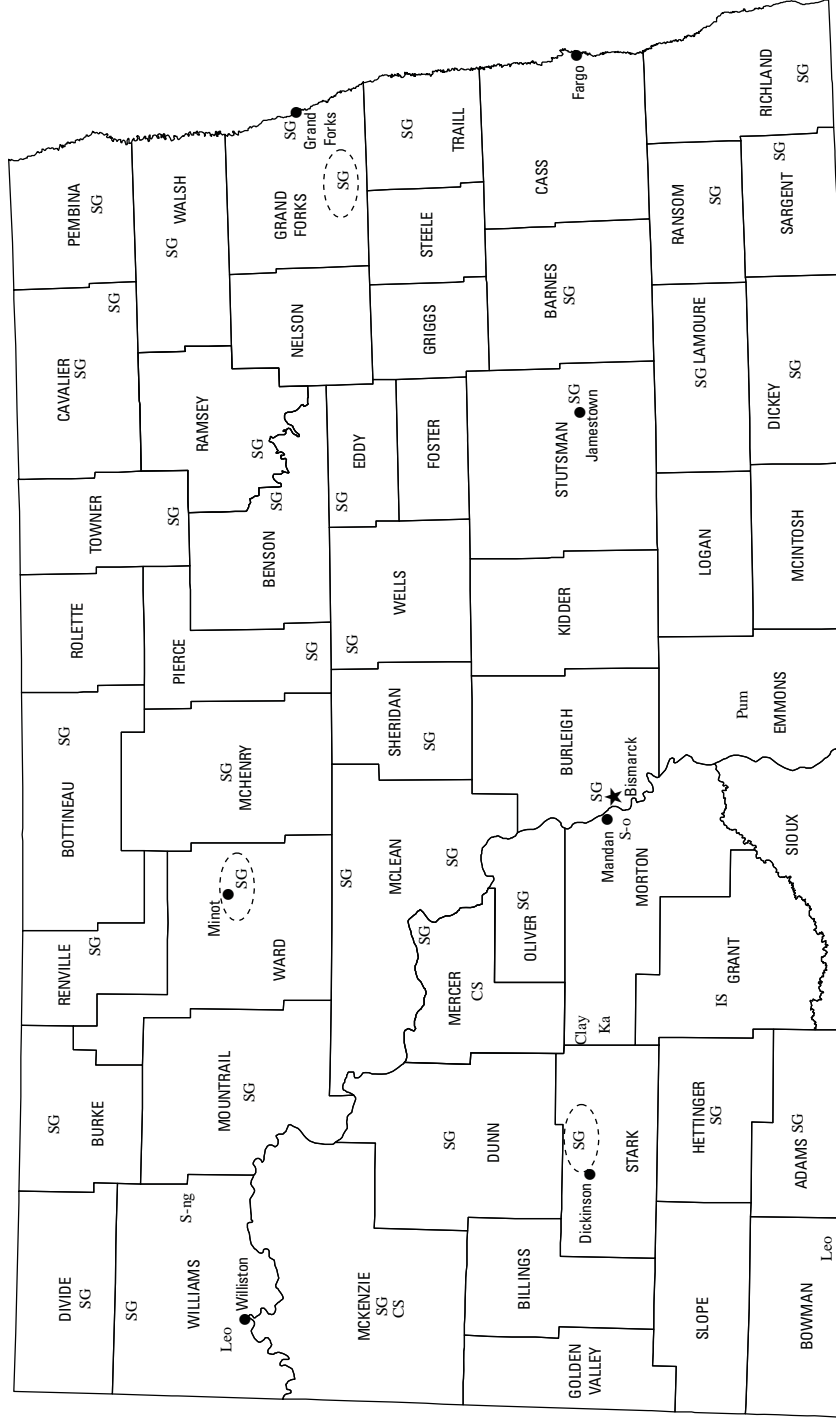




2007 Minerals Yearbook

NORTH DAKOTA [ADVANCE RELEASE]

NORTH DAKOTA



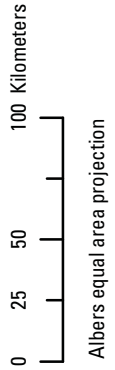
LEGEND

— County boundary
 ★ Capital
 ● City

**MINERAL SYMBOLS
 (Major producing areas)**

Clay Common clay
 CS Crushed stone
 IS Industrial sand
 Ka Kaolin
 Leo Leonardite
 Pum Pumicite
 S-ng Sulfur (natural gas)
 S-o Sulfur (oil)
 SG Construction sand and gravel

○ Concentration of mineral operations



Source: North Dakota Geological Survey/U.S. Geological Survey (2007).

THE MINERAL INDUSTRY OF NORTH DAKOTA

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

In 2007, North Dakota's nonfuel raw mineral production¹ was valued at \$50.3 million, based upon annual U.S. Geological Survey (USGS) data. This was a nearly \$6 million, or more than 13%, increase from the State's total nonfuel mineral production value in 2006, which had increased by \$9.5 million, a more than 27% increase from that of 2005. (The State's actual total nonfuel mineral values for 2005–07 were significantly higher than those reported in table 1; data for common clays, lime, and industrial sand and gravel have been withheld so as to not disclose company proprietary data.)

North Dakota's leading nonfuel mineral by value of production continued to be construction sand and gravel, which the State continued to produce in significant quantities. This high-volume, low-unit mineral value commodity accounted for more than 70% of the State's total nonfuel raw mineral production value, including the withheld values. Lime was second by value. In 2007, a 0.9-million-metric-ton, or more than 6%, increase in construction sand and gravel production resulted in a \$5.4 million increase in the mineral commodity's value from that of 2006. Although small in comparison, a 127,000-metric-ton (t), or 86%, increase in crushed stone production resulted in a \$0.6 million rise in that mineral commodity's value. Additionally, industrial sand and gravel production was up by an estimated 33%. The remainder of the State's nonfuel mineral commodities either had small decreases or were unchanged (table 1).

The following narrative information was provided by the North Dakota Geological Survey² (NDGS). Production data in the text that follows are those reported by the NDGS based upon that agency's own surveys and estimates.

Commodity Review

Industrial Minerals

During 2007, 14 surface mining operators in the State reported information to the State Soil Conservation Committee (SSCC). The SSCC collects production data by volume, unlike the USGS, which collects data by mass or metric tons produced. Based on these reports, 88 hectares were affected. The quantity of minerals mined included 2.68 million cubic meters of sand and gravel, 31,000 cubic meters of clay, 163,000 cubic meters

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 2007 USGS mineral production data published in this chapter are those available as of June 2009. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

²Edward C. Murphy, State Geologist, authored the text of State mineral industry information provided by the North Dakota Geological Survey.

of scoria, totaling more than 2.87 million cubic meters of mined mineral material. A total of 764,000 cubic meters of overburden were disturbed from 60 pits ranging in size from more than 0.3 to 8 hectares.

Clay and Shale.—All of the clay that was reported as mined in 2008 was mined by the Hebron Brick Company to produce brick. One-third to one-half of the clay mined for the manufacture of brick was kaolinite.

Leonardite.—Leonardite is an oxidized lignite. American Colloid Co. of Scranton in the southwestern corner of the State and Georesources, Inc. of Williston in northwestern North Dakota continued to be the only leonardite mining operations in North Dakota, although the companies mining lignite encounter leonardite on a routine basis. The two companies produced a combined total of approximately 96,000 t of leonardite in 2007, a slightly more than 28% decrease from the 134,000 t produced in 2006. A fire at the Georesources facility and resulting loss of production was the reason for the decrease. Leonardite is processed and used as a dispersant and viscosity control in oil well drilling muds, as a stabilizer for ion-exchange resins in water treatment, and as a soil conditioner.

Pumice and Pumicite.—Since 1970, volcanic ash (pumicite) has been mined intermittently from the Linton area in the central-southern portion of the State. In 2007, an estimated less than 100 t was mined by NURTURE, Inc., a Minneapolis MN-based company, which produced and distributed an increasing line of volcanic ash-based products. The NDGS had previously determined that this deposit contains approximately one billion tons of pumicite.

Legislation and Government Programs

The SSCC, as designated by the State legislature, continued to administer the Surface Mining Report Law, which requires any person conducting surface mining operations for minerals other than coal to comply with the reporting requirements of North Dakota Century Code Chapter 38–16. Minerals included under the law are cement rock, clay, gravel, limestone, manganese, molybdenum, peat, potash, pumicite, salt, sand, scoria, sodium sulfate, stone, zeolite, or other minerals except coal. The SSCC has the regulatory authority to administer the reporting requirement, while the actual regulatory authority for most of these mining activities rests with the North Dakota Department of Mineral Resources. The law requires that any person or company that within 1 calendar year removes 7,650 cubic meters (10,000 cubic yards) or more of earthen materials or products (including overburden) affecting 0.2 hectare (one-half acre) or more in combined mining operations must report the particulars of their surface mining activities. Some operators of smaller operations cooperate by voluntarily submitting summary reports to the SSCC, although not required to by law.

Nevertheless, because not all operations report, the summary of surface mining statistics presented above is a conservative estimate of the amount of nonfuel minerals mined in 2007.

Information about North Dakota's nonfuel mineral resources, as well as fuel minerals and uranium, is available on the minerals page of the NDGS Web site at <https://www.dmr.nd.gov>.

[nd.gov/ndgs/Mineral/mineralnew.asp](https://www.dmr.nd.gov/ndgs/Mineral/mineralnew.asp). Further information regarding the geology of North Dakota, related information for students and teachers, NDGS maps and publications, and a variety of other related information and contacts may be found from the NDGS Web site at <https://www.dmr.nd.gov/ndgs/>.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN NORTH DAKOTA^{1,2}

(Thousand metric tons and thousand dollars)

Mineral	2005		2006		2007	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, common	76	W	W	W	W	W
Gemstones, natural	NA	4	NA	4	NA	4
Lime	W	W	W	W	W	W
Sand and gravel, construction						
Construction	11,300	34,500	14,000	43,700	14,900	49,100
Industrial	W	W	W	W	W	W
Stone, crushed	89	396	147	683	274	1,270
Total	XX	34,900	XX	44,400	XX	50,300

NA Not available. W Withheld to avoid disclosing company proprietary data. XX Not applicable.

¹Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

²Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 2
NORTH DAKOTA: CRUSHED STONE SOLD OR USED, BY TYPE

Type	2006			2007		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Volcanic cinder and scoria	1	139	\$644	2	274	\$1,270
Miscellaneous stone	1	8	39	--	--	--
Total	XX	147	683	XX	274	1,270

XX Not applicable. -- Zero.

TABLE 3
NORTH DAKOTA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2007, BY USE

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Unspecified, reported ¹	274	1,270

¹Reported production without a breakdown by end use.

TABLE 4
 NORTH DAKOTA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2007,
 BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	87	\$726	\$8.34
Asphaltic concrete aggregates and other bituminous mixtures	217	1,310	6.02
Road base and coverings	3,220	9,650	3.00
Fill	370	697	1.88
Snow and ice control	9	68	7.56
Railroad ballast	24	173	7.21
Unspecified: ²			
Reported	3,420	12,200	3.55
Estimated	7,600	24,000	3.20
Total or average	14,900	49,100	3.29

¹Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

²Reported and estimated production without a breakdown by end use.