

UNIT (12)
PIECE 1a-1b



1-2 vein, n=1, 2mm, straight,
79 → 019

U.5 vein, n=1, 0.1mm,
straight, 81 → 007

4-8 vein, n=1, 2mm, straight,
59 → 333

8-10 vein, n=1, 2mm,
straight, 90 → 194

12-13 vein, n=1, 7mm,
straight, branched,
85 → 004

16-18 vein, n=1, 3mm,
straight-irreg., 89 → 003

13-21 vein network, n=2,
1mm, straight, 79 → 272

15-21 vein network, n=2,
3mm, straight, 88 → 194

19-21 vein, n=1,
3mm, irreg.)
→ slop clip → 153

NOT RECOVERED

UNIT (13) 22.5cm
- 40cm - 6R-9
PIECE 2-14

BASALT BRECCIA

FRAGMENTED LAVA
& HYALOCLASTITE

0% PL

2% PX

MAX 2L - SUB

MID 1 - FRESH

4% OL

MAX 3 -

MOD 1.5 -

SUB PERVASIVELY

MODERATELY OLIVINE -
AUGITE-PHYRIC BASALT BRECCIA

MOTTLED GREEN

BLACK GRAY REDDISH
BROWN

FINE GRAINED

ATTRIBUTES

VOLCANIC CLAST

90%

MOD: 10mm

LOW

SUBROUNDED

VERY POOR.

SCORIAEOUS

CLASTS.

VEICLES

10% MAX 10mm

MOD 2mm

LOW ROUNDED

VEVICULAR

CLAST 5%

30 vein, n=1, 2mm, straight,
75 → 180

38 vein, n=1, 2mm, irreg.

VEVICULAR

CLAST 8%

VEVICULAR

CLAST

52-53 10%
vein, n=1, 1.3mm, irreg.
80 → 155

56-59 vein, n=1, 12mm
straight, 88 → 160

VEVICULAR

CLAST

8%



73-76 vein, n=1, 10mm,
straight, non-ortsted

VEVICULAR
CLAST

50%

VEVICULAR CLAST

20%

VEVICULAR

CLAST

15%

APHYRIC

BASALT CLAST

ELONGATED

VEVICULAR CLAST

110-111 vein, n=1, 1mm,
irreg.) 80 → 214

VEVICULAR CLAST

116-117 10%
vein network, n=2, 6mm max
2mm mode, branched,

118-119 84-139
vein network, n=2, 5mm,
straight, 82 → 003

121-123 vein network, n=5
max. 7mm, 90 → 121
branched

125-127 vein network, max
4mm, n=8, straight,
branched, 89 → 332

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UNIT (13)

PIECE 1-6

PIPE
VESICLE

VESICULAR
CLAST 5/6

VESICULAR
CLAST 10/6



2-9 vein, u=2, 3mm
irreg., branched, 22 →
108

8-12 vein, u=2, 3mm,
branched & reconn.
81 → 105



24-26 vein, u=1, 3mm
straight, non-orient.

APHYRIC
BASALT CLAST

UNIT 14

0 - end of core.

BASALT LAVA WITH BRECCIA INTERVALS.
→ PILLOW LAVA, FRAGMENTED LAVA & HYALOCLASTIC

NOT AS CONVINCINGLY IN SITU AS CORE BR 1-4,
BUT STILL HAS SPALLED CHIPS ALONG MARGINS SO PILLOWS ARE IN SITU BUT SMALLER, THAN UNIT 4-6.

ISCI 3

Piece 1-6

PHENOCRYSTS

2% PYROXENE
SUBHEDRAL
FRESH
6MM MAX
2MM MOD

7% OLIVINE
EUBEDRAL TO SUBHEDRAL
MODERATELY ACT.
10MM MAX
3MM MOD

MODERATELY OLIVINE-AUGITE PHYRIC BASALT
DOMINANTLY MADE UP IN SITU, SMALL BASALT PILLOWS.

MOTTLED GREEN BLACK GRAY FINE GRAINED
0.1 MODERATELY PHYRIC AREAS & BRECCIA IN BETWEEN SMALL PILLOWS.



6-7cm vein n=1 0.1mm irregul
70→188°

13-14cm vein n=1 0.6mm straight
75→160°
14cm vein n=1 0.3mm irregul
55→190°

16cm vein n=1 0.4mm stepped 60→006°
16-21cm vein n=1 10-6mm straight 90→265°

18-19.5cm vein n=1 2mm stepped
85→022°
20.5cm vein n=1 0.3mm irregul 60→182°
20.5-21cm vein n=1 1.5mm curved
50→089°

30-31cm vein n=1 7mm curved
80→089°

34.5-35cm vein n=1 more 7mm 2
straight 78→356°

36-44cm vein network n=3 more 2
irregul 75→215° avg 0.8mm

58-53cm vein n=1 1.5mm straight
branched 80→330°

53cm vein n=1 3mm straight
branched 90→180°

54cm vein n=1 5-3mm stepped
80→182°

59-63cm vein n=1 5mm straight
75→358°

71cm vein n=2 0.2mm 85→188°



0.5mm
75cm vein n=1 irregul 80→170°
76-77cm vein n=1 1mm straight 80→360°

82-90cm vein n=3 0.5mm irregul

84cm vein n=1 0.5mm curved 90→176°

VESICLES

5%

14MM MAX
1MM MOD.
HIGH
ROUNDED.

94-95cm vein n=1 0.2mm irregul
80→015°
94-99cm vein n=1 0.4mm irregul
40→274°
99cm vein n=1 0.2mm irregul
88→355°
possibly retained

101-103cm vein n=2 0.1mm non-oriental

105cm vein n=1 0.1mm irregul

108-111cm vein n=1 10mm branched
80→028°

112cm vein n=1 0.2mm 90→36°
112-119cm vein n=1 0.4mm curved 80→115°

114.5-118cm vein n=3 stepped 80→210°

124-125cm vein n=1 5-4mm curved
85→189°

133-136cm vein n=1 2mm straight 55→260°

136cm vein n=1 3mm irregul 62→358°

137-140cm vein n=1 2-1mm curved
65→038°

141-145cm vein n=1 2mm curved
60→302°



3-5cm vein n=1 0.8mm irregular 60-70°

5cm vein n=1 3-2mm curved 84-358°

9-10cm vein n=1 3mm stepped 80-170°

11-14cm vein n=1 1.5mm straight 82-160°

14-19cm vein n=4 1mm curved 90-207°

18-19cm vein n=1 5-4mm straight 82-168°

20-21cm vein n=1 1mm straight 85-346°

26-29cm vein n=1 4-3mm straight 80-83°

32-33cm vein n=1 3-2mm curved 68-202°

34-38cm vein n=1 1mm curved 70-72°

38cm vein n=1 0.8mm straight isolated steep 190°

39cm vein n=1 3mm straight 80-79°

40-42cm vein n=2 stepped 2mm 80-70°

40-44cm vein network n=8 3mm irregular possibly return

46-47cm vein n=1 1mm non orient

46-50cm vein n=2 3mm irregular

51-59cm vein network n=4 0.1mm irregular branch

65-71cm vein n=2 1mm non-orient



74-76cm vein n=2 1mm curved non-orient

77cm vein n=1 irregular 3mm

79cm vein n=1 0.2mm straight 90-170°

82cm vein n=2 5-2mm curved, branch 70-180°

85-86cm vein n=2 5-3 stepped 80-358°

90.5-91cm vein n=1 10-6mm stepped 80-358°

91-95cm vein n=1 1mm straight 90-225°

94-97cm vein n=1 4mm curved 80-338°

97cm vein n=1 1mm stepped 80-182°

97-102.5cm vein n=1 0.5mm irregular 85-259°

102.5cm vein n=1 2mm stepped 55-000°

104-105cm vein n=1 1.5mm stepped 80-000°

106cm vein n=1 1.5mm straight 85-184°

108-114cm vein network 10-2mm irregular n=?

119-121cm vein n=2 curved 5-4mm branched 80-184°

126-129cm vein n=1 4mm straight 70-166°

127-130cm vein n=1 4mm curved 40-210°

conjugate 132cm vein n=1 3mm straight 45-180°

M&D



0 vein n=1 3-2mm straight 90-782

2.5-4 vein n=2 4-5mm branch 85-706

7 vein n=1 1mm straight 64-190

8-13 vein natural 3mm irregular

11-12 vein n=1 1mm stepped 80-208

13 vein n=1 3mm curved 90-186

17 vein n=1 2mm straight 80-186

17-19 vein n=1 2mm straight 70-150

18-26 vein natural n=? 1mm irregular

24-26cm vein n=1 2mm straight 90-7080

26cm vein n=1 straight 2mm 30-182

26-27cm vein n=1 curved 10mm 76-7004

27-31cm vein n=1 0.1mm irregular 90-7230

30-32 vein n=1 7mm curved 80-198

34-35 vein n=1 1mm curved 88-348

38-43 vein n=1 4mm curved 90-220

43-44 vein n=1 4mm straight 80-332

44 vein n=1 4mm straight 64-7010

44-54 vein n=1 3-2mm curved 85-360

47 vein n=1 3mm straight 88-188

47-49 vein n=1 3mm straight 50-206

49 vein n=1 2-1mm straight 70-360

51 vein n=2 5-3mm branch 60-736

54-59cm vein n=1 0.2mm straight 66-7308

54-56 vein n=1 7-6mm curved 75-98

60-62cm vein n=2 2mm curved 89-006

63-64cm vein n=2 2mm stepped 72-172

61-68cm vein natural n=7 0.1mm straight 90-300

69-70cm vein n=1 3mm curved 90-180



74 vein n=1 1.5mm stepped 80-184

76 vein n=2 3-2 stepped 78-188

76-78cm vein n=1 1mm straight 98-202

81-88cm vein n=3 4-2mm irregular 85-120

83-85 vein n=1 5mm straight 75-200

88-89 vein n=1 3mm stepped 80-172

90-91cm vein n=1 3mm stepped 90-188

91cm vein n=1 1mm stepped 88-176

91-94cm vein n=1 2-1mm curved

90-95cm vein n=1 2-1mm curved

112-114cm vein n=1 1.5mm straight 85-340

119-120cm vein n=1 1mm straight 88-152

124cm vein n=1 2mm 86-194

void filling

void fillings



12cm vein n=1 3mm stepped 65→054°

18-20cm vein n=1 5mm straight 85→345°

37-39cm vein n=1 1mm straight steep →014° possibly rotated

46cm vein n=1 1mm straight 90→180 possibly rotated

47cm vein n=1 3mm straight 75→010°

59-61cm vein n=1 1.5mm straight 72→020°

63cm vein n=1 3mm curved 85→360°

70cm vein n=1 1mm stepped 58→188°

70-73cm vein n=1 8mm stepped 70→318°



74-76cm vein n=1 2mm straight 45→135°

76cm vein n=1 5-9mm 88-012 curved

80-82cm vein n=1 0.5mm straight 90→158°

125cm vein n=1 3mm curved 70→182°

Piece 1 6

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36-40cm void

61-62cm vein n=1 0.2mm
curved 75→182



115-116cm vein n=1 0.5mm curved
75→00#

around edge of fragment

123-124cm vein n=1 curved 86→180

126-128cm vein n=1 1mm straight
90→021

128-134cm vein n=1 1mm stepped
85→304#

Piece 1-6

330-U1376A-7R-7-A_SHLF2885261_20110129214312



2-3 cm vein n=1 2mm curved
90→183

9-10.5cm vein n=1 1mm curved
85→164

29-33cm vein n=2 1mm
irreg

54-56cm vein n=2 1mm
irreg



86-88cm vein n=3 curved 1mm

105cm vein n=1 slight 1mm
88→190

UNIT (15)
 (continued)
 Highly olivine-augite-
 phyric basalt

Pillow lava, fragmented
 lava and hyaloclastite

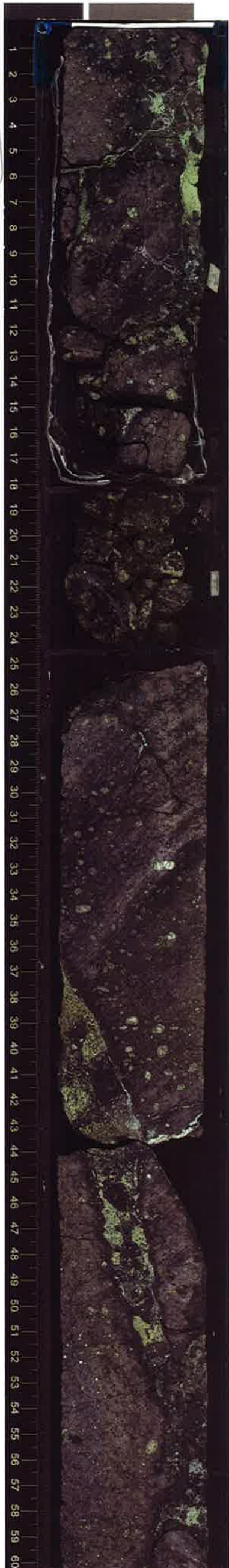
Phenocrysts:

Olivine 8%
 10 mm max
 5 mm mod
 completely altered

Pyroxene (augite) 4%
 6 mm max
 3 mm mod
 fresh

Groundmass:
 fine grained, 0.1 mm
 Greenish dark grey

Vesicles: none



Piece 1-6
 2-15cm vein network
 n=10 1mm irregular
 UNIT (14) is
 probably the
 brecciated top
 of the massive
 lava flow (unit (15))

18-24cm fragment

26-32cm vein network
 n=5 1-0.5mm
 irregular

43-44cm vein n=1 1mm irregular
 85-184



69-75cm vein network n=3
 1mm around clasts
 irregular

81cm vein n=1 0.5mm straight
 80-354

87cm vein n=1 1mm straight
 70-360

95-97 vein n=2 2mm straight
 78-024

106-117cm fragment

UNIT (14)
(continued)
piece 1-dg



0-17cm fractured

14-24cm vein n=1 10mm
irregular

30-31cm vein n=1 6mm
Straight 90-180°

32-36cm vein n=2 0.5mm
80-7210

40-55cm vein n=1 0.1mm straight
90-180°

45cm vein n=1 0.2mm curved
80-100°

53-57cm vein network n=4
4-3mm 85-334°



70cm vein n=2 2-1mm straight
90-180°

105cm vein n=1 1mm curved
72-177°

Interval with
fresh olivines

124cm vein n=1 0.4mm curved 73-358°

124-127cm vein n=1 0.2mm straight
70-210°

130-131cm vein n=1 1mm curved
78-346°

UNIT (14)
(continued)
piece 1-7



6-11 cm vein network n=6
2mm irregul bank

32-34 cm vein n=1 1mm
irregul non-orient

55-61 cm vein network
n=5 0.5mm irregul



71-74 cm vein n=1 0.5mm straight 74-015°
73-74 cm vein n=1 0.5mm stepped 88-357°

88 cm vein n=1 2.5mm straight
66-2003

91 cm conjugate vein n=1 0.5mm
straight 55-178°

99-102 cm vein n=1 1mm curved
60-205°

101-119 cm vein n=1 1 to 7mm
curved 90-100°

106 cm vein n=2 0.5mm straight
80-185°

110-111 cm vein n=1 curved 85-180°

121-134 cm vein n=1 12-5mm
curved 90-110°

121-122 cm vein 2mm straight 80-192°

125-127 cm vein 2mm straight 60-200°

133-135 cm vein n=2 branch 1mm
90-340°

135-136 cm vein n=1 1mm curved
52-197°

UNIT (14)
(continued)
piece 1-13



1-4 cm vein n=1 1mm straight 88→895

1-8 cm vein n=1 curved 3mm 40→7276

8-10 cm vein n=1 2mm curved 88→140

8-11 cm vein n=1 1mm curved 50→860

12-16 cm vein n=1 2mm curved 65→258

21-25 cm vein n=1 10mm straight 50→325

25-27 cm vein n=1 0.5mm straight 72→170

30-34 cm vein n=1 7mm straight 60→866

41-52 cm vein network n=8
max 10 ang 4mm irregul

55-56 cm vein n=1 2mm curved 50→175

55-69 cm vein 20mm straight 55→232

69 cm vein n=1 curved 2mm 85→285



69-72 cm vein n=1 1mm stepped 70→230

76-79 cm vein n=1 0.2mm curved 30→855

83 cm vein n=1 3mm curved non-oriented

87-91 cm vein network n=4
3-2mm irregul non-oriented

94-97 cm vein n=1 5mm stepped 80→160

99-107 cm vein 2mm straight 90→234

99-104 cm vein n=4 0.4mm stepped 70→158

103-107 cm vein 4mm curved 55→140

106-126 cm vein network n=12
0.2mm straight 70→160

105-125 cm vein network n=7 1mm irregul

more massive
↓

130-136 cm vein n=1 2mm curved 70→238

UNIT (14)
UNIT (15)

UNIT (14)

UNIT (15)

330-U1376A-8R-5-A_SHLF2887151_20110130041333

Highly olivine-augite
-phyric basalt

massive lava flow

Phenocrysts:

Olivine 10%
(fresh)
10 mm max
3 mm mod

Augite 4%
(fresh)
8 mm max
3 mm mod

Groundmass

fine grained 0.2 mm
medium gray

Vesicles: none

Becomes more
brecciated in
section 4.

0-4 cm vein n=1 1mm straight
85°→044°

Pieces 1-6

9-11.5 cm vein n=2
0.1mm straight
60°→160°

19-22 cm vein n=1 (fms) curved 90°→240°

24.5-27 cm vein n=1 1mm straight
70°→044°
24.5-27.5 cm vein n=1 1mm straight
75°→152°

29-37 cm vein n=1 0.1mm
straight 90°→308°

49 v. 0.2mm, curved 85°→352°

51 v. 0.1mm, straight 82°→182°

54 v. 1mm, stepped 90°→358°

62-67 v. 1.5mm straight 90°→130°

70 cm v, 1mm straight 80°→010°

72-74 cm, v 2mm curved 62°→322°

72-77 v 1mm straight stepped 70°→218°

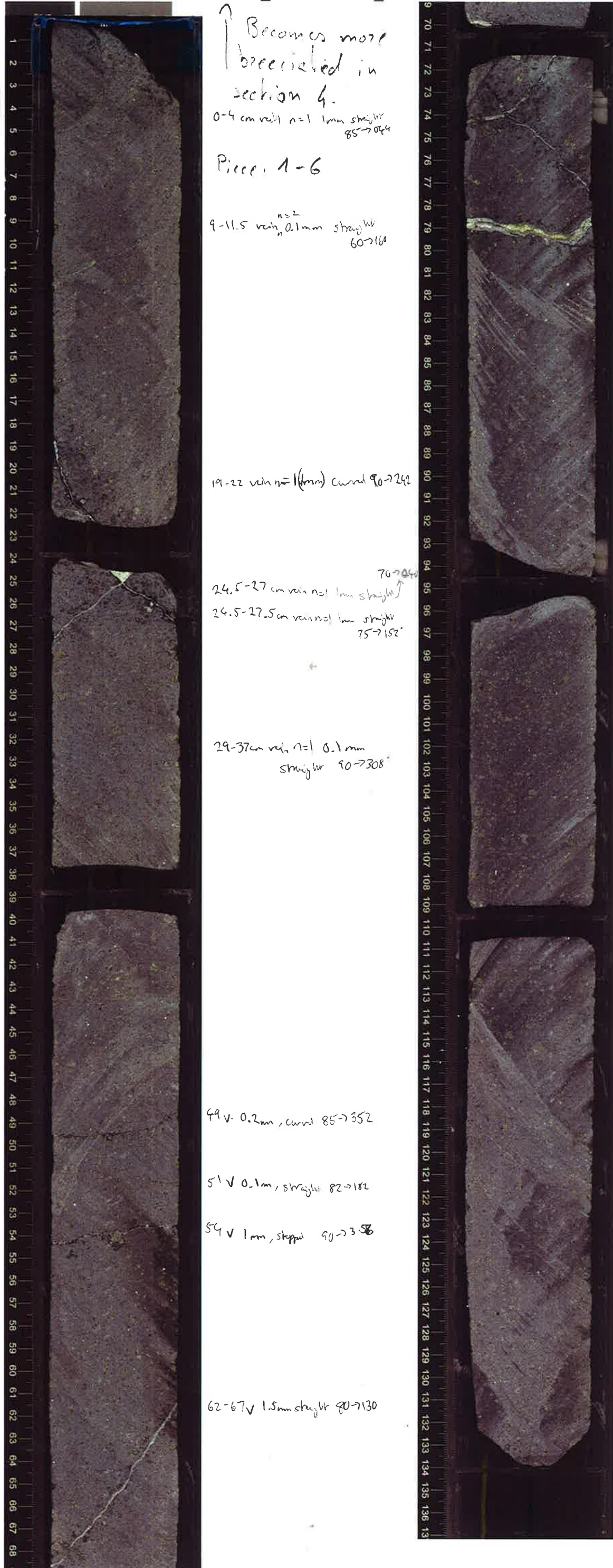
79 v 5mm stepped 80°→188°

ISCI 3

← NO VEINS !!!

119-133 cm vein n=1 0.1mm
curved

v = vein



UNIT (15)
(continued)



0-2, v 1mm straight 32→002
 1-9, v, 0.1 straight 82→280
 Piece: 1-8
 ← pieces, ^{lat 1b} may not join
 9-16 cm vein n=2 0.1 80→260
 irregul
 17 vein, n=1 0.2 curved 44→360
 31 v, 2mm curved 80→202
 38-40 v 0.2 stepped 90→200
 39-42 v 0.1 stepped 80→204
 42 v 0.1 stepped 86→190
 48-57 v ^{6.1mm} irregular 60→246
 58-61 cm v 0.2 curved 88→112



76 v 0.1 curved 80→190
 76-84 v 0.2 straight 90→125
 77-79 v 0.2 straight 75→330
 82-82.5 v 0.6 straight 70→132
 82.5-84 v 0.7 straight 80→008
 85-88 v 0.1 irregul
 96-99 cm v 0.2 stepped 75→210
 110-111 cm v 0.1 straight 85→182

UNIT (15)
(continued)



Piece 1-7

26 cm vein n=1 0.1 straight 85-365

34-35 V 0.1 straight 85-140

31-41 V n=2 0.2 straight 76-334

45-53 cm V 0.4mm straight 85-122



81-90 cm vein n=1 0.4mm
straight 86-300

115-133 cm vein n=1 1mm
curved 90-278

UNIT (15)
(continued)



Piece: 1-9

σ-19gm rein n=1 1mm
curved 75-7280
[Prob. same rein as in 7.A]

ISC1 3

33-35 v n=1 0.5mm
straight 85-7318

same rein ~10mm grad off
during drilling

54-59 v, 0.2 straight 88-7235



109-113 v 0.2 straight 86-7214

119-121 v 0.5 straight 58-7202

same rein?

122-126 v 0.5 straight 90-722

UNITY (15)

(continued)

Highly olivine-augite-phyric basalt

massive lava flow

Phenocrysts

- Olivine 10%

fresh

7mm max

4mm mod

- Pyroxene (augite) 4%

fresh

6mm max

3mm mod

Groundmass

fine grained 0.2

medium gray

Vesicles 0.3%

20mm max

3mm mod

moderate sphericity, rounded

100% filled

0.01/cm²

piece 1-3



67-68 vein w/bw, n=2, 2mm, straight, 84 → 340

69-71 vein, n=1, 0.6mm, straight, 84 → 340

Section 1-5
Fresh to slightly altered, 2903
Red color

48-49 vein, n=2, 0.1mm, branched, steeply dip

49-63 vein, n=1, 2mm, straight, 78 → 256

55-57 vein, n=1, 0.1mm, straight, 68 → 153

57-58 vein, n=1, 0.1mm, irregular → 153

64-65 vein, n=1, 0.2mm, straight, 60 → 160

121-123 vein, n=1, 0.2mm, straight, 80 → 019