

Unit (142)
 (Continued)
 Volcanic
 gravel to
 bottom of unit.



vesicular
 clast



Clasts composed
 of aphyric basalt
 - no phenocrysts
 brownish
 medium gray
 mostly with no
 vesicles but
 a few contain
 5% vesicles
 moderate sphericity
 rounded
 1.5 mm max
 0.5 mm modal
 20/cm²
 5% filled

UNIT (143)

Volcaniclastic
 breccia
 (hyaloclastite)

top of unit
 set at first
 appearance of
 abundant angular
 clasts of aphyric
 basalt.

Abundance of
 large (>20mm)
 angular clasts
 increases downward
 from top of Unit 143

Modal 5mm
 Mottled gray-
 green

Clasts up to 60mm
 low sphericity
 sub rounded
 some with
 "cauliflower" margins.



moderately to
 highly altered
 glassy matrix



Unit (143)
(Continued)
as in section 4



129-130
rel. cal. 0.1 mm mag. as
clark

Unit (143)
as in Section
4

clast with
"cauliflower" margins



24-vein wh. μ -6, 0.1mm
28 irreg. in clast



126-137
vein wh. μ -10, 0.1mm
irreg. in clast

Unit (143)
(continued)

as in
section 4



96-106
coupled
vein web.,
u=13,
0.5mm

107-108
fract.,
80-257

107-108
fracture
stepped
70-246

u8-55 vein web., u=5
0.1mm, irreg. in clast



UNIT (144)
aphyric basalt
large fragment
in breccia?
ISCI 0
(continuity broken)

dark gray
aphanitic
no phenocrysts
no vesicles

107-109 vein, 0.1mm,
irregular

123-124
vein web., straight u=6
non-birefringent

Unit (145)
Volcanic breccia
very similar
to Unit 143

UNIT 146
PIECE 1-8
TOP NOT
RECOVERED

0-71 R 2 71cm

DA PHYRIC BASALT
LAVA BODY ISCI 3
↳ FLOW OR
DYKE?
MEDIUM GRAY
FINE-GRAINED
0.1mm

ISCI 3

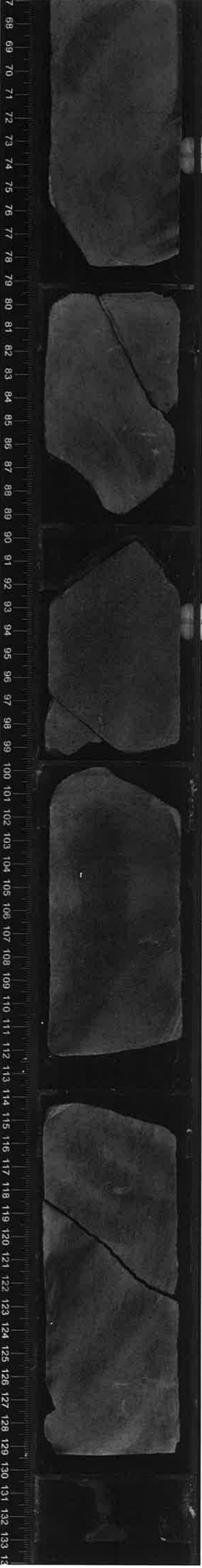


0-7cm fracture 85→088
VESICLES
0-71 R 2 75cm
0%
8-20 fracture, w/g
0.1mm wide, straight
slight dip
16-20 fracture, straight
43→146
18-21 fracture, straight
63→212
20-23 fracture, straight
59→210
21-24 vein, h=1, 0.1mm
irreg.
25-35 fracture, curved
85→073

27-35 vein, 4mm, straight,
70→289
31-32 vein, 0.1, irregular
33-35 vein, 0.1mm, straight
43→316

37cm fracture 80→005

46-58 vein, 0.1mm,
straight 84→053
50-52 fracture, straight
77-160



72-72 fracture, straight
sub-horiz. → 180

76-78 fracture, straight
80→060 chd at 80-
85
80-85 fracture, straight
80→060

86-89cm fracture curved 90→040

90-92cm fracture 78→230
90-93cm fracture 75→150
90-97cm fracture 30→330

96-96 - fracture, straight
81→216
100-101cm fracture 75→320
100-102cm " 85→030

slight dip
(same for 2, 21)

114-115 cm 90→020

118-123
fracture, straight
85→083

129cm fracture 70→180

UNIT 146
 CONTD.
 PIECE 1-8



1-5 fracture, straight,
 24 → 072
 7-15 fracture, straight
 19 → 052

20-24 fracture, straight
 26 → 055
 23-26 fracture, straight,
 irregular

33-47 fracture, straight
 52 → 072
 35-82 fracture, stepped

50-63 vein, 1.5mm,
 straight 87 → 090

53 fracture, straight
 71 → 185

66-68 vein, 2mm, straight
 non-oriente.



70-82 vein (wh.) u=6, max
 2, mode 1mm, irreg.,
 mostly vertically orient
 70-91 vein, 2mm, straight
 70 → 266
 79-86 vein, 2mm, straight
 89 → 214

86-87 fracture, irreg, branched
 step dip

90 fracture, straight, sub-
 horiz. → 120

93-118 fracture network,
 n=10, irreg, but ± 90°
 93-118 vein, max 5mm,
 mode 2mm, irreg.
 78 → ~ 220°
 93-114 vein, 2mm,
 irreg. 79 → 090

120-132 vein (wh.)
 u=13, max 2mm, mode
 0.5mm irreg. 79 → 101
 120-132 vein, mode 1mm
 straight 71 → 114
 120-132
 vein, u=2, branched
 max 4mm, mode 2mm
 80 → 102

UNIT (146) CONTD
PIECE 1-9



1-20 vein, n=2,
branched, 85 → 272
1-25 fractured
7-20 vein, curved,
0.1mm, 80 → 282

14-20 vein network,
n=5, 0.1, irreg.

22-29 magnetic
foliation, weak,
steep dip ~ 270

22-28 vein network
n=5, shaly, 480 →

25-29 fracture, straight
265
81 → 233'

35-45 vein network, n=4
0.1, branched, 86 → 112

36-72 magnetic foli.
Weak, at 90° = vertical

55-57 fracture, straight
88 → 240

55-67 vein, n=1
straight, 61 → 111

65-67 fracture, straight
35 → 012



77-82 conjugate fracture,
straight, 80 → 124,
77-79 conjugate fract.
straight 59 → 120

85-93 vein network,
n=6, irreg → branched
85-93 vein, 0.2mm
straight 82 → 128

101-114 weak magnetic
foliation

100-104 conjugate fract.
straight 85 → 256,

104-105 conjugate fract.
straight 70 → 166

105-107, fracture, irreg, steeply

107-115 vein, 0.1, straight
70 → 255

105-110 vein, 0.1mm, dia
90 → 255

111-114 vein, 0.1mm, straight

80 → 098
108-108 vein, 0.2, straight
sub-horiz. → 196

115-120 magnetic
foliation → 100

115-124 vein, 0.1, straight
78 → 288

115-119 vein, 0.1, straight
90 → 114

124-130 vein, 0.1
straight, 81 → 298

UNIT 1 CONTD

PIECE 1-4

330-U1374A-70R-4-A_SHLF2837241_20110121194443



1-10 fracture, straight
88-252

1-14 magnetic
foliation, medium
shear up -> 0°

15-31 magnetic
foliation ~ 90
± vertical

17-25 vein, straight
0.2mm, 90 -> 0°

18-27 vein, h.c.,
0.1mm, straight 89-252



38-41 vein, straight
0.1mm, vein-oriented

UNIT 146 CONTD
PIECE 1a-12



3-14cm vein n=1 0.1mm straight
follow magmatic foliation 80-7260

3-30cm magmatic foliation
marked 80-7260

17-20cm fracture n=1 40-190
stepped

24.5-25cm fracture n=1 65-345
straight

24.5-34cm fracture n=1 90-235
straight

30cm fracture n=1 85-005 curved

30-32cm fracture n=1 60-340
straight

20-51cm magmatic foliation
marked 90-7265

38-49cm fracture n=1
curved 50-115

40-41cm fracture n=1 curved 40-200

40-45cm fracture
straight 75-240

44-51cm fracture n=1
straight 80-240

47-51cm fracture n=1
straight 85-250

50-52cm fracture n=1 straight 88-200

53-54cm vein n=1 0.1mm straight
90-7250

53.5-58.5cm fracture n=1 straight
68-235

58-59.5cm fracture n=1 straight
75-166

60-81cm magmatic foliation
90-90

64-70cm vein n=1 0.1mm
straight 85-230



75-80cm fracture (on the side of core)
15-180

78-87cm fracture n=1 straight 85-238

80-83cm fracture n=1 straight 83-332

80.5 fracture n=1 straight 88-186

82-86cm fracture n=1 straight 30-050

84-85cm fracture n=1 30-320

86cm fracture n=1 40-3350
straight

91-94cm fracture n=1 straight 75-235

94-95cm fracture n=1 curved 60-010

95-106 fracture n=1 straight 80-080

105-106.5cm fracture straight 30-200

114-115cm fracture 24-000

114-116cm fracture n=1 straight 85-050

115-120cm fracture n=1 straight 85-200

116-122cm fracture n=1 straight 90-250

119-121cm fracture n=1 straight 72-145

123.5cm fracture n=1 straight 53-180

115-130cm magmatic foliation
80-265

125-131cm fracture n=1 curved 55-050

129-132cm fracture n=1 straight 90-000

131-134cm vein network n=6
straight, parallel from another
piece

NB: NO "veins", but
several of the fractures
have very thin sporadic
patches of green clay.

UNIT 146 CONTD
PIECE 1-7

23.5-36cm
0.5% OLIVINE
SUBHEDRAL
COMPLETELY ALTERED

1mm/1mm
↳ POSSIBLE
CRYSTALL
SETTLING ZONE

▷ APHYRIC BASALT
(AS ABOVE 23.5cm)

CONTACT WITH BRECCIA
71cm



0-22cm magmatic fabric
weak subvertical → 255°
5-6cm fracture n=1 65→150°
6cm fracture n=2 straight 90→070°
5.5-8cm fracture n=1 85→065°

7-15cm fracture n=1 straight
70→055°

14-16cm fracture n=1 straight
90→050°

16-18cm fracture n=1 straight
70→0310°

20-23cm vein Olivine branched
irregular
VESICLES:

71-96cm
24-29cm vein 0.1mm n=1 straight 80→320°
3%

MODERATE
SUB-ROUNDED
1-5mm / 0.1mm
26-35cm fracture n=1 straight 80→100°

29-30cm fracture n=1 straight steep → 150°
24-34cm fracture n=1 curved 90→070°
29-34cm fracture n=1 straight 85→100°

VESICLES
96-138cm
5% MODERATE
SUB-ROUNDED
2mm / 0.1mm

52-60cm vein network
n=8 80→110°

1mm max 0.5mm avg
62-72cm vein n=4 0.5mm straight
80→320°

65-72cm conjugate vein n=3
0.5mm max 30→130°



TOP BOUNDARY
POSSIBLE B ED MARGIN
75-81cm baked margin] much
denser than
matrix
UNIT 147
in section

PIECE 7-15

VITRIFIC-LITHIC
VOLCANIC GRAVEL

↳ VOLCANICLASTIC
COARSENS UPWARDS

OLIVINE 0.5%
SUBHEDRAL, COMPLETELY
ALTERED

1mm / 0.5mm 86-89cm
vein n=4
▷ APHYRIC BASALT
GRAVEL 6-5mm
0-2cm
TEXTURE / COLOUR branched
in clast

71-96cm
BLACK
FINE-GRAINED
0.1mm

TEXTURE / COLOUR
96-138cm
GREENISH GRAY
FINE-GRAINED
0.1mm

VOLCANIC
ATTRIBUTES
71-138cm
100% CLASTS/MATRIX
5mm
MODERATE
SUBANGULAR
MODERATELY SORTED

138-71 R3 136
MOTTLED GREEN-BLACK
GRAY

UNIT 147 CONTD.

PIECE 1-9

71 R 2 138 - 136cm

VOLCANIC
ATTRIBUTES

100%

MODERATE, SUBROUNDED
2mm

MODERATELY SORTED

↳ BIMODAL

CLAST SIZES,

DOMINANTLY GRAVEL

SOME UP TO 80mm

VESICLES

71 R 2 138 - 136cm

10%

MODERATE,
SUBROUNDED

2mm / 0.5mm



106-107cm vein $n=1$ 0.5mm spherulites in clast

10mm CLAST

80mm CLAST

124-130cm vein network $n=10$
max 3mm avg 1mm
irregular, in clast

136cm

UNIT 147
(CONTINUED)

VITRIC-LITHIC
VOLCANIC GRAVEL

Mottled green-gray
nodal 4mm
clasts up to 10cm
100% volcanic
clasts.

bimodal

Small clasts glassy
highly vesicular
typically 50% vesicles
(foamy)

1mm max

0.2 mm nodal
moderate sphericity
rounded
100/cm²

50% filled

Large clasts have
no vesicles
fine grained, 0.1mm
medium gray
no phenocrysts

Similar in appearance
to Unit 148

end of Unit 147

55cm

UNIT 148

Aphyric basalt
Intrusive sheet
or sheet flow?

pieces
not photographed
in upright
position

14 pieces



26-31cm vein network n=6
max 1mm avg 0.5mm angular
clast
Angular clast
with altered glass
on two sides and
fractured on third side

(with baked
contact)

53-57cm chilled upper margin. A 90-135°
suggests intrusive sheet?
53-58cm vein network n=9
to edge of unit (? cooling cracks?)
5mm max 1mm avg 20-250°

62-64cm vein n=3
max 6mm avg 2mm
straight, branched non-annular



68-70cm vein network n=3
8mm max 3mm avg
straight, branched, non-annular

Aphyric
no phenocrysts
or micropenocrysts

Fine grained, 0.1mm
Medium gray

Brecciated
79-115cm,

brecciated top
of subaqueous
sheet flow?

or brecciated top of
intrusive sheet?

72-126cm fracture n=? lob 40°
dominant dir 90-72-74°

72-116cm vein network n=? lob
max 6mm PYRITIC
avg 2mm

100cm fracture 85-176°

108cm fracture 90-160°

109-110cm have large amount
of pyritic veins

ISCI (3)

111-125cm vein network n=8
0.1mm straight, branched

UNIT (148)
(Continued)

as in section 1



3 pieces
0-4cm fracture n=2 straight 20→360°
(on opposite side of core)

6-7cm vein n=2 straight 90→216°
6-12cm frac n=1 straight 85→280°
9cm frac curved n=1 75→355°

LHS and RHS
↓ pieces rotated, not cut
in same direction.

14-16cm fracture 70→034°

14-24cm frac 75→060°
21-21.5cm frac 30→156°
23.5cm frac 30→190°
24cm frac 90→180°

25-27cm frac 65→160°
25-30cm frac 40→220°

29-33cm frac irregular 70→080°
32-33.5cm frac 80→336°
34-34.5cm frac 80→184°

41-41cm frac 80→176°
41-42cm frac curved 20→010°
42-49cm frac 90→080°
44-49cm frac 65→090°
45-49cm frac 50→100°
49-50cm frac 80→014°
51-56cm frac 80→276°
56cm frac 80→184°
56-58cm frac stepped 90→330°
56-61cm frac 81→246°
58-59cm fracture 25→340°
59-62cm fracture 70→090°
63cm fracture 85→160°



59-82cm magmatic fabric
90→210°

78-79cm vein n=1 0.1mm curved 70→200°

82-83cm fracture 90→010°
84-89cm fracture 85→230°
86-86.5cm frac 86→342°
87-88cm vein 0.1mm n=1 curved 55→338°
87-88.5cm frac 85→140°
89-90cm frac 85→242°

98cm frac straight 33→190°
98-102cm frac straight 60→270°
103cm fracture curved 70→180°

107-115cm fracture ^{small} 70→275°

110-115cm vein, ^{small} 0.1mm straight
75→230°

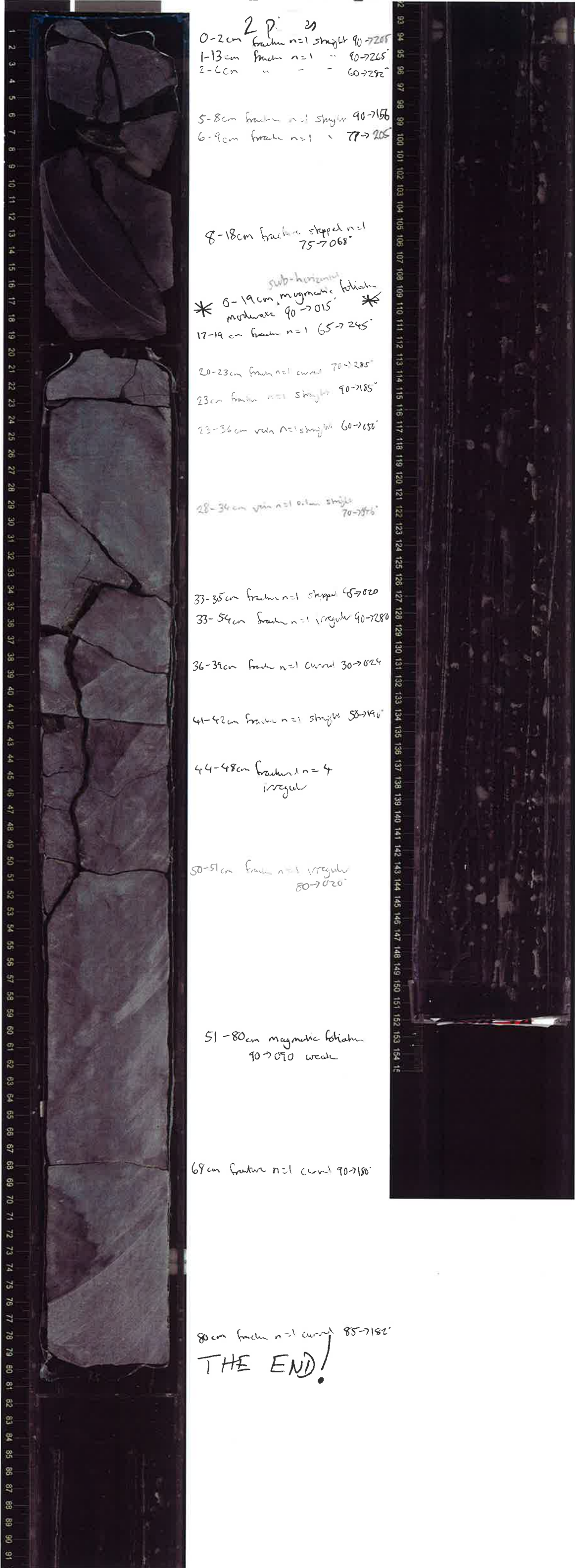
115.5cm frac curved 80→185°

59-73cm vein 0.1mm straight
90→240°

UNIT 148

(Continued)

as in section F2R1



2 p. 21
0-2cm fracture n=1 straight 90-7265
1-13cm fracture n=1 " 90-7265
2-6cm " " " 60-7292

5-8cm fracture n=1 straight 90-7166
6-9cm fracture n=1 " 77-7205

8-18cm fracture stepped n=1
75-7068

* sub-horizontal
0-19cm magnetic foliation
moderate 90-015 *
17-19cm fracture n=1 65-7245

20-23cm fracture n=1 curved 70-7285

23cm fracture n=1 straight 90-7185

23-36cm vein n=1 straight 60-050

28-34cm vein n=1 other strike
70-7376

33-35cm fracture n=1 stepped 45-020

33-54cm fracture n=1 irregular 90-7280

36-39cm fracture n=1 curved 30-024

41-42cm fracture n=1 straight 50-7190

44-48cm fracture n=4
irregular

50-51cm fracture n=1 irregular
80-020

51-80cm magnetic foliation
90-090 weak

69cm fracture n=1 curved 90-7180

80cm fracture n=1 curved 85-7182

THE END!