

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 1998, the preliminary estimated value¹ of nonfuel mineral production for Illinois was \$862 million, according to the U.S. Geological Survey (USGS). This was about a 4% increase from that of 1997,² and followed a 2% decrease from 1996 to 1997. The State rose to 17th from 18th in rank among the 50 States in total nonfuel mineral production value, of which Illinois accounted for more than 2% of the U.S. total.

All of Illinois' total nonfuel mineral production value in 1998 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 44% of the total, followed by portland cement with 23%, and construction sand and gravel with about 17%. In 1998, nearly all mineral commodities increased in value, led by crushed stone up \$19 million, portland cement up \$12 million, fuller's earth and tripoli, up a combined \$13 million, and construction and industrial sand and gravel, up a combined \$10 million (table 1). Gemstones and peat values were unchanged. In 1997, decreases in the values of crushed stone, fuller's earth, and lime accounted for most of the State's drop in value. Only portland cement and industrial sand and gravel showed increases in value for the year (table 1).

Compared with USGS estimates of the quantities of minerals produced in the other 49 States in 1998, Illinois remained first² in industrial sand and gravel and tripoli, eighth in crushed stone, and ninth in construction sand and gravel and portland cement. The State rose to third from fourth in peat, dropped to fifth from fourth in fuller's earth, and remained a significant lime-producing State. 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 6.7 million metric tons (7.4 million short tons), according to the American Iron and Steel Institute.

The following narrative information was provided by the Illinois State Geological Survey.³ Industrial mineral production in Illinois overall continued to increase in 1998, as did the tendency of crushed stone production to increase faster than that of construction sand and gravel. Production of portland cement, common clay, industrial sand (quartz), lime, and tripoli also increased, while fuller's earth and peat showed decreases.

Vulcan Materials Co. successfully expanded in a new venture of using unit trains (trains carrying only one company's products) to transport crushed stone products from quarries to rail yard distribution centers in the appropriate market areas. The company established a distribution center at a rail yard in Champaign County; unit trains from Kankakee County supply it with crushed stone for the busy construction industry in east-central Illinois. Unit train product transport is proving to be economical and reduces the road hauling of aggregates, which is one of the main objections to the mining of stone and sand and gravel in the State.

The unit train idea is not new, it was a common way to transport aggregates before heavy-duty highways and high-capacity trucks were developed. Many companies in bordering States have been shipping aggregates by truck and train into Illinois for years, although transportation of aggregates by water into Illinois is much less common. Exceptions include crushed stone shipped in by barge from Vulcan's huge Reed Quarry in western Kentucky, and crushed stone shipped by lake freighter to Chicago, IL, from Michigan Limestone's Rogers City Quarry, located in Michigan on the coast of Lake Huron.

Vulcan Materials also expanded its market area in far southern Illinois with the purchase of two crushed stone (limestone) quarries from Columbia Quarry Co. They are the Jonesboro Quarry in Union Co. and the Cypress Quarry in Johnson Co. In central Illinois' Macon County, Vulcan closed one sand and gravel operation and reopened a recently acquired site, resulting in the replacement of lost production without the expense of opening a new extraction site.

In McLean County (central Illinois), Stark Materials Inc. was able to open a large sand and gravel pit southwest of Bloomington after favorable votes from the County Zoning Board of Appeals and the County Board. Twenty-two hearings over a period of 1 year were necessary for the company and county to resolve many issues concerning the 310-hectare site. The main issues were preservation of farm land, road safety, and groundwater contamination. A major consideration was the area's significant need for aggregates and the fact that one large pit consumes less farm land than

¹The 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>; facsimile copies may be obtained from MINES FaxBack.

²Values, 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.

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

many small ones. Stark Material's pit will be a dredge operation that will not discharge water off site. The company will have groundwater monitoring wells installed and have water samples collected and tested quarterly and will upgrade and maintain county access roads. The pit is expected to supply aggregates for more than 20 years to the local construction industry at competitive prices.

Southernmost Illinois' absorbent clay mining industry was cut back when Golden Cat Corp. closed its mine, processing, packaging, and storage facilities in Olmsted, Pulaski County. From the 1920's into the 40's, the highly absorbent Paleocene-age Porters Creek clay was mined near Olmsted by Standard Oil Co. of Indiana and Sinclair Oil Corp. principally to remove contaminants and clarify oil products. Other uses included that of a sweeping compound to soak-up oil and water from service-station garage floors. Lowe's Southern Clay, Inc. acquired the old Olmsted clay properties and resumed mining in 1958, at which time the company founder developed the idea of using the absorbent clay instead of sand in cat litter boxes. The product was marketed under commonly heard trade names like "Kitty Litter" and "Tidy Cat." After the operation was sold twice in the 1990's, the current owner, Ralston Purina Co. of St. Louis, MO, decided to close because they could meet their market demand more efficiently with the company's operations elsewhere.

Oil-Dri Corporation of America purchased the only remaining absorbent clay company in the State from American Colloid Corp. Oil-Dry operates the mine, which is also near Olmsted, but trucks the clay about 13 kilometers to processing and shipping facilities in Mounds City.

Exploration

Limited mineral test drilling was recorded with the Illinois Office of Mines and Minerals in 1998. Exploration continued for additional absorbent clay resources in the portion of Pulaski County generally underlain by the Porters Creek clay.

In northeastern Illinois, some exploration drilling was conducted for dolomite resources. When possible, aggregate producers have been expanding reserves by acquiring land adjacent to existing operations or buying smaller operations rather than exploring for new mine sites.

Government Actions

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

Reclamation

A booming construction industry in northeastern Illinois has created a high demand for imaginative uses of past and present aggregate extraction sites. Lake County Grading, Inc., which recently closed its sand and gravel pit north of Libertyville, was a good example of community-conscious reclamation work. The company helped the Lake County Forest Preserve convert the site into a multi-use park with a state-of-the-art recreation center. Another example of current reclamation efforts is that of the transformation of a long-closed sand and gravel pit, north of Plainfield in Will County. At that location, a beautiful lake will soon be surrounded by an assortment of large homes and town houses. One highlight of this development is a traditional-style covered bridge, built to current bridge construction codes.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement: Portland	2,620	181,000 e/	2,590	186,000 e/	2,690	198,000
Clays:						
Common	155 r/	736	100	533	102	544
Fuller's earth	330	W	W	W	W	W
Fluorspar metric tons	8,180	W	--	--	--	--
Gemstones	NA	890	NA	8	NA	8
Sand and gravel:						
Construction	34,600	144,000	33,400	143,000	33,800	149,000
Industrial	4,460	66,400	4,610	67,900	4,870	71,500
Stone: Crushed	66,500	364,000	65,700	357,000	68,300	376,000
Combined values of copper (1996), lead (1996), lime, peat, silver (1996), tripoli (1996-97), zinc (1996), and values indicated by symbol W	XX	89,100	XX	73,600	XX	67,100
Total	XX	846,000	XX	829,000	XX	862,000

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with 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.

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

Kind	1996				1997			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone 2/	127	57.700	\$319.000	\$5.52	125	56.900	\$312.000	\$5.48
Dolomite	19	8.800	45.000	5.11	23	8.850	45.500	5.14
Total	XX	66.500	364.000	5.47	XX	65.700	357.000	5.44

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.

TABLE 3
ILLINOIS: 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	841	\$4.960	\$5.90
Riprap and jetty stone	342	2.840	8.30
Filter stone	95	428	4.51
Other coarse aggregate	344	1.820	5.30
Coarse aggregate, graded:			
Concrete aggregate, coarse	5,830	32.900	5.65
Bituminous aggregate, coarse	4,850	31.300	6.46
Bituminous surface-treatment aggregate	1,100	6.730	6.15
Railroad ballast	581	3.290	5.66
Other graded coarse aggregate	723	3.930	5.44
Fine aggregate (-3/8 inch):			
Stone sand, bituminous mix or seal	254	1.150	4.54
Screening, undesignated	982	3.410	3.47
Other fine aggregate 3/	600	2.520	4.20
Coarse and fine aggregates:			
Graded road base or subbase	9,040	42.600	4.71
Unpaved road surfacing	2,600	12.400	4.77
Crusher run or fill or waste	312	1.510	4.85
Other coarse and fine aggregates	1,680	8.170	4.86
Other construction materials	68	349	5.13
Agricultural:			
Agricultural limestone	2,200	8,980	4.08
Poultry grit and mineral food	40	528	13.20
Other agricultural uses	10	35	3.50
Chemical and metallurgical:			
Cement manufacture	2,470	10,400	4.20
Flux stone	W	W	5.26
Sulfur oxide removal	W	W	8.90
Special:			
Mine dusting or acid water treatment	16	180	11.25
Asphalt fillers or extenders	36	362	10.06
Whiting or whiting substitute	1	24	24.00
Other fillers or extenders	W	W	5.76
Unspecified: 4/			
Actual	21,900	124,000	5.66
Estimated	8,380	49,900	5.95
Total	65,700	357,000	5.44

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

1/ Includes dolomite, limestone, and limestone-dolomite.

2/ Data are rounded to three significant digits, except unit value; may not add to totals shown.

3/ Includes stone sand (concrete).

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

TABLE 4
ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1997, 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
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) 2/	W	W	103	813	160	1,090	461	2,530
Coarse aggregate, graded 3/	W	W	159	946	W	W	2,730	14,300
Fine aggregate (-3/8 inch) 4/	W	W	(5/)	(5/)	W	W	146	702
Coarse and fine aggregate 6/	7,330	35,000	523	2,820	2,500	11,600	3,270	15,200
Other construction materials	9,490	56,700	--	--	3,330	18,500	--	--
Agricultural 7/	526	1,730	220	1,040	692	3,790	(5/)	(5/)
Chemical and metallurgical 8/	(5/)	(5/)	--	--	(5/)	(5/)	(5/)	(5/)
Special 9/	--	--	(5/)	(5/)	(5/)	(5/)	--	--
Unspecified: 10/								
Actual	(5/)	(5/)	(5/)	(5/)	(5/)	(5/)	(5/)	(5/)
Estimated	3,450	18,600	1,970	14,600	1,680	9,670	1,280	7,080
Total	33,100	179,000	6,280	41,900	12,500	68,600	13,900	68,200

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

1/ Data are rounded to three significant digits; may not add to totals shown.

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

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

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

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

6/ Includes graded road base or subbase, 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, chemical stone, and sulfur oxide removal.

9/ Includes asphalt fillers or extenders, mine dusting or acid water treatment, and other fillers or extenders.

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

TABLE 5
ILLINOIS: 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)	5,680	\$22,800	\$4.02
Plaster and gunit sands	382	1,650	4.32
Concrete products (blocks, bricks, pipe, decorative, etc.)	720	3,060	4.25
Asphaltic concrete aggregates and other bituminous mixtures	1,320	5,400	4.08
Road base and coverings 2/	3,590	18,200	5.08
Fill	2,350	7,940	3.38
Snow and ice control	72	350	4.86
Other miscellaneous uses 3/	39	212	5.44
Unspecified: 4/			
Actual	10,800	44,700	4.14
Estimated	8,410	38,500	4.58
Total or average	33,400	143,000	4.28

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes road and other stabilization (cement).

3/ Includes filtration, railroad ballast, and roofing granules.

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

TABLE 6
ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1997,
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 and concrete products 2/	3,090	12,500	958	4,550	1,670	6,840	1,060	3,670
Asphaltic concrete aggregates and road base materials 3/	2,580	12,300	405	1,970	1,320	6,880	611	2,460
Fill	1,220	4,230	459	1,290	W	W	W	W
Snow and ice control	52	240	W	1	19	108	(4/)	(4/)
Other miscellaneous uses 5/	11	44	11	80	15	88	--	--
Unspecified: 6/								
Actual	9,270	39,500	677	3,110	W	W	W	W
Estimated	5,320	28,200	223	630	1,740	5,730	1,130	3,960
Total	21,500	97,000	2,730	11,600	6,040	23,300	3,050	10,900

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 plaster and gunite sands.

3/ Includes road and other stabilization (cement).

4/ Less than 1/2 unit.

5/ Includes filtration and railroad ballast.

6/ Includes reported and estimated production without a breakdown by end use.