

## **CHARACTERISTICS OF SHEAR-WAVE REFLECTIONS FROM A SHALLOW LIMESTONE UNIT IN WEST-CENTRAL MISSISSIPPI**

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A shear-wave (S-wave) seismic reflection data set was acquired in the Big Black River (BBR) valley of west-central Mississippi. This work was focused on evaluating the use of shallow seismic reflection methods, emphasizing the high-resolution potential of S-wave propagation in the unconsolidated, water-saturated sediments of the BBR valley. Preliminary tests, including a comparison of 12-channel and 24-channel land streamer field configurations and sledgehammer/I-beam energy sources, identified a strong, shallow (< 20 m deep) reflection in the near surface. Correlation with a local well log indicates that the reflection is likely from the Glendon Limestone member of the Vicksburg Group (Oligocene). The high-amplitude reflection has a low stacking velocity (~200 m/s), representative of the overlying BBR alluvial sequence. The large acoustic impedance contrast between the unconsolidated sediments and the Glendon Limestone produces a strong multiple reflection, clearly visible on both the shot gathers and the stacked section. Further work in the area will include additional seismic reflection profiling and shallow coring.