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GIS- and Web-based water resource geospatial infrastructure for oil shale development in the Western United States

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The increasing demand on fossil energy development calls for technology solutions for oil shale development at least cost and minimal environmental impact. Oil shale deposits are found on all inhabited continents. Large oil shale deposits are found throughout the Midwestern and Eastern United States, however, the deposits found in the Green River Formation in northwestern Colorado, southwestern Wyoming, and northeastern Utah are most likely to be developed because of their richness, accessibility, and extensive prior characterization. In this on-going project funded by the U. S. Department of Energy/National Energy Technology Laboratory, we are in a position to develop a Geographic Information Systems (GIS)-based regional/basin water resource geospatial infrastructure, and a web-based data warehouse for storing, managing, analyzing, visualizing, and disseminating oil shale related data. The project involves a multi-disciplinary team that consists of investigators from Colorado School of Mines, University of Texas at San Antonio, and Idaho National Laboratory. The goal of this research effort is to develop products that can provide time-efficient and cost-effective GIS solutions to evaluate environmental and water resource issues and data management related problems for potential oil shale development. Although the initial study area will be the Piceance Basin in Colorado, other potential sites, such as Uinta Basin, have also been identified to ensure that the results of this effort are sufficiently robust, flexible, and reusable.