



INDUSTRIAL COMMISSION OF NORTH DAKOTA

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NEW

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North Dakota coal mines investing in study to improve mine reclamation

Next year will be the 40th anniversary of the U.S. Surface Mining and Control Act. Since its passage, more than 27,000 acres of North Dakota prairie have been mined for lignite coal and gone through formal bond release. To be released from bond, the land has to be as productive or more productive for 10 years than it was prior to mining.

With that history of success, it might surprise some to learn that four North Dakota coal mines are investing along with the State of North Dakota in a five-year study to see how the reclamation process can be further improved.

“The coal miners in the state have collectively built up hundreds of years of experience in reclaiming land, so when I first heard about the study, I was skeptical,” said North Dakota Public Service Commissioner Randy Christmann.

Christmann holds the coal industry portfolio for the PSC and also sits on the Lignite Research Council, a formal board appointed by the Governor that approves research and development projects that seek matching money from the state of North Dakota.

“After speaking with the PSC’s division of reclamation manager, I decided to support the study,” Christmann said. “He told me that more research is needed to prevent the occasional compaction problems and non-native grasses growing on land that has bond released. When I learned that, I changed my mind. While we reclaim mined land well, we can always learn to do it better.”

The study will be conducted by the North Dakota State University’s Department of Natural Resources. The project is broken into three phases spanning five years. The end result will be a “best practices management document” that should allow reclaimed land to have less compaction problems which lead to better drainage, less nuisance vegetation and increased root penetration.

Jay Volk, the environmental manager for BNI Coal’s Center Mine, said the compaction problems are a result of heavy equipment used in mining and land reclamation.

He explained, “Mining companies are doing a great job in decreasing compaction potential by strategically planning respread areas and traffic patterns as well as shifts in kinds of equipment used, yet compaction potential stills exist to some level.”

“Following the mining process, heavy machinery is used to move soil, which applies compressive pressure during the reclamation process,” Volk added. “We knew this compaction was occurring but we thought with time the soils would loosen as crops were planted, rains fell and the ground froze in the winter and thawed in the spring. But, instead, we found that the compaction problems continue to linger as long as four decades after mining.”

Volk, who earned his doctorate and master’s degrees in range sciences at NDSU, went back to his alma mater to build a partnership in finding new ways to reduce the compaction problems during reclamation.

Dr. Ryan Limb will be the project director and the primary principal investigator on the project, but he will have three other co-principal investigators all from NDSU. Volk and an industry task force consisting of representatives from all four mines will be engaged in the project. The four mines – BNI Coal’s Center Mine along with North American Coal’s Coyote Creek, Falkirk and Freedom Mines have all invested in the project and will have research conducted within their operations.

The NDSU soil researchers will evaluate soil management techniques incorporating both mechanical and biological actions to improve water filtration, reduce compaction and increase root depth. The total cost of the project is \$1.1 million. The mines and NDSU are paying half and the North Dakota Industrial Commission is paying the other half. State money is raised by a research and development (R&D) tax on every ton of lignite severed.

While this project is focused on the lignite industry, the NDSU researchers believe soil handling practices will also be applicable throughout the state during other reclamation efforts involving energies such as oil and gas, along with wind turbines.

North Dakota currently has more than 10,000 active oil wells and 12 wind farms. Associated with these energy sources are pad sites, access roads, pipelines and transfer stations, which will all need to be reclaimed as well.

This project – along with five others – was approved by the Lignite Research Council on May 19 and by the North Dakota Industrial Commission on May 23, 2016.

The Lignite Energy Council is a regional trade association representing North Dakota lignite producers, electric utilities and more than 300 businesses providing goods and services to the mines and plants. The lignite industry generates approximately \$3.3 billion in gross business volume within the state and provides affordable, reliable electricity to more than two million people in Upper Midwest.

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