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Summary & Conclusions

Seal character in slope fan settings is related to variations of shale fabric and texture (e.g., content of detrital silt). At least three distinctive shale microfacies, each having different MICP (seal) profiles are present in the cored interval.

- top seal potential ranges from moderate to excellent (in the absence of fractures)
- lateral seal potential ranges from moderate to poor.

Variations in depositional fabric, which correlate with high-frequency (wire line log-scale) stratigraphic fluctuations, are responsible for observed variations in seal capacity.

Reservoir compartmentalization, induced by shale laminae and clay smears (micro-faults), is a common aspect of channel margin lithofacies within this deep marine (slope fan) depositional system. Hemipelagic shales and argillaceous debris flows also compartmentalize the studied LST reservoir interval.

Reservoir character (especially permeability) is compromised by ductile folding and small-scale faulting. Slumping along with the deposition of mud drapes contribute to limited internal connectivity in channel margin lithofacies.

Porosity-depth modeling suggests that the reservoir potential of fine-grained channel margin lithofacies degrades more rapidly during burial relative to coarser channel axis lithofacies.

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