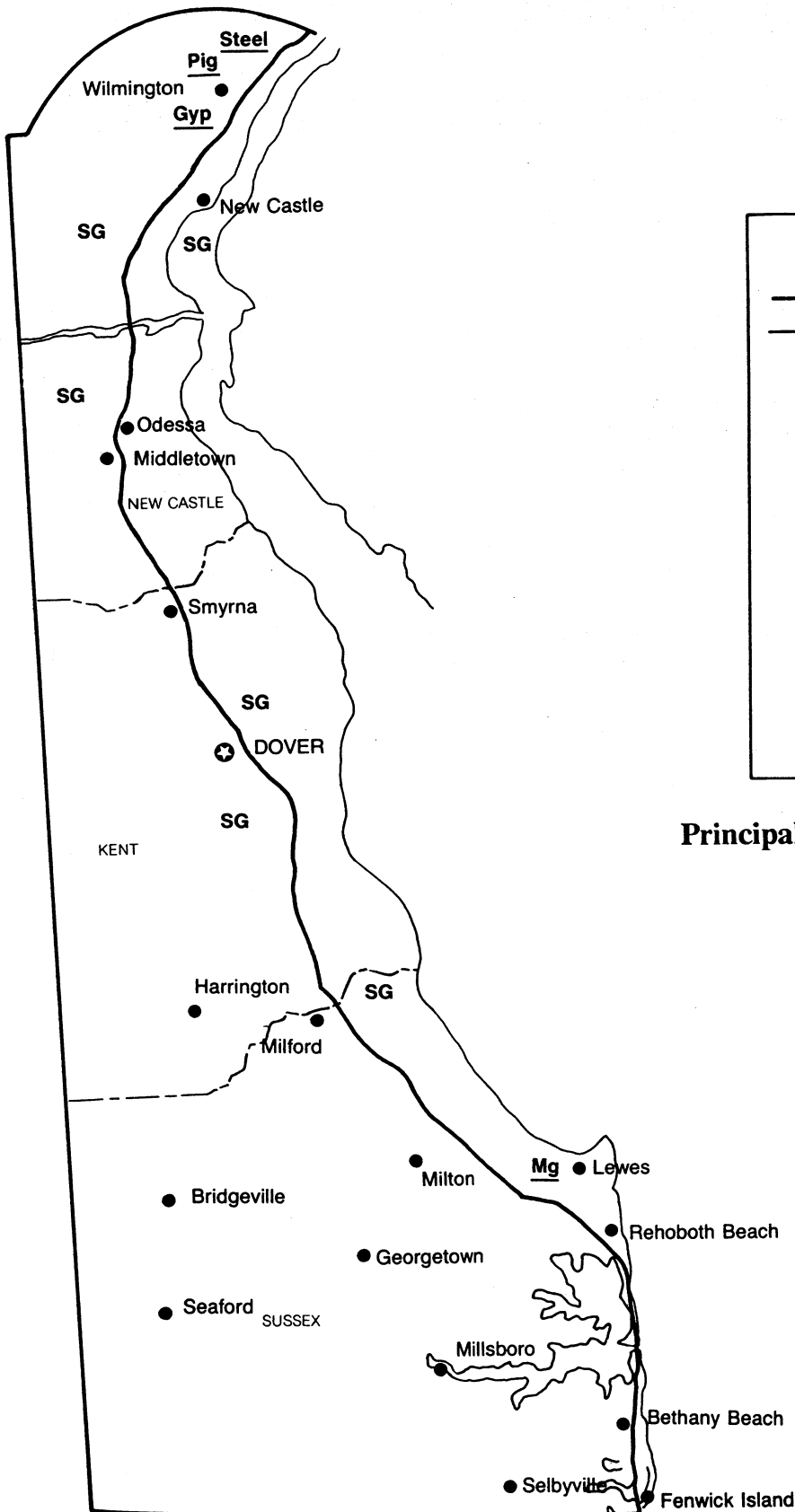


DELAWARE



LEGEND

- State boundary
- - - County boundary
- ⊗ Capital
- City

MINERAL SYMBOLS

- Gyp Gypsum plant
- Mg Magnesium metal plant
- Pig Titanium Dioxide pigments
- SG Sand and Gravel
- Steel Iron and Steel plant

Principal Mineral-Producing Localities

THE MINERAL INDUSTRY OF DELAWARE

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 Delaware Geological Survey for collecting information on all nonfuel minerals.

By L. J. Prosser, Jr.¹

The value of construction sand and gravel in Delaware in 1990 was approximately \$7.0 million. Magnesium compounds were also produced in the State, but data for that commodity was excluded from the State total to avoid disclosure of company proprietary information.

TRENDS AND DEVELOPMENTS

Mineral-related manufacturing continued to contribute to the State's economic development in 1990. Commodities used in manufacturing included those imported at the Port of Wilmington. Shipments received at the port in 1990 increased for the following: gypsum rock by 10% to 364,000 short tons; salt by 34% to 268,000 tons; magnesite ore by 56% to 75,000 tons; and ilmenite by 36% to 53,000 tons. Steel imports declined from 200,000 tons in 1989 to 126,000 tons in 1990. Total cargo, including fuels, received at the port increased to 4.5 million tons from 3.7 million tons in 1989.

LEGISLATION AND GOVERNMENT PROGRAMS

In 1990, the Delaware General Assembly enacted House bill 391 requiring immediate notification of the discharge of a pollutant. Under the legislation, the Delaware Department of Natural Resources and Environmental Control (DNREC) adopted regulations listing substances to be reported, which included petroleum substances discharged into surface waters, ground water, or on land. The regulations were the most stringent to date, surpassing those contained in the Comprehensive Environmental Response Compensation and Liability Act, the Clean Air Act, or previous DNREC regulations.

The DNREC, Division of Water Resources, was authorized under House bill 368 to develop regulations for extractive use operations or borrow pits. The State's sand and gravel industry was expected to be regulated under this legislation. Public hearings and meetings to formulate the regulations were conducted during 1991, and final regulations were expected in 1992.

House bill 520, which would have removed an exemption that permitted a steel manufacturing plant to remain operating in the coastal zone, was vetoed by the Governor. The legislation, if enacted, would have closed Delaware's only operating steel plant. The legislation was proposed because of a dispute about the reemployment of steelworkers who worked at the plant before it changed ownership in 1988.

The Delaware Geological Survey (DGS) conducted geologic and mineral-related investigations used primarily in land use planning and environmental policies developed by State and local governments. During the year, sand and gravel resources were studied in southern Delaware to determine environments of deposition and possible sources of sand for beach nourishment.²

The DGS received \$23,500 from the Minerals Management Service of the U.S. Department of the Interior in a cooperative study with the American Association of State Geologists. This study began in 1990 and was aimed at examining the potential for offshore nonfuel mineral resources.

TABLE 1
NONFUEL MINERAL PRODUCTION IN DELAWARE¹

Mineral	1988		1989		1990	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Gemstones	NA	\$1	NA	\$1	NA	\$1
Marl (greensand) short tons	750	10	—	—	—	—
Sand and gravel (construction) thousand short tons	1,933	5,988	*1,900	*6,200	2,184	6,967
Total ²	XX	5,999	XX	6,201	XX	6,968

*Estimated. NA Not available. XX Not applicable.

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

²Partial total, excludes values which must be concealed to avoid disclosing company proprietary data.

The DNREC received a \$258,000 grant from the U.S. Environmental Protection Agency to develop a Statewide program to assist business and industry in minimizing wastes.

REVIEW BY NONFUEL MINERAL COMMODITIES

Industrial Minerals

Magnesium Compounds.—Barcroft Co., a subsidiary of Rorer Group Inc., extracted magnesium compounds from seawater near Lewes. These compounds were processed for use in antacids, laxatives, and other pharmaceutical products. Delaware was one of six States that produced magnesium compounds.

Sand and Gravel.—Construction sand and gravel production is surveyed by the U.S. Bureau of Mines for even-numbered years only; data for odd-numbered years are based on annual company estimates. This chapter contains actual data for 1988 and 1990 and estimates for 1989.

In 1990, eight companies operating eight pits reported production of 2.2 million short tons of sand and gravel; in 1988, sand and gravel production was about 1.9 million tons.

Stone.—Delaware is without a crushed stone industry and, therefore, received shipments of stone from other States for use in construction. Crushed stone was trucked into Delaware for construction of a major roadway bypass around Dover and Smyrna. In 1989, BTO Ltd. Partnership proposed building stone depots along rail lines in Camden, Felton, and other sites to supply stone for the bypass construction. However, local government denied rezoning for the depots and the proposal was dropped in 1990.

Metals

Steel.—CitiSteel USA Inc. completed its first full year of operations at the former Phoenix Steel Corp. plant in

Claymont. CitiSteel, owned by the China International Trust & Investment Corp., assumed \$20.7 million in debts and paid \$13.5 million for the mill in 1988.³

The mill, which at one time had a 400,000-ton-per-year capacity, produced about 200,000 tons of carbon plant steel in 1990.

Reclaimed Metals and Materials.—The Delaware Solid Waste Authority, through a contract with Raytheon Service Co., operated a resource recovery plant at Pigeon Point, New Castle County. In 1990, more than 200,000 short tons of municipal solid waste was processed at the facility. Recovered materials included 7,800 tons of ferrous metals, 820 tons of nonferrous metals (primarily aluminum), and 1,250 tons of glass.

¹State Mineral Officer, U.S. Bureau of Mines, Pittsburgh, PA. He has 17 years of mineral-related and government experience and has covered the mineral activities in Delaware for 6 years. Assistance in the preparation of the chapter was given by Sally J. Stephenson, editorial assistance.

²Groot, J. J., K. W. Ramsey, and J. F. Wehmiller. Ages of the Bethany Beaverdam, and Omar Foundations of Southern Delaware. Delaware Geol. Survey Report of Investigations 47, Newark, DE 19716, 1990, 19 pp.

³American Metal Market. CitiSteel USA Showing Profits. V. 98, No. 156, Aug. 10, 1990, p. 3.

TABLE 2
DELAWARE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN
1990, BY MAJOR USE CATEGORY

Use	Quantity (thousand short tons)	Value (thousands)	Value per ton
Concrete aggregates (including concrete sand)	577	\$2,267	\$3.93
Plaster and gunite sands	W	W	5.11
Concrete products (blocks, bricks, pipe, decorative, etc.)	106	435	4.10
Asphaltic concrete aggregates and other bituminous mixtures	W	W	4.17
Fill	597	1,273	2.13
Snow and ice control	4	17	4.25
Other	363	1,593	4.39
Unspecified: ¹			
Actual	W	W	2.90
Estimated	537	1,383	2.58
Total or average	2,184	\$6,967	3.19

W Withheld to avoid disclosing company proprietary data; included with "Other."

¹Includes production reported without a breakdown by end use and estimates for nonrespondents.

²Data do not add to total shown because of independent rounding.

TABLE 3
PRINCIPAL PRODUCERS

Commodity and company	Address	Type of activity	County
Gypsum (calcined):			
Georgia-Pacific Corp., Gypsum Div.	Wilmington Marine Terminal Box 310 Wilmington, DE 19805	Plant	New Castle.
Magnesium compounds:			
Barcroft Co.	40 Cape Henlopen Dr. Lewes, DE 19958	do.	Sussex.
Sand and gravel (construction):			
Contractors Sand & Gravel Co. Inc.	Box 2630 Wilmington, DE 19805	Pit	New Castle.
George & Lynch Inc.	113 West 6th St. New Castle, DE 19720	Dredge	Kent.
Parkway Gravel Inc.	4048 New Castle Ave. New Castle, DE 19720	Pit	New Castle.
Steel:			
CitiSteel USA Inc.	4001 Philadelphia Pike Claymont, DE 19703	Mill (plate)	Do.
Sulfur (recovered):			
Texaco Inc.	Wrangle Hill Rd. Delaware City, DE 19706	Refinery (petroleum)	Do.
Titanium dioxide:			
E. I. du Pont de Nemours & Co. Inc.	1007 Market St. Wilmington, DE 19898	Corporate headquarters	Do.
Do.	Edgemoor, DE 19809	Plant (chemical)	Do.

¹Also sand and gravel.