

# THE MINERAL INDUSTRY OF NEVADA

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 Nevada Bureau of Mines and Geology for collecting information on all nonfuel minerals.

Nevada, the Nation's leading gold and silver producer, ranked second in the Nation in nonfuel mineral value,<sup>1</sup> down from first in 1993, according to the U.S. Bureau of Mines. The estimated value for 1994 exceeded \$2.8 billion, accounting for less than 1% increase over that of 1993. This followed a substantial 9% increase in 1993 over that of 1992. The State accounted for more than 8% of the U.S. total. While increases in the year's dollar value for gold, silver, and, less so, construction sand and gravel, were the main causes for the increase in nonfuel mineral value in 1993, a 16% decrease in silver in 1994 moderated the year's respectable economic gains in most other mineral commodities. Nevada continued as the top U.S. gold-producing State, representing 64% of total U.S. gold production and value. Gold represented almost 87% of Nevada's nonfuel mineral value; industrial minerals, 10%; and the remaining 3% was divided between silver, copper, and mercury. In estimated quantities of mineral produced in 1993, Nevada remained first in gold and silver, first of four barite producing States, the only State producing brucite and magnesite, the top State of three that produced mercury, second of four States producing diatomite, third

of three States in fluorspar, fourth of four States in perlite, fifth in gypsum, and seventh in kaolin clays. Compared with 1993, the value of the following increased: gold, construction sand and gravel, portland cement, lime, crushed stone, lithium, copper, industrial sand and gravel, gypsum, and perlite. Decreases occurred in silver, diatomite, magnesite, barite, gemstones, salt, fluorspar, and brucite.

According to the Nevada Division of Minerals, the Nevada mineral industry continued to make contributions to the State and national economies with record breaking production of gold. Other mineral commodities mined and produced from the State's mines in relatively significant amounts included construction sand and gravel, silver, diatomite, lithium carbonate, copper, gypsum, magnesite, and barite. In spite of uncertainty over possible mining law reform and establishment of Federal claim maintenance fees, mine expansions and exploration for new deposits, particularly precious metals, remained strong. New discoveries or projects engaged in the permitting process included Cortez Gold Mines Ltd.'s Pipeline deposit and Homestake Mining Co.'s Archimedes deposit. New mine

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN NEVADA<sup>1</sup>

Mineral	1992		1993		1994 <sup>p</sup>	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Barite thousand metric tons	W	W	242	\$9,100	W	W
Clays <sup>2</sup> do.	51	\$7,722	16	3,434	16	\$3,430
Gemstones	NA	661	NA	660	NA	300
Gold <sup>3</sup> kilograms	<sup>2</sup> 203,393	<sup>2</sup> 2,255,837	210,763	2,445,590	<sup>4</sup> 212,000	<sup>4</sup> 2,460,000
Mercury metric tons	64	373	W	W	W	W
Sand and gravel:						
Construction thousand metric tons	22,020	93,585	<sup>e</sup> 24,900	<sup>e</sup> 107,600	26,400	116,200
Industrial do.	482	W	480	W	W	W
Silver <sup>3</sup> metric tons	614	77,724	713	98,546	607	82,900
Stone (crushed) thousand metric tons	<sup>e</sup> 1,089	<sup>e</sup> 6,700	1,067	12,529	<sup>e</sup> 1,750	<sup>e</sup> 13,800
Combined value of brucite, cement (portland), clays [fuller's earth (1993-94), kaolin], copper, diatomite, fluorspar (1993-94), gypsum (crude), lime, lithium minerals, magnesite, perlite, salt, and values indicated by symbol W						
	XX	148,181	XX	143,798	XX	158,000
Total	XX	<sup>2</sup> 2,590,783	XX	2,821,257	XX	<sup>5</sup> 2,840,000

<sup>a</sup>Estimated. <sup>p</sup>Preliminary. <sup>r</sup>Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.

<sup>1</sup>Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

<sup>2</sup>Excludes certain clays; kind and value included with "Combined value" data.

<sup>3</sup>Recoverable content from ores, etc.

<sup>4</sup>Placer canvassing discontinued beginning 1994.

<sup>5</sup>Data do not add to total shown because of independent rounding.

openings included Alta Gold Co.'s Kinsley Mine and Battle Mountain Gold Co.'s Reona Mine. Although most of Nevada's precious metals were mined by open-pit methods, the trend toward underground mining continued to accelerate. Barrick Gold Inc. began construction of its underground Meikle Mine while others, including First/Miss Gold Inc., Hecla Mining Co., Independence Mining Company Inc., and Newmont Gold Co. were in various phases of underground work. Magma Copper Co.'s Nevada division received permits and began construction of new facilities in the Robinson district in preparation for large-scale copper production in 1996. According to Magma Copper, its Robinson property has reserves of over 230 million tons grading 0.55% copper and 0.38-gram-per-metric-ton (0.011-troy-ounce-per-ton) of gold. Annual

production was expected to exceed 60,000 tons of copper, placing the property among the top 12 producing mines in the United States. Development costs were projected at about \$300 million. Industry research conducted by various mining companies either operating or owning properties within the State continued on more efficient recovery techniques and featured advances in bio-leaching, autoclaving, roasting, and solvent extraction. Research also continued on reclamation techniques, including vegetative test plots.

<sup>1</sup>The term value means the total monetary value as represented by either mine shipments, mineral commodity sales, or marketable production as is applicable to the individual mineral commodities.

TABLE 2  
NEVADA: CRUSHED STONE<sup>1</sup> SOLD OR USED BY PRODUCERS IN 1993, BY USE

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	437	\$4,791	\$10.96
Bituminous surface-treatment aggregate	1	4	4.00
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	W	W	5.57
<b>Coarse and fine aggregate:</b>			
Graded road base or subbase	157	442	2.82
Unpaved road surfacing	50	200	4.00
Terrazzo and exposed aggregate	W	W	4.66
Other construction materials	127	682	5.37
<b>Agricultural:</b>			
Poultry grit and mineral food	( <sup>2</sup> )	( <sup>2</sup> )	33.07
<b>Chemical and metallurgical:</b>			
Cement manufacture	( <sup>2</sup> )	( <sup>2</sup> )	3.91
Lime manufacture	( <sup>2</sup> )	( <sup>2</sup> )	16.50
Total <sup>2</sup>	1,607	12,529	7.80
Total <sup>3 4</sup>	1,771	12,529	7.07

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

<sup>1</sup>Includes dolomite, granite, limestone, miscellaneous stone, traprock, and volcanic cinder and scoria.

<sup>2</sup>Withheld to avoid disclosing company proprietary data; included with "Total."

<sup>3</sup>Includes production reported without a breakdown by use and estimates for nonrespondents.

<sup>4</sup>One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

<sup>5</sup>Total shown in thousand short tons and thousand dollars.

TABLE 3  
NEVADA: CRUSHED STONE SOLD OR USED, BY KIND

Kind	1991				1993			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	4	565	\$3,563	\$6.31	5	635	\$2,602	\$4.10
Dolomite	1	W	W	4.92	4	379	4,396	11.60
Granite	2	W	W	5.12	2	W	W	11.05
Traprock	2	W	W	3.61	1	W	W	3.98
Volcanic cinder and scoria	1	19	535	28.15	1	W	W	16.55
Miscellaneous stone	2	W	W	4.50	2	W	W	4.69
Total	XX	1,087	6,527	6.00	XX	1,607	12,529	7.80
Total <sup>1 2</sup>	XX	1,198	6,527	5.45	XX	1,771	12,529	7.07

<sup>1</sup>Revised. W Withheld to avoid disclosing company proprietary data; included with "Total." XX Not applicable.

<sup>1</sup>One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

<sup>2</sup>Total shown in thousand short tons and thousand dollars.

TABLE 4  
NEVADA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1993, BY USE AND DISTRICT

(Thousand metric tons and thousand dollars)

Use	District 1		District 2	
	Quantity	Value	Quantity	Value
Construction aggregates:				
Coarse aggregate, graded <sup>1</sup>	W	W	( <sup>2</sup> )	( <sup>2</sup> )
Fine aggregate (-3/8 inch) <sup>3</sup>	W	W	W	W
Coarse and fine aggregate <sup>4</sup>	W	W	W	W
Other construction materials	378	1,318	42	344
Agricultural <sup>5</sup>	( <sup>2</sup> )	( <sup>2</sup> )	—	—
Chemical and metallurgical <sup>6</sup>	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Total <sup>7</sup>	975	3,801	632	8,728
Total <sup>8 9</sup>	1,074	3,801	697	8,728

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

<sup>1</sup>Includes concrete aggregate (coarse), and bituminous surface-treatment aggregate.

<sup>2</sup>Withheld to avoid disclosing company proprietary data; included with "Total."

<sup>3</sup>Includes stone sand (concrete).

<sup>4</sup>Includes graded road base or subbase, terrazzo and exposed aggregate and unpaved road surfacing.

<sup>5</sup>Includes poultry grit and mineral food.

<sup>6</sup>Includes cement manufacture and lime manufacture.

<sup>7</sup>Data may not add to totals shown because of independent rounding.

<sup>8</sup>One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

<sup>9</sup>Total shown in thousand short tons and thousand dollars.