

10.2 **Assessment of in-place oil shale resources in the Eocene Green River Formation, Uinta Basin, Utah and Colorado**

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The U.S. Geological Survey recently conducted an assessment of in-place oil resources, regardless of richness, in oil shale of the Eocene Green River Formation of the Uinta Basin of eastern Utah and western Colorado. The Green River Formation was deposited in Lake Uinta, a saline lake that extended across both the Uinta and the Piceance Basin to the east in western Colorado. The basins are separated by the Douglas Creek arch, an area of comparatively low rates of subsidence during deposition of the Green River Formation. All available Fischer assay data, location data, and stratigraphic tops picked for oil shale zones in boreholes in the Uinta Basin were assembled into a single ACCESS database linked to ESRI's ArcGIS software that was used to analyze the data. The Radial Basis Function (RBF) extrapolation method was used to generate isopach and isoresource maps, and to calculate resources. The RBF method was easier to use and created more geologically reasonable models than kriging, the method used in previous assessments. A comparison of the two methods using the same data showed little difference in the results. In addition, the Uinta and Piceance Basin databases were combined in order to generate a single set of resource maps for both basins. These maps are useful in studying oil yield trends across the entire area of Lake Uinta.

The oil shale interval in the Uinta Basin was subdivided into eighteen roughly time-stratigraphic intervals, and each interval was assessed for variations in gallons per ton, barrels per acre, and total barrels in each township. The total resource for the Uinta Basin is estimated at 1.32 trillion barrels of oil in place. This is only slightly lower than the estimated 1.53 trillion barrels for the adjacent Piceance Basin, Colorado, which is considered to be the richest oil shale deposit in the world. However, the area underlain by oil shale in the Uinta Basin is much larger than that of the Piceance Basin—3,834 mi² vs. 1,335 mi², and the average gallons per ton and barrels per acre for each of the assessed oil shale zones are significantly lower in the depocenter in the Uinta Basin when compared to the depocenter in the Piceance Basin. These relations indicate that the oil shale deposits in the Uinta Basin are of lower grade and are more dispersed than in the Piceance Basin.