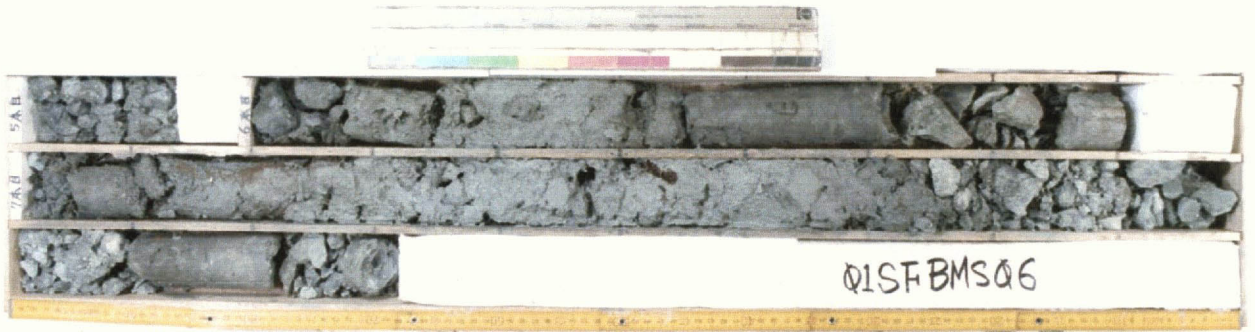
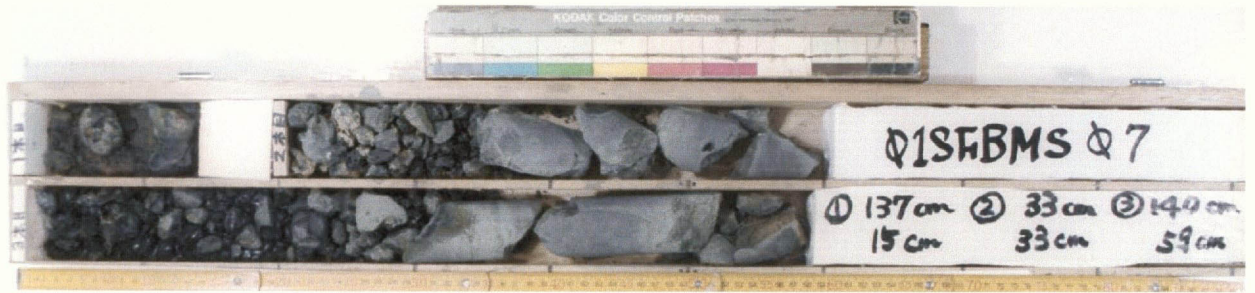


Appendix 4 Photographs of Drilling Core



01SF BMS 06 West Part



01SF BMS 07 West Part



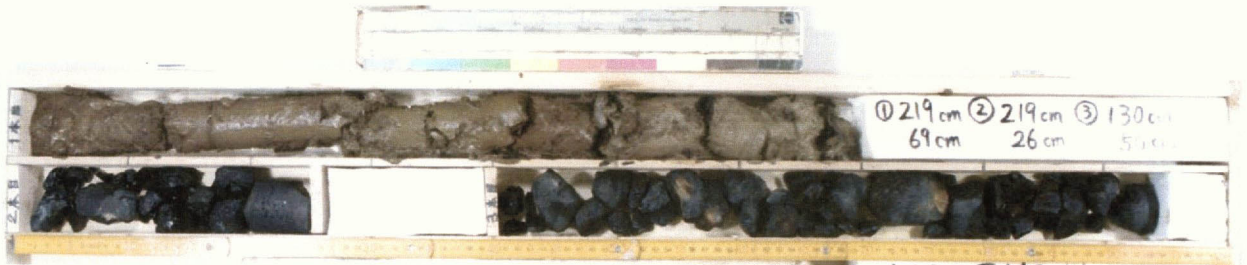
01SF BMS 08 West Part



01SF BMS 09 West Part



01SF BMS 10 West Part



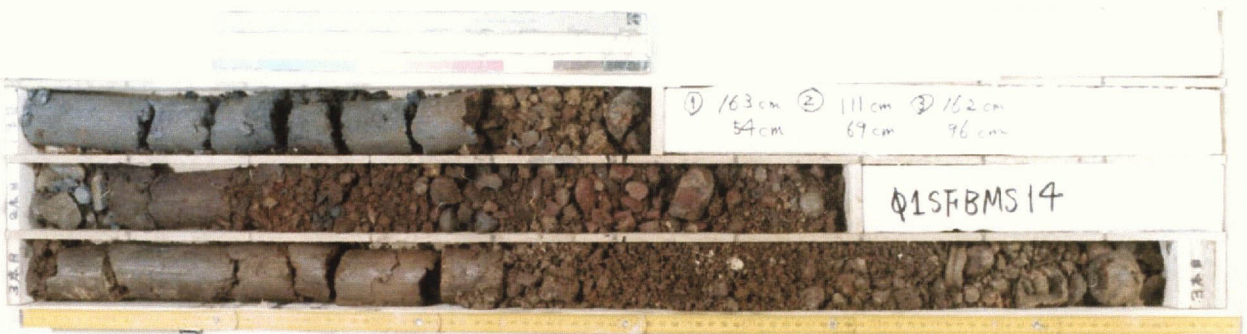
01SFBS11 West Part



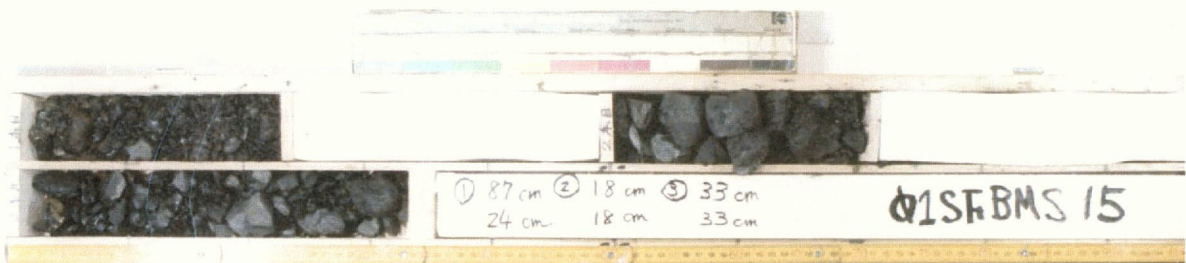
01SFBS12 West Part



01SFBS13 East Part



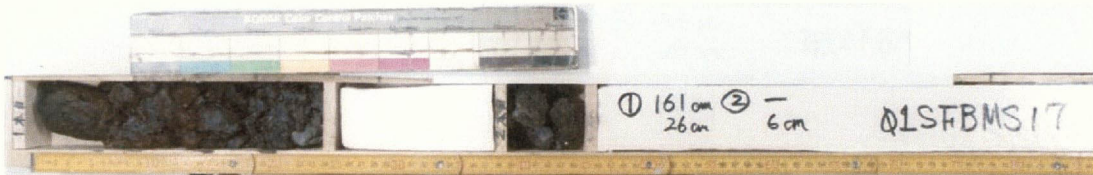
01SFBS14 East Part



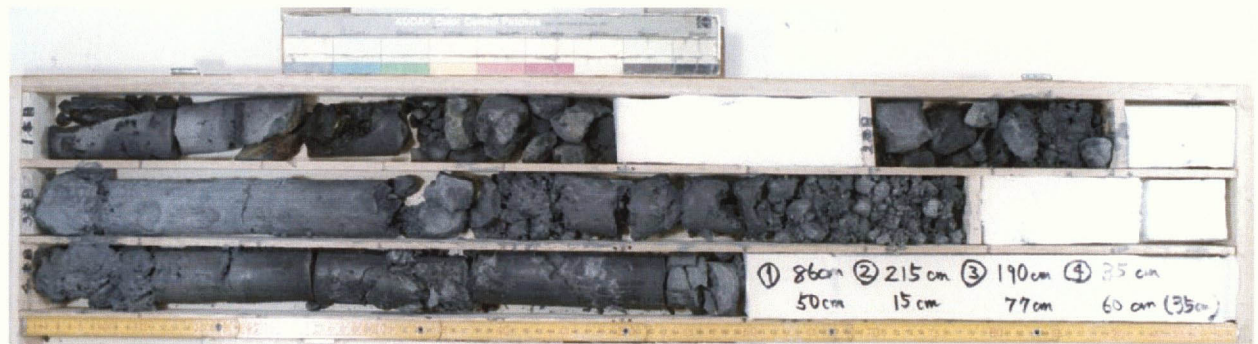
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01SFBS16 East Part



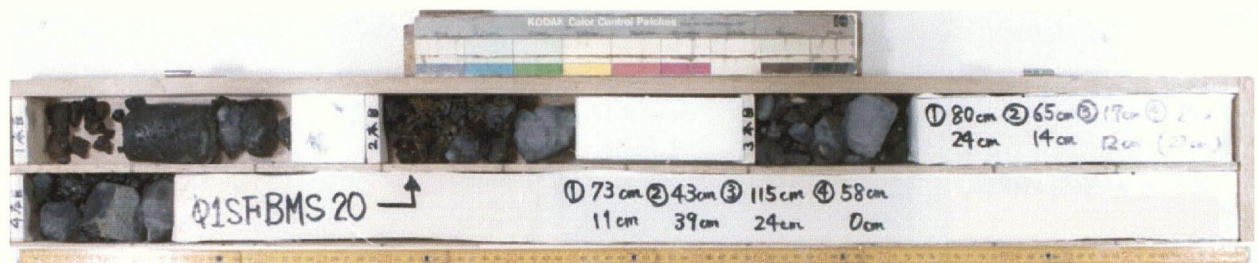
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01SFBS18 East Part



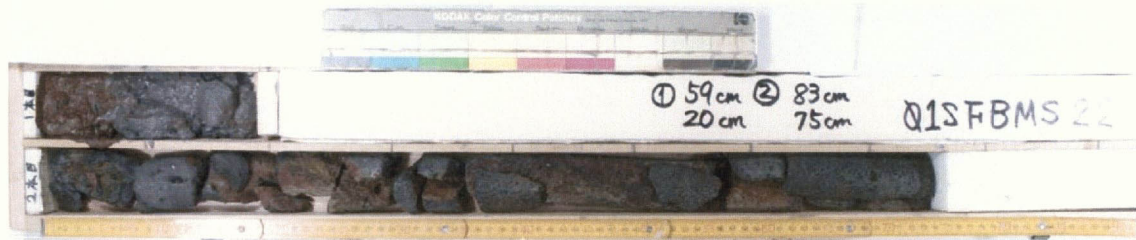
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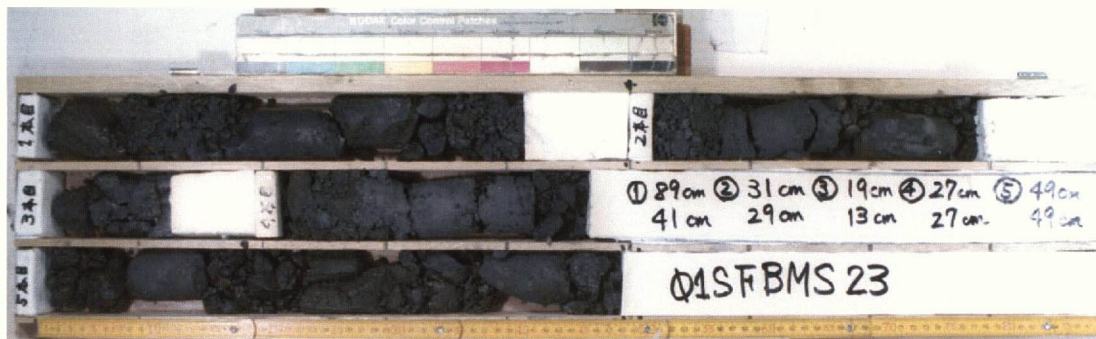
01SFBS20 East Part



01SFBS21 East Part



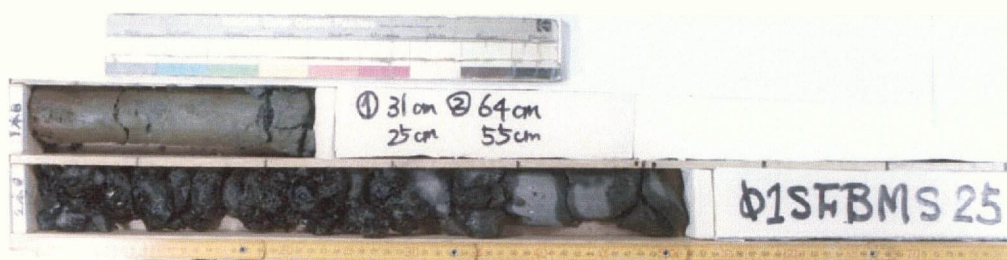
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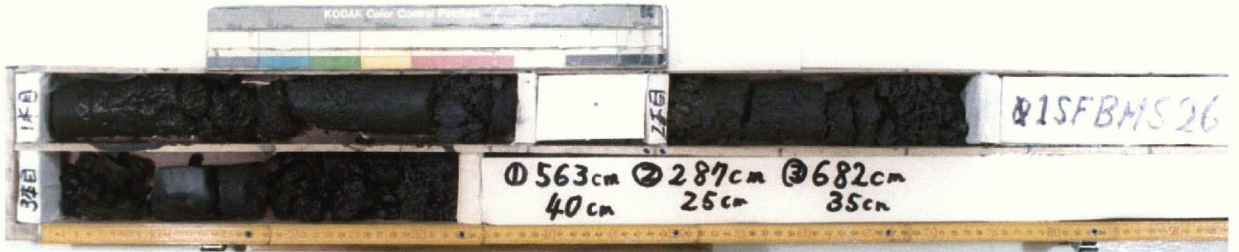
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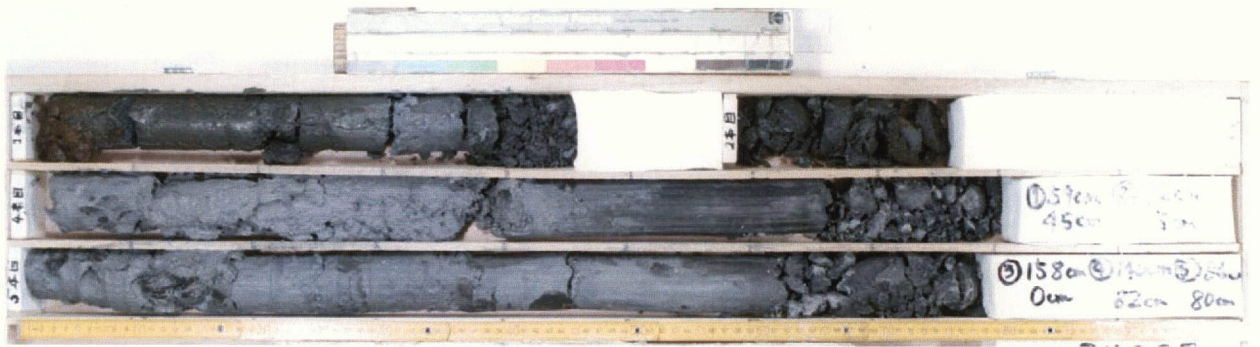
01SFBS24 West Part



01SFBS25 West Part



01SBMS26 West Part




01SBMS27 West Part

Appendix 5 Column of Drilling Core


01SBMS06 (West Part) 1/7
Core Barrel 1

Drilling Depth 0-18cm
Core Length 5 cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
		Basalt	Reddish Brown	Three basalt fragments of 1-3 across.	Rimonite-Hematite	
10						


01SBMS01 (West Part) 2/7
Core Barrel 2

Drilling Depth 18-84cm
Core Length 17cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
		Basalt	Dark Gray	0~17cm: 1-5cm size fragments of basalt, dark gray, fine grained, compact, aphyric. Minute grains of pyrite are rarely observed along fracture of 1mm wide		
10						
20						

01SBMS06 (West Part) 3/7
Core Barrel 3

Drilling depth 84-301cm
Core Length 38cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
		Basalt	Blackish Gray	0~38cm: Blackish gray, fine grained, compact basalt. many fractures at interval of 2-3mm occur along the core and the core is partly crashed to 2-3cm size fragments. Veins of 5mm wide consisting of fragment of basalt, silica, pyrite grains occur in basalt. Pyrite is also found in thin fracture.	PL01	TS01 CM01 CA01 AS01, TS02, XD01
10						
20						
30						
40						
50						

01SFBS06 (West Part) 4/7
Core Barrel 4

Drilling Depth 301-522cm
Core Length 55cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-60		Altered Hyaloclastite	Dark Gray ~ Pale greenish gray	0~55cm: Pale greenish gray, altered hyaloclastite with pebble size basalt fragments. The size of basalt fragments varies from 1cm to 5cm and large fragments are dark gray and small ones are altered to pale gray. The matrix consist of few mm size fragment of basalt, silica minerals and pale greenish gray clay. It is weakly disseminated by pyrite.		TS03, CM02, XD02


01SFBS06 (West Part) 5/7
Core Barrel 5

Drilling Depth 522-656cm
Core Length 14cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-14		Hyaloclastite	Blackish gray ~ Pale gray	0~14cm: Fragments of basalt of 2-3cm and clay. Fragments of basalt: Non-altered blackish gray basalt and altered pale gray basalt, compact, fine-grained Clay: pale greenish gray		
14-30						


01SFBS06 (West Part) 6/7
 Core Barrel 6

Drilling Depth 656-859cm
 Core Length 74cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-35		Altered Hyaloclastite (disturbed)	pale greenish gray	0~35cm: Altered hyaloclastite, disturbed 0-8cm: Basalt fragments of 5-3cm across and clay, non-altered, 8-35cm: disturbed clay, pale greenish gray		
35-74		Altered Hyaloclastite	Pale gray	35~74cm: Altered hyaloclastite consisting basalt breccia of 1-3cm across and matrix, blackish gray, fine-grained, compact. Basalt breccia: few mm size, weakly pyrite disseminated Matrix: weakly disseminated by pyrite		XD03 CM03
74-80						
80-90						
90-100						

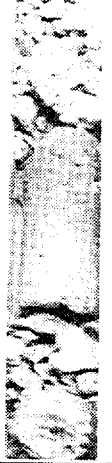
01SFBS06 (West Part) 7/7
Core Barrel 7 (1)

Drilling Depth 859-990cm
Core Length 131cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Altered Hyaloclastite	Blackish gray - pale gray	Altered hyaloclastite consisting of basalt fragments of 1-3cm across and matrix of fine basalt fragments, silica, and pale greenish gray clay.		
20				0~25cm : massive core		
30				25~75cm : Disturbed clay and fragments of basalt of few mm.		
40						
50						
60						
70						
80				75~110cm: Basalt fragments of few cm and clay adhered to fragments		
90						
100						


01DB08BMS06 (West Part) 7/7
 Core Barrel 7 (2)

Drilling Depth 859-990cm
 Core Length 131cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Altered hyaloclas- tite	Black- ish gray - pale gray	110~123cm : massive core.		XD04 CM04
20				123~131cm : fragments cores of few cm		
30						
40						


01SFBS07 (West Part) 1/3
Core Barrel 1

Drilling Depth 0-137cm
Core Length 15cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Mud & Fragments of basalt	Bark Brown	0~15cm : Dark brown mud and fragments of basalt Fragments of basalt: brecciated basalt of 5mm-4cm across, blackish gray, fine grained, compact		
20						


01SFBS07 (West Part) 2/3
Core Barrel 2

Drilling Depth 137-170cm
Core Length 33cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Black glass basalt	Black or blackish gray	0~10cm : Angular fragments of black glass and basalt, 0.5-3cm across, black, conchoidal texture Basalt: black gray, fine-grained, compact		CA01 CM01 TS01
20		Basalt	Blackish gray			
30						
40						
50						


01SFBS07 (West Part) 3/3
Core Barrel 3

Drilling Depth 170-310cm
Core Length 59cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Fragments of Black glass & basalt	Black - Black gray	0~30cm : Angular fragments of black glass and basalt, 1-5cm across Basalt fragments: blackish gray, fine grained, compact, black glass is covered with basalt.		
30		Basalt	Blackish gray	30~59cm : Basalt, blackish gray, fine grained, compact, chlorite and epidote are found on the surface of basalt fragments.		
40						
50						
60						
70						


01SFBS08 (West Part) 1/4
Core Barrel 1

Drilling Depth 0-165cm
Core Length 96cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0		Massive Sulfide		0~96cm: Massive sulfide. Cp>Py>bornite, aggregation of fine chalcopyrite, pyrite, bornite grains. apparent ore grade:Cu5-10%		AS01
10						
20						
30						
40						
50						PL01
55						CM01
60						PL02, XD01
70						
80						
90						
100						


01DB08BMS08 (West Part) 2/4
Core Barrel 2

Drilling Depth 165-384cm
Core Length 26cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Fragments of Massive sulfide		0~26cm: Massive Sulfide ore consisting of fine Chalcopyrite, pyrite grains. Some of dark colored fragments are included that consists of pyrite - chalcopyrite patches and dark matrix of bornite and sphalerite.		PL03
						PL04
20						AS02
30						
40						



01SFBMS08 (West Part) 3/4
Core Barrel 3

Drilling Depth 384-596cm
Core Length 50cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Fragments of Massive sulfide		0~50cm: Massive sulfide ore consisting of fine chalcopyrite and pyrite grains, framboidal texture. 20~40cm: Pyrite of coarse grain size, few mm across, surrounding small druse		CM02
						PL05
20						AS03
30						
40						
50						

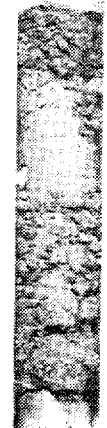
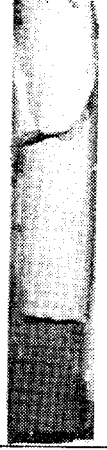
01SFBS08 (West Part) 4/4
 Core Barrel 4

Drilling Depth 596-748cm
 Core Length 52cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-10		Massive sulfide		0~10cm: Fragments of massive sulfide, fine grained Chalcopyrite > pyrite.		
10-52		Altered hyaloclastite		10~52cm: Altered basaltic hyaloclastite. fragments of altered basalt across of 1-4cm. Matrix: gray clay, disseminated or filled by pyrite and chalcopyrite. (Py > Cp)		CM03, XD02 TS01
						PL06
50-60						


01SFBMS09 (West Part) 1/2
Core Barrel 1

Drilling Depth 0-60cm
core Length 58cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-28		Fragment of Basalt & Clay	Dark gray	0~28cm : Fragment of basalt and gray clay. Fragment of basalt : 2-5mm across, black glassy, displacement to opal. Matrix: gray clay, disseminated by pyrite.		
28-58		Basalt	Dark gray	28~58cm : Dark gray basalt, non-alteration, fine-grained, compact, aphyric, rarely pyrite grain 50~58cm : Much cracks filled with fine basalt and opal and disseminated by pyrite.		
58-60						


01SFBS09 (West Part) 2/2
 Core Barrel 2

Drilling Depth 60-137cm
 Core Length 76cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	0~76cm: Basalt, blackish gray, fine grained, aphyric. Many cracks, pyrite and chalcopyrite are filled of cracks.		
20				40cm: Cracks of few cm are filled with Quartz, pyrite.		
30				0~40cm: Massive core. Lower part of 40cm: It may be stockwork zone. however, unknown because of low core recovery		CA01 TS01
40						PL01
50						CM01
60						
70						
80						
90						
100						


01SFBS010 (West Part) 1/3
Core Barrel 1

Drilling Depth 0-116cm
Core Length 18cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Reddish Brown	0~5cm: Fragments of oxidized basalt of 2-3cm across		
		Massive Sulfide		5~18cm: Fragments of massive sulfide of 1-4cm across. It is consisted of concentrated part of chalcopyrite and pyrite, and black part. Black part is consisted of fine grained Fe-s mineral, mainly sphalerite.		AS01
20						
30						
40						
50						

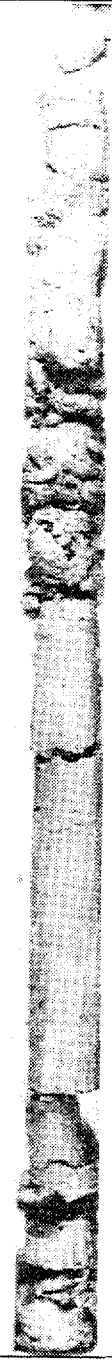
01SFBS010 (West Part) 2/3
Core Barrel 2

Drilling Depth 116-331cm
Core Length 77cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0		Massive Sulfide		0~42cm : Massive sulfide, Pyrite-Chalcopyrite rich patches of 1-5cm across and dark matrix surrounding the patches. Dark matrix is consisted of chalcopyrite and pyrite. Two stages of mineralization : firstly patches that consisted of Py-Cp, Secondary black matrix was filled with patches.		CM01
10						PL01
20						PL02
30						PL03, XD01
40						AS02
42	Altered hyaloclastite	Altered hyaloclastite	Pale gray - dark gray	42~77cm : Altered hyaloclastite, it consist of basalt fragment of 1-3cm across and black matrix. Basalt fragment : large fragments are fresh with dark gray color and small fragments are altered to pale gray. The matrix consists of dark gray clay.		
50						
60						XD02 CM02 TS01
70						
80						
90						
100						

01SFBS010 (West Part) 3/3
Core Barrel 3

Drilling Depth 331-546cm
Core Length 90cm


cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-90		Altered hyaloclastite	Blackish gray - Dark gray	0~90cm : Altered hyaloclastite, same as core barrel No.2, the basalt fragments are 1-3cm across and weakly pyrite and chalcopyrite disseminated matrix consists of dark gray clay.		
						XD03 CM03
90-100						

01SFBS011 (West Part) 1/3

Drilling Depth 0-219cm


Core Barrel No. 1

Core Length 69cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-69		Clay	Brown	<p>0~69cm: Brown clay, little sand grains, no reaction to HCl</p> <p>50~52cm: including volcanic glass of 2cm thickness</p> <p>65~69cm: including fragments of black glass of 1-3cm across</p>		
70						
80						
90						
100						


01SFBS011 (West Part) 2/3
Core barrel 2

Drilling Depth 219-437cm
Core Length 26cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Black gray	0~26cm : Fragments of basalt and few black glasses of 1-5cm across		TS01 CA01
20				Basalt:Blackish gray, compact, pat Black glass:the surface of some of basalt fragments		
30						


01SFBS011 (West Part) 3/3
Core Barrel 3

Drilling Depth 437-567cm
Core Length 56cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Black	2~5cm:Core is crushed.		CM01
20				0~56cm : Basalt, black, compact, rarely fragments with porosity, aphyric rarely plagioclase and plivine, Pyrite is filled with fissure zone.		
30						
40						
50						
60						


01SBMS012 (West Part) 1/3
Core Barrel 1

Drilling Depth 0-215cm
Core Length 49cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Massive sulfide		<p>0~49cm: Massive sulfide, fine grains of chalcopyrite and pyrite, Mainly slightly porous, partly compact.</p> <p>0~42cm: Core is crushed to fragments of 5cm across 42~49cm: fragments of 1-2cm across.</p>		AS01
20						PL01, XD01
30						CM01
40						
50						
60						


01SFBS012 (West Part) 2/3
 Core Barrel 2

Drilling Depth 215-344cm
 Core Length 69cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10 20 30 40 50 60		Altered hyaloclastite	Dark bluish gray - dark gray	Dark bluish - dark gray altered hyaloclastite 0~69cm: The core is disturbed and it consists of dark bluish gray to dark gray clay and few mm across fragments of black glass, disseminated by pyrite. 10cm: fragments of massive sulfide of 2cm across	▲ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ▼	XD02 CM02
70 80 90 100						


01SFBS012 (West Part) 3/3
Core Barrel 3

Drilling Depth 344-558cm
Core Length 37cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Dark gray - blackish gray	0~37cm : Blackish gray, fine grained, compact, aphyric basalt. Fracture occurs at about 5cm interval and core is crushed along the fractures. It is weakly disseminated by pyrite.		CM03
						TS01
20						
30						CA01
40						
50						


01SFBMS24 (West Part) 1/6
Core Barrel 1

Drilling Depth 0-132cm
Core Length 55cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-55		Massive sulfide		0~55cm: Massive sulfide, fine grains of Pyrite and chalcopyrite (Apparent ore grade : Cu 5%), it consists of Py-Cp rich patches surrounding by black matrix in Sphalerite and oxides. 40~55cm: Disturbed part.		AS01 PL01, XD01 CM01
60						

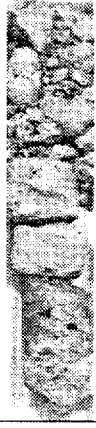
01SFBMS24 (West Part) 2/6
Core barrel 2

Drilling Depth 132-160cm
Core Length 28cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-28		Massive Sulfide		0~28cm: Same as core barrel No. 1		AS02 PL02
30						


01SBMS24 (West Part) 3/6
Core barrel 3

Drilling Depth 160-380cm
Core Length 28cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Massive Sulfide		0~28cm: Massive sulfide, same as core barrel No.1.		AS03
20						PL03
30						


01SBMS24 (West Part) 4/6
Core Barrel 4

Drilling Depth 380-596cm
Core Length 15cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Massive Sulfide		0~15cm: Massive sulfide, same as core barrel No.1.		AS04
20						

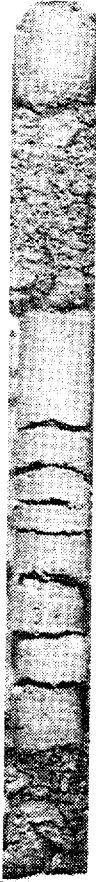
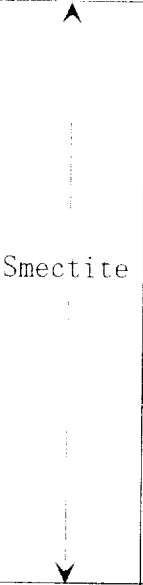
01SBMS24 (West Part) 5/6
Core Barrel 5

Drilling Depth 596-762cm
Core Length 20cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Massive Sulfide		0~20cm: Massive sulfide, crushed fragments of sulfide ore. Core is mostly crushed to coarse sand to pebble size fragments, the detail is not known.		AS05 PL04
20						
30						


01SFBS24 (West Part) 6/6
Core Barrel 6

Drilling Depth 762-981cm
Core Length 59cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-20		Massive Sulfide		0~20cm: Massive sulfide, crushed fragments of sulfide ore. Core is mostly crushed to coarse sand to pebble size fragments, the detail is not known.		
20-59		Altered hyaloclastite		20~59cm: Altered, pale bluish gray hyaloclastite, it is consisted of altered pale grayish gray fragments of volcanic rocks and clay matrix, disseminated by pyrite.	 Smectite	AS06 PL05 CM02 XD02
60-70						


01SBMS25 (West Part) 1/2
Core Barrel 1

Drilling Depth 0-31cm
Core Length 25cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Clay	Dark greenish gray	0~25cm: Dark greenish gray clay, Lower part of 20cm: fine grains of pyrite		CM01
20						
30						


01SBMS25 (West Part) 2/2
Core Barrel 2

Drilling Depth 31-95cm
Core Length 55cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Hyaloclastite	Black	0~30cm: Hyaloclastite, Fragments of black glass of 1-2cm across and black matrix, Pyrite filled with porous.		TS01
20						CM02
30		Basalt	Blackish gray	30~55cm: Basalt, blackish gray, fine grains, aphyric		
40						
50						
60						

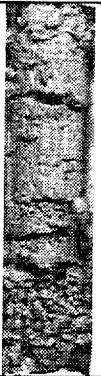
01SFBMS26 (West Part) 1/3
Core Barrel 1

Drilling DEpth 0-56cm
Core Length 40cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-25		Massive Sulfide		0~25cm: massive sulfide, fine grain of pyrite and chalcopyrite (Py>Cp), porous.		AS01 PL01
25-40		Basalt	Blackish gray	25~40cm: weathered basalt, glassy, blackish gray, compact		CM01, XD01
40-50						


01SFBMS26 (West Part) 2/3
Core Barrel 2

Drilling Depth 56-85cm
Core Depth 25cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-25		Basalt	Blackish Gray	0~25cm: Basalt, blackish gray, glassy, compact, disseminated by pyrite		
25-30						



01SFBMS26 (West Part) 3/3
 Core Barrel 3

Drilling Depth 85-153cm
 Core Length 35cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	0~20cm : Basalt, blackish gray, fine grain, compact, aphyric, black glass is covered with the surface of fragments.		
20		Fragments of hyaloclastite	Black	20~35cm : Fragments of hyaloclastite, fragment of glass and matrix consisted of glass, disseminated by pyrite.		
30						
40						
50						


01SBMS27 (West Part) 1/5
Core barrel 1

Drilling Depth 0-59cm
Core Length 45cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-10		Mud and fragments	Reddish Brown	0~10cm: Reddish Brown mud sediment and fragments of basalt of 5-10mm across.		
10-45		Hyaloclastite	Pale bluish gray - blackish gray	10~45cm: Hyaloclastite, altered fragments of bluish gray basalt and Blackish gray glassy matrix. Pyrite is filled with fissure and porous.		CM01 TS01
45-50						

01SBMS27 (West Part) 2/5
Core Barrel 2

Drilling Depth 59-151cm
Core Length 15cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-15		Hyaloclastite	Blackish gray	0~15cm: Core is consisted of blackish gray clay and altered fragments of basalt. Detail is not known.		
15-20						

01SBMS27 (West Part) 3/5
Core Barrel 3

Drilling depth 151-308cm
Core Length 0 cm


cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-10				No sample.		


01SFBMS27 (West Part) 4/5

Core Barrel 4

Drilling Depth 308-451cm



Core Length 82cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10 20 30 40 50 60 70 80		Altered hyaloclas- tite	Dark gray - blackish gray	<p>0~40cm : Dark gray clay and fragments of basalt of 5-10mm across, core is disturbed. It may be same as 40-82cm.</p> <p>40~82cm : Altered hyaloclastite, fragments are consisted of basalt of 2-20mm (blackish gray, fine grain, compact). Smaller fragments are altered to gray color. Matrix is consisted of altered fine grain basalt and gray clay disseminated by pyrite.</p>	<p>Smectite</p> <p style="text-align: center;">↑ ↓</p>	<p>CM02 XD01</p>
90 100						

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
 <p>10</p> <p>20</p> <p>30</p> <p>40</p> <p>50</p> <p>60</p> <p>70</p> <p>80</p>		Altered hyaloclas- tite	Black- ish gray - gray	0~80cm: Similar to core barrel No.4, it consists of angular basalt fragments of 0.3-6.0cm across and matrix of basalt fragments, more or less 1mm across, and gray clay. The larger basalt fragments are blackish gray, fine grained, compact, aphyric, smaller one are altered showing reddish brown to gray color disseminated by pyrite.	<p style="text-align: center;">▲</p> <p style="text-align: center;">Smectite</p> <p style="text-align: center;">▼</p>	<p style="text-align: center;">CM03 XD02</p>
<p>90</p> <p>100</p>						


01SFBS13 (East Part) 1/2
Core Barrel 1

Drilling Depth 0-187cm
Core Length 49cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-10		Clay	Reddish Brown	0~5cm: Reddish brown oxidized clay including fragments of black glass of few mm.		CM01
10-25			Dark greenish gray	5~25cm: Dark greenish gray clay.		
25-49		Clay and fragments of basalt	Blackish gray (Fragments of basalt)	25~49cm: Dark greenish gray and fragments of basalt of 1-4cm across, fine grained, compact, aphyric, blackish gray, adhered black glass on the surface.		
49-50			Dark greenish gray (Clay)			



01DB08BMS13 (East Part) 2/2
Core Barrel 2

Drilling Depth 187-247cm
Core Length 35cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-35		Basalt	Blackish gray	0~35cm: Fragments of basalt of few mm, blackish gray, fine grained, compact, partly porous, aphyric, adhered black glass on the surface.		CM02
35-40						

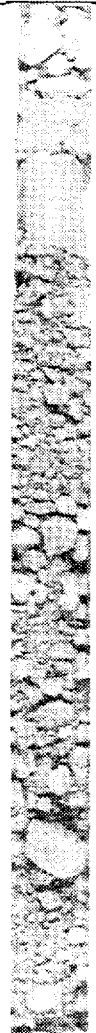
01SFBMS14 (East Part) 1/3
 Core Barrel 1

Drilling Depth 0-163cm
 Core Length 54cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-35		Altered hyaloclastite	Gray - blackish gray	0~35cm: Altered basaltic hyaloclastite, basalt of 0.5-3cm across, sub breccia, almost altered to gray color, rarely blackish gray, matrix is consisted of altered basaltic fragments and clay, disseminated by pyrite.	Smectite	CM01 XD01
35-54		Oxidized part	Reddish brown	35~54cm: Oxidized altered basaltic hyaloclastite, reddish brown.		
60						







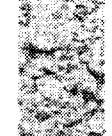
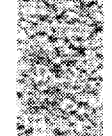
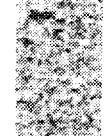

01SBMS14 (East Part) 2/3
 Core Barrel 2

Drilling Depth 163-274cm
 Core Length 69cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Oxidized hyaloclas- tite	Reddish brown	0~69cm: Oxidized hyalo- clastite, fragments of basalt of 0.5-4.0cm across, blackish gray part and altered to orange gray color, fine grained, com- pact, glassy, aphyric. Matrix is consisted of basalt of 1-2mm and clay disseminated by pyrite.		
20				20~69cm: Crushed to fragments of few cm.		
30						
40						
50						
60						
70						

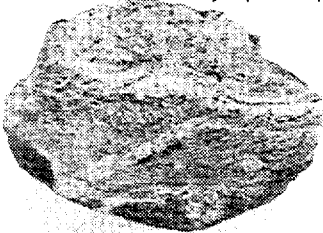
01SFBS14 (East Part) 3/3
Core Barrel 3

Drilling Depth 274-436cm
Core Length 96cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-10		Oxidized hyaloclas- tite	Reddish brown	0~96cm : Oxidized hyalo- clastite, fragments of basalt of 0.5-3.0cm across, blackish gray part and altered to orange gray color, fine grained, com- pact, glassy, aphyric. Matrix is consisted of basalt of 1-2mm and clay disseminated by pyrite.		
10-20						
20-30				40~96cm:Crushed to fragments of 0.5-1.0cm across.		
30-40			(Frag- ments of basalt) blackish gray orange gray			CM02 XD02
40-50						
50-60						
60-70						
70-80						
80-90						
90-100						


01SFBS14 (East Part)

Drilling Depth - cm
Core Length - cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
				<p>Fragments of Massive sulfide (Accidentally collected attached to BMS)</p> <p style="text-align: right;">Py-Sphl.-Cp</p>  <p style="text-align: center;">Cp (11 x 6 x 6cm)</p> <p>The sample consists of fine pyrite, sphalerite and calcopyrite grains and shows a banded structure of varying mineral compo- sitions.</p>		<p>AS01 PL01 CM03</p>


01SBMS15 (East Part) 1/3
Core Barrel 1

Drilling Depth 0-87cm
core Length 24cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Fragments of black glass	Black	0~10cm : Fragments of black glass of 1-2cm. Rarely black glass is covered with basalt.		
20		Basalt	Blackish gray	10~24cm : Fragments of basalt of 2-3cm across and few black glass. Black glass of 5mm thickness is covered with basalt. Basalt: Blackish gray, compact, aphyric.		
30						


01SBMS15 (East Part) 2/3
Core barrel 2

Drilling Depth 87-106cm
Core Length 18cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Black	0~18cm : Fragments of basalt of 3cm across, black, compact, rarely porous, aphyric. Black glass of few thickness is covered with basalt.		CM01
20						


01SBMS15 (East Part) 3/3
Core barrel 3

Drilling Depth 106-139cm
Core Length 33cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	0~33cm : Basalt, blackish gray, compact, rarely porous. Black glass of few mm thickness is covered with basalt.		
20						
30						
40						


01SBMS16 (East Part) 1/3
Core barrel 1

Drilling Depth 0-147cm
Core Length 24cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Mud sediment and fragments of basalt	Reddish brown	0~24cm: ud, basalt, fragments of glass. 0-10cm: Reddish oxidized mud. 10-24cm: Dark gray mud, sub angular pebbles of basalt of 1-4cm across. Basalt: Blackish gray, vesicular, aphyric.		
20			Dark gray			
30						


01SBMS16 (East Part) 2/3
Core barrel 2

Drilling Depth 147-272cm
Core Length 50cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt with fissure	Blackish gray	0~50cm: Basalt, blackish gray, compact, partly vesicular. Fissure of 1mm wide occur at about 5cm interval and chlorite and pyrite are found in these fissures.		CA01 TS01 CM01
20						
30						
40						
50						

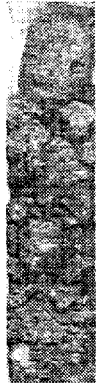
01SFBMS16 (East Part) 3/3
 Core barrel 3

Drilling Depth 272-466cm
 Core Length 28cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Black	0~5cm : Fragments of black glass of 3-4cm across. 5~28cm : Basalt, black, fine grained, vesicular, aphyric.		
30						
40						
50						


01SFBS17 (East Part) 1/2
Core barrel 1

Drilling Depth 0-161cm
Core Length 26cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Massive sulfide		0~20cm: Massive sulfide, Cp-Py-Sph, few cm size patches of irregular shape, consisting of chalcopyrite and pyrite, occur in black matrix of pyrite, chalcopyrite and sphalerite.		AS01 PL01 XD01
20				20~25cm: Dark gray clay and 1cm size fragments of basalt and sulfide ore occur.		
30						
40						


01SFBS17 (East Part) 2/2
Core barrel 2

Drilling Depth 161-161cm
Core Length 6 cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Massive Sulfide		0~6cm: 1-2cm size fragments of crushed sulfide ore, consisting of Chalcopyrite, pyrite and sphalerite.		
20						


01SFBS18 (East Part) 1/4
Core barrel 1

Drilling Depth 0-86cm
Core Length 50cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	0~50cm : Basalt, blackish gray, vesicular, aphyric, fine grained pyrite in vesicular.		CA01 TS01
20				35~50cm : Fracture occurs at an interval of 3cm. On the surface of fracture, Quartz is adhered.		
30				25~35cm : Fragments of 0.5cm is cemented by quartz.		
40						
50				(During drilling, pyrite grains are observed aside of core barrel.)		
60						CM01


01SFBS18 (WestPart) 2/4
Core Barrel 2

Drilling Depth 86-301cm
Core Length 15cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Black	0~15cm : Basalt, Black, porous, aphyric, Pyrite is observed surface of basalt.		
20				(Pyrite grains are observed around core barrel during drilling)		
30						


01SBMS18 (東部) 3/4
 コアバレル 3

掘進長 301-491cm
 コア長 77cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-77				0~77cm : Gray hyaloclas- tite, fragments of basalt of 1-5cm across. Fresh fragments: blackish gray, fine grained, com pact. Altered fragment, pale gray. Matrix is consisted of clay disseminated with pyrite.	↑	
20-30		Altered hyaloclas- tite	Blackish gray - pale gray			CM02 XD01
30-77					Smectite	
80-90					↓	
100						

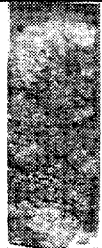
01SFBMS18 (East Part) 4/4
 Core barrel 4

Drilling Depth 491-526cm
 Core Length 35cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Altered hyaloclastite	Black - Dark gray	0~35cm : Altered hyaloclastite, fragments of 1-10cm across, Bigger fragments: fresh, black, compact, aphyric, Smaller fragments: altered to gray color, Matrix is consisted of dark gray clay and fine grained basalt disseminated by pyrite	▲	
20					Smectite	CM03 XD02
30					▼	
40						
50						


01SFBS19 (East Part) 1/3
Core barrel 1

Drilling Depth 0-84cm
Core Length 16cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Mud sedi- ment	Reddish Brown	0~10cm : Mud sediment, upper part of 5cm:oxidized to reddish brown color, lower part of 5cm:dark gray.		
			Dark gray			
20		Fragments of basalt	Gray	10~16cm : Fragments of basalt of 2-3cm across, silicified to gray color, weekly disseminated by pyrite.		


01SFBS19 (East Part) 2/3
Core barrel 2

Drilling Depth 84-162cm
Core Length 45cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Black- ish gray	0~45cm : Basalt, blackish gray, fine grained, vesic- ular.		
20						CM01
30						
40						
50						

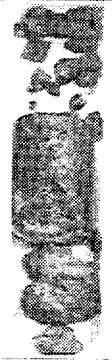
01SFBS19 (East Part) 3/3
Core barrel 3

Drilling Depth 162-377cm
Core Length 10cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Black- ish gray	0~10cm : Basalt, blackish gray, fine grained, vesic- ular, Pyrite is filled with vesicular.		


01SFBS20 (East Part) 1/4
Core barrel 1

Drilling Depth 0-80cm
Core Length 24cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Massive sulfide	Blackish gray	0~24cm: Massive sulfide ore with fragments of basalt. Black porous massive sulfide consisting of chalcopyrite, sphalerite and pyrite.		AS01 PL01 XD01
20						
30						


01SFBS20 (East part) 2/4
Core barrel 2

Drilling Depth 80-145cm
Core Length 14cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	0~14cm: Basalt, blackish gray, fine grained, compact, Black glass is covered with basalt, disseminated by pyrite		
20						


01SFBS20 (East Part) 3/4
Core barrel 3

Drilling Depth 145-162cm
Core Length 12cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	0~12cm: Basalt, blackish gray, fine grained, compact, aphyric, partly vesicular, pyrite is filled with porous, the surface of fragment is disseminated by pyrite.		
20						

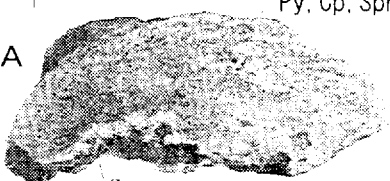

01SFBS20 (East Part) 4/4
Core barrel 4

Drilling Depth 162-170cm
Core Length 8 cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	0~8cm: Basalt, blackish gray, fine grained, basalt fragments of 5cm across, smaller fragments of basalt and black glass of 1-2cm across, pyrite and calcopyrite are adhered to black glass.		
20						

01SFBS20 (East Part)

Drilling Depth - cm
Core Length - cm

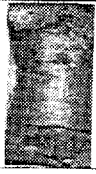
cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
				<p>Fragments of Massive sulfide (accidentally collected attached to the BMS)</p> <p>Py, Cp, Sph</p> <p>A</p>  <p>Cpy (20 × 18 × 7cm)</p>		AS02 PL02 CM01 XD02
				<p>Py, Cp, Sph</p> <p>B</p>  <p>Cp (20 × 18 × 6cm)</p>		AS03 PL03

01SFBS21 (East Part) 1/4

Core barrel 1

Drilling Depth 0-73cm

Core Length 11cm


cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Mud Basalt	Reddish Brown	Unconsolidated sediment, 0~6cm: Reddish brown sediment. 6~11cm: Fragments of basalt of 3cm across, blackish gray, fine grained, vesicular. Surface of fragments or fissure is oxidized to reddish brown color.		CM01
20						

01SFBS21 (East Part) 2/4

Core barrel 2


Drilling Depth 73-116cm

Core Length 39cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Black- ish gray	0~39cm: Basalt, blackish gray, fine grained, vesicu- lar. The core is crushed to 1-7cm size fragments. Dis- coloring to pale yellowish green on the surface of the fragments and oxidation suggest that it is frac- tured basalt.		CA01 TS01
20						
30						
40						

01SFBMS21 (East Part) 3/4
Core barrel 3

Drilling Depth 116-231cm
Core Length 24cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	Fragments of sulfide ore, 1cm across, possibly collapsed material from upper horizon.		CM02
20				0~24cm: Basalt, blackish gray, vesicular, fine grained, aphyric, black glass is covered with basalt, same as core barrel No. 2.		
30						
40						


01SFBMS21 (East Part) 4/4
Core barrel 4

Drilling Depth 231-289cm
Core length 0 cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10				No sample.		
20						

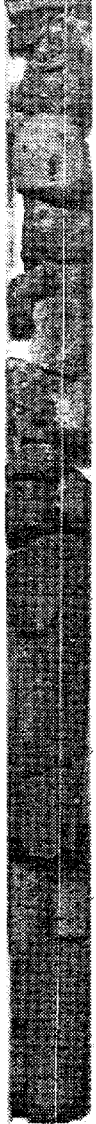
01SFBMS22 (East Part) 1/2
Core barrel 1

Drilling Depth 0-59cm
Core Length 20cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-6		Clay	Reddish Brown	0~6cm : Reddish brown mud sediment.		
6-20		Basalt	Blackish gray	6~20cm : Basalt, black gray, vesicular, fine grained, the vesicular is 1mm across in orientation.		
20-30						
30-40						
40-50						



01SFBMS22 (East Part) 2/2
 Core barrel 2

Drilling Depth 59-142cm
 Core Length 75cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-75		Basalt	Blackish gray	0~75cm : Basalt, blackish gray, vesicular, fine grained, aphyric, Vertical fractures occur along core reddish brown oxidized zone of 1mm thick and minute grains of pyrite are observed along the fracture.		CM01 CA01 TS01
80						
90						
100						


01SFBS23 (East Part) 1/5
Core barrel 1

Drilling Depth 0-89cm
Core Length 41cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-10		Massive sulfide		0~10cm: Porous massive sulfide consisting of pyrite, chalcopyrite, sphalerite, partly mixed with volcanic fragments and volcanic glass.		AS01 PL01
10-41		Basalt (stockwork zone)	Blackish gray	10~41cm: Basalt, blackish gray, fine grained, vesicular, aphyric, Maximum size of vesicular is 1cm. Occurrences of pyrite veins, 5mm across, and coverage of pyrite on the surface of basalt fragments suggested that the basalt belong to stockwork zone.		CM01
41-50						


01SFBS23 (East Part) 2/5
Core barrel 2

Drilling Depth 89-120cm
Core Length 29cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
0-29		Basalt	Black	0~29cm: Basalt with large vesicular, black, compact, fine grained, aphyric. Quartz-pyrite veins occur filling fractures of few mm across.		
29-30						

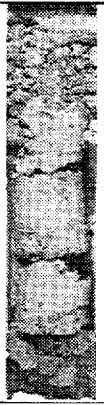
01SBMS23 (East Part) 3/5
Core barrel 3

Drilling Depth 120-138cm
Core Length 13cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Dark gray	0~13cm : The same basalt as core barrel 2. The core is crushed to fragments of 2-3cm across. Pyrite occurs on the surface and in vesicles.		
20						
30						


01SBMS23 (East Part) 4/5
Core barrel 4

Drilling Depth 138-165cm
Core Length 27cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	blackish gray	0~27cm : The same basalt as Core barrel 2. The core is crushed to fragments of few cm across and weakly disseminated by pyrite.		
20						
30						

01SFMS23 (East Part) 5/5
 Core barrel 5

Drilling Depth 165-214cm
 Core Length 49cm

cm	Lithology	Type of Rock	Color	Description	Alteration	Lab. Test
10		Basalt	Blackish gray	The same basalt as Core barrel 2. Pyrite occurs filling fractures.		
20						
30						
40						
50						
60						