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 2001 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 2001 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 2001 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 2001 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 5.5 billion metric tons (Gt) in 2001, about the same level as 2000. These materials included 4.0 Gt of crude ore mined or quarried and 1.5 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 2000. Crude ore mined at these surface operations was 2.9 Gt, and 331 million metric tons (Mt) was waste and ore from development. Underground mining for industrial minerals amounted to only 107 Mt, of which nearly all was crude ore.

Total surface mining for metal ores came to 2.2 Gt, slightly more than that of 2000. Of the 2.2 Gt, about 1.1 billion tons was crude ore mined and the other 1.1 billion tons was waste and ore from development. Underground mining of metal ores amounted to only 28 Mt, of which 89% was crude ore.

The major States in which mining for nonfuel minerals took place were, in order of total material handled, Nevada, Arizona, Florida, California, Minnesota, Texas, Michigan, New Mexico, Utah, and Ohio. These 10 States accounted for about 62% 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)

	Surface 2/			Underground 3/			All mines		
Type of ore and year	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total
Metals:									
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	1,050	2,110	26	2	27	1,080	1,050	2,130
2000	1,100 r/	1,020	2,130	32	1	33	1,140	1,030	2,160
2001	1,030	1,120	2,160	25	3	28	1,060	1,130	2,180
Industrial minerals:									
1997	2,520	408	2,920	111	(5/)	111	2,630	408	3,030
1998	2,750	426	3,180	109	1	109	2,860	427	3,290
1999	2,790	382	3,170	106	(5/)	106	2,890	383	3,280
2000	2,780 r/	354 r/	3,140 r/	108	(5/)	108	2,890 r/	354 r/	3,240 r/
2001	2,850	331	3,180	107	(5/)	107	2,950	332	3,280
All mineral commodities:									
1997	3,690	2,040	5,720	163	4	167	3,850	2,040	5,890
1998	3,850	1,930	5,780	159	4	163	4,010	1,930	5,940
1999	3,840	1,430	5,280	132	2	134	3,980	1,430	5,410
2000	3,890 r/	1,380	5,260 r/	140	1 r/	142 r/	4,030 r/	1,380	5,400 r/
2001	3,880	1,460	5,330	132	3	135	4,010	1,460	5,470

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 2001,
BY COMMODITY AND STATE 1/

(Thousand metric tons)

Type of ore or State	Number of	Surface 2/			Underground 3/			All mines		
	mines 4/	Crude ore	Waste 5/	Total	Crude ore	Waste 5/	Total	Crude ore	Waste 5/	Total
Metal ore:										
Gold	38	199,000	778,000	977,000	4,590	1,710	6,300	204,000	780,000	983,000
Iron	12	162,000	113,000	276,000	--	--	--	162,000	113,000	276,000
Zinc	11	W	W	W	4,450	W	4,450 6/	4,450 7/	W	4,450 6/ 7/
Other 8/	39	670,000	233,000	903,000	15,900	1,010	16,900	686,000	234,000	920,000
Total	100	1,030,000	1,120,000	2,160,000	25,000	2,730	27,700	1,060,000	1,130,000	2,180,000
Industrial mineral:										
Barite	7	911	W	911 6/	--	--	--	911	W	911 6/
Clays	622	39,900	34,700	74,600	W	W	W	39,900 9/	34,700 9/	74,600 9/
Diatomite	11	1,410	3,350	4,760	--	--	--	1,410	3,350	4,760
Feldspar 10/	12	1,460	W	1,460 6/	--	--	--	1,460	W	1,460 6/
Gypsum	48	13,700	3,480	17,200	1,510		1,510	15,200	3,480	18,700
Phosphate rock	15	130,000	W	130,000 6/	--	--	--	130,000	W	130,000 6/
Pumice 11/	17	656	447	1,100	--	--	--	656	447	1,100
Salt	70	7,270	--	7,270	31,700	--	31,700	39,000	--	39,000
Sand and gravel:										
Construction	7,780	1,110,000	--	1,110,000	--	--	--	1,110,000	--	1,110,000
Industrial	149	27,000	--	27,000	W	--	W	27,000 9/	--	27,000 9/
Soda ash	7	--	--	--	10,300	--	10,300	10,300	--	10,300
Stone:										
Crushed	3,321	1,500,000	119,000	1,620,000	49,800	349	50,200	1,550,000	119,000	1,670,000
Dimension	167	1,200	612	1,810	W	--	W	1,200 9/	612	1,810 9/
Talc and pyrophyllite	15	680	2,940	3,620	W	--	W	680 9/	2,940	3,620 9/
Tripoli	6	68	--	68	--	--	--	68	--	68
Other 12/	66	7,970	167,000	175,000	13,200	--	13,200	21,200	167,000	188,000
Total	12,313	2,850,000	331,000	3,180,000	107,000	349	107,000	2,950,000	332,000	3,280,000
Grand total	12,413	3,880,000	1,460,000	5,330,000	132,000	3,080	135,000	4,010,000	1,460,000	5,470,000
State:										
Alabama	184	64,700	6,070	70,800	W	W	W	64,700 9/	6,070 9/	70,800 9/
Alaska	201	29,500	20,400	49,900	W	W	W	29,500 9/	20,400 9/	49,900 9/
Arizona	257	W	W	W	W	--	W	W	W	W
Arkansas	166	47,400	5,660	53,100	W	--	W	47,400 9/	5,660	53,100 9/
California	609	235,000	31,000	266,000	W	14	14	235,000 9/	31,000	266,000 9/
Colorado	381	63,100	W	63,100 6/	W	W	W	63,100 9/	W	63,100 6/ 9/
Connecticut	99	17,600	839	18,400	--	--	--	17,600	839	18,400
Delaware	12	3,370	--	3,370	--	--	--	3,370	--	3,370
Florida	193	248,000	W	248,000 6/	--	--	--	248,000	W	248,000 6/
Georgia	231	95,600	14,900	111,000	1,060	7	1,070	96,700	14,900	112,000
Hawaii	26	6,930	512	7,450	--	--	--	6,930	512	7,450
Idaho	250	50,700	4,140	54,900	W	W	W	50,700 9/	4,140 9/	54,900 9/
Illinois	310	117,000	5,940	123,000	3,450	24	3,470	121,000	5,960	127,000
Indiana	278	84,000	4,900	88,900	3,600	22	3,630	87,600	4,930	92,500
Iowa	413	43,100	2,670	45,800	6,350	39	6,390	49,500	2,710	52,200
Kansas	358	33,700	2,350	36,100	3,540	5	3,550	37,200	2,360	39,600
Kentucky	143	55,000	4,480	59,500	16,100	113	16,300	71,200	4,590	75,800
Louisiana	153	26,600	712	27,300	15,000	--	15,000	41,500	712	42,200
Maine	192	15,300	371	15,700	--	--	--	15,300	371	15,700
Maryland	108	39,500	2,400	41,900	W	W	W	39,500 9/	2,400 9/	41,900 9/
Massachusetts	153	28,400	1,210	29,600	--	--	--	28,400	1,210	29,600
Michigan	616	166,000	W	166,000 6/	1,960	--	1,960	168,000	W	168,000 6/
Minnesota	533	168,000	65,500	234,000	--	--	--	168,000	65,500	234,000
Mississippi	116	16,300	1,010	17,300	--	--	--	16,300	1,010	17,300

See footnotes at end of table.

TABLE 2--Continued
MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 2001,
BY COMMODITY AND STATE 1/

(Thousand metric tons)

Type of ore or State	Number of	Surface 2/			Underground 3/			All mines		
	mines 4/	Crude ore	Waste 5/	Total	Crude ore	Waste 5/	Total	Crude ore	Waste 5/	Total
State--Continued:										
Missouri	344	90,400	7,610	98,000	9,310	32	9,340	99,700	7,640	107,000
Montana	235	23,800	W	23,800 6/	W	--	W	23,800 9/	W	23,800 6/ 9/
Nebraska	165	17,400	465	17,900	W	W	W	17,400 9/	465 9/	17,900 9/
Nevada	214	204,000	700,000	904,000	W	1,510	1,510 9/	204,000 9/	702,000	906,000 9/
New Hampshire	99	13,000	360	13,300	--	--	--	13,000	360	13,300
New Jersey	101	41,000	1,890	42,900	--	--	--	41,000	1,890	42,900
New Mexico	179	W	W	W	W	--	W	W	W	W
New York	560	85,500	5,140	90,600	3,440	W	3,440 6/	88,900	5,140 6/	94,100 6/
North Carolina	265	93,300	10,500	104,000	--	--	--	93,300	10,500	104,000
North Dakota	146	10,000	W	10,000 6/	--	--	--	10,000	W	10,000 6/
Ohio	392	127,000	7,260	134,000	W	--	W	127,000 9/	7,260	134,000 9/
Oklahoma	164	54,800	3,980	58,800	W	W	W	54,800 9/	3,980 9/	58,800 9/
Oregon	318	38,400	2,690	41,100	--	--	--	38,400	2,690	41,100
Pennsylvania	369	114,000	8,060	122,000	3,800	27	3,830	117,000	8,090	125,000
Rhode Island	19	3,270	154	3,420	--	--	--	3,270	154	3,420
South Carolina	128	37,800	3,390	41,200	--	--	--	37,800	3,390	41,200
South Dakota	281	20,800	W	20,800 6/	W	--	W	20,800 9/	W	20,800 6/ 9/
Tennessee	202	61,800	5,090	66,900	8,770	421	9,200	70,600	5,510	76,100
Texas	542	205,000	11,600	216,000	5,150	W	5,150 6/	210,000	11,600 6/	222,000 6/
Utah	219	93,700	W	93,700 6/	748	--	748	94,400	W	94,400 6/
Vermont	113	9,770	735	10,500	W	--	W	9,770 9/	735	10,500 9/
Virginia	192	77,900	8,410	86,300	--	--	--	77,900	8,410	86,300
Washington	368	55,800	1,250	57,100	203	191	394	56,000	1,440	57,500
West Virginia	61	13,700	1,050	14,700	3,170	W	3,170 6/	16,900	1,050 6/	17,900 6/
Wisconsin	582	79,100	2,930	82,000	--	--	--	79,100	2,930	82,000
Wyoming	173	15,300	3,470	18,800	9,040	--	9,040	24,400	3,470	27,800
Undistributed 13/	--	636,000	494,000	1,130,000	36,900	674	37,500	672,000	495,000	1,170,000
Total	12,413	3,880,000	1,460,000	5,330,000	132,000	3,080	135,000	4,010,000	1,460,000	5,470,000

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 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 waste from mining operations and ore and waste from development operations.
7/ Excludes materials from surface operations.
8/ 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.
9/ Excludes materials from underground operations.
10/ Includes aplite.
11/ Excludes volcanic cinder and scoria; included with crushed and broken stone.
12/ Includes abrasives, boron minerals, bromine, greensand marl, iodine, iron oxide pigments, kyanite, lithium minerals, magnesite, olivine, perlite, potash, sericite, wollastonite, zeolites, and industrial minerals indicated by symbol W.
13/ 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 2001 1/

(Dollars per metric ton)

	Surface			Underground			All mines		
Type of ore and commodity	Principal mineral product	By-product	Total	Principal mineral product	By-product	Total	Principal mineral product	By-product	Total
Metal:									
Gold	10.74	0.22	10.95	76.14	W	76.14 2/	12.14	0.22	12.36 2/
Iron	7.49	--	7.49	--	--	--	7.49	--	7.49
Zinc	W	W	W	42.48	W	42.48 2/	42.48 2/	W	42.48 2/ 3/
Average, metals 4/	6.56	0.51	7.07	65.85	10.95	76.80	7.58	0.69	8.27
Industrial mineral:									
Barite	12.75	--	12.75	--	--	--	12.75	--	12.75
Clays	36.75	--	36.75	W	--	W	36.75 5/	--	36.75 5/
Diatomite	113.24	--	113.24	--	--	--	113.24	--	113.24
Feldspar 6/	23.86	W	23.86 2/	--	--	--	23.86	W	23.86 2/
Gypsum	6.72	--	6.72	9.26	--	9.26	6.97	--	6.97
Magnesium compounds	75.77	W	75.77 2/	--	--	--	75.77	W	75.77 2/
Mica (scrap)	15.35	W	15.35 2/	--	--	--	15.35	W	15.35 2/
Phosphate rock	6.61	W	6.61 2/	--	--	--	6.61	W	6.61 2/
Pumice 7/	17.92	W	17.92 2/	--	--	--	17.92	W	17.92 2/
Salt	64.41	--	64.41	16.27	--	16.27	24.42	--	24.42
Sand and gravel:									
Construction	4.97	W	4.97 2/	--	--	--	4.97	W	4.97 2/
Industrial	20.67	W	20.67 2/	W	--	W	20.67	W	20.67 2/
Soda ash	--	--	--	74.73	--	74.73	74.73	--	74.73
Stone:									
Crushed	5.55	--	5.55	5.61	--	5.61	5.55	--	5.55
Dimension	210.88	--	210.88	W	--	W	210.88 5/	--	210.88 5/
Talc and pyrophyllite	30.24	--	30.24	W	--	W	30.24 5/	--	30.24 5/
Average, industrial minerals, excluding sand and gravel and stone 8/	17.97	0.25	18.23	26.59	--	26.59	19.93	0.20	20.13
Average, metals and industrial minerals 3/ 8/	6.49	0.15	6.63	23.67	1.48	25.15	7.04	0.19	7.23
Average, metals and industrial minerals, excluding sand and gravel and stone 3/ 8/	8.51	0.47	8.98	35.36	2.45	37.81	10.15	0.59	10.73

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 principal mineral product only.
3/ Value of products at underground operations only.
4/ 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.
5/ Value of products at surface operations only.
6/ Includes aplite.
7/ Excludes volcanic cinder and scoria; included with crushed and broken stone.
8/ Includes values of abrasives, asbestos, boron minerals, bromine, clays, greensand marl, iodine, iron oxide pigments, kyanite, lithium minerals, magnesite, olivine, perlite, potash, sericite, 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 2001, 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:				
Morenci	Arizona	Phelps Dodge Corp.	Copper-molybdenum ore	Open pit.
Tyrone	New Mexico	do.	Copper ore	Do.
Bagdad	Arizona	do.	do.	Do.
Sierrita	do.	do.	Copper-molybdenum ore	Do.
Chino	New Mexico	do.	do.	Do.
Bingham Canyon	Utah	Kennecott Utah Copper Corp.	Copper ore	Do.
Minntac	Minnesota	USX Corp.	Iron ore	Do.
Round Mountain	Nevada	Round Mountain Gold Corporation	Gold ore	Do.
Miami (Inspiration)	Arizona	Phelps Dodge Corp.	Copper ore	Do.
Carlin Mines Complex	Nevada	Newmont Gold Company	Gold ore	Open pit and stoping.
Thompson	Idaho	Thompson Creek Metals Co.	Molybdenum ore	Open pit.
Empire Iron Mining Partnership	Michigan	Cleveland-Cliffs, Inc.	Iron ore	Do.
Hibbing Taconite Co.	Minnesota	do.	do.	Do.
Ray	Arizona	ASARCO Incorporated	Copper ore	Do.
Cortez	Nevada	Placer Dome Inc.	Gold ore	Do.
National Steel Pellet Co.	Minnesota	National Steel Pellet Co.	Iron ore	Do.
Betze-Post/Goldstrike	Nevada	Barrick Gold Corporation	Gold ore	Do.
Tilden Mining Co.	Michigan	Cleveland-Cliffs, Inc.	Iron ore	Do.
Fort Knox	Alaska	Fairbanks Gold Mining Inc.	Gold ore	Do.
Iluka Green Cove Springs FL	Florida	Iluka Resources Inc	Titanium	Dredging.
Mission Complex	Arizona	ASARCO Incorporated	Copper ore	Open pit and stoping.
Thunderbird	Minnesota	EVTAC Mining Co.	Iron ore	Open pit.
Twin Creeks	Nevada	Newmont Gold Company	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.	CF Industries, Inc.	do.	Do.
Florida mines	do.	PCS Phosphate Co., Inc.	do.	Do.
F.E.C. Quarry	do.	Rinker Materials Corp.	Stone	Open quarry.
Krome Quarry	do.	do.	do.	Do.
Georgetown	Texas	Texas Crushed Stone Co., Inc.	Stone	Do.
Aurora	North Carolina	PCS Phosphate Co., Inc.	Phosphate rock	Open pit.
White Rock Quarries	Florida	Vecellio and Grogan, Inc.	Stone	Dredging.
McCook 378	Illinois	Vulcan Materials Co.	do.	Open quarry.
Beckmann	Texas	Martin Marietta Aggregates	do.	Do.
Calcite Operation	Michigan	Oglebay Norton Co.	do.	Do.
Pennsuco	Florida	Titan Atlantic	do.	Do.
Reed Quarry	Kentucky	Vulcan Materials Co.	do.	Do.
Stoneport Quarry	Michigan	Lafarge North America Inc.	do.	Do.
Crushed Limestone Operation	Missouri	Tower Rock Stone Co.	do.	Do.
Thornton	Illinois	General Dynamics Corp.	do.	Do.
Bridgeport Stone Plant	Texas	TXI Operations, L.P.	do.	Do.
IMC-Carlsbad	New Mexico	IMC Kalium Ltd.	Potash	Stoping.
Clinton Plant	New York	Oldcastle Inc./Materials Group	Stone	Open quarry.
New Braunfels	Texas	Cemex Inc.	do.	Do.
Chico Quarry	do.	Hanson Building Materials America	do.	Do.
Servtex	do.	do.	do.	Do.
GKK Mines	Florida	Palm Beach Aggregates	do.	Do.
Three Rivers	Kentucky	Martin Marietta Aggregates	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 2001, 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:				
Betze-Post/Goldstrike	Nevada	Barrick Gold Corporation	Gold ore	Open pit.
Morenci	Arizona	Phelps Dodge Corp.	Copper-molybdenum ore	Do.
Twin Creeks	Nevada	Newmont Gold Company	Gold ore	Do.
Bingham Canyon	Utah	Kennecott Utah Copper Corp.	Copper-molybdenum ore	Do.
Bagdad	Arizona	Phelps Dodge Corp.	Copper ore	Do.
Carlin Mines Complex	Nevada	Newmont Gold Company	Gold ore	Open pit and stoping.
Chino	New Mexico	Phelps Dodge Corp.	Copper-molybdenum ore	Open pit.
Lone Tree	Nevada	Newmont Gold Company	Gold ore	Do.
Ray	Arizona	ASARCO Incorporated	Copper ore	Do.
Cortez	Nevada	Placer Dome Inc.	Gold ore	Do.
Tyrone	New Mexico	Phelps Dodge Corp.	Copper ore	Do.
Minntac	Minnesota	USX Corp.	Iron ore	Do.
Round Mountain	Nevada	Round Mountain Gold Corporation	Gold ore	Do.
Mission Complex	Arizona	ASARCO Incorporated	Copper ore	Do.
Empire Iron Mining Partnership	Michigan	Cleveland-Cliffs, Inc.	Iron ore	Do.
Sierrita	Arizona	Phelps Dodge Corp.	Copper ore	Do.
Jerritt Canyon	Nevada	Independence Mining Co., Inc.	Gold ore	Do.
Florida Canyon	do.	Florida Canyon Mining, Inc.	do.	Do.
Hibbing Taconite Co.	Minnesota	Cleveland-Cliffs, Inc.	Iron ore	Do.
Tilden Mining Co.	Michigan	do.	do.	Do.
Fort Knox	Alaska	Fairbanks Gold Mining Inc.	Gold ore	Do.
Miami (Inspiration)	Arizona	Phelps Dodge Corp.	Copper ore	Do.
Cresson	Colorado	Cripple Creek & Victor Gold Mining Co.	Gold ore	Do.
Thompson	Idaho	Thompson Creek Metals Co.	Molybdenum ore	Do.
Thunderbird	Minnesota	EVTAC Mining Co.	Iron 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.	CF Industries, Inc.	do.	Do.
F.E.C. Quarry	do.	Rinker Materials Corp.	Stone	Open quarry.
Aurora	North Carolina	PCS Phosphate Co., Inc.	Phosphate rock	Open pit.
Krome Quarry	Florida	Rinker Materials Corp.	Stone	Open quarry.
Georgetown	Texas	Texas Crushed Stone Co., Inc.	do.	Do.
Florida mines	Florida	PCS Phosphate Co., Inc.	Phosphate rock	Open pit.
White Rock Quarries	do.	Vecellio & Grogan, Inc.	Stone	Dredging.
McCook 378	Illinois	Vulcan Materials Co.	do.	Open quarry.
Beckmann	Texas	Martin Marietta Aggregates	do.	Do.
Calcite Operation	Michigan	Oglebay Norton Co.	do.	Do.
Pennsuco	Florida	Tarmac America, Inc.	do.	Do.
Reed Quarry	Kentucky	Vulcan Materials Co.	do.	Do.
Stoneport Quarry	Michigan	Lafarge North America Inc.	do.	Do.
Crushed Limestone Operation	Missouri	Tower Rock Stone Co.	do.	Do.
Bridgeport Stone Plant	Texas	TXI Operations, L.P.	do.	Do.
Thornton	Illinois	General Dynamics Corp.	do.	Do.
IMC-Carlsbad	New Mexico	IMC Kalium Ltd.	Potash	Stoping.
Clinton Plant	New York	Oldcastle Inc./Materials Group	Stone	Open quarry.
New Braunfels	Texas	Cemex Inc.	do.	Do.
Chico Quarry	do.	Hanson Building Materials America	do.	Do.
Servtex	do.	do.	do.	Do.
GKK Mines	Florida	Palm Beach Aggregates	do.	Do.
Three Rivers	Kentucky	Martin Marietta Aggregates	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 2001, BY SELECTED COMMODITY AND STATE 1/

(Thousand metric tons)

Type of ore or State	Marketable product			Ore treated or sold		
	Surface	Underground	Total	Surface	Underground	Total
Metal ore:						
Gold	W	W	W	214,000	4,700	218,000
Iron ore (usable)	48,500 2/	--	48,500	161,000 3/	--	161,000
Zinc	904 2/	W	904	11,600 3/	W	11,600
Industrial mineral:						
Barite	W	--	W	860	--	860
Clays	40,000 2/	W	40,000	40,000 3/	W	40,000
Diatomite	644	--	644	1,540	--	1,540
Feldspar 4/	1,200	--	1,200	1,490	--	1,490
Gypsum	13,300	1,510	14,800	13,700	1,510	15,200
Magnesium compounds	330	--	330	W	--	W
Perlite	588	--	588	588	--	588
Phosphate rock	31,900	--	31,900	130,000	--	130,000
Pumice 5/	618	--	618	618	--	618
Salt	W	41,000 6/	41,000	W	43,100 7/	43,100
Sand and gravel:						
Construction	1,080,000	--	1,080,000	1,080,000	--	1,080,000
Industrial	27,900 2/	W	27,900	27,900 3/	W	27,900
Soda ash	--	9,380	9,380	--	9,380	9,380
Stone:						
Crushed	1,530,000	49,800	1,580,000	1,530,000	49,800	1,580,000
Dimension	1,220 2/	W	1,220	1,220 3/	W	1,220
Talc and pyrophyllite	916 2/	W	916	898 3/	W	898
Tripoli	60	--	60	68	--	68
State:						
Alabama	67,400 2/	W	67,400	67,400 3/	W	67,400
Alaska	13,600 2/	W	13,600	30,900 3/	W	30,900
Arizona	W	W	W	W	W	W
Arkansas	48,100 2/	W	48,100	48,200 3/	W	48,200
California	217,000 2/	W	217,000	242,000 3/	W	242,000
Colorado	52,400 2/	W	52,400	63,600 3/	W	63,600
Connecticut	17,600	--	17,600	17,600	--	17,600
Delaware	3,370	--	3,370	3,370	--	3,370
Florida	144,000	--	144,000	249,000	--	249,000
Georgia	94,900	1,060	95,900	95,500	1,060	96,600
Hawaii	6,930	--	6,930	6,930	--	6,930
Idaho	25,000	W	25,000	W	W	W
Illinois	117,000	3,450	121,000	117,000	3,450	121,000
Indiana	88,500 2/	W	88,500	88,500 3/	W	88,500
Iowa	45,600	6,350	52,000	45,600	6,350	52,000
Kansas	34,200	3,510	37,700	34,200	3,510	37,700
Kentucky	55,300	16,100	71,400	55,300	16,100	71,400
Louisiana	26,200	12,100	38,300	27,100	12,900	40,000
Maine	15,400	--	15,400	15,400	--	15,400
Maryland	40,900 2/	W	40,900	40,900 3/	W	40,900
Massachusetts	28,600	--	28,600	28,600	--	28,600
Michigan	137,000	1,640	139,000	167,000	1,900	168,000
Minnesota	85,500	--	85,500	169,000	--	169,000
Mississippi	17,400	--	17,400	17,400	--	17,400
Missouri	90,600	4,840	95,500	90,600	9,310	99,900
Montana	18,400 2/	W	18,400	24,900 3/	W	24,900

See footnotes at end of table.

TABLE 6--Continued
MARKETABLE PRODUCT AND ORE TREATED OR SOLD AT SURFACE AND UNDERGROUND MINES
IN THE UNITED STATES IN 2001, BY SELECTED COMMODITY AND STATE 1/

(Thousand metric tons)

Type of ore or State	Marketable product			Ore treated or sold		
	Surface	Underground	Total	Surface	Underground	Total
State--Continued:						
Nebraska	19,500 2/	W	19,500	19,500 3/	W	19,500
Nevada	46,100 2/	W	46,100	218,000 3/	W	218,000
New Hampshire	13,000	--	13,000	13,000	--	13,000
New Jersey	44,900	--	44,900	44,900	--	44,900
New Mexico	W	W	W	W	W	W
New York	91,600 2/	W	91,600	86,800	5,300	92,100
North Carolina	89,600	--	89,600	94,700	--	94,700
North Dakota	10,500	--	10,500	10,500	--	10,500
Ohio	133,000 2/	W	133,000	133,000 3/	W	133,000
Oklahoma	57,300 2/	W	57,300	57,300 3/	W	57,300
Oregon	38,800	--	38,800	39,100	--	39,100
Pennsylvania	114,000	3,800	118,000	114,000	3,800	118,000
Rhode Island	3,270	--	3,270	3,270	--	3,270
South Carolina	38,900	--	38,900	39,100	--	39,100
South Dakota	17,400 2/	W	17,400	21,900 3/	W	21,900
Tennessee	68,100 2/	W	68,100	62,700	9,350	72,100
Texas	209,000	9,480	218,000	209,000	9,680	219,000
Utah	40,200	527	40,700	93,900	774	94,700
Vermont	9,790 2/	W	9,790	9,790 3/	W	9,790
Virginia	82,500	--	82,500	85,200	--	85,200
Washington	56,400	--	56,400	56,400	329	56,700
West Virginia	14,200	3,170	17,400	14,200	3,170	17,400
Wisconsin	79,900	--	79,900	79,900	--	79,900
Wyoming	15,400	9,040	24,400	15,400	9,040	24,400

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 marketable product from surface operations.
7/ Includes ore treated at surface operations.

TABLE 7
MINING METHODS USED AT SURFACE OPERATIONS
IN THE UNITED STATES, BY COMMODITY, IN 2001

(Percentage of total material handled)

Type of ore and commodity	Preceded by drilling and blasting	Not preceded by drilling and blasting 1/
Metal ore:		
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:		
Abrasives	100	--
Asbestos	--	100
Barite	2	98
Boron minerals	100	--
Bromine	--	100
Clays	--	100
Diatomite	--	100
Feldspar 2/	53	47
Garnet	44	56
Greensand marl	--	100
Gypsum	100	--
Iodine	--	100
Iron oxide pigments	77	23
Kyanite	100	--
Lithium minerals	--	100
Magnesite	100	--
Magnesium compounds	30	70
Mica (scrap)	1	99
Olivine	57	43
Perlite	26	74
Phosphate rock	3	97
Potash	--	100
Pumice 3/	18	82
Salt	--	100
Sand and gravel:		
Construction	--	100
Industrial	--	100
Sericite	100	--
Stone:		
Crushed	99	1
Dimension	--	100
Talc and pyrophyllite	90	10
Tripoli	96	4
Vermiculite	6	94
Wollastonite	100	--
Zeolites	100	--

-- 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 2001, BY METHOD, COMMODITY, AND STATE 1/

(Meters)

Commodity or State	Method of exploration						
	Churn drilling	Diamond drilling	Percussion drilling	Rotary and reverse circulation drilling	Other drilling	Trenching	Total
Commodity:							
Gold	(2/)	102,000	(2/)	616,000	W	(2/)	718,000
Zinc	--	20,900	(2/)	--	W	--	20,900
Other 3/	(2/)	3,140	(2/)	4,110	66,400	(2/)	73,700
Total	(2/)	126,000	(2/)	620,000	66,400	(2/)	812,000
Percent of total	(2/)	15	(2/)	76	8	(2/)	100
State:							
Alaska	--	16,600	--	21,500	W	(2/)	38,100
Colorado	--	--	--	71,900	--	--	71,900
Nevada	(2/)	78,100	--	523,000	W	(2/)	601,000
Tennessee	--	10,600	(2/)	--	--	--	10,600
Utah	--	88	(2/)	(2/)	--	(2/)	88
Washington	--	17,400	--	--	--	--	17,400
Undistributed 4/	(2/)	3,140	(2/)	4,110	66,400	(2/)	73,700
Total	(2/)	126,000	(2/)	620,000	66,400	(2/)	812,000

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/ Withheld to avoid disclosing company proprietary data; included with "Other drilling: Other or Undistributed."
3/ Includes beryllium concentrate, boron minerals, copper, diatomite, iron, manganese, silver, uranium, and commodities indicated by symbol W.
4/ Includes Idaho, Minnesota, Montana, Wyoming, and States indicated by symbol W.