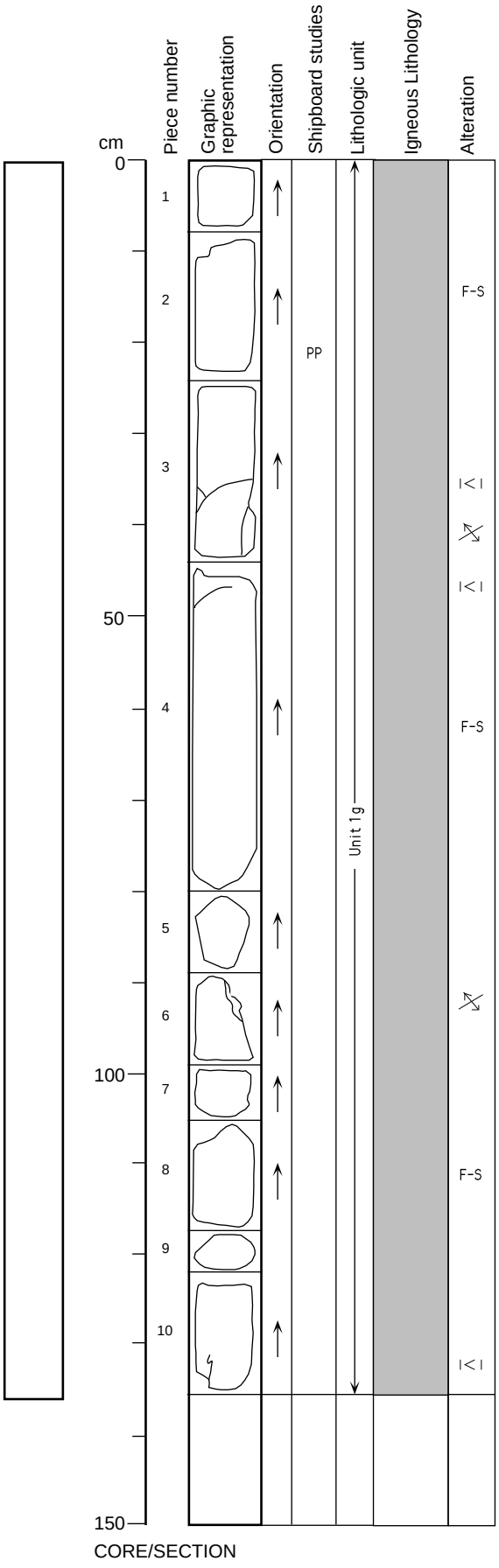
UNIT 1g: APHYRIC BASALT

PIECES 2, 4

CONTACTS: None.
PHENOCRYSTS: Trace amounts; microphenocrysts of plagioclase (fresh, euhedral, 0.5-1mm) and green pyroxene (fresh, euhedral ≤1.5mm).
GROUNDMASS: Cryptocrystalline, with microcrystalline laths of plagioclase (0.1-0.4mm) ± microcrysts of olivine and pyroxene.
VESICLES: Round–ovoid, 0.1-1mm, lined by blue-gray clay ± platy to rhomboid white crystals. Abundance varies from 1-2% (piece 2) to ≤3% (piece 4).
COLOR: 1.3PB 4.1/0.3 to 2.5PB 4.3/0.2
STRUCTURE: Massive basalt
ALTERATION: Slight (limited to alteration of olivine, vesicle lining and hairline veins). A veinlet in piece 4 has a dark gray 2mm alteration halo on either side. Orange oxidation spots around disseminated pyrite.
VEINS/FRACTURES: Veinlet in piece 4 is filled with white clay(?); as the rock dried, white salt deposits crystallized out of the vein.

PIECES 1, 3, 5–16

CONTACTS: None.
PHENOCRYSTS: Trace amounts in some pieces; most have no phenocrysts. Microphenocrysts of plagioclase (fresh, euhedral, 0.5-1mm) and green-brown pyroxene (fresh, euhedral ≤2mm).
GROUNDMASS: Microcrystalline, intergranular texture. Euhedral, fresh plagioclase laths (ave. 0.25-0.5mm) form an intergranular framework, with euhedral olivine (altered to blue-green clay; ave. 0.25mm) ± fresh, subhedral pyroxene (ave. 0.25mm) between. Groundmass contains a few % opaques (≤0.3mm).
VESICLES: None.
COLOR: 2.6G 4.4/0.2 to 9.1G 4.1/0.2
STRUCTURE: Massive basalt.
ALTERATION: Fresh to slight–moderate alteration, limited to replacement of olivine by blue-green to green-gray clay. Pieces 1 and 5 have blue-green clay ± pyrite patches on the outer surfaces; pieces 7-10 and 12-16 have patches of dark green ± blue-gray-green clay on the outer surfaces, primarily limited to fractures. Piece 16 has dark green clay and white carbonate on the fracture surfaces between pieces a and b. Orange oxidation spots occur around pyrite.
VEINS/FRACTURES: Piece 12 and 13 are cut by a hairline vein lined by blue-green clay, with a 1-3mm black halo on either side. Piece 15 is cut by t hree bisecting blue-gray clay filled veins.
ADDITIONAL COMMENTS: Pieces 1 and 3 contain vugs (up to 8mm), partially infilled by branching rods of blue-green clay + pyrite cubes.



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UNIT 1g: APHYRIC BASALT

PIECES 1–10

CONTACTS: None.

PHENOCRYSTS: Trace amounts of euhedral, fresh plagioclase (≤1.5mm, with a few laths extending up to 5mm; maximum abundance ≤1%) ± euhedral, fresh pyroxene (≤1mm).

GROUNDMASS: Microcrystalline; microlaths of euhedral plagioclase (≤0.4mm) form an intergranular framework, with euhedral olivine (altered to blue-green or blue-gray clay; ≤0.5mm) ± subhedral pyroxene (≤0.4mm) + euhedral opaques (≤0.25mm) between.

VESICLES: None.

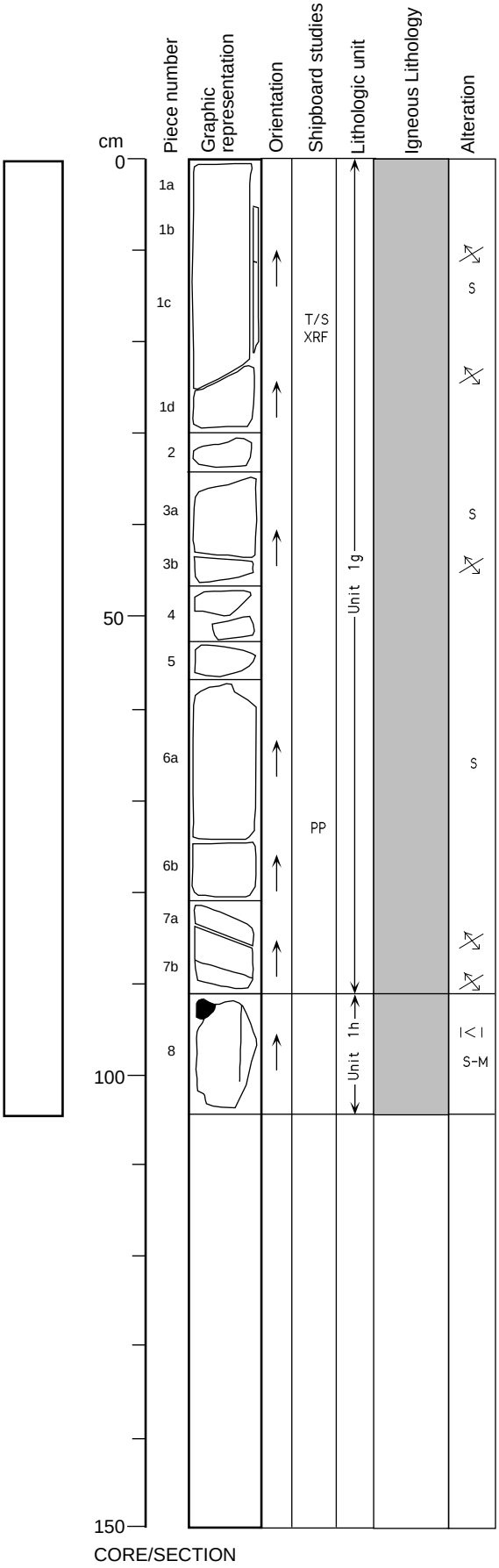
COLOR: 0.1G 4.0/0.2 to 7.9GY 4.1/0.2

STRUCTURE: Massive basalt.

ALTERATION: Rocks are fresh to slightly altered, limited to the replacement of olivine by blue-green clay. Blue-green clay + dark green clay ± patches of white carbonate coat fractured surfaces. Some fractures have alteration haloes associated with them, e.g. piece 3: 12mm faint halo on top side of fracture; piece 6: banded halo along broken edge grading from a 1mm blue-black band, followed by a 3mm yellow-brown band, grading to a pale yellow band at the rock edge; piece 7: faint gray halo along top edge (5mm thick). Orange oxidation spots occur around disseminated pyrite.

VEINS/FRACTURES: Hairline veins (lined by blue-green clay) and unlined fractures in pieces 3, 4 and 10.

ADDITIONAL COMMENTS: Secondary pyrite found associated with dark green and blue-green clay on fractured surfaces.



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UNIT 1g: APHYRIC BASALT

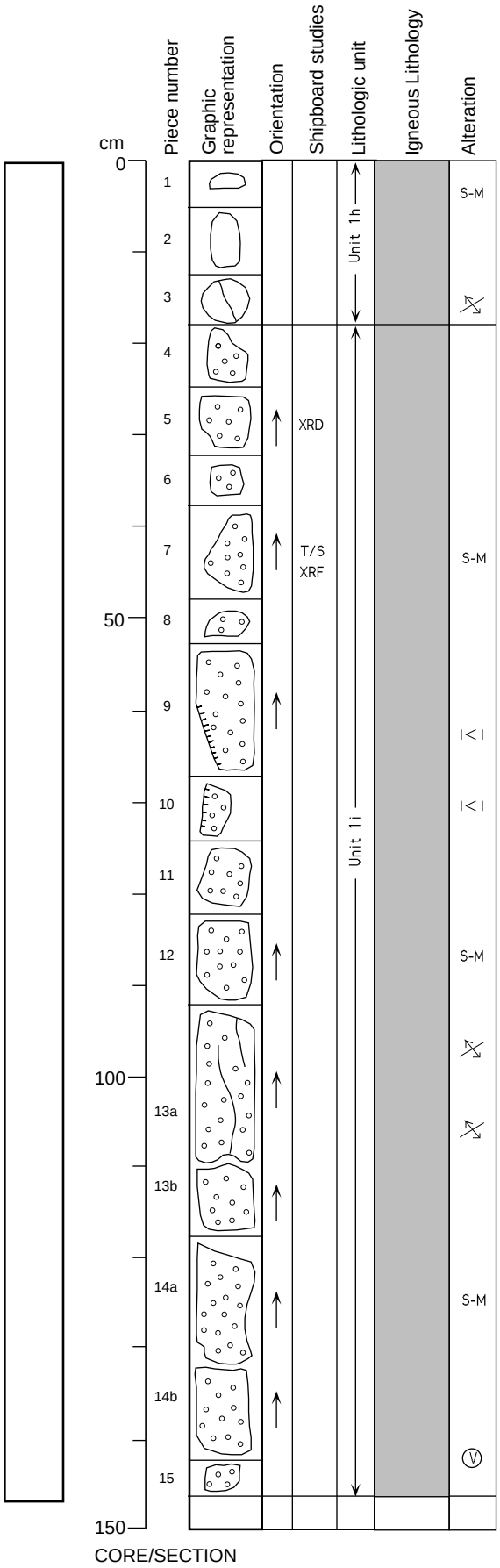
PIECES 1-7

CONTACTS: None.
PHENOCRYSTS: Trace plagioclase.
GROUNDMASS: Aphanitic, microcrystalline. Intergranular texture. Plagioclase laths ≤1mm (white, colorless and pale yellow) + brown pyroxene + olivine (altered to green clay) + interstitial black, metallic, opaque mineral.
VESICLES: None.
COLOR: Light gray; 1.0GY 1.7/0.2 to 2.0GY 1.6/0.2
STRUCTURE: Massive basalt.
ALTERATION: Slight; a 2mm-thick black and orange halo occurs at top of piece 3a.
VEINS/FRACTURES: All fractures are lined by a thin film of green clay (e.g. piece 7).

UNIT 1h: APHYRIC BASALT

PIECE 8

CONTACTS: Subunit defined by the presence of an angular aphanitic clast or an irregular quenched margin.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic, cryptocrystalline.
VESICLES: None.
COLOR: Light gray; 3.4Y 2.0/0.1 to 6.6Y 1.4/0.1
STRUCTURE: Massive basalt.
ALTERATION: Slight to moderate.
VEINS/FRACTURES: Vertical fracture in piece 8.



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UNIT 1h: APHYRIC BASALT

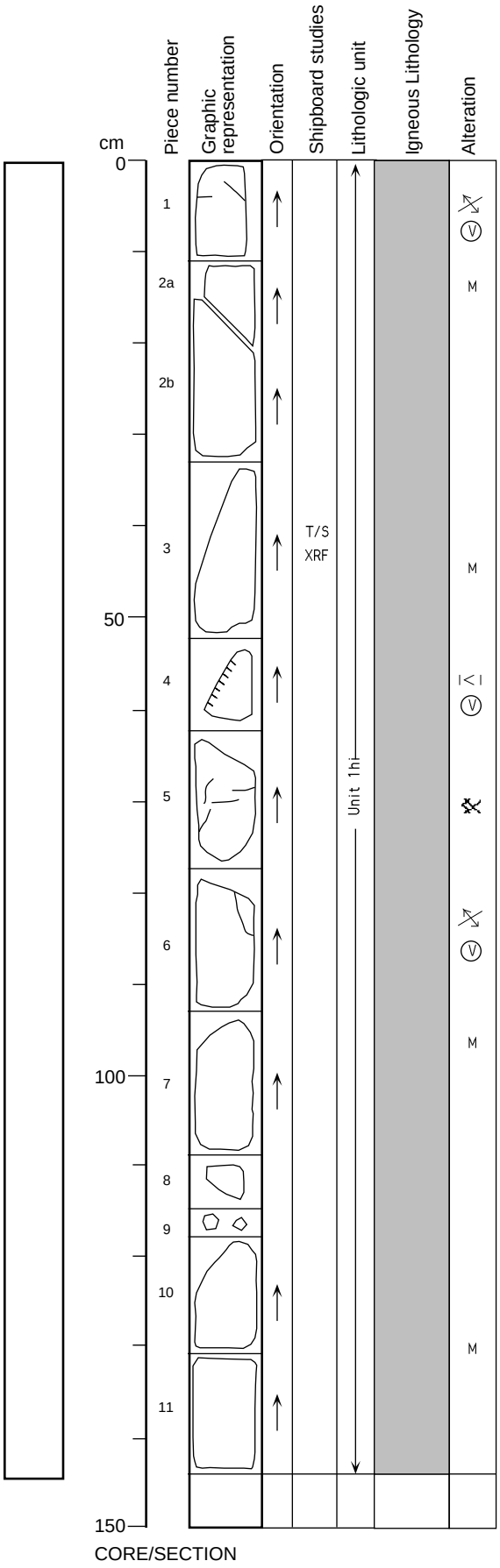
PIECES 1-3

CONTACTS: None.
PHENOCRYSTS: Trace plagioclase laths, 3mm x 1 mm.
GROUNDMASS: Aphanitic; cryptocrystalline to microcrystalline.
VESICLES: 2%; ≤1mm diameter (ave. 0.75mm).
COLOR: 6.7Y 2.4/0.1 (piece 2), 3.0PB 1.5/0.1 (piece 3).
STRUCTURE: Massive basalt.
ALTERATION: Vesicles are filled by dark green clay followed by light green clay, with or without euhedral rhombic carbonate crystals.
VEINS/FRACTURES: Fracture in piece 3.

UNIT 1i: APHYRIC BASALT

PIECES 4-15

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Aphanitic, microcrystalline.
VESICLES: Moderately abundant (5-10%); increasing in diameter from ≤1.5mm (pieces 4-7), to ≤2.0mm (pieces 8-10), to ≤3.0mm (pieces 11-13), to ≤5.0mm (pieces 14-15). Some coalesced and vug-like vesicles occur in the last two pieces.
COLOR: 4.1Y 2.3/0.1 to 9.1Y 2.6/0.1
STRUCTURE: Massive basalt.
ALTERATION: Vesicles are lined by dark green clay with pyrite (commonly forming spherical clusters coated by clay). Groundmass alteration appears slight, although plagioclase microlites are quite soft.
VEINS/FRACTURES: Pieces 5, 6, 9 and 10 have white encrustations which are globular to botryoidal, and identified as talc by XRD. Intermixed phases include saponite and a clear prismatic mineral (unidentified; not quartz according to XRD). In piece 10, there is a black striated prismatic mineral underlying the white material.



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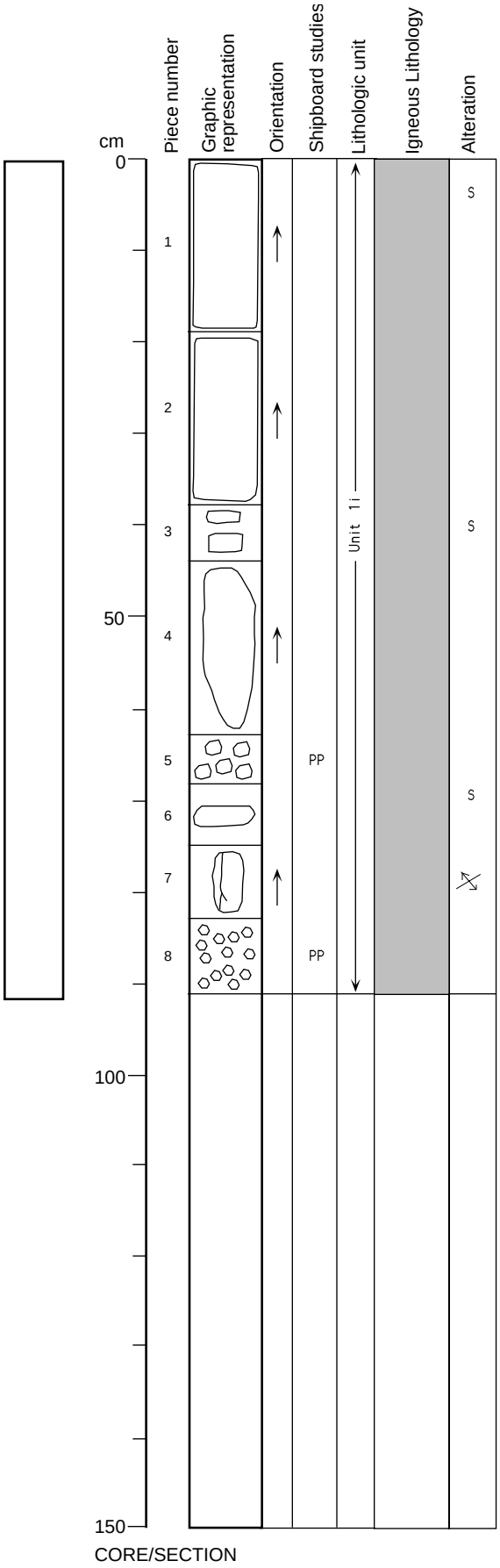
UNIT 1i: APHYRIC BASALT

PIECES 1-11

CONTACTS: None.
PHENOCRYSTS: None.
GROUNDMASS: Microcrystalline to fine-grained.
VESICLES: Sparse (<<1%), decreasing to trace down-section.
COLOR: 1.4GY 1.9/0.1 (piece 3); 5.2B 1.8/0.1 (piece 5); 9.5B 1.6/0.1 (piece 10).
STRUCTURE: Massive basalt.
ALTERATION: Vesicles are lined by dark green clay ± pyrite clusters. Green clay occurs in mm-scale to cm-scale (particularly piece 6) groundmass patches.
VEINS/FRACTURES: The fractured surfaces in pieces 1 and 3 have a gray-green clay coating. Piece 3 also has some 1-2mm diameter spherical-radial aggregates of carbonate (aragonite?). Surface encrustations on pieces 4 and 5 consist of fine, white, botryoidal material (talc?), coated by green clay.



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UNIT 1i: APHYRIC BASALT

PIECES 1-8

CONTACTS: None.
PHENOCRYSTS: Rare stubby plagioclase laths, ≤2mm.
GROUNDMASS: Microcrystalline to fine-grained.
VESICLES: Rare; ≤1.5mm diameter vesicles in pieces 1, 2 and 4.
COLOR: 4.7BG 1.8/0.1 (piece 1); 7.4GY 1.5/0.1 (piece 2); 6.9GY 1.6/0.2 (piece 4).
STRUCTURE: Massive basalt.
ALTERATION: Vesicles contain dark clay linings. Groundmass contains small euhedral olivine crystals completely altered to dark green clay at their margins, varying to light green clay at the cores.
VEINS/FRACTURES: Fractures in piece 7 appear to have green clay and minor pyrite.

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