

FORMS FOR CAPTURING MUDSTONE DESCRIPTIONS IN CORES

We recommend the use of the two forms included in this appendix for capturing key attributes of mudstones observed in cores. One form can be used for cores with measured depth in meters whereas the other one can be used for cores with measured depth in feet. The back of the form includes guidelines for defining mudstone texture, bedding, and composition as well as a list of symbols of common physical, biologic, and chemical sedimentary features. Also included are the 0- to 5-scale one could use to characterize the degree of bioturbation (from Lazar et al., 2010, 2015; after Reineck, 1963; Potter et al., 1980; Droser and Bottjer, 1986; Taylor and Goldring, 1993; Aplin and Macquaker, 2010), descriptors of the abundance of sedimentary features, examples of common trace fossils (after Pemberton et al., 2001), tips for characterizing pyrite, and examples of common colors of mudstones (after the GSA color chart).

Well: _____ Location: _____ Page _____ of _____

Samples Photos	Depth (m)	Texture, Bedding											Composition		Sed'y Strx				Bioturbation		Taphonomy		Notes <small>Texture (sorting, max grain size), Bedding (bed/bedset avg/max thickness, thickness trends), Composition, Dominant Fossil, Color, etc.</small>	EoD <small>Location, province, Dom. E. Ct. level</small>
		Cgl Bs	Ss Gs	mSs Ps	sMs Ws	Ms c	m	f	co s	sh	phy	bio/chem	1	2	3	4	broken	reworked	fractures					

Date:

Described by:

Well: _____ Location: _____ Page _____ of _____

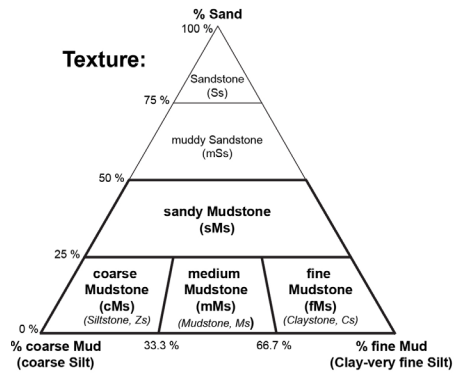
Samples Photos	Depth (ft)	Texture, Bedding						Composition		Sed'y Strx		Bioturbation				Taphonomy		Notes <small>Texture (sorting, max grain size), Bedding (bed/beds/et avg/max thickness, thickness trends), Composition, Dominant Fossil, Color, etc.</small>	EoD <small>Location, present, Dom. E. Cl. level</small>
		Cgl Bs	Ss Gs	mSs Ps	sMs Ws	Ms c	f	org	Si	phy	bio/chem	1	2	3	4	broken	reworked		

Date:

Described by:

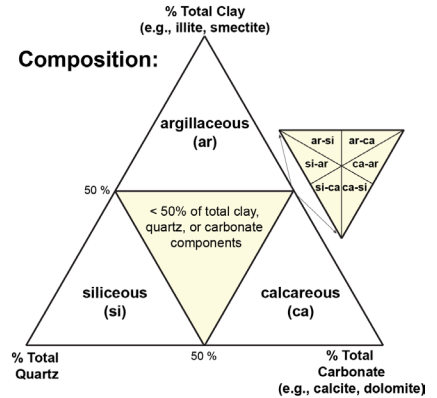
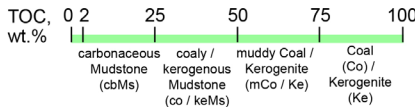
Cgl Ss mSs sMs
Bs Gs Ps Ws c m f

6
5
4
3
2
1

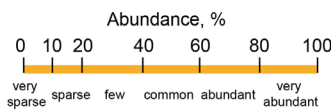


Lamina Geometry:

	Continuous	Discontinuous
Planar, parallel		
Planar, nonparallel		
Wavy, parallel		
Wavy, nonparallel		
Curved, parallel		
Curved, nonparallel		



Sedimentary Features:



- current ripple x-lam.
- climbing ripple x-lam.
- wave ripple x-lam.
- combined-flow ripple
- hummocky cross bed
- swaley cross bed
- normally graded bed
- wave-enhanced-sediment-gravity-flow bed
- lag
- scour surface
- trough cross bed
- sigmoidal cross bed
- wavy/flaser/lenticular bedding
- planar cross bed
- planar lam.
- planar bed
- homogeneous bed
- convolute lam.
- dish and pillar
- low-angle truncation
- flame structure
- load cast
- groove cast
- flute cast
- stylolite
- mudcrack

- lithoclast
- rip-up clast
- breccia clast
- oolites
- volcanic ash bed
- microfault
- fracture
- nodule
- concretion
- coated grain
- cone-in-cone
- siderite
- pyrite
- glauconite
- calcite
- phosphate
- silica
- dolomite
- wood
- vitrain
- root
- leaf
- pedoturbation
- churned
- burrowed
- fish
- ammonite
- bivalve, thick wall
- bivalve, thin wall
- brachiopod
- bryozoan
- dacroconarid
- echinoid
- graptolite
- gastropod, high spire
- gastropod, low spire
- othocerid cephalopod
- pectinoid
- rugose coral
- trilobite
- microbiolites
- algae
- spore
- coccolithophore
- conodont
- diatom (centric, pennate)
- foraminifera
- ostracod
- pollen
- radiolarian
- sponge

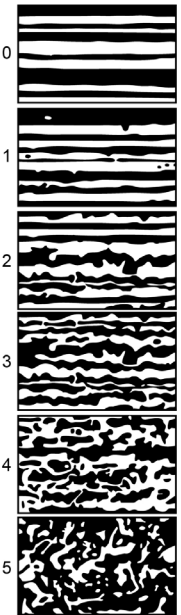
Bioturbation Index, BI

BI Verbal Bioturbation Index:

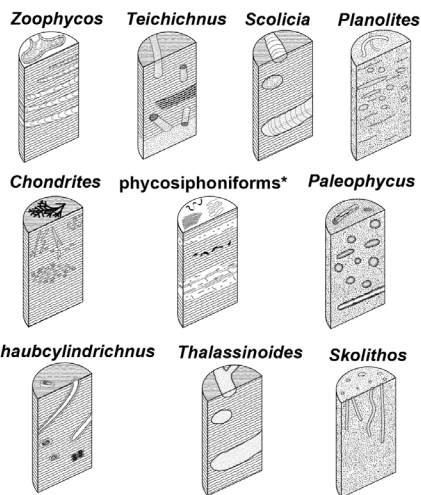
- 0 *not bioturbated*
- 1 *weakly bioturbated*
- 2 *sparsely bioturbated*
- 3 *moderately bioturbated*
- 4 *strongly bioturbated*
- 5 *churned*

BI Description:

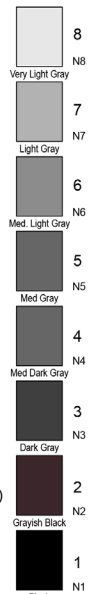
- 0 No visible burrows; all original sedimentary structures preserved
- 1 Beds continuous, a few burrows
- 2 Beds discontinuous, some burrows
- 3 Remnant bedding, common burrows, individual burrows mostly recognizable
- 4 Minimal bed continuity, abundant burrows, some distinct burrows
- 5 No remnant bedding, fully homogenized, difficult to recognize individual burrows



Trace Fossils:



Color:



*phycosiphoniforms (e.g., *Phycosiphon*, *Helminthopsis*, *Anconichnus*)

Pyrite:

Size: ≤ 1 mm; ≥ 1 mm; **Sorting:** uniform, wide range; **Shape:** simple/compound; framboid, cubic, bladed, pseudomorph (after , etc), irregular; **Distribution:** Dispersed (evenly, clumped), Aligned (burrows, lags, primary growth)

Lazar et al.