MINING AND QUARRYING TRENDS

By Jean K. Moore

The mining and quarrying trends data shown in this report were reported to the U.S. Bureau of Mines (USBM) by nonfuel mining and quarrying companies operating in the United States. The data for 1994 were reported on the Mine Information Supplement statistical survey conducted by the USBM. Additional data for 1994 were derived from 58 annual USBM production and consumption surveys of minerals producers. These surveys covered 59 nonfuel mineral commodities produced in the United States.

Mining and quarrying data for 1994, 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. These mineral commodities were previously surveyed biennually and appeared alternately in this report. The inclusion of both of the above mentioned sets of data in this report results in essentially a complete coverage of nonfuel minerals production in the United States. This change, however, does not make comparisons of 1994 data with previously reported annual data possible.

Domestic mining of nonfuel mineral materials totaled 4.9 billion metric tons in 1994, including 3.2 billion tons of crude ore mined or quarried and 1.7 billion tons of mine waste and ore from development. Of the nonfuel mineral materials mined, 57% was for the production of industrial minerals and 43% was for the production of metals. Overall, 97% of nonfuel mineral mining and quarrying was surface and the remaining 3% was underground.

Surface mining and quarrying for industrial minerals totaled 2.7 billion tons, of which 2.3 billion tons was crude ore mined and the remainder was waste and ore from development. Underground mining for industrial minerals was minor, amounting to 98 million tons, practically all of which was crude ore.

Surface mining for metal ores totaled 2.1 billion tons, of which about 806 million tons amounted to crude ore mined, while the remaining 1.3 billion tons was waste and ore from development. Underground mining of metal ores was small, amounting to 38 million tons, almost all of which was crude ore.

The major States in which mining for nonfuel minerals occurred were Nevada, Florida, California, Arizona and Minnesota. These States accounted for almost one-half of the mining conducted in the United States. Virtually all of the mining in these five 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:									
1990	771 r/	1,150 r/	1,920 r/	54	4	57	825 r/	1,150 r/	1,980
1991	854 r/	1,200 r/	2,050	65 r/	2	67 r/	919 r/	1,200 r/	2,120
1992	921 r/	1,110 r/	2,030 r/	37	2	38	957 r/	1,110 r/	2,070 r/
1993	921	1,140	2,060	34	2	36	955	1,140	2,100
1994	806	1,280	2,080	37	1	38	843	1,280	2,120
Industrial minerals:									
1990 5/	1,090	93	1,180	43	(6/)	44	1,130	94	1,230
1991 7/	1,210	132	1,340	62	(6/)	62	1,270	132	1,400
1992 5/	996	267	1,260	36	(6/)	37	1,030	267	1,300
1993	1,180	310	1,490	93	(6/)	94	1,280	311	1,590
1994	2,280	425	2,710	98	(6/)	98	2,380	425	2,800
All mineral commodities:									
1990	1,860 r/	1,240 r/	3,100 r/	97	4	101	1,960 r/	1,250 r/	3,200 r/
1991	2,080 r/	1,330 r/	3,410 r/	129 r/	2	131 r/	2,210 r/	1,330 r/	3,540 r/
1992	1,920 r/	1,380 r/	3,290 r/	73	2	75	1,990	1,380 r/	3,370 r/
1993	2,110	1,450	3,550	127	2	129	2,230	1,450	3,680
1994	3,090	1,700	4,790	135	1	136	3,220	1,700	4,920

r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines 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/ Crushed and broken and dimension stone data were not available because of biennial canvassing.

6/ Less than 1/2 unit.

7/ Construction sand and gravel data were not available because of biennial canvassing.

TABLE 2
MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 1994,
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
METALS									
Copper	309,000	226,000	535,000	W	W	W	309,000	226,000	535,000
Gold	271,000	793,000	1,060,000	3,090	314	3,400	274,000	794,000	1,070,000
Iron	191,000	124,000	315,000	W	W	W	191,000	124,000	315,000
Lead	--	--	--	4,290	--	4,290	4,290	--	4,290
Zinc	--	--	--	6,360	211	6,570	6,360	211	6,570
Other 5/	35,000	133,000	168,000	23,400	220	23,600	58,400	133,000	192,000
Total	806,000	1,280,000	2,080,000	37,100	745	37,900	843,000	1,280,000	2,120,000
INDUSTRIAL MINERALS									
Barite	1,080	735	1,820	--	--	--	1,080	735	1,820
Bromine	257	--	257	--	--	--	257	--	257
Clays	41,500	36,100	77,600	W	W	W	41,500	36,100	77,600
Diatomite	1,460	W	1,460	--	--	--	1,460	W	1,460
Feldspar 6/	662	--	662	--	--	--	662	--	662
Gypsum	14,300	W	14,300	2,810	4	2,810	17,100	4	17,100
Magnesite	87	--	87	--	--	--	87	--	87
Magnesium compounds	1,400	W	1,400	--	--	--	1,400	W	1,400
Mica (scrap)	83	--	83	--	--	--	83	--	83
Phosphate rock	157,000	W	157,000	--	--	--	157,000	W	157,000
Potash	W	--	W	6,490	--	6,490	6,490	--	6,490
Pumice 7/	556	W	556	--	--	--	556	W	556
Salt	4,460	--	4,460	30,000	--	30,000	34,400	--	34,400
Sand and gravel:									
Construction	856,000	--	856,000	292	--	292	856,000	--	856,000
Industrial	27,300	--	27,300	--	--	--	27,300	--	27,300
Soda ash	W	--	W	8,400	--	8,400	8,400	--	8,400
Stone:									
Crushed	1,150,000	91,900	1,240,000	48,700	341	49,000	1,200,000	92,200	1,290,000
Dimension	1,150	585	1,730	44	--	44	1,190	585	1,780
Talc and pyrophyllite	750	1,030	1,780	W	--	W	750	1,030	1,780
Tripoli	W	22	22	--	--	--	W	22	22
Other 8/	22,400	294,000	317,000	993	1	994	23,400	294,000	318,000
Total industrial minerals	2,280,000	425,000	2,700,000	97,700	346	98,000	2,380,000	425,000	2,800,000
Grand total	3,090,000	1,700,000	4,790,000	135,000	1,090	136,000	3,220,000	1,700,000	4,920,000
STATES									
Alabama	47,100	4,690	51,800	W	--	W	47,100	4,690	51,800
Alaska	44,100	W	44,100	23	3	26	44,100	3	44,100
Arizona	263,000	W	263,000	W	W	W	263,000	W	263,000
Arkansas	36,100	4,940	41,000	--	--	--	36,100	4,940	41,000
California	184,000	106,000	290,000	573	W	573	185,000	106,000	291,000
Colorado	39,800	8,620	48,400	W	W	W	39,800	8,620	48,400
Connecticut	10,800	529	11,400	--	--	--	10,800	529	11,400
Delaware	1,810	--	1,810	--	--	--	1,810	--	1,810
Florida	231,000	378,000	609,000	W	W	W	231,000	378,000	609,000
Georgia	67,600	13,000	80,600	W	W	W	67,600	13,000	80,600
Hawaii	8,650	653	9,300	--	--	--	8,650	653	9,300
Idaho	37,000	15,000	52,000	W	119	119	37,000	15,100	52,200
Illinois	100,000	5,410	106,000	4,910	33	4,940	105,000	5,440	111,000
Indiana	69,600	4,200	73,800	3,840	W	3,840	73,500	4,200	77,700
Iowa	44,800	4,710	49,500	6,900	42	6,950	51,700	4,750	56,500
Kansas	32,600	2,140	34,700	3,160	6	3,160	35,700	2,150	37,900
Kentucky	53,600	4,280	57,800	12,400	87	12,500	66,000	4,370	70,400
Louisiana	17,000	436	17,400	13,500	--	13,500	30,500	436	31,000
Maine	8,490	242	8,740	--	--	--	8,490	242	8,740
Maryland	32,800	2,150	34,900	W	W	W	32,800	2,150	34,900
Massachusetts	22,400	889	23,300	W	W	W	22,400	889	23,300
Michigan	131,000	60,400	191,000	W	4	W	131,000	60,400	191,000
Minnesota	188,000	68,200	256,000	--	--	--	188,000	68,200	256,000
Mississippi	15,300	1,210	16,500	--	--	--	15,300	1,210	16,500
Missouri	73,400	6,500	79,900	11,700	53	11,700	85,100	6,550	91,600
Montana	46,300	66,200	113,000	802	W	802	47,100	66,200	113,000

See footnotes at end of table.

TABLE 2--Continued
MATERIAL HANDLED AT SURFACE AND UNDERGROUND MINES IN THE UNITED STATES IN 1994,
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	19,700	588	20,300	W	W	W	19,700	588	20,300
Nevada	203,000	712,000	915,000	W	W	W	203,000	712,000	915,000
New Hampshire	8,340	113	8,450	--	--	--	8,340	113	8,450
New Jersey	33,300	1,390	34,700	--	--	--	33,300	1,390	34,700
New Mexico	40,200	W	40,200	7,130	W	7,130	47,400	W	47,400
New York	66,700	4,210	70,900	6,170	--	6,170	72,900	4,210	77,100
North Carolina	81,300	10,500	91,800	--	--	--	81,300	10,500	91,800
North Dakota	6,240	W	6,240	--	--	--	6,240	W	6,240
Ohio	105,000	6,200	111,000	W	--	W	105,000	6,200	111,000
Oklahoma	42,200	3,280	45,400	W	W	W	42,200	3,280	45,400
Oregon	35,800	1,740	37,600	W	--	W	35,800	1,740	37,600
Pennsylvania	87,100	6,280	93,400	2,450	17	2,460	89,500	6,300	95,800
Rhode Island	3,990	129	4,120	--	--	--	3,990	129	4,120
South Carolina	37,900	8,980	46,900	W	W	W	37,900	8,980	46,900
South Dakota	19,200	W	19,200	W	W	W	19,200	W	19,200
Tennessee	53,700	4,640	58,300	8,520	W	8,700	62,200	4,640	66,800
Texas	130,000	8,660	139,000	8,480	W	8,480	138,000	8,660	147,000
Utah	96,400	W	96,400	227	W	227	96,700	W	96,700
Vermont	7,630	319	7,950	W	--	W	7,630	319	7,950
Virginia	65,100	5,240	70,300	W	W	W	65,100	5,240	70,300
Washington	55,100	1,440	56,500	925	W	925	56,000	1,440	57,400
West Virginia	14,400	1,120	15,500	2,720	19	2,730	17,100	1,140	18,300
Wisconsin	56,300	5,000	61,300	--	--	--	56,300	5,000	61,300
Wyoming	11,000	2,620	13,700	8,400	--	8,400	19,500	2,620	22,100
Undistributed 9/	--	157,000	157,000	32,000	708	32,500	32,000	158,000	190,000
Grand total	3,090,000	1,700,000	4,790,000	135,000	1,090	136,000	3,220,000	1,700,000	4,920,000

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

1/ Data rounded by the U.S. Bureau of Mines 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, gold-silver ore, lead-zinc ore, magnesium metal, manganiferous ore, molybdenum, platinum-group metals, rare earths, silver, titanium, tungsten, uranium, and metal items indicated by symbol W.

6/ Includes aplite.

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

8/ Includes abrasives, boron minerals, emery, fluorspar, garnet, greensand marl, iodine, iron oxide pigments, kyanite, lithium minerals, olivine, perlite, sodium sulfate, sulfur (Frasch), vermiculite, wollastonite, zeolites, 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 1994 1/

(Dollars per metric ton)

	Surface			Underground			All mines		
	Principal mineral product	By-product	Total	Principal mineral product	By-product	Total	Principal mineral product	By-product	Total
METALS									
Copper	13.01	1.53	14.54	W	W	W	13.01	1.53	14.54
Gold	13.04	.42	13.46	70.56	1.21	71.76	13.69	.43	14.11
Iron ore (usable)	8.19	--	8.19	W	W	W	8.19	W	8.19
Lead	--	--	--	46.13	14.69	60.82	46.13	14.69	60.82
Zinc	--	--	--	36.05	W	37.62	36.05	W	37.62
Average, metals 2/	11.69	1.33	13.02	34.18	4.71	38.88	12.69	1.48	14.17
INDUSTRIAL MINERALS									
Barite	20.07	--	20.07	--	--	--	20.07	--	20.07
Clays	38.30	--	38.30	W	W	W	38.30	--	38.30
Feldspar 3/	40.96	W	42.78	--	--	--	40.96	W	42.78
Gypsum (crude)	6.70	--	6.70	6.69	--	6.69	6.70	--	6.70
Magnesium compounds	104.53	--	104.53	--	--	--	104.53	--	104.53
Mica (scrap)	65.97	W	76.60	--	--	--	65.97	W	76.60
Phosphate rock	5.29	W	5.36	--	--	--	5.29	W	5.36
Potash	W	W	W	18.19	--	18.19	18.19	W	18.19
Pumice 4/	24.08	--	24.08	--	--	--	24.08	--	24.08
Salt	74.24	--	74.24	19.93	W	19.93	27.05	W	27.05
Sand and gravel:									
Construction	4.19	.01	4.20	2.81	--	2.81	4.19	.01	4.19
Industrial	17.81	.06	17.87	--	--	--	17.81	.06	17.87
Soda ash	W	W	W	76.71	--	76.71	76.71	W	76.71
Stone:									
Crushed	5.33	--	5.33	7.34	--	7.34	5.41	--	5.41
Dimension	170.43	6.06	176.50	333.56	--	333.56	176.48	5.84	182.32
Talc and pyrophyllite	31.83	W	31.83	W	W	W	31.83	W	31.83
Average, industrial minerals 2/	6.43	.06	6.49	18.45	.10	18.55	6.91	.06	6.97
Average, industrial minerals 2/ (excluding sand and gravel and stone)	18.11	.49	18.60	29.37	.19	29.56	20.00	.44	20.44
Average, metals and industrial minerals 2/	7.81	.39	8.19	22.99	1.39	24.38	8.43	.43	8.86
Average, metals and industrial minerals 2/ (excluding sand and gravel and stone)	13.26	1.15	14.41	31.67	2.18	33.85	14.66	1.23	15.89

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 1994, 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 ORE							
Bauxite	6	--	--	6	--	--	--
Beryllium concentrate	1	--	--	1	--	--	--
Copper	23	--	1	--	5	7	10
Gold	92	6	6	10	25	38	9
Gold-silver	3	--	--	--	--	3	--
Iron	14	--	1	2	2	3	7
Lead	9	--	--	1	7	1	--
Lead-zinc	2	--	--	--	1	1	--
Magnesium metal	3	--	--	1	--	--	2
Manganiferous	1	--	1	--	--	--	--
Molybdenum	2	--	--	--	--	2	--
Platinum-group metals	1	--	--	--	1	--	--
Rare earth metal concentrates	1	--	--	--	1	--	--
Silver	2	--	--	1	--	1	--
Titanium	4	--	1	--	2	--	1
Tungsten	1	1	--	--	--	--	--
Uranium	5	5	--	--	--	--	--
Zinc	11	--	--	--	9	2	--
Total metal ores	180	12	10	21	53	58	29
INDUSTRIAL MINERAL							
Abrasives	10	9	--	1	--	--	--
Barite	9	--	3	1	5	--	--
Boron minerals	4	--	1	--	2	1	--
Bromine	6	--	--	6	--	--	--
Clays	710	38	125	427	120	--	--
Diatomite	11	1	--	6	4	--	--
Emery	1	1	--	--	--	--	--
Feldspar 3/	10	--	1	6	3	--	--
Fluorspar	1	--	--	--	1	--	--
Garnet	2	--	--	2	--	--	--
Greensand marl	1	--	1	--	--	--	--
Gypsum	59	--	2	13	44	--	--
Iodine	3	3	--	--	--	--	--
Iron oxide pigments (crude)	3	2	--	1	--	--	--
Kyanite	2	--	--	2	--	--	--
Lithium minerals	3	1	1	1	--	--	--
Magnesite	1	--	--	1	--	--	--
Magnesium compounds	5	--	1	1	3	--	--
Mica (scrap)	7	--	3	4	--	--	--
Olivine	3	--	--	3	--	--	--
Perlite	8	--	3	2	3	--	--
Phosphate rock	17	--	--	--	--	9	8
Potash	9	--	--	3	1	5	--
Pumice 4/	14	--	3	10	1	--	--
Salt	63	--	3	14	35	12	--
Sand and gravel:							
Construction	7,370	240	1,680	3,390	1,980	80	--
Industrial	167	1	11	82	72	1	--
Sodium compounds:							
Soda ash	6	--	--	--	--	6	--
Sodium sulfate	1	--	--	--	1	--	--
Stone:							
Crushed	3,640	219	516	991	1,630	288	--
Dimension	248	74	143	31	--	--	--
Sulfur (Frasch)	2	--	--	--	1	1	--
Talc and pyrophyllite	23	4	6	8	5	--	--
Tripoli	6	2	1	3	--	--	--
Vermiculite	4	--	--	3	1	--	--
Wollastonite	2	--	--	2	--	--	--
Zeolites	6	3	1	2	--	--	--
Total industrial minerals	12,400	598	2,510	5,020	3,910	403	8
Grand total	12,600	610	2,520	5,040	3,960	461	37

See footnotes at end of table.

TABLE 4--Continued

NUMBER OF DOMESTIC METAL AND INDUSTRIAL MINERAL MINES IN THE UNITED STATES IN 1994, 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
STATE							
Alabama	171	2	18	70	67	14	--
Alaska	67	4	13	20	24	6	1
Arizona	223	5	26	93	81	11	7
Arkansas	165	8	23	75	50	9	--
California	725	35	208	219	223	40	1
Colorado	389	5	81	219	77	7	--
Connecticut	74	2	9	29	34	--	--
Delaware	9	1	1	1	6	--	--
Florida	179	--	--	52	99	20	8
Georgia	258	5	41	98	93	21	--
Hawaii	43	2	8	20	11	2	--
Idaho	264	9	43	157	47	8	--
Illinois	328	5	21	115	161	26	--
Indiana	246	--	25	77	130	14	--
Iowa	371	4	32	204	127	4	--
Kansas	347	32	68	146	98	3	--
Kentucky	134	--	10	24	86	14	--
Louisiana	113	4	4	48	50	7	--
Maine	190	8	77	83	22	--	--
Maryland	101	5	14	37	35	10	--
Massachusetts	133	5	12	47	65	4	--
Michigan	542	14	113	268	132	14	2
Minnesota	517	22	107	275	103	5	5
Mississippi	110	2	12	58	36	2	--
Missouri	376	8	65	116	171	16	--
Montana	207	10	74	83	33	6	1
Nebraska	262	43	35	142	39	3	--
Nevada	396	10	234	54	72	19	7
New Hampshire	71	1	7	34	29	--	--
New Jersey	97	--	6	32	52	7	--
New Mexico	190	10	35	95	42	7	1
New York	624	41	185	237	154	7	--
North Carolina	279	12	40	117	95	14	1
North Dakota	95	1	19	60	15	--	--
Ohio	383	6	29	113	214	21	--
Oklahoma	167	13	18	61	66	9	--
Oregon	613	143	258	126	81	5	--
Pennsylvania	353	18	30	117	178	10	--
Rhode Island	23	--	2	9	12	--	--
South Carolina	145	5	13	67	54	6	--
South Dakota	213	2	77	106	22	6	--
Tennessee	192	1	14	49	118	10	--
Texas	511	37	52	177	223	21	1
Utah	222	14	52	84	66	6	1
Vermont	152	13	34	84	21	--	--
Virginia	201	8	19	66	93	15	--
Washington	441	12	107	189	126	6	1
West Virginia	52	1	2	18	28	3	--
Wisconsin	558	9	106	302	136	5	--
Wyoming	97	6	16	43	26	6	--
Grand total	12,600	610	2,520	5,040	3,960	461	37

1/ Based on crude ore mined.

2/ Data rounded by the U.S. Bureau of Mines 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 1994, IN ORDER OF OUTPUT OF CRUDE ORE

Mining operation 1/	State	Operator	Commodity	Mining method
METALS				
Carlin Mines Complex	Nevada	Newmont Gold Co.	Gold	Open pit.
Bingham Canyon	Utah	Kennecott, Utah Copper Corp.	Copper	Do.
Minntac	Minnesota	USX	Iron ore	Do.
Sierrita	Arizona	Cyprus Climax Metals Co.	Copper	Do.
Morenci	do.	Phelps Dodge Corp.	do.	Do.
Bagdad	do.	Cyprus Climax Metals Co.	do.	Do.
Hibbing	Minnesota	Hibbing Taconite Co.	Iron ore	Do.
Cyprus Miami (Inspiration)	Arizona	Cyprus Climax Metals Co.	Copper	Do.
Hoyt Lakes	Minnesota	LTV Steel Mining Co.	Iron ore	Do.
Empire	Michigan	Empire Iron Mining Partnership	do.	Do.
Smokey Valley Common Operation	Nevada	Round Mountain Gold Corp.	Gold	Do.
Pinto Valley	Arizona	Magma Copper Co.	Copper	Do.
Ray	do.	ASARCO Incorporated	do.	Do.
San Manuel	do.	Magma Copper Co.	do.	Open pit and stoping.
Chino	New Mexico	Phelps Dodge Corp.	do.	Open pit.
Thunderbird	Minnesota	Eveleth Mines	Iron ore	Do.
Twin Creeks	Nevada	Santa Fe Pacific Gold Corp.	Gold	Do.
Continental	Montana	Montana Resources Inc.	Copper	Do.
Zortman-Landusky	do.	Pegasus Gold Inc.	Gold	Do.
Mission Complex	Arizona	ASARCO Incorporated	Copper	Do.
Green Cove	Florida	RGC (USA) Mineral Sands, Inc .	Titanium	Dredging.
Mesquite	California	Santa Fe Pacific Gold Corp.	Gold	Open pit.
Tilden	Michigan	Tilden Mining Co.	do.	Do.
Peter Mitchell	Minnesota	Cyprus Climax Metals Co.	Iron ore	Do.
McCoy and Cove	Nevada	Echo Bay Mining Co.	Gold	Open pit and stoping.
INDUSTRIAL MINERALS				
Florida mines (6)	Florida	IMC-Agrico Co.	Phosphate rock	Open pit.
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.
Florida mines (2)	Florida	Mobil Mining & Mineral Co.	Phosphate rock	Open pit.
FEC Hialea	do.	CSR America Inc.	Stone	Open quarry.
Georgetown	Texas	Texas Crushed Stone Co.	do.	Do.
Beckmann	do.	Redland Stone Products Co.	do.	Do.
Pennsuco	Florida	Tarmac America Inc.	do.	Dredging.
Calcite	Michigan	Michigan Minerals Associates	do.	Open quarry.
Stoneport	do.	Presque Isle Corp.	do.	Do.
McCook	Illinois	Vulcan Materials Co.	do.	Do.
White Rock	Florida	Vecellio & Grogan Inc.	do.	Dredging.
International	New Mexico	IMC Fertilizers Inc.	Potash	Well or pumping operation.
Thornton	Illinois	General Dynamics Corp., Material Service Corp.	Stone	Open quarry and stoping.
St. Genevieve	Missouri	Tower Rock Stone Co.	do.	Open quarry.
Norcross	Georgia	Vulcan Materials Co.	do.	Do.
Cave-in-Rock	Illinois	Dravo Basic Materials	do.	Do.
Sheldon/Peoria	California	Calmat Co., Inc.	Sand and gravel	Do.
Richards	Oklahoma	Dolese Bros.Co.	Stone	Do.
Cape Sandy	Indiana	Mulzer Crushed Stone Co., Inc.	do.	Do.
Permanente	California	Cornerstone Construction & Materials, Inc.	do.	Do.
Millville	West Virginia	Evered Bardon USA Inc. (Millville Quarry Inc.)	do.	Do.
Henderson	Nevada	Nevada Ready Mix Co.	Sand and gravel	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 1994, IN ORDER OF OUTPUT OF TOTAL MATERIALS HANDLED

Mining operation 1/	State	Operator	Commodity	Mining method
METALS				
Carlin Complex	Nevada	Newmont Gold Co.	Gold	Open pit.
Goldstrike	do.	Barrick Goldstrike Mines Inc.	do.	Do.
Bingham Canyon	Utah	Kennecott Corp.	Copper	Do.
Trail Ridge	Florida	E. I. du Pont de Nemours & Co., Inc.	Titanium	Dredging.
Chino	New Mexico	Chino Mines Co.	Copper	Open pit.
Twin Creeks	Nevada	Santa Fe Pacific Gold Corp.	Gold	Do.
Cyprus Miami (Inspiration)	Arizona	Cyprus Climax Metals Co.	Copper	Do.
Sierrita	do.	do.	do.	Do.
McCoy and Cove	Nevada	Echo Bay Mining Co.	Gold	Do.
Empire	Michigan	Empire Iron Mining Partnership	Iron ore	Do.
Hoyt Lakes	Minnesota	LTV Steel Mining Co.	do.	Do.
Hibbing	do.	Pickands Mather & Co.	do.	Do.
Smokey Valley Common Operation	Nevada	Round Mountain Gold Corp.	Gold	Do.
Mesquite	California	Santa Fe Pacific Gold Corp.	do.	Do.
Minntac	Minnesota	USX	Iron ore	Do.
Morenci	Arizona	Phelps Dodge Corp.	Copper	Do.
Bagdad	do.	Cyprus Climax Metals Co.	do.	Do.
Lone Tree	Nevada	Santa Fe Pacific Gold Corp.	Gold	Do.
Crofoot/Lewis	do.	Hycroft Resources & Development	do.	Do.
Zortman- Landusky	Montana	Pegasus Gold Corp.	do.	Do.
Jerritt Canyon (Enfield Bell)	Nevada	Independence Mining Co. Inc.	do.	Do.
Continental	Montana	Montana Resources Inc.	Copper	Do.
Montana Tunnels	do.	Montana Tunnels Mining, Inc.	Gold	Do.
Thunderbird	Minnesota	Eveleth Mines	Iron ore	Do.
Getchell	Nevada	FMG Inc.	Gold	Do.
INDUSTRIAL MINERALS				
Florida Mines (6)	Florida	IMC-Agrico Co.	Phosphate rock	Open pit.
Fort Meade	do.	Cargill Fertilizer Inc.	do.	Do.
Big Four	do.	Mobil Mining & Minerals Co.	do.	Do.
Lee Creek (Aurora)	North Carolina	Texasgulf Inc.	do.	Do.
Boron	California	U.S. Borax & Chemical Co.	Boron minerals	Do.
All Alaska operations	Alaska	U.S. Bureau of Land Management	Sand and gravel	Open quarry.
Reed	Kentucky	Vulcan Materials Co.	Stone	Do.
Rockland	Florida	U.S. Agri-Chemicals Corp.	Phosphate rock	Open pit.
FEC Hialea	do.	CSR America Inc.	Stone	Open quarry.
Georgetown	Texas	Texas Crushed Stone Co.	do.	Do.
Beckmann	do.	Redland Stone Products Co.	do.	Do.
Pennsuco	Florida	Tarmac America Inc.	do.	Dredging.
Calcite	Michigan	Michigan Minerals Associates	do.	Open quarry.
Stoneport	do.	Presque Isle Corp.	do.	Do.
McCook	Illinois	Vulcan Materials Co.	do.	Do.
White Rock	Florida	Vecellio & Grogan Inc.	do.	Dredging.
International	New Mexico	IMC Fertilizer Inc.	Potash	Well and pumping operation.
Thornton	Illinois	General Dynamics Corp, Material Service Corp.	Stone	Open quarry.
Carey Limestone	Missouri	Tower Rock Stone Co.	do.	Do.
Conda Smokey	Idaho	J. R. Simplot Co., Minerals & Chemicals Group	Phosphate rock	Open pit.
Norcross	Georgia	Vulcan Materials Co.	Stone	Open quarry.
Cave-in-Rock	Illinois	Dravo Basic Materials	do.	Do.
Richards	Oklahoma	Dolese Bros Co.	do.	Do.
Cape Sandy	Indiana	Mulzer Crushed Stone Co. Inc.	do.	Do.
Permanente	California	Cornerstone Construction & Materials Inc.	do.	Do.

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 1994, BY COMMODITY AND STATE 1/

(Thousand metric tons)

	Marketable product			Ore treated or sold		
	Surface	Underground	Total	Surface	Underground	Total
METALS						
Copper	1,360	W	1,360	299,000	W	299,000
Gold	W	W	W	225,000	1,970	227,000
Iron ore (usable)	57,300	W	57,300	191,000	W	191,000
Lead	--	W	W	--	1,030	1,030
Manganiferous ore (5% to 35% Mn)	3	--	3	W	--	W
INDUSTRIAL MINERALS						
Asbestos	10	--	10	W	--	W
Barite	582	--	582	1,080	--	1,080
Bromine	W	--	W	257	--	257
Clays	41,400	W	41,400	41,400	W	41,400
Diatomite	613	--	613	W	--	W
Feldspar 2/	662	--	662	662	--	662
Gypsum (crude)	14,300	2,810	17,200	14,300	2,810	17,200
Magnesite	87	--	87	87	--	87
Magnesium compounds	390	--	390	1,330	--	1,330
Mica (scrap)	83	--	83	83	--	83
Perlite	W	3	3	W	3	3
Phosphate rock	41,100	--	41,100	159,000	--	159,000
Potash	W	1,440	1,440	W	6,490	6,490
Pumice 3/	490	--	490	490	--	490
Salt	4,260	30,100	34,400	4,530	30,000	34,500
Sand and gravel:						
Construction	891,000	292	891,000	891,000	292	891,000
Industrial	27,300	--	27,300	27,300	--	27,300
Soda ash	W	8,400	8,400	W	8,400	8,400
Stone:						
Crushed	1,170,000	57,800	1,230,000	1,180,000	48,700	1,230,000
Dimension	1,150	44	1,190	1,150	44	1,190
Talc and pyrophyllite	746	W	746	746	W	746
Vermiculite (crude)	177	--	177	W	--	W
STATES						
Alabama	48,100	W	48,100	48,200	W	48,200
Alaska	19,900	--	19,900	36,200	--	36,200
Arizona	41,500	288	41,800	263,000	W	263,000
Arkansas	36,200	--	36,200	36,200	--	36,200
California	146,000	W	146,000	173,000	576	174,000
Colorado	38,400	111	38,500	41,100	W	41,100
Connecticut	11,200	--	11,200	11,200	--	11,200
Delaware	2,580	--	2,580	2,580	--	2,580
Florida	114,000	W	114,000	229,000	W	229,000
Georgia	67,300	W	67,300	67,800	W	67,800
Hawaii	8,690	--	8,690	8,690	--	8,690
Idaho	25,500	W	25,500	38,100	258	38,400
Illinois	99,800	7,550	107,000	103,000	4,910	107,000
Indiana	70,300	W	70,300	72,400	3,840	76,200
Iowa	47,900	6,900	54,800	47,900	6,900	54,800
Kansas	33,800	3,160	36,900	33,800	3,160	36,900
Kentucky	51,500	14,800	66,300	53,900	12,400	66,300
Louisiana	17,100	13,600	30,700	17,200	13,500	30,700
Maine	8,660	--	8,660	8,660	--	8,660
Maryland	32,800	W	32,800	32,800	W	32,800
Massachusetts	22,700	W	22,700	22,800	W	22,800
Michigan	103,000	1,210	105,000	133,000	W	133,000
Minnesota	84,800	--	84,800	189,000	--	189,000
Mississippi	15,600	--	15,600	15,600	--	15,600
Missouri	73,400	W	73,400	74,500	9,820	84,300
Montana	10,300	239	10,500	46,400	802	47,200
Nebraska	20,300	W	20,300	20,300	W	20,300
Nevada	28,000	3	28,000	217,000	W	217,000
New Hampshire	8,550	--	8,550	8,550	--	8,550
New Jersey	37,600	--	37,600	37,600	--	37,600
New Mexico	16,900	1,470	18,300	40,200	7,140	47,300
New York	69,200	5,520	74,700	69,200	6,030	75,200

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 1994, BY COMMODITY AND STATE 1/

(Thousand metric tons)

	Marketable product			Ore treated or sold		
	Surface	Underground	Total	Surface	Underground	Total
STATES--Continued						
North Carolina	75,300	--	75,300	82,500	--	82,500
North Dakota	6,880	--	6,880	6,880	--	6,880
Ohio	108,000	W	108,000	108,000	W	108,000
Oklahoma	43,100	W	43,100	43,100	W	43,100
Oregon	37,900	--	37,900	38,200	--	38,200
Pennsylvania	91,500	2,450	93,900	91,500	2,450	93,900
Rhode Island	3,990	--	3,990	3,990	--	3,990
South Carolina	31,600	W	31,600	38,100	W	38,100
South Dakota	13,400	W	13,400	16,200	W	16,200
Tennessee	56,200	W	56,200	56,900	5,920	62,800
Texas	139,000	8,590	148,000	139,000	8,480	148,000
Utah	29,300	W	29,300	93,700	W	93,700
Vermont	8,310	W	8,310	8,310	W	8,310
Virginia	65,100	1,540	66,700	65,300	W	65,300
Washington	55,700	W	55,700	55,700	940	56,700
West Virginia	15,200	2,720	17,900	15,200	2,720	17,900
Wisconsin	59,500	--	59,500	59,900	--	59,900
Wyoming	11,200	8,400	19,600	11,200	8,400	19,600

W Withheld to avoid disclosing company proprietary data.
1/ Data rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Includes aplite.
3/ 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 1994

(Percent of total material handled)

Commodity	Preceded by drilling and blasting	Not preceded by drilling and blasting 1/
METALS		
Bauxite	--	100
Beryllium concentrate	100	--
Copper	97	3
Gold	95	5
Gold-silver	97	3
Iron	97	3
Lead-zinc	100	--
Magnesium metal	55	45
Manganiferous	--	100
Molybdenum	100	--
Rare earth metal concentrates	100	--
Silver	100	--
Titanium	--	100
Tungsten	--	100
Uranium	--	100
Average	90	10
INDUSTRIAL MINERALS		
Abrasives	100	--
Barite	30	70
Boron minerals	100	--
Bromine	--	100
Clays	--	100
Diatomite	5	95
Emery	100	--
Feldspar 2/	100	--
Garnet	32	68
Greensand marl	--	100
Gypsum	90	10
Iodine	--	100
Iron oxide pigments (crude)	100	--
Kyanite	100	--
Lithium minerals	84	16

See footnotes at end of table.

TABLE 8
MINING METHODS USED AT SURFACE OPERATIONS IN THE UNITED STATES,
BY COMMODITY, IN 1994

(Percent of total material handled)

Commodity	Preceded by drilling and blasting	Not preceded by drilling and blasting 1/
INDUSTRIAL MINERALS--Continued		
Magnesite	100	--
Magnesium compounds	79	21
Mica (scrap)	91	9
Olivine	55	45
Perlite	25	755
Phosphate rock	3	97
Potash	--	100
Pumice 3/	17	83
Salt	2	98
Sand and gravel:		
Construction	--	100
Industrial	--	100
Soda ash	--	100
Stone:		
Crushed	99	1
Dimension	--	100
Sulfur (Frasch)	--	100
Talc and pyrophyllite	87	13
Tripoli	97	3
Vermiculite	3	97
Wollastonite	100	--
Zeolites	100	--
Average	48	52
Average, metals and industrial minerals	66	34

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
TOTAL MATERIAL (ORE AND WASTE) PRODUCED BY MINE DEVELOPMENT AND TOTAL DEVELOPMENT ACTIVITY IN THE UNITED STATES IN 1994, BY COMMODITY AND STATE 1/

	Drifting, crosscutting, or tunneling		Raising		Shaft and winze sinking		Stripping	Other		Total	
	Thousand metric tons	Meters	Thousand metric tons	Meters	Thousand metric tons	Meters	Thousand metric tons	Thousand metric tons	Meters	Thousand metric tons	Meters
COMMODITY											
Gold	W	W	W	W	W	W	34,500	W	W	34,500	W
Iron ore (usable)	W	W	--	--	--	--	W	W	W	W	W
Perlite	--	--	--	--	--	--	1	--	--	1	XX
Silver	(2/)	30	--	--	(2/)	10	--	--	--	(2/)	40
Tripoli	--	--	--	--	--	--	22	--	--	22	XX
Zinc	126	4,840	--	--	--	--	--	--	--	126	4,840
Other 3/	102	3,120	W	W	W	W	5,210	11	482	5,320	3,600
Total	228	7,990	W	W	(2/)	10	39,700	11	482	40,000	8,480
Percent of activity, total	XX	94.2	XX	W	XX	(2/)	XX	XX	5.8	XX	100
STATE											
Alaska	3	198	--	--	--	--	8,640	--	--	8,640	198
California	4	174	W	W	W	W	22,000	--	--	22,000	174
Colorado	--	--	--	--	(2/)	10	W	--	--	(2/)	10
Idaho	68	1,400	--	--	--	--	W	W	--	68	1,400
Minnesota	--	--	--	--	--	--	296	--	--	296	--
Undistributed 4/	153	6,210	W	W	W	W	8,740	11	482	8,900	6,690
Total	228	7,990	W	W	(2/)	10	39,700	11	482	40,000	8,480
Percent of activity, total	XX	94.2	XX	W	XX	(2/)	XX	XX	5.8	XX	100

W Withheld to avoid disclosing company proprietary data; included with "Other" or "Undistributed," "Other" development. XX Not applicable.
1/ Data rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Less than 1/2 unit.
3/ Includes diatomite, fluorspar, iron ore, talc and pyrophyllite, and commodity items indicated by symbol W.
4/ Includes Arkansas, Missouri, Montana, Nevada, New Jersey, New Mexico, New York, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Washington, Wisconsin, and State items indicated by symbol W.