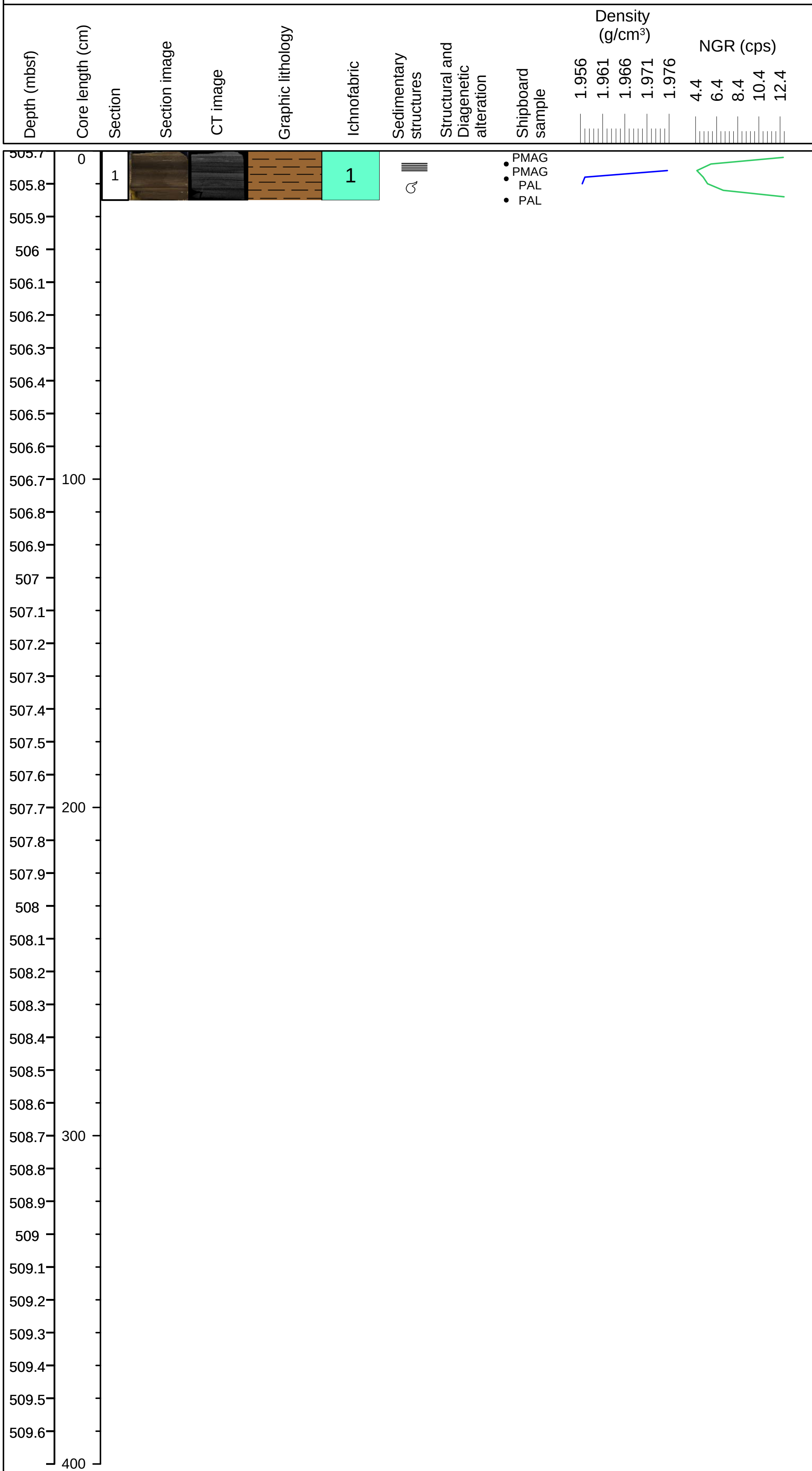
Hole M0077A Core 1R Cored 505.7-505.86 mbsf

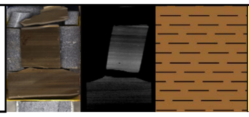


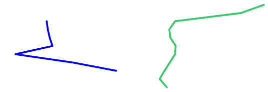
Description (Colors)

Dark Marlstone/Claystone. Interbedded 2.5Y 4/3 olive brown, 2.5y 3/1 very dark gray, 2.5y 5/4 light olive brown. 2 lenses at base of v. dark gray

Hole M0077A Core 2R Cored 505.86-506.12 mbsf

Depth (mbsf)	Core length (cm)	Section	Section image	CT image	Graphic lithology	Ichnofabric	Sedimentary structures	Structural and Diagenetic alteration	Shipboard sample	Density (g/cm^3) 0.4 0.9 1.4 1.9 2.4	NGR (cps) 20 70 120 170	Description (Colors)
505.9–506.1	0	1				2			MBIO rem ISO, bulk PAL			Dark Marlstone/Claystone light to dark gray 2.5Y 5/4-2.5Y 4/3, olive brown to light olive brown.

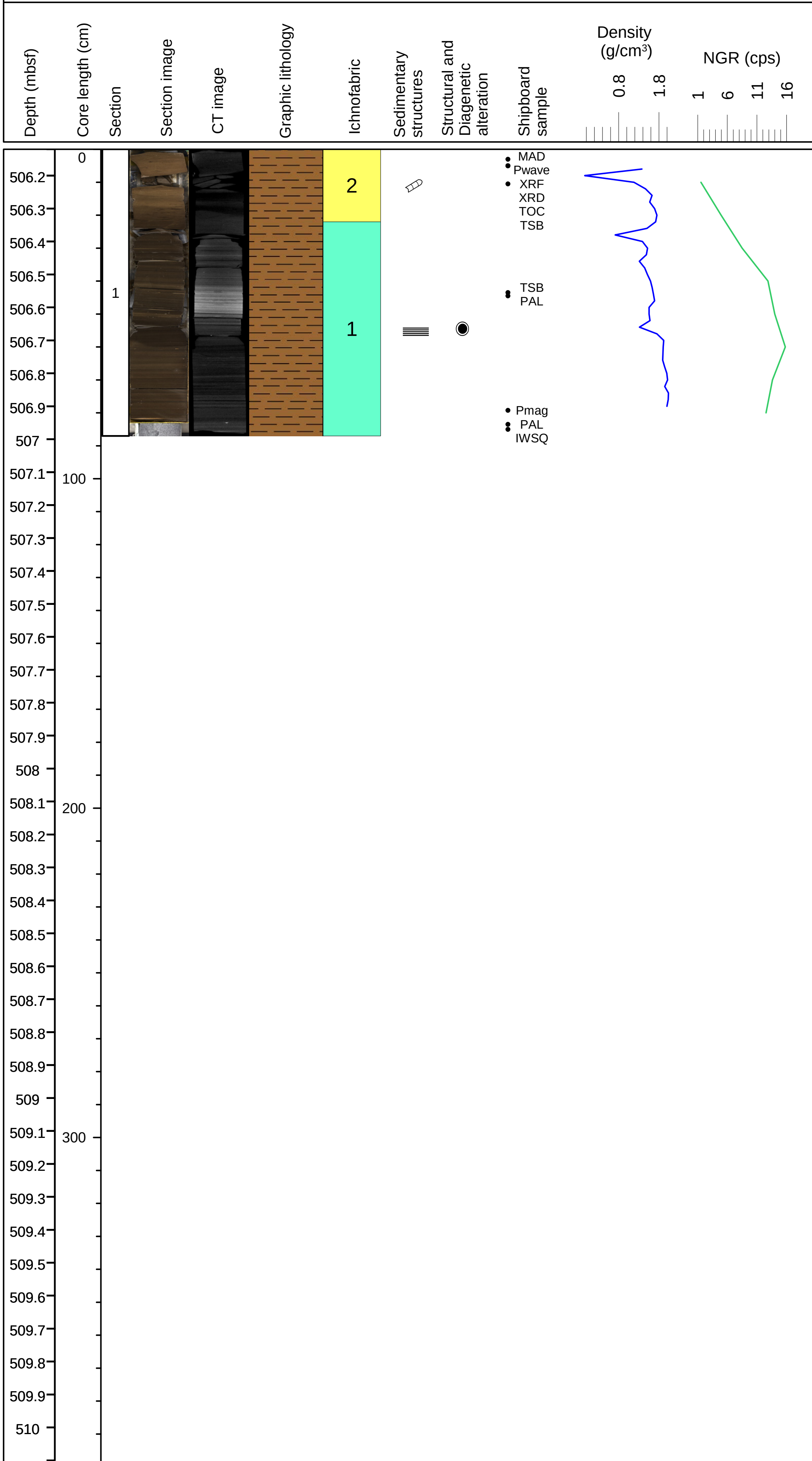




Depth scale (mbsf): 505.9, 506, 506.1, 506.2, 506.3, 506.4, 506.5, 506.6, 506.7, 506.8, 506.9, 507, 507.1, 507.2, 507.3, 507.4, 507.5, 507.6, 507.7, 507.8, 507.9, 508, 508.1, 508.2, 508.3, 508.4, 508.5, 508.6, 508.7, 508.8, 508.9, 509, 509.1, 509.2, 509.3, 509.4, 509.5, 509.6, 509.7

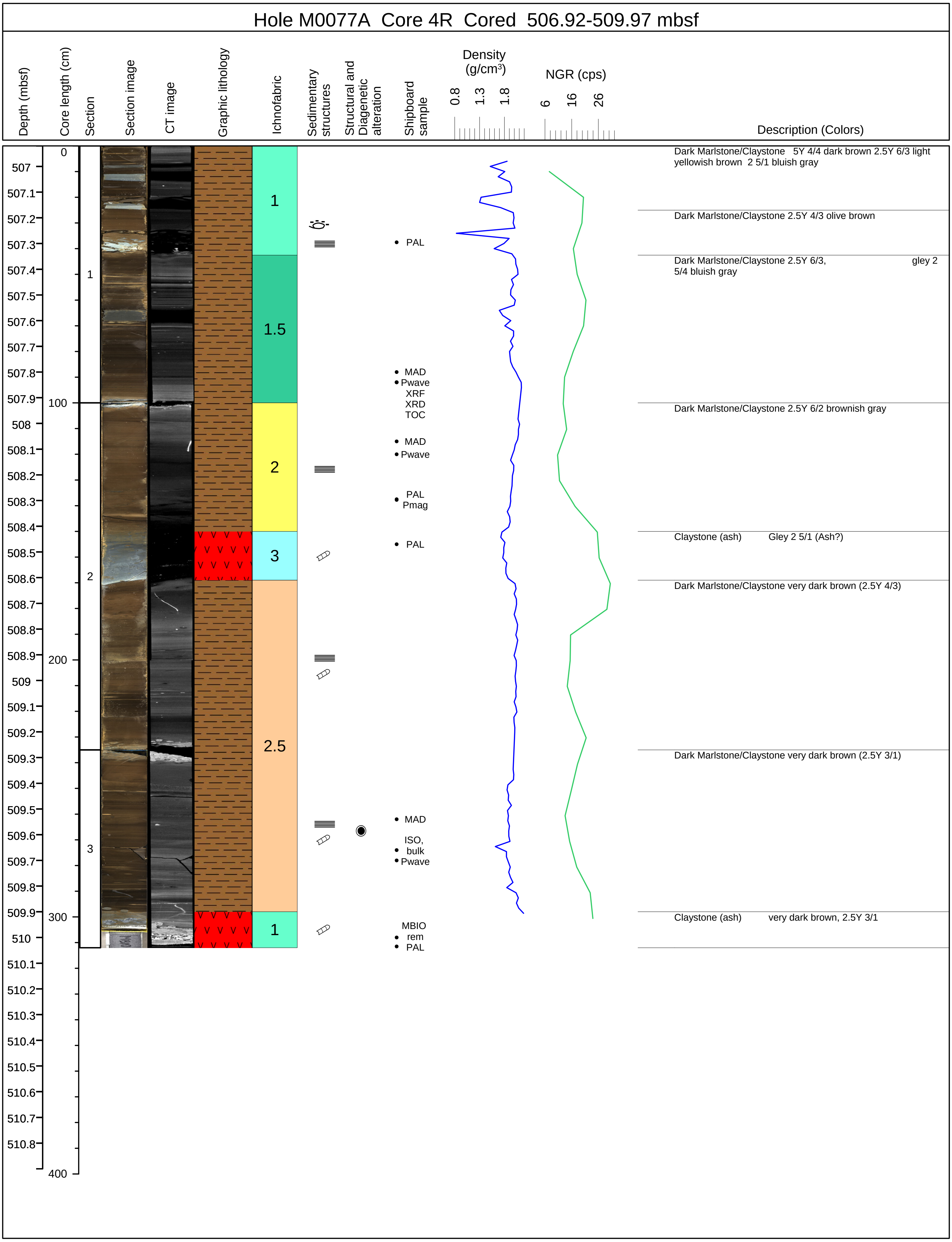
Core length scale (cm): 0, 100, 200, 300, 400

Hole M0077A Core 3R Cored 506.12-506.92 mbsf

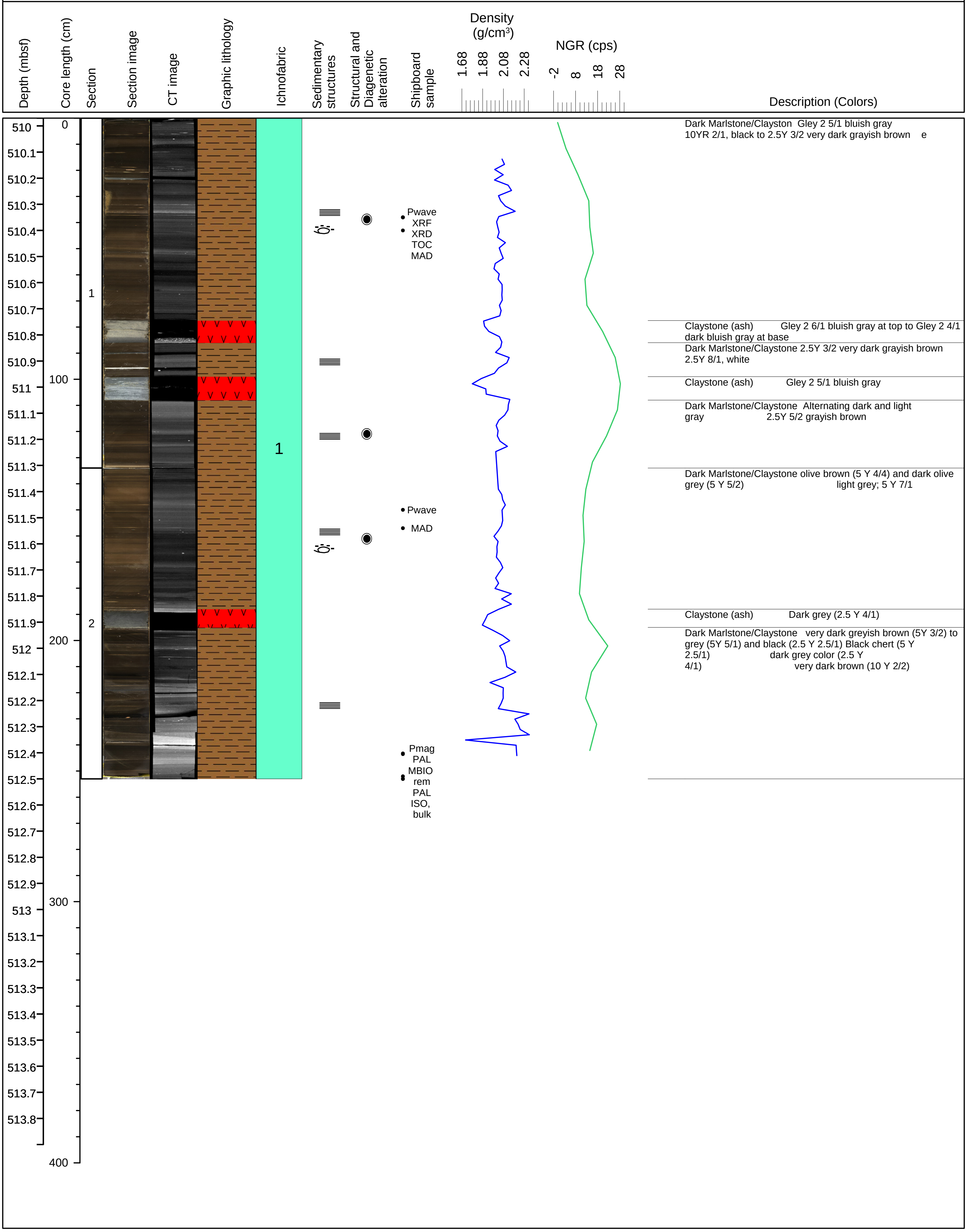


Dark Marlstone/Claystone 2.5Y 4/3 olive brown

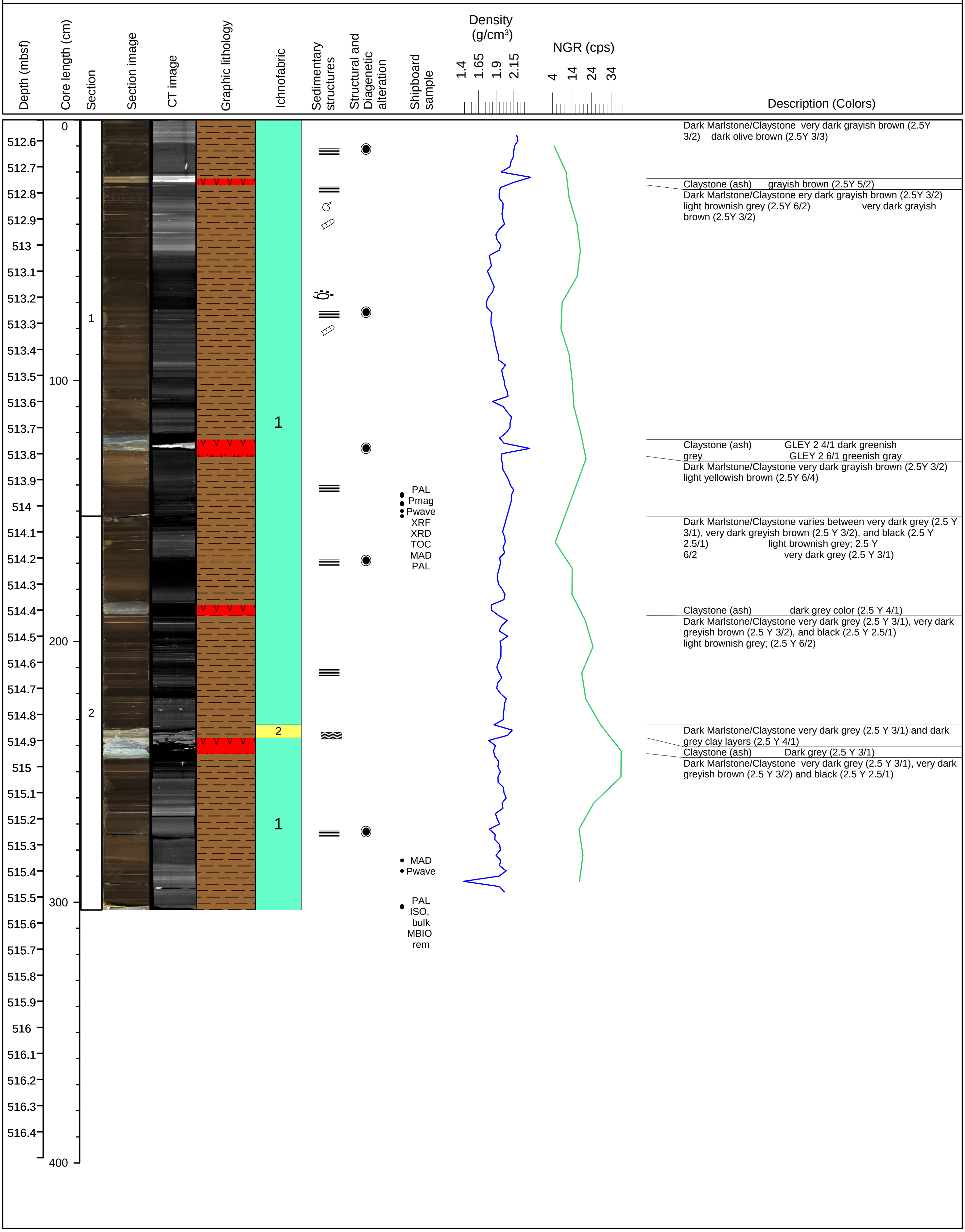
Dark Marlstone/Claystone olive brown 2.5Y 5/3 10YR 8/2 very pale brown.

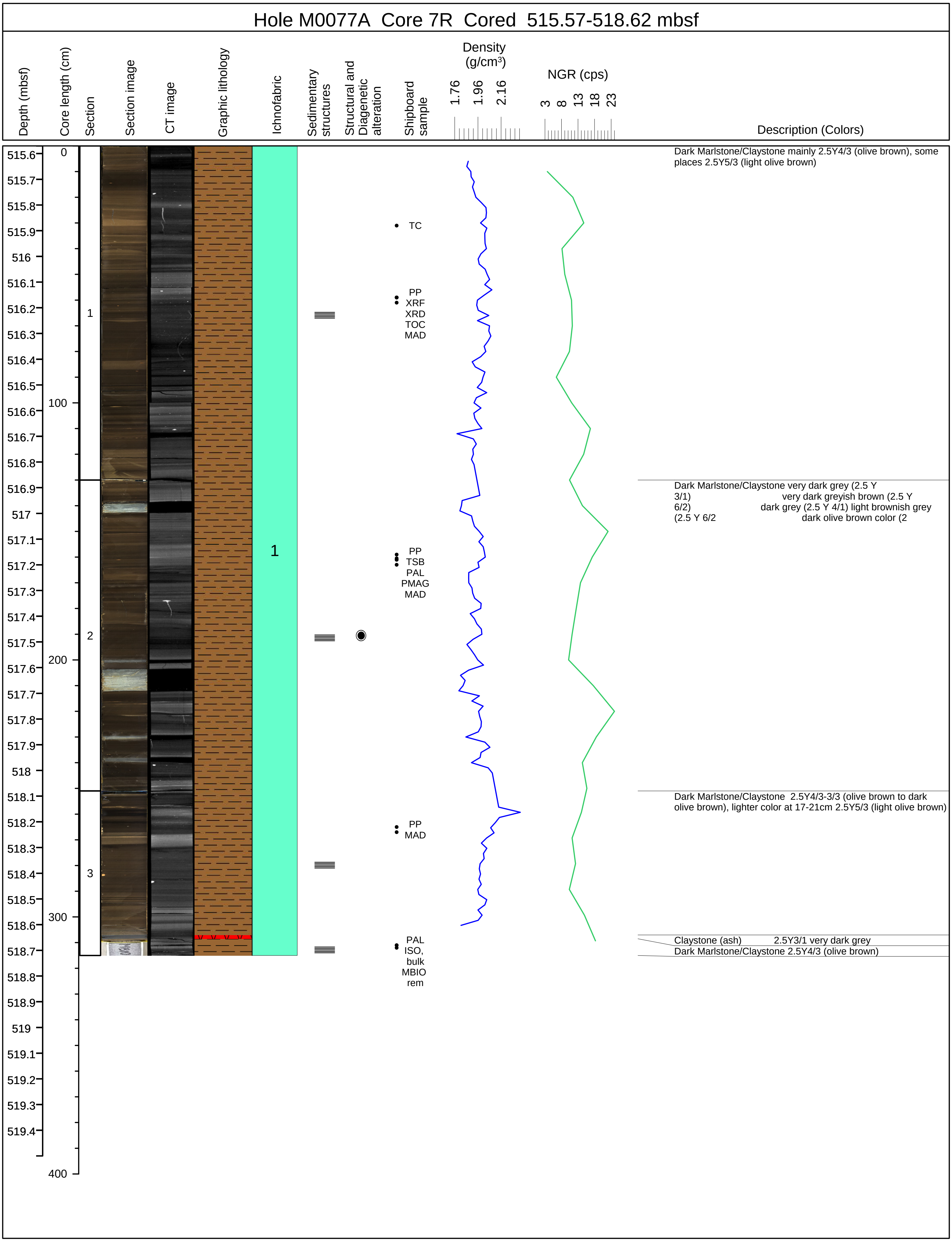

Hole M0077A Core 4R Cored 506.92-509.97 mbsf
Depth (mbsf)
Core length (cm)
Section
Section image
CT image
Graphic lithology
Ichnofabric
Sedimentary structures
Structural and Diagenetic alteration
Shipboard sample
Density (g/cm³)
0.8
1.3
1.8
NGR (cps)
6
16
26
Description (Colors)
507
507.1
507.2
507.3
507.4
507.5
507.6
507.7
507.8
507.9
508
508.1
508.2
508.3
508.4
508.5
508.6
508.7
508.8
508.9
509
509.1
509.2
509.3
509.4
509.5
509.6
509.7
509.8
509.9
510
510.1
510.2
510.3
510.4
510.5
510.6
510.7
510.8
0
100
200
300
400
1
2
3
1
1.5
2
3
2.5
1
PAL
MAD
Pwave
XRF
XRD
TOC
MAD
Pwave
PAL
Pmag
PAL
MAD
ISO,
bulk
Pwave
MBIO
rem
PAL
Dark Marlstone/Claystone 5Y 4/4 dark brown 2.5Y 6/3 light yellowish brown 2 5/1 bluish gray
Dark Marlstone/Claystone 2.5Y 4/3 olive brown
Dark Marlstone/Claystone 2.5Y 6/3, gley 2 5/4 bluish gray
Dark Marlstone/Claystone 2.5Y 6/2 brownish gray
Claystone (ash) Gley 2 5/1 (Ash?)
Dark Marlstone/Claystone very dark brown (2.5Y 4/3)
Dark Marlstone/Claystone very dark brown (2.5Y 3/1)
Claystone (ash) very dark brown, 2.5Y 3/1

Hole M0077A Core 5R Cored 509.97-512.52 mbsf



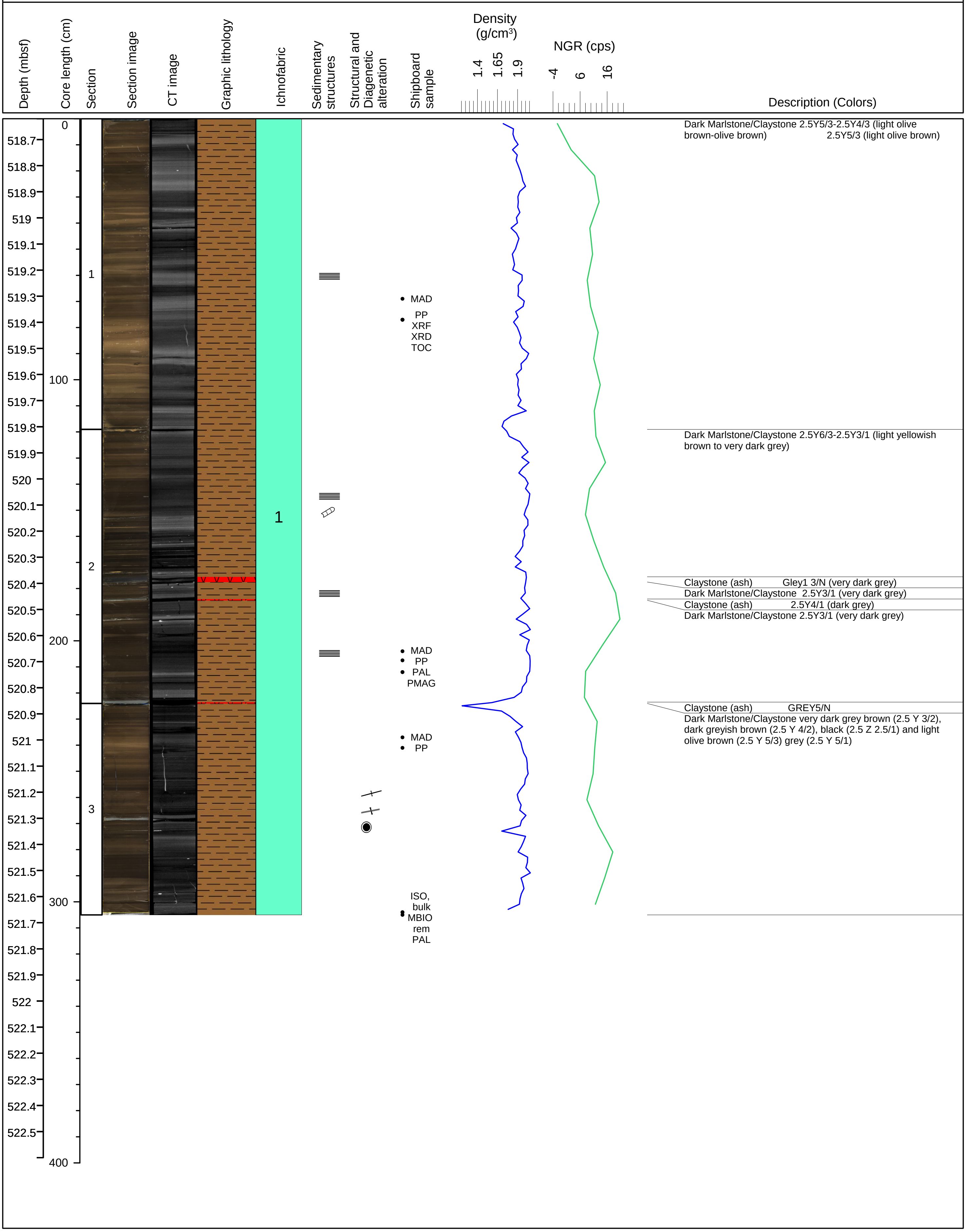
Hole M0077A Core 6R Cored 512.52-515.57 mbsf



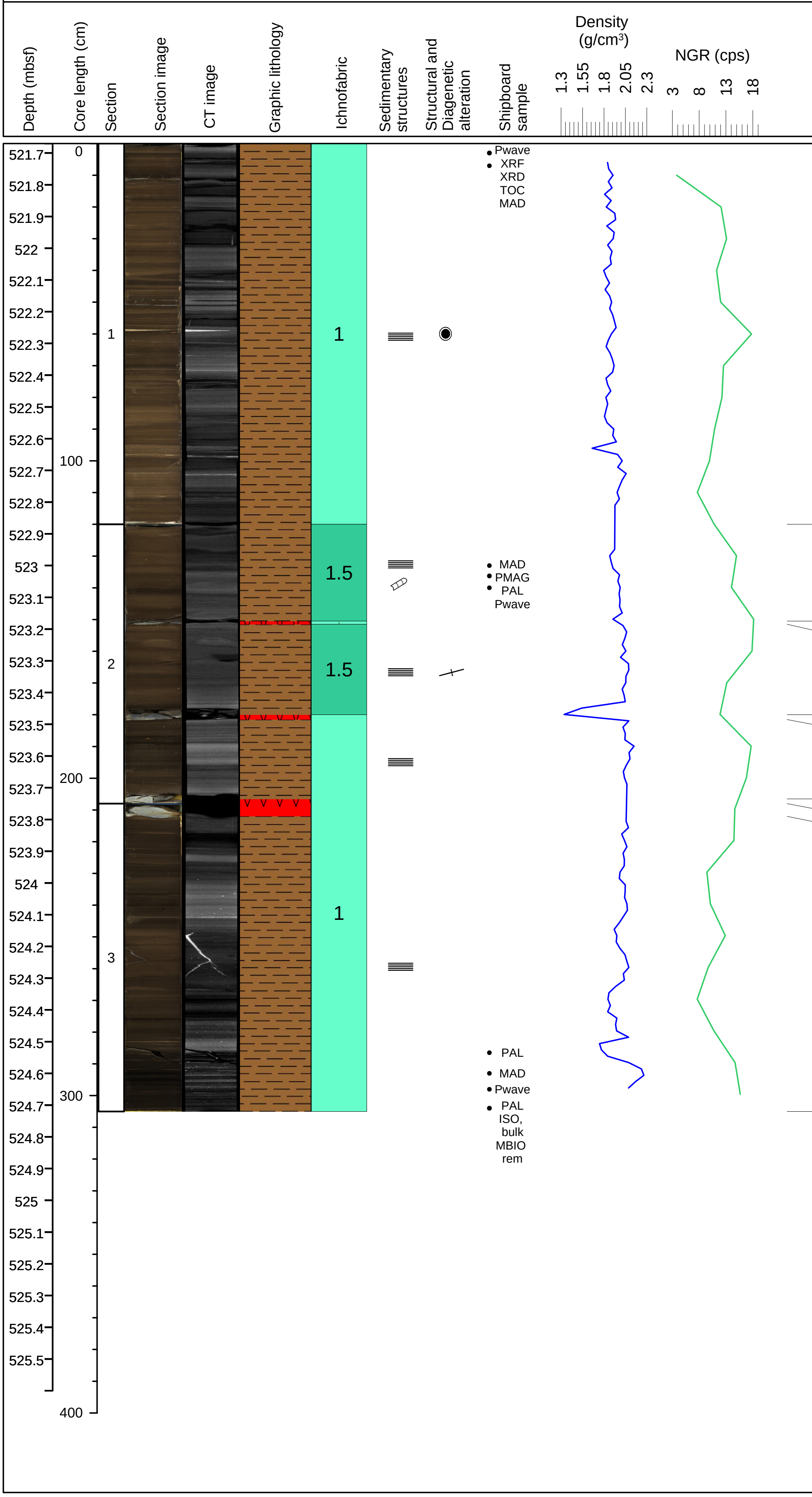


Hole M0077A Core 7R Cored 515.57-518.62 mbsf
Depth (mbsf)
Core length (cm)
Section
Section image
CT image
Graphic lithology
Ichnofabric
Sedimentary structures
Structural and Diagenetic alteration
Shipboard sample
Density (g/cm³)
1.76
1.96
2.16
NGR (cps)
3
8
13
18
23
Description (Colors)
515.6
515.7
515.8
515.9
516
516.1
516.2
516.3
516.4
516.5
516.6
516.7
516.8
516.9
517
517.1
517.2
517.3
517.4
517.5
517.6
517.7
517.8
517.9
518
518.1
518.2
518.3
518.4
518.5
518.6
518.7
518.8
518.9
519
519.1
519.2
519.3
519.4
0
100
200
300
400
1
2
3
1
TC
PP
XRF
XRD
TOC
MAD
PP
TSB
PAL
PMAG
MAD
PP
MAD
PAL
ISO,
bulk
MBIO
rem
Dark Marlstone/Claystone mainly 2.5Y4/3 (olive brown), some places 2.5Y5/3 (light olive brown)
Dark Marlstone/Claystone very dark grey (2.5 Y 3/1) very dark greyish brown (2.5 Y 6/2) dark grey (2.5 Y 4/1) light brownish grey (2.5 Y 6/2 dark olive brown color (2
Dark Marlstone/Claystone 2.5Y4/3-3/3 (olive brown to dark olive brown), lighter color at 17-21cm 2.5Y5/3 (light olive brown)
Claystone (ash) 2.5Y3/1 very dark grey
Dark Marlstone/Claystone 2.5Y4/3 (olive brown)

Hole M0077A Core 8R Cored 518.62-521.67 mbsf



Hole M0077A Core 9R Cored 521.67-524.64 mbsf



Description (Colors)

Dark Marlstone/Claystone black (2.5 Y 2.5/1), dark olive brown (2.5 Y 3/3), and olive brown (2.5 Y 4/3) light grey, 2.5 Y 7/1, grey (2.5 Y 5/1) slighty lighter grey (2.5 Y 5/1 - 6/1) black and red/brown bands

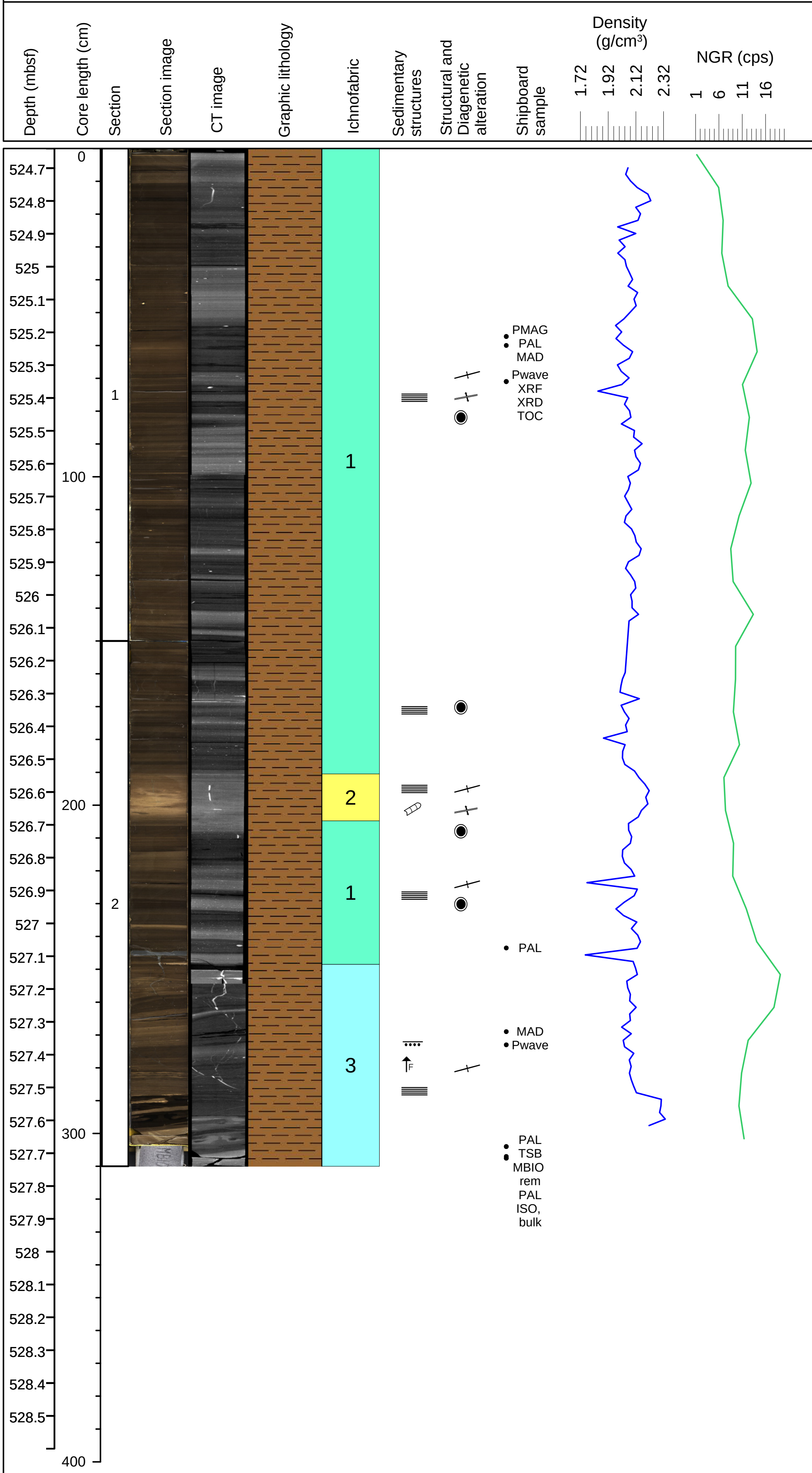
Dark Marlstone/Claystone 2.5Y5/3-4/2 (light olive brown-dark grayish brown)

Claystone (ash) GLEY2 5/5B (bluish gray)
Dark Marlstone/Claystone 2.5Y5/3 (light olive brown)

Claystone (ash) GLEY2 3/10B
Dark Marlstone/Claystone 2.5Y4/2-5/3 (dark grayish brown-light olive brown)

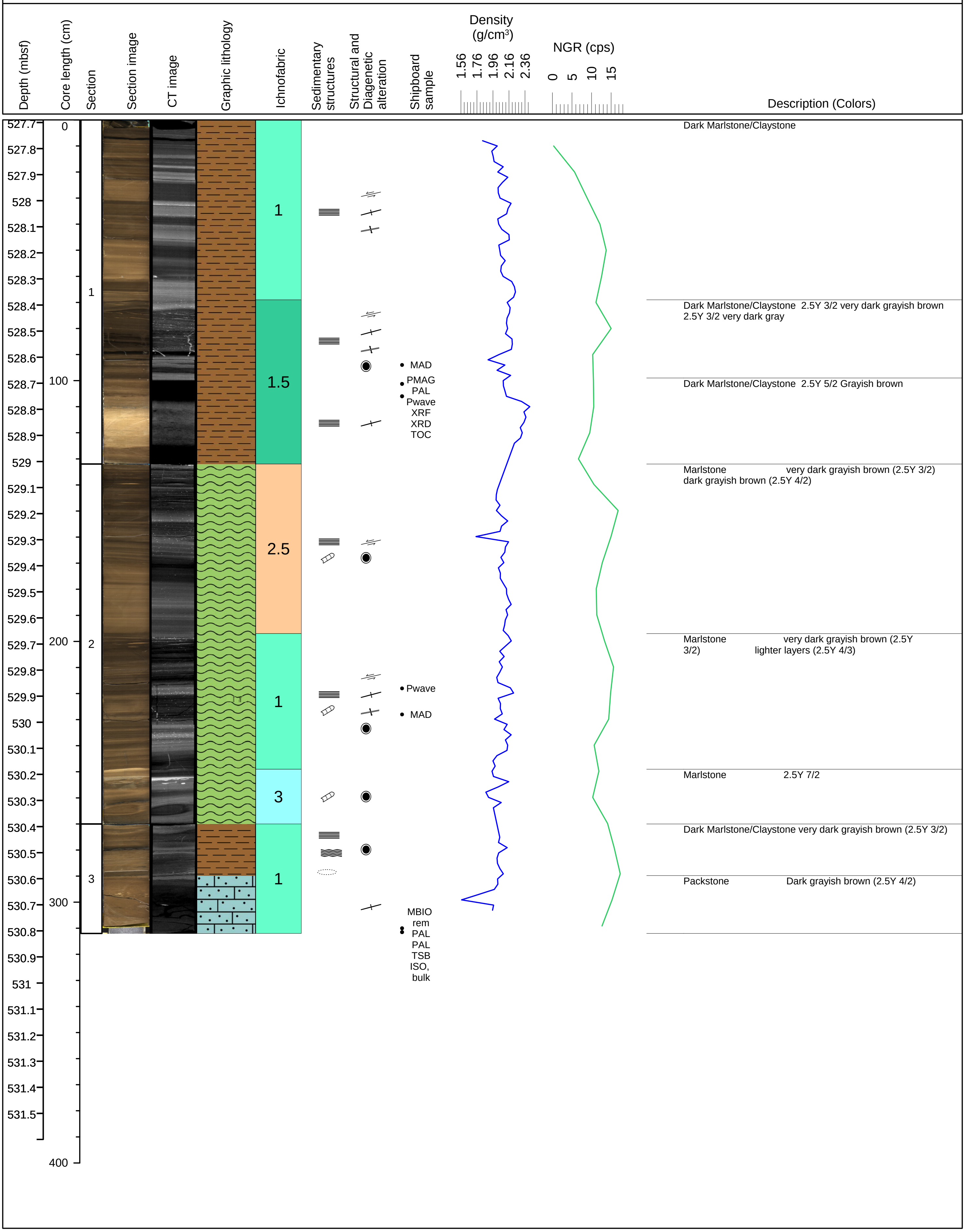
Claystone (ash) GREY2 7/10B
Claystone (ash) Greenish grey (Gley1 5/1)
Dark Marlstone/Claystone black (2.5 Y 2.5/1), dark olive brown (2.5 Y 3/3) and olive brown (2.5 Y 4/3) light grey layers (2.5 Y 5/1) black (2.5 Y 2.5/1) and very dark grey (2.5 Y 3/1)

Hole M0077A Core 10R Cored 524.64-527.69 mbsf

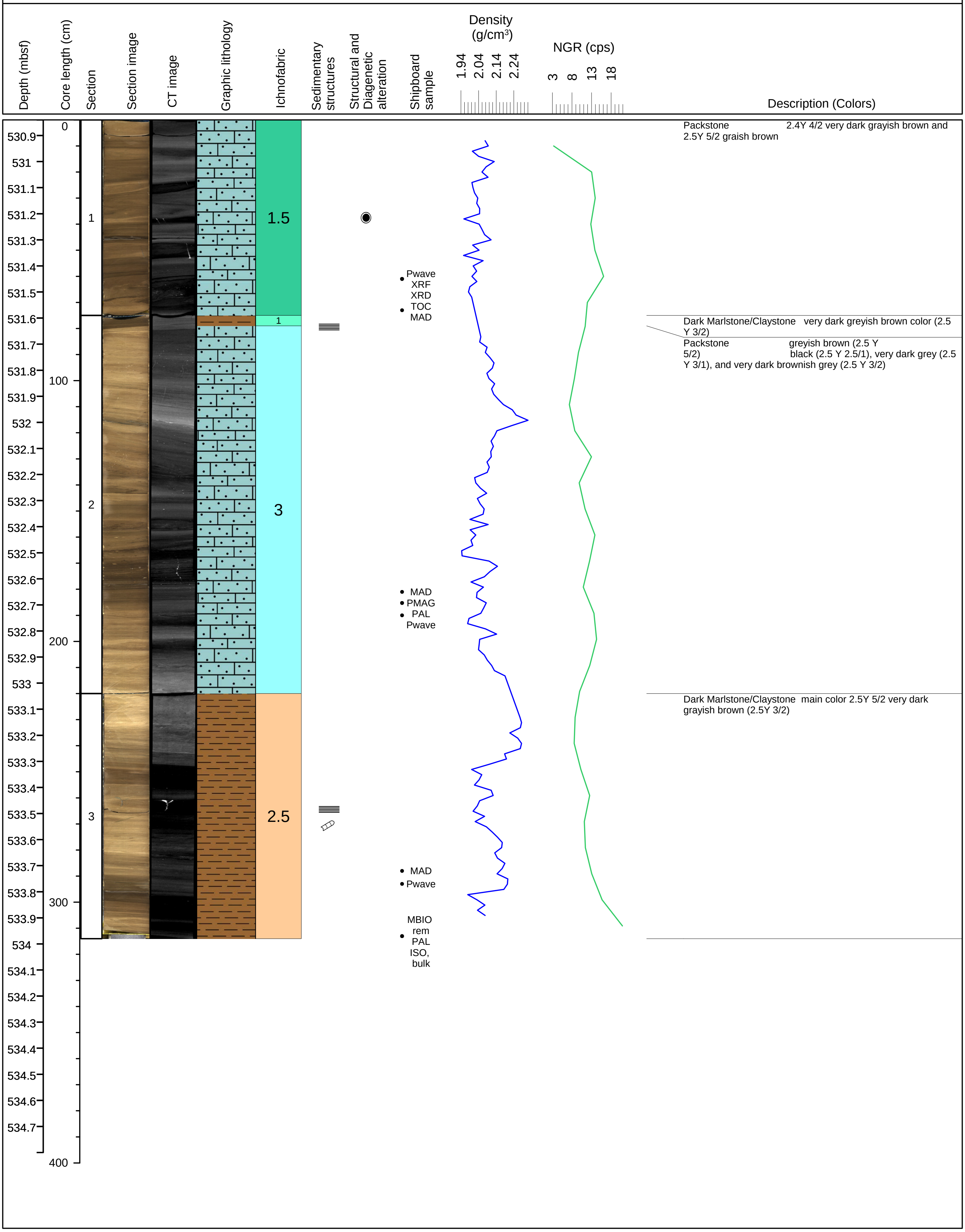


Description (Colors)
Dark Marlstone/Claystone 2.5Y 2.5/1 black and 2.8Y 3/2 very dark grayish brown
Dark Marlstone/Claystone very dark gray (2.5Y 3/1) very dark brown (2.5Y 3/2)
Dark Marlstone/Claystone dark grayish brown (2.5Y 4/2)
Dark Marlstone/Claystone very dark gray (2.5Y 3/1) very dark grayish brown (2.5Y 3/2)
Dark Marlstone/Claystone dark layers (2.5Y 3/1) and lighter layers (2.5Y 4/2)

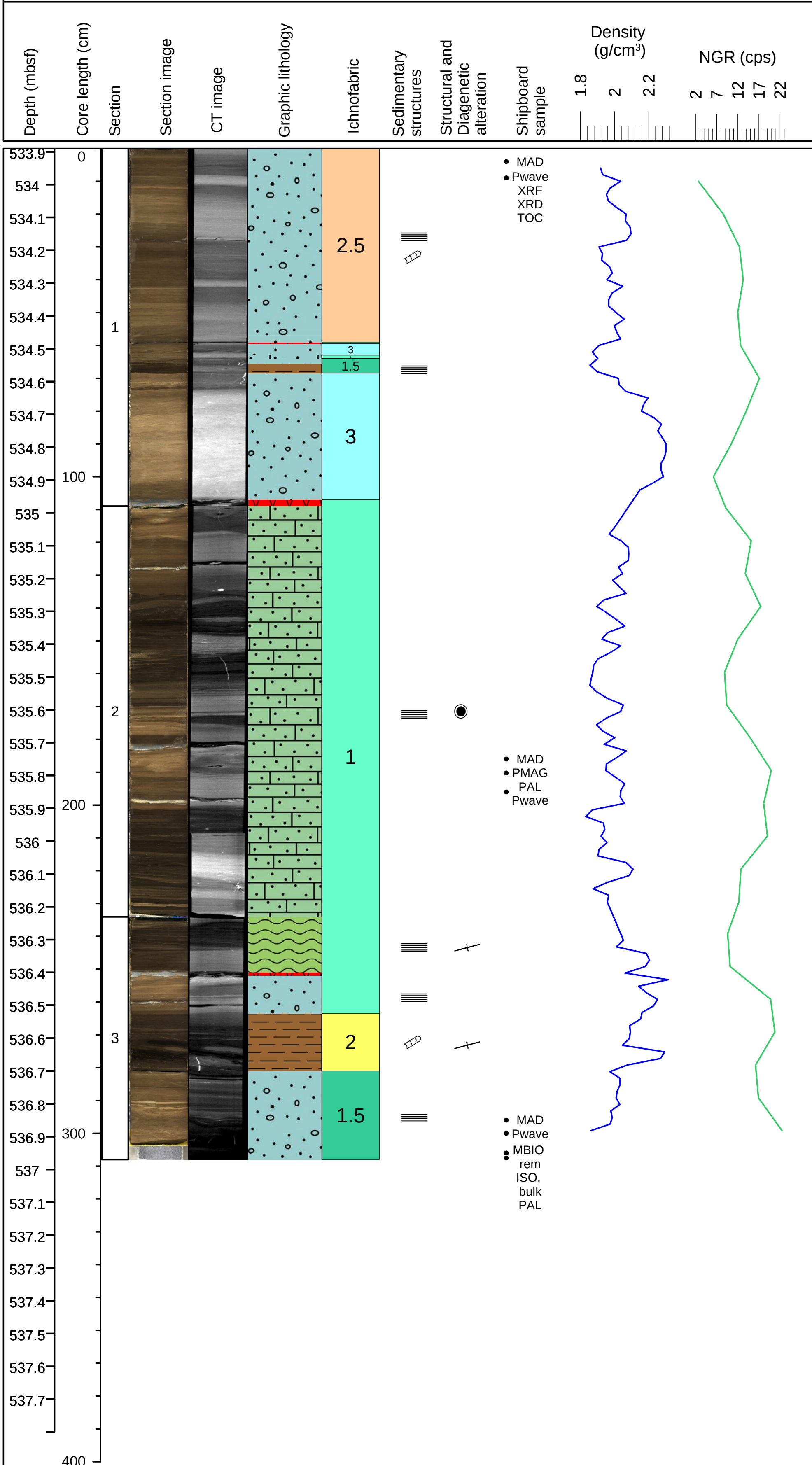
Hole M0077A Core 11R Cored 527.69-530.84 mbsf



Hole M0077A Core 12R Cored 530.84-533.89 mbsf



Hole M0077A Core 13R Cored 533.89-536.94 mbsf



Description (Colors)

Wackestone 2.5Y5/2 (grayish brown)

Claystone (ash) GLEY2 5/10B (bluish gray)
Wackestone 2.5Y5/2 (grayish brown)
Packstone 2.5Y6/2 (light brownish gray)
Wackestone 2.5Y5/2 (grayish brown)
Dark Marlstone/Claystone 2.5Y3/2 (very dark grayish brown)
Wackestone 2.5Y6/2 (light brownish gray)

Claystone (ash) GLEY2 4/10B (dark bluish gray)
Marly Packstone very dark grey (2.5 Y 3/1), olive brown (2.5 Y 4/4), greyish brown (2.5 Y 5/2), and black (2.5 Y 2.5/1) light olive brown color (2.5 Y 5/3) and a olive brown color (2.5 Y 4/3) grey color (2.

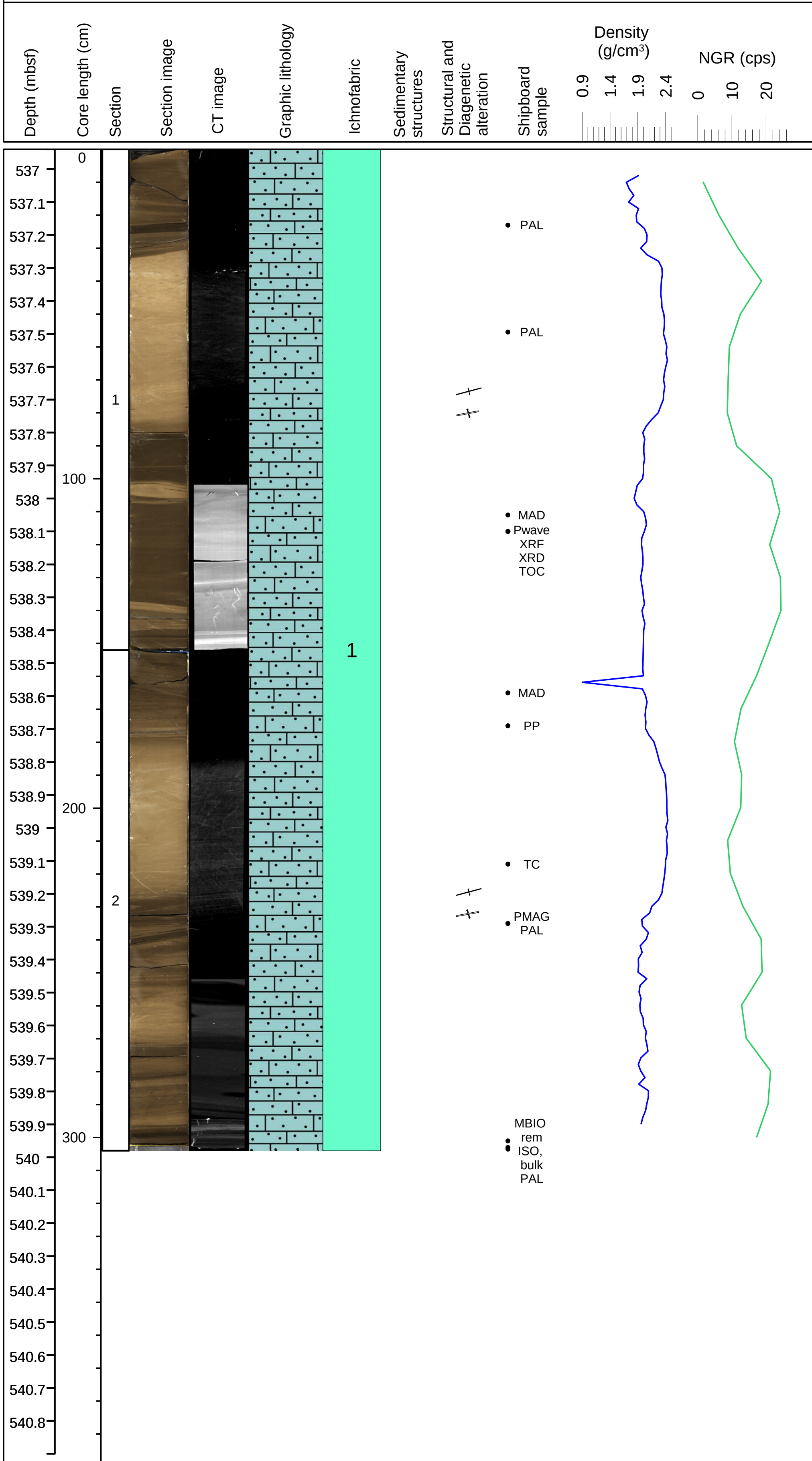
Marlstone 2.5Y3/2 (very dark grayish brown)

Claystone (ash) GREY2 6/10B (bluish gray)
Wackestone 2.5Y6/3 (light yellowish brown)

Dark Marlstone/Claystone 2.5Y3/2 (very dark grayish brown)

Wackestone 2.5Y5/3 (light olive brown)

Hole M0077A Core 14R Cored 536.94-539.99 mbsf

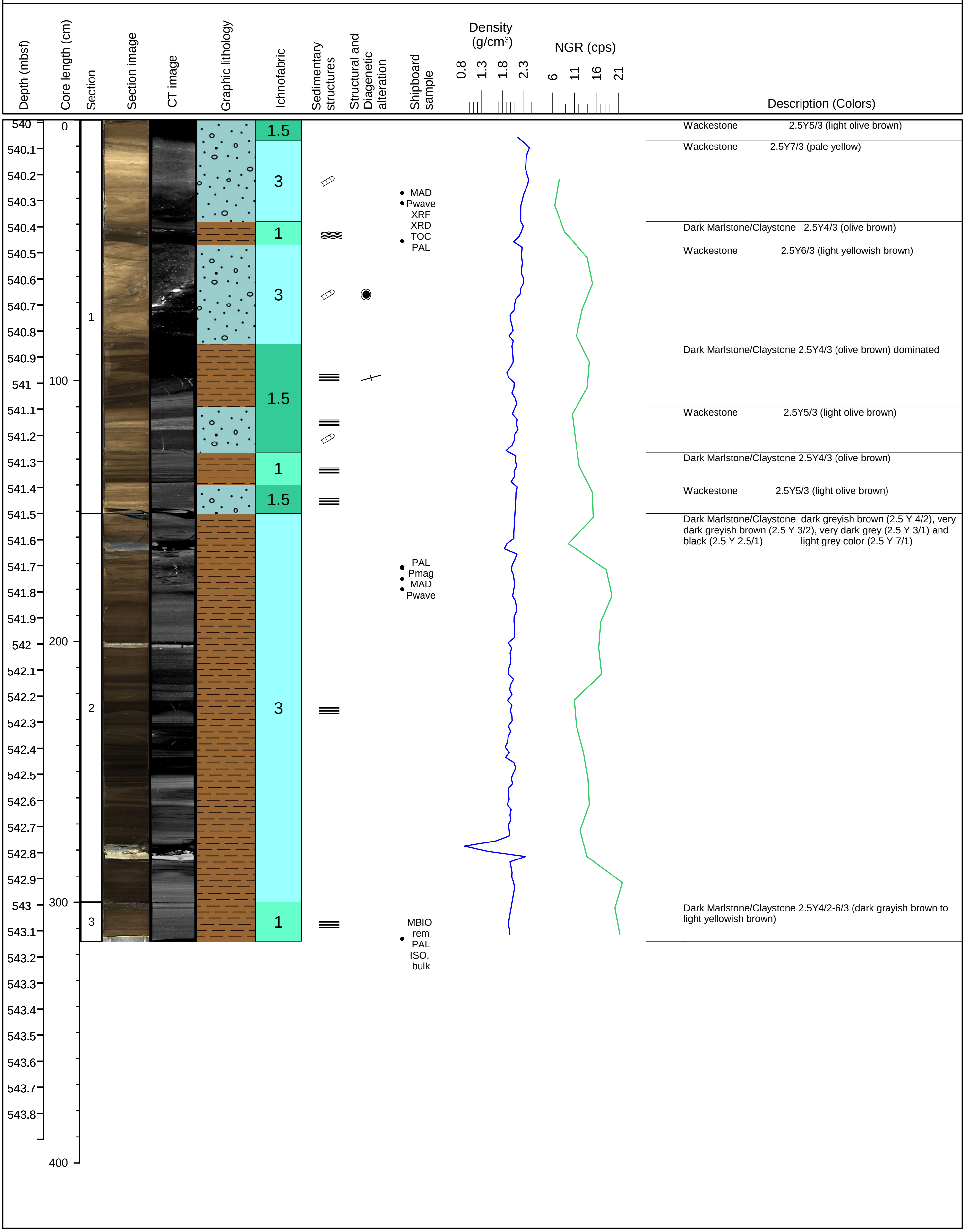


Description (Colors)

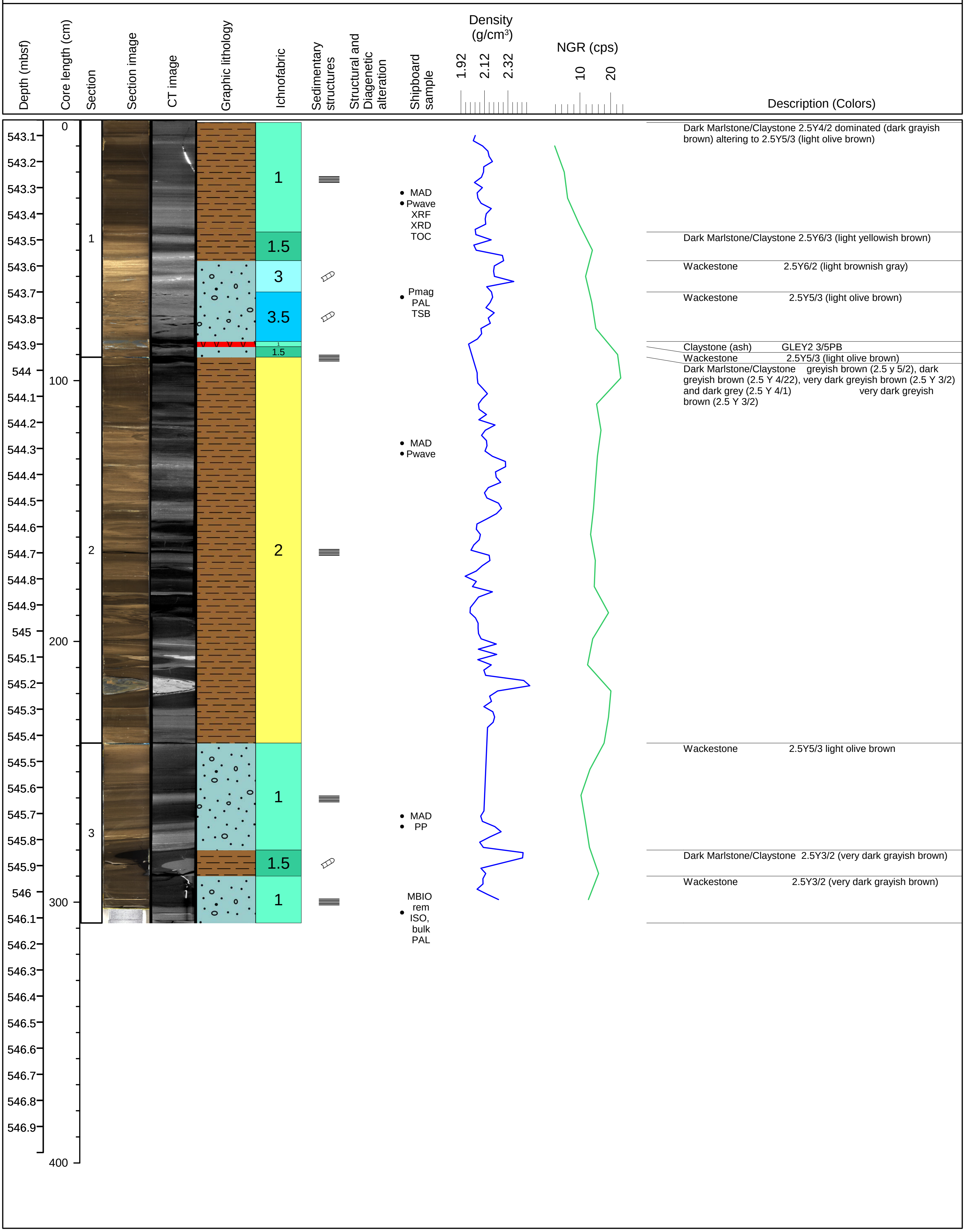
Packstone grey (2.5 Y 5/1 - 6/1) dark greyish brown color (.5 Y 4/2) dark greyish brown (2.5 Y 4/2) and very dark greyish brown (2.5 Y 3/2)

Packstone light olive brown (2.5 Y 5/3) and dark greyish brown (2.5 Y 4/2) very dark grey (.5 Y 3/1), very dark greyish brown (2.5 Y 3/2), and dark greyish brown (2.5 Y 4/2)

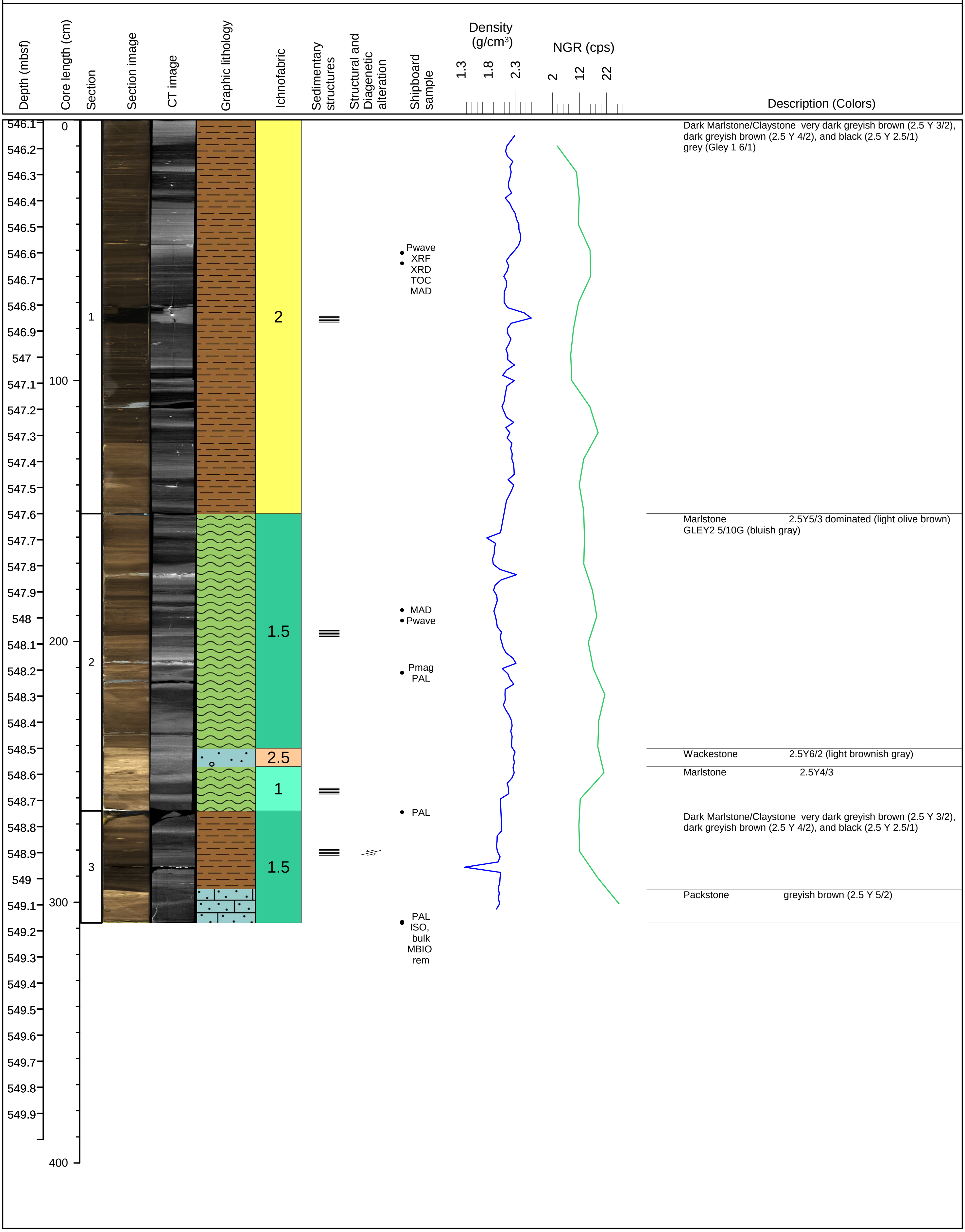
Hole M0077A Core 15R Cored 539.99-543.04 mbsf



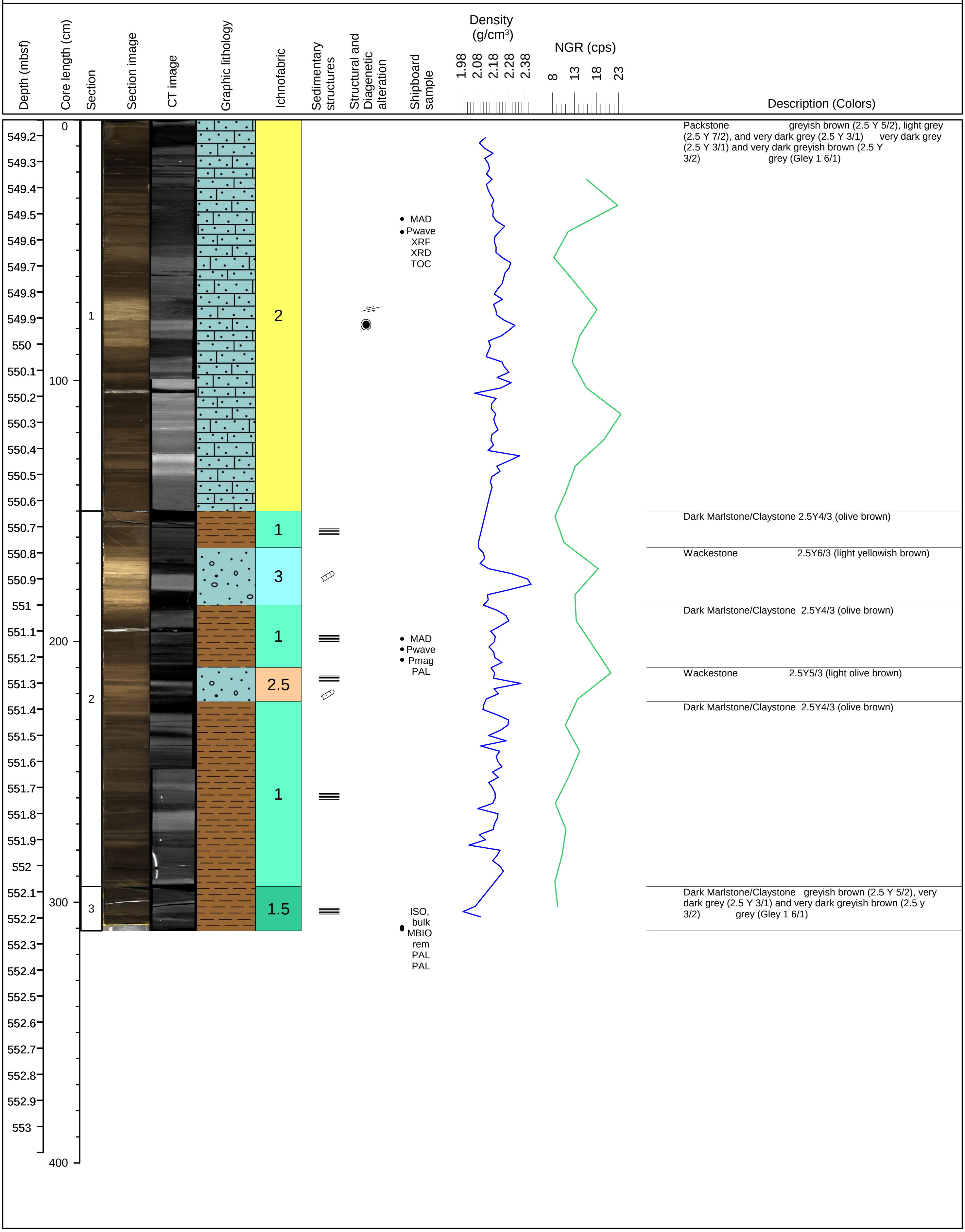
Hole M0077A Core 16R Cored 543.04-546.09 mbsf



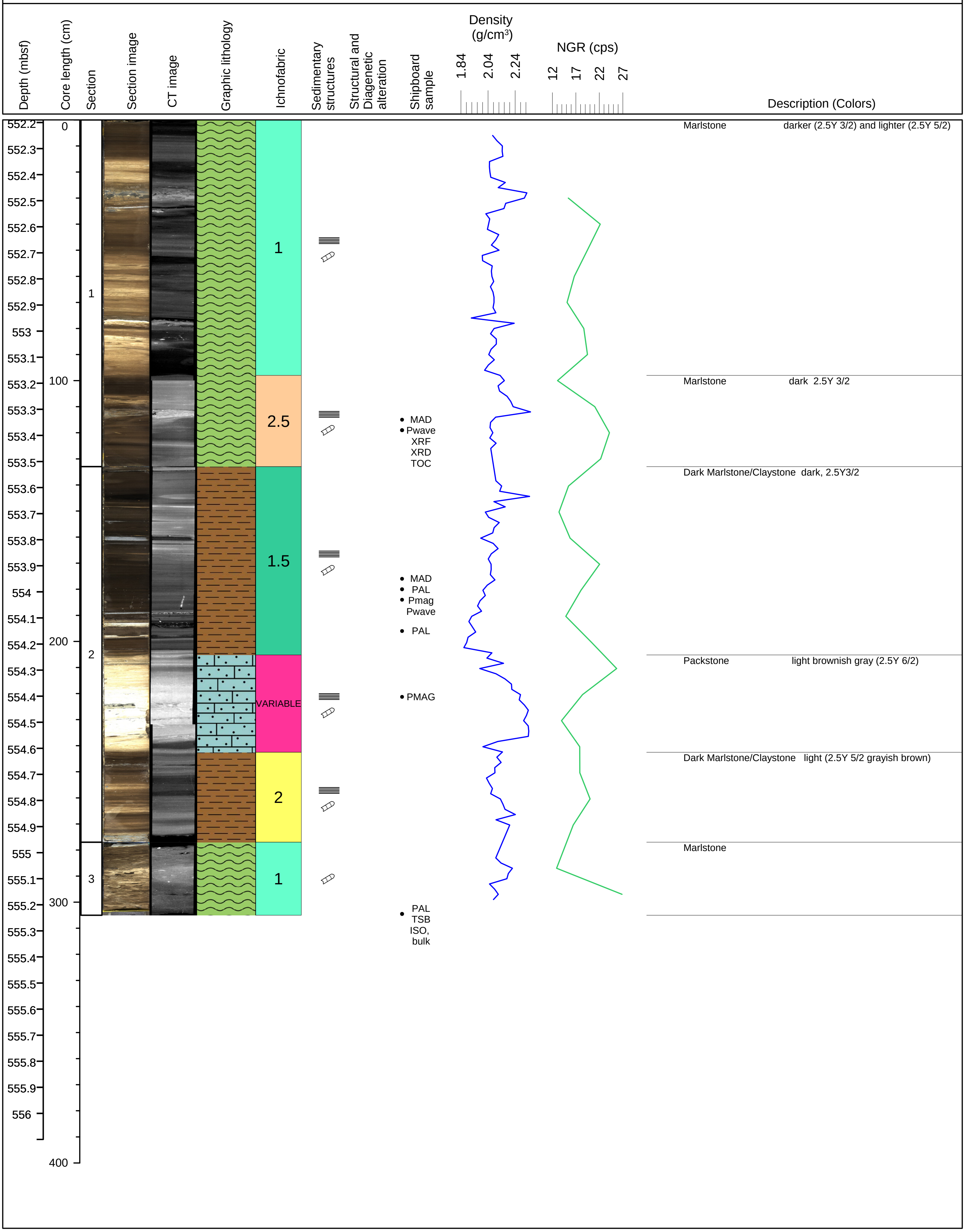
Hole M0077A Core 17R Cored 546.09-549.14 mbsf



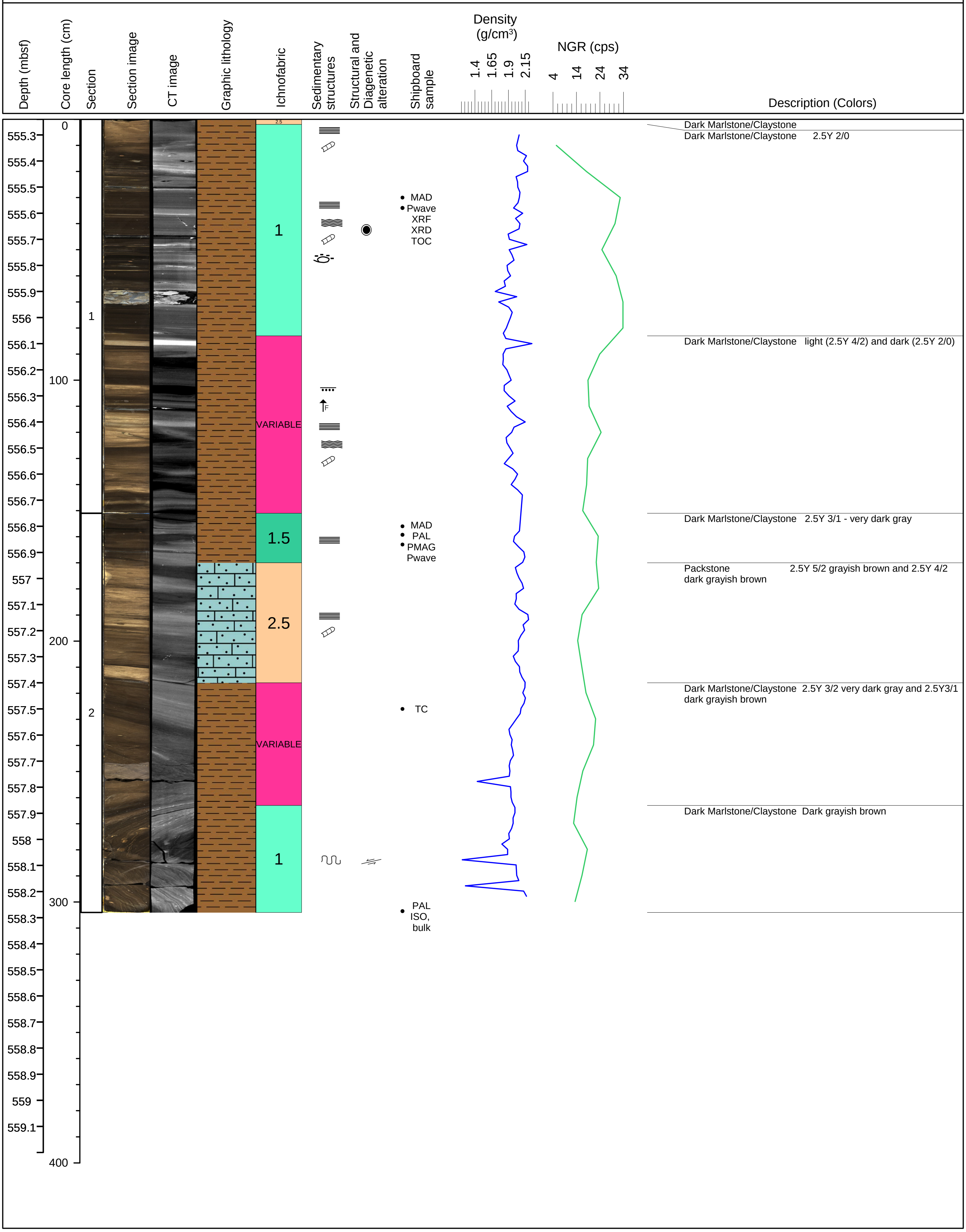
Hole M0077A Core 18R Cored 549.14-552.19 mbsf



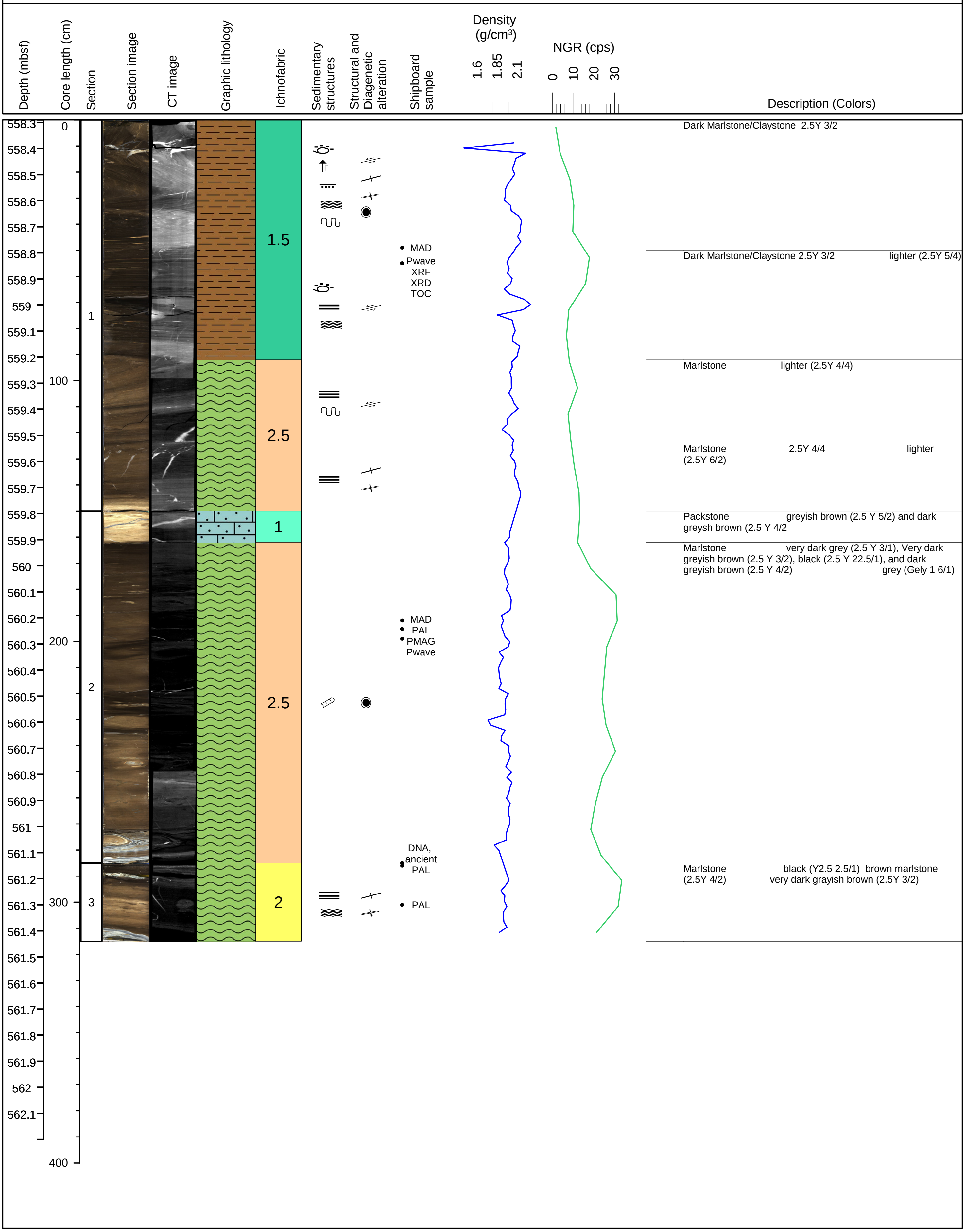
Hole M0077A Core 19R Cored 552.19-555.24 mbsf



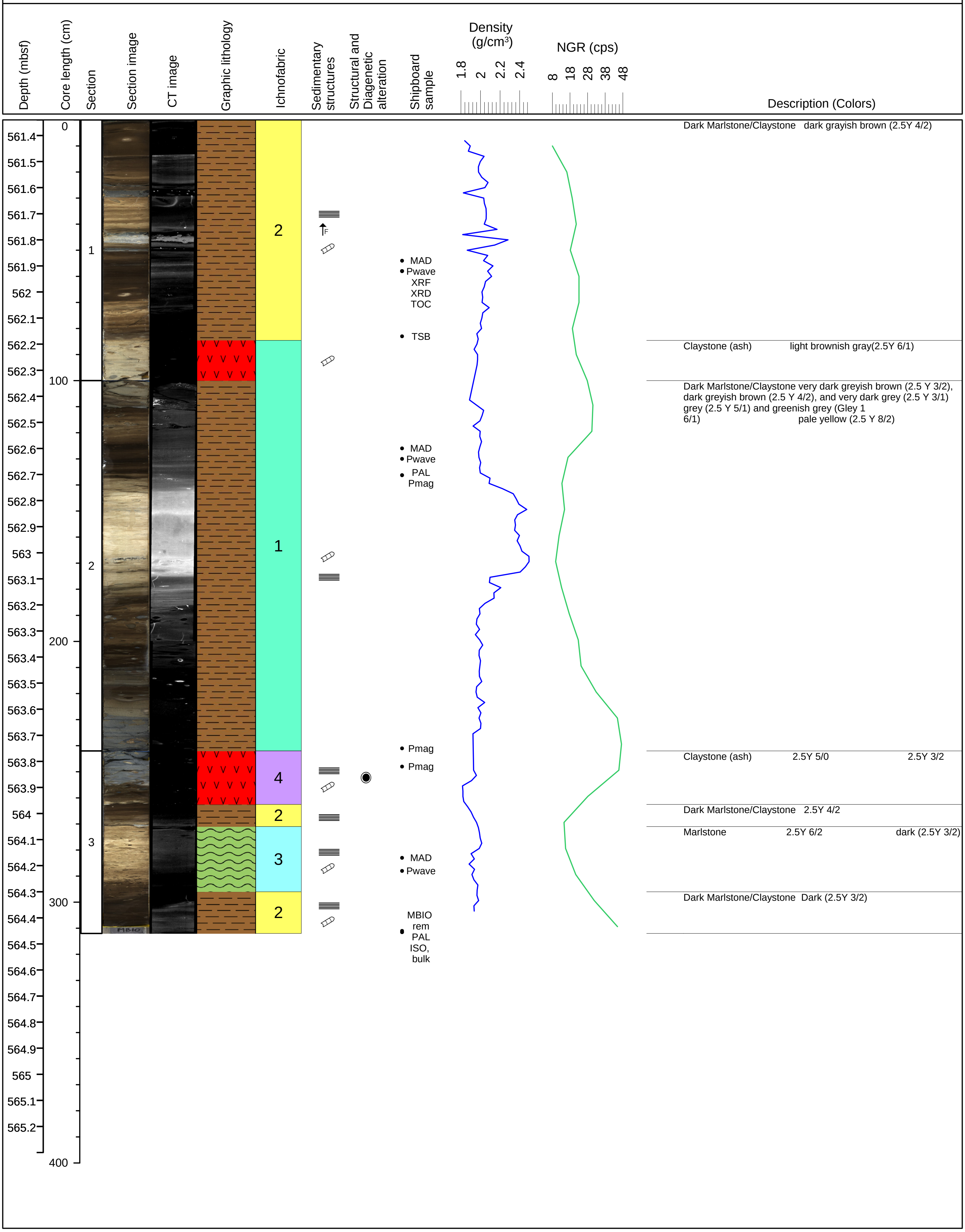
Hole M0077A Core 20R Cored 555.24-558.29 mbsf



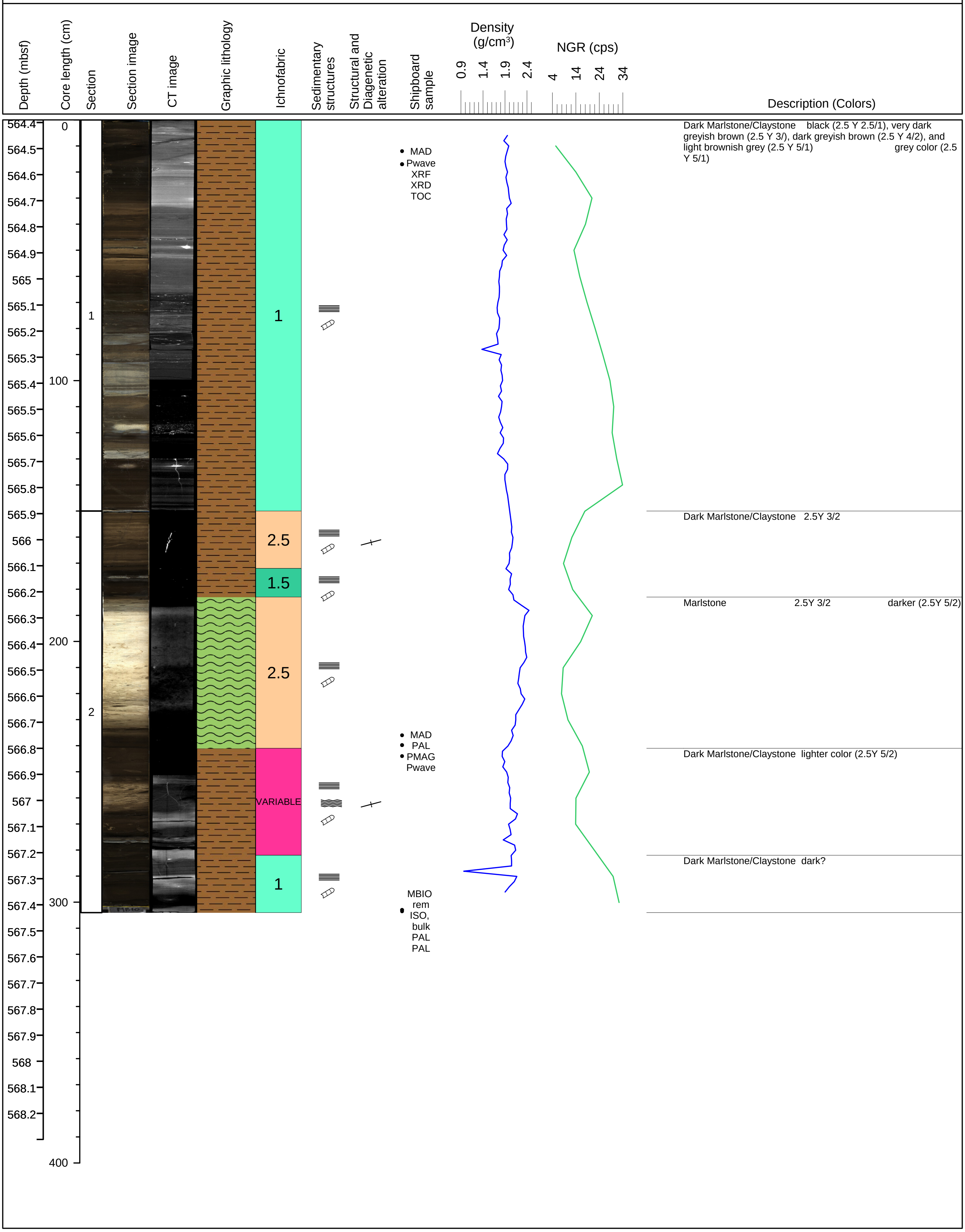
Hole M0077A Core 21R Cored 558.29-561.34 mbsf



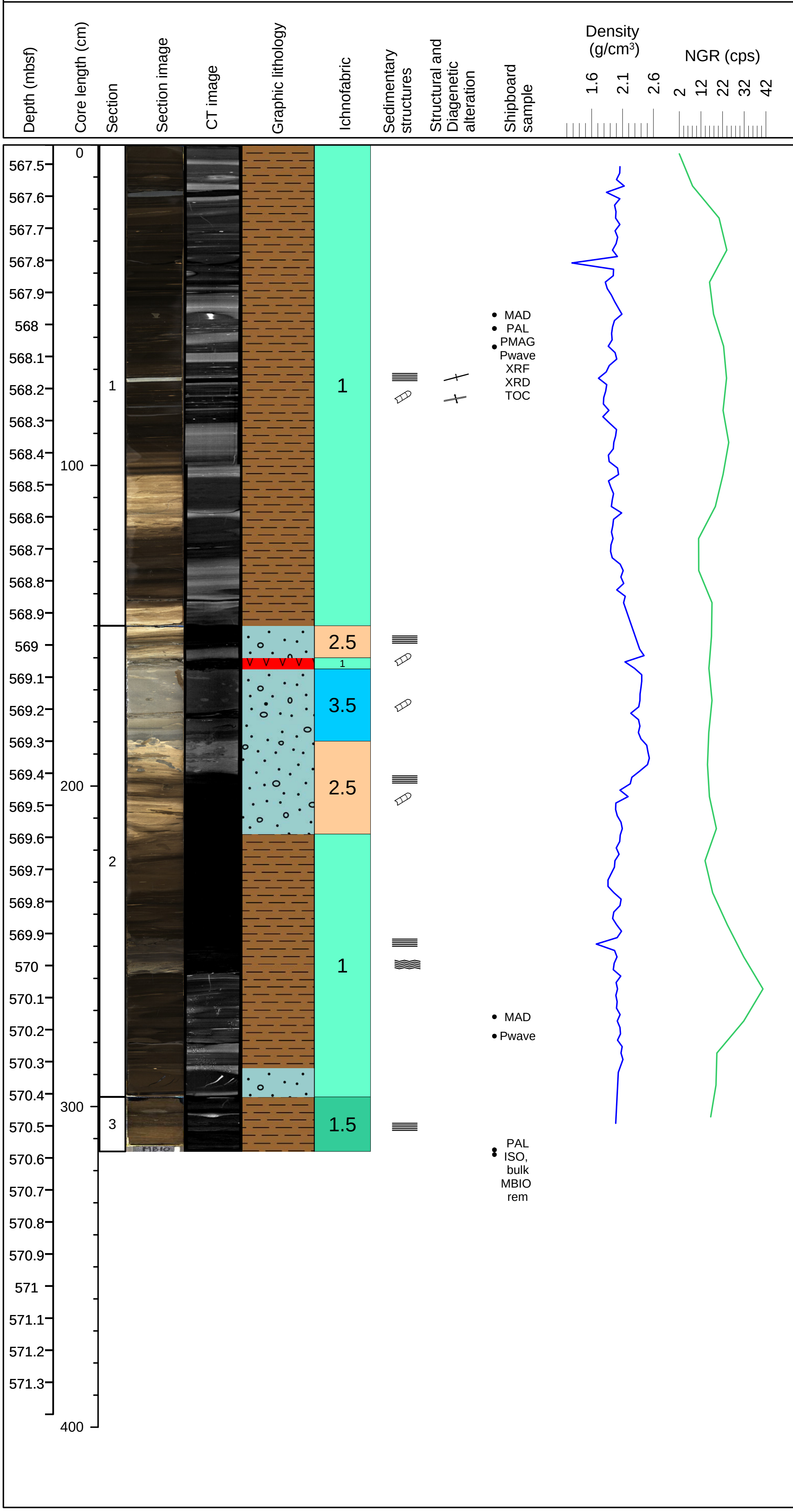
Hole M0077A Core 22R Cored 561.34-564.39 mbsf



Hole M0077A Core 23R Cored 564.39-567.44 mbsf



Hole M0077A Core 24R Cored 567.44-570.49 mbsf



Description (Colors)

Dark Marlstone/Claystone black (2.5 Y 2.5/1) , very dark grey (2.5 Y 3/1) and very dark greyish brown (2.5 Y 3/2) greyish brown color (2.5 Y 5/2) dark grey (Gley 1 4) and greenish grey (Gley 1 6/1

Wackestone 2.5Y7/2 (light gray dominated) to 2.5Y5/4 (light olive brown)

Claystone (ash) 2.5Y 6/2 (gray)

Wackestone 2.5Y7/0 (light gray)

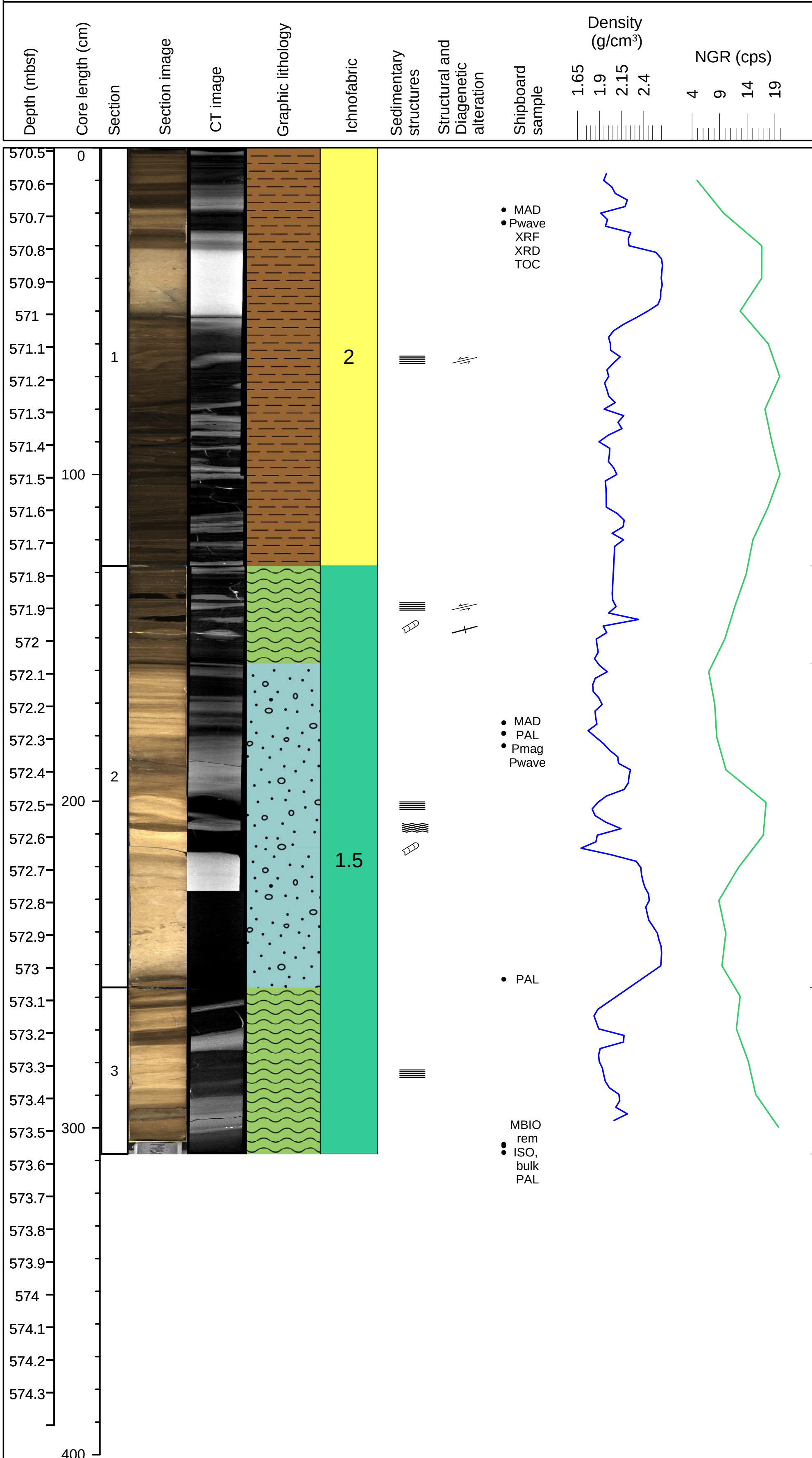
Wackestone 2.5Y7/2 (light gray) to 5/4 (light olive brown)

Dark Marlstone/Claystone 2.5Y3/2 (very dark grayish brown) to 2.5Y5/4 (light olive brown)

Wackestone 2.5Y4/4 (olive brown)

Dark Marlstone/Claystone very dark grey (2.5 Y 3/1) and very dark greyish brown (2.5 Y 3/2)

Hole M0077A Core 25R Cored 570.49-573.54 mbsf



Description (Colors)

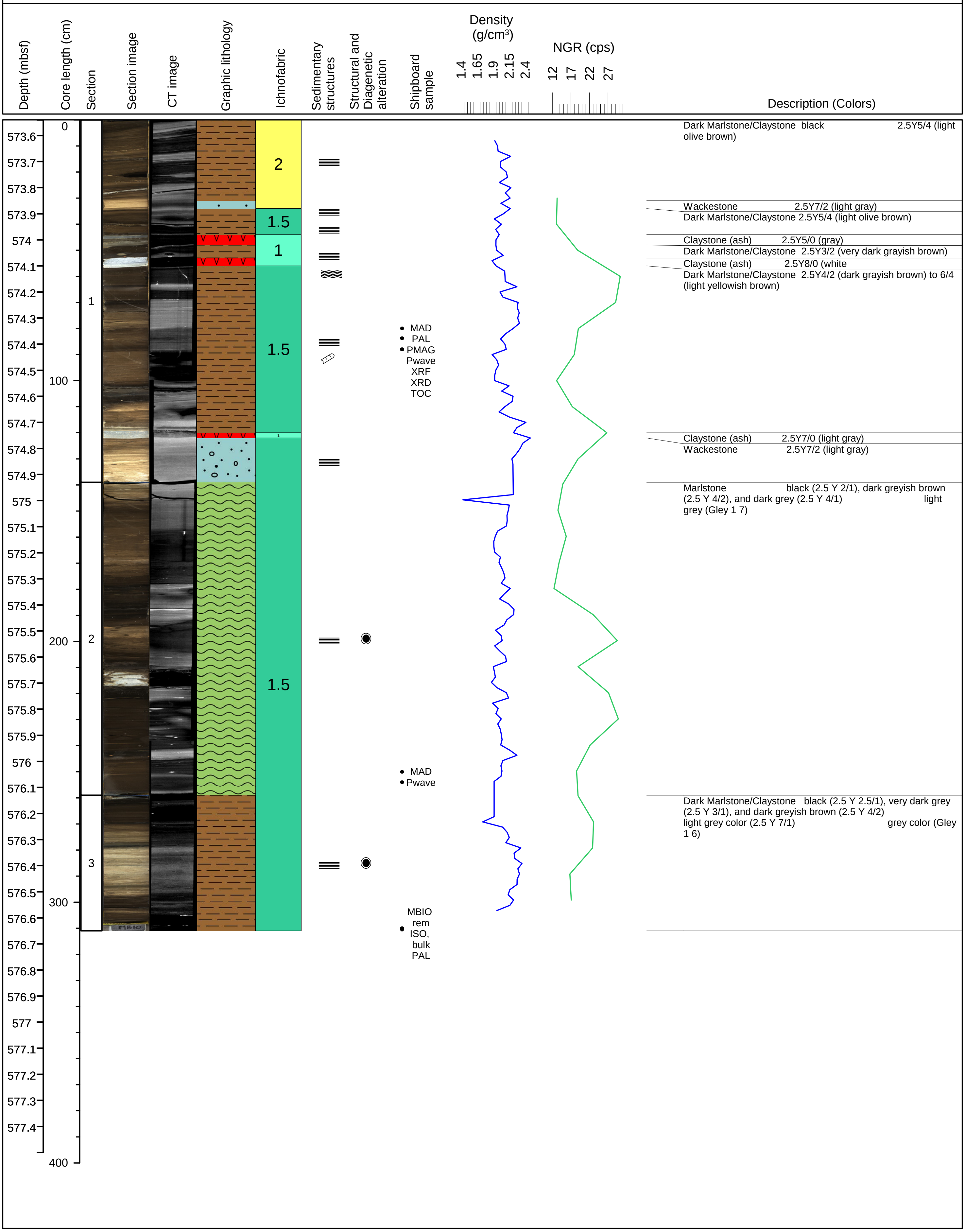
Dark Marlstone/Claystone very dark grey (2.5 Y 3/1) and very dark greyish brown (2.5 Y 3/2) light grey color (2.5 Y 7/2)

Marlstone

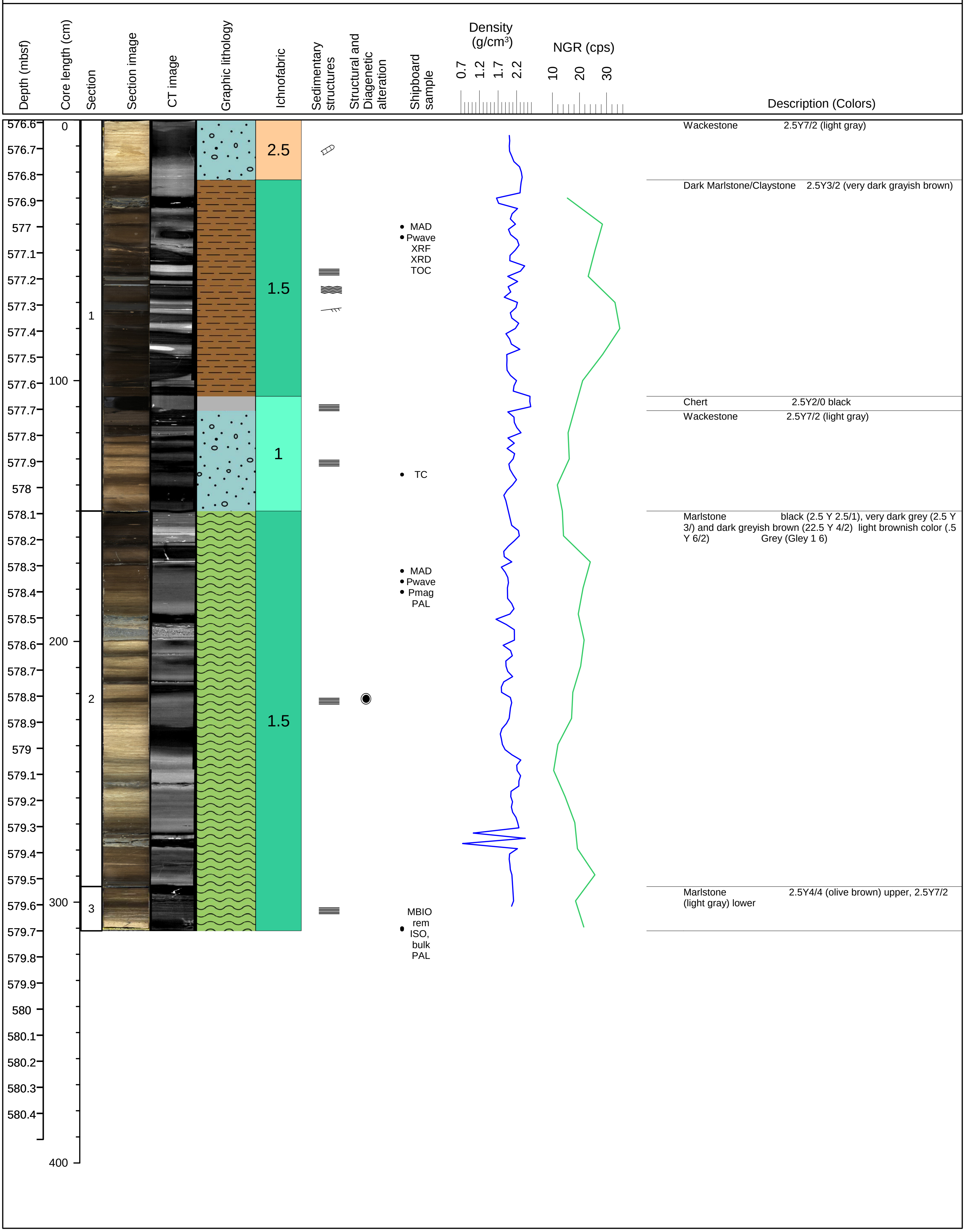
Wackestone

Marlstone very dark greyish brown (2.5 Y 3/2) and dark greyish brown (2.5 Y 4/2) light brownish grey color (2.5 Y 6/2)

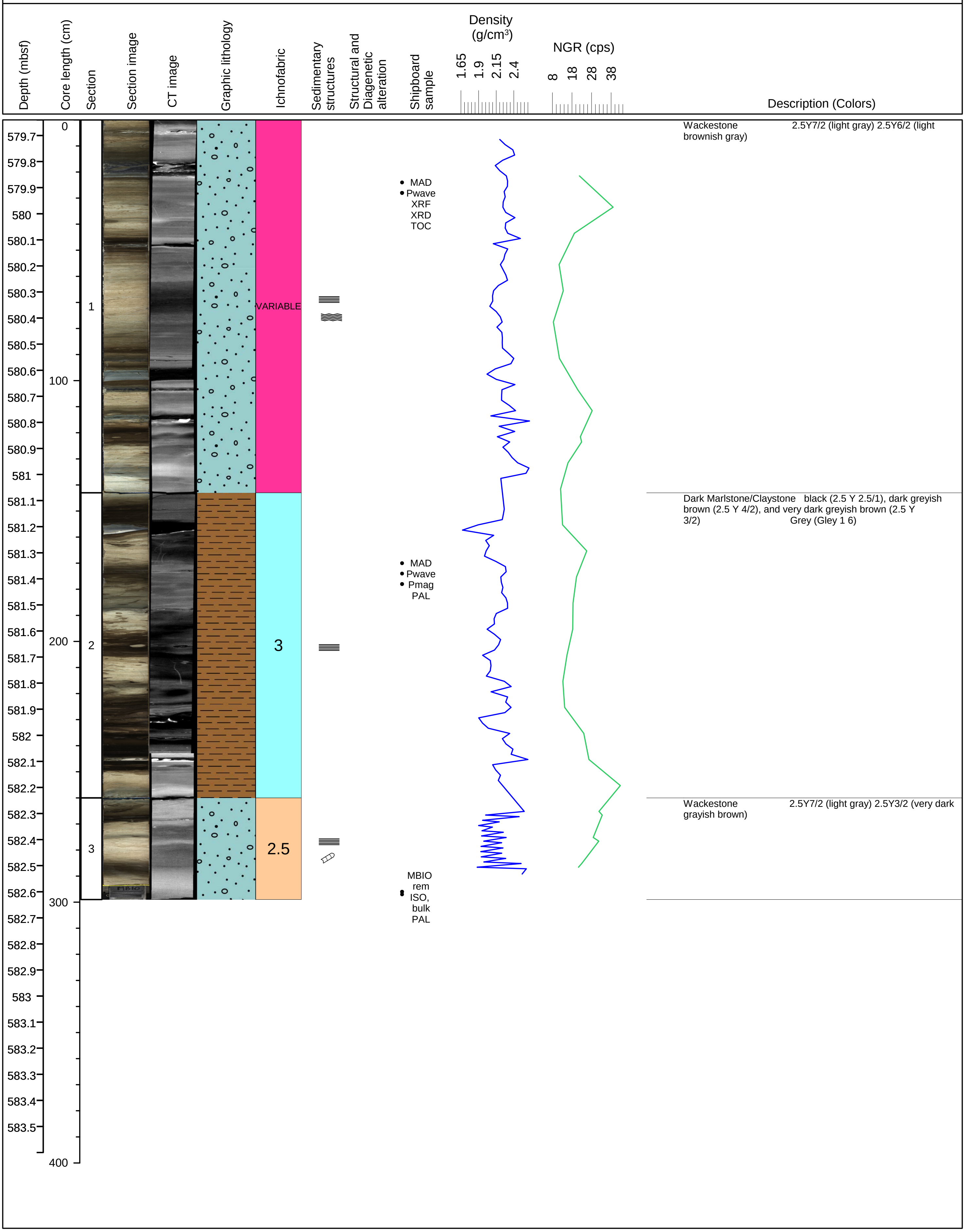
Hole M0077A Core 26R Cored 573.54-576.59 mbsf



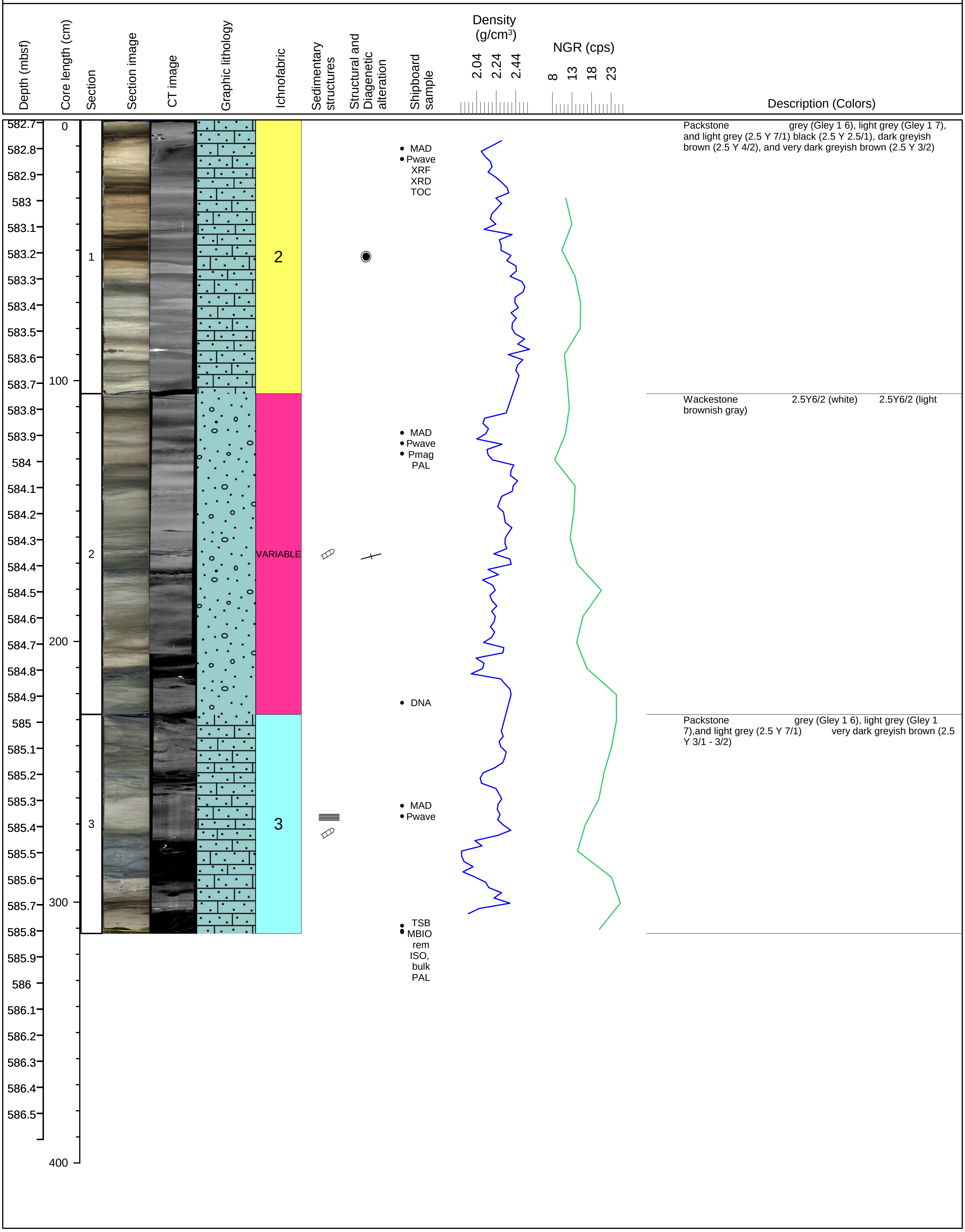
Hole M0077A Core 27R Cored 576.59-579.64 mbsf

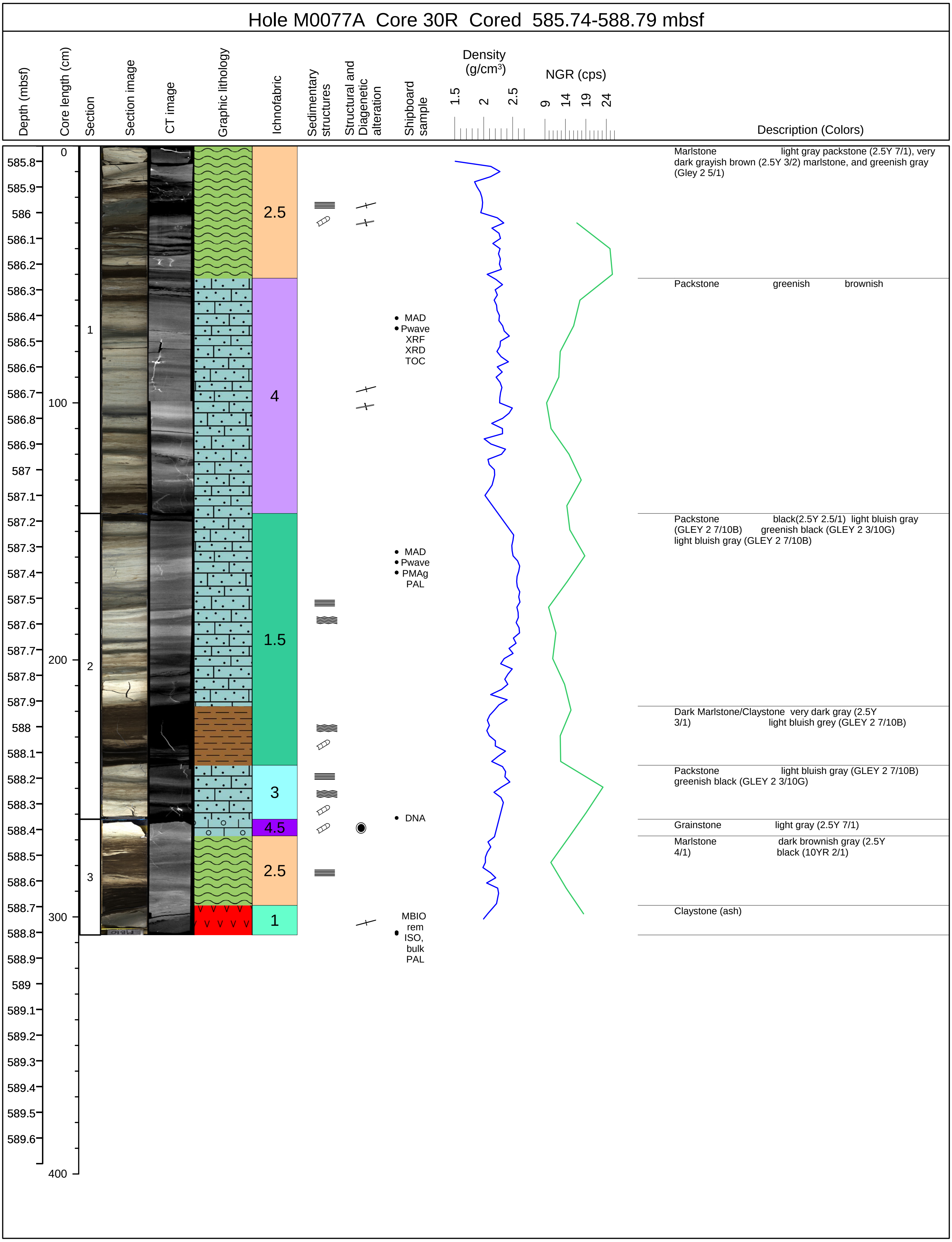


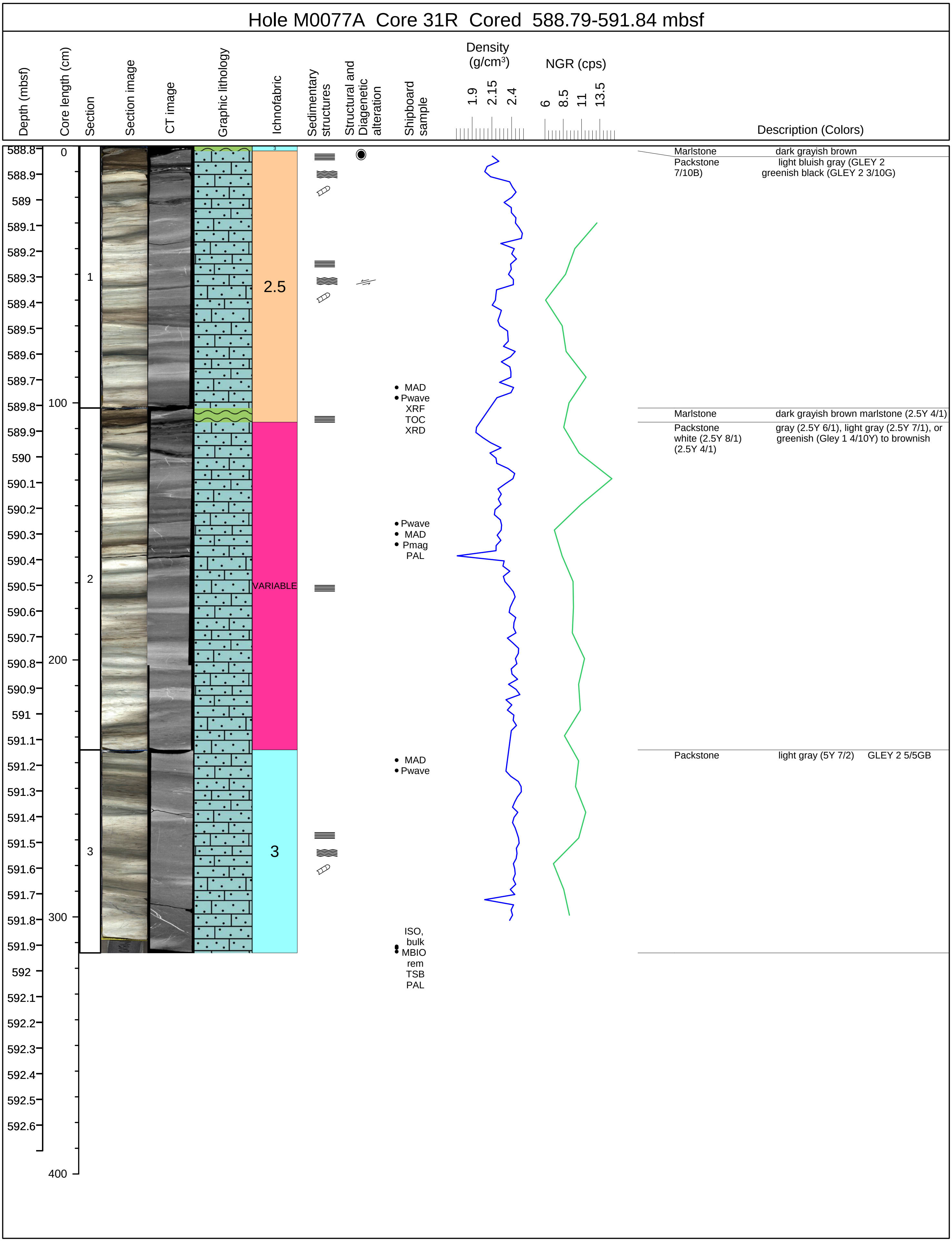
Hole M0077A Core 28R Cored 579.64-582.69 mbsf



Hole M0077A Core 29R Cored 582.69-585.74 mbsf

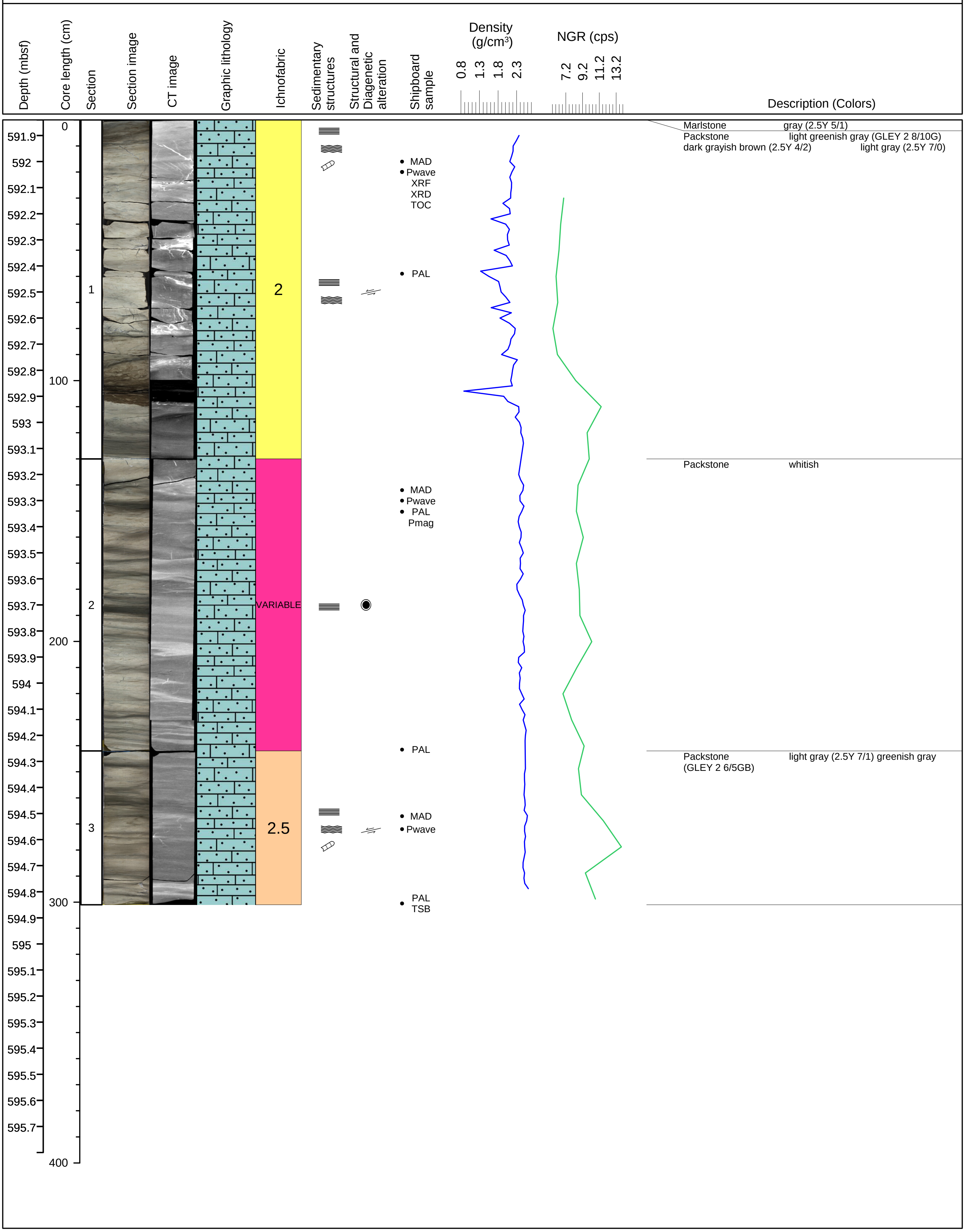



Hole M0077A Core 30R Cored 585.74-588.79 mbsf
Depth (mbsf)
Core length (cm)
Section
Section image
CT image
Graphic lithology
Ichnofabric
Sedimentary structures
Structural and Diagenetic alteration
Shipboard sample
Density (g/cm³)
1.5
2
2.5
NGR (cps)
9
14
19
24
Description (Colors)
585.8
585.9
586
586.1
586.2
586.3
586.4
586.5
586.6
586.7
586.8
586.9
587
587.1
587.2
587.3
587.4
587.5
587.6
587.7
587.8
587.9
588
588.1
588.2
588.3
588.4
588.5
588.6
588.7
588.8
588.9
589
589.1
589.2
589.3
589.4
589.5
589.6
0
100
200
300
400
1
2
3
2.5
4
1.5
3
4.5
2.5
1
MAD
Pwave
XRF
XRD
TOC
MAD
Pwave
PMAg
PAL
DNA
MBIO
rem
ISO,
bulk
PAL
Marlstone light gray packstone (2.5Y 7/1), very dark grayish brown (2.5Y 3/2) marlstone, and greenish gray (Gley 2 5/1)
Packstone greenish brownish
Packstone black(2.5Y 2.5/1) light bluish gray (GLEY 2 7/10B) greenish black (GLEY 2 3/10G) light bluish gray (GLEY 2 7/10B)
Dark Marlstone/Claystone very dark gray (2.5Y 3/1) light bluish grey (GLEY 2 7/10B)
Packstone light bluish gray (GLEY 2 7/10B) greenish black (GLEY 2 3/10G)
Grainstone light gray (2.5Y 7/1)
Marlstone dark brownish gray (2.5Y 4/1) black (10YR 2/1)
Claystone (ash)

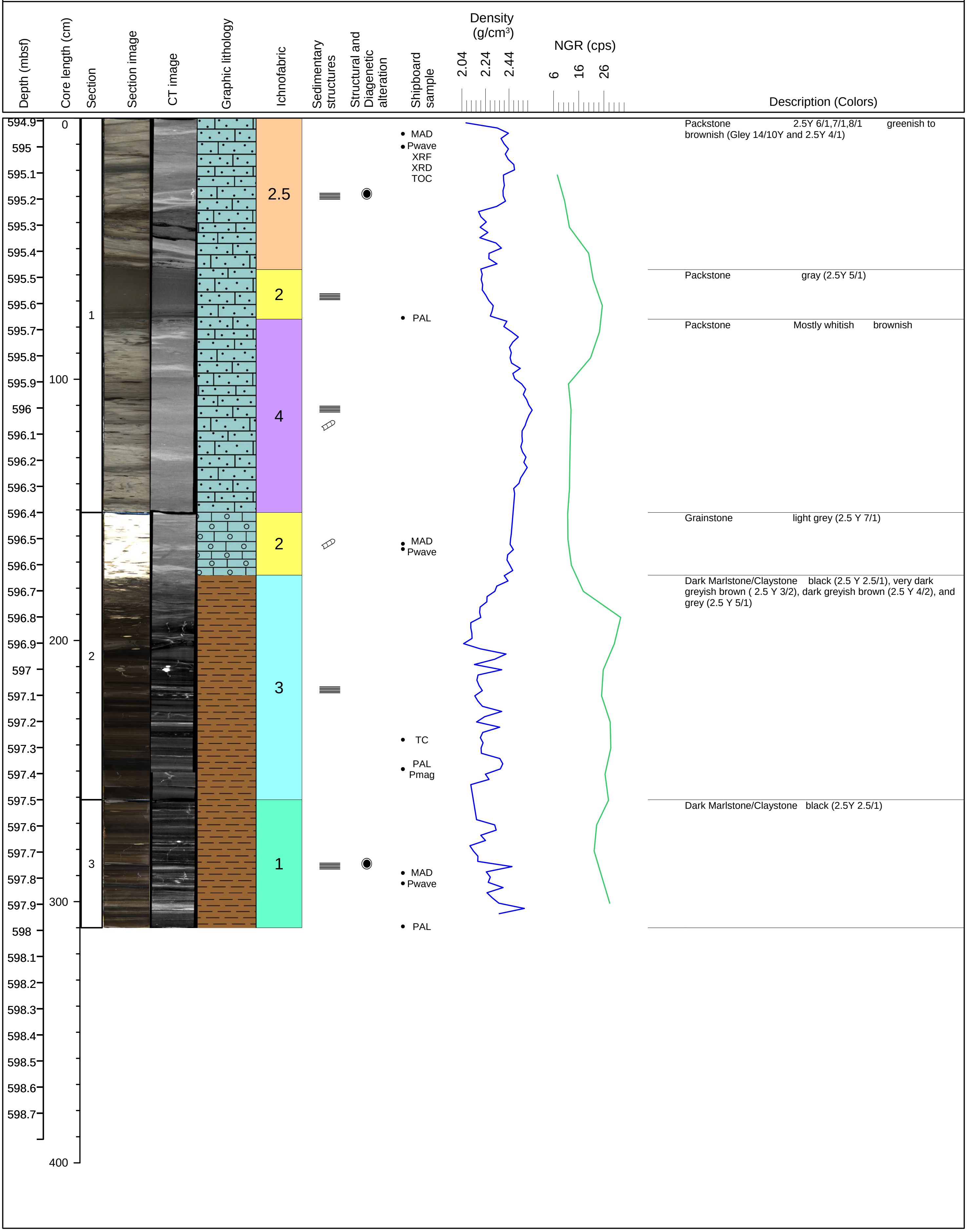


Hole M0077A Core 31R Cored 588.79-591.84 mbsf
Depth (mbsf)
Core length (cm)
Section
Section image
CT image
Graphic lithology
Ichnofabric
Sedimentary structures
Structural and Diagenetic alteration
Shipboard sample
Density (g/cm³)
1.9
2.15
2.4
NGR (cps)
6
8.5
11
13.5
Description (Colors)
588.8
588.9
589
589.1
589.2
589.3
589.4
589.5
589.6
589.7
589.8
589.9
590
590.1
590.2
590.3
590.4
590.5
590.6
590.7
590.8
590.9
591
591.1
591.2
591.3
591.4
591.5
591.6
591.7
591.8
591.9
592
592.1
592.2
592.3
592.4
592.5
592.6
0
100
200
300
400
1
2
3
2.5
VARIABLE
3
MAD
Pwave
XRF
TOC
XRD
Pwave
MAD
Pmag
PAL
MAD
Pwave
ISO,
bulk
MBIO
rem
TSB
PAL
Marlstone
dark grayish brown
Packstone
light bluish gray (GLEY 2
7/10B)
greenish black (GLEY 2 3/10G)
Marlstone
dark grayish brown marlstone (2.5Y 4/1)
Packstone
gray (2.5Y 6/1), light gray (2.5Y 7/1), or
white (2.5Y 8/1)
greenish (Gley 1 4/10Y) to brownish
(2.5Y 4/1)
Packstone
light gray (5Y 7/2)
GLEY 2 5/5GB

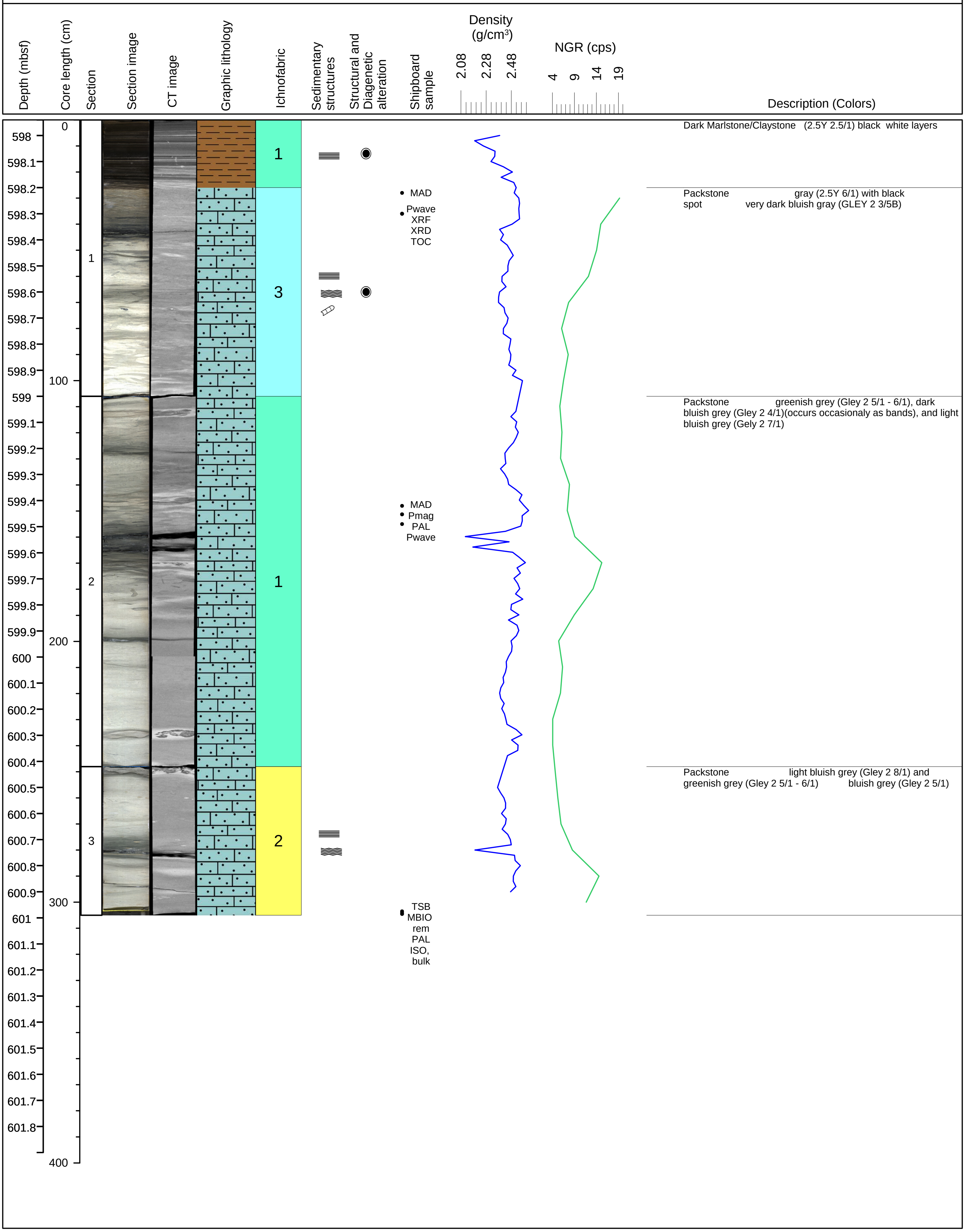
Hole M0077A Core 32R Cored 591.84-594.89 mbsf



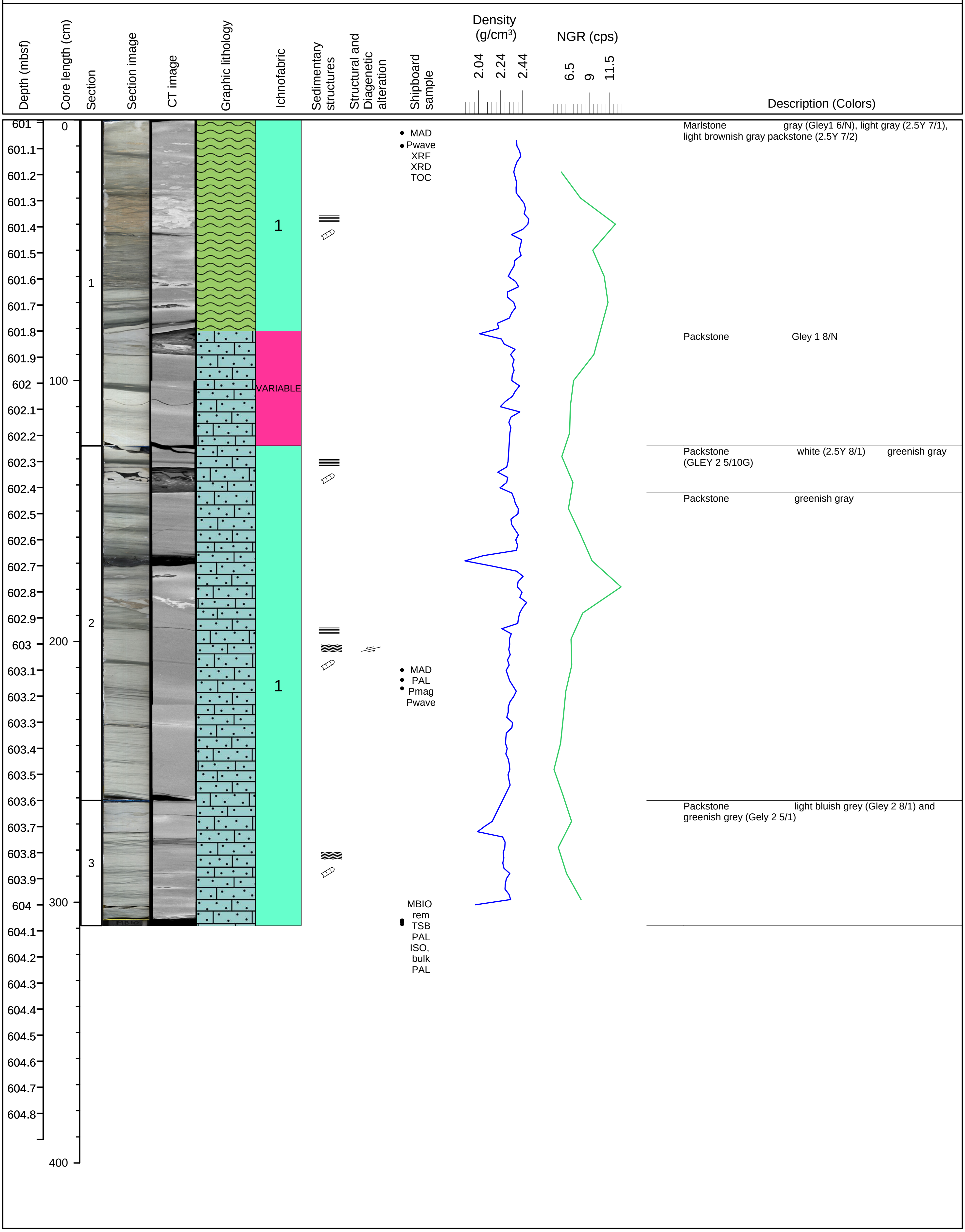
Hole M0077A Core 33R Cored 594.89-597.94 mbsf



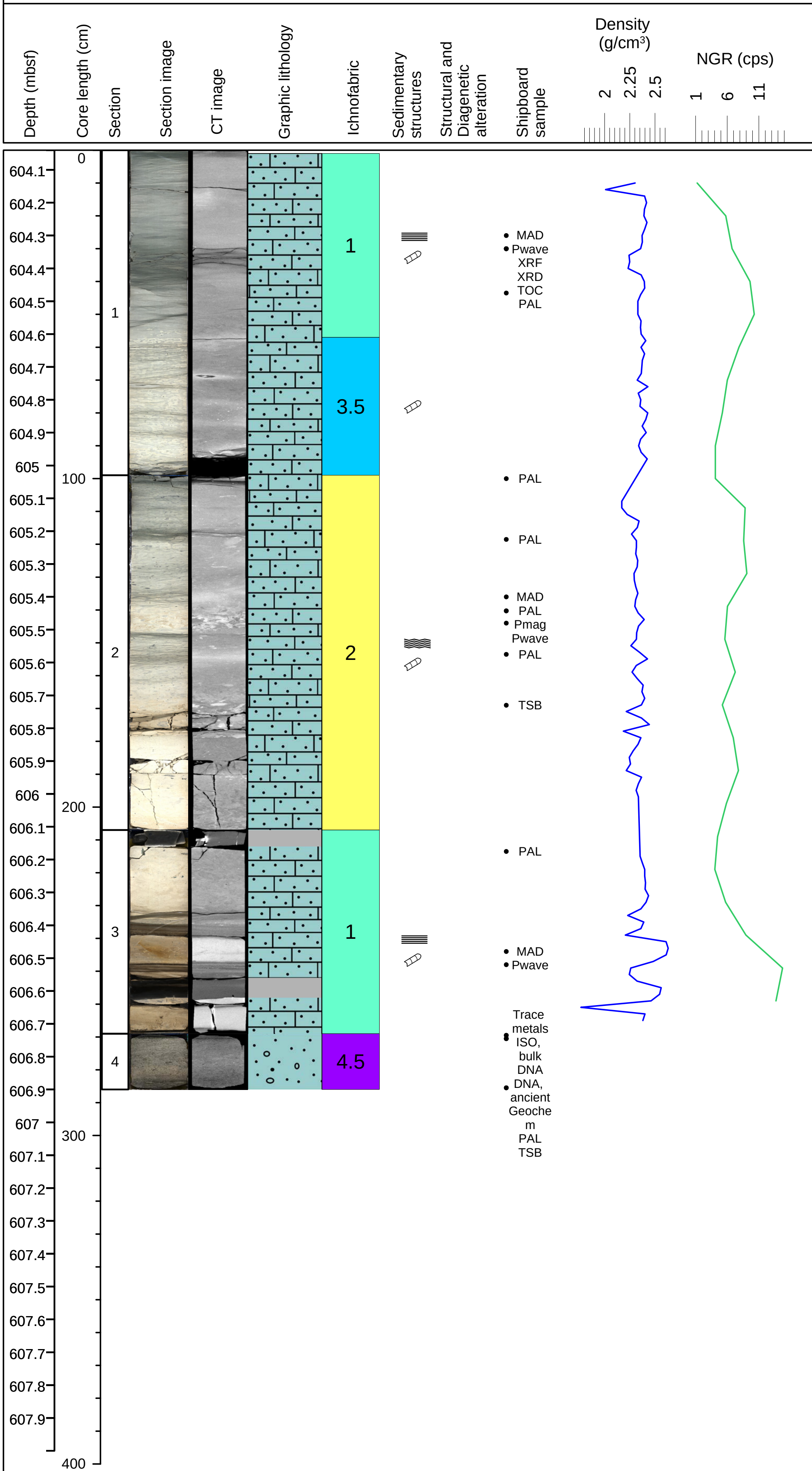
Hole M0077A Core 34R Cored 597.94-600.99 mbsf



Hole M0077A Core 35R Cored 600.99-604.04 mbsf



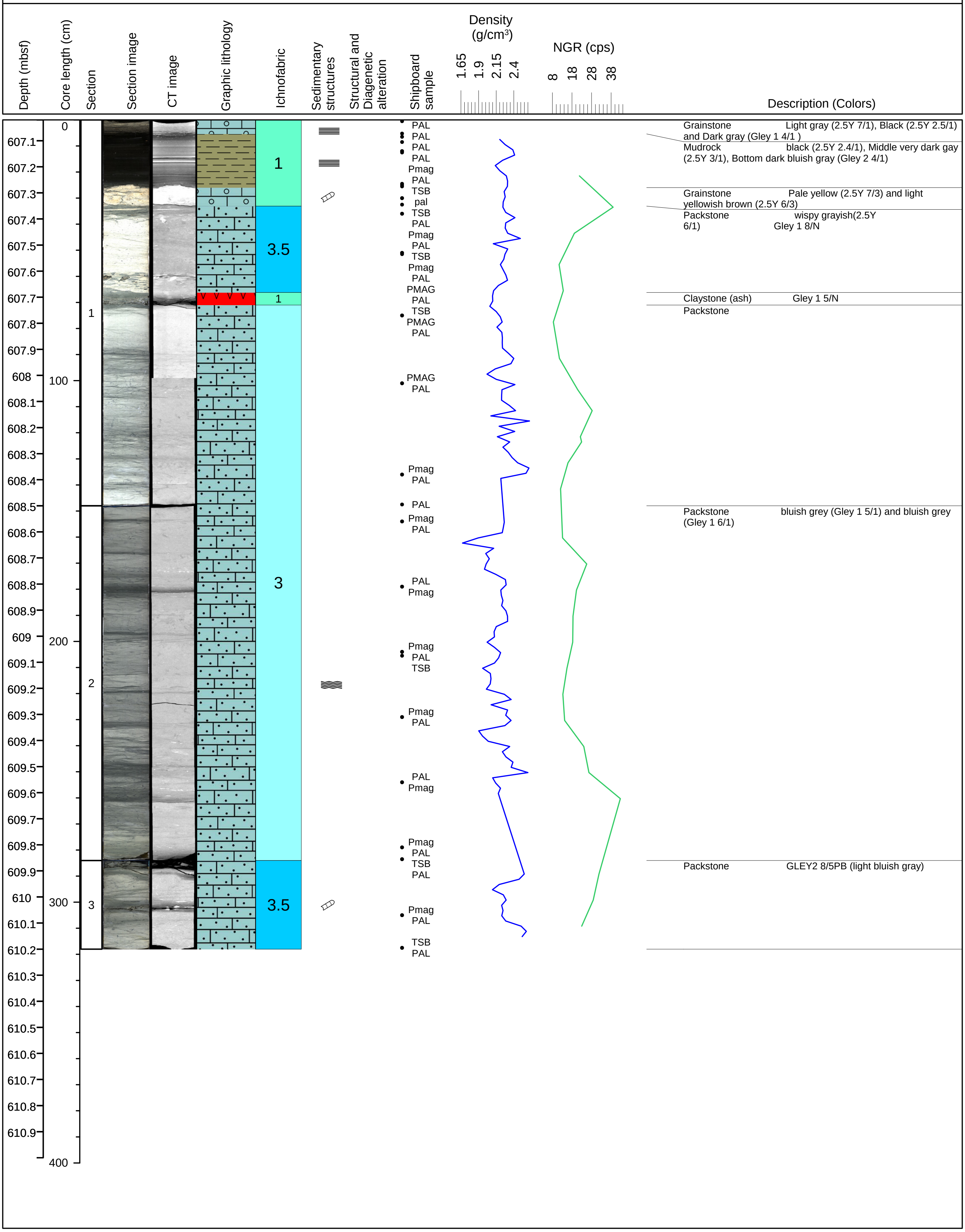
Hole M0077A Core 36R Cored 604.04-607.02 mbsf

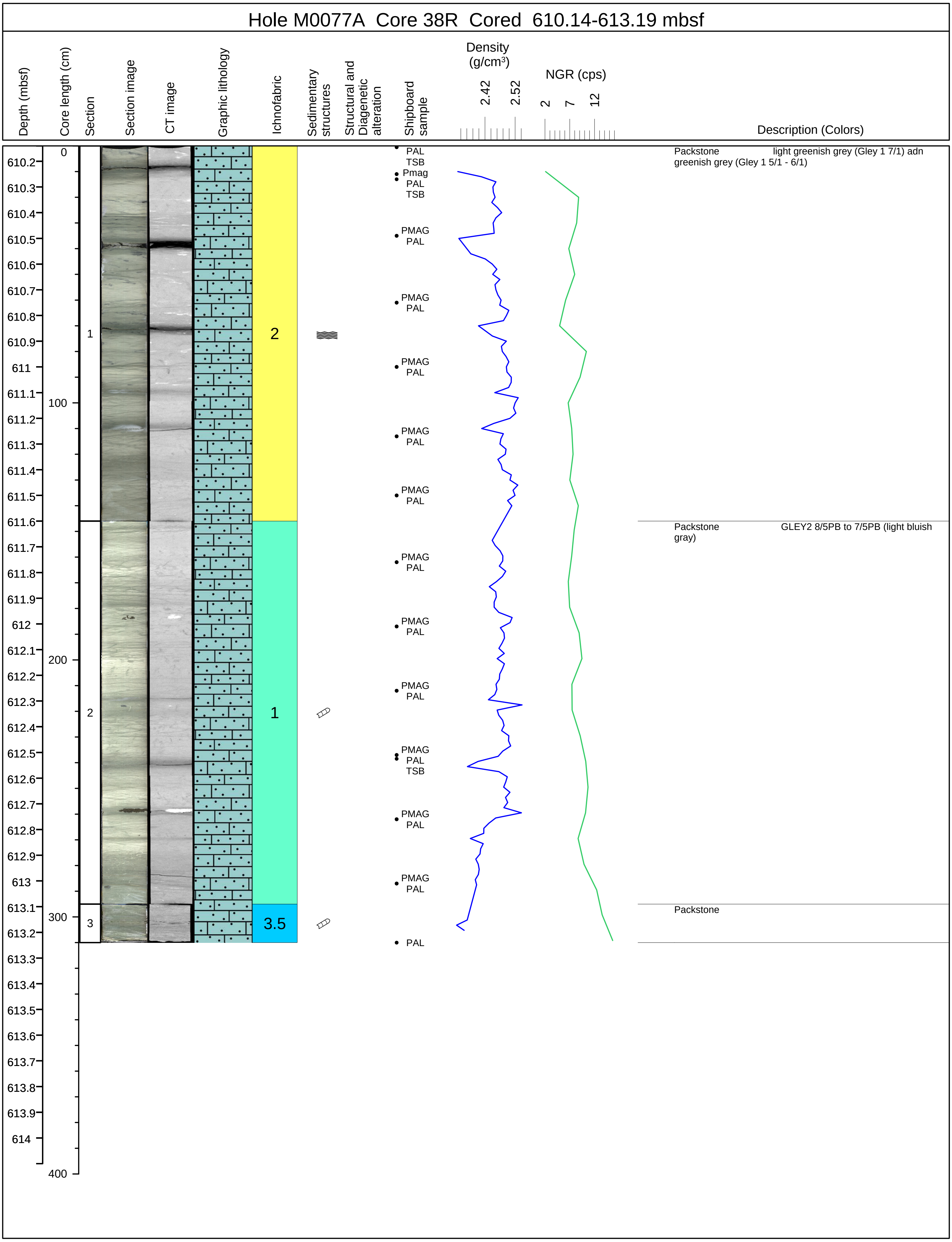


Description (Colors)

Packstone	GLEY2 8/5B (light bluish gray)
Packstone white)	GLEY2 8/5PB (light bluish gray to
Packstone (2.5 Y 8/1)	greenish grey (Gely 2 5/1) and white grey to brown
Chert	GLEY (2.5/5PB bluish black)
Packstone	2.5Y8/1 (white)
Packstone	2.5Y6/3 (light yellowish brown)
Packstone	2.5Y8/1 (white)
Chert	2.5Y 2.5/1 (black)
Packstone	2.5Y 8/1 (white)
Wackestone	GLEY 2 8/5PB (light bluish gray)

Hole M0077A Core 37R Cored 607.02-610.14 mbsf




Hole M0077A Core 38R Cored 610.14-613.19 mbsf
Depth (mbsf)
Core length (cm)
Section
Section image
CT image
Graphic lithology
Ichnofabric
Sedimentary structures
Structural and Diagenetic alteration
Shipboard sample
Density (g/cm³)
2.42
2.52
NGR (cps)
2
7
12
Description (Colors)
610.2
610.3
610.4
610.5
610.6
610.7
610.8
610.9
611
611.1
611.2
611.3
611.4
611.5
611.6
611.7
611.8
611.9
612
612.1
612.2
612.3
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613.1
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613.4
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613.6
613.7
613.8
613.9
614
0
100
200
300
400
1
2
3
2
1
3.5
PAL
TSB
Pmag
PAL
TSB
PMAG
PAL
PMAG
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PAL
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PAL
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PMAG
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TSB
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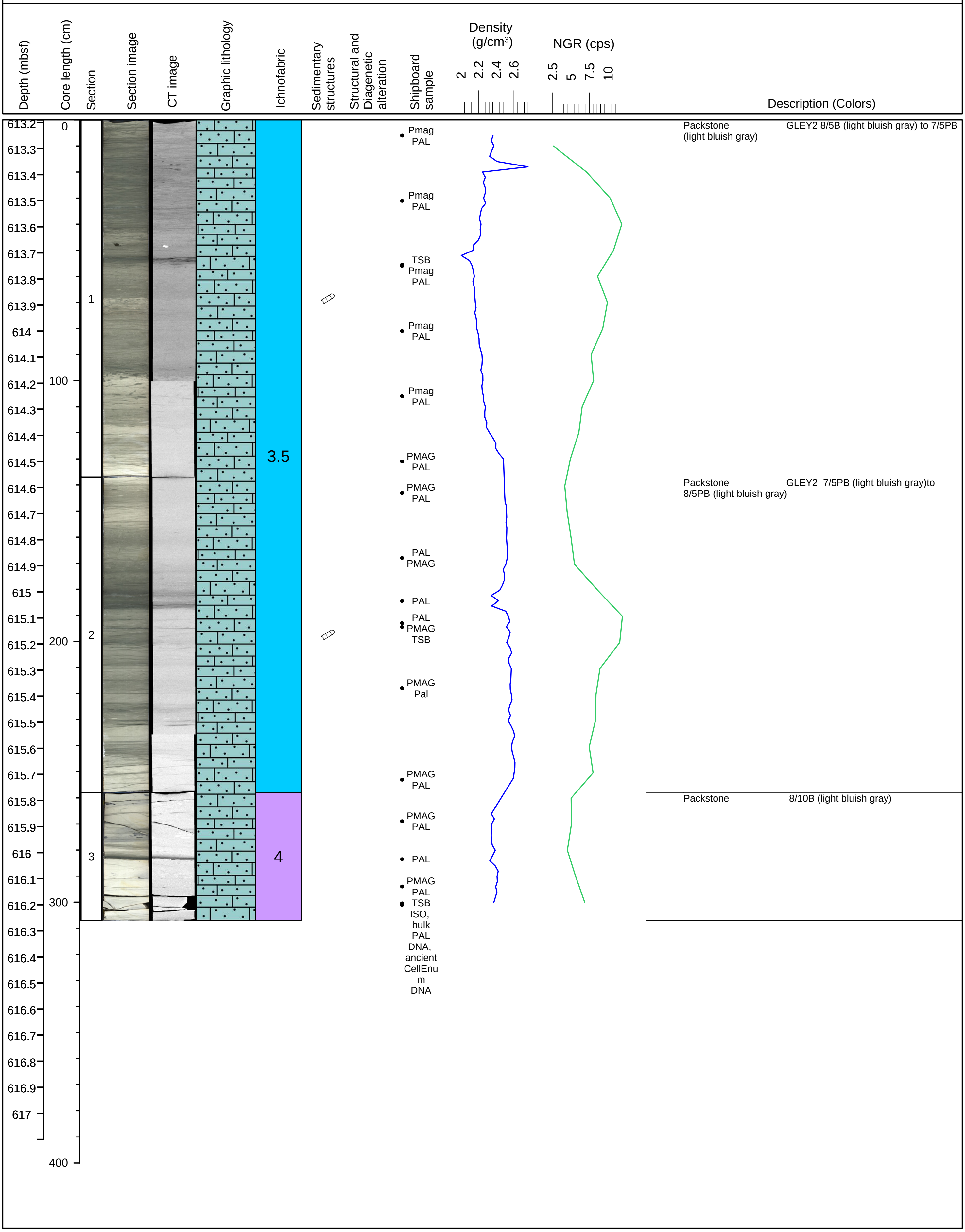
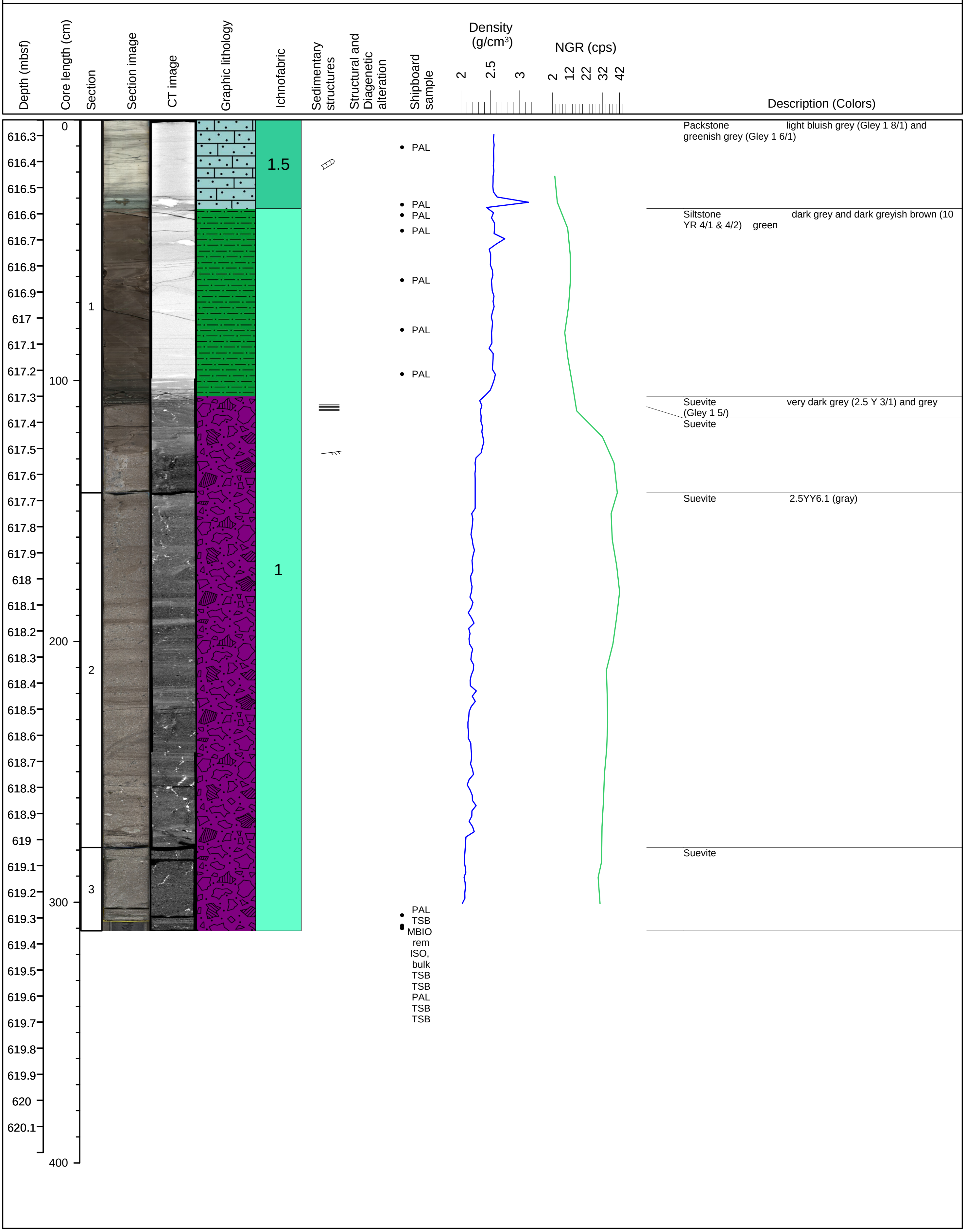
PMAG
PAL
PAL
Packstone light greenish grey (Gley 1 7/1) adn greenish grey (Gley 1 5/1 - 6/1)
Packstone GLEY2 8/5PB to 7/5PB (light bluish gray)
Packstone

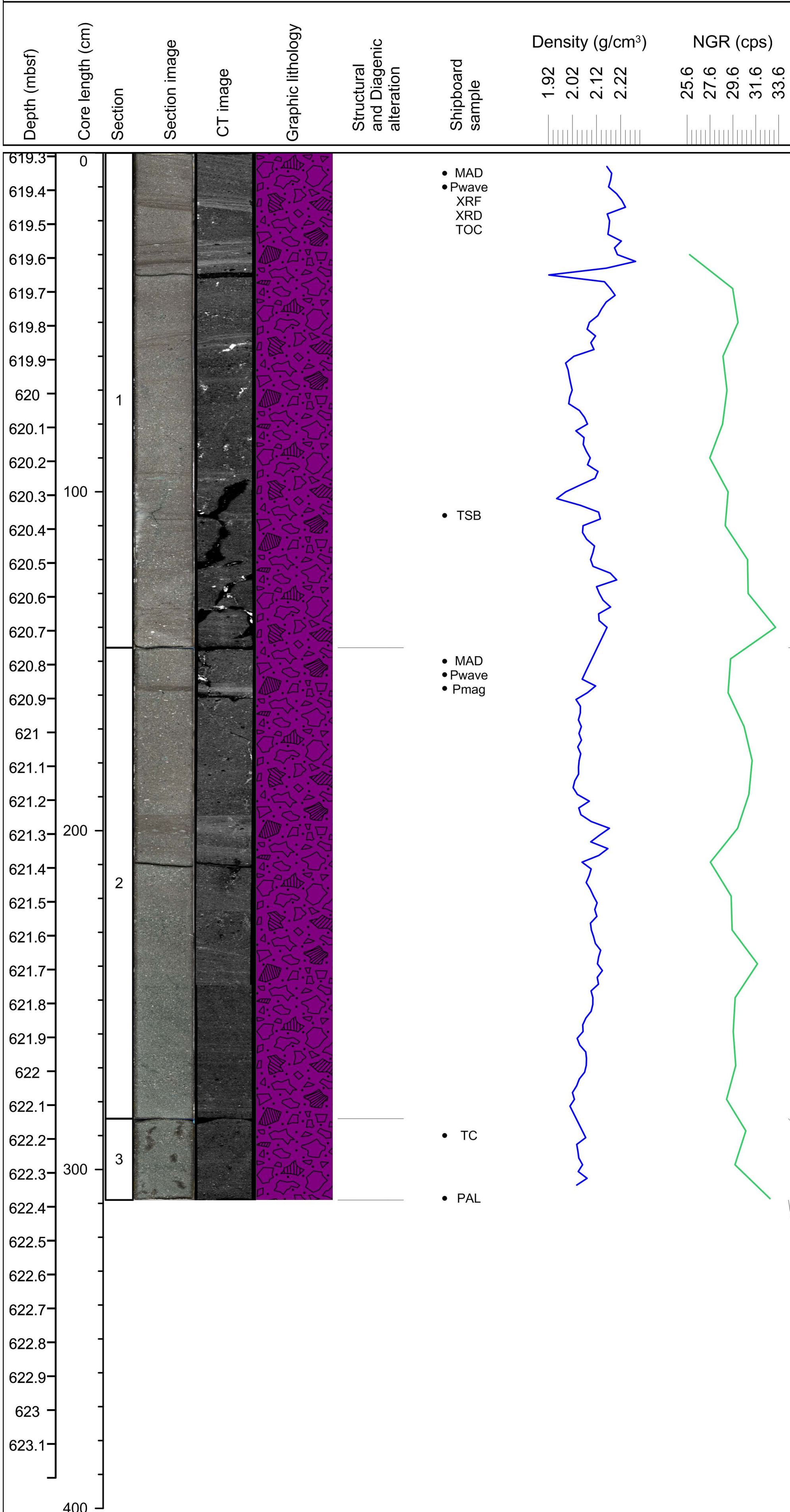
Hole M0077A Core 39R Cored 613.19-616.24 mbsf



Hole M0077A Core 40R Cored 616.24-619.29 mbsf



Hole M0077A Core 41R Cored 619.29-622.34 mbsf



Description

Suevite, Lithic packstone to rudstone with lime mud matrix, carbonate clasts, melt clasts, etc. Clasts generally med. to coarse sand size.Clasts rounded to subrounded.0-17 cm coarsening up with wispy stylolites at base max clast size 5 mm. 17-27 cm similar to above max clast size 3 mm. 27-33 cm similar with 3 sets of wispy stylolites at base where clasts are oriented paralell to bedding. Max clast size 5 mm. 33-56 cm - similar coarsening up but only minor change in grain size. 3 wispy styloites at base. Uppermost with outsized carbonate clast, max size 6 mm.56-96.5 cm, similar lithologically but more poorly graded. 1 cm calcite cemented void at top. Max clast 5 mm. 96.5-103 cm similar coarsening up with 2 wispy stylolites at base. Max clast 3 cm at top.103-118.5 similar coarsening up with stylolite at base. Max clast 7 mm. 118.5-135 similar coarsening up, 2 wispy stylolites at base. Max clast 8 mm. 135-146 cm similar but appears to be top of coarsening up package. Max clast 5 mm. Color Gley 1 6/N but highly variable due to clast content.Vertical pipe between 96.5 and 122 cm.

Clasts population dominated by green (altered) glass shards (flow texture visible inside them) [represent 35 to 40% to the total volume; 80% of the clasts], carbonates (with fossils in some cases; generally subrounded), other types of melts (silica rich), and a few black clasts (generally rounded). + locally pyrite (up to 7 mm).

CT: Dominated by dark gray. Light gray (stylolites), and locally white spots (pyrite). Black & low atomic weight (verticaly oriented disturbance).

Suevite, lithoclastic packstone to rudstone as above. Fine sand to pebble size clasts, rounded to subangular. Matrix supported.

0-13.4 cm - base of coarsening upward package from overlying core.1 cm wispy stylolites at base. 40% clasts. Max clast 5 mm

13.4-53.5 cm - similar lithology but reverse grading poorly developed. More clast rich upward, Max clast 7 mm.Zone of wispy stylolites at bas (49.5-53.5 cm)

53.5-61 cm - similar coarsening upward package with 2 cm wispy stylolites at base. Outsized greenish clasts at base.Max clast 1 cm.

61-78 cm - similar coarsening upward cycle but no stylolite at base.

78-100 cm - similar coarsening upward cycle but no stylolite at base.

100-120 cm - similar coarsening upward package

120-139.4 cm - similar coarsening upward package

82-110 cm - vertical pipe.

Clasts population dominated by green altered glass shards (with flow texture visible and in some cases also vesicles). They represent 35 to 40 % of the total volume (and ~80 % of the total clasts). Other clasts include carbonate (some with fossils), other types of melts (including vesiculated limestone), and rare black clasts (rounded; up to 2 mm); No pyrite visible. Rare clasts larger than the trend, all in stylolites.

CT: Dominated by dark grey, light grey in stylolites, a few white spots (pyrite?); Black and low atomic weight at 14-15 and at 64-67 cm (fluid-gas escape?).

Lithology similar to above. Suevite, lithoclast packstone. Medium sand to pebble size clasts, rounded to subangular. Matrix supported.

0-3 cm - base of coarsening up from overlying core.

3-13 cm - coarsening up package similar to above but all sand size, max clast 2 mm.

13-21 cm - coarsening upward similar to above.

21-23 cm - top of another coarsening up package? Max clast size 2 mm.

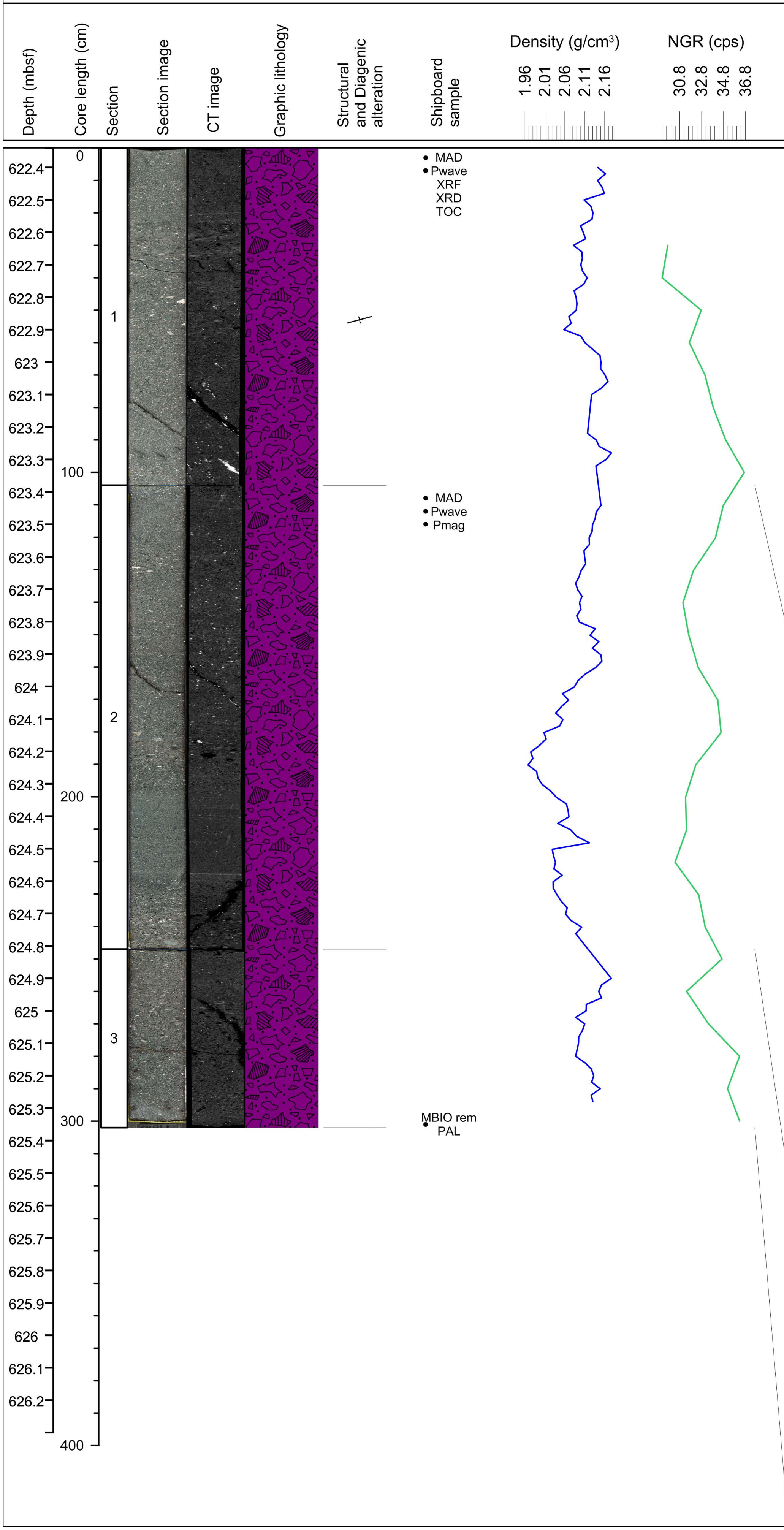
Vertical pipes and patches that are dark gray to black.

Clasts as in previous section (same types, same abundance, same size).

Some areas of the unit (oriented verticaly) seem slightly more porous.

CT: All unit is dark gray.

Hole M0077A Core 42R Cored 622.34-625.39 mbsf



Description

Suevite, lithoclastic packstone to rudstone. Mainly medium to coarse sand size with some pebbles.Most clasts rounded to subrounded but some angular to subangular grains.

0-10 cm, similar coarsening up continuation of cycle from overlying core. No stylolite at base just change in grain size. Max clast size 1 cm.

10-30 cm similar coarsening up but poorly developed planar laminae at 23 cm. Max clast 7 mm. 25.5-30 matrix supported.30-94 cm similar coarsening up but with much coarser clasts - up to 1.5 cm at 47 cm. 94-103.5 top of similar coarsening up cycle but all sand size and rounded to subrounded.Core fractured 78-90 cm and a subvertical pipe around 92 cm.

Clasts population as in previous core section (same abundance and types).

Largest vesiculated limestone clast (11 mm).

Largest silica melt particle (>14 mm).

Largest green glass particle (~15 mm).

A few dark subrounded to rounded clasts (up to 3 mm).

Locally pyrite filling porous clasts.

At 31 cm, clast with red/dark brown mineral filling vesicles in a (melt) clast.

At 26-29 cm; Increase of matrix (lower porosity).

At 30-34 cm; Increase in porosity.

CT: Dominated by dark gray. Black (open fractures). Locally white spots associated with low density (pyrite). Light gray at 30-34 cm.

Suevite - lithoclast packstone to rudstone similar to above. Clasts mainly medium to fine sand and rounded to subrounded. Some pebbles. 0-21 cm, similar coarsening up cycle as above. Max clast size 5 mm. 21-35.5 cm similar coarsening up as above but much coarser grained at top and more matrix, about 30 clasts in top 5 cm. 35.5-52 cm appears to be several coarsening up units but subdivisioun difficult as coarser clasts scattered through mid-upper part of interval. Grading not as well developed. Max clast 5 mm. 40-50% clasts. 52-76 cm similar coarsening up cycle to above. Max clast 6 mm. 76-109 cm coarsening up lithiologically similar to above but sedimentologically different. 76-86.5 cm contains clasts up to 1.5 cm, some subangular most rounded to subrounded and more matrix than above. 86.5-94 cm is medium to coarse sand size. 94-109 cm fine to medium sand size with vertical pipe. 109-10 cm series of 5 cm coarsening upward units. Poorly developed planar lamination. Most grade from fine to medium sand size but uppermost has a max clast size of 3 mm. Base with stylolitic laminae. 120-142.5 cm fining upward cycle. 120-126 cm lithoclast packstone, fine to coarse sand size. 126-132 cm lithoclast packstone with a few grains up to 4 mm. 132-142.5 cm lithoclastic rudstone with max clast size 2 cm.

Clast population is the same as in previous sections and in the same proportions, dominated by green altered glass shards.

21-27; Largest carbonate melt clast is 15 mm; Unshocked limestone (with fossils?) clast is 4 mm; Pyrite filling vesicles in clasts.

75.5-86; Large vesiculated carbonate melt clast (16 mm); Large green altered glass clast with red inclusions filling vesicles (16 mm); Pyrite filling (~15 mm).

131-143; Large grey melt clast with flow texture (10 mm); Large green melt (20 mm).

Veinlet (from 119 to 138 mm) filled with dark grey-green mineralization (upper part unfilled).

CT; See details in CT column on the VCD sheet.

Suevite, lithoclast packstone-rudstone. 0-30 cm grading not obvious. Grains from medium sand size to 1 cm and mostly rounded to subrounded, but some subangular. More matrix rich at 8-11 cm and 15-17 cm. 30-53 cm generally coarsening upward.

Clasts population as in previous core section (same abundance and types), dominated by green glass shards.

Largest green melt clast is 11 mm.

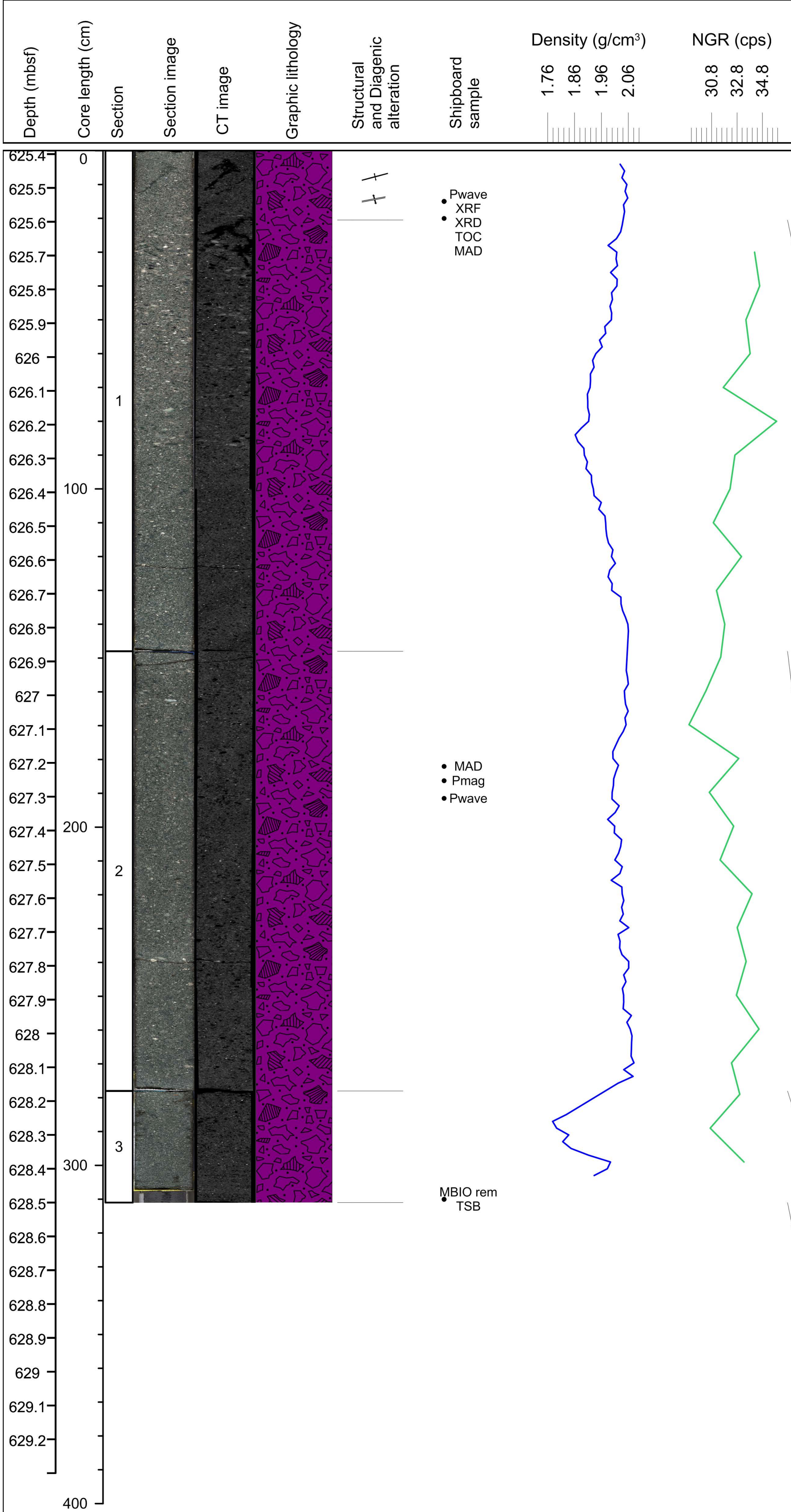
Largest vesiculated carbonate melt is 10 mm.

Largest carbonate (with fossils?) is 3 mm.

Largest grey melt is ~5 mm.

+ a few dark clasts (mainly rounded to sub-rounded, up to 2 mm).

Hole M0077A Core 43R Cored 625.39-628.44 mbsf



Description

Suevite, lithoclastic packstone-rudstone, mainly medium-coarse sand. 0-20.5 cm Fining upward packstone. 20.5-25 cm packstone with mx clast size 5 mm. Mostly med-coarse sand, rounded to subrounded.Subvertical pipe from 13-5 cm.

0-20: Same as in previous section (small clasts <3-4 mm with a few larger clasts); Dominated by green (altered) glass shards (more or less vesiculated) [represent 35 to 40% to the total volume; 80% of the clasts].

Subvert pipe-Zone of increased porosity following a ~45 degrees fracture. Vesicles/pockets in part filled with larger carbonate crystals surround this zone. (cf. PTS 5 and 6).

//Transition based on matrix and size of clasts, 30-40% matrix//

CT: Dominated by dark gray + One zone with B-CT.

Suevite - lihtoclastic packstone-rudstone. Vesicles in upper part. 20.5-38 cm packstone, mostly medium to coarse, rounded to subrounded sand with max clast 5 mm. 25-38 cm rudstone,most medium to coarse sand, max clast 1.3 cm, rounded to subrounded. 38-47 cm -,fining upward. 38-44 cm packstone, medium to coarse sand size, rounded to subrounded grains but a few subangular. 44-74 cm - fining upward rudstone, rounded to subangular mainly medium to coarse sand with max clast 1.3 cm.74-147.5 cm generally coarsening upward. 74-88 cm rudstone, mostly medium to coarse sand, max clast 2 cm. 88-147.5 packstone with a few outsized clasts max clast 7 mm. Coarse tail grading.

//Transition based on matrix and size of clasts, 30-40% matrix//

20-73: Much larger clasts and more matrix.

Large dark grey melt (vesiculated) [14 mm]

Large green glass shards

Large carbonate melt

Large carbonate (with fossils?) [10 mm]

Zone of increased porosity / associated B-CT and vesicles/pockets partly or fully filled with carbonates (large crystals) along elongated polymict (almost black) melt (?) with vesicles (filled) and different clasts [28,5 to 31 cm].

//Matrix change, <50%//

73-148: Same clast population as in previous sections. A few large melt clasts (up to 20 mm); randomly distributed empty vesicles (up to 3 mm in size).

CT: Dominated by dark gray (more light in the lower part of the core) + One zone with B-CT and a few ~elongated light grey/W clasts (specific melt clasts?).

Suevite, lithoclast packstone-rudstone. Similar to above lithologically but no real organization. 50 % clasts. Mostly med-coarse sand but pebble size clasts scattered throughout. Max clast 1.5 cm. Most clasts rounded to subrounded but about 3-5% pebble size.

Similar to previous section in abundance and clast types. Dominated by green glass shards (some nicely vesiculated). Largest clasts up to 15 mm (green glass and vesiculated carbonate clast).

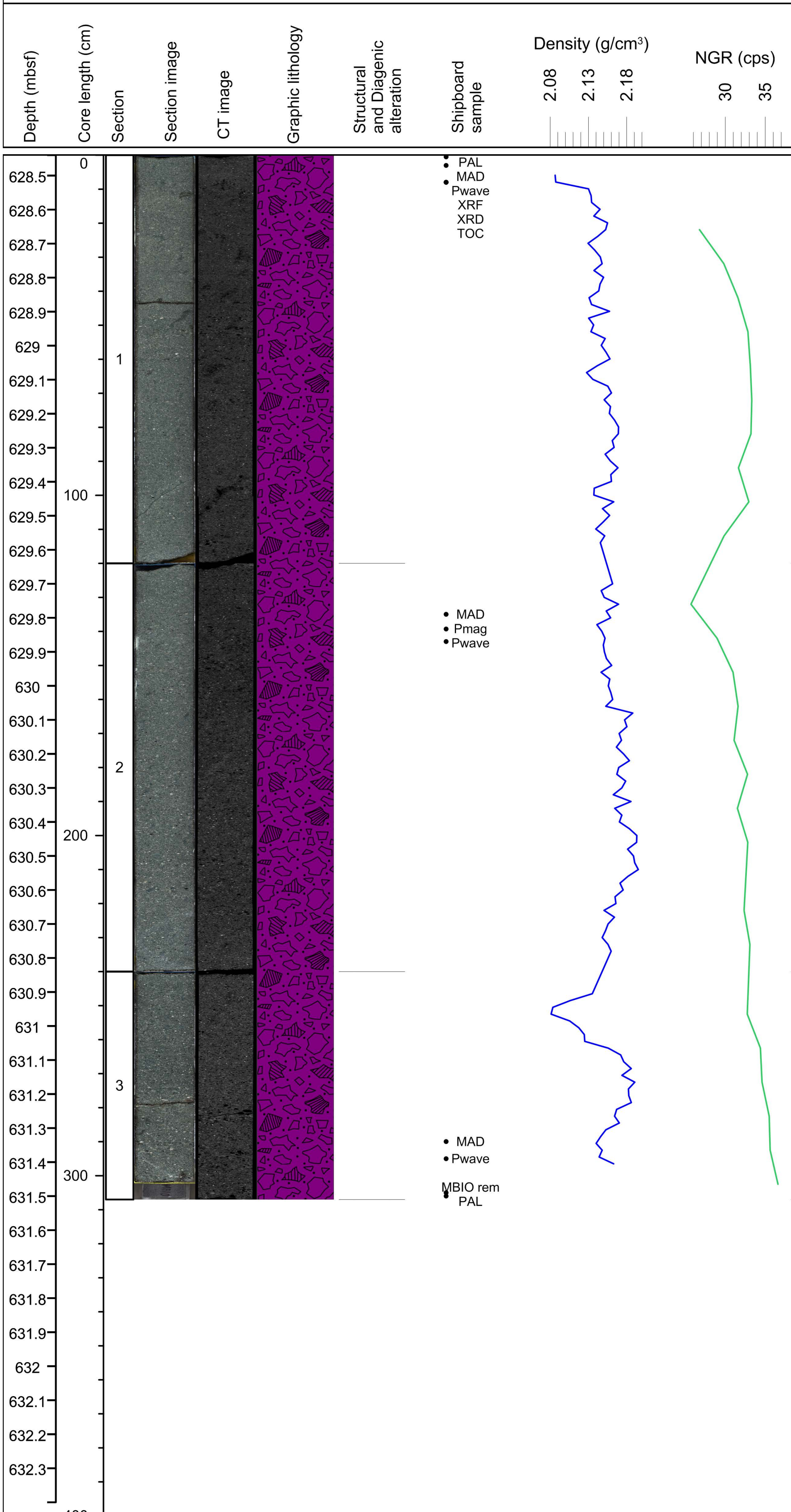
CT: Dominated by dark gray with highly spread B-CT clasts

Suevite, lithoclastic packstone-rudstone. Generally coarsening up. Med-coarse sand size at base. Coarse sand to fine pebble size at top. Max clast 4 mm. Mostly rounded to subrounded but some subangular clasts.

Same as in previous section in abundance and clast types. Dominated by green glass shards (some nicely vesiculated). No large clasts.

CT: Dominated by dark gray with some clasts showing B-CT and much smaller ones with W-CT.

Hole M0077A Core 44R Cored 628.44-631.49 mbsf



Description

sedimentology

ell sorted matrix suported suevite, color GLEY2 5/5PB (bluish gray) no sedimentary structures are observed, no laminations from 0 to 48 clast size average is less than 2 mm, some large clast is 5mm in maximum. 48-53cm coarse grains are observed but are less than 7mm, 60-end of core; grain size are less than 3-5 mm but well sorted.

CT; dark gray, density (blue-green), atomic number (yellow-orange)

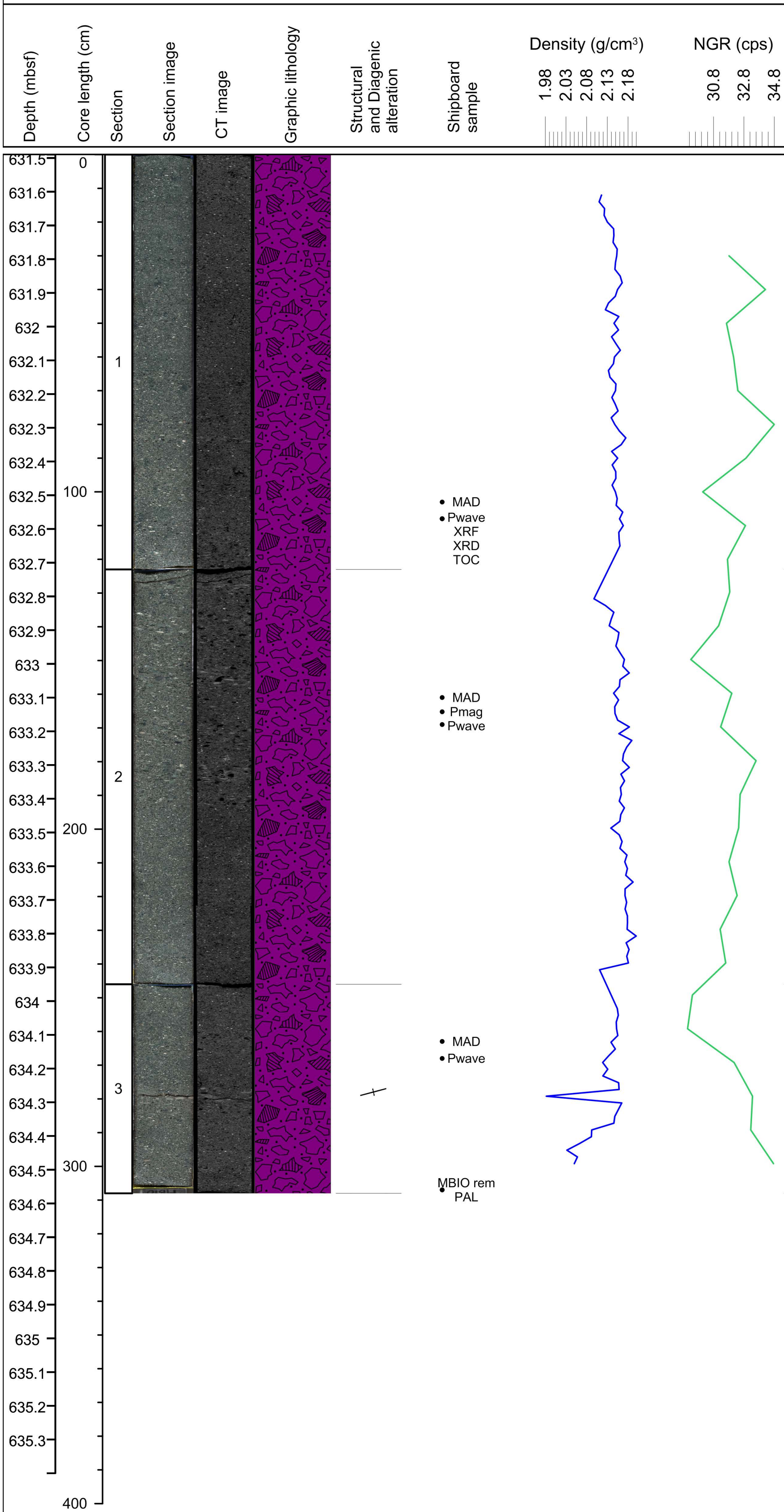
veins are observed at 95-106cm and 111 to 113cm. greenish vertical pipe is observed at 45-50cm.

Solid to vesicular green clast; some vesicles filled with carbonate; melt have elongate shapes. 10-30% of clast are carbonate. There are rare dark brown / black clasts. at 41-52 cm there is a 5cm long stracture that is dark in CT. Ther is a grey vesicular clast appr. 1 cm in size at 60 cm. The vein is green silacte.

Poorly sorted matrix-supported breccia. The grain size does note change significantly; the largest clast is 1.5 cm at 85-86 cm and is green-colored. Avereage grain size is 3 to 5 mm, but variable. The green melt fragments are round to irregular in shape, with solid to vesicular interiors. Some green melt particles enlcose bright orange-red mineral. Brown-green and vesicular gray clasts also occur in matrix. One gray clast occurs at 53.5 cm. A large green melt clast occurs at 85.5 cm. Some green melt particles have bleached (white-colored) margins. The CT color is dark, with a blue-green density, and yellow-orange atomic number.

Matrix-supported breccia; matrix is micritic carbonate. Average sie of grains is about 5 mm. Well sorted and generally structureless, but there is a <1 cm thick laminated unit at 25 cm. Grain size is gradually changing several times. Color is GLEY2 5/5PB (bluish gray). There is a 1.5 cm light-green clast at 18 cm. There is a population of 1 cm white clasts between 35 and 40 cm and they are dominated by light gray grains. The green melt fragments are solid to vesicular; some of those vesicles are filled with carbonate. There are also dark brown/black clasts and potentially basement clasts. The matrix also contains rare vesicles. CT is dark gray color; density is blue-greeen; and atomic number is yellow-orange.

Hole M0077A Core 45R Cored 631.49-634.54 mbsf



Description

sedimentology

poorly sorted suevite, matrix is micrite, no sedimentary structures are observed without minor change of grain size

grain size is mostly 5mm in average, thin layers with 2mm size grains in maximum are observed at 21-23cm, 27-30cm, 35-38cm, respectively (difference is not obvious)

grain size coarsening downward from around 64cm. maximum size in this part is 1cm.

Irregular to subrounded green melt clasts with solid to vesicular interiors; some vesicles are filled with carbonate. Also present are micritic carbonate clasts, gray vesicular clasts, brown-green clasts, and rare dark brown/black clasts. There are local cm-thick zones with a smaller proportion of matrix (e.g., at 22-23 cm). Clasts also have altered margins.

CT; dark gray, density (blue-green), atomic number (yellow-orange)

color; GLEY25/5PB (bluish gray)

sedimentology; no structures

0-71 cm part; very poorly sorted, matrix supported suevite, largest grain; 1.5cm (33cm part and is dark grey in color)

minor grain size change is observed; coarse grains (cm in size) concentrated at 16-23cm, 29-34cm, 44-52cm, 57-63cm (large grains usually light green in color)

below 71cm; relatively well sorted, matrix-supported suevite, maximum size is about 5mm, dark grey grains dominated

At the top portion of this section, the clasts are similar to those in 45-1, but larger in size (i.e., from 0 to about 70 cm); below that the section looks similar to 45-1.

OLOR; GLEY2 5/5PB (bluish grey)

CT; dark grey, density (blue-green), atomic number (yellow to orange), some grains show balck in CT

sedimentology

relatively well sorted, matrix supported suevite

overall grains are 5mm or smaller, coarse grains up to 8mm concentrated at 17-20cm, large grains up to 8mm concentrated ay 17-20cm

large green fragment (2cm) observed at 31-34 cm part.

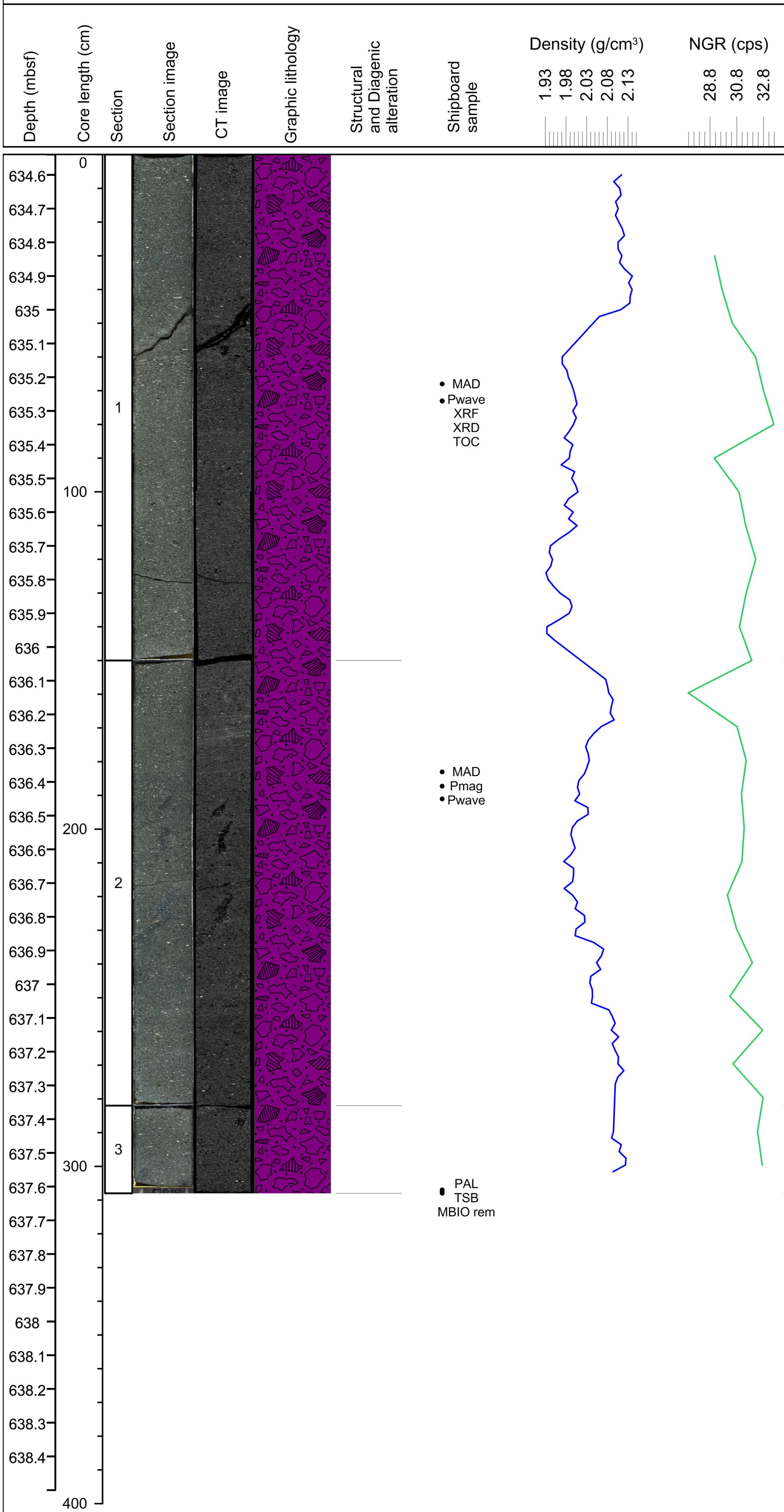
The clast variety is similar to that in 45-1 and 45-2. The matrix is compact and does not contain vesicles. There may be two components in the matrix. At 24 cm, a strong of large cm-size clasts are bifurcated by a fracture that may also be bounded by alteration.

color; GLEY2 5/5PB (bluish grey)

dark green clasts dominated , large grains usually light green

CT; dark gray dominated (some melts are light grey)

Hole M0077A Core 46R Cored 634.54-637.59 mbsf



Description

relatively well sorted suevite matrix supported

grain size; averagely 5mm throughout the section but a bit finer at 0-45cm part

large grains around 1-1.5 cm mostly light green clast concentrated at 42-62cm

dark green clast are dominant

COLOR; GLEY2 5/5PB

no structure observed

CT; dark gray

Compact matrix without vesicles 61 cm silicate melt clast, presence of a vein borded by large clasts of silicate and number of melt clasts containing vesicles

49-51 cm grey vein

61-62 cm large gree clasts

sedimentology

well sorted matrix supported suevite, grain size is averagely 5mm

grain size is smaller to 2mm at 17-18cm, 19-24cm, 31-33cm

largest clast is 7mm in this section so much finer than the upper several cores

dark green clasts dominated but white clasts are also many

Green clasts are irregular to subrounded; they have solid to vesicular interiors. Rounded micritic carbonate, polygonal (sedimentary) dark gray, dark brown/black, and possible chert clasts are also present. The matrix proportion is decreasing; some areas are nearly a grain-supported matrix. A large pope is more porous than adjacent rock. Many clasts are being replaced by white to yellow-brown minerasl.

Color; GLEY2 5/5PB (bluish grey)

CT; dark gray (finer part at the top; light grey (laminated?), pipes show black, density (blue-green) but pipe is blue, atomic number (yellow-orange)

dark green pipes are observed at 40-44, 49-57 and 67-84cm

sedimentology

relatively well sorted matrix supported suevite

maximum clast; 8mm (light grey clast), well rounded white clast (6mm) also observed

grain size is variable up to 3 mm.

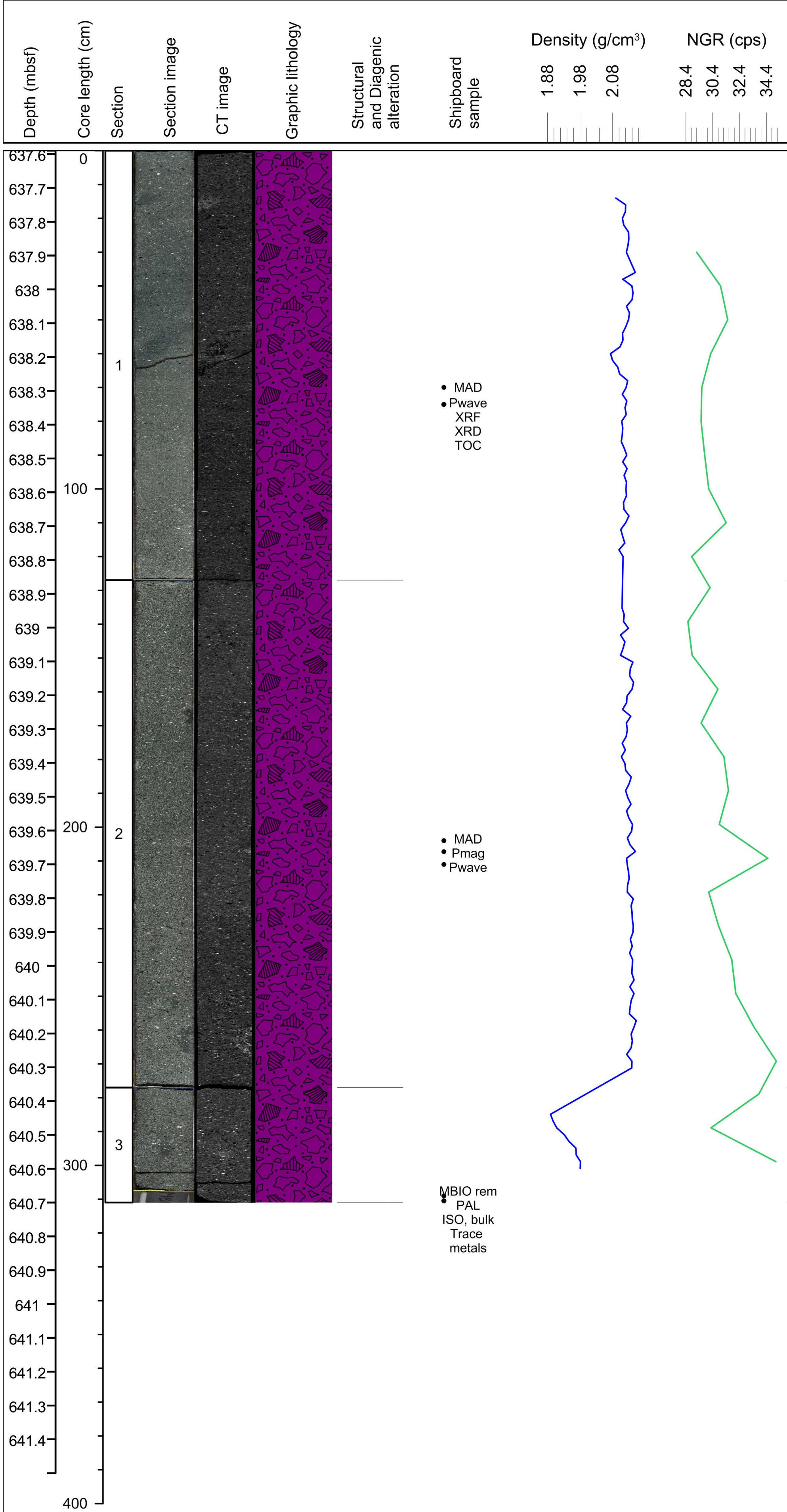
The clasts and textural relationshop of suevitic components are the same as those in 46-2.

color; GLEY2 5/5PB

no sedimentary structures

CT; dark grey (black spot at the right-top corner, low density)

Hole M0077A Core 47R Cored 637.59-640.64 mbsf



Description

well sorted, matrix supported suevite, largestclast; 5mm at 7cm in depth (light green clast), averagely grains ar esmaller than 3mm

low concentration of large clast at 34-36cm, 38-41cm, 42-44cm, 46.5-47cm, 68-99cm

99cm to end of core; dark green clasts dominated and grains are abandant

Irregular to subrounded, green melt clasts; solid to vesicular interior vesicles sometimes filled with carbonate. There are also pale green vesicular melt particles and grey vesicular particles. Some green clasts have margins. Other clasts have a bright orange mineral. There are dark brown to black clasts and K-feldspar clasts (granite?) and micritic carbonate clasts. Dark green pipe is a low-density zone.

COLOR; GLEY2 5/5PB

no sedimentary structures

pipes observed at 12-16cm and 50-64cm

CT; dark grey (pipes show low density)

relatively well sorted, matrix supported suevite, maximum size; 1.3cm, but grain size at most part is finer than 5mm.

minor grain size variation is observed

COLOR; GLEY2 5/5PB

dark green clast concentrated in some parts

large clasts content increased downward from around 80cm to end of core

dark green pipes at 124-126cm, 132-140cm

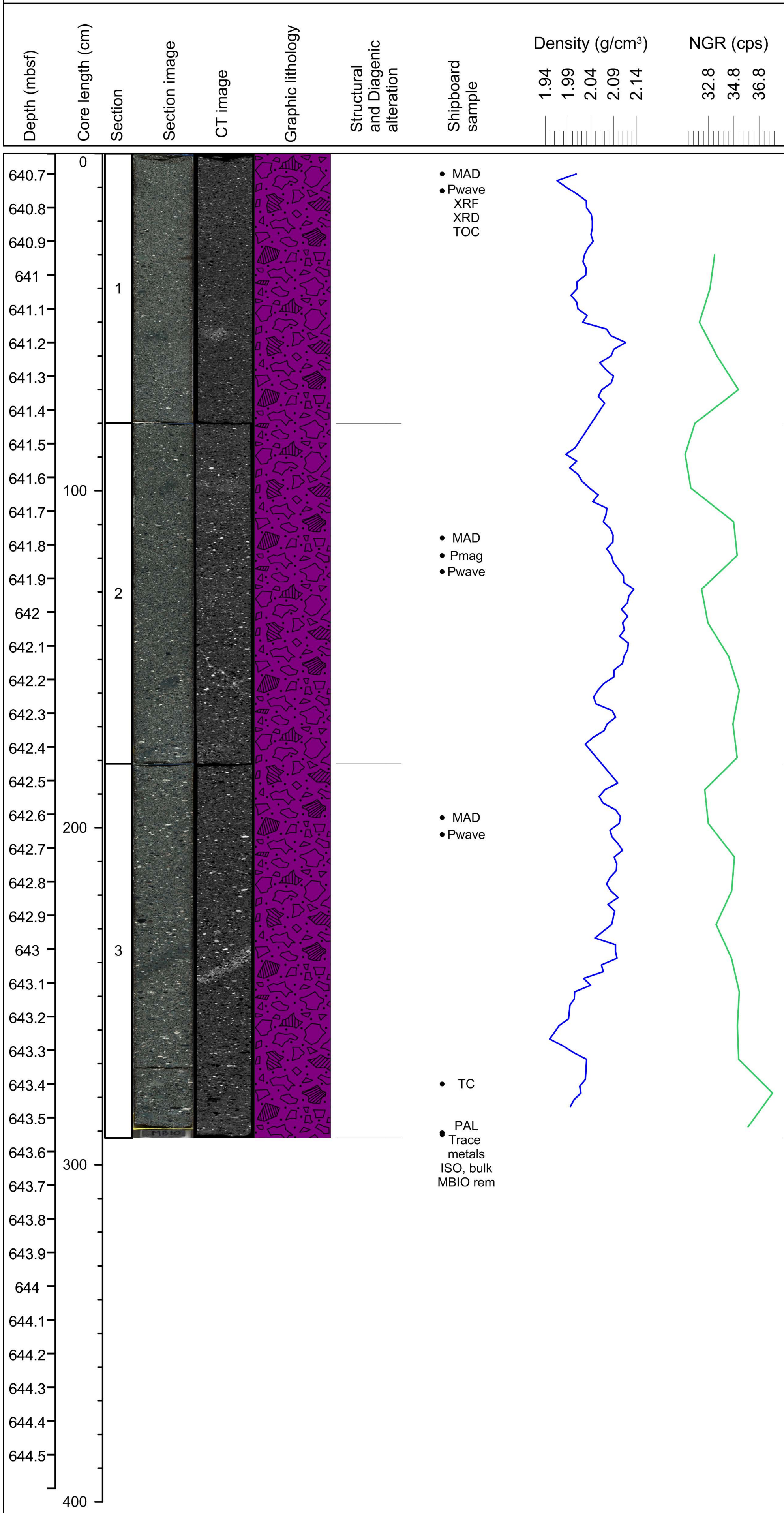
Same clasts as above,but variaton in their concentration, proportion of matrix varies accordingly. 0-110 cm very high density of melt-clasts confers more green color,in particular increase of mm size green melt shards, within the matrix, at 38-43 cm and at 123-140 cm presence of apparently more weathered zone. From 110-150, back in higher matrix fraction as described above.

CT; dark grey (pipes show light color, low density)

Relatively well sorted 7 mm clasts (white) is the largest found, in this section where clast size increases, most grains are less than 3 mm nnevertheless, mostly matrix supported except locally where clasts supported. suevitic components similar to that in 47-2

dark grey CT

Hole M0077A Core 48R Cored 640.64-643.69 mbsf



Description

Well sorted, matrix-supported suevite (but grain content increasing). Major components are about 5mm large grains, but 1,5 cm long clasts are observed at about 30-32cm. Major clast size becomes larger than 7mm to the bottom of the core.

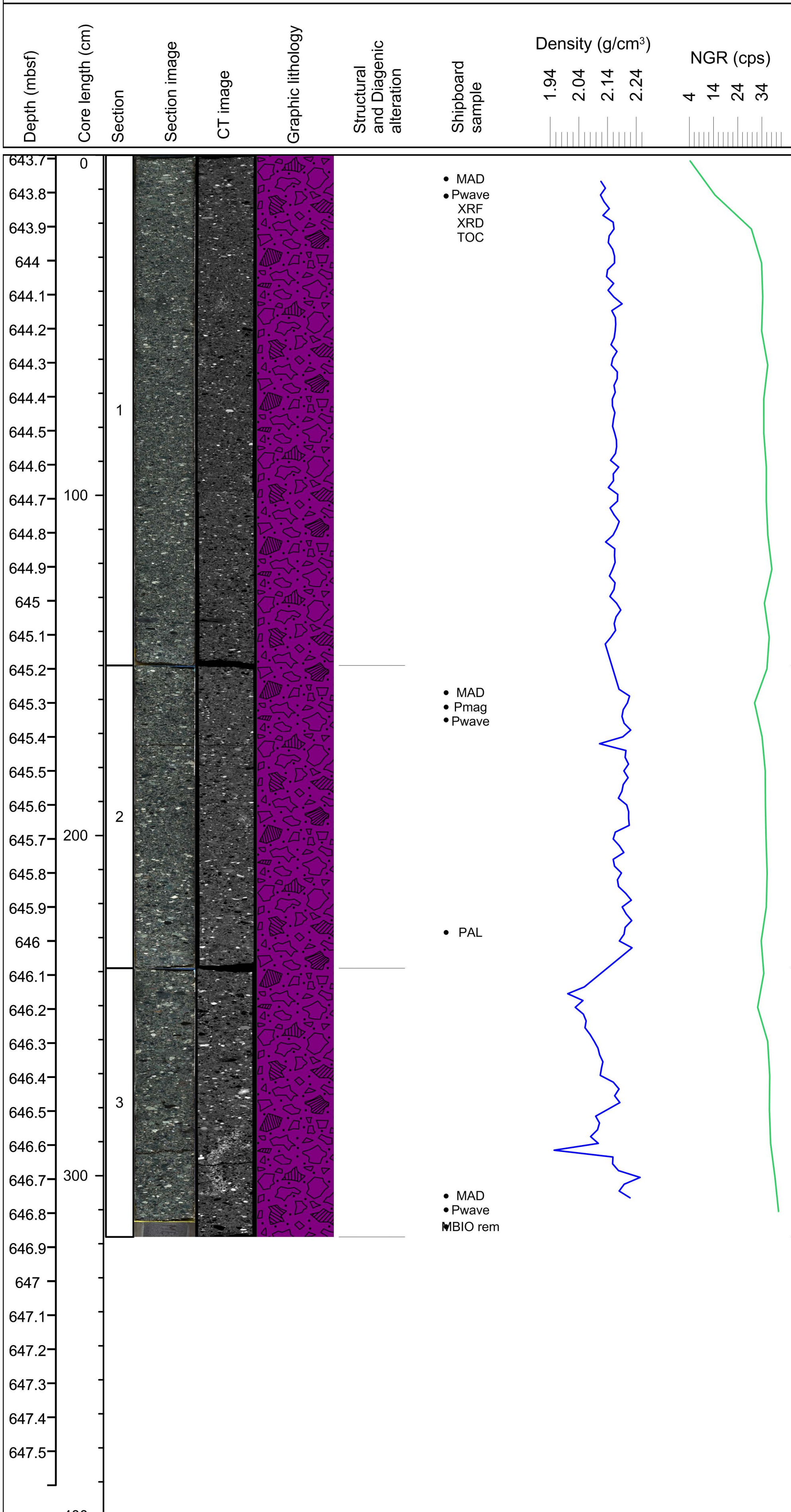
regular to subrounded melt clasts with solid to vesicular interiors; some of these vesicles are filled with carbonate. Other clasts are dark gray with vesicles, dark brown to black, micritic carbonate. Some vesicles in greeen melt fragments are filled with a bright orange mineral.

Well-sorted suevite, still matrix supported; clast content increases; major grain size is less than 5mm. Maximal clast size is 7mm and grains are well-rounded.

Irregular to subrounded melt clasts with solid to vesicular interiors; some of these vesicles are filled with carbonate. Other clasts are dark gray with vesicles, dark brown to black, micritic carbonate. Some vesicles in greeen melt fragments are filled with a bright orange mineral.

Well-sorted matrix-supported suevite. In the region of 0 to 50 cm, the largest clast is 1.3 cm and dark gray. From 50 cm to the end of the section, the largest clast is 2.5 cm and light green. The average grain size is coarser from 5 to 8 mm. Color is GLEY 2 5/5PB. In this coarser section, it is becoming more obvious that the micritic carbonate clasts are preferentially rounded, while other sedimentary clasts are polyganol or angular. The melt clasts continue to be irregular to subrounded. Some clasts appear bluer than the green clasts higher in the borehole. There is a dark green pip from 53 to 66 cm. The pipe is white in CT in a dark gray core.

Hole M0077A Core 49R Cored 643.69-646.71 mbsf



Description

Poorly sorted matrix, clast supported suevite (increase of clasts content, again). Largest size, 0-50 cm 2 cm green, 50-100 cm 1.5 cm (dark grey), 100 - 150 3.5 cm (dark reddish grey) most of grains are less than 1 cm, some grains appear more rounded. Composition of clasts remains the same, melt-greenish color, carbonates, sedimentary and basement target. Alteration seems more visible.

Color GLEY 2 5/5 PB, veins and alteration at 42, and 45 cm

CT dark grey but some grains are white

Poorly sorted matrix, clast supported suevite(increase of clasts content, again as above, most grains are 5 mm to 1 cm in size, largest 2,5 cm at 84 cm, angular and rounded grains are present

zone of larger clasts at 60 to 70 cm, presence of orange alteration

Same as 49R1, no veins or alteration visible,

Color GLEY 2 5/5 PB, veins and alteration at 42, and 45 cm

CT dark grey

very poorly sorted, matrix supported suevite

maximum clast is 2.5 cm at 8cm in depth (dark grey)

clast sizes are large and well rounded and mostly larger than 1cm

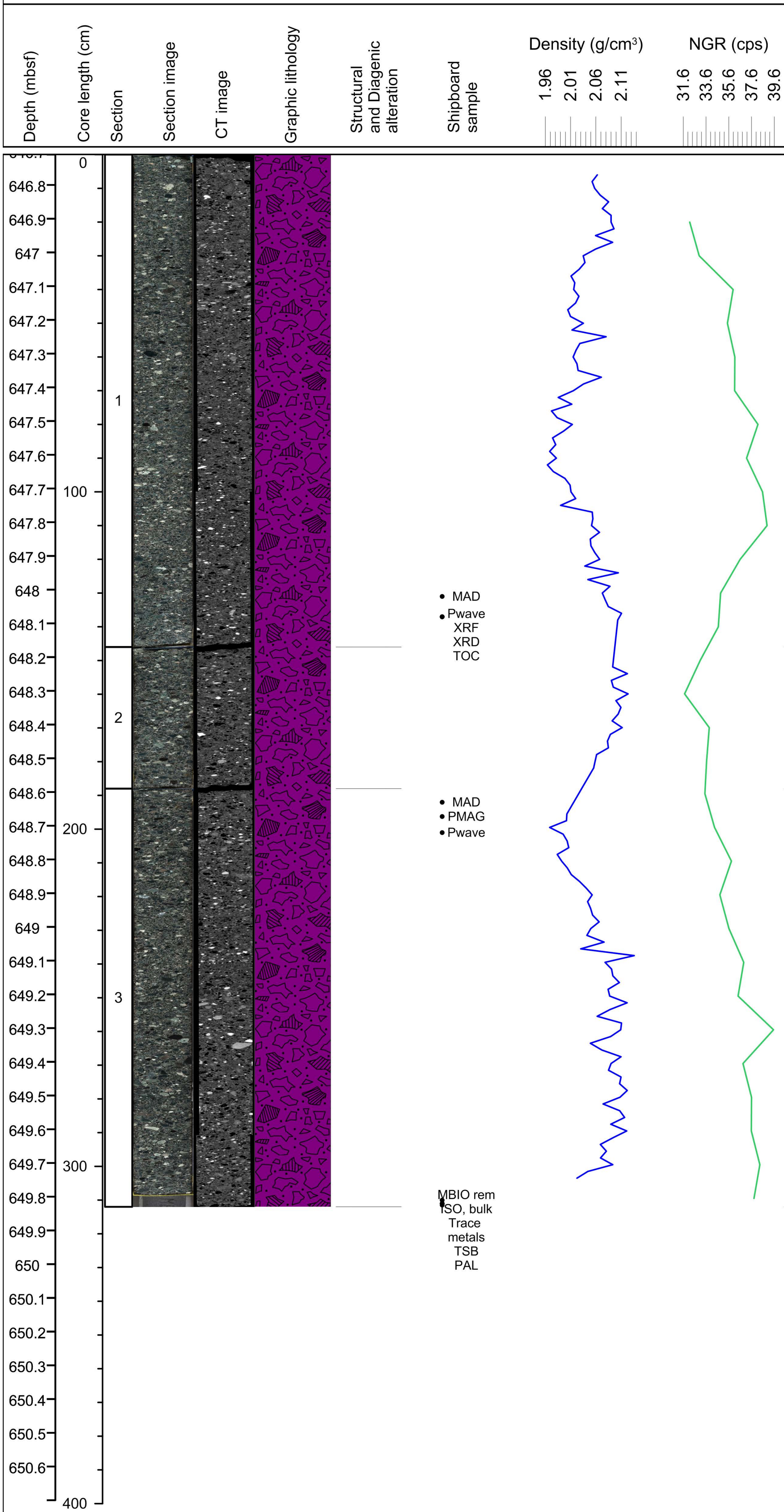
Granitic clasts and mafic clasts; zoned coated clast that may capture hydrothermal alteration (at33-35cm). Otherwise section is similar to 49-2.

color; GLEY2 6/5PB)

48-67ccm dark green pipe is observed (not obvious in visual description but is clear in CT)

CT; dark grey (some grains show white and high density, high atomic number)

Hole M0077A Core 50R Cored 646.71-649.82 mbsf



Description

very poorly sorted, matrix supported suevite

grains are well rounded and the maximum size is 2.2cm.

most grains are larger than 5mm (large grains over 1cm are also abandant)

Clast size ranges from mm to about 3cm in diameter. Ther are orange clasts (altered) at 95 cm and 122cm. Melt clasts are angulat to subrounded, vesiculated, altered and zoned. Polymict melt clast consisting of carbonate and silikate melt are present and rather large. Matrix is micritik.

COLOR; GLEY2 5/5PB

CT; dark grey (density is variable depending on the grains)

very poorly sorted, matrix supported suevite, maximum clast size is 1.7cm

most grains are larger than 7mm and grains are well rounded

Clast size ranges from mm to about 3cm in diameter. Ther are orange clasts (altered) at 95 cm and 122cm. Melt clasts are angulat to subrounded, vesiculated, altered and zoned. Polymict melt clast consisting of carbonate and silikate melt are present and rather large. Matrix is micritik.

COLOR; GLEY2 6/5PB

CT; dark grey (black and white grains are also observable)

very poorly sorted matrix supported suevite, well rounded

maximum size is 2cm most grains are larger than 1cm

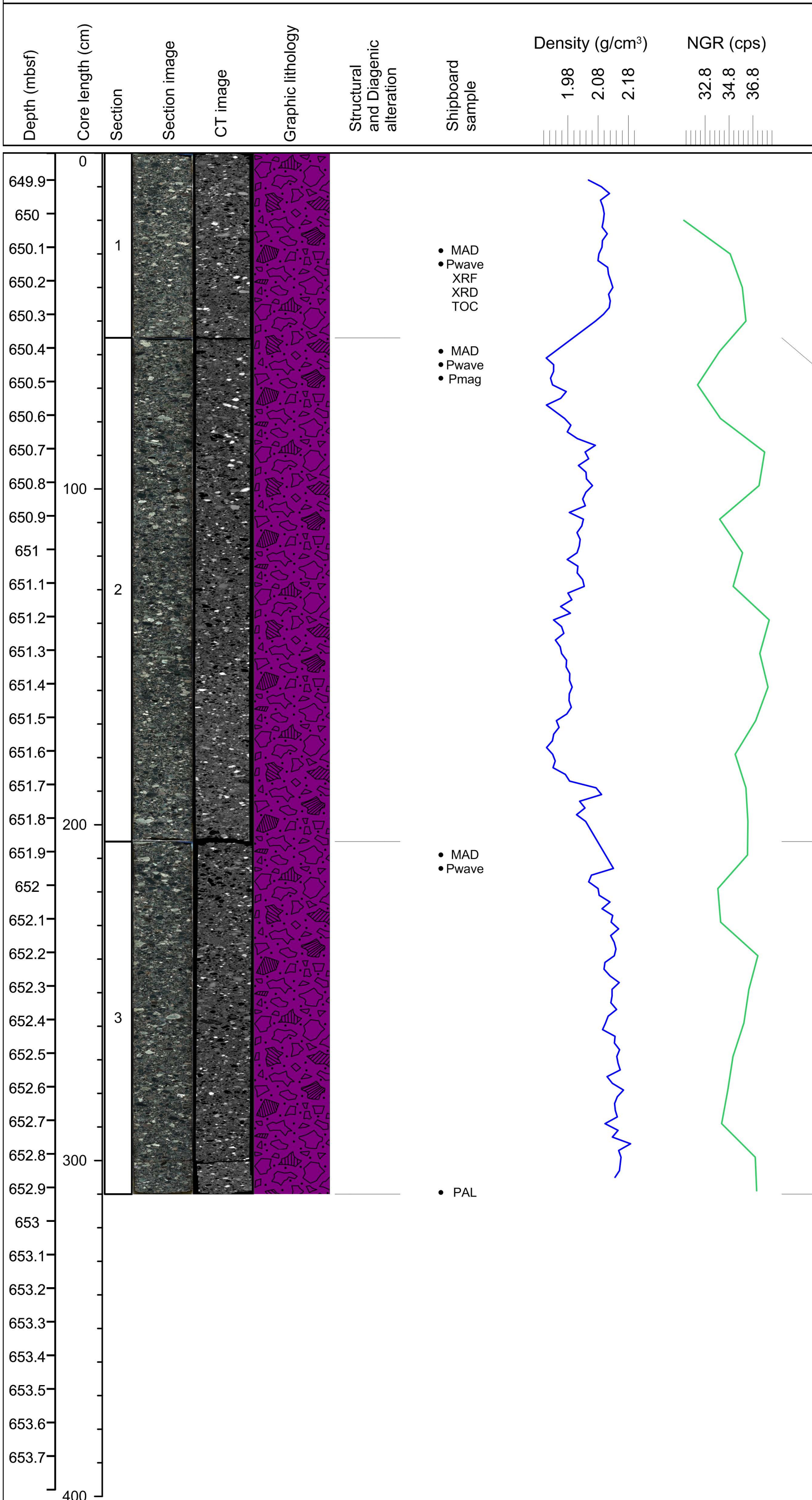
dark greenish grains are dominated

CT; dark grey

COLOR; GLEY 6/5PB

Clast size ranges from mm to about 3cm in diameter. Ther are orange clasts (altered) at83cm and 112cm. Melt clasts are angulat to subrounded, vesiculated, altered and zoned. Polymict melt clast consisting of carbonate and silikate melt are present and rather large. Matrix is micritik.

Hole M0077A Core 51R Cored 649.82-652.84 mbsf



Description

very poorly sorted, matrix supported suevite locally but also zone clearly clasts supported

grains are well rounded, maximum size is 2cm, most grains are larger than 1cm

Clasts size continues to increase slowly with depth, more clasts are over 2 cm, granite clasts are more commonly recognized.

color; GLEY2 6/5PB

CT; dark grey

very poorly sorted clast supported suevite (but partly still matrix-supported)

maximum size; 2.5cm (light green)

grains are well rounded and is mixture of various size of grains

grains larger than 1.5cm increased

The suevitic content is dominated by angular to subrounded green melt fragments with solid to vesicular interiors. As the particles increase in diameter, it becomes more apparent that lithologic clasts are entrained with the melt fragments. Vesicles in the melt fragments are filled with carbonate and possibly a variety of silicates. Clasts are sometimes coated with melt or fine-grained accretionary shells. There are micricit carbonate clasts, angular dark brown/black clasts, and gray vesicular clasts. Many clasets have bleached (white) margins.

COLOR; GREY2 6/5PB

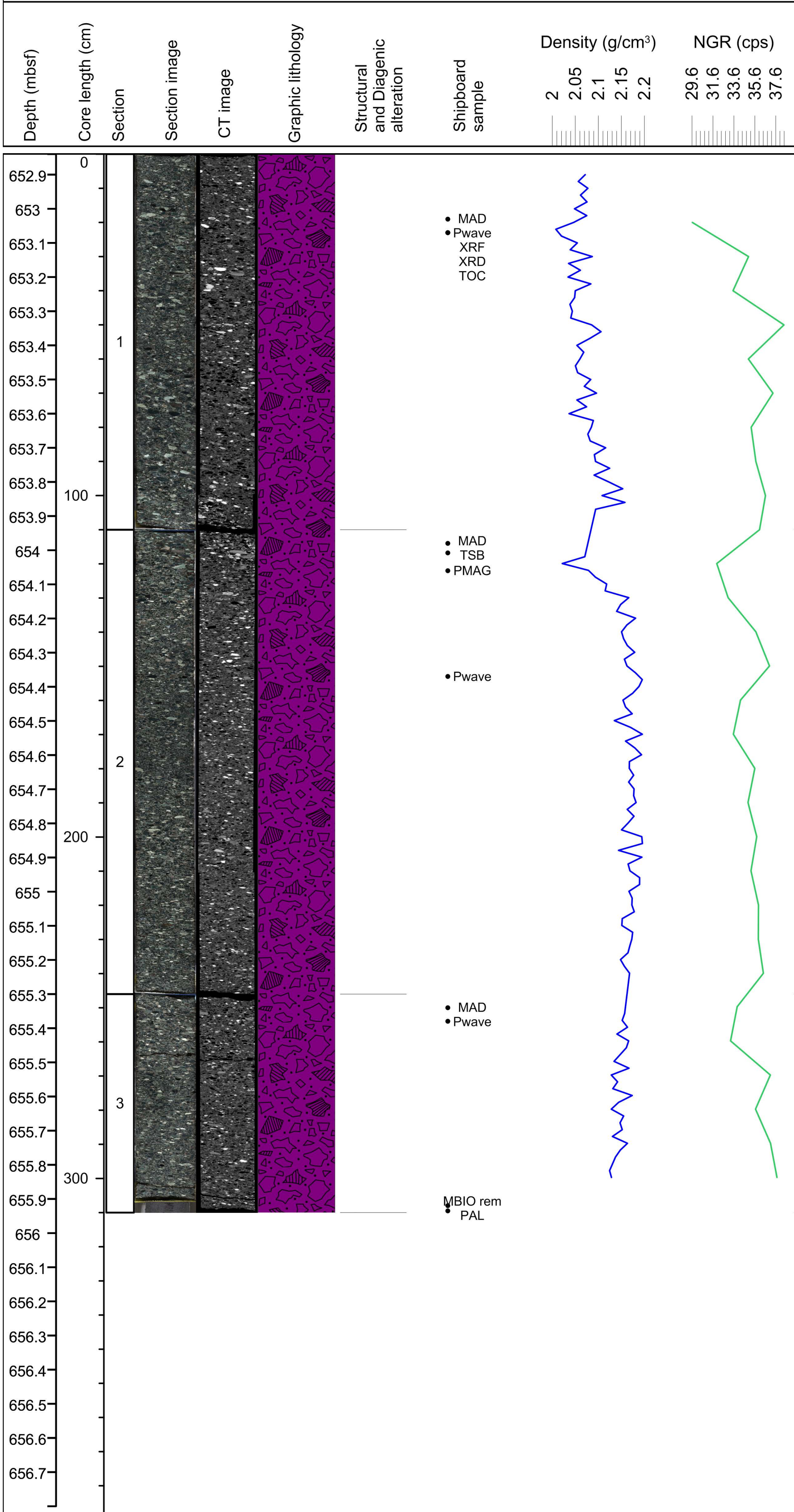
CT; dark grey

Very poorly sorted, clast-supported (but locally matrix-supported) suevite with well-rounded fragments with a maximal size of 2.3 cm. Most grains are larger than 1-1.5cm but still less than 1cm size grains are observable. The suevitic componenst are similar to those in 51-2, although there is a 1-cm-diameter granodiorite clast at 76 cm.

Color: Grey2 6/5PB

CT: dark grey, some grais are white or black.

Hole M0077A Core 52R Cored 652.84-655.89 mbsf



Description

poorly sorted, clast supported suevite (locally matrix supported)

maximum size; 2cm

grains are very well rounded and dark green/light green clasts are dominated

smaller grains (<1cm) concentrated at 0-9cm and 55-62cm but not obvious

The suevitie components are dominated by angular to subrounded greem melt fragments. Vesicular green clasts have white, gray, green, and orange fillings. Also present are vesicular pale green clasts, vesicular gray clasts, dark gray clasts, dark brown/black clasts, a shell fragment (at 44 cm), and a granite fragment.

COLOR; GREY2 6/5PB

CT; dark grey in matrix (black or white depending on grains, some grains have white rim and light grey core)

poorly sorted, clast supported suevite

sorting is variable; 46-52cm, 62-70cm, relatively well sorted

grains are rounded

maximum size is 2cm (light green)

smaller grains (<1cm) are dominant rather than 52R-1.

The sueviitic oomponents are similar to those in 52-1.

COLOR; GLEY2 6/5PB

dark green clasts are dominant

CT; dark grey (white or black depending on grains)

top part seems reddish orange matrix

poorly sorted, clast-supported suevite

maximum size; 1.5cm

clast size are generally smaller than 1cm

dark green/light green clasts dominated

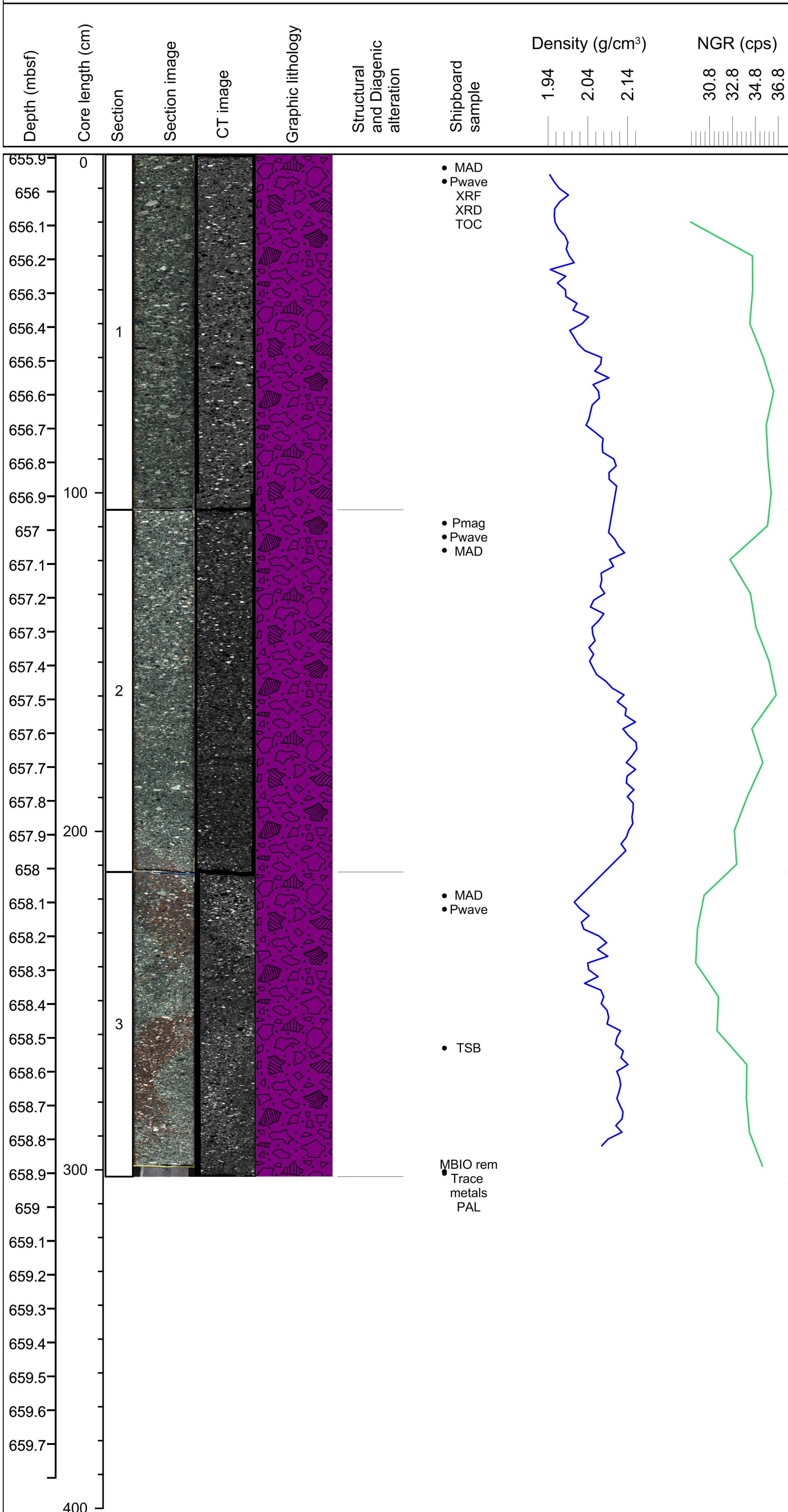
grains are rounded but some grains are angular. The suevitic components are similar to those in 52-1 and 52-2.

COLOR; GLEY2 6/5PB

smaller dark greenish clasts concentrated at 25-31, 42-50 cm

CT; dark gley (some grains are white or black)

Hole M0077A Core 53R Cored 655.89-658.94 mbsf



Description

Suevite, polymict breccia with minor carbonate matrix. Wide variety of clasts. Very little organization except for poorly defined grading. Elongate grains aligned horizontally. Medium sand to pebble size clasts, well rounded to subangular. Max clast size is 2 cm.

Matrix is light gray (10YR / 5 / 1) and represents 40 to 50%. No vesicles visible / more massive – less carbonate than in previous units. Clasts from sub-angular to well-rounded (rare angular clasts; especially a few black (chert) clasts).

Green glass seem less altered than in previous cores? (41-43). Various types of other melts occur (some vesicular with flow texture) of different colors from almost white to dark gray. A few granite clasts occur. Green rimming around carbonate clasts is visible. Dark green glass/melt clasts often with reddish mineral (alteration filling vesicles). Nice dark grey/brown melt shards with vesicles (unfilled) and non-digested clasts of quartz.

Highly polymict unit.

CT: All unit is dark gray (with different clast types showing different CT, from black to white).

Suevite, polymict breccia. Medium sand to pebble size. Grains well rounded to angular. Max clast 2 cm. Some elongate grains oriented horizontally abut not all. 40% matrix, matrix supported.

Matrix as in previous unit.

Clasts as in previous unit (but less large clasts). One possible granite clast (5 mm) at 90 cm. Largest clast is silica melt. A few nice dark grey/brown melt clasts (vesicular). [see previous section for details]

At 100 cm the matrix is reddish to orange (replaced). Hydrothermally altered zone.

CT: All unit is dark gray (with different clast types showing different CT, from black to white). At the bottom of the unit the CT is different, more bright due to tiny white spots but no visible difference in density and in Z.

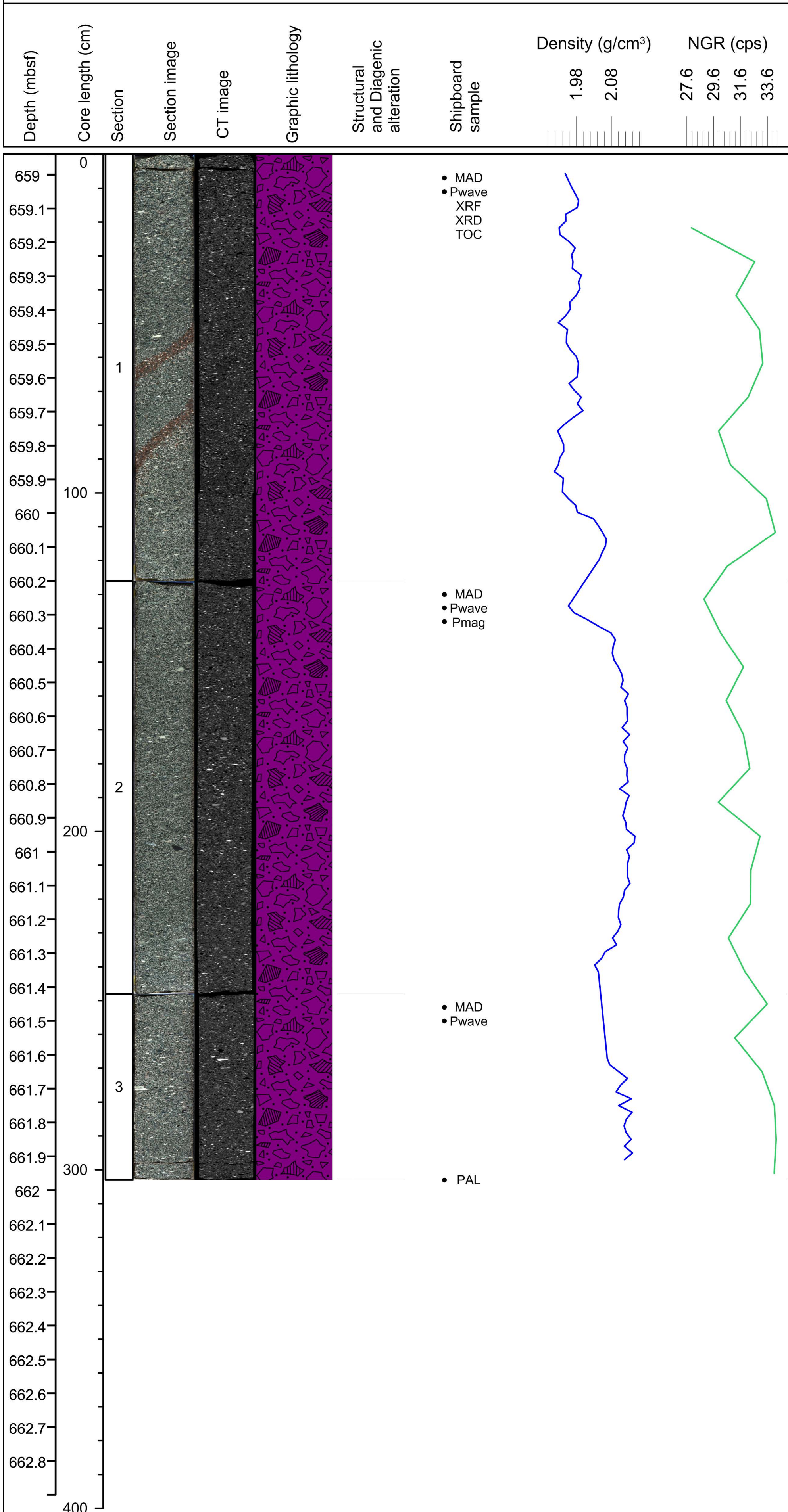
Suevite, polymict breccia. Medium sand to pebble size, max clast 1.4 cm. Grains well rounded to subangular. 50% grains, matrix supported. Elongate grains aligned horizontally. Poorly developed grading, difficult to differentiate fining from coarsening upward.

Matrix as in previous unit.

Same clasts population as in previous unit. Largest melt clast is ~15 mm. Large carbonate clast is 10 mm. More than one third of this unit with orange-reddish matrix. C.f. CT and image [at ~0-24; 42-78]; hydrothermal alteration zones.

CT: Unit dark gray in general with more light gray in altered (red matrix) zones (but no difference seen in D and Z).

Hole M0077A Core 54R Cored 658.94-661.99 mbsf



Description

Suevite, Polymict breccia with minor carbonate in matrix. Clasts medium sand to pebble size. Max clast 1.5 cm. Clasts well rounded to subangular, about 50%, matrix supported. Elongate grains aligned horizontally. 2 bands of reddish alteration cut diagonally across center of core.

Matrix and clasts as in previous unit.

A few larger dark grey melt clasts and green glass shards, up to 15 mm in size. No obvious granite clasts. Largest carbonate clast (rounded) is 16 mm. Some really angular black/massive (chert?) clasts up to 6 mm.

CT: All unit is dark gray, very homogeneous. The two “veins” (/altered bands) are slightly more light grey than the rest (not obvious).

Suevite, Polymict breccia. Clasts well rounded to angular. Clasts medium sand to pebble size, about 50%. Max clast 1.4 cm. Minor carbonate in matrix. Matrix supported. Elongate clasts oriented subhorizontally. Very littel organization except at base, 80-107 cm coarsening upward. Reddish alteration 99-107 cm.

Matrix and clasts as in previous unit.

Largest green glass/melt clast is 15 mm. Largest dark grey/brown melt (vesicular) is 20 mm. Largest carbonate clast is 8 mm. A few possible granitoid clasts (up to 8 mm). A few dark/massive angular clasts (chert?), up to 6 mm.

CT: All unit is dark gray (with different clast types showing different CT, from black to white).

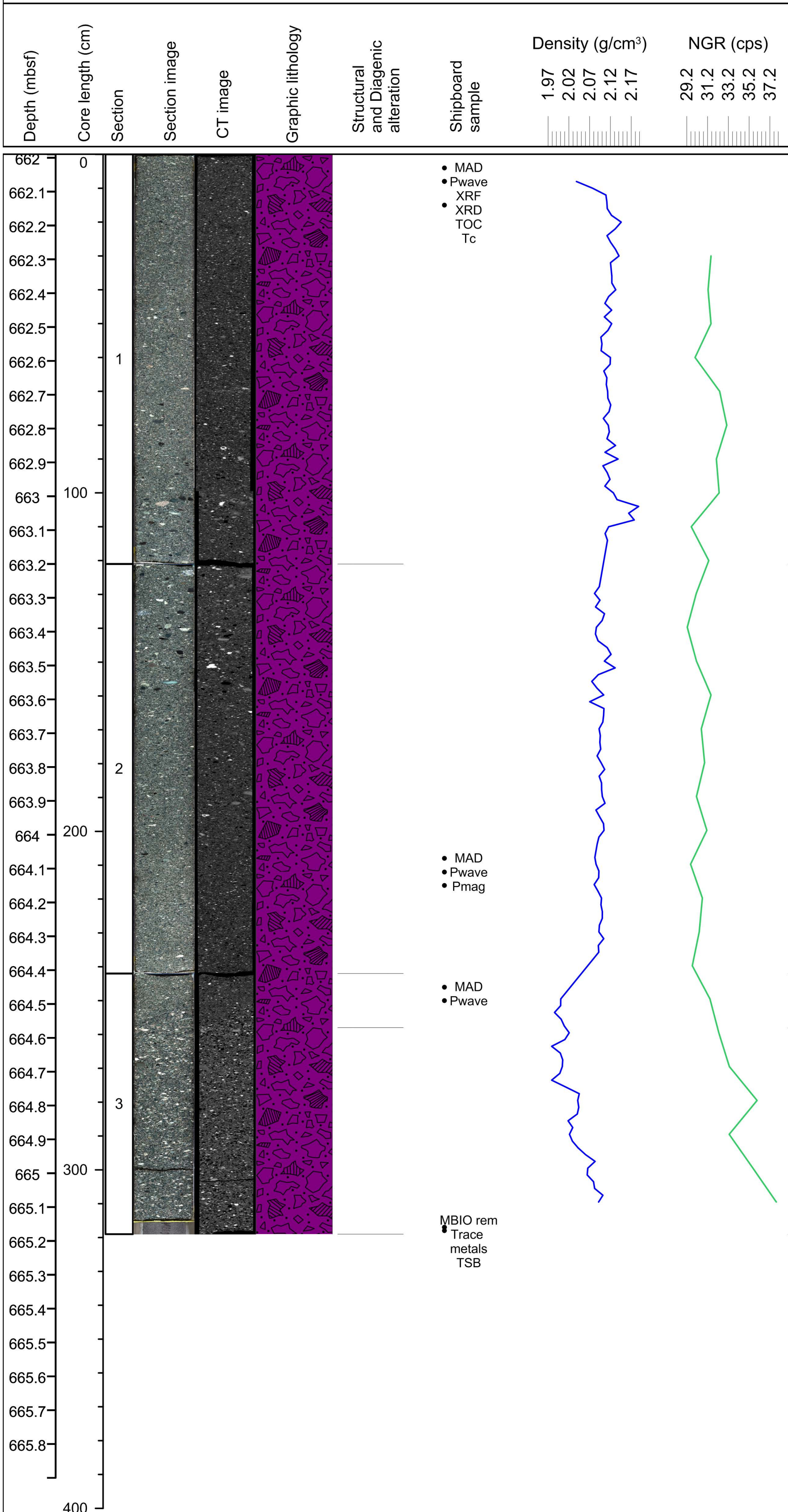
Suevite, Polymict breccia similar to above. Medium sand to pebble size. Max clast 1.5 mm. No organization other than elongate clasts oriented horizontally.50 % clasts, matrix supported.

Matrix and clasts as in previous unit.

Largest silica (white) melt (with flow texture) fragment is 20 mm. Nice dark gray/brown melt clast with non-digested quartz and feldspar (and flow texture) is 14 m. Largest green glass/melt clast is 9 mm (with small red dots in many of them). Largest carbonate clast is 5 mm. Very few black clasts [chert?] (angular and less than 2-3 mm in size). No granite clasts.

CT: All unit is dark gray (with different clast types showing different CT, from black to white).

Hole M0077A Core 55R Cored 661.99-665.04 mbsf



Description

Polymict breccia. Medium sand to pebble size from 0-101 cm. Max clast 1.5 cm. Grains well rounded to subangular with a few angular grains. 50% grains, matrix supported. Minor carbonate in matrix. Clasts more coarse below 101 cm. Clast at 103 cm, 2 cm diameter. Contains shallow water benthic forams.

Matrix and clasts population as in previous units.

Largest carbonate clast is 20 mm. Largest melt (green with white core) is 20 mm. Largest dark clast (chert?; angular) is 11 mm. Largest dark grey melt (vesicular) is 15 mm. No obvious granite clasts (1 possible granitoid).

At 52 cm, tiny purple clast (amethyst?), 3 mm.

At 79 cm, mafic clast (dolerite?).

At 111 cm, mafic clast?

At 115 cm, nice dark grey/brown melt (vesicular) with non digested fragments.

CT: All unit is dark gray (with different clast types showing different CT, from black to white).

Suevite, polymict breccia. Medium sand to pebble size clasts, well rounded to angular. 40% clasts, matrix supported. Elongate clasts aligned horizontally.

0-38 cm poorly sorted with max clast 2.5 cm.

38 cm- base is moderately well sorted with max clast 1 cm.

Matrix and clasts population as in previous units.

To be noted is that carbonate clasts show a concentric (reaction?) rim [seen in previous section too but not reported].

Largest black (chert?) clast is 15 mm. Largest dark brown/grey melt is ~10-12 mm. Largest carbonate (melted) is 15 mm. Largest green glass melt fragment is 12 cm.

At 2-3 cm, a gneiss shocked clast (20 mm).

At 14-15, a large granite clast.

At 26 cm, a mafic clast.

At 35 cm, a large elongated blue/green drop like clast (?).

CT: All unit is dark gray with different clast types showing different CT from black to white; Can be correlated with different clasts in the core.

Suevite, polymict breccia. Mainly medium to coarse sand size. Max clast 7 mm. Well sorted. Well rounded to subangular. 50 % clasts, matrix supported. Contact with unit 2 relatively sharp based on change in grain size, cuts across core diagonally.

Matrix and clasts population as in previous unit. No large clasts (all <5 mm).

CT: All unit is dark gray with different clast types showing different CT from black to white

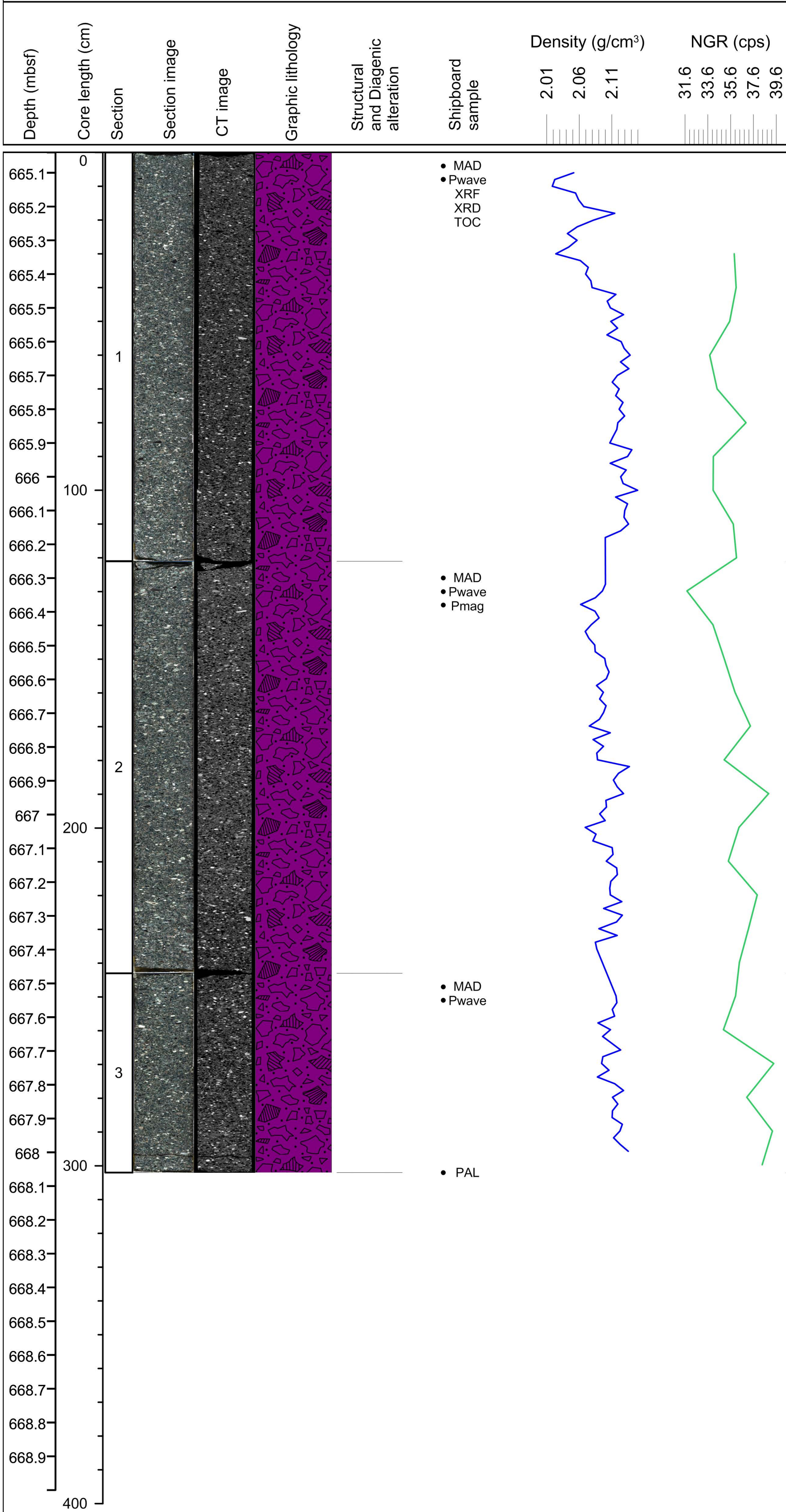
Suevite, polymict breccia. Medium sand to pebble size. Average is coarse sand to fine gravel.Max clast 1.7 cm. Clasts Well rounded to angular. Most rounded to subrounded. Moderatley sorted. Elongate grains oriented subhorizontally.

Similar clast population as is unit 1 but with much larger clasts, up to 20 mm and in average ~5 mm. A number of white vesicular clasts (lechatelierite?) up to 12 mm.

At 27 cm, large rounded, broken carbonate clast (> 20 mm).

CT: All unit is dark gray with different clast types showing different CT from black to white.

Hole M0077A Core 56R Cored 665.04-668.09 mbsf



Description

Suevite, polymict breccia. Mediium saand to pebble size. Average coarse sand to fine gravel size. Max clast 1.5 cm. Clasts well rounded to angular. Average rounded to subangular. 40% clasts, matrix supported. Matrix more carbonate rich than several previous cores.

Matrix and clasts population as in previous unit (average clast size is ~ 5 mm). Nothing special to be noted, no obvious granite clasts were seen.

At 23-24, large brown/dark melt (vesicular) with a few clasts not digested [18 mm].

At 86, large black to grey elongated clast (18 mm).

CT: All unit is dark gray with different clast types showing different CT from black to white.

Suevite, polymict breccia. Medium sand to pebble size. Average course sand-fine gravel. Max clast 1.5 cm. Grains well rounded to angular, generally subrounded. Moderately sorted. Carbonate rich matrix.50 % matrix, matrix supported.

Matrix still light grey (10YR / 5 / 1), compact, no vesicles; 40-50% in volume. Clasts population as in previous unit. No obvious granite clasts seen.

At 8,5 cm, large sub-rounded carbonate clast (16 mm). At 101 cm, large conical in shape carbonate clast (melted in the outside). A few small (<3 mm) purple transparent clasts (amethyst?). Carbonate clasts show a concentric (reaction?) rim as in previous units.

CT: All unit is dark gray with different clast types showing different CT from black to white; white = carbonate clasts (when melted they appear more light grey.

Suevite, polymict breccia. Medium sand to pebble size. Average coarse sand-fine gravel.Max Clast 7 mm. Grains well rounded to subangular, average rounded to subrounded. 50% grains, matrix supported. Carbonate rich matrix.

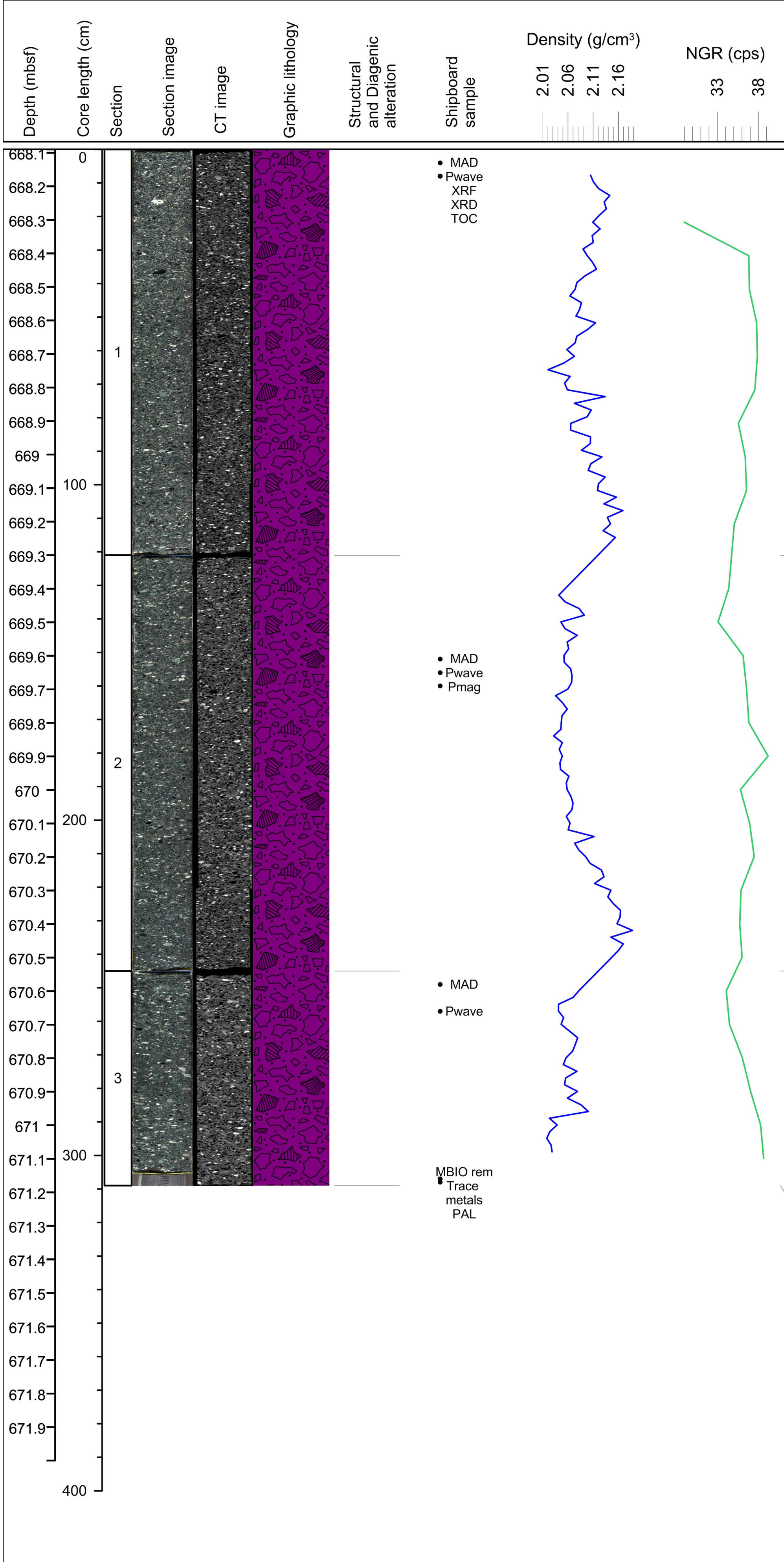
Matrix as in previous units, about 40-50% in volume. Clasts population as in previous units (average size is 4 mm).

Largest dark brown-grey melt clast is 12 mm. Largest white melt clast is 10 mm. Largest carbonate clast is 11 mm. A few rounded to sub-rounded carbonate clasts (<7 mm). Carbonate clasts still show a concentric (reaction?) rim.

At 30,5, possible carbonate lapilli or fossil (?) (3,5 mm in diameter). At 38, granitoid (<6 mm). At 46, perfectly rounded carbonate clast (look like an ooid). At 54, granitoid (?) (10 mm).

CT: All unit is dark gray with different clast types showing different CT from black to white; white = carbonate clasts (when melted they appear more light grey.

Hole M0077A Core 57R Cored 668.09-671.14 mbsf



Description

Suevite, polymict breccia. Medium sand to pebble size. Average gravel size. Max cast 2 cm - black clast for nanos. Well rounded to angular, average rounded to subrounded. Moderately sorted. Carbonate rich matrix. 50 % matrix, matrix supported.

Matrix and clasts population as in previous units.

Average clast size is ~5 mm.

At 15-16, melted carbonate clast (20 mm) with crystalline clast inclusion (4 mm). At 36-37, black angular to sub-angular clast (chert?, 22 mm). At 119-120, large carbonate clast (20 mm). Rare small (<10 mm) granitoid clasts [one at 34,5 cm].

CT: All unit is dark gray with different clast types showing different CT from black to white.

Suevite, polymict breccia. Medium sand to pebble size. Average gravel size. Max clast 1.3 cm. Clasts well rounded to angular, average rounded to subrounded.Poorly sorted.

Matrix and clasts population as in previous units.

Average clast size is ~5 mm.

More or less bimodal clast size; <5 mm and >5 mm (up to 15 mm in size, 10 mm in average).

Large dark brown/grey melt (vesiculated) clasts (with non-digested clasts) up to 18 mm (at 7, 45, 85, 86 cm). Large green (light to dark) glass up to 15 mm. Large carbonate clasts, up to 12 mm (at 61 cm). Largest black fragment (chert?), 8 mm in size (at 80 cm).

CT: All unit is dark gray with different clast types showing different CT from black to white.

Suevite, polymict breccia. Medium sand to pebble size. Max clast 1.5 cm. 40 % clasts, matrix supported. Grains well rounded to angular, average subrounded. Poorly sorted. Carbonate rich matrix. 0-27 cm coarsening up package. Lower part not organized.

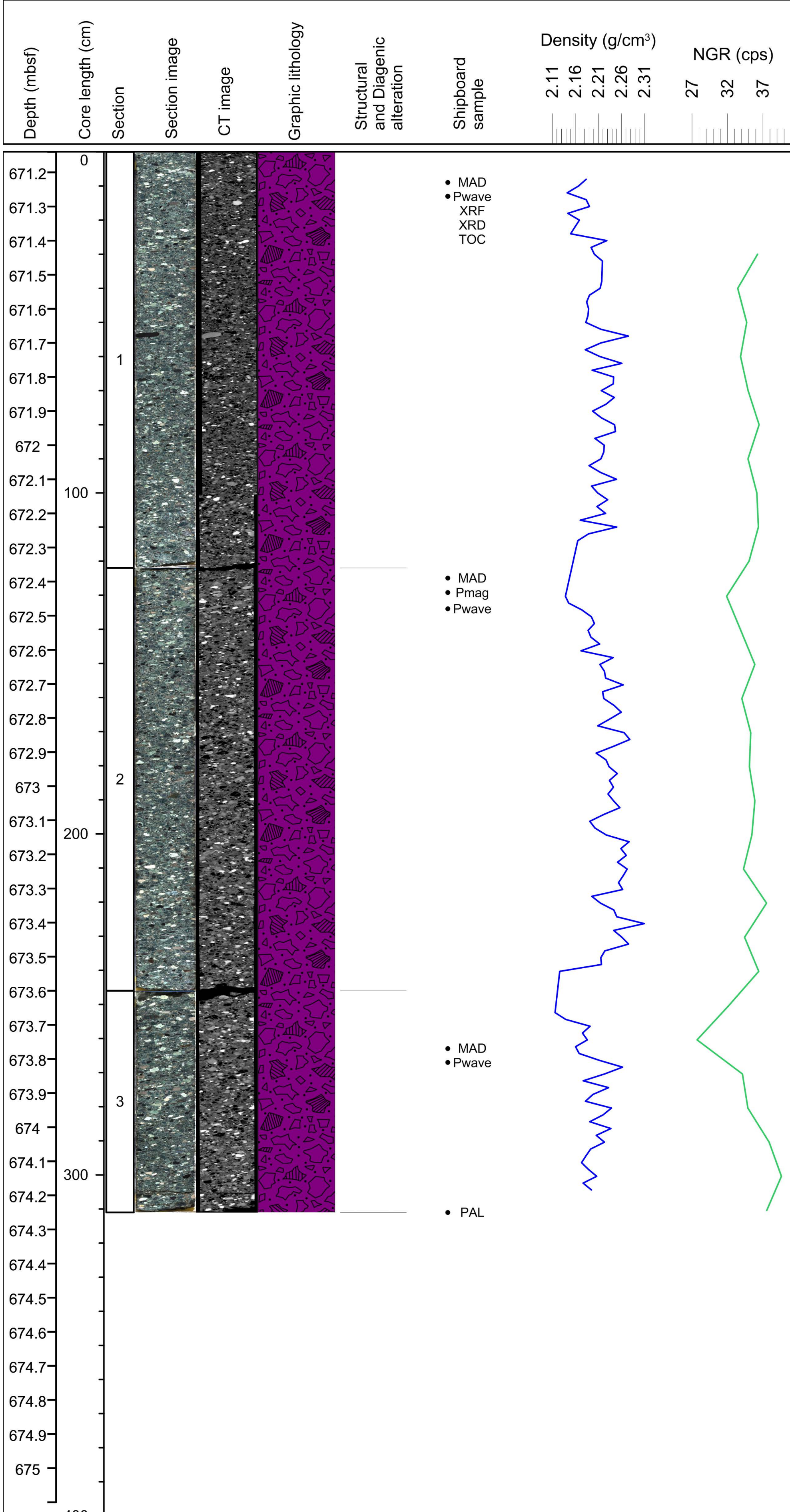
Same matrix and clasts population as in previous units. Style more or less bimodal clast distribution.

A few granitoid clasts up to 10 mm in size.

At 8-9 cm, carbonate clast (18 mm). At 17-18 cm, large dark clast (chert?, 10 mm). At 29-30, large carbonate clast (18 mm). At 57, a spherical clast of limestone with foraminifera (5 mm). At 60, void filled with large calcite crystals (5 mm).

CT: All unit is dark gray with different clast types showing different CT from black to white; Carbonate clasts in white.

Hole M0077A Core 58R Cored 671.14-674.19 mbsf



Description

Polymict breccia with medium sand-pebble size clasts. Grains well rounded to angular, average subrounded-subangular. Maximum clast diameter is 3 cm. The unit is poorly sorted. The suevitic components are dominated by angular to subrounded green melt fragments. They have solid to vesicular interiors. Schlieren is evident is some particles and the vesicles are sometimes filled with secondary products. Other clasts include pale green to white vesicular material, gray vesicular material, micritic carbonate, black shale, granite (possibly two types: one at 34 cm and the other at 111 cm). Alteration occurs throughout; this is one half-centimeter vug that is incompletely filled with sparry calcite. In CT, the matrix is dark gray; graine are variable fomr white to black. Color is GLEY 5/5PB.

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monotonous, poorly sorted , grain supported (partly matrix supported) suevite

large grains; 2cm, white (limestone?) clasts are observed observed, dark grey clasts dominated

grains rounded to semi-irregular. The suevitic components are similar to those in 58-1 with the following additions. A turquoise blue phase is appearing in vesicles in the melt clasts. Orange-colored alteration is scattered the length of the section. There is also a glint of what may be a sulfide. Other clasts include a diorite (at 100 cm), a metamorphosed granodiorite, and a granite.

COLOR; GLEY2 5/5PB

CT; matrix is dark grey, grains; black or white

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monotonous, poorply sorted, grain supported suevite (partly matrix-supported yet)

maximum grain size; 2cm (dark green)

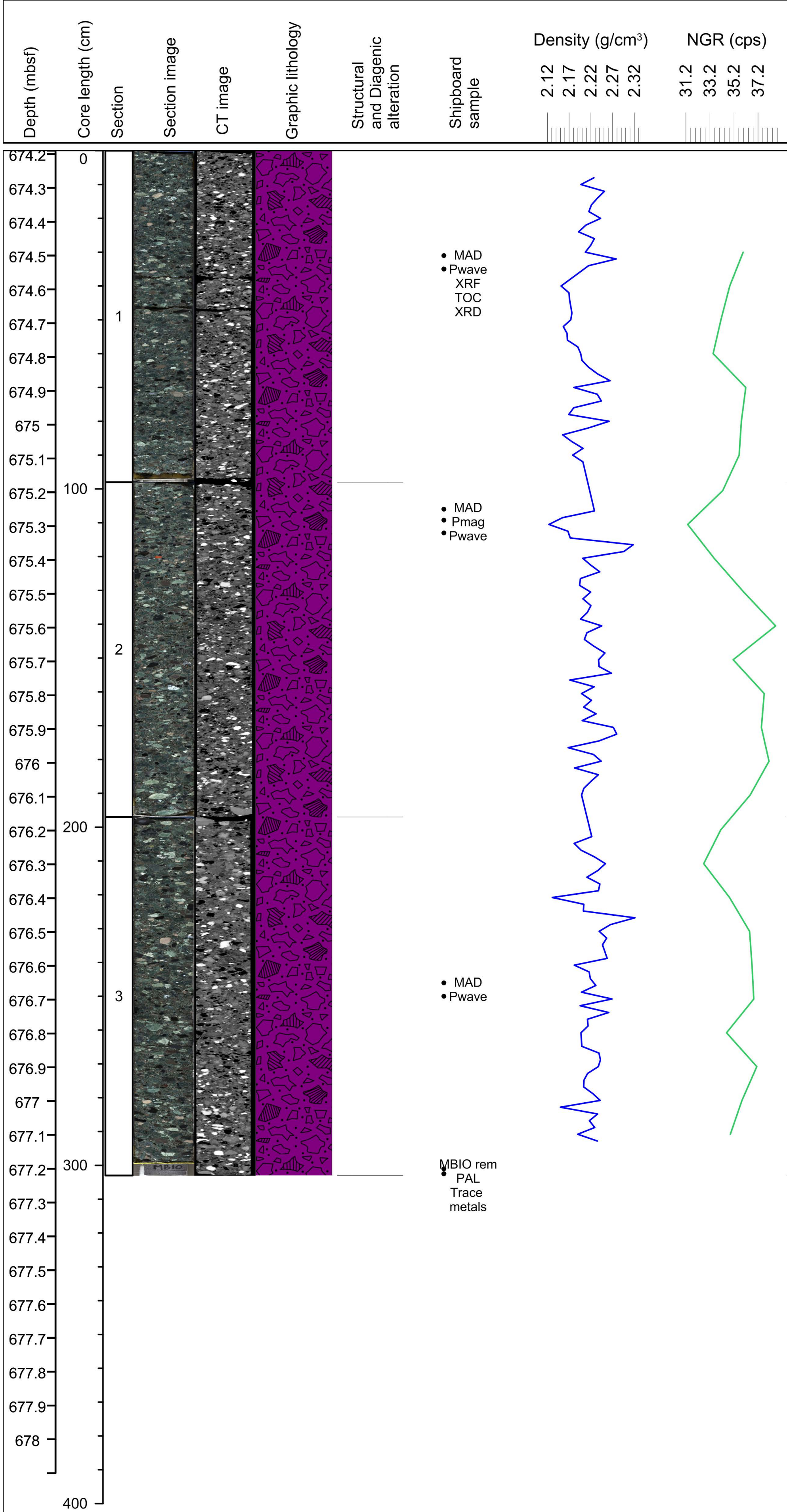
last size averagely 5mm to 1cm

semi-angular shape is dominant. The suevitic components are similar to those in 58-3, although the visible basement clasts are less diverse and liimited to a granite (half-centimeter is size at 63.5 cm).

COLOR; GLEY2 5/10PB

matrix; dark grey, grains white or black or light gley (CT white...higher density)

Hole M0077A Core 59R Cored 674.19-677.24 mbsf



Description

monotonous, poorly sorted grain/matrix supported suevite

COLOR; GLEY2 5/5BG

maximum size; .5cm, average size are 5mm-1cm

some oblique layers with concentration of dark green <5mm clasts are observed. The suevitic components are dominated by green melt clasts. Many contain schlieren. Some melts entrain reliic clasts, but some do not. Yellow-orange secondary minerals scattered throughout the section. A sulfide (half-centimeter-long) is evident. Other clasts include gray vesicular material, carbonate, shale, and a granodiorite.

CT; dark gley matrix, grains (white or black)

monotonous poorly sorted grain/matrix supported suevite

grain shape; rounded to sub-irregular

max. size; 3.1cm, cm-size and <5mm grains (bimodal size distribution. The suevitic components occur in a matrix that is darker gray than in the core above. The green melt fragments sometimes contain relic clasts, but many cm-size fragments appear clast free. Orange secondary minerals are in clasts. There is a large, 2.5 cm-long vug partially filled with calcite at 67.5-68.5 cm.

color; GLEY2 5/5BG

CT; dark gley, grains; black or white

poorly sorted matrix/grain supported suevite

grains are rounded to semi irregular in shape

maximum sie; 3.2cm

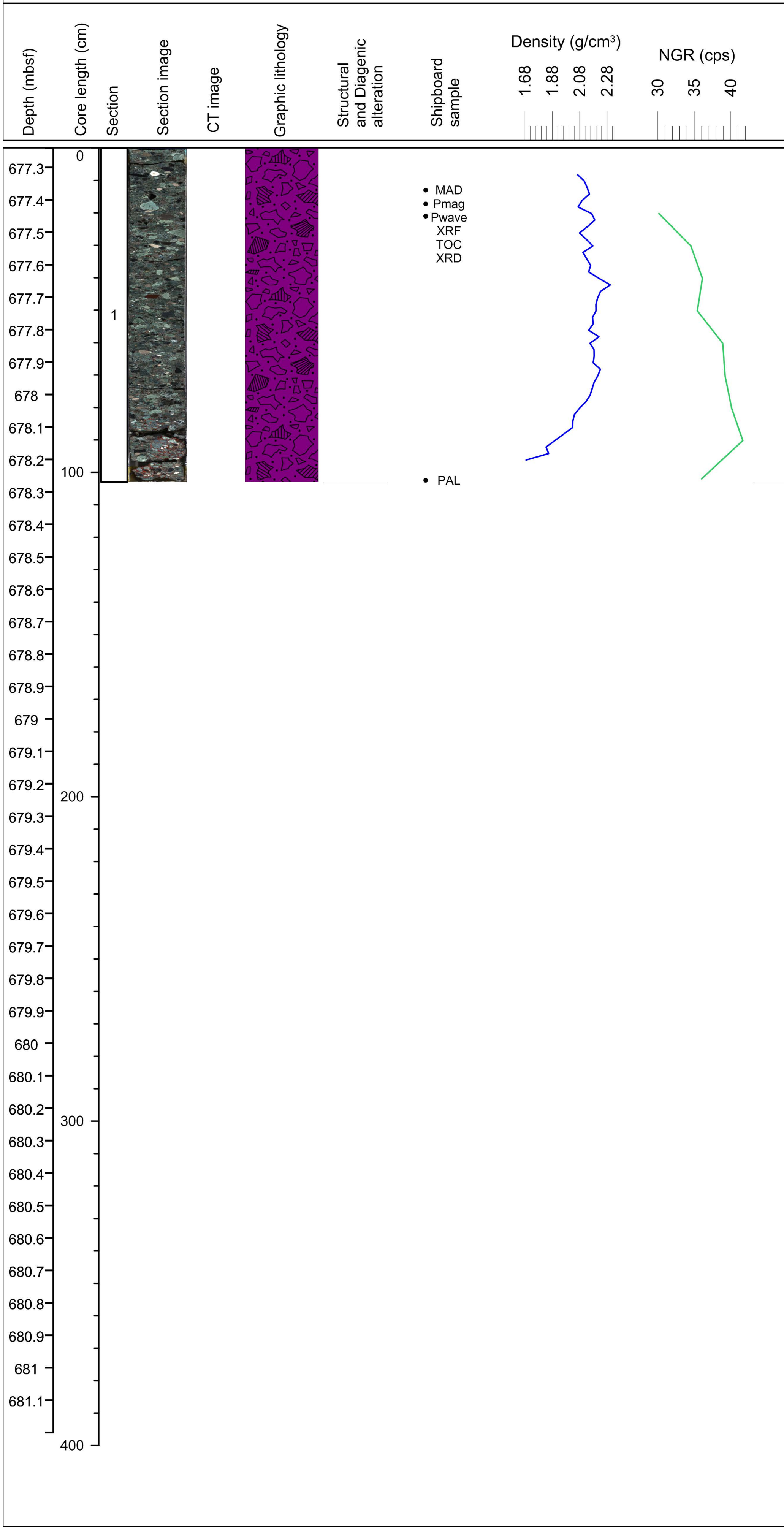
cmi-size and <5mm size (bimodal population)

no sedimentary structure observed. Matrix is gray-green and not as bright as higher portions of core with sueivitic components. The clasts are similar to those in 59-2. The sizes of gray to black melt clasts are 1 to 3 cm in size.

COLOR; GLEY2 5/5BG

CT; dark gley, grains; black or white

Hole M0077A Core 60R Cored 677.24-678.44 mbsf



Description

monotonous, matrix/grain supported suevite, no sedimentary structures

round-semi angular in shape

max size; 3cm

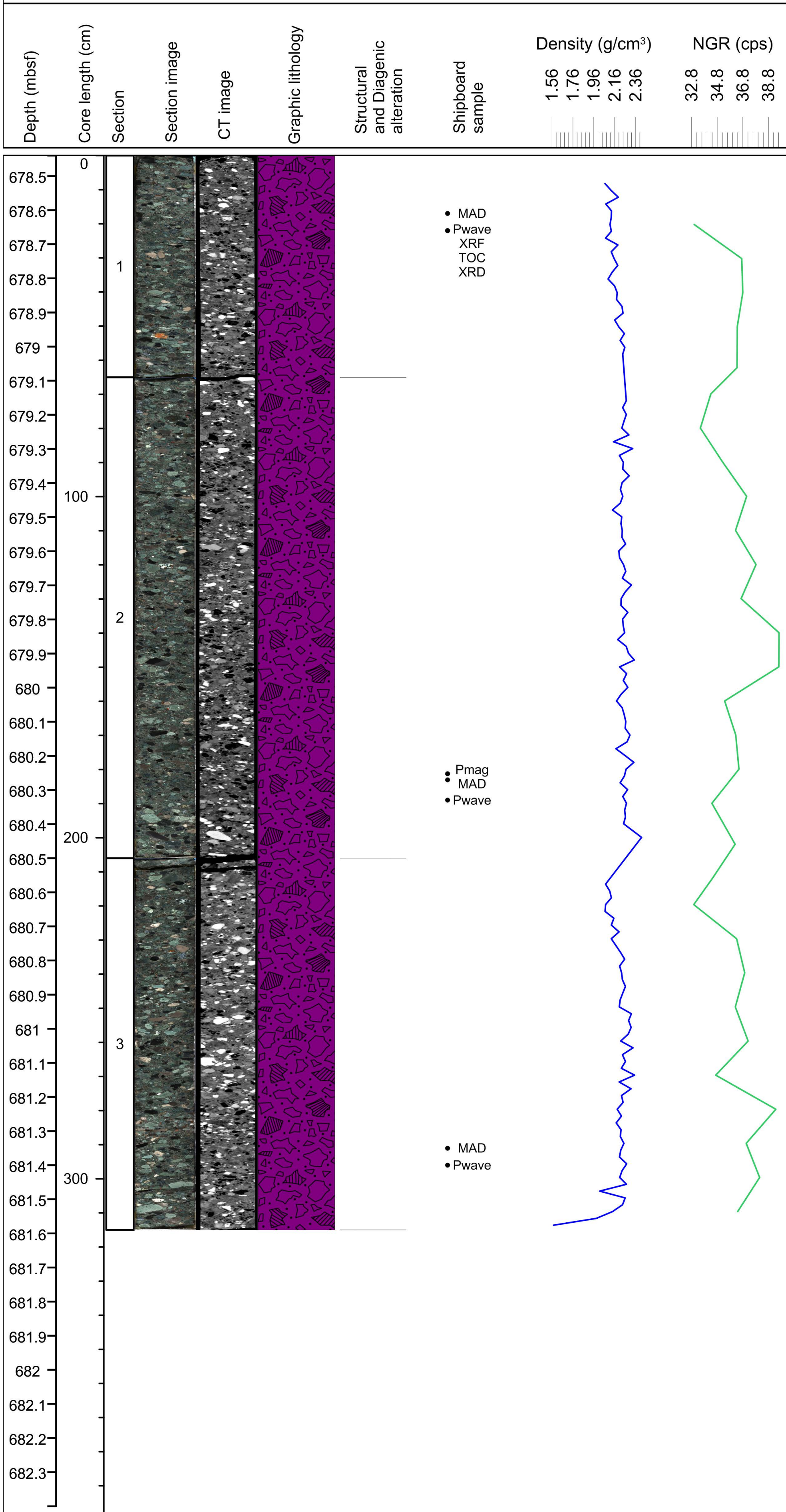
cm size (usually >1.5cm) and <5mm (dark green) bimodal population. The melt clasts are dark green, pale green, gray, and black in color. Target clasts include limestone, marble, red sandstone (at 45.5 cm), sandstone, and granodiorite. Red-colored alteration is abundant from 82 to 103 cm.

COLOR; GLEY2 5/5PB and 10R 5/8 (red; altered part)

CT; dark gley, grains are white or black

alteration observed at 82-102 cm (orange matrix)

Hole M0077A Core 61R Cored 678.44-681.54 mbsf



Description

monotonous, poorly sorted, matrix/grain supported suevite

rounded/semi-irregular shape

maximum last; 5cm

cm-size/<5mm clasts (bimodal distribution)

no sedimentary structures observed. Large green melt fragments have few relic clastss entrained in the melt. Gray melt fragments also occur. Target clasts include limestone, shale, grainte, and granodiorite (with two textures. Multiple vugs are partially filled with calcite. A red-orange mineral is also scattered in <1 mm pockets.

COLOR; GLEY2 5/10GB

CT; dark gley in matrixm,grains are black or white

homogeneous, poorly-sorted grain/matrix supported suevite

cm-size/<5mm size grains dominated (bi-modal distribution)

maximum size; 4cm. The suevitic component is composed of green, gray, and black melt fragments. Target clsats include limestone, chert, granite, granodiorite, and diorite. The matrix is dark gray with no visible porosity.

COLOR GLEY2 5/10G

rounded grains dominated

CT; dark gley in matrix, grains are black or white (variable)

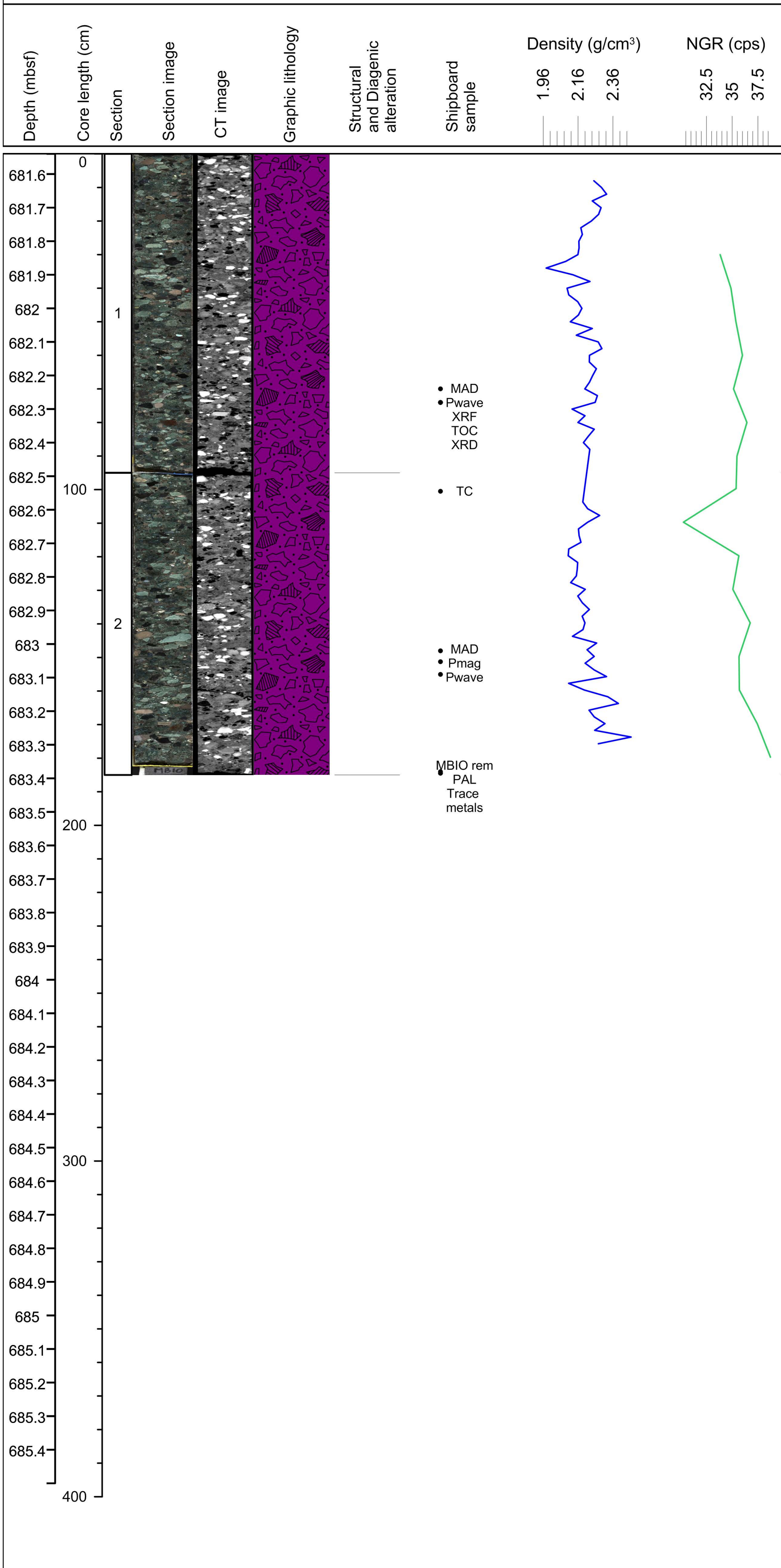
monotonous, very poorly sorted, grain supported suevite

max size; 4cm, cm-size clast (mostly larger than 1.5cm) and <mm size clasts (bimodal population). The suevitic components are green, gray, and black melt fragments. Target clasts include limestone, shale, chert, granite, granodiorite, and gabbro. Alteration appears as a red-orange mineral, plus vugs filled with calcite and an unknown green mineral.

COLOR; GLEY2 5/10BG

CT; dark gley (grains; white or black)

Hole M0077A Core 62R Cored 681.54-683.34 mbsf



Description

monotonous, very poorly sorted, grain supported suevite (but partly still matrix supported)

cm--size (>1.5cm clast) and <5mm clasts are observed (bimodal)

rounded but some lasts are sub-irregular in shape. Green, gray, and black melt clasts. Target clasts include limestone, shale, chert, diorite, granodiorite, granite, and gneiss. Tinn (<1 mm) particles of a red-orange aleration mineral occurs, along with vugs that are partially filled with calcite.

maximum size; 4cm

grain size are variable

COLOR; GLEY2 5/10BG

CT; matrix; dark gley, grains; white to black (variable)

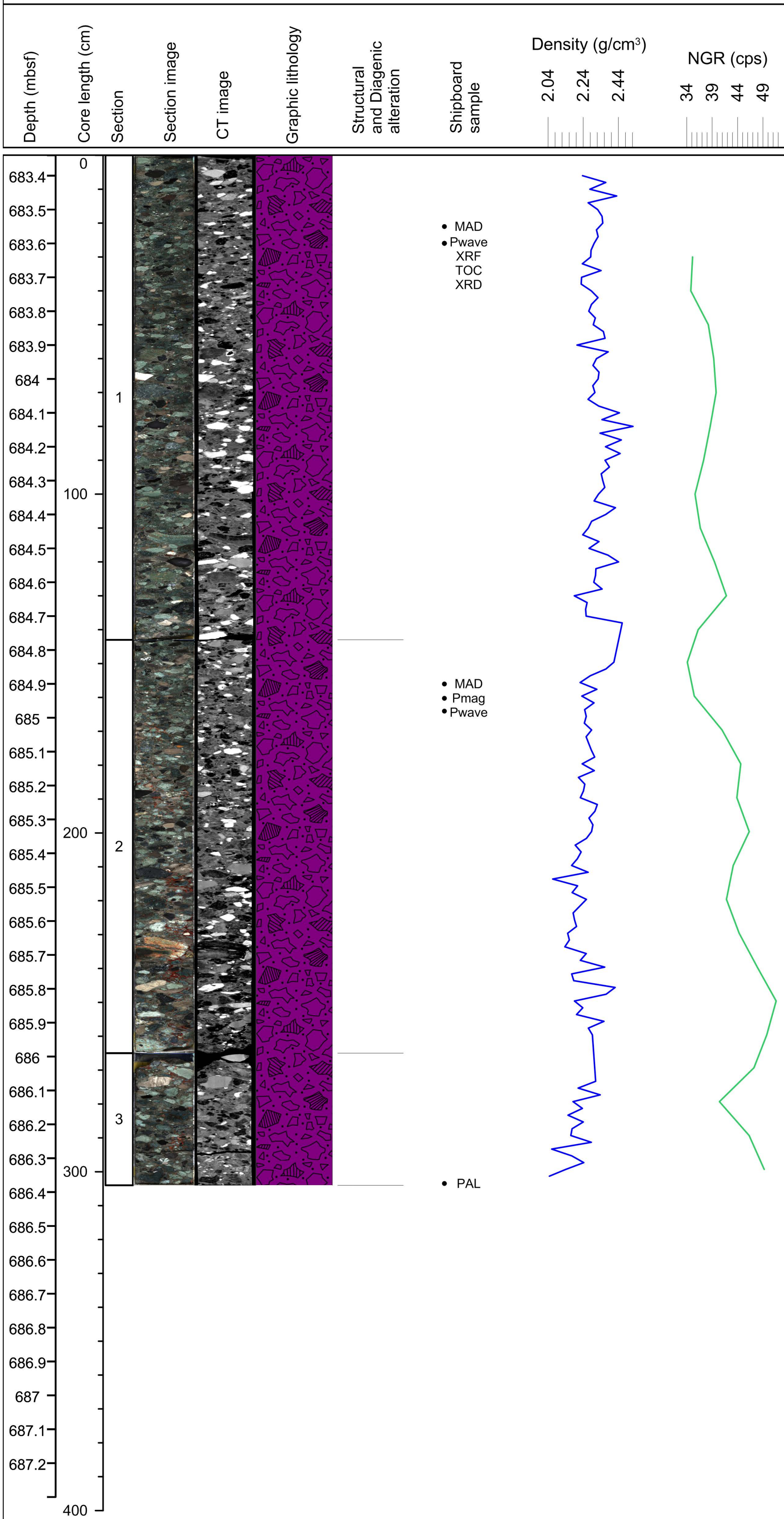
Poorly sorted, grain-supported and partially matrix-supported, clasts are rounded to subrounded with a maximum diameter of 5 cm. There seems to be a bimodal distribution of clasts with one population less than 0.5 cm in diameter and a second population larger than 2 cm in diameter. Green, gray, and black melt fragments. Target clasts include limeestone, shale, chert, marble, gneiss, granite, and granodiorite. More red-orange alteration occurs in this section than in 62-1.

Matrix colour: GLey 2, 5/10B

CT colour: dark grey

Clasts: white to black

Hole M0077A Core 63R Cored 683.34-686.39 mbsf



Description

very poorly-sorted, matrix supported (dominant) suevite, but locally grain supported feature is also observed

grains are subrounded-subangular in shape

maximum size; over 7cm

cm-size clasts; >2cm are many, <5mm clast beame rare...matrix content is high in this section

grain size became larger downward. Green, dark gray, and black melt fragments. Target clasts include limestone, shale, chert, marble, gneiss, granite, and granodiorite. Red-orange alteration. Large cm-scale vugs are partially filled with calcite; one vug is filled with chalcedony.

COLR; GLEY2 5/5B

CT; matrix (dark gley), grain (white to black)

very poorly-sorted, grain/matrix supported fabric

matrix is removed and orange matrix replaced at 24-121cm. It is pipe like structure (alteration).

maximum size; >7cm

over 5cm clasts are dominated below 66cm, grains are rounded to subangular. Green, gray, and black melt fragments. Target clasts include limestone, shale, chert; marble, gneiss; granodiorite, diorite, and granite. Dissolution was pervasive, forming 6-cm-long pockets, that are partially filled with a red-orange colored mineral.

CT; matrix is dark gley and grains are white to black (variable)

COLOR; matrix is GLEY2 5/10G, orange part is 10R 4/8 (dark red)

Very poorly sorted, grain-supported and matrix-supported areas, subangulra grain shapes, maximum grain size is 5 cm.

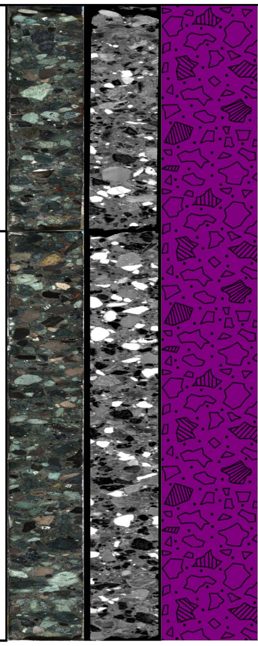
In places, the matrix has been dissolved, partly removed and replaced by an orange-coloured mineral, notably between 23 and 29 cm. Secondary calcite is also present. Green and gray melt fragments. Target clasts include limestone, shale, chert, marble, gneiss, and granodiorite.

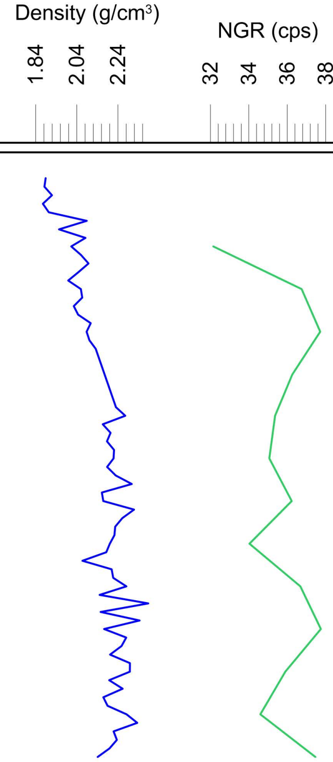
Colour of the matrix: GLEY 4/10G

CT colour: dark grey CT-colour of clasts varies between white and black.

Hole M0077A Core 64R Cored 686.39-687.91 mbsf

Depth (mbsf)	Core length (cm)	Section	Section image	CT image	Graphic lithology	Structural and Diagenic alteration	Shipboard sample	Density (g/cm³)	NGR (cps)	Description
686.4–686.93	0	1					• MAD • Pwave XRF TOC XRD			very poorly-sorted, grain/matrix supported suevite angular to subrounded maximum size; 4cm, bimodal population, larger components are over centimeter but smaller component are <3mm. Green and gray melt fragments. Target clasts include limestone, chert, marble, and diorite. Vugs filled with calcite and red-orange mineral. COLOR; 10R 5/1 (reddish gley) CT; matrix is dark gley, grains are white to black (variable) locally alteration features are observed
686.93–687.91	100	2					• MAD • Pmag • Pwave			very poorly sorted, matrix supported suevite, rounded-subangular clasts, matrix dominated large clasts are cm in size (mostly larger than 2cm) and less than 5mm clasts are also observed (bimodal) maximum size; 4cm. Green and black melt fragments. Target clsats include limestone, shale, chert, marble, and granodiorite. COLOR; 10R5/1 CT; matrix is dark gley and grains are white/black

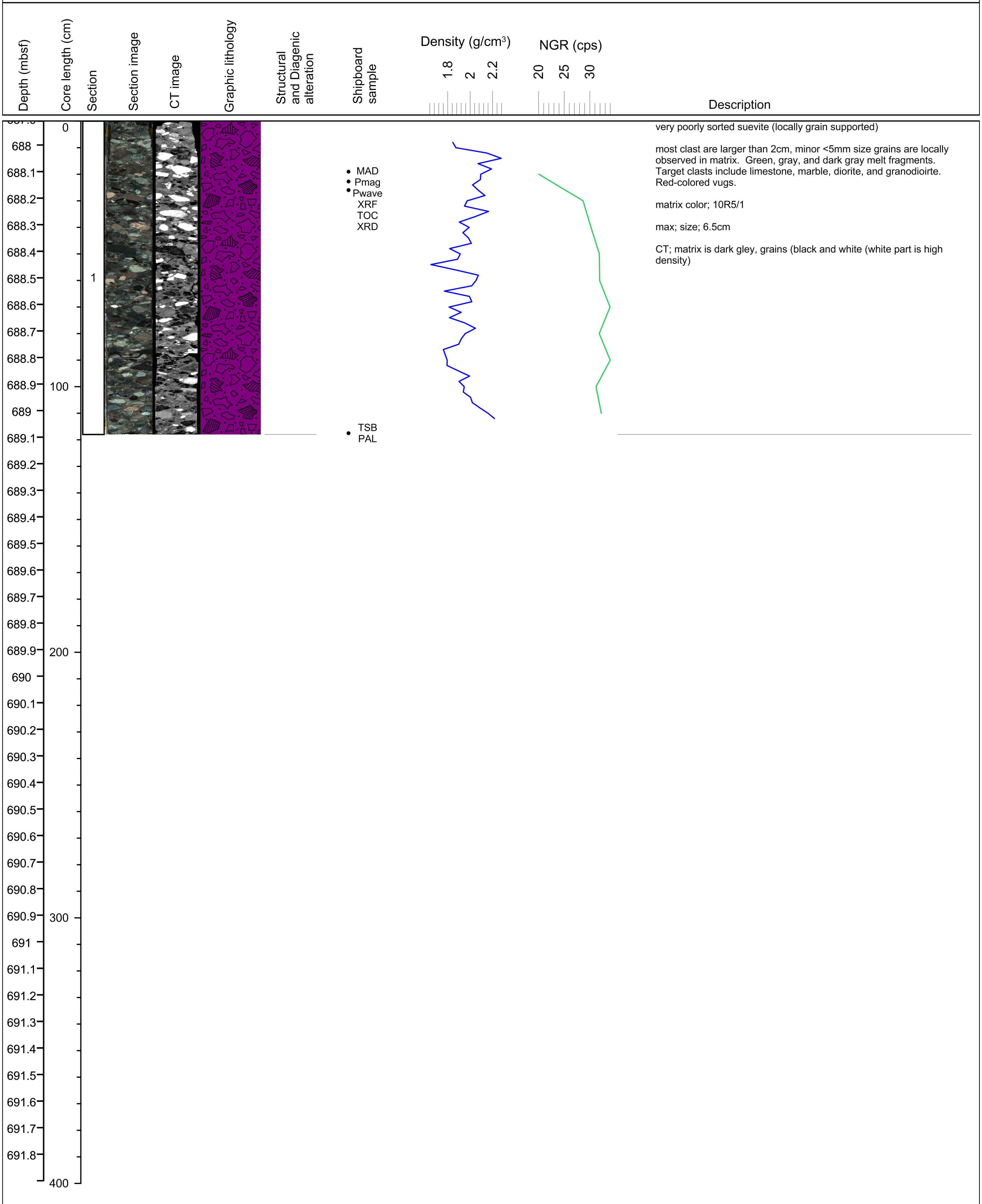




Depth (mbsf): 686.4, 686.5, 686.6, 686.7, 686.8, 686.9, 687, 687.1, 687.2, 687.3, 687.4, 687.5, 687.6, 687.7, 687.8, 687.9, 688, 688.1, 688.2, 688.3, 688.4, 688.5, 688.6, 688.7, 688.8, 688.9, 689, 689.1, 689.2, 689.3, 689.4, 689.5, 689.6, 689.7, 689.8, 689.9, 690, 690.1, 690.2

Core length (cm): 0, 100, 200, 300, 400

Hole M0077A Core 65R Cored 687.91-689.36 mbsf



very poorly sorted suevite (locally grain supported)

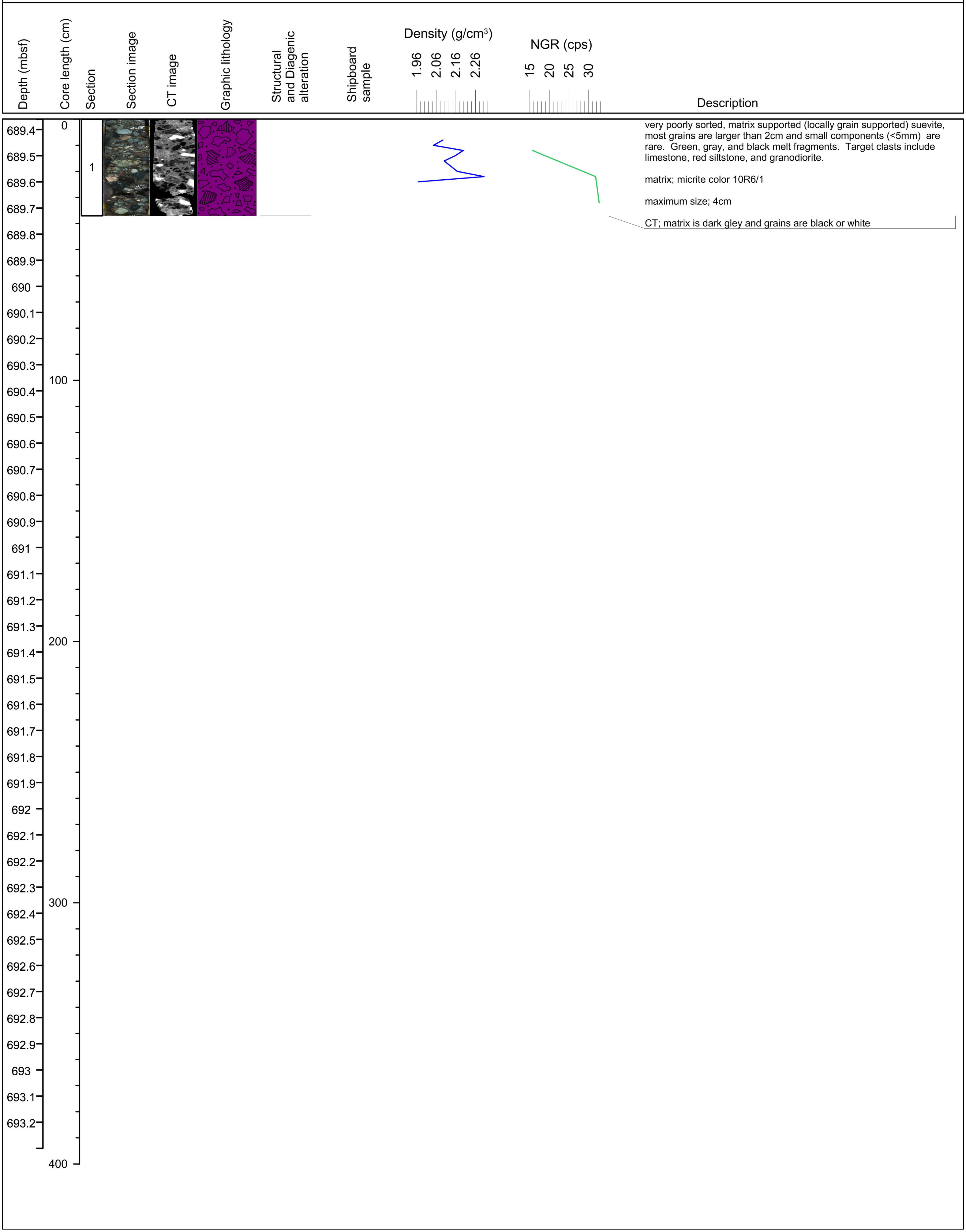
most clast are larger than 2cm, minor <5mm size grains are locally observed in matrix. Green, gray, and dark gray melt fragments. Target clasts include limestone, marble, diorite, and granodioirte. Red-colored vugs.

matrix color; 10R5/1

max; size; 6.5cm

CT; matrix is dark gley, grains (black and white (white part is high density)

Hole M0077A Core 66R Cored 689.36-690.46 mbsf



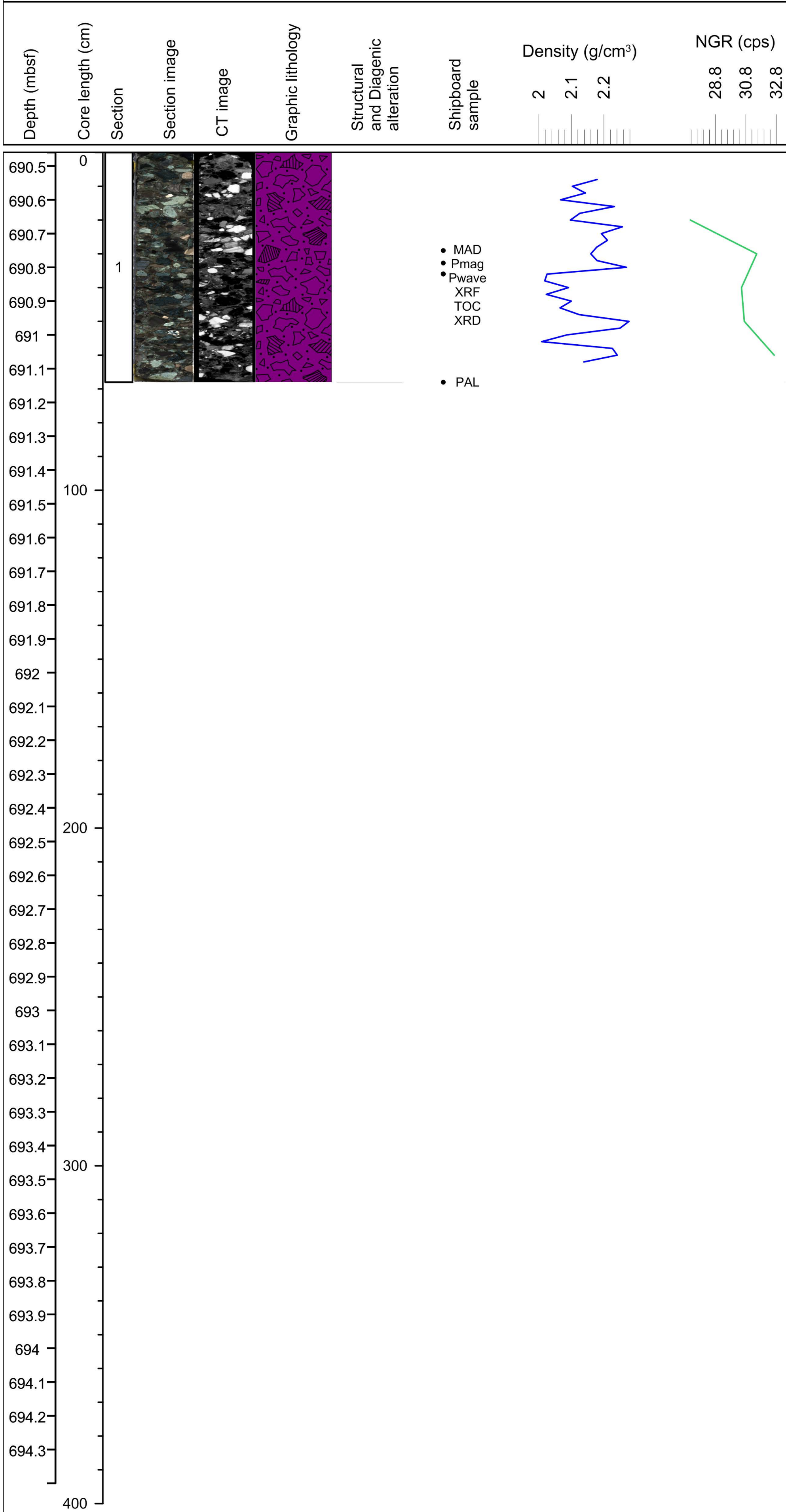
very poorly sorted, matrix supported (locally grain supported) suevite, most grains are larger than 2cm and small components (<5mm) are rare. Green, gray, and black melt fragments. Target clasts include limestone, red siltstone, and granodiorite.

matrix; micrite color 10R6/1

maximum size; 4cm

CT; matrix is dark gley and grains are black or white

Hole M0077A Core 67R Cored 690.46-691.46 mbsf



Description

very poorly sorted suevite, matrix supported but some part is clearly grain supported

maximum size; >4cm

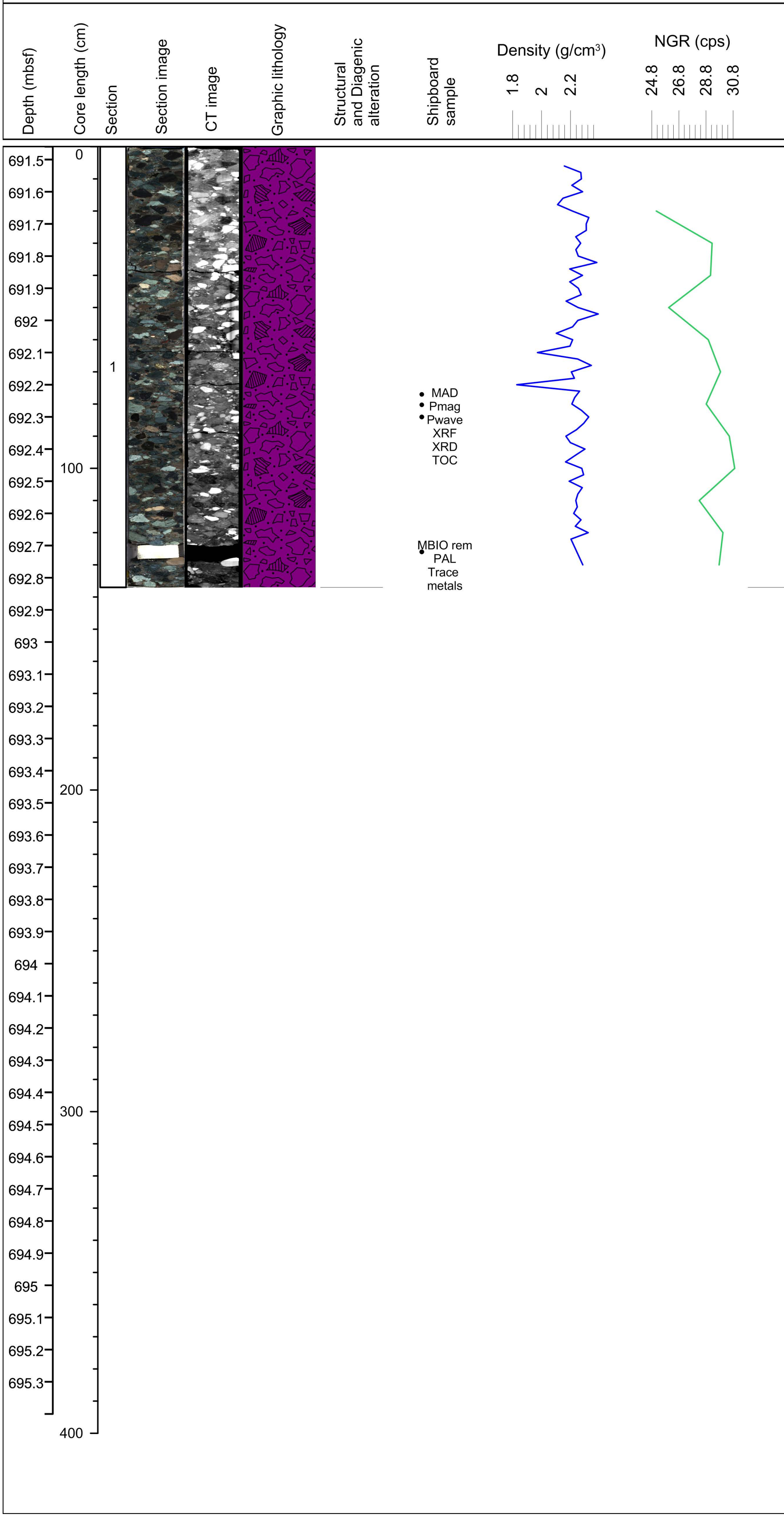
subangular (but limestone clasts seem rounded). Green and gray melt fragments. Target clasts include limestone, shale, chert, and granodiorite. Red-orange alteration.

matrix color; 10R4/1

most grains are over 2cm in size and finer components are rare

CT; matrix; dark gley and grains are white or black (variable)

Hole M0077A Core 68R Cored 691.46-692.46 mbsf



Description

very poorly sorted, matrix supported suevite. some large grains supported each other

grains are more rounded

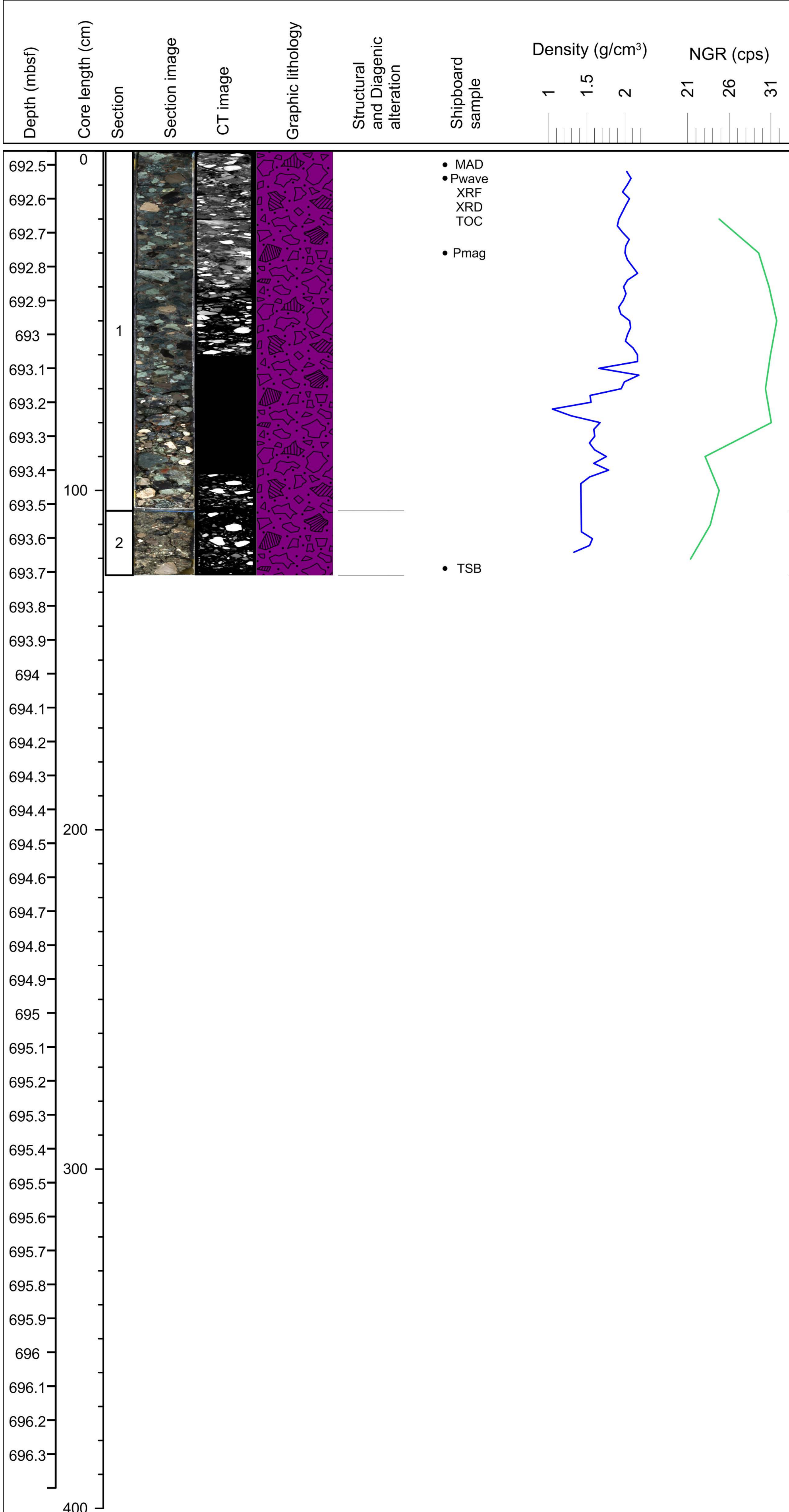
maximum sie; 4.5cm

grain size is mostly larger than 2cm and smaller grains <5mm are rare. Green and gray melt fragments. Target clasts include limestone, chert, shale, marble, gneiss, granite, and diorite. Vug with red rim; calcite growing interior (after) red mineral.

color matrix; 10R5/1

CT; matrix; dark gley, grains; white/black

Hole M0077A Core 69R Cored 692.46-695.54 mbsf



Description

very poorly sorted, matrix supported suevite

bimodal grain size distribution; larger component is >2cm but smaller component is <1cm in general

largest grains; >6cm. Green, gray, and black melt fragments. Target lithologies include limestone, chert, marble, gneiss, amphibolite, and granite. Red-colored mineral distributed through matrix and in small (<1 mm) vugs.

color; 10R6/1

grains are rounded to subangular

CT; matrix; dark gley, grains are white to dark gley

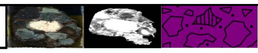
Milled material, highly desintegrated and muddy. Subangular fragments, matrix structure cannot be determined. Largest clast is about 4 cm in length. Green melt fragments. Carbonate clasts.

Colour of matrix: 10R 6/1

CT colour: cannot be determined (CT image is not available)

Hole M0077A Core 70R Cored 695.54-696.09 mbsf

Depth (mbsf)	Core length (cm)	Section	Section image	CT image	Graphic lithology	Structural and Diagenic alteration	Shipboard sample	Density (g/cm³) 0 0.25 0.5 0.75 1	NGR (cps) 0 0.25 0.5 0.75 1	Description



poor recoverly

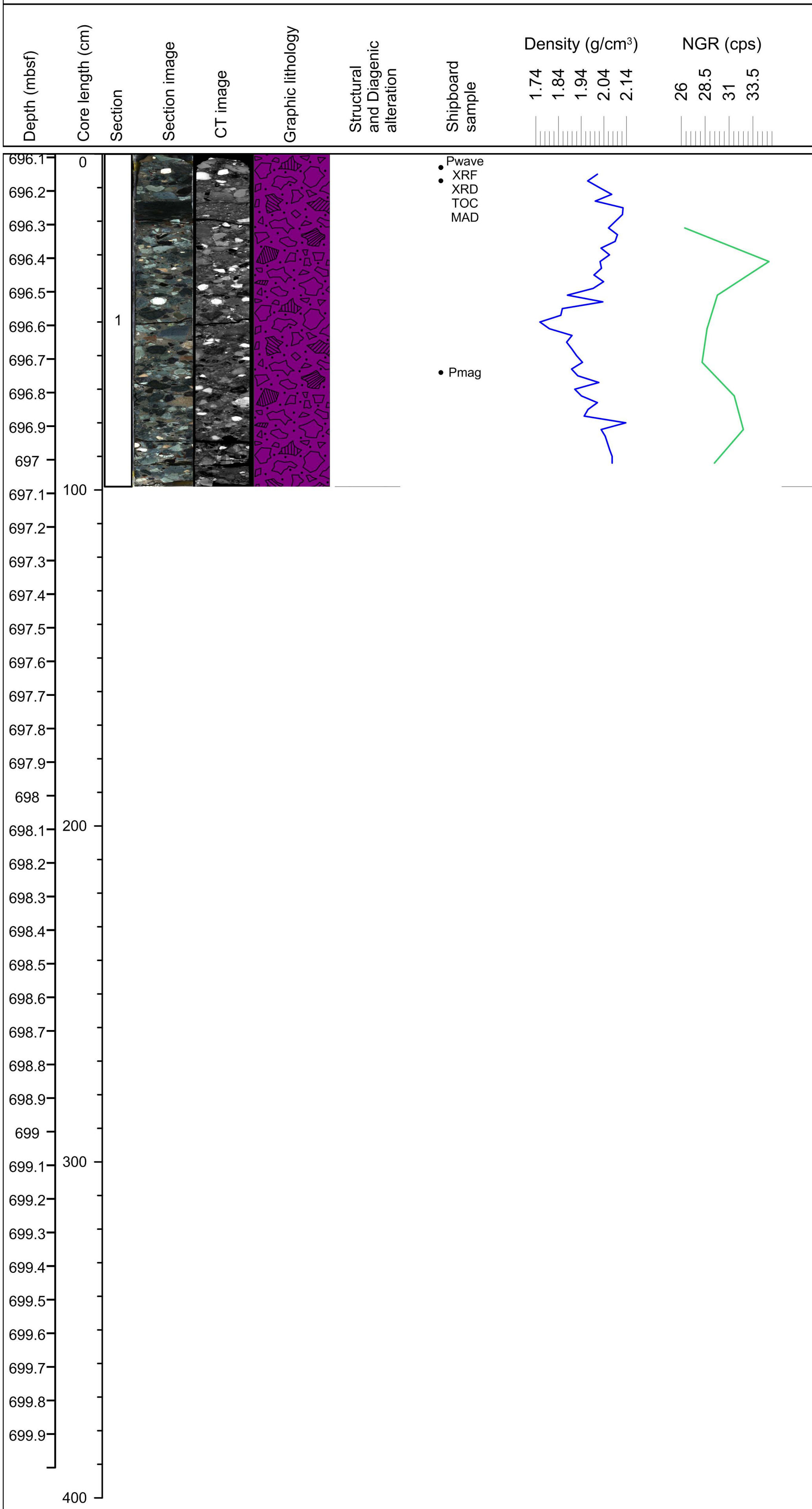
grain supported, poorly sorted suevite. Green and gray melt fragments. Target lithologies limited to limestone. Vugs partially filled with red-colored mineral and calcite.

matrix altered, color; 10R4/3

largest grain; 4.5cm

CT; gley matrix and white grains

Hole M0077A Core 71R Cored 696.09-697.09 mbsf



very poorly sorted, matrix-rich (40%) and matrix-supported suevite

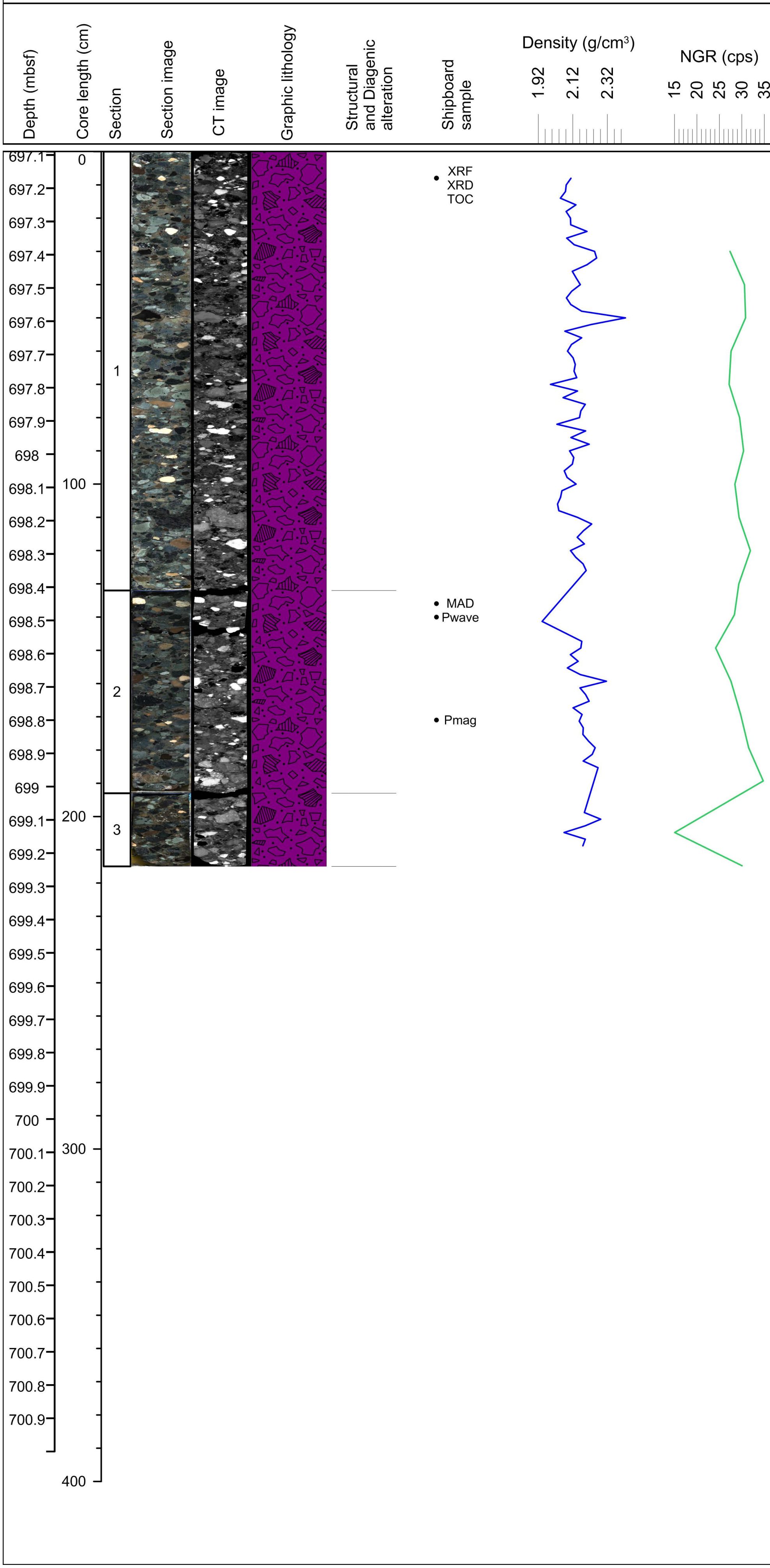
grains are well rounded to angular

bimodal grain size distribution is observed; large clast is cm in size but smaller clasts are mm in size. Green, gray, and black melt fragments. Target lithologies include limestone, chert, red siltstone, gneiss, granodiorite, and granite. Red-mineral alteration occurs in vugs and veins. Sulfide in melt clast.

matrix color; 10R6/1

CT; matrix is dark gley, grains are white to dark gley (variable)

Hole M0077A Core 72R Cored 697.09-699.09 mbsf



Description

very poorly sorted, matrix supported (but locally grain supported) suevite

matrix rich (40%) and color is 10R6/1

grains are well rounded in white clast but angular for greenish grains

maximum size is >8cm (dark gley clast)

bimodal distribution is observved. large clast is larger than 2cm and are dominated. mm size grains are rare. Green, gray, and black melt fragments. Target lithologies include carbonate (with fossils), chert, red siltstone, gneiss, marble, granodiorite, and diorite. Alteration in form of red minerals in matrix and clasts.

CT; matrix is dark gley and grains are black to white (variable)

very poorly sorted, matrix supported suevite (some grains are supported each other)

white clasts are well rounded and others are subangular to angular in shape

max. size; 4.5 cm

grains are mostly larger than 1cm and mm-size grains are rare

COLOR; 10R5/1

CT; matrix is dark gley and grains are white to dark gley

very poorly sorted, matrix-supported suevite (matrix rich), locally grain-supported fabric is observed

grains are angular to subangular

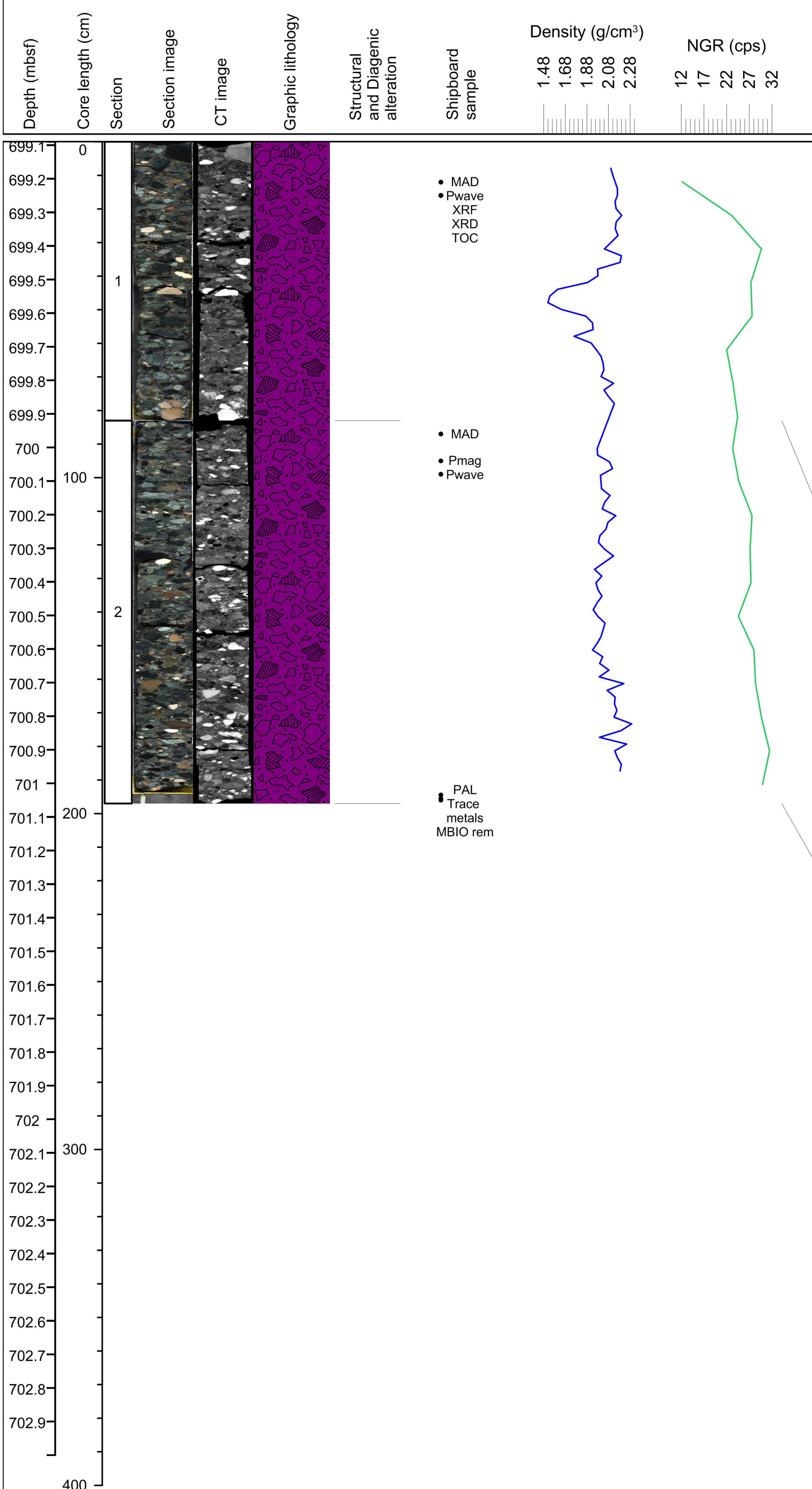
max. size; 4.5cm

grains are mainly over cm-size. Green and gray melt fragments. Target lithologies include limestone, chert, and granite.

COLOR; 10R5/2

CT; matrix is dark gley and grains are variable (white to black)

Hole M0077A Core 73R Cored 699.09-701.64 mbsf



Description

Polymict breccia, medium sand to pebble size, max clast - 6 cm. Average is fine gravel size. Grains well rounded to angular, average subrounded to subangular. Poorly sorted. Several carbonate wacke/packstone grains - white to light brown. Carbonate rich matrix (2.5Y 5/1). 30-40% clasts, matrix supported.

Matrix is more porous than it was in core 58 (not sure how it was in previous shift).

Clasts population dominated by large clasts, from ~1 to 6,5 cm [40% clasts-60% matrix].

Large variety of clasts, from rounded to angular, of various colors, from white to black, dominated by light to dark green glass. Limestone clasts mainly subrounded (up to 40 mm). Large amphibolite (?), angular, >6,5 cm in size. Several melt clasts with flow texture and large (>10 mm) undigested clasts. A lot of the small (<5 mm) clasts are orange-red in color (previous melt clasts replaced; some of them vesicular). Red alteration filling cracks in some larger clasts. A couple of granitoid clasts and different other basement rock clasts.

CT: All unit is dark gray with different clast types showing different CT from black to white; Carbonate clasts in white. Melts are from dark grey to light grey (some flow texture can even be seen).

Suevite, polymict breccia. Medium sand to pebble size, average fine gravel size. Grains well rounded to angular, average subrounded to subangular. Max clast 4.5 cm. Poorly sorted.30-40% clasts, matrix supported. Carbonate rich matrix (2.5Y 5/1).

Clasts of all colors, same types as in previous units (sedimentary, metamorphic and magmatic rock clasts), mainly from subrounded to subangular (with a few rounded and a few angular).

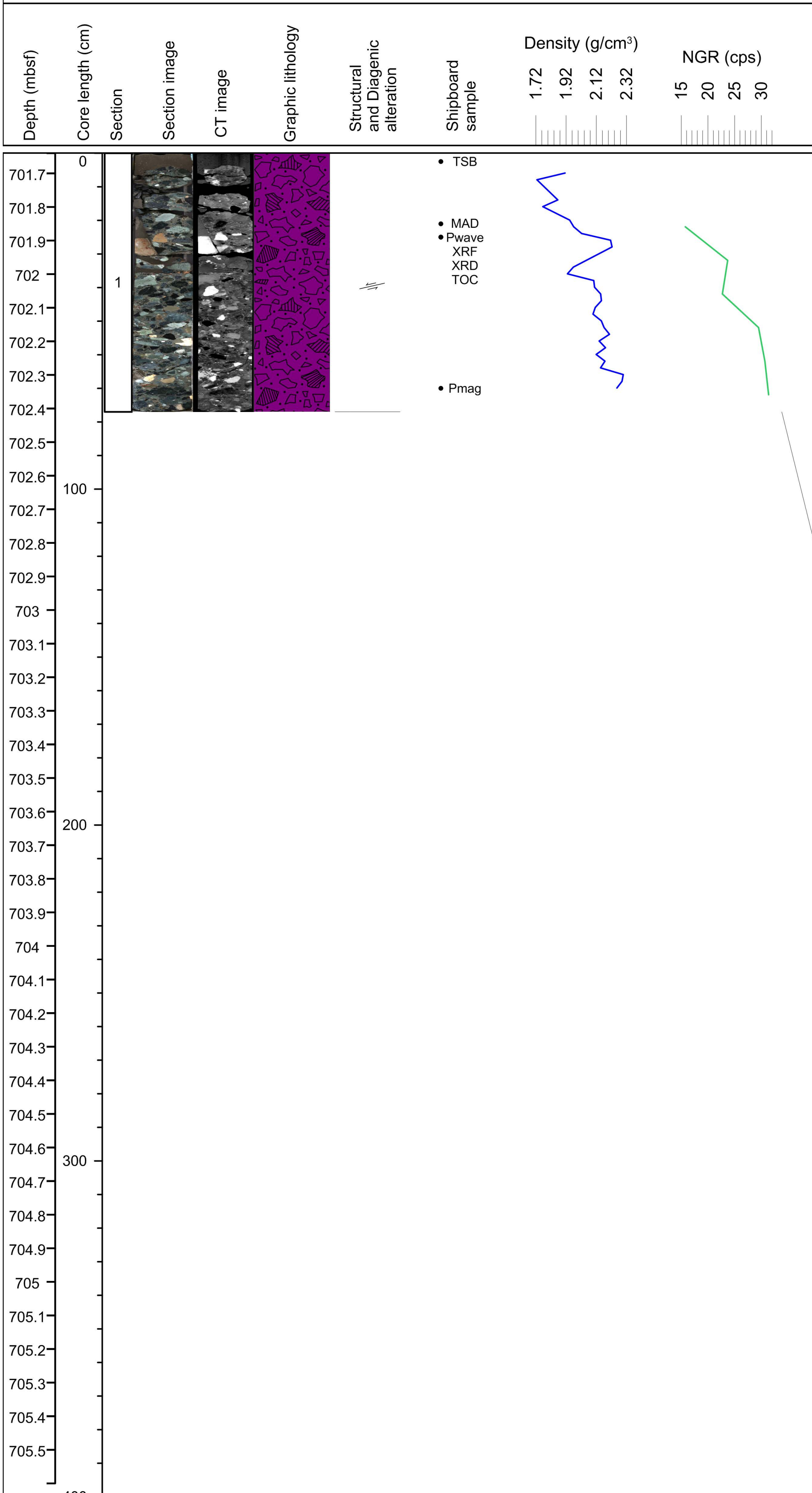
More green than black melt shards with flow texture and more or less vesiculated.

At 45 and 49, central parts of melt clasts filled with large calcite crystals, filling vugs. At 80,5-84, strange clast (>40 mm), dark melt (?) with abundant quartz clasts, up to 2 mm in size.

Same small reddish (alteration) clasts heterogeneously distributed in matrix.

CT: All unit is dark gray with different clast types showing different CT from black to white.

Hole M0077A Core 74R Cored 701.64-702.04 mbsf



Description

Suevite, polymict breccia. Medium sand to coarse pebble size, average fine pebble. Grains well rounded to angular most subrounded. Poorly sorted. 30-40 % grains, matrix supported. Generally coarsening upward. Upper 36 cm has breccia within breccia. 0-10 cm and 31-36 there is a clayey dolomitized mud/wackstone (2.5Y 3/2) surrounding or between suevite breccia clasts.. Calcite filled vug at 47 cm. Matrix color 2.5Y 5/1. Matrix porous, vuggy +/- calcite and reddish alteration.

----

5 to 11 cm rounded "clast" of suevite surrounded by mudstone/wackestone (with deformed fossils?). Sharp contact/with clasts cut sharply. Clast up to >4 cm from sub-rounded to angular. Same proportions as in previous units and same types of rocks clasts (sedimentary, metamorphic and magmatic rock) and melts. Small reddish (alteration) spots < a few mm widely distributed in the matrix.

At 36 cm, sharp irregular contact mudstone/wackstone to normal suevite.

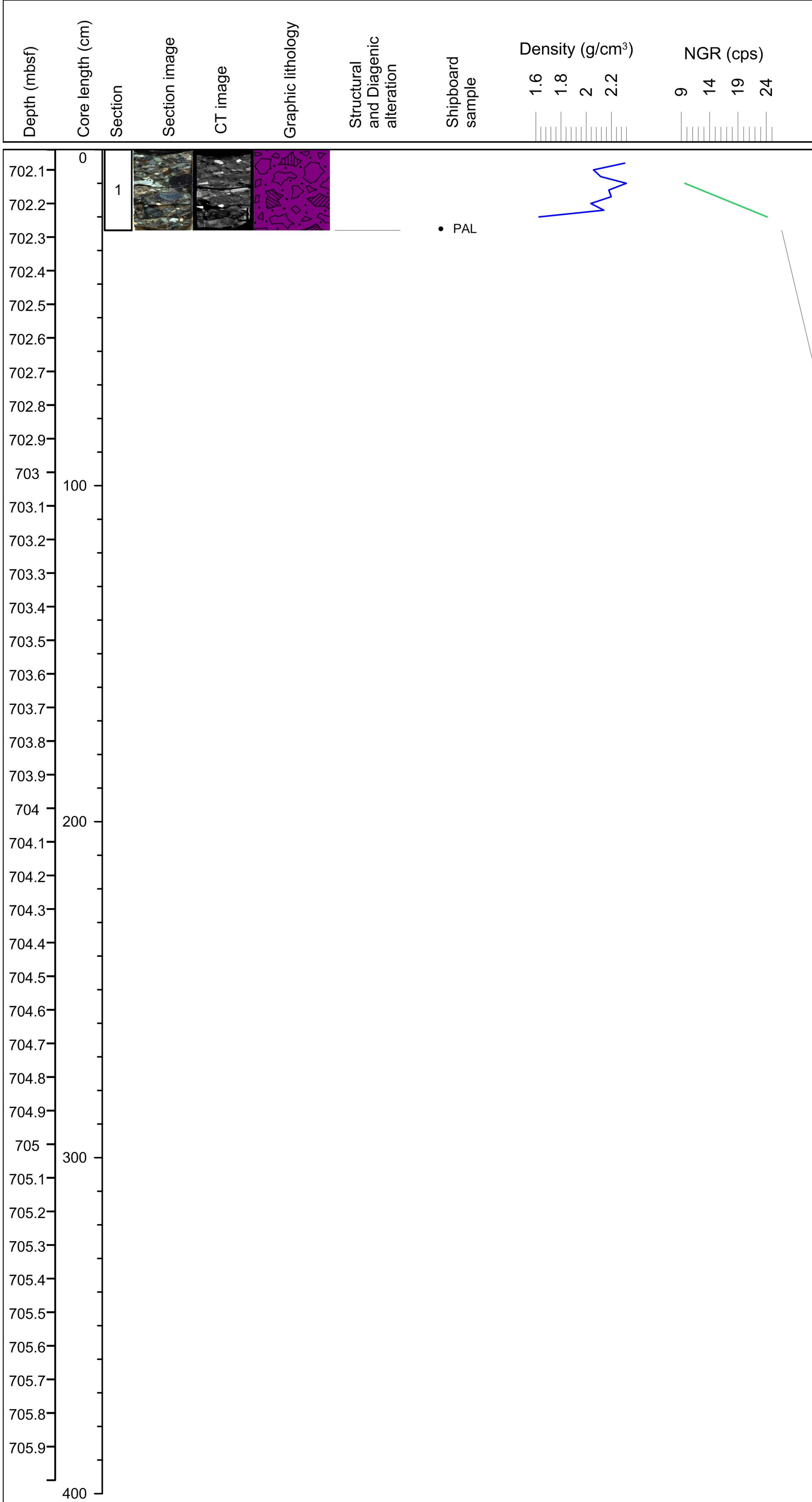
At 46-47, void (15 mm) filled with calcite.

At 70-72 cm, large (~50 mm) melt, green vesiculated with flow texture.

Breccia in breccia (fault zone?) [Low recovery/Missing parts of the core]

CT: Top few cm is light grey to dark grey (with preferential horizontal orientation); All the rest of the unit is dark gray with different clast types showing different CT from black to white.

Hole M0077A Core 75R Cored 702.04-702.39 mbsf



Description

Suevite, polymict breccia. Medium sand to fine pebble size. Max clast 3.5 cm. Clasts well rounded to angular, average subrounded. About 40% clasts, matrix supported. Poorly sorted. Carbonate-rich matrix (2.5Y 4/1), vuggy.

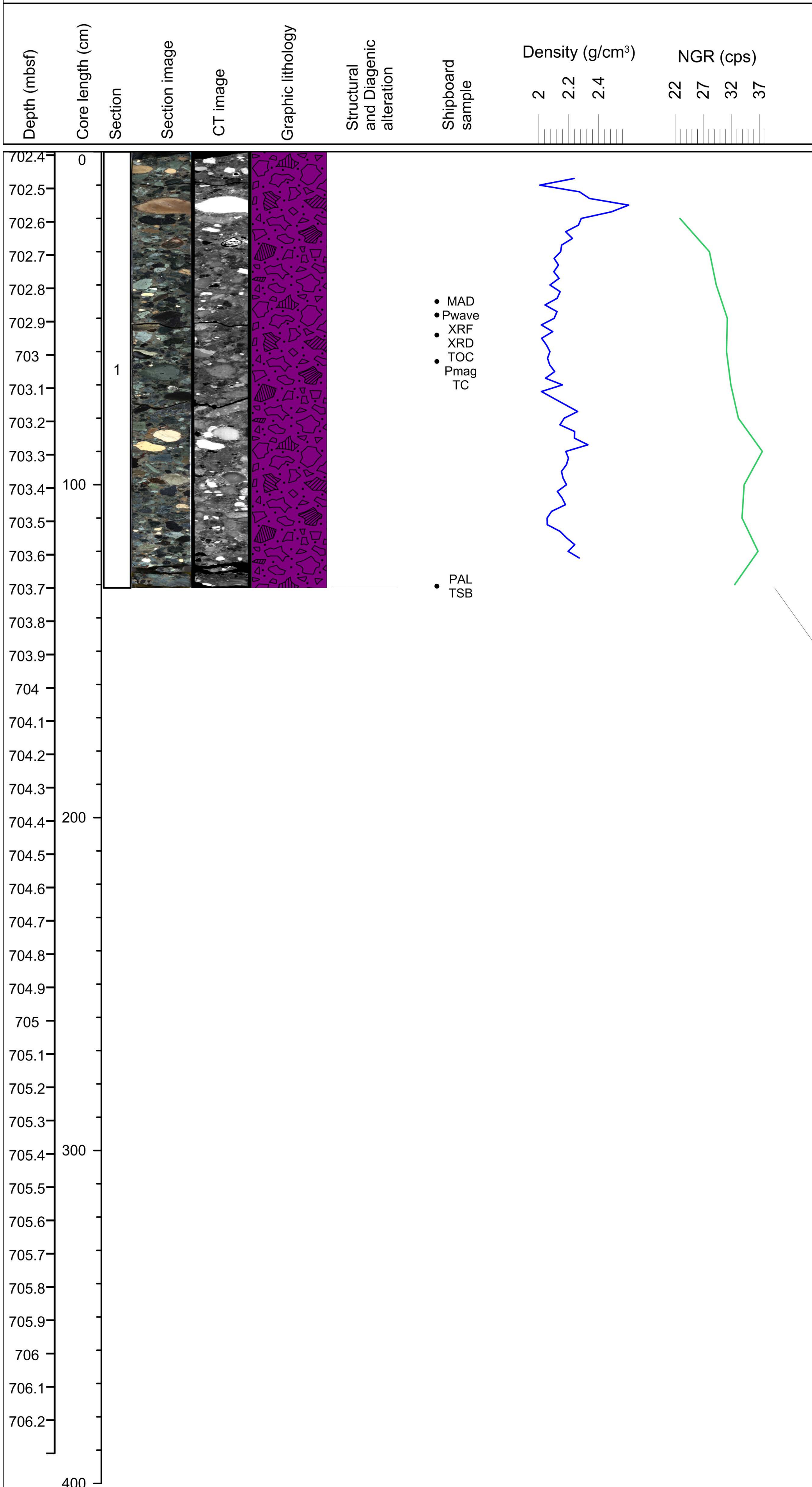
Clasts as in previous units, up to >60 mm (dark melt) [including all different types of sedimentary, metamorphic and magmatic rocks]. 50/50% light-dark green melt shards.

At 3-4 and 7-8 altered clasts with red alteration and calcite filling.

At 13-15 cm, large rounded granitoid clast (35 mm) in contact with dark grey melt (with flow texture and non-digested clasts.

CT: All unit is dark gray with different clast types showing different CT from black to white.

Hole M0077A Core 76R Cored 702.39-703.54 mbsf



Description

Suevite, polymict breccia. Medium sand to coarse pebble size. Max clast 8 cm. Large carbonate clast at 15 cm. Contains both shallow and deep water carbonate clasts. Clasts well rounded to angular, average subrounded. 30-40% clasts, matrix suppported. Poorly sorted. Carbonate-rich matrix, vuggy +/- calcite and reddish alteration.

More or less bimodial with large clasts from 40 to > core diameter and others less than 15 mm in size. Large clasts mainly subrounded. Same types of different clasts as in previous units.

At 7 cm, void partially filled with calcite and with red rim.

At 15-18 cm, very large (> core diameter) limestone clast sub-rounded.

At 26-29 cm, sub-rounded clast with orange to red alteration and calcite.

At 60-62, large chert and limestone clast (> 40 mm).

At 64-68, large green melt clast (60 mm).

At 74-78, granitoid (80 mm).

At 87-89, large limestone with strange fossils (shallow water?).

At 108-110, granitoid rimmed with green melt.

Locally red alteration filling cracks in clasts or rimming clasts, rarely more than 1,5 cm.

CT: All unit is dark gray to light gray with different clast types showing different CT from black to white. Large W-CT for carbonate clasts.

Hole M0077A Core 77R Cored 703.54-704.74 mbsf

Description

Suevite, polymict breccia. Medium sand to fine pebble size. Average fine pebble size. 30-40% clasts, matrix supported. Clasts well rounded to angular, average subrounded. Poorly sorted. Matrix (2.5Y 5/1) vuggy +/- calcite and reddish alteration.

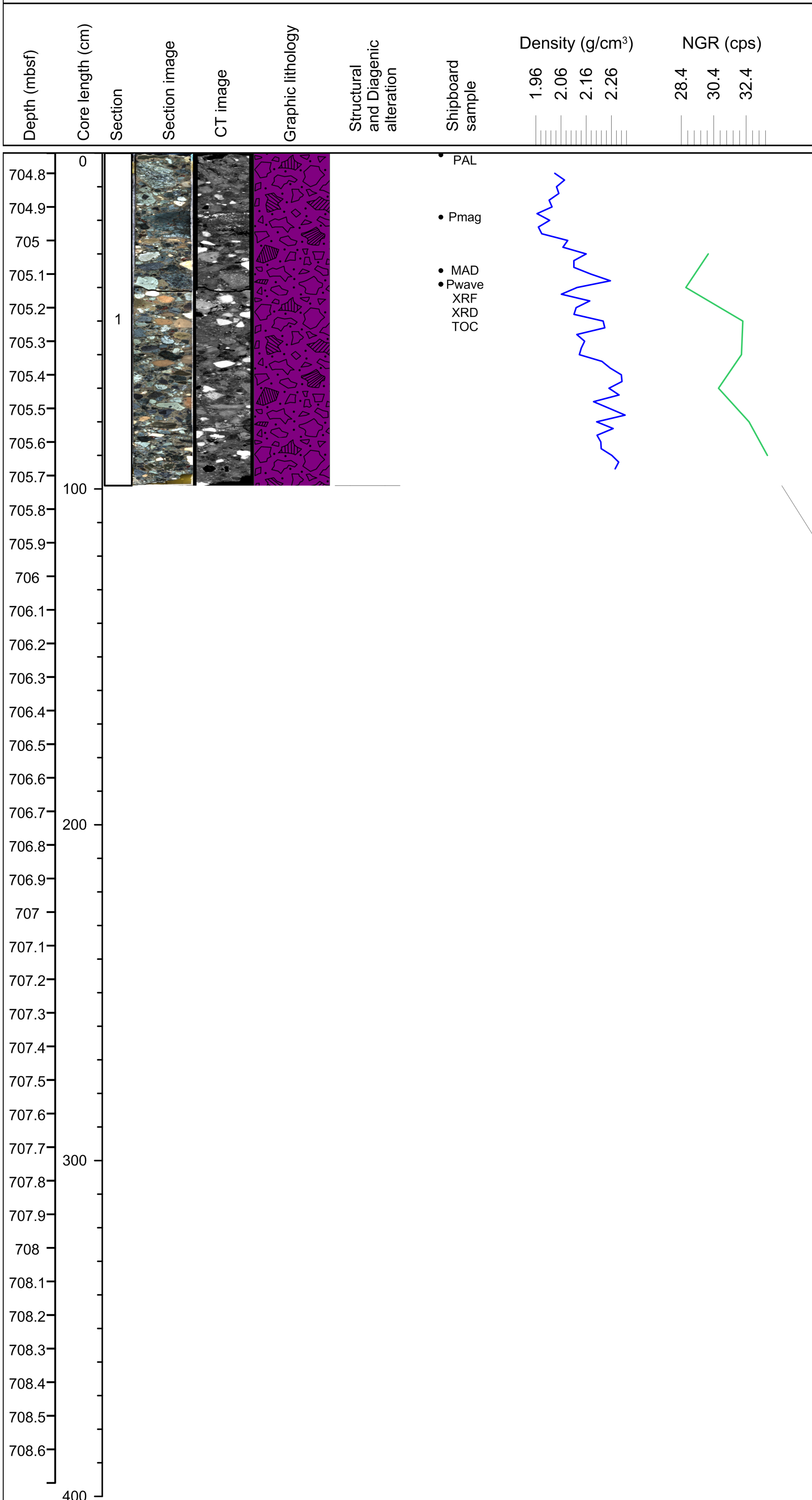
Clasts as in previous units, from rounded to sub-angular, and same variety as in previous units, with light to dark melt clasts, with flow texture and non-digested clasts, and rocks clasts (sedimentary, metamorphic and magmatic lithologies). Rounded to subrounded limestone clasts with fossils.

Large dark melt (45 mm) and light colored melt (35 mm).

Randomly distributed red alteration as in previous cores.

CT: All unit is dark gray to light gray with different clast types showing different CT from black to white. Large W-CT for carbonate clasts and LG-CT for some melt clasts.

Hole M0077A Core 78R Cored 704.74-704.84 mbsf



Description

Suevite, polymict breccia. Medium sand to coarse pebble size. Average fine pebble size. Clasts well rounded to subangular, average subrounded. Poorly sorted. About 40% clasts, matrix supported. Generally coarsening upward. Matrix carbonate-rich (2.5Y 5/1), vuggy +/- calcite and red alteration.

Larger clasts at the top of the unit (larger than core diameter). Clasts are sub-angular to sub-rounded (rounded). All variety of different types of clasts as identified in previous units are represented.

At 3-10, large (> core diameter) granitoid (shocked and altered).

At 12-16, light green melt clast (4 cm) with dolerite clast inside.

At 18-26, large (> core diameter) granitoid (shocked and altered).

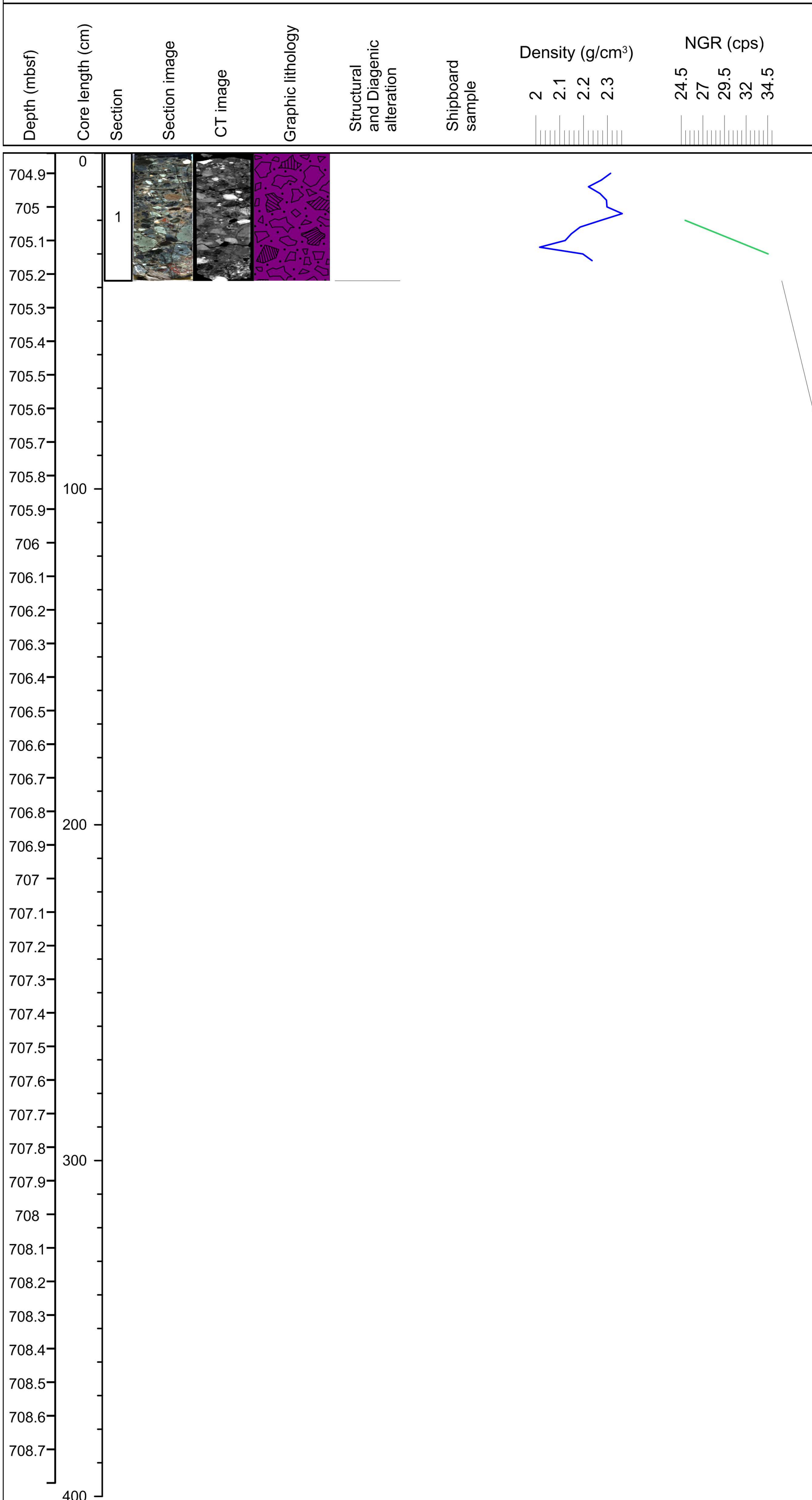
At 36,5-41, large granitoid clast (>5 cm).

At 41-52, large carbonate clasts (> 3 cm).

At 45, shocked carbonate (recrystallized, fossils)

CT: All unit is dark gray to light gray with different clast types showing different CT from black to white. Large W-CT for carbonate clasts and LG-CT for some melt clasts.

Hole M0077A Core 79R Cored 704.84-705.2 mbsf



Description

Suevite, polymict breccia. Medium sand to fine pebble size, average fine pebble size. Grains well rounded to angular, average subrounded. Poorly sorted. Clasts 30-40 %. Matrix supported. Carbonate-rich matrix (2.5Y 4/1), vuggy +/- calcite and reddish alteration.

Same clast types as in previous units.

2 large green melt clasts (>6 cm).

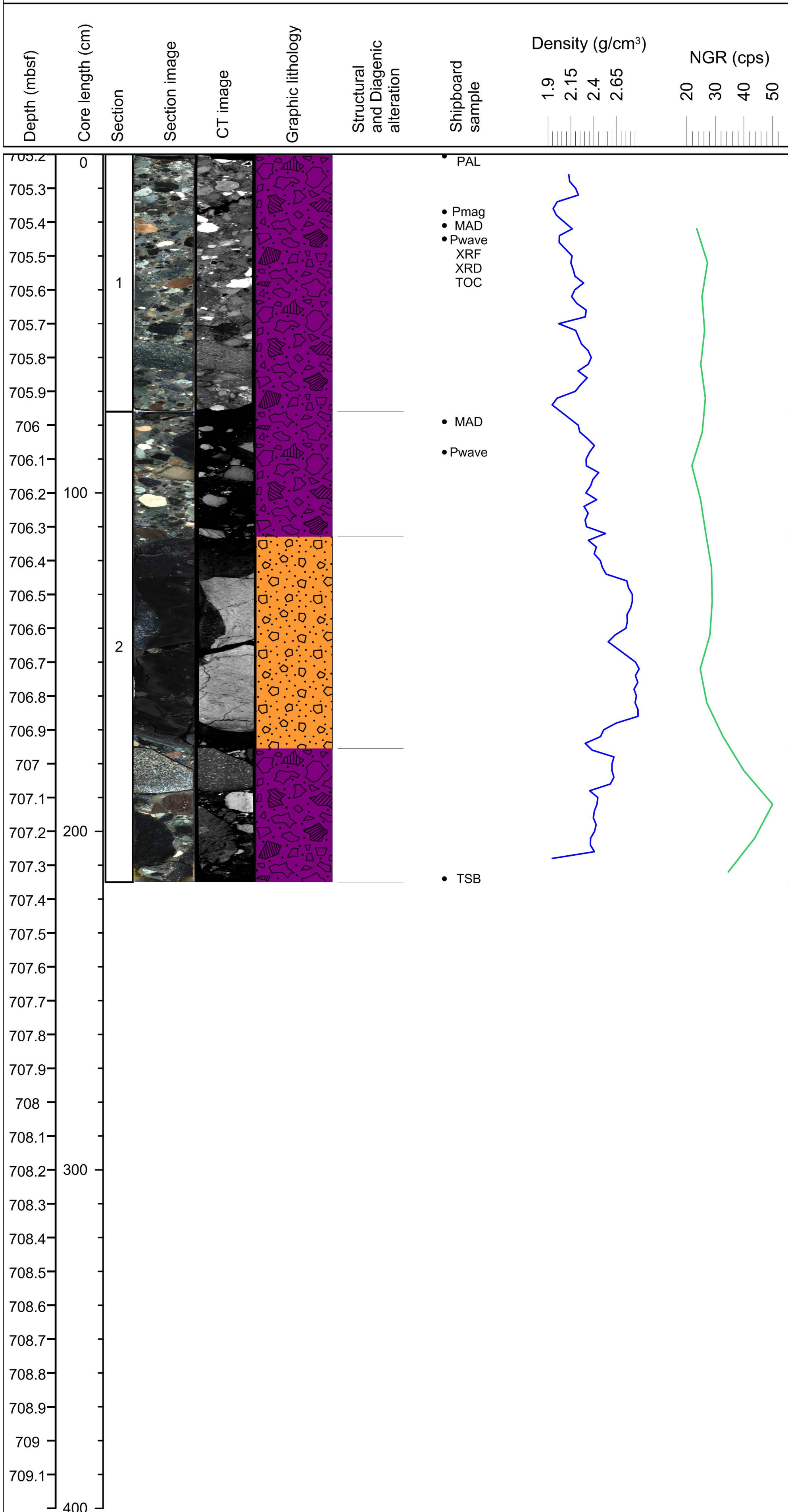
A few granitoid clasts (one at 20-21 cm similar to the granites from the lower part of the core).

At 32-37, red alteration in a granitoid clast.

Some nice undigested clasts in melt shards. Chert clasts with thin rim.

CT: All unit is dark gray to light gray with different clast types showing different CT from black to white. Large W-CT for carbonate clasts and LG-CT for some melt clasts.

Hole M0077A Core 80R Cored 705.2-707.34 mbsf



Description

Suevite, polymict breccia. Medium sand to coarse pebble size, average fine pebble size. Max clast 10 cm. Grains well rounded to angular, average subrounded to subangular. Poorly sorted. About 40% clasts, matrix supported. Matrix carbonate-rich (2.5Y 5/1) +/- calcite and reddish alteration.

Same variety of clasts as in previous units, such as chert, limestone, metamorphic and magmatic rock clasts. Dominated by green melt clast (light to dark green) with vesicles, flow texture, and undigested clasts.

At 55-63, large mafic clast much larger than core diameter (shock vesiculated).

At 72, red clay clasts (sub-angular, 15 mm).

CT: All unit is dark gray to light gray with different clast types showing different CT from black to white. Large W-CT for carbonate clasts and LG-CT for some melt clasts.

Suevite, polymict breccia. Medium sand to coarse pebble size, probably bimodal. Grains well rounded to subangular. 30-40% clasts, matrix supported. Poorly sorted. Matrix (2.5Y 4/1) carbonate-rich, vuggy +/= calcite and reddish alteration.

Same as in previous unit; Large clast of impact melt clast-poor (more than 10 cm in size).

Massive impact melt rock clast (clast poor, no vesicles).

At 38-49: Dark grey in color, contains clasts up to 3 cm (the largest clast), others are in order of a few mm. Sharp contact with the suevite matrix (lighter grey at the contact). [Dark grey in CT]

At 49-~96: Dark grey/black clast (angular) of a fine-grained rock (impact melt? or a pre-impact lithologie?). Thin reddish veinlets (1 mm in thickness) crosscut. Large non-digested (diffuse margins) magmatic clast.

At ~96-99: Same as 38-49. Sharp contact but wavy, from dark grey to green at the contact.

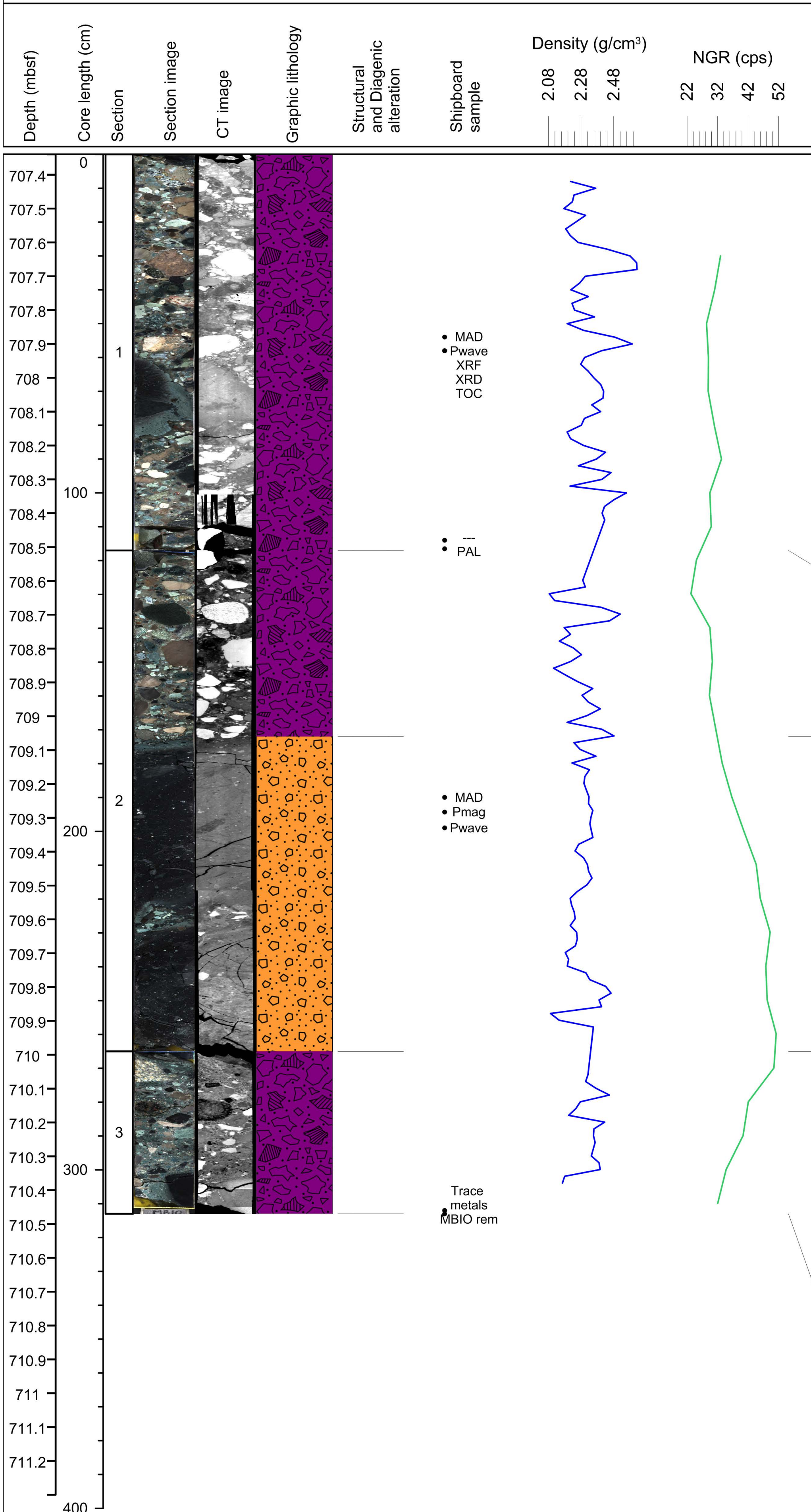
Suevite, polymict breccia. Medium sand to coarse pebble size. 12 cm granitic clast. 15 cm impact melt clast and other types. Clast are well rounded to subangular, poorly sorted. Matrix (2.5Y 4/1) carbonate-rich, vuggy +/- calcite and reddish alteration.

At 100-112: Fine-grained granite clast [LG to DG in CT].

At 119-134: Shocked crystalline rock (gneiss?) [LG to DG in CT].

At the bottom of the core, impact melt clast poor (same type as at 38-49 cm).

Hole M0077A Core 81R Cored 707.34-710.39 mbsf



Description

Suevite, polymict breccia. Medium sand to coarse pebble size. Max clast 23 cm. Poorly sorted. Clasts well rounded to angular. 30-40% clasts, matrix supported. Matrix (2.5Y 5/1), carbonate-rich, vuggy +/- calcite and reddish alteration.

Large variety of clasts as in previous units.

At 4-10, elongated granite clast (same as in the lower part of the core).

At 28-36, large carbonate clast (with fossils).

At 42-45, large calcite clast with red rim and veinlets.

At 54-58, large (6 cm) carbonate clast (with fossils) in part melted.

At 60-83, large impact melt rock (clast poor) clast (bomb?), larger than 22 cm, with sharp, irregular, contact with the matrix. Undigested clasts and tiny vesicles (<1 mm); Flow texture, dark-grey to green in color.

At 86-90, large irregular carbonate (with fossils).

Tiny red flakes (alteration) widely distributed.

CT: All unit is dark gray to light gray with different clast types showing different CT from black to white. Large W-CT for carbonate clasts and LG-CT for the impact melt clasts.

Suevite, polymict breccia. Medium sand to coarse pebble ssize. Max clast 80 cm. Clasts well rounded to angular. Poorly sorted. 16-55.5 cm coarsening upward. Matrix (2.5Y 4/1), carbonate-rich, vuggy with calcite and reddish alteration.

Same clasts as in previous sections (clasts > 80 mm).

Impact melt rock (clast poor) clast; Clasts up to 2 cm non-digested in the melt. Dark to light grey with a ~3 cm transition zone (greenish) to contact with suevite (sharp, irregular, contact at 56 cm). [Light grey in CT]

At 104-109, unit of suevite with clasts up to 25 mm in size.

At 110, an ~12 mm granite clast (rounded).

Suevite, polymict breccia. Medium sand to coarse pebble size. Grains well rounded to subangular. About 50-60% clasts, partly grain supported, part matrix supported. Matrix (2.5Y 4/1), carbonate rich, less vuggy than above and little calcite or reddish alteration in matrix, some in clasts.

Much less matrix than in previous suevite unit (~40% of matrix).

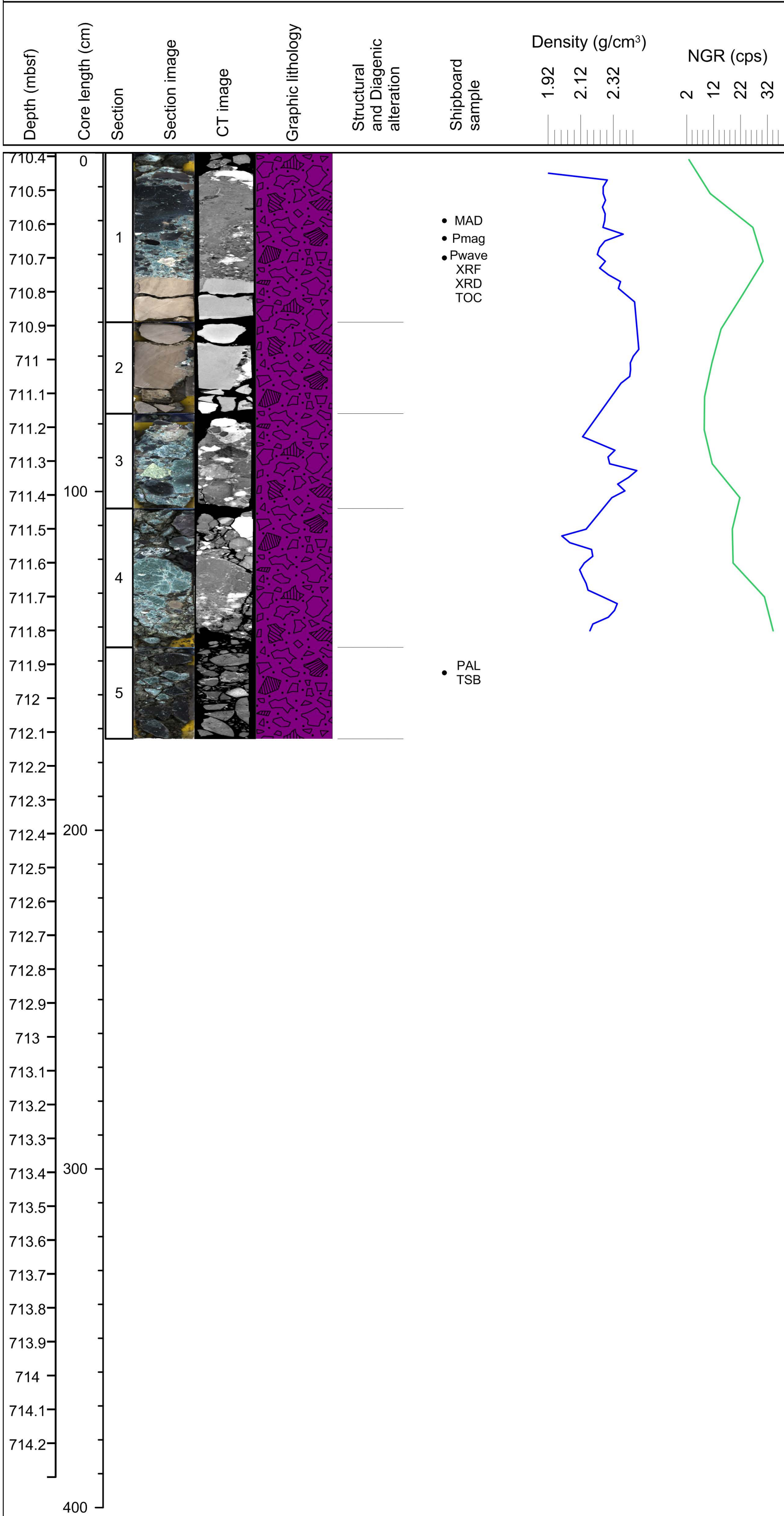
Same population of clasts as in previous units.

2 large granitoid clasts (max 6 cm).

At 36-46, impact melt clast (clast poor), dark to black with green interaction zone, ~3,5 cm in thickness.

CT: All unit is dark gray with different clast types showing different CT from black to white.

Hole M0077A Core 82R Cored 710.39-712.08 mbsf



Description

Suevite, polymict breccia. Medium sand to coarse pebble size. Clasts rounded to subangular. Poorly sorted. About 70% clasts, clast supported. Very little matrix to judge color but generally similar to above and is carbonate-rich. Very large clast at base continues down into underlying core. Sharp contact at top of clast (37 cm) with overlying grains penetrating into top of clast. Clast is bedded lime mudstone with bedding oriented almost vertically and a small partially silicified patch from 37-40 cm along left side of core.

At 37 cm: Gradationnal contact between clast-rich unit and carbonate (this is not a clast and the contact is definitely not sharp).

Carrbonate, Colore 10R 6/1. Green and black melt adjacent to carbonate. CT is light gray. Note: the classificaion is based, in part, on features in adjacent sections.

very poorly sorted, grain supported suevite

clast size usually over 3cm and mm-size clasts are also observed

grains are well rounded to subangular in shape

maximum sie; 5cm (dark gley clast). Green and black melt fragments. Target lithologies include limestone and gneiss.

COLOR; 10R4/1

CT; matrix...dark gley, grains; white to dark gley

very poorly sorted suevite. it is vrreciated especially at dark green part

difficult to determine maximum size

clasts are angular for green clast but light brown clast (3.5cm) is well rounded. Dominated by large green fragment that is cracked; matrix carbonate fills cracks. Two vugs partially filled with calcite occur in green melt fragment. Target clasts include carbonate and granodiorite.

color; 10R4/1

CT; dark gley dominated

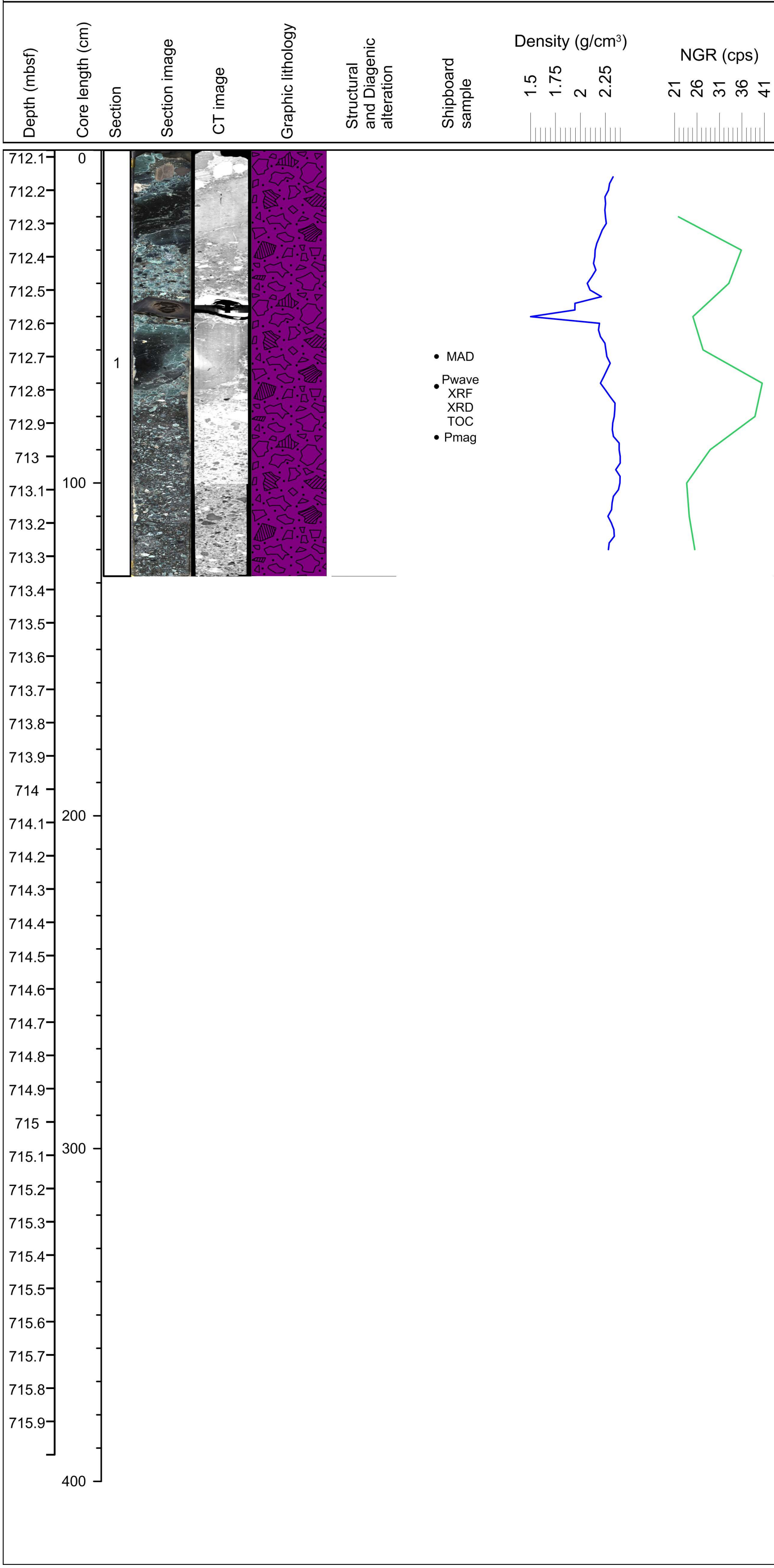
0-12cm and 32-end of core; fragmented

lithology is estimated from above and below sections

this section is fragmented and difficult to describe. Green and black melt fragments. A 2 to 3 cm gneiss clast is in the black melt fragment.

CT; dark gley

Hole M0077A Core 83R Cored 712.08-713.44 mbsf



Description

very poorly sorted, matrix-supported suevite

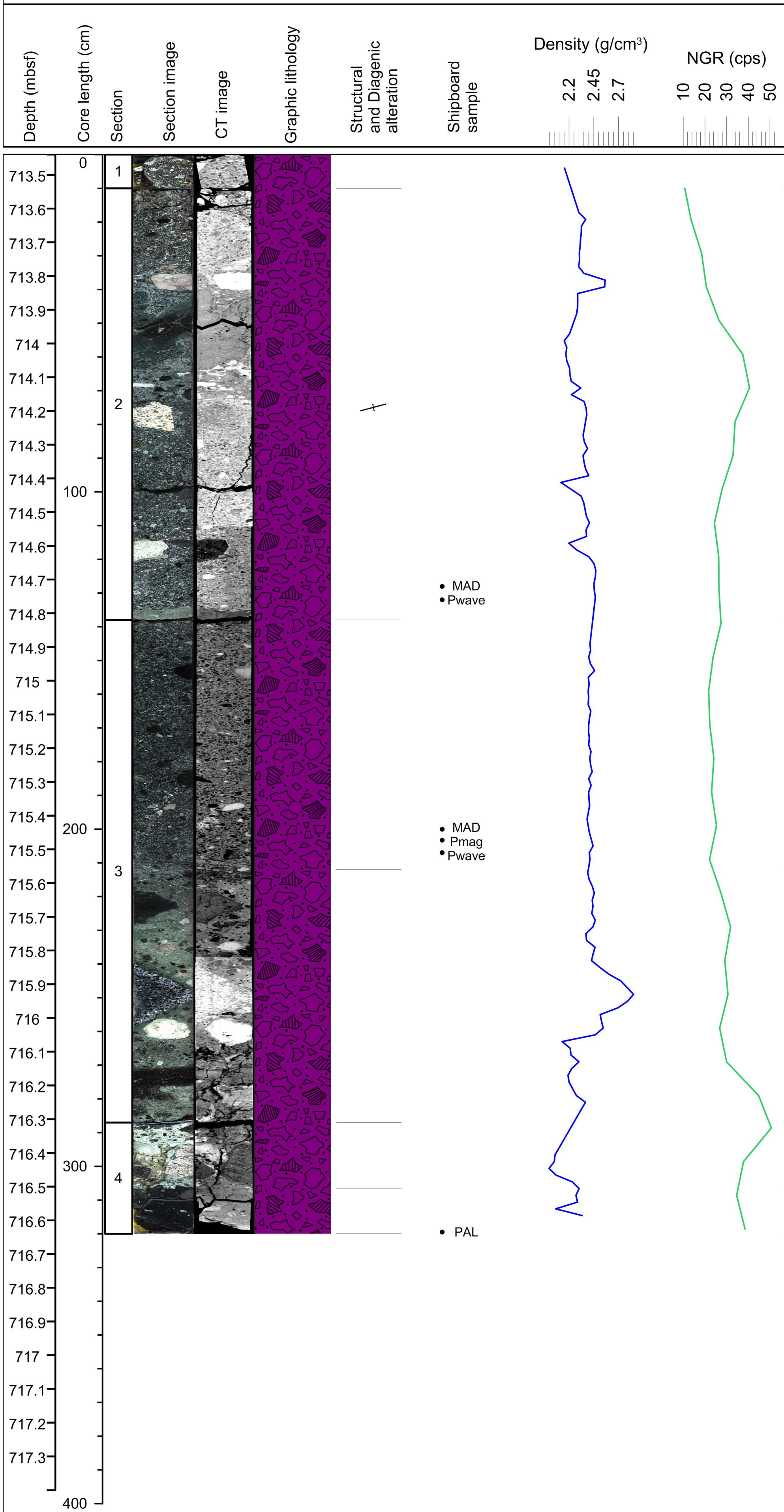
many small grains smaller than 1cm observed but some extremely large clasts are also observed (max, size; >20cm, greenish clast)

grains are subangular in shape. Green and black melt fragments, some with bleached reaction rims. Target lithologies include carbonate and granite. Alteration includes dissolutoin of core of about 8 cm carbonate clast, producing abourt 4 cm cavity.

COLOR; 10R4/1 but upper part show more gleyish color (GLEY2 5/5B)

CT; mostly light gley in color, large clasts have high density and high atomic number

Hole M0077A Core 84R Cored 713.44-716.49 mbsf



Description

poorly sorted suevite, max; size is 1.5cm

matrix supported suevite

clasts are angular in shape. Green, gray, and black melt clasts. Target clasts include carbonate and gneiss.

COLOR; 10R3/1

CT; light gley in matrix

very poorly sorted,

clasts are subangular

maximum melt clast over 20cm observed at 31-53cm

mainly matrix supported

<1cm small angular clasts are also observed. Green, gray, and black melt fragments, some with bleached margins. One black melt fragment entrains a 2 cm-long granite clast. That black melt fragment is, in turn, surrounded by green melt that has a fractured texture. Target lithologies include limestone, shale, granite (up to 8 cm in size), and granodiorite.

COLOR; 0-37cm; 10R2/1, 44-63cm; GLEY2 4/10G, 63-123cm 10R4/1

CT; light gley matrix, white/dark gley grains

poorly sorted matrix-supported suevite

COLOR; 10R3/1

many <1cm greenish angular clasts are observed

largest clast is >5cm (black clast). Green and black melt fragments. Target lithologies include limestone, gneiss, granite, and amphibolite. Alteration includes a vug partially filled with calcite.

CT; light gley matrix, black/white grains

greenish matrix-supported suevite

>17cm clast observed

matrix-rich and mm-size clasts are not observed so much. Green and black melt fragments. Target lithologies include a granodiorite (at least 16 cm in diameter), carbonate, including a globular one with resorbed margins, red siltstone, and shale. Vugs (1 cm) in green melt. Stylolites (78-82 cm) in carbonate matrix.

GLEY2 6/5BG

CT; light gley matrix , white clast

matrix supported, very poorly sorted suevite

maximum size; 9cm

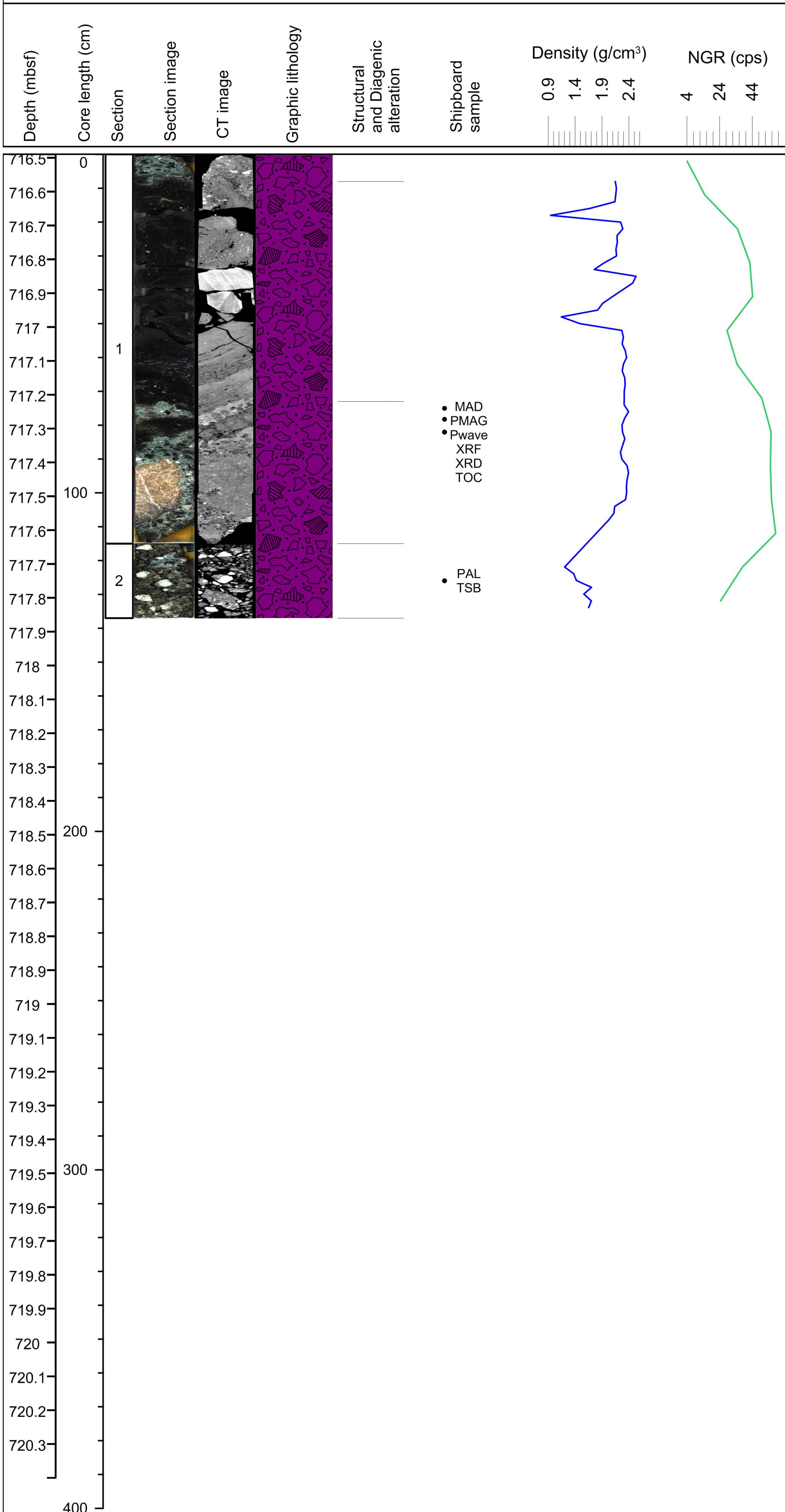
COLOR; GLEY2 6/10B

dark gley matrix (or clast?)

matrix supported and <1cm clast are locally observed

COLOR; GLEY2 2.5/10B

Hole M0077A Core 85R Cored 716.49-717.64 mbsf



Description

Poorly sorted, grain supported suevite. Grains are angular with a maximum clast diameter of 2.5 cm.

Matrix colour, GLEY 4/10B

CT colour is light grey

Poorly sorted grain shape in dark, fine-grained matrix, matrix-supported, largest clast diameter is 17 cm. Small fragments are less than 0.5 cm.

Matrix colour: 7.5YR 2.5/1

CT colour: light grey

Poorly sorted, matrix supported. Maximum clast diameter is 18 cm. Light green matrix

Matrix colour: GLEY1 6/5G

CT colour

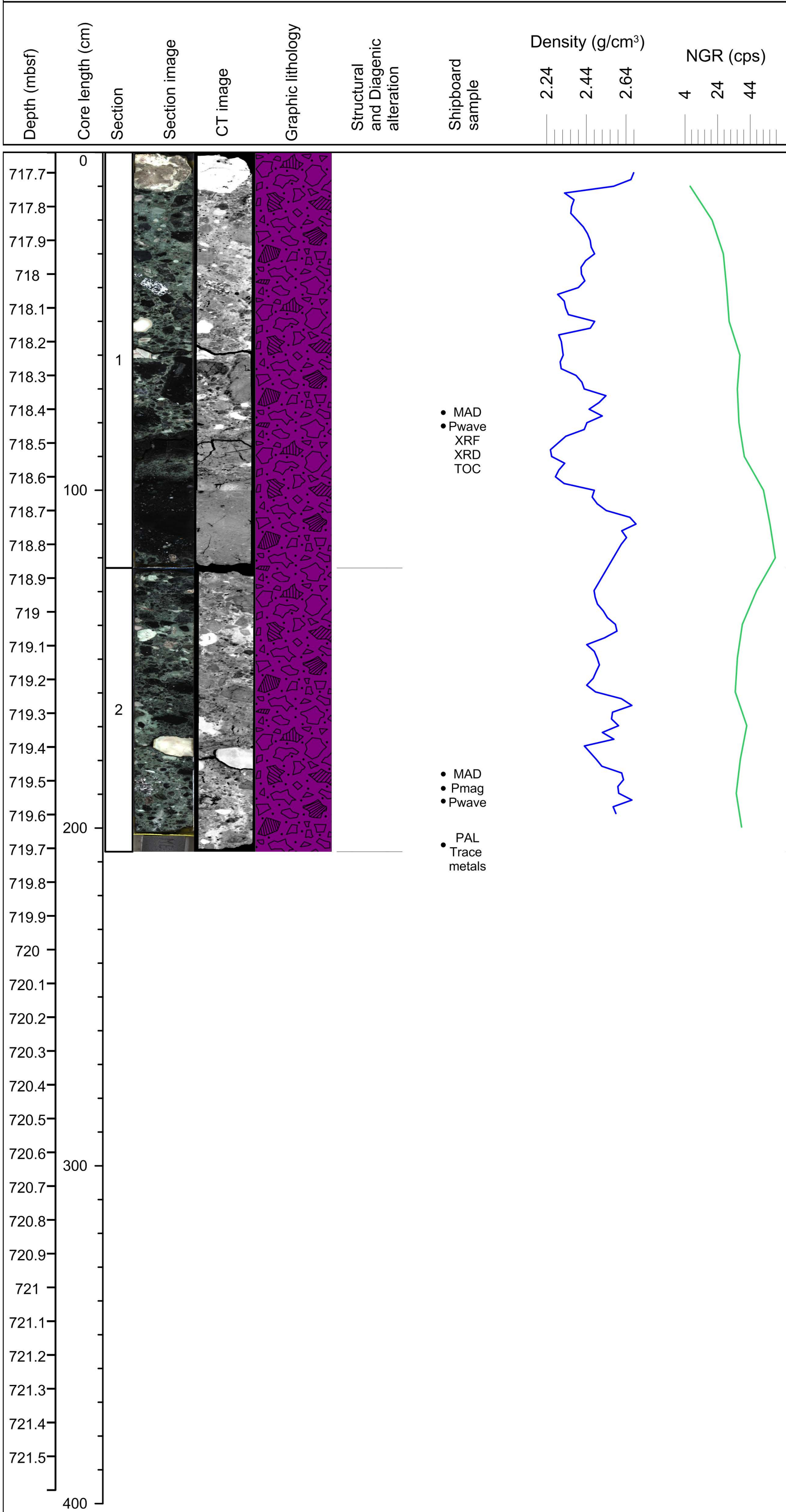
fragmented and difficult to describe

matrix supported. Green and black melt fragments. Carbonate fragments.

GLEY1 5/5G

no CT image

Hole M0077A Core 86R Cored 717.64-719.54 mbsf



Description

very poorly sorted, matrix supported suevite, clasts are angular to subangular

95-118cm part; >25cm clast (or another unit?) in black color, small clasts are included in (color GLEY1, 8/N)

various size ranging mm-size to over 25cm. Green and black melt fragments; one may be altering into the other. Target clasts include carbonate, mylonite, granite, and granodioirte.

COLOR; GLEY15/5G

CT; light gley matrix, various color of grains

very poorly sorted, matrix supported suevite, many over 2cm clasts observed

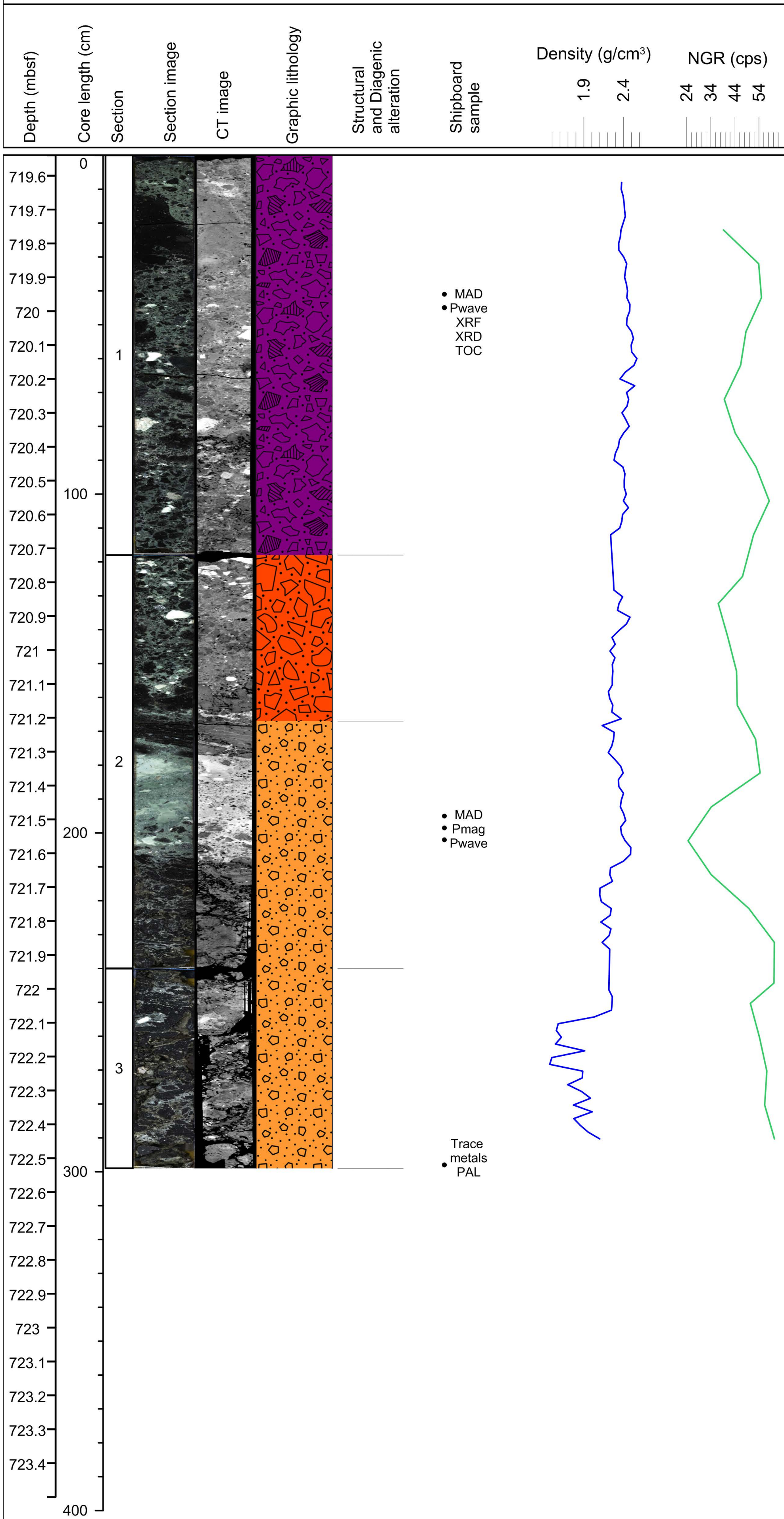
subrounded-irregular in shape

maximum size; >7cm. Black melt fragments in a green matrix. Target lithologies include carbonate, granite, and granodiorite.

COLOR; GLEY1 6/5G

CT; light gley matrix, white or dark gley lasts

Hole M0077A Core 87R Cored 719.54-722.59 mbsf



Description

very poorly sorted, matrix supported suevite, maximum clast is >22cm

clasts are angular and over cm-size clasts dominated. Black melt fragments in green matrix. Target clasts include carbonate and gneiss. Dissolution has produced vugs in black melt fragments.

COLOR; GLEY1 6/5G

CT; light gley matrix, dark gley to white grains

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very poorly sorted, matrix supported suevite

maximum size 4cm, mostly >11cm in size

COLOR; GLEY1 5/5G

rounded to subangular

CT; light gley matrix, dark gley to white grains

black melt clasts in green matrix, target rock solid clasts include granodiorite and carbonate, dissolution creates void some 2 cm in size.

Gley 1 8/N

max size 2.5 cm, Gley 1 6/5G,

CT light grey matrix,

Impact melt rock composed of green and black parts, imbriacted into each other, black component dominates with schlieren of green melt ranging from mm to 30 cm, target includes carbonate and 2 different gneisses.

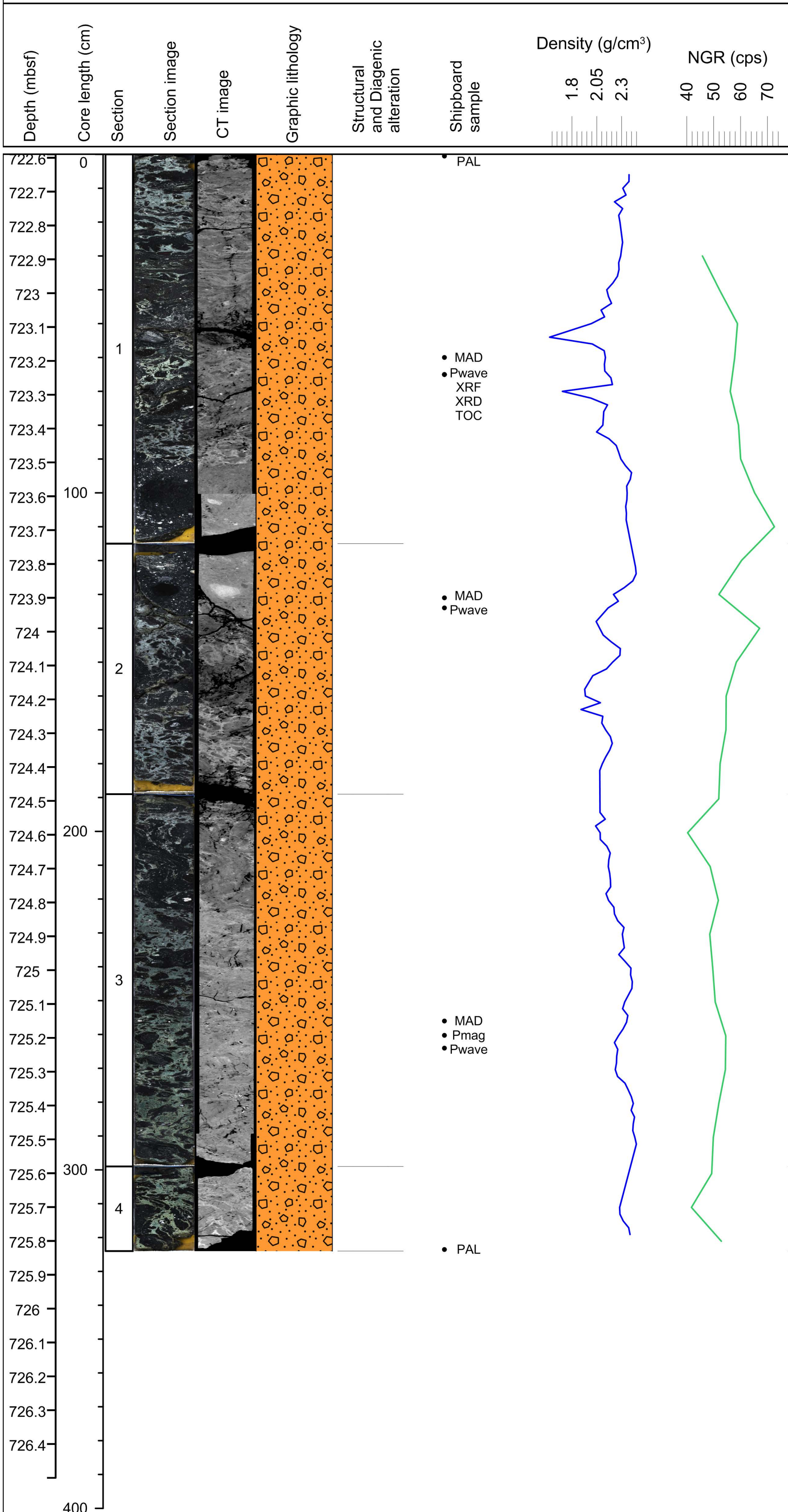
COLOR; GLEY1 2.5/N for dark matrix, GLEY1 5/5G for green matrix

clast poor black melt wl, green schlieren

two, 2-cm-size clasts of carbonate, other clasts <0.3cm in size

CT; light to dark gley in matrix

Hole M0077A Core 88R Cored 722.59-725.64 mbsf



Description

color; GLEY1 2.5/N dk, GLEY1 6/5G green

black melt with schlieren of green melt but also entrains angular fragments of black melt

target clasts include gneisses (<3cm)

red alteration of one area

CT; light gray, green unit is light gray

same as 88R-1

CT; light gley

some alteration is observed

same as 88R-1

CT; light gray

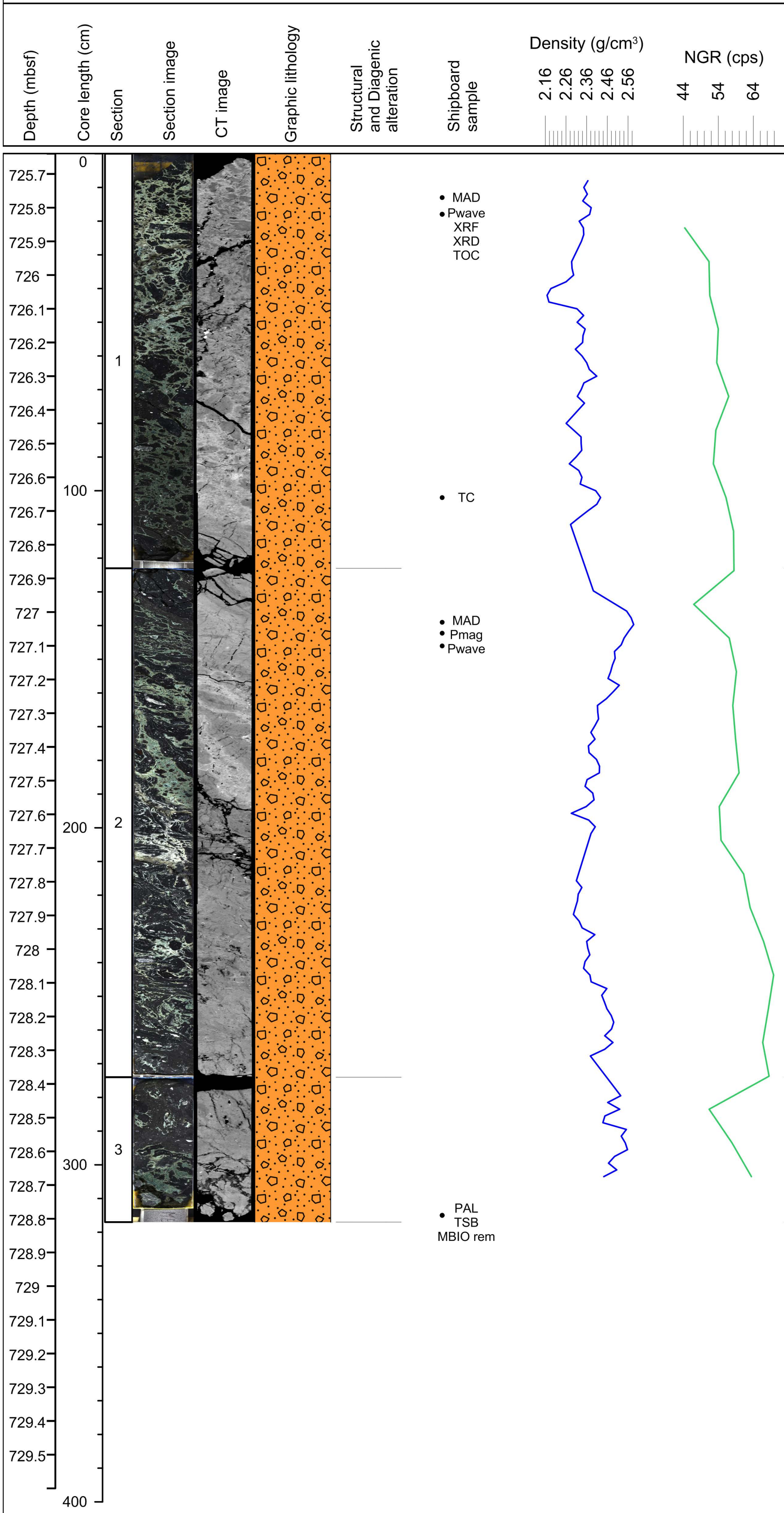
structures; schlieren

same as 88R-1

CT; light gray

structure; schlieren

Hole M0077A Core 89R Cored 725.64-728.69 mbsf



Description

black melt fragments in green melt

target lighologies include granodiorite and granite

veins coated with secondary carbonate

COLOR; GLEY1 2.5/N black, GLEY1 5/5GY green

CT; light gray in the upper part but dark gray in the lower part

structure; schlieren

veins and alteration observed at the middle part

black melt with green schlieren

target clasts include mylonite, granodiorite, and sandstone

COLOR; GLEY1 2.5/N (black), GLEY1 6/5G (green)

CT; light gray

structure; schlieren

black to gray melt with two-tone green schlieren

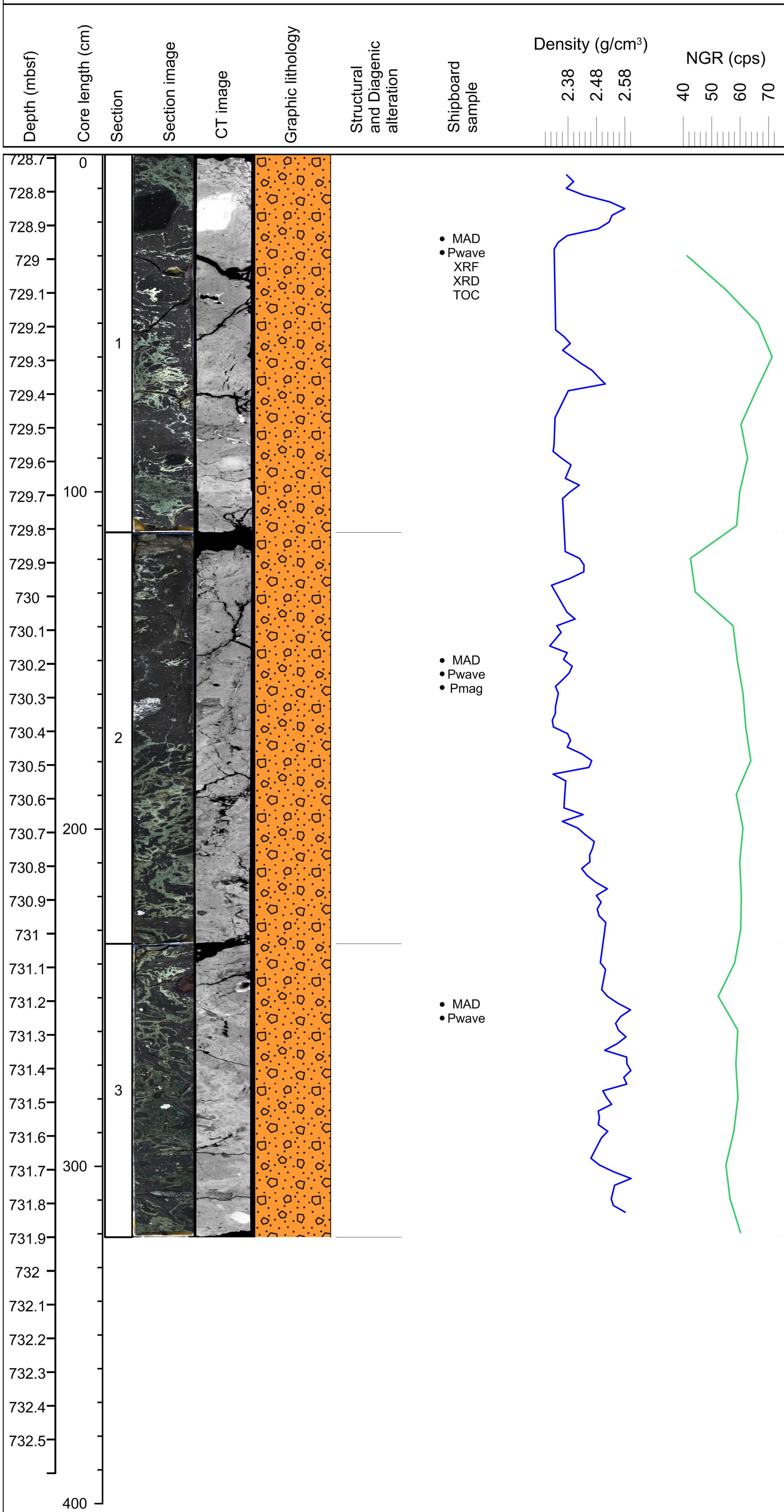
cm-scale vugs with calcite

COLOR; GLEY1 2.5/N (black), 3/N (gray), 4/5G (Green)

structure; schlieren

CT; light gray (green). dark gray (black)

Hole M0077A Core 90R Cored 728.69-731.74 mbsf



Description

black melt with green schlieren. In some areas, angular gragments of black melt are entrained in green melt.

target clasts are <1cm and not identifiable.

Alteration along veins in vugs

COLOR; GLEY1 3/N (black), 7/5G (green)

CT; light gray

structure; schlieren

black melt with green schlieren, some of which entrain angular clasts of black melt.

target clasts include granodiorite.

Alteration has produced lengry dissolution channels. also present are veins and a purple mineral

COLOR; GLEY1 3/N (black), GLEY1 6/5G (green)

CT; light gray

structure; schlieren

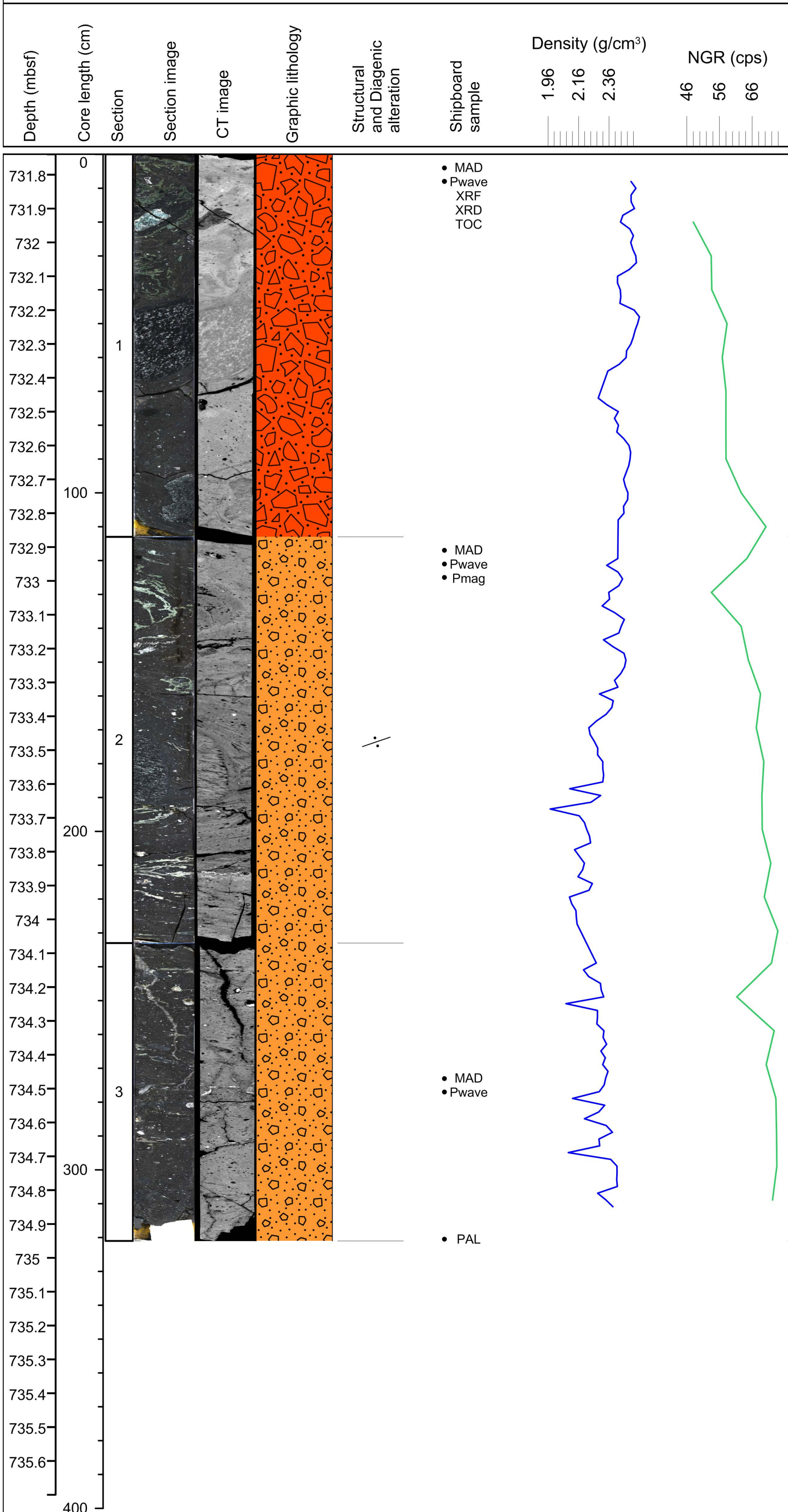
black melt with two-tone green schlieren.

target clasts include sand stone (w/ hematite alteration) granodiorite

structure; schlieren

CT; light gray

Hole M0077A Core 91R Cored 731.74-734.79 mbsf



Description

black melt with two-tone green schlieren and large clasts with quenched rims.

target clasts include granodiorite, meta-granodiorite (44-68cm), gneiss (94-110cm) and possible amphibolite

blue-green alteration mineral plus calcite

COLOR; GLEY1 2.5/10N (black) GLEY1 4/5g (green)

CT; light gley

structure; schulieren

same as 91R-1

clast 57-78cm made of gneiss plus small cm size granite, sheared by vein at 116cm

COLOR; GLEY1 3/N

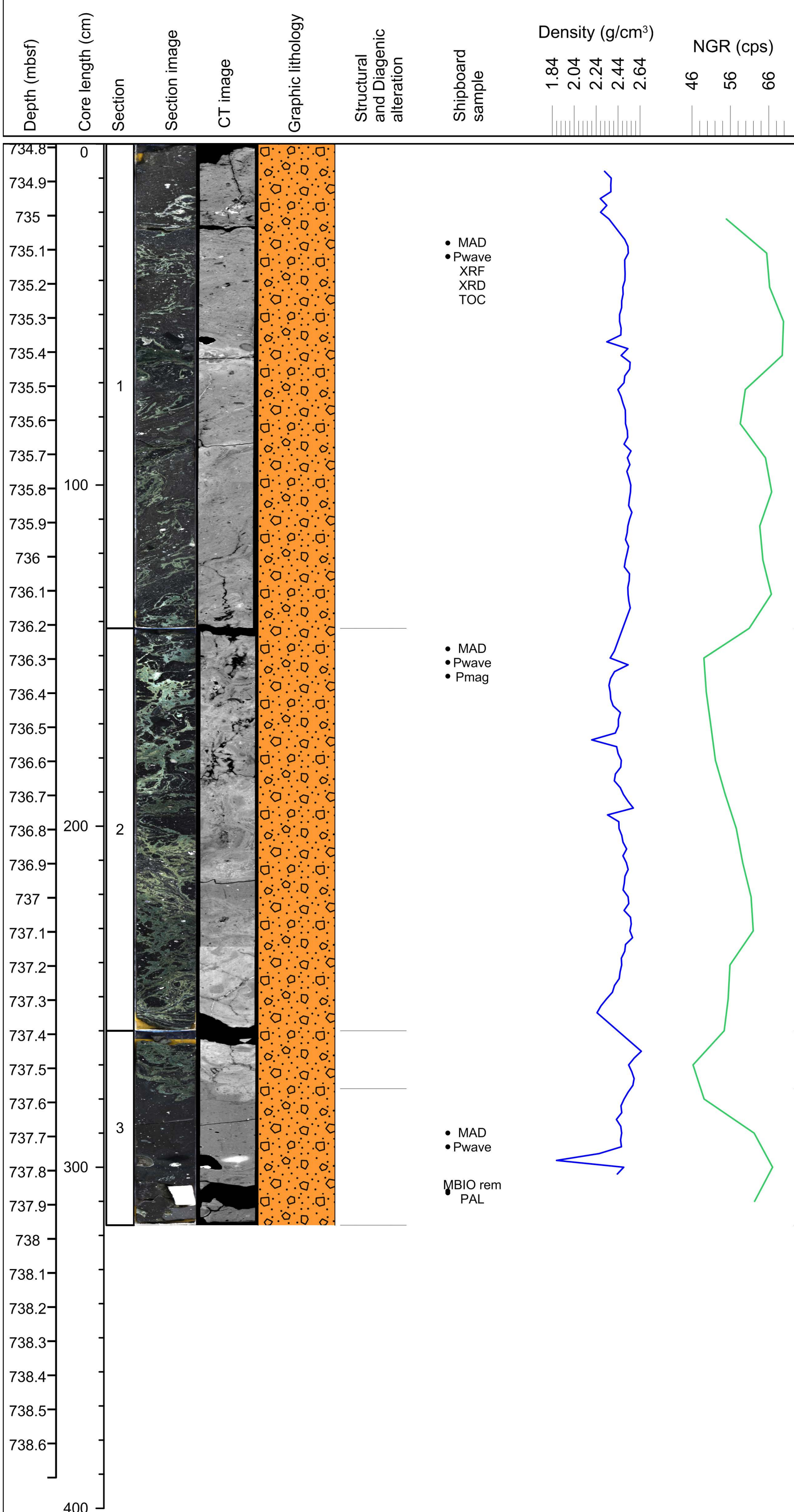
CT; Light glay

same as 91R-2

large granite plus grey melt, nice coronas around clasts in melt

COLOR; GLEY1 2.5/N

Hole M0077A Core 92R Cored 734.79-737.84 mbsf



Description

COLOR; GREY1 3/N (black), GLEY1 5/5G (Green)

black melt with two-tone green schlierens plus fragments of black melt within the black melt.

Entrained lithic clasts are <4cm and generally <5mm. They include granodiorite, gneiss.

Alteration produced vugs that are partially filled with calcite. A single purple-colored mineral is present

CT; light gray

structure; schlieren

Color: Black melt: Black (dark grey) GLEY 1/2.5/N; Green melt: Green GLEY 6/5G

Green impact melt with dark grey schlieren and black clasts to schlieren including non-digested mafic and felsic clasts, up to 3 cm (on average <1 cm)

Some porosity (~cracks) in the top of the unit (from 0-33 cm)

Black melt clasts up to 8-10 cm

CT: LG (full unit) dark green melt is lighter grey/ schlieren visible on CT

Same impact melt as in previous unit, green impact melt with dark grey and black clasts and schlieren

Irregular, sharp contact with the massive dark grey-brown melt

CT: LG to W with schlieren

Color: 7.5YR/2.5/1

Dark grey/brown with bluish-grey schlieren.

Clasts (sub-rounded to sub-angular)

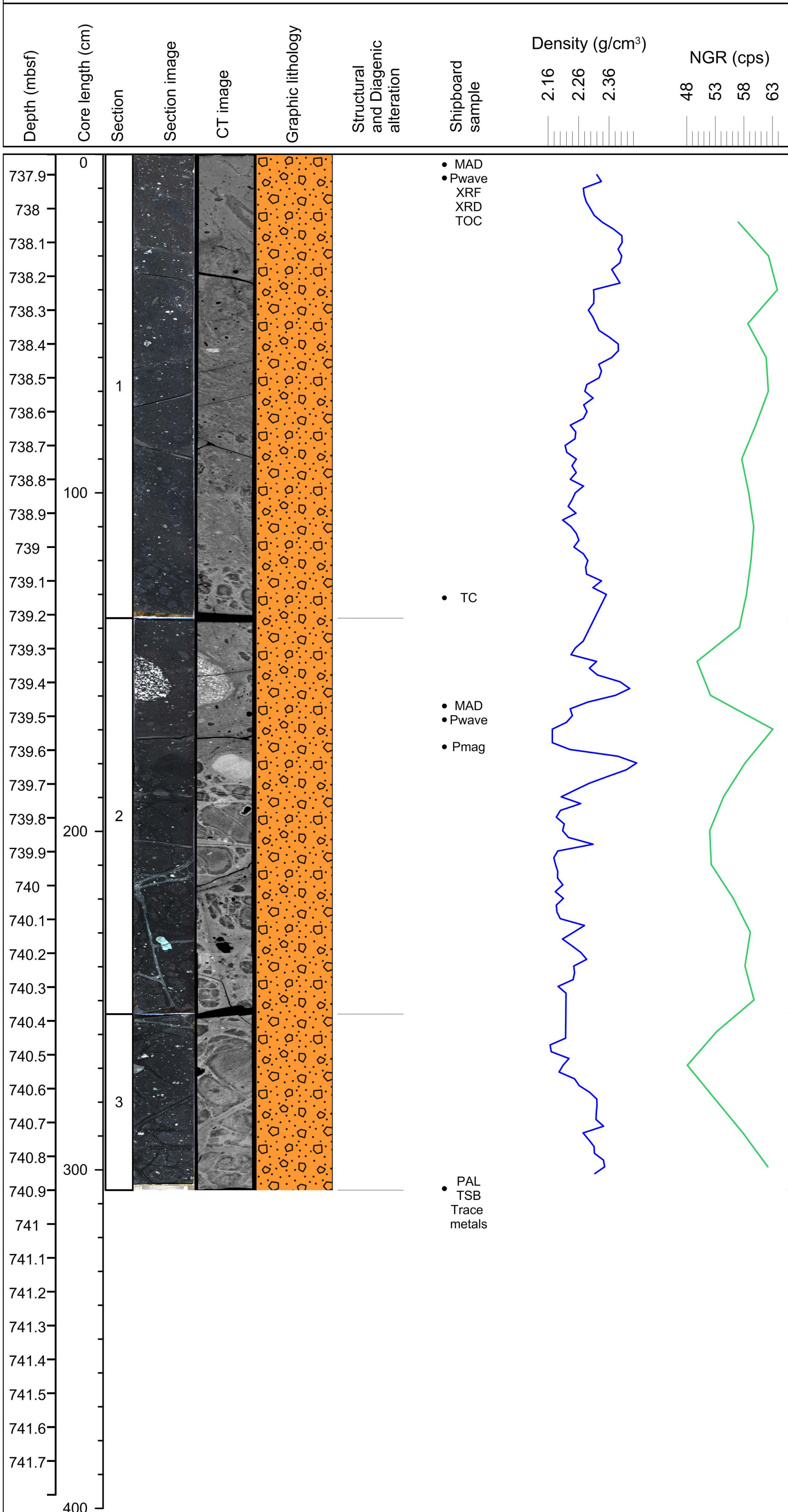
Partly digested in a few cases, up to 2,5 cm enlongated vesicles less than 1 cm, up to >4.5 cm, partially to fully filled with calcite crystals.

Felsic and mafic clasts

Rock is missing from 45-52 cm, MBio sample

CT: LG, homogenous

Hole M0077A Core 93R Cored 737.84-740.89 mbsf



Description

Dark grey/brown with diffuse blueish-grey schlieren GLEY2/SPB/3

Vesicles on average 1-3 mm (up to 1 cm), unfilled

Clasts from sub-angular to angular to partly digested

Mainly felsic clasts

CT: LG with diffuse schlieren at the top (more DG)

At the bottom turtle shell pattern

Dark grey impact melt, clast poor, with diffuse porosity

Color: GREY 2/SPB/2.5

Small basement clasts (sub-angular to partly digested) less than 8 mm average

11-25 cm: large granitoid clast (qtz-amethyst) with diffuse margin

40-48 cm: mafic clast (rounded), non-digested

Localized in the lower part of core below 66 cm: Veins up to 1 cm thick with outer margin blue-turquoise, central part whiteish

Two large elongated vesicles, drop-like, oriented vertically (2 and 2.5 cm long, at 28 and 56 cm)

CT: LG to DG in general; Clasts visible with W to D CT, and turtle shell pattern

Dark grey impact melt, clast poor, with vein-like pattern, darker grey to black

Color: GLEY 2/SPB/4

Diffuse porosity

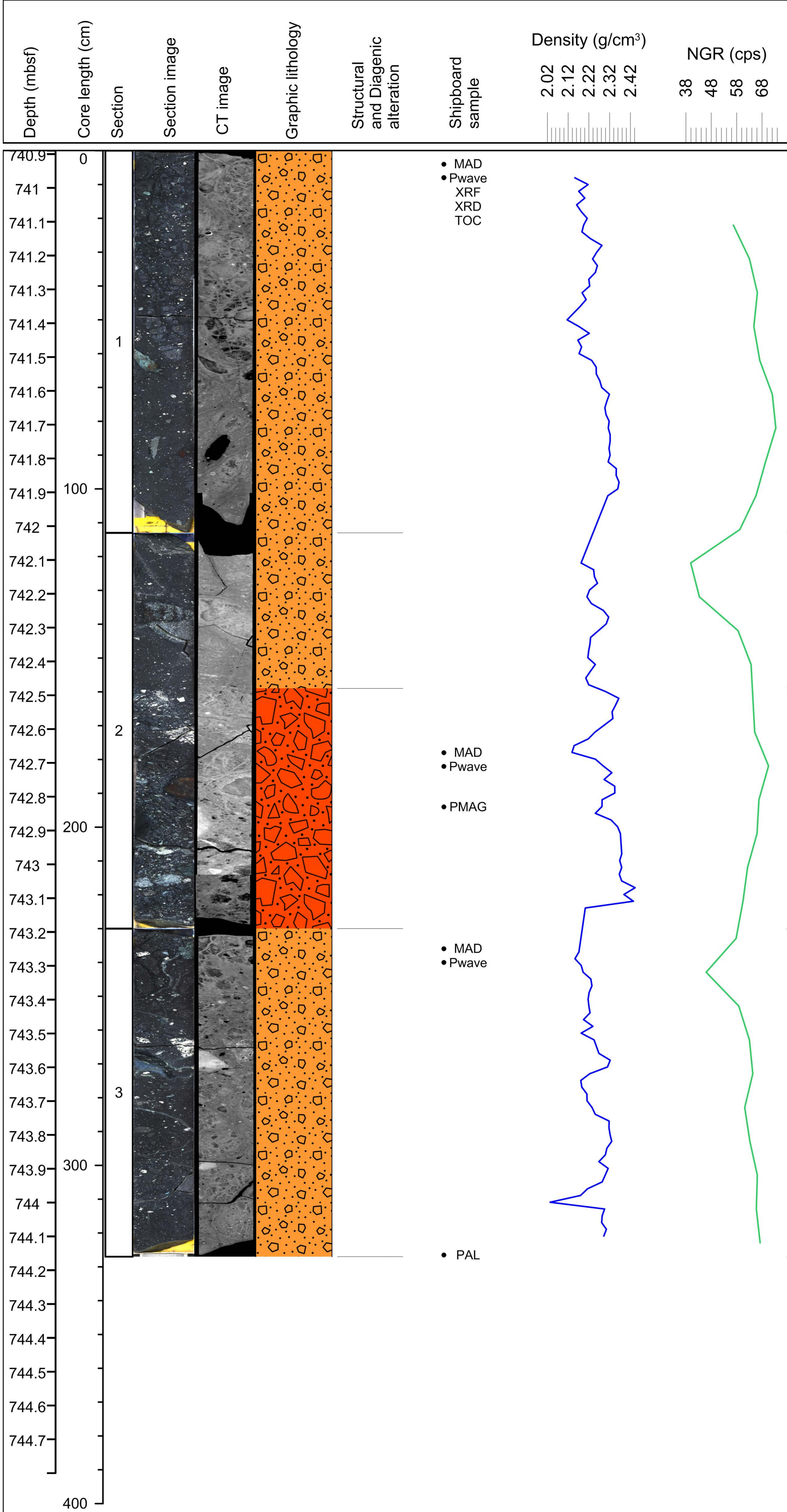
Granitoid clasts (subrounded to angular) up to 2 cm (some partially digested)

Some alteration veins (blue-turquoise) as in previous unit

Some of the clasts are green to blueish

CT: LG to DG with typical turtle shell pattern

Hole M0077A Core 94R Cored 740.89-743.94 mbsf



Description

Dark grey impact melt, clast poor, with vein-like pattern, darker grey to black.

Diffuse porosity (<1mm in size)

Color: GLEY 2/SPB/4

More clasts in the upper half (~10%), up to ~1cm (mainly granitoid); <3% clasts in the bottom half.

59-65 cm: flame shaped green (altered) melt clast, with reddish alteration

Largest vesicle is 1.5 cm and partially filled with calcite.

84-90 cm: large elongated open void

CT: LG to DG, turtle shell pattern, less visible at the bottom of the core

Dark grey impact melt rock, clast poor, cross cut by thin white veins with dark margins, up to 5 mm thick.

Basement clasts from subangular to partially digested, up to 2 cm, most <5 mm.

21-32 cm: Large basement clast with diffuse margin.

Sharp transition to lower unit

CT: LG to DG

Dark grey impact melt rock, clast-rich (30-40%), with clasts >6 cm, from sub-angular to partially digested (with diffuse margins)

56-62 cm: Granite clast, lensoid shaped

72-77 cm: Altered, melted, rusty(?) clast

CT: LG to DG with LLG vein-like pattern in the bottom half of the core

Dark grey impact melt rock, clast poor, cross cut by thin white-blueish veins a few mm in thickness. Core disruption is preferentially along these veins.

Basement clasts (mainly granite), sub-angular to partially digested, diffuse margins.

A number of the clasts are greenish to blueish.

Elongated vesicles, up to 1.5 cm, partially filled with calcite.

33-38 cm: Granite clast, leached K-Fsp

59 cm: Large vesicle, horizontally oriented, >2.5 cm long

38-44 cm: Strong alteration zone, blue to green colored, flow textures.

69-70 cm: Diabase/Dolerite clast (2.5 cm)

CT: LG to DG with turtle shell pattern - Alteration zone (38-44 cm) white

Dark grey impact melt, clast poor, cross-cut by thin (up to 5mm) venins (white to blueish). Diffused porosity.

Mainly granite clasts, sub-angular to partly digested (with diffuse margin). Small vesicles (up to 4mm) - unfilled.

@ 16-19cm - Rounded (diffuse margin) granite (leached) clast

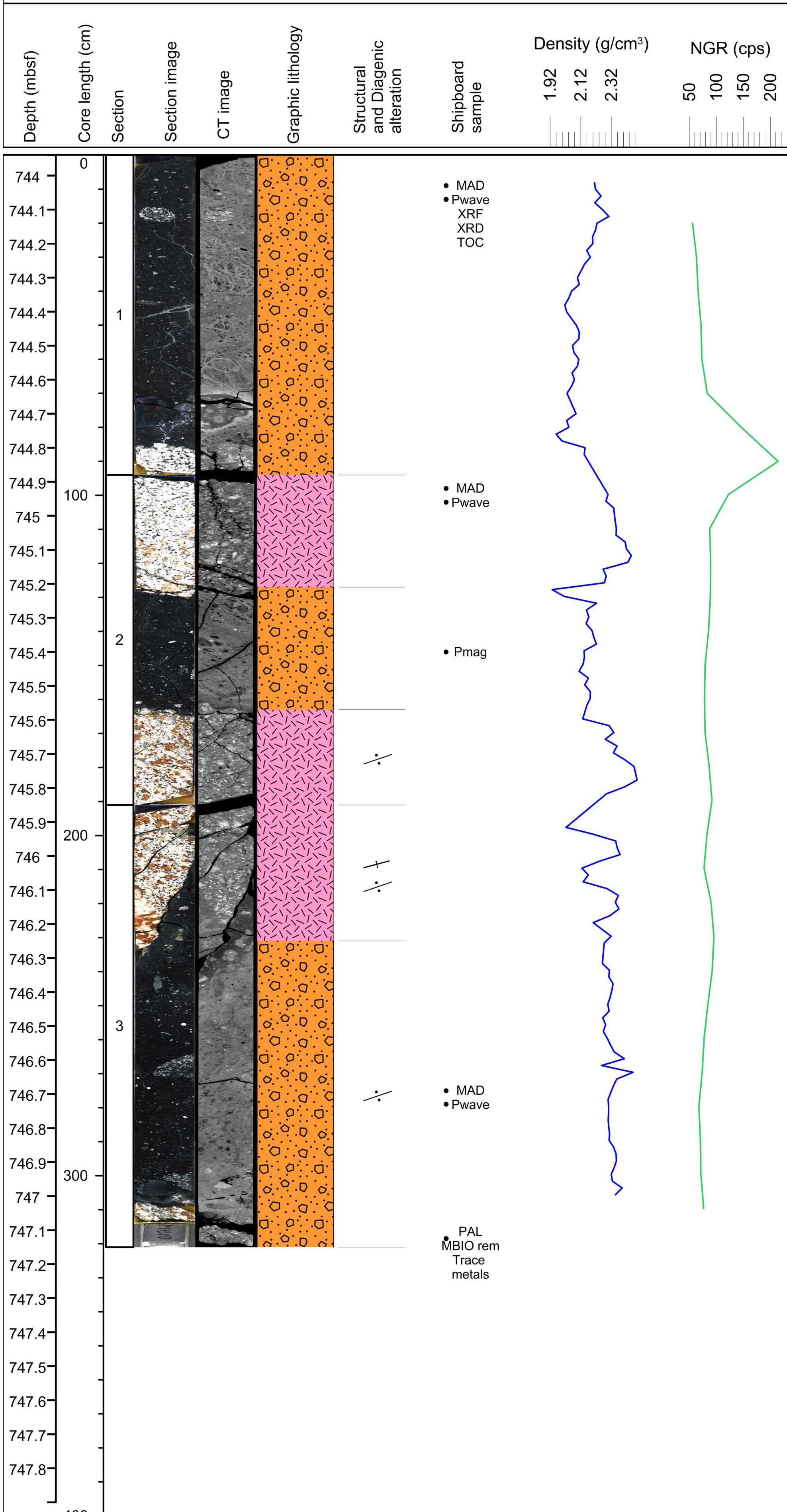
@ 43-46cm - Light green branched vein (<5mm)

@ 70-78cm - Rounded strongly altered clast-blue and rust/orange in colour (partly shock melted) with veins cross-cutting.

@ 83.5cm - Contact with large granite clast (continuing on next section) diffuse margin, in part digested.

CT - LG to DG - Turtle shell pattern (granite clast - LG to W and high density - low atomic number, @ 70-78 - Very DG with LG "clasts")

Hole M0077A Core 95R Cored 743.94-746.99 mbsf



Description

Dark grey impact melt clast poor cross cut by thin (up to 5 mm) veins (white to blueish). Diffused porosity. Mainly granite clasts, sub-angular to partly digested (with diffuse margin). Small vesicles (up to mm) – unfilled.

@16-19 – Rounded (diffuse margin) granite (leached) clast

@43-46 light green branched vein (<5 mm)

@70-78 – Rounded strongly altered clast-blue and rust/orange in color (partly shocked melted) with veins crosscutting

@83.5 – bottom: contact with large granite clast (continuting on next section). Diffuse margin, in part digested.

CT: LG to DG - turtle shell pattern (granite clast - LG to W and high density - low atomic number @70-78 - very DG with light grey "clasts")

Granite

Structure: friable granite, pervasive cracks on grain scale

Granite with K-feldspar up to 2 cm (hue 7.5 YR/7/6), plag (up to 1.5 cm), qtz (1.5 cm), and biotite (0.5 cm)

Leached from top to ~15 cm (no orange feldspar) then normal looking

Sharp contact with next unit.

CT: granular mix of W, LG, DG, high D, low Z, K-fsp high D, high Z

Impact melt, clast-poor

Dark grey impact melt clast –poor.

Mainly basement clasts (up to >3 cm)

Sub-angular to partly digested

+ ~3 cm clasts brownish and vesiculated partly digested.

A few diffused red spots (less than 2 mm)

[More diffused contact with greenish coloration]

CT: DG, turtle shell pattern, black zones

Granite

W-dipping, LG anastomosing, curved shear fault, 1 mm LG fill

E-dipping U, subparallel to

E-dipping DG, subplanar, shear fault sub –mm DG fill, numerous sets

Granite with K-feld (2 cm) (Hue 7.5 YR/5/6), [orange salmon pink], feld (1.5 cm), qtz (1.5 m) and biotite (0.5 cm)

Granite

W-dipping, DG sub mm fill, curved, nonparallel

7-9 fcm light grey cataclastic material

E-dipping, DG sub-mm, fill anastomosing sinistral shear fractures

Upper part of granite with up to 2 cm orange feld, 1.5 cm yellowish feld, 1.5/2cm qtz, and 0.5 cm biotite

Lower part much coarser-grained granite with 2.5 cm orange feld 1.5 yellowish feld, and rare qtz and biotite

CT: granular, W, LG, DG, zonation in Fsp high D, low Z

Sharp contact with granite above

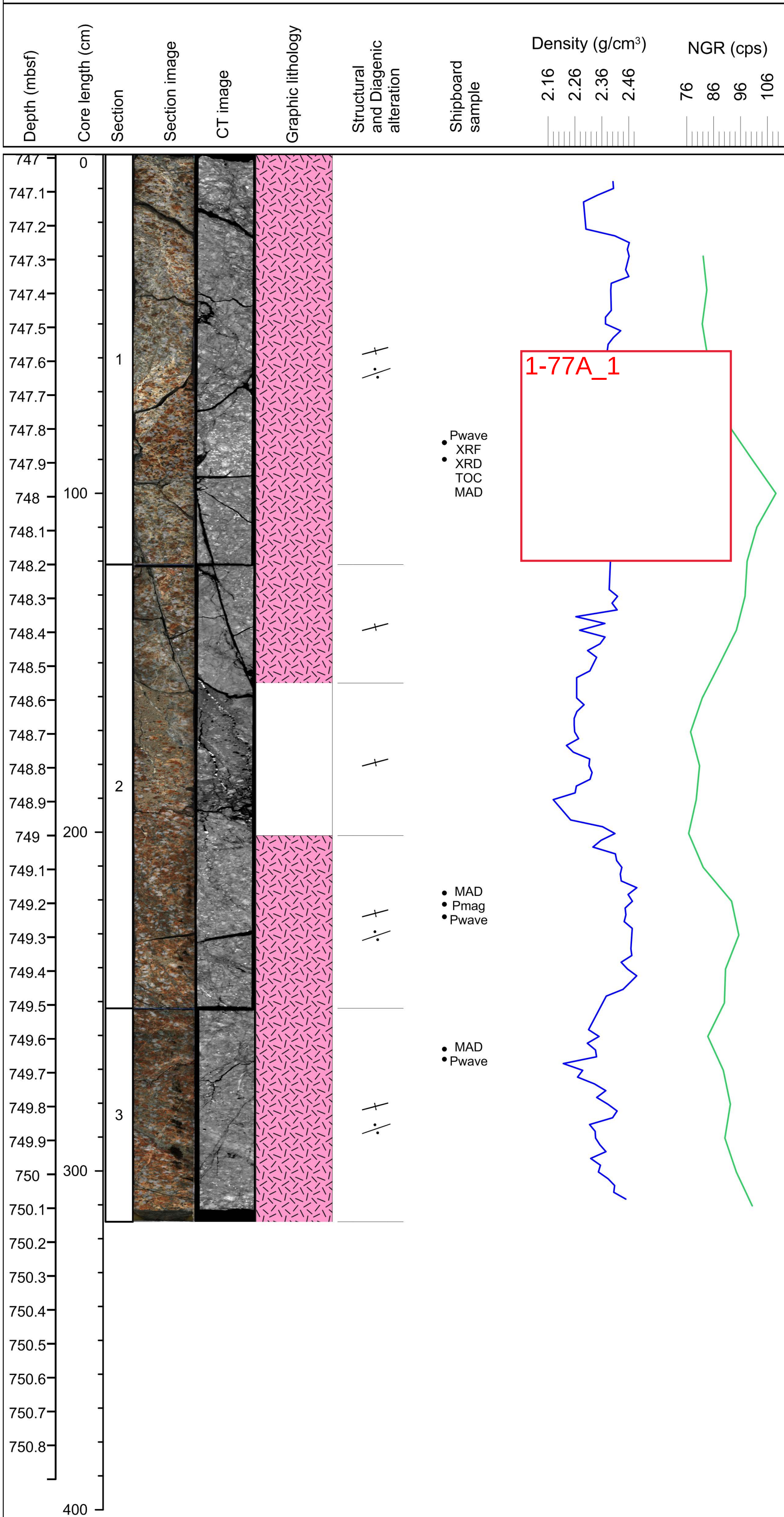
Impact melt clast-poor with a dark grey matrix and brown alteration rims around clasts; clasts sub-angular to partially digested, mainly granite, up to >8 cm.

Greenish alteration veins and coating in the upper part.

@117 – end – Granite (sheared) [see core 96 R1]/cataclasite vein, ~1 cm

CT: LG, DG flow texture, DG "clasts", LG veins

Hole M0077A Core 96R Cored 746.99-750.04 mbsf



Description

Granite

Core shows pervasive fracturing and shearing

Spacing on cm to mm scale, dominant dextral, conjugate sinistral shear

46-69 cm: up to 1 cm thick cataclasites angular to rounded clasts, mm-size, cross cut by younger fractures.

69-96 cm: reduced fracturing and faulting/none preserved

96 cm: lineations: 187/31, 98

187/31, 187 –

Below 96 cm: pervasively fractured and sheared, displaced by shear fult at 96 cm

In the undeformed (granite/granodiorite), orange feldspar (2 cm), light salmon (1.5 cm), qtz (1.5 cm) biotite (0.3 cm).

CT: Granular W, LG, DG; where cataclastic, reduced W

0 cm: 258/58, 275 +

21 cm: 149/78, 65 +-

0-37 cm: pervasively fractured

Granite (Granodiorite), in the upper part with large qtz aggregates (2.5 cm).

CT: Granite facis.

35-80 cm: Polymict lithic breccia, dominated by granite but with minor mafic clasts. Clasts are up to 3 cm, mostly rounded. Breccias intrudes fracture at 37 cm.

CT: granular W, LG, DG, with black clasts.

Granite:

76-130 cm: irregularly fractured on cm scale.

114-119: polymict lithic breccia vein, crosscut chlorite veins.

More K-feldspar rich in this part than in upper part of section, with thin shear fault chloritized

CT: Granite facies; lower D in breccia.

Granite

Shear faulting on 3-5 cm scale

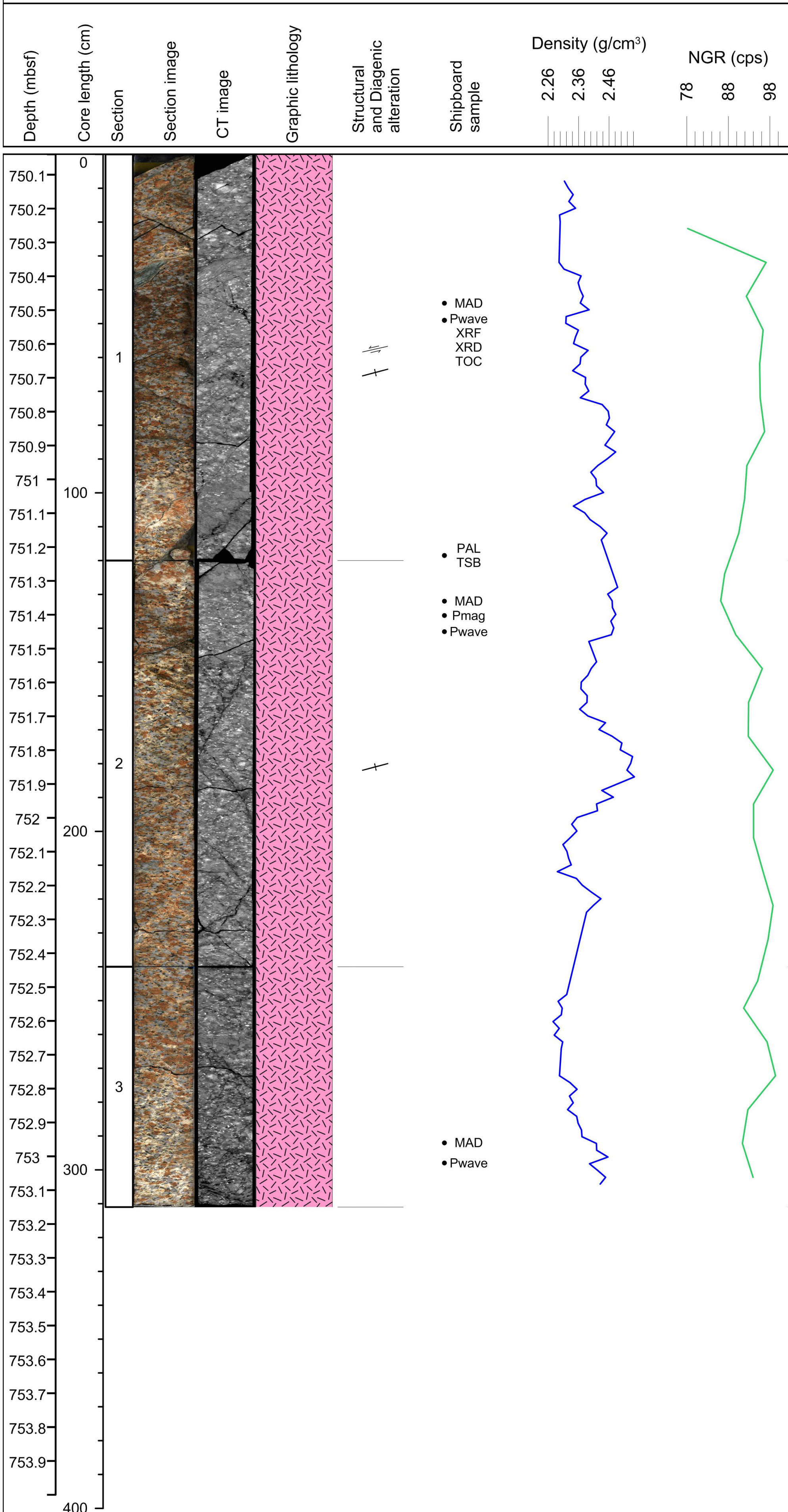
40 cm: pale green veinlet sheared by conjugate set, throw is ~1 cm.

Granite, much more rich in salmon-orange feldspar (than in previous sections), quartz up to 2 cm, very poor in biotite (biotite only visible in the lower part).

Network or grey-greenish veins.

CT: granular mix W, LG, DG, high D, low Z, low D in closed fractures

Hole M0077A Core 97R Cored 750.04-753.09 mbsf



Description

Mildly fractured, coarse-grained granite. Grain size about 2 cm for KF, Plag and Q

Shear fault at 82cm: S 350/52 L: 030/28 up,

Shera fault at 115cm: 103/48 = L up.

CT: light grey

Colour: 7.5 YR 7/4

Mildly fractured granite. Course-grained. Some open fractures.

At 24cm: S 140/68 L 95/52 down.

Colour: 7.5YR 7/4

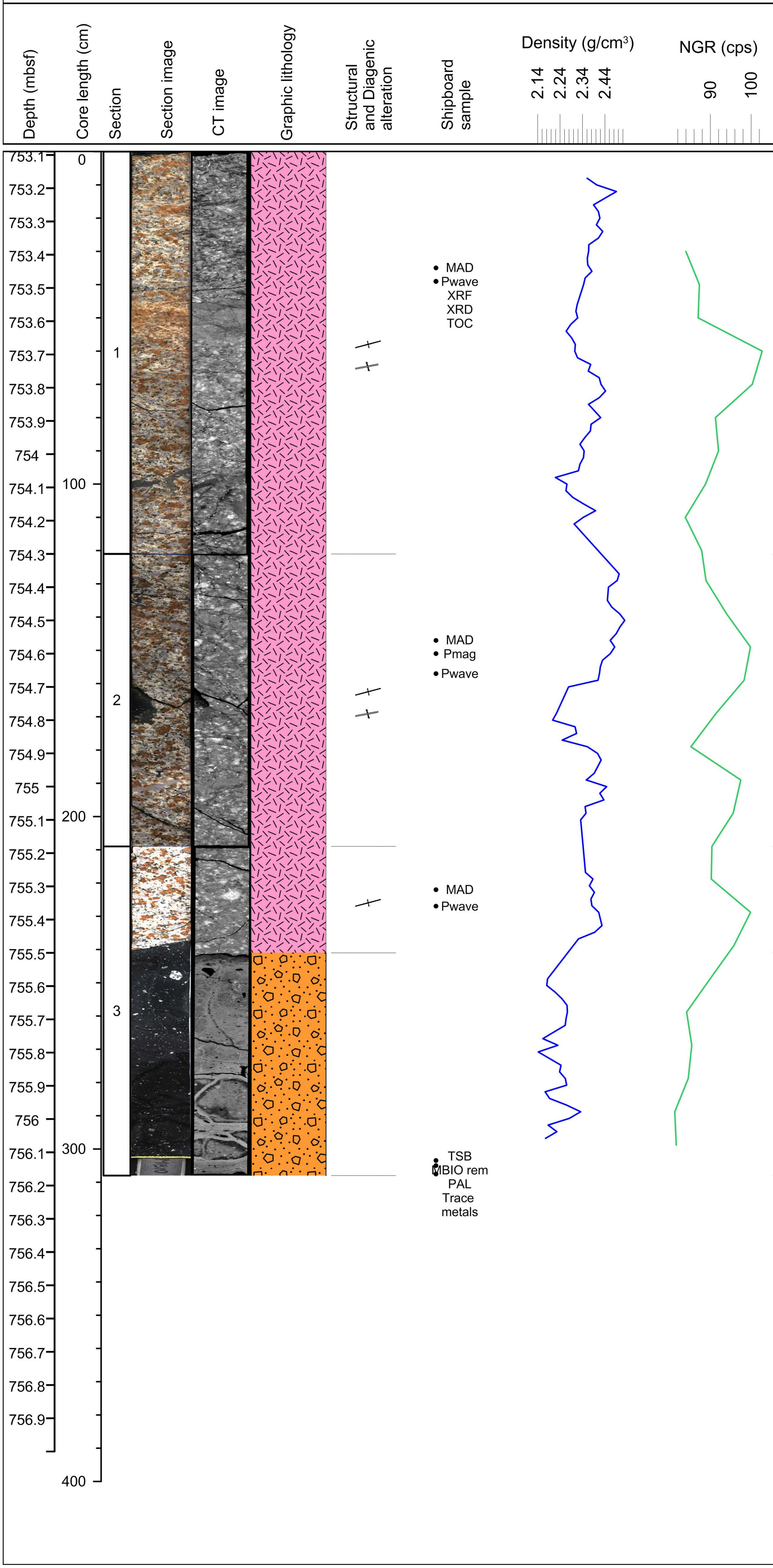
CT colour: light grey

Course-grained, mildly farctured granite (grain size about 2 -2.5 cm).

Colour: 7.5YR 7/4

CT colour: light grey

Hole M0077A Core 98R Cored 753.09-756.14 mbsf



Description

Coarse-grained, mildly fractured granite. At 45-57cm somewhat finer-grained rock with filled veins. At 95-101 cm there is a polymict, fine frained breccia zone.

Colour: 7.5YR 7/4

CT colour: light grey

Coarse-grained, mildly fractured granite. At 39-50 cm there is a pod of fine-grained, polymict breccia. At 55 cm there is a thin breccia vein.

At 76 cm: S 030/60 L059/45 up. Alteration: partially filled vug in black melt.

Colour: 7.5 YR 7/4

CT colour light grey

Course-grained, mildly fractured granite. S 140/50 L 115/30 (down)

Colour: 7.5YR 7.5

CT colour: light grey

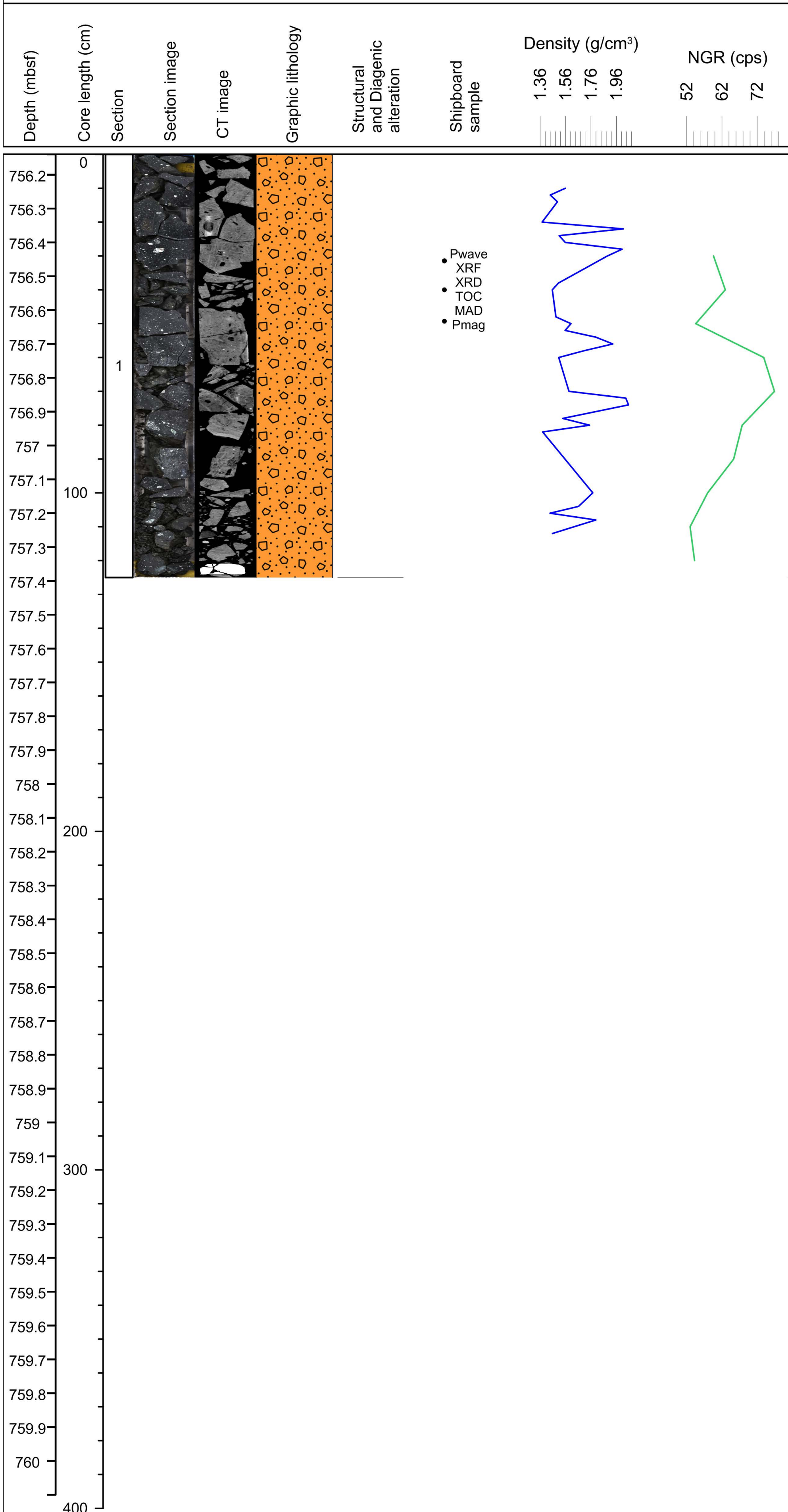
Impact melt rock with small basement clasts (less than 2 cm in diameter). Target lithologies include granodiorite.

Vug with calcite, a sulfide and a red mineral at 86-87 cm.

Colour: GLEY1 2.5/N

CT colour: dark grey

Hole M0077A Core 99R Cored 756.14-757.01 mbsf



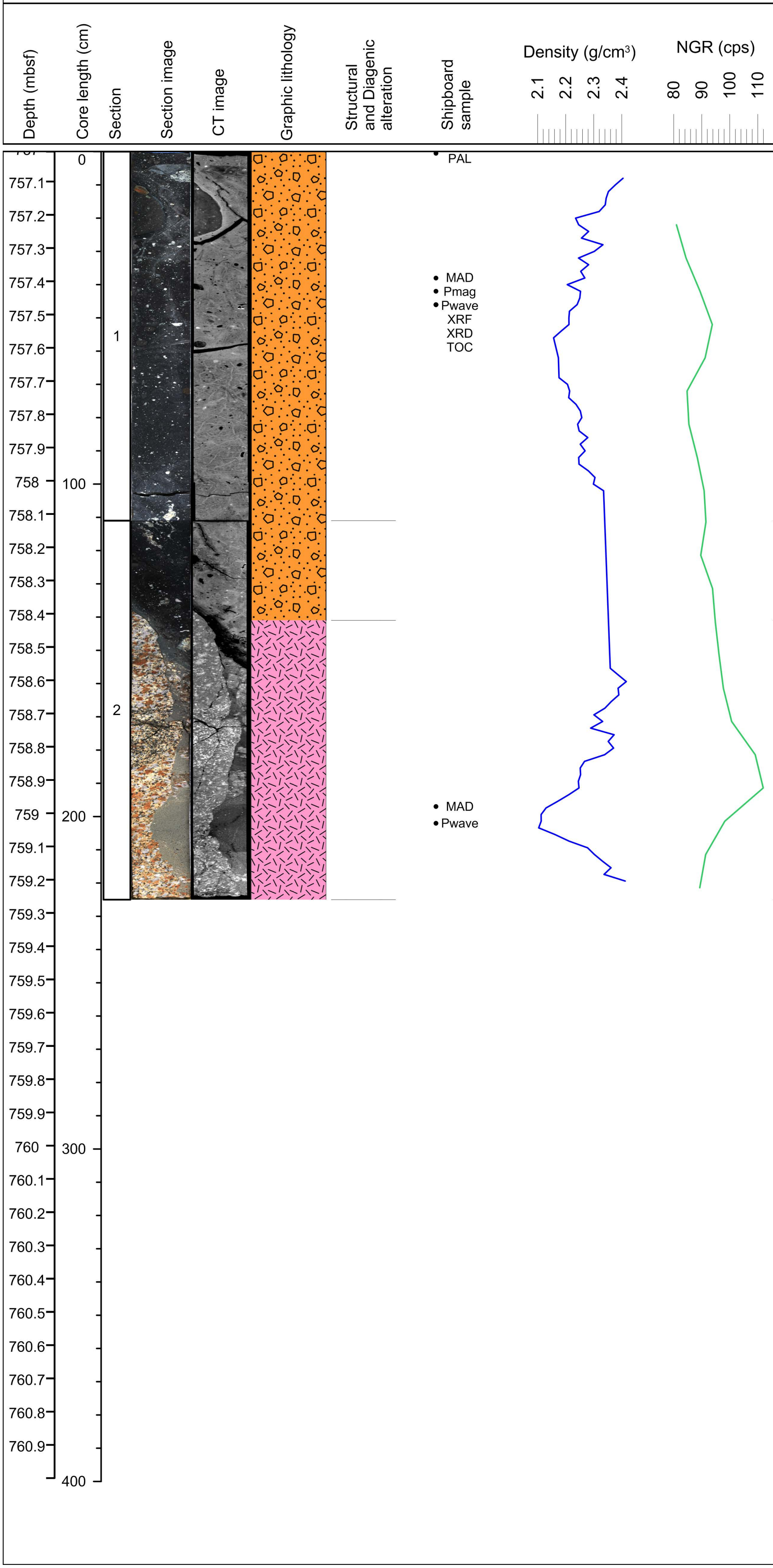
Description

Clast-poor (polymict) impact melt rock. Clast include granodiorite and gneiss. Vugs filled with green mineral.

Colour: GREY1 2.5/N

CT colour: dark grey

Hole M0077A Core 100R Cored 757.01-759.19 mbsf



Description

Clast-poor impact melt rock. The clasts of target lithologies are too small or too altered to identify.

Colour GREY1 2.5/N

CT-colour: dark grey

Clast-poor impact melt rock with small (< 1 cm) granite fragments.

Colour: GREY1 2.5/10

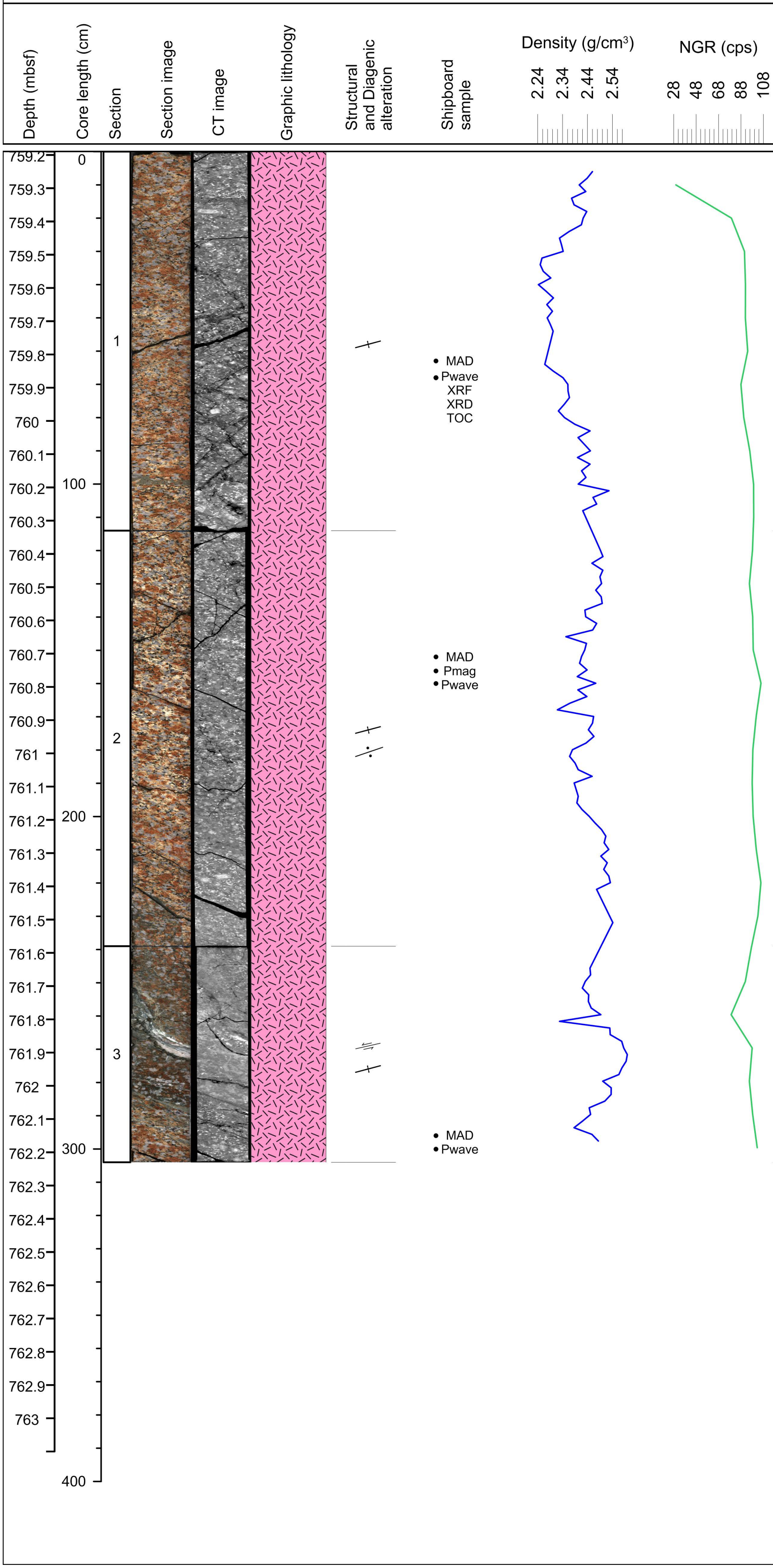
CT colour: dark grey

Course-grained, mildly deformed granite, includes a zone of fine-grained, biotite granite (between 56-74 cm) displaying a shape-preferred grain fabric. A large zone of polymict cataclisite ligns the granite and is truncated by the impact melt (rock). Alteration along contact between units 1 and 2.

Colour: 7.5Y 7/4

CT-colour: light grey

Hole M0077A Core 101R Cored 759.19-762.24 mbsf



Description

Coarse-grained, mildly deformed granite with some conjugate fractures between 10 and 80 cm. Polymict cataclasite between 99 and 101 cm.

Colour: 7.5YR 7/4

CT: light grey

Course-grained meta-granite with a weak shape preferred orientation of igneous minerals inclined at about 45 degrees to the horizontal. The granite is mildly fractured and shows some faults which are concordant to each other at 18, 47, 93 and 106 cm. At 22-38, the granitoid is finer-grained and biotite-rich. There are shear fractures at:

S 043/71 L 102/40 down at 54 cm

S 245/40 L 290/25 up at 115cm.

Colour: 7.5YR 7/4

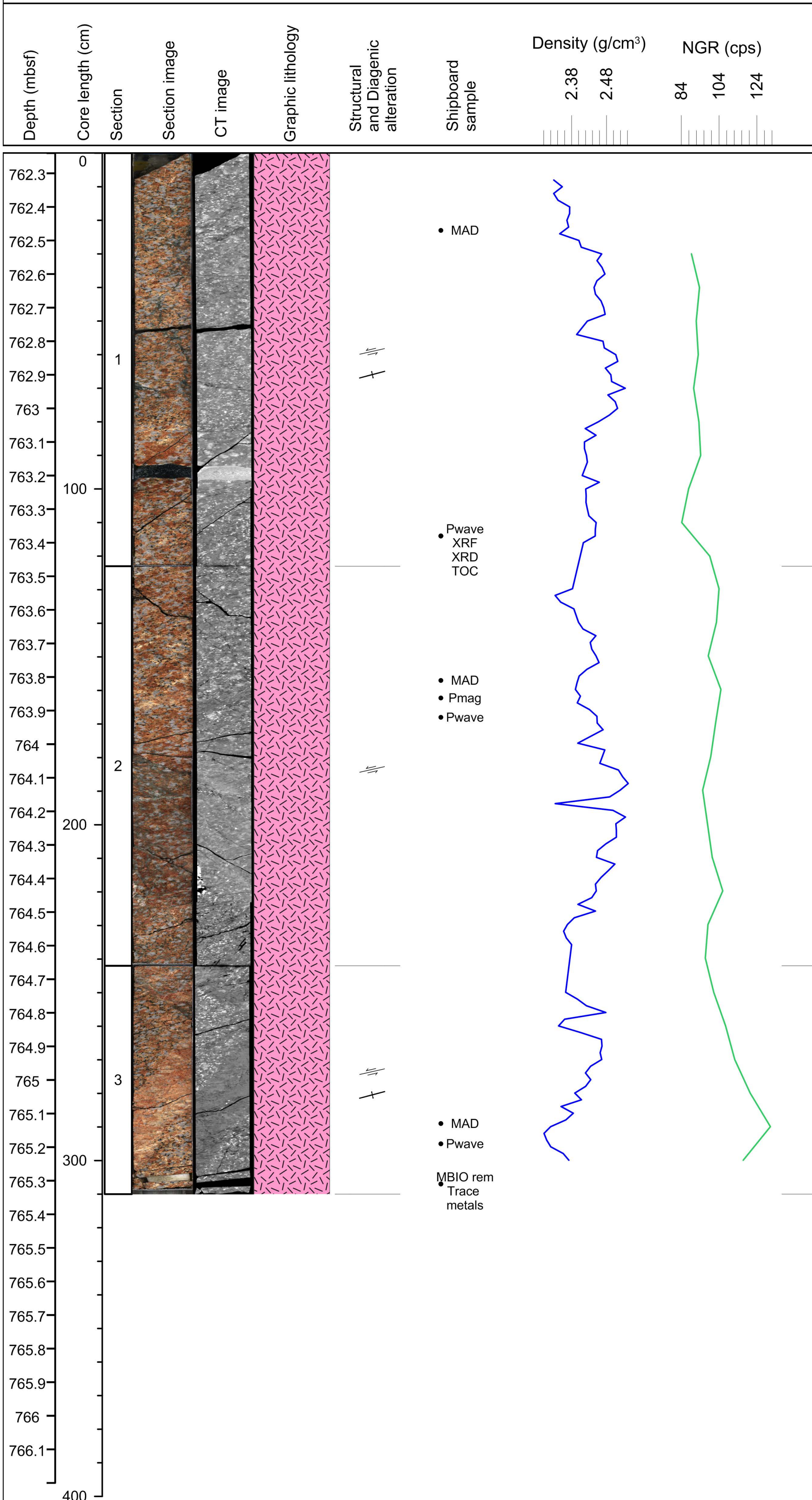
CT colour: light grey

Coarse-grained, moderately fractured granitoid rock. Grain size is appr. 2 cm. Shear fault at: S 260/30, L 315/02, down at 30 cm.

Colour: 7.5YR 7/3

CT-colour: dark grey

Hole M0077A Core 102R Cored 762.24-765.29 mbsf



Description

Course-grained, moderately fractured granitoid with a weak shape-preferred orientation of quartz, and feldspars (crystal-plastic flow). Some chloritic fractures are present. Ther is a 4 cm wide dikelet with black matrix and ideomorphic plagioclase (dolerite?) at 92-96 cm.

Shear fault at 108 cm: S 315/85, L 260/80, up.

Colour: 7.5YR 7/4

CT colour: light grey

Course-grained granite with weak SPO of quartz, and feldspars. Dissolution of feldspar and coating of calcite.

Shear faults:

S 160/52 L 092/22 up (at 51 cm)

S 178/43 L 134/22 up?(at 57 cm)

S 230/30 L 140/12 down (at 60 cm)

Colour 7.5YR 7/4

CT colour: light grey

Course-grained granit with rather strong SPO in quartz and feldspars. Slightly fractured, pegmatite from 21 - 60 cm.

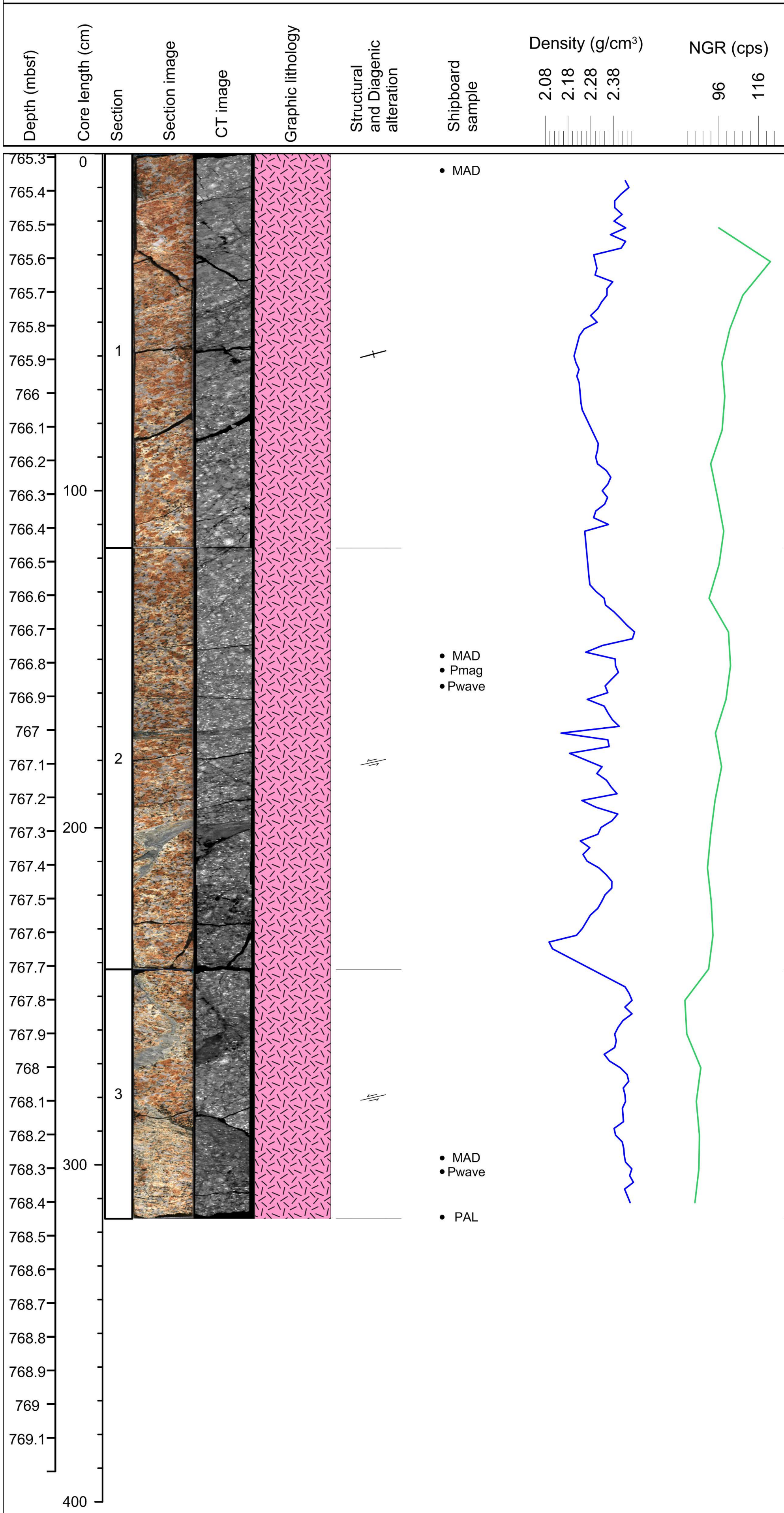
Shear fault at:

S 150/65 L 154/56 down

Colour YR7.5 7/4

CT colour light grey

Hole M0077A Core 103R Cored 765.29-768.34 mbsf



Description

Coarse-grained metagranite, above 70cm it is well-fractured, below 70 cm it is little fractured but has a pronounced SPO of quartz and feldspars. 20 - 40 cm pegmatite.

Shear fractures at:

S 122/88 L 165/85 down (at 85 cm)

S 042/56 L 056/55 down

Colour 7.5YR 7/4

CT: light grey

Coarse-grained metagranite with moderately well-developped shape-preferred orientation of quartz, biotite and feldspar (viscous deformation).

Shear faults at:

S 180/65 L 105/14 down (at 45 cm)

S 160/84 L 155/80 down (at 61 cm)

Colour: 7.5YR 7/4

CT colour light grey

Weakly to moderately deformed, coarse-grained metagranitoid. Transition in deformation is at 43 cm.

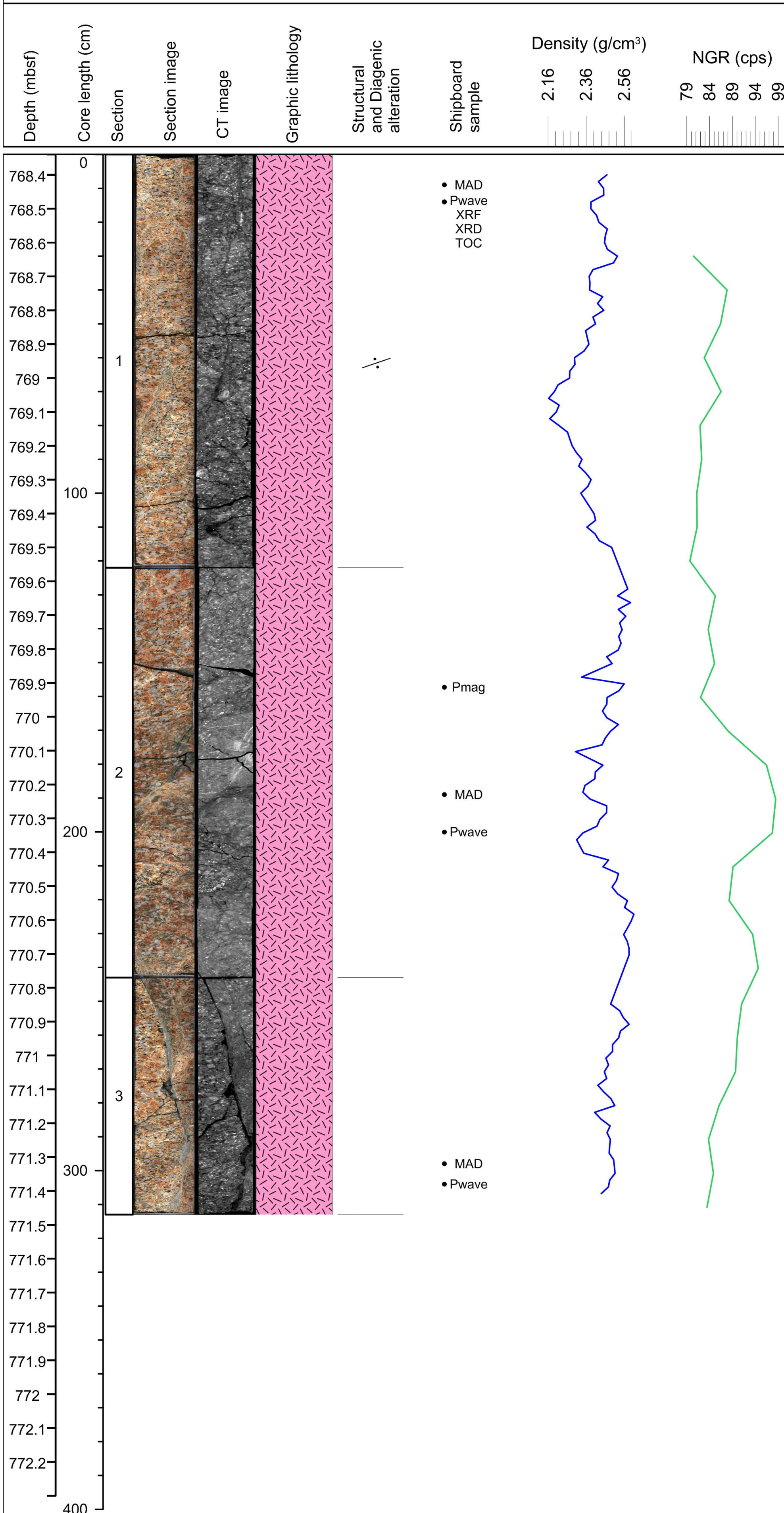
Shear fault at:

S 050/15 L 098/08 down (at 43 cm)

Colour: 7.5YR 7/4

CT colour light grey

Hole M0077A Core 104R Cored 768.34-771.39 mbsf



Description

Moderately to pervasively deformed biotite-rich, coarse-grained granite. Granite is characterized by lots of subvertical chloritic to fine cataclastic and anastomosing shear zones

Colour: 7.5YR 7/4

CT colour: medium grey

Moderately to strongly deformed metagranitoid. Strong SPO above 63 cm, chaotic deformation with anastomosing thin cataclisite zones below 62 cm.

Colour: 7.5YR 6/4

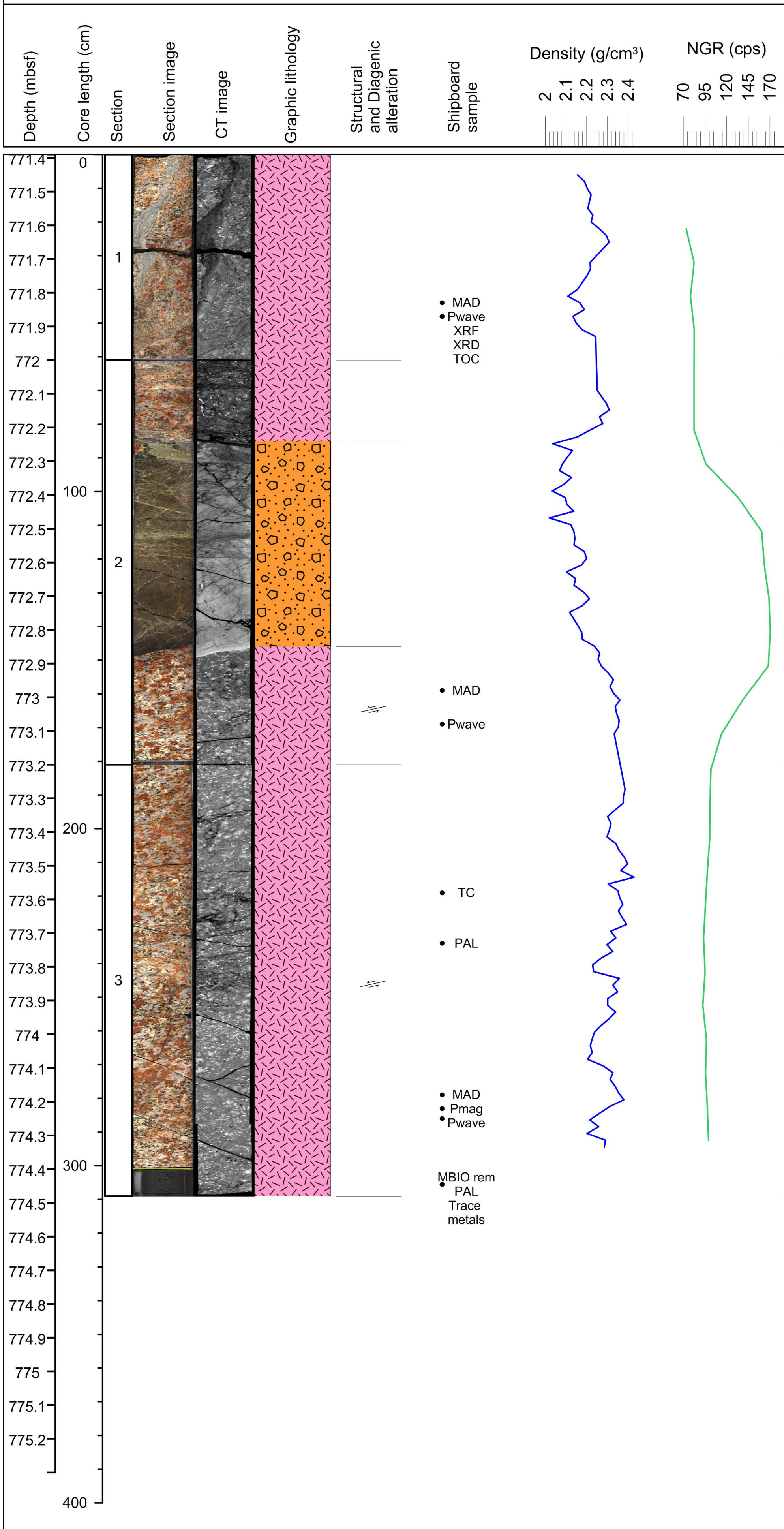
CT colour: medium grey

Highly heterogeneously deformed metagranite with 1 cm thick cataclasite zone associated in places with 1 cm wide melt pockets (pseudotachylite?) transecting the entire core length. Stongly deformed granite is juxtaposed agoinst weakly deformed granite.

Colour: 7.5YR 7/6

CT colour dark grey

Hole M0077A Core 105R Cored 771.39-774.44 mbsf



Description

Highly heterogeneously deformed, coarse-grained metagranitoid. An up to 3 cm wide cataclisite zone transects the core along the entire core length.

Colour: 7.5YR 7/4

CT colour: dark grey

Strongly and chaotically deformed, coarse-grained metagranotoid with highly anastomosing thin cataclasite/melt zones.

Colour: 7.4YR 7/4

CT colour dark grey

Clast-poor impact melt rock with well defined contacts to the host granite.

Colour: 7.5YR 4/1

CT: light grey

Coarse-grained, hardly deformed metagranite with a moderately well-defined SPO of quartz, biotite and feldspars.

Shear fault:

S 150/60 L 72/09 up

Colour: 7.5YR 7/4

CT: dark grey

Weakly to moderately deformed, coarse-grained metagranitoid rock with some pegmatitic portions.

Shear faults at:

S 036/68 L 115/12 down? at 106 cm

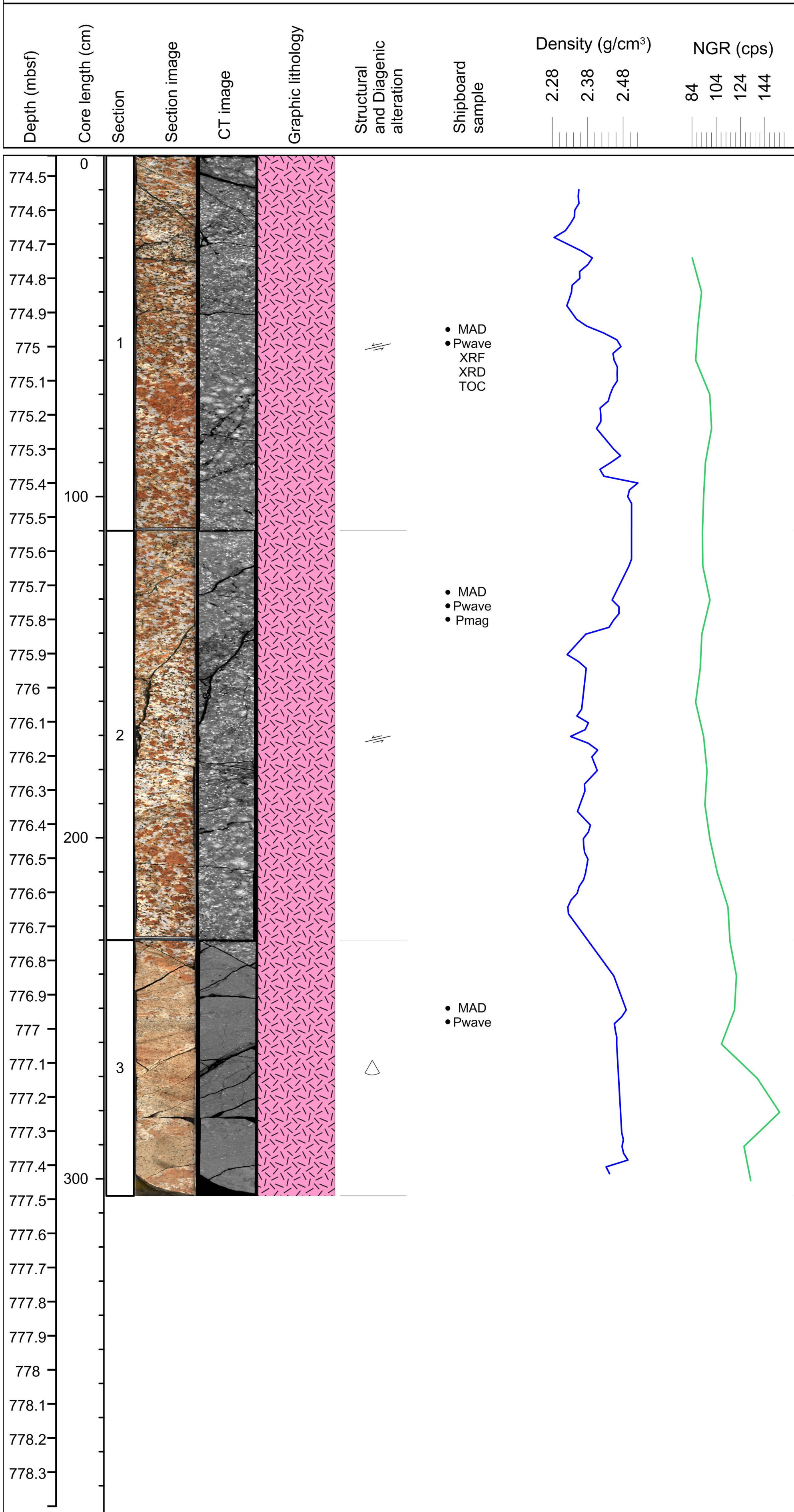
S 210/74 L 135/30 down? at 73 cm

S 024/80 L 102/24 down

Colour 7.5YR 7/4

CT: dark grey

Hole M0077A Core 106R Cored 774.44-777.49 mbsf



Description

Hardly strained course- to medium-grained metagranite. 14-21 cm biotite-rich granite slightly deformed, 65-84 cm coarse little strained granite.

Shear fault at:

S 043/38 L 122/10 down

Colour: 7.5YR 7/4

CT: dark grey

Coarse-grained, slightly deformed granitoid with some pegmatitic portions at 90-107 cm.

Shear fault at:

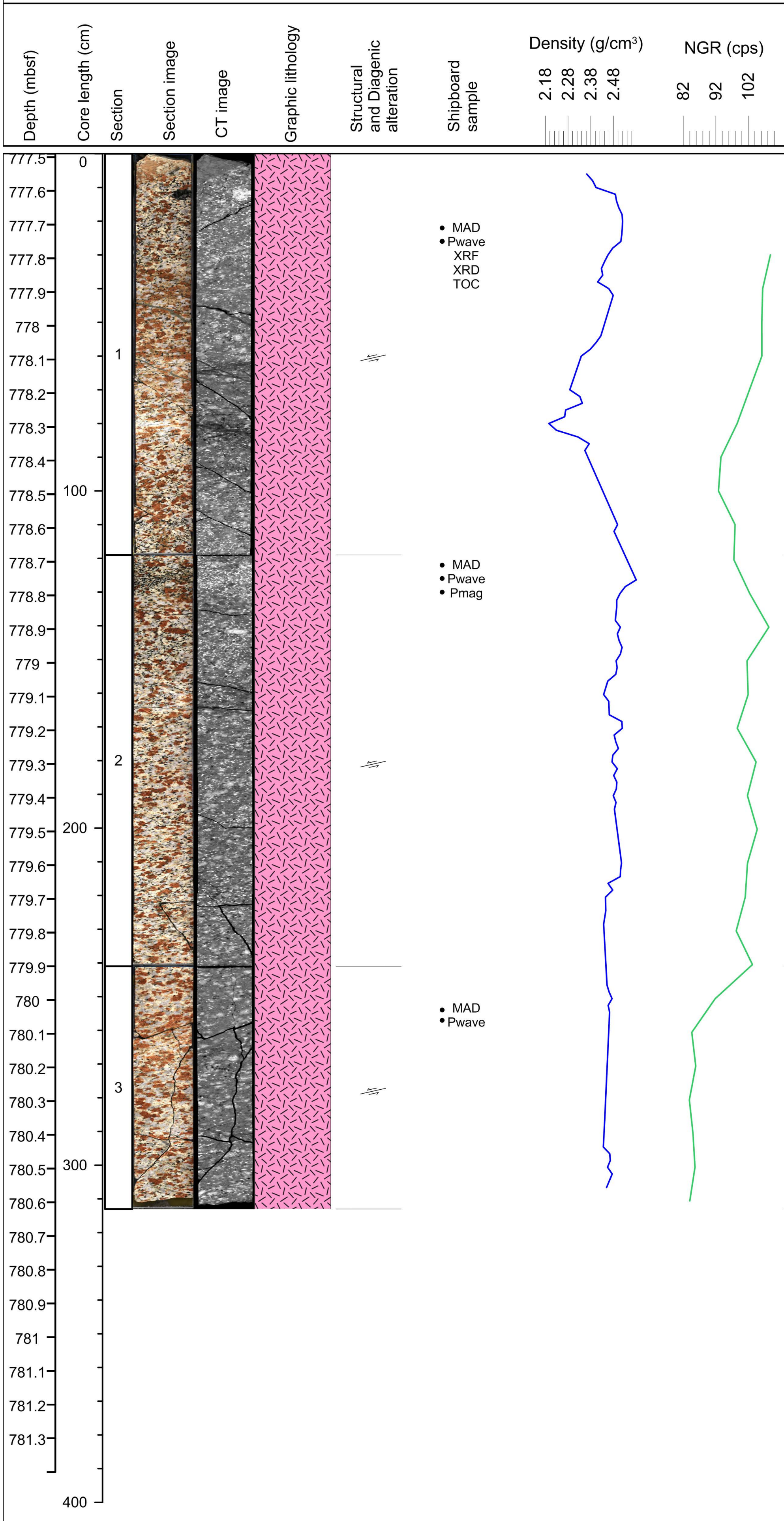
S 022/62 L 098/20 unknown slip-sense

Colour: 7.5YR 7/4

CT: dark grey

Aplite dike with a little bit of coarse-grained metagranitoid at the top. Pegmatitic portion at 68 cm. Shatter cones at 43 cm and 67 cm.

Hole M0077A Core 107R Cored 777.49-780.54 mbsf



Description

Coarse-grained granite with thin cataclasite zones at 45-50 cm and 61-67 cm.

Shear faults at:

S 044/76 L 023/70 up at 110 cm

S 045/70 L 023/65 up at 90 cm

S 054/80 L 122/28 up at 72 cm

S 350/60 L 068/05 down

Colour 7.5YR 7/4

CT: dark grey

Coarse-grained, little deformed granite, in part biotite-rich (3-10cm)

Shear fault at:

S 180/72 L 157/58 down

Colour: 7.5YR 7/4

CT: dark grey

Coarse-grained, littel deformed granitoid

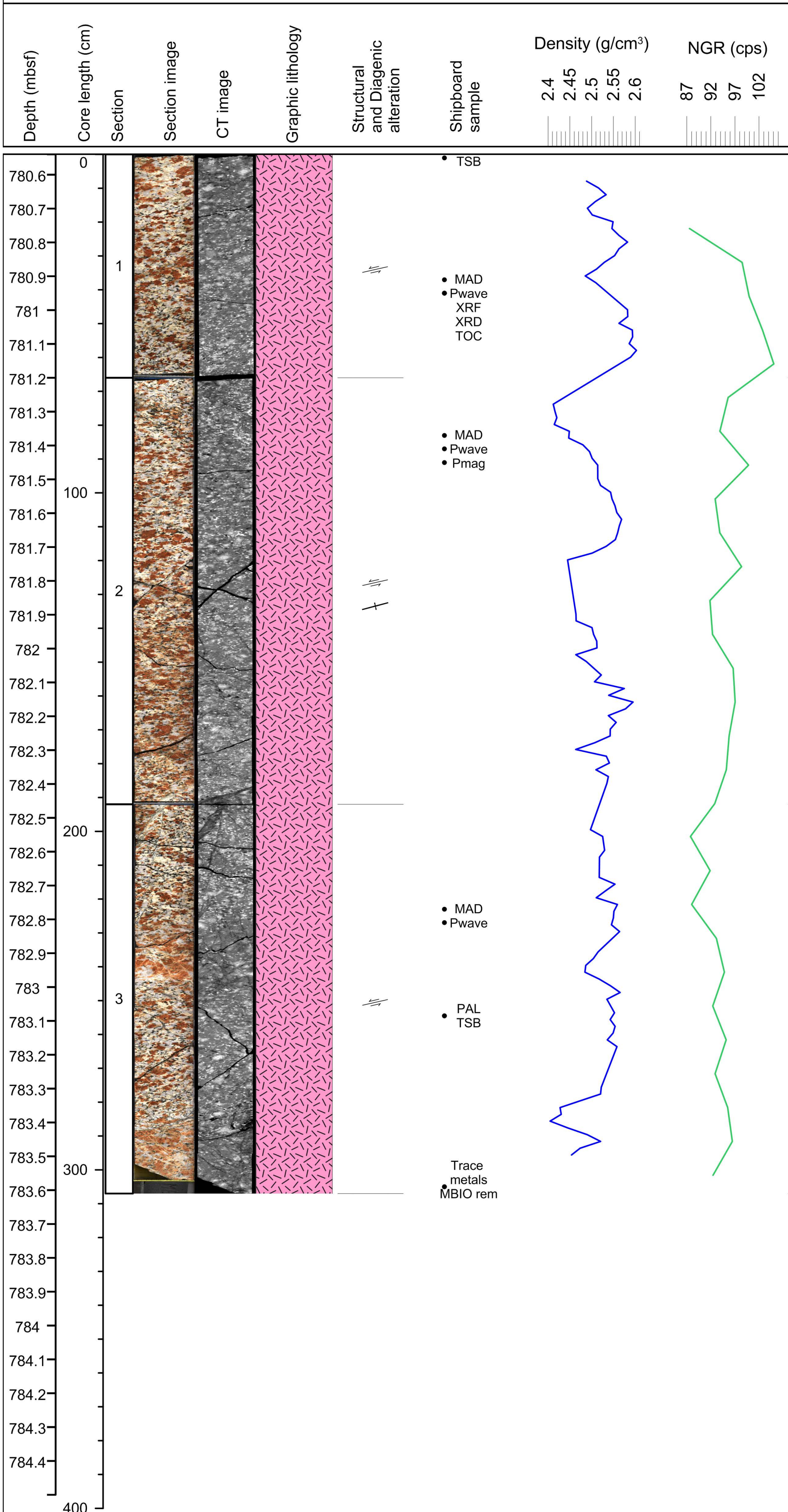
Shear fault at:

S 345/40 L 015/25 down!

Colour: 7.5YR 7/4

CT: dark grey

Hole M0077A Core 108R Cored 780.54-783.59 mbsf



Description

Course-grained little deformed granite, some biotite-rich zones have nice pre-impact SPO in quartz.

Shear fault in:

S015/76 L 020/72 down!

Colour: 7.5YR 7/4

CT: dark grey

Coarse-grained, slightly fractured granite.

Shear faults:

S 030/66 L 020/59 at 62 cm

S 170/82 L 175/80 at 28 cm

Colour: 7.5YR 7/4

CT: dark grey

Coarse-grained, weakly deformed granitoid with some cataclasite zones.

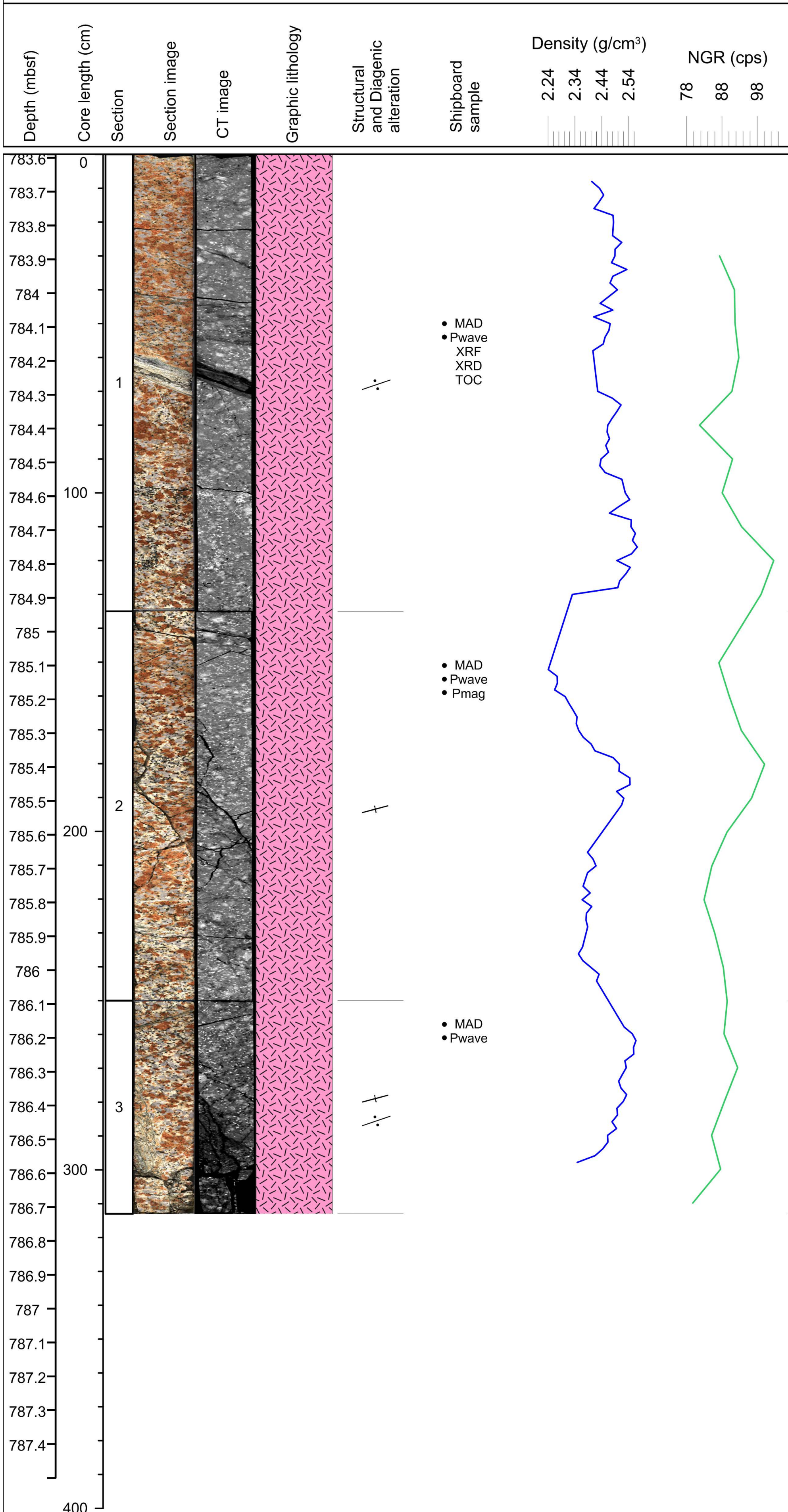
Shear fault at:

S 270/20 L 270/20 down!

Colour: 7.5YR 7/4

CT: dark grey

Hole M0077A Core 109R Cored 783.59-786.64 mbsf



Description

Coarse-grained granite. In the upper part, down to ~60 cm, plagioclase is yellowish. K-feldspar is light orange (darker in the lower section). Biotite rich, forming aggregates in the lower part, below 100 cm.

Upper part: K-feldspar (2,5 cm) [hue 5YR/6/8 to 5YR/5/8], plagioclase (1,5 cm) [hue 7,5YR/8/4], quartz up to 1,5 cm and biotite (<0,5 cm). Thin light orange to whitish veins (<2 mm) crosscut.

Lower part: K-feldspar (3 cm) [hue 5YR/5/8], plagioclase (1,5 cm), quartz (<2 cm) and biotite aggregates (up to 3 cm).

65-70 cm; Friable cataclasitic shear band (curved contact on upper part, straight/planar contact in the lower part).

88-92 cm; irregular vein network

Lineations

30 cm: P 208/23 L 162/8

CT: Granite facies (granular W, LG, and DG variation). 65-70 cm; Low D, normal Z.

Coarse-grained granite with large K-feldspar (up to 3 cm), plagioclase (up to 2 cm), quartz (2 cm) and biotite (<0,5 cm) homogeneously distributed. Fractured (at 6 to 16 cm) along thin white veins (<2-3 mm). From 54 to 80 cm, heavily fractured (irregular, curved fractures). Thin white veins (up to 5 mm thick) crosscut horizontally (mainly in the lower part; network).

Lineations

13 cm: P 200/57 L 287/10 -

40 cm: P 226/55 L 310/30

60 cm: 223/45 L 300/5

95 cm: 270/5 L 290/3

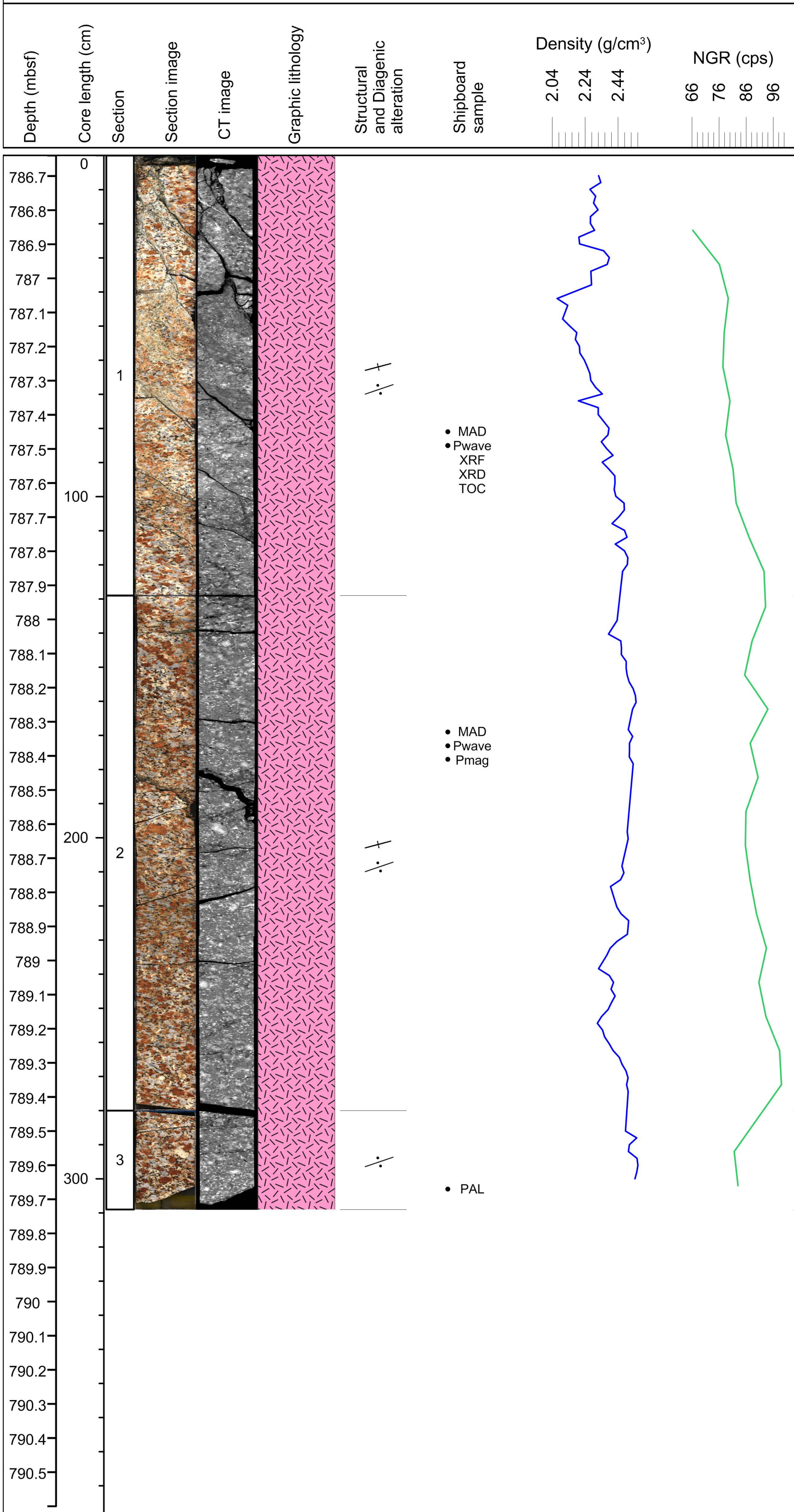
CT: Granite facies; Clear concentric zonation of K-feldspar (normal D and Z).

Coarse-grained granite with K-feldspar phenocrysts (<2,5 cm) [hue 5YR/5/8 to 5YR/6/8] with nice zoning visible on the CT scan, plagioclase (up to 2 cm) [light yellow to white in color], quartz (<2 cm), and biotite (<0,5 cm). Biotite is more abundant in the upper part of the unit. Network of thin veins/fractures in the lower 2/3 part of the unit.

Closed and open fractures ~5 cm spacing. @22-52: vertical shear zone, >3 cm thick, cataclastic/fault gouge (not fully consolidated) possibly displaced at 52 cm by sinistral shear (?).

CT: Granite facies.

Hole M0077A Core 110R Cored 786.64-789.69 mbsf



Description

Coarse-grained granite, sheared from 12-24 to 109 cm. K-feldspar (up to 1,5 cm), plagioclase (1,5 to 2 cm), quartz (1-1,5 cm), and biotite (<0,5 cm) homogeneously distributed.

0-14 cm: Cataclasite against fracture and 2 cm inside shear band beneath.

30 cm: 1 mm thin cataclasite

40 cm: Striated fracture truncated by cataclasite above.

37-75 cm: Pervasively sheared to mm scale.

75 cm: Discontinuous change in granite texture across fracture.

85-105 cm: Irregular white closed sheared fracture network.

110 cm: Discontinuous change of granite across fracture at 110 cm.

Lineations

40 cm: P 280/20 L 320/15 +

94 cm: P 210/70 L 298/31

110 cm: P 255/40 L 290/30 +

110 cm: P 255/40 L 265/38 (same fracture surface)

CT: Granite facies; Lower CT numbers in cataclastic zone; Changes in D and Z corresponding to discontinuities in granite.

Granite

Coarse-grained granite with preferential orientation itn eh upper parts.

Phenocryst, K-feldspar (up to 4 cm), plagioclase (up to 3 cm), quartz (2.5 cm), and biotite (0.5 cm) homogeneously distributed. A few plagioclase with myrmetitic texture visible with naked eye.

Cross-cut by a few very thin white to grey veins (<1 mm).

@~70: conjugate shear fractures with white fill

@~120 irregular sub-mm shear fractures

Lineations:

90 cm: P: 150/60; 070/25 +

136 cm: P: 170/45; L: 240/10

149 cm: 195/85: 195/85 -

CT: Granite facies

Granite

Coarse-grained granite.

K-feldspar (<2 cm) – nice phenocrysts (zoned on CT)

Plagioclase (<1.5 cm) – one up to 3 cm!

Quartz (2 cm)

5 cm: White vein with sinistral shear, ~1 cm throw

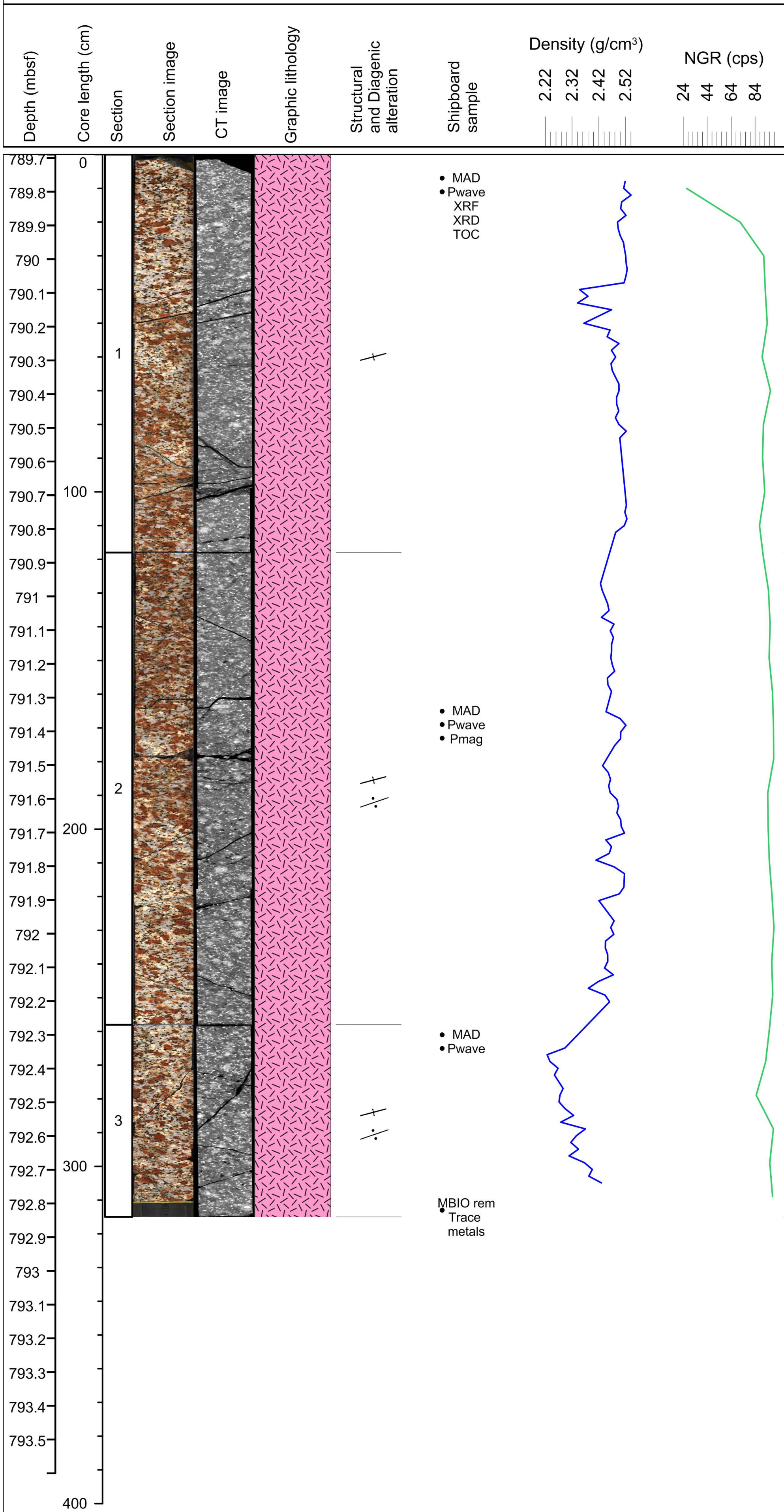
Lineations

6 cm P 195/55 L 215/43 -

26 cm P 325/50 L 305/40

CT: Granite facies – wonderful feldspar zonation

Hole M0077A Core 111R Cored 789.69-792.74 mbsf



Description

Granite

Coarse-grained granite (same as previous section) upper part is lighter than lower part. (Plag whitish-light yellowish in upper part, darker in lower part)

K-feldspar up to 3.5 cm, plagioclase (2 cm), quartz (2 cm), biotite (~0.5 cm)

@14 cm – thin vein

@84-94 cm - ~0.5 cm vein (greyish)

~84-94 cm – cataclasite – white veins anastamose into main cataclasite

Note: fracture on upper surface is likely to be the same as that on 110R3 – rotation due to drilling

CT: Granite facies

Granite

Same as precious section – coarse-grained granite, very homogeneous.

K-feldspar (3 cm), plagioclase (2 cm), quartz (<3 cm), biotite (0.5 cm) homogeneously distributed.

Two thin white veins (<2 mm) at 61/65 and 68 cm.

@101/104 – thin vein

@126/132 <1 cm vein

Anastamosing closed, white fill, shear fracture against fracture

Lineations

85 cm: P 135/80 L 190/55

102 cm: P 160/78 L 230/33

127 cm: P 35/85 L 35/85 -

CT: Granite facies

Granite

Homogenous coarse-grained granite

@11 cm - White shear faults

Dark green, planar dextral shear fractures

K- felds (up to 3 cm), plagioclase (up to 2 cm), quartz (2 cm) and biotite (<0.5 cm) homogeneously distributed, biotite locally inside plagioclase.

Greenish-grey (very planar) veins (from 1 to 5 mm)

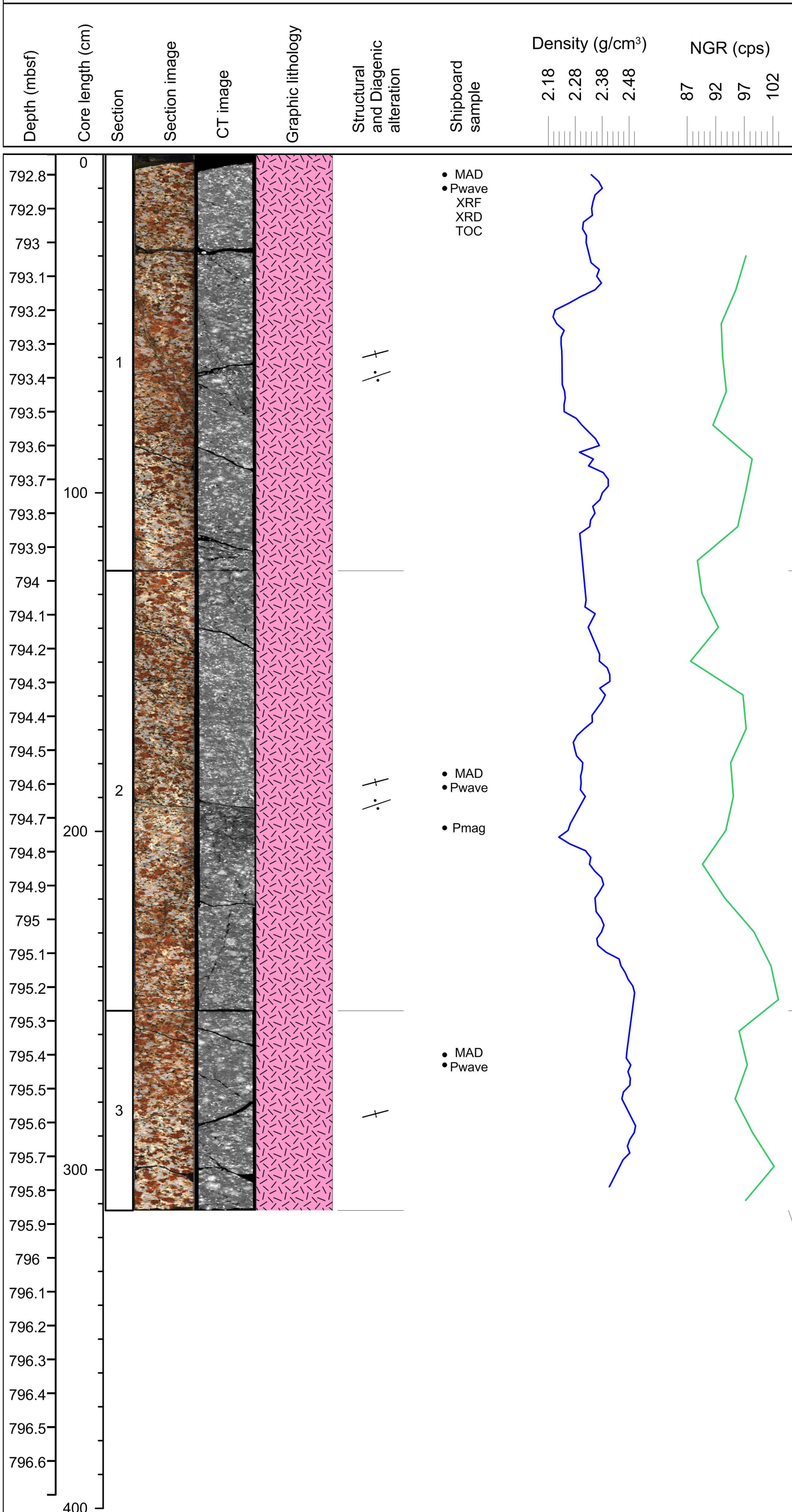
Lineations

20 cm: P 120/55 L 170/25 -

42 cm: P 340 L 250/12 -

CT: granite facies – white shear faults have low density

Hole M0077A Core 112R Cored 792.74-795.79 mbsf



Description

Granite

Coarse-grained granite.

From 45-82 – coarser grained and more abundant K-feldspar (up to 4 cm).

In upper and lower parts, K-feldspar (1.5 cm), plagioclase (1 cm), quartz (1.5 cm), and biotite (0.5 cm) homogeneously distributed.

@45-78: vein (up to 3 mm) white-orange grey.

@~55: green coloured – anastomosing shear zone (sinistral?)

@~115: possible galena/sphalerite on fracture surface

CT: granite facies - anastamosing shear zone is low density

Granite

Coarse-grained granite, K-feldspar (up to 3 cm), plagioclase (1.5 cm), quartz (2 cm), and biotite (0.5 mm).

Thin vein (white to red,), less than 1 mm, in the lower part of section.

@~72: shear against fracture in 1 cm wide zone

White shear fracture network

@80-120 cm: shear fracture, white/red fill, sub-mm thickness displaced dextrally, by 1 cm by perpendicular shear fracture

Lineations

70 cm: P 13/63 L 295/28

CT: Granite facies – low density in shear zone at ~70 cm

Granite

Coarse-grained granite with K-feldspar (up to 3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (0.5 cm) homogeneously distributed.

More quartz in lower part and feldspar is darker coloured in upper part (light orange).

@~22: curviplanar fracture

@~40: less mid-orange feldspar beneath curviplanar fracture – discontinuity?

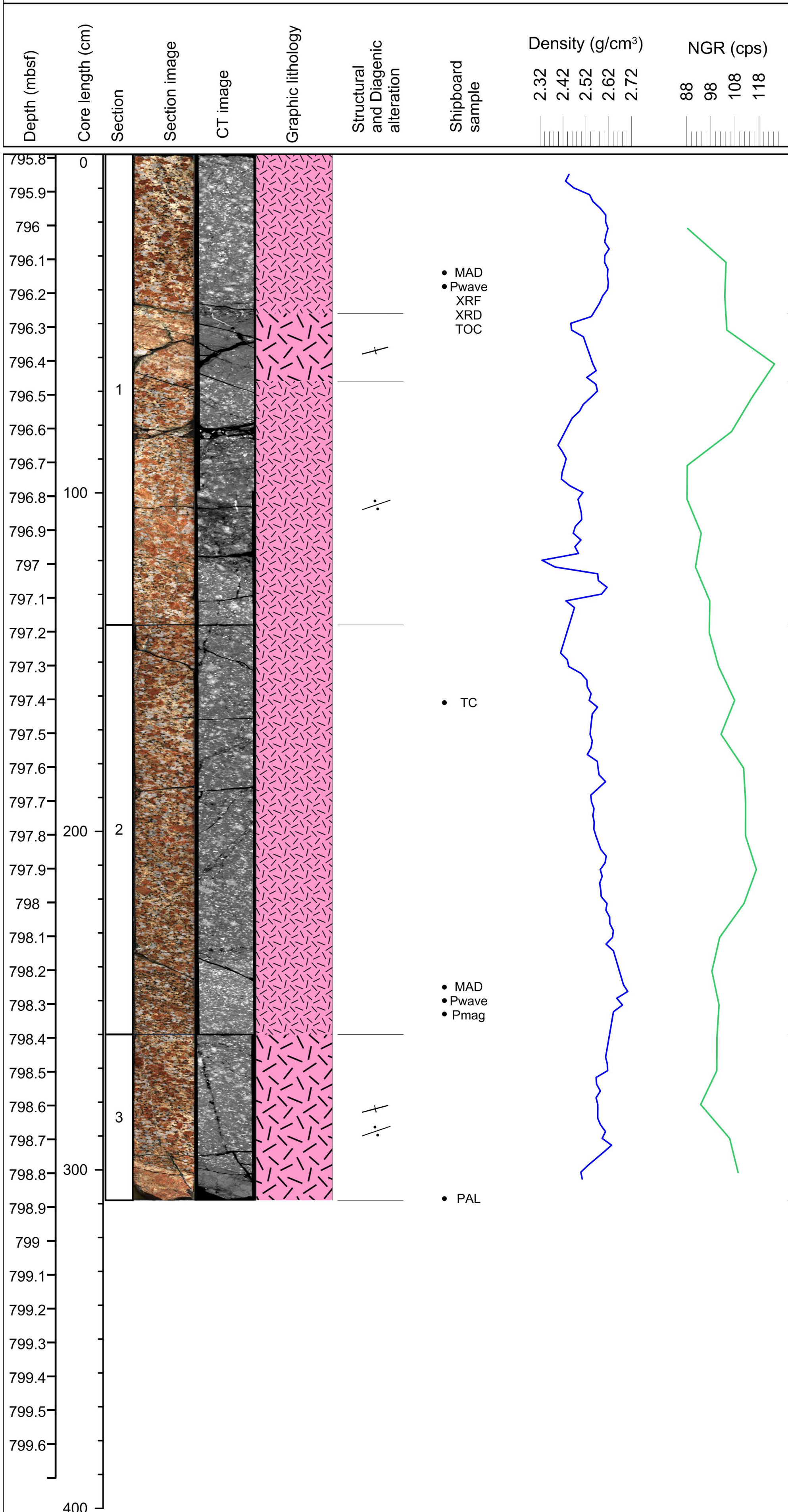
Lineations

8 cm: P 35/65 L 345/47

28 cm: p 290/30 L 10/20 +

CT: granite facies

Hole M0077A Core 113R Cored 795.79-798.84 mbsf



Description

Granite

Same as previous section – coarse grained granite. More plagioclase at the top. K-feldspar (3 cm), plagioclase (2 cm), quartz (2-2.5cm), biotite (0.8 cm).

CT: granite facies

Lineations

45 cm: P 195/45 L 195/45

Pegmatite

Diffuse contact – pegmatitic zone crosscut by fractures, planar and irregular.

CT: pegmatite has no white minerals

Granite

Coarse-grained granite with K-feldspar (up to 4 cm), plagioclase (1.5 cm), quartz (2 cm), biotite (0.5 cm). Less biotite in the middle of unit and somewhat coarser grained.

@85-139 cm: several sets of sub-vertical shear faults with <5 mm cataclastic zones, grey-green fill

Lineations

83 cm: P 125/25 L 90/20

119 cm: P 195/22 L 107/3

CT:

Granite facies, pegmatite has no white minerals

Granite

Homogeneous coarse-grained granite with phenocrysts of K-feldspar (up to 3 cm), plagioclase (yellowish, up to 1.5 cm), quartz (up to 3 cm), biotite (0.5 cm).

Somewhat more quartz in the upper part of the section. More bioite-rich in lower part.

@0-17: vein (<0.3 cm) – grey-greenish to red

Lineations

27 cm: P 355/75 L 270/15

48 cm: P 350/68 L 275/30

CT: granite facies

Granite

Coarse-grained granite (as in previous section). K-feldspar (up to 3-3.5 cm), plagioclase (1.5 cm), quartz (up to 1.5 cm, from rounded to angular), biotite (0.5 cm) homogeneously distributed.

Vein cross all section (<0.2 cm) grey to greenish

CT: Granite facies

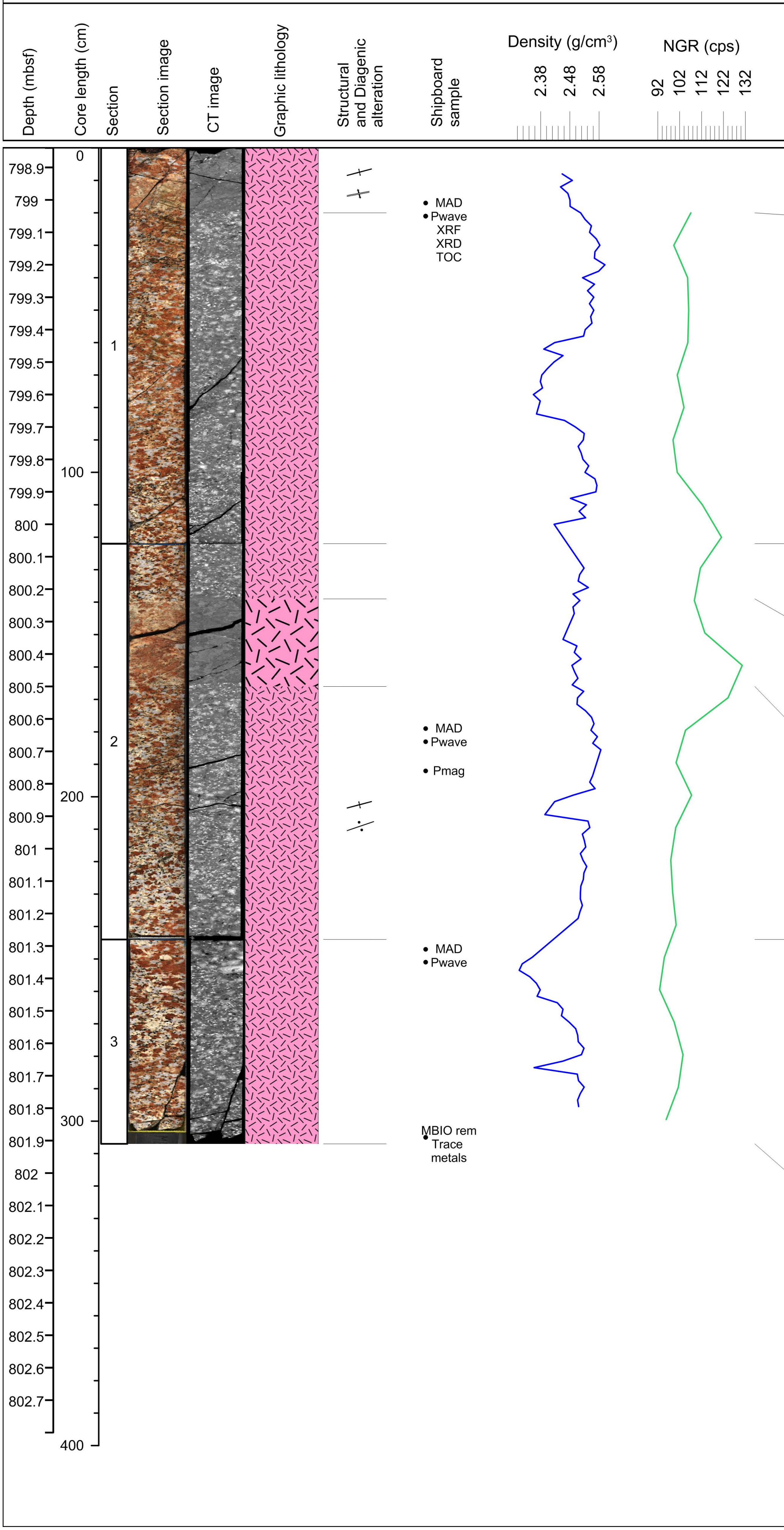
Pegmatite

Pegmatitic zone, slightly diffuse contact, with K-feldspar (>6cm), plagioclase (>5 cm), quartz (<0.5 cm) – cross-cut by tiny veins (<0.1 cm) black to dark grey.

One sub-vertical dextral shear fault, ~1 cm throw, white and dark green fill

CT: pegmatite is homogeneous, lacks white minerals, low density in vertical fracture

Hole M0077A Core 114R Cored 798.84-801.89 mbsf



Description

Pegmatite zone (graphic texture), K-feldspar (>6cm), plagioclase (~2 cm), quartz (~3 cm) crosscut by fractures filled with red and green mineralization.

CT: Pegmatite lacks high CT different minerals

Coarse-grained granite with larger K-feldspar (up to 4 cm) in central part. Biotite concentrated in some parts of the section.

@50-60; green filled vein (<1 mm)

Lineations

73 cm: P 125/60 L 205/5 +

112 cm: P 305/40 L 25/15 +

CT: Granite facies.

Coarse-grained granite (as in previous unit), k-feldspar (3 cm), plagioclase (1.5 cm), quartz (1.5-2 cm), biotite (0.5 cm)

CT: Granite facies, typical. Pegmatite lacks high CT number minerals.

Pegmatite

Dominated by K-feldspar and plagioclase with quartz (>2 cm) and crosscut by thin veins (dark brown) [graphic texture] (~sharp contacts)

White vein

CT: Pegmatite lacks high CT number minerals

Granite

Same coarse-grained granite as in first unit but with less plagioclase in lower part.

@~58: shear fracture, closed

Granite

Coarse-grained granite; coarser graine din upper part.

K-feldspar (>5 cm), plagioclase (3 cm), quartz (2 cm), biotite (0.5 cm), homogeneously distributed

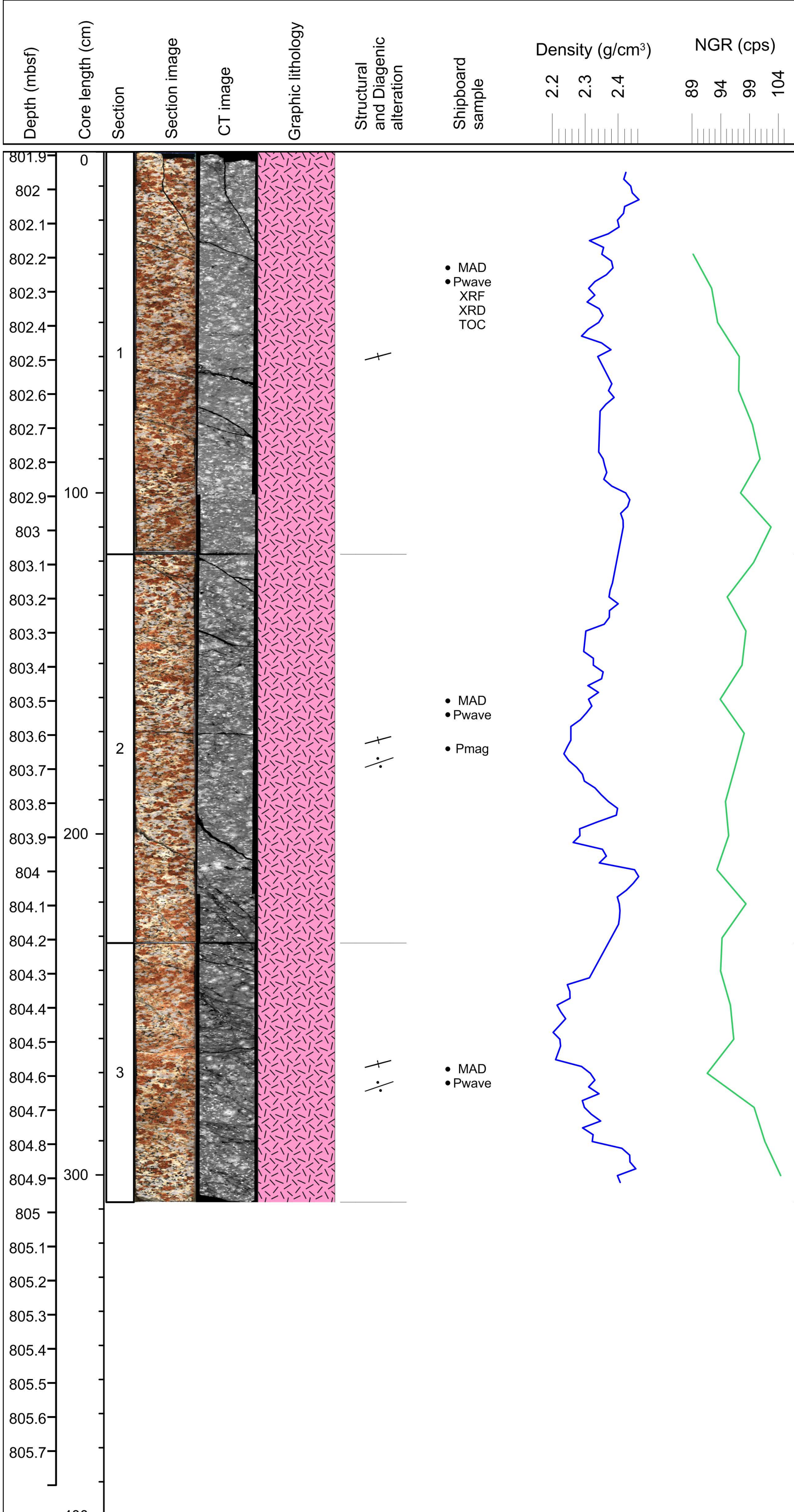
[K-feldspar = [2.5YR1618; 2.5YR1518]

Lineations

48 cm: P 100/85 L 185/20

CT: granite facies – very coarse crystals in upper 20 cm

Hole M0077A Core 115R Cored 801.89-804.94 mbsf



Description

Granite

Coarse-grained granite, K-feldspar (up to 3 cm), plagioclase (2 cm), quartz (2.5 cm), and biotite (0.5 cm). Homogeneously distributed.

@~62: ~1 cm thick cataclasite

@~100: Shear fracture – green fill with some parallel fractures (1 to 4 mm in thickness).

Lineations

14 cm: P 192/75 L 280/2

15 cm: P 255/85 L 340/25

30 cm: P 205/55 L 280/14

82 cm: P 205/40 L 300/15 + & - ??

CT: granite facies

Granite

Coarse-grained granite, K-feldspar (up to 3 cm), plagioclase (2 cm), quartz (2.5 cm), and biotite (<0.5 cm). Homogeneously distributed in the unit.

@~30: sub-parallel white-fill shear fractures through core section (<1 mm in thickness)

Lineations

85 cm: P 220/50 L 220/50 - 1

110 cm: P 240/63 L 150/1

CT: granite facies, sub-parallel shear fractures are low density

Granite

Coarse-grained granite, K-feldspar (3-3.5 cm) plagioclase (3 cm), quartz (2 cm), and biotite (<0.5 cm). Less K-feldspar in the lower part of the section.

Pseudo-S-C fabric with sinistral sense

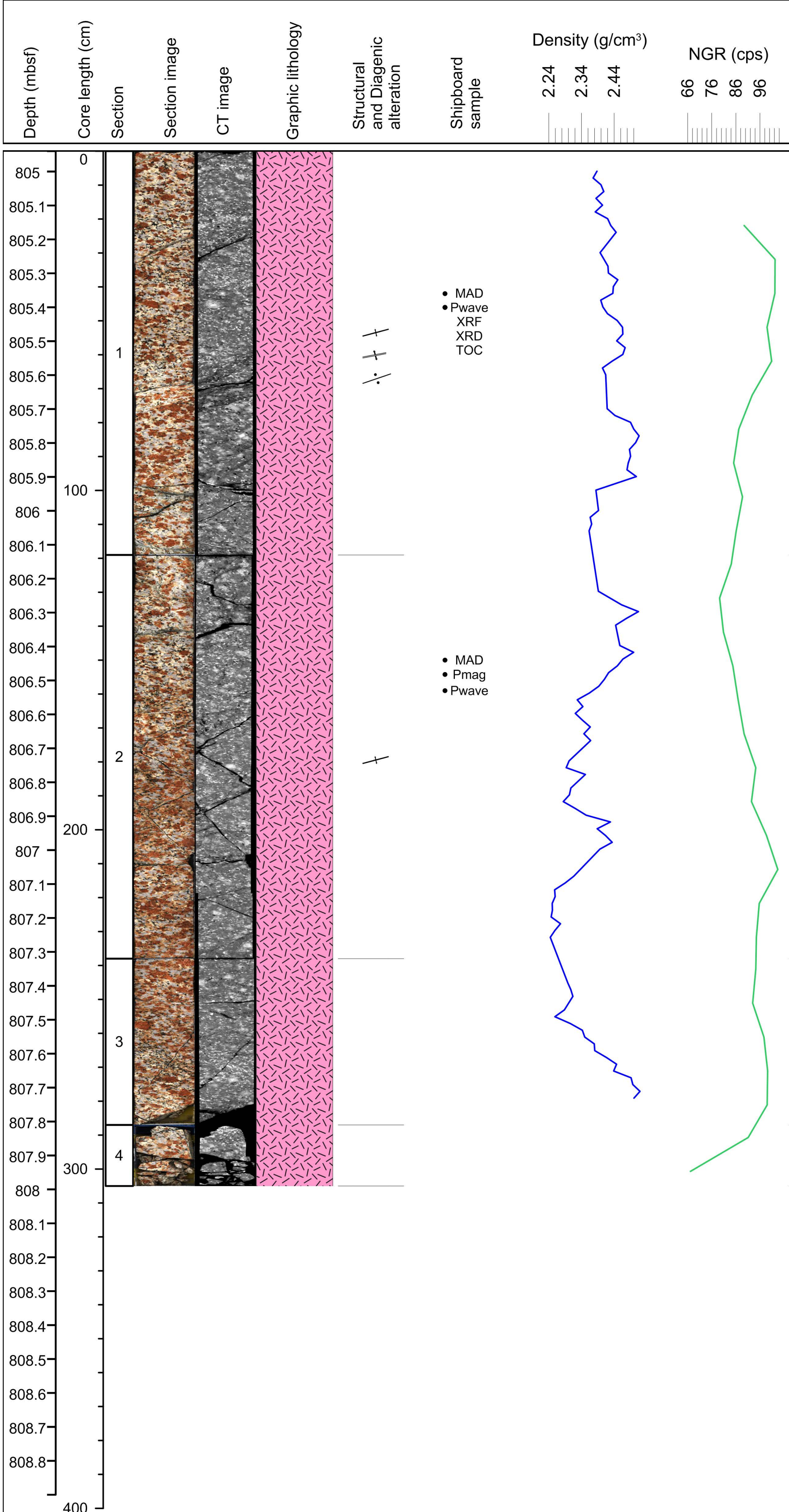
Fracturing surrounding core break ~2 cm away from core break

@~60: shear fractures

@~75: small amount of monomict breccia at base (<2 cm)

CT: granite facies with sub-parallel low density fractures

Hole M0077A Core 116R Cored 804.94-807.99 mbsf



Description

Coarse-grained granite, K-feldspar up to 3,5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm). Thin white veins network in the lower part of the section

@0-5 cm; cataclasite vein (1 mm thick; grey-green).

@26-32 cm; cataclasite, 1 mm thick fills fracture.

@60-70 cm; white-filled shear fractures.

Gray (filled) veins (monomict breccia?) in the last 20 cm.

Lineations

100 cm: P 191/18 L 130/5

100 cm: P 191/18 L 265/10 (same surface)

CT: Granite facies, low D on shear fractures.

Coarse-grained granite, K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm) homogeneously distributed (locally in aggregates). Some veins (white), less than 2 mm, mainly in the lower part of the section.

Conjugate sets of open fractures; minor sealed fractures, white fill, sub mm in thickness.

Lineations

23 cm: P 180/20 L1 156/15 L2 95/2

50 cm: P 150/20 L 160/20 - 3

70 cm: P 145/43 L 85/40

76 cm: P 62/58 L 152/1 + 3

CT: Granite facies with zoned K-felds.

Coarse-grained granite, with K-feldspar phenocrysts (up to 3 cm), plagioclase (1,5 cm), quartz (2 cm), and biotite (<0,5 cm).

@26-35 cm; increased amount of biotite.

Thin veins (<1 mmm) with white filling.

Lineations

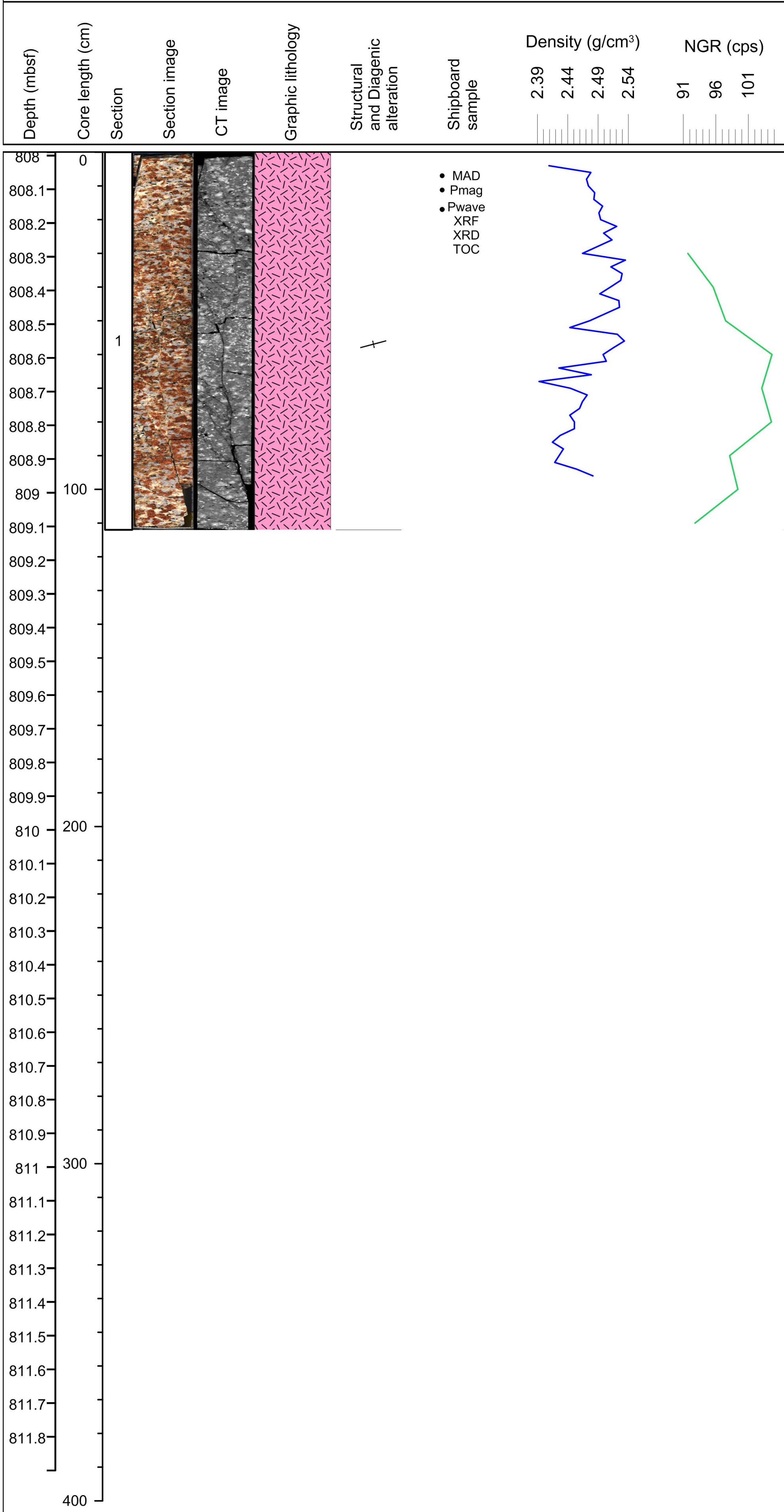
12 cm: P 10/45 L 90/3 - 3

40 cm: P 25/34 L 0/28 - 3

CT: Granite facies.

Coarse-grain size (1.5 to 2.0 cm) granite. Fault faces on broken fragments. Color 7.5YR 7/4/ CT is dark gray.

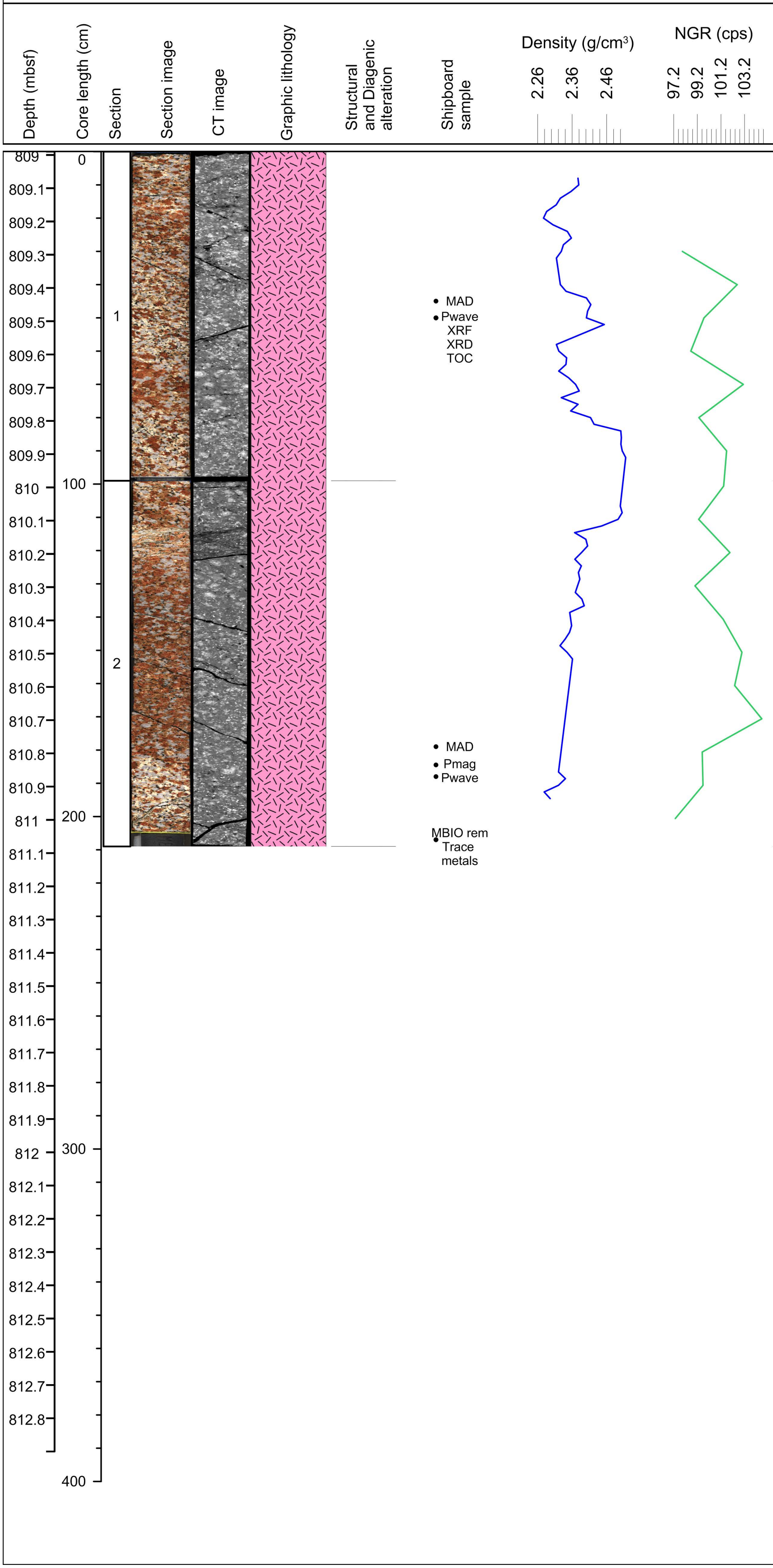
Hole M0077A Core 117R Cored 807.99-808.99 mbsf



Description

Coarse=grained granite, slightly fractured. The regio 47 to 55 cm is biotite rich (~5%). Inclined SPO in quartz and feldspar. Faults. Fault at 105 cm: S 260/79; L 340/20 (+) 2. Green mineralization associated with some biotite.

Hole M0077A Core 118R Cored 808.99-811.04 mbsf



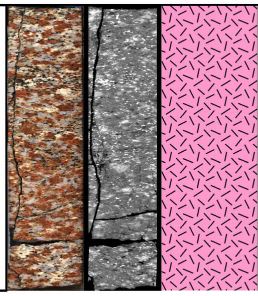
Description

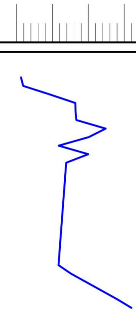
Coarse (2 to 2.5 cm) granite with SPO in quartz, K-feldspar, and biotite. The grain size increases to ~3 cm from 65 to 80 cm. A cataclastic vein occurs at 13 to 13.5 cm and is filled with a green-colored phase. Fault at 58 cm: S 140/50, L 085/25 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grain granite. Deformation zone from 15 to 22 cm. Quartz enriched relative to K-feldspar from 85 to 100 cm. Fault at 92 cm: S 340/20, L 355/18 (+) 3. Color is 75.YR 7/4. CT is dark gray.

Hole M0077A Core 119R Cored 811.04-811.94 mbsf

Depth (mbsf)	Core length (cm)	Section	Section image	CT image	Graphic lithology	Structural and Diagenic alteration	Shipboard sample	Density (g/cm^3) 2.3 2.35 2.4 2.45	NGR (cps) 0 0.25 0.5 0.75 1	Description
811.1–811.7	0	1					• MAD • Pmag • Pwave XRF XRD TOC			Coarse-grain granite. The region from 15 to 20 cm is enriched in biotite. Minor green-colored mineralization occurs adjacent to biotite. A fault tat 47 cm: S 330/40, L 350/38 (-) 4. Color is 7.5YR 7/4. CT is dark gray.

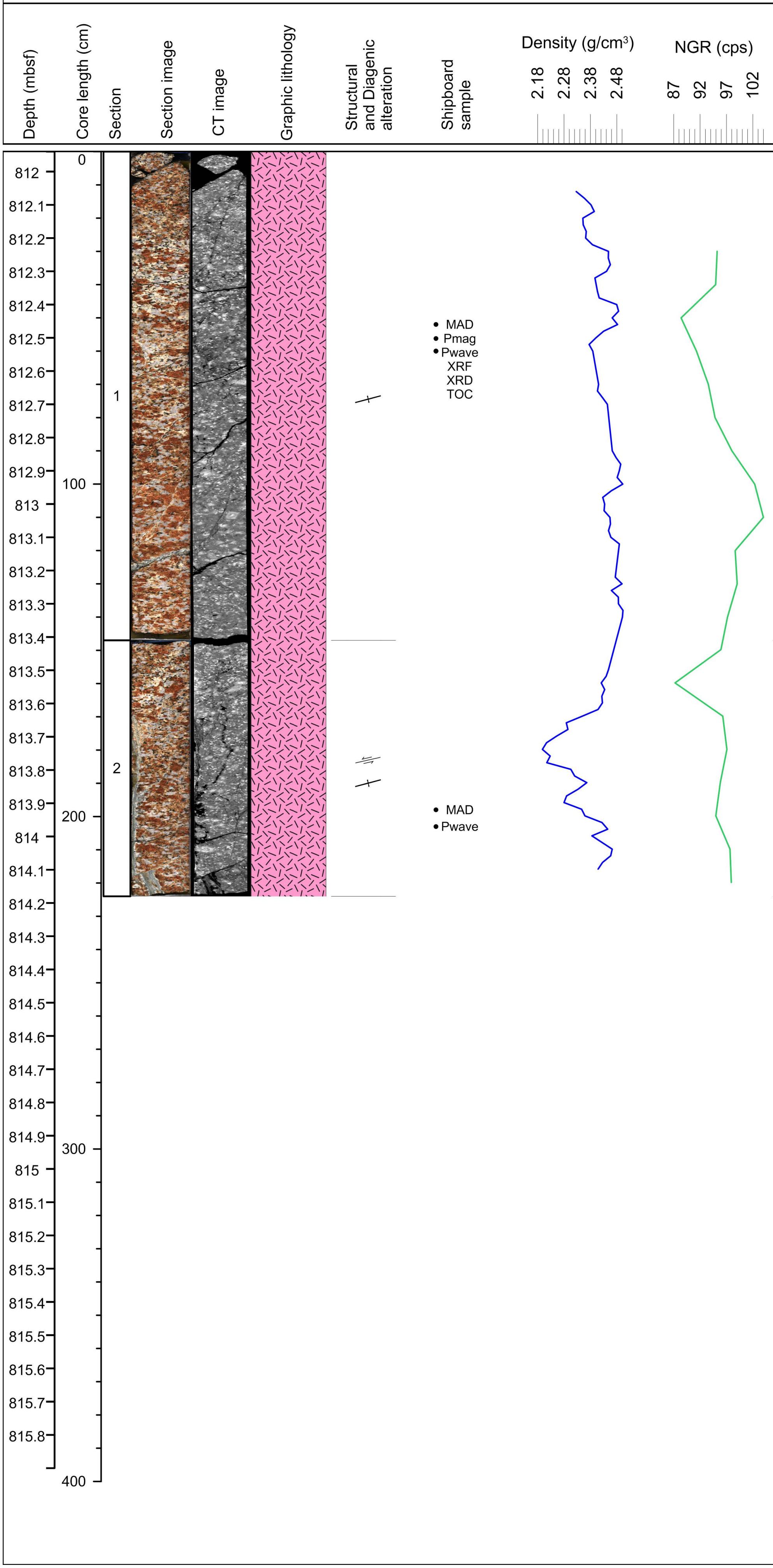




Depth (mbsf): 811.1, 811.2, 811.3, 811.4, 811.5, 811.6, 811.7, 811.8, 811.9, 812, 812.1, 812.2, 812.3, 812.4, 812.5, 812.6, 812.7, 812.8, 812.9, 813, 813.1, 813.2, 813.3, 813.4, 813.5, 813.6, 813.7, 813.8, 813.9, 814, 814.1, 814.2, 814.3, 814.4, 814.5, 814.6, 814.7, 814.8, 814.9

Core length (cm): 0, 100, 200, 300, 400

Hole M0077A Core 120R Cored 811.94-814.09 mbsf

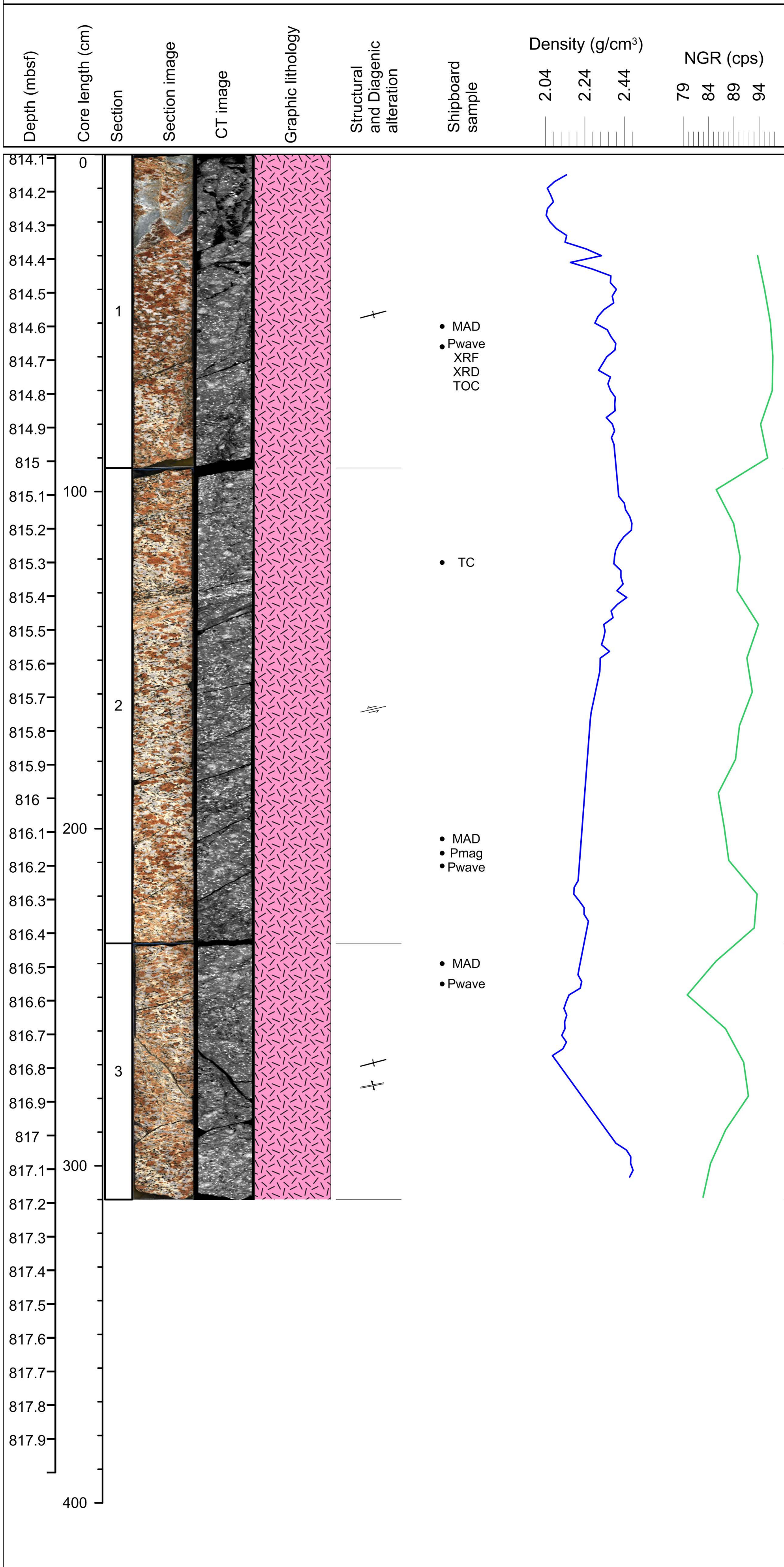


Description

Coarse (2 to 2.5 cm) granite, moderately deformed. The interval 0 to 20 cm is enriched with biotite. Large (~3 to 3.5 cm) quartz and K-feldspar occur from 95 to 120 cm. Traces of a green-colored mineral occur along fracture. Biotite at 96 cm is associated with a sulfide and a green-colored mineral. Colore is 7.5 YR 7/6. CT is dark gray.

Coarse-grain granite, well-deformed. A cataclastic vein runs from 24 to 76 cm. Epidote along the core wall is cut by a post-impact fault at 65 cm. Biotite is also associated with a green-colored mineral. A lavendar-colored stain occurs at the intersection of two fractures. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 121R Cored 814.09-817.14 mbsf



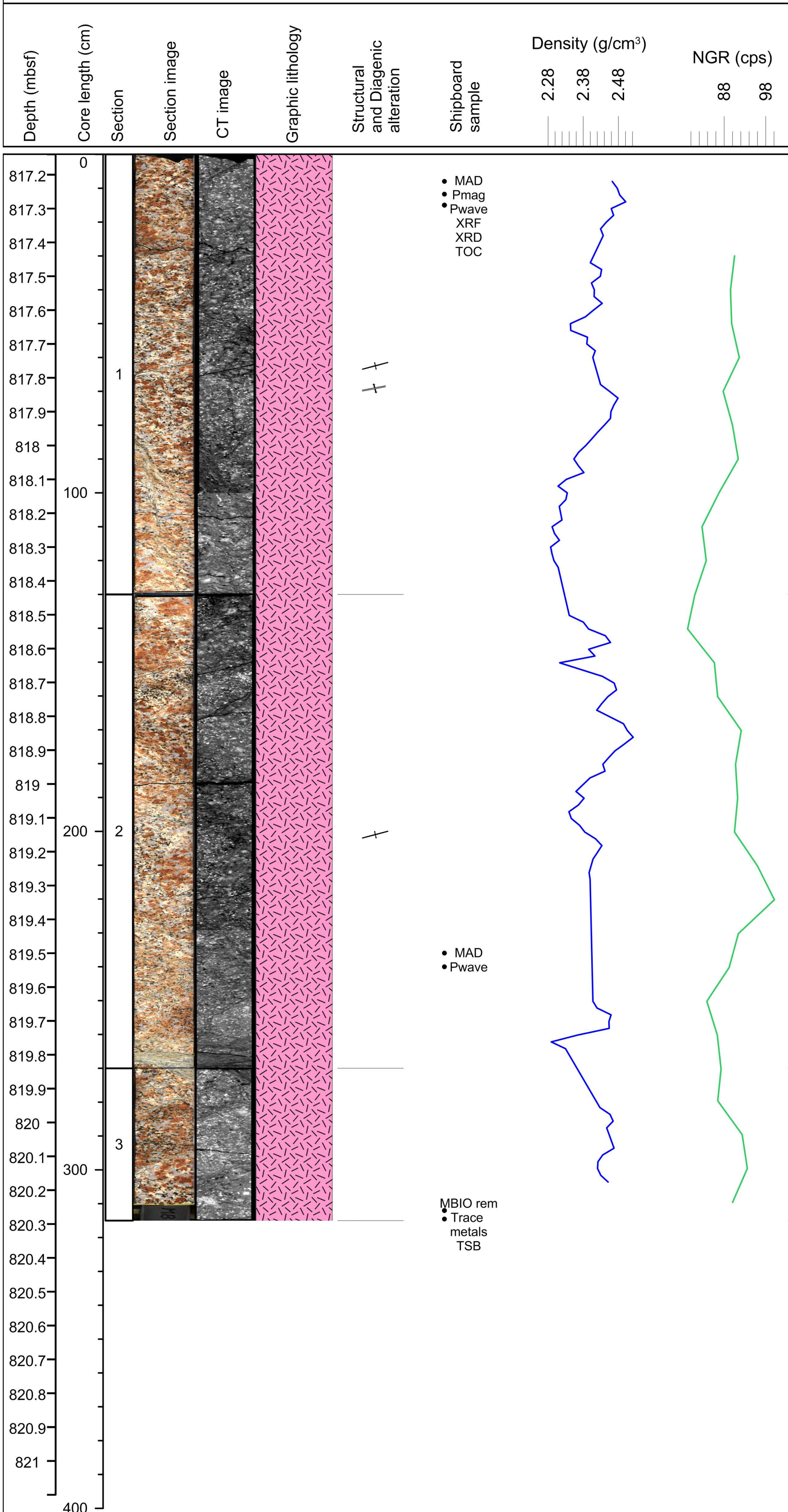
Description

Coarse granite, well-deformed. From 0 to 32 cm is a cataclastic dike cut by a late fracture. Fault at 65 cm: S 138.174, L 184/15 (-) 4. Dissolution of feldspar and a vug. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite; well-deformed with fine cataclastic veins. The interval 33 to 38 cm is enriched in biotite. Post-impact faults are spaced at 5 cm intervals along the core. Fault at 45 cm: S 220/60, L 280/50 (+) 3. Fault at 66 cm: S 158/88, L 055/54 (+) 4. Fault at 81 cm: S 160/76, L 220/32 (+) 2. Fault at 108 cm: S 130/74, L 194/26 (+) 3. Fault at 125 cm: S 128/80, L 203/25 (+) 3. Color 7.5 YR 7/4. CT is dark gray.

Coarse granite that is well-deformed with cataclastic-filled fractures. Fault at 35 cm: S 070/56, L 195/08 (+) 4. Fault at 17 cm: S 130/02, L 210/26 (+) 4. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 122R Cored 817.14-820.19 mbsf



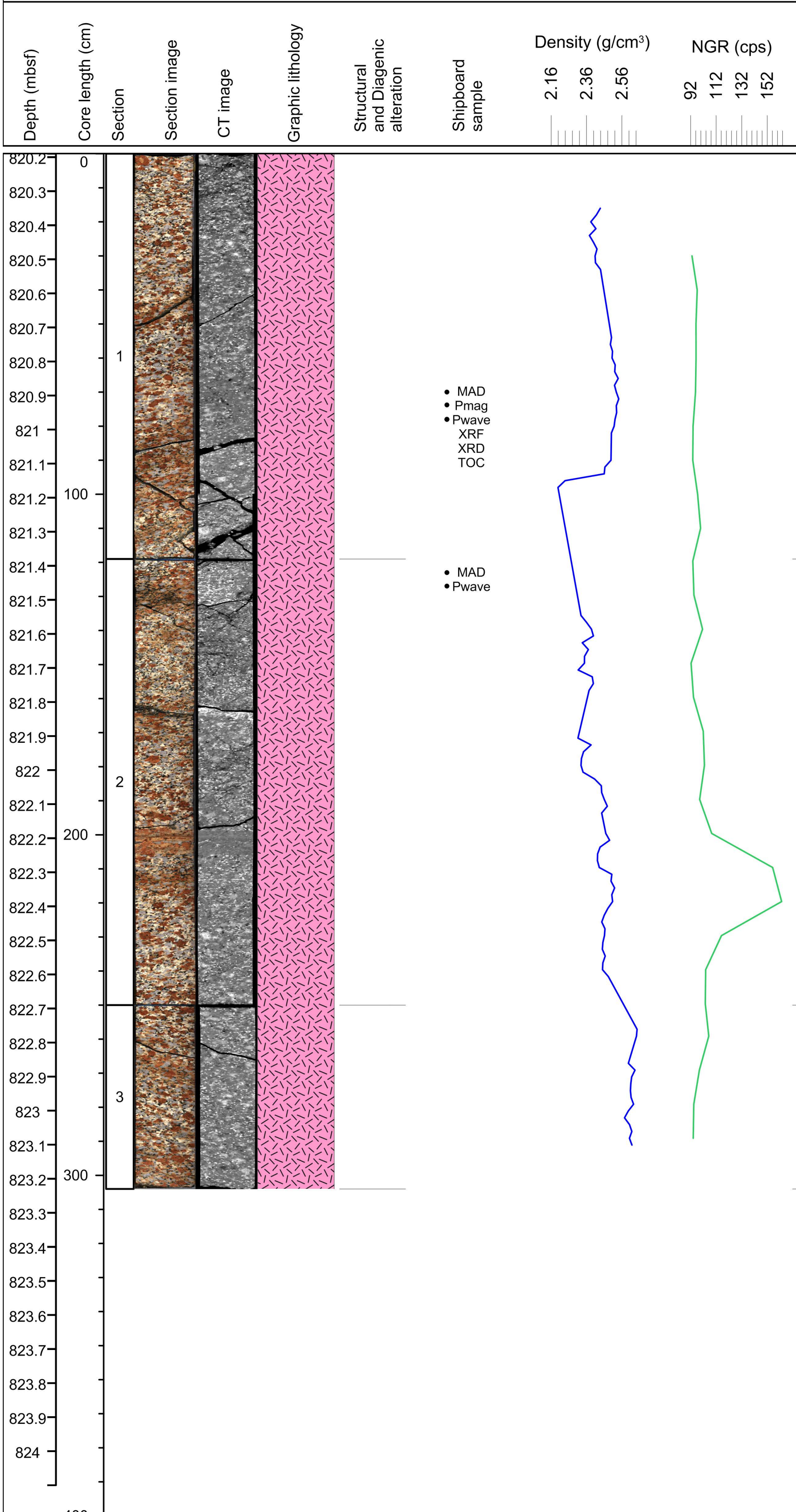
Description

Coarse granite, well-deformed fractures filled with cataclastic veins from 40 to 45 cm and 83 to 129 cm. Wavy biotite traces from 45 to 53 cm. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite with grain sizes ranging from 1 to 3 cm. An interval fro 20 to 30 cm is enriched in biotite. The section is moderatley fractured. A cataclastic vein occurs from 130 to 140 cm. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, moderately deformed with fine cataclastic veins. Traces of a green alteration mineral. Color is 7.5 YR 7.4. CT is dark gray.

Hole M0077A Core 123R Cored 820.19-823.24 mbsf



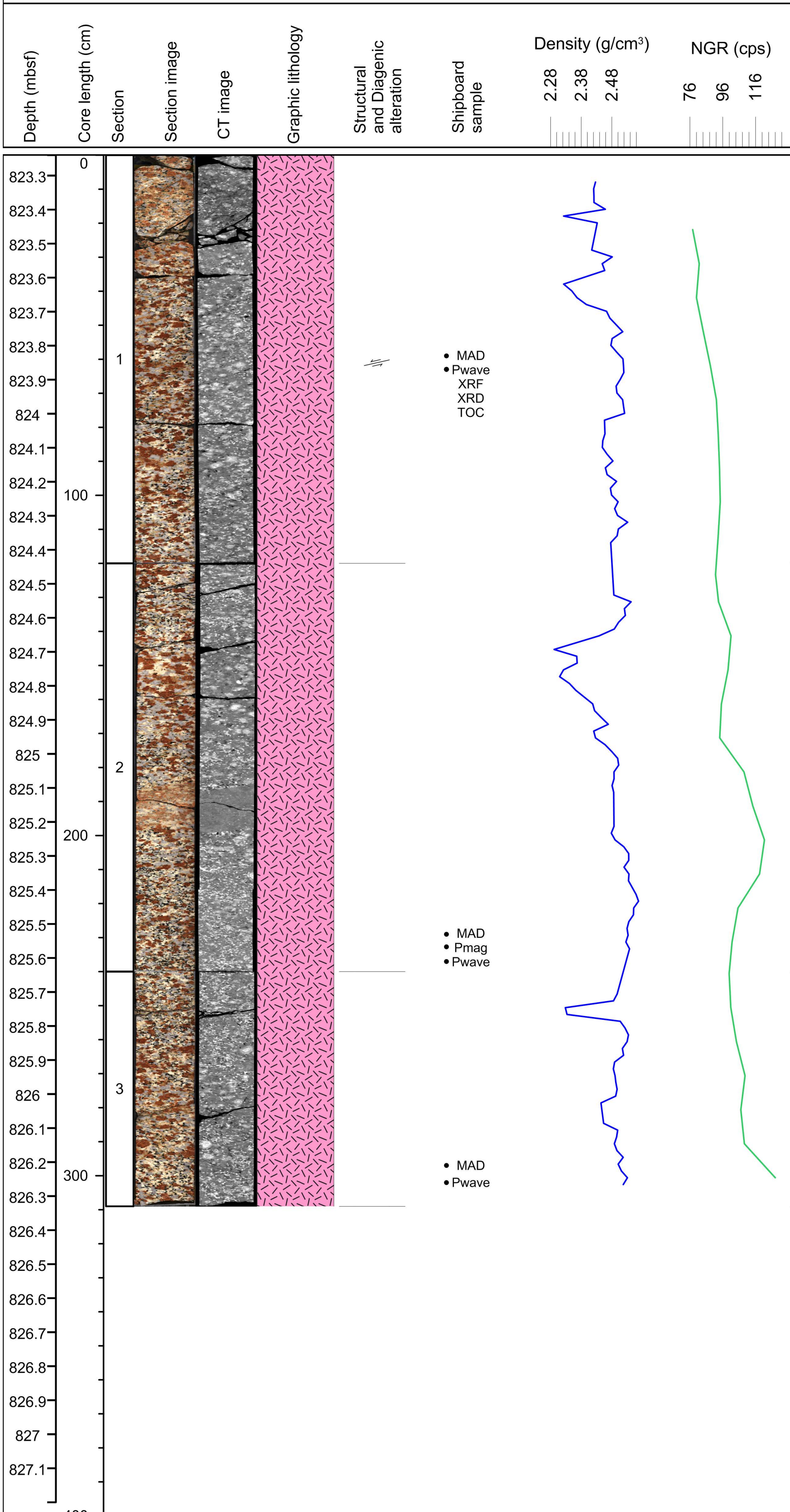
Description

Coarse granite, weakly deformed. Veins with epidote occur at 42 to 52 cm; 78 to 85 cm; 87 to 92 cm; and 99 to 105 cm. Fault at 99 cm: S 132/38, L 052/12 (+) 4. Color 7.5 YR 7/4. CT is dark gray.

Coarse granite with two aplite veins between 79 and 85 cm. A zone from 43 to 46 cm is enriched (>3%) in biotite. Fault at 46 cm: S 215/50, L 260/26 (-) 3. Green-colored alteration occurs at ~42 cm and ~95 cm. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grain granite that is relatively homogeneous. Minor green mineralization associated with biotite. Fault at 13 cm: S 026/70, L 088/54 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 124R Cored 823.24-826.29 mbsf



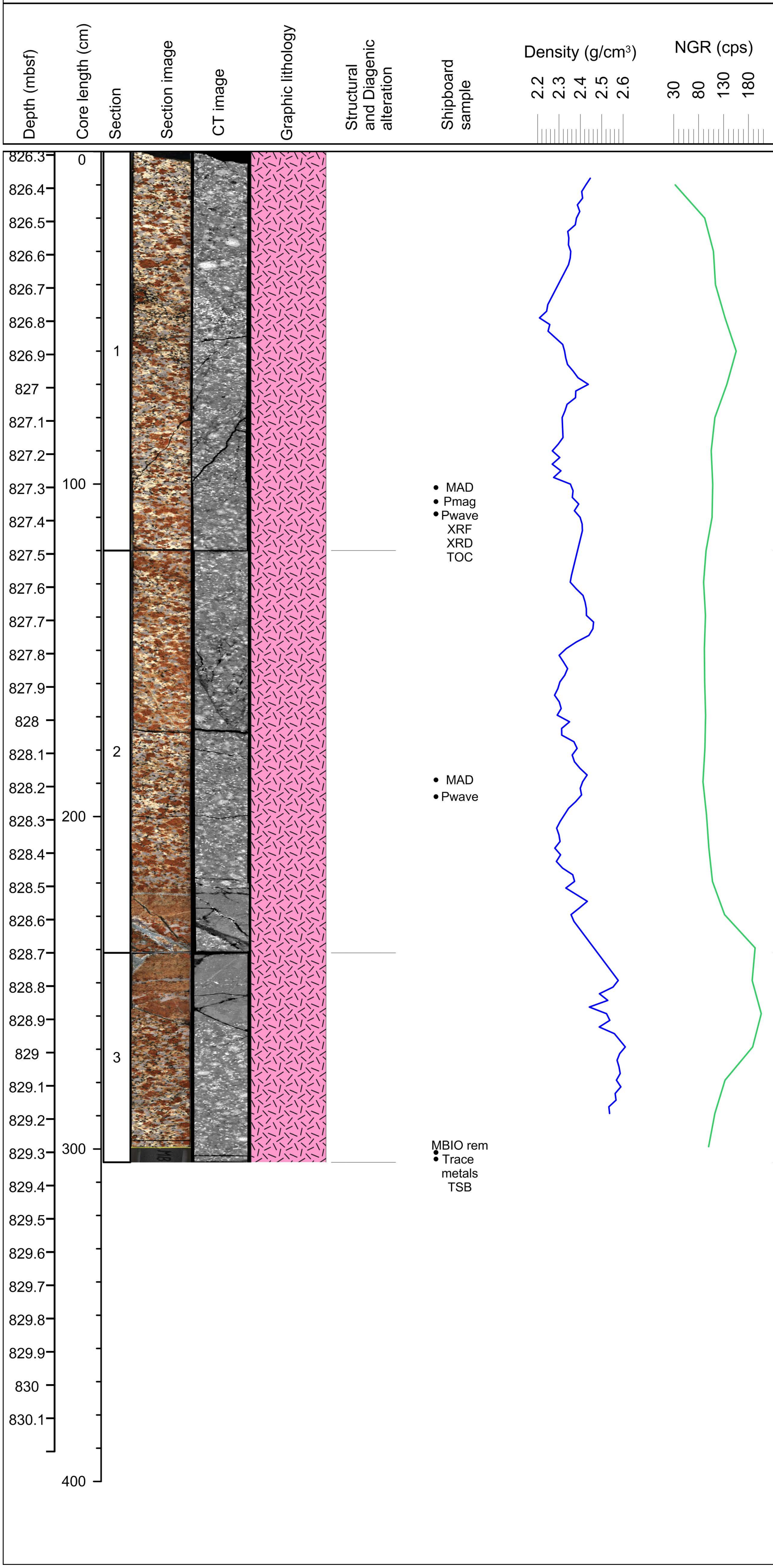
Description

Coarse-grain granite that is moderately deformed from 0 to 25 cm. Green mineralization occurs along a fault at 20 cm and in <1 mm particles along the core. Fault at 20 cm: S 132/76, L 119/74 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grain granite (with no deformation). An interval from 28 to 39 cm contains less biotite, as does an interval from 63 to 78 cm. Green mineralization is associated with biotite. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (~2.5 cm) granite. Green mineralization is associated with biotite along the core; traces also occur along a <1 mm wide dissolution feature from 43 to 57 cm. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 125R Cored 826.29-829.34 mbsf



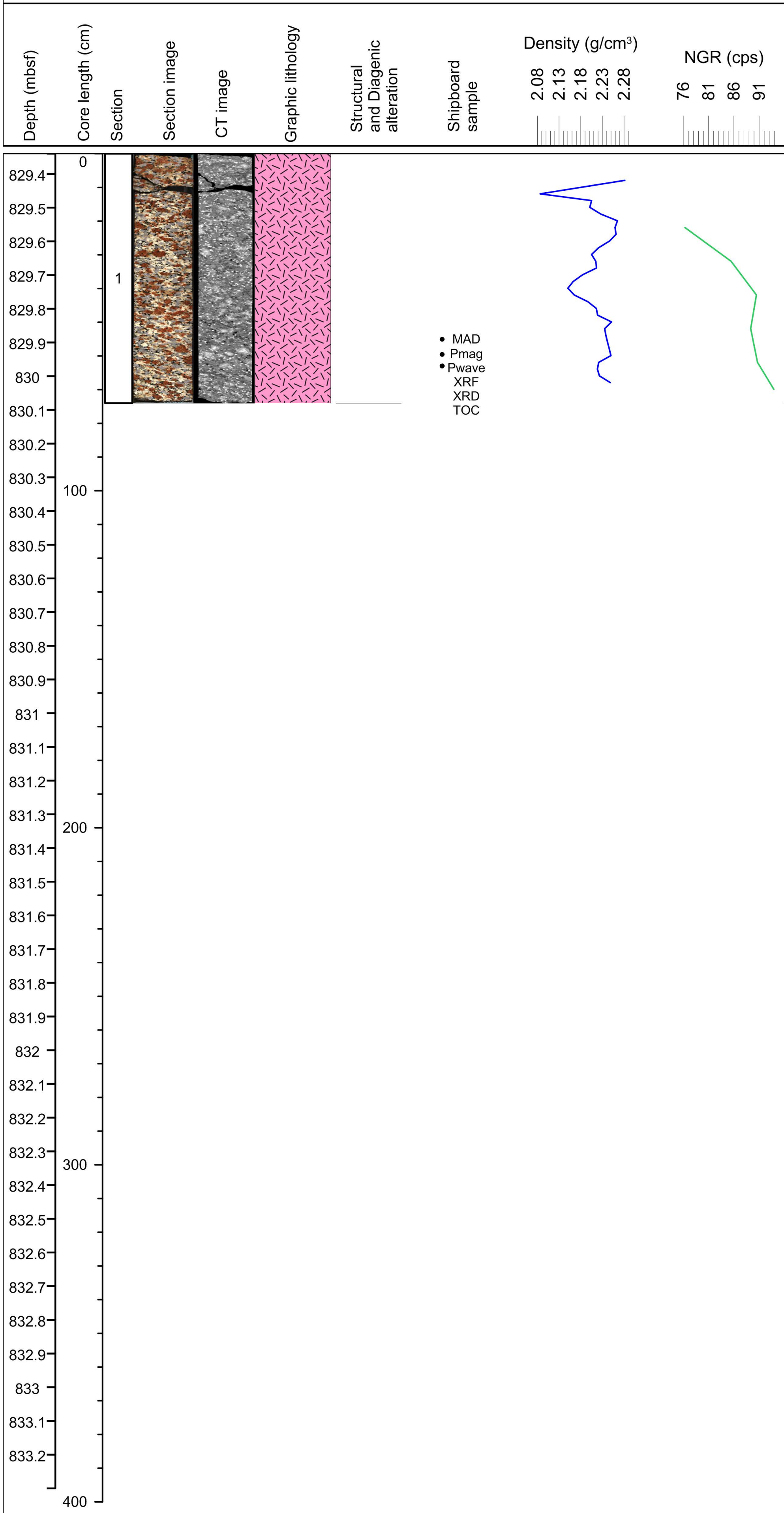
Description

Coarse granite. A region from 46 to 64 cm is enriched in biotite. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grain granite. An aplite dike occurs between 104 and 108 cm. The granite is weakly deformed. A 1 to mm cataclastic vein occurs at 104 cm. A cm-wide cataclastic vein runs from 114 to 120 cm. A thin dissolution feature runds from 26 to 54 cm. A purple colored mineral is adjacent to the cataclastic feature at 112 cm. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite with an aplite dike from 0 to 13 cm. Weakly deformed. A thin vein cuts across the core from 12 to 16 cm and has traces of a lavender-colored mineral. Color is 7.5 YR 7/4. CT is dark gray.

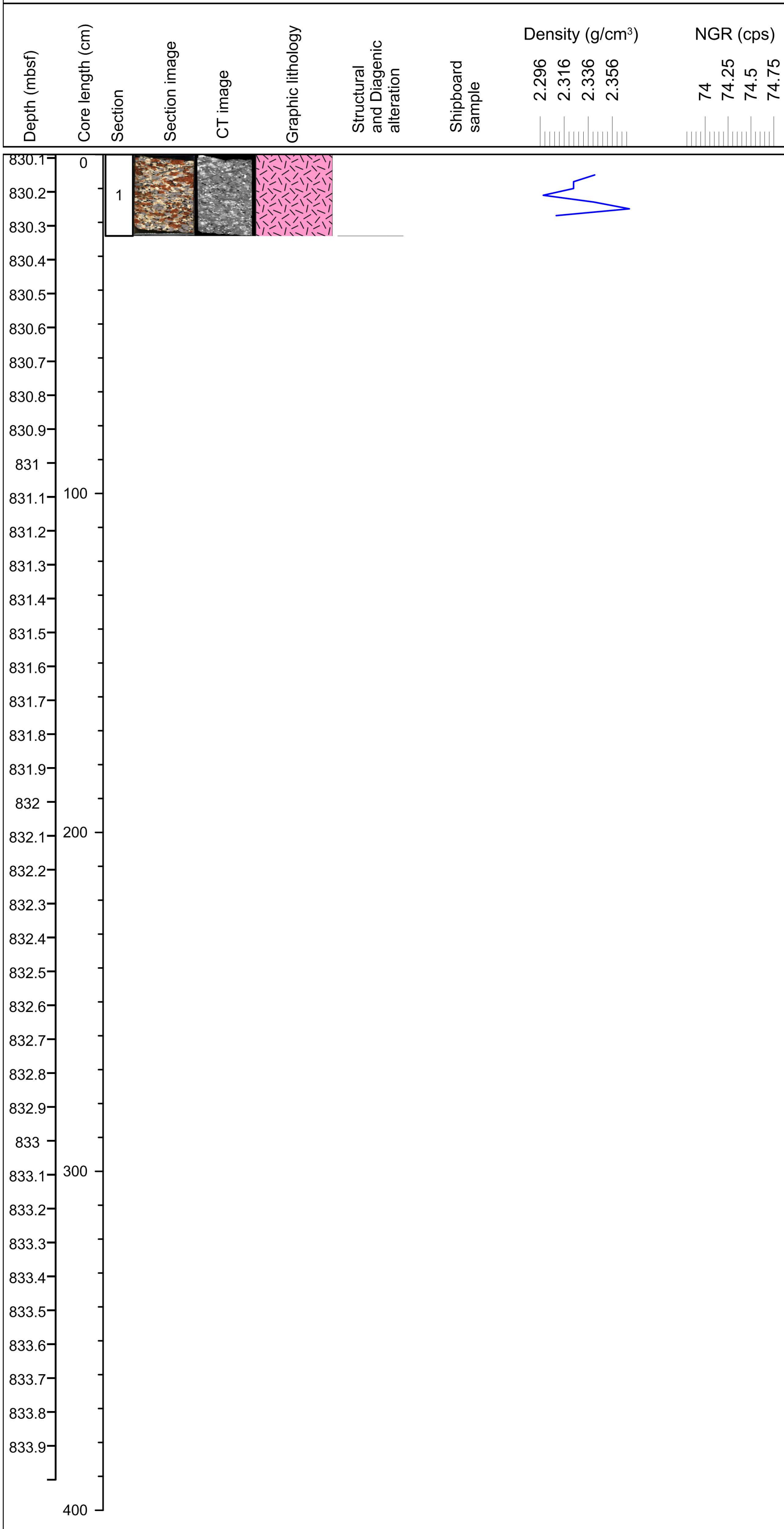
Hole M0077A Core 126R Cored 829.34-830.09 mbsf



Description

Coarse-grained, weakly deformed granite. Some features with white fill at 17 to 22, 31, and 51 cm. Green mineralization associated with biotite. Color is 7.5 YR 7/4. CT is dark gray.

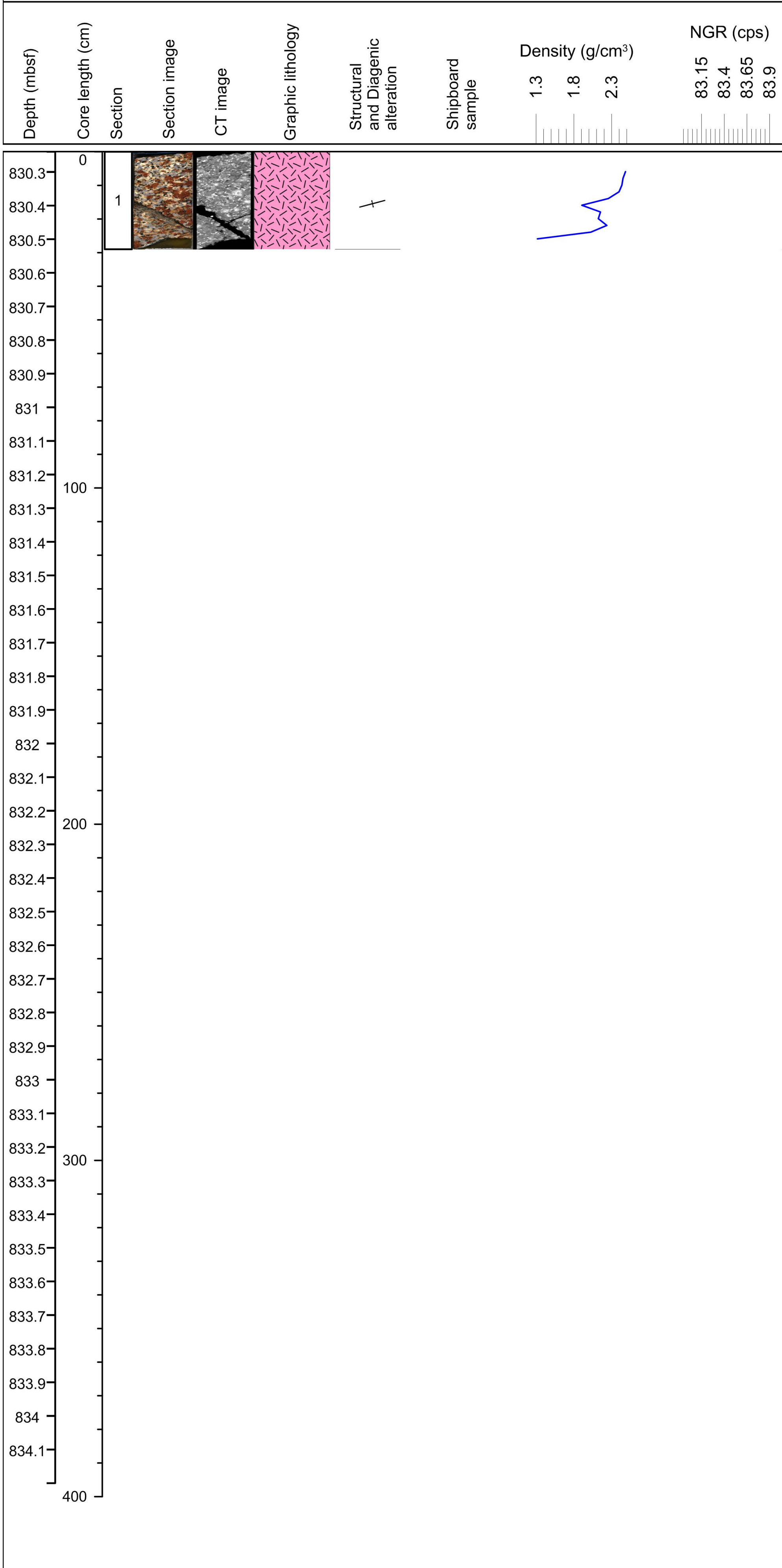
Hole M0077A Core 127R Cored 830.09-830.24 mbsf



Description

Coarse-grained granite, weakly deformed. Weak SPO defined by quartz, plagioclase, K-feldspar, and biotite. Cataclastic dike, up to 0.5 cm wide, occurs between 3 and 8 cm. Colore is 7.5 YR 7/4. CT is dark gray.

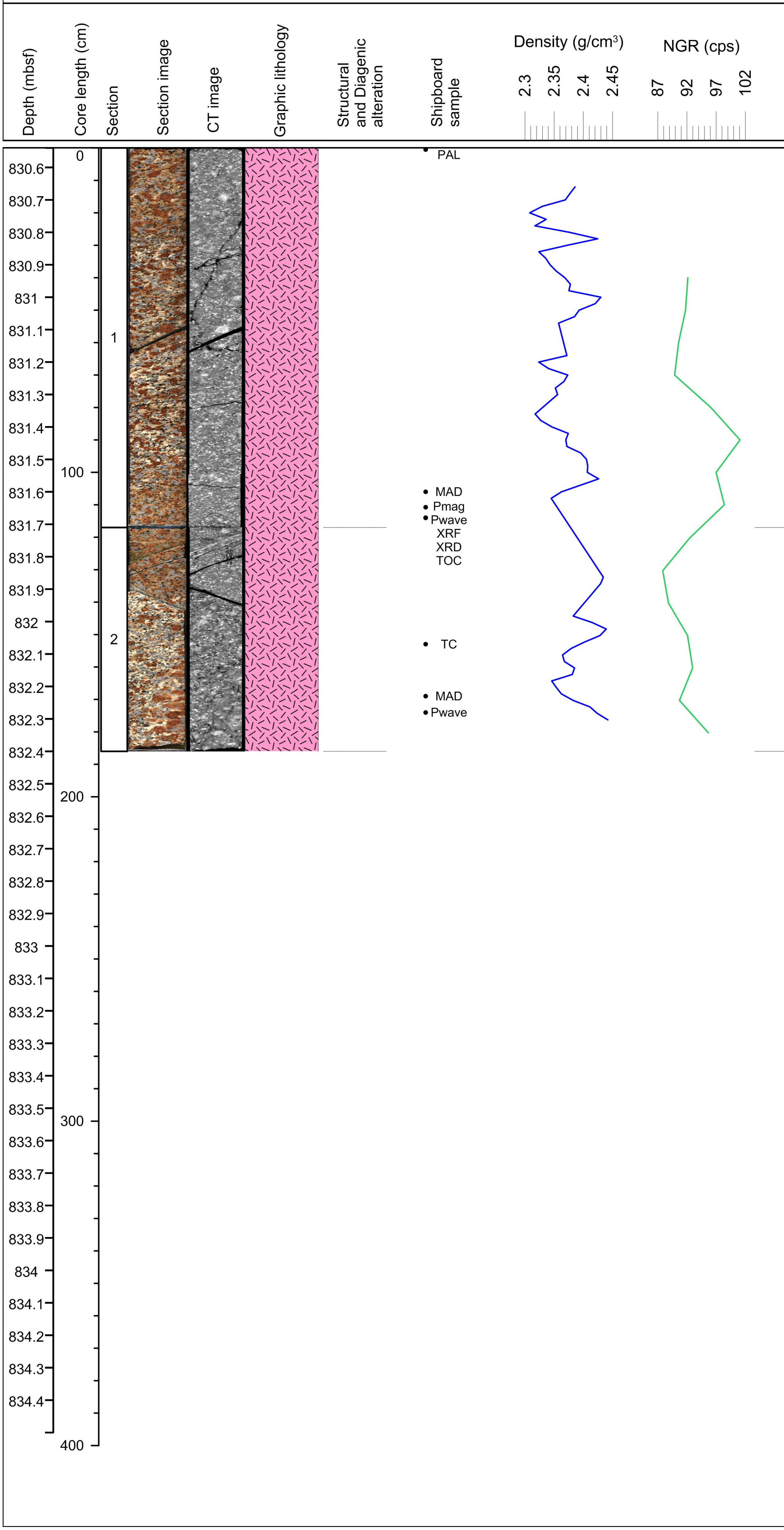
Hole M0077A Core 128R Cored 830.24-830.54 mbsf



Description

Coarse-grained granite, weakly strained, with some planar cataclastic zones. There is an open fracture about 1 to 2 cm wide that contains idiomorphic crystals with nice crystel faces up to 0.7 cm in size; the crystals are bright white in CT (high density). Color is 7.5 YR 7/4. CT color is dark gray.

Hole M0077A Core 129R Cored 830.54-832.39 mbsf

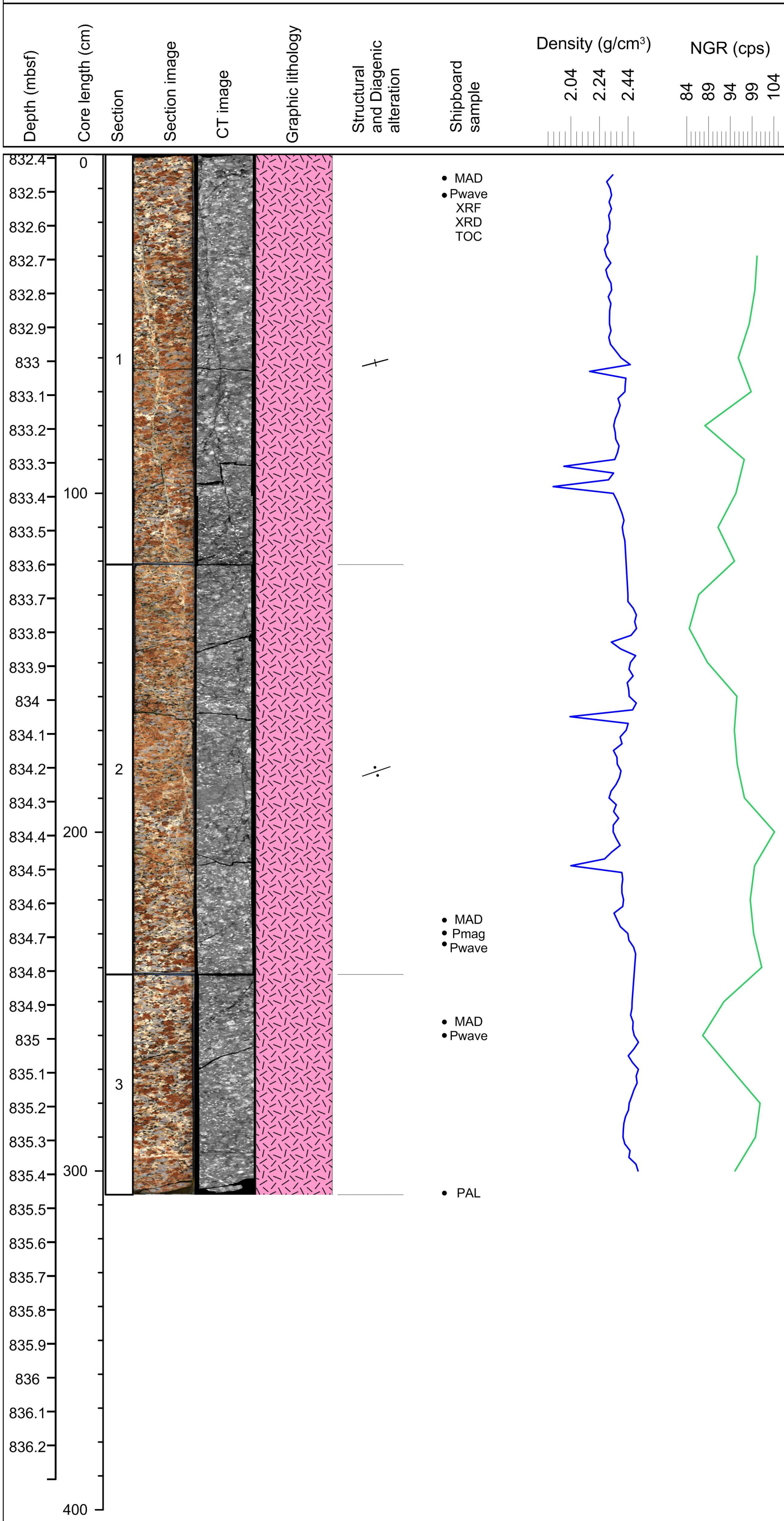


Description

Coarse-grained granite, moderately deformed. Weak SPO in quartz, K-feldspar, and plagioclase. Blue-gray cataclastic vein at 35 cm. Green colored mineralization scatterd along core. Disolution traces and a small vug are also present. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite. Larger K-feldspar occur between 48 and 68 cm. Weakly deformed. Fault at 24 cm: S 215/40, L 245/38 (+) 1. Abundanct green mineralization in the upper 14 cm of the section. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 130R Cored 832.39-835.44 mbsf



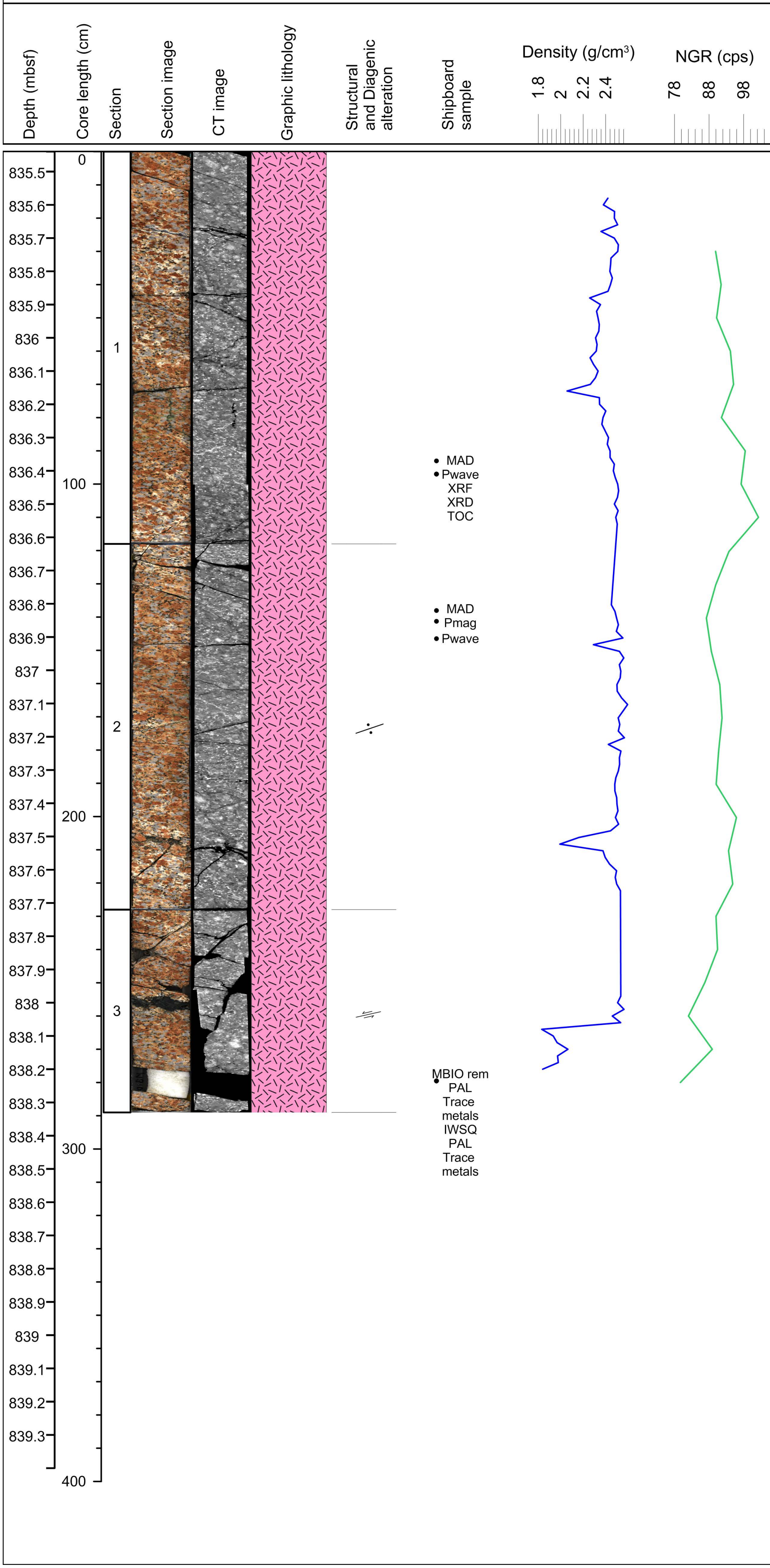
Description

Coarse (2 to 2.5 cm) granite, moderately deformed. Fault at 9.5 cm: S 088/088, L 178/30 (-) 1. Dissolution fractures and vugs, associated with green mineralization. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite. The area from 30 to 44 cm is enriched in biotite. This section is strongly deformed. Motion along white veins indicates shearing. Green mineralization occurs in <1 mm wide veins. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1.5 to 2.5 cm) granite. Green mineralization associated with biotite. Fault at 23 cm: S 320/46, L 240/10 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 131R Cored 835.44-838.22 mbsf



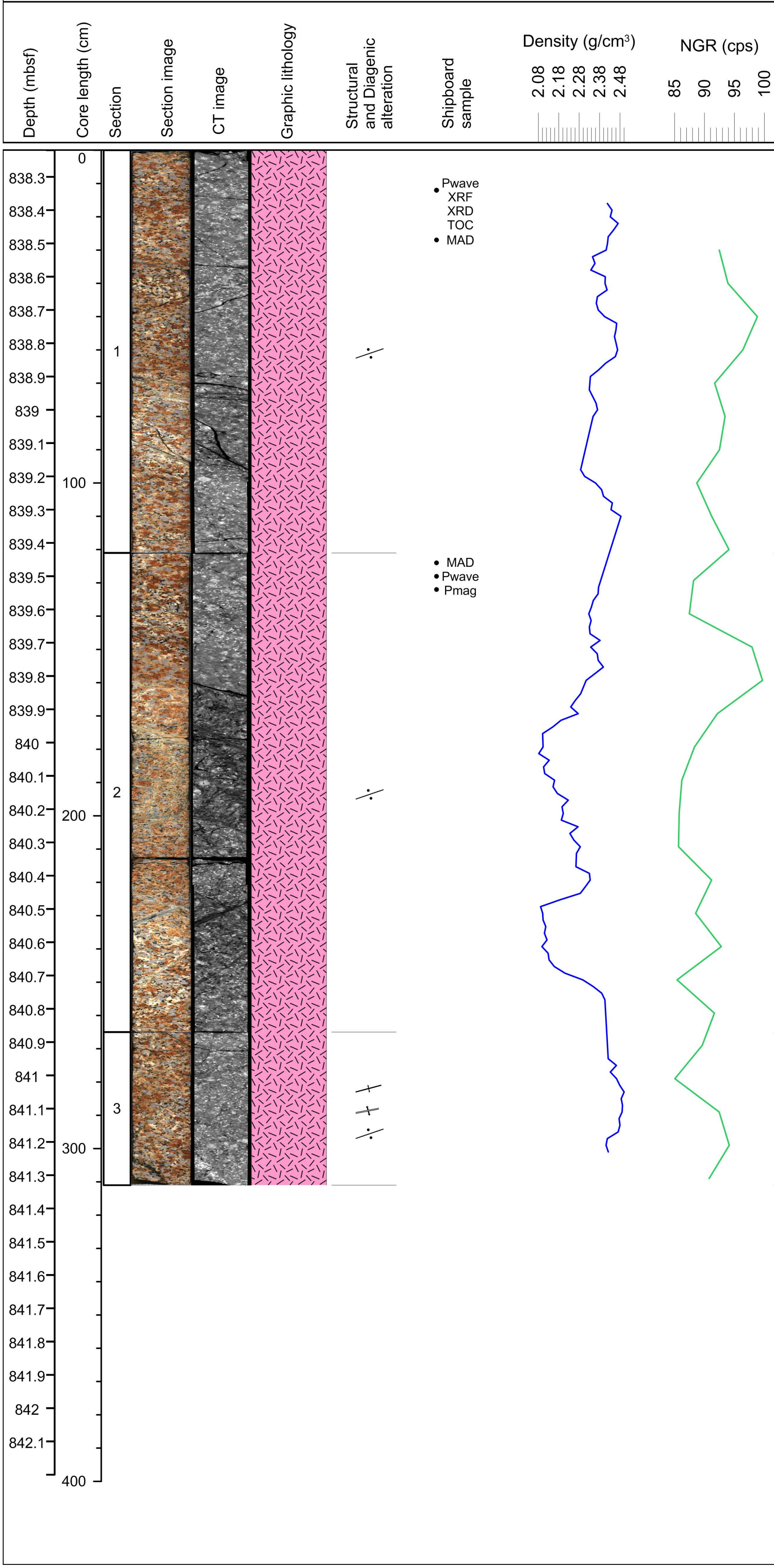
Description

Coarse (1 to 2 cm) granite, strongly deformed. Fault at 9 cm: S 225/85, L 130/8 (+) 4. Blue, green, and lavender mineralization. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite that is strongly deformed; white veins indicate shearing. Fault at 30 cm: S005/60, L 064/28 (-) 4. Fault at 43 cm: S 004/61, L 062/32 (-) 3. Fault at 54 cm: S 330/43, L 012/30 (+) 4. Fault at 96 cm: S 215/0, L 205/19 (+) 2. Green mineralization along veins and interstially between quartz, feldspar, and biotite. A pocket containing green, blue, and red minerals occurs at 71 cm. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1.5 to 2 cm) granite, strongly deformed. Fault at 12 cm: S 300/79, L 300/77 (+) 2. Fault surface is dark. Green mineralization occurs along edge of fault. Color 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 132R Cored 838.22-841.34 mbsf



Description

Coarse-grained granite, homogeneous, with a few shear faults. K-feldspars (up to 3 cm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm), homogeneously distributed.

@33-36 cm: Thin greenish veins (< 1 mm), perpendicular to core.

@74-76 cm: anastomosing shear faults (whitish).

@80-90 cm: S 35/45 L 35/45 (+3) [white-green cover]

@86-94 cm: S 35/45 L 123/2 (-3) [greenish cover]

CT: Granite facies (with zoned K-feldspars).

Coarse-grained granite (as previous section) with K-feldspars (3,5 cm), plagioclase (2,5 cm), quartz (2 cm), and biotite (<0,5 cm) [from 0-30 and 112-end of section]. Central part of the section is deformed, crosscut by cataclasites. From 30 to 50 cm, biotite poor.

@39-41 cm: S 17/401 L 293/5 (+4),

@51-58: 1 cm thick cataclasite, white/orange fill (plagioclase rich?).

@103-111: Green colored cataclasite - fluidal textures – irregular edges, particularly on upper side – truncates antithetic shear fault from 101-108cm – pervasive shearing to granite between this cataclasite and shear fault below.

@119-129: Anastomosing shear fault.

CT: Granite facies; Darker in processed zones (@53-80 cm), corresponding to low D.

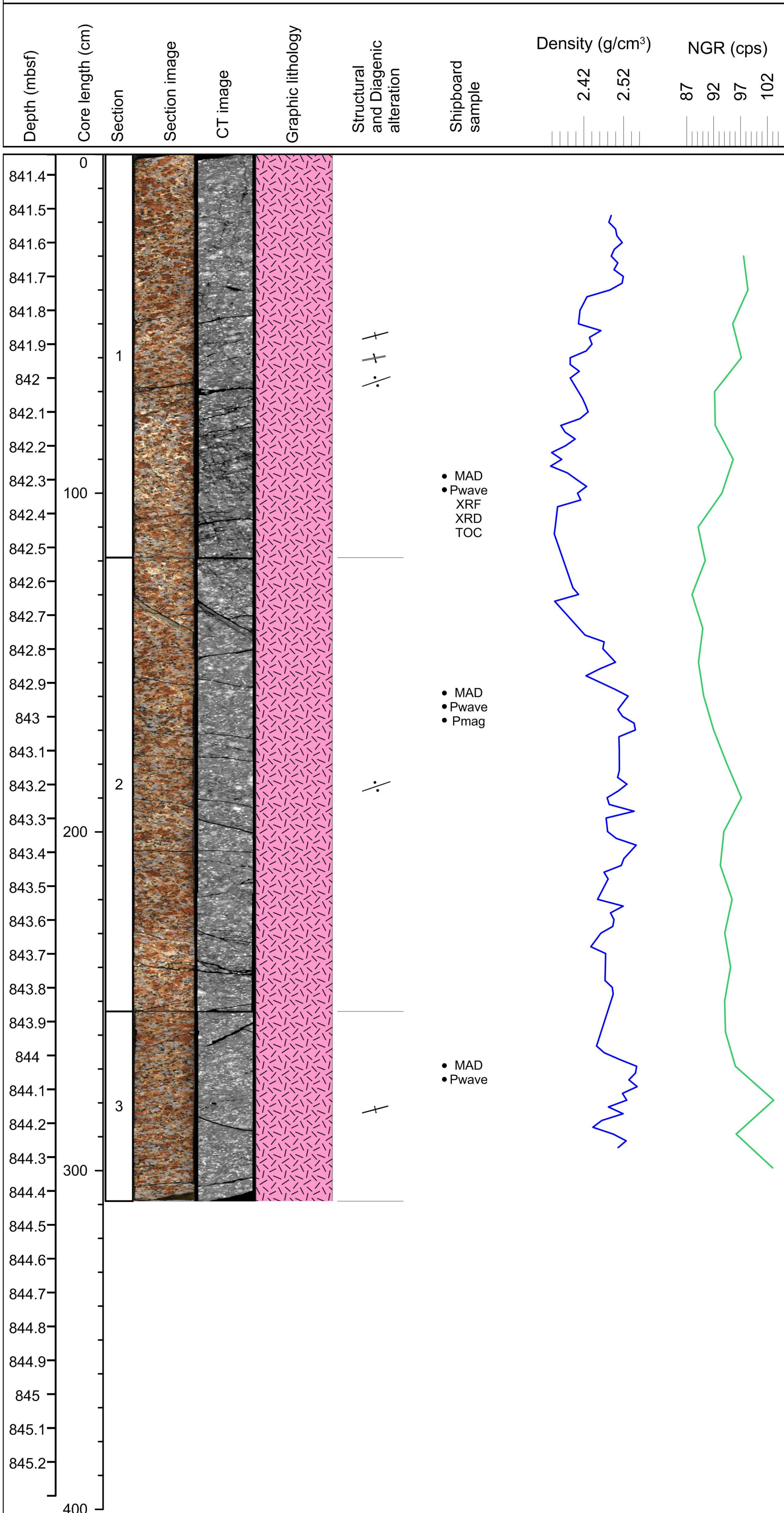
Coarse-grained granite, K-feldspars (2 cm), plagioclase (1,5 cm), quartz (1,5 cm), and biotite (<0,5 cm) [increased abundance, vein like (~1 cm), of biotite in the lower part]. Network of veins in the upper part (white filling). K-feldspar more abundant in the upper part. Pervasively sheared on centimeter scale.

@0-4 cm: S 55/602 L 150/15 (-3)

@5 cm: thin green filled fracture.

CT: Granite facies.

Hole M0077A Core 133R Cored 841.34-844.44 mbsf



Description

Coarse-grained granite, homogeneous; K-feldspars (up to 4 cm), plagioclase (1,5 cm), quartz (2 cm), and biotite (<0,5 cm), homogeneously distributed. Network of thin white veins, more abundant in upper part of the section.

@0-60 cm: sub-vertical, white filled, shear faults.

CT: Granite facies. Network of semi-open fractures with one preferential orientation with conjugate low D zones.

Coarse-grained granite, homogeneous; K-feldspars (2,5 cm), plagioclase (2,5 cm), quartz (2 cm), and biotite (<0,5 cm), homogeneously distributed.

@12-22 cm: 1 cm thick cataclasite (greyish).

@92-102 cm: broadly spaced anastomosing shear zone.

@72-74: S 195/85 L 195/65 (-2).

@110-114: S 185/75 L 185/75 (+2). [surrounded by 1 cm damadged zone]

CT: Granite facies. Low D at 12-22 cm (cataclasite).

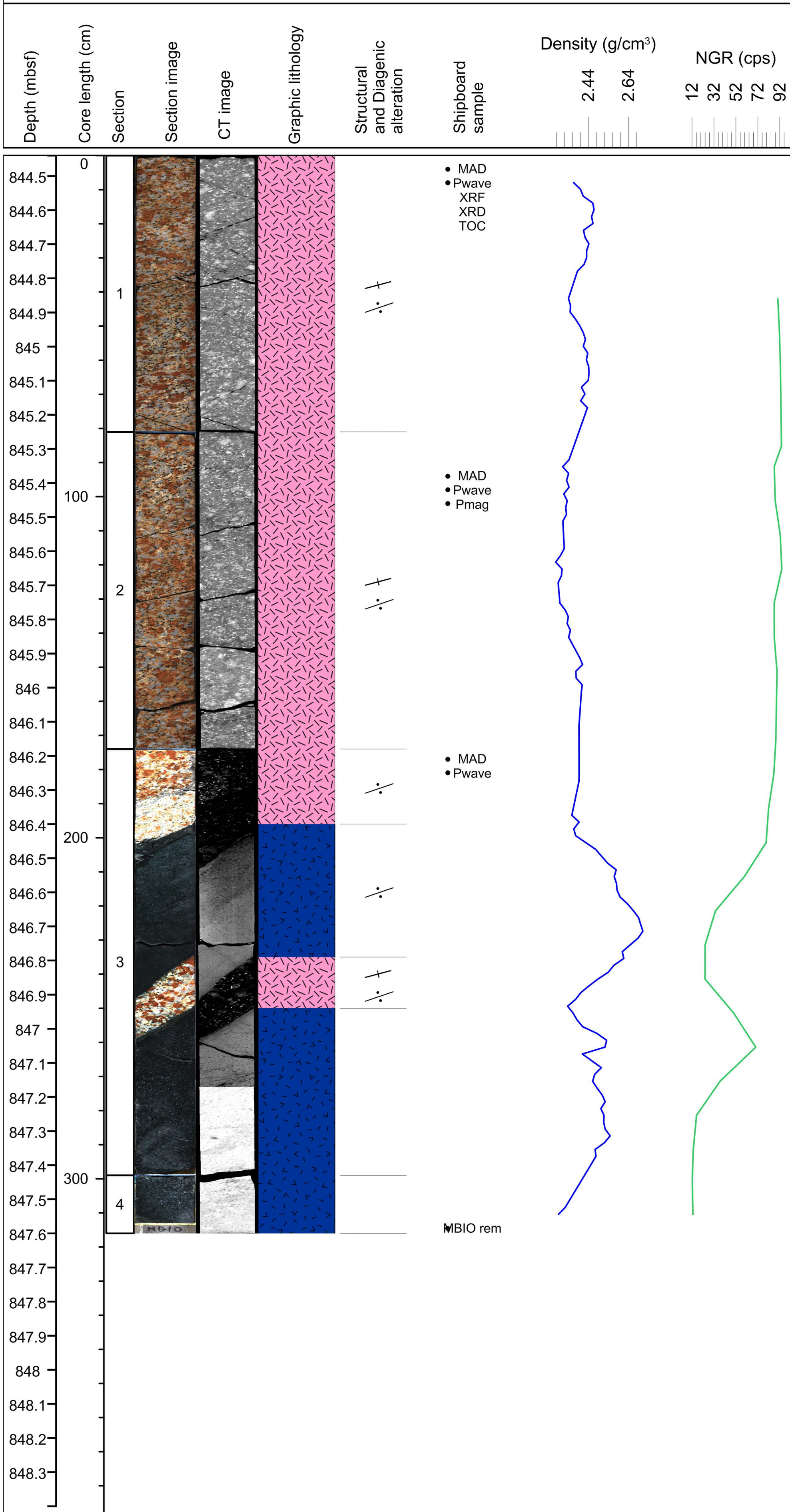
Coarse-grained granite, homogeneous (as previous section); K-feldspars (3 cm), plagioclase (1,5 cm), quartz (1,5 cm), and biotite (<0,5 cm), homogeneously distributed. A few thin veins crosscut (white).

Shear fractures every ~10 cm (white filling; sub mm in thickness), with conjugate orientations.

@32-34 cm: S 210/60 L 285/10 (+3)

CT: Granite facies.

Hole M0077A Core 134R Cored 844.44-847.54 mbsf



Description

Granite

Coarse-grained with large K-feldspar (3.5 cm) heterogeneously distributed

Plagioclase (2.5 cm), quartz (2 cm), biotite (<0.5 cm).

[biotite homogeneously distributed]

Phenocryst of K-feldspar zoned on CT

K-feldspar from 5YR6/8-5YR5/8 to 5YR/4/6

Conjugate shear fracture throughout

White fill, one moderately developed at 18-24 cm

CT: granite facies – moderately developed shear fracture has low D

Coarse-grained granite with K-feldspars up to 3,5 cm (phenocrysts), plagioclase (2 cm), quartz (2,5 cm), and biotite (<0,5 cm) homogeneously distributed.

Two dark green planar veins (<1 mm). Occasional white fill, sub-mm shear fractures (conjugate sets).

CT: Granite facies (nicely zone K-feld).

Granite same as previous

10 cm – fine grained, grey, fluidally textured 5 mm, potential cataclasite

10-22 cm – pervasive sheared granite on sub-cm scale

CT: granite with comparatively low CT number, 16-18 cm has low density

Dolerite with plag up to 5 mm, pyrite(~2mm)

22-28 cm – cataclastic zone with a matrix of doleritic material including sub-cm clasts of dark grey material with flow textures, sub parallel to the orientation of the granite/dolerite contact

34-51 cm – anastomosing dark green shear faults, truncating plagioclase laths in dolerite

34-61 cm – plagioclase laths oriented sub-parallel to contacts

61 cm – sub-cm chilled margin

CT: Z-number of dolerite is very high, density is constant

Granite (K-feldspar 3 cm, plagioclase 3 cm, quartz 3 cm, biotite 0.5 cm)

Occasional shear fractures in granite

76 cm – sub-cm sized shear fault with granite and dolerite clasts below this, dolerite has chilled margin ~1 cm

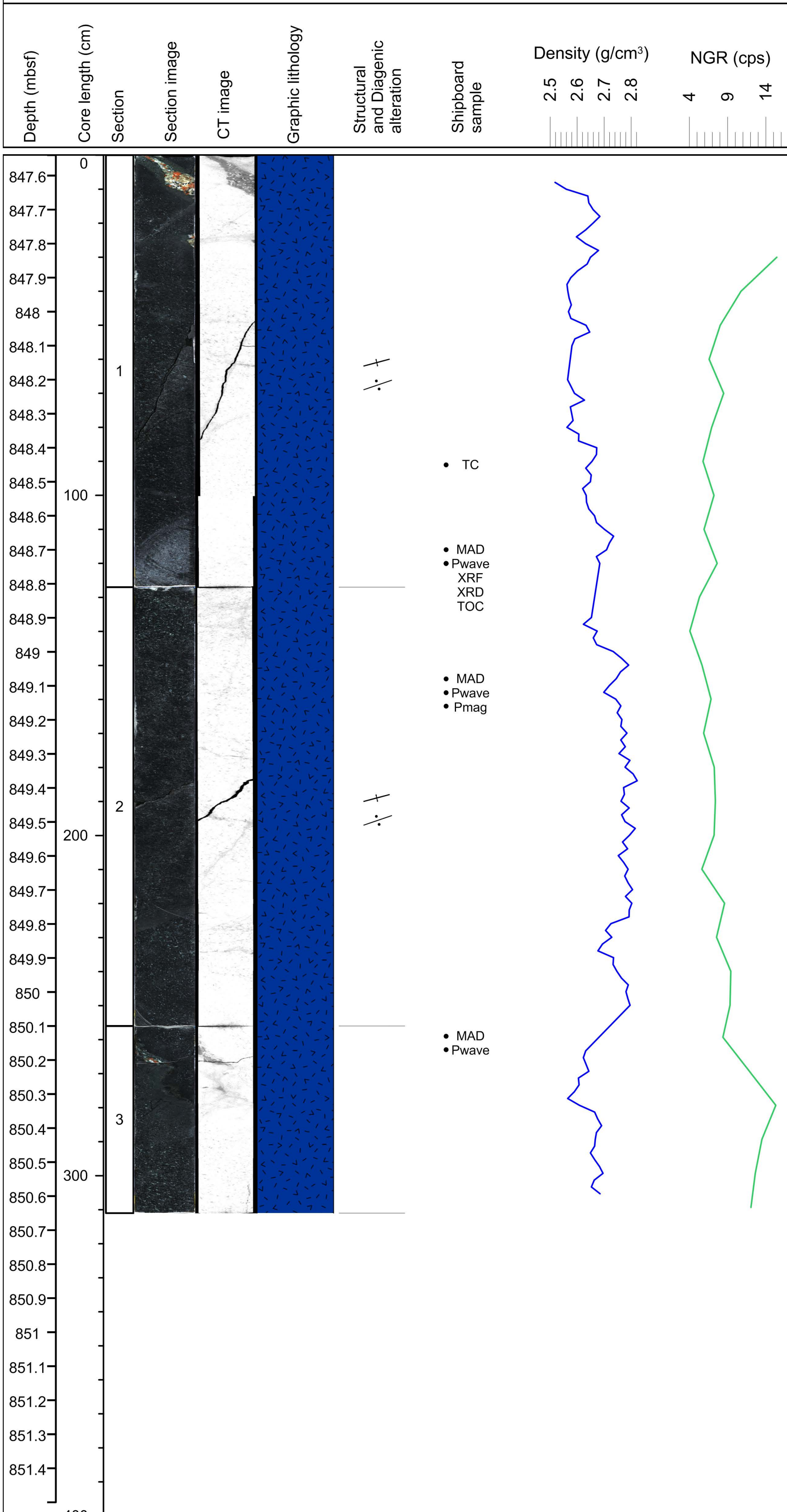
Dolerite (same as unit 2 in this section)

Orientations of plagioclase laths in lower dolerite are oriented against the granite but unoriented beyond 110 cm

As in previous section (plagioclase up to 6 cm)

CT: Dolerite facies - white CT number, high density with low density plagioclase phenocrysts, high Z-number

Hole M0077A Core 135R Cored 847.54-850.64 mbsf



Description

Dolerite dyke

Sinistral shear along upper corner of granite xenolith (same coarse grained granite as previous)

Dolerite as in previous section black to green with plagioclase laths up to 1 cm and up to 1 cm rounded, fine grained, aggregates (?) surrounded by halo (up to 2 cm) lighter green/grey

- Fill of fracture fizzes mildly with acid

fracture is along one of several sub-parallel shear faults (highly inclined)

- One set of sub-horizontal shear faults of greater thicknes

- Another set of highly inclined hairline shear faults

CT: Dolerite facies

Dolerite (as previous section)

No specific orientation of plagioclase laths (up to 1 cm)

@~56: fracture with calcite fill

@~70: 1 mm wide, dark green shear faults

@~98: 2 m chilled margin on upper side, internal contact/multiple dolerite intrusions, chilled margin contains few plagioclase laths. The internal contact is displaced by several fractures

CT: Dolerite facies

Dolerite

Internal contact within dolerite, curved and diffuse.

Smaller plagioclase crystals on both sides of the contact.

2 cm granite xenolith against internal contact

Filled veins of sub-mm thickness some with (black dark green) fill

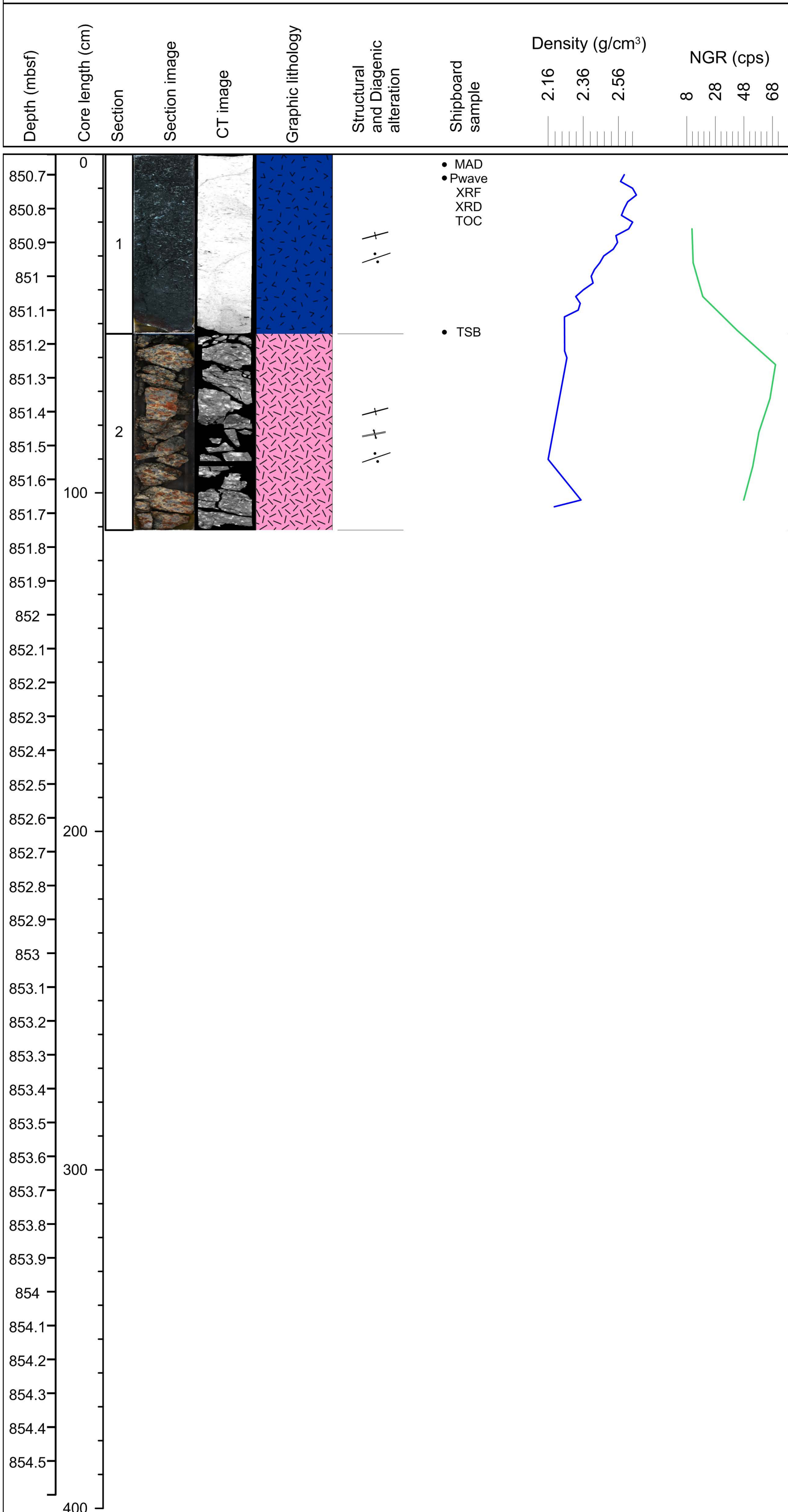
Dark grey to black dolerite in the upper part, more greenish in lower part (with tiny carbonate “spherules” <1 mm)

Plagioclase laths up to 1 cm

Dark (black) mineral (<3 mm)

CT: Dolerite facies – internal contact has higher CT number

Hole M0077A Core 136R Cored 850.64-851.65 mbsf



Description

Dolerite

Subvertical anastomosing, sealed, shear zone, with dark green fill

7-11 cm – diffuse textural band that truncates fractures (<2 mm)

Dolerite (as in previous section); plagioclase laths up to 1.5 cm. Tine “spherule like” carbonate (<1 mm).

At bottom of core red/brown alteration, along crack (contact zone to granite; next section of core)

CT: Dolerite facies – lower 15 cm gets darker with low density, constant Z

Granite

Core disrupted during drilling, most fragment surfaces are fresh and unfilled, some show grey or green fill.

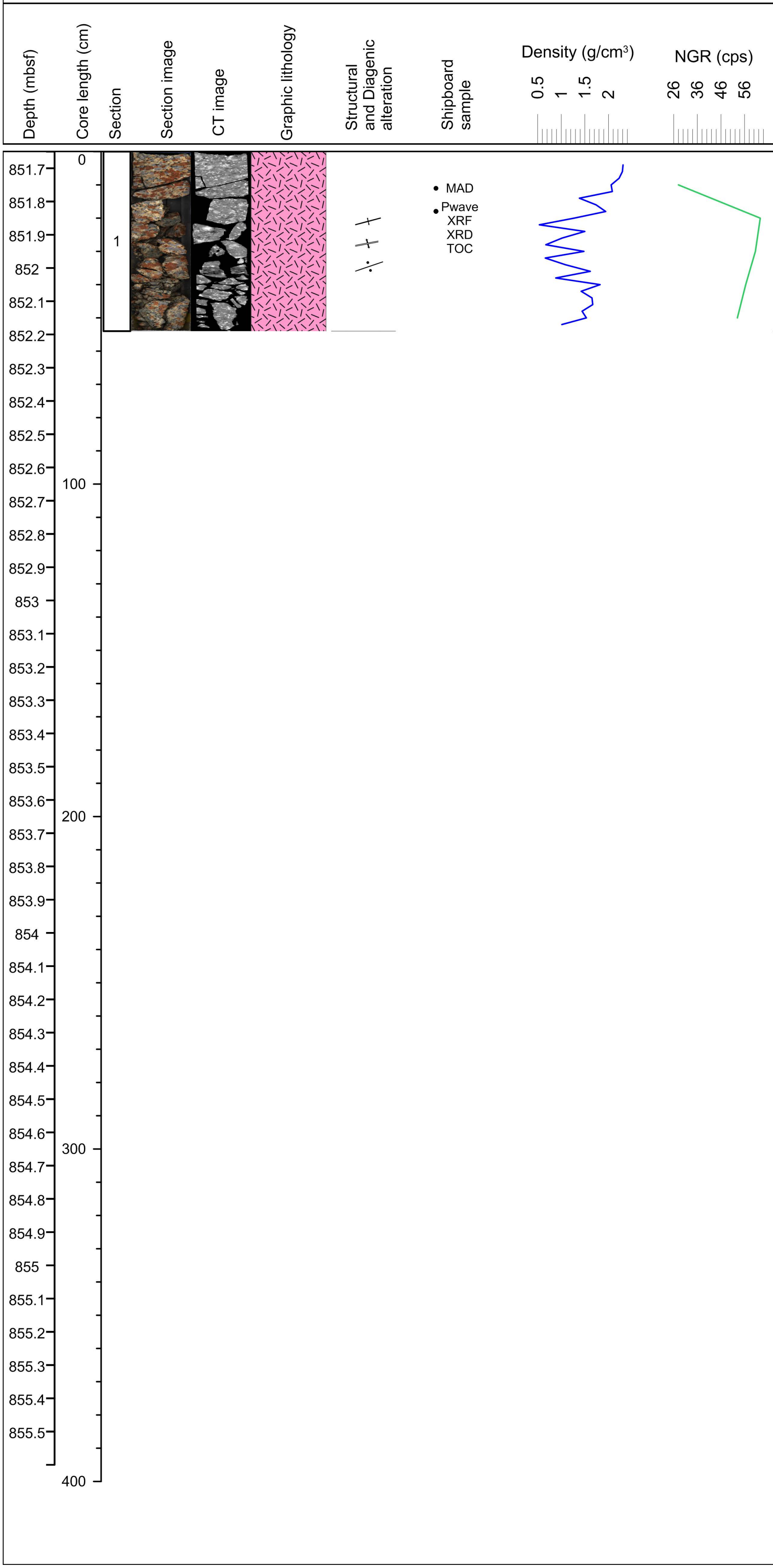
Fragments show some shear faulting and hairline fractures.

Possible vertical shear zone as cause of disruption, granite does not appear more friable than previous granites.

Coarse grained granite, K-feldspar (3 cm), plagioclase (2.5 cm), quartz (2.5 cm), biotite (0.5 cm)

CT: Granite facies

Hole M0077A Core 137R Cored 851.65-852.34 mbsf



Description

Granite

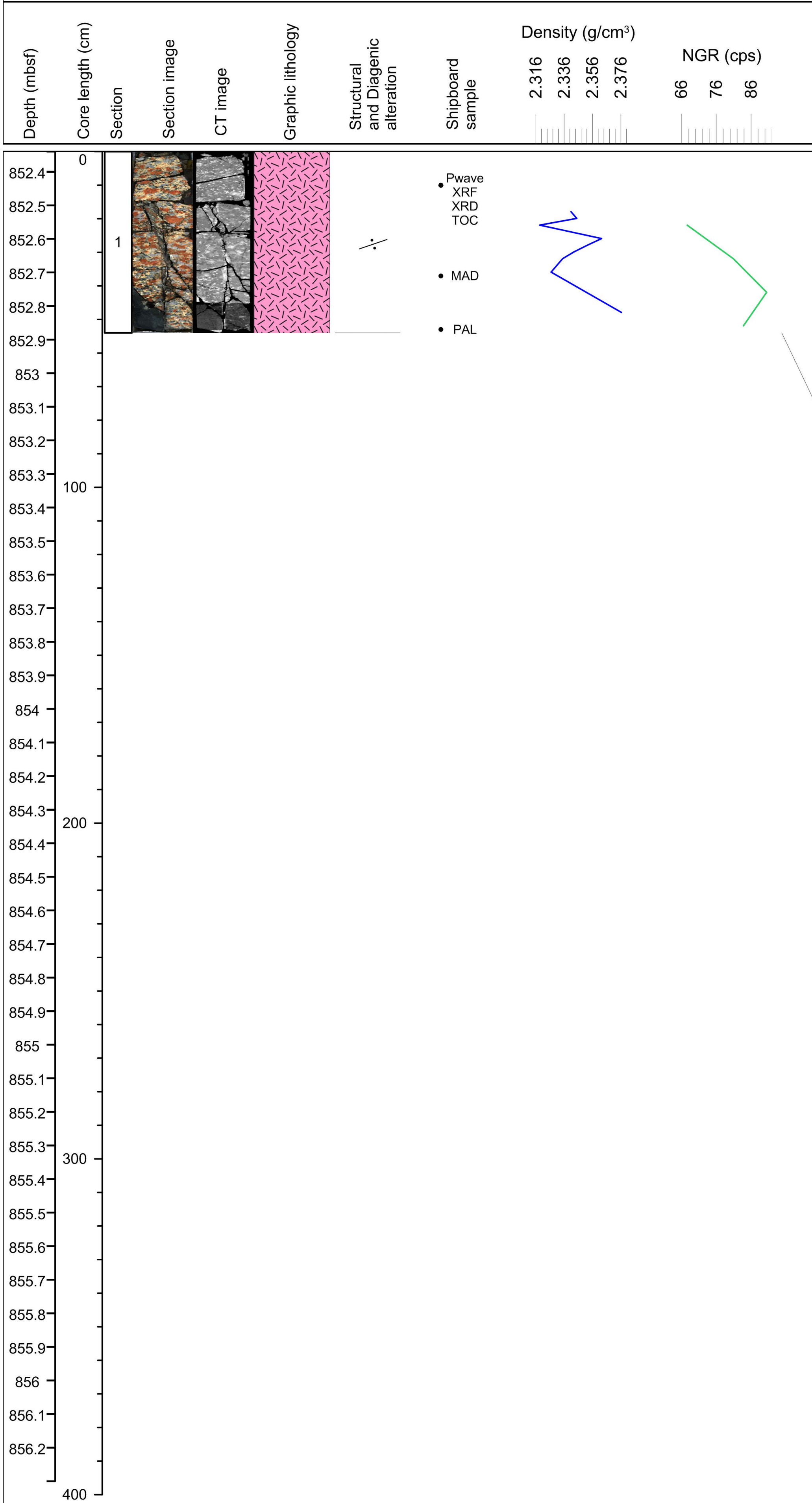
Fragmented through drilling. Mostly unfilled fracture surfaces some with grey fill, possible vertical shear fracture as cause of disruption

Fragments show some hairline fractures and shear faults.

Coarse grained granite, K-feldspar (4 cm), plagioclase (2.5 cm), quartz (1.5 cm), biotite (<0.5 cm)

CT: granite facies

Hole M0077A Core 138R Cored 852.34-852.94 mbsf



Description

Granite

14-54 cm – subvertical, 1 cm thick shear zone with black and grey fill, incorporating clasts of granite. Grey fill truncates and partially incorporates black fill at 39 cm

39-54 cm – contact onto dolerite subvertical shear zone follows contact from 47-54 cm

Strong disruption to core from drilling

Coarse-grained granite, K-feldspar up to 3 cm, plagioclase (2.5 cm), quartz (1.5 cm), and biotite (<0.5 cm).

Lower 14 cm, half core, dolerite (with less than 2 mm plagioclase laths) with sharp contact

CT: granite facies, dolerite facies, vertical shear zone is white!

Hole M0077A Core 139R Cored 852.94-853.34 mbsf

Description

Granite

Coarse-grained granite, K-feldspar (up to 3 cm), plagioclase (2.5 cm), quartz (2.5 cm), and biotite (<0.5 cm) [chloritized]. Sharp contact with dolerite from 0-27 cm (cutting the core in half sub-vertically).

Dolerite (dark grey to green) with less plagioclase laths (up to 2 mm) than in previous dolerite units. Pyroxene less than 1 mm

16-30 cm – shear fault with large amount of throw (discontinuously displacing granites against each other), brecciated fill and some black fill. Sub-parallel synthetic fractures below.

0-30 cm – indications of shear along sub-vertical granite/dolerite contact

32-45 cm – shear fault with dark green fill, sub-mm thickness

CT: granite facies

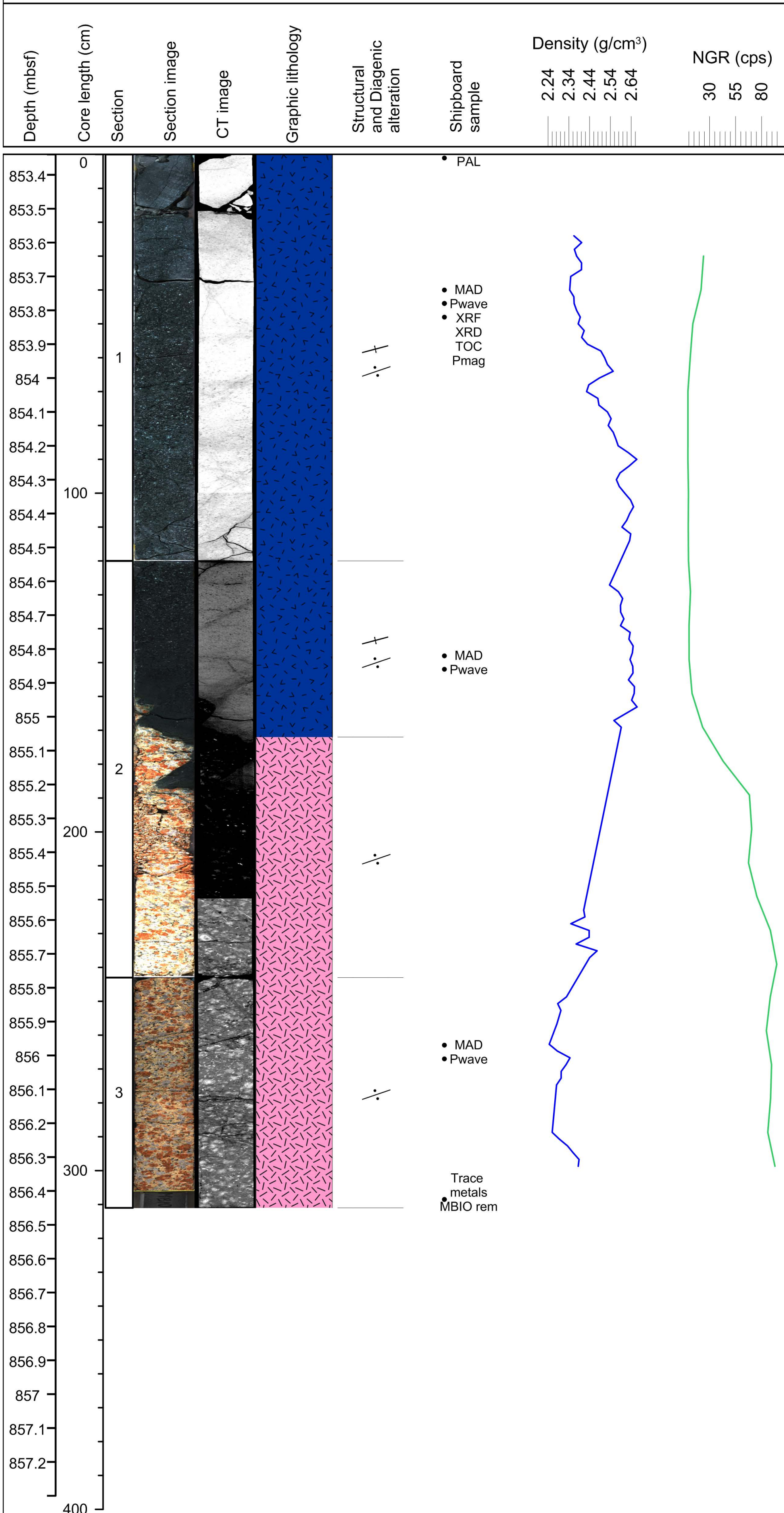
Dolerite

Dolerite (dark grey to green) with less plagioclase laths (up to 2 mm) than in previous dolerite units. Pyroxene less than 1 mm

Minor fracturing in dolerite

CT: dolerite facies

Hole M0077A Core 140R Cored 853.34-856.44 mbsf



Description

Dolerite

10cm - Possibly an internal contact on which fracture has formed, several of the fragments have parallel striations.

S 180/30 L180/30 + (4)

Soapy fracture surface, possible serpentine

- pervasively veined with dark green filling
- anastomosing shear faults at 70 cm, 77 cm, and 100 cm
- 88 cm – diffuse breccia zone ~ 1 cm thick

-110cm - S 20/45 L255/40 + (4)

Dolerite (greenish in color); plagioclase laths (<1 cm), black mineral (pyroxene) (<0.5 cm). Network of thin dark green to black veins (<3 mm)

CT: Dolerite facies – low CT and density at the top 10 cm, brecciated zone and shear fractures have low CT number

Dolerite

Plagioclase laths (<0.5 cm), pyroxene (<0.5 cm), and sub-rounded fine grained aggregates (?)

Sharp irregular contact to granite with reddish (alteration?) coloration at the contact zone

0-40 cm – minor hairlike fractures

10-20 cm – shear band, ~1 mm thick

40-70 cm – two large dextral shear faults and 3 minor shear faults

40-50 cm – 4 cm offset, in dolerite

~1 cm thick damage zone, slightly irregular planar shear fault

CT: dolerite facies

Granite (Coarse-grained), decreasing in grain size to the bottom.

K-feldspar (3 cm), plagioclase (3 cm), quartz (2 cm), biotite (<0.5 cm) [poor abundance of biotite down to 104 cm]

58-70 cm ; 15 cm displacement

70-90 cm – core disturbance

90-105 cm – 3 dark green fill, shear faults with apparent slip from 0-3 mm.

CT: Granite facies

Granite

Coarse-grained granite, slightly coarser – grained in the lower part.

K-feldspar (2.5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm), homogeneously distributed

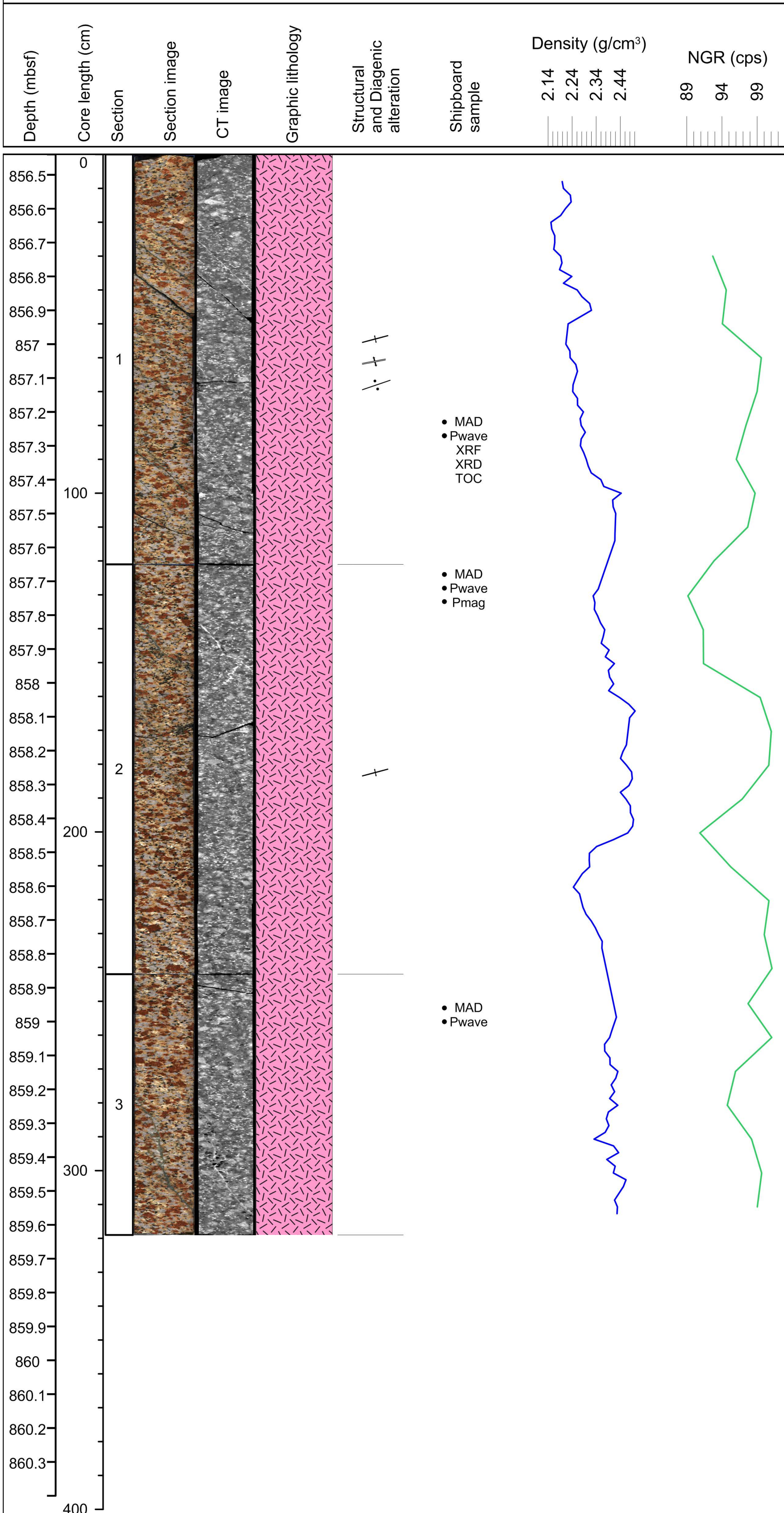
@0-11 – cataclasite (1 cm in thickness)

24-44 cm – white fill shear faults

@47-51 – thin greenish veins (<1 mm)

CT: granite facies – shear band in darker, and low density

Hole M0077A Core 141R Cored 856.44-859.54 mbsf



Description

Granite

Coarse-grained granite, homogenous K-feldspar (4.5 cm), plagioclase (3 cm), quartz (2.5 cm) and biotite (<0.5 cm). Biotite homogeneously distributed, forming locally aggregates (>3 cm).

S330/85 L280/80 – (4)

20-105-9 Sub parallel shear fractures with green fill to fracture at 36-46 cm. Top fracture in this set is truncated by fracture from 16-20 cm with 1 cm sinistral sense.

S50/65 L35/55 + (2)

Veins (~2 mm) filled with grey to green. (Very planar to irregular)

S215/75 L15/75 – (4)

CT: Granite facies

Granite

Coarse-grained granite, homogeneous, with K-feldspar (up to 1 cm), plagioclase (2.5 cm), quartz (2.5 cm), and biotite (<0.5 cm, locally forming aggregates).

17-33 cm – 3 mm thick, mid-grey with green rim, cataclasite followed by sub-parallel fractures down to 70 cm

70-121 cm – unfractured

S150/45 L150/45 – (4)

CT: granite facies

Granite

Same coarse-grained granite as in previous section, with K-feldspar (3 cm), plagioclase (2.5 cm), quartz (cm), and biotite (<0.5 cm). Homogeneous granite

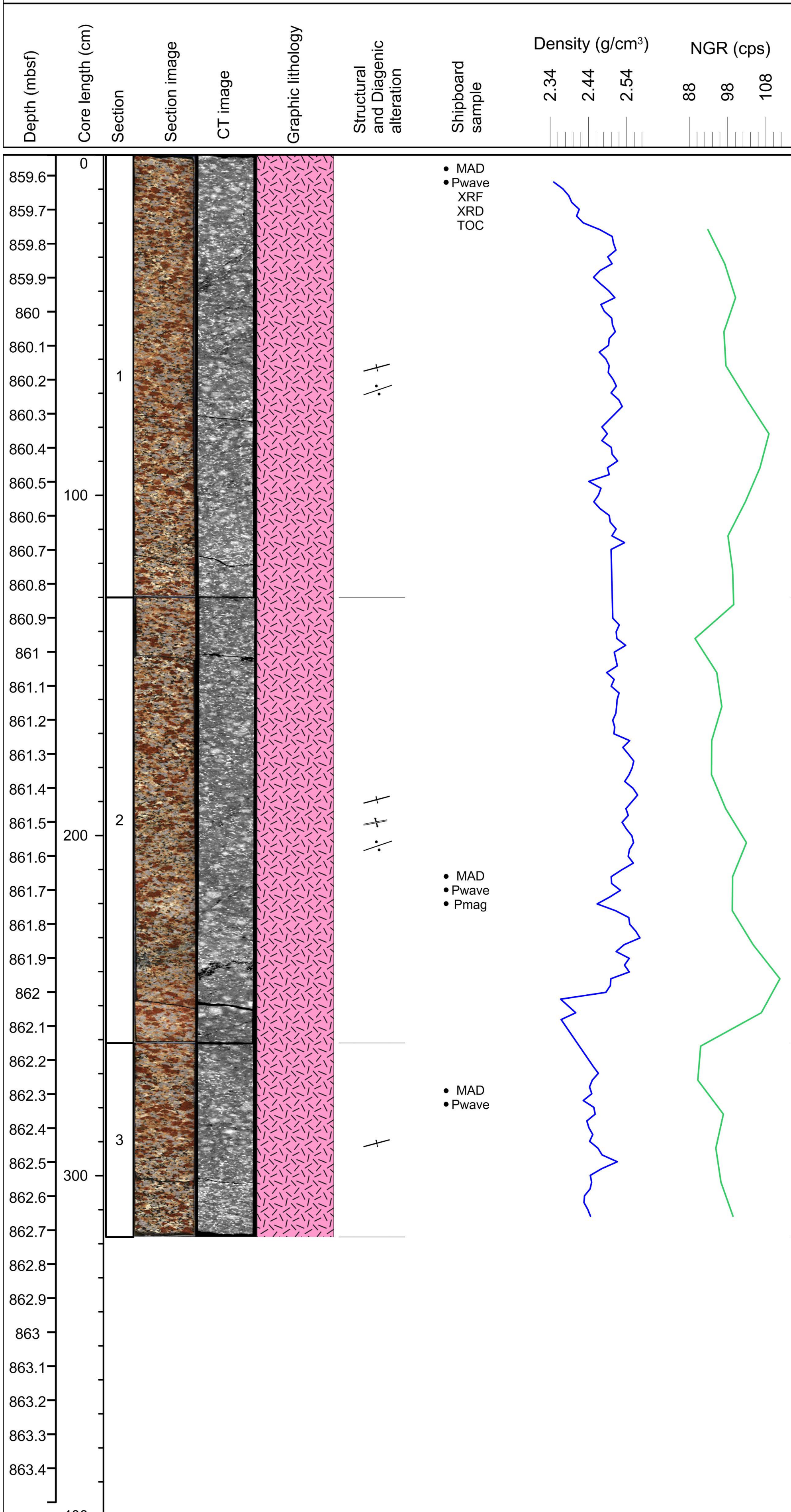
@~5cm: S205/50 L165/40 + (4)

36-71 cm – cataclasite zone, 5 mm thick, grey with localized green coloration. No visible displacement.

Very little other brittle deformation

CT: granite facies – 36-71 cm has high CT numbers but with low CT voids in pockets

Hole M0077A Core 142R Cored 859.54-862.64 mbsf



Description

Granite

Coarse-grained granite, homogenous, with K-feldspar (up to 3 cm), plagioclase (2.5 cm), quartz (2.5 cm), and biotite (<0.5 cm) homogeneously distributed

0-30 cm – dominantly subvertical white fractures, sub-mm thickness.

30-105 cm – decreasing dip shear fractures, white fill, sub mm thickness

CT: typical granite facies, shear faults are low CT number and low density

Granite

Coarse-grained granite, homogeneous, K-feldspar (3 cm), plagioclase (3 cm), quartz (3 cm), and biotite (<0.5 cm). Biotite locally concentrated (at 105-108 cm).

@~16 cm: white filled fracture with large, partially filled vugs S190/75 L130/35 + (4)

60-70 cm – forked fracture filled with brown cataclasite

84-93 cm – anastomosing, white fill, sub mm fractures

102-108 cm – green, 1 mm thick shear fracture. Against fracture, void spaces partially infilled with, amongst other minerals, calcite.

CT: Typical granite facies – with two low CT, low density bands at 18 cm and 106 cm. Other fractures/veins are moderate density

Granite

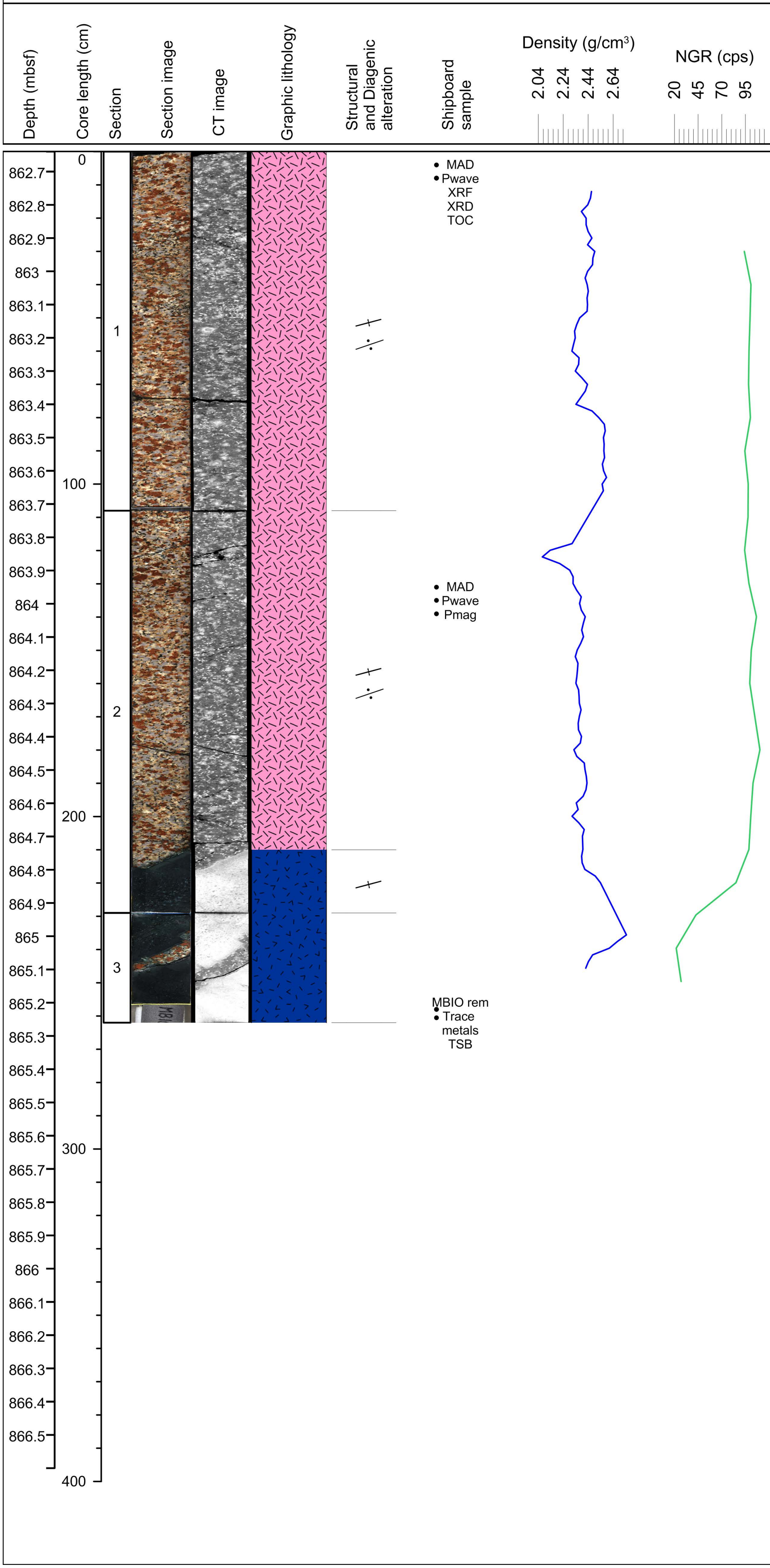
Very little deformation

Coarse-grained granite, coarser feldspar grains in upper part, K-feldspar (3 cm), plagioclase (2 cm), quartz (2.5 cm), and biotite (<0.5 cm). Concentration of biotite at 41 along open fracture

@41 cm: S:95/75 L:120/40 – (3)

CT: granite facies

Hole M0077A Core 143R Cored 862.64-865.28 mbsf



Description

Granite

Few localized shear fractures

Coarse-grained granite, homogeneous, K-feldspar (3.5 cm), plagioclase (2.5 cm), quartz (2 cm), biotite (<0.5 cm)

36-43 cm: cataclasite, ~5 mm, light (brown grey) fill

75-76 cm: cataclasite, anastomosing ~1 cm thick, light brown fill

92-95 cm: tin shear fracture, ~1-2 mm white and brown fill

CT: granite facies

Homogeneous coarse-grained granite with K-feldspar (up to 2,5 cm), plagioclase (2,5 cm), quartz (2,5 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed.

Several shear fractures, sub mm thin, with withe fill.

@53: thin (<5 mm) gray cataclasite.

Granite-dolerite margin truncated by two shear faults, one sinistral (2 mm throw) and one possible dextral (>2 cm throw).

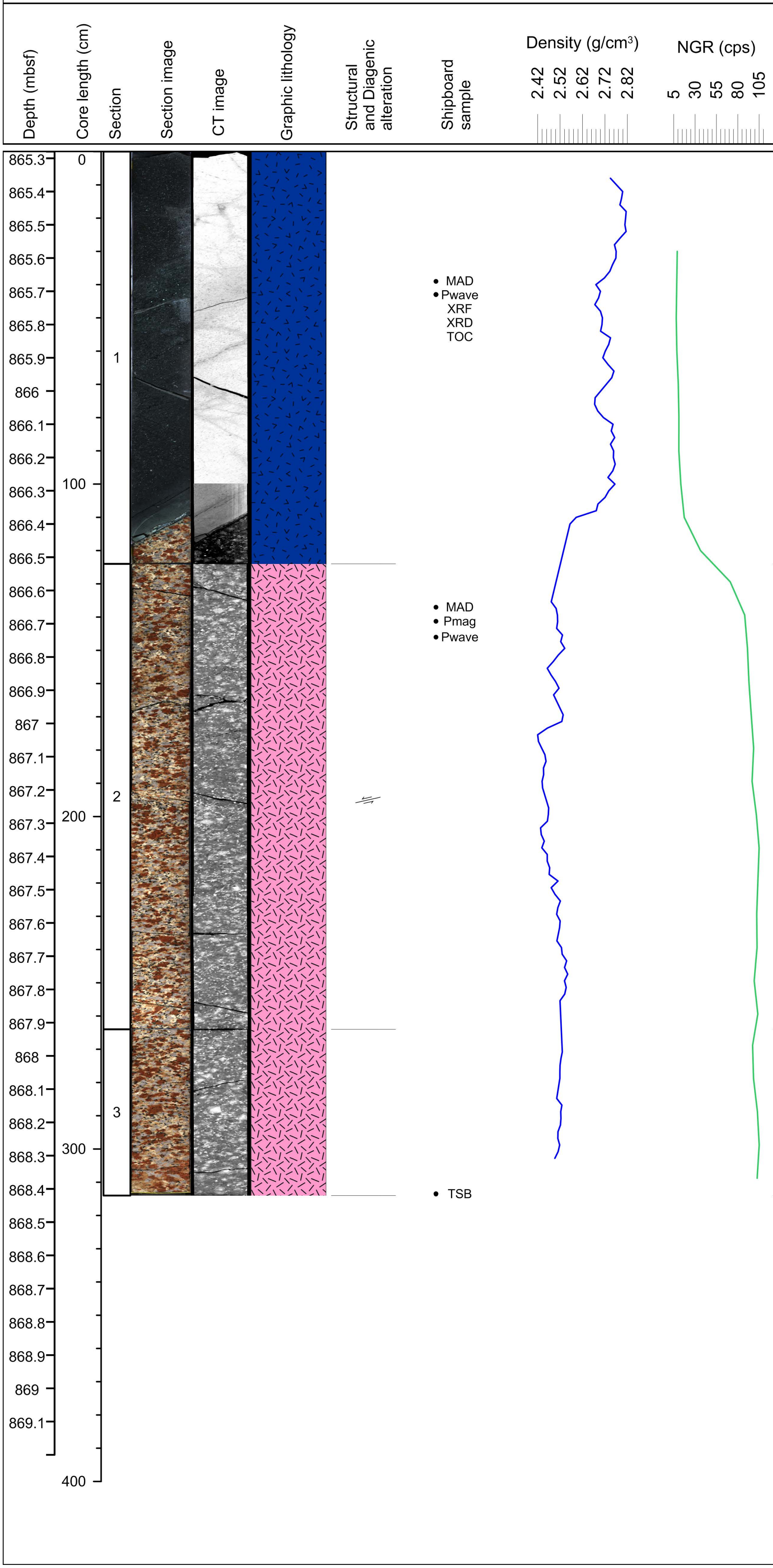
CT: Granite facies.

Dolerite has several hair line fractures. Plagioclase laths up to 5 mm, pyroxene less than 2 mm. Thin (<2 mm) black veneer (magnetite?) at the margin dolerite/granite.

CT: Dolerite facies.

Dolerite with granite inclusion. Dolerite has a porphyritic plagioclase texture. Burgundy-colored alteration occurs along contact between the dolerite and granite. Feldspar in the dolerite is blue. Color of dolerite is 7.5Y 4/0. CT is white.

Hole M0077A Core 144R Cored 865.28-868.38 mbsf



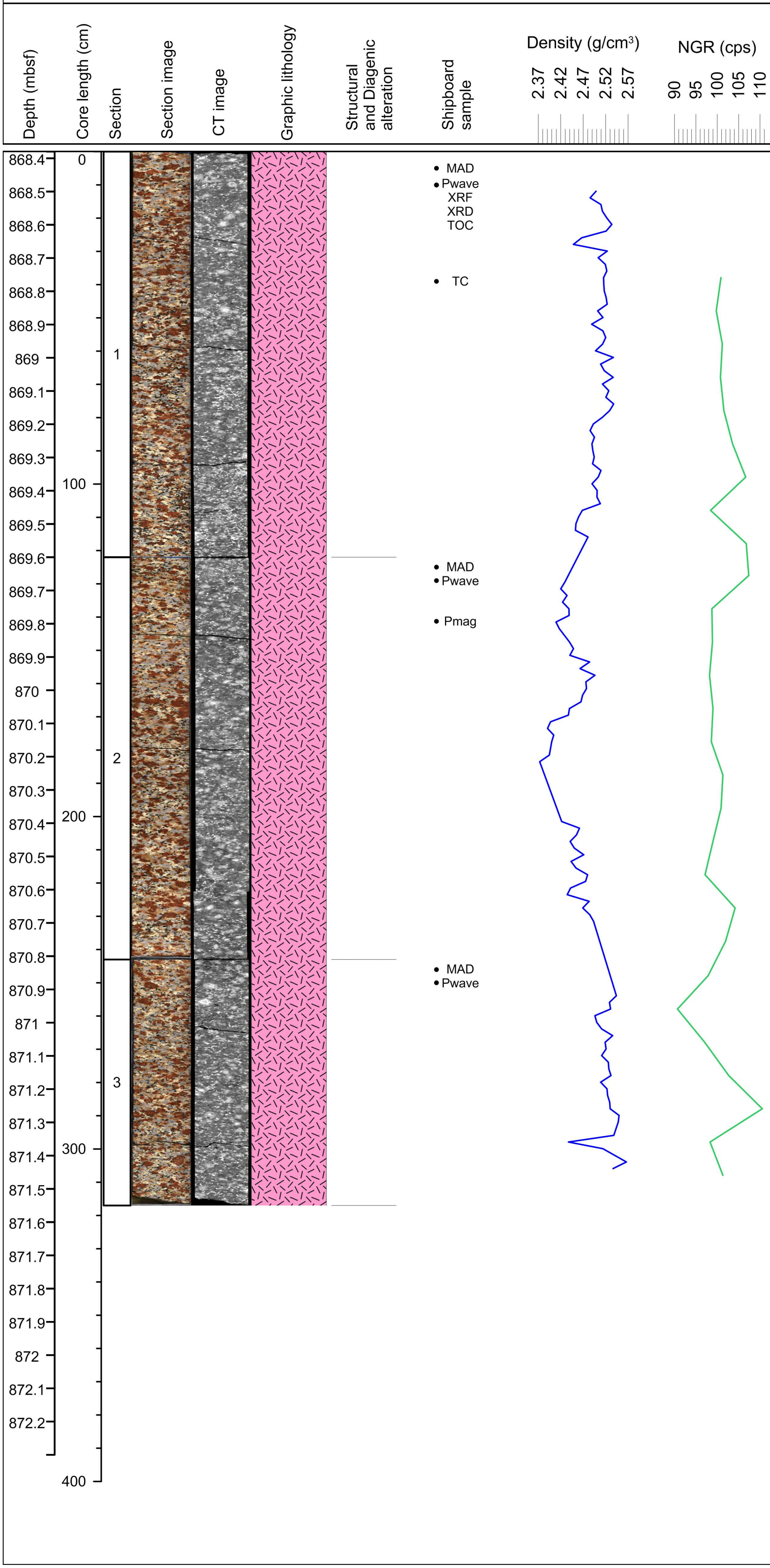
Description

Porphyritic plagioclase dolorite. Plagioclase phenocrysts are `3 mm long (and about ~5% of rock). The contact with granite is at ~110 cm. A 9-cm-thick zone of dolerite adjacent to the contact does not have plagioclase phenocrysts. Fault at 110 cm: S 132/188, L 12/45 (-) 3. Burgundy- and green-colored alteration occurs along the dolerite-granite contact. Plagioclase (or psuedomorphs of plagioclase) in the dolerite is blue.

Coarse (2 to 2.5 cm K-feldspar) granite that is undeformed. It is, however, cut by faults. Fault at 8 cm: S 019/52, L 108/10 (+) 1. Fault at 70 cm: S 014/62, L 290/12 (-) 1. Fault at 133 cm: S 015/10, L 110/11 (+) 3. Small, <1 mm, green minerals are scattered along section. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite. Biotite is less abundant in the basal 7 cm (42 to 49 cm). Fault at 18 cm: S 162/160, L 058/16 (+) 3. Trace of alteration visible.

Hole M0077A Core 145R Cored 868.38-871.48 mbsf



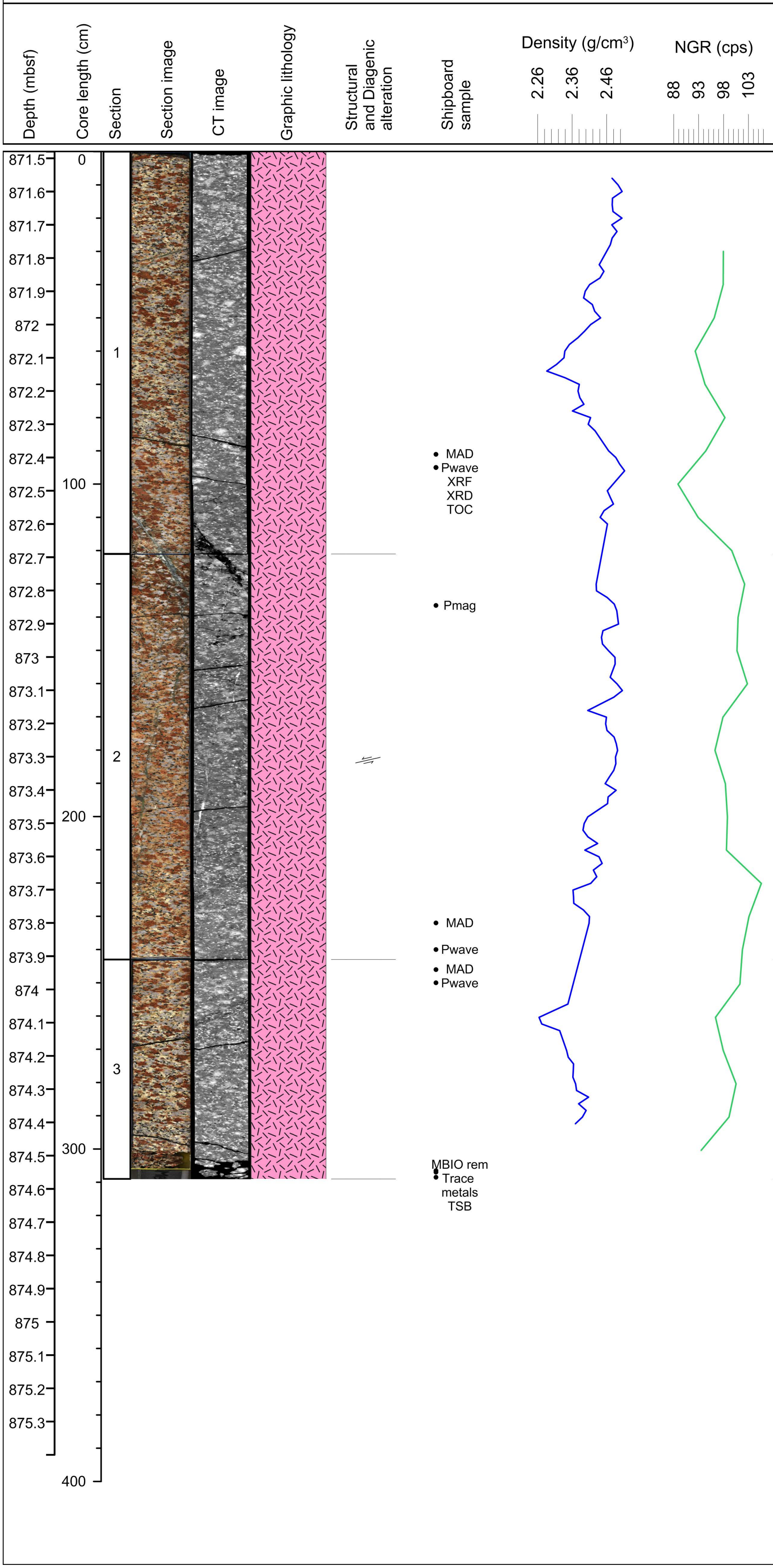
Description

Coarse granite. A zone from 97 to 110 cm is enriched in biotite. Trace of green mineralization associated with biotite. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite. The K-feldspar increase in size (to 2 to 2.5 cm) at 40 to 49 cm and 102 to 108 cm. A thin, ~1 mm-thick vein is filled with a beige-yellow (2.5 Y 8/0) colored phase.

Coarse granite, weakly deformed. Small cataclastic vein at 28 cm; color of vein is light gray (10 YR 7/1). Color of rock is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 146R Cored 871.48-874.59 mbsf



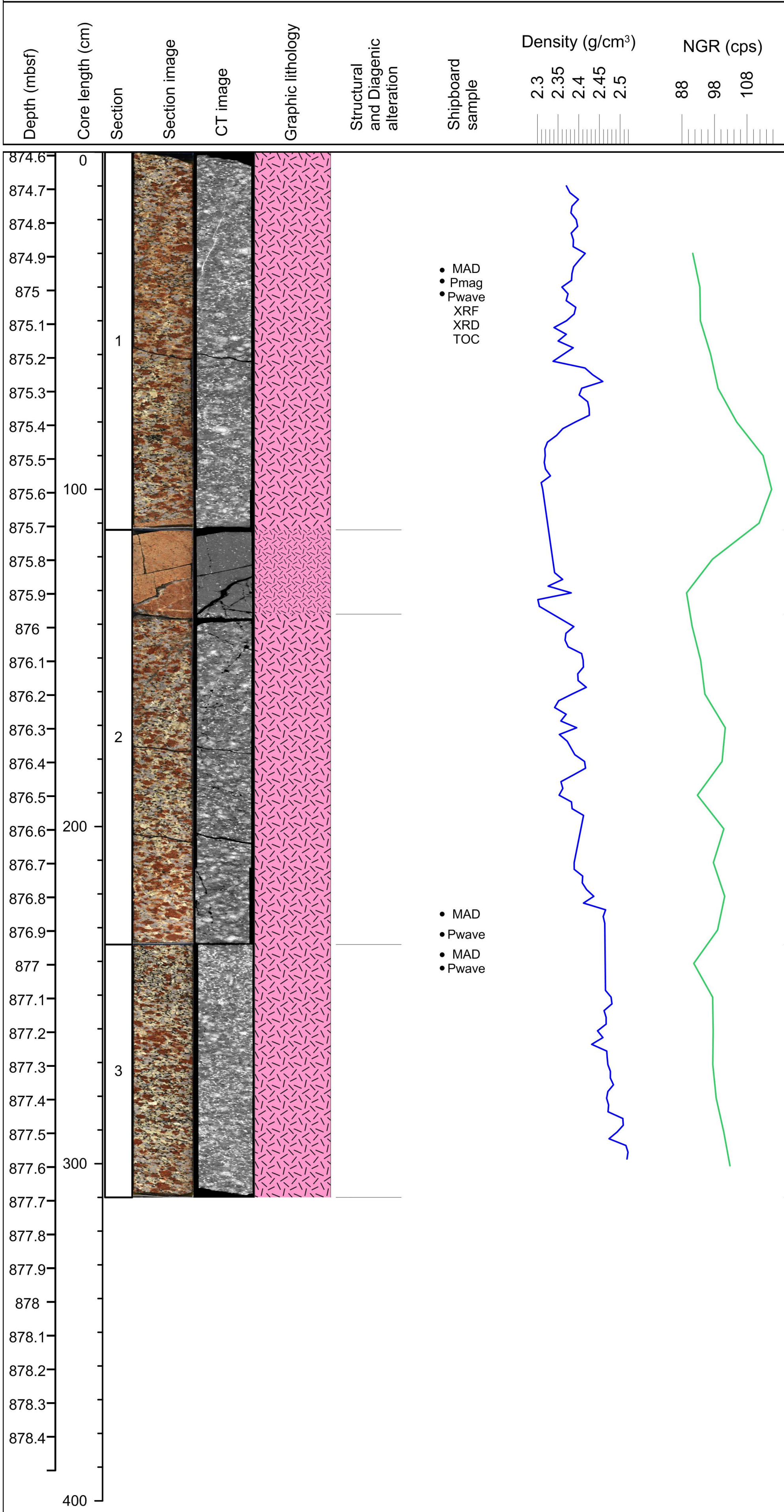
Description

Coarse granite, weakly deformed. K-feldspar increases in size between 35 and 50 cm. Fault at 30 cm: S 156/82, L 062/09 (-) 3. Fault at 100 cm: S 195/56, L 252/42 (-) 3. Traces of green mineralization occur along the core, usually associated with biotite. Two potential cataclastic veins cut through at ~30 and ~114 cm.

Coarse granite, moderately deformed. Cataclastic veins at 0 to 12 cm and many other fine onew are not displaced by faults. Fault at 27 cm: S 152/65, L 225/28 (-) 1. Fault at 36 cm: S 162/44, L 218/12 (-) 1. Fault at 48 cm: S 155/46, L 220/20 (-) 1. Fault at 78 cm: S 165/64, L 235/10 (-) 1. Green mineralization occurs along faults and along veins through the section. Colore is 7.5 YR 7/4. CT is dark gray.

Coarse granite. Fault at 24 cm: S 235/86, L 240/09 (+) 1. Green alteration along veins from 12 to 20 cm. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 147R Cored 874.59-877.69 mbsf



Description

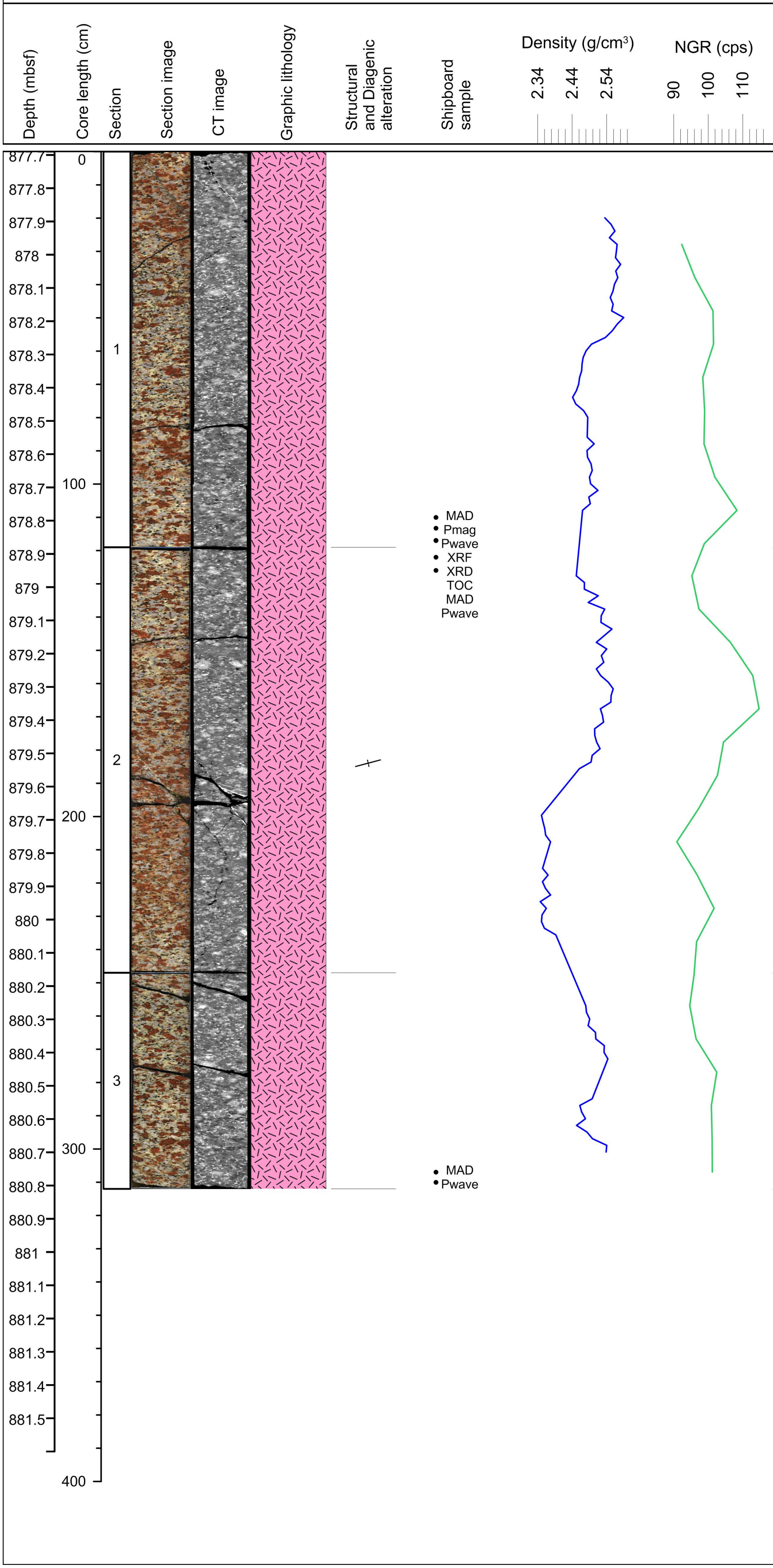
Coarse granite, weakly deformed. A knot of biotite occurs at 84 to 86 cm. Several veins cut this section with a green-colored mineral. Color is 7.5 YR 7/4. CT is dark gray. An aplite section occurs at the base of the section (108 to 110 cm).

Aplite. Fault at 7 cm: S 255/46, L 223/26 (-) 2. Fault at 12 cm: S 264/83, L 102/26 (+) 1. Color is 7.5 YR 7/5. CT is dark gray.

Coarse granite. From 95 to 122 cm, the K-feldspar increase in size to 2 to 2.5 cm. Fault at 26 cm: S 006/60, L 046/38 (-) 3. Lavender and green colored alteration occurs along veins. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite. There are several zones where the proportion of biotite and K-feldspar change. No deformation. Traces of green mineralization. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 148R Cored 877.69-880.79 mbsf



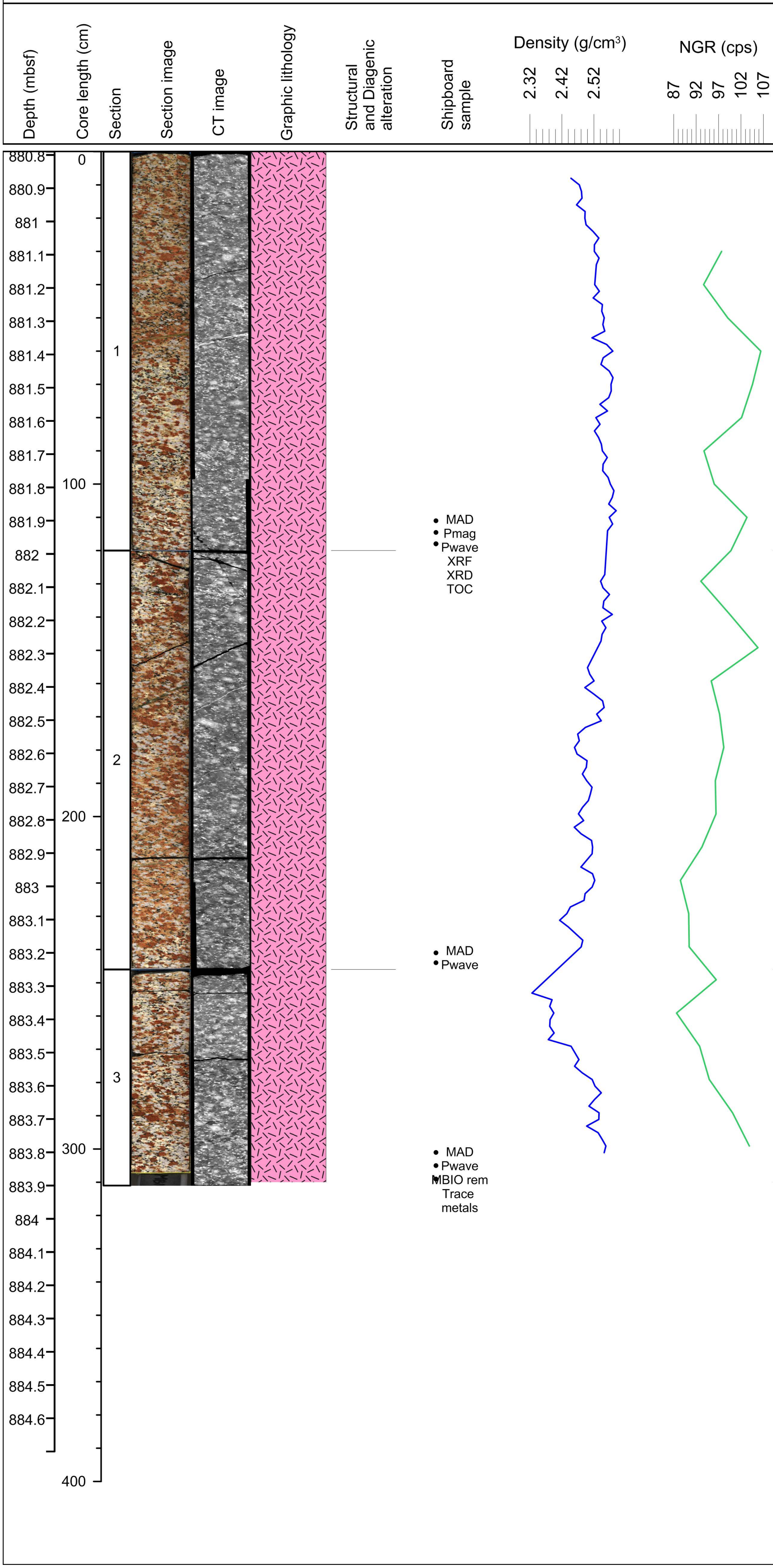
Description

Coarse granite, with variable (0.5 to 2.0 cm) grain size and weakly deformed. A cataclastic vein runs from 0 to 21 cm. Green mineralization occurs along that vein. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, weakly deformed. A thin, < 1 mm wide, cataclastic vein runs from 61 to 71 cm, where it intersects a fracture with abundant green mineralization. Another, thinner vein with traces of green mineralization runs from 79 to 110 cm. Color 7.5 YR 7/4. CT is dark gray.

Coarse granite with very weak deformation. Fault at 29 cm: S 205/80, L 190/78 (+) 3. Green mineralization along two veins between 52 and 62 cm. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 149R Cored 880.79-883.89 mbsf

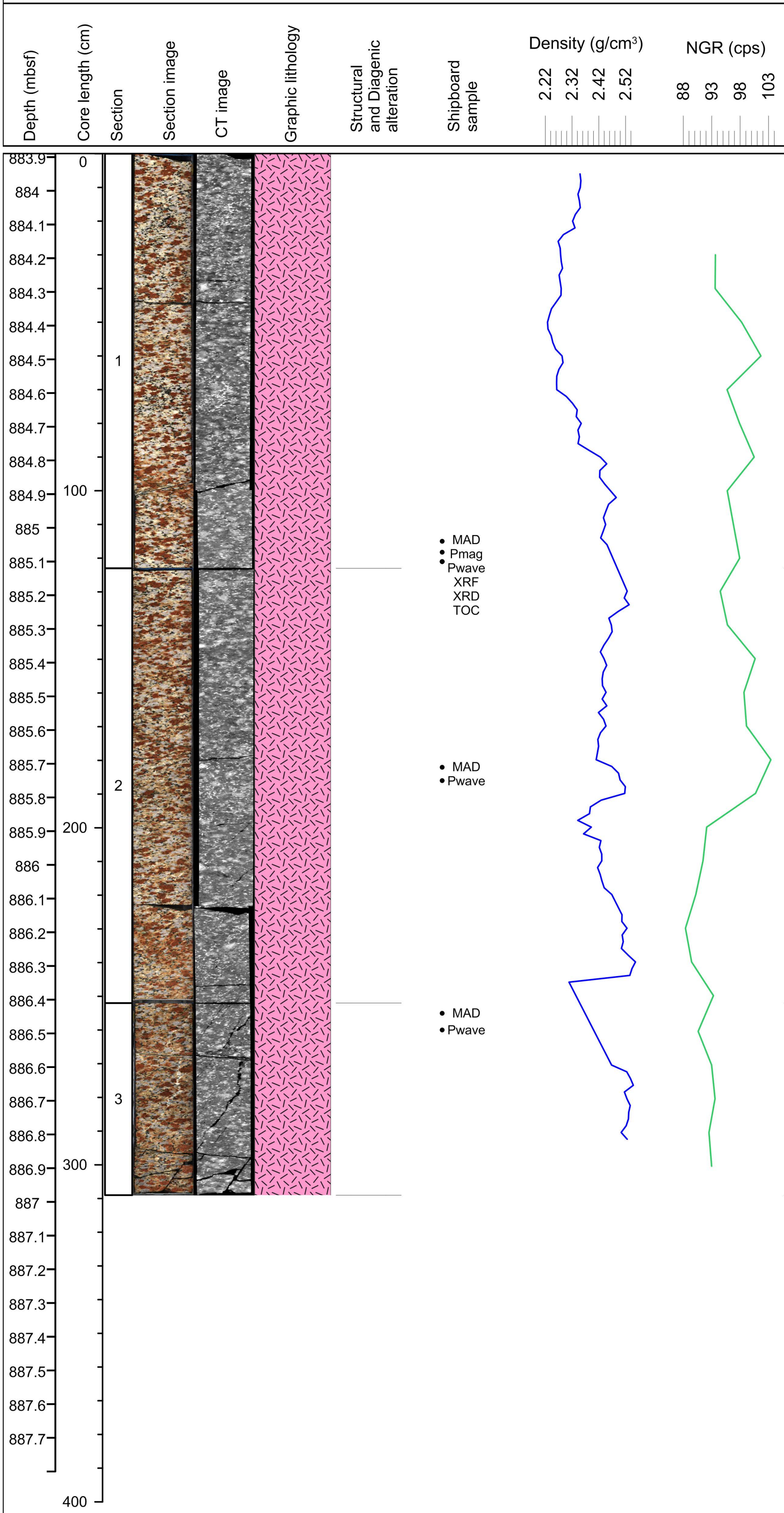


Description

Coarse granite. At 74 to 90 cm, K-feldspar increase to 2 cm in size and there is less biotite. The granite is slightly deformed. Fault at 38 cm: S 330/85, L 068/32 (-) 2. Several thin veins with green mineralization occur in the uppe part of the section. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, weakly deformed. Several thin, <1 mm, veins with green mineralization cut this section. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 150R Cored 883.89-886.95 mbsf



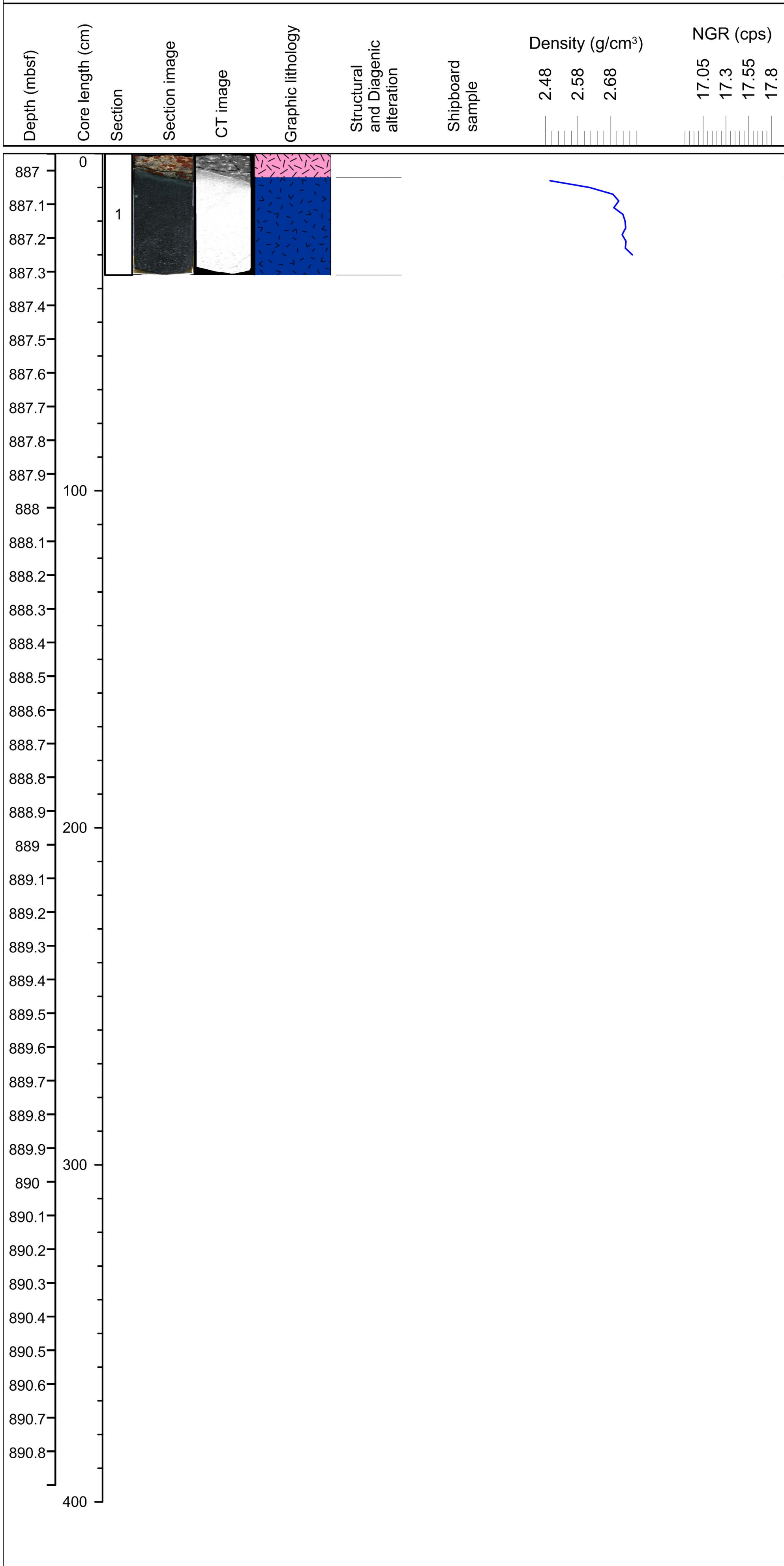
Description

Coarse granite, weakly deformed. A cataclastic vein occurs at 44 cm. Fault at 43 cm: S 005/48, L 310/38 (-) 3. Minor green mineralization occurs along thin veins and as isolate crystals throughout the section.

Coarse granite, with very weak deformation. Fault at 55 cm: S 352/65, L 280/22 (-) 3. Fault at 99 cm: S 015/78, L 096/16 (-) 3. Fault at 122 cm: S 350/60, L 061/29 (-) 2. Green mineralization occurs along thin, <1 mm, veins. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, moderately deformed. Fault at 15 cm: S 15/51, L 096/10 (+) 2. Fault at 44 cm: S 350/46, L 335/44 (+) 2. Several thin, < 1 mm, cracks that seem to be partially filled with white material cut thorugh the section. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 151R Cored 886.95-887.29 mbsf

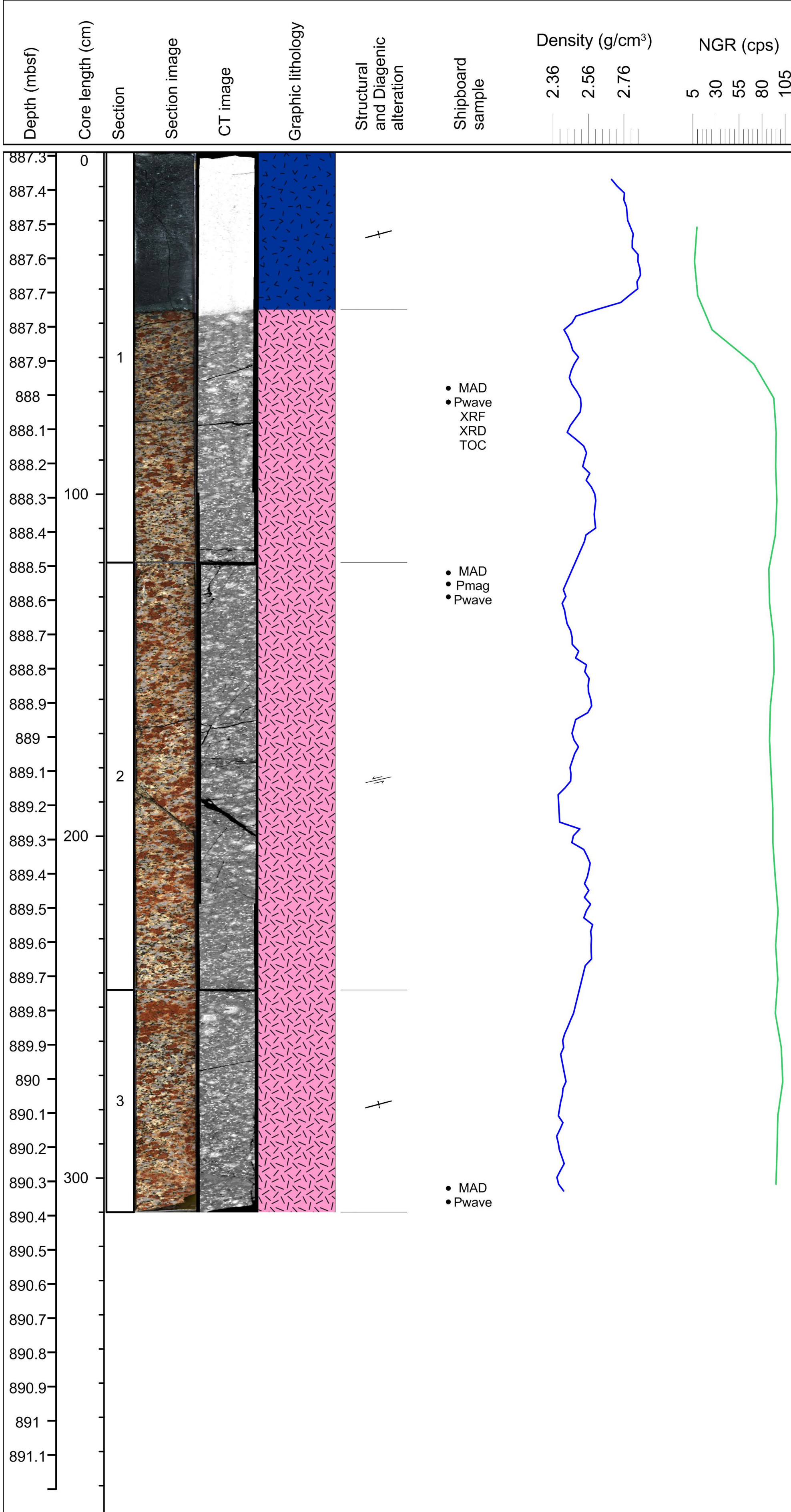


Description

Coarse granite, moderately deformed. Intrusive contact with dolerite. Burgundy-colored minealization also occurs along contact with dolerite. Color is 7.5 YR 7.4.

Porphyritic plagioclase dolerite. Plagioclase is ~2 to 3 mm long; hornblende is ~2 mm long. There is a flow texture among the phenocrysts near the intrusive contact. The matrix is aphanitic. There are fewer phenocrysts along the contact too. Hairline cracks in the dolerite run approsimately perpindicular to the contact with granite.

Hole M0077A Core 152R Cored 887.29-890.34 mbsf



Description

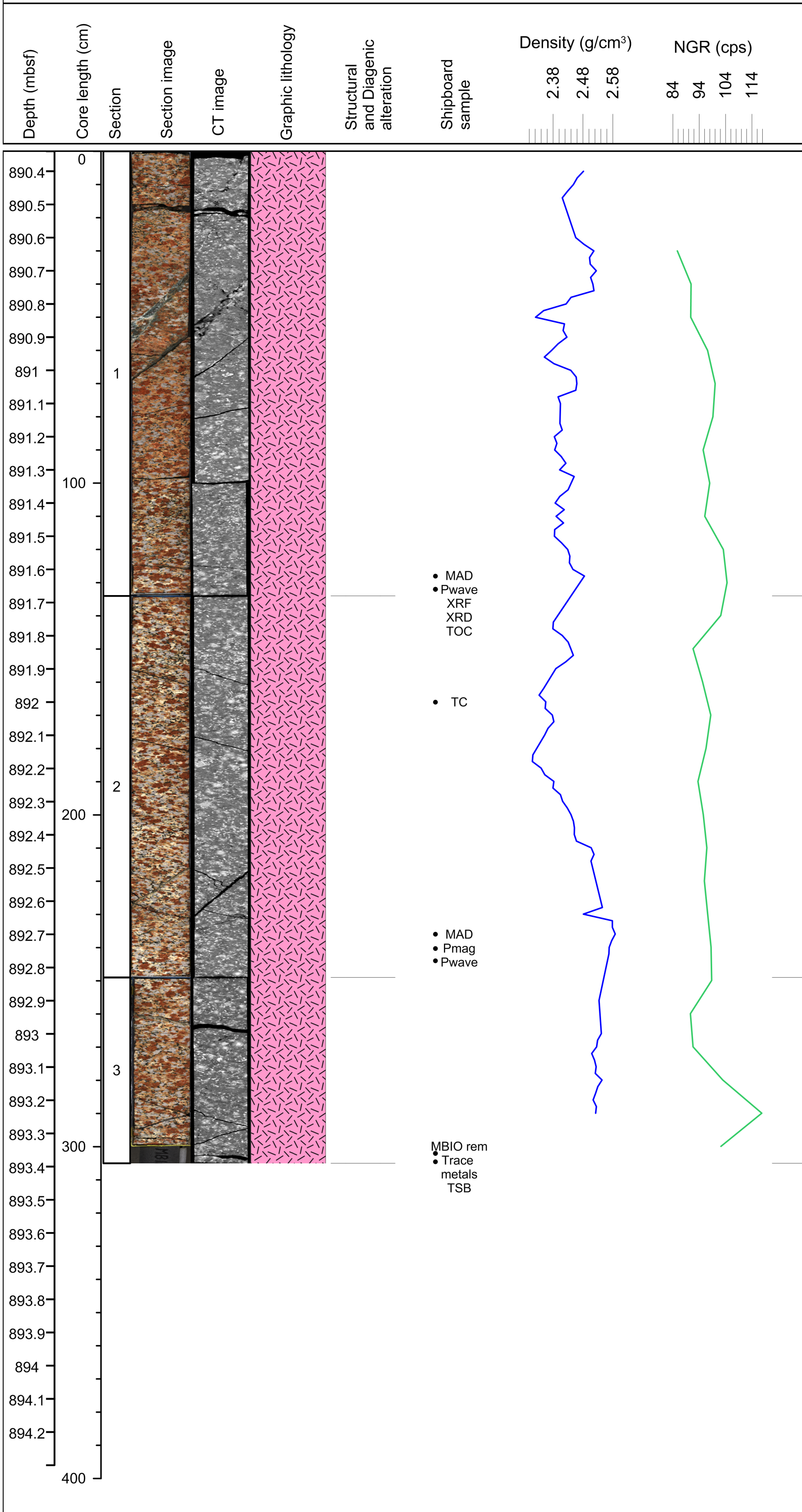
Porphyritic plagioclse dolerite. Plagioclase phenocrysts are 3 to 5 mm long and hornblende is ~2 to 3 cm in size. THe unit has hairline fracture roughly perpindicular to the contact with granite. A burgandy-colored mineral occurs along the contact. Color 7.5 YR 4/0. CT is white.

Coarse granite, weakly deformed. Fault at 49 cm: S 340/25, L 345/66 (+) 2. Fault at 69 cm: S 330/85, L 350/80 (+) 3. Green mineralization throughout the section.

Coarse (1 to 2 cm) granite, strongly deformed. Fault at 73 cm: S 052/52, L 106/42 (+) 3. That fault opened up and provided space for large (1 mm) euhedral quartz. Green mineralization occurs throughout the section. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 1.5 cm) granite, moderately deformed. The K-feldspar are particularly large (`3 to 4 cm) from 4 to 10 cm. Traces of alteration along thin (<1 mm) fractures. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 153R Cored 890.34-893.39 mbsf



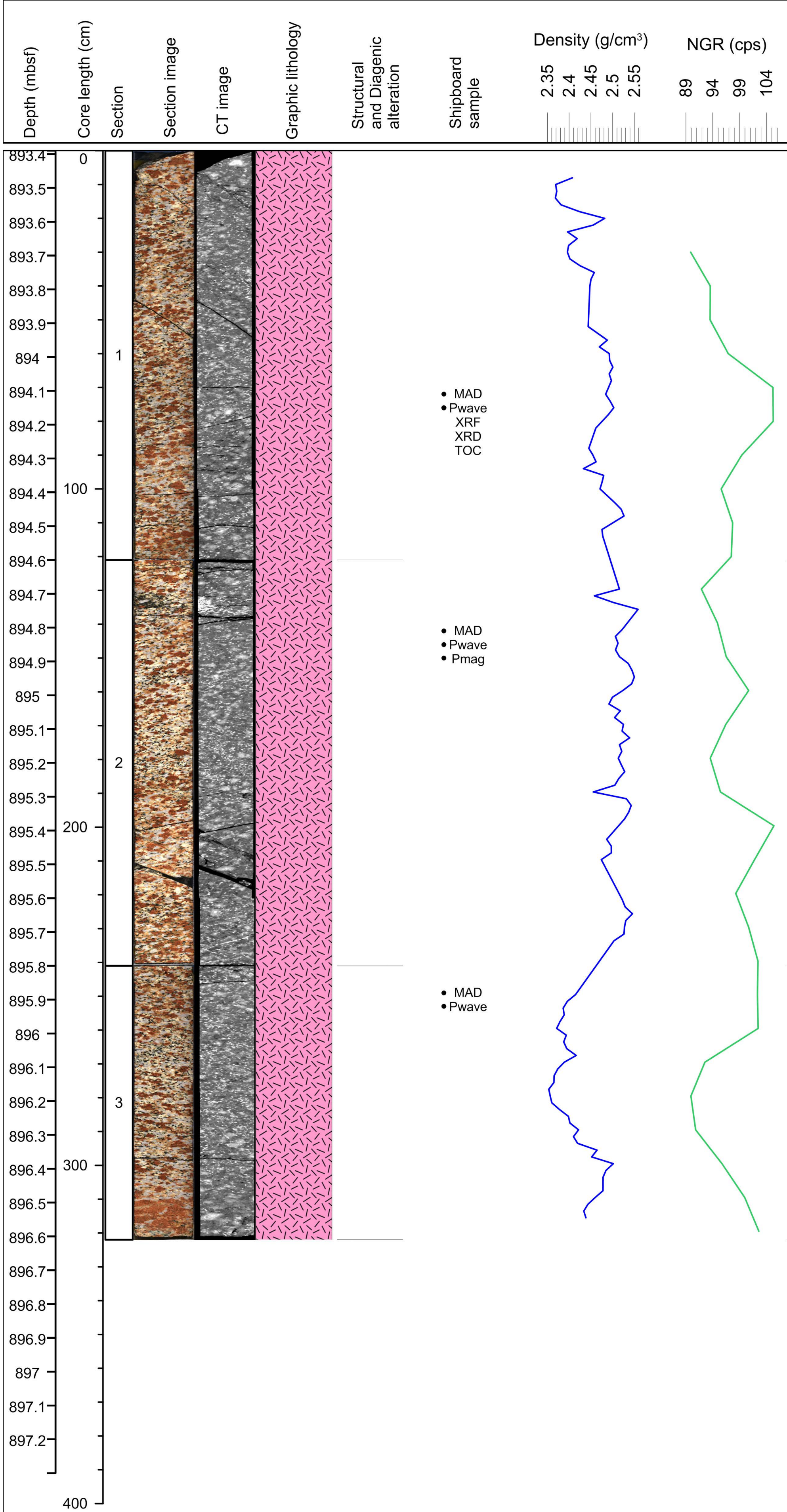
Description

Coarse granite, strongly deformed. Large (1 to 3 cm wide) cataclastic vein from 37 to 57 cm. Fault at 66 cm: S 120/34, L 125/33 (+) 1. Fault at 127 cm: S 185/44, L 230/35 (+) 3. The cataclastic vein is variably colored and possibly altered. Green mineralization occurs along several thin (<1 mm) veins throughout the section. Colore is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2 cm) granite, weakly deformed. Fault at 26 cm: S 215/63, L 210/61 (+) 2. Fault at 87 cm: S 310/40, L 008/15 (-) 3. There is a small amount of green-colored mineralization. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, weakly deformed. Fault at 12 cm: S 020/36, L 310/15 (-) 3. Fault at 44 cm: S 150//54, L 104/68 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 154R Cored 893.39-896.44 mbsf



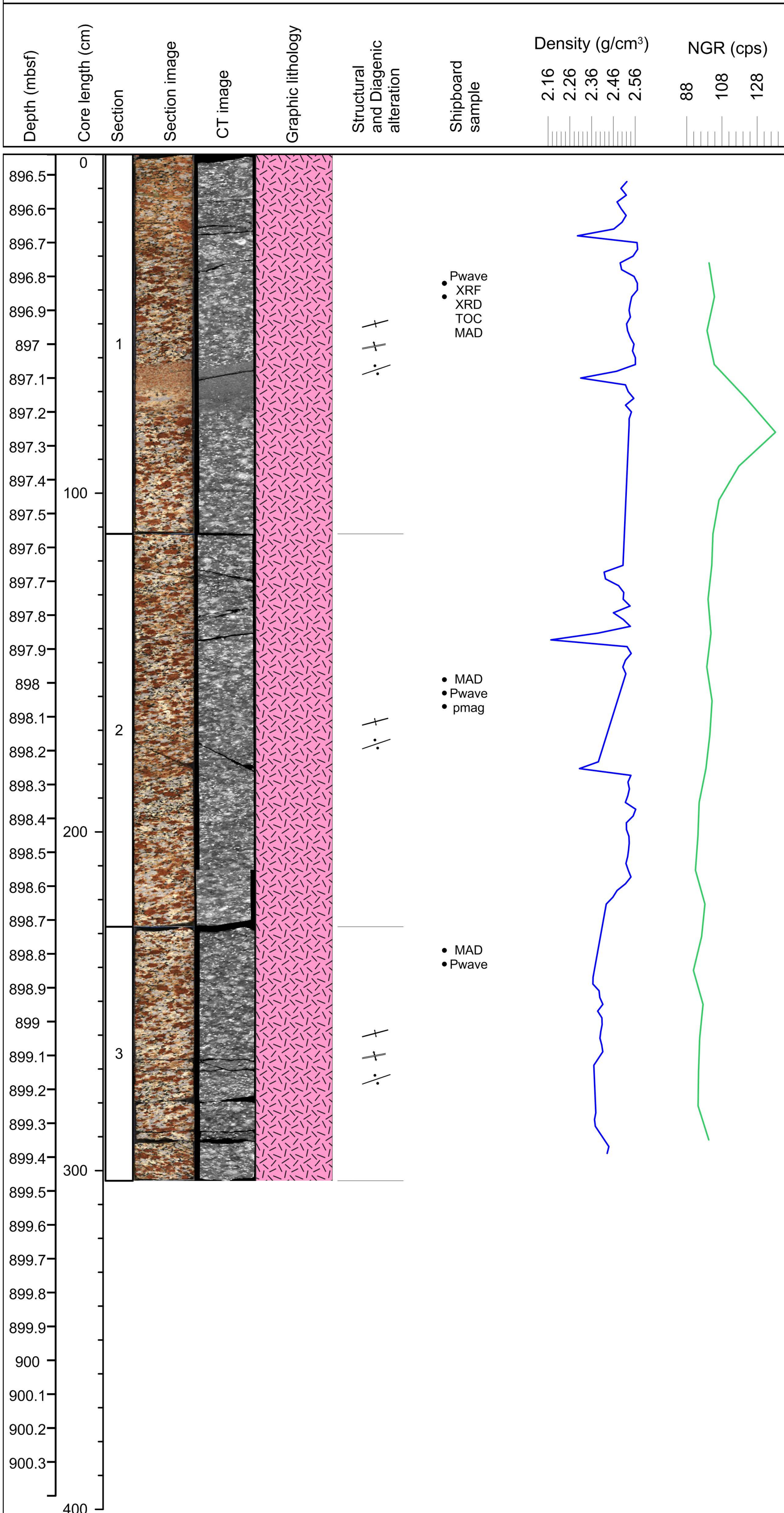
Description

Coarse granite, moderately deformed. Less biotite (<1 %) from 84 to 102 cm. Fault at 13 cm: S 215/62, L 198/56 (-) 3. Fault at 50 cm: S 225/76, L 202/70 (-) 3. Fault at 87 cm: S 154/68, L 153/64 (+) 3. Green and yellow-green mineralization along thin (<1 mm) veins. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, moderatlely deformed. From 10 to 15 cm, the rock is enriched in biotite (~10 %). Veins with green mineralization, particularly towards the base of the section. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 1.5 cm) granite, very weakly deformed. From 69 to 80 cm, the K-feldspar is concentrated and very large (3 to 4 cm). Fault at 5 cm: S 350/24, L 280/20 (+) 3. Minor amount of green mineralization. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 155R Cored 896.44-899.49 mbsf



Description

Coarse-grained granite with K-feldspars up to 3 cm, plagioclase (2,5 cm), quartz (2 cm), and biotite (<0,5 cm).

In upper part (from 0 to 23 cm) the K-feldspar is orange-light salmon in color (7.5 YR/6/6) and darker in the rest of the section (5 YR/5/6). Thin greenish (-yellowish) veins (<1 mm in thickness) are visible in the upper part of the section (from 2-24 cm), filling shear fractures (sub-horizontal).

@30-33 cm: White filled shear fracture.

@61-71 cm: Aplite zone (grain size <3 mm) [diffuse contact].

CT: Granite facies (with nicely zoned K-feldspars); Aplite zone lack white CT minerals.

Coarse-grained granite, homogeneous, with K-feldspars (up to 2,5 cm), plagioclase (2 cm), quartz (2,5 cm), and biotite (<0,5 cm) [locally chlorite], homogeneously distributed.

@10-14 cm: S 20/60 L109/1 (+4).

@18-20 cm: Thin gray/greenish planar vein (<1 mm in thickness).

@22-26 cm: White, anastomosing vein.

@30-32 cm: Open shear fracture, with white fill.

@62-70 cm: Open shear fracture with yellow-green fill.

CT: Typical granite facies (with nicely zoned K-feldspars; biotite = W-CT).

Coarse-grained granite, homogeneous, with K-feldspars (up to 2 cm), plagioclase (2,5 cm), quartz (2 cm), and biotite (<0,5 cm), homogeneously distributed.

@0-8 cm: Anastomosing, white-brown filled shear fracture (~1 mm in thickness).

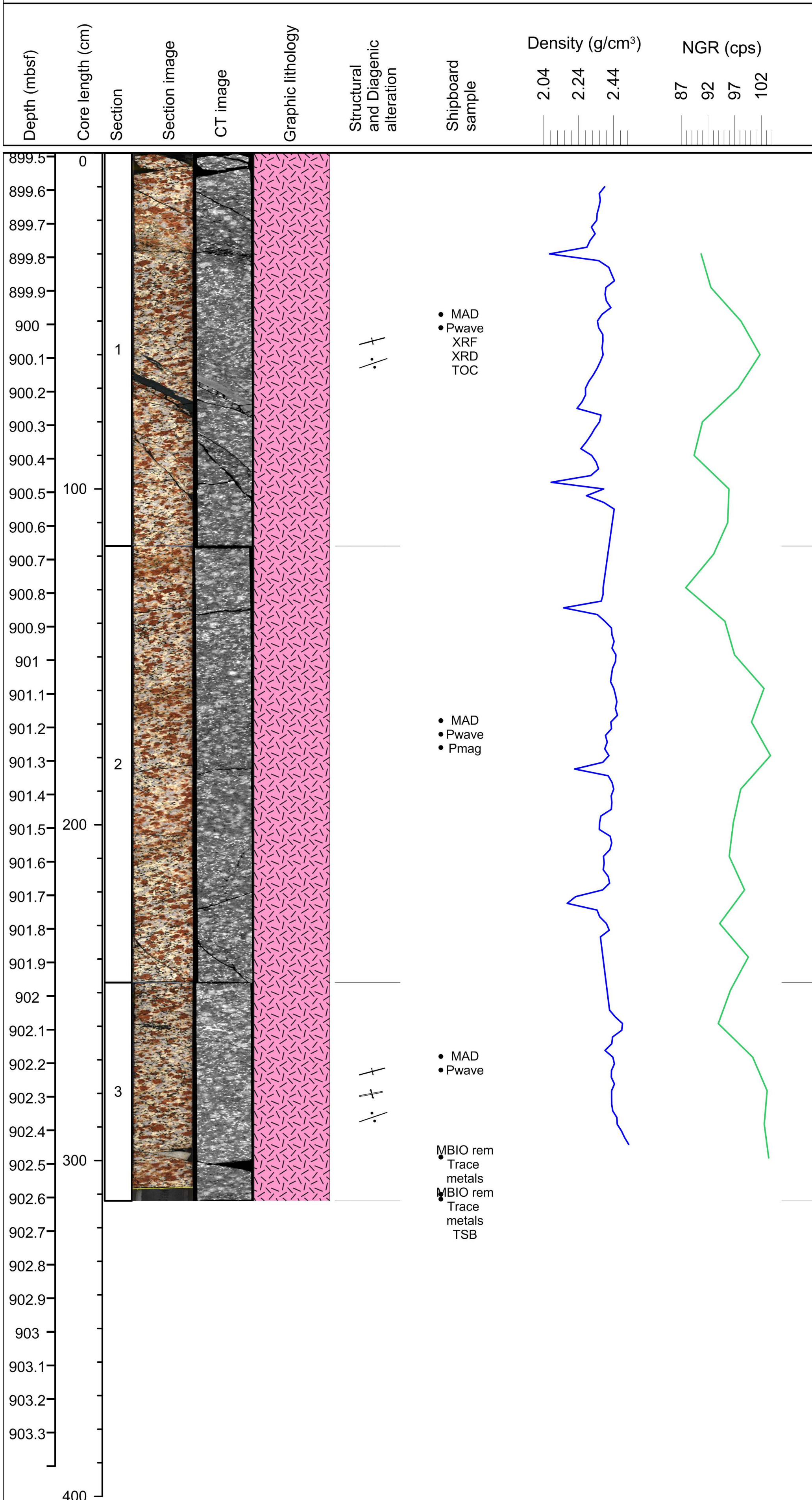
@12-21 cm: Black filled vein (<1 mm).

@40-42 cm: S 30/65 L 110/25 (+3).

@52 cm: S 165/70 L 85/35 (+3).

CT: Granite facies (with nicely zoned K-feldspars); Shear fractures at 0-8 cm and at 40-42 cm have low D.

Hole M0077A Core 156R Cored 899.49-902.54 mbsf



Description

Coarse-grained granite with K-feldspars (3 cm), plagioclase (2,5 cm), quartz (2,5 cm), and biotite (<0,5 cm), homogeneously distributed.

@16-34 cm: Zone of anastomosing shear faults, cataclastic fill (brown; 0,5 cm in thickness).

@58-74 cm: Two shear fractures. The first anastomosing (5 mm); The second, a dilation fracture, is 1,5 cm wide, very dark grey (greenish) fill (GLEY1 3/5G), with mm-sized granite clasts within the fill.

@83-103 cm: Sub-parallel shear faults with up to 2 mm of brown cataclastic fill.

CT: Granite facies; Shear zone from 16-34 cm has low D. The dark vein (at 58-74 cm) has similar CT values but lower D and higher Z.

Coarse-grained granite, homogeneous

K-feldspar (3 cm), plagioclase (2 cm), quartz (1.5-2 cm), biotite (<0.5 cm), somewhat locally concentrated

3-8 cm: zone of sub-mm yellow green vein network (epidote); plag is light orange in this zone

118-130 cm: S55/75 L335/18 – (3)

CT: Typical granite facies

Coarse grained granite

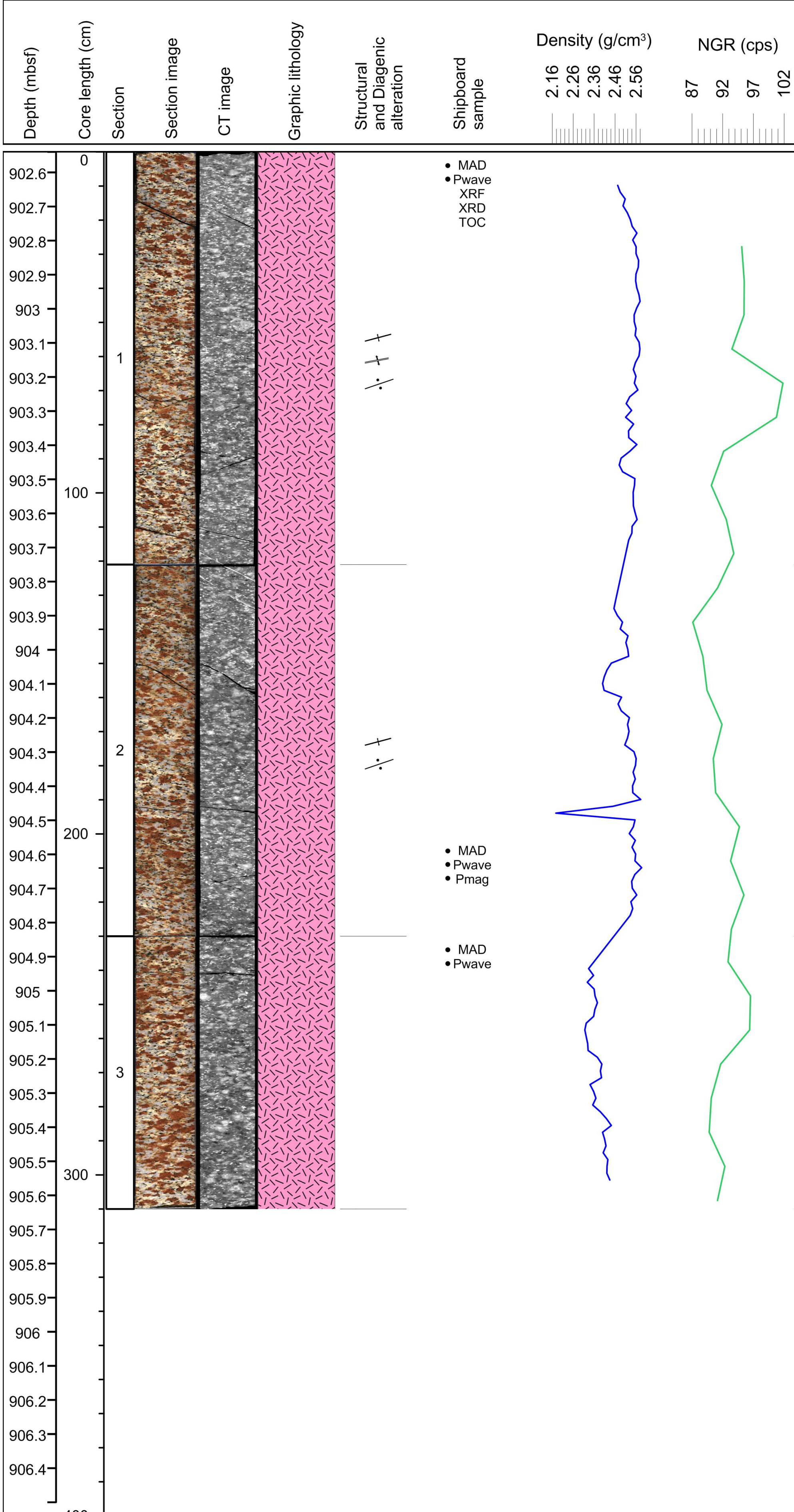
K-feldspar (3 cm), plagioclase (2.5 cm), quartz (1.5 cm), biotite (<0.5 cm). Biotite locally in aggregates up to 4 cm.

16-20 cm: shear fracture with white fill

49-54 cm: light grey fill fracture S200/75 L225/55 + (4)

CT: granite facies – possible dextral sense of displacement from light grey filled fracture displacing grey and white fracture

Hole M0077A Core 157R Cored 902.54-905.59 mbsf



Description

noneCoarse-grained granite

K-feldspar)<3 cm), plagioclase (<2.5 cm), quartz (<2 cm), biotite (<0.;5 cm) homogeneously distributed

72-79 cm: one set of shear fractures with cataclastic fill and small displacements, both sinistral and dextral causing no net displacement of yellow-green veins across the zone (up to 2 mm)

75-93 cm: zone of white filled shear fractures (<1 mm)

74-87 cm: S315/70 L35/12 – (1)

CT: granite facies

Coarse-grained granite with K-feldspars (<3 cm), plagioclase (<2 cm), quartz (<2 cm), and biotite (<0,5 cm), homogeneously distributed.

@0-13 cm: Two shear fractures (very planar) with quartz and yellow-green (epidote) fill (<2 mm).

@52-63 cm: Anastomosing, yellow-green fill shear fracture (<1 mm).

@87-98 cm: White-fill shear fracture conjoining with yellow-green vein.

CT: Granite facies; @0-13 cm, two white CT fractures with high D; Shear fracture @87-98 cm has low D and porosity.

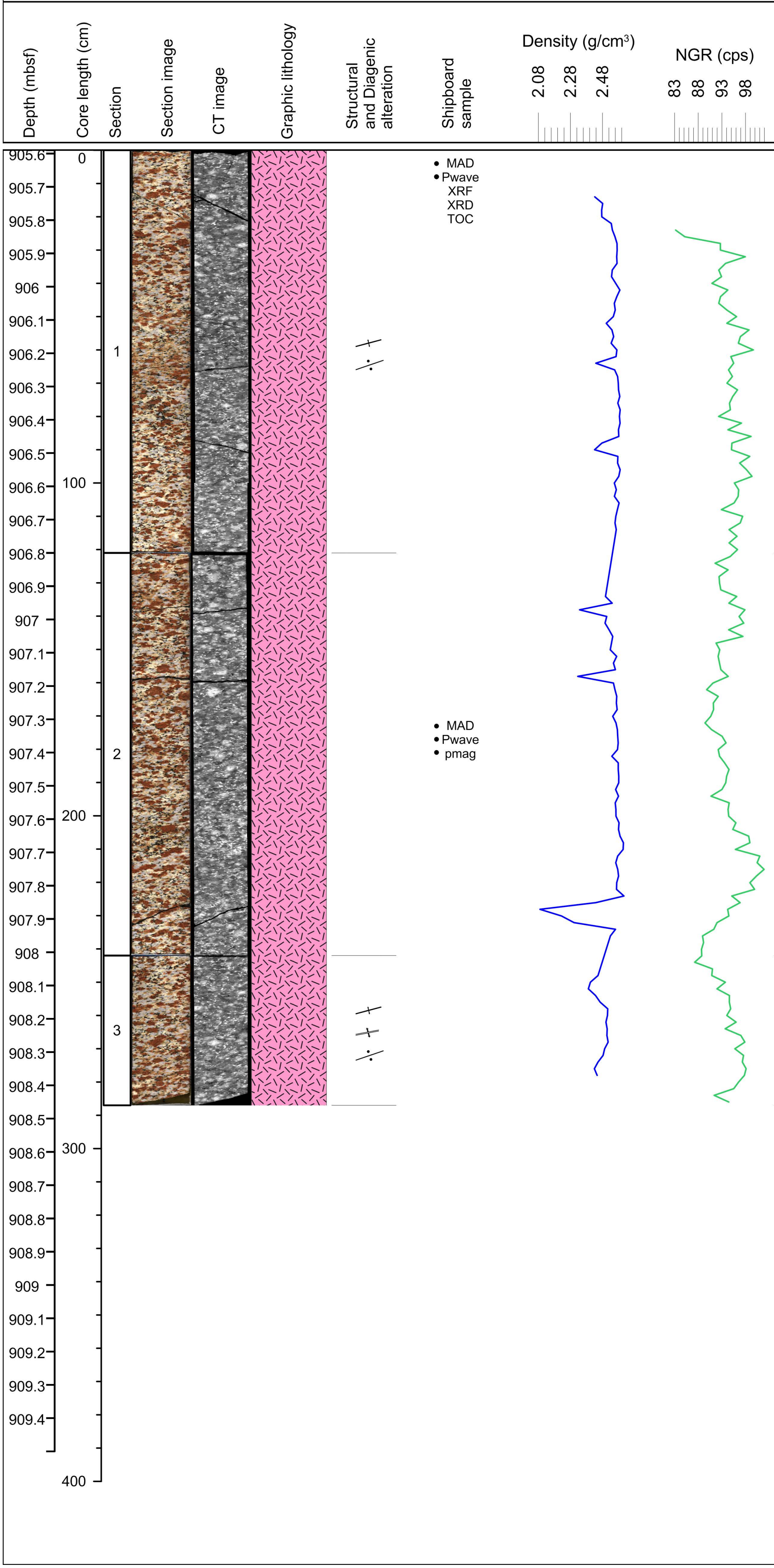
Coarse-grained granite, homogeneous, with K-feldspars (<3 cm), plagioclase (3 cm), quartz (2,5 cm), and biotite (up to 0,5 cm), somewhat locally aggregated.

@10 cm: S 5/65 L65/40 (+2). / 2 cm of sinistral displacement.

No other noticeable structure; No signs of alteration.

CT: Granite facies.

Hole M0077A Core 158R Cored 905.59-908.64 mbsf



Description

Coarse grained granite, K-feldspar (2.5 cm), plagioclase (2.5 cm), quartz (2.5 cm), biotite (<0.5 cm), locally concentrated in aggregates

12-20 cm – S220/65 L265/62 + (4)

5-62 cm – two sub-parallel cataclasite shear fractures – 2 mm wide (light-grey to greenish)

87-90 cm – S210/40 L250/38 – (3)

CT: granite facies – cataclasites at 52-62 cm have low density

Coarse-grained granite with K-feldspar up to 3 cm, plagioclase (2.5 cm), quartz (2.5 cm), and biotite (<0.5 cm). Biotite locally concentrated in aggregates. No sign of alteration

CT: typical granite facies

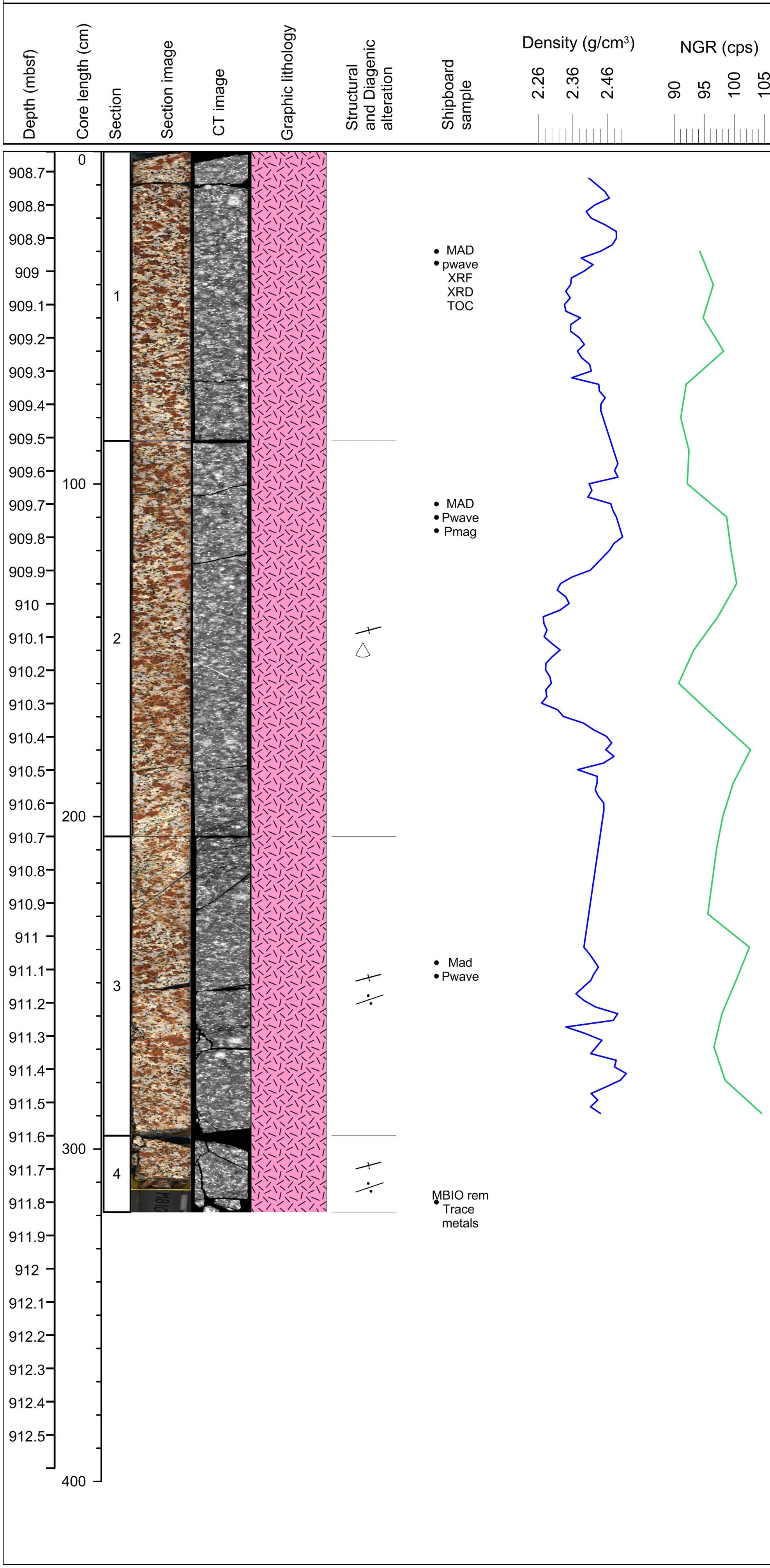
Same granite as in previous section, coarse-grained, with K-feldspar (up to 3.5 cm), plagioclase (<1.5-2 cm), quartz (2 cm), and biotite (<0.5 cm).

Massive, no obvious sign of alteration

35-39 cm – white filled shear fracture

CT: typical granite facies

Hole M0077A Core 159R Cored 908.64-911.59 mbsf



Description

Massive, coarse-grained granite with K-feldspars (up to 2,5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm), homogeneously distributed.

No signs of alteration.

CT: Granite facies.

Coarse grained granite

K-feldspar (<3.5 cm), plagioclase (<2.5 cm), quartz (<2 cm), biotite (<0.5 cm) homogeneously distributed

13-16 cm: shattered fracture surface – possible shatter cones??? (L. Ferriere does not agree!)

34-36 cm – S160/80 L155/72 – (3)

66-73 cm – yellow green vein of ~1 mm thickness

112-118 cm – brown/grey anastomosing cataclasite up to 4 mm thick

CT: Granite facies – white vein at 66-73 cm, high density, slightly higher Z

Coarse-grained granite, K-feldspars (up to 3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm), somewhat locally aggregated.

@7-21 cm: Two cataclastic zones with white fill (each 2-3 mm thick).

@22-29 cm: Bright green shear fracture up to 2 mm wide, truncated by open fracture above.

@65 cm: S 180/45 L 175/44 (-2).

@89 cm: S 170/55 L 150/50 (-2).

@46-90 cm: Occasional white shear fractures (<1 mm).

CT: Granite facies; Fracture from 22-29 cm has bright fill and high D.

Coarse-grained granite, K-feldspars (up to 2,5 cm), plagioclase (1,5 cm), quartz (1,5 cm), and biotite (<0,5 cm).

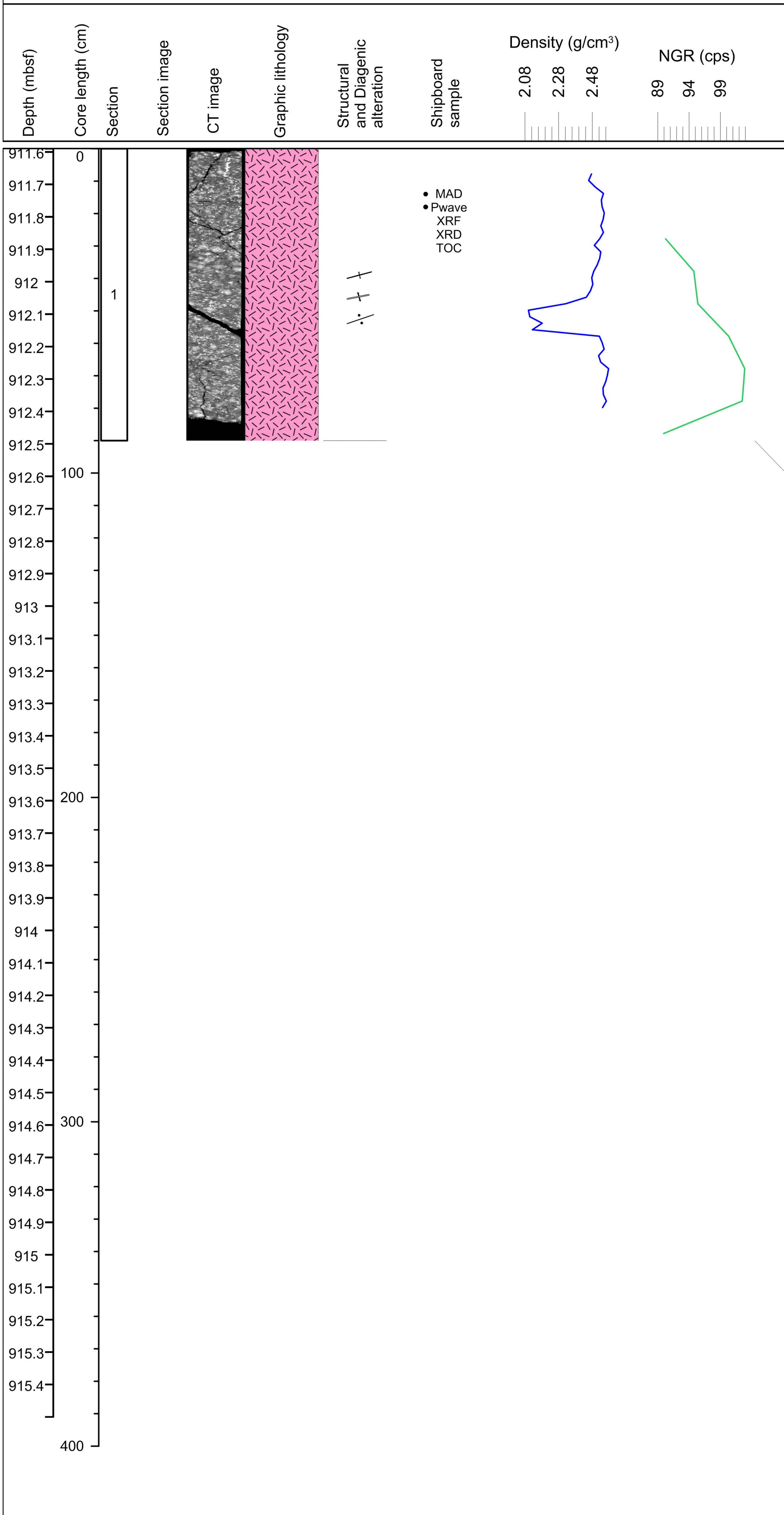
@3 cm: Closed fracture, with 1 mm wide yellow-green fill.

@11-12 cm: Anastomosing shear fracture with white fill and brown cataclastite, up to 2 mm thick.

@15 cm: S 185/70 L 125/50 (+3).

CT: Granite facies.

Hole M0077A Core 160R Cored 911.59-912.44 mbsf



Description

Coarse grained granite

K-feldspar (<3 cm), plagioclase (4 cm), quartz (2.5 cm), and biotite (<0.5 cm), locally aggregated (up to 4 cm) and locally absent (31-39 cm).

0-14 cm: semi-closed shear fracture with calcite, subvertical

0-18 cm: 4 sub horizontal, white-filled shear fractures

19-33 cm: shear fracture truncating perpendicular, white-filled shear fracture

26 cm: S150/85 L60/1 + 3

58-67 cm: conjugate shear fracture sets, sub-mm, white fill. W-dipping set is is dextral, very minor sinistral shear on E-dipping set.

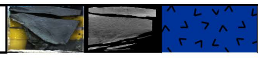
68-79 cm: yellow-green filled vein

88 cm: S170/40 L150/32 + 3

Soapy, black surface, contact to dolerite

CT: granite facies 19-32 cm low density fracture

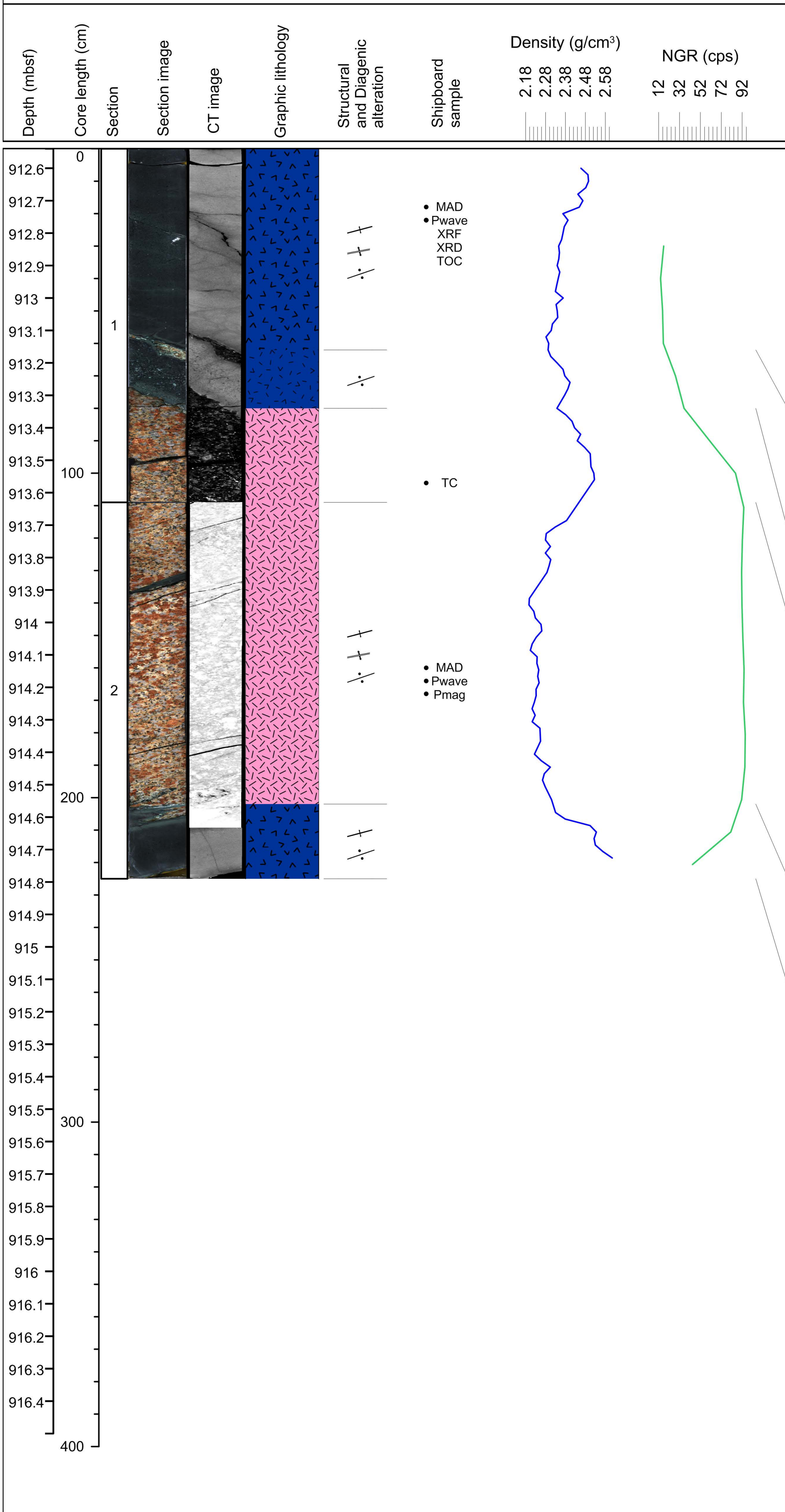
Hole M0077A Core 161R Cored 912.44-912.54 mbsf

Depth (mbsf)	Core length (cm)	Section	Section image	CT image	Graphic lithology	Structural and Diagenic alteration	Shipboard sample	Density (g/cm³) 0 0.25 0.5 0.75 1	NGR (cps) 0 0.25 0.5 0.75 1	Description
912.5	0	1					• PAL			Dolerite Core orientation uncertain Striations on surface Dolerite (aphanitic); LEY13/5 and 2.5/5 Color light green to darker green; reddish (and light grey) alteration at the lower end CT: Homogeneous light grey

Depth scale (mbsf): 912.5, 912.6, 912.7, 912.8, 912.9, 913, 913.1, 913.2, 913.3, 913.4, 913.5, 913.6, 913.7, 913.8, 913.9, 914, 914.1, 914.2, 914.3, 914.4, 914.5, 914.6, 914.7, 914.8, 914.9, 915, 915.1, 915.2, 915.3, 915.4, 915.5, 915.6, 915.7, 915.8, 915.9, 916, 916.1, 916.2, 916.3

Core length scale (cm): 0, 100, 200, 300, 400

Hole M0077A Core 162R Cored 912.54-914.74 mbsf



Description

Dolerite (aphanitic) [GLEY1/2.5/5] – few pyroxene up to 4 mm

19-20 cm: Diffuse shear band, curviplanar

22-28 cm: fracture following diffuse shear band

28 cm: sub horizontal, branching, diffuse shear band, along which calcite (1.5 cm) infilled porosity occurs

30-35 cm: diffuse shear band parallel to fracture

40-44 cm: anastomosing set of diffuse subhorizontal shear bands, up to 3 mm wide

50-62 cm: 7 cm wide contact zone in dolerite

62 cm: 1 cm wide process zone between granite clast and dolerite, 2 cm wide granite clast marks contact between aphanitic and phaneritic dolerite

CT: aphanitic dolerite facies

Dolerite (phaneritic) – plagioclase laths up to 8 mm, pyroxene (up to 3 mm) – sharp contact

63 cm: 1 cm thick contact zone

67 cm: subhorizontal diffuse shear band, plus E-dipping black-filled veins

76 cm: cm wide contact zone to granite

CT: phaneritic dolerite facies

Coarse-grained granite

K-feldspar (up to 3 cm), plagioclase (2.5 cm), quartz (1.5 cm), and biotite (<0.5 cm). Biotite locally concentrated

CT: Granite facies

Granite, course-grained, K-feldspar (3.5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5)

6 cm: S340/58 L290/50 + 2

30 cm: S330/85 L260/20 – 2

25 cm: 2 cm wide, dark green, aphanitic vein with 2 mm wide process zone. Either microcrystalline dolerite or cataclasite?

60-67 cm: sub-mm thick, white-filled shear fracture

74-81 cm: as above, but anastomosing

83-93 cm: pervasively sheared zone, >4 shear fractures, plus incorporation of reprocessed dolerite

CT: granite facies; vein at 25 cm very low density

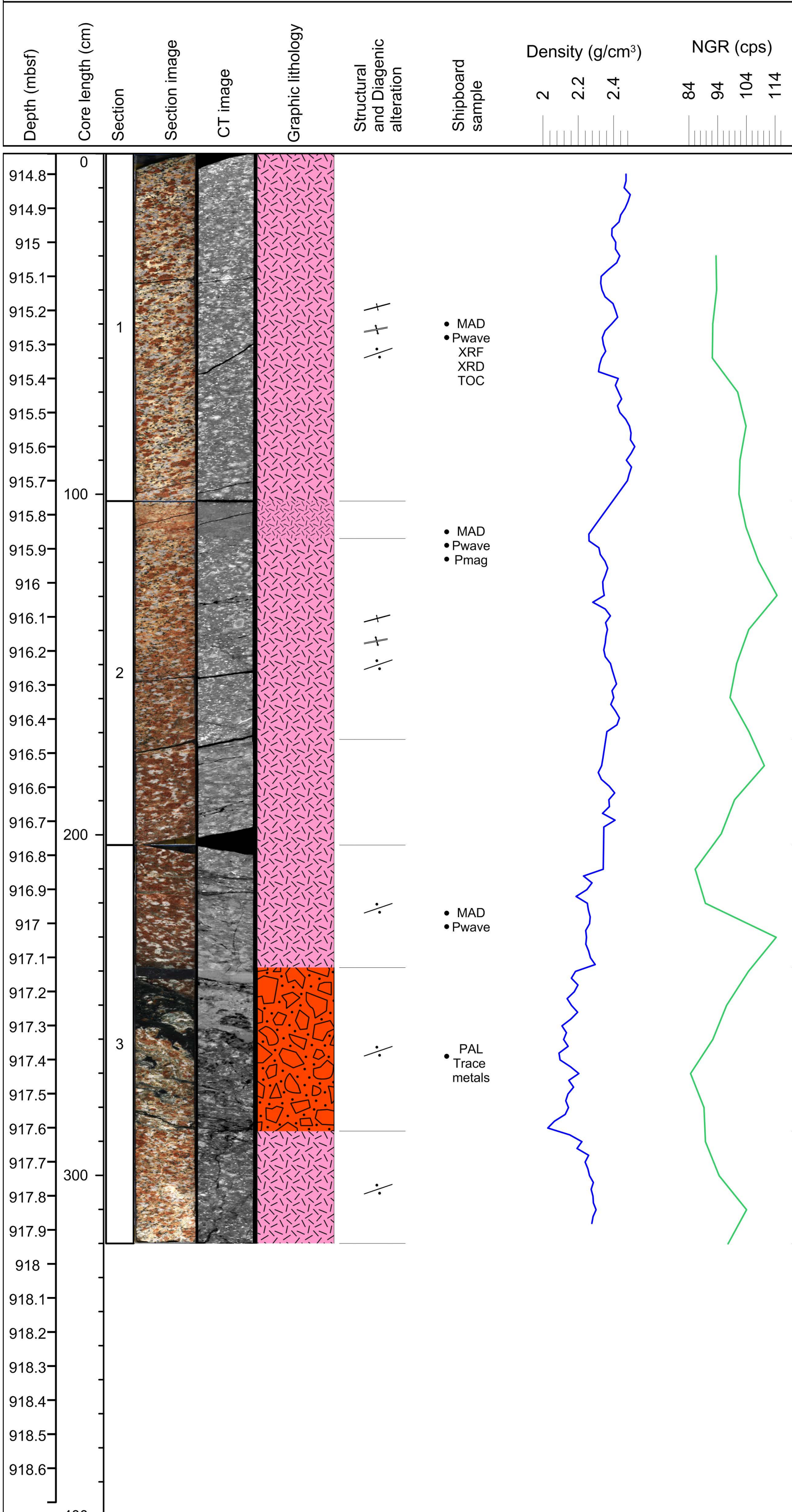
Dolerite (aphanitic), with pyroxene (up to 5 mm) – reddish-brown zones at contacts and lighter green, from GLEY1/4/5G to 2.5/5G

93-99 cm: brittle-plastic deformation zone discontinuous disruption of dolerite against shear fractures, with localized shearing of granite clast

115 cm: 1 cm contact zone

CT: aphanitic dolerite facies

Hole M0077A Core 163R Cored 914.74-917.79 mbsf



Description

Coarse grained granite

K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<2 cm), biotite (<0.5 cm) homogeneously distributed

44-54 cm: yellow-green vein

92-94 cm: white-filled shear fracture

CT: granite facies

Aplite

A few biotite (needle-like) (somewhat diffuse contact to granite)

CT: Aplite without white minerals

Granite (coarse-grained)

K-feldspar (2 cm), plagioclase (1.5 cm), quartz (2.5 cm), and biotite (<0.5 cm) locally concentrated

27-33 cm: anastomosing, white-filled shear fractures

40-100 cm: conjugate shear fractures, mostly white fill, several with yellow-green cataclasite, contact between granite and alkali-feldspar granite is multiply faulted

CT: granite facies

Granite (alkali-feldspar)

K-felspar (>3.5 cm), quartz (2 cm), and biotite (<0.5 cm)

CT; alkali-feldspar granite has few white minerals, otherwise granite texture

Granite (alkali-feldspar)

K-feldspar (4.5 cm), quartz (<2 cm), and some biotite (<0.5 cm)

0-37 cm: pervasive shear fracturing on cm-scale, with occasional cataclasites (up to 1 cm)

CT: Alkali-feldspar granite facies, veins at 10-14 cm CT dark grey, low density,

Clast-rich impact melt rock

With clasts (> 6 cm) from angular to subrounded dominated by granite clasts and possible clasts of other dike?/and/or dolerite and red/brown flakes/mineralization. Some clasts in part digested. Lower contact is very irregular “finger=like” (with peninsula)

36.5-39 cm: 2 cm thick aphanitic black vein with mm-cm sized clasts (up to 1.4 cm dolerite clast in part digested)

39-56 cm: clast-rich impact melt rock (clasts >6cm) truncates dark aphanitic vein, embayments in contact (in working half)

54-64 cm: irregular contact melt-rock to granite, with embayments of melt rock into granite

54-84 cm: pervasively brittly sheared granite with plastically deformed melt incorporations

CT: vein at 38 cm low density, high Z, CT mid grey. Melt rock CT mid grey, containing high and low CT clasts, breccia 54-84 complex

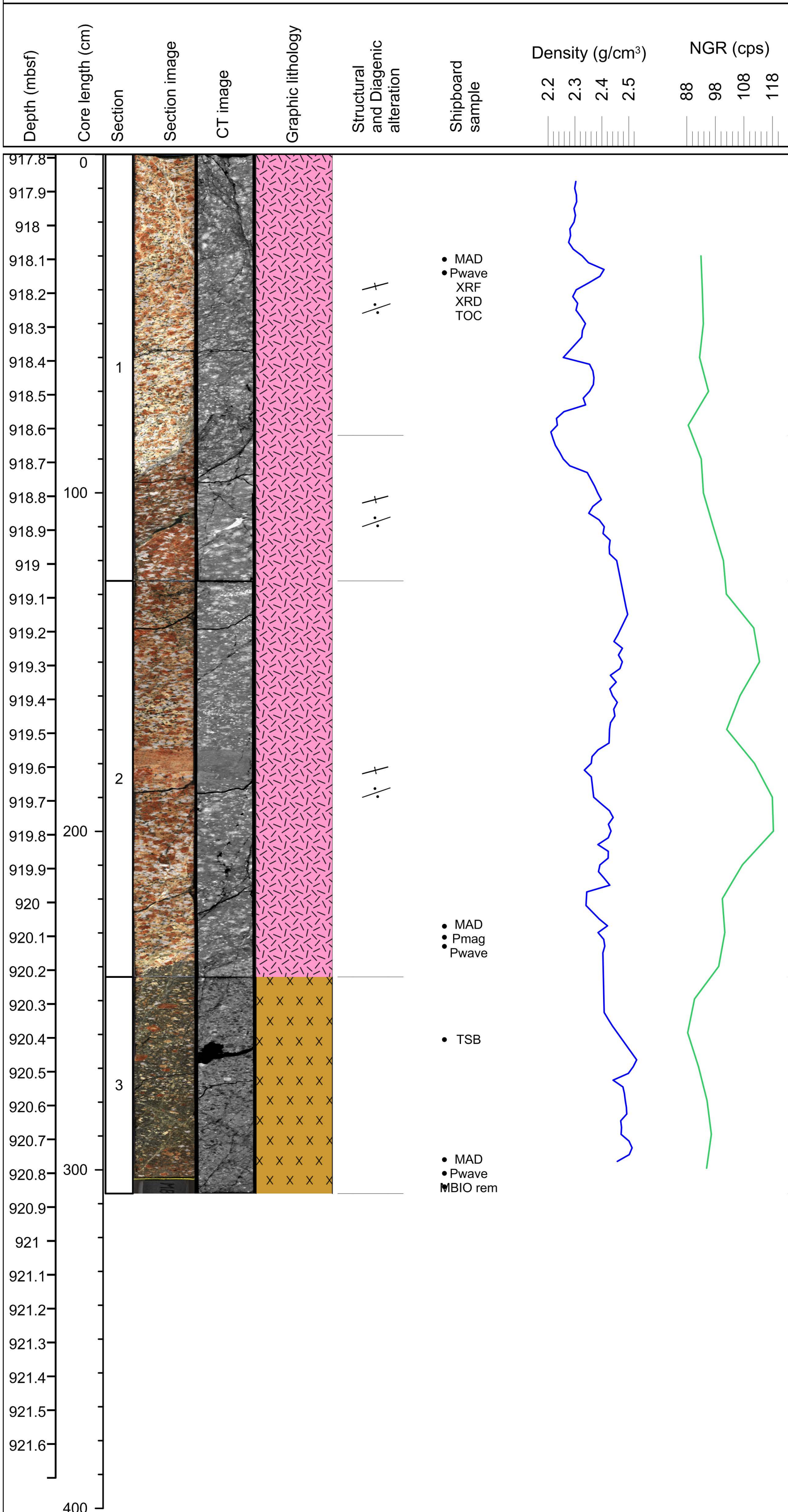
Coarse-grained granite

K-feldspar (2 cm), platioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm)

82-116 cm: strongly but discretely sheared granite on cm scale

CT: granite facies

Hole M0077A Core 164R Cored 917.79-920.84 mbsf



Description

Coarse-grained granite

K-feldspar (up to 3 cm), plagioclase (2 cm), quartz (2 cm), biotite (0.5 cm). Pervasively fractured (K-feldspar light brown)

0-96 cm: pervasively shear fractured granite white fill, occasional cataclasite

58 cm: S165/50 L115/30 + 3

80-94 cm: contact to alkali-feldspar granite is grey/yellow green cataclasite (~0.7 mm)

CT: granite facies, dark fractures, low density, white mafic body

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Alkali-feldspar granite

K-feldspar (3 cm), quartz (.5 cm), biotite (0.5 cm) (locally concentrated) pervasively fractured

106-111 cm: shear fractured mafic body (dark grey to black – up to 1 cm thick)

82-126 cm: discretely shear fractured

Top = Granite

Coarse grained, K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm), locally concentrated (up to 5 cm)

50-57 cm = Aplite

57-113 cm = Granite (as at top)

113 and down = Dacite (K-feldspar, plagioclase, quartz, mafic and biotite)

18-20 cm: shear fracture, 1 mm white fill

0-46 cm: several diffuse black fractures

68-110 cm: several subvertical anastomosing shear fractures with white, grey, or black fill <mm

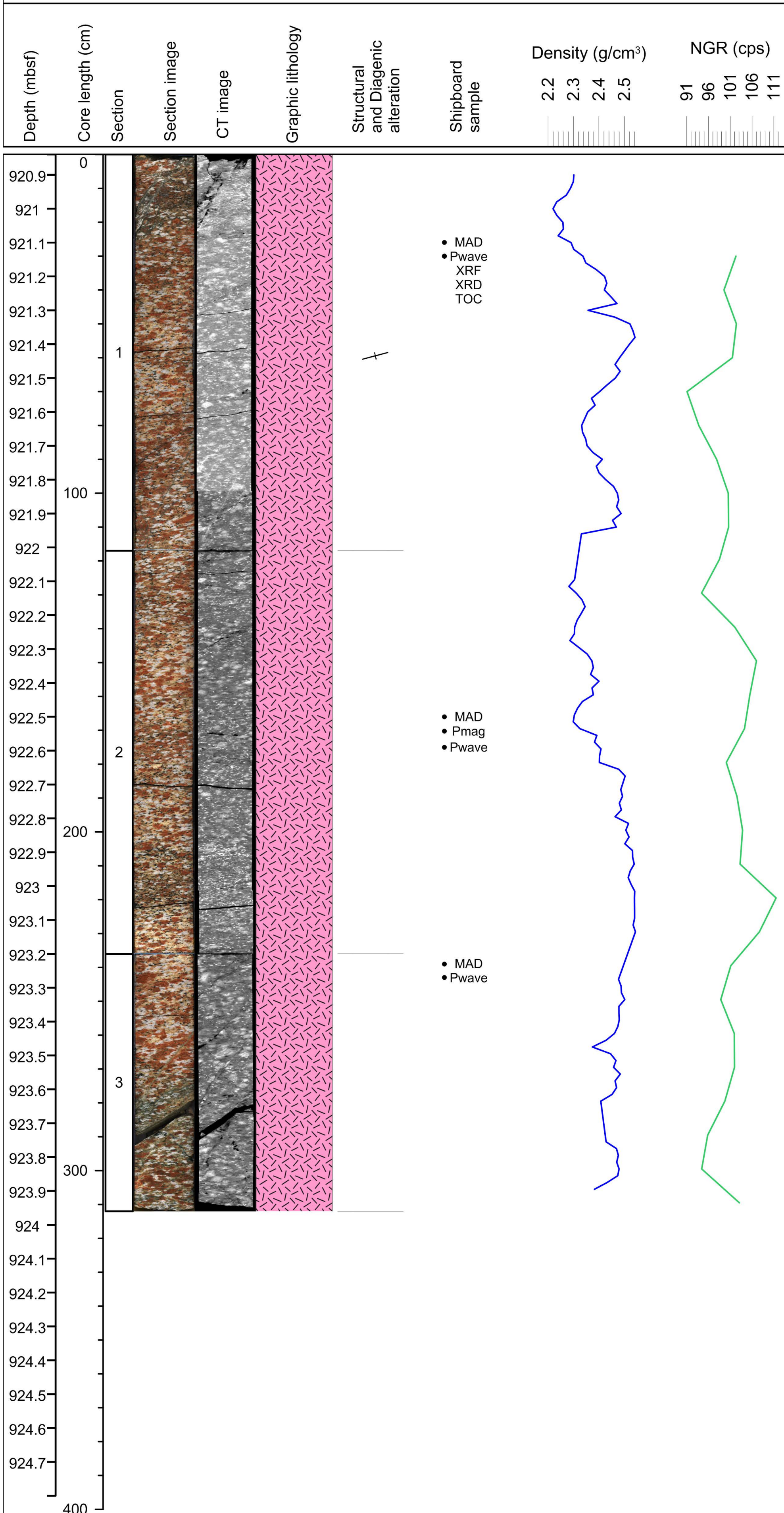
110-114 cm: near contact to dacite dike, anastomosing cataclasite zone, 1-2 cm thick, yellow-brown fill

114 cm: granite-dacite contact truncated by 2 shear fractures

CT: granite facies, aplite without white minerals

Dacite with a porphyritic texture. K-feldspar phenocrysts are euhedral 1 to 2 cm (<5%) and plagioclas is ~1 cm (~15%). Matrix is fine-grained with plagioclase, K-feldspar, and hornblende. The unit is moderately deformed with cataclastic veins. Fault at 30 cm: S 115/75, L 114/14 (-) 3. Pervasive hairline veins dominated bya yellow-green material cross-cut the section. Color is 7.5 YR 6/1. CT is dark gray.

Hole M0077A Core 165R Cored 920.84-923.89 mbsf



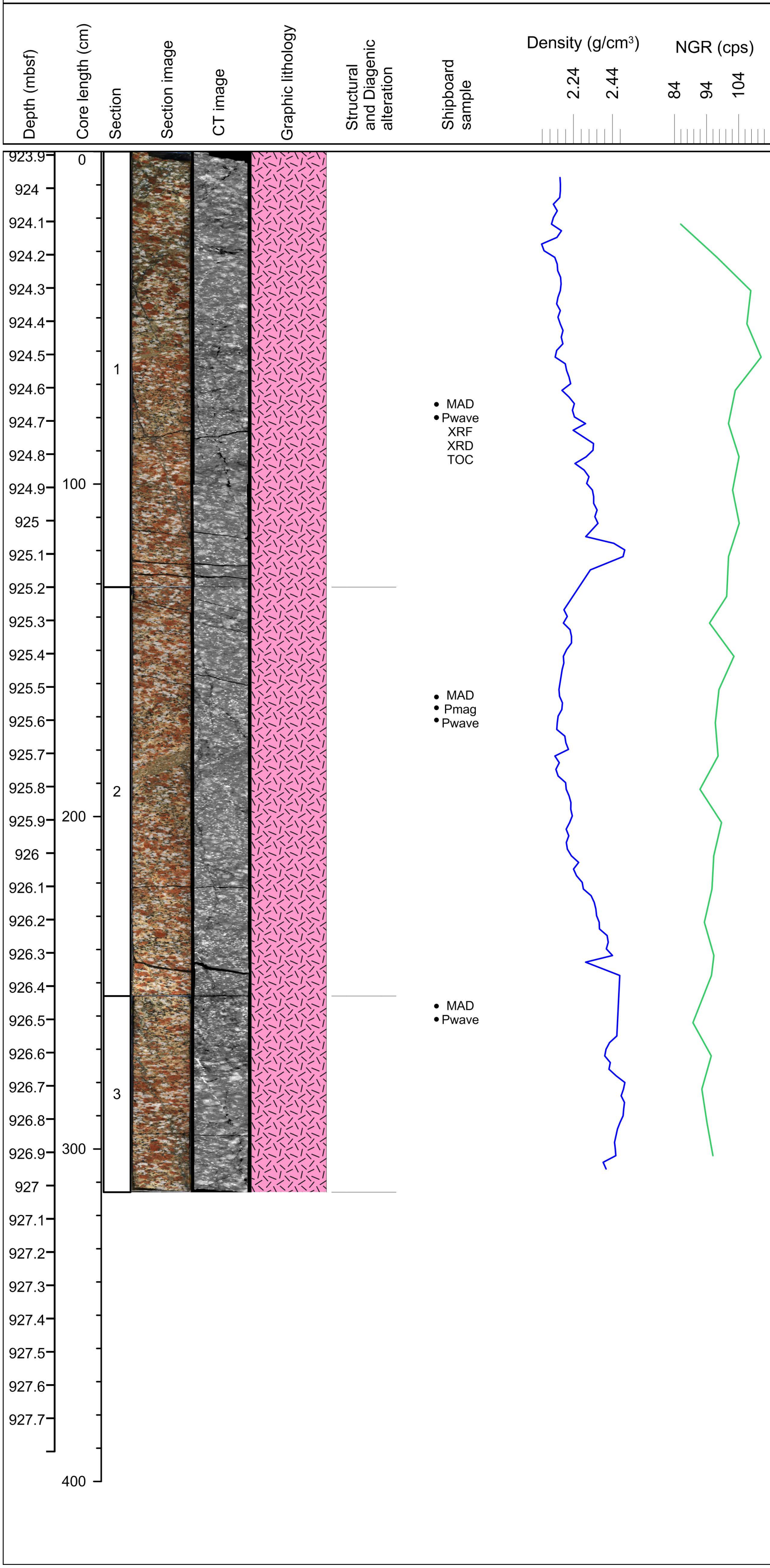
Description

Coarse (1 to 2 cm) granite. It is strongly deformed 0 to 25 cm, with cataclastic veins cut by later fractures. Additional, very vine cataclastic veins occur between 80 and 117 cm. Fault at 58 cm: S 175/80, L 180/78 (+) 3. Alteration occurs along cataclastic veins. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite. There is less biotite (<1%) between 7 and 42 cm. There is more biotite (~5%) from 87 to 104 cm. The unit is weakly deformed. Several very fine cataclastic veins are visible from 3 to 15 cm. Fault at 104 cm: S 340/74, L 062/12 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite. A cataclastic vein occurs between 23 and 45 cm. There is very strong deformation between 38 and 64 cm. Fault at 48 cm: S 125/65, L 042/03 (+) 3. Dark green vein at 56 to 57 vm. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 166R Cored 923.89-926.94 mbsf



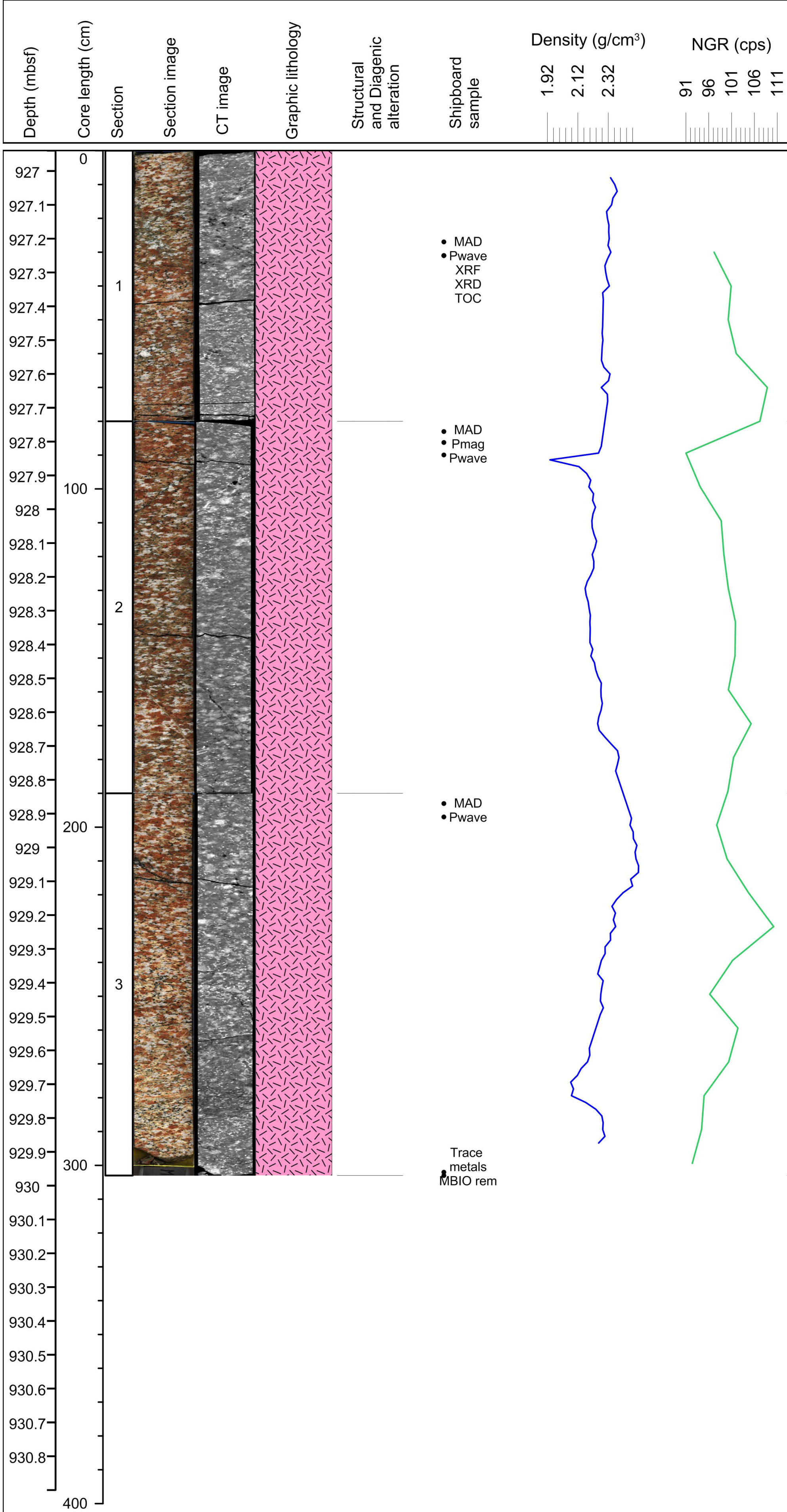
Description

Coarse (1 to 2.5 cm) granite, strongly deformed with catacastic veins between 52 and 62 cm. Fault at 45 cm: S 250/64, L 172/1 (+) 3. Fault at 48 cm: S 355/32, L 062/20 (+) 3. Fault at 114 cm: S 022/74, L 096/30 (+) 2. Fault at 123 cm: S 007/62, L 082/22 (+) 3. Fault at 127 cm: S 010/78, L 094/12 (+) 2. One vein is light olive gray (5 Y 6/). Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 3.5 cm) granite, moderately deformed. A 4-cm wide cataclastic vein occurs between 48 and 58 cm. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed. A cataclastic vein runs from 18 to 58 cm. Fault at 45 cm: S 170/84, L 050/16 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 167R Cored 926.94-929.99 mbsf



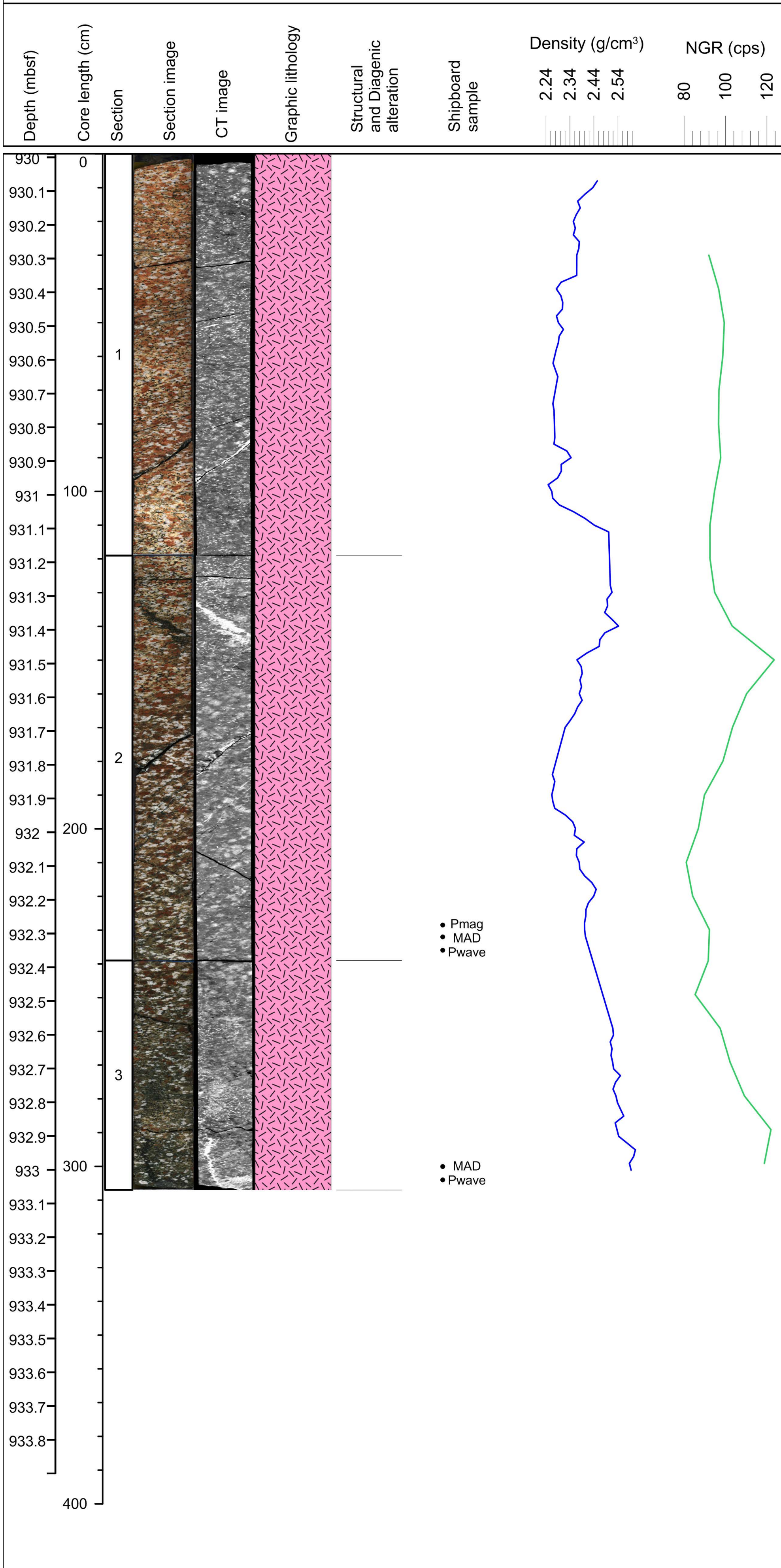
Description

Coarse granite, strongly deformed. The zone from 41 to 46 cm contains less biotite (<1%). Fault at 45 cm: S 170/84, L 050/16 (-) 2. Dark green and green mineralization along veins. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed. Cataclastic veinlets are visible at 8, 13, 49, and 97 cm. Dark green, green, and light olive gray colors along veins. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, moderately deformed. Fault at 67 cm: S 145/58, L 058/30 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 168R Cored 929.99-932.94 mbsf



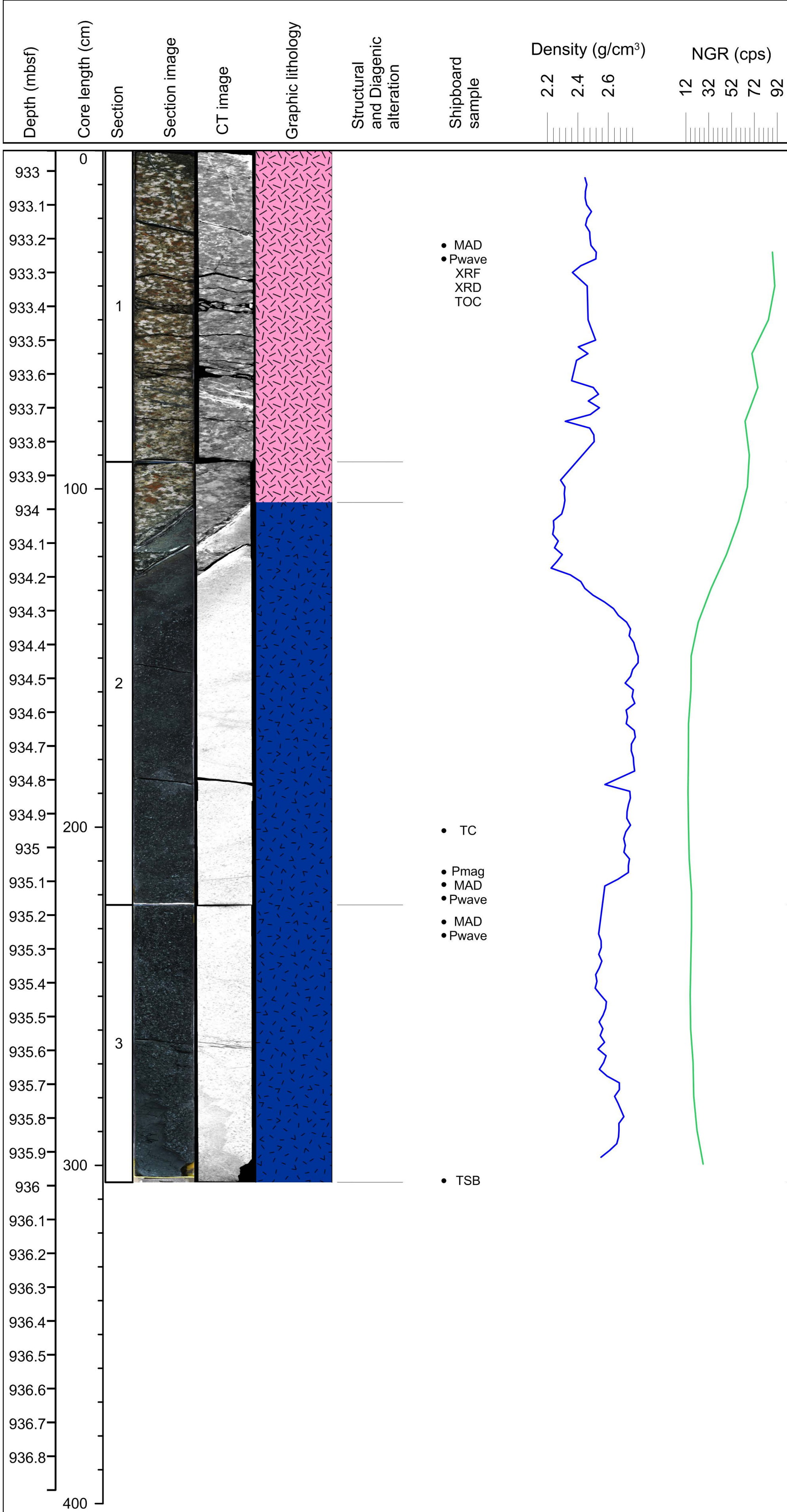
Description

Coarse granite, strongly deformed. Fractures are parallel to each other and filled with cataclastic debris. At 83 cm, there is an ~5 cm dike, possibly of psuedotachylite. Fault at 91 cm: S 300/84, L 350/82 (-) 2. Vein fill is dark green, light green, and light olive gray. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed and altered. A biotite-enriched zone occurs between 23 and 26 cm. Fractures are parallel and filled with black material. Fault at 95 cm: 210/32. Color is 7.5 YR 6/4. CT is dark gray.

Medium-grain granite, although a coarse-grain section occurs from 0 to 15 cm. Veinlets and aggregates of biotite occur from 32 to 66 cm. The section is strongly deformed. There is also a strong light olive gray (5 Y 6/2) alteration overprint. Color is 5 Y 5/2. CT is dark gray.Fault at 20cm. 190/42, 055/35, +3

Hole M0077A Core 169R Cored 932.94-936.04 mbsf



Description

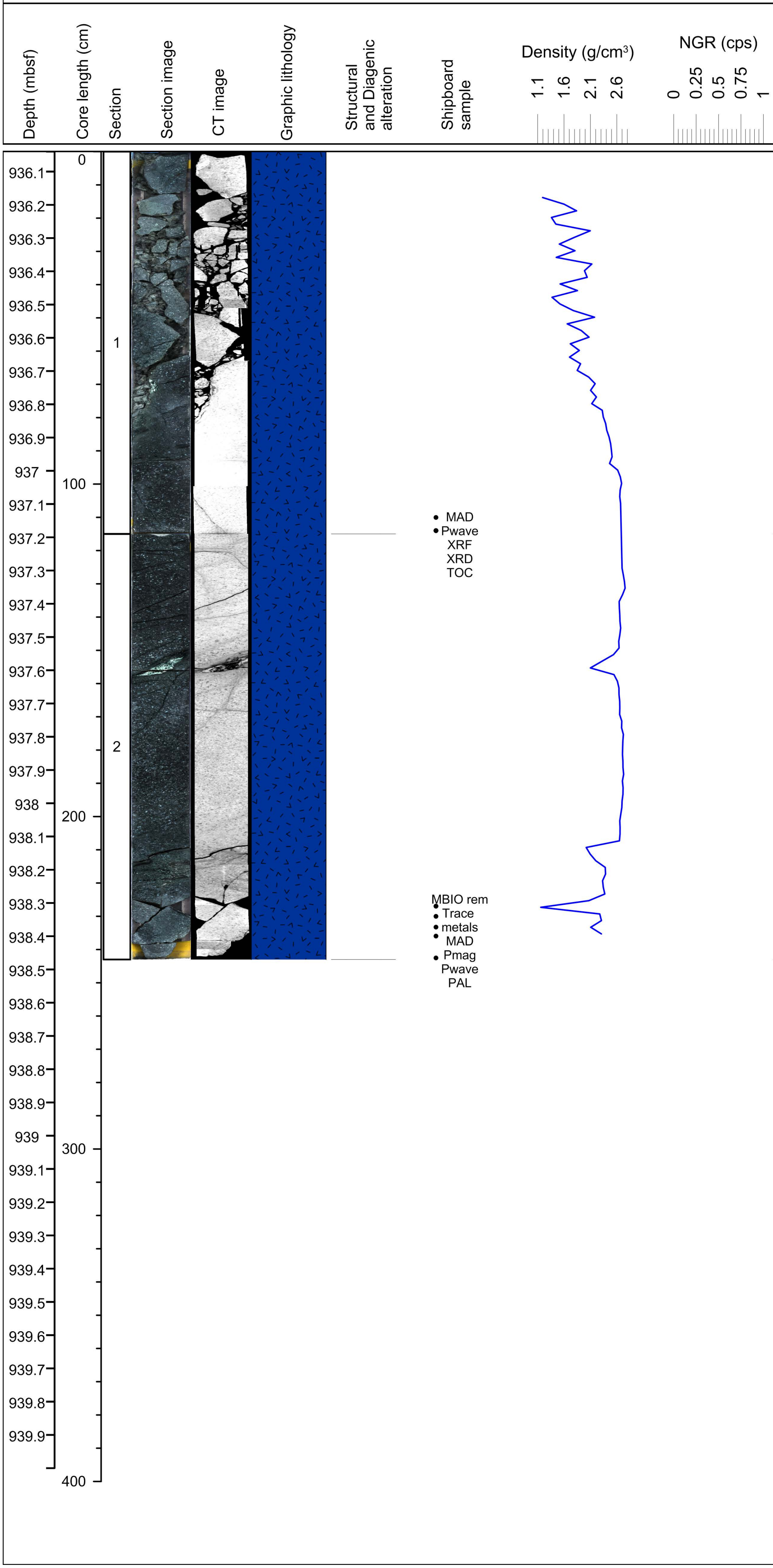
Coarse granite, strongly deformed and altered. Fractures parallel. Cataclastic vein runs from 0 to 24 cm. Fault at 22 cm: S 022/62, L 108/106 (+) 3. Color is 5 Y 6/2. CT is dark gray.

Coarse granite, strongly deformed. Color is 5 Y 6/2. CT is dark gray.

Porphyritic dolerite, with plagioclase phenocrysts (2 to 3 mm, ~5%) and hornblende phenocrysts (~1 mm, ~5%), and aphanitic matrix. Weak deformation. Fault at 30 cm: S 130/64, L 55/16 (+) 3. Fault at 095 cm: S 190/74, L 102/06 (-) 2. Color is 7.5 Y 4/0. CT is white.

Porphyritic dolerite, with plagioclase (3 to 5 mm, ~10%) and hornblende (~1 mm, ~5%) phenocrysts. From 53 to 81 cm there is a zone free of plagiolcase phenocrysts with an intrusive contact. Plagioclase-rich dolerite was subsequently deformed. Overall, the section is moderately deformed. Color is 7.5 YR 4/0. CT is dark gray.

Hole M0077A Core 170R Cored 936.04-938.67 mbsf

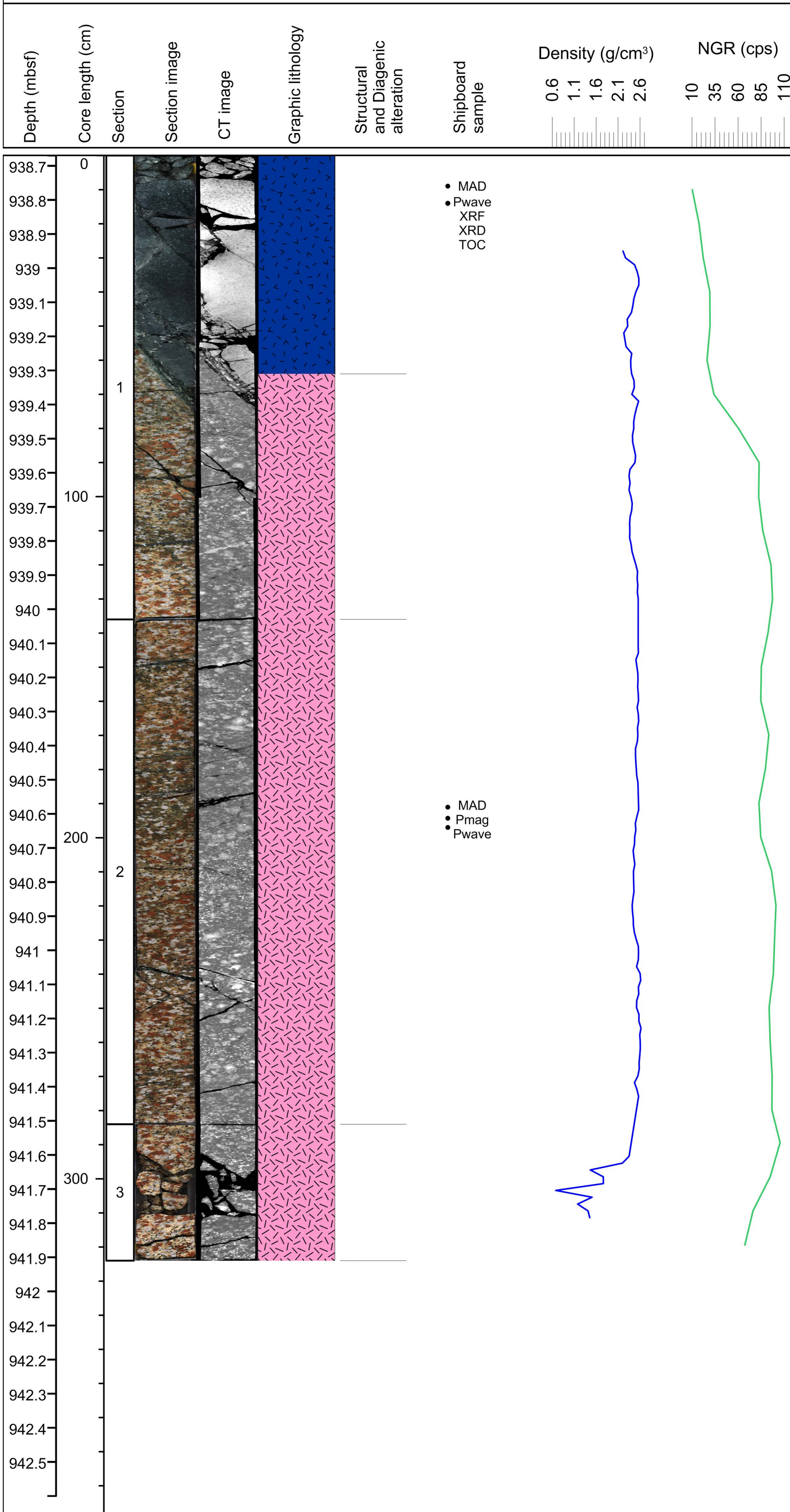


Description

Porphyritic dolerite with plagioclase (5 mm to 1 cm, ~15%) and hornblende (1mm, 10%) phenocrysts. Weakly deformed. Color is 7.5 YR 4/0. CT is white.

Porphyritic dolerite with plagioclase (5 to 10 mm, 15%) and hornblende (1 to 3 mm, 10%) phenocrysts. A granite inclusion occurs at 39 cm. Weakly deformed. Pod with green mineralization at 40 cm. Color is 7.5 YR 4/0. CT is white.

Hole M0077A Core 171R Cored 938.67-941.74 mbsf



Description

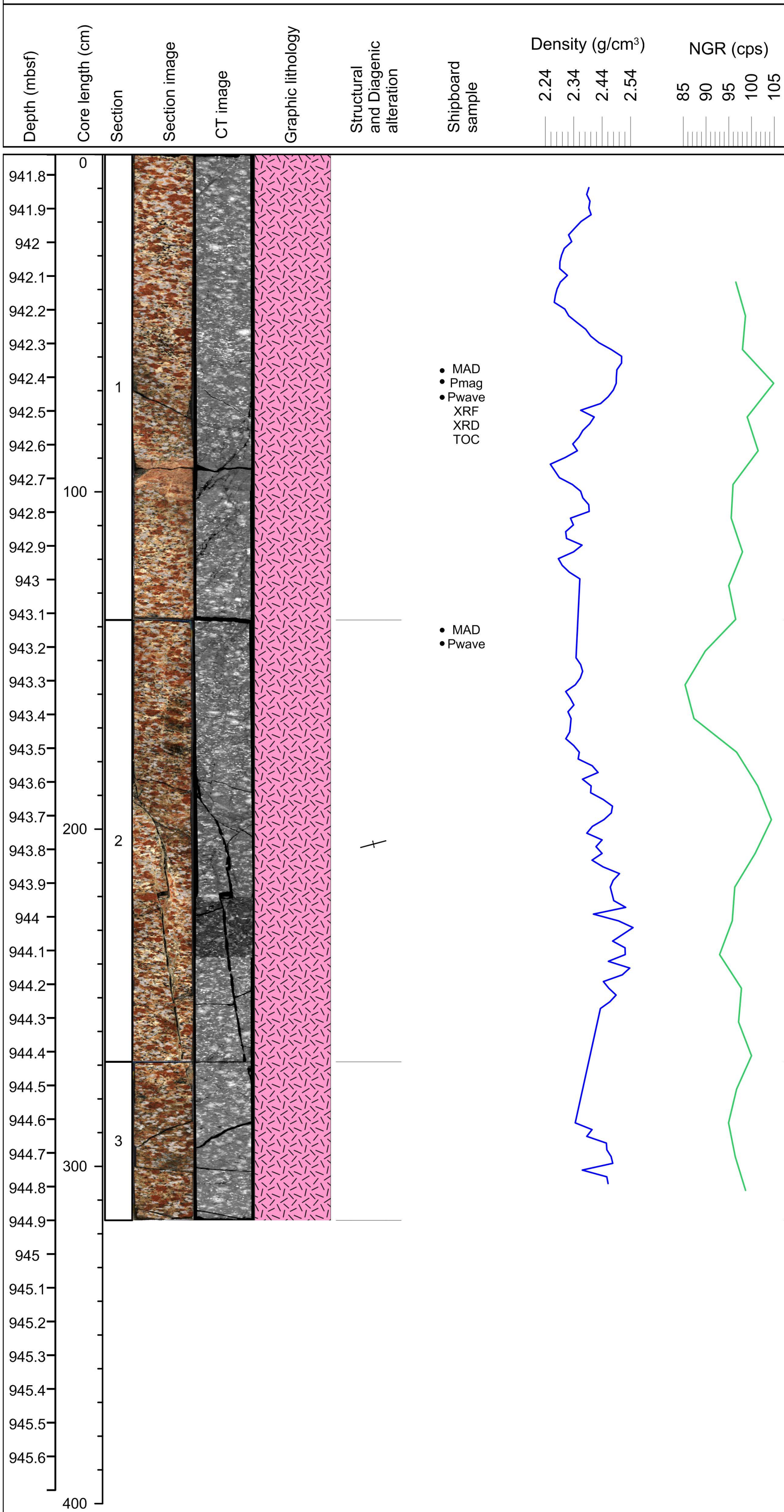
Porphyritic dolerite with plagioclase (5 to 10 mm, ~15%) and hornblende (1 to 2 mm, ~10%) phenocrysts. Moderately deformed. Thin white veins. Color is 7.5 YR 4/0. CT is white.

Coarse (1 to 2 cm) granite. At 113 cm, there is a 5 mm-thick cataclast vein. Strongly deformed and altered. The adjacent dolerite has an intrusive contact. Color of granit is 7.5 YR 6/3. CT is dark gray.

Coarse granite, strongly deformed and altered. It is overprinted with a light olive gray color. Fractures are parallel and filled with fine cataclastic veins. Color is 7.5 YR 6/4. CT is dark gray.

Coarse granite, weakly deformed. Dark green or black vein <1 mm thick. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 172R Cored 941.74-944.84 mbsf



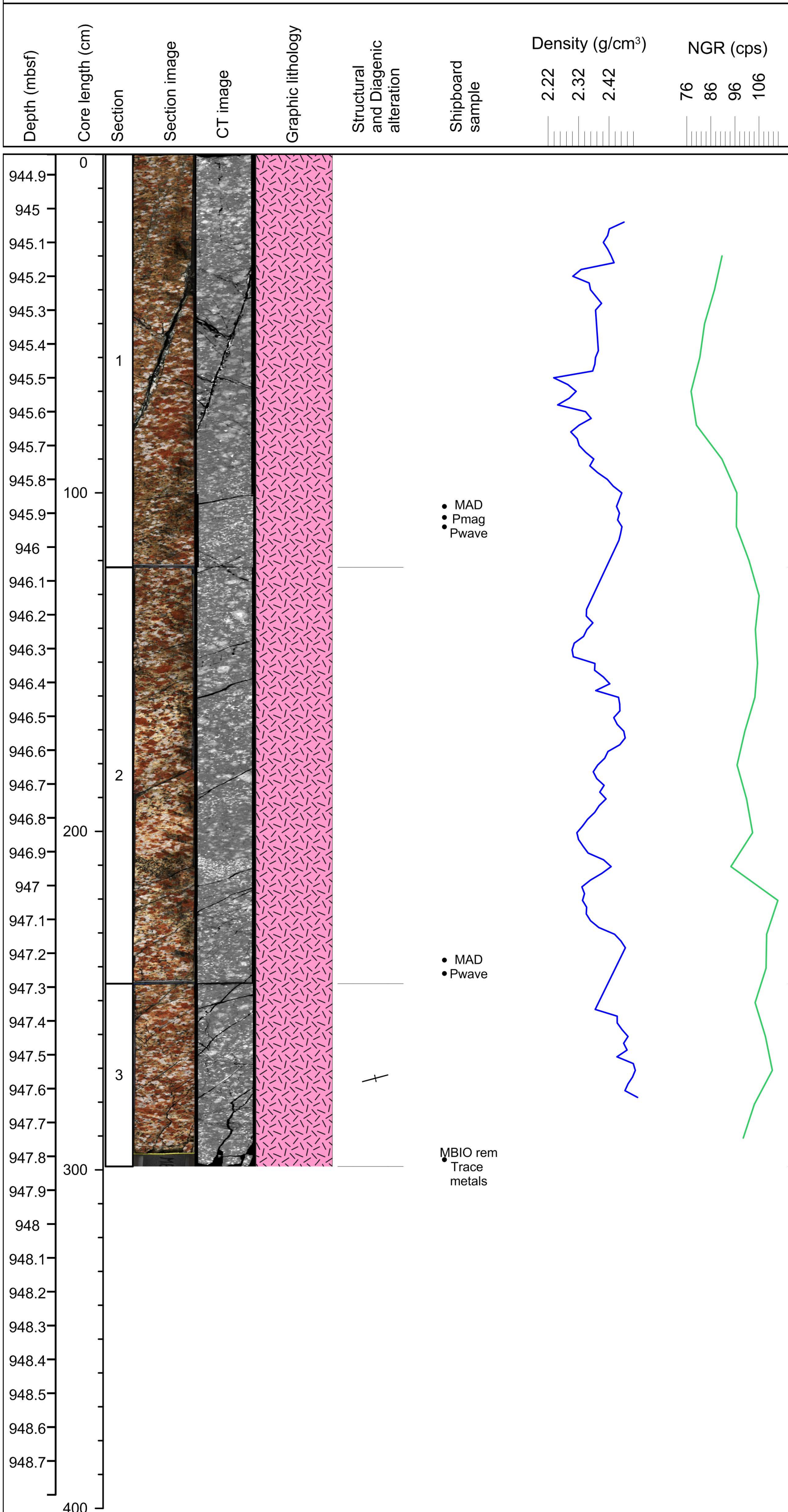
Description

Coarse granite with an aplite dike at 90 to 99 cm. Weakly deformed. Fault at 74 cm: S 230/58, L 90/55 (-) 2. Thin veins cut the section, but are too thin to identify any mineralization. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly fractured with cataclastic veins. Veins and any alteration are too thin to identify. Fault at 116 cm: S 178/42, L 082/10 (+) 3. Fault at 120 cm: S 256/68, L 204/58 (-) 4. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed with cataclasis. A dark vein at 20 cm might be psuedotachylite. A dark-colored, oscillatory-zoned crystal, 1 cm in size, occurs at 10 cm. Green mineralization is associated with biotite. A very tiny red phase occurs in the granite; it is too smalle to determine if it is primary (e.g., garnet) or an alteration phase. Fault at 34 cm: S 185/30, L 211/33 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 173R Cored 944.84-947.94 mbsf



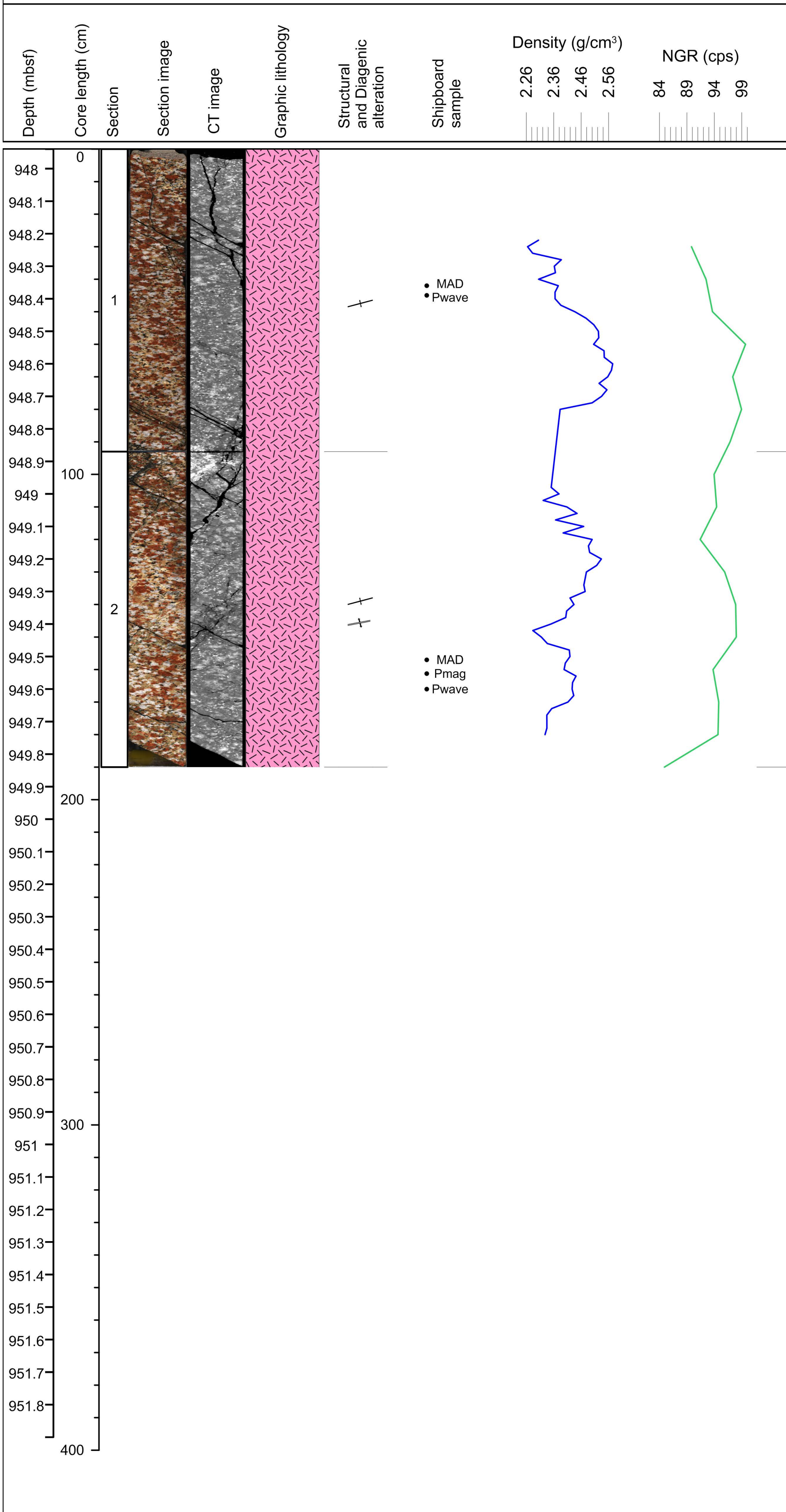
Description

Coarse granite, strongly deformed. A 1 cm-wide vein from 35 to 80 cm is composed of cataclastic material and psuedotachylitic melt. Green and light olive gray alteration. Fault at 103 cm: S 168/48, L 118/34. Color 7.5 YR 7.4. CT is dark gray.

Coarse (1.5 to 2.5 mm) granite, moderately deformed. The zone from 86 to 93 cm is enriched in biotite (~10%). Green and red mineralization, usually in association with biotite. Thin white veins also cut the section. Fault at 25 cm: S 142/52, L 214/08 (+) 1. Fault at 64 cm: S 324/62, L 038/06 (+) 1. Fault at 93 cm: S 142/58, L 214/70 (+) 2. Fault at 108 cm: S 325/48, L 026/08 (+) 2. Color is 7.5 YR 7.4. CT is dark gray.

Coarse grain granite, strongly fractured. Small specks (<1 mm) of green and red alteration in section. A thin (<1 mm wide) white vein also cuts the section. Fault at 6 cm: S 162/52, L 228/10 (+) 2. Fault at 27 cm: S 315/61, L 310/58 (+) 3. Color is 7.5 YR 7.4. CT is dark gray.

Hole M0077A Core 174R Cored 947.94-949.64 mbsf

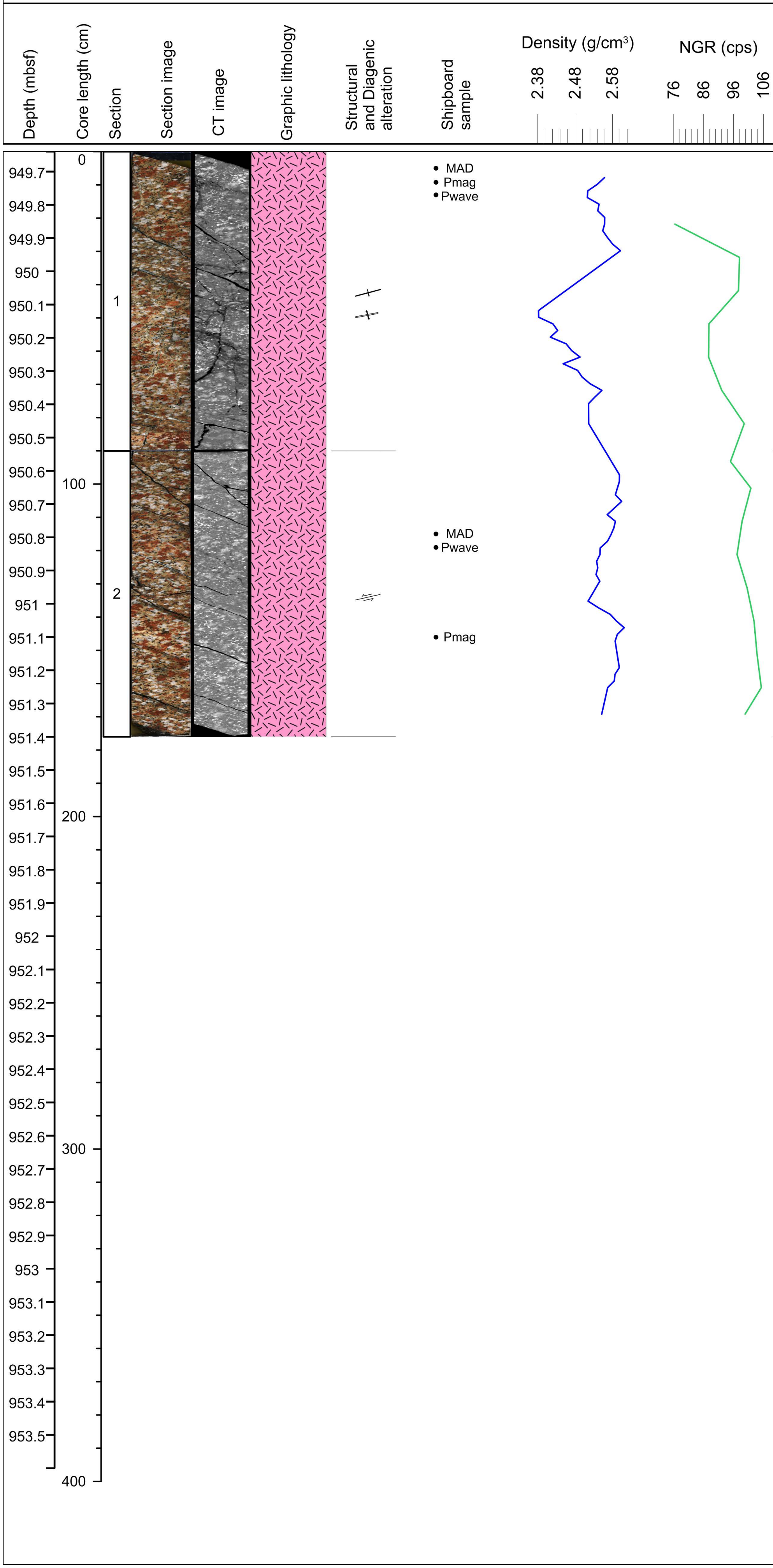


Description

Coarse granite, moderately deformed. Parallel fractures. Fault at 15 cm (two measurements): S 275/51, L 295/36 4 and S 036/74, L138/12 (+) 4. Minor green alteration associated with biotite. Color is 7.5 YR 7/4. CT is dark gray.

Coars (1 to 2.5 cm) granite, strongly deformed. The zone 0 to 10 cm is enriched with biotite (~10%). Fractures are filled by cataclastic material and a small portion of psuedotachylite at 20 cm and at 87 cm. An open fracture runs from 2 to 25 cm and appears to bear quartz. Fault at 56 cm: S 045/84, L 036/82 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 175R Cored 949.64-951.34 mbsf

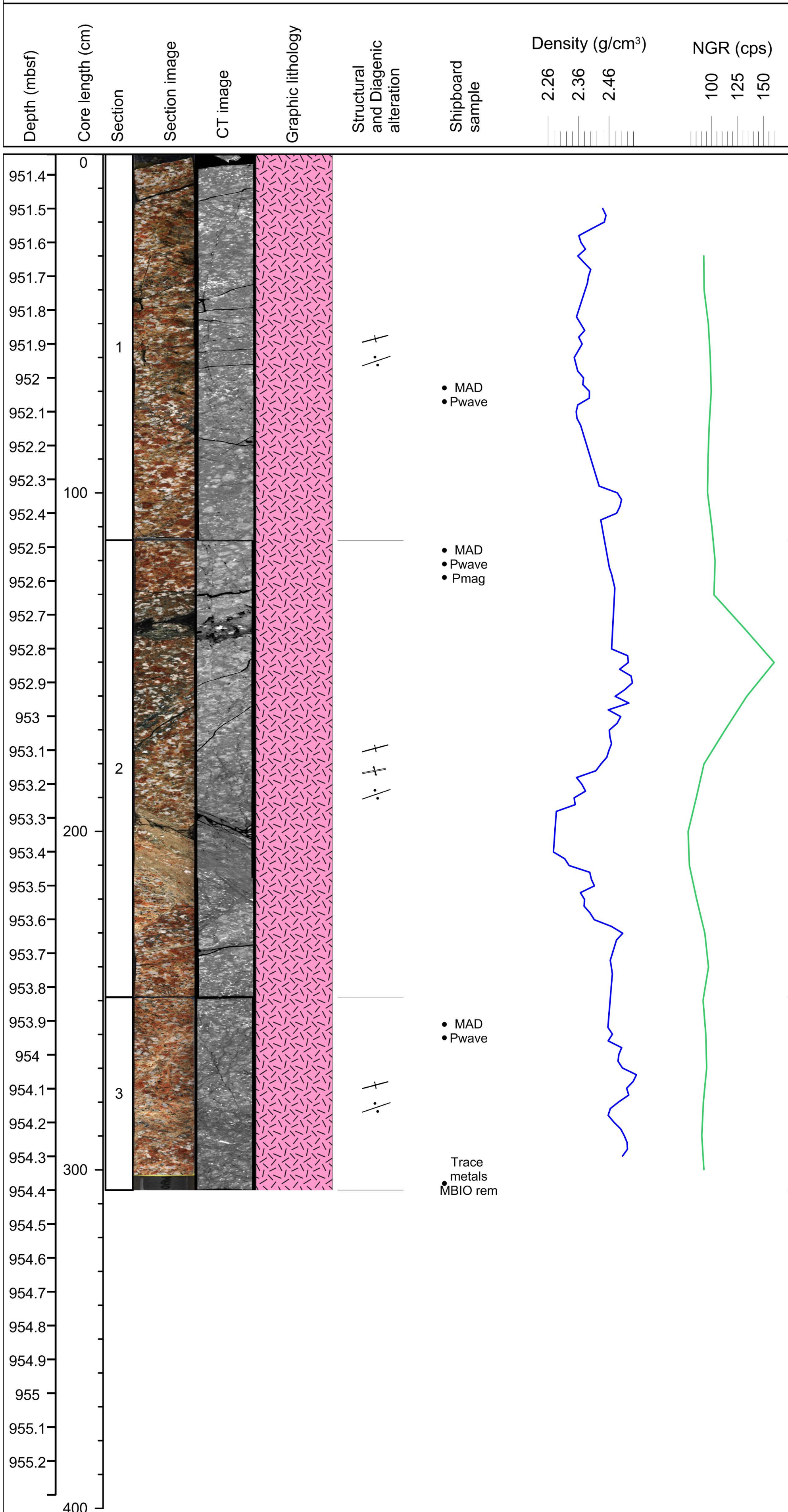


Description

Coarse granite, very strongly deformed. Parallel fractures filled with cataclastic material and minor psuedotachylite melt. Dark green and white veins cut the section. Fault at 28 cm: S 201/45, L 162/30 (+) 2. Fault at 87 cm: S 114/38, L 132/30 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, strongly deformed. A set of parallel faults, some filled with quartz and a dark-colored mineral. Dark green veins also cut the section. Fault at 21 cm: S 202/67, L 320/05 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 176R Cored 951.34-954.39 mbsf



Description

Coarse-grained granite with K-feldspars (3,5 cm), plagioclase (3 cm), quartz (2 cm), and biotite (<0,5 cm), locally concentrated in aggregates (up to 5 cm). Pervasively altered; Accessory minerals (unidentified / titanite?). Thin dark, planar, veins in the upper part of the section. Thin quartz (+ a dark mineral) veins, less than 2 mm in thickness in the lower part of the section.

@29 cm: S 160/45 L 147/40 (-1)

@45 cm: S 165/50 L 145/45 (-1)

@76-82 cm: Surface at shallow inclination to x-z plane.

All fractures here are related to high inclination fracture.

@76-100 cm: S 200/10 L 175/9 (-3)

@7-33 cm: Several other shear fractures parallel to open fractures at ~12 and ~29 cm.

@0-80 cm: Curviplanar shear fracture, partially open.

@63-90 cm: Conjugate shear fracture sets (<1 cm throw).

@98 and 110 cm: Two dilatationnal fractures with white fill with occasional mafics.

CT: Granite facies; Very few K-feldspar with zoning.

Granite

Coarse-grained granite with K-feldspar (3 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm) occurring only in lower part of the section. Unidentified accessory mineral (<0.5 cm) [dark grey]/possible altered biotite(?) pervasively fractured/cataclastic and altered

Dark grey/black to brown melt with partially digested granite, irregular contact (more altered, grey-greenish and porous at the lower contact)

0-22 cm: multiple discrete sets of shear fracture, ~cm spacing

15 cm: green filled open fracture is truncated by sealed fractures

22 cm: margin of next unit, sub-cm fractured zone of granite

22 cm and 28 cm: melt granite contacts have ~1 cm of dextral displacement by sub-vertical shear fault, fracture does not go through melt unit. Chilled margin is not truncated by fracture.

28-45 cm: dense fracture network with some shear faulting

45-63 cm: fracture network includes diffuse black/grey fill

58-80 cm: less dense fracture network mostly sub-vertical shear faults

80-106 cm: large cataclasite zone yellow-brown, with cm-sized sub rounded clasts

97 cm: sinistral shear fault. Sub horizontal

97-107 cm: cataclasite grades into pervasive shear zone

106-116 and 119-121 cm: 2-3 mm thick cataclasites

108-125 cm: dark green fill shear fracture network

CT: granite facies – melt is dark grey and low density, cataclasite zone is slightly lower density

Granite

Coarse-grained granite. K-feldspar (<2.5 cm), plagioclase (<2 cm), quartz (<2 cm), biotite (<0.5 cm), pervasively fractured and cataclastic (network)

No biotite below 35 cm.

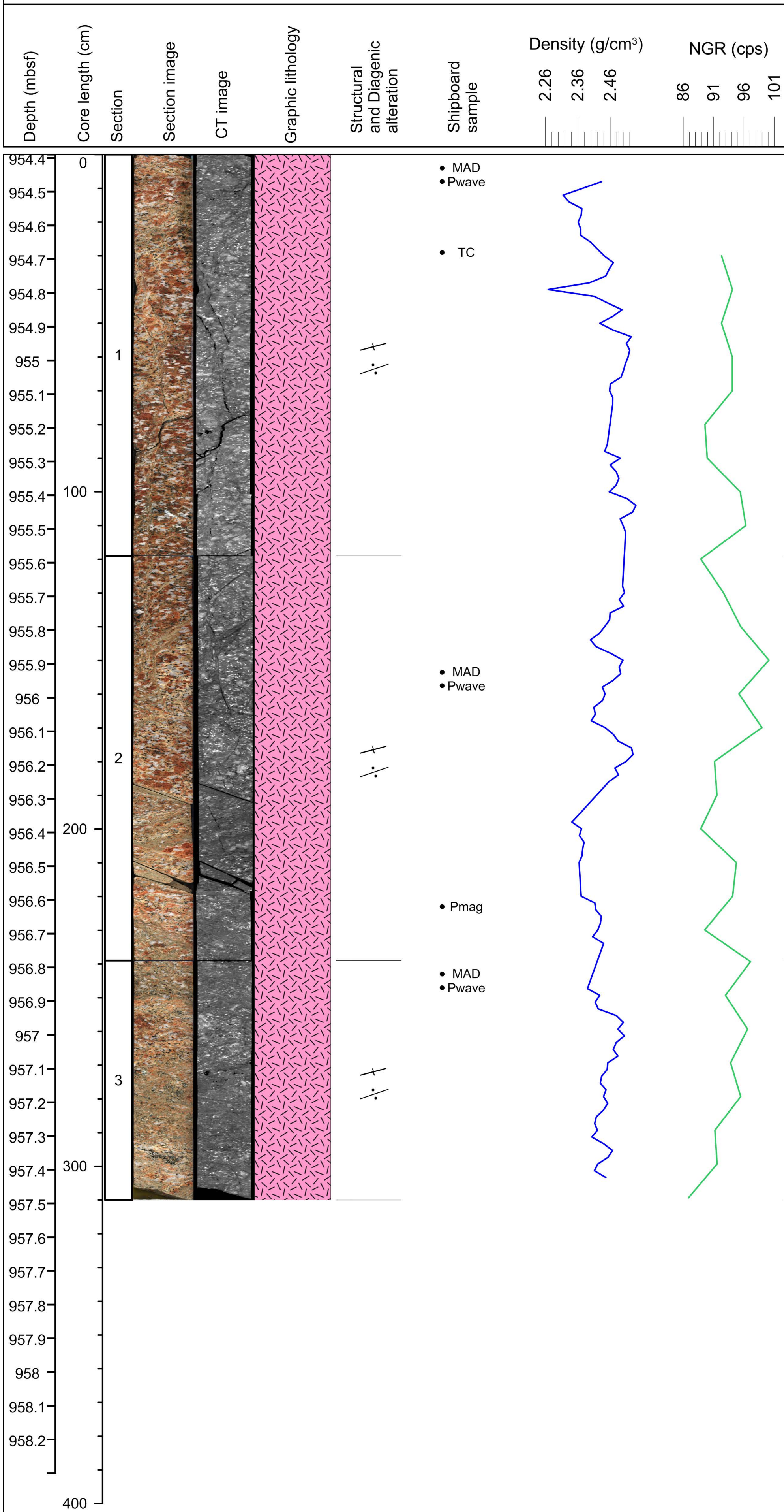
@37-40 cm, deformed alteration vein, white greenish to grey (/purple)

0-53 cm: multiple discrete sets of cataclastic shear faults cross-cutting up to 5 mm thick

30-42 cm: more intense shearing deformation

CT: granite facies – intensely sheared zone is darker

Hole M0077A Core 177R Cored 954.39-957.44 mbsf



Description

Section 1

Granite

Coarse-grained granite, K-feldspar (3 cm), plagioclase (2 cm), quartz (2.5 cm), and biotite (chlorite) (<0.5 cm)

Dense network of veins, dominated by white (quartz) filling; pervasively fractured.

A few dark veins (<1 mm in thickness) in the lower part of section. Generally more deformed in upper part than in lower part.

Numerous zones of pervasive shearing and thin cataclasites

Some shear zones are truncated and displaced by cataclasites e.g., 75-94 cm, low orientation shear fracture displaced three times by sub-vertical sinistral shear fractures with throw up to 7 cm

CT: granite facies: low density shear fractures occasionally with porosity

Section 2

Granite

Coarse-grained granite, K-feldspar (3.5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm), locally in aggregates. Pervasively fractured and strongly deformed (wavy) in the lower half section (almost monomict breccia).

68-72 cm: catacalsite fill S215/68 L132/5 – (3)

90-94 cm: cataclasite fill S215/85 L132/5 – (2)

94-99 cm: cataclasite fill S215/85 L132/5 – (2)

0-50 cm: localised zones of pervasive shear (up to 2 cm thick). Sub vertical cataclasite truncates sub-horizontal cataclasites

69, 85, 93, 111: 4 parallel cataclastic shear zones, up to 3 cm thick. These cataclasites displace shear fabrics in intervening granite.

Early shear fabric consists of:

1) Primary cataclasite formation

2) Near-perpendicular shear fractures causing crenulation c cataclasites

3) Discrete cataclasite formation which cross-cuts pre-existi

CT: granite facies: lack of white minerals in deformed zones

Section 3

Granite

Strongly deformed coarse-grained granite (same as in previous section), K-feldspar (~2.5 cm), plagioclase (2 cm), quartz (1.5/2 cm), and biotite (<0.5 cm) locally concentrated

0-18 cm: pervasively sheared fabric

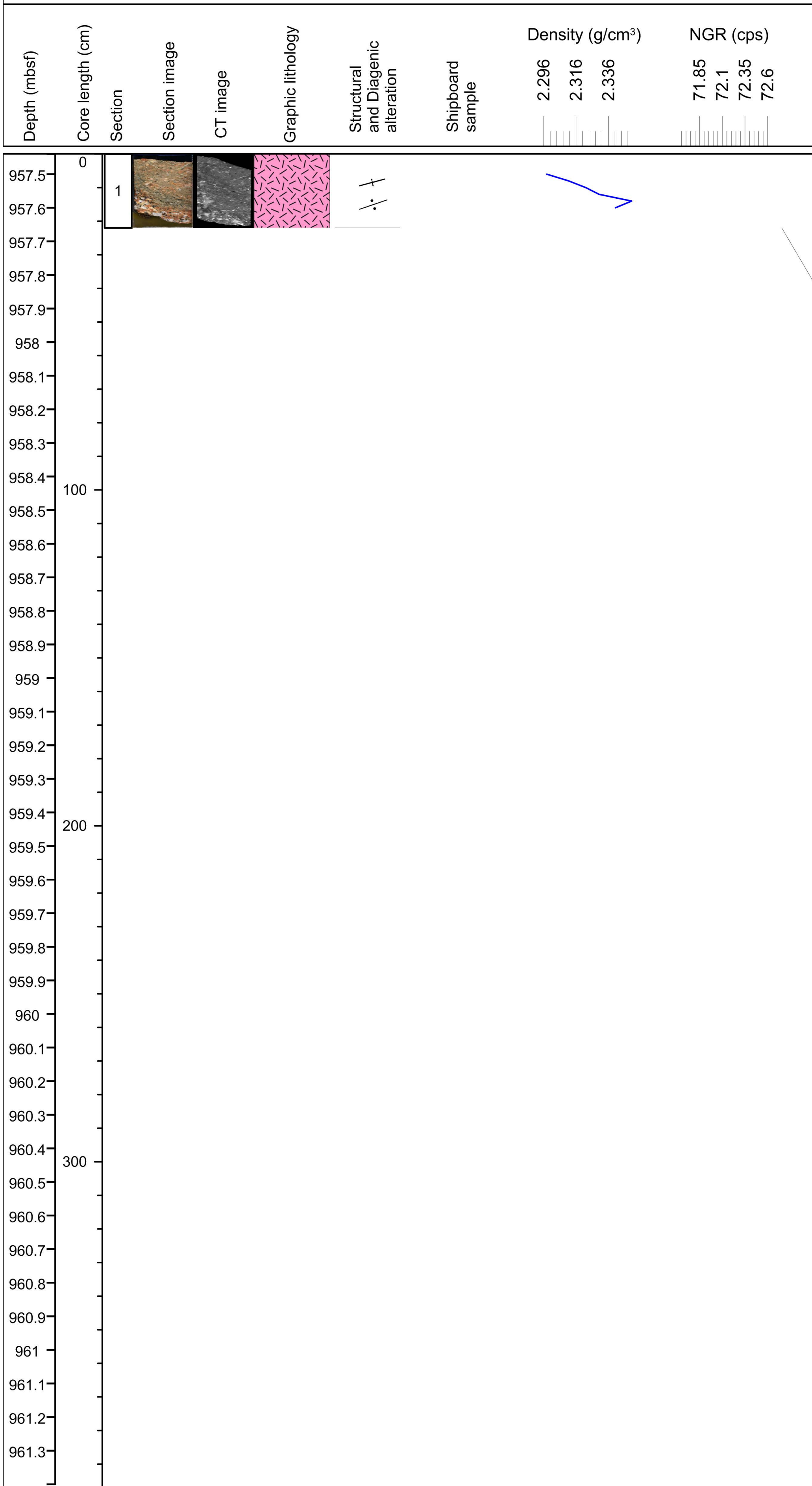
18-24 cm: localized shear fractures

24-72 cm: pervasively sheared fabric

43 cm: discrete cataclasite (4 mm thickness)

CT: granite facies – pervasively sheared zones lack high CT (white) minerals

Hole M0077A Core 178R Cored 957.44-957.69 mbsf



Description

Coarse-grained granite

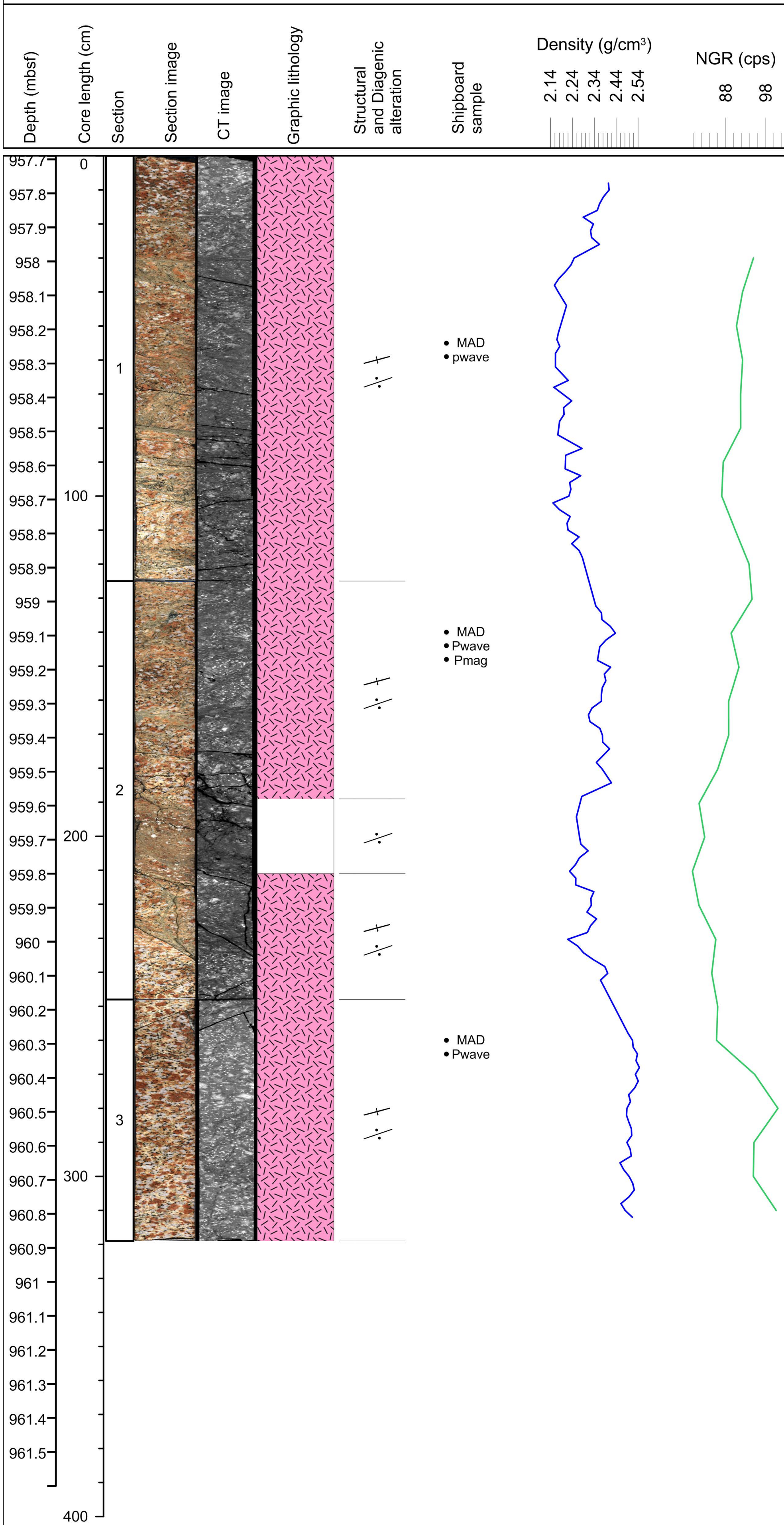
K-feldspar (<2 cm), plagioclase (<1.5 cm), quartz (<1.5 cm), biotite (<0.5 cm). Strongly deformed as previous. [lower 4-5 cm not so deformed]

0-14 cm: pervasive shear fabric/cataclastic deformation

14-20 cm: discrete shear deformation in fractures, ~1 cm spacing

CT: granite facies without high CT (white) minerals

Hole M0077A Core 179R Cored 957.69-960.74 mbsf



Description

Granite

Deformed coarse-grained granite, K-feldspar (3 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm)

[From 0-18 cm; not so much deformed]

Thin quartz vein at the top (1 mm).

Pervasively fractured; locally ~monomict brecciated

36-39 cm: S200/60 L135/18 – (1)

79-80 cm: S200/58 L125/35 – (2)

120-122 cm: S170/40 L125/33 – (3)

18-124 cm: zones of pervasive shear fabric with cataclastic deformation cross-cut by: numerous discrete cataclasites. Some over 1 cm (31 cm and 81 cm)

Granite

Strongly deformed coarse-grained granite (as previous section), with K-feldspar (up to 2 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm)

0-52 cm: zones of pervasive shear fabric with cataclastic deformation

52-64 cm: discrete shear fractures with sub-mm thickness

CT: granite facies

Granitoid monomict breccia

Cataclasite – monomict breccia (clasts up to 1 cm)

64-81 cm: pervasive cataclasis without shear fabric – monomict breccia

81-110 cm: zones of pervasive shear fabric with cataclastic deformation

CT: low CT number and low density

Granite

Less deformed to undeformed granite

K-feldspar (1.5 cm), plagioclase (1 cm), quartz (1.5 cm), and biotite (<0.5 cm)

88-112 cm: S265/30 L290/25 + (3)

116-122 cm: S135/85 L65/60 – (3)

110-123 cm: discrete shear fractures with sub-mm thickness

CT: granite facies

Coarse-grained granite with K-feldspar (<3.5 cm), plagioclase (<2 cm), quartz (<1.5 cm), biotite (<0.5 cm) homogeneously distributed.

Coarser grained in the upper 30 cm.

Not deformed!

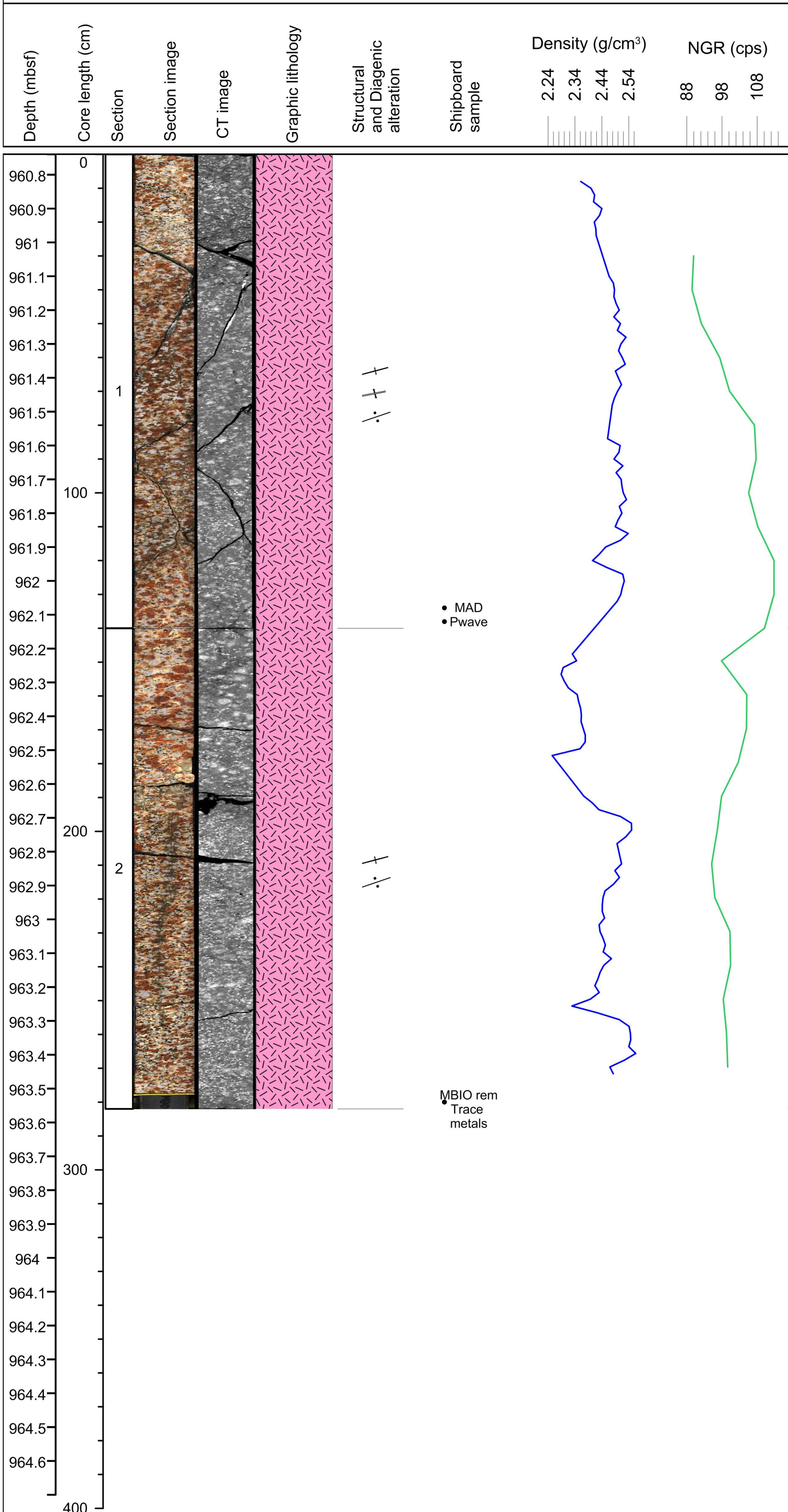
Locally a few veins – shear fractures

2-9 cm: S330/70 L330/70 + (2)

0-8, 32-45, 46-70 cm: curviplanar shear fractures, some anastomosing up to 2 mm thick, white fill

CT: typical granite facies

Hole M0077A Core 180R Cored 960.74-963.54 mbsf



Description

Coarse-grained granite, finer-grained from 0-30 cm, K-feldspar (2 cm), plagioclase (1.5 cm), quartz (2 cm), and biotite (<0.5 cm), more or less homogeneously distributed. Cross-cut by some fractures.

26-30 cm: S320/43 L320/43 + (2)

26-32 cm: S230/60 L160/32 – (2)

90-110 cm: S255/65 L185/25 +(1)

17-26 cm: anastomosing, curviplanar shear fabrics, proto-shear fabric

36-68 cm: green filled fracture containing some calcite and quartz

36-140 cm: sub vertical shear fractures

CT: Granite facies

Granite

From 0-43 cm: coarse grained granite, K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm).

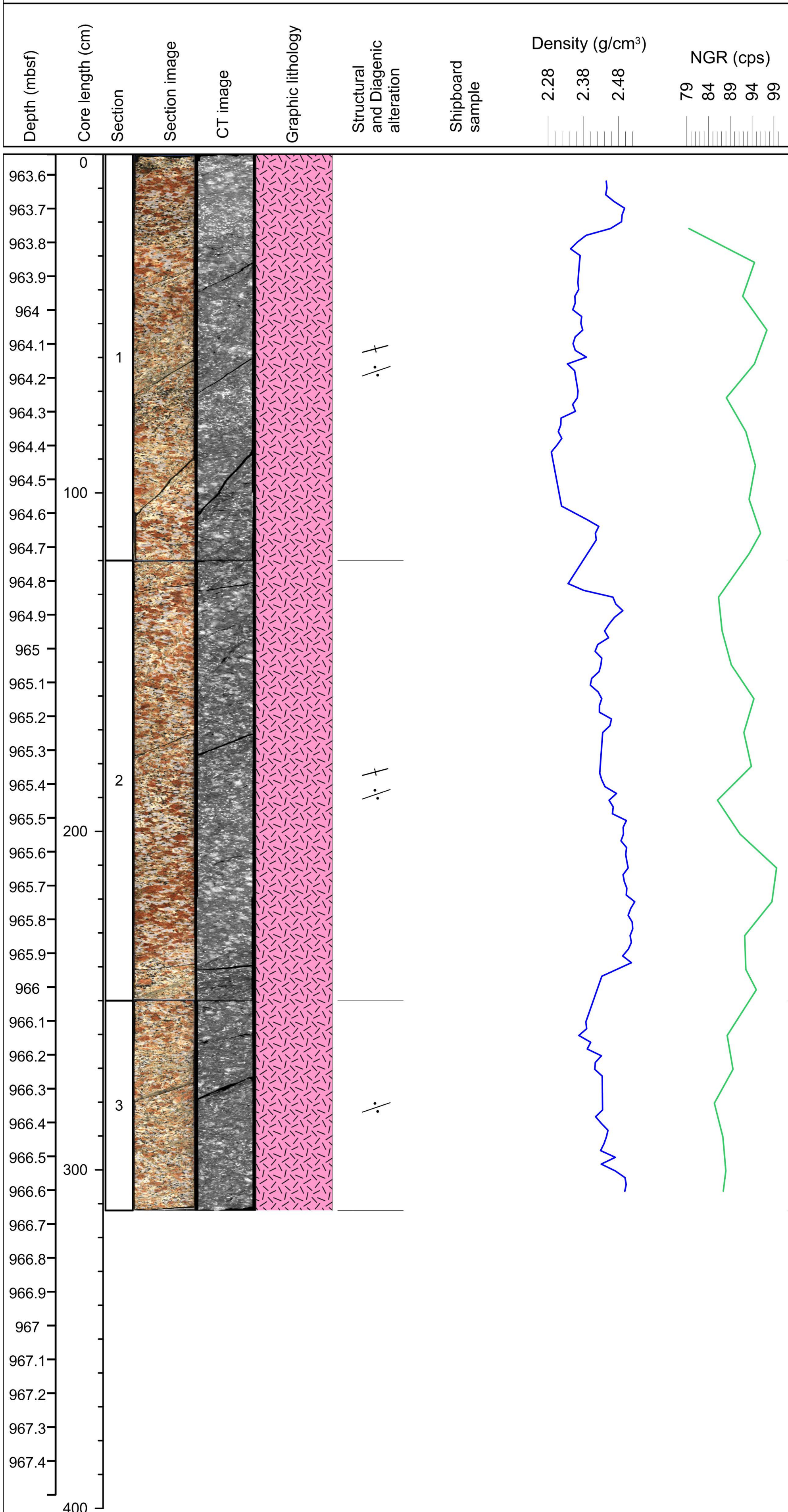
From 43 cm to end of core: coarse-grained granite (but finer grained that on top), K-feldspar (2.5 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm), more abundant than in upper part

40-46 cm: S345/5 L55/1 – (3)

45-115 cm: sub-vertical green vein cross-cut and displaced by multiple, low orientation, dextral shear fractures (<1 mm)

CT: granite facies

Hole M0077A Core 181R Cored 963.54-966.59 mbsf



Description

Coarse-grained granite; succession of sectors with finer-grain size and more abundant biotite alternating with sectors coarser-grained and biotite poor.

K-feldspar up to 2.5 cm, plagioclase (1.5 cm), quartz (2 cm), and biotite (<0.5 cm)

35-41 cm: S140/55 L50/15 +(2)

60-70 cm: S135/65- L40/20 +(2)

40-116: S115/55 L30/25 +(1)

0-5 cm, 20-27 cm: discrete shear fracture zones

50-70 cm: shear fabric zone with cataclasite

Upper and lower “contacts” grade into relatively undeformed granite

CT: granite facies

Granite

Coarse-grained granite, K-feldspar (3 cm), plagioclase (1.5 cm), quartz (2 cm), and biotite (<0.5 cm). [biotite rimming quartz; but in general homogeneously distributed]

0-41 cm: two anastomosing shear fractures. Sub-parallel

114-120 cm: anastomosing shear fracture displacing different granites against each other

124-130 cm: cataclasite, ~1 cm thick

CT: granite facies

Granite

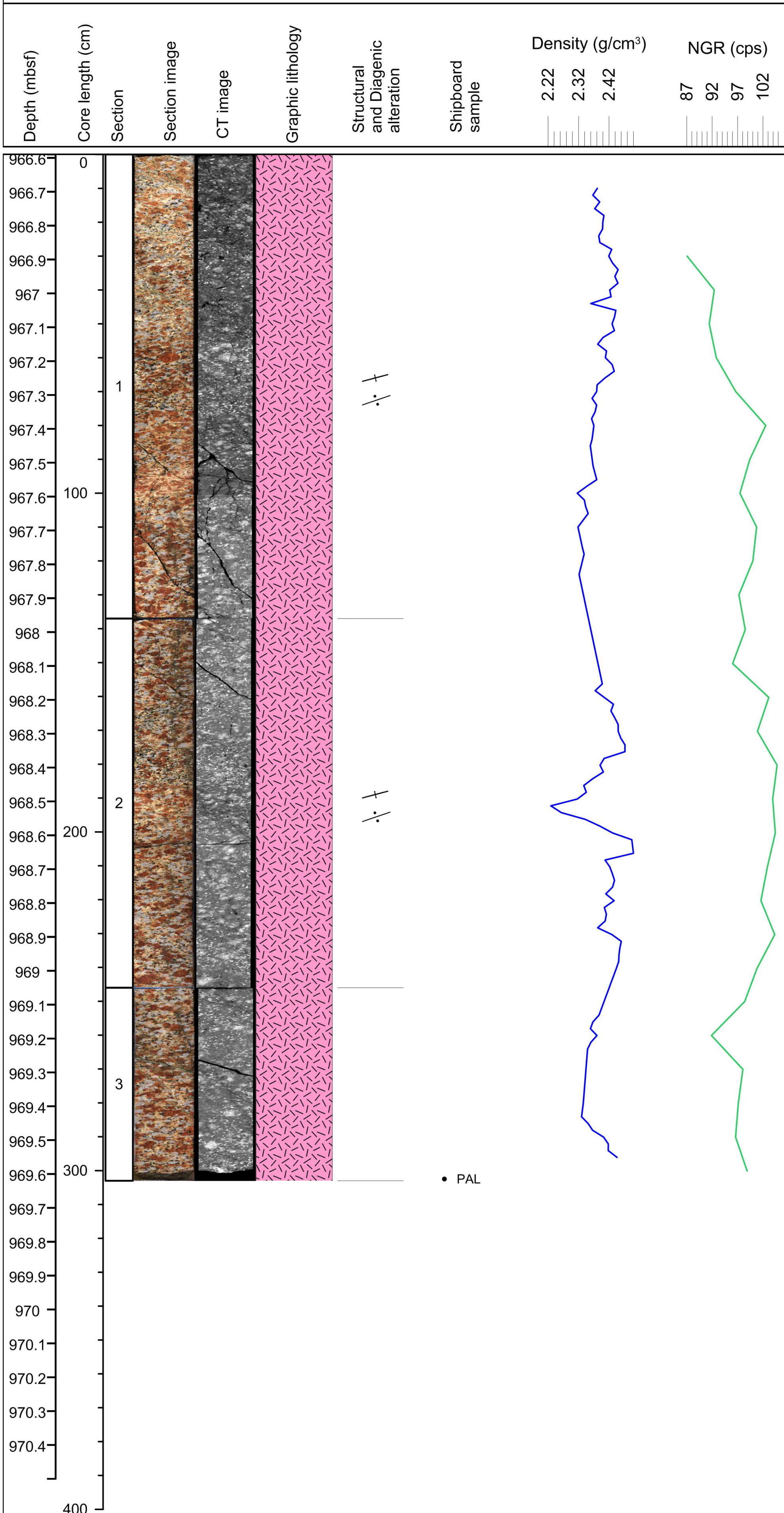
Deformed (strongly) coarse-grained granite, with K-feldspar (2.5 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm)

13-60 cm: proto-shear fabric

27 and 43 cm: two cataclasites, ~1 mm thick, cross-cutting the proto-shear fabric

CT: granite fabric

Hole M0077A Core 182R Cored 966.59-969.64 mbsf



Description

Granite

Coarse-grained granite, deformed from 0-52 cm, with K-feldspar (2 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm). Less deformed coarse-granite in lower part, with aplitic zone (from 92-100 cm), with K-feldspar (3 cm), plagioclase (1.5 cm), quartz (2 cm), and biotite (<0.5 cm).

0-53 cm: localised zones of shear up to 3 cm thick

53-137 cm: randomly oriented shear fractures sub-mm thickness

94-95 cm: S15/65 L80/35 + (4)

CT: granite facies

0-109cm - shear fractures, sub-mm wide, cm-10cnm spacing, pccasionally in conjugate sets, all orientations.

0-38cm, 74-109cm - vertical shear fracture with black fill displaced by shear fractures.

Coarse-grained granite with zones poor in biotite and somewhat coarser-grained. K-feld (4cm), plag (2.5cm), qtz (1.5cm), and biotite (<0.5cm).

Thin (<1mm) greenish vein, vertically oriented, from 0 to 38cm and from 77 to 101cm.

CT: Granite Facies

20-30cm: - S 65/15 L 65/15 - (2)

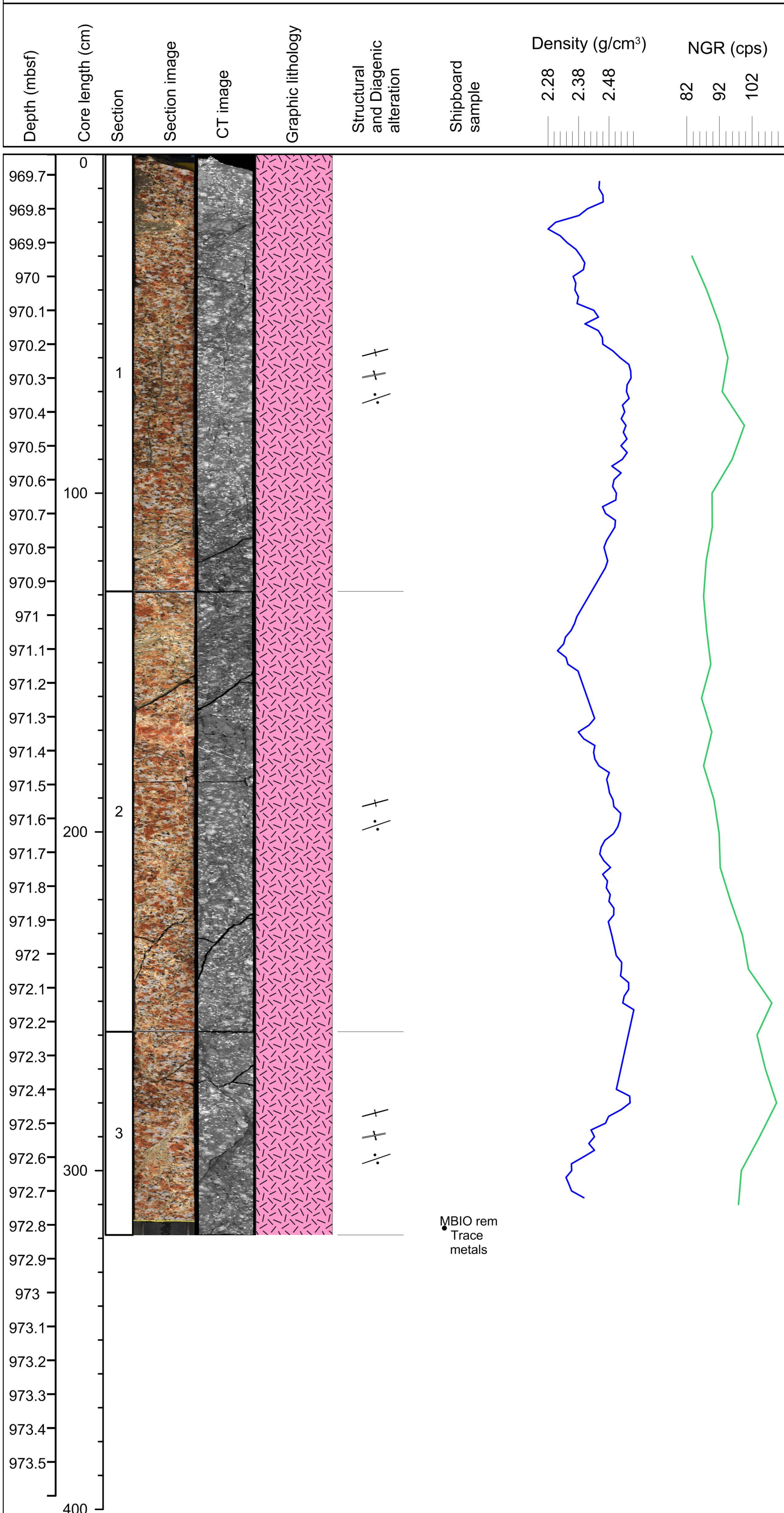
0-23cm: - Black/Dark Green vein (<1mm thick)

25-40cm: - anastomosing cataclasite up to 8mm thick.

Coarse-grained granite, undeformed, with K-feld (up to 3cm), plag (2.5cm), Qtz (2cm), and biotite (<0.5cm), homogeneously distributed.

CT: Granite Facies

Hole M0077A Core 183R Cored 969.64-972.69 mbsf



Description

24-129cm - Sub-vertical dark gret and unfilled shar fractures

18-24cm - two anastamosing shear faults cross-cutting the dacite enclave. <5mm thickness.

115-120cm - anastamosing shear fault, <5mm thickness.

Coarse-grained granite, K-feld (up to 3cm), Plag (up to 2cm), Qtz (2cm), and biotite (<0.5cm).

@5-23cm - Dacite, plag (up to 1 cm), Qtz (up to 0.5cm).

@ 55-93cm - Greyish vein (2mm) vertically oriented.

CT: Granite facies, low D subvertical veins, dacite facies in part of core from 4-24cm.

5-18cm - Shear fabric and cataclasites crenulated by shear faults.

18-130cm - Sub-vertical anastamosing shar faults, cm-spacing with white fill and occasional cataclasites.

45-50cm - Black vein truncated by shear faults Roughly 2mm thick.

Coarse-grained granite, highly deformed in the upper part.

@ 37-45cm Section with no biotite, somewhat less deformed but with dense network of fractures in the lower part. K-feld (3cm), plag (2cm), Qtz (2cm), and bioite (<0.5cm)

CT: Granite facies, except for coarse grained zone without high CT minerals, black vein has high CT.

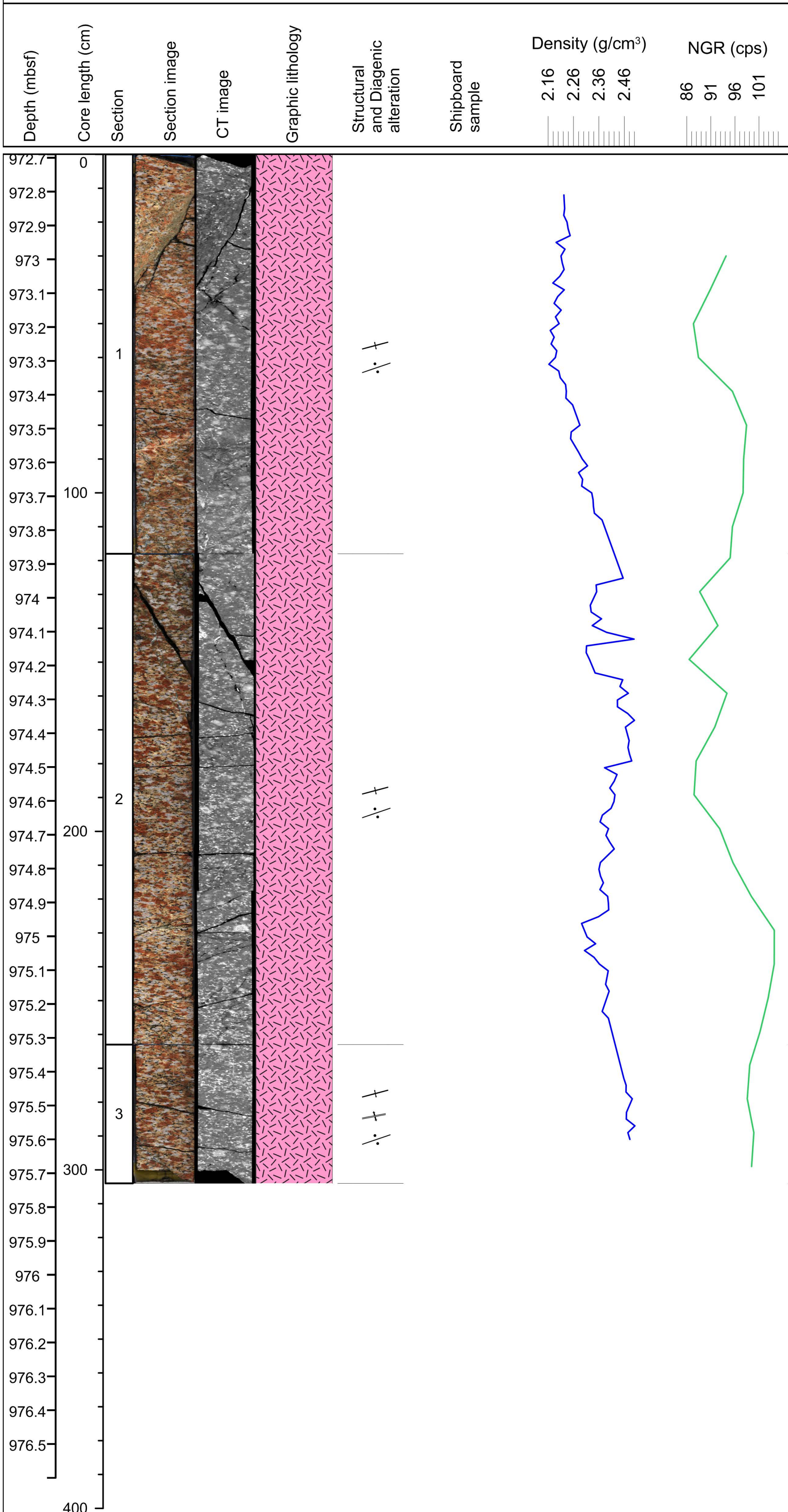
13-28cm: S 240/50 L290/45 - (3) Cataclastic shear zone <1cm thick.

25-56cm - Secondary cataclasits offshot from main shear zone, and very thin unfilled shar fractures.

Coarse grained granite with netwrk of cataclasites, K-feld (up to 4cm), Plag (2.5cm), Qtz (2cm), and biotite (<0.5cm); Thin grey veins cut by cataclasite.

CT: Granite facies, low D cataclasite

Hole M0077A Core 184R Cored 972.69-975.74 mbsf



Description

0-38cm - 8cm thick shear zone grades into 1.5cm thick cataclasite against fracture.

80-118cm - Localised shear fractures, sub-mm thick, white fill, displacing black and grey sub-mm veins.

Strongly deformed coarse granite from 0-38cm; slightly deformed in the lower part, with K-feld (3.5 cm), Plag (2cm), Qtz (2cm), Biotite (0.5cm), heterogeneously distributed.

CT: Granite facies - low D cataclasite and shear bands.

9-34cm - S 70/85 L 154/35 - (2)

0-60cm - Sub-vertical shear fractures, white and light grey fill. Up to 2mm thick. Some calcite in fill.

60-144cm - Localised shear fractures, white black and occasional sub mm cataclasites.

Coarse-grained granite with K-feld (2.5cm), plag (2cm), qtz (2cm) and biotite (0.5cm), locally concentrated in aggregates.

CT: Granite facies - low D on veins and fractures.

30cm - S 15/65 L 315/45 + (2)

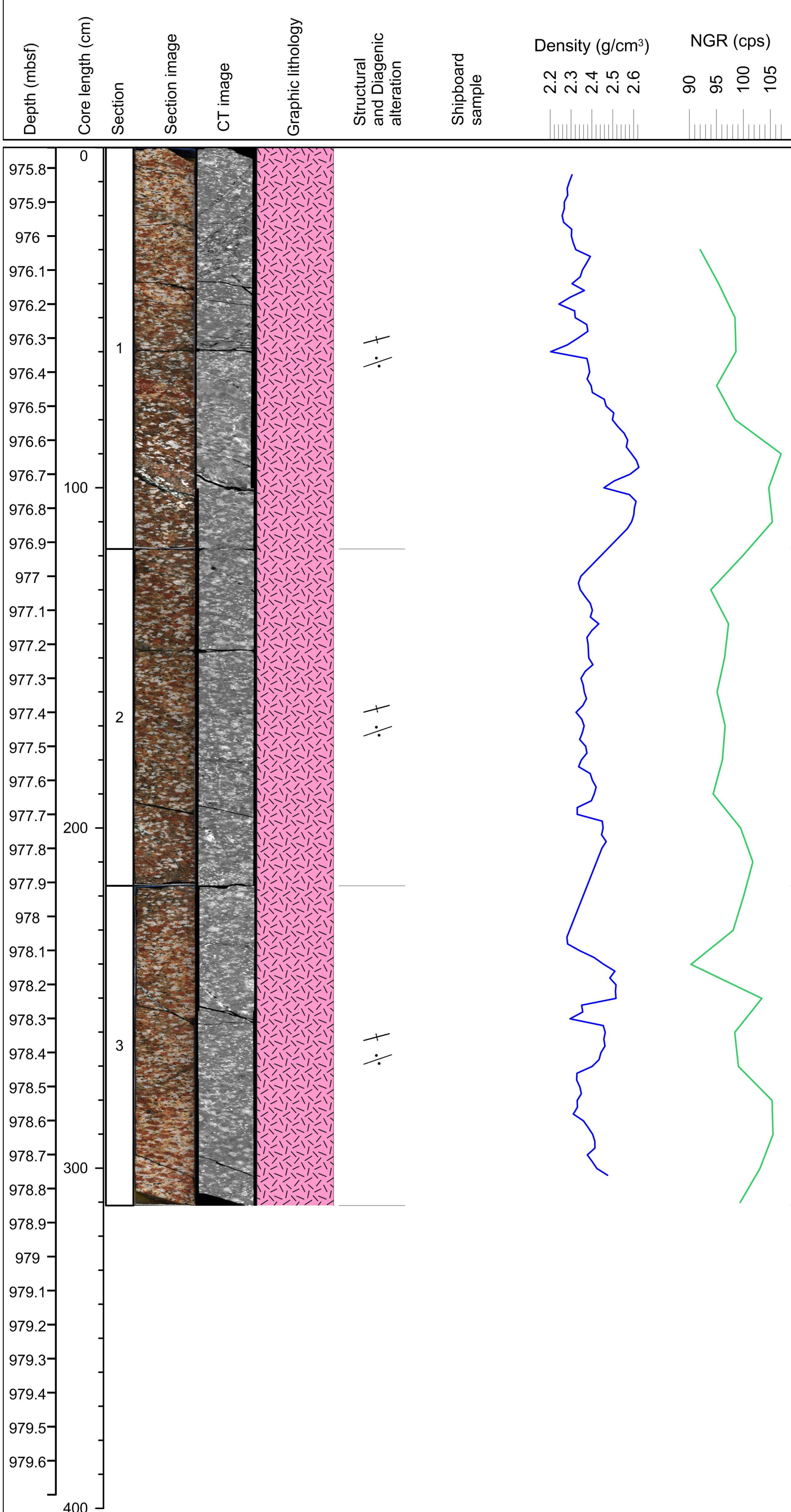
0-10cm - Sb-vertical, white-fill, sub-mm thickness shear fractures.

30-40cm - Black-filled shear fracture.

Coarse-grained granite, K-feld (3cm), plag (3cm), qtz (2cm), and biotite (<0.5cm), locally aggregated/concentrated. A few reddish brown flakes (alteration), titanite and other accesory minearls (up to 6mm).

CT: Granite facies.

Hole M0077A Core 185R Cored 975.74-978.79 mbsf



Description

96-102cm - S 195/43 L195/43 + (4)

0-118cm - widely spaced (cm-dm), white, green, and black, shear fractures

60-109cm - pervasive green and white veining

Coarse-grained granite, K-feld (3cm), plag (2.5cm), qtz (2cm) and biotite (<0.5cm).

Below 50 cm, granite is pervasively altered (grey-greenish colours) with network of thin veins from white to grey.

@ 68-74cm - Graphic texture in K-feld

@ 92-103cm - Also more or less graphic texture

66-96cm - preferential alteration

CT: Granite facies with lots of low D fractures.

Pervasive veining wiht dark green/ black infill, occasionally cross-cut by shear fractures at 25cm, 47cm, 62cm, and 67cm.

Coarse-grained granite, K-feld (3cm), plag (2cm), Qtz (2cm), and biotite (<0.5cm). Locally concentrated (below 94cm depth).

Different sets of veins, thin black to greenish and white fill. Plag is beige in colour [2.5Y 6/3] (yellowish brown).

CT: Granite facies.

Granite

Coarse-grained granite (in upper part plagioclase are darker (brownish-light) than in lower part of section.

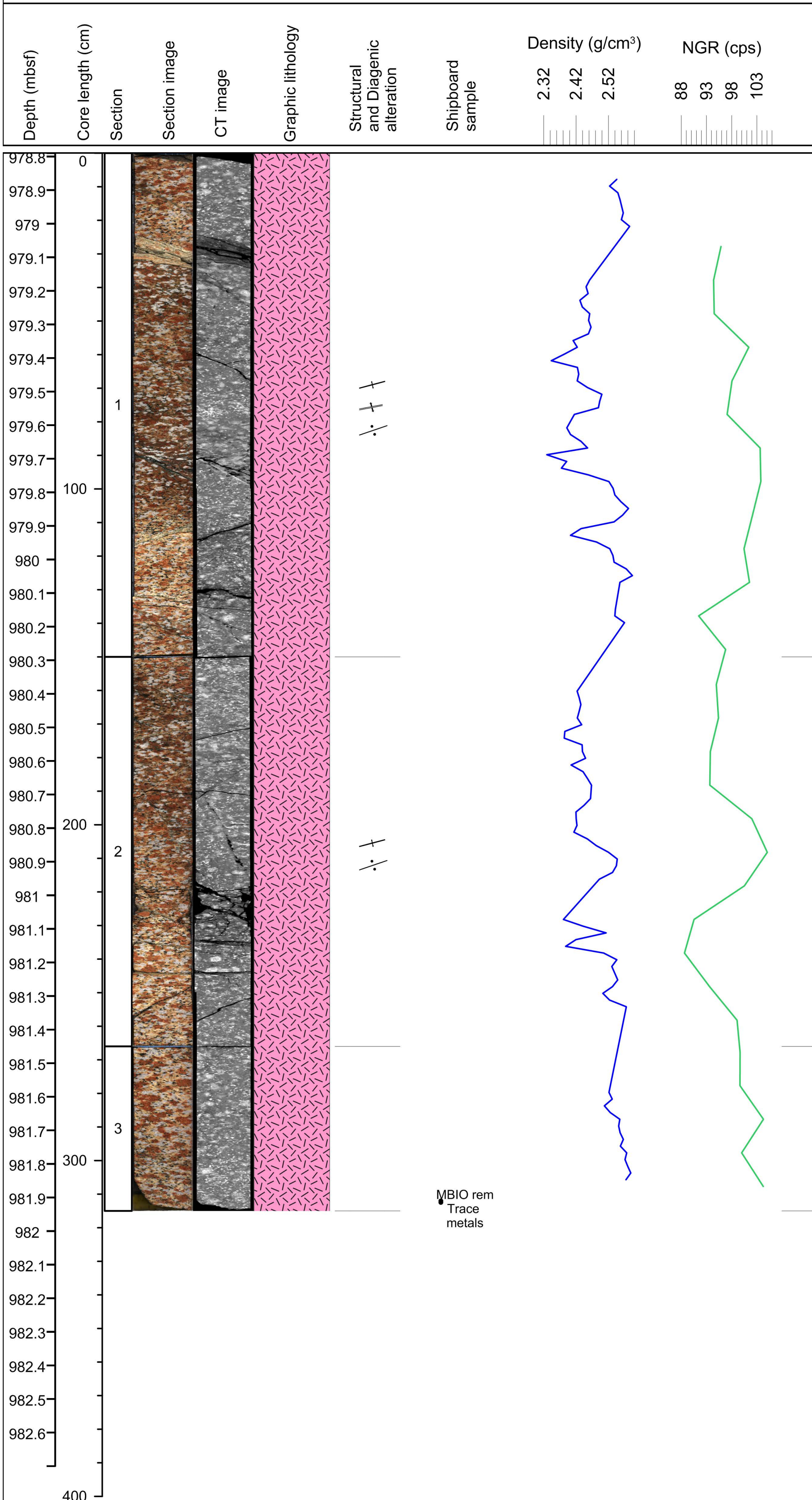
K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (0.5 cm)

A few titanite and reddish “flakes” of alteration (<4 mm)

Veins at 0-5 cm, 8-37 cm and 52-61 cm: grey, green and white fill. Veins fizz with acid. 8-10 cm: white fill, sub mm thickness shear fracture

CT: granite facies

Hole M0077A Core 186R Cored 978.79-981.84 mbsf



Description

Granite

Coarse-grained granite, K-feldspar (2.5 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm), approximately homogeneously distributed

26-32 cm: S200/40 L260/25 – (4)

60-66 cm: S215/35 L60/30 + (2)

113-117 cm: S165/25 L175/20 – (3)

135-150 cm: S180/10 L180/10 + (3)

0-26 cm: occasional shear fractures (<mm, white) displacing a dark green vein mm thick, dextral sense,

26-35 cm: moderately inclined shear fabric zone with abundant cataclasite

35-94 cm: several steeply inclined to subvertical dark green veins

90-98 cm: vein of dark-green, pale green and white material (4 mm)

113-150 cm: white-filled sub mm shear fractures

CT: low density shear zone, granite facies

Granite

Coarse-grained granite, K-feldspar (2.5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm). Network of thin veins from 0-55 cm; lower part is lighter in color (less altered)

8-13 cm: anastomosing shear fracture

23 cm: S170/65 L185/50 + (2)

32-42 cm: white shear fracture with cataclasis

42-67 cm: white and green shear fracture network (containing calcite)

54 cm: <1 cm wide cataclasite (greyish yellowish)

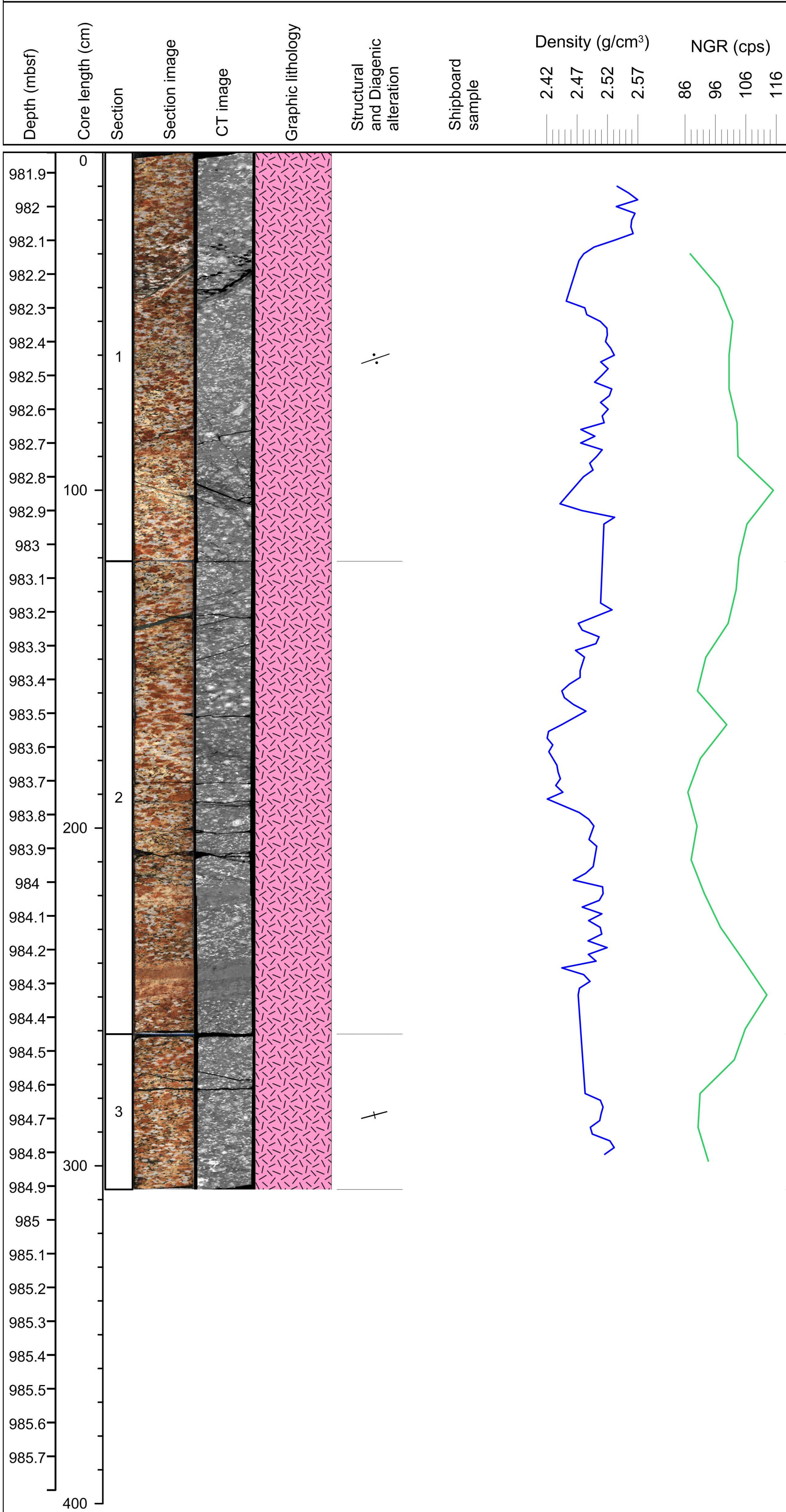
CT: granite facies

Granite

Undamaged granite, coarse grained, K-feldspar (2.5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm) [locally in aggregates (~ 1 cm)]

CT: Granite facies (nice zoning in K-feldspar)

Hole M0077A Core 187R Cored 981.84-984.89 mbsf



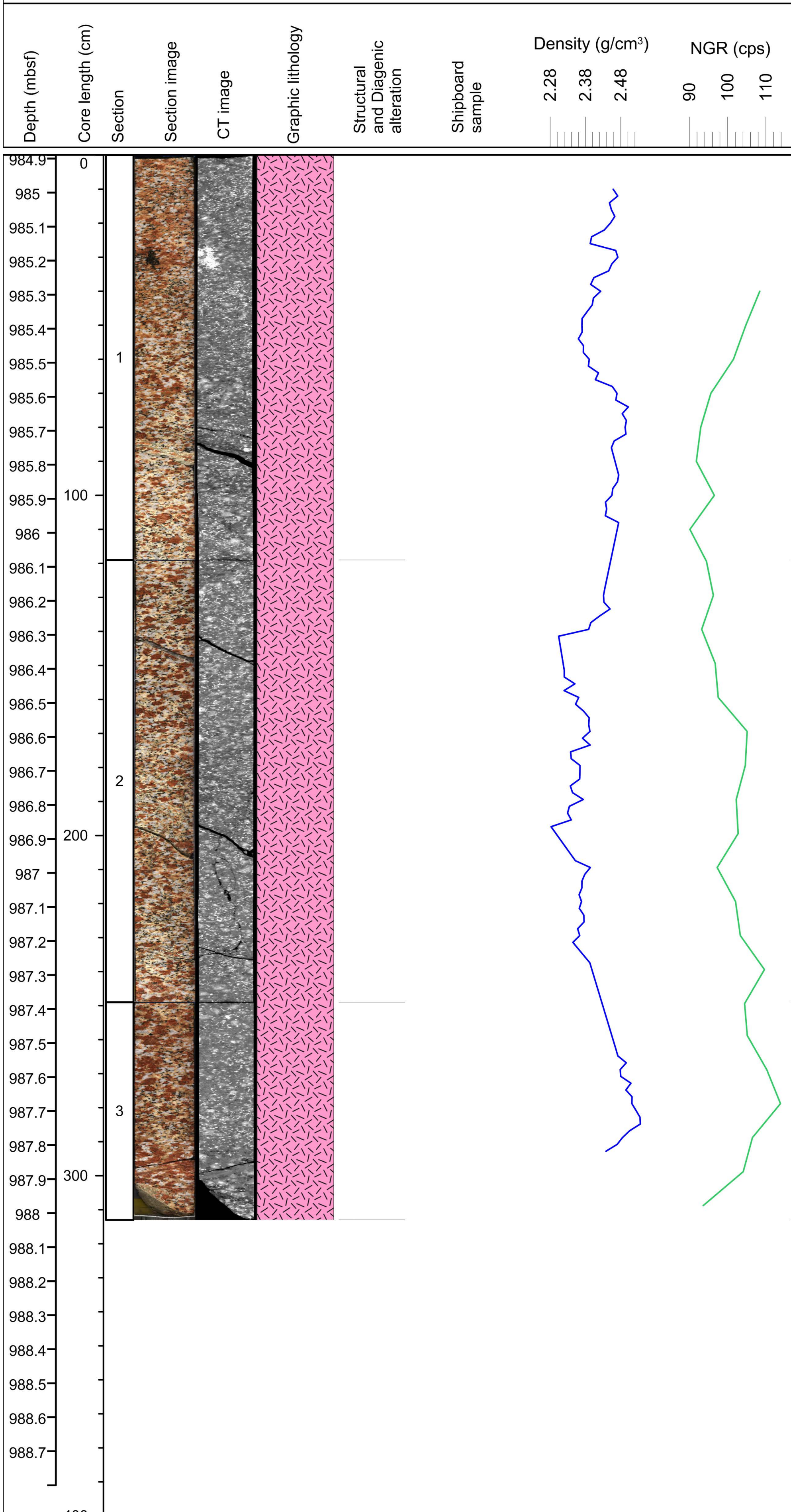
Description

Coarse (1 to 2.5 cm) granite, strongly deformed. Ductile deformation (shearing?) from 100 to 107 cm. Hairline fratures or veins occur throughout and are too thin to identify any mineralization. Fault at 33 to 34 cm is filled with cataclastic material. Fault at 38 cm: S 302/42, L 345/39 (-) 3. Fault at 82 cm: S 325/58, L 068,03 (+) . Fault at 99 cm: S 032/54, L 099/19 (+) 2. Color is 7.5 YR 7/4 6/3. CT is dark gray.

Coarse (1 to 2.5 cm) granite, moderately deformed. The zone from 80 to 96 cm is enriched in biotite (~5%). A pegmatite occurs between 96 and 102 cm. An aplite occurs between 118 and 128 cm. A 1 cm-thick zone of cataclasis occurs between 15 and 16 cm. Thin veins with white and black minerals. Fault at 26 cm: S 340/86, L 056/23 (-) 1. Fault at 45 cm: S 355/85, L 076/12 (-) 1. Fault at 65 cm: S 178/82, L 094/21 (-) 1. Fault at 80 cm: S 350/48, L 066/24 (-) 1. Fault at 87 cm: S 201/88, L 110/46 (-) 2. Fault at 94 cm: S 015/74, L 086/40 (+) 2. Color is 7.5 YR 7/6. CT is dark gray.

Coarse (1 to 2.5 cm) granite, weakly deformed. Hairliine fractures or veins, too narrow to identify any mineralization. Fault at 12 cm: S 023/87, L 116/32 (+) 1. Fault at 16 cm: S 350/70, L 068/12 (-) 1. Color is 7.5 YR 7.4. CT is dark gray.

Hole M0077A Core 188R Cored 984.89-987.94 mbsf



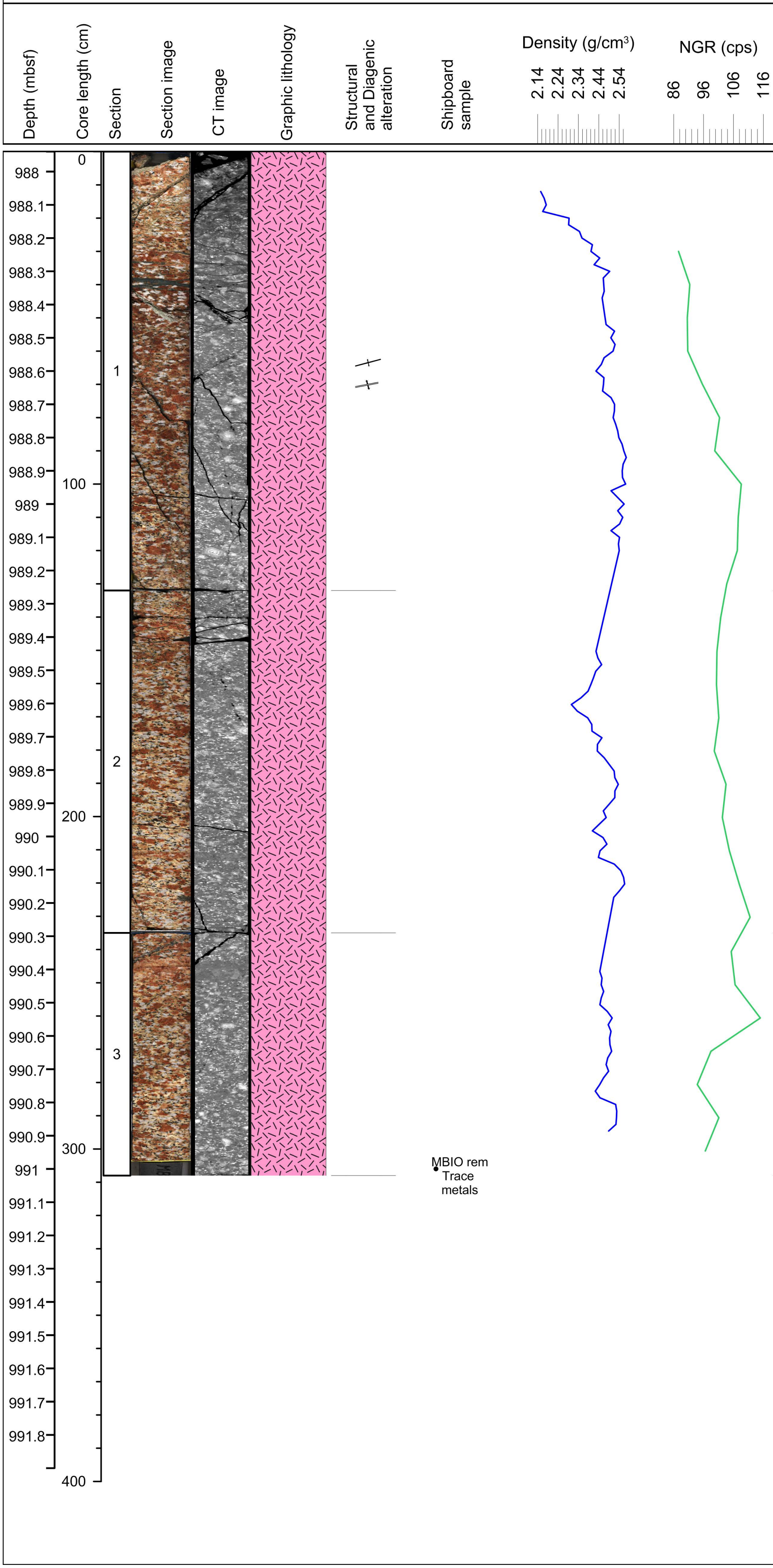
Description

Coarse (1 to 2.5 cm) granite, weakly deformed. The zone from 8 to 33 cm is enriched in biotite. A few veinlets occcur between 88 and 116 cm. Fault at 89 cm: S 205/36, L 220/24 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, strongly deformed between 63 and 118 cm. Shearing veinlets between 67 and 83 cm. Scattered green and light olive gray minealization. Fault at 26 cm: S 046/47, L 118/12 (+) 2. Fault at 83 cm: S 239/60, L 282/43 (+) 3. Fault at 117 cm: S 196/62, L 185/60 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, weakly deformed. The zone between 42 and 55 cm contains more K-feldspar (>8%) and less biotite (<1 %). A cataclastic vein occurs at 58 cm. Scattered throughout the section is green andlight olive gray alteration.

Hole M0077A Core 189R Cored 987.94-990.99 mbsf



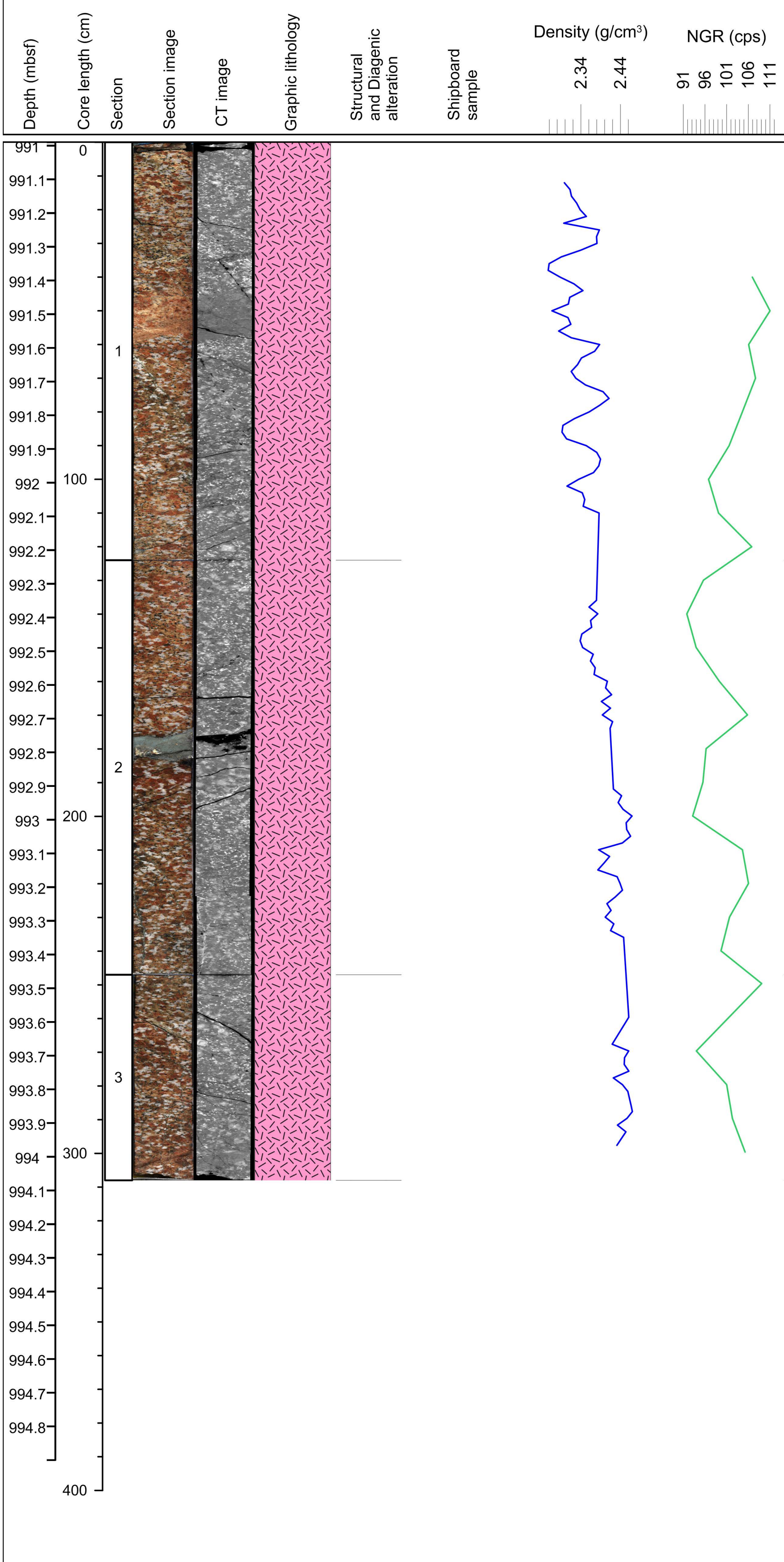
Description

Coarse granite, strongley deformed. Many fractures filled with cataclastic material, concentrated around 31, 38, 40, 41, and 50 cm. Green and light olive gray alteration throughout the section. Fault at 13 cm: S 134/50, L 138/49 (+) 3. Fault at 77 cm: S 242/55, L 02/46 (+) 2. Fault at 98 cm: S 245/56, L 190/44 (+) 1. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, strongly deformed. Quartz veins. Fault at 12 cm: S 144/56, L 071/14 (+) 3. Fault 1t 17 cm: S 155/72, L 240/15 (-) 2. Color is 7.5 YR 7.4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, weakly deformed. The zone from 9 to 14 cm is poor (<1%) in biotite. A trace of green-colored mineralization occurs in section. Fault at 7 cm: S 135/29, L 074/19 (+) 3. Color is 7.5 YR 7.4. CT is dark gray.

Hole M0077A Core 190R Cored 990.99-994.04 mbsf



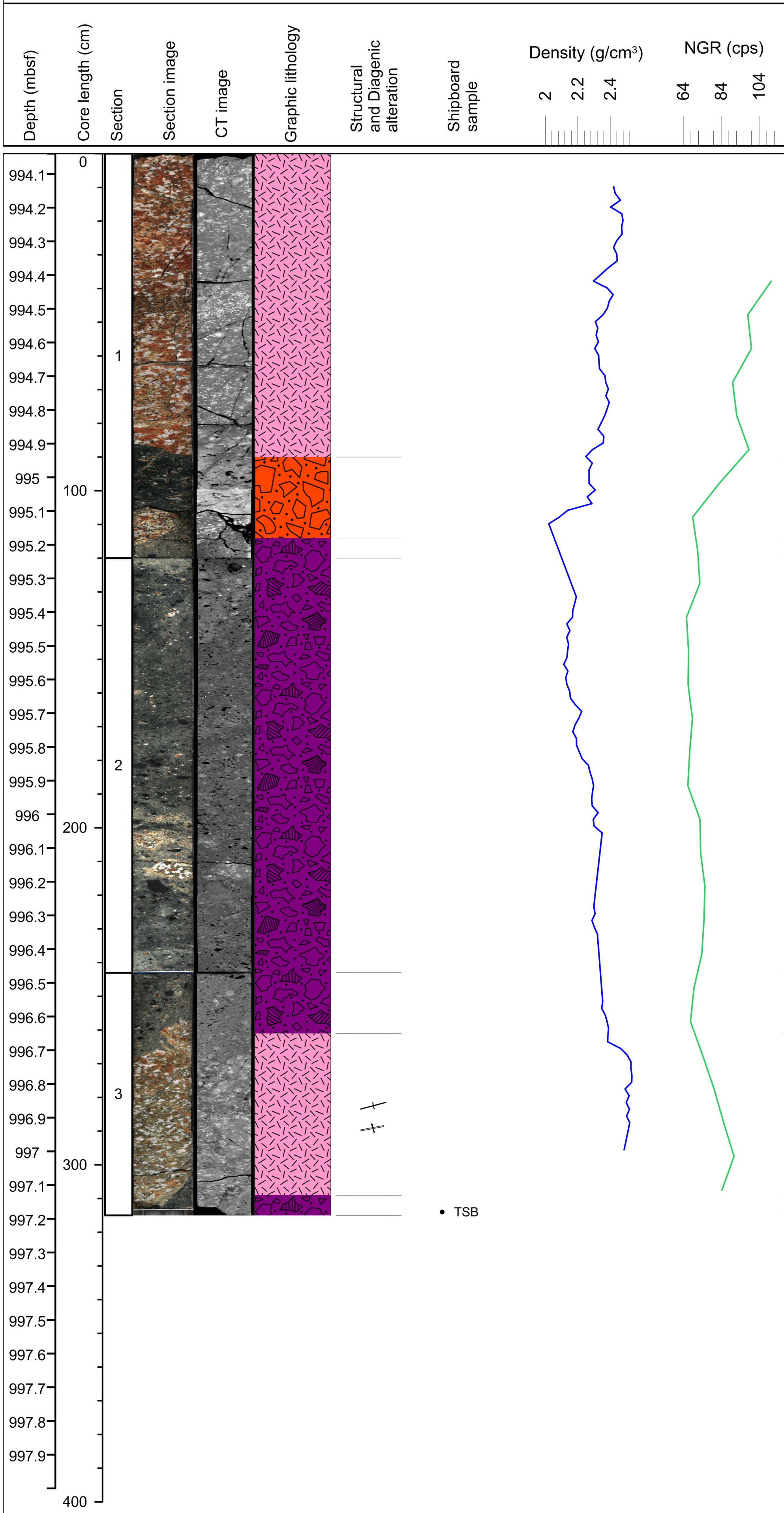
Description

Coarse (1 to 2.5 cm) granite, strongly deformed. Cataclastic veins occur at 344, 47, 84, 110, and 116 cm. Red mineralization is associated with biotite. Fault at 58 cm: S 200/70, L 250/36 (+) 2. Fault at 120 cm: S 143/50, L 096/33 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse grainte, strongly deformed. White and light olive grain veins. Fault at 71 cm: S 146/78, L 052/06 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite. Thin (<1 mm) veins with dark-colored and light-colore mineralization. Fault at 36 cm: S 195/82, L 190/80 (-) 3. Fault at 17 cm: S 218/66, L 280/52 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 191R Cored 994.04-997.09 mbsf



Description

Coarse granite, strongly deformed. Cataclastic vein at 65 cm. Mixed white and dark veins. Fault at 11 cm: S 040/44, L 101/14 (-) 3. Fault at 35 cm: S 340/40, L 260/10 (+) 1. Fault at 62 cm: S 335/70, L 078/14 (+) 3. Fault at 57 cm: S 036/42, L 320/14 (+) 3. Fault at 78 cm: S 350/48, L 280/20 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Clasts include impact melt, granite, and unidentified clasts with dark green, bluish, and light grey colors. The clasts are 1 mm to 25 mm in size. Matriix is fine-grained (aphanitic). Color is 5Y 3/1. CT is white.

Clasts composed of granite and impact melt. Light-colored unidentified clasts.

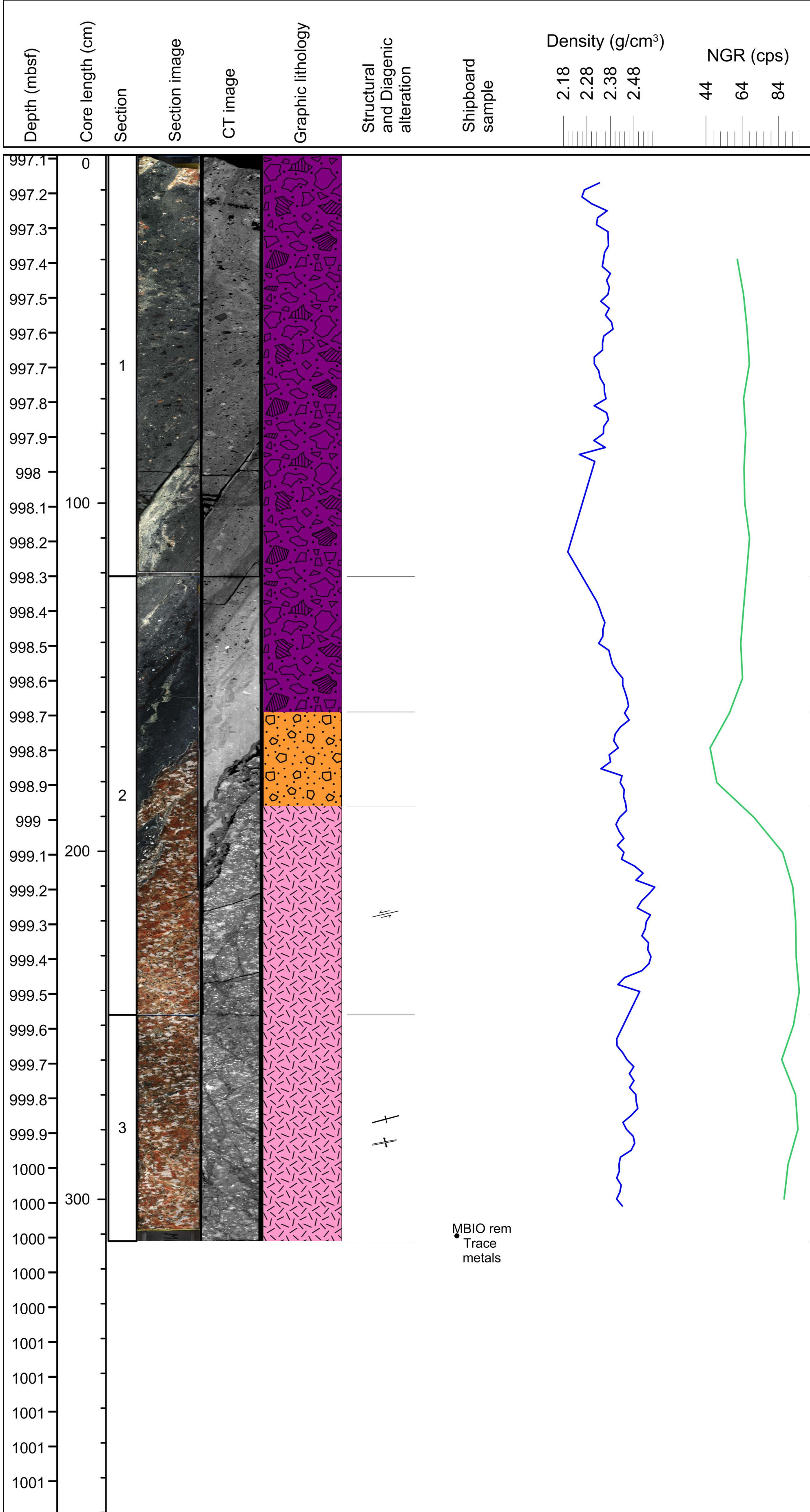
Clasts include: gray and black impact melt, granite, dolerite, granodiorite, and gneiss. Clast sizes are 2 to 20 mm (mostly), with a few in the 4 to 6 cm range. Matrix is fine grained. Color is 5 Y 3/1. CT is dark gray.

Siilar to 191-2. Color is 5 Y 3/1. CT is dark gray.

Coarse granite, strongly deformed. All fractures filled with cataclastic material. A pervasive light olive gray alteration overprints the granite. Color is 7.5 YR 7/4. CT is dark gray.

Same as unit 1 at the top of this section.

Hole M0077A Core 192R Cored 997.09-1000.14 mbsf



Description

Clasts are brown, gray, and black melt, granite, gneiss, and dolerite. Very weakly deformed. A 4 cm wide zone of lighter material, enriched in granitic material, runs from 80 cm to the bottom of the section. A vug is associated with that zone. Color is Y5 3/1. CT is dark gray.

Clasts composed of black melt, granite, dolerite, and gneiss. Clasts are <1 mm to 1.5 cm in size. Matrix is fine-grained. Color is 5 Y 3/1. CT is dark gray.

Sharp, half-centimeter-wide burgundy colored contact with overlying breccia. Intrusive contact with underlying granite.

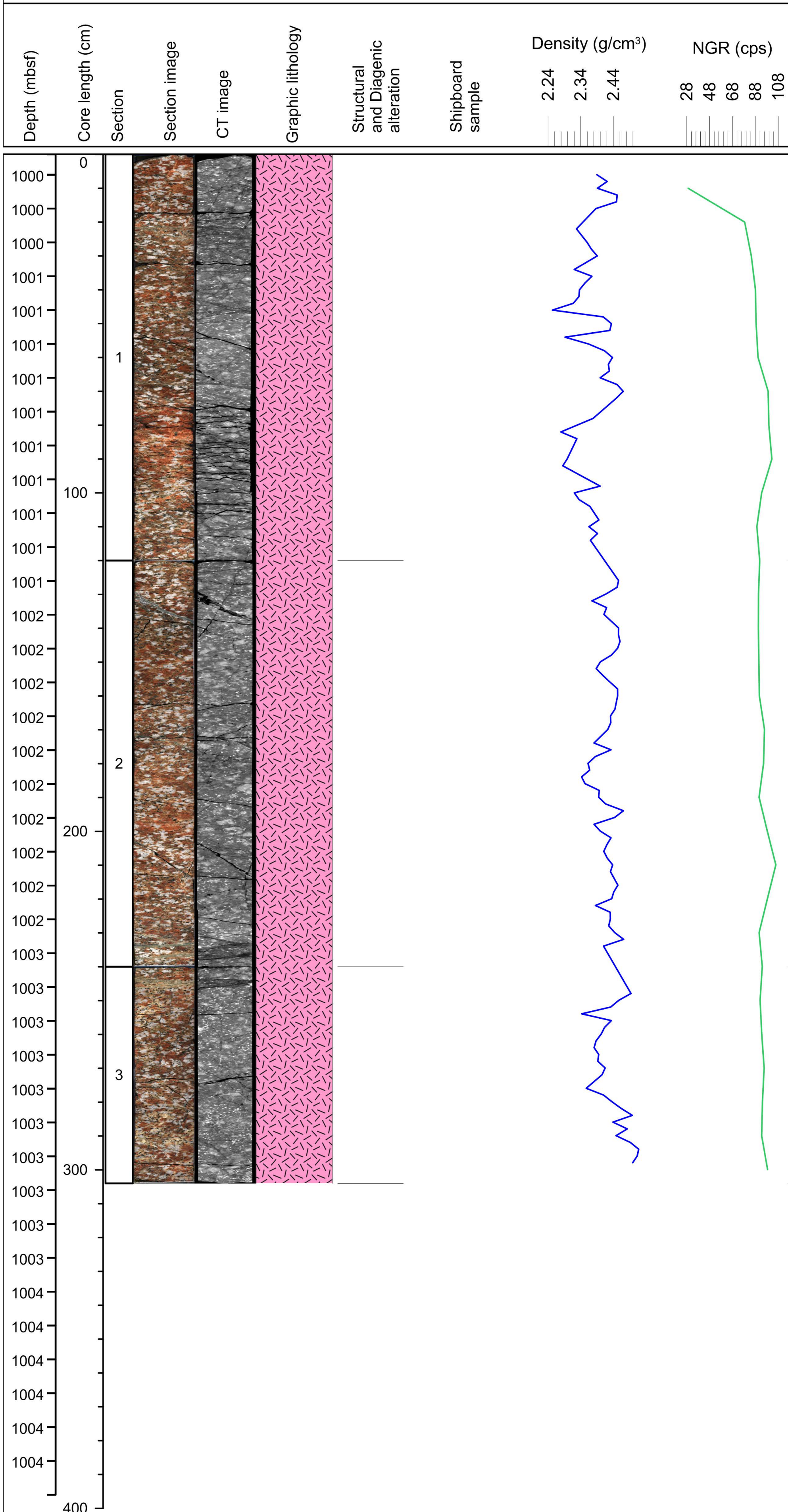
Coarse granite intruded by overlying melt-bearing unit. Strongly deformed. Fault at 116 cm: S 153/76, L 065/16 (+) 3. Second fault at 116 cm: S 158/84, L 232/12 (-) 2. Light olive gray overprint on granite. Color, however, remains 7.5 YR 7/4. CT is dark gray.

@25 cm: 0,9 cm titanite crystal.

@50-61 cm: Zone with greenish clay, <1 cm thick; Fault zone? Displacment of different granite textures against each other.

Coarse granite, strongly deformed. Several fractures are filled with cataclastic material. There is also a mesh of hairline fractures that are too small to determine if they are mineralized. A green vein occurs between 22 and 30 cm. Color is 7.5 YR 6/3. CT ic dark gray.

Hole M0077A Core 193R Cored 1000.14-1003.19 mbsf



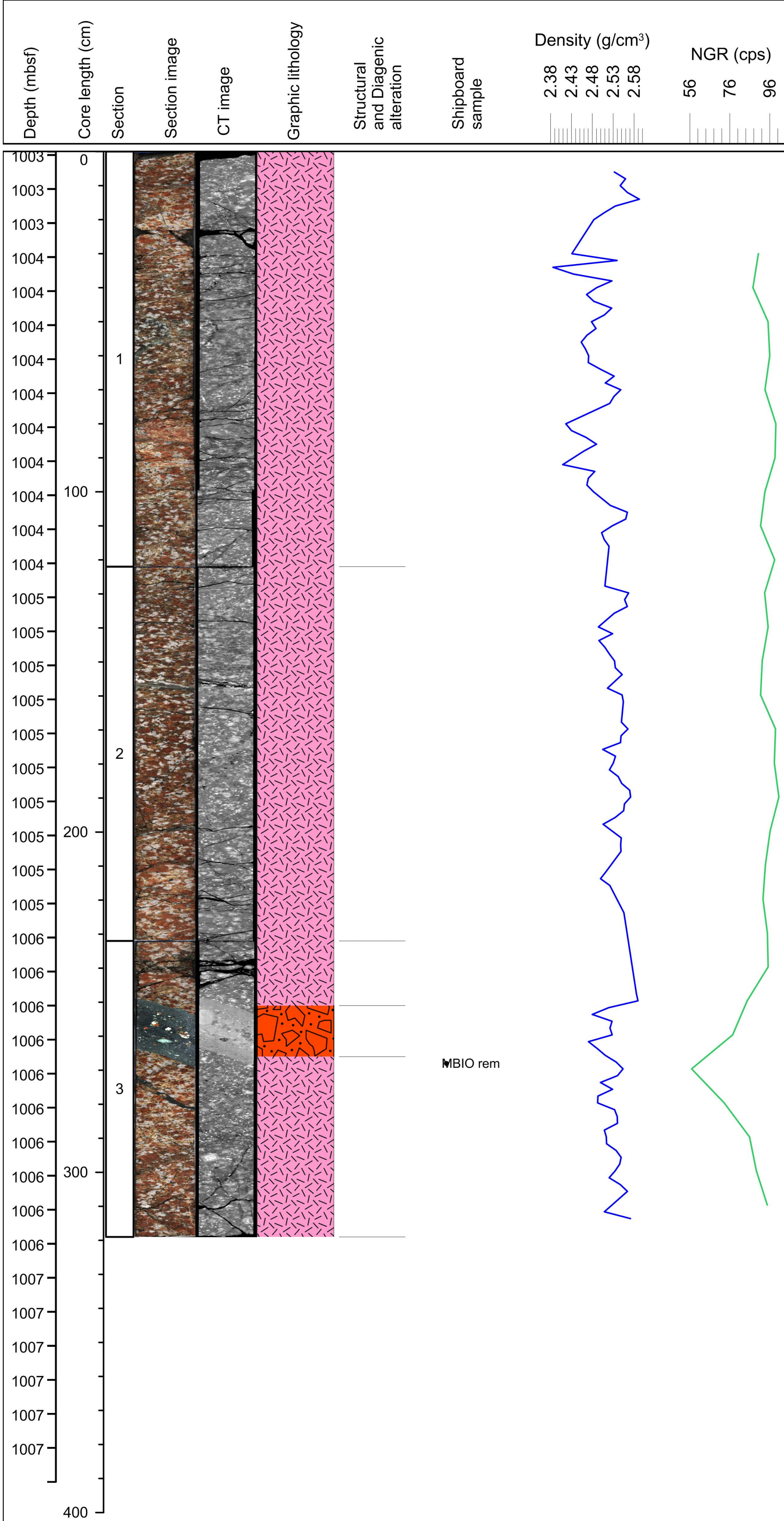
Description

Coarse (1 to 2.5 cm) granite, strongly deformed. A zone from 74 to 96 cm is enriched (>80%) in K-feldspar. Fault at 55 cm: S 202/80, L 120/20 (-) 3. Green mineralization is associated with biotite. A light olive gray color overprints the granite, although it still has a bulk color of 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed. Faults filled with cataclastic material at 18, 113, and 116 cm. Trace garnet in granite. Minor green-colored alteration of biotite. White and dark green veins. Fault at 42 cm: S 340/74, L 018/68 (-) 1. Fault at 71 cm: S 190/74, L 195/73 (-) 2. Fault at 89 cm: S 222/50, L 215/54 (+) 4. Fault at 93 cm: S 185/78, L 106/18 (+) 2. Fault at 106 cm: S 19/79, L 112/19 (+) 1. Fault at 110 cm: SS 190/78, L 103/24 (+) 1. Color is 7.5 YR 7.4. CT is dark gray.

Coarse granite, strongly deformed. Section is cut by white and dark green veins (< 1 mm wide). Fault at 14 cm: S 351/72, L 340/70 (-) 2. Fault at 33 cm: S 350/70, L 310/5 (+) 2. Fault at 38 cm: S 221/79, L 330/25 (+) 2. Fault at 58 cm: S 002/78, L 325/43 (+) 1. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 194R Cored 1003.19-1006.24 mbsf



Description

Coarse (1 to 2.5 cm) granite, strongly deformed. A zone from 18 to 30 cm there is less (<1%) biotite. Also, a zone from 80 to 85 cm has less biotite (<1%) and is enriched (>80%) with K-feldspar. A quartz vein 1 mm thick occurs from 16 to 25 cm. Fault at 16 cm: S 036/70, L 129/15 (-) 3. Fault at 98 cm: S 015/82, L 096/30 (-) 3. Fault at 103 cm: S 355/80, L 354/78 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

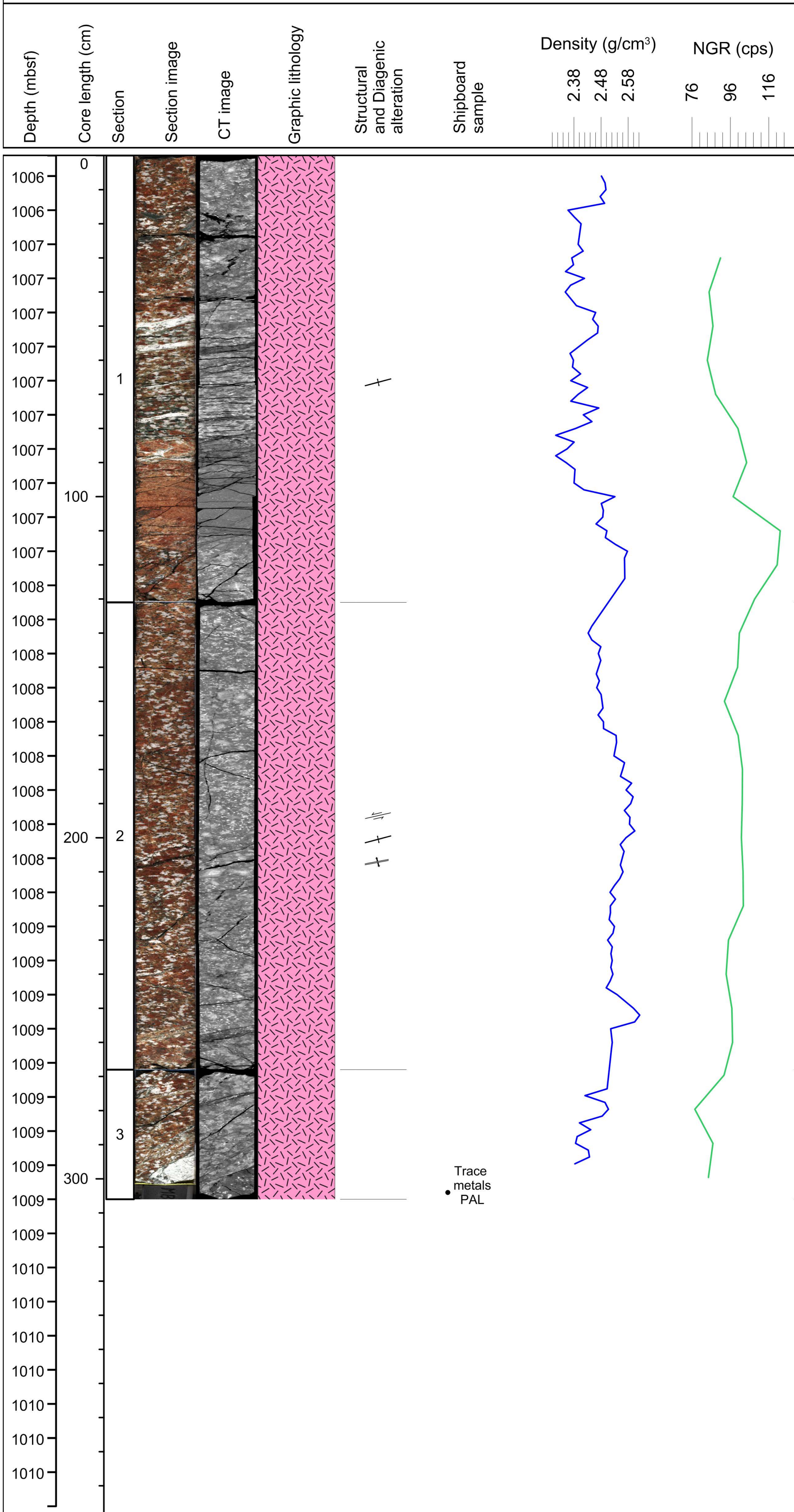
Coarse (1 to 2.5 cm) granite, strongly deformed. Fractures at 6, 36, and 77 cm are filled with cataclastic material. White and dark green veins cut the section. Fault at 17 cm: S 178/49, L 260/10 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed. Color is 7.5 YR 7/4. CT is dark gray.

Clasts include impact melt, granite, and dolerite. No deformation. Color is 5 Y 4/0. CT is dark gray.

Coarse granite, strongly deformed. White and dark green veins (<1 mm wide) cut the section. A cm-thick vein of impact melt intrudes at 41 to 59 cm. Fault at 9 cm: S 166/40, L 210/12 (+) 2. Fault at 83 cm: S 235/41, L 210/40 (+) 2. Fault at 87 cm: S 310/34, L 347/33 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 195R Cored 1006.24-1009.29 mbsf



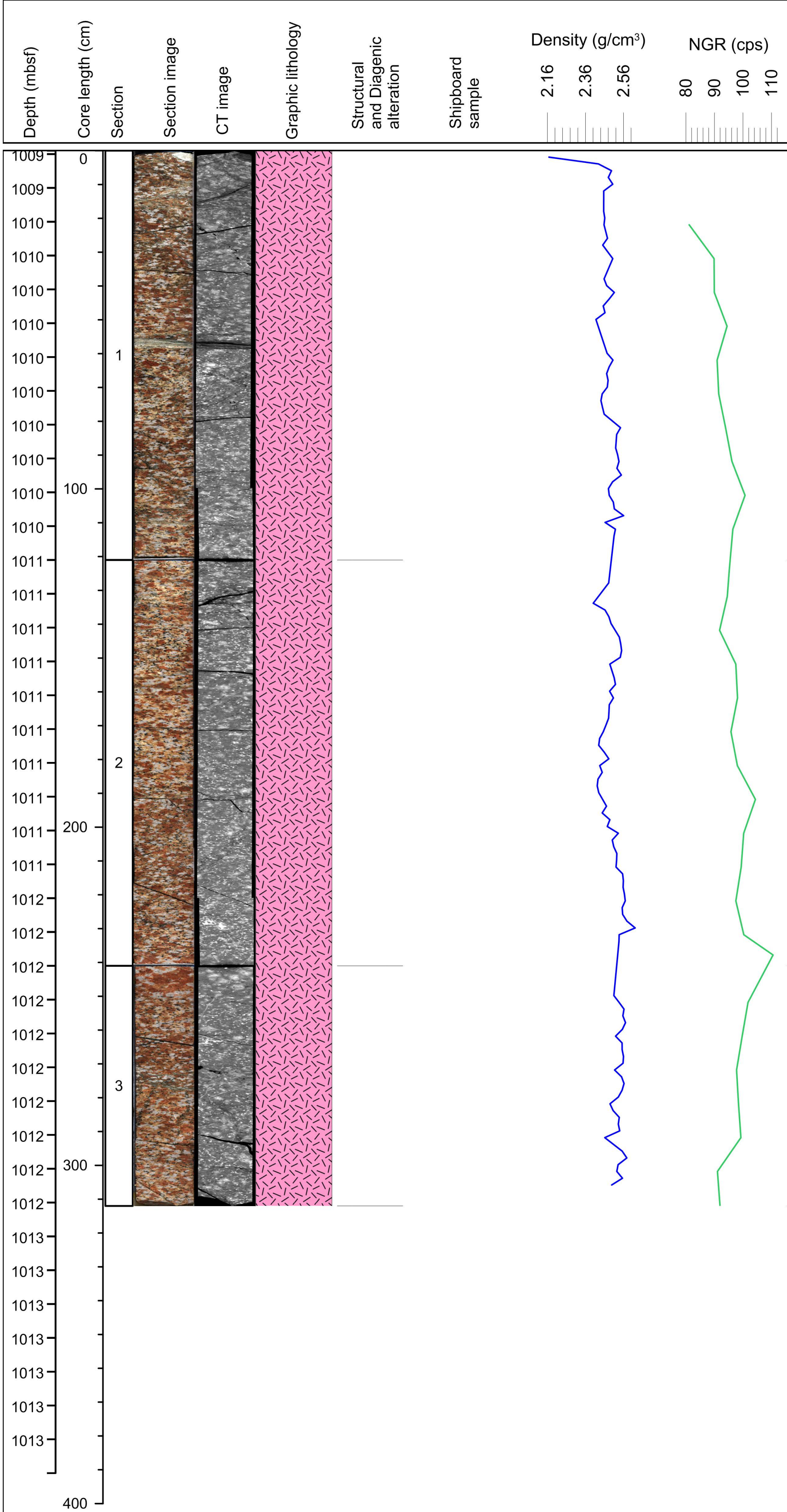
Description

Coarse granite, extensively deformed. Cataclastic vein cut and offset by late fractures. White veins of quartz cut the section, as do contorted veins of dark green material. Fault at 123 cm: S 014/50, L 087/14 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, strongly deformed. Many fractures and faults cut the section, some filled with gray to black material. White and dark green veins. Fault at 3 cm: S 050/6, L 113/44 (+) 1. Fault at 17 cm: S 255/58, L 205/27 (+) 2. Fault at 34 cm: S 330/43, L 002/34 (+) 3. Fault at 47 cm: S 335/38, L 345/36 (+) 3. Fault at 48 cm: S 032/60, L 085//35 (+) 3. Fault at 41 cm: S 275/55, L 192/15 (+) 1. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed. White and green veins cut the section. Fault at 9 cm: S 166/74, L 205/36 (-) 3. Fault at 16 cm: S 325/87, L230/82 (-) 2. Color is 7.5 YR 7.4. CT is dark gray.

Hole M0077A Core 196R Cored 1009.29-1012.34 mbsf

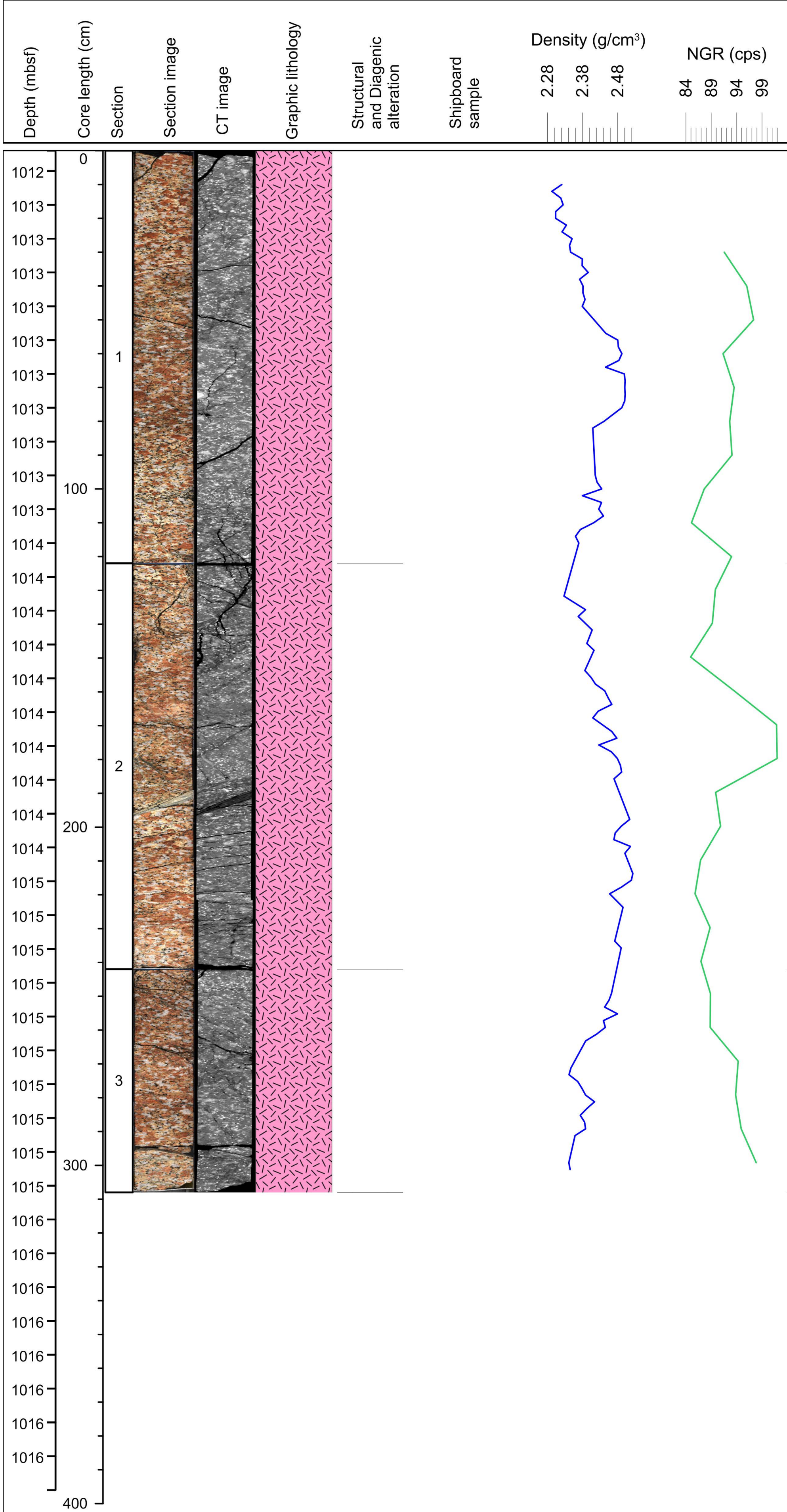


Coarse granite, strongly deformed (foliated and crenulated). Fractures at 57-58 cm filled with cataclastic material. Faulat at 93 cm: S 350/57, L 330/46 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, moderately deformed. White veins in section. Fault at 8 cm: S 335/35, L 330/38 (+) 2. Fault at 21 cm: S 168/60, L 205/56 (-) 2. Fault at 29 cm: S 005/34, L 330/26 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, moderately deformed. The zone from 0 to 10 cm is filled with a K-feldspar-rich pegmatite. White and dark green veins cut the section. Fault at 67 cm: S 054/63, L 138/11 (+) 3. Fault at 90 cm: S 145/62, L 065/40 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 197R Cored 1012.34-1015.39 mbsf



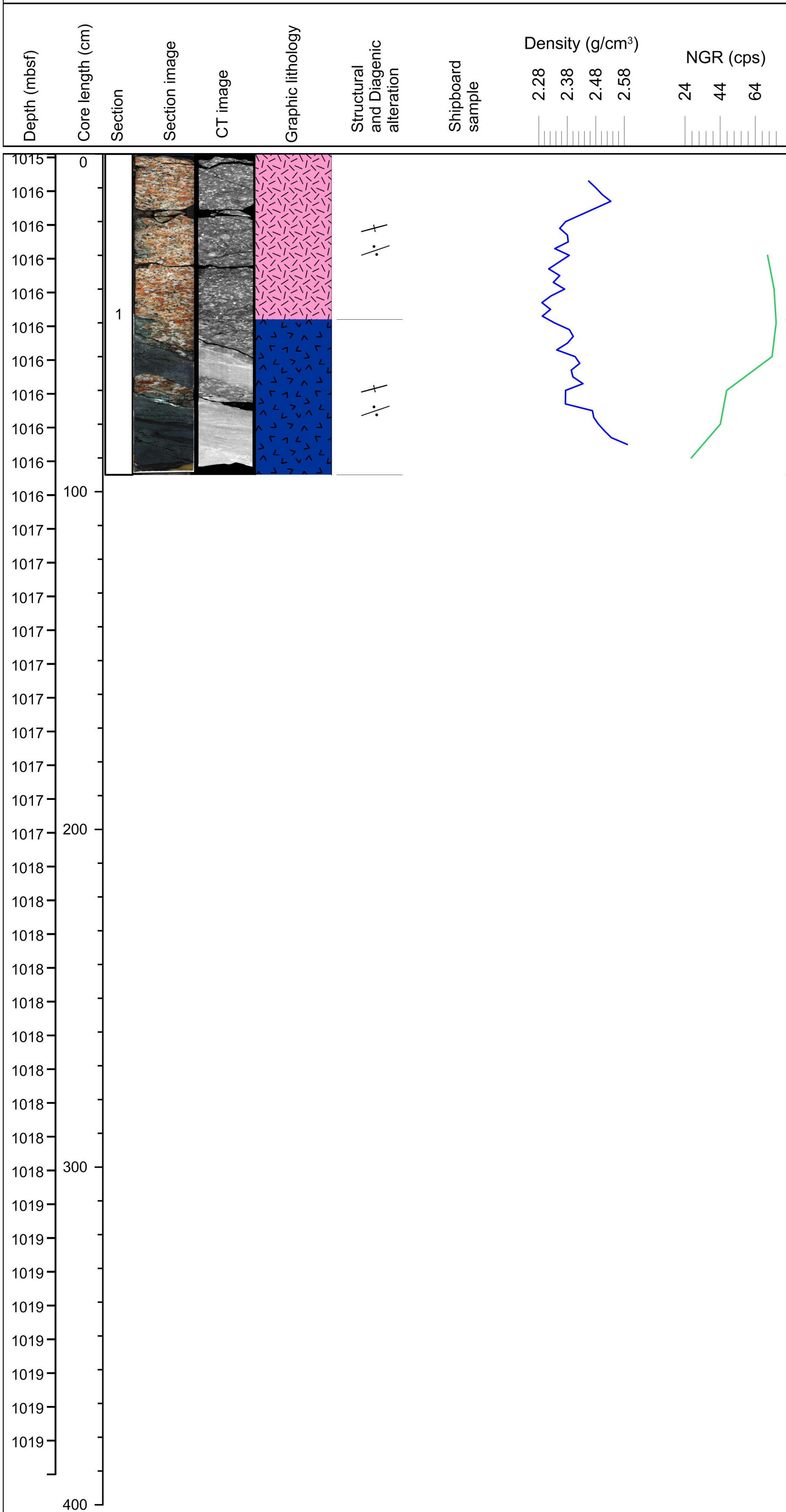
Description

Coarse granite, moderately deformed. A zone from 100 to 103 cm is enriched in biotite (~10%). White veins in section. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed. A pegmatite occurs between 41 and 45 cm. A vein at 56 to 61 cm is filled with cataclastic material. Fault at 90 cm: S 167/76, L 067/29 (+) 2. Fault at 97 cm: S 005/75, L 010/73 (-) 2. Fault at 101 cm: S 190/85, L 175/80 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse granite, moderately deformed. Hairline veins to thin to determine if they are mineralized. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 198R Cored 1015.39-1016.25 mbsf



Description

Granite

Deformed coarse-grained granite with K-feldspar (<2.5 cm), plagioclase (<2.5 cm), quartz (<2 cm), biotite (<0.5 cm) homogeneously distributed

6-11 cm: shear fault with white and grey fill (<2 mm)

18-38 cm: pervasive fracture network, spacing ~1 cm truncates dolerite dike not visible on core surface. Contact surface is highly irregular

43-61 cm: pervasive fracture zone that grades into dolerite contact. The fracture zone incorporates irregular brittle fragments of dolerite (~1 mm in size)

CT: granite facies

Dolerite (aphanitic)

Wavy to planar contact (sharp). ~aphanitic dolerite, plagioclase (<2 mm), pyroxene (<2 mm) with network of veins, black (<2 mm), and red/brown veins/zones (up to 1 cm)

54-58 cm: S25/50 L15/45 – (2)

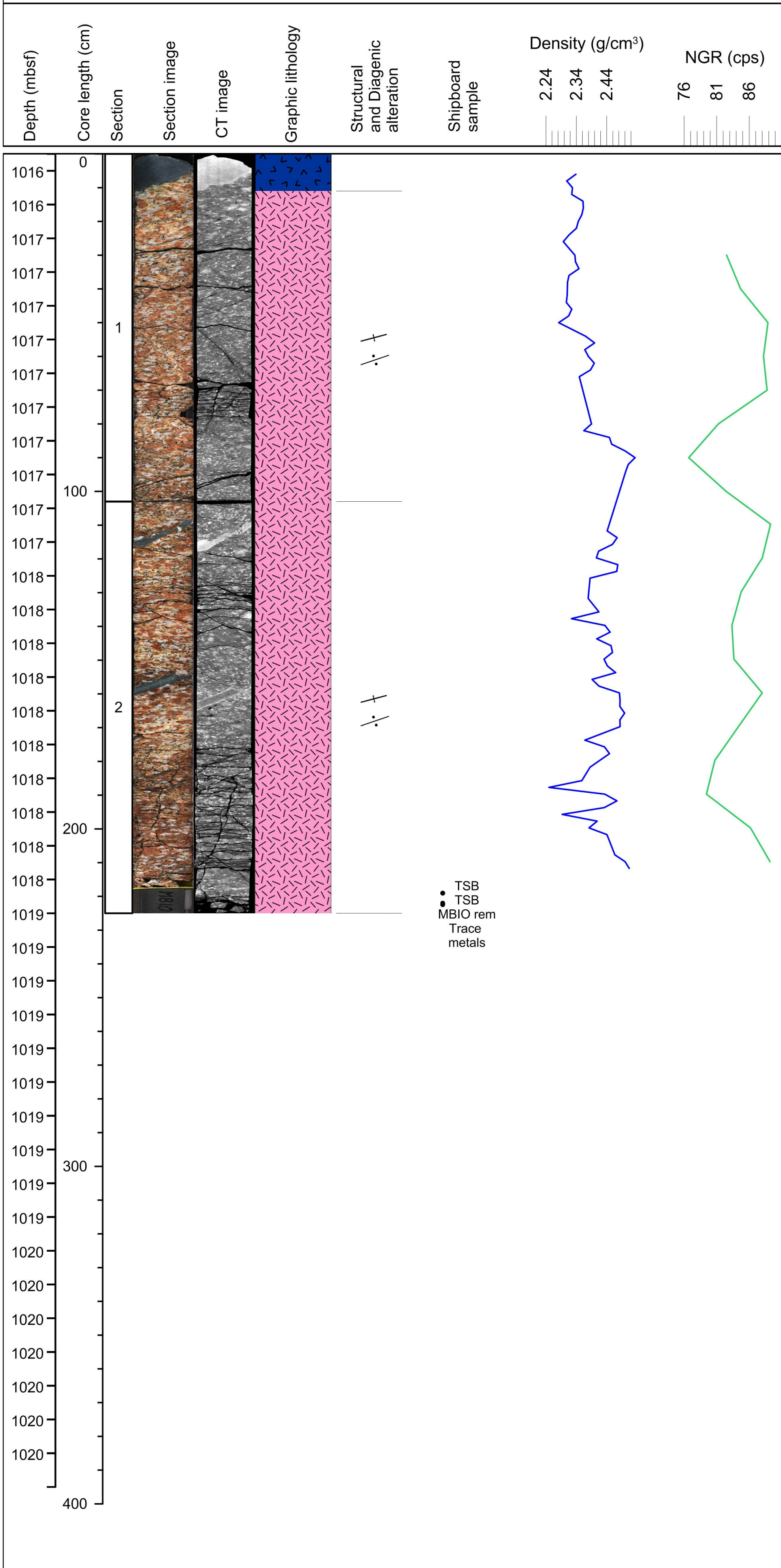
48-61 cm: irregular granite-dolerite contact

66-73 cm: grantie clast with multiple shear fracture sets that do not continue into the dolerite. Lower contact periodically digested (from 6 cm to greater than core diameter)

70-94 cm: mm sized black veins and cm sized red-brown alteration

CT: dolerite facies

Hole M0077A Core 199R Cored 1016.25-1018.44 mbsf



Description

Dolerite

Same as previous . Sharp contact, step like.

Granite

Coarse-grained granite, with upper part more deformed than lower part; K-feldspar (4 cm), plagioclase (3 cm), quartz (2 cm), and biotite (<0.5 cm); biotite homogeneously distributed

50-65 cm: S60/65 L151/1 – (4)

6-11 cm: granite-dolerite contact truncated by shear fractures with 1 cm spacing and 1 cm mixed sense displacement. Fractures continue into dolerite

11-103 cm: cross-cutting shear fracture networks with cm spacing and cm displacements

CT: granite facies

Granite

Coarse-grained granite with K-feldspar (<4 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm), homogeneously distributed

Two dolerite veins: @ 6-14 and 52-58 cm

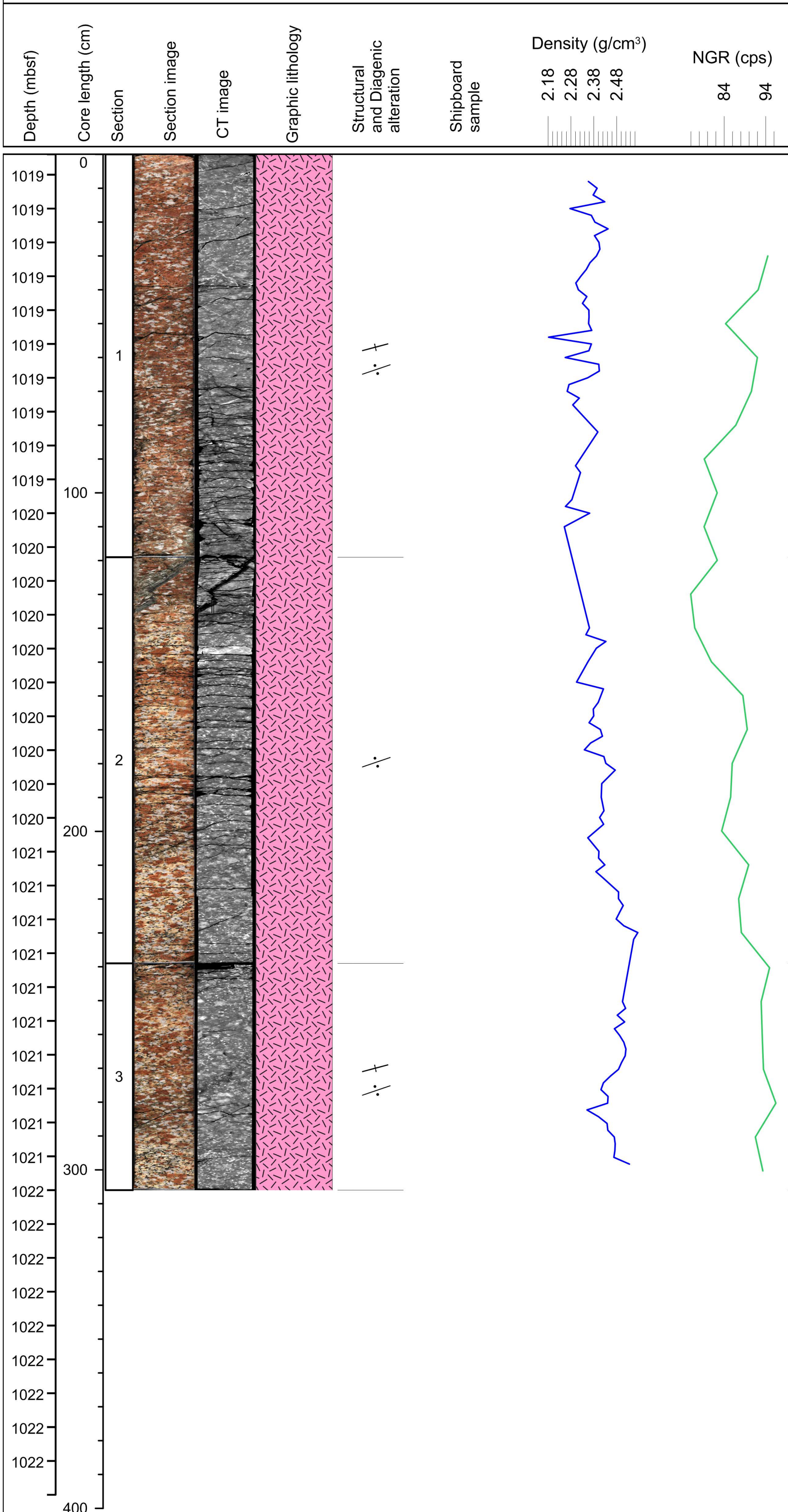
6-14 cm: dolerite dike 1-2 cm thick displaced three times, with >1 cm throw by dextral shear fractures (plagioclase <1 mm) and pyroxene (<1 mm)

52-58 cm: 2 cm dolerite displaced by dextral shear fault with 1 cm throw (plagioclase < 2cm) – pyroxene not visible

Throughout: occasional shear fractures in granite with white fill

CT: granite facies – dolerite dikelets have different CT numbers, upper one is light grey and lower is dark grey, color variation due to density

Hole M0077A Core 200R Cored 1018.44-1021.49 mbsf



Description

Granite

Coarse-grained granite with K-feldspar (<3.5 cm), quartz (<2 cm), biotite (<0.5 cm) homogeneously distributed

Very few plagioclase

Section is locally greenish

Network of veins, white (quartz and also calcite) to greenish/grey

14-16 cm: S350/75 L295/70 + (3)

30-38: 2 perpendicular calcite veins, E-dipping vein is cross-cut by many shear fractures

Occasional shear fractures throughout

CT: granite facies

Granite

Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<1.5 cm), and biotite (<0.5 cm), homogeneously distributed

Plagioclase is rare in the top part above 14 cm

0-17 cm: 1 cm thick vein displaced by sinistral shear faults, up to 1 cm throw (light green to grey)

Occasional white shear faults

104-110 cm: S145/85 L235/1 – (2)

CT: granite facies, low density vein

Granite

Coarse-grained granite, with K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm) and biotite (0.5 cm), heterogeneously distributed.

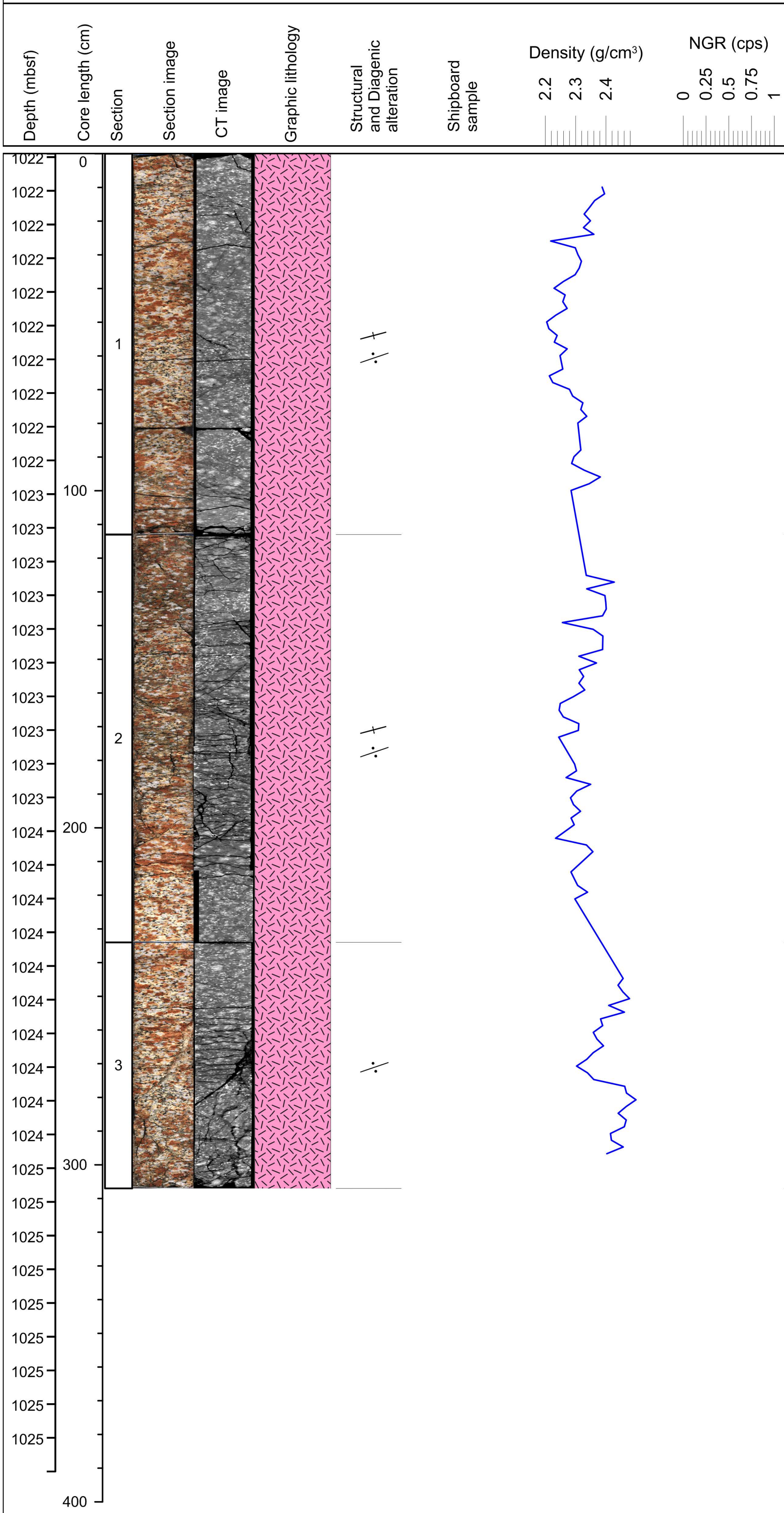
K-feldspar grain size reduced below 54 cm

Localized shear fractures throughout with white fill (<1 mm) – calcite

10-17 cm: 1 mm wide cataclasite with ~4 mm throw

CT: granite facies

Hole M0077A Core 201R Cored 1021.49-1024.54 mbsf



Description

Granite

Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<3 cm), quartz (<2 cm), biotite (<0.5 cm)

K-feldspar is locally finer-grained in zones where biotite is also more abundant

Greenish (alteration) zones @39, 51, and below 95 cm

Occasional white shear fractures (quartz) (up to 2 mm)

37-40 cm: shear fractures displace black vein

65-73 cm: sub-parallel anastomosing white shear fractures

CT: Granite facies

Granite

Coarse-grained granite, with K-feldspar (3 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm), heterogeneously distributed.

Greenish-grey in the upper part (alteration). K-feldspar grain size reduced in lower part of section below 101 cm

8 shear fractures, 2 mm thick, white fill, ~ evenly spaced in core

CT: granite facies

Granite

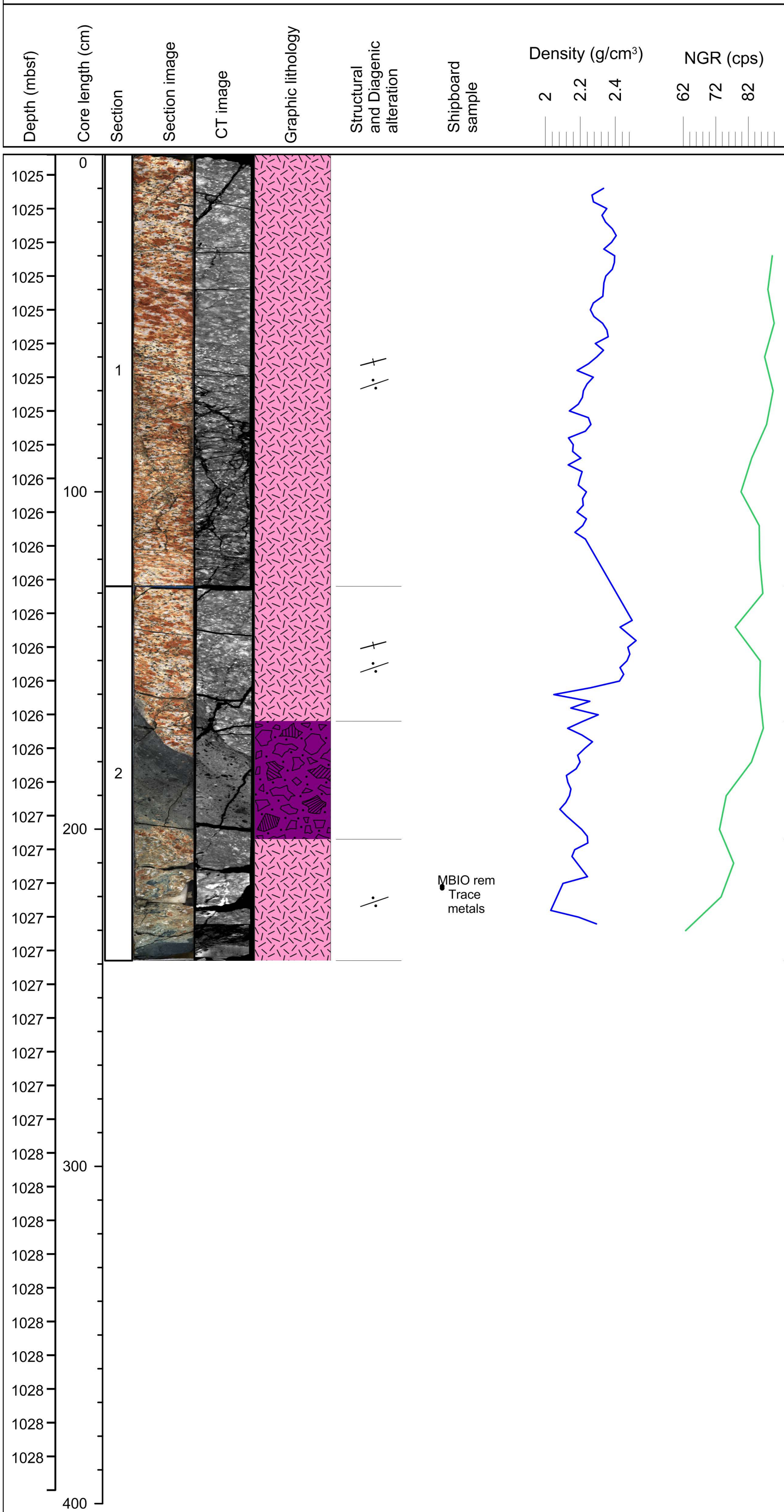
Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (< 2 cm), biotite (<0.5 cm), homogeneously distributed

25-55 cm: white, shear zone, up to 5 mm thick, sub-vertical

53-72 cm: sub-vertical shear fault, white fill

CT: granite facies, low density shear zone

Hole M0077A Core 202R Cored 1024.54-1026.87 mbsf



Description

Coarse-grained granite

K-feldspar (3 cm), plagioclase (2.5 cm), quartz (1.5 cm), and biotite (<0.5 cm). Very low amount of biotite from 36-56 cm and K-feldspar larger in size.

Below 117 cm, granite is strongly deformed.

Network of thin white (quartz) veins between 36-56 cm

0-126 cm: localized shear fractures

0-20 cm: shear fault, 1 cm dextral throw

92-104 cm: shear fault, anastomosing

CT: granite facies – drilling disturbed area looks low density in fractures, but probably a low resolution effect

Granite

Coarse-grained granite, K-feldspar (2.5 cm), plagioclase (2 cm), quartz (2.5 cm), and biotite (<0.5 cm) (with network of fractures)

12-14 cm: S195/70 L130/45 – (3)

0-48 cm: shear fracture network cm-spacing, white-fill, possible conjugate sets

33-50 cm: granite-suevite contact smooth and curvi-planar (sharp)

CT: granite facies

Suevite

Polymict melt-bearing breccia (suevite), with clasts up to 1.5 cm, mainly granite and dolerite, from sub-angular to subrounded; some partially digested, others vesicular and with diffuse margin. Matrix grey to darker grey-greenish

68-74 cm: diffuse margin between suevite and granite, with granite schlieren in suevite

CT: darker grey (low density, high Z

Granite

Highly deformed granite “intermixed” with dolerite

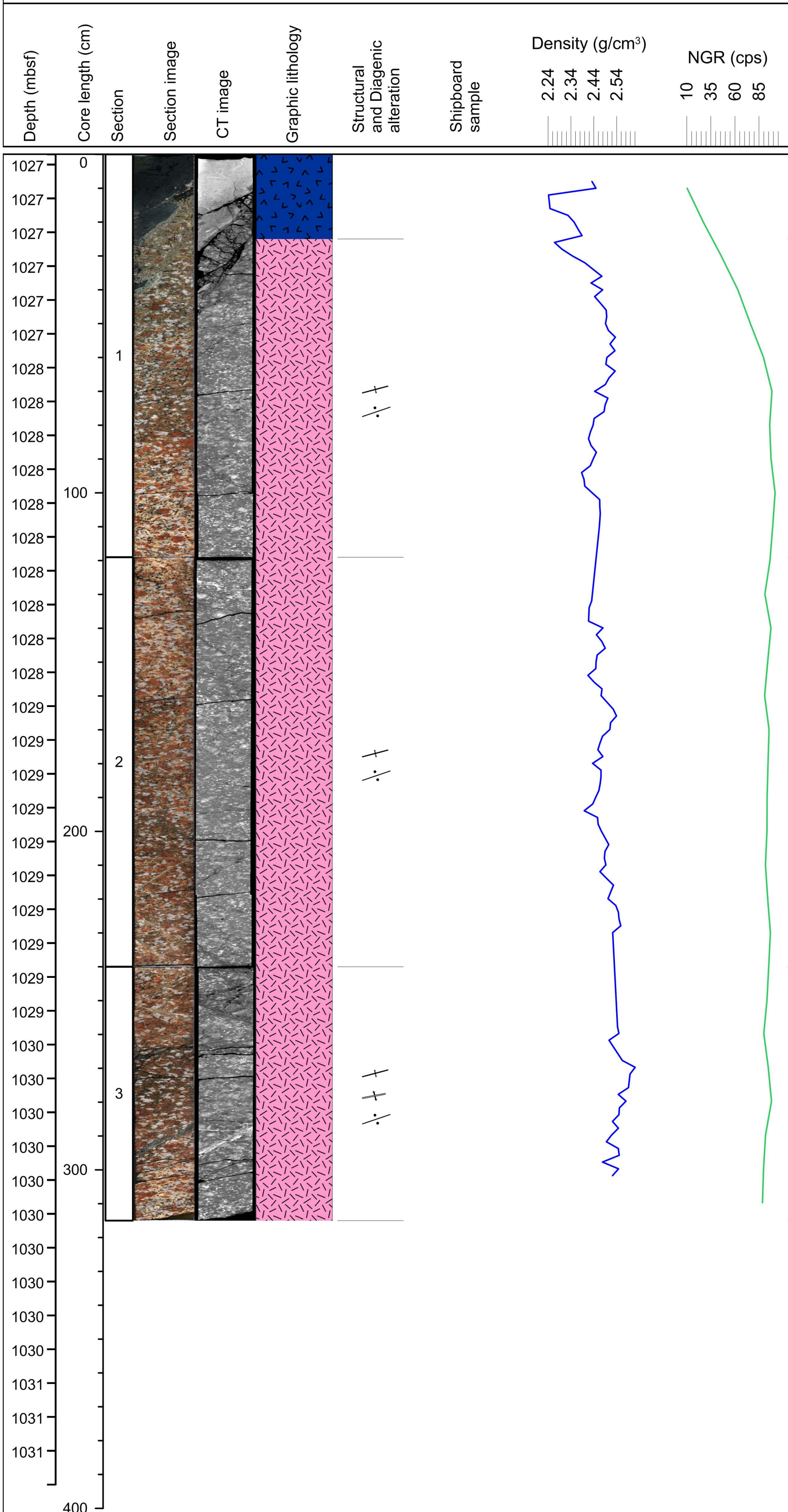
@105-110 cm: aphanitic dolerite

70-106 cm: pervasive shear fabric in granite with incorporations of dolerite

104-108 cm: smooth but non-planar contact

CT: granite facies, dolerite facies in clasts at 90 cm and at bottom

Hole M0077A Core 203R Cored 1026.87-1029.92 mbsf



Description

Dolerite (aphanitic)

With tiny clasts of granite (< 5 mm) at margin/contact. Veins like to irregular dark to brownish crack-filling. Irregular contact to "granite" (˜monomict breccia)

12-17 cm: S320/45 L275/45 – (3)

CT: dolerite facies

Granite

Coarse-grained granite with K-feldspar (<2.5 cm), plagioclase (<3 cm), quartz (< 2cm), biotite (<0.5 cm). Greenish in color down to ~80 cm.

Network of thin veins

15-39 m: monomict breccia of granite. Breccia has very little displacement. (A crackle breccia). Parallel to contact. Small dolerite clast from 38-41 cm possibly sheared from dolerite dike

40-119 cm: widely spaced (>1 cm spacing) shear fracture network

75-97 cm: veins with black and white fill (calcite)

CT: granite facies. Between dolerite and granite facies, 4 fractures separating variably deformed material

Granite

Coarse-grained granite, with K-feldspar (3 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm), locally concentrated. Network of veins, mainly white filling (quartz and calcite), up to 1 mm, and thinner veins with green fill. Granite locally greenish.

41-43 cm: S170/89 L81/45 – (3)

14-32 cm, 107-122 cm: several sub-parallel sets of anastomosing shear fractures

40-85 cm: veins with grey fill cross-cut by local shear fractures

CT: granite facies

Granite

Coarse-grained granite with K-feldspar (3 cm), plagioclase (< 2 cm), quartz (1.5 cm), biotite (<0.5 cm), highly deformed (from 0 to 16 cm).

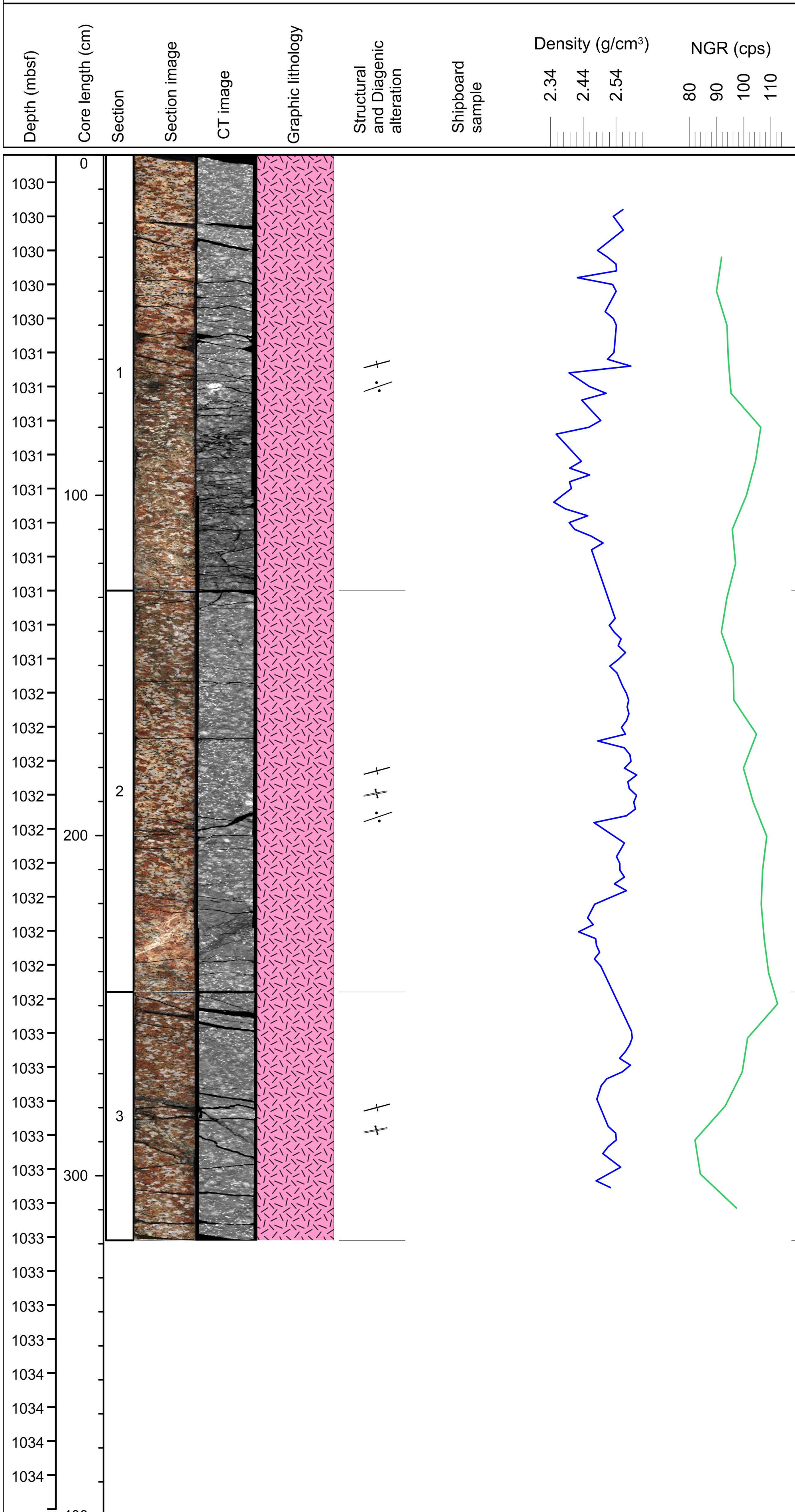
From 24 to ~53 cm: granite is greenish (alteration), with calcite veins (~1 mm)

0-16 cm: discrete zones of shear fabric

46-56 cm: green, grey, and white filled vein (1.5 cm wide) with euhedral calcite crystals. Truncated and displaced by several shear fractures and cross-cut by white vein (calcite)

CT: granite facies – low density shear fabrics and low density and high Z vein

Hole M0077A Core 204R Cored 1029.92-1033.02 mbsf



Description

Granite

Coarse-grained granite, with K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm), homogeneously distributed in the upper part, down to 65 cm. Aggregates of biotite, 3 cm, @68 cm. Lower part of section, below 65 cm, is somewhat greenish.

20-22 cm: S15/80 L1 285/17 – (2); L2 200/45 – (2)

24-38 cm: S205/85 L294/30 – (2)

40-41 cm: S170/85 L259/35 + (3)

65-128 cm: localized shite shear fractures and cataclastic zones (up to 2 mm thick)

CT: granite facies – reduced white minerals in bottom half

Coarse-grained granite with K-feldspar (< 3 cm), plagioclase (<2 cm), quartz (2 cm) and biotite (<0,5 cm), homogenously distributed. Upper part is greenish, down to 37 cm. From 90-111 cm, highly deformed granite.

From 0 to 118 cm: Dark green/grey veins.

95-107 cm: Two sub-parallel sets of white-filled shear fractures with graphic granite

@44 cm: S 355/85 L 266/10 (-2).

CT: Granite facies; Graphic granite lacks high CT minerals.

Coarse-grained granite with K-feldspar (< 2,5 cm), plagioclase (2 cm), quartz (1,5 cm) and biotite (<0,5 cm). Granite is still somewhat greenish.

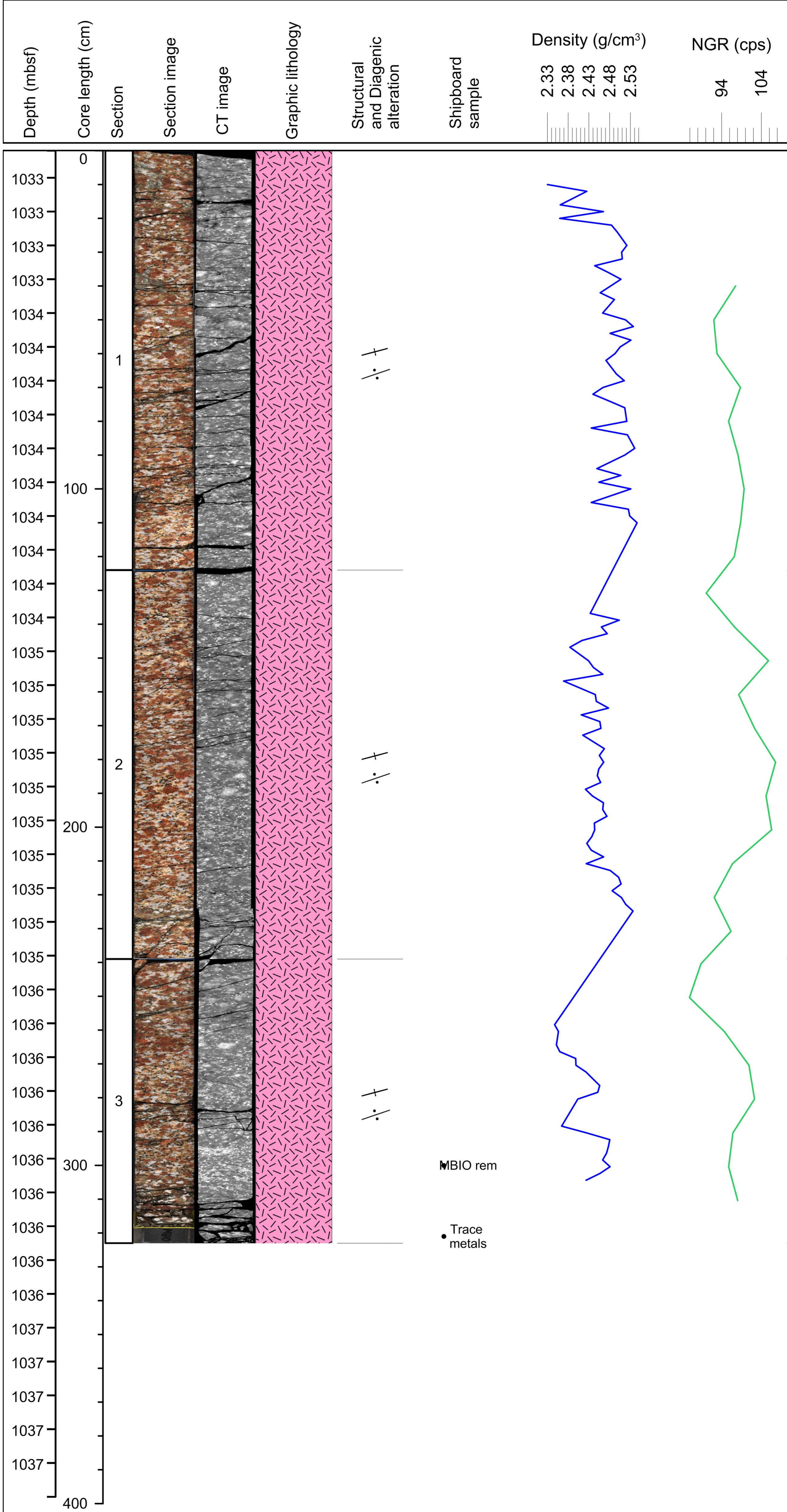
@26 cm: Calcite vein (~3 mm thick).

@0-42 cm: Local white veins (both quartz and calcite).

@36-73 cm: Highly inclined, green, filled fracture.

CT: Granite facies, where high angle fracture cut x-z-plane, low D.

Hole M0077A Core 205R Cored 1033.02-1036.12 mbsf



Description

Coarse-grained granite with K-feldspar (< 3 cm), plagioclase (<2 cm), quartz (<2 cm) and biotite (<0,5 cm), homogeneously distributed.

@0-37 cm: Localized white, sub-mm, shear fractures.

@42 & 49 cm: Cataclasite up to 3 mm thick.

@40-122 cm: Conjugate low angle share fractures causing core disruption.

CT: Granite facies; Lots of fractures.

Coarse-grained granite with K-feldspar (< 2.5 cm), plagioclase (2.5 cm), quartz (2 cm) and biotite (<0,5 cm), homogeneously distributed. Few localized white shear fractures.

@13 cm: S 190/85 L 270/40 (+4).

@48 cm: S 340/85 L252/15 (+3).

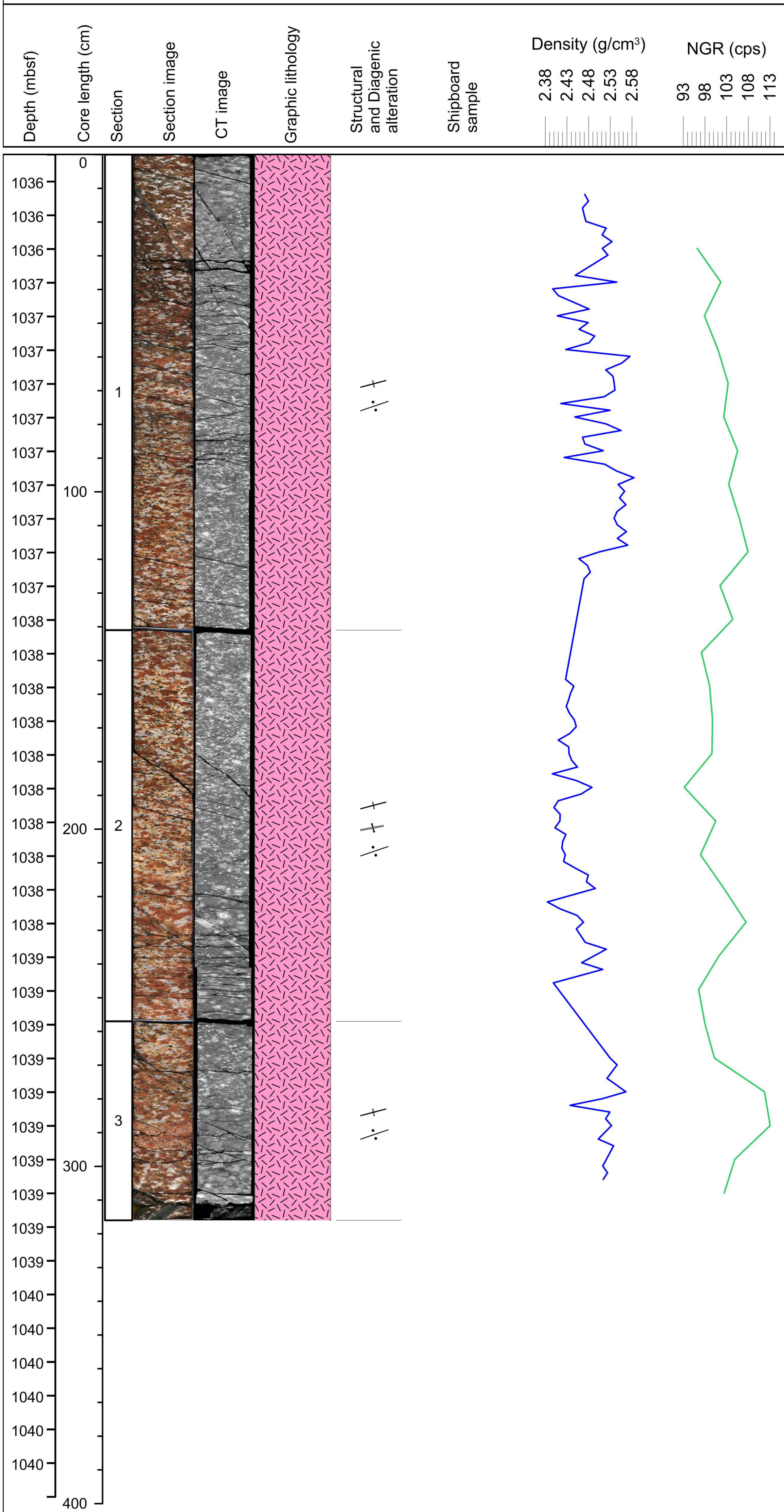
CT: Granite facies.

Coarse-grained granite with K-feldspar (< 3.5 cm), plagioclase (<2.5 cm), quartz (<1.5 cm) and biotite (<0,5 cm), locally concentrated at 54-55 cm.

Localized white shear fractures / white veins (calcite); Locally greenish.

CT: Granite facies.

Hole M0077A Core 206R Cored 1036.12-1039.22 mbsf



Description

Coarse-grained granite with K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm) and biotite (<0,5 cm). Upper part, above 85 cm, granite is ~greenish (more altered).

@0-60 cm: Shear fractures, white fill.

@9-33 cm: vein, <5 mm, green fill, with quartz clasts, sub-mm in size, displaced several times by shear fractures.

@30-60 cm: cm-spaced veins, white (calcite) and dark green fill.

CT: Granite facies; Veins with low CT, low D, and high Z.

Coarse-grained granite with K-feldspar (<4 cm), plagioclase (<2,5 cm), quartz (<2 cm) and biotite (<0,5 cm), homogeneously distributed.

@66-73 cm: Several shear fractures, white fill, sub-mm.

@81-94 cm: Dark green vein network, <2 mm, dextrally displaced (at 90 cm) by 1 cm.

@91-92 cm: Open fracture (~5 mm) filled with calcite crystals (<2 mm in size).

CT: Granite facies; Veins with high CT, low D, and high Z.

Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<2 cm), biotite (<0.5 cm); zone from 30-40 cm is finer grained

Below52/54 cm, impact melt dikelet (grey in color) with vesicles (<1 mm); clasts are less than 2 mm.

[impact melt-clast rich, based on next section] – contact is sharp

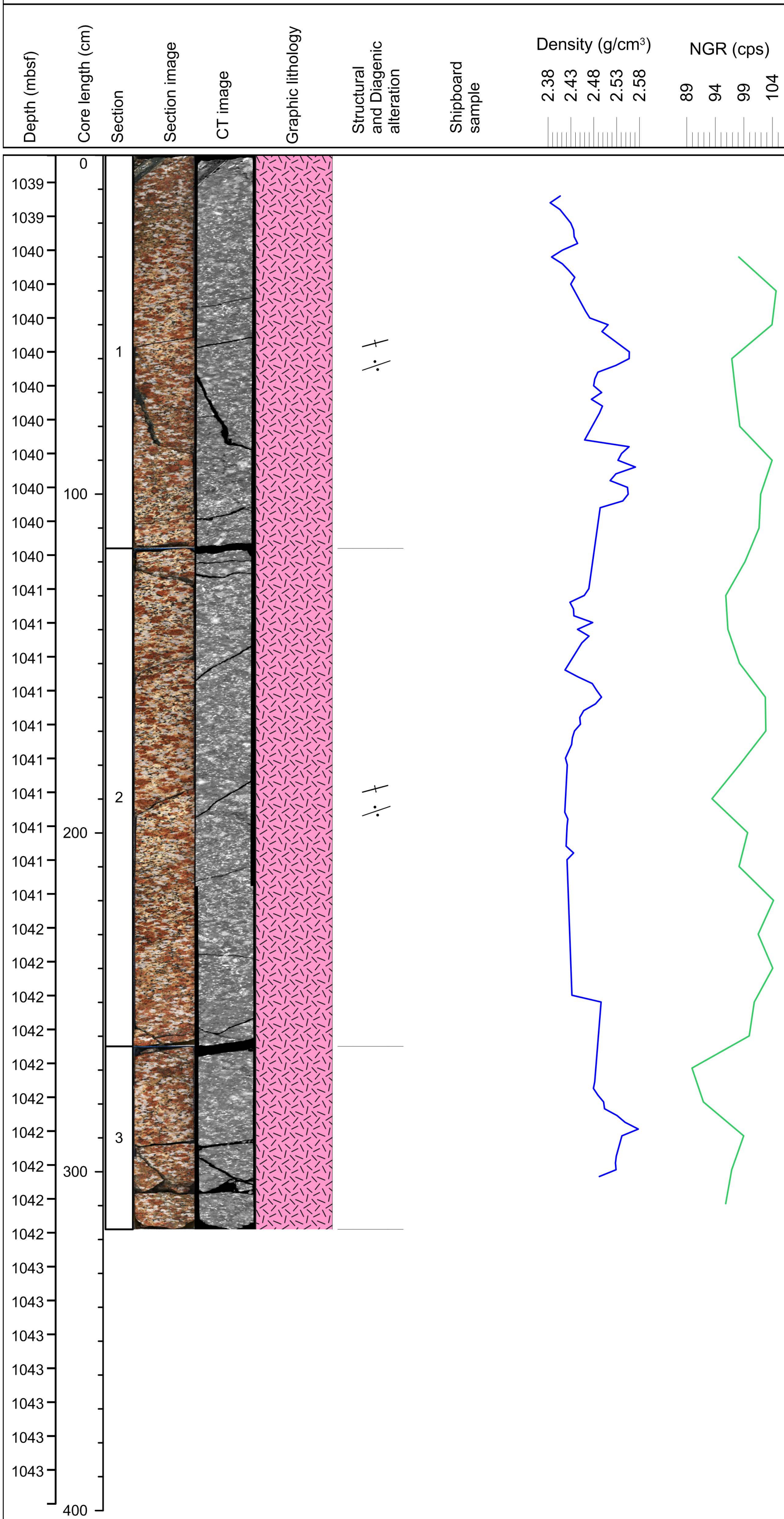
Occasional sub-mm thick white shear fractures

52-58 cm: 2 cm thick impact melt rock dike, clast rich with granitic clasts

[54-59 cm: piece is in incorrect orientation]

CT: granite facies, local lack of white minerals, melt rock has low CT

Hole M0077A Core 207R Cored 1039.22-1042.32 mbsf



Description

Granite

Coarse-grained granite, with K-feldspar (3 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm), homogeneously distributed

Upper part is somewhat greenish, until ~28 cm

108 cm: S180/23 L255/5 – 3

70-97 cm: S250/20 L220/18 + 2 Soapy feel on surface

0-41 cm: several shear fracture sets, anastomosing, parallel to impact melt rock intrusion

0-9 cm: clast-rich impact melt rock dike, 2 cm thick, (vesicles up to ~ 1 mm). Sub mm shear zones in melt rock against granite contact. Clasts in part digested-melted

CT: granite facies, melt rock with low CT

Granite

Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<2 cm), biotite (<0.5 cm), homogeneously distributed. Massive/undeformed.

120 cm: S10/52 L80/10 – 3

80-90 cm: white shear fracture, sub mm thick

119-120 cm: anastomosing, sub mm thick shear fracture network, white fill

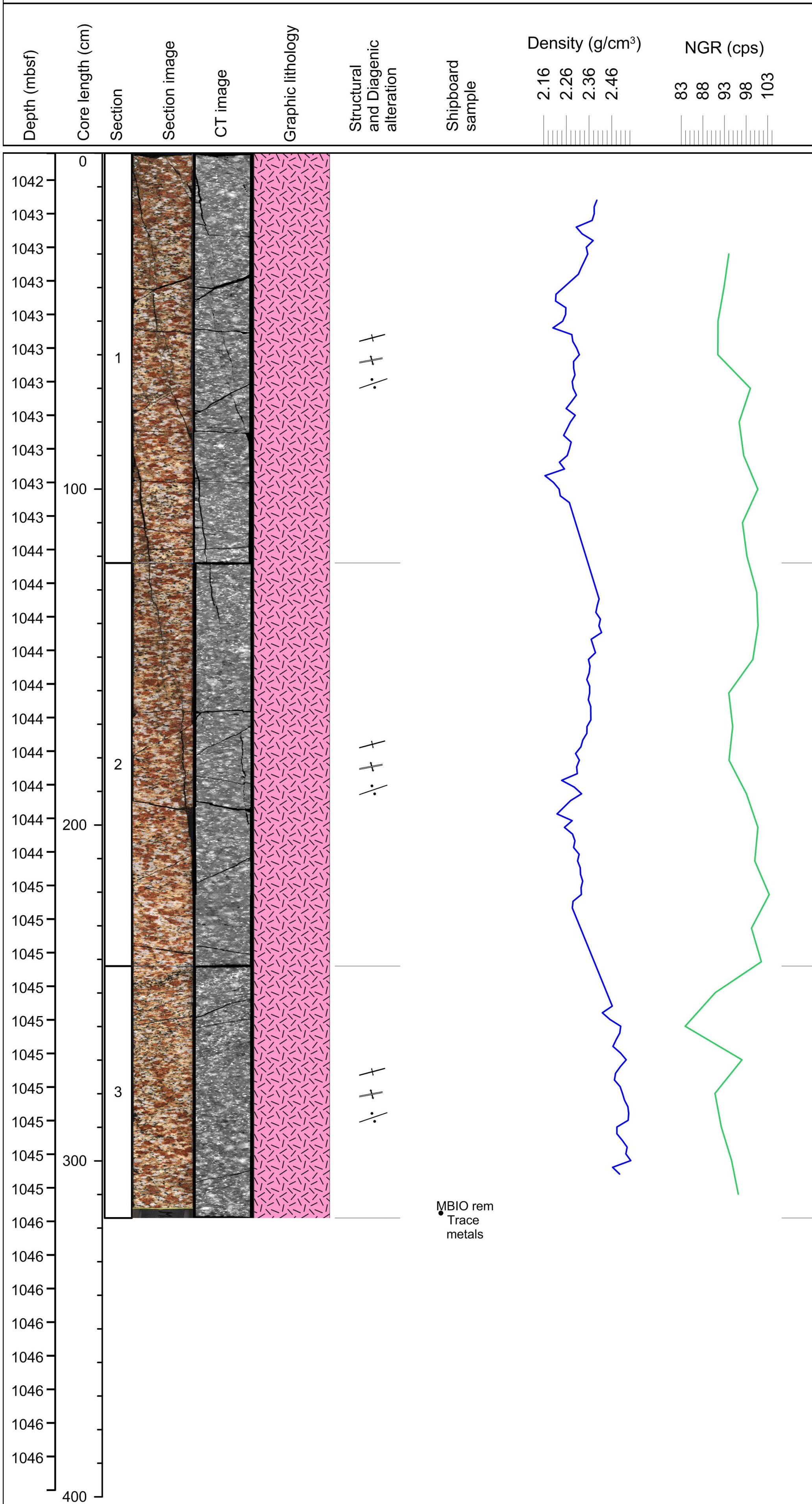
CT: granite facies

Coarse-grained granite with K-feldspar (2,5 cm), plagioclase (2 cm), quartz (2 cm) and biotite (<0,5 cm), homogeneously distributed. Somewhat more altered below 40 cm.

@32-54 cm: Dark green veins, sub-mm thick.

CT: Granite facies.

Hole M0077A Core 208R Cored 1042.32-1045.42 mbsf



Description

Coarse-grained granite with K-feldspar (3 cm), plagioclase (2 cm), quartz (1,5 cm) and biotite (<0,5 cm). Biotite almost homogeneously distributed.

@40 cm: S 140/75 L 140/75 (-2).

@70 cm: S 330/80 L 330/180 (-2).

Sub-parallel, sub-vertical dark-green anastomosing shear fractures.

@10-67 cm: Sub-horizontal white filled shear fractures, all but one are displaced by sub-vertical, dark-green fractures.

CT: Granite facies, sub-vertical fractures with low CT and low D.

Same undeformed coarse-grained granite as in previous section, with K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm) and biotite (<0,5 cm). Thin green vein crosscut the core sub-vertically.

@0-89 cm: Sub-vertical, anastomosing, green-filled shear fracture.

@90 cm: S 330/65 L 330/65 (+3).

CT: Granite facies.

Granite

Undeformed granite, coarse-grained. K-feldspar (3 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm)

12 cm: S145/85 L175/65 + 4

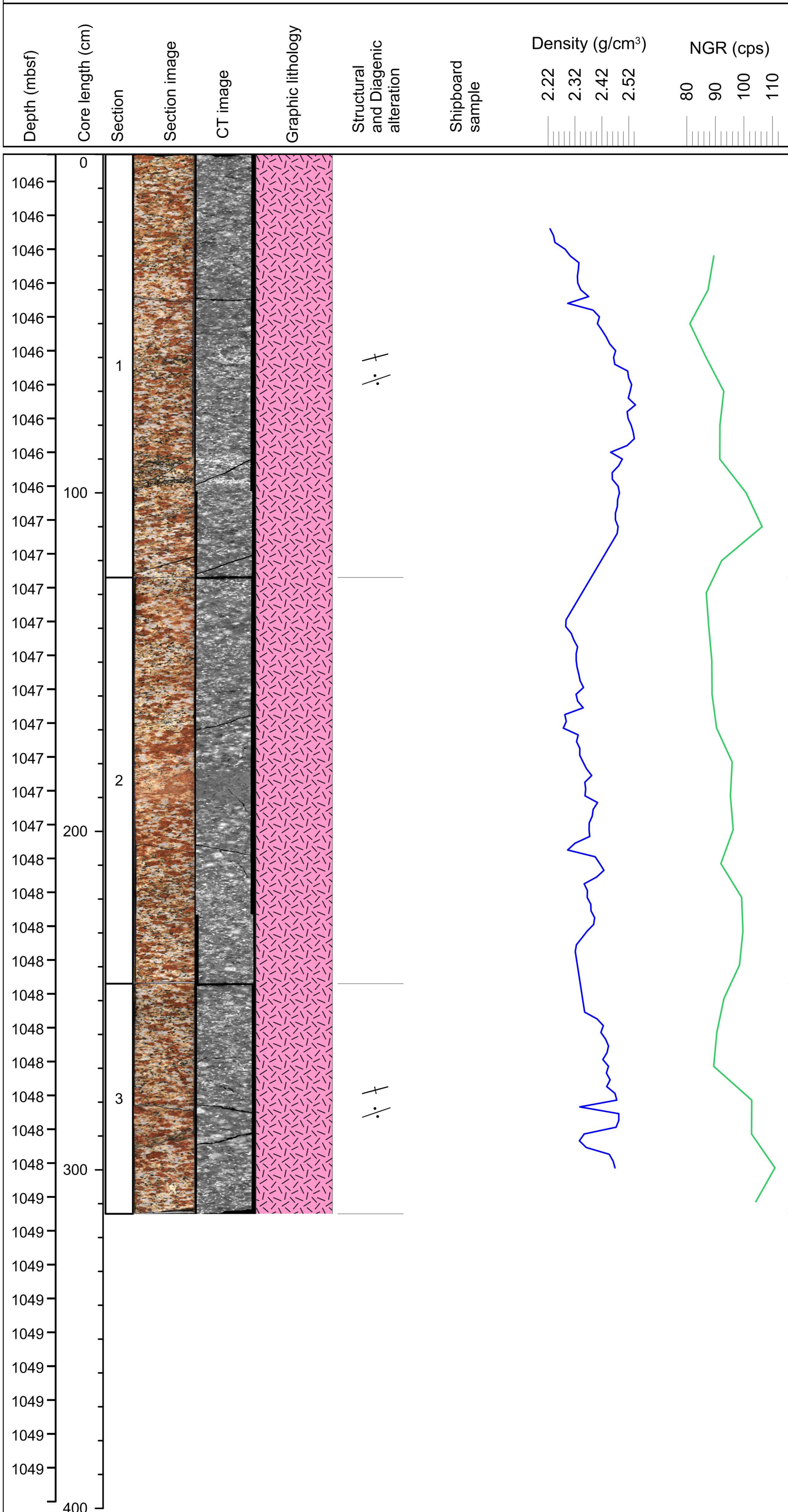
16 cm: S165/85 L180/80 – 2

6-10, 22-26 cm: anastomosing, white filled shear fractures, sub mm

60 cm: S350/85 L325/80 + 3

CT: Granite facies

Hole M0077A Core 209R Cored 1045.42-1048.52 mbsf



Description

Granite

Coarse-grained granite with K-feldspar (<4 cm), plagioclase (<2.5 cm), quartz (<1.5 cm), biotite (<0.5 cm). Biotite is locally concentrated at 90-98 cm (and also at ~65 cm).

94 cm: 310/55 L250/40 +4

2, 25, 62 cm: cataclastic shear fractures yellow-brown, <4 mm

Locally occurring white shear fractures <mm

CT: granite facies

Coarse-grained granite with K-feldspar (< 4 cm), plagioclase (2,5 cm), quartz (1,5 cm) and biotite (<0,5 cm). Grain-size change through the section locally coarse-grained.

@57-66 cm: Fine-grained with needles less than 5 mm.

CT: Granite facies; 50-65 cm, no white CT minerals.

Granite

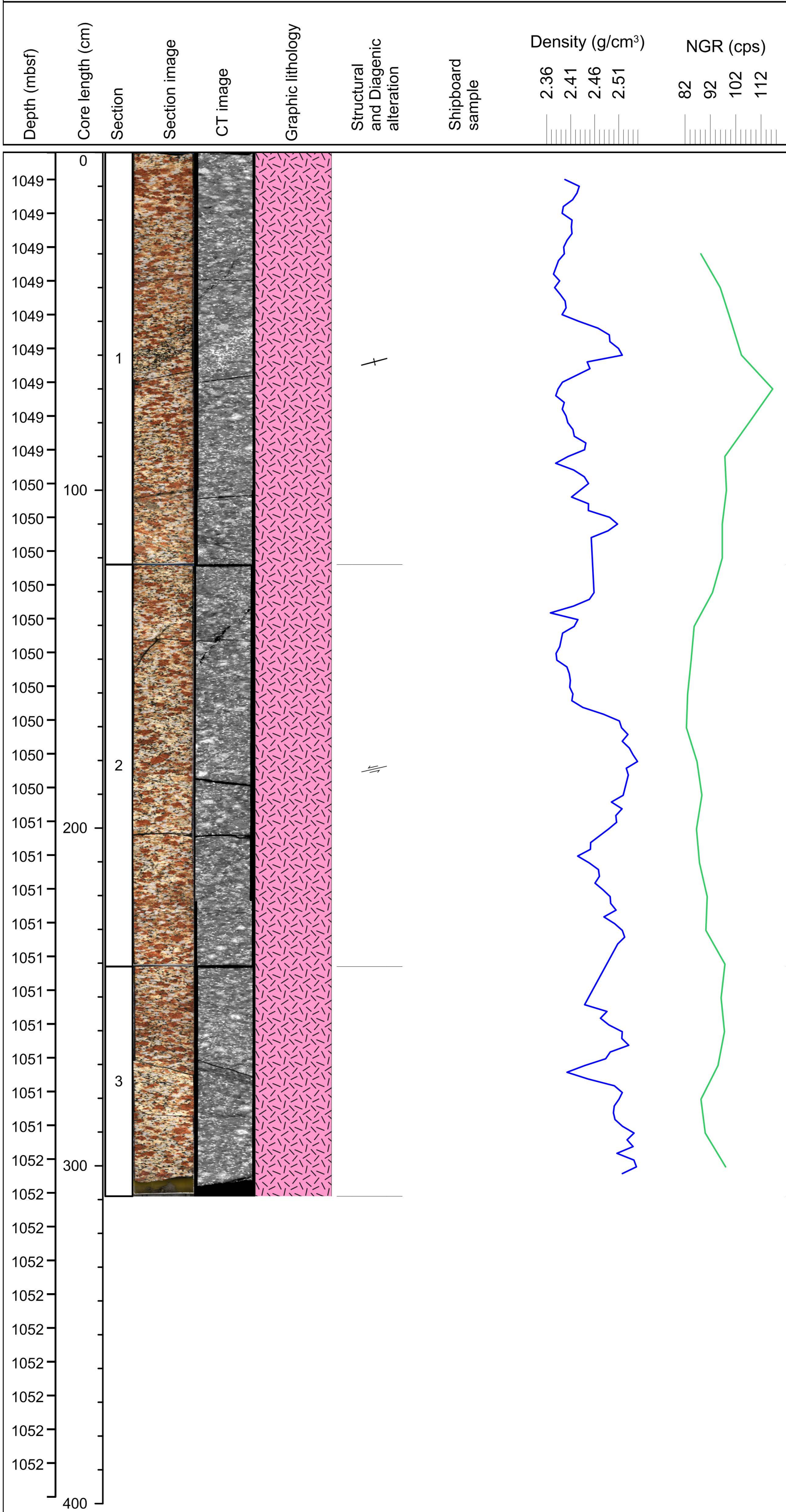
Coarse grained granite with K-feldspar (<3 cm), plagioclase (<2.5 cm), quartz (< cm), (biotite (<0.5 cm) Homogeneously distributed. Locally altered, dark green and in a few spots reddish

22-26 cm: sub-mm white, shear fracture network

52-60 cm: <mm, white shear fracture

CT: granite facies

Hole M0077A Core 210R Cored 1048.52-1051.62 mbsf



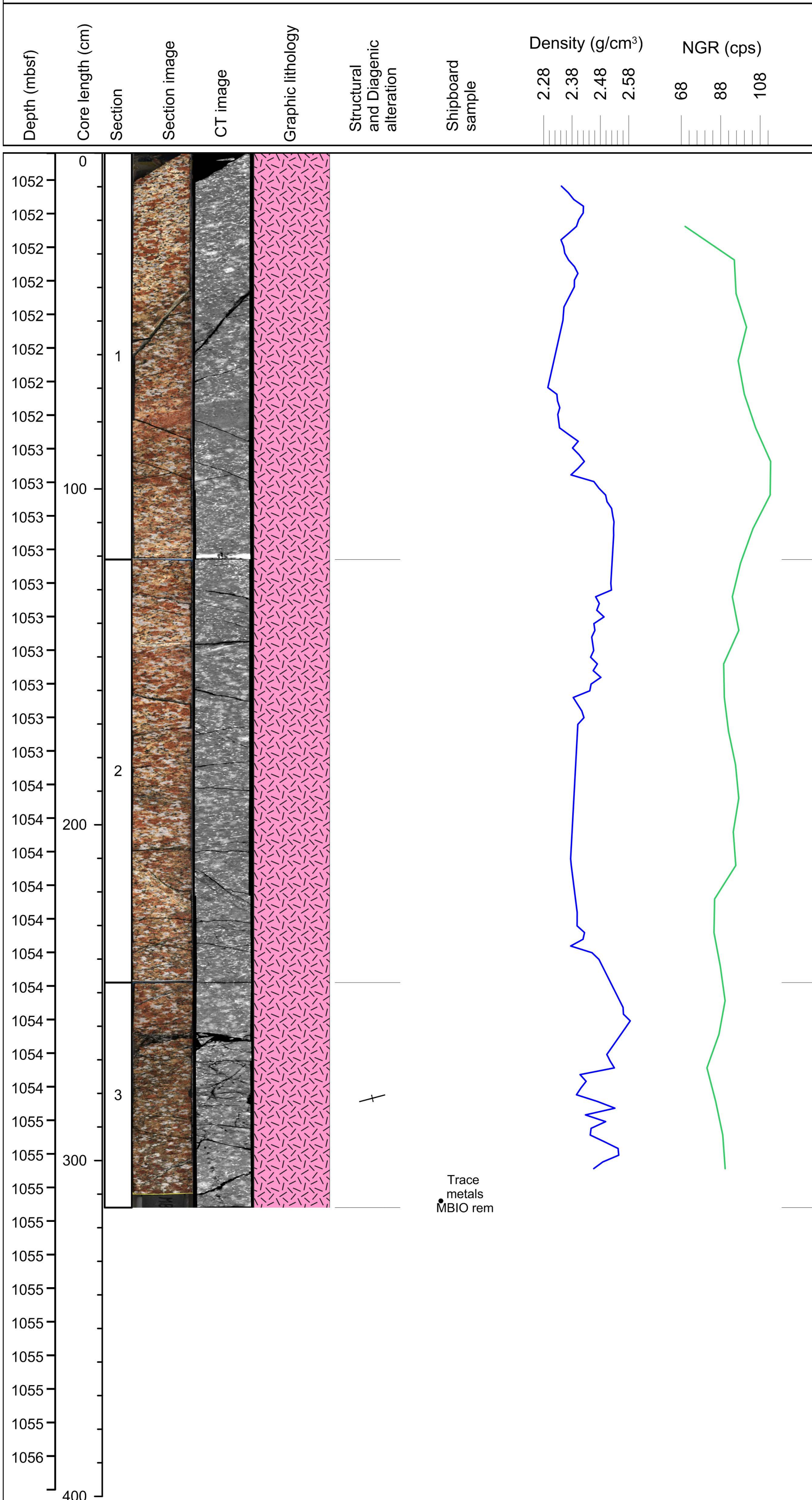
Description

Coarse (1 to 2.5 cm) granite, weakly deformed. The zone from 56 to 6 cm is enriched in biotite. Hairline fractures and veins occur through the section, but are too small to identify any mineralization. Green mineralization is associated with biotite. Fault at 37 cm: S 351/58, L 082/20 (+) 3. Fault at 66 cm: S 341/55, L 285/20 (+) 1. Fault at 101 cm: S 340/56, L 330/48 (+) 3. Color is 5 YR 7-6/6. CT is dark gray.

Coarse (1 to 2 cm) granite, very weakly deformed. White and dark green veins. Green mineralization associated with biotite. Fault at 23 cm: S 184/80, L 105/12 (-) 2. Second lineation on fault at 23 cm: S 184/80, L 180/79 (+) 3. Fault at 68 cm: S 382/26, L 132/10 (-) 2. Second lineation on fault at 68 cm: S 382/26, L 205/26 (-) 2. Color is 5 YR 7/4-6. CT is dark gray.

Coarse (1 to 2 cm) granite, moderately deformed. In the zone 30 to 40 cm,, K-feldspar is less abundant than plagioclase. White and dark green veins cut the section. Green mineralization is associated with biotite. Fault at 31 cm: S 310/56, L 260/135 (-) 3. Fault at 95 cm: S 195/64, L 205/52 (+) 3. Color is 5 YR 7/6-4. CT is dark gray.

Hole M0077A Core 211R Cored 1051.62-1054.72 mbsf



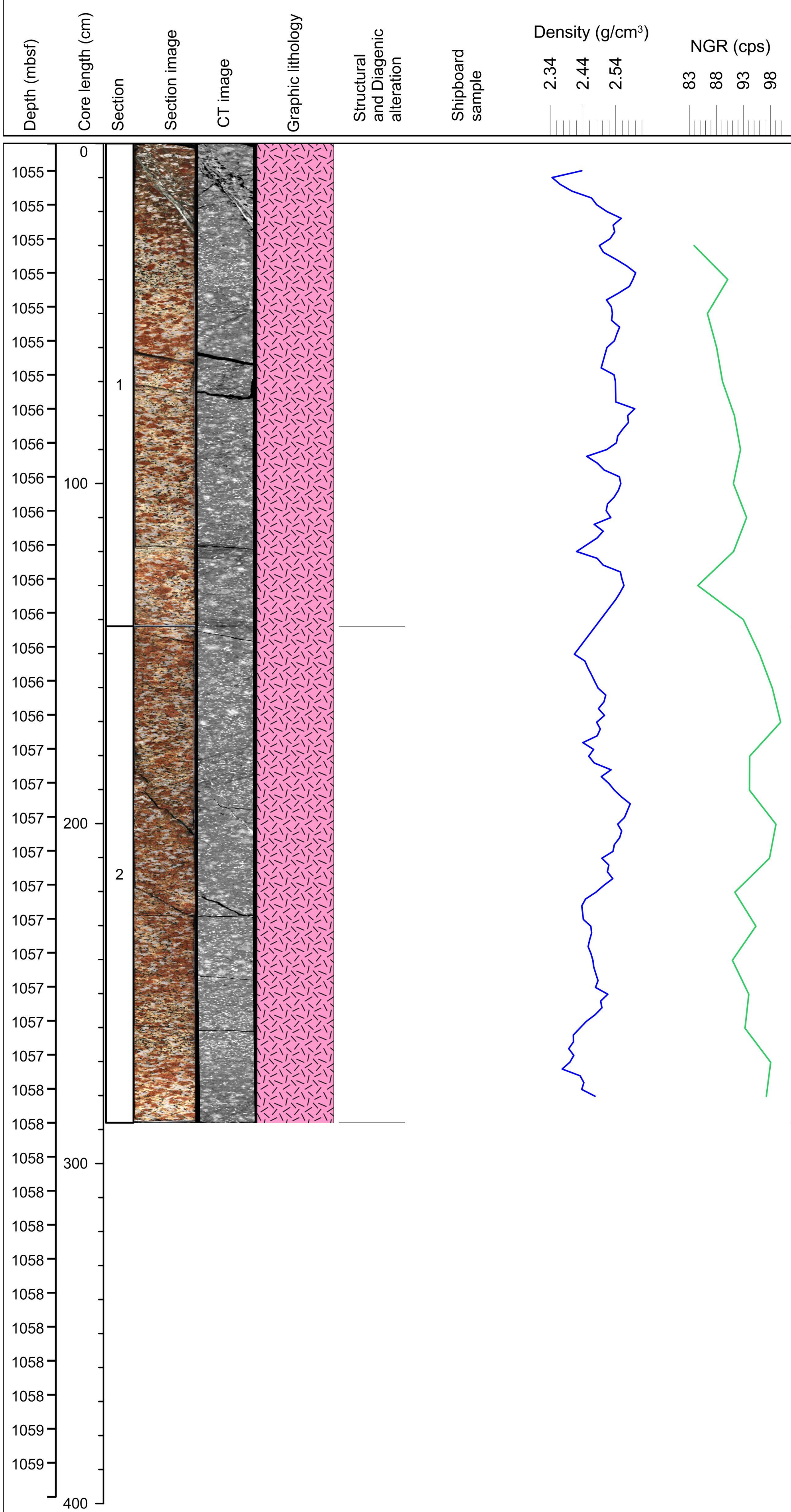
Description

Coarse granite, moderately deformed. A pegmatitic zone occures between 72 and 80 cm; the K-feldspar has a graphic texture. Veins at 50 has a cataclastic texture and is bounded by a 2 to 3 cm wide alteration zone. White and dark green veins cut the section. Green mineralization is associated with biotite. Fault at 51 cm: S 110/55, L 164/35 (+) 3. Fault at 82 cm: S 215/81, L 225/80 (+) 3. Color is 5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed. White and green-colored veins cut the section. Cataclastic veins at 26, 70, 82, 98, and 116 cm. Fault at 22 cm: S 350/35, L 295/25 (+) 2. Fault at 67 cm: S 010/58, L 332/38 (+) 1. Fault at 75 cm: S 066/34, L 150/06 (+) 1. Color is 5 YR 7/4. CT is dark gray.

Coarse granite, strongly deformed. White and dark green veins. Red and green mineralization associated with biotite. Several cataclastic veins, some cross-cut by later fractures. Fault at 6 cm: S 46/36, L 16/32 (+) 3. Color is % YR 7/4. CT is dark gray.

Hole M0077A Core 212R Cored 1054.72-1057.52 mbsf

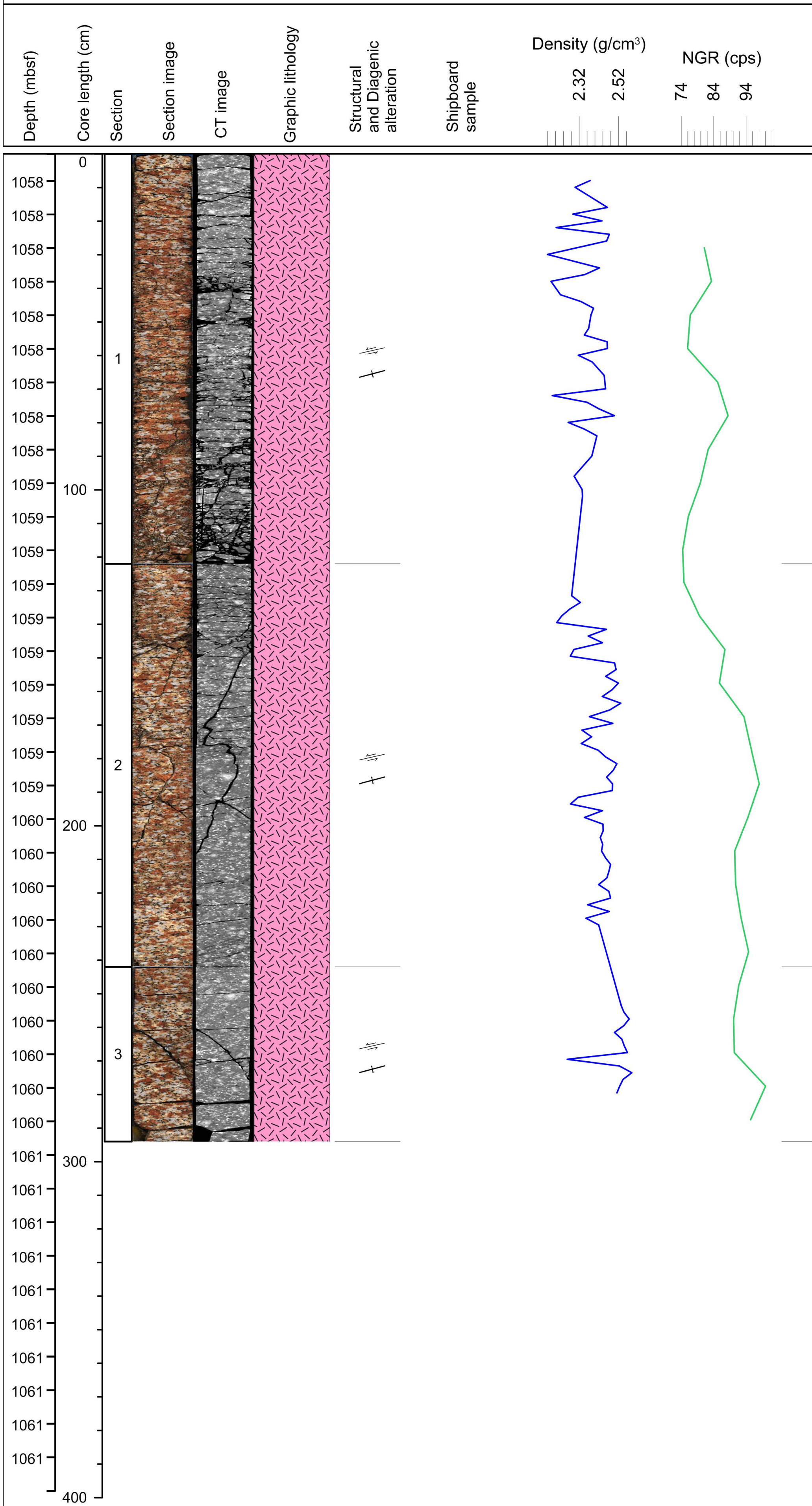


Description

Coarse-grained granite, strongly deformed, especially between 0 and 27 cm. A zone between 35 and 44 cm is enriched in biotite (~10%). A zone between 52 and 62 cm is enriched in K-feldspar (>60%) and contains little (<1%) biotite. White veins cut the section. Green mineralization is associated with biotite. Veins filled with cataclastic material occurs at 13 cm and from 119 to 123 cm. Color is % YR 7/1-4. CT is dark gray.

Coarse-grained granite, moderately. A zone from 110 to 125 cm is enriched in biotite (~10%). A zone from 126 to 144 cm is depleted in biotite (~1%). Green mineralization is associated with biotite. Fault at 54 cm: S 190/58, L 098/16 (-) 1. Fault at 56 cm: S 235/86, L 168/60 (+) 3. Fault at 117 cm: S 011/56, L 086/15 (-) 3. Color is 5 YR 6/4. CT is dark gray.

Hole M0077A Core 213R Cored 1057.52-1060.62 mbsf

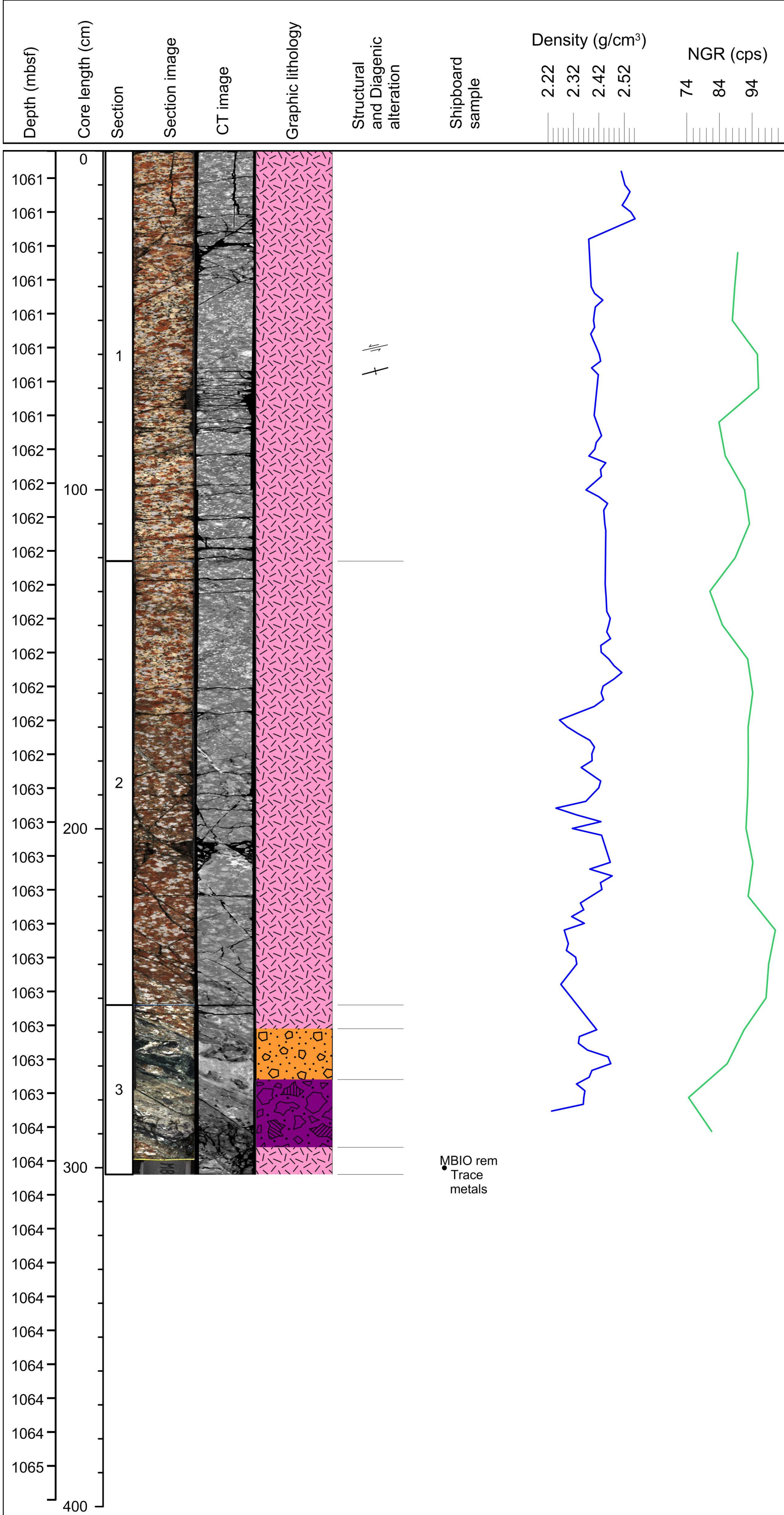


Coarse-grained granite, totally fractured along parallel (pre-impact) faults. White vein. Green mineralization is associated with biotite. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, strongly deformed. The zone from 0 to 25 cm is heavily fractured along parallel faults; the zone from 25 to 55 cm is strongly fractured; and the zone from 55 to 120 cm is moderately fractured. Fault at 38 cm: S 285/47, L 355/5 (-) 3. Fault at 66 cm: S 280/49, L 18/11 (-) 3. White vein. Green mineralization associated with biotite. Color is 5 YR 7/4. CT is dark gray.

Coarse-grained granite, strongly deformed. White and dark green veins. Section broken by five parallel faults and a fracture. Fault at 47 cm: S 335/75, L 348/70 (+) 1. Color is 7.5 YR 7.4. CT is dark gray.

Hole M0077A Core 214R Cored 1060.62-1063.72 mbsf



Description

Coarse-grained granite, strongly deformed. White and dark green veins. Pale green alteration as discrete (<1 mm) grains throughout section. Strongly fractured from o to 40 cm and from 64 to 120, along parallel faults. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, strongly deformed. White and dark veins cut the section. A light olive gray overprint (dominantly alteration of plagioclase) from 44 cm to end of section. Cataclastic veins at 42, 60, 83, and 125 cm. Color is 7.5 YR 7/4. CT is dark gray.

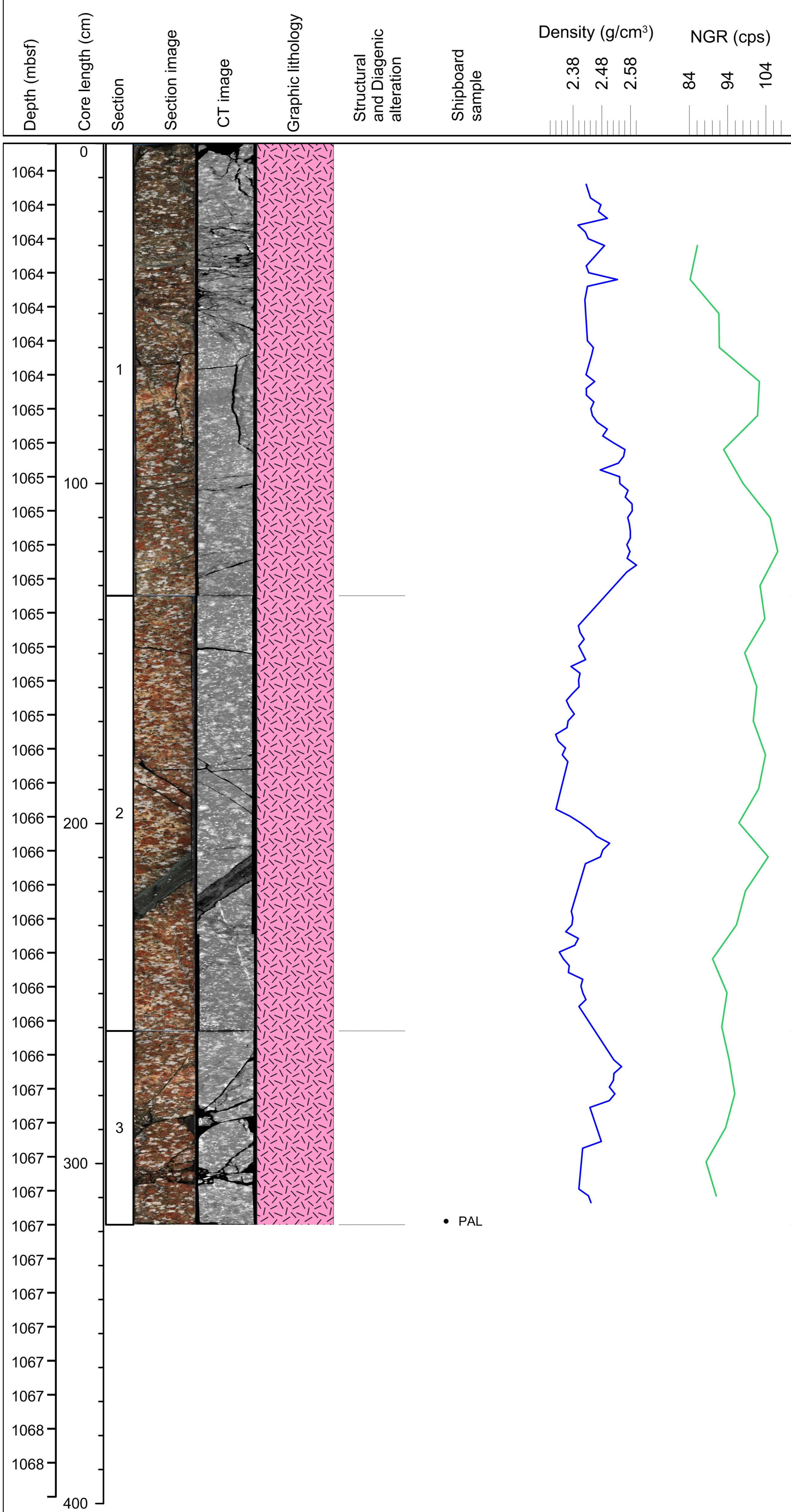
Coarse-grained granite, strongly deformed. Color is 5 YR 5/3. CT is dark gray.

Clasts include impact melt, granite, and dolerite, which are collectively highly deformed. Most rock fragments are resorbed. Color greenish. CT is dark gray.

Mixed cataclasite and melt, strongly mingled. Clasts include impact melt and granite. Color is light greenish. CT is dark gray.

Coarse-grain granite, highly deformed. Color is 5 YR 5/3. CT is dark gray.

Hole M0077A Core 215R Cored 1063.72-1066.77 mbsf



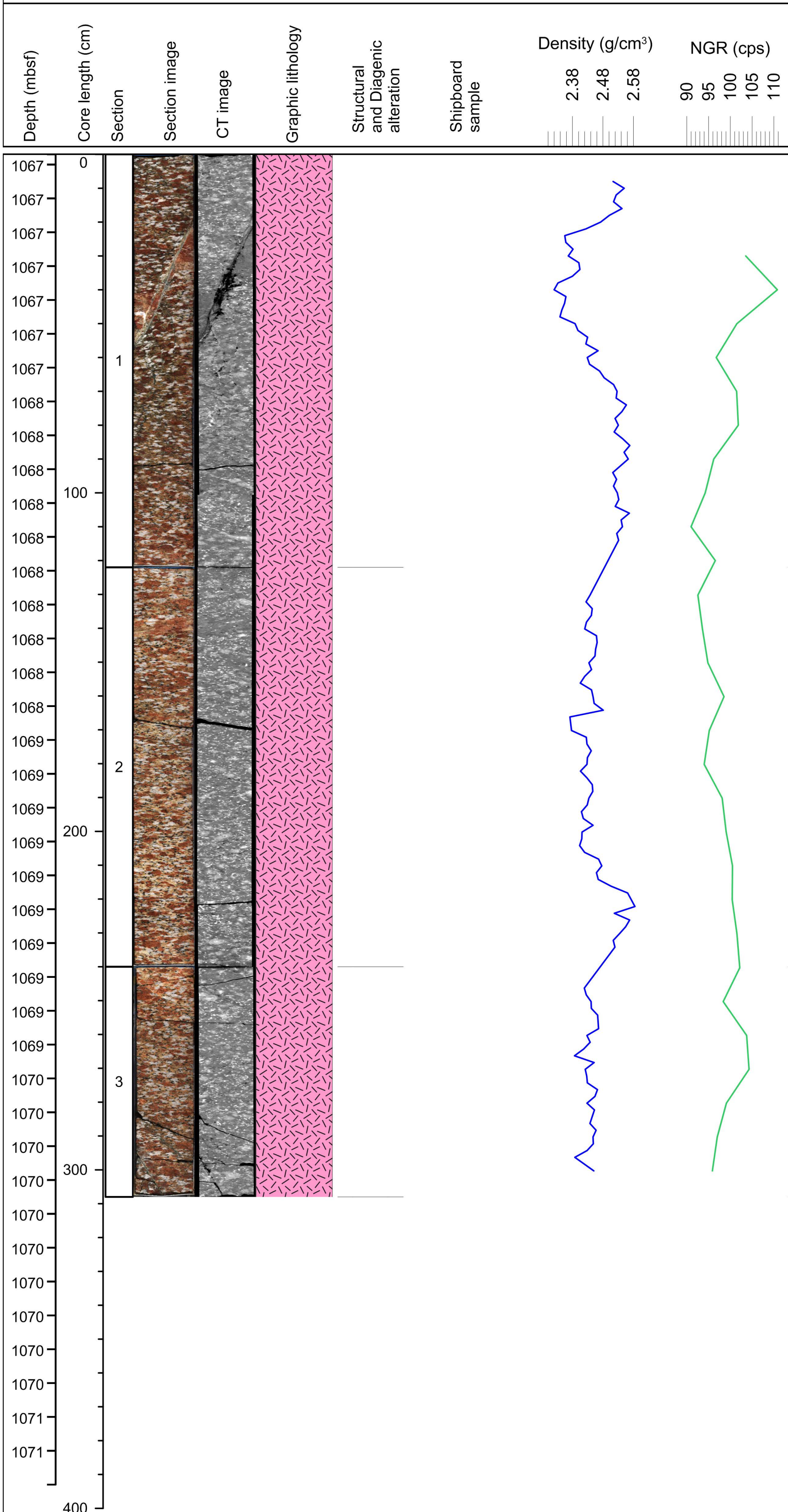
Description

Coarse-grained granite, strongly deformed. A zoneo of pink pegmatite occurs from 67 to 71 cm. The zone from 0 to 48 cm is totally broken; cataclastic veins are present. The zone from 50 to 132 cm is strongly deformed. White, dark green, and light olive gray veins cut the section. Color is 7.5 YR 4.3. CT is dark gray.

Coarse-grained granite, slightly deformed. At 105 cm, there is a fine cataclastic vein. Fault at 90 cm: S 126/68, L 034/05 (+) 1. From 76 to 84 cm, the granite is intruded by a vesicular, greenish gray, clast-poor impact melt vein. Color is 7.5 YR 7.4. CT is dark gray.

Coarse-grained granite strongly deformed. White and dark green veins. Fractures and fine cataclastic veinlets. Fault at 17 cm: S 295/70, L 195/08 (+) 1. Color is 7.5 YR 6/3. CT is dark gray.

Hole M0077A Core 216R Cored 1066.77-1069.82 mbsf



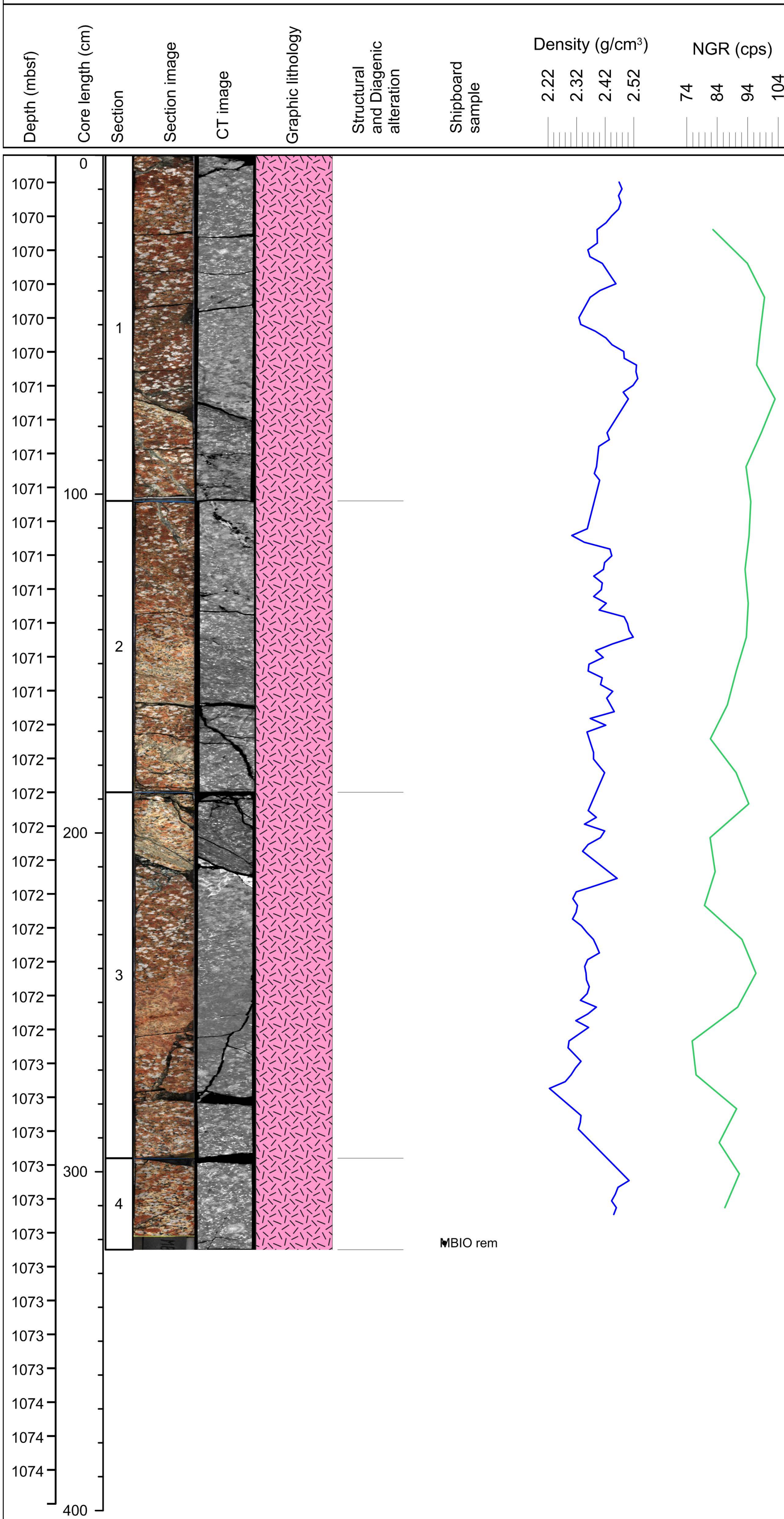
Description

Coarse-grained granite, moderately deformed. White and dark green veins. Green mineralization associated with biotite. A cataclastic vein runs from 20 to 56 cm. Displacement of the granite along that vein is at least 22 cm. Color is 5 YR 6/4. CT is dark gray.

Coarse-grained granite, weakly deformed. White vein. Green mineralization associated with biotite. Fault at 78 cm: S 150/42, L 072/04 (+) 3. Fault at 97 cm: S 355/52, 084/08 (+) 3. Color at 7.5 YR 7.4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, moderately deformed. White and dark green veins. Green mineralization associated with biotite. At 61 cm, there is a 2 mm-thick cataclastic vein. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 217R Cored 1069.82-1072.87 mbsf



Description

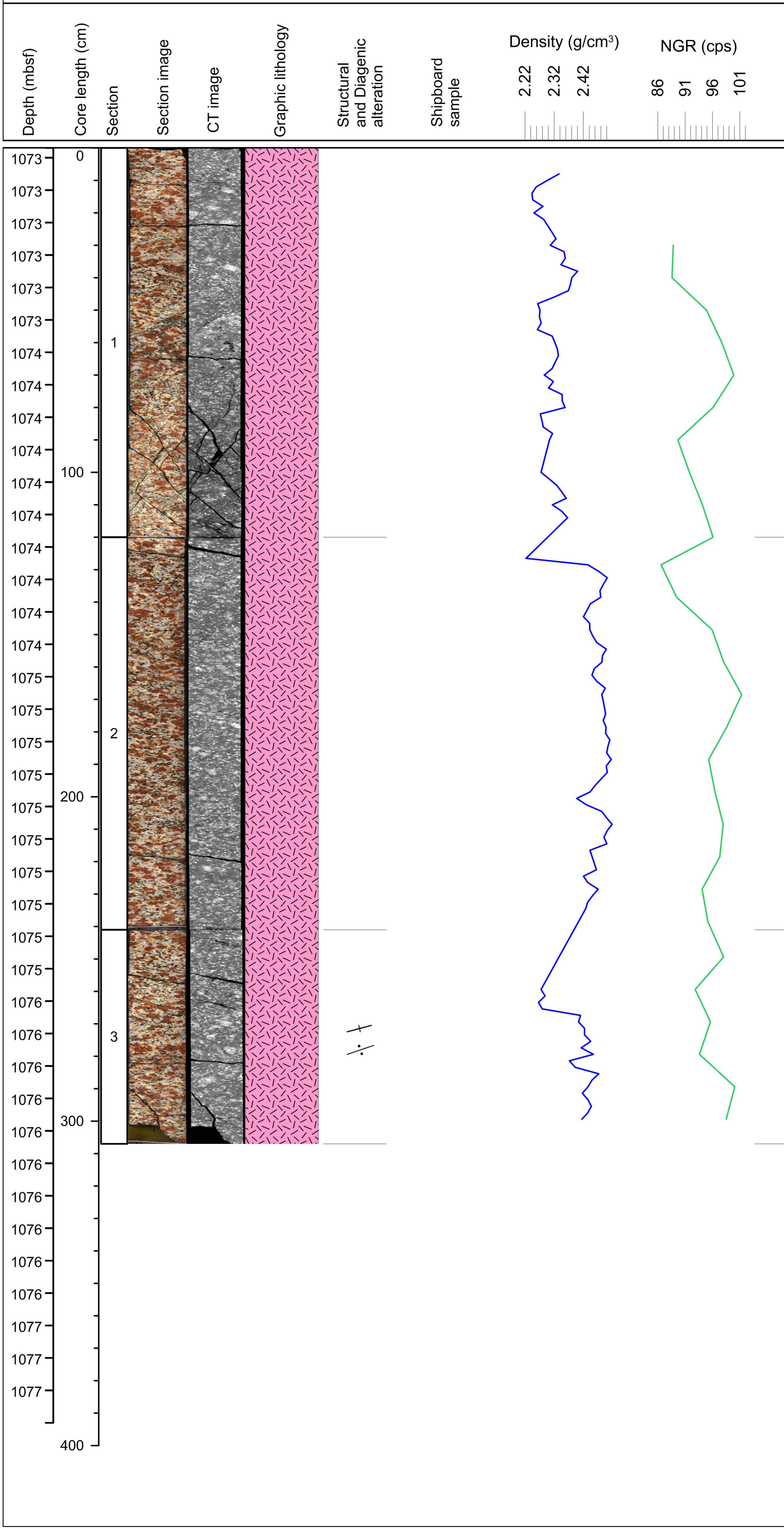
Coarse-grained granite, strongly deformed. Foliated deformation zone about 20 cm wide at 72 to 81 cm. Additional cataclastic matertial is at 85 to 100 cm. Fault at 60 cm: S 350/25, L 335/16 (-) 3. Fault at 73 cm: S 215/56, L 305/24 (-) 3. Whtie and dark green veins. Color is 7.5 YR 5/2. CT is dark gray.

Coarse-grained granite, strongly deformed. The zone from 0 to 40 cm is a dark pink granite, while that from 40 to 86 cm is a light pink granite. White and dark green veins cut the section. Cataclastive veins at 7 and 24 cm. A foliated zone runs from 44 to 60 cm. Color is 7.5 YR 6/4 (0 to 35 cm) and 7.5 YR 7/3 (35 to 86 cm). CT is dark gray.

Coarse-grained granite, but variable through the section. From 0 to 22 cm, it is light gray granite that is strongly deformed and foliated. From 22 to 27 cm there is a possible psuedotachylite and cataclastic material. From 53 to 77 cm is a pegmatite. From 77 to 108 cm, the unit is strongly deformed again. White and dark green veins. Fault at 6 cm: S 230/75, L 295/60 (+) 3. Fault at 17 cm: S15/75, L 305/11 (+) 1. Fault at 83 cm: S 105/36, L 160/18 (+) 3. Color changes with lithology. From 0 to 22 cm, it is 7.5 YR 7/4. From 22 to 53 cm it is 7.5 YR 5/4. From 53 to 77 cm it is 7.5 YR 7/3. From 77 to 108 cm, it is 7.5 YR 5/4. CT is dark gray.

Coarse-grained granite, moderately deformed. White vein. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 218R Cored 1072.87-1075.92 mbsf



Description

Coarse-grained granite, moderately deformed. White veins. Green mineraliation associated with biotite. Cataclastic veins at 56, 71, and 110 cm. Fault at 57 cm: S237/46, L088/33 (-) 1. Fault at 99 cm: S 225/76, L 064/42 (-) 3. Fault at 87 cm: 054/80, L 325/05 (+) 3. Fault at 92 cm: S 082/35, L 066/30 (+) 3. Color is 7.5 YR 7.3. CT is dark gray.

Coarse (1 to 2 cm) granite, very weakly deformed. White vein. Green mineralization associated with biotite. Fault at 5 cm: S 190/48, L 233/42 (+) 3. Fault at 93 cm: S 295/49, L 235/40 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

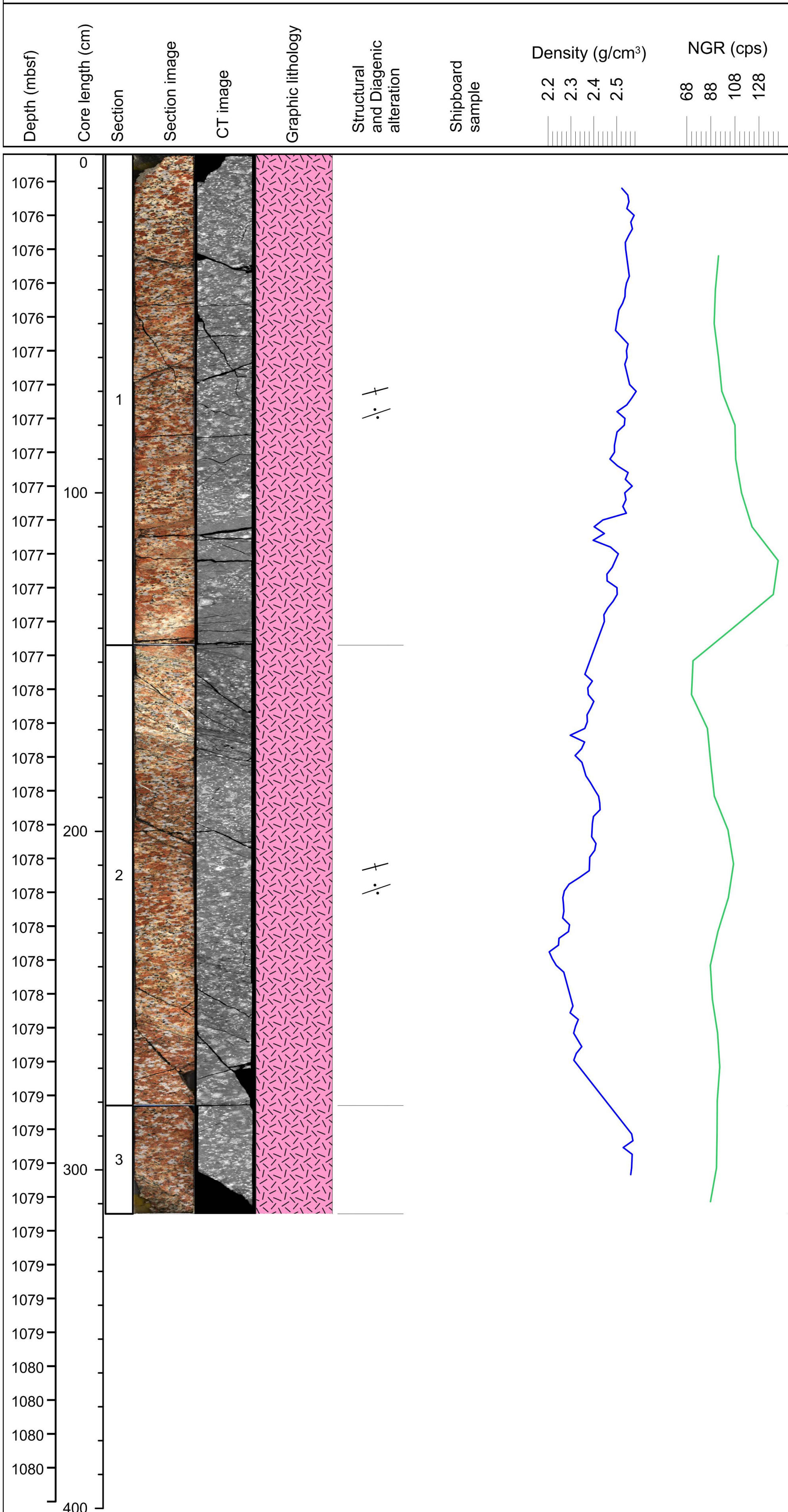
Coarse-grained granite with K-feldspars (<2,5 cm), plagioclase (<2 cm), quartz (<2 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed. Some coarse-grained K-feldspar show nice zoning in CT.

@22 cm: S 200/75 L 285/1 (-4).

@43-59 cm: 1 mm thick cataclasite truncated by shear fracture.

CT: Granite facies.

Hole M0077A Core 219R Cored 1075.92-1079.02 mbsf



Description

Coarse-grained granite with K-feldspars (<2,5 cm), plagioclase (<2 cm), quartz (<1,5 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed.

@47 cm: Quartz vein, <1 mm thick.

Aplitic zones (dykes) occur in the lower part of the core, @90 cm (2 cm), @105 cm (0,4 cm), @109 cm (~3 cm), @120 cm, and below 130 cm.

Needles, up to 6 mm long, black in color, occur in lower part of section (tourmaline/rutile?).

@0-143 cm: Occurrence of six anastomosing shear fractures, white fill, sub-mm in thickness (quartz).

@60-68 cm: S 320/45 L 320/45 (+3).

@105 cm: Aplite truncating euhedral K-feldspar in granite.

@107-111 cm: S 330/25 L 315/20 (+3).

CT: Granite facies; Aplite zones are devoided of W CT minerals.

Granite

Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<1.5 cm), biotite (<0.5 cm), homogeneously distributed.

Upper part, above 35 cm is highly deformed.

Below 109 cm, plagioclase is rare and biotite is locally concentrated and titanite (5 mm)

10-20 cm: S40/70 L310/1 – (3)

18-24 cm: S45/70 L315/1 – (2)

26-28 cm: S25/65 L25/65 + (3)

30-34 cm: S30/75 L95/60 - (4) L320/40 – (3)

31-35 cm: S215/75 L120/30 + (2)

1-32 cm: localized zones of shear fabric of 1-2 cm width

1-32 cm: anastomosing, white/grey fill, cm-spacing, shear fractures

40-50 cm: calcite vein (33 mm)

50-136 cm: occasional shear fractures and sub-mm cataclasites

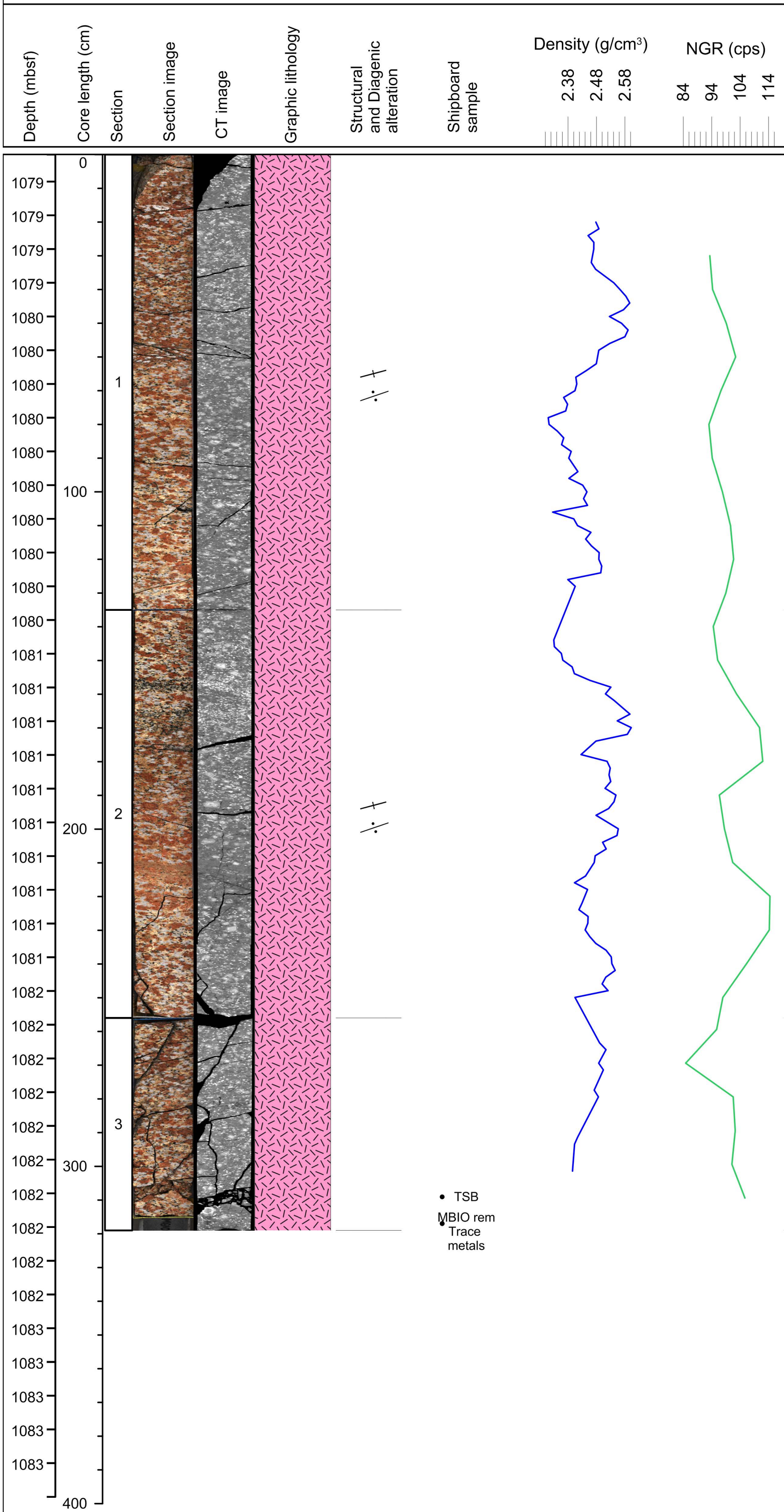
CT: granite facies

Coarse-grained granite with K-feldspars (<4 cm), plagioclase (<3 cm), quartz (<2 cm), and biotite (<0,5 cm) + Titanite.

@15 cm: white vein (quartz), sub-mm in thickness.

CT: Granite facies.

Hole M0077A Core 220R Cored 1079.02-1082 mbsf



Description

Coarse-grained granite with K-feldspars (<3 cm), plagioclase (<2,5 cm), quartz (<2 cm), and biotite (<0,5 cm), locally concentrated. K-feldspar grains are locally slightly finer-grained, @28-54 cm.

Dm-spaced, anastomosing shear fractures throughout the core, white, <3 mm.

@10-20 cm: Calcite vein (< 1 mm).

@5 cm: S 275/60 L 345/35 (-3).

@105 cm: S 330/50 L 210/23 (-2).

@128 cm: S 350/50 L 255/10 (+2).

CT: Granite facies.

Undeformed coarse-grained granite with K-feldspars (3 cm), plagioclase (2,5 cm), quartz (2,5 cm), and biotite (<0,5 cm), locally highly concentrated (@20-24 cm; @28-36 cm).

Aplite zone at 75-82 cm.

@42-62 cm: cm-spaced shear fractures, <1 mm, white.

@78-121 cm: Anastomosing sets of white, <mm, shear fractures, with sub-vertical and sub-horizontal orientations.

@94 cm: S 105/45 L 85/40.

CT: Granite facies.

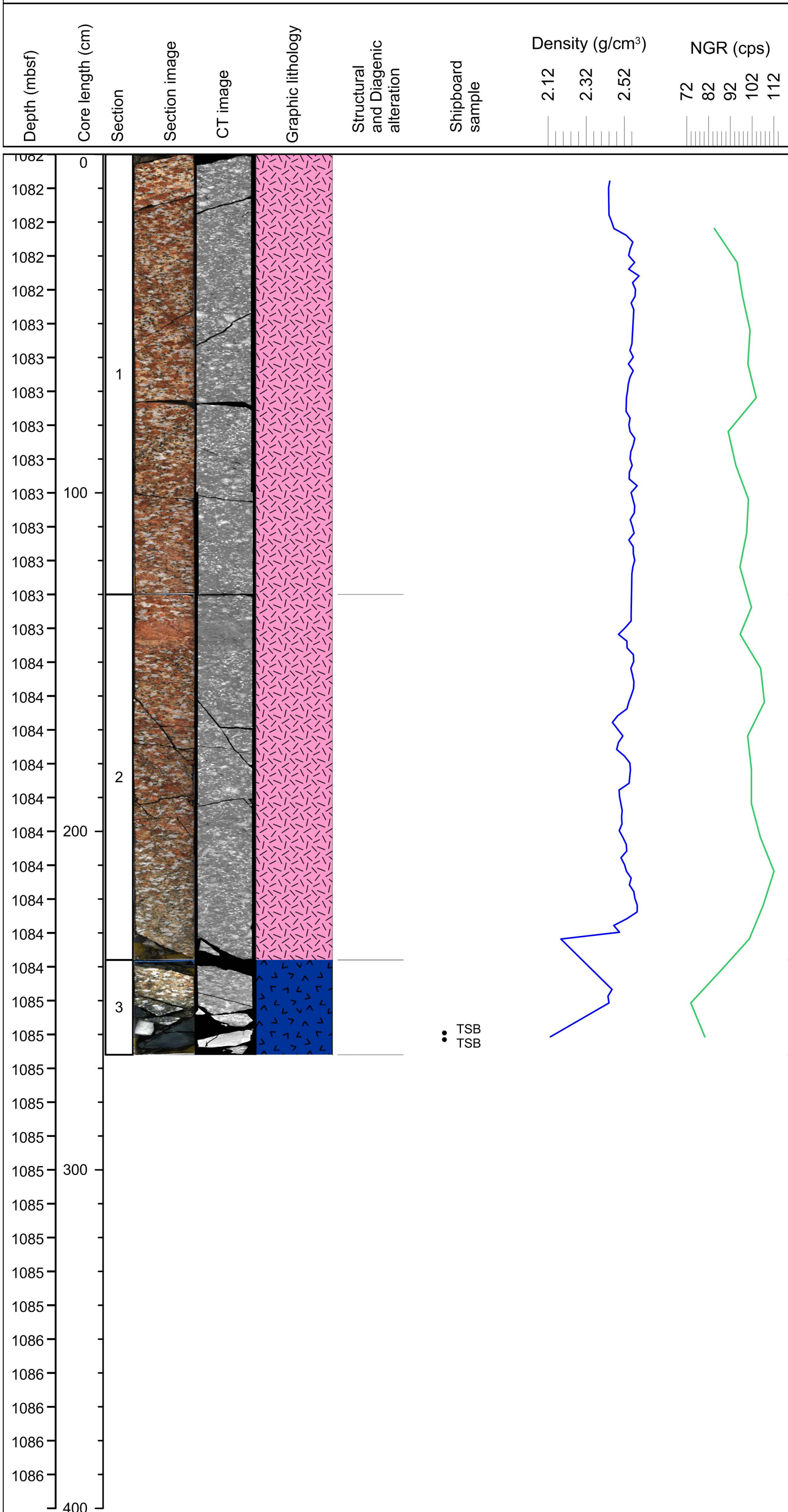
Coarse-grained granite with K-feldspars (3 cm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm), homogeneously distributed.

Locally greenish (alteration); thin veins.

@17-25 cm: sub-mm (<1 mm), green vein.

CT: Granite facies.

Hole M0077A Core 221R Cored 1082-1084.58 mbsf



Description

Coarse-grained granite with K-feldspars (<3 cm), plagioclase (<2 cm), quartz (<2 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed. Locally titanite.

@34-56 cm: <mm white and green vein.

@60-90 cm: <mm white and green vein.

@97-113 cm: <mm white and green vein.

@101 cm: S 10/80 L340/65 (+3).

CT: Granite facies.

Granite

Coarse-grained granite with K-feldspar (3 cm), plagioclase (2.5 cm), quartz (2 cm), and biotite (<0.5 cm) homogeneously distributed

@8-16 cm: aplitic zone, no biotite, black needles

Below 16 cm, granite is greyish to greenish (alteration; as in previous sections in close contact to dolerite dikes) – plagioclase are yellowish-greenish

64 cm: S70-85 L130/60 – 1

45-108 cm: veins with downwards decreasing spacing from 5 to 1 cm, green-filled, < mm width

CT: granite facies

Granite

Coarse-grained granite with K-feldspar (<2 cm), plagioclase (< 2 cm), quartz (<1.5 cm), biotite (<0.5 cm). Granite is greenish (alteration as in previous section)

2 cm: S20/50 L345/35 + (4)

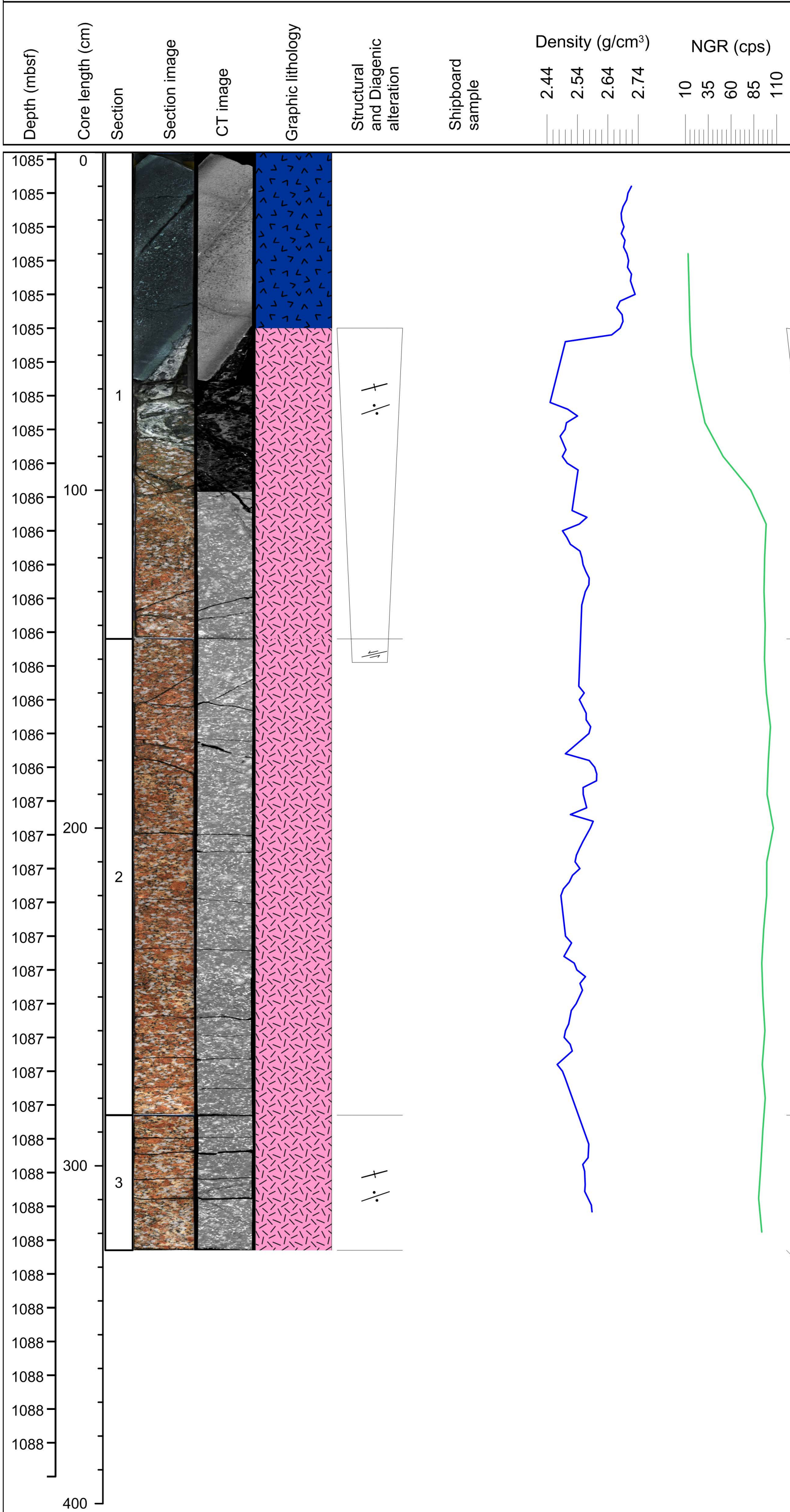
CT: granite facies

Dolerite (aphanitic)

Plagioclase (<2 mm), pyroxene (< 1mm) – light green to grey sharp contact (- 12 cm)

CT: dolerite facies

Hole M0077A Core 222R Cored 1084.58-1087.68 mbsf



Description

Dolerite (phaneritic)

With plagioclase laths up to 1 cm, pyroxene (3 mm) and network of veins from <1 mm to 5 mm (brown to black) sharp planar contact

12-30 cm: 5 mm thick brown/black vein irregular edge of vein related to sub-mm veins in dolerite, alteration in dolerite against thick vein. Thin black veins throughout dolerite <mm.

[In 10 cm band at bottom of dolerite plagioclase crystals fine to contact, 2 cm alteration zone at contact

CT: dolerite facies

Coarse grained granite, with K-feldspar (2.5 cm), plagioclase (1 cm), quartz (1.5 cm), and biotite (<0.5 cm). Greenish-grey (alteration) down to the end of the section.

98-113 cm: anastomosing shear fracture, white <mm

Polymict breccia at dolerite-granite contact, process zone

Has massive quartz matrix with clasts of granite and dolerite, where dolerite clasts contain clasts of quartz, several unoriented pieces in core have fault lineations

CT: high density, low Z; Granite in contact and next dm has higher density than typical granite facies

Granite

Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<1.5 cm), quartz (<1.5 cm), biotite (<0.5 mm), homogeneously distributed. Core cross-cut by thin white veins/quartz (planar)

63 cm: S180/85 L170/80 + 1

77 cm: S5/85 L10/80 – 4

124 cm: S180/85 L180/85 + 4

23-30 cm: 3 horizontal white veins, quartz

59-60, 84-87, 113-118 cm: horizontal white vein sets, up to 1 mm

CT: granite facies

Granite

Coarse-grained granite with K-feldspar (3 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm), homogeneously disrupted.

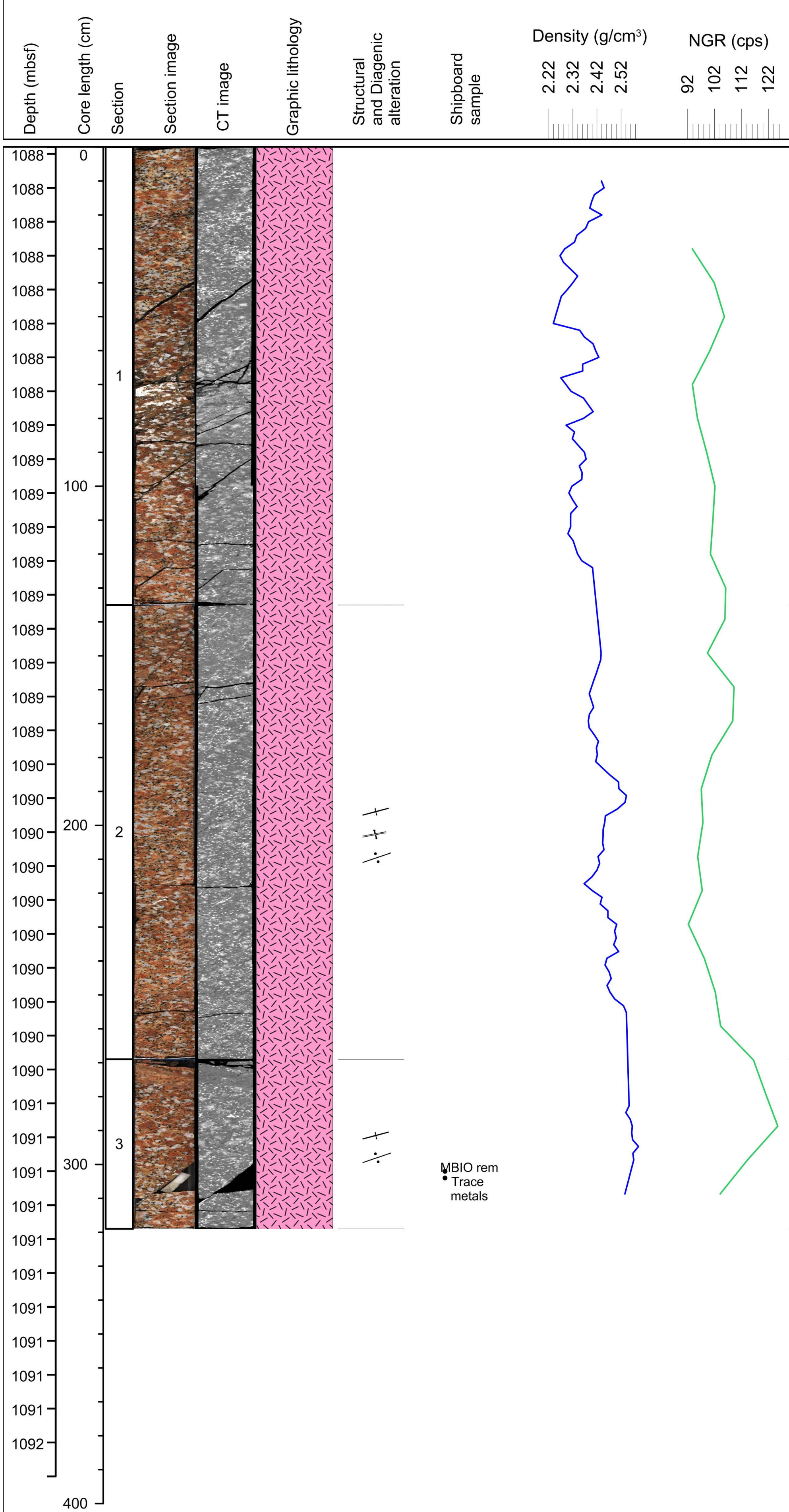
25 cm: S0/85 L70/50 – 3

20-24 cm: white and yellow green, anastomosing shear fracture zone, 2 mm

25-33 cm: anastomosing white and green shear fracture zone 1 cm

CT: granite facies

Hole M0077A Core 223R Cored 1087.68-1090.78 mbsf



Description

Granite

Coarse grained granite with K-feldspar (<2.5 cm), plagioclase (<1.5 cm), quartz (<2 cm), biotite (<0.5 cm), biotite is locally concentrated. K-feldspar grains are coarse below 42 cm. Granite is greenish between 46 and 104 cm.

76-82 cm: S145/70 L210/40 + (4)

0-135 cm: white veins, sub-mm, >decimeter spacing, quartz and calcite fill

CT: Granite facies

Granite

Coarse-grained granite, K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm).

@ 13 and 25 cm: two zones/dikes of aplite (~1 to 2 cm)

A few titanite

0-25 cm: two sub-parallel black shear fractures, sub-mm thickness; first fracture is stepped with tensile gashes with white infill; second is anastomosing

83-94 cm: shear fracture, dextral sense produces dilatation on bend in fracture filled with 4 mm thick calcite

0-134 cm: decimeter spaced white-fill veins

CT: granite facies: veins are CT bright

Granite

Coarse-grained granite, K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm)

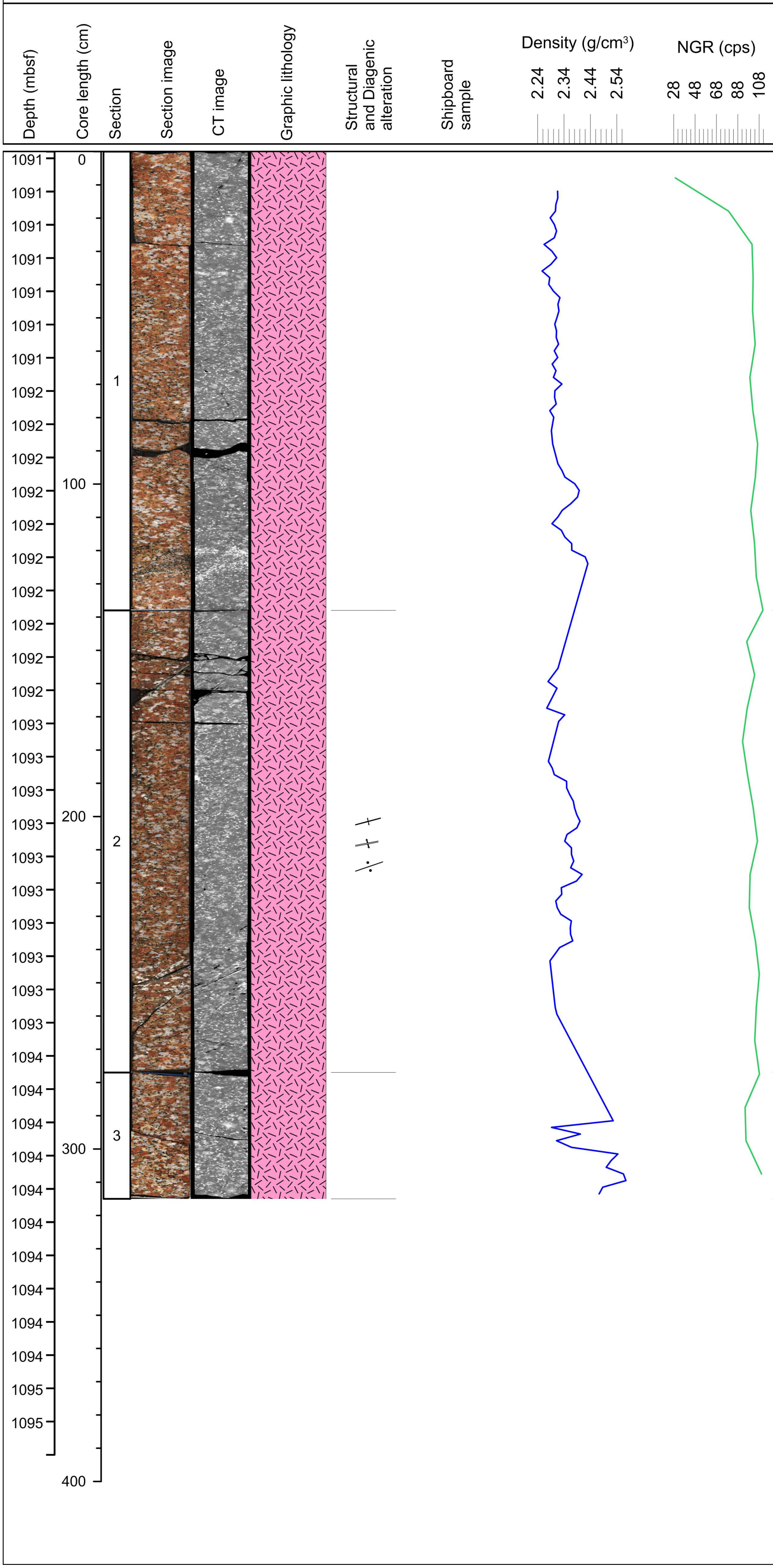
From 2-9 cm, aplite zone, 4.5 cm.

0-50 cm: decimeter spaced white (quartz) veins, up to 1 mm thickness

22-42 cm: dextral shear fracture with black fill, sub-mm thickness. In bends, white calcite fill in dilatational areas.

CT: granite facies

Hole M0077A Core 224R Cored 1090.78-1093.88 mbsf



Description

Coarse-grained granite

Undeformed granite, with K-feldspar (3 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm). Biotite is locally concentrated @118-127 cm

(+titanite)

0-23 cm: two slightly anastomosing cataclasites up to 2 mm thick

Throughout the core: white veins, sub-mm calcite, decimetre spacing

CT: granite facies

Coarse-grained granite, K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm). Locally greenish.

128 cm: S10/40 L25/38 – (3)

16-29 cm: shear fracture, cataclasite fill up to 5 mm thickness

40-139 cm: sub-vertical shear fractures, black-fill sub-mm and white filled tension gashes between 45 degrees and 60 degrees to the black fractures, tension gashes up to 1 cm thick with euhedral calcite

CT: granite facies – veins are CT bright with high Z

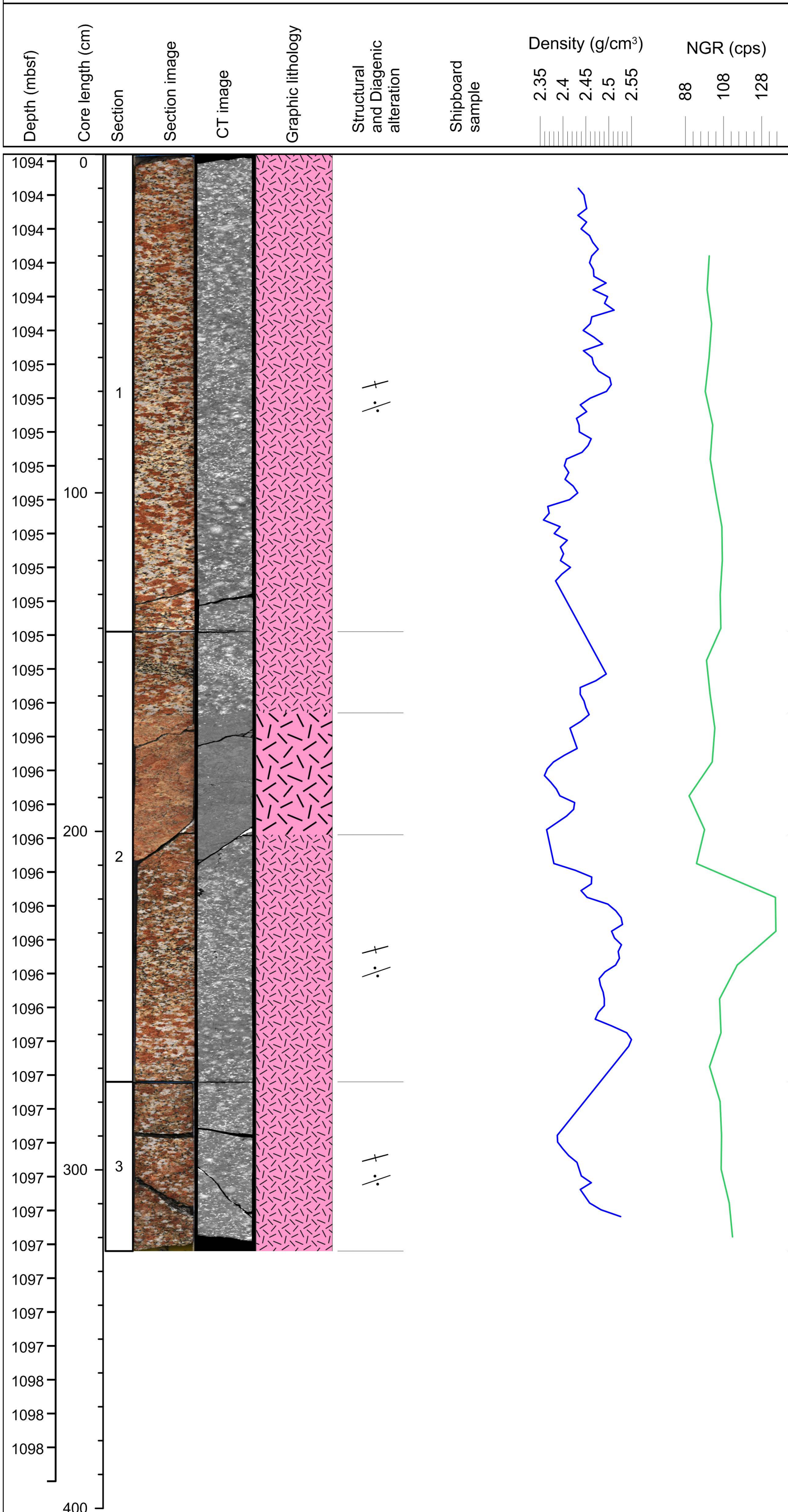
Granite

Undeformed, coarse-grained granite, with K-feldspar (2 cm), plagioclase (2.5 cm), quartz (1 cm), and biotite (<0.5 cm)

0-38 cm: vertical vein with undulatory orientation, white fill (calcite and quartz)

CT: granite facices

Hole M0077A Core 225R Cored 1093.88-1096.98 mbsf



Description

Granite

Coarse-grained granite with K-feldspar (< 4 cm), plagioclase (<1.5 cm), quartz (<1.5 cm), biotite (<0.5 cm) homogeneously distributed in the section. Large euhedral phenocrysts of K-feldspar

57 cm, 88 cm : white-fill, sub-mm wide shear fractures

CT: granite facies

Granite

Coarse-grained granite with K-feldspar (3 cm), plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm), locally @8-12 cm biotite are concentrated (seen 1 tiny grain of pyrite <0.1 mm)

CT: granite facies

Granitoid Pegmatite

Locally graphic texture, with black needles up to 1 cm (rutile) (no quartz)

CT: pegmatite homogeneous and lacking bright minerals – tourmaline needles light grey in CT

Granite

Coarse-grained granite, with K-feldspar (2.5 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm). locally biotite is very poor and K-feldspar are coarser grained

55-70 cm: pegmatite granite contact is defined by shear fault, some calcite fill, 5 mm thick

60-115 cm: subvertical shear fractures with black fill, but on dilatational steps, calcite fill occurs up to 2 mm thick

CT: granite facies

Granite

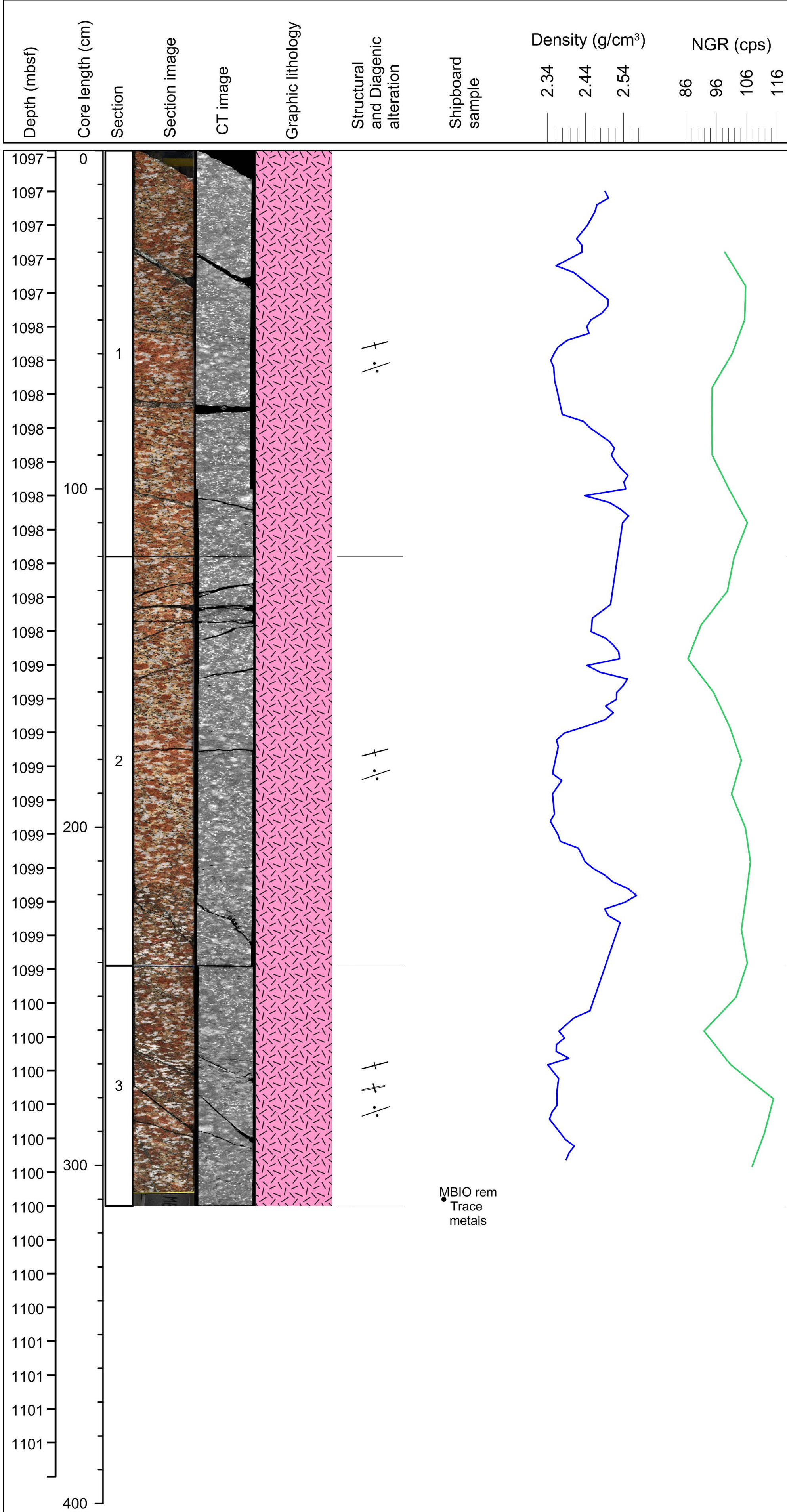
Coarse-grained granite, K-feldspar (2 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm), homogeneously distributed. Lower part of section is greenish.

14-24 cm: white-fill mm thick vein

25-35 cm: cm-thick shear fracture with whitish-green-purple mineralization

CT: granite facies

Hole M0077A Core 226R Cored 1096.98-1100.09 mbsf



Description

Granite

Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<1.5 cm), quartz (<1.5 cm), biotite (<0.5 cm), biotite is rare from 55 to 67 cm and K-feldspar are coarser grained. Greenish coloration of the granite above 44 cm and titanite.

70 cm: S10/25 L55/20 – (3)

104 cm: S25/40 L50/32 – (4)

30-40 cm: cm-thick white and green and black fill, shear fracture. Fill is proto-cataclastic

0-120 cm: occasional (decimeter spaced) white veins

CT: granite facies (larger phenocryst of K-feldspar CT-zoned)

Granite

Coarse-grained granite, with K-feldspar (<3 cm), plagioclase (2 cm), quart (2.5 cm), and biotite (<0.5 cm). Greenish below 97 cm.

0-56 cm: occasional shear fractures, hairline thickness

75-121 cm: sub-vertical, black-fill shear fractures, <1 mm in thickness, cm spacing

96-112 cm: shear fracture, cross-cuts other fractures, black fill, sub-mm thickness

110-121 cm: dilatation fractures with white fill, up to 2 mm thickness utilizes mineral cleavage

CT: granite facies

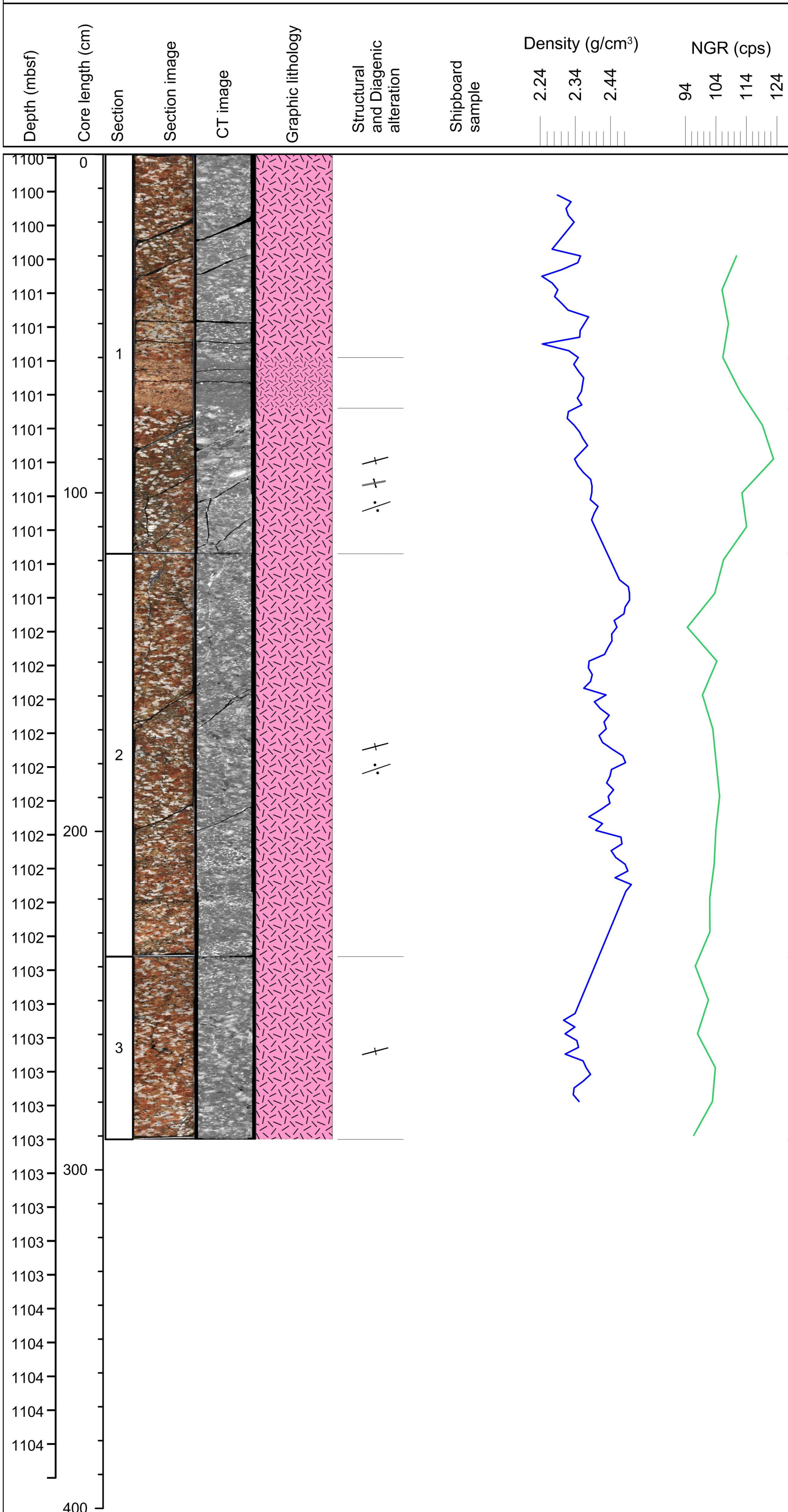
Granite

Greenish coarse-grained granite, with K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm). Heterogeneous distribution of biotite.

23-67 cm: decimeter spaced subvertical shear fractures (dark green, mm), with dilatational steps filled with calcite, mm-sized, some purple colored fill

CT: granite facies

Hole M0077A Core 227R Cored 1100.09-1103.14 mbsf



Description

Granite

Coarse-grained granite with K-feldspar (<4 cm), plagioclase (<2 cm), quartz (<2 cm), and biotite (<0.5 cm).

CT: granite facies

Aplite (aplitic dike)

With dark needles up to 7 mm.

Centre part is granitic (coarse grained)

Granite

Same as first unit in this core section, but greenish in color

@83 cm: up to 1 cm thick vein, white-green-purple fill (including quartz)

85 cm: S140/75 L 210/15 – 2

Throughout core: subvertical green shear fractures and veins mm thick, shear fractures with irregular edges have dilatational gaps filled with calcite and purple mineral

105-110 cm: horizontal white veins <mm

CT: granite facies

Coarse-grained granite with K-feldspar (3 cm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm). Biotite is locally concentrated. + Titanite.

Granite is locally greenish.

Full core: Sub-vertical green shear fractures occasionally with dilational fractures, < 1 cm thick, with white and purple fill.

@5-11 cm: Large dilatational fracture with white and purple fill (quartz and locally calcite + at least another rmineral).

@45 cm: S 130/80 L 80/45 (-3).

CT: Granite facies.

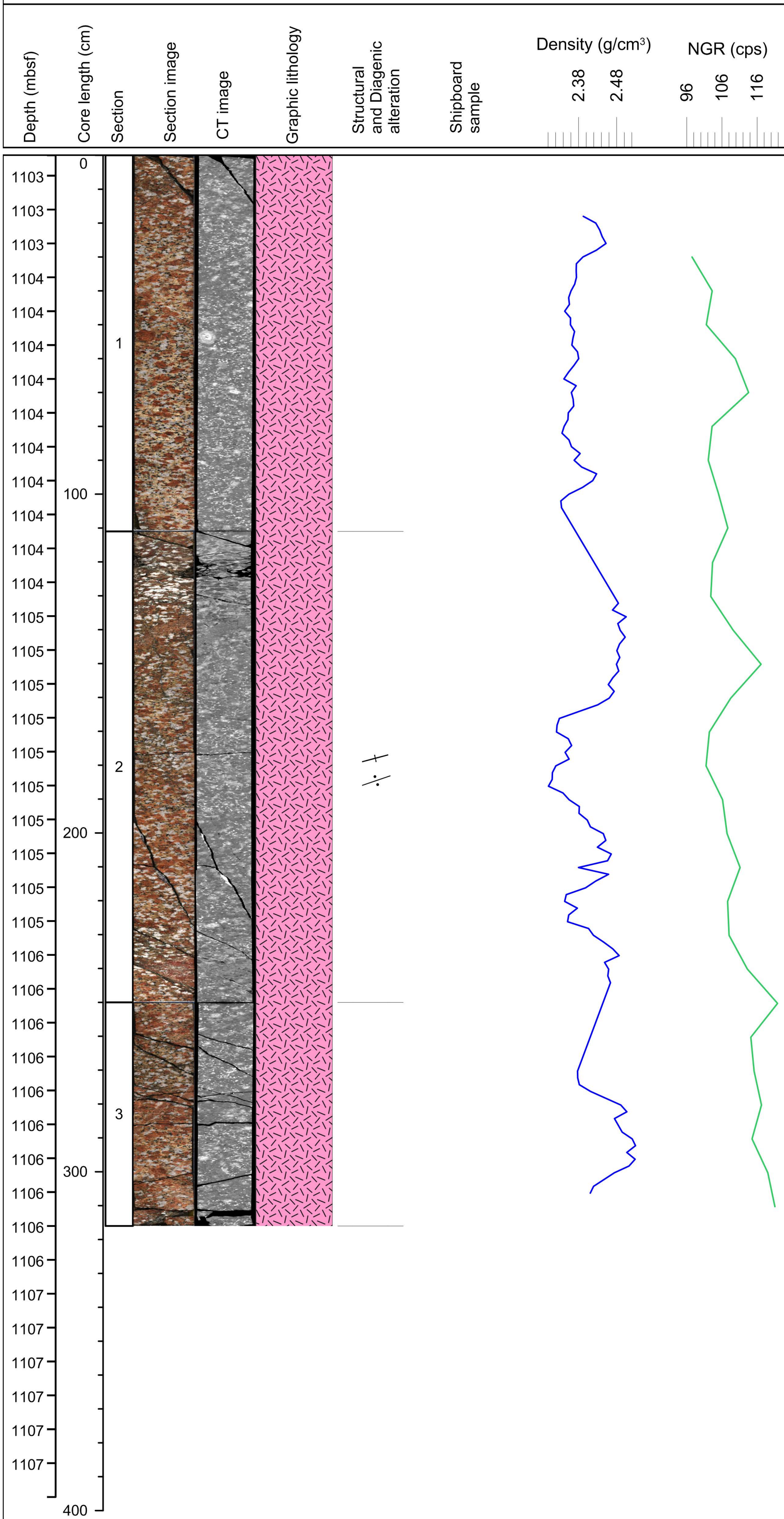
Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<2 cm), and biotite (<0,5 cm). Biotite is heterogeneously distributed and somewhat less abundant than in previous section.

@10-54 cm: Sub-horizontal, sub-mm, white veins.

@20-54 cm: dilational white and green fractures (<5 mm wide).

CT: Granite facies.

Hole M0077A Core 228R Cored 1103.14-1106.24 mbsf



Description

Coarse-grained granite with K-feldspar (<4 cm), plagioclase (<2,5 cm), quartz (<2 cm), and biotite (<0,5 cm). Feldspars are locally greenish.

@15-25 cm: cm-spaced, sub-horizontal, white veins, < mm in thickness.

@~60 cm: <1 cm reddish spots (alteration of biotite?)

CT: Granite facies.

Granite

Coarse-grained granite with K-feldspar (<3.5 cm), plagioclase (< 2cm), quartz (<1.5 cm), biotite (<0.5 cm). In part greenish.

@25-35 cm: aplitic dike (3 cm thick)

@99-104 cm: alteration vein (quartz and purple mineral and dark phase)

0-5 cm: fracture separates granite bearing grey quartz from granite bearing white quartz

0-24 cm: pervasively veined, green, <mm veins, random orientation

20-117 cm: subvertical green <mm shear fractures sinistral sense, occasionally white and purple fill within dilateral regions of the fractures

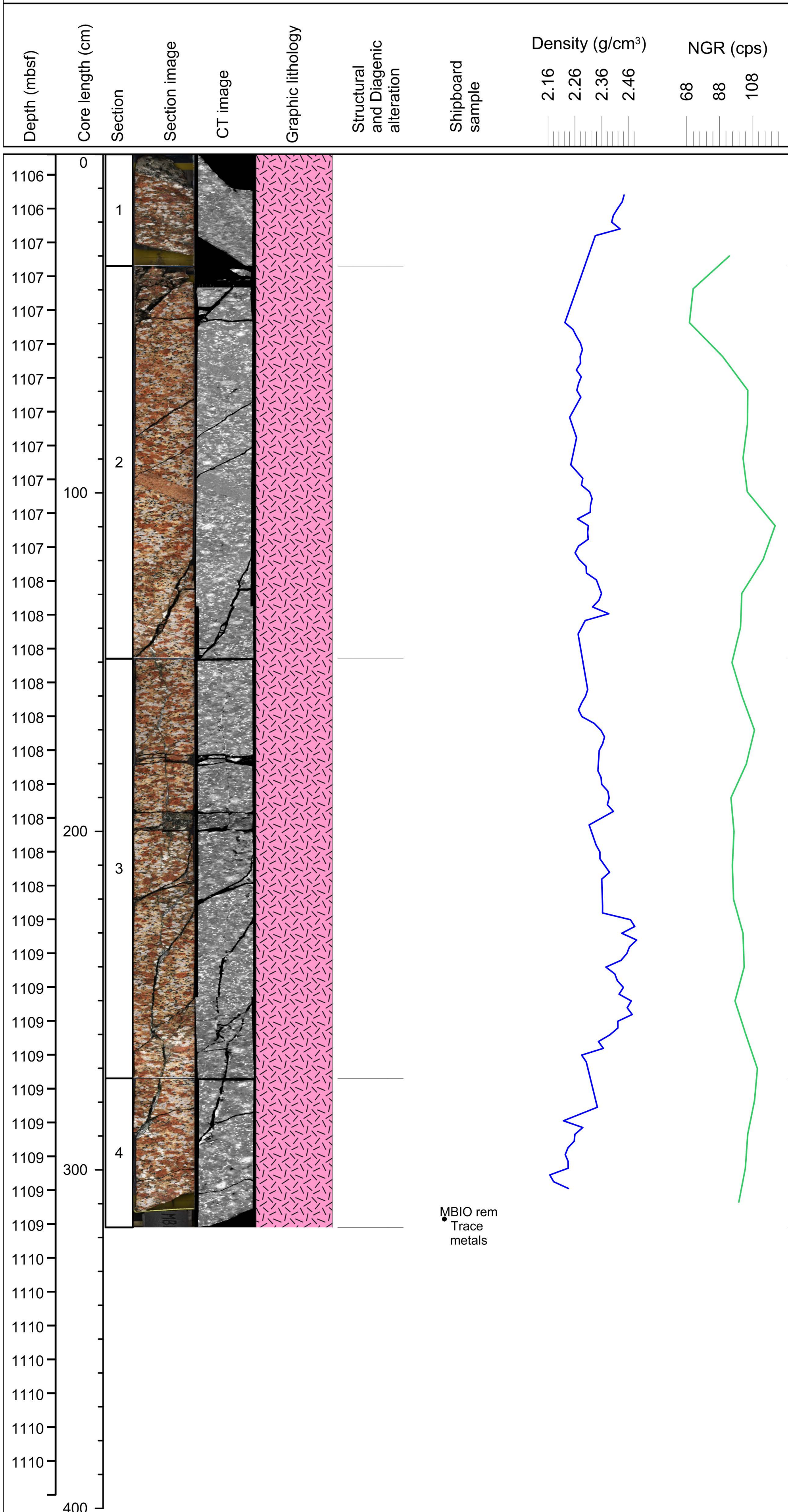
56 cm: <mm white anastomosing shear fracture

128-137 cm: green shear fracture < 1 cm wide, that truncates graphic granite texture

CT: granite facies

Coarse (1 to 2 cm) granite, strongly deformed. A zone between 30 and 36 cm has a pegmatic texture. White and dark green veins cut the section. Green mineralization is associated with biotite. Faults are parallel or sub-parallel. Fault at 16 cm: S 0421/56, L 112/26 (-) 1. Fault at 27 cm: S 170/82, L 174/80 (-) 3. Fault at 24 cm: S 025/52, L 334/41 (+) 1. Fault at 51 cm: S 325/61, L 005/58 (+) 1. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 229R Cored 1106.24-1109.34 mbsf



Description

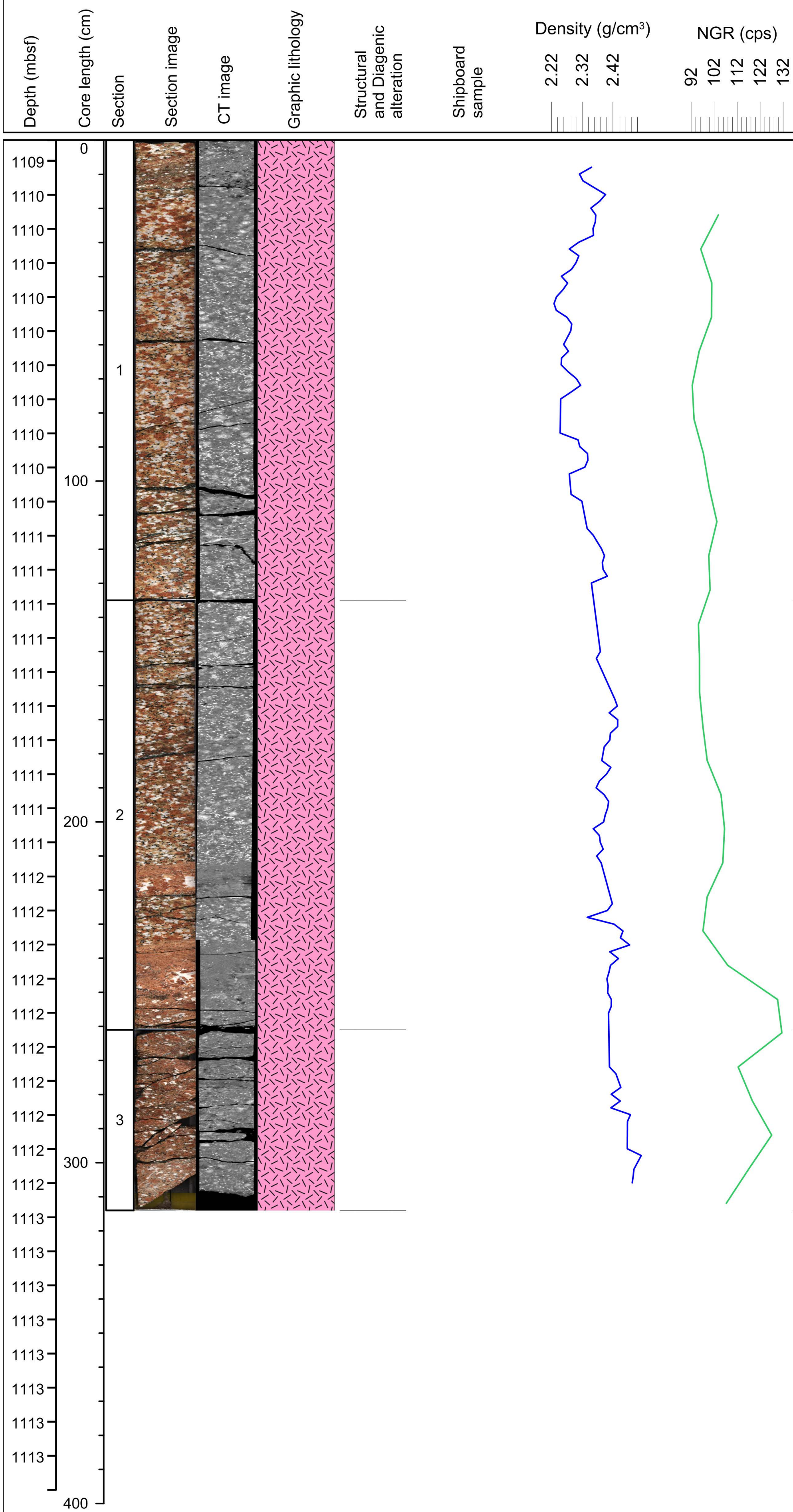
Coarse-grained granite, weakly deformed. White and dark green veins. Green mineralization associated wtih biotite. Fault at 6 cm: S 028/32, L 002/25 (+) 3. Color is 7.5 YR 6/2. CT is dark gray.

Coarse (1 to 2 cm) granite, moderately deformed. The zone from 87 to 92 cm is enriched (~!0%) in biotite. The zone from 66 to 70 cm is filled with an aplite dike. Dark green veins cut the section. Minor green mineralization is associated with biotite. Tiny cataclastic veinlets occcur at 90 cm. Fault at 10 cm: S 126/82, L 024/22 (+) 3. Fault at 58 cm: S 315/88, L 012/76 (+) 3. Fault at 100 cm: S 112/76, 021/60 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, very strongly deformed. White and dark green veins, often filled with cataclastic material. Plum-colored alteration in three locations. Fault at 63 cm: S 275/44, L 066/03 (-) 1. Fault at 94 cm: S 265/64, L 355/30 (-) 1. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, moderately deformed. White and dark green veins, one of which, from 0 to 18 cm, also contains cataclastic material. Fault at 1 cm: S 280/44, L 190/10 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 230R Cored 1109.34-1112.44 mbsf



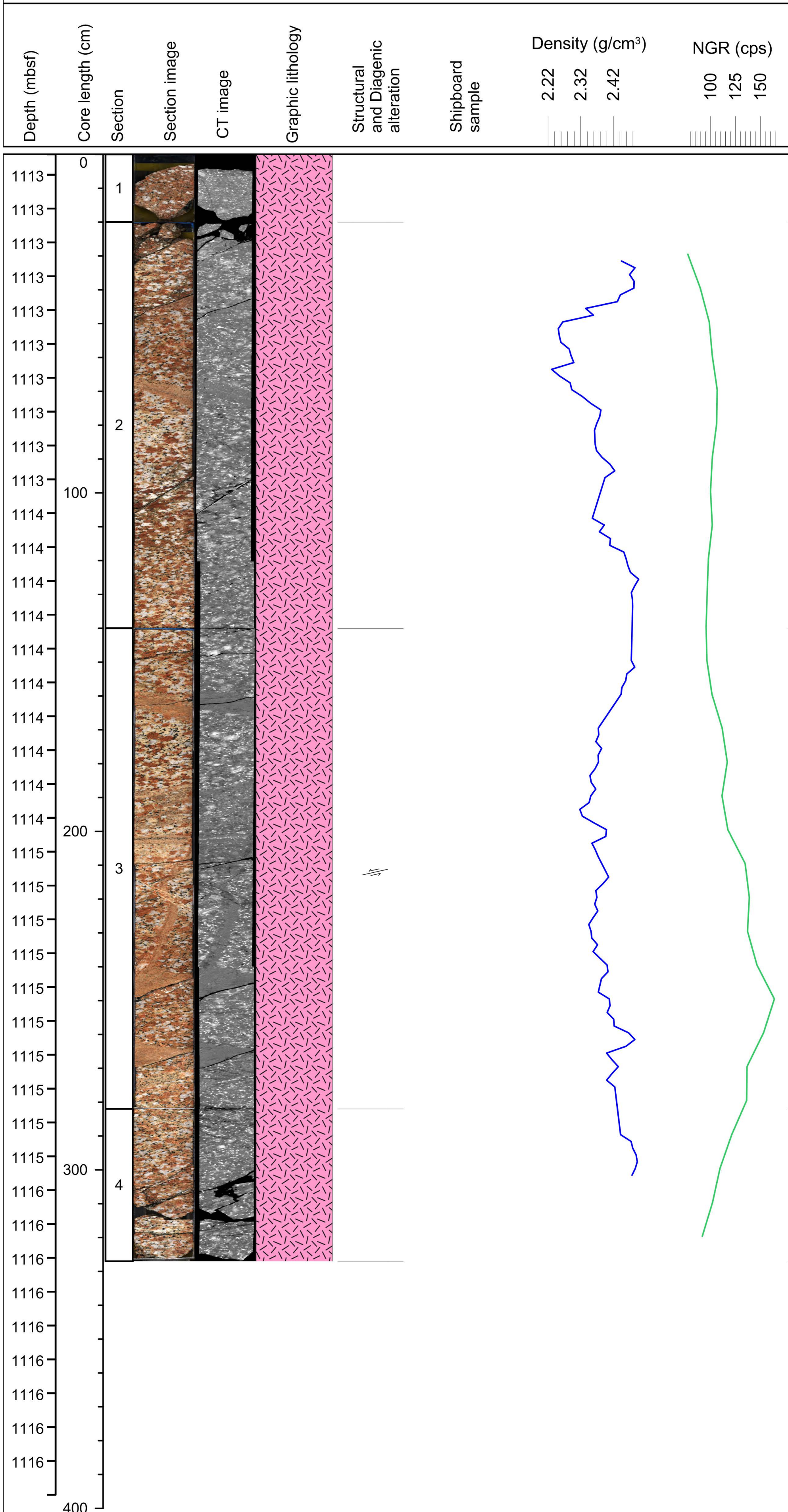
Description

Coarse (1 to 2.5 cm) granite, strongly deformed. The zone from 18 to 30 cm is biotite-poor (<1%). White and dark green veins cut the section. Green mineralization is associated with biotite. Fractures are parallel. Several cataclastic veins occur at 116 cm. Fault at 82 cm: S 335/45, L 008/44 (+) 3. Fault at 107 cm: S 340/67, L 008/68 (+) 3. Fault at 117 cm: S 335/52, L 350/50 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, strongly deformed. The zones from 77 to 87 cm and 100 to 112 cm have aplitic margins and pegmatitic cores; biotite is not as prevelant as in the adjacent granite. There is a light olive gray overpint on the granite. White and dark green veins cut the section. Green mineralization is associated with biotite. Fault at 45 cm: S 341/37, L 315/32 (+) 3. Fault at 92 cm: S 016/40, L 326/34 (+) 3. Fault at 102 cm: S 350/6, L 324/58 (+) 3. Fault at 119 cm: S 006/53, L 340/44 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) grainte, strongly deformed. White and dark green veins. Fault at 13 cm: S 235/74, L 045/28 (-) 3. Fault at 46 cm: S 225/65, L 010/32 (-) 1. Color is 7.5 YR 6/3. CT is dark gray.

Hole M0077A Core 231R Cored 1112.44-1115.49 mbsf



Description

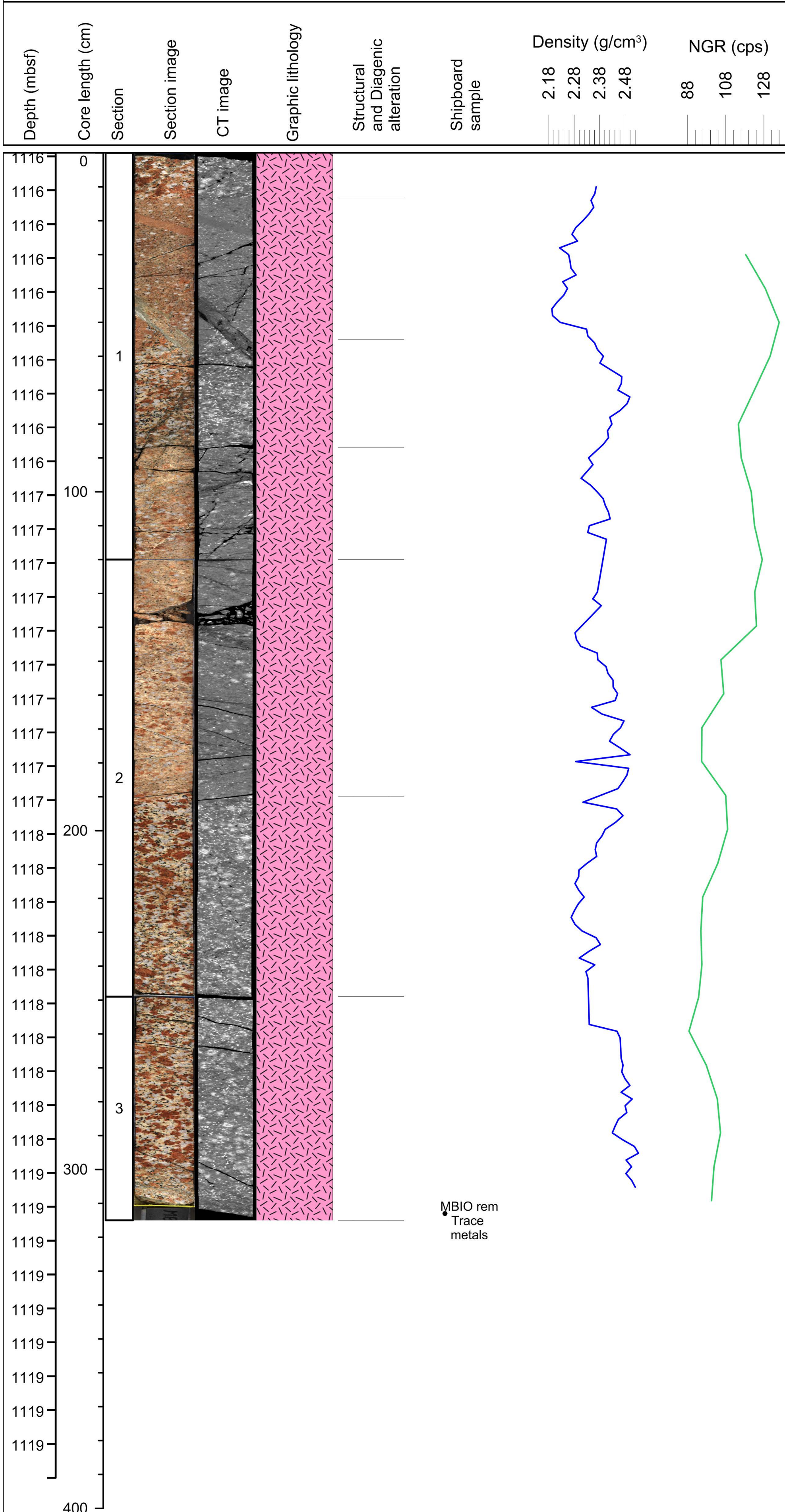
Coarse (0.5 to 1 cm) granite. Fault at 5 cm: S 14/40, L 190/42 (+) 2. Color is 7.5 YR 6/4. CT is dark gray.

Coarse (1 to 2.5 cm) granit, moderately deformed. White and dark green veins. Scattered green alteration. Faulat at 80 cm: S 310/78, L 024/46 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite with five aplite dikes (22 to 25 cm, 47 to 51 cm, 61 to 63 cm, 72 to 105 cm, and 122 to 126 cm). Weakly deformed. Dark green veins (one of which is fault offset by 4 cm and filled with cataclastic material). Green mineralization is associated with biotite. Fault at 61 cm: S 175/68, L 170/64 (+) 2. Fault at 128 cm: S 150/68, L 101/62 (+) 1. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, strongly deformed. White veins. Scattered apple green mineralization. Fine cataclastic veins at 1, 4, and 26 cm. Fault at 19 cm: S 316/42, L 336/30 (+) 3. Fault at 26 cm: S 152/50, L102/75 (+) 1. Fault at 38 cm: S 178/39, L 265/01 (-) 1. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 232R Cored 1115.49-1118.59 mbsf



Description

Coarse-grained granite. White and dark green vein, filled with cataclastic material. Color is 7.5 YR 7/4. CT is dark gray.

Fine (1 to 5 mm)-grained granite, cut by an aplitic dike at 23 to 25 cm. A cataclastic vein occurs at 56 to 60 cm. Fault at 29 cm: S 138/66, L 136/62 (+) 3. Color is 7.5 YR 7/3. CT is dark gray.

Coarse-grained granite, moderately deformed. Dark green and white vein with cataclastic fill. Color is 7.5 YR 7/4. CT is dark gray.

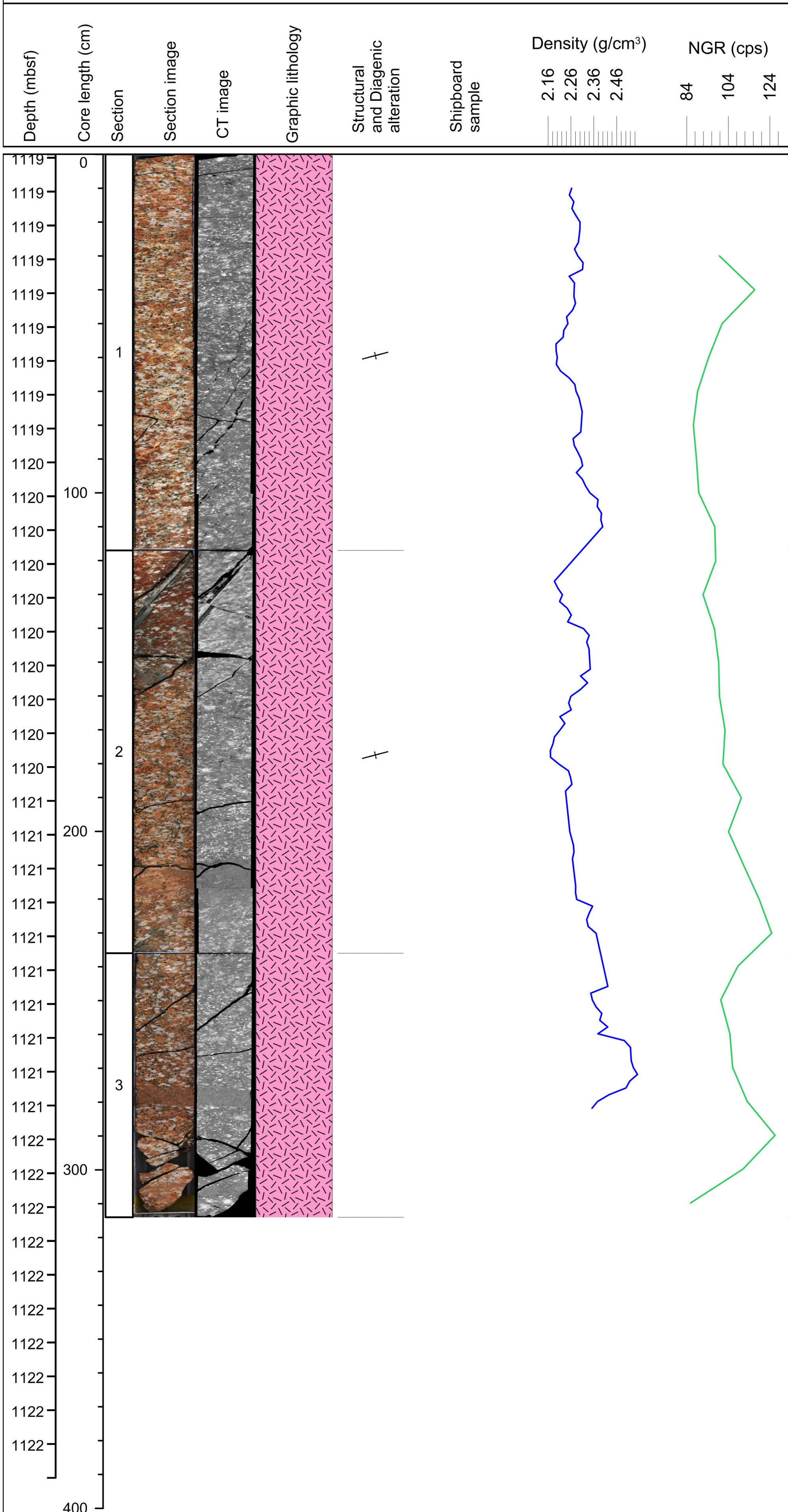
Coarse-grined granite, moderately deformed. Is pale gray compared to other granites in section. Fault at 86 cm: S 168/72, L 186/69 (-) 3.

Coarse (0.5 to 1 cm) granite, moderately deformed. White veins. Faults and fin white veins are sub-parallel. Fault at 54 cm: S 215/60, L 305/03 (+) 2. Fault at 59 cm: S 17/6, L 092/16 (-) 2. Fault at 69 cm: S 345/67,)53/30 (-) 2. Color is 7.5 YR 8/3. CT is dark gray.

Coarse (0.5 to 2 cm) grainte, very weakly deformed. White and dark green veins. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, moderately deformed. White and dark green veins and strong foliation in the zone 53 to 61 cm. Fault at 6 cm: S 015/45, L 052/27 (-) 2. Fault at 16 cm: S 013/83, L 010/0 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 233R Cored 1118.59-1121.69 mbsf



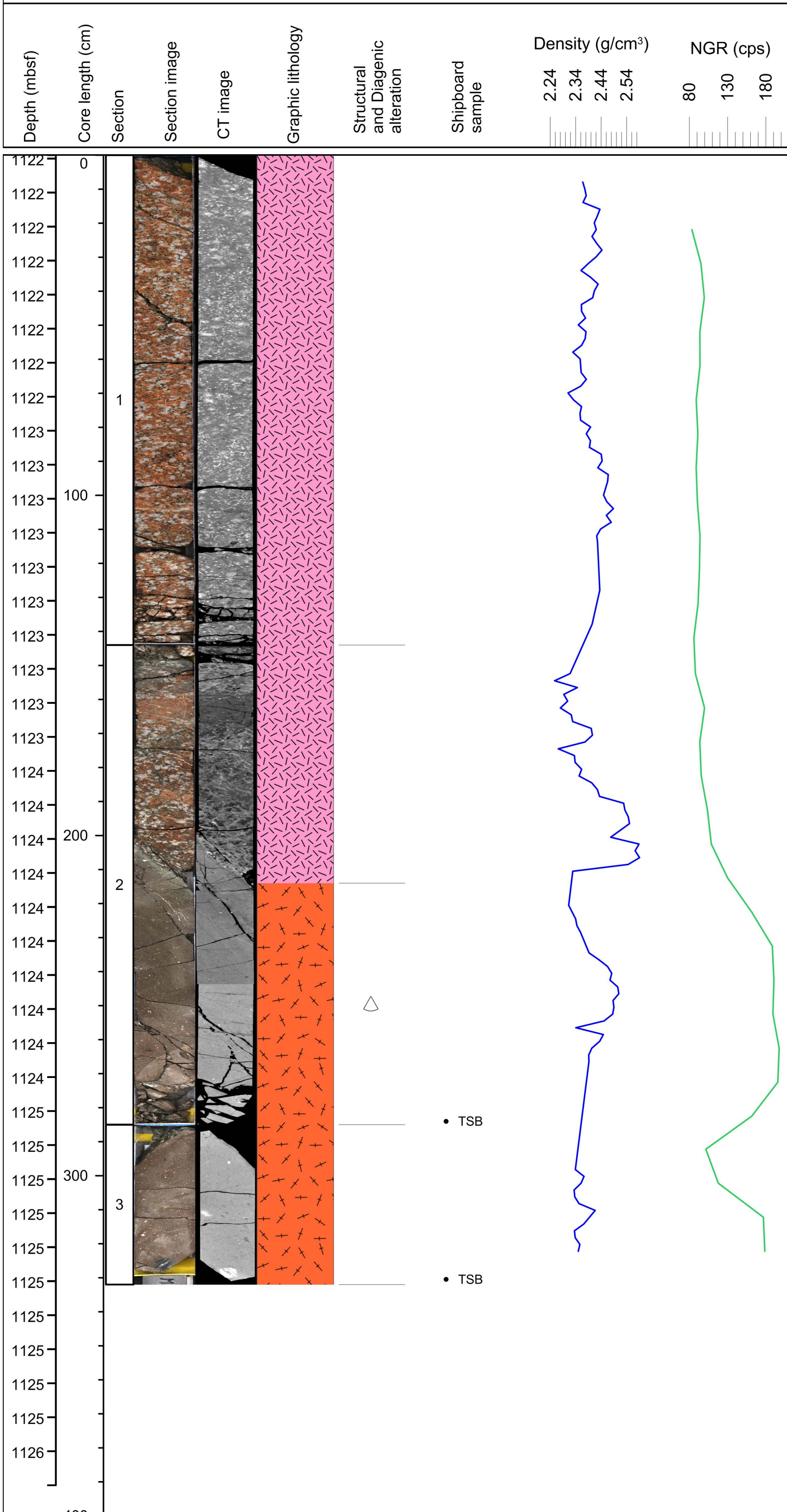
Description

Coarse-grained granite. White and green veins. Green mineralization is associated with biotite. The lower half of the section is cut by en-echelon fractures spaced about 1 cm. Fractures are mineralized with a dark green mineral. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, with a pegmatitic region from 92 to 102 cm. Strongly deformed with cataclastic, possibly melted material from 0 to 20 cm, and en-enchelon fractures with a 1 cm spacing in lower half of section. Fault at 32 cm: S 110/64, L 265/105 (+) 2. Fault at 38 cm: S 315/73, L 036/18 (+) 2. Color is 7.5 YR 6/3 to 7/4. CT is dark gray.

Coarse-grained granite, strongly deformed. An aplitic dike cuts the section fro 39 to 45 cm. White and green veins. Fault at 18 cm: S 121/65, L 043/20 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 234R Cored 1121.69-1124.79 mbsf



Description

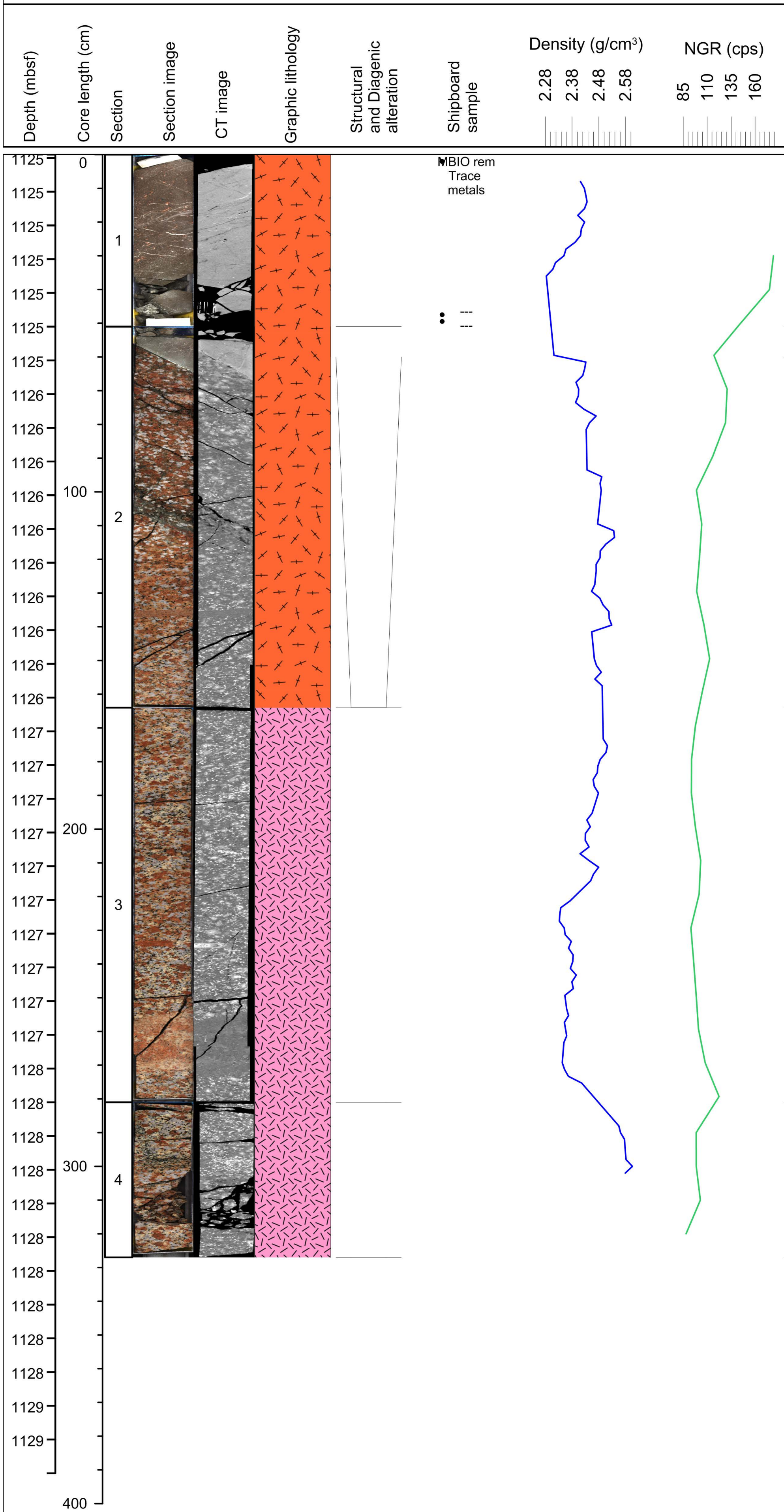
Coarse-grained granite, strongly deformed. White and dark green veins. Color is 7.5 YR 7/3. CT is dark gray.

Coarse-grained granite, strongly deformed. Biotite is <1%. An aplitic dike cuts through from 16 to 22 cm. Abundant white and dark green veins. Color is 7.5 YR 6/2. CT is dark gray.

Very fine (<0.5 mm)-grained felsic dike with a few xenoliths of gneiss and granite. At 123 there is a shatter cone. Five centimeters farther down the section is a 2 to 3 cm diameter vug filled with quartz. Fault at 95 cm: S 164/88, L 245/35 (-) 2. Fault at 105 cm: S 195/75, L 166/63 (-) 2. Fault at 109 cm: S 220/78, L 175/64 (-) 2. Color is 7.5 YR 5/1. CT is dark gray.

Fine-grained felsic dike with xenoliths up to 2.5 cm in size. Weakly deformed. Fault at 17 cm: S 009/51, L 280/15 (+) 1. Fault at 18 cm: S 351/55, L 282/05 (+) 1. Color is 7.5 YR 5/1. CT is dark gray.

Hole M0077A Core 235R Cored 1124.79-1127.89 mbsf



Description

Fine (<0.5 mm)-grained felsite dike, weakly deformed. White veins. Color is 7.5 YR 5/1. CT is dark gray.

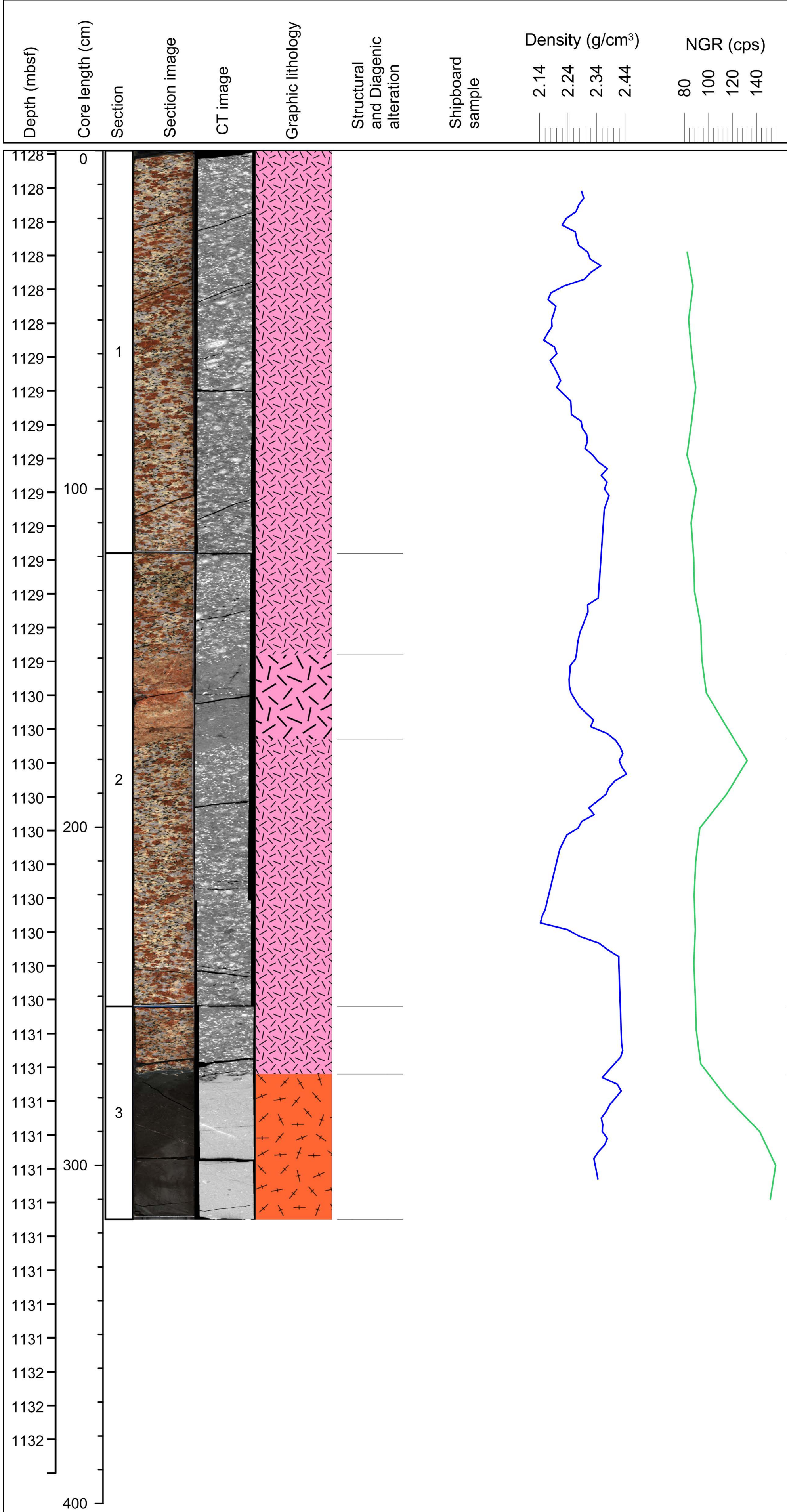
fine (<0.5 mm)-grained felsite dike. Color is 7.5 YR 3/1. CT is dark gray.

Coarse-grained granite, with aplitic dike between 83 and 85 cm. The zone from 12 to 60 cm is strongly deformed. A cataclastic vein runs from 54 to 60 cm. The region from 60 to 112, in contrast, is weakly deformed. Color is 7.5 YR 6/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite. At 70 cm, ther is a large (6-cm-long), well-zoned, K-feldspar. From 90 to 107 cm, there is a pegmatitic dike. Fault at 28 cm: S 271/74, L 152/70 (+) 2. Fault at 86 cm: S 340/68, L 078/22 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 2 cm) granite. The zone from 15 to 19 cm is enriched (~10%) in biotite. Green mineralization occurs throughout the section. Fault at 24 cm: S 240/58, L 297/32 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 236R Cored 1127.89-1130.99 mbsf



Description

Coarse-grained granite, without visible deformation. The xone from 40 to 45 cm is enriched in K-feldspar (>40%). Green mineralization throughout the section. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite. The zone from 6 to 10 cm is enriched in biotite (~10%). Green alteration occurs throughout the section. Color is 7.5 YR 7/6. CT is dark gray.

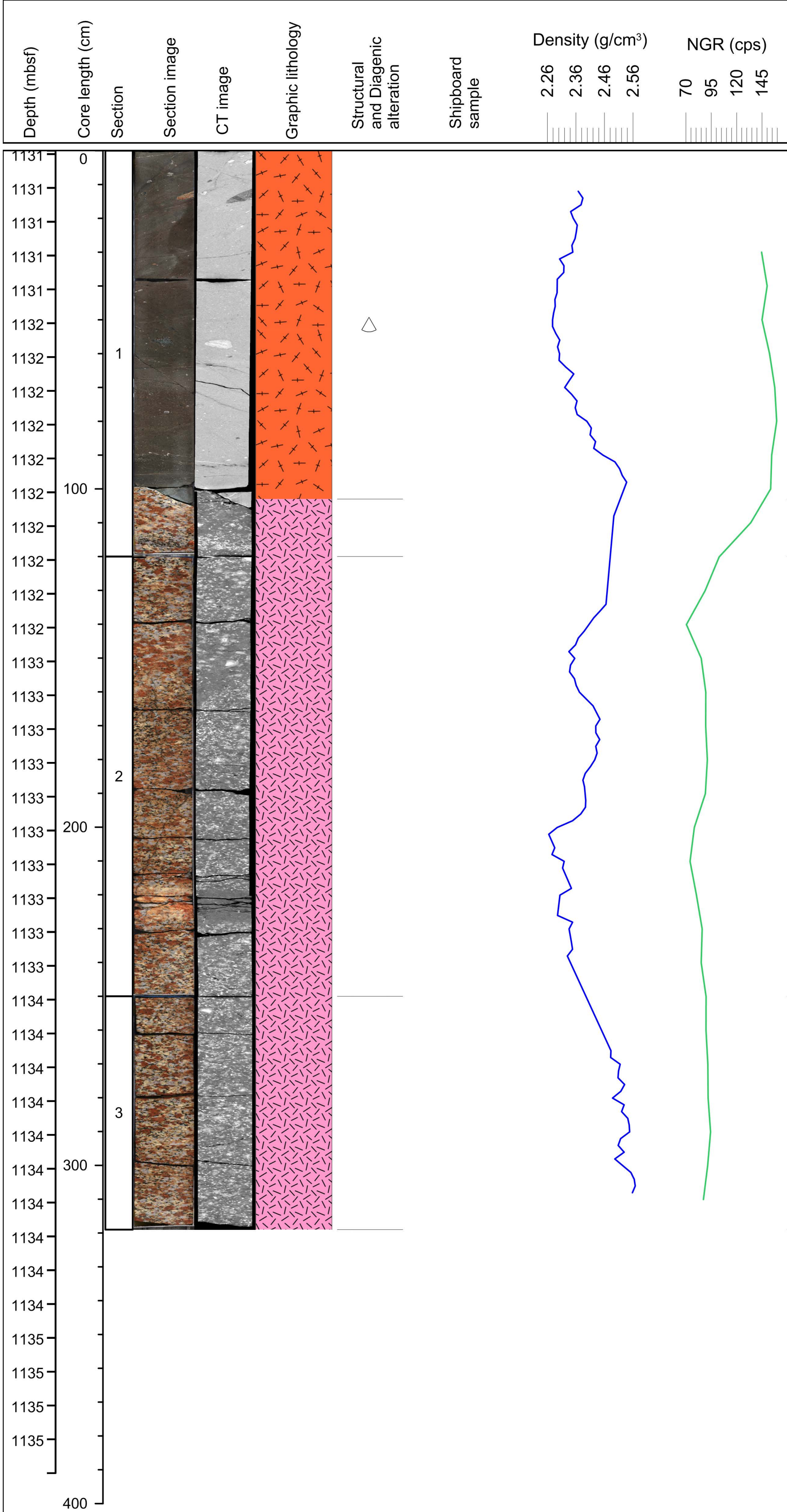
Pegmatitic granite with K-feldspar, quartz, and biotite. Fractured. Color is 7.5 YR 8/6. CT is dark gray.

Same lithology as that in unit 1, weakly deformed. At 94 cm there is a cataclastic vein. Green alteration occurs throughout this unit of the section.

Coarse-grained granite, without visible deformation. Sulfide-bearing vein. Color is 7.5 YR 7/4. CT is dark gray.

Fine (<0.5 mm)-grained felsic dike. Deep-source xenoliths with sizes of 1 to 3 mm. White veins cut the unit in this part of the section. Color is 7.5 YR 3/1. CT is dark gray.

Hole M0077A Core 237R Cored 1130.99-1134.04 mbsf



Description

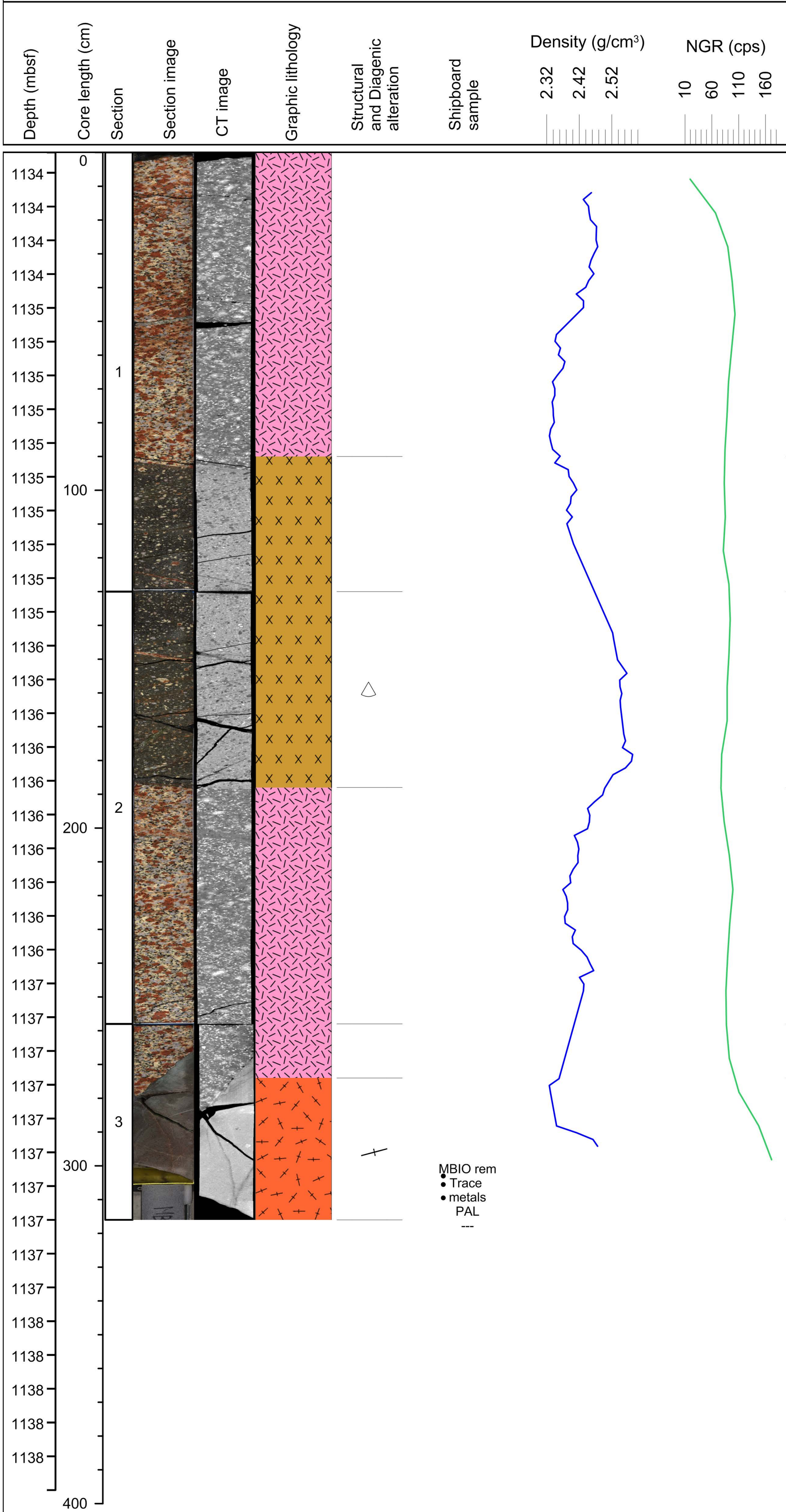
Fine (<0.5 mm)-grained felsic dike. Deep-sourced xenoliths of granite, gneiss, and amphibolite in the size range of 2 to 3 cm. At 68 cm, there is a shatter cone in felsic dike. White and black veins cut through the unit. Color is 7.5 YR 3/1. CT is dark gray.

Coarse-grained granite. A zone from 113 to 117 cm is enriched in biotite (~10%). Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2 cm) granite, weakly deformed. A zone from 23 to 33 cm is enriched in K-feldspar (>40%) and biotite-poor (<1%). The zone from 97 to 107 cm is pegmatitic, with K-feldspar, quartz, and minor biotite. Sulfide-bearing veins run through the section. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite with no visible deformation. A vein cuts the section. Fault at 11 cm: S 358/68, L 350/65 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 238R Cored 1134.04-1137.09 mbsf



Description

Coarse-grained granite, weakly deformed. White and green veins cut the section. Fault at 48 cm: S 338/34, L 310/32 (+) 2. Fault at 119 cm: S 350/83, L 068/44 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Porphyritic dacite dike. Phenocrysts of plagioclsae and minor quartz. The unit also contains K-feldspar, with reaction rims, that may be from the country granite. A pink-colored, granitic vein about 2 mm wide occurs near the bottom of the section (~126 cm). Weakly deformed. Color is 7.5 YR 5/1. CT is dark gray.

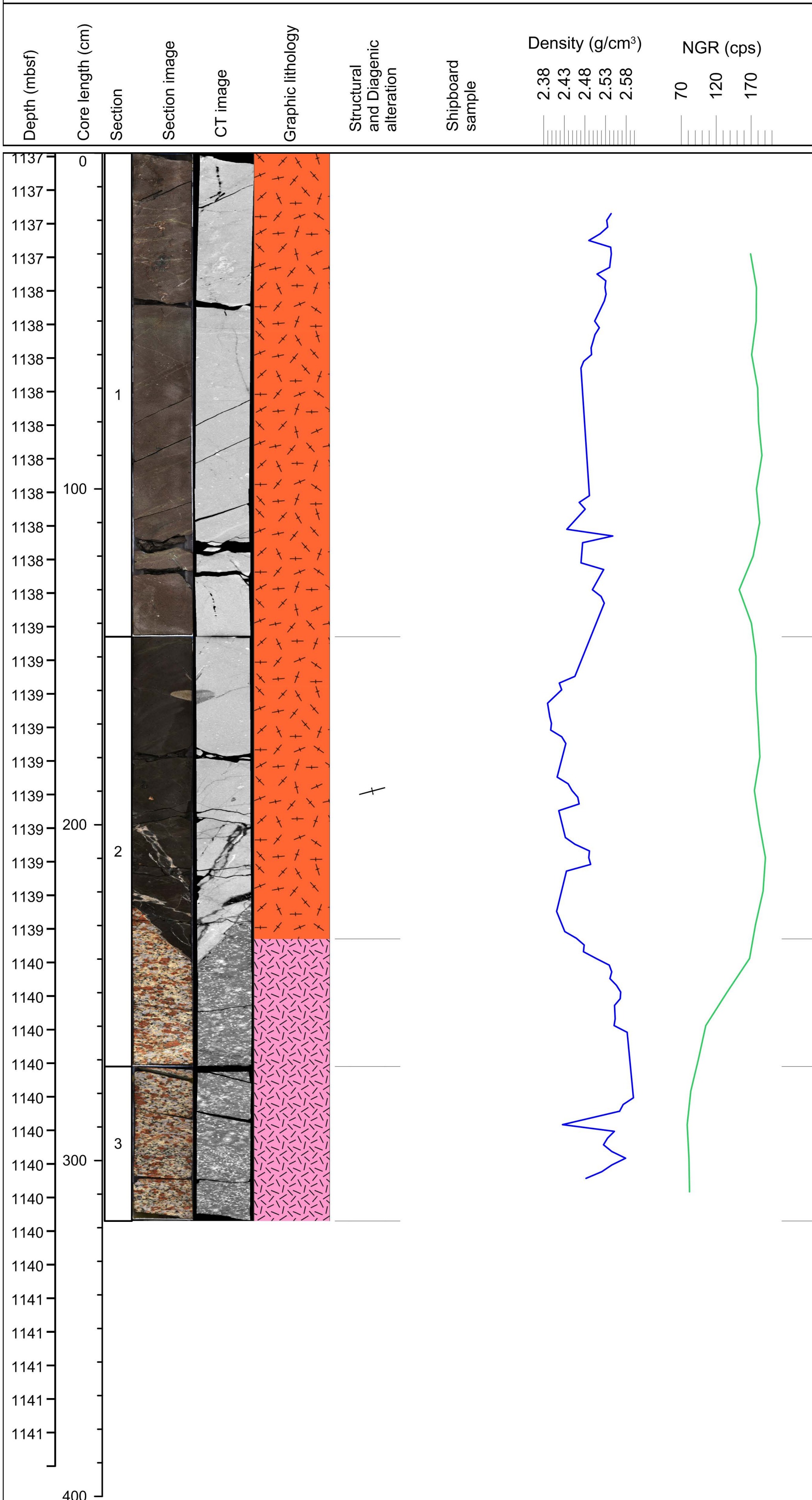
Porphyritic dacitic dike. Phenocrysts of plagioclase, biotite, and quartz. K-feldspar crystals with white reaction rims may be from the country granite. Green mineralization occurs throughout the unit. At 19 cm, there is a granitic dike. At 38 cm, there is a shatter cone. The unit is moderately deformed. Fault at 15 cm: S 340/85, L 065/8 (+) 3. Fault at 41 cm: S 328/38, L 335/36 (+) 2. Color is 7.5 YR 5/1. CT is dark gray.

Coarse (1 to 2 cm) granite, with no visible deformation. The zone from 84 to 93 cm is biotite poor (<2%). Green mineralization occurs throughout the unit. Color is 7.5 YR 7/4. CT is dark gray. The contact of unit 1 with unit 2 is intrusive.

Coarse-grained granite. Color is 7.5 YR 7/6. CT is dark gray.

Fine (<0.5 mm)-grained felsic dike, weakly deformed. Green mineralization occurs along a fracture centered at 26 cm. Color is 7.5 Y 3/1. CT is dark gray. The contact of unit 2 with unit 1 is intrusive.

Hole M0077A Core 239R Cored 1137.09-1140.19 mbsf



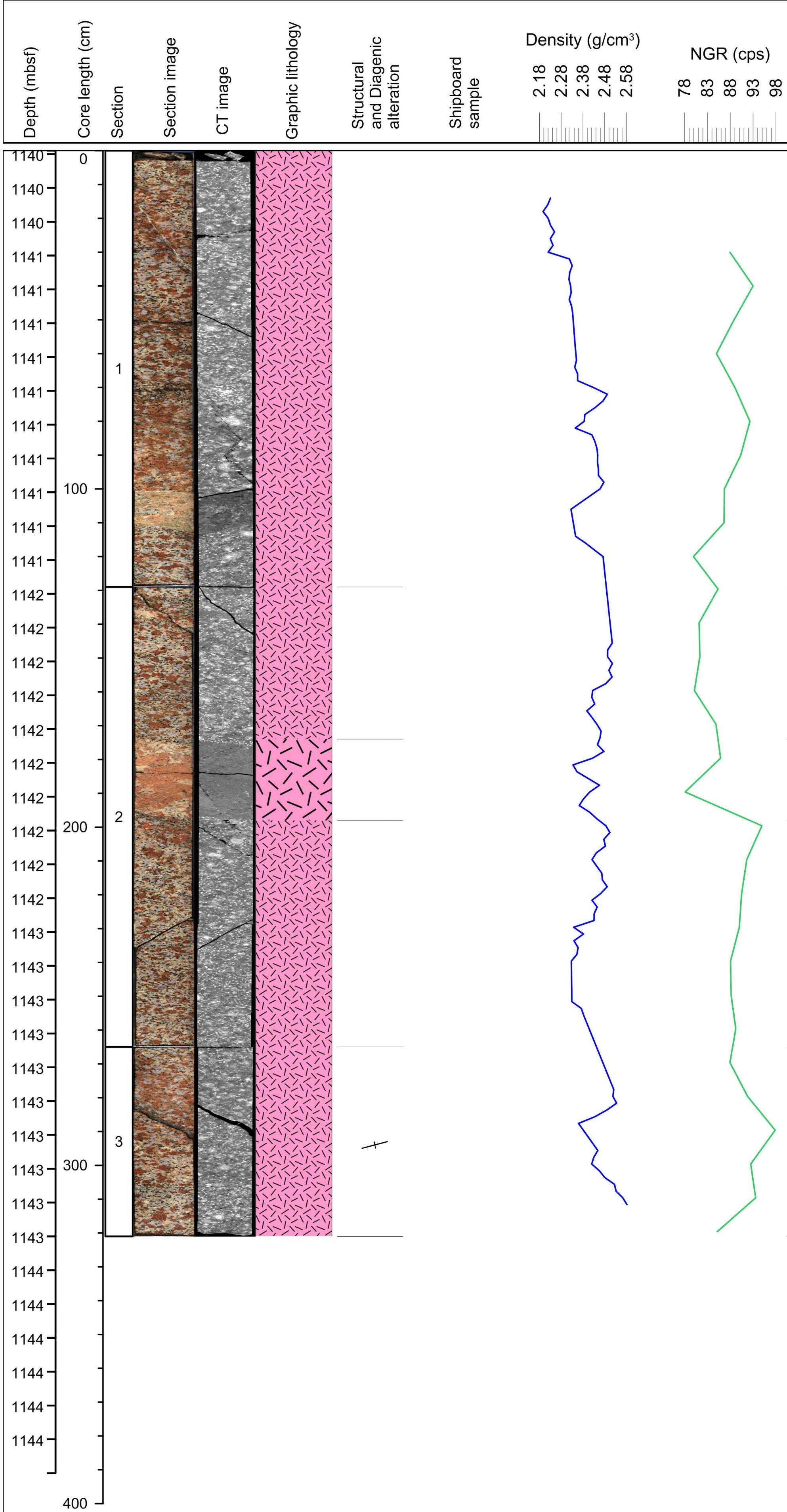
Fine-grained felsic dike. At 33 cm there is a 5 cm deep-sourced xenolith; at 48 cm a 1 cm xenolith; and at 87 cm a 1 cm xenolith. Vugs partially filled with quartz occur in the upper 10 cm and in the lower 10 cm of the section. The unit is weakly deformed. Shatter cones occur at 44 and 122 cm. Color is 7.5 YR 3/1. CT is dark gray.

Fine-grained felsic dike. Deep-sourced fragments of gneiss, amphibolite, granite, and granodiorite occur at 10, 18, 38, 45, and 54 cm. The unit is strongly fractured between 49 and 86 cm. Yellow-colored veins cut the unit. COlor is 7.5 YR 3/1. CT is dark gray.

Coarse-grained granite, weakly deformed. Green veins cut the unit. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 1.5 cm) granite, very weakly deformed. Green mineralization occurs throughout the section. Fault at 3 cm: S 195/72, L 108/15 (-) 1. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 240R Cored 1140.19-1143.29 mbsf



Description

Coarse-grained granite, strongly deformed. The zone from 68 to 74 cm is entriched in biotite (~15%). Green and red mineralization is associated with biotite. A cataclastic zone occurs between 101 and 112 cm. Fault at 101 cm: S 183/67, L 255/43 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

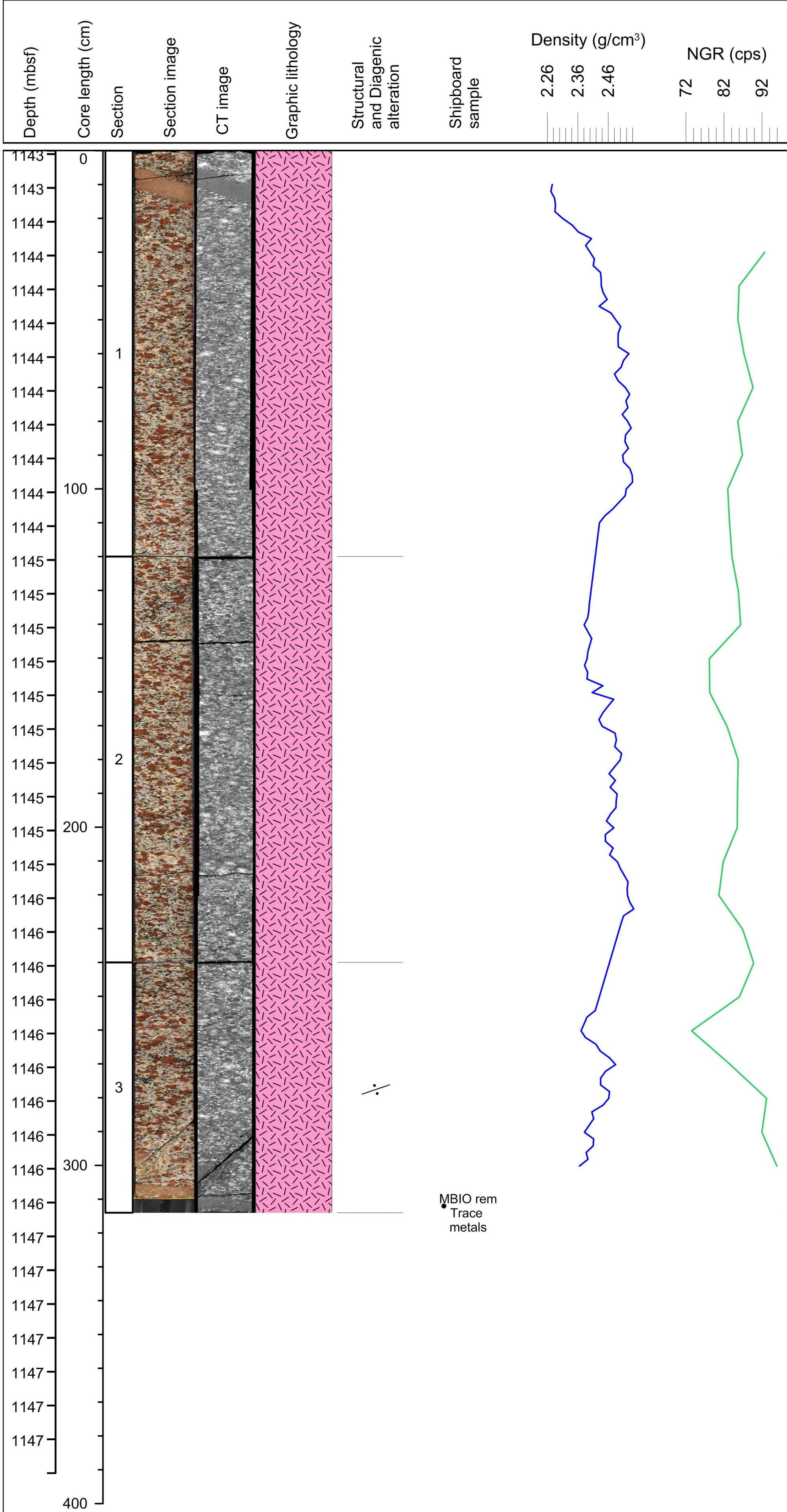
Coarse (1 to 2 cm) granite, weakly deformed. Quartz is pinkish. Color is 7.5 YR 7/4. CT is dark gray.

Pegmatitic granite with K-feldspar, quartz, and biotite. Weakly deformed. Color is 7.5 YR 8/3. CT is dark gray.

Coarse-grained granite, similar to that in unit 1 of section. Weakly deformed. Fault at 101 cm: S 130/83, L 042/3 (+) 1. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, weakly deformed. Ideomorphic K-feldspar, no SPO. Green mineralization throughout the unit and along a fracture centered on 22 cm. Fault at 3 cm: S 210/48, L 210/48 (+) 3. Color is 7.5 YR 8/2. CT is dark gray.

Hole M0077A Core 241R Cored 1143.29-1146.39 mbsf



Description

Undeformed, coarsed-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<1,5 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed. Not any sign of alteration.

Aplite dyke @5-16 cm, 5,5cm thick.

CT: Granite facies (type core section!).

Undeformed coarse-grained granite with K-feldspar (<2,5 cm), plagioclase (<2 cm), quartz (<2 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed. No sign of alteration (same as in previous section).

CT: Granite facies.

Coarse-grained granite with K-feldspar (<2,5 cm), plagioclase (<2 cm), quartz (2 cm), and biotite (<0,5 cm), same undeformed and unaltered (down to 45cm) as in previous section. .

@56-60 cm: Part of a dyke of aplite.

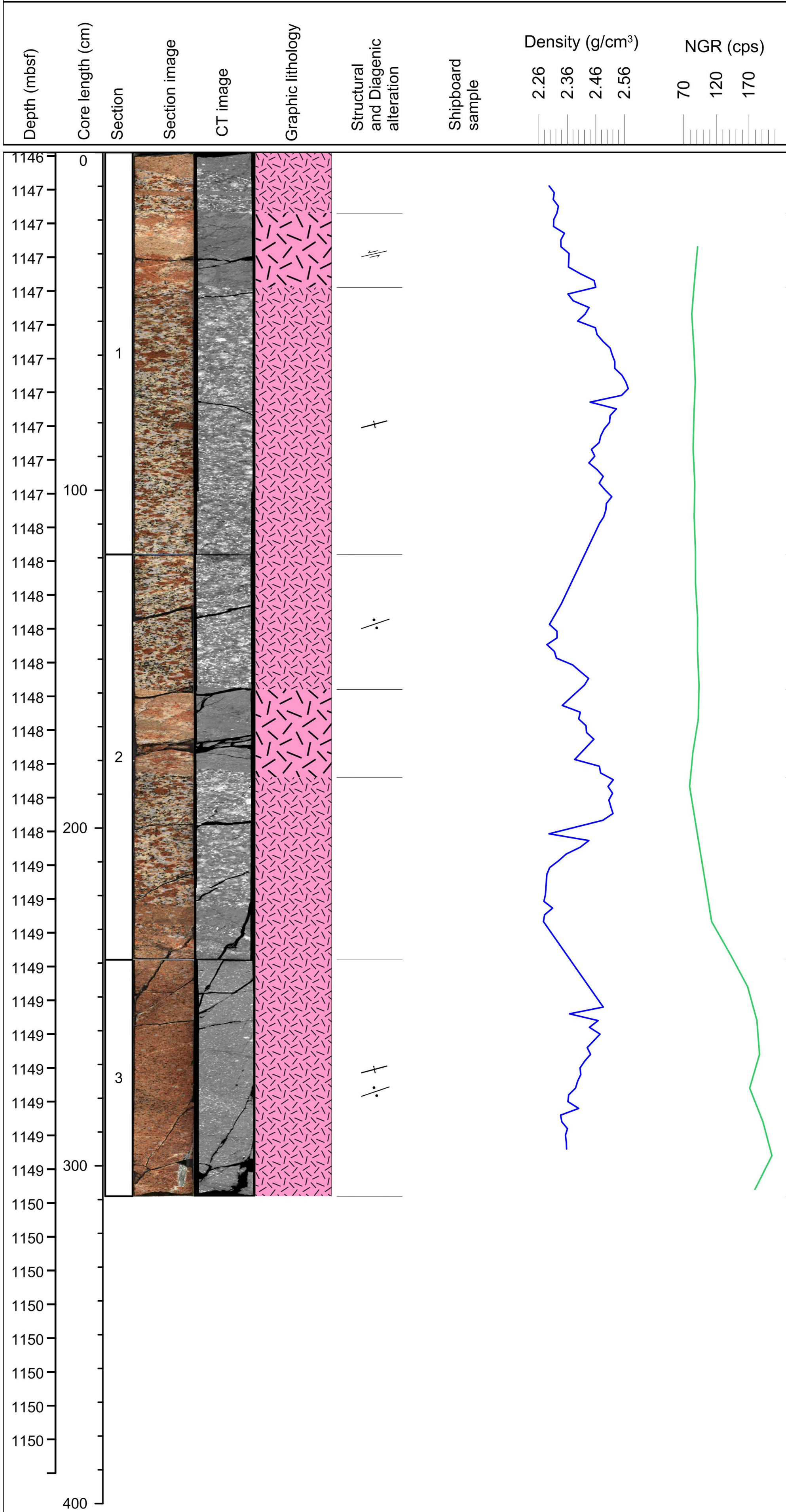
@66-99 cm: Dyke of aplite (3 cm).

@54cm: S 300/65 L 220/25 (+1); L 210/1 (+1).

Anastomosing shear zone from 46-60 cm, 2 cm thick, multiple lineation directions implying multipul stress orientations in the faults history.(Apparent displacement of aplite by 10 cm)

@66-70 cm: White-fill, sub-mm, cm-spacing veins.

Hole M0077A Core 242R Cored 1146.39-1149.49 mbsf



Description

Coarse grained granite with K-feldspar (<2 cm), plagioclase (<2 cm), quartz (<1,5 cm) and biotite (<0,5 cm). Crosscut by aplite dykes at 0-8cm (>8 cm thick) and at 12 to 13 cm (1-1,5 cm).

CT: Granite facies.

Pegmatitic zone with fine-grained (aplitic) central part. Black platy mineral (biotite).

@32-35 cm: Quartz vein (<1 mm).

@32 cm: Shear fault (1 mm thick) with white fill.

CT: Aplite and pegmatite have few white-CT minerals. Aplite has some round white-CT minerals.

Coarse-grained granite with K-feldspar (<5 cm), plagioclase (<2,5 cm), quartz (<2 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed.

@72-76 cm: Quartz vein less than 1 mm thick.

@74 cm and 98 cm: Shear fractures (sub-parallel), 1 mm thick, with white fill.

CT: Granite facies.

Coarse-grained granite with K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm).

@0-2 cm: 2 mm thick anastomosing shear zone with white and green fill.

@9-13 cm: 2 cm thick anastomosing shear zone with white and green fill.

CT: Granite facies.

Pegmatite (with low quartz content). Platy biotite up to 1 cm.

CT: White-poor pegmatite facies.

Coarse-grained granite with K-feldspar (2,5 cm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm). In the bottom part, @104-110 cm, AF granite with quartz up to 1 cm.

@111 cm until the end, AF granite, biotite-rich (finer grained).

CT: Granite facies.

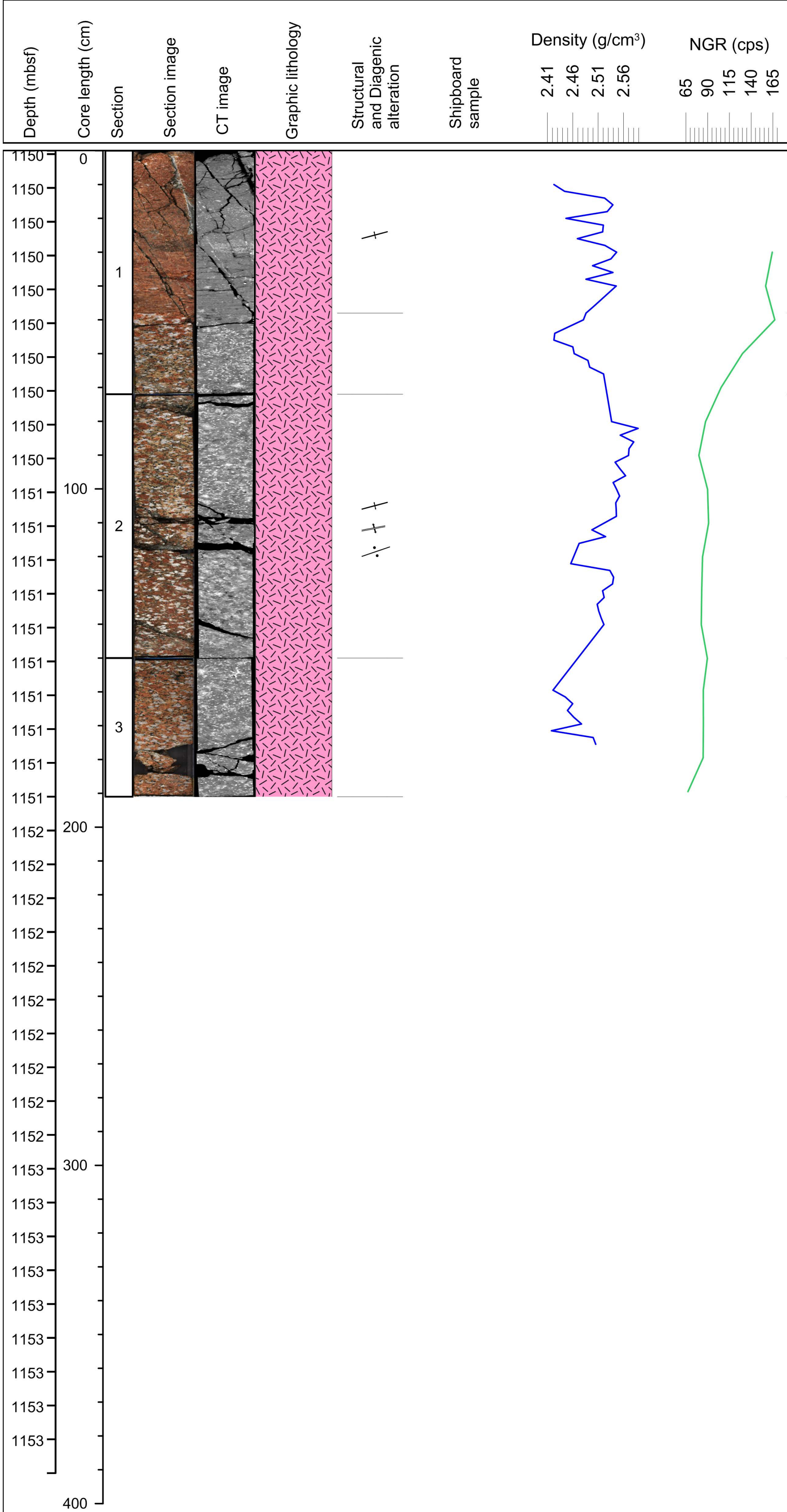
AF-granite, salmon in color, locally more biotite-rich, with quartz is up to 1 cm.

@0-70 cm: occasional, black-fill, hairline fractures.

@54-70 cm: 1 cm thick subversal vein, possible shear, has 1 mm white rim with high porosity and mid-gray interior of fine-grain size with light-grey to white (quartz) clasts, which have high porosity and fluidal texture. Vein is truncated by white sub-mm thickness shear fractures. Dextral shear, ~1 cm, apparent through vein continues into next core.

CT: Homogeneous grey matrix with occasional white minerals. Vein has low density.

Hole M0077A Core 243R Cored 1149.49-1151.34 mbsf



Description

AF-granite (as in previous section), with few quartz (up to ~1 cm), locally more biotite.

@0-24 cm: white-gray vein continues (see previous core section) has sub-parallel fracture sets below at cm-spacing.

CT: AF granite facies.

Coarse-grained granite, greenish-grey in color (plagioclase), with K-feldspar (<3 cm), plagioclase (2 cm), quartz (2 cm), and bioite (<0,5 cm) [very abundant].

CT: Granite facies.

Coarse-grained granite with K-feldspar (2,5cm), plagioclase (2,5cm), quartz (1 cm), and biotite (<0,5 cm). Below 46 cm, plagioclase is brownish (more alteration).

The granite is greenish-grey, somewhat more whitish in the lower part of the section.

@0-56 cm: Sub-vertical shear fracture, with green fill, mm-thick.

@47-78 cm: Feldspars show fractures filled with white mineral, mm-thick.

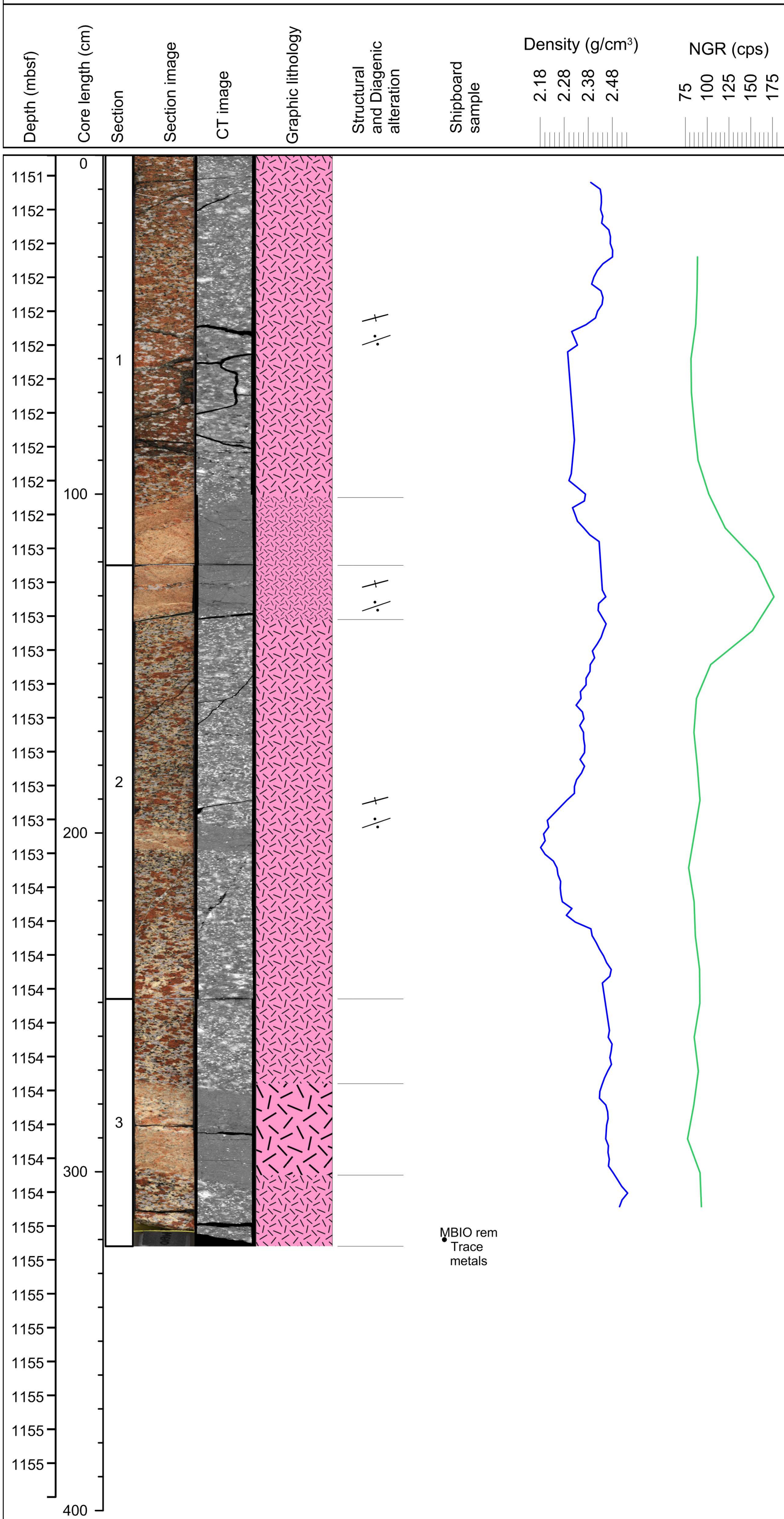
CT: Granite facies.

Coarse-grained granite with K-feldspar (3 cm), plagioclase (1,5 cm), quartz (1.5 cm), and biotite (<0,5 cm). Biotite is locally concentrated in aggregates.

@23-26 cm: Calcite vein (3 mm thick).

CT: Granite facies.

Hole M0077A Core 244R Cored 1151.34-1154.44 mbsf



Description

Greyish-greenish coarse-grained granite with K-feldspar (3 cm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed. +titanite.

@11-13 cm: white vein mm thick, with some prorosity, truncated against shear fracture (calcite).

@40-42 cm: reddish localized alterration around biotite.

@53 cm: S 195/45 L 195/45 (-2).

@76-90 cm: greenish alteration.

@88-90 cm: 2 mm shear fracture, with white and grey fill, and some porosity.

CT: Granite facies.

Aplitic dyke with, at contact, ~8 cm of pegmatitic lithology, very poor in biotite.

CT: Aplite facies.

Aplite with @6-7cm an ~1,5c m thick ~vein of quartz + platy biotite.

@15 cm: S 340/65 L 285/55 (+1).

@11-13 cm: <mm white anastomosing shear fracture zone, 2 cm wide

@14-17 cm: open shear fracture, parallel to aplite contact.

CT: Aplite facies.

Coarse-grained granite with K-feldspar (4 cm), plagioclase (1.5 cm), quartz (1,5 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed.

@76-84 cm: Pegmatitic dyke (6,5 cm thick)

@86-90 cm: quartz is cracked and somewhat reddish in color (alteration).

@85-110 cm: anastomosing, white fill (calcite), shear fracture with porosity.

CT: Granite facies.

Coarse-grained granite with K-feldspar (2,5 cm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm). Undeformed, locally reddish spots/areas surrounding biotite and inside quartz grains.

No visible deformation.

CT: Granite facies.

Pegmatitic intrusion with a few platy biotite (up to 0,7 cm).

No visible deformation.

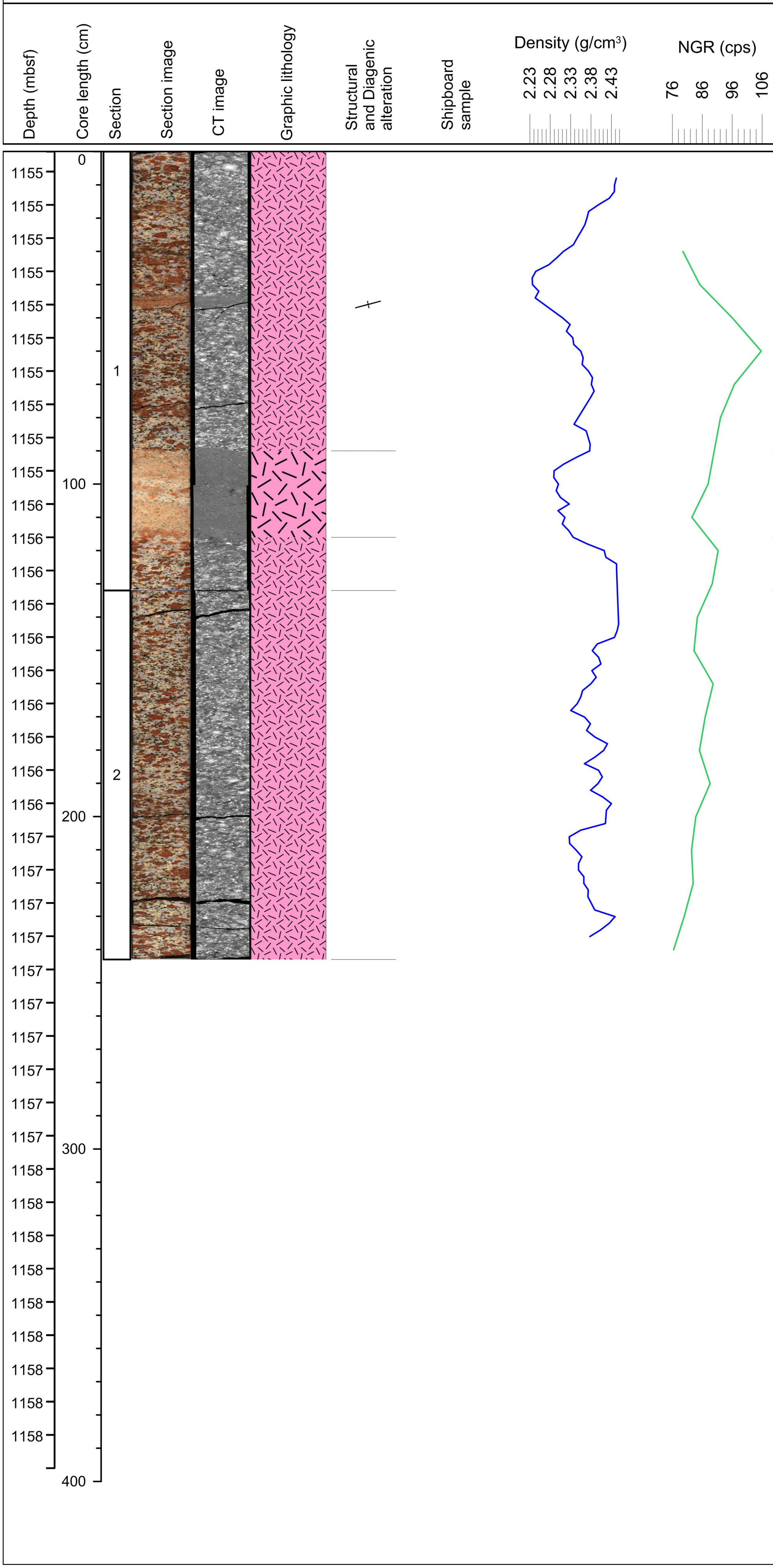
CT: Pegmatite facies.

Same coarse-grained granite as unit 1.

No visible deformation.

CT: Granite facies.

Hole M0077A Core 245R Cored 1154.44-1156.94 mbsf



Description

Undermed granite, coarse-grained, with K-feldspar (2,5 cm), plagioclase (1,5cm), quartz (2 cm), and biotite (<0,5 cm).

Locally quartz is reddish, alteration of biotite.

@32-34cm: dark green fill hairline fractures.

@43-47cm: aplitic zone, ~3 cm in thickness.

@49-56cm: white vein, < mm.

CT: Granite facies.

Pegmatite,locally aplitic.

CT: Pegmatite facies.

Same granite as unit 1.

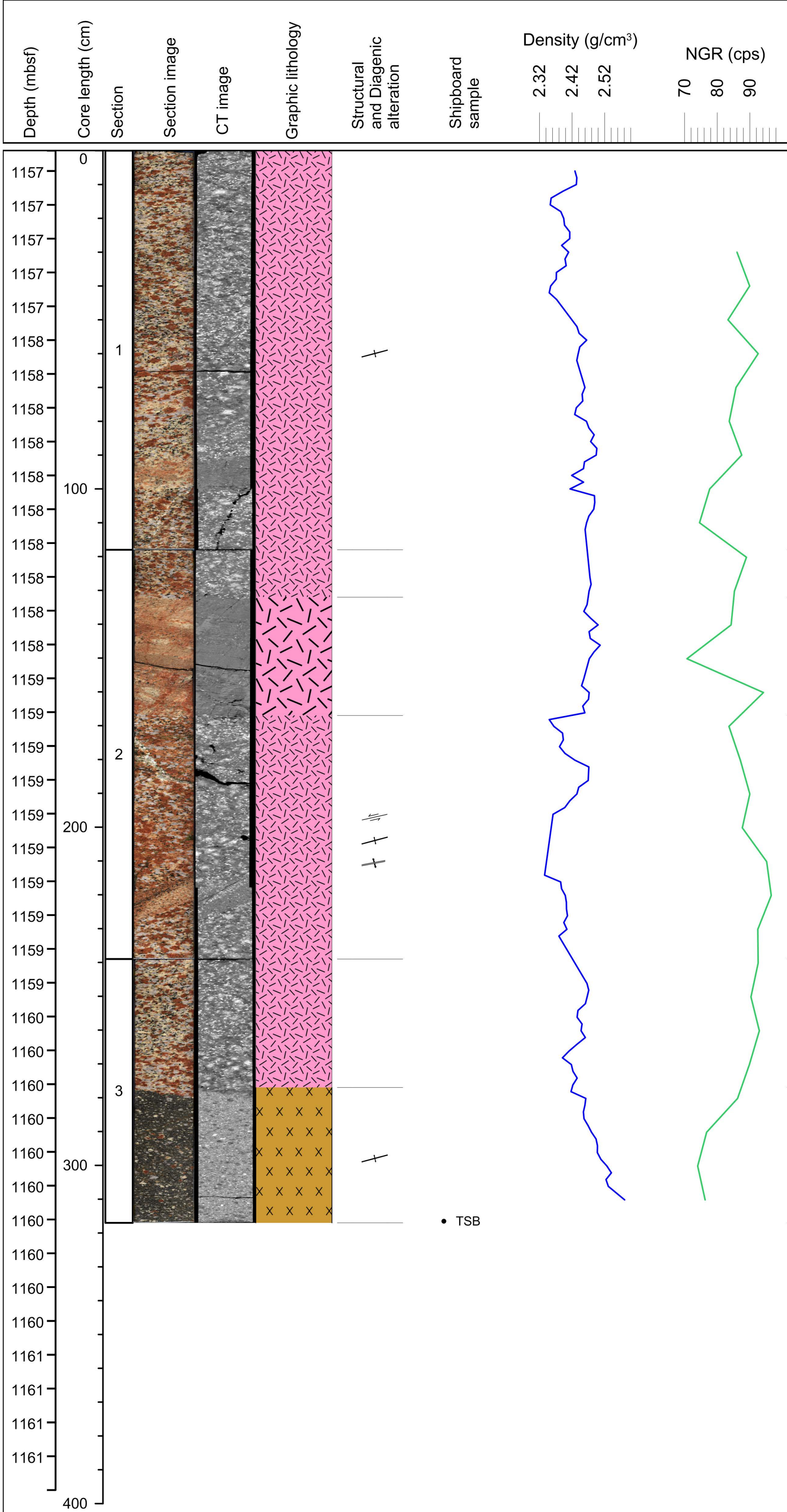
CT: Granite facies.

Undeformed coarse-grained granite with K-feldspar (up to 3,5 cm), plagioclase (2,5 cm), quartz (2 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed.

No visible deformation.

CT: Granite facies.

Hole M0077A Core 246R Cored 1156.94-1159.99 mbsf



Description

Coarse-grained granite with K-feldspar (3,5 cm), plagioclase (3 cm), quartz (3 cm), and biotite (<0,5 cm).

@49-62 cm: Diffuse reddish-brown alteration, especially visible in quartz grains (alteration of biotite).

@91-100 cm: Pegmatitic zone with platy biotite up to 1 cm.

@99-118 cm: Shear fracture network, white fill (quartz and calcite) <5 cm in thickness; main fracture has some visible porosity.

CT: Granite and pegmatite facies.

Undeformed coarse-grained granite with K-feldspar (1,5 cm), plagioclase (1,5 cm), quartz (1 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed.

CT: Granite facies.

Pegmatite with some more or less aplitic zones (platy biotite ~1cm).

CT: Aplite and pegmatite facies.

Coarse-grained granite with K-feldspar (3-3,5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm). Greenish alteration; locally reddish spots.

@55-56 cm and 84-100 cm: light greenish alteration.

@53-70 cm: white and yellow-green fracture shows a high inclination with 4 cm of reverse faulting (in orientation of core on work bench).

@83-100 cm: yellowish-green (epidote) filled vein.

@96-105 cm: aplitic zone with high abundance of biotite.

CT: Granite facies.

Undeformed coarse-grained granite with K-feldspar (<3 cm), plagioclase (2 cm), quartz (2,5 cm), and biotite (<0,5 cm); coarse-grained in the lower part, biotite poor, quartz-rich. Wavy contact with dacite.

@33-37 cm: Two sub-horizontal white veins, <mm.

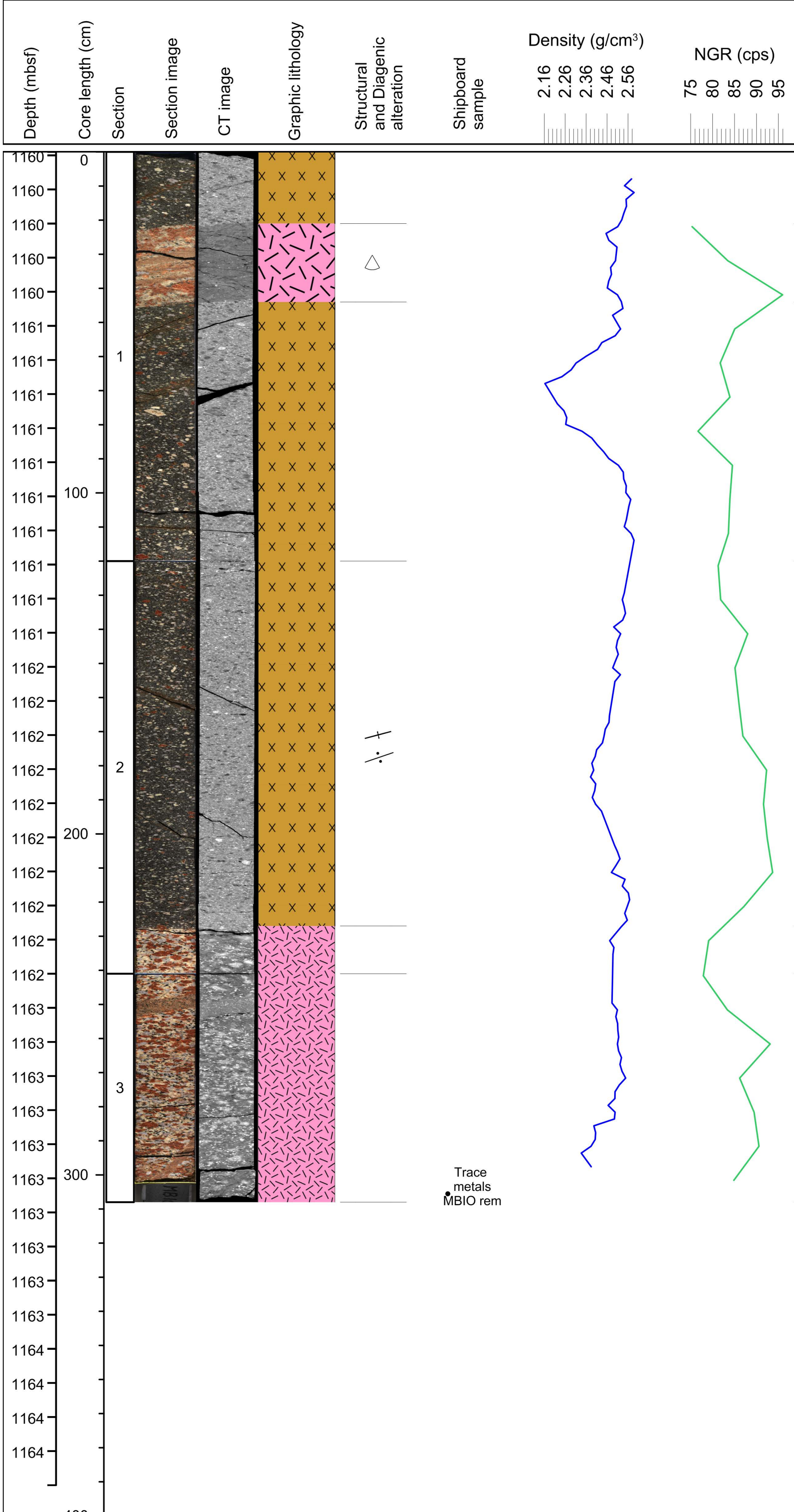
CT: Granite facies.

Dacite, porphyritic, grey in color with K-feldspar (up to 1,5 cm, with white rims/zoning), plagioclase (1 cm), quartz (1,5 cm, rounded), and black minerals (<3 mm) (biotite / hornblende).

@45-51 cm: yellowish-red strain on closed fracture with no fill.

CT: Dacite facies is mid grey with dark and light grey minerals.

Hole M0077A Core 247R Cored 1159.99-1163.09 mbsf



Description

Dacite (porphyritic), grey in color, K-feldspar (2 cm), plagioclase (up to 3,5 cm), quartz (<2 cm, rounded), and black minerals (<3 mm). K-feldspar are zoned/rim with white color. Locally altered (red surrounding), black minerals (biotite?).

@3 cm: yellow greeen (epidote).

@10 cm: yellow-red veins, diffuse ~1 cm wide coloration zone.

CT: Dacite facies.

Pegmatite with aplitic zones. K-feldspar, plagioclase, and quartz + a few platy biotite.

@30 cm: poorly developed shatter cone surface in aplite vein/zone.

CT: Pegmatite facies.

Same as unit 1.

@50 cm and 72 cm: yellow-green (epidote) and very small pyrite (<mm) in veins; at 72 cm yellowish-red aureole.

@57 cm and 110 cm: yellowish-red veins, diffuse, ~1 cm wide coloration zone.

CT: Dacite facies.

Same dacite (porphyritic) as in previous section with somewhat smaller phenocrysts. K-feldspar (up to 1,5 cm), plagioclase (<1,8 cm), quartz (<1 cm, sub-rounded), and black minerals (biotite, hornblende, <3 mm).

@0-82 cm: yellow-red staining on <=1 cm wide zones.

@4 cm: irregular, white shear fracture, displaces yellow-red staining.

@87-102 cm: anastomosing, white, 1 mm, thick shear fractures.

CT: Dacite facies.

Coarse-grained, undeformed, granite with K-feldspar (up to 3 mm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm).

CT: Granite facies.

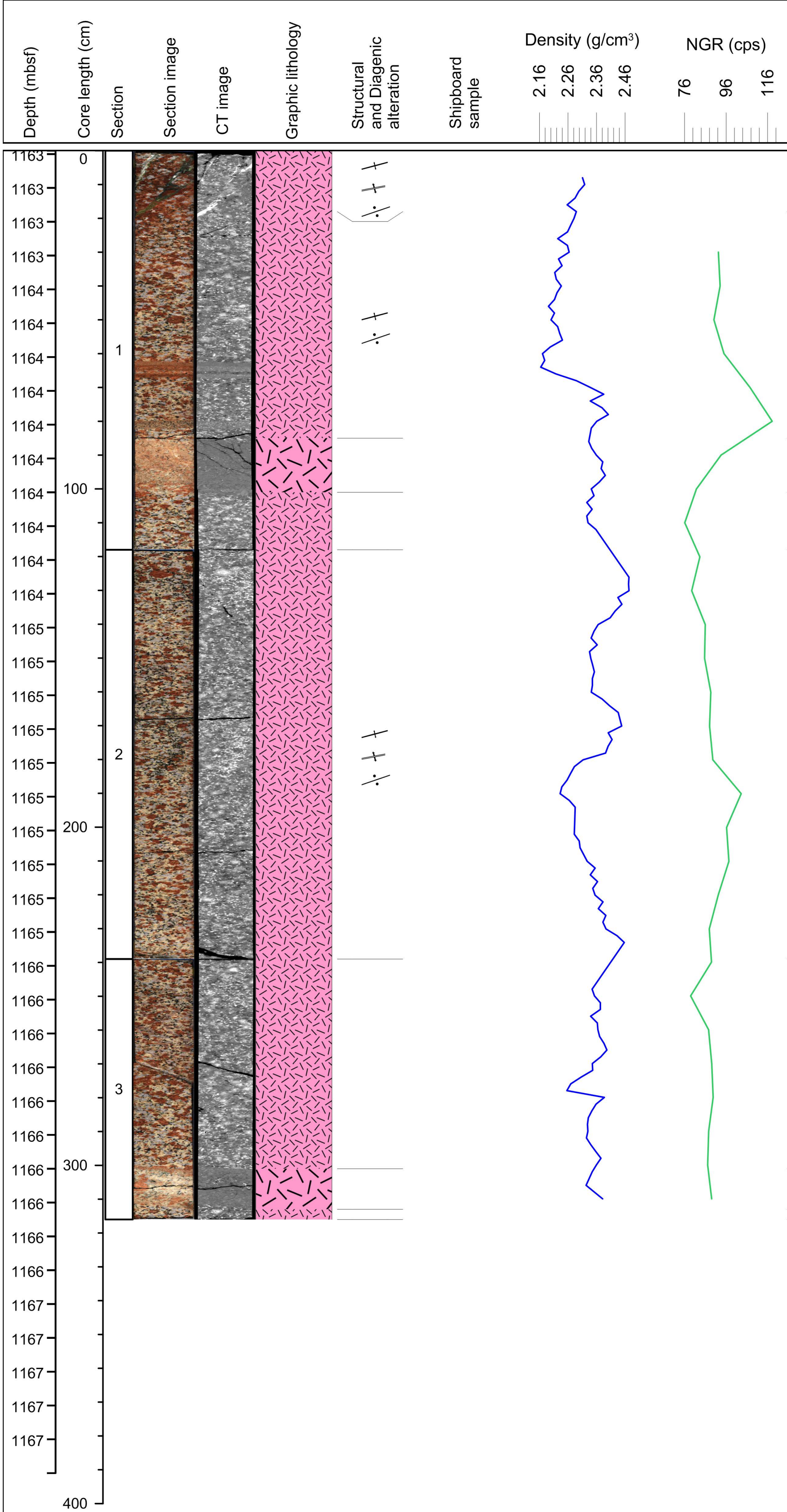
Coarse-grained, undeformed, granite with K-feldspar (3 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed. Some quartz grains show a diffuse reddish coloration; Some biotite are greenish.

@6-10 cm and 48-60 cm (1,5 cm in thickness): dykes of aplite; Top one is full of biotite.

@0-62 cm: dm-spaced, <mm, white veins.

CT: Granite facies; aplite with numerous white-CT minerals.

Hole M0077A Core 248R Cored 1163.09-1166.19 mbsf



Description

AF-granite, coarse-grained, with K-feldspar (2,5 cm), quartz (1,5 cm), and biotite (0,5 cm).

@0-19 cm: 1-5 cm wide dilational fracture filled with ~75% granite clasts, angular to sub-angular, in a matrix of dark green, fine-grained material. Dark green matrix is locally altered to epidote and calcite.

@0-10 cm: 3 mm wide white-light grey filled shear fracture truncating off-shooting veinlets from dark green dilational fracture.

CT: Epidote in veins is white in CT image, high Z and high density. Granite facies.

Coarse grained granite with K-feldspar (2,5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm).

@21-25 cm: sub-mm thick white shear fractures.

@62-67 cm: aplitic zone with 1 cm core somewhat coarser-grained (granite).

@80-82 cm: aplite rich in biotite.

CT: Granite facies.

Pegmatite with platy biotite, up to 5 mm. Rare quartz (<8 mm).

CT: Pegmatite facies.

Same as granite as in unit 2.

CT: Granite facies.

Coarse-grained granite with K-feldspar (up to 3,5 cm), plagioclase (2 cm), quartz (2 cm) and biotite (<0,5 cm). Biotite is heterogeneously distributed. Diffuse reddish and greenish alteration, flakes, and inside quartz grains.

@14-30 cm: mm-tick white filled shear fracture, some pyrite on fracture surface.

@60-61 cm: same as @14-30 cm.

@88-91 cm: mm thick green-brown cataclasite

CT: Granite facies.

Coarse-grained granite with K-feldspar (up to 3 cm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed. In the upper part, presence of a diffuse reddish alteration in quartz and of reddish spots (oxidized biotites?).

@34 cm: S 215/40 L 135/3 (-3).

CT: Granite facies.

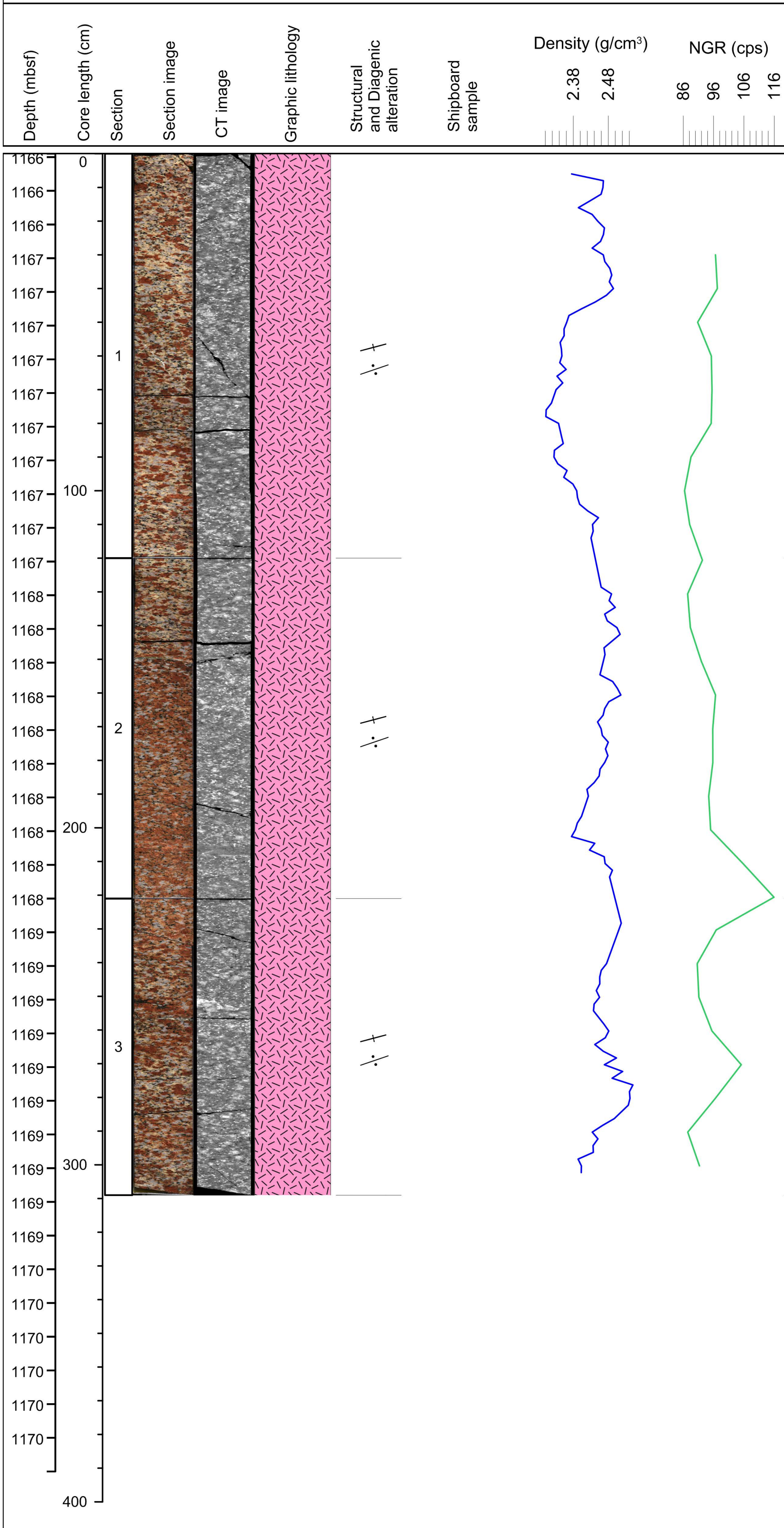
Pegmatite, quartz poor, with platy biotite up to 1 cm.

CT: Pegmatite facies.

Same as unit 1.

CT: Granite facies.

Hole M0077A Core 249R Cored 1166.19-1169.29 mbsf



Description

Coarse-grained granite with K-feldspar (3 cm), plagioclase (3 cm), quartz (2,5 cm), and biotite (<0,5 cm). Biotite is homogeneously distributed. Quartz is locally reddish, diffuse alteration of biotite; locally also greenish.

@42cm: thin aplite vein (5 mm thick).

@54-71 cm: shear fracture, white fill up to 1 mm thick.

@113 cm: cataclasite up to 4 mm thick with visible plum-colored and pistachio-green alteration.

CT: Granite facies.

Coarse grained granite with K-feldspar (3,5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm). More K-feldspar in the lower 2/3 of the section. Biotite is homogeneously distributed. Red and greenish alteration spots.

@30 cm: Highly inclined shear fracture with green and white fill (quartz), 1 mm thick.

@49-78 cm: white veins, sub-mm thick.

@73 cm: S 20/65 L 65/45 (-4).

@82-101 cm: horizontal, white veins 1-2 mm thick, with 2-3 cm spacing.

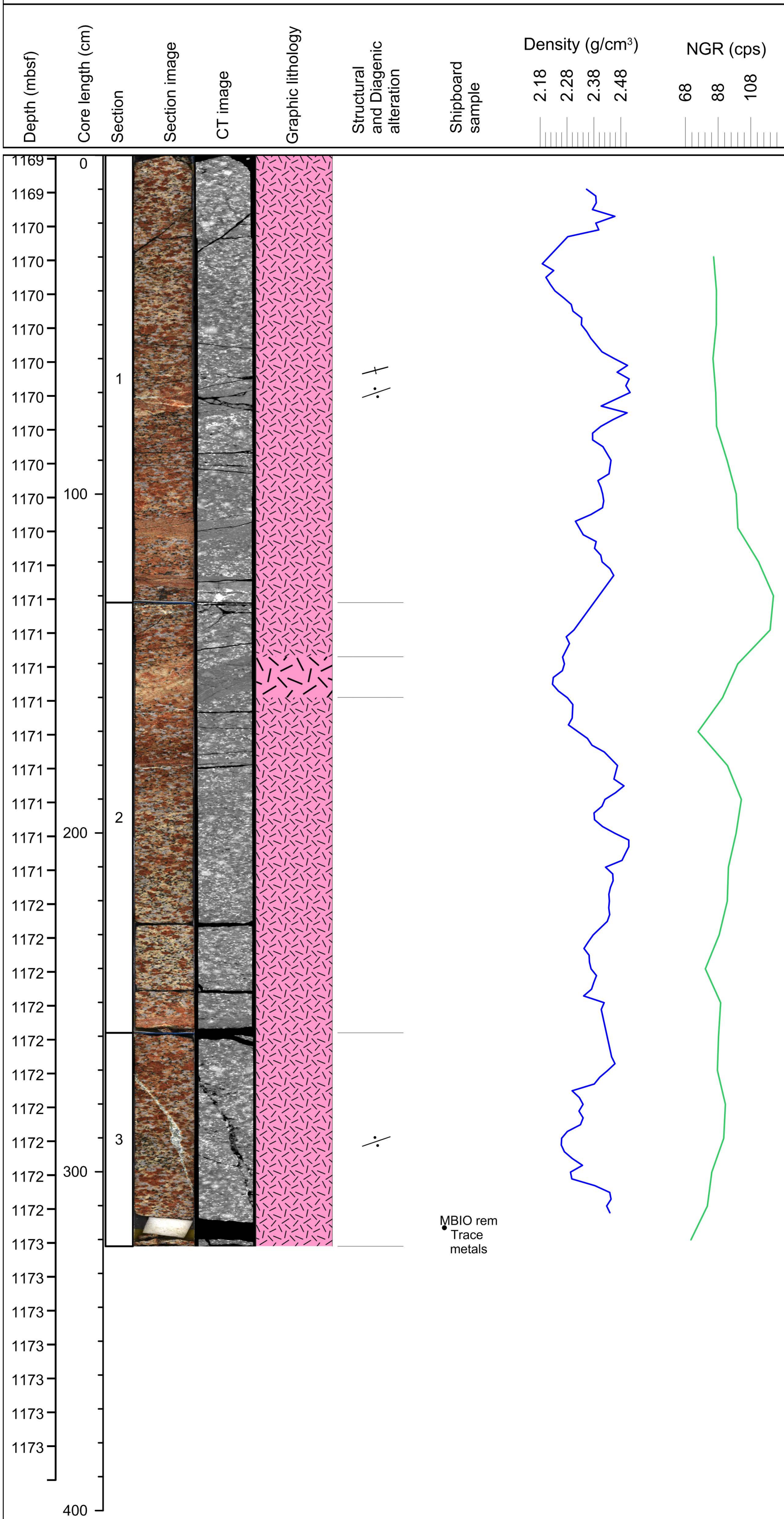
CT: Granite facies.

Coarse-grained granite with K-feldspar (3,5 cm), plagioclase (3 cm), quartz (1,5 cm), and biotite (<0,5 cm). Biotite is heterogeneously distributed, locally concentrated (2 cm aggregates). Locally greenish and reddish flakes of alteration.

Occasional white veins (quartz) and shear fractures.

CT: Granite facies.

Hole M0077A Core 250R Cored 1169.29-1172.39 mbsf



Description

Coarse-grained granite with K-feldspar (3,5 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm). Biotite is heterogeneously distributed, locally aggregated. Plagioclase are light brown in the upper part of the section. Locally reddish alteration. All open fractures in this core section are shear fractures.

@68-74 cm: pegmatite zone.

@69-74 cm: Three irregular shear faults with white fill up to 6-7 mm thick. White fill is porous (contained in pegmatite).

@107-113 cm and @124-127: aplite dikes.

CT: Granite and pegmatite facies.

Coarse-grained granite with K-feldspar (up to 4 cm), plagioclase (1,5 cm), quartz (2,5 cm), and biotite (<0,5 cm). Reddish/greenish flakes of alteration.

CT: Granite facies.

Pegmatite, quartz poor (~0,5 cm), with platy biotite up to 1 cm.

CT: Pegmatite facies.

Coarse-grained granite with K-feldspar (2 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0,5 cm). Locally coarser and more abundant K-feldspar. Some reddish and green flakes (alteration), heterogeneously distributed.

CT: Granite facies.

Coarse-grained granite with K-feldspar (3 cm), plagioclase (2 cm), quartz (1,5 cm), and biotite (<0,5 cm). Biotite locally concentrated. A few reddish/greenish spots of alteration.

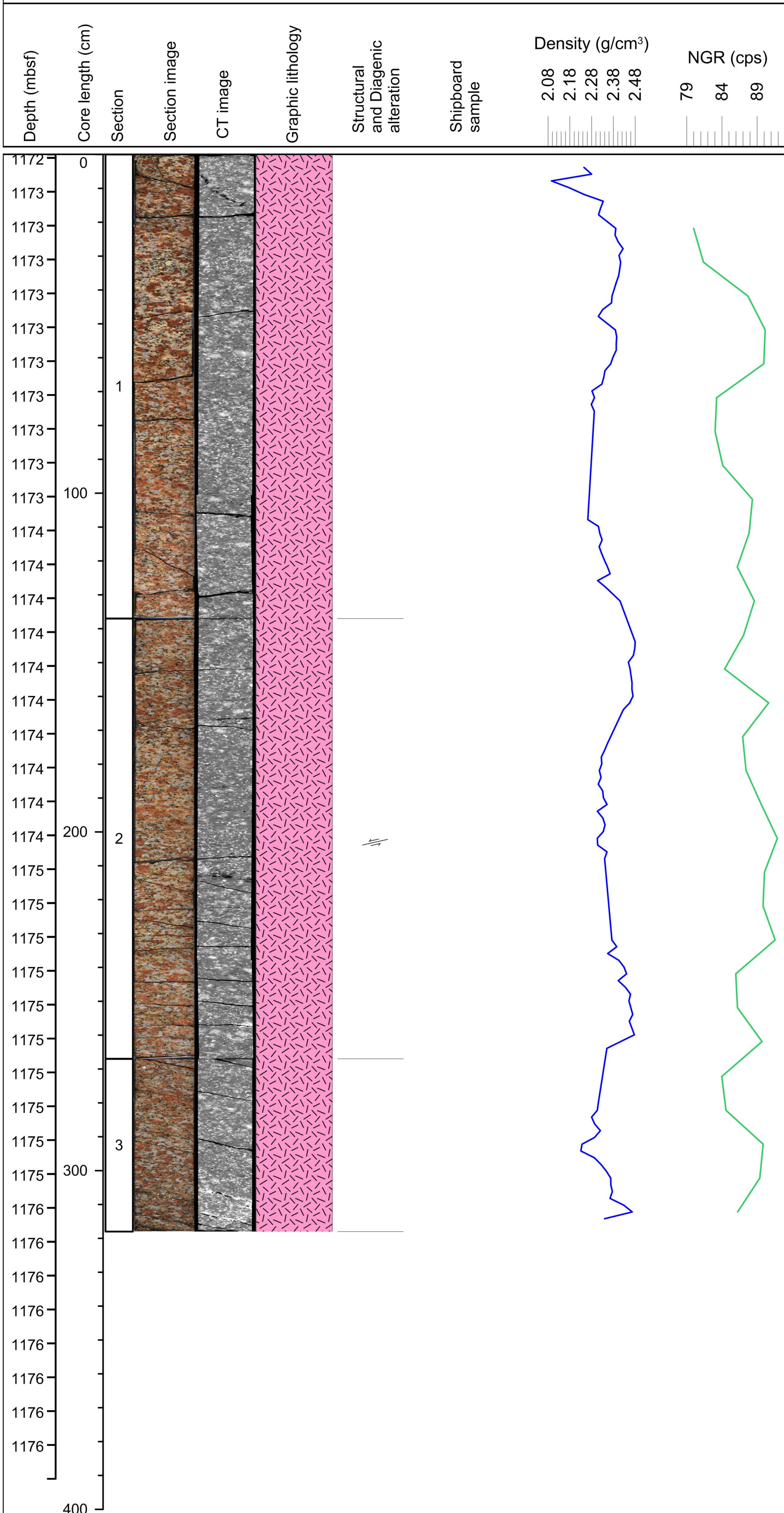
@12-49 cm: dextral shear fault with dilatational region at 26-36 cm.

Fill from 12-26 cm, and @36-41 cm is 3 mm thick, outer light grey-green rim, and inner white zone with porosity.

Fill from 26-36 is 1,5 cm thick. Light grey-green with 1 mm thick white, porous strings, and with < 1 cm granite clasts. Shear fault has local epidote and chlorite. Shear fault truncates 1 mm thick white shear faults.

CT: Granite facies; fault zone dark grey, and low density.

Hole M0077A Core 251R Cored 1172.39-1175.49 mbsf



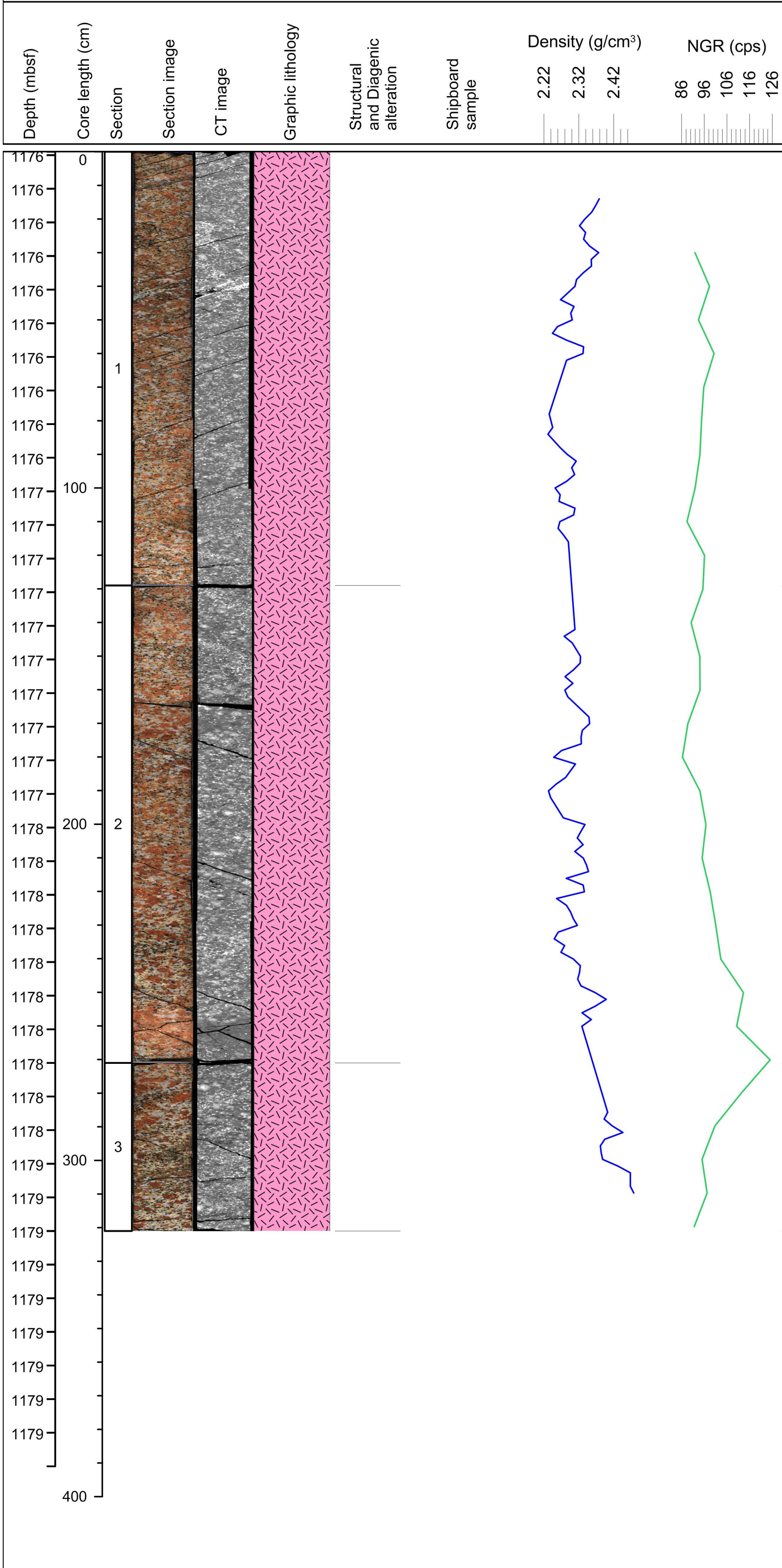
Description

Coarse (0.5 to 1.5 cm) grained granite, weakly deformed. Green mineralization occurs throughout the section. Minor red mineralization occurs in the vicinity of quartz. Fault at 6 cm: S 063/24, L 018/15 (-) 3. Fault at 18 cm: S 356/72, L 066/28 (+) 3. Fault at 106 cm: S 012/82, L 084/74 (-) 3. Fault at 133 cm: S 182/50, L 185/40 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, moderately deformed. White, gray, and green veins. Red and green mineralization associated with biotite. Fine cataclastic veins occur at 30 and 116 cm. A series of parallel faults. Fault at 78 cm: S 022/70, L 082/59 (-) 3. Fault at 89 cm: S 023/76, L 086/60 (+) 3. Fault at 98 cm: S 175/48, L 210/32 (+) 3. Fault at 125 cm: S 186/46, L 190/42 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, moderately deformed. Dark green vein. Minor green alteration elsewhere in section. Fault at 10 cm: S 026/62, L 086/42 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 252R Cored 1175.49-1178.59 mbsf



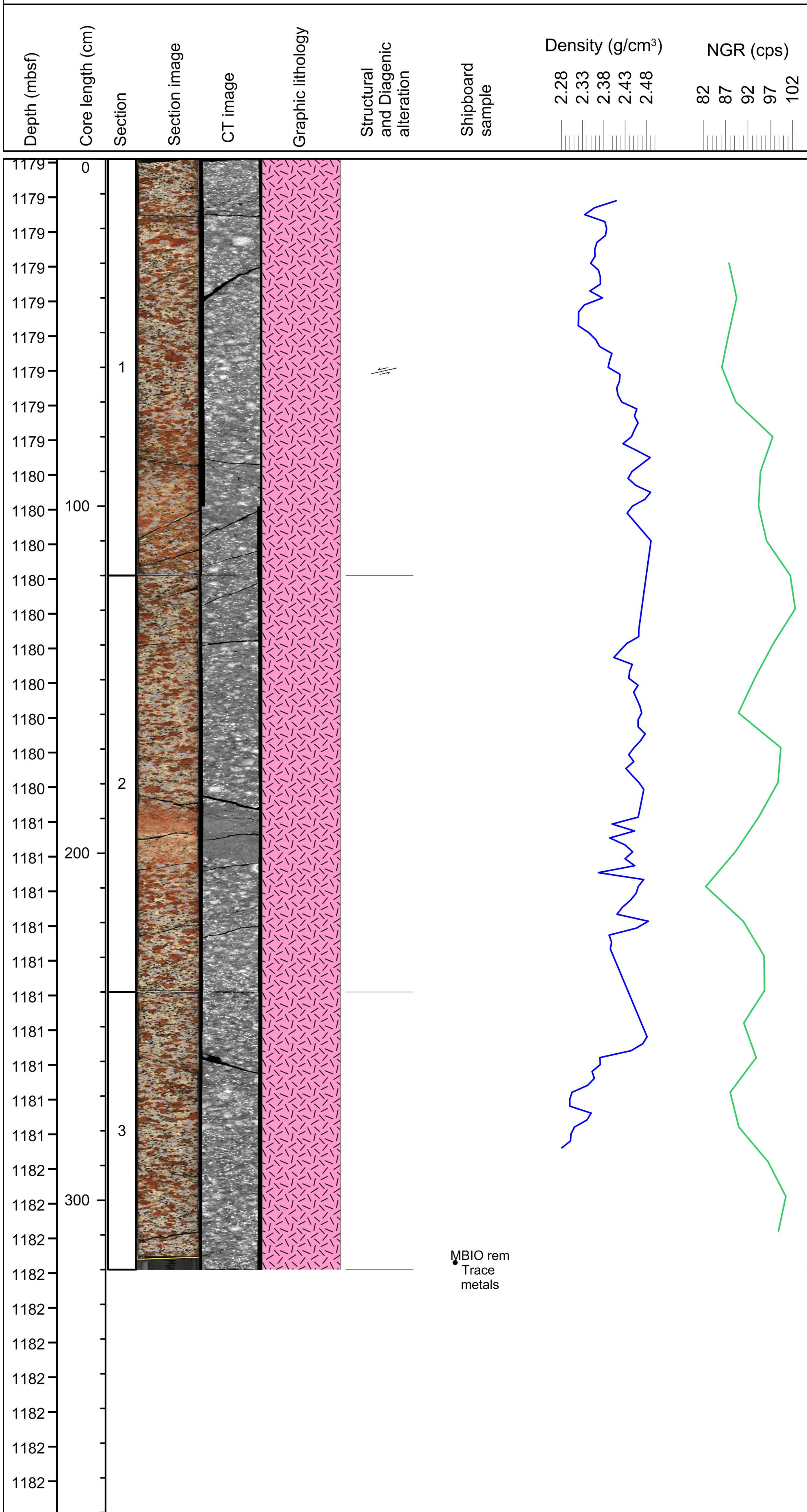
Description

Coarse (0.5 to 1.5 cm) granite, strongly deformed. In the zone from 93 to 99 cm, the grain size increases to 2 cm. White, green, and dark green veins cut the section. Cataclastic veins occur at 10 cm and from 39 to 44 cm. Faults are parallel. Fault at 9 cm: S 146/76, L 075/36 (+) 3. Fault at 27 cm: S 160/65, L 071/21 (+) 3. Fault at 65 cm: S 146/68, L 070/31 (+) 3. Fault at 67 cm: S 152/38, L 082/30 (+) 3. Fault at 82 cm: S 138/64, L 73/26 (-) 2. Color is 7.5 YR 6/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, weakly deformed. In the zones from 9 to 16, 36 to 35, and 78 to 93 cm, the grain size increases to 2 to 2.5 cm and there is less biotite (<1%). The zone from 127 to 136 cm is cut by a pegmatite. White and green veins cut the section. Green and red mineralization occurs throughout the section. Fault at 9 cm: S 146/76, L 075/36 (+) 3. Fault at 27 cm: S 160/65, L 071/21 (+) 3. Fault at 67 cm: S 152/38, L 082/30 (+) 3. Fault at 55 cm: S 146/63, L 070/31 (+) 3. Fault at 82 cm: S 138/64, L 073/26 (+) 3. Color is 7.5 YR 7/5. CT is dark gray.

Coarse (1 to 2.5 cm) granite, weakly deformed. The zone from 25 to 36 cm is enriched in biotite (~10%) and grain size is smaller (<1 cm). Green mineralization occurs throughout the section. Fault at 86 cm: S 223/56, L 203/55 (-) 3. Fault at 124 cm: S 208/62, L 205/58 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 253R Cored 1178.59-1181.67 mbsf



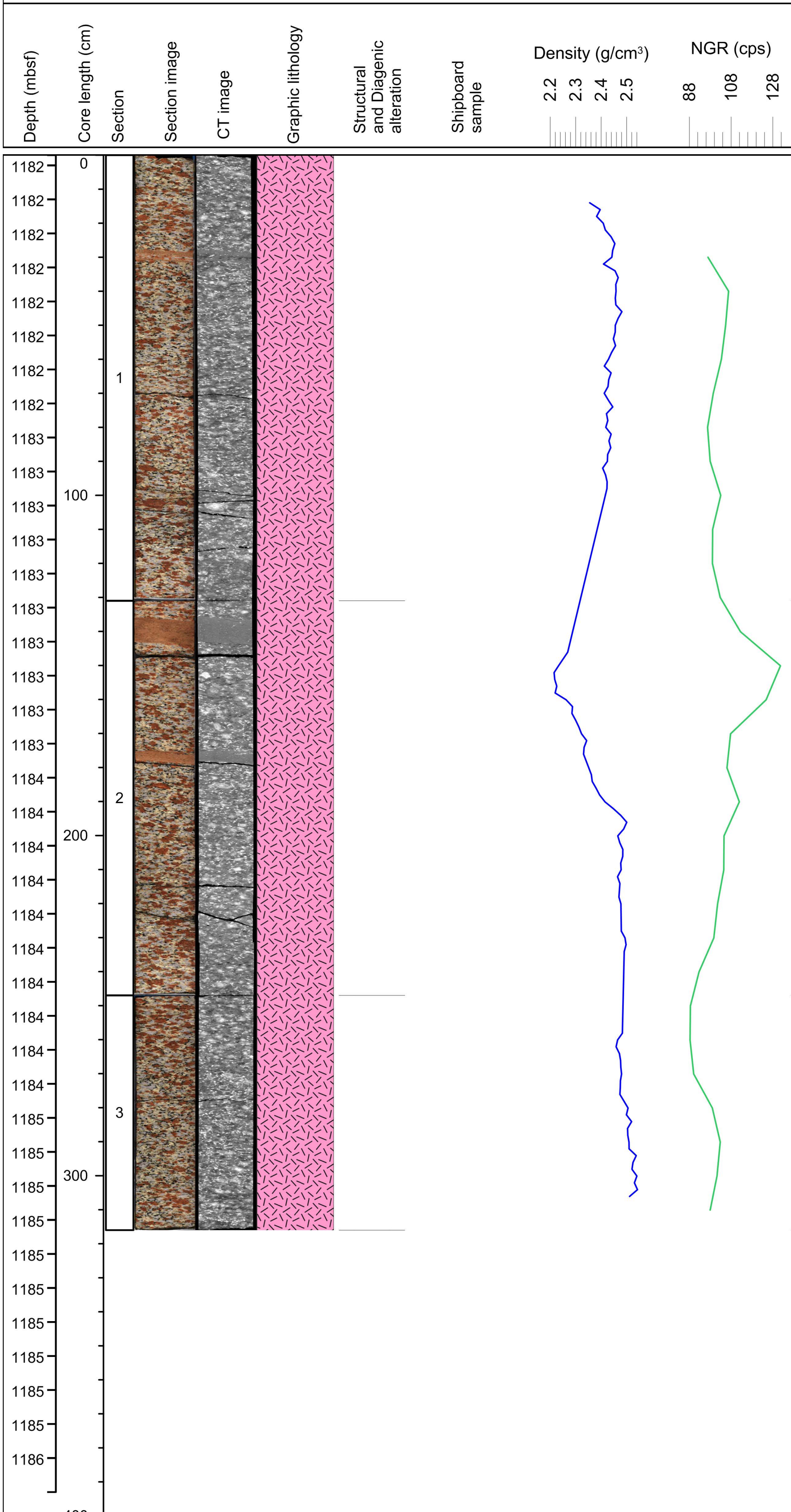
Description

Coarse (1 to 2.5 cm) granite, moderately deformed. The zone from 20 to 25 cm has large (2.5 cm) K-feldspar. The zone from 92 to 101 cm has less K-feldspar (<25%) and less biotite (<1%) and is correspondingly enriched in quartz (>40%). White and green veins. Green mineralization occurs throughout the section. Fault at 34 cm: S 320/36, L 266/32 4. Second lineation on fault at 34 cm: S 320/36, L 012/30 (+) 2. Fault at 87 cm: S 196/69, L 226/43 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite. The zone from 66 to 88 cm is cut by a pegmatitic vein (K-feldspar, quartz, and biotite). Minor white-colored veins elsewhere. Fault at 7 cm: S 152/73, L 070/26 (+) 3.Color is 7.5 YR 7/6. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, without visible deformation. At 32 cm, there is a white-rimmed K-feldspar crystal. Green mineralization occurs throughout the section. Minor red mineralization also occurs. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 254R Cored 1181.67-1184.77 mbsf



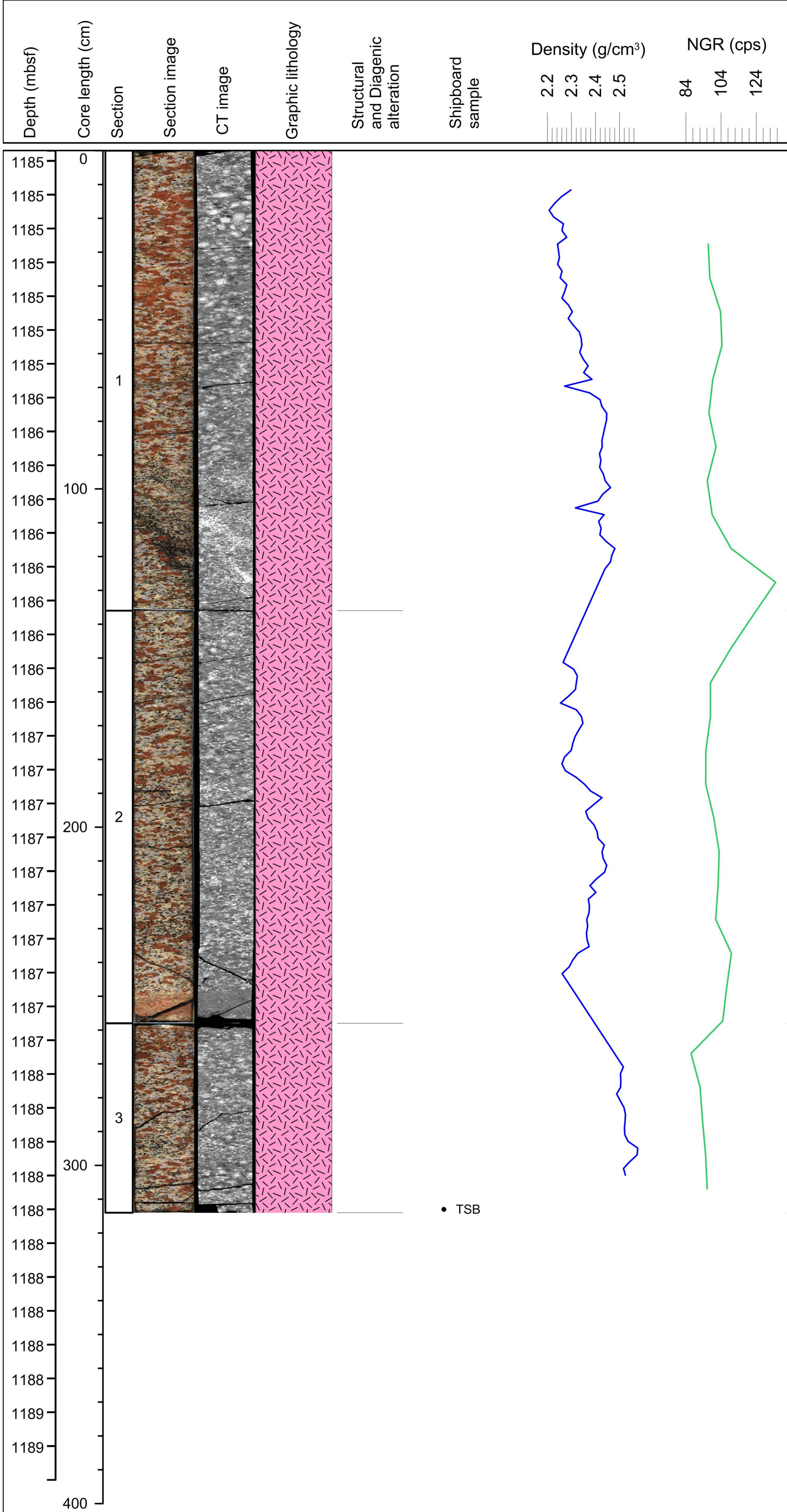
Description

Coarse (0.5 to 1.5 cm) granite. In the zone from 28 to 32 cm, an aplite dike has intruded. At 1.3 cm, there is a large (3 cm) K-feldspar crystal. White and yellow-brown veins. Fault at 105 cm: S 010/78, L 090/06 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, weakly deformed. The zone from 6 to 14 cm is intruded by an aplitic dike. The zone from 44 to 48 cm is also intruded by an aplitic dike. White and yelloow-brown veins. Green mineralization occurs throughout the section. Fault at 84 cm: S 185/82, L 096/14 (+) 3. Fault at 93 cm: S 063/60, L 025/58 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, with no visible deformation. Green mineralization occurs throughout the section. Minor red alteration. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 255R Cored 1184.77-1187.87 mbsf



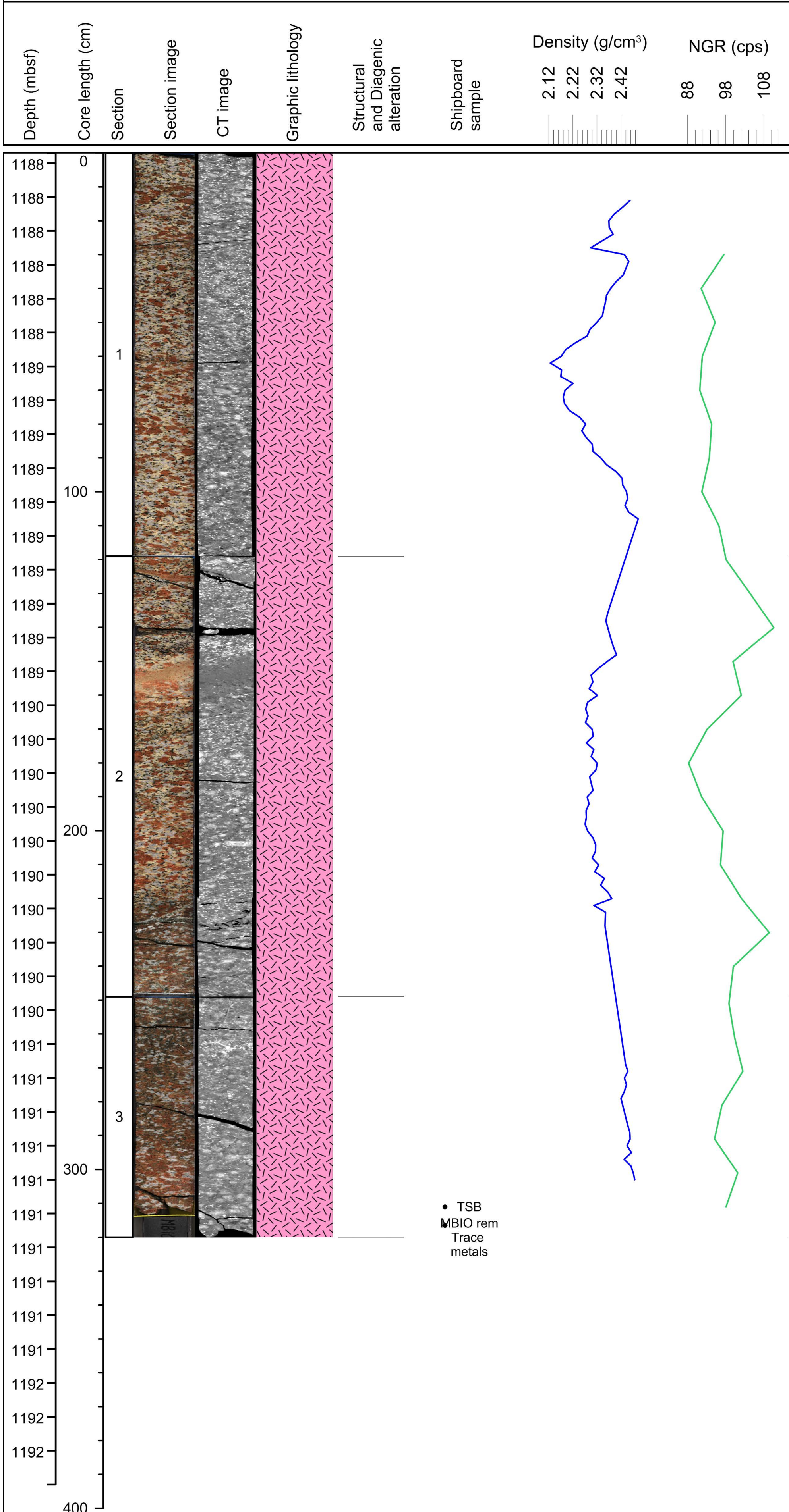
Description

Coarse (0.5 to 1.5 cm) granite, moderately deformed. In the zone from 12 to 47 cm, the grain size increases to 2.5 cm. The zone from 93 to 130 cm is enriched in biotite (5 to 15%). Green mineralization occurs throughout the section. Scattered red mineralization is also present, usually associated with biotite, and stains quartz. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, weakly deformed. The zone from 88 to 97 cm is enriched in biotite (~10%). The zone from 112 to 122 cm is intruded with a pegmatite. Green mineralization occurs throughout the section. Red mineralization is stainning quartz. Fault at 57 cm: S 168/86, L 185/84 (+) 3. Fault at 106 cm: S 036/64, L 032/58 (+) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 2 cm) granite. The zone from 25 to 38 cm has smaller size grains (<1 cm). Green mineralization occurs throughout the section. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 256R Cored 1187.87-1190.97 mbsf



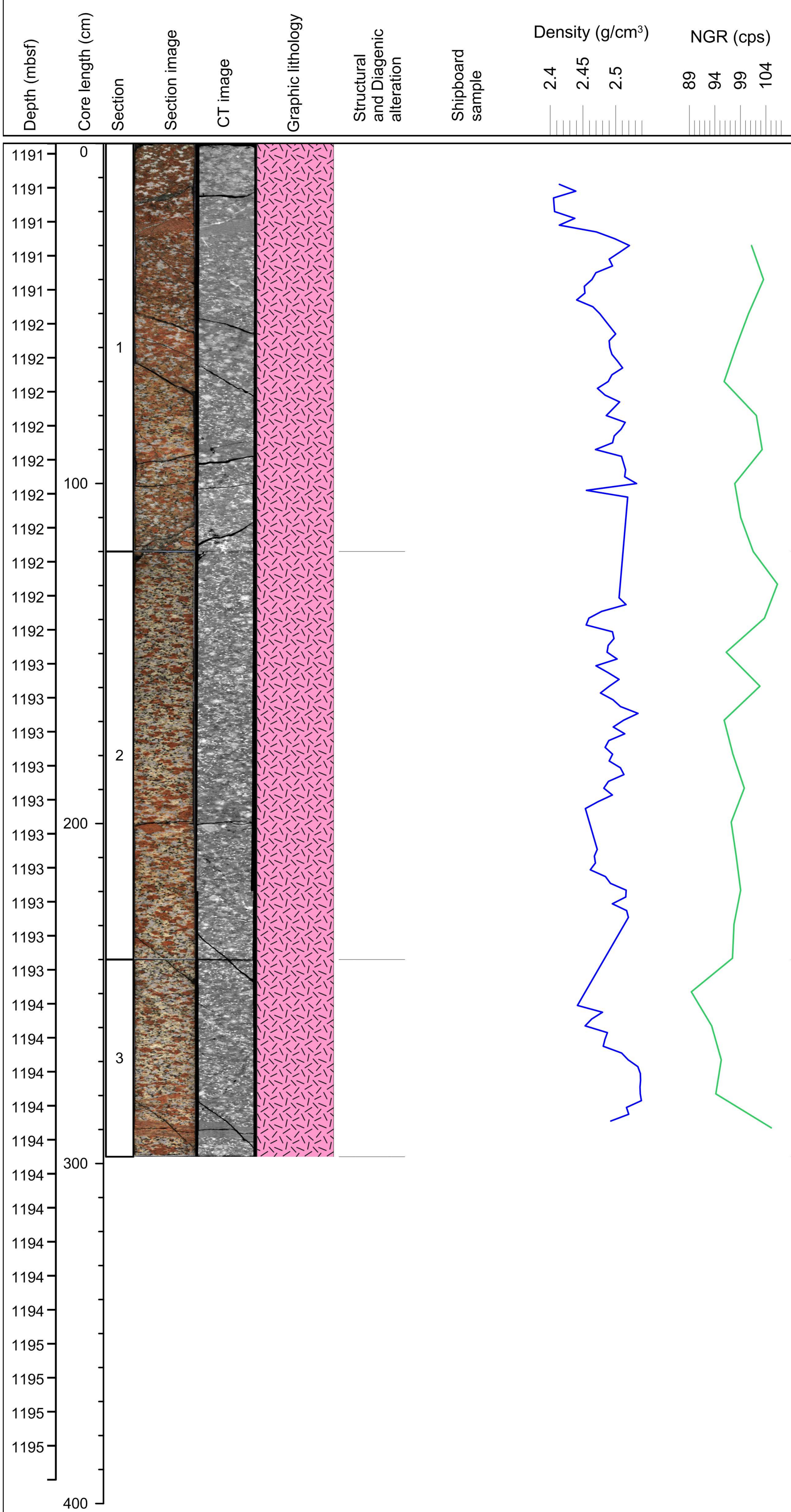
Description

Coarse (0.5 to 1.5 cm) granite, weakly deformed. Black vein. Greena and beige mineralization associated with biotite. Color is 7.5 &R 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, moderately deformed. A zone from 5 to 7 cm is intruded by an aplitic dike. A zone from 28 to 45 cm is intruded by a K-feldspar and quartz pegmatite. The zone from 98 to 130 cm is strongly deformed. White and green veins cut the section. Green mineralization occurs throughout the section. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, strongly deformed. A zone from 47 to 64 cm has larger (2 to 2.5 cm) crystals. Biotite is largely replaced by green mineralization. Veins of cataclastic material occur at 16 and 41 cm. Color is 7.5 YR 7/2. CT is dark gray.

Hole M0077A Core 257R Cored 1190.97-1194.02 mbsf



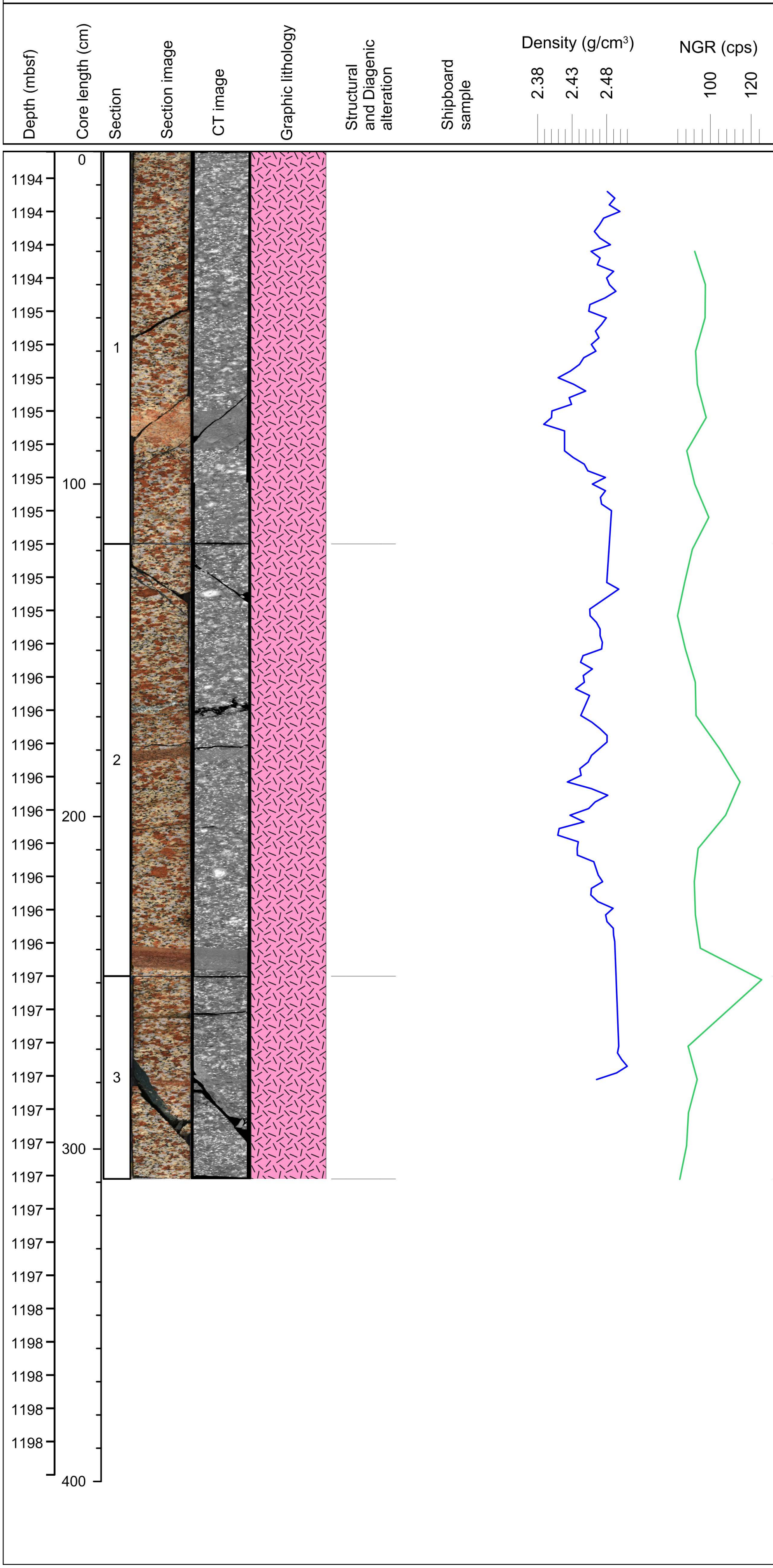
Description

Coarse-grained granite, strongly deformed. A zone from 21 to 27 cm is intruded by an aplitic dike. The zone from 55 to 65 cm is biotite poor (<1%). White and (dominantly) green veins cut the section. Fault at 19 cm: S 162/36, L 195/26 (+) 3. Fault at 52 cm: S 036/54, L 113/11 (-) 3. Fault at 69 cm: S 058/84, L 023 (+) 3. Fault at 116 cm: S 146/44, L 179/34 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite with no visible deformation. A large 2.5 cm crystal of K-feldspar occurs at 81 cm. Green alteration occurs throughout the section. Quartz is stained red. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, with no visible deformation. The zone from 49 to 53 cm is intruded with an aplitic dike. Green mineralization throughout the section. Minor red mineralization. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 258R Cored 1194.02-1197.12 mbsf



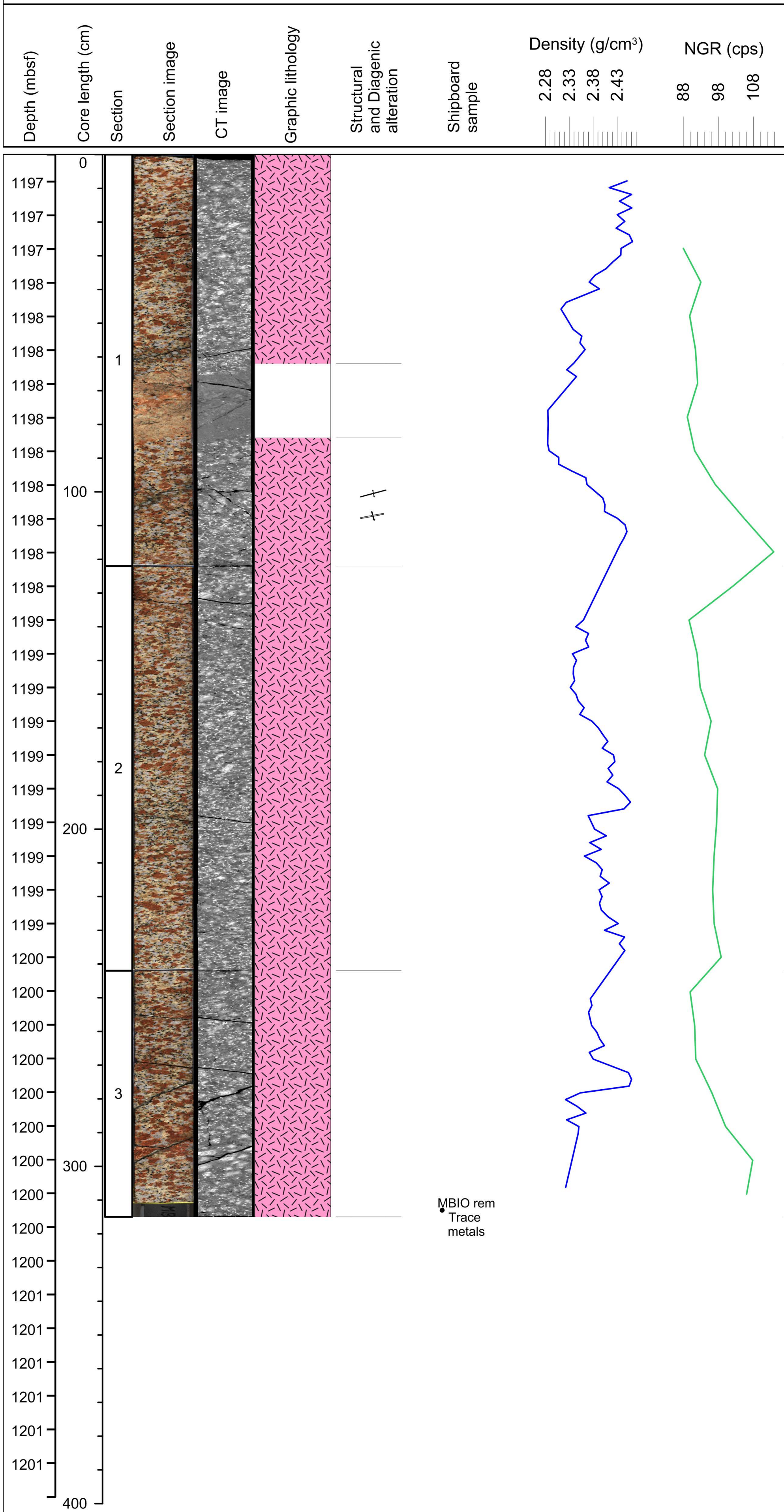
Description

Coarse-grained granite. The zone from 75 to 89 cm is intruded with a K-feldspar and quartz pegmatite. Green mineralization occurs throughout and some quartz has been stained pink. Fault at 97 cm: S 132/87, L 12885 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, weakly deformed. The zone from 61 to 64 cm is intruded by an aplitic dike, as is the zone from 122 to 128 cm. A 2 to 3 cm wide vuggy vein occurs near 50 cm with white and pale green mineralization. At 14 cm, there is a 2 to 3 mm wide cataclastic vein. At 48 cm, there is a 3 mm wide cataclastic vein. Fault at 13 cm: S 231/65, L 146/10 (-) 2. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (1 to 2 cm) granite, weakly deformed. A 2 cm-thick cataclastic and pseudotachylite vein cuts the section from 25 to 49 cm. Green mineralization occurs throughout the section. Fault at 40 cm: S 232/66, L 166/03 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 259R Cored 1197.12-1200.22 mbsf



Description

Coarse (1 to 2 cm) granite, weakly deformed. Green mineralization. Vein with fine cataclastic material at 65 cm. Color is 7.5 YR 7/4. CT is dark gray.

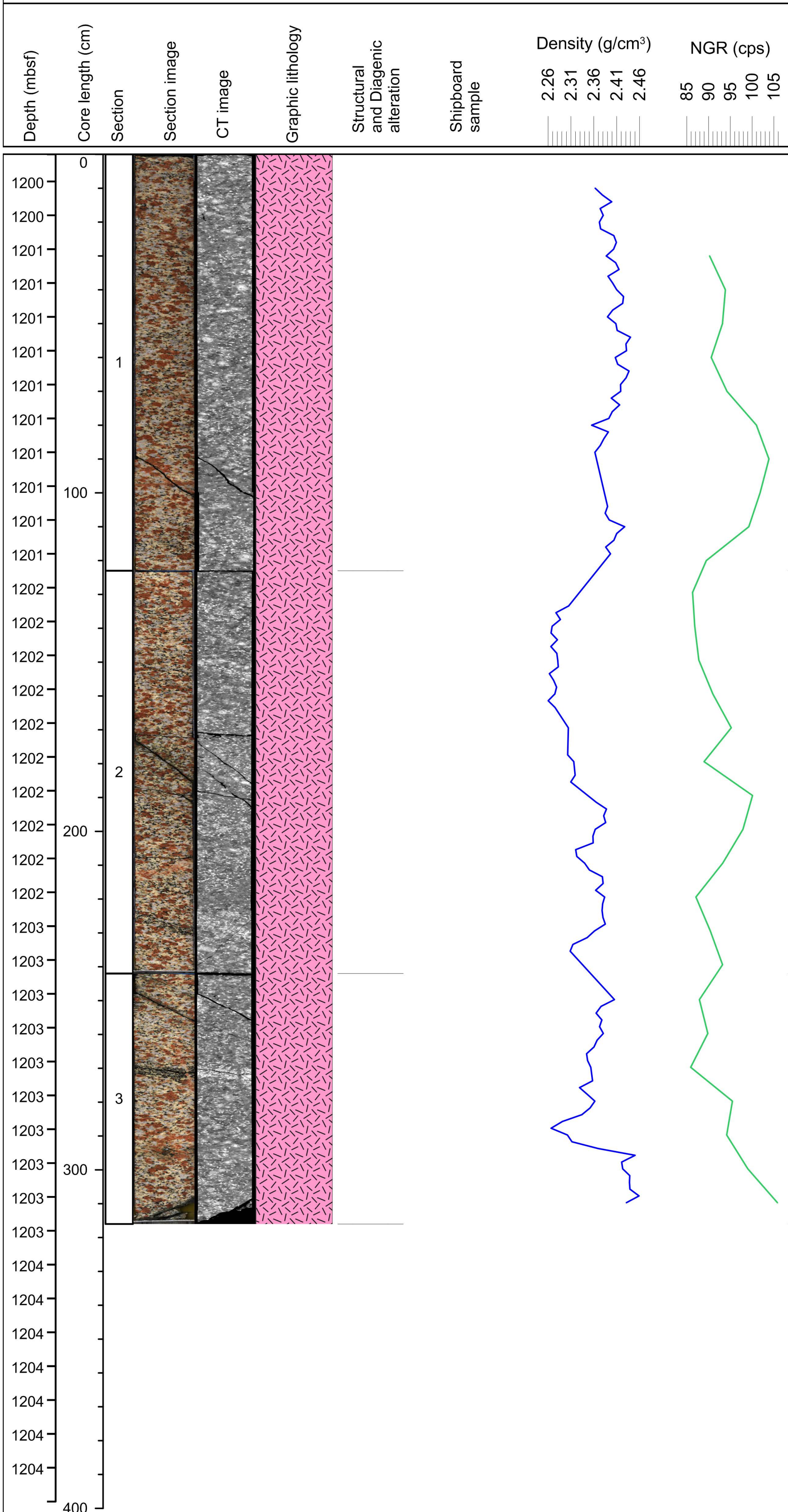
Pegmatite with K-feldspar, quartz, and biotite, weakly deformed. Color is 7.5 YR 7/2. CT is dark gray.

Coarse granite, similar to that in unit 1, but strongly deformed. Cataclastic vein at 101 cm. Two open fractures cut the section and are partially filled with quartz.

Coarse (0.5 to 1.5 cm) granite, with no visible deformation. Green alteration throughout. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 2 cm) granite, weakly deformed. A zone from 46 to 56 cm has larger (3 cm) K-feldspar and quartz crystals. A white vein with a vug occurs between 40 and 50 cm. Green mineralization occurs throughout the section. Fault at 40 cm: S 150/41, L 155/40 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 260R Cored 1200.22-1203.32 mbsf



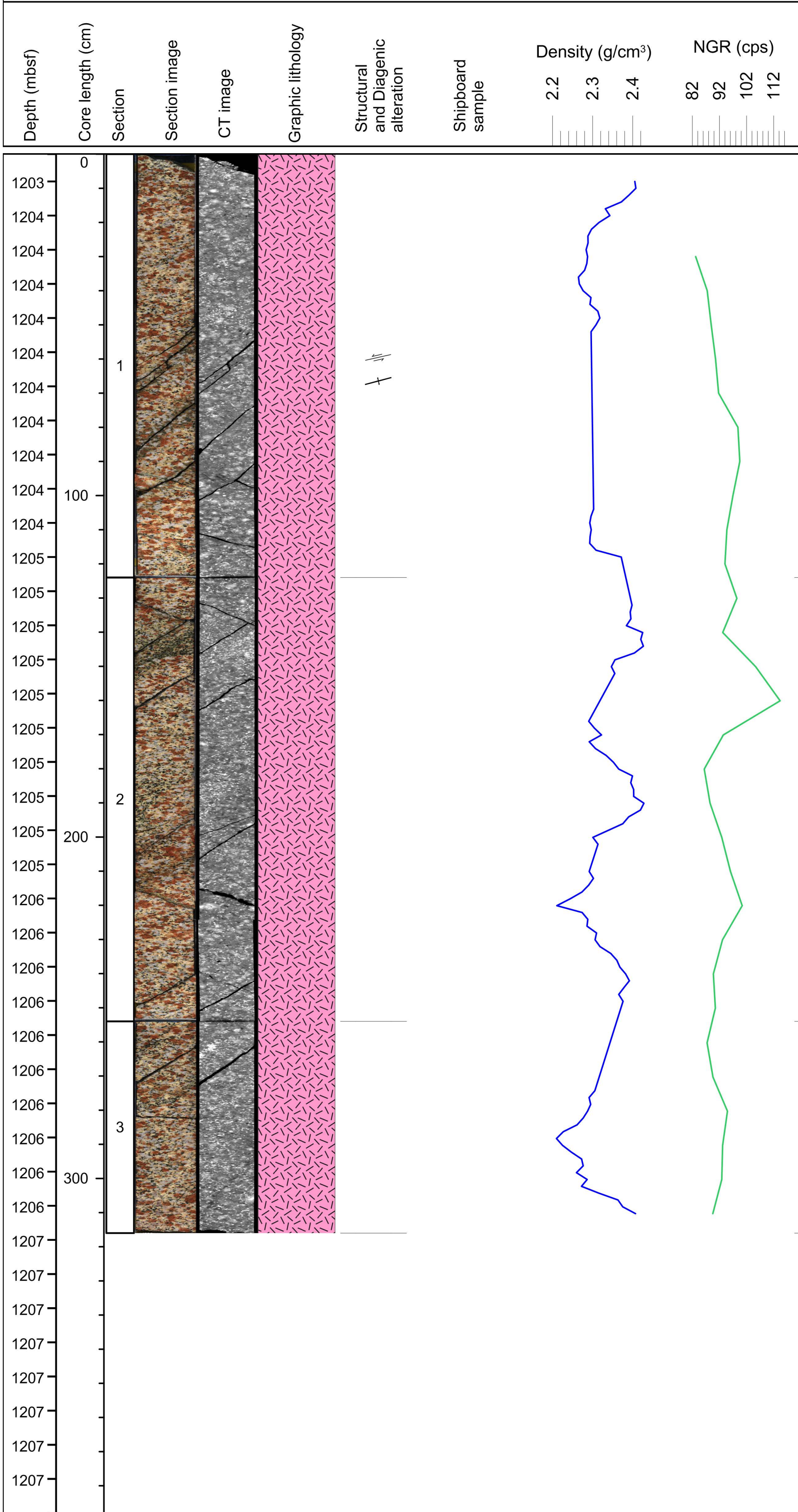
Description

Coarse (0.5 to 1.5 cm) granite, with no visible deformation. Green mineralization occurs throughout the section. Quartz is stained pink. Color is 7.5 R 7/4. CT is dark gray.

Coarse-grained granite, weakly deformed. The zone from 85 to 89 cm is intruded by a pegmatitic dike. The zone from 105 to 107 cm is enriched with biotite (~15%). White and green veins cut the section. Green mineralization occurs throughout the section. Fault at 50 cm: S 197/45, L 190/44 (-) 4. Fault at 65 cm: S 018/56, L 093/38 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, weakly deformed. The zone from 27 to 31 cm is enriched in biotite (~20%). White and green veins cut section. There is a pod of alteration at 52 to 54 cm. A fine-grained cataclastic vein occurs at 16 cm. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 261R Cored 1203.32-1206.42 mbsf



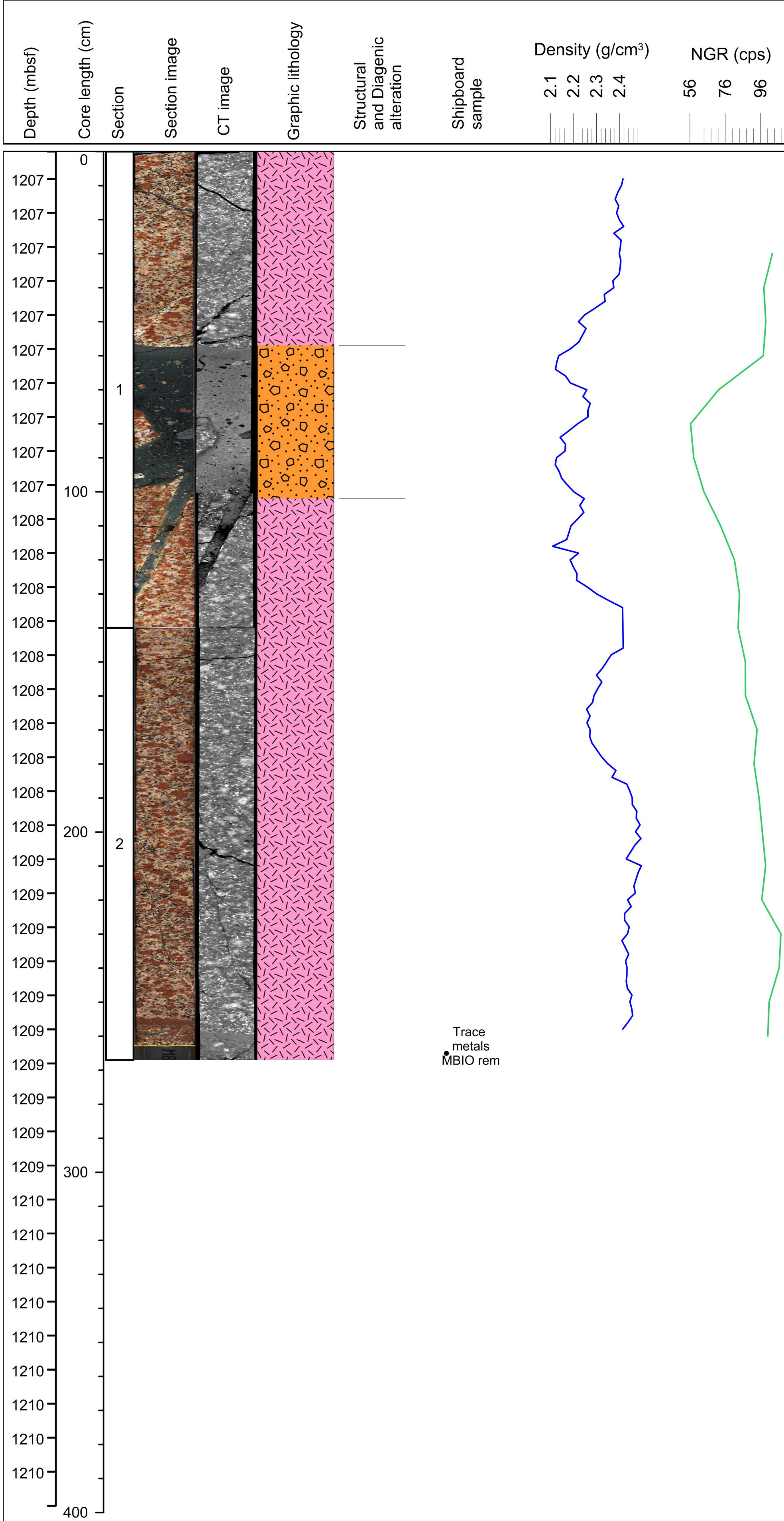
Description

Coarse (0.5 to 1.5 cm) granite, moderately deformed. Green alteration occurs throughout the section. There are also cm-wide alteration halos adjacent to the fractures and faults. Fine cataclastic veins occur at 52 and 98 cm. Fault at 72 cm: S 305/55, L 023/14 (-) 3. Fault at 98 cm: S 205/35, L 182/34 (+) 3. Fault at 116 cm: S 195/42, L 281/13 (+) 3. Color is 7.4 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, moderately deformed. The zone from 10 to 22 cm is enriched with biotite (10%), fine (~3 mm)-grained granite. Green mineralization occurs throughout the section and is particularly intense in the biotite enriched zone. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite, weakly deformed. Green mineralization throughout the section. Quartz is stained pink, particularly towards the bottom of the section. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 262R Cored 1206.42-1209.04 mbsf



Description

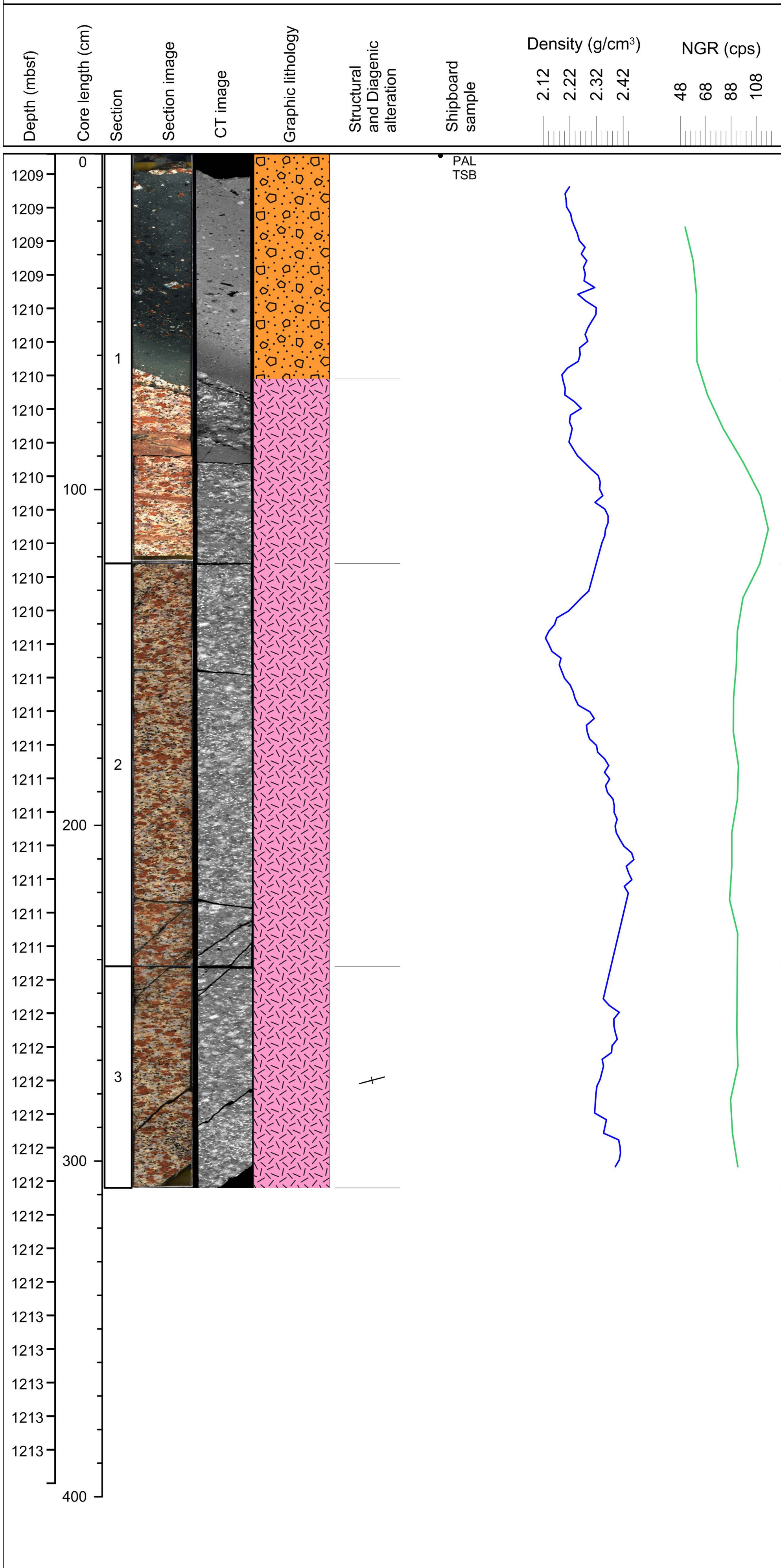
Coarse-grained granite, moderately deformed. Green mineralization occurs throughout the section. Quartz is stained pink. A cataclastic vein occurs at 47 cm. Color is 7.5 YR 7/4. CT is dark gray.

Polymict breccia for which we are tenatively assigning a melt matrix, because of its color and halos that are potentially thermal halos around clasts. The unit could, however, have an altered clastic matrix. Also, while it is classified as clast-poor, regions are clast rich. The clasts include melts with schlieren and granite. No deformation in the unit is visible. Color is 7.5 YR 4/0. CT is dark gray.

Coarse-grained granite, intruded with vein of clast-bearing impact melt (or a polymict breccia if the matris is not igneous). The vein is 2 cm thick and similar to unit 2. The granite is moderately deformed. Green mineralization occurs throughout unit 3 and quartz is stained pink. Fault at 112 cm: S 103/50, L 020/16 4. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, moderately deformed. The zone from 115 to 121 cm is intruded by an aplitic dike. Green mineralization occurs throughout the section. Less abundant red mineralization is also present. Quartz is stained pink. A cataclastic vein occurs at 119 cm. Fault at 68 cm: S 215/46, L 245/42 (+) 3. Fault at 88 cm: S 258/32, L 232/30 (+) 2. Color is 7.5 YR 7/4. CT is dark gray.

Hole M0077A Core 263R Cored 1209.04-1212.14 mbsf



Description

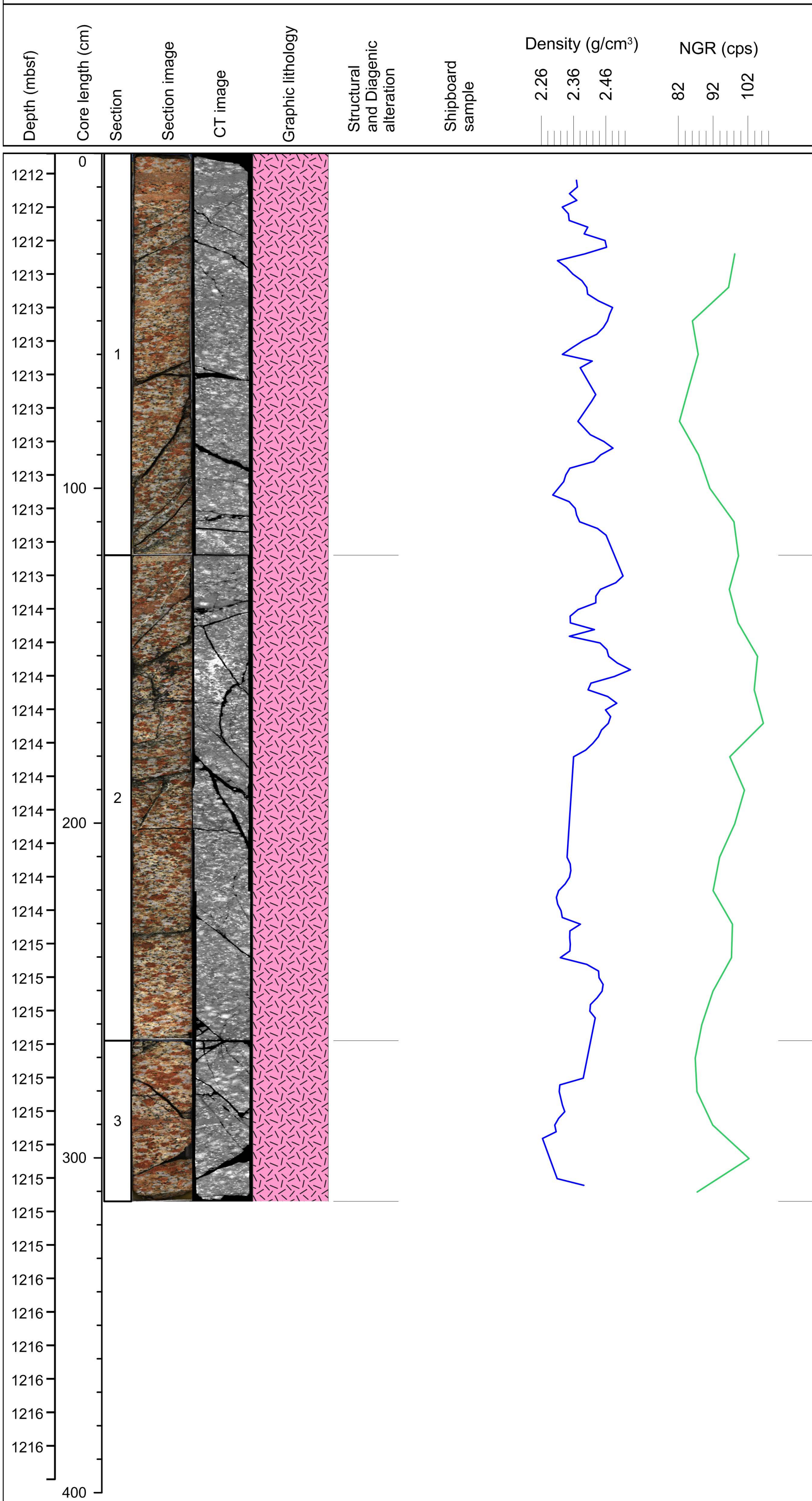
Polymict breccia for which we are tenatively assigning a melt matrix, because of its color and halos that are potentially thermal halos around clasts. The unit could, however, have an altered clastic matrix. Also, while it is classified as clast-poor, regions are clast rich. The clasts include melts with schlieren and granite. No deformation in the unit is visible. Color is 7.5 YR 4/0. CT is dark gray.

Coarse-grained granite, moderately deformed. The zones from 83 to 90, 102 to 104, and 114 to 115 cm are intruded by aplite dikes. Green and red mineralization occurs throughout the unit. Quartz is stained pink. Fault at 73 cm: S 190/19, L 180/18 4. Color is 7.5 YR 7/4. CT is dark gray.

Coarse (0.5 to 1.5 cm) granite with very weak deformation. Green mineralization throughout the section. Quartz is stained pink. Fault at 99 cm: S 009/56, L 235/39 4. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, very weakly deformed. The zone from 46 to 57 cm is enriched in biotite (~10%). Green and red mineralization throughout, although the quartz is stained more strongly pink belos fracture at 42 cm. Color is 7.5 YR 7/4. CT dark gray.

Hole M0077A Core 264R Cored 1212.14-1215.24 mbsf



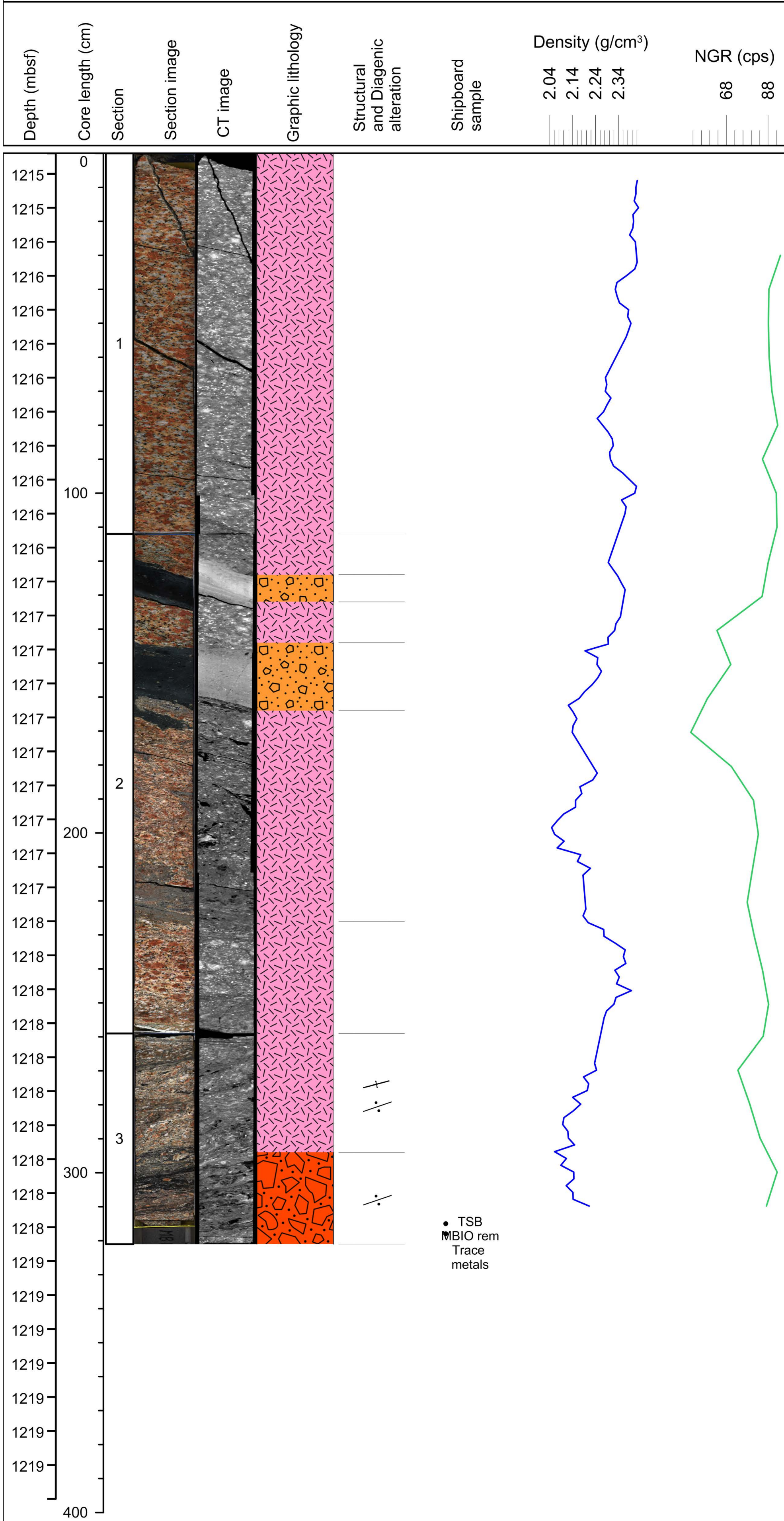
Description

Coarse-grained granite, strongly deformed. The zones from 6 to 9, 11 to 13, and 44 to 45 cm are intruded by aplite dikes. Green mineralization occurs throughout the section. Red mineralization is also present, but less abundant. Fault at 19 cm: S 203/22, L 145/08 (+) 1. Fault at 87 cm: S 286/70, L 195/05 (+) 3. Fault at 106 cm: S 302/75, L 210/30 (+) 3. Fault at 110 cm: S 120/88, L 203/20 (-) 3. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, very strongly deformed. The zone 29 and 44 cm is enriched in biotite. White and green veins. Green alteration occurs throughout the section. Quartz is pink in the midst of the biotite knot between 29 and 44 cm. Cataclastic veins occur at 9, 14, and 111 cm. Fault at 64 cm: S 338/30, L 004/30 (+) 2. Fault at 71 cm: S 290/47, L 012/03 (-) 3. Fault at 111 cm: S 350/33, L 002/32 (-) 3. Color is 7.5 YR 6/4. CT is dark gray.

Coarse (1 to 2.5 cm) granite, strongly deformed. The zone between 23 and 25 cm is intruded with an aplite dike. Green and red alteration. Color is 7.5 YR 6/4. CT is dark gray.

Hole M0077A Core 265R Cored 1215.24-1218.29 mbsf



Description

Coarse-grained granite, extensively deformed. Green and red mineralizatio. Parallel fine cataclastic veins between 80 and 110 cm; elongated minerals from 5 to 10 cm. Fault at 94 cm: S 195/74, L 245/40 (+) 1. Color is 7.5 YR 7/4. CT is dark gray.

Coarse-grained granite, highly deformed. Color is 7.5 YR 6/4. CT is dark gray.

Impact melt rock (clast-poor) [no vesicles visible].

Color is 7.5 YR 4/0.

CT is light gray.

Same as unit 1; Less deformed.

Clast-poor impact melt rock; clasts up to 1 cm; different types of clasts (including granite, dolerite, etc.) [no vesicles visible].

Color is 7.5 YR 4/0.

CT is dark gray.

Highly foliated cataclastic zone intruded with impact melt at 55 cm [deformed granite with melt = DGM]. .

Color is 7.5 YR 6/4.

CT is dark gray.

[LF see @55 cm an ~3 cm thick lithic breccia, dark grey in color with a fine-grained matrix, clasts less than 5 mm in size; suevite?; Occurence of zones of impact melt rock (clast-rich), with in part digested granite clasts and flow texture.]

Same as unit 1, highly deformed, with locally preserved granite texture (K-feldspar phenocrysts up to 3 cm). Reddish quartz grains.

Deformed granitoid with melt (DGM).

Granite has pervasive shear fabric. Elements of the fabric are foliations. These foliations are truncated by pervasive shear fractures with sub-cm spacing.

~5% melt clasts, generally fluidally deformed with occasionally angular shapes |K-feldspar up to ~1 cm; plagioclase ~1 cm; quartz 1 cm|

Melt-rich shear zones, cm-thick, (<1 cm)

Grey fill at 2 and 9 cm

Diffuse transition to next unit

CT: mid grey, white minerals in deformed granite

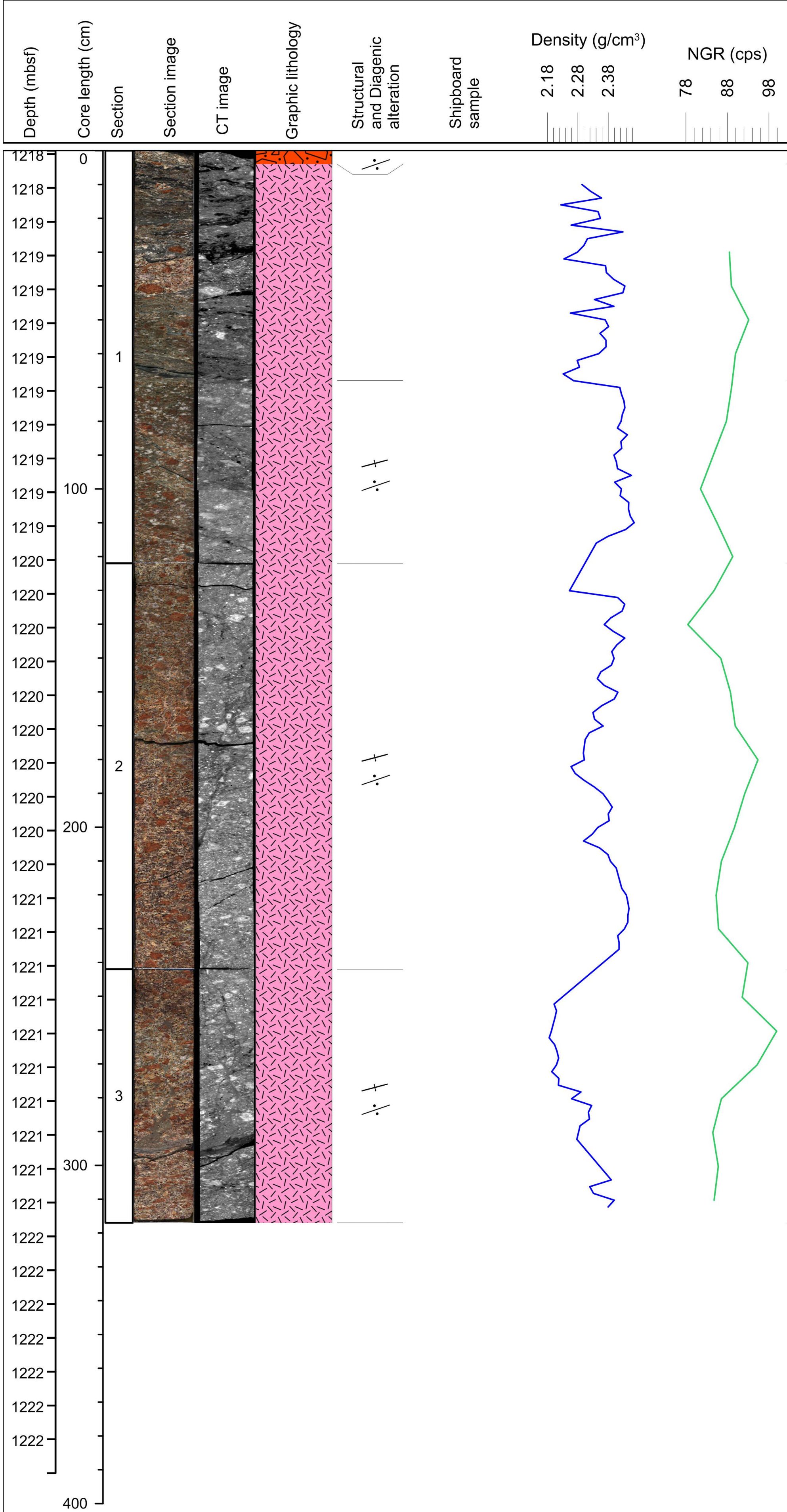
Clast-rich melt rock, granite clasts up to 3 cm. Some granite clasts have pervasive shear fabric and show partial digestion into melt. Granite clasts range in shape from sub-angular to schlieren-shaped. Flow texture with elongated mineral and rock clasts; presence of vesicles (1 to 2 mm max)

Melt is light grey (somewhat greenish) to black.

No other lithology (clast type) than granite is visible

CT: Melt is dark grey to black CT, low density

Hole M0077A Core 266R Cored 1218.29-1221.41 mbsf



Description

Clast-rich impact melt rock with clasts of granites (no other lithology seen) from mm to larger than core diameter, from rounded to sub-angular; partially digested.

Melt, light-grey to black with vesicles up to 2 mm; flow texture horizontally oriented.

Granite clast has 3 cm band of pervasive shear foliation next to intact 3 cm K-feldspar grain

34 cm: striations within melt and granite S165/55 L180/50 – (4)

CT: melt-rich zones – low density, low CT number, banded dark zones

Granite with melt zones larger than core diameter (DGM), K-feldspar up to cm, quartz (<1 cm). Original texture of granite very poorly preserved. Melt from grey-greenish to dark brown – (schlieren)

Similar to melt rock but with less dark material

Coarse-grained granite, locally deformed, greenish in color, K-feldspar (up to 3 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite heterogeneously distributed. Reddish quartz.

68-122 cm: sub-parallel shear fractures mostly single fractures with green-fill sub-mm, some anastomosing, up to 2 cm thickness, and two with local porosity. Truncated by secondary shear fractures.

CT: granite facies – with less mafics and fractures.

Granite

Coarse-grained granite, with large phenocrysts of K-feldspar (up to 3.5 cm), plagioclase (1.5 cm), quartz (1 cm), and biotite (<0.5 cm). In the lower 2/3 of the section quartz grains are purple/cherry like and somewhat smaller in size. Thin greenish veins @50 and @109 /110 cm.

93 cm: S155/60 L235/1 – (3)

0-120 cm: sub-vertical shear faults some sub-mm green-fill with some cataclasis. Others are anastomosing and can contain white-fill up to 1 cm thick zones. Sub-vertical fractures cross-cut dm-spaced sub-horizontal shear fractures with white or green fill.

CT: granite facies – low density vertical shear fractures

Granite

Coarse-grained granite, highly deformed/cataclastic, with K-feldspar (up to 2.5 cm), plagioclase (2 cm), quartz (1 cm), and biotite (<0.5 cm). Quartz grains are locally reddish/purple.

@50-54 cm: melt zone, light grey-greenish-purple, 2 cm in thickness

55.5 cm: S170/60 L80/1 + (4) *

56 cm: S140/45 L100/35 – (4) *

*Possibly the result of the intersection of foliation with plane

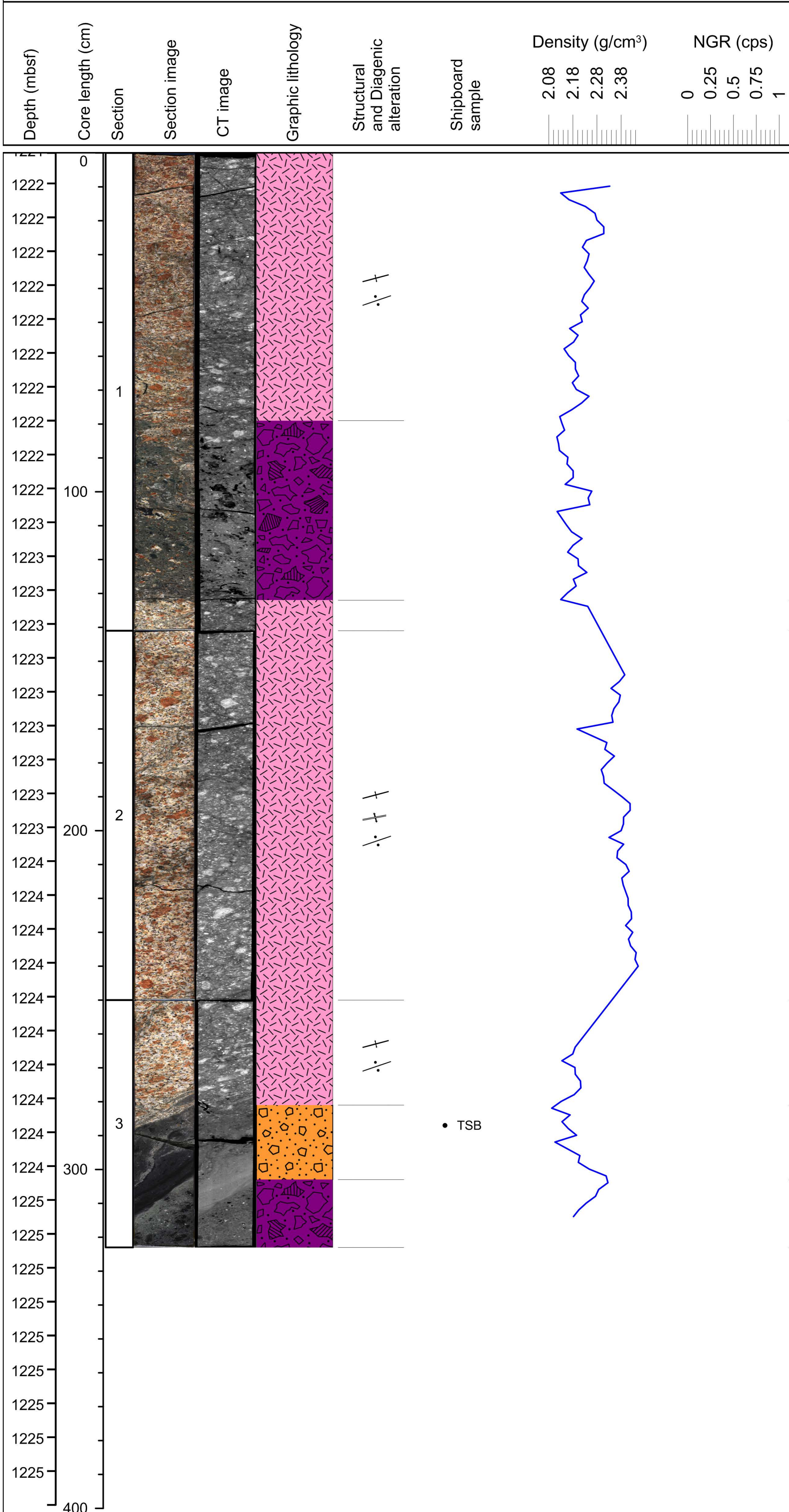
14-53 cm: vertical cataclasite up to 3 cm thick, brown-grey fill, highly irregular margins, anastomosing. Truncated by at least two sets of shear fractures. Granite clast components up to 5 mm. Cataclasite itself truncates several shear fractures.

53-55 cm: cataclasite truncated by melt-rich shear zone. ~1.5 cm thick. Grey and white fluidal texture sub-mm schlieren and one cataclasite clast.

55-74 cm: cm-spaced discrete shear zones

CT: Granite facies, low density cataclasite, lower density melt-rich shear zone

Hole M0077A Core 267R Cored 1221.41-1224.54 mbsf



Description

Granite

Highly deformed granite, coarse-grained K-feldspar (2.5 cm), plagioclase (1.5 cm), quartz (1 cm), biotite (<0.5 cm). Quartz reddish locally, especially in the upper part of section. Greenish (alteration) K-feldspars

11 cm: S155/60 L235/30 – 2

47 cm: S150/60 L235/10 – 2

0-79 cm: cm-dm spaced sets of shear fractures, 5 mm thick proto-shear zones

65-72 cm: 2 mm wide melt vein displaced by shear fault

CT: granite facies

Suevite

With clasts, sub-rounded to sub-angular, same with very irregular margins (especially melt rocks clasts)> Clasts of granite, not the same as types of melt rocks, dark green, light green/grey, black and dark grey (with or without undigested clasts, vesicles and schlieren). Highly polymict. Size from sub-mm to 3 cm.

Looks really cool! :-D

CT: suevite is mid=grey with dark, low density melt clasts

Granite

Same as first granite unit in this section

Coarse-grained granite, locally deformed, with large K-feldspar phenocrysts up to 3 cm, plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm), homogeneously distributed.

Quartz locally reddish/purple. Granite is locally greenish (alteration) close to fractures. Dense network of white (quartz, fill) fractures.

0-44 cm: pervasive shear fabric cross cut on cm-dm by light grey filled single and anastomosing shear fractures and rare cataclasites

43-109 cm: cm-dm spaced anastomosing shear fractures. White, <mm

42, 63-74 cm: irregular dark green veins, mm thick

CT: granite facies

Granite

Coarse-grained granite, locally deformed, with K-feldspar (up to 2.5 cm), plagioclase (2 cm), quartz (1 cm), and biotite (<0.5 cm), homogeneously distributed.

Network of fractures

0-31 cm: pervasive shear fractures on mm-cm scale, white fill. sub-mm thickness

26-31 cm: pervasive shear fabric with breccia inclusions in the shear fabric.

Contact to impact melt is gradational through a 3-5 cm band of breccia material with larger and larger melt clasts.

CT: Granite facies

Impact melt-rock (Clast-poor)

Impact melt rock, light-grey to black, clast poor. Flow texture/schlieren larger than core diameter. Clasts up to ~1.5 cm, rounded to sub-angular, partially digested. Melt rock clasts and granitoid almost entirely digested and rare dolerite.

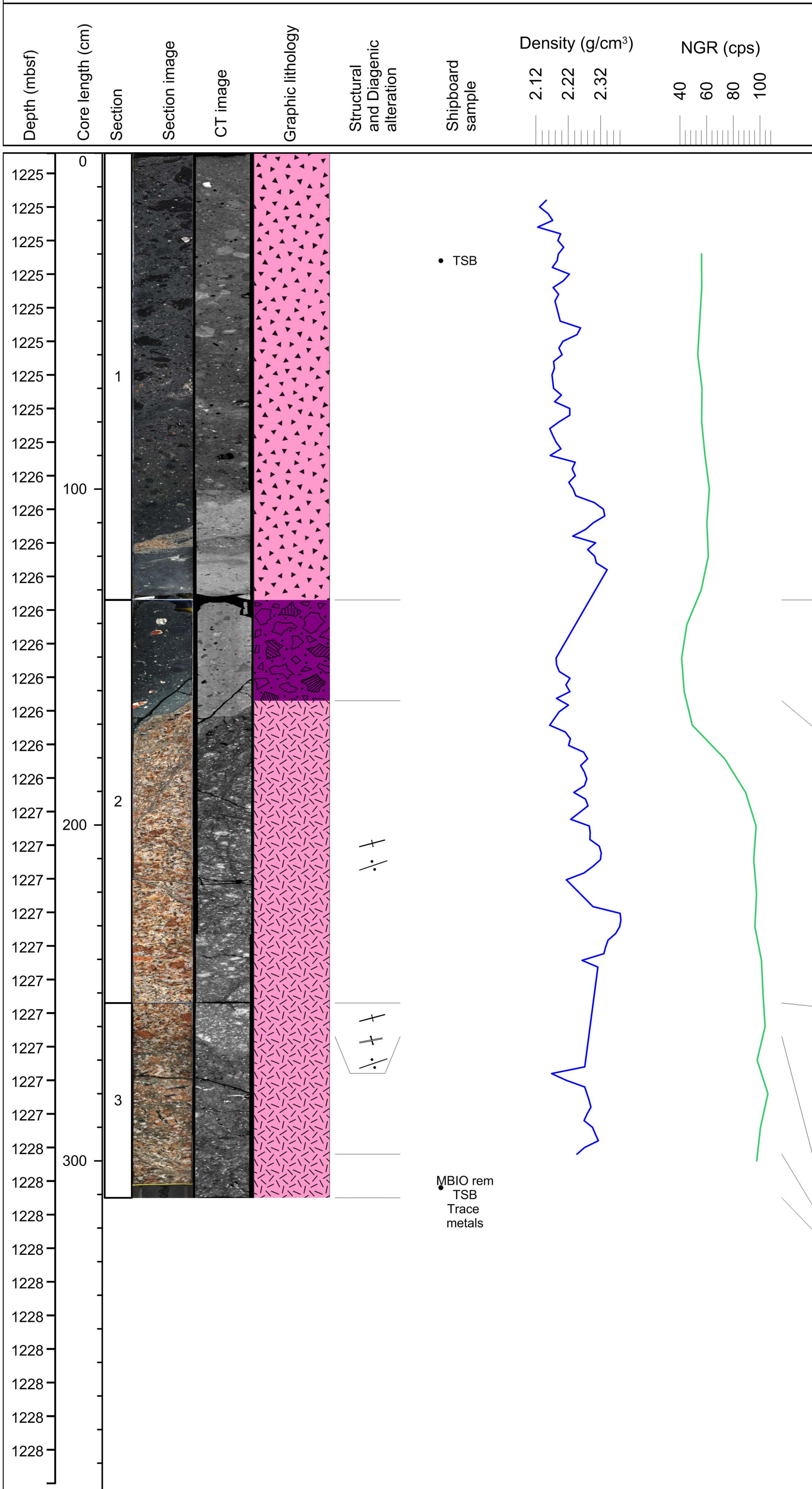
CT: Homogeneous, light grey, contact to granite is darker

Suevite

Dominated by black melt rock clasts (containing undigested clasts), up to 2.5 cm in size and other basement rock clasts from angular to sub-rounded

CT: clasts of light grey, black in mid-grey matrix

Hole M0077A Core 268R Cored 1224.54-1227.64 mbsf



Description

Suevite with gray matrix, dominated by black impact melt rock clasts (with undigested clasts), up to >6cm with irregular shape. Clasts from rounded to angular, shard-like.

different types, including dolerite, granite, and different types of partially melted lithologies, different types of melt rocks (with flow texture)

@111-117cm: large clast (greater than core diameter) of highly deformed granite, including a ~2.5cm clast of impact melt rock. No black impact melt rock clasts below 88cm. Change in clast population!

Below 102 cm: matrix is more greenish/coloration changes adruptly at 102cm.

CT: suevite facies.White light grey, dark grey and black clasts in mid-gray matrix. High average Z and low density. Below 102cm density and Z are higher and CT# is brighter.

Suevite

Grey to more greenish (in the lower part) – [no dark/black impact melt clasts]. Clasts, rounded to angular, up to 4 cm in size. Clasts: granite, dolerite, greyish melt rocks, mineral clasts (quartz), green melt/glass, etc.

Some melt in the granite, in the 2 cm below the contact.

CT: suevite facies

Granite

Highly deformed coarse-grained granite, with K-feldspar (up to 3 cm), plagioclase (2 cm), quartz (1 cm), and biotite (0.5 mm). Biotite is locally altered, reddish/brown alteration.

29 cm: S:120/89 L:35/8 + 1

88 cm: S:88/210 L: 300/10 – 4

88 cm: S:88/210 L: 130/5 + 3

30-67 cm: pervasive anastomosing shear fractures on cm to sub cm scale with common cataclasites, locally crosscut by shear fractures

67-120 cm: discrete shear fractures, occasionally anastomosing, dm-spaced, with shite and green fill, rare cataclasites

CT: granite facies, shear zones with dark CT number

Granite, coarse-grained, highly deformed below 11 cm; K-feldspar (3 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm). Between 0 and 40 cm; vugs filled with white and green mineralization (including calcite).

23 cm: S0/40 L0/40 – 2

0-7 cm: fracture with open porosity

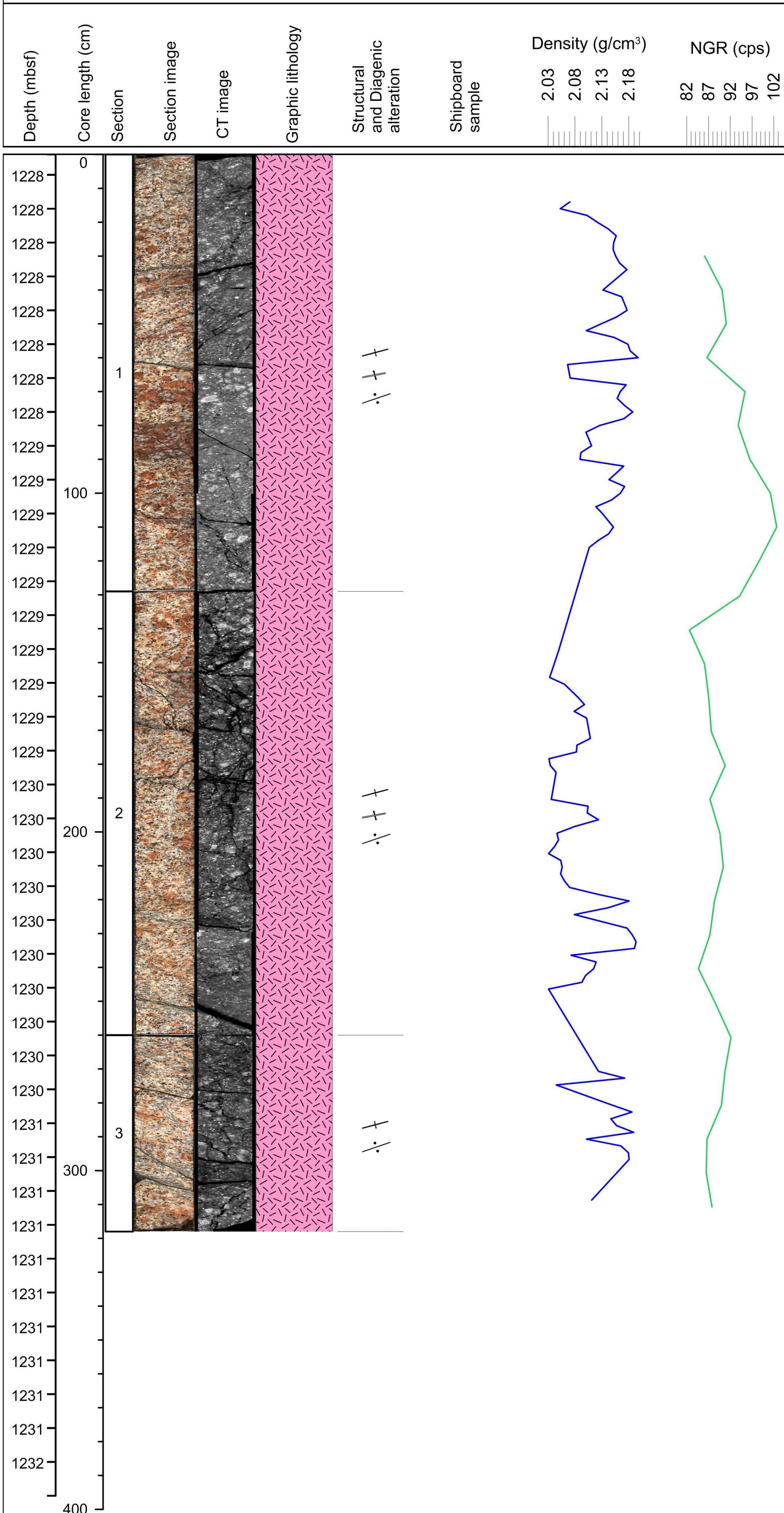
11-52 cm: pervasive shear fabric, common cataclasites, cross-cut by ~ 5 cm spaced shear fractures, which truncate white and green filled vugs.

CT: Granite facies, deformed granitoid with melt is dark grey, white vugs with low density, high Z

See description of previous unit in this section (DGM).

See description of first unit in this section

Hole M0077A Core 269R Cored 1227.64-1230.74 mbsf



Description

Granite

Highly deformed coarse-grained granite with K-feldspar (<3 cm), plagioclase (<1.5 cm), quartz (<1.5 cm), biotite (<0.5 cm).

Locally altered; veins (green and white, up to 3 mm thick).

64-74 cm: larger K-feldspar phenocrysts

79-89 cm: alkali-feldspar granite

33 cm: S: 170/20 L: 170/20 + 2

50 cm: S: 120/30 L: 180/15 – 3

106 cm: S: 80/45 L:155/5 + 4

0-65 cm: discrete zones of shear fractures, multiple orientations, subvertical anastomosing shear fracture truncates sub-horizontal sets individual fractures are mm-wide white and green fill

106-123 cm: anastomosing shear fracture, 1 cm wide, white and green fill

80-89 cm: mm thick green and white filled veins

CT: granite facies

Granite

Highly deformed, coarse-grained, granite, with K-feldspar (3 cm), plagioclase (2 cm), quartz (1 cm), and biotite (<0.5 cm), homogeneously distributed.

Dense network of white and green (filled) fractures.

16 cm: S340/25 L250/10 – 3

121 cm: S15/15 L340/13

0-131 cm: sub-vertical, anastomosing shear fractures, 7 mm wide, white and green fill

97, 121 cm: sub-horizontal, anastomosing shear fractures, 1 cm wide with grey fill

120-131 cm: proto shear fabric

CT: granite facies, numerous dark fractures

Granite

Highly deformed coarse-grained granite, with K-feldspar (3.5 cm), plagioclase (2 cm), quartz (1 cm), and biotite (<0.5 cm), homogeneously distributed. Biotite locally altered.

18 cm: S205/65 L126/1 + 3

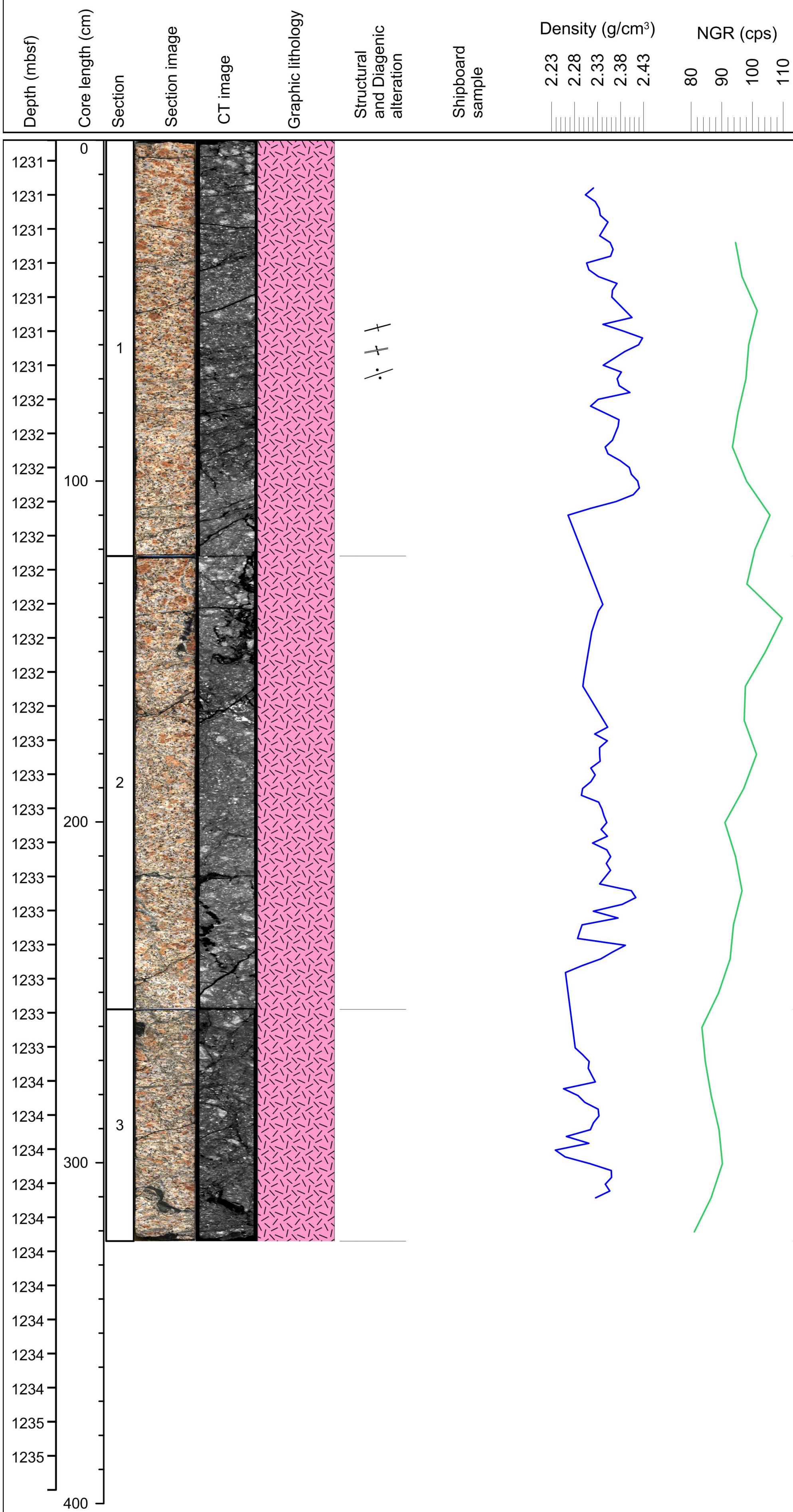
38 cm: S225/40 L175/30 – 2

44 cm: S205/45 L290/15 + 3

Zones of pervasive shear bands less than or equal to 2 cm thick, light grey and white fill, cm to dm spacing

CT: granite facies, fractured

Hole M0077A Core 270R Cored 1230.74-1233.84 mbsf



Description

Deformed coarse-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<1 cm), and biotite (<0,5 cm), homogeneously distributed. Network of fractures filled with quartz. Discrete and anastomosing shear fractures with cm-dm spacing, white-grey fill. Locally developed proto-shear fabric at 36, 70-85, and 107-111 cm.

@24 cm: S 315/32 L 265/20 (-1).

@26 cm: S 195/75 L 195/75 (+2).

@107 cm: S 170/40 L 245/15 (-3).

@111 cm: S 185/38 L 200/37 (-1).

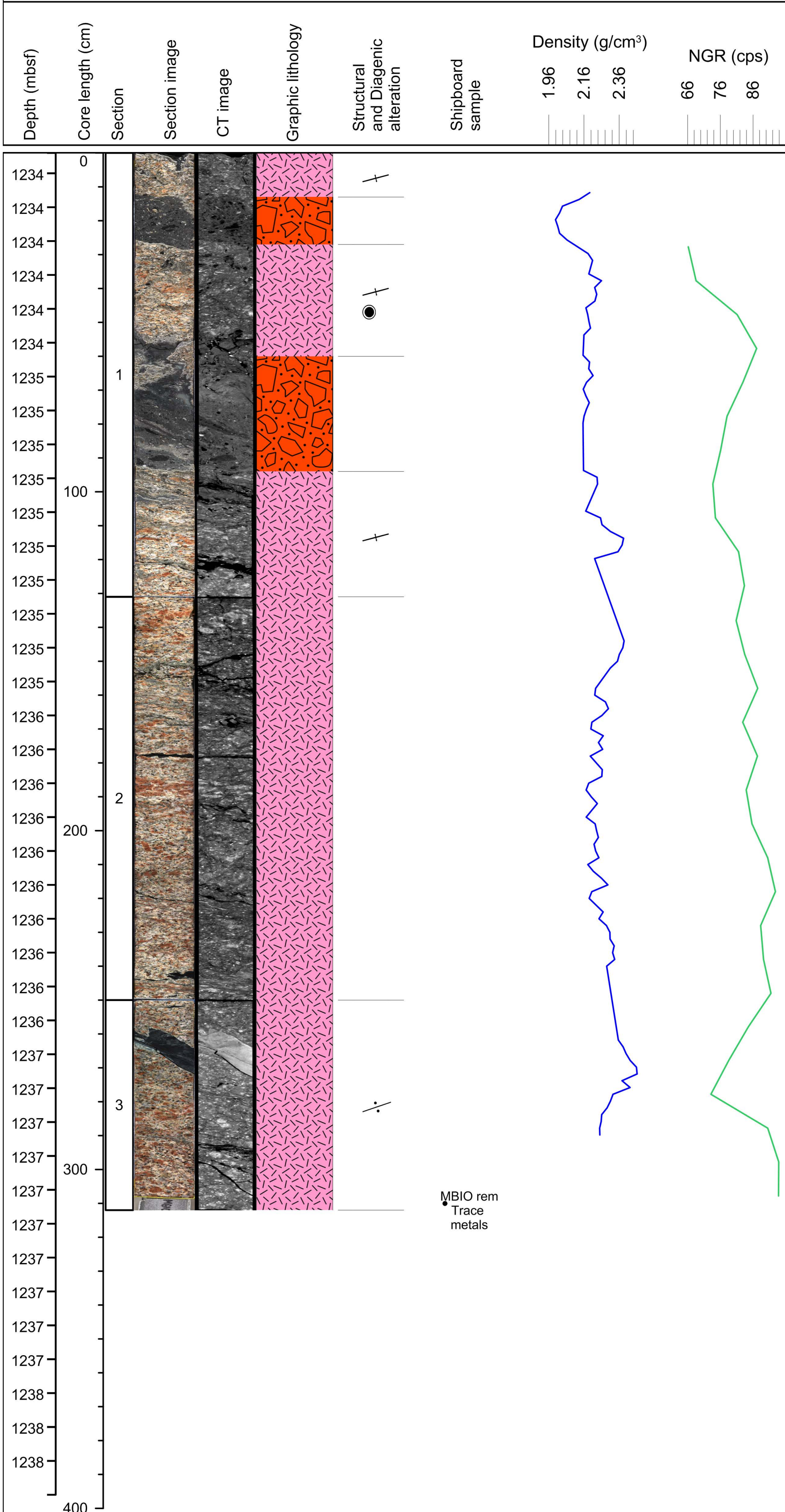
Note: Lineations are on a finer scale than typical. They occur as striations rather than mineral shear.

CT: Granite facies, heavily deformed.

Coarse-grained granite wtih K-feldspar (0.5 to 2 cm, ~30%), plagioclase (~1 cm, ~40%), and quartz (~25%). Highly deformed and foliated rock with cataclasticcc veins. The zone from 17 to 9 cm is intruded by impact melt. Green and red mineralization. Fault at 18 cm: S 166/60, L 255/10 (-) 2. Fault at 35 cm: S 160/26, L 242/13 (-) 1. Fault at 52 cm: S 112/30, L 58/13 (-) 3. Fault at 119 cm: S 305/38, L 277/30 (+) 3. Color is 5 YR 7/2. CT is dark gray.

noneCoarse-grained granite: K-feldspar (0.5 to 2 cm, 30%), plagioclase (1 cm, 40%), quartz (0.5 to 1 cm, 28%), and biotite (2%). Extensively deformed with foliated features, filled with cataclastic veins (e.g., 22 and 63 cm). Pockets of impact melt at 4 to 7 cm and 54 to 64 cm. Green and red mineralization. Fault at 31 cm: S 227/30, L 190/12 (-) 2. Fault at 35 cm: S 327/61, L 048/10 (-) 2. Color is 5 YR 7/2. CT is dark gray.

Hole M0077A Core 271R Cored 1233.84-1236.94 mbsf



Description

Highly deformed granite, foliated and fractured. Also contains cataclastic veins and two pockets of impact melt. Color is 5 YR 7/2, CT is dark gray.

Clast-rich impact melt rock with clasts of impact melt, gneiss, and granite. Clast sizes range from <1 mm to 2.5 cm. Green mineralization. Color is N3. CT is dark gray.

Highly deformed granite with foliations and fractures. Also contains cataclastic material. Small (<1 cm) block nodules are fragmented and separated. Color is 5 YR 7/2. CT is dark gray.

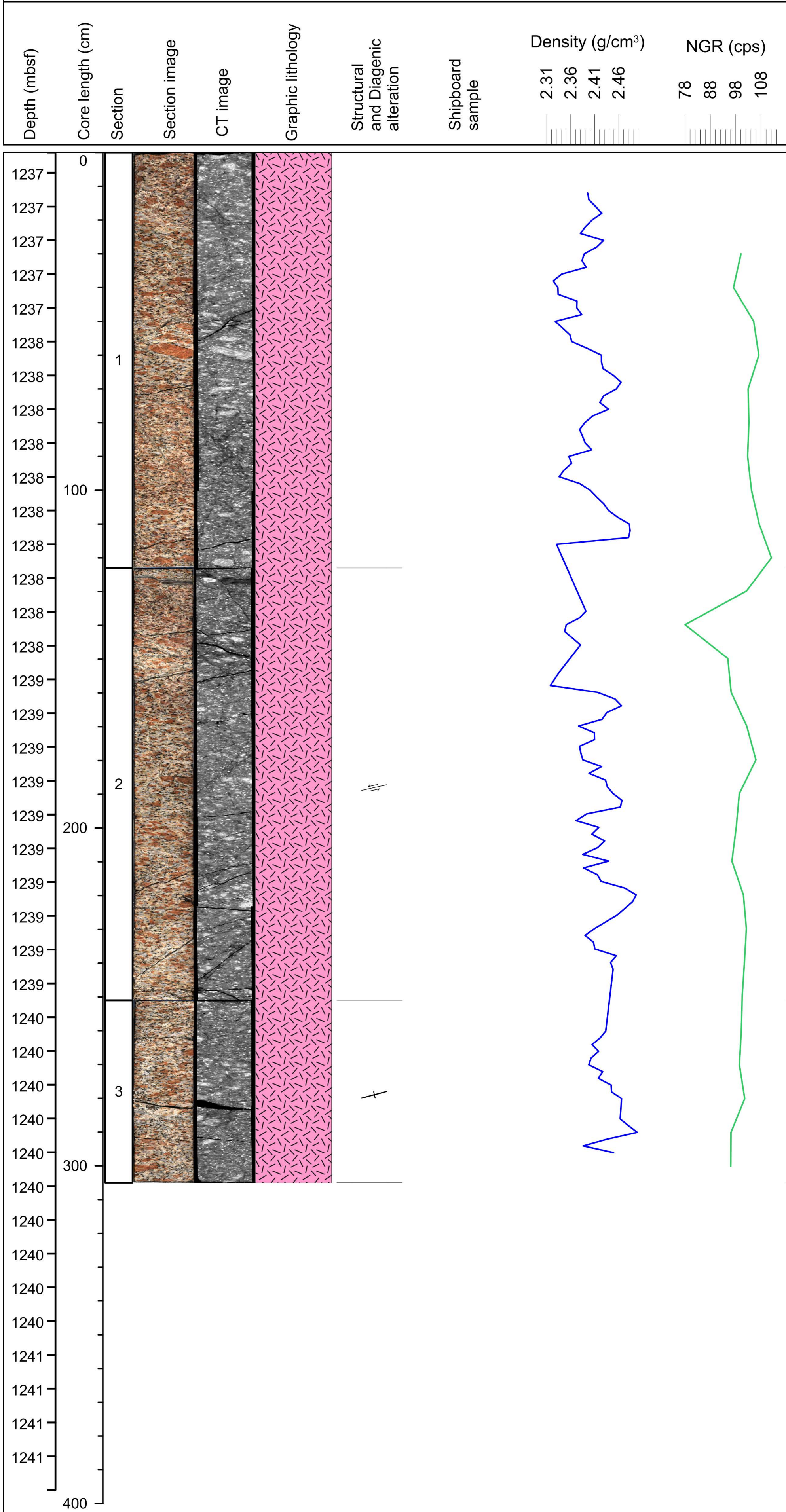
Clast-rich (~30%) impact melt rock. Clasts include impact melt (up to 6 cm) and granite. Green colored alteration. Color is N3. CT is dark gray.

Highly deformed granite with foliation and fractures. Contains cataclastic zones and one black, deformed, vescular melt pocket at 101 cm. Green mineralization. Color is 5 YR 7/2. CT is dark gray.

Coarse-grained granite, highly deformed, with K-feldspar (0.5 to 1.5 cm, 35%), plagioclase (~!cm, 30%), and quartz (~1cm, 30%). The zone from 54 to 59 cm is intruded with a K-feldspar and quartz pegmatite. Veins of cataclastic material occur at 25, 92, and 116 cm. Melts intrusions occur at 47 and 112 cm; both have been deformed. White vein. Green and red mineralization throughout. Quartz is stained pink. Fault at 22 cm: S 190/18, L 210/15 (+) 3. Color is 5 YR 6/4. CT is dark gray.

Coarse-grained granite, strongly deformed, with K-feldspar (~1 cm, ~30%), plagioclase (~0.5 to 1 cm, 30%), and quartz (~35%). A thin vein and pocket of dark material, potentially melt, occurs at 2 cm. A dark vein occurs between 11 and 17 cm. It contains a relict mafic clast; unclear if the remainder of unit is sheared remnants of that lithology or melt. White vein. Green and red mineralization occurs throughout the section and is strongest between 40 and 58 cm. Fault at 18 cm: S 215/73, L 146/05 (+) 1. Fault at 52 cm: S 058/52, L 112/47 (-) 3. Color is 5 YR 6/4. CT is dark gray.

Hole M0077A Core 272R Cored 1236.94-1240.04 mbsf



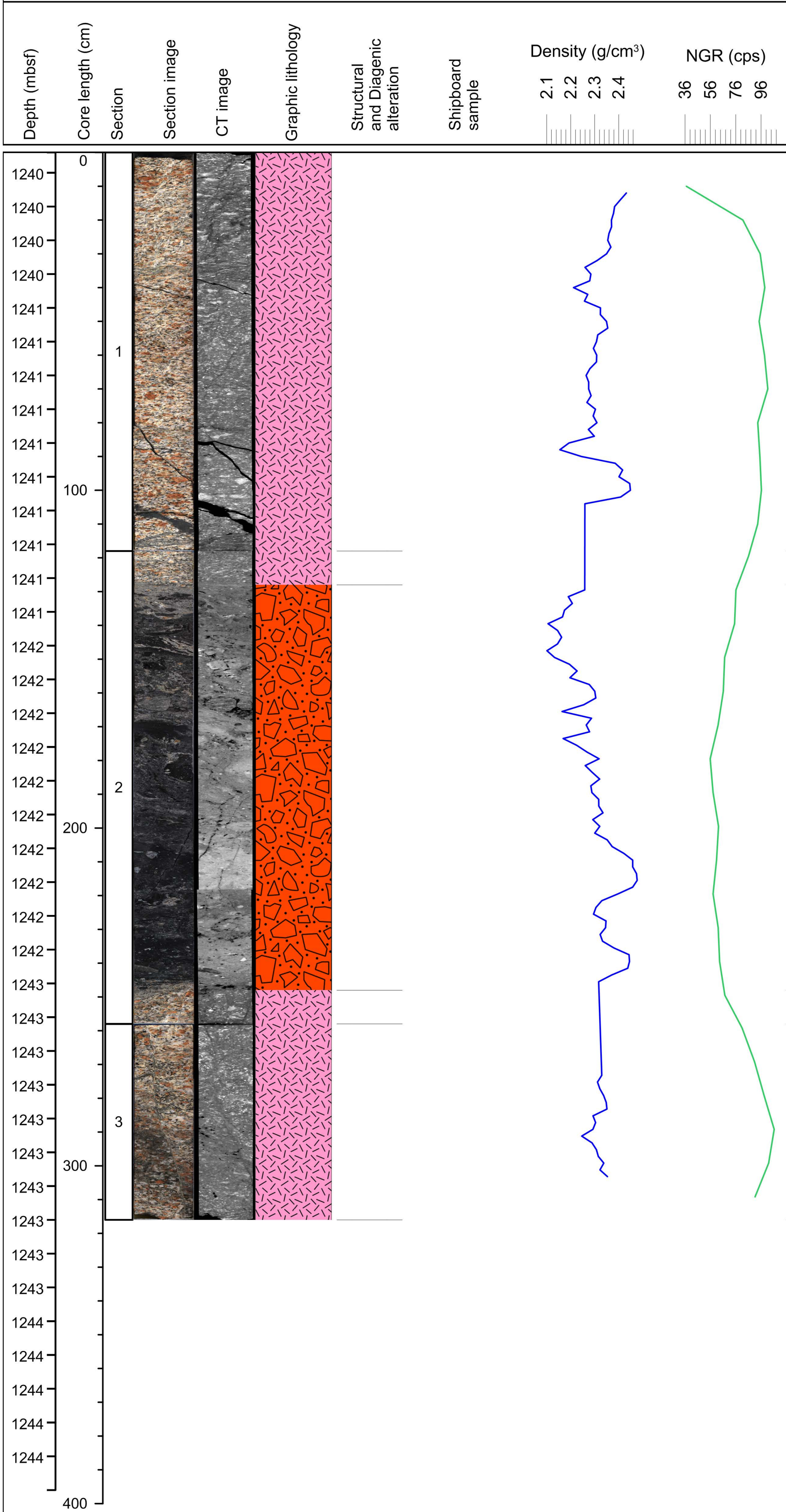
Description

Coarse-grained granite, moderately to strongly deformed, with K-feldspar (0.5 to 2 cm, but largest of 6 cm at 59 cm, ~20%), plagioclase (0.5 to 1.0 cm, ~25%), and quartz (0.5 to 1.5 cm, 40%). White veins. Red and green mineralization throughout. Shear and catlastic veins (e.g., running from 60 to 100 cm). The zone from 0 to 70 cm is moderately deformed. The zone from 70 to 103 cm is strongly deformed. Fault at 54 cm: S 139/56, L 195/22 (+) 2. Color is 5 YR 6/4. CT is dark gray.

Coarse-grained granite, strongly deformed, with K-feldspar (0.5 to 2 cm, ~30%), plagioclase (0.5 to 1 cm, 30%), quartz (<1 cm, 35%), and biotite (~5%). Red and green mineralization. White and white plus green veins. An unusual-looking cataclatic vein at 4 cm is cut by a fault. A cm lower in section there is another, normal looking cataclastic vein. Fault at 26 cm: S 295/40, L 183/23 (+) 2. Fault at 32 cm: S 337/62, L 064/04 (+) 1. Fault at 73 cm: S 170/79, L 081/03 (-) 2. Fault at 92 cm: S 338/68, L 207/35 (+) 2. Fault at 101 cm: S 185/70, L 094/03 (-) 3. Fault at 114 cm: S 320/65, L 210/04 (-) 2. Color is 5 YR 6/4. CT is dark gray.

Coarse-grained granite, strongly deformed with a crenulated planar mineral fabric, with K-feldspar (0.5 to 2 cm, ~30%), plagioclase (0.5 to 1 cm, 30%), quartz (~1 cm, 35%), and biotite (~5%). Hairline fractures and/or veins. Red and green mineralization throughout. Fault at 12 cm: S 178/54, L 170/46. Fault at 37 cm: S 014/78, L 103/32 (+) 2. Fault at 41 cm: S 186/75, L 103/40 (-) 1. Color is 5 YR 6/4. CT is dark gray.

Hole M0077A Core 273R Cored 1240.04-1243.14 mbsf



Description

Coarse-grained granite, strongly deformed with crenulated planar mineral fabric. K-feldspar (0.5 to 2 cm, ~35%), plagioclase (0.5 to 1.5 cm, 25%), quartz (~1 cm, 40%), and biotite (~5%). White vein (and many deformation bands that mimic veins). Green and red mineralization. Cataclastic veins between 113 and 117 cm. Fault at 42 cm: S 203/60, L 135/29 (+) 2. Fault at 88 cm: S 235/70, L 160/05 (-) 3. Fault at 90 cm: S 182/38, L 108/35 (+) 2. Color is 5 YR 6/4. CT is dark gray.

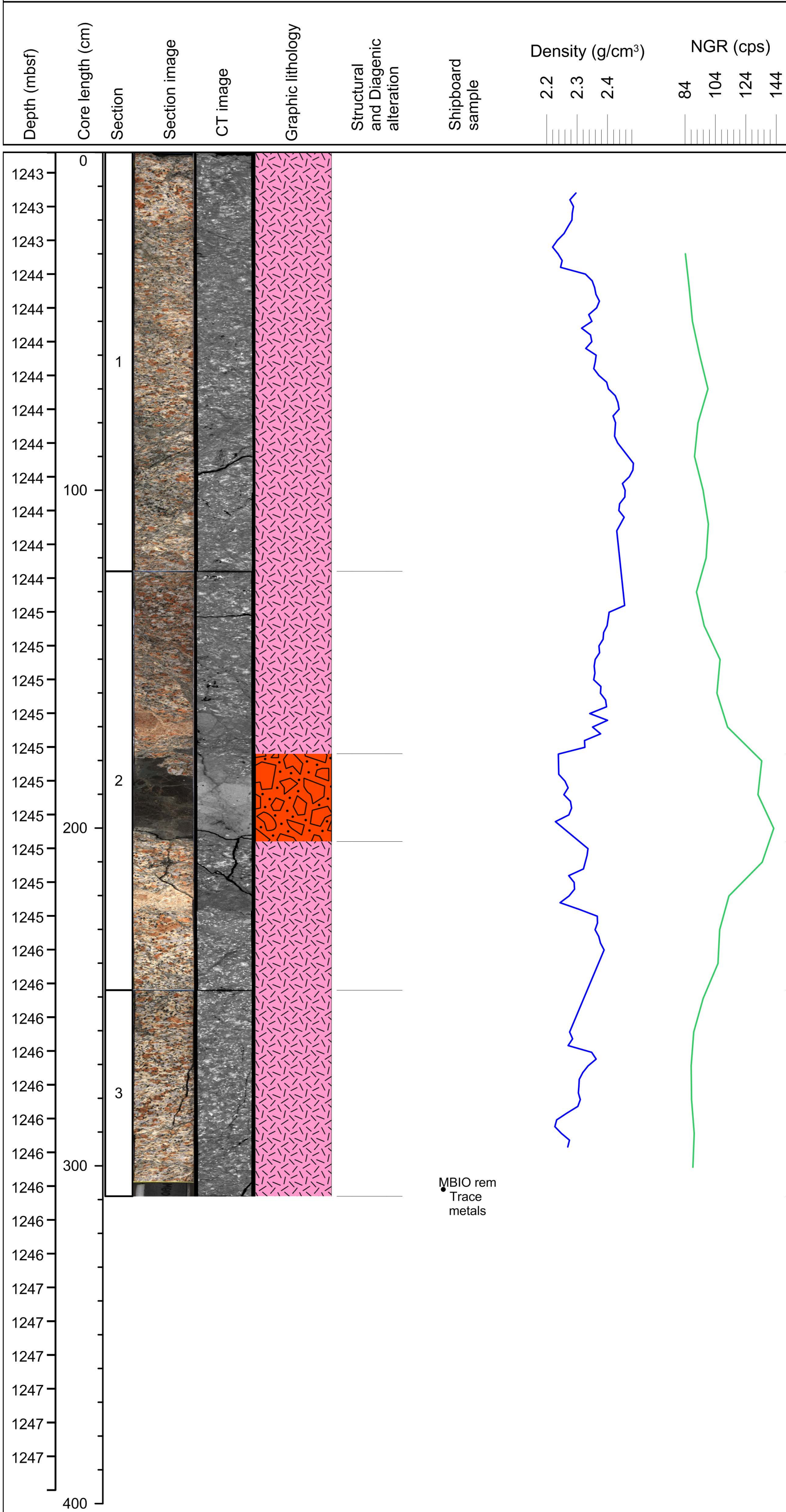
Coarse-grained granite, strongly deformed, witha crenulated planar mineral fabric that reduced crystal sizes to ~0.5 cm. Minor red and green mineralization. Color is 5 YR 6/4. CT is dark gray.

Impact melt rock with clasts of impact melt, granite, mylonite, and quartzite. The largest clast is 7 cm long and is a melt clast. White, green, and sulfide mineralization. Vuges are scattered throughout the unit. Color is N3. CT is dark gray.

Coarse-grained granite, strongly deformed, with crenulated planar mineral fabric. Deformation bands mimic veins. Color is 5 YR 6/4. CT is dark gray.

Coarse-grained granite, strongly deformed with crenulated planar mineral fabric, that has reduced grain sizes: K-feldspar (<1 cm, 30%), plagiolase (0.5 to 1 cm, ~25%), quartz (~0.5 cm, 40%), and biotite (~5%). A fine (~1 mm) deformation band (upper part of section) and cataclastic vein (lower part of section) runs the length of the section. Vugs occur near 33 cm. Color is 5 YR 6/3. CT is dark gray.

Hole M0077A Core 274R Cored 1243.14-1246.24 mbsf



Description

Coarse-grained granite, although very strong deformation with crenulated planar mineral fabric has reduced grain sizes to < 1.5 cm. Many fluid-like crenulations at 3 to 9 annd 80 to 86 cm. A cataclastic region near 80 cm cuts across the crenulated fabric. Fault at 88 cm: S 35/30, L 025/16 (+) 2. Color is 5 YR 6/4. CT is dark gray.

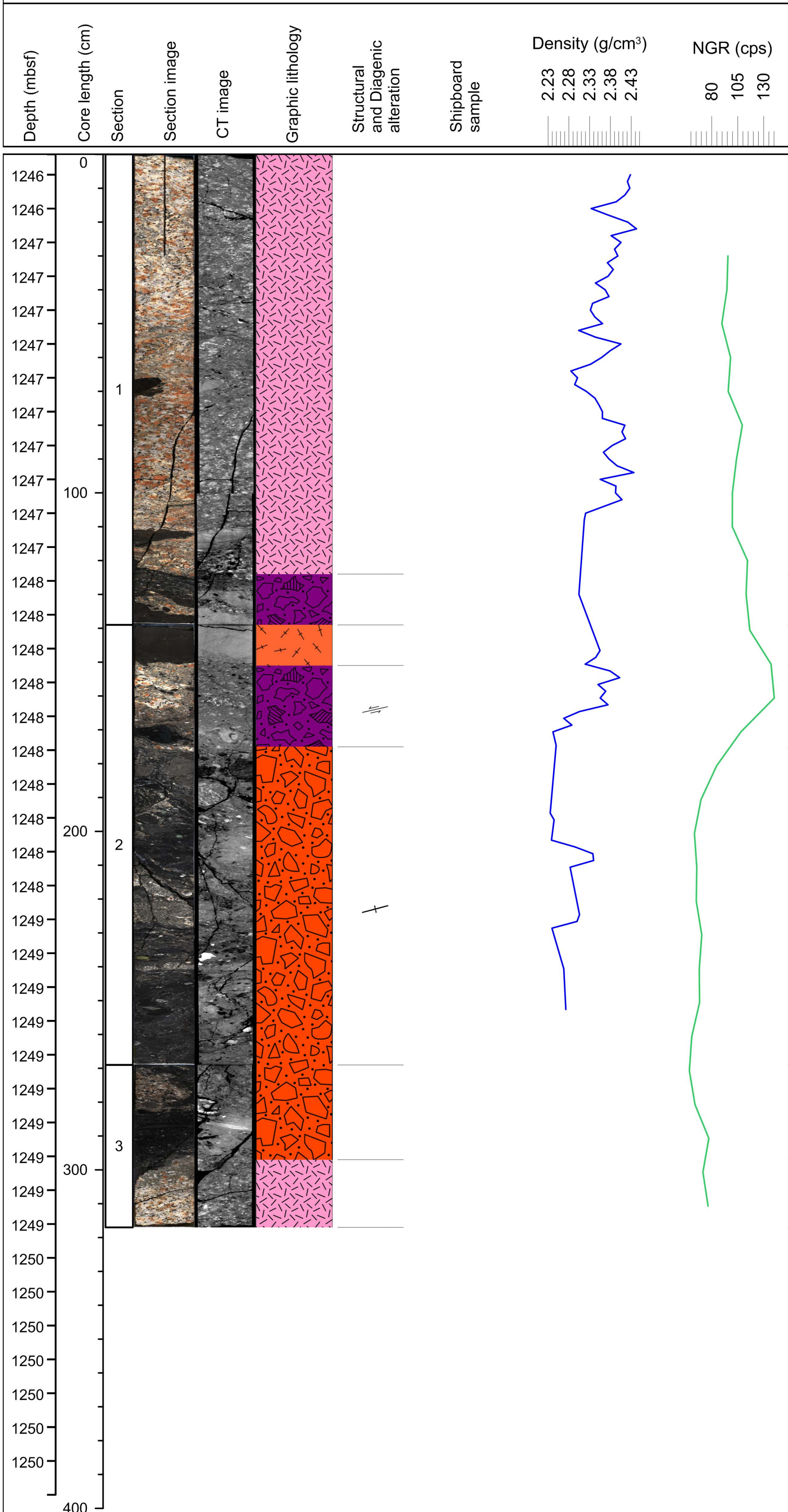
Coarse-grained granite with K-feldspar (0.5 to 1 cm, 30%), plagioclase (~1 cm, ~30%), quartz (~1 cm, 35%), and biotite (~1 %). The zone between 42 and 49 cm is a strongly deformed pegmatitic intrusion. Vugs with green mineralization occur in this unit. Color is 5 YR 6/4. CT is dark gray.

Impact melt rock with >60% clast component. Clasts are felsite. Color N3. CT is dark gray.

Coarse-grained granite with the same properties as unit 1. The zone between 93 and 101 cm is a deformed pegmatite. Fault at 88 cm: S 265/30, L 065/30 (+) 2. Fault at 94 cm: S 225/50, L 235/50 (+) 2.

Coarse-grained granite, strongly deformed, with fluid features (migmatization?). K-feldspar (0.5 to 1.5 cm, 30%), plagioclase (~30%), quartz (~35%), and biotite (2%). White vein. Network of cataclastic veins from 0 to 15 cm. Fault at 39 cm: S 305/32, L 032/16 (+) 2. Color is 5 YR 6/4. CT is dark gray.

Hole M0077A Core 275R Cored 1246.24-1249.34 mbsf



Description

Coarse-grained granite with K-feldspar (0.5 to 2 cm, 25%), plagioclase (~1 dm, 35%), and quartz (~35%). The unit contains vugs and a white vein. The zone from 0 to 34 cm is very strongly deformed, as are the zones betweeen 49 and 65 cm and 102 to 115 cm. Felsite inrudes at 68 and 113 cm. Fault at 94 cm: S 95/24, L 186/42 (-) 3. Fault at 104 cm: S 345/50, L 021/46 (+) 4. Color is 5 YR 6/4. CT is dark gray.

Polymict breccia with clasts of melt, felsite, and granite. Vugs occur in unit. Clasts are < 5 cm in size. Color is N3. CT is dark gray.

Fine (<1 mm)-grained felsite, with no visible deformation. Color is N3, CT is light gray.

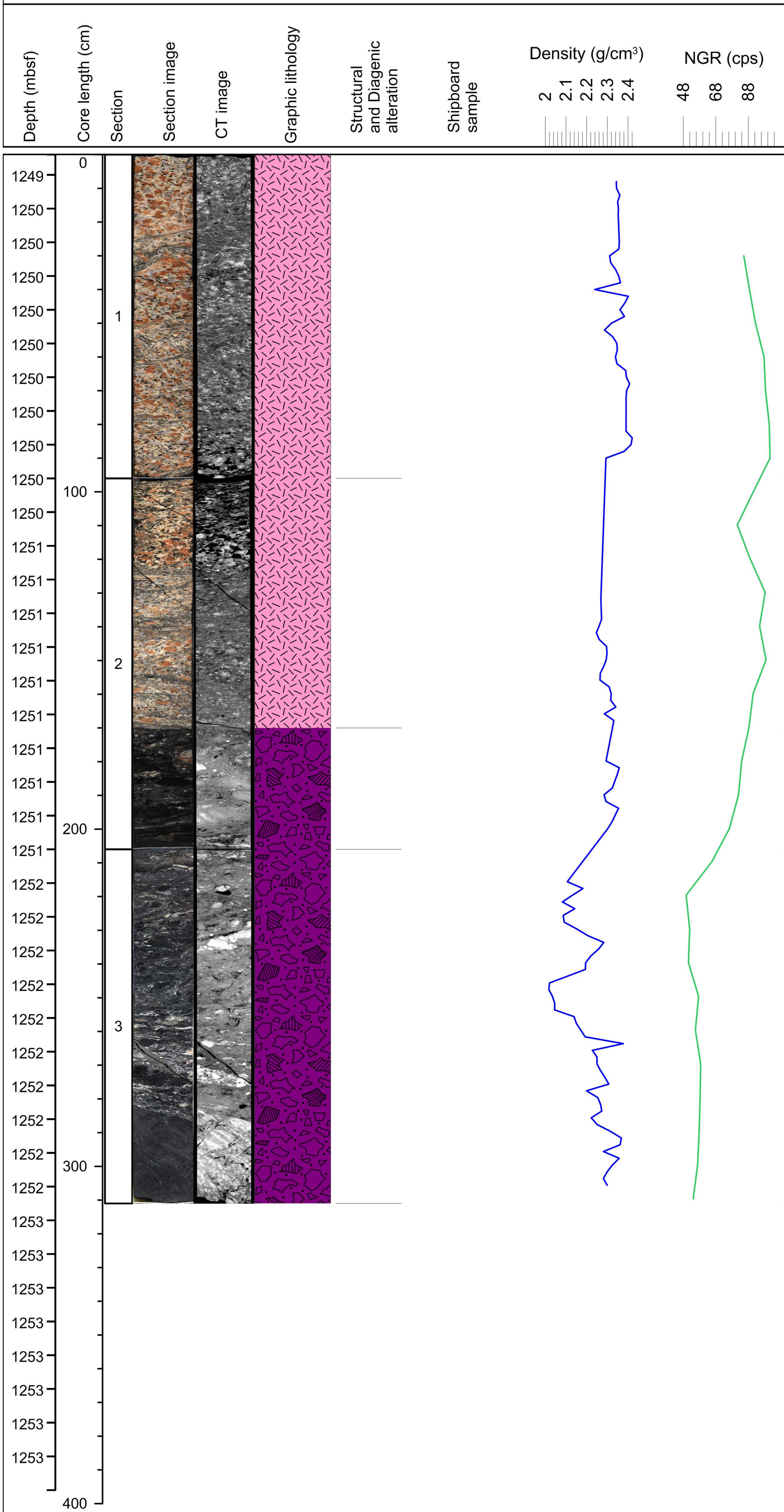
Suevite, with <10% melt. Clasts are < 6 cm in size and are composed of melt, felsite, and granite. Matrix is fine to medium-grained. A fault with mm- to cm-scale offset. Color is 5 YR 6/4. CT is dark gray.

Impact melt rock with >50% clasts composed of melt, granite, granodiorite, felsite, gneiss, and mylonite. Sizes of clasts are < 5 cm. Green replacement alteration occurs in and throughout several clasts. The unit is moderately fractured. Color is N3. CT is dark gray.

Impact melt with >50% clasts composed of melt fragments, granite, and gneiss. Color is N3. CT is light gray.

Coarse-grained granite, strongly deformed, with crenulated planar mineral fabric. Color is 5 YR 6/4. CT is dark gray.

Hole M0077A Core 276R Cored 1249.34-1252.44 mbsf



Description

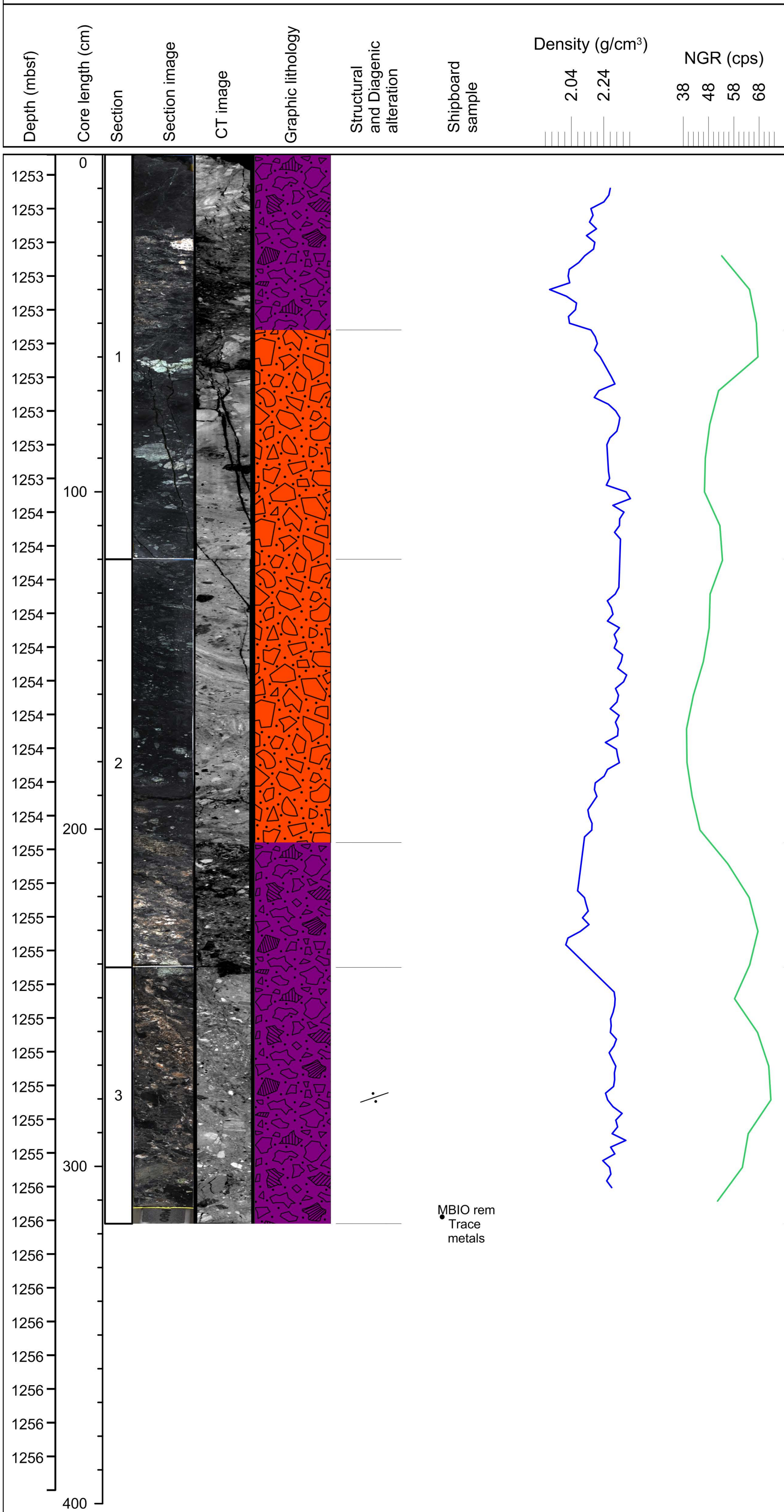
Coarse-grained granite with K-feldspar (0.5 to 2 cm, ~35%), plagioclase (0.5 to 1.5 cm, ~30%), quartz (<1 cm, ~30%), and biotite (~3%). The zones from 24 to 31, 49 to 61, and 70 to 84 cm are strongly deformed, with "fluid" foliation features and filled with fine cataclastic material. Quartz has been dissolved from the lower 15 cm of the section, leaving irregular vugs. Color is 5 YR 6/4. CT is dark gray.

Coarse-grained granite, strongly deformed. Instense dissolution of quartz occurs from 0 to 26 cm. The zone from 26 to 74 cm is highly foliated and contains veins of cataclastic material. Color is 5 YR 7/2. CT is dark gray.

Suevite with >30% melt clasts, plus granite, felsite, and schist. The clasts are <5 cm in size. Matrix grains are 1 to 2 mm in size. Green mineralization occurs in this unit. Color is N4. CT is light gray.

Suevite with clasts of melt (<20%), granite, gneiss, and schist. The bottom of the section contains a large (>30 cm) unidentified mafic clast. There is strong deformation in the unit. Color is N4. CT is dark gray.

Hole M0077A Core 277R Cored 1252.44-1255.54 mbsf



Description

Suevite with various types of clasts, from sub-angular to sub-rounded (some schlieren). Black melt with flow texture and non-digested (mainly Quartz) clasts, light-grey melt particles, mafic clasts, basement (granite and gneiss), and a few unidentified lithologies.

Clast size on average less than 3 cm, but a few larger than 4 cm and one unidentified mafic clast (>22cm) from 0 to 22 cm.

Matrix is fine-grained, light grey. Locally some clasts were deformed when already incorporated in the breccia. A few clasts are strongly porous, looking like they were dissolved in-situ.

Transitional contact from 52to 60 cm.

CT:

Clast form 0 to 20 cm is LG, high Z and D. Suevite is DG, low Z and D.

Impact melt rock, clast rich, dark grey to black with clasts, sub-rounded to angular, a lot of them more or less green in color (alteration). Clasts up to 6 cm in size. Mainly gneiss and fine-grained mafic.

No vesicles, at 105 to 109 cm, large clast (>core daimeter) in part assimilated, foliated litholgy

CT:

Melt rock is LG, high Z and D

Impact melt rock, clast rich, dark grey to black, as previous unit. Somewhat more polymict with clasts up to 7 cm.

Locally, from 25 to 33 and 39 to 44 cm, zone with flow texture and clasts, elongated and in part digested

CT:

LG, fluidal textures, high Z and D with low Z, D, CT# clasts

Suevite with a variety of clasts (granite, gneiss, schists, mafic, black melt with undigested clasts, etc.) up to 8 cm.

Very porous! Some clasts are highly porous/leached.

CT:

lower CT number, lower D and Z

Suevite, very polymict, with light grey matrix. Clasts from less than a few mm to larger than the core diameter, from angular to sub-rounded (melt fragments with highly irregular margins). Different types of clasts include granite (highly deformed), clast rich impact melt rock, gneiss, mafic rocks, dolerite, etc. (Not so porous compared to previous section, less altered?)

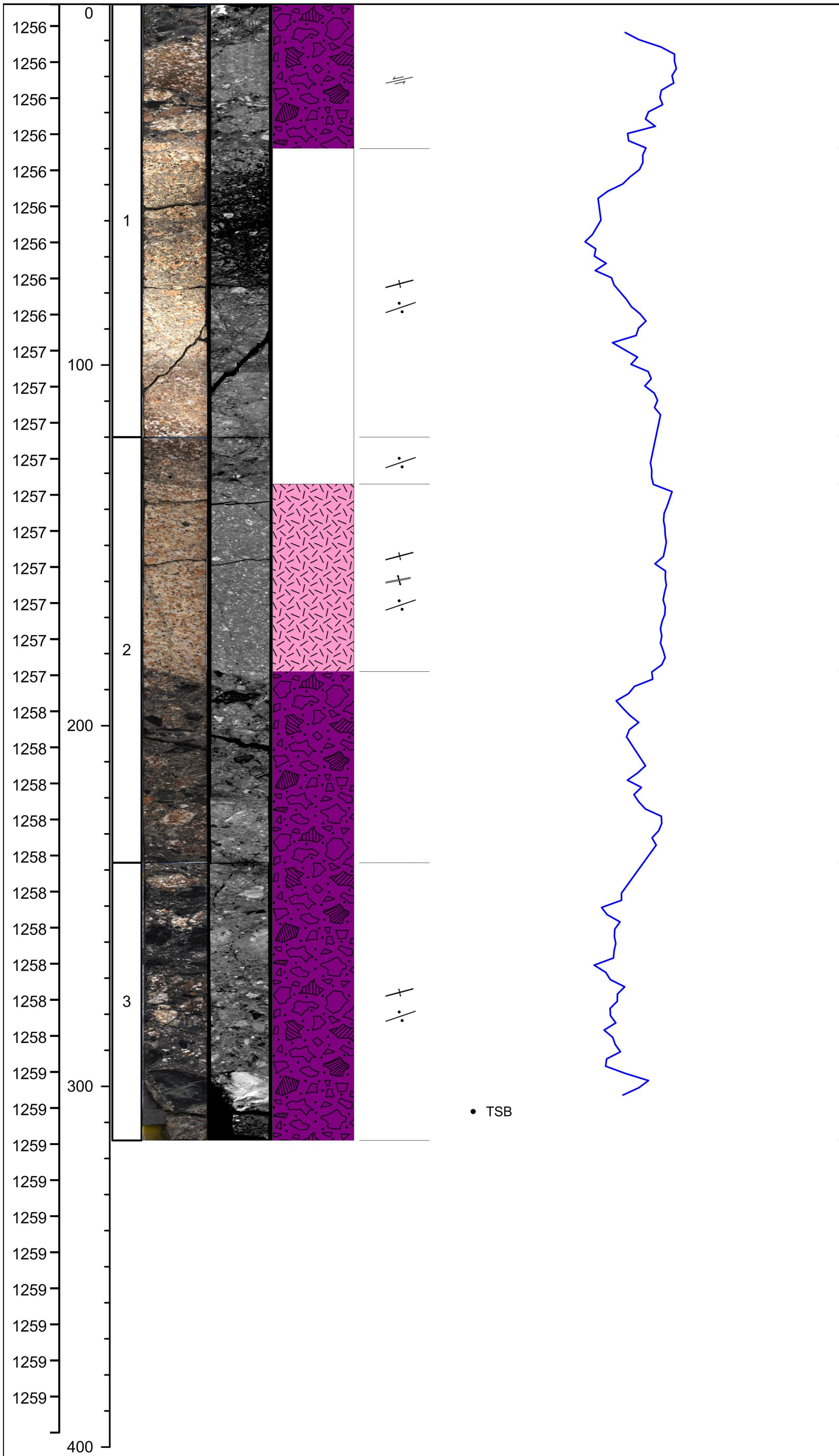
From 0 to 50 cm several sub-vertical anastomosing shear faults, ~5 mm thick, that truncate both matrix and clasts. Dextral shear, throw >10 cm. Deformation has a ductile appearance.

CT:

LG, high D low Z, clasts with variable Z and D

Hole M0077A Core 278R Cored 1255.54-1258.64 mbsf

Depth (mbsf)	Core length (cm)	Section	Section image	CT image	Graphic lithology	Structural and Diagenic alteration	Shipboard sample	Density (g/cm³) 2.04 2.24 2.44	NGR (cps) 0 0.25 0.5 0.75 1	Description



Suevite with grey, fine-grained matrix, and clasts up to > than 14cm from angular to rounded. Clasts dominated by granites,aplite, mafic, black melts etc. Deformation (clasts trancated) post rock emplacement. Shear faults, <mm, white, up to 1cm throw that truncate clasts and matrix. Dextral, extentional sense.

CT: suevite facies

Highly deformed, brecciated, granite (=monomict breccia); K-feldspar (up to 2 cm), plagioclase (1.5 cm), quartz (1 cm), and biotite (<0.5 cm). Highly porous-leached granite (most of the quartz is leached). Melt (black, up to 0.5 cm) occur locally.

Less deformed in lower part of section, granitic texture preserved. Granite is greyish/brown in color.

52-80 cm: shear faults are more well-preserved than the granite host. Anastamosing conjugate sets. At 94 cm faults overprint brecciation

90-122 cm: <mm white shear fracture network, cm spacing

CT: Highly porous breccia is dark grey to black, mixed density, otherwise midgrey high density, low Z

Monomict breccia (highly deformed granite – cataclasite)

Granite (brownish), rounded, clast larger than core diameter; black angular to subrounded clasts (<1 cm) occur (melt?). Several shear faults <mm, grey fill in clast at 0-7 cm.

CT: All three units mid grey, monomict breccia facies

Granite

Medium-grained granite, with K-feldspar (light-orange) up to 2 cm, plagioclase (2 cm), quartz (1.5 cm), and biotite (<0.5 cm), locally concentrated. (1.5 cm aggregates). Tiny pyrite (<0.5 mm).

25-31 cm: aplite, 1.5 cm thick.

Several partially open, unfilled fractures without shear. Very little deformation

CT: All three units mid grey, granite facies

Suevite with light-grey matrix, clasts, from rounded to angular, up to 5 cm in size. Clasts of granite, gneiss, mafic, black and grey melts (with flow texture, vesicles, and undigested clasts).

Tiny pyrite crystals (<0.5 mm) in porous areas, vesicles, etc.

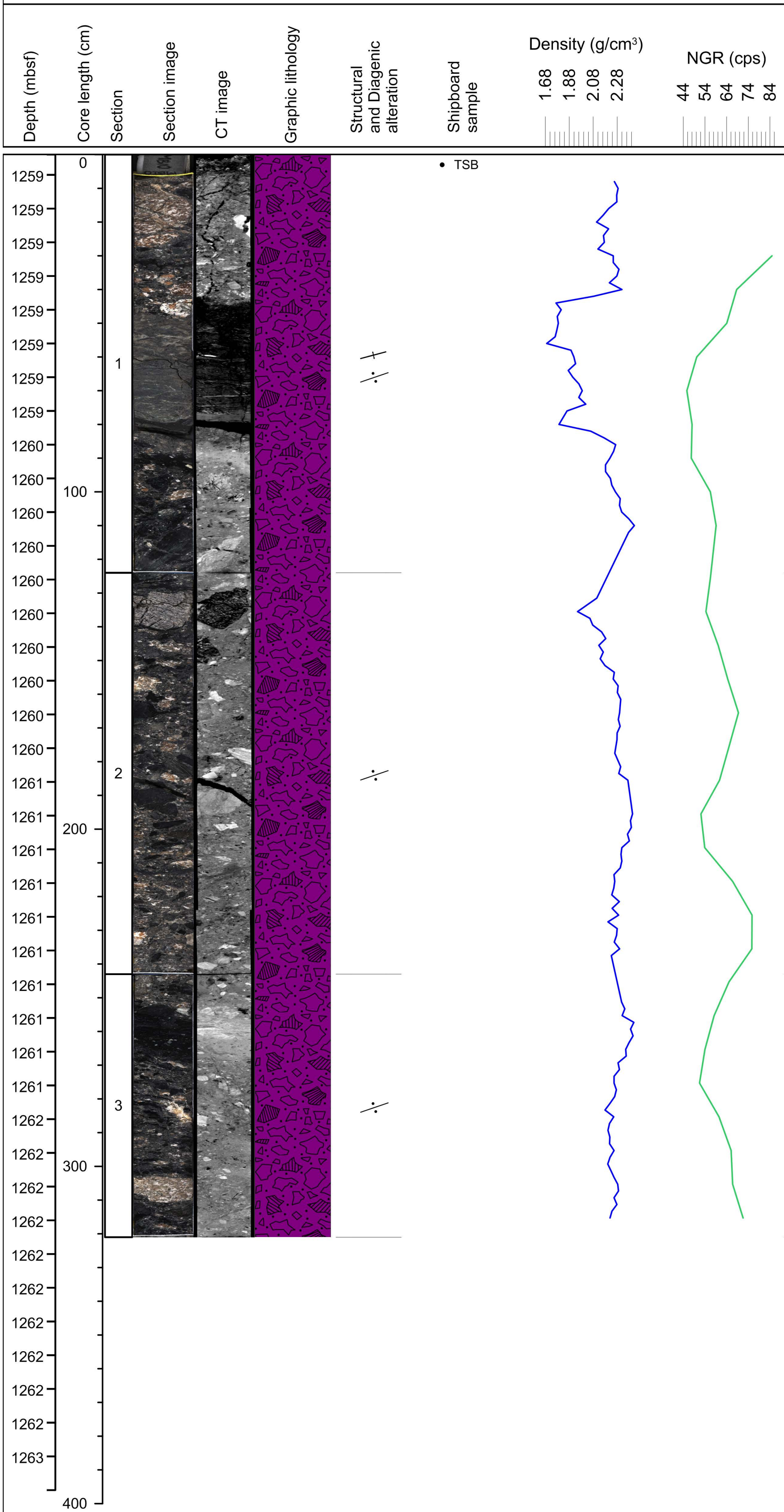
CT: All three units mid grey, suevite facies, clasts with variable CT, density, Z

Suevite with light-grey matrix and clasts, rounded to angular, with size up to 12cm, including granite, fine-grained (unidentified) mafic (with greenish veins), black melt (with flow texture and undigested clasts), dolerite, gneiss, etc. Sharply foliated clast @40-41cm. Pre-impact green (alteration) veins in a few (mafic) clasts.

Granite clasts at 5, 15, 16, 43cm show conjugate sets of <mm white shear fractures. Partially open fracture (shear? dilatation?) from 0-30cm.

CT:Dark gray, high density, low Z, variable clasts.

Hole M0077A Core 279R Cored 1258.64-1261.74 mbsf



Description

Suevite

With grey matrix and a large variety of clasts, from rounded to angular; clasts are very heterogeneous in size, the largest one being 32 cm in size.

Clasts of: different types of granitoids, dolerite, black impact melt rocks, mafic, gneiss, etc.

6-25 cm: partially open cracks in granite clast, plus grey, anastomosing shear fracture (<5 mm). White anastomosing shear fracture, <3 mm at clast-matrix contact at 11 cm.

CT: Suevite facies, clast at 46-90 cm is CT black, low Z and density

Suevite

With grey matrix and clasts up to 13 cm in size. Clasts are rounded to angular; granitoids, gneiss, dolerite, mafic, felsite, black melt, grey melt with flow texture and undigested clasts.

6-17 cm: large gneiss clast with coating of dark melt (partially injected in open cracks)

12 cm: sinistral, extensional shear faults truncate gneiss clast, melt rim of clast, and ~1 cm of matrix, throw up to 2 cm.

One shear fault (in gneiss clast has green fill, comparable to fill in granites

CT: suevite facies, gneiss clast at 12 cm has low CT, density, Z

Suevite

With clasts larger than the core diameter, subrounded to angular in shape.

Clasts of granitoids, black melt (with clasts non-digested and schlieren), gneiss, greyish-purple melt with flow texture and non-digested clasts, mafic, etc. Deformation-clasts in-situ truncated.

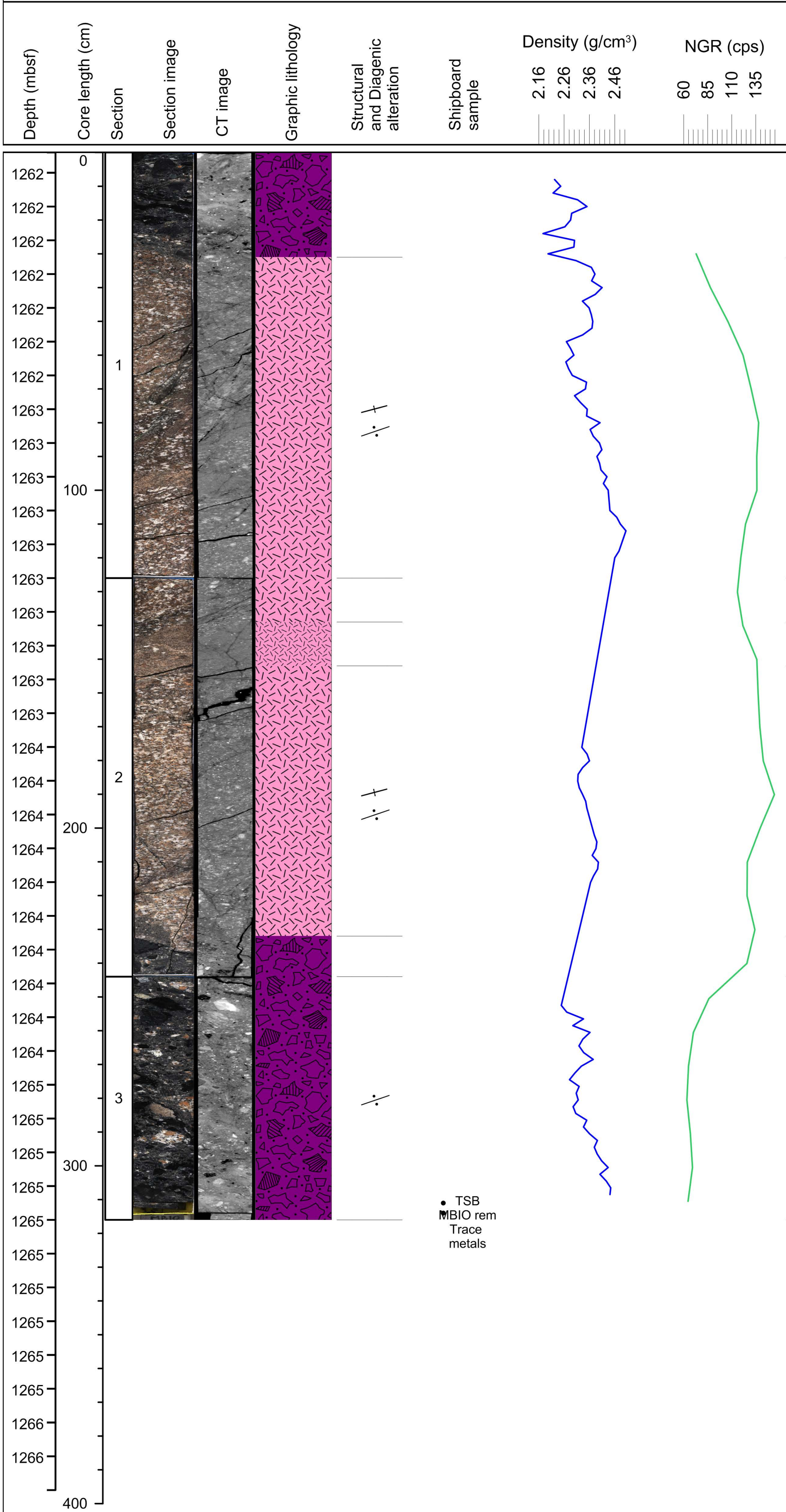
12-24 cm: pod/zone of black impact melt with flow and clasts up to 4 cm

22-44 cm: conjugate sets of subvertical extensional shear faults, up to 2 cm throw, ~mm thickness, semi ductile? Cm spacing.

64 cm: granite clast with <mm white shear faults, some of which extend up to 1 cm into suevite

CT: suevite facies

Hole M0077A Core 280R Cored 1261.74-1264.84 mbsf



Description

Suevite with grey matrix and clasts, rounded to angular, up to 5 cm in size.

Clasts = black melt, dark grey melt with "mylonitic fabric", dolerite, granitoid, mafic, etc.

Black melt at 15.5-18.5 cm with flow texture and non-digested clasts (>core diameter)

CT: suevite facies

Granite

Medium to coarse grained granite, brownish in color, locally highly deformed. K-feldspar (1 cm), plagioclase (1 cm), quartz (1 cm), quartz (1 cm), and biotite (<0.5 cm). Locally greenish-reddish (alteration) and sphene

94-101 cm: aplitic zone

103 cm: S:150/80 L: 100/65 + 3

114 cm: S160/65 L125/55 + 3

30-40 cm: cataclastic zones <2 cm thick, locally crosscut by shear fractures, in other parts cataclasis cross-cuts shear fractures

40-85 cm: subparallel sets of shear fractures, green fill <mm, cross cut by cataclastic zone at 76 cm, which itself is crosscut by shear fractures multiple sense of displacement

CT: granite facies

Granite, medium to coarse-grained, brown to orange, with K-feldspar (1.5 cm), plagioclase (1 cm), quartz (1 cm), and biotite (<0.5 cm). Thin veins of quartz and other black one.

CT: granite facies

Typical aplite

CT: Aplite facies

Granite, same as unit 1, but lighter in color. Thin network of black veins and locally cataclasite and quartz veins (<1 mm thick)

41 cm: 180/0 L: 295/10 – 3

0-110 cm: pervasive shear fracture network, black and occasional white fill <2 mm.

76-110 cm: local cataclasis, in zones up to 5 cm width, diffuse margins

CT: granite facies

Suevite, with grey matrix and clasts >5 cm; see next unit (same).

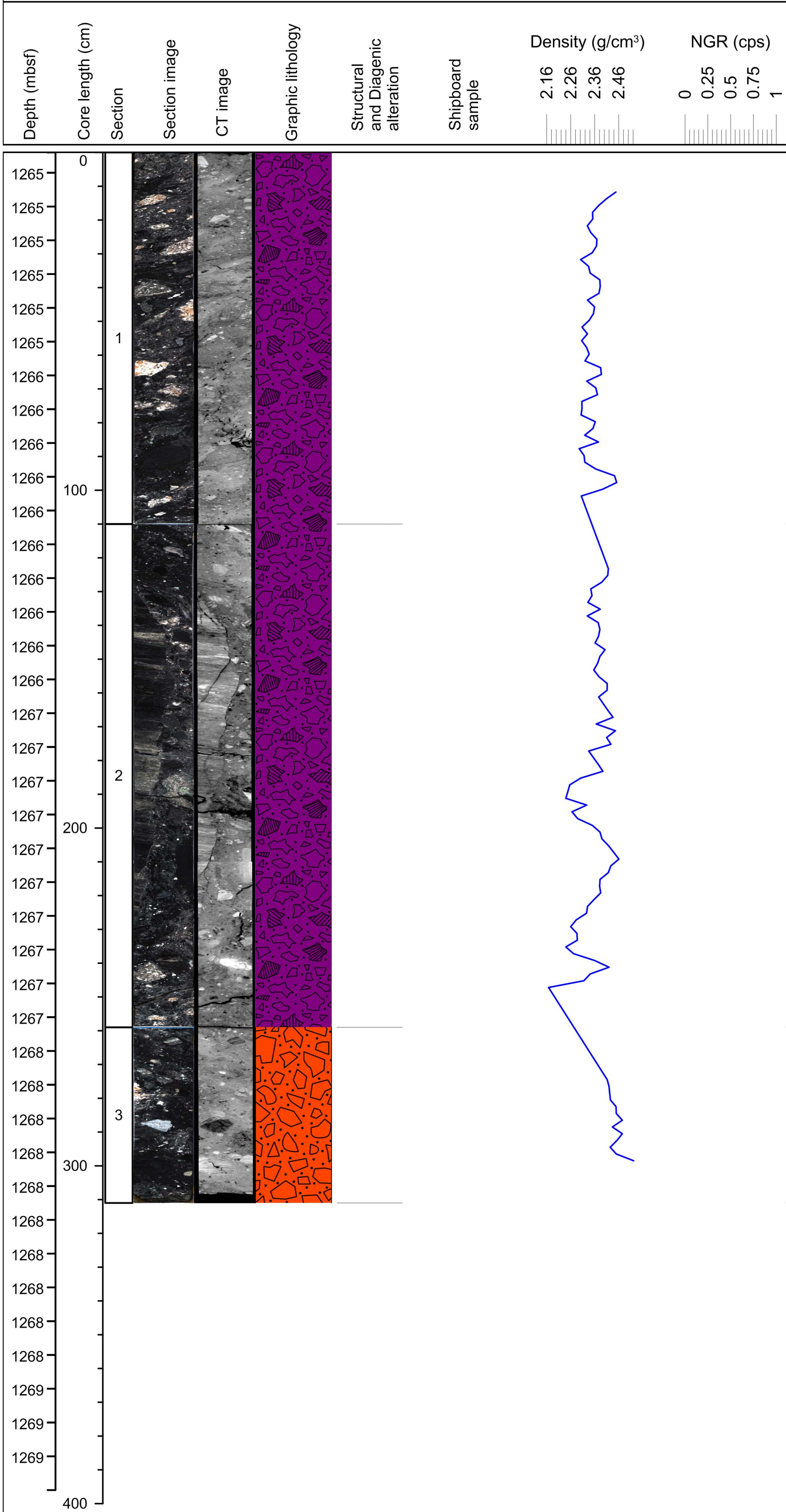
CT: suevite facies

Suevite, grey matrix, with clasts up to 6 cm, rounded to angular. Clasts of granitoids, aplite, black melt with undigested clasts (some with "flame" shape), mafic, black melt with mylonitic texture, etc.

Localized shear zones in suevite, shear clasts and matrix. Zones are difficult to trace over more than 2-3 cm.

CT: suevite facies

Hole M0077A Core 281R Cored 1264.84-1267.94 mbsf



Description

Suevite with gray matrix and clasts up to 9cm. Impact melt (fladen) dominate the section; black in color with abundant non-digested clasts and flow texture (non-vesicular).

Clasts are sub-rounded to angular in shape. Clasts consist of granitoid, mafic (fine-grained, gneiss, dolerite etc.

Preferencial fabric/clast orientation.

Local alteration (greenish, clayish) of clasts.

CT: Suevite facies – mid-gray matrix, clasts of melt are brighter (higher Z), lithic clasts are a mix of bright and dark. Very high porosity at approximately 84cm.

Suevite with fine-grained gray matrixand clasts of very different size, up to 1m(!) in size. Clasts are rounded to angular. One clast dominates the section/unit, from 20 to 120cm, a highly shocked gneiss. This clast contains some greenish veins, also present, greenish alteration at the surface of the clast. Black melt (fladen) are abundant, with a large zone (pod) almost 10cm thick in the upper part of the section. They contain abundant non-digested clasts (Clast-rich Impact Melt Rock) and show flow texture. In addition to gneiss and black melt clasts; granitoid, dolerite (rounded in shape), and mafic (fine-grained; black/brownish in color) clasts.

@75-85 – Porous and greenish (in part) clast; heavily altered.

@80 – Striation through suevite matrix: S 0/30 L 0/30 + (4)

@130 – Red-brown, non-continuous 'coating' at the margin of a clast, surrounded by black melt.

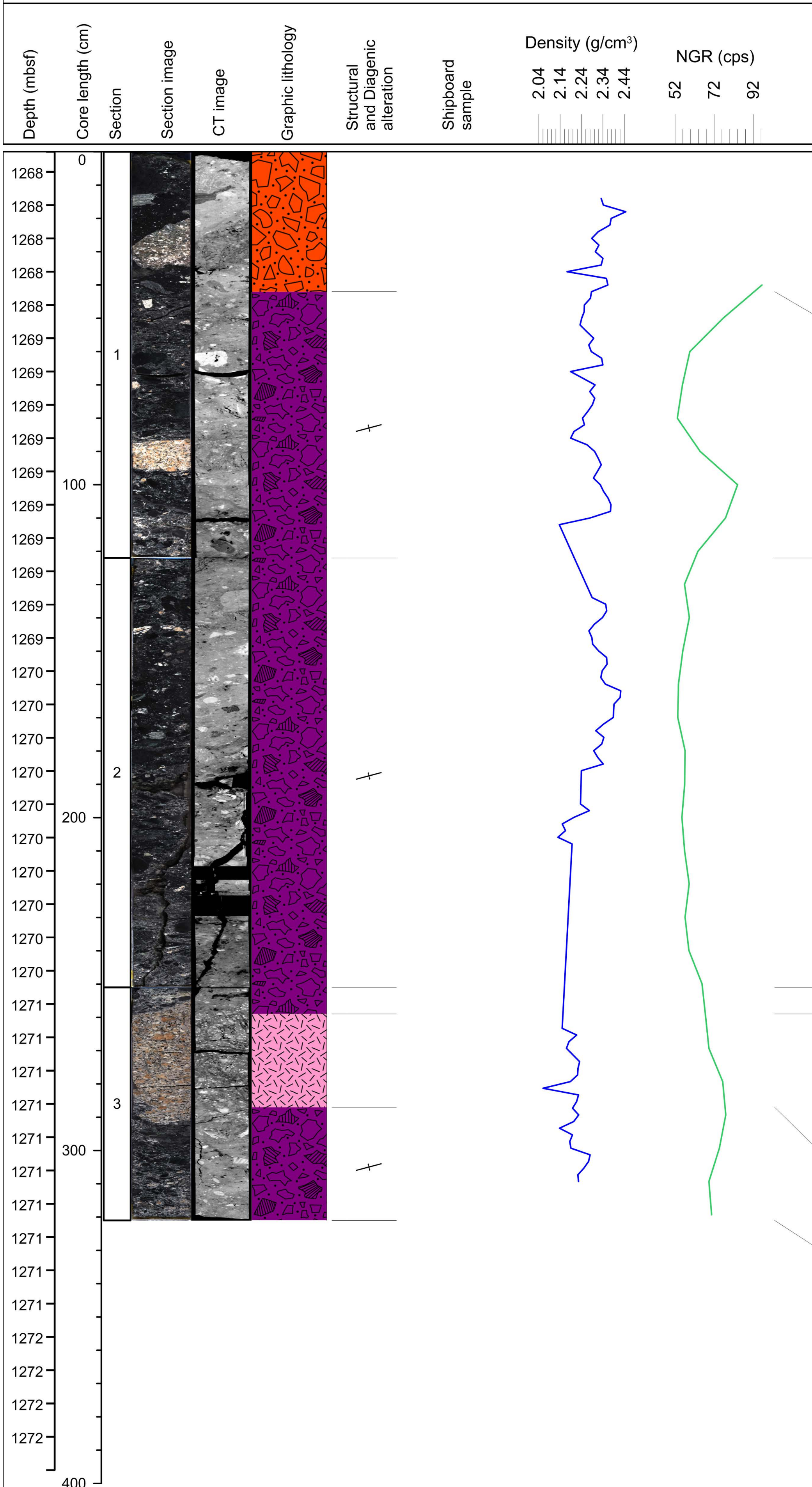
CT: Suevite facies – Gneiss clast is LG, high D. Clast surrounded by red 'coating' is W (high Z)

Impact melt rock – Clast Rich, locally intermixed with suevitic zones (or the other way around?). Clasts, rounded to angular in shape, up to 6cm in size. Granitoid, gneiss, mafic rock clasts dominate. Reddish-brown to greenish coloration (alteration) around mafic clasts coated by impact melt.

@33 and 42 – Local porosity with clasts of mafic and felsic basement.

CT: Almost indistinguishable from suevite facies – slightly higher Z than above, most clasts have porosity. Flow texture in matrix.

Hole M0077A Core 282R Cored 1267.94-1271.04 mbsf



Description

Impact melt rock (Black), clast-rich, (no vesicles) with clasts larger than 15cm (granitoid); suevitic zone (intermixed) in the upper 13cm of the unit. Clasts are angular to sub-rounded, some partially digested and schlieren.

Clasts of granitoids, gneiss, and different mafic rocks and "foliated" rock clasts (primary texture and/or shock melt induced). Local pores within clasts and in melt, possibly a result of alteration, or very minor vesiculation. Generally infilled with dark green material.

CT: Similar CT texture between melt rock and suevite, Melt rock has slightly higher D.

Suevite with fine-grained gray matrix and clasts larger than 10cm. A fabric is visible with clasts and melt particles and pods preferentially oriented sub-horizontally. Clasts are angular to sub-rounded. Melts, fladen, dominate, black in color with undigested clasts. Mafic rock and granitoid clasts are the most abundant. Dolerite and gneiss also occur. Granitoid clasts have highly variable alteration of both K-spar and Plag. Furthermore, high variability of deformation in clasts between heavily fractured (@90) and undeformed (@47).

CT: Suevite facies

Suevite with fine-grained gray matrix and clasts larger than 6cm; rounded to angular. A fabric/preferential sub-horizontal orientation of the clasts is visible. Black-melt fladen are abundant. Clasts of granitoids, gneiss, mafic rocks, foliated mafic lithology (primary and/or due to impact melting?). A few greenish, others reddish-brown clasts.

@84-129cm – sub-vertical fracture, not an entirely fresh surface, coated in drilling mud. Underneath the drilling mud, green coated surface. Fracture has a serrated edge, possibly open prior to drilling.

CT: Suevite facies, poor data from 90-110cm

Suevite – see description of 282R-3 unit 3 or 282R2 unit 2.

Granite clast, coarse-grained, K-feldspar (2cm) [light orange in color], Plag (1.5cm), Quartz (1.5cm), and biotite (<0.5cm). Locally, anastamosing cataclasite on curved surface. Margin of clast is irregular.

Granite is porous, cataclasite orientation influences 3D shape of granite. From 32-40cm granite is only 1cm deep into the described core half.

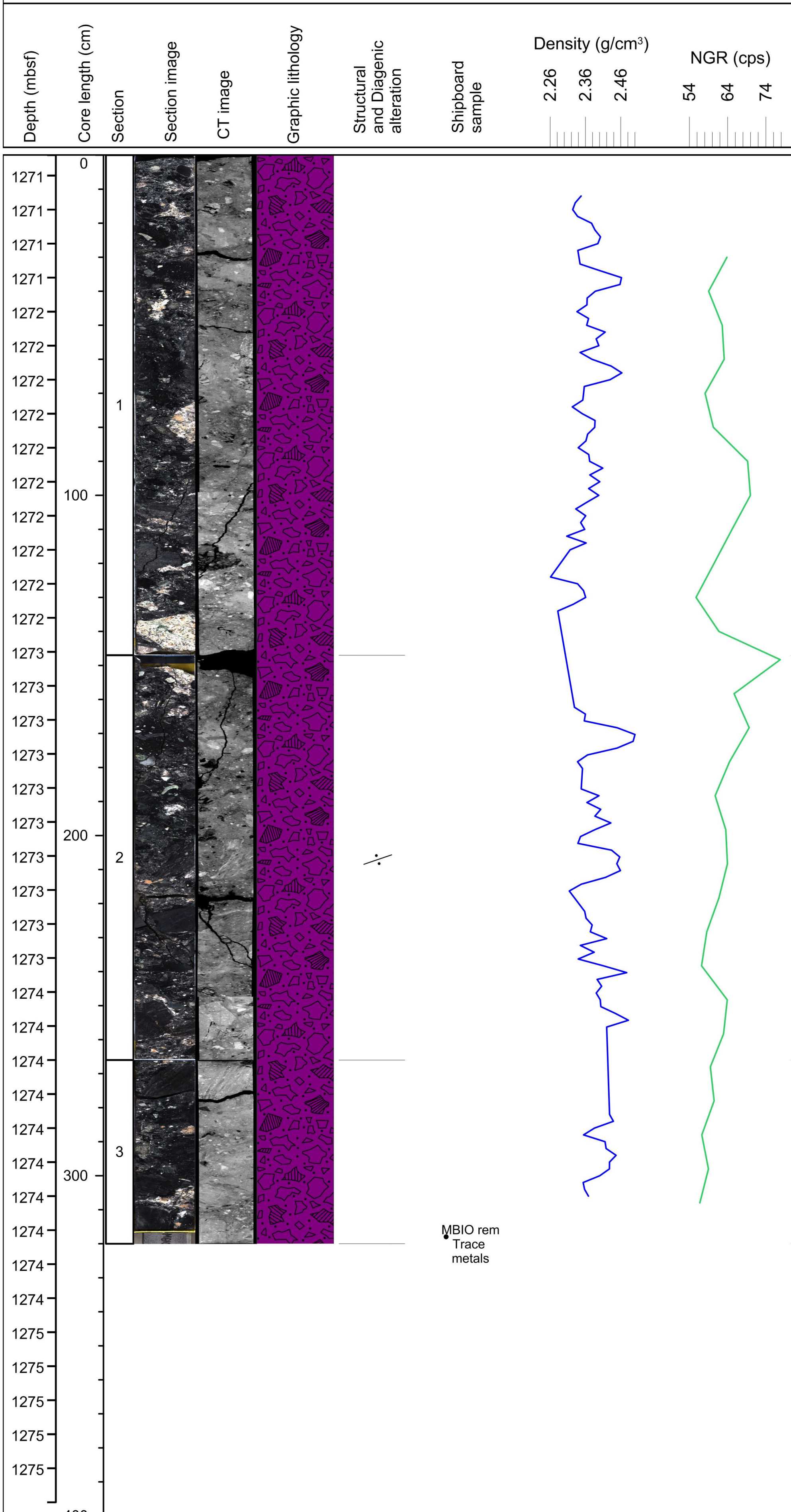
CT: Granite Facies

Suevite, with fine-grained, gray matrix with clasts up to 6cm, from angular to sub-rounded. Clasts of fine-grained mafic rock, dark melt, granite, gneiss, etc. Greenish vein/pods (alteration) in large mafic clast.

@43-60cm – sub-vertical partially open fracture with gray-brown fill.

CT: Suevite Facies

Hole M0077A Core 283R Cored 1271.04-1274.14 mbsf



Description

Suevite with intermixed impact melt rock (clast-rich), gray matrix and clasts up to 11cm in size. Clasts are angular to sub-rounded. Grnaite clasts (some highly deformed and in part digested), mafic rock, gneiss, “foliated lithology”, gray melt shard, dolerite, etc. Locally green alteration.

CT: Suevite facies

Suevite, locally almost clast supported, grey matrix, and clasts up to 12 cm. Clast include clast-rich black impact melt that dominates the clast population, granitoids, mafic rocks, dolerite, grey melt shards, highly foliated lithology, etc. Clasts are angular to rounded. Some of the clasts are partly melted and show flow texture.

Locally greenish alteration of clasts and a few reddish spots.

103-113 cm: shear fault with extensional throw of ~1 cm in a mafic clast, dark brown to dark grey fill, 1 mm thick, with local green and yellow alteration. Fault not visible in suevite matrix.

CT:

Suevite facies

Suevite with clasts up to 12 cm. Clasts are sub-rounded to angular; clasts include the highly foliated and or melted lithology (mylonite?), granite, mafic rocks, grey melt shards, gneiss.

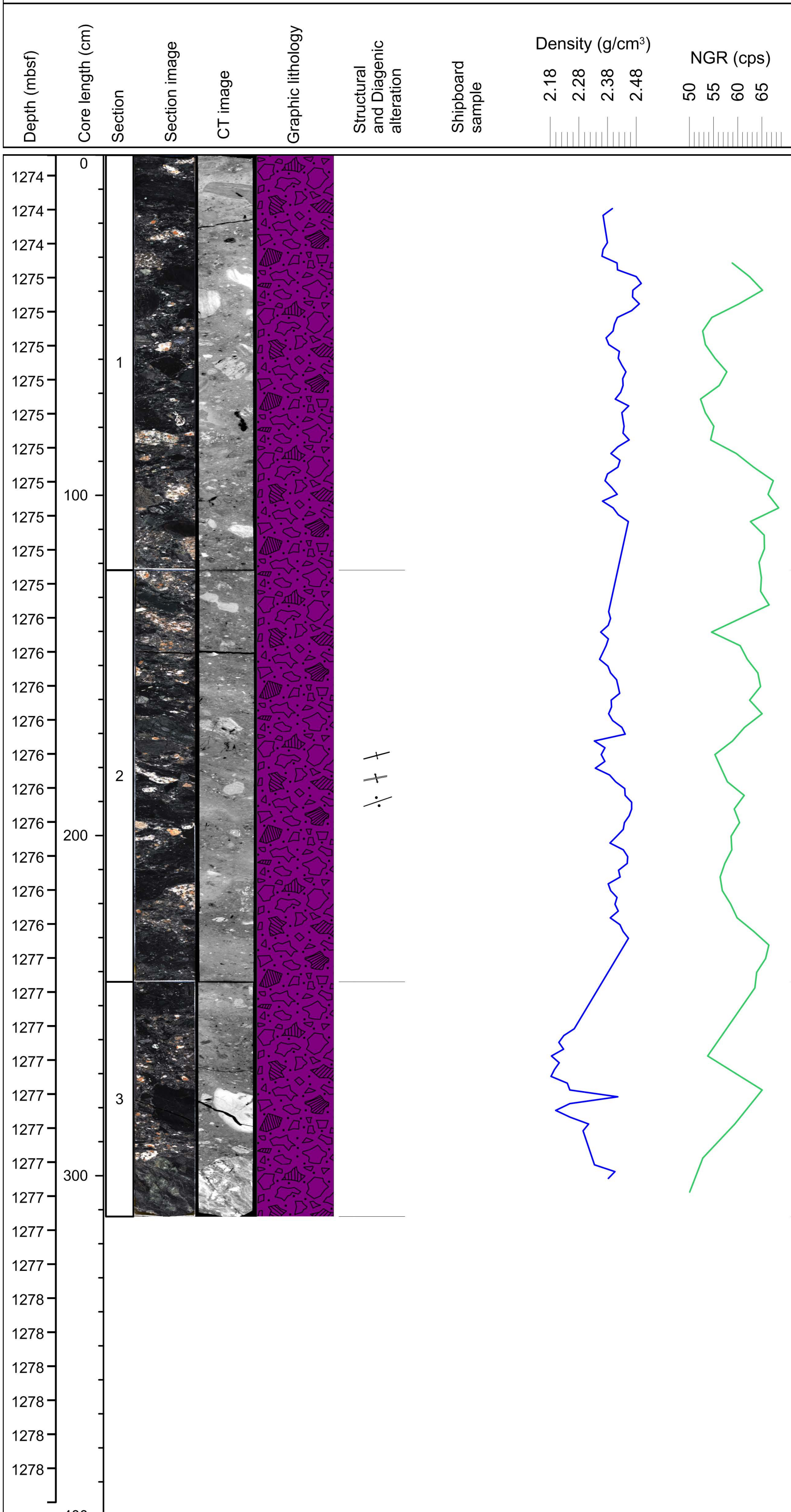
34-40 cm: Clast of foliated lithology with (injected) black melt veins.

Locally greenish altered clasts.

CT:

Suevite facies, flow textures visible in clasts

Hole M0077A Core 284R Cored 1274.14-1277.24 mbsf



Description

Suevite, same as in previous units, with somewhat more matrix than in 284R-2/3. Matrix is fine-grained, gray in color. Clasts, angular to rounded, some with very irregular margins up to 9cm.

Large variety of clasts, including granitoids, highly foliated lithology, dolerite (rounded!), mafic rocks, gneiss, etc. Some clasts are 'coated' with black melt. A few greenish-blueish-reddish spots of alteration. Impact melt rock (clast-rich) fladen still very abundant.

CT: Suevite facies

Suevite with large variety of clasts and large pods of impact melt rocks (clast-rich). Preferential fabric is visible, with schlieren and clasts elongated sib-horizontally. Largest clast is 12cm; angular to rounded.

Granite, aplite, mafic rocks, dolerite (melted with flow texture), gneiss, rare grey melt shards, etc. Locally altered with greenish filled cracks/vugs.

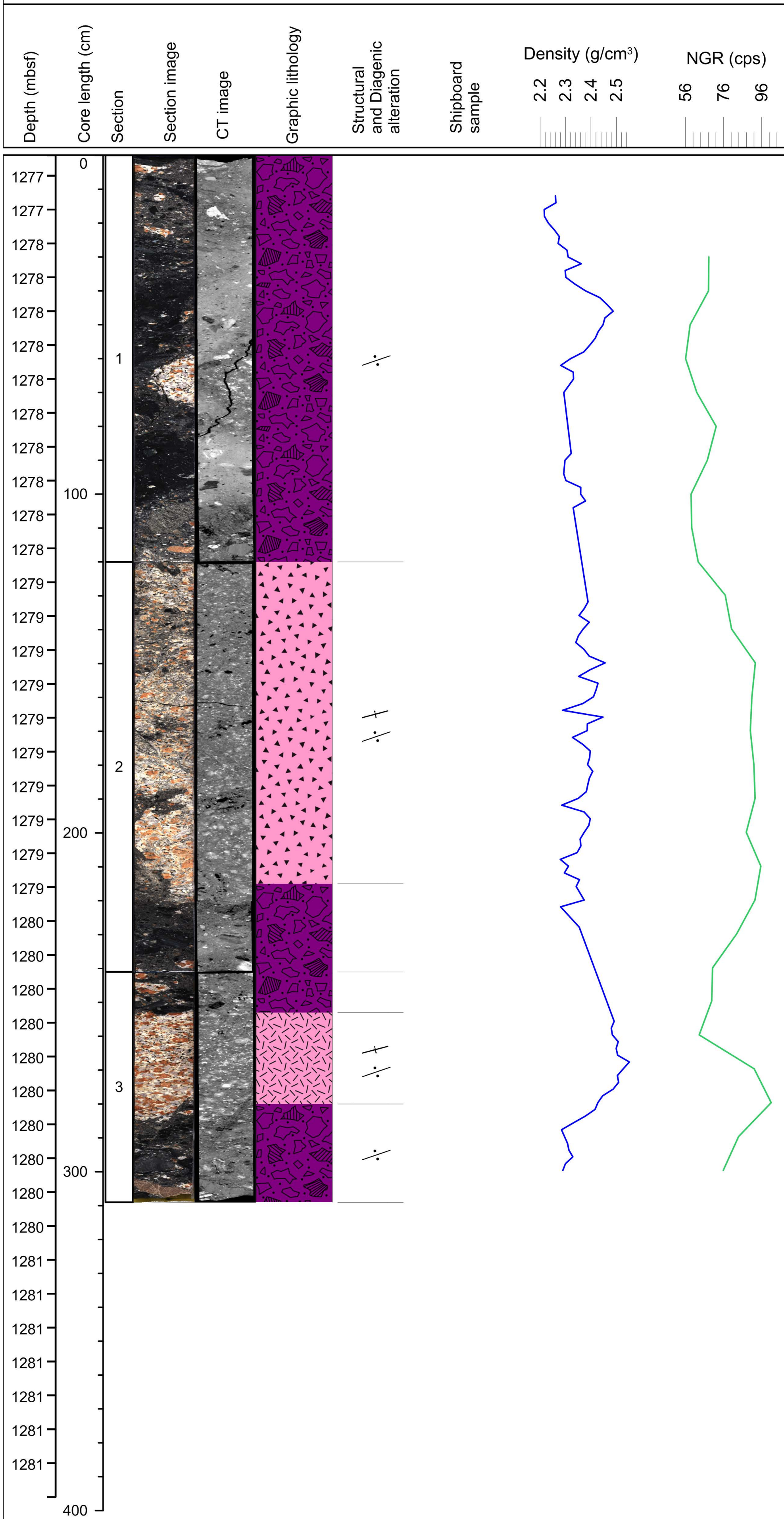
0-37cm – sub-vertically oriented shear fracture that cross-cuts matrix and clasts. Slightly anastomosing. 3mm wide. Dextral throw of 2cm. Fracture stops against melt-rock rich part of suevite (local melt body?)

CT: Suevite facies

Suevite with grey matrix, with less dark melt than in previous sections. Clasts larger than 19cm; Very large highly deformed and altered (greenish) mafic rock; clasts of mafic rocks, granite, dolerite, "highly foliated lithology", gneiss etc. Rounded to angular clasts.

CT: Suevite facies – 30-44cm, clast of W material (high Z, normal D), 51-69cm, clast has foliated texture and high CT.

Hole M0077A Core 285R Cored 1277.24-1280.34 mbsf



Description

Suevite with large pods of black impact melt rocks, clast-rich, up to 20 cm in size.

A few large clasts up to 15 cm; clasts are angular to sub-rounded. Large variety of clasts, including granite, gneiss, aplite, mafic rocks, dolerite, grey-gneiss melt, etc., and large black melt fladen (with flow texture and non-digested clasts).

Tiny pyrite crystals seen in a few places.

Clasts at 27 and 30 cm show bookshelf gliding in flow bands, dextral shear sense, normal faulting.

CT: Suevite facies

Highly deformed, coarse grained granite, brecciated and containing clasts of different lithologies; Matrix is grey, clasts are angular to sub-rounded, mainly mafic rocks (in addition to granite), plus unidentified green clast.

K-feld up to 3 cm, plag (1.5 cm), qtz (2 cm), and biotite (<0.5 cm)

0-100 cm: brecciation is truncated by conjugate shear fractures and shear fabric zones

Note: Mafic clasts may be melt clasts, in which case this unit would be a suevite.

CT: similar to granite facies, with shear band textures, and low density clasts with high porosity

Suevite dominated by matrix, grey in color; clasts up to 7 cm, angular to rounded.

Granite, black melt shards, mafic rocks, partially melted foliated lithology (with irregular margin), gneiss, etc.

CT: Suevite facies

Suevite with grey matrix, dominated by granite clasts, black melt, mafic rock, gneiss; from angular to sub-rounded, up to 5 cm in size. Black melt shards contain undigested clasts and flow texture.

Tiny pyrite crystals occur in cracks.

CT: Suevite facies.

Large coarse-grained granite clast, deformed to some extent, with K-feld (up to 2,5 cm), plagioclase (1,5 cm), quartz (2 cm), and biotite (<0,5 cm), heterogeneously distributed. Network of white veins. From 12 to 27 cm, anastomosing shear fracture network, <mm white fill.

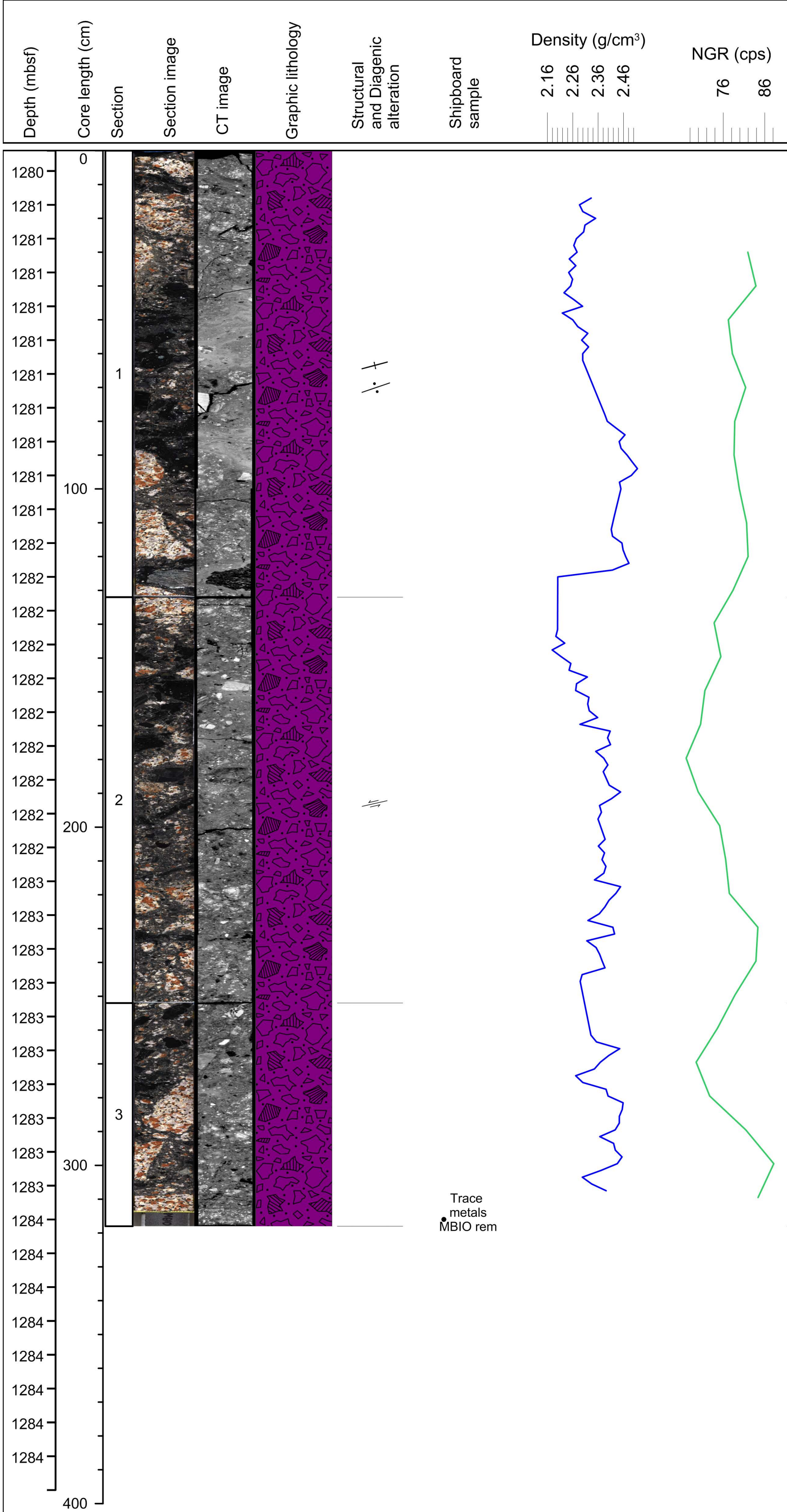
CT: Granite facies.

Suevite with grey matrix, with clasts larger than core diameter, rounded to angular in shape. Dark/black melt shards, aplite, granite, mafic rock, "foliated lithology" (mylonite?), etc.

@35-55 cm: Anastomosing shear fault, approximately up to 1 cm wide, sinistral, extensional displacement, dark grey fill.

CT: Suevite facies.

Hole M0077A Core 286R Cored 1280.34-1283.44 mbsf



Description

Suevite with grey matrix, locally enriched in impact melt (dark/black with undigested clasts), from 39 to 101 cm. Clasts larger than 15 cm; From rounded to angular in shape. Clasts included: granite, impact melt (black), gneiss, mafic rock, dolerite, etc.

@14-30 cm: Shear fault, sub-mm in thickness, that truncates both granite clasts and suevite matrix. Dextral shear, extensional sense.

@22 cm: Within granite clast, 3 mm thick light grey cataclasite, with 2 mm white alteration zone (?). The zone is truncated by suevite and internally truncated/displaced by shear fracture.

CT: Suevite facies (with highly variable clasts).

Suevite with grey matrix, dominated by granite clasts. Clasts are angular to rounded in shape, with size large than core diameter. Clasts include: granite, black melt shards (with undigested clasts), mafic rocks, gneiss, greenish-grey melt shard, etc. A few green alteration of clasts. Tiny pyrite crystals (<0,5 mm) in cracks.

@4-14, 44-53, 55-63, 96-103, 102-118 cm: Shear faults that truncate granite clasts and suevite matrix, generally extensional sense. Throw >2 cm.

@79-83 cm: Shear band, 3 mm thick, in suevite matrix, extensional sense.

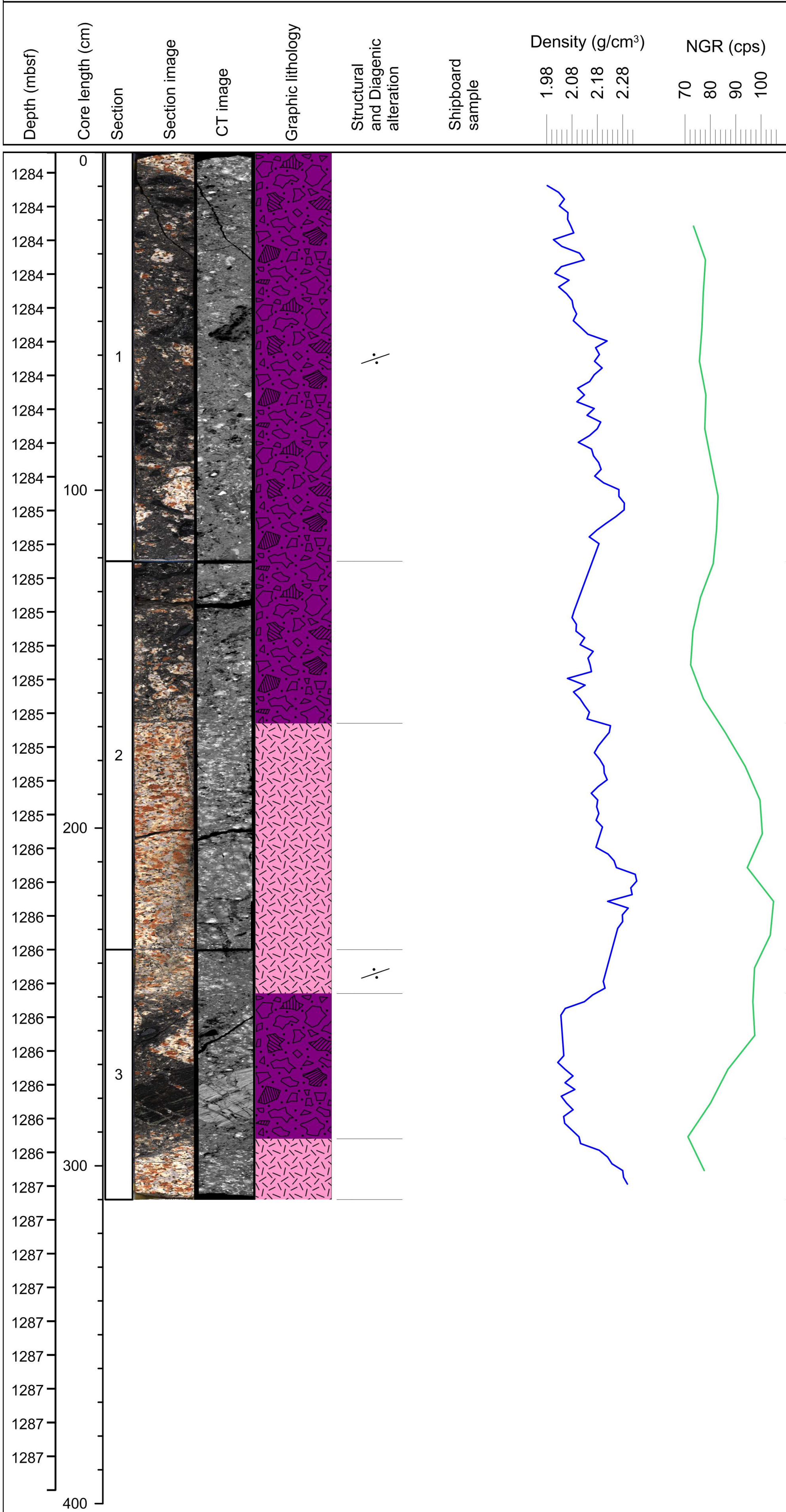
CT: Suevite facies.

Suevite with grey matrix and dominated by granite clasts. Clasts up to 17 cm, from angular to rounded. Clasts of granite, mafic rocks, black melt (shards), gneiss, light-green melt shard, etc.

Tiny pyrite crystals in cracks within clasts.

CT: Suevite facies.

Hole M0077A Core 287R Cored 1283.44-1286.54 mbsf



Description

Suevite, poor in black impact melt shards compared to previous units. Clasts up to 10 cm; Dominated by granite clasts, then black melt (with undigested clasts and flow texture), “foliated lithology” (mylonite (?)), mafic rocks, gneiss, etc. Matrix is grey as in previous sections.

@49-69 cm: Shear zone in suevite matrix, dextral and extensional shear sense. Anastomosing ~1 cm wide.

@92-103 cm: 3 mm wide, sub-vertical shear band in suevite matrix.

CT: Suevite facies, low density melt clast at 50 cm, low D rims on bright CT clasts.

Suevite with clasts of impact melt (~30%), granite (<3 cm, ~15%), gneiss (<5%). Melt mantles some clasts. Granite clasts incraese in abundance towards unit 2. Green and red mineralization. Pink-stained quartz. Partial dissolutionn of quartz. A vug. Color is gray, but variable due to clast content. CT is dark gray.

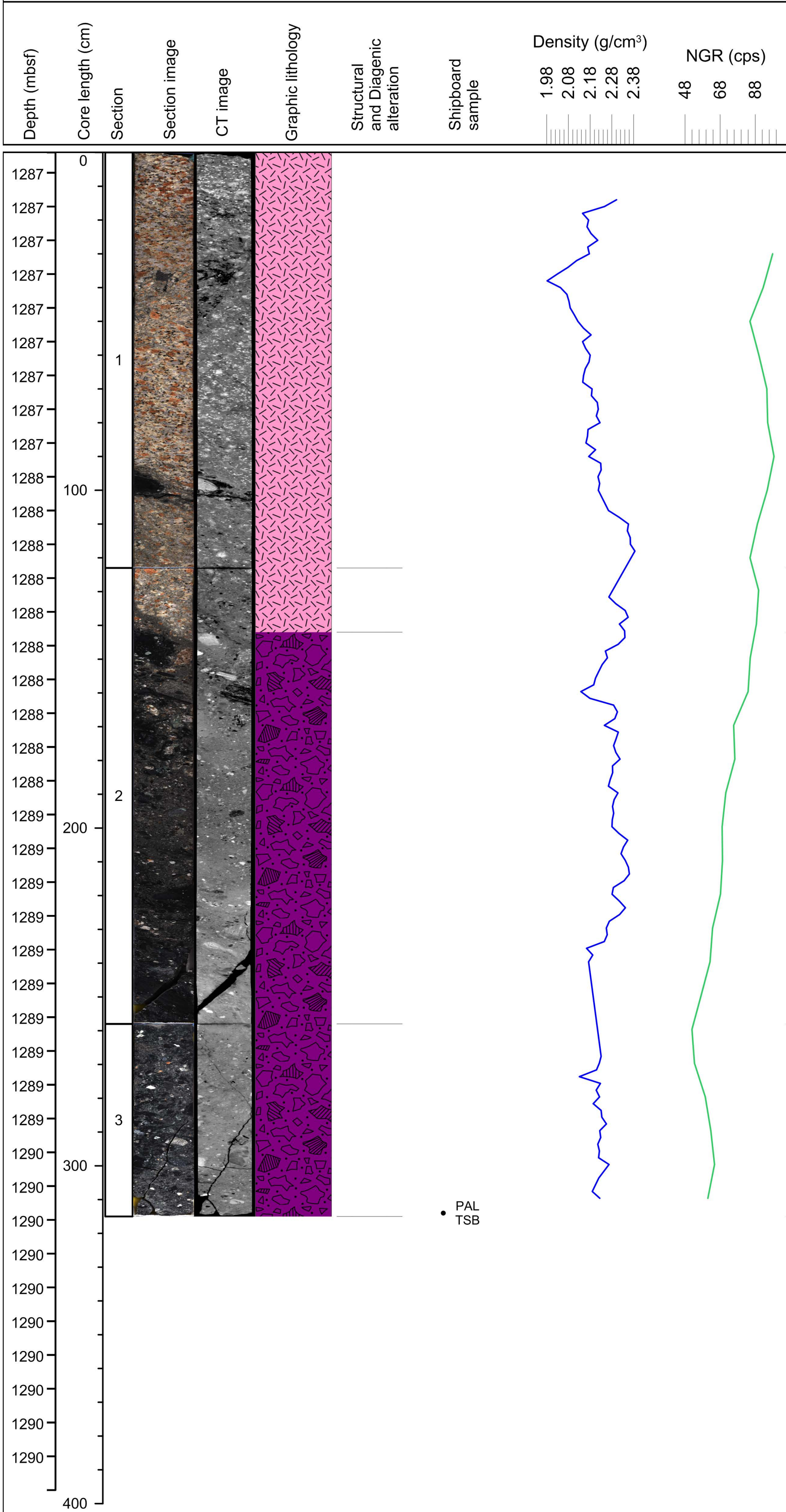
Coarse-grained granite, strongly deformed. Green and red mineralization. Pink-stained quartz that is partially dissolved. Cataclastic veins. Color is 5 YR 6/4. CT is dark gray.

Coarse-grained granite, strongly deformed. A shear band runs from 0 to 12 cm. Color is 5 YR 6/4. CT is dark gray.

Suevite with clasts of impact melt, mylonite (~16 cm), gneiss, and granite. The gneiss clast is mantled by melt (while none of the granitic clasts are). Green and red mineralization. Sulfide. COlor is gray 5 YR N5. CT is dark gray.

Same as unit 1, with the addition of a cataclastic vein.

Hole M0077A Core 288R Cored 1286.54-1289.64 mbsf



Description

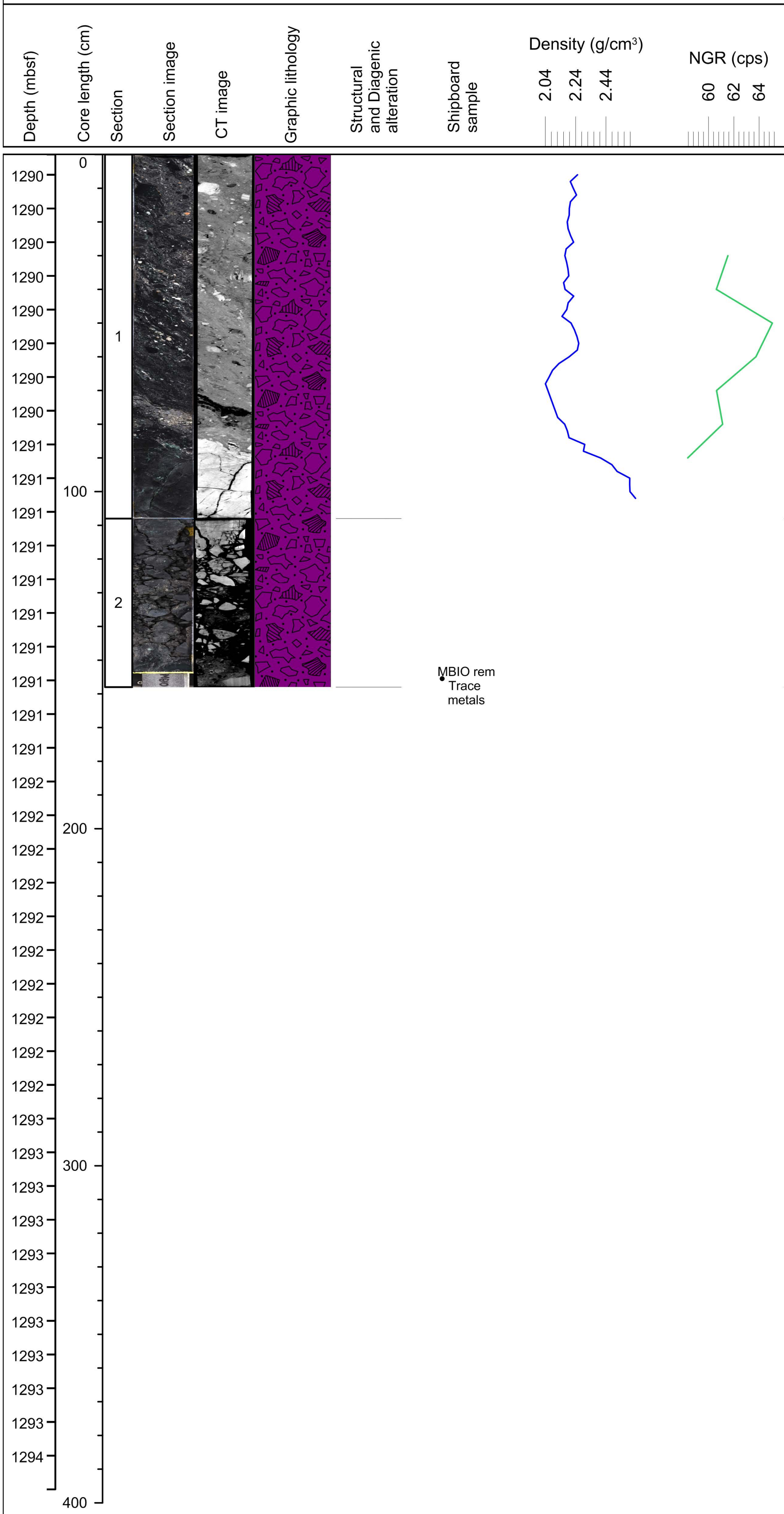
Coarse-grained granite, strongly deformed, with K-feldspar (0.5 to 2 cm, ~25%), plagioclase (0.5 to 2 cm, ~35%), quartz (`1 cm, `30%), and biotite (<5%). Green and red minealization. Quartz is stained pink and has been partially dissolved. Veins of cataclastic material cuts the section, along which fragments of gneiss are entrained. Color is 5 YR 6/4. CT is dark gray.

Coarse-grained grainte, strongly deformed. Green mineralization and quartz dissolution. Strong cataclasis. Color is 5 YR 6/4. CT is dark gray.

Suevite with clasts of impact melt (~10%), granite 9<5 cm), and gneiss (<4 cm). The zone from 73 to 134 cm has more flow banding and fewer granitic clasts. Green mineralization and sulfide. Color is N4. CT is light gray.

Suevite with clasts of impact melt (<3 cm), granite (<1 cm), and gneiss (<2.5 cm). Green mineralization. Color is N6. CT is light gray.

Hole M0077A Core 289R Cored 1289.64-1291.29 mbsf

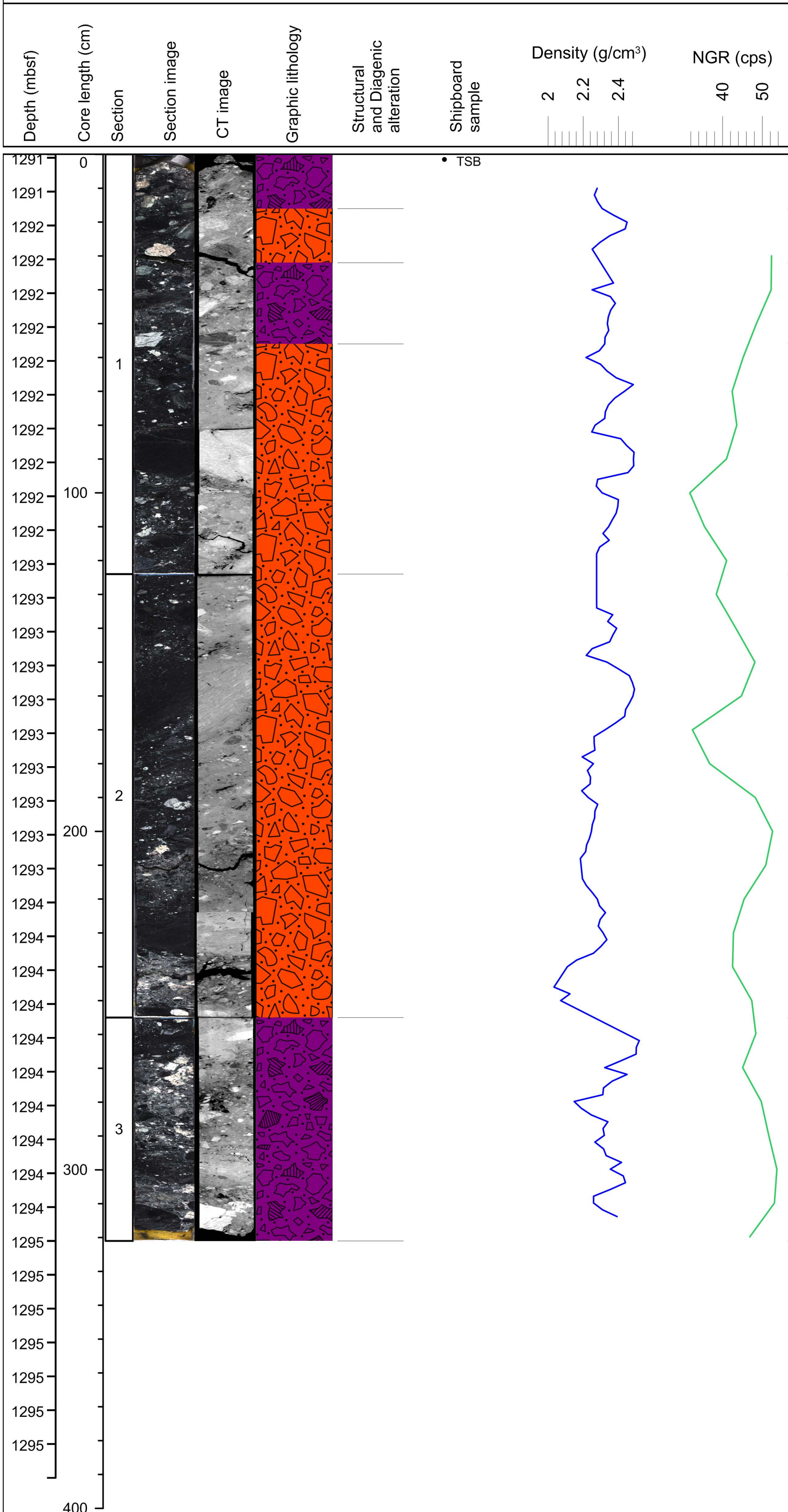


Description

Logged as suevite, although it could be an impact melt rock because it contains flow banding. Clasts include impact melt, granite, granodiorite, gneiss, and an unidentified mafic clast about 20 cm in size. Green and red mineralization.

Suevite that is completely fragmented and difficult to identify components. The upper 24 cm may be the same unidentified mafic clast in the bottom of the previous section. Green mineralization and sulfide.

Hole M0077A Core 290R Cored 1291.29-1294.39 mbsf



Description

Polymict breccia with clasts of impact melt, granite (minor), schist (< 4cm), gneiss (<3 cm), unidentified mafic clasts (<20 cm). Green mineralization. Color is N4. CT is light gray.

Impact melt rock with >60% clasts of aplite, granite, and gneiss. Green mineralization. Color is N4. CT is light gray.

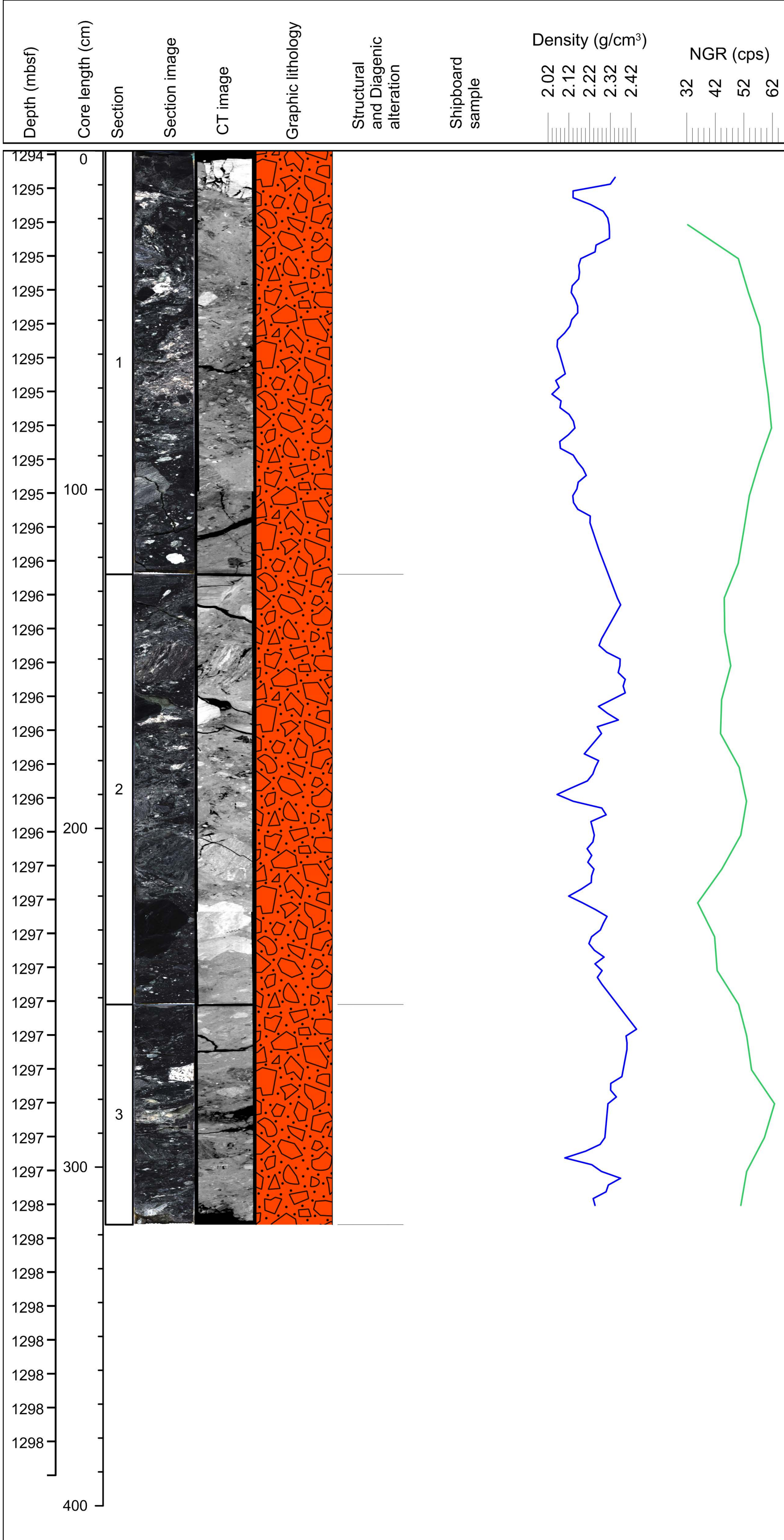
Suevite similar to that in unit 1, plus a dissolution vug.

Impact melt rock that is similar to unit 2, but with a large mafic clast (~14 cm).

Impact melt rock with >30% clasts. Clasts include impact melt, suevite fragments, granite, gneiss, and mylonite, most of which are rounded. There are 10 to 15 cm-size suevite regions from 83 to 93 cm and 113 to 127 cm. Dissolution vugs occur throughout the section wtih green mineralization. Color is dark. CT is light gray.

Section is dominated by suevite, but contains zones of impact melt from 0 to 12 cm and from 40 to 50 cm. Clasts include impact melt, granite, and gneiss. Green mineralization and sulfide throughout. Color is N4. CT is light gray.

Hole M0077A Core 291R Cored 1294.39-1297.49 mbsf



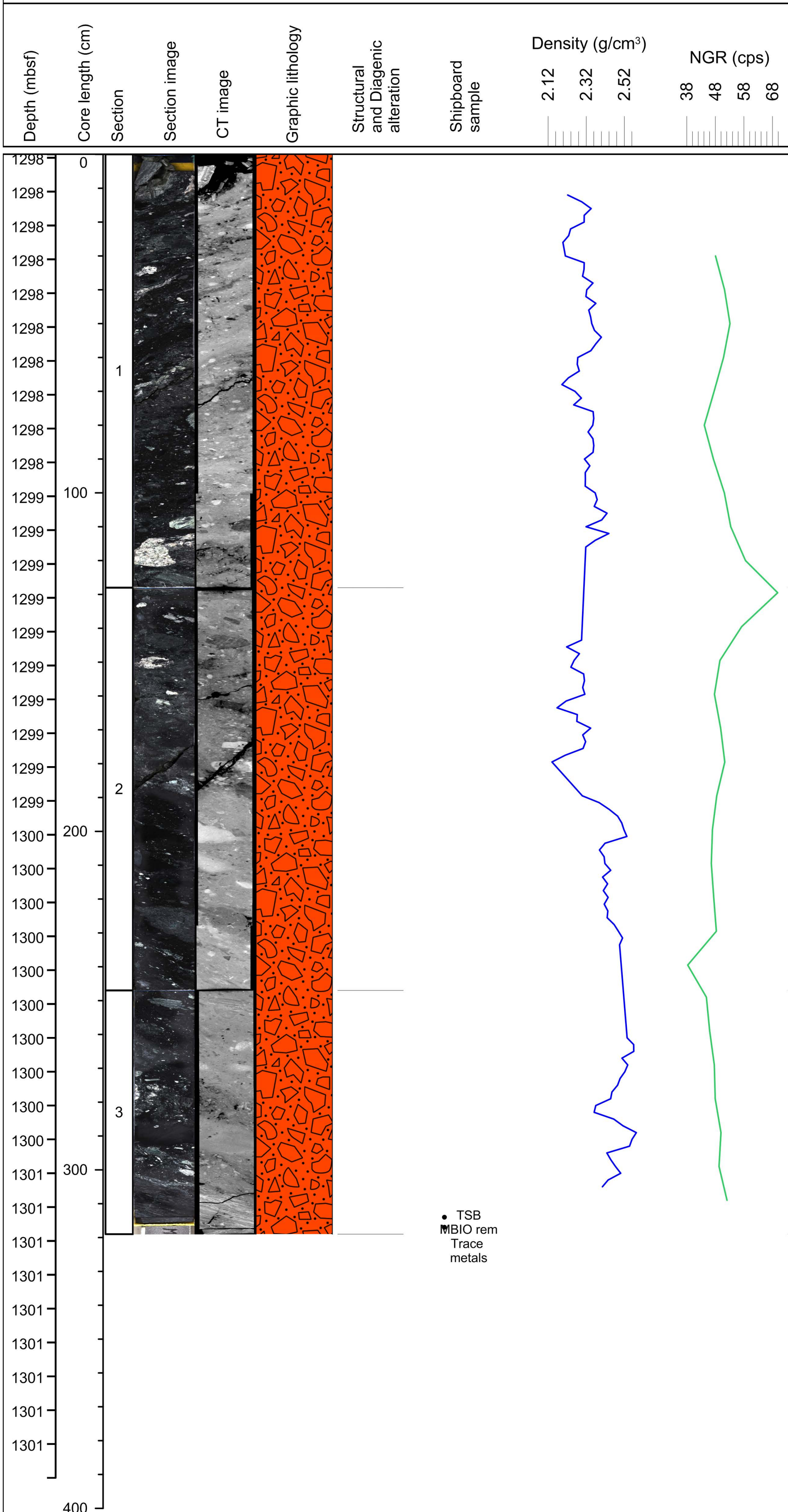
Description

Impact melt rock with clasts of melt, granite, schist (<13 cm), and gneiss (<5 cm). The zone from 51 to 73 cm is composed of a clastic (sueivitic) matrix. A vug contains quartz between 0 and 11 cm and sulfide between 3 and 6 cm. Fault at 119 cm: S 160/40, L 202/8. Color is N4. CT is light gray.

Impact melt rock with clasts of impact melt, granite (~6 cm), gneiss (15 cm), mylonite (10 cm), schist (3 cm) and an unidentified mafic lithology (12 cm). The zone from 50 to 68 cm has a clastic (suevitic) matrix. Intense green mineralization throughout the section, including a 5 cm long vug with green mineralization. Fault at 7 cm: S 180/27, L 195/6 (-) 3. Fault at 19 cm: S 225/45, L 170/24 (+) 2. Color is N4. CT is light gray.

Impact melt rock with clasts of impact melt, granite (~4 cm), gneiss (~2 cm), and mylonite (~2 cm). The zone from 30 to 33 cm has a clastic (suevitic) matrix. Green mineralization occurs throughout the section and partially fills two multi-cm-size vugs between 30 and 40 cm. Color is N4, CT is light gray.

Hole M0077A Core 292R Cored 1297.49-1300.59 mbsf



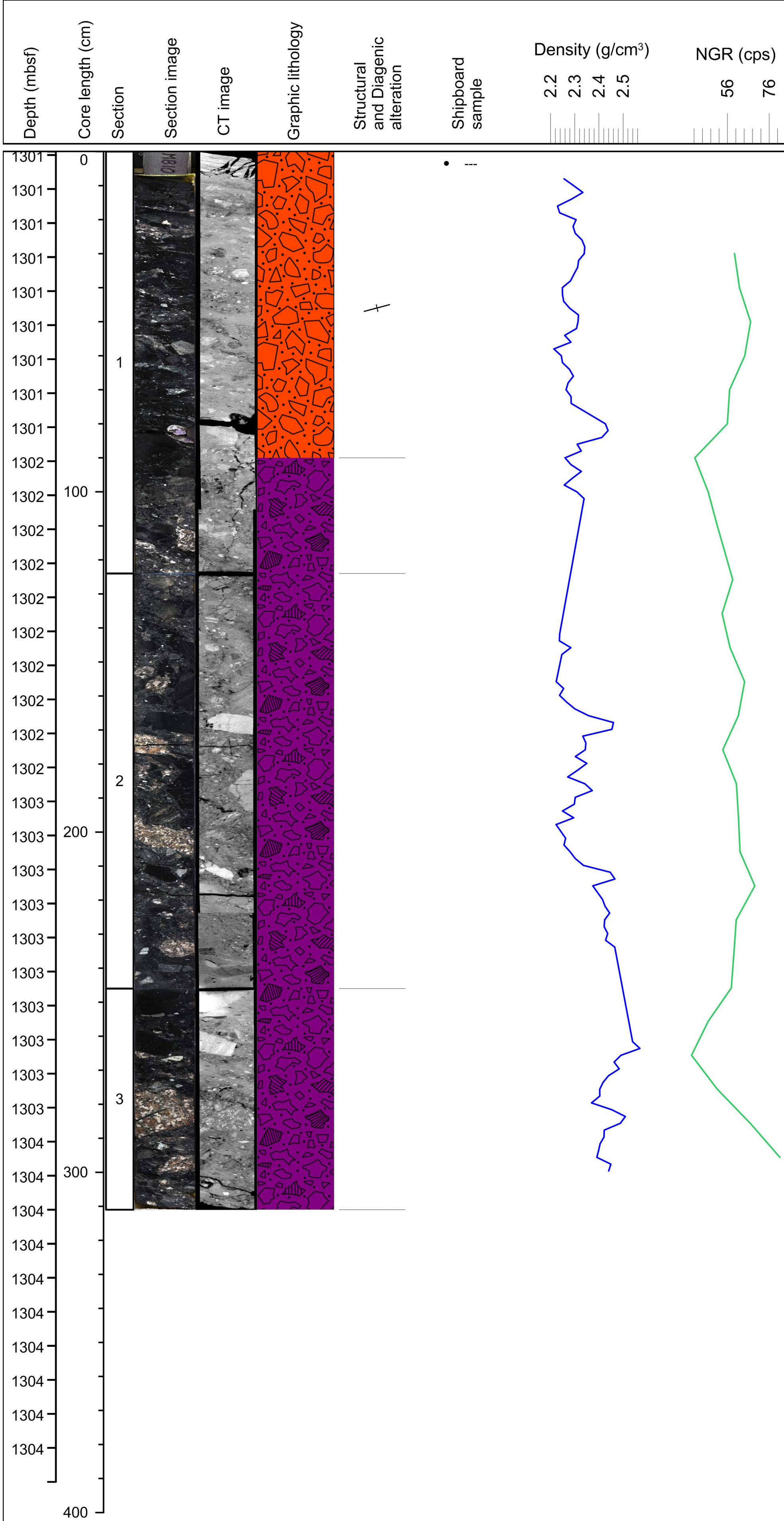
Description

Impact melt rock with clasts of impact melt (~2 cm), granite (elongated, ~9 cm), gneiss (2 cm), and mylonite (3 cm). Strong flow banding. The zone between 65 and 75 cm has a clastic (suevitic) matrix. Green mineralization throughout, with sulfide traces. Color is N4. CT is light gray.

Impact melt rock with >50% clasts composed of impact melt (`2 cm), graniote (~3 cm), diorite (~5 cm), gneiss (~8 cm), and mylonite (~2 cm). The zone between 16 and 40 cm has a clastic (suevitic) matrix. Green mineralization occurs throughout the section and there is a vug at 35 cm. Color is N4. CT is light gray.

Impact melt rock with clasts of impact melt, highly drawn out granite, gneiss, and mylonite. The zone between 40 and 45 cm contains a lentincular clast of melt that is devoid of inclusions. Some flow banding. Green mineralization with traces of sulfide occur throughout the section. Color is dark gray. CT is unknwon - no data is available.

Hole M0077A Core 293R Cored 1300.59-1303.69 mbsf



Description

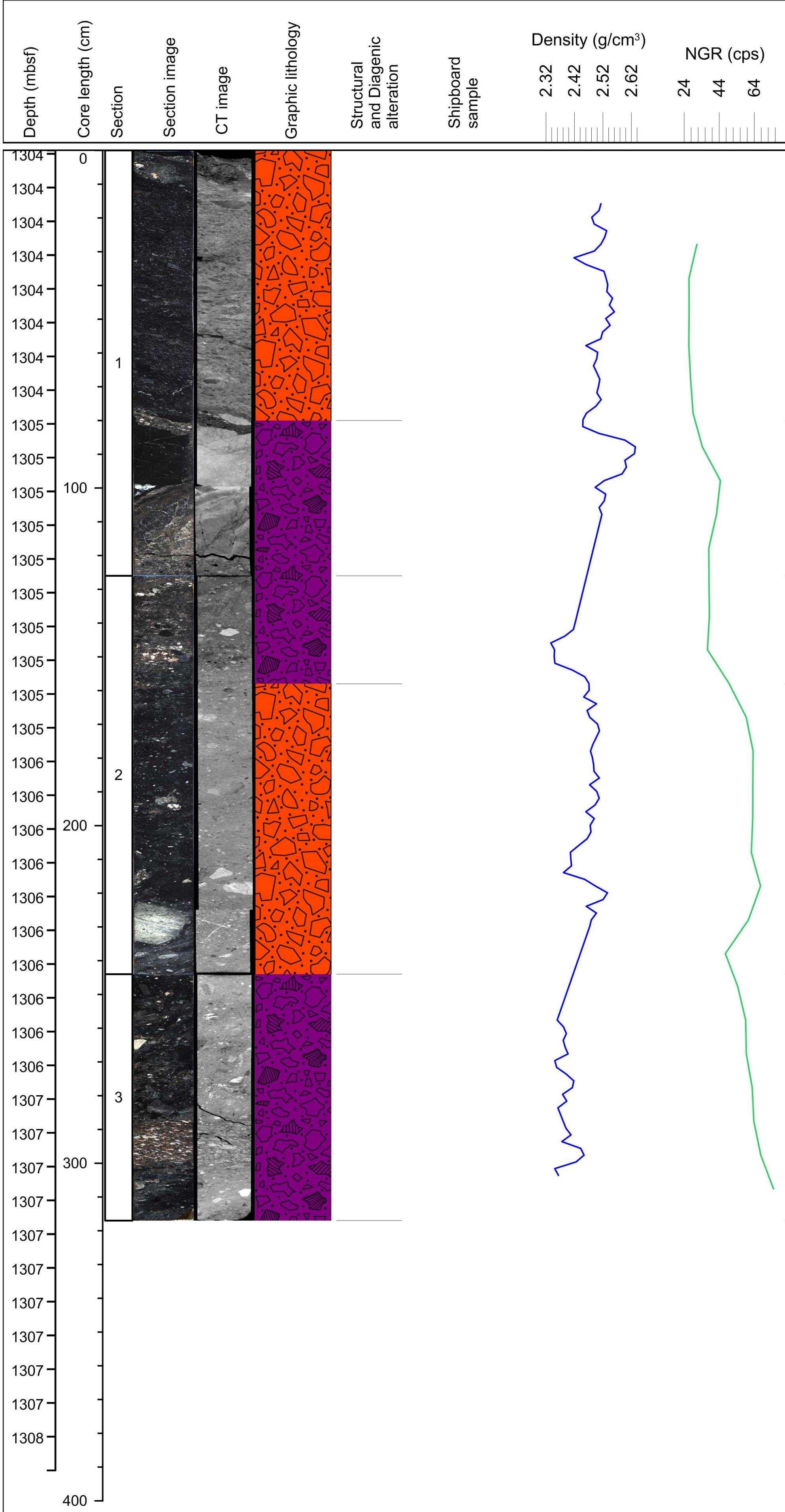
Impact melt rock with clasts of impact melt, granite, gneiss, and mylonite. Strong flow banding. Open fractures will quartz and green mineralization within 7 and 15 cm. Green mineralization and sulfide. A large (3 tp 6 cm) vug will with white and purple mineralization occurs at 80 to 86 cm. Color of section is N4. There is no CT data.

Suevite with clast of impact melt, granite, gneiss, and mylonite. Color is N4. There is no CT data.

Suevite with clasts (maximum dimension of 10 cm) of impact melt, granite, gneiss, and mylonite. The zone from 106 to 122 cm has some melt in the matrix. Green mineralization and vugs throughout. Color is N4. CT is light gray.

Suevite with clasts of impact melt (~2 cm), granite (~12 cm), mafic gneiss (~4 cm), and felsic gneiss (~3 cm). Green mineralization throughout. Color is N4. CT is light gray.

Hole M0077A Core 294R Cored 1303.69-1306.79 mbsf



Description

Impact melt rock with clasts of impact melt, granite, and gneiss (~5 cm). Strong flow banding. White, blue-green, and red veins. A vein of cataclastic material occurs at 58 cm. Green mineralization and sulfide. Color is N4. CT is light gray.

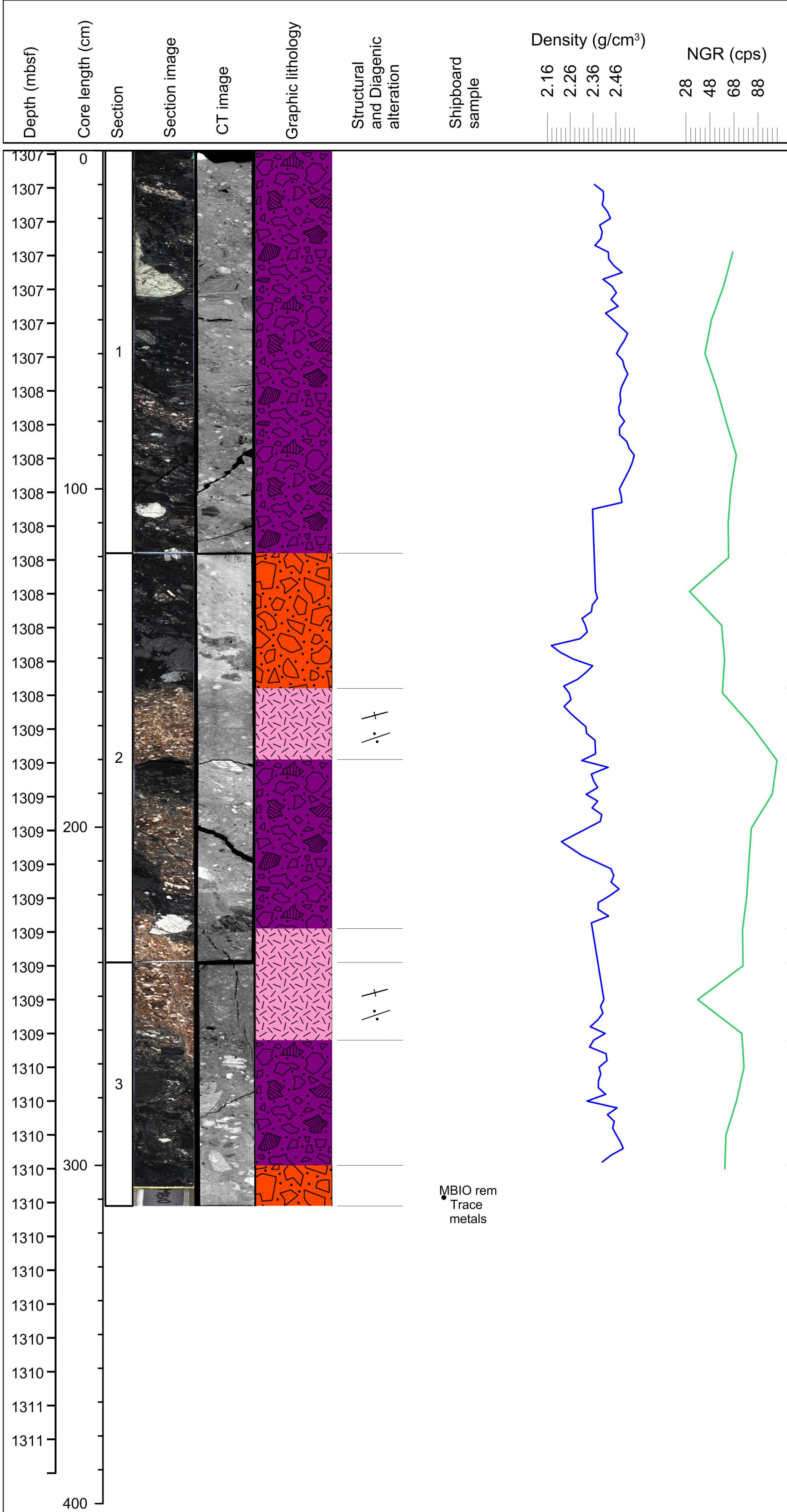
Suevite with clasts of gneiss (15 cm) and an unidentified mafic clast (~18 cm). WHite veins and a green vug. Color is N4. CT is light gray.

Suevite with clasts of granite, gneiss, and an unidentified mafic clast. Green mineralization and sulfide. Color is N4. CT is light gray.

Impact melt rock with clasts of melt, granite (<4 cm), gneiss (<3 cm), mylonite, an unidentified mafic lithology (~2 cm), and a large (11 cm) light colored clast that is highly altered. Green mineralization and sulfide throughout. Color is N4. CT is light gray.

Suevite with clasts of melt (~2 cm), granite (~2 cm), gneiss (~3 cm), mylonite (~2 cm), and an unidentified mafic clast (~4 cm). The zone from 1 to 9 cm appears to have a melt matrix. Green mineralization and sulfide occurs throughout the section. Color is N4. CT is light gray.

Hole M0077A Core 295R Cored 1306.79-1309.89 mbsf



Description

Suevite, very little matrix (fine-grained, gray in colour); almost no matrix (<5%) below 44cm. Clasts form rounded to angular in shape, up to >19cm.

Dark gray to black impact melt pods and schlieren containing non-digested clasts and with flow texture dominate, gneiss, granitoid, mafic rocks, dolerite, mylonite etc. Some of the clasts are coated by black melt. Pervasive alteration with vugs and cracks filled with green mineralization and sulfide crystals up to 1mm.

@ 77cm - Highly deformed granite

@ 36 and 107cm – Foliated basement clasts

Deformed rock clasts and melt schlieren have sub-horizontal shape preferred orientation.

CT: Suevite facies.

Impact melt (clast-rich) rock. Clasts up to 8cm, angular to subrounded. Melt is black. No vesicles. Some of the clasts have an irregular margin, in part assimilated by the melt. Clasts include different types of basement rocks, gneiss, granite, dolerite, mafic rocks, etc.

@38-40cm – Suevitic zone at contact with granite clast.

CT: Suevite facies

Highly deformed granite, brown in color, with K-feldspar (up to 4cm), Plag (2.5cm), Quartz (1cm), and biotite, rare, less than 0.5cm. Pervasive shear fracture network throughout. A large clast within surrounding impact melt rock.

CT: Granite facies, highly deformed.

Suevite with zones of impact melt rock (clast-rich), at 61-69cm and around 100cm; clasts larger than core diameter. Clasts are dominated by granite, other clasts include mylonite, gneiss, basement clasts, mafic rocks, etc. Granite clast from 73-100cm is pervasively brecciated with polymict material in the matrix.

CT: Suevite facies.

See unit 2 from 295R2.

Upper contact of unit perfectly matches the lower edge of granite clast from 73-100cm. 12cm of apparent dilation.

Highly deformed granite, as described in previous section; brown to orange isn color with K-feldspar (up to 2.5cm), plagioclase (2cm), quartz (1.5cm), and not so abundant biotite.

@0-29cm – Sub-horizontal, anastomosing shear fracture, defines shape of lower contact. Does not continue into the Suevite below.

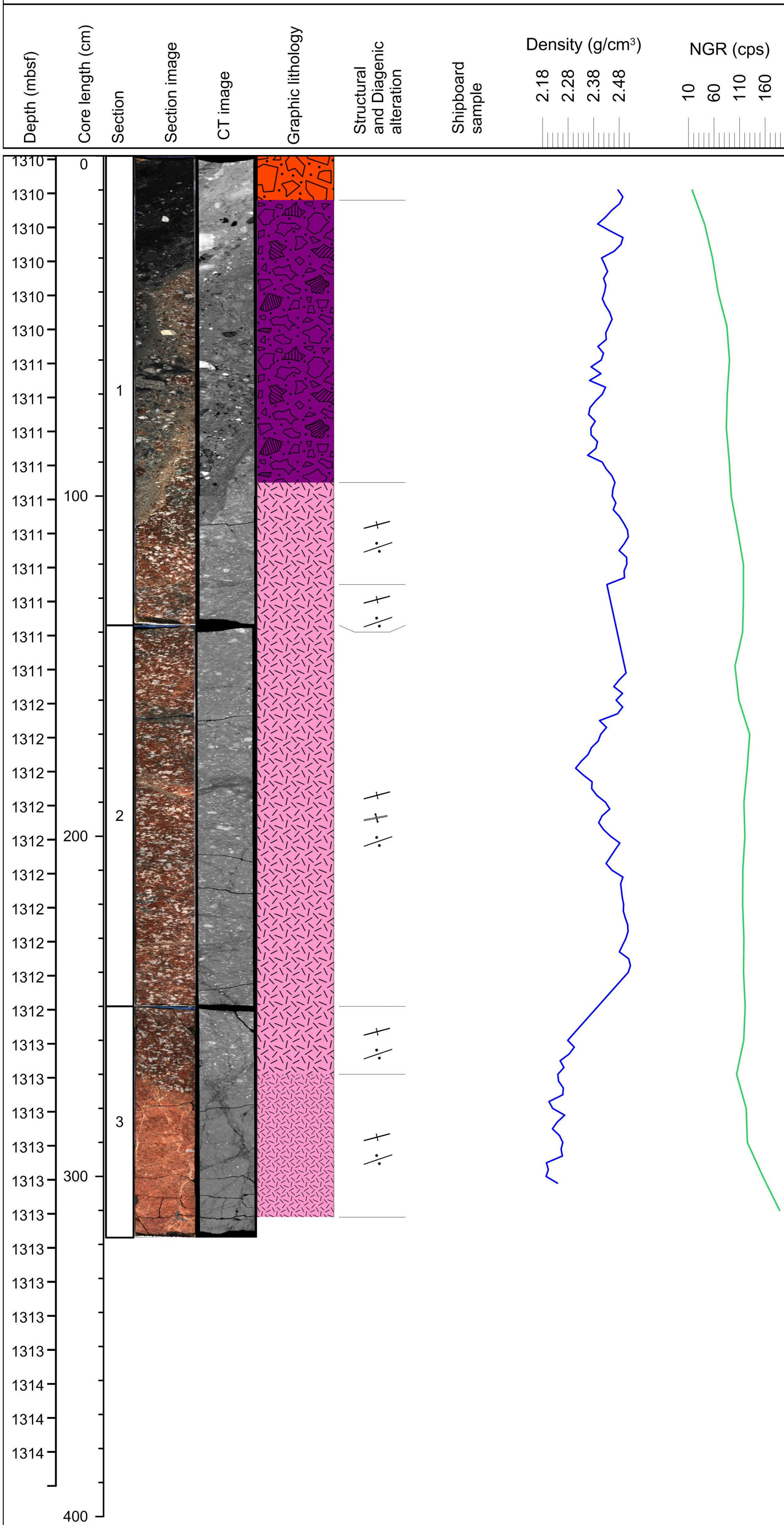
CT: Granite facies – highly deformed, sub-vertical fracture system is partially open.

Suevite with increasing content in balck impact melt to the lower part of the unit; clasts are angular to rounded, 5cm, highly irregular in shape, in part melted and elongated; up to 9cm in size. Large variety of different types of clasts, including mafic rocks, basement granite, gneiss, dolerite, light green to dark gray melt, mylonite, etc., and black impact melt rock, clast-rich.

CT: Suevite facies

See 296R-1, unit 1.

Hole M0077A Core 296R Cored 1309.89-1312.99 mbsf



Description

Impact-melt rock (clast-rich) zone with flow texture and a variety of clasts, most of them <2 cm, in part digested.

CT: Impact melt rock facies

Suevite

With light-grey matrix and clasts of various size, larger than core diameter, including at 33-61 cm a clast of monomict breccia (granite), surrounded by an ~1.5 cm zone of fine-grained suevite/matrix with clasts <1 mm in size.

Clasts are rounded to angular in shape, including granite, gneiss, mafic rock, dolerite, black melt/schlieren, grey to greenish melt shards (with undigested clasts)

CT: suevite facies

Granite

Deformed coarse-grained granite, reddish to brownish in color, locally greenish (pervasively altered), with K-feldspar (up to 20 cm), plagioclase (1.5 cm), quartz (1 cm), and biotite (<0.5 cm) in part altered to chlorite. Network of thin veins. Upper contact grades from granite -> monomict breccia -> polymict breccia over 5 cm.

cm-spaced shear fractures

CT: granite facies

Alkali-feldspar granite

Coarse-grained, with K-feldspar (up to 2 cm), quartz (1 cm), and biotite/chlorite (<0.5 cm). Pervasively altered, along veins/cracks, greenish mineralization and sulfide crystals (<0.5 mm). Contact from overlying granite is a shear fracture.

cm-spaced shear fractures

Alkali-feldspar granite, red in color, munsell: 10R/4/6, with K-feldspar (up to 3 cm), quartz (1.5 cm), and biotite/chlorite (<0.5 cm).

Locally greenish in color due to open fractures and veins filled with green mineralization

26-47 cm, 76-88 cm: green filled veins sub-mm thickness

45-52 cm, 93-95 cm: ~2 cm wide cataclasis yellow-brown in color

7, 9, 56, 86 cm: discrete, sub-mm shear fractures, white or green fill

CT: granite facies

Alkali-feldspar granite with network of thin veins, greenish and white, K-feldspar (3 cm), quartz (2 cm), and some biotite (/chlorite), less than 0.5 cm.

0-20 cm: sub-horizontal, sub-mm thick green fill veins

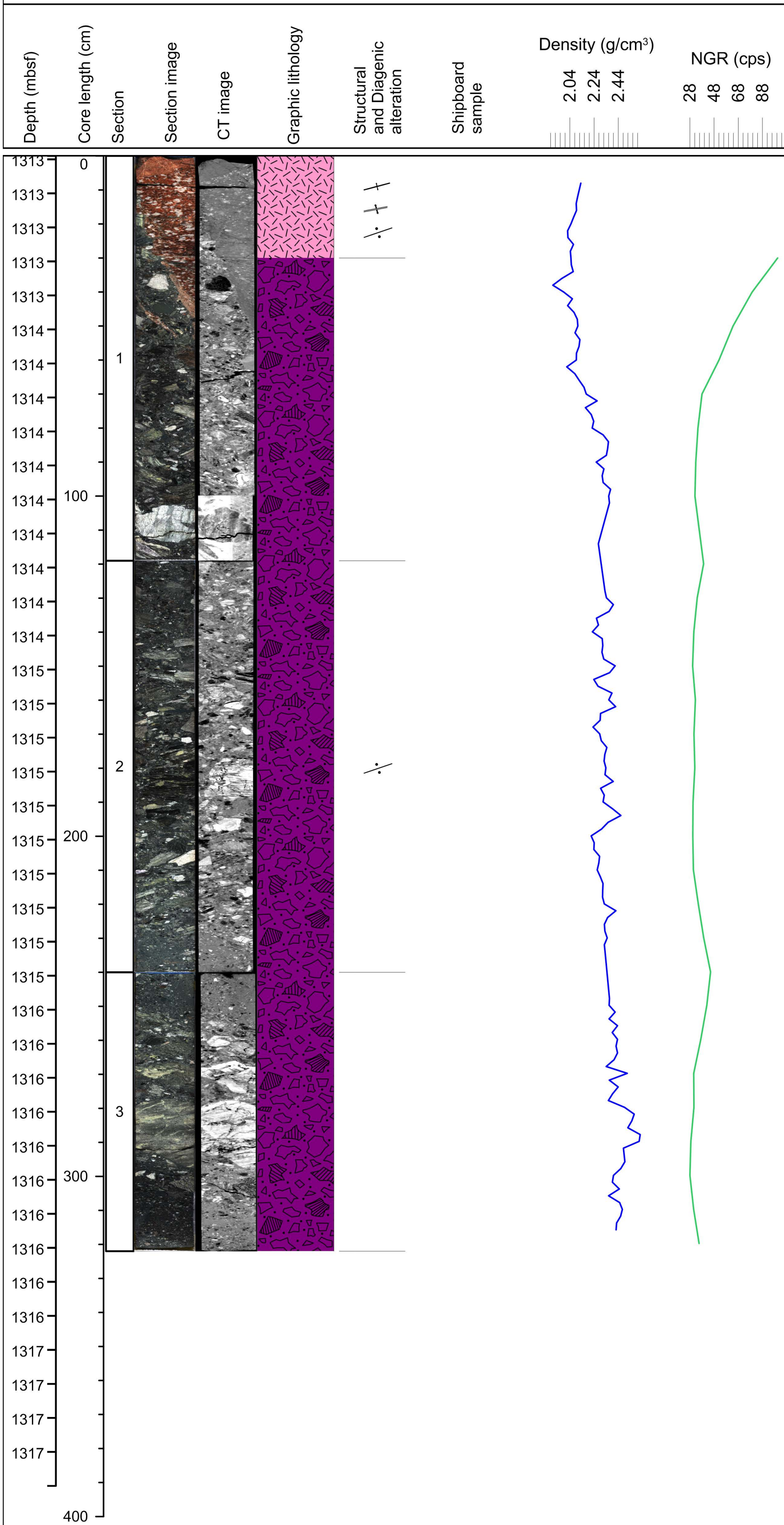
0-20 cm: sub-vertical, white fill shear fractures, anastomosing, continues into aplite below

Aplite

Salmon in color (2.5YR/5/6), with rare quartz (the largest, 1.5 cm) and locally alteration (greenish)

20-68 cm: sub-vertical, sub-mm, white fill, anastomosing shear fractures local green alteration occurs on fracture

Hole M0077A Core 297R Cored 1312.99-1316.09 mbsf



Description

2-6 cm: end of the aplite intrusion

Granite, somewhat deformed, with thin veins, quartz, and greenish mineralization, with K-feldspar (up to 3 cm), plagioclase (1.5 cm), quartz (1.5 cm), and biotite (<0.5 cm). Locally dark red to brown.

8 cm: fragment above does not match core below (drilling?)

4-42 cm: white-ish shear fractures, up to 2 mm

15-34 cm: dilatation fractures up to 5 mm filled with suevite matrix.

34-42 cm: up to 2 cm thick, cataclasite, partially disaggregated against contact

CT: granite facies

Suevite

Highly polymict suevite, matrix-poor, grey in color, with clasts rounded to angular in shape, up to 11 cm.

48 cm: highly elongated (14 cm x 1.5 cm) granite. Parallel to contact.

Clasts of granite, gneiss, dolerite, mylonite, black melt; mafic rocks, etc. Pyrite crystals up to 1.5 mm occurs.

Lower 5 cm is more matrix-rich.

Pervasive epidote mineralization in clasts.

CT: very clast rich, very variable CT brightness (mostly density variability)

Suevite with grey to greenish matrix, within the upper and lower parts of section, lots more matrix and clasts of smaller size (below 109 cm). Clasts, sub-rounded (rare rounded) to angular, up to 10 cm in size; large variety of lithologies (but no granite!).

Gneiss, basement rocks, mafic rocks, dolerite, black impact melt, grey melt, etc.

84-100 cm: shear fault, through matrix and clasts, sinistral displacement, anastomosing in clasts 8 mm thick

CT: very clast rich, very variable clasts, many foliated

Suevite, greenish-grey matrix (becoming more greyish in the lower part of unit). Clast size increase in the lower part (no clasts larger than 1 cm in the upper ~12 cm), up to larger than core diameter. Gneiss, mafic rock, myloite, dolerite, granitoid, black/grey melt shards, etc. Sulfide crystals occur (pyrite).

From 38-55 cm: Altered metamorphic rock

Clast of an unidentified, altered, metamorphic rock (?) – deformed [occurrence of tiny pyrite crystals].

Beneath 55cm: Suevite, dark grey matrix. The top part has coarser clasts up to ~6 cm.

[Clasts are angular to rounded in shape]

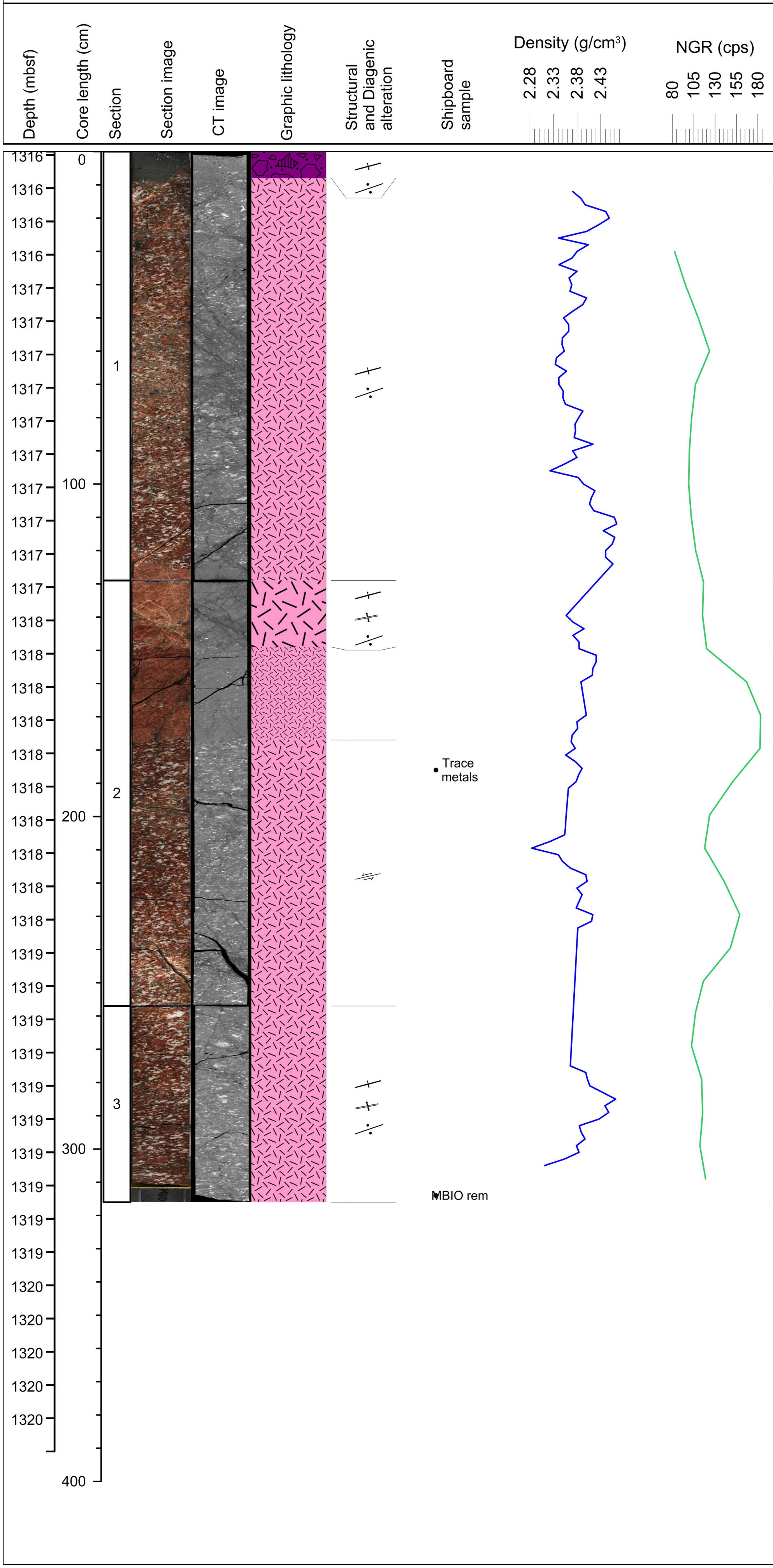
From 70-74 cm: finer-grain-size (<0.5 cm), then, below, somewhat coarser-grained (up to 1 cm).

Clasts of gneiss, dolerite, mafic rocks, black melt.

No Granite!

CT: suevite facies, clast from 38-55 cm is very CT bright, high density, high Z

Hole M0077A Core 298R Cored 1316.09-1319.19 mbsf



Description

Suevite

Fining toward contact, clasts up to 0.5 cm at the top and less than 1 mm at contact; contact is truncated by anastomosing shear fracture

Clasts of granite, black melt, gneiss, and dolerite, and others too small to be identified

Granite

Deformed coarse-grained granite with K-feldspar (< 5cm) phenocryst, plagioclase (2.5 cm), quartz (1.5 cm), and biotite (<0.5 cm). Below 124 cm = aplite | network of green veins

4-17 cm: anastomosing shear fault. 5 mm thick, white fill. Forms contact with suevite

8-96 cm: diffuse, local, anastomosing cataclasites, cataclasite at contact is lighter in color than suevite adjacent to the contact

8-129 cm: dark grey/black shear fractures, and shear fracture networks are truncated by cataclasites. Cataclasites are truncated by white shear fractures.

48-75 cm: shear fabric, multiple foliations intermixed with cataclasites

CT: granite facies – low density cataclasites

Pegmatite

Mainly K-feldspar (light-salmon in color), and quartz up to 0.5 cm (~ graphic texture).

10-14 cm: cataclasite is diffuse network up to 3 cm thick. Displaces dark grey/green shear fractures. Is displaced by white shear fractures.

0-128 cm: dark grey/green filled, shear fractures, sub-vertical, sub-parallel , often anastomosing networks. Displaced by white filled shear fractures, sub-mm.

CT: Pegmatite facies

Aplite (locally with quartz up to 1 cm). Densely veined (green veins)

CT: Aplite facies

Granite

Coarse-grained, with K-feldspar (up to 2 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm). Thin green veins (alteration) in all units.

112 cm: cataclasite, 8 mm thick, displaced by fault with striations

106-124 cm: S250/55 L:275/54 + 2

CT: granite facies

Coarse-grained granite with K-feldspar (<3 cm), plagioclase (<2 cm), quartz (<3 cm), biotite (<0.5 cm); red-brownish in color

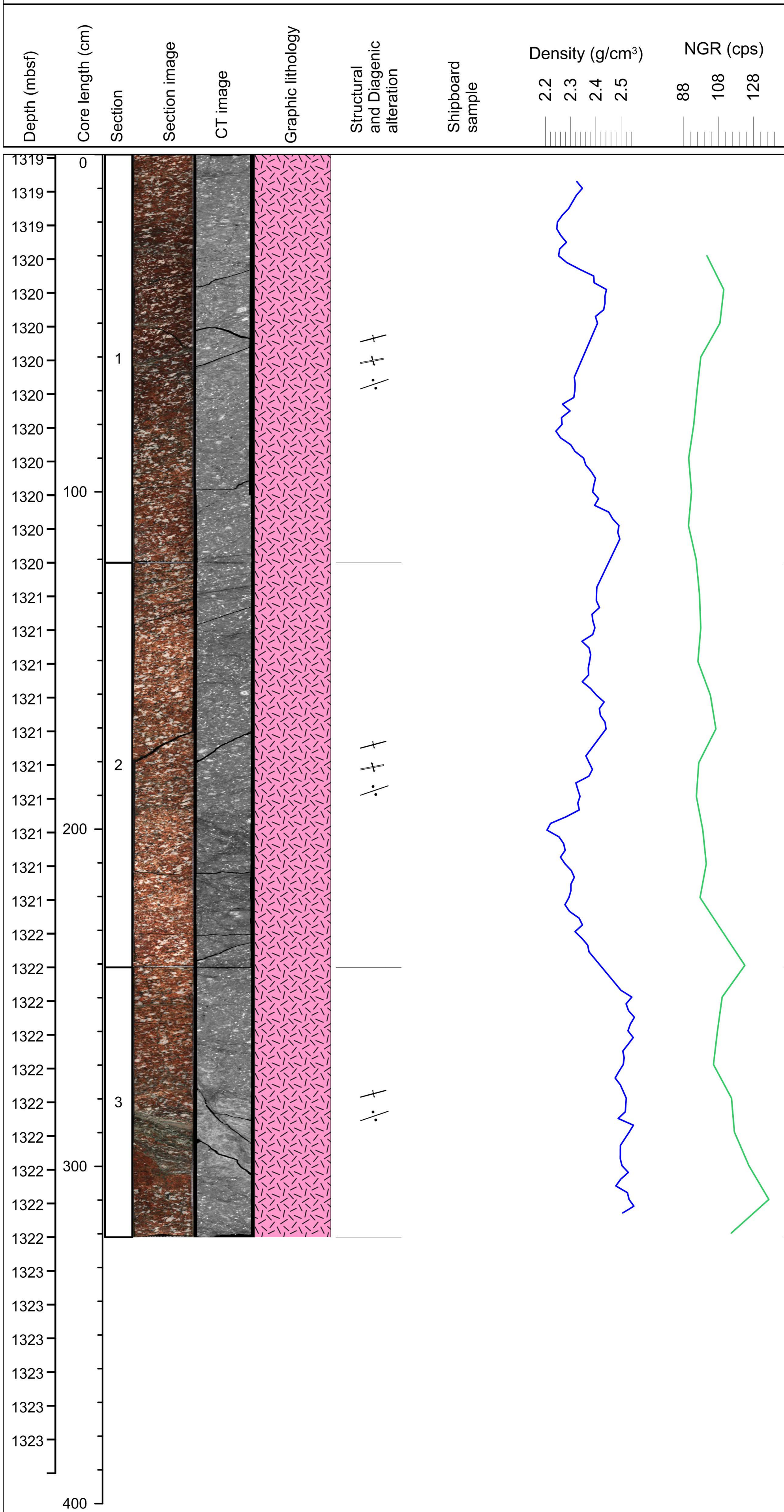
37 cm: S300/70 L20/1 + 1

Throughout core: black filled shear fractures. Sub-mm thickness, truncated by cataclasite, 3 mm thick, at 48 cm. White shear fracture network, truncates black filled fractures.

37 cm: shear faults, 3 mm thick. Light grey and black fill. Possibly cataclastic. Displaced by 1.5 cm by white shear fracture with lineation

CT: Granite facies – CT rotated relative to working half

Hole M0077A Core 299R Cored 1319.19-1322.29 mbsf



Description

Coarse-grained granite with K-feldspar (<3.5 cm), plagioclase (<2 cm), quartz (<1.5 cm), biotite (<0.5 cm). From 20-70 cm, granite is red-brown

Dense network of thin (<1 mm) veins, dark-green in color

0-121 cm: locally pervasive, dark green/black filled, shear fracture networks

0-7 cm: cataclasites, up to 5 mm thick cross-cut by white shear fracture

116 cm: anastomosing shear fracture, 2 mm white fill

CT: Granite facies

Coarse-grained granite with K-feldspar (up to 2 cm), plagioclase (2 cm), quartz (2 cm), and biotite (<0.5 cm) homogeneously distributed. Alteration localized around fractures, mainly greenish

2-18 cm, 57-100 cm: green-filled shear fracture networks. Cross-cut by white filled shear fractures.

72-120 cm: white shear fracture network

35, 70 cm: protocataclasites, 3 mm thick

CT: granite facies – not very much feldspar zoning

Coarse-grained granite with K-feldspar up to 3 cm, plagioclase (1 cm), and quartz (2 cm), [biotite <0.5 cm]

From 40 to 60 cm – zone of granite pervasively altered (green). And tiny calcite

45 cm: S200/25 L:250/20 + 1

11 cm: cataclasite, 4 mm thick,

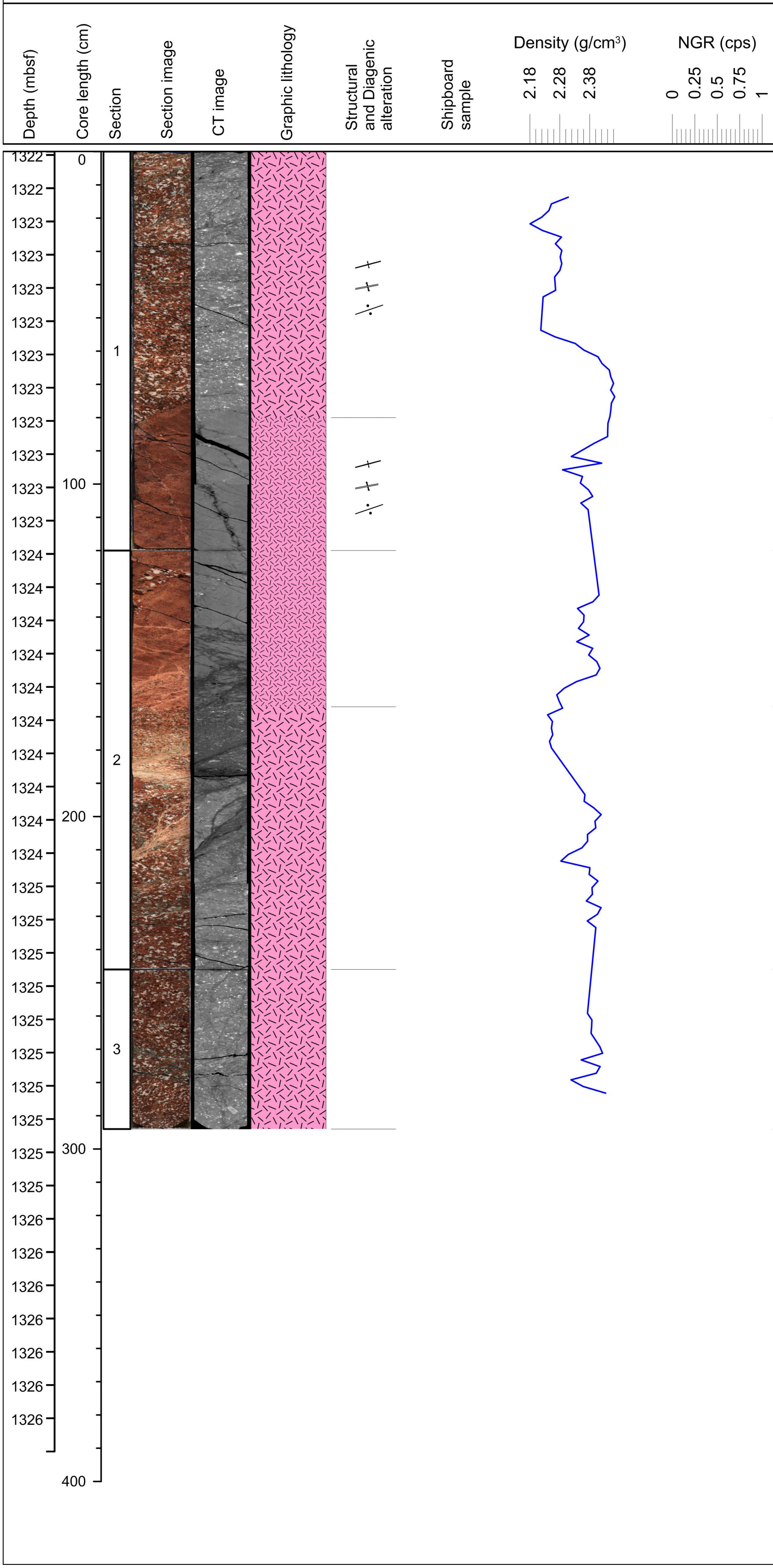
0-80 cm: local black shear fracture networks displaced by white shear fractures

40-60 cm: heavily fractured and altered zone with strong green coloration

45 cm: shear fracture with lineation has light-grey ultra-cataclasite. Very smooth fracture surface. 5 mm thick.

CT: granite facies - @~50 cm, texture dissapears

Hole M0077A Core 300R Cored 1322.29-1325.39 mbsf



Description

Coarse-grained granite, more deformed in the upper part, with K-feldspar up to 2 cm, plagioclase (1,5 cm), quartz (1,5 cm), and biotite (<0.5 cm), homogeneously distributed.

Some alteration, greenish, veins mainly in upper part of the unit.

@0-24 cm: green and dark gray filled shear fractures, <2 mm, truncated by white and cataclasite-filled shear fractures, some anastomosing, up to 2 cm thick.

CT: Granite facies; shear deformation in upper 25 cm.

Aplite with rare qtz up to 0,5 cm (color: 10R / 4 / 6).

~45 degrees inclined green-filled sub-mm veins.

@88 cm: S20/30 L20/30 (-2).

@89-118 cm: Highly inclined shear fracture, 1 mm thick cataclastic fill.

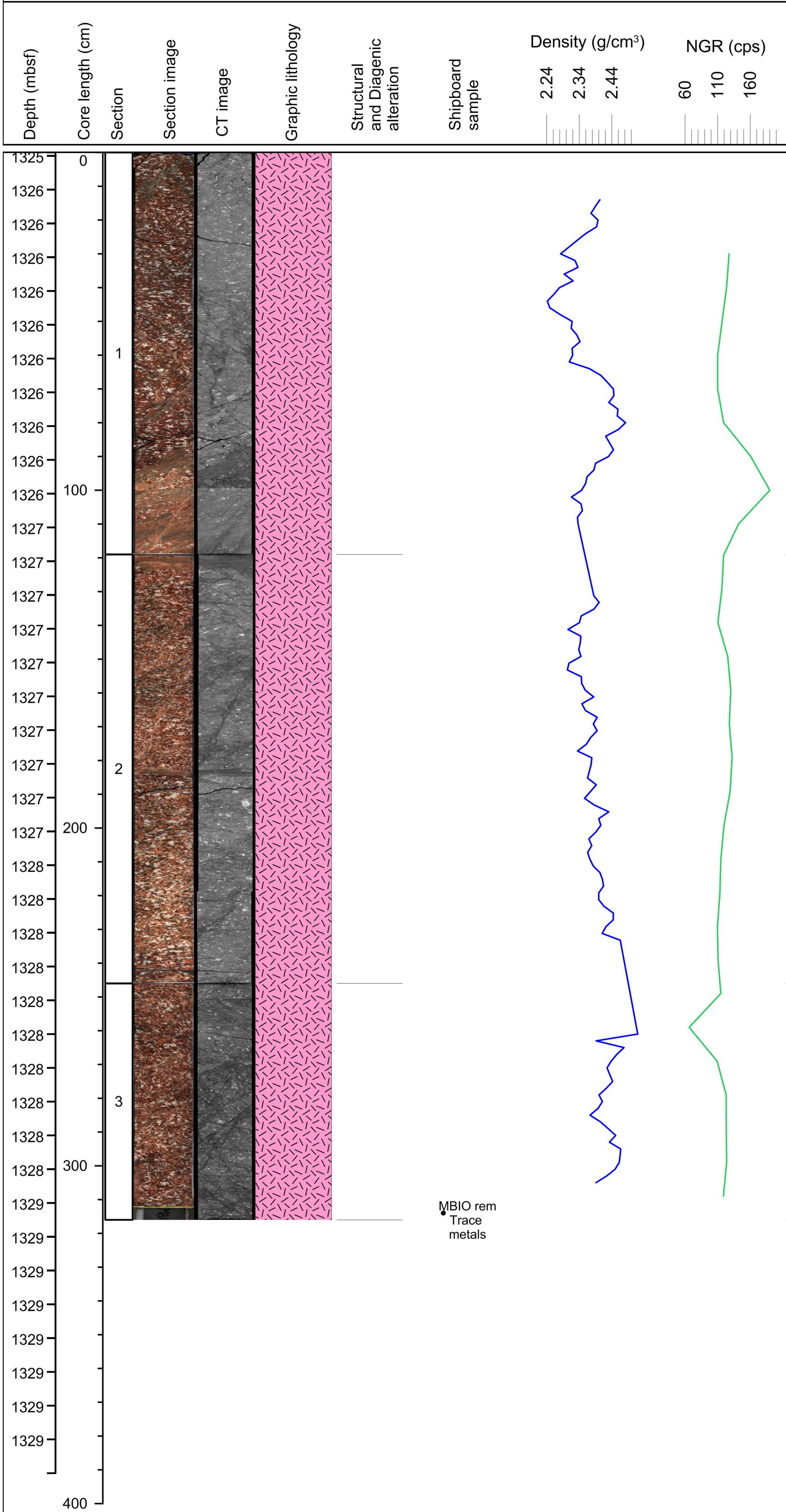
CT: Aplite facies.

Aplitic granite, strongly deformed. White veins. Green mineralization. Color is 10 R 6/6. CT is dark gray.

Coarse-grained granite, strongly deformed, with K-feldspar (0.5 to 1 cm), plagioclase (0.5 cm), and quartz (0.5 to 1 cm). White and green veins. Green mineralization and sulfide. Cataclastic veins occur at 68, 84, and 109 cm. Fault at 3 cm: S 012/28, L 340/25 (+) 2. Fault at 71 cm: S 187/29, L 187/29 (+) 3. Fault at 114 cm: S 190/58, L 115/17 (-) 3. Color is 5 YR 5/6. CT is dark gray.

Coarse-grained granite, moderately deformed, with K-feldspar (0.5 to 1 cm), plagioclase (`0.5 cm), and quartz (~1 cm). Green veins and diffuse mineralization. Catacalstic veins at 25 and 30 cm. Color is 5 Yr 5/6. CT is dark gray.

Hole M0077A Core 301R Cored 1325.39-1328.49 mbsf



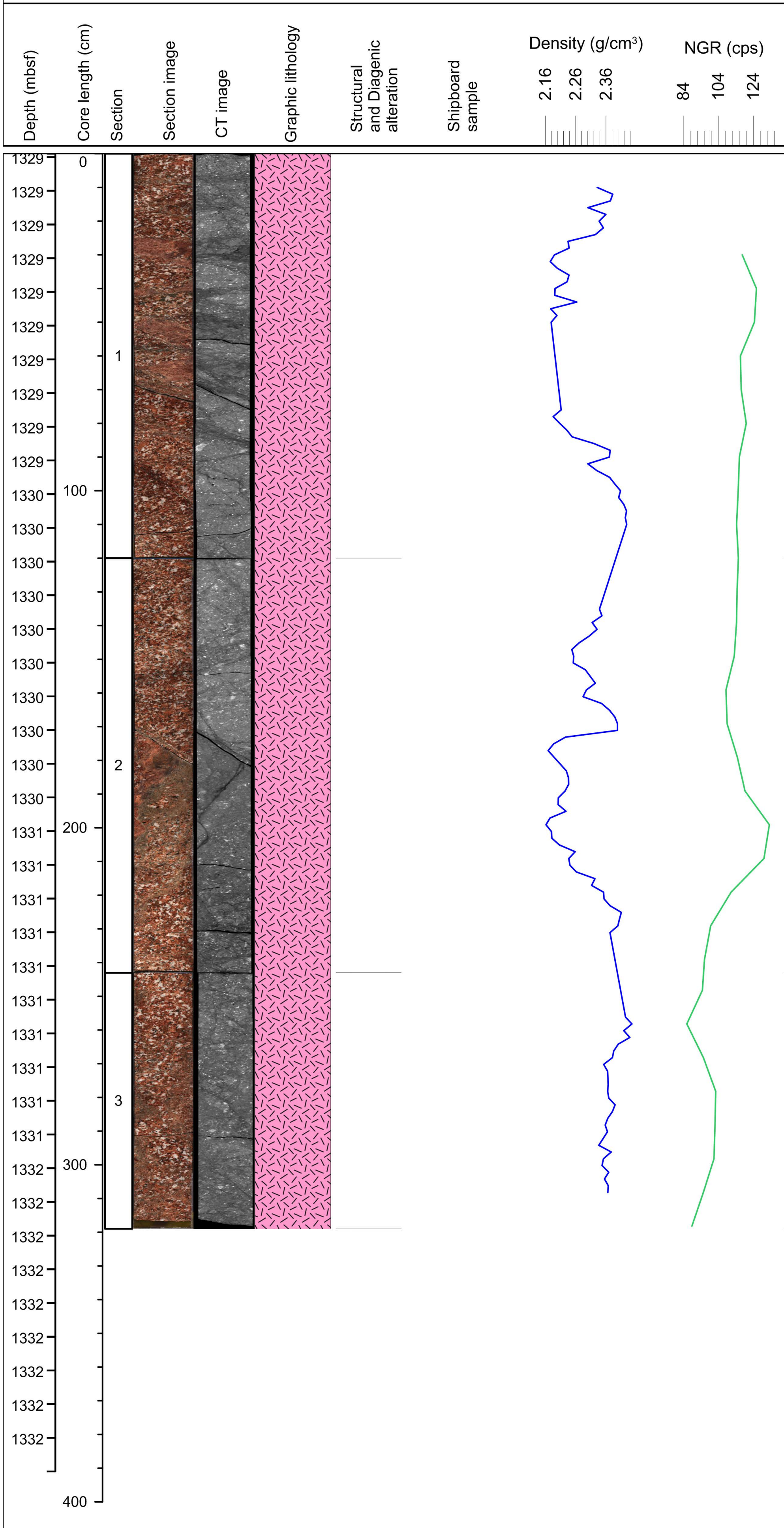
Description

Coarse-grained granite, strongly deformed, with K-feldspar (0.5 to 1.5 cm), plagioclase (`1 cm), and quartz (0.5 to 1 cm). White, green, and red veins cut the section. Cataclastic veins occur at 11, 33, and 89-199 cm. Fault at 81 cm: S 167/52, L 230/12 (-) 3. Fault at 83 cm: S 301/49, L 098/12 (+) 3. Color is 5 YR 5/6. CT is dark gray.

Coarse (0.5 to 1 cm) granite, strongly deformed. Green and red mineralization throughout the section, including complex veins with at least three minerals. Cataclastic veins occur from 0 to 4 cm, 63 to 66 cm, and at 123 cm. Fault at 123 cm: S 006/72, L 095/16 (-) 2. Color is 5 YR 5/6. CT is dark gray.

Coarse-grained granite, very strongly deformed, with K-feldspar (<1 cm), plagioclase (~0.5 cm), quartz (<1 cm), and biotite (~0.5 cm). Green and white veins. Green and red mineralization throughout the section. Cataclastic veins. Color is 5 YR 5/6. CT is dark gray.

Hole M0077A Core 302R Cored 1328.49-1331.59 mbsf



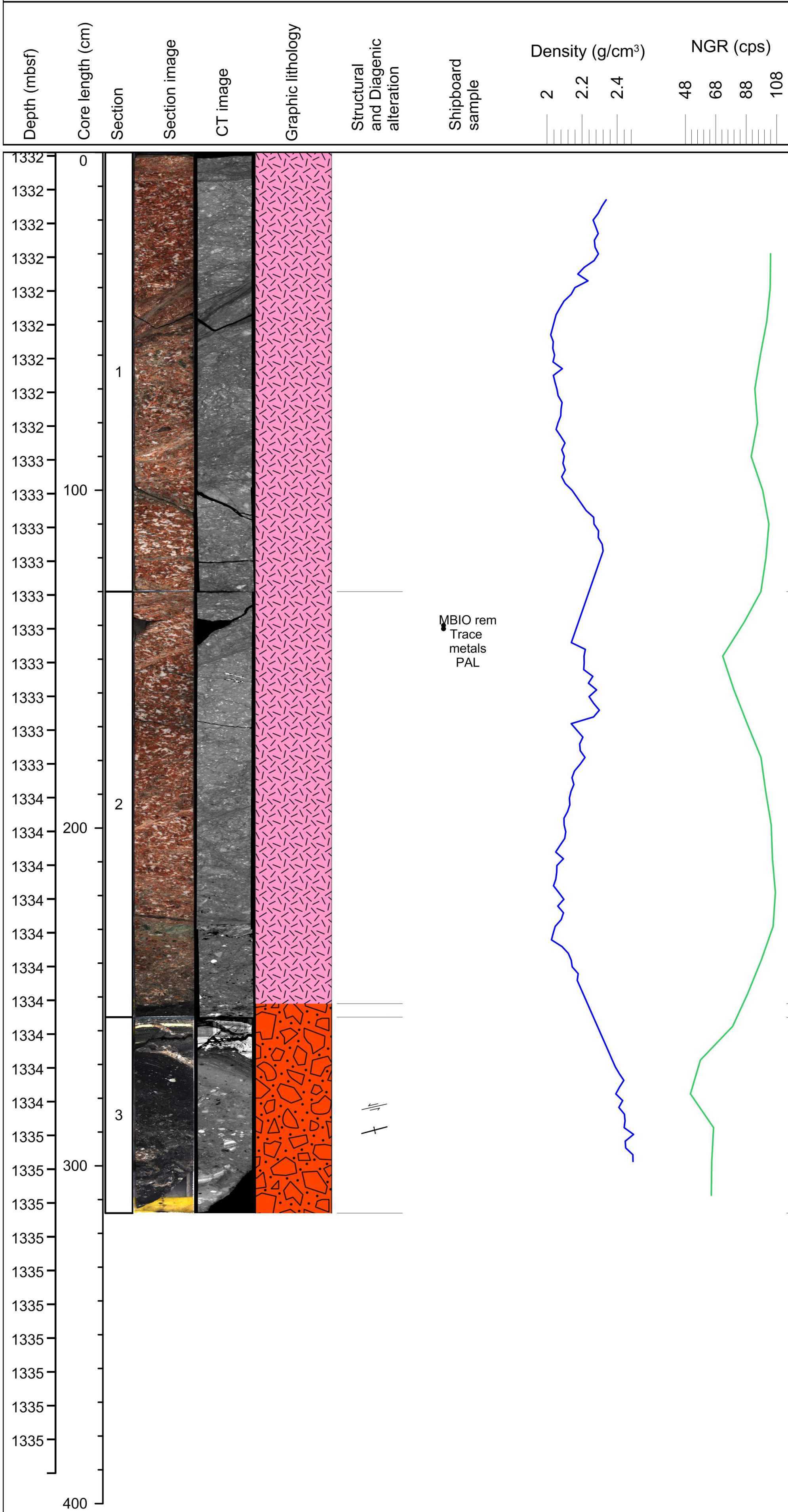
Description

Coarse-grained granite with very strong deformatoin. Zones with aplite intrusisions occur at 26 to 32, 50 to 55, and 61 to 66 cm). Green and red mineralization throughout. Cataclastic veins at 9, 40, 45, 49, 70, and 82 cm. Fault at 57 cm: S 203/52, L 203/26 (+) 3. Fault at 70 cm: S 032/55, L 094/32 (+) 3. Color is 5 YR 5/6. CT is dark gray.

Coarse-grained granite, very strongly deformed, with K-feldspar (0.5 to 1 cm), plagioclase (`1 cm), quartz (0.5 to 1 cm), and biotite (<0.5 cm). White and green veins. Green and red mineralization throughout, with sulfide. The zone from 55 to 99 cm has cataclasis and very strong flow banding. Fault at 34 cm: S 010/60, L 060/40 (+) 2. Fault at 56 cm: S 043/72, L 044/71 (+) 2. Fault at 112 cm: S 210/38, L 220/33 (+) 2. Fault at 114 cm: S 190/36, L 203/36 (+) 3. Color is 5 YR 5/6. CT is dark gray.

Coarse-grained granite, very strongly deformed. Green mineralization throughout. Deformation produced flow banding. The zone from 20 to 74 contains a broad cataclastic vein. Color is 5 YR 5/6. CT is dark gray.

Hole M0077A Core 303R Cored 1331.59-1334.69 mbsf



Description

Coarse-grained granite, very strongly deformed, with K-feldspar (~0.5 to 2 cm), plagioclase (0.5 to 1.5 cm), quartz (0.5 to 1.5 cm), and biotite (~0.5 cm). White, green, and red veins. Two large vugs are partially filled with a green mineral and a bright yellow, high luster mineral. Veins of cataclastic material occurs from 0 to 8 cm and fro 38 to 52 cm. Fault at 50 cm: S 054/46, L 105/35 (+) 3. Fault at 120 cm: S 355/38, L 078/19 (+) 1. Color is 5 YR 5/6. CT is dark gray.

Coarse-grained granite, very strongly deformed, with K-feldspar (0.5 to 2 cm), plagioclase (0.5 to 1.5 cm), quartz (0.5 to 1.5 cm), and biotite (<0.5 cm). Green and red mineralization with sulfide. The zone from 99 to 106 cm is a polymict breccia. There are cataclastic veins and flow banding in the section. The zone from 106 to 122 cm is strongly deformed with cataclasis. Color is 5 YR 5/6. CT is dark gray.

Impact melt rock with clasts of impact melt, granite, and gneiss. Color is N4. CT is light gray.

Impact melt rock with clasts of impact melt, granite (~3 cm), gneiss (~5 cm), an unidentified mafic clast (>10 cm), and quartzite (~1 cm). A distinct band of yelllow mineralization occurs at 3 cm and traces of that yellow mineral occur in the clsat below that horizon. The horizon is cut by two small faults. The section also contains sulfide. The end of the core is an open fracture with a few euhedral crystals. Color is N4. CT is light gray.