

20.15 **Characteristics of Illite-Rich Oil Shale from the Piceance Basin, Colorado**

Alan Burnham<sup>1</sup>, Tim Ruble<sup>2</sup>, Malka Machus<sup>3</sup>, Michael Herron<sup>3</sup>

<sup>1</sup>*American Shale Oil LLC, Rifle, CO 81650, United States*, <sup>2</sup>*Humble Geochemical Services, Humble, TX 77338, United States*, <sup>3</sup>*Schlumberger-Doll Research, Cambridge, MA 02139, United States*

American Shale Oil, LLC, is working to demonstrate recovery of shale oil from the illite-rich Garden Gulch member of the Green River Formation at its BLM RD&D lease site in Colorado's Piceance Basin. The shale in the R-1 zone averages about 27 gal/ton, 13 wt% organic carbon, 2 wt% mineral carbon, 2 wt% sulfur, and 1 wt% nitrogen. The fractional conversion of kerogen to oil is similar to that in the Mahogany zone, although the oil formed has fewer isoprenoids and more wax. The latter result is consistent with published studies on oil properties versus depth in the Green River Formation. The mineral carbon is contained primarily in the form of ankerite/dolomite and calcite. Nitrogen content of the shale is independent of organic content and, therefore, likely contained in minerals. Buddingtonite is a likely candidate.