

URANIUM EXPLORATION PERMITS ISSUED

By Ed Murphy

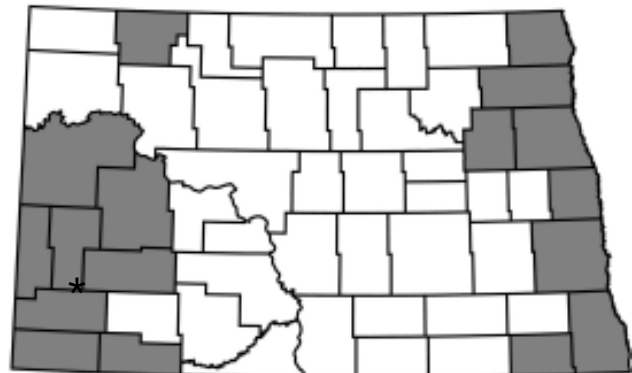
For the first time in 28 years, the ND Department of Mineral Resources has issued permits for a company to explore for uranium in North Dakota. For most of the past 50 years, the price for uranium oxide (commonly known as yellow cake) has hovered around \$10 per pound. It was roughly \$7 per pound when uranium mining took place in western North Dakota from 1962-1967. The price jumped to \$40 per pound for uranium oxide in the latter half of the 1970s, which resulted in the second wave of uranium exploration in North Dakota. Between 1976 and 1980, the ND Geological Survey issued 22 uranium exploration permits and companies drilled almost 1,400 exploration holes. Most of the drilling took place in southwestern North Dakota with exploration concentrated between the towns of Belfield and Fairfield and in the Chalky Buttes south of Amidon (fig. 1). Exploration holes in the west were generally drilled 100 to 500 feet deep through rocks of the White River Group and the Sentinel Butte Formation. Uranium was found not only in lignite beds, as had been previously documented, but also in sandstone.

Drilling also took place, to a lesser degree, along the Red River Valley in eastern North Dakota. Holes were generally drilled to Precambrian rocks at depths of 250 to 1,300 feet. The Precambrian basement rocks range from igneous to metamorphic. The top 25 to 250 feet of the basement rock has been weathered primarily to clay. It was thought that both the sandstones that occur above the Precambrian as well as the zone of weathered Precambrian rocks might contain uranium. However, little to no uranium was encountered by the drilling programs in the eastern part of North Dakota.

In the 1970s, uranium exploration permits were issued to North American Coal, BurWest (Burlington Northern Minerals), Power Resources Corp., Erda-Bendix Field Engineering Corp., John J. Simmons, Rocky Mountain Energy Company, Uranerz USA, Inc., Urex Inc., Gulf Mineral Resources Company, Minatome Corporation, David C. Fitch, and Exxon Minerals Company, USA. Only two exploration permits were issued between 1979 and 1980 as the price of uranium oxide dropped. During this period, interest in expanding the US nuclear industry waned as a result of the incident at the Three Mile Island nuclear power plant in Pennsylvania and the release of The China Syndrome, a movie critical of the nuclear power industry.

Beginning in 2004, the price of uranium oxide began increasing as stockpiles of uranium decreased around the

world. The price increase, which peaked at \$136 per pound in June of 2007, has brought renewed interest in North Dakota's deposits (fig. 2). In May 2008, the ND Department of Mineral Resources issued two permits to Formation Resources, Inc to explore for uranium in Billings and Slope counties. The company is exploring for uranium and associated metals such as molybdenum and germanium in the vicinity of the old Fritz mine. Approximately 40,000 tons of uraniumiferous lignite was mined at the Fritz Mine from 1962 to 1967. The mine was operated first by the Manidon Mining Company and later by Susquehanna-Western, Inc. The Manidon Mining Company has been credited with being the first to burn uraniumiferous lignite in the mine pit in an effort to concentrate the uranium in the ash.



*Fritz Mine

Figure 1. Uranium exploration drilling took place in both western and eastern North Dakota (shaded counties) from 1976-1980.

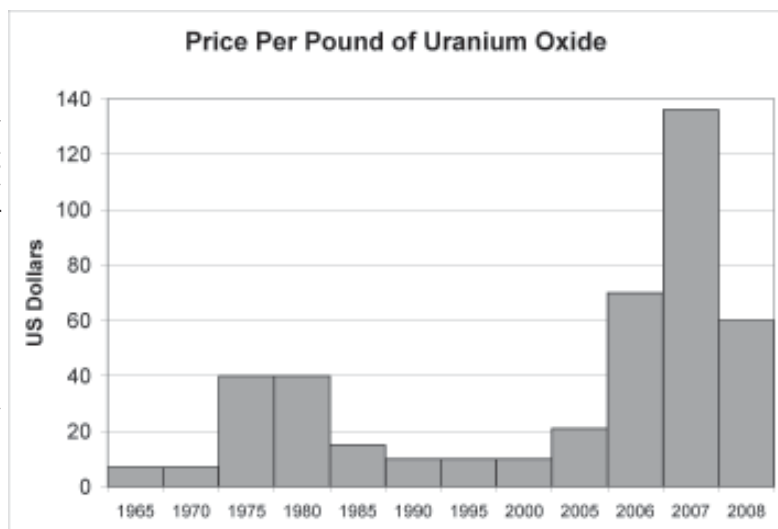


Figure 2. The market price of uranium oxide (per pound) from 1965 to 2008.