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PREPRINT

The Mineral Industry of Maryland

This chapter has been prepared under a Memorandum of Understanding between the Bureau of Mines, U.S. Department of the Interior, and the Maryland Geological Survey for collecting statistical information on all nonfuel minerals.

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The State's nonfuel mineral production was valued at \$178.7 million in 1981, a \$7.5 million decrease from that of the previous year, and \$14.3 million below the 1979 record. Much of Maryland's mineral output was sold to the building and highway construction industries, and the depressed economy, which deepened into a recession during midyear, resulted in decreased sales of clays, sand and gravel, and stone used in

residential and commercial construction. Aggregate sales were also affected in many areas of Maryland by cutbacks in State and Federal spending that reduced funds for highway construction and maintenance. One highlight in an otherwise dismal year for many of the State's mineral producers was the continued demand for mineral construction materials in the Baltimore, Md., and Washington, D.C., area.

Table 1.—Nonfuel mineral production in Maryland¹

Mineral	1980		1981	
	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays ² ----- thousand short tons.	733	\$2,267	597	\$1,984
Gem stones -----			NA	2
Lime ----- thousand short tons.	12	497	9	441
Peat ----- do.	4	W	W	W
Sand and gravel ----- do.	10,732	33,625	^P 10,900	^P 35,000
Stone:				
Crushed ----- do.	18,945	77,431	16,485	74,289
Dimension ----- do.	15	612	34	1,002
Combined value of cement, clays (ball clay), and values indicated by symbol W -----	XX	71,703	XX	65,937
Total -----	XX	186,135	XX	178,655

^PPreliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" figure. XX Not applicable.

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

²Excludes ball clay; value included with "Combined value" figure.

Table 2.—Value of nonfuel mineral production in Maryland, by county¹

(Thousands)

County	1979	1980	Minerals produced in 1980 in order of value
Allegany	W	W	Stone.
Anne Arundel	\$4,382	\$4,739	Sand and gravel.
Baltimore ²	W	W	Stone, sand and gravel, clays.
Caroline	29	31	Sand and gravel.
Carroll	40,761	W	Cement, stone, clays.
Cecil	12,594	12,039	Stone, sand and gravel.
Charles	3,938	4,436	Sand and gravel.
Dorchester	W	W	Do.
Frederick	W	W	Cement, stone, clays, lime.
Garrett	1,662	W	Stone, sand and gravel, peat.
Harford	W	W	Stone, sand and gravel.
Howard	1,646	W	Stone.
Kent	W	56	Clays.
Montgomery	W	W	Stone.
Prince Georges	18,340	10,568	Sand and gravel, clays.
Queen Annes	2,486	W	Stone.
St. Marys	531	W	Sand and gravel.
Washington	W	W	Cement, stone, clays.
Wicomico	W	W	Sand and gravel.
Worcester	804	1,963	Do.
Undistributed	105,788	152,300	
Total ³	192,962	186,135	

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

¹Calvert, Somerset, and Talbot Counties are not listed because no nonfuel mineral production was reported.²Includes Baltimore City.³Data may not add to totals shown because of independent rounding.

Table 3.—Indicators of Maryland business activity

	1980	1981 ^P	Change, percent	
Employment and labor force, annual average:				
Total civilian labor force	thousands	2,144.0	2,162.1	+0.8
Unemployment	do	132.4	171.3	+29.4
Employment (nonagricultural):				
Mining ¹	do	(²)	(²)	--
Manufacturing	do	236.7	231.0	-2.4
Contract construction	do	102.9	95.9	-6.8
Transportation and public utilities	do	85.3	85.9	+7
Wholesale and retail trade	do	401.7	405.5	+9
Finance, insurance, real estate	do	91.9	93.3	+1.5
Services	do	³ 358.5	³ 376.6	+5.0
Government	do	434.8	421.9	-3.0
Total nonagricultural employment ¹	do	1,711.8	1,710.1	-1
Personal income:				
Total	millions	\$44,281	\$49,172	+11.0
Per capita	do	\$10,477	\$11,534	+10.1
Construction activity:				
Number of private and public residential units authorized		20,308	17,156	-15.5
Value of nonresidential construction	millions	\$702.1	\$797.5	+13.6
Value of State road contract awards	do	\$79.2	\$90.2	+13.9
Shipments of portland and masonry cement to and within the State	thousand short tons	1,405	1,262	-10.2
Nonfuel mineral production value:				
Total crude mineral value	millions	\$186.1	\$178.7	-4.0
Value per capita, resident population	do	\$44	\$42	-4.6
Value per square mile	do	\$17,598	\$16,891	-4.0

^PPreliminary.¹Includes bituminous coal and gas extraction.²Included with "Services."³Includes "Mining."

Sources: U.S. Department of Commerce, U.S. Department of Labor, Highway and Heavy Construction Magazine, and U.S. Bureau of Mines.

Trends and Developments.—Currently, industrial minerals account for most of Maryland's mineral output. However, the State was once a leader in mining metallic minerals including minerals listed as "strategic and critical" to the Nation's defense.

Chromium, in the strategic and critical minerals category because of its importance in stainless and other steel alloy manufacture, was first mined in Baltimore County around 1810. Initial production was sold to a paint manufacturer in Philadelphia, and between 1828 and 1850 most of the world's supply was mined in Harford and Cecil Counties. Production declined during the late 1800's, and the last recorded mining was in 1928.

Cobalt and copper, two other strategic and critical minerals, were mined along with iron in Baltimore, Carroll, and Frederick Counties in the 1850's. A cobalt smelting furnace was built on the Patapsco River but was never operated. Interest in the State's cobalt potential renewed during 1981 as Denver-based Noranda Exploration, Inc., sought a contract with Baltimore officials to drill for cobalt near Liberty Reservoir northwest of the city. The project, expected to take about 3 months, was scheduled to begin in 1982.

Over the centuries, Maryland's mineral industry developed gradually from metals to industrial minerals, and a continuing conflict has arisen over land use because of demand for construction mineral materials and the increase in population. Maryland's sand and gravel and stone operators, with approximately 60% of the sales reported by the State's mineral industry in 1981, again experienced strong citizen opposition to most mining plans. In one case, a 3-year legal battle between citizen groups and a sand and gravel company apparently ended in August when the Maryland Circuit Court ruled that the company could construct a wet processing plant in Zekiah Swamp in the Cedarville area. Zekiah Swamp is the State's largest natural hardwood area, and opponents of construction and operation of the plant feared damage to the swamp's unique ecology. An appeal by the Prince Georges County Council to the Court of Special Appeals was pending at yearend.

In December, the Prince Georges County Council voted to help a sand and gravel company secure a low-interest loan for construction of a wet processing plant. The \$3.25 million loan, to be financed by the sale of industrial development bonds, was

opposed by citizens who asked if the County Council would help secure loans for other business endeavors. The Council's response was unreported at yearend.

Another ongoing conflict in the State concerned fugitive dust from the Lehigh Portland Cement Co. plant in Union Bridge. Local citizens complained about damage to personal property from the cement kiln dust. The cement plant, which employs more than 200 people, many living in Union Bridge, has spent over \$15 million since 1973 for air pollution equipment or other equipment maintenance.

Positive developments in the State's construction mineral industry included a number of Government-funded commercial and nonresidential projects in the Baltimore area that provided markets for Maryland's aggregate producers. Work on the Baltimore subway required significant amounts of aggregate for concrete. Construction of the Fort McHenry tunnel, which began in mid-1981, was estimated to require in excess of 500,000 cubic yards of concrete. Over 2 million tons of aggregate was expected to be used for this project, scheduled to continue through 1983. The Hart and Miller Islands Dike Disposal Area, to confine materials dredged from Baltimore Harbor and access channels, will require over 300,000 tons of riprap and 100,000 tons of smaller stone.

In other developments, work on the Atlantic Cement Co., Inc., slag cement facility at Sparrows Point continued and was scheduled for completion in April 1982. The plant, the first of this type in the United States, is adjacent to the Bethlehem Steel Corp. "L" blast furnace, which produces 800,000 tons of slag per year. The cementitious material, termed "Newcem," will be barged to the company's existing network of tidewater distribution terminals located along the eastern seaboard for blending with portland cement to produce concrete.

Bethlehem Steel announced plans to spend approximately \$100 million to modernize the continuous slab casting and other Sparrows Point facilities. Bethlehem Steel, the State's largest employer, is upgrading the plant to make the operation more competitive with foreign steel operations.

Legislation and Government Programs.—The State Board of Public Works approved proposed regulations that would permit exploration and recovery of oil and gas on State-owned lands. A significant discovery of oil in the State could provide new markets for construction mineral pro-

ducers. Under the regulations approved by the board, the Department of Natural Resources must secure board approval before a tract of land can be leased. The State reserves the right to negotiate some leases, though the general policy will be to award leases to the highest bidder.

During 1981, the staff of the Maryland Geological Survey was involved in a number of studies on mineral resources and environmental geology. Geologic mapping was completed in one quadrangle and was underway in three others. Topographic map revision was ongoing in Baltimore, Charles, Frederick, and Garrett Counties. Two studies were ongoing on lands for potential mineral resource development, one in the Baltimore-Washington area, and the second in western Maryland. An agreement was made with Carroll County officials for a mineral resource study. The county was in the process of initiating a new method of establishing zoning ordinances using mineral resource overlay to determine areas for potential mineral development. The Maryland Geological Survey was involved in the preparation of policy for leasing oil and gas mineral rights on State lands and also worked on a number of hydrologic studies.

Scientists with the U.S. Geological Survey conducted fieldwork in various areas of the State as part of a number of regional

geological investigations. Of interest to the State's mineral industry were studies on high-purity sands in areas underlain by the Tuscarora and Oriskany Formations, and the evaluation of mineral fuel resources in Allegany and Garrett Counties.

Other government agency activity included the release, in April, of a 200-page report by the Montgomery County Department of Environmental Protection on the use of serpentinite, a stone containing asbestos fibers, used for aggregate applications. In 1977, the county spent \$2.7 million on asbestos control for roadways and school playgrounds. The 1981 report stated that serpentinite could be used on driveways, road shoulders, parking lots, and biking and walking paths with no apparent danger, provided dust levels were controlled.

Throughout the year, Maryland's Environmental Service sponsored a series of hazardous waste siting programs in many of the State's communities. The Maryland General Assembly, in 1980, directed that a Hazardous Waste Siting Board be impaneled to identify sites suitable for containment of waste generated by Maryland industry. Environmentally acceptable waste disposal is a continuing concern for many of the State's mineral processing and metal fabricating operations.

REVIEW BY NONFUEL MINERAL COMMODITIES

NONMETALS

Calcite.—Genstar Stone Products Co. mined calcite by surface and underground methods to produce a calcium carbonate filler used primarily in paper, paints, and plastic. The mine and plant are located at the company's Texas, Md., operation, north of Baltimore.

Cement.—Three companies in Carroll, Frederick, and Washington Counties in the north-central part of the State produced portland cement and two of them also produced both portland and masonry cement. A fourth company operated a grinding plant to produce masonry cement only. Output for both cement types fell for the second consecutive year as the recession severely affected construction activity.

Work continued on the Atlantic Cement Co., Inc., slag cement facility at Sparrows Point. The \$77 million facility is scheduled for completion in 1982.

Clays.—Common and ball clay and shale

were produced by 7 companies operating 10 surface mines in Baltimore, Carroll, Frederick, Kent, Prince Georges, and Washington Counties. Common clay output slumped approximately 136,000 tons from that reported in 1980 as the recession continued to depress new construction activity.

Cyprus Industrial Minerals Co. in Baltimore County was the State's only ball clay producer. Much of the company's sales were in the Canadian market. Production remained the same as in the previous year.

Also during the year, the Arundel Corp., a building materials and land development company, sold their subsidiary, Baltimore Brick Co., to the Merry Co., Inc., of Augusta, Ga. Merry Co. is one of the largest brick manufacturers in the Southeast.

Gypsum.—National Gypsum Co. and United States Gypsum Co. imported gypsum mined in Nova Scotia and New Brunswick. The gypsum was calcined at company facilities in the Baltimore area for use in the manufacture of construction mate-

rials such as wallboard and lath.

Iron and Steel Slag.—Although Maryland continued to rank as a leading slag-producing State, output fell for the second consecutive year as demand for domestic steel slumped. Both air-cooled and expanded slag were produced as a byproduct of steelmaking. Principal sales of the former were for construction aggregate while the latter, a lighter weight slag, was used primarily in the manufacture of lightweight concrete block.

Lime.—One company in north-central Maryland, S. W. Barrick & Sons, Inc., in Frederick County, calcined limestone to produce quicklime and hydrated lime. Major sales were in-State for agricultural purposes.

Peat.—Garrett County Processing & Packing Corp. recovered peat for horticultural

sales. The operation is located in the northwestern part of the State near the community of Accident.

Sand and Gravel.—The U.S. Bureau of Mines, to reduce reporting burden and costs, implemented new sand and gravel canvassing procedures for the survey of sand and gravel producers. Beginning with the collection of 1981 production data, the survey of construction sand and gravel operators will be conducted for even-numbered years only; the survey of industrial sand and gravel producers will continue to be conducted annually. Therefore, this chapter contains only preliminary estimates for construction sand and gravel production. The preliminary estimates for production of construction sand and gravel for odd-numbered years will be revised and finalized the following year.

Table 4.—Maryland: Construction sand and gravel sold or used by producers

	1980			1981 ^P		
	Quantity (thousand short tons)	Value (thou- sands)	Value per ton	Quantity (thousand short tons)	Value (thou- sands)	Value per ton
Sand -----	5,895	\$18,801	\$3.19	NA	NA	NA
Gravel -----	4,837	14,825	3.06	NA	NA	NA
Total or average -----	10,732	\$33,625	3.13	10,900	\$35,000	\$3.21

^PPreliminary. NA Not available.

¹Data do not add to total shown because of independent rounding.

During 1981, sand and gravel continued to rank in the top three mineral commodities in value. Preliminary data indicated that production increased 168,000 tons over that reported in 1980.

Harford Sands, Inc., in eastern Maryland near Joppa, continued as the State's only industrial sand producer—approximately 40% of the company's output was sold for water treatment and as an antiskid medium for airport runways. The company also supplied an industrial-grade sand to Bethlehem Steel Corp. at Sparrows Point.

Stone.—Production and sales of stone,

again the leading mineral commodity in the State, fell for the second year as economic conditions continued to depress construction activity. Although a few producers reported 1981 to be an "average" or "better" year, most operations reported slumping demand and sales. Output fell 2.4 million tons and sales dropped nearly \$3 million.

The State's crushed stone industry consisted of 19 reporting companies with mining and crushing operations in 10 counties. Output consisted of limestone, marble, sandstone, serpentinite, and gneiss.

Table 5.—Maryland: Crushed stone¹ sold or used by producers, by use

(Thousand short tons and thousand dollars)

Use	1980		1981	
	Quantity	Value	Quantity	Value
Concrete aggregate	2,589	9,540	2,441	9,148
Bituminous aggregate	1,963	7,064	2,217	7,972
Macadam aggregate	2,127	7,590	W	W
Dense-graded road base stone	1,234	4,572	1,205	4,761
Surface-treatment aggregate	364	1,374	376	1,389
Other construction aggregate and roadstone	6,537	23,531	6,078	22,421
Riprap and jetty stone	280	1,276	334	1,643
Railroad ballast	126	352	98	307
Manufactured fine aggregate (stone sand)	170	751	W	W
Cement manufacture	2,250	3,807	1,055	2,379
Lime manufacture	W	W	17	64
Other ²	1,305	17,574	2,664	24,206
Total	18,945	77,431	16,485	³ 74,289

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

¹Includes limestone, granite, sandstone, shell, traprock, and miscellaneous stone.²Includes stone used for agricultural limestone, agricultural marl and other soil conditioners, poultry grit and mineral food, filter stone (1981), flux stone, refractory stone (1980), mine dusting, asphalt filler, whitening or whitening substitute, other fillers or extenders, other uses not specified, and items indicated by symbol W.³Data do not add to total shown because of independent rounding.

Major sales were for aggregate with lesser amounts of crushed sandstone sold to the steel industry for flux. One marble producer marketed a high-quality, wet-ground, calcium carbonate filler.

Langenfelder & Sons, Inc., operated a dredge on Chesapeake Bay to recover oyster shell. Major sales were for aggregate and poultry grit.

Dimension sandstone and quartzite were quarried in Baltimore and Howard Counties; dimension gneiss was produced in Montgomery County. Major sales of the sandstone and quartzite were as rough block and rubble; gneiss sales were for construction applications.

Talc.—Harford Talc Co., Harford County, purchased talc from Colorado-based Cyprus Industrial Minerals Co., a division of Amoco Minerals Co., for raw material in insulator manufacture.

Vermiculite.—South Carolina-mined vermiculite was expanded by W. R. Grace & Co. at a plant in Prince Georges County. Principal sales were for fireproofing, block insulation, concrete aggregate, and loose fill insulation.

METALS

Aluminum.—Maryland's primary aluminum producer, Eastalco Aluminum Co. in Frederick County near Buckeystown, reduced alumina imported from Australia.

The company operated two potlines to produce rolling ingots, melt ingots, and billets. Production was virtually unchanged from that of 1980.

Two secondary producers in the Baltimore area, Tomke Aluminum Co. and Cambridge Iron & Metals Co., Inc., melted aluminum scrap to produce a variety of aluminum products.

Copper.—Kennecott Refining Co. operated one of four primary copper refineries in the Eastern United States. Copper, shipped by rail from Arizona, Nevada, New Mexico, and Utah, was refined into cathode and rod for worldwide export.

Iron and Steel.—Bethlehem Steel Corp. at Sparrows Point, Baltimore, produced pig iron, raw steel, and semifabricated steel products from South American ore. Production was severely curtailed because of a slump in the automotive industry and an upswing in foreign steel imports. At year-end, a new \$170 million coke battery was in operation at the Sparrows Point facility.

Titanium Dioxide.—During 1981, Glidden Pigments Group, SCM Corp., completed expansion work at the Baltimore plant. With the expansion, the company has the capacity to produce 42,000 tons per year.

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Table 6.—Principal producers

Commodity and company	Address	Type of activity	County
Cement:			
Portland:			
Alpha Portland Cement Co. ¹ ---	15 South 3d St. Easton, PA 18042	Plant and quarry.	Frederick.
Portland and masonry:			
Lehigh Portland Cement Co. ² --	718 Hamilton Mall Allentown, PA 18105	----do-----	Carroll.
Marquette Co. ¹ -----	One Commerce Pl. Nashville, TN 37238	----do-----	Washington.
Masonry:			
Genstar Stone Products Co -----	Executive Plaza 4 11350 McCormick Rd. Hunt Valley, MD 21031	Plant-----	Baltimore.
Clays:			
Baltimore Brick Co -----	501 St. Paul Pl. Baltimore, MD 21202	Pits-----	Baltimore and Frederick.
Victor Cushwa & Sons, Inc -----	Box 160 Williamsport, MD 21795	Pit -----	Washington.
Cyprus Industrial Minerals Co ---	7000 Yosemite St. Box 3299 Englewood, CO 80155	Pit -----	Baltimore.
Gypsum (calcined):			
National Gypsum Co -----	4100 1st International Bldg. Dallas, TX 75270	Plant-----	Do.
United States Gypsum Co -----	101 South Wacker Dr. Chicago, IL 60606	----do-----	Do.
Lime:			
S. W. Barrick & Sons, Inc. ¹ -----	Woodsboro, MD 21798 -----	----do-----	Frederick.
Peat:			
Garrett County Processing & Packing Corp.	Route 1 Accident, MD 21520	Bog-----	Garrett.
Sand and gravel:			
Contee Sand & Gravel Co., Inc ---	Box 1000 Laurel, MD 20810	Pit -----	Prince Georges.
Genstar Stone Products Co -----	Executive Plaza 4 11350 McCormick Rd. Hunt Valley, MD 21031	Pits-----	Baltimore.
York Building Products Co., Inc --	Box 1708 York, PA 17405	Pit -----	Cecil.
Stone:			
Arundel Corp -----	110 West Rd. Baltimore, MD 21204	Quarries-----	Baltimore and Howard.
Genstar Stone Products Co -----	Executive Plaza 4 11350 McCormick Rd. Hunt Valley, MD 21031	----do-----	Baltimore, Carroll, Frederick, Harford.
Rockville Crushed Stone, Inc -----	Box 407 Rockville, MD 20850	----do-----	Montgomery.

¹Also stone.²Also clays and stone.

