

MINING AND QUARRYING TRENDS

By Jean K. Moore

The mining and quarrying trends shown in this report were calculated from data reported to the U.S. Geological Survey (USGS) by nonfuel mining and quarrying companies operating in the United States. The data for 1995 were reported on the Mine Information Supplement statistical survey conducted by the USGS. Additional data for 1995 were derived from 58 annual USGS production and consumption surveys of minerals producers. These surveys covered 59 nonfuel mineral commodities produced in the United States.

Mining and quarrying data for 1995, as shown in this report, include the annual data for both the construction sand and gravel commodities and the data for the commodities of crushed and dimension stone. Prior to 1994, these mineral commodities were surveyed biennially and appeared alternately in this report. The inclusion of both sets of these data in this report results in essentially a complete coverage of nonfuel mineral production in the United States. However, this does not make comparisons of 1994 and 1995 data with previously reported annual data possible.

Total domestic mining of nonfuel mineral materials amounted to 5.4 billion metric tons in 1995, a 5% increase above that of 1994. These materials included 3.4 billion tons of crude ore mined or quarried and 2.0 billion tons of mine waste

and ore from development. Of the nonfuel mineral materials mined, 53% was for the production of industrial minerals and 47% was for the production of metals. Overall, 97% of nonfuel mineral mining and quarrying was performed at surface levels and the remaining 3% was underground.

Total surface mining and quarrying for industrial minerals amounted to 2.8 billion tons, a 4% increase above that of 1994. Crude ore mined at these surface operations was 2.4 billion tons, and the remaining 455 million tons was waste and ore from development. Underground mining for industrial minerals amounted to only 100 million tons, 97% of which was crude ore.

Total surface mining for metal ores came to 2.5 billion tons, a 5% increase compared with that of 1994. Of the 2.5 billion tons, about 920 million tons was crude ore mined and the remaining 1.6 billion tons was waste and ore from development. Underground mining of metal ores was small, amounting to only 54 million tons, 96% of which was crude ore.

The major States in which mining for nonfuel minerals occurred were, in order of total material handled, Nevada, Arizona, Florida, Minnesota, California, Michigan, Utah, Texas, and New Mexico. These States accounted for more than 60% of the mining conducted in the United States. Virtually all of the mining in these nine States was surface mining.

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

(Million metric tons)

Type and year	Surface 2/			Underground 3/			All mines		
	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total
Metals:									
1991	854	1,200	2,050	65	2	67	919	1,200	2,120
1992	921	1,110	2,030	36 r/	2	38	957	1,110	2,070
1993	921	1,140	2,060	34	2	36	955	1,140	2,100
1994	901 r/	1,480 r/	2,380 r/	37	1	38	938 r/	1,480 r/	2,410 r/
1995	920	1,570	2,490	52	2	54	972	1,570	2,540
Industrial minerals:									
1991 r/ 5/	1,220	131	1,360	63	(6/)	64	1,290	131	1,420
1992 7/	997 r/	267	1,260	36	(6/)	36 r/	1,030	267	1,300
1993	1,180	310	1,490	95	(6/)	95 r/	1,280	311	1,590
1994	2,280	425	2,700	98	(6/)	98	2,370 r/	425	2,800
1995	2,350	455	2,810	97	3	100	2,450	458	2,910
All mineral commodities:									
1991	2,080	1,330	3,410	129	2	131	2,210	1,330	3,540
1992	1,920	1,380	3,290	72 r/	2	74 r/	1,990	1,380	3,370
1993	2,100 r/	1,450	3,550	129 r/	2	131 r/	2,230	1,450	3,680
1994	3,180 r/	1,900 r/	5,080 r/	135	1	136	3,310 r/	1,900 r/	5,210 r/
1995	3,270	2,020	5,300	149	5	154	3,420	2,030	5,450

r/ Revised.

1/ Data are rounded to 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/ Construction sand and gravel data were not available because of biennial canvassing.

6/ Less than 1/2 unit.

7/ Crushed and broken and dimension stone data were not available because of biennial canvassing.

TABLE 2
MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 1995,
BY COMMODITY AND STATE 1/

(Thousand metric tons)

	Surface 2/			Underground 3/			All mines		
	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total
Metal ores:									
Copper	406,000	473,000	879,000	W	W	W	406,000	473,000	879,000
Gold	273,000	856,000	1,130,000	2,990	736	3,720	276,000	857,000	1,130,000
Gold-silver	7,130	18,100	25,200	--	--	--	7,130	18,100	25,200
Iron	210,000	180,000	391,000	W	W	W	210,000	180,000	391,000
Lead	--	--	--	5,010	W	5,010	5,010	W	5,010
Lead-zinc	2,140	3,730	5,870	W	--	W	2,140	3,730	5,870
Platinum and palladium	--	--	--	315	406	721	315	406	721
Titanium	9,360	--	9,360	--	--	--	9,360	--	9,360
Zinc	--	--	--	6,050	W	6,050	6,050	W	6,050
Other 5/	12,800	35,800	48,600	37,700	1,050	38,700	50,400	36,900	87,300
Total	920,000	1,570,000	2,490,000	52,100	2,190	54,200	972,000	1,570,000	2,540,000
Industrial minerals:									
Barite	973	669	1,640	--	--	--	973	669	1,640
Clays	43,000	37,400	80,300	W	W	W	43,000	37,400	80,300
Diatomite	1,670	W	1,670	--	--	--	1,670	W	1,670
Feldspar 6/	703	--	703	--	--	--	703	--	703
Garnet	40	--	40	--	--	--	40	--	40
Gypsum	13,800	3,620	17,400	2,800	25	2,820	16,600	3,650	20,200
Magnesium compounds	1,240	W	1,240	--	--	--	1,240	W	1,240
Mica (scrap)	528	144	672	--	--	--	528	144	672
Phosphate rock	167,000	W	167,000	--	--	--	167,000	W	167,000
Potash	W	--	W	6,940	--	6,940	6,940	--	6,940
Pumice 7/	594	W	594	--	--	--	594	W	594
Salt	4,420	--	4,420	32,700	W	32,700	37,200	W	37,200
Sand and gravel:									
Construction	876,000	W	876,000	156	--	156	876,000	W	876,000
Industrial	27,400	--	27,400	--	--	--	27,400	--	27,400
Soda ash	W	--	W	9,120	--	9,120	9,120	--	9,120
Stone:									
Crushed	1,200,000	95,600	1,290,000	44,700	313	45,000	1,240,000	95,900	1,340,000
Dimension	1,110	568	1,680	W	--	W	1,110	568	1,680
Talc and pyrophyllite	922	1,120	2,040	W	--	W	922	1,120	2,040
Zeolites	58	--	58	--	--	--	58	--	58
Other 8/	18,400	316,000	334,000	914	2,390	3,310	19,400	318,000	338,000
Total	2,350,000	455,000	2,810,000	97,400	2,730	100,000	2,450,000	458,000	2,910,000
Grand total	3,270,000	2,020,000	5,300,000	149,000	4,920	154,000	3,420,000	2,030,000	5,450,000
States:									
Alabama	48,100	5,030	53,100	W	--	W	48,100	5,030	53,100
Alaska	30,600	W	30,600	--	--	--	30,600	W	30,600
Arizona	359,000	315,000	675,000	W	W	W	359,000	315,000	675,000
Arkansas	38,800	4,170	43,000	--	--	--	38,800	4,170	43,000
California	185,000	67,800	253,000	544	45	589	186,000	67,900	254,000
Colorado	47,800	W	47,800	W	W	W	47,800	W	47,800
Connecticut	12,900	594	13,400	--	--	--	12,900	594	13,400
Delaware	2,680	--	2,680	--	--	--	2,680	--	2,680
Florida	243,000	W	243,000	17	--	17	243,000	W	243,000
Georgia	78,400	16,900	95,300	W	W	W	78,400	16,900	95,300
Hawaii	8,040	610	8,650	--	--	--	8,040	610	8,650
Idaho	45,000	50,800	95,800	W	W	W	45,000	50,800	95,800
Illinois	95,100	5,220	100,000	4,330	30	4,360	99,400	5,250	105,000
Indiana	70,800	4,560	75,400	3,940	W	3,940	74,700	4,560	79,300
Iowa	42,000	2,450	44,500	7,110	44	7,160	49,200	2,490	51,600
Kansas	30,900	2,100	33,000	3,140	5	3,140	34,000	2,100	36,100
Kentucky	50,900	4,140	55,000	12,200	91	12,300	63,100	4,230	67,300
Louisiana	17,900	628	18,600	14,800	W	14,800	32,700	628	33,300
Maine	9,470	272	9,740	--	--	--	9,470	272	9,740
Maryland	33,800	2,170	35,900	251	2	253	34,000	2,170	36,200
Massachusetts	21,200	877	22,100	W	W	W	21,200	877	22,100
Michigan	136,000	75,100	211,000	W	W	W	136,000	75,100	211,000
Minnesota	210,000	110,000	319,000	--	--	--	210,000	110,000	319,000
Mississippi	14,400	1,230	15,600	--	--	--	14,400	1,230	15,600
Missouri	72,500	6,520	79,000	10,500	W	10,500	83,000	6,520	89,600
Montana	44,000	64,500	109,000	734	406	1,140	44,800	64,900	110,000

See footnotes at end of table.

TABLE 2--Continued
MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 1995,
BY COMMODITY AND STATE 1/

(Thousand metric tons)

	Surface 2/			Underground 3/			All mines		
	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total	Crude ore	Waste 4/	Total
States-Continued:									
Nebraska	18,300	559	18,800	W	W	W	18,300	559	18,800
Nevada	221,000	679,000	900,000	814	689	1,500	222,000	680,000	902,000
New Hampshire	9,350	189	9,540	--	--	--	9,350	189	9,540
New Jersey	33,400	1,490	34,900	--	--	--	33,400	1,490	34,900
New Mexico	40,400	W	40,400	7,720	W	7,720	48,100	W	48,100
New York	66,100	4,210	70,300	5,450	--	5,450	71,600	4,210	75,800
North Carolina	83,000	10,500	93,600	--	--	--	83,000	10,500	93,600
North Dakota	8,280	W	8,280	--	--	--	8,280	W	8,280
Ohio	107,000	6,320	114,000	W	W	W	107,000	6,320	114,000
Oklahoma	42,600	3,120	45,700	W	W	W	42,600	3,120	45,700
Oregon	38,500	1,940	40,400	--	--	--	38,500	1,940	40,400
Pennsylvania	94,300	6,770	101,000	3,530	25	3,550	97,800	6,790	105,000
Rhode Island	4,010	100	4,110	--	--	--	4,010	100	4,110
South Carolina	37,400	6,890	44,300	--	--	--	37,400	6,890	44,300
South Dakota	19,400	W	19,400	1,330	--	1,330	20,700	W	20,700
Tennessee	56,100	4,790	60,900	9,340	W	9,340	65,500	4,790	70,300
Texas	146,000	9,750	156,000	9,560	W	9,560	156,000	9,750	165,000
Utah	90,000	W	90,000	W	W	W	90,000	W	90,000
Vermont	7,730	392	8,120	W	--	W	7,730	392	8,120
Virginia	66,800	5,170	72,000	676	3	679	67,500	5,180	72,700
Washington	52,200	1,460	53,600	W	--	W	52,200	1,460	53,600
West Virginia	13,400	1,050	14,500	2,930	15	2,940	16,300	1,060	17,400
Wisconsin	57,700	3,570	61,300	--	--	--	57,700	3,570	61,300
Wyoming	11,800	2,960	14,800	9,120	--	9,120	20,900	2,960	23,900
Undistributed 9/	--	531,000	531,000	41,400	3,560	45,000	41,400	535,000	576,000
Grand total	3,270,000	2,020,000	5,300,000	149,000	4,920	154,000	3,420,000	2,030,000	5,450,000

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

1/ Data rounded to 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/ Includes bauxite, beryllium concentrate, magnesium metal, manganese ore, molybdenum, nickel, silver, tungsten, uranium, and metal items indicated by symbol W.

6/ Includes apilite.

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

8/ Includes abrasives, boron minerals, bromine, emery, fluorspar, greensand marl, iodine, iron oxide pigments, kyanite, lithium minerals, magnesite, olivine, perlite, sodium sulfate, sulfur (Frasch), tripoli, vermiculite, wollastonite, and industrial mineral items indicated by symbol W.

9/ Includes State items indicated by symbol W.

TABLE 3
VALUE OF PRINCIPAL MINERAL PRODUCTS AND BYPRODUCTS OF SURFACE AND UNDERGROUND MINES
IN THE UNITED STATES IN 1995 1/

(Dollars per metric ton)

Commodity	Surface			Underground			All mines		
	Principal mineral product	By-product	Total	Principal mineral product	By-product	Total	Principal mineral product	By-product	Total
Metal ores:									
Copper	13.14	1.67	14.81	W	W	W	13.14	1.67	14.81
Gold	12.98	.48	13.46	62.10	0.20	62.29	13.51	.47	13.98
Iron	8.09	--	8.09	W	W	W	8.09	W	8.09
Lead	--	--	--	43.81	15.82	59.63	43.81	15.82	59.63
Platinum and palladium	--	--	--	135.35	--	135.35	135.35	--	135.35
Zinc	--	--	--	40.61	W	40.61	40.61	W	40.61
Average, metals 2/	12.05	1.52	13.57	32.04	4.01	36.05	13.17	1.66	14.83
Industrial minerals:									
Barite	17.73	--	17.73	--	--	--	17.73	--	17.73
Clays	39.98	--	39.98	W	--	W	39.98	--	39.98
Diatomite	102.54	--	102.54	--	--	--	102.54	--	102.54
Feldspar 3/	36.36	W	36.36	--	--	--	36.36	W	36.36
Garnet	231.53	--	231.53	--	--	--	231.53	--	231.53
Gypsum	7.34	--	7.34	7.01	--	7.01	7.29	--	7.29
Magnesium compounds	135.81	W	135.81	--	--	--	135.81	W	135.81
Mica (scrap)	7.03	W	7.03	--	--	--	7.03	W	7.03
Phosphate rock	5.66	W	5.66	--	--	--	5.66	W	5.66
Potash	W	W	W	16.49	--	16.49	16.49	W	16.49
Pumice 4/	24.88	W	24.88	--	--	--	24.88	W	24.88
Salt	82.69	--	82.69	19.96	W	19.96	27.42	W	27.42
Sand and gravel:									
Construction	4.27	.04	4.31	4.00	--	4.00	4.27	.04	4.31
Industrial	17.60	W	17.60	--	--	--	17.60	W	17.60
Soda ash	W	W	W	81.49	--	81.49	81.49	W	81.49
Stone:									
Crushed	5.29	.01	5.30	7.20	--	7.20	5.36	.01	5.37
Dimension	201.55	W	201.55	W	--	W	201.55	W	201.55
Talc and pyrophyllite	28.24	--	28.24	W	--	W	28.24	--	28.24
Average, industrial minerals 2/	6.52	.06	6.58	19.71	.27	19.97	7.02	.07	7.09
Average, industrial minerals 2/ (excluding sand and gravel and stone)	18.57	.38	18.95	30.64	.50	31.14	20.59	.40	20.99
Average, metals and industrial minerals 2/	8.00	.45	8.46	24.09	1.60	25.68	8.69	.50	9.20
Average, metals and industrial minerals 2/ (excluding sand and gravel and stone)	13.49	1.27	14.76	31.35	2.29	33.64	14.98	1.35	16.33

W Withheld to avoid disclosing company proprietary data; included in appropriate "Average."

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

2/ Includes unpublished data.

3/ Includes aplite.

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

TABLE 4
NUMBER OF DOMESTIC METAL AND INDUSTRIAL MINERAL MINES
IN THE UNITED STATES IN 1995, BY COMMODITY AND STATE 1/ 2/

Commodity	Total number of mines	Less than 1,000 tons	1,000 to 10,000 tons	10,000 to 100,000 tons	100,000 to 1,000,000 tons	1,000,000 to 10,000,000 tons	More than 10,000,000 tons
Metal ores:							
Bauxite	12	--	--	12	--	--	--
Beryllium concentrate	1	--	--	1	--	--	--
Copper	26	--	1	1	3	10	11
Gold	76	3	6	4	17	43	3
Gold-silver	2	--	1	--	--	1	--
Iron	14	--	--	1	3	2	8
Lead	8	--	--	--	6	2	--
Lead-zinc	2	--	--	--	1	1	--
Magnesium metal	3	--	--	2	--	1	--
Manganiferous	1	--	1	--	--	--	--
Molybdenum	3	--	--	--	1	2	--
Nickel	1	--	--	--	1	--	--
Platinum and palladium	1	--	--	--	1	--	--
Silver	5	--	--	4	--	1	--
Titanium	2	--	--	--	1	1	--
Tungsten	1	--	1	--	--	--	--
Uranium	5	4	1	--	--	--	--
Zinc	11	--	--	--	10	1	--
Total	174	7	11	25	44	65	22
Industrial minerals:							
Abrasives	11	11	--	--	--	--	--
Barite	8	1	1	1	5	--	--
Boron minerals	4	2	--	--	1	1	--
Bromine	7	--	--	7	--	--	--
Clays	818	29	184	491	114	--	--
Diatomite	12	--	1	7	4	--	--
Emery	1	1	--	--	--	--	--
Feldspar 3/	9	--	2	5	2	--	--
Fluorspar	2	--	--	2	--	--	--
Garnet	3	--	1	2	--	--	--
Greensand marl	1	--	1	--	--	--	--
Gypsum	57	--	2	12	43	--	--
Iodine	2	2	--	--	--	--	--
Iron oxide pigments	4	3	--	1	--	--	--
Kyanite	2	--	--	--	2	--	--
Lithium minerals	3	1	1	--	1	--	--
Magnesite	1	--	--	--	1	--	--
Magnesium compounds	5	--	1	1	3	--	--
Mica (scrap)	8	--	5	1	2	--	--
Olivine	3	--	--	3	--	--	--
Perlite	7	--	2	2	3	--	--
Phosphate rock	16	--	--	--	--	8	8
Potash	9	--	--	3	--	6	--
Pumice 4/	16	--	5	10	1	--	--
Salt	69	--	5	11	41	12	--
Sand and gravel:							
Construction	7,650	417	1,720	3,430	1,990	91	--
Industrial	163	1	14	76	71	1	--
Sodium compounds:							
Soda ash	6	--	--	--	--	6	--
Sodium sulfate	2	--	--	--	2	--	--
Stone:							
Crushed	3,440	304	288	896	1,660	296	1
Dimension	231	59	139	33	--	--	--
Sulfur (Frasch)	2	--	--	--	1	1	--
Talc and pyrophyllite	19	2	2	10	5	--	--
Tripoli	5	1	1	3	--	--	--
Vermiculite	4	--	--	3	1	--	--
Wollastonite	3	--	--	3	--	--	--
Zeolites	6	2	1	3	--	--	--
Total	12,600	836	2,370	5,020	3,950	422	9
Grand total	12,800	843	2,380	5,040	4,000	487	31

1/ Based on crude ore mined.

2/ Data rounded to three significant digits; may not add to totals shown.

3/ Includes aplite.

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

TABLE 5
 TWENTY-FIVE LEADING METAL AND INDUSTRIAL MINERAL MINING OPERATIONS
 IN THE UNITED STATES IN 1995, IN ORDER OF OUTPUT OF CRUDE ORE

Type of ore and mining operation 1/	State	Operator	Commodity	Mining method
Metal ores:				
Morenci	Arizona	Phelps Dodge Corp.	Copper	Open pit.
Carlin Mines Complex	Nevada	Newmont Gold Co.	Gold	Do.
Bingham Canyon	Utah	Kennecott, Utah Copper Corp.	Copper	Do.
Minntac	Minnesota	USX	Iron	Do.
Sierrita	Arizona	Cyprus Climax Metals Co.	Copper	Do.
Hibbing	Minnesota	Cliffs Mining Co.	Iron	Do.
Cyprus Miami (Inspiration)	Arizona	Cyprus Climax Metals Co.	Copper	Do.
Bagdad	do.	do.	do.	Do.
Smokey Valley Common Operation	Nevada	Round Mountain Gold Corp.	Gold	Do.
Hoyt Lakes	Minnesota	LTV Steel Mining Co.	Iron	Do.
Empire	Michigan	Empire Iron Mining Partnership	do.	Do.
Ray Pit	Arizona	ASARCO Incorporated	Copper	Do.
Pinto Valley	do.	Magma Copper Co.	do.	Do.
Mission Complex	do.	ASARCO Incorporated	do.	Do.
San Manuel	do.	Magma Copper Co.	do.	Stoping.
Pellet Project	Minnesota	National Steel Pellet Co.	Iron	Open pit.
Twin Creeks	Nevada	Santa Fe Pacific Gold Corp.	Gold	Do.
Thunderbird	Minnesota	Eveleth Mines	Iron	Do.
Chino	New Mexico	Chino Mines Co.	Copper	Do.
Continental	Montana	Montana Resources Inc.	do.	Do.
Tilden	Michigan	Tilden Mining Co.	Iron	Do.
Mesquite	California	Santa Fe Pacific Gold Corp.	Gold	Do.
Peter Mitchell	Minnesota	Northshore Mining Co.	Iron	Do.
Zortman-Landusky	Montana	Pegasus Gold Inc.	Gold	Do.
Hycroft (Crofoot-Lewis)	Nevada	Granges Inc.	do.	Do.
Industrial minerals:				
Florida mines (6)	Florida	IMC-Agrico Co.	Phosphate rock	Do.
Fort Meade	do.	Cargill Fertilizer Inc.	do.	Do.
Florida mines (2)	do.	Mobil Mining & Mineral Co.	do.	Do.
Lee Creek (Aurora)	North Carolina	Texasgulf Chemical Co.	do.	Do.
All Alaska operations	Alaska	U.S. Bureau of Land Management	Sand and gravel	Open quarry.
Reed	Kentucky	Vulcan Materials Co.	Stone	Do.
Beckmann	Texas	Redland Stone Products Co.	do.	Do.
Georgetown	do.	Texas Crushed Stone Co.	do.	Do.
FEC Hialeah	Florida	CSR America Inc.	do.	Do.
Calcite	Michigan	Michigan Minerals Associates	do.	Do.
Pennsuco	Florida	Tarmac America Inc.	do.	Dredging
Stoneport	Michigan	Presque Isle Corp.	do.	Open quarry.
International	New Mexico	IMC Fertilizers Inc.	Potash	Well or pumping operation.
White Rock	Florida	Vecellio & Grogan Inc.	Stone	Dredging
McCook	Illinois	Vulcan Materials Co.	do.	Open quarry.
St. Genevieve	Missouri	Tower Rock Stone Co.	do.	Do.
Thornton	Illinois	General Dynamics Corp., Material Service Corp.	do.	Open quarry and stoping.
Norcross	Georgia	Vulcan Materials Co.	do.	Open quarry.
Cape Sandy	Indiana	Mulzer Crushed Stone Co., Inc.	do.	Do.
Mojave	California	Onoda Cement Co., California Portland Cement	do.	Do.
Sandusky	Ohio	Rogers Group Inc., Midsouth Stone	do.	Do.
Cedarville	Michigan	Michigan Minerals Associates	do.	Do.
Mount Hope	New Jersey	Mount Hope Rock Products Inc.	do.	Do.
Granite Mountain	Arkansas	McGeorge Contracting Co. Inc.	do.	Do.
Port Inland	Michigan	Specialty Minerals Inc.	do.	Do.

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

TABLE 6
 TWENTY-FIVE LEADING METAL AND INDUSTRIAL MINERAL MINING OPERATIONS
 IN THE UNITED STATES IN 1995, IN ORDER OF OUTPUT OF TOTAL MATERIAL HANDLED

Type of material and mining operation 1/	State	Operator	Commodity	Mining method
Metals:				
Morenci	Arizona	Phelps Dodge Corp.	Copper	Open pit.
Carlin Mines Complex	Nevada	Newmont Gold Co.	Gold	Do.
Goldstrike	do.	Barrick Gold Inc.	do.	Do.
Chino	New Mexico	Chino Mines Co.	Copper	Do.
Bingham Canyon	Utah	Kennecott, Utah Copper Corp.	do.	Do.
Twin Creeks	Nevada	Santa Fe Pacific Gold Corp.	Gold	Do.
Hoyt Lakes	Minnesota	LTV Steel Mining Co.	Iron	Do.
Cyprus Miami (Inspiration)	Arizona	Cyprus Climax Metals Co.	Copper	Do.
Sierrita	do.	do.	do.	Do.
Empire	Michigan	Empire Iron Mining Partnership	Iron	Do.
Mission Complex	Arizona	ASARCO Incorporated	Copper	Do.
Bagdad	do.	Cyprus Climax Metals Co.	do.	Do.
McCoy Cove	Nevada	Echo Bay Mining Co.	Gold	Do.
Smokey Valley Common Operation	do.	Round Mountain Gold Corp.	do.	Do.
Hibbing	Minnesota	Cliffs Mining Co.	Iron	Do.
Minntac	do.	USX	do.	Do.
Pinto Valley	Arizona	Magma Copper Co.	Copper	Do.
Lone Tree	Nevada	Santa Fe Pacific Gold Corp.	Gold	Do.
Mesquite	California	do.	do.	Do.
Hycroft (Crofoot-Lewis)	Nevada	Granges Inc.	do.	Do.
Thompson Creek	Idaho	Thompson Creek Metals Co.	Molybdenum	Do.
Denton-Rawhide	Nevada	Kennecott Rawhide Mining Co.	Gold	Do.
Golden Sunlight	Montana	Placer Dome U.S. Inc.	do.	Do.
Tilden	Michigan	Tilden Mining Co.	Iron	Do.
Thunderbird	Minnesota	Eveleth Mines	do.	Do.
Industrial minerals:				
Florida mines (6)	Florida	IMC-Agrico Co.	Phosphate rock	Do.
Florida mines (2)	do.	Mobil Mining & Mineral Co.	do.	Do.
Fort Meade	do.	Cargill Fertilizer Inc.	do.	Do.
Lee Creek (Aurora)	North Carolina	Texasgulf Chemical Co.	do.	Do.
All Alaska operations	Alaska	U.S. Bureau of Land Management	Sand and gravel	Open quarry.
Reed	Kentucky	Vulcan Materials Co.	Stone	Do.
Boron	California	U.S. Borax & Chemical Co.	Boron minerals	Open pit.
Beckmann	Texas	Redland Stone Products Co.	Stone	Open quarry.
Georgetown	do.	Texas Crushed Stone Co.	do.	Do.
FEC Hialeah	Florida	CSR America Inc.	do.	Do.
Calcite	Michigan	Michigan Minerals Associates	do.	Do.
Pennsuco	Florida	Tarmac America Inc.	do.	Dredging
Stoneport	Michigan	Presque Isle Corp.	do.	Open quarry.
White Rock	Florida	Vecellio & Grogan Inc.	do.	Dredging
International	New Mexico	IMC Fertilizers Inc.	Potash	Well or pumping operation.
McCook	Illinois	Vulcan Materials Co.	Stone	Open quarry.
St. Genevieve	Missouri	Tower Rock Stone Co.	do.	Do.
Thornton	Illinois	General Dynamics Corp., Material Service Corp.	do.	Open quarry and stoping.
Norcross	Georgia	Vulcan Materials Co.	do.	Open quarry.
Cote Blanche	Louisiana	North American Salt Co.	Salt	Stoping.
Cape Sandy	Indiana	Mulzer Crushed Stone Co., Inc.	Stone	Open quarry.
Mojave	California	Onoda Cement Co., California Portland Cement	do.	Do.
Sandusky	Ohio	Rogers Group Inc., Midsouth Stone	do.	Do.
Vernal	Utah	S.F. Phosphates Ltd.	Phosphate rock	Open pit.
Cedarville	Michigan	Michigan Minerals Associates	Stone	Open quarry.

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

TABLE 7
MARKETABLE PRODUCT AND ORE TREATED OR SOLD AT SURFACE AND UNDERGROUND MINES
IN THE UNITED STATES IN 1995, BY COMMODITY AND STATE 1/

(Thousand metric tons)

	Marketable product			Ore treated or sold		
	Surface	Underground	Total	Surface	Underground	Total
Metal ores:						
Copper	1,720	208	1,930	382,000	W	382,000
Gold	35	(2/)	35	271,000	2,940	274,000
Iron	60,700	W	60,700	209,000	W	209,000
Lead	--	300	300	--	5,390	5,390
Lead-zinc	W	W	W	2,260	W	2,260
Platinum and palladium	--	(2/)	(2/)	--	316	316
Zinc	--	221	221	--	6,520	6,520
Industrial minerals:						
Barite	542	--	542	973	--	973
Clays	43,000	W	43,000	43,000	W	43,000
Diatomite	687	--	687	1,670	--	1,670
Feldspar 3/	703	--	703	703	--	703
Garnet	40	--	40	40	--	40
Gypsum	13,800	2,800	16,600	13,800	2,800	16,600
Magnesite	128	--	128	W	--	W
Magnesium compounds	383	--	383	1,220	--	1,220
Mica (scrap)	78	--	78	521	--	521
Perlite	W	3	3	W	4	4
Phosphate rock	43,500	--	43,500	167,000	--	167,000
Potash	W	1,360	1,360	W	6,940	6,940
Pumice 4/	531	--	531	531	--	531
Salt	4,210	31,200	35,400	4,210	31,200	35,400
Sand and gravel:						
Construction	911,000	156	911,000	911,000	156	911,000
Industrial	27,400	--	27,400	27,400	--	27,400
Soda ash	W	9,120	9,120	W	9,120	9,120
Stone:						
Crushed	1,220,000	44,700	1,260,000	1,220,000	44,700	1,260,000
Dimension	1,120	W	1,120	1,120	W	1,120
Talc and pyrophyllite	868	W	868	908	W	908
Vermiculite	171	--	171	W	--	W
States:						
Alabama	48,800	W	48,800	48,800	W	48,800
Alaska	17,500	--	17,500	30,700	--	30,700
Arizona	47,400	W	47,400	338,000	W	338,000
Arkansas	39,800	--	39,800	39,800	--	39,800
California	151,000	W	151,000	189,000	544	189,000
Colorado	44,000	W	44,000	48,500	W	48,500
Connecticut	13,000	--	13,000	13,000	--	13,000
Delaware	2,680	--	2,680	2,680	--	2,680
Florida	122,000	17	122,000	242,000	17	242,000
Georgia	77,400	W	77,400	78,600	W	78,600
Hawaii	8,330	--	8,330	8,330	--	8,330
Idaho	21,800	W	21,800	44,800	W	44,800
Illinois	98,600	4,330	103,000	98,600	4,330	103,000
Indiana	72,500	3,940	76,500	72,500	3,940	76,500
Iowa	45,100	7,110	52,200	45,100	7,110	52,200
Kansas	32,700	3,150	35,900	32,700	3,150	35,900
Kentucky	52,900	12,200	65,100	52,900	12,200	65,100
Louisiana	18,600	14,400	33,000	18,600	14,400	33,000
Maine	9,560	--	9,560	9,560	--	9,560
Maryland	34,000	251	34,200	34,000	251	34,200
Massachusetts	22,900	W	22,900	22,900	W	22,900
Michigan	110,000	1,210	111,000	140,000	W	140,000
Minnesota	91,600	--	91,600	210,000	--	210,000
Mississippi	15,100	--	15,100	15,100	--	15,100
Missouri	73,400	4,940	78,400	73,400	10,900	84,300
Montana	12,100	W	12,100	43,300	734	44,000
Nebraska	18,500	W	18,500	18,500	W	18,500
Nevada	28,100	3	28,100	178,000	782	178,000

See footnotes at end of table.

TABLE 7--Continued
 MARKETABLE PRODUCT AND ORE TREATED OR SOLD AT SURFACE AND UNDERGROUND MINES
 IN THE UNITED STATES IN 1995, BY COMMODITY AND STATE 1/

(Thousand metric tons)

	Marketable product			Ore treated or sold		
	Surface	Underground	Total	Surface	Underground	Total
States--Continued:						
New Hampshire	9,400	--	9,400	9,400	--	9,400
New Jersey	36,900	--	36,900	36,900	--	36,900
New Mexico	17,100	1,380	18,500	40,300	7,710	48,000
New York	68,600	4,050	72,700	68,600	4,700	73,300
North Carolina	76,800	--	76,800	83,700	--	83,700
North Dakota	8,480	--	8,480	8,480	--	8,480
Ohio	110,000	W	110,000	110,000	W	110,000
Oklahoma	43,500	W	43,500	43,500	W	43,500
Oregon	39,400	--	39,400	39,900	--	39,900
Pennsylvania	95,800	3,530	99,300	95,800	3,530	99,300
Rhode Island	4,130	--	4,130	4,130	--	4,130
South Carolina	33,500	--	33,500	39,600	--	39,600
South Dakota	14,400	(2/)	14,400	21,100	1,320	22,400
Tennessee	58,600	4,340	63,000	58,600	9,810	68,400
Texas	149,000	9,560	159,000	149,000	9,560	159,000
Utah	32,200	W	32,200	89,700	W	89,700
Vermont	7,890	W	7,890	7,890	W	7,890
Virginia	66,300	676	67,000	66,900	676	67,500
Washington	54,300	W	54,300	54,300	W	54,300
West Virginia	13,400	2,930	16,300	13,400	2,930	16,300
Wisconsin	60,000	--	60,000	60,400	--	60,400
Wyoming	11,900	9,120	21,000	11,900	9,120	21,000

W Withheld to avoid disclosing company proprietary data.

1/ Data rounded to three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

3/ Includes aplite.

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

TABLE 8
MINING METHODS USED AT SURFACE OPERATIONS
IN THE UNITED STATES, BY COMMODITY, IN 1995

(Percent of total material handled)

Commodity	Preceded by drilling and blasting	Not preceded by drilling and blasting 1/
Metal ores:		
Bauxite	--	100
Beryllium concentrate	100	--
Copper	100	--
Gold	98	2
Gold-silver	100	--
Iron	97	3
Lead-zinc	100	--
Magnesium metal	52	48
Manganiferous	--	100
Molybdenum	100	--
Nickel	5	95
Silver	100	--
Titanium	--	100
Tungsten	--	100
Uranium	--	100
Average	<u>98</u>	<u>2</u>
Industrial minerals:		
Abrasives	100	--
Barite	32	68
Boron minerals	100	--
Bromine	--	100
Clays	--	100
Diatomite	2	98
Emery	100	--
Feldspar 2/	93	7
Garnet	38	62
Greensand marl	--	100
Gypsum	94	6
Iodine	--	100
Iron oxide pigments	100	--
Kyanite	100	--
Lithium minerals	94	6
Magnesite	100	--
Magnesium compounds	77	23
Mica (scrap)	5	95
Olivine	62	38
Perlite	21	79
Phosphate rock	3	97
Potash	--	100
Pumice 3/	22	78
Salt	1	99
Sand and gravel:		
Construction	--	100
Industrial	--	100
Soda ash	--	100
Stone:		
Crushed	98	2
Dimension	--	100
Sulfur (Frasch)	--	100
Talc and pyrophyllite	81	19
Tripoli	96	4
Vermiculite	4	96
Wollastonite	100	--
Zeolites	100	--
Average	<u>47</u>	<u>53</u>
Average, metals and industrial minerals	<u>71</u>	<u>29</u>

1/ Includes drilling and cutting without blasting, dredging, and 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 9
EXPLORATION ACTIVITY IN THE UNITED STATES IN 1995, BY METHOD, COMMODITY, AND STATE 1/

(Meters)

	Churn drilling	Diamond drilling	Percussion drilling	Rotary drilling	Other drilling	Trenching	Total
Commodities:							
Diatomite	--	--	--	1,370	--	--	1,370
Gold	--	129,000	41,800	487,000	1	2,920	660,000
Lead	2,590	32,400	W	W	--	--	35,000
Platinum and palladium	--	164	--	--	--	--	164
Silver	--	1,140	--	--	W	--	1,140
Titanium	--	--	--	15,200	--	--	15,200
Uranium	--	1,070	--	W	--	--	1,070
Other	--	77,900	223,000	175,000	1,750	62	477,000
Total	2,590	241,000	264,000	678,000	1,760	2,980	1,190,000
Percent of total	(2/)	20	22	57	(2/)	(2/)	100
Total metals	2,590	(3/)	(3/)	655,000	1,760	(3/)	1,160,000
Total industrial minerals	--	(3/)	(3/)	23,600	--	(3/)	27,900
States:							
Alaska	--	W	--	9,460	--	W	13,500
California	--	--	--	37,000	--	37	37,000
Colorado	--	6,300	--	30,700	--	--	37,000
Florida	--	--	--	15,200	--	--	15,200
Idaho	--	2,750	762	W	1	6	3,519
Missouri	2,590	W	W	W	--	--	2,590
Montana	--	8,220	--	8,280	--	W	16,500
Nevada	--	62,300	W	347,000	W	W	409,300
Oregon	--	--	--	457	W	W	457
South Dakota	--	48,300	W	W	--	--	48,300
Utah	--	1,830	--	W	--	--	1,830
Washington	--	--	--	--	--	(2/)	(2/)
Undistributed	--	112,000	264,000	231,000	1,750	2,940	607,000
Total	2,590	241,000	264,000	678,000	1,760	2,980	1,190,000
Percent of all States	(2/)	20	22	57	(2/)	(2/)	100

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

1/ Data rounded to three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

3/ Withheld to avoid disclosing company proprietary data.