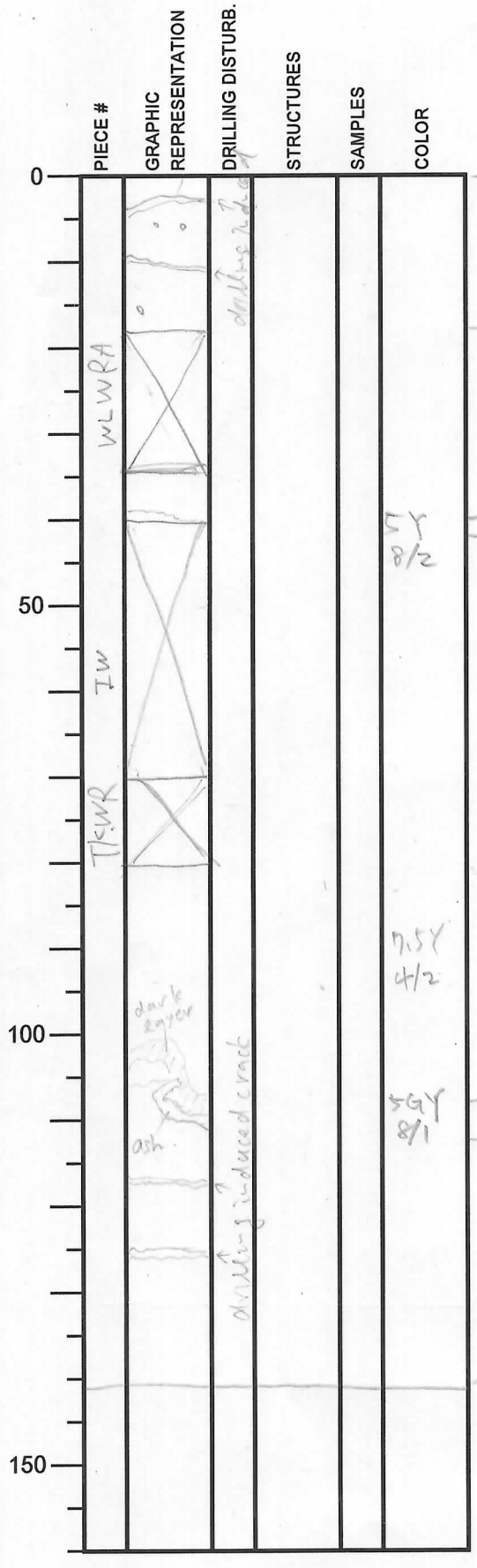
Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: /5/5/20
EXP.: 343
SITE/HOLE: C00/9E
CORE: /
SECTION: /
TOP DEPTH (m CSF):

OBSERBER:



olive green diatomaceous mud
sparse pumice (<3mm).

5Y 8/2 (39–39.5) ash (light yellow).

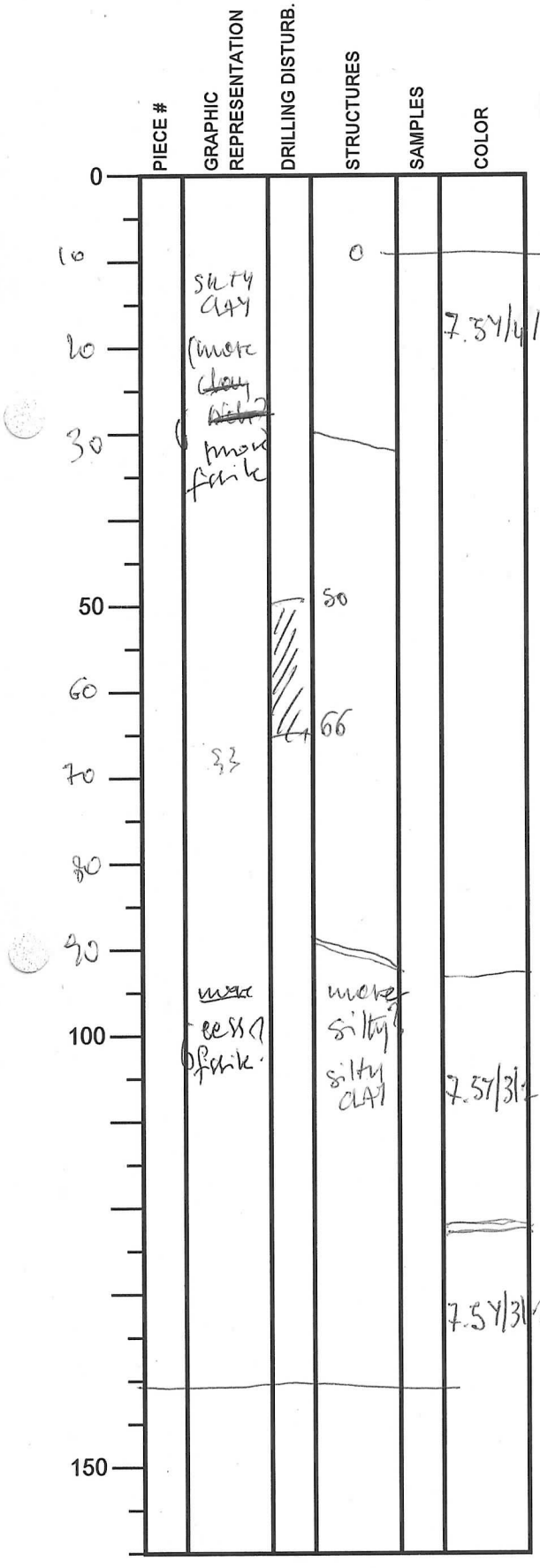
olive green diatomaceous mud
disturbed by drilling (moderately)

5GY 8/1 (107–112) ash (light grey) with dark layer.
Obscure boundary.

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: / /20
EXP.: 343
SITE/HOLE: C0019E
CORE: 01R
SECTION: 2
TOP DEPTH (m CSF): 141
OBSERBER: FR



pomice blob 9.5-10.5

29 cm - 30 cm lamina? dark layer

DRILLING DISTURBED

burrow (71.0 - 71.5)

88.00 - 90 yellow layer (thickness 1.5 cm
7.5Y/4/3

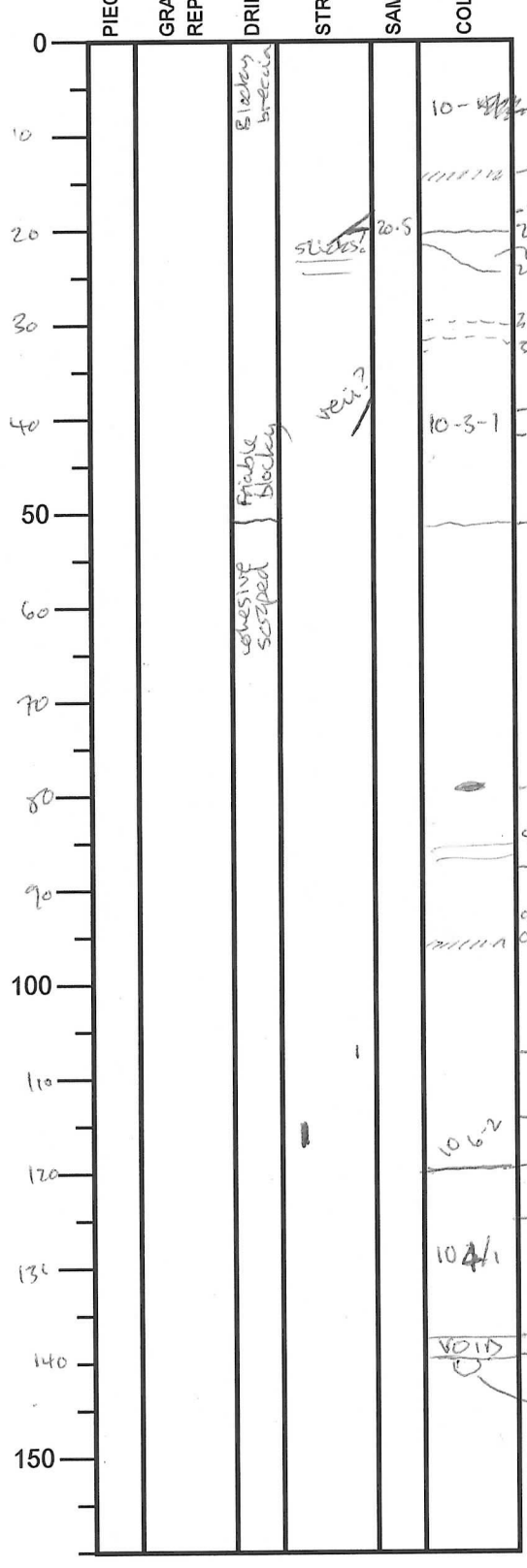
color limit

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 1515 / 20
EXP.: 343
SITE/HOLE: 19E
CORE: 1R
SECTION: 3
TOP DEPTH (m CSF):

OBSERBER:



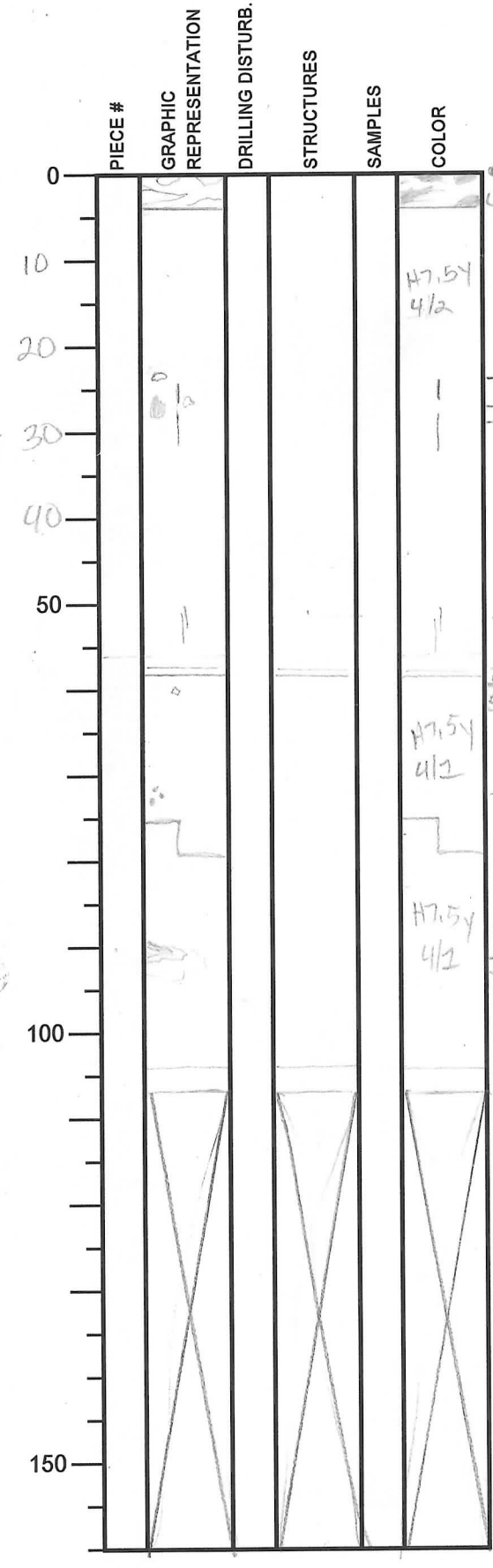
Integrated Ocean Drilling Program

Visual Core Description

CORE

NO.
DATE: 15/05/20
EXP.: 343
SITE/HOLE: C0019E
CORE: 1R
SECTION: 4
TOP DEPTH (m CSF):

OBSERBER: M. WOLFSON

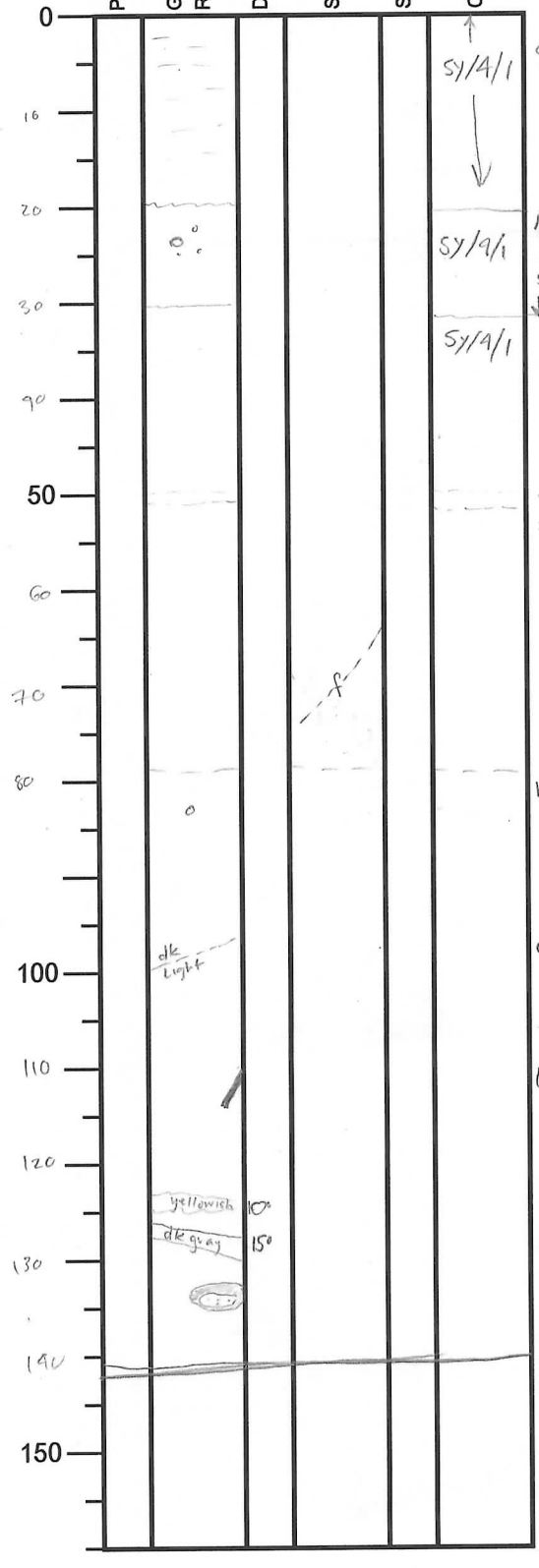


Integrated Ocean Drilling Program

Visual Core Description

Logged on Archive Half VCD.

NO.
DATE: 15 / 5 / 20
EXP.: 334
SITE/HOLE: C0019
CORE: 1
SECTION: 5
TOP DEPTH (m CSF):
OBSERBER: C. ROWE



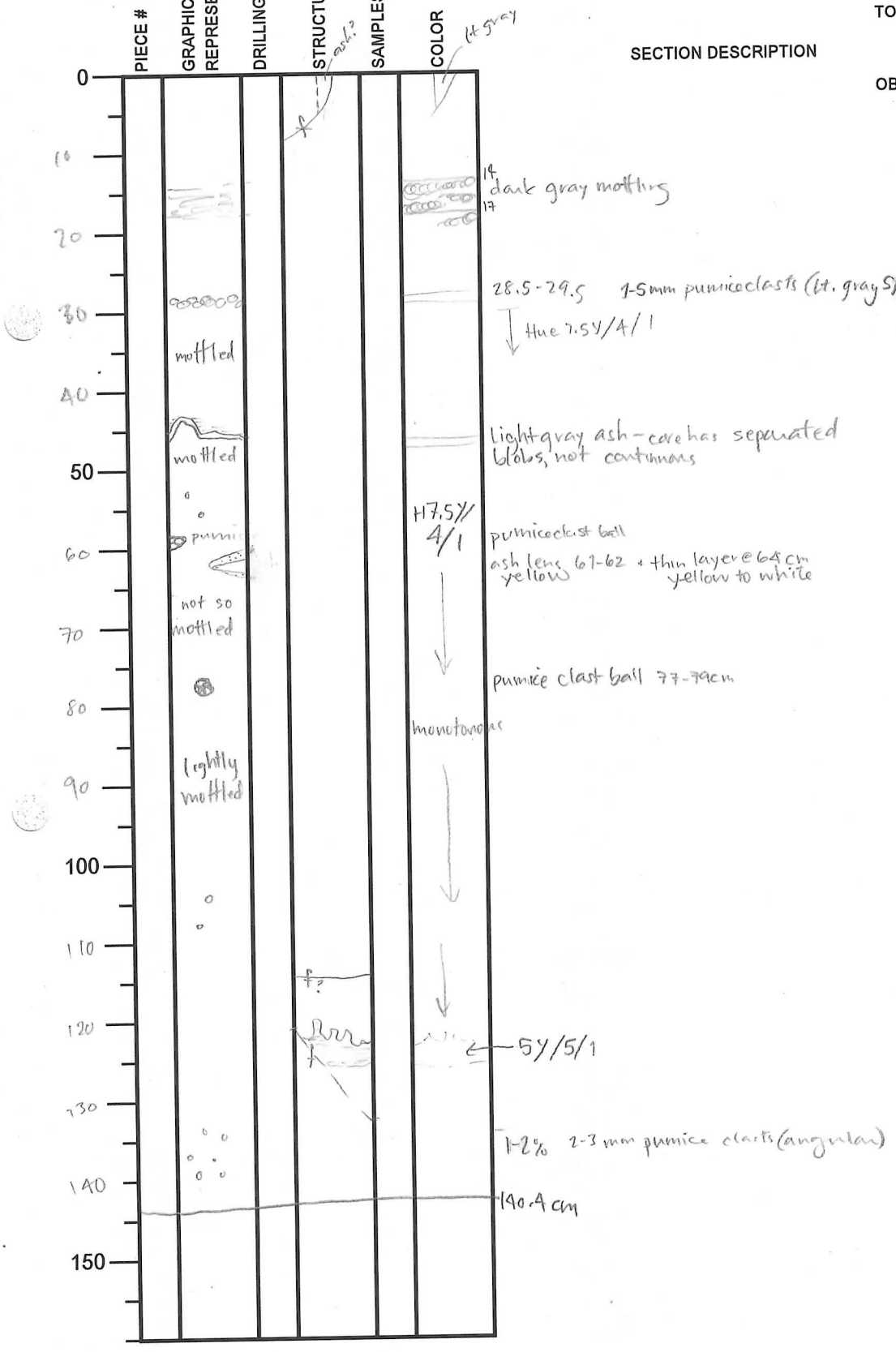
Integrated Ocean Drilling Program

Visual Core Description

Logged on Archive Half.

NO.
DATE: 5/5/20
EXP.: ~~C0019~~ 343
SITE/HOLE: C0019
CORE: 1
SECTION: 6
TOP DEPTH (m CSF):

OBSERBER: C. Rowe



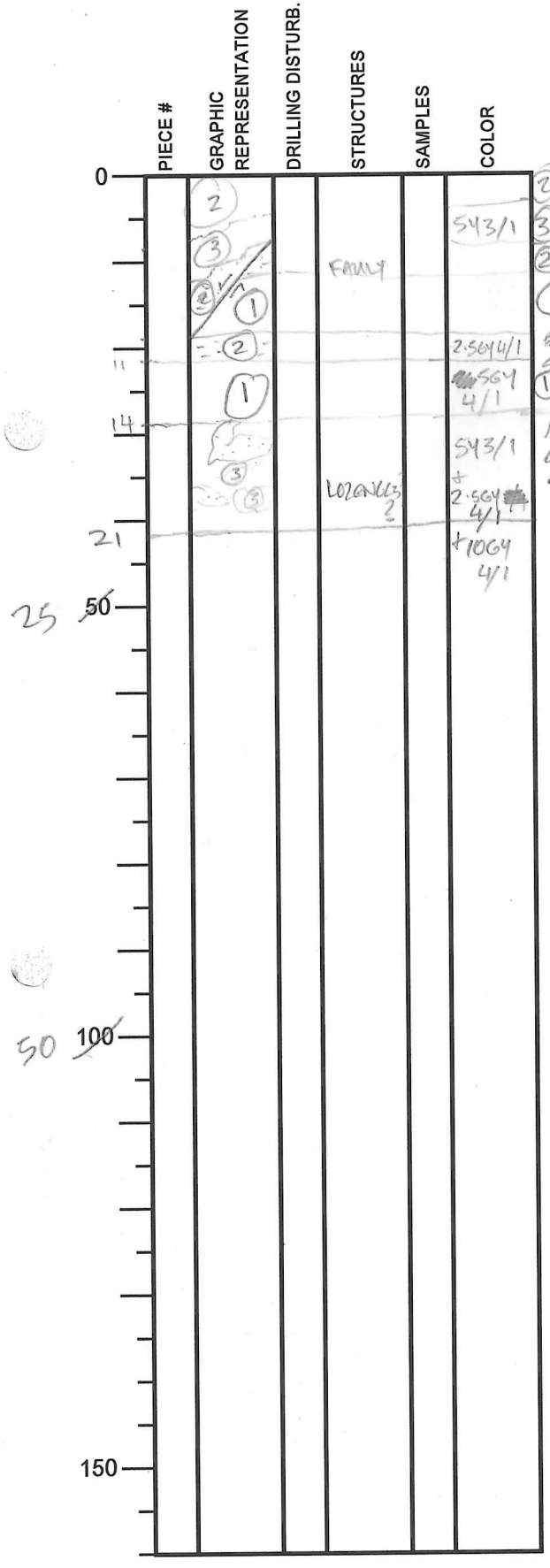
VCD_sheet_100805

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 15 / 5 / 2012
EXP.: 344 3
SITE/HOLE: C0019E
CORE: R01
SECTION: 2
TOP DEPTH (m CSF):

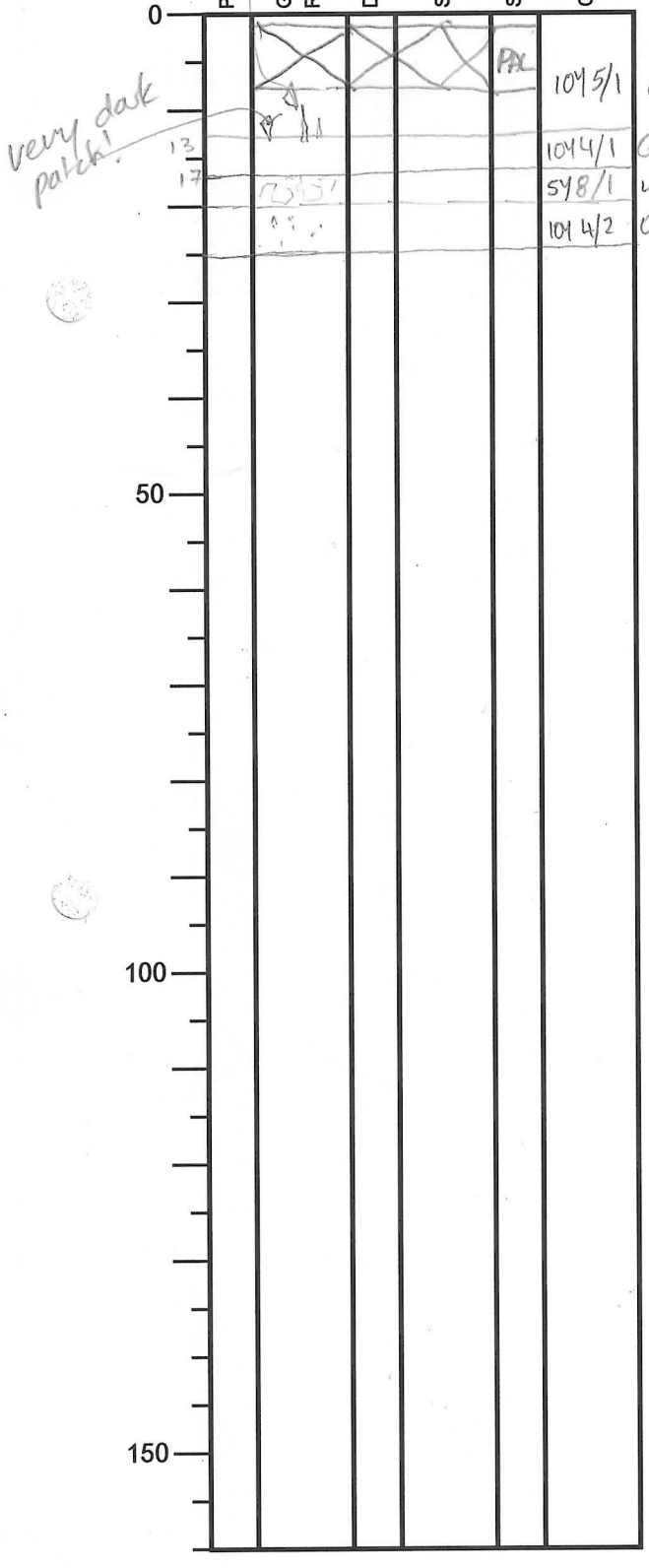
OBSERBER: V. Toy



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 15/5/2012
EXP.: 343
SITE/HOLE: 1001 9E
CORE: R01
SECTION: CC
TOP DEPTH (m CSF):
OBSERBER: V. Toy



343 C0019E 01R01

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: / /20
EXP.: 343
SITE/HOLE: C0019E
CORE: 1R
SECTION: 01
TOP DEPTH (m CSF):

CT log

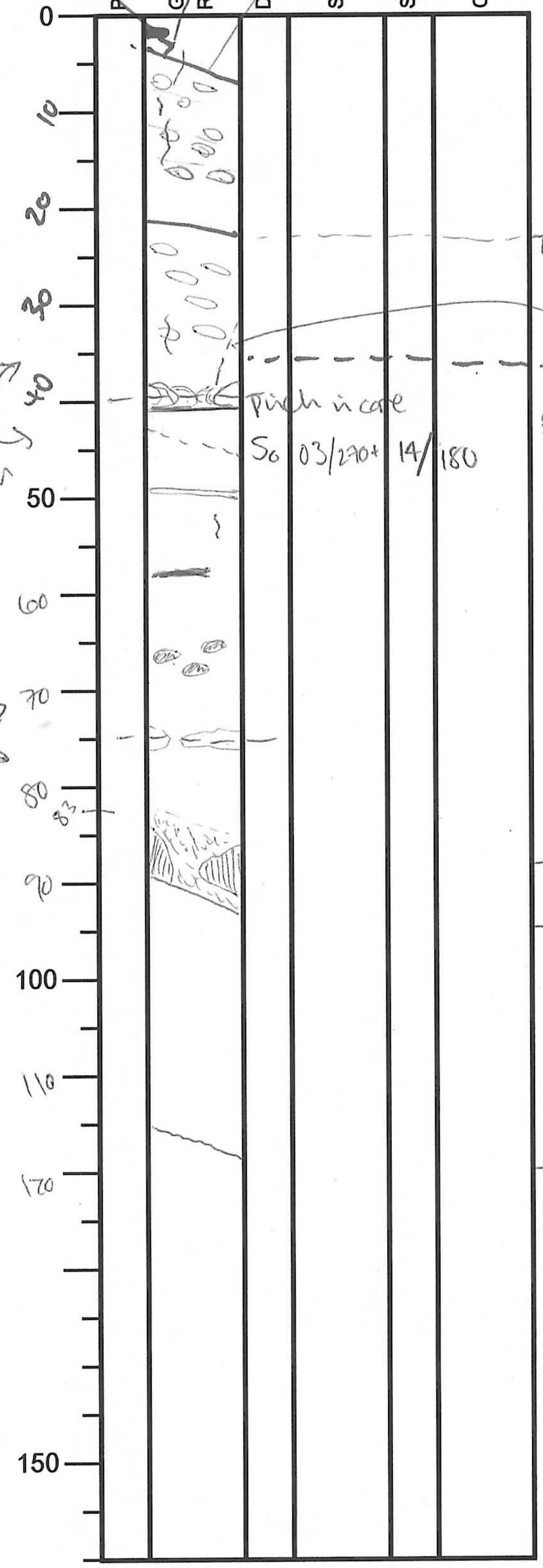
OBSERBER: Kirkpatrick + Science Party

Ash blebs / veins?] CT bright patch not vis in core

PIECE # | GRAPHIC REPRESENTATION | DRILLING DISTURB. | STRUCTURES | SAMPLES | COLOR

dark laminae α = 19/270 05/000

bioturb'n



SECTION DESCRIPTION

Bed? ~~Fault?~~ Burrows ~~[illegible]~~ carry on

Mottled section dark background

Bed? — lith change

generally brighter section. Similar patchy texture (lozenge?)

possible fault(?) overprinted w/ drilling-induce

Bright reflector

472 mm Half-round wedge of ash (in WH) → burrow 1cm flattened

Dark layers

} more homogen section

Darker layers

Bedding

Maybe a little brighter lith?

115

Darker lith.

VCD_sheet_100805.xls

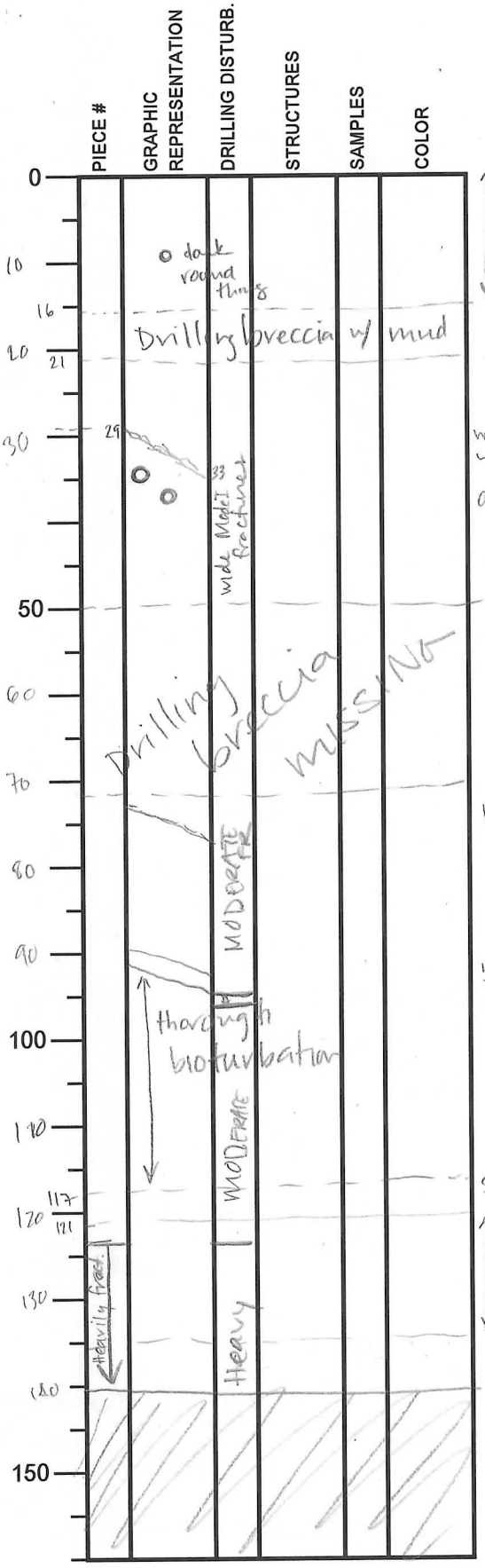
100K ct
10
80

Integrated Ocean Drilling Program

Visual Core Description

CT 109

NO.
DATE: 15/5 / 2012
EXP.: 343T
SITE/HOLE: C00019
CORE: 1R
SECTION: 2
TOP DEPTH (m CSF):



SECTION DESCRIPTION

abundant short wavy longitudinal and horizontal cracks (drilling ind.) appear to be along wavy bright deformation bands (?)

OBSERVER
OBSERBER: C. ROWE

22: very bright subhorizontal burrow 6mm 3mm

wavy CT-bright bedding (ash?) ~1cm wide 29/270 + 25/180

accessories. dark rounded irregular blobs w/ bright edges. 0.5 - 1cm diameter

bright (ashy?) bed 26/270, 06/000 discontinuous

bright blobby ash bed ~ 2cm thick, edges gradational. 26/270 18/180

slight increase in CT brightness

abundant steep deformation bands, offset burrows + bioturbation fabric
spaced ~ 0.8-1.2cm, wavy sub-parallel
57/270 + 22/000.

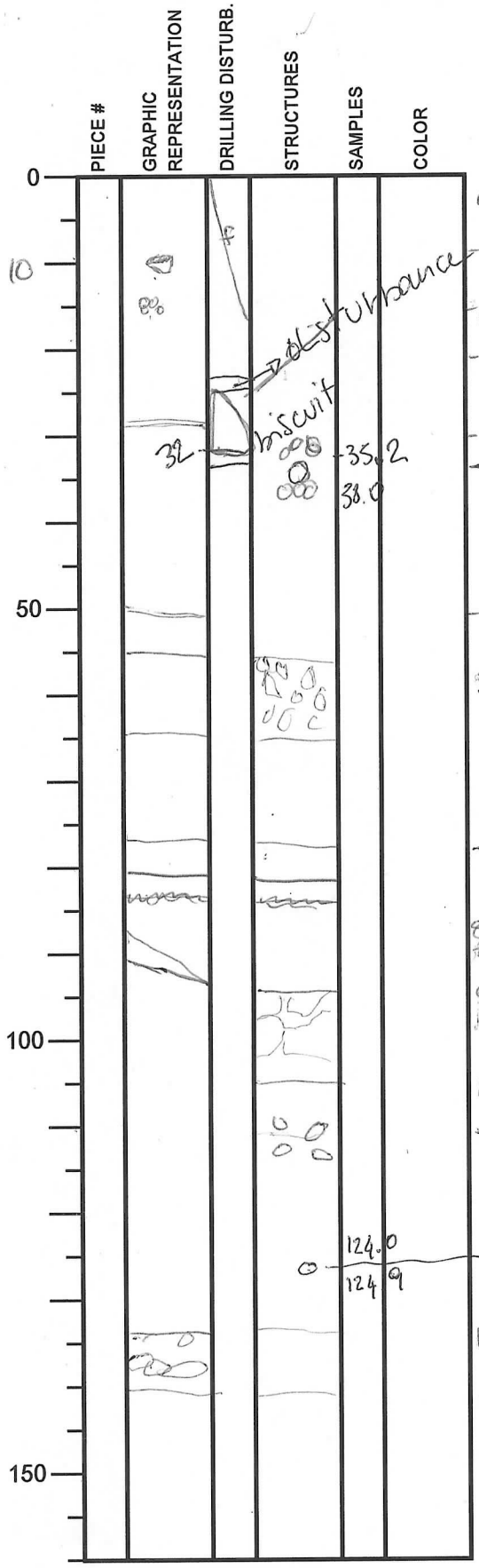
Integrated Ocean Drilling Program

Visual Core Description

X-CT

NO.
DATE: / / 20
EXP.:
SITE/HOLE:
CORE: CC019E
SECTION: 3
TOP DEPTH (m CSF):
OBSERBER:

(WH) = working half
(AH) = archive half

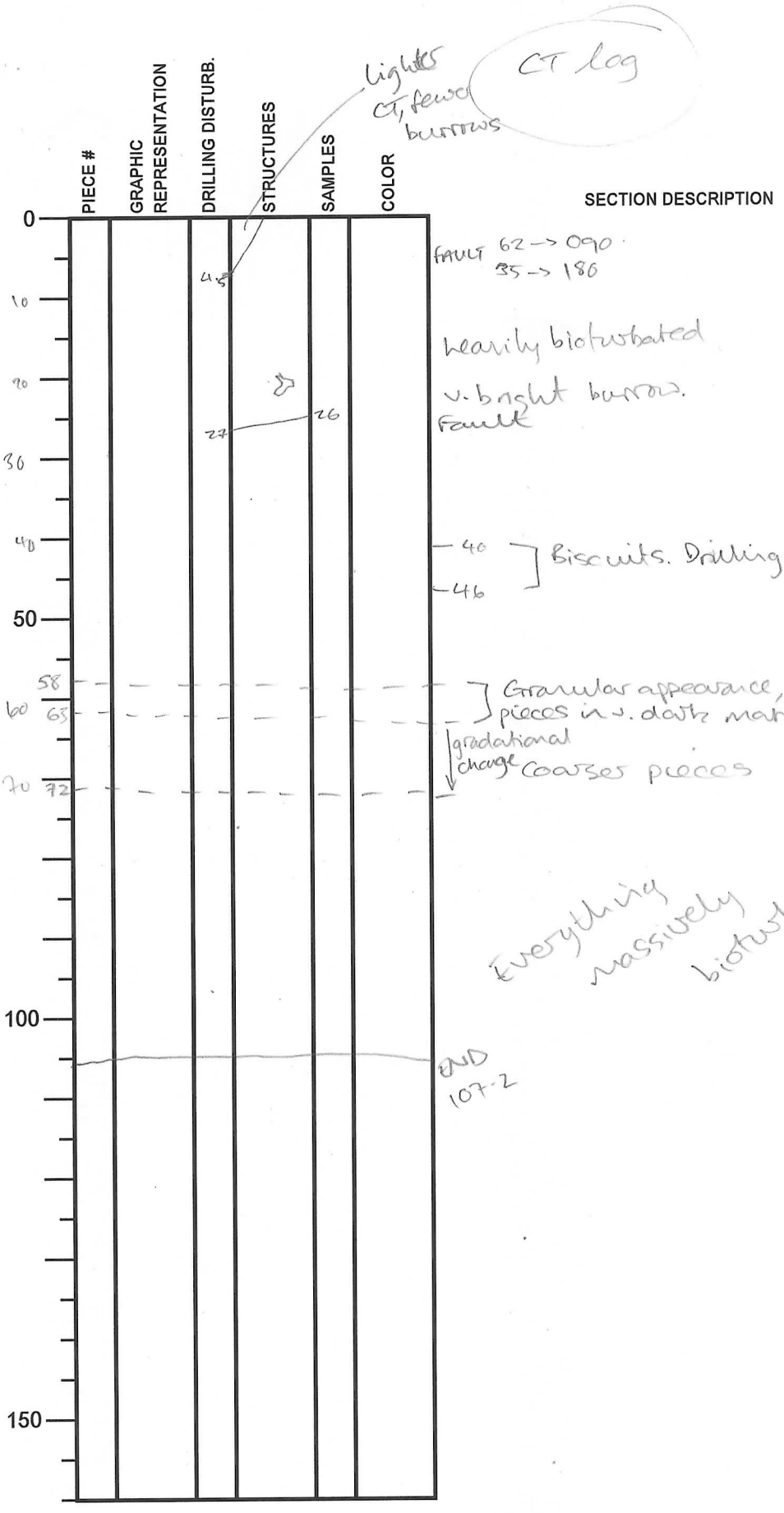


Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 15/5/2012
EXP.: 343
SITE/HOLE: 19E
CORE: 1R
SECTION: 4
TOP DEPTH (m CSF):

OBSERBER: KIRKPATRICK
WATSON

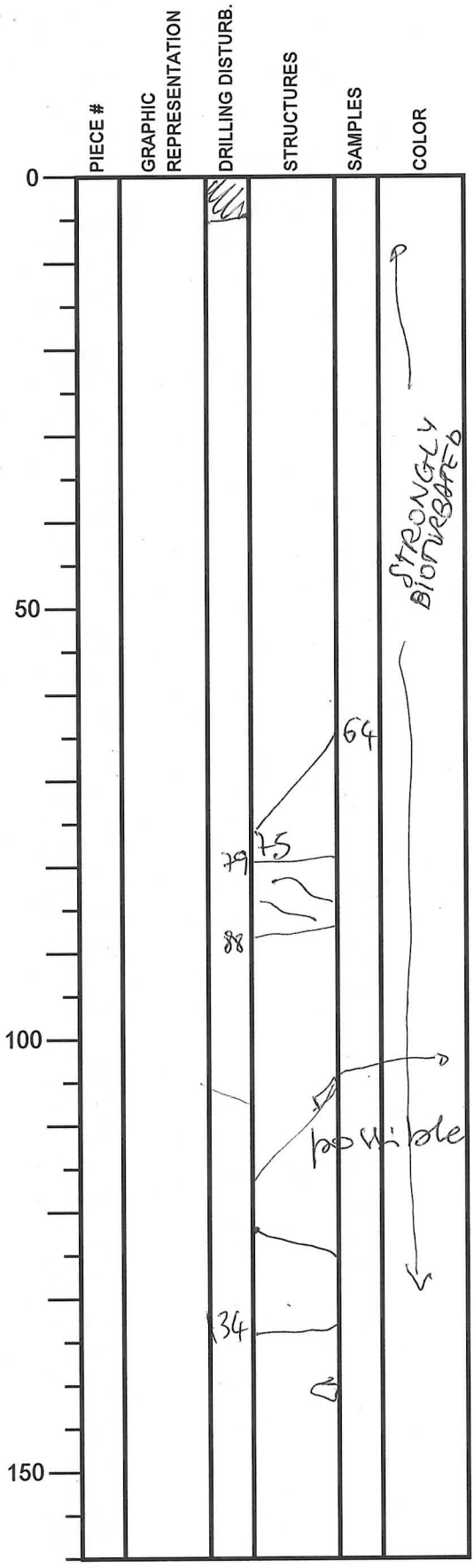


Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 15/5/20
EXP.: 343
SITE/HOLE:
CORE: 1
SECTION: 5
TOP DEPTH (m CSF):

OBSERBER: fra on CT



Integrated Ocean Drilling Program

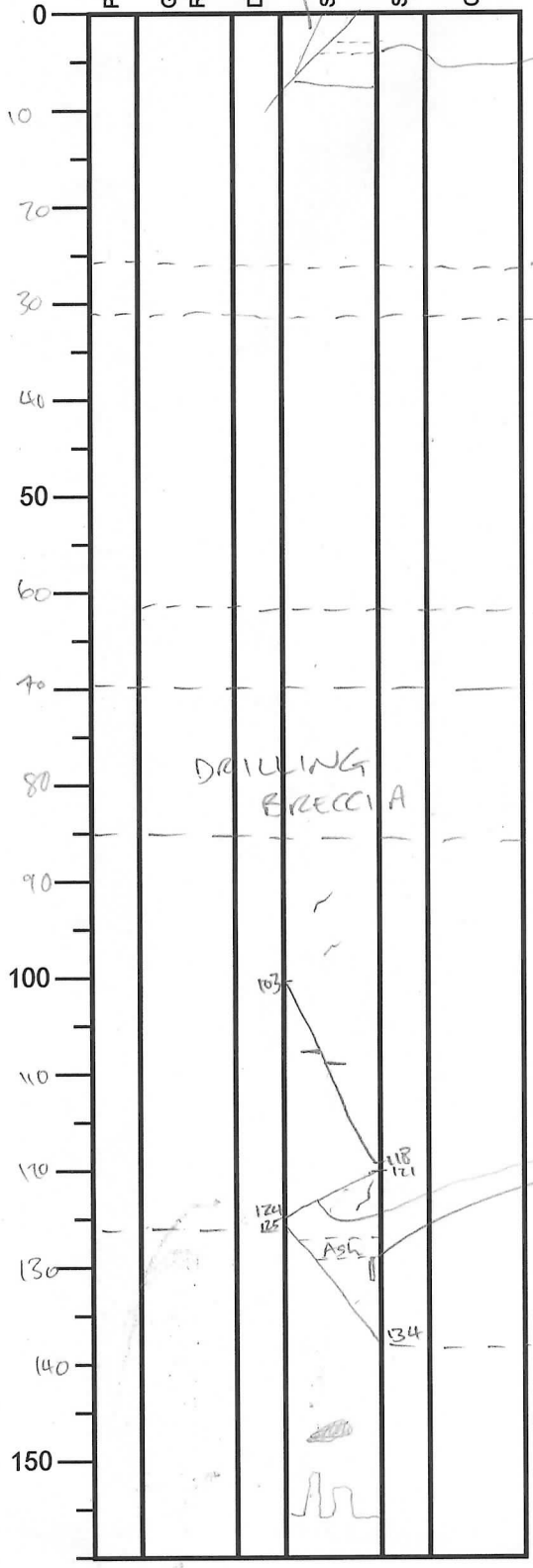
Visual Core Description

NO.
DATE: 15/5/20
EXP.: 343
SITE/HOLE: 19E
CORE: 1R
SECTION: 6
TOP DEPTH (m CSF):

OBSERBER: KIRKPATRICK

CT LOG

81-090
53-000



Fault 64→090, 45→000
Ashy layer

Mottled, heavily bioturbated

Bright CT layer

Brighter CT, heavily bioturbated

15cm

Dark CT, mottled

Lightly bioturbated (small worm burrows)

fault, ↑↓ offsets worm burrows, 72→270, 70→000
reactivated as a drilling fracture (dpe)

fault, 25→090, 24→000

possible erosional surface / unconformity at base of ash

Diffuse upper edge to ash layer

fault, dips 45→270, 64→000
Offset > width of core

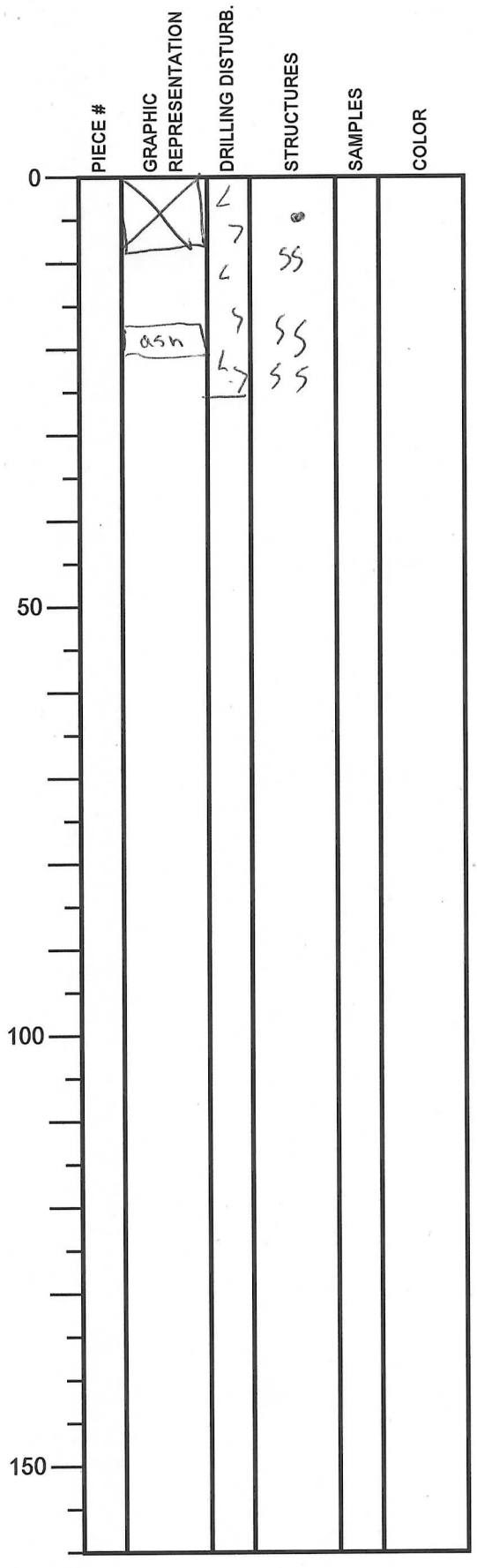
Darker brightness in CT
large pumice clast.

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: / /20
EXP.: 343
SITE/HOLE: C0019E
CORE: 1
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER: Regalla



SECTION DESCRIPTION

0-6 void
0-24 drilling induced fracturing
4-8 bioturbation
19-25 bioturbation
lithic fragment at 9cm
13.8-16.8 bright CT horizon = dark (organic????) horizon in core
16.8-20 cm ash
siliceous mudstone elsewhere

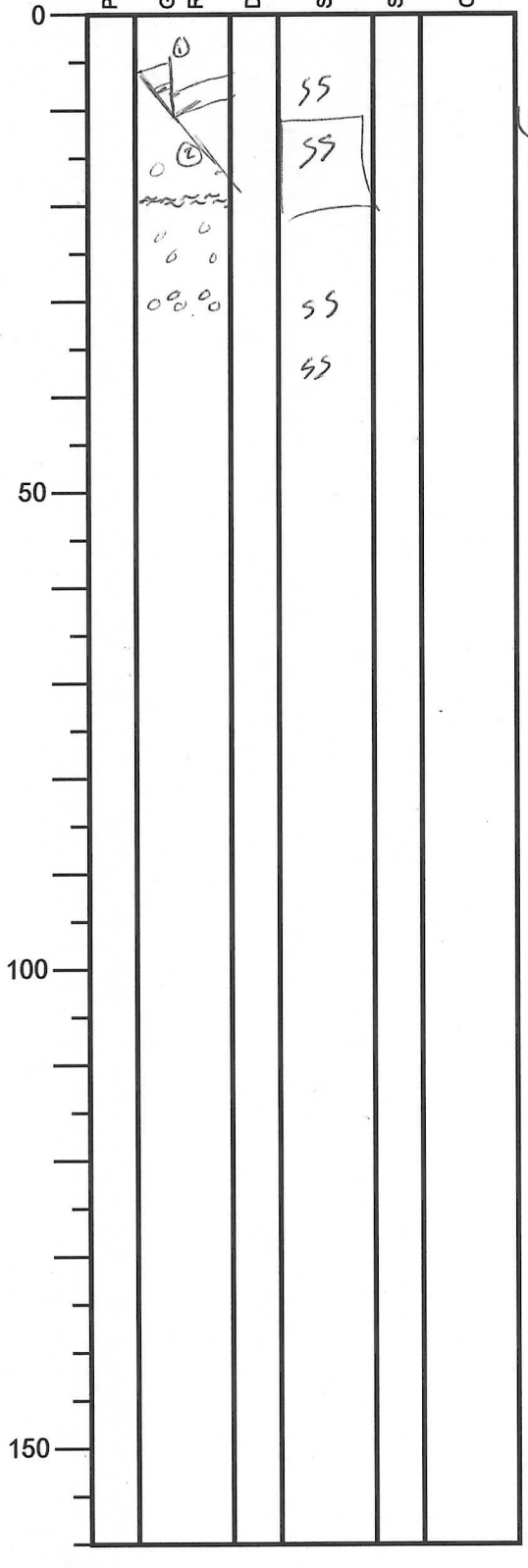
Integrated Ocean Drilling Program

Visual Core Description

XCT

NO.
DATE: / /20
EXP.: 343
SITE/HOLE: C0019E
CORE: 1
SECTION: 7
TOP DEPTH (m CSF):

OBSERBER: Regalla



SECTION DESCRIPTION

dense (bright) layer offset by two faults
(1-4cm) ① 71°/180 + 0°/075 is offset by
(4-11 cm) ② 45/180 + 0/50

13-19 cm mottled, appears intensely bioturbated

15.6 cm sub-horizontal? shear band
26-29 cm mottled
30-33 bioturbation
35-38 bioturbation

all siliceous mudstone

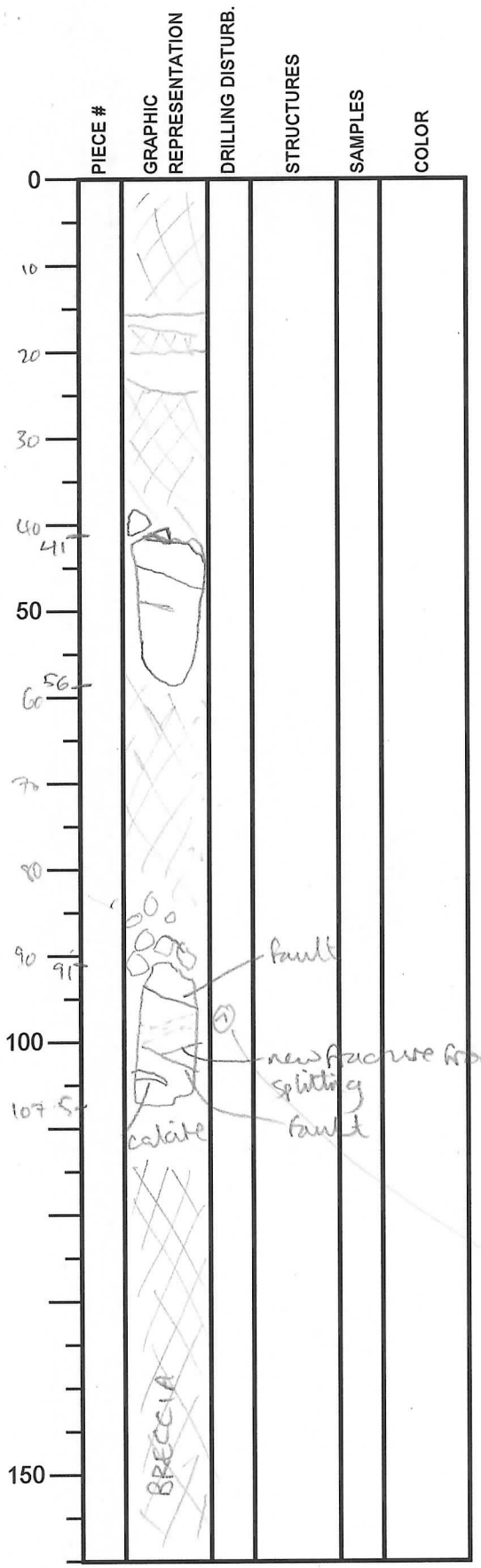
SS bioturbation

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 17/5/2012
EXP.: 343
SITE/HOLE: 19E
CORE: 2
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER:
FRANCESCA
SAMIE



SECTION DESCRIPTION

2x mud layers: Drilling induced? wet, but with sharp edges

UNIT 1: medium gray (5B-5/1) siltstone/silty clay
patches of flattened darker + lighter areas = MOTTLED
Background is <1mm particle sized silt
weakly lithified. Mixed pale gray and black grains
Lighter mottles are homogenous pale grey
Same as background but missing black particles
1-2 mm thick black, silty (organic rich) laminations
discontinuous
one white-ish discontinuous band ~5mm thick

→ 2.54-4/3

UNIT 2: greyish brown, ultra fine grained, mudstone
cohesive (hard, lithified). Contains
Patchy calcite cement.

fossils! Dark grey, sharp edges, biological shapes
And calcite-cemented burrow (tubular fossil)
trace fossil. Fossils are scattered, fragmented, rand
faults have thin (<1mm) coating of calcite (cement
Slickenlines on one, other was corrugated (gastropo

① CALCITE VEIN ALONG A FAULT CUT BY 2 PARALLEL DARK SEAM (possible pressure-solution seams) (see structural spreadsheet)

VCD_sheet_100805.xls

Integrated Ocean Drilling Program

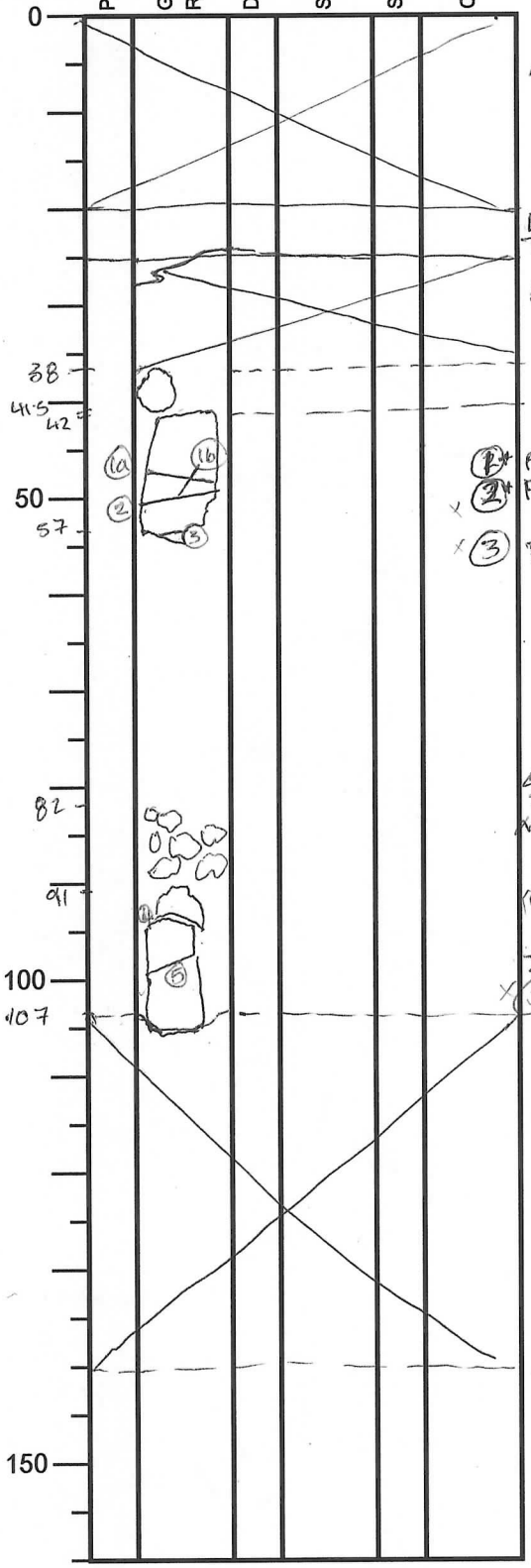
Visual Core Description

STRUCTURAL LOG FROM CT.

OF ARCHIVE ½

NO.
DATE: 7/5/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: R02
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: V. Toy / J. KIRKPATRIC



MIXED CHIPS < mm SIZE
= CUTTINGS; FLOW TXTURES

No structures; faint diffuse horizontal banding
This is intact rock.

MIXED CHIPS < mm SIZE
= CUTTINGS; FLOW TEXTURES

1a PROBABLE FAULT → unclear if shallow thrust or steep dk band offsets burrou
1b FAULT; OFFSETS BURROWS; TOP → IR IN ARCHIVE ½ + TOP → OOC IN OTHE
2 → Horsetail morphology
3 FAULT

Sub-angular
Fragments of material w/ diffuse
Planar banding (rotated frags)
- bands have random orientations → the white band is no coincident w/ the ope
4 OPEN FRAC OFFSETS CORE SO REACTIVE DURORING DRILLING; fracture on "IN" of core.
HAS BRIGHT MATERIAL ALONG IT # TRUNCATES MOTTLING
Entire core has diffuse bugly mottling - elongate ~070-25
5 PROBABLE FAULT; TRUNCATES BRIGHT MOTTLING core I axial

MIXED CHIPS < mm SIZE
= CUTTINGS.

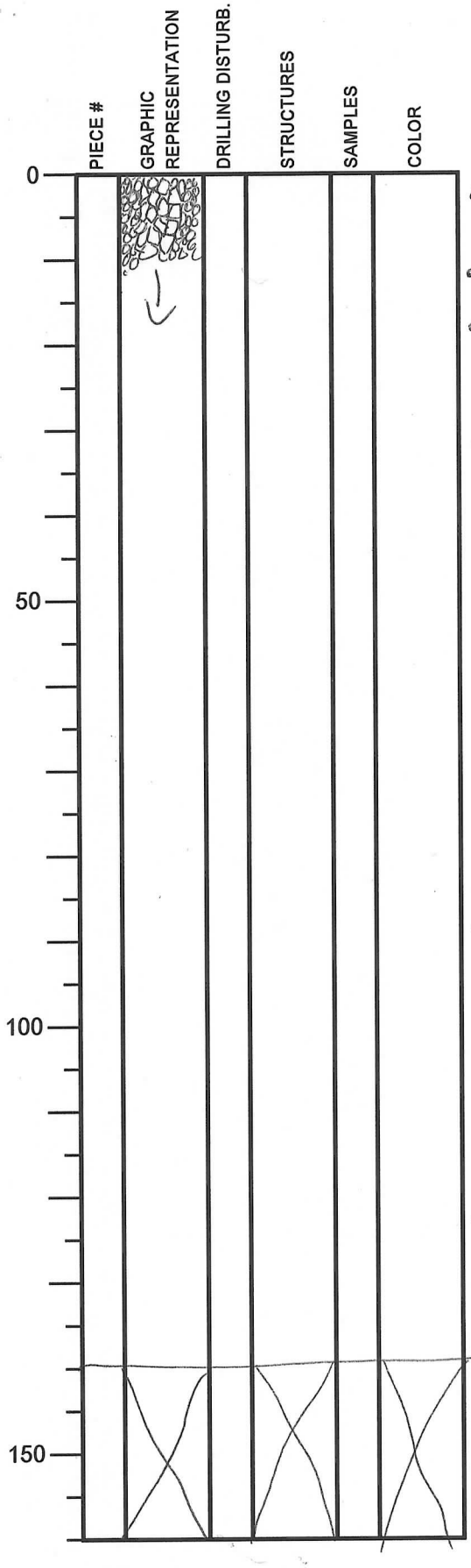
EOS
(ie "end of section")

Integrated Ocean Drilling Program

Visual Core Description

CORE

NO.
DATE: 5/17/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 2R
SECTION: 2
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERBER: MONICA

- angular → subangular rock fragments
- sizes vary from sub-mm → 1 cm
- 5 different colors:
  - brown (2.5Y/4/1)
  - reddish brown (2.5Y/4/4)
  - dark gray (10G/3/1)
  - med gray (5B/7/1) → best match, no good color match
  - light gray (~~dead~~ N/8/0)
    - very minor constituent, carbonate veins fizzes in HCL
- coarser in center of core + fines outward towards liner
- brown & reddish brown → more angular frags
- light gray angular flat chips
- dark gray = sub-angular → subrounded
- med gray = sub angular

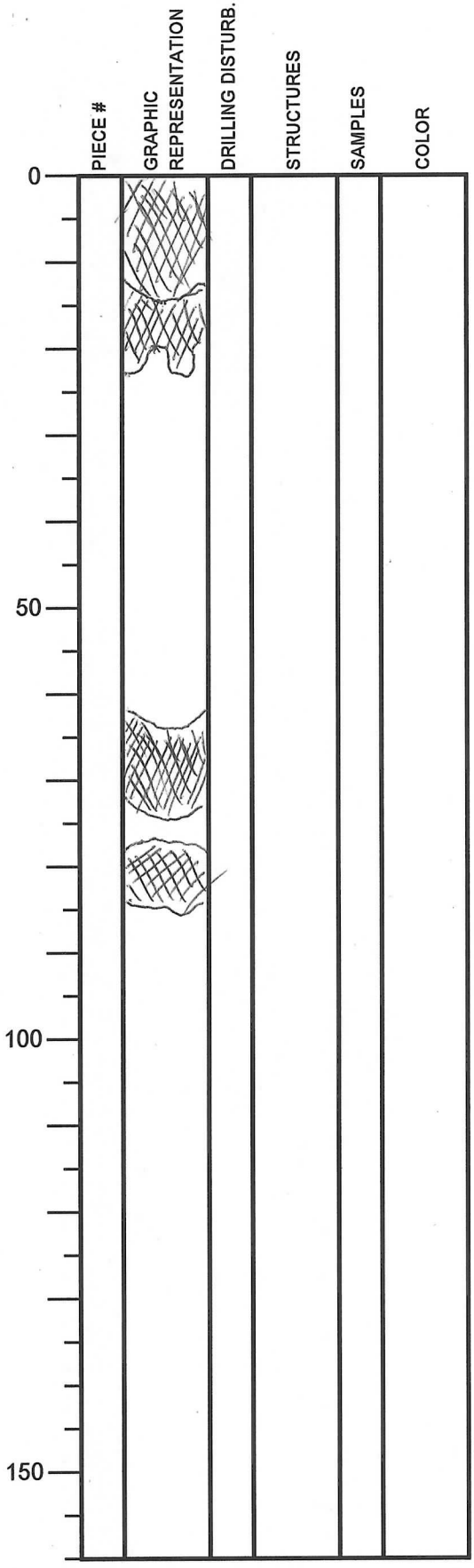
END OF SECTION

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 17/5/20
EXP.: 343
SITE/HOLE: C0019/F
CORE: 3R
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: KU



SECTION DESCRIPTION

Drilling-induced breccia throughout

intervals of fine-grained breccia

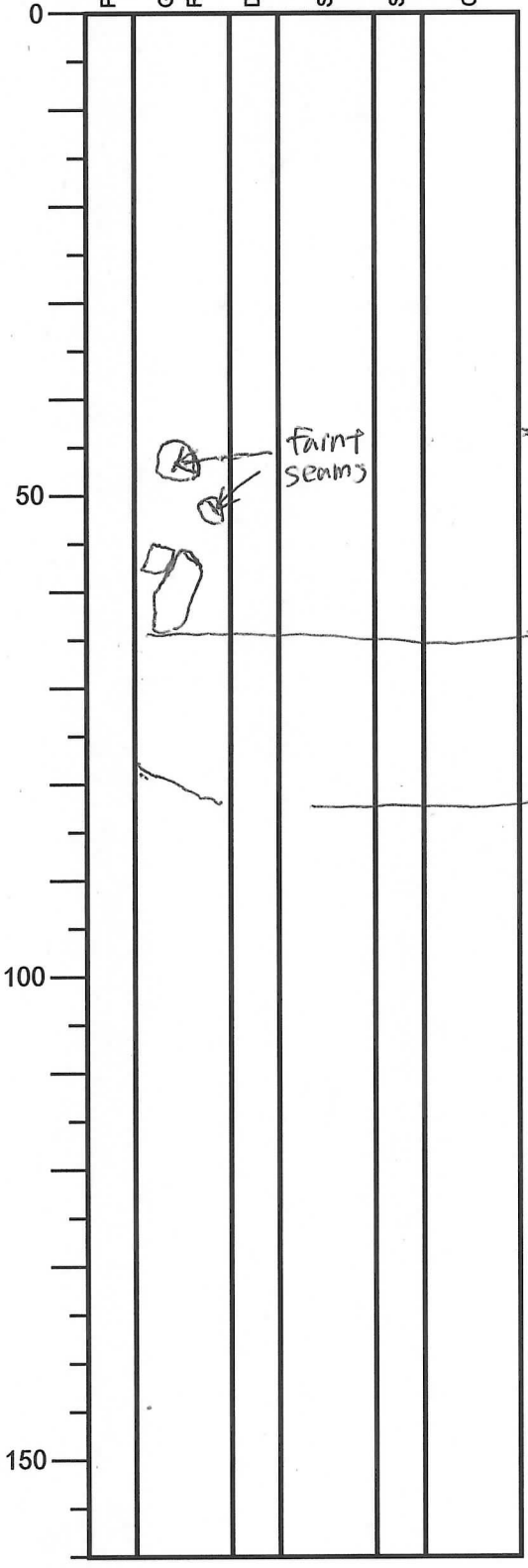
Integrated Ocean Drilling Program

Visual Core Description

CT log

NO.
DATE: 7/5/20
EXP.: 343
SITE/HOLE: C0019E
CORE: 3R
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: KU



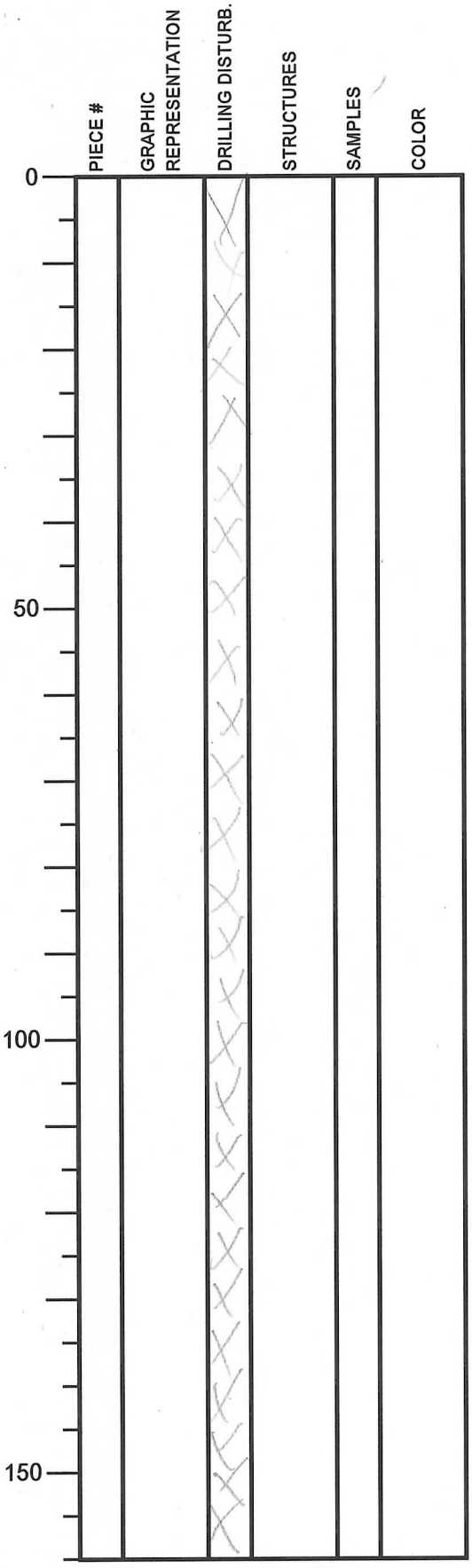
drilling-induced breccias throughout

sec. 3 – CC
drilling-induce breccia

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5/17/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 3R
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: CR



SECTION DESCRIPTION

Drilling induced breccia throughout section.
Core fractured into cm to mm, subangular to subrounded fragments

Types of lithologic fragments

Smear slide #		
130.3	(3)	med to dark grey ~~mudstone - siltstone~~ silty mudstone
130.2	(2)	light grey silty mudstone, silt finer than unit 3 silty ~~clay~~ grains visible in hand lense, some mottling???
130.4	(4)	brown to red-brown, coarse silt & clay stone. dark mineral grains (oxides?) and (PINK) lithic fragments subangular
130.1	(1)	med red-brown clay w/ silt. finer-grained than (4) (as seen in hand lens). less silt content than unit (4)

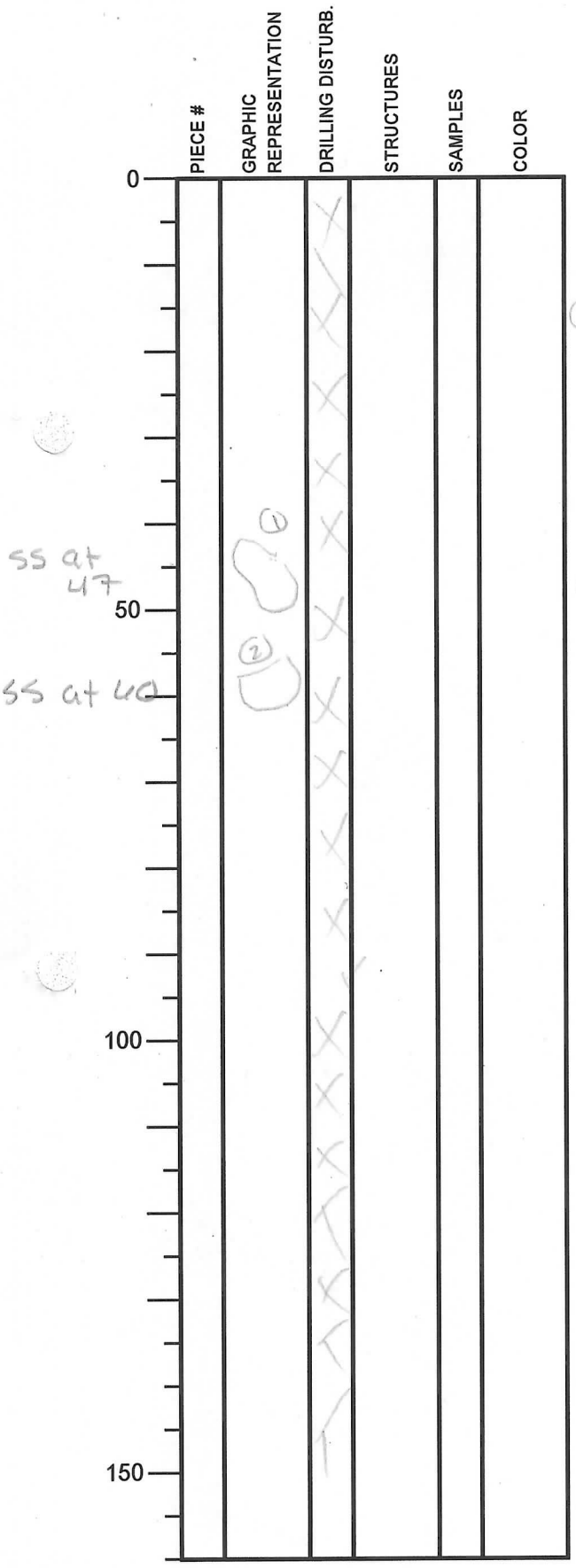
*silt content qualatatively determined by taste.

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 5/17/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 3R
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: CR



(1) 44 - 50 cm
dk grey silty mudstone
lighter brown - grey mottling (bioturbation)

(2) 57 - 61 cm
med grey - brown coarse silty mudstone, bedding loosely defined by variational banding in grain size from v. fine silt + clay to coarse silt + clay. Bedding thickness on order of 2-5 mm, rare lithic fragments.

NO carbonate present in either (1) or (2)

- rest of core is drilling induced breccia of grey + red silty mudstones

SM

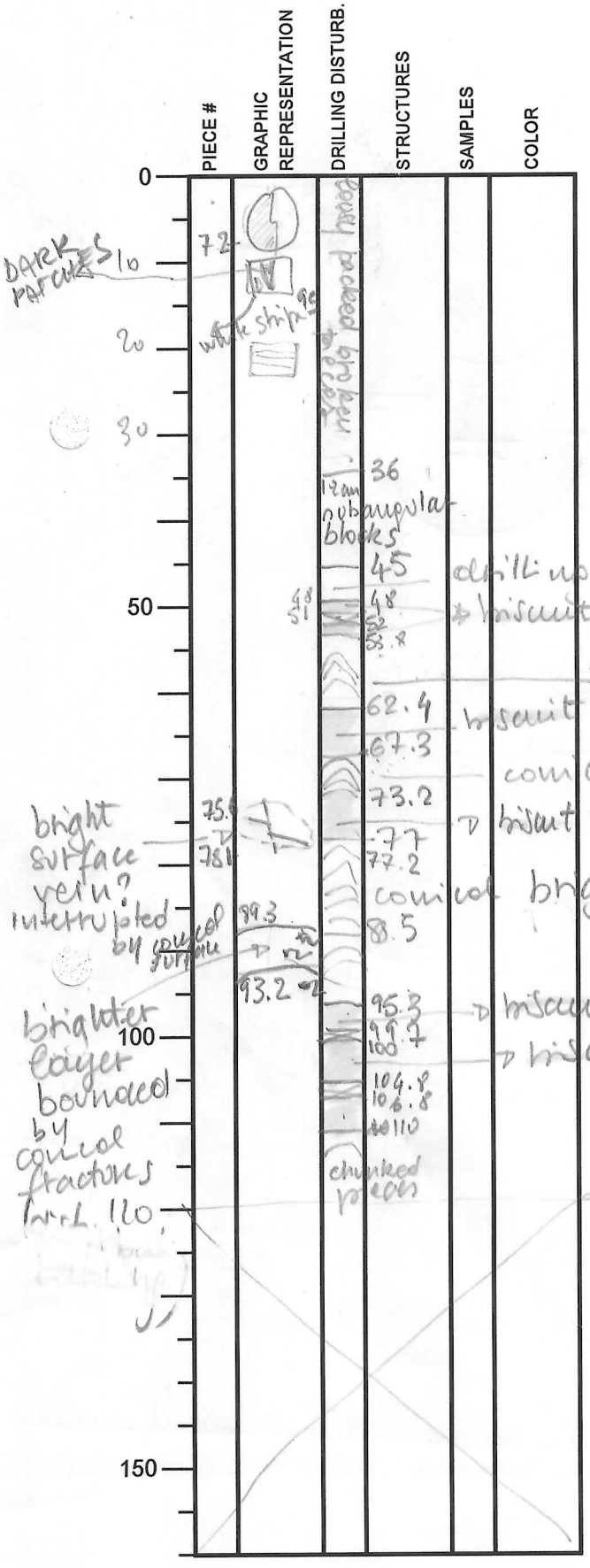
Integrated Ocean Drilling Program

Visual Core Description

X-CT

NO.
DATE: 18/5/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 4
SECTION: 1
TOP DEPTH (m CSF): 0-120 m

OBSERBER: MONICA FRANCESCA



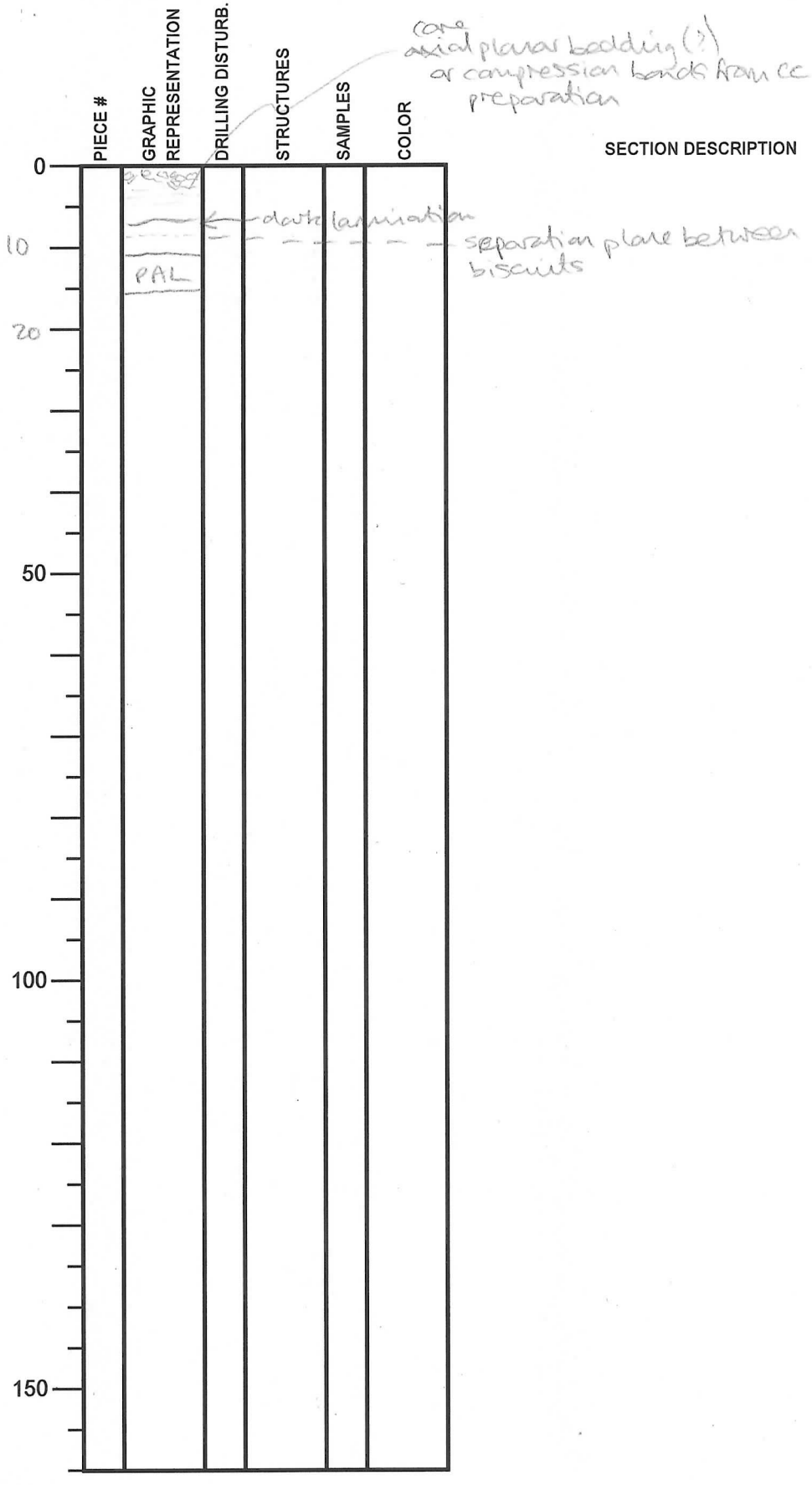
VCD_sheet_100805.xls

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 18 / 5 / 2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 4R
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER:
JAMIE



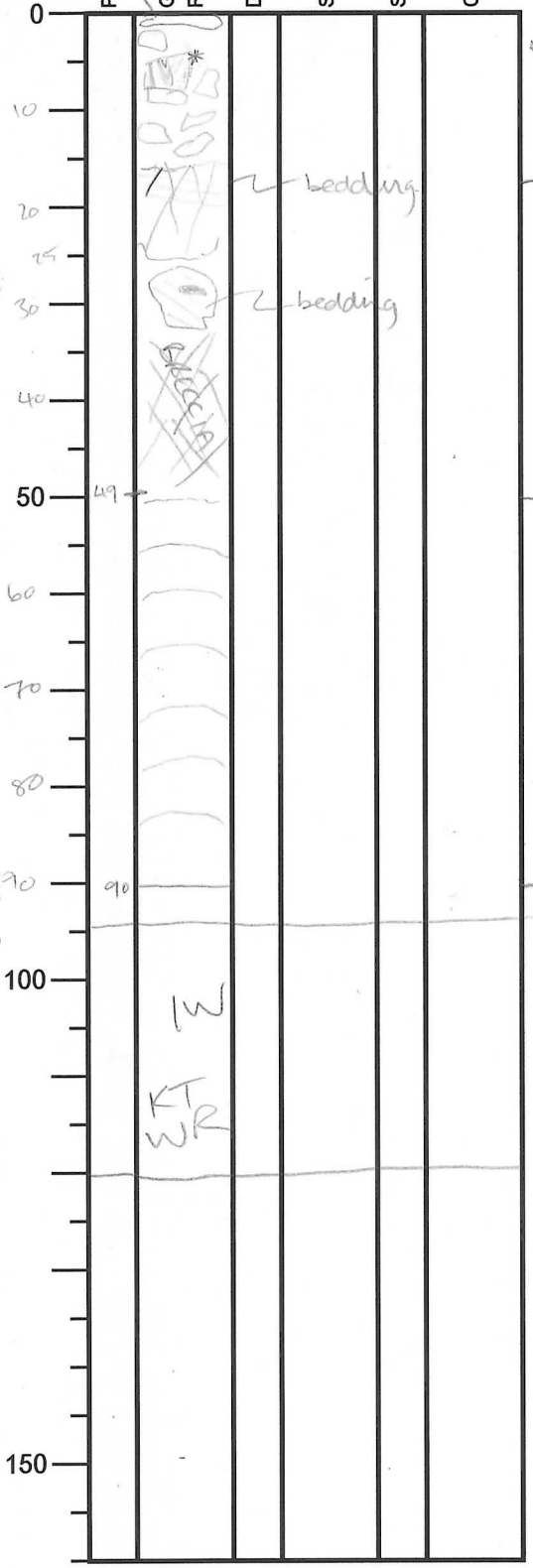
Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 18/5/2012
EXP.: 343
SITE/HOLE: C19E
CORE: 4
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: JAMIE

2 x rounded fragments of pale brown, slightly speckled ~10μm scale grain. Same as brown lithology in cores 3 and 4. Silty grains observed



orange-brown fragment.
*fragment containing sheath fold
Bedding rotated to vertical in core ref. frame

2

Biscuited black rock. Curvy black layers x-cut the rock convex-up-section, bed dawn section at edge of core. Spaced every few cm

Whole section is smeared by cutting process but black shear bands look finer than background rock

90 Pale greenish-grey layer. Ashy? Black biscuit layer at top and bottom
94

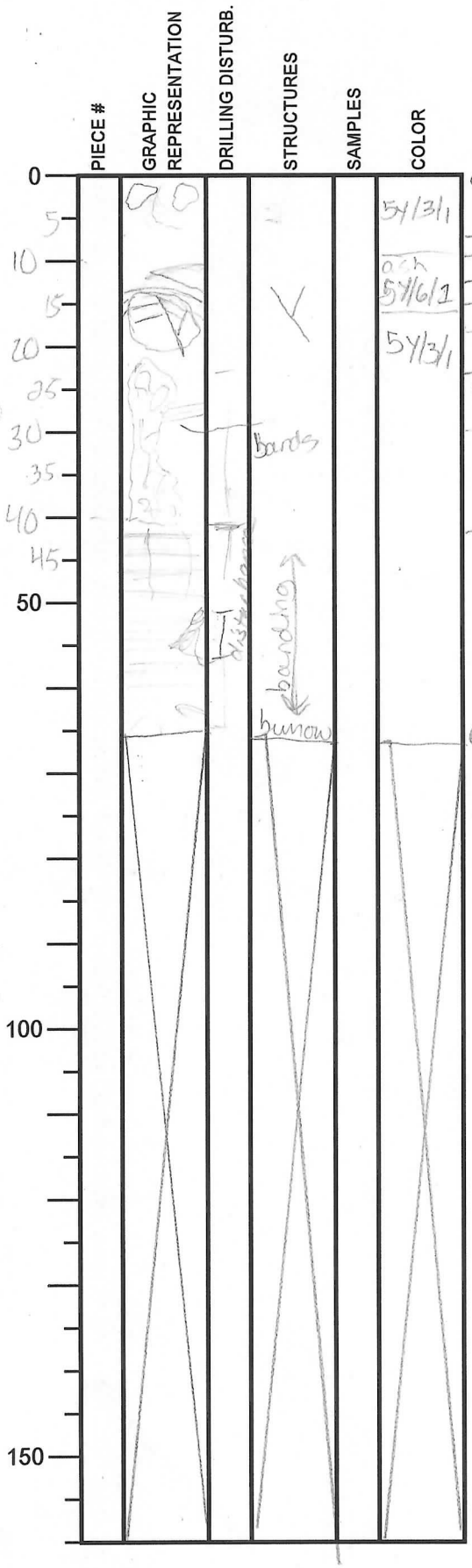
LITH: Dark gray to black, ultra fine-grained clayey rock. Grain size predominantly clay, with scattered black silt-sized speckles. Bedding is defined by medium gray and/or black, 1-4 mm thick laminations (occasionally discontinuous). Rare elliptical black, smudgy patches may be worm burrows. Sub-mm pale grey mottling also burrows?

Smear Slide: Ashy mudstone (clay-rich terrigenous)

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 5/18/2012
EXP.: 343
SITE/HOLE: 60019E
CORE: 4
SECTION: 2
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERBER: Monica W.

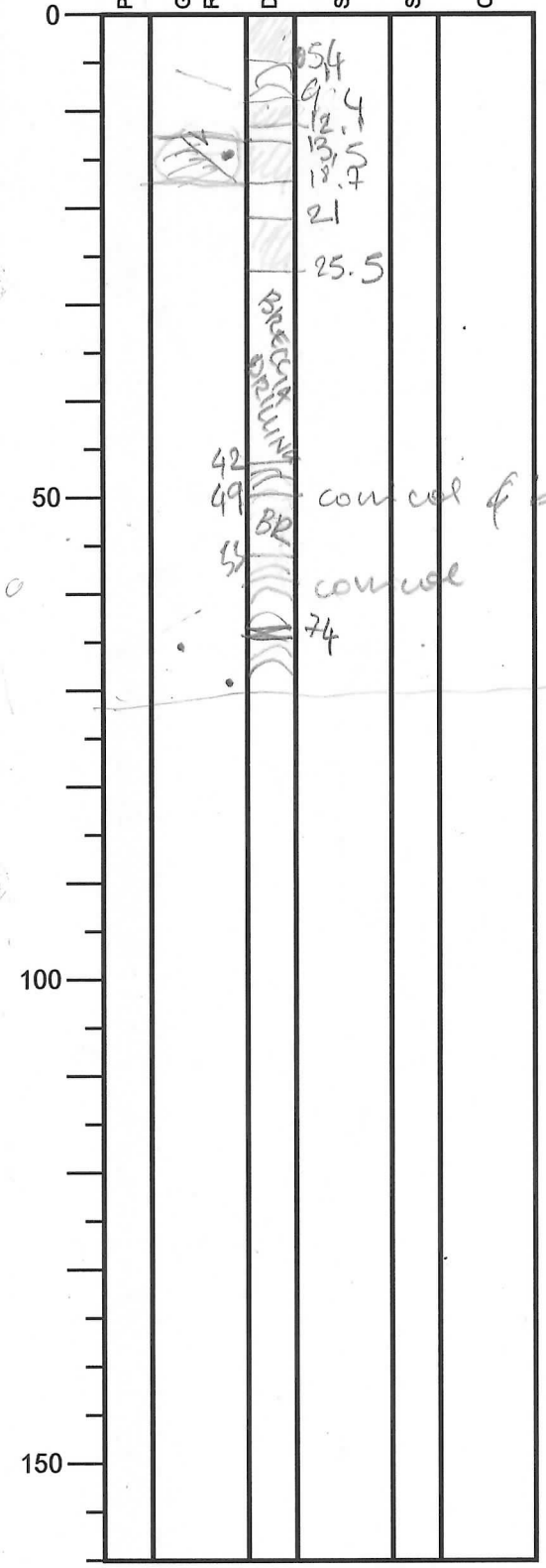
0 fine-grained mud w/ 2 biscuits, drilling 0-6 cm
6-10-12 wedge of light gray ashy material, grades out
12.5 - convex dark gray shear band.
13.5 - 15 large darker gray inclusion with dark gray bedding bands, cut by fracture
21-40 drilling & splitting induced disturbance
mud appears to have been churned up a bit
25-26 thin dark gray horizontal bands
40-50 small expansive cracks
drilling induced disturbance
50-53 churned up mud from drilling/splitting
40-60 sub-horizontal to horizontal banding & darker/lighter gray. Darker bands are sub-mm
lighter bands are sub-cm
65 END OF SECTION 2

Integrated Ocean Drilling Program

Visual Core Description

CT

NO.
DATE: 8 / 5 / 20 12
EXP.: 343
SITE/HOLE: C0019E
CORE: 4
SECTION: 2
TOP DEPTH (m CSF): 0 - 71

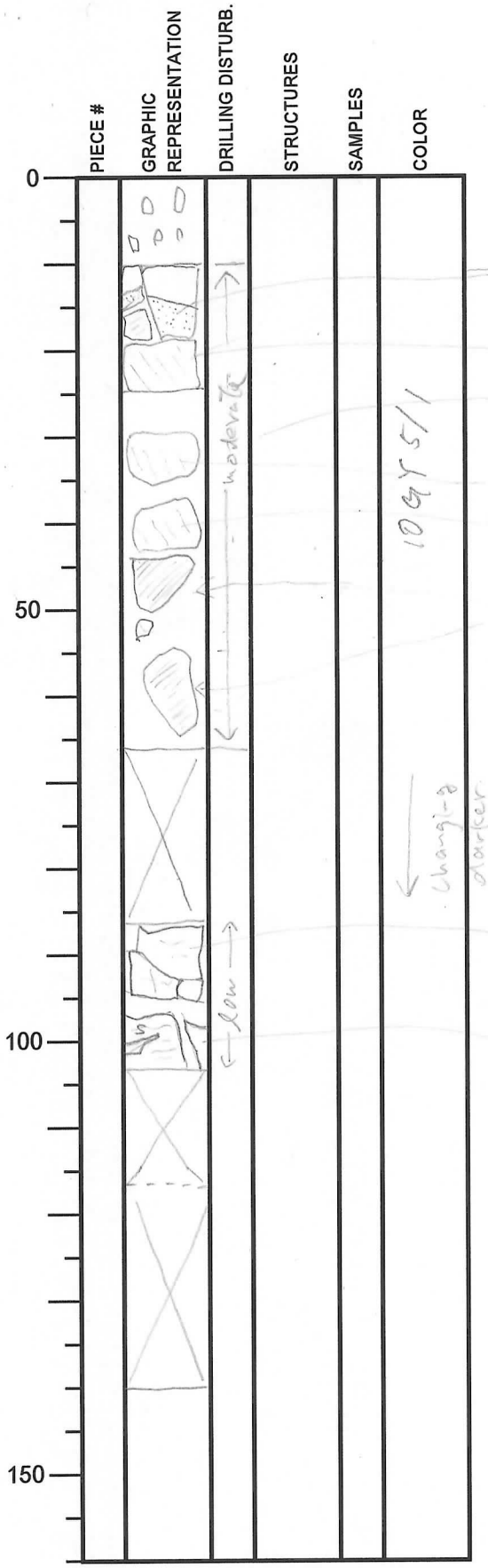


Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 8/5/2012
EXP.: 393
SITE/HOLE: C0019E
CORE: 5
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: kameda



SECTION DESCRIPTION

ashy
light-green silt~sandstone
(bioturbation) → SS
lamination

brecciated into ~5cm subangular blocks
surrounded by clayey mud. →SS

homogeneous light-green siltstone
parallel cracking (// bedding?)

fine lamination bright/dark silty layers
of 1~5mm thick

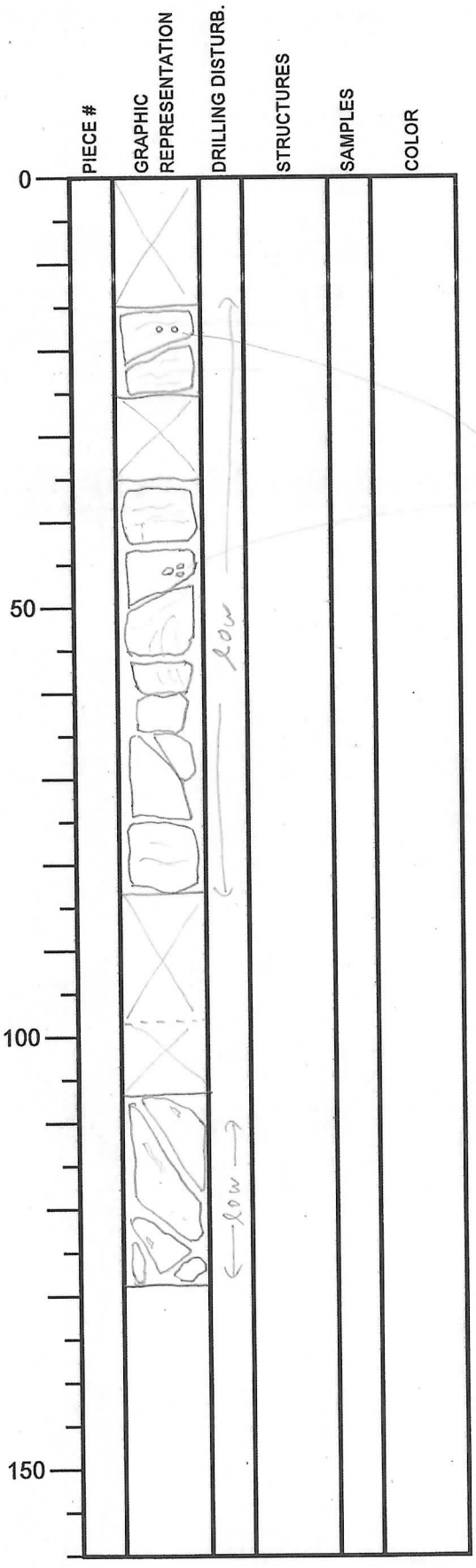
dark grey~green clay~mudstone
mottled appearance
(bioturbation) → SS.

light greenish mudstone.
contains sparsely black (organic) materials

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 18 / 5 / 2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 5
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: Kameda



SECTION DESCRIPTION

dark/light green clay ~ mudstone
bedding is disturbed (elongated, curved intervened) throughout the section (soft sediment deformation?).

concretions (~2mm thick).

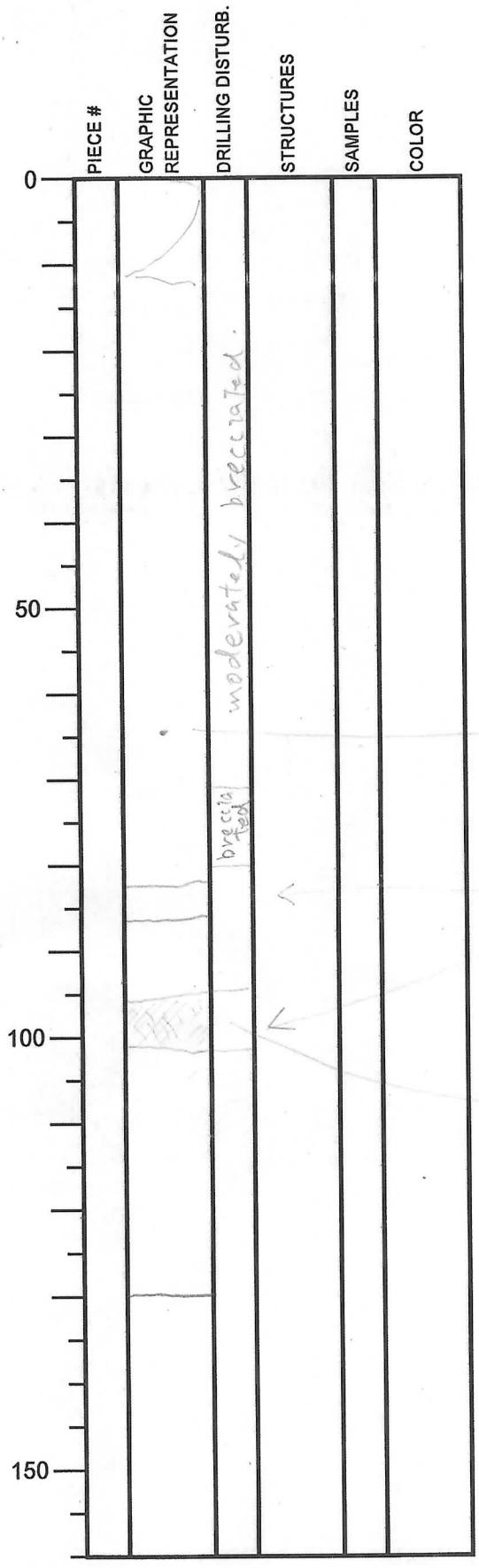
~1mm size black (organic?) particles

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 8/5/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 5
SECTION: 3
TOP DEPTH (m CSF):

OBSERBER: Kameda



SECTION DESCRIPTION

disturbed bedding throughout the section.

concretion

~3 cm thick light grey clayey layer 2.5GY 7/1

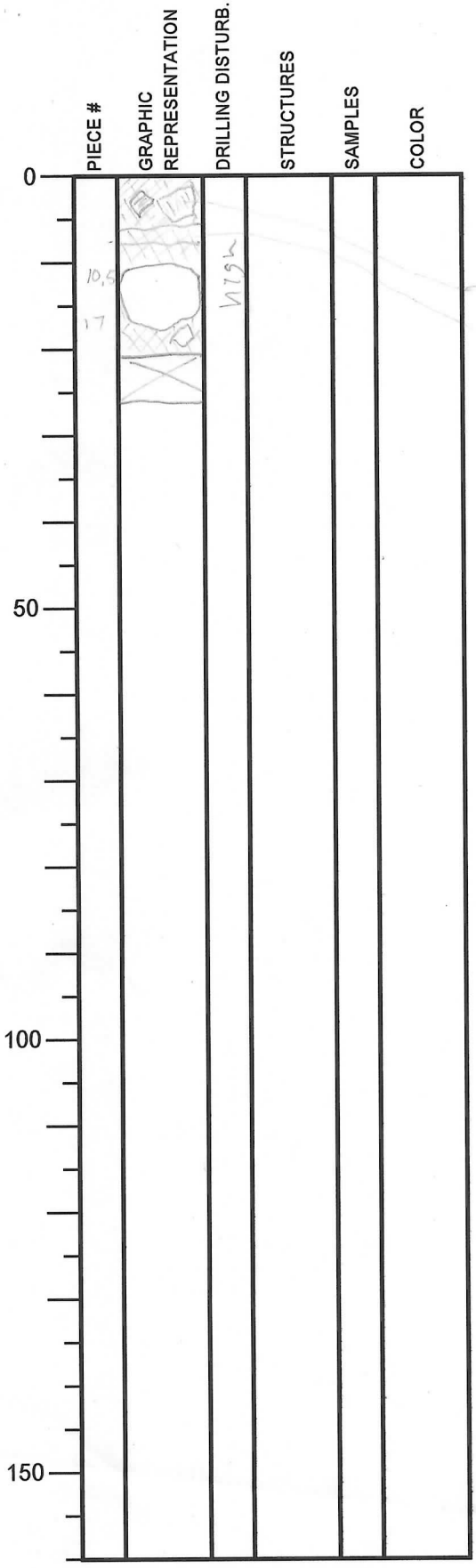
highly brecciated into <1 cm angular fragments.

→ SS.

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 8/5/2012
EXP.: 393
SITE/HOLE: C0019E
CORE: 5
SECTION: 4 CC
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERBER: kameda

highly brecciated (drilling induced).
<1mm ~5mm thick lamination. 2-4.5 cm
3 cm thick bright layer.
2.5 GY 7/1.

. light horizon 5-8 cm (drilling breccia)
is contains carbonate.

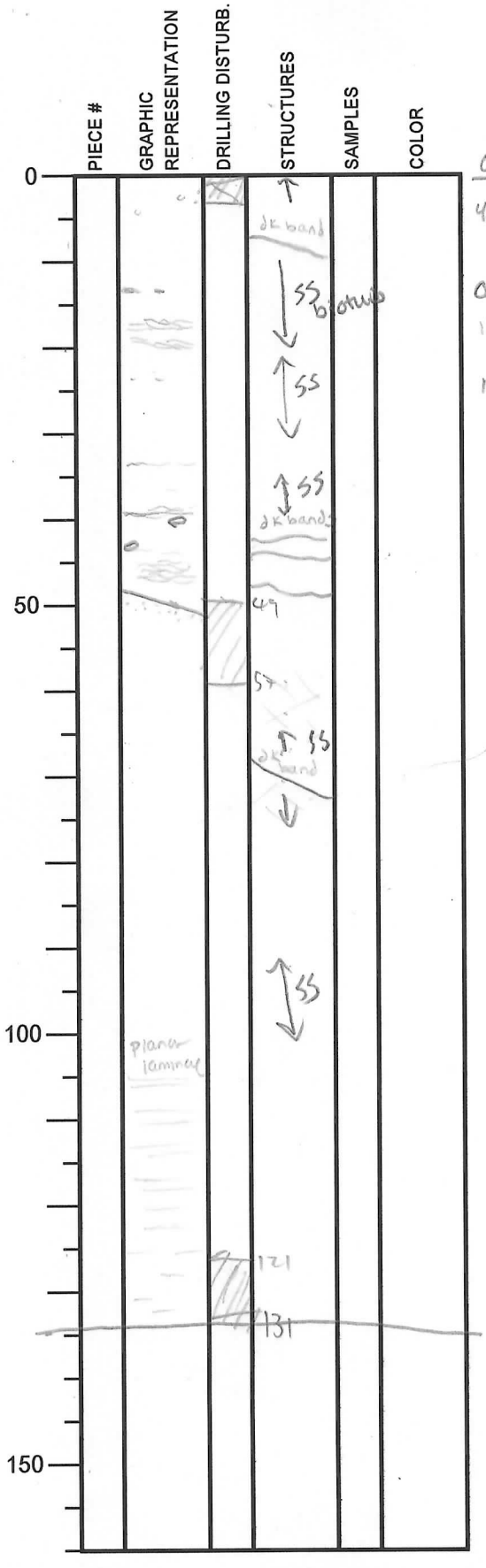
Integrated Ocean Drilling Program

Visual Core Description

Lithology

NO.
DATE: / / 20
EXP.: 343
SITE/HOLE: C0019 E
CORE: 6
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: CR



cm	SECTION DESCRIPTION
4.5cm + 6-7 cm	isolated pumice fragments 2-4 mm diameter, subrounded
0-12	bioturbation
13	dark (organic?) horizon
14-18	mottled lenses of brown grey mud in darker mud
19-20	coarse silt filled pods 2-6 mm some in en-echelon arrays
24-27	distributed pumice fragments
31-43	bioturb.
33-48	1-2 mm wavy + anastomosing dark horizons (organic rich?)
49-	planar boundary of dk grey/black muds with lenses of brown grey mud ~~in a~~ and dark silty muds
67-72	bioturb
100-103	3mm thick dark horizon (organic?)
103-128	planar laminae of dk grey mud brown grey mud + dark (organic?) horizons
92-100	bioturbation

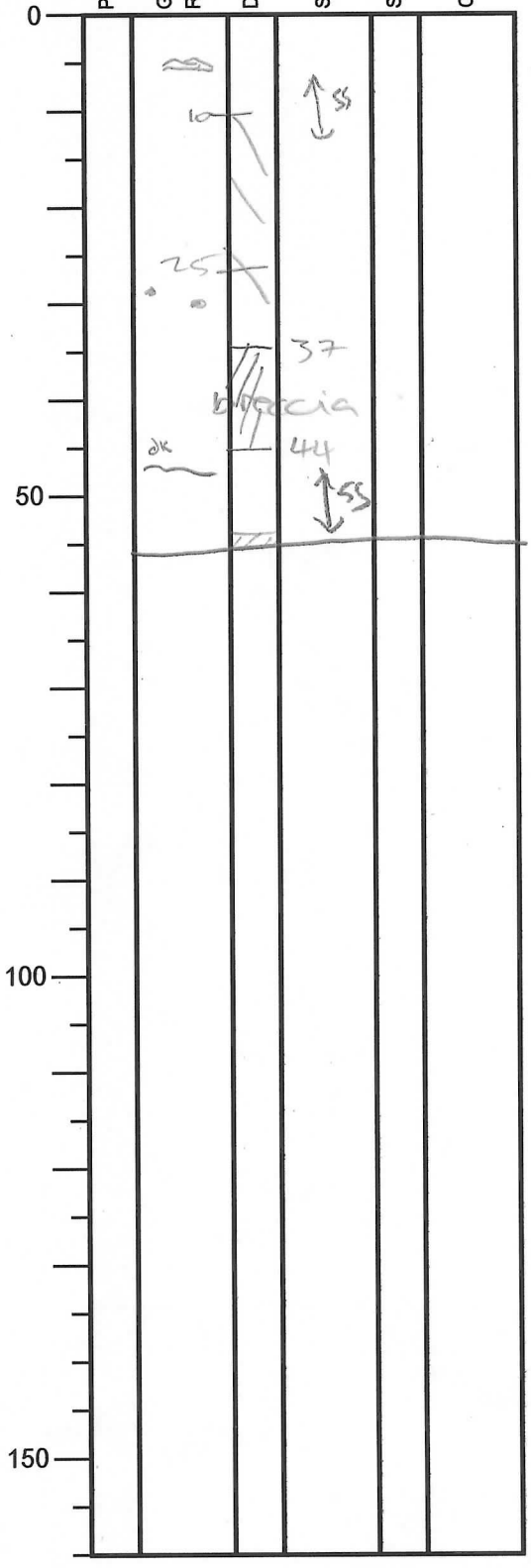
dominant lithology: v dark grey mudstone w black laminae throughout. wavy + anastamosing banding defines bedding through most of section. Small intervals display thin planar laminar bedding of interbedding brown-grey mud + dark (organic?) horizons. rare ash + pumice.

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: / / 20
EXP.: 343
SITE/HOLE: C0019E
CORE: 6
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: CR



SECTION DESCRIPTION

5-6 lense of ash

6-8 bioturbation

24-30 mottled anastamosing lenses of olive-gray to red-gray muds

30-33 dark (organic?) pods

47 dark (organic?) band

50-end bioturbation

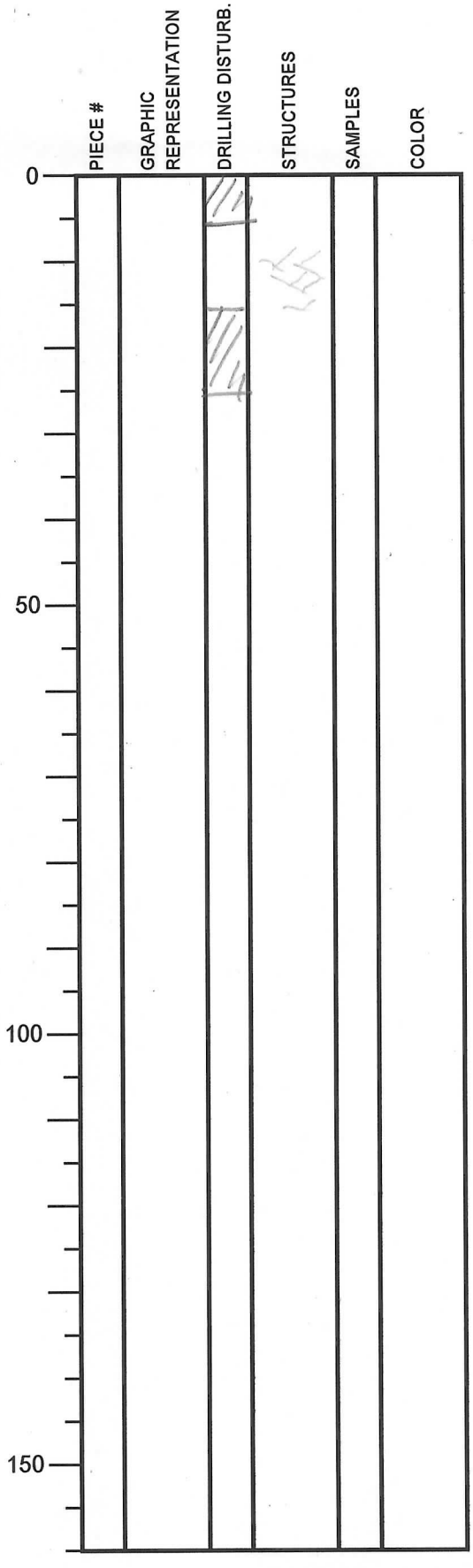
dominant lithology same as section 1

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: / / 20
EXP.: 343
SITE/HOLE: C0019 E
CORE: 6
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER: CR



SECTION DESCRIPTION

4-8 ~~cm~~ Kross cutting small fracture network

dominant lithology same as section 1

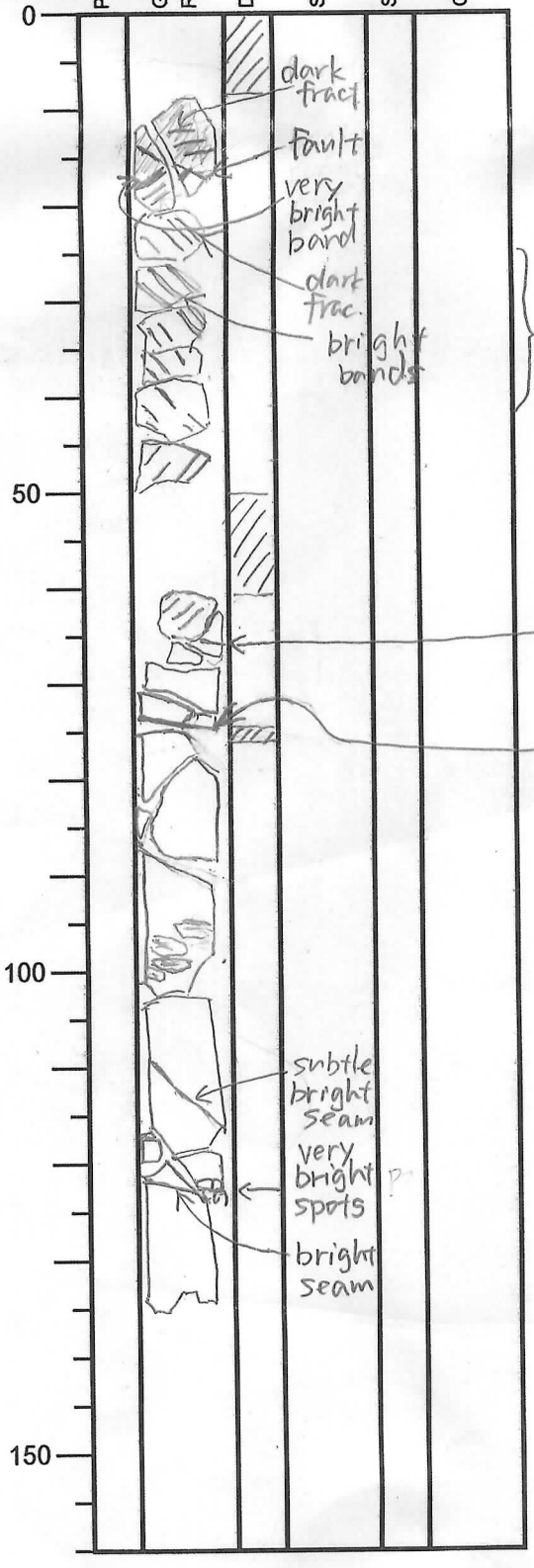
Integrated Ocean Drilling Program

Visual Core Description

X-CT

NO.
DATE: 8/15/20
EXP.: 343
SITE/HOLE: C0019 / E
CORE: 5R
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: KU



SECTION DESCRIPTION

changes in brightness and dark fracture dip across bright seam → fault

very bright band bounds bright and dark strata → fault or Fe-rich layer

inclined dark fracture // bright band

inclined dark fractures

inclined dark fractures
change in brightness

bright seam = possible fault (structural WR)

core face app. dip (270, 9)
2nd app. dip (154, 0)

mottled dark patches
→ possible bioturbation.

change in brightness across bright seam
bright seam cuts mottled bed
→ fault

upper part of section 1: inclined fractures (Prob. fissility)

lower part of section 1: relatively homogeneous CT image few fractures

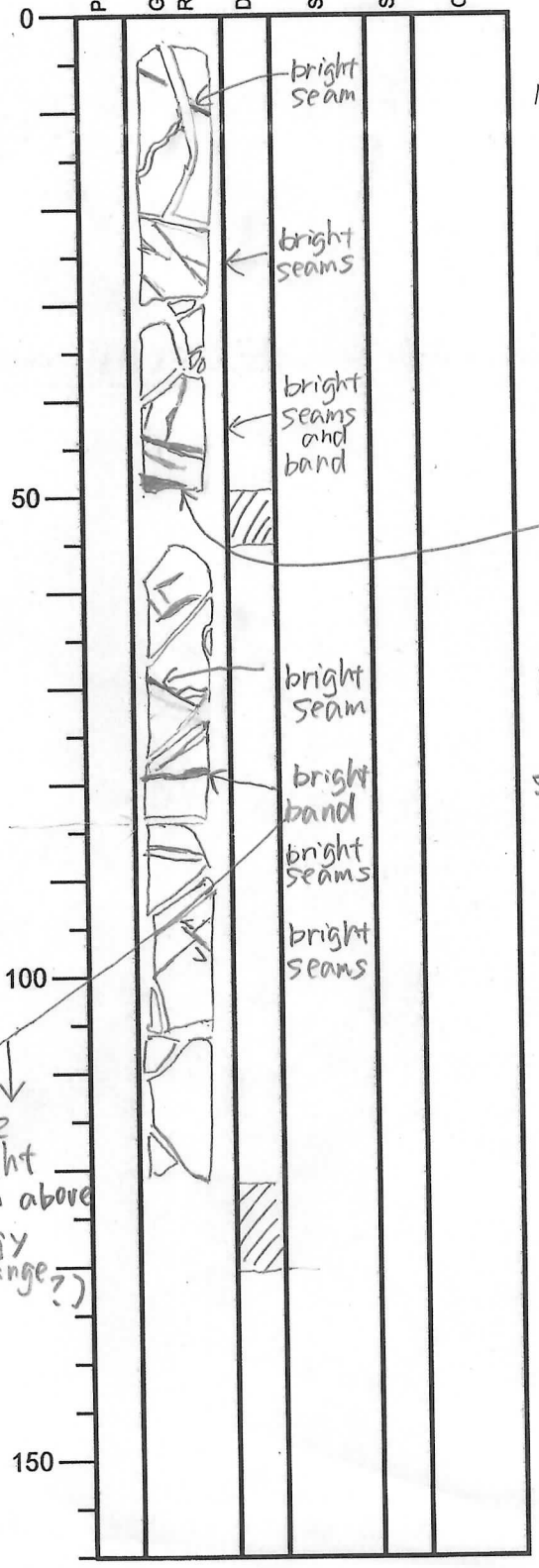
Integrated Ocean Drilling Program

Visual Core Description

X-CT

NO.
DATE: 5/18/20
EXP.: 343
SITE/HOLE: C0019/E
CORE: 6R
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: KU



SECTION DESCRIPTION

planar bright seam

bright seams

birfucated or curviplanar seam
change in thickness of band

bright layer at bottom of the piece
compacted shear zones?
Fe-rich layer?

bright seam cuts and offsets layers
change in brightness across bright seam } → fault

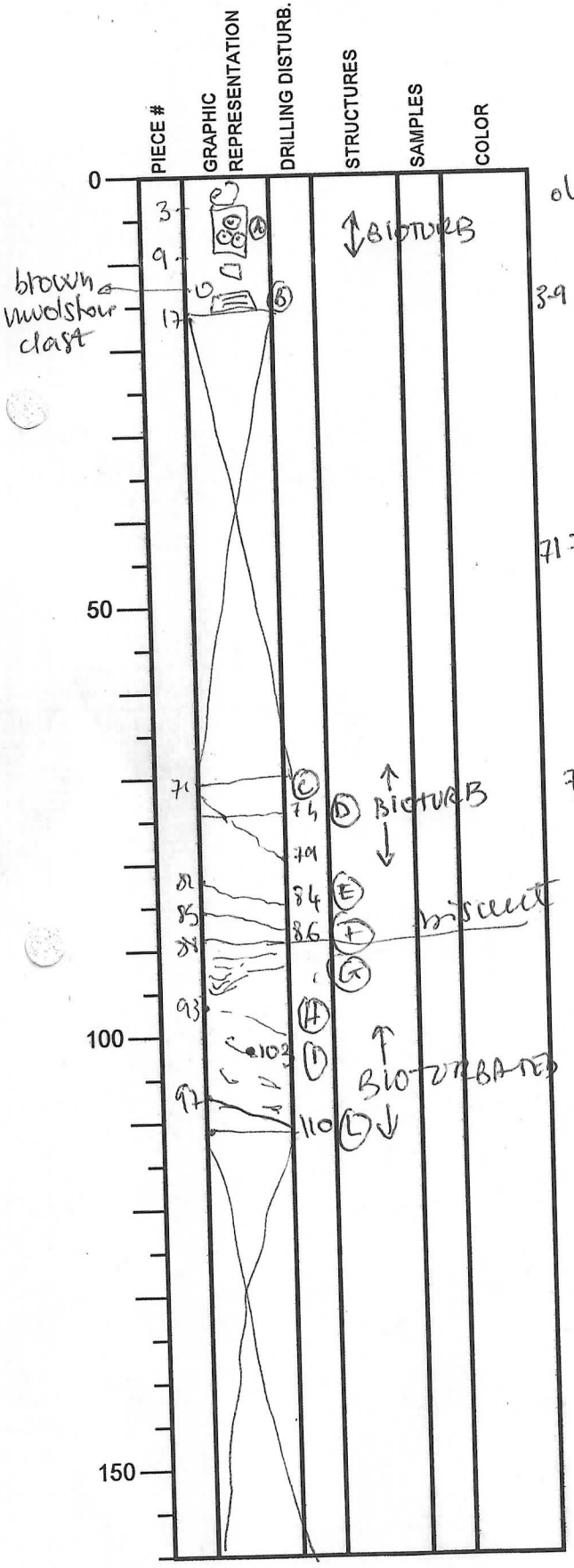
subhorizontal bright band
significant change in thickness

bright seam is displaced by the other bright seam showing reverse slip w/ respect to horizontal plane.

compared to Core 5R
number of bright seams / bands
is increased in Core 6R.

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9/5/2012
EXP.: 343
SITE/HOLE: U0019E
CORE: 7
SECTION: 1
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERBER: FR

olive green material with irregular dark layer

3-9 (A) olive green mudstone with concentric structure — green material in the centre; DARK MATERIAL

(B) dark layer of bedding inside the chest (< 1 mm thick) (BORROW

71-79 (C) area with patches of green and dark mudstone interdigited (intense bioturbation??) defining a general bedding toward 270

74 (D) anastomosing dark surface (tot thickness < 1 mm) cutting the bedding. In relief on the split surface DEFORMATION BAND?

82-84 (E) Dark layer (SS)

85-86 (F) ~~gray~~ lighter green ~~bed~~ layer

88-93 (G) CLAY — SILT-SAND — DARK LAYER (at 88) coarser (silty?) material with onolotak layering grading to finer material at the top

93-113 (H) green and dark area strongly bioturb with patched appearance (mottled) defining a layering

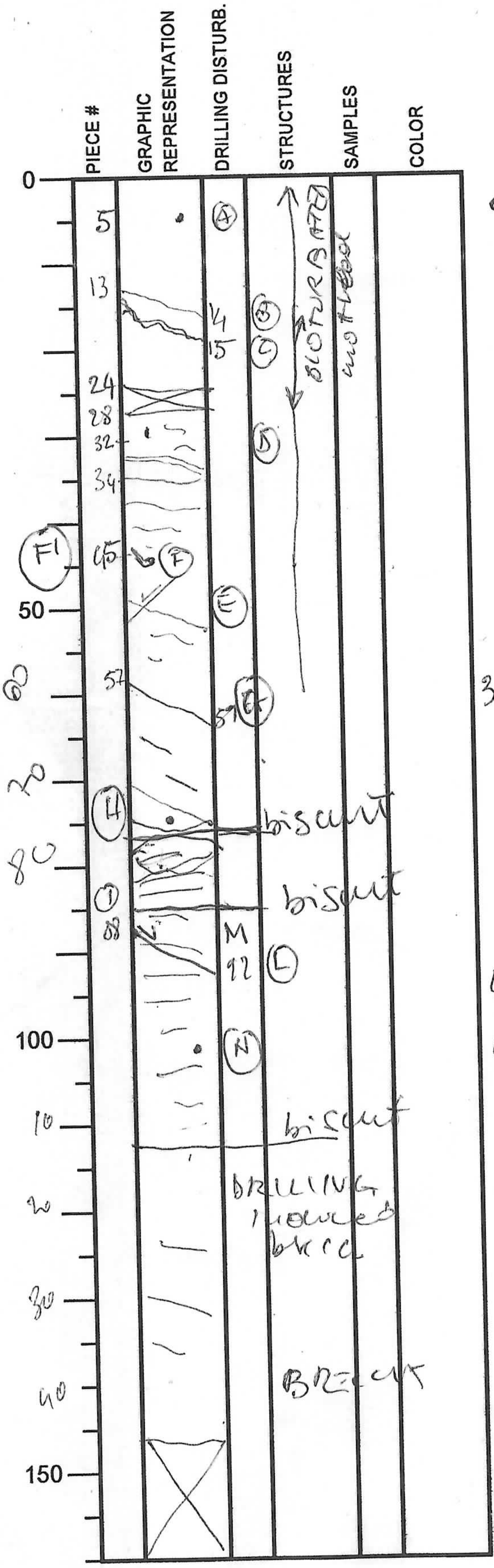
~~97-110~~

103 (I) borrow filled by shiny brow material (pyrite?)

97-110 (L) dark surface (bedding?) may be

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: / /20
EXP.: 343
SITE/HOLE: C0019E
CORE: 7
SECTION: 2
TOP DEPTH (m CSF):



SECTION DESCRIPTION
~~LITHOLOGY~~
OBSERBER: FR

0-24 olive green mudstone with dark layer (often mm to cm in size). locally strongly bioturbated

(A) Borrow filled by shiny brown material (pirite?

(B) dark layer 1 mm thick

(C) dark layer ~~otto~~ ondulate with spot of brown shiny material interlayered

34-70 (I) olive greed mudston whit dark layer (34-35) alternated with more lighter band) strongly bioturbated defining a general bedding (grading (H)

50-52 (E) dark layer with sharp lower boundary (F1) MUD SILTY SAND WITH SAND ondul SANDY SILT

48 (F1) more biota tiny ~~sand~~ cut by F

48-52 (F) tiny hairline fractur cutting (E) with normal 1 mm displacement

57-59 (G) dark layer 3 mm thick with pirite?

70-74 (H) ~~Gr~~ ~~gre~~ light omogeneous green band without (SS) dark layer grading up towards the top to the olive + dark litology (D)

74-85 (I) olive green-grey banded material with dark stripe defining a bedding

88-92 (L) little fault (NORMAL) cutting the bedding

VCD_sheet_100805

101 (N) borrow

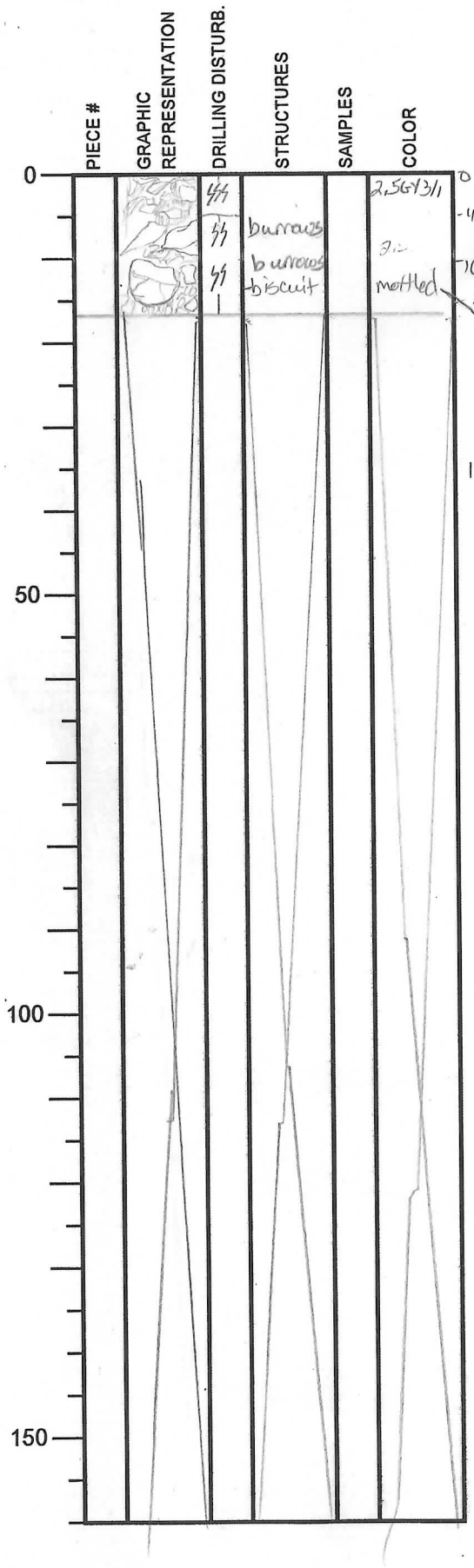
86-114 (M) same as (I)

Integrated Ocean Drilling Program

Visual Core Description

Core

NO.
DATE: 05/19/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 7
SECTION: CC
TOP DEPTH (m CSF):



SECTION DESCRIPTION

12cm

OBSERBER: MONICA

0 } high drilling disturbance → brecciated fragments in a finer-grained muddy matrix
-4.5 } larger fragments (brecciated), 1-2.5cm long
10.2 darker gray mottling; bioturbation (heavy)

2.5GY 3/1 ⇒ dark gray
2.5GY 5/1 ⇒ more olive gray } mottled in biscuit
↳ 10.5 → 14.5cm

biscuit also has very dark gray ⇒ black burrows
top burrow offset by cross-cutting fracture → heavy bioturbation
↳ ~ 0.5 cm offset
fracture is drilling induced
14.5 → 15.5 ⇒ very small (few-mm) drilling breccia

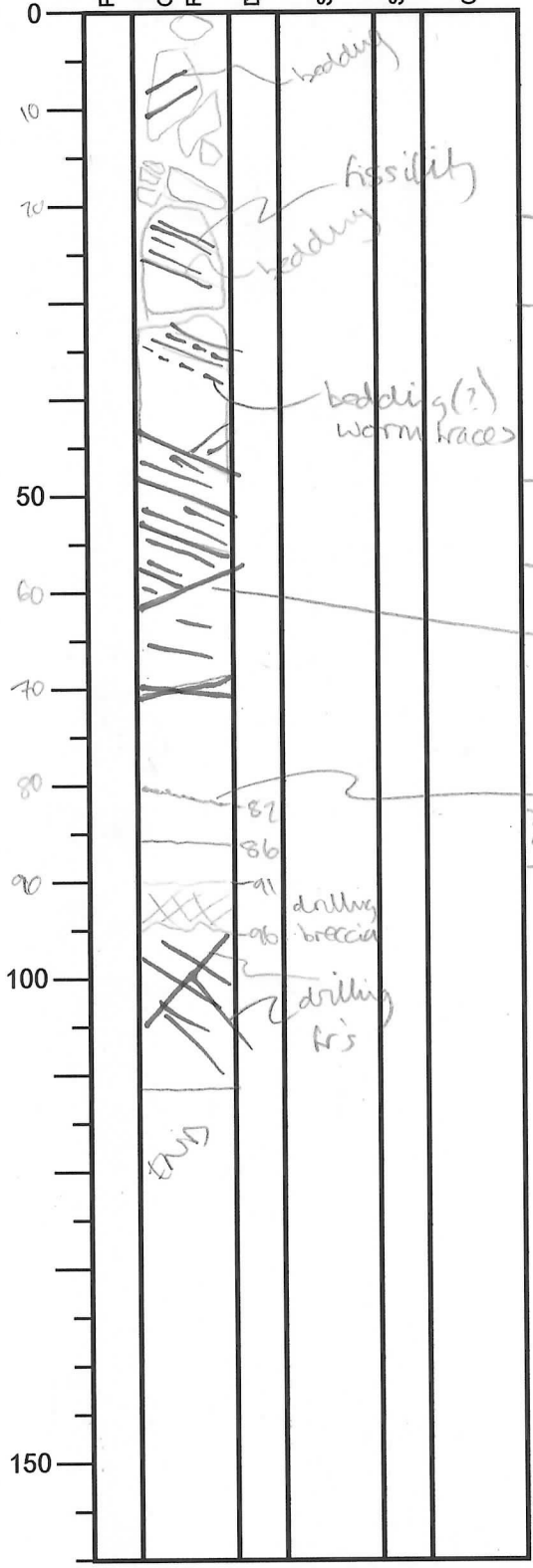
Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 19 / 5 / 2012
EXP.: 343
SITE/HOLE: 19E
CORE: 7
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER:
JAMIE

CT log



a few burrows fissility/drilling fractures parallel to bedding

Biscuits → broken along bedding but no

fault - truncates bedding 24 - 090
57 - 180

bright layer, bedding // laminated section

bedded, few worm burrows

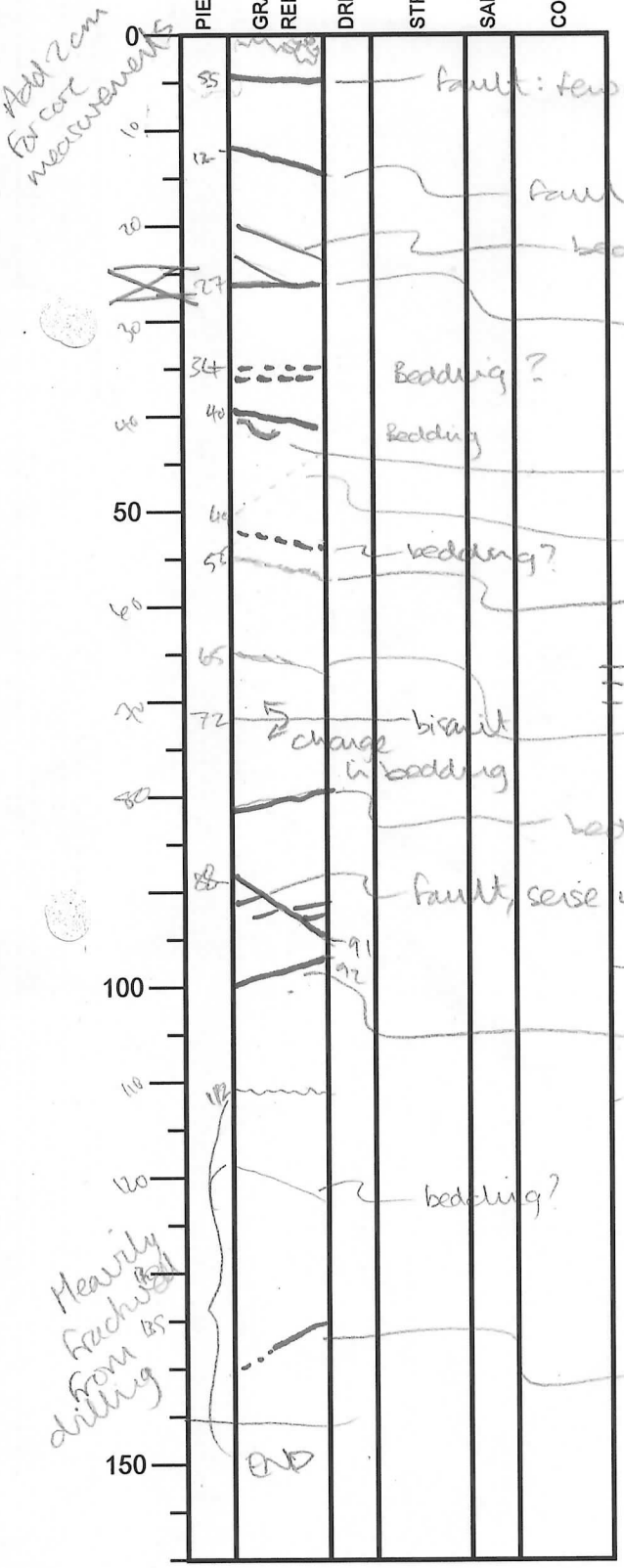
Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 19/5/2012
EXP.: 343
SITE/HOLE: 19E
CORE: 7
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: JAMIE

CT log

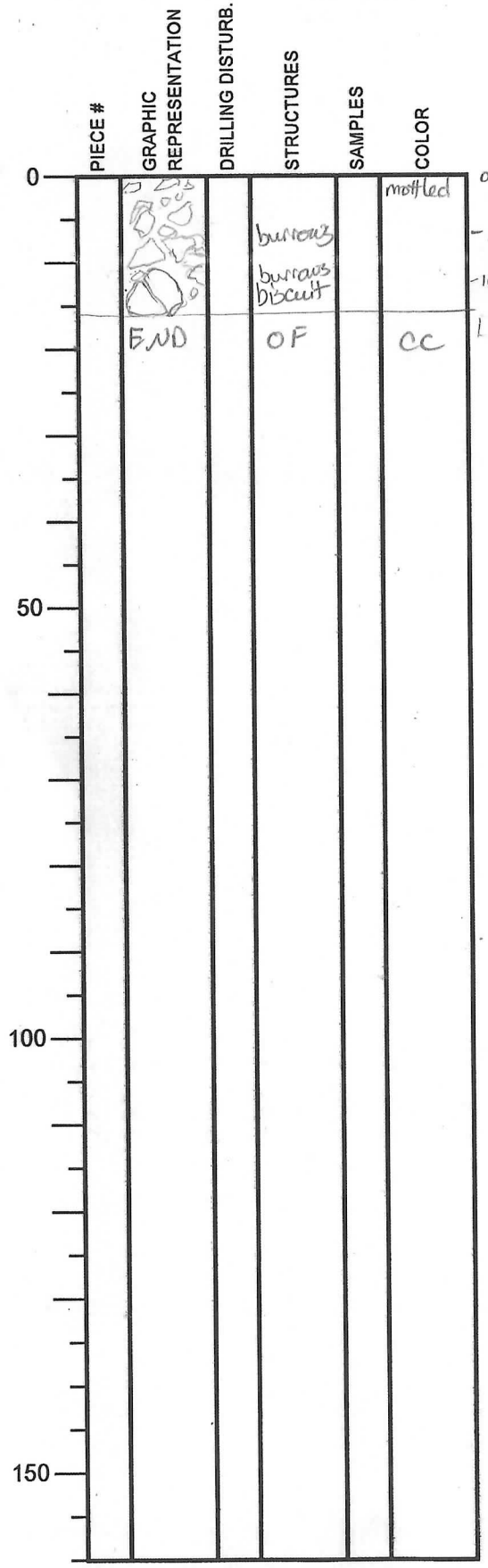


Integrated Ocean Drilling Program

Visual Core Description

X-CT

NO.
DATE: 5/19/20
EXP.: 343
SITE/HOLE: C0019E
CORE: 7
SECTION: CC
TOP DEPTH (m CSF):



OBSERBER: MONICA

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 19/5/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 8
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: C. ROWE

PIECE # | GRAPHIC REPRESENTATION | DRILLING DISTURB. | STRUCTURES | SAMPLES | COLOR | SECTION DESCRIPTION

0
10
20
30
40
50
60
70
80
90
100
150

Lt. brown

cobble (similar to tan mudstone in core 2-3)

drilling fractures - high ∠

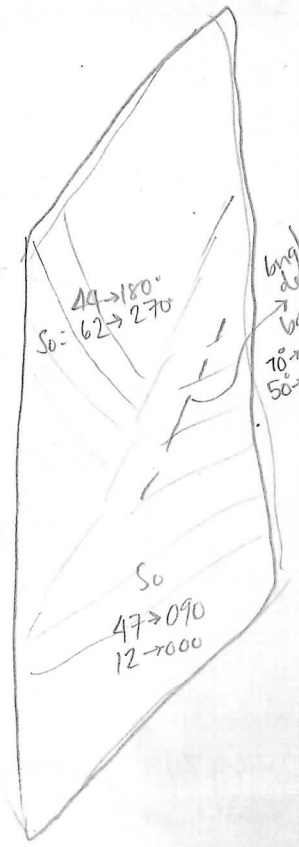
bright banding // bedding

large fragment w/ fault in it - major bedding rotation.
fault: 64 toward 090° + 35° toward 000°
So 60→090° + 18° to 000°

97° PALEOMAG BREAK

2mm thick bedding-parallel shear zone
47° to 270 + [illegible]°

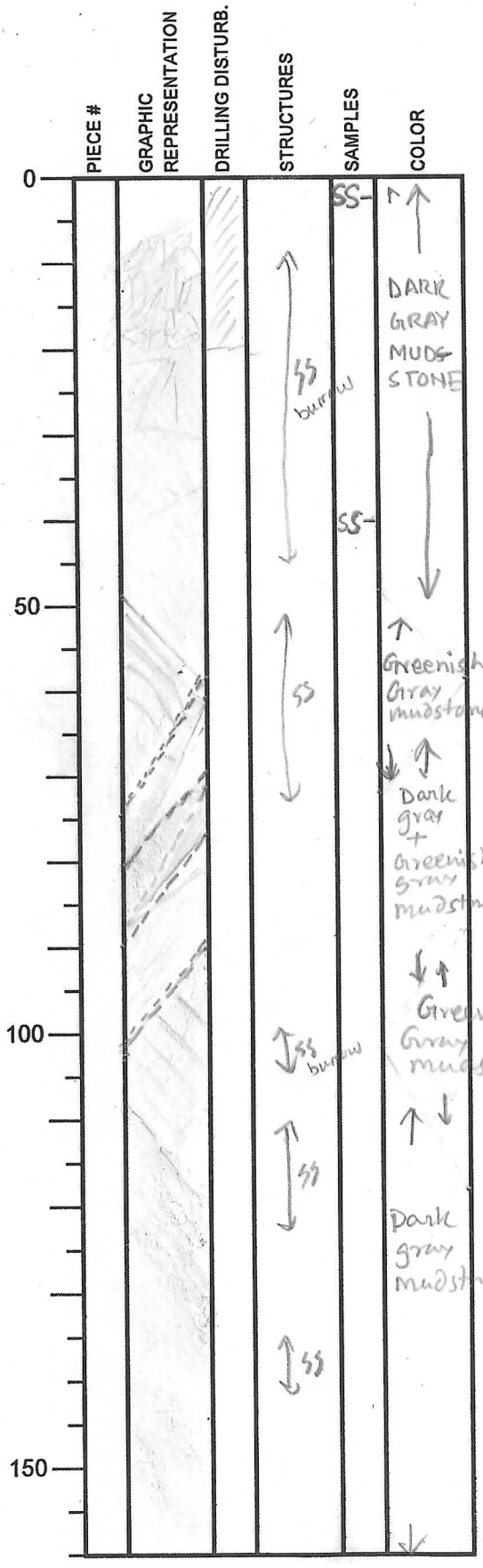
STOPPED HERE, Please carry on



R L

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 19/05/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 8
SECTION: 1
TOP DEPTH (m CSF): 719
OBSERBER: Bose



SECTION DESCRIPTION

11 - 44 burrows (CT ID)

Silician Dark gray mudstone with 90% silician grain empricing quartz & feldspar and 10% volcanoclastic grain → Silician mudstone

52-67 burrows

Banded greenish mudstone with dark clay rich lamina.

102 - 104 burrows

113-123 burrows

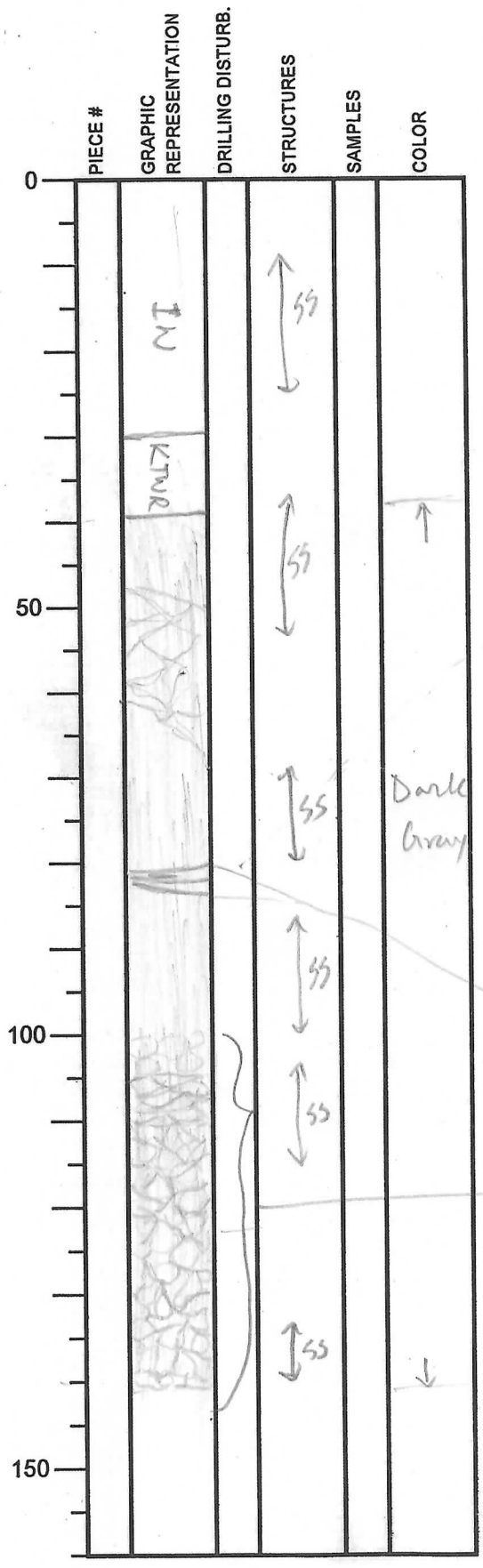
138 - end burrow

Probable Lithology → Mudstone

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 19/5/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 8
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: Rose



SECTION DESCRIPTION

10-25 bioturbation
38-55 bioturbation

Lithology is dark gray in colour and can be named as dark gray mudstone. In overall, it is composed of fine grained material. However locally, bands of course grained clay is seen.

The lower part of this section is highly fractured from 100cm to 141 cm. Visually, it is complicated to call as brecciated rock. Need to be confirmed with CT number

Thin layer of course grained silt.

70-81 bioturb
84-102 bioturb

Brecciated lithology

105-114 bioturb
135 - 137 bioturb

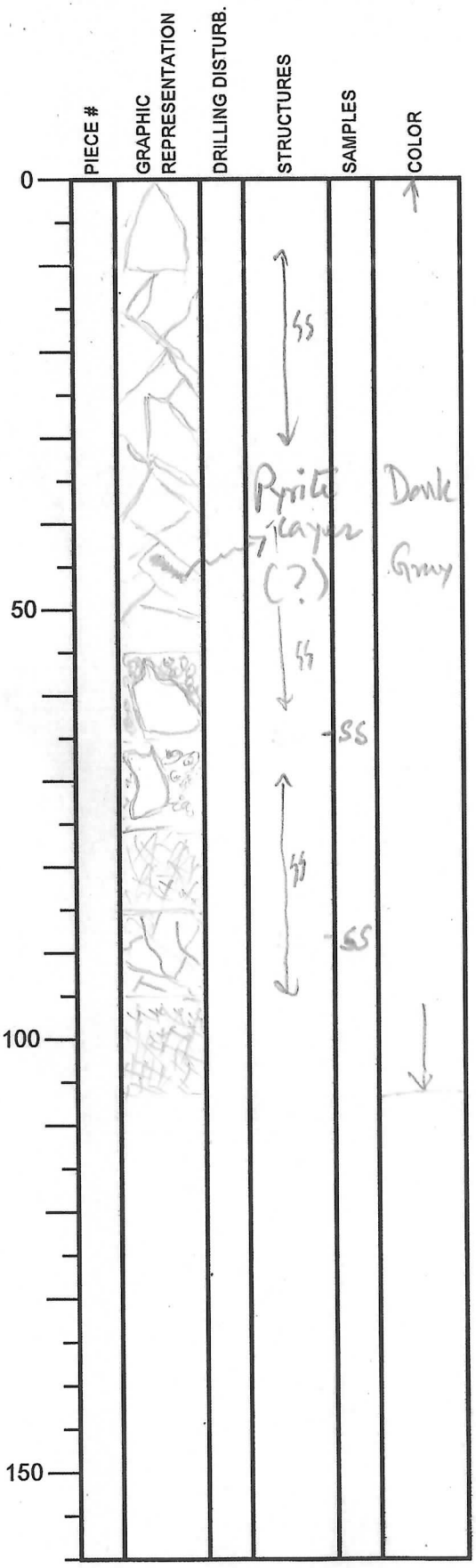
Probable lithology → Mudstone with silty lamina

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 9/5/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 8
SECTION: 3
TOP DEPTH (m CSF):

OBSERBER: Rose



SECTION DESCRIPTION

Primary Structure →

Bedding is visible by compositional banding (measurement see structural log). In certain location, a band of pyrite (?) rich layer has been traced.

In overall, The section is highly fracture with different intensity. The top of the section till 50 cm is relatively less fractured than the lower part.

Overall Lithology →

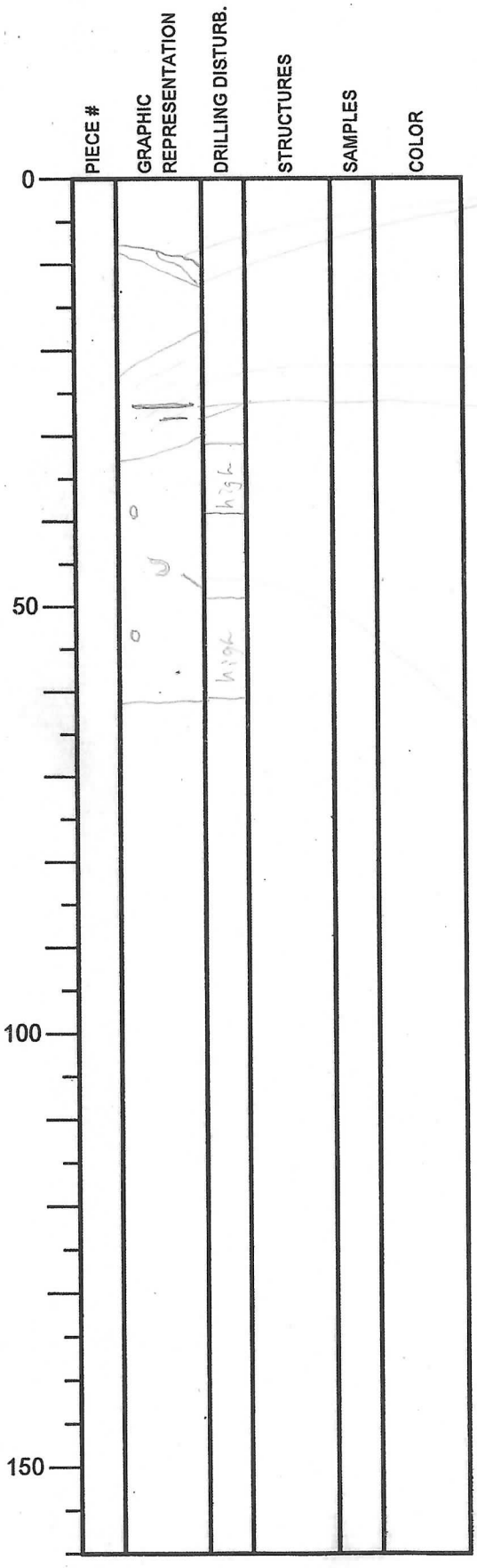
Mudstone

8 - 32 bioturbation
37 - 59 bioturb
62 - 94 bioturb

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5 / 9 / 20 12
EXP.: 343
SITE/HOLE: COOMBE
CORE: 9
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: Kameda



SECTION DESCRIPTION

8-12 dark seam.

6-16 Bioturbation

17-27: → SS
mudstone (silty):
27 ~1 mm thick horizontal dark seams

shear band?
bedding orientation changes across the seam (XCT)

39 ~1 cm size pyrite-bearing concretion

41~46 bioturbated horizon with dark (organic-rich?) layer.

53 pyrite-bearing concretion ~1cm

background lithology: dark-green mudstone

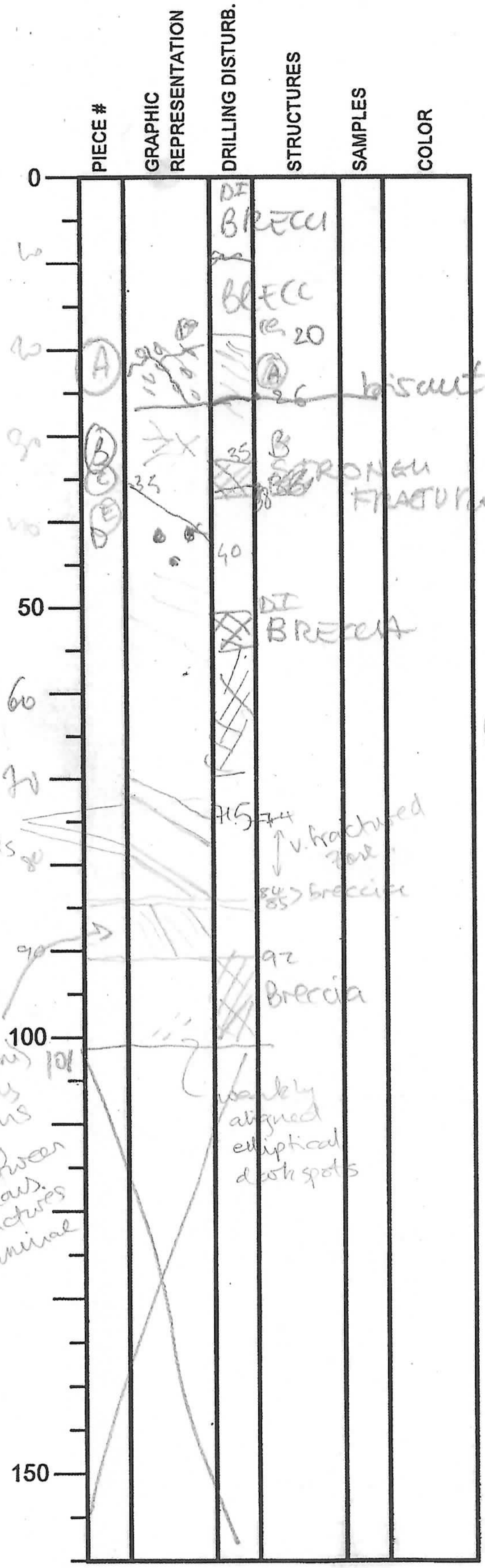
47-49 <1 mm thick bedding parallel dark seam

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 20/05 2012
EXP.: 343
SITE/HOLE: C0019, E
CORE: 10
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: FR, JAMIE



SECTION DESCRIPTION

20-26 (A) grey ~~mud~~ mudstone with dark spot → elliptical in the core ~~more~~ split more or less aligned defining a planar ~~structure~~ lamination ~~the B dar~~

a web very thin dark surface (1 set at low angle to the planar fabric & the other at high angle (cut by the previous one)

27-57 (B) the general alignment is similar (less dark spot), the planar foliation is defined by ~~patch~~ alignment of patch of different color parallel dark layer.

27-33 (C) web of dark anastomosing surface crosscutting each other

~~37~~-40 (E) dark layer (possibly folded?)

42 (D) a pyrite spot surrounded by dark layer

70-71.5 . Dark layer (sandwiche)

VCD_sheet_100805

Integrated Ocean Drilling Program

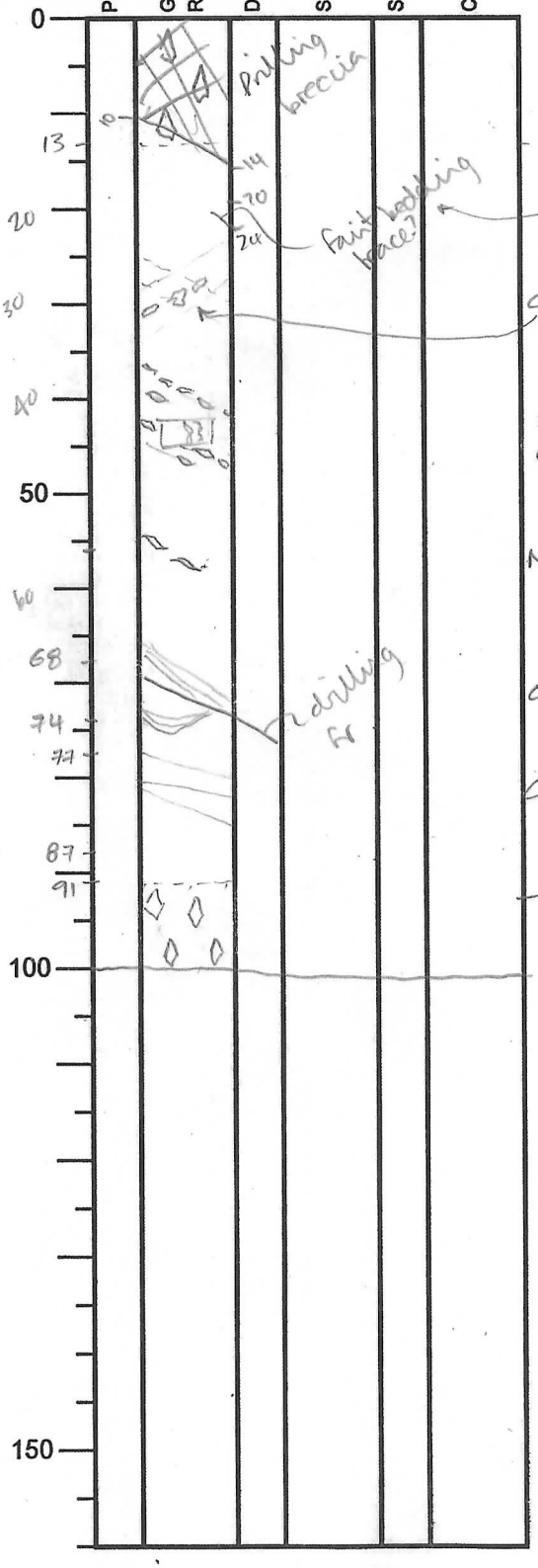
Visual Core Description

CT VERSION

NO.
DATE: 2015 / 2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 10
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER:
VIRGINIA
JAMIE
CHRISTIE

ROI => NO PP?



BRECCIATED

047@000 + 43@270 → 24cm

CT BRIGHT PODS W. X-CUTTING SL. CT BRIGHT BANDS (V. FAINT) ZONE OF BURROW RICH (31-33cm)

cigar-shaped zone of bright ellips

FAULT-BOUNDED WEDGE IN ~~WELL~~ A·H
CT-BRIGHT PODS ALIGNED IN LAYERS ← 82@270+39@180
40.1cm
appears to be block of different lithology!

NUMEROUS CT-BRIGHT, ASYMMETRIC PODS

CT BRIGHT wavy bedding 41@270 + 36@180
15@270 + 20@180

CT BRIGHT BANDS — bedding?! 35@270 + 15@000

BRECCIATED

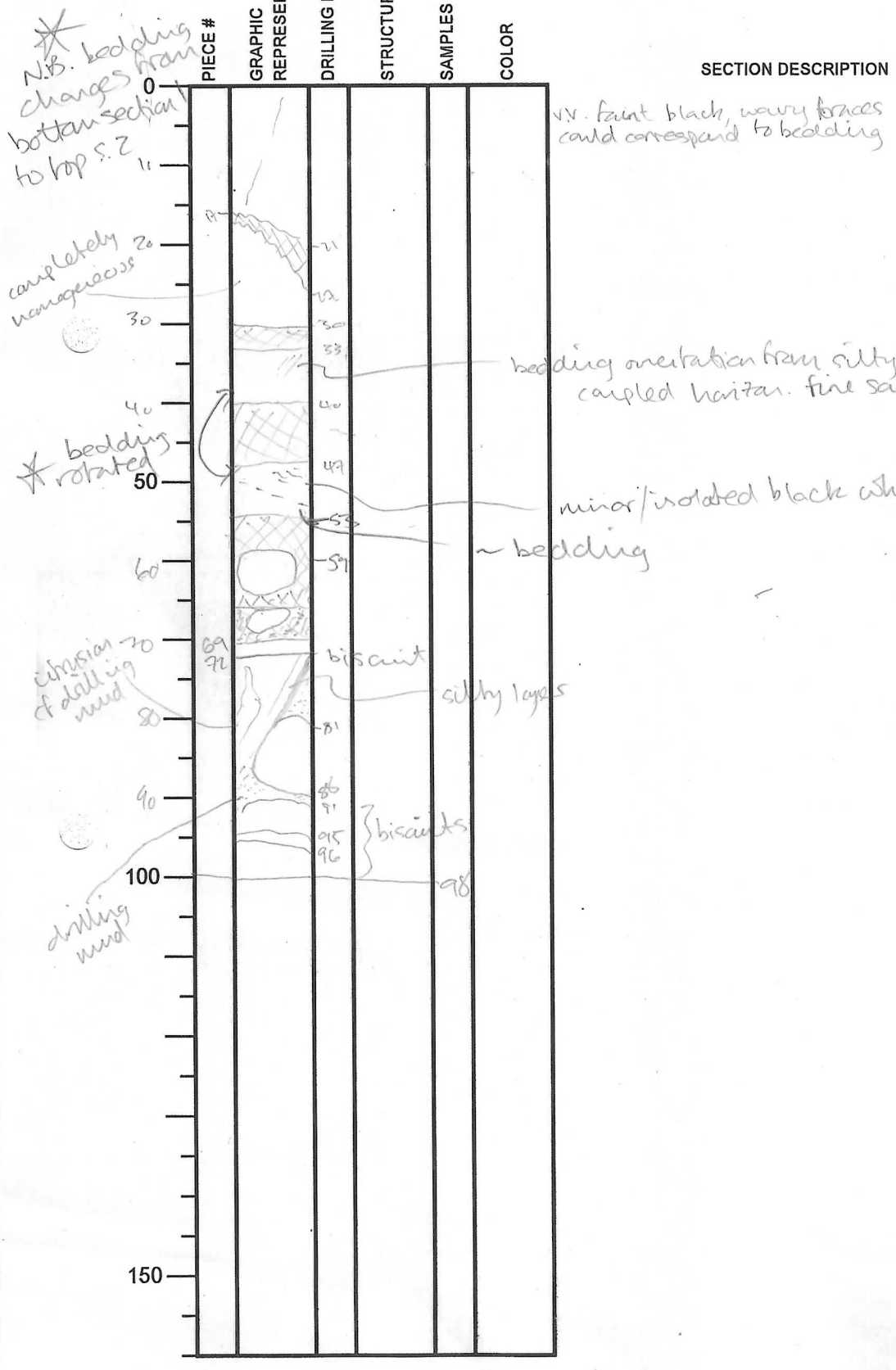
CT-bright pods = pyrite framboid - rich areas

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: / / 20
EXP.: 343
SITE/HOLE: C0019
CORE: ~~0019~~ 10
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: JAMIE



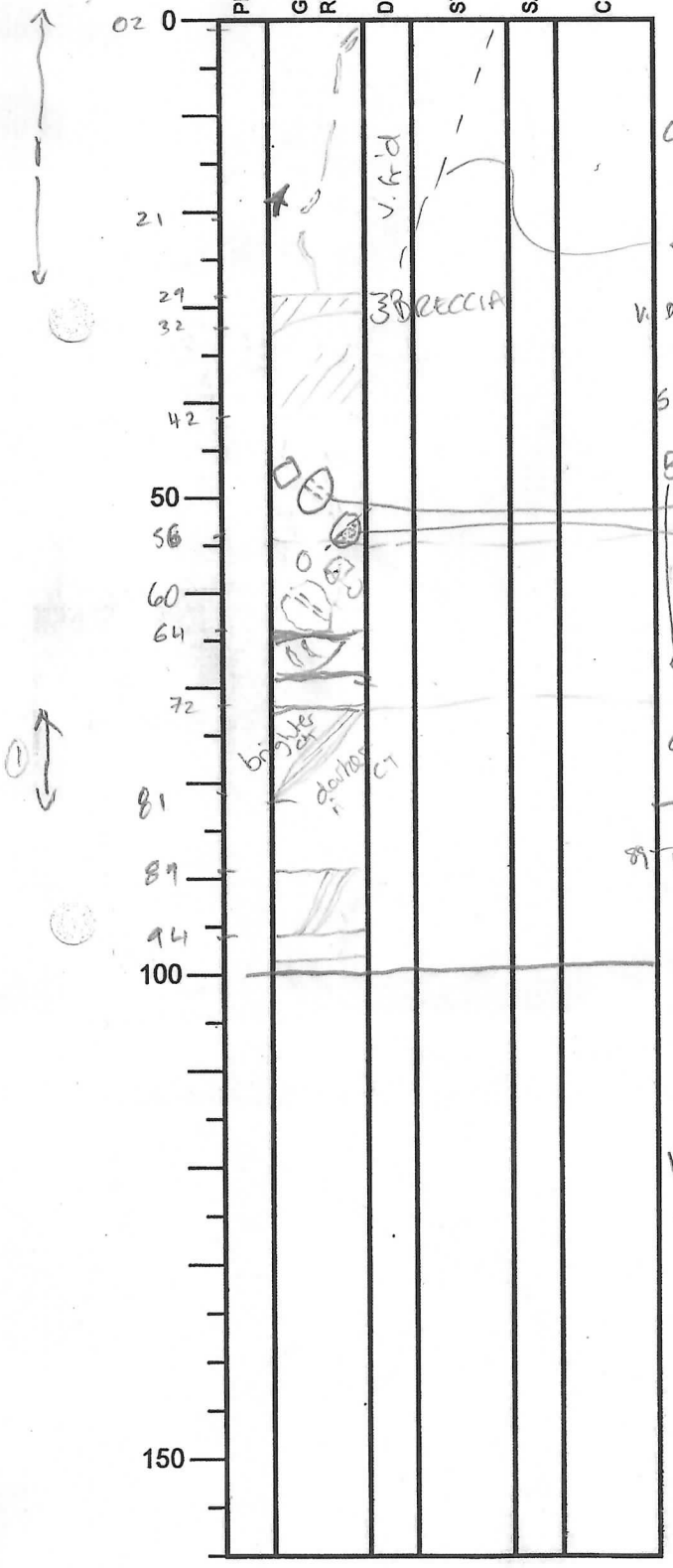
Integrated Ocean Drilling Program

Visual Core Description

CT VERSION

NO.
DATE: 20/5/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 10
SECTION: 2
TOP DEPTH (m CSF):

ROI ?



SECTION DESCRIPTION

OBSERBER: VIRGINIA JAMIE CHRISTIE

V. BURROW-RICH ZONE? 64@090+65@180
CT-BRIGHT PODS; STEEPLY DIPPING IN CORONAL + SAGITTAL SECTIONS; "STRETCHED"? = ELLIPSOIDAL W. FUZZY EDGES

Approximate bedding from trend of bright pods (?). v. steep. I
65 → 090
64 → 180

V. DISRUPTED ZONE; CT DARK & PATCHY

SL. DISRUPTED ZONE; CT DARK + PATCHY. Isolated bright blobs (not worm burrows) concretions? framboidal pyrite

BRECCIATED
bedding in clast = 40@270+36@180 (tiny fold? on working half)
2 ct BRIGHT sand So 38@090+46@000

Breccia (drilling induced)

CT BRIGHT BANDS = possible sandy layers, wavy gradational boundaries
60 → 090
42 → 000

bright concretions

89 HORIZONTAL CT-BRIGHT BANDS TRUNCATE DIPPING CT BRIGHT BANDS W. V. BRIGHT PODS (= BEDDING?). HORIZ BANDS = BISCUITS??

EOC @ 98.0 cm
61 → 090.
77 → 180

17cm
* fuzzy bright layers (bedding??) preferentially burrowed 00@284 + 81@180

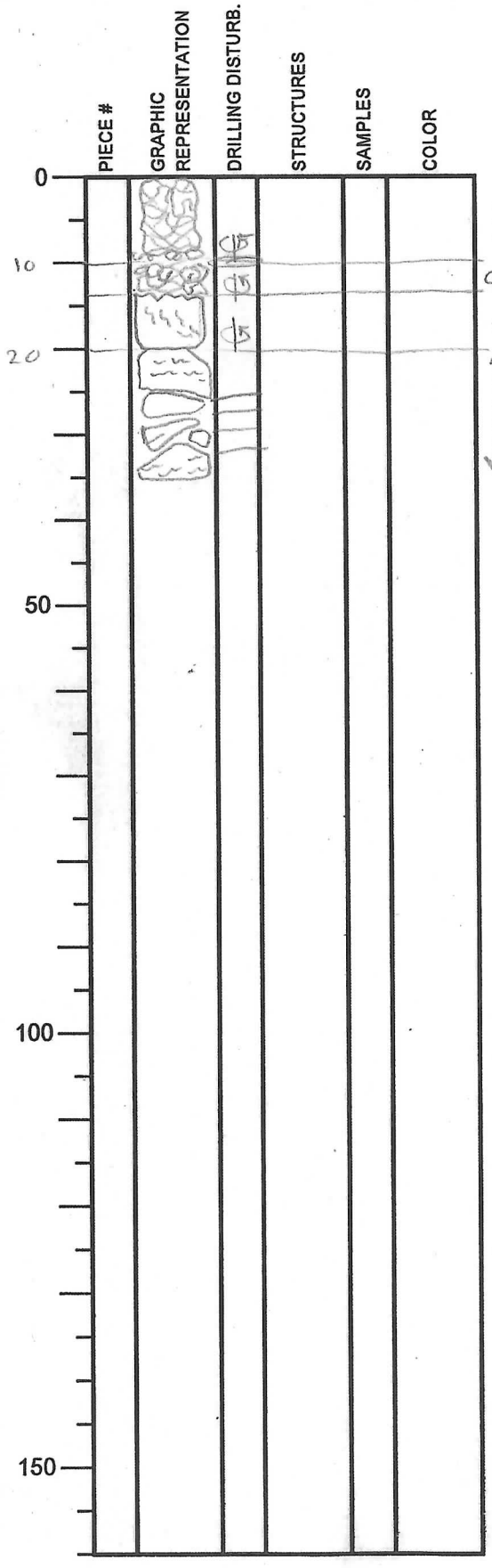
DONE

Integrated Ocean Drilling Program

Visual Core Description

CT VERSION

NO.
DATE: 20/5/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 10
SECTION: 3
TOP DEPTH (m CSF):
OBSERBER: C. ROWE

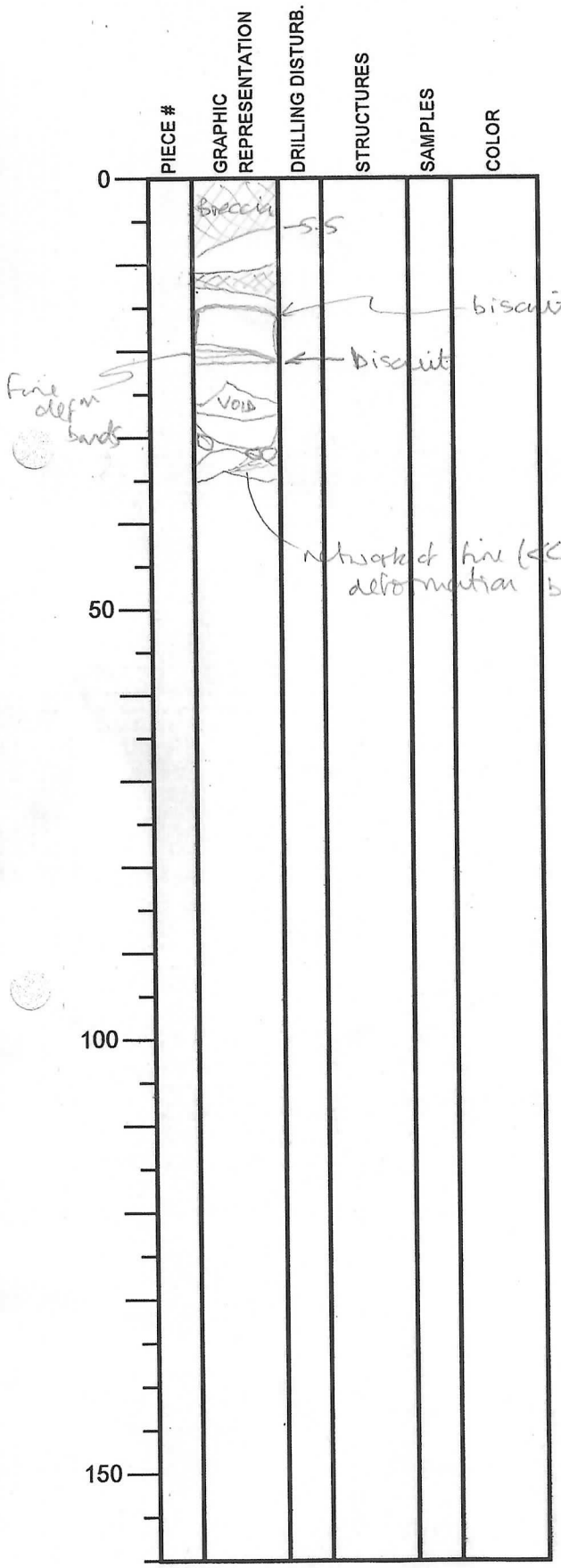


Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 20/5/2012
EXP.: 343
SITE/HOLE: ME
CORE: 10R
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER:
JANICE



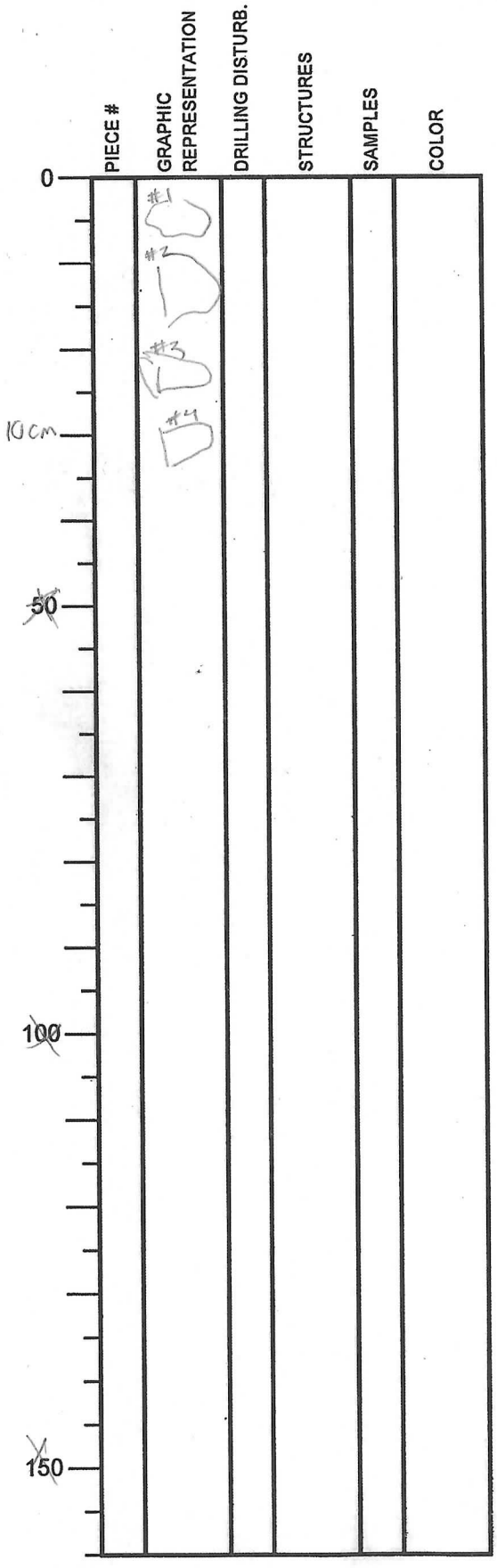
Integrated Ocean Drilling Program

Visual Core Description

lithology + structure

NO.
DATE: 5/20/2012
EXP.: 343
SITE/HOLE:
CORE: 11
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER: Regalla/Busch



SECTION DESCRIPTION

Piece #1

light to med grey, well-lithified mudstone containing
~70% siliciclastic grains
20% microfossils (diatom + radiolarian)
~10% ash
significant biogenic brecciated material consisting of olive grey-brown mudstone in subangular fragments in a matrix of dark grey fine mudstone

occasional dark specks.
hairline dark seams.
burrows dominant (visible in CT)

Piece #2

Homogeneous, mottled dark grey mudstone, 77% siliciclastic + 13% volcanic, 10% biogenic material.
>70% clay sized particles

Piece #3

light to med grey siliceous mudstone with high biogenic component ~30%. Bedding not apparent

Piece #4

med to dk grey mudstone similar lithology to piece #2

* Distinct lack of tectonic structures

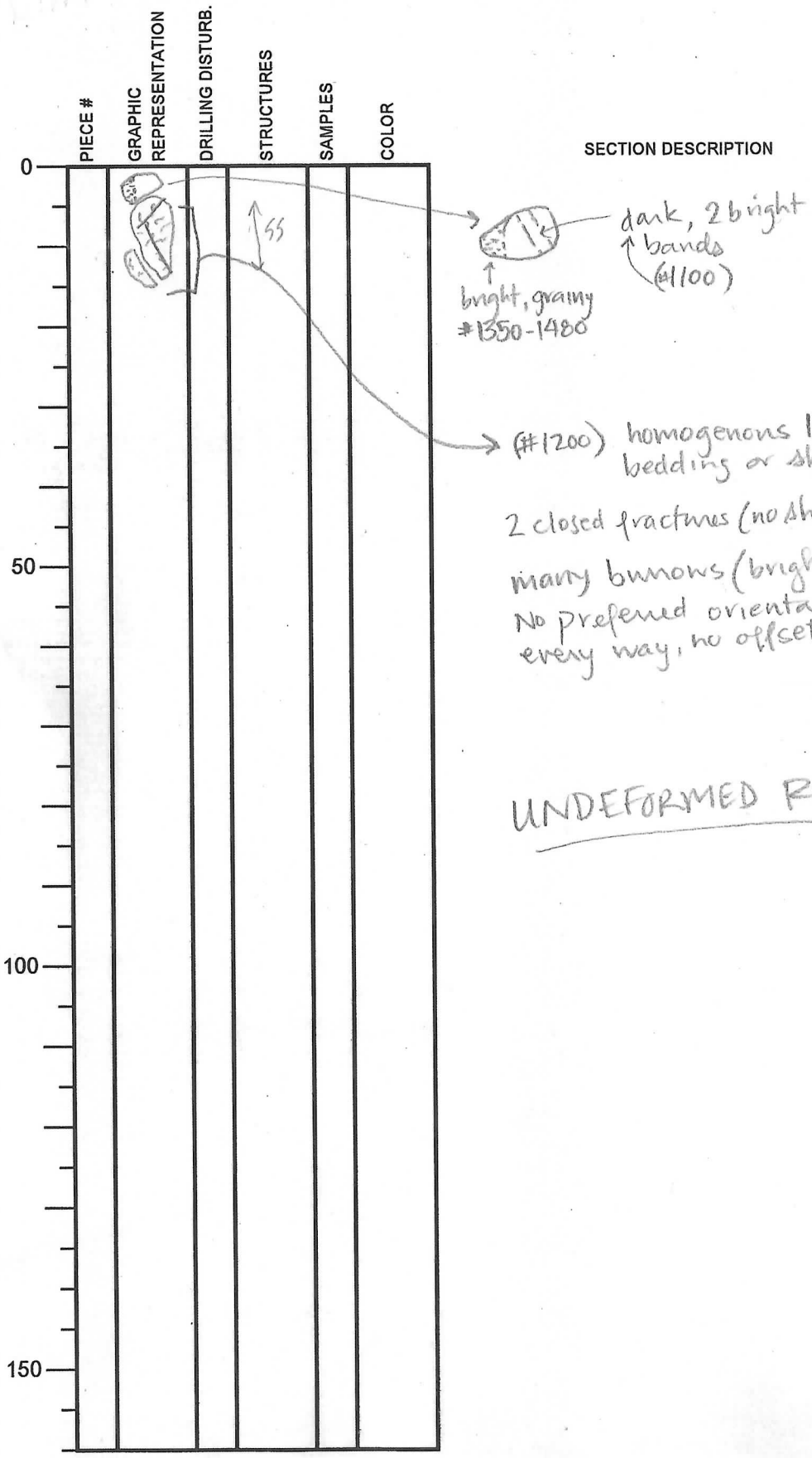
Integrated Ocean Drilling Program

Visual Core Description

XCT

NO.
DATE: 10/5 / 20
EXP.: 343
SITE/HOLE: C0019
CORE: 11
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER: C. Rowe, Observa'.

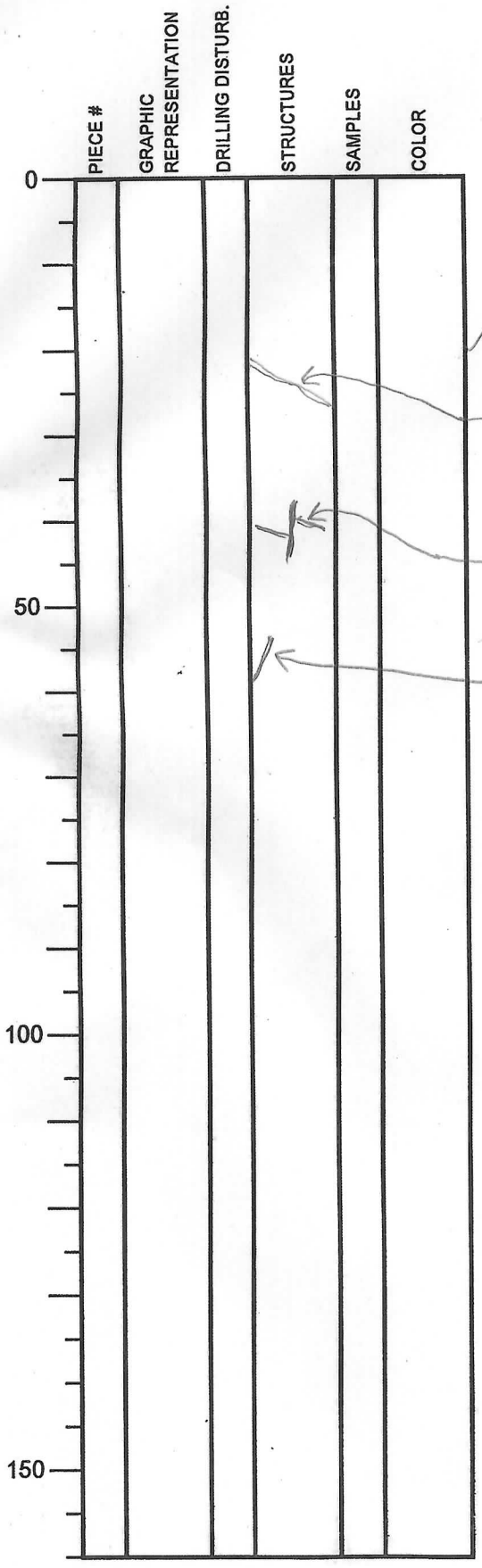


UNDEFORMED ROCK.

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 20105/20 12
EXP.: 343
SITE/HOLE: C0019 / E
CORE: 12R
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: KU



22 – 26.5 cm
bright band
change in thickness along length
(270, 38) (234, 0)

41 – 42 cm
bright seam offset by coring-induced fract
(270, 17) (201, 0)

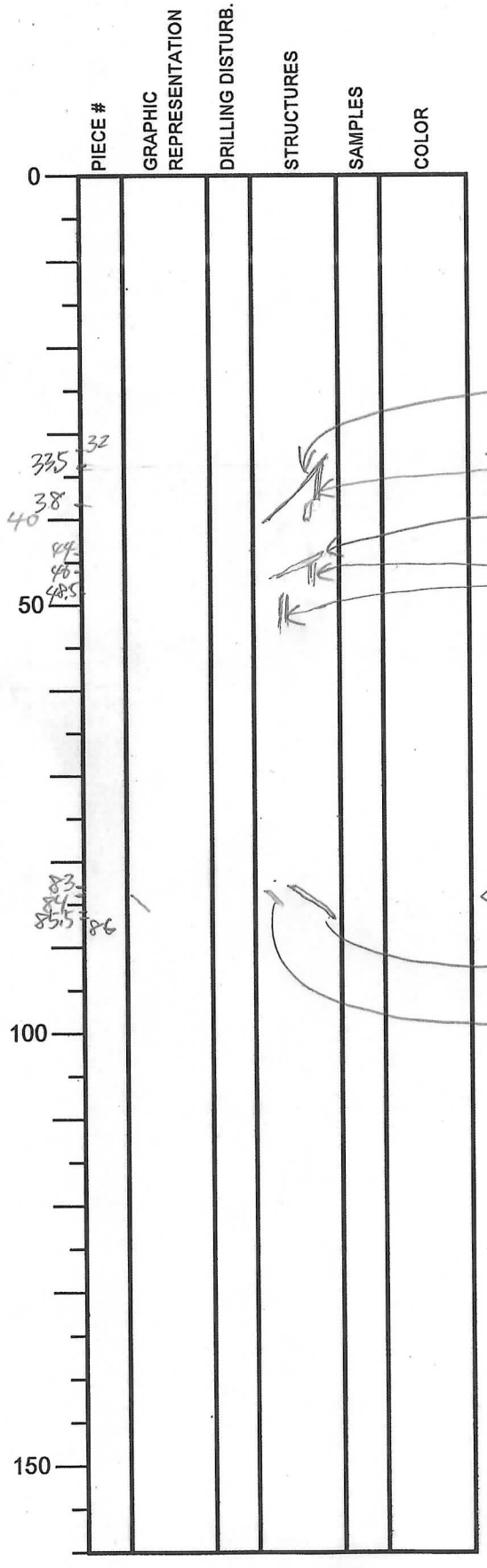
54 – 59 cm
planar bright band
(90, 73) (171, 0)

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 2010/5/20/12
EXP.: 343
SITE/HOLE: C0019/E
CORE: 12R
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: KU



32 - 40.5cm
dark fracture cuts bedding → fault
(90, 59) (158.0)

33 - 40 cm
steeply dipping bright band (prob. bedding)
43.5-46cm (90, 85) (168.0)

bright band cuts bedding → shear band
(90, 49) (349.0) 44.5-49cm 48.5-51cm

steeply dipping bright seams and band
(prob. lamination and bedding)
(90, 86) (0, 0)
(90, 86) (177, 0)

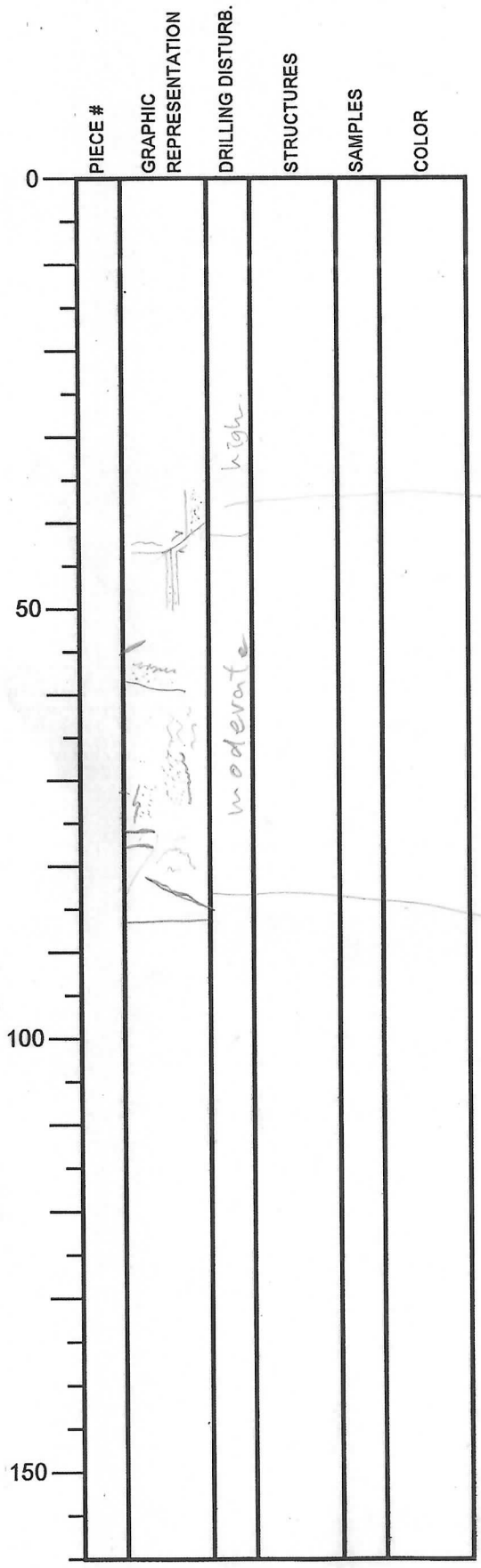
← two bright bands (prob. shear bands)
83-86cm
(270, 37) (217.0)
83.5-85.5cm
(270, 37) (152.0)

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 5/20/20/2
EXP.: 343
SITE/HOLE: C0019E
CORE: 12
SECTION: /
TOP DEPTH (m CSF):

OBSERBER: kameda



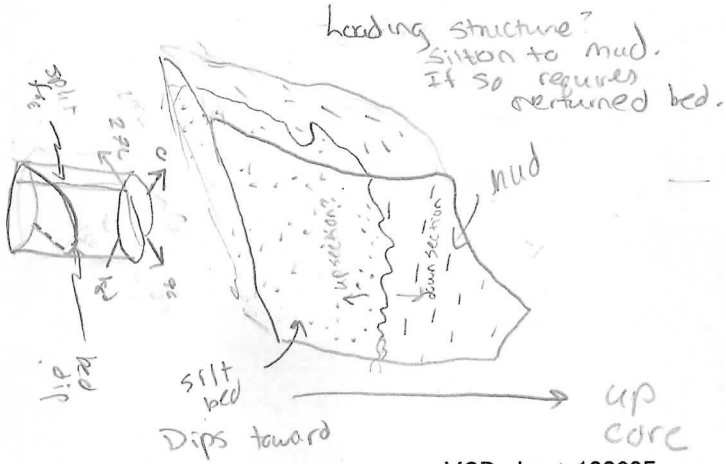
SECTION DESCRIPTION

dark green~gray mudstone
homogeneos (highly brecciated)

33–49.
Vertical silty lamina
displaced by ~~normal~~ thrust fault.

57–58
1cm thick silty laminae,
facing upper clayey layer with flame structure
59~64
bioturation (weak)
77, 78 dark seam
83 – 86 dark seam.
66 ~ 75
subvertical silty laminae
77–78
disturbed bedding of dark/light green mudstone

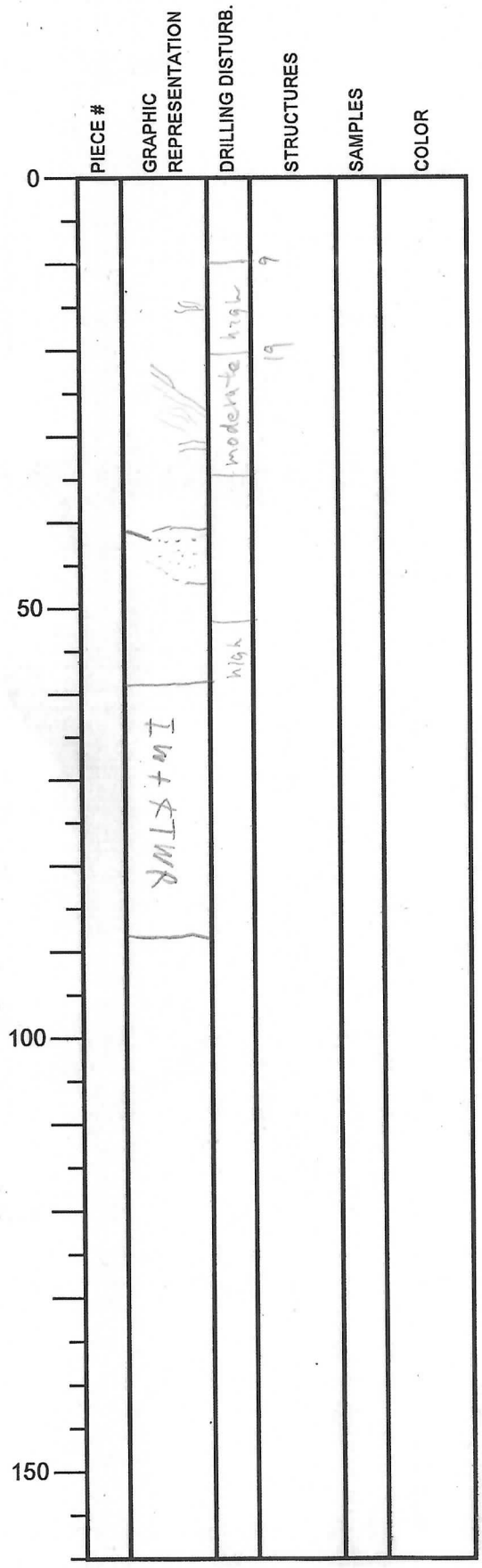
✗ See sketch below



Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 5/20/2012
EXP.: 343
SITE/HOLE: C0019F
CORE: 12
SECTION: 2
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERBER: kaneda

dark green mudstone

high density, wavy parallel

15–16, 23–30
cm scale dark seams

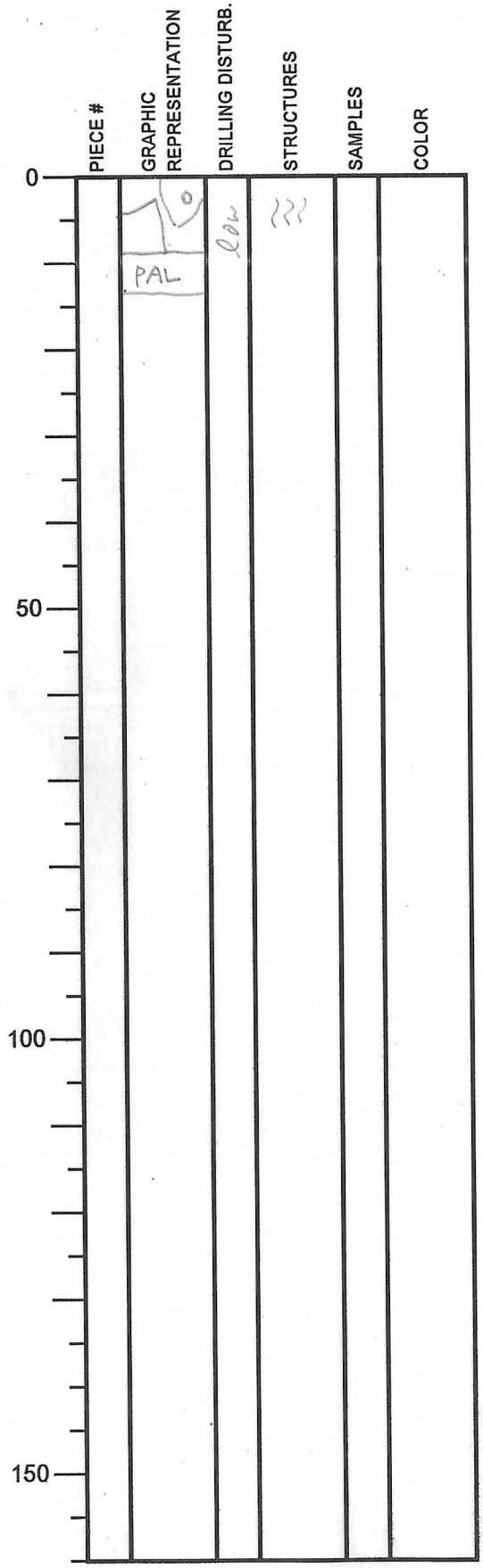
41.5–42 1mm thick dark seam
42–45 silty laminae → SS
46–53 patches of

Integrated Ocean Drilling Program

Visual Core Description

NO.
DATE: 5/20/20
EXP.: 394
SITE/HOLE: C0019E
CORE: 12
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: Kameda

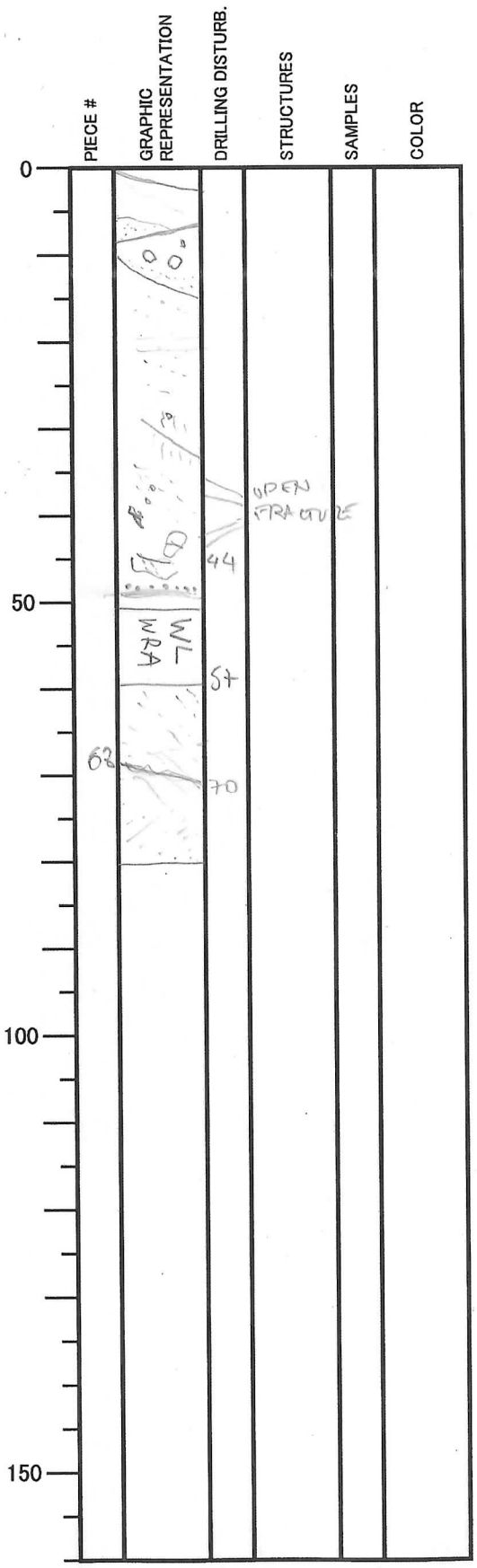


SECTION DESCRIPTION

1.5-2 pyrite concretion
1-5 Strong bioturbation

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5/20/20
EXP.: 334
SITE/HOLE: C0019E
CORE: 13
SECTION: 1
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERBER: kameda. FR

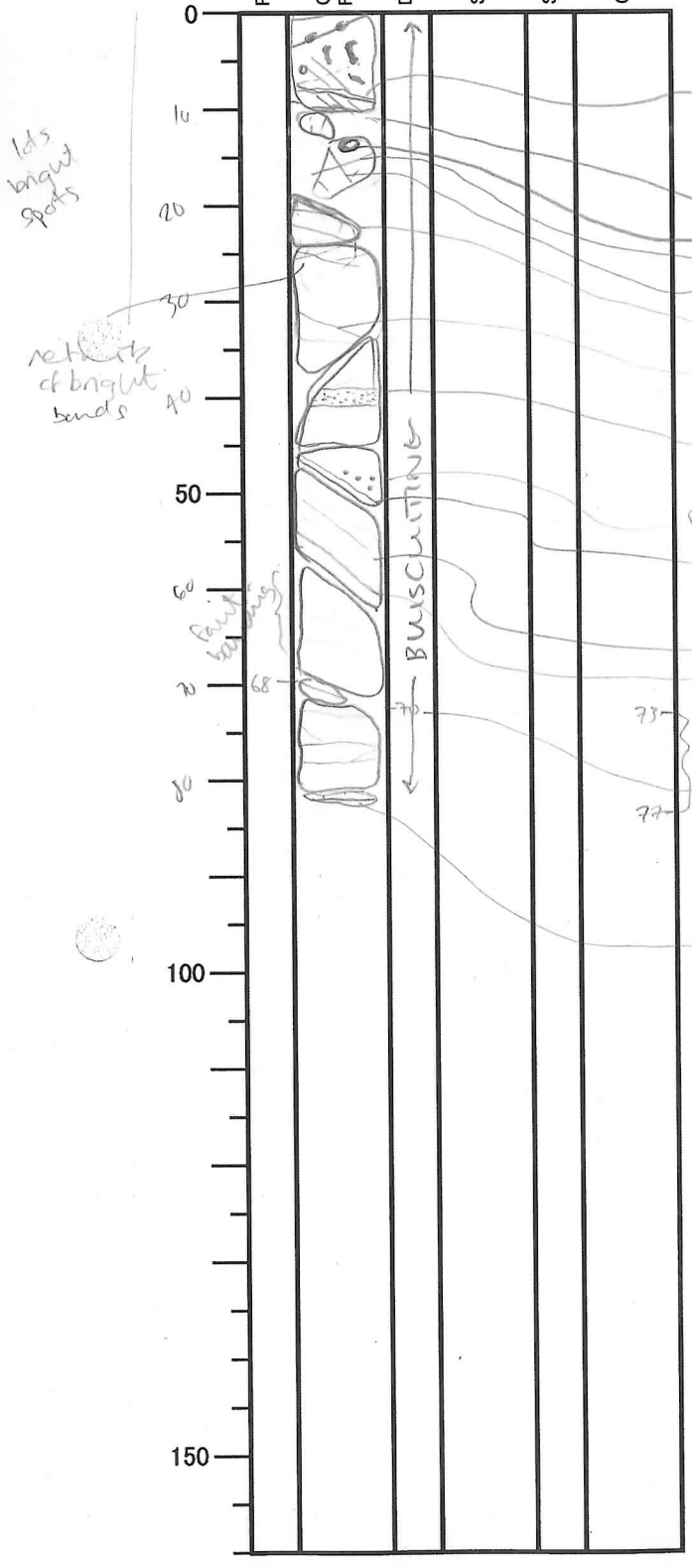
dark green mudstone.
0–2 mm thick dark seam.
7.5 pyrite (5mm size). 10.5–12 pyrite (1cm)
10.5–14 silty layer. with gradational lower boundary
12–29 mm size black patches cut by horizontal sharp dark seams (<1mm)
28 pyrite
30–35 mm spacing subvertical wavy dark band (fault veins?)
36–37 ~~OPEN FR~~
36–48 layering identified by ~~ally~~ black and pale elongated patches. 36 pyrite
38 pale round concretion?
40 pale round
41 dark patches of ~~mm~~ mm size (organic material)
~~44~~
44 dark seam cutting the layering
46–47 ~~ah~~ patches of dark material (organic) preferentially in a layer
51 sandy silty layer
57–72 alignment of dark spot defining a layering
66–67 web of cross-cutting thin dark seam
68–70 double seam (1mm) cutting the layering

Integrated Ocean Drilling Program
Visual Core Description

CT LOG

NO.
DATE: 21/5/20
EXP.: 343
SITE/HOLE: C0019
CORE: 13
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: JAMIE C. ROWE



Pyrite = discontinuous blobs along burrow traces

bright braided hairline (probably deformation bands) * See note
15@270, 10@000

15@090
15@180
cuts burrows
faint bright
CT dark - maybe pumice?
bright pyrite blebs along meandering linear traces

lots bright spots

very CT bright, thick walled, low CT# in center

→ small fault ~3mm offset. 7 → 090, 49 → 000

→ bedding: 38 → 270, 52 → 180

→ 2 black seams: 15 → 270, 10 → 000 ? no offsets observed
76 → 270, 9 → 000 but match core obs.

network of bright bands

→ bedding? fault?

→ grainy layer in CT #. Lots black holes (v. low CT?) pumice clasts

Pumice clasts

bright CT at base of biscuit

faint banding

Faint banding of CT colours
bright band. No offsets. Dark seam: 35 → 270, 70 → 000

bright CT bands - v. fine. Match seams in core. Inter-connecting network. Representative measurement: 15 → 270, 6 → 000
→ bright band : dark seam: 14 → 270, 16 → 000

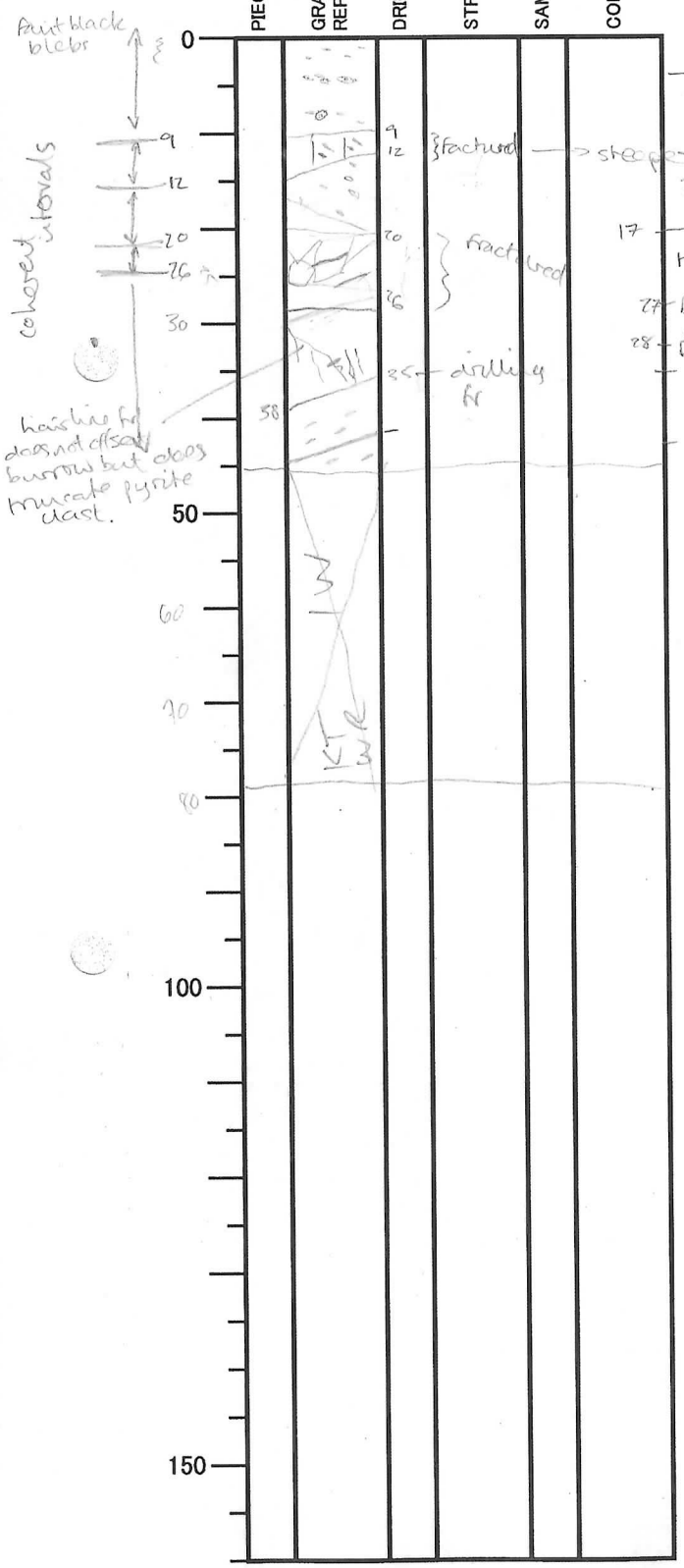
General: homogeneous rock w/ CT# ~1200

bright band → 9 → 270, 5 → 000
matches dark seam in core

* Top clast is rotated ~180° relative to CT data! other sections seem to match core.

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 21/5/2012
EXP.: 343
SITE/HOLE: 19E
CORE: 13
SECTION: 2
TOP DEPTH (m CSF):
OBSERBER:

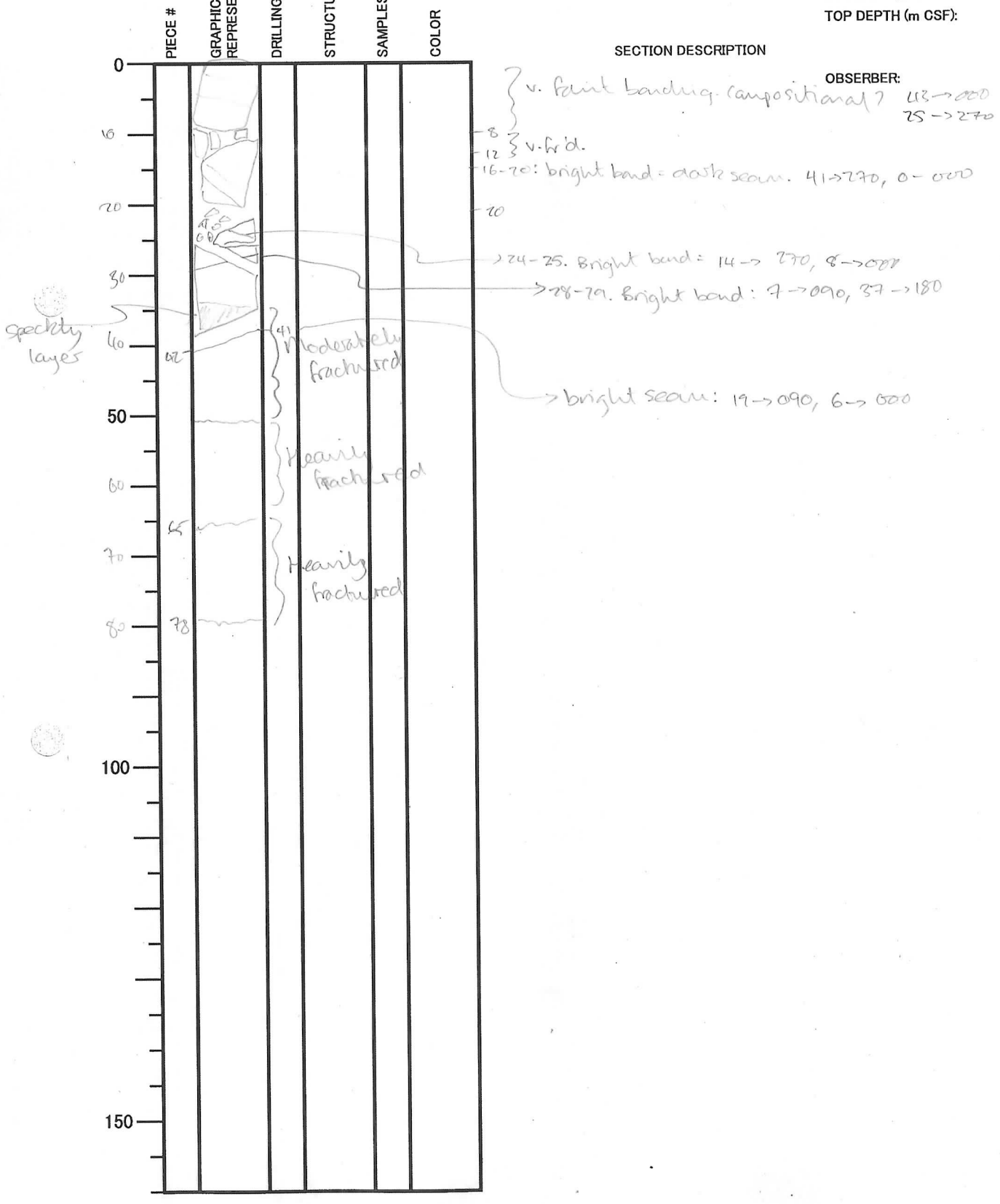


Integrated Ocean Drilling Program
Visual Core Description

CT log

NO.
DATE: 21 / 5 / 2012
EXP.: 343
SITE/HOLE: 19E
CORE: 13
SECTION: 2
TOP DEPTH (m CSF):

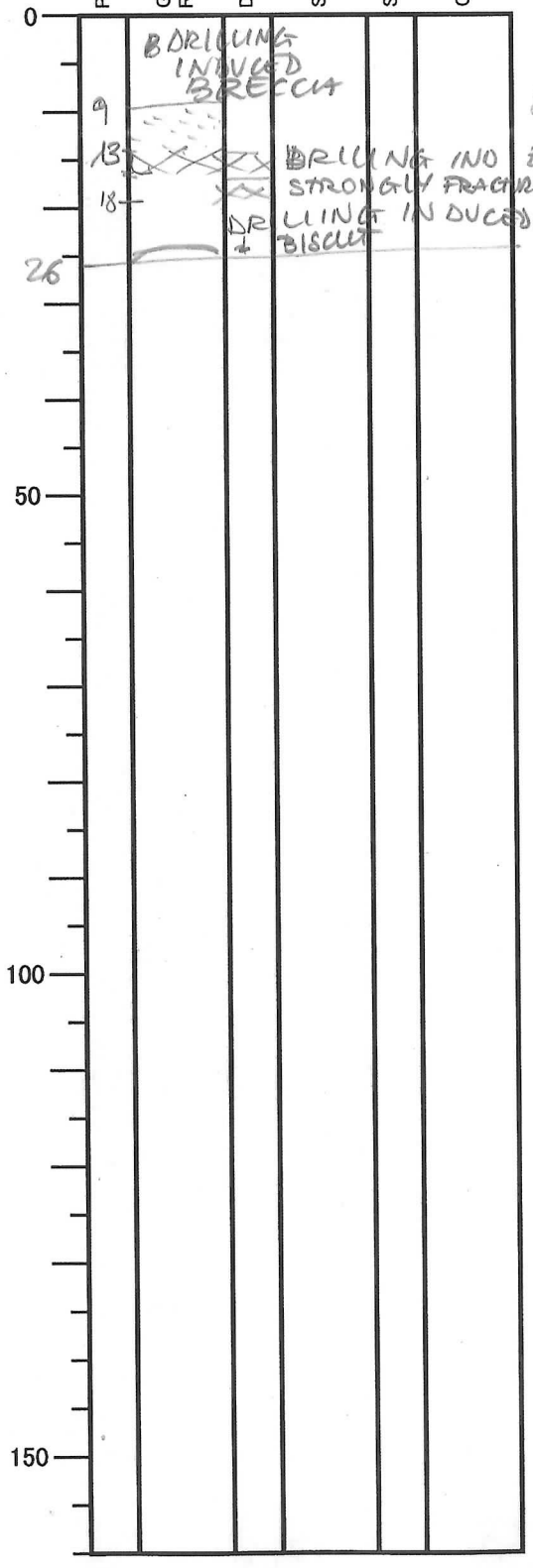
OBSERBER:



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5/21/2012
EXP.: 343
SITE/HOLE: COORE
CORE: 13
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER: fb



fractured (by drilling) grey mudstone grading to DRILLING INDUCED BRECCIA at the bottom. Dark spot defining a layering

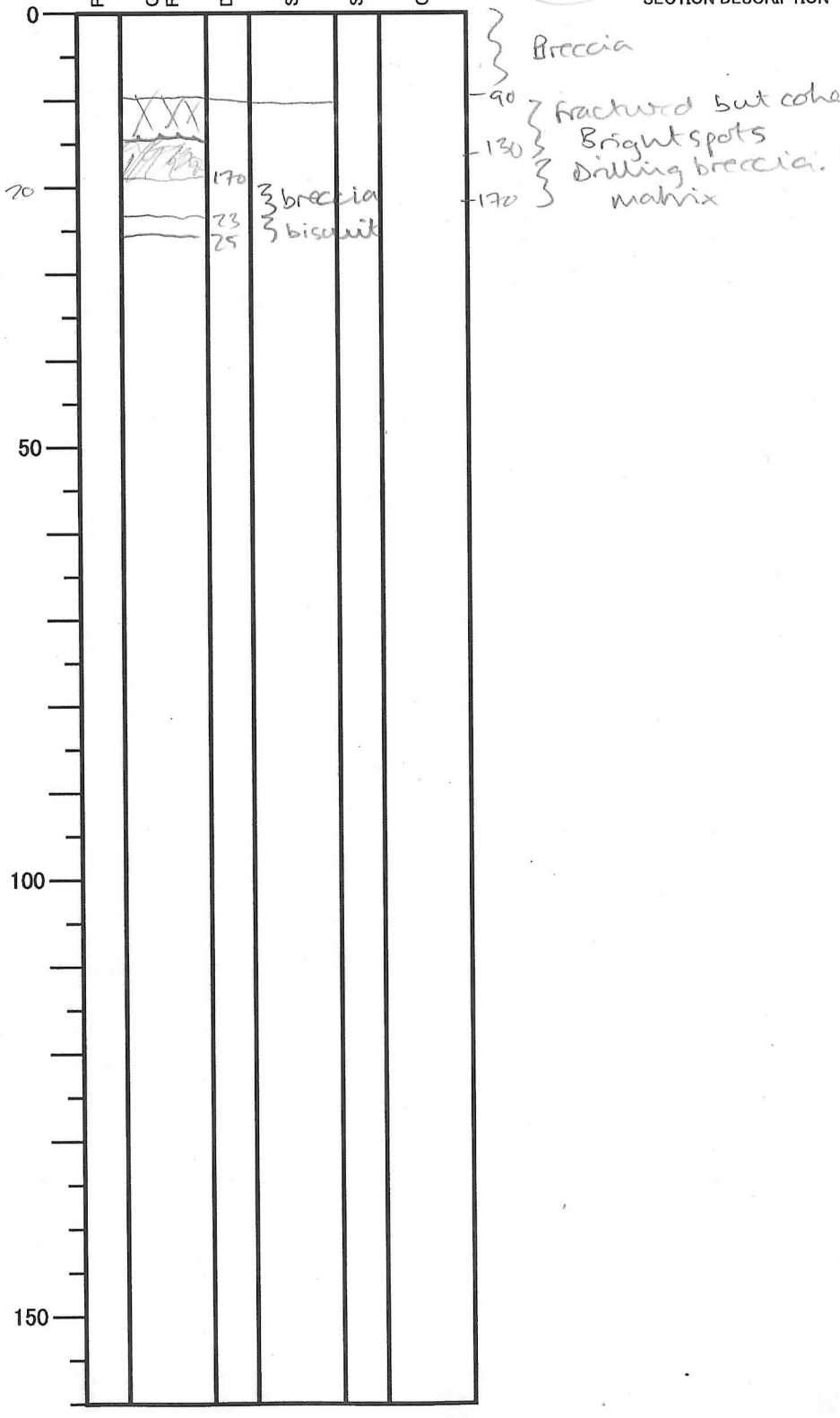
VCD_sheet_100805.xls

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 9 / 5 / 2012
EXP.: 343
SITE/HOLE: 19E
CORE: 13
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER: JAMIE

CT log



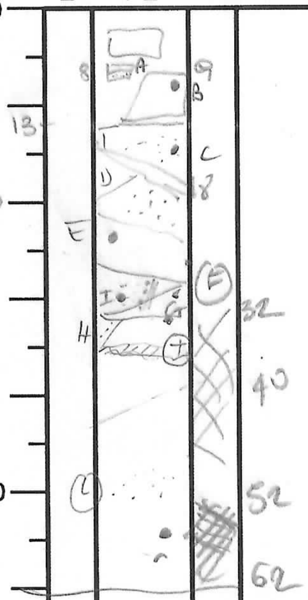
VCD_sheet_100805.xls

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 21/05/2012
EXP.: 343
SITE/HOLE: ~~300~~ C0019E
CORE: 14R
SECTION: 2
TOP DEPTH (m CSF):
OBSERBER: FR

PIECE #	GRAPHIC REPRESENTATION	DRILLING DISTURB.	STRUCTURES	SAMPLES	COLOR

Scale: 0, 50, 100, 150



SECTION DESCRIPTION

(A) silty layer with a parallel dark band ~~gre~~ eight grey grains (mudstone?) became coarse toword the bottom of the core

10 (B) pyrite grain

14-17 (C) ellipsoidal mm spot of pyrite, the alignment is not well resolved

17-19 (D) dark seam

22 (E) brown spot (3 mm)

23-26 (F) deformation band althouge sandy-silty layer G

26-27 (G) ~~26~~ sandy-silt layer truncated by 2 deformation band F e H

26-27 (H) def. band cuts sandy-silt layer

~~(I)~~

26-28 } a brown spot 0.5 mm size

28-30 (H) silty layer grading to mud downward

30.5-31 (I) dark seam made by anastomosing tiny dark layer (reworked by drilling fracture)

(L) eliptical dark spot (<1 mm size)

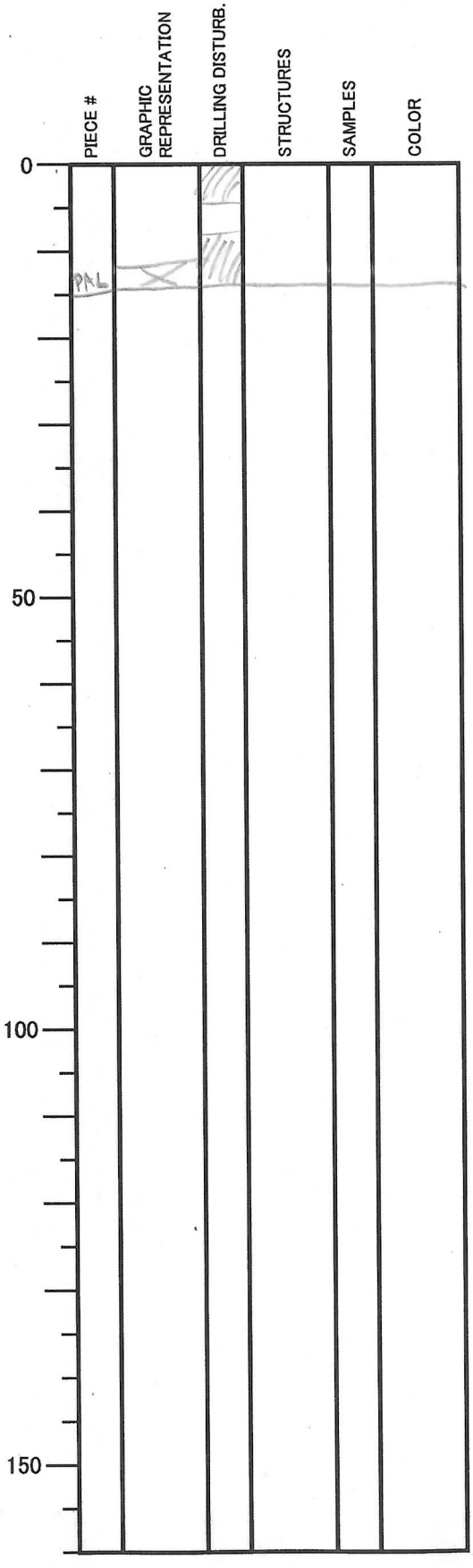
54 pyrite concretion ~3 mm

VCD_sheet_100805.xls

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5 / 21 / 20 17
EXP.: 343
SITE/HOLE: COC19 E
CORE: 14R
SECTION: CC
TOP DEPTH (m CSF):

OBSERBER: Legall c



SECTION DESCRIPTION

with same as sections 2 + 3

- coherant chunck 5 - 8 cm
dK reduction spots elongate ~ horizontal in core face < 1mm diameter

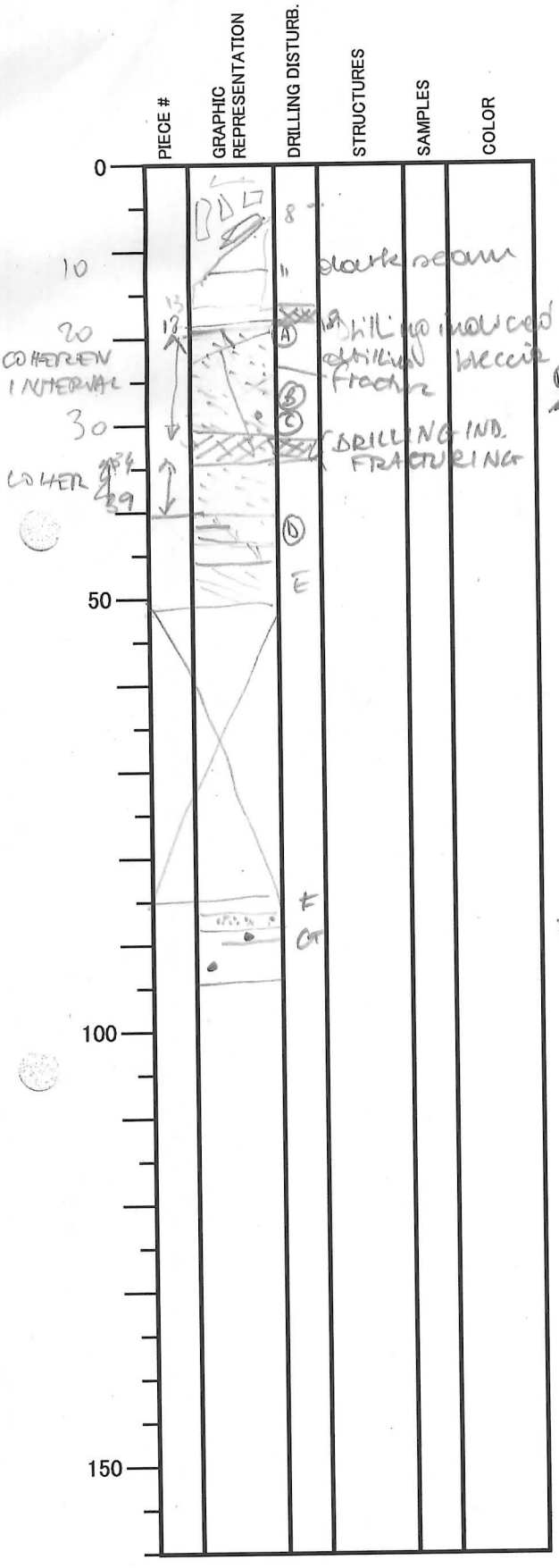
Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: / / 20
EXP.: 343
SITE/HOLE: C0019E
CORE: 14R
SECTION: 1
TOP DEPTH (m CSF):

ECLIPSE DAY!
FAULT DAY!

SECTION DESCRIPTION

OBSERBER: FR



grey mudstone with sparce pyritic spot aligned

11 dark seam

12-31 dark elliptical spot defining a layering cut by a discontinuous

19-20 (A) dark seam displacing an orthogonal dark seam (B) dextral sinistral reverse displacement of 1mm)

19-30 (B) dark seam cutting the layering displaced by (A)

(C) BROWN SPOT (pyrite?)

(D) ~~not so well~~ layering is not clearly visible, horizontal web of dark seam displacing an older dark seam

(E) hairline dark seam, no evident displacement

86-88 (F) ~~sandy layer~~ silty sandy layer

(G) dark seam

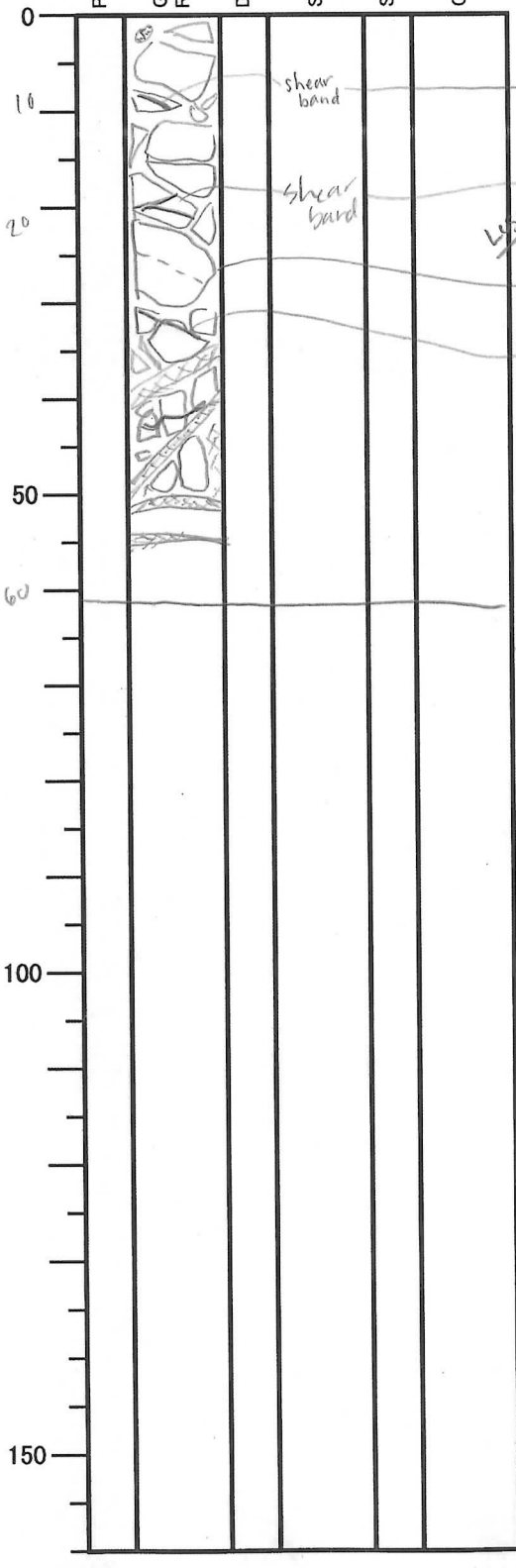
89 } brown spot (elliptical 5mm)
92 }

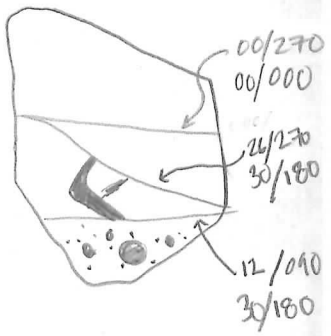
Integrated Ocean Drilling Program
Visual Core Description

CT log

NO.
DATE: 21 / 5 / 20
EXP.: 393
SITE/HOLE: C0001A
CORE: 1H
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: C. Ronné





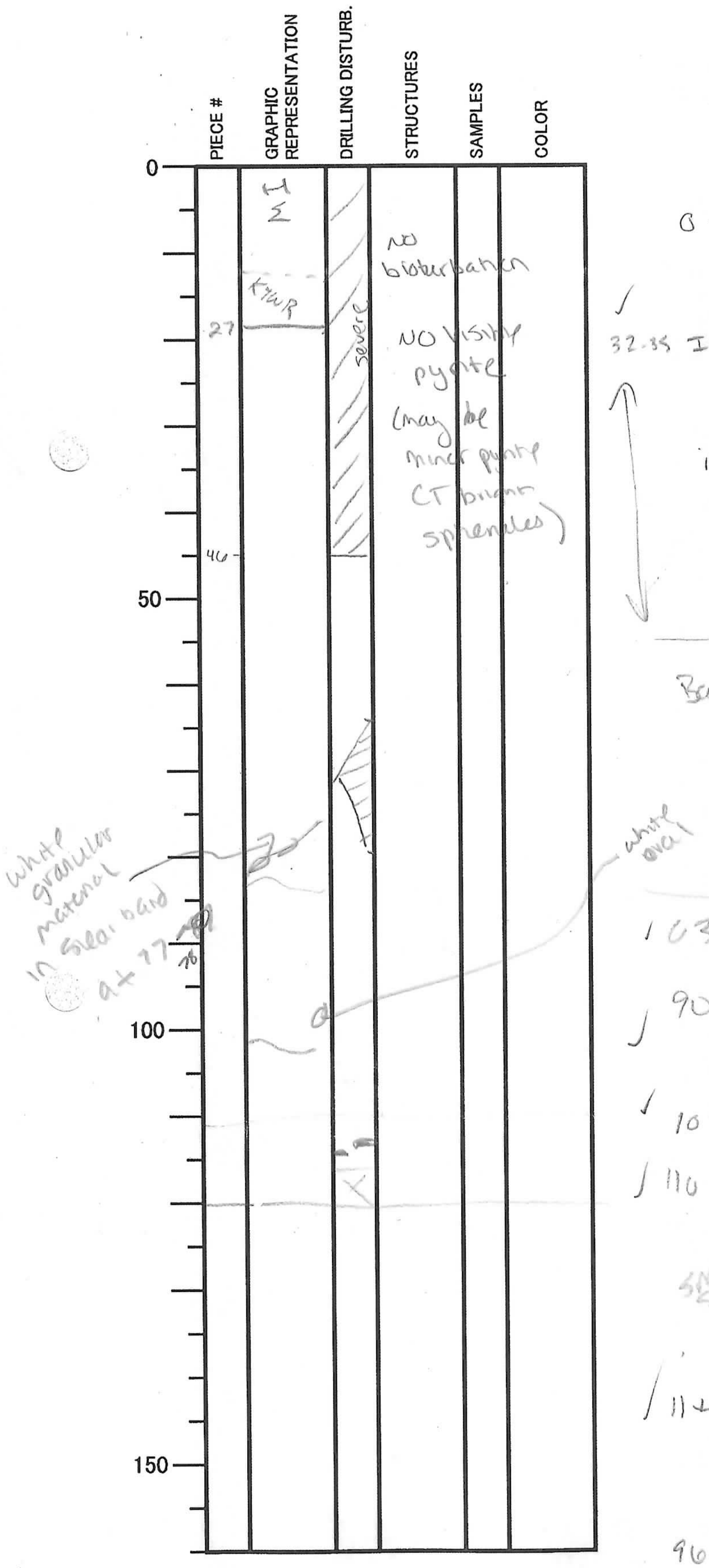
General:
Homogeneous w/ ellipsoidal bright blobs (sometimes colinear or coplanar, probably pyrite framboid blobs aligned along burrows or beds

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5 / 21 / 2012
EXP.: 343
SITE/HOLE: C0019 E
CORE: 15R
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: Regalla

SECTION DESCRIPTION



0-46 heavy drilling damage fractured + brecciated. Is very likely taking advantage of natural brecciated surfaces

32-35 Intact fragment
breccia of subangular to subrounded smooth green mudstone fragments in a matrix of dark green mudstone w/ abundant black speckly, subrounded dark grains.
Breccia clasts range in size from 0.5 cm to <1 mm

Background green-gray mudstone
silty clay grainsize
~70%
20% volcanic
6% siliceous

63-85 series of anastomosing + xcutting shear bands lenses/clasts of green mud in dark grey/speckled mud matrix

90-102 highly fractured brecciated rocks, shears at high angles 0.5-2cm clasts

102-105 - series of anastomosing shear bands w/ green mudstone lenses

110-112 - swirled dark grainy organic rich mudstone + with green mudstone clasts + breccia a.

small slide

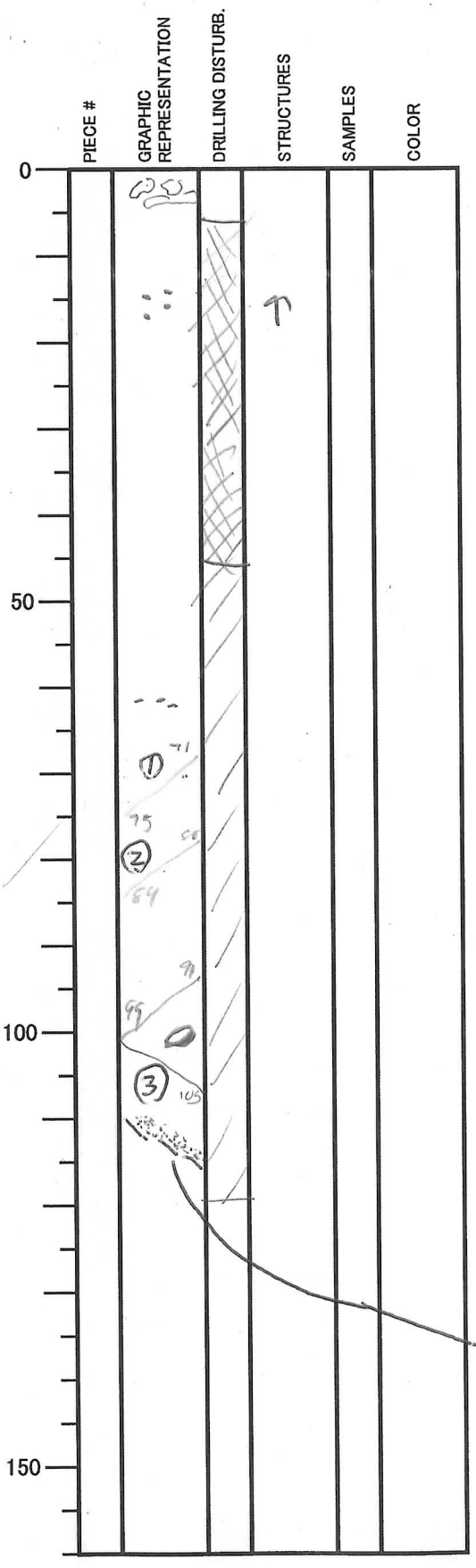
114 115 - blobs of dk organic rich material 2cm to 2mm in length

96-100 several ~3mm white voids of granular xlined material unidentified in SS,

VCD_sheet_100805.xls

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5/21/2012
EXP.: 343
SITE/HOLE: CC019E
CORE: 16R
SECTION: 1
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERBER: Reala

~1cm irregular
2-5 blebs/blob of sand-size grains in a discontinuous pod.

17-20 dk grey reduction spots some w/ pyrite cores

19-20 mottled grey green + grey

16 → 30 abundant bioturbation → thin mm scale burrows and rare ~0.5cm burrows w/ pyrite? (CT bright)

dominant ~~very intense~~ bioturbational
23-27

abundant pyrite nodules

62-64 reduction spots

at 99-100

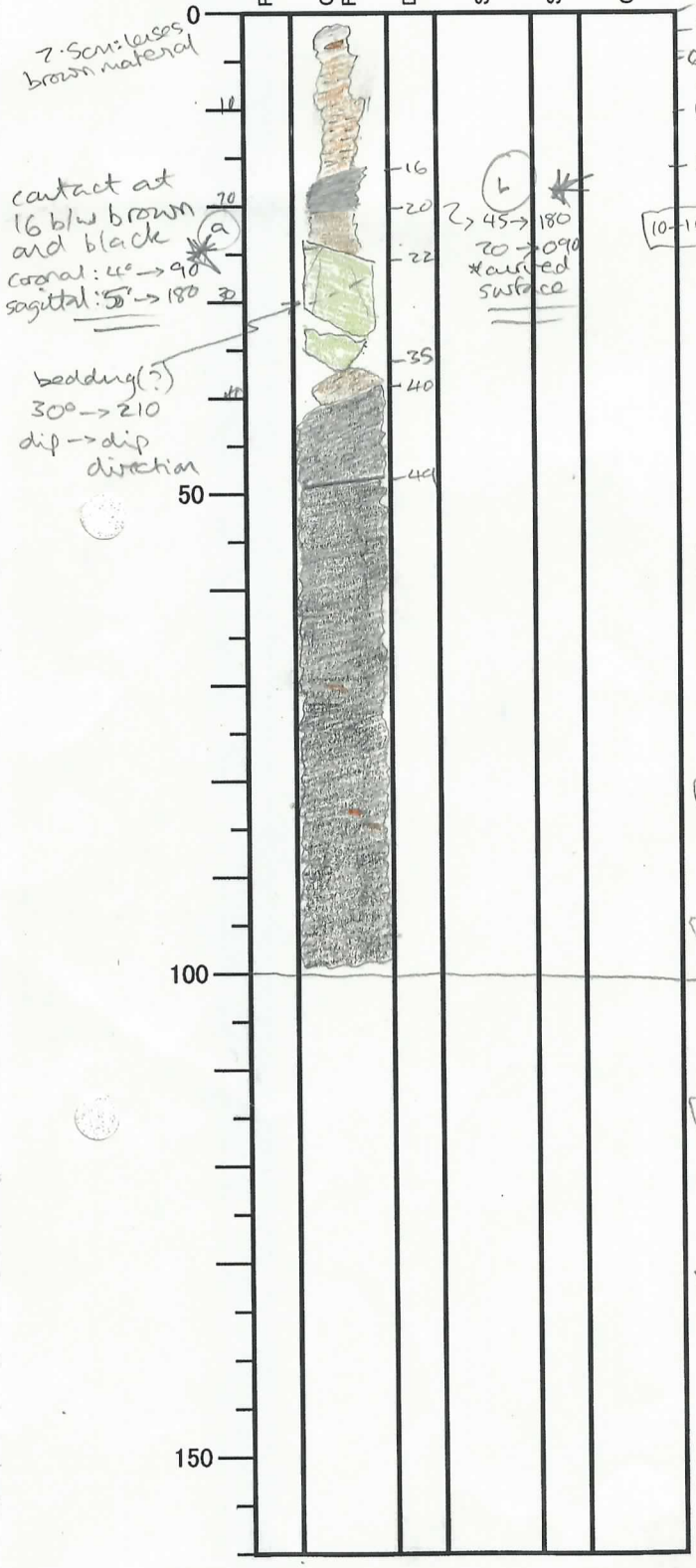
① (90, 31) (212, 0)
② (90, 31) (230, 0)
③ (270, 33)
bedding 110-115 cm)
(270, 43) (156, 0)

Integrated Ocean Drilling Program
Visual Core Description

VCD through the core liner

NO.
DATE: 22/5/20
EXP.: 343
SITE/HOLE: 19E
CORE: 17
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: FRANCESA JAMIE



SECTION DESCRIPTION

0-6 Gray-brown, mixed material w/ brown and black, scaly fabric. 5mm thick layers brown; layers suggest compositional banding. Platey grains (clay), define fabric. Occasional mm-scale phacoids.

→ Gradational change to brown only 6-10

10-16 → Predominantly brown, strongly foliated section. Foliation not // to contact @ 16cm. Scaly fabric strongly undulating, scales v. flat and platey, size < 1mm. Contains phacoids 2-3mm → aligned long axes define dominant foliation: Sagittal plane: 38° → 180 } foliation
Coaxial plane: 7° → 270 } foliation

c

Foliation orientation changes down-section. Overall lenticular, anastomosing surfaces define composite planar fabric ~90

270

Foliation fabric more asymmetric in core profile than when viewed on top

down ← a 38 → up

180

16-20 Mainly black, metallic lustre, w/ small clasts of brown material near contact @ 20. Strong scaly fabric w/ lots shiny surfaces. Phacoids sub-mm near contact at 16, grade to max 1cm long down section. Lots polished surfaces. Foliation: 70 → 180, 8 → 90. } 080/70S

20-22 Mixture of brown and gray material. Phacoids 4mm long, 2mm-thick near grey biscuit. Few lustrous surfaces. Gray forms phacoids as well. Foliation ~// to contact @ 20cm. Possibly disturbed by drilling

22-35 Greenish gray mudstone. Grains are silty or finer. Similar to PSR. Have generous, slightly speckled appearance. Occasional white spots ~2mm may be pumice. Dark seams, are hairline fractures. 2 generations steep, anastomosing that are x-cut by low-angle hairline dark seams. Possible 3rd set is also low ang

35-40 Similar material to 20-22. Mixed gray-brown material. Strongly foliated w/ phacoids 5mm. Compos layering of thicker of few mm. Foliation is inclined and at different angle to unit below. Possible biscuit from drilling.

40-49 Predominantly dark gray to black w/ sparse clasts of brown material. (5 = 2 mm typical size). Clasts have sharp edges w/ black material. Black material is strongly scaly → phacoid surfaces are shiny. Phacoids are up to 8m long. Foliation defined by phacoid long axes, has wavy anastomosing appearance in all directions. Average orientation 45° → 009 3° → 090. d

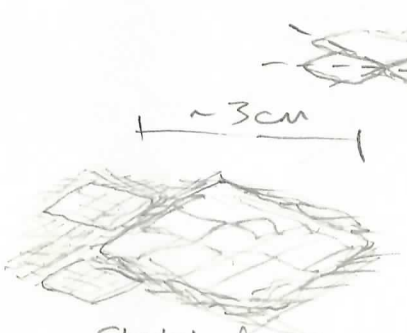
V. similar to 16-20 but coarser phacoids, may be more shiny surfaces.

22/5/12
343
19E
17
1

2/2

DATE
22/5/2012
EXP 343
SITE/HOLE 19E
CORE 17 SEC 1

49-100 Dark gray to black material w/ some clasts of brown material (~1cm up to ~1.5cm). In general, dark material phacoids are bigger than other black layers. 2 scales of phacoids: larger, less-deformed lenses contain less intense foliation. These are ~0.5 to 3cm in size. Surrounding them, the phacoids are ~1mm in bands ~0.5cm to 3cm wide which are more intensely deformed. Surfaces of all sized phacoids are shiny and often have slickenlines.



Phacoid long axes: 68→180, 25→270 } add

pattern evident when viewed in all 3D.

Sketch of phacoid texture: orientations of phacoid long axes are consistent at all scales of phacoid but aspect ratios change? smaller phacoids are flatter.

* Contact: 49cm. Defined by abrupt change in phacoid size. Larger phacoids down section, but proportion of smaller phacoids decreases even though larger phacoid size is ~ the same.

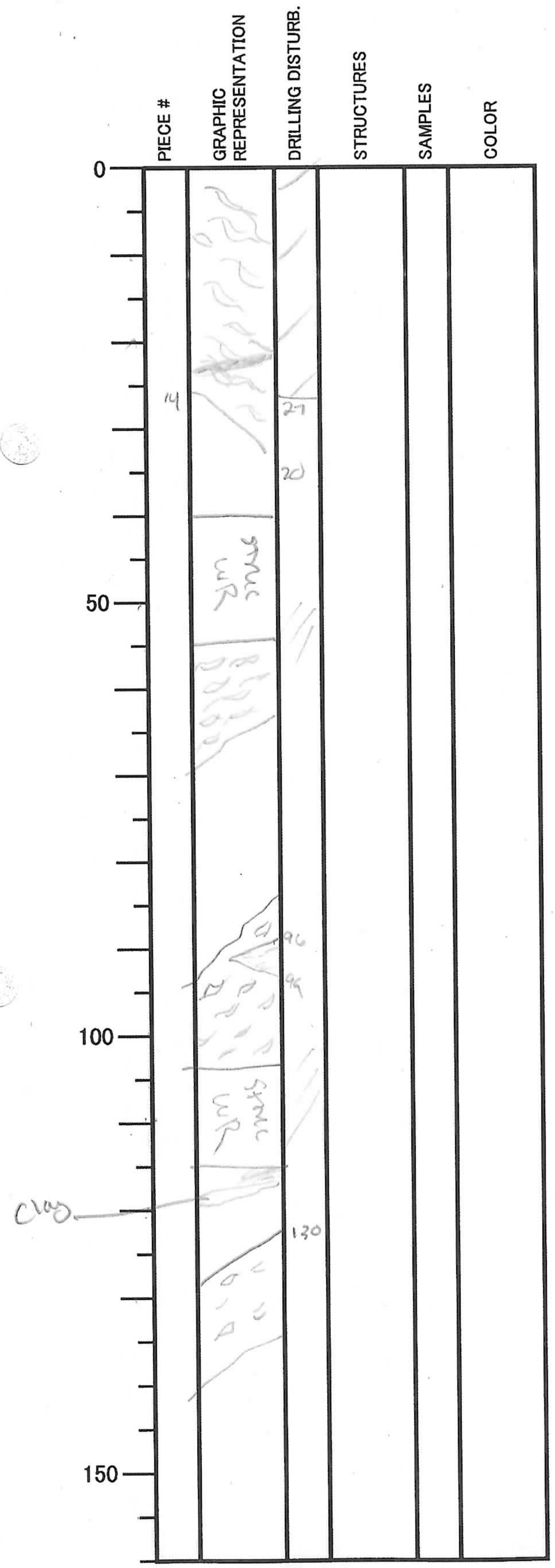
133/40W { 30-270
136/8 { 32-180

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5 /22/ 2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 18R
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER: Regalla

SECTION DESCRIPTION



Dominant lithology
same as core 19
but with few horizons
of <cm thick clay beds

few ash pods
~~few~~ non-scaley ~~[illegible]~~
block contain lenses
of brown clayey mudstone
in a discontinuous
black silty matrix.

occasional concentrations/
mottled patches of dark silty
material

0 - 20 probable tectonic scaley
fabric (close up photo of a facoid)
further damaged by drilling brecciation
facoids include both brown clays
+ dark silty lithologies + ~~do not~~
facoid boundaries do not ~~cor~~
necessarily correlate w/ lithologic contacts

facoids are polished, striated + are
sometimes corrugated on a mm scale
facoids range in size from mm to
cm width

22-25 dark silty horizon
30-37 bioturb filled w/ ash
38-40 dark silty bed

? until 64 probable tectonic scaley fabric

91 - 115 probable scaley fabric.

~~23~~ -
121 - <cm buff clay bed
125 - 131 - coherant beddings

130-138 probable scaley fabric
138-140 2cm pink clay bed
138 - end probable coherant block
143 - 0.5 cm clay bed

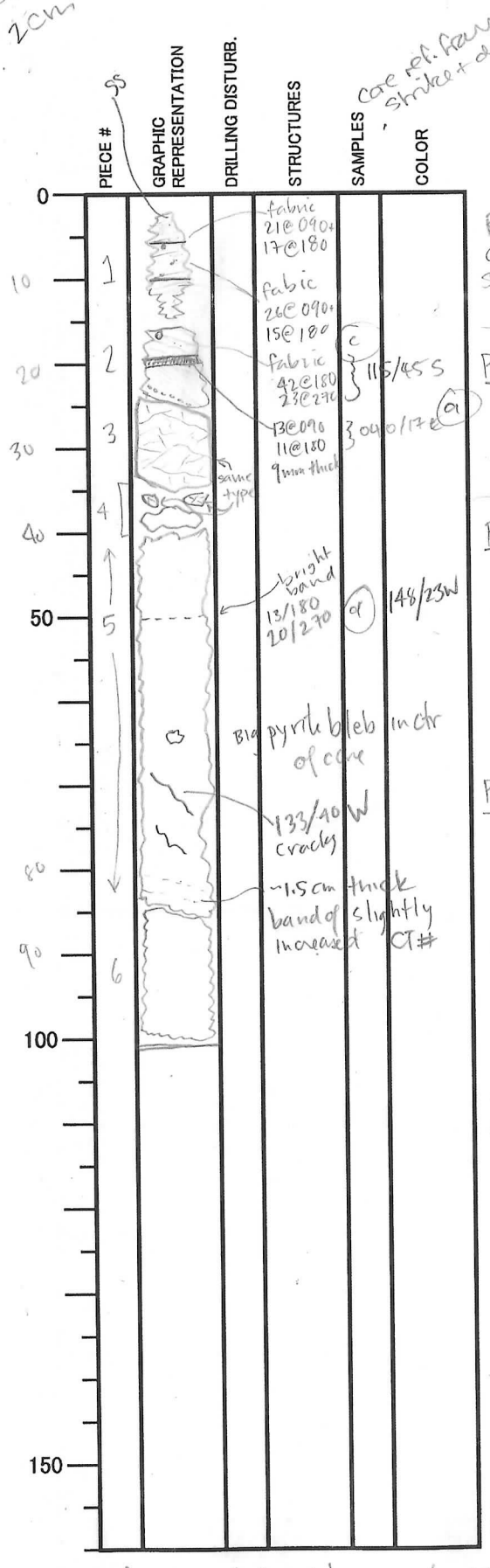
VCD_sheet_100805.xls

Integrated Ocean Drilling Program
Visual Core Description

for VCD scale, subtract 2cm

NO.
DATE: 22 / 5 / 20
EXP.: 343
SITE/HOLE: 19E
CORE: 1H
SECTION: 1
TOP DEPTH (m CSF):

OBSERBER:



SECTION DESCRIPTION

Ragged-edged core, latitudinal cracks (extension a biscuiting)
Streaky in CT, CT# ≤1600-1800 (very dense compared to previous mudstones.

Piece 1: local bright blebs (2400-2800) <2mm
Slight change in fabric orientation in middle of piece across subhorizontal surface @ 6.6cm
02°@270 + 05@180°
streaks of CT# 1650-1800 are 1-3mm wide

Piece 2: bright blebs up to 3mm
CT brightness change across discrete surface (subhoriz
Above: 1600-1700 (variable) ~17.5cm
Below: >1700, more homogenous (Fabric:
At bottom of piece, curvi-planar band of bright blebs
00/097, 47/180, 05/090 (b) → 085/47S
@13cm, a ~1.5mm bright bleb w/ CT No. 1900-2000 ∴ not PYT
Clast?? looks exposed on surface

Piece 3: Lithologically distinct from rest of core
(3 pieces, one large cylindrical WR 7cm + 2 ½ round wedges)
CT# ~1350 background, ≤1600 in def bands
Deformation bands (orientation of major ones)

1. 16/270 + 21/180 24.7-25.3
2. 20/090 + 23/180 26-28.5
3. 63/270 + 00/012 25-27.5
4. 25/180 + 13/270 25-26
5. 24/090 + 22/180 26-27.5
6. 25/180 + 29/090 28-30
7. 35/270 + 32/180
8. 32/000 + 22/270
9. 47/180 + 62/090
10. 13/090 + 36/180

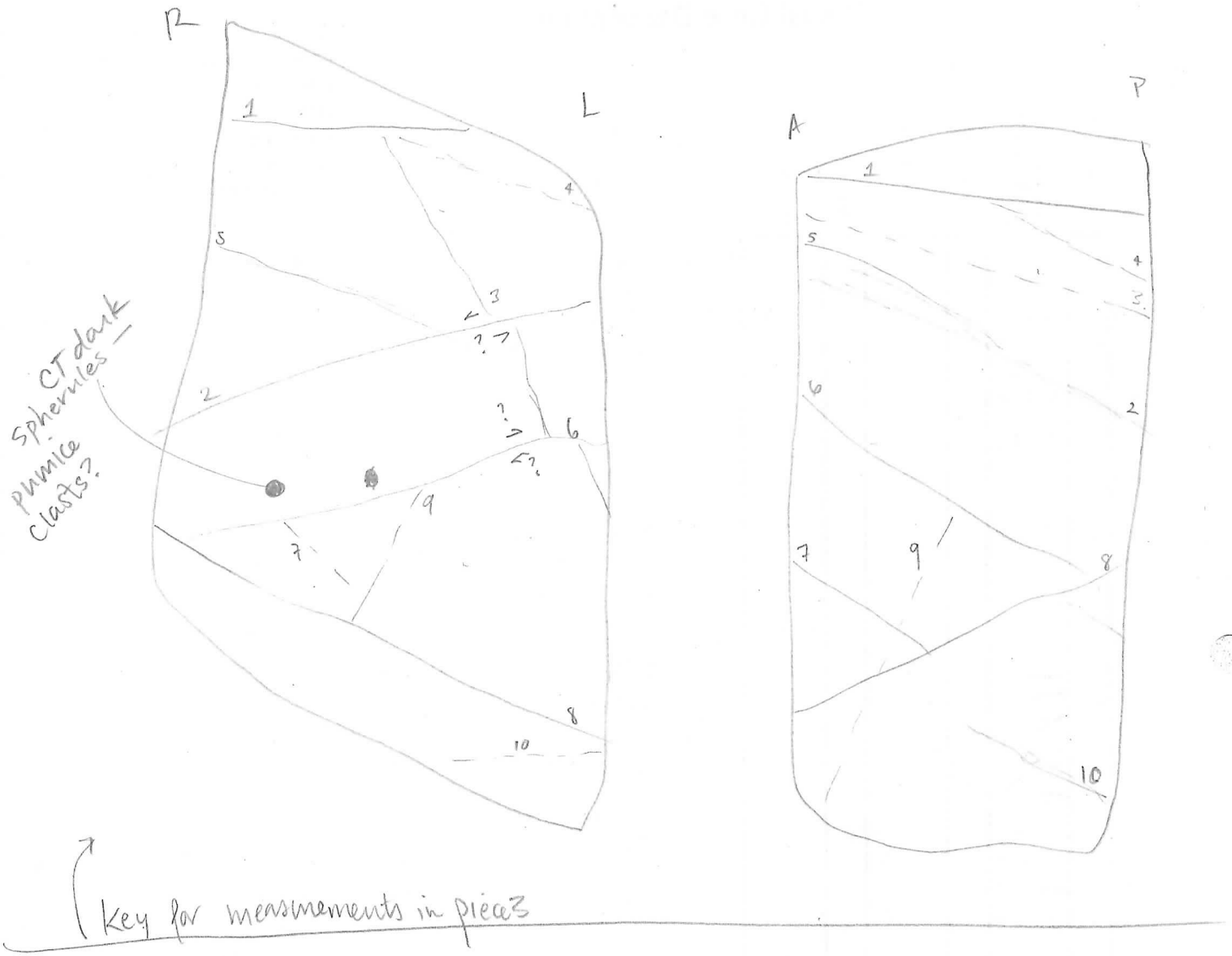
See sketches

This represents the longest (even if slightly offset) and/or most visible (highest CT# contrast) of the thin seams.
dark ellipsoids - probably pumice fragments.
* In X-CT, this closely resembles core is lithology.
No BURROWS!

Piece 4: 3 pieces - 2 are similar to Piece 3
3c is a flake of dark scaly clay, see description for

Piece 5 + 6 CT# banding almost absent -
axial-normal tensile cracks seem to follow weak foliation
@50.0 bright band coincides w/ necking down in piece, may be biscuit?

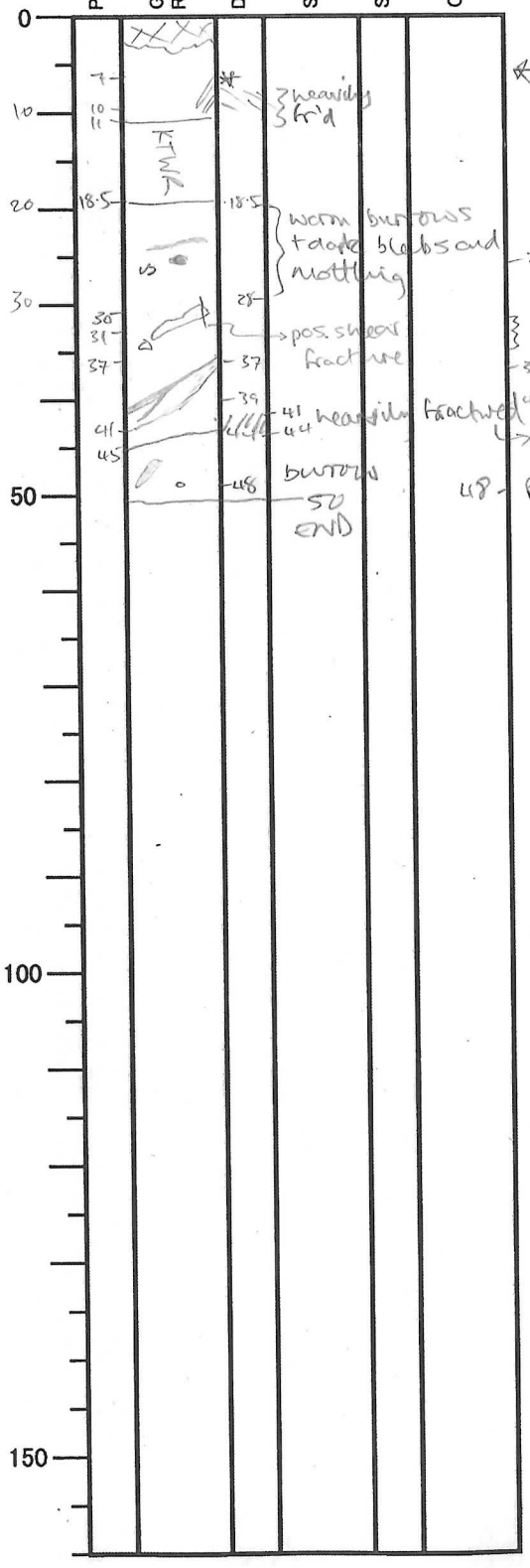
deformation bands (dark seam equiv?) in clast. apparent offset noted



key for measurements in pieces

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 22/5/2012
EXP.: 3465
SITE/HOLE: 19E
CORE: 19K
SECTION: 3
TOP DEPTH (m CSF):
OBSERBER: Jamie



Integrated Ocean Drilling Program
Visual Core Description

Color Hue 2.5Y 4/3

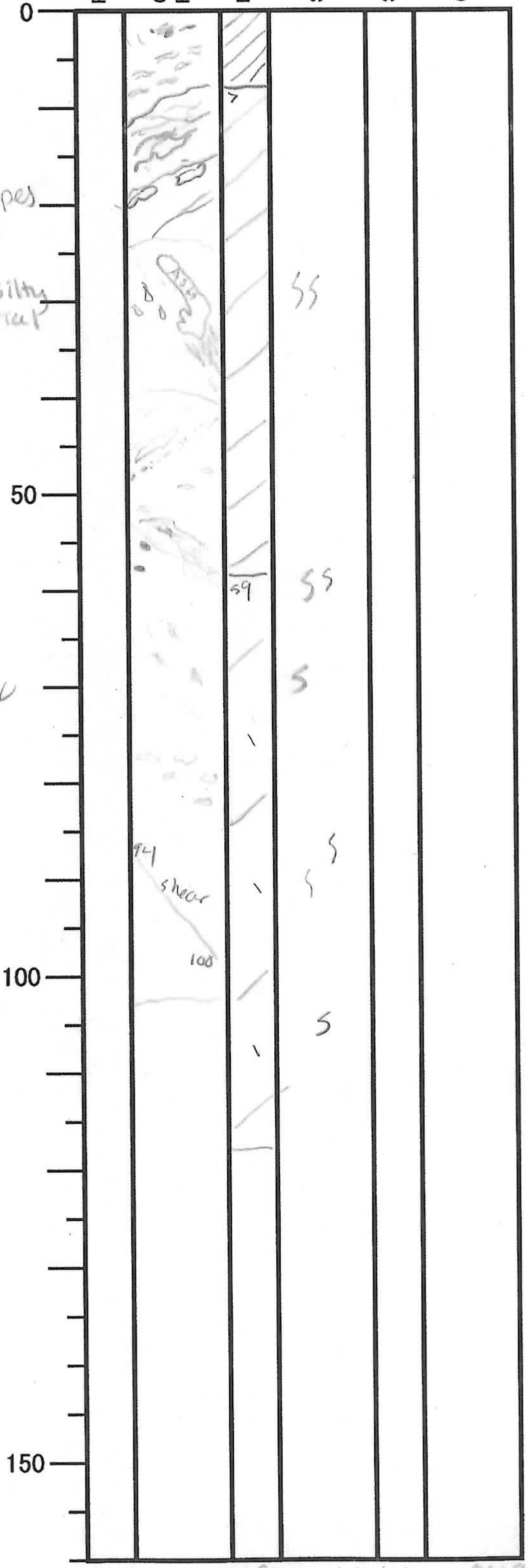
minor deformation compared to above + below sections
possible diffuse anastamosing shears in some horizons

NO.
DATE: 5/22/20
EXP.: 343
SITE/HOLE: C0019E
CORE: 19R
SECTION: 1
TOP DEPTH (m CSF):

PIECE # | GRAPHIC REPRESENTATION | DRILLING DISTURB. | STRUCTURES | SAMPLES | COLOR

SECTION DESCRIPTION

OBSERBER: Regalla



open shapes = ash
filled = dark silty material

Drilling Disturb:
heavy fracture / breccia 1-7
mod - heavy fracture 7-59
light fracture 59-118

0-8 - brown silty clay / mudstone smeared lenses in a dark granular silty mud matrix
8-10 mottled texture of small lenses of brown clay rich fragments in a discontinuous matrix of dark silty clay, possibly bounded by small shear zone
20-24 ash lenses + subparallel elongate brown clay lenses in a disrupted matrix of dark silty clay. [cross cutting shears]
30-34 discontinuous (bioturb?) horizons of ash
54-60 - concentration of dark silty mud, bioturbation? (manganese?) Bed grades from clay dominated at 45cm to dark silty grain concentrated horizon at 59.
60-78 mottling of brown silty clay/mudstone + dark silty mudstone w/ occasional lenses of each
62- few burrows filled w/ dark silty mud + at 72
78-86 sm ≤0.5cm light pds - likely ash bioturbation
90-97 same ↑
92-95 bioturbation + preferential inclusion of ~~pumice~~ ashy material
95 - 102 - concentration of dark silty grains coarsening downward
103 - 118 - brown clay rich interval with few dark silty grains. some large burrows ~0.5cm by ~3cm

?

dominant lithology: brown silty clay / silty mudstone mm to 0.5cm clay flecks / lenses in a matrix of darker brown silty clay with abundant silt sized black grains that may be manganese?? (see smear slide at 39 cm in section 2)
Occasional concentrated blebs of dark silty material w/ non-planar, interfingering, inter mixed contacts
gradational contacts between clayer-rich intervals + siltier / dark speckled intervals on the decimeter scale.

Bedding observed as contacts btwn occasional silty horizons + as aligned lenses of white / dark grainy material or clay lenses.

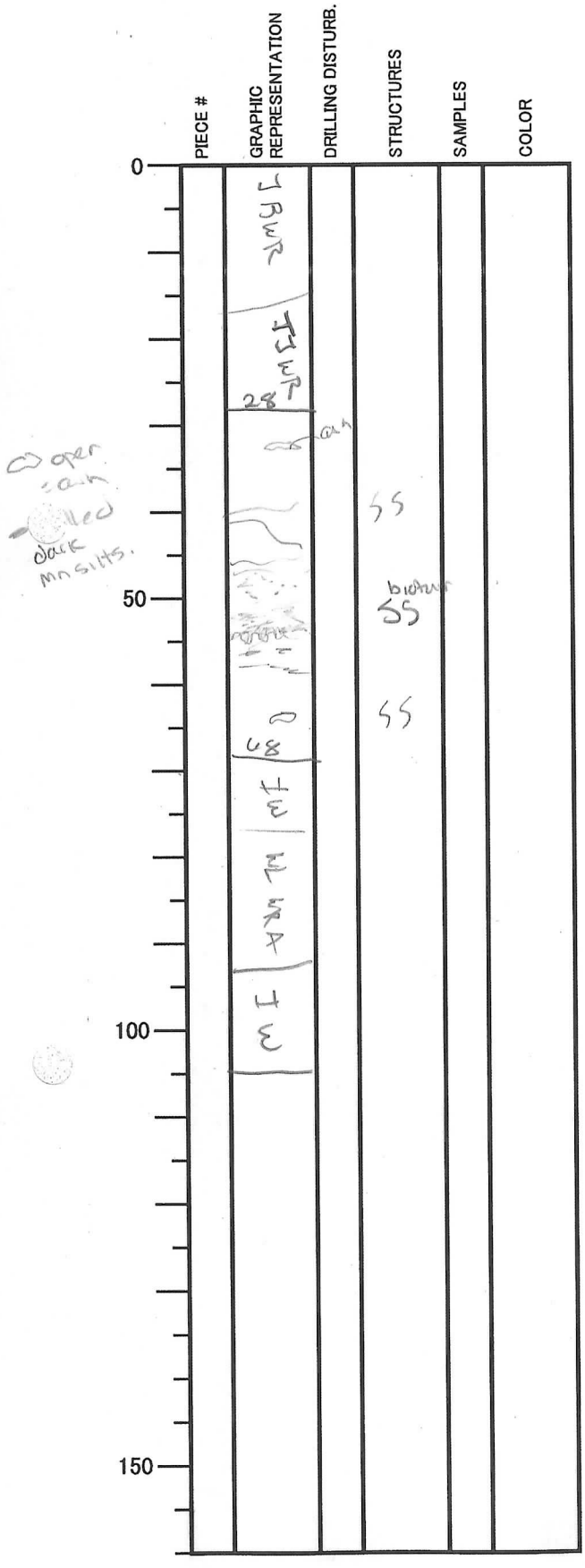
ASH { occasional blebs (0.5 - 5cm lenses) of granular white material see smear slide at 33cm in section 1

VCD_sheet_100805.xls

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5/21/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 19R
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: Regalla



major lithology same as section 1

35-36 3 remineralized ovate pods vertically aligned, muddy / clay centers, coarse rims + possible Fe-rich bioturb???

40-43 possible shear fractures

43-62 mottled discontinuous matrix of dark silty mudstone w/ brown clay rich lenses

50-55 ~~concentrated~~ horizon (bioturb) of potentially bioturbated material of concentrated dark silty (Mn) particles

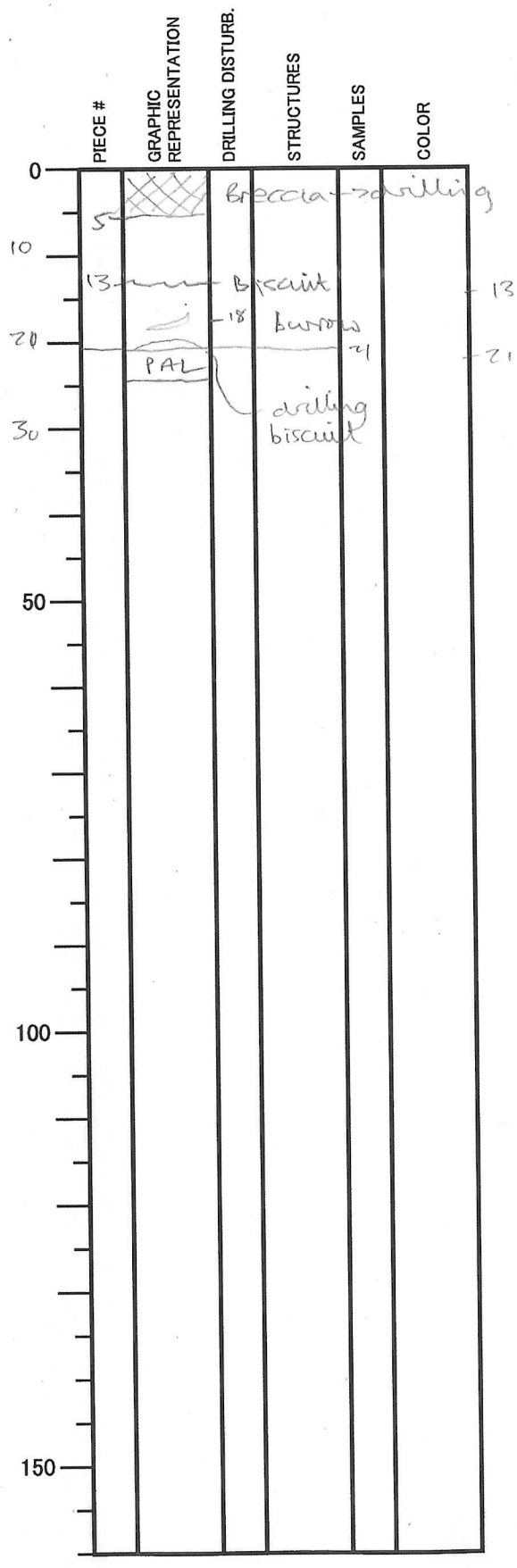
63-66 Minor bioturb ash lenses

66 - Ash pod

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 12/5/2012
EXP.: 343
SITE/HOLE: 19E
CORE: 19R
SECTION: CC
TOP DEPTH (m CSF):

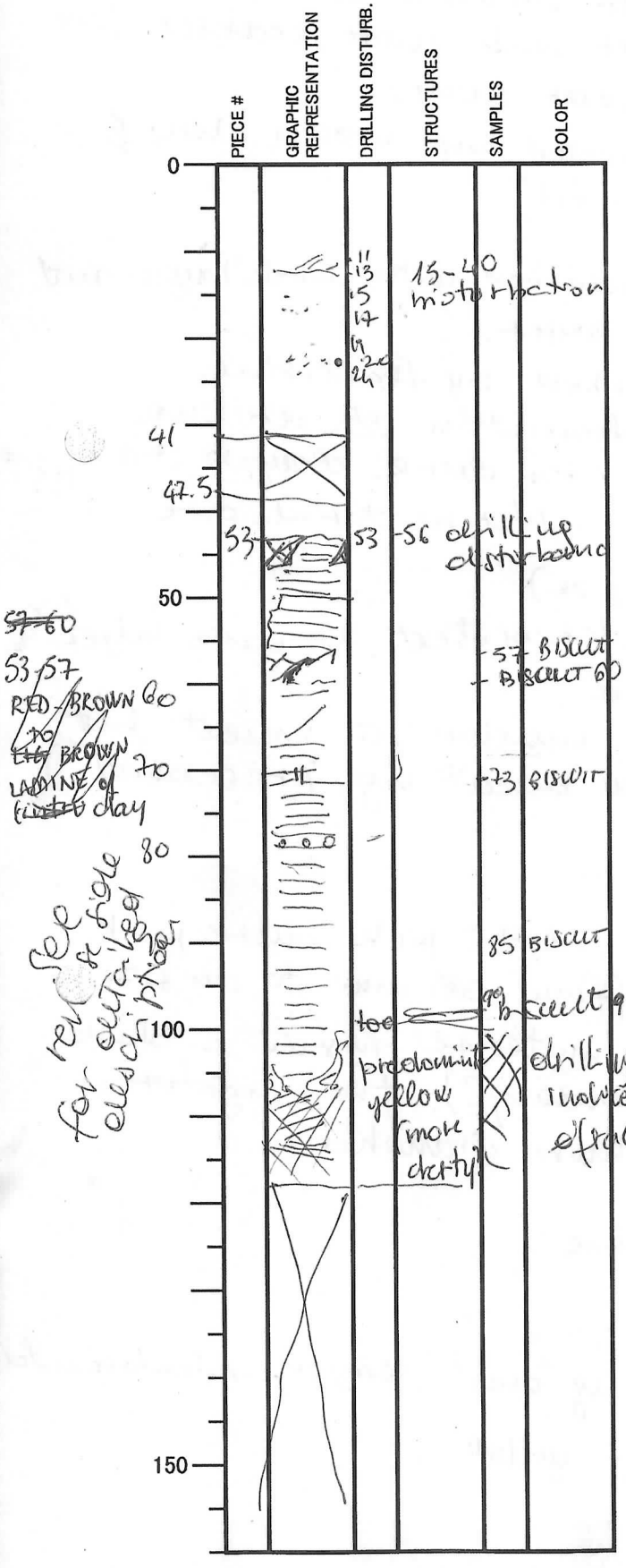
OBSERBER: JAMIE



Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5/23/2012
EXP.: 343
SITE/HOLE: C0019E
CORE: 20
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER:



SECTION DESCRIPTION

0-41 : Homogeneous brown mudstone without clear bedding orientation

11:13 hairline dark seam

15-17 more concentrated sparse dark granule

19-24 more concentrated sparse dark granule

20 : Ash spot

25-30 dark spot (0.3mm) filling burrow

31-41 patches of lighter material and dark dot bioturbated in a mudstone matrix

48-53 brown mudstone

50 : Ash patches

53.5 boundary between brown mudstone and laminated material.

the contact can be partially reworked by drilling but in the 270 side look as primary (??). ~~lamination (contact) are not in both the upper and~~ wavy lamination in the upper block subparallel or at low angle with the contact.

lamination in the lower block can be at low angle but there is a intrusion (DRILLING INDUCED) of mud horizontally laminated

54-118 alternate bedding (of cm size) ranging in color from dark brown to red-brown intercalated to pink layer and yellow and light yellow brown and blak layer

BISCUIT affecting the whole section (often revealed by the clay)

see the real

VCD_sheet_100805.xls

53-56 BR ~~B~~ RED BROWN at the top and then laminated
~~#~~ DARK BROWN & BROWN (centimetrical)

57-60.5 laminated yellow ~~to~~ to brownish and more pink material: the lighter look more coarser (see description of smear slide)

scaly fabric The bottom contact is intruded by brown clay & (possibly drilling induced)

61-69 ~~B~~ dark brown ~~and~~ intercolated with black layer and mm thick ~~pick~~ pink layer.
the lamina are disturbed by fracturing (possible soft sed deformation OR drilling induced deformation (the dark clay is still fluidal)). the ~~co~~ lighter material are coarser

69-73 light brown lamina (cm size) intercolated to pink layer (5 mm) & darker lamina.
the lamina are undulose at present but possibly affected by biscuiting (reseeded!)

73-75 dark layer
75-~~85~~ in lamina of yellow, light pink, dark pink and black material (from ~~cm~~ mm to cm size)
at 78 spot of light pink material in core a black layer (diagenetic boundary?). the lighter pink material look more granular

94: bright spot of green material

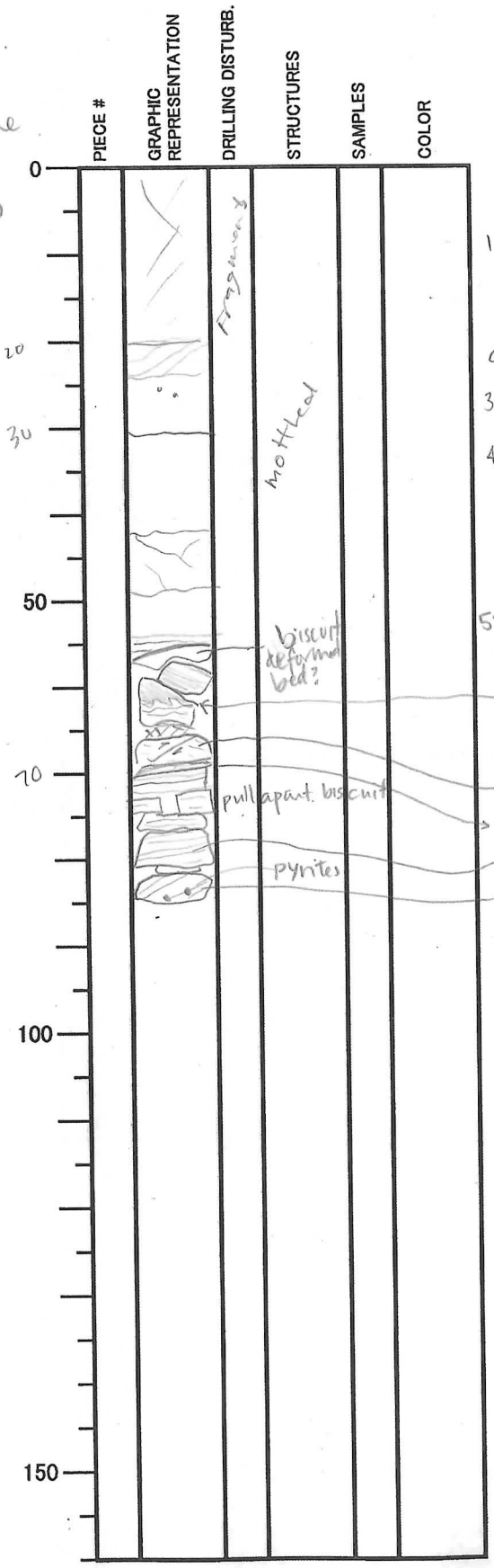
100: first chert lamina
100-118: strongly disturbed by drilling "chert" layer interlaminated with "softer" material light yellow

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 22/5/20
EXP.: 343
SITE/HOLE: C0019E
CORE: 20R2
SECTION: 2
TOP DEPTH (m CSF):

OBSERBER: C. ROWE

Tan Mudstone
CT# = 1200 ± 100



SECTION DESCRIPTION

10-19: shear bands, (hairline) zone boundaries are horizontal but shear bands dip toward "NE" in core ref. 20/000 + 25/90

around 16: a few 1-2mm black spots (low ρ)

30cm: drilling fracture? opened along thin bright zone (1-3mm)

42-48: slightly CT bright zone w/ def. bands? Similar to 10-14 app dips: 27/270 + 24/000

53.5 MAJOR CONTACT. NOT SHEARED OR BISCUITED, LOOKS CONTINUOUS, BISCUT CUTS JUST below. First S_0 = 11/000, 00/90

angular change in bedding 12/270 + 17/180 above ← biscuit ← dark, gradational (CT 1000)
26/180 + 06/090 below ← bright, wavy (CT 1400)

→ tiny normal fault 45/090 + 29/180

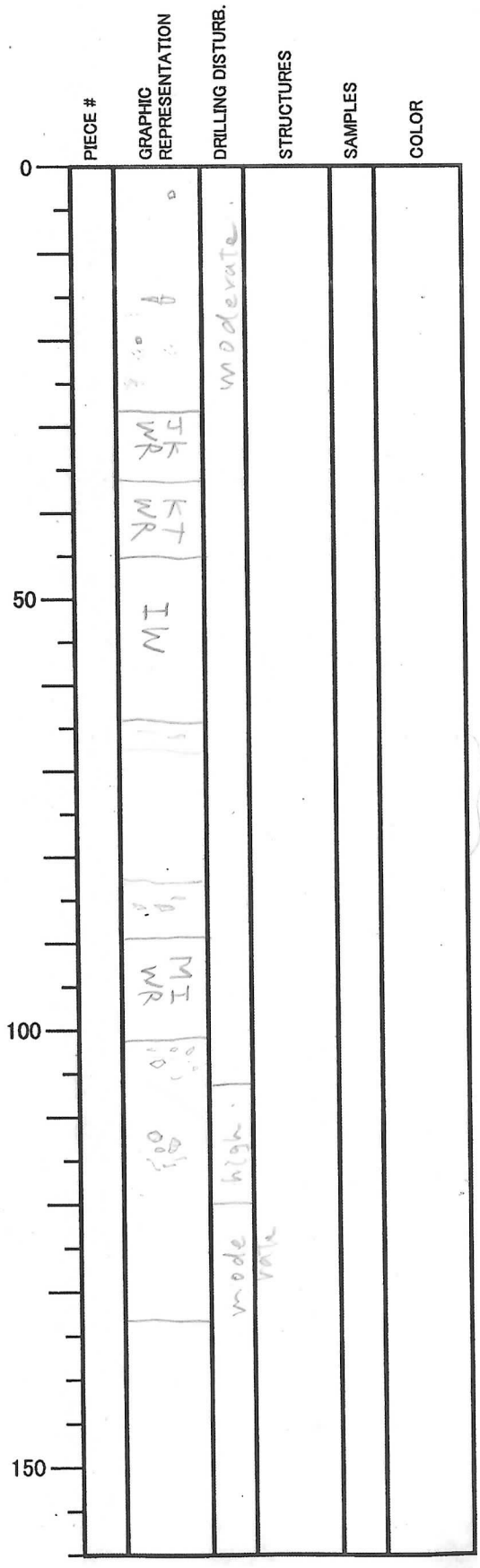
→ bright discrete band w/ sharp planar base, wavy top 05/090 + 00/180

S_0 09/090 + 00/180

S_0 09/090 + 14/000

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5/22/20
EXP.: 343
SITE/HOLE: C0019E
CORE: 20
SECTION:
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERBER:

dark grayish yellow massive mudstone 2.5Y 5/2

3 - 3.3 pumice (3mm diameter)
15 - 15.5 burrow
12 - 27 darker mottled patches, composed small manganese-rich particles
21 pumice (1mm)

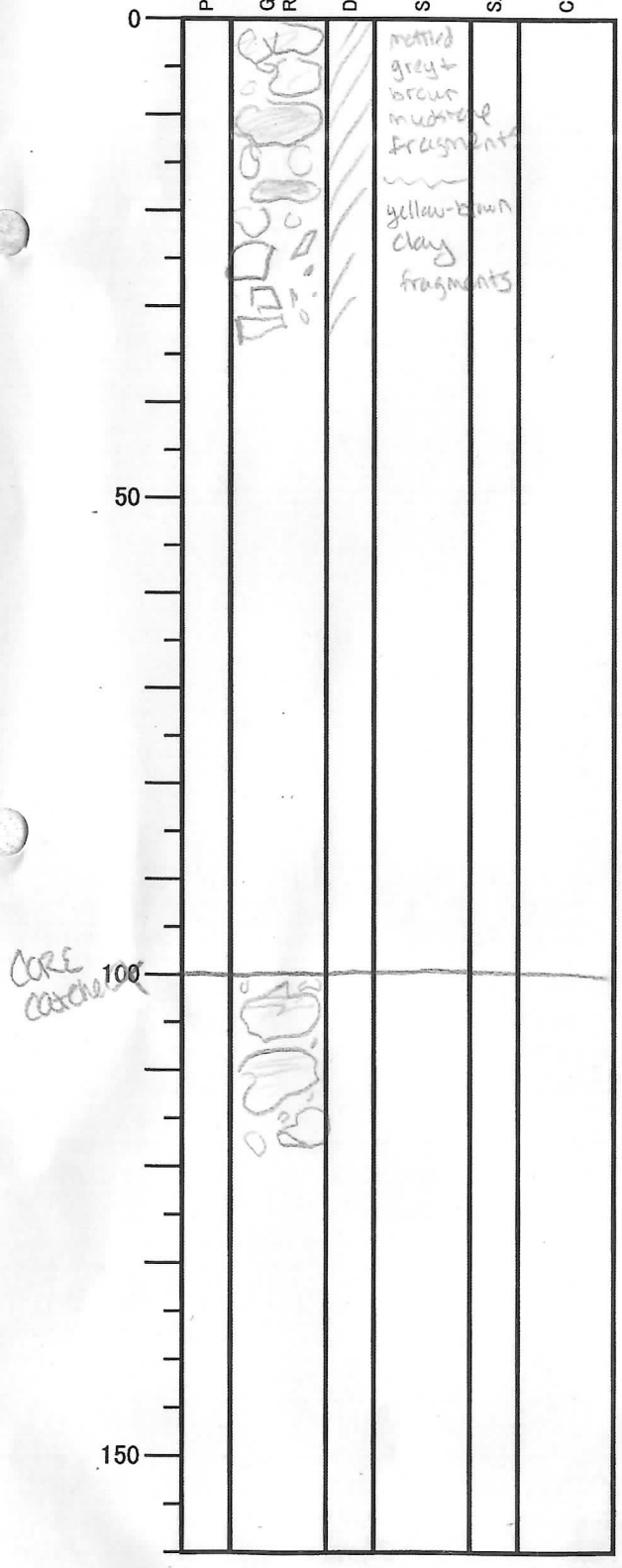
64.7 - 65 ash
65 - 67 burrows (5mm thick)
79 - 80 ash

83 - 109 grayish olive mudstone intermixed with manganese-rich dark patches. (bioturbation).
111.5 - 114 ash - (10 8/0) bioturbated
115 - grayish olive massive mudstone.

Integrated Ocean Drilling Program
Visual Core Description

NO.
DATE: 5/23/2017
EXP.: 343
SITE/HOLE: C0019E
CORE: 21
SECTION: 1 + CC
TOP DEPTH (m CSF):

OBSERBER: Regalia



SECTION DESCRIPTION

Main lithology

Fragments of chocolate brown yellow brown + honey colored chert. Chert is laminar + has the same appearance as the laminar muds at the base of core but silicified.

Two main types of chert

1) yellow-brown chert: 2mm to mm scale laminae of light yellow-brown (Hue 10YR 7/2) and dark yellow brown (Hue 10YR 6/3) and occasional cm beds of translucent (Hue 10YR 5/6) chert. many yellow-brown chert fragments are coated in clay that is not silicified } appear

2) dark brown chert w/ red-brown laminae (Hue 2.5Y 3/1 and Hue 7.5YR 3/4) same as chocolate brown clay laminae of bottom of core 20

Top 15 cm consists of fragments of mudstones from core 19 + 20 (units) → falling down core hole

No deformation structures present