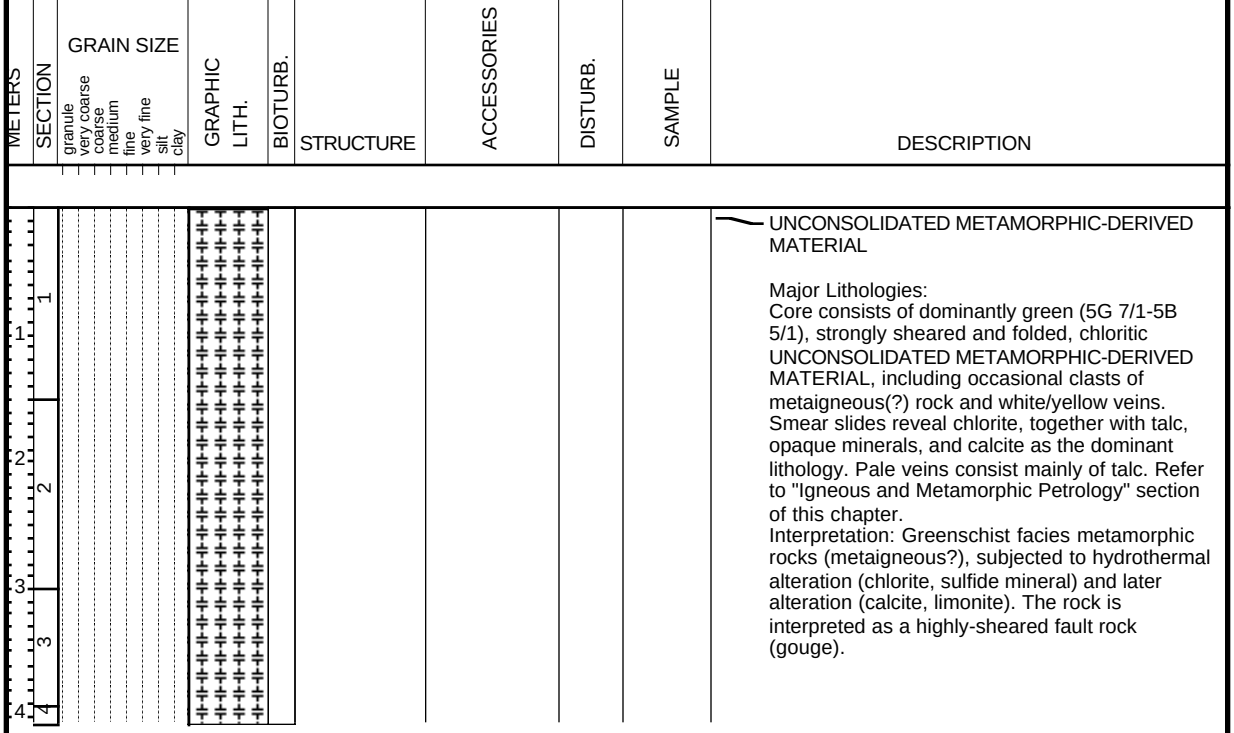
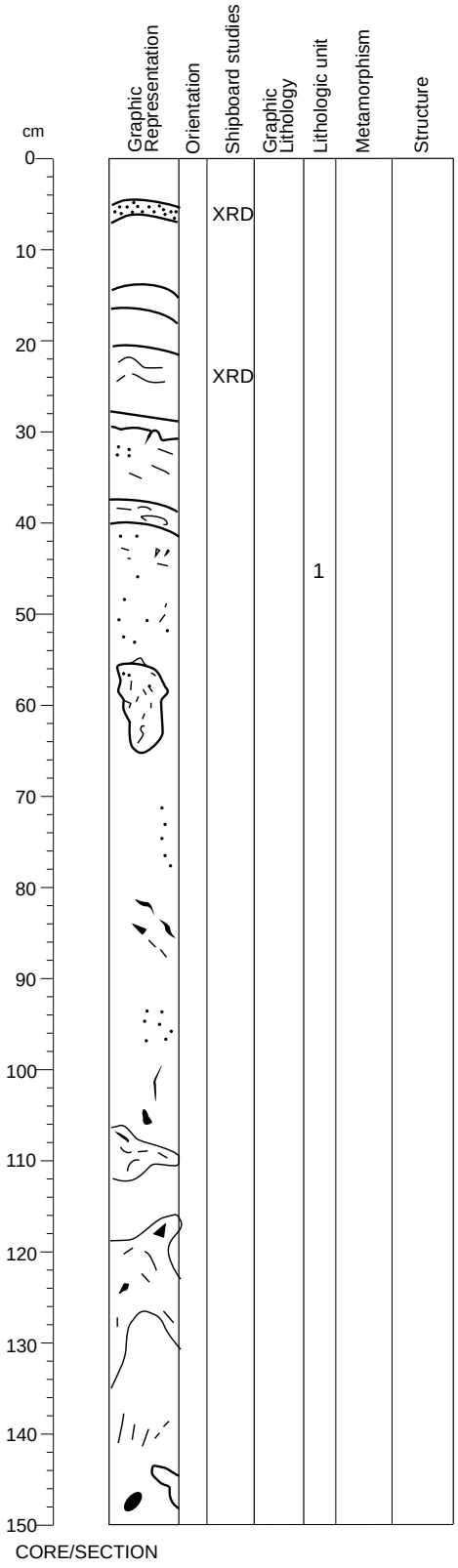
Core Photo

Site 1117 Hole A Core 1R Rec. 33.4% 0.0-12.2 mbsf



Core Photo



180-1117A-1R-1 (0.0-1.5 mbsf)

UNIT: 1 **Unconsolidated metamorphic-derived material with metamorphic clasts**

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	1R	1	n/a	0.00
Lower contact:	1R	1	n/a	1.50

Thickness (m): 1.50
Contact Type: None observed.

GENERAL: This is clay-sized material containing sparse pebbles, (2x5) to (1x2) cm in size, of indeterminate nature. These pebbles are dark and shiny.

GRAIN SIZE: Very fine with sporadic clasts.

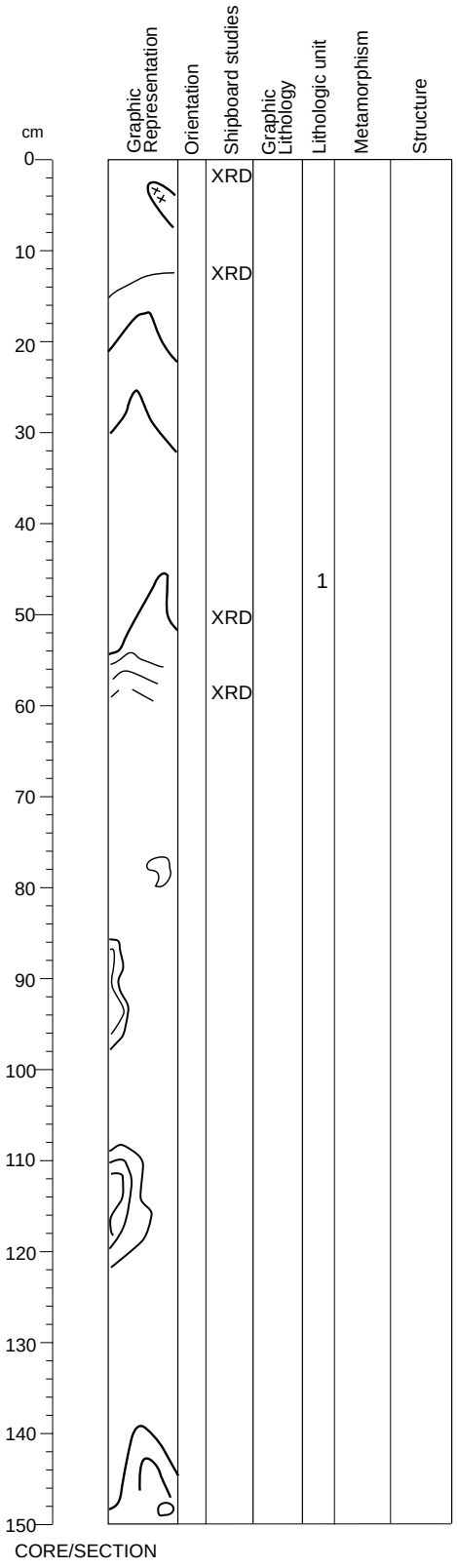
TEXTURE:

STRUCTURE: Sheared

ALTERATION: Pervasive secondary chlorite, talc, calcite, ankerite, and serpentine.

COMMENTS: This appears to be fault gouge material that contains clasts of indeterminate nature. Pervasive shearing and hydrothermal alteration are observed. Refer to "Igneous and Metamorphic Petrology" section of Site 1117 chapter for more discussion of XRD analyses.

Core Photo



180-1117A-1R-2 (1.50-3.00- mbsf)

UNIT: 1 **Unconsolidated metamorphic-derived material with metamorphic clasts**

Interval Location:	**Core**	**Section**	**Piece**	**Depth (mbsf)**
Upper contact:	1R	2	n/a	1.50
Lower contact:	1R	2	n/a	3.00

Thickness (m): 1.50
Contact Type: None observed.

GENERAL: This is clay-sized material containing pebble,s (2x5) to (1x2) cm in size, of indeterminate mature.

GRAIN SIZE: Very fine.

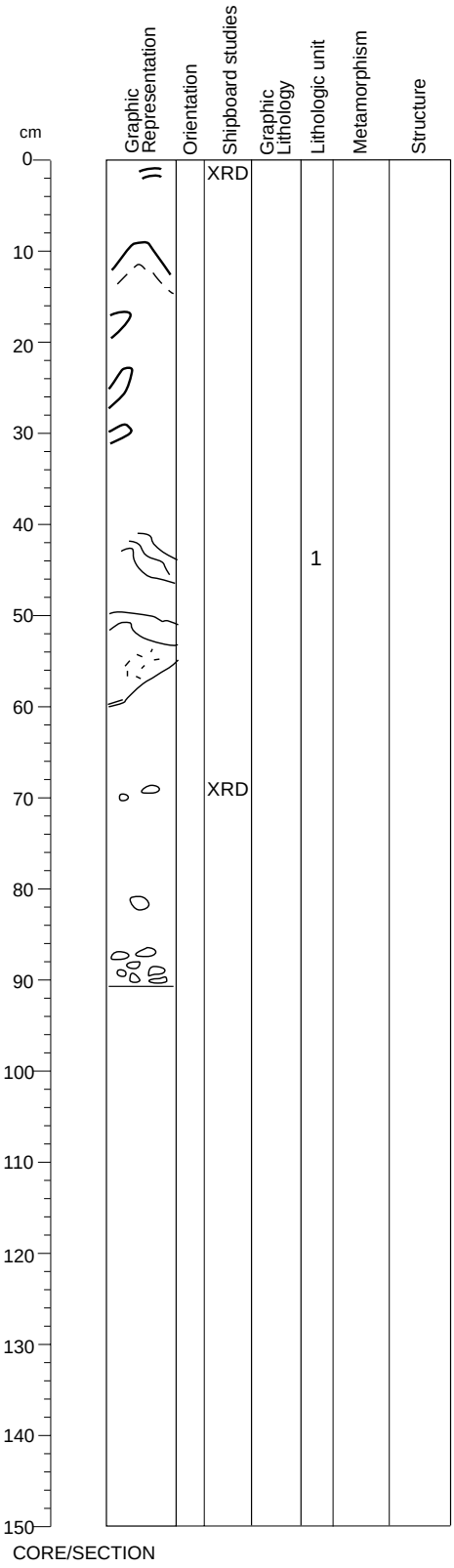
TEXTURE: None

STRUCTURE: Sheared

ALTERATION: Pervasive secondary chlorite, talc, calcite, ankerite, and serpentine.

COMMENTS: This appears to be fault gouge material that contains sporadic clasts. Pervasive shearing and hydrothermal alteration are observed. Refer to "Igneous and Metamorphic Petrology" section of Site1117 chapter for more discussion of XRD analyses.

Core Photo



180-1117A-1R-3 (3.00-3.91 mbsf)

UNIT: 1 **Unconsolidated metamorphic-derived material with metamorphic clasts**

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	1R	3	n/a	3.00
Lower contact:	1R	3	n/a	3.91

Thickness (m): 0.91
Contact Type: None observed.

GENERAL: This is metamorphic-derived, clay-sized material containing pebbles, (2x5) to (1x2) cm in size of indeterminate nature.

GRAIN SIZE: Very fine

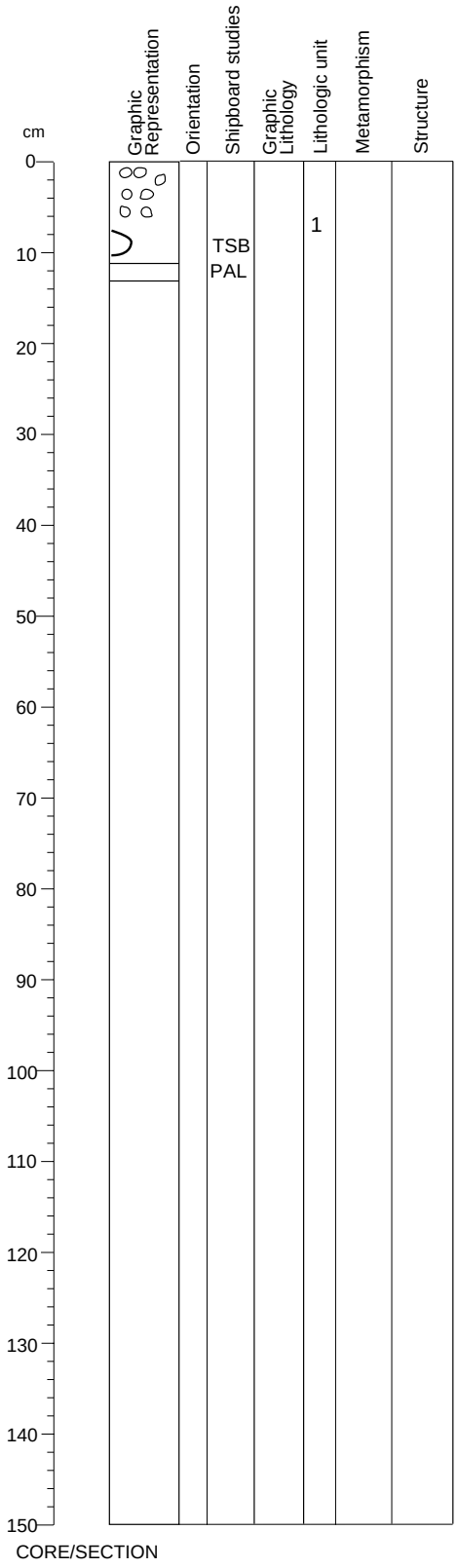
TEXTURE: None

STRUCTURE: Sheared

ALTERATION: Pervasive secondary chlorite, talc, calcite, ankerite, and serpentine.

COMMENTS: This appears to be fault gouge material that contains clasts of metamorphic. Pervasive shearing and hydrothermal alteration are observed. Refer to "Igneous and Metamorphic Petrology" section of Site 1117 chapter for more discussion of XRD analyses.

Core Photo



180-1117A-1R-CC (3.91-4.07 mbsf)

UNIT: 1 **Unconsolidated metamorphic-derived material with metamorphic clasts**

Interval Location:	Core	Depth Section	Piece	(mbsf)
Upper contact:	1R	CC	n/a	3.91
Lower contact:	1R	CC	n/a	4.07

Thickness (m): 0.16
Contact Type: None observed.

GENERAL: This is metamorphic-derived, clay-sized material containing pebbles of basic igneous rocks that are (2x5) to (1x2) cm in size.

GRAIN SIZE: Very fine.

TEXTURE: None

STRUCTURE: Sheared

ALTERATION: Pervasive secondary chlorite, talc, calcite, ankerite, and serpentine.

COMMENTS: This appears to be fault gouge material that contains clasts of metamorphic rocks. Pervasive shearing and hydrothermal alteration are observed. Refer to "Igneous and Metamorphic Petrology" section of Site 1117 chapter for more discussion of XRD analyses.

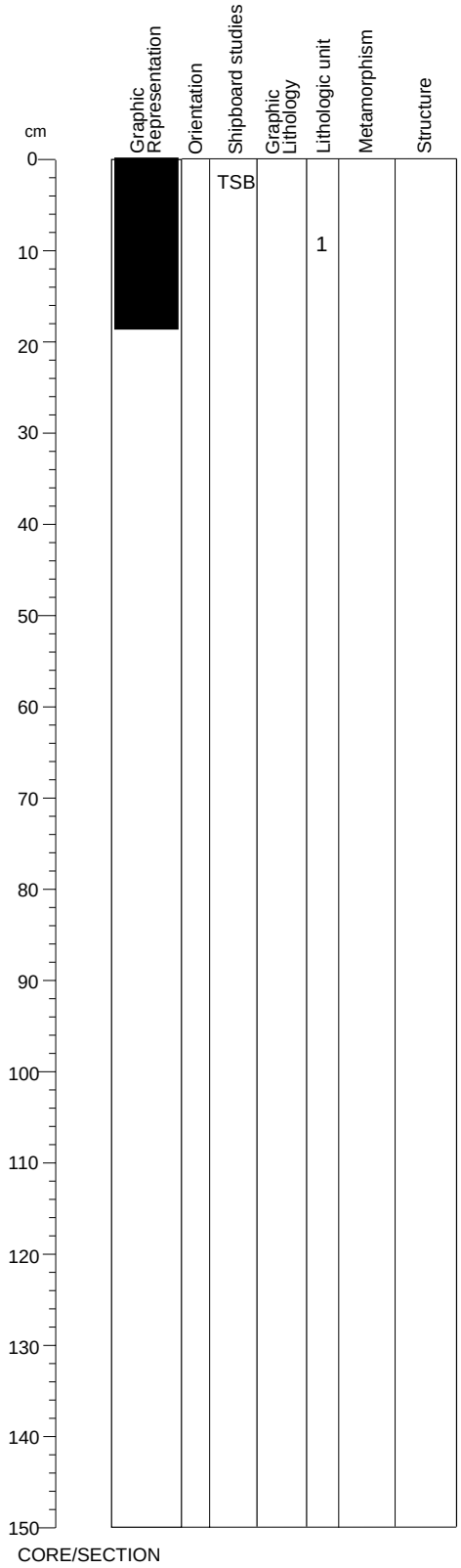
Core Photo

Site 1117 Hole A Core 2R Rec. 2.7% 12.2-18.6 mbsf

METERS	SECTION	GRAIN SIZE (granule / very coarse / coarse / medium / fine / very fine / silt / clay)	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
	1								UNCONSOLIDATED METAMORPHIC-DERIVED MATERIAL

Major Lithology:
Core contains light green (5B 7/1 to 5G 7/1) UNCONSOLIDATED METAMORPHIC-DERIVED MATERIAL similar to that described in Core 1R, with the exclusion of the veins of white mica. This core has a higher concentration of metamorphic clasts within the metamorphic-derived, clay-sized matrix. These clasts are heavily-sheared and contain talc and green and black minerals that cannot be determined in hand specimen. The rock contains a tiny red mineral whose identity is at this time unknown.

Core Photo



180-1117A-2R-CC (12.2-18.6 mbsf)

UNIT: 1 **Unconsolidated metamorphic-derived material with metamorphic clasts**

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	2R	CC	n/a	12.20
Lower contact:	2R	CC	n/a	12.38

Thickness (m): 0.18
Contact Type: None observed.

GENERAL: This is metamorphic-derived, clay-sized material containing pebbles of basic igneous rocks that are (2x5) to (1x2) cm in size.

GRAIN SIZE: Very fine

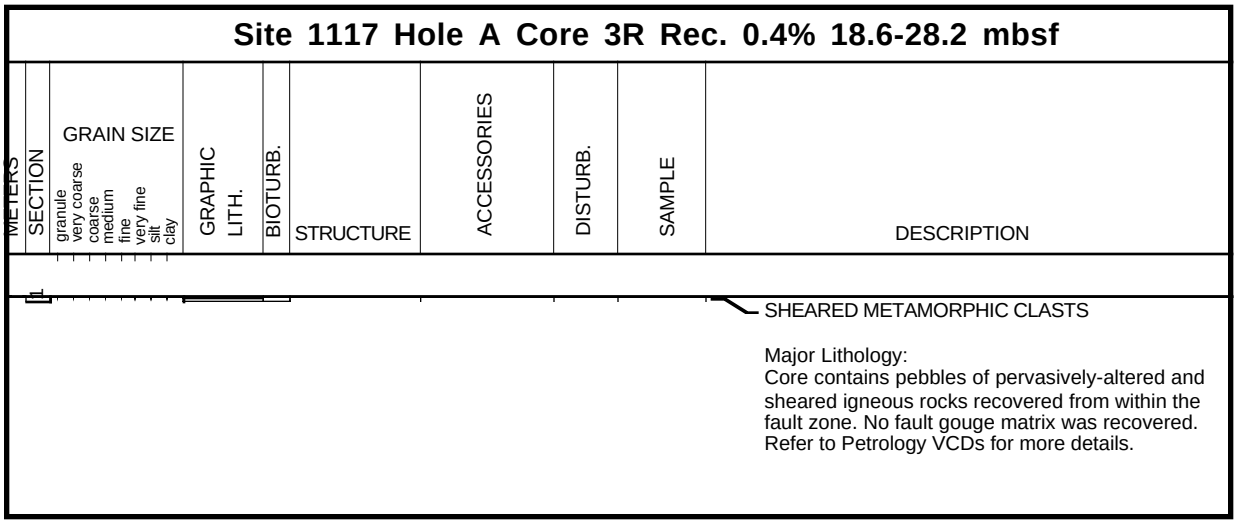
TEXTURE: None

STRUCTURE: Sheared

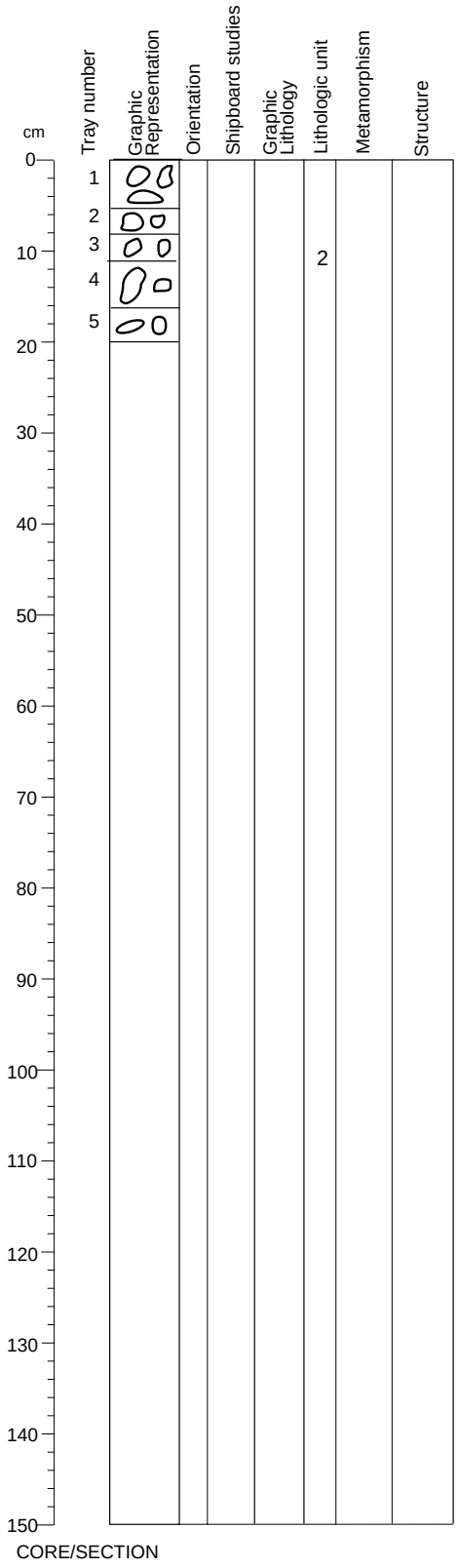
ALTERATION: Pervasive secondary chlorite, talc, calcite, and actinolite

COMMENTS: This appears to be fault gouge material that contains clasts of metamorphic and sedimentary rocks. Pervasive shearing and hydrothermal alteration are observed.

Core Photo


Site 1117 Hole A Core 3R Rec. 0.4% 18.6-28.2 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
1
SHEARED METAMORPHIC CLASTS
Major Lithology:
Core contains pebbles of pervasively-altered and sheared igneous rocks recovered from within the fault zone. No fault gouge matrix was recovered. Refer to Petrology VCDs for more details.

Core Photo



180-1117A-3R-CC (18.6-28.2 mbsf)

UNIT: 2 **Clasts within the fault zone**

Pieces: 1-5

Interval Location: (mbsf)	Core	Section	Piece	
Upper contact:	3R	CC	1	18.60
Lower contact:	3R	CC	5	18.83

Thickness (m): 0.23
Contact Type: None observed.

GENERAL: Five pebbles of pervasively-altered porphyroblastic rocks were recovered.

GRAIN SIZE: Very fine-grained

TEXTURE: Porphyritic

STRUCTURE: Irregular.

ALTERATION: Pervasive

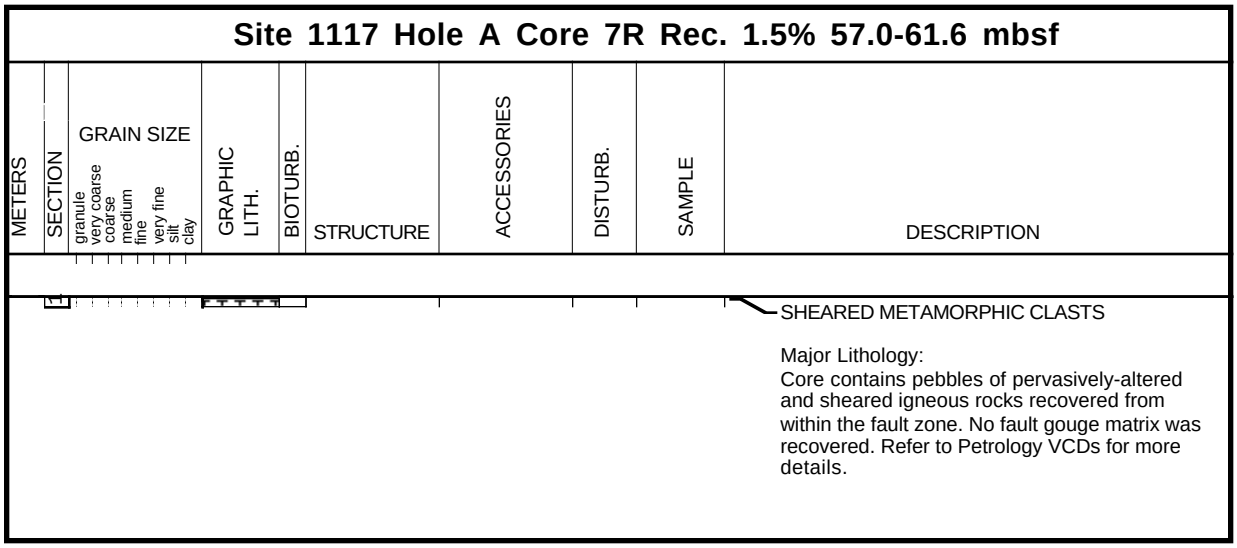
COMMENTS: Original igneous texture has been preserved, but very fine-grained minerals of talc, perhaps amphibole, chlorite, serpentine, and chlorite pseudomorph the original mineralogy.

1117A-4R NO RECOVERY
1117A-4R-1 NO RECOVERY

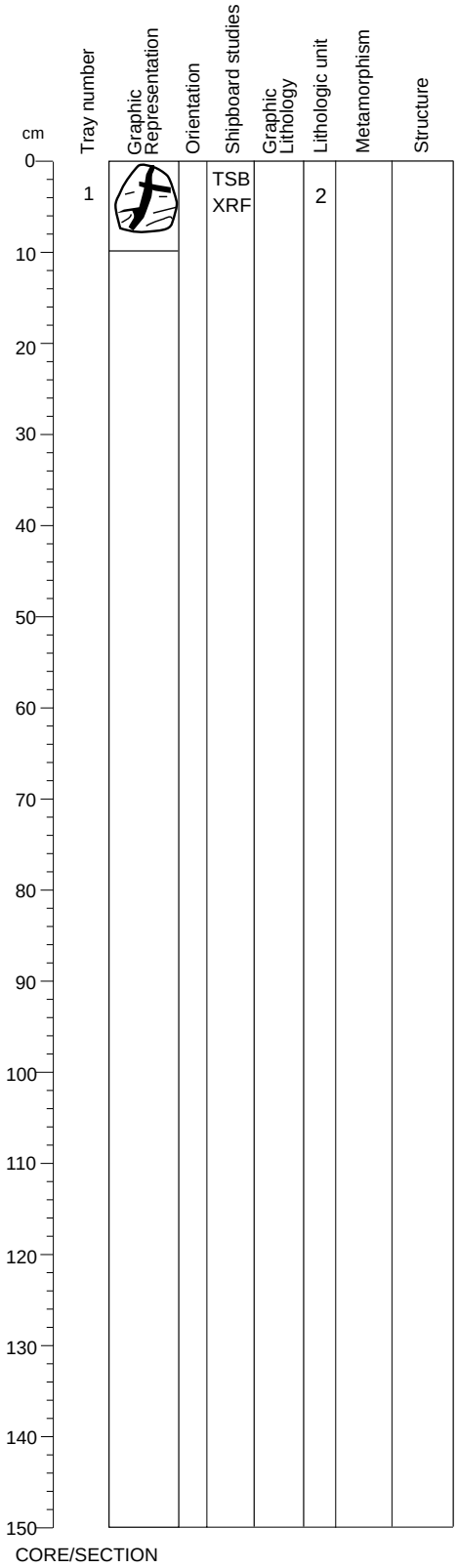
Core Photo

1117A-5R NO RECOVERY
1117A-5R-1 NO RECOVERY

1117A-6R NO RECOVERY
1117A-6R-1 NO RECOVERY



Core Photo



180-1117A-7R-1 (57.0-61.6 mbsf)

UNIT: 2 **Clasts within the fault zone**

Pieces: 1

Interval Location:	Core	Depth Section	Piece	(mbsf)
Upper contact:	7R	1	1	57.00
Lower contact:	7R	1	1	58.00

Thickness (m): 0.10
Contact Type: None observed.

GENERAL: This is a brecciated, pervasively-altered clast containing epidote, calcite, chlorite, and quartz.

GRAIN SIZE: Very fine-grained

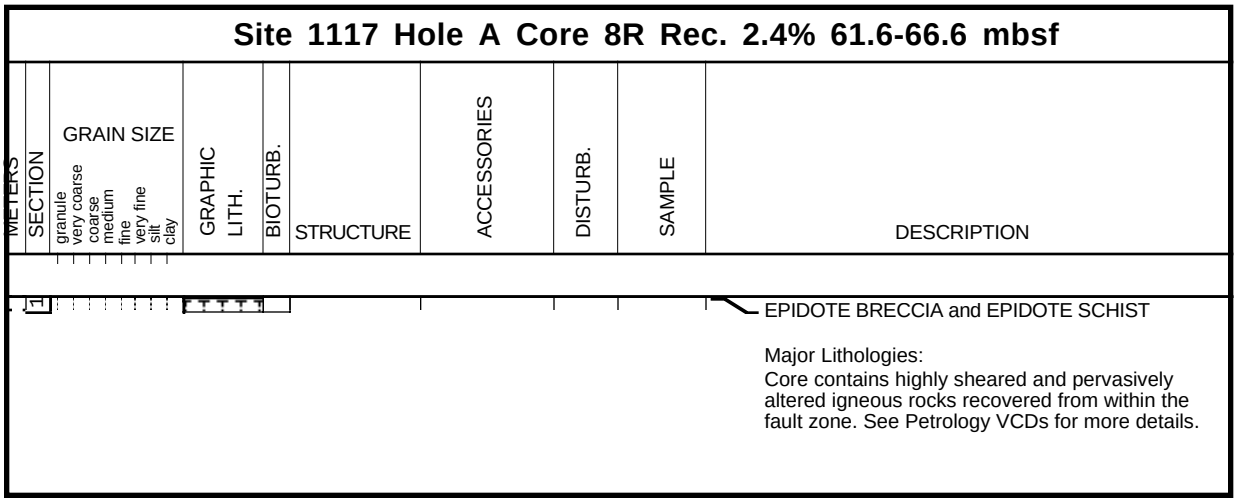
TEXTURE: Cataclastic

STRUCTURE: Veins

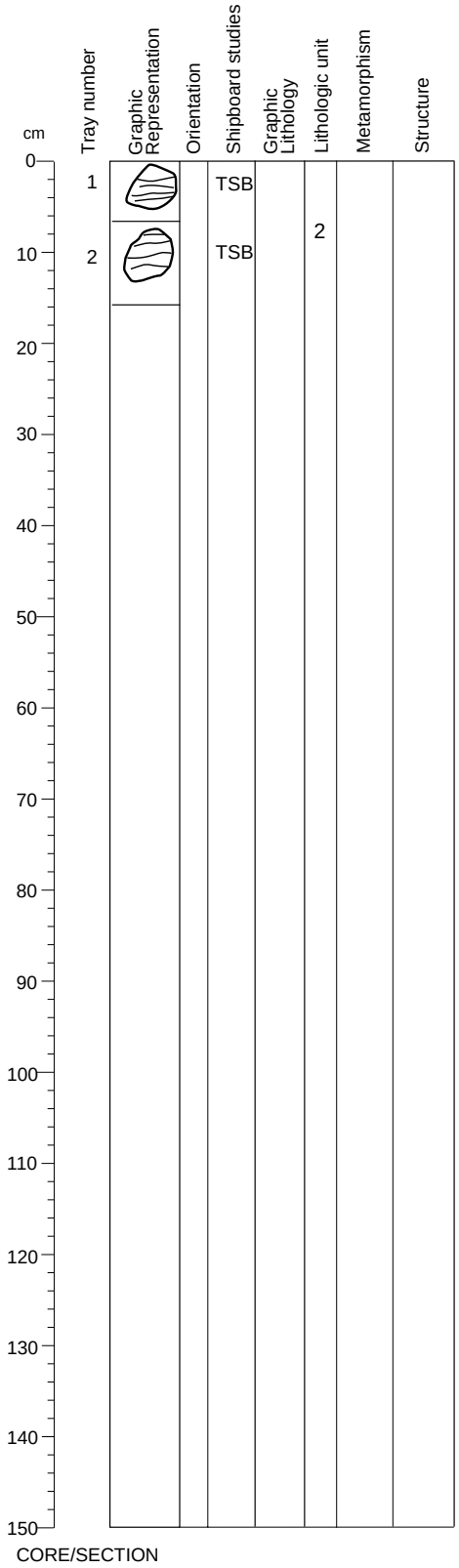
ALTERATION: Pervasive

COMMENTS: Pervasive alteration and brittle deformation are indicated by the presence of veins of calcite, chlorite, quartz, and epidote. Epidote veins are boudinaged.

Core Photo


Site 1117 Hole A Core 8R Rec. 2.4% 61.6-66.6 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
1
EPIDOTE BRECCIA and EPIDOTE SCHIST
Major Lithologies:
Core contains highly sheared and pervasively altered igneous rocks recovered from within the fault zone. See Petrology VCDs for more details.

Core Photo



180-1117A-8R-1 (61.6-66.6 mbsf)

UNIT: 2 **Clasts within the fault zone**

Pieces: 1-2

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	8R	1	1	61.60
Lower contact:	8R	1	2	61.77

Thickness (m): 0.17
Contact Type: None observed.

GENERAL: These rocks are cataclastics from within the fault zone. They are pervasively altered and deformed.

GRAIN SIZE: Very fine-grained

TEXTURE: Cataclastic

STRUCTURE: Fractures filled with calcite

ALTERATION: Pervasive

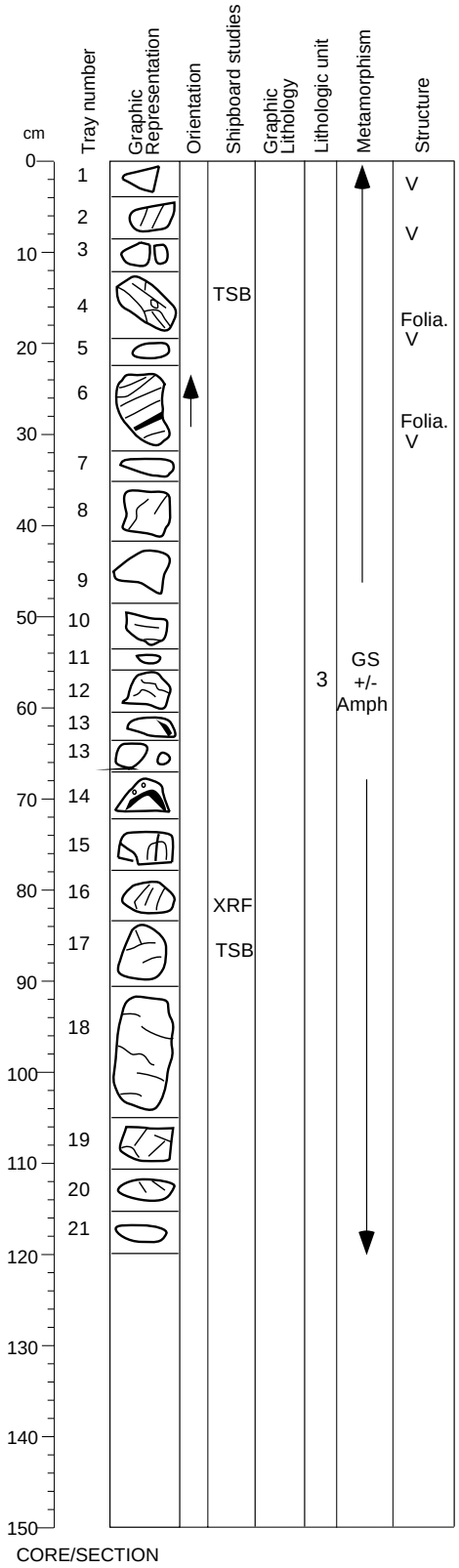
COMMENTS: These rocks have pervasive alteration to predominantly epidote and calcite, with minor alteration to chlorite and sericite. Thin section analysis reveals relics of plagioclase and clinopyroxene, suggesting a basic protolith. Fractures indicate brittle deformation, while folded layers of quartz suggest ductile deformation.

Core Photo

Site 1117 Hole A Core 9R Rec. 7.7% 66.6-76.3 mbsf

METERS	SECTION	GRAIN SIZE (granule, very coarse, coarse, medium, fine, very fine, silt, clay)	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
67	1								CHLORITE SCHIST and EPIDOTE BRECCIA Major Lithologies: Core contains highly sheared and brecciated rocks from igneous rocks recovered from a fault zone. See Petrology VCDs for more details.

Core Photo



180-1117A-9R-1 (66.6-76.3 mbsf)

UNIT: 3 **Metadiabase**

Pieces: 1-21

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	9R	1	1	66.60
Lower contact:	9R	1	21	67.80

Thickness (m): 1.20
Contact Type: None observed.

GENERAL: These rocks are cataclastics from within an altered basic unit. They are pervasively altered and deformed.

GRAIN SIZE: Very fine-grained

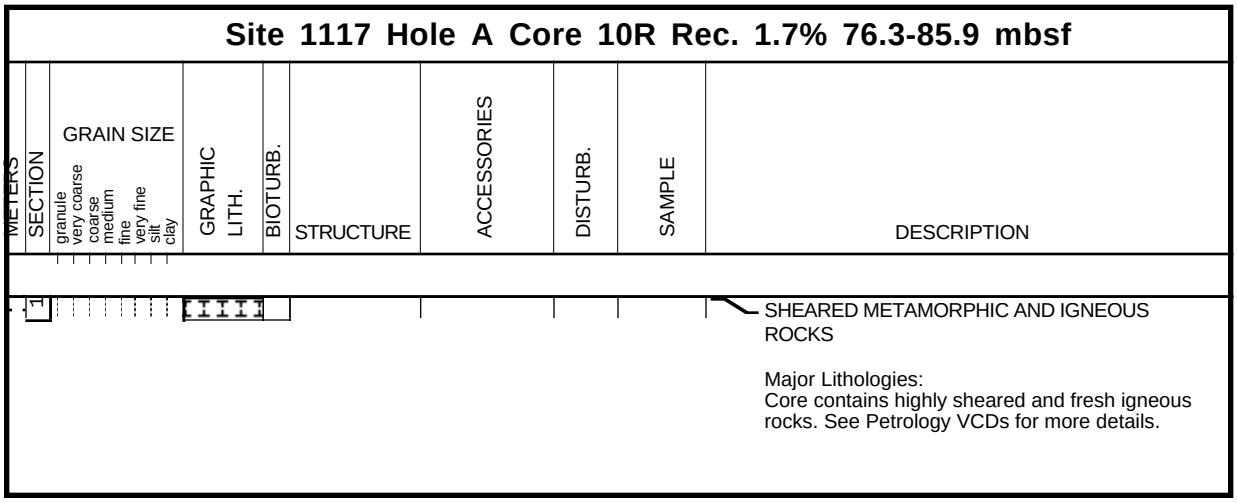
TEXTURE: Cataclastic

STRUCTURE: Fractures filled with calcite

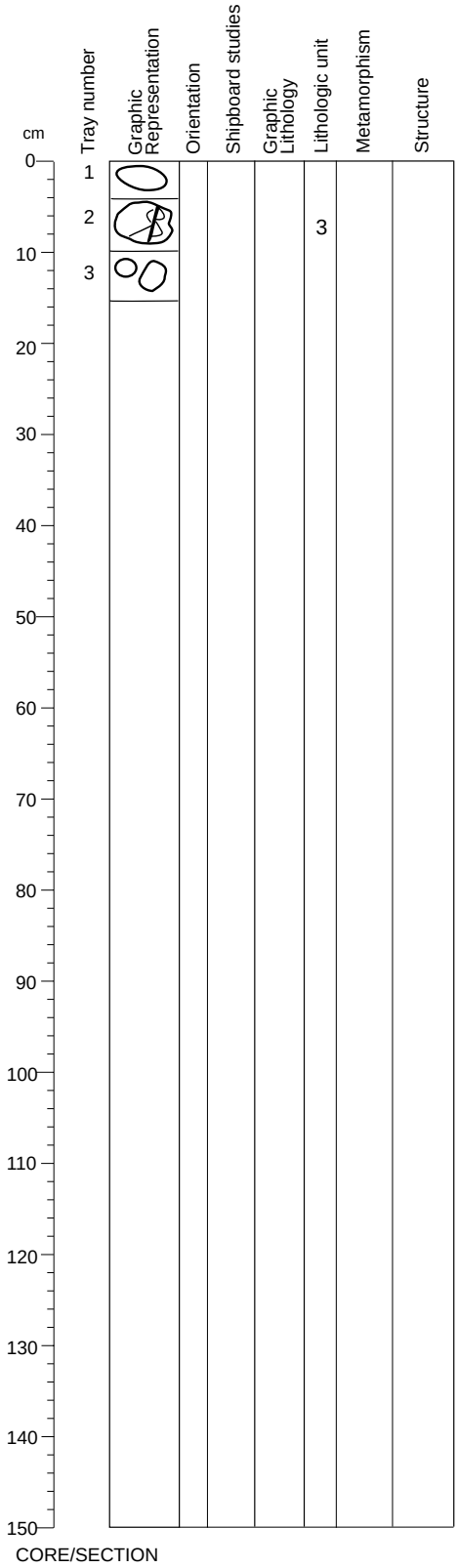
ALTERATION: Pervasive

COMMENTS: These rocks have pervasive alteration predominantly to epidote and calcite, with minor alteration to chlorite and sericite. Thin section analysis reveals relics of plagioclase and clinopyroxene, suggesting a basic protolith. Fractures indicate brittle deformation, while folded layers of quartz suggest ductile deformation.

Core Photo


Site 1117 Hole A Core 10R Rec. 1.7% 76.3-85.9 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
1
SHEARED METAMORPHIC AND IGNEOUS ROCKS
Major Lithologies:
Core contains highly sheared and fresh igneous rocks. See Petrology VCDs for more details.

Core Photo



180-1117A-10R-1 (76.3-85.9 mbsf)

UNIT: 3 **Metadiabase**

Pieces: 1-3

	Depth				
Interval Location:	**Core**		**Section**	**Piece**	**(cm)**
Upper contact:	10R		1	1	76.30
Lower contact:	10R	1	376.46		

Thickness (m): 0.16
Contact Type: None observed.

GENERAL: These are moderately altered basic rocks exhibiting original igneous textures.

GRAIN SIZE: Fine- to medium-grained

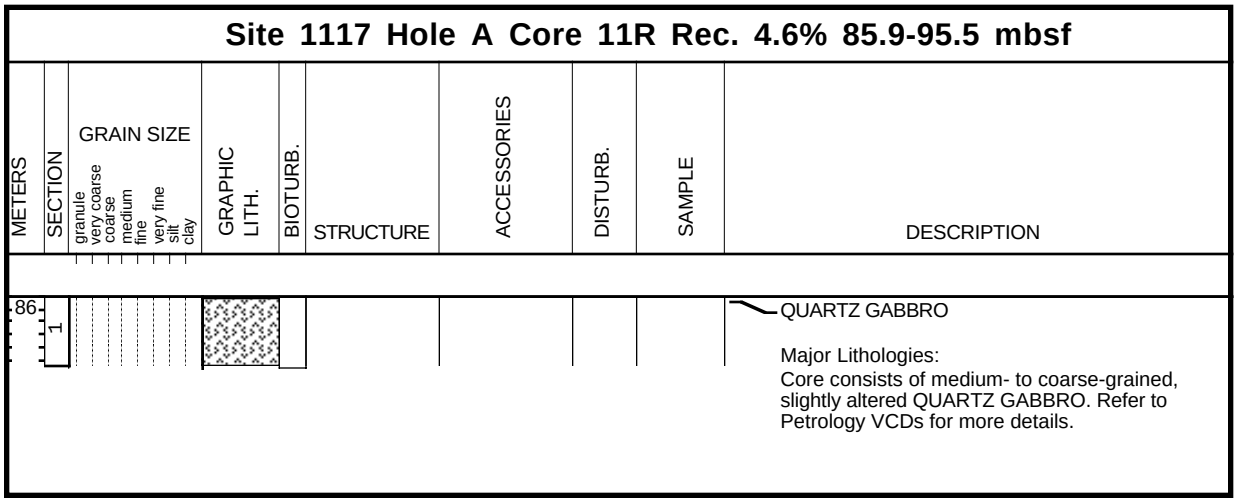
TEXTURE: Granular

STRUCTURE: Thin veins of quartz, randomly oriented

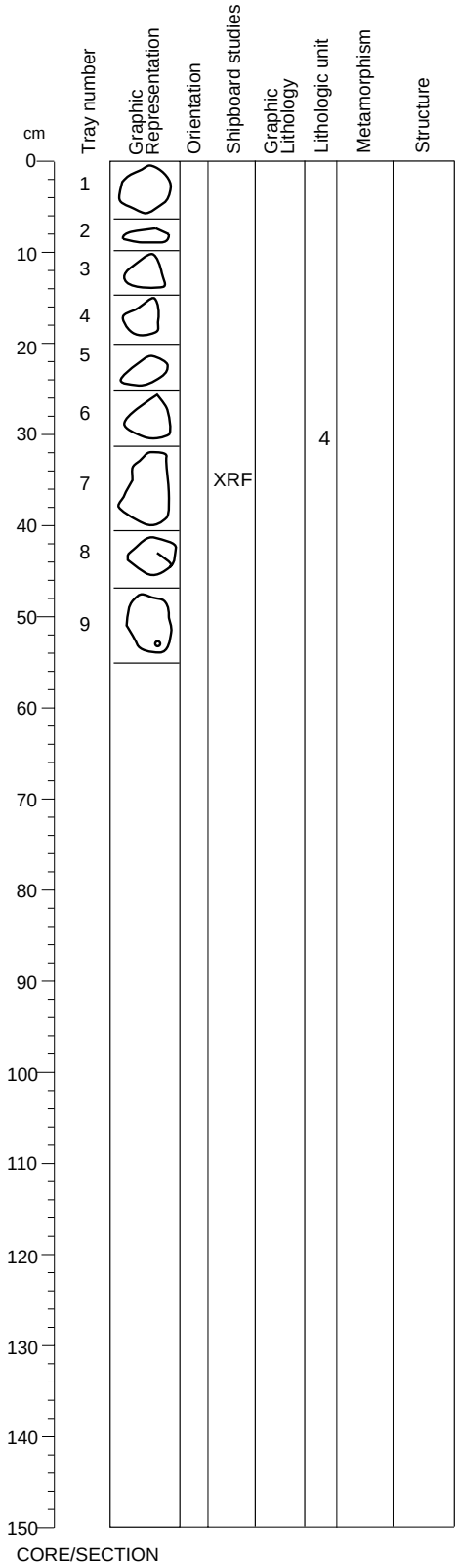
ALTERATION: Moderate

COMMENTS: These rocks are similar to those described in above cores, but the gabbro is less altered than those above. Veins are also less abundant in these rocks.

Core Photo


Site 1117 Hole A Core 11R Rec. 4.6% 85.9-95.5 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
86
1
QUARTZ GABBRO
Major Lithologies:
Core consists of medium- to coarse-grained, slightly altered QUARTZ GABBRO. Refer to Petrology VCDs for more details.

Core Photo



180-1117A-11R-1 (85.9-95.5 mbsf)

UNIT: 4 **Gabbro**

Pieces: 1-9

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	11R	1	1	85.90
Lower contact:	11R	1	9	86.46

Thickness (m): 0.56
Contact Type: None observed.

GENERAL: These are generally fresh gabbroic rocks containing clinopyroxene, plagioclase, quartz, and magnetite.

GRAIN SIZE: Coarse-grained

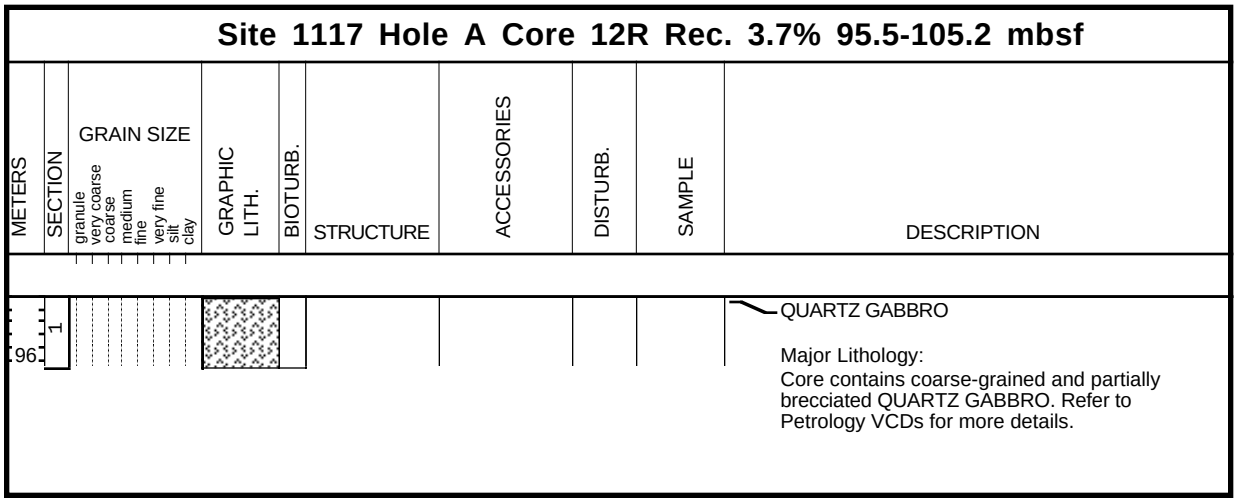
TEXTURE: Non-cumulate

STRUCTURE: Veins of epidote and pyrite

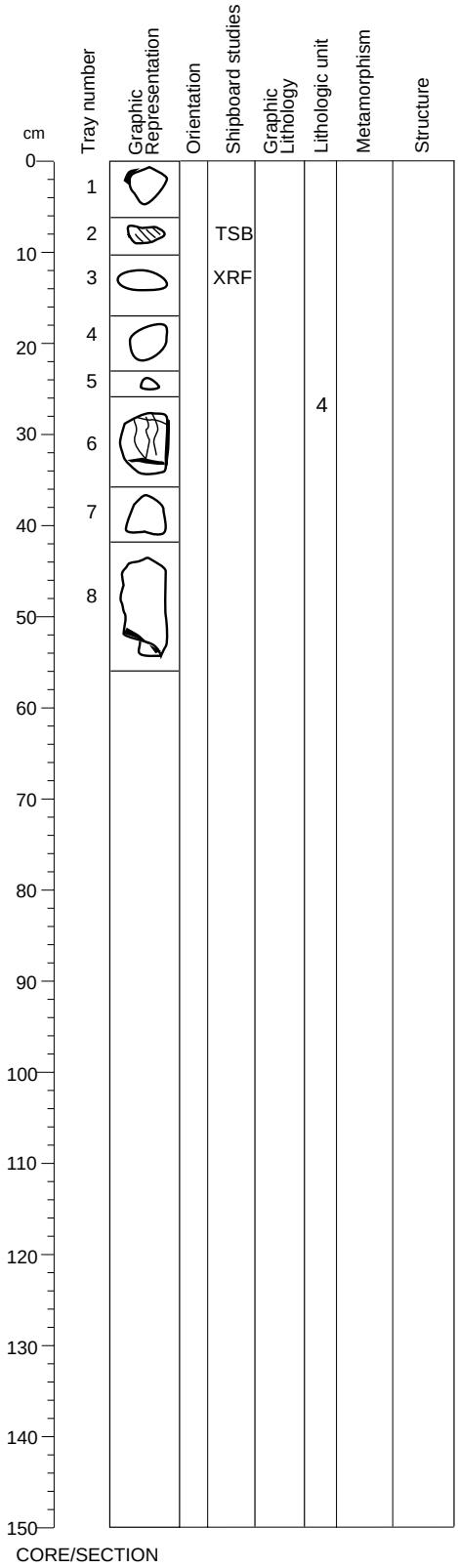
ALTERATION: Slight to moderate

COMMENTS: These rocks are more fresh and have a larger grain size than those described above.

Core Photo


Site 1117 Hole A Core 12R Rec. 3.7% 95.5-105.2 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
96
1
QUARTZ GABBRO
Major Lithology:
Core contains coarse-grained and partially brecciated QUARTZ GABBRO. Refer to Petrology VCDs for more details.

Core Photo



180-1117A-12R-1 (95.5-105.2 mbsf)

UNIT: 4 **Gabbro**

Pieces: 1-8

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	12R	1	1	88.10
Lower contact:	12R	1	8	88.67

Thickness (m): 0.57
Contact Type: None observed.

GENERAL: These are generally fresh gabbroic rocks containing clinopyroxene, plagioclase, and magnetite.

GRAIN SIZE: Coarse-grained

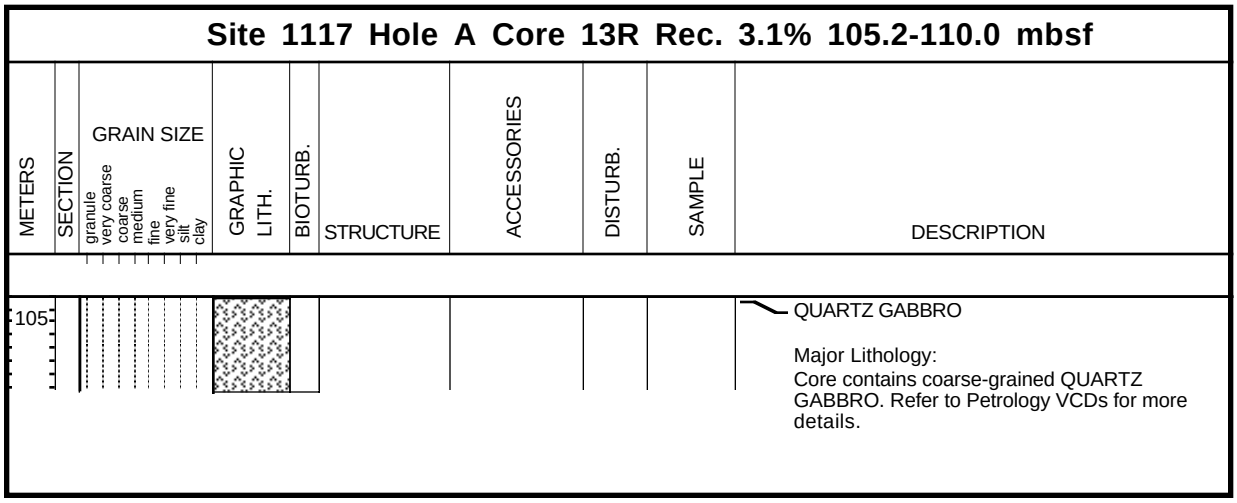
TEXTURE: Non-cumulate

STRUCTURE: Veins of epidote and pyrite occur in some pieces.

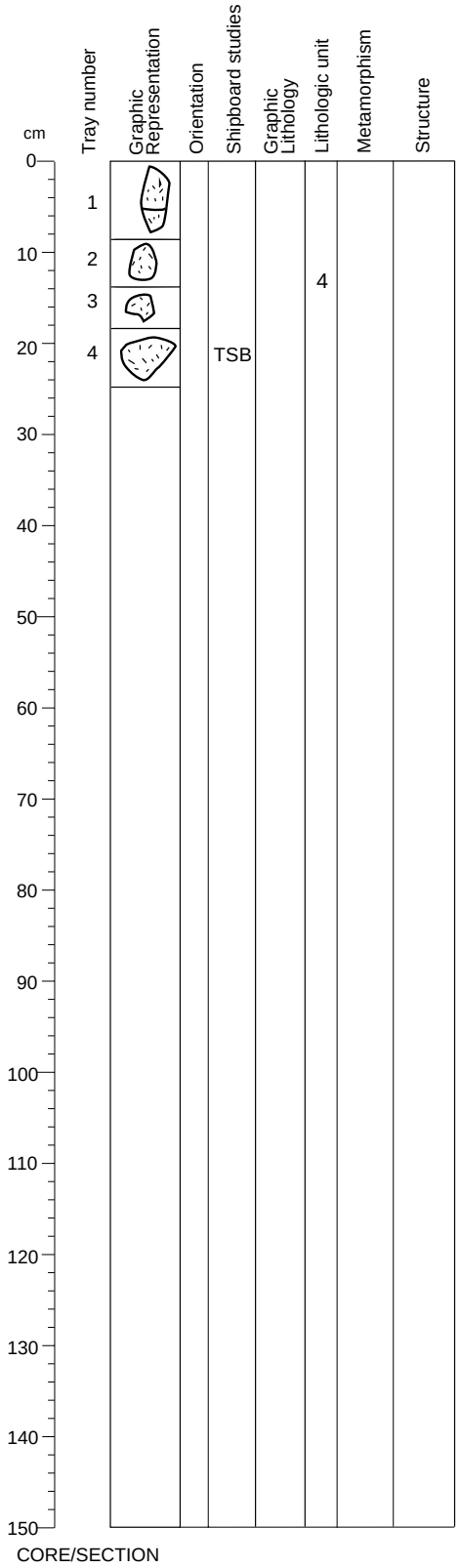
ALTERATION: Slight to moderate alteration to chlorite, epidote, and fine-grained material.

COMMENTS: These rocks are more fresh and have a larger grain size than those described above.

Core Photo


Site 1117 Hole A Core 13R Rec. 3.1% 105.2-110.0 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
105
QUARTZ GABBRO
Major Lithology:
Core contains coarse-grained QUARTZ GABBRO. Refer to Petrology VCDs for more details.

Core Photo



180-1117A-13R-1 (105.2-110.0 mbsf)

UNIT: 4, Gabbro

Pieces: 1-4

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	13R	1	1	105.20
Lower contact:	13R	1	4	105.46

Thickness (m): 0.26
Contact Type: None observed.

GENERAL: These are generally fresh gabbroic rocks containing clinopyroxene, plagioclase, and magnetite.

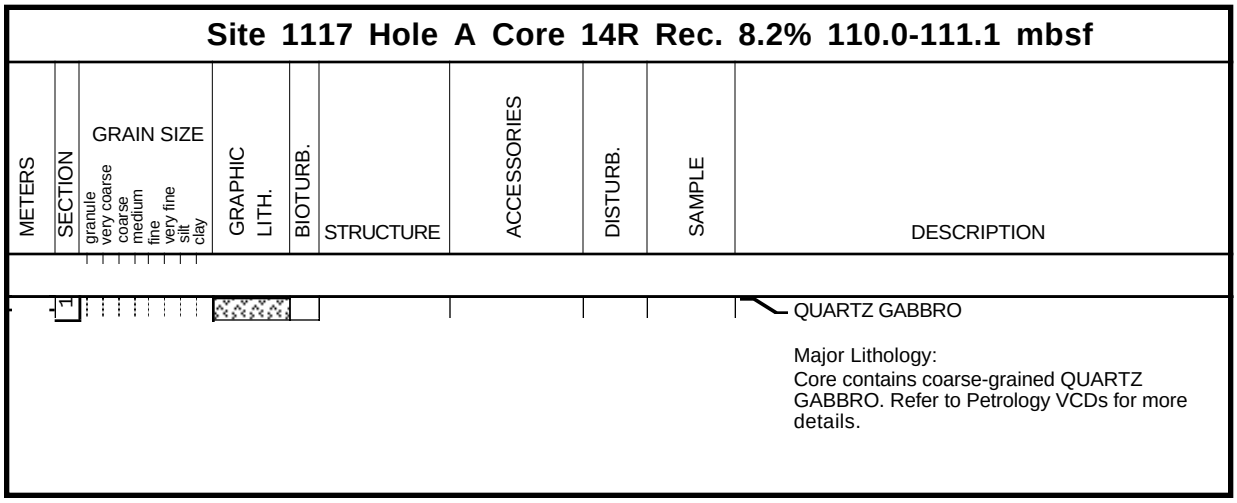
GRAIN SIZE: Coarse-grained

TEXTURE: Non-cumulate

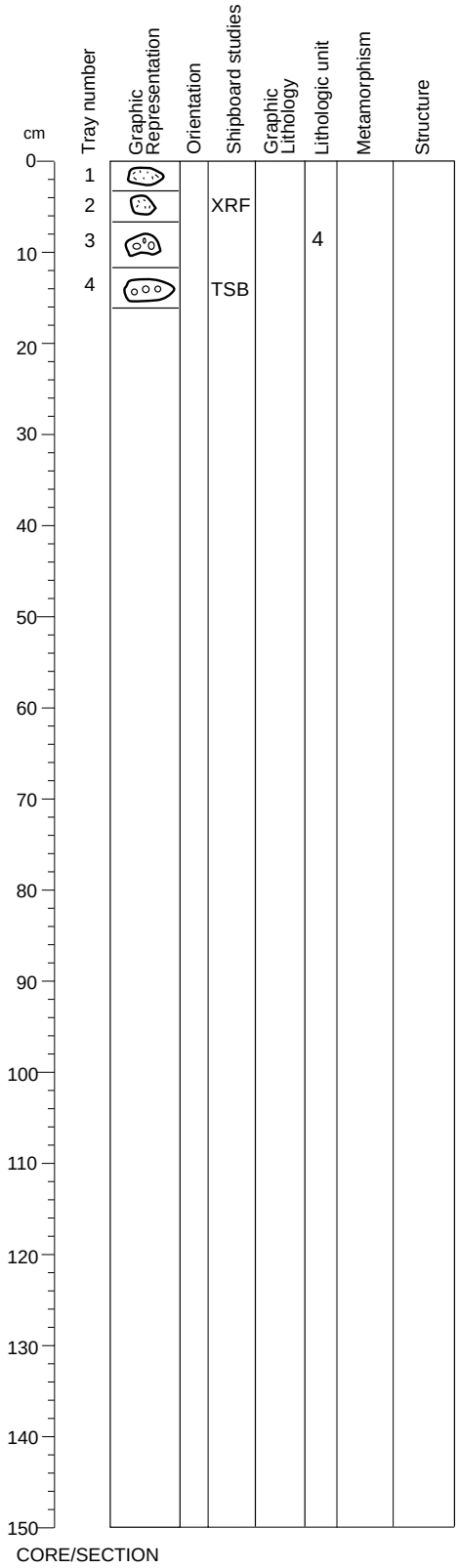
ALTERATION: Slight to moderate alteration to chlorite, epidote, and fine-grained material.

COMMENTS: These rocks are more fresh and have a larger grain size than those described above

Core Photo


Site 1117 Hole A Core 14R Rec. 8.2% 110.0-111.1 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
1
QUARTZ GABBRO
Major Lithology:
Core contains coarse-grained QUARTZ GABBRO. Refer to Petrology VCDs for more details.

Core Photo



180-1117A-14R-1 (110.0-111.1 mbsf)

UNIT: 4 **Gabbro**

Pieces: 1-4

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	14R	1	1	110.00
Lower contact:	14R	1	4	110.17

Thickness (m): 0.17
Contact Type: None observed.

GENERAL: These are generally fresh gabbroic rocks containing clinopyroxene, plagioclase, and magnetite.

GRAIN SIZE: Coarse-grained

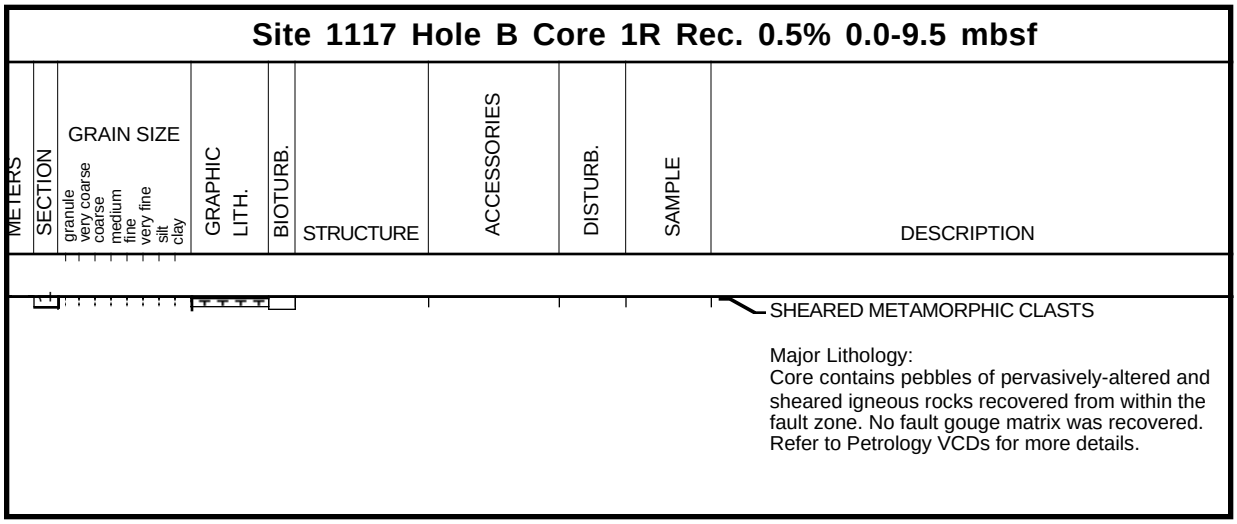
TEXTURE: Non-cumulate

STRUCTURE: Veins of epidote and pyrite

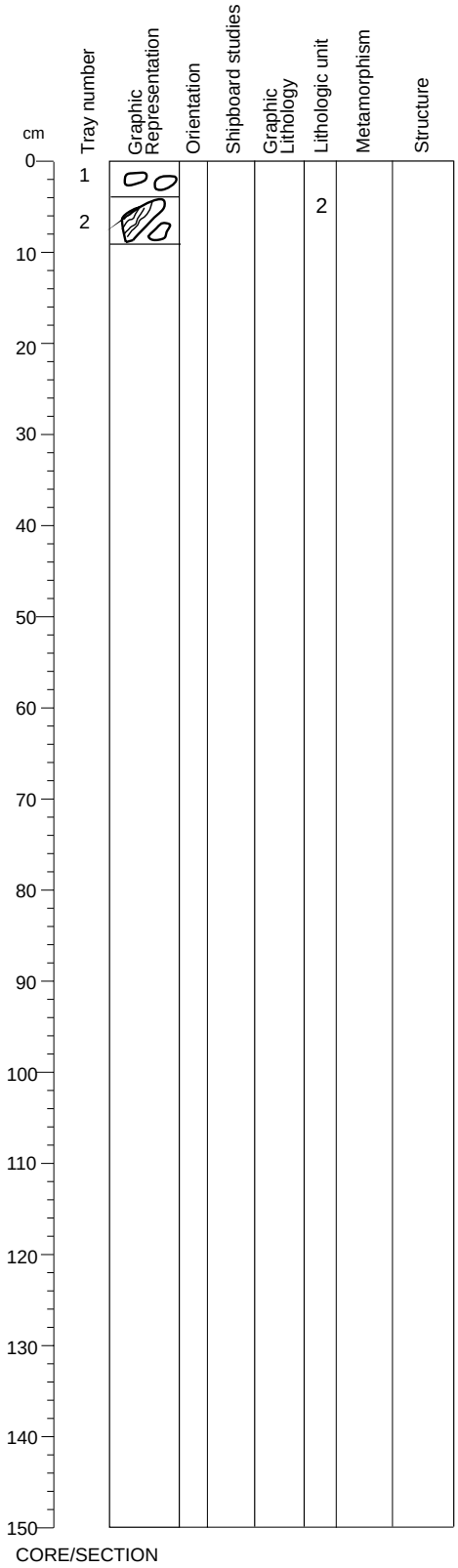
ALTERATION: Slight to moderate alteration to chlorite, epidote, and fine-grained material.

COMMENTS: These rocks are more fresh and have a larger grain size than those described above.

Core Photo


Site 1117 Hole B Core 1R Rec. 0.5% 0.0-9.5 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
SHEARED METAMORPHIC CLASTS
Major Lithology:
Core contains pebbles of pervasively-altered and sheared igneous rocks recovered from within the fault zone. No fault gouge matrix was recovered. Refer to Petrology VCDs for more details.

Core Photo



180-1117B-1R-1 (0.0-9.5 mbsf)

UNIT: 2 **Clasts from the fault zone**

Pieces: 1-3

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	1R	1	1	0.00
Lower contact:	1R	1	3	0.05

Thickness (m): 0.05
Contact Type: None observed.

GENERAL: Three pebbles were cored. These pebbles were very sheared and had a glassy appearance on the outside.

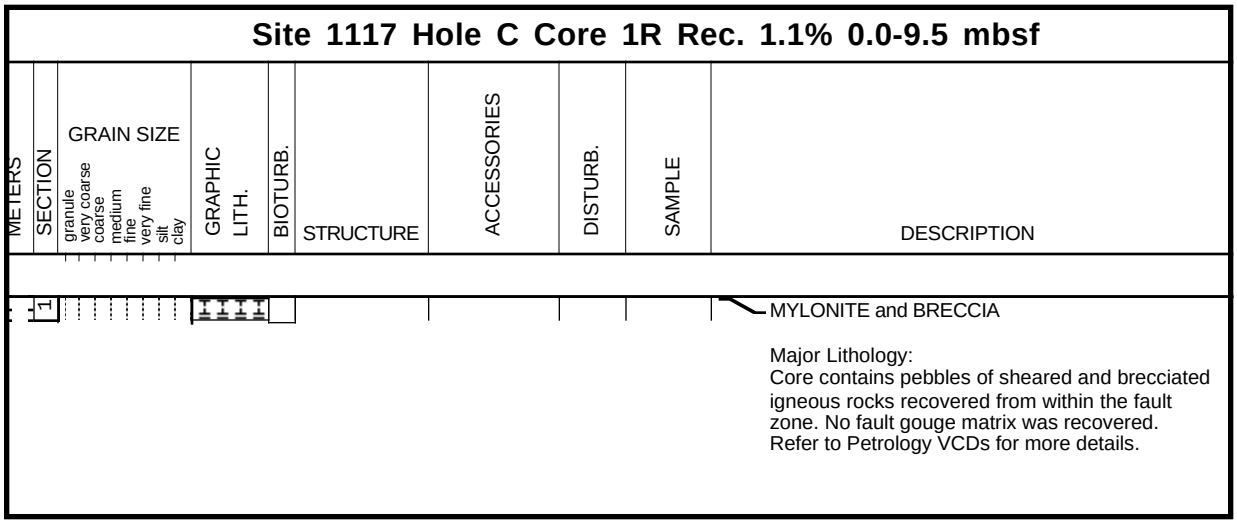
GRAIN SIZE: Very fine-grained

TEXTURE: Mylonitic

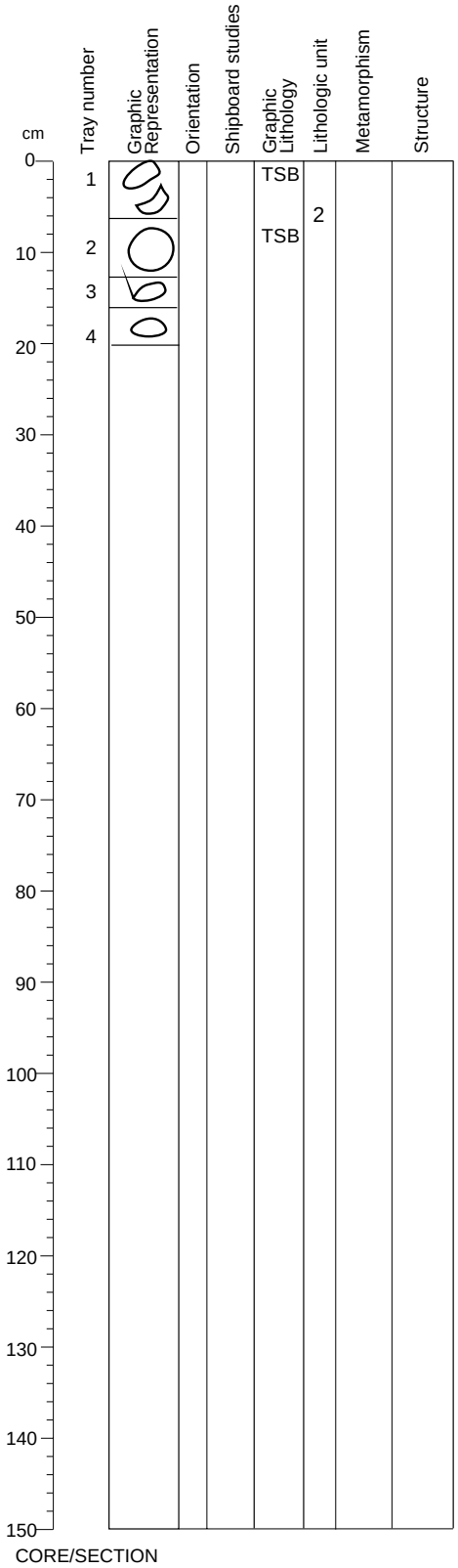
ALTERATION: Pervasive alteration to talc(?)

COMMENTS: These pebbles were not sectioned or analyzed by X-ray fluorescence. However, they appear to be very similar to the sheared and pervasively-altered rocks described in the first few cores of Hole 1117A.

Core Photo


Site 1117 Hole C Core 1R Rec. 1.1% 0.0-9.5 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
1
MYLONITE and BRECCIA
Major Lithology:
Core contains pebbles of sheared and brecciated igneous rocks recovered from within the fault zone. No fault gouge matrix was recovered. Refer to Petrology VCDs for more details.

Core Photo



180-1117C-1R-1 (0.0-9.5 mbsf)

UNIT: 2 **Clasts from the fault zone**

Pieces: 1-2

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	1R	1	1	0.00
Lower contact:	1R	1	2	0.10

Thickness (m): 0.10
Contact Type: None observed.

GENERAL: These are mylonitic to ultramylonitic clasts from within the fault zone. They have been highly sheared and hydrothermally-altered.

GRAIN SIZE: Very fine-grained

TEXTURE: Mylonitic

ALTERATION: Pervasive alteration to talc and chlorite

COMMENTS: These rocks are heavily sheared and pervasively hydrothermally altered, which is consistent with clasts from within a fault zone.

180-1117A-1R-CC (10-14 cm)
Thin section: # 223
ROCK NAME: Talc-chlorite rock
GRAIN SIZE: Very fine-grained
TEXTURE: Porphyritic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
SECONDARY MINERALOGY	**PERCENT**	**REPLACING/ FILLING**		**COMMENTS**		
Talc	60			Pseudomorph after amphibole.		
Chlorite	25					
Magnetite	5	Disseminated				
Calcite	10	Veins and disseminated				

COMMENTS: This rock was recovered from within the fault gauge material. It has been pervasively altered.

180-1117A-2R-CC (1-3 cm)
Thin section: # 224
ROCK NAME: Talc-chlorite rock
GRAIN SIZE: Very fine-grained
TEXTURE: Porphyritic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Talc	?		
Chlorite	?		
Actinolite	?		
Quartz	?		

COMMENTS: This rock was recovered from within the fault gauge material. It has been pervasively altered, but some of the original igneous texture has been preserved as islands and lath-shaped areas of chlorite in a talc-rich matrix.

180-1117A-3R-CC (2-3 cm)
Thin section: # 225
ROCK NAME: Talc-chlorite rock
GRAIN SIZE: Fine-grained
TEXTURE: Brecciated

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Talc	80		
Chlorite	20		
Opaque	2		

COMMENTS: This rock has a brecciated texture, but all primary mineralogy has been replaced. Domains of talc and chlorite are separated by an anastomosing fracture network.

180-1117A-3R-CC (3-4 cm)
Thin section: # 226
ROCK NAME: Retrogressed igneous basic rock
GRAIN SIZE: Fine- to medium-grained
TEXTURE: Porphyritic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING		COMMENTS		
Chlorite						
Serpentine						
Tremolite(?)				Very fine needles.		
Magnetite						

COMMENTS: Relic of magmatic texture is preserved. All primary minerals have been pseudomorphed by the above assemblage, whose relative proportions cannot easily be estimated.

180-1117A-7R-1 (3-4 cm)
Thin section: # 227
ROCK NAME: Quartz-Epidote Breccia
GRAIN SIZE: Very fine-grained
TEXTURE: Cataclastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Calcite		Veins	
Chlorite		Veins	
Quartz		Veins	
Epidote		Veins	
Pyrite			

COMMENTS: No estimation of mineral proportion has been made as the rock is very inhomogeneous-a mylonitized matrix shot through with largely calcite and quartz veins and bands.

180-1117A-8R-1 (1-2 cm)
Thin section: # 228
ROCK NAME: Epidote Breccia
GRAIN SIZE: Very fine-grained
TEXTURE: Cataclastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Calcite	20	Veins	
Chlorite	5	Matrix	
Quartz	15	Veins and lenses	
Epidote	25	Matrix	
Unidentified	35		Finely-comminuted material.

COMMENTS: This rock is pervasively altered. No evidence of primary mineralogy exists. Epidote occurs in layers associated with quartz and in the brecciated matrix.

180-1117A-8R-1 (4-5 cm)
Thin section: # 229
ROCK NAME: Epidote schist
GRAIN SIZE: Very fine-grained
TEXTURE: Cataclastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Clinopyroxene	0	?				

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Epidote	60	Layers and veins	
Quartz	5	Veins	
Calcite	5	Veins	
Chlorite	1		
Unidentified	29	Finely comminuted material	

COMMENTS: This rock is pervasively altered. Numerous fractures crosscut the rock and are filled with calcite. Ductile deformation is also indicated by folded quartz layers.

180-1117A-9R-1 (Piece 4, 15-20 cm)
Thin section: # 230
ROCK NAME: Chlorite schist
GRAIN SIZE: Very fine-grained
TEXTURE: Mylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
SECONDARY MINERALOGY	**PERCENT**	**REPLACING/ FILLING**		**COMMENTS**		
Chlorite	10			Defines foliation.		
Calcite	3	Veins				
Quartz	45	Veins and lenses				
Opaque Minerals	<1					
Fine material	40			Comminuted rock fragments.		

COMMENTS: This rock is pervasively altered. Numerous fractures crosscut the rock and are filled with calcite. Ductile deformation is also indicated by folded quartz and calcite veins.

180-1117A-9R-1 (Piece 17, 86-90 cm)
Thin section: # 231
ROCK NAME: Epidote breccia
GRAIN SIZE: Very fine-grained
TEXTURE: Cataclastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Plagioclase						Sericitized
Clinopyroxene						

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	1	Veins	
Quartz	2	Veins	
Epidote	35		
Calcite	5	Veins	
Pyrite	2		
Sericite	10	Plagioclase	
Fine-grained material	45		Comminuted rock-forms matrix to fragments.

COMMENTS: This rock is pervasively altered and deformed by brittle deformation. Clinopyroxene and plagioclase relics can be identified in thin section. Intersecting fractures cross-cut sericitized plagioclase. Epidote and sericite layers are crosscut by quartz veins. A large area of rock is cataclastic-no directional fabric. Rock is about 30% fragments in a dark matrix.

180-1117A-11R-1 (Piece 7, 30-39 cm)
Thin section: # 232
ROCK NAME: Quartz gabbro
GRAIN SIZE: Coarse-grained
TEXTURE: Non-cumulus

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Clinopyroxene	30		4-5		Subhedral/prismatic	
Plagioclase	60		5-6		Subhedral/prismatic	Cloudy.
Quartz	5-10		1		Anhedral	Granular.
Magnetite	5				Dendritic/skeletal	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Saussurite	15-20	Plagioclase	
Pyrite/pyrrhotite	2		
Chlorite		Clinopyroxene	Two types present-partly interstitial, partly replacing clinopyroxene.

COMMENTS: This rock has undergone minor brittle deformation. Clinopyroxene and plagioclase relics can be identified in thin section. Intersecting fractures cross-cut sericitized plagioclase.

180-1117A-12R-1 (Piece 2, 6-8 cm)
Thin section: # 233
ROCK NAME: Brecciated quartz gabbro
GRAIN SIZE: Coarse-grained
TEXTURE: Cataclastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Plagioclase	25	?	0.5-1		Anhedral	
Quartz	5	?			Anhedral	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	30	Clinopyroxene	Subhedral, platy.
Epidote	20	Vein and plagioclase	Subhedral.
Dark material	20	Comminuted rock	Probably largely epidote.

COMMENTS: Plagioclase is relatively fresh, pyroxene is completely replaced. Epidote occurs both in the matrix and filling vein associated with quartz.

180-1117A-13R-1 (Piece 4, 22-24 cm)
Thin section: # 234
ROCK NAME: Quartz gabbro
GRAIN SIZE: Coarse-grained
TEXTURE: Non-cumulate

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Pyroxene	30	40				
Plagioclase	40	50	0.5-1		Anhedral	Altered.
Quartz	5	5			Anhedral	Interstitial-some in granophyric intergrowth.
Opaque	5	5			Dendritic/skeletal	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	15	Clinopyroxene and interstitially	Subhedral, platy. Some material altering clinopyroxene is amphibole.

COMMENTS: One grain of sphene was identified.

180-1117A-14R-1 (Piece 4, 13-15 cm)
Thin section: # 235
ROCK NAME: Gabbro
GRAIN SIZE: Coarse-grained
TEXTURE: Granular

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Clinopyroxene intergrown.	40	40	8		Prismatic	Pyroxene and plagioclase partly
Plagioclase	45	45	8		Blocky	
Quartz	5	5			Interstitial granophyric intergrowths	
Opaque	5	5	2		Skeletal	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	5	Clinopyroxene and interstitially	

COMMENTS: This is a relatively evolved gabbro with quartz/granophyre. Rock has a curious intergrowth of plagioclase and pyroxene.

180-1117C-1R-1 (Piece 1, 1-3 cm)
Thin section: # 236
ROCK NAME: Calcite in micaschist
GRAIN SIZE: Medium-grained
TEXTURE: Rylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Calcite	?	Bands	
Quartz	?	Bands	
Dark material	?	Matrix	

COMMENTS: Rock is a mylonite with bands of calcite and some quartz. Dark material in between is not resolvable, but seems to be largely chlorite. Clasts make up less than 10% of the rock, making it an ultramylonite with occasional augen of quartz.

180-1117C-1R-1 (Piece 2, 9-10 cm)
Thin section: # 237
ROCK NAME: Breccia
GRAIN SIZE: Very fine-grained, generally coarser-grained in veins
TEXTURE: Tectonized

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS

COMMENTS: The matrix of this rock is very fine-grained. Its mineralogy cannot be determined optically. A system of veins-two directions intersecting at about 45˚ consist of quartz (earlier) or quartz-chlorite-sericite (later) intersect the rock. Some veins contain sulphide minerals.