

THE MINERAL INDUSTRY OF NEW MEXICO

This chapter has been prepared under a Memorandum of Understanding between the U.S. Bureau of Mines, U.S. Department of the Interior, and the New Mexico Bureau of Mines and Mineral Resources for collecting information on all nonfuel minerals.

New Mexico ranked 11th among the 50 States in total nonfuel mineral production value¹ in 1995, according to the U.S. Geological Survey (USGS). The State was 12th in 1994. The estimated value for 1995 was close to \$1.1 billion, a 16% or \$150 million increase from that of 1994. This increase followed a 15.7% increase from 1993 to 1994. The State accounted for about 3% of the U.S. total nonfuel mineral production value.

Substantial increases in copper value, owing to increased production and a sharp rise in the price of copper, accounted for the large majority of New Mexico's increased nonfuel mineral production value in 1994 and 1995. Based on value, copper and potash were, by a significant margin, the top nonfuel minerals mined in the State of New Mexico. The value for the two accounted for 86% of the State's total nonfuel mineral value and was equal to 16 times the value of the State's next highest mineral commodity, construction sand and gravel. In 1995, potash value had a significant drop (see table 1), but this was small in comparison to the increase in copper. An increase in construction sand and gravel value also contributed to the year's increase. All

other nonfuel mineral commodities increased in value, except for gold, salt, masonry cement, and fire clays, for which there were only small decreases.

Based on USGS estimates of the quantities produced in the 50 States during 1995, New Mexico continued to lead the Nation in potash, perlite, and zeolites. The State also remained second in pumice and crude mica production, third in copper, sixth in molybdenum, and ninth in silver. In addition, significant quantities of construction sand and gravel and crude gypsum were mined in the State.

According to the New Mexico Bureau of Mines and Mineral Resources² (BMMR), the State's copper industry thrived in 1995. Phelps Dodge Co. operated two copper mines and two copper smelters in New Mexico. The company's Chino Mine, the largest porphyry-copper deposit in New Mexico, contains copper sulfides and has been in operation since 1911. According to the company's annual report, the Chino Mine produced a record 153,000 metric tons³ of copper in 1995. This included a record 61,800 tons of electrowon copper from leachate solution, the other 91,200 tons coming from electrolytic copper from

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN NEW MEXICO^{1 2}

Mineral	1993		1994		1995 ^p	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays ³ thousand metric tons	33	\$101	127	\$269	127	\$269
Copper ⁴ metric tons	224,000	453,000	234,000	574,000	240,000	725,000
Gemstones	NA	10	NA	14	NA	22
Gold ⁴ kilograms	995	11,600	W	W	W	W
Potash (K ₂ O) thousand metric tons	1,190	216,000	2,450	219,000	1,090	200,000
Pumice and pumicite metric tons	W	W	129,000	1,050	W	W
Sand and gravel (construction) thousand metric tons	11,100	51,100	10,400	47,400	12,300	57,800
Silver ⁴ metric tons	22	3,090	22	3,750	22	3,810
Stone (crushed) ⁵ thousand metric tons	3,580	19,000	3,550	20,000	3,800	21,800
Combined value of cement, clays (fire), gypsum (crude), iron ore (usable), mica (crude), perlite (crude), pumice and pumicite (1993,1995), salt, stone [crushed quartzite (1993), crushed quartzite and traprock (1994-95), dimension (1993, 1995), dimension granite, marble, and miscellaneous (1994)], and values indicated by symbol W	XX	51,200	XX	65,100	XX	69,800
Total	XX	805,000	XX	930,000	XX	1,080,000

¹Estimated. ²Preliminary. ³Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.

⁴Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

⁵Data are rounded to three significant digits; may not add to totals shown.

⁶Excludes certain clays; value included with "Combined value" data.

⁷Recoverable content of ores, etc.

⁸Excludes certain stones; value included with "Combined value" data.

concentrate. During the first quarter of 1995, Chino completed a \$16 million construction project to improve ore grinding and copper recovery at the concentrator. At yearend, the company reported reserves at Chino of 270 million tons of milling ore grading 0.67% copper and 600 million tons of oxide ore grading 0.24% copper. At the associated Hurley Smelter, a \$5 million investment in emissions gas treatment facilities for the flash furnace resulted in lower maintenance costs and a record amount of sulfur capture. At the Tyrone Mine, Phelps Dodge produced almost 64,000 tons of electrowon copper from the open-pit mining and leaching of oxide ore. Reserves at Tyrone were anticipated to be exhausted by the year 2000. The company's Hidalgo smelter in Playas produced a record high 224,000 tons of anode copper from domestic concentrates and from Phelps Dodge's Chilean operations.

Biron Bay Resources Ltd. of Toronto Canada, after announcing a gold-silver discovery along the northwest-trending East Camp-Summit fault several years ago, was planning the development of the property. The company reported the ore deposit to be 1.32 million tons (1.45 million short tons) containing 6.2-grams-per-ton (0.18-troy-ounce-per-short-ton) of gold and 350-grams-per-ton (10.3-ounces-per-short-ton) of silver. Biron plans to complete development and start mining in the next few years.

Addwest Minerals, Inc. has begun development of the Wind Mountain for nepheline syenite in southern Otero County for use as a constituent in amber-colored beverage containers, ceramics, and flatglass. The nepheline syenite contains high iron compared to other commercial sources of nepheline syenite. The magnetic fraction can be sold as millite, an iron-rich additive required for controlling the color of glass. Several other consumers have tested the nepheline syenite and found it suitable for use in ceramics, fiberglass, and flatglass. The lack of free silica as quartz also enables use of the Wind Mountain nepheline syenite as a silica-free abrasive. Interesting textural variations in the main mass of the syenite, having wisps of finer grained material "waving" through the rock, make it an attractive building stone. Mining will be underground, room and pillar method. At full production, according to a BMMR report, Wind Mountain is expected to process 2,700 tons per day (3,000 short tons) or 635,000 tons per year

(700,000 short tons). Current proven, probable, and inferred reserves total 180 million tons (200 million short tons) for a mine life of more than 100 years. An adit was started in 1995. However, the project was on hold at yearend.

Alta Gold Co. applied for mining permits to reopen its Copper Flat Mine, which contains recoverable copper, gold, molybdenum, and silver. The company worked on preparing an environmental impact statement (EIS) (draft released February 1996). Alta hopes to open the mine in 1996 or 1997. Movable reserves were estimated in 1984 at 54 million tons (60 million short tons) of 0.42% copper and 0.012% molybdenum.

The Bureau of Land Management ruled that Cobre Mining Co. needed to complete an EIS before expanding the Continental Mine (copper) in the Fierro-Hanover district and developing its copper deposit at Hanover Mountain. The EIS was scheduled for completion in September 1996, which would allow for the expansion and new development to begin in 1997.

Copar Pumice Co. delayed the opening of its El Cajete pumice mine in the Jemez Mountains until preparation of an EIS (draft released early 1996). The mine was expected to open in 1996 and to operate for 10 years. Reserves were estimated at 91,000 tons (100,000 short tons) of pumice, which were to be used in making stone-washed jeans.

Cyprus Pinos Altos Corp. closed its Pinos Altos copper mine near Silver City, Grant County, in June 1995 because of depleted reserves. In addition, R&B Mining Co.'s Center Mine, a gold mine in the Steeple Rock district, closed in early 1995.

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending on the minerals or mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 1995 USGS mineral production data are estimates, as of Dec. 1995. For some commodities, especially construction sand and gravel, crushed stone, and portland cement, estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset and request Document No. 1000 for a telephone listing of all mineral commodity specialists or call USGS information at (703) 648-4000 for the specialist's name and number.

²This report includes information provided by the New Mexico Bureau of Mines and Mineral Resources.

³All tons are metric tons unless otherwise specified.

TABLE 2
NEW MEXICO: CRUSHED STONE¹ SOLD OR USED BY PRODUCERS IN 1994, BY USE²

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	41	\$268	\$6.54
Other coarse aggregate	46	252	5.48
Coarse aggregate, graded:			
Concrete aggregate, coarse	283	1,260	4.45
Bituminous aggregate, coarse	128	920	7.19
Bituminous surface-treatment aggregate	96	285	2.97
Railroad ballast	W	W	7.72
Other graded coarse aggregate	W	W	3.15
Fine aggregate (-3/8 inch):			
Stone sand, concrete	W	W	4.34
Stone sand, bituminous mix or seal	W	W	1.29
Screening, undesignated	W	W	7.07
Other fine aggregate	61	385	6.31
Coarse and fine aggregates:			
Graded road base or subbase	300	852	2.84
Terrazzo and exposed aggregate	124	1,380	11.10
Crusher run or fill or waste	76	254	3.34
Other coarse and fine aggregates	⁽³⁾	1	5.64
Other construction materials ⁴	731	4,970	6.79
Chemical and metallurgical: Cement manufacture	⁽⁵⁾	⁽⁵⁾	4.54
Unspecified:⁶			
Actual	⁽⁵⁾	⁽⁵⁾	4.31
Estimated	798	5,250	6.58
Total	3,550	20,000	5.62

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

¹Includes granite, limestone, miscellaneous stone, sandstone, and volcanic cinder and scoria; excludes quartzite and traprock from State total to avoid disclosing company proprietary data.

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

³Less than 1/2 unit.

⁴Includes roofing granules.

⁵Withheld to avoid disclosing company proprietary data; included in "Total."

⁶Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3
NEW MEXICO: CRUSHED STONE SOLD OR USED, BY KIND¹

Kind	1993				1994			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	'25	1,240	'\$5,260	'\$4.24	21	1,880	\$8,660	\$4.61
Granite	'12	1,510	'9,840	6.53	11	1,250	8,620	6.90
Traprock	1	168	371	2.21	(²)	(²)	(²)	(²)
Sandstone	1	101	112	1.11	4	1	5	5.00
Quartzite	1	W	W	7.77	(²)	(²)	(²)	(²)
Volcanic cinder and scoria	'10	'342	'2,190	'6.40	10	285	2,000	7.02
Miscellaneous stone	'2	W	W	'4.53	4	141	682	4.84
Total	XX	'3,500	'18,400	'5.31	XX	3,550	20,000	5.62

¹Revised. W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

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

³Excludes quartzite and traprock from State total to avoid disclosing company proprietary data.

TABLE 4
NEW MEXICO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1994, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2	
	Quantity	Value	Quantity	Value
Construction aggregates:				
Coarse aggregate (+1 1/2 inch) ²	W	W	W	W
Coarse aggregate, graded ³	W	W	W	W
Fine aggregate (-3/8 inch) ⁴	W	W	W	W
Coarse and fine aggregate ⁵	284	2,030	221	505
Other construction materials ⁶	1,100	6,720	285	1,570
Chemical and metallurgical ⁷	(⁸)	(⁸)	—	—
Unspecified ⁹				
Actual	(⁸)	(⁸)	(⁸)	(⁸)
Estimated	(⁸)	(⁸)	(⁸)	(⁸)
Total	2,420	14,000	1,130	5,950

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

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

²Includes riprap and jetty stone and other coarse aggregate.

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

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

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

⁶Includes roofing granules.

⁷Includes cement manufacture.

⁸Withheld to avoid disclosing company proprietary data; included in "Total."

⁹Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5
NEW MEXICO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1994, BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	1,530	\$9,120	\$5.98
Plaster and gunite sands	139	846	6.09
Asphaltic concrete aggregates and other bituminous mixtures	1,380	7,130	5.18
Road base and coverings	2,290	8,860	3.87
Fill	426	988	2.32
Other	109	317	2.91
Unspecified: ²			
Actual	2,400	10,800	4.51
Estimated	2,160	9,290	4.30
Total or average	10,400	47,400	4.54

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

²Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6
NEW MEXICO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1994, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2	
	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products	872	5,110	652	4,020
Plaster and gunite sands	114	684	25	162
Asphaltic concrete aggregates and road base materials	839	4,310	538	2,830
Road base and coverings	1,110	4,180	1,180	4,680
Fill	173	385	253	603
Other miscellaneous uses	18	40	91	277
Unspecified: ²				
Actual	2,400	10,800	—	—
Estimated	1,570	7,510	593	1,780
Total	7,100	33,100	3,330	14,300

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

²Includes production reported without a breakdown by end use and estimates for nonrespondents.



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