

UWH 15  
Ta-1e

Whole section  
has magmatic  
→ foliation of  
variable  
intensity  
but consistent  
direction within  
pieces  
Sheep dip → 190°

15-59cm  
vein  
single feature  
0.1mm wide  
85 → 080



32.5-34.5cm  
fracture 85 → 025

49.0-49.5cm  
fracture, steeply dipping  
→ 198°

54-56.5cm  
fracture 175 steep  
dip  
56-56.5cm  
fracture  
45 → 175



63-72cm fracture  
irregular, steeply dipping

73-76cm vein network  
0.5mm curved

92-94cm fracture  
irregular, steeply dipping

105.5-107.5cm fracture 75 → 028

105.5-108.5cm fracture 40 → 016

111-112cm fracture, curved, steeply dipping

114.5-115.5cm vein max 10mm  
max 2mm  
80 → 122°

115.2-116.2cm  
fracture, straight 75-218

vein 118cm straight 0.1mm  
isolated 90 → 180°

UNIT 15

1a-8

0-143cm  
Magmatic  
foliation

14.5-15cm  
fracture  
curved,  
steeply dipping

24-51cm  
conjugate vein  
0.5mm  
curved  
steeply dipping

28-28.5cm  
conjugate vein 3mm  
straight 80-190°



5.5-6.5cm  
fracture  
85-7355°

9-10cm  
fracture  
80-7355°

24.2-25.5  
conjugate fracture  
step -> 170

34.5cm fracture  
step dip -> 179

35-37cm  
conjugate vein  
1mm wide  
68-7020

36.5-41cm  
fracture, straight  
60-7035°

50-50.5cm  
fracture  
36-7008

56-57cm  
fracture  
80-7012

63-64cm  
fracture vein  
step -> 012



74-74.5cm vein 0.5mm  
straight  
62-104 single 80-7005

3% VESICLES,  
MODERATE  
SUB ROUND,

5um max  
0.5mm mod,

VESICLE TRAILS  
& PATCHES,

104-110cm vein 2mm  
straight, single, 88-7288

104-34.5cm  
102 3A,

0% VESICLES,

Magmatic foliation 70-202°  
104-118cm

?

0.1%  
vesicles 0.5um mod,

Vesicle - 16 is 2mm,  
MODERATE  
SUB ROUND,  
2mm

UNIT 15

1-96

0-137cm  
magmatic  
foliation  
Varies from  
weak to  
strong

7-10.5cm  
vein 0.5mm  
single, straight  
80→330

26cm  
vein 0.5mm  
straight  
single

34.5-85

70% VESICLES

25mm MAX  
0.5mm MOD.

LOW SPH.  
SUB ANGULAR

VESICLE TRAILS  
& PATCHES



69.5-80cm  
vein, stepped 0.5mm wide  
single beam. 66→282

83-84cm fracture, straight, single  
80→175

85 - end of  
10R SA

10% VESICLES  
→ DENSER IN PATCHES  
& TRAILS.

LOW SPH.  
SUB ANGULAR.  
13mm MAX  
0.5mm MOD.

100-101cm vein 2mm  
single steep dip

107-107.5cm ~~vein~~ fracture straight  
single 80→184

110-115cm fracture, straight  
single 81→308

120.5-122cm vein straight, single  
80→032

121-128cm magmatic foliation  
85→025

128-129cm vein straight, single  
80→028

90.5-91cm  
vein  
4mm  
steep dip

91-99cm  
magmatic  
foliation  
80-172

94.5-96cm  
fracture  
straight,  
single  
80-170

UNIT 15  
1-a



13-14 cm  
Scoria fragment  
(not on DES log)

24-41 cm  
magmatic  
foliation  
60-70°  
old orientation  
some sort of  
flow like?

58-73 cm  
magmatic  
foliation  
step-2270  
? flow like

TS

40-41 cm 0.5 mm  
vein 0.5 mm  
82-7344

vein 42-43 cm 0.5 mm  
single 85-160  
probably  
same vein  
but pieces  
rotated 180°

45-48.5 cm  
vein 1 mm straight, single  
80-7034

54-59 cm  
vein network n=8  
0.5 mm  
80-7018

55-63 cm  
vein 0.1 mm straight  
70-246 cm  
conjugate

66 cm fracture, straight  
single 88-182°



73-74 cm vein 0.5 mm  
straight, single 62-180

75.5-78 cm vein  
fracture, straight  
60-154°

77-81 cm vein 0.1 mm  
curved, 80-722°

fracture 80-81 cm curved, steep dip

84-85.5 cm  
vein straight single 0.1 mm  
(most material ground off during drilling)  
85-7200

86.5-88 cm  
vein, straight, single, 0.1 mm  
(most material ground off during drilling)  
84-344°

? same vein  
with rotation  
between  
pieces?

83.4-94 cm vein, straight, single 1 mm  
80-172°

96.6-98.4 cm fracture, straight  
85-154°

94-108 cm  
magmatic foliation 85-160°

104-106 fracture curved, steep dip

111.5 cm vein 0.5 mm sub-vertical  
most material removed during drilling

112-119 cm fracture 85-720°

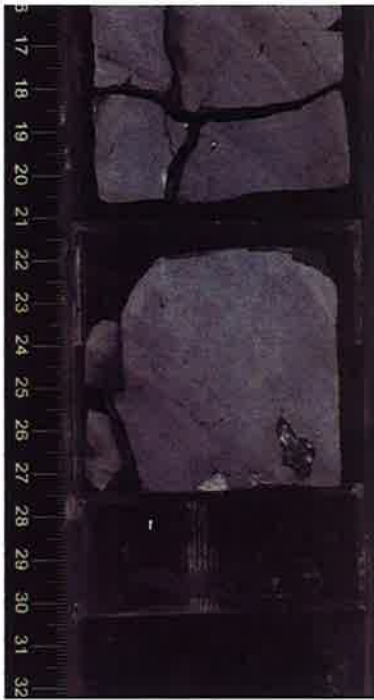
125-127 cm vein network 1 mm max  
branch recombine 0.5 mm avg  
60-7022°

UNIT 15  
1-3

330-U1373A-10R-5-A\_SHLF2731761\_20110103204549

8.5-11.5cm  
fracture straight  
80→056

12.5-20.5cm  
fracture, straight  
75→012



conjugate  
18-19 cm fracture, curved  
steep dip

22-27 cm fracture, curved  
steep dip.

UNIT 15 CONTINUES.

1a-9a

Aphyric basalt.

Medium gray  
fine grained



19.5-22cm  
vein network 0.5mm  
straight  
80-102°

22-24cm  
fracture, straight  
single 80-120°

25-28.5cm vein  
3mm straight single  
85-132°

31-34cm  
fracture 80-120°

36.5-39.5cm  
vein 0.5mm  
straight, single  
80-128°

51.5-52cm  
vein 0.5mm  
straight, single  
78-178°

61-63.5cm  
vein sigmoidal  
0.5mm  
single  
75-205°

Slightly  
abundant

27-32cm  
vein 0.1mm  
straight  
85-120°

52.5-54.5cm  
vein 0.1mm  
straight, single  
40-016°

57-60cm  
vein 0.5mm  
curved, single  
74°-(200 to 220°)



interesting  
mineral  
growth pattern  
in vein



69-73cm  
fracture single straight  
45-124°

82-86.5cm fracture  
30-130°

101-111cm conjugate vein 0.1mm  
40-294°

102.5-106cm vein 0.1mm  
straight 70-036°

102-111cm magmatic foliation  
85-208°

most removed during  
drilling  
↓  
115-117cm vein 0.5mm  
single, straight 70-034°

118-125cm conjugate vein 0.1mm  
78-132°

119.5-124.5cm vein 2mm  
straight, 65-222°

colored  
black clay

127-130cm fracture 85-132°

115-131cm magmatic foliation  
80-124°  
↑  
odd direction, possibly  
a flow lobe?

UNIT IS CONTINUES

1a-6a

0-17cm  
magmatic  
foliation  
80 → 012°

vein is crumbling  
(lots of fragments  
in tray)  
2mm wide, straight, single  
62 → 348°

UP TO HERE →

27-33  
vein betw.  
non-ortho  
black clay

32-36  
vein  
85 → 261°

39-40  
str vein  
81 → 355°  
275-16  
magmatic  
foliation  
80 → 339°

47-48  
vein, 20 →  
190°

46-48  
fracture  
75 → 285°

58-67  
vein  
betw.  
non-ortho  
black clay  
64-67  
vein  
63 → 370°

0-8cm  
vein  
0.1mm  
straight  
single  
85 → 080°

black clay  
caliche  
caliche

14-26cm  
fracture,  
straight  
single  
80 → 284°

90-98  
vein  
78 → 224°

99-103  
fracture  
70 → 270°

100-100  
fracture  
89 → 353°

107-121  
vein (9 →  
098°

107-121  
magmatic  
foliation  
68 → 107°

128-  
129  
magmatic  
foliation  
60 → 77°

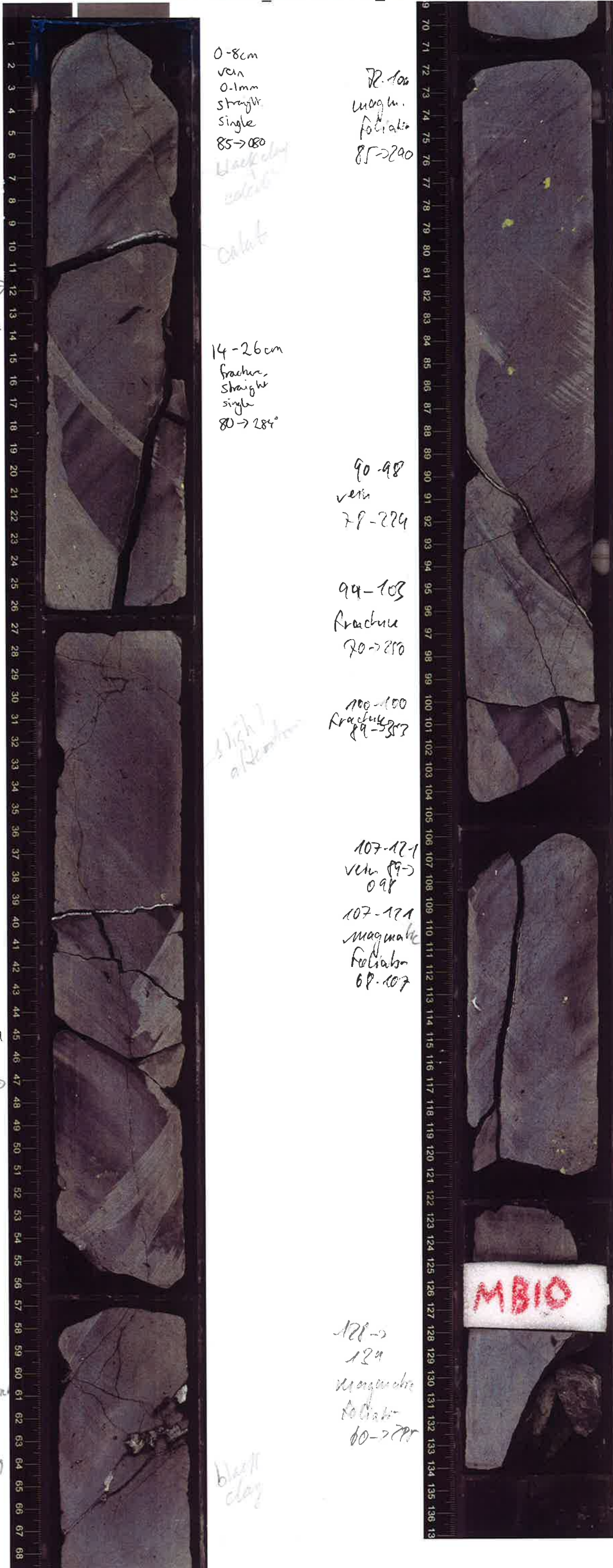
72-106  
magm.  
foliation  
85 → 290°

caliche +  
black clay  
TS (chB)

caliche  
black clay

MBIO

black  
clay



UNIT (15)  
(continued)

pieces 1-5



1-16 magnetic Ad.  
70 -> 085

5-11 vein, branch  
steep dip

Sub  
altered

18-29 vein  
80 -> 105

21-21 vein  
79 -> 175

18-64 magne foliated  
68 -> 312

27-30 fracture  
80 -> 025

30-30 irreg.  
vein non-dip

40-40 frach.  
steep dip -> 175

42 frach. sub-horiz.

42-42 frach.  
91 -> 042

42-52 vein w/br.  
steep dip

52-58 vein  
85 -> 042



69-71 vein  
84 -> 078

70-70 irreg.  
vein

74-75 irreg. vein

77-81 irreg. vein

84-98 fracture  
83 -> 022

98-98 vein  
79 -> 108

114-114  
fracture 90 -> 044

140-126 vein  
70 -> 225

126-128  
vein w/br.  
non-dip



UNIT 15 CONTINUES

1-4a



caliche + black clay  
1-2 vein  
69 -> 174  
7-9 fracture  
irreg.

12-15  
vein irreg.

slight  
alteration

20-31  
vein  
80 -> 200

24-25  
fracture irreg.  
25-27  
fracture  
80 -> 206

24-29  
vein  
network  
non-orient



40-42  
vein network  
irreg. non-oriented

48-54  
vein 69 -> 272

UNIT 15 CONTINUES

UNIT (15)  
(continued)

Slightly altered  
to andol  
12R-3-A



4-9 vein network, non-oriented

17-14 vein 80-2014 *carbide*

18-23 vein network, irreg. *caliche + black clay*

27-21 } vein irreg.  
26-26 } non-oriented  
30-30 }

25-32 vein 80-2013

*caliche zone*

33-40 magmatic Act 81-262

33-40 Pipe  
Fracture amygdale  
branched

41-45 vein network, irreg. non-oriented

41-45 fracture 71-222

57-59 vein 79-2020

60-61 vein steep dip -> 191

*caliche + black clay*

62-65 vein network, non-oriented

59-62 vein steep dip -> 154



75-84 vein 74-130

82-84 vein irreg. non-oriented

85-88 fract. 88-074

89-90 vein, 80-2006 *caliche + black clay*

90-95 vein, calc. - 4017 267

90-98 vein network, irreg. non-oriented

106-107 vein, straight 70-192

111-115 vein single steep dip 246

115-116 vein 65-346 *caliche + black clay*

125-125 fracture 51-029

133-134 vein, non-oriented

Unit (15)  
(continued)  
pieces 1-9



3-11  
vein, steep dip  $\rightarrow$  290

15.0-15.5  
vein, 74  $\rightarrow$  188  
caliche

22-27  
vein 89  $\rightarrow$  217  
20-27 vein netw.  
irreg. steep dip

slightly  
altered

100-116  
vein network, irreg.  
dip dip  
112-113 vein, irreg.  
non-orient.  
46-50 vein steep dip  
230

Vesicular  
Zone 84-58  
vein, steep  
dip  $\rightarrow$  230

segregation  
patch

47cm



74.5-79 vein  
80  $\rightarrow$  044

82 cm

84.5-84.5 vein, irregular

92-94 vein network  
59  $\rightarrow$  025

100-102 fracture, steep  
dip  $\rightarrow$  157

112-117 fracture, steep  
dip  $\rightarrow$  110

111-113 vein, irreg. non-  
oriented

116-117 vein 90  $\rightarrow$  208

zeolite  
caliche

124.5-130 vein,  
sub-horizontal 217

Unit (15)  
(continued)

Pieces 1-6



38-40 very sleep dips → 60

Slightly  
- attached

UNIT 15  
PIECE 1-146

LAVA FLOW  
WITH PERPETIC TOP

0-28  
PHENOCRYSTS 90  
VESICLES 0.5%  
MODERATE  
SUB-ROUNDED  
1mm MAX  
0.5mm MOD.

28-38  
PHENOCRYST RICH ZONE  
10% PYROXENE (FRESH)  
SUBHEDRAL  
4mm MAX, 2mm MOD.  
3% OLIVINE, ALTERED  
SUBHEDRAL  
4mm MAX, 1.5mm MOD.  
MODERATELY OLIVINE-  
PYROXENE-PHYRIC

38-96 in Core 3  
0.5% VESICLES  
MOD  
SUB-ROUNDED  
1mm MAX  
0.5mm MOD.



0-1cm  
vein 0.1mm  
rotated piece

9-30cm  
magmatic  
foliation  
dip? -> 112

24.5-25.5 vein 0.5mm  
straight 85-170

25-29cm  
fracture network  
n=2  
steep -> 223

VESSICLE ZONE  
10%  
LOW  
SUBROUNDED  
3mm MAX  
1mm MOD  
TS (ALN)

43-73cm  
magmatic foliation  
steep -> 270

51.5-56cm  
fracture, straight  
80 -> 295

56.5-58cm  
fracture, curved  
steep dip

58-60cm  
fracture, curved  
60 -> 204

62-63cm  
fracture  
75 -> 350

60-70.5cm  
fractured  
n=2  
steep -> 090

68-73cm  
vein, straight 0.1mm  
85 -> 222



75-80cm  
fracture, rotated piece

85.5-98.5cm  
conjugate vein 0.1mm  
85 -> 278

94cm vein, 1mm  
straight 60 -> 360  
n

104-109cm fracture, straight  
rotated piece

111-115cm fracture  
vein straight, rotated piece  
0.1mm

117-119cm vein, straight 1mm  
(not material for dry drilling) 85 -> 026

116-123cm  
vein 0.1mm straight 40 -> 140

130-135.5cm vein / branched  
0.5mm 80 -> 118  
n=2

137-146cm vein 0.5mm  
straight 90 -> 270

143-146cm fracture, straight 85 -> 050

UNIT 15

PIECE 1a-10

CONTINUES

0-11 cm  
conjugate vein 0.5 mm  
58 → 300

0-29 cm  
magmatic foliation  
steep 270



0-21 cm  
vein 0.1 mm  
85 → 095°  
vein  
conjugate

7-8 cm vein 0.1 mm  
36 → 178°

Slight  
alteration

10.5-12 cm vein  
1 mm curved, steep dip

14-23.5 cm  
vein 0.5 mm thick  
straight  
70 → 294

19-21 cm vein 3 mm  
straight 78 → 194°

24.5-27 cm  
vein 0.1 mm  
35 → 345°

22.5-28.5 cm  
vein 1 mm 75 → 265°

30-49 cm vein network  
curved, steeply dipping  
n=5

30-49 cm  
magmatic foliation  
sub-vertical → 290

41-51 cm  
fractured  
n=11

52-54.5 cm  
fracture, curved, steep dip

54.5-57.5 cm conjugate vein 0.1 mm  
90 → 140

55.5 cm vein 0.5 mm  
78 → 000°

57-61.5 cm  
fracture 43 → 072

56.5-61.5 cm  
conjugate fracture 85 → 280

62-67 cm fracture  
steep dip possibly rotated

62-68 cm magmatic foliation

69-72 cm fracture



77-93 cm  
vein 0.1 mm  
single fracture  
70 → 274°

77-96 cm  
magmatic foliation  
90 → 270°

VESICLE/  
ALTERATION PATCH  
zeolite

100-106 cm vein 0.5 mm  
curved, steep dip

105-109 cm vein 0.5 mm  
straight 85 → 212

108.5-109 cm vein 0.1 mm  
sigmoidal, steep dip

113.5-123.5 cm  
fracture 80 → 245°

116.5-118.5 cm  
conjugate fracture  
70 → 140°

123.5-126 cm vein  
1 mm (most lost during drill)  
86 → 320°

128-134 cm  
vein 0.5 mm  
curved, steep dip

ALTERATION!  
In this crack, there  
is pyrite  
zeolite  
& calcite

UNIT 15

PIECE 1-14C

CONTINUES...

0-8cm  
magmatic  
foliation  
? dip  $\rightarrow 260^\circ$

IS  
(12)



2-8cm  
vein 0.5mm  
straight  
85  $\rightarrow$  230  
1.5-7cm  
conjugate vein 0.1mm  
10  $\rightarrow$  265° straight

10-15.5cm  
vein 0.1mm  
straight, slight  
80  $\rightarrow$  122

9-22cm  
magmatic foliation  
? dip  $\rightarrow 270^\circ$

24-27.5cm  
vein, straight 4mm  
82  $\rightarrow$  150

26.5-29cm  
conjugate vein 1mm  
45  $\rightarrow$  054

32-38.5cm  
magmatic foliation  
dip?  $\rightarrow 258^\circ$

41-44cm fracture  
straight 75  $\rightarrow$  118

41-51cm  
magmatic foliation  
dip?  $\rightarrow 260^\circ$

47.5-49.5cm  
vein 0.5mm  
82  $\rightarrow$  328

52.5-57cm  
vein 0.5mm straight  
84  $\rightarrow$  120

64-69cm  
magmatic foliation  
dip?  $\rightarrow 230^\circ$

69cm fracture  
straight  
50  $\rightarrow$  176

69-74cm  
vein 0.1mm irregular, steep dip



75-80cm vein 0.5mm  
straight 84  $\rightarrow$  308

79-83cm vein network n=5  
0.1mm branching 90  $\rightarrow$  129

84-87.5cm fracture, irregular  
rotated piece

89-98cm  
magmatic foliation  
dip?  $\rightarrow 20^\circ$

92-98cm fracture  
curved, steep dip

96-7 on  
section 4

0.19 vesicles

0.1mm max

0.1mm max

MODERATE

SUB-ROUND

103-112cm vein 0.1mm straight  
90  $\rightarrow$  106

103-103cm vein 0.1mm straight  
86  $\rightarrow$  358°

104-108cm fracture, curved steep dip

103-113cm magmatic foliation  
dip?  $\rightarrow 248^\circ$

115-122 fractured

122.5-127.5cm  
vein network (n=4) 0.1mm  
irregular, steep dip

122-130cm  
magmatic foliation dip?  $\rightarrow 250^\circ$

131-136cm conjugate vein 0.1mm  
straight 85  $\rightarrow$  316

136cm vein 2mm straight  
87  $\rightarrow$  020

MISTO

UNIT 15

PIECE 1-13

CONTINUES.

330-U1373A-13R-4-A\_SHLF2734621\_20110104175346



7-37  
 100VES  
 LOW SPH.  
 SUB-ANS  
 3MM MAX  
 0.2MM MAX

37-117  
 0.190  
 MOD.  
 SUB ROUND  
 1.2 MAX  
 0.1 MOD.

6.5-10cm  
 vein network  
 straight. Branch recombine  
 2mm max 1mm avg  
 75-7214

9.5-11cm vein 2mm  
 straight-slight 78-210  
 11.5-13.5cm vein 1mm  
 straight 78-142

14-22cm  
 vein 0.5mm  
 curved 80-242

24cm vein 0.5mm  
 straight 7 rotated  
 piece  
 27cm vein curved

29-32.5cm vein  
 1mm straight  
 90-7134

Conjugate  
 33-38cm vein  
 1mm straight  
 76-234

38.5-43cm fracture  
 straight 74-306

41-47cm  
 fractured x2  
 irregular, shallow dip

46-48.5cm  
 vein 0.5mm  
 70-046

52.5-60.5cm  
 fracture straight  
 85-235

56.5-59cm  
 conjugate fracture  
 straight 56-310



64.5-68cm 0.5mm  
 conjugate vein net  
 steep dip

71-74cm vein 0.1mm straight  
 90-238

72.2-73.5cm vein  
 0.1mm 65-020

78-83cm  
 magmatic solution dip? -206

79.5-83.5cm vein 1mm  
 straight 90-294

93-97cm vein 1mm  
 curved 5 rotated piece

97cm vein 1mm straight

98.5-104cm  
 vein 1mm curved, rotated piece

109-118cm drilling rubble