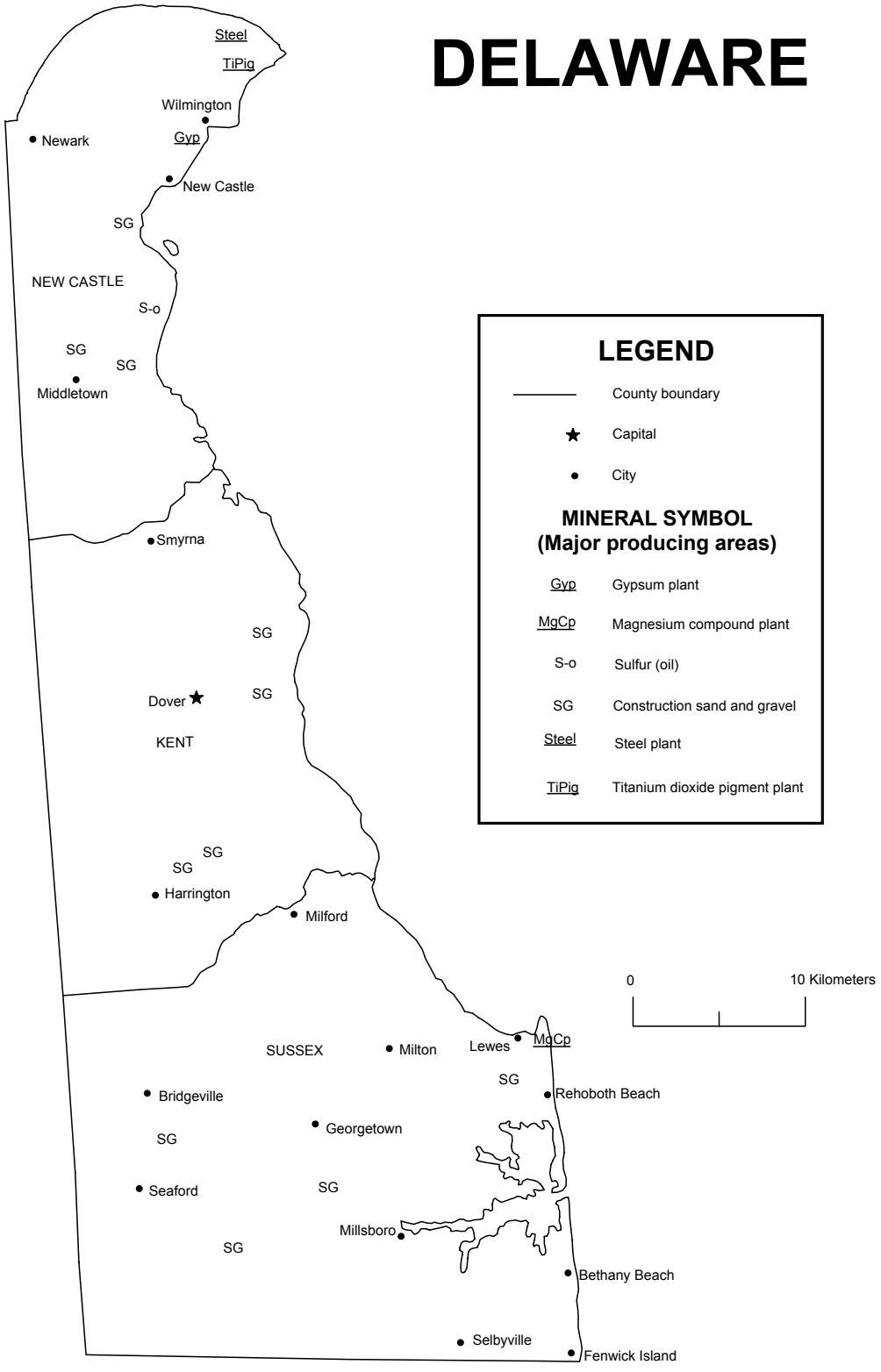
DELAWARE



Source: Delaware Geological Survey/U.S. Geological Survey (2003)

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 2003, the estimated value[1] of nonfuel mineral production for Delaware was $15.9 million, based upon preliminary U.S. Geological Survey (USGS) data. This was about an 8% decrease from that of 2002[2] and followed a 10.4% decrease from 2001 to 2002. Because production data for magnesium compounds were withheld to protect company proprietary data, the State's actual annual total values are significantly higher than those listed in table 1.

In 2003, construction sand and gravel production and value decreased, while that of magnesium compounds increased slightly. In 2002, construction sand and gravel production decreased by about 35%, while its value dropped only by about 10%. Magnesium compounds production and value were up by about 21%. Gemstones mined by hobbyists were valued at the same level for both years (table 1).

Based upon USGS estimates of the quantities produced in the United States during 2003, Delaware remained fourth in rank of five States that produce magnesium compounds. 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.

The narrative information that follows was provided by the Delaware Geological Survey[3] (DGS). According to the DGS, there are at least 11 major sand and gravel production operations in Delaware. General locations are shown on the map on the facing page and on the DGS Web site at URL http://www.udel.edu/dgs/Minres/sandmap.html. The DGS estimates of 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 difference may include (1) not all major producers necessarily report production to the USGS, (2) Government agencies or companies that produce from pits for their own use do not necessarily report production, (3) many operations that mine relatively small amounts of sand and gravel may not have been contacted and, therefore, do not report production, and (4) production of sand from offshore areas for beach replenishment is not included in USGS figures. For example, according to the Delaware Department of Natural Resources and Environmental Control, in 1998, approximately 2.2 million metric tons of sand with an estimated value of $6.9 million was dredged offshore Delaware and placed on beaches along the Atlantic Coast and Delaware Bay. These data, not included in the USGS final 1998 construction sand and gravel data (U.S. Geological Survey, 2001), would have nearly doubled production and significantly increased value for that year. Based on DGS estimates, an additional total of about 112,000 metric tons [65,700 cubic meters (86,000 cubic yards)] of sand at an estimated value of more than $350,000 was dredged offshore and placed on Delaware Bay beaches from 1999 through 2003.

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 in beach replenishment. The DGS identified 16 coastal areas of Delaware (covering nearly 28 square kilometers) to be excellent or good sand resource areas containing an estimated 80 million cubic meters of the resource. This work initially was done through the evaluation of 268 vibracores along with geologic mapping and evaluation of seismic data. Exploration and evaluation activities including that of an additional 24 vibracores continued.

The DGS continues to operate and maintain the DGS Atlantic Outer Continental Shelf Core and Sample Repository. Federal agencies, other State agencies, and private institutions that recognize the value of having a centralized repository contributed samples. The repository 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, thin sections of cores and cuttings, and micropaleontology and palynology slides. A description of the DGS repository can be found on the DGD Internet Web site at URL http://www.udel.edu/dgs/Minres/ocsrepostxt.html, and a summary of holdings can be viewed at URL http://www.udel.edu/dgs/Minres/ocsrepos.htm. The DGS is designated as the primary repository for these samples by the MMS.

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[1]The 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 2003 USGS mineral production data published in this chapter are preliminary estimates as of July 2004 and are expected to change. Construction sand and gravel (CSG) estimates are updated periodically. To obtain the most current information, please contact the USGS CSG mineral commodity specialist. Specialist contact information may be retrieved over the Internet at URL http://minerals.usgs.gov/minerals/contacts/comdir.html; alternatively, specialists' names and telephone numbers may be obtained by calling USGS information at (703) 648-4000 or by calling the USGS Earth Science Information Center at 1-888-ASK-USGS (275-8747). All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at URL http://minerals.usgs.gov/minerals.

[2]Values, percentage calculations, and rankings for 2002 may differ from the Minerals Yearbook, Area Reports: Domestic 2002, Volume II, owing to the revision of preliminary 2002 to final 2002 data. Data for 2003 are preliminary and are expected to change; related rankings also may change.

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

The DGS continues to be 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.

Reference Cited

U.S. Geological Survey, 2001, The mineral industry of Delaware, *in* Area reports—Domestic: U.S. Geological Survey Minerals Yearbook 1999, v. II, 3 p.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN DELAWARE [1, 2]

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral		2001		2002		2003[p]	
		Quantity	Value	Quantity	Value	Quantity	Value
Gemstones		NA	1	NA	1	NA	1
Magnesium compounds	metric tons	W	(3)	W	(3)	W	(3)
Sand and gravel, construction		3,370	19,300	2,190	17,300	2,000	15,900
Total		XX	19,300	XX	17,300	XX	15,900

[p]Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data. XX Not applicable.
[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
[2]Data are rounded to no more than three significant digits; may not add to totals shown.
[3]Value excluded to avoid disclosing company proprietary data.

TABLE 2
DELAWARE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2002, BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	1,640	$14,200	$8.61
Concrete products (blocks, bricks, pipe, decorative, etc.)	63	569	9.03
Fill	211	856	4.06
Snow and ice control	(2)	3	10.71
Filtration	15	141	9.40
Other miscellaneous uses	27	242	8.96
Unspecified, estimated[3]	200	1,000	5.00
Total or average	2,190	17,300	7.90

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Less than 1/2 unit.
[3]Estimated production without a breakdown by end use.