THE MINERAL INDUSTRY OF INDIANA

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 Geological Survey, Indiana Department of Natural Resources, for collecting information on all nonfuel minerals.

Indiana ranked 21st among the 50 States in total nonfuel mineral production value[1] in 1996, according to the U.S. Geological Survey (USGS). Although dropping from a ranking of 20th in 1995, Indiana's 1996 estimated value of $617 million was nearly a 5% increase from that of 1995. This followed a more than 6% increase from 1994 to 1995 (based on final 1995 data). Indiana's nonfuel mineral production value exceeded $600 million for the first time in its history in 1996. The State accounted more than 1.5% of the U.S. total nonfuel mineral production value.

Indiana's increase in nonfuel mineral value mostly resulted from an 11% increase in the value of crushed stone and a 14% increase in construction sand and gravel. Compared with those of 1995, other values that increased were those of gypsum, common clays, and peat. Mineral commodities that showed a decrease in value included portland cement, lime, masonry cement, dimension stone, and gemstones.

Compared with USGS estimates of the quantities of minerals produced in the other 49 States during 1996, Indiana remained first in dimension stone, second in masonry cement, and seventh in gypsum. Additionally, the State was a significant producer of crushed stone, portland cement, construction sand and gravel, lime and common clays. The State's mines exclusively produce industrial minerals and coal; all raw steel and primary aluminum produced in the State are processed from materials received from other domestic and foreign sources. Indiana continued to lead the Nation in the production of raw steel with an estimated output of close to 21 million metric tons (23 million short tons), according to the American Iron and Steel Institute. The State remained third in the production of primary aluminum.

The following narrative information was provided by the Indiana Geological Survey (IGS).[2] In 1996, two limestone quarries were opened in Orange County. Mulzer Crushed Stone, Inc., opened a new quarry at Abydel west of Paoli, and Rogers Group, Inc., reopened an old quarry near Orleans. Both quarries will produce scrubber stone for coal-fired electric utilities with wet flue gas desulfurization systems. Mulzer Crushed Stone, Inc., announced plans to open a quarry in Harrison County. The county approved significant tax abatements to encourage the development. This quarry would also be primarily producing limestone for scrubber stone. The D & R Crushed Stone Co. ceased production at the Indiana Limestone Co., Inc., Crown Quarry property in Monroe County where it processed waste overburden. The owner of D & R attempted to open a new crushed stone quarry south of Bloomington, but a decision by the Monroe County Board of Zoning Appeals put the development on hold. The property is being sold to Rogers Group, Inc., who is reapplying for a zoning permit. Following an appeal by opponents, the Indiana Court of Appeals upheld a decision by the Monroe County Zoning Board to allow development of Hillside Stone Co.'s planned underground crushed limestone mine west of Bloomington.

The Indiana Limestone Institute reported that 1996 was a very good year for the State's dimension limestone industry. Construction projects for which Indiana quarries were providing stone included: federal courthouses in Sacramento, CA, and Portland, OR; the Niketown store in NewYork; the North Carolina Museum of Natural History in Raleigh, NC; Catherwood Library on the campus of Cornell University in Ithaca, NY; and Doubleday Field at the U.S. Military Academy at West Point, NY. Restoration projects were also underway of the Empire State Building and the Waldorf Astoria in New York City. The Indiana Limestone Company, Inc., came under new management during the year. Plans were made to update and modernize the company's equipment and new office facilities were constructed. Additionally, the company finished the International Cultural and Trade Center for the Federal Triangle project in Washington, DC earlier in 1996.

Silver Creek Sand & Gravel, Inc., continued to excavate sand and gravel at its pit in Floyd County despite problems with neighbors regarding a nearby archaeological site and flood plain concerns. Irving Materials, Inc., experienced zoning problems in its attempt to open a sand and gravel pit in Johnson County. ESSROC Materials, Inc.'s, Speed Cement Plant in Clark County, investigated the option of setting up a citizen's advisory committee to deal with neighborhood concerns. ESSROC quarries some of the materials used at its Speed Plant. The Hoosier National Forest agreed to a 'land for mineral right's swap' with the United States Gypsum Corp. (USG) in which the forest will gain a total of 281 hectares including unique karst areas, and USG will gain the right to mine less than 470 hectares of national forest in Martin County.

Regarding federal environmental grants, the Indiana Department of Environmental Management (IDEM) will

henceforth identify needed programs in the State with the help of other public and business groups. The United States Environmental Protection Agency (EPA) will then work with IDEM to establish goals and methods of measuring progress toward those goals and will award the State one lump-sum grant instead of multiple project-specific grants as in the past. The Indiana Department of Natural Resources published the Indiana Wetlands Conservation Plan funded by a grant from the EPA.

In aggregate news, a final version of the Indiana Department of Transportation's (INDOT) regulation ITM 203-96, which defines how an aggregate producer supplies stone for an INDOT contract, was released, including the new requirement to use metric units. A national conference called Superpave 2000 was held in Indianapolis during August. Trips were made to Superpave sites and testing centers in Indiana, including a portion of I-70. The I-70 project includes a German-made asphalt tape joint sealant, the first project in the nation to use this method. A draft environmental impact statement could find no insurmountable environmental problems in extending I-69 from Indianapolis to Evansville, but was criticized by the EPA for being incomplete and for not sufficiently examining alternatives. Public hearings were held around the State in May and June. INDOT sent out an invitation to engineering firms to help plan the highway. Seven companies were chosen to design portions of the extension.

The steel industry had a very active year in 1996. In November, AK Steel Corp. announced that it would build a state-of-the-art steel finishing plant near Rockport, Spencer County. This proposed plant was among, if not, the most expensive business development in the nation during 1996 at an estimated cost of $1.1 billion with State and local business incentives totaling $72 million. The plant will be 65 kilometers southeast of the new Toyota pickup truck plant being constructed near Princeton, Gibson County, and will be a major supplier of steel for Toyota, as well as for other industries in the region. Completion of the steel plant was anticipated for September 1998. Plans were underway to make many regional road improvements to service the new business developments. In other industry news, Chicago Cold Rolling LLC, a $50 million steel minimill, was scheduled to open at Burns Harbor, Porter County, in 1997. Qualitech Steel Corp. moved its site for a minimill to the Pittsboro area, Hendricks County, after facing significant opposition in Brownsburg. Inland Steel Co., Lake County, planned to spend $240 million to make improvements to its plant. Inland also entered into an agreement with a Tennessee company to build a coking facility for the plant. Excess heat produced by the process will be converted into electricity for the plant. Bethlehem Steel Corp., Porter County, offered to donate steel for a new $74.9 million high school at Chesterton. The company announced that it was looking for new suppliers of lime and limestone. In April, Bethlehem Steel Corp. and Inland Steel Co. were fined by the EPA for water and air pollution violations. Air pollution fines against US Steel Corp. and LTV Steel Co., both in Lake County, will be used to help clean up other environmental problems in those areas.

A new 62-page *Directory of Industrial Mineral Producers in Indiana*, Indiana Geological Survey D13, was published in January. The directory was also available in spreadsheet form on a 3.5-inch computer disk. Updates of maps showing active mine locations in Indiana were completed in 1996: map MM55, *Map of Indiana Showing Bedrock Units Containing Thick Deposits of Limestone and Dolomite and Locations of Coal-Fired Electric Power Plants and Crushed-Stone Mines*, and map MM57, *Map of Indiana Showing Locations of Coal-Fired Electric Power Plants, Crushed-Stone Mines, and Federal and State Highways*. Map MM41, *Map of Indiana Showing Locations of Coal and Industrial Minerals Operations*, was revised and was scheduled to be available in 1997.

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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 Feb. 1997. For some commodities, e.g., 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.usg.gov/minerals/contacts/comdir.html.

[2]Ms Kathryn Shaffer authored the text of State minerals information submitted by the Indiana Geological Survey.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1994 Quantity	1994 Value	1995 Quantity	1995 Value	1996 p/ Quantity	1996 p/ Value
Cement (portland)	2,290	132,000	2,330	143,000	2,280	140,000
Clays	774 3/	2,540 3/	915	3,350 3/	837	3,520
Gemstones	NA	29	NA	36	NA	W
Peat	23	W	17 4/	281 4/	W	W
Sand and gravel (construction)	28,100	108,000	24,900	93,900	26,700	107,000
Stone:						
Crushed	45,900	211,000	49,200	234,000 5/	53,500	260,000 5/
Dimension metric tons	173,000	25,800	172,000	31,400	190,000	29,500
Combined value of cement (masonry), clays [ball (1994-95)], gypsum (crude), lime, sand and gravel (industrial), stone [crushed slate (1995-96)], and values indicated by symbol W	XX	75,400	XX	82,700	XX	77,400
Total	XX	555,000	XX	589,000	XX	617,000

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" figure.
4/Data series changed to production beginning in 1995, prior years shipment data may not be comparable.
5/ Excludes certain stones; kind and value included with "Combined value" figure.

TABLE 2
INDIANA: 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):			
Macadam	60	$219	$3.65
Riprap and jetty stone	1,130	5,060	4.48
Filter stone	286	1,430	5.01
Other coarse aggregate	763	4,260	5.58
Coarse aggregate, graded:			
Concrete aggregate, coarse	5,260	20,500	3.90
Bituminous aggregate, coarse	3,660	14,800	4.05
Bituminous surface-treatment aggregate	1,810	6,920	3.82
Railroad ballast	176	737	4.19
Other graded coarse aggregate	190	659	3.47
Fine aggregate (-3/8 inch):			
Stone sand, concrete	234	770	3.29
Stone sand, bituminous mix or seal	168	883	5.26
Screening, undesignated	241	1,100	4.56
Other fine aggregate	189	806	4.26
Coarse and fine aggregates:			
Graded road base or subbase	4,180	20,000	4.78
Unpaved road surfacing	3,680	16,900	4.60
Terrazzo and exposed aggregate	(3/)	3	24.20
Crusher run or fill or waste	947	3,990	4.21
Other coarse and fine aggregates 4/	535	2,250	4.21
Agricultural: Agricultural limestone 5/	1,520	6,390	4.19
Chemical and metallurgical:			
Cement manufacture	2,510	4,060	1.62
Dead-burned dolomite manufacture	(6/)	(6/)	4.14
Flux stone	(6/)	(6/)	5.21
Glass manufacture	(6/)	(6/)	13.10
Sulfur oxide removal	674	2,540	3.77
Special:			
Asphalt fillers or extenders	(6/)	(6/)	7.13
Whiting or whiting substitute	(6/)	(6/)	10.70
Unspecified: 7/			
Actual	17,900	102,000	5.72
Estimated	2,840	14,200	4.98
Total	49,200	234,000	4.76

1/ Includes dolomite, limestone, limestone-dolomite, and slate quantity only; excludes slate value from State total to avoid disclosing company proprietary data.
2/ Data are rounded to three significant digits; may not add to totals shown.
3/ Less than 1/2 unit.
4/ Includes lightweight aggregate (slate).
5/ Includes other agricultural uses.
6/ Withheld to avoid disclosing company proprietary data; included in "Total."
7/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3
INDIANA: 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 2/	70 r/	37,400 r/	$172,000 r/	$4.60 r/	73	42,400	$201,000	$4.74
Dolomite	14 r/	8,450 r/	39,600 r/	4.69 r/	14	6,760	33,500	4.96
Slate	--	--	--	--	1	74	(3/)	(3/)
Total	XX	45,900	211,000	4.60	XX	49,200	234,000	4.76

r/ Revised. XX Not applicable.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes limestone-dolomite reported with no distinction between the two.
3/ Excludes slate value from State total to avoid disclosing company proprietary data.

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

(Thousand metric tons and thousand dollars)

Use	District 1 Quantity	District 1 Value	District 2 Quantity	District 2 Value	District 3 Quantity	District 3 Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) 3/	W	W	W	W	859	3,670
Coarse aggregate, graded 4/	2,660	12,000	889	5,130	7,540	26,500
Fine aggregate (-3/8 inch) 5/	W	W	W	W	146	308
Coarse and fine aggregate 6/	6,430	28,200	2,230	11,900	2,750	13,600
Agricultural 7/	726	3,280	191	1,010	607	2,100
Chemical and metallurgical 8/	(9/)	(9/)	(9/)	(9/)	(9/)	(9/)
Special 10/	--	--	(9/)	(9/)	(9/)	(9/)
Unspecified: 11/						
Actual	(9/)	(9/)	9,150	55,600	(9/)	(9/)
Estimated	1,790	9,070	666	3,140	390	1,970
Total	14,800	69,500	14,100	79,500	20,300	85,300

W Withheld to avoid disclosing company proprietary data; included with "Coarse and fine aggregate."
1/ Excludes slate value from State total 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, lightweight aggregate (slate), terrazzo and exposed aggregate, unpaved road surfacing, crusher run (select material or fill), and other coarse and fine aggregates.
7/ Includes agricultural limestone and other agricultural uses.
8/ Includes cement manufacture, dead-burned dolomite manufacture, flux stone, glass manufacture, and sulfur oxide removal.
9/ Withheld to avoid disclosing company proprietary data; included in "Total."
10/ Includes asphalt fillers or extenders, and whiting or whiting substitute.
11/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5
INDIANA: CONSTRUCT0ION 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)	7,950	$29,700	$3.74
Plaster and gunite sands	105	495	4.71
Concrete products (blocks, bricks, pipe, decorative, etc.)	126	628	4.98
Asphaltic concrete aggregates and other bituminous mixtures	1,610	5,610	3.48
Road base and coverings 2/	1,430	5,990	4.19
Fill	2,290	7,770	3.39
Snow and ice control	269	777	2.89
Roofing granules	W	W	7.50
Filtration	W	W	6.40
Other 3/	187	1,030	5.51
Unspecified: 4/			
Actual	7,670	32,000	4.17
Estimated	3,240	9,930	3.06
Total or average	24,900	93,900	3.77

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes road and other stabilization (cement and lime).
3/ Includes filtration and roofing granules.
4/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

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

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	1,500	5,130	4,130	19,000	2,550	6,750
Asphaltic/bituminous mixtures	679	2,240	365	1,600	564	1,770
Road base and coverings 3/	480	2,120	752	2,950	201	920
Fill	377	1,090	1,580	5,820	328	860
Snow and ice control	131	359	96	302	43	116
Other miscellaneous uses 4/	54	277	131	742	2	15
Unspecified: 5/						
Actual	814	3,680	4,990	20,500	1,870	7,760
Estimated	2,020	6,060	321	864	907	3,010
Total	6,050	21,000	12,400	51,800	6,470	21,200

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