

6.2 Re-Evaluation of Utah's Uinta Basin Oil Shale Resource

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With the recent increase in crude oil prices and concerns over diminishing conventional reserves, the Utah Geological Survey (UGS) has re-examined Utah's oil shale resource. Past assessments, the first conducted in 1964 with subsequent studies continuing through the early 1980s, concentrated on the Eocene Green River Formation's Mahogany zone in the southeastern part of the Uinta Basin and were limited by the amount of drill hole data available at the time. The UGS has broadened its investigation to include the entire Uinta Basin, taking advantage of the hundreds of geophysical logs from oil and gas wells drilled over the past two decades. We have correlated available Fischer assay analyses with corresponding density and sonic measurements as a way to predict oil yield from geophysical logs. In addition to the core-based Fischer Assay analyses obtained from 108 wells drilled specifically for oil shale, 194 oil and gas wells with oil yields calculated from digitized bulk density or sonic logs were used to create a basin-wide picture of the oil shale resource in the Uinta Basin. These widespread data were used to map oil shale thickness and richness and create isopach maps delineating oil yields of 15, 25, 35, and 50 gallons per ton (GPT) of rock. From these newly created isopach maps, preliminary basin-wide resource numbers were calculated for each richness grade. A continuous interval of oil shale averaging 50 GPT contains an in-place oil resource of 40 billion barrels of oil in a zone ranging up to 18 feet thick. An interval averaging 35 GPT, with a maximum thickness of 55 feet, contains an in-place oil resource of 86 billion barrels. The 25 GPT zone and the 15 GPT zone contain resources of 158 billion barrels and 335 billion barrels, respectively. The maximum thickness of 25 GPT rock is about 130 feet, whereas the maximum thickness of 15 GPT rock is about 600 feet. Future research will constrain these in-place resource estimates by depth, thickness, and richness as a means to calculate potential economic resource numbers.