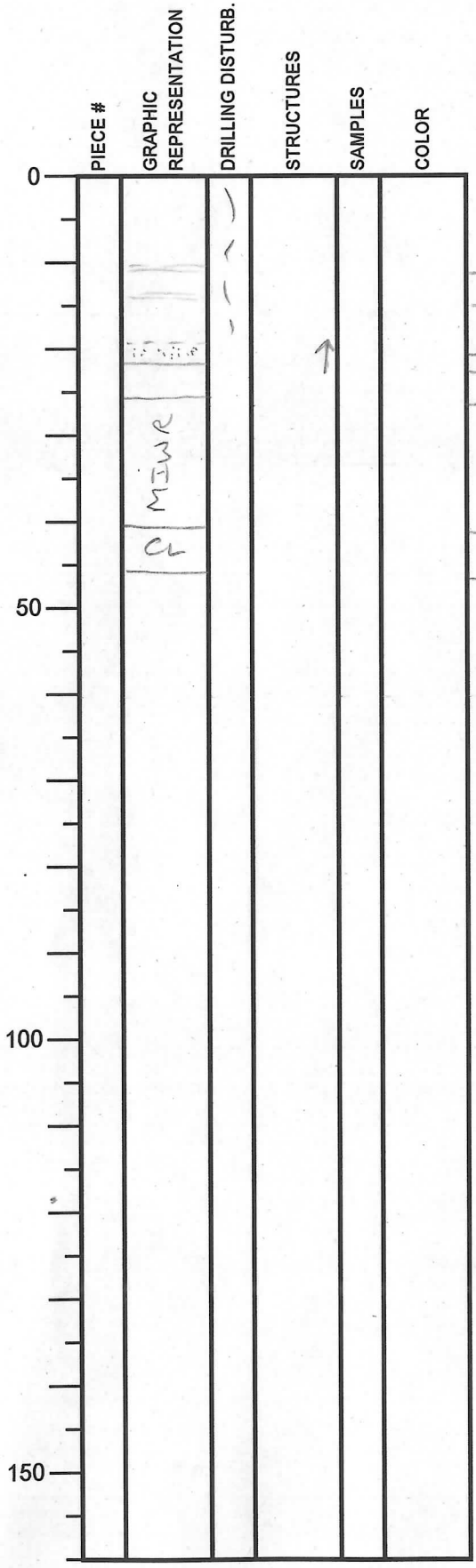
Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 29/07 / 20 09
EXP.: 322
SITE/HOLE: C0012
CORE: 31
SECTION: 1
OBSERVER: LCTP/SK



SECTION DESCRIPTION

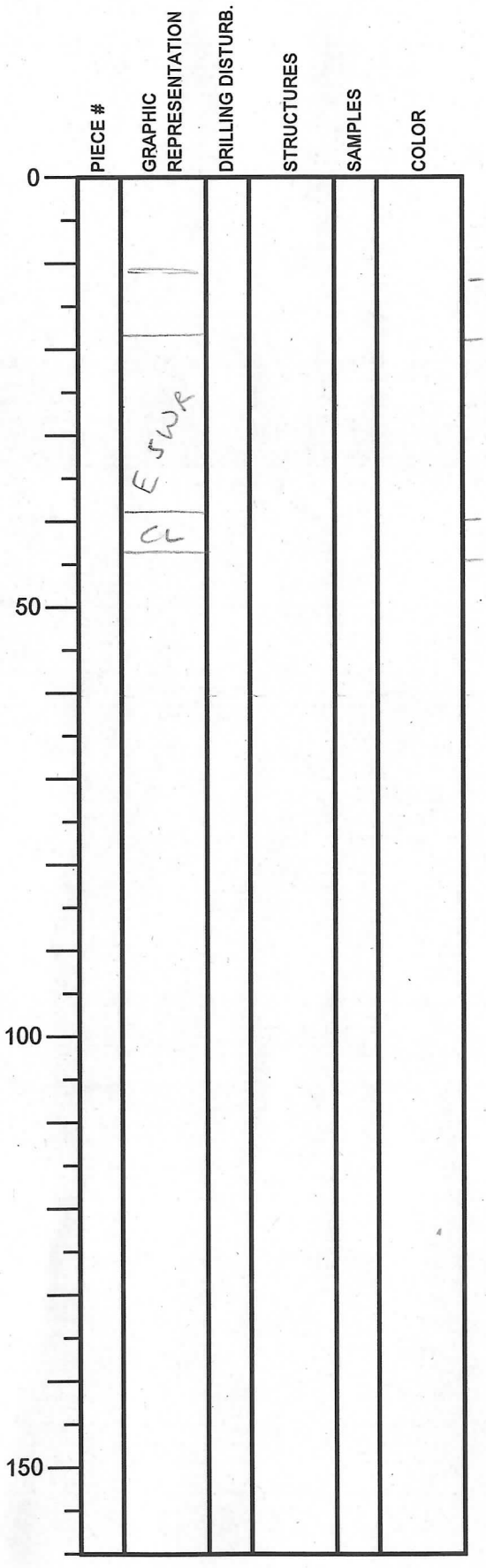
GGfc / Gfc BIOT. 5 (INTENSE)

10 cm Gfc
14 cm Gfc
19.5 cm } TUFF FINE → SILT GRADE (GRAY-WHITE)
20.5 cm
26.0 cm
40.5 cm
45.5 cm END

Integrated Ocean Drilling Program

Visual Core Description

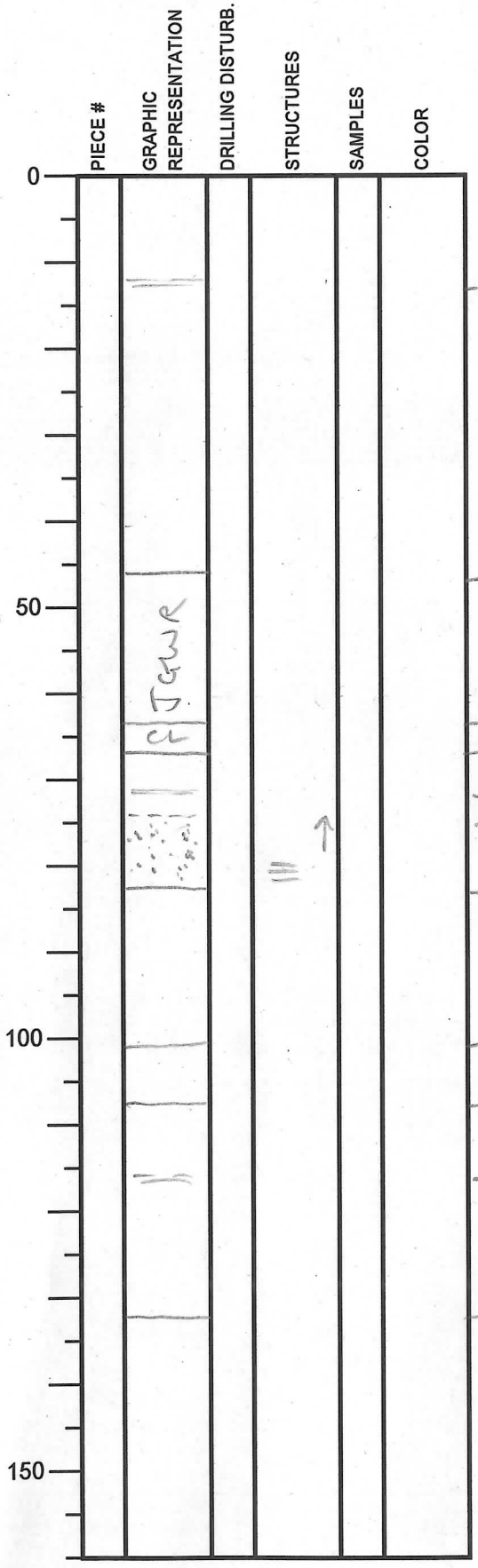
NO.
DATE: 29 / 09 / 2009
EXP.: 322
SITE/HOLE: C0012
CORE: 31
SECTION: 2
OBSERVER: KTP/SK



Integrated Ocean Drilling Program

Visual Core Description

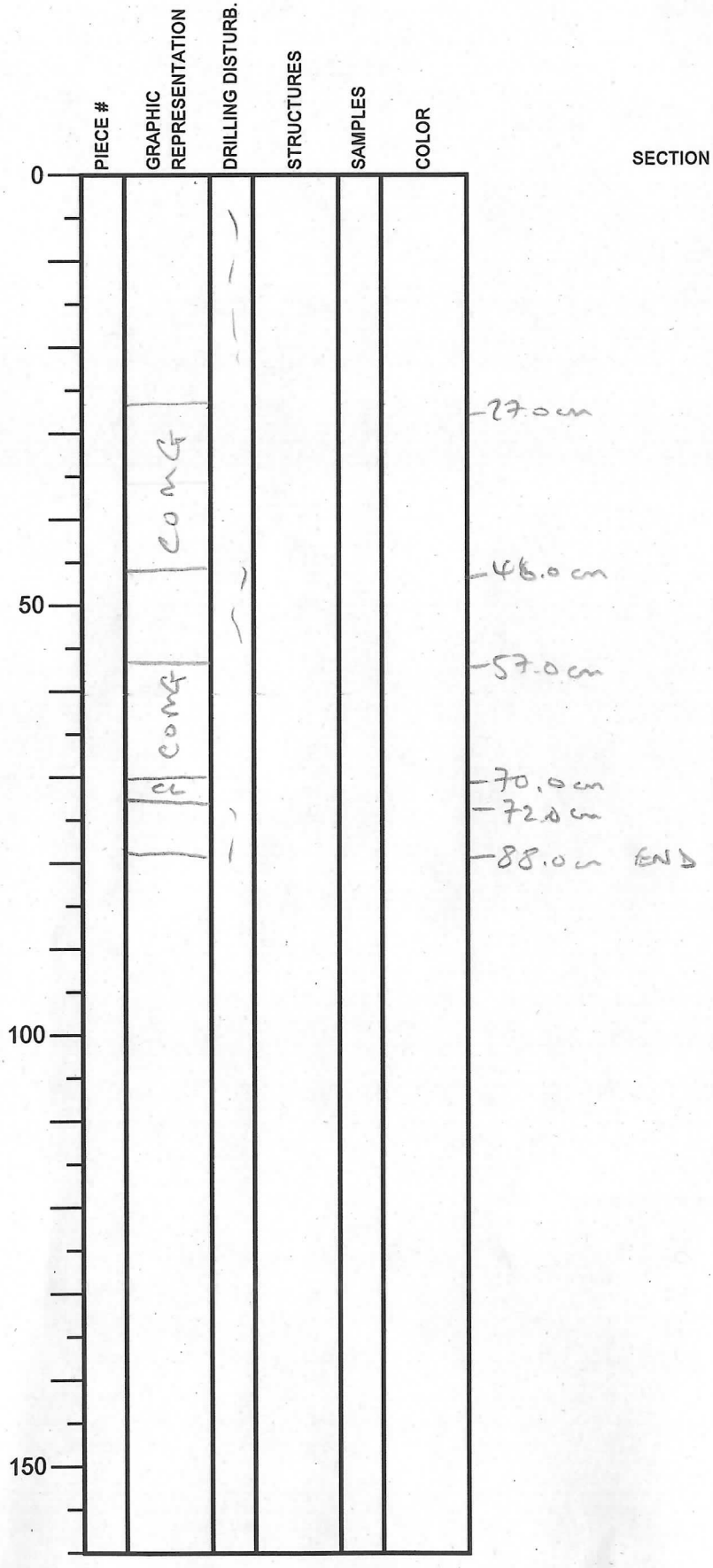
NO.
DATE: 29/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 31
SECTION: 4
OBSERVER: KMP/SK



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 29/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 31
SECTION: 5
OBSERVER: KTP/SK



SECTION DESCRIPTION

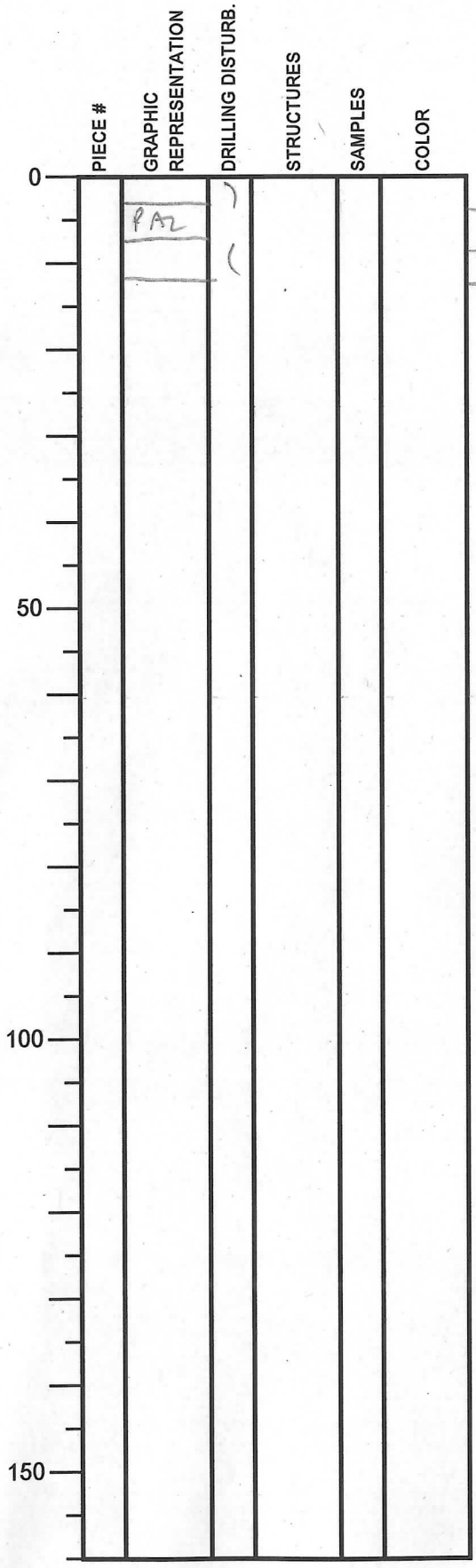
GG82 / GG1

BIOT. 5 (INTENSE)

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 29/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 31
SECTION: CC
OBSERVER: KTP/SK

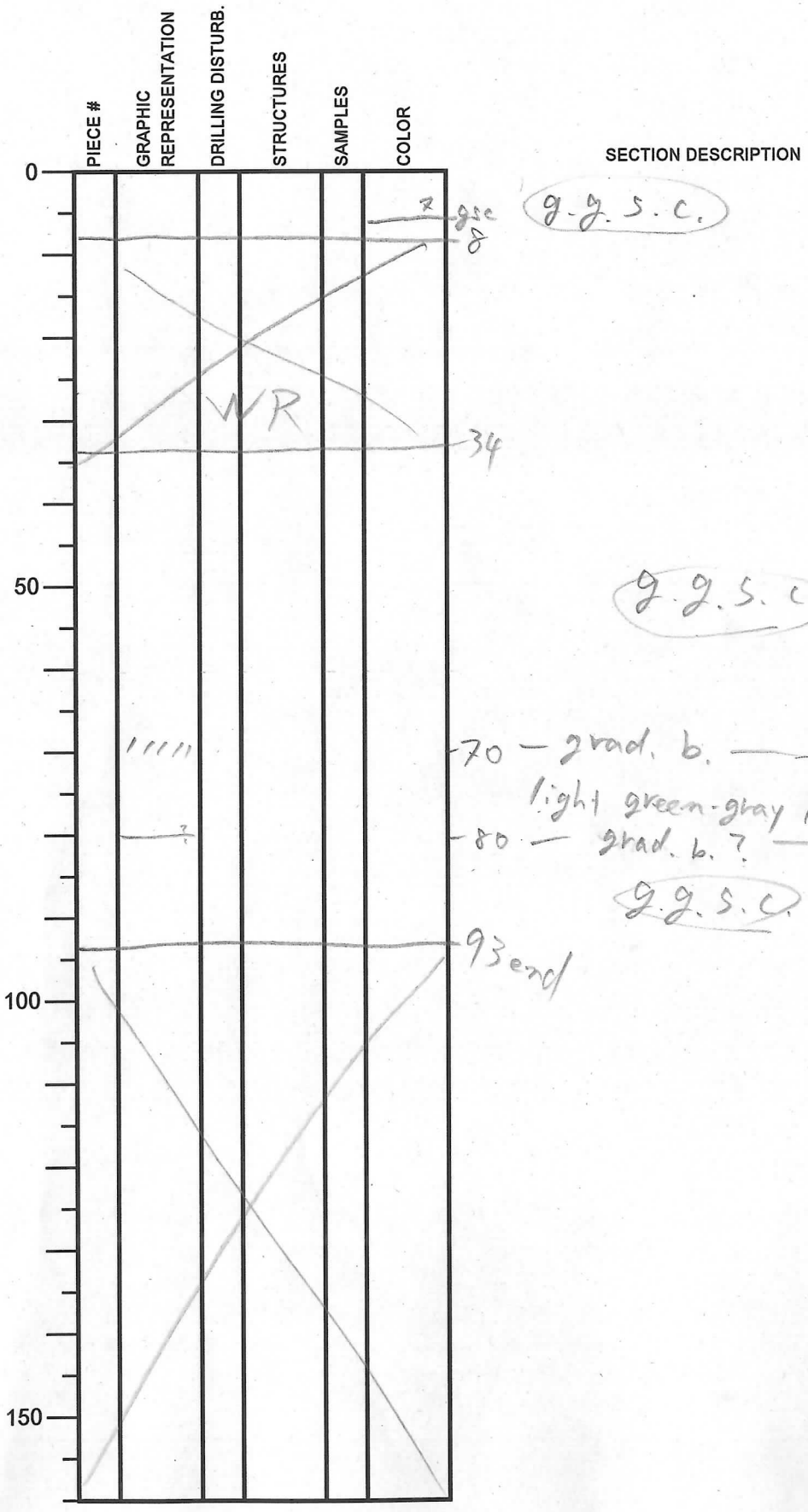


SECTION DESCRIPTION

GGSC/GSC BIOT. 5 (INTENSE)

Integrated Ocean Drilling Program
Visual Core Description

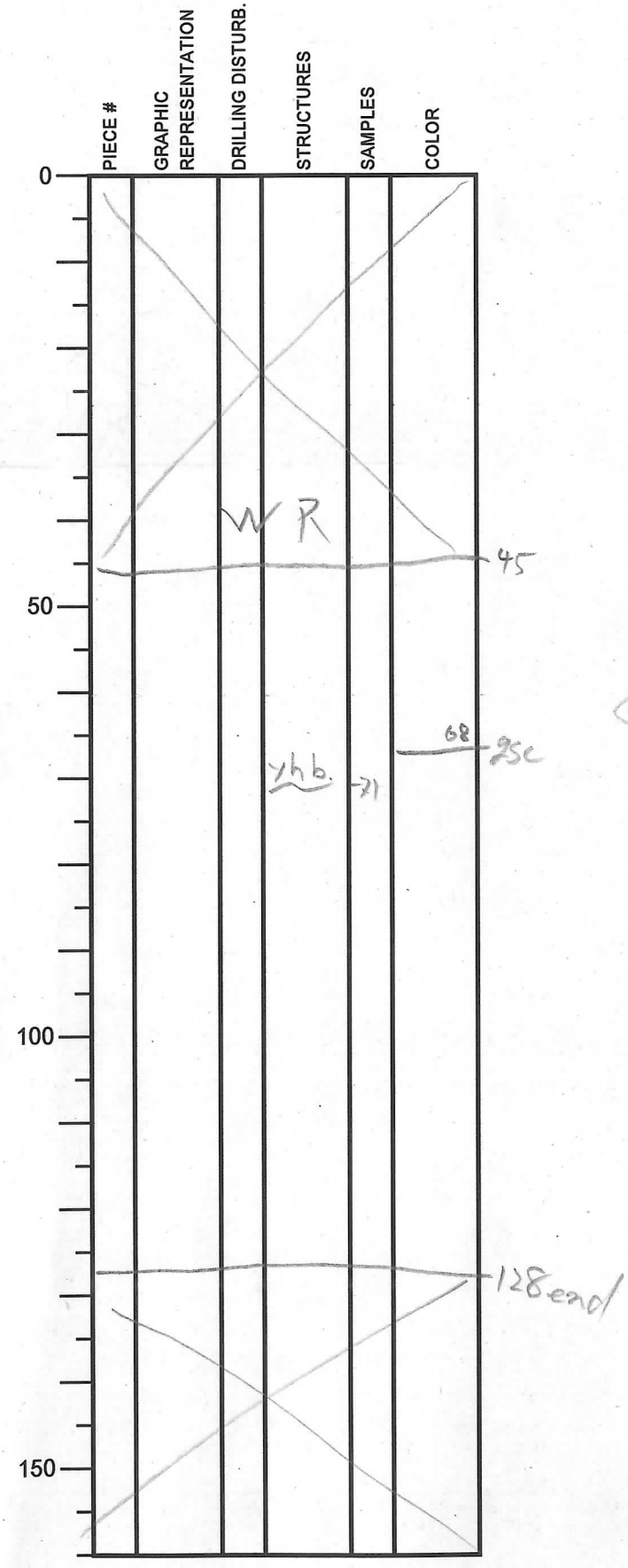
NO.
DATE: 29 / 09 / 20 09
EXP.: 322
SITE/HOLE: C0012A
CORE: 32R
SECTION: 1
OBSERVER: H. Nanase



Integrated Ocean Drilling Program

Visual Core Description

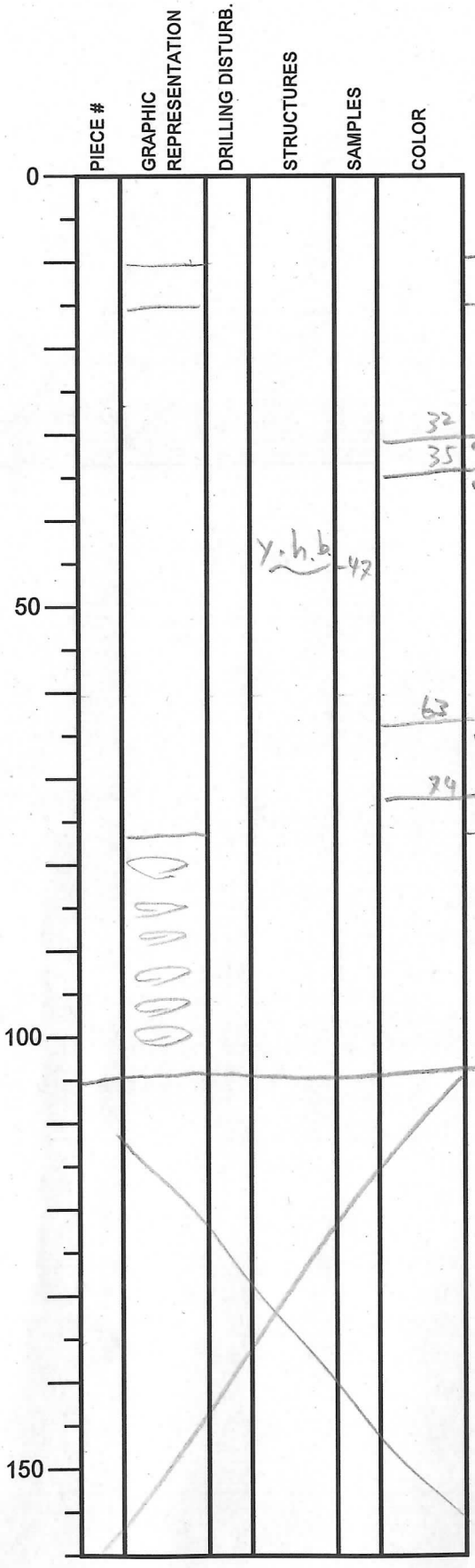
NO.
DATE: 29 / 09 / 2009
EXP.: 322
SITE/HOLE: C0012
CORE: 32R
SECTION: 2
OBSERVER: H. Haruse



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 32R
SECTION: 4
OBSERVER: H. Haruse



Heavy bioturb. (5)

77

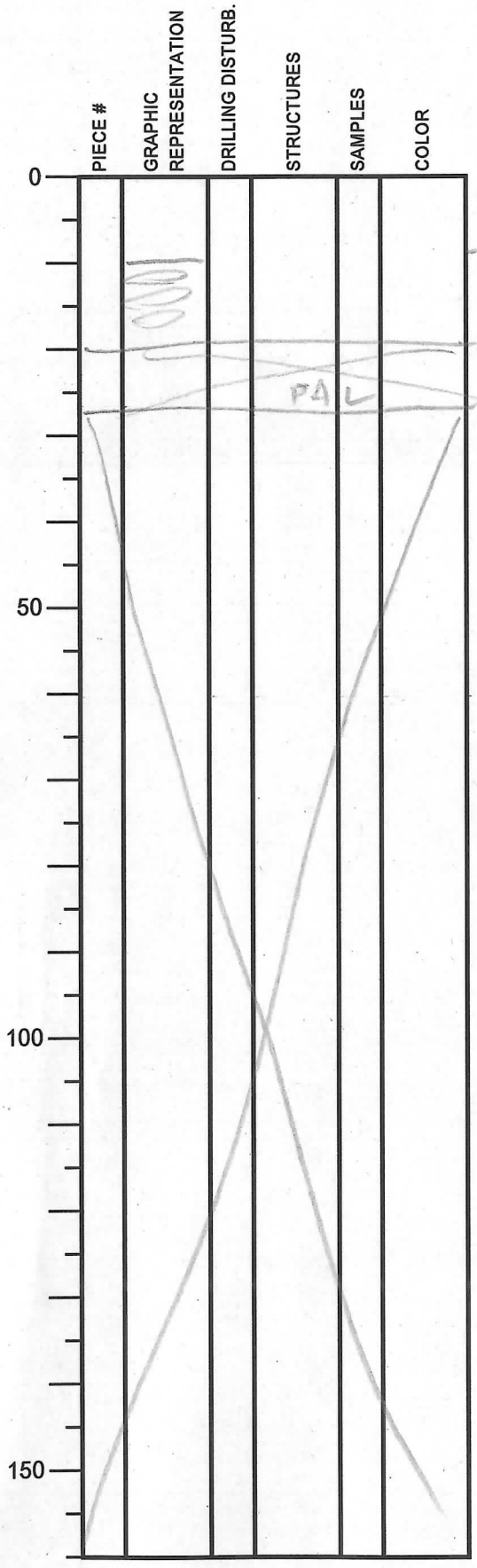
Intense drill-disturb.

105

Integrated Ocean Drilling Program

Visual Core Description

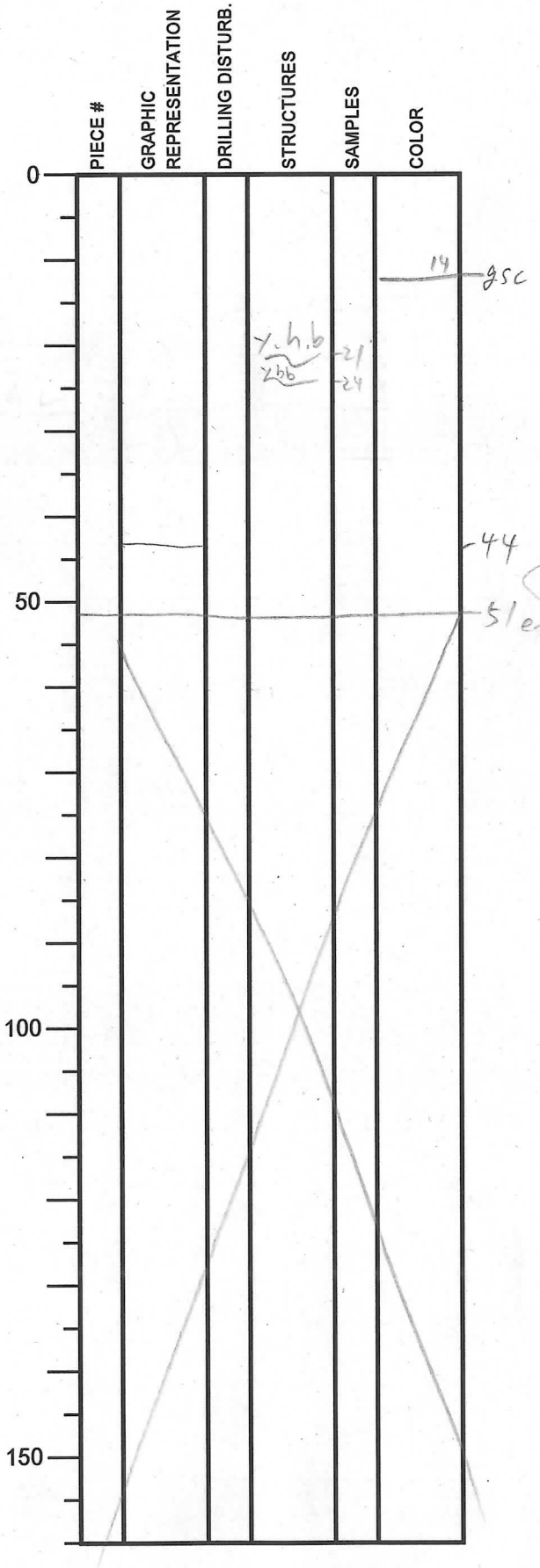
NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 32R
SECTION: CC
OBSERVER: H. Haruse



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 33R
SECTION: 1
OBSERVER: H. Hargse



SECTION DESCRIPTION

2.2.S.C.

Heavy bioturb. (5)

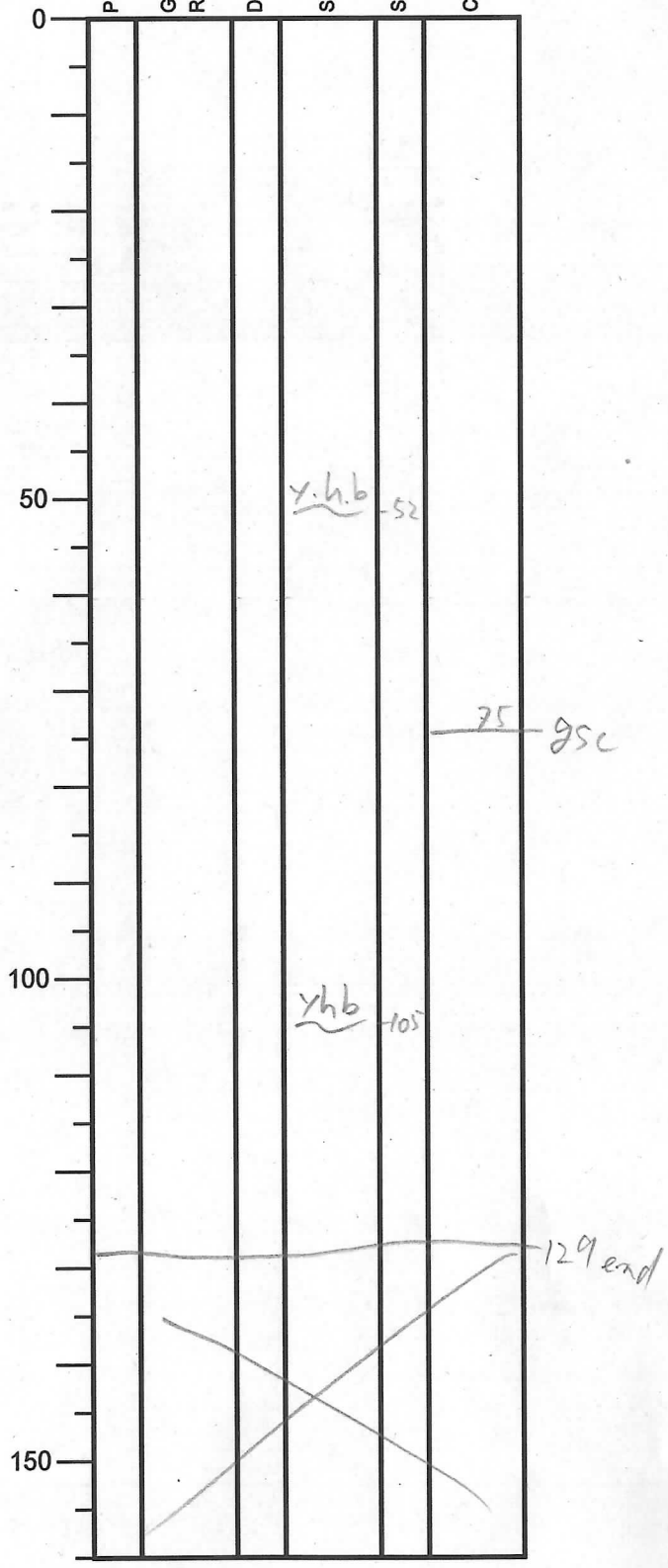
green-gray clayey siltstone structureless

slight (1)

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 9/27/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 33R
SECTION: 3
OBSERVER: H. Hamuse



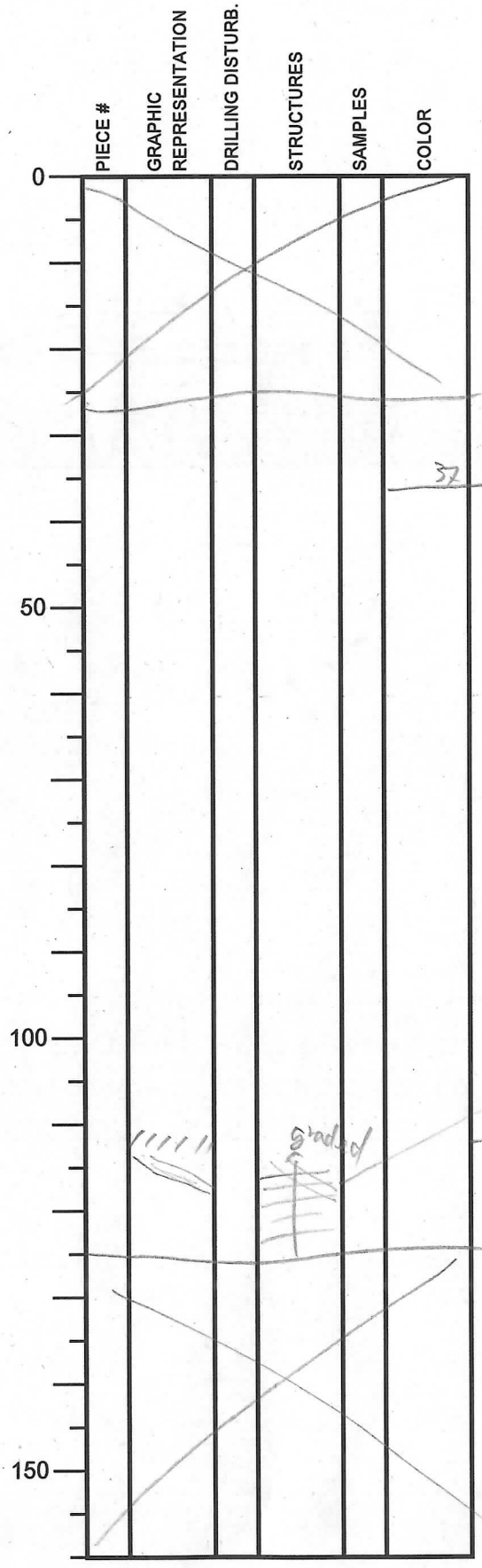
g.g.s.c.

Heavy bioturb. (5)

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 33R
SECTION: 4
OBSERVER: H. Maruse



SECTION DESCRIPTION

g.s.c.

Heavy bioturb. (5)

Calcite veins

grad. b laminated

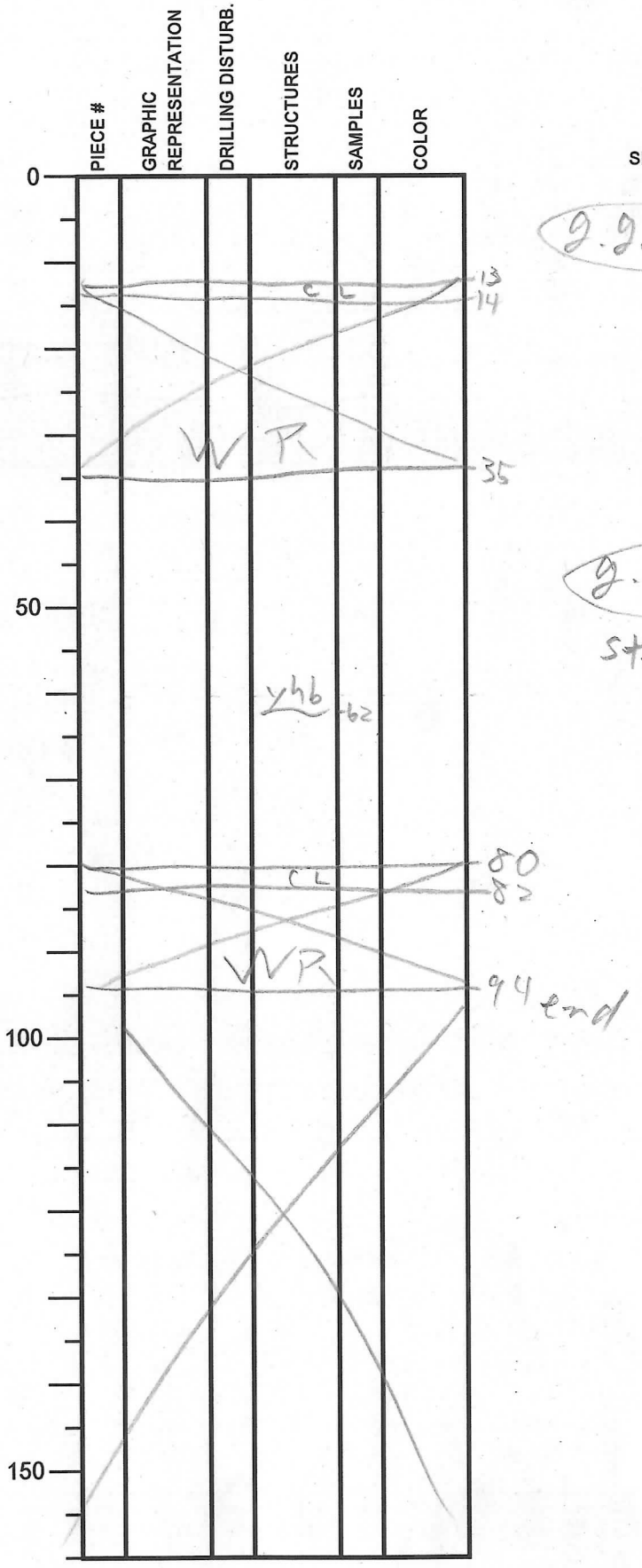
clayey siltstone

slight (1)

Integrated Ocean Drilling Program

Visual Core Description

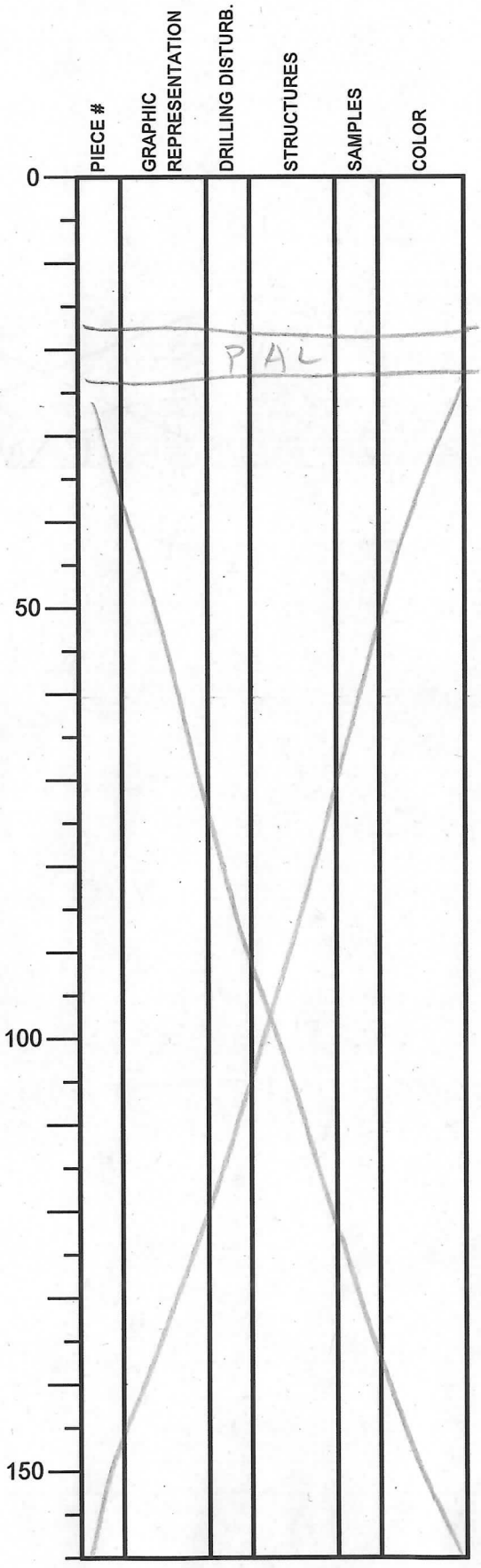
NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 33R
SECTION: 5
OBSERVER: H. Haruse



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: / /20
EXP.: 322
SITE/HOLE: C0012A
CORE: 33R
SECTION: CC
OBSERVER: H. Naruse



SECTION DESCRIPTION

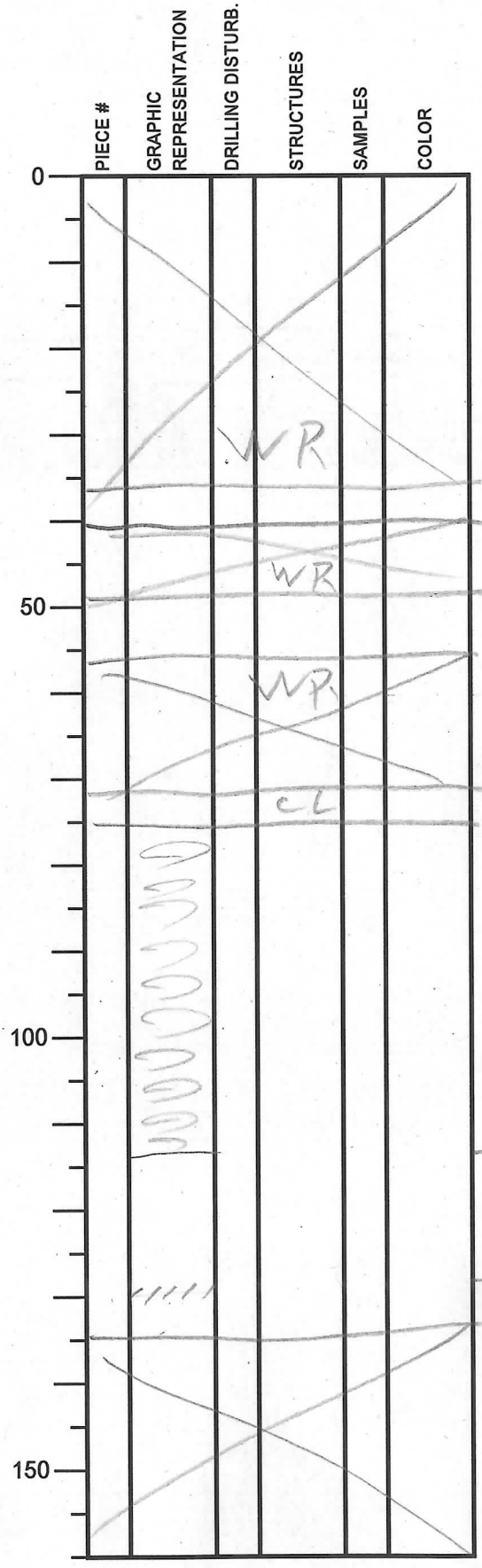
g.g.s.c.

steeply inclined bedding (~40°)

Heavy bioturb. (5)

Integrated Ocean Drilling Program
Visual Core Description

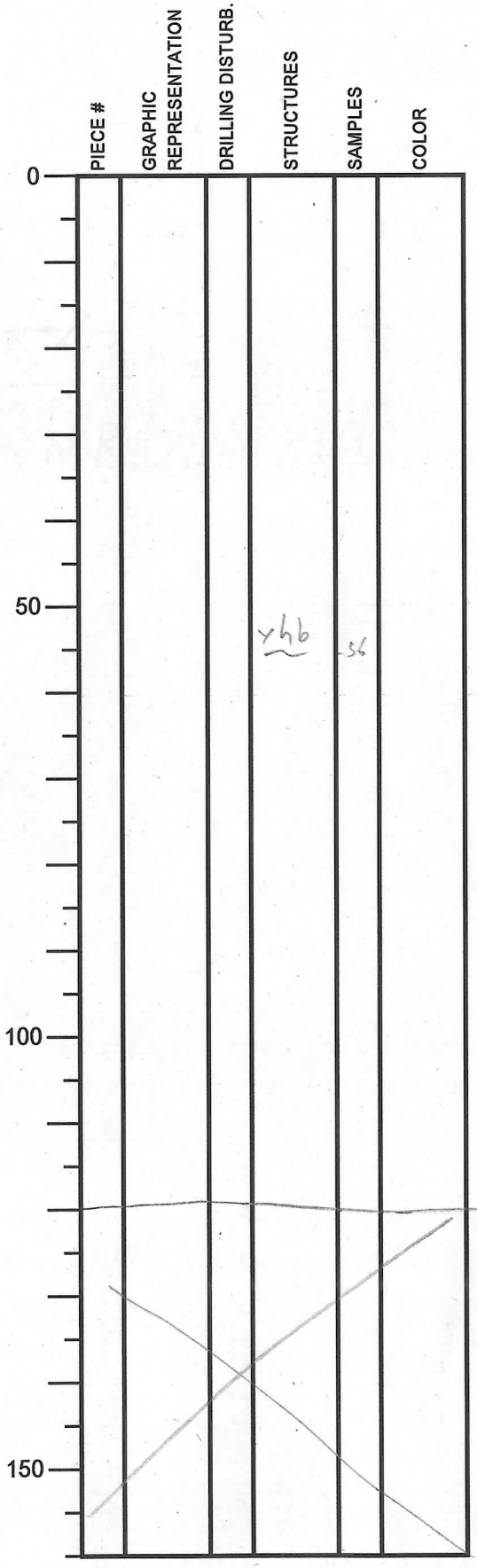
NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 34R
SECTION: 1
OBSERVER: H. Haruse



Integrated Ocean Drilling Program

Visual Core Description

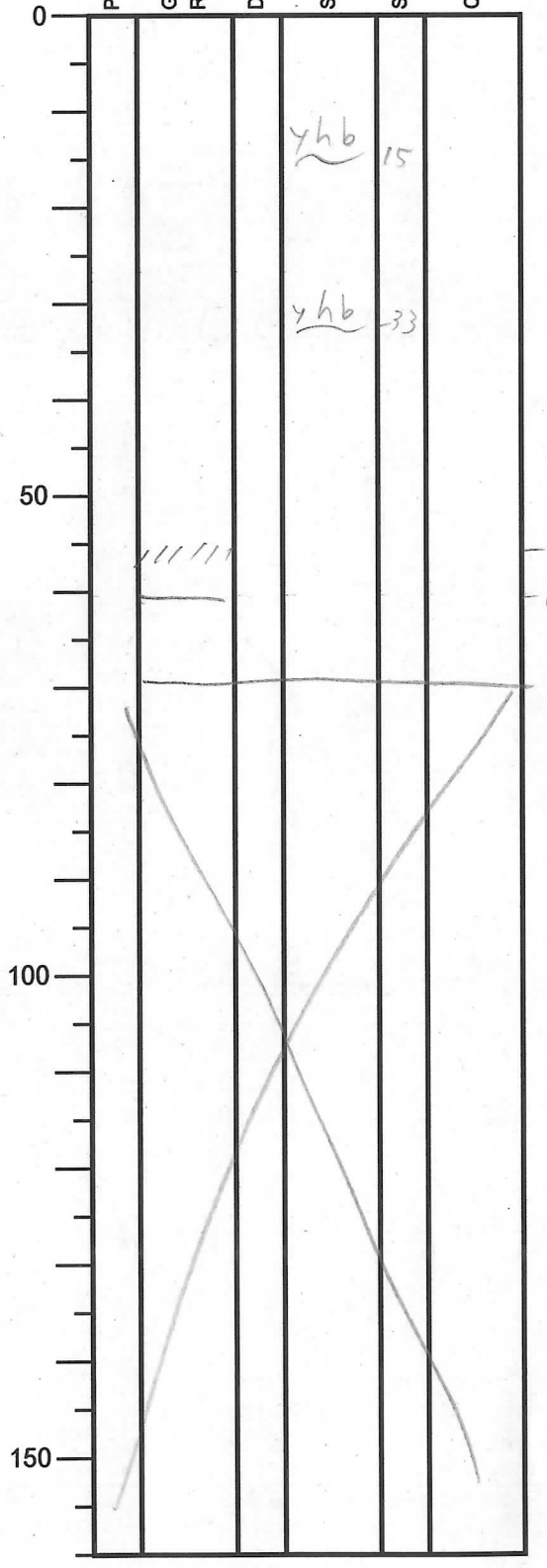
NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 34R
SECTION: 2
OBSERVER: H. Naruse



Integrated Ocean Drilling Program

Visual Core Description

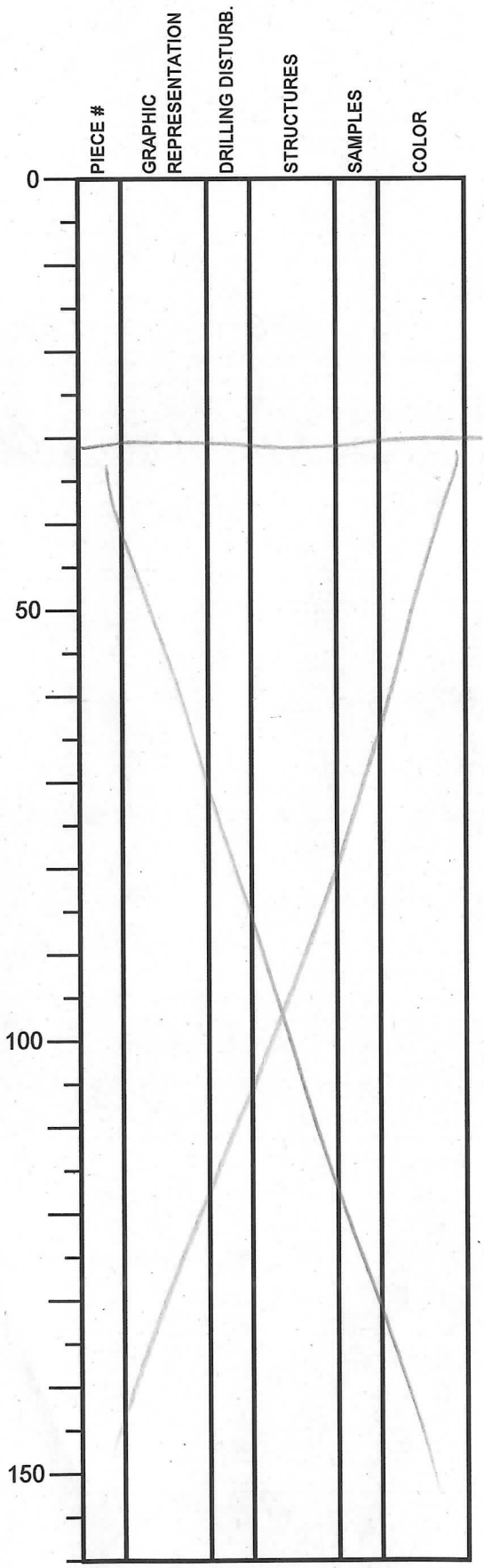
NO.
DATE: / / 20
EXP.:
SITE/HOLE:
CORE:
SECTION: 4
OBSERVER: H. Haruse



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 35R
SECTION: 1
OBSERVER: H. Narusе



SECTION DESCRIPTION

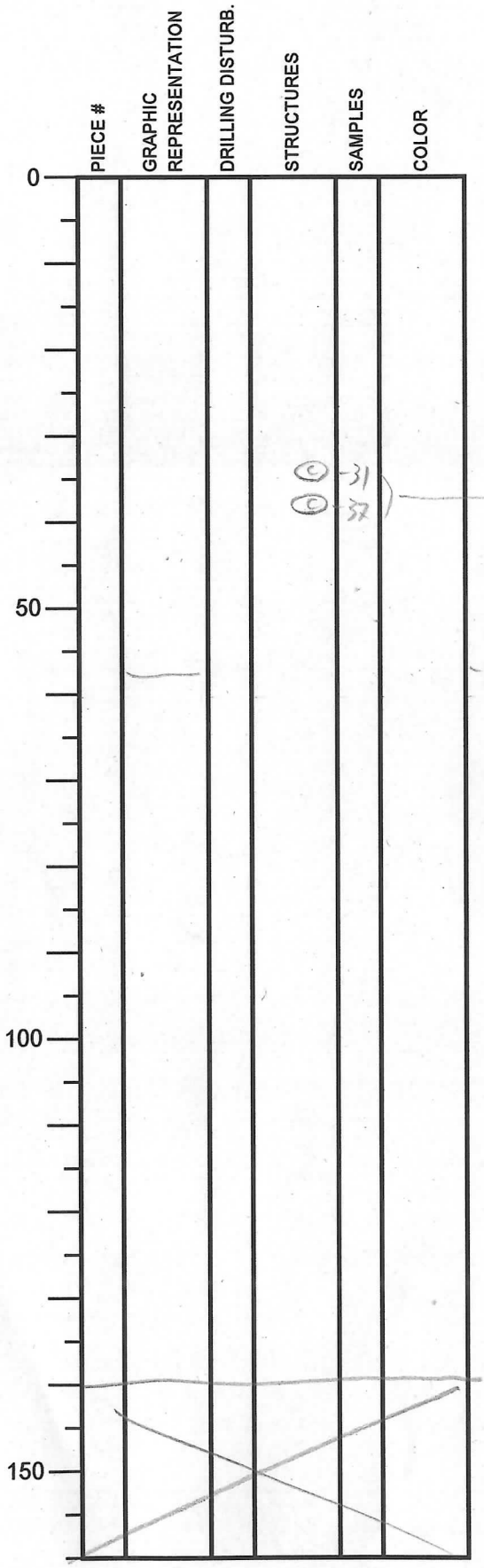
g.g.s.c.

Intense drill disturb.

Heavy bioturb. (5)

Integrated Ocean Drilling Program
Visual Core Description

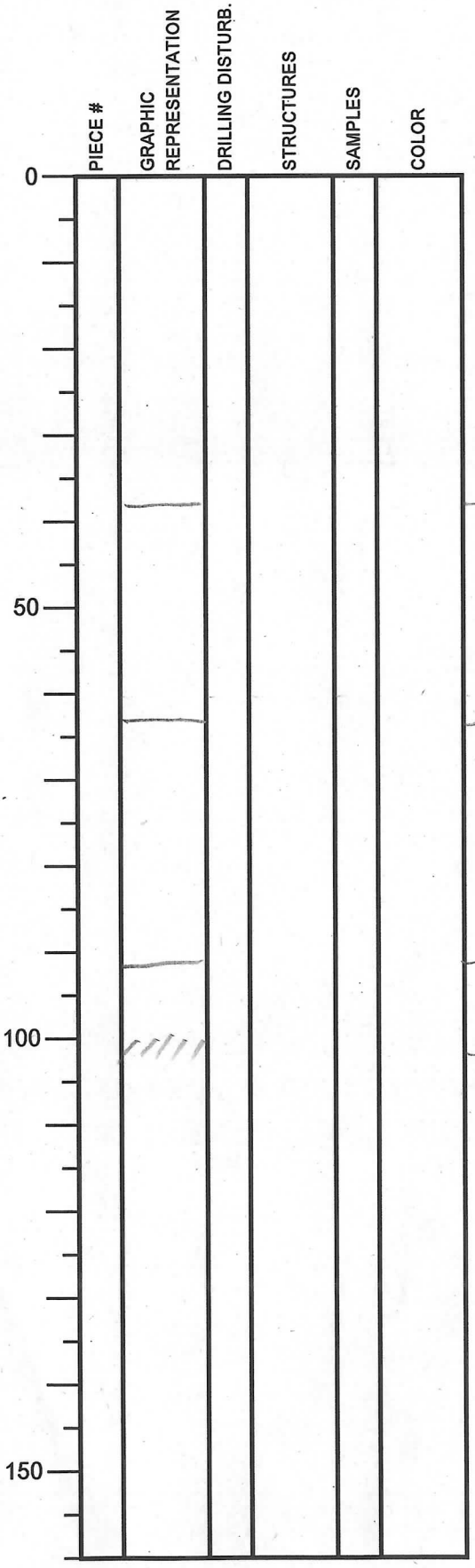
NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 35R
SECTION: 3
OBSERVER: H. Haruse



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 4 / / 20
EXP.: 322
SITE/HOLE: C0012A
CORE: 35R
SECTION: 4
OBSERVER: H. Haruse



SECTION DESCRIPTION

g.g.s.c.

Intense drill dist.

Heavy bioturb.

79

drill-breccia of g.g.s.c.

83

green-gray clayey siltstone

92 — sharp b.

calcareous claystone

101 — grad. b.

laminated green-gray clayey siltstone

Intense drill dist.

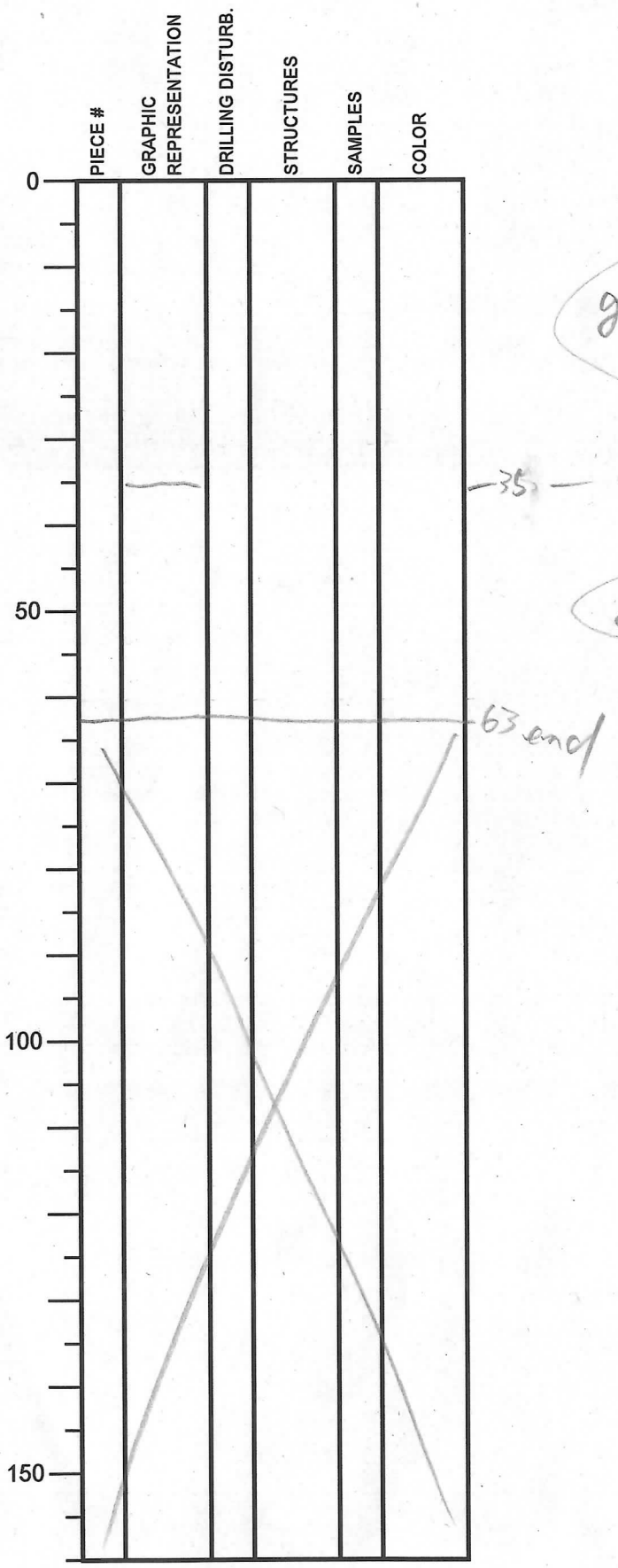
slight bio. (1)

Heavy (5)

slight (1)

Integrated Ocean Drilling Program
Visual Core Description

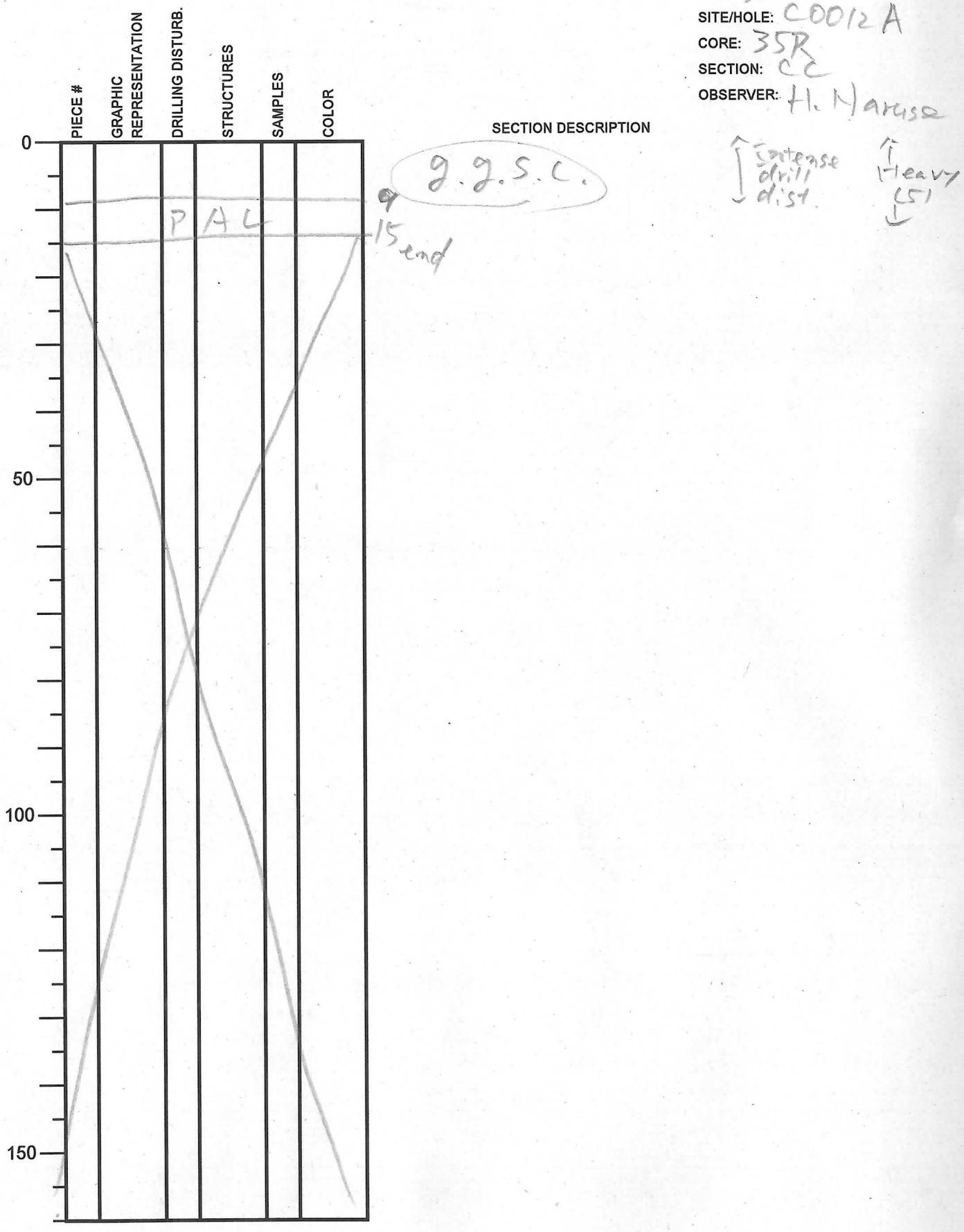
NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 35R
SECTION: 5
OBSERVER: H. Naruse



Integrated Ocean Drilling Program

Visual Core Description

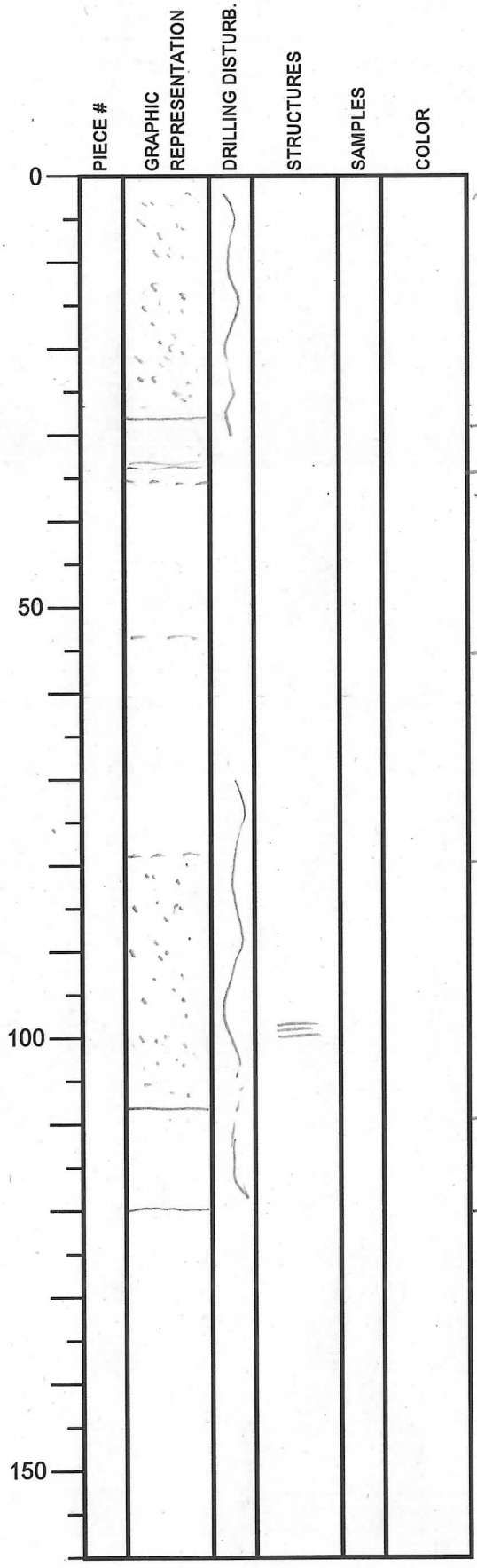
NO.
DATE: 9/29/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 35R
SECTION: CC
OBSERVER: H. Maruoka



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 30/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 36
SECTION: 3
OBSERVER: KETD/SK



DRILLING BISCUITS OF GRAY-GREEN CLAYEY SILTSTONE BIOT. 3 (MODERATE)

GGrc/Grc BIOT. 5 (INTENSE)

DIAGENETIC CARBONATE OVERPRINT - YELLOW-GREEN. BIOT. 5 (INTENSE)

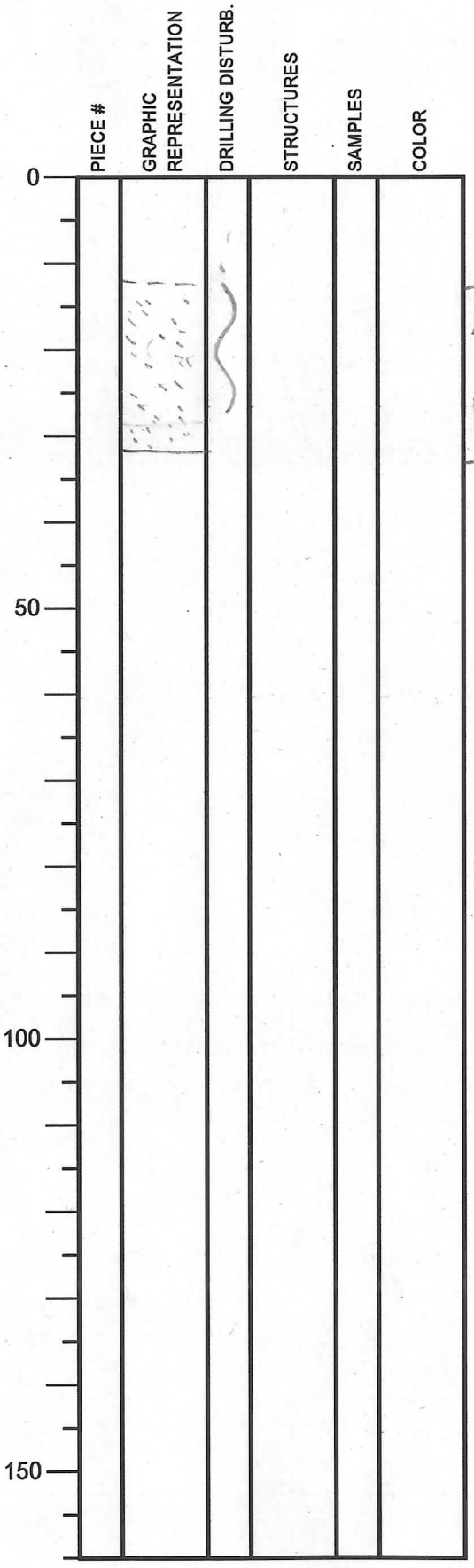
DRILLING BISCUITS OF GRAY-GREEN CLAYEY SILTSTONE BIOT. 3 (MODERATE)

GGrc/Grc BIOT. 5 (INTENSE)

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 30/01/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 36
SECTION: 4
OBSERVER: KTP/SK



SECTION DESCRIPTION

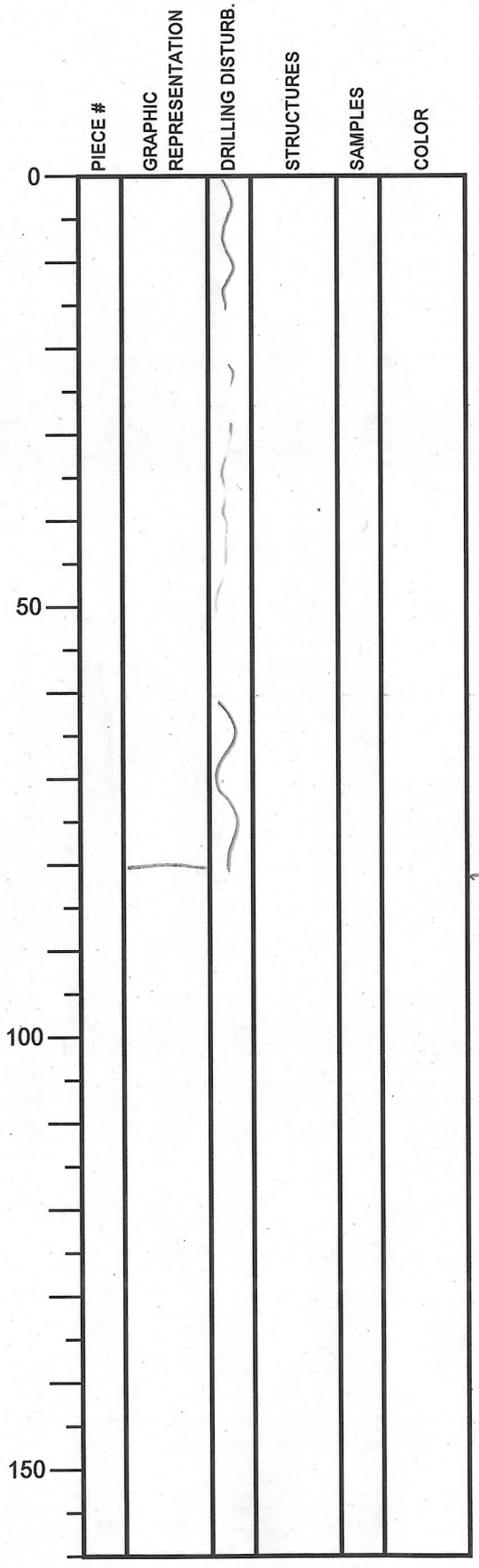
GRTC/GDC BIOT. 5 (INTENSE)

12.0 cm DRILLING BISCUITS OF GRAY-GREEN CLAYEY SILTSTONE
BIOT. 3 (MODERATE)
(31-12 cm)
31.0 cm END

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 30/09/2009
EXP.: 322
SITE/HOLE: C5012
CORE: 37
SECTION: 1
OBSERVER: KET/SK



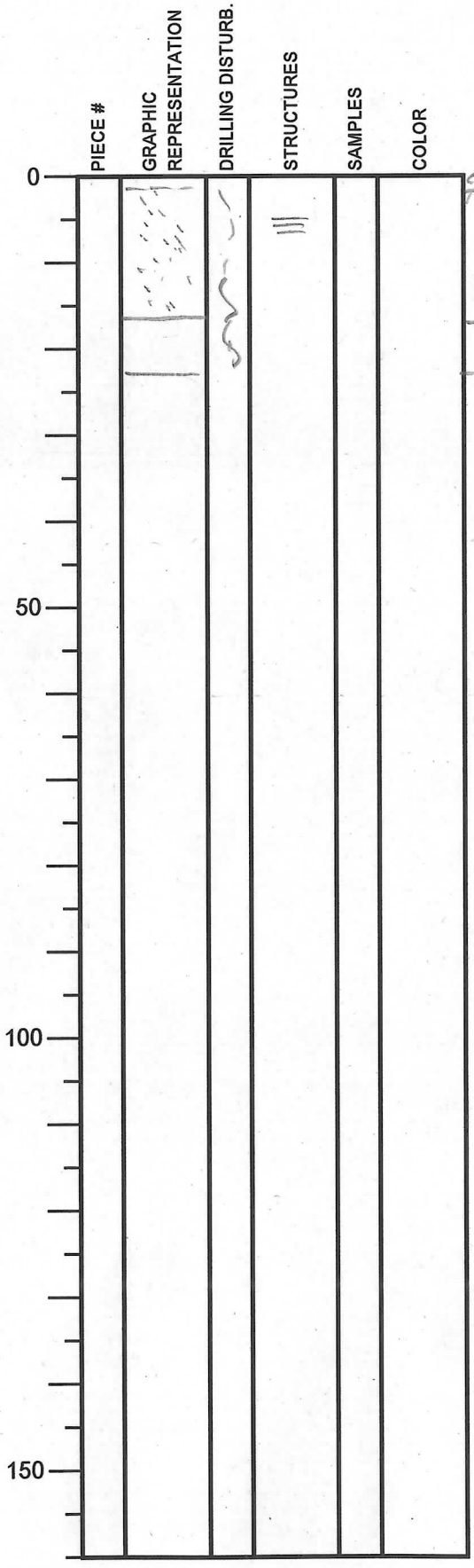
SECTION DESCRIPTION

GGSC/GSC
KSLOT 5 (INTENSE)

Integrated Ocean Drilling Program

Visual Core Description

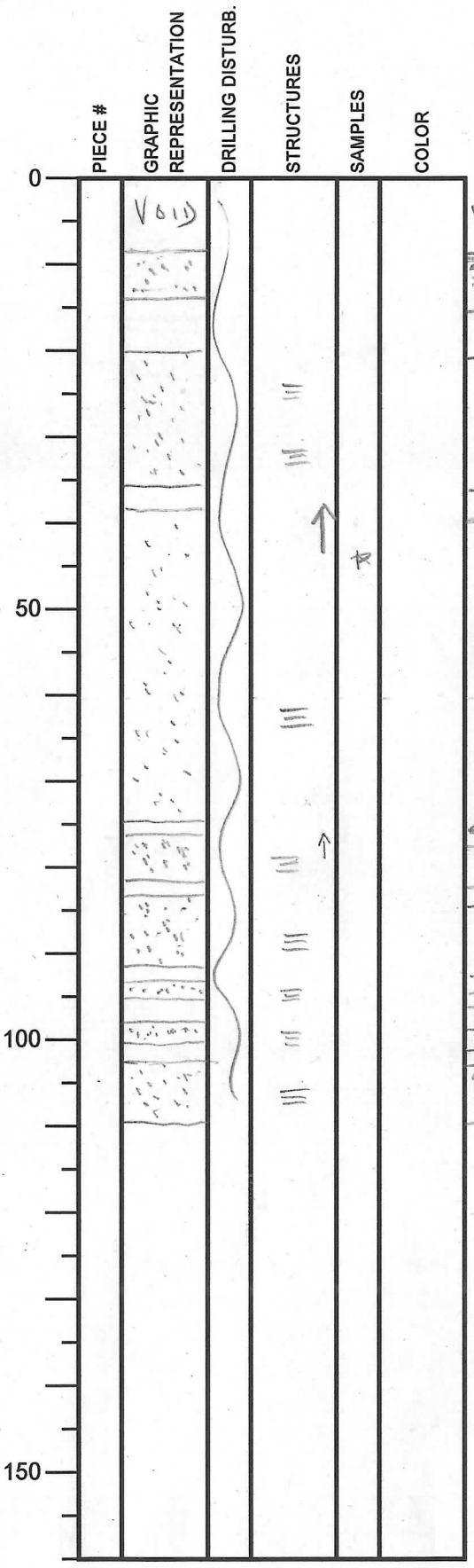
NO.
DATE: 30/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 37
SECTION: 3
OBSERVER: KTP/SK



Integrated Ocean Drilling Program

Visual Core Description

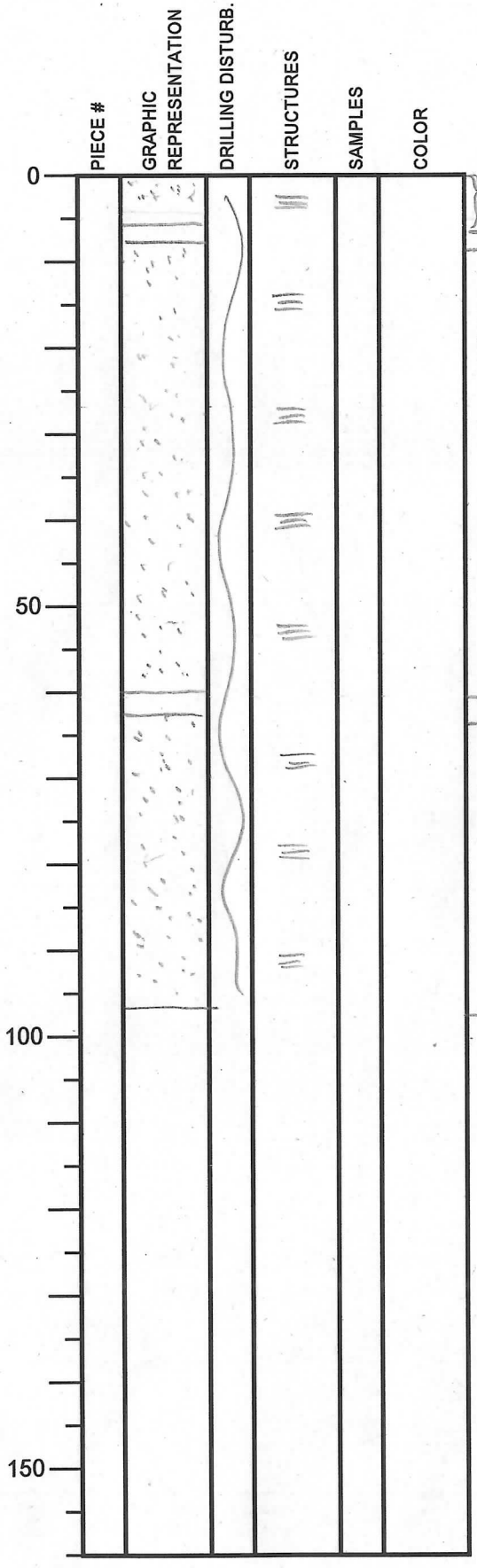
NO.
DATE: 30 / 09 / 2009
EXP.: 322
SITE/HOLE: C0012
CORE: 38
SECTION: 1
OBSERVER: KPP/SK



Integrated Ocean Drilling Program

Visual Core Description

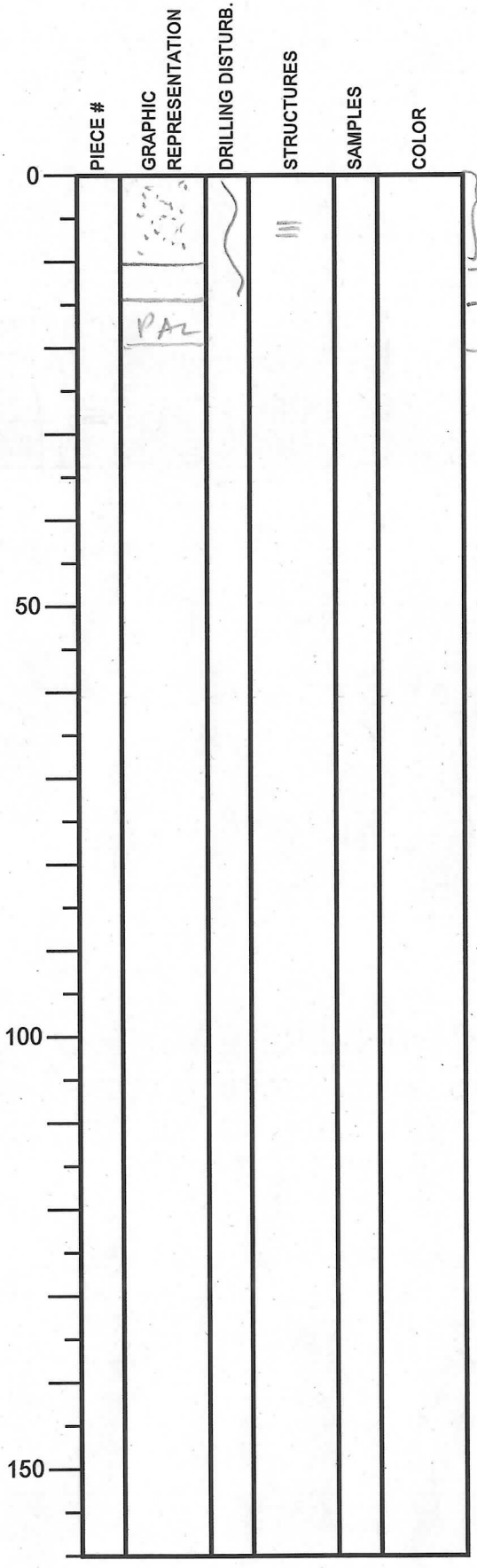
NO.
DATE: 30 / 09 / 20 09
EXP.: 322
SITE/HOLE: C0012
CORE: 38
SECTION: 2
OBSERVER: KTV/SK



Integrated Ocean Drilling Program

Visual Core Description

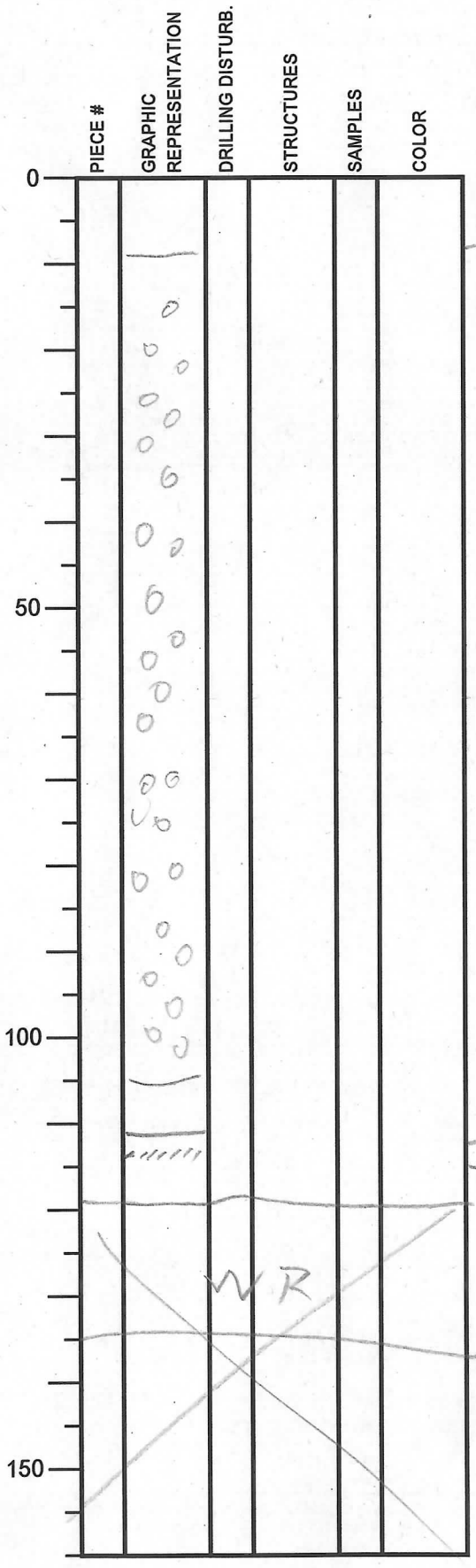
NO.
DATE: 30/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 38
SECTION: CC
OBSERVER: KP/SK



Integrated Ocean Drilling Program

Visual Core Description

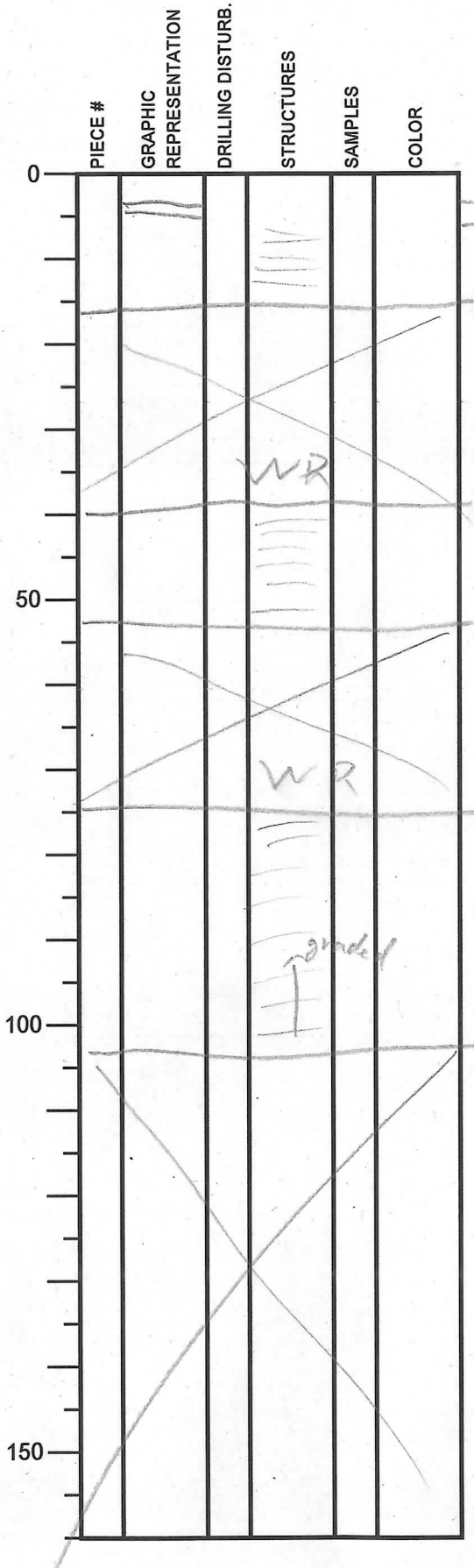
NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 39R
SECTION: 1
OBSERVER: H. Haruse



Integrated Ocean Drilling Program

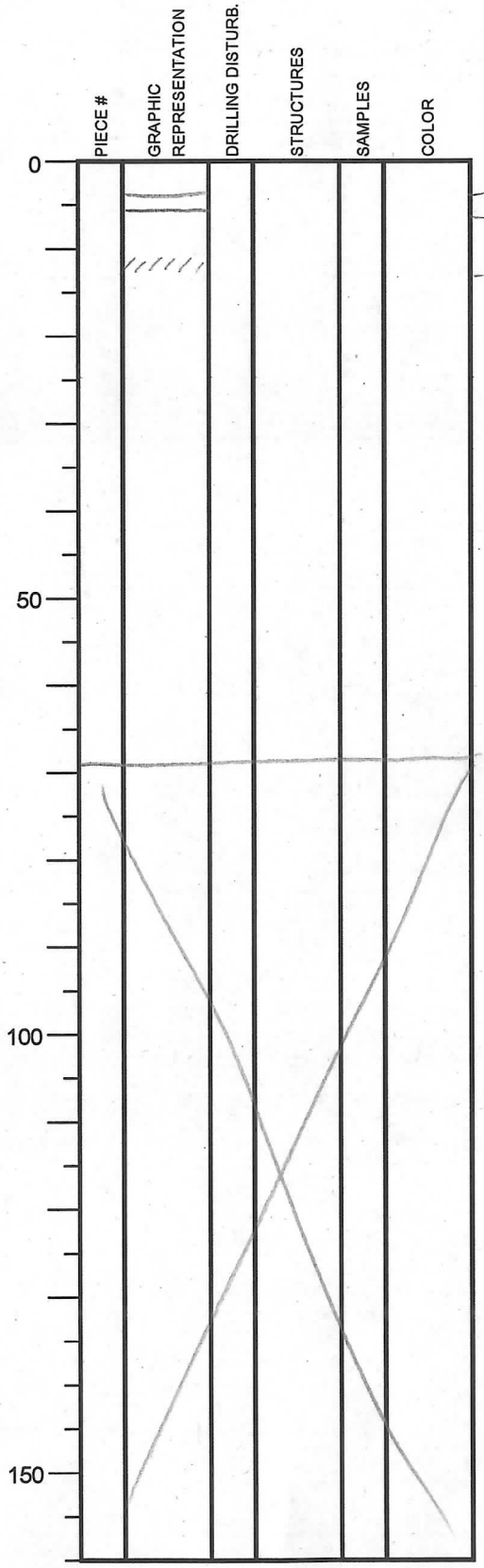
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 39R
SECTION: 2
OBSERVER: M. Naruse



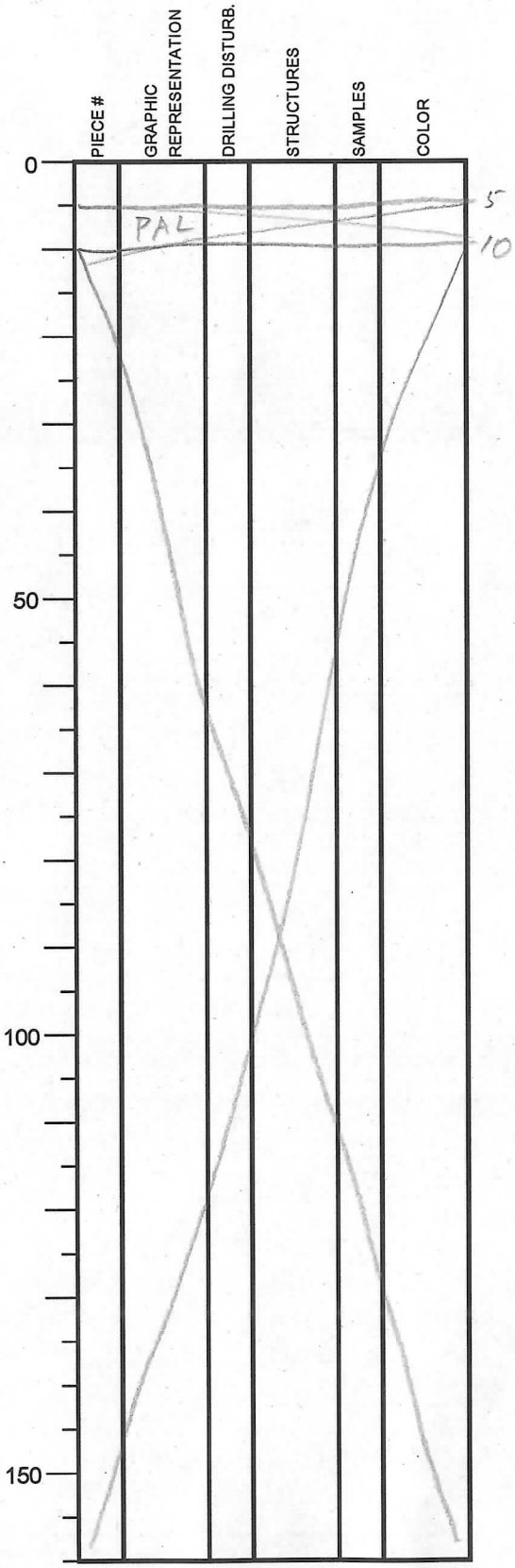
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 39R
SECTION: 4
OBSERBER: H. Harris-e



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 39R
SECTION: CC
OBSERBER: H. Haruse



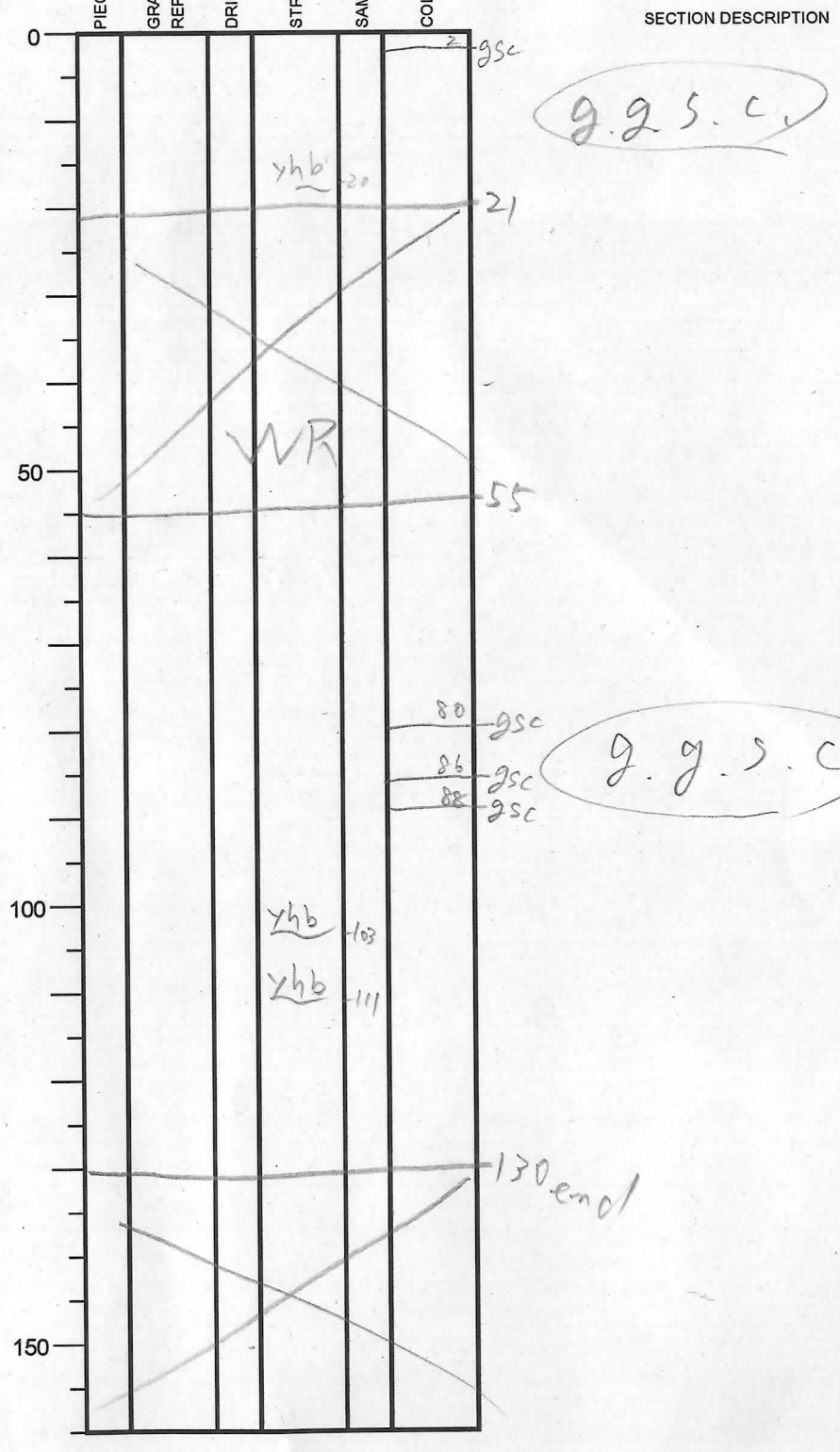
SECTION DESCRIPTION

laminated d.g.c.s.

[slight (1)

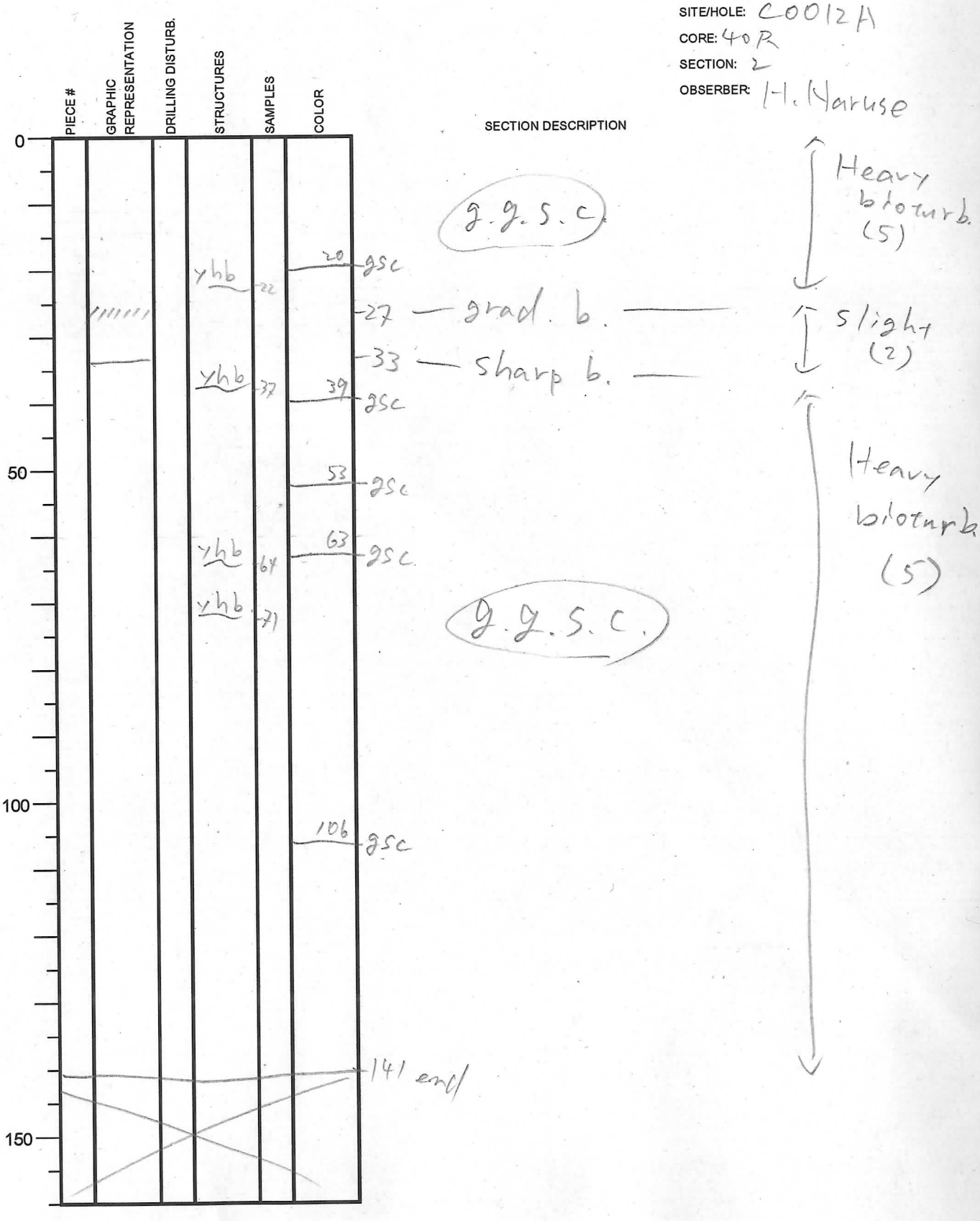
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012H
CORE: 40R
SECTION: 1
OBSERBER: H. Haruse



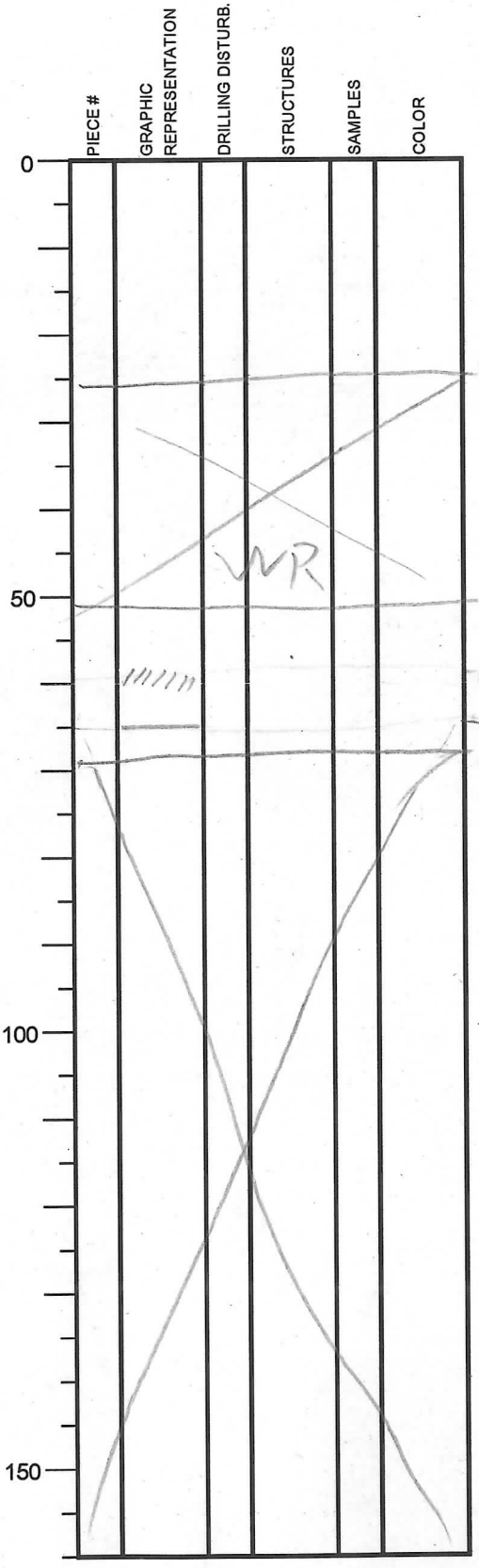
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 4/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 40R
SECTION: 2
OBSERBER: H. Haruse



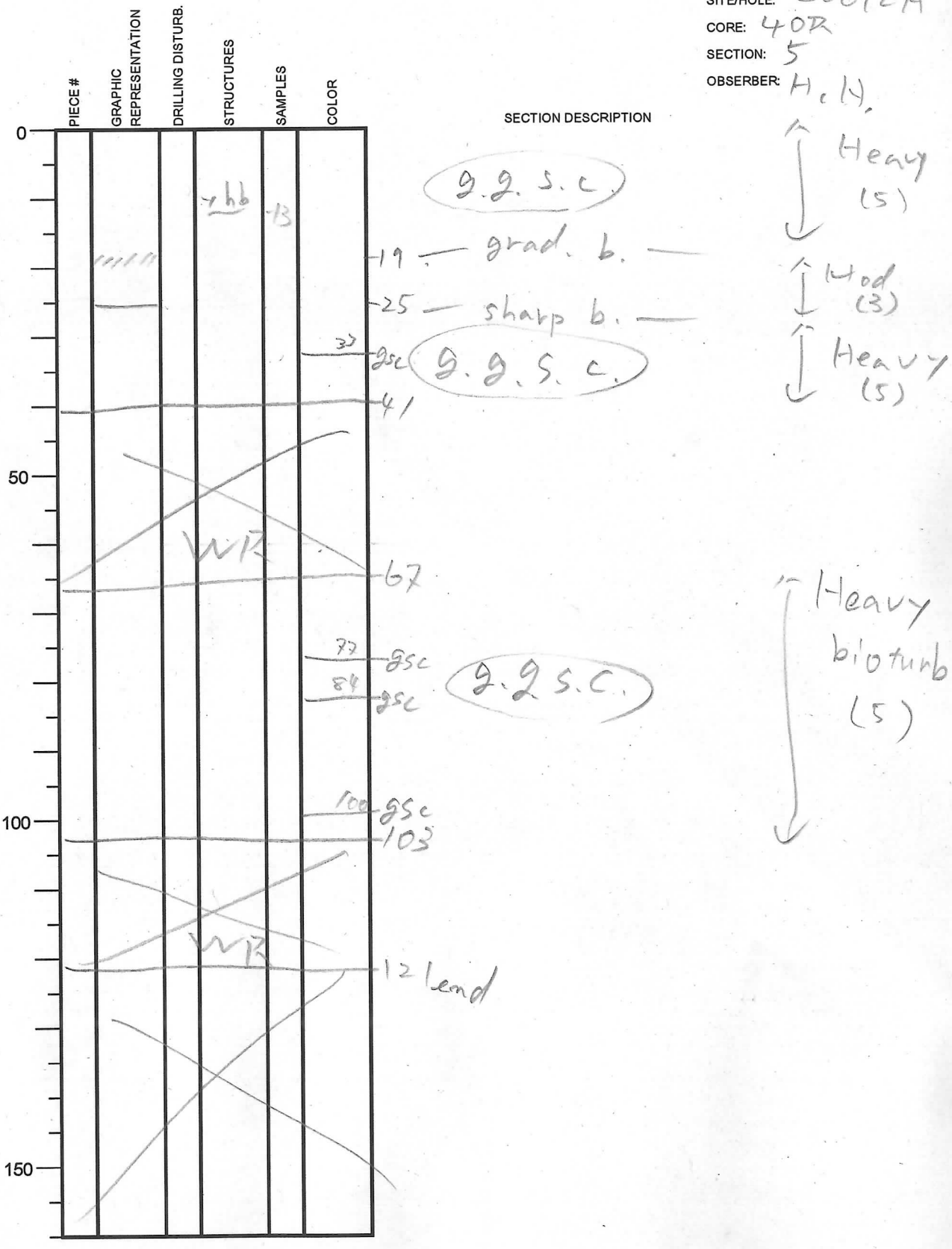
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 40R
SECTION: 3
OBSERBER: H. Haruso



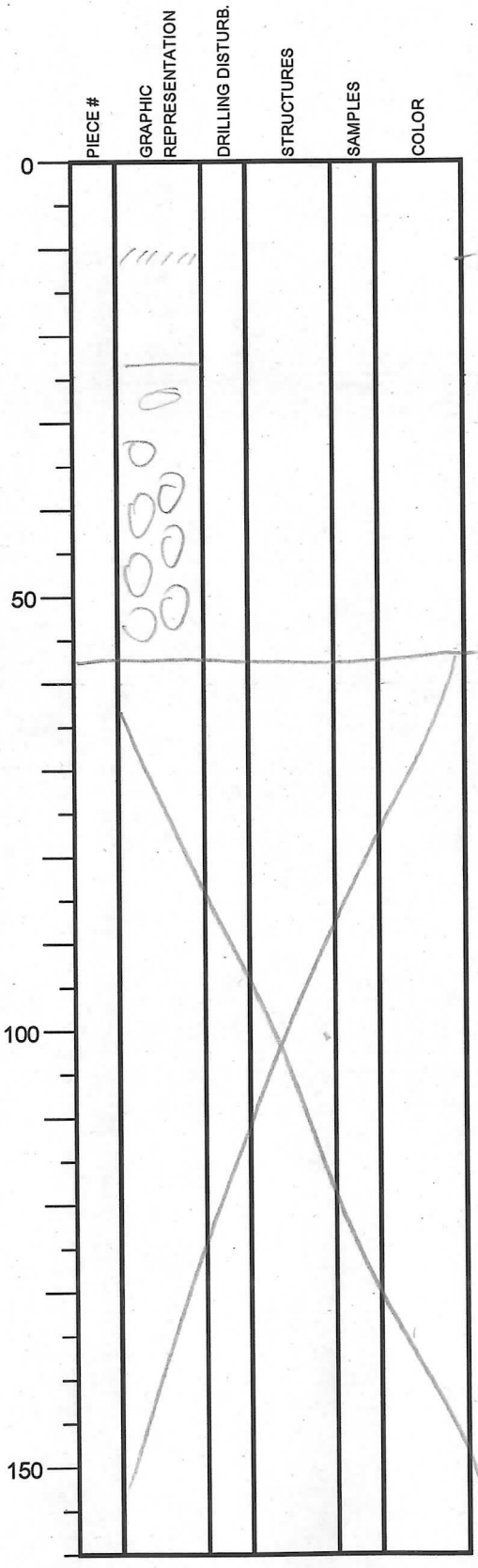
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: / /20
EXP.: 322
SITE/HOLE: U1512A
CORE: 40R
SECTION: 5
OBSERBER: H. H.



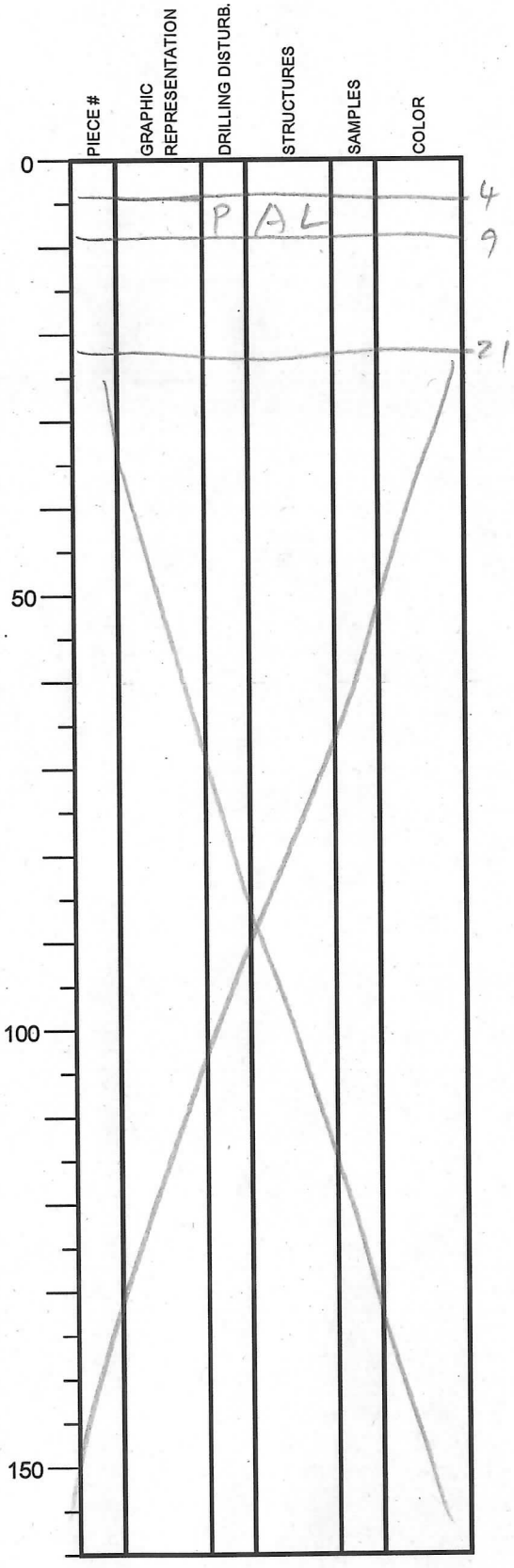
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 40R
SECTION: 6
OBSERBER: H. Naruse



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 7/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 40R
SECTION: CC
OBSERBER: H. Haruse

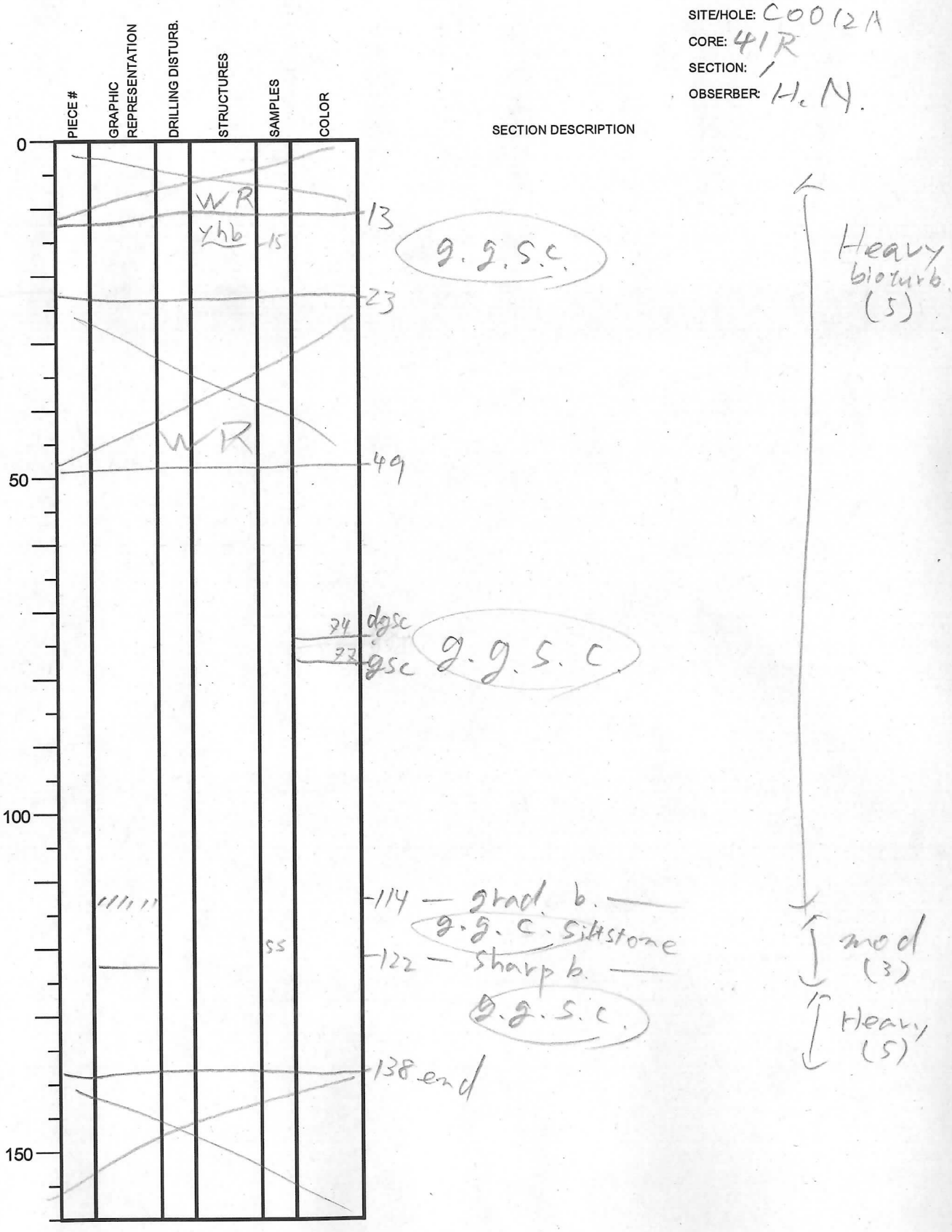


SECTION DESCRIPTION

drilling breccia of g.g.s.c.

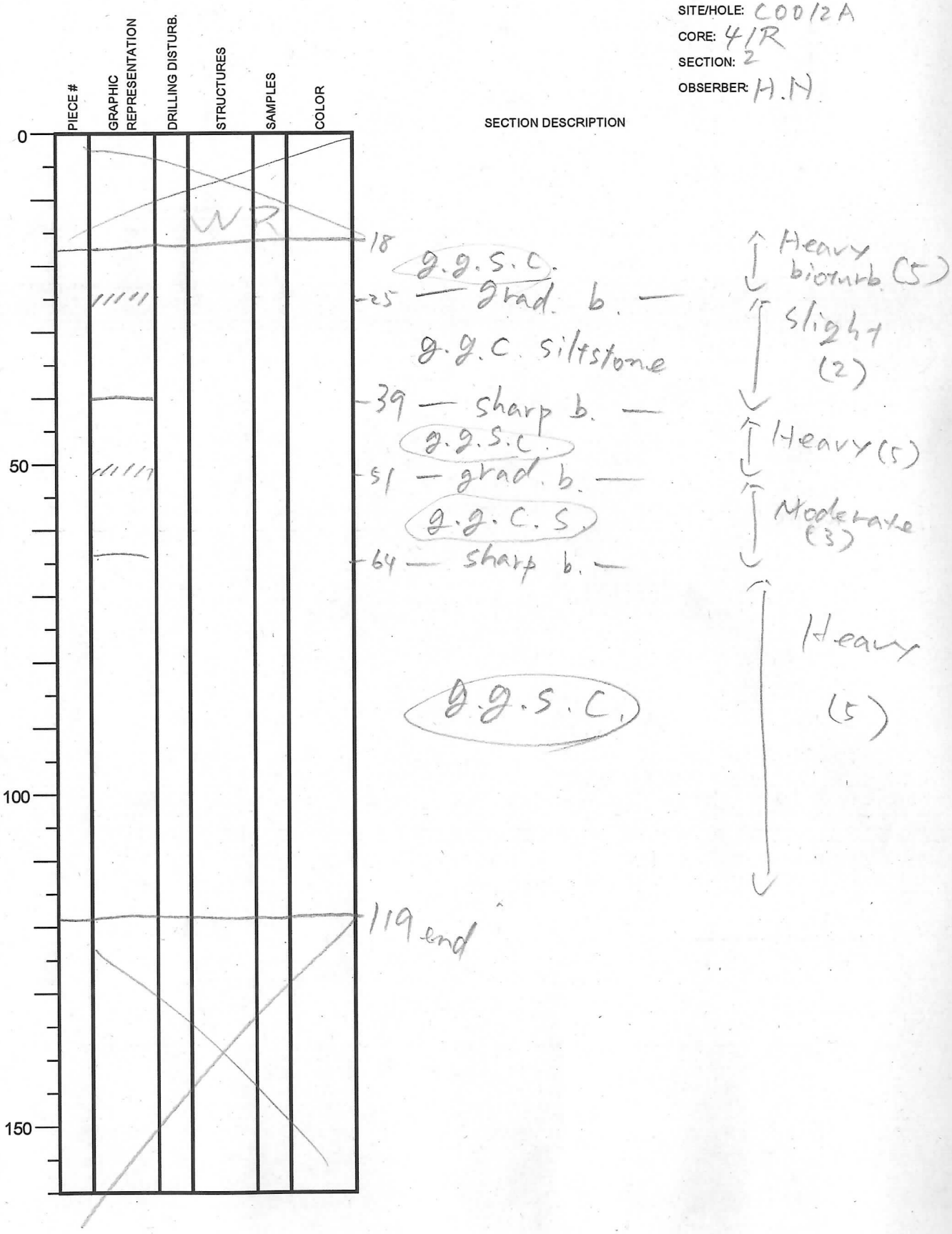
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 41R
SECTION: 1
OBSERBER: H. N.



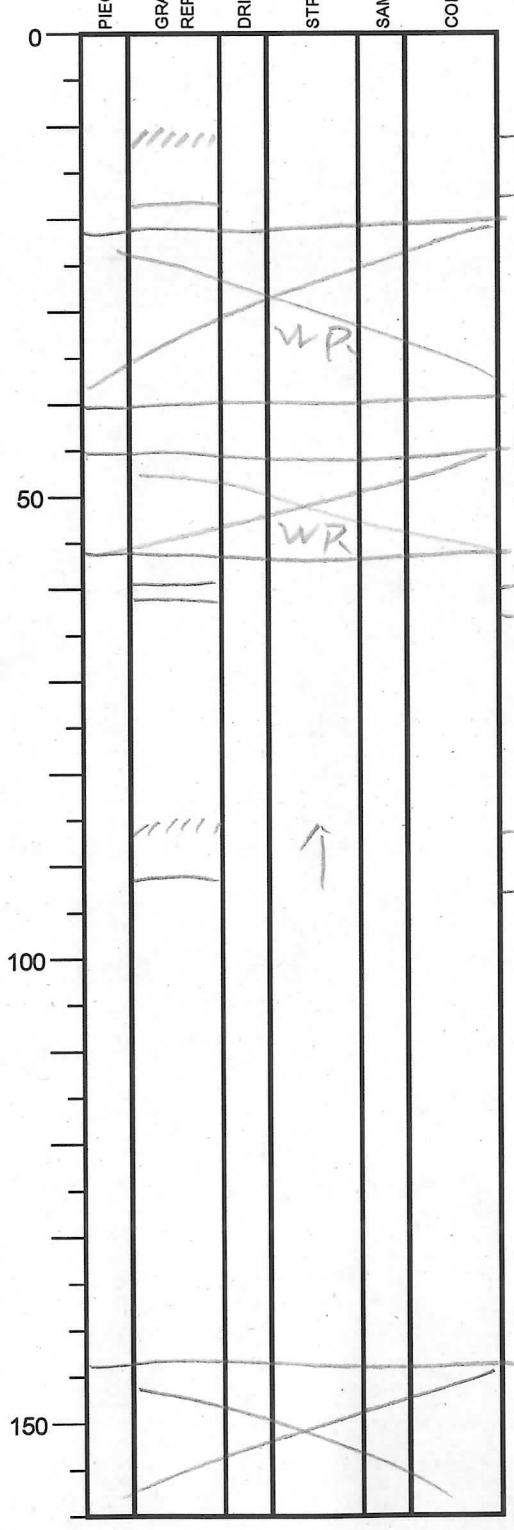
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 4R
SECTION: 2
OBSERBER: H.N



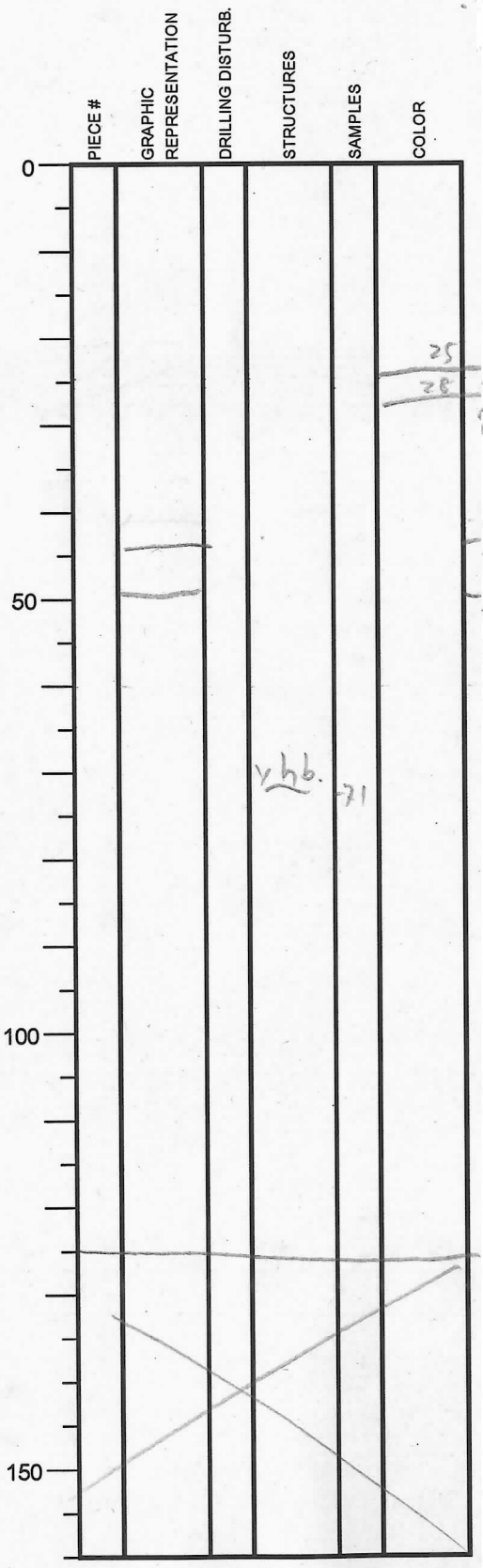
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 41R
SECTION: 4
OBSERBER: H. Naruse



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 41R
SECTION: 5
OBSERBER: H. Harmse



SECTION DESCRIPTION

g.g.s.c.

Heavy (5)

b.

g.g.c. Siltstone

sharp b.

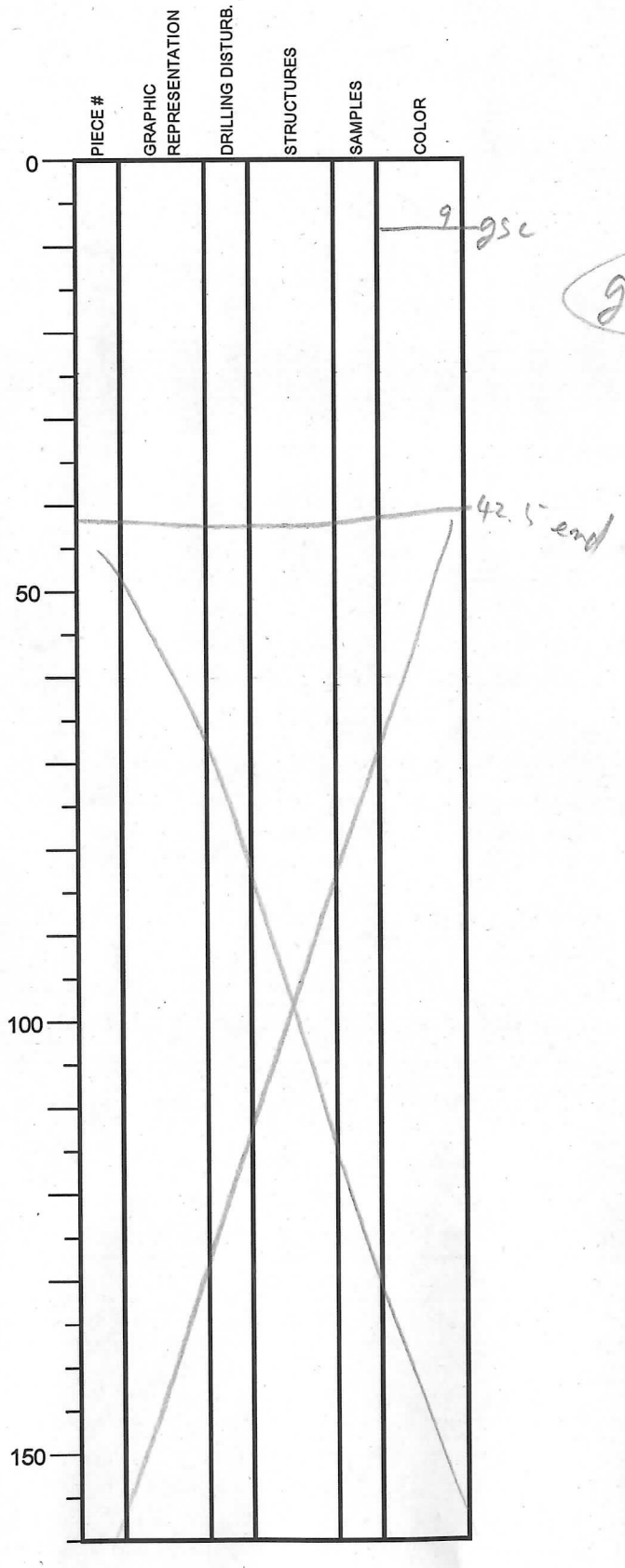
Slight (2)

Heavy (5)

g.g.s.c.

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012R
CORE: 41R
SECTION: 6
OBSERBER: H. Nanuse

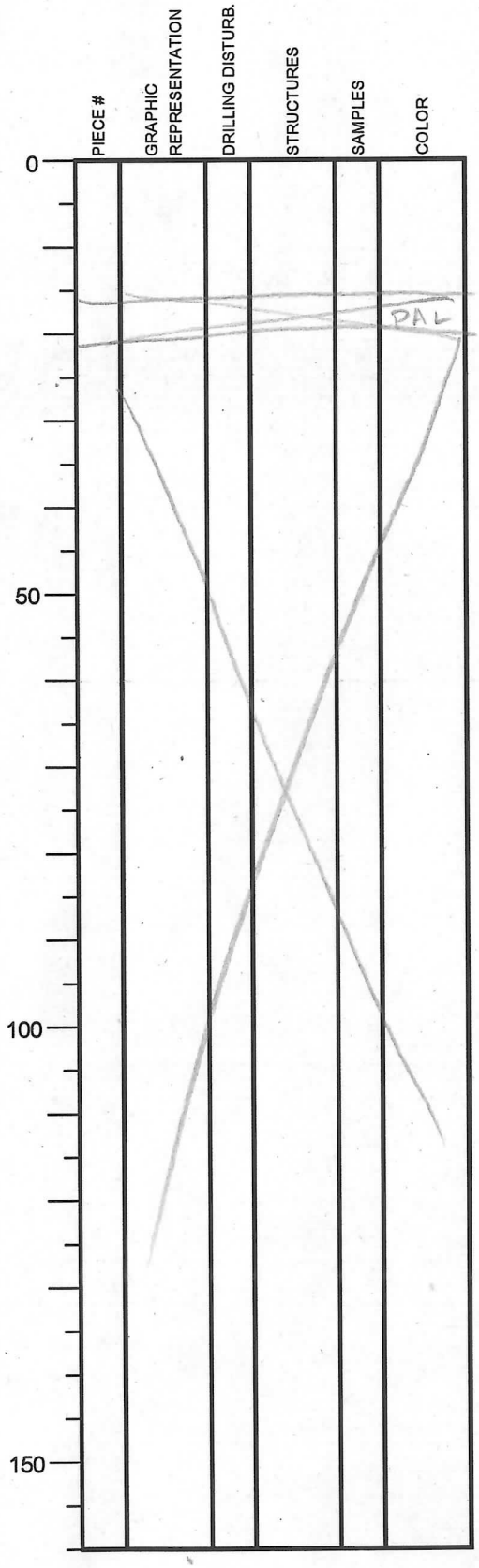


g.g.s.c.

Heavy bioturb. (5)

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 7/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 41R
SECTION: CC
OBSERBER: H. Harusa

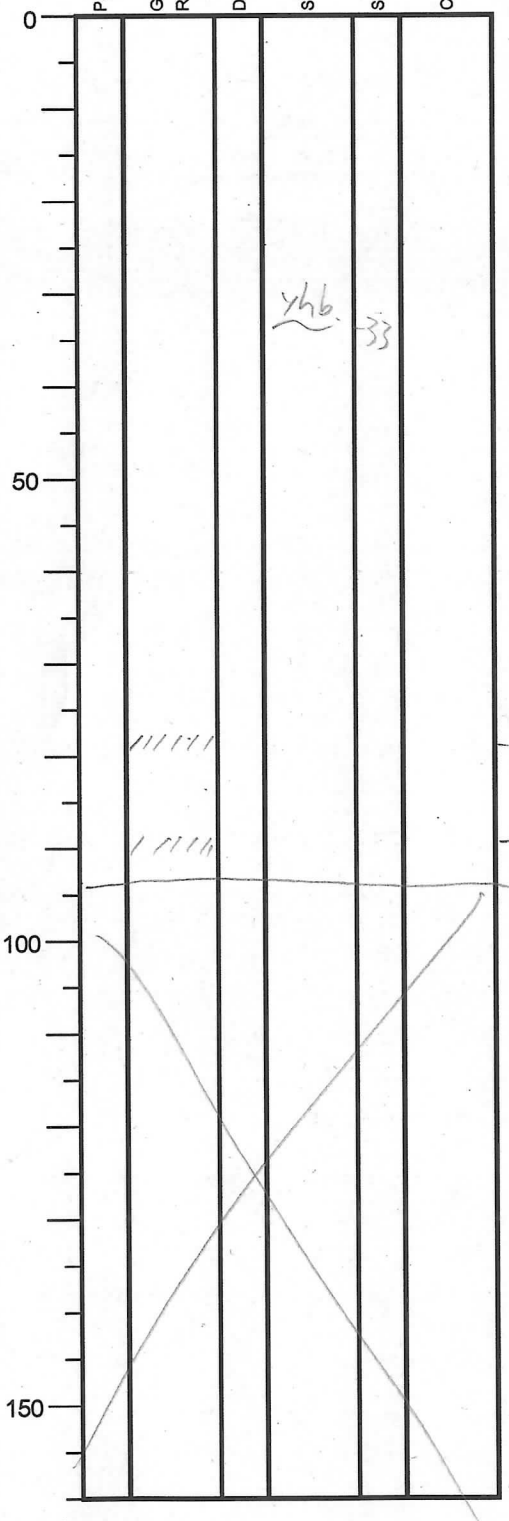


SECTION DESCRIPTION

green-gray calcareous silty claystone { heavy bioturb. (5)

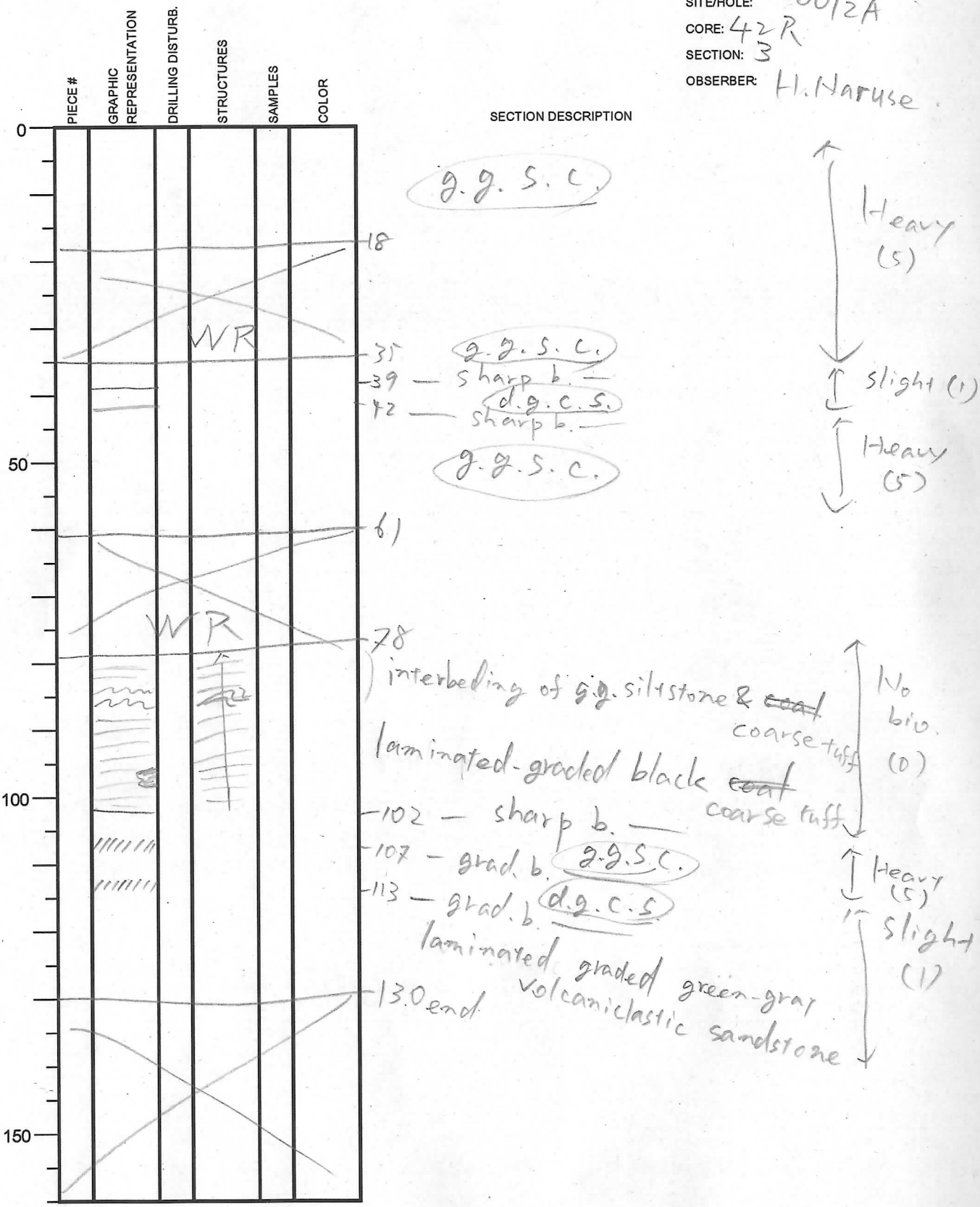
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 4/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 42R
SECTION: 1
OBSERBER: H. Naruse



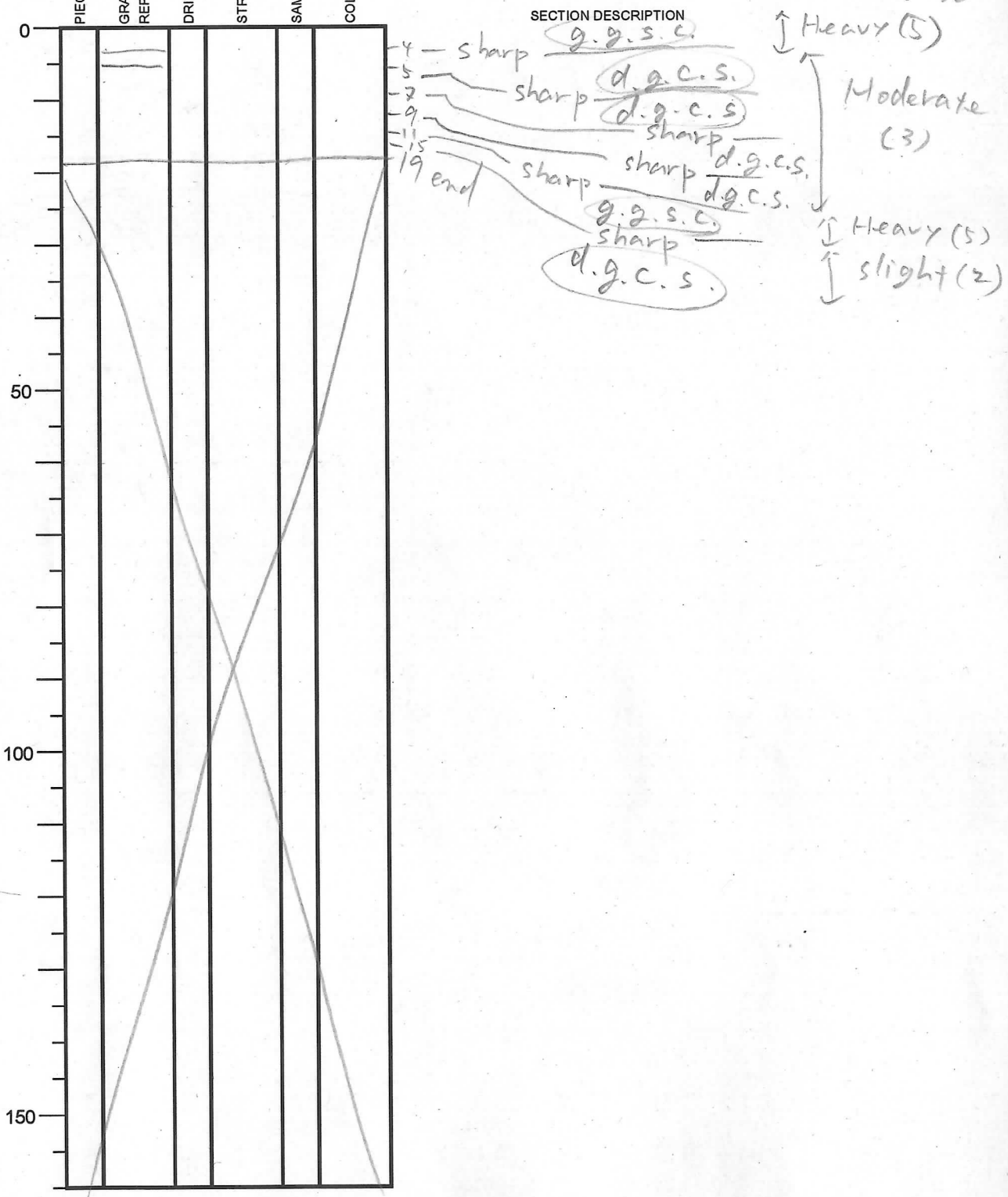
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 42R
SECTION: 3
OBSERBER: H. Naruse.



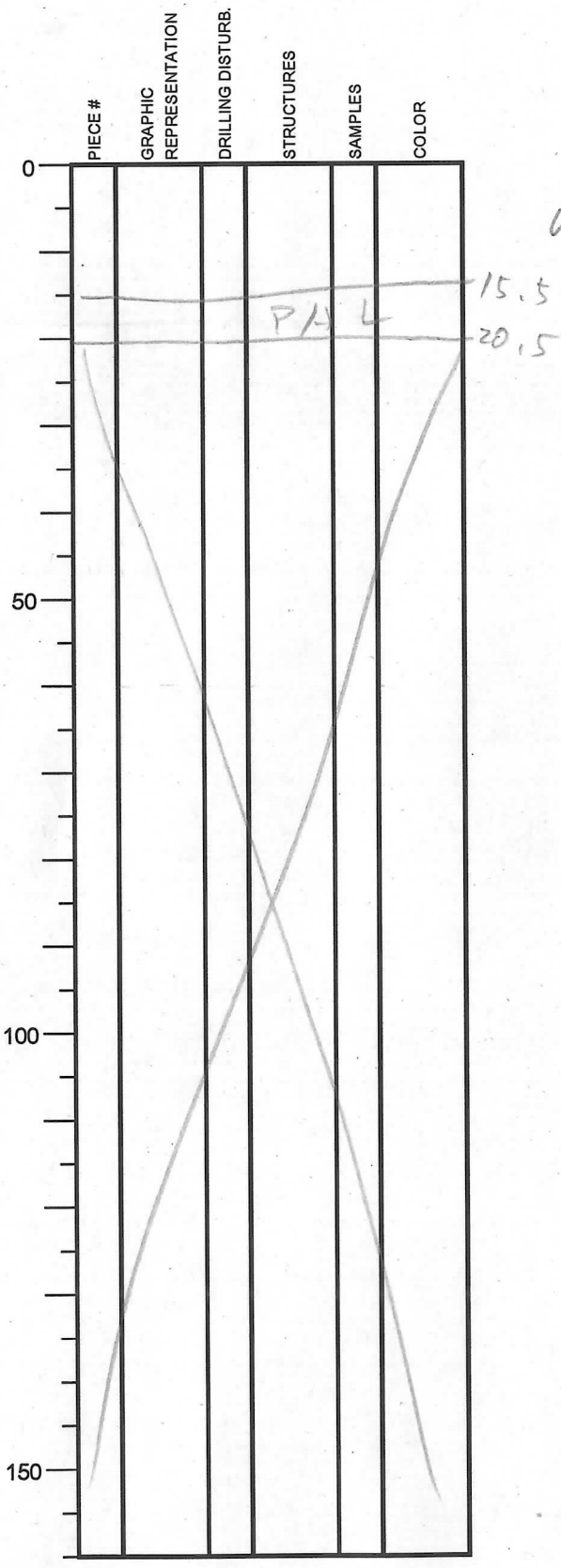
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 42R
SECTION: 4
OBSERBER: H. Haruse



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/30/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 42R
SECTION: CC
OBSERBER: H. Hanuse

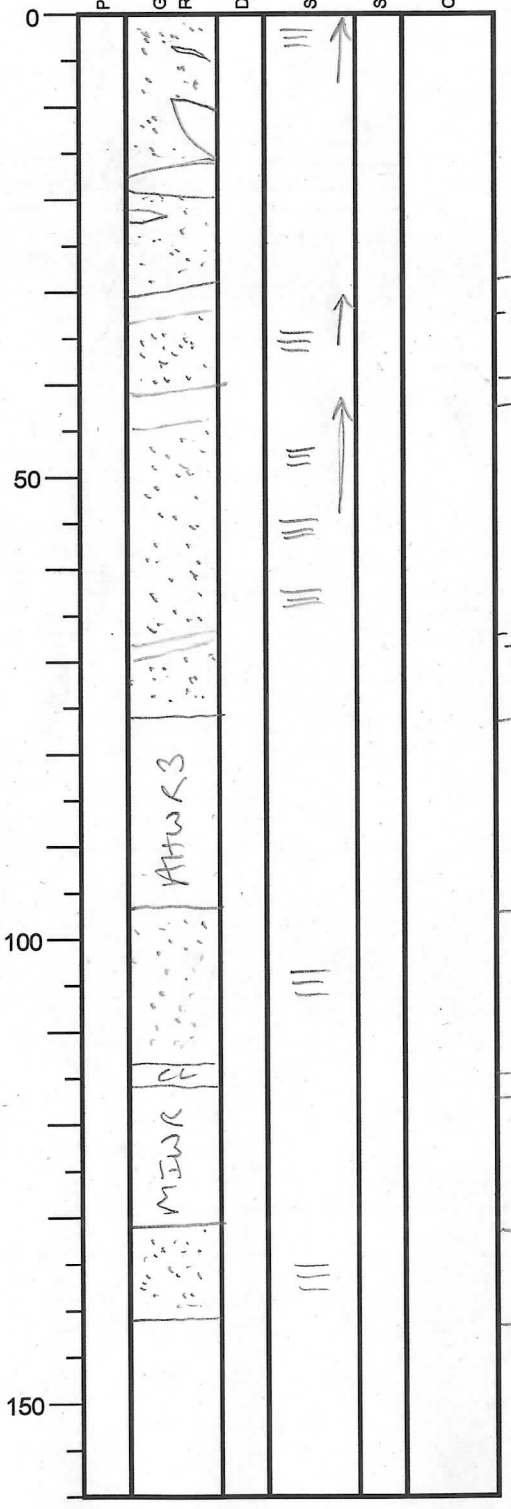


SECTION DESCRIPTION

drilling breccia of g.g.s.c.

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/10/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 43
SECTION: 1
OBSERBER: KTP/SK



SECTION DESCRIPTION

FINE ↑ VERY COARSE

GREEN-GRAY SANDSTONE + (ANGULAR LARGE CLASTS OF GGSC up to core width >6cm)

30.0 cm GGSC
33.0 cm (VERY COARSE) GREEN-GRAY SANDSTONE BIOT. 1 (SLIGHT)

42.0 cm
45.0 cm GGSC { LAMINATED GREEN-GRAY SANDSTONE BIOT. 1 (SLIGHT)

(COARSE → V. FINE IN UPPER 2 cm)

68 cm
69 cm GREEN-GRAY SANDSTONE (COARSE/MEDIUM)

77.0 cm

97.0 cm (COARSE/MEDIUM) GREEN-GRAY SANDSTONE BIOT. 1 (SLIGHT)

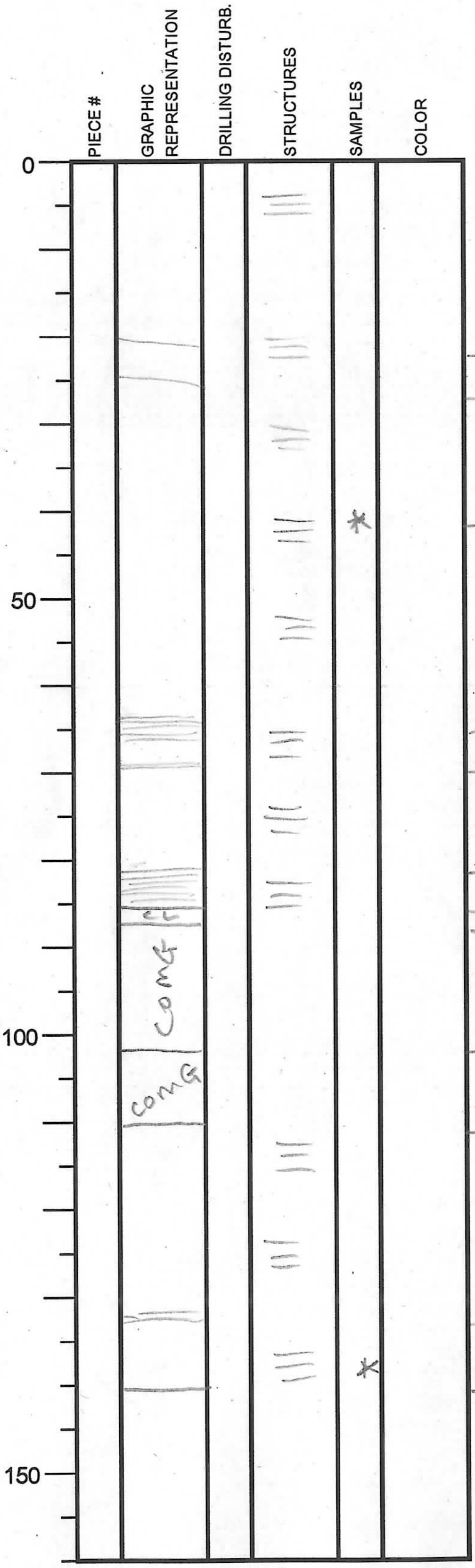
114.0 cm
116.0 cm

131.0 cm (COARSE/MEDIUM) GREEN-GRAY SANDSTONE BIOT. 1 (SLIGHT)

141.0 cm END

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 43
SECTION: 2
OBSERBER: KP/SK



SECTION DESCRIPTION

DARK GREEN-GRAY FINE-GRAINED SANDSTONE LAMINAE ≡ MSLFGSS

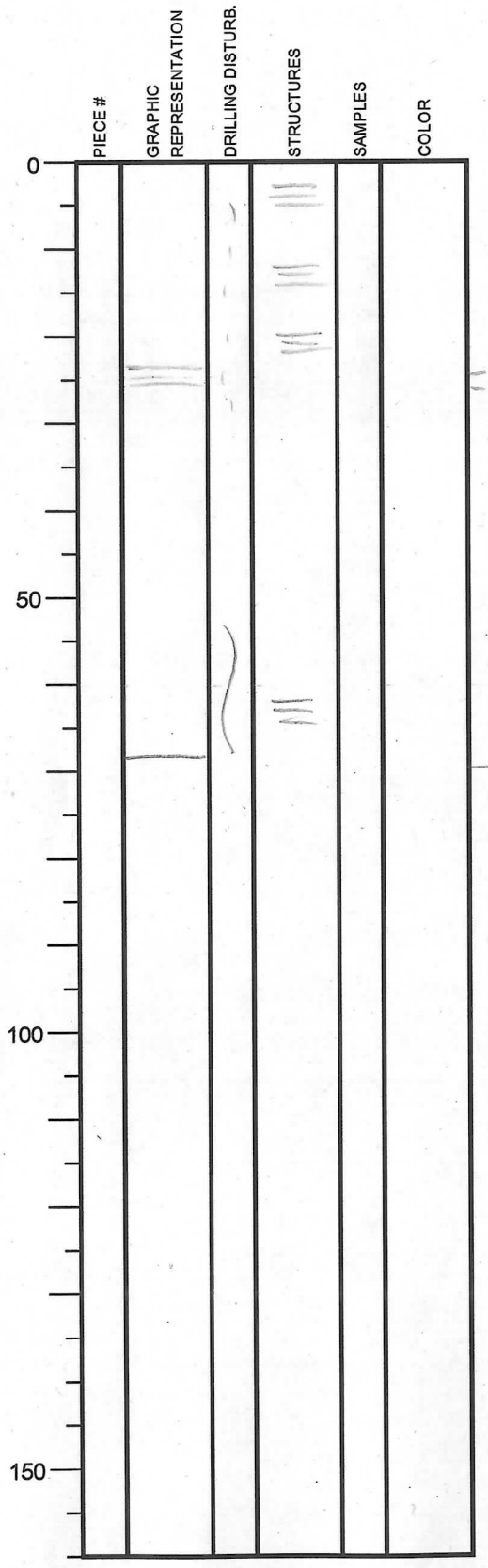
ENTIRE SECTION

MM-SCALE LAMINATED FINE-GRAINED SANDY SILTSTONES (MSLFGSS)
BIOTURBATION 1 (SLIGHT) (Varinor GGSC/GSC)
— CANNOT LOG SEPARATELY AS TOO FINE SCALE

- 20, 30 DARK GGSC/GSC
- 40 SS
- 64-67 LAM mm-SCALE
- 69 LAMINATED mm-SCALE
- 83-85 LAMINATED mm-SCALE DARKER INTERVAL
- 85.0 cm
- 87.0 cm
- 102.0 cm
- 110.0 cm
- 133.0 cm DARK GSC
- *139 SS
- 140.0 cm END

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/09/2009
EXP.: 322
SITE/HOLE: U5012
CORE: 43
SECTION: 3
OBSERBER: KMP/SK

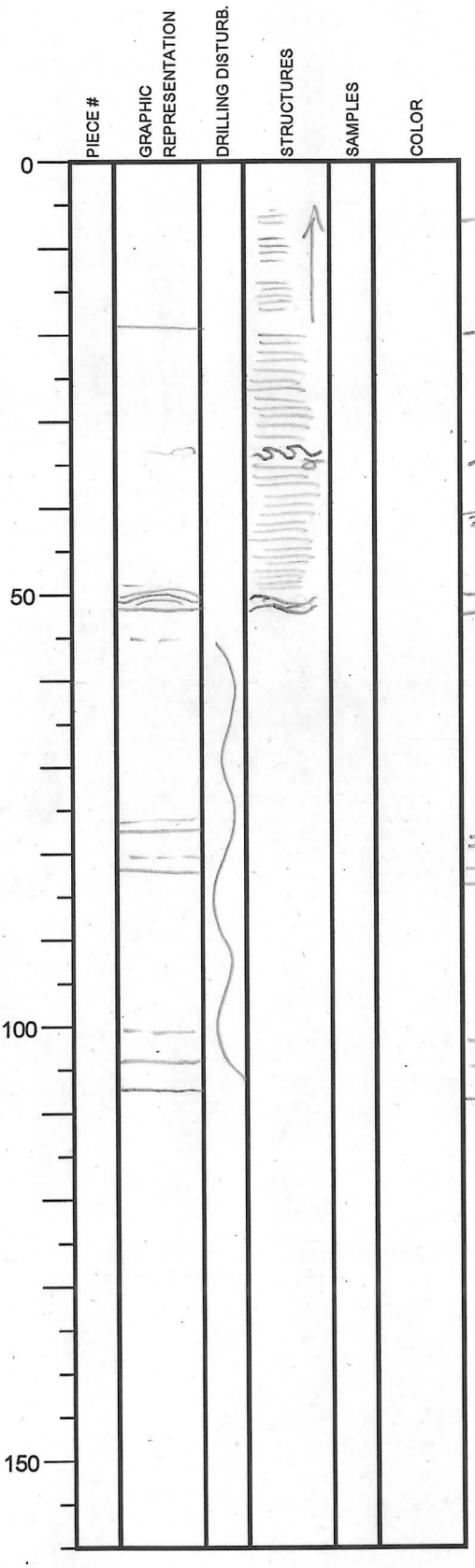


SECTION DESCRIPTION

MSLFGSS (FINE GRAINED)
(VI. MINOR GRSc/GSc)
BIOT. 2 (SLIGHT)

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 43
SECTION: 5
OBSERBER: KTP/SK



SECTION DESCRIPTION

5cm — V. FINE GREEN-GRAY LAMINATED SANDSTONE
BIOT. 1 (SLIGHT) PYRITE-RICH

19.0 cm — FINE GREEN-GRAY SANDSTONE
THOROUGHLY LAMINATED
SCORIA-RICH
DARK MM-SCALE LAYERS & LIGHTER SCORIA-POOR LAYERS
BIOT. 1 (SLIGHT)
PYRITE-RICH

49.0 cm
51.0 cm — ARE THESE AMALGAMATED? WAVY NOT CURRENT RIPPLES (FINE-GRAINED)

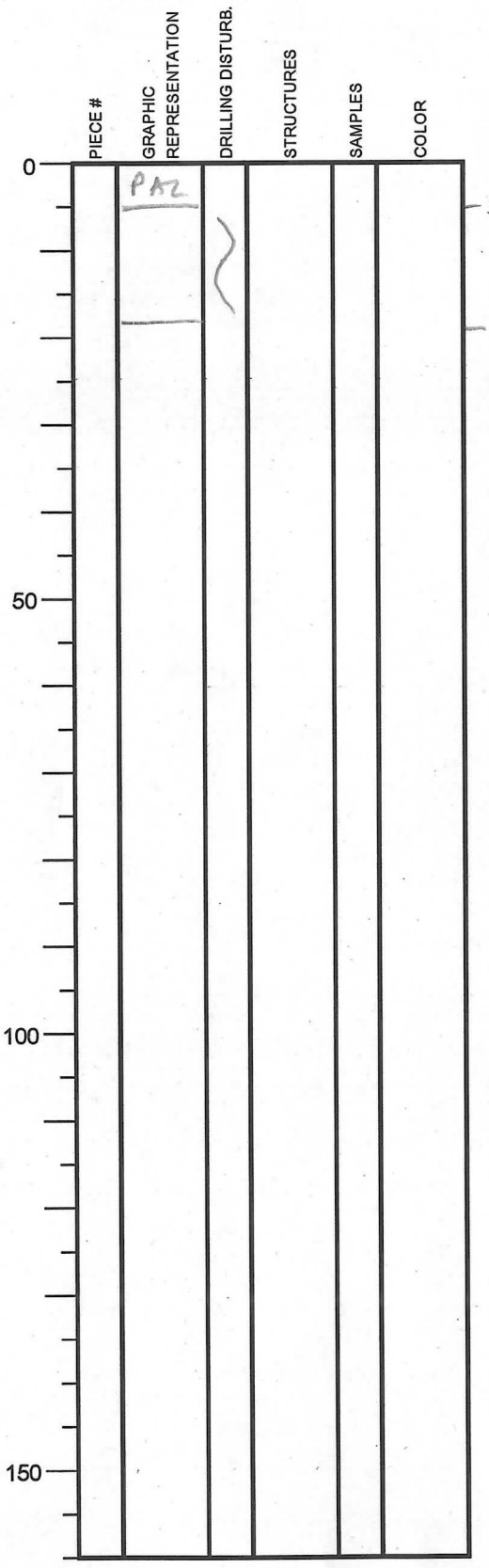
DARK GGSE/GSC BIOT. 5 (INTENSE)

77-78 DARK SILTY CLAYSTONE
80-81 DARK SILTY CLAYSTONE

104-100 cm DARK SILTY CLAYSTONE
107.0 cm ENDS

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 43
SECTION: CC
OBSERBER: KCTP/SK



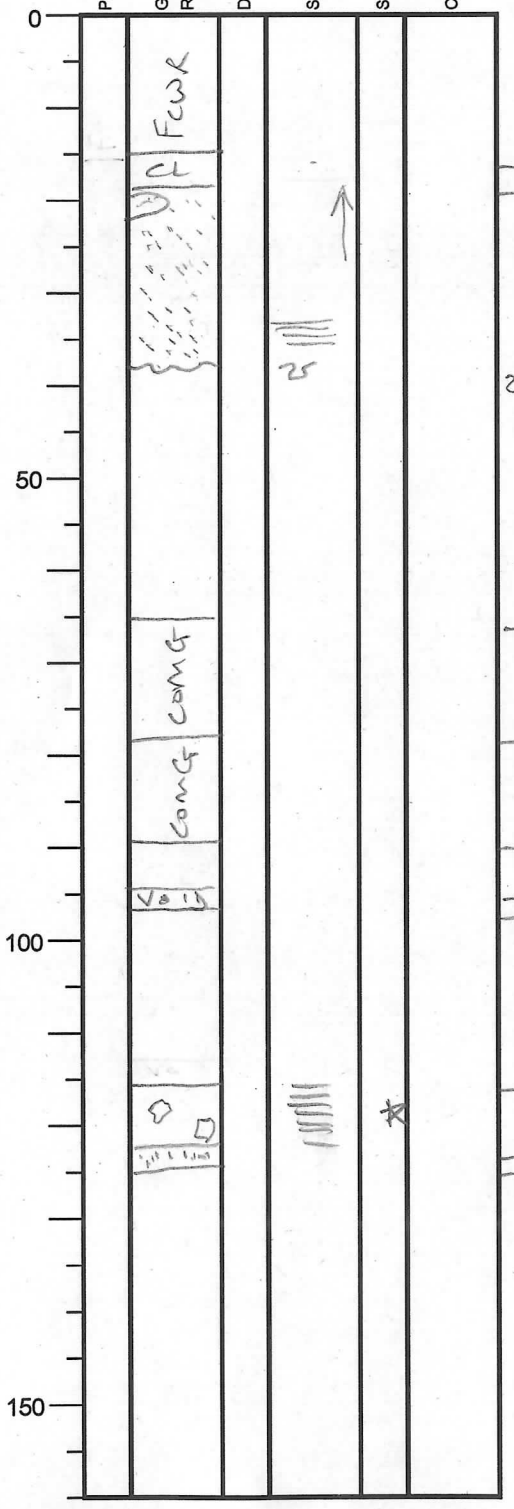
SECTION DESCRIPTION

5.0 cm — DARK GRY SC/GSC BIOT. 5 (INTENSE) + CUTTINGS OF MM-SCALE V. SCORIACEOUS LAMINATED FINE SANDSTONE

18.0 cm (END)

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/07/2054
EXP.: 322
SITE/HOLE: C0012
CORE: 44F
SECTION: 1
OBSERBER: KGA/SK



SECTION DESCRIPTION

16.0 cm
18.0 cm — 20cm pyrite (>1cm diameter)
NORMALLY GRADED GREEN-GRAY SANDSTONE (V. COARSE → MEDIUM)
BIOT. 1 (SLIGHT)

25 – 37 cm

DARK
GFSc/GSc BIOT 5 (INTENSE)

65 cm

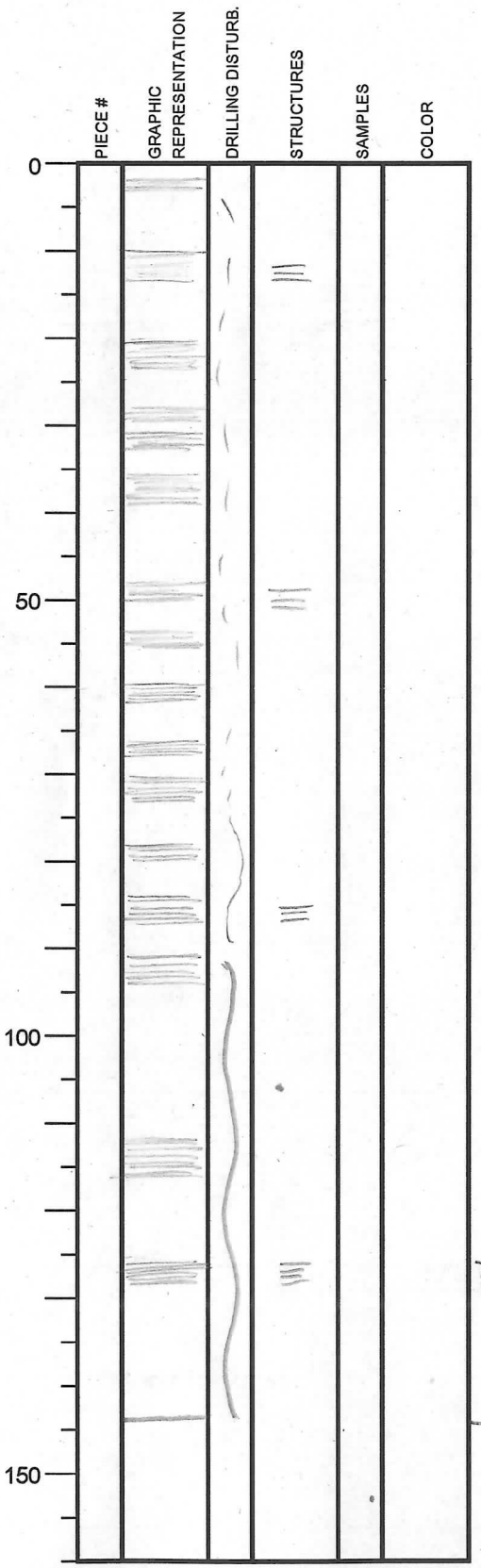
78 cm

89 cm
DARK
GFSc/GSc BIOT. 5 (INTENSE)
94 cm
96 cm

116 cm
118, 120 cm pyrite > 1cm diameter 119 cm * SS
123 cm
125 cm
END
22 – 18 cm MTS L FGSS
FINE-GRAINED GREEN GRAY SANDSTONE
BIOT. 1 (SLIGHT)
((@ 123 cm microfault — dd normal ∂ displacement 1-2 mm)

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/09/2007
EXP.: 322
SITE/HOLE: C0012
CORE: 44
SECTION: 3
OBSERBER: KM/SK



SECTION DESCRIPTION

[LAMINATE]
DARK GRAY SLAYEY SILTSTONE
@ 1.5-2.5; 5-8; 10.4-13; 18-19; 21-22; 25-28; 48-50; 53-55; 57-61.5; 66-67; 70-73; 78-79.5; 84.5-87; 91-94; 111-116;

LARGE 1cm ± PYRITE @ 110; 117 cm

&

DARK GFSC/GSC BIOT. 5 (INTENSE)

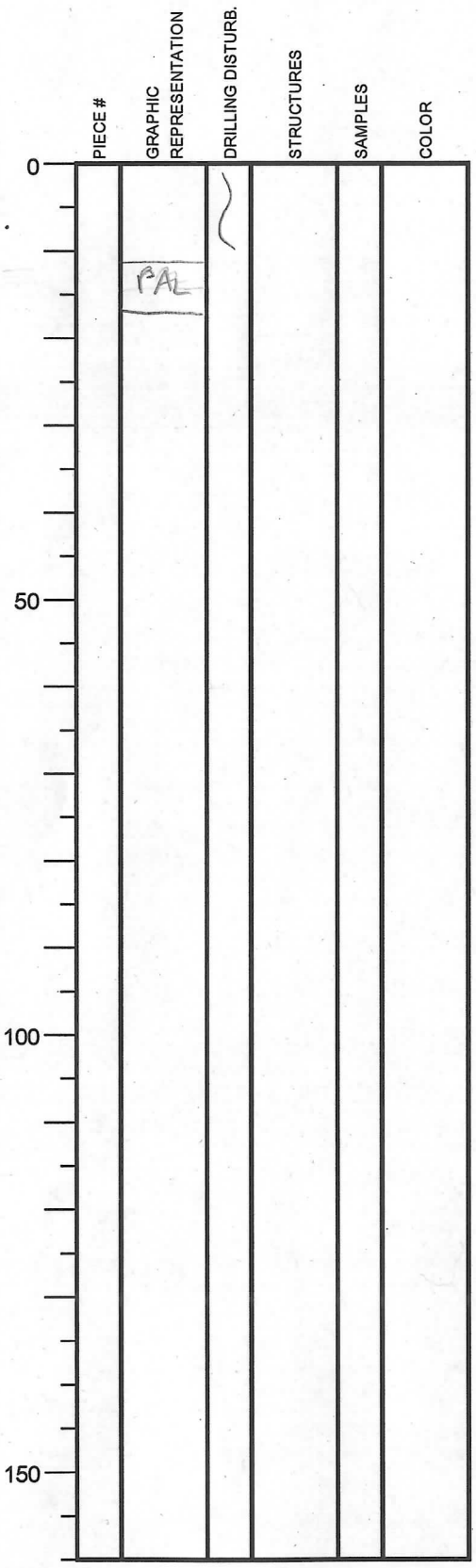
(DRILLING-INDUCED BISCUITS)

126-127cm MSLFGSS BIOT. 1 (SLIGHT) (FINE-GRAINED)

143.0 cm END

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/09/2009
EXP.: 322
SITE/HOLE: CJ012
CORE: 44
SECTION: CC
OBSERBER: LCR/SK

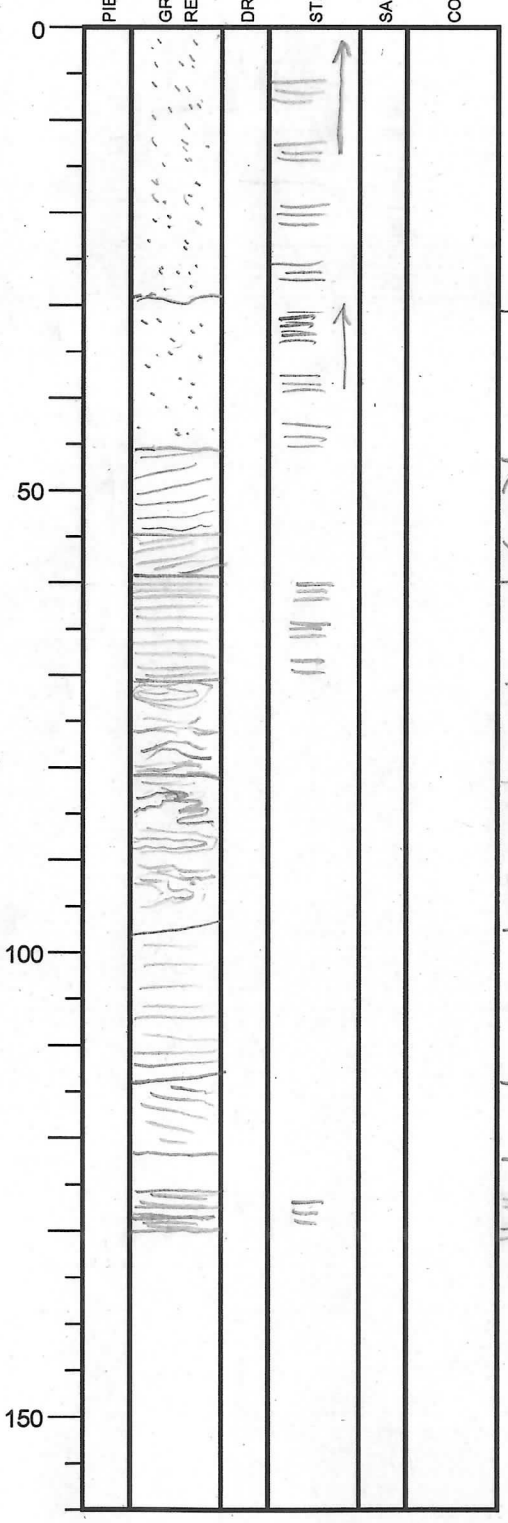


SECTION DESCRIPTION

MSLFGSS & GGSC/GSC
BIOT. 1 (SLIGHT) BIOT. 5 (INTENSE)
DRILLING BISCUITS
(FINE-GRAINED)

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01 / 27 / 2009
EXP.: 322
SITE/HOLE: C0012
CORE: 45
SECTION: 1
OBSERBER: KLV/EH



SECTION DESCRIPTION

MEDIUM
GREEN-GRAY SANDSTONE
BIOT. 1 (SLIGHT)

VERY COARSE
29.0 cm
FINE
COARSE
GREEN-GRAY SANDSTONE
BIOT 1 (SLIGHT)

45.0 cm
SEDIMENT SLIDE (NOT CURRENT-RIPPLED)
MSLFGSS (V. FINE-GRAINED)

59.0 cm
MSLFGSS (FINE-GRAINED)
BIOT 1 (SLIGHT)

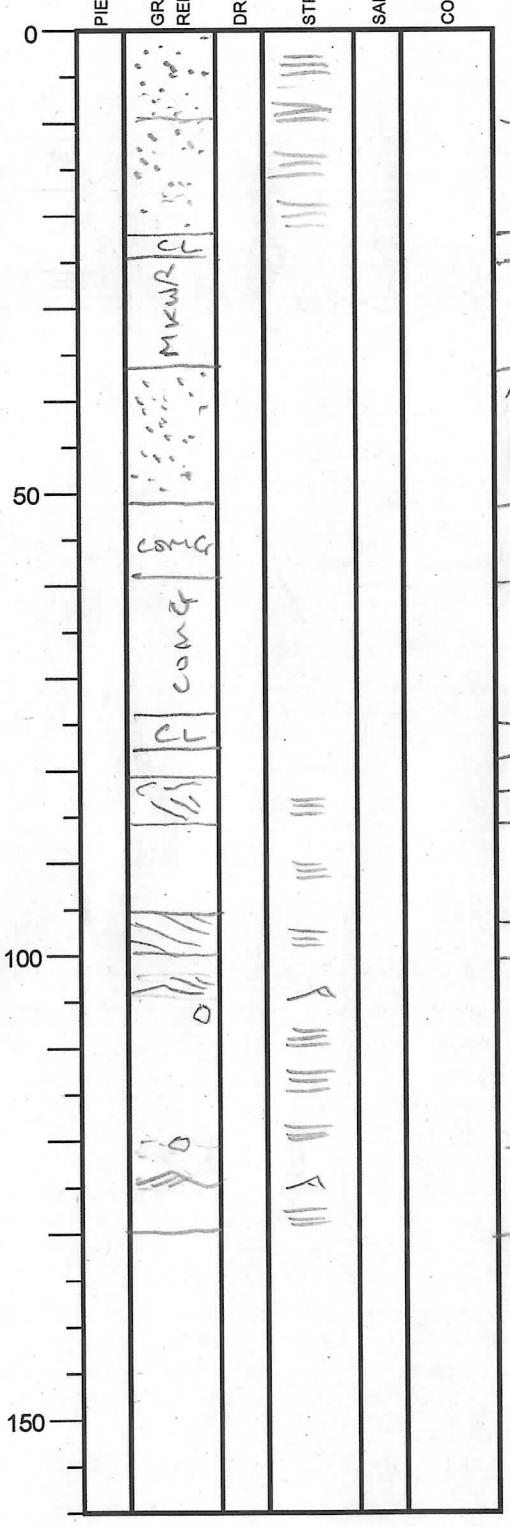
71.0 cm
CHAOTIC UNIT MSLFGSS (FINE-GRAINED)

97.0 cm
DARK
GFSC | GSC BIOT 4 (MODERATE)

114.0 cm
121.5 cm
26-27 cm
130.0 cm END 129-130
MSLFGSS BIOT 1
FINE-GRAINED (SLIGHT)

Integrated Ocean Drilling Program
Visual Core Description

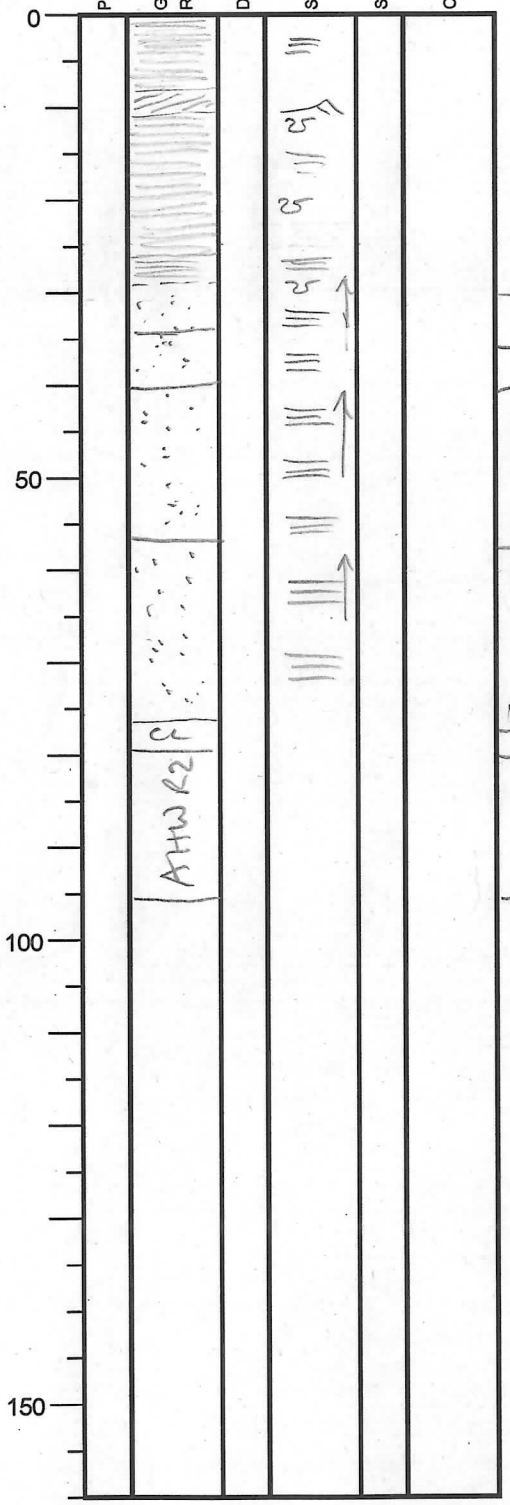
NO.
DATE: 01/29/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 45
SECTION: 2
OBSERBER: ICTP/SK



V. COARSE-GRAINED GREEN-GRAY SANDSTONE BIOT. 1 (SLIGHT)
9 cm base?
MEDIUM-GRAINED GREEN-GRAY SANDSTONE BIOT. 0
22
25
36
MEDIUM-GRAINED GREEN-GRAY SANDSTONE BIOT. 0
51
59
74
77
81-86 sediment slide (not ripples)
MSLFGSS BIOT. 2 (SLIGHT) V. FINE-GRAINED
99-95 Sediment slide (not ripples)
106 cm pyrite to 0.5 cm diameter
118 cm pyrite to 0.8 cm diameter
129.0 cm END

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: / /20
EXP.:
SITE/HOLE:
CORE: 45
SECTION: 4
OBSERBER: LGP/SK



SECTION DESCRIPTION

8 - 26 cm MSLFGSS FINE-GRAINED
2cm high current ripples BIOT 1 (SLIGHT)

@ 10, 20 & 18 cm LOAD STRUCTURES

-26 cm pyrite ~0.8 cm diameter

-29 cm
COARSE → MEDIUM
-34 cm
-40 cm MEDIUM
FINE

GREEN-GRAY SANDSTONE
BIOT 1 (SLIGHT)

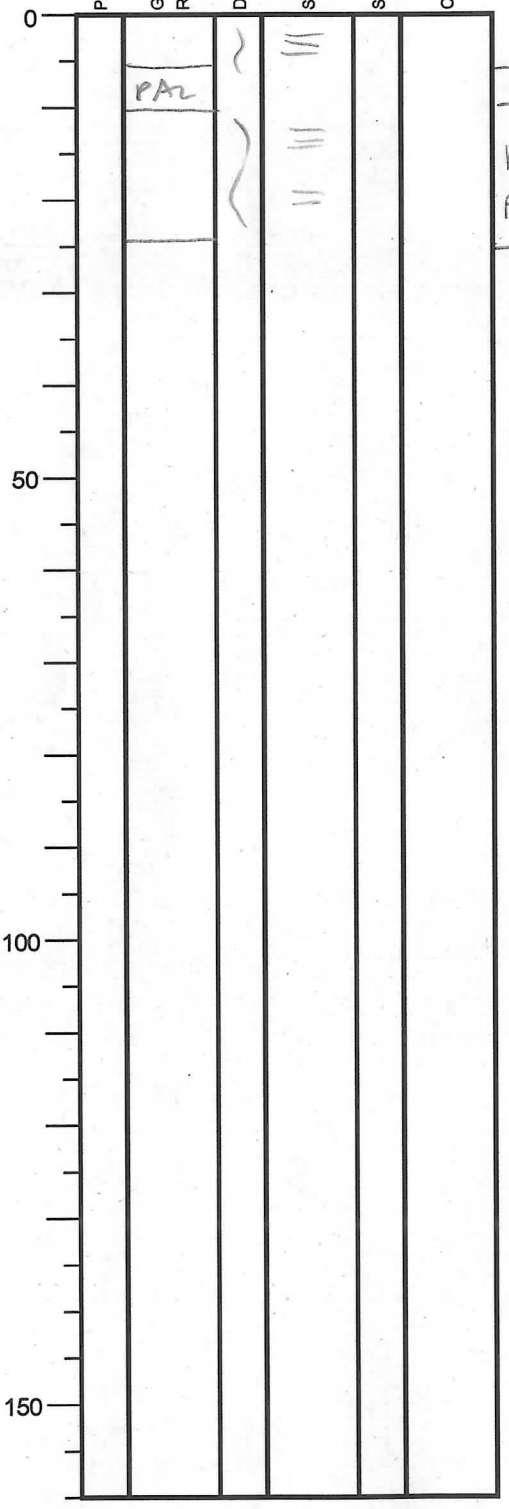
MEDIUM
-57 cm
FINE

MEDIUM
-76 cm
-79 cm

-95.5 cm

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: / /20
EXP.:
SITE/HOLE:
CORE: 45
SECTION: CC
OBSERBER: KTP/SH



SECTION DESCRIPTION

-5 cm
-10 cm
-24.0 cm END

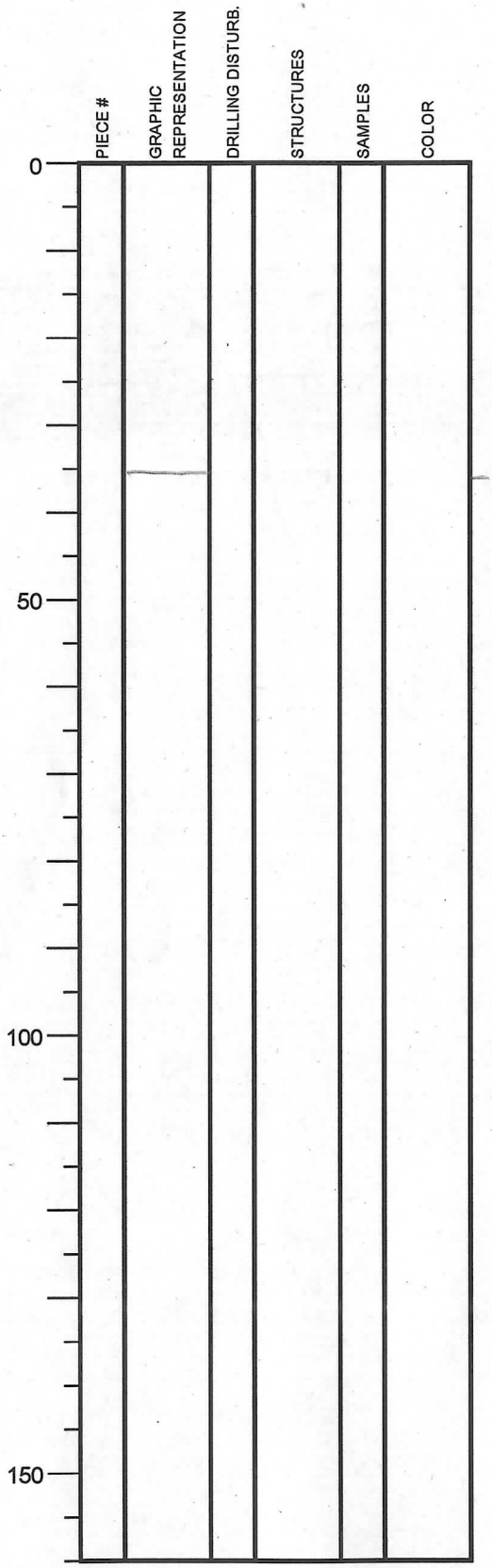
BASALT INJECTION (GLASSY) INTO SEDIMENT (IN WORKING HALF ON REVERSE OF BEDDING)

0.5 cm BASALT FRAGMENTS EMBEDDED IN SEDIMENT IN BISCUIT IN THIS CORE

(13 cm pyrite to 1.2 cm diameter)

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 21/09/20 09
EXP.: 322
SITE/HOLE: C0012
CORE: 46
SECTION: 1
OBSERBER: kmp/sk

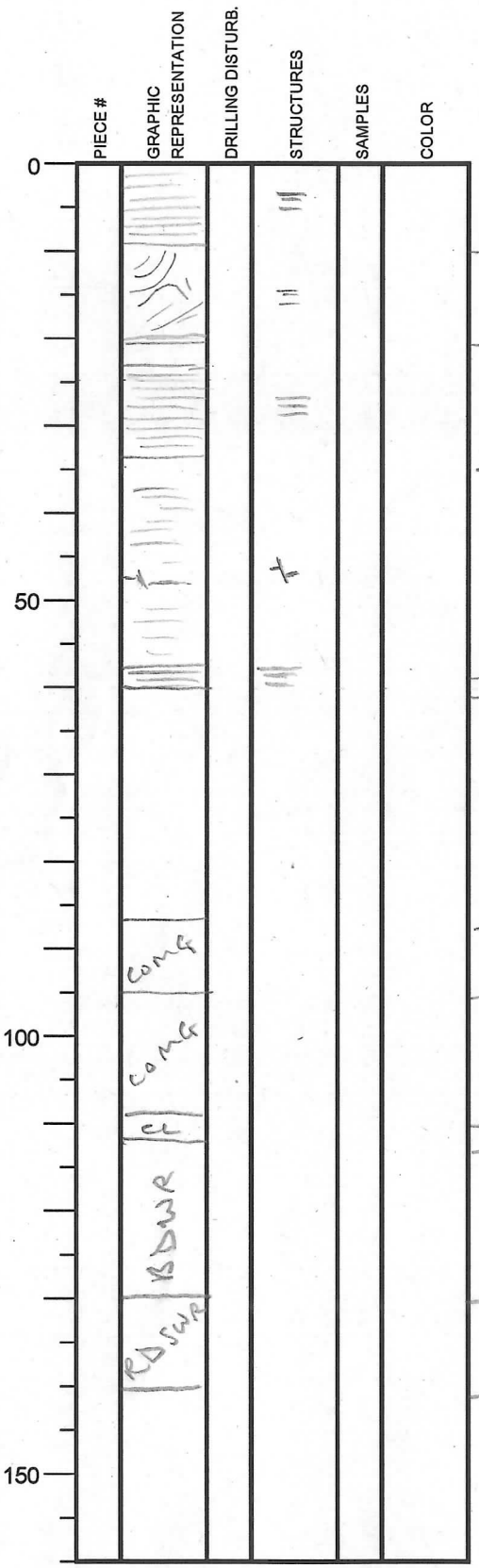


MSLFGSS

1-2.5, 27.5-30 cm greenish more
structureless layer of GGSc

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 46
SECTION: 3
OBSERBER: KY/SK



SECTION DESCRIPTION

BIOT. 2 (SLIGHT)

9.5 cm

CHAOTIC UNIT OF MSLFGSS BIOT 2 (SLIGHT)

20 cm

20.5-22.5 GGSc MSLFGSS / GGSc

MSLFGSS

PYRITE-RICH

33

MSLFGSS BIOT. 3 (MODERATE)

58

60 MSLFGSS BIOT 1 (SLIGHT)

GGSc BIOT. 5 (INTENSE)

87.0 cm

95.0 cm

109.0 cm

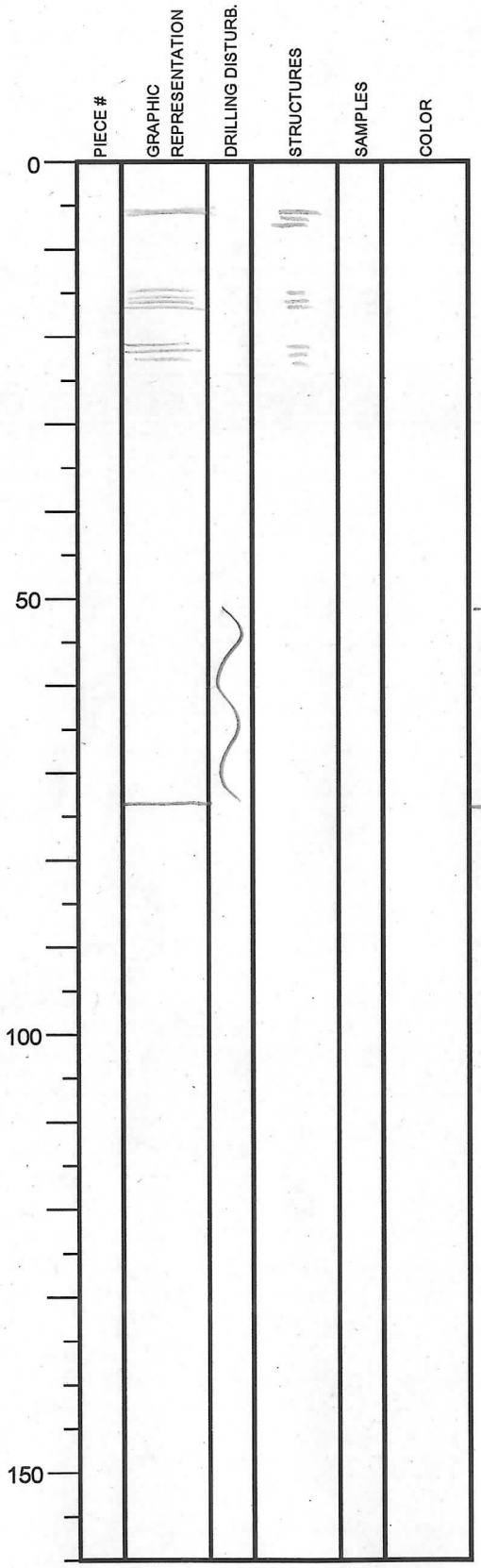
111.0 cm

130.0 cm

140.0 cm

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/30/2009
EXP.: 322
SITE/HOLE: C4012
CORE: 46
SECTION: 4
OBSERBER: KMA/HK



SECTION DESCRIPTION

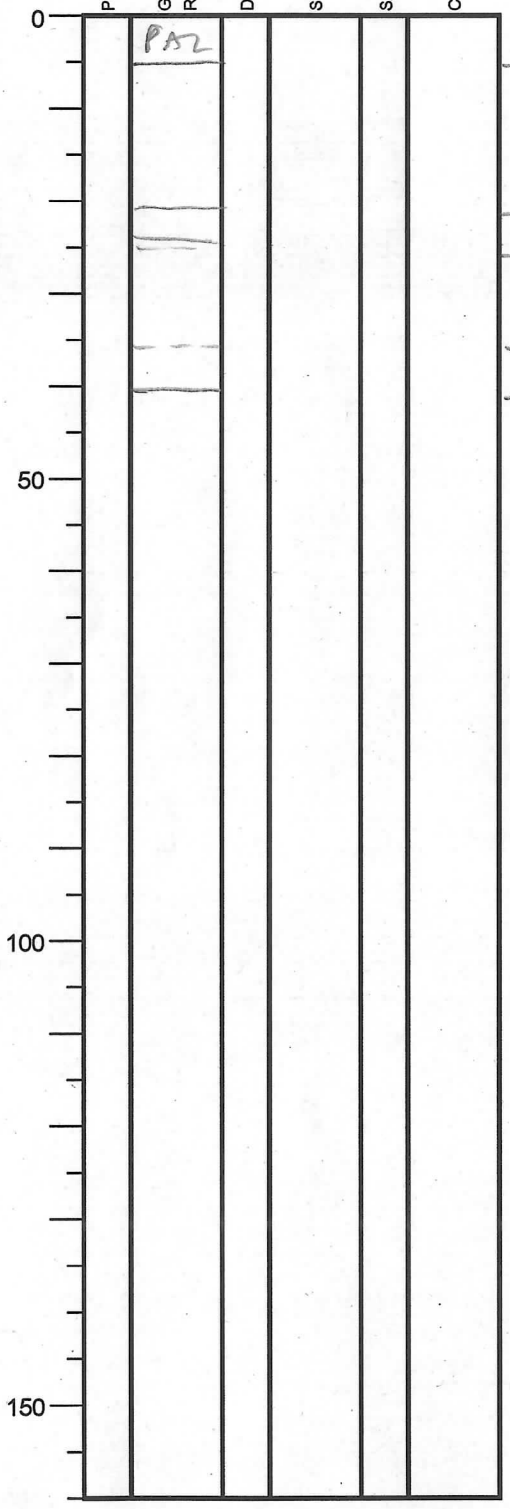
MSLFGSS BIOT 3 (MODERATE)

51 cm
CUTTINGS DARK GFSC BIOT. 5 (INTENSE)

74.0 cm END

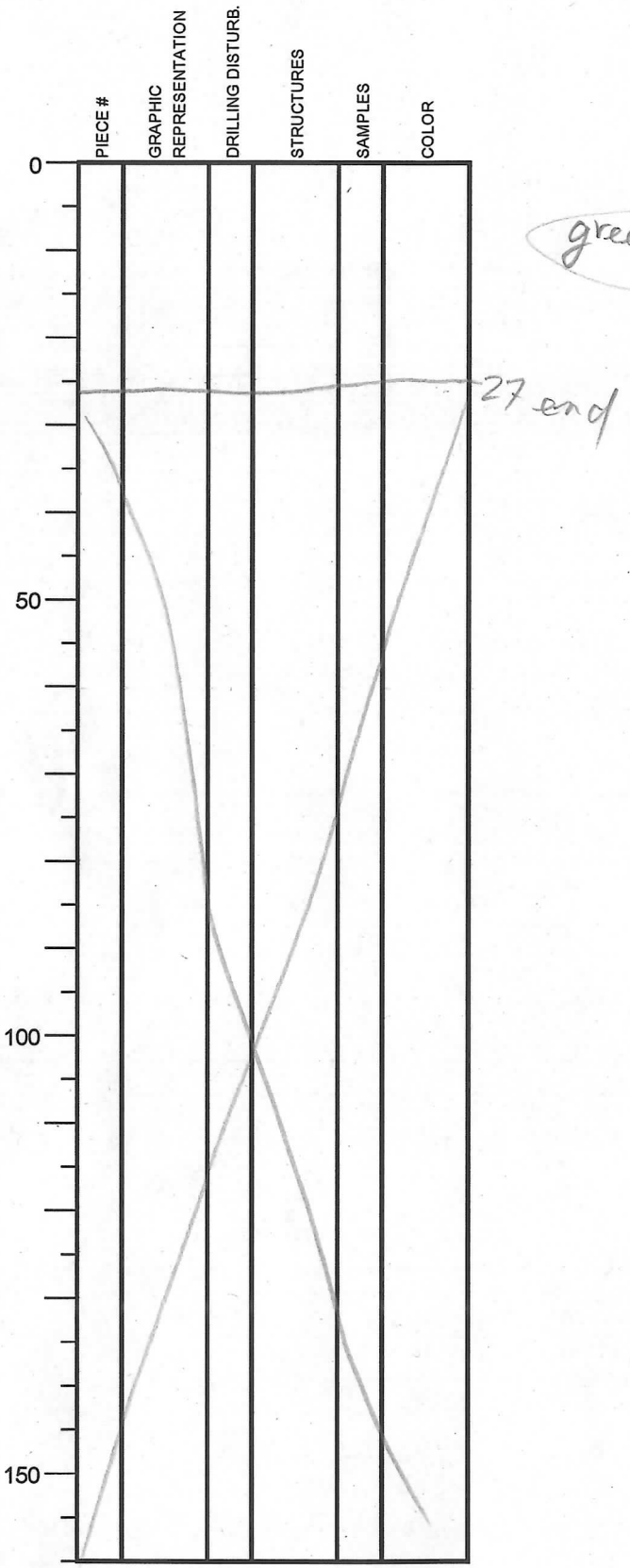
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 01/07/2009
EXP.: 322
SITE/HOLE: CCSD12
CORE: 4b
SECTION: CC
OBSERBER: KLP/SH



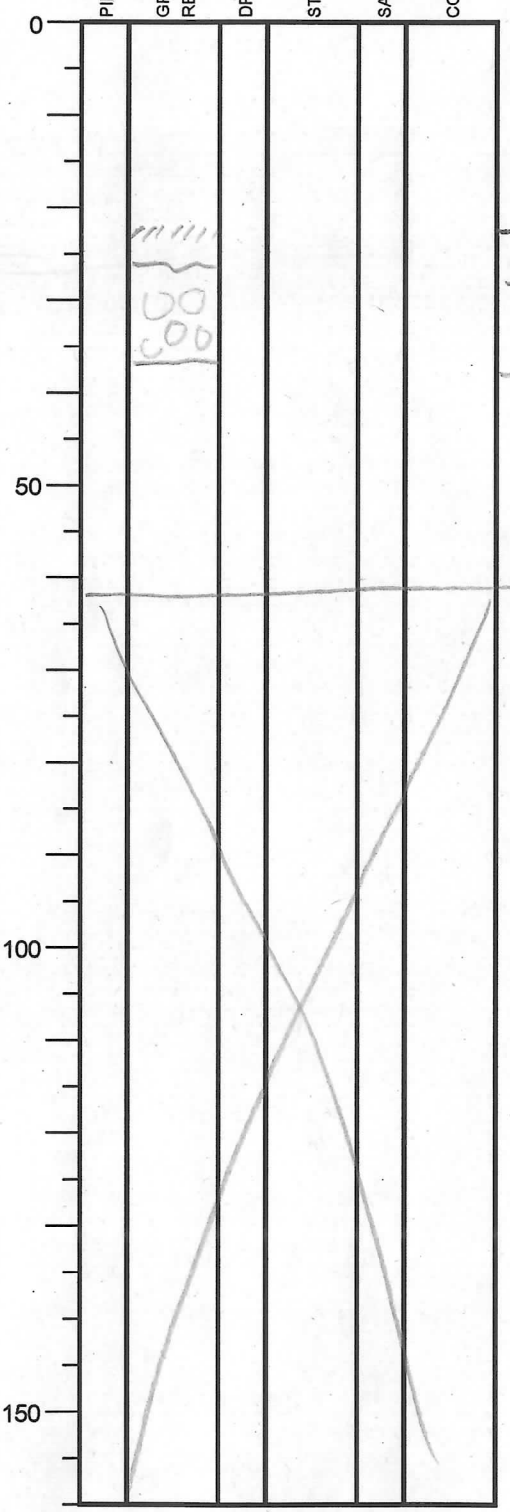
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 47R
SECTION: 1
OBSERBER: H. Naruse



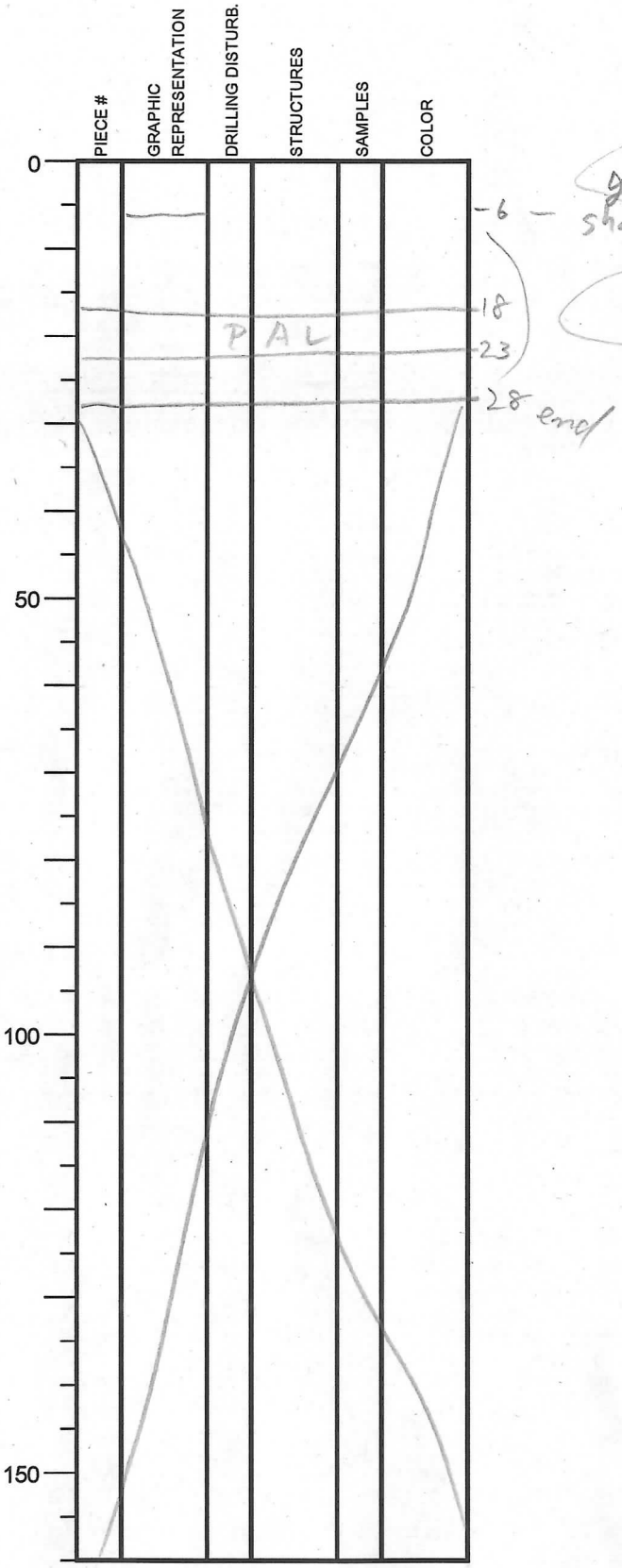
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 47R
SECTION: 3
OBSERBER: H. Naruse



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 47R
SECTION: CC
OBSERBER: H. Haruse



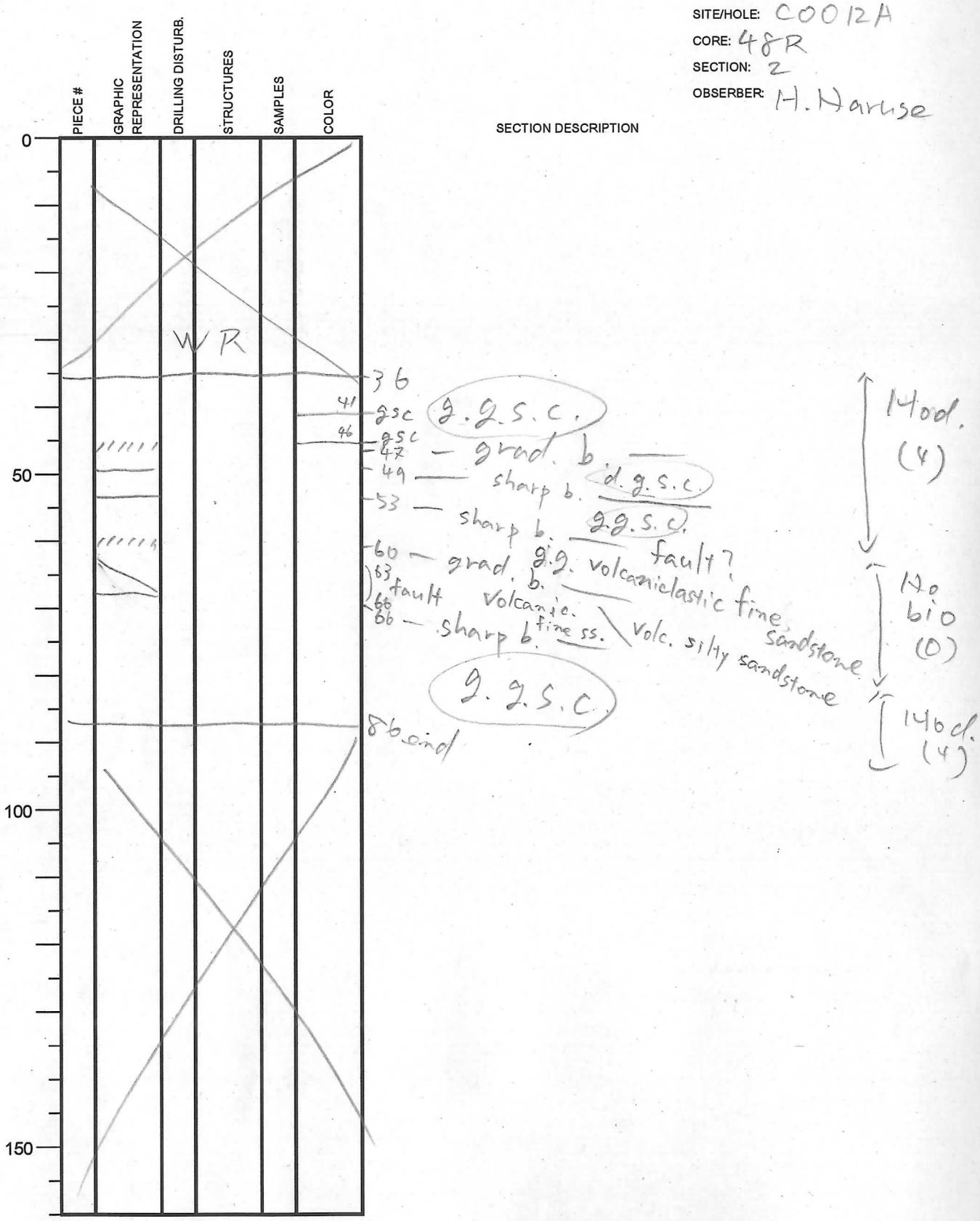
gray volcaniclastic sandstone
sharp b.
g.g.s.c.

slight (2)
Heavy (5)

end

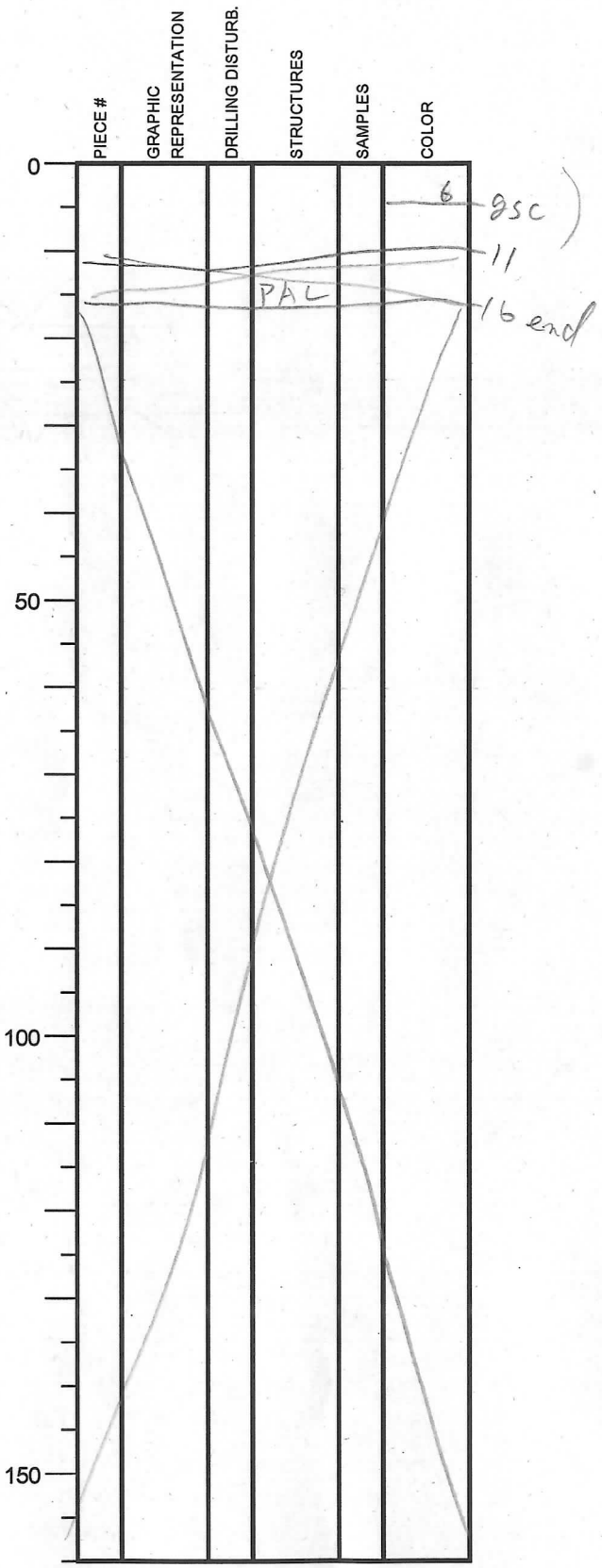
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/20
EXP.: 322
SITE/HOLE: C0012A
CORE: 48R
SECTION: 2
OBSERBER: H. Haruse



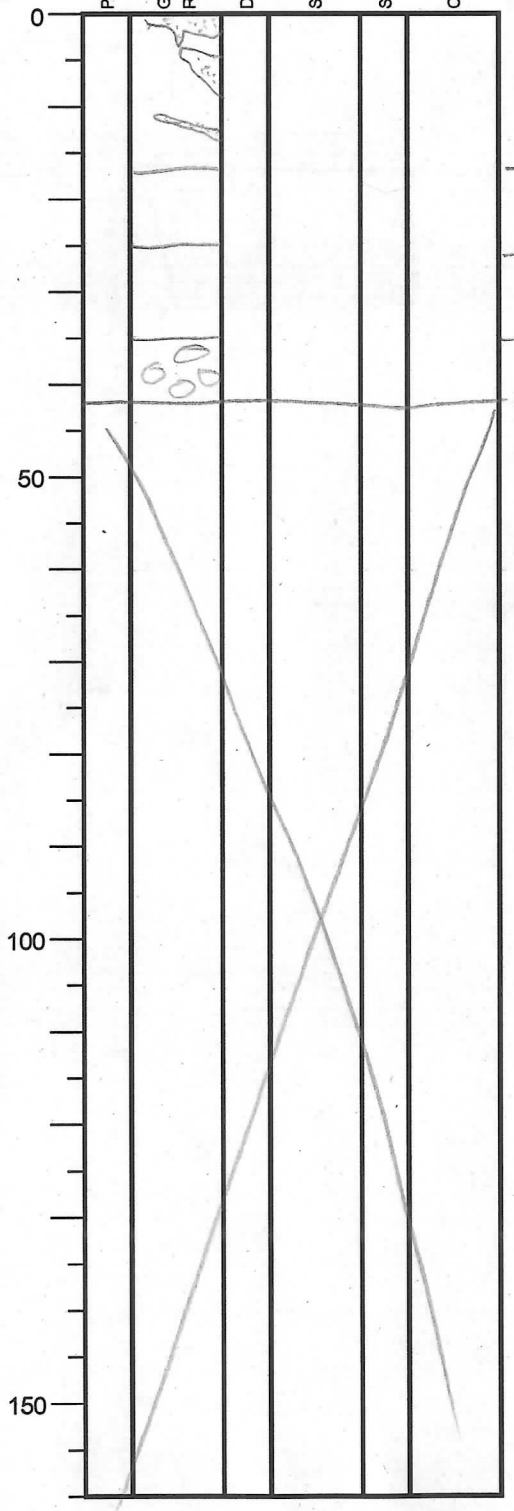
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 48R
SECTION: CC
OBSERBER: H. Naruse



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 49R
SECTION: 1
OBSERBER: H. Narusa



SECTION DESCRIPTION

Chaotic deposit of g.g.s.c. & fine volcaniclastic sandstone

-17 — sharp b. (fault?)

green-light gray fine tuff

-25 — sharp b.

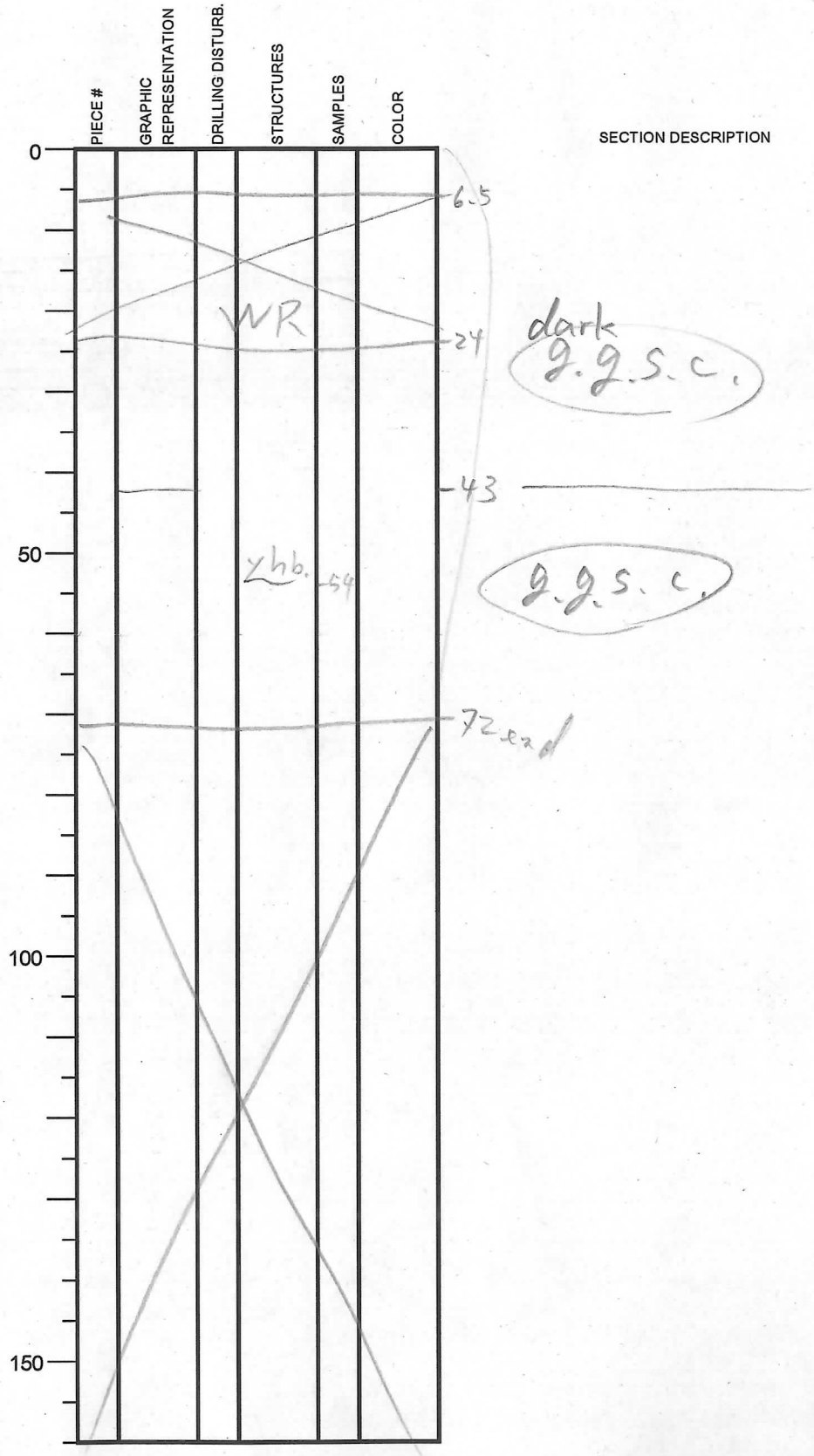
-35 g.g.s.c.

-42 end drilling breccia of g.g.s.c.

Slight (1)

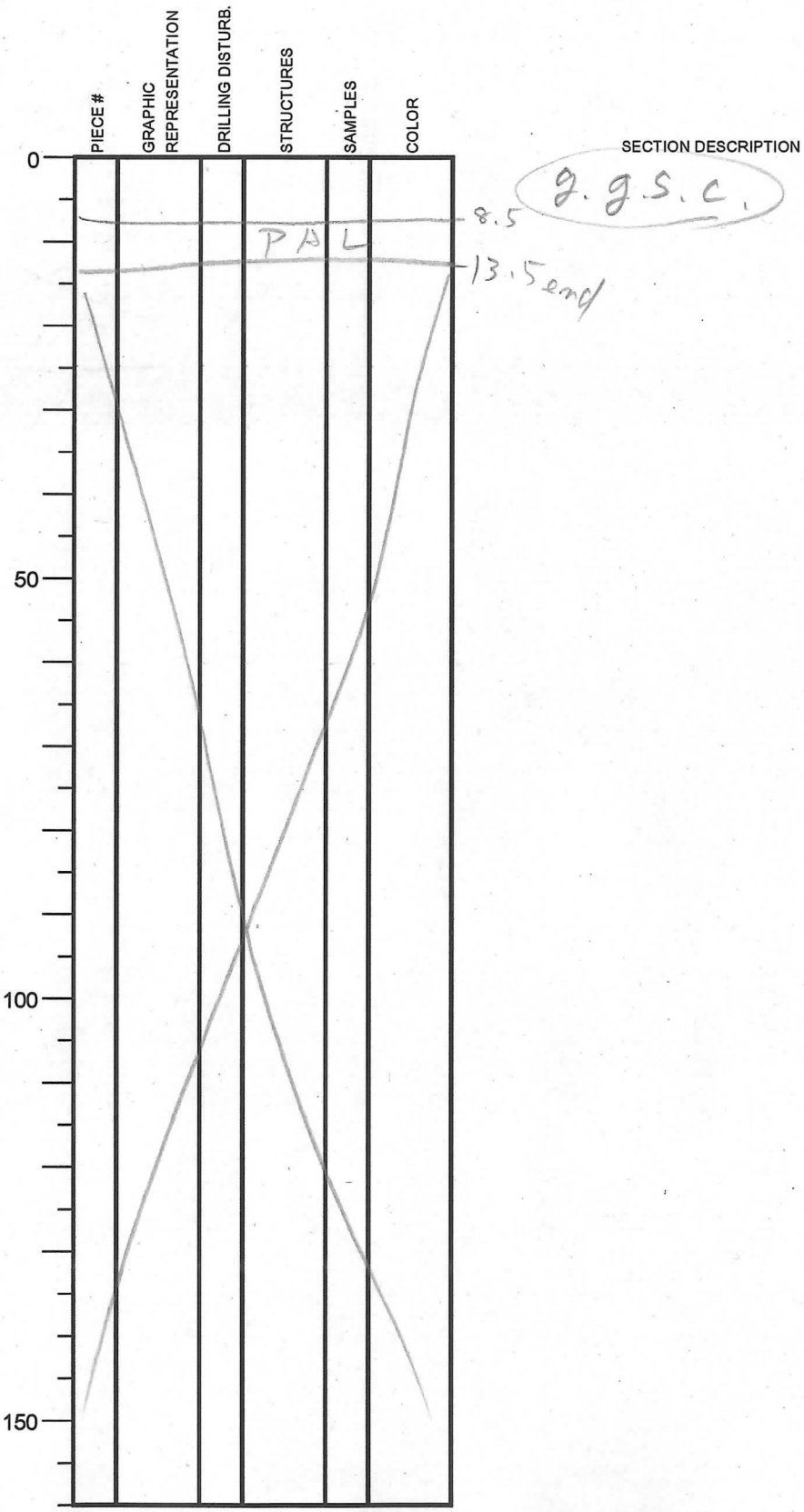
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 49R
SECTION: 3
OBSERBER: H. Naruse



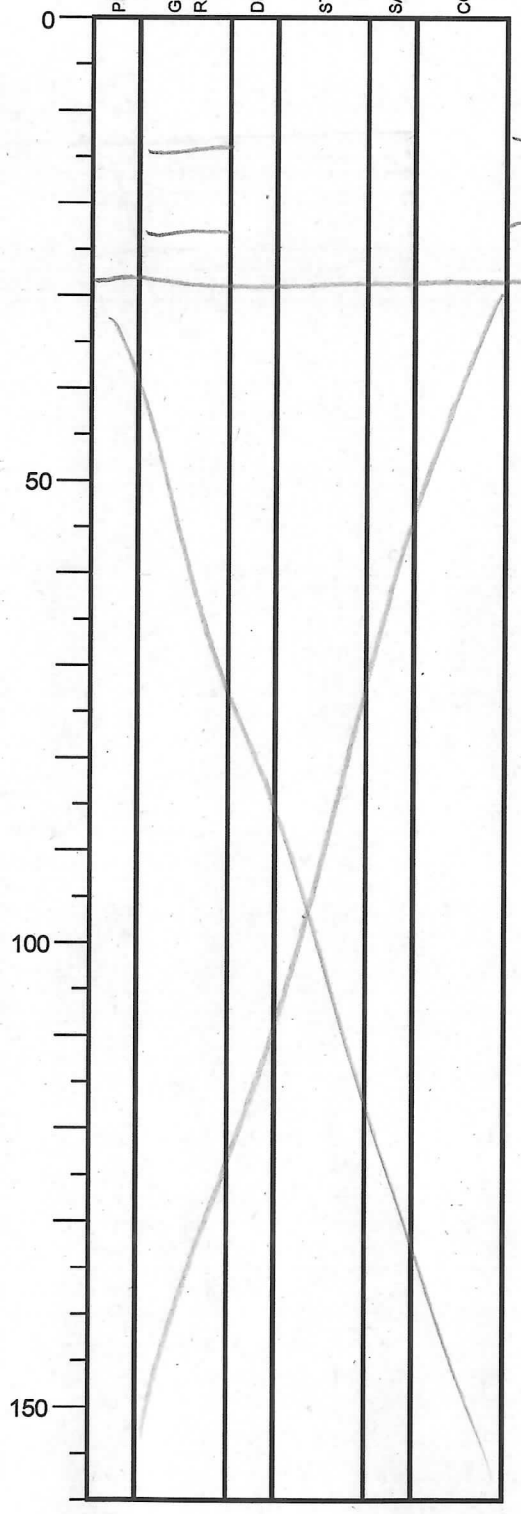
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 49R
SECTION: CC
OBSERBER: H. Narise



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10 1 /20 09
EXP.: 322
SITE/HOLE: C0012A
CORE: 50R
SECTION: 1
OBSERBER: H. Haruse



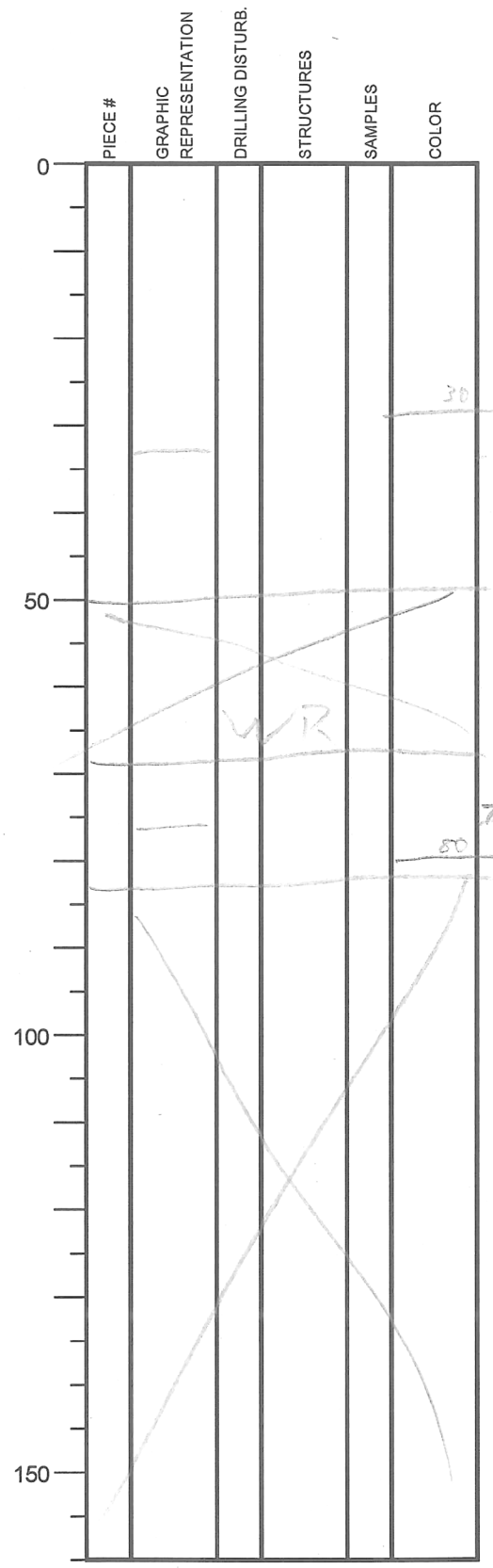
SECTION DESCRIPTION

g.g.s.c.
15 — sharp b.?
g.g. Volclaniclastic medium sandstone
24 — sharp b.?
29 end g.g.s.c.

drill. breccia
Heavy (3)
Heavy (5)

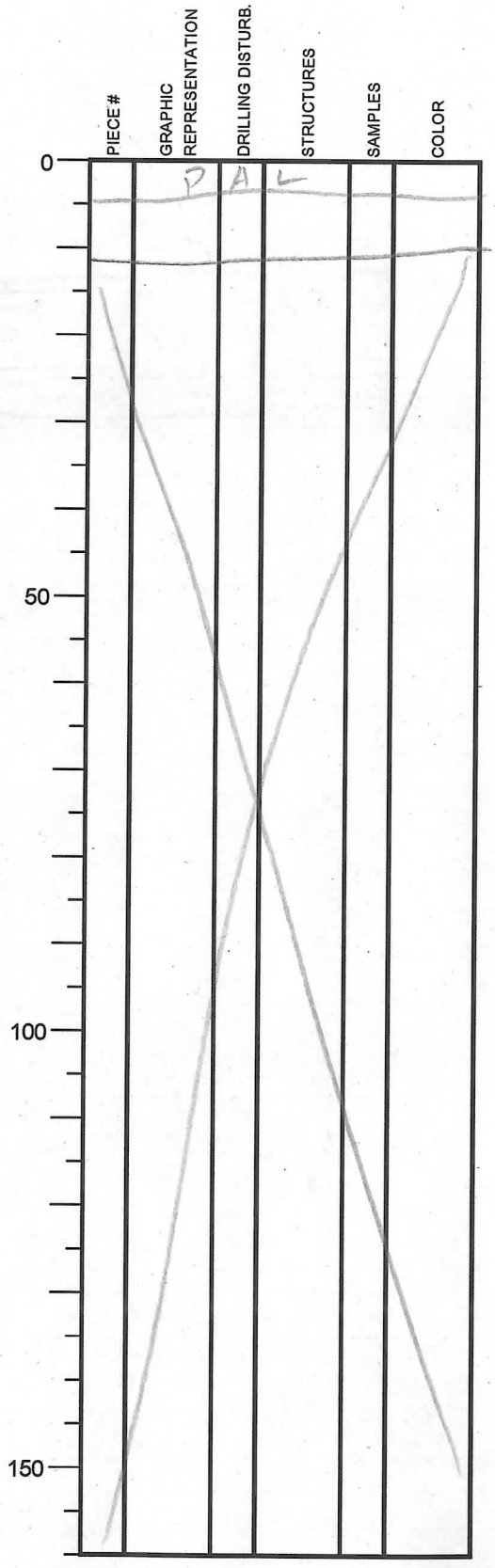
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10 / 1 / 2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 5 OR
SECTION: 3
OBSERBER: M. Harris



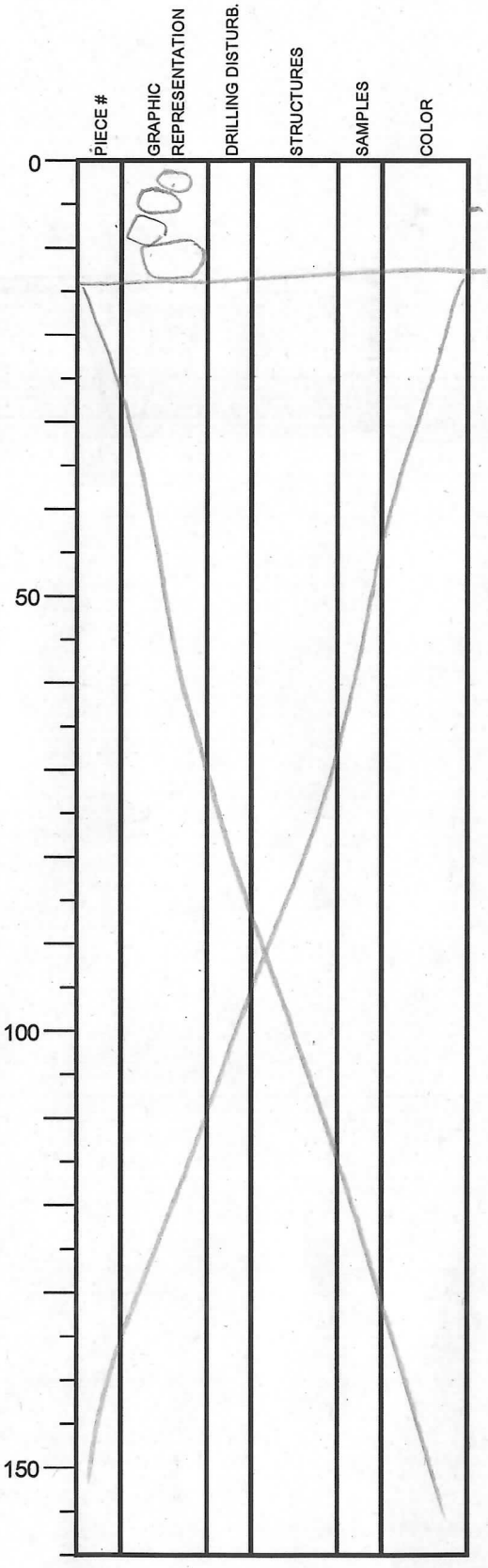
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 50R
SECTION: CC
OBSERBER: H. Haruse



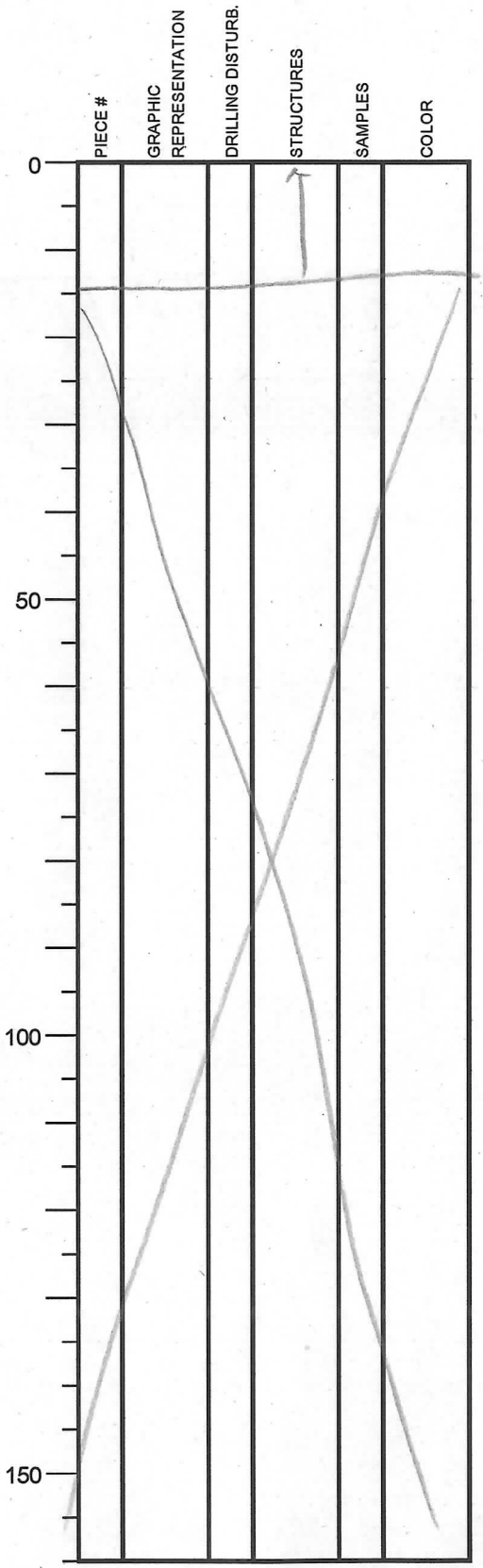
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 51R
SECTION: 1
OBSERBER: H. Naruse



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 10/1/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 51R
SECTION: CC
OBSERBER: H. Harcase



SECTION DESCRIPTION

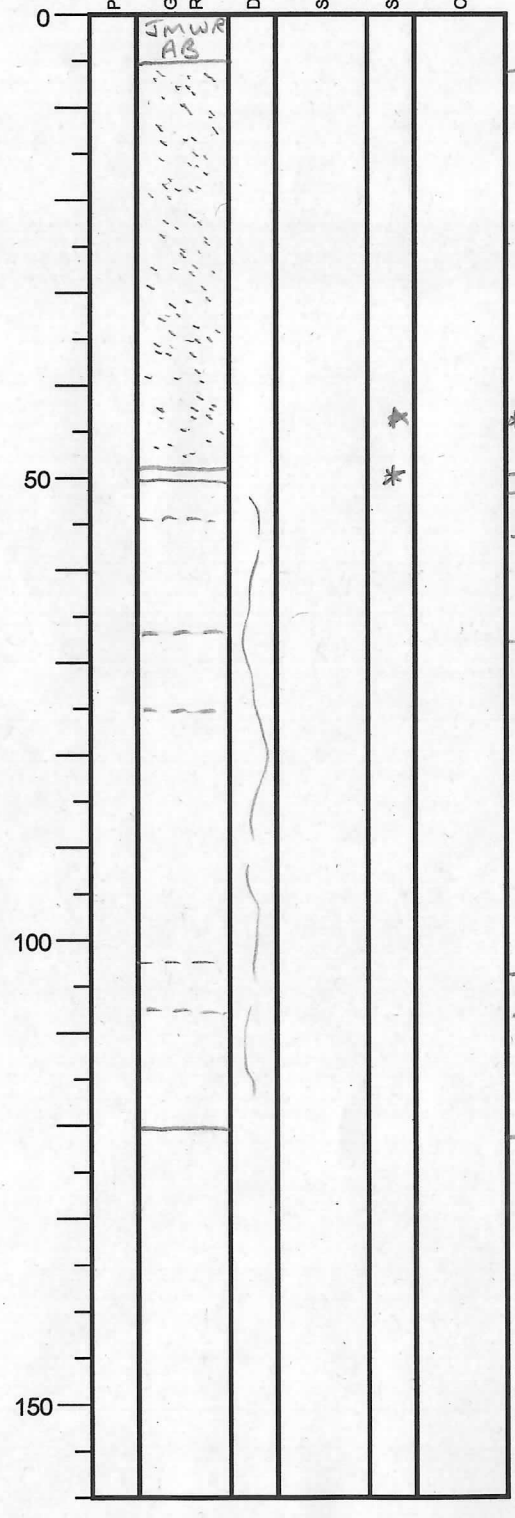
green-gray volcaniclastic graded fine sandstone

14 end

No bioturb.

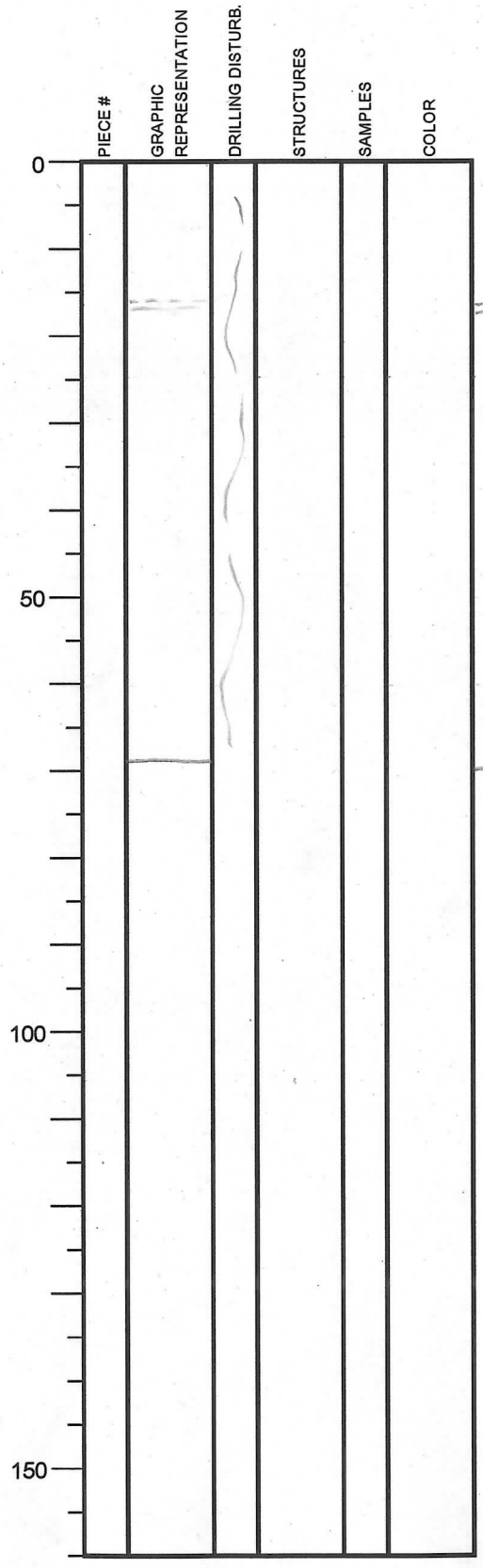
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 02/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 52
SECTION: 1
OBSERBER: KTP/SK



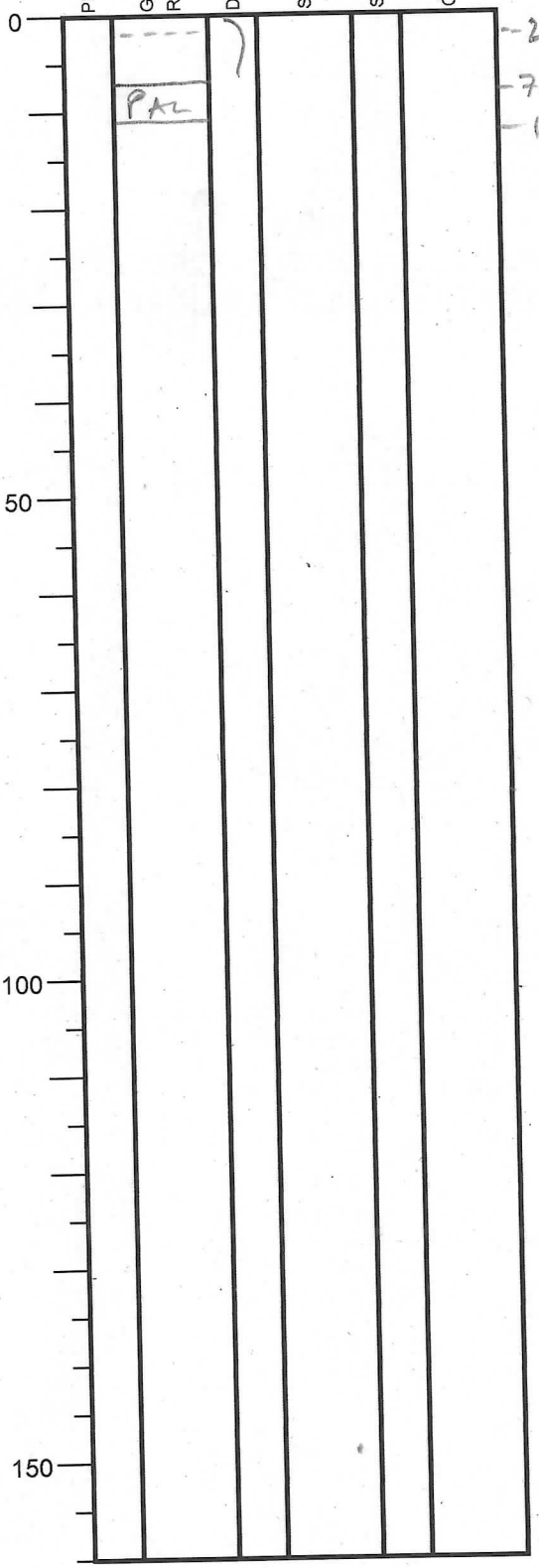
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 02/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 52
SECTION: 3
OBSERBER: KTO/SK



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 02/09/2009
EXP.: 322
SITE/HOLE: C0012
CORE: 52
SECTION: CC
OBSERBER: KTP/SK



cements
3,5 inches

Archive Half

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

Igneous

NO.
DATE: 04/10/2009
EXP.: 329
SITE/HOLE: 1200 12A
CORE: 53R
SECTION: 1
OBSERBER: SL

PIECE # | GRAPHIC REPRESENTATION | ORIENTATION | VEIN | SAMPLES | ~~COLOR~~ Alteration | SECTION DESCRIPTION

0

TS 31

1 — HAlt

TS 46
PS 50

2 — MAlt

68

TS 3 — SAlt
76

PS 4 — SAlt
83

5 — SAlt
91

100

150

red and green shale
bottom part is healed (?) gradient of color from green to brown and to red-ish...
Thin limit of deep green mineral (?)
↳ celadonite ?

← contact
very top is white, Porph. gradient from "beige" to dark grey. veins of Qz and Ep. B heterogeneous one is HP and S Ves and the other is H Ves and SA
Presence of a brown/red mineral → ??

Beautiful fracture half filled with red shale and half (bottom) with ... Ep (?), Qz, Celadonite (?), Chlorite (?) one mnl is dark green, one is yellowish green and one is light green. No clivage... No traces of "mineral morphology"...
In the red clay there are inclusions that are surrounded by Qz (aureoles)

B

Mod Ves - High P. Pl, px.
Ves with celadonite

Red Shale
?
Qz
+ amph!

Piece 5: S. Ves - HP, Pl, px

+ inclusions of:

Piece 6: pyrite! Pl, px
HP - S Ves.

Qz + feldsp ?
green/black mnl ?
Glass ?

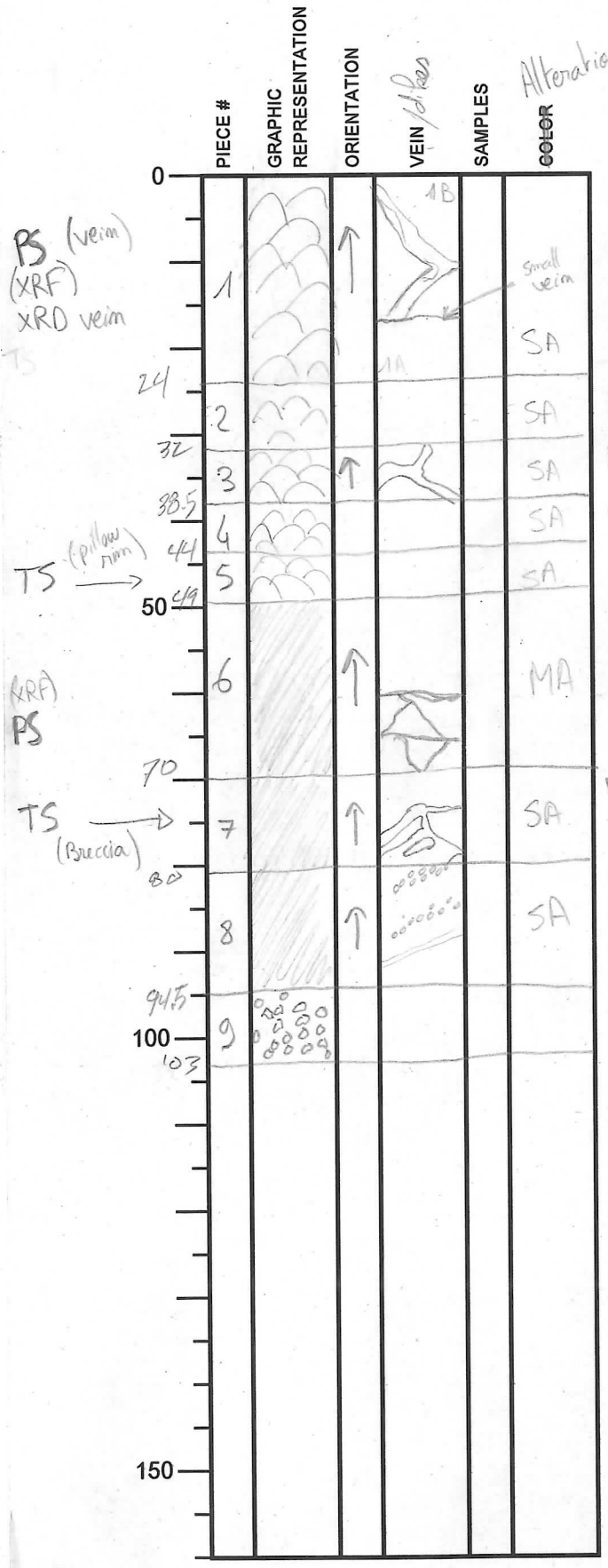
PS and TS

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

Archive Half

NO. 1
DATE: 04/10/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 53
SECTION: 2
OBSERBER: SL



SECTION DESCRIPTION

Pillow B. B= Sparsly vesicular / Pl + Px / Slight Alteral
Piece 1A: Base is light grey and gradation to dark grey. Piece 1B contains vein (delimiting pillows?) HP vein is green (celadonite ?) with fragments of B and filled vesicules. vein is highly altered probably piece of pillow (gradation of color and vesicles. Rim has cristallisation of Qz (small crystals) MP Pyride. Pillow structure. same B and dike than piece 1 MP Sves gradation of color and vesicles → pillow. cristallizat° of Qz MP SVes same Rim MP SVes
Massive B. not homogeneous vesicles from sparsly to highly some vesicles are filled with green mineral (celadonite ? epidote?) B has Pl (no Px) HP Mves
Bottom has little veins of celadonite

Dikes cutting B. dikes are highly altered. Pl-B slightly altered. ↔ Breccia HP SVes

Presence of pyrite (sparse). orientated lines of vesicles. (Moderate some vesicles filled with green mnl HP Mves
vein filled with breccia Paths of vesicles

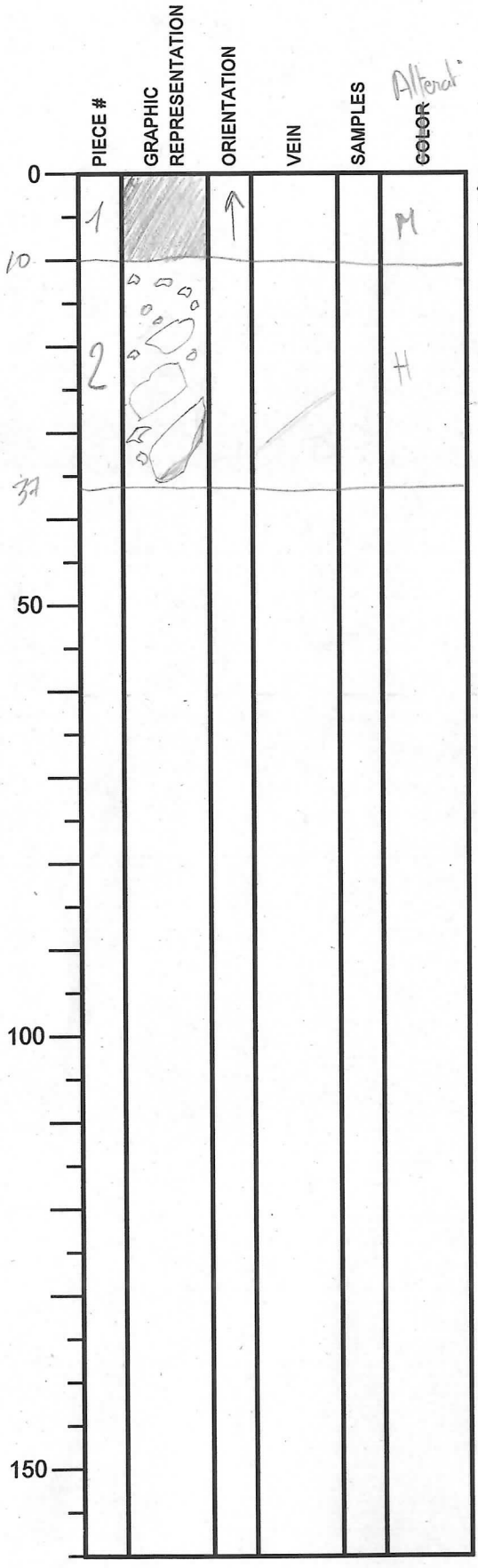
Mixed rubble

Archive Half

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

NO. 2
DATE: 01/10/2009
EXP.: 377
SITE/HOLE: C0012A
CORE: 53R
SECTION: CC
OBSERBER: SL



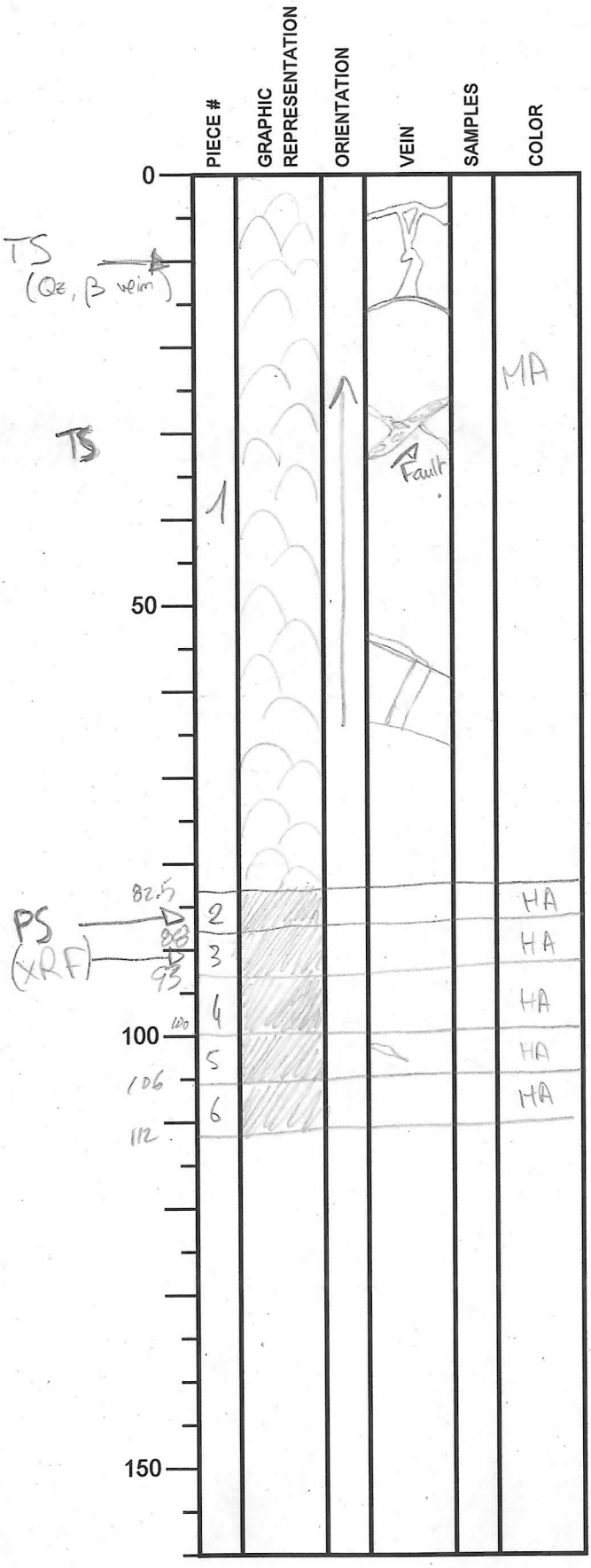
Ver. 0901003

Archive half

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

NO. 3
DATE: 01 / 10 / 2009
EXP.: 322
SITE/HOLE: C0012 A
CORE: 56 R
SECTION: 1
OBSERBER: SL



Pillow B -
Sparse to moderatly vesicular → "Magma mixing" → pillow lavas reworked while cooling, so we get 2 types of vesicularity and phenocryst.
Phenocrsts: pl, px presence of pyrite

Large Qz veins.

Im Rims of pillows → gradation of B color and vesicles and dikes filled with breccia of B.

Color not homogeneous, from medium grey to dark grey MP to HP

B - pl, px - sparse vesic. MP
B - pl, px - sparse vesic. MP
——— - moderatly vesic. MP

B - pl, px, sparse vesic. small veim of Qz MP

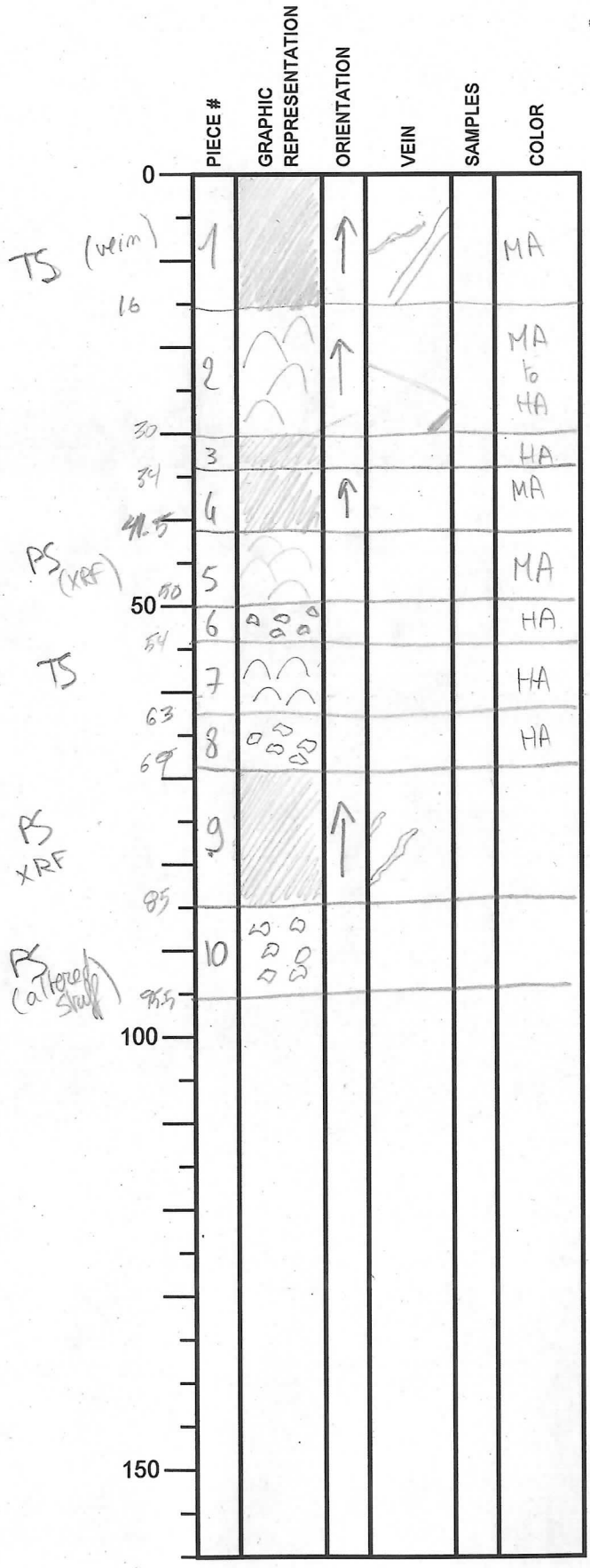
Ver. 0901003

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

Archive half

NO. 4
DATE: 04/10/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 54R
SECTION: 2
OBSERBER: SL



SECTION DESCRIPTION

β pl, px
veins of Qz
Isolated (?) dike of HPhyric lava (?) → TS
MP to HP

Not homogeneous - Moderatly vesicolar
very small vein of Qz
Rim of pillow → gradat° of color. HP

β pl HP

β pl, px filled vesicles - pyrite ? MP

probably pillow (gradat° of vesicles near border) MP

Mixed rubble
probably pillow - plβ - sparse vesicles SP to MP

Mixed rubble

Not homogeneous - sparse vesicles - pl, sparse px.
veins (little) of Qz and epidote SP

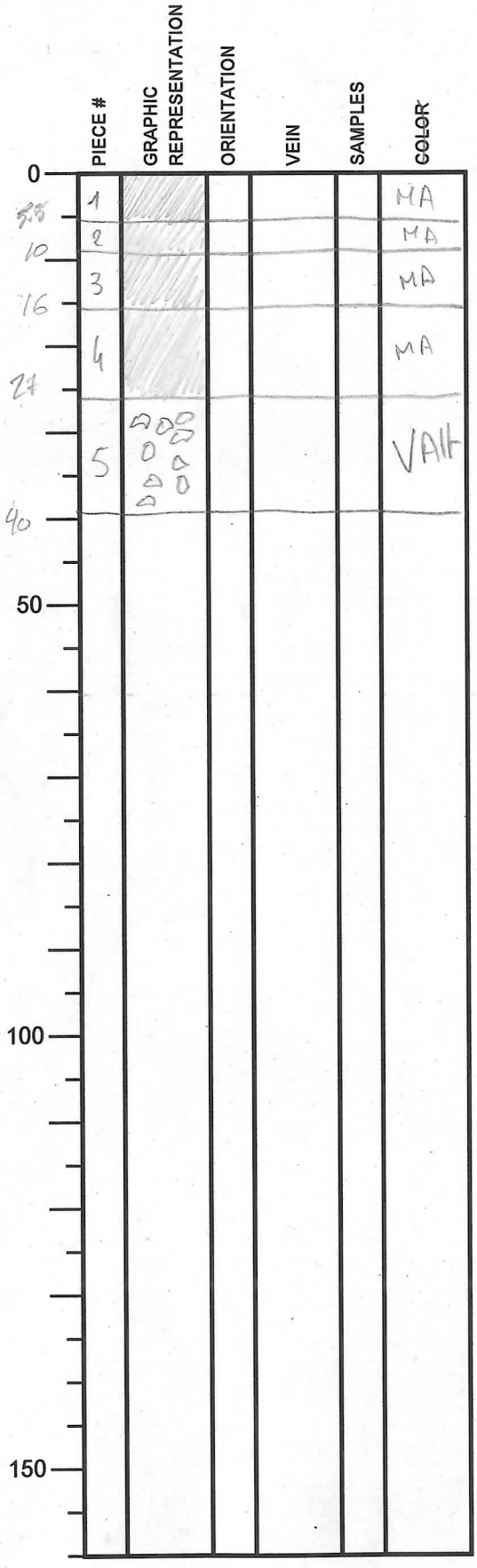
Mixed rubble - one has pillow borders SP

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

Archive half

NO. 5
DATE: 04 / 10 / 2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 54 R
SECTION: CC
OBSERBER: SL



TS?
XRF - PS?

SECTION DESCRIPTION

β - sparse vesicles ± filled with celadonite or zeolite (?) SP

β - sparse vesicles MP

2 ≠ β ⇔ dark grey - sparse vesicles - pl - Mod Alt → MP
medium to light grey - moderatly vesicles - Mod Alt → SP

magma mixing
same as piece 3 vesicules filled with zeolites

Mixed rubble

diffuse limi (interbedded

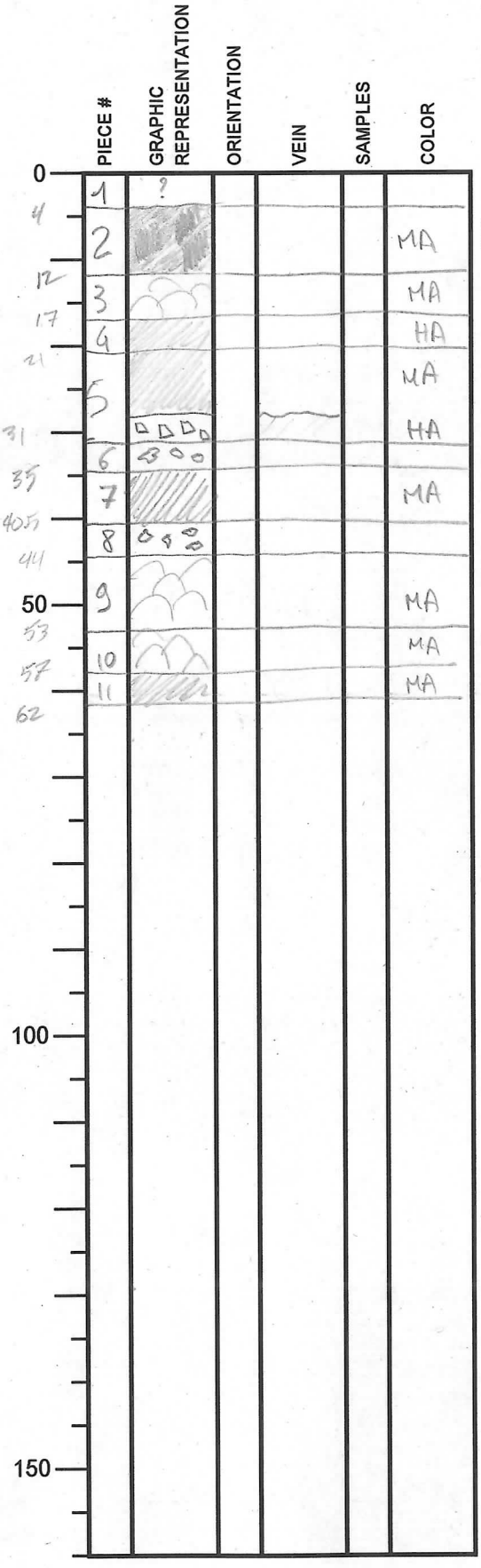
Ver. 0901003

Archive Half

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

NO. 6
DATE: 04 / 10 / 2009
EXP.: 322
SITE/HOLE: C0012 A
CORE: 5S
SECTION: 1
OBSERBER: SL



TS!

Red shale !

pillow β

SECTION DESCRIPTION

1: Moder. vesicular
2: gradational border
3: aphyric β - glass rim
4: altered - celadonite ?

SP to MP
Reworked pillows ?

Magma mixing ⇄ Mod Vesic / Sparse Vesic ? diffuse limits SP

contact with breccia (H Altered) Vein ?
Mixed rubble

Magma mixing SP

pillow with gradation border MP

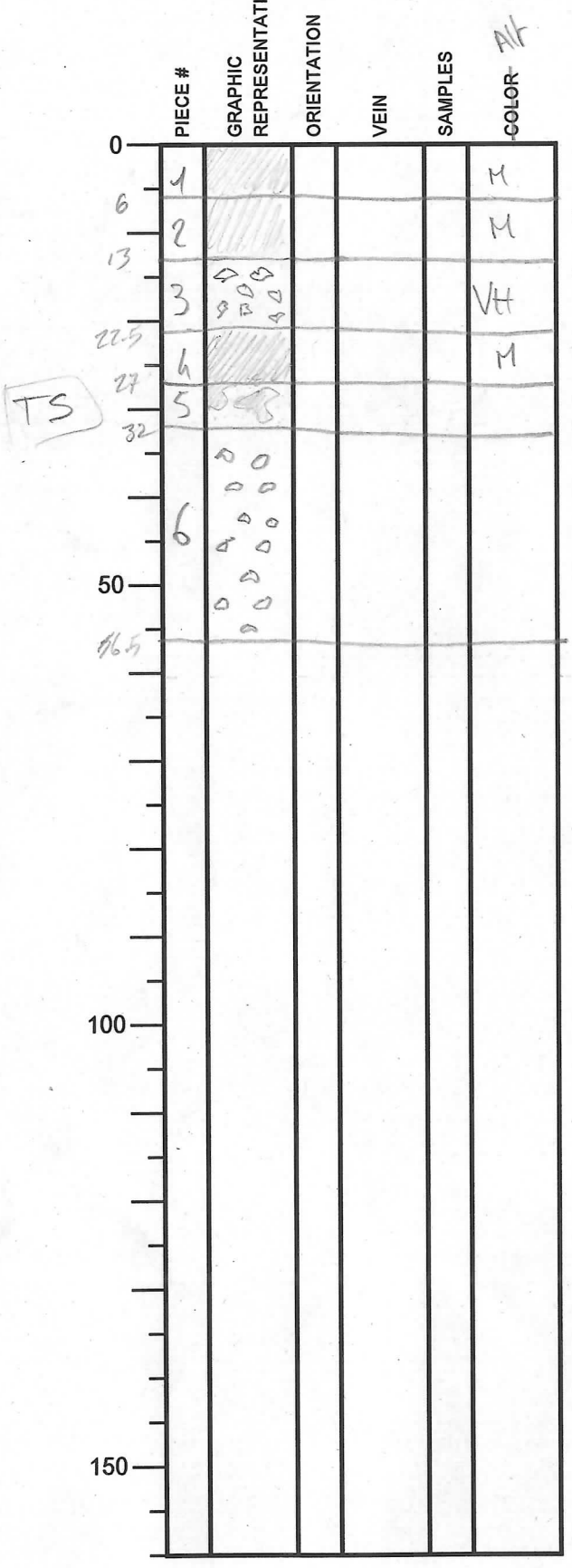
Pyrite near rim of probable pillow MP
Px ! (more than usual) HP

Archive half

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

NO. 7
DATE: 22/10/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 55
SECTION: CC
OBSERBER: SL



TS

SECTION DESCRIPTION

Mixed magmas ⇗ MP - MVes (Px, Pl)
⇘ SP - SVes
vesicules with zeolites - pyrite B MP, Mod Ves (Px, Pl)

Pyrite. very altered B

SP. B (Px)

Mixing ⇗ MP - MVes ⇘ Zeolites!
⇘ SP - MVes

diffuse limits
vesicules are filled with black
thing → ?

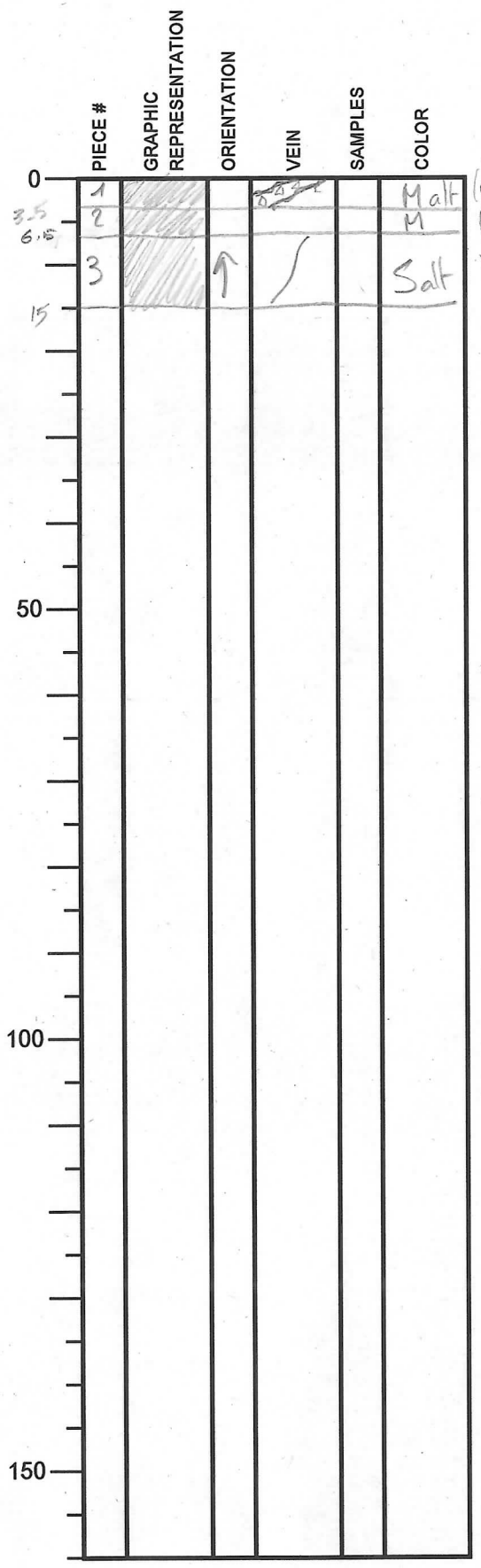
Mixed Rubble

Archive Half

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

NO. 8
DATE: 04 / 10 / 2009
EXP.: 322
SITE/HOLE: C0012 A
CORE: 56 R
SECTION: 1
OBSERBER: SL



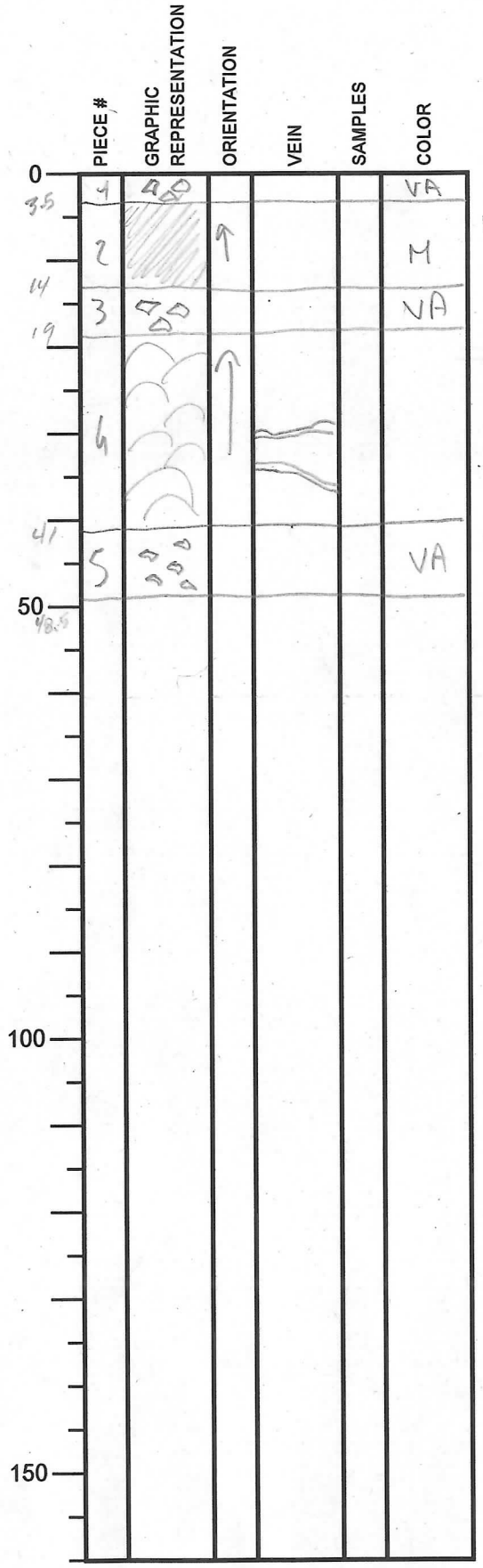
Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

Archive half

NO. 9
DATE: 04 / 10 / 2009
EXP.: 322
SITE/HOLE: C0012 A
CORE: 56 R
SECTION: 3
OBSERBER: SL

TS



SECTION DESCRIPTION

Magma mixing ⇄ M Ves → Ol (!), pl
⇄ S Ves → px, pl (MP)

vesicules filled with celadonite (both β)

Inside pillow a vein contains breccia →

zeolites in some vesicules

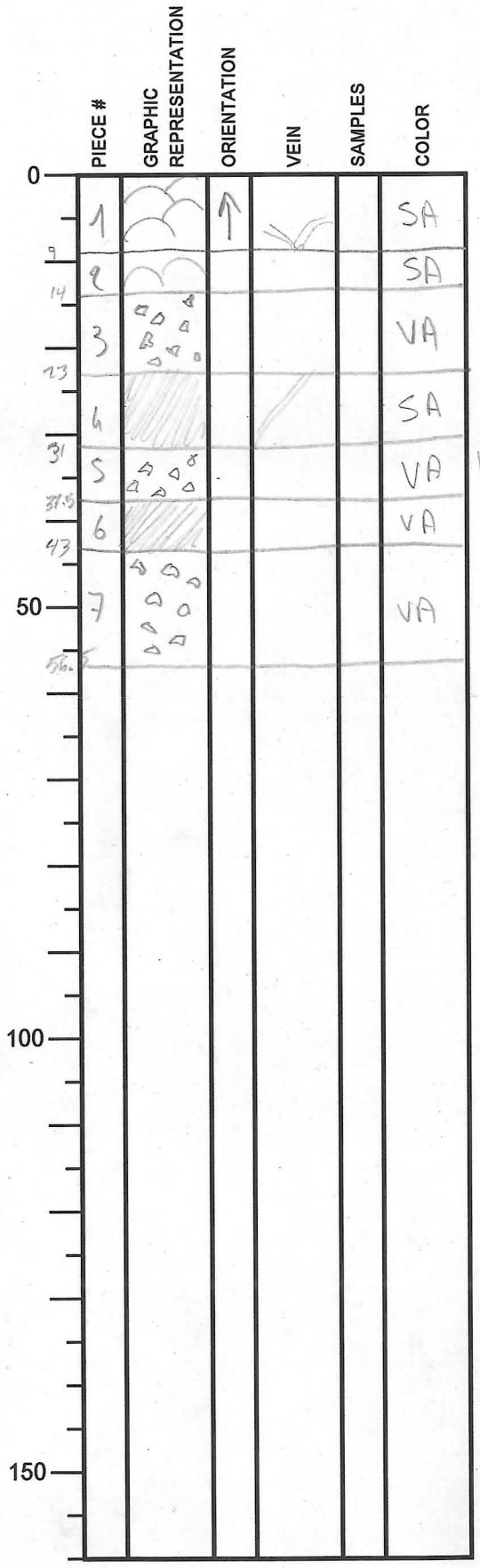
Heterogeneous β ⇄ S Ves (MP)
⇄ M Ves (MP)

Archive Half

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

NO. 10
DATE: 04 / 10 / 2009
EXP.: 312
SITE/HOLE: C0012 A
CORE: 56 R
SECTION: CC
OBSERBER: SL



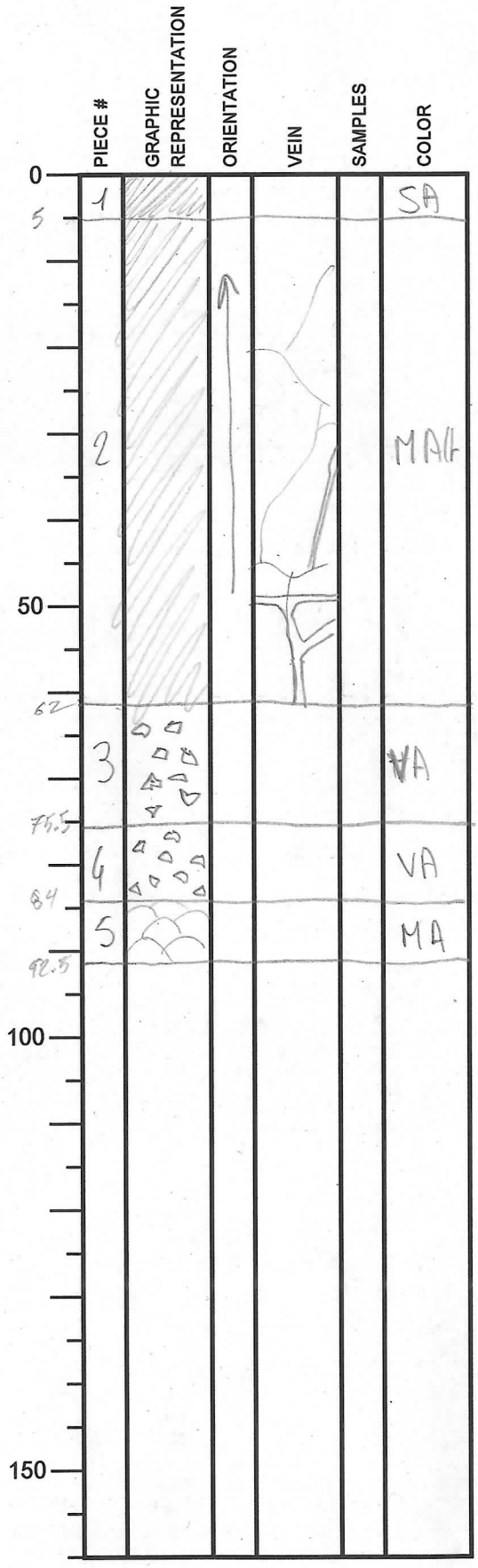
Ver. 0901003

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

Archive Half

NO. 11
DATE: 04/10/2009
EXP.: 322
SITE/HOLE: C0012 A
CORE: 57R
SECTION: 1
OBSERBER: SL



SECTION DESCRIPTION

β - S Ves - SP - px, pl

magma mixing → HP - S Ves - H
→ HP - M Ves - Pl

fine veins of celadonite

large veins of qz and epidote → sparse
→ well crystallized

No pillow structure

2 type of β

pillow border vesicles filled with celadonite

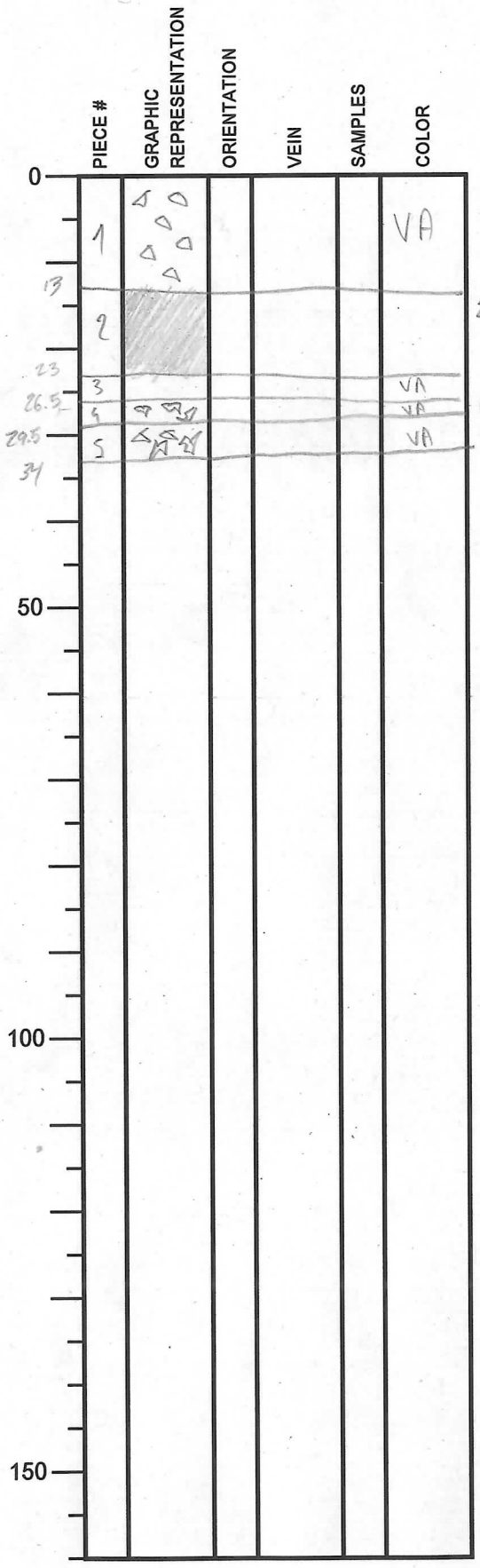
Ver. 0901003

Anh.

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

NO. 12
DATE: 01 / 10 / 2009
EXP.: 327
SITE/HOLE: U1012A
CORE: 57R
SECTION: CC
OBSERBER: SL



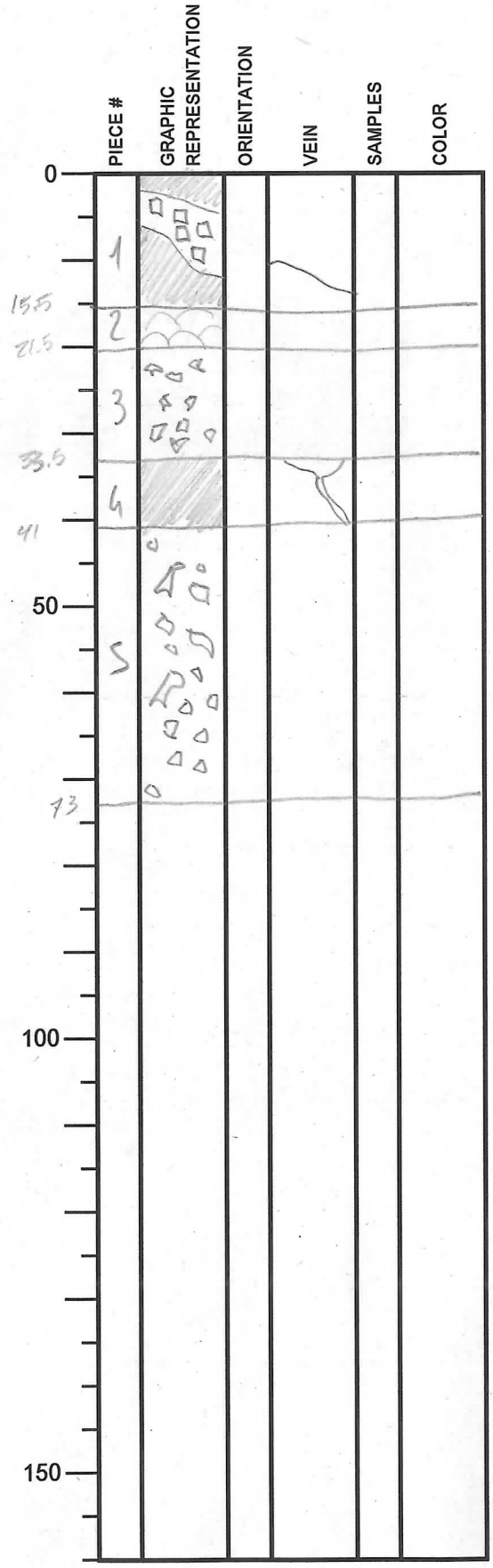
Ver. 0901003

Arch.

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

NO. 13
DATE: 06 / 10 / 2009
EXP.: 329
SITE/HOLE: C0012 A
CORE: 58 R
SECTION: 1
OBSERBER: SL



TS

PS

SECTION DESCRIPTION

Breccia in a large veim. in the veim: zeolite and celadonite and pieces of B
B = MP - SVes.
piece of pillow ?
pieces of B and pillows

Quartz veim in B-SP-SVes

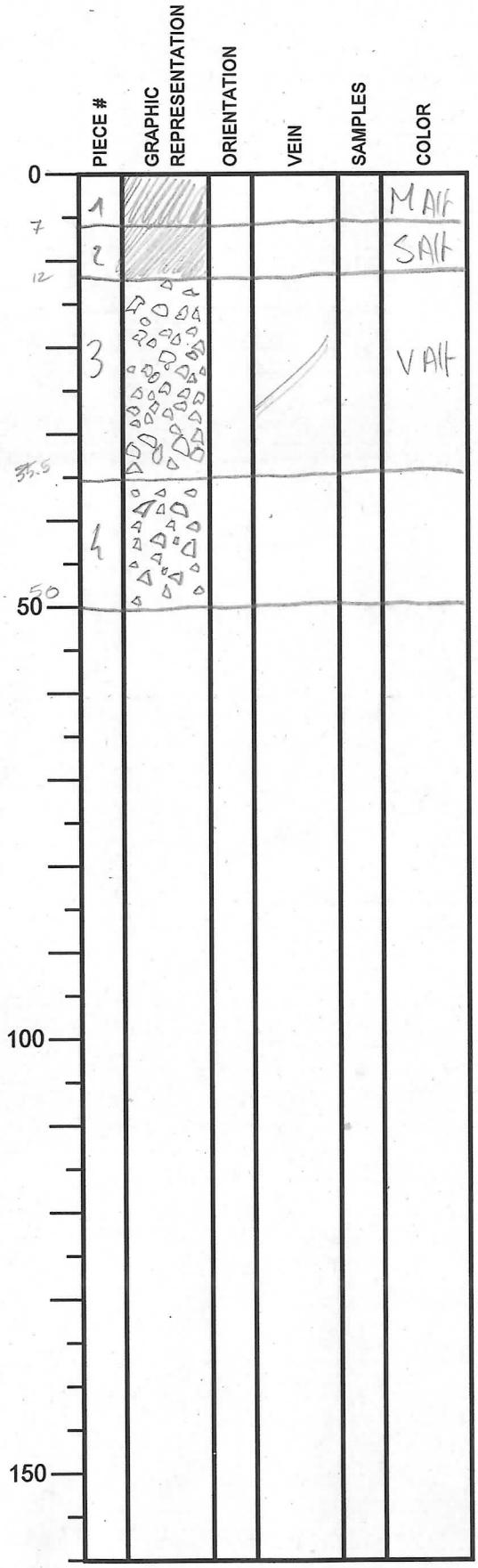
pieces of B ⇄ zeolite bearing vesicles
⇄ mixing between two B
↘ pillow borders
↳ veins of breccia and celadonite

Integrated Ocean Drilling Program

Visual Core Description - Hard Rock -

Archive

NO. 14
DATE: 21/10/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 58
SECTION: CC
OBSERBER: SL



SECTION DESCRIPTION

B [SP] - Sves - vesicules are filled with quartz and zeolite
B [SP] - Sves vesicules are filled with celadonite

Medium mixed rubble of B

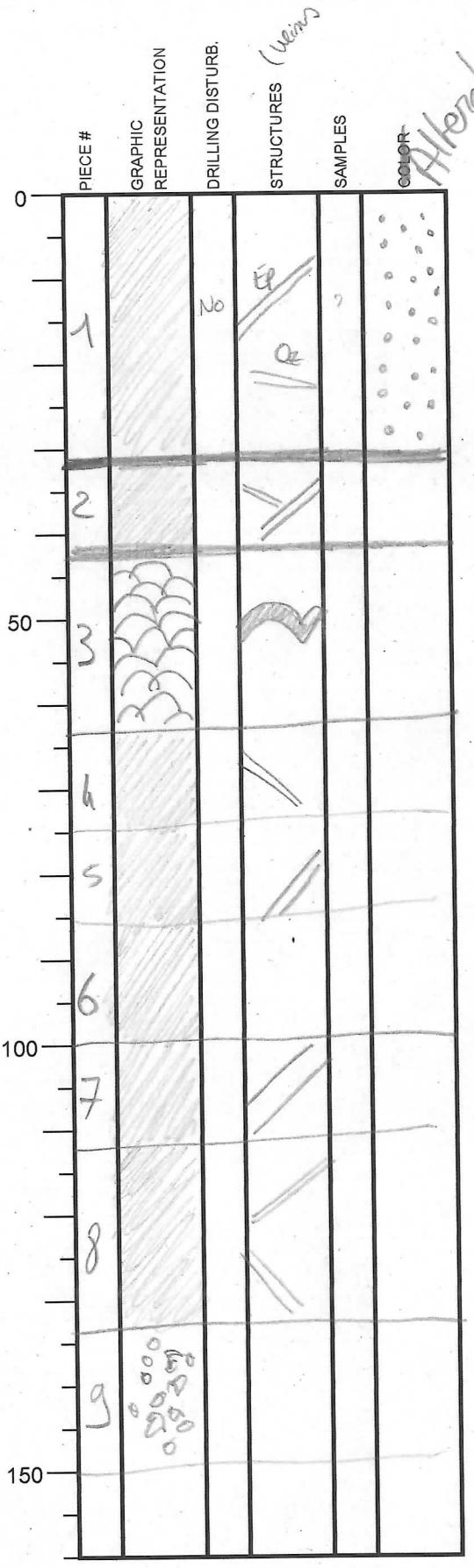
little mixed rubble

W.R description

VWR

Integrated Ocean Drilling Program
Visual Core Description

NO. 1
DATE: 03/10/2009
EXP.: 312
SITE/HOLE: C0012 A
CORE: 53
SECTION: 2
OBSERBER: Shasa



SECTION DESCRIPTION

Massive B - No pillow structure - veins of epidote and of Qz

Moderate Alteration

veins of Qz and Ep

Pillow structure
Altered glass rims (photo 1-4)

Qz veins

large casts of pl (?) changes of vesicles size
pl laths visible

large veins of ep, Qz and brown

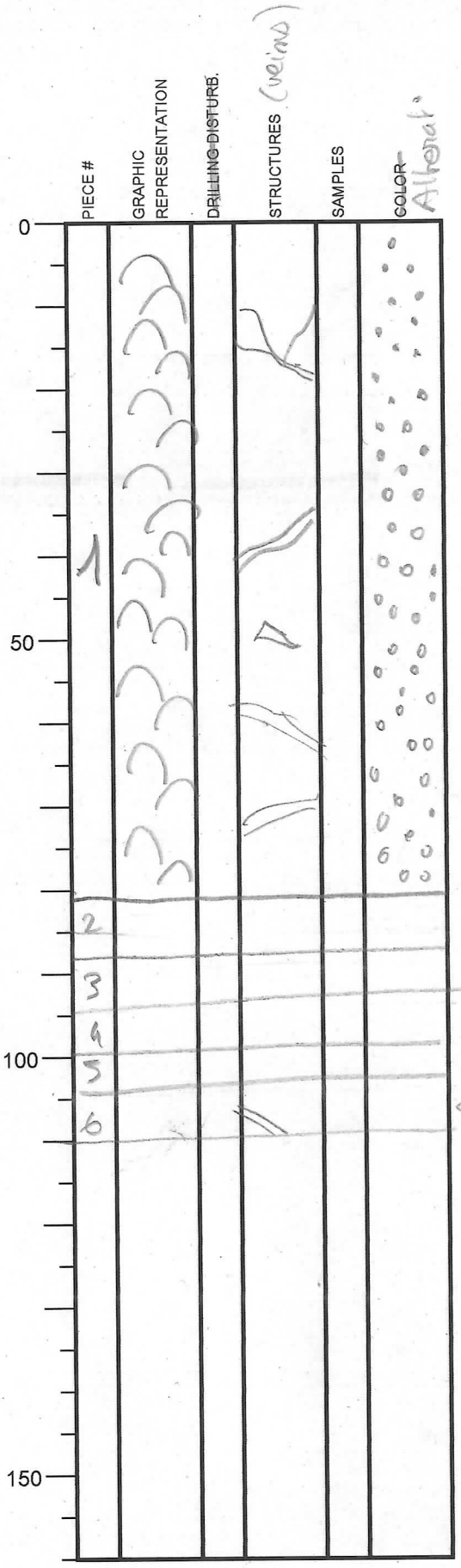
Massive B, ± large vesicules, veins

Mixed rubble

Integrated Ocean Drilling Program
Visual Core Description

WR

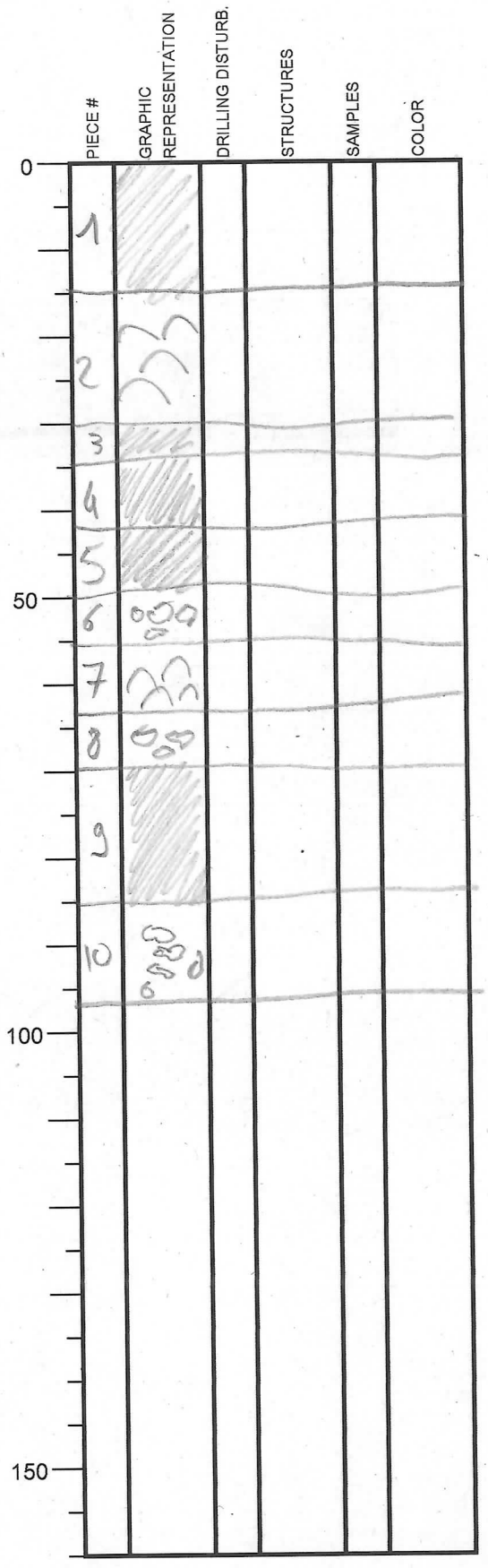
NO. 2
DATE: 03/10/2009
EXP.: 322
SITE/HOLE: C0012 A
CORE: 54
SECTION: 1
OBSERBER: Shasa



WR

Integrated Ocean Drilling Program
Visual Core Description

NO. 3
DATE: 09/10/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 54
SECTION: 2
OBSERBER: Shasa



SECTION DESCRIPTION

Veins of Qz, Ep
Moderate Alteration

≠ types of B ↔ Glass Aphyric porphyric

B
High Alteration - B

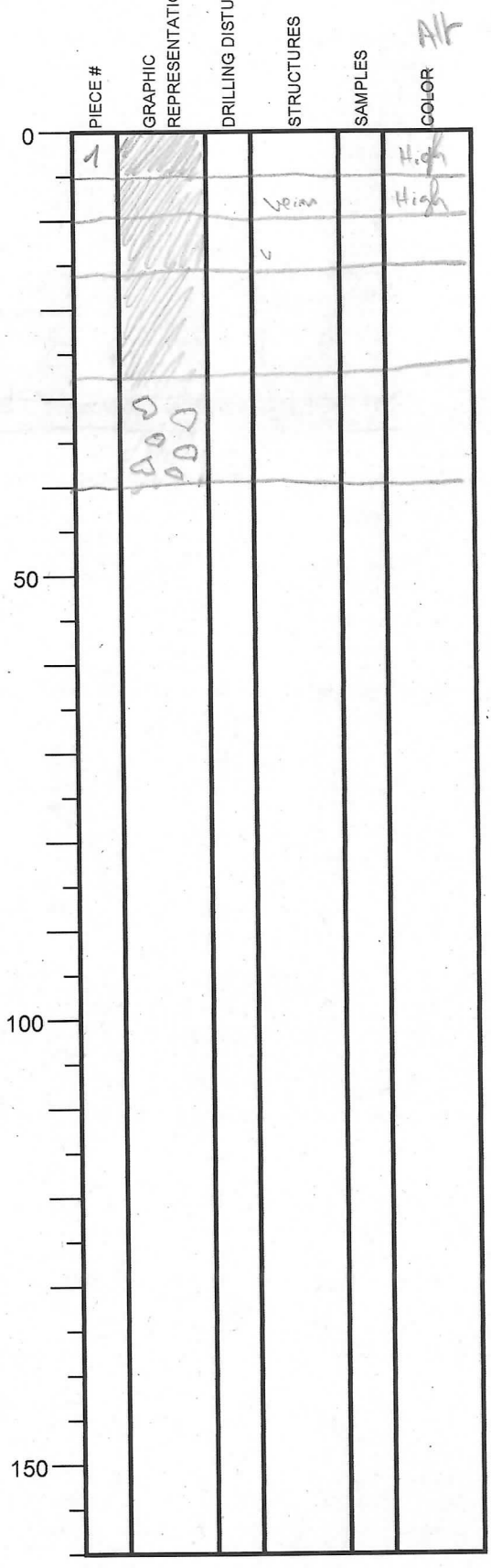
chunks of B
pillow ?
chunks
± porph (2 B? or ≠ textures ?? → why ??
↓ pillows ?

chunks

IWR

Integrated Ocean Drilling Program
Visual Core Description

NO. 4
DATE: 03/10/2009
EXP.: 322
SITE/HOLE: U1012A
CORE: 5H
SECTION: CC
OBSERBER: Shasa



SECTION DESCRIPTION

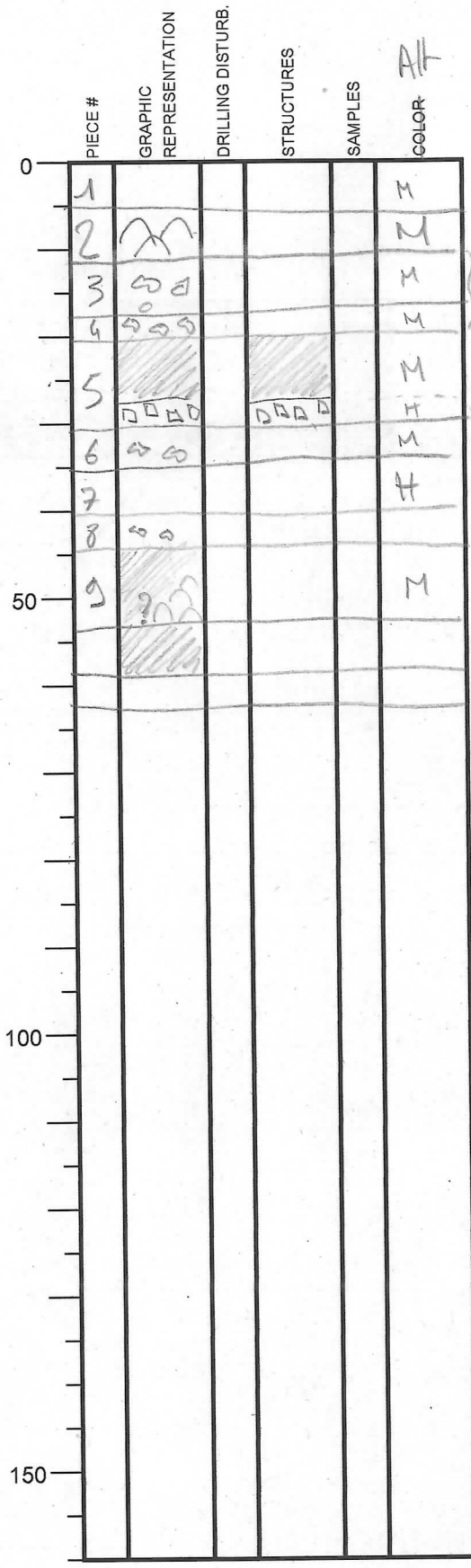
Glassy rinds, Pyrite!, Alterat°

filled vesicules - glass inclusions ?
zeolites

WR

Integrated Ocean Drilling Program
Visual Core Description

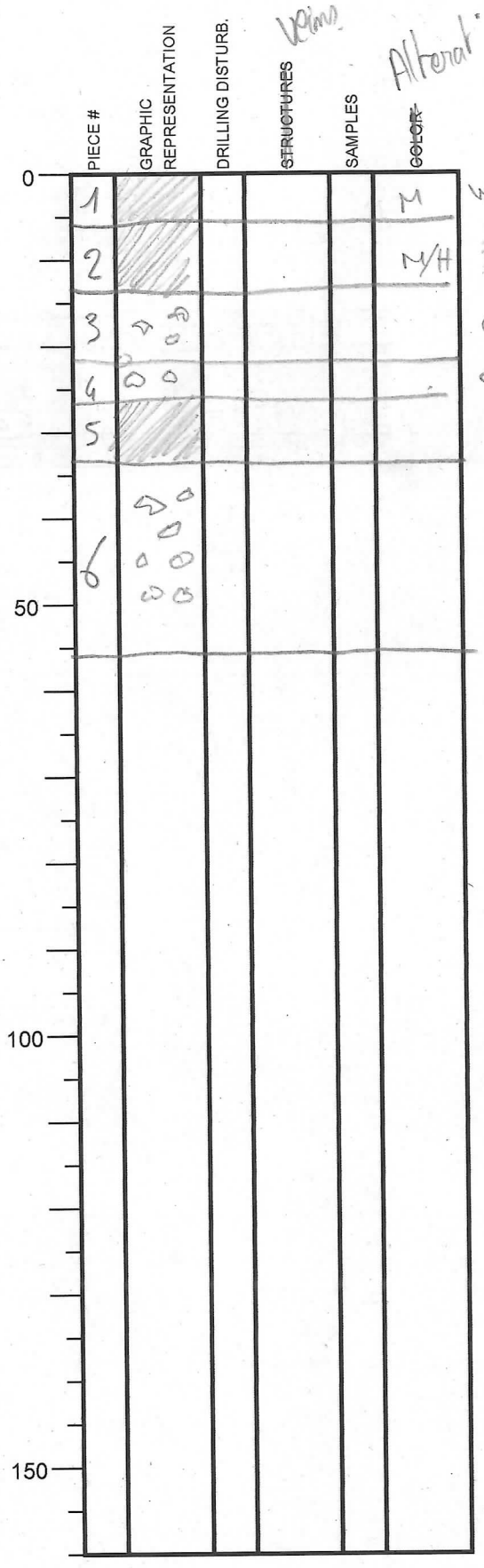
NO. 5
DATE: 03/10/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 55
SECTION: 01
OBSERBER: Shasa



Integrated Ocean Drilling Program
Visual Core Description

1 WR

NO. 6
DATE: 03/10/2009
EXP.: 322
SITE/HOLE: C0012 A
CORE: 5S
SECTION: C
OBSERBER: L



vesicules filled with chalcedony (?) pyrite
≠ sizes of phenocrysts... chlorite ?

chunks with pyrite

chunk B

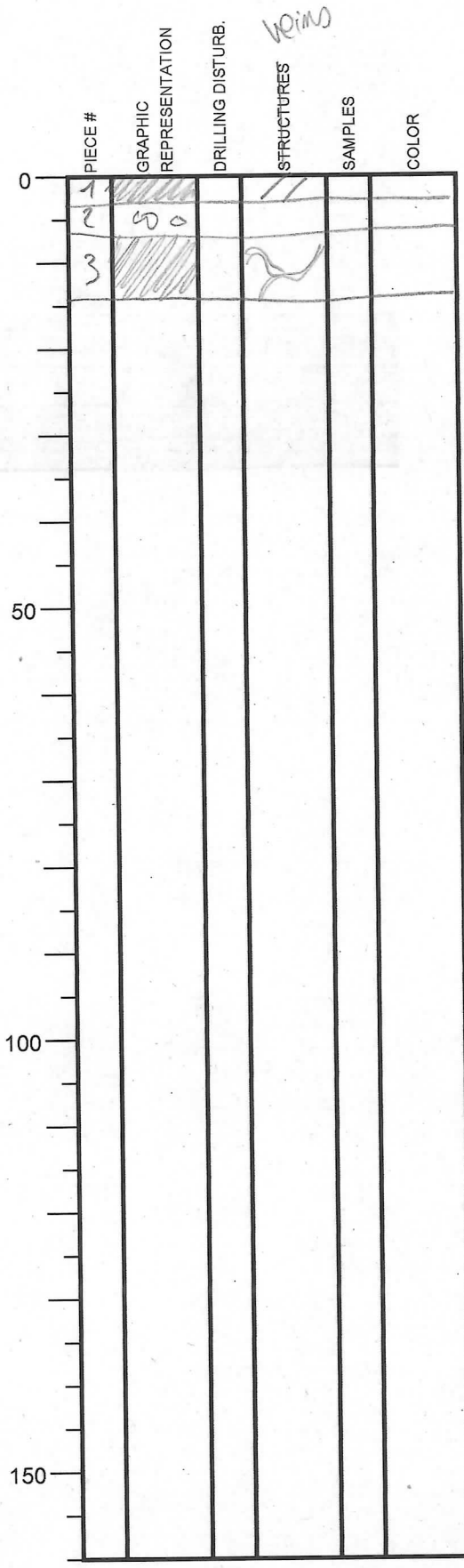
B → many vesicules not filled
→ vesicles filled with ~~chalcedony (?)~~ zeolites (?)

chunks ! was a breccia ?

IWR

Integrated Ocean Drilling Program
Visual Core Description

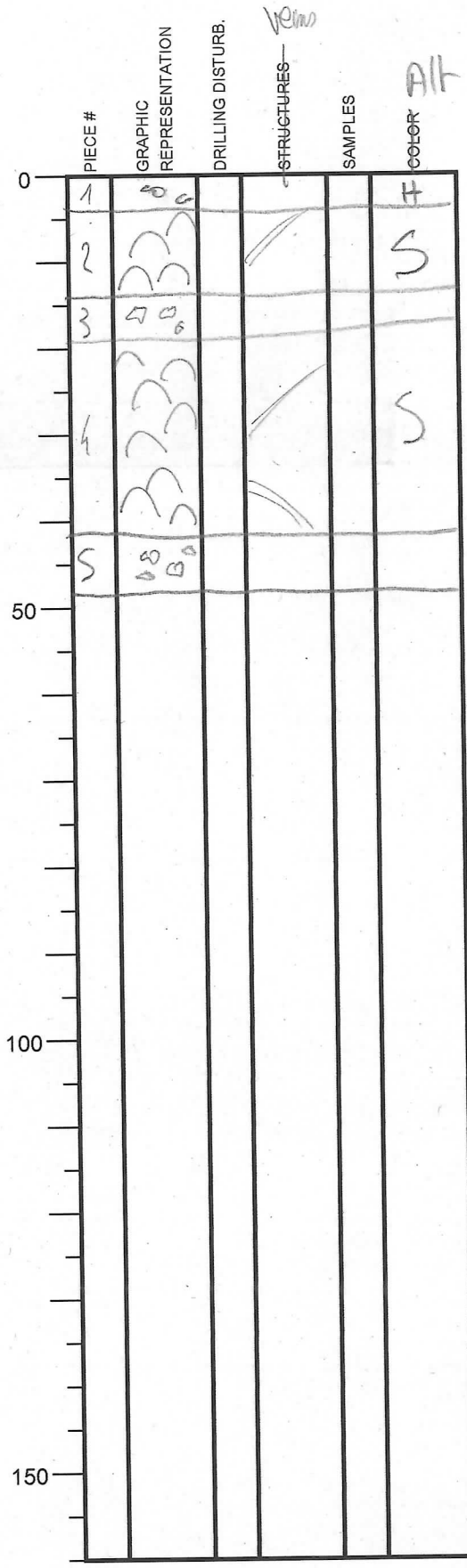
NO. 7
DATE: 8 / 10 / 2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 56
SECTION: 01
OBSERBER: SL



IWR

Integrated Ocean Drilling Program
Visual Core Description

NO. 8
DATE: 03/10/2009
EXP.: 328
SITE/HOLE: C0012 A
CORE: 56
SECTION: 03
OBSERBER: SL

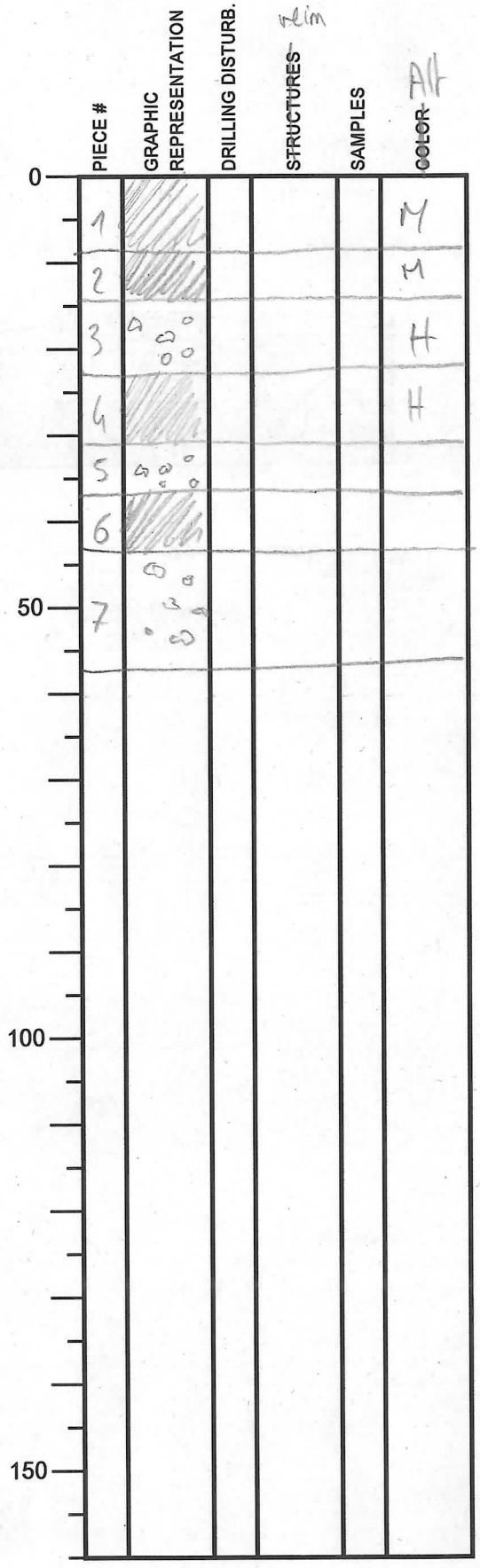


WR

Integrated Ocean Drilling Program

Visual Core Description

NO. 9
DATE: 03 / 10 / 2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 56
SECTION: CC
OBSERVER: Shasa



SECTION DESCRIPTION

glass altered and B
two pieces -> do they really go together ?? "

chunks - some have aphyric B

chunks

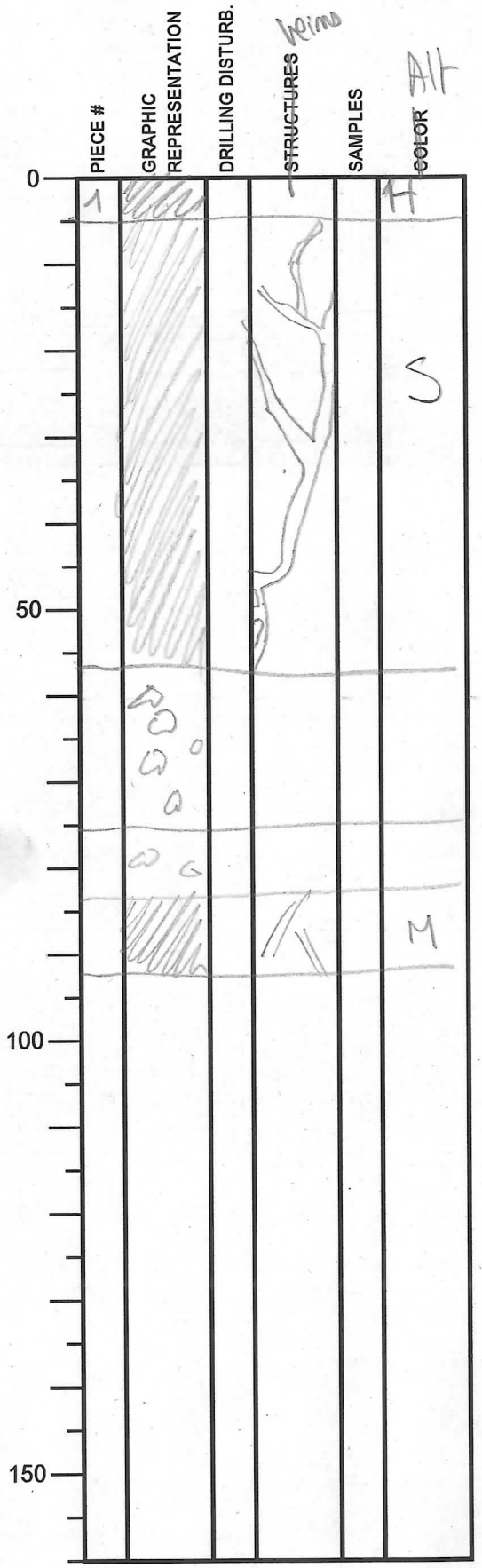
...

chunks

Integrated Ocean Drilling Program
Visual Core Description

IWR

NO. 10
DATE: 03 / 10 / 2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 57
SECTION: 01
OBSERVER: Shasa



SECTION DESCRIPTION

Qz veins (± ep)
No pillow structure
± phenocrysts

chunks of B and of veins of Qz

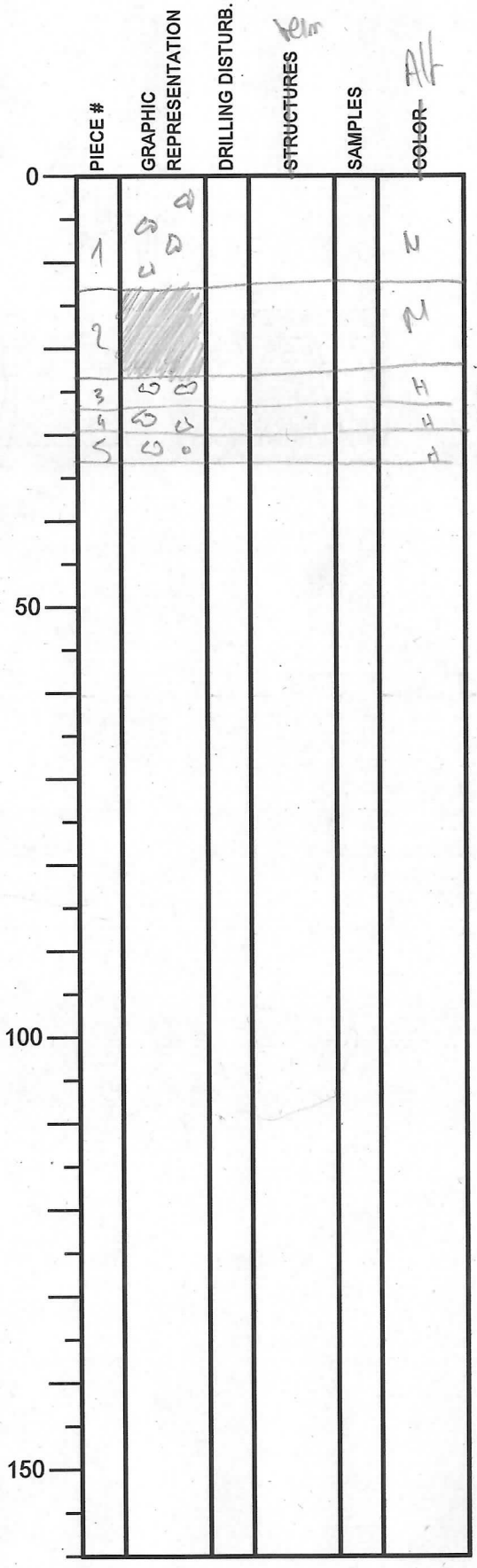
B à ol

(WR)

Integrated Ocean Drilling Program

Visual Core Description

NO. 11
DATE: 03/10/2009
EXP.: 322
SITE/HOLE: C0012A
CORE: 57
SECTION: CC
OBSERVER: Shaca



SECTION DESCRIPTION

vesicles filled of zeolites !

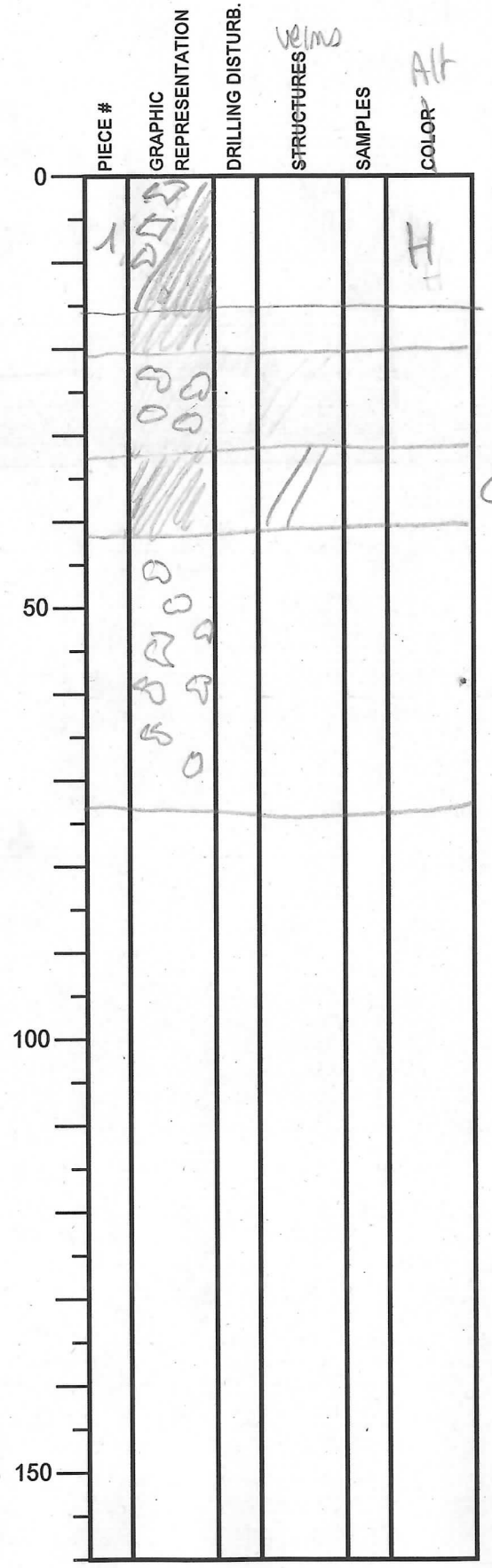
chunks B- ol, pl

WR

Integrated Ocean Drilling Program

Visual Core Description

NO. 12
DATE: 08/10/2009
EXP.: 329
SITE/HOLE: U1012A
CORE: 58
SECTION: 1
OBSERVER: SL



Integrated Ocean Drilling Program

Visual Core Description

NO. 13
DATE: 03 / 10 / 2009
EXP.: 312
SITE/HOLE: C0012A
CORE: 58
SECTION: CC
OBSERVER: SL