

Testimony to the Joint Committee on Energy and Environmental Policy
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Mr. Chairman, Members of the Committee:

Thank you for the opportunity to appear today. My name is Rex Buchanan. I am the interim director of the Kansas Geological Survey. I am here today to describe the Survey and some of its programs, particularly as they relate to our work in water and energy.

The Survey is a research and service division of the University of Kansas. We are charged, by statute, with studying the state's geologic resources and providing information about them. We have no regulatory responsibility and we do not take positions on natural resource issues.

The issues we study are a direct reflection of the natural resources issues central to Kansas. As you might expect, much of our work is related to water and energy. We also generate new information about the state's geology, and develop tools and techniques for studying the state's surface and subsurface. The primary clients for our information include private individuals and businesses that explore for oil and natural gas in the state, and drill for groundwater; engineering companies and consultants who deal with construction and geologic hazard issues in Kansas; and other state, local, and federal agencies, such as the Division of Water Resources of the Kansas Department of Agriculture, the Kansas Water Office, the state's groundwater management districts, and the Kansas Corporation Commission.

We are located on the west campus of the University of Kansas, and we have a branch office, the Wichita Well Sample Library, in Wichita. The Survey has a twelve-person advisory council that currently includes Representative Jerry Williams and Senator Ruth Teichman, and in the past has included Senators Carolyn McGinn, Steve Morris, Derrick Schmidt, and former Representative Dennis McKinney.

Water is obviously among the most important natural resource issues facing Kansas. The KGS focuses primarily on groundwater issues of concern to the state, in particular the Ogallala aquifer, a component of the High Plains aquifer. The KGS, in cooperation with the Division of Water Resources, undertakes an annual water level measurement program across western Kansas. The results of those measurements are critical for making management decisions, particularly in years like this one. We work with the groundwater management districts to develop groundwater models that show the affect of various management scenarios. We are working to better understand the actual amount of the aquifer that is saturated with water. We have instrumented wells in three of the GMDs to try to gain a better idea of very local water level changes. We are looking at additional efforts in the Ogallala, in light of recent concerns and drawdowns in the aquifer.

Kansas is one of the top 10 leading oil and natural gas producing states in the country, and annual production of those energy commodities in Kansas is valued at about \$5 billion dollars annually. Nearly all of the energy production in Kansas is done by independent companies, most of which are too small to carry on their own research in a mature producing area like Kansas. The Survey studies the state's subsurface geology, and provides Kansas-focused research on techniques that can be applied to exploring for and producing additional oil and gas. In some respects, the Survey provides the same service to the state's energy industry as Kansas State University's Extension program provides to the state's agricultural producers. We disseminate huge volumes of production data, well logs (the records of wells drilled during the search for oil and gas), and other drilling-related data, all publicly available and generally electronically available, through our offices in Lawrence. We also collect, archive, and loan cuttings, the small chips of rock produced during drilling, from our office in Wichita, which houses cuttings from more than 130,000 wells drilled in Kansas.

In the past few years, the Survey has been particularly active in the field of carbon dioxide sequestration, or the potential disposal of carbon dioxide in the Kansas subsurface. With funding from the U.S. Department of Energy, we have undertaken several projects related to CO₂ sequestration. We developed an atlas of CO₂ sources and potential sequestration sites for the country. We have received more than \$10 million in DOE funding to characterize the geology of south-central and southwestern Kansas, with an eye toward learning more about possible reservoir rocks, both in terms of using CO₂ for enhanced recovery in producing reservoirs, and deeper disposal of CO₂ in a saline aquifer. This work is being done with a range of industry and university partners, including Kansas State University and Berexco, Inc., of Wichita. This work will provide data that will allow us to better know the subsurface geology, identify faults and fractures, and model the emplacement and movement of CO₂ over time. This information is also valuable to the KCC, which will regulate any emplacement of CO₂. Within the past several weeks, we received notification from DOE that, pending final negotiations, we will receive an additional \$11 million for a three-year, small scale demonstration injection project in the Wellington Field that will involve emplacement of carbon dioxide.

In addition to work in water and energy, the KGS maps the geology of the state's counties; the KGS Data Access and Support Center is an important source of natural resource data for the state; the KGS's shallow seismic reflection program is renowned throughout the country and the world for its ability to provide images of the shallow subsurface, a technique that has been applied to salt-related sinkholes in central Kansas, abandoned lead and zinc mine subsidence in southeastern Kansas, and in identifying the movement of natural gas under the city of Hutchinson from the Yaggy natural gas storage facility. Finally, I know that many of you are familiar with the Survey's annual Field Conference. Next year we'll look at water issues in northwestern Kansas; that trip is tentatively scheduled for June 8-10, 2012.

Again, I appreciate the opportunity to talk with you today. If we can provide additional information on these or any other geology-related topics, please contact me. The Kansas Geological Survey is a recognized leader among state geological surveys, and we remain focused on our role of providing natural resource information for the state of Kansas.