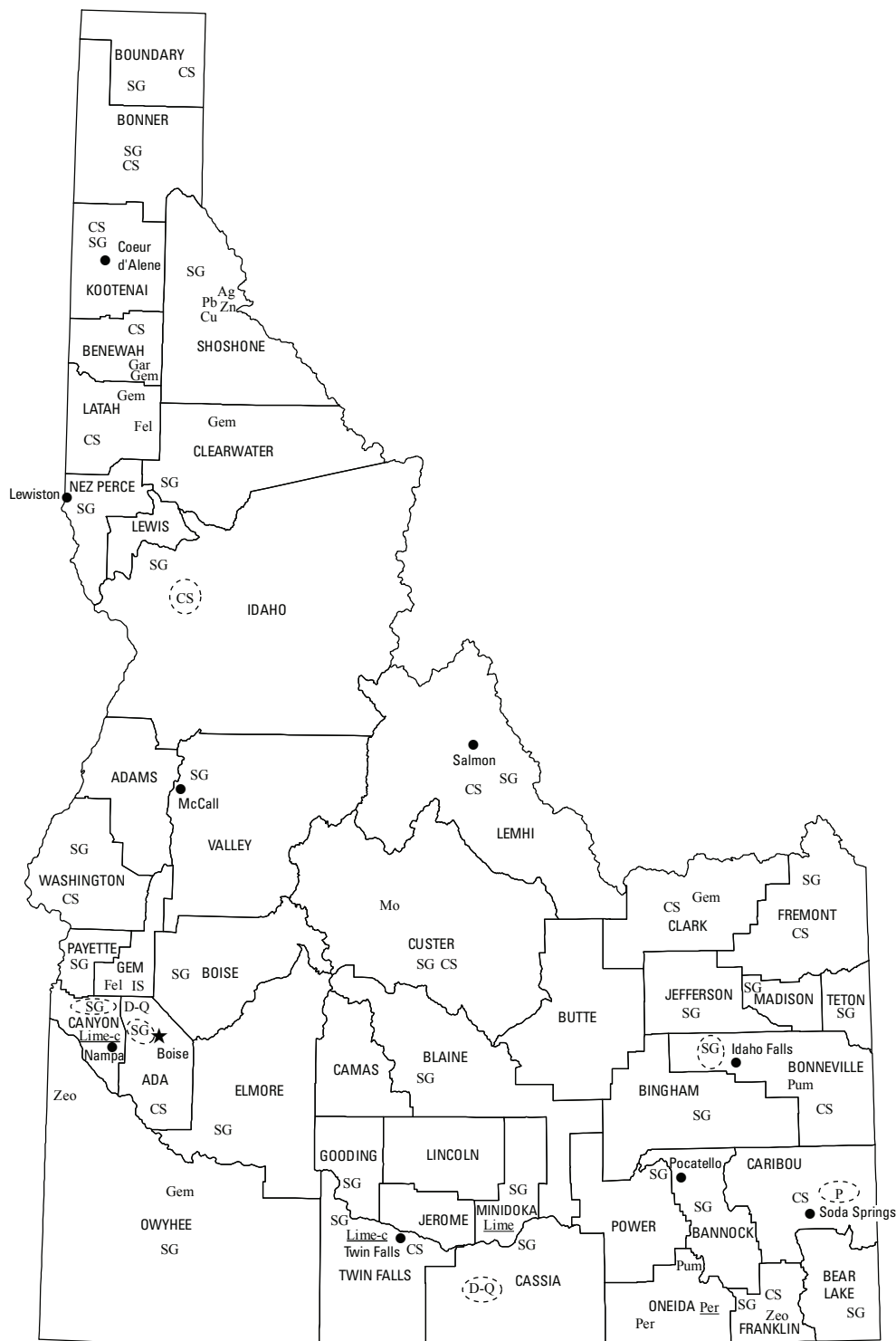




2012–2013 Minerals Yearbook

IDAHO [ADVANCE RELEASE]

IDAHO



LEGEND

— County boundary

★ Capital

● City

MINERAL SYMBOLS
(Principal producing areas)

Ag Silver

Cem Cement plant

Cu Copper (byproduct)

CS Crushed stone

D-Q Dimensional quartzite

Fel Feldspar

Gar Garnet

Gem Gemstones

IS Industrial sand

Lime-c Lime plant (captive)

Mo Molybdenum

P Phosphate rock

Pb Lead

Per Perlite

Per Perlite plant

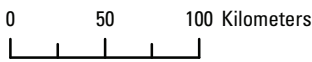
Pum Pumice and pumicite

SG Construction sand and gravel

Zeo Zeolites

Zn Zinc

○ Concentration of mineral operations



Albers equal area projection

THE MINERAL INDUSTRY OF IDAHO

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

In 2013, the value of nonfuel mineral production¹ in the State of Idaho increased to \$997 million, 1.3% of the total U.S. nonfuel mineral production, ranking it 25th in the Nation. In 2012, the corresponding value was \$815 million, 1.1% of the U.S. total nonfuel mineral production, ranking it 28th among the 50 States. In 2013, on a per capita basis, nonfuel mineral production in Idaho had a value of \$618 compared with the national average of \$238. In 2012, the per capita value was \$511 compared with the national average of \$241.

The value of nonfuel mineral production in Idaho for the years 2006 through 2013 was as follows (in millions of dollars): \$782 (2006), \$781 (2007), \$1,070 (2008), \$931 (2009), \$1,180 (2010), \$1,320 (2011), \$815 (2012), and \$997 (2013).

In 2013, there were 1,825 employees in Idaho in nonfuel mineral mines and 353 in mills and preparation plants. In 2012, the corresponding numbers were 1,895 in nonfuel mineral mines and 350 in mills and preparation plants (U.S. Mine Safety and Health Administration, 2013, p. 9; 2014, p. 9). In 2013, the average annual wage in Idaho for all mining was \$71,423 compared with \$36,751 for all industries. In 2012, the corresponding figures were \$68,262 and \$35,878, respectively (National Mining Association, unpub. data, February 4, 2016).

In 2013, on the basis of production quantity, Idaho was the leading State for the production of pumice and pumicite out of six producing States. It was second in the production of industrial garnet, feldspar, and phosphate rock out of two, seven, and four producing States, respectively. It was third in the production of lead, molybdenum, silver, and zeolites out of 3, 7, 11, and 6 producing States, respectively. The State was fourth in the production of perlite and zinc out of six and four producing States, respectively. In 2013, Idaho also produced construction sand and gravel, copper, crushed stone, dimension stone, lime, and natural gemstones.

In 2012, Idaho was second in the production of phosphate rock and pumice and pumicite out of four and five producing States, respectively. The State was third in the production of feldspar, industrial garnet, lead, and zeolites out of seven, three, three, and six producing States, respectively. Idaho was fourth in the production of molybdenum concentrates, perlite, and silver out of 7, 5, and 11 producing States, respectively. In 2012, the State also produced construction sand and gravel, copper, crushed stone, dimension stone, lime, natural gemstones, and portland cement (table 1).

¹The 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 Idaho Geological Survey² (IGS) prepared reports on the mineral industry of the State covering activities in 2012 (May 2015) and 2013 (August 2015) from which the following information has been extracted. These data may differ from U.S. Geological Survey (USGS) data, which are based on company responses to USGS surveys and estimation for nonrespondents. The USGS withholds some data to avoid disclosing company proprietary data.

A report by the Idaho Mining Association (Peterson, 2013, p. 4) indicated that in 2012 the mining industry accounted for \$106.6 million in property, sales, excise, and income taxes paid to Idaho, and estimated that mining and related processing jobs contributed \$1.47 billion, including multipliers, to Idaho’s gross State product.

Metals

Metal mining activity was as follows:

- The Lucky Friday Mine was closed in January 2012 for cleaning and repair of the Silver Shaft, rehabilitation work, and enhancements. Production resumed in February 2013, after a 14-month shutdown, and shaft sinking resumed on the number 4 shaft project. The mill produced both lead and zinc concentrates, which were shipped to Teck Cominco’s smelter in Trail, British Columbia, Canada.
- U.S. Silver Corporation operated the Galena Mine, but in August 2012, the company announced a merger with RX Gold & Silver, Inc.; the new company, named U.S. Silver & Gold Inc., operated the associated complex, which included the nearby Coeur Mine and Caladay property. The company reduced staff and the number of active stopes, increased cut-off grade, put the Coeur Mine on care-and-maintenance status, and initiated other measures to reduce costs and improve operations.
- The Sunshine Mine remained closed because of a fire in February 2012.
- Thompson Creek Metals Co. Inc. operated the Thompson Creek open pit molybdenum mine near Challis in Custer County in both years, producing ore from the Phase 7 pit. In October 2012, the company suspended stripping for Phase 8, which was intended to deepen the pit and extend mine life. Concentrates were sent to the company’s Langeloth roaster facility in Pennsylvania. A perimeter wind fence, over 60 feet high, was completed in 2012 to reduce air emissions at the coarse ore stockpile.
- New Jersey Mining Co. worked on expanding its mill capacity to 350 metric tons per day in 2012.

²Virginia S. Gillerman and Earl H. Bennett, Idaho Geological Survey, provided the State nonfuel mineral industry information.

Industrial Minerals

Phosphate mining activity was as follows:

- The Meade Peak Member was mined for phosphate in three open pit operations in Caribou County, Idaho. Each mine sent its ore to a dedicated processing plant where the ore is converted into phosphoric acid fertilizer at Agrium Inc.'s and Simplot Co.'s plants and into elemental phosphorus at Monsanto Co.'s plant. The strata are locally enriched in carbon and trace elements such as molybdenum, selenium, uranium, and vanadium. Selenium is leached by oxidizing ground or surface waters and may bioaccumulate to toxic levels in specific plants. Various regulatory and reclamation activities were undertaken to address this issue.
- Monsanto finished production of phosphate rock at their South Rasmussen Mine in May 2013, after operating for about 10 years. The company constructed the new Blackfoot Bridge Mine, which was the sole producer of phosphate in the second half of the year. Overall, the South Rasmussen Mine supplied about two-thirds of the ore for the year and Blackfoot Bridge produced the remainder. In 2012, the company installed a thermal oxidizer at their plant to burn carbon monoxide that had previously been flared off.
- Agrium Inc., a Canadian-based public company, reclaimed the Dry Valley Mine, which finished production in May 2011. Agrium mined at the North Rasmussen Ridge Mine and did reclamation work at the South and Central Rasmussen Ridge pits. Agrium's phosphoric acid fertilizer plant at Conda sourced its feed rock from their North Rasmussen Ridge Mine.
- J.R. Simplot Co. operated its Smoky Canyon Mine near the Wyoming border throughout 2012 and 2013.
- Paris Hills Agricom, Inc., a wholly owned subsidiary of Stonegate Agricom, Ltd., continued permitting activities at their Paris Hills project near Bloomington in Bear Lake County. It released a feasibility study in December 2012.
- Four companies (Agrium, Monsanto, Paris Hills Agricom, and Simplot) were in the process of permitting new mine plans and (or) conducting exploration for their next mine.

Other industrial mineral mining activity was as follows:

- Aggregate production in Idaho corresponded to two areas of high demand owing to interstate highway projects and urban centers construction activity in the Treasure Valley in southern Idaho and the Post Falls Rathdrum Prairie area in northern Idaho.
- Emerald Creek Garnet, Ltd., owned by Opta Minerals, Inc. since 2012, was one of two industrial garnet producers in the country in 2013.
- Dimension stone producers included Table Rock Sandstone near Boise and Idaho Travertine and the Oakley Stone quarries in Cassia County. Gerhard Borbonus Landscaping quarried and cut the Table Rock sandstone from their quarry northeast of Boise.

- The Three Rivers quarry in Custer County was inactive because owner L&W Stone Corp. was in bankruptcy proceedings.
- Hess Pumice Products owned Idaho Minerals, U.S. Grout, and Hess Pozz. Hess mined raw material from its Wrights Creek pumice mine and perlite mine near Malad in Oneida County and expanded the mine and facilities in 2013. Hess purchased the closed Owens-Corning cultured stone plant in 2012 and reopened it in 2013.
- Unimin Corp. operated their silica sand operation near Emmett in Gem County and expanded production in 2012.
- U.S. Antimony Corp. operated the Bear River Zeolite Mine near Preston and shipped clinoptilolite zeolite for use in animal nutrition, soil amendments, water filtration, waste water treatment, and other industries.

Exploration

Mineral exploration in Idaho slowed down in 2013 as compared with 2012. The major exploration activities were as follows:

- Hecla Mining Co. started the year with an underground drilling program at the Star Mine.
- Black Mountain Resources Ltd. reported results from its 2012 drilling on the Conjecture Mine project in Bonner County; some cores showed high silver grades.
- In the Beaverhead Mountains, near the Idaho-Montana border, U.S. Rare Earths, Inc. conducted exploration on their claims in the North Fork area to the northwest.
- Midas Gold, Inc. conducted exploration at the Golden Meadows project; Midas has united the district under single ownership. It released a preliminary economic analysis in mid-2012.
- In the Boise basin, a joint venture of Gold Hill Reclamation and Mining and Idaho State Gold Co. removed the cable-tram waste dumps and stockpiles at the Gold Hill Mine site and transported the waste to a custom placer mill designed to separate out free gold and sulfides.
- Thunder Mountain Gold, Inc. conducted underground exploration and development work in the massive sulfide replacements and skarns at their South Mountain project in Owyhee County in a joint venture with ISR Capital LLC.
- In 2012, Formation Capital Corp. continued Phase II construction work to develop a new underground cobalt-copper-gold mine in the Blackbird mining district, southwest of Salmon. Formation built a new road from the mill site to the mine portal to avoid public road access, and it installed a powerline as it worked on other site facilities.
- In Clark County, Otis Gold Corp. had a modest exploration program at their Kilgore Gold-Silver project and completed a 43-101-compliant report in 2012.

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

(Thousand metric tons and thousand dollars)

Mineral	2011		2012		2013	
	Quantity	Value	Quantity	Value	Quantity	Value
Garnet, industrial ^c	16	3,740	14	2,830	14	2,380
Gemstones, natural	NA	379	NA	370	NA	371
Sand and gravel, construction	10,500 ^r	64,000 ^r	10,000	73,800	11,600	77,300
Stone,						
Crushed	3,780 ^r	20,800 ^r	4,590	30,900	3,820	24,000
Dimension	28	4,200	30	5,370	32	5,840
Combined values of, cement [portland (2011–13)], copper, feldspar, lead, lime, molybdenum concentrates, perlite (crude), phosphate rock, pumice and pumicite, sand and gravel [industrial (2011)], silver zeolites, zinc (2011, 201	XX	1,230,000	XX	702,000	XX	887,000
Total	XX	1,320,000	XX	815,000	XX	997,000

^cEstimated. ^rRevised. NA Not available. XX Not applicable.

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

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

TABLE 2
IDAHO: CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY TYPE¹

Type	2012				2013			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone ²	7	147	\$3,760	\$25.67	7	146	\$3,850	\$26.44
Granite	6	225	880	3.91	5	211	1,080	5.11
Traprock	34	581	2,680	4.61	31	799	4,220	5.28
Sandstone and quartzite ³	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Volcanic cinder and scoria	1	19	420	22.05	3	21	153	7.33
Miscellaneous stone	27	3,610	23,200	6.41	41	2,640	14,700	5.59
Total or average	XX	4,590	30,900	6.74	XX	3,820	24,000	6.30

XX Not applicable.

¹Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

²Includes limestone-dolomite reported with no distinction between the two kinds of stone.

³Includes sandstone-quartzite reported with no distinction between the two kinds of stone.

⁴Withheld to avoid disclosing company proprietary data; included with “Miscellaneous stone.”

TABLE 3
IDAHO: CRUSHED STONE SOLD OR USED BY PRODUCERS BY USE¹

Use	2012			2013		
	Quantity (thousand metric tons)	Value (thousands)	Unit value	Quantity (thousand metric tons)	Value (thousands)	Unit value
Construction:						
Coarse aggregate (+1½ inch):						
Riprap and jetty stone	3	\$17	\$5.53	10	\$99	\$10.41
Filter stone	--	--	--	26	207	7.85
Unspecified coarse aggregate	W	W	W	W	W	W
Coarse aggregate, graded:						
Bituminous aggregate, coarse	W	W	W	220	1,140	5.19
Bituminous surface-treatment aggregate	W	W	W	W	W	W
Fine aggregate (-¾ inch):						
Stone sand, bituminous mix or seal	W	W	W	W	W	W
Screening, undesignated	--	--	--	W	W	W
Unspecified fine aggregate	W	W	W	--	--	--
Coarse and fine aggregates:						
Graded road base or subbase	495	2,900	5.85	1,180	5,590	4.74
Unpaved road surface	338	4,930	14.57	142	847	5.97
Terrazzo and exposed aggregate	19	422	22.23	21	153	7.32
Crusher run or fill or waste	20	61	3.07	79	417	5.26
Unspecified coarse and fine aggregates	W	W	W	W	W	W
Unspecified and other construction materials	7	39	5.61	10	229	22.05
Agricultural:						
Agricultural Limestone	W	W	W	W	W	W
Poultry grit and mineral food	W	W	W	W	W	W
Chemical and metallurgical:						
Cement manufacture	W	W	W	--	--	--
Chemical Stone	W	W	W	--	--	--
Special:						
Mining dusting or acid water treatment	W	W	W	W	W	W
Asphalt fillers or extenders	W	W	W	--	--	--
Other miscellaneous uses and specified uses not listed	5	100	20.00	37	1,320	35.29
Unspecified: ²						
Reported	1,980	10,300	5.22	1,200	7,230	6.03
Estimated	981	5,540	5.65	275	1,600	5.81
Total or average	4,590	30,900	6.74	3,820	24,000	6.30

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

¹Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

²Reported and estimated production without a breakdown by end use.

TABLE 4
IDAHO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2012,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate and plaster and gunite sands ²	733	\$5,930	\$8.09
Asphaltic concrete aggregates and other bituminous mixtures	183	1,820	9.95
Road base and coverings ³	2,070	11,900	5.75
Fill	89	323	3.63
Snow and ice control	39	164	4.21
Other miscellaneous uses ⁴	199	2,070	10.40
Unspecified: ⁵			
Reported	2,730	22,900	8.39
Estimated	3,950	28,600	7.24
Total or average	10,000	73,800	7.38

¹Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

²Includes concrete products.

³Includes road and other stabilization (cement).

⁴Includes filtration and railroad ballast.

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

TABLE 5
IDAHO: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2013,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate and concrete products ²	485	\$3,870	\$7.97
Asphaltic concrete aggregates and other bituminous mixtures	245	2,690	10.97
Road base and coverings ³	2,430	11,100	4.58
Fill	284	937	3.30
Snow and ice control	37	183	4.95
Other miscellaneous uses ⁴	86	523	6.08
Unspecified: ⁵			
Reported	3,260	26,400	8.10
Estimated	4,760	31,600	6.63
Total or average	11,600	77,300	6.67

¹Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

²Includes plaster and gunite sands.

³Includes road and other stabilization (cement).

⁴Includes railroad ballast.

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