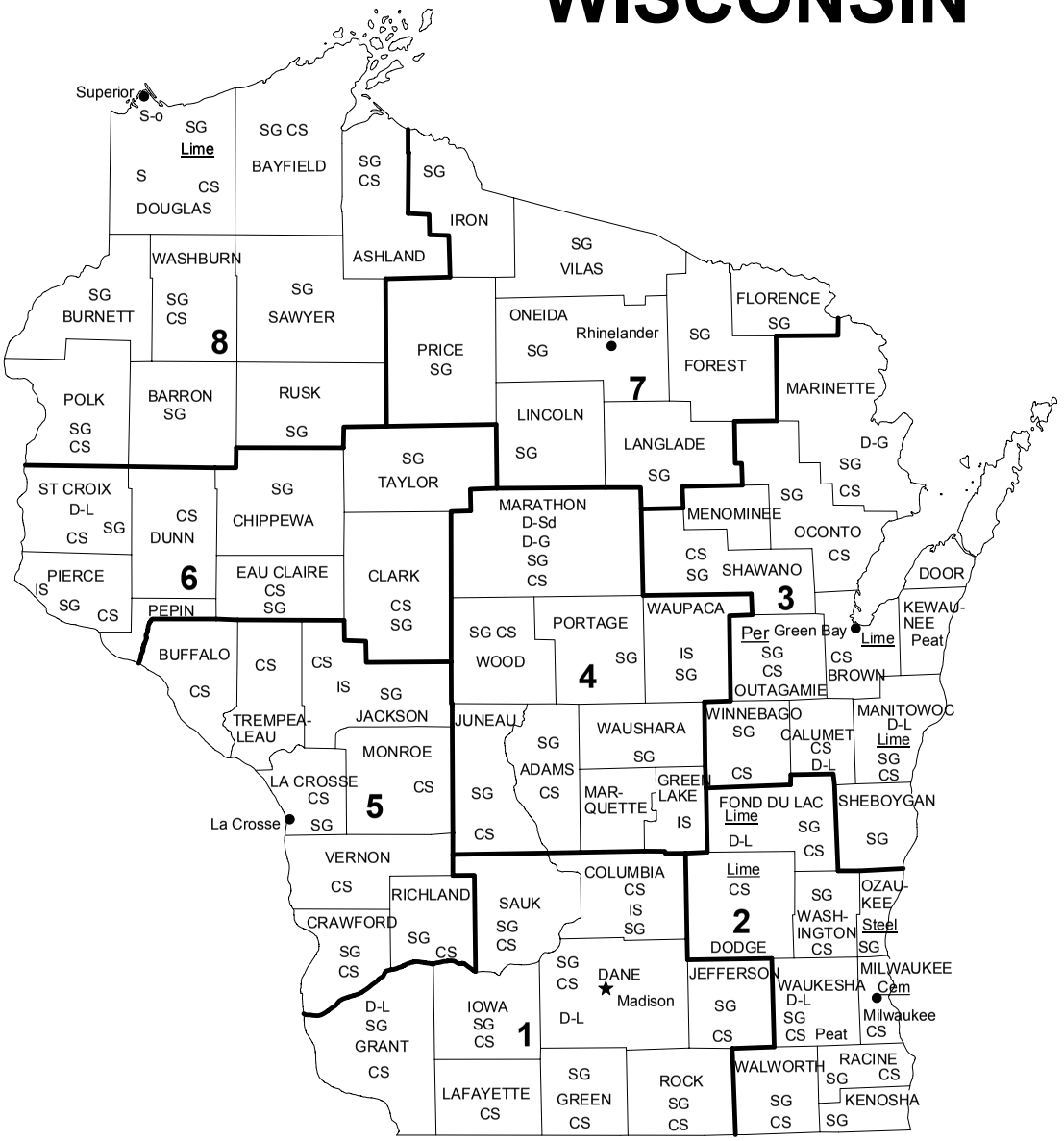
WISCONSIN



LEGEND

- County boundary
- ★ Capital
- ● City
- 1 Crushed stone/sand and gravel districts

MINERAL SYMBOLS
(Major producing areas)

Cem	Cement plant
CS	Crushed stone
D-G	Dimension granite
D-L	Dimension limestone
D-Sd	Dimension sandstone
IS	Industrial sand
Lime	Lime plant
Peat	Peat
Per	Perlite plant
S	Sulfur (recovered)
S-o	Sulfur (oil)
SG	Construction sand and gravel
Steel	Steel plant

0 50 Kilometers

Source: Wisconsin Geological and Natural History Survey/U.S. Geological Survey (2001)

The Mineral Industry of Wisconsin

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

In 2001, the estimated value[1] of nonfuel mineral production for Wisconsin was $368 million, based upon preliminary U.S. Geological Survey (USGS) data. This was a marginal decrease from that of 2000[2] and followed a nearly 8% increase in 2000 from that of 1999. The State was 32d in rank among the 50 States in total nonfuel mineral production value, of which Wisconsin accounted for almost 1% of the U.S. total.

Construction sand and gravel and crushed stone were, by value, Wisconsin's leading nonfuel minerals in 2001, each accounting for nearly 39% of the State's total nonfuel raw mineral production value. These were followed by lime, industrial sand and gravel, and dimension stone, about 10%, 9%, and 3%, respectively, of the same value (table 1). Because data for peat and silica stone have been withheld to protect company proprietary data, the actual total values for 1999-2001 are higher than those reported in table 1.

In 2000, increases in the production and values of construction sand and gravel (up $22 million), industrial sand and gravel (up $4.2 million), and crushed stone (up $2 million) accounted for all the State's increase. While dimension stone production increased, its value was down by $1.7 million. Also slightly down for the year were the production and values of peat and silica stone.

Based upon USGS estimates of the quantities of minerals produced in the 50 States during 2001, Wisconsin remained third in dimension stone, fourth in industrial sand and gravel, and eighth in construction sand and gravel. Additionally, the State was a significant producer of crushed stone and lime.

The following narrative information was provided by the Wisconsin Geological and Natural History Survey (WGNHS).[3] Nicolet Minerals Co. (now owned by BHP Billiton Ltd.) continued to prepare information for its proposed Nicolet Mine, in response to comments made by the Wisconsin Department of Natural Resources (WDNR) on selected parts of the completed Environmental Impact Report (EIR). The underground mining project under proposal was for the development of the 50-million-metric-ton, zinc-copper massive-sulfide ore body known as the Crandon deposit. Beginning in the latter part of 2000 and throughout 2001, the review of the EIR and the various permit applications and requests for license approvals centered on the continued evaluation of the output of complex computer models that describe the projected impact of the proposed mine on ground water resources in the immediate Crandon area. At issue were (1) the projection of the amount of ground water inflow into the underground mine workings, (2) the resulting effect such water volumes may have on water-treatment strategies, as well as (3) the effects on the ground water base flow into surrounding lakes and streams. In addition, the ground water modeling effort addressed such issues as impacts on ground water quality because of mine reflooding. The draft Environmental Impact Statement, prepared by the WDNR, was expected to be ready for public review and comment during calendar year 2003.

For the third year in a row, no exploratory drill holes were initiated or completed in Wisconsin, and there was no substantive mineral leasing activity. The WGNHS attributed the lack of interest in exploration drilling and mineral leasing, in part, to industry concern with the ongoing review of the Nicolet Mine project and the length of time involved in such review under Wisconsin's mining regulations.

Legislation and Government Programs

Legislative activity in 2001 centered on two proposals: a proposal to ban the use of cyanide compounds in metallic mining in Wisconsin, and a proposal featuring the modification of certain details of the regulatory requirements related to mining waste and ground water management issues. Neither of the proposals received sufficient support for passage out of the State Legislature, although both were the focus of significant public discussion and media attention.

Mine Reclamation

The active phase of reclamation of the Flambeau Mine near Ladysmith, WI, was formally completed in 2001. Following the cessation of mining of high-grade copper-gold ore in 1997, the 13-hectare (32-acre) open pit mine was filled, the site was reshaped and revegetated, and 3 hectares (8 acres) of wetlands were restored. With the agreement of the Wisconsin DNR, the former mine site enters a 4-year period of less active maintenance, continued environmental monitoring, and ongoing evaluation of the quality of the reclamation program in terms of the requirements identified in the company's mine permit. The $12 million reclamation bond is expected to remain in place for several more years while the site is evaluated and monitored.

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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 2001 USGS mineral production data published in this chapter are preliminary estimates as of August 2002 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. Specialist contact information may be retrieved over the Internet at URL http://minerals.usgs.gov/minerals/contacts/comdir.html; alternatively, specialists' names and telephone numbers may be obtained by calling USGS information at (703) 648-4000 or by calling the USGS Earth Science Information Center at 1-888-ASK-USGS (275-8747). All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at URL http://minerals.usgs.gov/minerals/.

[2]Values, percentage calculations, and rankings for 2000 may differ from the Minerals Yearbook, Area Reports: Domestic 2000, Volume II, owing to the revision of preliminary 2000 to final 2000 data. Data for 2001 are preliminary and are expected to change; related rankings may also change.

[3]Thomas J. Evans, Geologist, authored the text of Wisconsin mineral industry information submitted by the WGNHS.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral		1999		2000		2001 p/	
		Quantity	Value	Quantity	Value	Quantity	Value
Gemstones		NA	6	NA	6	NA	6
Lime		618	37,000	619	37,000	610	37,100
Peat		W	(3/)	W	(3/)	W	(3/)
Sand and gravel:							
Construction		35,700	128,000	39,600	150,000	37,300	143,000
Industrial		1,730	32,000	1,790	36,200	1,800	32,600
Silica stone 4/	metric tons	W	(3/)	W	(3/)	W	(3/)
Stone:							
Crushed		33,800 r/	135,000 r/	33,700	137,000	34,000	143,000
Dimension	metric tons	85,500	13,400	93,100	11,700	93,000	12,000
Total		XX	345,000 r/	XX	372,000	XX	368,000

p/ Preliminary. r/ Revised NA Not available. W Withheld to avoid disclosing company proprietary 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.
3/ Value excluded to avoid disclosing company proprietary data.
4/ Grindstones, pulpstone, and sharpening stones; excludes mill liners and grinding pebbles.

TABLE 2
WISCONSIN: CRUSHED STONE SOLD OR USED BY PRODUCERS BY KIND 1/

Kind	1999				2000			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone 2/	157 r/	26,200 r/	$107,000 r/	$4.07 r/	151	27,000	$111,000	$4.11
Dolomite	10 r/	2,340 r/	8,980 r/	3.84 r/	10	1,780	7,300	4.11
Granite	7	1,260	5,150	4.08	4	1,800	6,800	3.78
Sandstone and quartzite	4	2,170	7,050	3.25	5	1,590	6,000	3.79
Traprock	4	1,780	6,690	3.76	4	1,510	5,980	3.95
Total or average	XX	33,800 r/	135,000 r/	3.98	XX	33,700	6,000	4.07

r/ Revised. 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
WISCONSIN: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2000, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Construction:			
Coarse aggregate (+1 1/2 inch):			
Macadam	W	W	$4.65
Riprap and jetty stone	86	$525	6.10
Filter stone	174	776	4.46
Other coarse aggregate	785	3,670	4.68
Coarse aggregate, graded:			
Concrete aggregate, coarse	1,970	9,140	4.64
Bituminous aggregate, coarse	326	1,760	5.40
Bituminous surface-treatment aggregate	209	1,200	5.73
Railroad ballast	W	W	4.50
Other graded coarse aggregate	10	43	4.30
Fine aggregate (-3/8 inch):			
Stone sand, concrete	(3/)	(3/)	3.47
Stone sand, bituminous mix or seal	(3/)	(3/)	4.96
Screening, undesignated	411	1,620	3.93
Coarse and fine aggregates:			
Graded road base or subbase	5,470	21,500	3.94
Unpaved road surfacing	177	826	4.67
Crusher run or fill or waste	795	3,070	3.86
Roofing granules	1,180	4,510	3.83
Other coarse and fine aggregates	1,170	6,220	5.33
Other construction materials	116	506	4.36
Agricultural:			
Agricultural limestone	(3/)	(3/)	8.70
Other agricultural uses	(3/)	(3/)	3.71
Chemical and metallurgical, lime manufacture	(3/)	(3/)	4.36
Unspecified: 4/			
Reported	7,200	27,800	3.86
Estimated	13,000	51,000	3.86
Total or average	33,700	137,000	4.07

W Withheld to avoid disclosing company proprietary data; included with "Other."
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Includes dolomite, granite, limestone, limestone-dolomite, sandstone and quartzite, and traprock.
3/ Withheld to avoid disclosing company proprietary data; included in "Total."
4/ Reported and estimated production without a breakdown by end use.

TABLE 4
WISCONSIN: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2000, 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:								
Coarse aggregate (+1 1/2 inch) 3/	30	162	W	W	203	885	W	W
Coarse aggregate, graded 4/	1,240	5,110	W	W	392	1,740	W	W
Fine aggregate (-3/8 inch) 5/	50	185	W	W	230	807	W	W
Coarse and fine aggregate 6/	3,000	11,200	2,200	9,230	1,270	6,470	W	W
Other construction materials	2	24	--	--	114	482	--	--
Agricultural 7/	95	468	W	W	W	W	--	--
Chemical and metallurgical 8/	--	--	--	--	W	W	--	--
Unspecified: 9/								
Reported	588	2,250	--	--	--	--	406	1,570
Estimated	2,000	7,600	3,400	13,000	4,900	19,000	1,000	3,900
Total	6,990	27,000	7,360	32,200	7,340	30,700	2,870	10,900

	District 5		District 6		District 8	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1 1/2 inch) 3/	W	W	--	--	W	W
Coarse aggregate, graded 4/	W	W	--	--	W	W
Fine aggregate (-3/8 inch) 5/	W	W	--	--	--	--
Coarse and fine aggregate 6/	W	W	W	W	W	W
Other construction materials	--	--	--	--	--	--
Agricultural 7/	W	W	W	W	W	W
Chemical and metallurgical 8/	--	--	--	--	--	--
Unspecified: 9/						
Reported	5,110	19,700	1,100	4,230	--	--
Estimated	530	2,000	83	320	1,100	4,400
Total	6,600	26,300	1,220	4,840	1,320	5,310

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.
1/ No production reported in District 7.
2/ Data are rounded to no more than three significant digits; may not add to totals shown.
3/ Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.
4/ Includes bituminous aggregate (coarse), bituminous surface-treatment aggregate, concrete aggregate (coarse), railroad ballast, and other graded coarse aggregate.
5/ Includes screening (undesignated), stone sand (bituminous mix or seal), and stone sand (concrete).
6/ Includes crusher run (select material or fill), graded road base or subbase, roofing granules, unpaved road surfacing, and other coarse and fine aggregates.
7/ Includes agricultural limestone and other agricultural uses.
8/ Includes lime manufacture.
9/ Reported and estimated production without a breakdown by end use.

TABLE 5
WISCONSIN: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2000,
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	8,060	$37,300	$4.63
Plaster and gunite sands	15	80	5.33
Concrete products (blocks, bricks, pipe, decorative, etc.)	230	846	3.68
Asphaltic concrete aggregates and other bituminous mixtures	2,360	8,620	3.66
Road base and coverings	6,820	23,400	3.43
Road stabilization (cement and lime)	958	4,790	5.00
Fill	1,830	4,640	2.53
Snow and ice control	158	538	3.41
Roofing granules	11	66	6.00
Filtration	192	1,200	6.26
Other miscellaneous uses	57	649	11.39
Unspecified: 2/			
Reported	9,990	36,500	3.66
Estimated	8,900	31,000	3.48
Total or average	39,600	150,000	3.78

1/ Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
2/ Reported and estimated production without a breakdown by end use.

TABLE 6
WISCONSIN: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2000, 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 (including concrete sand)	647	3,120	2,460	9,760	1,430	5,250
Concrete products (blocks, bricks, pipe, decorative, etc.) 2/	105	395	115	443	W	W
Asphaltic concrete aggregates and other bituminous mixtures	406	1,360	789	3,260	170	399
Road base and coverings 3/	24	93	2,760	11,500	1,190	3,720
Fill	110	443	849	2,370	393	948
Snow and ice control	26	71	15	99	37	149
Roofing granules	11	66	--	--	--	--
Other miscellaneous uses 4/	152	926	34	171	42	142
Unspecified: 5/						
Reported	1,070	4,130	6,600	24,900	42	146
Estimated	1,400	4,800	2,200	7,700	1,200	4,000
Total	3,950	15,400	15,800	60,200	4,500	14,700

	District 4		District 5 and 6		District 7	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate (including concrete sand)	W	W	2,110	12,300	237	912
Concrete products (blocks, bricks, pipe, decorative, etc.) 2/	W	W	1	4	--	--
Asphaltic concrete aggregates and other bituminous mixtures	W	W	W	W	91	276
Road base and coverings 3/	W	W	902	2,810	339	846
Fill	73	303	107	174	125	198
Snow and ice control	W	W	W	W	W	W
Roofing granules	W	W	--	--	--	--
Other miscellaneous uses 4/	502	2,590	178	440	25	151
Unspecified: 5/						
Reported	1,600	5,200	570	1,980	53	103
Estimated	2,300	8,400	490	1,900	520	1,800
Total	4,490	16,500	4,360	19,500	1,390	4,250

	District 8		Unspecified districts	
	Quantity	Value	Quantity	Value
Concrete aggregate (including concrete sand)	479	2,100	483	2,670
Concrete products (blocks, bricks, pipe, decorative, etc.) 2/	--	--	--	--
Asphaltic concrete aggregates and other bituminous mixtures	247	576	302	1,750
Road base and coverings 3/	1,170	2,790	1,350	6,340
Fill	43	57	131	144
Snow and ice control	14	30	--	--
Roofing granules	--	--	--	--
Other miscellaneous uses 4/	--	--	--	--
Unspecified: 5/				
Reported	53	106	--	--
Estimated	840	2,600	--	--
Total	2,850	8,210	2,270	10,900

W Withheld to avoid disclosing company proprietary data; included with "Other miscellaneous uses." -- Zero.
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 and lime).
4/ Includes filtration.
5/ Reported and estimated production without a breakdown by end use.