

Title:

Regional and Local Scale GIS and Surface/Groundwater Models of the Oil Shale Basins

Abstract: (Your abstract must use 10pt Arial font and must not be longer than this box)

In the 1920's, 1950's, and 1890's oil shale booms, there was extensive exploration drilling by companies such as Exxon, Cities Service, and Occidental. A great deal of the well exploration data was not stored in a data management system or Geographic Information System (GIS) until recently. Now that GIS technology has become an industry standard, these data can be captured, managed, analyzed, and displayed. Information attributes can be linked to the well location data, such as well logs, Discher assay interpretations, and stratigraphy. That information can then be layered to give a better understanding of how it all works together. Layers can be combined based on questions requiring answers. A map is only one way to work with geographic data in a GIS. A GIS can provide more problem-solving capabilities than a simple mapping program or data added to an online mapping tool. GIS can integrate and relate any data with a spatial component, regardless of the source of the data. Mapping wells in GIS permits identification of patterns and relationships among wells. One can see concentrations by simply mapping the locations of wells. In areas with many wells it may be difficult to see which areas have a higher concentration than others. A density map allows one to measure the number of features per unit area (acres or square miles), to clearly see the distribution. A map of the change in the areas of well drilling permits one to anticipate future conditions, decide on a course of action, or evaluate the results of in situ oil shale production, tight gas production, soda ash mining, or nahcolite mining. Data can come from any number of sources – organization databases, contact managers, CAD files, the Internet, commercial data providers, government organizations, etc. The GIS model can be used in groundwater and surface water models around the world. In the 1980's, the Piceance Basin model of O. James Taylor of the USGS implied a two layer aquifer system. It is important to know what well data is available to characterize the aquifer system now from all the exploration efforts. This presentation will illustrate some of these techniques for presentation and analysis of data for the oil shale basins in Colorado, Utah, Wyoming, Kentucky, and around the world.

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