THE MINERAL INDUSTRY OF IOWA

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

In 1999, the preliminary estimated value[1] of nonfuel mineral production was $537 million, according to the U.S. Geological Survey (USGS). This was almost a 4% increase from that of 1998,[2] and followed a 6.6% increase in 1998 from that of 1997. Iowa remained 27th in rank among the 50 States in total nonfuel mineral production value, of which the State accounted for more than 1% of the U.S. total.

Crushed stone remained the leading commodity, accounting for about 43% of the State's total nonfuel mineral value, followed by portland cement with more than 40% and construction sand and gravel with more than 10%. Most of Iowa's increase in value in 1999 resulted from the increases in crushed stone, up $14 million, and portland cement, up $5 million, and was further supported by smaller increases in lime, industrial sand and gravel, and gypsum. The only significant decrease was a $2 million drop in the value of construction sand and gravel. In 1998, the increased values of portland cement, up $16 million, construction sand and gravel, up $7.2 million, and crushed stone, up $4 million, accounted for most of the State's $32 million increase. Smaller yet significant increases occurred for gypsum and industrial sand and gravel (table 1).

Compared with USGS preliminary estimates of quantities produced in the other 49 States in 1999, Iowa remained second in crude gypsum. Additionally, the State was a significant producer of crushed stone, portland cement (11th), and construction sand and gravel. No metals were mined in Iowa; all of the State's metal production, such as raw steel, resulted from the processing of materials acquired from other domestic and foreign sources.

The Geological Survey Bureau[3] (GSB) of the Iowa Department of Natural Resources provided the following narrative information. During calendar year 1999, Iowa recorded 246 licensed mineral producers operating 1,076 registered mineral production sites in 97 of the State's counties. Of the 246 licensed producers, 11 were operators from outside of Iowa and 30 were Iowa county governments.

The 30 licensed county governments operated a total of 113 registered sites. Of the county operated sites, 13 produced crushed stone, 100 produced sand and gravel, and 1 of these produced crushed stone as well as sand and gravel. Five counties operated crushed stone quarries, and Fayette County, with eight registered sites, operated the greatest number of county licensed quarries. The other 26 county governments operated sand and gravel pits, and Kossuth County, with 10 registered sites, operated the greatest number of county licensed sand and gravel pits.

The greatest number of registered sites and the widest production distribution in any product class was in sand and gravel. Sand and gravel was produced in 86 counties from a total of 615 registered sites. Western Iowa, with its deeply buried bedrock, hosted the top 10 counties in terms of the number of sand and gravel sites. These top 10 western counties had 194 active sand and gravel pits representing approximately 30% of the total number of active sand and gravel pits statewide. Sac County, with 27 registered sand and gravel pits, had more sand and gravel production sites than any other county statewide. Hallett Materials Co. operated the greatest number of sand and gravel sites, with a total of 51 sites distributed across 22 counties.

Crushed stone (mined exclusively from sedimentary limestone and dolostone strata) was produced from 458 registered sites distributed across 66 counties. Of these 458 crushed stone sites, 10 were underground mine operations and the remainder were quarries. Northeastern Iowa, with its readily accessible shallow bedrock, hosted the top 10 counties in terms of the number of crushed stone sites. These top 10 northeastern counties had 241 active quarries, representing 53% of the total number of active crushed stone production sites statewide. Winneshiek County, with 38 registered quarries, had the greatest number of crushed stone sites of all counties statewide. Wendling Quarries, Inc. operated the greatest number of quarries with a total of 62 sites distributed across 11 counties, while Martin Marietta Materials Inc. operated the greatest number of underground mines with 5 mines in 5 counties (Jasper, Marion, Poweshiek, Story, and Webster). The Atlantic underground limestone mine in Cass County, where production was begun in 1997 by Schildberg Construction Co., Inc. of Greenfield, IA, had its second full year of production. The mine operates a 5-meter face, room-and-pillar style, in the Bethany Falls Limestone. This is the first and only underground mine in the State to operate in the Pennsylvanian Period limestones of southwestern Iowa.

Two new underground limestone mines were under development during 1999: the Lyle Mine in Keokuk County, operated by Douds Stone Co., and the Laughlin Mine in Marion

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[1]The 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.

[2]Values, 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.

[3]Robert M. McKay, Research Geologist, authored the text of minerals industry information provided by the Iowa Geological Survey Bureau.

County, operated by Bruening RK Products, Inc. Both mines were constructing declines from existing quarries down to Mississippian limestone and dolostone strata during the year. The Lyle Mine will operate primarily within the Burlington Formation, while the Laughlin Mine's initial mining level is the Spergen Formation with future potential for mining deeper horizons. Both mines are expected to reach normal production status during 2000.

Crude gypsum was produced in 3 counties by 5 companies operating a total of 14 sites. The U.S. Gypsum Co., having the largest number of production sites, operated at 7 of these 14 sites with 6 quarries in Webster County and 1 underground mine in Des Moines County. Webster County remained the leader in terms of the number of gypsum mines, with 12 quarries operated by 3 companies. National Gypsum Co. embarked upon a major expansion of its Kaufmann-George Quarry in the northern part of the district.

Clay was produced at 11 sites in 6 counties by 7 companies. Clay used in the manufacture of portland cement was mined at six pits in Cerro Gordo and Scott Counties, and clay used for other products (primarily brick) was taken from four pits in Dallas, Woodbury, and Webster Counties. Clay was mined at one registered site for fill material.

In August, the GSB completed a new open file map entitled "Surficial Geology of the Des Moines Lobe of Iowa: Hancock, Kossuth, Winnebago and Wright Counties." The map, prepared at a scale of 1:100,000, delineates areas of potential sand and gravel resources along outwash terraces and upland landscape positions on Wisconsinan age glacial deposits of the Des Moines Lobe in north-central Iowa. The four-county mapping project was partially sponsored and funded by the USGS National Cooperative Geologic Mapping Program. The map is available from the GSB as Open File Map 99-1.

In other news related to the Iowa mineral industry, Terex Corp., a diversified global manufacturer of construction and mining-related capital equipment based in Westport, CT, finalized the purchase of Cedarapids, Inc., a Raytheon Co. subsidiary, for $170 million. Cedarapids, based in Cedar Rapids, IA, is a designer, manufacturer, and marketer of mobile crushing and screening equipment, asphalt pavers, and asphalt material mixing plants.

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

(Thousand metric tons and thousand dollars)

Mineral	1997		1998		1999 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement: Portland	2,550	195,000 e/	2,610	211,000 e/	2,680	216,000 e/
Clays: Common	287	976	301	1,040	305	1,010
Gemstones	NA	91	NA	4	NA	2
Gypsum, crude	2,080	12,200	W	W	W	W
Sand and gravel: Construction	12,600	51,300	13,500	58,500	12,800	56,400
Stone: Crushed	37,300	215,000	41,800	219,000	43,400	233,000
Combined values of cement (masonry), lime, peat, sand and gravel (industrial), and values indicated by symbol W	XX	12,500	XX	27,700	XX	29,700
Total	XX	486,000	XX	518,000	XX	537,000

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 no more than three significant digits; may not add to totals shown.

TABLE 2
IOWA: 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/	198	37,200	$215,000	$5.77	216	41,700	$219,000	$5.25
Dolomite	1	41	141	3.45	4	72	299	4.15
Total or average	XX	37,300	215,000	5.76	XX	41,800	219,000	5.25

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
IOWA: 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	231	$889	$3.85
Riprap and jetty stone	87	485	5.57
Filter stone	507	1,860	3.68
Other coarse aggregate	66	526	7.97
Total or average	891	3,760	4.22
Coarse aggregate, graded:			
Concrete aggregate, coarse	1,150	6,630	5.77
Bituminous aggregate, coarse	436	2,780	6.37
Bituminous surface-treatment aggregate	82	501	6.11
Railroad ballast	1	6	6.00
Other graded coarse aggregate	78	500	6.41
Total or average	1,750	10,400	5.97
Fine aggregate (-3/8 inch):			
Stone sand, concrete	W	W	5.02
Stone sand, bituminous mix or seal	89	487	5.47
Screening, undesignated	306	1,240	4.05
Total or average	W	W	W
Coarse and fine aggregates:			
Graded road base or subbase	1,470	8,790	5.97
Unpaved road surfacing	4,390	22,400	5.11
Crusher run or fill or waste	540	2,020	3.74
Total or average	6,400	33,200	5.19
Other construction materials	112	755	6.74
Agricultural:			
Agricultural limestone	741	3,090	4.16
Poultry grit and mineral food	W	W	3.30
Other agricultural uses	40	132	3.30
Total or average	W	W	W
Chemical and metallurgical:			
Cement manufacture	2,310	7,630	3.31
Lime manufacture	(3/)	(3/)	4.27
Flux stone	(3/)	(3/)	6.54
Total or average	4,320	17,300	3.99
Special:			
Asphalt fillers or extenders	(3/)	(3/)	17.94
Roofing granules	(3/)	(3/)	9.76
Total or average	117	1,180	10.11
Other miscellaneous uses	189	1,650	8.74
Unspecified: 4/			
Actual	14,800	82,500	5.59
Estimated	13,300	69,100	5.20
Total or average	28,000	152,000	5.41
Grand total or average	41,800	219,000	5.25

W Withheld to avoid disclosing company proprietary data; included in "Grand total or average."
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.
3/ Withheld to avoid disclosing company proprietary data; included in "Total or average."
4/ Reported and estimated production without a breakdown by end use.

TABLE 4
IOWA: CRUSHED STONE SOLD OR USED BY PRODUCERS 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
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) 2/	--	--	(3/)	(3/)	W	W	548	2,060
Coarse aggregate, graded 4/	--	--	(3/)	(3/)	W	W	779	4,180
Fine aggregate (-3/8 inch) 5/	--	--	161	700	W	W	103	429
Coarse and fine aggregate 6/	--	--	(3/)	(3/)	W	W	2,430	10,700
Other construction materials	--	--	(3/)	(3/)	400	1,920	23	75
Agricultural 7/	--	--	300	1,440	314	1,070	273	946
Chemical and metallurgical 8/	--	--	(3/)	(3/)	(3/)	(3/)	(3/)	(3/)
Special 9/	--	--	--	--	--	--	(3/)	(3/)
Other miscellaneous uses	--	--	--	--	(3/)	(3/)	161	1,530
Unspecified: 10/								
Actual	1,310	7,200	1,810	9,950	5,510	30,400	1,820	10,000
Estimated	--	--	2,920	15,700	212	1,100	2,730	13,200
Total	1,310	7,200	8,960	46,300	6,450	34,500	10,600	50,400

Use	District 5		District 6		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) 2/	--	--	185	976	--	--
Coarse aggregate, graded 4/	--	--	351	2,220	--	--
Fine aggregate (-3/8 inch) 5/	--	--	83	464	--	--
Coarse and fine aggregate 6/	--	--	1,930	12,400	--	--
Other construction materials	--	--	--	--	--	--
Agricultural 7/	--	--	126	524	--	--
Chemical and metallurgical 8/	--	--	--	--	--	--
Special 9/	--	--	--	--	--	--
Other miscellaneous uses	--	--	28	122	--	--
Unspecified: 10/						
Actual	639	3,520	2,640	14,600	1,030	6,820
Estimated	6,470	35,400	945	3,640	--	--
Total	7,110	39,000	6,290	34,900	1,030	6,820

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials." -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Includes macadam, riprap, and jetty stone.
3/ Withheld to avoid disclosing company proprietary data; included in "Total."
4/ Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, and railroad ballast.
5/ Includes stone sand (concrete), stone sand (bituminous mix or seal), and screening (undesignated).
6/ Includes crusher run (select material or fill), graded road base or subbase, terrazzo and exposed aggregate, and unpaved road surfacing.
7/ Includes agricultural limestone and other agricultural uses.
8/ Includes cement manufacture, chemical stone or alkali works, flux stone, and lime manufacture.
9/ Includes asphalt fillers or extenders, mine dusting or acid water treatment, whiting or whiting substitute, and other fillers or extenders.
10/ Reported and estimated production without a breakdown by end use.

TABLE 5
IOWA: 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	2,310	$10,400	$4.49
Plaster and gunite sands	64	345	5.39
Concrete products (blocks, bricks, pipe, decorative, etc.)	39	222	5.69
Asphaltic concrete aggregates and other bituminous mixtures	605	1,970	3.26
Road base and coverings 2/	1,930	5,920	3.07
Fill	896	2,530	2.82
Snow and ice control	93	365	3.92
Roofing granules	1	13	13.00
Other miscellaneous uses	69	610	8.84
Unspecified: 3/			
Actual	3,330	18,300	5.50
Estimated	4,180	17,900	4.28
Total or average	13,500	58,500	4.33

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

TABLE 6
IOWA: 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	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate	534	2,180	564	3,000	177	787
Plaster and gunite sands	17	82	W	W	2	12
Concrete products (blocks, bricks, pipe, decorative, etc.)	W	W	W	W	14	65
Asphaltic concrete aggregates and other bituminous mixtures	W	W	97	470	306	819
Road base and coverings 2/	1,000	3,120	296	899	553	1,650
Fill	165	471	174	566	99	349
Snow and ice control	12	39	W	W	17	66
Other miscellaneous uses 3/	--	--	W	W	33	323
Unspecified: 4/						
Actual	1,060	7,070	411	2,030	1,110	5,820
Estimated	878	3,310	343	1,830	2,420	10,500
Total	3,850	16,800	1,970	9,360	4,740	20,400

	Districts 4 and 5		District 6	
	Quantity	Value	Quantity	Value
Concrete aggregates	646	2,710	389	1,700
Plaster and gunite sands	39	198	W	W
Concrete products (blocks, bricks, pipe, decorative, etc.)	3	42	--	--
Asphaltic concrete aggregates and other bituminous mixtures	W	W	22	138
Road base and coverings 2/	W	W	W	W
Fill	104	304	353	837
Snow and ice control	W	W	--	--
Other miscellaneous uses 3/	--	--	W	W
Unspecified: 4/				
Actual	185	735	558	2,630
Estimated	394	1,670	146	610
Total	1,480	6,010	1,470	5,910

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 road and other stabilization (cement).
3/ Includes roofing granules and snow and ice control.
4/ Reported and estimated production without a breakdown by end use.