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2007 Minerals Yearbook

INDIANA [ADVANCE RELEASE]

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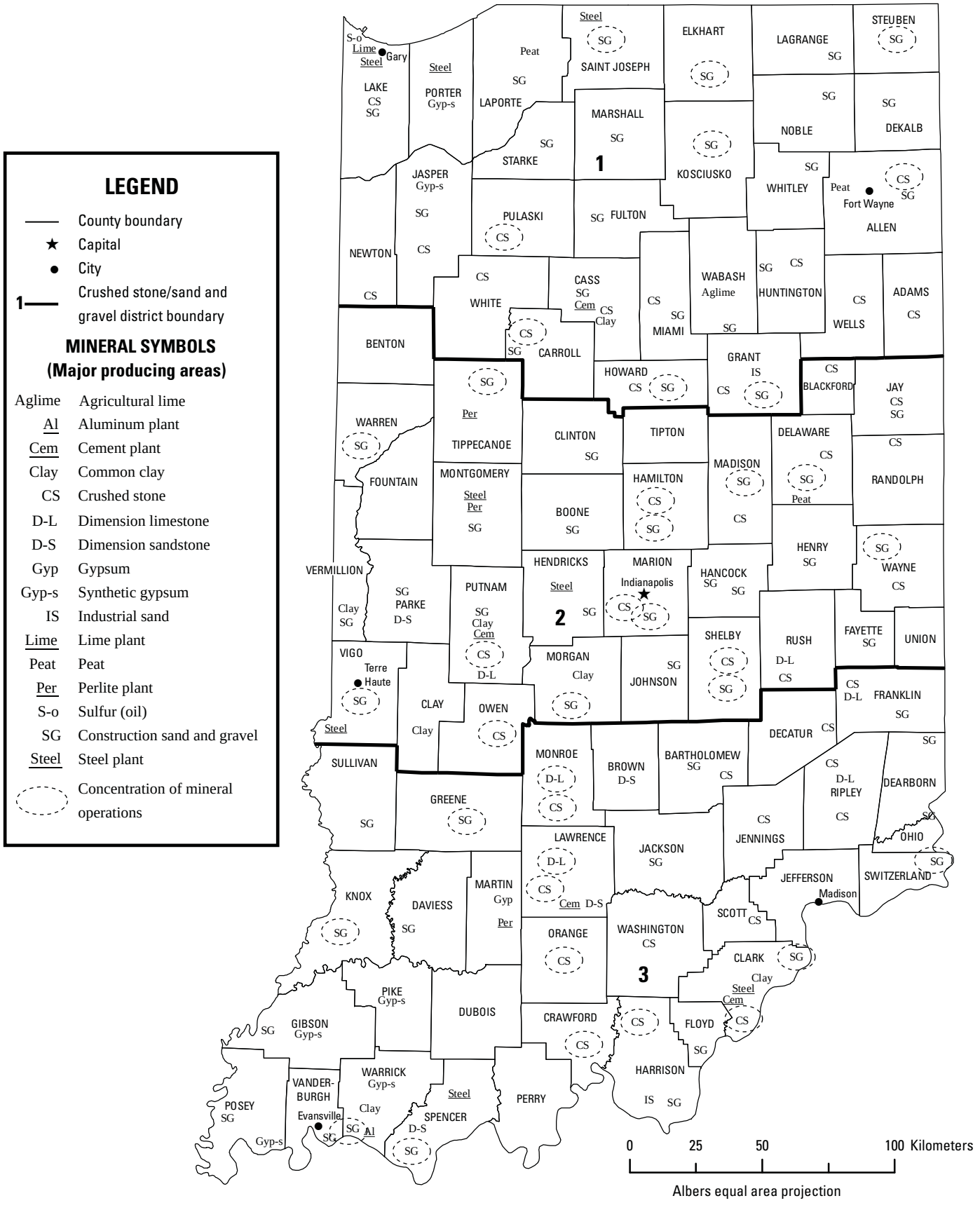
INDIANA



Source: Indiana Geological Survey/ U.S. Geological Survey (2007).

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 2007, Indiana's nonfuel raw mineral production was valued at $991 million, based on annual U.S. Geological Survey (USGS) data. This was a 0.5% increase of $5 million from the State's total nonfuel mineral value for 2006, which had increased by $92 million, or more than 10%, from 2005 to 2006 (table 1). The State was 24th in rank (23d in 2006) among the 50 States in total nonfuel raw mineral production value, of which Indiana accounted for 1.4%.

In 2007, crushed stone, by value, remained the State's leading nonfuel mineral commodity, followed by portland cement and construction sand and gravel. The combined values of these three leading mineral commodities accounted for more than 81% of the State's total nonfuel mineral production value. Peat production and dimension stone production increased, although the quantities of all other industrial minerals were down slightly. Increases in the mineral commodity values of crushed stone (up by $35 million) and peat (data withheld—company proprietary data), resulted in the State's slight increase in total nonfuel mineral value. The largest decrease in value took place in industrial sand and gravel (data withheld—company proprietary data). The values of crude gypsum and lime decreased (data withheld—company proprietary data), the value of common clay was down $3.3 million, and the value of portland cement was down slightly (table 1).

In 2007, Indiana rose in rank in the quantity produced of several minerals as compared with other producing States. The quantity of common clay produced rose to 10th from 11th, the quantity of crushed stone produced rose to 11th from 12th, the quantity of crude gypsum produced rose to 7th from 8th, the quantity of crushed stone produced rose to 11th from 12th, and peat production rose to 8th from 9th. Indiana continued to be 5th in ball clay and masonry cement production, remained 2d in the production of dimension stone and 15th in the production of construction sand and gravel. The State's rank decreased to 11th from 10th in the production of portland cement and also decreased from 9th to 8th in the production of lime. Indiana accounted for 24% of total raw steel production out of the total U.S. production of 98 million metric tons (Mt).

The following narrative information was provided by the Indiana Geological Survey (IGS).

Employment

An average of 3,500 individuals were employed in Indiana's industrial nonfuel sector during 2007, according to figures released by the U.S. Department of Labor, Mine Safety and Health Administration (MSHA). This represented a decrease of less than 1% from 2006 employment levels.

Commodity Review

Industrial Minerals

Cement.—Lehigh Cement Company announced a $400 million plan to expand and make technological improvements to its plant at Mitchell in Lawrence County (Lehigh Cement Company and Portland Cement Association, 2007). Production was expected to triple even though the number of kilns was reduced from three to one. The new plant would be more energy efficient with a reduction of emissions.

Clay and Shale.—Boral Bricks, Inc. began brick production in Vigo County. Brampton Brick, Ltd. was building a $44 million brick manufacturing plant in Sullivan County and planned to build a clay mine on the property. General Shale was expanding its Mooresville plant. Production was expected to double and the plant was expected to rank third nationally in the production of shale among General Shale's plants. Hydraulic Press Brick Company in Morgan County received local zoning board approval to expand its shale mining operation onto 14 hectares (ha) west of the current mine. Hydraulic Press Brick produced an expanded shale product called Haydite that was used as lightweight aggregate. Knies Construction, Inc. received a MSHA mine identification number for its Unimin Pit in Dubois County. The company performs contract mining for the Unimin Corp. that processes clay at a plant in Huntingburg.

Sand and Gravel, Construction.—Three new sand and gravel companies were operated by yearend. The new producers were D & H Gravel in Warren County, Beaver Gravel Corp. at its Strawtown pit, in Hamilton County, and McGuire Excavating & Trucking in Vigo County. Five pits changed hands in 2007. Huntington Ready Mix, Inc. and owner of H & W Sand & Gravel became Knecht Excavating doing business as Star Excavating, Star Materials in Huntington County; Rockmakers LLC, MRI Sand & Gravel became Martinsville Rockmakers, Inc. in Morgan County; Siders & Son Gravel became Chuck Shane Gravel in Wabash County; and Wilson Excavating Lyon Pit became Fremont Sand & Gravel, LLC in Steuben County. Chuck Shane closed but planned to reopen for large contract jobs only. S & G Excavating, Inc. in Vigo County began acquisition of Dennis Trucking Plant No. 2. Numerous sand and gravel pits closed during 2007. The closed pits included Aggregate Resources, Inc.'s Waverly plant in Morgan County; Canyon Sand & Gravel, Inc. in Allen County; Carey Realty Company, Inc. in Kosciusko County (The company was looking for someone to purchase this property); Elda Corp.'s Cook Gravel plant in Madison County; Huntington Ready Mix, Inc.'s Peru Sand & Gravel in Miami County; Rogers Group, Inc. in

Greene County; U.S. Aggregates, Inc.'s Noblesville Northeast plant in Hamilton County; and Vulcan Materials Company's Eagle Creek Sand & Gravel in Lake County. U.S. Aggregates, Inc. closed its Richmond Plant #2 in Wayne County and moved the equipment and production back to its original Richmond location. Plainfield Ready Mix, Patriot Materials, in Morgan County was acquired by Aggregate Resources, Inc., and then closed; Indiana Group Services, LLC attempted to obtain a zoning change for a mine in Lake County, but the request was denied.

Stone, Crushed.—The Indiana Mineral Aggregates Association had several member companies that experienced slow growth in 2007, and they were expecting similar results for 2008. West Plains Mining, LLC began operations at its Kentner Creek crushed stone mine and agricultural lime plant in Wabash County. The Mississippi Lime Company, under the name Synergy, began the process of obtaining permits for a mine and lime plant at Monon in Wabash County. The lime from this operation was expected to be used as scrubber stone for coal-fired electric power companies and chemical and steel operations in the area. The Ohio River Group, a coal brokering company and other companies, were planning to develop a quarry in Putnam County for production of scrubber stone and construction aggregates. The Hanson Aggregates Mideast Region, Inc.'s Atkins Quarry in Clark County reopened in 2007. A German company, HeidelbergCement AG, acquired the United Kingdom Company Hanson Plc. About 20 Hanson aggregate operations would probably be affected, but it was not known to what extent. HeidelbergCement AG also operated the Lehigh Portland Cement Company plant at Mitchell in Lawrence County. Carmeuse North America acquired Oglebay Norton yearend. This affected one ground-limestone operation in Porter County. Carmeuse operated a lime operation in Lake County. Limestone was imported from Michigan by a lake freighter for both of these operations.

Stone, Dimension.—The general downturn in the economy that began in the fourth quarter did not affect the dimension limestone industry, because new contracts continued to be written. No new dimension stone quarries opened in 2007. Indiana Limestone Company, Inc. did not use its Crown quarry in Monroe County and moved production to its Empire quarry. The Empire quarry was located in its PM & B Quarry complex near Bedford in Lawrence County. In 1931, stone was excavated for the Empire State Building in New York City from that complex of quarries. C. & H. Stone Co. Inc. closed its C. & H. quarry in Monroe County and was engaged only in stone fabrication. Indiana companies produced dimension sandstone in Brown, Parke, and Spencer Counties.

Metals

Aluminum.—Alcoa Corp.'s plant in Warrick County began installation of $400 million in scrubbers for all four units, with a planned completion date of November 2008. Alcoa gained the Indiana Finance Authority's approval to seek tax-exempt financing of $30 million for the project and developed a new site to dispose of coal ash and gypsum—a byproduct of the scrubber system, in an old strip mine on company property. Some gypsum was sold to wallboard companies. Alcoa installed lithographic cleaning line equipment that produced lithographic sheet aluminum. Alcoa was considered for two separate takeover bids of $40 billion each by BHP Billiton, Ltd. and Rio Tinto, Plc. Following this, Alcoa's stock prices rose by 6%. Alcoa offered to sell their Indiana packaging headquarters in Marion County, four packaging plants in Montgomery County, and an automotive castings plant in DeKalb County.

Steel.—Mittal Steel USA changed its name to ArcelorMittal USA. The company completed the expansion of the USA Research and Development Center at East Chicago. The center was to be the primary research facility for the company in the United States. ArcelorMittal may build an additional facility where they would be able to simulate most of the company's steel-making operations. The company planned capital improvement projects of $15 million for the Indiana Harbor mill and $11 million for the Burns Harbor mill. The Indiana Harbor mill was to connect the temper mill to the galvanizing line, eliminating the need to physically move steel coils from one line to another. The Burns Harbor mill was to upgrade a continuous annealing line, and improve the welder, furnace, and cooling process. In the continuous annealing line, steel coils were to be welded end to end. Higher strength steel would be created so that additional products could probably be produced. All the improvements made at the two mills were expected to boost the company's U.S. production of advanced high strength steel to about 900,000 metric tons per year (t/yr). Other ArcelorMittal mills in the United States also received capital improvement funds. Owing to the increased market demand, the company made plans to reopen a plate mill at U.S. Steel Gary Works, which it acquired when it purchased the International Steel Group, Inc. (ISG). ISG's tin mill called West Plate had been idle for many years and will cost about $35 million to reopen. ISG planned to open a new 30-ha lined landfill for sludge at the Burns Harbor site to improve the environment. In February, a bustle pipe ruptured on Burns Harbor blast furnace C, caused by water in the pipe. The furnace was restarted one week later and it ejected hot metal, injuring one person. In April, furnace C was shut down for maintenance. There were seven people injured at the site in August, when steel that was too hot erupted into flames as it was poured, spewing molten metal. A complete relining was scheduled for the C and D furnaces and at Indiana Harbor within 2 years. ArcelorMittal did not plan to restart a blast furnace that had been idle at Indiana Harbor since 2006 until there is sufficient demand for steel. ArcelorMittal made a commitment to reduce mercury in the environment by taking steps to reduce the purchase of scrap metal from companies that do not remove mercury switches.

In January, U.S. Steel Corp. reported profits of $1.37 billion in 2006, a 50.5% increase from the $910 million reported for 2005 (U.S. Steel Corp., 2007). Two blast furnaces at Gary Works remained idle because of decreased demand for steel. A state-issued water permit was up for renewal for Gary Works, but it faced intense scrutiny from the U.S. Environmental Protection Agency (EPA). EPA sought to impose more stringent requirements. A public hearing on this permit was held in December. Tours of Gary Works may be offered to stimulate tourism in the Gary area.

Steel Dynamics reported record earnings for all Indiana steel mills. The company made $35 million in improvements to its Pittsboro Engineered Bar Products Division in Hendricks County. Steel Dynamics was expected to increase production from 450,000 t/yr to 660,000 t/yr of special bar quality round bars ranging from 25 millimeters (mm) to 229 mm in diameter. A $200 million rolling mill was being built at the Columbia City site for structural steel and was expected to be completed in 2008. A $75 million caster was to be added to the Columbia City mill to increase quantities produced of semifinished steel. Production capacity was expected to increase to 900,000 t/yr at each of the two rolling mills. The first shipments were made of rail from a new Steel Dynamics rail-welding facility at Columbia City. Rails up to 0.5 kilometers (km) long can be produced at the Columbia City facility. A second paint line was added to the galvanized steel plant in Jeffersonville, and corrosion-resistant steel was also produced there. Steel Dynamics acquired OmniSource Corp., a scrap recycling company based in Fort Wayne, and was to consolidate Steel Dynamics's current scrap operations into OmniSource Corp. The company was to continue to obtain scrap from other sources and to sell scrap from OmniSource Corp. to other companies. Steel Dynamics in association with Kobe Steel, Ltd. proceeded with construction of Mesabi Nugget Delaware, LLC, an iron nugget facility. Most of the nuggets, which are a very high-iron-content feed, were to be used at minimills owned by Steel Dynamics, mainly in Indiana. An additional advantage of nuggets is that the blast furnace stage of steel production is eliminated. Steel Dynamics purchased land with an inactive iron mine in Minnesota to supply material for the Mesabi facility. A facility to concentrate the iron ore will be constructed there. The company issued a press release stating that it was not planning to participate in any industry consolidation activity (Steel Dynamics, Inc., 2007).

During 2007, steel production at Nucor Corp. decreased by 1% from the 20 Mt produced in 2006. Although the company acquired several companies outside the State of Indiana, very little development took place within the State in 2007. In 2007, the Crawfordsville mill was also producing a Type 9 electrical steel that could be used in transformers and industrial motors. Montgomery County continued to try to bring in development along the Nucor Road Industrial Corridor.

Government Programs and Awards

The Indiana Department of Transportation (INDOT) agency and the Federal Highway Administration released the final environmental impact statement for Section 1 of the I–69 project that runs from I–64 north of Evansville in Vanderburgh County to SR 64 at Oakland City in Gibson County. A lawsuit to block new terrain construction on the project was dismissed and groundbreaking on that project is expected in 2008. INDOT instituted an internet bidding process for select highway construction contracts, using a bidding service used in 29 other States.

Lehigh's Mitchell plant received the Portland Cement Association Safety Innovation Award in the quarry category for instituting a policy that improved blasting safety at the quarry. The plant also received an award in the pyroprocessing category for installation of a retractable guardrail to prevent falls into a hopper and conveyor system. The retractable guardrail allows trucks full access to the area. The Buzzi Unicem USA, Inc. plant at Greencastle received an award in the general facility category for making adaptations to an automotive wrench that allows repairs to the crusher rotor area to be made much faster, easier, and safer. Rogers Group, Inc.'s Morgan County Sand and Gravel in Morgan County and Vulcan Materials Company's Daugherty Sand & Gravel and Swisher Sand and Gravel, both in Tippecanoe County, received the About Face Program Showplace Awards from the National Stone, Sand & Gravel Association. Morgan also received the Excellence in Community Relations Award. The National Stone, Sand and Gravel Association granted several national Awards For Excellence to Indiana crushed stone producers: Rogers Group, Inc., Bloomington Crushed Stone in Monroe County won an About Face Showplace Award and an Excellence in Community Relations Award; that company's Newton County Quarry won an About Face Outstanding Achievement Award and an Excellence in Community Relations Award; Hanson Aggregates Mideast, Inc., Atkins Quarry in Clark County won an Excellence in Community Relations Award; and the company's Aggrock Quarry in Clark County won an Environmental Excellence Bronze Award.

The IGS released two publications of interest to the industrial minerals industry during 2007. These publications included the Proceedings of the 40th Forum on the Geology of Industrial Minerals (Shaffer and DeChurch, 2007), and a Map Showing Industrial Minerals Operations and Carbonate Regions Affected by Solution Features in Illinois, Indiana, Kentucky, and Ohio (Shaffer and others, 2007). The National Minerals Education Conference was cohosted by the IGS and the Indiana Mineral Aggregates Association (IMAA). A CD-ROM of the conference's presentations are available from the IGS or the IMAA.

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TABLE 1

NONFUEL RAW MINERAL PRODUCTION IN INDIANA[1, 2]

(Thousand metric tons and thousand dollars)

Mineral	2005		2006		2007	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	3,060	243,000 e	3,030	267,000 e	2,980	263,000 e
Clays, common	809	13,500	779	16,400	624	13,100
Gemstones, natural	NA	4	NA	4	NA	4
Sand and gravel, construction	28,400	135,000	29,300	153,000	28,100	153,000
Stone:						
Crushed	58,900	321,000	59,300 r	352,000 r	57,600	387,000
Dimension	240	46,300	233	39,000	236	37,800
Combined values of cement (masonry), clays (ball), gypsum (crude), lime, peat, sand and gravel (industrial)	XX	135,000	XX	159,000 r	XX	137,000
Total	XX	894,000 r	XX	986,000 r	XX	991,000

eEstimated. rRevised. NA Not available. 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.

TABLE 2

INDIANA: CRUSHED STONE SOLD OR USED, BY TYPE[1]

Type	2006			2007		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone[2]	76 r	52,000 r	$298,000 r	76	50,900	$333,000
Dolomite	16	7,320	54,100	17	6,720	53,700
Total	XX	59,300 r	352,000 r	XX	57,600	387,000

rRevised. XX Not applicable.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes limestone-dolomite reported with no distinction between the two.

TABLE 3

INDIANA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2007, BY USE[1]

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Macadam	W	W
Riprap and jetty stone	275	2,430
Filter stone	101	787
Other coarse aggregate	1,910	7,970
Coarse aggregate, graded:		
Concrete aggregate, coarse	2,080	18,800
Bituminous aggregate, coarse	1,120	9,870
Bituminous surface-treatment aggregate	1,210	10,700
Railroad ballast	W	W
Other graded coarse aggregate	5,800	28,200
Fine aggregate (-⅜ inch):		
Stone sand, concrete	W	W
Stone sand, bituminous mix or seal	161	947
Screening, undesignated	306	1,090
Other fine aggregate	2,260	9,190
Coarse and fine aggregates:		
Graded road base or subbase	3,830	25,900
Unpaved road surfacing	413	3,100
Crusher run or fill or waste	485	1,900
Other coarse and fine aggregates	5,260	31,300
Other construction materials	34	342
Agricultural:		
Limestone	1,090	5,600
Poultry grit and mineral food	W	W
Other agricultural uses	3	17
Chemical and metallurgical:		
Cement manufacture	4,450	23,300
Lime manufacture	W	W
Flux stone	W	W
Sulfur oxide removal	W	W
Special, whiting or whiting substitute	W	W
Other miscellaneous uses and specified uses not listed	5	27
Unspecified:[2]		
Reported	17,800	154,000
Estimated	5,900	38,000
Total	57,600	387,000

W Withheld to avoid disclosing company proprietary data; included in "Total."

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Reported and estimated production without a breakdown by end use.

TABLE 4
INDIANA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2007, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1½ inch)[2]	531	3,420	W	W	W	W
Coarse aggregate, graded[3]	W	W	W	W	4,620	22,000
Fine aggregate (-⅜ inch)[4]	1,020	5,180	W	W	W	W
Coarse and fine aggregates[5]	2,130	12,900	2,540	17,600	5,320	31,800
Other construction materials	--	--	34	342	--	--
Agricultural[6]	W	W	236	1,350	407	1,800
Chemical and metallurgical[7]	W	W	W	W	4,400	17,300
Special[8]	--	--	--	--	W	W
Other miscellaneous uses	5	27	--	--	--	--
Unspecified:[9]						
Reported	4,960	42,700	8,740	77,400	4,130	33,500
Estimated	1,800	12,000	701	4,600	3,400	22,000
Total	15,800	115,000	16,300	131,000	25,500	140,000

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.

[3]Includes bituminous aggregate (coarse), bituminous surface-treatment aggregate, concrete aggregate (coarse), railroad ballast, and other graded coarse aggregate.

[4]Includes stone sand (bituminous mix or seal), stone sand (concrete), screening (undesignated), and other fine aggregate.

[5]Includes crusher run or fill or waste, graded road base or subbase, unpaved road surfacing, and other coarse and fine aggregates.

[6]Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

[7]Includes cement and lime manufacture, flux stone, and sulfur oxide removal.

[8]Includes whiting or whiting substitute.

[9]Reported and estimated production without a breakdown by end use.

TABLE 5
INDIANA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2007,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	8,000	$42,800	$5.34
Plaster and gunite sands	48	571	11.90
Concrete products (blocks, bricks, pipe, decorative, etc.)	115	1,040	9.04
Asphaltic concrete aggregates and other bituminous mixtures	1,970	10,700	5.43
Road base and coverings[2]	1,830	13,200	7.24
Fill	2,700	13,200	4.91
Snow and ice control	501	1,830	3.64
Other miscellaneous uses[3]	364	1,670	4.57
Unspecified:[4]			
Reported	3,300	21,400	6.51
Estimated	9,320	46,300	4.97
Total or average	28,100	153,000	5.43

[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

[2]Includes road and other stabilization (lime).

[3]Includes filtration, golf course, and railroad ballast.

[4]Reported and estimated production without a breakdown by end use.

TABLE 6

INDIANA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2007, 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]	1,920	7,680	3,100	19,900	3,150	16,800
Asphaltic concrete aggregates and road base materials[3]	1,190	6,840	1,810	12,400	796	4,710
Fill	360	1,520	2,190	10,900	150	790
Other miscellaneous uses[4]	226	776	615	2,610	24	104
Unspecified:[5]						
Reported	652	4,210	2,640	17,200	--	--
Estimated	1,540	7,870	3,860	19,800	3,930	18,700
Total	5,880	28,900	14,200	82,800	8,040	41,100

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes plaster and gunite sands.
[3]Includes road and other stabilization (lime).
[4]Includes filtration, golf course, railroad ballast, and snow and ice control.
[5]Reported and estimated production without a breakdown by end use.