



The above image was created for the DOE project,

IMPLEMENTING A NOVEL CYCLIC CO₂ FLOOD IN PALEOZOIC REEFS

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Michigan Technological University
Houghton, Michigan**

Figure Caption:

Belle River Mills 3D reef presentation, showing permeability voxels 25 md and greater (green), porosity voxels 13% and greater (red), rock types (blues and green), and transparent crestal reef structure surface. View is looking northwest, 30 degrees above horizontal. The best permeability and porosity is located in the upper wackestone (dark blue, lower reef) and lower boundstone (light blue, mid-reef) rock types. The stromatolite rock type (medium blue, upper reef) generally has poorer quality permeability and porosity. Storage and deliverability capacities of this gas storage reservoir could be optimized using this type of 3D visualization analysis. Vertical exaggeration is 10X. Six inset tomography images show the core permeability, core porosity, and gamma ray at two levels in the reef – in the wackestone and upper boundstone. Inset (upper right) model shows color-filled top of reef structural contours and landgrid overlays with no vertical exaggeration. Also shown is the trace of a potential horizontal well designed to encounter the best permeability areas based upon the log curve amplitude slicing and 3D-imaging and tomography.