

**IDAHO MINING AND EXPLORATION, 2003**  
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Rising metal prices, especially in the second half of 2003, provided welcome relief to Idaho's mining industry and sparked renewed interest in the State's precious metal operations and exploration. Gold reached \$ 400 per ounce levels and silver climbed over \$ 5 per ounce with spot molybdenum prices above \$ 4 per pound, versus lows near \$ 2.50 in prior years. Industrial mineral markets, though adequate, saw increased competition from foreign sources in selected areas. The preliminary 2003 production value for Idaho's nonfuel mineral production was approximately \$ 276.6 million, based on data from the United States Geological Survey. This is a small increase from the 2002 final value of \$ 267.4 million dollars. Neither number accounts for the substantial added value of in-state phosphate rock processing. The percentage of value from base and precious metals increased slightly to 32.6% in 2003, up from 29.3% in 2002 and 28% in 2001 (using preliminary and final USGS statistics). Employment in Idaho's metal and nonmetal mines stabilized at a low of 1,730 persons at the end of 2003, though modest hiring was anticipated for new development work in the Silver Valley. Idaho ranked second nationally in phosphate and industrial garnet production, third in silver and lead production, and fourth in molybdenum production, according to the USGS. The leading commodities by value continued to be phosphate rock, construction sand and gravel, molybdenum concentrates, and silver. The Idaho Mining Association celebrated its 100<sup>th</sup> Anniversary during 2003.

**Metal Mining**

Two large silver mines in the Coeur d'Alene District exploited the deep, high grade quartz-siderite-sulfide veins which have made the Silver Valley famous and a billion ounce producer. Hecla Mining's Lucky Friday unit continued limited production with 90 employees, who have cut costs and increased productivity in the last few years. Mining of the Gold Hunter vein system produced 2.25 million ounces of silver in 2003, at an average total cash cost of \$ 4.86 per ounce, slightly lower than in 2002. The Lucky Friday has produced over 125 million ounces of silver since its inception. Hecla drilled five core holes below the 4900 level to test deep ore grades below current mining levels at the Gold Hunter. In early December, the company announced a decision to drive a 5,500-foot long drift on the 5900 level of the mine to provide access to an additional estimated 28 million ounces of silver in the deeper portions of the deposit. The development project will cost about \$ 8 million and allow production to double when it is completed in 2005. Employment will increase by about 50%. Art Brown, Hecla's CEO, retired after a 36 year career with the company, leaving it in much improved financial condition with mining properties in Latin America as well as Idaho.

Coeur d'Alene Mines Corporation operated the Galena mine, which benefited from the implementation of rubber-tired mining that now accounts for 50% of the production on rich veins like the 72 and Upper Silver veins. Shutdown of the main hoist for maintenance in July and August slowed operations, but more noteworthy was a decision in the fall to expand the mine and increase production 40% by 2006. Development work explored the newly discovered high grade veins above the 5200 level

and extensions of the Upper Silver vein on the 2400 level. A raise-boring machine was drilling an internal shaft from the 2400 to 3000 level of the mine, and preparations were made to drive a new decline to access deep levels below the 5500 (Figure 1). The mine employs about 200 people and produced 3.7 million ounces of silver in 2003 at a cash cost of \$ 4.66 per ounce. Coeur took a \$ 19 million write down on the Galena, but overall, the company had a record silver production of 14.8 million ounces and low costs due to its mines in Chile, and Argentina, as well as Nevada.

The Sunshine silver mine, a 350-million ounce producer that closed in 2001, was rescued in 2003. Sterling Mining Company, a newcomer, paid \$ 253,000 for part of the back taxes owed Shoshone County, and signed a 15-year lease option on the property. Sterling announced plans for a major project on the 2200-acre property, focusing on long-neglected surface exploration including geochemistry, geophysics and compilation of the extensive database acquired over the years. Earthworks inspected the shaft in October and found it open to at least the 3700-foot level.

In other news around the Silver Valley, Bob Hopper and a crew at the Bunker Hill mine extracted prized pyromorphite specimens for mineral collectors. In September, Judge Lodge ruled on the exhaustive Natural Resources Damage lawsuit, culminating 12 years of legal action. The decision said that damages were less than the government portrayed and conditions in the basin were improving. Asarco, now Grupo Mexico, reached a \$ 100 million national settlement with the Department of Justice; Hecla set aside \$ 16 million for environmental work within the Superfund area (and another \$ 7 million for Grouse Creek in central Idaho).

Thompson Creek Mining Company cashed in on higher molybdenum prices for its concentrates from the large, open pit mine in Custer County and recalled 50 Ledcore contractors to resume a major stripping project. The Phase 5 pushback will add 2-3 years of mine life. The mine produced at approximately 50% capacity with 100 employees. They completed a new water management project and other environmental measures.

Several small gold placer operations were ongoing near Murray. Hecla continued reclamation work at its closed gold-silver mines at Grouse Creek and Stibnite in central Idaho, and Kinross reclaimed the North DeLamar pit and Sullivan Gulch waste dump at its DeLamar mine in Owyhee County. The cost of Meridian Gold's reclamation and closure work at the Beartrack mine in Lemhi County was offset by revenues from the 4,000 ounces of gold rinsed out of the heap leach.

### **Phosphate Industry**

Southeastern Idaho provided the nation's only elemental phosphorus production and substantial phosphoric acid fertilizer with three of the four Caribou County open pit mines active in 2003. J.R. Simplot's Smoky Canyon mine, the largest producer, expanded to Panels B and C, following BLM approval. Reclaimed areas will have a cap to prevent selenium oxidation and release. Simplot explored at their Dairy Syncline lease and Wells Canyon and submitted a proposal to the agencies to mine the Manning Canyon and Deer Creek leases. However, proposed exploration in nearby roadless areas met with opposition by the Greater Yellowstone Coalition. Simplot purchased Farmland Industries' share of SF Phosphates, including a Utah mine, Wyoming fertilizer plant and pipeline. Its Don Plant in Pocatello received an Idaho GEMStars award for integrating pollution prevention techniques and community projects.

The BLM and Forest Service also approved Agrium and NuWest Mining's plan for a 269-acre expansion into the North Rasmussen Ridge mine. Agrium's fertilizer plant at Conda employed about 260 people and was supplied by approximately 1.8 million short tons of ore shipped from the Central Rasmussen Ridge mine (Figure 2). The South Area was being backfilled and reclaimed.

Monsanto (P4 Production) did extensive reclamation work, as it mined the final phases of its Enoch Valley mine while transitioning over to the new South Rasmussen mine. P4 also did reverse circulation drilling on its Trail Creek lease. Monsanto's elemental plant at Soda Springs operated at full capacity, producing the raw material for its Roundup herbicide and other products.

In October, Astaris, a joint venture of FMC and Solutia, announced their surprise withdrawal from Soda Springs and closure of the new Purified Phosphoric Acid (PPA) plant at Conda, as well as facilities in Green River, Wyoming, and elsewhere. FMC expected to take a \$40 million after tax charge for the restructuring. Solutia (alias Monsanto) filed a lawsuit against FMC, claiming they provided failed technology to Astaris. FMC vowed to defend itself and noted the success of its PPA plant in Spain, while saying that market conditions were to blame. Mining at Astaris' Dry Valley mine finished in early summer and workers stabilized the site.

Selenium, a natural contaminant in the Phosphoria Formation, continued to be an environmental headache. A study project of Simplot and University of Idaho researchers on sheep grazing near one old mine site ended with a number of dead sheep but valuable information when the scientists discovered that the sheep ate an aster plant which was accumulating selenium at the 8000 ppm level. The Idaho Department of Environmental Quality was the lead for completion of the CERCLA Area Wide Risk Assessment, and agreements between the companies and agencies were being finalized for site-specific work.

Due to the considerable reclamation efforts in phosphate operations over the last few years, the industry garnered the bulk of the Idaho Department of Lands Reclamation Awards, granted in early 2004, but recognizing work from 2003 and the past few years.

### **Other Industrial Minerals**

Emerald Creek Garnet operated with a reduced work force of 40 employees at its industrial garnet mine near Fernwood in Benewah County. The company, which has operated the mine since the 1950's, has been trying for several years to permit a 416-acre expansion into the floodplain of the St. Maries River. In mid-November, the Army Corps of Engineers finally agreed to finish the process and publish the Draft EIS. The St. Maries was recently designated a "special resource water" and existing water quality must be preserved.

Ash Grove Cement continued to ship over 250,000 tons a year of cement from its quarry and plant at Inkom, in southeastern Idaho. Thermocal mined a small tonnage of travertine in eastern Idaho and installed a crusher in the quarry. Idaho Minerals, now owned by Hess Pumice of Malad, operated its expander plant for perlite from its Wrights Creek mine for horticultural uses. Hess Pumice reported slow market conditions for its main product, a fine, ultrapure pumice used to grind television screens. The slowdown was due to competition from lower quality Chinese pumice and the advent of flat panel displays. The company is looking at new markets overseas. Mountain West Products

and AMCOR, both in eastern Idaho mined multiple colors of pumice for landscaping and lightweight aggregate. Bear River Zeolite, the new mine near Preston, continued an aggressive marketing and research campaign.

Dimension stone and decorative rock continued to be popular, and the Oakley Stone quarries on Middle Mountain in Cassia County were in full production. Northern Stone Supply was the largest producer with Oakley Valley Stone and American Stone also active. L and W Stone produced a record amount (over 25,000 tons) of flagstone from their Three Rivers quarry near Clayton in central Idaho. Approximately 75 workers mine and split the popular argillaceous quartzite at the seasonal operation, which has grown enormously in the past ten years. The company worked on a Supplemental Plan of Operations for the BLM and opened a new regional distribution center in Challis to serve wholesalers in the five northwestern states.

Sand and gravel production and use remained strong due to a strong construction industry and highway projects, in spite of land use conflicts over extraction of gravel near expanding subdivisions. A single project in Boise, the Flying Wye I-84 connector, has used over 110,000 tons of gravel from one pit alone in the past three years. Consolidation and the paving over of prime gravel sources may foreshadow rising prices in the future.

### **Exploration**

Exploration activity, especially in northern Idaho, was up significantly over 2002, particularly as precious metal prices spiked in the second half of 2003 (Figure 3). Junior company projects, new financing, and acquisitions of known resources accounted for most of the work. Though metals were the focus for most, Alchemy Ventures drilled 12 core holes totaling 1,333 feet and did metallurgical testing at their Helmar-Bovill clay pits in Latah County (Figure 4). Alchemy, now staffed by personnel from the Hecla's former industrial minerals division and renamed "i-minerals inc." in January, 2004, was evaluating the sodium feldspar resource which occurs with the kaolin clay in variably weathered granitic rocks. Drilling delineated a potential resource of 10 million tons.

New Jersey Mining, based at Kellogg, was the most active company with five projects in the greater Coeur d'Alene area. The company turned in a Plan of Operations to the Forest Service to reopen the Silver Strand underground mine, where last year's drilling hit high silver and gold grades. A three year reserve at the Silver Strand grades 5.4 g/tonne gold and 360 g/tonne silver. Ore would be milled at their mill near Kellogg (Figure 5). An Environmental Assessment is underway. New Jersey also drilled two 200-meter core holes at the Lost Eagle gold mine near Murray to test a geophysical anomaly, drilled a Sullivan-style target at the Enterprise area east of Kellogg, and drilled the north end of the Coleman vein system at the nearby New Jersey mine, where sampling confirmed good grades. In June, New Jersey signed an exploration agreement to option the Golden Chest mine near Murray. In the late 1980's Newmont drilled out a near surface, 230,000 ounce gold resource, and the property also has high-grade potential.

Sterling Mining Company announced some results of their 2003 surface exploration at the Sunshine mine, where they also picked up additional land holdings in the district from Mineral Mountain Mining, Shoshone Silver, and Chester Mining. The survey by Gradient Geophysics between the Jewell and No. 10 shafts detected three IP anomalies, interpreted as typical of the vein systems, and VLF and magnetic indications

of the faulting which displace veins at the property. More work will be needed before any drill targets can be outlined.

In addition to the Sunshine mine project, Sterling Mining Company did exploration at the Montgomery mine near the Canadian border. The mafic sill complex hosts Cu-Ni mineralization with some Pt potential and a polymetallic quartz vein. Sterling geologists conducted mapping and sampling along with ground magnetics.

Shoshone Silver Mines announced acquisitions of the Lucky Joe silver property (Talache Mine) in Bonner County and the Regal mine near its Lakeview mill in the Moyie-Yaak Mining District of Boundary County. The Regal produced from high grade polymetallic veins.

Kimberly Gold Mines, partially owned by Sterling, controls 500 acres in the remote Marshall Mountains east of Riggins. The property includes the Kimberly mine, a historic high grade gold producer, and its mill. The company did mapping, sampling and portal rehabilitation before drilling 1560 feet of reverse circulation at the Gold Crest Tunnel. Drill results were inconclusive, but the geological work confirmed the high-grade gold assays (over 0.3 ounce per ton) and generated better understanding of the structure and stratigraphy.

At Warren, one of the state's larger gold-producing districts, the Rescue mine remained on care and maintenance, but nearby, Unity Gold Mines reopened the upper portal, known as the Charity mine, above their Unity Tunnel. The Unity property covers 158 patented acres of claims. The Warren area has considerable potential for small, underground gold mines.

American Independence Mines and Minerals, affiliated with Jack Walker, has been working for several years near Edwardsburg and Big Creek, on a cherry stem into the Frank Church Wilderness of central Idaho. The Payette Forest approved his EIS with modifications on the plan to drill 48 holes and do sampling and roadwork at the Golden Hand mine. The decision was appealed by several parties on both sides of the issues.

Vista Gold Corporation, a Denver-based company, announced in late November that it had acquired a 9-year option with a total price of \$ 1 million to purchase the Yellow Pine project from Bradley Mining. Yellow Pine is in the Stibnite Mining District in Valley County; the district has historic gold, antimony and tungsten mines and more recent gold production by Dakota, Hecla and others. The Bradley property includes 17 patented claims. Due diligence work by Pincock, Allen and Holt confirmed a 2.2 million ounce measured and indicated gold resource (33.8 million tons at 0.066 opt Au), based on 538 drillholes into the ore body, which includes sulfide material and is open in two directions.

The rise in copper and cobalt prices helped Formation Capital Corporation raise funds to continue permitting a proposed underground mine at its RAM discovery in the Blackbird Mining District of Lemhi County. The company completed a \$ 10 million financing in December and retained Shaw Environmental and Infrastructure, Inc., to assist with management of the NEPA permitting process for their Idaho Cobalt Project. The proposed mine would produce 3.3 million pounds of cobalt annually and be the nation's only domestic source. Last year the company purchased the Sunshine hydrometallurgical facility at Kellogg, planning to reopen it for processing silver concentrates on a toll basis and eventually convert it to processing the cobalt

concentrates. Formation's cobalt property has major exploration potential and the ore zone is open in several directions.

Additional exploration work included Kent Roche drilling a copper prospect and doing geophysics in Pierce Creek north of Salmon; Wave Exploration, a new Canadian junior, acquiring the Musgrove property, an Atlas discovery from the 1990's in southern Lemhi County; Kilgore Gold acquiring the Kilgore gold-silver property in Clark County of eastern Idaho; and Juniper Rose applying to reopen the Tycleska placer gold mine near King Hill on the Snake River in southern Idaho. Kilgore hosts a significant resource, based on prior drilling by Kennecott, Placer Dome, and Echo Bay, and the new company plans to drill in 2004.

Nevada Contact, a subsidiary of Agnico-Eagle, drilled 8 holes, totaling 3800 feet, into their Iron Creek property in Lemhi County, southwest of Salmon. Nevada Contact also drilled 3800 feet on a state lease on War Eagle Mountain in Owyhee County in southwestern Idaho and conducted regional exploration. Epithermal veins on War Eagle are the eastern part of the historic DeLamar District, site of the recent DeLamar and Stone Cabin precious metal mines.

In July, Atlanta Gold, a subsidiary of Twin Mining, submitted a plan to the Boise National Forest to initiate the NEPA process on their proposed open pit, heap leach mine in the historic Atlanta Mining District of Elmore County in southwestern Idaho. Atlanta is near the back side of the Sawtooth National Recreation Area. The mine would include two pits with a 7000 tpd operation for a 7-10 year mine life and work for 130 employees. Prior drilling of 534 RC holes and 81 diamond drill holes has characterized a resource with 1.1 million ounces of gold and 3.2 million ounces of silver, based on a 1997 study. The company did geotechnical drilling and metallurgical testing as well as baseline monitoring studies; Behr Dolbear was working on a final feasibility study. Maxim Technology is the 3<sup>rd</sup> party contractor for the EIS.

### **State Survey Activities**

The Idaho Geological Survey continued to produce digital and paper geologic maps as part of the Statemap project. Principal working areas were the bedrock and surficial geology around Moscow, Lewiston, and Orofino and Kamiah in northern Idaho, a new surface map of the Wood River valley, and bedrock and surficial mapping in the Hagerman and Shoshone areas of the Snake River Plain. A searchable version of the IGS Mines and Prospects database with over 8000 historic properties, and a summary of annual mineral activity debuted on the IGS website ([www.idahogeology.org](http://www.idahogeology.org)). Earl Bennett, long time Director of the Survey and dean of Coeur d'Alene mining history, retired in 2003.

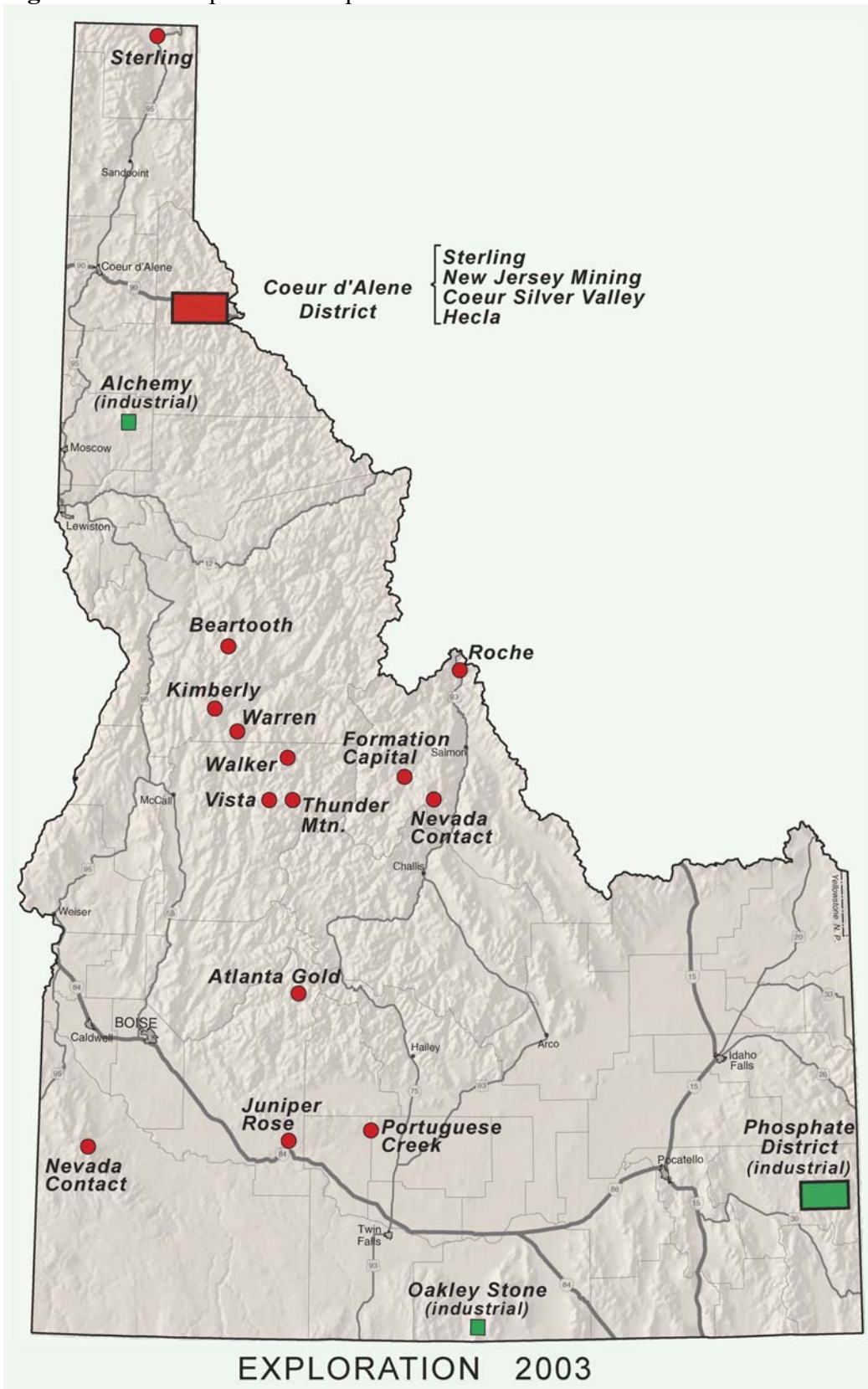
**Figure 1.** Galena mine, 2400 level: Geologist Rob Fredericks talks with drillers at raise-boring machine, August 2003.



**Figure 2.** Agrium's Central Rasmussen Ridge mine, 2003.



Figure 3. 2003 Exploration map for Idaho.





**Figure 4.** Alchemy Ventures diamond drilling, 2003.



**Figure 5.** New Jersey mill at Kellogg.

