

THE MINERAL INDUSTRY OF WYOMING

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 Geological Survey of Wyoming for collecting information on all nonfuel minerals.

During 1994, Wyoming ranked 15th in the Nation in total nonfuel mineral value,¹ down from 11th in 1993, according to the U.S. Bureau of Mines (USBM). The estimated value for 1994 was \$781 million, a 9% decrease from that of 1993. This followed a 10% decrease in 1993 compared with that of 1992. The State accounted for more than 2% of the U.S. total value. The decreasing values of the past 2 years mostly resulted from decreases occurring in soda ash, although the value of bentonite clay also significantly dropped in 1993. During that year, increases in the values of lime and construction sand and gravel reduced the amount of the State's total decrease in nonfuel mineral value. Compared with that of 1993, the mineral commodity values for grade-A helium, portland cement, crushed stone, and gypsum increased. Decreases were reported for soda ash, construction sand and gravel, and gemstones.

Based on USBM estimates of the quantities of minerals produced in the United States during 1994, Wyoming remained first in the production of soda ash and bentonite clay and second in grade-A helium. Additionally, the State remained 12th in gypsum production. Soda ash, or sodium carbonate, is an inorganic chemical extensively used in the manufacture of glass, soap and detergents, paper, textiles, and foods. The United States is the world's largest soda ash-producing nation, and Wyoming, one of only two producing States, is home to the world's largest known natural deposit of trona, the principal ore from which soda ash is refined. California produces a significantly smaller

quantity of natural soda ash. No metal production has been reported to the USBM for Wyoming since 1986. In recent years, however, a modest amount of exploration for gold has occurred in the State.

According to the Wyoming State Geological Survey, FMC Corp. evaluated a planned \$45 million expansion of its trona mining and refining facilities in southwestern Wyoming. The expansion was likely to begin during 1995 and was only one phase of a larger proposed expansion effort; the decision to proceed with this project was related both to a contract involving a new use for soda ash (the conversion of titanium dioxide waste into salable iron compounds) and expected growth in export markets. The majority of foreign soda ash production is synthetic soda ash and is not processed from natural deposits. Because soda ash is more economically produced from mined trona, many countries have established trade barriers to protect their domestic soda ash industries from competition with U.S. soda ash. With the passage of the General Agreement on Tariffs and Trade (GATT), U.S. soda ash companies anticipated the reduction of some of these trade barriers, which could result in significantly increased sales of Wyoming soda ash, especially in the export market. Company officials, however, noted that such changes might be slow. Trona is mined and refined into soda ash and a variety of sodium-based products at five locations in the extensive Green River Basin formation, west of Green River in southwestern Wyoming. A sixth facility was in the early stages of development by Wold Trona Co., which

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN WYOMING¹

Mineral	1992		1993		1994 ^P	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Cement (portland) thousand metric tons	438	\$30,182	W	W	W	W
Clays ² do.	2,535	83,094	2,407	\$73,399	2,407	\$73,400
Gemstones	NA	12	NA	13	NA	W
Sand and gravel (construction) do.	2,855	11,438	³ 3,400	³ 15,000	3,300	14,700
Stone (crushed) do.	³ 4,082	³ 19,900	3,456	19,837	³ 3,700	³ 22,000
Combined value of cement (masonry), clays (common), gypsum [crude 1994], helium (Grade-A), lime, soda ash, and values indicated by symbol W	XX	803,888	XX	745,608	XX	671,000
Total	XX	948,514	XX	853,857	XX	³ 781,000

¹Estimated. ^PPreliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.

²Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

³Excludes certain clays; kind and value included with "Combined value" data.

⁴Data do not add to total shown because of independent rounding.

TABLE 2
WYOMING: CRUSHED STONE¹ SOLD OR USED BY PRODUCERS IN 1993, BY USE

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	110	\$1,063	\$9.66
Coarse aggregate, graded:			
Concrete aggregate, coarse	284	1,598	5.63
Bituminous aggregate, coarse	361	1,598	4.43
Bituminous surface-treatment aggregate	W	W	2.76
Railroad ballast	1,440	9,172	6.37
Other graded coarse aggregate	2	20	10.00
Fine aggregate (-3/8 inch):			
Stone sand, concrete	6	54	9.00
Stone sand, bituminous mix or seal	W	W	1.95
Screening, undesignated	16	17	1.06
Coarse and fine aggregates:			
Graded road base or subbase	271	630	2.32
Terrazzo and exposed aggregates	45	1,045	23.22
Crusher run or fill or waste	W	W	2.21
Other construction materials	222	671	3.02
Roofing granules	W	W	37.05
Agricultural:			
Other agricultural uses	1	9	9.00
Special:			
Mine dusting or acid water treatment	3	77	25.67
Whiting or whiting substitute	3	99	33.00
Other fillers or extenders	36	1,254	34.83
Unspecified:²			
Actual	608	2,215	3.64
Estimated	50	314	6.28
Total ³	3,456	19,837	5.74
Total ^{4, 5}	3,810	19,837	5.21

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

¹Includes granite, limestone, limestone-dolomite, marble, miscellaneous stone, quartzite, traprock, and volcanic cinder and scoria.

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

³Data may not add to totals shown because of independent rounding.

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

⁵Total shown in thousand short tons and thousand dollars.

began preparation of permit applications for its planned trona and soda ash operation in the same basin formation, southeast of the five existing Wyoming facilities. Wold projected that the plant would be operational by fall 1996.

The production of construction aggregate in Wyoming slowed toward the end of 1994, as it normally does with the decline in outdoor construction during the winter. Meanwhile, the opening of new quarries were being planned for early 1995. One limestone aggregate quarry was scheduled to open near Laramie in southeastern Wyoming to provide large amounts of rock for a major reconstruction of a portion of Interstate 80 in Laramie. Meridian Aggregates, located in Granite, west of Cheyenne in Laramie County, remained the State's largest producer of construction aggregate, mostly producing railroad ballast and a variety of sized aggregates for general construction.

Decorative stone in a wide variety of rock types and colors was mined mostly in the eastern and northcentral portions of the State. The production of cut and polished pieces of Wyoming Raven, a black granite, and Fantastico, a hard multicolored rock, continued at Sunrise Stone's quarry in northern Albany County and at its fabricating plant in Platte County. Sunrise anticipated operating at full capacity throughout most of 1995. Canyon Creek Stone, while still planning the construction of a processing plant

at its quarry site, continued development of its flagstone and brown marble quarry southeast of Tensleep, in Washakie County. Because pink is a popular color in Florida for houses and other decorations, Guernsey Stone Co., primarily a construction aggregate producer in Platte County, shipped pink marble aggregate to Florida for use in landscaping, roofing granules, driveways, and other uses. Abbott Construction began shipment of more than 100 truckloads of previously stockpiled, pink granite boulders, some more than 3.5 meters (12 feet) long, to a buyer in Aspen, CO. Reclamation of the quarry site was complete.

In the fourth quarter of 1994, diamond testing was reported at the Chicken Park (Wyoming), Kelsey Lake (Colorado), and Sloan (Colorado) kimberlite rock formations in the Colorado-Wyoming State Line district. Diamond exploration activities also were reported at several locations in the Laramie Mountains of eastern Wyoming and in the Green River Basin.

¹The term value, throughout this document, refers to the monetary value of nonfuel minerals as represented by either mine shipments, mineral commodity sales, or marketable production as is applicable to the individual mineral commodities.

TABLE 3
WYOMING: 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 ¹	'9	'705	'\$2,404	\$3.40	7	925	\$3,987	\$4.31
Marble	1	W	W	4.93	1	74	2,446	33.05
Granite	1	W	W	5.34	2	2,383	W	W
Traprock	1	W	W	4.00	—	—	—	—
Quartzite	1	W	W	6.28	1	W	W	6.28
Volcanic cinder and scoria	1	W	W	6.35	1	W	W	11.11
Miscellaneous stone	'1	W	W	6.40	1	W	W	15.12
Total ²	XX	'2,626	'12,595	'4.80	XX	3,456	19,837	5.74
Total ^{3,4}	XX	'2,895	'12,595	'4.35	XX	3,810	19,837	5.21

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

²Includes "limestone-dolomite," reported with no distinction between the two.

³Data may not add to totals shown because of independent rounding.

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

⁵Total shown in thousand short tons and thousand dollars.