

THE MINERAL INDUSTRY OF ILLINOIS

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

In 1999, the preliminary estimated value¹ of nonfuel mineral production for Illinois was \$945 million, according to the U.S. Geological Survey (USGS). This was an 8% increase from that of 1998,² and followed a 5.5% increase from 1997 to 1998. The State remained 17th in rank among the 50 States in total nonfuel mineral production value, of which Illinois accounted for nearly 2.5% of the U.S. total.

All of Illinois' total nonfuel mineral production value in 1999 resulted from the production of industrial minerals; no metals have been produced from mines in the State since 1996, when small quantities of copper, lead, silver, and zinc were produced. Crushed stone, by value, was the State's leading commodity, accounting for about 45% of the total, followed by portland cement with almost 23%, and construction sand and gravel with about 17%. In 1999, most mineral commodities increased in value, led by crushed stone, up \$51 million, and construction sand and gravel and portland cement, up \$6 million each. A substantial increase also occurred in the value of tripoli. Small to marginal decreases occurred in lime, industrial sand and gravel, and fuller's earth (in descending order of change). Gemstones and common clay values were virtually unchanged. In 1998, nearly all minerals increased in value, led by portland cement, crushed stone, and construction sand and gravel. Industrial sand and gravel and lime showed smaller yet significant increases, while gemstones was unchanged (table 1).

Compared with USGS estimates of the quantities of minerals produced in the other 49 States in 1999, Illinois remained first in industrial sand and gravel and first among four States that produce tripoli; third in peat; sixth in fuller's earth; and ninth in portland cement. The State rose to 5th from 6th in crushed stone production, increased to 10th from 11th in lime, and remained a significant producing State for

construction sand and gravel. Raw steel was produced in the State, but it was processed from materials obtained from other domestic and foreign sources. Illinois remained fourth in the Nation in the manufacture of raw steel with an estimated output of 6.3 million metric tons (Mt) (6.9 million short tons), according to the American Iron and Steel Institute.

The following narrative information was provided by the Illinois State Geological Survey³ (ISGS). A comparison of the high rate of growth of crushed stone production with the slower rate of growth of sand and gravel largely reflects the conditions (demand for and the region's geology) that affect aggregate production in the greater Chicago area (northeastern Illinois). Stone production has grown by increasing production at large quarries that operate in the thick, high-quality Silurian-age dolomites that underlie much of the region. Many of these quarries could continue to be highly productive after their Silurian rock is quarried out by going underground and producing large tonnages of high-quality Ordovician-age dolomite, as Conco-Western Stone Co. has done at North Aurora in Kane County. Some companies are interested in finding stone that can be mined underground, instead of opening new quarries far away from the northeastern Illinois markets. As an added benefit, room and pillar mining such as this would generate underground space, potentially very valuable for various types of storage or other uses. Sand and gravel production increases are limited at many pits by the relatively small reserves of high-quality coarse aggregate, compared to the large high-quality stone reserves of many quarries in northeastern Illinois. Sand and gravel pits are usually mined out of coarse-aggregate much faster than are stone quarries. Companies that produce and sell all of the gravel reserves from their mine pits are often left with stockpiles of sand. As the region's construction boom continues, demand is being created for this leftover sand and it has begun to sell.

The recent extensive suburban expansion in northeastern Illinois, where unusually large sand and gravel deposits are located, has resulted in the building-over of many such deposits. In the remaining areas of potential reserves, very few new pits are being opened, mostly due to intense public opposition, greatly limiting the ability to increase production. The ISGS expects production to decline as companies, such as, Material Service Co. (Dundee) and Vulcan Materials Co. (Crystal Lake), close large operations. However, Meyer Material Co. opened a large operation on company land on the south side of Crystal Lake, McHenry County, after many hearings and lawsuits, including an attempt to go before the U.S. Supreme Court.

In north-central Illinois, the Prairie Material Group

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon 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 1999 USGS mineral production data published in this chapter are preliminary estimates as of May 2000 and are expected to change. For some mineral commodities, such as 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 URL <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 URL <http://minerals.usgs.gov/minerals/>; facsimile copies may be obtained from MINES FaxBack.

²Values, percentage calculations, and rankings for 1998 may vary from the Minerals Yearbook, Area Reports: Domestic 1998, Volume II, owing to the revision of preliminary 1998 to final 1998 data. Data for 1999 are preliminary and are expected to change; related rankings may also be subject to change.

³John M. Masters, Geologist, authored the text of State minerals industry information provided by the Illinois State Geological Survey.

purchased Sheely Aggregates' Polo property, Ogle County, located about 12 miles north of Prairies' cement plant at Dixon (Lee County). Prairie is conserving its resources and meeting cement plant specifications by blending stone from an interval of low-magnesium limestone at Polo with high-magnesium dolomite at its Dixon quarry. The company is also economizing by trucking excess sand from east-central Illinois north to the Kankakee area and back-hauling crushed dolomite to stone-poor east-central Illinois.

Also in north-central Illinois, Marseilles Brick Co., La Salle County, has been supplying brick to northeastern Illinois' rapidly expanding construction market for about 10 years. Global Clay Products, LLC of Roswell, GA, purchased the company in 1999 and changed the name to Global Clay Marseilles, LLC. The plant is expected to double production in 2000 to about 125 million bricks per year, when the company's new kiln goes on-line. Increased tonnages of clay and shale will come from the company's adjacent properties.

The Mormon Church announced a plan to rebuild the temple at Nauvoo in Hancock County that was destroyed more than 150 years ago. The plan included using the same local limestone that was used in the original building. However, limestone and dolomite building stone may be shipped in from commercial operations elsewhere, due to the expense of setting up a building stone operation in an aggregate quarry or in the nearby limestone bluffs of the Mississippi River Valley, where the old building stone quarries were located.

Although fluorspar is no longer mined commercially in southeasternmost Illinois, Hastie Mining and Trucking Co., a quarry company in Hardin County, continues to operate the mineral drying and bagging facilities in Rosiclare that it purchased from Elf Atochem North America Inc. in 1998. The company processes fluorspar purchased from the National Defense Stockpile for resale.

Exploration

Few mineral test-drilling permits and plugging affidavits were recorded with the Illinois' Office of Mines and Minerals in 1998 and 1999. In the portion of Pulaski County that is generally underlain by the Porters Creek clay, exploration for absorbent clay resources continued. In northeastern Illinois, some exploration drilling was conducted for sand and gravel and dolomite resources. Whenever possible, aggregate producers have been expanding their reserves by acquiring land adjacent to existing operations or by buying smaller operations, rather than by exploring for new mine sites. As

previously described, some companies are looking below their surface operations for underground reserves. More companies are bringing in aggregates from operations that are distant from their market areas.

Interest in mineral exploration in the Shawnee National Forest continued. Work continues on applications for the renewal of two prospecting permits for fluorspar in Hardin County and on applications for four prospecting permits for base metals in Alexander County.

Government Actions

According to the ISGS, the Illinois Department of Transportation's plan to expand the current Aggregate Gradation Control System (AGCS) will affect most aggregate producers. Aggregate producers are responsible for gradation control testing of coarse and fine aggregates as well as manufactured sand that is used in portland cement concrete and higher quality hot-mix asphalt layers. The planned expansion of AGCS will require producers to test gradations of all aggregate products that are used in all other asphaltic and portland cement mixtures, chip seals, and other size-graded aggregates that are used in their unbound state. Full implementation of the expanded system is scheduled for July 1, 2001.

On May 4, 1999, the Governor announced the enactment of the Illinois Fund for Infrastructure, Roads, Schools, and Transit (Illinois FIRST) by the Illinois General Assembly. The sweeping \$12 billion, 5-year program targets replacing badly deteriorated bridges and roads, building new roads and bridges, constructing new classroom space, remodeling aging schools, and upgrading water and sewer systems. These and other targets of Illinois FIRST are expected to significantly increase the demand for construction aggregates in Illinois.

On August 13, 1999, the Illinois Department of Revenue published final rules that clarify the State tax exemption law (previously enacted November 14, 1997) as it affects industrial minerals operations in Illinois.

Many industrial minerals operations qualify for the Illinois Environmental Protection Agency, Bureau of Air's, new "lifetime operating permit," which is available to any permitted operation that produces no more than 11 Mt (12 million short tons) of material per year. The annual fee remained at \$100, and operators must comply with all requirements of the State's new Source Performance Standards, 40 CFR 60 Subpart OOO.

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

(Thousand metric tons and thousand dollars)

Mineral	1997		1998		1999 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement: Portland	2,590	186,000 e/	2,690	207,000 e/	2,760	213,000 e/
Clays: Common	100	533	123	560	126	556
Gemstones	NA	8	NA	8	NA	8
Sand and gravel:						
Construction	33,400	143,000	34,100	150,000	34,800	156,000
Industrial	4,610	67,900	4,580	71,100	4,740	70,400
Stone: Crushed	65,700	357,000	72,100 3/	371,000 3/	80,000 3/	422,000 3/
Combined values of clays (fuller's earth), lime, peat, stone [crushed sandstone (1998-99), zinc (1997)], tripoli	XX	73,600	XX	75,400	XX	82,700
Total	XX	829,000	XX	875,000	XX	945,000

e/ Estimated. p/ Preliminary. 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 no more than three significant digits; may not add to totals shown.

3/ Excludes certain stones; value included with "Combined values" data.

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

Kind	1997				1998			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone 2/	123 r/	50,900 r/	\$278,000 r/	\$5.45 r/	129	55,100	\$291,000	\$5.28
Dolomite	25 r/	14,800 r/	79,800 r/	5.38 r/	20	17,000	79,800	4.70
Sandstone	--	--	--	--	1	W	W	W
Total or average	XX	65,700	357,000	5.44	XX	72,100	371,000	5.14

r/ Revised. W Withheld to avoid disclosing company proprietary data. -- Zero.

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
ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 1998, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	1,500	\$8,730	\$5.84
Riprap and jetty stone	439	3,620	8.25
Filter stone	478	2,200	4.61
Other coarse aggregate	367	1,860	5.06
Coarse aggregate, graded:			
Concrete aggregate, coarse	5,700	32,800	5.76
Bituminous aggregate, coarse	5,030	32,700	6.50
Bituminous surface-treatment aggregate	1,480	9,030	6.10
Railroad ballast	505	2,930	5.79
Other graded coarse aggregate	1,030	5,540	5.37
Fine aggregate (-3/8 inch):			
Stone sand, concrete	607	2,600	4.29
Stone sand, bituminous mix or seal	W	W	4.64
Screening, undesignated	1,250	4,690	3.75
Other fine aggregate	W	W	5.33
Coarse and fine aggregates:			
Graded road base or subbase	11,200	55,700	4.99
Unpaved road surfacing	2,020	9,490	4.69
Terrazzo and exposed aggregate	20	79	3.93
Crusher run or fill or waste	488	2,320	4.76
Other coarse and fine aggregates	1,760	7,690	4.37
Other construction materials	955	5,670	5.94
Agricultural:			
Agricultural limestone	2,040	8,560	4.19
Poultry grit and mineral food	W	W	12.84
Other agricultural uses	W	W	4.05
Chemical and metallurgical:			
Cement manufacture	2,510	9,930	3.96
Sulfur oxide removal	W	W	9.74
Special: Other fillers or extenders	W	W	W
Other miscellaneous uses: Other specified uses not listed	W	W	W
Unspecified: 3/			
Actual	24,700	111,000	4.51
Estimated	7,200	36,000	5.00
Total or average	72,100	371,000	5.14

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

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

2/ Includes dolomite, limestone, and limestone-dolomite; excludes sandstone to avoid disclosing company proprietary data.

3/ Reported and estimated production without a breakdown by end use.

TABLE 4
ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1998, BY USE AND DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) 3/	1,540	9,520	84	492	642	3,930	509	2,480
Coarse aggregate, graded 4/	7,580	50,100	W	W	3,340	19,600	W	W
Fine aggregate (-3/8 inch) 5/	1,330	5,320	6	23	596	2,460	257	1,080
Coarse and fine aggregate 6/	8,850	43,900	555	2,820	3,450	17,200	2,600	11,300
Other construction materials	838	5,000	5	18	W	W	W	W
Agricultural 7/	413	1,430	167	1,090	W	W	906	2,810
Chemical and metallurgical 8/	W	W	--	--	1,770	6,790	W	W
Special 9/	--	--	W	W	--	--	--	--
Other miscellaneous uses	W	W	--	--	--	--	--	--
Unspecified: 10/								
Actual	14,100	64,000	2,710	12,000	1,220	5,380	6,660	29,900
Estimated	3,030	15,000	1,860	9,780	1,130	5,570	1,180	6,180
Total	38,400	198,000	5,920	41,100	12,800	64,600	15,000	67,400

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 dolomite, limestone, and limestone-dolomite; excludes sandstone to avoid disclosing company proprietary data.

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, terrazzo and exposed aggregates, unpaved road surfacing, crusher run (select material or fill), and other coarse and fine aggregates.

7/ Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

8/ Includes cement manufacture and sulfur oxide removal.

9/ Includes other fillers or extenders.

10/ Reported and estimated production without a breakdown by end use.

TABLE 5
ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate	5,470	\$22,700	\$4.15
Plaster and gunite sands	391	1,800	4.60
Concrete products (blocks, bricks, pipe, decorative, etc.)	1,010	5,300	5.23
Asphaltic concrete aggregates and other bituminous mixtures	1,250	4,780	3.82
Road base and coverings 2/	3,380	18,100	5.34
Fill	2,830	9,680	3.43
Snow and ice control	88	437	4.97
Other miscellaneous uses 3/	79	442	5.59
Unspecified: 4/			
Actual	10,000	42,700	4.27
Estimated	9,590	44,000	4.59
Total or average	34,100	150,000	4.40

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

2/ Includes road and other stabilization (cement).

3/ Includes filtration, railroad ballast, roofing granules, and snow and ice control.

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

TABLE 6
ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate	3,000	12,900	404	2,560	1,700	6,300	376	970
Concrete products (blocks, bricks, pipe, decorative, etc.) 2/	1,030	5,260	W	W	319	1,600	W	W
Asphaltic concrete aggregates and other bituminous mixtures	820	3,190	W	W	353	1,390	W	W
Road base and coverings 3/	2,050	11,700	184	1,120	817	4,030	328	1,220
Snow and ice control	75	356	W	W	11	74	W	W
Other miscellaneous uses 4/	1,640	6,060	549	1,450	544	2,130	177	482
Unspecified: 5/	12,000	56,100	2,890	12,500	2,850	10,000	1,890	8,080
Total	20,600	95,600	4,070	17,800	6,590	25,600	2,870	11,000

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/ Includes plaster and gunite sands.

3/ Includes road and other stabilization (cement).

4/ Includes fill, filtration, railroad ballast, and roofing granules.

5/ Reported and estimated production without a breakdown by end use.