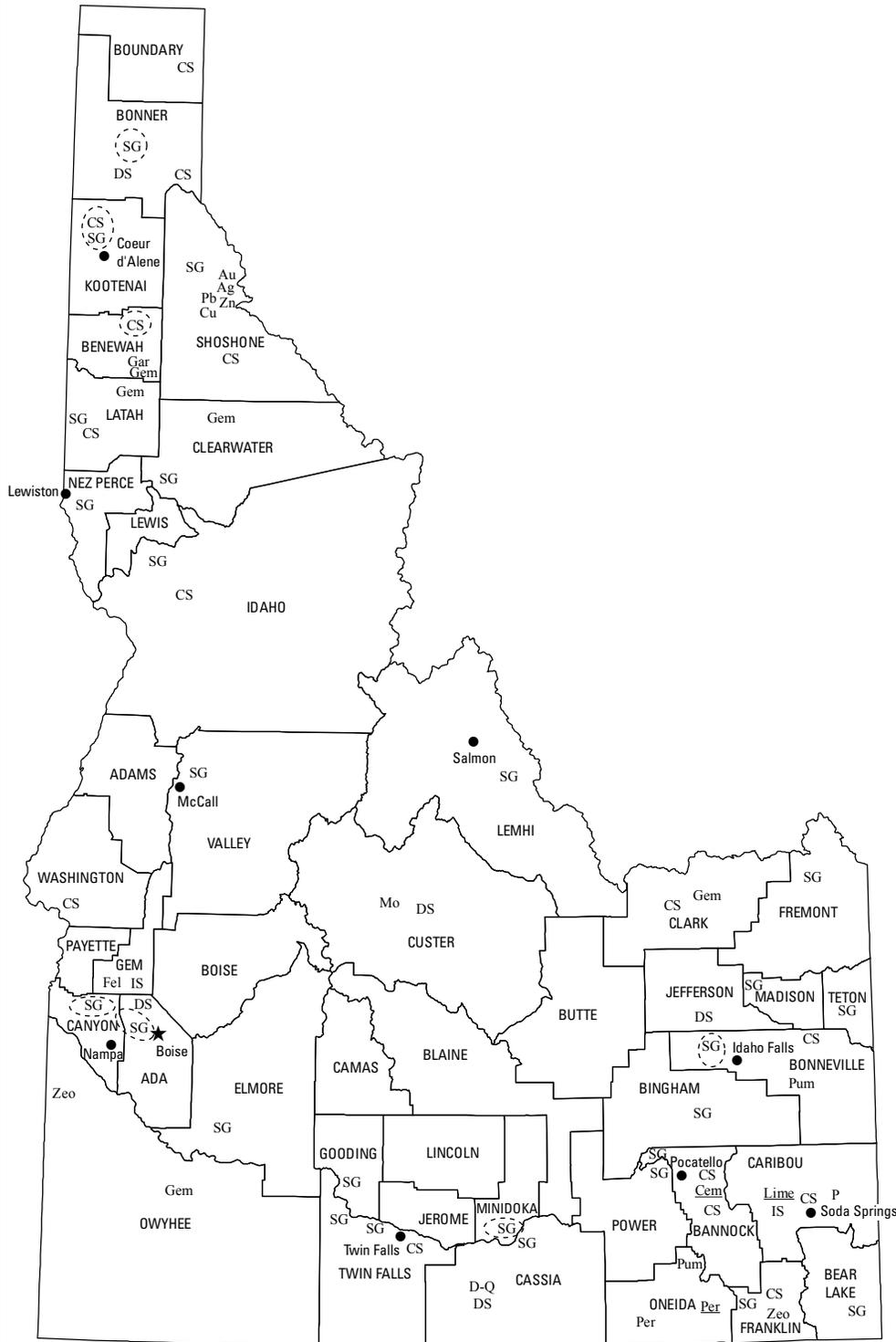




2008 Minerals Yearbook

IDAHO

IDAHO



LEGEND

— County boundary

★ Capital

● City

**MINERAL SYMBOLS
(Principal producing areas)**

Ag Silver

Au Gold

Cem Cement plant

Cu Copper (byproduct)

CS Crushed stone

D-Q Dimension quartzite

DS Dimension stone

Fel Feldspar

Gar Garnet

Gem Gemstones

IS Industrial sand

Mo Molybdenum

P Phosphate rock

Pb Lead

Per Perlite

Per Perlite plant

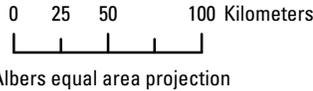
Pum Pumice and pumicite

SG Construction sand and gravel

Zeo Zeolites

Zn Zinc

○ Concentration of mineral operations



Source: Idaho Geological Survey/U.S. Geological Survey (2008).

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 2008, Idaho's nonfuel mineral production¹ was valued at \$1.07 billion based upon annual U.S. Geological Survey (USGS) data (table 1). This was a more than 37% increase from the State's total nonfuel mineral value for 2007, following a marginal decrease from 2006 to 2007 (table 1). Idaho rose to 24th from 28th in rank among the 50 States in total nonfuel mineral production value and accounted for 1.5% of the U.S. total. Yet, per capita, the State ranked 8th in the Nation in its mineral industry's value of nonfuel mineral production; with a population of nearly 1.53 million, the value of production was about \$698 per capita.

Molybdenum concentrates, phosphate rock, construction sand and gravel, and silver, in descending order of value, accounted for nearly 85% of the State's total nonfuel mineral production value in 2008; lead, crushed stone, portland cement, and lime accounted for nearly an additional 13%. About 35% of the State's total nonfuel mineral value came from the production of industrial minerals, and the remainder from molybdenum concentrates, silver, lead, zinc, copper, gold, and cadmium (a byproduct of zinc concentrates) (descending order of value).

In 2008, the largest increases in value were from molybdenum, up by more than \$250 million; phosphate rock, up by more than \$50 million; and silver, lead, copper, and industrial sand and gravel, up by a combined total of more than \$20 million. Offsetting these increase somewhat were decreases in construction sand and gravel, down by \$20 million; lime, down by more than \$10 million; portland cement, down by about \$12 million; zinc; and crushed stone, down by more than \$1 million (descending order of change in value; some changes withheld—company proprietary data) (table 1).

In 2008, Idaho continued to rank third of four producing States in the quantity of phosphate rock produced; third of three industrial garnet-producing States; third in silver and lead (descending order of value); fourth in the production of molybdenum concentrates; and fifth in crude perlite. The State increased to second from third in zeolite production; to third from fourth in that of pumice and pumicite; to eighth from ninth in the production of gemstones (based upon value); and the State continued to be a significant producer of industrial sand and gravel and dimension stone.

The narrative information that follows was provided by the Idaho Geological Survey² (IGS). Production data in the text

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 2008 USGS mineral production data published in this chapter are those available as of July 1, 2010. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

²Virginia S. Gillerman, Associate Research Geologist/Economic Geologist, authored the text of the State mineral industry information provided by the Idaho Geological Survey.

that follows are those reported by the IGS and are based on the agency's own surveys and estimates or information gathered from company annual reports. They may differ from production figures published by the USGS.

Industry Overview and Trends

In 2008, Idaho's nonfuel mineral production exceeded \$1 billion for the first time in history. Much of the increase was owing to the very high price of more than \$66 per kilogram (kg) for molybdenum oxide during most of the year, while silver prices, which approached \$20 per troy ounce in the spring, also contributed. This increase was offset by the sharp economic downturn in the second half of the year; the price of molybdenum oxide decreased to less than \$22 per kg in December, and prices of base metals and industrial minerals also decreased significantly. Market demand for construction-related materials also decreased significantly. Employment in the mining industry had increased to approximately 2,800 jobs in 2008 prior to the economic recession in the Nation and the State.

Molybdenum concentrates were, by far, the highest value commodity, followed in descending order by phosphate rock, construction sand and gravel, silver, and lead. The combination of high metal prices with stable to expanded production and a declining demand for aggregate and construction materials further increased in terms of by value, the percentage of the State's nonfuel minerals derived from metals to nearly 65% from that of 2007 of about 53%. Idaho's copper production increased in part owing to the reopening of the Sunshine Mine and the continued mining at the Galena Mine in the Silver Valley mining region of the Coeur d'Alene Mountains in northern Idaho. Copper-bearing tetrahedrite was one of the main silver minerals.

Exploration and Development Activities

Metals

Cobalt.—Formation Capital Corp., headquartered in Vancouver, British Columbia, Canada, awaited the Record of Decision (ROD) from the Salmon-Challis National Forest for the company's Idaho Cobalt Project. The proposed underground cobalt-copper-gold mine was located in the historic Blackbird Mining District of Lemhi County. A new positive feasibility study updated reserves (diluted, proven and probable) on the Ram deposit to 2.4 million metric tons (Mt) containing about 0.559% cobalt, 0.596% copper, and 0.48 grams per ton (g/t) gold. Using a 0.2% cobalt cutoff for mining activities, the project's reserves were sufficient for a 10-year mine life. Additionally, there was 1.0 Mt of inferred ore with substantial potential for additional resources.

Formation Capital reached negotiated agreements with several environmental groups to resolve their concerns over the mine's impact on water quality, and the final ROD was expected in early 2009. The overall economic downturn complicated financing but also lowered construction costs and allowed for additional design and engineering work.

Copper.—New Jersey Mining Co. drilled three holes on the company's Niagara copper-silver deposit in the Murray District. The Niagara deposit is similar to that of the Troy Mine (in northwestern Montana), a quartzite-hosted strata-bound deposit. Troy-type mineralization was found to be stacked in several horizons of the upper Revett Formation (New Jersey Mining Company, 2009). Drilling confirmed prior estimates of grade and identified a weak gold signature in the mineralized material. The indicated and inferred resource in the deposit was approximately 18 Mt of ore at a copper grade of 0.39% and a silver grade of 15.5 g/t. Drilling indicated a potential gold grade content of 0.1 g/t on average.

Gold.—Gold was the target at New Jersey Mining's Toboggan joint venture with Newmont North American Exploration Ltd. (a subsidiary of Newmont Mining Corp.) in the Murray District, site of historic placer gold production. Newmont worked on geologic mapping, rock and soil geochemistry, and geophysics as well as permitting for future drilling. Quartz with gold-silver tellurides and potassic alteration were inferred to be related to alkaline intrusive rocks in the East Fork of Eagle Creek. Specific claim blocks included the Gold Butte, Golden Reward, and Mineral Ridge areas within a 1,900-hectare joint-venture package (New Jersey Mining Company, 2008).

In a joint venture, Premium Exploration Inc. and Clearwater Mining Corp., acquired the Buffalo Gulch and Petsite properties near Elk City in Idaho County. The Buffalo Gulch deposit was permitted by Bema Gold Corp. in 1990, and Premium Exploration started discussions with the regulatory agencies about a new environmental impact statement (EIS). The previously identified resource was approximately 3,000 kg of gold in an open pit, oxide deposit. The Petsite deposit was along the Orogrande Shear Zone, where past drilling identified high grade gold intercepts within an inferred gold resource of more than 15,000 kg.

Bear Lake Gold Ltd., a combination of Maximus Ventures Ltd. and NFX Gold Inc., explored the Unity Mine near Warren in Idaho County. Bear Lake Gold had an option with Unity Gold Silver Mines, Inc. to earn a 60% interest on the Unity project. Bear Lake drilled about 1,020 meters (m) to test extensions of the Little Giant and Rescue veins, which were narrow, high-grade gold-quartz veins that cut granodiorite. The company reported one intercept of 4.6 g/t gold from its drilling program in 2008 (Bear Lake Gold Ltd., 2009). Journey Resources Corp. continued to compile data into a GIS database at its Musgrove project in Lemhi County. With some targets not yet drilled, the NI-43-101 classification inferred mineral resource estimate was updated to 8 Mt at 1.22 g/t gold. [The NI-43-101 is a mineral resource classification scheme used for the public disclosure of information relating to mineral properties in Canada (Gillerman and Bennett, 2009).]

In eastern Idaho, Otis Capital Corp. drilled the Kilgore gold property in Clark County and the Milestone hot spring

target in Owyhee County. Freegold Ventures Ltd. worked at the Idaho-Almaden hot spring, gold-mercury deposit in Washington County. Of other small independent companies or individuals, Hydrothermal Metals explored for gold in the Raft River geothermal area, and Hell and High Water performed development work on a "high gravel" placer in Boise County. Silver Falcon Mining Inc. set up a mill in Melba to treat waste dumps from the old silver-gold mines on War Eagle Mountain in Owyhee County.

Atlanta Gold Corp. revised the company's mining scenario at the Atlanta gold-silver project in Elmore County following public concerns over cyanide use. The company refocused on an underground mine plan with minipits and noncyanide milling onsite in an effort to reduce the environmental footprint of the project. The company drilled 57 holes to test the eastern pit area and extensions of the Monarch shear zone for surface and underground operations.

Thunder Mountain Gold Inc. drilled two core holes on private property at South Mountain in Owyhee County. The polymetallic skarns and massive sulfide replacements were mined historically from the Sonneman and Laxey tunnels. One 5.3-meter intercept from hole DMEA-2 assayed 4.42 g/t gold, plus significant copper, lead, silver, and zinc deposits. South Mountain skarns were mined historically for zinc. Thunder also did reconnaissance work around South Mountain.

Molybdenum.—Gentor Resources, Inc. completed 6,400 m (21,000 feet) of core drilling on the Ima Mine molybdenum-tungsten-silver deposit on patented ground near Patterson in Lemhi County, before the program was cut short owing to funding. Angle hole 30 intersected granite at depth; the first 112 m (368 feet) into the intrusive assayed 0.28% molybdenum disulfide (MoS_2) with a silver credit.

Mosquito Consolidated Gold Mines, Ltd. drilled 11 core holes, totaling about 8,140 m at the giant Cumo molybdenum-copper deposit in Boise County, near the headwaters of Grimes Creek in southwestern Idaho. The large porphyry molybdenum system, estimated to be more than 1.8 billion metric tons, was discovered and first drilled by Amax Inc. in 1963. Mineralization extends from the surface, relatively continuously over a large vertical and areal extent. Hole 39-08 intersected about 725 m of 0.101% MoS_2 and 0.05% copper, ending in mineralization at a fault zone. Mosquito geologists worked to define the metal zoning pattern (outer copper-silver to copper-molybdenum to molybdenum) and geologic details.

Silver.—Exploration and development activity accelerated in Idaho's well known Coeur d'Alene District in Shoshone County. With more than 37,000 t of historic silver production in the district, silver was the principal target, but base metals were also being sought. SNS Silver Corp. drilled more than 8,230 m into the South and Upper Alhambra veins at the Crescent Mine, located just east of Kellogg. The company also drilled nearly 13,200 m from underground off the Hooper level, the main haulage tunnel, and started rehabilitation of the Alhambra level. The Crescent is located across Big Creek from the Sunshine Mine near Kellogg. One intercept in SNS-1002 assayed 583 g/t silver over 2 m.

Hecla Mining Co. pioneered the use of three-dimensional computer mapping and visualization in the company's regional

exploration of northern Idaho's Silver Valley. Geologists digitized maps from the 110 years of mining in the district to generate a three-dimensional model of mine workings, including the 245 mines and prospects on Hecla's property. At Hecla's Lucky Friday underground mine, the company drilled deep holes, thereby to the 2,160-meter level, on the east and center portions of the Gold Hunter vein system, increasing reserves by 26%. Hecla also drilled seven core holes into the "Gap" area above the 1,490-meter level Gold Hunter workings and below the shallow, historic mines, encountering mineralized structures within the unexplored 760-meter interval. Hecla had started engineering studies for a deep internal shaft to access the deeper levels of the Gold Hunter deposit, but this was slowed at yearend owing to the overall economic conditions.

U.S. Silver Corp. completed more than 4,570 m of exploration and development drilling in Galena Mine, Coeur d'Alene District, on newly discovered veins, including the high grade 175 vein. Reserves have risen 60% since U.S. Silver took over the property.

Vanadium and Other Metals.—Rocky Mountain Resources Corp. drilled five new reverse circulation holes at the Paris Hills phosphate and vanadium project near Paris in Bear Lake County. Historic drilling in the 1970s by Earth Science, Inc. had outlined an inferred resource of nearly 110 Mt of 23% phosphate rock (P_2O_5) within the Phosphoria Formation and intersected a vanadium-rich bed of 0.79% vanadium pentoxide (V_2O_5) below the upper phosphate bed. Rocky Mountain's work confirmed the earlier estimates.

Thorium Energy, Inc. staked claims and did surface sampling at the company's Lemhi Pass and Diamond Creek rare-earth and thorium properties in Lemhi County. Doe Run Mining drilled a lead prospect at Birch Creek in southeastern Idaho.

Zinc and Polymetallic Deposits.—Azteca Gold Corp., in a joint venture with Royal Silver Apex Inc., drilled a deep hole in which silver-base metal mineralization was discovered near yearend on their Two Mile project between Murray and Osburn in the Coeur d'Alene District of Shoshone County. Azteca collared its DDH-005A hole to deepen another 2007 hole. It was completed in early December to a depth of nearly 2,680 m. Mineralization was encountered in the lower portion, including approximately 15 m of massive sulfide. Initial assays included a massive sulfide zone of 4.7 m that averaged 40% zinc, 7.4% lead, and 140.7 g/t silver, the hole ending at a depth of slightly more than 2,420 m. Host rock was apparently the Precambrian Pritchard Formation, and though few details were available, a comparison was made to bedded, Sullivan-type ores. A new vertical hole, DDH-006, and a wedge-off hole, DDH-005B, were started in December. The original drilling at the Two Mile project was collared to test a shallower anomaly discovered by a Quantec Titan-24 distributed array geophysical survey.

Commodity Review

Industrial Minerals

Garnet.—Emerald Creek Garnet, Ltd. (a subsidiary of WGI Heavy Minerals Inc.) changed from trommels to flat screens for greater efficiency at the company's two wash plants at its mine

near Fernwood. Although Emerald Creek had minor cutbacks and declining grades, the company continued to produce industrial garnets but decided upon having an extended winter shutdown at yearend because of the economy.

Phosphate Rock.—Production, typically more than 3.6 Mt/yr, of phosphate rock continued at Idaho's three large mines in Caribou County, and prices of agricultural commodities, including phosphate-based fertilizers, rose significantly in 2008. Although output was similar to that in 2007, the value of the ore rose nearly 50%. Only in the last quarter did the economic downturn influence the industry. Phosphate rock was processed locally in two phosphoric acid fertilizer plants and an elemental phosphorus manufacturing facility. Agrium Inc. mined the D pit at its Dry Valley Mine and received regulatory approval to renew operations at its Central/North Rasmussen Ridge Mine by 2009. Ore from Dry Valley provided feed for Agrium's Conda fertilizer plant in Soda Springs, Caribou County, which manufactures monoammonium phosphate and superphosphoric acid products to supply the needs of agriculture in the western United States.

J.R. Simplot Co. mined phosphate from Panel B at the company's Smoky Canyon Mine and shipped it to the Don Plant in Pocatello, Bannock County. In May, the founder of the private company (of the same name) died at age 99. Approval of the Smoky Canyon expansion to Panels F and G was held up in court owing to appeals and lawsuits by environmental groups that were filed against the U.S. Department of the Interior. The expansion and EIS that had been approved in June by the U.S. Department of the Interior's Bureau of Land Management (BLM) and the U.S. Department of Agriculture's U.S. Forest Service (USFS) had then immediately been appealed. In November, a judge rejected an injunction to stall the expansion and premining activities. J.R. Simplot Co. estimated that about 2 years of premine construction and road building was needed for the new panels which would add 14 years of mine life, and communicated that the existing mine would be out of ore by then if further delays took place.

Monsanto Co. mined ore from the South Rasmussen Ridge Mine and trucked it to its elemental phosphorus plant in Soda Springs. Phosphorus was a main raw material for Monsanto's Roundup™ herbicide. Exploration drilling was underway at the mine and at the Caldwell Canyon property. Environmental and permitting studies were underway for the proposed Blackfoot Bridge Mine; a draft EIS was scheduled to be released in mid-2009.

Stone, Dimension.—Construction-related materials, including dimension stone, were affected by the slowdown in the housing market. The L&W Stone Corp.'s Three Rivers stone quarry in Custer County shipped about 10% less rock in 2008, as it awaited approval of its EIS from the BLM for the quarry expansion. The company experimented with staining the high wall to reduce its visibility from the highway. In Cassia County, American Stone Co., Northern Stone Supply Inc., Oakley Valley Stone Inc., and Scrivanich Natural Stone all produced Oakley stone, a micaceous quartzite flagstone. In Idaho Falls, Idaho Travertine Corp. was sold and renamed Rocky Mountain Travertine Corp. In Boise, Hans Borbonus Landscaping Inc. operated the Table Rock Sandstone quarry and used large saws

and specialty tools to cut custom blocks for restoration of the Idaho Capitol building, an \$130 million project, to add two underground wings and restore the historic structure built 100 years ago with the Table Rock sandstone.

Other Industrial Minerals.—Ash Grove Cement Co. operated the cement plant at Inkom, Bannock County, but made plans to close the quarry at yearend. Hess Pumice Products, Inc. production was down by approximately 10% and the cultured stone market was down considerably. Hess mined pumice at the Wright's Creek Mine for many uses and also owned Idaho Minerals, LLC, which mined perlite at its Idaho Minerals Mine located in Southeastern Idaho. Bear River Zeolite (a wholly owned subsidiary of United States Antimony Corp.) expected sales to increase from its diversified customer base. Bear River added a 1.5-meter (60-inch) vertical roller mill at the plant and mine near Preston. In Latah County, i-minerals Inc. held leases and conducted permitting and feasibility studies of a feldspar-quartz deposit in the Bovill clay district.

Metals

Gold.—Near yearend, Shoshone Silver/Gold Mining Co. negotiated a deal to acquire the Rescue Mine at Warren from Kimberly Gold Mine Inc. Shoshone was operating the Lakeview mill to process base-metal ores in Bonner County, but heavy snow loads collapsed the mill roof, Near Murray. New Jersey Mining continued to develop the Golden Chest Mine where development for a new ramp intersected a vein of massive scheelite; the company's North Ramp decline reached the #3 level of the Golden Chest. New Jersey completed surface facilities at the new No. 3 portal of the newly permitted Silver Strand Mine east of Coeur d'Alene and installed an electrowinning cell to produce dore bars at its mill in Kellogg.

Molybdenum.—Thompson Creek Metals Co. mined phase 6 ore and continued stripping on phase 7 at the company's open pit Thompson Creek Mine in Custer County. With molybdenum prices above \$66 per kilogram until December, the company was very active. The company updated its current mine plan and resource base and began work on an expansion plan. Production in 2008 was more than 7,500 t of molybdenum oxide and performance grade molydisulfide from more than 10.5 Mt of ore. The mine installed a GroundProbe Slope Stability™ radar system to monitor for highwall failures (Bates and others, 2009).

Silver.—Hecla Mining mined an estimated 90,000 kg of silver from the Lucky Friday mine valued at approximately \$190 per kilogram. The company constructed a new tailings facility and installed upgrades in the mill. Hecla purchased the Independence Lead Mines Company, Inc. property located near the Gold Hunter Mine deposit. U.S. Silver achieved its goal of returning the Galena Mine to an optimal production level before having to reduce exploration and shut down the Coeur mill at yearend to save resources in the economic downturn. The repair of the Galena Shaft was also put on hold.

Sterling Mining Co. produced ore from the 3100 level of the reopened Sunshine Mine and from the new Sterling Tunnel, which provided access to the shallow Sunshine vein. However, management changes in May and financing difficulties led to suspension of production and closure of the mine on September

16. More than 100 employees were laid off. Prior to closure, more than 5,500 kg of silver was produced in the first half of 2008 prior to closure. Sterling continued care-and-maintenance status at the property.

Environmental Issues and Mine Reclamation

In 2008, Reclamation work continued at the closed Grouse Creek Mine (Hecla Mining's) in Custer County and DeLamar and Stone Cabin Mines (Kinross Gold Corp.) in Owyhee County. Physical safety closures and remediation of millsite hazards, such as at the Buckhorn mill south of Salmon, were conducted by the BLM and the USFS at numerous abandoned mine sites. In February, the Galena mill was awarded a MSHA Sentinels of Safety certificate for its outstanding record in 2006.

Government Programs

U.S. Geothermal Inc., which operated the new 10-megawatt geothermal binary powerplant at Raft River, Cassia County, received a contract from the U.S. Department of Energy to demonstrate the viability of Enhanced Geothermal Systems (EGS), new geothermal power technologies that do not require natural convective hydrothermal resources, by using Raft River as a pilot area. DOE will provide up to a \$6 million cost-share for the \$9 million project.

The IGS continued to do geologic mapping through its participation in the U.S. Geological Survey's STATEMAP program. STATEMAP is a component of the congressionally mandated National Cooperative Geologic Mapping Program (NCGMP), through which the USGS distributes Federal funds to support geologic mapping efforts through a competitive funding process. The NCGMP has three primary components: (1) FEDMAP, which funds Federal geologic mapping projects, (2) STATEMAP, which is a matching-funds grant program with State geological surveys, and (3) EDMAP, a matching-funds grant program with universities that has a goal to train the next generation of geologic mappers. The IGS produced 17 new publications in 2008 and as part of a major effort, scanned and posted online many previous IGS and Idaho Bureau of Mines and Geology (IBMG) publications. More than 500 publications and 330 geologic maps were available for download at the IGS Web site: www.idahogeology.org.

The IGS economic geologist completed the final technical report on the Lemhi Pass thorium and rare-earth deposits required from the USGS Mineral Resources External Research Program (MRERP) funding; a link to the report was put on the IGS Web site. Highlights of the study included discovery of an early Paleozoic suite of bimodal alkaline intrusive rocks in the district and the dating of a later Paleozoic age for the thorium mineralization, based upon microprobe ages of monazites. The geology was determined to be very complex and additional work and publications were planned.

References Cited

Bates, Dave, Harries, N., Noon, D., and Pritchett, H., 2009, Slope stability radar for managing rock fall risks in open cut mines, *in* Diederichs, M., and Grasselli, G., eds., Proceedings of the 3rd CANUS Rock Mechanics

Symposium: Toronto, Ontario, Canada, Canadian Rock Mechanics Association, May, 8 p. (Accessed October 5, 2010, at http://www.geogroup.utoronto.ca/rockeng09/proceedings/innerFrames/PDF/Session5/4279_PAPER.pdf.)

Bear Lake Gold Ltd., 2009, Bear Lake Gold update on the Unity Project: Longueuil, Québec, Canada, Bear Lake Gold Ltd. press release, March 27, 2009, 2 p. (Accessed February 8, 2011, at http://www.bearlakegold.com/s/NewsReleases.asp?ReportID=342868&_Type=News-Releases&_Title=Bear-Lake-Gold-Update-on-the-Unity-Project.)

Gillerman, V.S., and Bennett, E.H., 2009, Idaho mining and exploration, 2008: Moscow, ID, Idaho Geological Survey staff report 09-5, June, 14 p. (Accessed September 28, 2010, at [http://www.idahogeology.org/PDF/Staff_Reports_\(S\)/2009/StaffReport-09-5.pdf](http://www.idahogeology.org/PDF/Staff_Reports_(S)/2009/StaffReport-09-5.pdf).)

New Jersey Mining Company, 2008, Toboggan joint venture project: Kellogg, ID, New Jersey Mining Company, 2 p. (Accessed September 28, 2010, at <http://www.newjerseymining.com/toboggan.html>.)

New Jersey Mining Company, 2009, Niagara copper-silver deposit: Kellogg, ID, New Jersey Mining Company, 3 p. (Accessed September 28, 2010, at <http://www.newjerseymining.com/niagra.html>.)

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

(Thousand metric tons and thousand dollars)

Mineral	2006		2007		2008	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones, natural	NA	388	NA	339	NA	430
Sand and gravel, construction Stone,	23,800	117,000	23,900 [†]	125,000 [†]	18,400	105,000
Crushed	5,270	31,700	6,170 [†]	37,500 [†]	5,570	36,300
Dimension	38	4,660	34 [†]	4,200 [†]	34	4,130
Combined values of cadmium (byproduct from zinc concentrates), cement (portland), copper, feldspar, garnet (industrial), gold, lead, lime, molybdenum concentrates, perlite (crude), phosphate rock, pumice and pumicite, sand and gravel (industrial), silver, zeolites, zinc	XX	628,000 [†]	XX	612,000	XX	927,000
Total	XX	782,000 [†]	XX	779,000	XX	1,070,000

[†]Revised. 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, BY TYPE¹

Type	2007			2008		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone	8	1,020	\$8,210 [†]	6	1,170	\$7,060
Granite	12	401	2,120	10	544	2,980
Traprock	28	906 [†]	4,530 [†]	29	1,460	7,410
Sandstone and quartzite	4	482	2,950	2	414	2,740
Miscellaneous stone	13 [†]	3,350 [†]	19,700 [†]	17	1,970	16,100
Total	XX	6,170 [†]	37,500 [†]	XX	5,570	36,300

[†]Revised. XX Not applicable.

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

TABLE 3
IDAHO: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2008, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	228	2,180
Filter stone	W	W
Other coarse aggregate	58	92
Coarse aggregate, graded:		
Bituminous aggregate, coarse	W	W
Bituminous surface-treatment aggregate	54	482
Fine aggregate (-¾ inch), stone sand, bituminous mix or seal	176	911
Coarse and fine aggregates:		
Graded road base or subbase	1,030	4,190
Unpaved road surfacing	203	1,490
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	15	53
Other coarse and fine aggregates	5	23
Other construction materials	6	33
Agricultural, poultry grit and mineral food	W	W
Chemical and metallurgical, lime manufacture	W	W
Special, mine dusting or acid water treatment	W	W
Other miscellaneous uses and specified uses not listed	30	994
Unspecified: ²		
Reported	2,000	13,800
Estimated	1,400	8,500
Total	5,570	36,300

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

¹Data are rounded to no more than three significant digits; 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 2008,
BY MAJOR USE CATEGORY¹

Use	Quantity		Unit value
	(thousand metric tons)	Value (thousands)	
Concrete aggregate (including concrete sand)	1,500	\$9,960	\$6.65
Concrete products (blocks, bricks, pipe, decorative, etc.)	139	739	5.32
Asphaltic concrete aggregates and other bituminous mixtures	612	4,260	6.97
Road base and coverings	3,090	16,700	5.40
Fill	465	1,950	4.20
Snow and ice control	100	580	5.80
Other miscellaneous uses ²	64	632	9.88
Unspecified: ³			
Reported	3,960	21,100	5.32
Estimated	8,500	49,000	5.79
Total or average	18,400	105,000	5.70

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

²Includes filtration and railroad ballast.

³Reported and estimated production without a breakdown by end use.