THE MINERAL INDUSTRY OF INDIANA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Indiana Geological Survey for collecting information on all nonfuel minerals.

In 1998, the preliminary estimated value[1] of nonfuel mineral production for Indiana was $700 million, according to the U.S. Geological Survey (USGS). This was a more than 4% increase from that of 1997,[2] and followed a 6.7% increase from 1996 to 1997. The State remained 21st in rank among the 50 States in nonfuel mineral production value, of which Indiana accounted for close to 2% of the U.S. total.

Indiana's increase in nonfuel mineral value in 1998 mostly resulted from $10 million increases in both construction sand and gravel and portland cement, a $9 million rise in the value of crushed stone, and increases of $5 million and about $2 million respectively in dimension stone and masonry cement. In 1997, nearly all nonfuel minerals increased in value, led by a $26 million increase in crushed stone and a $15 million increase in portland cement. Only construction sand and gravel, down $7 million, and common clay, down about $1.5 million, showed any decrease.

Compared with USGS estimates of the quantities of minerals produced in the other 49 States during 1998, Indiana remained first[2] in dimension stone and masonry cement, seventh in crude gypsum, eighth in lime, and ninth in common clay. Additionally, the State was a significant producer of crushed stone, portland cement, and construction sand and gravel, ranking 12th, 12th, and 14th, respectively. The State's mines exclusively produce industrial minerals and coal; all raw steel and primary aluminum produced in the State were 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 about 21.8 million metric tons of raw steel, as reported by the American Iron and Steel Institute. Based on USGS data, the State remained third in the production of primary aluminum.

[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 1998 USGS mineral production data published in this chapter are preliminary estimates as of February 1999 and are expected to change. For some mineral 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. A telephone listing for the specialists may be retrieved over the Internet at http://minerals.usgs.gov/minerals/contacts/comdir.html; by using MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset (request Document #1000 for a telephone listing of all mineral commodity specialists); or by calling USGS information at (703) 648-4000 for the specialist's name and number. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at http://minerals.usgs.gov/minerals; fascimile copies may be obtained from MINES FaxBack.

[2]Values, percentage calculations, and rankings for 1997 may vary from the *Minerals Yearbook, Area Reports: Domestic 1997, Volume II*, owing to the revision of preliminary 1997 to final 1997 data. Data for 1998 are preliminary and expected to change, while related rankings may also be subject to change.

The following narrative information was provided by the Indiana Geological Survey[3] (IGS). Employment in the Indiana minerals industry remained strong with preliminary U.S. Mine Safety and Health Administration (MSHA) figures indicating that 3,744 persons were employed during 1998, a 3.2% increase over that of 1997.

Industrial Minerals

Many companies began new aggregate operations during the year. In Harrison County, Mulzer Crushed Stone, Inc. opened its new quarry on the Ohio River between New Amsterdam and Mauckport. The company began crushing at the site with a portable unit pending completion of the plant which is scheduled for June 1, 1999. Also along the Ohio River, approximately 101 hectares of sand and gravel will be developed near Bethlehem, Clark County. The new company, Bethlehem Sand and Gravel will barge the material to Louisville, KY. Martin Marietta Aggregates opened its new Kokomo Sand plant in Howard County. Liter's Quarry of Indiana, Inc. began a joint venture with Tom Miller Quarries, Inc. at an underground crushed stone mine in Scott County. Krafft Gravel, Inc. began development of a plant near Leo in Allen County. Junction Limestone, Inc. opened its Uland Quarry in Greene County; the quarry is a surface operation with plans to go underground depending on market conditions. Other significant openings include the following: Irving Gravel Co., Inc., Angola Pit, Steuben County; Elkhart County Gravel Corp., Middlebury Plant 2, Elkhart County; Stoneco, Inc., Milner Quarry, Miami County; Harco Sand and Gravel, Inc., Marion County; Purdy Materials Plant #1, Tippecanoe County; and Innovative Crushing and Aggregates, Inc., Clark County. Several other companies were set to begin operations, probably during 1999. Rieth-Riley Construction Co., Inc., Hunt Lake Pit, La Porte County closed in 1998.

The Indiana dimension limestone industry has been working at near capacity. Producers reported difficulty in meeting the demand for high-quality buff limestone. Bybee Stone Co. continued to work on repairs to the Iowa State Capital Building and plans to complete the 15-year project in 1999. The company received a contract for the Pope John Paul Cultural Center in Washington, DC. Evans Quarries, Inc. received contracts for several schools in Chicago, IL, and finished Federal courthouses in Sacramento; CA, Fargo, ND; and Tallahassee, FL. Indiana Limestone Co., Inc. provided limestone from the original Empire Hole at its P.M. and B. Quarry, Lawrence County, for major renovations on the Empire State Building in New York City. A new dimension sandstone company, Mansfield Stone, Inc., opened a quarry in old workings near Mansfield, Parke County.

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

U.S. Gypsum Co. worked on a $90 million modernization and expansion of its East Chicago, Lake County, manufacturing plant with plans for completion by yearend 1999. The plant continues to use synthetic gypsum produced by electric utilities with fluidized gas desulfurization systems as well as gypsum from other sources. National Gypsum Co. began constructing a new plant in Rensselaer, Jasper County, to make reinforcing tapes, joint compounds, spray textures, and dry powders. Carmeuse Marblehead Lime Co. Buffington Plant, Lake County, made improvements to its kiln and baghouse that are expected to boost the plant's production.

Metals Industry

Based on preliminary figures compiled by the American Iron and Steel Institute, Indiana produced 21.7 million metric tons (24 million short tons) of steel during 1998 down from 22.9 million tons (25.2 million short tons) during 1997, a decrease of about 5.2%. The decrease was caused in part by large quantities of low-priced steel imports over which the industry filed complaints with the International Trade Commission and the U.S. Department of Commerce. Due to poor market conditions, Bethlehem Steel Corp. temporarily shut down its 203-centimeter (80-inch) hot strip mill at its Burns Harbor Division, Porter County, with the possibility of a layoff in 1999. Ispat International N.V. purchased Inland Steel Industries, Inc., Lake County, for $1.4 billion, making the company the seventh largest steel producer in the world. The company intends to sharply increase production at the plant, which was renamed Ispat Inland, Inc. Related steel-finishing businesses I/N Tek and I/N Kote will maintain their joint-venture status with Nippon Steel Corporation. Lukens Inc., which operated two plate steel mills in Burns Harbor, Porter County, and four other mills outside of Indiana, was acquired by Bethlehem Steel Corp. The new division is called Bethlehem Lukens Plate and the two Indiana mills were consolidated. Bethlehem Steel Corp. will sell its Burns Harbor No. 1 coke battery to DTE Energy Services, Inc., but will continue to use some coke from the battery for at least 9 years. USX-US Steel Group, Inc., Gary Works, Lake County, which celebrated 90 years of production in July, completed a new $40 million heat treating facility and related improvements at its 406-centimeter (160-inch) plate mill in May. The company spent $25 million and will spend $22 million more on plant renovations to correct and prevent further problems from wastewater emissions and will spend $55 million more to help clean up the Grand Calumet River. The Qualitech Steel Corp. minimill near Pittsboro, Hendricks County, and the $1.1 billion AK Steel Corp. plant at Rockport, Spencer County, were completed during the year. The AK Steel plant's cold mill is capable of processing 545 tons of carbon steel per hour. Construction began on a new Weirton Steel Corp. galvanizing plant in Jeffersonville, Clark County. Steel Dynamics, Inc. announced that a new $285 million structural steel mill will be built in Whitley County and will be ready for production in 2000. Detroit Steel announced that it would close its plant at Morristown, Shelby County, and move its operations to Mexico, but establish a small testing, engineering, and warehouse facility at the current site employing about 22 people. Approximately 230 are employed at the steel plant. Some companies were forced into partial shutdowns in June when a shortage in electricity caused electricity prices to soar up to $3,500 per megawatt hour.

Legislation and Government Programs

Indiana will receive $3.7 billion in Federal funds over 6 years under the Transportation Equity Act for the 21st Century signed by the President in June. The bill included $27 million for development of Interstate 69 in Indiana. The Indiana Department of Transportation decided to extend the environmental impact study for the project to include the entire distance between Indianapolis and Evansville, which will considerably delay the start of construction. No industrial minerals-related legislation passed the State legislature during calendar year 1998.

The Indiana Mineral Aggregates Association (IMAA) served on the national Coalition for Effective Miner Training to help the industry and the MSHA formulate new training regulations for noncoal, nonmetal mines. The new regulations should be finalized by October 1999. The IMAA has also been working to help establish self-regulated reclamation standards for the Indiana aggregates industry.

The Indiana Department of Environmental Management issued an air permit to Lehigh Portland Cement Co. in Mitchell, Lawrence County, allowing the company to burn tires for fuel. The company plans to burn about 2.5 million tires per year. Indiana became the first State in the nation to establish a State rule that limits the release of volatile organic compounds from steel sinter plants. The northwestern Indiana plants that would be affected cooperated with the Indiana Department of Environmental Management in the formation of the new standards which are designed to lower production of ozone in the northwestern part of the State.

The IGS discussed the possibility of participating with other State surveys and the USGS in an ongoing mineral resource study in the Great Lakes region as well as a new mineral resource study along the Ohio River corridor. The IGS completed a report on environmental planning in Monroe County (Hartke and Gray, 1998). Research continued on the geochemistry of industrial minerals, limestones for flue-gas desulfurization systems in coal-fired electric powerplants, heavy minerals in sand, a database of physical testing data for dimension limestones, and a database of abandoned sand and gravel pits.

Reference Cited

Harthe, E.J., and Gray, H.H., 1998, Geology for environmental planning in Monroe County, Indiana: Bloomington, IN, Indiana Geological Survey, Special Report 47, 38 p.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral		1996 Quantity	1996 Value	1997 Quantity	1997 Value	1998 p/ Quantity	1998 p/ Value
Cement: Portland		2,350	153,000 e/	2,400	168,000 e/	2,480	178,000
Clays:							
Ball		38	W	--	--	--	--
Common		1,510	3,500	947	2,040	966	2,090
Gemstones		NA	3	NA	3	NA	3
Sand and gravel: Construction		24,800	100,000	21,900	93,100	23,600	103,000
Stone:							
Crushed 3/		53,700	254,000	59,000	280,000	60,800	289,000
Dimension 3/	metric tons	156,000	24,500	190,000	24,900	192,000	24,700
Combined values of cement (masonry), gypsum (crude), lime, peat, sand and gravel (industrial), stone (crushed slate, dimension dolomite), and values indicated by symbol W		XX	92,800	XX	101,000	XX	103,000
Total		XX	628,000	XX	670,000	XX	700,000

e/ Estimated. p/ Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined values" 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 stones; kind and value included with "Combined values" data.

TABLE 2
INDIANA: CRUSHED STONE SOLD OR USED, BY KIND 1/

Kind	1996 Number of quarries	1996 Quantity (thousand metric tons)	1996 Value (thousands)	1996 Unit value	1997 Number of quarries	1997 Quantity (thousand metric tons)	1997 Value (thousands)	1997 Unit value
Limestone 2/	75	46,500	$217,000	$4.66	82	51,900	$242,000	$4.67
Dolomite	14	7,170	37,400	5.22	13	7,170	38,300	5.35
Slate	1	(3/)	(3/)	(3/)	1	(3/)	(3/)	(3/)
Total	XX	53,700	254,000	4.73	XX	59,000	280,000	4.75

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 from State total to avoid disclosing company proprietary data.

TABLE 3
INDIANA: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 1997, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	161	$945	$5.87
Riprap and jetty stone	1,480	6,610	4.46
Filter stone	246	1,280	5.20
Other coarse aggregate	375	1,670	4.46
Coarse aggregate, graded:			
Concrete aggregate, coarse	5,190	19,200	3.71
Bituminous aggregate, coarse	4,310	17,400	4.04
Bituminous surface-treatment aggregate	2,440	8,950	3.67
Railroad ballast	276	1,310	4.76
Fine aggregate (-3/8 inch):			
Stone sand, concrete	203	979	4.82
Stone sand, bituminous mix or seal	294	2,200	7.47
Screening, undesignated	134	568	4.24
Other fine aggregate	272	1,480	5.43
Coarse and fine aggregates:			
Graded road base or subbase	5,120	25,600	5.01
Unpaved road surfacing	3,890	19,800	5.08
Terrazzo and exposed aggregate	W	W	4.00
Crusher run or fill or waste	1,140	4,070	3.58
Other coarse and fine aggregates	1,820	9,490	5.21
Agricultural:			
Agricultural limestone	1,600	6,730	4.20
Other agricultural uses	(3/)	(3/)	4.44
Chemical and metallurgical:			
Cement manufacture	3,690	7,670	2.08
Dead-burned dolomite manufacture	(3/)	(3/)	4.64
Flux stone	(3/)	(3/)	4.19
Sulfur oxide removal	(3/)	(3/)	4.03
Special:			
Asphalt fillers or extenders	(3/)	(3/)	7.71
Whiting or whiting substitute	(3/)	(3/)	10.71
Other specified uses not listed	(3/)	(3/)	3.30
Unspecified: 4/			
Actual	18,000	96,000	5.32
Estimated	7,710	45,600	5.91
Total	59,000	280,000	4.75

W Withheld to avoid disclosing company proprietary data; included with "Other coarse and fine aggregates."
1/ Includes dolomite, limestone, and limestone-dolomite; excludes slate from State total to avoid disclosing company proprietary data.
2/ Data are rounded to three significant digits, except unit value; may not add to totals shown.
3/ Withheld to avoid disclosing company proprietary data; included in "Total."
4/ Includes reported and estimated production without a breakdown by end use.

TABLE 4
INDIANA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1997, BY USE AND DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) 3/	550	2,820	782	3,620	932	4,070
Coarse aggregate, graded 4/	2,280	11,100	1,390	7,610	8,530	28,200
Fine aggregate (-3/8 inch) 5/	W	W	470	3,040	238	1,220
Coarse and fine aggregate 6/	6,960	32,400	2,690	14,100	2,320	12,400
Agricultural 7/	676	3,230	290	1,450	645	2,100
Chemical and metallurgical 8/	W	W	W	W	2,400	6,880
Special 9/	--	--	W	W	W	W
Other miscellaneous use 10/	W	W	--	--	W	W
Unspecified: 11/						
Actual	W	W	9,350	49,600	6,220	28,800
Estimated	2,460	11,800	4,270	28,900	976	4,830
Total	16,400	81,200	20,300	110,000	22,400	88,900

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Excludes slate 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.
5/ Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.
6/ Includes graded road base or subbase, 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, and sulfur oxide removal.
9/ Includes asphalt fillers or extenders and whiting or whiting substitute.
10/ Includes other specified uses not listed.
11/ Includes reported and estimated production without a breakdown by end use.

TABLE 5
INDIANA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1997,
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	5,860	$23,900	$4.08
Plaster and gunite sands	88	517	5.88
Concrete products (blocks, bricks, pipe, decorative, etc.)	237	1,490	6.27
Asphaltic concrete aggregates and other bituminous mixtures	1,510	5,430	3.59
Road base and coverings 2/	2,220	10,400	4.70
Fill	2,570	9,350	3.64
Filtration	39	321	8.23
Snow and ice control	298	898	3.01
Other miscellaneous uses 3/	224	1,050	4.69
Unspecified: 4/			
Actual	7,380	33,400	4.52
Estimated	1,520	6,370	4.20
Total or average	21,900	93,100	4.24

1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes road and other stabilization (cement).
3/ Includes railroad ballast and roofing granules.
4/ Includes reported and estimated production without a breakdown by end use.

TABLE 6
INDIANA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1997,
BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

	District 1		District 2		District 3		Unspecified districts	
Use	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates	1,560	5,300	2,840	14,900	1,450	3,740	--	--
Concrete products 2/	84	661	129	997	111	345	--	--
Asphaltic concrete aggregates	757	3,120	223	801	533	1,500	--	--
Road base materials 3/	398	1,630	1,540	7,830	277	968	--	--
Fill	338	1,090	1,470	6,880	465	1,050	299	329
Other miscellaneous uses 4/	371	1,590	149	469	42	210	--	--
Unspecified: 5/								
Actual	176	1,230	4,990	23,400	2,210	8,780	--	--
Estimated	889	3,980	220	669	408	1,730	--	--
Total	4,570	18,600	11,600	55,900	5,490	18,300	299	329

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).
4/ Includes filtration, railroad ballast, and snow and ice control.
5/ Includes reported and estimated production without a breakdown by end use.