

THE MINERAL INDUSTRY OF IDAHO

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 Idaho Geological Survey for collecting information on all nonfuel minerals.

Idaho ranked 32d among the 50 States in total nonfuel mineral production value¹ in 1995, climbing from 33d in 1994, according to the U.S. Geological Survey (USGS). The estimated value for 1995 was \$399 million, a 15% increase from that of 1994. This followed a 26% increase in 1994 (based on final data) after an 11% decrease from 1992 to 1993. In 1995, more than 1% of the U.S. total nonfuel mineral production value came from Idaho. Industrial minerals, lead by phosphate rock and construction sand and gravel, accounted for about 58% of the State's total nonfuel mineral value. Of the remaining 42%, molybdenum, gold, silver, and lead, in descending order of value, were the leading metals.

Overall, the changes in the State's nonfuel mineral production value from 1993 through 1995 mostly resulted from shifting molybdenum and phosphate rock values. Significant increases occurred for both commodities in 1994 and 1995, following like decreases in 1993. Whereas value changes occurring for most other mineral commodities during 1994-95 were small relative to those of molybdenum and phosphate rock, garnet and vanadium ore values moderately increased in 1994. In 1995, other nonfuel mineral values that increased were: construction sand and gravel, silver, portland cement, vanadium ore, industrial sand and gravel, dimension stone, copper, pumice and pumicite, zinc, gemstones, masonry cement, and kaolin clays. Decreases occurred in lime, garnet, gold,

crushed stone, and lead.

Molybdenum had the largest single effect on the State's overall nonfuel mineral production value from 1992 through 1995. In the latter half of 1992, molybdenum production ceased at the State's only molybdenum mine, the Thompson Creek Mine, which remained closed in 1993 but was reopened in mid-1994. Molybdenum production value increased more than 140% from 1994 to 1995, the first full year of production since 1991.

Compared with USGS estimates of quantities produced in the other 49 States in 1995, Idaho remained the only State to produce vanadium ore and antimony; first of two garnet-producing States; second in phosphate rock; third in silver, lead, and pumice; fourth in molybdenum; sixth in feldspar; eighth in zinc; and ninth in copper. Of 14 U.S. gold-producing States, Idaho again ranked 10th. Additionally, the State's mining operations and plants produced significant quantities of construction and industrial sand and gravel and lime.

According to the Idaho Geological Survey,² mining activity in Idaho experienced ups and downs during 1995. Silver production in the famous Silver Valley continued, albeit at low levels relative to that of the early 1990's. While two major silver mines, the Lucky Friday Mine and the Sunshine Mine, remained in operation from 1994, there also was some production from the reopened Bunker Hill Mine. Hecla Mining Co. operated Lucky Friday and

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN IDAHO^{1 2}

Mineral	1993		1994		1995 ^P	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Gemstones	NA	\$566	NA	\$287	NA	\$349
Phosphate rock thousand metric tons	4,360	78,400	W	W	W	W
Pumice and pumicite metric tons	43,400	327	W	W	W	W
Sand and gravel (construction) thousand metric tons	^e 13,600	^e 44,900	14,500	46,300	14,700	49,200
Silver ³ metric tons	190	26,200	W	W	W	W
Stone (crushed) thousand metric tons	4,600	20,800	4,160	20,300	4,000	19,400
Combined value of antimony, cement, clays [common clays (1993), kaolin (1995)], copper, feldspar, [garnet (abrasive), gold, lead, lime, molybdenum (1994-95), sand and gravel (industrial), stone [dimension (1993, 1995), dimension marble and miscellaneous(1994)], vanadium ore, zinc, and values indicated by symbol W	XX	103,000	XX	279,000	XX	330,000
Total	XX	274,000	XX	346,000	XX	399,000

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).

³Data are rounded to three significant digits; may not add to totals shown.

⁴Recoverable content of ores, etc.

explored underground at the adjacent silver/lead Gold Hunter property in Shoshone County. Sunshine Mining and Refining Co. closed its Big Creek silver refinery, but operated the Sunshine Mine throughout the year. Sunshine Mining continued exploration of high-grade veins in the West Chance area. The pace of environmental cleanup of the Bunker Hill Superfund site and the Coeur d'Alene River accelerated.

Thompson Creek Mining Co. experienced a stable market for molybdenum produced from its large Thompson Creek open pit west of Challis. Stibnite Mines Inc., a seasonal open pit, heap-leach mining company, reopened in the summer, mining gold ore from its new Garnet Creek pit; permitting efforts were underway for expansion of operations at other nearby sites. Other operating gold mines included CSC Mining Co.'s small underground Rescue Mine in the town of Warren, Kinross Gold Corp.'s DeLamar Mine and its newly approved and constructed Stone Cabin Mine in Owyhee County, Pegasus Gold Inc.'s Black Pine Mine in Cassia County, U.S. Antimony Corp.'s small Yellowjacket Mine in Lemhi County, and two newly dedicated operations—Hecla's Grouse Creek unit in Custer County and FMC Gold Co.'s Beartrack Mine in Lemhi County. Hecla reported a disappointing year, announcing in October that ore grades at its Sunbeam pit at Grouse Creek were far lower and operating costs much higher than expected. The company took a \$97 million write-down on the Grouse Creek Mine, but planned to keep it open nearterm and to continue with exploration and delineation drilling. Production at FMC's Beartrack project started in late summer after cyanide was first applied to its ore piles. Two open pit areas were being mined, and the pregnant solution (gold leachate) pond was covered with gray plastic balls to prevent the entry of waterfowl.

Major gold exploration projects included USMX Inc.'s program at the Dewey Mine in the Thunder Mountain District, American Gold Resources Corp.'s Humbug project and Newmont Gold Co.'s Musgrove project, both in Lemhi County, and Echo Bay Mine Ltd.'s Kilgore project in Clark County. Formation Capital Corp.

continued major drilling programs, targeting underground cobalt deposits at the Black Pine and Sunshine projects in the Idaho Cobalt Belt in Lemhi County. The Sunshine project is in the Blackbird District, which was also the site of a major U.S. Environmental Protection Agency-supervised cleanup of the historic Blackbird cobalt mine site.

The State's phosphate industry was very active; all major facilities were in full production. Phosphate ore production from J. R. Simplot Co.'s Smoky Canyon Mine, FMC Corp.'s Dry Valley Mine, Rhone-Poulenc Basic Chemical Co.'s Rasmussen Ridge Mine, and Monsanto Co.'s Enoch Valley Mine were expected to total approximately 6.1 million metric tons (6.7 million short tons) in 1995. At plants in Soda Springs and Pocatello, Monsanto, Nu-West Industries Inc., FMC, and Simplot processed ore into elemental phosphorous or fertilizer products worth about four times the value of the raw ore. In late 1995, Nu-West was sold to Agrium, Inc., a Canadian firm. Kerr-McGee Chemical Corp. used the ferrophosphorus slag waste product generated by Monsanto's elemental phosphorous plant, as a source of vanadium in its vanadium extraction plant.

In other industrial minerals, Hess Pumice Products and Ash Grove Cement West Inc. had a good year with increased production in 1995. The Federal Government issued patents to Faxe Kalk Ltd., a Danish firm, to develop a 44-hectare (108-acre) site in Clark County containing travertine, a dimension limestone.

¹The terminologies "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 published in this chapter are estimated as of Dec. 1995. Estimates for some commodities, e.g., construction sand and gravel, crushed stone, and portland cement, are periodically updated. 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.

²The remaining narrative portion of this report was based on information provided by the Idaho Geological Survey.

TABLE 2
IDAHO: 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	24	\$69	\$2.88
Filter stone	W	W	4.72
Other coarse aggregate	W	W	2.20
Coarse aggregate, graded:			
Concrete aggregate, coarse	W	W	1.10
Bituminous aggregate, coarse	88	404	4.59
Bituminous surface-treatment aggregate	90	408	4.53
Railroad ballast	W	W	4.76
Coarse and fine aggregates:			
Graded road base or subbase	991	3,940	3.98
Unpaved road surfacing	872	4,120	4.72
Crusher run or fill or waste	34	84	2.47
Other coarse and fine aggregates	W	W	2.48
Other construction materials	126	338	2.68
Agricultural: Agricultural limestone	(3)	(3)	16.50
Chemical and metallurgical:			
Cement manufacture	(3)	(3)	2.73
Flux stone	457	4,390	9.60
Unspecified:⁴			
Actual	(3)	(3)	2.34
Estimated	997	5,190	5.20
Total	4,160	20,300	4.89

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

¹Includes granite, limestone, miscellaneous stone, quartzite, shell, traprock, and volcanic cinder and scoria.

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

³Withheld to avoid disclosing company proprietary data; included in "Total."

⁴Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3
IDAHO: 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	6	316	\$1,430	\$4.51	6	407	\$1,400	\$3.44
Granite	6	382	1,830	4.80	7	281	1,110	3.94
Traprock	38	2,850	10,900	3.82	31	2,230	9,440	4.24
Shell	2	W	W	4.83	2	W	W	4.08
Volcanic cinder and scoria	1	W	W	5.11	1	W	W	5.67
Quartzite	11	564	4,670	8.28	7	556	1,800	3.24
Miscellaneous stone	7	418	1,590	3.80	8	642	3,370	5.24
Total	XX	4,600	20,800	4.51	XX	4,160	20,300	4.89

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

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

TABLE 4
IDAHO: 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 and concrete products ²	3,310	\$13,600	\$4.10
Concrete products (blocks, brick, pipe, decorative, etc.)	102	459	4.50
Asphaltic concrete aggregates and other bituminous mixtures	1,310	4,740	3.63
Road base and coverings ³	6,000	16,300	2.71
Fill	650	1,140	1.75
Snow and ice control	54	227	4.20
Other ⁴	64	332	5.19
Unspecified: ⁵			
Actual	1,340	3,690	2.76
Estimated	1,640	5,880	3.58
Total or average	14,500	46,300	3.20

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

²Includes plaster and gunitite sands.

³Includes road and other stabilization (cement).

⁴Includes filtration and railroad ballast.

⁵Includes production reported without a breakdown by end use and estimates for nonrespondents.



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