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An assessment of in-place oil shale resources in the Green River Formation, Piceance Basin, Colorado

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An assessment of in-place oil, regardless of richness, in oil shale of the Eocene Green River Formation of the Piceance Basin of western Colorado is presented, based on the considerable amount of oil yield data that has been collected since the previous U. S. Geological Survey in-place assessment was published in 1989. Estimated in-place oil in the Piceance Basin is about 1.5 trillion barrels, or about 50 percent larger than the previous in-place assessment of about one trillion barrels. Almost all of this increase is due to: (1) new areas being assessed that had too few data to assess in the previous assessment; and (2) new intervals being assessed, many of which are low grade and unlikely to be developed, that were not assessed previously. No attempt was made to estimate recoverable resources, as there is as yet no economic method to extract oil from Green River Formation oil shale.

All of the Fischer assay data, location data, and stratigraphic tops picked for oil shale zones in boreholes were assembled into a database. Microsoft Access and ESRI's ArcGIS software were used to combine, store, and analyze the data. The ability to create custom forms in Access was a crucial element in the assessment methodology, and allowed the writing of Visual Basic scripts and SQL statements to filter subsets of the data and to perform the necessary calculations using Access form controls. The Radial Basis Function (RBF) extrapolation method was used to generate isopach and iso-resource maps, and to calculate resources.