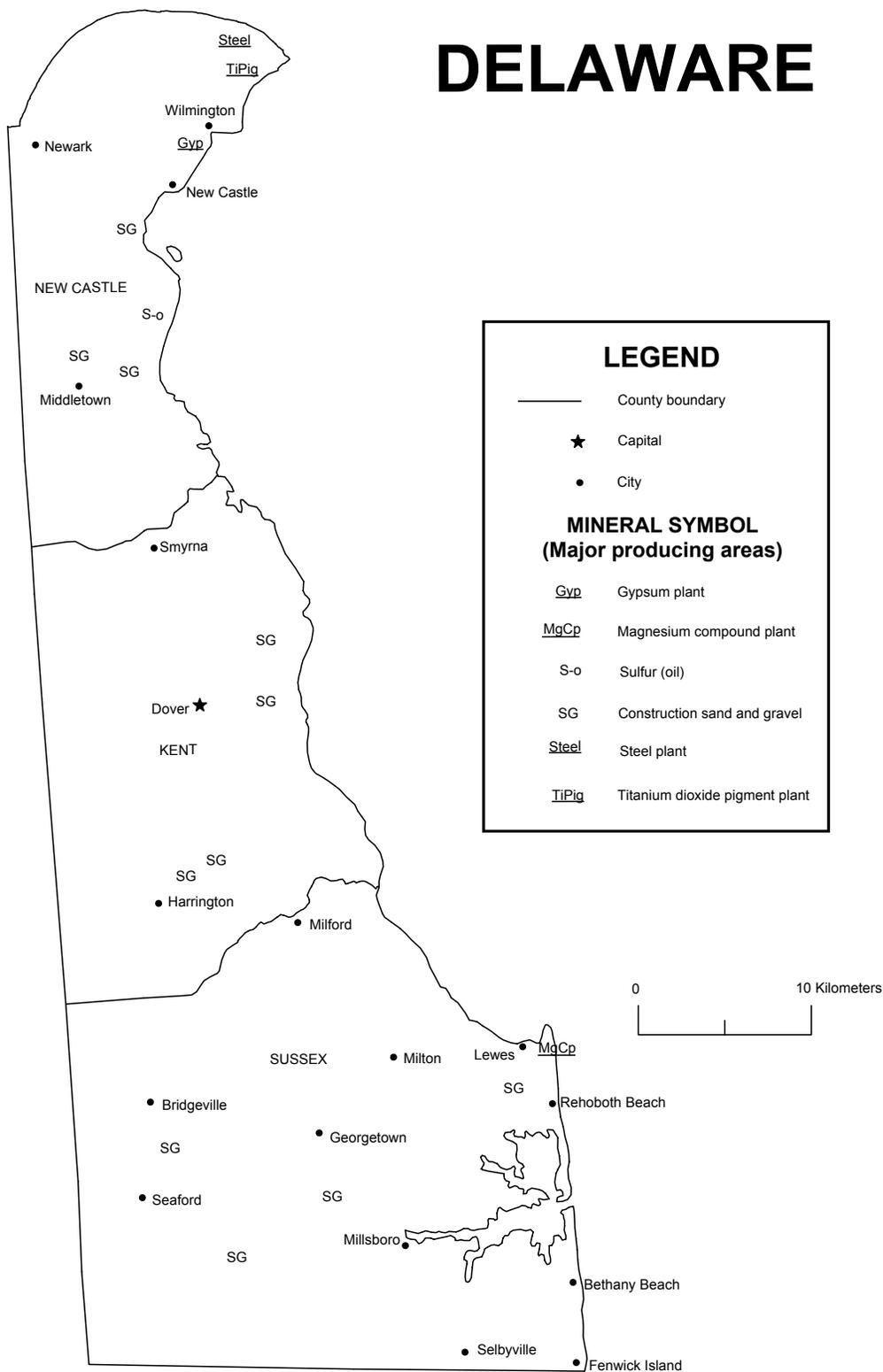


DELAWARE



Source: Delaware Geological Survey/U.S. Geological Survey (2002)

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 2002, the estimated value¹ of nonfuel mineral production for Delaware was \$17.5 million, based upon preliminary U.S. Geological Survey (USGS) data. This was about a 9% decrease from that of 2001² and followed a more than 50% increase from 2000 to 2001. 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 2002, construction sand and gravel production and value decreased, while that of magnesium compounds also decreased slightly. In 2001, construction sand and gravel production increased by about 45%, while its value rose by \$6.9 million. Magnesium compounds production showed a small decrease with its value down by about \$1 million. Gemstones mined by hobbyists were valued at the same level for both years.

Based upon USGS estimates of the quantities produced in the United States during 2002, Delaware remained fourth 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 Survey³ (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 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 are not contacted and, therefore, do not report production, and (4) production of sand from offshore areas for beach replenishment are 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 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 Mt (86,000 cubic yards) of sand at an estimated value of slightly 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 for beach replenishment. The DGS recently published Report of Investigations No. 63 entitled "An Evaluation of Sand Resources, Atlantic Offshore, Delaware." Evaluation of 268 vibrocores along with geologic mapping and evaluation of seismic data identified 16 coastal areas of Delaware as excellent or good sand resource areas covering nearly 28 square kilometers containing an estimated 80 million cubic yards of the resource. An additional 24 vibrocores are currently being evaluated.

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. The DGS Web site's summary of holdings is available on the Internet at URL <http://www.udel.edu/dgs/Minres/ocsrepos.htm>. The DGS is designated as the primary repository for these samples by the MMS.

The DGS continues to be actively involved in the mineral industry in Delaware through the identification and evaluation of sand

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the minerals or 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 2002 USGS mineral production data published in this chapter are preliminary estimates as of July 2003 and are expected to change. Construction sand and gravel estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS 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>.

²Values, percentage calculations, and rankings for 2001 may differ from the Minerals Yearbook, Area Reports: Domestic 2001, Volume II, owing to the revision of preliminary 2001 to final 2001 data. Data for 2002 are preliminary and are expected to change; related rankings may also change.

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

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, 3p.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2000		2001		2002 ^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		2,330	12,400	3,370	19,300	3,000	17,500
Total		XX	12,400	XX	19,300	XX	17,500

^PPreliminary. 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.

³Value excluded to avoid disclosing company proprietary data.

TABLE 2
 DELAWARE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2001, BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand) ²	1,770	\$10,200	\$5.77
Fill	408	1,650	4.05
Other miscellaneous uses	14	48	3.43
Unspecified, actual ³	1,180	7,400	6.27
Total or average	3,370	19,300	5.73

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

²Includes plaster and gunite sands.

³Reported and estimated production without a breakdown by end use.