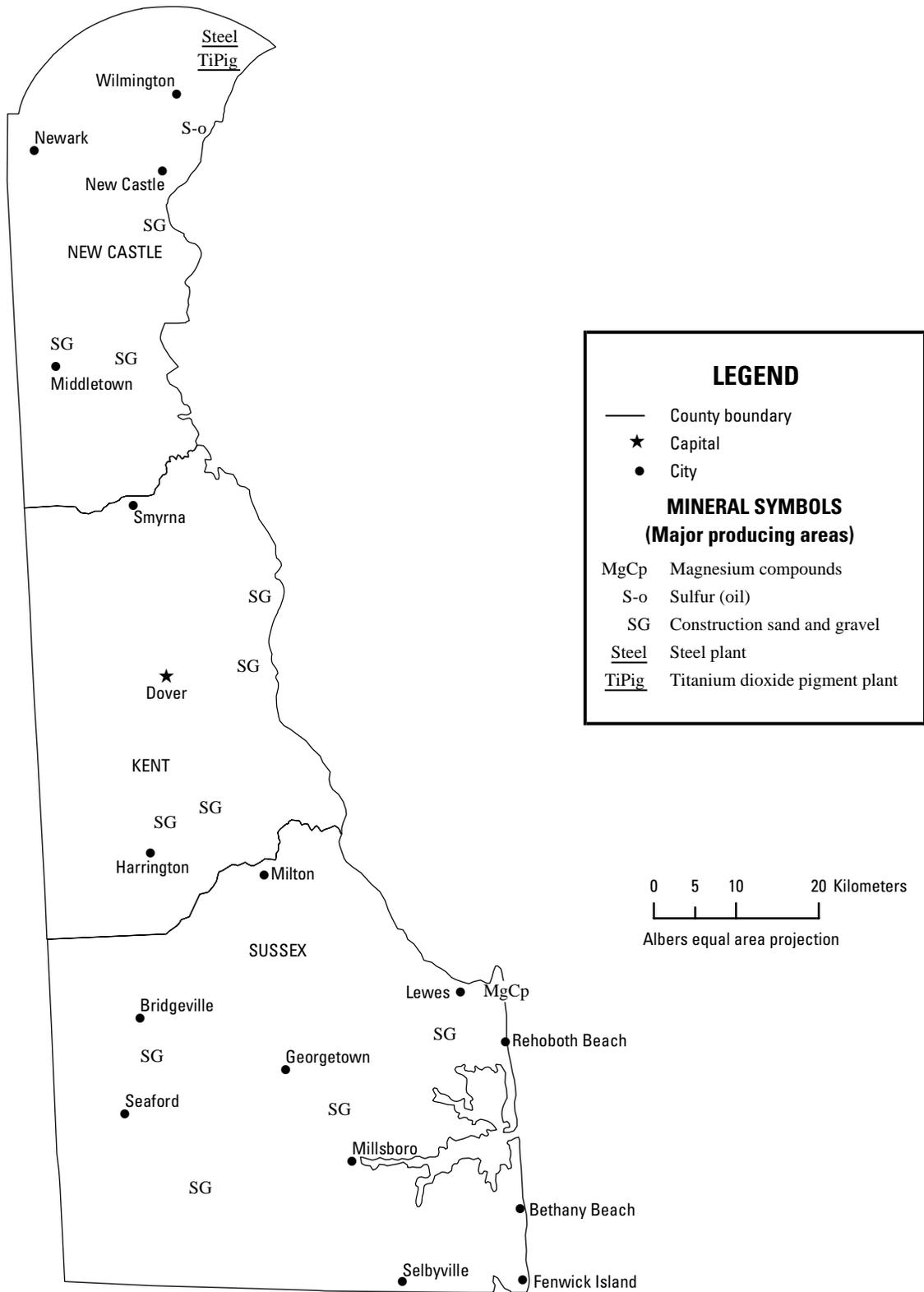




2006 Minerals Yearbook

DELAWARE

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Source: Delaware Geological Survey/ U.S. Geological Survey (2006).

THE MINERAL INDUSTRY OF DELAWARE

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

In 2006, Delaware's nonfuel raw mineral production was valued at \$22.4 million, based upon annual U.S. Geological Survey (USGS) data. This was an increase of 12% from that of 2005, which followed an 8.7% decrease from 2004 to 2005. Because production data for magnesium compounds and crushed stone (2005-06) were withheld (company proprietary data), the State's actual annual total values are significantly higher than those listed in table 1.

In 2006, Delaware's leading nonfuel mineral continued to be construction sand and gravel; a nearly 6% increase in production led to a 12% rise in the mineral commodity's value. This was followed by magnesium compounds, the value of which was a very significant portion of the State's actual total value. Modest increases took place in the production and related value of magnesium compounds production (table 1). In 2006, Delaware continued to rank fourth of five States in the quantities of magnesium compounds produced. Magnesium compounds, extracted from seawater close to the mouth of the Delaware Bay, near Lewes, Sussex County, were used to manufacture chemical and pharmaceutical products. Crushed stone (classified as limestone for statistical purposes) from various out-of-State sources was processed through the sales yards of Tilcon Delaware, Inc. in Kent, New Castle, and Sussex Counties. The last crushed stone production reported from a Delaware quarry was to the U.S. Bureau of Mines in 1968; the State's only stone producer ceased operations in New Castle County near Wilmington at the end of 1968 (Gustavson, 1971, p. 204). Gabbro (classified as granite for statistical purposes) was quarried and then crushed and sized as a concrete aggregate or as stone sand, while a small quantity was sold as riprap. During the previous several years, the State's crushed stone needs progressively had been fulfilled by purchases of stone from sources in Maryland and Pennsylvania (Gustavson, 1970, p. 196). All gemstones production was from that of hobbyists.

The narrative information that follows was provided by the Delaware Geological Survey¹ (DGS).

Commodity Review

Industrial Minerals

Sand and Gravel, Construction.—According to the DGS, there were at least 11 major sand and gravel production operations in Delaware. Information about sand and gravel resources and production in the State, including a map showing general locations of sand and gravel operations and graphs showing production and value from 1987-2006, is available on the Internet at the DGS Web site at <http://www.dgs.udel.edu/Geology/Mineralogy/sand.aspx>. The DGS estimates that

the quantities of sand and gravel produced from the State's natural resources are typically higher than those reported by the USGS (table 1). Reasons for this include that (1) not all major producers report production to the USGS; (2) government agencies or companies that produce from pits for their own use do not necessarily report production; (3) some operations that mine relatively small amounts of sand and gravel are not contacted and, therefore, do not report production; and (4) production of sand from offshore areas for beach replenishment is not included in the USGS figures. For example, according to information that the DGS received from the Delaware Department of Natural Resources and Environmental Control, in 2004 and 2005 about 2.37 million cubic meters (about 3.1 million cubic yards), or approximately 3.8 million metric tons, of sand with an estimated value of \$20.3 million was dredged from the Atlantic Ocean and Delaware Bay in offshore Delaware and placed on beaches along the Atlantic Coast and Delaware Bay.

Government Programs and Activities

The DGS remained actively involved in the mineral industry in Delaware through the identification and evaluation of sand and gravel resources as part of its geologic and hydrologic mapping programs, and through service on a county committee involved in evaluating and renewing applications for extractive use operations.

The U.S. Department of the Interior's Minerals Management Service (MMS) continued to provide support for studies to characterize offshore sand resources in both State and Federal waters for possible use for beach replenishment. The DGS had identified 16 areas offshore of Delaware (covering more than 28 square kilometers) to be excellent or good sand resource areas containing an estimated 140 million metric tons (80 million cubic meters) of the resource (McKenna and Ramsey, 2002, p. 7-8). Exploration and evaluation activities continued in 2006.

The DGS continued to operate and maintain the "DGS Atlantic Outer Continental Shelf Core and Sample Repository." Federal agencies, State agencies, and private institutions that recognize the value of having a centralized repository contributed samples to the repository, which contains samples from all 51 oil and gas exploratory wells drilled on the North, Middle, and South Atlantic Outer Continental Shelf between 1977 and 1984. Samples include cores, unwashed cuttings, vials containing samples processed for micropaleontology and palynology, micropaleontology and palynology slides, and thin sections of cores and cuttings. A description of the DGS repository and a summary of holdings are on the DGS Web site (Delaware Geological Survey, 2007). The DGS is designated as the primary depository for these samples by the MMS.

¹John H. Talley, Director and State Geologist, authored the text of the State mineral industry information provided by the Delaware Geological Survey.

References Cited

Delaware Geological Survey, 2007, The DGS Outer Continental Shelf core and sample repository—Summary of holdings. (Accessed November 18, 2008, at <http://www.dgs.udel.edu/Geology/Resources/OCSCSR/index.aspx>.)

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2004		2005		2006	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones, natural	NA	1	NA	1	NA	1
Magnesium compounds metric tons	W	(3)	W	(3)	W	(3)
Sand and gravel, construction	2,980	21,900	2,640	20,000	2,790	22,400
Stone, crushed	--	--	W	(3)	W	(3)
Total	XX	21,900	XX	20,000	XX	22,400

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

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.

³Value excluded to avoid disclosing company proprietary data.

TABLE 2
DELAWARE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	W	W	W
Plaster and gunitite sands	W	W	W
Fill	396	\$1,650	\$4.16
Other miscellaneous uses	387	3,630	9.37
Unspecified: ²			
Reported	978	9,160	9.37
Estimated	1,030	7,920	7.72
Total or average	2,790	22,400	8.02

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses."

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

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