THE MINERAL INDUSTRY OF TENNESSEE

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 Tennessee Division of Geology for collecting information on all nonfuel minerals.

In 1996, Tennessee ranked 19th for the fifth time in the past 6 years among the 50 States in total nonfuel mineral production value,[1] according to the U.S. Geological Survey (USGS). The estimated value for 1996 was more than $651 million, a nearly 5% decrease from that of 1995. This followed a 13.5% increase from 1994 to 1995 (based on final 1995 data). The State accounted for a little less than 2% of the U.S. total nonfuel mineral production value.

Crushed stone, by value, has been Tennessee's leading commodity for more than 25 years, except for 1981 when zinc was first. In 1996, crushed stone accounted for about 45% of the State's total nonfuel mineral production value. A decrease in zinc production value, aided by a smaller decrease in gemstones accounted for most of the State's drop in nonfuel mineral value in 1996. A nearly $6-million increase in the value of crushed stone, together with smaller increases in construction sand and gravel, ball clays, and portland cement, moderated the year's drop in value. Compared with 1995, other mineral commodities that increased in value in 1996 were lime, masonry cement, and barite. Others that decreased in value were industrial sand and gravel, common clays, kaolin, dimension stone, copper, lead, and silver. In 1995, most all commodities increased in value. In descending order (largest increase to smallest), the values of zinc, crushed stone, portland cement, and gemstones, led the way; while construction sand and gravel showed a small decrease.

Compared with USGS estimates of the quantities produced in the other 49 States in 1996, Tennessee remained the leading gemstone- and ball clay-producing State, second in zinc, and seventh in fuller's earth clays. In addition, the State's minerals industry produced significant quantities of crushed stone, portland cement, lime, industrial sand and gravel, masonry cement, and common clays, in descending order of value. Primary aluminum and raw steel were produced in Tennessee but processed from materials obtained from other domestic and foreign sources. The State ranked 12th in the production of primary aluminum.

The following narrative information was provided by the Tennessee Division of Geology.[2] Although production was estimated to be down, the State's zinc mining industry had another active year in 1996. Savage Zinc Co., a U.S. subsidiary of Savage Resources Ltd. (Australia), continued operation of the Elmwood-Cumberland-Gordonsville mining and milling operations in middle Tennessee and the electrolytic refinery in Clarksville. Savage continued
operation of the Clinch Valley Mine (formerly the Idol Mine) in east Tennessee and closed the Jefferson City zinc mine (formerly U.S. Steel's old Davis Mine) in November. Savage sold the Jefferson City Mine to the Mossy Creek Mining Co., which will close the mine and make the surface available for commercial development. ASARCO Incorporated continued its operation of the Coy, Immel, and Young Mines in east Tennessee; however, its New Market Mine is temporarily closed.

In the Coker Creek gold district of Monroe County in southeast Tennessee, the East Coast Prospector's Club continued to maintain leases on two tracts of land where members mine placer gold using portable dredges and pans. Coker Creek Village operated a pan-for-fee operation for naturally occurring placer gold. Although the amount of gold produced in the district is small relative to other gold districts in the United States, recreational gold mining has a positive effect on the local tourist economy.

In the aggregate industry, Tennessee's major crushed stone producers included ASARCO (American Limestone Co.), Cornerstone Construction & Materials Inc. (The Stone Man Inc., etc.), Hoover Inc., Rogers Group Inc., and Vulcan Materials Co. Sand and gravel was dredged from the Tennessee River in the western part of the State by the following companies: SanGravl Co. Inc., Teague Brothers Sand and Gravel Inc., Tinker Sand and Gravel Inc., and Vulcan Materials Co. The major sand and gravel producer in east Tennessee is the Nolichucky Sand Co., which crushes rock from an alluvial deposit in Greene County.

Tennessee's clay industry was also very active in 1996. General Shale Products Corp. mined shale and clay to supply its brick plants at Chattanooga, Johnson City, and Kingsport in east Tennessee. Four companies mined and processed ball clay in west Tennessee: H. C. Spinks Co., Kentucky-Tennessee Clay Co., Old Hickory Clay Co., and United Clays, Inc. (formerly Cypress Industrial Minerals Co.).

High-silica sand, chiefly for the glass industry, was

mined and processed in east Tennessee by Short Mountain Silica Co. and in west Tennessee by the Morie Sand Co. Unimin Corp., a major producer of quartz, kaolin, and feldspar in North Carolina, acquired the Morie Mine and plant in November and will operate the west Tennessee facilities as Tennessee Silica.

Two companies produced dimension marble in east Tennessee during 1996. The Imperial Black Marble Co. quarried and processed marble at Thorn Hill in Union County, and the Tennessee Marble Co. produced tile and dimension stone at its Friendsville plant in Blount County. Tennessee Marble does not currently operate a quarry because it has an abundant supply of marble blocks on its Friendsville property that were quarried by previous operators.

Quartzitic sandstone was produced on the Cumberland Plateau. Products included dimension stone, field stone, rough broken stone, ashlar, flagstone, and rubble. Although there were a number of individuals who quarried the sandstone, there were three companies that quarried, sawed, and fabricated the sandstone: Cumberland Mountain Stone Co., Silvara Stone Co., and Tennessee Building Stone Inc.

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[1]The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending on 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 1996 USGS mineral production data published in this chapter are estimates as of February 1997. For some commodities (for example, construction sand and gravel, crushed stone, and portland cement), estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset, and request Document # 1000 for a telephone listing of all mineral commodity specialists, or call USGS information at (703) 648-4000 for the specialist's name and number. This telephone listing may also be retrieved over the Internet at: http://minerals.er.usgs.gov/minerals/contacts/comdir.html

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TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN TENNESSEE 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

	1994		1995		1996 p/	
Mineral	Quantity	Value	Quantity	Value	Quantity	Value
Clays 3/	665	28,600	664	29,000	687	31,400
Gemstones	NA	23,100	NA	35,400	NA	W
Sand and gravel:						
Construction	8,710	38,000	8,020	36,700	8,530	40,100
Industrial	660	11,600	918	14,700	818	13,400
Stone (crushed)	49,200	265,000	52,600	286,000	53,000	292,000
Combined value of barite, cement, clays [bentonite (1994), common, fuller's earth, kaolin (1995)], copper (1994-95), lead (1994-95), lime, silver (1994-95), stone (dimension), zinc, and value indicated by symbol W	XX	235,000	XX	282,000	XX	275,000
Total	XX	602,000	XX	683,000	XX	651,000

p/ Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.
1/ Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
2/ Data are rounded to three significant digits; may not add to totals shown.
3/ Excludes certain clays; kind and value included with "Combined value" data.

TABLE 2
TENNESSEE: CRUSHED STONE 1/ SOLD OR USED BY PRODUCERS
IN 1995, BY USE 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	1,200	$5,820	$4.85
Filter stone	321	1,610	5.01
Other coarse aggregate 3/	276	1,160	4.22
Coarse aggregate, graded:			
Concrete aggregate, coarse	3,490	17,400	4.99
Bituminous aggregate, coarse	10,200	54,800	5.39
Bituminous surface-treatment aggregate	1,640	9,640	5.89
Railroad ballast	351	1,660	4.73
Other graded coarse aggregate	982	5,510	5.61
Fine aggregate (-3/8 inch):			
Stone sand, concrete	740	5,730	7.74
Stone sand, bituminous mix or seal	237	1,610	6.80
Screening, undesignated	2,960	16,900	5.70
Other fine aggregate	405	2,170	5.35
Coarse and fine aggregates:			
Graded road base or subbase	11,800	60,700	5.16
Unpaved road surfacing	915	4,620	5.05
Crusher run or fill or waste	2,130	9,980	4.68
Other construction materials 4/	1,580	9,320	5.92
Agricultural:			
Agricultural limestone	431	2,600	6.03
Poultry grit and mineral food	W	W	11.32
Other agricultural uses	W	W	8.67
Chemical and metallurgical:			
Cement manufacture	W	W	5.36
Lime manufacture	W	W	14.36
Chemical stone	W	W	9.29
Sulfur oxide removal	W	W	4.80
Special:			
Mine dusting or acid water treatment	W	W	21.29
Asphalt fillers or extenders	W	W	9.67
Other fillers or extenders	W	W	12.86
Unspecified: 5/			
Actual	4,610	22,500	4.88
Estimated	5,100	24,700	4.86
Total	52,600	286,000	5.43

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Includes dolomite, granite, limestone, miscellaneous stone, and sandstone.
2/ Data are rounded to three significant digits; may not add to totals shown.
3/ Includes macadam.
4/ Includes other coarse and fine aggregates.
5/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3
TENNESSEE: CRUSHED STONE SOLD OR USED, BY KIND 1/

Kind	1994 Number of quarries	1994 Quantity (thousand metric tons)	1994 Value (thousands)	1994 Unit value	1995 Number of quarries	1995 Quantity (thousand metric tons)	1995 Value (thousands)	1995 Unit value
Limestone	103 r/	42,800 r/	$233,000 r/	$5.46 r/	102	46,400	$254,000	$5.48
Dolomite	11 r/	W	W	4.92 r/	11	W	W	5.04
Granite	1	W	W	4.96	1	W	W	4.43
Sandstone	2 r/	W	W	5.52	2	W	W	6.61
Miscellaneous stone	1	W	W	5.44	1	W	W	5.56
Total	XX	49,200	265,000	5.39	XX	52,600	286,000	5.43

r/ Revised. W Withheld to avoid disclosing proprietary data; included in "Total." XX Not applicable.
1/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 4
TENNESSEE: CRUSHED STONE 1/ SOLD OR USED BY PRODUCERS IN 1995,
BY USE AND DISTRICT 2/

(Thousand metric tons and thousand dollars)

Use	District 2 Quantity	District 2 Value	District 3 Quantity	District 3 Value
Construction aggregates:				
Coarse aggregate (+1 1/2 inch) 3/	1,150	5,290	650	3,300
Coarse aggregate, graded 4/	9,290	48,200	7,330	40,800
Fine aggregate (-3/8 inch) 5/	2,240	12,000	2,110	14,400
Coarse and fine aggregate 6/	9,730	46,500	6,670	38,200
Agricultural 7/	W	W	W	W
Chemical and metallurgical 8/	W	W	W	W
Special 9/	W	W	W	W
Unspecified 10/				
Actual	3,170	16,300	1,450	6,200
Estimated	3,440	16,500	1,660	8,240
Total	30,900	156,000	21,700	130,000

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Production reported in District 1 was included with "District 2" to avoid disclosing company proprietary data.
2/ Data are rounded to three significant digits; may not add to totals shown.
3/ Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.
4/ Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.
5/ Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.
6/ Includes graded road base or subbase, unpaved road surfacing, crusher run (select material or fill), other coarse and fine aggregates, and other construction materials.
7/ Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.
8/ Includes cement manufacture, chemical stone for alkali works, lime manufacture, and sulfur oxide removal.
9/ Includes asphalt fillers or extenders, mine dusting or acid water treatment, and other fillers or extenders.
10/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5
TENNESSEE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1995,
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	2,800	$13,100	$4.69
Plaster and gunite sands	320	1,970	6.17
Concrete products (blocks, bricks, pipe, decorative, etc.)	261	1,240	4.76
Asphaltic concrete aggregates and other bituminous mixtures	1,110	6,360	5.72
Road base and coverings 2/	1,570	5,120	3.27
Fill	148	831	5.61
Snow and ice control	17	156	9.18
Other 3/	79	498	6.30
Unspecified: 4/			
Actual	435	3,050	7.01
Estimated	1,290	4,350	3.38
Total or average	8,020	36,700	4.58

1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes road and other stabilization (cement).
3/ Includes filtration.
4/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6
TENNESSEE: CONSTRUCTION SAND AND GRAVEL 1/ SOLD OR USED IN 1995,
BY USE AND DISTRICT 2/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2	
	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 3/	1,830	7,720	1,550	8,620
Asphaltic bituminous mixtures	719	3,790	393	2,570
Road base and coverings 4/	1,450	4,390	282	1,720
Other miscellaneous uses 5/	--	--	79	498
Unspecified: 6/				
Actual	387	2,520	48	527
Estimated	713	1,840	574	2,500
Total	5,100	20,300	2,920	16,400

1/ Production reported in District 3 was included with "District 2" to avoid disclosing company proprietary data.
2/ Data are rounded to three significant digits; may not add to totals shown.
3/ Includes plaster and gunite sands.
4/ Includes fill, road and other stabilization (cement), and snow and ice control.
5/ Includes filtration.
6/ Includes production reported without a breakdown by end use and estimates for nonrespondents.