2012–2013 Minerals Yearbook

NEVADA [ADVANCE RELEASE]

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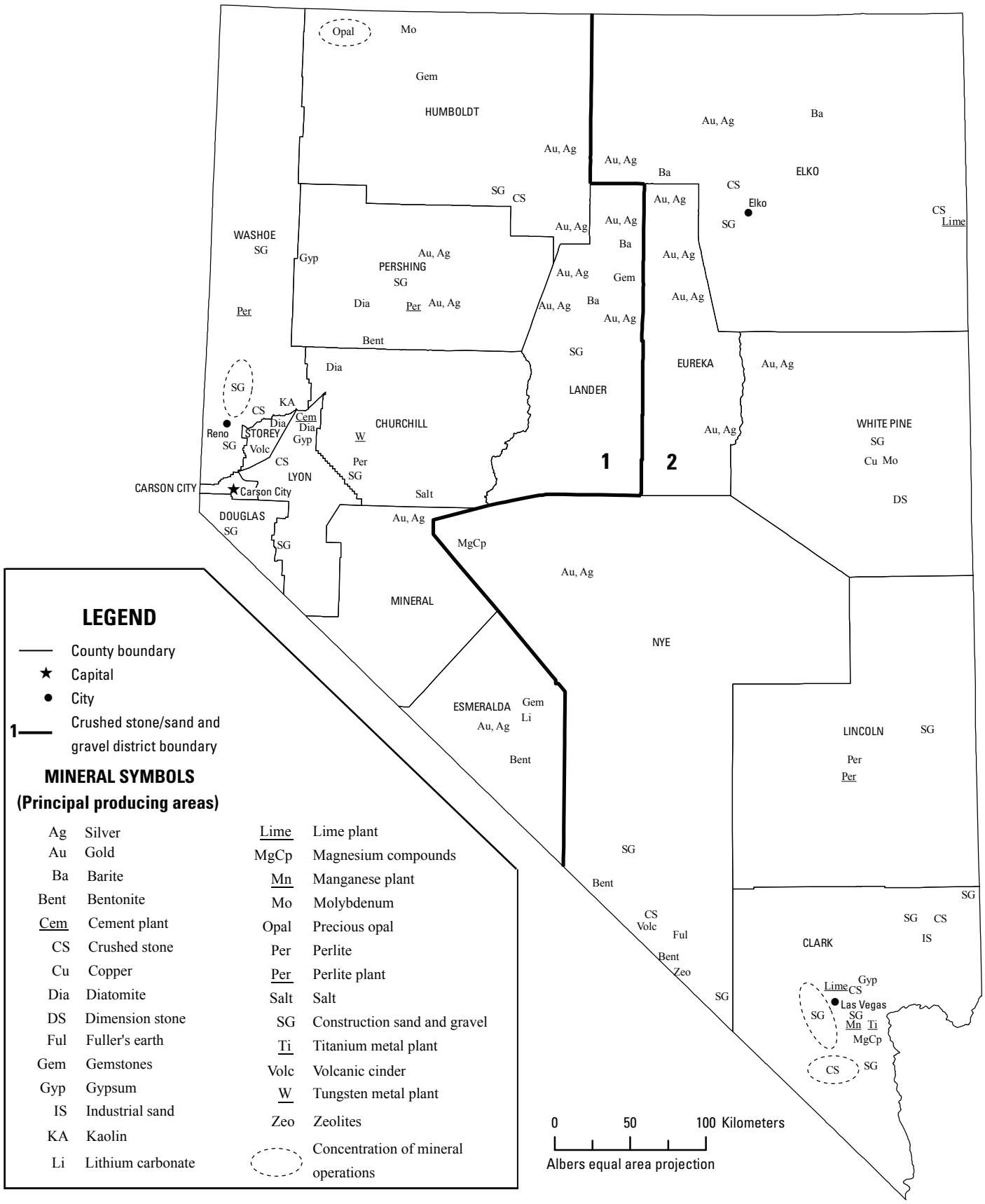
NEVADA



Source: Nevada Bureau of Mines and Geology/U.S. Geological Survey (2012–13).

The Mineral Industry of Nevada

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Nevada Bureau of Mines and Geology for collecting information on all nonfuel minerals.

In 2013, the value of nonfuel mineral production[1] in the State of Nevada increased to $9.2 billion, 12.2% of the total U.S. nonfuel mineral production (excluding steel), ranking it first in the Nation. In 2012, the corresponding value was $11.0 billion, 14.6% of the U.S. total nonfuel mineral production, also ranking it first among the 50 States. In 2013, on a per capita basis, nonfuel mineral production in Nevada had a value of $3,300 compared with the national average of $238. In 2012, the per capita value was $4,010 compared with the national average of $241.

The value of nonfuel mineral production in Nevada for the years 2006 through 2013 was as follows (in billions of dollars): $5.14 (2006), $5.40 (2007), $6.29 (2008), $6.01 (2009), $7.72 (2010), $10.00 (2011), $11.00 (2012), and $9.20 (2013).

In 2013, there were 7,653 employees in nonfuel mineral mines in Nevada and 3,583 in mills and preparation plants. In 2012, the corresponding numbers were 8,260 in nonfuel mineral mines and 3,408 in mills and preparation plants (U.S. Mine Safety and Health Administration, 2013, p. 12; 2014, p. 12). In 2013, the average annual wage for Nevada for all mining was $87,168 compared with $42,941 for all industries. In 2012, the corresponding figures were $83,135 and $42,404, respectively (National Mining Association, unpub. data, February 4, 2016).

In 2013 and 2012, on the basis of production quantity, Nevada was the only producer of lithium carbonate and magnesite, and the leading State for the production of barite, gold, and diatomite out of 2, 10, and 4 producing States, respectively. It was second in the production of silver out of 11 producing States, and it was third in the production of attapulgite clay out of 3 producing States. Additionally, in 2013, the State was fourth in the production of copper ore and gypsum out of 7 and 16 producing States, respectively, and fifth in the production of perlite out of 6 producing States. In 2012, Nevada was third in the production of gypsum out of 16 producing States. It was fourth in the production of copper ore out of eight producing States, and fifth in the production of perlite out of five producing States.

In 2012 and 2013, the State also produced bentonite and kaolin clays, construction and industrial sand and gravel, crushed stone, dimension stone, lime, molybdenum concentrates, natural gemstones, portland cement, and salt (table 1).

[1]The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the 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 USGS mineral production data published in this chapter are those available as of February 2016. Data in this report are rounded to three significant digits and percentages are calculated from unrounded data. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at http://minerals.usgs.gov/minerals.

Commodity Review

The Nevada Bureau of Mines and Geology published reports for the mineral industry of the State in 2014 and 2015 from which the following information has been extracted (Muntean and others, 2014, 2015). These data may differ from U.S. Geological Survey (USGS) data, which are based on responses by companies to USGS surveys and estimation for nonrespondents. The USGS withheld some data to avoid disclosing company proprietary data.

Metals

Mineral industry activity with respect to metals was as follows:

- In 2013, gold production in Nevada exceeded 156 metric tons (t) (5.0 million troy ounces) for the 25th consecutive year. Gold contributed 84% of the value of Nevada's mineral production. Production of gold in Nevada in 2013 came mainly from 14 major mining operations that each produced more than 1,560 kilograms (kg) (50,000 troy ounces). The Carlin trend in northeastern Nevada accounted for 35% of the total production. There were nine mining operations not on the Carlin trend that each produced more than 3,110 kg (100,000 troy ounces) of gold.
- In 2012, production of gold came mainly from 15 major mining operations that each produced more than 1,560 kg (50,000 troy ounces). The Carlin trend in northeastern Nevada accounted for 38% of the total production. There were 10 mining operations not on the Carlin trend, and each produced more than 3,110 kg (100,000 troy ounces) of gold.
- In 2013, much of Nevada's silver production, which totaled 270 t (8.67 million troy ounces), was mainly a joint product of gold mining. With a ratio of value (average price of gold to average price of silver) of 59:1 in 2013, only those deposits with more than 59 times as much silver as gold were considered primary silver deposits. Only one such deposit operated in Nevada in 2013—the Coeur Rochester Mine in Pershing County, which had a silver-to-gold production ratio of 91:1 and total silver production of 87 t (2.80 million troy ounces). It produced 32% of Nevada's silver in 2013. Nevada's silver production accounted for 25% of the U.S. total, second only to Alaska. In 2012, the State produced 265 t (8.53 million troy ounces) of silver. With a ratio of value of gold to silver in 2011 of 54:1, only the Coeur Rochester Mine qualified as a silver mine with a silver-to-gold ratio of 74:1.
- In 2012 and 2013, Nevada's copper production was dominated by the Robinson copper-gold-silver-

molybdenum Mine, operated by KGHM International Ltd. near Ely in White Pine County. Copper was also produced at Newmont's Phoenix Mine near Battle Mountain in Lander County. In 2013, Newmont commissioned the first solvent extraction-electrowinning (SX-EW) plant in Nevada, which produced copper on site, rather than shipping concentrates to smelters outside Nevada, as was done by the Robinson Mine. In 2013, KGHM produced 628 t (1,384,649 pounds) of byproduct molybdenum from the Robinson Mine. In 2012–13, a small amount was also contributed by an underground mine, the Ashdown deposit, operated by Win-Eldrich Mines Ltd., Humboldt County.
- A plant in Fallon, Pershing County, produces tungsten products from concentrates obtained from out of State.

Industrial Minerals

Mineral industry activity with respect to industrial minerals was as follows:

- Nevada was the leading domestic producer of barite, of which 95% was used in drilling muds. Production of barite in Nevada increased 24% in 2013, mainly due to a large increase in domestic drilling for oil and gas. In 2012, Nevada's barite production increased nearly 7%. Four major operations in Lander and Elko Counties combined to produce most of the barite mined in the United States.
- Chemetall Foote Corporation's Silver Peak lithium operation in Clayton Valley in Esmeralda County, where subsurface brines are evaporated on a playa, is the only domestic lithium carbonate producer.
- Premier Chemicals' (now Premier Magnesia's) Gabbs Mine in Nye County is currently the Nation's only hard-rock producer of magnesite.

Exploration

Mineral industry activity with respect to exploration was as follows:

- In 2012–13, most exploration focused on gold; however, some companies explored for antimony, barite, copper, fluorspar, iron, limestone for cement, lithium, rare-earth elements (REEs), silver, vanadium, and zinc.
- In 2013, exploration activity for metals dropped significantly. Exploration activity, including new claims staked, was reported in most of Nevada's 17 counties. In 2012, exploration activity began to level off, mainly due to a declining gold price, which peaked at $1,895 per troy ounce in September of 2011 and finished 2012 at $1,657.50 per troy ounce (the average price for 2012 was $1,672.75 per troy ounce).
- Advanced exploration projects showed promise for the development of new mines, particularly for gold along the Carlin and Battle Mountain-Eureka (Cortez) trends in Eureka, Elko, and Lander Counties. An example was Barrick's large Goldrush deposit near its Cortez Mine. Off the main gold-deposit trends, Newmont continued to develop its Long Canyon deposit in the Pequop Mountains in Elko County.
- Copper projects, such as the Pumpkin Hollow deposit in the Yerington District in Lyon County, could commence production in the next few years.
- The Bureau of Land Management's database listed 191,394 active mining claims at yearend 2013, a decrease of 1.8% from yearend 2012 (195,005); this was a 6.7% decrease from yearend 2011, and, indeed, the lowest number since 2006. The decrease in exploration activity for metals was also reflected by a significant decrease in drilling, dropping from 126 projects in 2012 to 81 in 2013.
- Elissa Resource Ltd., a small exploration company, was evaluating its Thor REE project in Clark County, very near the Mountain Pass Mine in California. Unlike Mountain Pass, which produced light REEs, the mineralization at Thor is enriched in the more valuable heavy REEs, including the element neodymium, which is a critical component of high-strength magnets used in electronics.

References Cited

Muntean, J.L., Davis, D.A., and others, 2014, The Nevada mineral industry 2012: Reno, NV, University of Nevada, Nevada Bureau of Mines and Geology Special Publication MI-2012, Nevada, 177 p.

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U.S. Mine Safety and Health Administration, [2013], Mine injury and worktime, quarterly, January–December 2012, Final, closeout edition, 33 p. (Accessed February 4, 2016, at http://arlweb.msha.gov/Stats/Part50/WQ/MasterFiles/MIWQ%20Master_20125.pdf.)

U.S. Mine Safety and Health Administration, [2014], Mine injury and worktime, quarterly, January–December 2013, Final, closeout edition, 34 p. (Accessed February 4, 2016, at http://arlweb.msha.gov/Stats/Part50/WQ/MasterFiles/MIWQ%20Master_20135.pdf.)

TABLE 1
NONFUEL MINERAL PRODUCTION IN NEVADA[1, 2]

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral		2011 Quantity	2011 Value	2012 Quantity	2012 Value	2013 Quantity	2013 Value
Barite		704	59,900	659	73,200	717	80,500
Clays, fuller's earth		--	--	W	W	W	W
Gold[3]	kilograms	172,000	8,690,000	175,000	9,440,000	170,000	7,720,000
Lithium carbonate		W	W	W	W	5	11,200
Sand and gravel, construction		13,200 r	81,400 r	12,300	84,700	17,600	89,800
Silver[3]	kilograms	209,000	237,000	250,000	251,000	255,000	195,000
Stone, crushed		6,850 r	71,200 r	8,350	80,900	7,940	80,700
Combined values of cement (portland), clays (bentonite, kaolin), copper, diatomite, gemstones (natural), gypsum (crude), lime, magnesite, molybdenum concentrates, perlite (crude), salt, sand and gravel (industrial), stone (dimension), and values indicated by symbol W		XX	876,000	XX	1,110,000	XX	1,030,000
Total		XX	10,000,000	XX	11,000,000	XX	9,200,000

[r]Revised. W Withheld to avoid disclosing company proprietary data; included in "Combined values" data. XX Not applicable. -- Zero.
[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
[2]Data are rounded to no more than three significant digits; may not add to totals shown.
[3]Recoverable content of ores and so forth.

TABLE 2
NEVADA: CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY TYPE[1]

Type	2012 Number of quarries	2012 Quantity (thousand metric tons)	2012 Value (thousands)	2012 Unit value	2013 Number of quarries	2013 Quantity (thousand metric tons)	2013 Value (thousands)	2013 Unit value
Limestone[2]	6	3,460	$28,200	$8.15	6	3,500	$33,200	$9.50
Dolomite	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Granite	4	127	1,220	9.57	4	149	1,340	8.96
Traprock	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Sandstone and quartzite[5]	1	3	29	10.85	1	2	20	9.85
Volcanic cinder and scoria	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Miscellaneous stone	13	4,760	51,500	10.81	11	4,290	46,100	10.75
Total or average	XX	8,350	80,900	9.69	XX	7,940	80,700	10.17

XX Not applicable.
[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes limestone-dolomite reported with no distinction between the two kinds of stone.
[3]Withheld to avoid disclosing company proprietary data; included with "Limestone."
[4]Withheld to avoid disclosing company proprietary data; included with "Miscellaneous stone."
[5]Includes sandstone-quartzite reported with no distinction between the two kinds of stone.

TABLE 3
NEVADA: CRUSHED STONE SOLD OR USED BY PRODUCERS BY USE[1]

Use	2012 Quantity (thousand metric tons)	2012 Value (thousands)	2012 Unit value	2013 Quantity (thousand metric tons)	2013 Value (thousands)	2013 Unit value
Construction:						
Coarse aggregate (+1½ inch):						
Riprap and jetty stone	W	W	W	W	W	W
Unspecified coarse aggregate	W	W	W	W	W	W
Coarse aggregate, graded:						
Concrete aggregate, coarse	W	W	W	W	W	W
Bituminous aggregate, coarse	335	$4,840	$14.45	W	W	W
Railroad ballast	W	W	W	W	W	W
Unspecified graded coarse aggregate	--	--	--	W	W	W
Fine aggregate (-⅜ inch):						
Stone sand, concrete	W	W	W	W	W	W
Stone sand, bituminous mix or seal	W	W	W	--	--	--
Screening, undesignated	8	26	3.26	W	W	W
Unspecified fine aggregate	--	--	--	W	W	W
Coarse and fine aggregates:						
Graded road base or subbase	78	806	10.33	456	$4,610	$10.10
Crusher run or fill or waste	478	1,780	3.72	--	--	--
Unspecified and other construction materials	136	1,050	7.73	145	1,250	8.57
Agricultural:						
Unspecified and other agricultural uses	W	W	W	W	W	W
Chemical and metallurgical:						
Cement manufacture	W	W	W	W	W	W
Lime manufacture	W	W	W	W	W	W
Other miscellaneous uses and specified uses not listed	142	537	3.78			
Unspecified:[2]						
Reported	2,030	21,100	10.39	2,100	19,600	9.35
Estimated	2,390	18,000	7.55	473	6,420	13.56
Total or average	8,350	80,900	9.69	7,940	80,700	10.17

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.
[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Reported and estimated production without a breakdown by end use.

TABLE 4

NEVADA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2012, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2	
	Quantity	Value	Quantity	Value
Construction:				
Coarse aggregate (+1½ inch)[2]	W	W	W	W
Coarse aggregate, graded[3]	W	W	W	W
Fine aggregate (-⅜ inch)[4]	W	W	W	W
Coarse and fine aggregates[5]	W	W	540	2,480
Other construction materials	110	847	26	204
Agricultural[6]	W	W	W	W
Chemical and metallurgical[7]	W	W	W	W
Special	--	--	--	--
Other miscellaneous uses and specified uses not listed[8]	--	--	141	537
Unspecified:[9]				
Reported	528	4,930	1,500	16,200
Estimated	96	1,230	2,290	16,800
Total	1,660	24,200	6,690	56,700

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes macadam, riprap and jetty stone, filter stone, unspecified other coarse aggregate.

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

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

[5]Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and unspecified coarse and fine aggregates.

[6]Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

[7]Includes cement manufacture, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

[8]Includes drain fields, waste material, lightweight aggregate (slate), pipe bedding, refractory stone (including ganister), and other miscellaneous uses.

[9]Reported and estimated production without a breakdown by end use.

TABLE 5

NEVADA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2013, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2	
	Quantity	Value	Quantity	Value
Construction:				
Coarse aggregate (+1½ inch)[2]	W	W	W	W
Coarse aggregate, graded[3]	W	W	W	W
Fine aggregate (-⅜ inch)[4]	W	W	W	W
Coarse and fine aggregates[5]	W	W	W	W
Other construction materials	127	1,060	18	183
Agricultural[6]	W	W	--	--
Chemical and metallurgical[7]	W	W	W	W
Special	--	--	--	--
Other miscellaneous uses and specified uses not listed	--	--	--	--
Unspecified:[8]				
Reported	448	2,720	1,650	16,900
Estimated	192	2,460	281	3,960
Total	1,550	22,000	6,390	58,700

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes macadam, riprap and jetty stone, filter stone, and unspecified coarse aggregate.

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

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

[5]Includes graded road base or subbase, unpaved road surface, terrazzo and exposed aggregate, crusher run, roofing granules, and unspecified coarse and fine aggregate.

[6]Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

[7]Includes cement manufacture, lime manufacture, dead-burned dolomite manufacture, flux stone, chemical stone, glass manufacture, and sulfur oxide removal.

[8]Reported and estimated production without a breakdown by end use.

TABLE 6
NEVADA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2012,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregates and concrete products[2]	872	$9,490	$10.88
Asphaltic concrete aggregates and other bituminous mixtures	1,020	9,760	9.57
Road base and coverings[3]	2,420	17,600	7.27
Fill	523	3,190	6.10
Snow and ice control	36	297	8.25
Other miscellaneous uses[4]	114	1,130	9.91
Unspecified:[5]			
Reported	3,120	12,900	4.13
Estimated	4,220	30,300	7.18
Total or average	12,300	84,700	6.89

[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes plaster and gunite sands.
[3]Includes road and other stabilization (lime).
[4]Includes filtration.
[5]Reported and estimated production without a breakdown by end use.

TABLE 7
NEVADA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2013,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregates and concrete products	765	$5,190	$6.78
Plaster and gunite sands	1	9	9.00
Concrete products (blocks, bricks, pipe, decorative, and so forth)	1	$15	15.00
Asphaltic concrete aggregates and other bituminous mixtures	431	3,740	8.68
Road base and coverings	1,440	9,800	6.80
Fill	430	2,390	5.55
Other miscellaneous uses[2]	87	970	11.15
Unspecified:[3]			
Reported	8,610	23,800	2.76
Estimated	5,880	43,900	7.47
Total or average	17,600	89,800	5.09

[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes filtration, and snow and ice control.
[3]Reported and estimated production without a breakdown by end use.

TABLE 8

NEVADA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2012, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products[2]	593	6,270	279	3,220	--	--
Asphaltic concrete aggregates and road base materials[3]	624	6,500	2,820	20,900	--	--
Fill	318	1,920	205	1,260	--	--
Other miscellaneous uses[4]	83	897	68	535	--	--
Unspecified:[5]						
Reported	596	5,330	385	2,880	2,140	4,720
Estimated	947	6,790	3,280	23,500	--	--
Total	3,160	27,700	7,030	52,300	2,140	4,720

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes plaster and gunite sands.

[3]Includes road and other stabilization (lime).

[4]Includes filtration, and snow and ice control.

[5]Reported and estimated production without a breakdown by end use.

TABLE 9

NEVADA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2013, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products[2]	461	3,010	306	2,210	--	--
Asphaltic concrete aggregates and road base materials	245	1,830	1,630	11,700	--	--
Fill	312	1,900	118	485	--	--
Other miscellaneous uses[3]	40	400	46	570	--	--
Unspecified:[4]						
Reported	496	4,430	221	1,940	7,890	17,400
Estimated	2,230	18,900	3,640	25,000	--	--
Total	3,790	30,500	5,960	41,900	7,890	17,400

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes plaster and gunite sands.

[3]Includes filtration, and snow and ice control.

[4]Reported and estimated production without a breakdown by end use.