

# THE MINERAL INDUSTRY OF NORTH DAKOTA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Bureau of Mines, U.S. Department of the Interior, and the North Dakota Geological Survey for collecting information on all nonfuel minerals.

In 1994, North Dakota ranked 49th in the Nation in total nonfuel mineral value,<sup>1</sup> down from 48th, the position the State had held for 15 of the previous 16 years, according to the U.S. Bureau of Mines (USBM). The estimated value for 1994 was \$26 million, a 5% increase compared with that of 1993. This followed a less than 3% decrease in 1993 from that of 1992. The State accounted for about 0.1% of the U.S. total value. The increased value of construction sand and gravel accounted for most of the State's rise in value in 1994, while the drop in value in 1993 from that of 1992 mainly resulted from the decreased value of gemstones. The State's mines produced significant quantities of construction sand and gravel; while being a high-volume, low-value mineral commodity, it accounted for nearly 84% of the State's nonfuel mineral value, as surveyed by the USBM. Lime was the second principal nonfuel mineral commodity produced in the State. Although not included in USBM statistics, recovered elemental sulfur was an important mineral commodity produced in the State, in terms of value. Elemental sulfur and other by-products (krypton, xenon, anhydrous ammonia, and liquid nitrogen) were recovered at fuel mineral operations, including facilities for the processing of natural gas and the gasification of coal. Compared with 1993, the mineral commodity values for both construction and industrial sand and gravel, common clays, and crushed stone increased. Decreases occurred for lime and gemstones.

According to the North Dakota Geological Survey (NDGS), the State Soil Conservation Committee, which is

responsible for, among other things, preparation of the annual *Surface Mining Report for Minerals Other than Coal*, was scheduled for elimination during the next biennium. Because of a shrinking budget, the NDGS faced further anticipated staff cutbacks. In other developments, the NDGS recently published *North Dakota Clays—A Historical Review of Clay Utilization in North Dakota*. While North Dakota clays are now used only for the production of brick, they have in the past been used for a much wider variety of products.

The NDGS and Saskatchewan (Canada) Energy and Mines agency cosponsored the Second International Williston Basin Horizontal-Drilling Workshop in April 1994. The workshop was designed to facilitate communication and cooperation between companies and individuals interested in horizontal drilling and mineral production in the Williston Basin. Interest in the Basin, which includes part of west-central North Dakota, was primarily for that of gas and oil, with some secondary interest in potash and salt. Potash, solution-mined in the Province of Saskatchewan, is present in North Dakota in extensions of some of the same Canadian deposits, but lack of minimum thickness and grade in North Dakota, in addition to competition from the established Canadian industry and limited nearby markets, have made the development of the State's potash resources difficult. The State of North Dakota and the Province of Manitoba reached an agreement in November that called for cooperative studies and sharing information on mineral resource development in the Williston Basin. Earlier in the

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN NORTH DAKOTA<sup>1</sup>

Mineral	1992		1993		1994 <sup>p</sup>	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Gemstones	NA	\$643	NA	W	NA	W
Lime	101	4,288	W	\$4,512	W	W
Peat	W	W	( <sup>2</sup> )	W	W	W
Sand and gravel (construction)	7,929	20,609	<sup>3</sup> 7,700	<sup>3</sup> 20,400	8,000	\$22,000
Stone (crushed)	10	W	W	W	W	W
Combined value of clays (common), sand and gravel (industrial), stone (crushed volcanic cinder), and values indicated by symbol W	XX	210	XX	131	XX	4,290
Total	XX	25,750	XX	25,043	XX	<sup>4</sup> 26,300

<sup>1</sup>Estimated. <sup>p</sup>Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.

<sup>2</sup>Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

<sup>3</sup>Less than 1/2 unit.

<sup>4</sup>Value excluded to avoid disclosing company proprietary data.

<sup>5</sup>Data do not add to total shown because of independent rounding.

year, North Dakota and Saskatchewan signed a similar accord.

minerals, here addresses the total monetary value as represented by either mine shipments, mineral commodity sales, or marketable production as is applicable to the individual mineral commodities.

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<sup>1</sup>The term value, referring throughout this document to that of nonfuel