

**Resolving Environmental Barriers To Oil And Gas Production On Federal Lands  
DE-IA26-03NT15420/Task 2: 1:24,000 Scale Order 3 Soil Survey (4776-DOE2-BLM9)**

**Goal**

The goal of this project is the production and use of a high-resolution geospatial soil dataset and soil interpretations tailored to activities associated with oil and natural gas development. The project (Order 3 soil survey) will provide the Bureau of Land Management (BLM) critical tabular and spatial soil data needed for prescription of best management practices and reclamation measures to better conserve and protect soil and water resources in energy development areas of the Powder River Basin.

**Performers**

Bureau of Land Management, Wyoming State Office, Cheyenne, WY

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), Buffalo, WY

**Results**

Field mapping and transecting (soil pit investigations) for an Order 3 soil survey and ecological site correlation (ESC) were completed on 70,000 acres of public lands in the northern Johnson County, WY. Data analysis, synthesis, and preparation of the survey report were completed in April 2006. Project deliverables were shared with the BLM Buffalo, WY, field office and are currently in use as prescribed above. The datasets will soon be incorporated into the NRCS SURGO database and will be posted at the NRCS website (<http://soils.usda.gov/survey/>).

**Benefits**

Soil survey products will 1) provide BLM critical tabular and spatial soil data needed for prescription of best management practices and reclamation measures, 2) reduce the time required for soil resource impact analysis and mitigation prescription in the Application for Permit to Drill (APD) process by at least 60 percent, and 3) provide the oil and gas industry with a planning and assessment tool that will allow companies to prepare better operational plans and Storm-Water Pollution Prevention Plans (a Clean Water Act requirement) in less time and with lower costs. BLM National Environmental Policy Act (NEPA) reports will be scientifically credible and more defensible while requiring less time and money to produce. Delays associated with protests and appeals should decrease as a result of better planning, analysis, and mitigation of impacts.

**Background**

High-resolution Order 3 soil survey spatial and tabular data were unavailable for northern Johnson County of the Powder River Basin area. This lack of data could have resulted in shortcomings in the quality of NEPA analysis, prescription of best management practices, and design of reclamation plans.

**Summary**

The soil and ESC data derived on public will be used specifically for the management of soil resources to estimate engineering properties of the soils and their suitability for mineral development projects; prescribe appropriate mitigation measures, and design reclamation alternatives. These data are currently being used by BLM in this manner as a standard application in managing oil and gas development activities. In addition, interpretations required for these applications will be developed cooperatively by BLM and NRCS.

The creation and use of the high-resolution soil datasets will significantly aid in application of good science in addressing resource management needs associated with energy development in the Powder River Basin. This cooperative project promotes public support and stimulation by providing seamless soil and ESC datasets that can be used by land owners and energy producers for land use applications and impact assessments. Such applications will serve to protect soil and vegetation resources for their beneficial uses and define mitigation measures to minimize unavoidable impacts to public land resources.

**Current Status (February 2007)**

The project has been completed, and all spatial and tabular electronic datasets of map unit data and soil maps have been delivered to the BLM and are currently in use in the APD process. The datasets will soon be incorporated into the NRCS SURGO database and will be posted at the NRCS website (<http://soils.usda.gov/survey/>).

**Project Start:** September 30, 2003  
**Project End:** December 31, 2006

**DOE Contribution:** \$75,000  
**Performer Contribution:** \$65,000

**Contact Information**

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