INL Lithologic Core Storage Library
Idaho National Laboratory
Building CFA-663
Operated by the U.S. Geological Survey for the U.S. Department of Energy

Contact:
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PO Box 8072
Pocatello, ID.
83209

Official Name: USGS 133

Logged By: M.K. Hodges and S.M. Orr

Selected Aliases:

USGS Site ID: 433605112554301
Contractor Well ID:

Drilling Agency: USGS
Year Drilled: 2004
Names of Drillers: M. Gilbert and M. Vance
Well Status: Completed
Total Depth of Hole (ft): 812

Total Core Recovered (ft): 784.5
Beginning Depth (ft): 27.5
Ending Depth (ft): 812
[x] Continuous Recovery
[ ] Selected Intervals Recovered
Total # of Core Boxes: 122

County & State: Butte Co. ID
Quadrangle Name: North Scoville
Lat / Lng: 43°36'05.5", 112°55'43.8" NAD 27
Tns / Rng / Sec: T03N, R30E, Sec07 CAB1
UTM Coordinates: N/A
Altitude (ft): 4,891.9 ft NGVD 29

Notes:

Core Geological Profile

Lithologic Patterns
- Basalts
- Rhyolites
- Sedimentary Rock

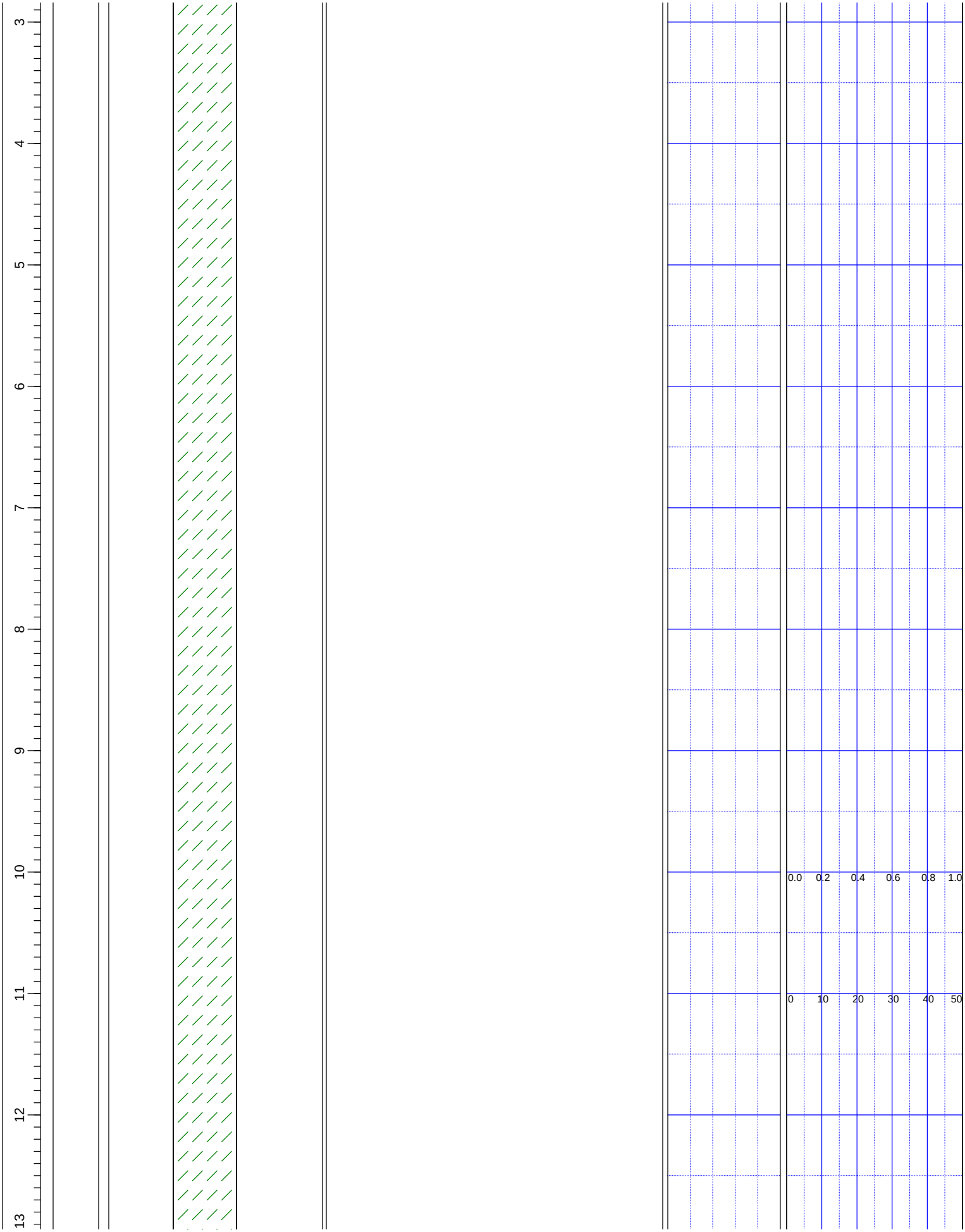
Soil Patterns
(See Unified Soil Classification System.)
- Gravels - clean
- Gravels with fines
- Sands - clean
- Sands with fines
- Silts and clays

Intervals in Absentia
- Surficial material
- Natural void
- Interval not cored
- Missing interval

Igneous and Sedimentary Structure Symbols
- Vesicle zone
- Large vesicles
- Vesicle planes
- Mega vesicles
- Vesicle Cylinders
- Pipe vesicles
- Pillows
- Vesicle Sheet
- Flow/Mold
- Spatter feature
- Ripple marks
- Mud cracks
- Imbricated bedding
- Graded bedding
- Cross bedding

Soil Structure Symbols
- Structureless - Single Grained
- Structureless - Massive
- Platy
- Granular
- Blocky
- Prismatic
- Columnar

Depth (feet & tenths)	Core Photo	Igneous, Soil and Sed Structures	Lithology	Description: Miscellaneous Text	Description: Lithologic Description	Fracture Frequency	Vesicle Characteristics
						0 1 2 3 4 5	Mean Size (in): 0 0.2 0.4 0.6 0.8 1.0; Volume Percentage: 0 10 20 30 40 50
0					SURFICIAL MATERIAL: Unconsolidated surficial material, not recovered		
1							
2							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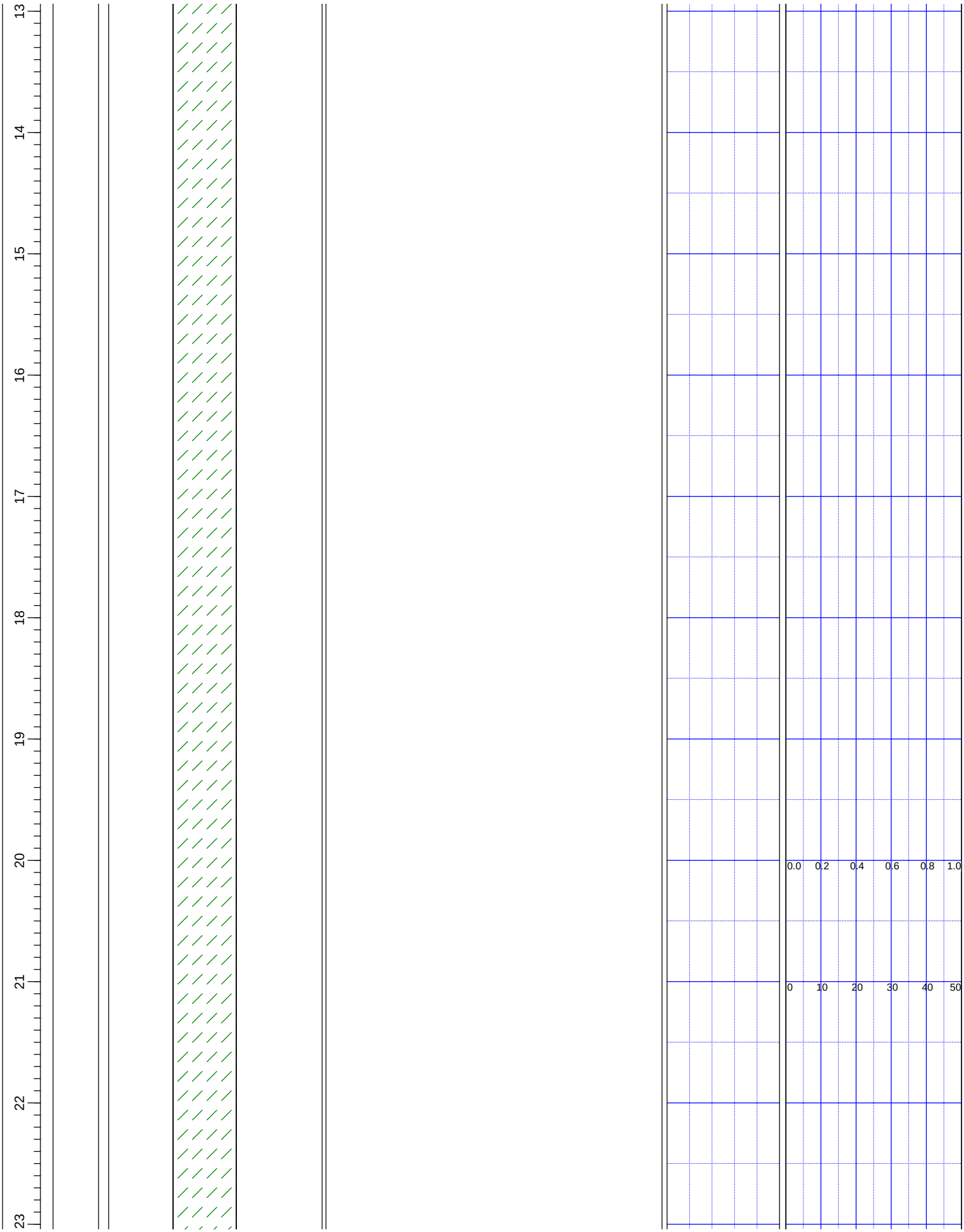
0 10 20 30 40 50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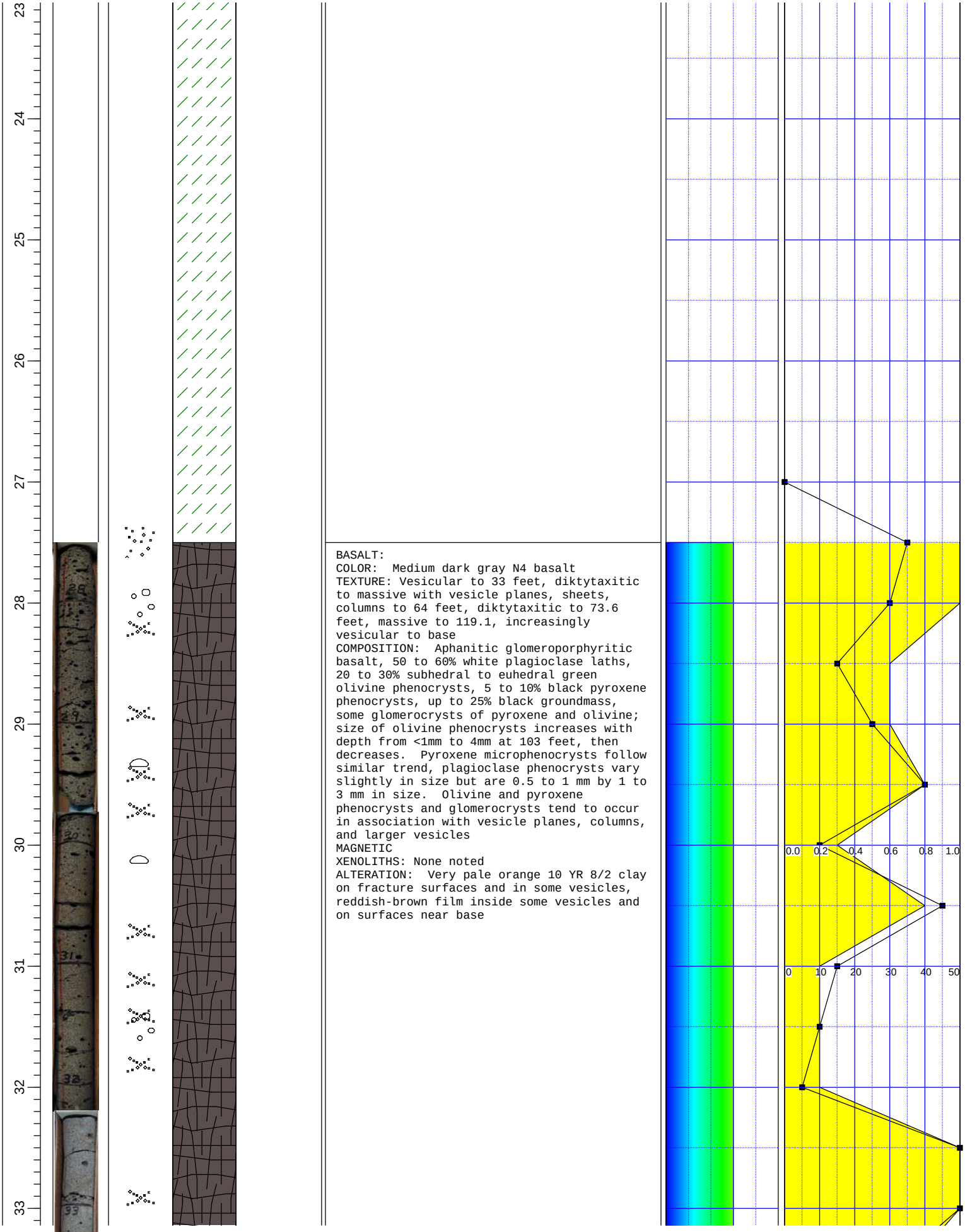
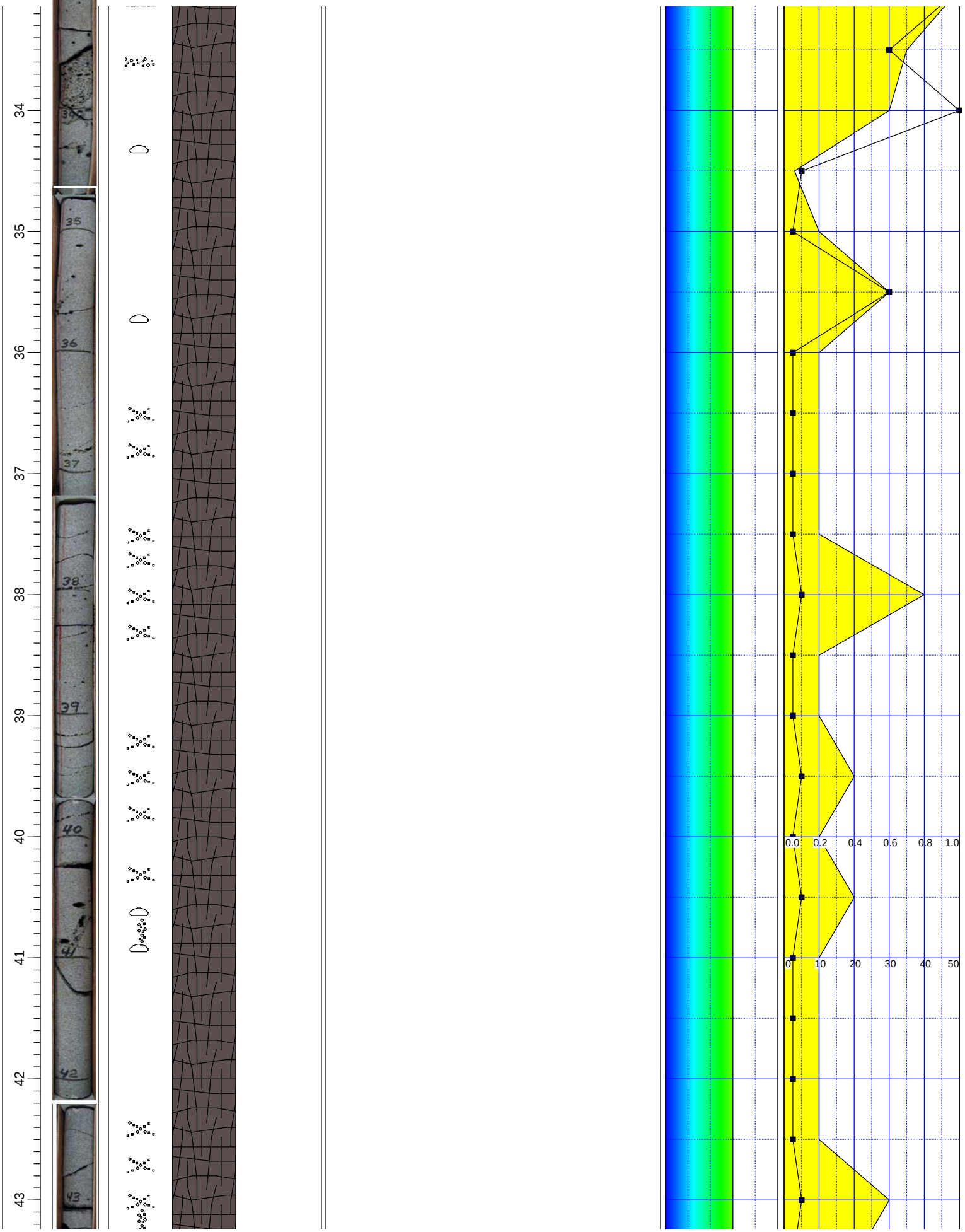


BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to 33 feet, diktytaxitic to massive with vesicle planes, sheets, columns to 64 feet, diktytaxitic to 73.6 feet, massive to 119.1, increasingly vesicular to base
COMPOSITION: Aphanitic glomeroporphyritic basalt, 50 to 60% white plagioclase laths, 20 to 30% subhedral to euhedral green olivine phenocrysts, 5 to 10% black pyroxene phenocrysts, up to 25% black groundmass, some glomerocrysts of pyroxene and olivine; size of olivine phenocrysts increases with depth from <1mm to 4mm at 103 feet, then decreases. Pyroxene microphenocrysts follow similar trend, plagioclase phenocrysts vary slightly in size but are 0.5 to 1 mm by 1 to 3 mm in size. Olivine and pyroxene phenocrysts and glomerocrysts tend to occur in association with vesicle planes, columns, and larger vesicles
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles and on surfaces near base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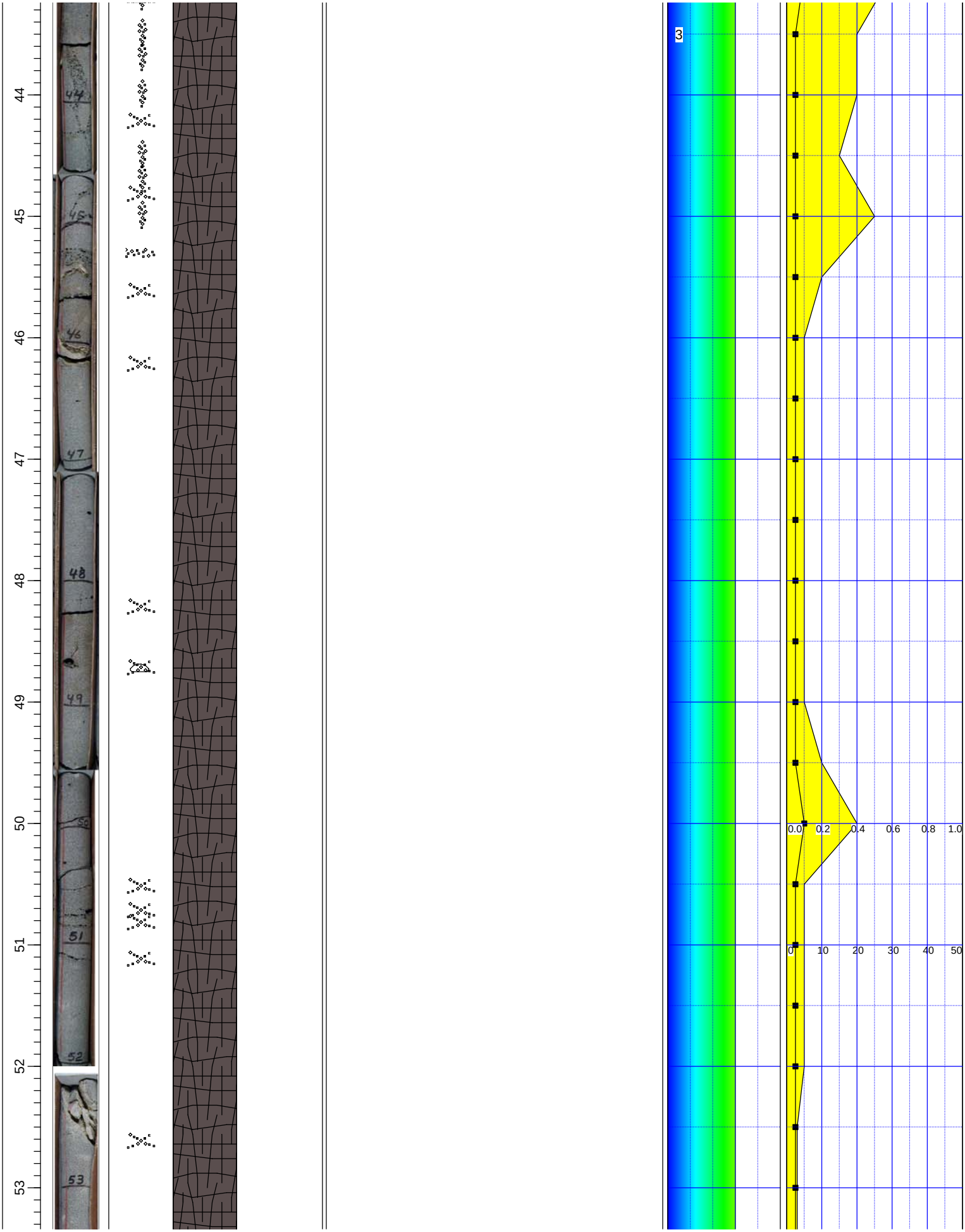
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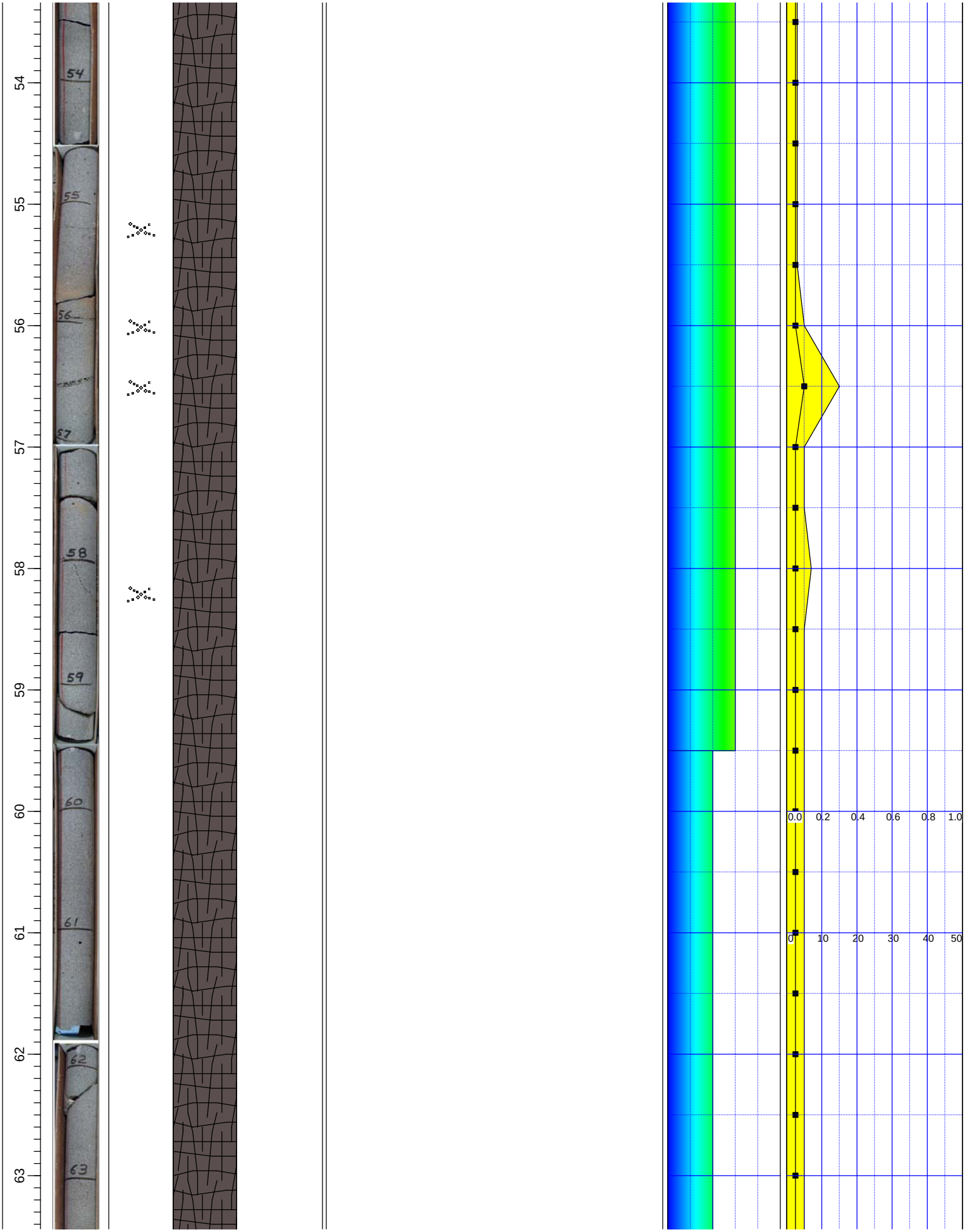
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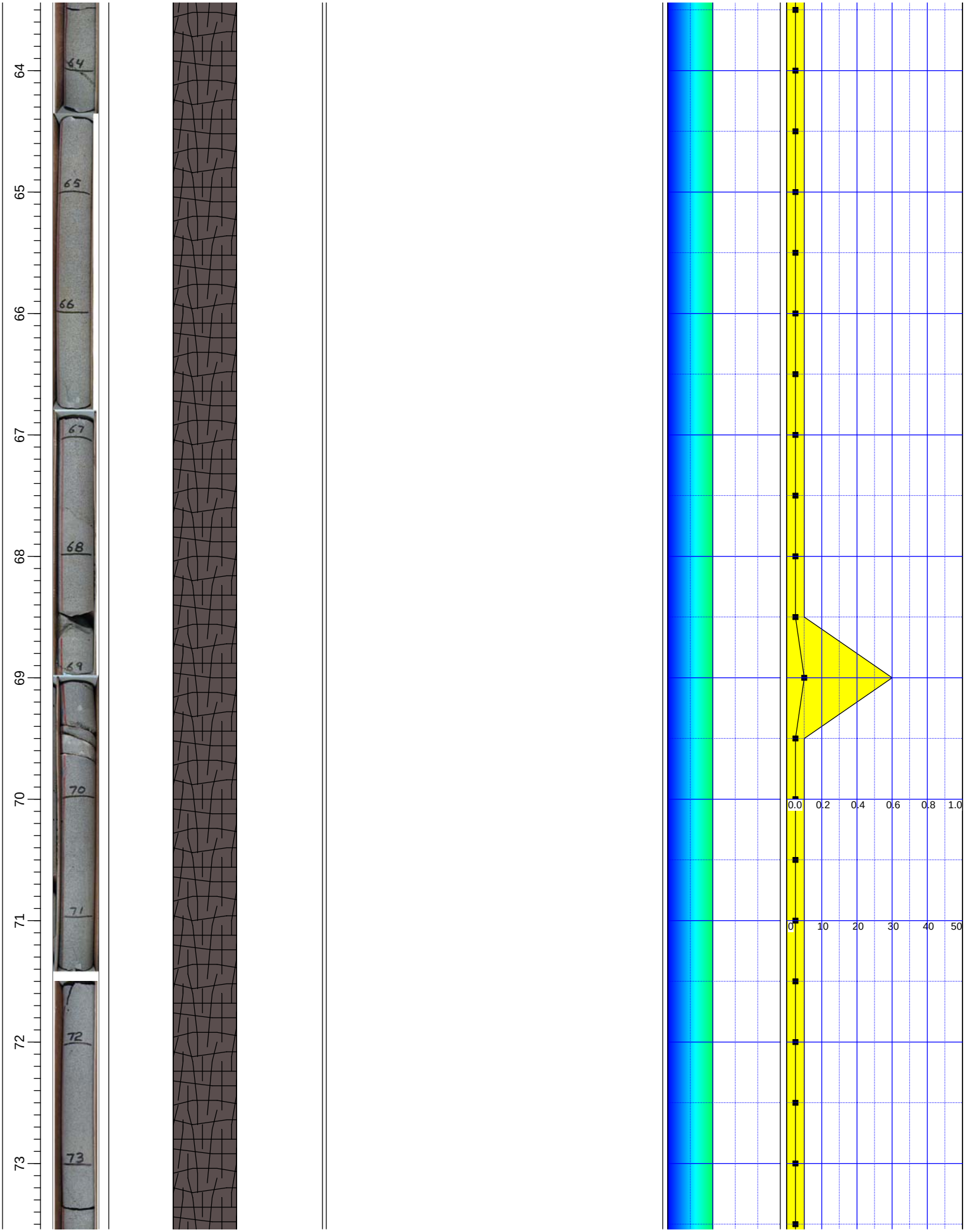
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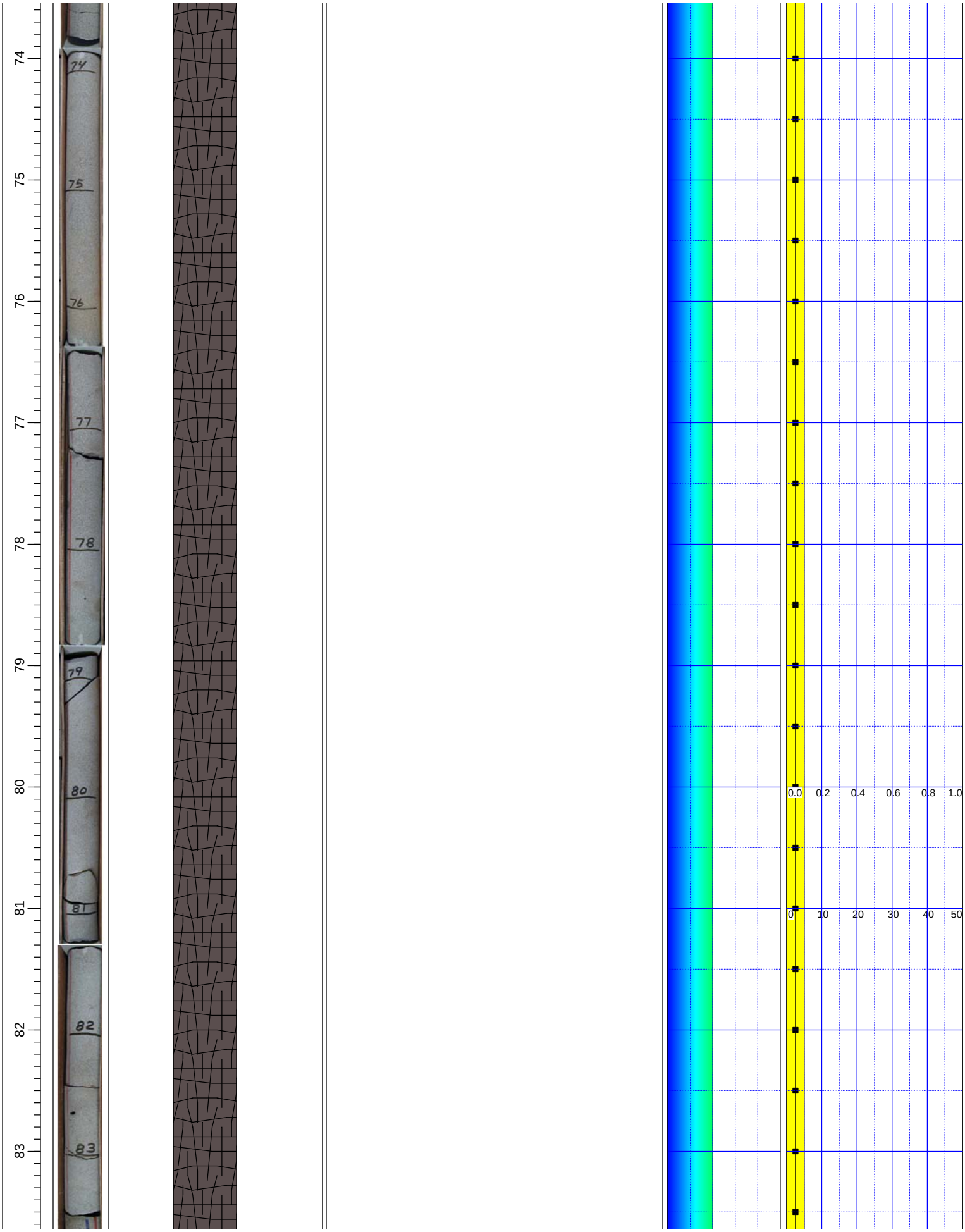
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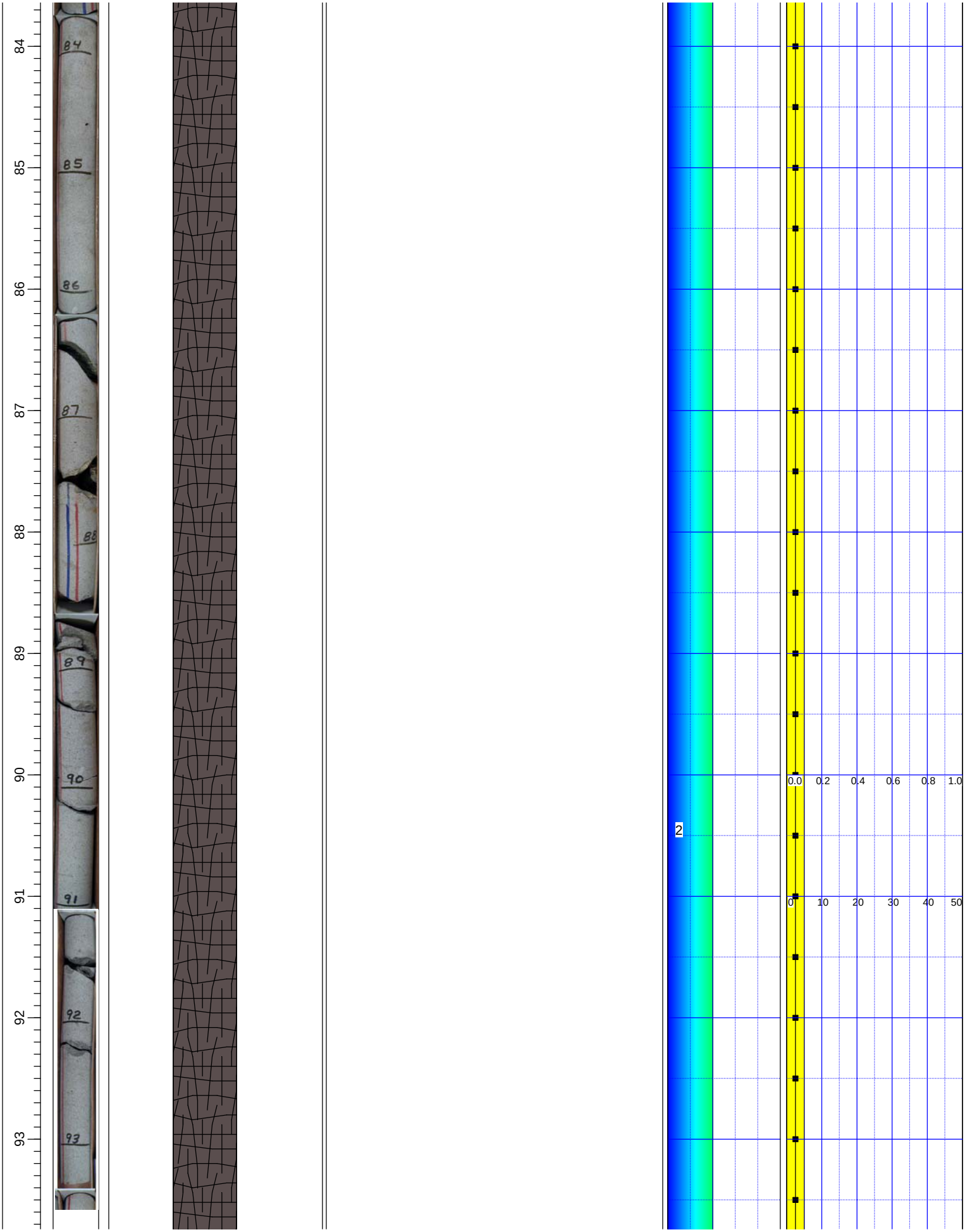
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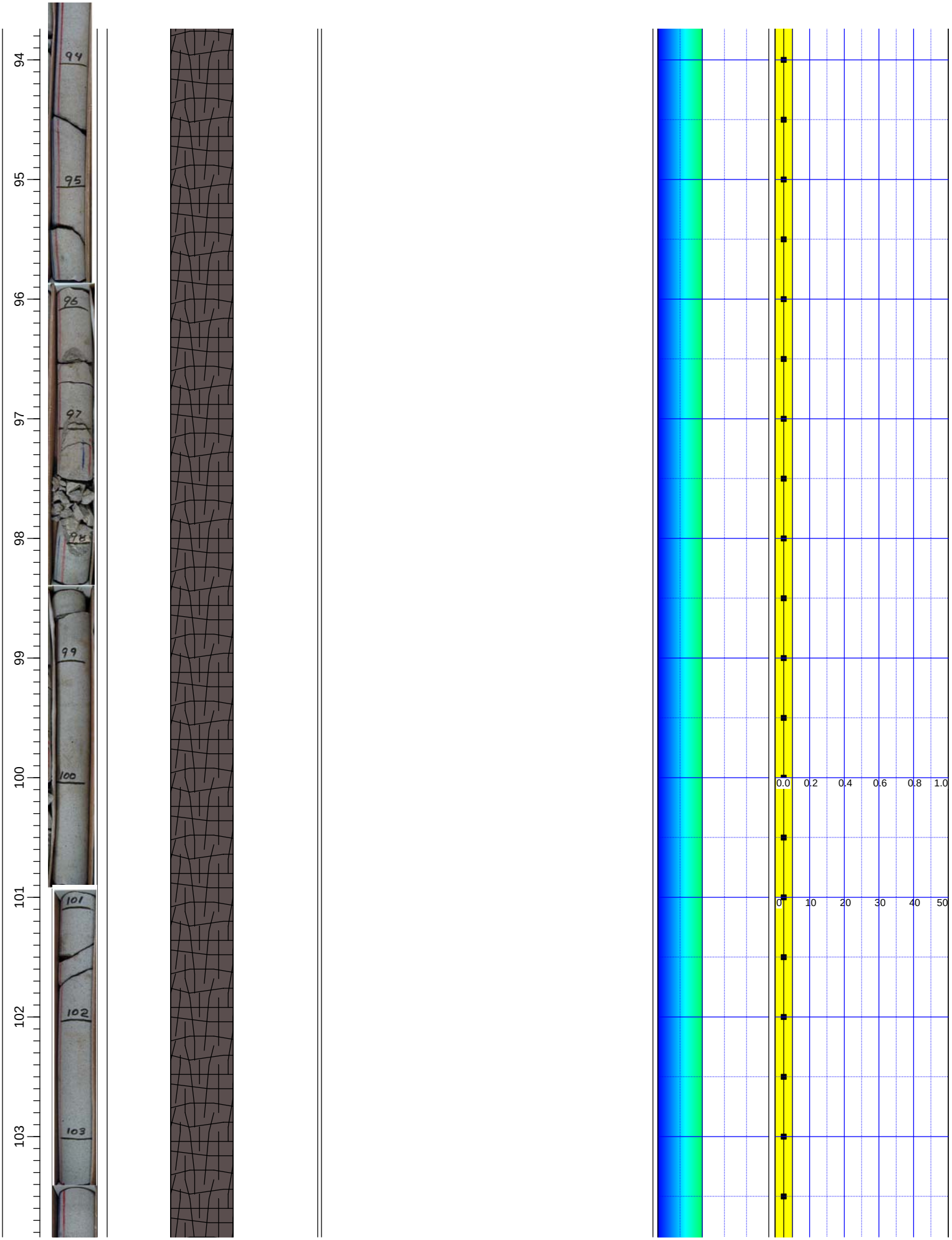
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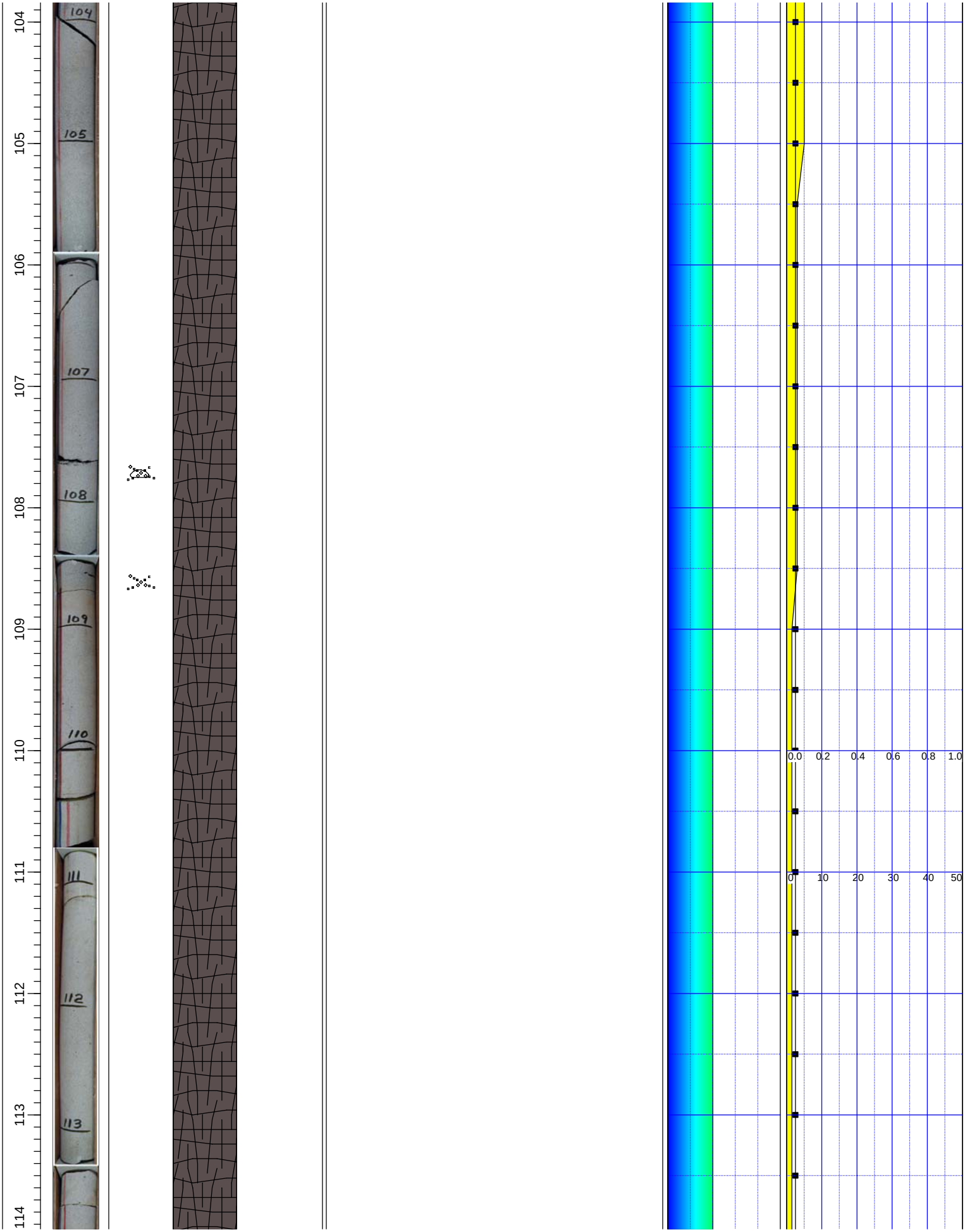
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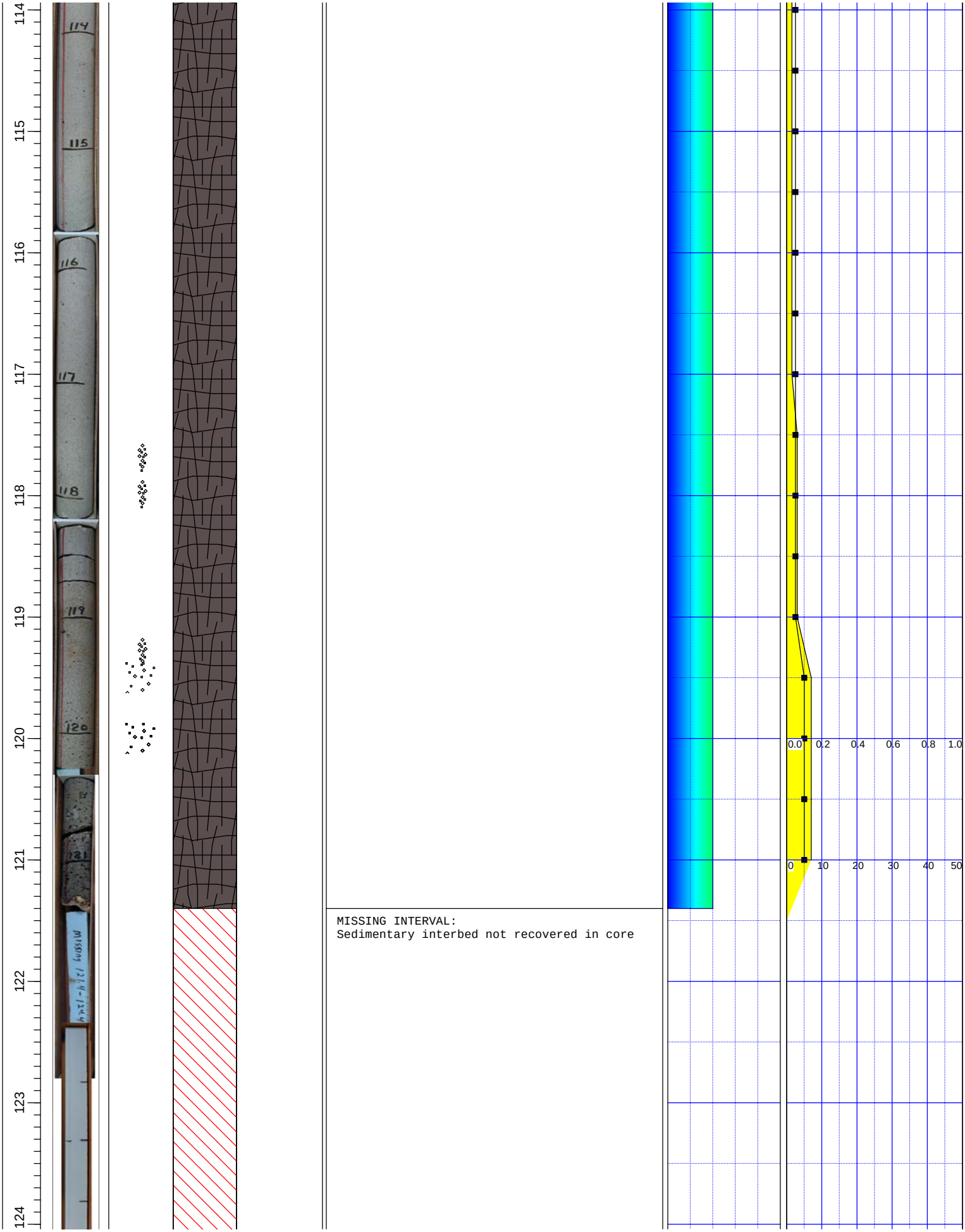
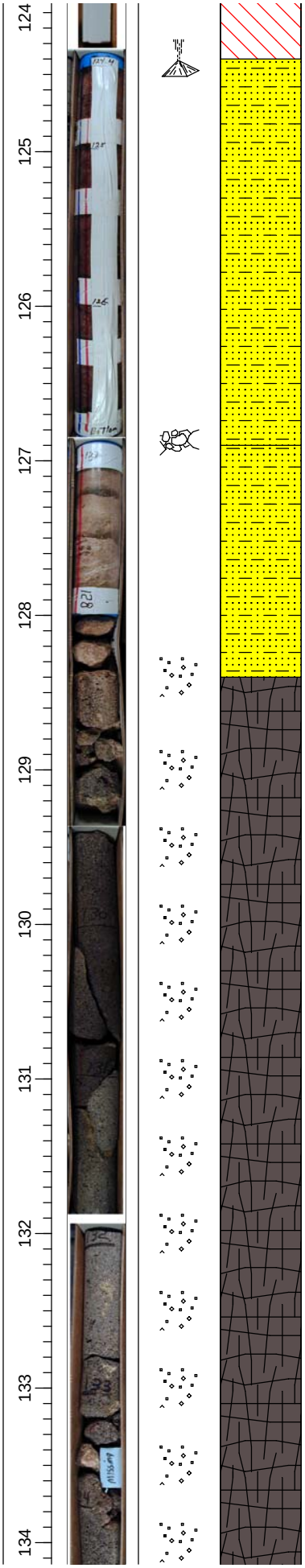


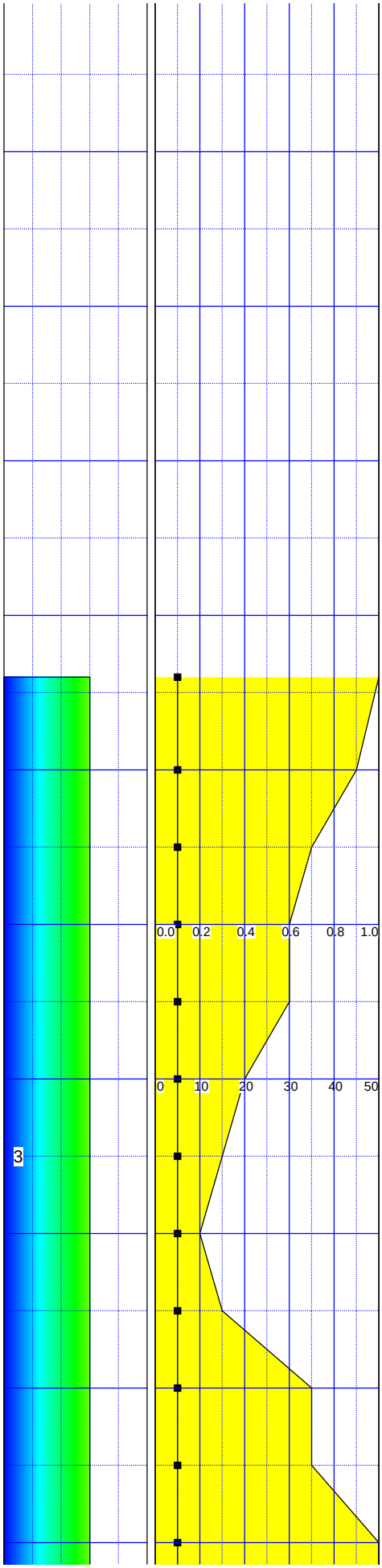
MISSING INTERVAL:
Sedimentary interbed not recovered in core

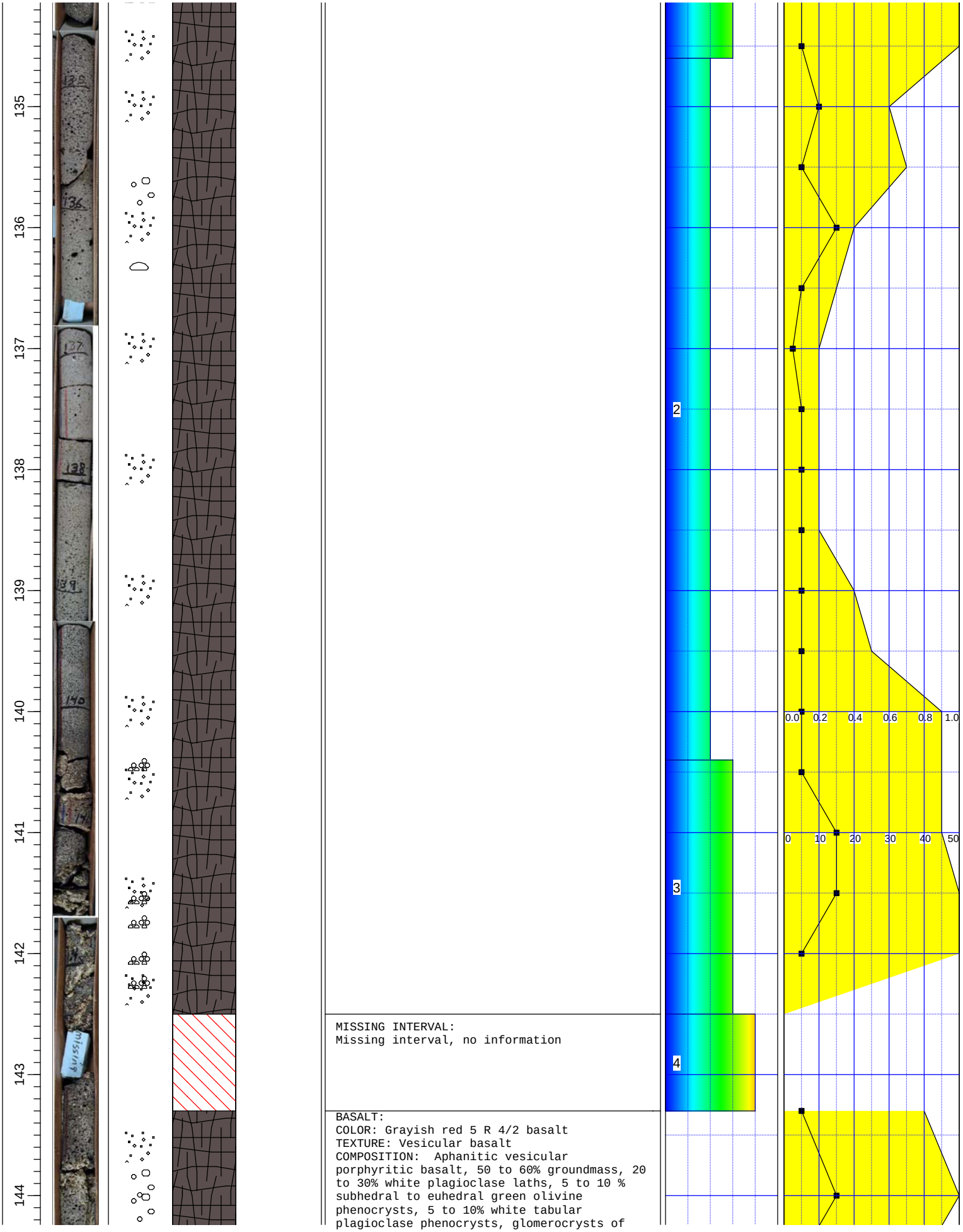


SANDS WITH FINES:
Texture: sand with fines, USCS classification SM, fine-grained lithic sand, with rounded quartz grains, subrounded to angular basalt grains, and white to tan rounded to subrounded lithic grains
Color: Dark reddish brown 10 R 3/4
Consistence: Loose with firm nodules
Structure: Structureless
Free Carbonates: No
Rocks: None observed
Roots/Fossils: None observed

SANDS WITH FINES:
Texture: Sand with fines, USCS classification SC, fine-grained poorly sorted lithic sand, with rounded quartz grains, subrounded to angular basalt grains, and white to tan rounded to subrounded lithic grains, irregular layers of thin white carbonate
Color: Moderate orange pink 5 YR 8/4
Consistence: Firm to extremely firm
Structure: Blocky
Free Carbonates: Strongly reactive
Rocks: Sand to gravel-size angular fragments of underlying basalt
Roots/Fossils: Some small tubules

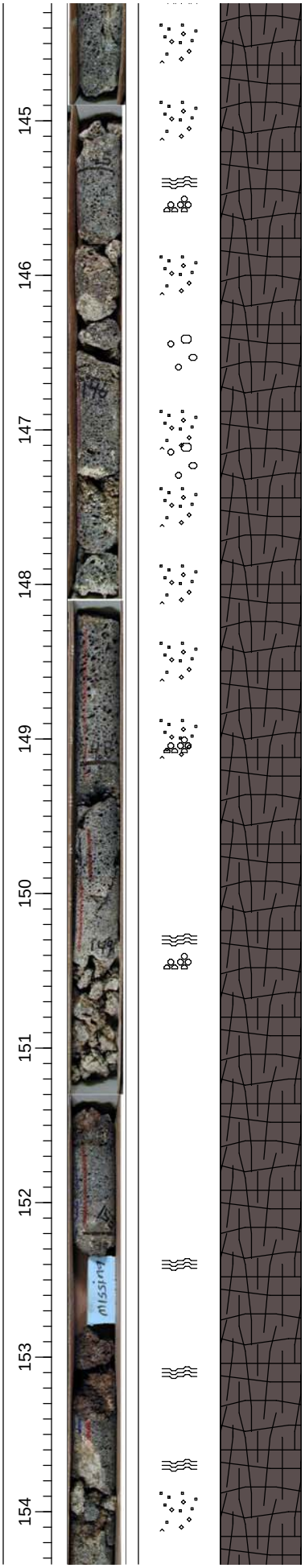
BASALT:
COLOR: Grayish red 5 R 4/2 to light olive gray 5 Y 6/1 to brownish gray 5 YR 4/1 basalt
TEXTURE: Scoriaceous to 129.4 feet, vesicular with vesicles increasing in size and decreasing in number to 136.5 feet, diktytaxitic with a few larger vesicles to 138.5 feet, increasingly vesicular to base; spatter features at 134 feet, 140.8 feet, 141.8 feet, and at base
COMPOSITION: Aphanitic glomeroporphyritic basalt, 50 to 60% white plagioclase laths, 20 to 30% subhedral to euhedral green olivine phenocrysts, 5 to 10% white tabular plagioclase phenocrysts, up to 25% black groundmass, glomerocrysts of plagioclase and olivine
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange calcareous 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles and on mold surface near base



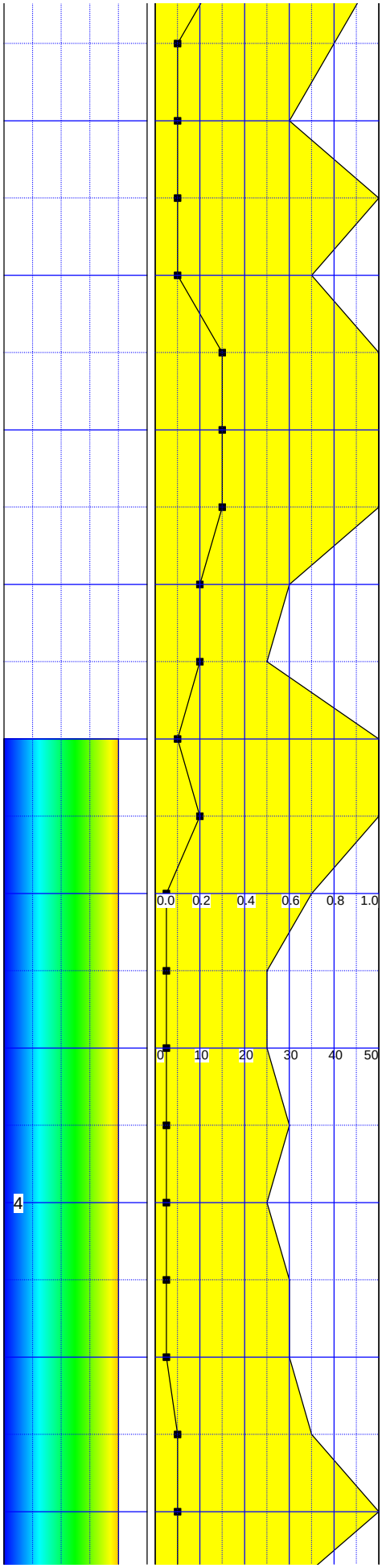


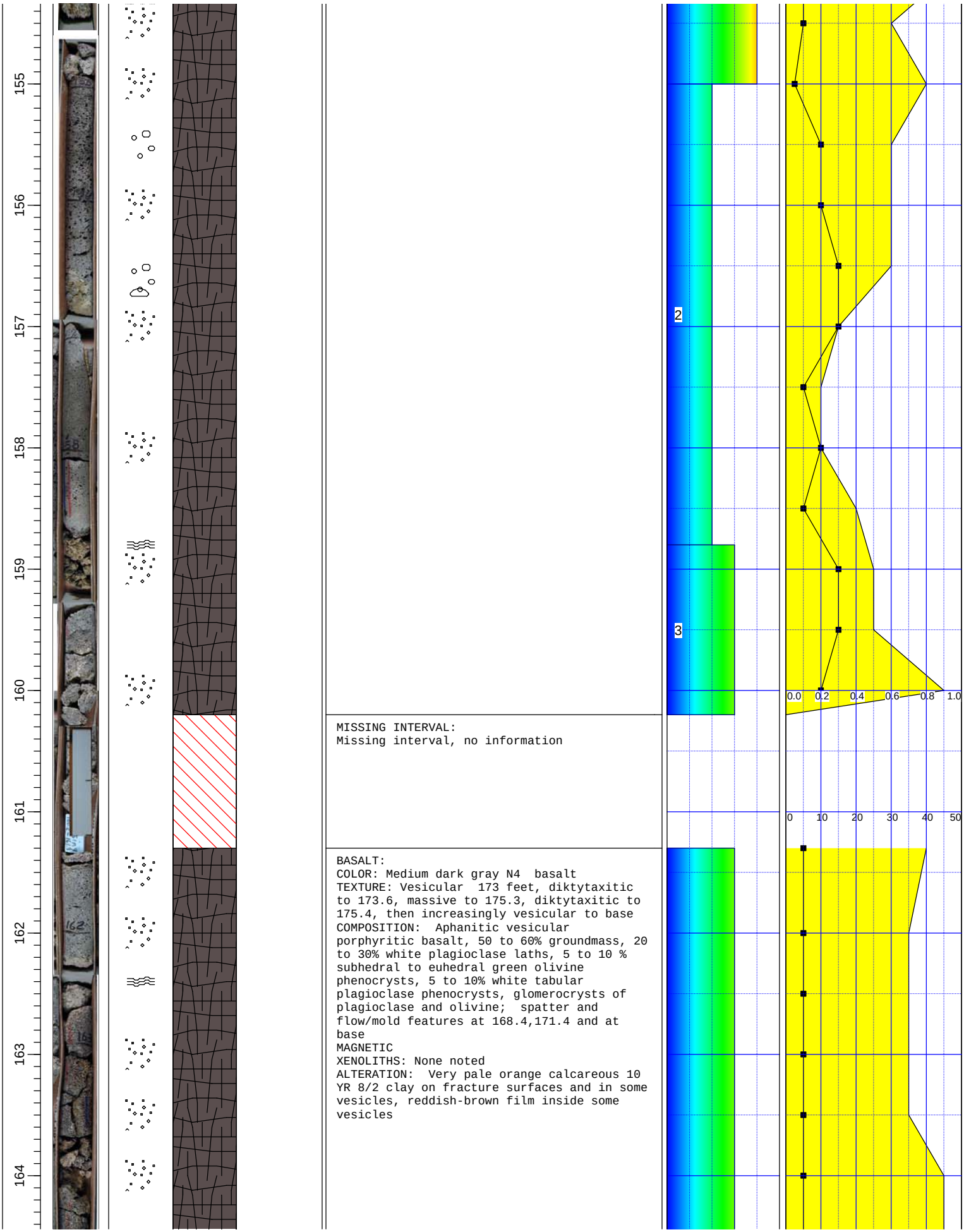
MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Grayish red 5 R 4/2 basalt
TEXTURE: Vesicular basalt
COMPOSITION: Aphanitic vesicular porphyritic basalt, 50 to 60% groundmass, 20 to 30% white plagioclase laths, 5 to 10 % subhedral to euhedral green olivine phenocrysts, 5 to 10% white tabular plagioclase phenocrysts, glomerocrysts of



plagioclase and olivine; spatter features at 143.9, 145.4, rounded unconsolidated spatter fragments from 149 to 152.3, 153.2 to 155, and from 158.8 to base
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange calcareous 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles





MISSING INTERVAL:
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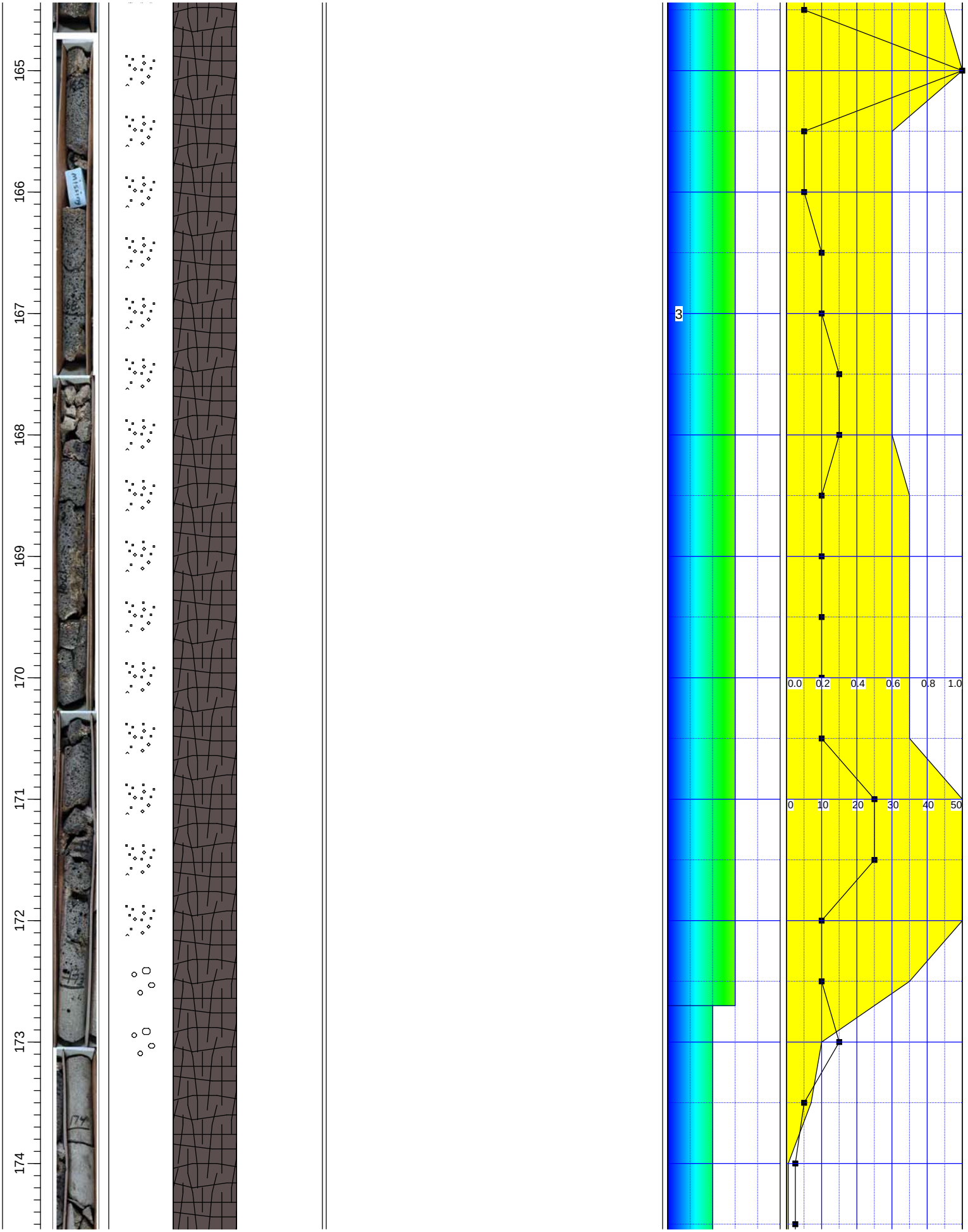
BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular 173 feet, diktytaxitic to 173.6, massive to 175.3, diktytaxitic to 175.4, then increasingly vesicular to base
COMPOSITION: Aphanitic vesicular porphyritic basalt, 50 to 60% groundmass, 20 to 30% white plagioclase laths, 5 to 10 % subhedral to euhedral green olivine phenocrysts, 5 to 10% white tabular plagioclase phenocrysts, glomerocrysts of plagioclase and olivine; spatter and flow/mold features at 168.4,171.4 and at base
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange calcareous 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles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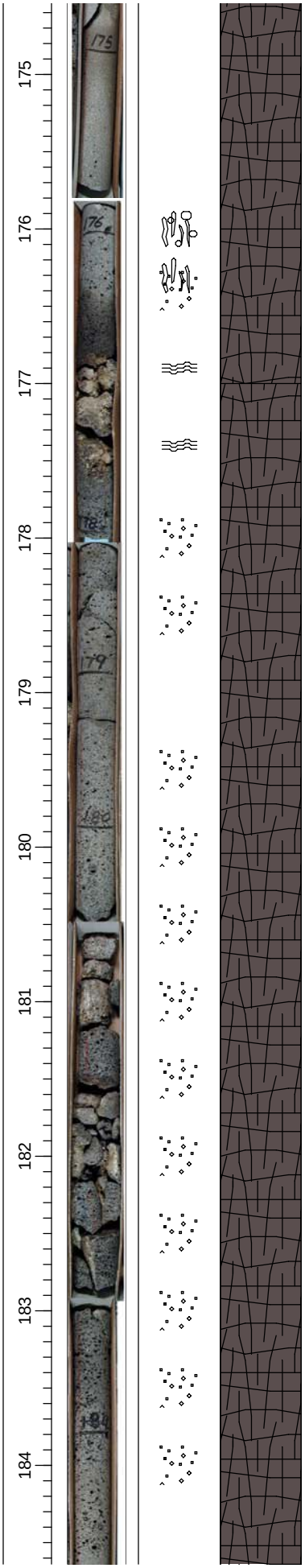
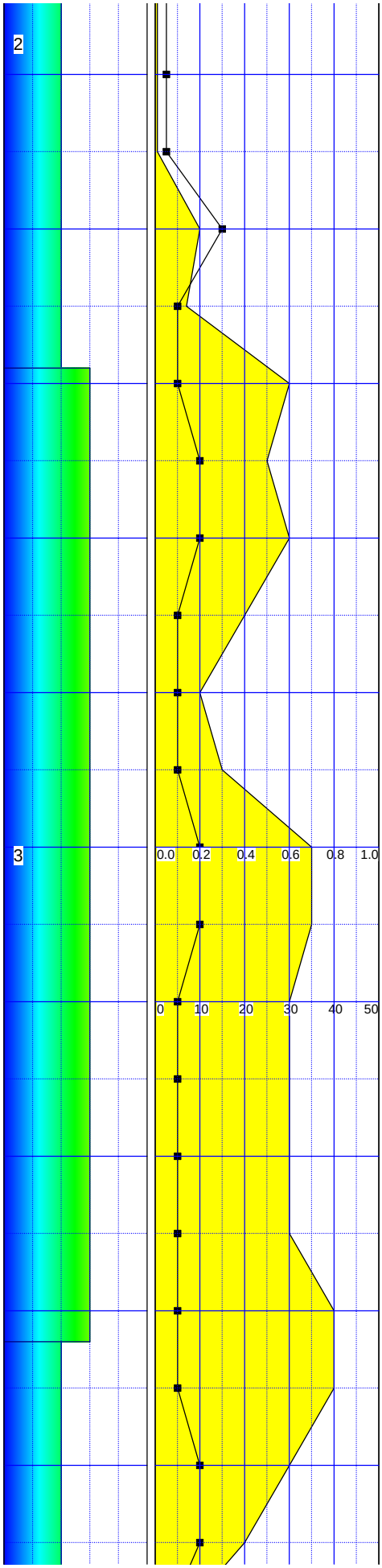
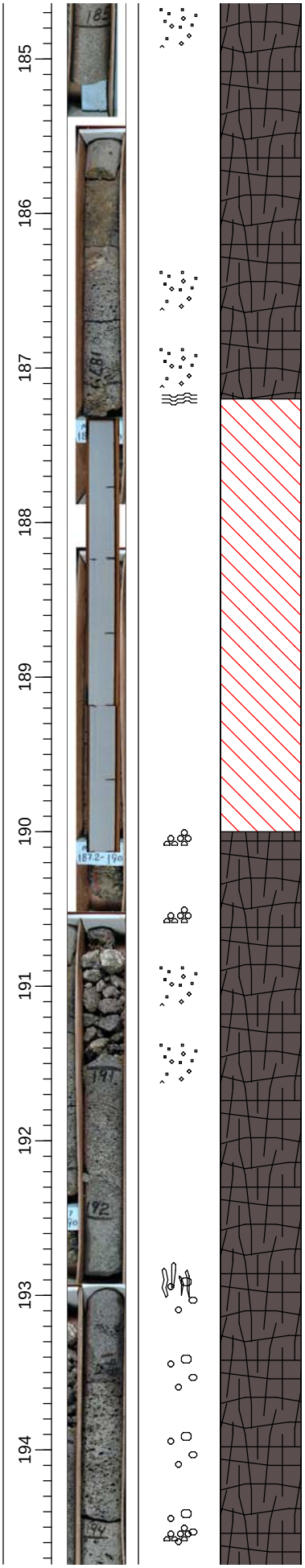


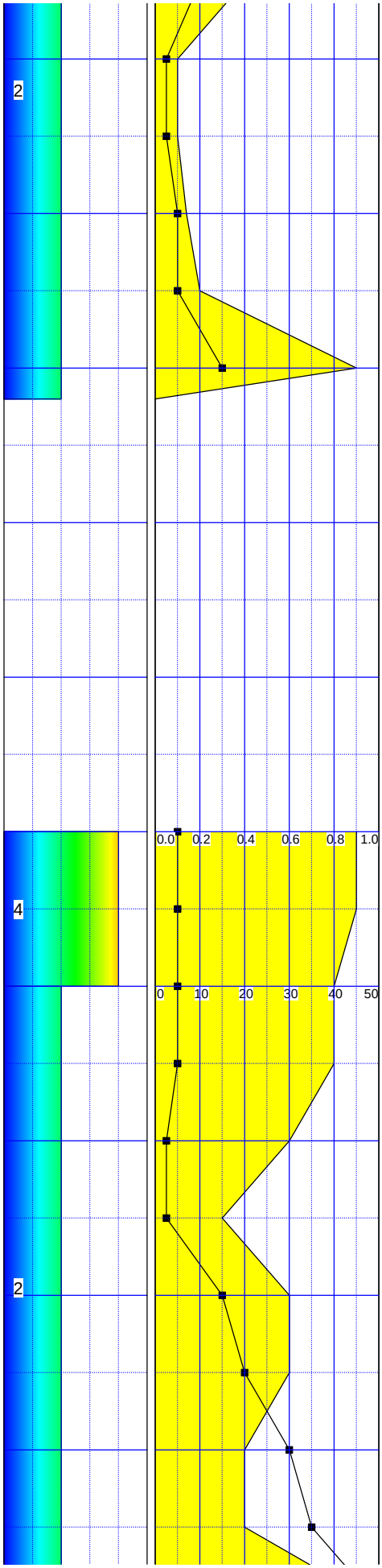
BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to 184.8 feet, diktytaxitic from 184.4 to 186.6 feet, diktytaxitic and increasingly vesicular to base
COMPOSITION: Aphanitic vesicular porphyritic basalt, 50 to 60% groundmass, 20 to 30% white plagioclase laths, 5 to 10% subhedral to euhedral green olivine phenocrysts, 5 to 10% white tabular plagioclase phenocrysts, glomerocrysts of plagioclase and olivine; spatter features from 180.7 to 183, spatter and flow/mold features at base
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange calcareous 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles

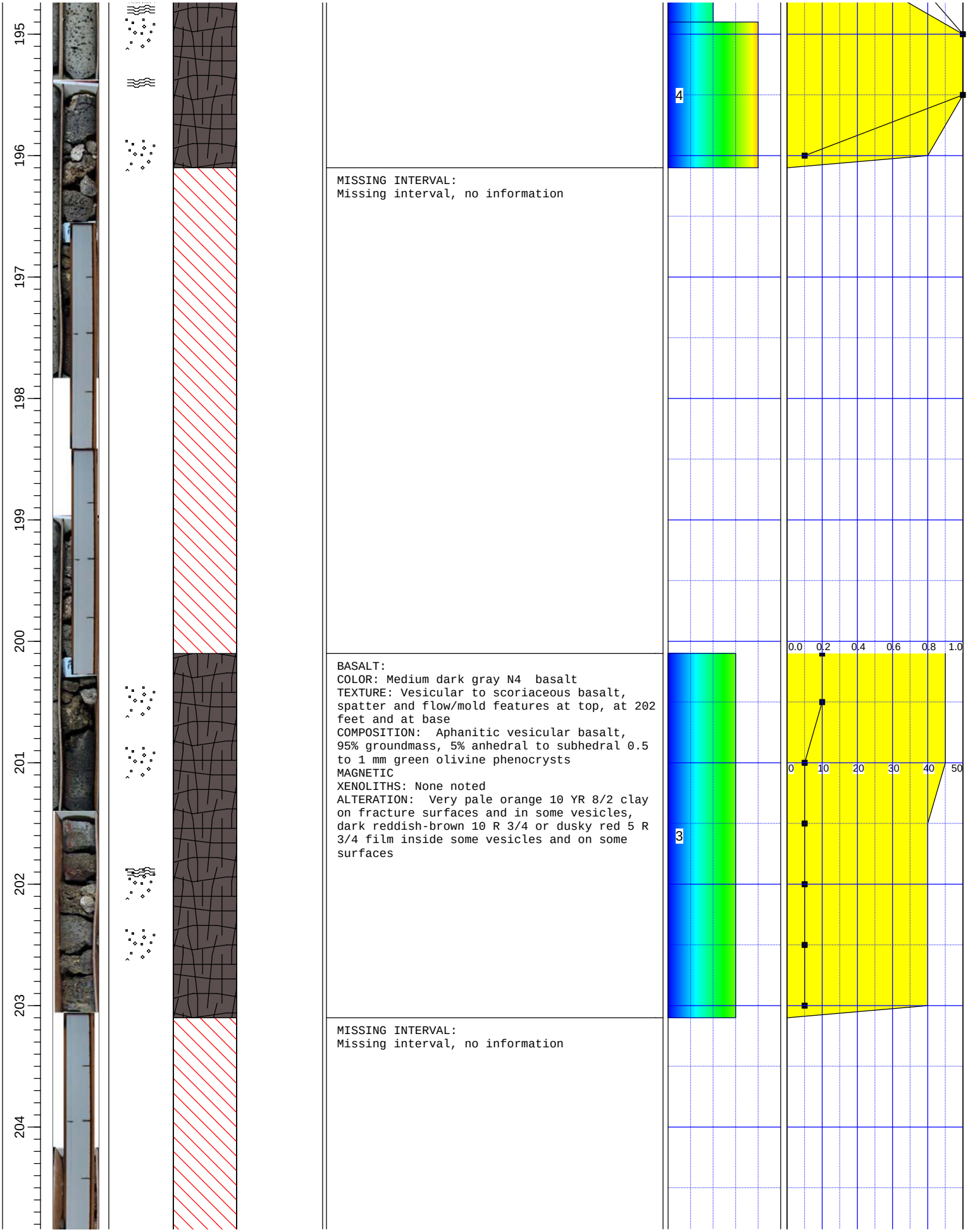




MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to 192 feet, diktytaxitic from 192 to 193 feet, diktytaxitic and increasingly vesicular to base; rounded spatter fragments from 109 to 191, spatter features at 194, 195, and 196 feet and at base
COMPOSITION: Aphanitic vesicular basalt, 90% groundmass, 5% anhedral to subhedral 1 to 2 mm green olivine phenocrysts with reddish rims, 5% acicular white plagioclase laths
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles

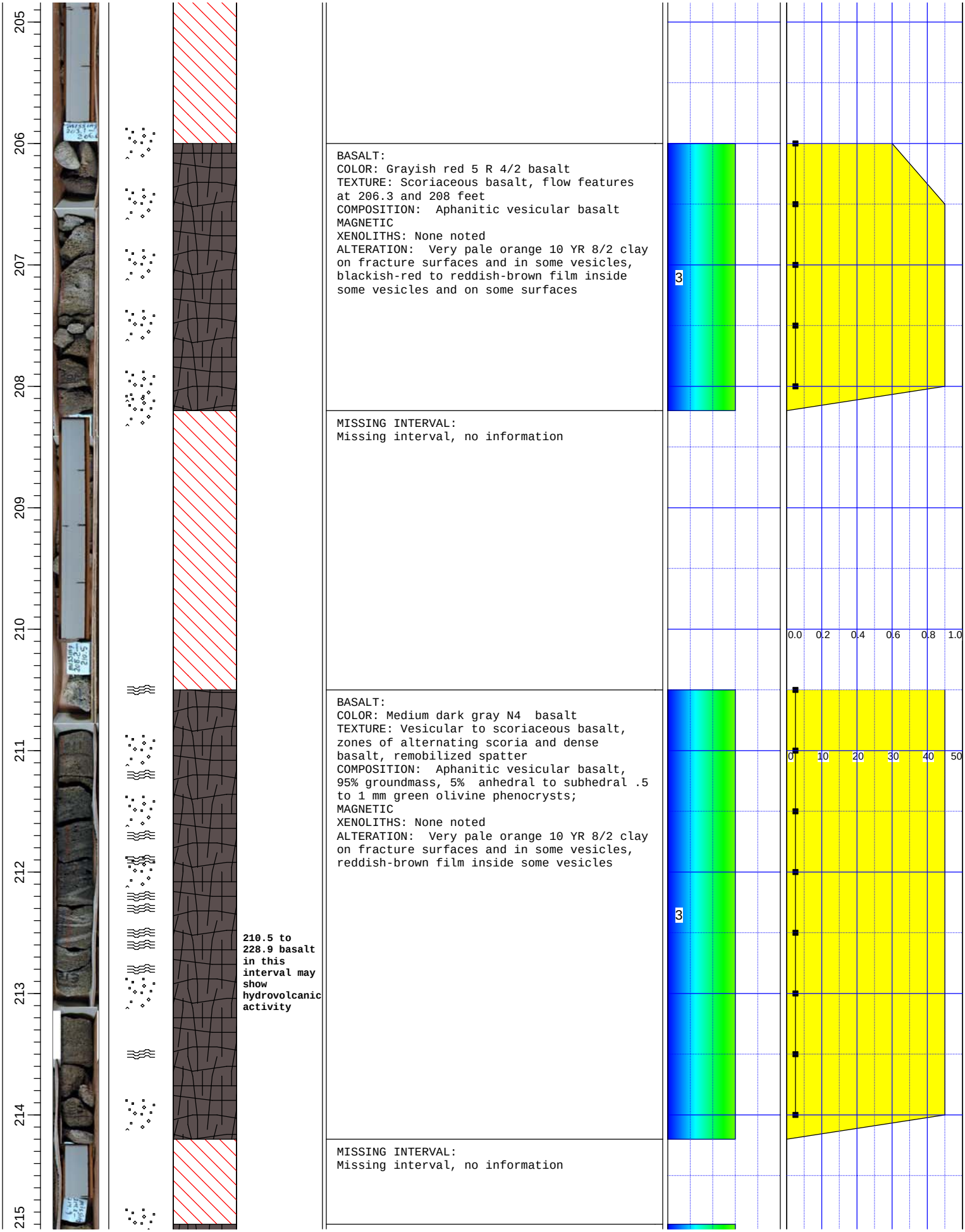




MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to scoriaceous basalt, spatter and flow/mold features at top, at 202 feet and at base
COMPOSITION: Aphanitic vesicular basalt, 95% groundmass, 5% anhedral to subhedral 0.5 to 1 mm green olivine phenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, dark reddish-brown 10 R 3/4 or dusky red 5 R 3/4 film inside some vesicles and on some surfaces

MISSING INTERVAL:
Missing interval, no information



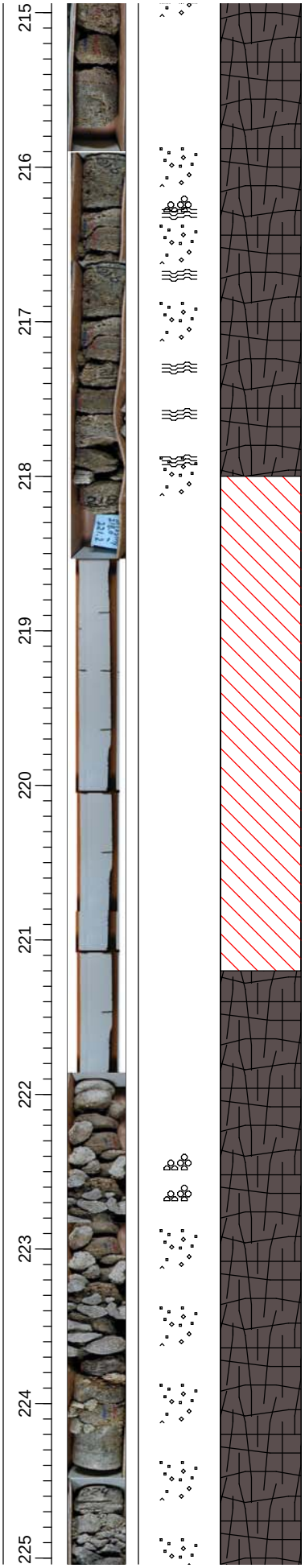
BASALT:
COLOR: Grayish red 5 R 4/2 basalt
TEXTURE: Scoriaceous basalt, flow features at 206.3 and 208 feet
COMPOSITION: Aphanitic vesicular basalt
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, blackish-red to reddish-brown film inside some vesicles and on some surfaces

MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to scoriaceous basalt, zones of alternating scoria and dense basalt, remobilized spatter
COMPOSITION: Aphanitic vesicular basalt, 95% groundmass, 5% anhedral to subhedral .5 to 1 mm green olivine phenocrysts;
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles

210.5 to 228.9 basalt in this interval may show hydrovolcanic activity

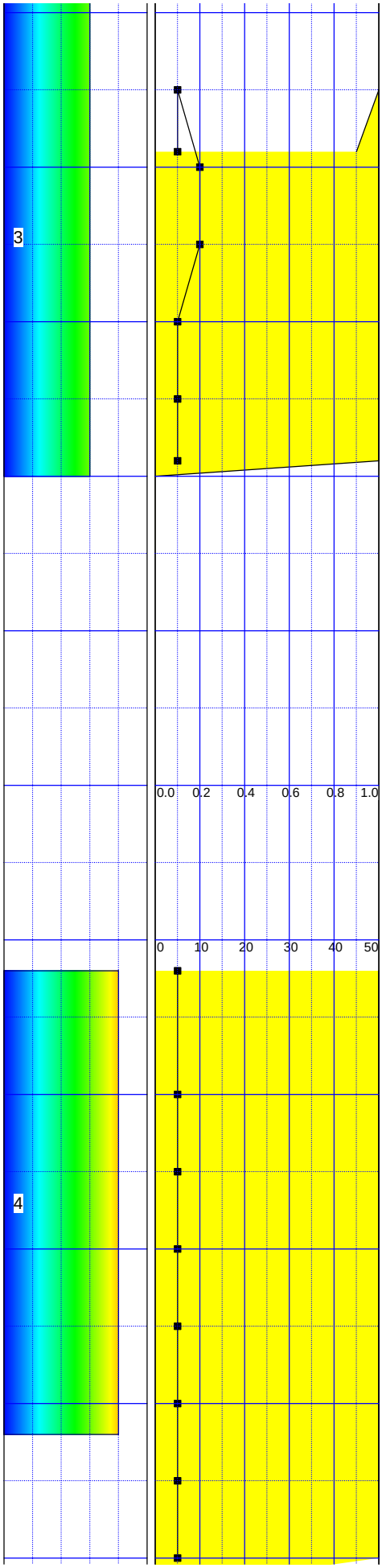
MISSING INTERVAL:
Missing interval, no information

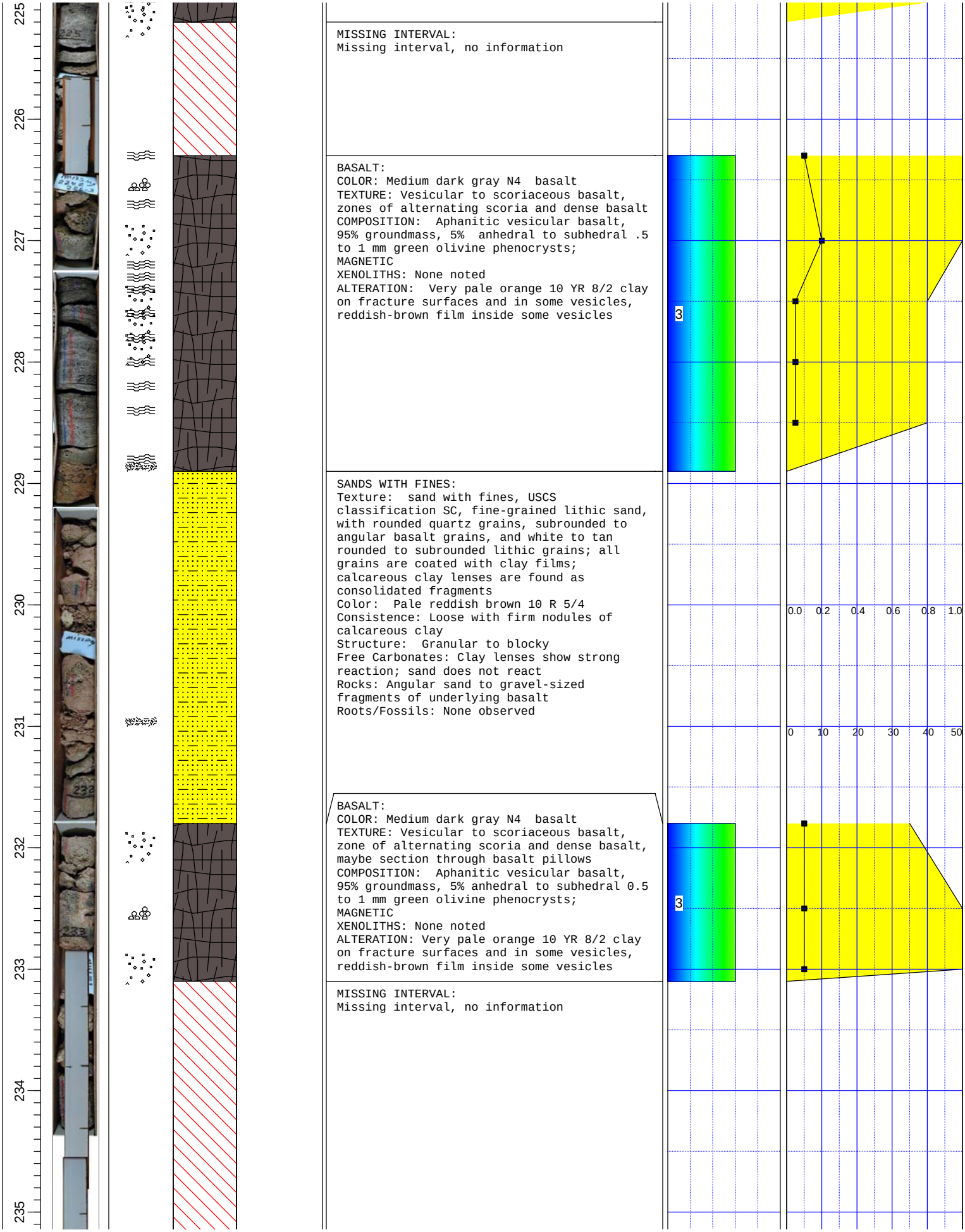


BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to scoriaceous basalt, broken into rounded fragments, some fragments display spatter and flow/mold features
COMPOSITION: Aphanitic vesicular basalt, 95% groundmass, 5% anhedral to subhedral .5 to 1 mm green olivine phenocrysts;
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles

MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to scoriaceous basalt, broken into rounded fragments, some fragments display spatter and flow/mold features, spatter at 225.5 feet
COMPOSITION: Aphanitic vesicular basalt
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles





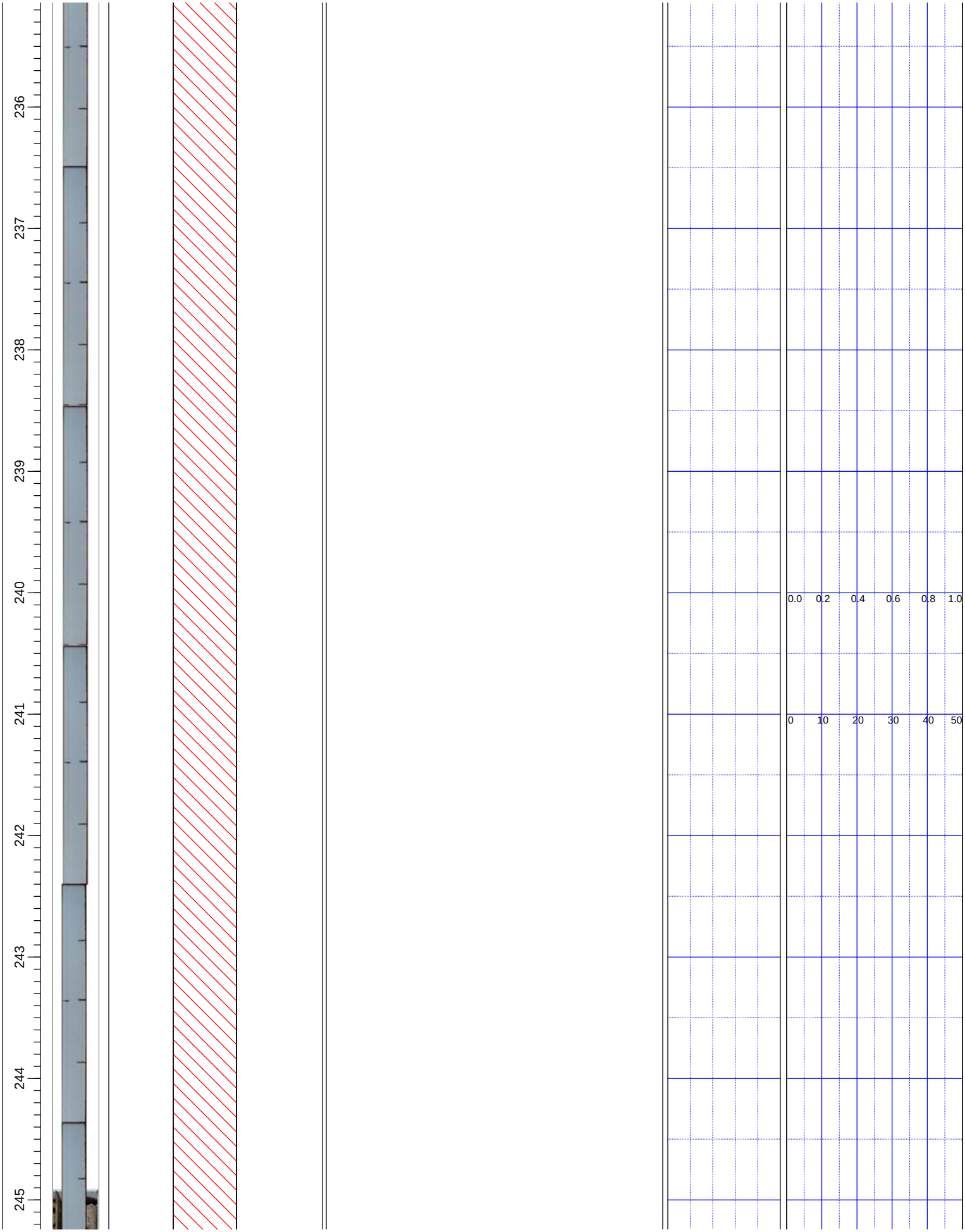
MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to scoriaceous basalt, zones of alternating scoria and dense basalt
COMPOSITION: Aphanitic vesicular basalt, 95% groundmass, 5% anhedral to subhedral .5 to 1 mm green olivine phenocrysts;
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles

SANDS WITH FINES:
Texture: sand with fines, USCS classification SC, fine-grained lithic sand, with rounded quartz grains, subrounded to angular basalt grains, and white to tan rounded to subrounded lithic grains; all grains are coated with clay films; calcareous clay lenses are found as consolidated fragments
Color: Pale reddish brown 10 R 5/4
Consistence: Loose with firm nodules of calcareous clay
Structure: Granular to blocky
Free Carbonates: Clay lenses show strong reaction; sand does not react
Rocks: Angular sand to gravel-sized fragments of underlying basalt
Roots/Fossils: None observed

BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular to scoriaceous basalt, zone of alternating scoria and dense basalt, maybe section through basalt pillows
COMPOSITION: Aphanitic vesicular basalt, 95% groundmass, 5% anhedral to subhedral 0.5 to 1 mm green olivine phenocrysts;
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles

MISSING INTERVAL:
Missing interval, no information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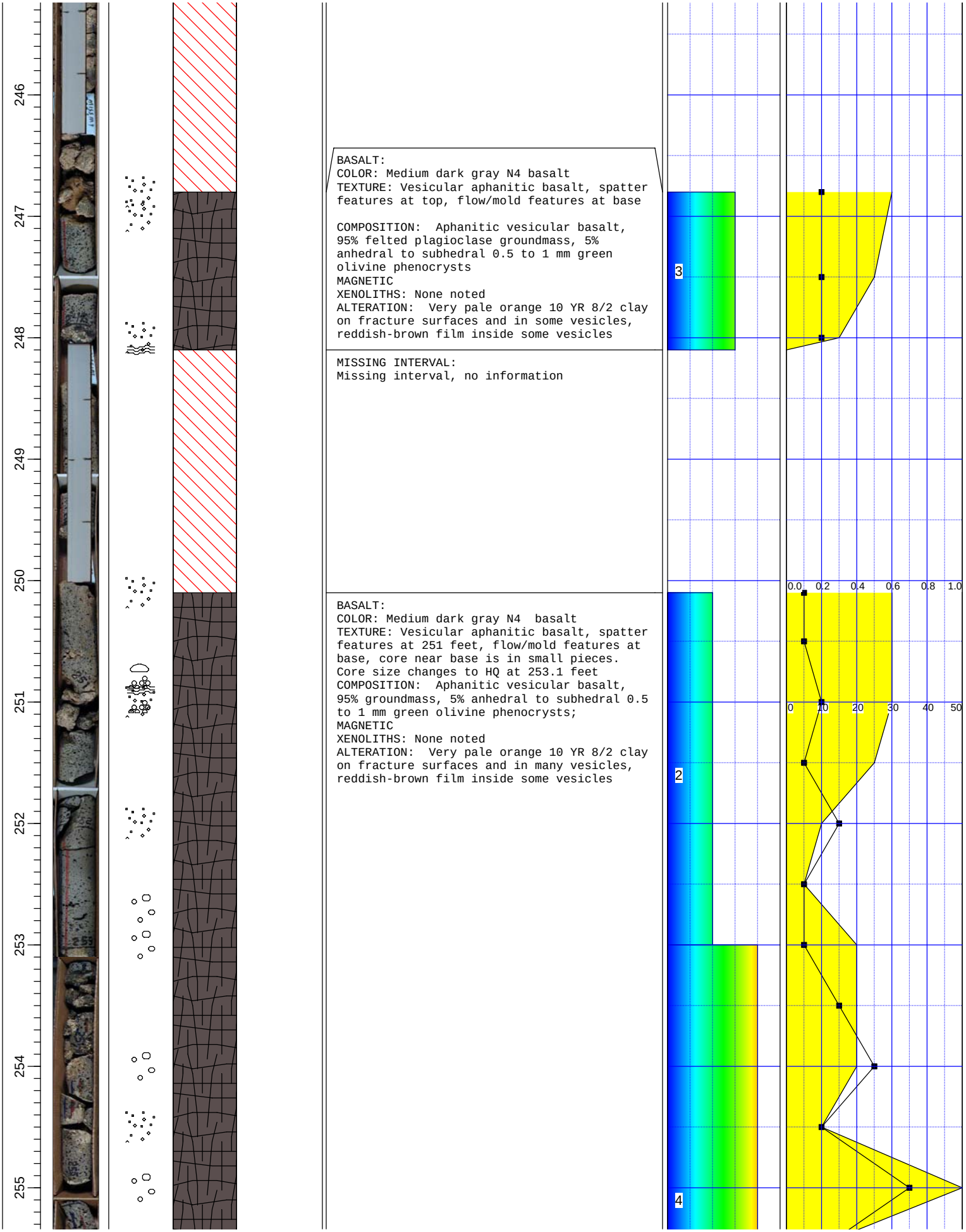
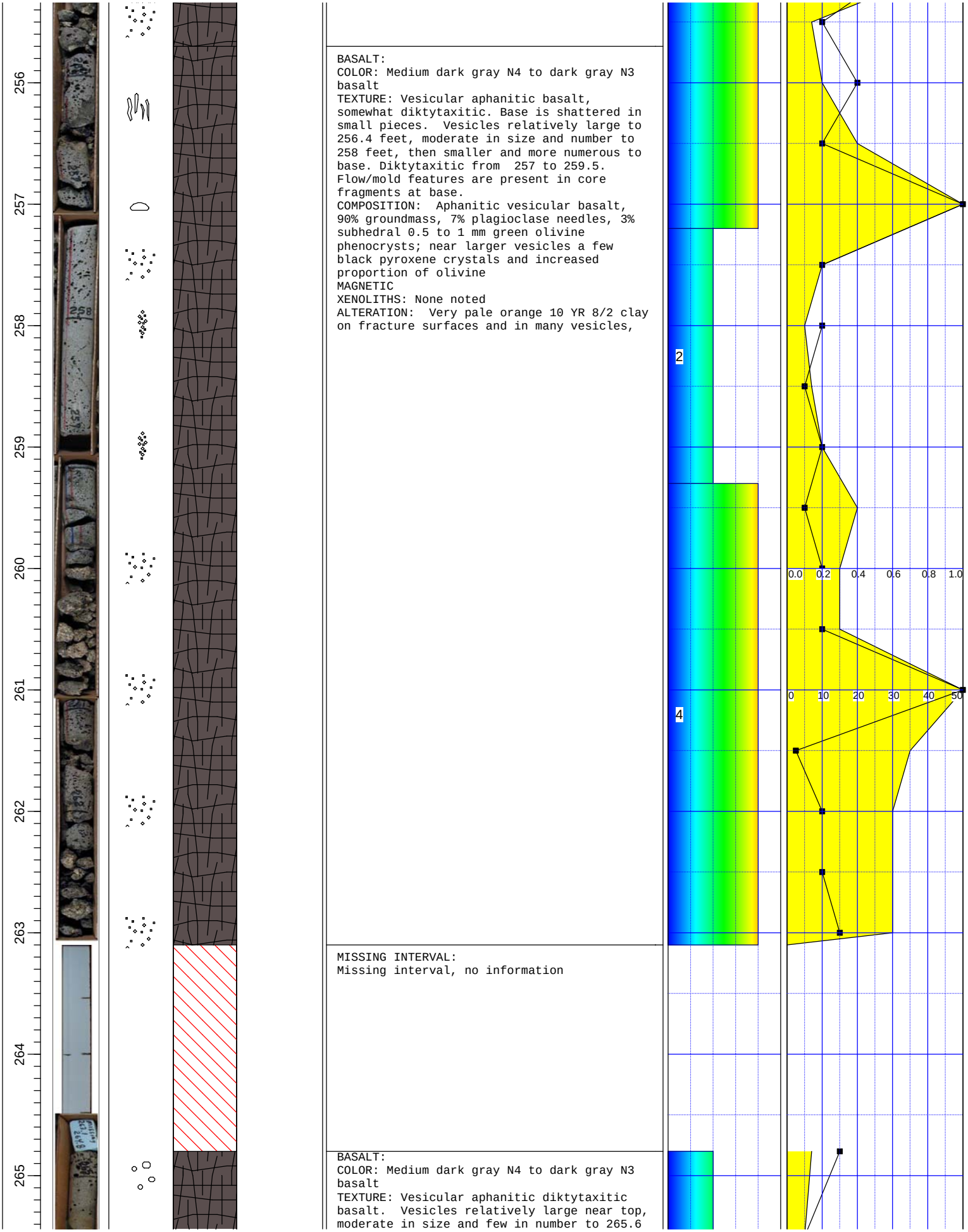


BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular aphanitic basalt, spatter features at top, flow/mold features at base

COMPOSITION: Aphanitic vesicular basalt, 95% felted plagioclase groundmass, 5% anhedral to subhedral 0.5 to 1 mm green olivine phenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown film inside some vesicles

MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Vesicular aphanitic basalt, spatter features at 251 feet, flow/mold features at base, core near base is in small pieces. Core size changes to HQ at 253.1 feet
COMPOSITION: Aphanitic vesicular basalt, 95% groundmass, 5% anhedral to subhedral 0.5 to 1 mm green olivine phenocrysts;
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in many vesicles, reddish-brown film inside some vesicles



BASALT:
COLOR: Medium dark gray N4 to dark gray N3 basalt
TEXTURE: Vesicular aphanitic basalt, somewhat diktytaxitic. Base is shattered in small pieces. Vesicles relatively large to 256.4 feet, moderate in size and number to 258 feet, then smaller and more numerous to base. Diktytaxitic from 257 to 259.5. Flow/mold features are present in core fragments at base.
COMPOSITION: Aphanitic vesicular basalt, 90% groundmass, 7% plagioclase needles, 3% subhedral 0.5 to 1 mm green olivine phenocrysts; near larger vesicles a few black pyroxene crystals and increased proportion of olivine
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in many vesicles,

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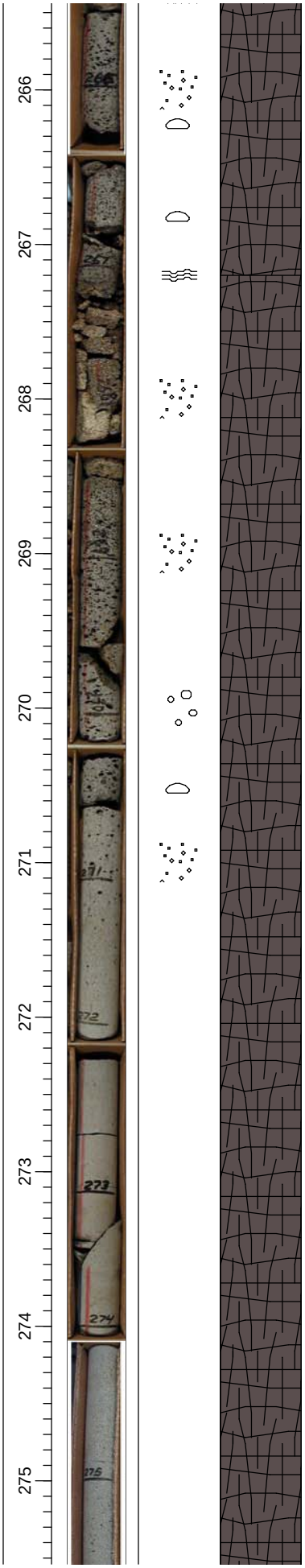
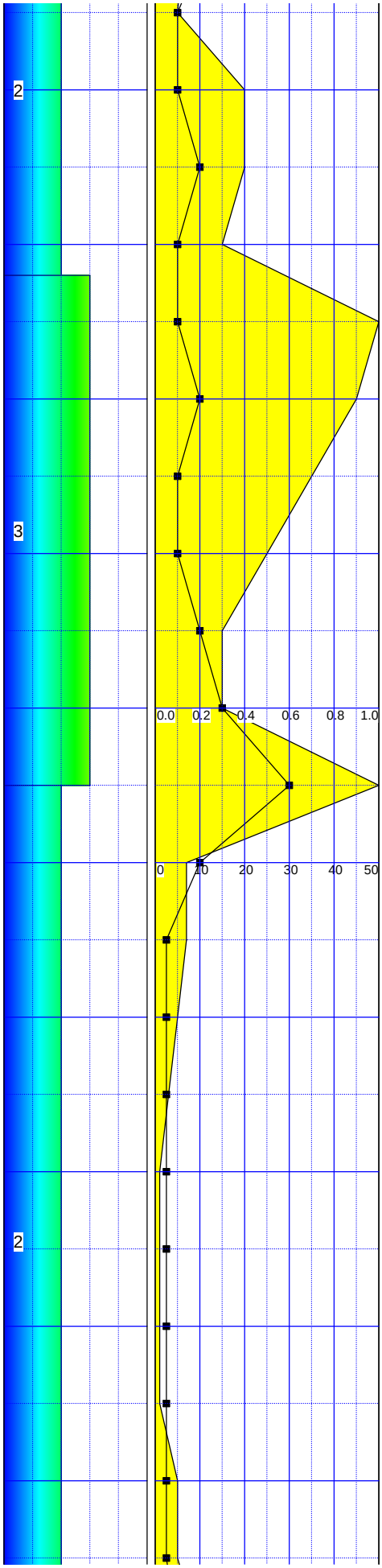
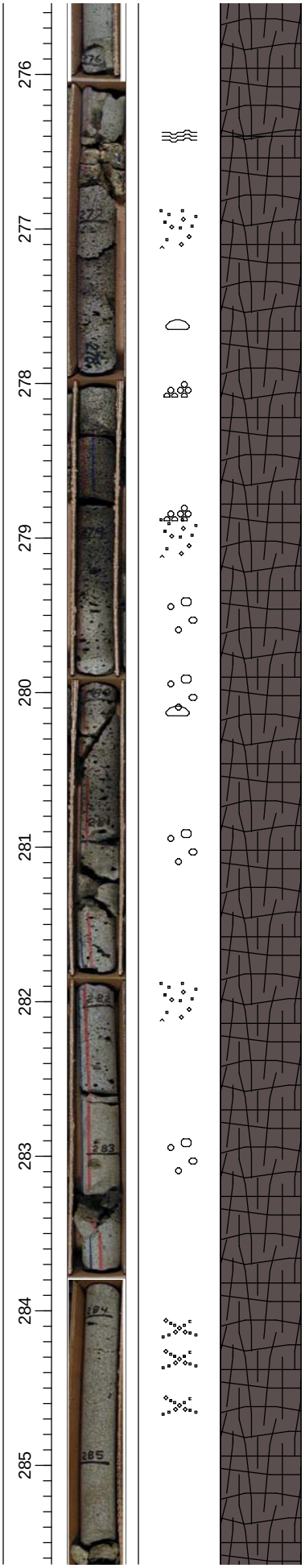
BASALT:
COLOR: Medium dark gray N4 to dark gray N3 basalt
TEXTURE: Vesicular aphanitic diktytaxitic basalt. Vesicles relatively large near top, moderate in size and few in number to 265.6



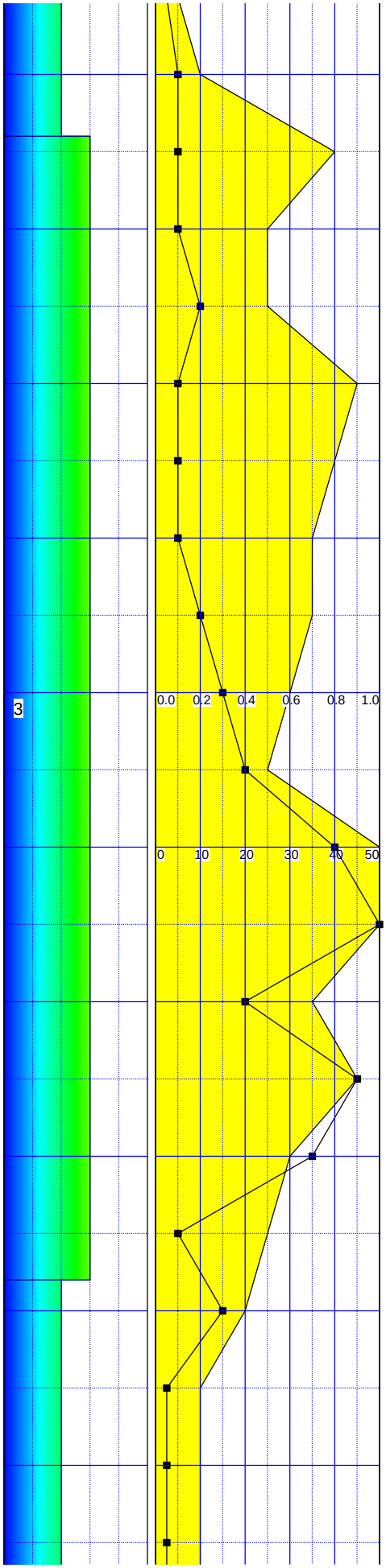
feet, then smaller and more numerous to base. Flow/mold features at 266.3 and base.
COMPOSITION: Aphanitic vesicular basalt, 57% groundmass, 40% 1mm plagioclase needles, 3% subhedral 1 to 2 mm subhedral to euhedral green olivine phenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, black film inside some vesicles

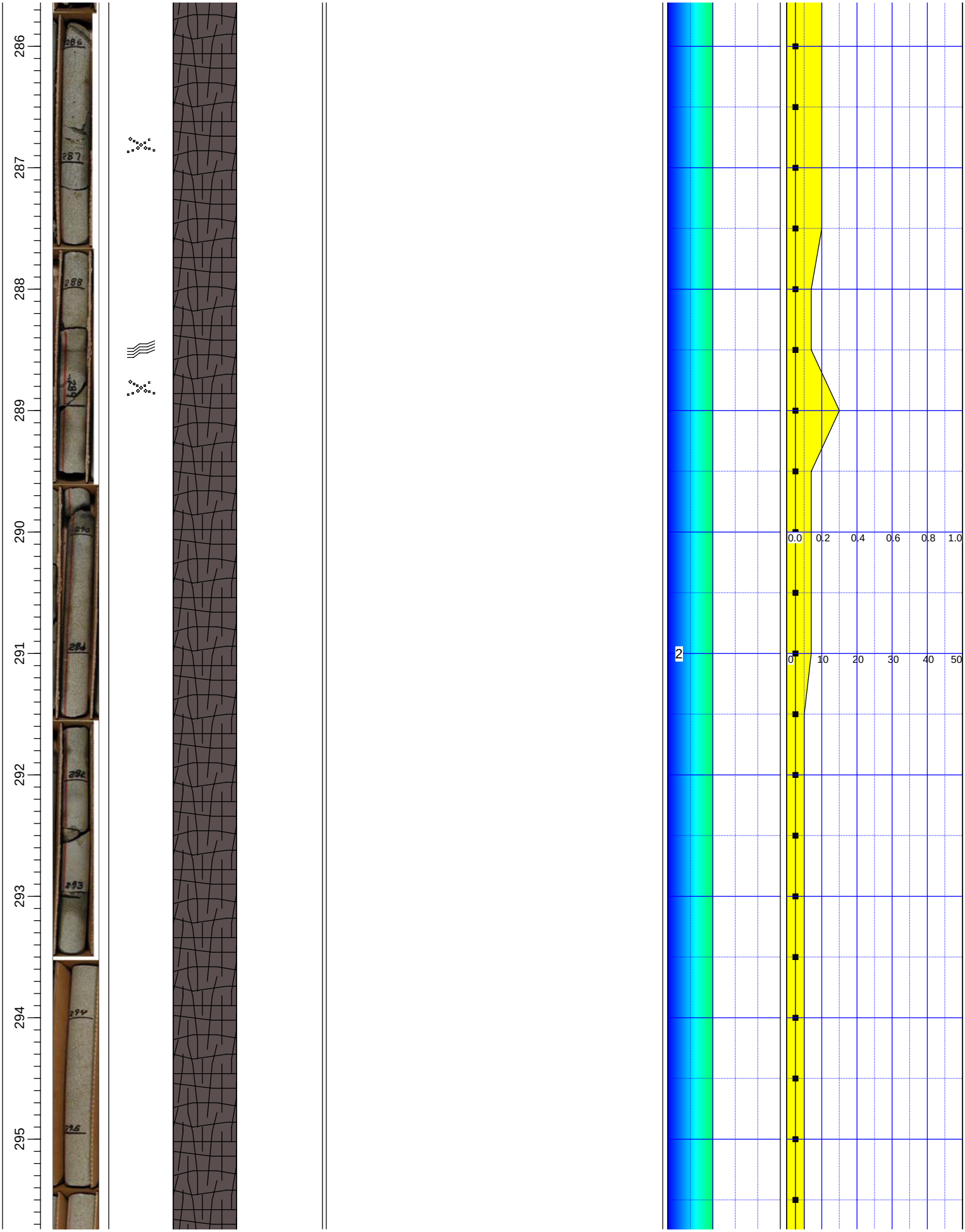
BASALT:
COLOR: Medium gray N5 to dark gray N3 basalt
TEXTURE: Vesicular aphanitic diktytaxitic basalt. Vesicles relatively large near top, moderate in size and fewer in number to 270.5 feet, then diktytaxitic to massive to diktytaxitic from 270.5 feet to 275 feet, then increasingly vesicular to base. Base is scoriaceous, and shows a mold of the underlying flow top.
COMPOSITION: Aphanitic vesicular basalt, 55% groundmass, 40% 1mm plagioclase needles, 5% subhedral 2 to 5 mm subhedral to euhedral green olivine phenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles,





BASALT:
COLOR: Medium gray N5 to dark gray N3 basalt
TEXTURE: Vesicular porphyritic diktytaxitic basalt. Vesicular at top, vesicles increase in size and decrease in number to 283.2 feet, then diktytaxitic from 283.5 feet to 299 feet, then increasingly vesicular to base. Vesicle sheets and planes are found from 283.5 to 289 feet. Pipe vesicles at 300.2 feet, flow/mold feature at base.
COMPOSITION: Aphanitic vesicular basalt, 60% 1x3 mm white plagioclase laths, 35% subhedral 0.5 to 3 mm subhedral to euhedral green olivine phenocrysts, 5% <1 mm black subhedral tabular pyroxene
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles,

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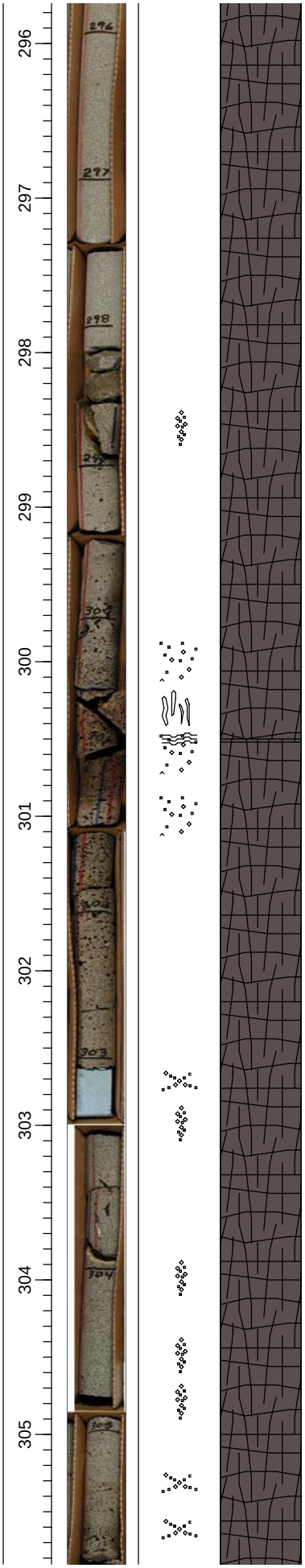
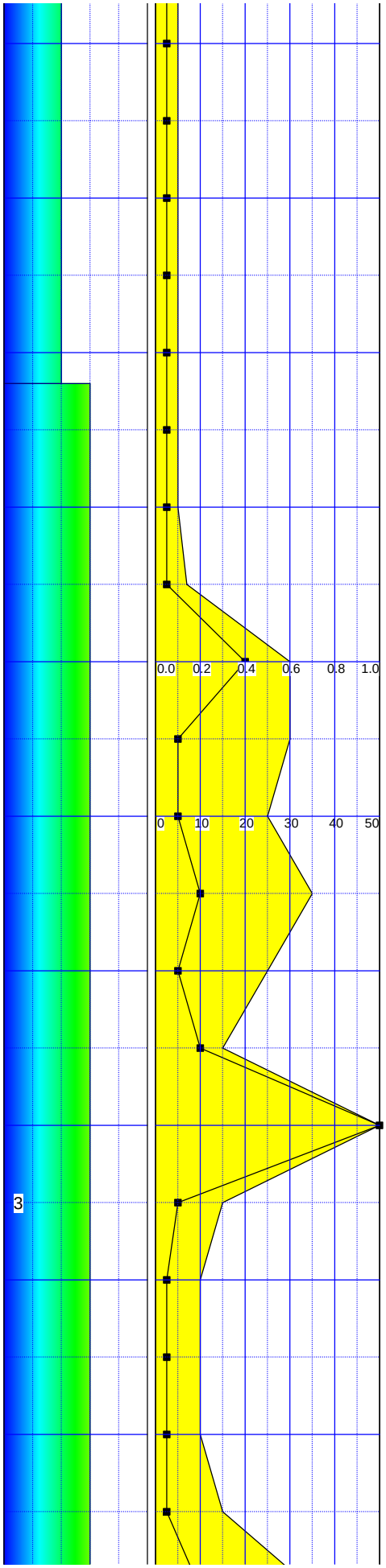
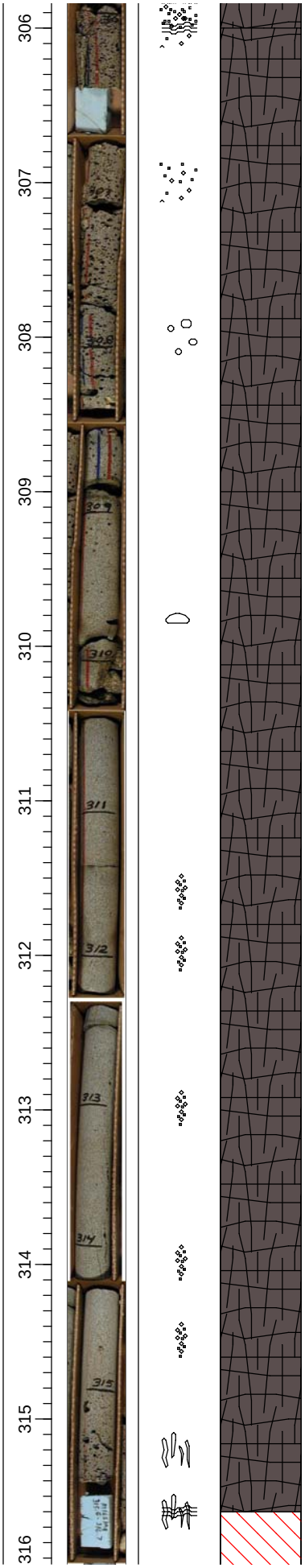


BASALT:
COLOR: Brownish gray 5 YR 4/1 to medium gray N5 basalt
TEXTURE: Vesicular porphyritic diktytaxitic basalt. Vesicular at top, vesicles increase in size and decrease in number to 303 feet, then diktytaxitic from 303 feet to 304.9 feet, then increasingly vesicular to base. Vesicle sheets are found from 302 to 303 feet. Vesicle columns are found from 303 to 304 feet. Megavesicle at 303.1 feet. Pipe vesicles at 305.8 feet, flow/mold feature at base.
COMPOSITION: Aphanitic vesicular basalt, 45% gray groundmass, 35% 1mm white plagioclase laths, 20% subhedral .5 to 3 mm subhedral to euhedral green olivine phenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, tan calcite found in a few large vesicles, black film inside of some vesicles, some clay is slightly calcareous





BASALT:
COLOR: Brownish gray 5 YR 4/1 to medium gray N5 basalt
TEXTURE: Vesicular porphyritic diktytaxitic basalt. Vesicular at top, vesicles increase in size and decrease in number to 310 feet, then diktytaxitic from 310 feet to 315.3 feet, then increasingly vesicular to base. Vesicle columns are found from 312.4 to 314.6 feet. Megavesicle at 309.8 feet. Pipe vesicles at 315.4 feet, flow/mold feature at base.
COMPOSITION: Aphanitic vesicular basalt, 40% gray groundmass, 35% 1mm white plagioclase laths, 20% subhedral 0.5 to 3 mm subhedral to euhedral green olivine phenocrysts, 5% black pyroxene phenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, tan calcite found in a few large vesicles, black or reddish film inside of some vesicles

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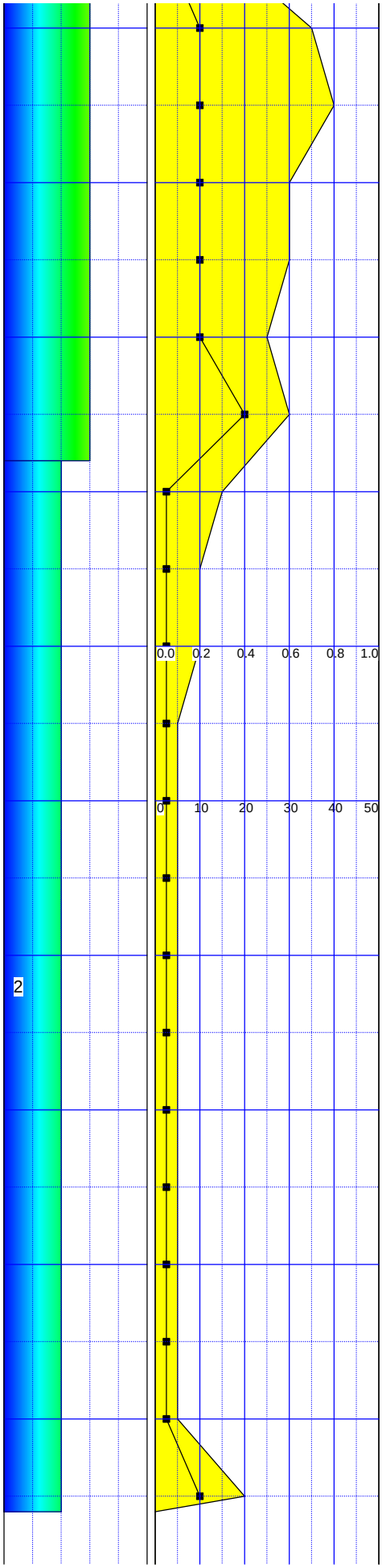
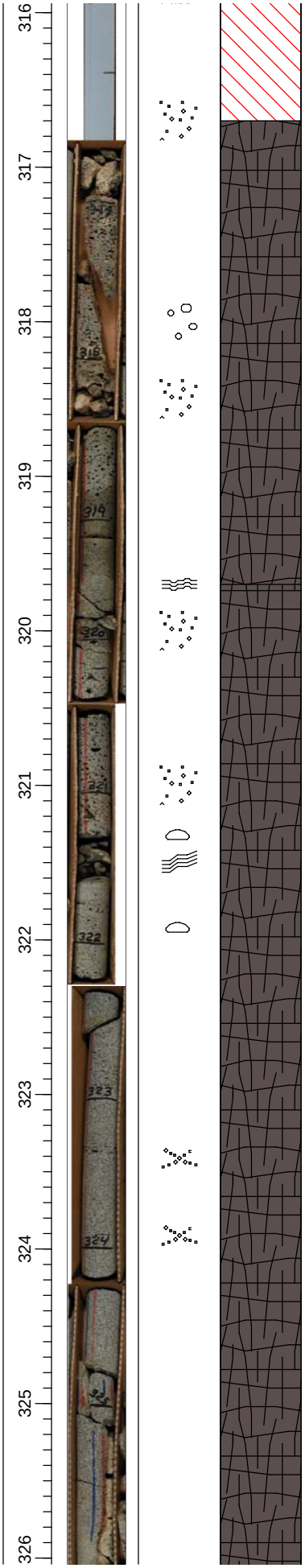
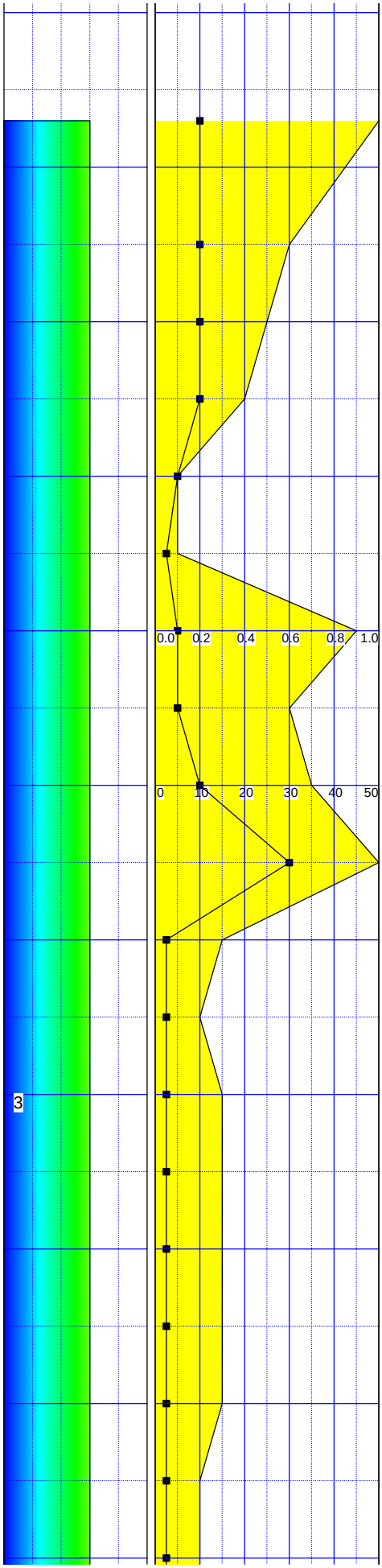
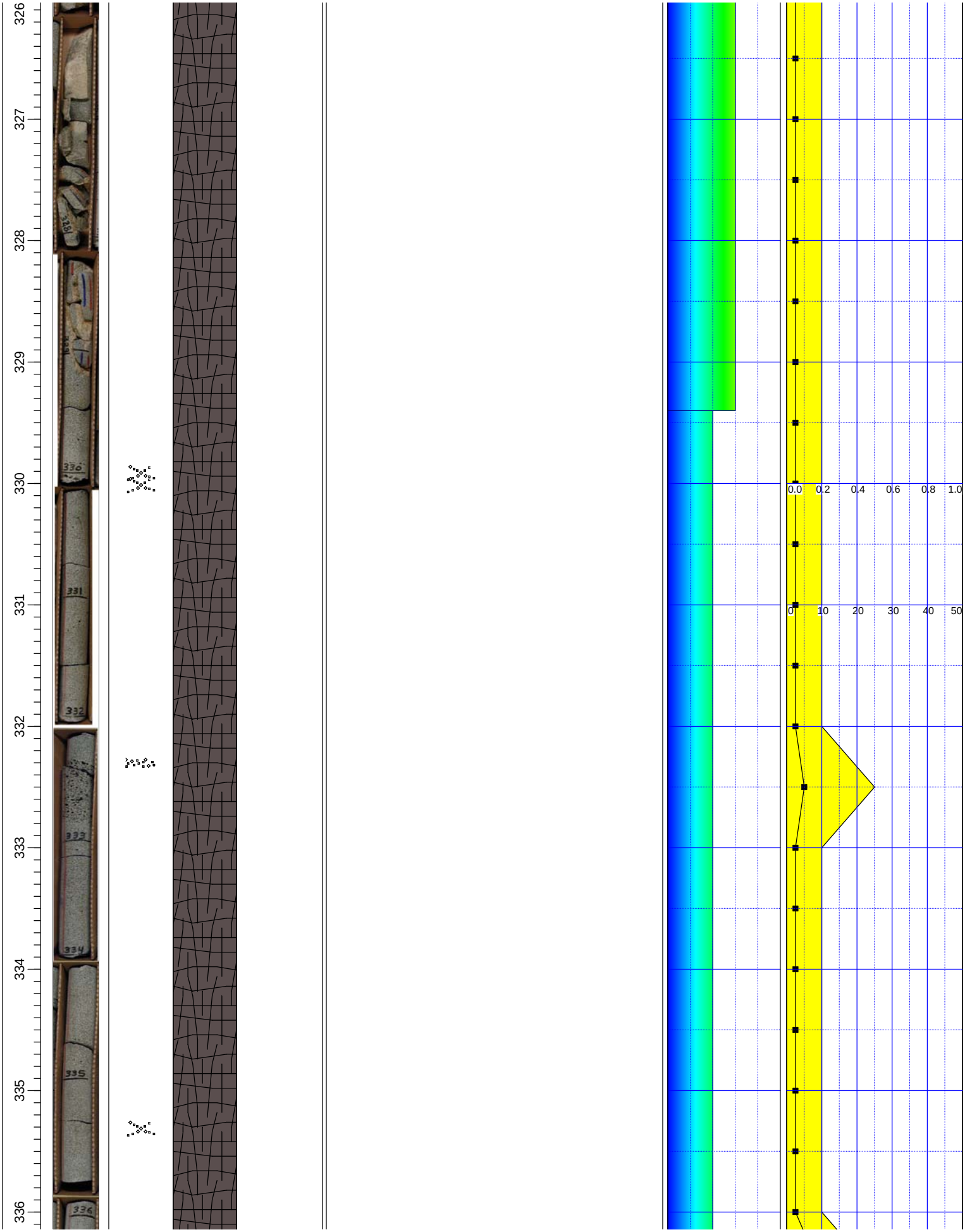




BASALT:
COLOR: Medium dark gray N3 basalt
TEXTURE: Vesicular porphyritic diktytaxitic basalt. Vesicular at top, vesicles increase in size and decrease in number to 318.3 feet, then diktytaxitic with fewer and smaller vesicles to base.
COMPOSITION: Aphanitic vesicular basalt, 75% gray groundmass, 20% <1mm white plagioclase needles, 5% subhedral .5 to 2 mm anhedral to subhedral green olivine phenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, 0.1 foot massive, chalky white calcite fragment with angular basalt fragments at 318.3'

BASALT:
COLOR: Medium gray N5 basalt
TEXTURE: Vesicular porphyritic diktytaxitic basalt. Vesicular at top, vesicles increase in size and decrease in number to 321 feet, then diktytaxitic with vesicle planes from 321 feet to 348.8 feet, then increasingly vesicular to base. Vesicle columns are found from 345.5 to 347 feet. Megavesicle at 321.3 feet. Pipe vesicles from 348 to 349 feet, pahoehoe flow feature at top, mold of underlying flow feature at base.
COMPOSITION: Aphanitic vesicular basalt, 45% gray groundmass, 35% 1 mm white plagioclase laths, 20% subhedral 0.5 to 1 mm anhedral to subhedral green olivine phenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles

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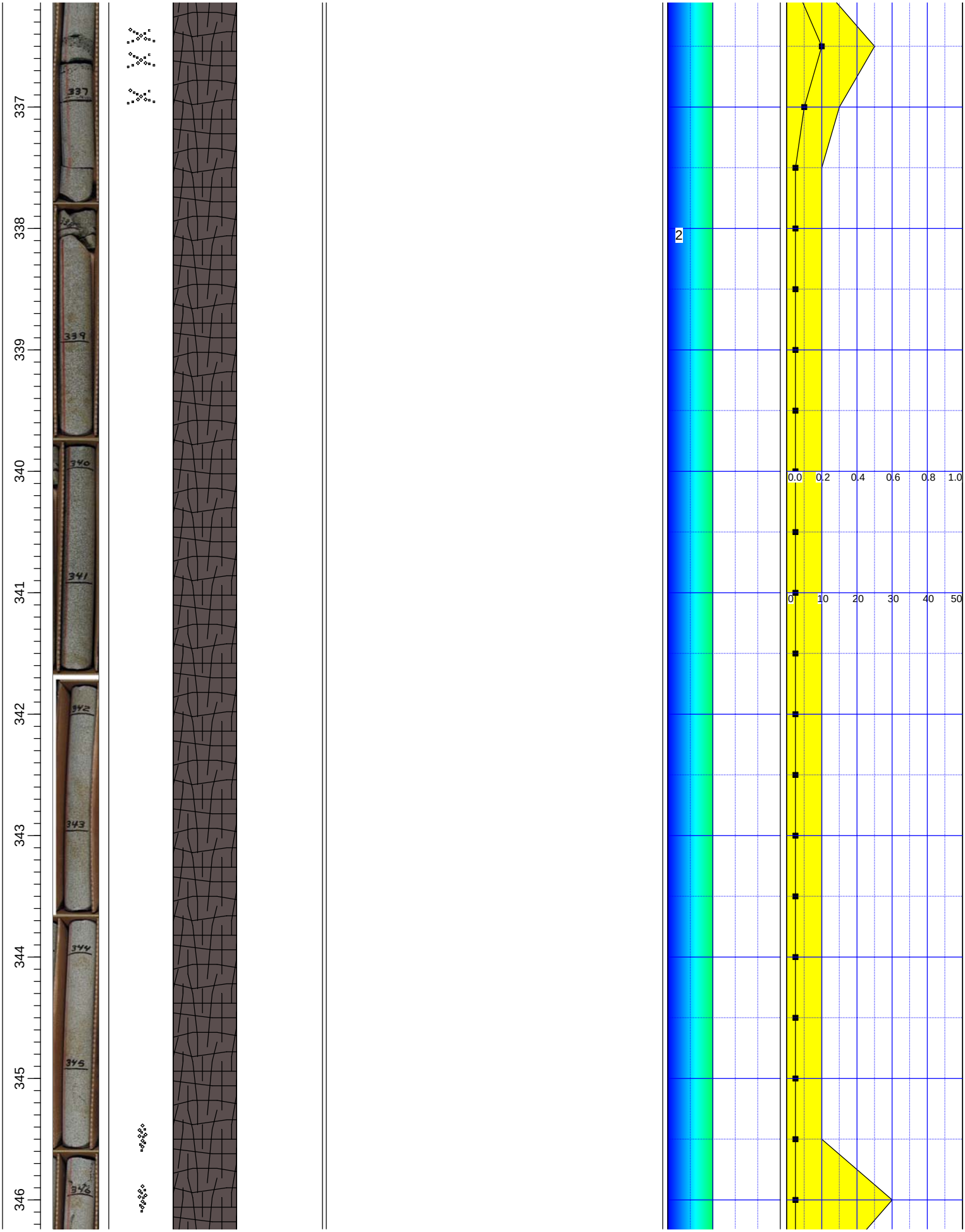
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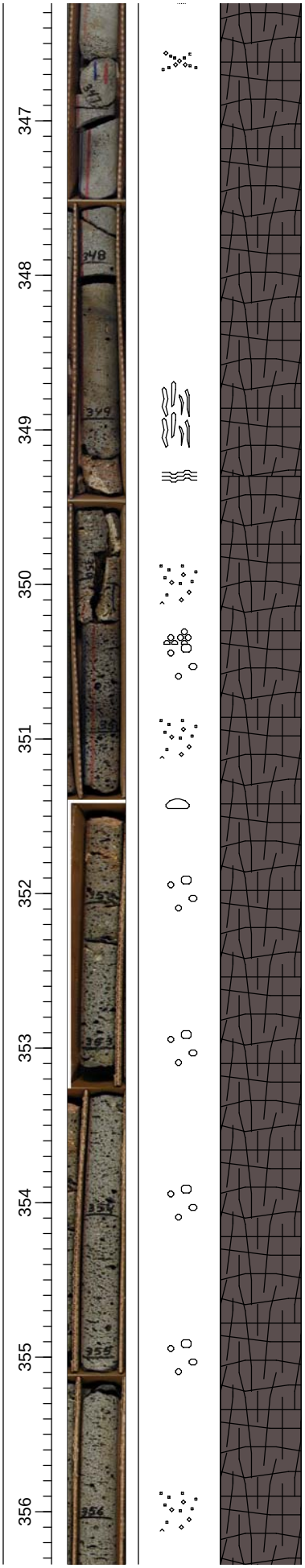
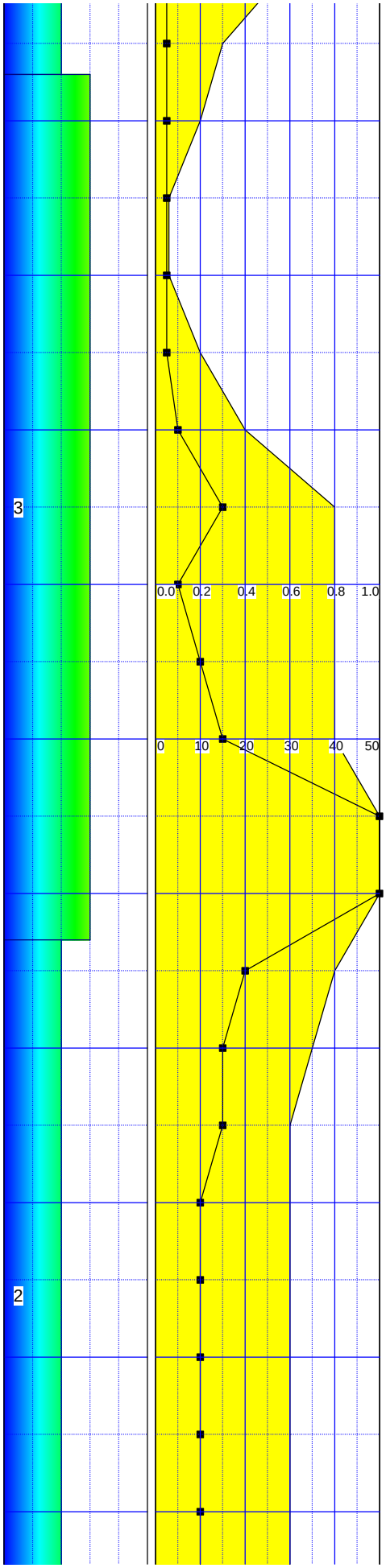
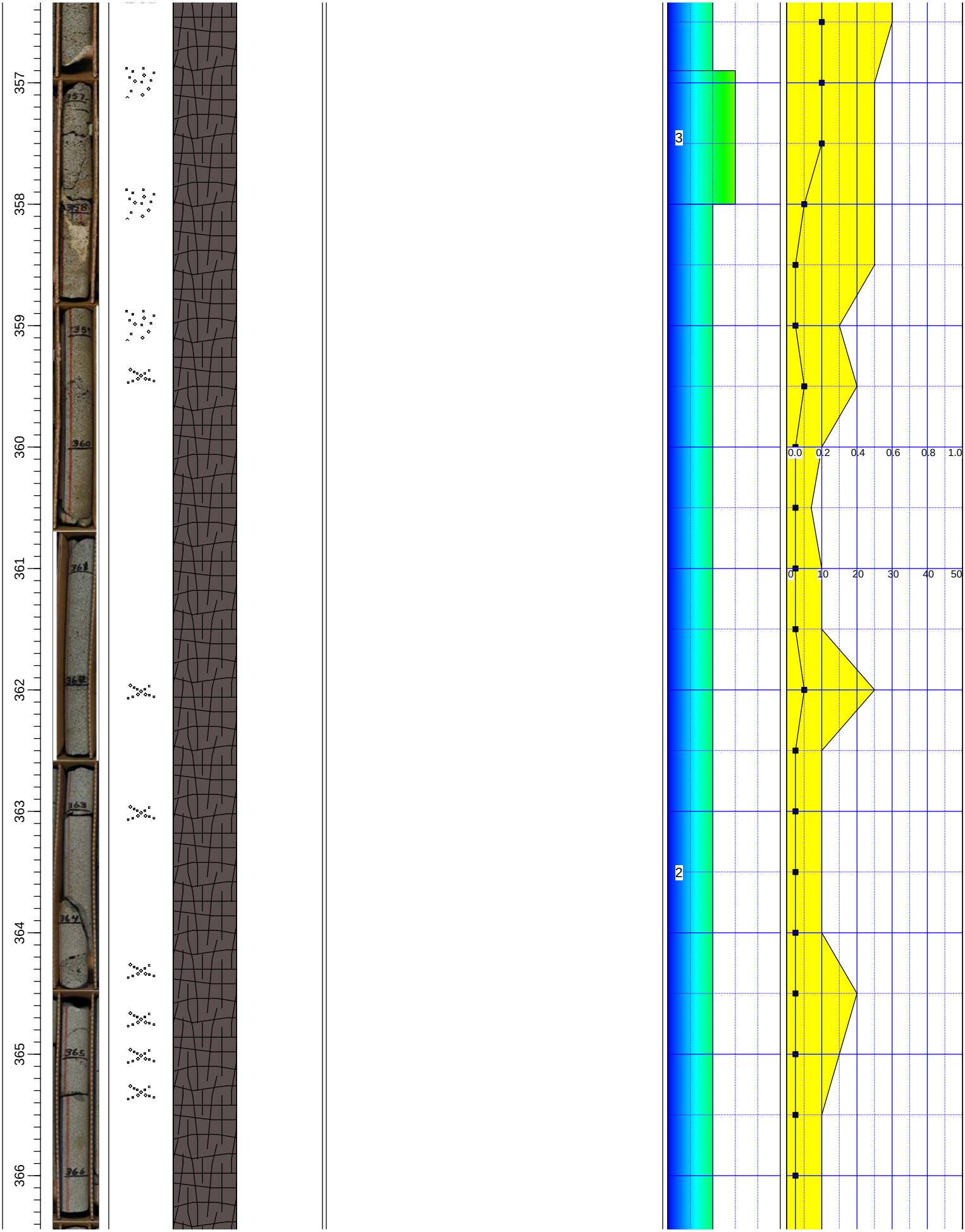


BASALT:
COLOR: Medium gray N5 basalt
TEXTURE: Vesicular microporphyritic diktytaxitic basalt. Vesicular at top, vesicles increase in size and decrease in number to 355 feet, then moderately vesicular and diktytaxitic to 358 feet. Diktytaxitic with vesicle planes from 358 to 369.5 feet, then massive to 372 feet. Below 372 feet, diktytaxitic to 378 feet, then increasingly vesicular to base. Vesicle columns are found at 375.5 and 377 feet. Megavesicles found from 352 to 357.5 feet. Mold of underlying surface (soil) at base.
COMPOSITION: Aphanitic vesicular basalt, 5% 1 mm white plagioclase laths, 35% < 0.5 mm anhedral to subhedral green olivine phenocrysts, some with brown rims.
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles; reddish clay/silt fills some vesicles at top

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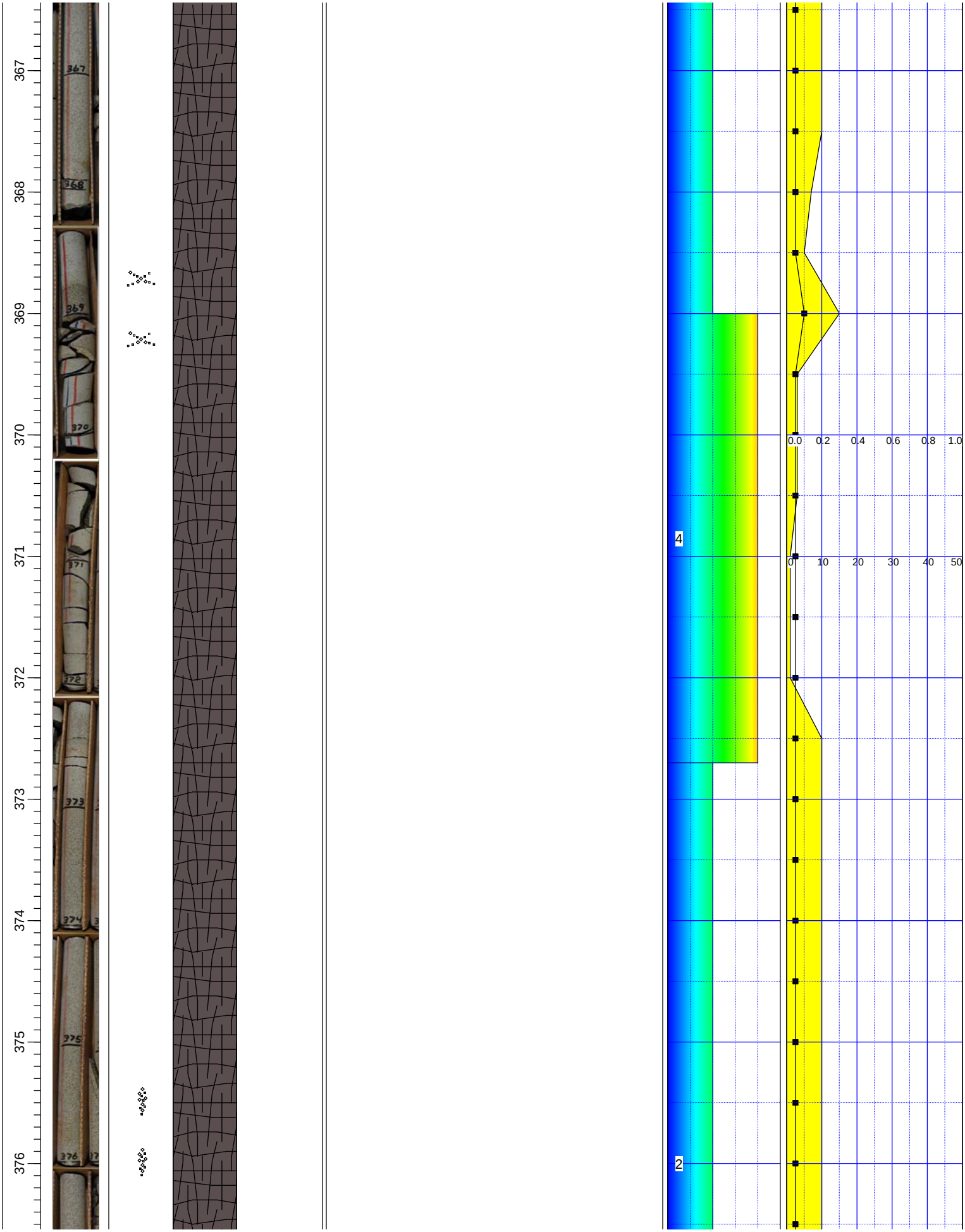
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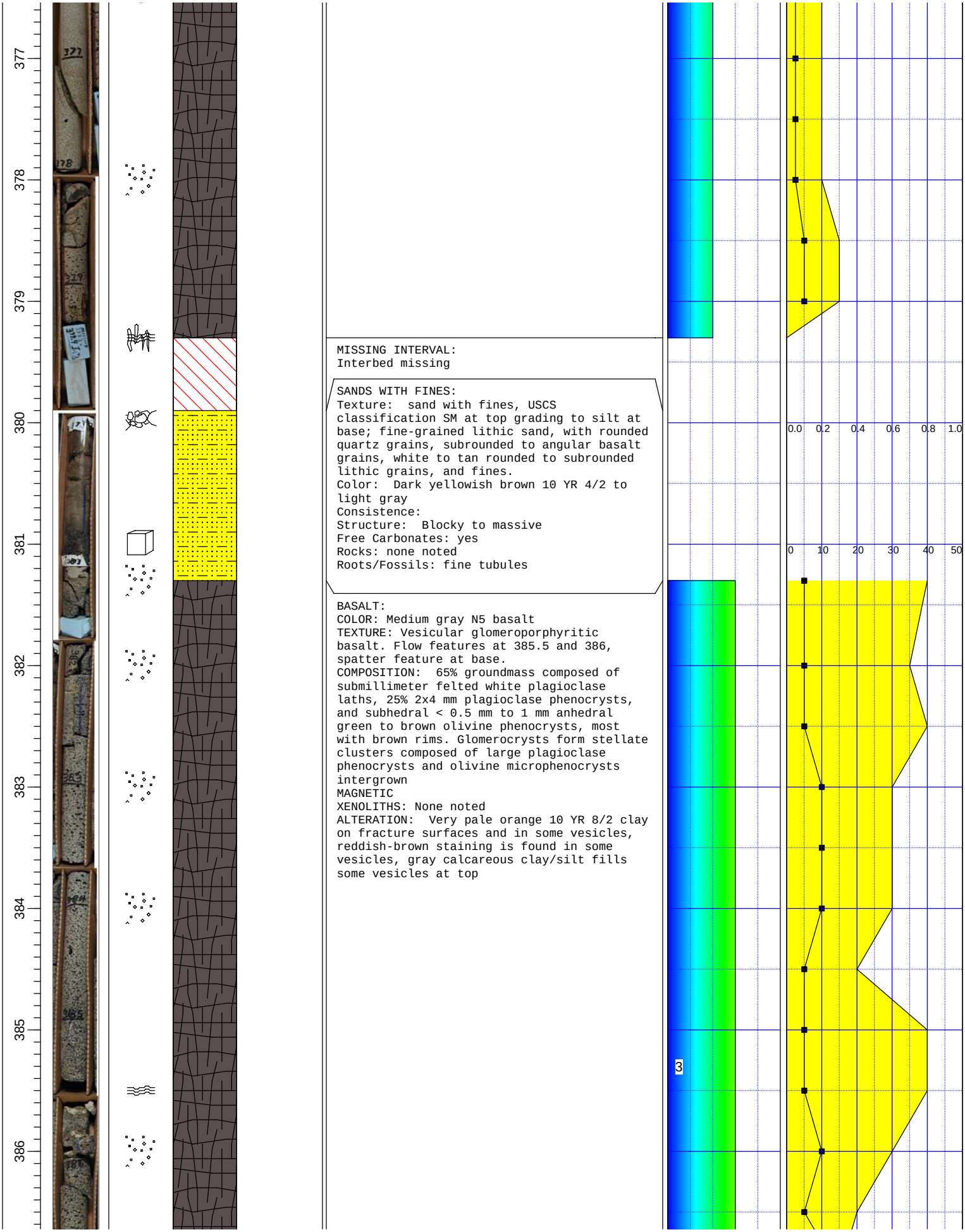

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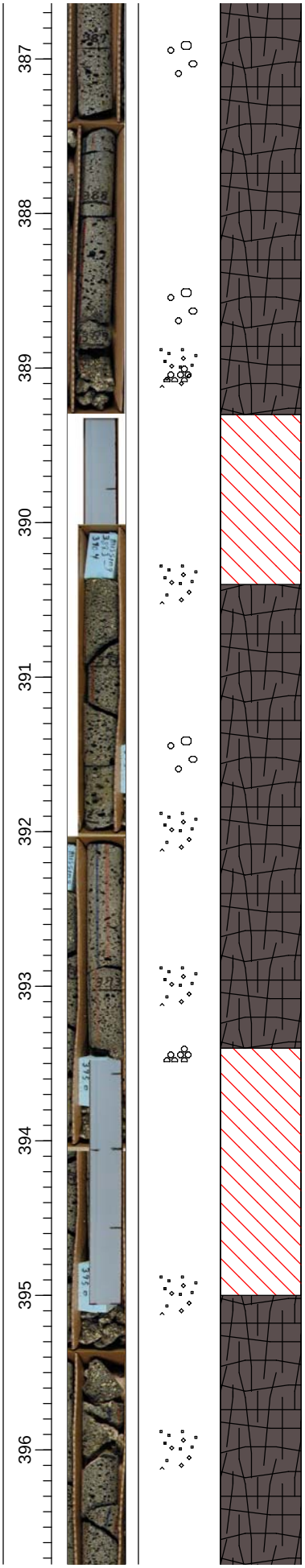
SANDS WITH FINES:
Texture: sand with fines, USCS classification SM at top grading to silt at base; fine-grained lithic sand, with rounded quartz grains, subrounded to angular basalt grains, white to tan rounded to subrounded lithic grains, and fines.
Color: Dark yellowish brown 10 YR 4/2 to light gray
Consistence:
Structure: Blocky to massive
Free Carbonates: yes
Rocks: none noted
Roots/Fossils: fine tubules

BASALT:
COLOR: Medium gray N5 basalt
TEXTURE: Vesicular glomeroporphyritic basalt. Flow features at 385.5 and 386, spatter feature at base.
COMPOSITION: 65% groundmass composed of submillimeter felted white plagioclase laths, 25% 2x4 mm plagioclase phenocrysts, and subhedral < 0.5 mm to 1 mm anhedral green to brown olivine phenocrysts, most with brown rims. Glomerocrysts form stellate clusters composed of large plagioclase phenocrysts and olivine microphenocrysts intergrown
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown staining is found in some vesicles, gray calcareous clay/silt fills some vesicles at top



MISSING INTERVAL:
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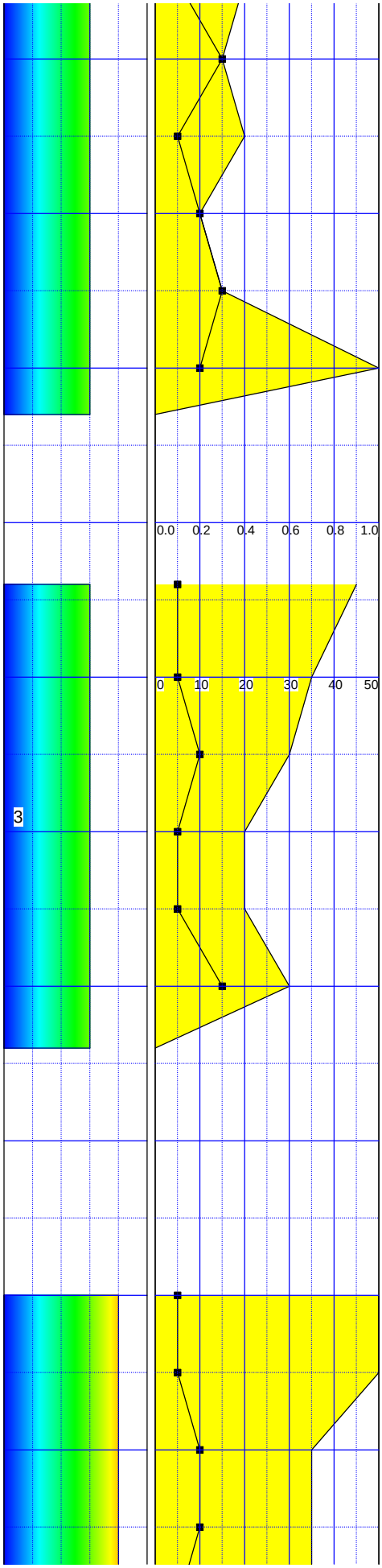
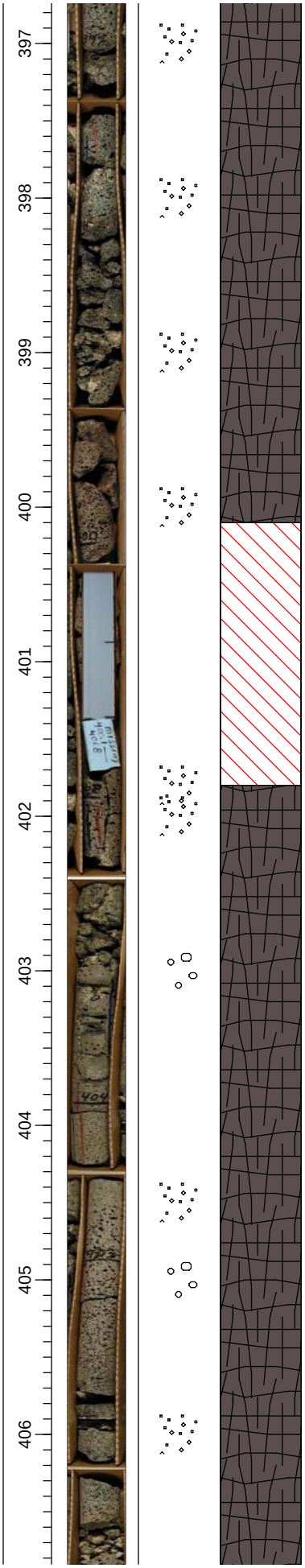
BASALT:
COLOR: Medium gray N5 basalt
TEXTURE: Vesicular glomeroporphyritic basalt. Mold of underlying surface (soil) at base.
COMPOSITION: 65% groundmass composed of submillimeter felted white plagioclase laths, 25% 2x4 mm plagioclase phenocrysts, and subhedral < 0.5 mm to 1mm anhedral green to brown olivine phenocrysts, most with brown rims. Glomerocrysts form stellate clusters composed of large plagioclase phenocrysts and olivine microphenocrysts
MAGNETIC
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 clay on fracture surfaces and in some vesicles, reddish-brown staining is found in some vesicles, reddish clay/silt fills some vesicles at top

MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Medium gray N5 at top to pale brown 5 YR 5/2 at base basalt
TEXTURE: Vesicular glomeroporphyritic basalt. Spatter feature at top, mold of underlying surface (soil) at base.
COMPOSITION: 65% groundmass composed of submillimeter felted white plagioclase laths, 25% 2x4 mm plagioclase phenocrysts, and subhedral < 0.5 mm to 1 mm anhedral green to brown olivine phenocrysts, most with brown rims. Glomerocrysts form stellate clusters composed of large plagioclase phenocrysts and olivine microphenocrysts intergrown
MAGNETIC



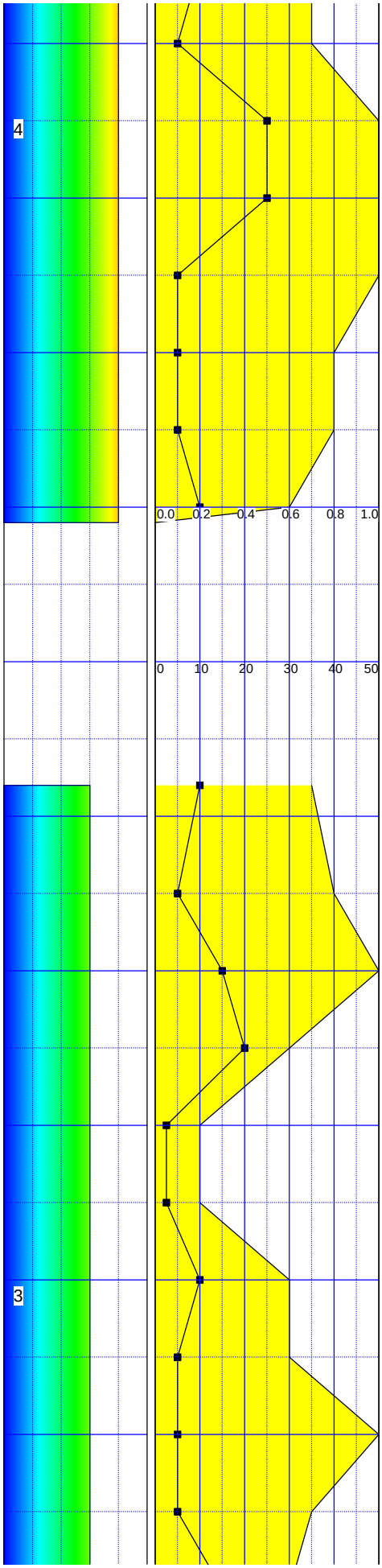


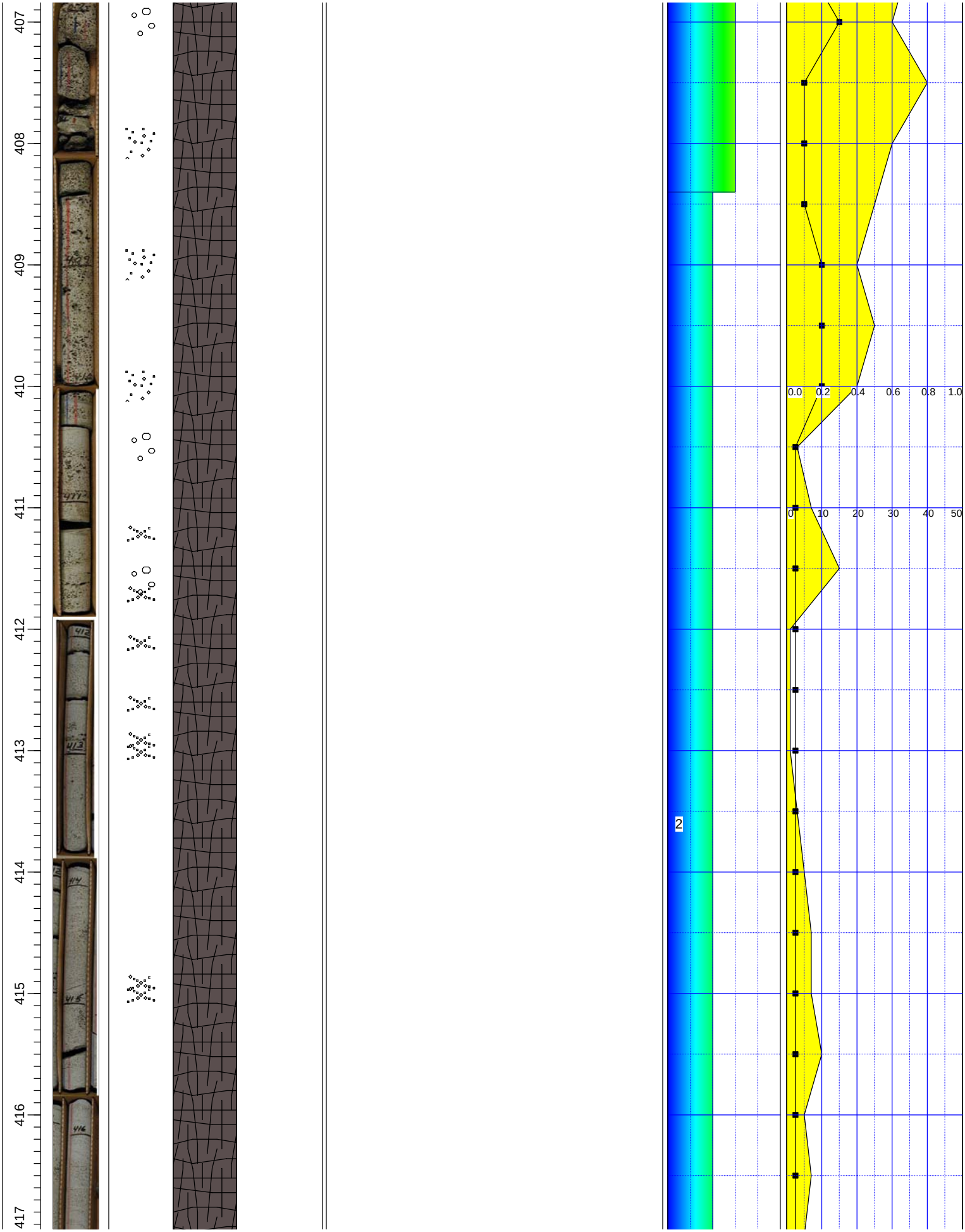
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 calcitic clay on fracture surfaces and in some vesicles; reddish-brown staining is found in some vesicles, reddish clay/silt fills some vesicles at top

MISSING INTERVAL:
Missing interval, no information

BASALT:
COLOR: Medium gray N5 basalt
TEXTURE: Vesicular to 412 feet; in general, size of vesicles increases with depth and number decreases to 410 feet; diktytaxitic with vesicle sheets and planes to 438, megavesicles from 428 to 429. massive with a few small vesicles to 440, massive to 446.2 feet, then increasingly vesicular to base, few small pipe vesicles at base, base shows flow textures
COMPOSITION: 75% gray groundmass, 15% very small < 1mm plagioclase needles, and 10% olivine subhedral < 0.5 mm to 1 mm anhedral green to brown olivine phenocrysts, most with brown rims. As depth increases, olivine phenocrysts are agglomerated into clumps 5mm in diameter.
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 calcitic clay on fracture surfaces and in some vesicles, reddish-brown staining is found in some vesicles, reddish clay/silt fills some vesicles at top,

Change to PQ size core at 438.2 feet

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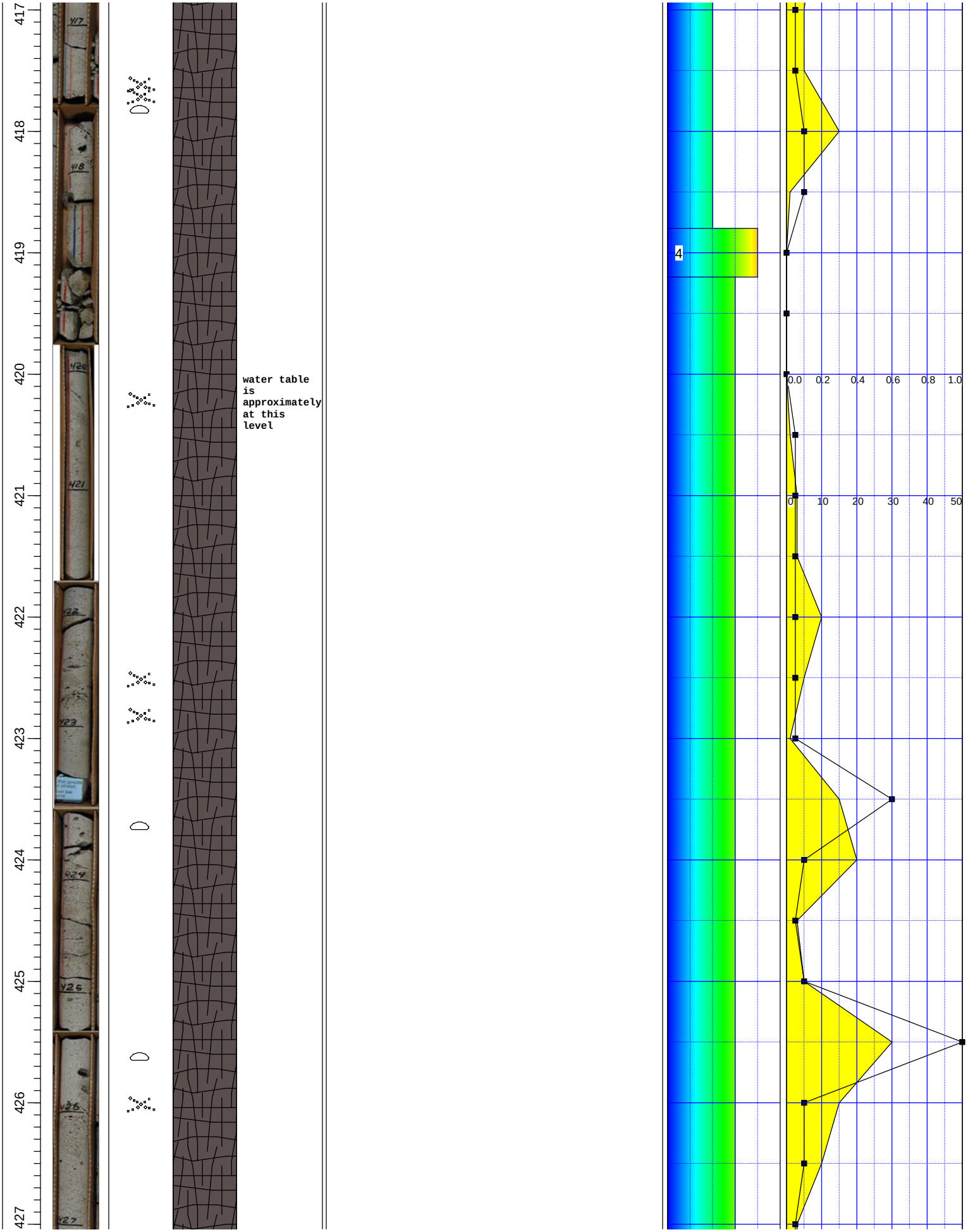
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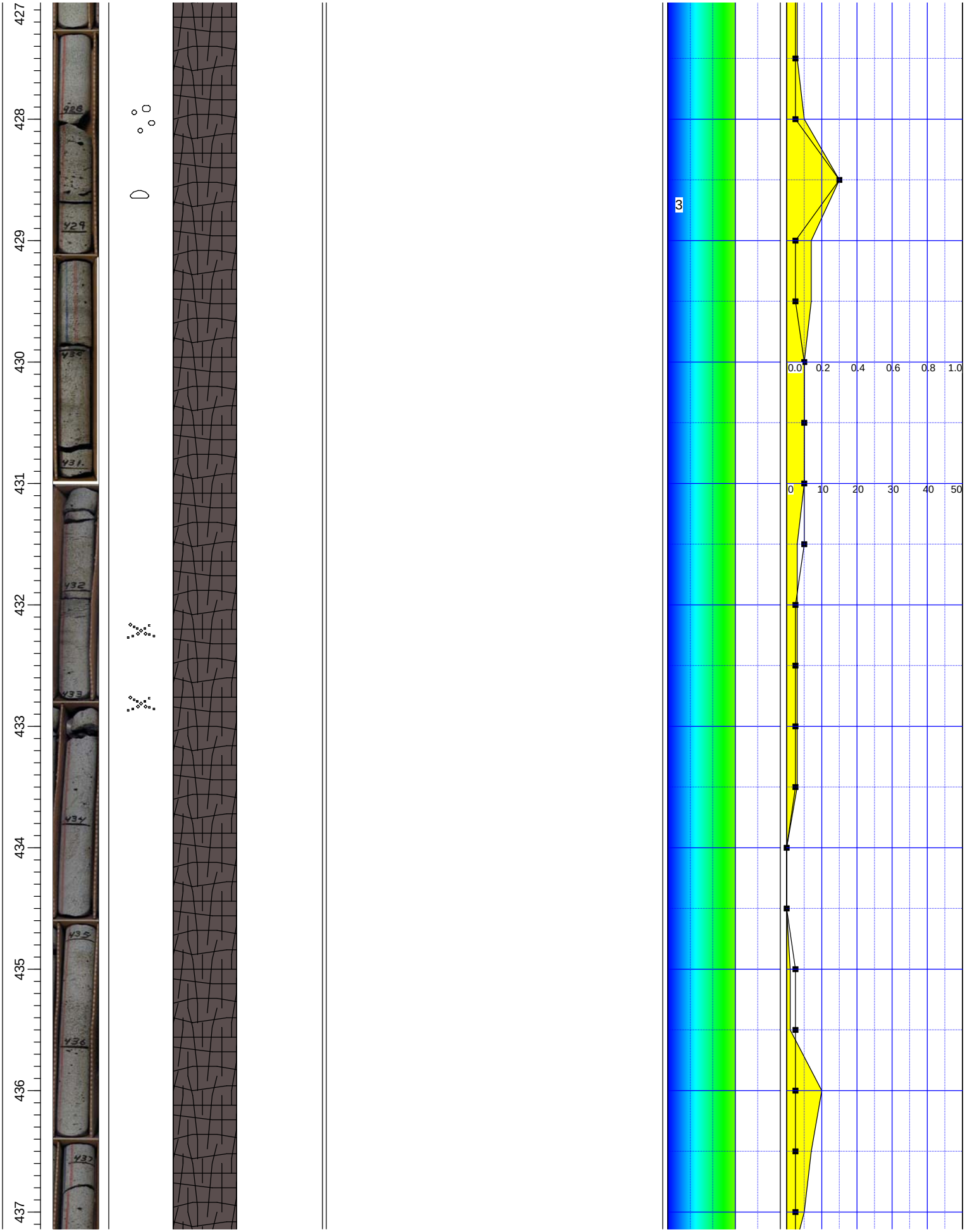
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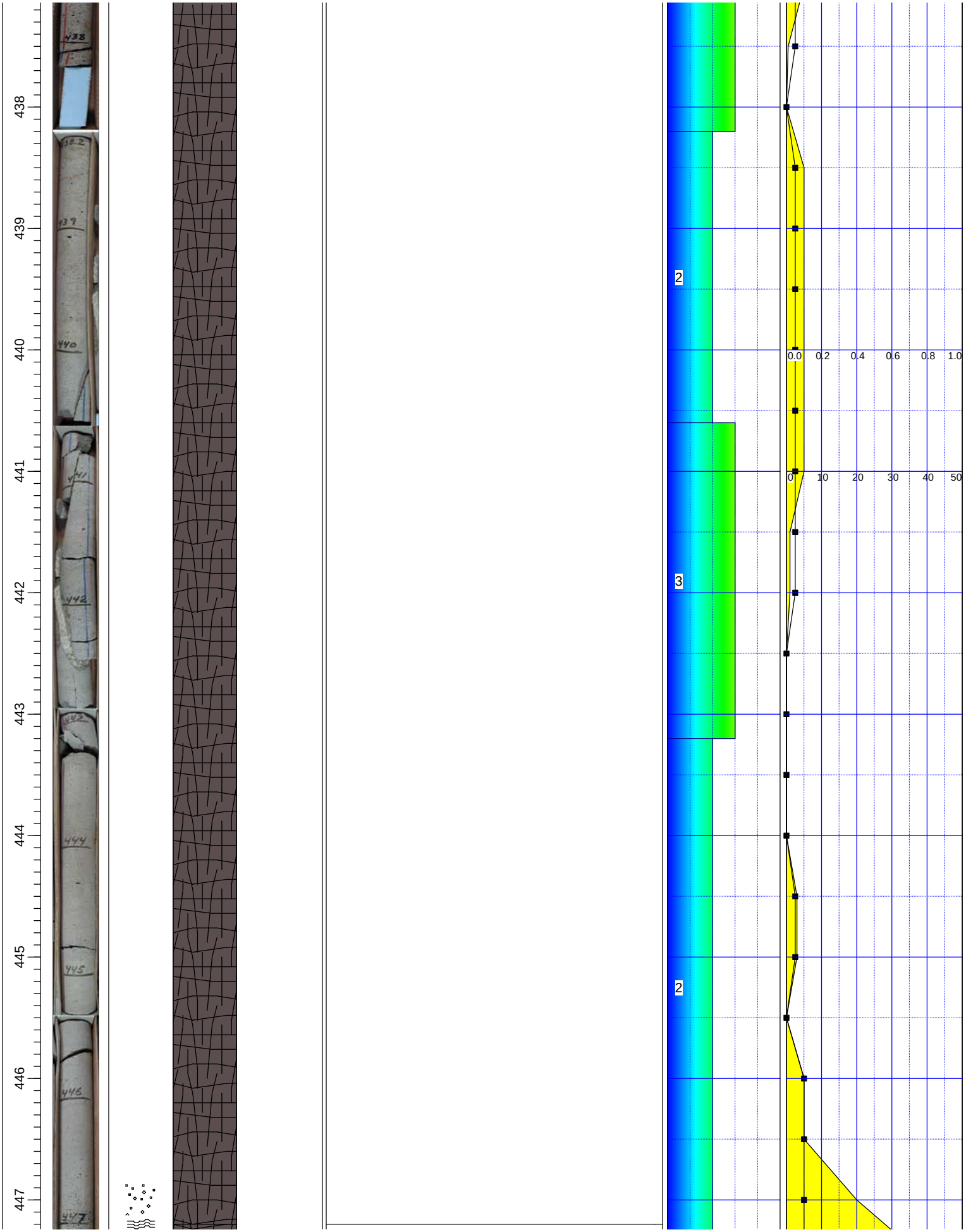
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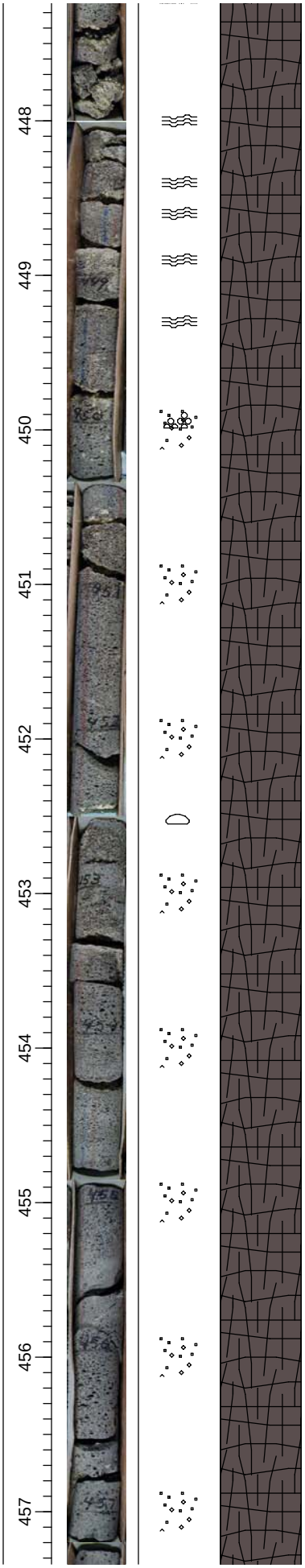
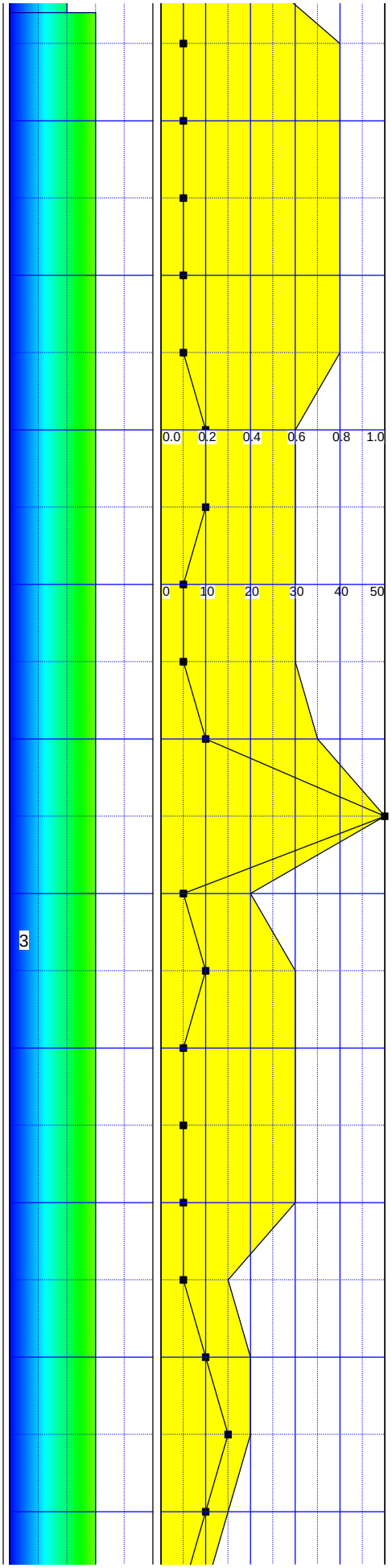
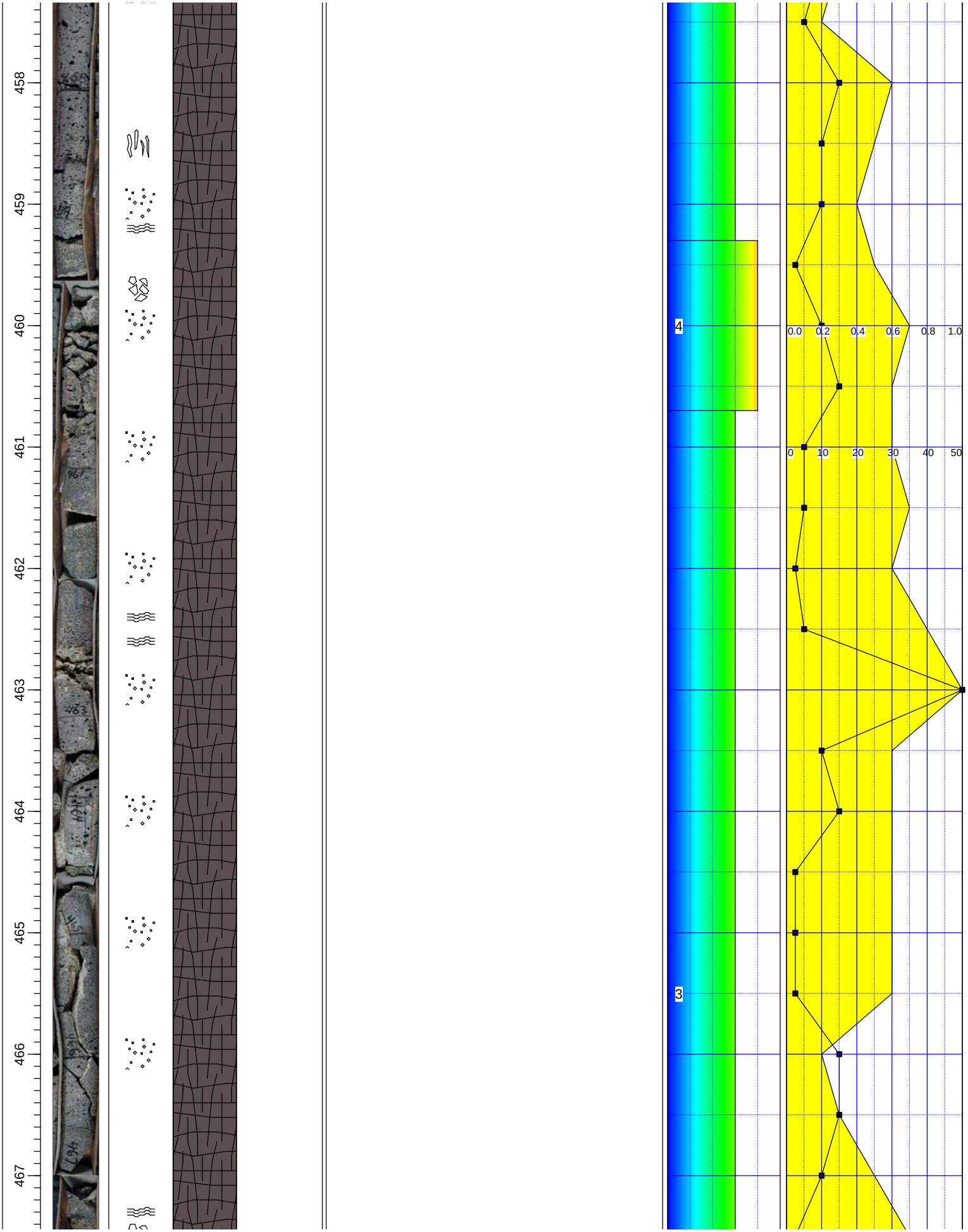


BASALT:
COLOR: Dark gray N3 to medium dark gray N4 basalt
TEXTURE: Aphanitic diktytaxitic vesicular basalt. Vesicular and diktytaxitic to 475 feet; in general, size of vesicles increases with depth and number decreases to 471.8 feet, vesicle sheets and planes to 472.4, massive with a few small vesicles to 477, massive to 479.3 feet, then increasingly vesicular to base; base shows spatter and flow textures; top of interval to 451.9 feet shows vesicular overlapping flow structures and again at 462.6 and from 467 to 470.3 feet
COMPOSITION: 70% 1-2mm plagioclase needles, 25% subhedral to anhedral green olivine microphenocrysts, 5% 4-8mm reddish brown olivine glomerocrysts composed of subhedral to anhedral olivine microphenocrysts with green cores Grain size increases with depth to 483.4 feet, then finer to base
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 calcareous clay on fracture surfaces and in some vesicles, reddish-brown staining is found on some surfaces and in some vesicles,

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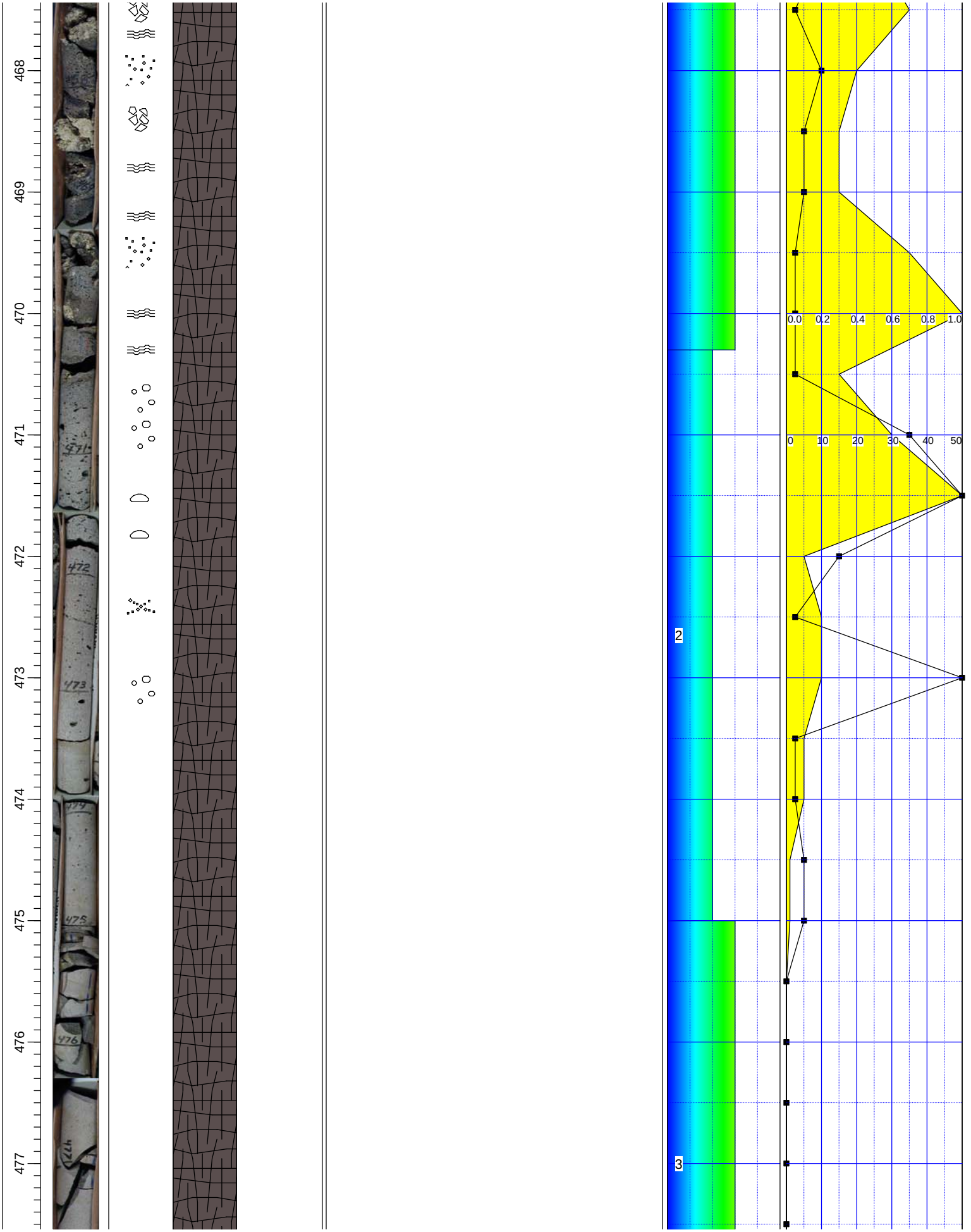
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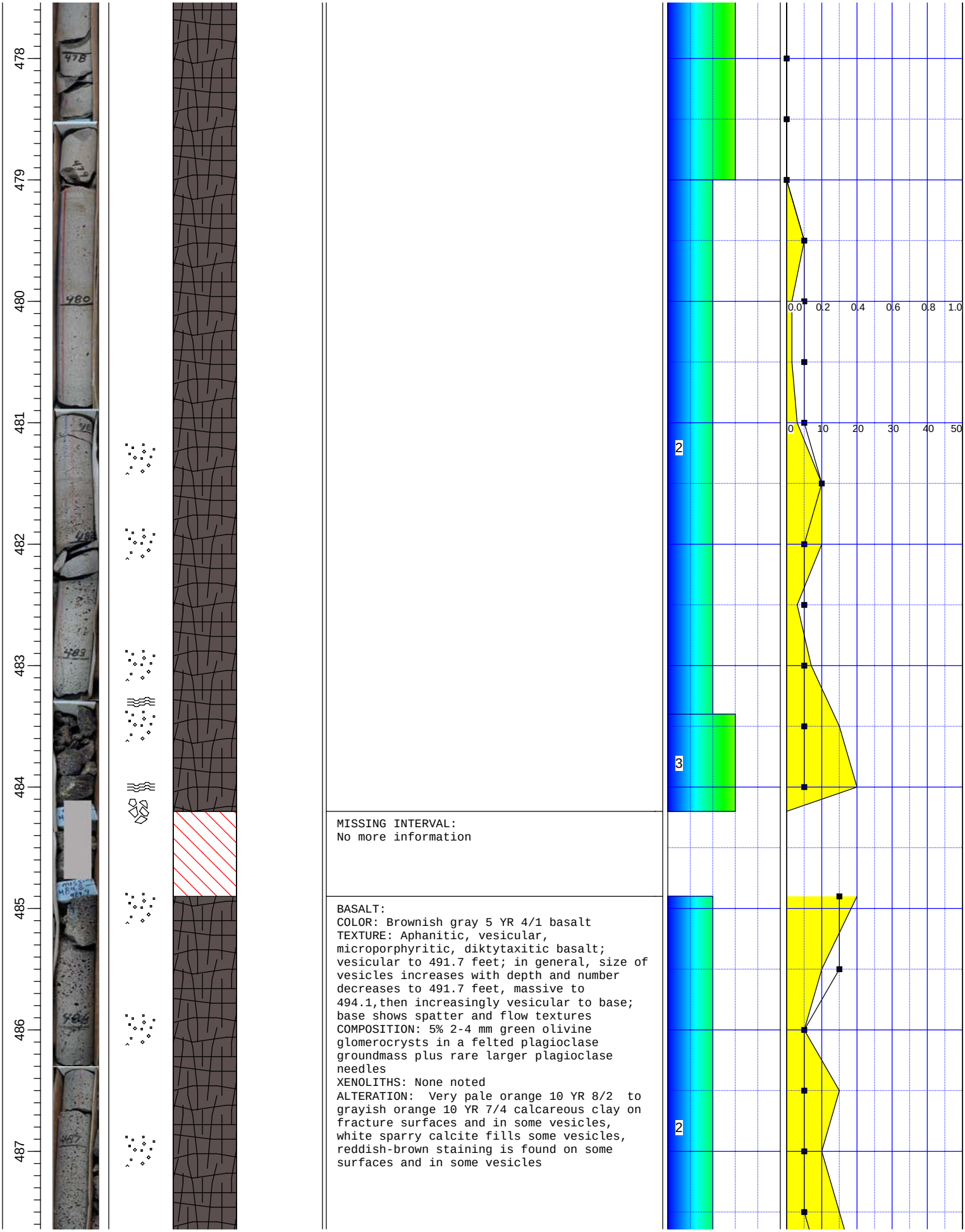

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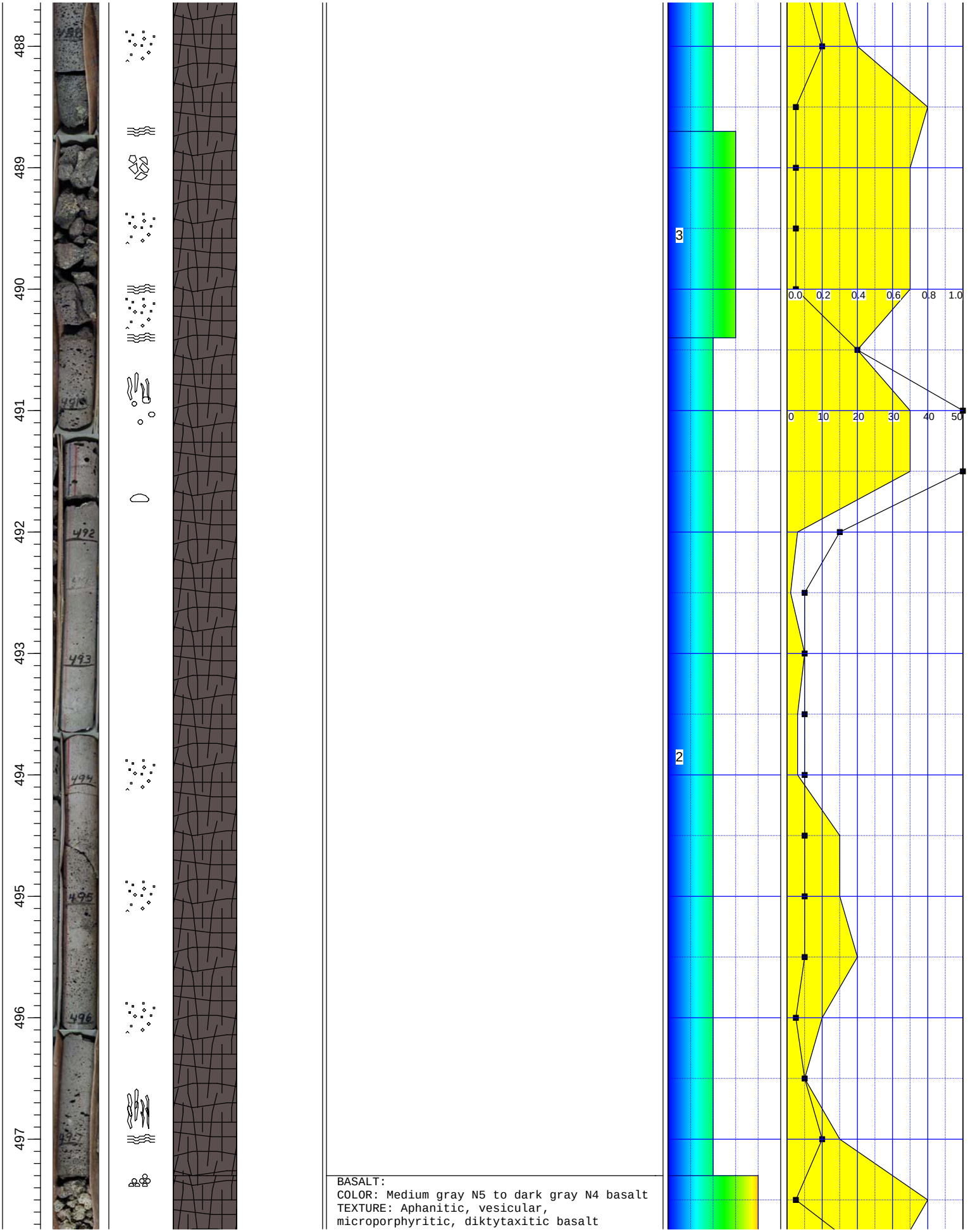
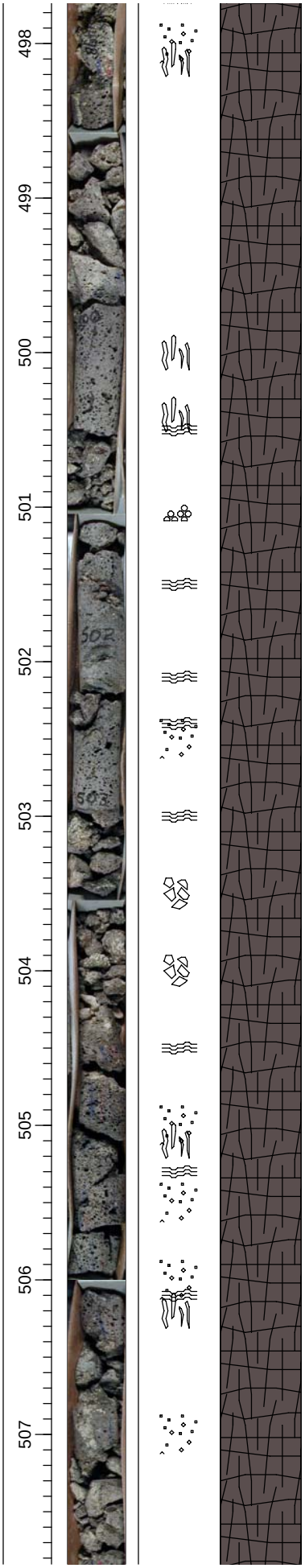
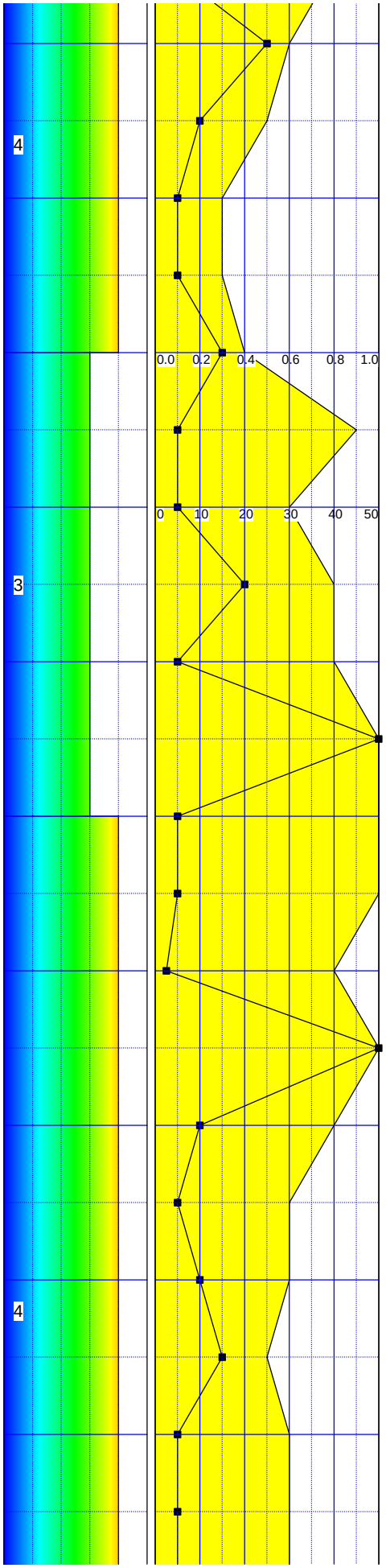
BASALT:
COLOR: Brownish gray 5 YR 4/1 basalt
TEXTURE: Aphanitic, vesicular, microporphyritic, diktytaxitic basalt; vesicular to 491.7 feet; in general, size of vesicles increases with depth and number decreases to 491.7 feet, massive to 494.1,then increasingly vesicular to base; base shows spatter and flow textures
COMPOSITION: 5% 2-4 mm green olivine glomerocrysts in a felted plagioclase groundmass plus rare larger plagioclase needles
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 to grayish orange 10 YR 7/4 calcareous clay on fracture surfaces and in some vesicles, white sparry calcite fills some vesicles, reddish-brown staining is found on some surfaces and in some vesicles

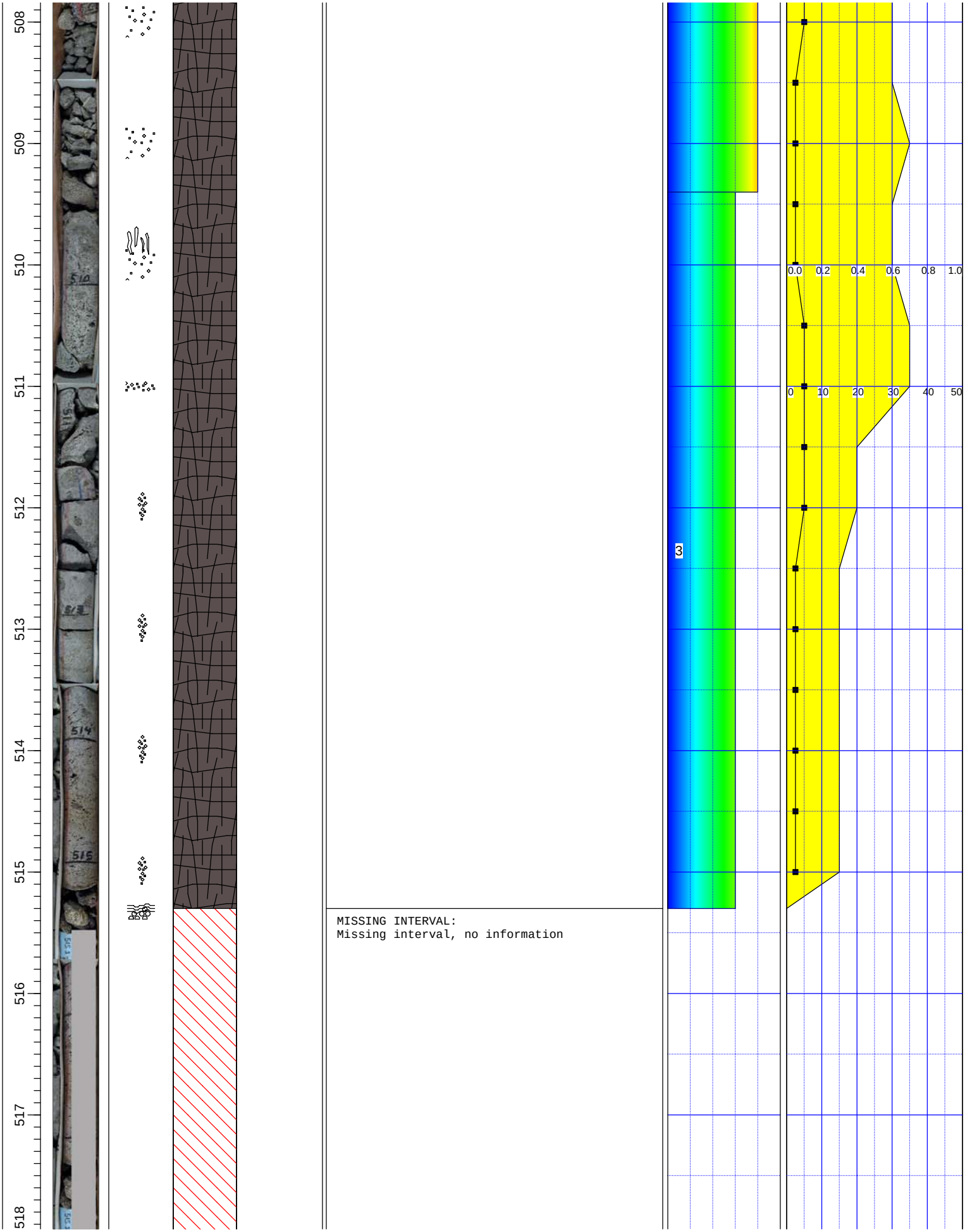


BASALT:
COLOR: Medium gray N5 to dark gray N4 basalt
TEXTURE: Aphanitic, vesicular,
microporphyritic, diktytaxitic basalt



rubble with intermixed fragments of white or very pale orange 10 YR 8/2 calcareous clay from top to 498, and from 503 to 504 feet, and 506 to 509.4, flow textures at 500.5 to 501, 503, 504 and 506 feet and at base, pipe vesicles at 500.7, 506.3, 510.6, vesicle planes sheets and columns from 509.4 to base
COMPOSITION: 3% subhedral olivines in a dark gray groundmass
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 to grayish orange 10 YR 7/4 calcareous clay on fracture surfaces and in some vesicles, reddish-brown or black film is found on some surfaces and in some vesicles

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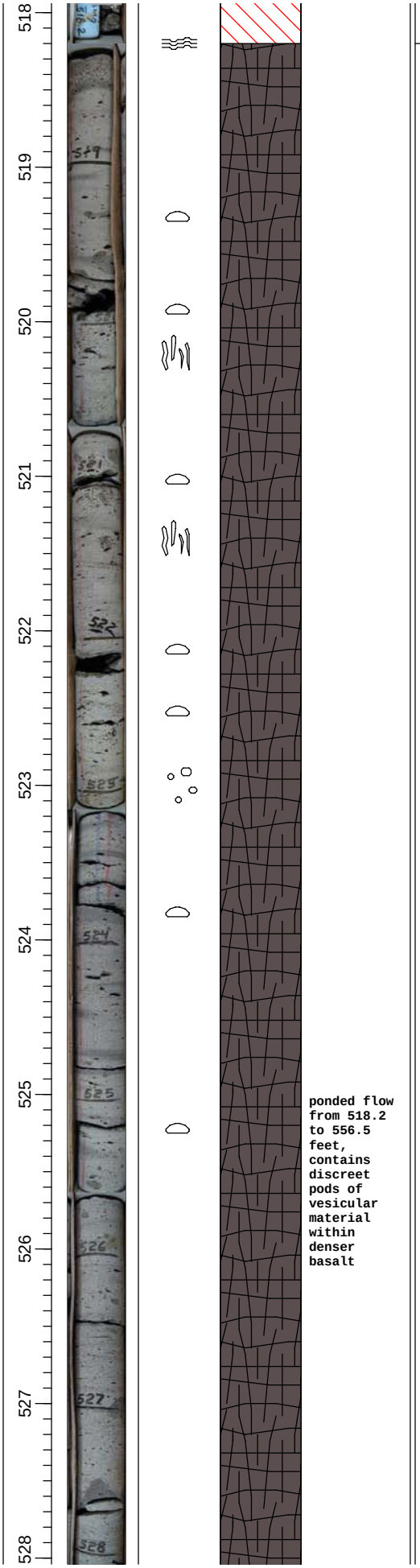
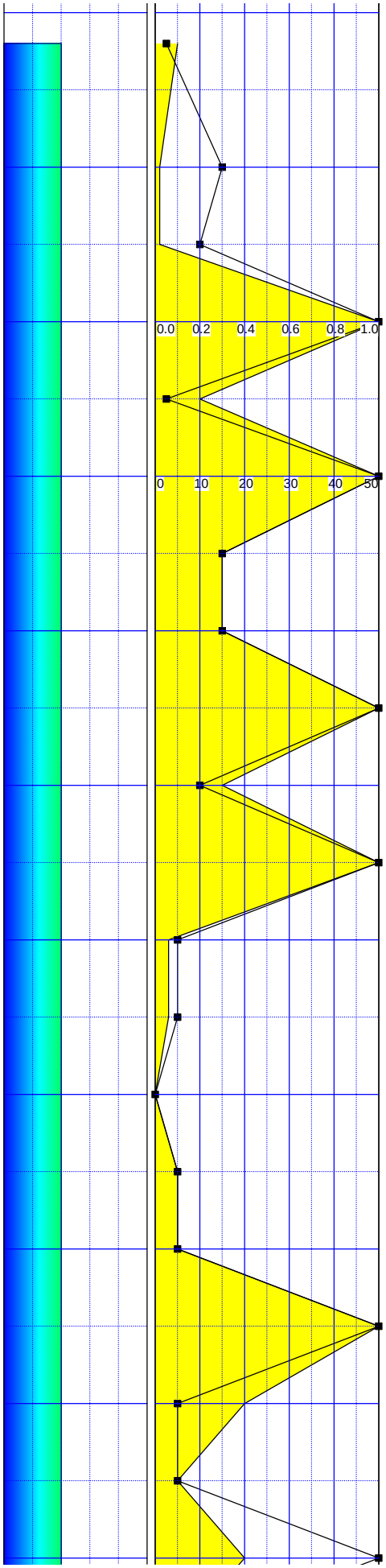
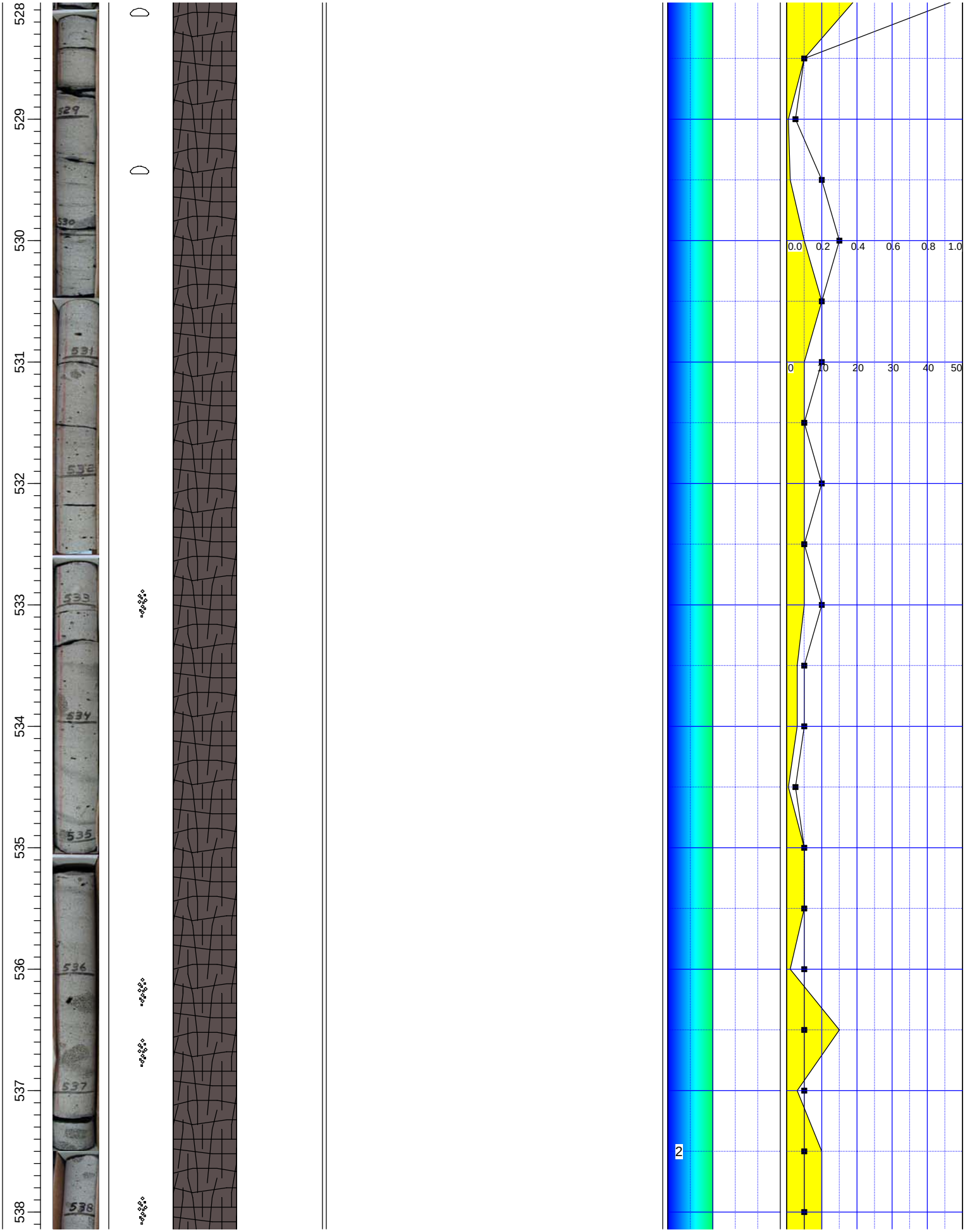


BASALT:
COLOR: Medium gray N5 basalt
TEXTURE: Aphanitic vesicular basalt with vesicle sheets, planes and columns, agglutinated spatter and flow texture at base, vesicle planes host aggregates of black euhedral pyroxene phenocrysts
COMPOSITION: 1% green subhedral olivine microphenocrysts in a dark gray groundmass
XENOLITHS: At 544.5 feet, there is an area of red and green that appears to be an aggregate of very small rounded olivines.
ALTERATION: Very pale orange 10 YR 8/2 to grayish orange 10 YR 7/4 clay on fracture surfaces and in some vesicles, sparry calcite fills a few vesicles

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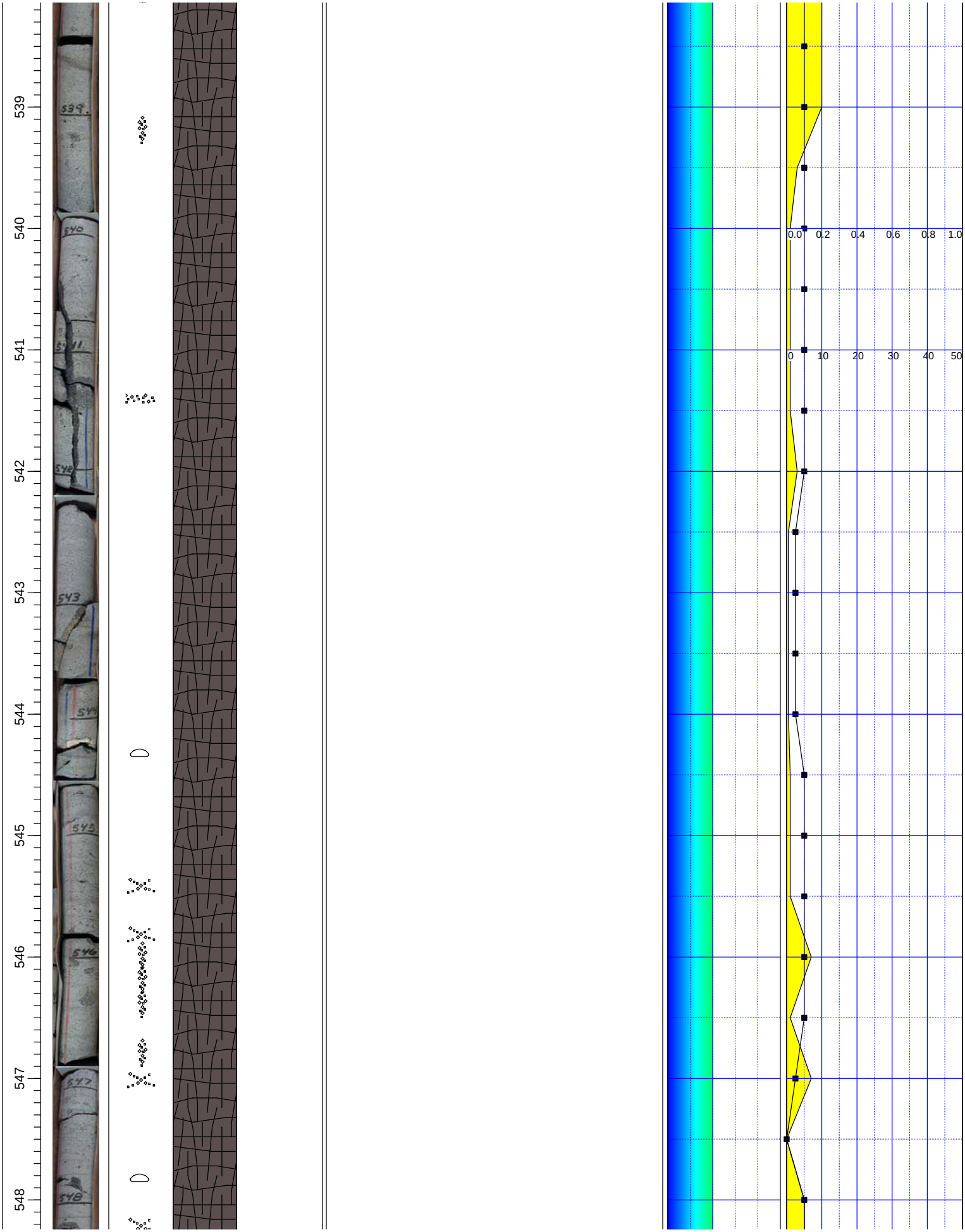
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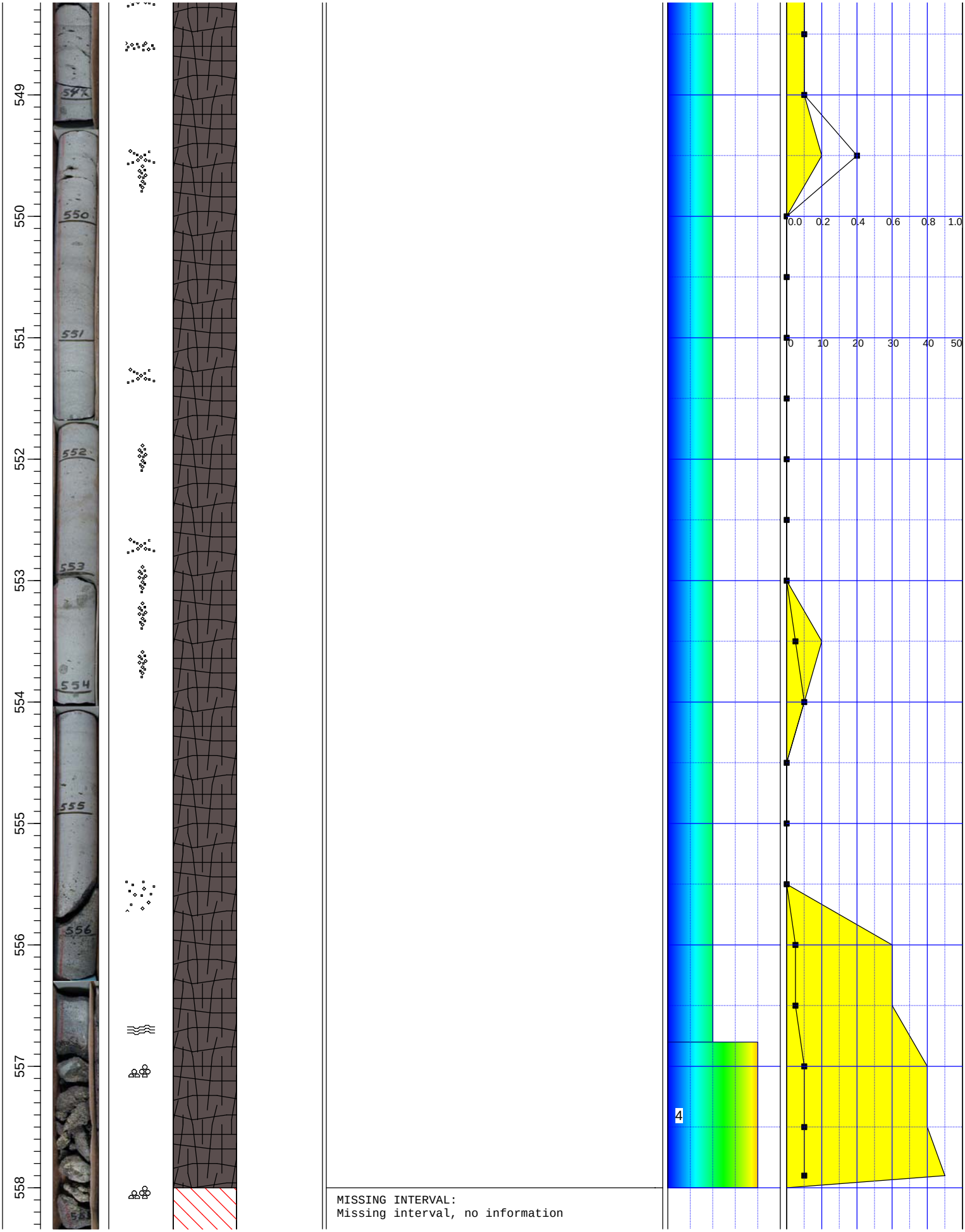

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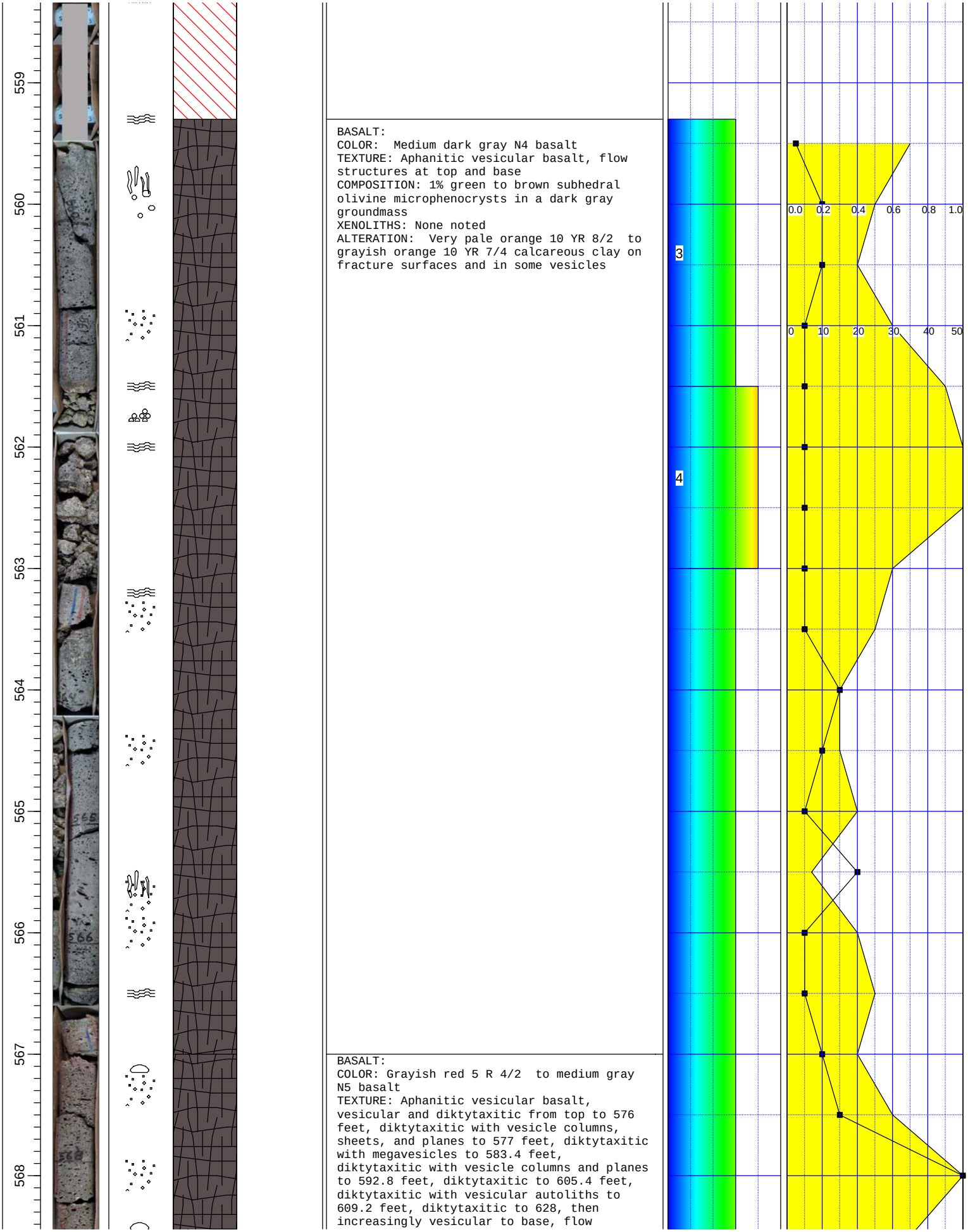
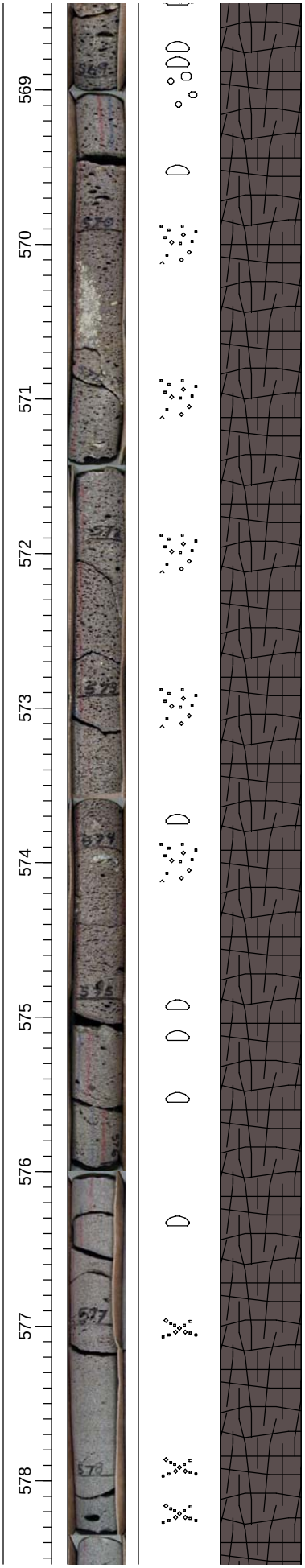
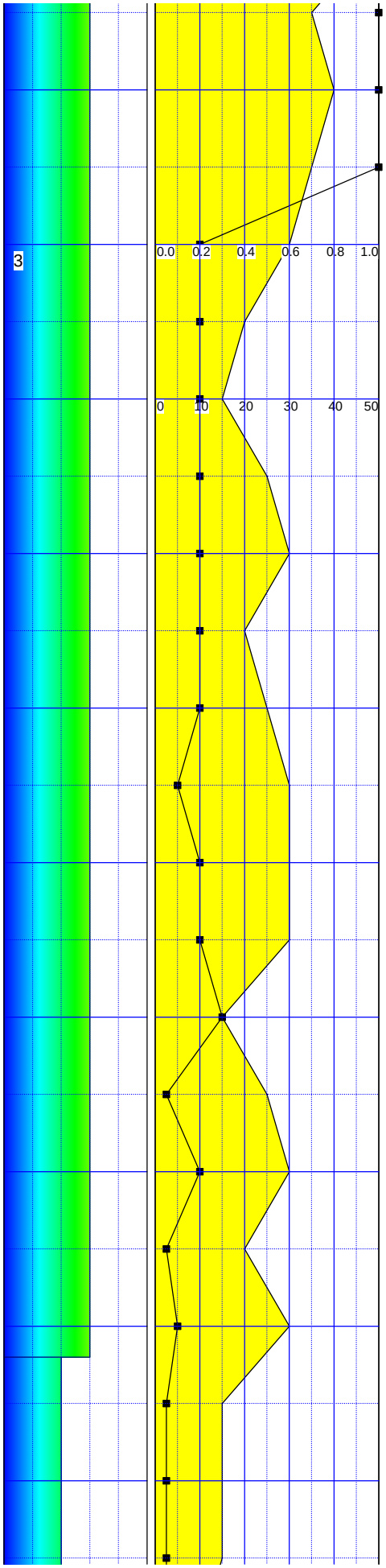


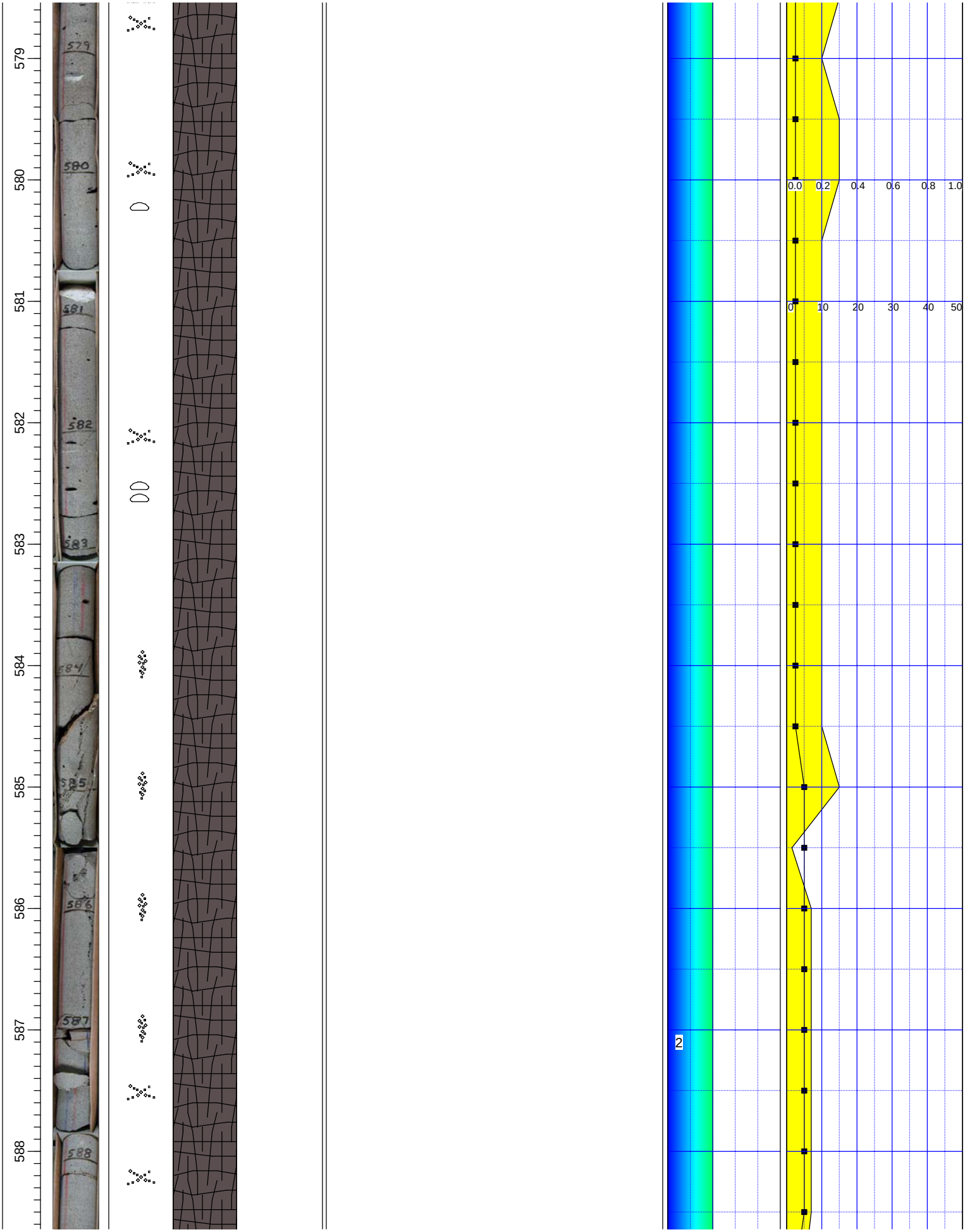
BASALT:
COLOR: Medium dark gray N4 basalt
TEXTURE: Aphanitic vesicular basalt, flow structures at top and base
COMPOSITION: 1% green to brown subhedral olivine microphenocrysts in a dark gray groundmass
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 to grayish orange 10 YR 7/4 calcareous clay on fracture surfaces and in some vesicles

BASALT:
COLOR: Grayish red 5 R 4/2 to medium gray N5 basalt
TEXTURE: Aphanitic vesicular basalt, vesicular and diktytaxitic from top to 576 feet, diktytaxitic with vesicle columns, sheets, and planes to 577 feet, diktytaxitic with megavesicles to 583.4 feet, diktytaxitic with vesicle columns and planes to 592.8 feet, diktytaxitic to 605.4 feet, diktytaxitic with vesicular autoliths to 609.2 feet, diktytaxitic to 628, then increasingly vesicular to base, flow



structure at top, mold of underlying soil at base, baked soil contact at base
COMPOSITION: 3% green to brown 1-3mm olivine glomerocrysts in a reddish gray to gray groundmass
XENOLITHS: None noted
ALTERATION: Very pale orange 10 YR 8/2 to moderate reddish brown 10 R calcareous and non-calcareous clay on fracture surfaces and in some vesicles, sparry calcite lines some vesicles

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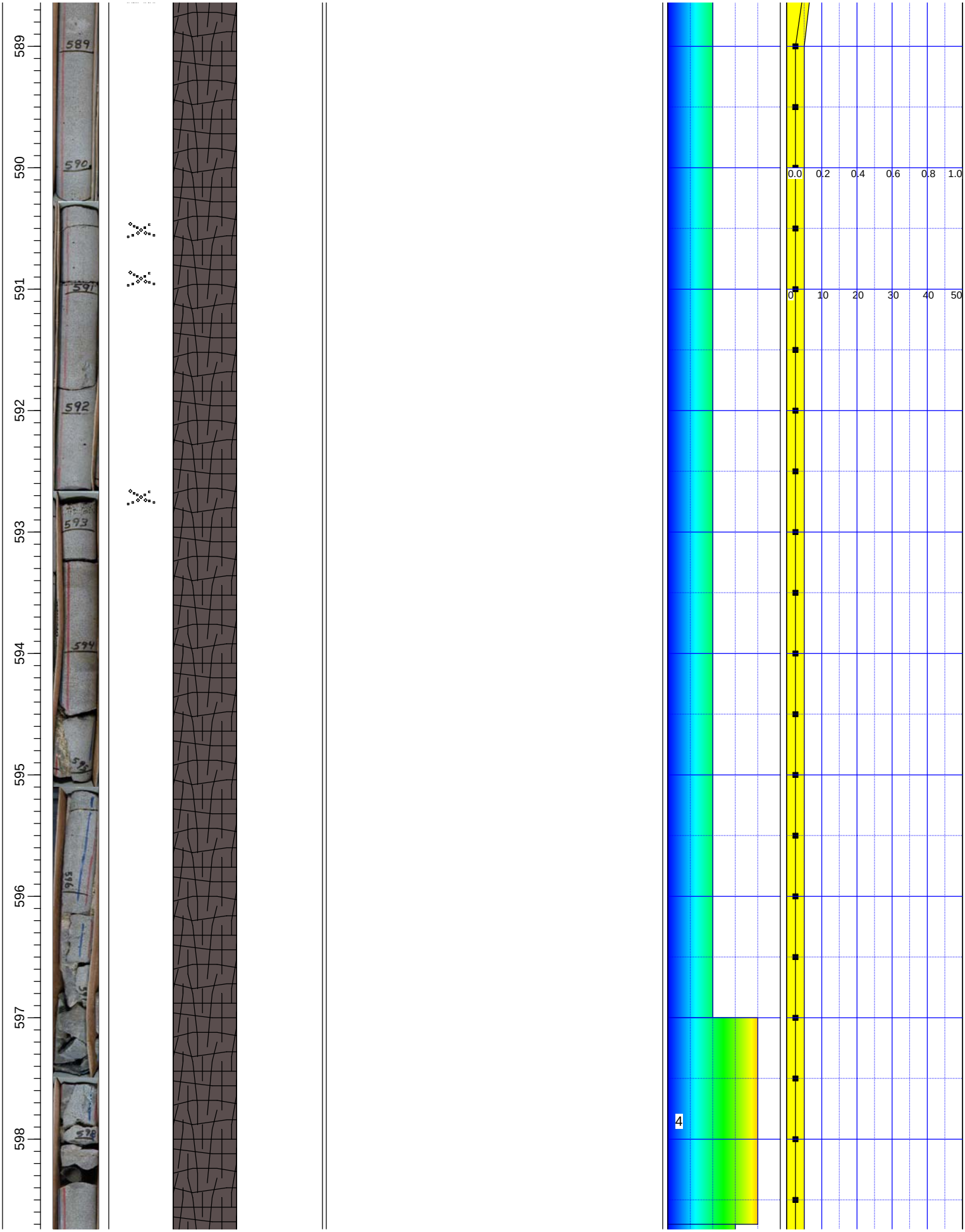
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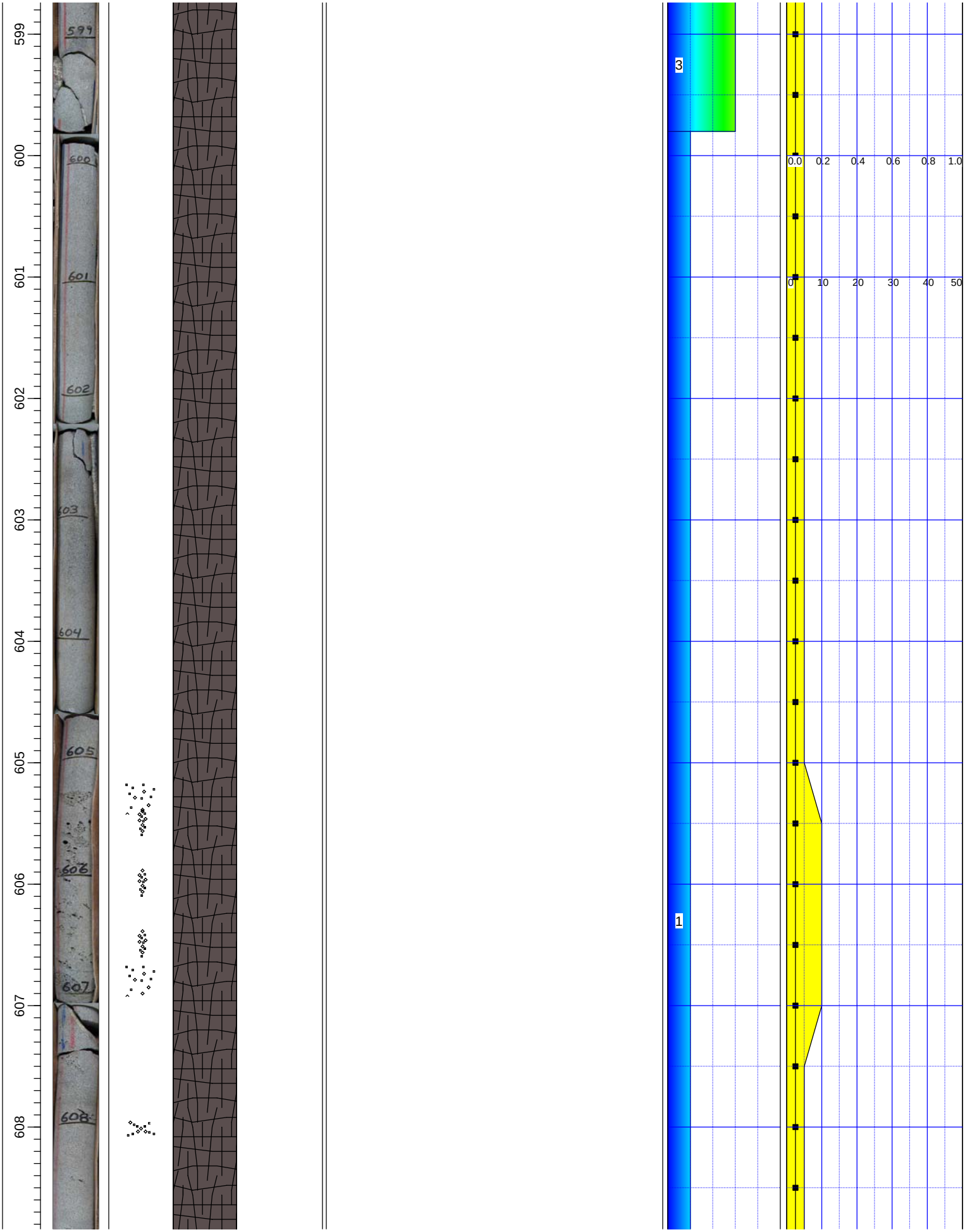
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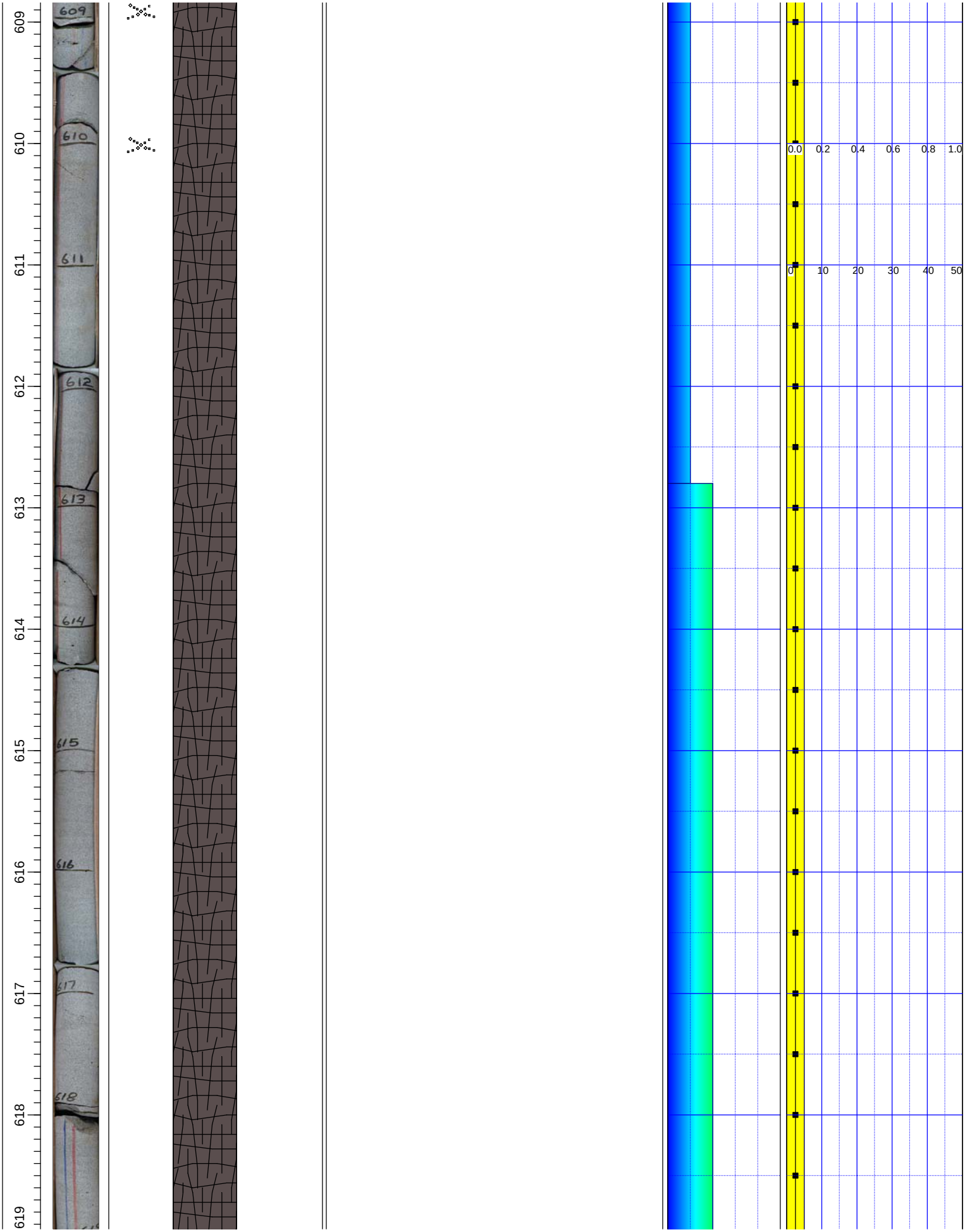
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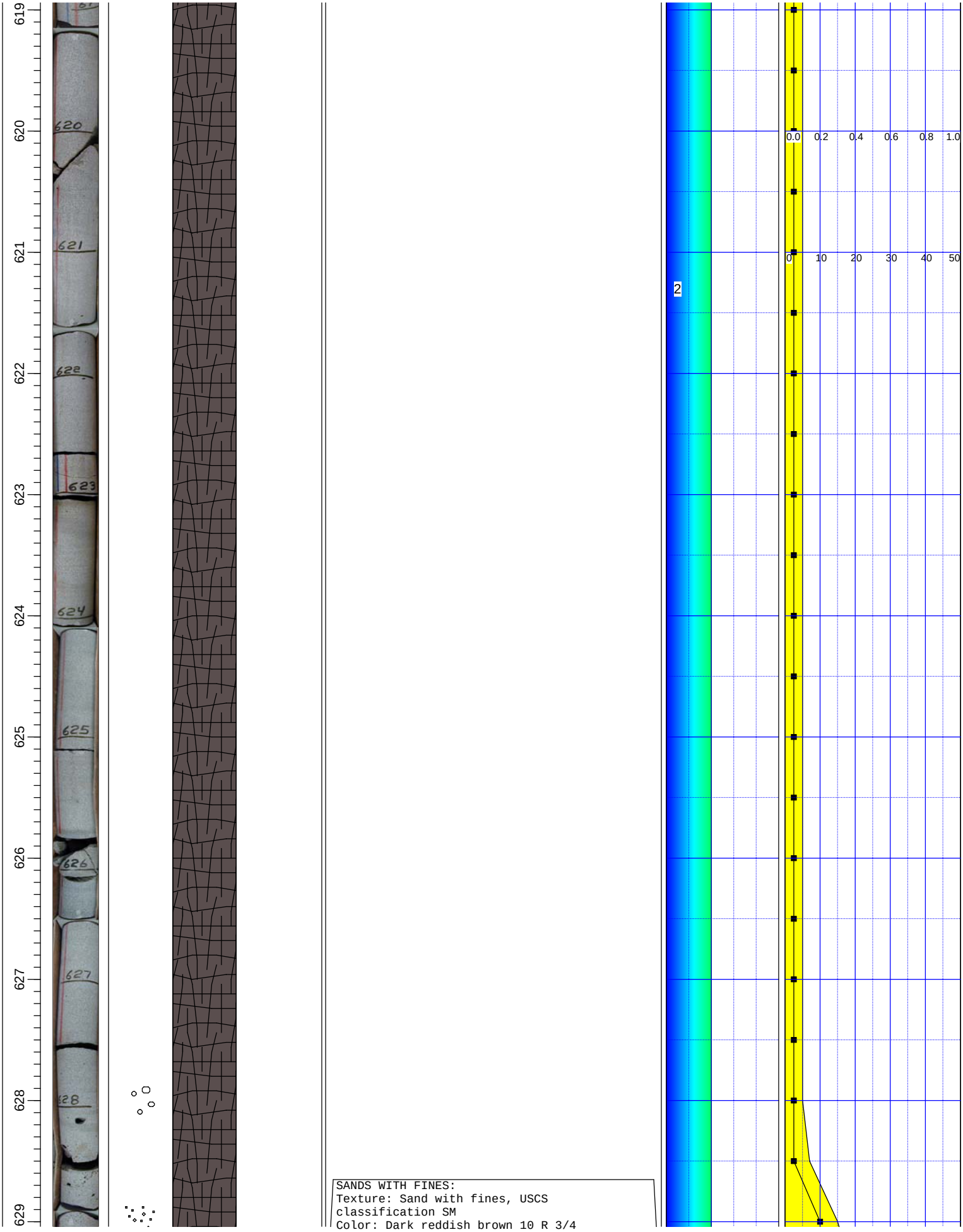
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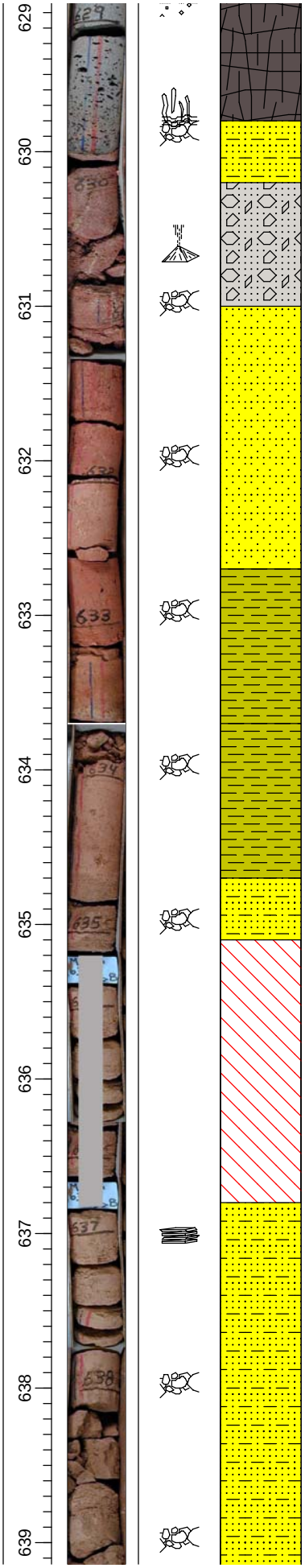
SANDS WITH FINES:
Texture: Sand with fines, USCS classification SM
Color: Dark reddish brown 10 R 3/4



Consistence: Firm to friable
Structure: Blocky to granular
Free Carbonates: No
Rocks: Some fine to medium pebbles
Roots/Fossils: Fine tubules
Alteration: Soil is heavily oxidized with vertical tubules and a vertical plane of tan material.

GRAVELS WITH FINES:
Texture: Gravel with fines, USCS classification GM, coarsens upward
Color: Dark reddish brown 10 R 3/4
Consistence: Friable
Structure: Granular
Free Carbonates: No
Rocks: Fine to medium pebbles, rounded to subrounded
Roots/Fossils: Fine tubules
Alteration: Soil is heavily oxidized and contains a vertical plane of tan clay

SANDS - CLEAN:
Texture: USCS soil classification SW, clean fine lithic sand, including rounded quartz and quartzite grains, and dark subangular grains
Color: Dark reddish brown 10 YR 3/4 to moderate reddish brown 10 R 4/6
Consistence: Firm
Structure: Platy to blocky
Free Carbonates: No
Rocks: A few fine pebbles
Roots/Fossils: Fine tubules
Alteration: Soil is oxidized, contains vertical veins of white clay, and lightens in color with depth.

SILT AND CLAY:
Texture: USCS soil classification ML
Color: Moderate reddish brown 10 R 4/6
Consistence: Firm
Structure: Platy to blocky
Free Carbonates: No
Rocks: None noted
Roots/Fossils: Fine tubules
Alteration: Soil is oxidized, some cutans show light colored surfaces

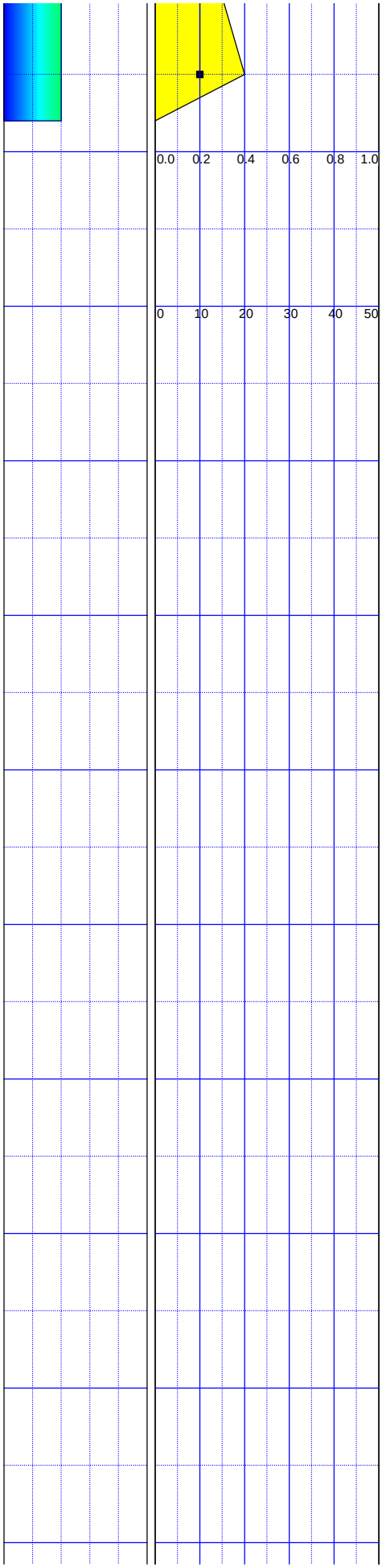
SILT AND CLAY:
Texture: USCS soil classification ML
Color: Moderate yellow brown 10 R 5/4
Consistence: Firm
Structure: Platy to blocky
Free Carbonates: No
Rocks: None noted
Roots/Fossils: Fine tubules
Alteration: Soil is oxidized

SANDS WITH FINES:
Texture: USCS soil classification SM
Color: Light brown 5 YR 5/6
Consistence: Firm to friable
Structure: Granular to platy
Free Carbonates: No
Rocks: None noted
Roots/Fossils: Fine tubules
Alteration: Soil is oxidized

MISSING INTERVAL:
Missing interval, no information

SANDS WITH FINES:
Texture: USCS soil classification SM, fine to medium lithic sand with silt to clay fines; sand size clasts (in order of relative abundance) include subangular to angular white, pink or gray quartzite clasts, subrounded quartz grains, angular grains of basalt, rhyolite, and obsidian, grains of feldspar, white, black, green and brown mica, and hornblende
Color: Moderate yellowish brown 10 YR 5/4

Consistence: Firm
Structure: Platy to blocky



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Free Carbonates: No, except from 639.8 to base
Rocks:
Roots/Fossils: Fine tubules

SLUFF:
Sluff is unconsolidated material recovered as cuttings during drilling. In this interval it consists of sand and fines that were recovered wet and then separated into sand and fines during settling in a lexan storage tube. The sharp division displayed is therefore not a contact but an artifact of drilling and subsequent settling. Drillers estimate that this sluff was recovered from the interval between 635.1 and 643 feet.

Sand component consists of lithic clasts of surrounded to rounded quartzite grains, quartz grains and grains of feldspar, black, brown, green and white micas, and a dark mafic mineral (probably hornblende). Silt size and smaller component consists of similar clasts of silt size plus some clay.

No free carbonates are present.

No rocks were recovered.

No fossils were recovered.

MISSING INTERVAL:
Missing interval, no information

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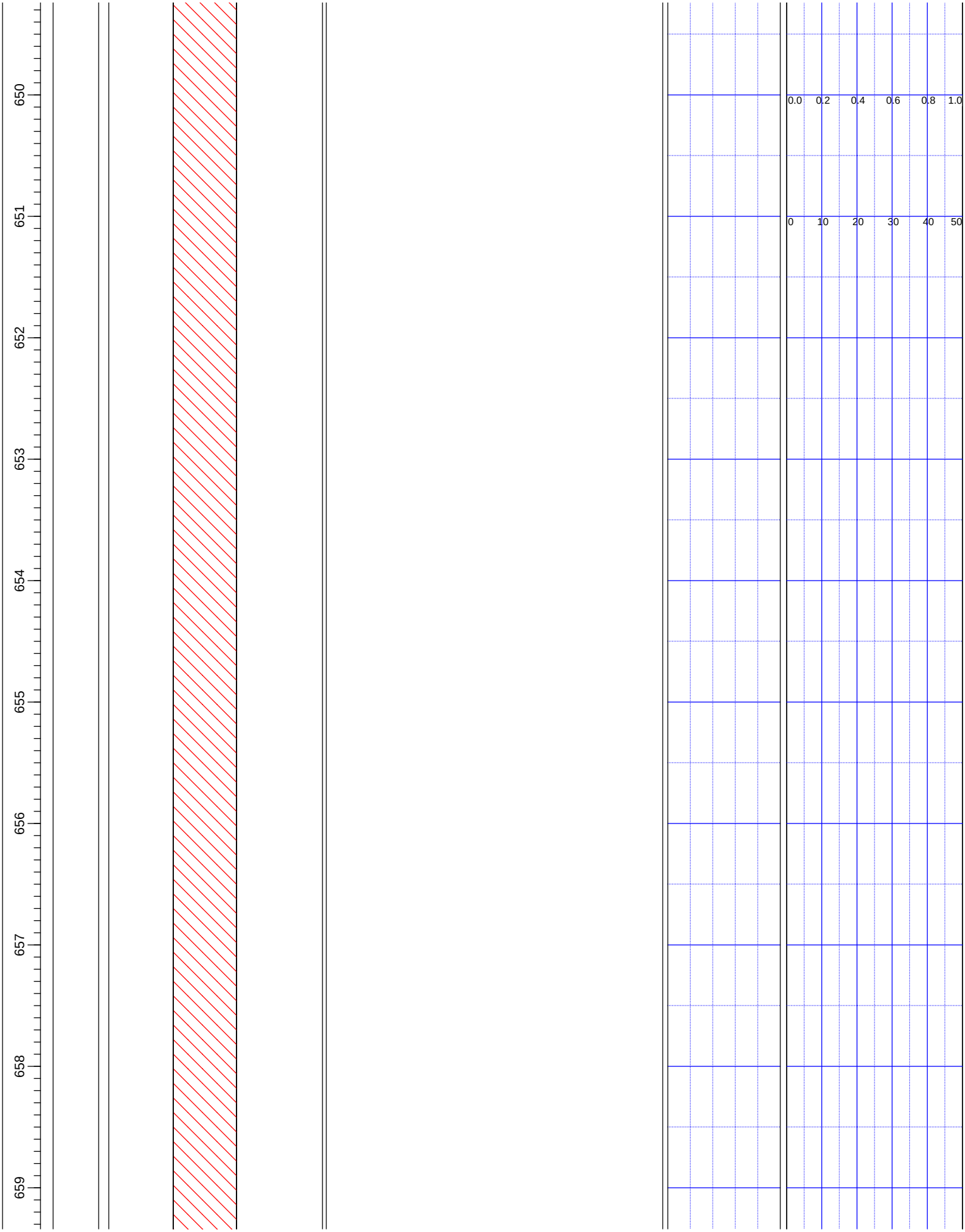
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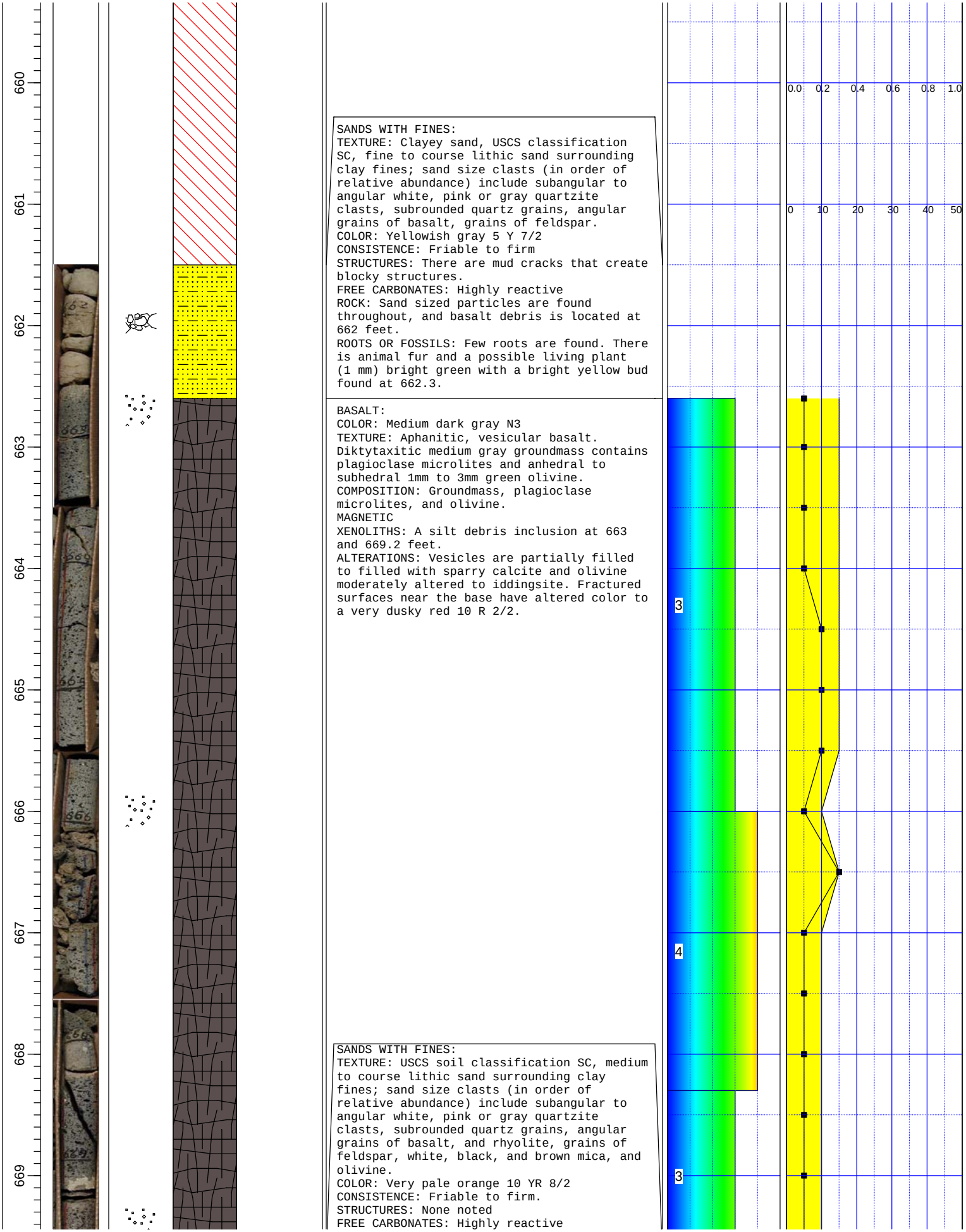
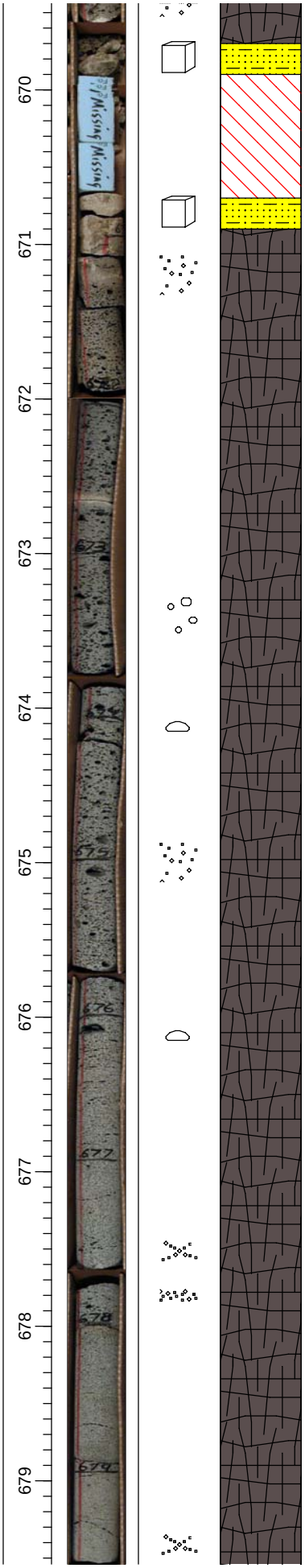


SANDS WITH FINES:
TEXTURE: Clayey sand, USCS classification SC, fine to course lithic sand surrounding clay fines; sand size clasts (in order of relative abundance) include subangular to angular white, pink or gray quartzite clasts, subrounded quartz grains, angular grains of basalt, grains of feldspar.
COLOR: Yellowish gray 5 Y 7/2
CONSISTENCE: Friable to firm
STRUCTURES: There are mud cracks that create blocky structures.
FREE CARBONATES: Highly reactive
ROCK: Sand sized particles are found throughout, and basalt debris is located at 662 feet.
ROOTS OR FOSSILS: Few roots are found. There is animal fur and a possible living plant (1 mm) bright green with a bright yellow bud found at 662.3.

BASALT:
COLOR: Medium dark gray N3
TEXTURE: Aphanitic, vesicular basalt. Diktytaxitic medium gray groundmass contains plagioclase microlites and anhedral to subhedral 1mm to 3mm green olivine.
COMPOSITION: Groundmass, plagioclase microlites, and olivine.
MAGNETIC
XENOLITHS: A silt debris inclusion at 663 and 669.2 feet.
ALTERATIONS: Vesicles are partially filled to filled with sparry calcite and olivine moderately altered to iddingsite. Fractured surfaces near the base have altered color to a very dusky red 10 R 2/2.

SANDS WITH FINES:
TEXTURE: USCS soil classification SC, medium to course lithic sand surrounding clay fines; sand size clasts (in order of relative abundance) include subangular to angular white, pink or gray quartzite clasts, subrounded quartz grains, angular grains of basalt, and rhyolite, grains of feldspar, white, black, and brown mica, and olivine.
COLOR: Very pale orange 10 YR 8/2
CONSISTENCE: Friable to firm.
STRUCTURES: None noted
FREE CARBONATES: Highly reactive

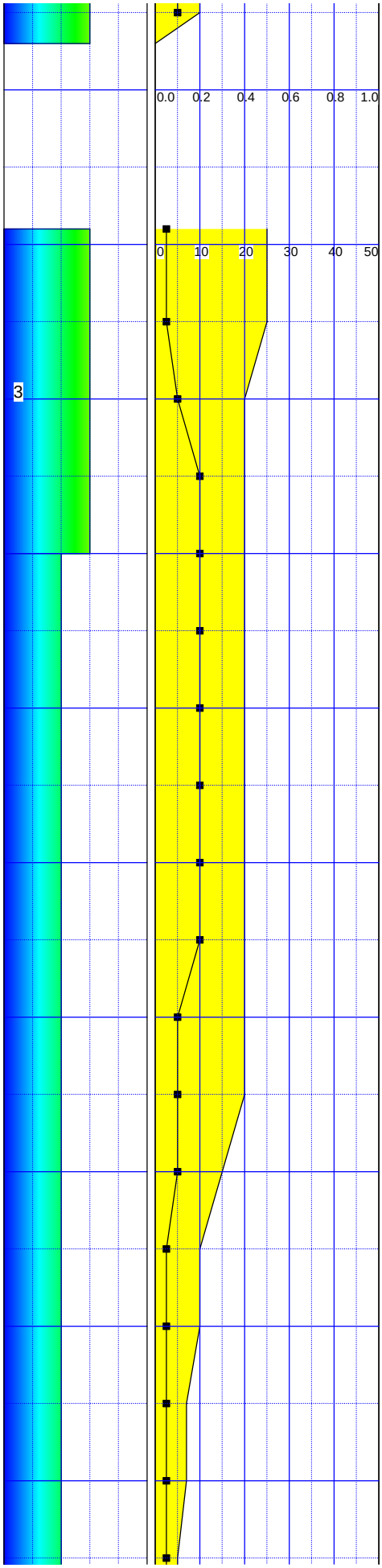


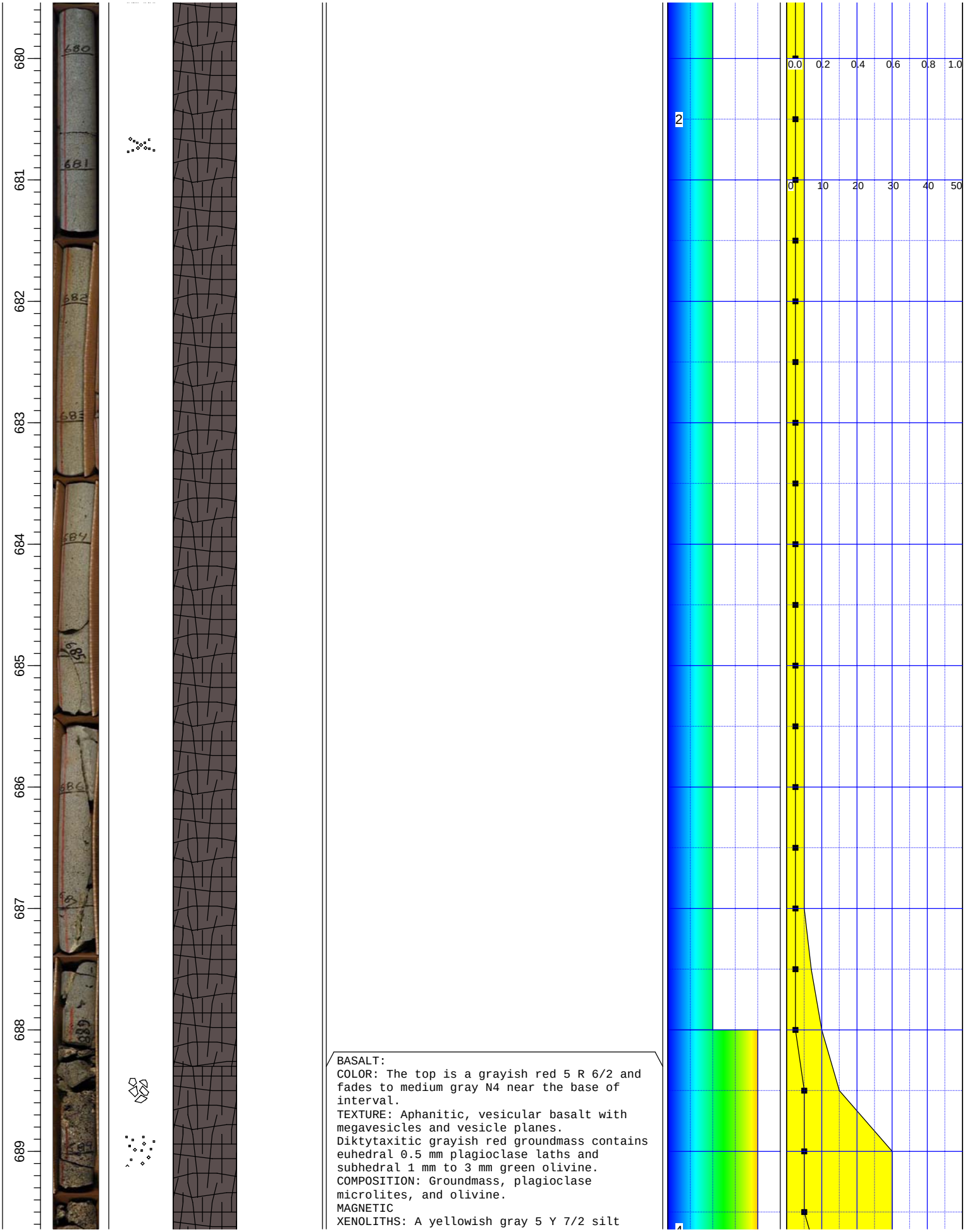
ROCK: Sand sized particles and basalt debris.
ROOTS OR FOSSILS: None noted

MISSING INTERVAL:
Missing interval, no information

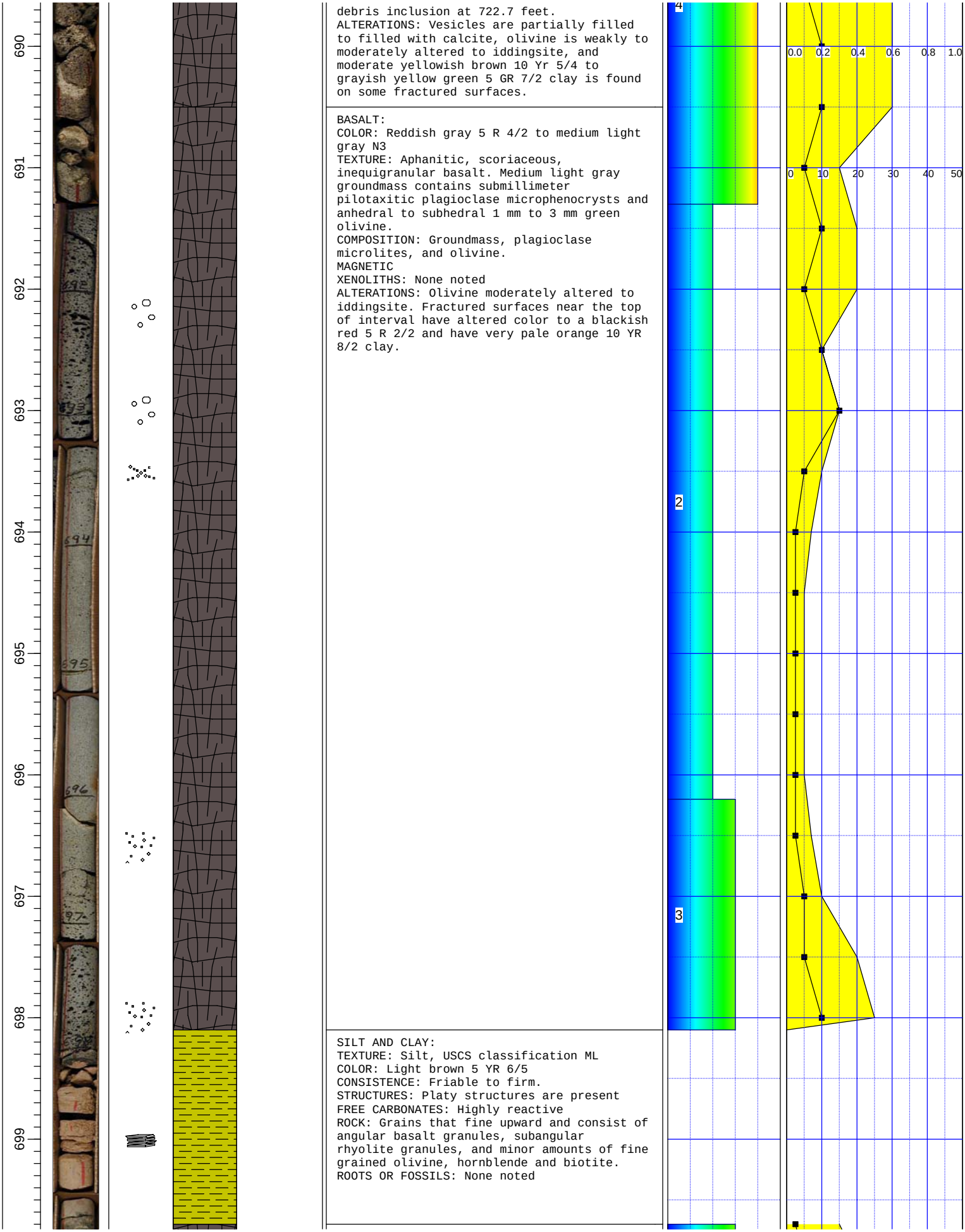
SANDS WITH FINES:
TEXTURE: USCS soil classification SC, medium to course lithic sand surrounding clay fines; sand size clasts (in order of relative abundance) include subangular to angular white, pink or gray quartzite clasts, subrounded quartz grains, angular grains of basalt, and rhyolite, grains of feldspar, white, black, and brown mica, and olivine.
COLOR: Very pale orange 10 YR 8/2
CONSISTENCE: Friable to firm.
STRUCTURES: None noted
FREE CARBONATES: Highly reactive
ROCK: Sand sized particles and basalt debris.
ROOTS OR FOSSILS: Fine tubules

BASALT:
COLOR: Medium dark gray N3 to medium gray N4
TEXTURE: Aphanitic, vesicular basalt with megavesicles and vesicle planes. Medium gray groundmass contains euhedral .5 mm plagioclase laths and subhedral 1mm to 3mm green olivine.
COMPOSITION: Groundmass, plagioclase, and olivine.
MAGNETIC
XENOLITHS: A yellowish gray 5 Y 7/2 silt debris inclusion at 722.7 feet.
ALTERATIONS: Vesicles are partially filled to filled with calcite, olivine is weakly to moderately altered to iddingsite, and moderate yellowish brown 10 Yr 5/4 to grayish yellow green 5 GR 7/2 clay is found on some fractured surfaces.





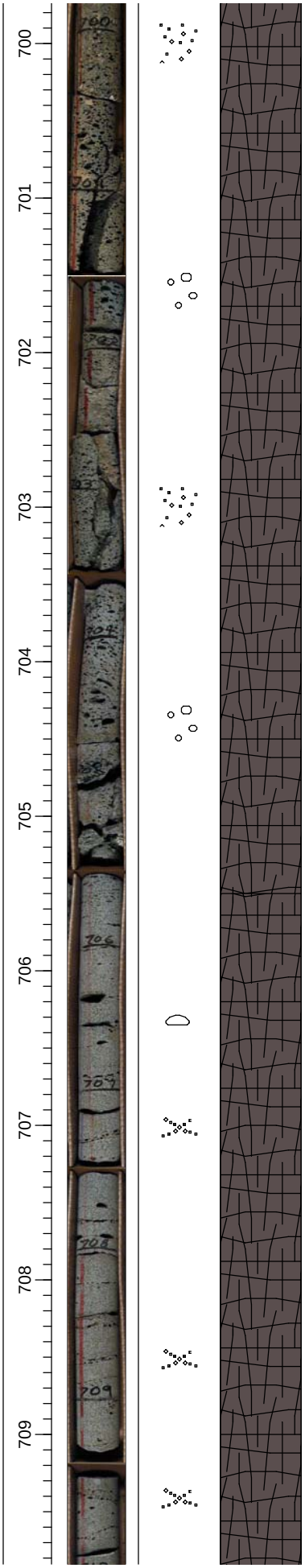
BASALT:
COLOR: The top is a grayish red 5 R 6/2 and fades to medium gray N4 near the base of interval.
TEXTURE: Aphanitic, vesicular basalt with megavesicles and vesicle planes.
Diktytaxitic grayish red groundmass contains euhedral 0.5 mm plagioclase laths and subhedral 1 mm to 3 mm green olivine.
COMPOSITION: Groundmass, plagioclase microlites, and olivine.
MAGNETIC
XENOLITHS: A yellowish gray 5 Y 7/2 silt



debris inclusion at 722.7 feet.
ALTERATIONS: Vesicles are partially filled to filled with calcite, olivine is weakly to moderately altered to iddingsite, and moderate yellowish brown 10 Yr 5/4 to grayish yellow green 5 GR 7/2 clay is found on some fractured surfaces.

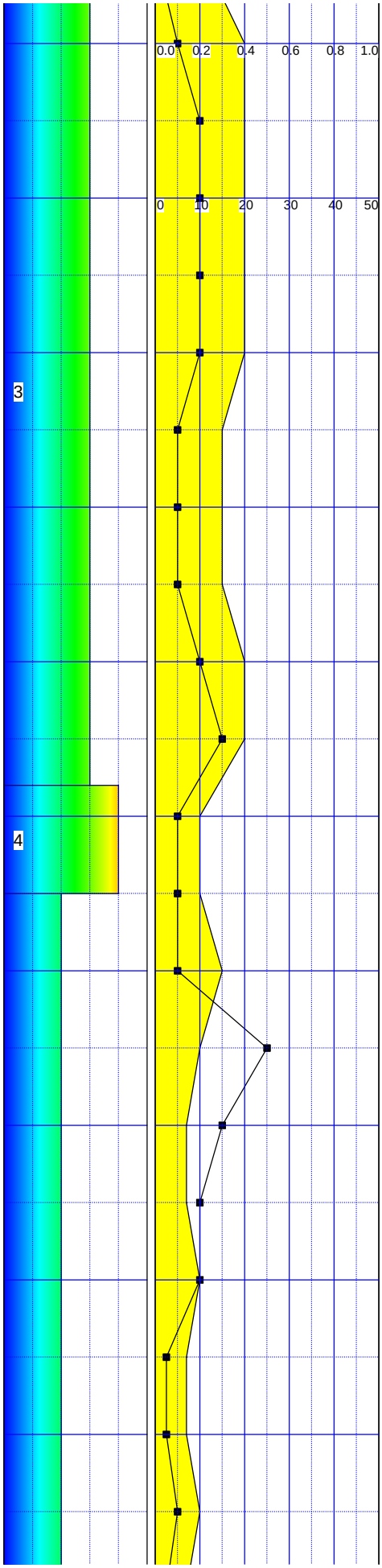
BASALT:
COLOR: Reddish gray 5 R 4/2 to medium light gray N3
TEXTURE: Aphanitic, scoriaceous, inequigranular basalt. Medium light gray groundmass contains submillimeter pilotaxitic plagioclase microphenocrysts and anhedral to subhedral 1 mm to 3 mm green olivine.
COMPOSITION: Groundmass, plagioclase microlites, and olivine.
MAGNETIC
XENOLITHS: None noted
ALTERATIONS: Olivine moderately altered to iddingsite. Fractured surfaces near the top of interval have altered color to a blackish red 5 R 2/2 and have very pale orange 10 YR 8/2 clay.

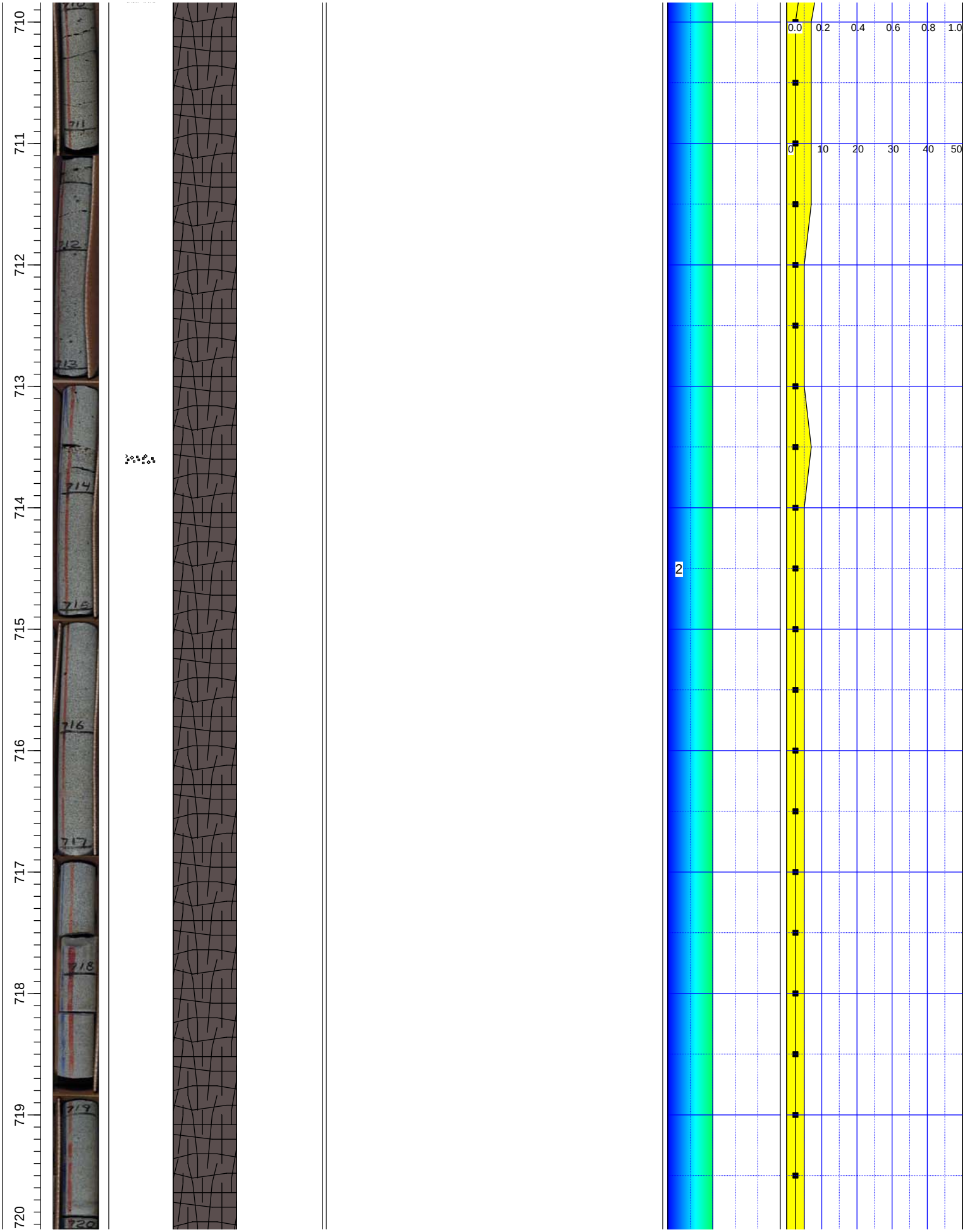
SILT AND CLAY:
TEXTURE: Silt, USCS classification ML
COLOR: Light brown 5 YR 6/5
CONSISTENCE: Friable to firm.
STRUCTURES: Platy structures are present
FREE CARBONATES: Highly reactive
ROCK: Grains that fine upward and consist of angular basalt granules, subangular rhyolite granules, and minor amounts of fine grained olivine, hornblende and biotite.
ROOTS OR FOSSILS: None noted



BASALT:
COLOR: Medium light gray N3
TEXTURE: Aphanitic, vesicular basalt. Diktytaxitic medium light gray groundmass contains plagioclase microlites and subhedral to euhedral >1 mm green olivine.
COMPOSITION: Groundmass, plagioclase microlites, and olivine.
MAGNETIC
XENOLITHS: None noted
ALTERATIONS: Olivine mostly altered to iddingsite, pale yellowish brown 10 YR 6/2 clay on fractured vesicles and vesicles partially filled with white N9 calcite.

BASALT:
COLOR: Medium gray N3
TEXTURE: Aphanitic, vesicular basalt. Diktytaxitic medium gray groundmass contains plagioclase microlites and subhedral to euhedral > 2 mm green olivine. Subhedral >1 mm black pyroxene blades found in vesicle planes.
COMPOSITION: Groundmass, plagioclase microlites, olivine and minor amounts of pyroxene.
MAGNETIC
XENOLITHS: None noted.
ALTERATIONS: Olivine moderately altered to iddingsite. Calcite found in vesicles and on fractured surfaces and iron oxidizing in vesicle to a dusky red 5 R 3/4

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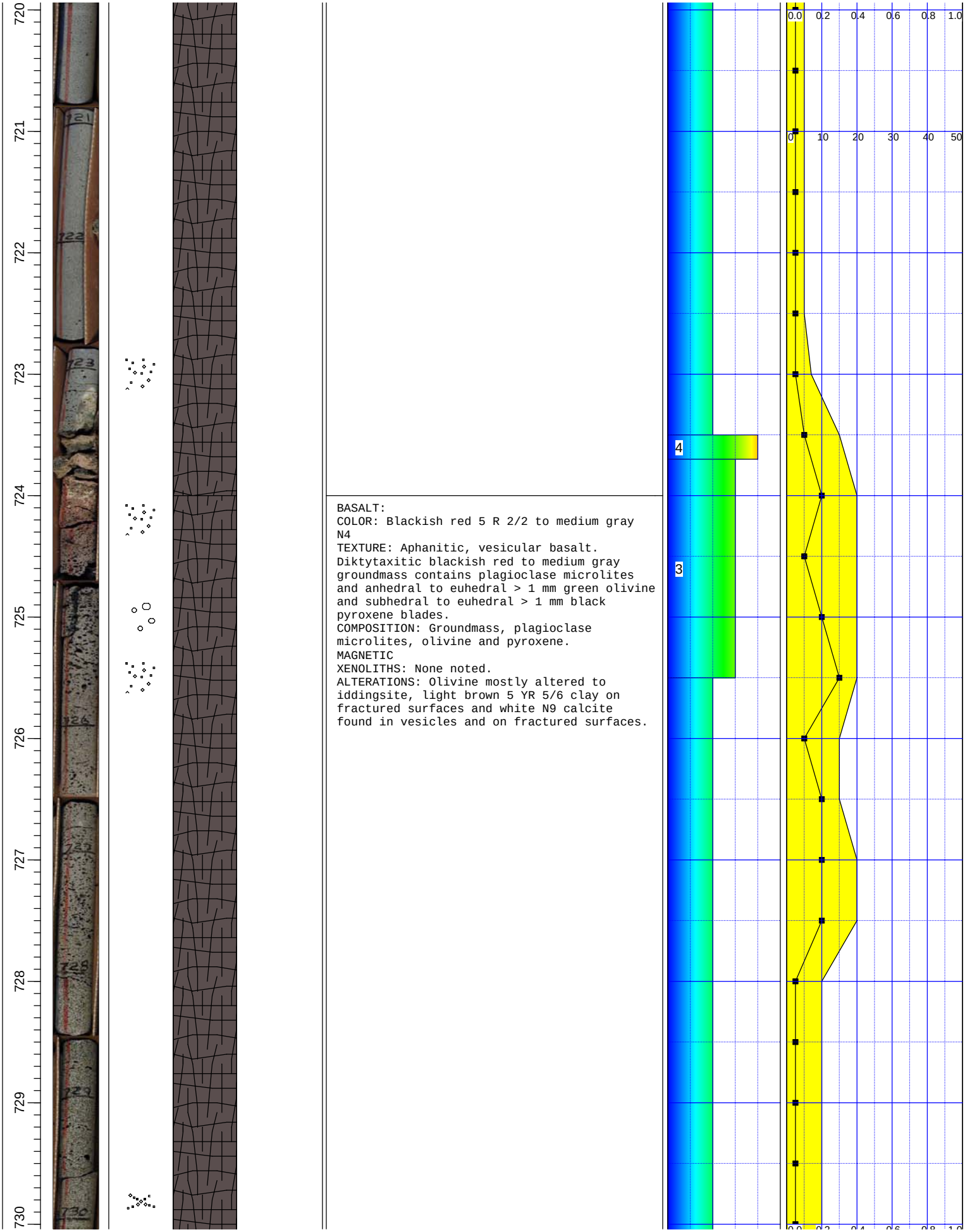
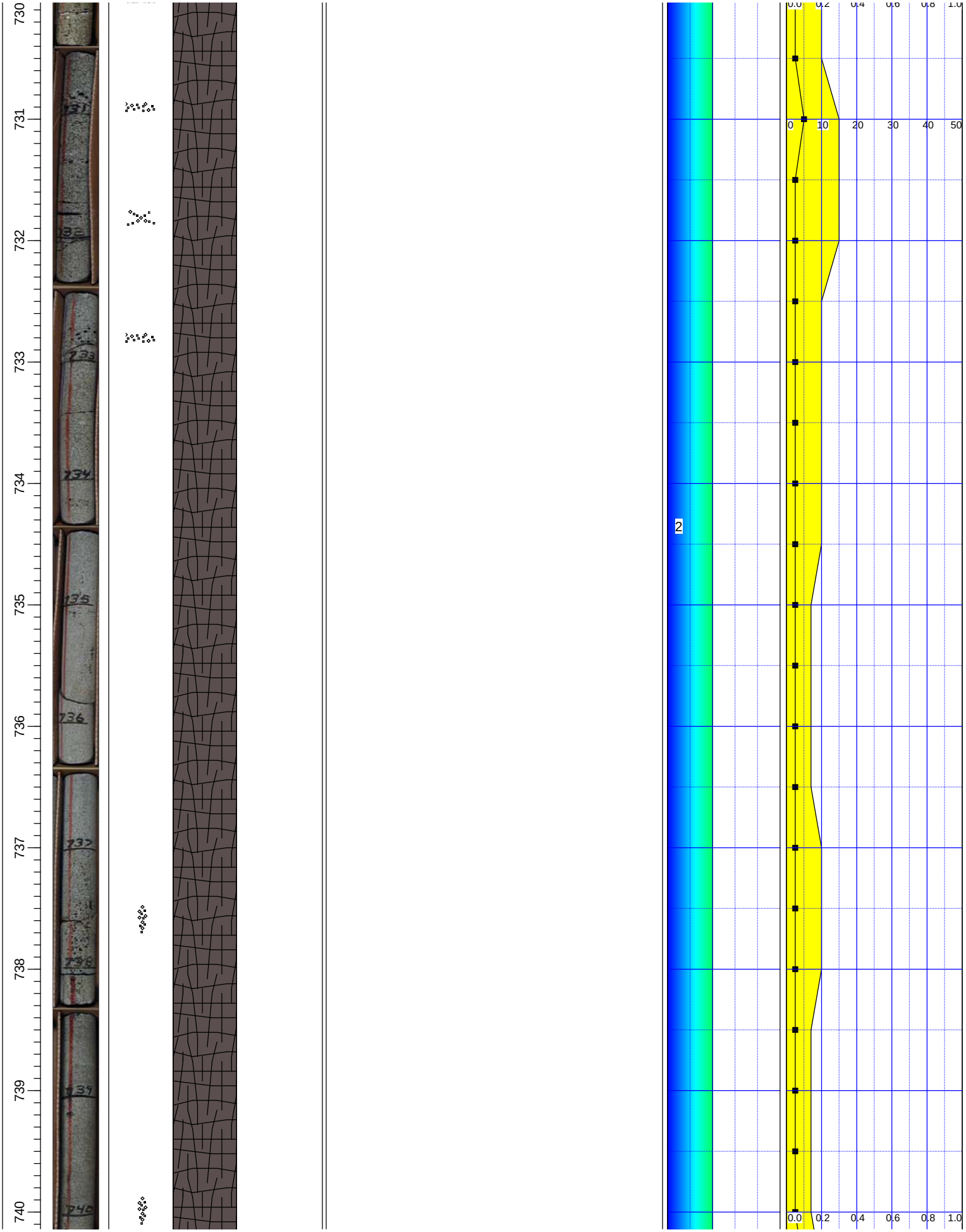


BASALT:
COLOR: Blackish red 5 R 2/2 to medium gray N4
TEXTURE: Aphanitic, vesicular basalt. Diktytaxitic blackish red to medium gray groundmass contains plagioclase microlites and anhedral to euhedral > 1 mm green olivine and subhedral to euhedral > 1 mm black pyroxene blades.
COMPOSITION: Groundmass, plagioclase microlites, olivine and pyroxene.
MAGNETIC
XENOLITHS: None noted.
ALTERATIONS: Olivine mostly altered to iddingsite, light brown 5 YR 5/6 clay on fractured surfaces and white N9 calcite found in vesicles and on fractured surfaces.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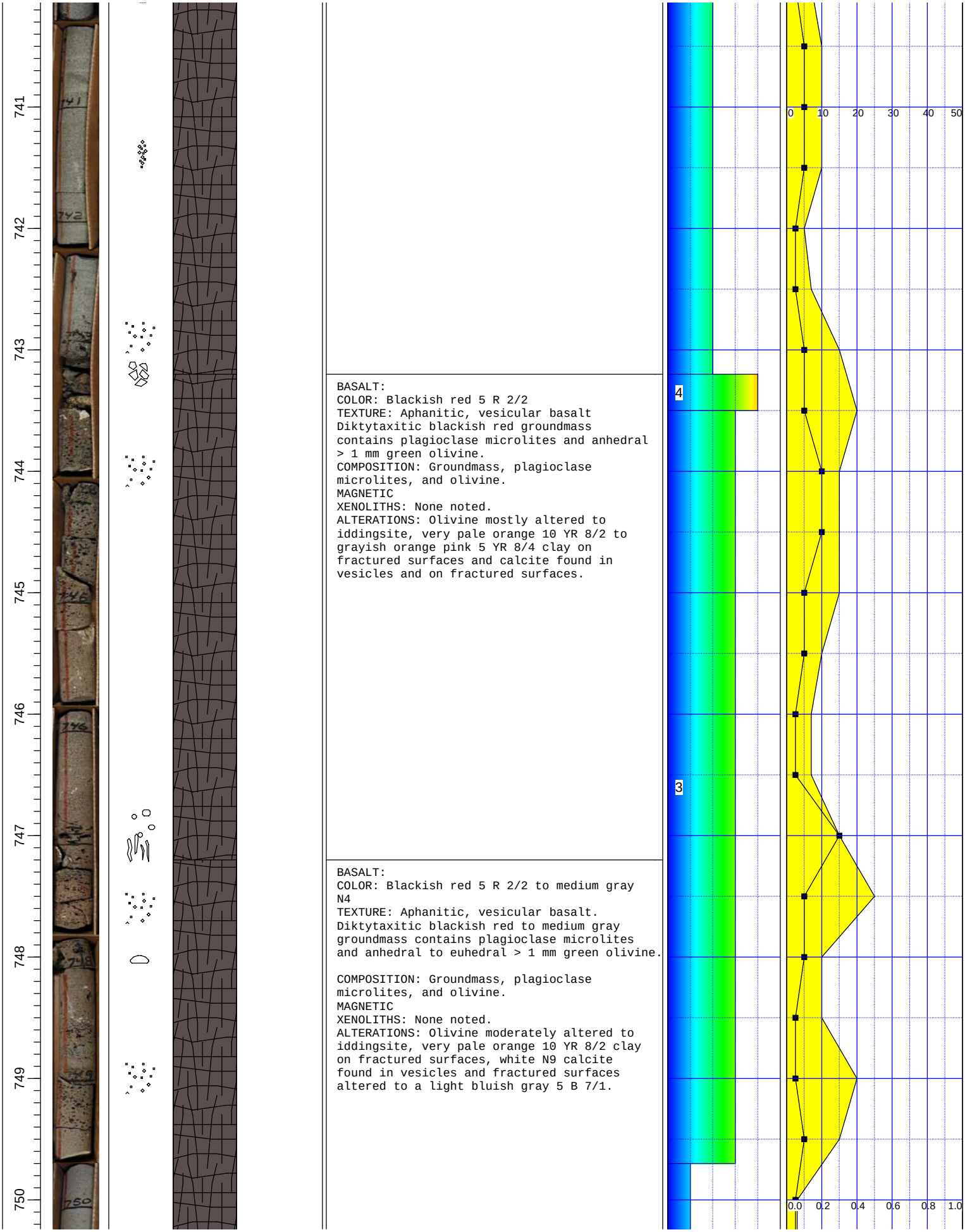
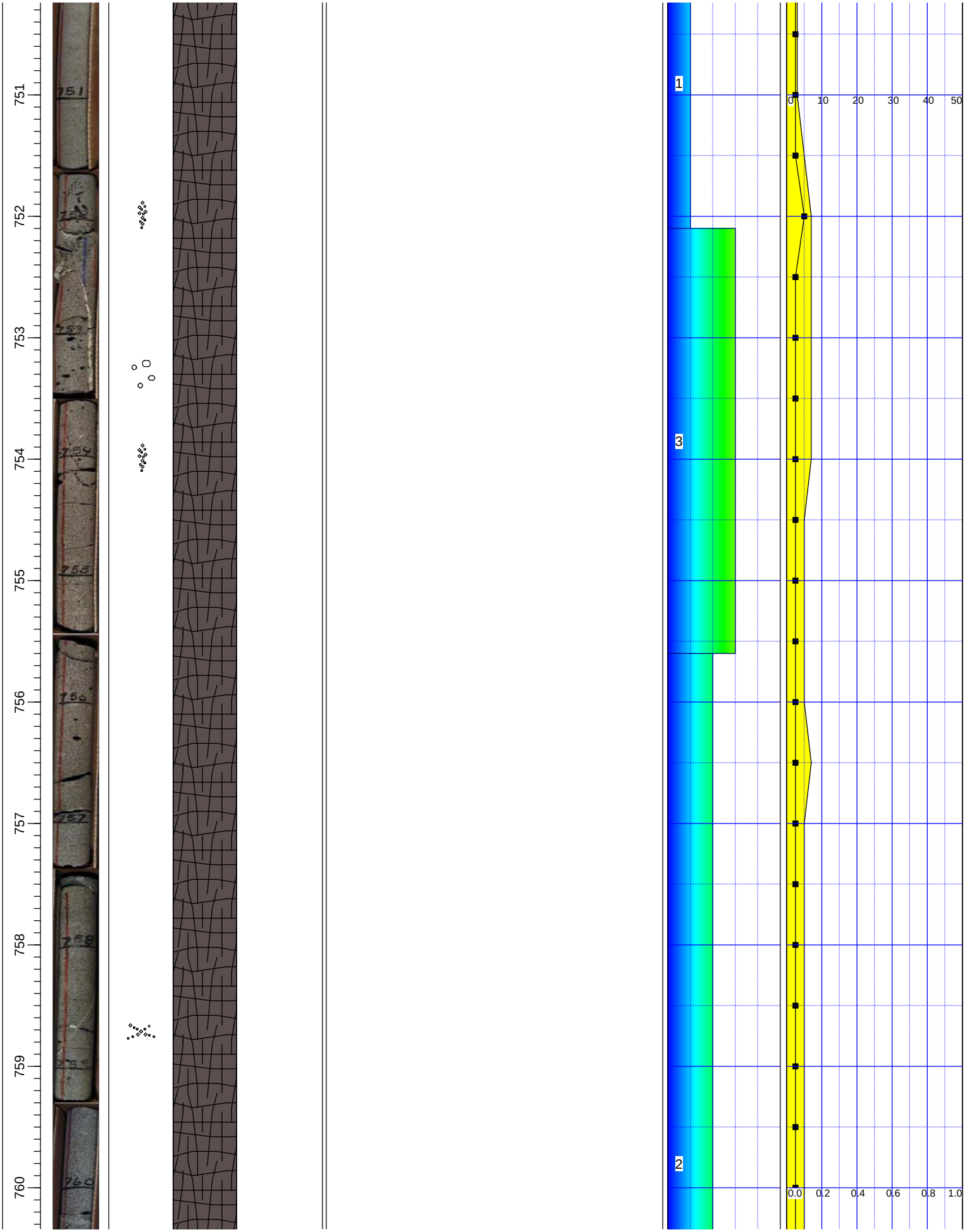


BASALT:
COLOR: Blackish red 5 R 2/2
TEXTURE: Aphanitic, vesicular basalt
Diktytaxitic blackish red groundmass contains plagioclase microlites and anhedral > 1 mm green olivine.
COMPOSITION: Groundmass, plagioclase microlites, and olivine.
MAGNETIC
XENOLITHS: None noted.
ALTERATIONS: Olivine mostly altered to iddingsite, very pale orange 10 YR 8/2 to grayish orange pink 5 YR 8/4 clay on fractured surfaces and calcite found in vesicles and on fractured surfaces.

BASALT:
COLOR: Blackish red 5 R 2/2 to medium gray N4
TEXTURE: Aphanitic, vesicular basalt.
Diktytaxitic blackish red to medium gray groundmass contains plagioclase microlites and anhedral to euhedral > 1 mm green olivine.

COMPOSITION: Groundmass, plagioclase microlites, and olivine.
MAGNETIC
XENOLITHS: None noted.
ALTERATIONS: Olivine moderately altered to iddingsite, very pale orange 10 YR 8/2 clay on fractured surfaces, white N9 calcite found in vesicles and fractured surfaces altered to a light bluish gray 5 B 7/1.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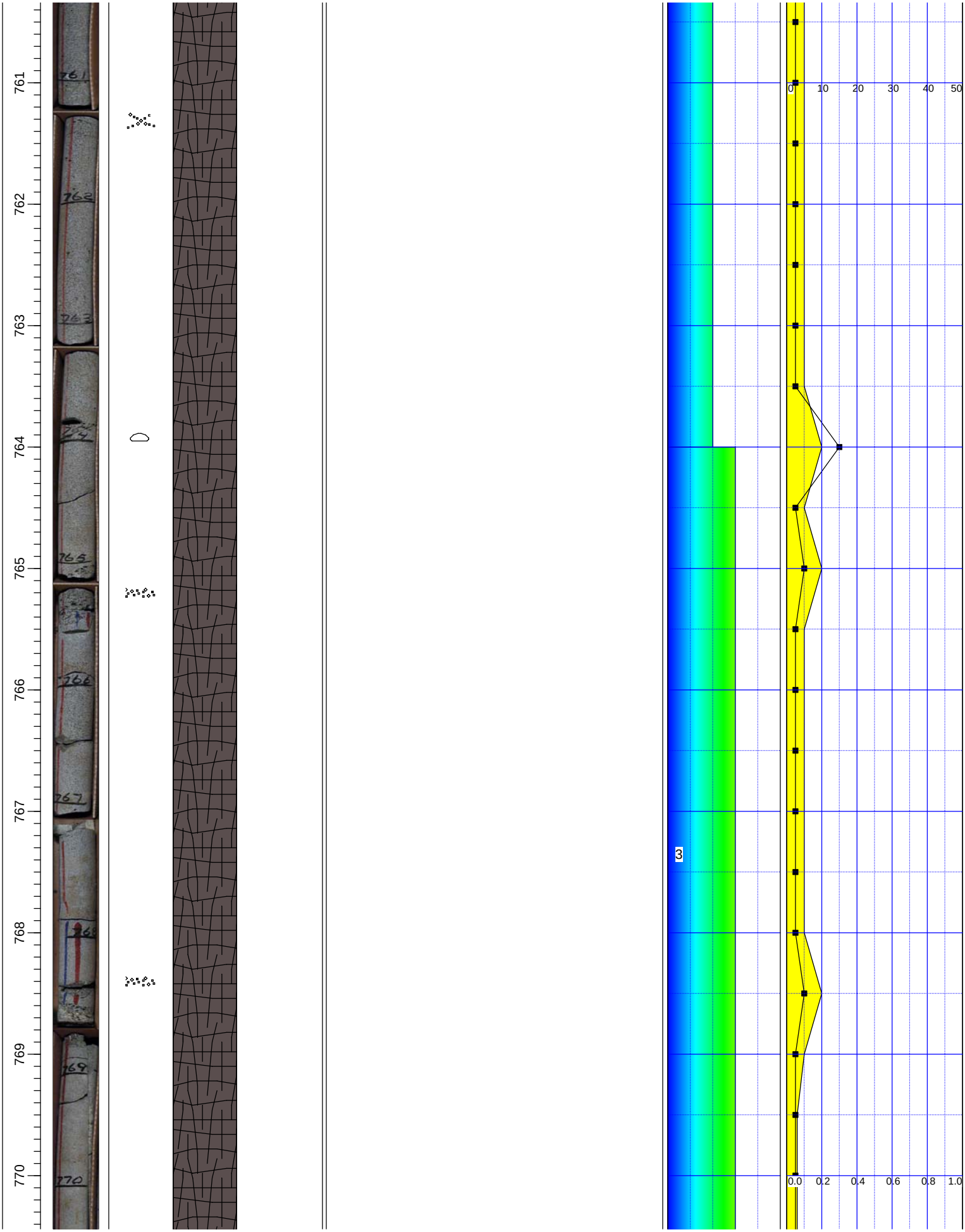
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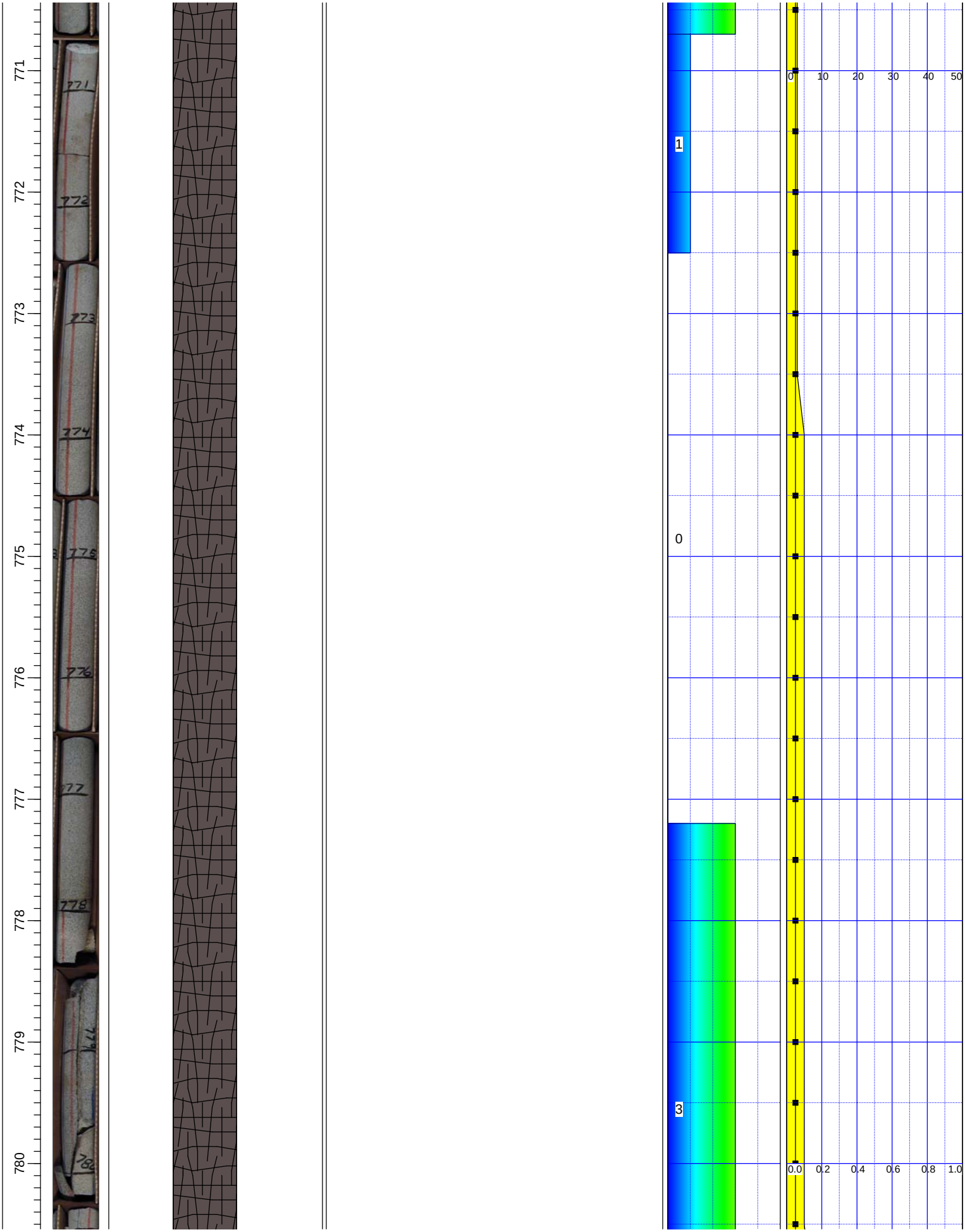
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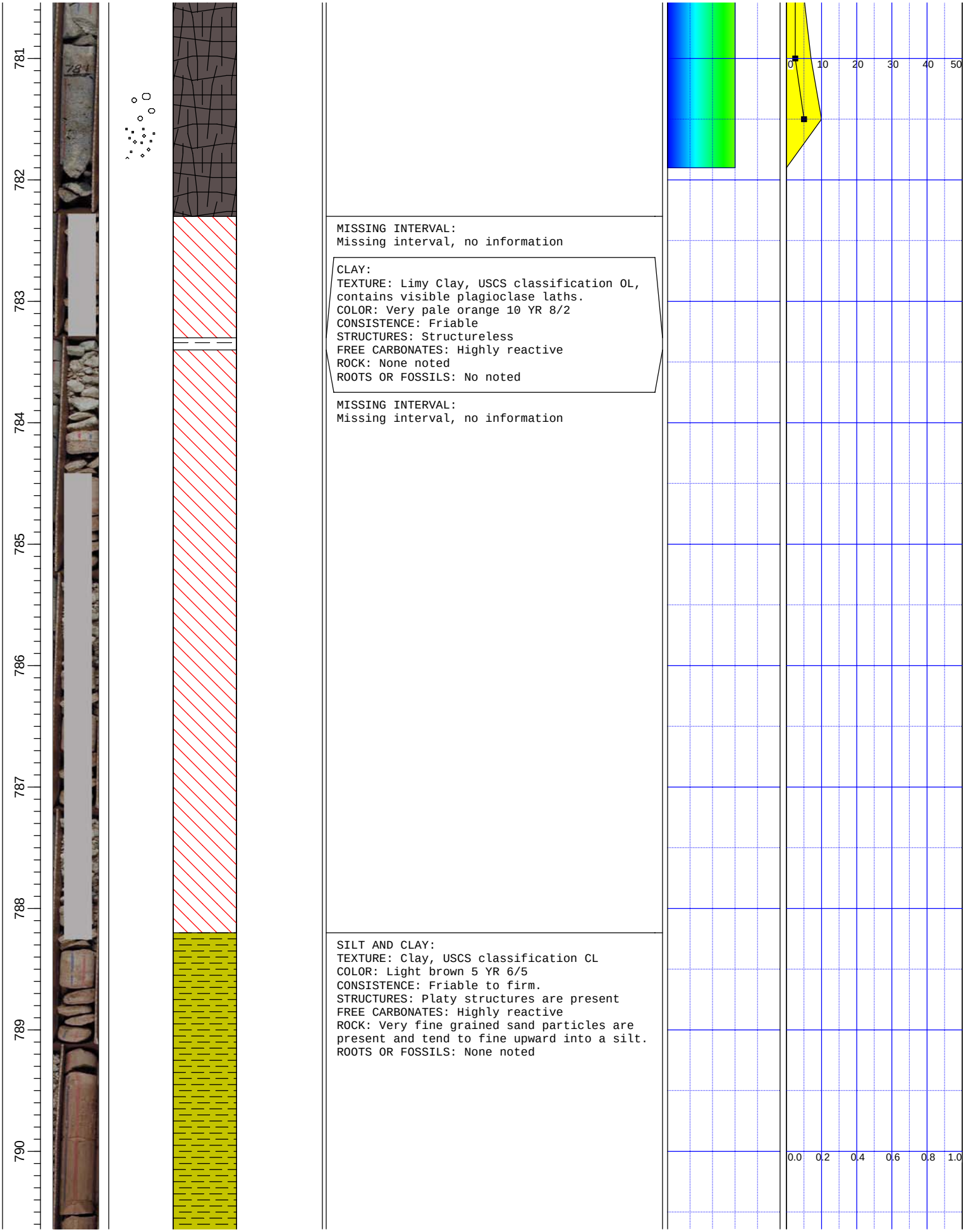
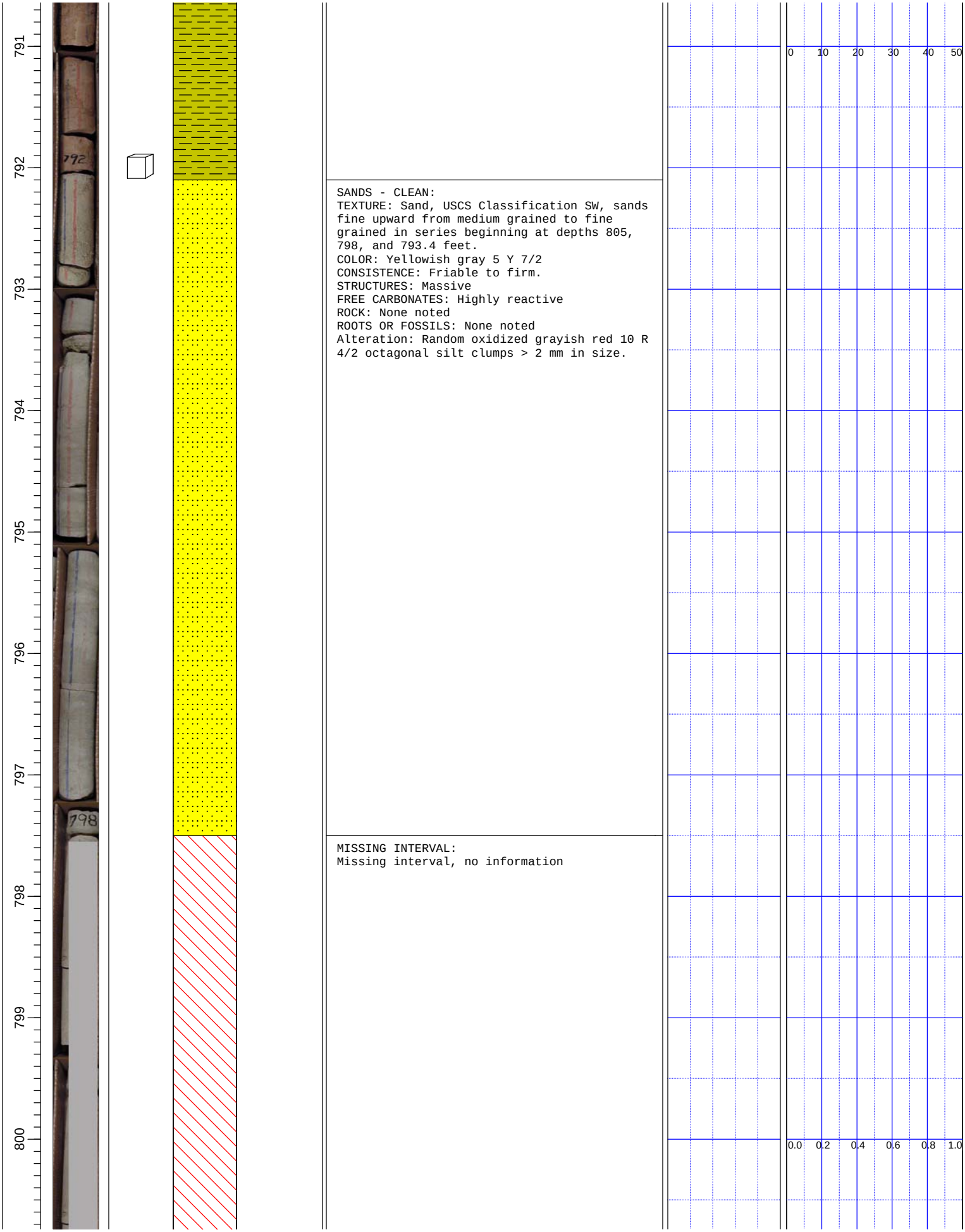


MISSING INTERVAL:
Missing interval, no information

CLAY:
TEXTURE: Limy Clay, USCS classification OL, contains visible plagioclase laths.
COLOR: Very pale orange 10 YR 8/2
CONSISTENCE: Friable
STRUCTURES: Structureless
FREE CARBONATES: Highly reactive
ROCK: None noted
ROOTS OR FOSSILS: No noted

MISSING INTERVAL:
Missing interval, no information

SILT AND CLAY:
TEXTURE: Clay, USCS classification CL
COLOR: Light brown 5 YR 6/5
CONSISTENCE: Friable to firm.
STRUCTURES: Platy structures are present
FREE CARBONATES: Highly reactive
ROCK: Very fine grained sand particles are present and tend to fine upward into a silt.
ROOTS OR FOSSILS: None noted



SANDS - CLEAN:
TEXTURE: Sand, USCS Classification SW, sands fine upward from medium grained to fine grained in series beginning at depths 805, 798, and 793.4 feet.
COLOR: Yellowish gray 5 Y 7/2
CONSISTENCE: Friable to firm.
STRUCTURES: Massive
FREE CARBONATES: Highly reactive
ROCK: None noted
ROOTS OR FOSSILS: None noted
Alteration: Random oxidized grayish red 10 R 4/2 octagonal silt clumps > 2 mm in size.

MISSING INTERVAL:
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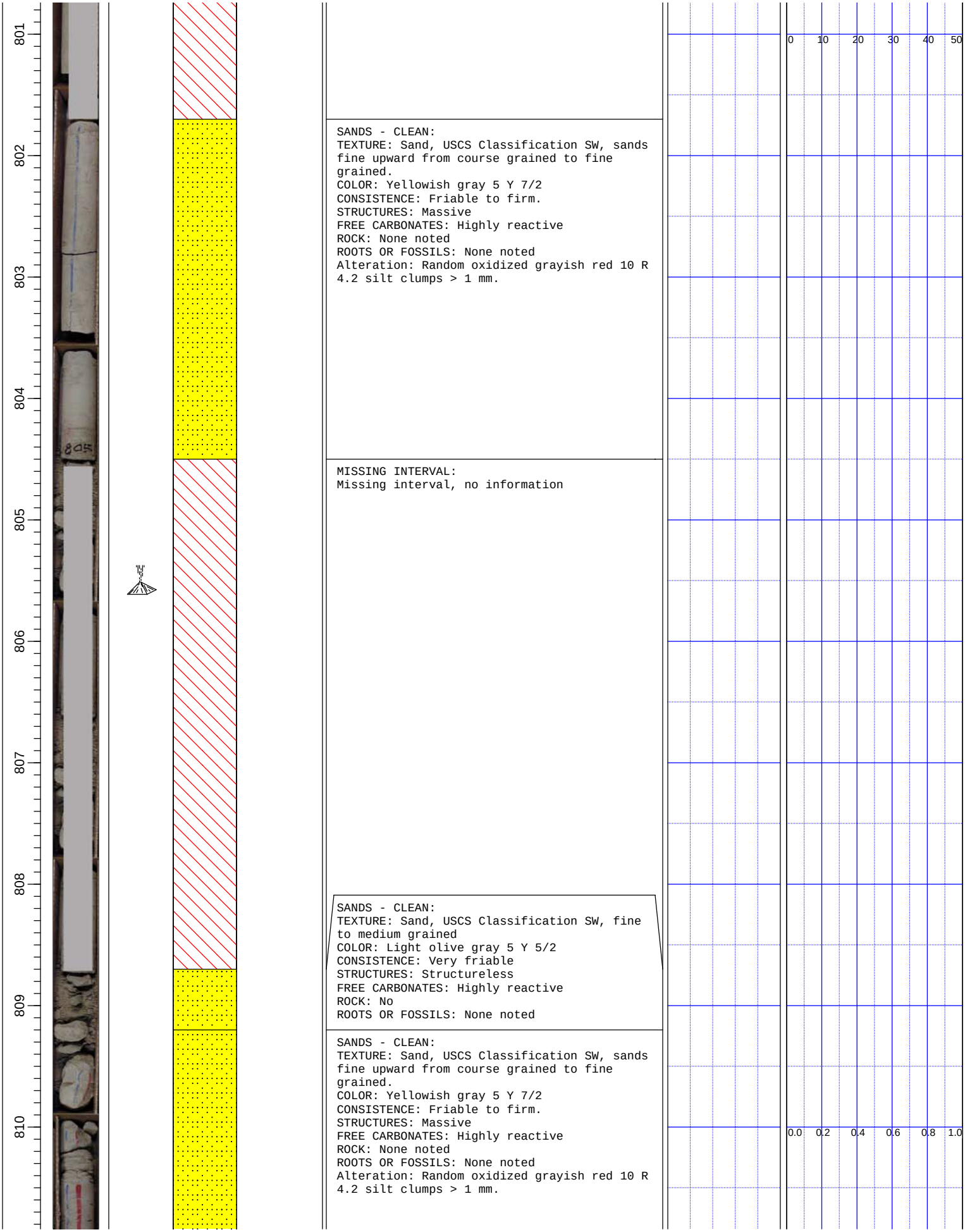

SANDS - CLEAN:
TEXTURE: Sand, USCS Classification SW, sands fine upward from course grained to fine grained.
COLOR: Yellowish gray 5 Y 7/2
CONSISTENCE: Friable to firm.
STRUCTURES: Massive
FREE CARBONATES: Highly reactive
ROCK: None noted
ROOTS OR FOSSILS: None noted
Alteration: Random oxidized grayish red 10 R 4.2 silt clumps > 1 mm.

MISSING INTERVAL:
Missing interval, no information

SANDS - CLEAN:
TEXTURE: Sand, USCS Classification SW, fine to medium grained
COLOR: Light olive gray 5 Y 5/2
CONSISTENCE: Very friable
STRUCTURES: Structureless
FREE CARBONATES: Highly reactive
ROCK: No
ROOTS OR FOSSILS: None noted

SANDS - CLEAN:
TEXTURE: Sand, USCS Classification SW, sands fine upward from course grained to fine grained.
COLOR: Yellowish gray 5 Y 7/2
CONSISTENCE: Friable to firm.
STRUCTURES: Massive
FREE CARBONATES: Highly reactive
ROCK: None noted
ROOTS OR FOSSILS: None noted
Alteration: Random oxidized grayish red 10 R 4.2 silt clumps > 1 mm.


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