Table 1. Characteristics of Lower Silurian Sandstone Facies (Appalachian Basin) for which Petrophysical Properties Were Measured

Facies	Lithology	Bedding	Primary Sedimentary Structures	Other Features
Fluvial	predominantly fine- to coarse-grained sandstone, minor pebbles concentrated in layers and lenses; pale yellow, white, and light gray; minor interbedded gray mudstone	medium- to thick-bedded	common trough and planar cross-bedding; scoured basal contacts; common shale rip-up clasts	sandstone beds commonly fine upward, sometimes into mudstone; sandstone beds are commonly stacked into thick sequences; burrows are absent
Estuarine	predominantly fine- to coarse-grained sandstone, minor granules and pebbles concentrated in layers and lenses; pale yellow, white, and light-medium gray; minor interbedded gray mudstone	thin- to thick-bedded	common sigmoidal and planar cross-bedding, sometimes bidirectional; shale drapes and couplets on foresets; basal contact commonly erosional; common shale rip-up clasts	tops of sandstone beds are sharp to gradational into mudstone; minor to common vertical and horizontal burrows
Tidal channel	predominantly very fine- to fine-grained sandstone, minor medium- to coarse-grained sandstone; red in hematitic intervals, green to greenish gray in chloritic intervals; common interbedded gray and greenish gray mudstone	thin- to medium-bedded; minor thick-bedded	common trough cross-bedding, bidirectional cross-bedding, reactivation surfaces, and shale drapes on foresets; minor shale couplets on foresets; sharp, basal contacts commonly erosional; common shale rip-up clasts	multiple fining-upward sandstone beds form overall coarsening-upward intervals; minor, small horizontal and vertical burrows; sparse phosphatic brachiopods
Tidal flat	very fine- to fine-grained sandstone interbedded with mudstone and siltstone; predominantly hematitic and red, minor gray	thin- to medium-bedded	common current-ripple lamination; small-scale bidirectional cross-bedding; wavy bedding	common vertical burrows; bioturbation commonly obscures primary physical structures; sandstones are commonly argillaceous
Lower shoreface	predominantly very fine-grained sandstone; minor fine-grained sandstone; light-medium gray and greenish gray; minor mudstone interbeds	thin- to medium-bedded	common wave-ripple cross-lamination	common to minor small, horizontal burrows; sparse to minor fragments of phosphatic brachiopods; minor glauconite
Upper shoreface	fine- to medium-grained sandstone, minor coarse-grained sandstone; light-medium gray, greenish gray, and white; rare to minor gray mudstone interbeds and interlaminae	medium- to thick-bedded	common horizontal lamination and low-angle cross-lamination; minor wave-ripple cross-lamination	sparse small, horizontal burrows; sparse fragments of phosphatic brachiopods

Table 2. Composition of Depositional Facies Determined by Point-Counting of Thin Sections (300 Points per Thin Section)*

	Number of Samples	Detrital Grains	Matrix	Cement	Porosity
Estuarine	16	56.3 (46.3–65.3)	2.0 (0.0–10.7)	32.0 (22.0–41.7)	9.6 (4.7–18.3)
Fluvial	23	52.7 (44.0–70.0)	0.4 (0.0–5.0)	32.4 (19.7–42.7)	14.5 (4.3–17.7)
Lower shoreface	14	52.2 (42.7–64.6)	3.0 (0.0–17.7)	36.5 (23.0–51.3)	8.3 (4.0–14.7)
Tidal channel	21	55.7 (46.0–64.6)	1.9 (0.0–7.0)	34.0 (24.0–41.7)	8.3 (3.0–13.7)
Tidal flat	11	60.8 (52.3–72.0)	8.2 (0.0–23.3)	28.7 (16.0–41.3)	2.4 (0.0–6.0)
Upper shoreface	30	53.7 (39.0–63.3)	0.4 (0.0–4.7)	31.6 (18.7–48.7)	14.3 (10.0–19.7)

*Arithmetic average percent (and range) is listed.

Table 3. Quartz-Feldspar-Lithic (QFL) Composition of Detrital Grains Determined by Point-Counting of Thin Sections (300 Points per Thin Section)*

	Quartz	Feldspar	Lithic
Estuarine	94.0 (78.9–100.0)	0.7 (0.0–1.8)	5.3 (0.0–21.1)
Fluvial	95.4 (87.7–100.0)	0.9 (0.0–6.1)	3.7 (0.0–12.3)
Lower shoreface	83.0 (64.1–97.5)	16.2 (2.5–34.7)	0.9 (0.0–4.3)
Tidal channel	72.4 (57.0–93.5)	24.6 (6.5–40.3)	3.0 (0.0–9.0)
Tidal flat	65.4 (49.1–77.8)	31.8 (22.2–50.9)	2.8 (0.0–10.2)
Upper shoreface	85.9 (66.4–96.9)	13.1 (3.1–28.8)	1.0 (0.0–4.8)

*QFL composition is normalized to 100%. Arithmetic average percent (and range) is listed.

Table 4. Cement Content as a Percentage of the Total Rock Volume Determined by Point-Counting of Thin Sections (300 Points per Thin Section)*

	Quartz Overgrowth	Chlorite	Hematite	Dolomite	Anhydrite
Estuarine	17.8 (8.0–26.3)	7.5 (1.0–21.3)	4.2 (0.0–11.0)	2.5 (0.0–10.0)	0.04 (0.0–0.7)
Fluvial	14.8 (6.7–20.0)	15.8 (0.0–20.7)	1.2 (0.0–9.3)	0.1 (0.0–1.0)	0.5 (0.0–10.7)
Lower shoreface	14.3 (9.7–19.0)	11.1 (5.7–14.3)	1.1 (0.0–6.7)	9.5 (0.0–28.0)	0.4 (0.0–2.0)
Tidal channel	15.1 (10.3–18.3)	9.0 (1.3–15.3)	4.7 (0.0–20.3)	3.7 (0.0–16.0)	1.5 (0.0–5.7)
Tidal flat	13.1 (6.7–22.7)	4.8 (0.0–15.3)	6.8 (0.0–16.7)	2.7 (0.0–15.3)	1.3 (0.0–5.0)
Upper shoreface	10.7 (4.7–22.0)	10.3 (2.7–17.0)	0.5 (0.0–2.3)	10.1 (2.0–29.3)	0.0 (0.0–0.0)

*Arithmetic average (and range) is listed.