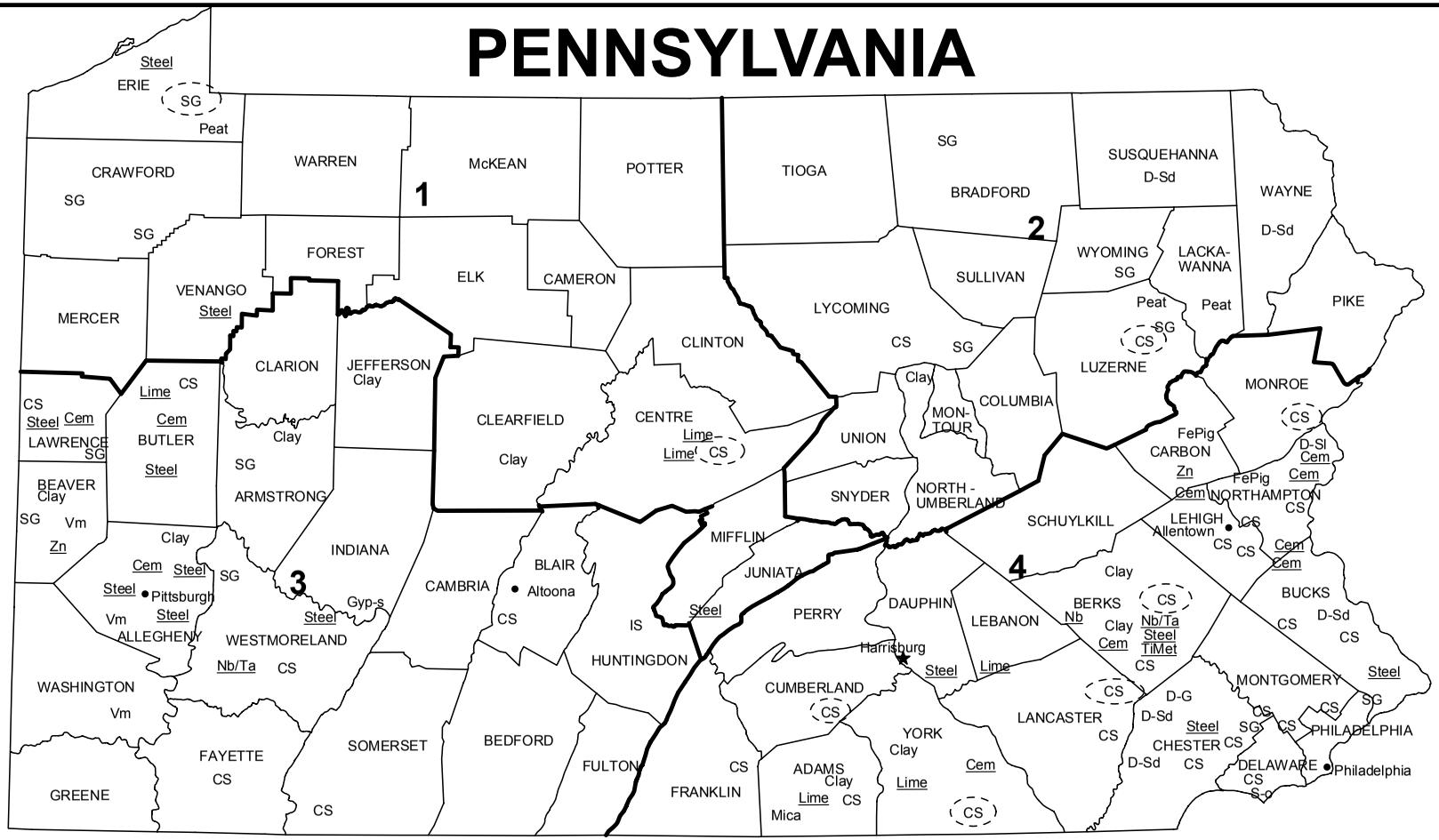
PENNSYLVANIA



LEGEND

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

MINERAL SYMBOLS

Cem	Cement plant
Clay	Common clay
CS	Crushed stone
D-G	Dimension granite
D-Sd	Dimension sandstone
D-Sl	Dimension slate
FePig	Iron oxide pigments
Gyp-s	Synthetic gypsum
IS	Industrial sand
Lime	Lime plant
Mica	Mica
Nb	Columbium (niobium) plant
Nb/Ta	Columbium (niobium) and tantalum plant
Peat	Peat
S-o	Sulfur (oil)
SG	Construction sand and gravel

(Major producing areas)

Steel	Steel plant
TiMet	Titanium metal plant
Vm	Vermiculite
Zn	Zinc plant
⬭	Concentration of mineral operations

0 — 50 Kilometers

Source: Pennsylvania Bureau of Topographic and Geologic Survey/U.S. Geological Survey (2003)

The Mineral Industry of Pennsylvania

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

In 2003, the estimated value[1] of nonfuel raw mineral production for Pennsylvania was $1.26 billion, based upon preliminary U.S. Geological Survey (USGS) data. This was about a 2% decrease from that of 2002[2] and followed a year of unchanged total value in 2002 from that of 2001. Pennsylvania was 10th in the Nation (9th in 2002) in total nonfuel mineral production value. Pennsylvania accounted for more than 3% of the U.S. total. The actual totals for 2001-03 are higher than those shown in table 1; industrial sand and gravel and tripoli data have been withheld (company proprietary data).

In 2003, Pennsylvania continued to be among the Nation's leading States in the production of crushed stone, cement (portland and masonry), and construction sand and gravel (descending order of value), by value the State's leading nonfuel minerals. These mineral commodities accounted for nearly 92% of the State's total nonfuel raw mineral production value. Lime followed accounting for all but 1% of the remaining total value (table 1).

In 2002, increases in the production and value of crushed stone, value up $20 million, accounted for nearly all of the increase in Pennsylvania's nonfuel minerals economy. Smaller increases happened in the value of lime and in the production and values of industrial sand and gravel, dimension stone, and common clays, as well as in the value of tripoli, but were offset by decreases mostly in the production and values of construction sand and gravel, down $13 million, and cement (portland and masonry), down about $8.5 million, resulting in no overall change from the State's total nonfuel mineral value of the previous year (table 1).

Based upon USGS estimates of the quantities produced in the 50 States in 2003, Pennsylvania continued to be third in portland cement, fourth of 4 States that produce tripoli, and sixth in lime and masonry cement. While the State rose to 10th from 12th in the production of dimension stone, it decreased to 3d from 2d in the production of crushed stone. Additionally, significant quantities of construction sand and gravel, industrial sand and gravel, and common clays were produced in the State.

Pennsylvania is exclusively an industrial-mineral- and coal-producing State; metals that were produced in the State in 2003 were processed from materials acquired from foreign and other domestic sources. Pennsylvania remained fifth in the Nation in the production of raw steel, with an output of 5.53 million metric tons of raw steel (American Iron and Steel Institute, 2004, p. 76).

[1]The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the 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 2003 USGS mineral production data published in this chapter are preliminary estimates as of July 2004 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 USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—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 2002 may differ from the Minerals Yearbook, Area Reports: Domestic 2002, Volume II, owing to the revision of preliminary 2002 to final 2002 data. Data for 2003 are preliminary and are expected to change; related rankings also may change.

Reference Cited

American Iron and Steel Institute, 2004, Pig iron and raw steel production—Final 2003, AIS-7, subsection of Annual statistical report 2003: Washington, DC, American Iron and Steel Institute, 130 p.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN PENNSYLVANIA[1, 2]

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral		2001		2002		2003[p]	
		Quantity	Value	Quantity	Value	Quantity	Value
Cement:							
Masonry		329	38,500 [e]	341	38,000 [e]	340	37,700 [e]
Portland		6,540	464,000 [e]	6,130	456,000 [e]	6,130	457,000 [e]
Clays, common		758	2,320	779	2,560	779	2,560
Gemstones		NA	1	NA	1	NA	1
Lime		1,280	86,500	1,230	87,600	1,250	91,300
Peat		9	206	3	132	8	221
Sand and gravel:							
Construction		20,200	128,000	18,100	115,000	18,000	115,000
Industrial		W	(3)	W	(3)	W	(3)
Stone:							
Crushed		100,000 [r]	560,000 [r]	102,000	580,000	96,000	547,000
Dimension		50	11,600	37	11,900	46	9,890
Tripoli	metric tons	W	(3)	W	(3)	W	(3)
Total		XX	1,290,000 [r]	XX	1,290,000	XX	1,260,000

[e]Estimated. [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 withheld to avoid disclosing company proprietary data.

TABLE 2
PENNSYLVANIA: CRUSHED STONE SOLD OR USED, BY KIND[1]

Kind	2001				2002			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone[2]	109 [r]	56,900 [r]	$326,000 [r]	$5.73 [r]	106	61,300	$359,000	$5.86
Dolomite	14 [r]	15,100 [r]	80,300 [r]	5.31 [r]	15	13,000	68,400	5.25
Marble	1	W	W	6.63	1	W	W	8.12
Granite	7	4,630	26,100	5.62	7	4,450	25,300	5.68
Traprock	9	5,220	27,400	5.26	9	5,150	25,600	4.97
Sandstone and quartzite	45	11,300	62,000	5.48	43	10,800	60,500	5.58
Slate	1	W	W	4.91	1	W	W	4.91
Miscellaneous stone	14 [r]	6,230 [r]	35,200 [r]	5.65 [r]	13	6,240	34,700	5.57
Total or average	XX	100,000 [r]	560,000 [r]	5.60	XX	102,000	580,000	5.68

[r]Revised. W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.
[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes limestone-dolomite reported with no distinction between the two.

TABLE 3
PENNSYLVANIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2002, BY USE[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Construction:			
Coarse aggregate (+1 1/2 inch):			
Macadam	419	$2,920	$6.96
Riprap and jetty stone	773	6,220	8.05
Filter stone	259	1,800	6.96
Other coarse aggregates	960	6,540	6.81
Total or average	2,410	17,500	7.25
Coarse aggregate, graded:			
Concrete aggregate, coarse	3,140	20,000	6.37
Bituminous aggregate, coarse	7,510	45,800	6.10
Bituminous surface-treatment aggregate	2,360	14,700	6.22
Railroad ballast	979	4,570	4.66
Other graded coarse aggregates	2,850	16,800	5.88
Total or average	16,800	102,000	6.04
Fine aggregate (-3/8 inch):			
Stone sand, concrete	296	1,610	5.44
Stone sand, bituminous mix or seal	2,520	16,000	6.34
Screening, undesignated	939	5,550	5.91
Other fine aggregates	1,850	9,900	5.35
Total or average	5,610	33,000	5.89
Coarse and fine aggregates:			
Graded road base or subbase	6,780	34,200	5.04
Unpaved road surfacing	1,910	11,400	5.95
Terrazzo and exposed aggregate	W	W	4.98
Crusher run or fill or waste	1,020	5,090	4.97
Other coarse and fine aggregates	6,500	37,400	5.75
Total or average	16,200	88,000	5.43
Other construction materials	766	3,880	5.06
Agricultural, limestone	549	5,670	10.32
Chemical and metallurgical:			
Cement manufacture	7,280	37,200	5.12
Lime manufacture	2,150	8,170	3.80
Flux stone	152	955	6.28
Sulfur oxide removal	465	5,030	10.82
Total or average	10,000	51,400	5.12
Special:			
Mine dusting or acid water treatment	(2)	(2)	16.53
Asphalt fillers or extenders	(2)	(2)	7.55
Whiting or whiting substitute	(2)	(2)	12.82
Other fillers or extenders	129	1,860	14.39
Total or average	322	3,930	12.21
Other miscellaneous uses and specified uses not listed	585	4,620	7.90
Unspecified:[3]			
Reported	33,100	183,000	5.54
Estimated	16,000	87,000	5.55
Total or average	48,700	270,000	5.54
Grand total or average	102,000	580,000	5.68

W Withheld to avoid disclosing company proprietary data; included with "Other."
[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Withheld to avoid disclosing company proprietary data; included in "Total."
[3]Reported and estimated production without a breakdown by end use.

TABLE 4

PENNSYLVANIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2002, 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 (+1 1/2 inch)[2]	W	W	W	W	W	W
Coarse aggregate, graded[3]	W	W	W	W	4,150	27,600
Fine aggregate (-3/8 inch)[4]	W	W	W	W	1,010	5,760
Coarse and fine aggregates[5]	W	W	W	W	4,190	27,300
Other construction materials	--	--	61	337	35	243
Agricultural[6]	--	--	W	W	W	W
Chemical and metallurgical[7]	W	W	W	W	1,610	11,100
Special[8]	--	--	W	W	111	1,830
Other miscellaneous uses and specified uses not listed	--	--	6	39	379	2,460
Unspecified:[9]						
Reported	1,790	9,770	4,110	22,500	8,130	46,100
Estimated	1,600	7,700	2,800	13,000	2,000	12,000
Total	5,250	24,800	9,070	48,000	22,100	139,000

Use	District 4	
	Quantity	Value
Construction:		
Coarse aggregate (+1 1/2 inch)[2]	1,670	11,500
Coarse aggregate, graded[3]	12,000	70,400
Fine aggregate (-3/8 inch)[4]	4,210	25,200
Coarse and fine aggregates[5]	11,100	56,400
Other construction materials	670	3,300
Agricultural[6]	W	W
Chemical and metallurgical[7]	6,820	33,000
Special[8]	W	W
Other miscellaneous uses and specified uses not listed	201	2,120
Unspecified:[9]		
Reported	19,000	105,000
Estimated	9,300	55,000
Total	65,600	368,000

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 aggregates.

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

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

[5]Includes crusher run (select material or fill), graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, and other fine aggregates.

[6]Includes agricultural limestone.

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

[8]Includes asphalt fillers or extenders, mine dusting or acid water treatment, whiting or whiting substitute, and other fillers or extenders.

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

TABLE 5
PENNSYLVANIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2002,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	2,020	$14,600	$7.24
Plaster and gunite sands	29	268	9.24
Concrete products (blocks, bricks, pipe, decorative, etc.)	18	119	6.61
Asphaltic concrete aggregates and other bituminous mixtures	1,350	7,970	5.88
Road base and coverings	1,030	5,030	4.91
Fill	1,470	6,950	4.73
Snow and ice control	124	682	5.50
Railroad ballast	12	70	5.83
Filtration	25	223	8.92
Other miscellaneous uses	507	3,430	6.77
Unspecified:[2]			
Reported	7,160	49,700	6.94
Estimated	4,300	26,000	6.06
Total or average	18,100	115,000	6.38

[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
PENNSYLVANIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2002,
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]	557	3,120	342	2,650	521	3,280
Asphaltic concrete aggregates and other bituminous mixtures	606	3,070	385	2,720	303	1,610
Road base and coverings	408	2,040	217	1,270	271	930
Fill	321	1,220	41	207	183	1,070
Other miscellaneous uses[3]	253	1,330	278	1,560	26	140
Unspecified:[4]						
Reported	2,060	17,900	1,280	8,040	2,920	19,700
Estimated	980	5,800	890	5,400	2,200	13,000
Total	5,180	34,500	3,440	21,800	6,450	40,100

	District 4		Unspecified districts	
	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products[2]	644	5,950	--	--
Asphaltic concrete aggregates and other bituminous mixtures	60	572	--	--
Road base and coverings	129	789	--	--
Fill	891	4,420	34	37
Other miscellaneous uses[3]	--	--	--	--
Unspecified:[4]				
Reported	877	3,800	24	203
Estimated	240	1,800	--	--
Total	2,950	18,700	58	241

-- 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 filtration, railroad ballast, and snow and ice control.
[4]Reported and estimated production without a breakdown by end use.