# MINING AND QUARRYING TRENDS

# By Mary E. Ewell

# Domestic survey data were prepared by the author and each of the statistical assistants who has responsibility for the commodities indicated.

The mining and quarrying trends shown in this report were calculated from nonfuel mineral data reported to the U.S. Geological Survey (USGS) by mining and quarrying companies operating in the United States. The data for 2000 were reported on the Mine, Development, and Mineral Exploration Supplement, a statistical survey conducted by the USGS, and on the production surveys for some more widely produced nonfuel mineral commodities, such as sand and gravel, for which the available data are extracted from computer files. Additional data for 2000 were derived from annual USGS production and consumption surveys of nonfuel mineral producers; these surveys covered 58 nonfuel mineral commodities produced in the United States.

Nonfuel minerals exclude coal, petroleum, coke, and related products.

As shown in this report, mining and quarrying data for 2000 include the annual data for construction sand and gravel and crushed and dimension stone. From 1981 to 1993, these mineral commodities were surveyed biennially and appeared alternately in this report. The inclusion of both sets of data in this report results in essentially a complete coverage of nonfuel mineral production in the United States. Comparisons of the 1994 to 2000 data with previously reported annual data, however, are not possible.

The data in the following tables are reported according to the primary product of a mine or operation. The primary product is usually determined by the product with the highest total value for the year. In some instances, the values of two products at the same operation are so close that the products are coproducts. To account for the data without double counting, however, a product of lesser value is considered to be a byproduct.

Total domestic mining of nonfuel mineral materials amounted to 5.4 billion metric tons (Gt) in 2000, about the same level as 1999. These materials included 4.0 Gt of crude ore mined or quarried and 1.4 Gt of mine waste and ore from development. Of the nonfuel mineral materials mined, 60% was for the production of industrial minerals and 40% was for the production of metals. Overall, 97% of nonfuel minerals was mined and quarried at surface level, and 3% was mined underground.

Total surface mining and quarrying for industrial minerals amounted to 3.2 Gt, remaining essentially the same as that of 1999. Crude ore mined at these surface operations was 2.8 Gt, and 355 million metric tons (Mt) was waste and ore from development. Underground mining for industrial minerals amounted to only 108 Mt, of which nearly all was crude ore.

Total surface mining for metal ores came to 2.1 Gt, slightly more than that of 1999. Of the 2.1 Gt, about 1.1 Gt was crude ore mined and the other 1.0 Gt was waste and ore from development. Underground mining of metal ores amounted to only 33 Mt, of which 97% was crude ore.

The major States in which mining for nonfuel minerals took place were, in order of total material handled, Nevada, Arizona, New Mexico, Minnesota, California, Florida, Texas, Michigan, Ohio, and Pennsylvania. These 10 States accounted for about 63% of the nonfuel minerals mined in the United States. Virtually all nonfuel mining in these States was conducted from the surface.

#### TABLE 1

## MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES, BY TYPE 1/

#### (Million metric tons)

	5	Surface 2/		Und	erground 3/			All mines	
Type of ore and year	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total
Metals:									
1996	1,160	1,600	2,760	49	3	51	1,210	1,600	2,810
1997	1,170	1,630	2,800	52	3	55	1,220	1,630	2,860
1998	1,100	1,500	2,600	50	3	53	1,150	1,500	2,650
1999	1,060 r/	1,050	2,110 r/	26	2	27	1,080 r/	1,050	2,130 r/
2000	1,110	1,020	2,130	32	1	33	1,140	1,030	2,160
Industrial minerals:									
1996	2,420 r/	434 r/	2,860 r/	112	3	114	2,530 r/	436 r/	2,970 r/
1997	2,520 r/	408 r/	2,920 r/	111	(5/)	111	2,630 r/	408 r/	3,030 r/
1998	2,750 r/	426 r/	3,180 r/	109	1	109	2,860 r/	427 r/	3,290 r/
1999	2,790	382 r/	3,170	106	(5/)	106	2,890	383 r/	3,280 r/
2000	2,800	355	3,150	108	(5/)	108	2,900	356	3,260
All mineral commodities:									
1996	3,580 r/	2,030	5,610 r/	160	6	166	3,740 r/	2,030 r/	5,780 r/
1997	3,690 r/	2,040	5,720 r/	163	4	167	3,850 r/	2,040	5,890 r/
1998	3,850 r/	1,930	5,780 r/	159	4	163	4,010 r/	1,930	5,940 r/
1999	3,840 r/	1,430	5,280 r/	132 r/	2	134 r/	3,980 r/	1,430	5,410 r/
2000	3,900	1,380	5,280	140	2	141	4,040	1,380	5,420

r/ Revised.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.2/ Includes materials from wells, ponds, and pumping operations.

3/ Includes solution mining.

4/ Includes ore and waste from development operations.

5/ Less than 1/2 unit.

#### TABLE 2

#### MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2000, BY COMMODITY AND STATE 1/

#### (Thousand metric tons)

Type of ore	Number of		Surface 2/		U	nderground 3	3/		All mines	
or State	mines 4/	Crude ore	Waste 5/	Total	Crude ore	Waste 5/	Total	Crude ore	Waste 5/	Total
Metal ore:										
Gold	48	198,000	645,000	843,000	3,880	409	4,280	202,000	646,000	848,000
Iron	11	189,000	143,000	331,000	W		W	189,000 6/	143,000	331,000
Zinc	10	W	W	W	5,700	W	5,700 7/	5,700 8/	W	15,300 7/
Other 9/	46	721,000	236,000	956,000	22,000	774	22,800	743,000	236,000	969,000
Total	115	1,110,000	1,020,000	2,130,000	31,600	1,180	32,800	1,140,000	1,020,000	2,160,000
Industrial mineral:										
Barite	6	860	W	860 7/				860	W	860
Clays	636	40,900	35,600	76,500	W	W	W	40,900 6/	35,600 6/	76,500
Diatomite	11	1,400		1,400				1,400		1,400
Feldspar 10/	12	1,080	W	1,080				1,080	W	1,080
Gypsum	54	15,700	3,660	19,300	2,500		2,500	18,200	3,660	21,800
Mica (scrap)	10	1,970	W	1,970 7/				1,970	W	1,970 7/
Phosphate rock	16	140,000	W	140,000 7/				140,000	W	140,000 7/
Pumice 11/	16	740	W	740 7/				740	W	740 7/
Salt	70	7,380		7,380	31,800		31,800 7/	39,100		39,100 7/
Sand and gravel:										
Construction	7,619	1,080,000		1,080,000				1,080,000		1,080,000
Industrial	155	27,700		27,700	W		W	27,700 6/		27,700
Soda ash	6				9,460		9,460	9,460		9,460
Stone:										
Crushed	3,453	1,470,000	117,000	1,590,000	50,000	342	50,300	1,520,000	118,000	1,640,000
Dimension	182	1,220	624	1,850	36		36	1,220	624	1,850
Talc and	15	703	3,220	3,920	W	W	W	703 6/	3,220 6/	3,920
pyrophyllite										
Tripoli	6	83		83				83		83
Other 12/	69	12,900	195,000	208,000	14,400	26	14,400	27,300	195,000	222,000
Total	12,336	2,800,000	355,000	3,150,000	108,000	368	108,000	2,900,000	356,000	3,260,000
Grand total	12,451	3,900,000	1,380,000	5,280,000	140,000	1,550	141,000	4,040,000	1,380,000	5,420,000

#### TABLE 2--Continued

### MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2000, BY COMMODITY AND STATE 1/

(Thousand metric tons)

or State  mines 4/  Crude ore  Waste 5/  Total  Crude ore  Waste 5/  Total    Alabrana  182  64,100  6,120  70,200  W	Type of ore	Number of		Surface 2/		Ur	nderground 3	/		All mines	
State:			Crude ore		Total				Crude ore		Total
		182	64.100	6.120	70.200	W	W	W	64.100 6/	6.120 6/	70.200
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Illinois  296  105,000  6,140  111,000  3,270  23  3,300  109,000  6,170  115,000    Indiana  248  73,500  4,670  83,100  W  W  W  78,500  6,706  83,100    Iowa  398  46,500  3,250  49,800  6,470  W  6,470  7,500  6,470  6,670  6,700  6,670  6,700  6,700  6,700  6,700  6,700  6,700  115,000  5,200  38,200  5,200  38,200  1,4500  3,480  35,900  2,290  38,200  1,4500  3,300  W  33,300			· · · ·		,				· · · · ·		· · · · · · · · · · · · · · · · · · ·
Indiana  248  78,500  4,670  83,100  W  W  78,500  6,470  6/  83,100    Iova  398  46,500  3,250  49,800  6,470  W  6,470  753,000  6,470  6/  85,000  2200  38,200    Kansas  351  32,400  2,280  34,700  3,470  6  3,480  35,900  2,200  38,200    Louisiana  141  18,800  W  18,800  -  -  -  13,100  337  13,500  -  -  -  -  13,100  337  13,500  -  -  -  -  13,100  337  13,500  -  -  -  -  13,100  337  13,500  -  -  -  -  13,100  337  13,500  -  -  -  -  14,400  1,070  15,550  -  -  -  -  14,400  1,070  15,550  -  - <t< td=""><td></td><td></td><td>,</td><td>,</td><td></td><td></td><td></td><td></td><td>,</td><td></td><td></td></t<>			,	,					,		
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New Hampshire  96  12,600  326  12,900     12,600  326  12,900    New Jersey  101  38,500  1,710  40,200     38,500  1,710  40,200    New Mexico  180  W  M			,		,				,		· · ·
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New Mexico  180  W  Main formation forma			,						,		
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North Carolina  280  94,600  11,000  106,000    94,600  11,000  106,000    North Dakota  151  10,500  W  10,500  7/    10,500  W  10,500  7/    Ohio  373  123,000  7,310  131,000  W  W  W  123,000  6/  7,310  6/  131,000    Oklahoma  155  53,900  3,780  57,700  W  W  S3,900  6/  3,780  6/  57,700    Oregon  344  37,000  2,750  39,700     37,000  2,750  39,700    Pennsylvania  366  109,000  7,990  117,000  5,520  31  5,550  114,000  8,020  122,000    Rhode Island  23  3,020  148  3,170    -  3,020  148  3,170    South Carolina  128  39,900  3,4											
North Dakota  151  10,500  W  10,500  7/    10,500  W  10,500  7/    Ohio  373  123,000  7,310  131,000  W  W  W  123,000  6/  7,310  6/  131,000    Oklahoma  155  53,900  3,780  57,700  W  W  W  53,900  6/  3,780  6/  57,700    Oregon  344  37,000  2,750  39,700     37,000  2,750  39,700    Pennsylvania  366  109,000  7,990  117,000  5,520  31  5,550  114,000  8,020  122,000    Rhode Island  23  3,020  148  3,170     3,020  148  3,170    South Carolina  128  39,900  3,490  43,400     39,900  3,490  43,400    South Dakota  284			,	,	,	3,670	25	3,690	,	· · ·	
Ohio  373  123,000  7,310  131,000  W  W  W  123,000  6/  7,310  131,000    Oklahoma  155  53,900  3,780  57,700  W  W  W  53,900  6/  3,780  57,700    Oregon  344  37,000  2,750  39,700    37,000  2,750  39,700    Pennsylvania  366  109,000  7,990  117,000  5,520  31  5,550  114,000  8,020  122,000    Rhode Island  23  3,020  148  3,170    3,020  148  3,170    South Carolina  128  39,900  3,490  43,400    39,900  3,490  43,400    South Dakota  284  21,700  W  21,700  W   W  21,700  W  21,700  7/  V   W  21,700  K  21,700  7/  Y  -			,		,				· · · · ·		· · · · · · · · · · · · · · · · · · ·
Oklahoma  155  53,900  3,780  57,700  W  W  W  53,900  6/  3,780  57,700    Oregon  344  37,000  2,750  39,700    37,000  2,750  39,700    Pennsylvania  366  109,000  7,990  117,000  5,520  31  5,550  114,000  8,020  122,000    Rhode Island  23  3,020  148  3,170    3,020  148  3,170    South Carolina  128  39,900  3,490  43,400    39,900  3,490  43,400    South Dakota  284  21,700  W  21,700  7/  W   W  21,700  6/  W  21,700  7/    Tennessee  203  64,700  5,340  70,100  9,800  W  9,800  7/  74,500  5,340  79,900    Texas  532  198,000  11,500  209,			,		,						· · ·
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Pennsylvania  366  109,000  7,990  117,000  5,520  31  5,550  114,000  8,020  122,000    Rhode Island  23  3,020  148  3,170    3,020  148  3,170    South Carolina  128  39,900  3,490  43,400    39,900  3,490  43,400    South Dakota  284  21,700  W  21,700 7/  W   W  21,700 6/  W  21,700 7/    Tennessee  203  64,700  5,340  70,100  9,800  W  9,800 7/  74,500  5,340 6/  79,900    Texas  532  198,000  11,500  209,000  W  W  W  198,000 6/  11,500 6/  209,000    Utah  274  109,000  W  109,000  W   W  9,590 6/  754  10,300			,	,	,	W	W	W	,	· · ·	· · ·
Rhode Island  23  3,020  148  3,170    3,020  148  3,170    South Carolina  128  39,900  3,490  43,400    3,020  148  3,170    South Carolina  128  39,900  3,490  43,400    39,900  3,490  43,400    South Dakota  284  21,700  W  21,700  7/  W   W  21,700  6/  W  21,700  7/    Tennessee  203  64,700  5,340  70,100  9,800  W  9,800  7/  74,500  5,340  6/  79,900    Texas  532  198,000  11,500  209,000  W  W  W  198,000  6/  11,500  209,000    Utah  274  109,000  W  109,000  W   W  9,590  6/  754  10,300    Vermont  116  9,590  754 <td></td> <td>344</td> <td>,</td> <td>,</td> <td></td> <td></td> <td></td> <td></td> <td>,</td> <td></td> <td>· · ·</td>		344	,	,					,		· · ·
South Carolina  128  39,900  3,490  43,400    39,900  3,490  43,400    South Dakota  284  21,700  W  21,700  7/  W   W  21,700  6/  W  21,700  7/    Tennessee  203  64,700  5,340  70,100  9,800  W  9,800  7/  74,500  5,340  79,900    Texas  532  198,000  11,500  209,000  W  W  198,000  6/  209,000    Utah  274  109,000  W  109,000  W   623  109,000  W  109,000  7/    Vermont  116  9,590  754  10,300  W   W  9,590  6/  754  10,300	~		· · · ·	· · · ·	,	5,520	31	5,550	· · · · ·	· · ·	· · · · · · · · · · · · · · · · · · ·
South Dakota  284  21,700  W  21,700  7/  W   W  21,700  6/  W  21,700  7/    Tennessee  203  64,700  5,340  70,100  9,800  W  9,800  7/  74,500  5,340  79,900    Texas  532  198,000  11,500  209,000  W  W  198,000  6/  11,500  209,000    Utah  274  109,000  W  109,000  W  109,000  W  109,000  7/    Vermont  116  9,590  754  10,300  W   W  9,590  6/  754  10,300			,		,				,		
Tennessee  203  64,700  5,340  70,100  9,800  W  9,800  7/  74,500  5,340  79,900    Texas  532  198,000  11,500  209,000  W  W  W  198,000  6/  11,500  209,000    Utah  274  109,000  W  109,000  7/  623   623  109,000  W  109,000  7/    Vermont  116  9,590  754  10,300  W   W  9,590  6/  754  10,300	South Carolina	128	39,900	3,490	43,400				39,900	3,490	43,400
Texas  532  198,000  11,500  209,000  W  W  W  198,000  6/  11,500  209,000    Utah  274  109,000  W  109,000  V  623   623  109,000  W  109,000  7/    Vermont  116  9,590  754  10,300  W   W  9,590  6/  754  10,300											
Utah  274  109,000  W  109,000  7/  623   623  109,000  W  109,000  7/    Vermont  116  9,590  754  10,300  W   W  9,590  6/  754  10,300	Tennessee	203	64,700	5,340	70,100	9,800	W	9,800 7/	74,500	5,340 6/	79,900
Vermont 116 9,590 754 10,300 W W 9,590 6/ 754 10,300	Texas	532	198,000	11,500	209,000	W	W	W	198,000 6/	11,500 6/	209,000
	Utah	274		W	109,000 7/				· · · · ·		109,000 7/
Virginia 205 77,600 8,360 85,900 W W 77,600 6/ 8,360 85,900	Vermont	116	9,590	754	10,300	W		W		754	10,300
	Virginia	205	77,600	8,360	85,900	W		W	77,600 6/	8,360	85,900
Washington 412 60,700 1,640 62,300 W W W 60,700 6/ 1,640 6/ 62,300	Washington	412	60,700	1,640	62,300	W	W	W	60,700 6/	1,640 6/	62,300
West Virginia  60  13,000  1,060  14,000  2,910  W  2,910  7/  15,900  1,060  6/  16,900	West Virginia	60	13,000	1,060	14,000	2,910	W	2,910 7/	15,900	1,060 6/	16,900
Wisconsin 610 73,800 2,730 76,500 73,800 2,730 76,500		610								2,730	
Wyoming 160 16,800 3,190 20,000 14,500 14,500 31,300 3,190 34,500	Wyoming		16,800			14,500		14,500			34,500
Undistributed 14/ 722,000 487,000 1,210,000 38,800 1,010 39,800 761,000 485,000 1,250,000	Undistributed 14/				1,210,000		1,010	39,800	761,000	485,000	1,250,000
Total 12,451 3,900,000 1,380,000 5,280,000 140,000 1,550 141,000 4,040,000 1,380,000 5,420,000	Total	12,451	3,900,000				1,550		4,040,000		

#### TABLE 2--Continued

#### MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2000, BY COMMODITY AND STATE 1/

W Withheld to avoid disclosing company proprietary data; included with "Undistributed." -- Zero.

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

2/ Includes materials from wells, ponds, and pumping operations.

3/ Includes solution mining.

4/ Includes quarries and other mineral operations.

5/ Includes ore and waste from development operations.

6/ Excludes materials from underground operations.

7/ Excludes waste from mining operations and ore and waste from development operations.

8/ Excludes materials from surface operations.

9/ Includes beryllium, copper, gold-silver, lead, magnesium metal, molybdenum, platinum and palladium, rare-earth metal concentrates, silver, titanium, uranium, and metals indicated by symbol W.

10/ Includes aplite.

11/ Excludes volcanic cinder and scoria; included with crushed and broken stone.

12/ Includes abrasives, boron minerals, bromine, diatomite, emery, greensand marl, iodine, iron oxide pigments, kyanite, lithium minerals, magnesite, olivine, perlite, potash, sericite, sulfur (Frasch), vermiculite, wollastonite, zeolites, and industrial minerals indicated by symbol W.

13/ Less than 1/2 unit.

14/ Includes States indicated by symbol W.

TABLE 3

#### VALUE OF PRINCIPAL MINERAL PRODUCTS AND BYPRODUCTS OF SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2000 1/

#### (Dollars per metric ton)

		Surface		τ	Inderground		1	All mines	
	Principal			Principal			Principal		
	mineral	By-		mineral	By-		mineral	By-	
Type of ore and commodity	product	product	Total	product	product	Total	product	product	Total
Metal:	6.61	0.50	7.11	48.74	5.84	54.58	7.17	0.60	7.77
Gold	9.91	0.24	10.15	70.30	0.44	70.74	10.37	0.10	10.47
Iron	7.60		7.60	W		W	7.60 2/		7.60
Zinc	W	W	W	53.25	W	53.25 4/	53.25 3/	W	53.25 4/
Industrial mineral:	6.42	0.02	6.45	15.29		15.29	6.76	0.02	6.98
Clays	37.44		37.44	W		W	37.44 2/		37.44
Diatomite	130.37		130.37				130.37		130.37
Feldspar 5/	31.63	W	31.63 4/				31.63	W	31.63 4/
Garnet	127.28		127.28				127.28		127.28
Gypsum	8.46		8.46	8.01		8.01	8.40		8.40
Iodine	16,257.49		16,257.49				16,257.49		16,257.49
Magnesium compounds	77.65	W	77.65 4/				77.65	W	77.65 4
Mica (scrap)	15.94	W	15.94 4/				15.94	W	15.94 4
Pumice 6/	24.22		24.22				24.22		24.22
Salt	63.91		63.91	14.65		14.65 4/	22.55	W	22.55 4/
Sand and gravel:									
Construction	4.81	W	4.81 4/				4.81	W	4.81 4/
Industrial	19.58	W	19.58 4/	W		W	19.58 2/	W	19.58 4
Soda ash				65.89		65.89	65.89		65.89
Stone:									
Crushed	5.38	W	5.38 4/	5.38		5.38	5.38	W	5.38 4
Dimension	185.38		185.38	W		W	185.38		185.38
Talc and pyrophyllite	27.12		27.12 4/	W		W	27.12 2/	W	27.12 4
Average, industrial minerals, excluding sand	19.16	0.29	19.45	23.03		23.03	20.01	0.23	20.24
and gravel and stone 7/									
Average, metals and industrial minerals 7/8/	6.34	0.10	6.44	24.21	1.51	25.72	6.60	0.11	6.71
Average, metals and industrial minerals, excluding sand and gravel and stone 7/ 8/	8.85	0.22	9.07	33.78	2.31	36.08	9.80	0.30	10.10

excluding sand and gravel and stone 7/8/

W Withheld to avoid disclosing company proprietary data; included with appropriate "Average." -- Zero.

1/ Values calculated from unrounded data; may not add to totals shown because of independent rounding.

2/ Value of products at surface operations only.

3/ Value of products at underground operations only.

4/ Value of principal mineral product only.

5/ Includes aplite.

6/ Excludes volcanic cinder and scoria; included with crushed and broken stone.

7/ Includes values of beryllium concentrate, copper, gold-silver ore, lead, magnesium metal, molybdenum, platinum and palladium, rare-earth metal concentrate, silver, titanium, and metals indicated by symbol W.

8/ Includes values of abrasives, asbestos, barite, boron minerals, bromine, clays, emery, greensand marl, iron oxide pigments, kyanite, lithium minerals, magnesite, olivine, perlite, phosphate rock, potash, sericite, soda ash, sulfur (Frasch), tripoli, vermiculite, wollastonite, zeolites, and industrial minerals indicated by symbol W.

#### TABLE 4 TWENTY-FIVE LEADING METAL AND INDUSTRIAL MINERAL MINES AND QUARRIES IN THE UNITED STATES IN 2000, IN ORDER OF OUTPUT OF CRUDE ORE

Type of ore and name of mine, quarry, or operation 1/	State	Operator	Commodity	Mining method
Metal ore:		1	,	
Morenci	Arizona	Phelps Dodge Corp.	Copper-molybdenum ore	Open pit.
Tyrone	New Mexico	do.	Copper ore	Do.
Sierrita	Arizona	do.	Copper-molybdenum ore	Do.
Bagdad	do.	do.	Copper ore	Do.
Bingham Canyon	Utah	Kennecott Utah Copper Corp.	do.	Do.
Chino	New Mexico	Phelps Dodge Corp.	Copper-molybdenum ore	Do.
Minntac	Minnesota	USX Corp.	Iron ore	Do.
Miami (Inspiration)	Arizona	Phelps Dodge Corp.	Copper ore	Do.
Round Mountain	Nevada	Round Mountain Gold Corp.	Gold ore	Do.
Carlin Mines Complex (7)	do.	Newmont Gold Co.	do.	Open pit and stoping
Hibbing Taconite Co.	Minnesota	Cleveland-Cliffs, Inc.	Iron ore	Open pit.
Empire Iron Mining Partnership	Michigan	Cleveland-Cliffs, Inc.	Iron ore	Open pit.
LTV Steel Mining Co.	Minnesota	do.	do.	Do.
Mission Complex	Arizona	ASARCO Inc.	Copper ore	Open pit and stoping
Ray	do.	do.	do.	Open pit.
National Steel Pellet Co.	Minnesota	National Steel Pellet Co.	Iron ore	Do.
Tilden Mining Co.	Michigan	Cleveland-Cliffs, Inc.	do.	Do.
Fort Knox	Alaska	Fairbanks Gold Mining Inc.	Gold ore	Do.
Cortez	Nevada	Placer Dome Inc.	do.	Do.
Mesquite	California	Newmont Gold Co.	do.	Do.
Northshore Mining Co.	Minnesota	Cleveland-Cliffs, Inc.	Iron ore	Do.
Thunderbird	do.	EVTAC Mining Co.	do.	Do.
Betze-Post/Goldstrike	Nevada	Barrick Gold Corp.	Gold ore	Do.
Rochester	do.	Coeur d'Alene Mines Corp.	Gold ore-silver	Do.
Cresson	Colorado	Cripple Creek & Victor Gold Mining Co.	Gold ore	Do.
Industrial mineral:				
Florida mines (6)	Florida	IMC-Agrico Co.	Phosphate rock	Do.
Florida mines (2)	do.	Cargill Fertilizer Inc.	do.	Do.
South Pasture	do.	C F Industries, Inc.	do.	Do.
Florida mines	do.	PCS Phosphate Co., Inc.	do.	Do.
F.E.C. Quarry	do.	CSR America, Inc.	Stone	Open quarry.
Aurora	North Carolina	PCS Phosphate Co., Inc.	Phosphate rock	Open pit.
Georgetown	Texas	Texas Crushed Stone Co., Inc.	Stone	Open quarry.
Beckmann	do.	Martin Marietta Aggregates, Inc.	do.	Do.
White Rock Quarries	Florida	Vecellio & Grogan, Inc.	do.	Dredging.
McCook 378	Illinois	Vulcan Materials Co.	do.	Open quarry.
Pennsuco	Florida	Tarmac America, Inc.	do.	Do.
IMC-Carlsbad	New Mexico	IMC Kalium Ltd.	Potash	Stoping.
Thornton	Illinois	General Dynamics Corp.	Stone	Open quarry.
Calcite Operation	Michigan	Michigan Limestone Operations	do.	Do.
Stoneport Quarry	do.	Lafarge Corp.	do.	Do.
Bridgeport Stone Plant	Texas	TXI Operations, L.P.	do.	Do.
IMC-Ogden	Utah	IMC Kalium Ltd.	Potash	Stoping.
Crushed Limestone Operation	Missouri	Tower Rock Stone Co.	Stone	Open quarry.
Hunter Quarry	Texas	Hunter Industries, Inc., Colorado Materials Co.	do.	Do.
Three Rivers	Kentucky	Martin Marietta Aggregates, Inc.	do.	Do.
Reed Quarry	do.	Vulcan Materials Co.	do.	Do.
GKK Mines	Florida	GKK Corp.	do.	Do.
Norcross	Georgia	Vulcan Materials Co.	do.	Do.
Servtex	Texas	Hanson Building Materials America	do.	Do.
Delaware	Ohio	The National Lime & Stone Co.	do.	Do.

1/ Owing to commodity reporting differences, the rank of individual mining operations may not be available.

#### TABLE 5 TWENTY-FIVE LEADING METAL AND INDUSTRIAL MINERAL MINES AND QUARRIES IN THE UNITED STATES IN 2000, IN ORDER OF OUTPUT OF TOTAL MATERIAL HANDLED

Type of ore and name of mine, quarry, or operation 1/	State	Operator	Commodity	Mining method
Metal ore:		- F		3 <b>u</b>
Morenci	Arizona	Phelps Dodge Corp.	Copper-molybdenum ore	Open pit.
Bingham Canyon	Utah	Kennecott Utah Copper Corp.	do.	Do.
Barrick Goldstrike	Nevada	Barrick Gold Corp.	Gold ore	Open pit and stoping
Tyrone	New Mexico	Phelps Dodge Corp.	Copper ore	Open pit.
Twin Creeks	Nevada	Newmont Gold Co.	Gold ore	Do.
Mission Complex	Arizona	ASARCO Inc.	Copper ore	Do.
Carlin Mines Complex (7)	Nevada	Newmont Gold Co.	Gold ore	Open pit and stoping
Round Mountain	do.	Round Mountain Gold Corp.	do.	Open pit.
Sierrita	Arizona	Phelps Dodge Corp.	Copper ore	Open pit.
Cortez	Nevada	Placer Dome Inc.	Gold ore	Do.
Ray	Arizona	ASARCO Inc.	Copper ore	Do.
Bagdad	Arizona	Phelps Dodge Corp.	Copper ore	Open pit.
Minntac	Minnesota	USX Corp.	Iron ore	Do.
Empire Iron Mining Partnership	Michigan	Cleveland-Cliffs, Inc.	do.	Do.
Chino	New Mexico	Phelps Dodge Corp.	Copper-molybdenum ore	Do.
LTV Steel Mining Co.	Minnesota	Cleveland-Cliffs, Inc.	Iron ore	Do.
Lone Tree	Nevada	Newmont Gold Co.	Gold ore	Do.
Hibbing Taconite Co.	Minnesota	Cleveland-Cliffs, Inc.	Iron ore	Do.
Robinson	Nevada	BHP Copper Co.	Gold and copper ore	Do.
Miami (Inspiration)	Arizona	Phelps Dodge Corp.	Copper ore	Do.
Jerritt Canyon	Nevada	Independence Mining Co., Inc.	Gold ore	Do.
Fort Knox	Alaska	Fairbanks Gold Mining Inc.	do.	Do.
Tilden Mining Co.	Michigan	Cleveland-Cliffs, Inc.	Iron ore	Do.
Thompson	Idaho	Thompson Creek Metals Co.	Molybdenum ore	Do.
Golden Sunlight	Montana	Placer Dome Inc.	Gold ore	Do.
Industrial mineral:	Wontana	Theer Bonne me.		
Florida mines (6)	Florida	IMC-Agrico Co.	Phosphate rock	Do.
Florida mines (2)	do.	Cargill Fertilizer Inc.	do.	Do.
South Pasture	do.	C F Industries, Inc.	do.	Do.
Aurora	North Carolina	PCS Phosphate Co., Inc.	do.	Do.
F.E.C. Quarry	Florida	CSR America, Inc.	Stone	Open quarry.
Florida mines	do.	PCS Phosphate Co., Inc.	Phosphate rock	Open pit.
Georgetown	Texas	Texas Crushed Stone Co., Inc.	Stone	Open quarry.
Beckmann	do.		do.	Do.
White Rock Quarries	 Florida	Martin Marietta Aggregates, Inc. Vecellio & Grogan, Inc.	do	Do. Dredging.
McCook 378	Illinois	Vulcan Materials Co.	do.	Open quarry.
Pennsuco	Florida	Tarmac America, Inc.	do	Do.
	Illinois	General Dynamics Corp.	do.	 Do.
Thornton			do. do.	Do.
Calcite Operation	Michigan	Michigan Limestone Operations		
Stoneport Quarry	do.	Lafarge Corp.	do.	Do.
IMC-Carlsbad	New Mexico	IMC Kalium Ltd.	Potash	Stoping.
Bridgeport Stone Plant	Texas	TXI Operations, L.P.	Stone	Open quarry.
Crushed Limestone Operation	Missouri	Tower Rock Stone Co.	do.	Do.
IMC-Ogden	Utah	IMC Kalium Ltd.	Potash	Stoping.
Hunter Quarry	Texas	Hunter Industries, Inc., Colorado Materials Co.	Stone	Open quarry.
Three Rivers	Kentucky	Martin Marietta Aggregates	do.	Do.
Reed Quarry	do.	Vulcan Materials Co.	do.	Do.
Teichert Aggregates	California	A. Teichert & Son, Inc.	Sand and gravel	Open pit.
GKK Mines	Florida	GKK Corp	Stone	Open quarry.
Norcross	Georgia	Vulcan Materials Co.	do.	Do.
Thornton	Illinois	General Dynamics Corp.	do.	Do.

1/ Owing to commodity reporting differences, the rank of individual mining operations may not be available.

#### TABLE 6 MARKETABLE PRODUCT AND ORE TREATED OR SOLD AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2000, BY SELECTED COMMODITY AND STATE 1/

Marketable product Ore treated or sold Type of ore or State Surface Underground Total Surface Underground Total Metal ore: 1,440 2/ W 1,440 W W W Copper Gold W W W 253,000 4,220 257,000 189.000 57,500 2/ W 57,500 189,000 3/ W Iron ore (usable) 691 2/ W 691 12,300 3/ W 12,300 Zinc Industrial mineral: W 860 Barite W 860 \_\_\_ 40,800 2/ W 40,800 40,800 3/ W 40,800 Clays 1,330 Diatomite 676 1,330 ---676 ---1,250 Feldspar 4/ 990 990 1,250 -----Gypsum 15,400 2,500 17,900 15,700 2,500 18,200 Iodine 1 1 1 314 314 Magnesium compounds ---------Mica (scrap) 1,780 1,780 154 2/ W 154 ---Perlite 672 672 730 730 Phosphate rock 35,000 35,000 140,000 140,000 -----697 Pumice 5/ 697 698 698 -----44,100 W 37,800 6/ 37,800 W 44,100 7/ Salt Sand and gravel: Construction 1,120,000 1,120,000 1,120,000 1,120,000 Industrial 28,600 2/ W 28,600 28,600 3/ W 28,600 Soda ash 8,540 8,540 10,200 10,200 Stone: 1,510,000 49,100 1,560,000 1,510,000 50,000 1,560,000 Crushed Dimension 1,260 2/ W 1,260 1,260 3/ W 1,260 Talc and pyrophyllite 933 2/ W 933 930 3/ W 930 72 72 83 83 Tripoli ------State: Alabama 68,100 2/ W 68,100 68,100 3/ W 68,100 W 29,200 Alaska 29,200 3/ W 46,000 340,000 3/ W 340,000 Arizona 46,000 2/ 41,100 2/ W 41,100 41,100 3/ W 41,100 Arkansas 215,000 2/ W 215,000 W 229,000 California 229,000 3/ Colorado 57,800 2/ W 57,800 66,800 5 66,800 15,800 15,800 15,800 15,800 Connecticut -----2,330 Delaware 2,330 2,330 2,330 -----145,000 245,000 245,000 Florida 16 145,000 16 Georgia 94,300 1,380 95,700 96,000 1,380 97,400 Hawaii 6,380 6,380 6,380 6,380 33,200 2/ W 33,200 W 87,000 Idaho 87,000 3/ Illinois 108.000 3,270 111,000 108.000 3,270 111.000 84,700 2/ W 84,700 84,700 3/ W 84,700 Indiana 48,500 6,470 55,000 48,500 6,470 55,000 Iowa 34,500 3,460 37,900 34,500 3,460 37,900 Kansas 67,700 52,200 15,500 67,700 52,200 15,500 Kentucky Louisiana 20,200 12,500 32,700 21,000 13,200 34,200 Maine 13,400 13,400 13,400 13,400 W W 45,500 45,500 45,500 2/ 45,500 3/ Maryland 26,700 26,700 26,700 26,700 Massachusetts Michigan 135,000 2,170 138,000 167,000 2,440 170,000 94,300 94,300 199,000 199,000 Minnesota --Mississippi 15,800 ---15,800 15,800 ---15,800 4,080 84,500 5,310 89,800 Missouri 84,500 88,600 13,600 2/ W 24,300 1,000 25,300 Montana 13,600 W Nebraska 18,500 2/ 18,500 22,700 3/ W 22,700 Nevada 47,800 47,800 126,000 3/ W 126,000 New Hampshire 12,600 ---12,600 12,600 ---12,600 43,000 New Jersey 43,000 43,000 43,000 -----W New Mexico 17,600 2/ W 17,600 W W New York 80,600 2/ W 80,600 80,700 5,500 86,200 North Carolina 90,300 90,300 96,600 96,600 ------

#### (Thousand metric tons)

#### TABLE 6--Continued MARKETABLE PRODUCT AND ORE TREATED OR SOLD AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2000, BY SELECTED COMMODITY AND STATE 1/

	Ν	Iarketable product		Ore treated or sold			
Type of ore or State	Surface	Underground	Total	Surface	Underground	Total	
StateContinued:							
North Dakota	10,700		10,700	10,700		10,700	
Ohio	132,000 2/	W	132,000	132,000 3/	W	132,000	
Oklahoma	54,900 2/	W	54,900	54,900 3/	W	54,900	
Oregon	38,000		38,000	38,200		38,200	
Pennsylvania	118,000 2/	W	118,000	114,000	5,520	119,000	
Rhode Island	3,200		3,200	3,200		3,200	
South Carolina	42,000		42,000	42,300		42,300	
South Dakota	18,500		18,500	23,000 3/	W	23,000	
Tennessee	67,800 2/	W	67,800	67,800	9,830	77,600	
Texas	208,000	11,000	219,000	208,000	11,200	219,000	
Utah	43,800	369	44,200	50,400	596	51,000	
Vermont	10,100 2/	W	10,100	10,100 3/	W	10,100	
Virginia	83,000 2/	W	83,000	85,800 3/	W	85,800	
Washington	61,700		61,700	62,200 3/	W	62,200	
West Virginia	14,800	2,910	17,700	14,800	2,910	17,700	
Wisconsin	75,100		75,100	75,100		75,100	
Wyoming	16,000	7,240	23,200	17,000	14,500	31,500	

(Thousand metric tons)

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 marketable product from underground operations.

3/ Includes ore treated at underground operations.

4/ Includes aplite.

5/ Excludes volcanic cinder and scoria; included with crushed and broken stone.

6/ Includes ore treated at surface operations.

7/ Includes marketable product from surface operations.

#### TABLE 7

#### MINING METHODS USED AT SURFACE OPERATIONS IN THE UNITED STATES, BY COMMODITY, IN 2000

#### (Percentage of total material handled)

	Preceded by drilling	Not preceded by
Type of ore and commodity	and blasting	drilling and blasting 1/
Metal ore:	97	3
Beryllium	100	
Copper	100	
Gold	99	1
Gold-silver	100	
Iron	94	6
Magnesium metal	96	4
Molybdenum	100	
Rare-earth metals	100	
Silver	100	
Titanium		100
Uranium		100
Zinc	100	
Industrial mineral:	50	50
Abrasives	100	
Barite	2	98
Boron minerals	100	
Bromine		100
Clays		100
Diatomite	4	96
Emery	100	
Feldspar 2/	63	37
Garnet	41	59
Greensand marl		100
Gypsum	98	2
Iodine		100

#### TABLE 7--Continued

#### MINING METHODS USED AT SURFACE OPERATIONS IN THE UNITED STATES, BY COMMODITY, IN 2000

	Preceded by drilling	Not preceded by
Type of ore and commodity	and blasting	drilling and blasting 1/
Industrial mineralContinued:		
Iron oxide pigments	77	23
Kyanite	100	
Lithium minerals		100
Magnesite	100	
Magnesium compounds	30	70
Mica (scrap)	1	99
Olivine	57	43
Perlite	16	84
Phosphate rock	2	98
Potash		100
Pumice 3/	6	94
Salt	1	99
Sand and gravel:		
Construction		100
Industrial		100
Sericite	100	
Stone:		
Crushed	99	1
Dimension		100
Sulfur (Frasch)		100
Talc and pyrophyllite	86	14
Tripoli	95	5
Vermiculite	91	9
Wollastonite	100	
Zeolites	100	
Metal ores and industrial minerals	69	31

#### (Percentage of total material handled)

-- Zero.

1/ Includes drilling and cutting without blasting, dredging, mechanical excavation and nonfloat washing, and other surface mining methods.

2/ Includes aplite.

3/ Excludes volcanic cinder and scoria; included with crushed and broken stone.

#### TABLE 8

# EXPLORATION ACTIVITY IN THE UNITED STATES IN 2000, BY METHOD, COMMODITY, AND STATE 1/

(Meters)
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			Metho	d of exploration			
				Rotary and			
	Churn	Diamond	Percussion	reverse circu-	Other		
Commodity or State	drilling	drilling	drilling	lation drilling	drilling	Trenching	Total
Commodity:	-				-		
Gold		96,900		339,000	W	4,210	440,000
Zinc		18,600	W		W		18,600
Other 2/	(3/)	12,400	(3/)	39,800	68,900	26	121,000
Total	(3/)	128,000	(3/)	378,000	68,900	4,240	579,000
Percentage of total	(3/)	22	(3/)	65	12	1	100
State:							
Alaska		22,600		36,500		979	60,000
Colorado		3,030		71,800			74,800
Nevada		72,900		229,000	W	1,610	304,000
Tennessee		10,600	W		W		10,600
Utah		366		W			366
Undistributed 4/	(3/)	18,500	(3/)	41,000	68,900	1,650	130,000
Total	(3/)	128,000	(3/)	378,000	68,900	4,240	579,000

W Withheld to avoid disclosing company proprietary data; included with "Other" or "Undistributed." -- Zero.

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

2/ Includes beryllium concentrate, boron minerals, copper, diatomite, iron, manganese, silver, uranium, and commodities indicated by symbol W.

3/ Withheld to avoid disclosing company proprietary data; included with "Other drilling."

4/ Includes California, Idaho, Minnesota, New Mexico, Oregon, South Dakota, Wyoming, and States indicated by symbol W.