
Earl H. Bennett
Virginia S. Gillerman

Staff Report 97-23
November, 1997

Idaho Geological Survey
Morrill Hall, Third Floor
University of Idaho
Moscow, Idaho 83844-3014

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MINING, MINERALS, AND THE ENVIRONMENT
IN IDAHO, 1995

Earl H. Bennett
Virginia S. Gillerman

Introduction

This paper summarizes all mining and mineral-related activity in Idaho for 1995. Sources used to compile this document include U.S. Forest Service and U.S. Bureau of Land Management mineral specialists and geologists in the state, the U.S. Bureau of Mines, the Mine Safety and Health Administration (MSHA), numerous company geologists and spokespersons, the Idaho Mining Association, and area and trade newspapers and periodicals. We begin our review with a summary of national and international events that directly or indirectly influenced Idaho’s mining sector and the state’s general economic climate.

In an attempt to curb spending by the federal government, all government agencies were scrutinized for possible cuts and cost savings by the 104th Congress. One casualty of this cost-cutting effort was the U.S. Bureau of Mines, which was abolished effective March 31, 1996. The Bureau’s mineral statistics group and its research programs related to health and safety were moved to the U.S. Geological Survey and the Department of Energy, respectively, but the rest of the research efforts and all field programs and centers (except the Alaska office which was transferred to the Bureau of Land Management) were closed. This includes the Western Field Operations Center in Spokane, Washington. The Idaho Geological Survey and many other agencies in the Pacific Northwest have enjoyed a long and profitable working relationship with the scientists in this office, and they will be missed.

The Republican-dominated Congress’s attempt to balance the federal budget was a major news story of 1996. Other national stories included the destruction of the Federal Building in Oklahoma City by domestic terrorists in April, a devastating heat wave that killed 700 people in the Chicago area in July, the acquittal of O.J. Simpson, the Million Man march on Washington, DC, the destruction from hurricane Opal in October, and Colin Powell’s announcement in November that he would not run for President.

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Warning: This report contains preliminary data that has not been thoroughly checked with company sources.
The Nation's Economy

Topping the domestic economic news was the awesome performance of the stock market, with the Dow Jones Industrial Average gaining 33 percent, its fourth best gain since World War II. The bellweather index exceeded 4000 for the first time in history on February 24th, reached 4500 on June 19th, blasted through 5000 on November 22, and reached 5200 on December 14th, its 69th record for the year. Leading the growth was the technology sector, spurred by semiconductor companies like Intel, Micron, and Hewlett Packard, explosive growth in use of the Internet, and the introduction of Windows 95 by Microsoft. Assisting the market's progress was the Federal Reserve. Under Chairman Alan Greenspan, the Fed manipulated interest rates several times during the year to control the hot economy and moderate both growth and inflation. There were numerous mergers and takeovers in 1995, including Disney's acquisition of Capital Arts/CBS for $19 billion and the breakup of AT&T into three smaller companies. Nationwide unemployment was at 5-6 percent, probably as low as it can get in our diverse economy.

The stock market is being supported by a huge influx of money from retirement programs. The money is going into mutual funds, which now have assets approaching $3 trillion. Apparently mainstream America now believes that the market is the best place to put your money to hedge against inflation and prepare for retirement. There was little effect on the market when the nation's insatiable demand for imported goods ran the trade deficit up to an all-time record at year's end.

Republican freshmen in Congress fought for balancing the federal budget in seven years. This was a major point of the Contract with America, the keystone of the Republicans' agenda after the landslide election of 1995. The federal fiscal year starts October 1, and there was no FY-96 budget by year's end. Without a budget and with a refusal by freshmen representatives to pass continuing resolutions without a balanced budget agreement, the government was partially shut down in November and December and remained curtailed at year's end. President Clinton and congressional leaders continued to battle over cuts in social programs versus a balanced budget and tax cuts as we ushered in 1996.

The U.S. dollar came under severe pressure in March and mid-April, falling to all-time lows against the Japanese yen and German mark. Central banks led by the Federal Reserve intervened to prop up the flagging greenback, which gained some ground but plunged again against the mark in October before recovering at year's end. The failure of Congress to pass a balanced budget amendment, a $30 billion bail-out of the Mexican economy in March (the peso was in trouble again in October), our love of foreign goods and resulting chronic balance-of-payments deficit, currency speculators, and a perception that the U.S. Government would not support the dollar were all cited for the downfall. Alan Greenspan, Chairman of the Federal Reserve, suggested that international monetary reform was needed and that the value of individual currencies might better be set relative to a basket of commodities (which might include gold) than to each other.

The risk of the high-flying derivatives market was magnified when a 28-year-old trader named Nick Leeson broke the venerable 232-year-old Barings Bank (oldest bank in England).
This followed equally spectacular faux pas at Kidder Peabody last year (due to an $85 million "whoops" by a trader) and a billion-dollar loss by a Japanese trader over an 11-year period for Daiwa Bank. The price paid was jail for Leeson, the takeover of Kidder by Paine Webber Group, Inc., and the expulsion of Daiwa from the U.S. after the bank tried to cover up its huge losses.

The U.S. Treasury announced that it will begin to replace the $100 bill (and later the rest of our paper currency) with a new design next year. The design change is intended to foil counterfeiters, as the $100 note is the most heavily copied bill in the world. An attempt to replace the $1.00 bill with a like-denomination coin failed in Congress in April. Proponents of the move believe it would save the government $395 million per year because a coin has a significantly longer circulation life (30 years) than a paper dollar (18 months).

**Idaho's Economy**

The state's population growth slowed in 1995 but not by much. From mid-1994 to mid-1995, Idaho gained 29,000 people for a total population of 1,163,000. That translates to a 2.6 percent growth rate, third highest percentage rate in the nation (following Arizona and Nevada) although 28 states had larger numerical gains than Idaho. The state's economy remained strong but was weaker than in the past few years. In mid-year, tax revenue receipts dipped below projections and Governor Batt imposed a 2 percent across-the-board holdback in government spending. Although revenues came back and exceeded projections, the holdback remained in place and will become part of the budget base for all government sectors except K-12 education.

One indicator of economic growth is jobs or a lack there of. According to the Department of Employment, Idaho had a seasonally adjusted unemployment rate of 5.5 percent in December, seven-tenths of a point lower than at the same time last year and equal to the national average. There were 577,600 people working in the state at year's end.

**Selected Metal Economics**

A possible trade war was developing between China and the U.S., and this impacts metals as China is a major world supplier of antimony, tungsten, zinc, molybdenum, phosphate, magnesium, and vanadium, among others. Monthly prices for various metals important to Idaho’s mining sector are shown in Table 1.

With the bulls raging in the stock market, controlled inflation and growth, and relative peace in the world (the Bosnia/Serb conflict was in a truce at year's end, with U.S. troops taking over United Nations' peace-keeping efforts), precious metals marked time. Gold traded in a narrow range from $375 to $395 all year. Brief flurries of activity occurred in the yellow metal with sharp increases due to the weakening dollar in the spring and an increase in interest charged for borrowing the metal late in the year. In November, a dramatic increase in the lease rate for hedging gold drove rates from 1 percent to 3.5 percent, an indication of a supply shortage or a manipulation of the market. The increase was also blamed on fears that the U.S. might default on its debt obligations due to the inability of Congress and the president to pass a FY-96 federal budget. The sale of government gold by central banks has been a drag on the
Table 1. Selected metal prices in 1995

<table>
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<tr>
<th>Month</th>
<th>Gold</th>
<th>Silver</th>
<th>Lead</th>
<th>Copper</th>
<th>Zinc</th>
<th>Moly</th>
<th>Cobalt</th>
<th>Antimony</th>
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<td>4.76</td>
<td>.29</td>
<td>1.33</td>
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<td>13.00</td>
<td>29.00</td>
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<td>.27</td>
<td>1.31</td>
<td>.47</td>
<td>9.20</td>
<td>28.00</td>
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<td>.26</td>
<td>1.22</td>
<td>.46</td>
<td>8.75</td>
<td>28.00</td>
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<td>June</td>
<td>388.</td>
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<td>.27</td>
<td>1.32</td>
<td>.45</td>
<td>7.00</td>
<td>27.50</td>
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<td>July</td>
<td>388.</td>
<td>5.18</td>
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<td>1.43</td>
<td>.47</td>
<td>5.75</td>
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<td>2.30</td>
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<td>.45</td>
<td>4.65</td>
<td>29.00</td>
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<td>.43</td>
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<td>28.50</td>
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<tr>
<td>Oct</td>
<td>383.</td>
<td>5.35</td>
<td>.29</td>
<td>1.23</td>
<td>.43.</td>
<td>4.45</td>
<td>29.25</td>
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<tr>
<td>Nov</td>
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<td>5.37</td>
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<td>.46</td>
<td>4.55</td>
<td>31.00</td>
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<td>Dec</td>
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<td>.46</td>
<td>4.50</td>
<td>31.00</td>
<td>2.20</td>
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Month- approximately mid-month price in U.S. dollars
----- not available
Gold- London Bullion Dealers-spot price per ounce
Silver- London Bullion Dealers-spot price per ounce
Zinc- London Metal Exchange (LME)- spot price per pound
Copper- LME- spot price per pound
Lead- LME- spot price per pound
Molybdenum- Dealer price- oxide per pound
Cobalt- U.S. spot cathode- per pound
Antimony- New York Dealer price- per pound

price for some time, as has the practice of producers selling production forward when a rally develops. However, some experts believe that these practices will not continue and that gold prices may improve in the next few years. Metal prices were influenced as mutual funds, continuing to gain huge investments, sold off metal funds early in the year. As an interesting sidelight, the CPM Group of New York noted that the world’s historic gold production is about 3.7 billion ounces, with 86% of the hoard mined in this century. Currently, there is an estimated 1.3 billion ounces in jewelry and 1.2 billion ounces in government vaults worldwide.

Like gold, perceived shortages in silver supplies sent the price above $6.00 per ounce in May and $5.80 in August, but the metal traded between $4.75 and $5.50 for much of the rest of the year. An early-year sell-off drove prices to the $4.34 range in February as shorts covered their positions. The first rally, starting in March, was caused by a decline in Comex
warehouse stocks (50 million ounces from March to May), which was interpreted as either a real indication of a supply shortage or as a manipulation by speculators. Another reason for the rally was the U.S. currency crisis. The early May gain was followed by a sharp sell-off. The market then declined until August when COMEX inventories again dipped. Traders were baffled when the lease rate for hedged silver soared from 1 percent to over 6 percent. An increase in the rate could be interpreted that there was a very tight market, again either real or contrived. By August, COMEX stocks had fallen to 165 million ounces, the lowest in six years and spot prices rose to the $5.80 per ounce range. Reports stated that metal had been shipped to the London Metal Exchange (LME) to cover a shortage. Some analysts believe that there is a real shortage of silver and that prices will increase, but others note that new base metal mines coming on-line will produce lots of byproduct silver, alleviating any shortage. About 80 percent of the world's 334-million-ounce silver production comes from base metal mining. As noted for gold, over the past few years the buying and selling of huge amounts of all kinds of metals by mutual funds has been a factor in the marketplace, and this continued during the bull market of 1995.

Copper traded between $1.23 per pound in October and $1.41 per pound in midyear, but spot prices were not the main story for the metal in 1995. Prices surged at the end of the year to the $1.40 range as stockpiles in the New York Mercantile Exchange continued to decrease and stocks held by the London Metal Exchange (the world's main metals exchange) were thought to be too expensive or under the control of one or two major investors. A number of analysts reported that Sumitomo Metals was manipulating or "squeezing," the market and had purchased most of the LME's copper. However, this was denied. This gave rise to complaints from several large base metal producers that the LME needs to give out more information about who controls metals on the exchange as more speculators move into these markets. Normally, futures prices for a metal are higher than the spot price because a premium is charged for the futures contract. When the spot price exceeds the futures price, a "backwardation" results. A backwardation is caused by a real or contrived shortage of the commodity. A backwardation in copper started in the spring and reached $300 per metric ton in December, fueling the perception that supplies of the metal were short and driving spot and futures prices higher. The LME started an investigation at year's end to see if manipulation had taken place or if the volatile market was caused by supply and demand. However, many analysts believe that new supplies of copper reaching the market from big new mines in Chile in 1996 will depress the price to the $1.00-per-pound range. Gambling that copper will be a good bet in the future, Broken Hill Proprietary Company Ltd. (largest industrial and natural resource company in Australia) and Magma Copper announced plans in December to form the world's second largest copper company. Codelco (owned by the government of Chile) remains the world's largest copper producer. The takeover was valued at $2.4 billion and the new company will be known as the BHP Copper Group.

Lead prices remained fairly stable all year, ranging from 25 cents a pound in February and March to 30-33 cents a pound at year's end. Likewise zinc started the year at about 50 cents a pound and finished in the 45 cent range. About half of the world's zinc consumption is used
for galvanizing sheet metal and about 15 percent goes for zinc die casting, according to the International Lead and Zinc Study Group.

Sales of lower-grade Russian cobalt and production problems from the world's largest producers, Zaire and Zambia, were apparently not the big market issues that they were in 1994, but supplies were tight and prices stable. Cobalt prices remained high in the $27.00 to $31.00 per pound range. The U.S. Government sold 141,424 pounds from the nation's stockpile in March for $25 per pound and 1,998,712 pounds at over $28 per pound in December. Zaire (Gecamines) announced production of 4,400 tonnes of cobalt in 1995, compared to 3,300 tonnes in 1993 and 12,000 tonnes in 1987, while Zambia (ZCCM) accounted for about 2,600 tonnes or half what it produced in the early 1990s. Gecamines assured Japanese buyers that production will remain on track for 1996 and 1997 and that year-end price hikes to the $31-$32 per pound range were caused by manipulation by speculators on the LME. The discovery of the potentially huge Voisey Bay nickel-cobalt deposit in Labrador (Diamond Fields Resources, Inc.), five deposits under development in Australia, and projects in Mexico, Tanzania, Uganda, and Cuba could help alleviate the international cobalt shortage. Reclamation efforts were underway to solve environmental problems at the Blackbird mine in Lemhi County, the nation's most readily available supply of the metal.

Molybdenum prices drifted lower from last year's highs of about $15 a pound, ending 1995 in the $4.50 a pound range. By August, rumors were that there was plenty of moly available and that the market might be oversaturated. Thompson Creek Mining operates the largest open pit mine in Idaho in Custer County.

Antimony prices decreased early in the year from the $2.85 per pound range to about $2.10 in September, when a shortage propelled the price back to the $2.40 range. China controls this market and antimony was in short supply in midyear. Sunshine Mining extracts antimony from tetrahedrite at its big silver mine in the Coeur d'Alene district.

Vanadium began the year with a good price of about $4.00 per pound for vanadium pentoxide but drifted lower to the $2.50 range in midyear before rallying somewhat at year's end. Kerr McGee Corporation extracts vanadium from ferrophosphorous metal at Soda Springs and is the nation's largest producer.

Mining in Idaho

Introduction

Idaho's mining sector continued to track a steady course as it has over the past decade. The value of nonfuel minerals in Idaho as reported by the U.S. Geological Survey is shown in Table 2. These values, modified by IGS (phosphate production is adjusted from Table 2 to reflect value-added products such as elemental phosphorous and phosphoric acid), are in Table 3. The value of the state's nonfuel mineral production reached a new all-time record of just over $1 billion compared to $860 million last year. A highlight was the doubling of the previous gold production record of 149,000 ounces set in 1941 to over 300,000 ounces in 1995. Also important was the $155 million in aluminum processed by the IMSAMET
recycling plant at Hauser Lake. Phosphate continued to support the state's mining sector, producing an estimated $569 million in elemental phosphorus and phosphoric acid.

### Table 2 -- Nonfuel Raw Mineral Production* in Idaho, 1994-1995

<table>
<thead>
<tr>
<th>MINERAL</th>
<th>1994</th>
<th>1995&lt;sup&gt;p&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity</td>
<td>*Value</td>
</tr>
<tr>
<td>Gem stones</td>
<td>NA</td>
<td>$287</td>
</tr>
<tr>
<td>Phosphate rock --thousand metric tons</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Pumice--------metric tons</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Sand and Gravel: Construction --thousand metric tons</td>
<td>14,500</td>
<td>$46,300</td>
</tr>
<tr>
<td>Silver&lt;sup&gt;2&lt;/sup&gt;--------metric tons</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Stone (crushed)-thousand metric tons</td>
<td>4,160&lt;sup&gt;e&lt;/sup&gt;</td>
<td>$20,300&lt;sup&gt;e&lt;/sup&gt;</td>
</tr>
<tr>
<td>Combined value of antimony, cement, clays, copper, feldspar, garnet, gold, lead, lime, molybdenum, sand and gravel (industrial), stone (dimension), vanadium ore, zinc, and values indicated by symbol W</td>
<td>XX</td>
<td>$279,000</td>
</tr>
<tr>
<td>Total</td>
<td>XX</td>
<td>$346,000</td>
</tr>
</tbody>
</table>

* (in thousands)
<sup>p</sup>Estimated. <sup>L</sup>Preliminary. NA/Not Available. W/Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX/Not applicable. <sup>1</sup>Production as measured by mine shipments, sales, or marketable production (including consumption by producers). <sup>2</sup>Recoverable content of ores, etc.

Data from U.S. Geological Survey.

Mining jobs in Idaho pay well and average earnings continue to surpass other occupations. In 1994, the average miner earned $34,515, compared to $30,361 for workers in manufacturing, $27,279 in transportation, $26,050 in finance, insurance, and real estate, $24,972 in construction jobs, $20,627 in service, $15,508 in trade, and $14,975 in agriculture. In 1995, there were on average 2,900 people directly employed in mining, and 1,600 of these were in metal mining. Adding 4,100 chemical workers (many in the phosphate industry) and 1,400 people working in the state's stone, glass, and clay industries brings the total to over 8,000 jobs. This is an increase over last year as several new mines opened in the state.

Idaho's mines and associated good-paying jobs are often located in the more remote parts of the state and are obviously very important to these rural economies. This is well illustrated by
employment figures for the month of June. There were 482 people working in mining in Caribou County (phosphate), 453 in Shoshone County (silver, lead, and zinc), and 442 in Table 3. Value of non-fuel mineral production in Idaho 1990-1995 (add 000 to all dollar figures)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Moly</td>
<td>44,634</td>
<td>13,419</td>
<td>28,841</td>
<td>-0-</td>
<td>45,240*</td>
<td>80,400</td>
</tr>
<tr>
<td>Pb+Zn+Cu</td>
<td>67,947</td>
<td>18,400</td>
<td>18,000</td>
<td>15,670</td>
<td>12,446</td>
<td>13,826</td>
</tr>
<tr>
<td>Silver</td>
<td>68,418</td>
<td>43,807</td>
<td>32,131</td>
<td>26,231</td>
<td>22,762</td>
<td>30,871</td>
</tr>
<tr>
<td>Phosphate</td>
<td>464,280</td>
<td>585,695</td>
<td>546,842</td>
<td>568,152</td>
<td>630,000</td>
<td>568,971</td>
</tr>
<tr>
<td>Other</td>
<td>83,011</td>
<td>97,518</td>
<td>112,194</td>
<td>126,653</td>
<td>127,171</td>
<td>282,465</td>
</tr>
<tr>
<td>Total</td>
<td>773,939</td>
<td>797,946</td>
<td>773,249</td>
<td>777,625</td>
<td>879,962*</td>
<td>1,091,742</td>
</tr>
</tbody>
</table>

Production data is based on figures provided by the U.S. Bureau of Mines (USBM) for 1990-1993, except for phosphate. The value for phosphate for 1991-1993 and 1995 was tabulated by the Idaho Mining Association (IMA) and is estimated for 1990 and 1994. The IMA number is the average value of phosphoric acid and elemental phosphorous produced from raw phosphate ore (about $105 a ton), not the value of the raw ore (about $25/ton) that is reported by the USBM and U.S. Geological Survey (USGS). Annual totals include this value-added phosphate number and are therefore significantly higher than USBM/USGS totals. Other includes antimony, cement, clay, garnet, lime, stone (dimension and crushed), vanadium, pumice, gemstones, and sand and gravel. For 1994 and 1995, the Idaho Geological Survey has computed the value for all commodities using some USBM and U.S. Geological Survey (took over the USBM minerals program in 1995) numbers. *Corrected from last year's reported value for Moly of $28,999 and the Total is also changed to reflect this correction.

Custer County (gold and molybdenum). An additional 176 people worked in mining in Kootenai County, 148 in Lemhi County, 113 in Ada County, and 110 in Idaho County. Figure 1 is a simplified map showing the location of the major towns and cities in Idaho mentioned in this report.

The pace of staking mining claims picked up slightly from last year. The BLM reported that from January 1 to December 31, 1994, it recorded 1,267 claims. In 1995, from January 1 through November 7, 1,272 claims were filed. Geologists from the Bureau of Land Management were busy doing validity exams on the backlog of mining claim patent applications in Idaho. Of 268 patents nationwide needing field checks, 19 are in Idaho. The Bureau anticipates that Congress will direct the agency to complete the process in the next 3 years, but funding and priorities from Washington, D.C., keep changing. If the patent moratorium is continued and mining reform changes the patent system, these could be the last patents issued in Idaho.
Coeur d'Alene Mining District (Figures 2 and 3)

Introduction

The outlook for the Coeur d'Alene Mining District was cautiously optimistic at year's end. Rumors were that the Coeur and Galena mines might reopen and that the Sunshine and New Bunker Hill Mining Company could possibly increase production and hire more miners. Exploration was underway at the Gold Hunter (Hecla), the "Shine" (West Chance project), and in the Coeur and Galena, as well as drilling on Pine Creek (Cominco).

Asarco, Inc.

Silver Valley Resources Corporation (SVRC), a joint venture between Coeur d'Alene Mines Corporation (owner of the Coeur and Galena mines) and Asarco, Inc. (operator of the two properties), began an exploration and development program at the Galena. The corporation will spend up to $25 million on work at the Coeur and Galena. The first effort involves driving a 1,100-foot drift on the 4900 level of the Galena to intersect a known vein structure. When this drift is completed, another one will be started on the 5200 level. About 35 miners are employed by SVRC in maintenance and development work at the two mines. Recent development work has increased reserves at the two properties by 32 percent. The corporation signed a labor agreement with the United Steelworkers Union covering future operations should the mines reopen. The contract contains low labor costs that may help bring the mines back on-line. Although the mines remained closed, improved silver prices at year's end were a hopeful sign that could encourage the owners to reopen. The two properties jointly should produce about 3 million ounces of silver a year. A trust set up by John R. Simplot announced that it had acquired a 5.22 percent interest in Asarco as an investment. The J.R. Simplot Company is a major Idaho firm with interests in agriculture, phosphate mining, and electronics.

New Bunker Hill Mining Company

A crew of about 14 people were working at the Bunker Hill mine owned by the New Bunker Hill Mining Company. Mr. Bob Hopper purchased the giant mine in 1991 from bankruptcy and has been operating ever since. The company mills about 100 tons of ore per day, and production in 1995 was 278 tons of lead and 8,228 ounces of silver. Concentrate from active mining is currently sent to Asarco's smelter at East Helena, Montana, for processing. The mine crew has also mothballed some underground equipment, including the giant Norberg hoist, awaiting the day when operations can be expanded. Besides the traditional metals (lead, zinc, and silver), the company is making a profit mining pyromorphite crystals (Figure 4). The mine produces some of the finest specimens of this lead chloride mineral found anywhere in the world. The colorful specimens can fetch up to $30,000 apiece.

A new video entitled, "The Bunker Hill Company--The rise and fall of an American Corporation," was released by Todd Goodson of Kellogg. The 60-minute presentation is especially strong on recent history and includes narrative about Superfund reclamation at the mine and mill complex.
Figure 1. Location of selected cities and towns in Idaho.

Figure 2. Active mines, processing plants, and mines under development in Idaho, 1995.

Figure 3. Coeur d'Alene Mining District, Idaho, 1995
Gulf USA, Inc.

Trustees filed a reorganization plan for the bankrupt Gulf USA, Inc., in January, and it was approved by Judge Alfred C. Hagan in July. The trustees were trying to regain some of the $170 million in assets squandered by the company before it went broke in 1993. The plan was submitted to thwart an attempt by Gulf bondholders and the Coeur d'Alene Tribe to liquidate the company to pay creditors. Gulf's bankruptcy placed retirement and health benefits for former employees in jeopardy. About 2,000 retirees' pension and health benefits will be protected by the reorganization plan. The bankruptcy also removed some $100 million needed as Gulf's obligation for the Superfund cleanup, but under the reorganization, the federal government and Coeur d'Alene tribe will receive about $17 million, primarily for Superfund work. The shortfall for the cleanup will have to be made up by the Environmental Protection Agency under Superfund and the taxpayers in Idaho. The Coeur d'Alene tribe will also receive about $500,000 in cash. Gulf bondholders will get $5 million out of claims for some $80 million, and lawyers on the case will receive $7 million. The government, bondholders, and the tribe have additional lawsuits pending against former directors of the company, claiming negligence and fraud in handling Gulf's assets. The Spokesman Review published an in-depth two-part series about Gulf's officers and management on June 4 and 5.

In October, Judge Hagan excused about half of the former officers of Gulf USA, Inc., from the bankruptcy suit brought by the trustees. The judge made the decision as Idaho has no jurisdiction over some former directors including Graham F. Lacey, who ran Gulf from 1991-1993. The primary defendants left in the lawsuits are David John Rowland, who was in charge of the company from 1989-1991, and other directors.

In December, the pension plan for former employees of the Bunker Hill Company was taken over from Gulf USA, Inc., by the federal Pension Benefit Guaranty Corporation. Gulf's three pension plans for steelworkers, craft workers, and salaried employees have assets of $10.3 million but liabilities of $23.6 million. Some workers who retired before the age of 65 may lose part of their benefits under the plan. Retirees are now also covered by a new health plan administered by Medical Services Bureau-Blue Shield of Idaho. The managed health care will pay only if Mountain Health Network physicians (four in Shoshone County) are the billing doctors.

Coeur d'Alene Mines Corporation

Coeur d'Alene Mines Corporation (CDA) posted net income of $1.2 million on revenues of $98.7 million for 1995 compared to a $3.9 million loss last year. Company mines produced a third consecutive annual record of 167,985 ounces of gold, a 30 percent increase over last year. Silver production reached 7.2 million ounces, a 16 percent increase over 1994's performance. The company announced in November that it would redeem approximately $75 million in 7 percent Convertible Subordinated Debentures due 2002. Owners could receive either cash or stock. The transaction resulted in Coeur issuing some 4.5 million new common shares, for a total of 20.5 million shares outstanding. The swap will save the company $5.2 million in interest each year.

In October, production began from Coeur's wholly owned Fachinal gold-silver mine in southern Chile. By year's end, production was 3,586 ounces of gold and 334,816 ounces of silver. The mine should produce about 44,000 ounces of gold and 2.7 million ounces of silver
a year over a 7.5-year life-span. Production levels increased at the El Bronce mine (51 percent Coeur owned) in Chile. Coeur bought a controlling interest in the property late last year. The mine finished its first full year of production in the third quarter with Coeur's 51 percent interest totaling 22,034 ounces of gold and 72,537 ounces of silver. Both gold (59,307 ounces) and silver (6.5 million ounces, a new record) production increased from the company's flagship, the Rochester heap-leach silver mine in Nevada, with lower costs. The 80 percent-owned Golden Cross underground gold mine in New Zealand posted improved earnings and increased production (83,058 ounces of gold and 286,216 ounces of silver).

Coeur announced in December that it had purchased 19.9 percent of Gasgoyne Gold Mines NL, an Australian gold mining company, and would try to buy the rest of the company owned by Ioma Pty Ltd. The buy-in cost Coeur some $18.4 million and the remainder will cost an additional $100 million. Gasgoyne owns half of the Yilgarn mine in western Australia, all of the Awak Mas mine in Indonesia, and half of the promising Southern Star project adjacent to the Yilgarn mine.

The company purchased a 100 percent interest in the Kensington gold mine near Juneau, Alaska, from former partner, Echo Bay Mines, Ltd., in July. Coeur paid $32.5 million plus a scaled royalty on production (after recouping the purchase price and expenditures) for Echo Bay's half interest. Coeur has an innovative agreement with the EPA and the Alaska Department of Environmental Conservation which should ease permitting. Final permits are expected in the second quarter of next year. As part of the arrangement, Coeur will change the discharge point for effluent from the mine's tailings pond from Lynn Canal to Sherman Creek at the suggestion of local environmental groups. Kensington has probable and proven reserves of 13.6 million tons averaging 0.143 ounce of gold a ton, or 1.95 million ounces total. Production should start in two years at an annual rate of 200,000 ounces.

The sales of the Flexaust Company (a manufacturer of flexible hose and tubing) to a German firm, Schauenburg GmbH, for $9.6 million and Livengood Placers (a small placer company in Alaska) to Alaska Placer Development for $580,000 were completed. The assets were inherited from Coeur's merger with Callahan Mining Corporation in 1991. Coeur had a pre-tax gain of about $4.4 million on the transactions.

In May, the company donated real estate valued at $200,000 to the University of Idaho for expansion of the University's center in Coeur d'Alene on the campus of North Idaho College (NIC). The 125- by 200-foot lot is across from NIC's parking lot.

Hecla Mining Company

Hecla Mining Company ended 1994 with a loss of $32.7 million, including nonrecurring write-downs of $14.5 million associated with the closure of the Republic Gold Unit in Washington state. A stock offering completed early in 1995 brought the company some $22 million. However, the red ink continued, with a loss of $4.5 million in the first quarter. Hecla turned around with a small profit of $229,000 in the second quarter (from $3.4 million on the sale of investments and a $1.1 million insurance settlement for the Lucky Friday hoisting accident last year). However, a massive hemorrhage occurred in the third quarter with a $104.7 million loss (including a $97 million write-down of the Grouse Creek mine). The loss wipes out 29 percent of the company's $334 million in assets, as recorded in its 1994 annual report. Grouse Creek was touted as the property that would make the 104-year-old company profitable after continuous losses since 1990. The mine was thought to have a seven-year life-
span at a production rate of about 100,000 ounces of gold per year, but Grouse will probably close much sooner. In May, the company filed a shelf registration with the Securities Exchange Commission to issue up to $100 million in securities, although the company had no plans at the time to issue any stock. Hecla ended 1995 with a record loss of $109.8 million or $2.28 per share. The red ink was partially stemmed by the sale of the company’s Apex cobalt unit in Utah and profits in the third quarter from stock investments that made $7.2 million.

The Lucky Friday mine enjoyed a 27 percent increase in production over last year and the company’s silver division turned a small profit. In 1995, the mine yielded 1,662,706 ounces of silver, 16,967 tons of lead, and 2,999 tons of zinc from 158,874 tons of milled ore compared to 1,306,884 ounces of silver, 13,214 tons of lead and, 2,431 tons of zinc from 124,986 tons of ore in 1994. Silver production costs improved from a cash cost of $5.81 and full cost of $7.17 an ounce last year to $4.57 and $5.76 an ounce this year. Production at the mine was curtailed for a short time to repair bearings in the hoist system. The hoist was damaged last year when an ore skip was hoisted into the sheave wheels. The cable snapped and the skip crashed 6,100 feet to the bottom of the Silver shaft, doing about $1 million in damage and closing the mine for several months. In spite of the hoist accident, workers at the mine set a new 56-year safety record of 377 days without a serious accident. About 150 people are employed at the Friday.

Following the bombing of the Federal Building in Oklahoma City by a right-wing militia group, federal agents worked swiftly to find out who stole 500 pounds of dynamite from the Lucky Friday mine on July 30. Hecla immediately offered a reward for the return of the explosives. Three men, Kent A. Johnson, Corey L. Miller, and Joseph E. Tepner-Galland, were arrested by agents from the federal Bureau of Alcohol, Tobacco and Firearms and arraigned in September. Reports that they were going to sell the explosives to a Canadian group who planned to blow up a dam in Canada garnered national attention, although the men denied connections to any racist or militia group. One of the suspects claimed that they planned to sell the explosives to a British Columbia rancher who wanted to remove some beaver dams. At least one of the suspects had ties to "the Circle," a group known to manufacture and deliver methamphetamine and other illegal drugs. Over 410 pounds of the stick powder were recovered. The men all pled guilty in December and were awaiting sentencing.

In May, Idaho District Court Judge Craig Dosonen denied Hecla a new trial in the Star Phoenix dispute, and the case is now headed for the state Supreme Court. The judge also awarded Star's attorneys $300,000 in legal fees. The case involves Hecla terminating a lease in 1990 on the Star mine near Burke, which was being operated by the Star Phoenix Mining Company. Star owners Frank and Janice Duval sued Hecla, claiming that the company had no right to cancel the lease. A Wallace jury agreed with the Duvals and awarded them some $20 million in damages. Hecla appealed the decision.

Hecla signed an exploration agreement with Santa Fe Pacific Gold worth up to $7.5 million. The money will be spent on the Golden Eagle gold deposit that is within a mile of Hecla's closed Republic mine in northeast Washington state.

The Greens Creek mine near Juneau, Alaska, will reopen and be in production by 1997. Hecla owns 30 percent of the lead/zinc/silver mine that is operated by Kennecott and CSX
Alaska Mining. The mine was idled in 1993. Exploration has discovered an additional 2.3 million tons of rich ore. Hecla will invest about $20 million in Greens Creek next year.

The company continued to expand in Mexico, with the La Choya Mine producing about 11,000 ounces of gold by the third quarter. Drilling commenced at the Golden Horseshoe property near the town of Pinos in the state of Zacatecas. Hecla is the operator with partner All-North Resources. The gold/silver vein system was worked to the water table, and Hecla was testing the potential of the system below the table. Hecla dropped a joint venture program at the Fortuna property, owned by War Eagle Mining in the state of Sonora. An initial drilling program by Hecla could not confirm War Eagle's estimate of 17 million tons averaging 21.5 ounces a ton silver and 0.093 ounce gold.

Late in the year, Hecla announced that its 67 percent owned subsidiary, Consolidated Silver Corporation, would be reactivated. The agreement became effective with the sale of the company's namesake, the Consolidated Silver mine near Osburn, to Sunshine Mining Company for $750,000 in November. ConSil will conduct exploration and look for mining opportunities. The company is active in Mexico and can earn a 50 percent interest in the Ojo Caliente silver property in the state of Zacatecas. A 12-hole drilling program is planned for the Mexican venture.

Industrial minerals continued to shine for Hecla with sales through the third quarter of $17.4 million, a 15 percent increase over last year. In June, the company announced that they had acquired kaolin mines and processing facilities in Langley, SC, owned by J.M. Huber Corporation. The price was reported at less than $10 million. The facilities will be managed by Hecla's subsidiary, the Kentucky-Tennessee Clay Company.

Sunshine Mining and Refining Company

Sunshine reported a fourth quarter deficit of almost $4.4 million, bringing the year's net loss to $15.5 million (over three times last year's red ink), or 13 cents per share, based on 193 million shares outstanding. However, there was a ray of hope at the "Shine." The cost of production dropped from $6.57 per ounce of silver in the third quarter of 1994 to $5.20 an ounce this year. Production increased to 570,000 ounces in the third quarter, up from 200,000 ounces in the second quarter, and production costs for September dropped to $4.91 per ounce. Total production in 1995 was 1,731,000 ounces of silver, 337,000 pounds of antimony, and 600,000 pounds of copper won from 99,109 tons of milled ore.

A Florida investor, Lloyd I. Miller, announced that he had raised his interest in the company to 6 percent, or 430,100 shares. In October, the company settled a dispute with its three largest preferred stock shareholders (Grace Holdings LP, Elliott Associates, and Lloyd Miller) agreeing to convert their preferred shares into common shares at a dividend to the investors of about $2 per share. The preferred shares are believed to have depressed the price of common shares. To accomplish the transaction, the company merged into a wholly owned subsidiary, which immediately changed its name to Sunshine Mining and Refining Company.

The year did not start off with much encouragement, as the company announced in February that they would close the Big Creek silver refinery indefinitely and lay off 14 workers. Low silver prices ($4.38 per ounce at the announcement) were blamed in part for the cost-cutting measure. Also, the refinery was designed to handle full mine production which has fallen off over the past few years, and the refinery was only running at 25 percent of capacity. The
antimony plant continued operations, and the concentrate was shipped to Asarco's smelter at East Helena, MT.

Sunshine introduced trackless diesel-powered mining for the first time in the mine's history. Four rubber-tired front end loaders are being used to mine the Sunshine and Copper veins, and the equipment has substantially increased production. More trackless equipment may be purchased and a system of spiral ramps used to mine the West Chance ore body. About 180 people are employed at the greatest silver-producing mine on earth.

Sunshine paid $750,000 and a 4 percent net smelter royalty on any future production for the Consolidated Silver property that adjoins the mine on the east. The 1,019 acre property contains 80 patented and 3 unpatented claims and was extensively and unsuccessfully explored during a $17 million program by the Consolidated Silver Corporation (Hecla and Coeur d'Alene Mines Corporation) in the mid-1980s. The company wanted the property to gain ownership of the Silver Summit shaft, which provides a secondary escape path for the Sunshine mine and is a good exploration platform for the east end of the Chester vein system.

In November, the company announced that it had purchased the Pirquitas mine located in the Province of Jujmuy in northern Argentina, for $1.7 million at auction. The mine produced silver and tin from 1936 to 1990 and is the largest silver/tin mine in Argentina. The property contains an estimated 312 million ounces of silver and 463 million pounds of tin. Sunshine will spend most of next year drilling the property and doing surface exploration. The purchase is Sunshine's first investment in South America.

Other Coeur d'Alene Mines

Celebration Mining Company leased the Crescent Silver mine on Big Creek. The company will pay the owner, Faucett International, royalties on any ore eventually recovered but has no immediate plans to start mining the silver property. Celebration acquired Royal Silver Mines, Inc. (formerly Consolidated Royal Mines, Inc.), and took the Royal name. Royal holds leases on the Coeur d'Alene Syndicate and Liberal King mines on Pine Creek and the Conjecture mine in the Lakeview district. The company also has a long-term lease on properties owned by Bismark Mining Company. Royal is seeking financing and plans an aggressive exploration program next year.

Mine Systems Design started mining at a small gold mine between Big Creek and Gold Run Gulch. The mill uses a gravity circuit and includes grinding equipment and a Reichert cone to process the gold ore.

Other Coeur d’Alene News

The recent closure of a number of mines in the Silver Valley was echoed when the Wallace Miner released its last issue on September 21 after 92 years of operation. Advertisers had disappeared and the paper had been reduced to a single sheet. To fill the gap, the Shoshone News-Press (parent of the Wallace Miner), will include a mining page on Wednesdays.

Stanley Easton was inducted into the Hall of Fame at the Idaho Museum of Mining and Geology in Boise in September. Mr. Easton joined the fledgling Bunker Hill Mining and Concentrating Company in 1902, was named General Manager in 1903, President in 1933, and Chairman of the Board from 1954 to 1958. Easton ran the company during the heyday of "Uncle Bunker" and was very active in civic affairs. For example, he was a founder of the
Shoshone Council of the Boy Scouts of America in 1919. Easton passed away in Santa Barbara, California, in 1961 at the age of 88.

A small fire at the Rimrock Explosives plant in Hayden scared local residents and officials. The company makes AnFo (Ammonium Nitrate fertilizer mixed with diesel fuel), the same material used to blow up the Federal Building in Oklahoma City. There are some 275,000 pounds of the material stored in bunkers at the facility. When the fire was discovered, Rimrock officials warned the Kootenai County sheriff's office to evacuate a one-mile-radius area around the plant. Several hundred people abandoned 150 homes in the Pineview and Emerald Estate subdivisions for about three hours until authorities put the fire out. To deal with the potential catastrophe, officials activated the state emergency response system.

Perhaps the most significant part of the story is that most residents had no idea what the plant made or that explosives were stored at the site. The plant is owned by Explosive Technologies, Inc., of Wilmington, DE.

And finally, Lana Turner, perhaps the most famous person ever born in Burke, Idaho, died in June. Discovered in a soda shop in Los Angeles in 1936, the famous beauty became a Hollywood star. Her last trip to Wallace was in the early 1970s.

**Other Producing Metal Mines (Figure 2)**

**Thompson Creek Metals Company**

Thompson Creek Metals Company operated the huge molybdenum open pit mine in Custer County all year (Figure 5). The private company restarted the mine in 1994 after purchasing it from Cyprus Minerals. Current reserves are approximately 300 million pounds of molybdenum. The company has maintained full production, shipping 1.5 million pounds of concentrate a month. The morale and productivity of the company’s 189 employees are high, due to the company’s emphasis on individual responsibility and worker participation. Mining is done with 3 P & H shovels and a fleet of 170-ton WABCO haul trucks. The big concentrator uses ball and SAG mills to grind the ore before it enters flotation cells. The huge grinders use about $400,000 in electricity a month. The concentrate is extremely pure, averaging over 59 percent Mo, and is trucked to a refinery in Pennsylvania. Lubricant-grade high-purity moly is also produced on site to make special moly-based grease. A stable market price for molybdenum ($4.60 at year’s end) was a boon to operations. Thompson Creek maintains an aggressive environmental monitoring program. The USBM noted production of 12.8 million pounds of Mo worth $45.2 million from the mine in 1994 compared to 17.6 million pounds worth $80.4 million this year.

**Pegasus Gold Corporation**

Pegasus Gold Corporation’s Black Pine mine (Figure 6) continued to produce gold in Cassia County. Known reserves are 7,971,700 tons of ore grading 0.015 ounce-a-ton gold, which will be depleted by the end of 1996 or early 1997. Mining was completed in the A and B pits, and the E pit was mined out this fall. Main production in late 1995 was from the C-D pit, which averages 0.015 ounce-a-ton gold. Two other small pits, the D-North and the I pit, were opened in October. Three 992 loaders and fourteen 85-ton Cat 777 trucks are used in the operation. Processing improvements, including a change to drip solution on the pads and an adjustment of application rates, increased recoveries significantly over last year. Production for 1995 was 108,495 ounces of gold and 59,317 ounces of silver from 7,769,377 tons of
Figure 4. A 6-cm.-tall pyromorphite specimen from the Bunker Hill mine. Cover- Mineralogical Record, July-August, 1996

Figure 5. Thompson Creek molybdenum mine in Custer County.
leached ore. Pegasus continued exploration drilling during the year at targets around the mine and in the Silver Hills area. Results were not encouraging from the 80 plus holes, though the last hole did hit ore and will have to be followed up. The mine employs 120 people, working directly for Pegasus or for Ames Construction, the mining contractor.

The company is almost done backfilling the Tolman pit. Reclamation of the historic Tolman tailings was completed with very satisfactory results. Contractor J.R. Thornton won the state Land Board's award for his work on the project, which cost Pegasus several thousand dollars. Early in the year, DEQ asked the company to see if the emergency release of cyanide-bearing water during a flood runoff early in 1993 has had any long lasting effect on the land. The company complied with the request as they have with every other environmental concern at the site.

**Kinross Gold Corporation**

Kinross Gold continued with full operations at the DeLamar gold/silver mine in Owyhee County. The mine produced 36,025 ounces of gold and 1,699,000 ounces of silver from 1,114,000 tons of milled ore (mined 1,246,000 tons) last year compared to 26,389 ounces of gold and 1,811,000 ounces of silver from 1,292,000 tons milled (1,443,000 tons mined) in 1995. At year's end Kinross DeLamar was permitting the new North Wahl pit. The 11.5-acre pit will be 180 feet deep and hosts 12 months' worth of ore. Main production during 1995 came from the Glensilver, Glensilver Extension, and South Sommercamp pits (Figure 7). Eventually, these plus the North and South Wahl pits may merge into one large opening. Production was somewhat less than last year due to lower grades caused by eliminating mining in the South Wahl pit and an increase in sulfides in the Glensilver pit as mining reached deeper benches. As noted, part of the South Wahl was exhausted, and another part was covered by a spectacular landslide in the thick alluvium over the ore. Exploration drilling was confined to the immediate mine area and was somewhat disappointing. At year's end, about 150 people were working at DeLamar.

The Bureau of Land Management signed a Record of Decision in April allowing the company to begin mining at the Stone Cabin mine on Florida Mountain directly east from the DeLamar mine. Kinross started mining and pit construction late in the fall, with the first blast set off on September 6. Reserves are 7 million tons grading 0.045 ounce of gold a ton and 0.5 ounce a ton silver at a 5.2/1 stripping ratio. Local citizens were heard bragging that the new 6-mile-long haul road built from the new mine to the DeLamar mill is “Interstate quality.” By November, construction was almost done, and the company was hauling ore from the Tip Top and Stone Cabin pits and filling up the Jacobs Gulch waste rock dump area. The new mine on 700 acres will include three open pits. A new shovel and 4 new trucks have been purchased for the Stone Cabin project (Figure 8). Considerable effort and money were spent on cultural resource studies for the mine, which is located in a historic mining district. Approximately $28 million have been spent on the new venture.

**Hecla Mining Company- Grouse Creek**

Surviving a federal judge's injunction that threatened to close all mining and other activities in central Idaho, the big Grouse Creek mine in Custer County was dedicated on August 10, 1995. Hecla Mining Company and co-owner Great Lakes Minerals were joined by some 450 guests to celebrate the opening. Dignitaries included Art Brown, Hecla President and CEO,
Figure 6. Overview of the leach pads at Pegasus's Blackpine gold mine in Cassia County.

Figure 7. The Glen Silver pit at Kinross's DeLamar mine in Owyhee County.
Figure 8. The new Caterpillar shovel/loader at Kinross's Stone Cabin mine in Owyhee County.

Figure 9. Panorama of Hecla's Grouse Creek mine and mill from Estes Mountain.
the Board of Directors from Great Lakes, Congressman Michael Crapo, and state Representative Lenore Barrett.

Hecla acquired the 22.3-square-mile mine site under a merger with Coca Mines in 1991 (Figure 9). The company has about $145 million invested in the property, including capital costs of $92.1 million to build a gravity/carbon-in-pulp mill and the mine complex. The mill was processing 6,800 tons per day with recoveries of 91 percent for gold and 54 percent for silver in August. Mining began at the close of last year. In May, a new $500,000 ore feed system was installed; the previous system proved to be too small and froze in the winter. The Sunbeam pit contains 8.6 million tons grading 0.042 ounce of gold and 0.32 ounce of silver a ton and has a stripping ratio of 3.5 to 1. The adjacent Grouse pit site (which eventually will be 2,000 feet long, 1,500 feet wide, and 1,000 feet deep) contains 13.2 million tons grading 0.038 ounce gold and 1.3 ounces silver with a stripping ratio of 5.1 to 1. Mining is done using two shovels on 20-foot benches at a rate of 30,000 tons of ore and waste a day. Overburden striping started in the Grouse Creek pit this summer. The ore there is overlain by a thick sequence of younger rocks. A high grade zone, mined using underground methods beneath the proposed Grouse Pit, yielded 118,000 tons grading 0.039 ounce gold and 1.56 ounce silver. During 1995, 1,955,220 tons of ore were milled from both underground and the Sunbeam open pit, yielding 83,609 ounces of gold and 679,915 ounces of silver. There are about 185 employees, who share in a $6 million annual payroll, at the site. Hecla was conducting a drilling program on nearby Estes Mountain in search of more reserves.

A minor setback occurred in August when about 425 gallons of weak cyanide solution leaked from a burst slurry pipeline at the tailings pond. There was no long-term consequence from the spill and cyanide levels in Jordan Creek never exceeded EPA drinking water standards but the accident generated concern in some regulatory agencies. Alarms sounded again when a Great Western Chemical Company truck carrying ferrous sulfate to the mine spilled part of its cargo from a ripped bag along the highway that parallels the Salmon River. Again, there was no problem and the chemical was quickly cleaned up.

The Custer County Commissioners approved the formation of an Industrial Development Corporation with Hecla and Nationsbank. The corporation will enable Hecla to sell tax-exempt bonds to raise the approximately $7 million needed to make scheduled two-year expansions to the tailings pond at Grouse Creek. The commissioners agreed to the deal, which will save Hecla about $100,000 in interest, as a favor to the company. There is no risk to the county as the bonds are backed by Nationsbank.

In spite of the adversity already endured by Grouse Creek, worse news was yet to come. In October, Hecla announced that it would take a $97 million write-off in the third quarter for the mine. The orebody contained less gold by half than expected and would not come close to reaching its goal of 100,000 ounces of gold each year. Also, operating costs were higher than anticipated. The full cost of operation, including startup costs, was $536 per ounce, with cash (or day-to-day) costs of $352 an ounce. This had declined to $479 full cost and $293 cash cost in the third quarter. With the announcement of the write-off, Hecla's stock plunged 25 percent over the next two days to a 52 week low of $7 1/8 per share. In spite of the loss, Hecla said it would do everything possible to keep the mine operating.
FMC Gold Corporation

The second major mine dedication in east-central Idaho was celebrated on August 19 when FMC Gold Company dedicated the Beartrack gold mine. The new mine is near the old townsite of Leesburg about 12 miles west and north of Salmon. Company officials were joined by 1,700 residents, which is a substantial part of Lemhi County's population. Like Grouse Creek, Beartrack survived the scare of being shut down by a federal injunction before it ever opened. The mine will have a seven-year life-span producing approximately 100,000 ounces of gold annually from the open-pit, heap-leach operation. Beartrack has a $20 million operating budget and will employ 150 full-time employees, who will share a $7 million annual payroll. Mining has started in the South Pit, which will eventually become a mountain lake as part of the mine's reclamation plan.

Beartrack yielded 49,100 ounces of gold and 6,100 ounces of silver from 4,100,000 tons of ore in 1995, with over 100,000 recoverable ounces still sitting on the pad. Cyanide was first applied to the heap in late July. Good fall weather allowed construction of the haul road to begin and initial blasting in the North Pit. As it is opened up, main production will shift to the North Pit from the South Pit, now down to the 6800 bench. Mining is done with a CAT 5130 shovel and six CAT 777C 90-ton trucks. Geologists drilled 30 reverse circulation holes, totaling 11,000 feet, to test oxide mineralization along the Panther Creek Fault at the north end of the South Pit. Low-grade mineralization was encountered to the west of the expected structural zone, and results were being modeled. A spectacular geologic exposure in the South Pit high-wall showed an overhanging cliff of ore-bearing, altered Yellowjacket quartzite/siltite against a valley-filling mass of glacial drift (nicknamed "mountain vomit" for its behavior when wet). Apparently the glaciers scoured a deep valley along the Panther Creek fault system.

The company is justifiably proud of its environmental record which includes restoring 33 acres of wetlands impacted by old placer operations (Figure 10). And history will not be lost; the old townsite of Leesburg, which was built by placer miners, has been fenced off and preserved. A unique feature of the mine is the use of "Bird Balls" to keep birds from settling on the preg pond. The four-inch plastic balls (Figure 11) disguise the pond so water fowl will not land on it.

FMC Gold Corporation is 80 percent held by FMC Corporation and had a $9 million operating loss for the parent in 1994. On September 12, company officials announced that FMC Corporation had retained a Toronto financial advisor, Wood, Gundy, Inc., to solicit interested parties in the sale or auction of FMC Gold. No public suitor had stepped forward by year's end.

Dakota Mining Company

The Stibnite mine on the East Fork of the South Fork of the Salmon River in Valley County closed in 1993 when concern over salmon migration became a major issue in the state. A two-year operating delay resulted while the company sought permits from the National Marine Fisheries Service and other regulatory agencies (including state cyanide and USFS road use permits). Old mines at Stibnite were the nation's major source of tungsten and antimony in WWII. Past environmental damage is extensive, and the site was almost listed under Superfund.
Figure 10. Wetland restoration in Napias Creek, just west of the Beartrack mine.

Figure 11. Bird balls used to keep water fowl off the preg pond at the Beartrack mine.
In June, U.S. Representative Helen Chenoweth toured the Stibnite area. She said that it was ironic that NMFS was withholding a decision that would help clean up the environmental problems left over from WWII. The Congressman later co-sponsored a bill that would limit the liability of companies that had not contributed to past pollution at Superfund sites and would place a moratorium on all current and future third-party lawsuits under the Superfund law.

Dakota received its long-awaited Biological Assessment from the National Marine Fisheries Service on June 29. The opinion, "not likely to effect with reasonable mitigation," was quickly put into action by Dakota Mining as they wanted to reopen the mine as soon as possible. Mining began in early July after a two-year hiatus. Also, a consent order was signed on July 8 with the Environmental Protection Agency over any future cleanup work at the historic Cinnabar mine or at Stibnite. Under the agreement, oversight is deferred to the state Division of Environmental Quality.

The leach pads and solution ponds at Stibnite were refurbished and a new road built to the Garnet Creek ore body (Figure 12). The company won approximately 15,000 ounces of gold from 160,000 tons of ore mined from this pit during 1995. Mining stopped at the end of October, with Garnet Creek totally mined out. The pit was reclaimed at the end of the season, and road reclamation will take place next year.

The company also produced 14,000 ounces of gold from the West End pit and spent $500,000 on facility upgrades at Stibnite. A new state cyanide permit was received for the whole operation. Dakota also started a major $1.5 million environmental project to line the Meadow Creek diversion channel and direct water around the historic Meadow Creek tailings impoundment. The company is also investigating innovative bioremediation and artificial wetlands to try and clean up some of the problems with old mill tailings. Reclamation will continue this winter, concurrent with operation of the mill and leach pad. This will be Dakota's first attempt to continue leaching all winter. The company plans to bury drip lines and put a heavy plastic cover over the pad to keep heat in and snow out.

In 1996, Dakota will mine from the Stibnite extension of the West End pit, which was included in the original Environmental Impact Statement. Waste from the extension will be used to backfill West End. A 8,000-foot drilling program bore fruit when mineralization was discovered over a strike length of 1,500 feet in the Lower Ridgetop area. Also oxide ore was found as a result of a 24-reverse-circulation-hole project in the Cinnamid area. Preliminary calculations indicate a resource of 212,000 ounces of gold in the Cinnamd area, with 43,000 ounces of that considered a proven reserve.

Several targets, located during a soil geochem program southeast of the Garnet Pit, will be drilled during a $400,000 program next year. Dakota poured its first gold in September and produced 28,800 ounces of gold and 8,500 ounces of silver from 560,000 tons of ore in 1995. At year's end, the mine had proven and probable reserves of 930,000 tons grading 0.046 ounce a ton. The monthly payroll totals about $350,000 for the 120 employees at the site.

Aluminum Recycling Plant

IMSAMET had a record year recycling some 100 million pounds of used beverage cans (Figure 13), 75 million pounds of other aluminum scrap, and 64 million pounds of dross. The
Figure 12. Project map of the Stibnite mine, Valley County, ID.

Figure 13. Used beverage cans going into IMSAMET's aluminum recycling plant at Hauser Lake.
state's only aluminum recycling plant made improvements to its dross recovery circuit that resulted in lower energy consumption and reduced waste. The modern plant is located in Hauser Lake and employs 79 people. Most of the molten aluminum is trucked to Kaiser Aluminum's Trentwood plant near Spokane. The record production resulted from ample supplies of cans and other scrap in the first quarter of the year. This year, about 5 percent of the company's product was exported. The value of the recycled aluminum was about $155 million.

Other Small Mining Operations

*CSC Mining* operates the Rescue mine at Warren year round. It is a small underground mine with a 25 ton-per-day mill. This year they dropped down to a second level in the Rescue and put in two development raises and a stope on the gold-quartz vein. About 1,000 tons were mined and milled, and some 23,000 pounds of high grade concentrate were trucked to the smelter at East Helena, Montana. Milling is a gravity operation and is limited to the summer months. CSC plans to continue underground development work during the winter, hoping to extract more tons next year. They have added a second loader, compressor, and 2 generators to the operation. The company is especially proud of its sandfill system, which pumps mill tails back underground to fill stopes and add ground support. It is unusual for a small mine to have such technology, which reduces the environmental impact of the operation.

The company also opened up the old lola mine, which lies east of and along the same series of veins as the Rescue. They opened 470 feet of old tunnel to reach a caved winze obscured by muck before shutting down the operation for the winter. CSC would like to open additional properties in the Warren District to secure continued mill feed. In a milestone to the Idaho back country, the town of Warren obtained its first real telephone, thanks to a fiber optic cable installed in November.

*U.S. Antimony Corporation (USAC)* had a fair year at the remote Yellowjacket mine in Lemhi County. Average production at the small open pit is 65 ounces of gold a week. The two grinding mills were kept running alternately or together to keep up with mining. The oxide zone is nearly depleted and the pit has reached sulfide ore, which runs 0.025 to 1.0 ounce per ton gold, with associated copper. The company is considering exploration and rehabilitation of the #3 Adit underneath the existing pit. Production in 1995 was 2,630 ounces of gold and 1,116 ounces of silver won from some 41,749 tons of milled ore.

*Alta Gold* had an active reclamation program at the Copper Cliff mine near Cuprum. The small, open-pit copper mine and mill were worked by Silver King Mines around 1989.

**Placer Mines**

Less than six placer mines were active in the state, down significantly from the usual 20 or so permitted under state Dredge and Placer regulations. Emerald Creek Garnet is the largest placer operation and mines for garnet; only 4 gold placers were over a half acre in size.

*Butte Mining LLC* (John Beasely and Brenda Kalatzes of Price, Utah) installed placer equipment at the Golden Chest mine in Butte Gulch. The property owned by Golden Chest, Inc., was explored by Newmont Gold in 1989. A resource of 230,000 ounces was defined but this was too small for Newmont. The placer operation should yield some 250,000 ounces of gold over a 5-year period.
Jim Regan won the Land Board’s reclamation award for work at his gold placer mine near Gibbonsville. The property, mined over the last few years, is completely reclaimed. Regan has no plans to open additional ground at present.

The Kirtley Creek placer gold mine, located just east of Salmon, was operated by Buster LaMoure.

*Western Montana Mining Ventures* was doing exploration in the same area of placer ground near Murray.

Only three small placer gold operations were active in the Silver Valley this year. However, lots of recreational gold panners enjoyed working a group claim held by the Gold Panning Association of Prichard Creek.

George Castle operated a small placer mine at Twin Springs on the Middle Fork of the Boise River.

The state Department of Water Resources sold 637 recreational dredge permits at $10 each. The permits are required for all dredges greater than 5 inches in diameter, that exceed 15 horsepower, or that move more than two cubic yards of material an hour. The small dredges typically cost $2,000 to $2,500, with elaborate models costing as much as $6,000. Most operators regard “hobby dredging” as a fun family vacation and few make any money at it. However, some operators do make major stream channel modifications, which can cause considerable erosion and other damage. In an effort to decrease these problems, the state beefed up its education and enforcement policy.

The Yankee Fork Dredge is one of the major tourist attractions in central Idaho. Over 14,000 people visited the restored dredge and about 8,600 took a guided tour of the boat. The dredge is maintained by the U.S. Forest Service and the Yankee Fork Gold Dredge Association (over 200 members). This year a new rest area was built to provide a little shade for the people waiting for a tour. Hecla Mining Company, operator of the big Grouse Creek mine a few miles above the dredge, donated the materials. The attraction is handicapped accessible and restrooms are available. The dredge operated from 1940 to 1952 and removed over $1 million in gold from a 5-mile stretch of the Yankee Fork of the Salmon River.

**Phosphate Mines and Plants (Figures 2 and 14)**

**Introduction**

By mid-year, strong exports of phosphate fertilizer had boosted earnings for domestic producers by 50 percent over last year. Both China and India were major customers. Export prices climbed to $195-$200 a metric ton versus $167 last year. Domestic prices were about $185 a short ton for diammonium phosphate compared to $148-$151 last year and the price was about $20.42 a metric ton, f.o.b. mine for marketable phosphate rock. The value of all phosphate products was about $839 million. The top phosphate fertilizer companies in the country are Freeport-McMoran Resource Partners and IMC Global. Mining in Florida (Occidental Chemical Corp., Cargill Fertilizer, Inc., DF Industries, IMC-Agrico Co., U.S. Agri Chemicals, Mobil, and Farmland Industries) and North Carolina (TexasGulf Chemicals Co.) accounts for about 85 percent of the phosphate ore used in fertilizers in the country, with most of the rest coming from the western states. According to the U.S. Bureau of Mines, in
1994 about 90 percent of 157 million metric tons of domestic phosphate rock production was used to make 11.2 million tons of P\textsubscript{2}O\textsubscript{5} in the form of wet process phosphoric acid (WPPA) for fertilizer (37 percent), animal feed supplements, and purified acid.

Idaho's elemental phosphorous producers prospered as the market shake-out over the past several years left them winners. A decade ago there were 12 elemental plants operating in North America. Nine closed previously and Rhone-Poulenc Basic Chemicals, Inc., announced that they would shut their 70 million pound-a-year facility at Silver Bow, MT in October. Monsanto and FMC are the only two domestic producers still remaining, thanks in part to relatively cheap power rates, the failure of purified acid to take over the elemental markets, and nationwide bans on detergents, which has reduced the overall market substantially. In 1994, Idaho plants made about 460 million pounds of P\textsubscript{2}O\textsubscript{5}.

The Caribou Forest is in the process of writing Environmental Impact Statements for two proposed phosphate lease areas, Manning Creek and the Dairy Syncline. The Bureau of Land Management may put the two tracts up for bid after the EIS is completed.

**FMC Corporation**

FMC operates the Dry Valley mine and shipped about 1.3 million tons of ore to its elemental phosphorus plant in Pocatello in 1995. Demands for ore feed for the plant increased this year and the mine had to expand production. Water problems in the open pit mine have proven to be less than expected, with a maximum flow of about 200 gallons per minute. The company plans on trying to extract ore from up to 60 feet below the water table. At the mine, the A pit is mostly backfilled and is currently being reclaimed; the B pit is the current mine site and will be nearly finished this year—production will then move to the south. FMC geologists drilled 43 exploration holes at the south end of the south B pit this year to outline next year's pit. Ore is mined year round but only shipped from March to October, as frozen rock sticks in the rail cars. The mine has 80 employees.

Ore from stockpiles at the mine is loaded into rail cars using a sophisticated, computer-controlled crushing and loading tippie. The ore goes from a stockpile to an underground crusher, then up a conveyor belt, and through a secondary crusher and automatic sampler to a scale, which weighs it. The ore is then dropped into a prepositioned railcar. The setup uses an automatic car puller along the on-grade tracks to place the cars in position under the load hopper. This reduces the risk of human injury. The computer even reads the car number and writes a manifest, indicating the type of ore and weight. Only four people are needed to handle the loading process.

FMC's elemental phosphorous plant in Pocatello is the largest in the world with an annual capacity for producing some 270 million pounds of elemental phosphorous. The plant is also the largest contributor to air pollution in the urban area, but thanks to millions of dollars of investment, great strides have been made in curbing this problem. The new emission control equipment allows the plant's four furnaces to run around the clock, and in 1995 there were only a very few instances when extra pollutants escaped the stacks.
Figure 14. Phosphate mines and plants in Idaho, 1995.

Figure 15. NuWest's phosphoric acid and fertilizer plant at Conda, ID.
J. R. Simplot Company

Simplot’s Smoky Canyon mine near the Idaho-Wyoming border had another busy year, pumping approximately 2.5 million tons of phosphate ore through its 87-mile-long slurry pipeline to the Pocatello fertilizer plant. The Pocatello facility produces about 400,000 tons of phosphoric acid annually. Mine engineers are in the final design stages of planning and permitting the Panel E pit, just south of the current Panel D operation. The two areas are separated by Sage Creek, which will have to be crossed for mining. This year Simplot restarted an exploration group, which had a busy summer. The group drilled 16 reverse circulation holes on the Freeman Ridge exploration license. Monsanto is sharing the cost and information from the project. Freeman Ridge is 3 miles west of Smoky Canyon. The company also constructed roads into Sawmill and Grizzly Creeks.

Nu West Industries, Inc.

NuWest Industries, Inc. was sold to Agrium Incorporated, a Canadian firm with interests in a potash mine in Saskatchewan and ammonia plants in Alberta and the U.S. The addition of NuWest’s fertilizer plant at Conda gives Agrium a full spectrum of agchem components. The growing company has over 3,000 employees and is expanding overseas to Argentina. The transaction was completed October 3 and NuWest is now 100 percent owned by Agrium, which offered $10.5 a share and bought 96 percent of the outstanding stock. NuWest anticipated that 20 percent of its output would eventually go to Agrium operations.

NuWest’s Conda plant (Figure 15) employs 300 people and uses 1.75 million tons of phosphate ore annually. The plant’s best seller is green super phosphoric acid or "70 percent SPA," which is 65 percent of their product. The company produces 300,000 tons of P2O5 a year, or 14,000 tons a month of green acid, which goes out in special railroad cars to wholesalers. The remainder of their production is granular fertilizer. NuWest chalked up its first overseas sale this year by sending 20,000 tons of granular fertilizer to Thailand. The company shut down its west sulfuric acid plant in November and will buy acid from Kennecott’s smelter in Utah. NuWest was constructing four new 10,000-ton tanks to store the acid. Ore for the plant is provided under an agreement (recently extended to the year 2005) with Rhone-Poulenc, who operates the Rasmussen Ridge mine. The Mountain Fuel mine, now closed, is in the final stages of reclamation and has been resloped and reseeded.

Monsanto Company

Monsanto opened the Enoch Valley mine in 1990 and extracted 1.2 million tons of phosphate ore in 1995 along with more than 4 million tons of waste rock, which was used for pit backfill. The mine’s contractor, Dravo Soda Springs, purchased a new $1.5 million Hitachi shovel (Figure 16) to bring its fleet up to three shovels and nine Caterpillar 777 85-ton haul trucks. The ore, which averages 11.5-12 percent phosphorous is loaded by a tipple into 5 triple trailer trucks, which make the 19-mile-long trip to the plant north of Soda Springs on a private road built to airport runway specifications. Each loaded truck weighs 315 tons. Monsanto continued its award-winning environmental reclamation activities. Sediment-control dams and settling ponds are routine, along with contouring and reseeding the waste dumps or backfilled pits. The company plants trees and arranges brush and rock piles to provide animal habitat. Monsanto had an exploration project at South Rasmussen Ridge, where they drilled 8 core holes totaling 3,500 feet.
The ore is processed in Monsanto’s plant north of Soda Springs. Annual production is about 215 million pounds of elemental phosphorus, and the plant ran at capacity. Much of the product goes into the company’s very popular herbicide, Roundup. Other markets are numerous and include detergents and food additives.

Rhone-Poulenc Basic Chemicals Company

Rhone-Poulenc continued mining at the Rasmussen Ridge mine, which started in 1990. Under its extended contract with NuWest, the mine ships 1.75 million tons a year to the Conda fertilizer plant. Rhone-Poulenc’s lease extends for over 20,000 feet of strike length, and the current active pit covers only 2,500 feet of this distance. Future development and exploration will extend to the North and Center Rasmussen pits. The company is looking at NEPA documentation needed to move from the south to the center panel. Mining is done with Mod. 992 CAT loaders and Mod. 777 CAT trucks. It is a 7-mile haul to the railhead, where the ore is crushed and transferred to rail cars. There are 110 employees at the mine. Reclamation efforts include grass reseeding, planting pine trees, and planting brush for animal habitat.

Kerr-McGee Chemical Corporation

Kerr-McGee uses Monsanto’s byproduct ferrophosphorous metal as a raw material for its vanadium extraction plant at Soda Springs, the largest producer of vanadium in the country (Figure 17). The complex process requires crushing the metal, adding various catalysts and roasting at 1,500°F. The roasted material goes through leaching tanks and solvent extraction circuits to end up as one of several products, including AMV (ammonium metavanadate), SAVAN (sodium ammonium vanadate), or fused vanadium oxide (V_2O_5).

The plant employs 70 people and produces 300,000 pounds a month of top quality product. It consumes 40 tons of ferrophosphorous metal daily and about the same quantity of limestone. In 1995, the company reclaimed 3.4 million pounds of vanadium products from 13,500 tons of ferrophos. Kerr is testing new products and putting in a new boiler this year.

The plant opened in 1963 and Kerr is extremely proud that, at the end of October 1995, they had achieved 15 years without a lost-time injury. The company has an excellent safety program and attitude toward its employees. It is working with EPA on cleaning up some problems at the plant site. These efforts include building a phosphoric acid plant to reuse waste products, digging up old solid waste ponds and placing the residue in an on-site landfill, and calcining tailings buried at the site and using them to make acid. Tailings that are exposed to the wind will be removed along with other mitigation and reclamation measures.

Industrial Minerals (Figure 18)

Limestone

Faxe Kalk, a Danish company, made front page news during the summer when Secretary of the Interior Bruce Babbitt signed off on the patents for 108.4 acres covering the Lidy Hot Springs travertine deposit in Clark County. In a political attention-getting maneuver, the secretary proclaimed the deposit worth a billion dollars, a figure which BLM geologists said was too high by several orders of magnitude. The secretary, on a crusade to stop the patenting process, declared the $275 sale as “corporate welfare.” Faxe Kalk bought the deposit in 1988
Figure 16. Dravo's new Hitachi shovel ready to go to work in Monsanto's Enoch Valley mine in Caribou County, ID.

Figure 17. Kerr McGee's vanadium plant near Soda Springs, ID.
Figure 18. Industrial mineral mines, plants, and exploration projects in Idaho, 1995.

Figure 19. Ash Grove Cement's plant at Inkom, ID.
from local miner Chuck Wilson of Dubois. The company has not announced its intentions for the deposit, although it was rumored that Faxe Kalk plans to use the limestone for paper filler.

*E. J. Wilson and Sons* quarried dolomite, limestone, and bentonite in eastern Idaho. They produced about the same as in 1994, but added a little more bentonite. The carbonates are used for cattle feed supplements. Last year, 24 percent of their product went to dairies and the rest to feedlots; this year, 78 percent is going to dairy farms across southern Idaho. This reflects the rapidly increasing number of dairy cows in the state. An advantage to the supplement suppliers is that dairy cows need dolomite and limestone year round, whereas range cattle are only in feedlots at certain times of the year.

*Chemical Lime* continued to operate its quarry and lime plant near Bancroft in Caribou County. Mining is seasonal and shuts down during the winter. Some 650,000 tons of ore were quarried during the year by Conda Mining, the mining contractor. Ore is stockpiled to feed through the lime plant with its tall, vertical kiln through the winter. The company produces 600 tons of chemical grade lime a day. Most of the lime is used by steel mills and gold mines. Total production in 1995 was about 180,000 tons. Five exploration holes for limestone were drilled during the year. Conda employs 16 miners and Chemical Lime employs 22 at the Bancroft facility.

*Ash Grove Cement* in Inkom had a banner year, with an estimated production of 230,000 tons of cement. The new tire feed plant on the #2 kiln consumed 300,000 scrap tires, and the company is considering converting the #1 kiln to burn tires as well. The company is still working on the 1P cement product, but needs a source of fairly clean kaolin clay. Next year Ash Grove will be shutting down plants in central Utah and at Durkee, Oregon, during construction to expand these operations. The Inkom plant (Figure 19) expects to do additional grinding to fill in production while the other plants are down. The company diamond drilled two 1,200-foot holes and ran a seismic reflection survey in its quarry at Inkom to map out future reserves. Results showed the limestone continues down 2,000 feet, providing a voluminous mine reserve. Ash Grove has 70 employees at the Inkom site.

*Idaho Travertine* cut stockpiled and non-Idaho stone this year but did not operate its quarry near Palisades Reservoir. Sales totaled about $1 million from the company's stone-cutting plant in Idaho Falls. Employment was stable at 25 persons. One of the larger contracts was 100 truckloads of cut Midwestern dolomite, which was sent to Los Angeles for the new rapid transit system office building. The company also continued to supply travertine for work on the interior of the Boise Federal Building. Idaho Travertine and the Forest Service came to an out-of-court settlement over patenting claims in the Fall Creek Quarry in Bonneville County. After 25 years of operation, the Forest Service had questioned whether the stone in the quarry was locatable or saleable. The agreement lets the company operate its claims as usual, but puts off a final decision until after the patent question is resolved.

*Castle Creek Mines* continued to mine oolitic limestone from Tertiary sediments south of Grandview in Owyhee County. Owner Del Bain expects production of about 6,000 tons this year, down substantially from 1994. A very rainy spring west of the Cascades prevented farmers from reaching their fields to apply ag chemicals, including limestone. Sales in the second half of the year were dominantly 50 pound bags of oolites, designed to serve as
emergency acid spill cleanup aids. So Castle Creek sold less tons, but got a higher price. A new Plan of Operations for a 7-acre site was approved.

*Owyhee Calcium* continued production of oolitic limestone from its quarry near Grandview for use in cattle feed supplements. About 9,000 tons were processed in 1995, the same as in 1994. Last year's proposed merger with Castle Creek Mines never materialized. The company is rumored to be for sale.

Approximately 2,000 tons of stockpiled limestone was shipped by the *Nez Perce tribe* from the Mission Creek limestone quarry to Potlatch Forest's paper plant at Lewiston. The tribe did not do any new mining this year.

*Vaughn Smith Construction* mined and shipped about 10,000 tons of limestone from the Trail Canyon mine north of Soda Springs to Kerr McGee's plant. Kerr uses the stone for processing vanadium products and is Vaughn Smith's sole customer for lime.

*Treasure Canyon Calcium* shipped about 20,000 tons of limestone from quarries near Preston to Simplot's acid plant at Pocatello. The company employs 5 people.

*McDowell Industries* of Boise did exploration drilling for limestone near the hot springs at Indian Bath Tubs south of Bruneau in Owyhee County. The company drilled 32 holes with a maximum depth of 40 feet. Results were very spotty. They also dug a 100-foot trench which intersected only five feet of limestone. The limestone rim rock is thought to be formed of fossil sponges, which grew in old Lake Idaho or ancient springs.

**Silica**

*Unimin Corporation* reports a "carbon copy" of last year at their silica sand pit and plant near Emmett. The sand is used in glass making and abrasives, as well as for golf course bunkers. The plant is one of two in the nation providing sand for golf courses, and this has become an important niche market as over 350 new courses are built each year in the U.S. alone. Some sand is exported as well. The company employs 10 to 15 people. Unimin, like other mining companies, is frustrated by the federal moratorium that is holding up their patent application on the Zierold pit, near the road to Pearl. Unimin resloped and reclaimed an old sand pit on Freezecout Hill above Emmett.

*Monsanto* contracts with Conda Mining to quarry silica (quartzite), which is used in processing elemental phosphorous at their Soda Springs plant. The company is investigating a joint project with *Corona Industrial Sand Corporation* to recycle the byproduct sand from its quarry. They hope to market 40,000 bags of sand for beds under pipelines. Conda employs about 18 people at this facility. FMC operates a similar quarry near their elemental plant at Pocatello.

M. Marx Hintze, Director of *U.S. Silicon, Inc.* (a spinoff of Systems Integration Corporation of Idaho Falls), confirmed that a group of high-tech entrepreneurs, developers, and consultants wants to quarry quartzite in Elbow Canyon in Butte County, three miles east of the Pass Creek road. The quartzite would be processed into material suitable for metallurgical grade silica sand, glass making, and producing silicon for the semiconductor industry. Only 5,000 to 10,000 metric tonnes per year of quartzite would be needed. The company just started talks with the Forest Service and Idaho Department of Commerce, but seemed confident that the project was past the feasibility stage. Citizens in the Mackay area
were confused but hopeful about the silica operation, which could employ 200 people. Custer County officials were concerned because the proposed plant site is in Butte County, while the influx of new people and their need for services would be in Custer County. A company spokesman noted that mining claims have been filed on the silica sources, private land purchased for the plant, and power secured through the Bonneville Power Administration.

**Perlite**

*National Perlite's* (a subsidiary of *Oglebay Norton*) mine and Malad plant remained closed during 1995. Rumors are that someone is planning to buy the facility and expand production or that National may decide to reopen the plant and mine, which were closed because of dust problems.

**Pumice**

*Hess Pumice* had an excellent year, increasing production at its Malad plant to 90,000 tons and employing over 60 people. Demand for its specialty, low heavy-mineral pumice, has been excellent, and the company is constructing a second fine grinding plant. The new facility (Figure 20) should open in April 1996. Hess is the only domestic producer of very fine, pure pumice powder (used for grinding television glass) and one of only three producers worldwide. The other two are in Sicily and Japan. Hess exports its products to Japan, Malaysia, Hong Kong, and other countries on the Pacific Rim, as well as Europe.

*Producers Pumice* mined 26,728 tons of pumice from the Rock Hollow mine near Idaho Falls, a 10 percent increase over last year. The company employed 2-3 men in the mining operation. All of the pumice is used as lightweight aggregate.

*Amcor, Inc.*, employed five people at its crushing plant near Idaho Falls. The company employed two men at its Fan Creek Claims to mine 9,239 tons of pumice in 1995 for lightweight aggregate.

**Garnet**

*Western Garnet's* operating subsidiary *Emerald Creek Garnet* continued its placer garnet operation in north Idaho near Fernwood. Five trommels and washing plants are used to extract the garnet from the beds of Emerald and Carpenter Creek. Two mills concentrate and sort the industrial grade garnets, which are used principally in filters, garnet sand blasting, water jet cutters and abrasives. The company will ship approximately 27,500 tons of finished product in 1995. The facility is the largest domestic producer of garnet and Idaho’s largest placer mine. During the year the company retrofitted the mills to improve quality and working conditions. The firm of DDH Geomangement Ltd. was retained to conduct an independent review of garnet reserves at Fernwood. The deposit is expected to have reserves that will last well into the next century.

Emerald Creek has implemented an intensive reclamation program during the last two years. They reestablished 1.5 miles of stream channel and, with the help of a consulting fisheries biologist, turned it into blue ribbon cutthroat trout habitat, winning praise from state and federal agencies. They reclaimed 150 acres (including over 30 acres of wetlands) by planting trees and other riparian vegetation. Permitting is underway to work new leases, including the West Fork of Emerald Creek. The parent company reorganized and is planning to expand to develop garnet deposits just purchased in India.
Minerals, Mining, and the Environment, 1995

The Forest Service's tourist garnet digging operation near Fernwood had an excellent year with 2,152 paying visitors, 1,587 guests, and 643 school kids. The industrious amateurs mined some 482 pounds of the red mineral during the year.

Diatomite

Grefco, Inc., did not do any new work at the Deep Creek diatomite deposit in Owyhee County. The company is waiting on a decision about the expansion of the bombing range for Mountain Home Air Force Base, which could impact this area.

Clay

Mutual Materials mines clay in north Idaho and fires it in Rockland, WA. The company, and owner George Beamer, received a State Land Board reclamation award.

The BenJel bentonite deposit, formerly owned by AIMCOR, is now owned and operated by Unimin Corporation. Rumor was that the Owyhee County clay mine has had problems with contamination derived from mining across strike rather than along strike. Impurities mixed with the clay prevent its use in the paper industry. Unimin stated that they are always trying to improve their product and operated normally in 1995.

Scoria

Mountain West Bark Company (subsidiary of Hecla Mining Company) produces three varieties of pumice and scoria from pits near Rexburg and Fairfield. Total production in 1995 was similar to last year and divided into approximately 41,000 cubic yards of red rock, 10,000 cubic yards of gold rock, and 9,000 cubic yards of black rock. Up to 75 persons are employed locally in the operations, which include mining and crushing. The pumice, which weighs about a third as much as river rock, is popular for landscaping, and clearly red is the most popular color. The gold rock is from the sites on either side of Highway 20 at Fairfield, where reclamation of the old pit is scheduled for next year.

Sand and Gravel

In midyear, questions over plans to expand a sand and gravel pit on the Rathdrum Prairie near Boekel Road surfaced again. Interstate Concrete and Asphalt wants to mine sand and gravel for the next 75 years from the 230-acre site in Kootenai County. The plan is opposed by nearby residents who don't want the noise and dust in their back yards. A draft of an agreement hammered out between company lawyers and Kootenai County Commissioners was circulated in May and received instant criticism as a rehash of a previous proposal. After a public hearing, the commissioners accepted the mining plan in June. About 30 angry residents staged a protest outside the county courthouse later in the month. This story is symptomatic of the serious problem faced by many local planning and zoning regulators as population growth and environmental concerns clash with a growing need for local aggregate resources.

A and T Mining, who has worked gold placer deposits on the Salmon River near Lucille, mined only sand and gravel from the placers this year.

Phoenix of Idaho produced a very large amount of sand and gravel from a pit between INEL and Arco.
Stone

Northern Stone had a fairly good year, extracting over 6,000 tons of Oakley stone from their quarry south of Oakley in Cassia County. Most of the mining is done during the summer months, when the company employs 30 people. Market conditions were very good, as the grey, tan, and white micaceous quartzite is prized for facing stone across the country. However, like other mineral commodities, Idaho stone must increasingly compete with imported products.

Oakley Valley Stone also operated a quarry south of Oakley. Production was about the same as last year.

Rocktile Specialty Products, Inc., has operated a cutting facility in Boise for 15 years, producing stone tiles in a variety of colors and sizes. Oakley stone, from both Idaho and Utah, constitutes much of their raw material. They had a good year, with exports accounting for 30 percent of sales. Rocktile signed an agreement with Rieber and Son, A.S., a Norwegian quarrying company, to produce cut stone tiles for export. The new relationship will enable Rocktile to expand their worldwide market and the Norwegians to send material to Rocktile for U.S. distribution.

Three Rivers Stone increased production of decorative quartzite from their quarry near Clayton. In 1994 the company shipped less than 2,000 tons of stone, but in 1995 production jumped to 3,183 tons. A new bulldozer and forklift were added to the equipment in the quarry. The company is planning on increasing their crew next year and possibly adding a rock tumbler as well to meet demand. The company's stone was installed on several large houses in the Ketchum area, including Bruce Willis's residence, and was also used in Kirk Douglas's home in California.

Table Rock Sandstone, part of Cloverdale Nursery in Boise, had a quiet year with no large commercial jobs for the historic silicified sandstone mined from Table Rock quarry near Boise. The company stockpiled material from last winter and that satisfied the demand for landscaping and residential home use. However, the company plans to do some drilling and blasting to quarry additional stone in 1996.

A placer operation on the Salmon River north of Lucille extracts decorative rock instead of gold. Ron Mahurin has been pulling out river rock from the bend in the river near Slate Creek for 21 years. He persuaded the state to "grandfather in" existing operators.

Bert Wilfong mined an intriguing deposit of iron-stained sandstone for decorative rock at the old Recompense Mine north of Ola in southwestern Idaho. The mineralized rock is rumored to contain precious metals values.

Decorative and landscaping rock sales continued to rise, fueled by a hot real estate market in the Boise area and elsewhere. Desert sandstone and rhyolite were popular with flat and blocky pieces covered with lichens most prized. Sales from BLM sources have risen 400 percent in 4 years. As desert sources near Boise become depleted, people are turning to the mountains, and the Boise National Forest also reports an increase in the number of people looking for common building stone.
Gemstones

The Willow Creek Jasper mine continued to operate north of Eagle in southwestern Idaho.

Private production of opal continued at two mines near Spencer in eastern Idaho. The tourist diggings at Spencer Opal were discontinued this year.

Zeolites

Teague Minerals had on-and-off activity at their zeolite pits with demand off slightly from last year. About 6,000 tons of the material was trucked to the firm's plant at Adrian, Oregon for processing. Some of the zeolite was mined in Idaho (clinoptilolite) and some from Teague's other quarries in Oregon. Zeolites are used in cation exchange processes (including radioactive cleanup), in exported cattle feed to remove toxins, for waste-water cleanup, and a variety of other specialty needs.

Exploration (Figure 21)

Coeur d'Alene District and North Idaho

Hecla Mining Company continued the Gold Hunter project near Mullan in Shoshone County. A 4,000-foot-long drift to the Gold Hunter vein system from the 5100 level of the Lucky Friday mine is underway and was half finished in November (Figure 22). Hecla will make the decision on whether to mine the deposit by year's end. If mined, the Friday's production will rise to a historic level of about 4 million ounces of silver per year.

The first drill hole (No. 31-1721) from a new drill station in the 3100 exploration drift at the Sunshine mine intersected 7.2 feet of 67 ounces a ton silver and 25.6 percent lead on the 2900 level in the West Chance area (Figure 23). The West Chance was discovered by Sunshine Mining Company using an innovative interpretation of the structural geology of the mine. Another hole (No. 42-1682) from the 4200 drift intercepted 4.2 feet of 174 ounces a ton silver. This confirms the extension of the West Chance structure from the 4600 to 2900 levels. The company planned a surface diamond drilling program to explore this and other structures at higher elevations. By November, a 600,000 ounce reserve had been blocked out on the 4400 level. A drill on the 3700 level had been extended some 800 feet west from the No. 12 shaft. A 236-foot-long east-west tunnel at the end of this drift was in ore all the way, averaging 65 ounces a ton in the west end and 25 ounces a ton in the east end. A drift to the West Chance from the 2700 level was 3,000 feet short of its target in November.

Cominco American was back in the Pine Creek area and reportedly will drill a deep target on newly acquired claims. Cominco was active in the Pine Creek area from 1980-1985.

Outside of the Coeur d'Alene district there was some activity on the NezPerce National Forest. Idaho Gold Corporation is maintaining ownership of claims on the Buffalo Gulch gold mine near Elk City. The deposit was never developed, due to changing metal prices and corporate priorities. Idaho Gold's cyanide permit has expired, but Joe Swisher (Idaho Consolidated Metals) was interested in the dormant property. Idaho Gold dropped their claims on the Ericson Reef property, which reverted to Joe Gray, the original owner, and his company, Double Dragon Exploration, Inc. Gray inquired about a permit to do bulk sampling and a pilot test, but never followed it up. Swisher, holder of a number of gold properties in
Figure 20. Hess Pumice's plant expansion at Malad, ID.

Figure 21. Exploration projects in Idaho, 1995.
Figure 22. A section showing exploration at the Gold Hunter and Lucky Friday mines.

Figure 23. The West Chance exploration-development project at the Sunshine mine.
the Elk City-Orogrande area, is rumored to be interested in processing material from the Buffalo Gulch and Ericson Reef properties through his "bromide process" mill at Cottonwood.

H & M Mining dug a 100-foot backhoe trench on their property near the Red River Ranger Station. It was one of the larger projects on the NezPerce National Forest this year.

**Salmon Area**

*American Gold Resources* (AGR) continued exploring and permitting the Humbug project north of North Fork. Most of the deposit is on 495 acres of private ground along Ditch Creek, which flows into Hughes Creek. Piles of old dredge tailings line much of lower Hughes Creek. The project is in the feasibility stage including exploration and delineation drilling and environmental baseline studies. The company drilled 101 reverse circulation holes and 3 metallurgical core holes, for a total of 298 holes completed since 1993. Some condemnation holes and groundwater monitoring holes are included in that total. A "cone minable reserve" of 600,000 ounces contained in 16.5 million tons of ore at an average grade of 0.037 ounces per ton is indicated within a geologic resource of better than a million ounces. While the bulk of the ore is sulfide, the mineralization is indicative of a low-sulfur system. This helps make the ore amenable to cyanide leaching, so that, with fine grinding, projected gold recovery will be 80 percent. The proposed design includes a 70-acre pit, two waste rock piles, and a heap leach pad located on the flat terrace between the two creeks. As the present course of Ditch Creek would run through the middle of the pit, it will be diverted over to Little Ditch Creek. Ore is hosted in sheared phyllites of the Apple Creek Formation and localized beneath altered quartz diorite sills. Trace copper and molybdenum mineralization are associated with the gold.

AGR drilled five more reverse circulation holes at the Haidee mine property on Arnett Creek for a total of 220 holes on the advanced project. Additional grass roots reconnaissance exploration was done in east-central Idaho as well.

*FMC Gold* did exploration drilling at the Beartrack mine, looking for mineralization between the North and South deposits. The 30 holes were located on the north end of the south pit, testing oxide mineralization along the Panther Creek Fault. (See details in the active mine section.)

*Newmont Exploration* had a very active mapping and sampling program at the Musgrove property. They did not drill, but did extend their permit with the Forest Service and were reviewing their options at year's end. Newmont was very pleased to win the 1995 Idaho Land Board Award for Reclamation of an Exploration Project for their work at Musgrove. The company continued reconnaissance work in Idaho and Montana, as well as in Oregon, where they have the Grassy Mountain property, which was purchased from Atlas a few years ago.

*Formation Capital* continued work on the copper-cobalt occurrences at their Blackpine project, as well as starting a very aggressive program at the Sunshine project near the Blackbird copper-cobalt mine. Cobalt prices were a robust $31 per pound in November, when the Toronto Stock Exchange welcomed Formation Capital Corporation as a newly listed company on Canada's premier exchange.
Definition drilling continued at Blackpine from April into September, resulting in approximately 214 holes drilled to date. Emphasis switched from the open-pit, copper-cobalt oxide resource to higher grade cobalt-gold targets. Core holes were aimed to delineate the geometry and grade of newly identified feeder vent systems. One such area in the Regina zone returned assays of more than 1 percent cobalt over 9 feet. The East and West Trench zones and Swift zone feeders were also drilled. Only two holes were drilled in the Troll Zone due to environmental appeals which delayed road building. The zone has a 140-foot-long surface gossan. Primary mineralization at Blackpine is predominantly cobaltian arsenopyrite and chalcopyrite.

On September 1, Formation shifted activity westward to the Blackbird District, which hosts the nation’s largest cobalt reserve. The Blackbird mine is the center of the old district. Formation picked up a large land position last year after Noranda dropped claims surrounding its patented property. An extensive mapping and soil sampling program, plus compilation of the voluminous records from previous company and government work, occupied the first half of the year. Even while dodging the heavy truck traffic of the Blackbird mine cleanup operation, Formation Capital had 3 core rigs still turning in mid-November on 4 target areas (the Old Northfield mine area, and the Sunshine, East Sunshine, and Cougar zones). The Cougar zone, a new discovery, showed more than 1 percent cobalt and 0.5 ounce-a-ton gold in prospect pits. Four holes were drilled there, but roadbuilding is needed for additional work. Fourteen new holes were drilled on the Northfield zone, where 17 holes were drilled in the 1950s. Mineralization was encountered in some of the new drilling, but the area is structurally very complex. Five holes were completed at the East Sunshine.

Two thirds of Formation’s 67-hole (total 32,725 feet) drill contract for the year explored the Sunshine zone, which lies west of the main Blackbird workings. Formation had drilled 26 holes by mid-November on a series of fences across the zone. By year’s end the company had completed 51 holes for 19,678 feet, with a reserve of 400,000 tons averaging 1.1 percent cobalt, 0.26 percent copper, and 0.025 ounce-a-ton gold. Formation was drilling additional holes in an attempt to work out the complex structural geology and increase reserves. Cobalt mineralization is dominantly cobaltite along discrete exhalite layers within the metamorphosed, Precambrian sandy shales of the Yellowjacket Formation. The Sunshine Lode zone is open to the north and at depth. The company staked an additional 100 claims covering extensions of known mineralization and 10 new areas defined by soil sampling.

Formation has already permitted more drilling on the Sunshine project, and the work is scheduled for early next year. The company acquired an additional cobalt property, the Bonanza Copper and Tinker’s Pride (2.5 million ton reserve of 0.5 percent cobalt) located 3 miles north of Blackbird, and was submitting a separate Plan of Operations on it.

Formation attempted two shallow drill holes at the Bowman property, just west of the town of Salmon, but drilling problems forced the company to give up without testing the bedrock.

*Cominco American* drilled six reverse circulation holes on private ground immediately upstream from the active Kirtley Creek placer mine. The target is similar to Leesburg, where the lode gold source, now mined at FMC’s Beartrack operation, is a short distance above the old dredge and placer workings. Unfortunately, at Kirtley Creek, the Cominco holes
(averaging about 500 feet in depth) penetrated a very thick sequence of alluvium and Tertiary cover material and never intersected bedrock.

Cominco also continued its mapping and reconnaissance work in the region. The company picked up three properties, including reacquisition of the Iron Creek cobalt occurrence, which was leased from Siskon.

Battle Mountain Gold drilled two gold prospects it holds with joint venture partner Formation Capital Corporation. In October, Battle Mountain put down four reverse circulation holes at the King Solomon mine and four more at the Gilt Edge property, both gold prospects. The holes were 400-500 feet deep. Geologists also mapped and sampled both areas in detail. Previous work by Teck and Pathfinder included 17 holes on the King Solomon, but this was the first time any holes were drilled at the Gilt Edge property. Results are being evaluated. It took six months to permit the modest drill program due to environmental concerns about fish habitat.

BHP Minerals dropped its interest in the Bobcat property and did no new work this year. Results from last year’s three-hole program in the porphyry system were discouraging. The company continued an active reconnaissance program in central and northern Idaho.

Late in the year, Falcon Ventures International started work on a joint venture property with Formation Capital Corporation at the Queen of the Hills mine, off the Stormy Peak Road. Falcon plans to start a 5,000-foot reverse circulation drilling program in December to test high-grade gold-vein targets. Permits were received late in November. Much information was already available from the underground workings, which have recorded 75,000 ounces of gold production. Falcon, a Vancouver-based company, actually entered into the joint venture agreement two years ago, but had deferred work due to other priorities.

Walt Walton and his partner moved and milled approximately 50 cubic yards of material at the St. Claire mine on the Owl claims. They also built a magnetic separator to install in the mill, which contains a small ball mill for grinding the high-grade gold ore. They barely got the mill running before shutting down for the winter.

Pell Resources Inc., a Las Vegas company, said they would file a Notice of Intent to explore at Leadore. They may be the first company to include a toll-free number on their claim notices, presumably to assist any potential investors.

West-Central Idaho

USMX, Inc. continued a very active program at the remote Dewey mine in the Thunder Mountain District of Valley County (Figure 24). The patented property is leased from Thunder Mountain Gold. Work this year got a late start due to heavy snow and delays in obtaining road use permits along streams controlled by National Marine Fisheries Service in the Boise and Payette National Forests. A minable reserve of 5.2 million tons grading 0.046 ounce a ton gold at a stripping ratio of less than 1.0 has been calculated for the deposit. The modest 1995 program included 4,000 feet of core drilling, (half for exploration and half for geotechnical work) and monitoring wells. Environmental baseline work began to define wetlands, fish habitat, and water quality. Exploration work included new detailed surface mapping and soil and rock chip sampling. Two new target areas were identified on patented ground in the district. Total drilling on the Dewey property by 5 previous owners and USMX
amounts to 62,000 feet in 256 holes (USMX has done about half). The company may file a
Notice of Intent to Mine next year and will probably go with a heap leach plant on the old
reclaimed pads used several years ago by Coeur d'Alene Mines Corporation.

Jack Walker of American Industries received a state cyanide permit for a test run of a vat
leach plant to process ore from his underground Fourth of July mine at Big Creek. The mill
uses jigs and spirals to concentrate the gold by gravity, but he uses cyanide on the slimes to
extract any fine gold. He continued stipping out ore in the mine and working on the mill.
Work was hampered by forest fires last year and by labor difficulties this year.

Other activity near Big Creek included the Velvet Quartz mine run by the Tuckers and
possibly some work at the Golden Hand mine on Beaver Creek.

Placer Dome picked up land and submitted a Plan of Operations for a 22-hole drill
program next year in the Grouse Creek-Seeshee River area north of McCall. They may call it
the Golden Rule property.

Golconda Resources had a May drilling program for diamonds near New Meadows. Drill
cuttings from last year's work contained pyrope garnet, an indicator mineral for the white
gemstones. Golconda drilled 9 reverse circulation holes to test favorable rocks (mafic tuffs)
identified earlier. The deepest hole went 530 feet. The holes showed that the tuff thickened
and thinned erratically, and a feeder vent for the tuffs was not found. Since last year's option
deal with BHP (a major player in worldwide diamond exploration) fell through, Golconda is
regrouping. One problem is the lack of laboratories (there are only two) that do the
specialized mineralogic work needed for diamond exploration, and it takes 6 to 8 months to
get lab results. The company considers this an ongoing effort and expects to return next year.

Alta Gold continued reclamation at the open pit Copper Cliff mine at Cuprum. They
installed drainage controls and a spillway on the tailings impoundment and reclaimed roads at
the former copper producer.

East-Central Idaho

Hecla had an ambitious drilling program on Estes Mountain (Figure 25) across from their
Grouse Creek mine. Up to four rigs were turning in a search for high-grade gold veins.

The closure and salvage of the Preachers Cove Mill by U.S. Antimony Corporation may
impact other small mines in the area. For example, the Lost Packer mine on Loon Creek has
used the facility and may have to shut down without a local custom mill.

Duke Resources drilled 12 reverse circulation holes in Montana Gulch across Jordan Creek
from Hecla's Grouse Creek mine. The company, owned by Apollo 16 astronaut Charlie
Duke, dabbles in gold mining. The holes, up to 1,000 feet deep, were testing for
mineralization in the volcanics. Results are being evaluated.

South-Central Idaho

After drilling at 27 different places, Curator American focused on a spot at 9,200 feet
elevation near Bear Peak in the Bear Creek drainage of the North Fork of the Big Lost River
in Custer County. The company has 225 claims covering about 4,500 acres in the area. They
drilled 6 core holes, totaling 3,086 feet and intersected some exhalite with zinc mineralization.
Figure 24. Map of USMX's proposed Dewey mine in Valley County, ID.

Figure 25. Hecla's drill rig working on Estes Mountain, Custer County, ID.
Curator has applied for permits for three drill sites on nearby claims in the Trail Creek drainage. The company hosted a field trip for about 25 people in September. The claims are only 15 miles from Sun Valley and are located in a pristine area. Curator and predecessors have spent about $1.5 million exploring the area since 1982 and have reclaimed 23 drill sites and associated roads. This year, the company reclaimed more roads than they built.

Biomyne, Inc., did extensive reconnaissance exploration in the Ketchum/Warm Springs area. They also mapped, sampled, and permitted a drill target for next year in the Rooks Creek drainage, just over the ridge from the West Fork site drilled the last few years. The work next year will include constructing 1.9 miles of temporary road and drilling at least six zones with perhaps multiple holes per zone. An environmental analysis of the proposal will be done by the firm of Montgomery Watson. Biomyne is a private limited partnership operated by Aurtex, a public company. The program has proven controversial in the environmentally sensitive Sun Valley-Ketchum area.

Aurtex, Inc., obtained a lease and option to purchase on private ground in the Vienna District late last year. They started with a surface evaluation of the old silver mines for their gold potential. Sixteen good-sized excavator trenches were dug in mineralized areas of the old workings. The trenches were mapped and sampled and then reclaimed. Aurtex plans to do surface drilling and perhaps underground mapping next year. Patented claims in the Vienna District are said to be owned by Miami real estate interests under the name of the North American Financial Corp. (Nafo), which may be the same as the “Rothschild” group.

The ownership of the Rothschild’s mill in Bassett Gulech west of Ketchum changed hands. The new owners in Oklahoma then changed their minds and sold the plant to a real estate company in Ketchum. It is unclear where feed for the mill will come from, but a source could be dump material from old mines in the Ketchum-Hailey region. The mill originally was designed to process barite but was retrofitted for sulfide flotation in the 1980s.

Consolidated Ramrod Gold Corporation offered one common share of stock for five shares of Atlanta Gold (17.7 million shares outstanding) to gain 100 percent ownership of the Atlanta gold project in Elmore County. Ramrod currently has an option to earn a 51 percent interest in the project by spending $9.5 million by May 30, 1997. The company recently spent some $2.5 million drilling 50 surface and 24 underground holes, totaling 13,300 feet on the surface and 5,847 feet underground. There were 32 intercepts in 20 of the underground holes, with values between 0.1 and 1.0 ounce-a-ton gold over widths from 1 to 7 feet. Ramrod plans on drilling another 12,000 feet to prove up underground reserves. There is an underground resource estimated at 800,000 tons averaging 0.34 ounce of gold per ton. Existing and proven open pit reserves are 1.15 million ounces of gold and 3 million ounces of silver in two pit sites. One site contains 8.3 million tons averaging 0.087 ounce per ton gold and 0.240 ounce of silver, and the other has 6.2 million tons averaging 0.049 ounce of gold and 0.088 ounce of silver a ton. Permitting is underway and construction could start in mid-1997, contingent on financing. In October, the company announced plans to reorganize and change its name to Ramrod Gold, Ltd.

Mindoro Gold Corporation, a private Nevada corporation, drilled ten 200-foot-deep test holes on their Blackhawk claims in Lincoln County, west of U.S. Highway 93 and Mammoth Cave. Company geologists also mapped and sampled the area during the summer. Results are
pending. According to a company spokesman, gold mineralization is said to be hosted in unaltered-looking, magnetite-rich Miocene rhyolites, analogous to a newly discovered sulfur-poor, gold-copper system in Alberta, Canada. If genuine, this type of mineralization might have generated some of the fine placer gold of the Snake River.

Boise Basin

Republic Gold Inc., of Fresno, California, explored the Mineral Hill claims near Placerville by trenching and two shallow diamond drill holes. A subsidiary of Republic Geothermal, Republic was still evaluating results at year's end.

Cactus West was back for another year of drilling at their Century property near Placerville. They drilled 12 reverse circulation holes, totaling about 8,000 feet, in the vicinity of Alder Creek Summit. The area, which has been drilled for several years by Independence Mining and Cactus West, lies on the northeast projection of the trend of the Gold Hill veins mined at Quartzburg. The Gold Hill mine was the largest lode gold producer in the Boise Basin. Cactus West also picked up the Cumo property on Upper Grimes Creek. AMAX Exploration drilled out Cumo, a large, low grade molybdenum deposit, back in the 1970s. The AMAX reserve is approximately 440 million tons of 0.14 percent Mo, but the deposit is deep and was never mined.

Southeast Idaho

Echo Bay Mines continued core and reverse circulation drilling this fall at the Kilgore property in Clark County near Dubois. Company geologists finished the last 3 holes of 30,000 feet of RC and core at the end of November. The helicopter rig, a DM 65 built by Diversified Machineworks of Coeur d'Alene, worked very well, even in 1,200-foot holes, and has a minimal environmental impact. Placer Dome remains a partner in the venture. Echo Bay took over the project (originally rediscovered by Kennecott in the mid-1980s) in 1994 after four years of drill programs by Placer Dome and Pegasus. The company plans to return next year with additional helicopter-supported drilling.

Southwest Idaho

Ppaideco and owner Bob Corrigan continued exploration work at War Eagle Mountain near Silver City in Owyhee County. They are trying to reconnect the Sinker Tunnel to the lower workings of the Orofino vein system, hoping that the old-timers left some ore.

Ican Minerals, in a joint venture with a London financial company, Compass Capital, formed Almaden Gold, Inc., which continued work on the Idaho-Almaden mercury mine near Weiser. In December, International Freegold Mineral Development acquired the Compass Capital option. Freegold can earn a 60 percent interest in the gold mine by meeting financial obligations and completing a feasibility study by February 1997. The company may also acquire Ican's 40 percent interest for stock or by merger. The hot spring deposit hosts a geologic resource of 66 million tons grading 0.023 ounce of gold a ton in four zones. Most of the gold ore is below a mercury-rich cap that was mined in World War II. In the fall, the company blasted out a 30-ton bulk sample from patented claims. The material was taken to Hazen Research in Colorado for large diameter column tests to estimate gold recoveries on run-of-mine material.
ENIRONMENTAL NEWS

Mined Land Reclamation

Land Board Mining Awards

In November, Governor Philip E. Batt and members of the state Land Board recognized miners who have done an outstanding job of mining reclamation at an awards ceremony in Boise (Figure 26). Participating agencies included the Department of Lands, Department of Health and Welfare (Division of Environmental Quality), Department of Water Resources, Department of Fish and Game, U.S. Forest Service, and U.S. Bureau of Land Management.

The awards were given in eight categories as follows:

**Outstanding Exploration Reclamation**
- Newmont Musgrove Corporation

**Outstanding dredge-placer operation reclamation**
- James E. Riggan

**Special Project awards**
- Hecla Mining Company- Vat and Jordan creeks wetlands
- Phil Nisbet- Formation Capital- coordinating the McKim Creek cleanup
- Copeland Construction Company- Beartrack project
- Cub Scout Pack 620
- Joe Fraser
- Newmont Gold
- FMC Gold
- Battle Mountain Exploration
- BHP Minerals
- Cominco American Resources
- Ralston Adams
- Bert Jefferies, President, Grass Roots for Multiple Use
- American Gold Resources

**Outstanding Reclamation Contractor**
- J.R. Thornton Construction, Malta, ID

**Outstanding agency reclamationist**
- Donald "Pete" Peters- Salmon and Challis National Forests

**Outstanding company Environmental Coordinator**
- Dan Anderson- Hecla Mining Company
Excellence in annual operations (mines under 75 acres)
- Mutual Materials- clay pit near Worley

Excellence in reclamation- sand and gravel
- Idaho Department of Transportation, Division of Highways, Region 5- Dingle Pit near Bear Lake.

Bunker Hill Superfund site

The Environmental Protection Agency took over cleanup of the 21-square-mile Bunker Hill Superfund site (also known as "the box") in January. With EPA in charge and bankrupt Gulf USA, Inc. out of the picture, cleanup of the site began in earnest after 10 years of study and the expenditure of some $30 million. Previous work included replacing topsoil in about 700 residential yards tainted with lead and zinc (Figure 27), stabilizing soil erosion and stream runoff, and planting lots of trees. In January, a more visible activity began with the removal of 20 wooden buildings at the smelter. Demolition of the smelter and zinc plant is estimated to cost about $1 million a month until completed at the end of 1996. The work is under the direction of the Army Corps of Engineers, EPA's on-site representative.

The first buildings were removed by OHM Remediation Services Corp, the Army Corps' emergency response contractor based in Ohio. Local contractors were upset that none of the contracts were going to local firms. In April, EPA offered a series of seminars to help local businesses compete with outside contractors. A contract for $2.5 million was awarded to Morrison Knudsen Corporation of Boise for demolition of the zinc plant and smelter complex (Figure 28). And in August, a local contractor, DG&S Company (based in Kingston) won a contract ($541,716) to dredge gypsum from a storage pond at the fertilizer complex.

In March, the baghouse at the smelter came down. In this building, lead and other metals in smelter emissions were filtered before remaining gases were vented up the exhaust stacks. A fire in the baghouse in 1973 burned 2,800 of the 12,000 cloth bags. Gulf Resources kept the smelter operating with the result that the damaged structure dumped 30 tons of litharge (lead oxide) over the surrounding communities. Later, testing of blood lead levels in local children revealed alarmingly high values, and related lawsuits contributed to the demise of the giant Bunker Hill complex. By year's end most of the some 100 buildings at the smelter were gone (Figure 28). Metal junk and other scrap will be buried in a 30-acre landfill by the site. About 40 workers are working on razing the smelter.

Plans were announced for what should be a spectacular media event, the topping of the tall stacks at the smelter (715 feet high) and zinc plant (610 feet high) built in 1977. A number of local citizens began a campaign to save one of the stacks as a reminder or memorial to the Bunker Hill mining and smelter complex. Demolition of the chimneys is expected to cost about $400,000 and is scheduled for May 26th next year.

Also in March, the Union Pacific Railroad agreed to clean up the former railroad right-of-way along 7 miles of track in the Superfund site under a consent decree signed last year. Stauffer Management Company and Rhone Poulenc Inc., will pay EPA $850,000 towards
Figure 26. Land Board Mining Award recipients (McKim Creek cleanup): left to right- Bert Jeffries, Ron Thole, Dane Copeland, Phil Nisbet, Dale Finn, Kathy Turek.

Figure 27. Superfund remediation- replacing yards in Smelterville. .
demolition of the fertilizer plant and will fund capping and revegetating the gypsum pond near the plant. The companies will also give $425,000 to EPA, another $425,000 to the state, and provide $300,000 to help keep the cleaned areas stable. Under the agreement, the three companies will be released from any further liability.

The Panhandle Health District approved an “Institutional Controls Program” to insure that contaminated soil in the Superfund site is handled properly. Any future excavation larger than one cubic yard will require a permit from the health district. The controls are expected to save considerable money over the cost of removing all of the topsoil from the impacted area as well as protecting the community from exposure to heavy metal contamination.

The blood lead level testing program of children from 9-months- to 9-years-old was continued in the Silver Valley by the Panhandle Health district. The levels have reached a plateau since studies began in 1974. This year the average level was 7.2 micrograms of lead per deciliter of blood in Smelterville, up 1.2 micrograms from last year. Children in Kellogg and Page fared better, with 6.3 micrograms compared to 6.5 last year. In nearby Pinehurst, levels dropped from 5.4 micrograms to 4.6. A level below 10 micrograms per deciliter is considered safe.

With the bankruptcy of Gulf USA, Inc., last year, the state of Idaho became liable for 10% of the cleanup costs at the 21-square-mile Superfund site. This amounted to an estimated $20 million. The state was able to negotiate a deal with EPA that requires it to pay about $5.4 million as its share over the next three years, as well as about half a million annually for the following 7 years for maintenance and operations costs. This amounts to a 10-year total of $10.7 million. The federal government credited the state with $4.5 million already spent for cleanup along the South Fork of the Coeur d’Alene River near Elizabeth Park and on Ninemile Creek. The state’s share of the cleanup costs will be used to clean up old tailings near Interstate 90. Governor Batt signed the agreement in April and the first $2.26 million (and $300,000 for cleanup of the Coeur d’Alene Basin outside of Superfund) was approved by the legislature.

Clayton Silver Mine Remediation

The Clayton Silver mine (Figure 29) in Custer County drew the attention of the Environmental Protection Agency, which is worried that old mill tails will pollute Kinnikinic Creek and that slag from an old smelter could harm the main Salmon River. The town’s 26 residents scoffed at EPA’s concern. Chemical analysis of blood, hair, and urine samples confirmed their suspicions, as the test results were normal. Based on the test results, the site will not be listed under Superfund, but some tails will be moved back from the waterway and the remainder riprapped to prevent erosion into the creek.

Princess Blue Ribbon Mine Remediation

An emergency cleanup of chemicals from the lab building at the Princess Blue Ribbon mine in Camas County was finished in September by the U.S. Bureau of Land Management. The BLM was directed to do the work by the Idaho Attorney General’s Office at the request of the Idaho Department of Health and Welfare (Division of Environmental Quality). A Boise contractor, S.I. McStay Co., placed the chemicals in barrels that were then removed to a
Figure 28. Superfund remediation- the Bunker Hill smelter or what is left of it.

Figure 29. Waste and mill tailings dumps at the Clayton Silver mine, Custer County.
detoxification facility. The mine site was abandoned by Precious Metals Technology in 1991 after a tailings impoundment dam broke causing a flood of mud and water down Beaver Creek. The company posted a $9,000 bond but that will not go far in paying for the site cleanup, which is estimated at $60,000 and could go as high as $500,000 for a complete site restoration.

Blackbird Mine Remediation

In May, Noranda Mining, Inc., Machinery Center, Inc., M.A. Hanna Company, Alumet Corporation (the Blackbird Mine Site Group), and Union Carbide (which will contribute $250,000) agreed with the state and the Environmental Protection Agency on a cleanup plan for the Blackbird mine in Lemhi county. The reclamation could cost $24-$53 million and involves stabilizing or reclaiming 4.8 million tons of waste rock, 2 million tons of tailings and an 11.5-acre open pit. Also included, will be cleaning up mine wastes, treating contaminated water (and monitoring water quality until 2038), improving fish habitat, helping reintroduce chinook salmon, and reimbursing government agencies for damage assessment costs plus past and future response costs.

The state sued Noranda for the cleanup in 1983, even though the company did not contribute to the degradation. Salmon runs in Panther Creek are believed to have been wiped out by acid mine drainage from the mine. Noranda invested some $30 million in Blackbird and, due to a downturn in cobalt prices, never opened the mine. The company has since invested about $10 million in a water treatment plant (built in 1981) and in remediating an unsafe tailings impoundment. During the Korean War, some 11.5 million pounds of cobalt from the mine were sold to the U.S. government to make aircraft engines and the U.S. Bureau of Mines did considerable exploration at the site. Noranda attorneys used these arguments to show that the government should participate in the cleanup. U.S. District Judge Manuel Real ruled that the government was exempt because the Bureau’s excavations took place during wartime.

Construction of a mobile home park to house cleanup workers was underway in midyear just south of the old Cobalt townsite. Remediation of contaminated surface and groundwater in the Bucktail, Meadow, and Blackbird creek basins began in August. Waste rock from the West End dump in the Bucktail Creek drainage will be moved to the Blacktail pit. Clean water ditches and sediment dams will be constructed to control erosion during mitigation. A dam will be built in the Meadow Creek basin to store contaminated water for eventual cleaning in the water treatment plant. The underground workings will be modified to divert and transport acid water to the treatment plant. Concurrent with the actual work, a study is underway to fully assess the contamination and to derive a plan and evaluate alternatives for the rest of the mine site.

Preachers Cove Mill Remediation

Problems continued at the closed Preachers Cove mill owned by U.S. Antimony Corporation (USAC). In May, 20,000 gallons of cyanide solution leaked from leach pond #2, one of three ponds at the mill site. The pond is located some 450 feet from the Yankee Fork of the Salmon River, and water quality and spawning habitat for chinook salmon are a concern in the area. However, monitoring wells near the pond did not show any traces of
cyanide and the content of the spilled water was 21.5 parts per million, which is considered safe for water fowl. The ponds at Preachers Cove have been neutralized to drinking water standards, and half the water has been discharged. Careful examination of the holes in the hypalon pond liner revealed that the pond may have been sabotaged, and John Lawrence, owner of the property, offered a $10,000 reward for information about the vandalism. The mill has not operated for two years, and USAC is salvaging the facility (Figure 30) along with other reclamation measures. The mill equipment will be shipped to an antimony mine in Mexico.

**Triumph Mine Remediation**

A Remedial Investigation Feasibility Study was underway to assess the environmental damage at the Triumph mine on the East Fork of the Wood River. Part of a large tailings dump at Triumph is on state land, making Idaho a Principal Responsible Party (PRP) for the cleanup along with Asarco, Inc., and other mining companies. The state DEQ and the Idaho Department of Lands made a deal last year with EPA to let the state take over the cleanup effort and avoid listing the area as a Superfund site. The results from an initial evaluation of the problem by EG&G have been questioned, as the contractor may have improperly installed its monitoring wells. This year the state ran two sampling programs, each lasting a week. One was during the spring high runoff event and the second was at low water in the fall. Workers sampled soils, surface water, and groundwater, with the objective of mapping the extent of contamination and filling in data gaps. Kennedy-Jenks, the state's contractor, took core and other samples that will be used to determine the magnitude of the pollution problem and design an effective remediation strategy.

Surface and groundwater samples did not show any significant contamination, but a perched aquifer within the old mill tails was contaminated. The tails appear to have been dumped directly on the ground and a natural clay layer under the tails may be protecting the groundwater. Deep and shallow monitoring wells will be sampled quarterly. There will be little further action until next spring when DEQ has the results from the sampling study and a report on possible remediation alternatives.

The next step will be a risk assessment to determine if there is a human health problem and, if so, what to do about it. Triumph is the first place where the Environmental Protection Agency has deferred administration of such a site to the state, and as such, it is a learning experience for everyone. Actual remediation will not start until 1997.

The site has generated a lot of press since EPA threatened to add the mine to the National Priorities List for Superfund in 1991. About 50 people live at Triumph, and they have been very vocal about both federal and state plans for the cleanup. Now that remediation is underway, local residents, once adamant about wanting to be left alone, have changed their stance to "clean it up and get out," recognizing that only a full cleanup will remove the stigma to the community and resurrect their property values. One of the resident spokespersons, Donna Rose, testified before the Commerce, Transportation, and Hazardous Materials subcommittee of the U.S. Congress in March. Congressman Mike Crapo noted that Rose's testimony was so moving that the room was completely silent.
Champagne Mine Reclamation

Thanks to a letter from Steve and Joyce Tibbitts (Moore, Idaho) to the Arco Advertiser, we know that reclamation is almost complete at the Champagne Mine located west of Arco. Western Construction from Boise has the contract. The leach pads at the former heap leach gold mine are neutralized, and final topsoil replacement and reseeding is underway. The Tibbittses noted that Idaho Gold Corporation (a subsidiary of Bema Corporation), operator of the heap leach mine from 1989 to 1993, was a good neighbor and that the community benefited greatly from the mining venture.

"Recreational Bulldozing" Rewarded

Justice was served when William Villars from Fruitland pleaded guilty to charges of malicious destruction of government property or, as somebody said, "recreational bulldozing." The charges were brought after Villars carved some 71 trenches and moved about 11,000 cubic yards of dirt on his illegal mining claims on McKim Creek in the Salmon National Forest about halfway between Challis and Salmon. The damage caused real concern about massive erosion in the steep country. Although he filed a claim notice with the county, Villars did not file with the Bureau of Land Management or obtain required permits from the U.S. Forest Service or state Department of Lands. He apparently believed that the federal government has no legal right to control his actions on federal land and created the disturbance to prove his point. The bulldozed mess was finally cleaned up when Phil Nisbet of Formation Capital approached other mining companies active in the Salmon area about the problem. His colleagues chipped in $10,000 for the cleanup and, on their behalf, Phil received an award in November from the Governor and state Land Board for the reclamation work.

Inactive and Abandoned Mine Lands

As Idaho's population increases, the danger from inactive and abandoned mine lands (IAMs) increases (Figure 31). This was unfortunately demonstrated when two young men died in a pocket of bad air (carbon monoxide) in the Vulcan mine at Lakeview, located across Lake Pend Oreille from Bayview. In June, Stephen Novak and Chris Hornstad were exploring the old silver and limestone mine (last worked in the 1920s) when the tragedy occurred. Further deaths were narrowly averted when four boys, who entered the mine to look for the lost explorers, left after one of them became ill and collapsed. Later, the mine rescue team from the Sunshine mine entered the old workings to remove the bodies. This was the first accidental death in an old mine in the state in many years. The U.S. Forest Service sealed the entrance to the Vulcan mine in September.

As Idaho's permanent population increases and more tourists explore our state, the danger from old mine workings becomes significant, especially near rapidly growing areas like the Sun Valley-Bellevue corridor in Blaine County. The Idaho Geological Survey completed a preliminary inventory of some 300 IAMs on USFS Region 4 forests (south of the Salmon River). Together with some 60 detailed mine histories, the inventory made a stack of paper about four feet high. The inventory included an on-site inspection for physical hazards (such as open mine openings or dangerous structures) and hazardous materials (including acid mine water, chemicals, contaminated dumps and mill tailings). The inspected mines included all
Figure 30. Tearing down the Preachers Cove mill (USAC), Yankee Fork of the Salmon River.

Figure 31. Abandoned mines can be dangerous! An unfortunate deer at the Goldstone mine. (photo by Falma Moye, IGS).
properties with over 1,000 tons of recorded production and several mines that closed before 1902 when systematic production records were first tabulated. The IAM issue is complicated as bats have taken up residence in some mine workings and several species of the animal are on the endangered species list. An inventory of bat habitat is underway by BLM and USFS biologists on federal lands in the state.

**Cyanide Rules and Regulations**

Conservation groups including Idaho Rivers United, the Idaho Conservation League, Connecting Point for Public Lands in Picoabo, ID, and Concerned Citizens for Responsible Mining in Ontario, OR, appealed the decision by the Department of Health and Welfare, Division of Environmental Quality (DEQ), to grant a cyanide permit to Dakota Mining and consider another one for the Walker Mining Company. The groups claimed that DEQ had violated its own procedures and standards. An independent hearing officer will evaluate the appeals and make recommendations to the Idaho Health and Welfare Board, which will make the final decisions.

**Phosphate Slag Risk**

Monsanto joined with FMC, the Environmental Protection Agency, and citizen groups to draft a plan for a monitoring program to deal with the uranium-bearing phosphate slag issue. They tentatively have agreed that the only real danger is in closed basements. It may take another year before the plan is finalized.

A three-year study sponsored by EPA found that there is no significant increased risk from cancer to those living near or working in the FMC and Simplot plants in Pocatello. However, general health risk is two to three times higher than the acceptable limit, according to EPA, and steps should be considered to reduce this risk.

**National Forest Shutdown**

 Garnering considerable press early in 1995 was the shutdown by a federal judge of all mining, grazing, logging, and road building activities in six national forests. Judge David Ezra in Hawaii signed the injunction on January 12 that ordered the halt of these activities on the Challis, Salmon, Sawtooth, NezPerce, Payette, and Boise National Forests. The complaint was filed last year by the Sierra Club Legal Defense Fund and the Wilderness Society. Originally assigned to Judge Harold Ryan, the case was reassigned to Judge Ezra. The suit claimed that all activities should cease because the U.S. Forest Service had not completed consultations with the National Marine Fisheries Service (NMFS) about their long term management plans and the effect of these plans on endangered salmon runs. Applauded by the environmental community, the effect on local towns in the impacted areas was swift and predictable. Idaho’s entire congressional delegation rose to the occasion (Senator Kempthorne and Congressman Crapo visited Challis), and Judge Ezra temporarily stayed his order until January 28, and later until mid-March, to allow appeals by industry and to give the USFS and NMFS time to complete consultations. About 600 people showed up for a rally in Challis protesting the decision, and the Governor began to discuss emergency plans in case violence erupted. The mining community was affected by the potential shutdown of Grouse Creek (185 workers), Thompson Creek (179 employees), and development at the Beartrack gold mine (369 people). Fortunately, violence was avoided, and the USFS and NMFS said
they would complete negotiations by the end of the month. In early March, NMFS issued a Biological Opinion setting up guidelines for protecting salmon habitat that satisfied the court and the injunction was permanently stayed. Beartrack received a non-judicial decision from NMFS in March, and both Thompson Creek and Grouse Creek continued with full operations. The USFS and NMFS completed a study of 146 projects and activities (including firewood cutting, road maintenance, noxious weed control, etc.) in 11 watersheds in the Salmon and Challis National Forests in May, with NFMS concurring that most of these projects would have little adverse impact on salmon. The incident reinforced calls for changes to the Endangered Species Act under consideration by Congress.

**Coeur d'Alene River Basin Restoration**

Work continued on the Natural Resource Damage Assessment of the Coeur d'Alene Basin. The study is being done by the Coeur d'Alene Basin Interagency Group, which is headed by the U.S. Fish and Wildlife Service and involves other Interior agencies, the U.S. Forest Service, and the Coeur d'Alene Tribe. The purpose of the study is to determine the extent of environmental damage in the basin due to mining and other practices. The work began in 1993 and will be completed at year's end with the culmination of over 30 separate studies.

The Coeur d'Alene tribe sued mining companies a few years ago for a basin-wide cleanup. In July, officials of the U.S. Fish and Wildlife Service and the U.S. Forest Service informed the mining companies that the federal government had gathered sufficient evidence to sue them for cleanup of the basin. The government filed the complaint because the companies had not participated in the Natural Resource Damage Assessment, as requested in 1991. Receiving the long-awaited notices were Hecla Mining Company, Sunshine Mining Company, Coeur d'Alene Mines Corporation, Asarco, Inc., and the Union Pacific Railroad.

In another activity, the Coeur d'Alene Basin Restoration project underway by the Coeur d'Alene tribe, Idaho DEQ and the EPA issued guidelines for basin cleanup. The guidelines addressed questions such as, "How clean is clean?" A suggestion was that areas where people live or spend long periods of time should be cleaned to federal standards comparable to the Bunker Hill Superfund site. Soils should be safe enough that wildlife will not die at a faster rate than elsewhere and food grown in the basin should not pose a health risk.

Last year, Senator Larry Craig offered to try and help the basin cleanup with federal legislation. The Coeur d'Alene Tribe gave him an estimated price tag of $1 billion for the remediation. Criticized for the unrealistic number, the tribe scaled back its estimate in June to $515 million. The mining industry had proposed a $121 million program, which was considered by the Coeur d'Alene Basin Restoration Committee in July. After meeting, the committee urged the tribe and the federal agencies not to sue the mining companies because it would hinder work already underway in the basin that was being funded by the mining industry.

In December, Senator Craig released a draft of the "Coeur d'Alene Basin Environmental Restoration Act of 1995." The bill establishes a "Coeur d'Alene Basin Commission" that will oversee a federal grant for the cleanup. The draft did not specify a dollar amount. Other features of the bill include a 10% cap on administrative costs, release from liability of
landowners in the area who did not contribute to the problem, and leaving the decision as to when the mining companies have met their obligations with the Governor.

Work was completed on cleaning up mining waste from around the Cataldo Mission. The Coeur d'Alene Tribe paid for the work ($140,000) with funds from a $350,000 settlement with Coeur d'Alene Mines Corporation and Callahan Mining Company in 1992. The work included removing 1,000 tons of contaminated soil and replacing it with clean dirt and doing remediation at the nearby Cataldo boat launch. The tribe celebrates the Feast of the Assumption in August on the mission grounds and has been concerned about health hazards from mining wastes.

The Idaho Department of Health and Welfare’s Division of Health was awarded a $130,000 grant from the Agency for Toxic Substances and Disease Registry to study lead and cadmium contamination in the Coeur d'Alene Basin outside of the 21-square-mile Superfund area. The new study will include both children and adults and will look at exposure from a variety of sources, including fish, soil and dust.

The Silver Valley Natural Resource Trust Fund is the keeper of a $5.8 million settlement with mining companies resulting from an agreement with the state in 1986 (Figure 32). This year, the Trust completed cleanup and stabilization projects in Ninemile Creek ($650,000) and at Elizbeth park ($400,000), both begun in 1994. Under the umbrella of the Coeur d’Alene Basin Restoration project, work commenced in July on a new three-year effort to clean up or remove metal-laden mill tails at the mouth of Canyon Creek near Woodland Park. The main purpose of the project is to get the tainted tails away from the stream and groundwater recharge areas. The $2.7 million project impacts about 100 acres (with major tailings removal on 44 acres) along 2.5 miles of the creek. About 50,000 dump truck loads (400,000 cubic yards) of contaminated soil will be moved to two 7-acre repositories. Contributing to the cost of the project is the state, ($210,000), EPA ($50,000 grant), the Union Pacific Railroad ($62,000), and Hecla Mining Company (an additional $310,000). There was a brief snafu at the project when Native Technologies, Inc. threatened legal action, claiming that the contract award to RDS Excavation was irregular. The contractor plans on working 10-hour shifts, seven days a week to move the vast dirt pile.

*Endangered Species*

The controversial Endangered Species Act (ESA) is due for reauthorization by the United States Congress. A United States Senate subcommittee meeting was held in Lewiston in June to hear testimony about reauthorization of the act. Senator Dirk Kempthorne, chair of the Drinking Water, Fisheries and Wildlife Subcommittee of the Environment and Public Works Committee, chaired the session. A parade of over 100 logging trucks wound through Lewiston and Clarkston, and demonstrations held by those in favor and against the ESA were attended by over 600 people. Senator Kempthorne introduced his draft bill in October. Senator Slade Gorton had introduced a bill in the Senate in May that would substantially reduce the impact of the ESA. The Senate also backed an amendment to the Interior Appropriations Bill placing a one-year moratorium on any new listings under the ESA while Congress debated the law. The move was meant to soften an even more rigorous House amendment that would ban any new listings. This bill was vetoed by President Clinton and is now moot.
In a 6-to-3 vote, the Supreme Court ruled in June that private landowners violate the ESA if they change wildlife habitats even unintentionally (Babbitt vs. Sweet Home Chapter of Communities for a Greater Oregon, 94-859). The ruling was a victory for environmentalists and a loss for private property rights advocates and the timber industry.

Salmon

In January, the National Marine Fisheries Service (NMFS) in conjunction with the Northwest Power Council issued a draft of a new plan, or Biological Opinion (required once a species is listed as endangered), on how to save endangered sockeye and chinook salmon. NMFS had been ordered by U.S. District Judge Malcolm Marsh to revise a 1993 plan by the following year. The judge ruled that NMFS and the Northwest Power Planning Council had not given enough consideration to the negative impact of dams on the Columbia River on salmon migration. A lawsuit brought by the State of Idaho and others in 1993 to protest the original Biological Opinion was found moot by the Ninth Circuit Court of Appeals because the new plan had been released. The revised plan, with an estimated cost of $120-$160 million annually (much of the cost is due to lost hydro power generation), called for:

- adding water from Columbia River reservoirs to increase flows during migration.
- spilling more water over dams so smolts do not go through the turbines.
- improved, but less, barging of the little fish around the dams and more reliance on spilling.
- developing ways to direct smolts away from turbine intakes.
- a possible drawdown of Lower Granite and other lower Snake reservoirs after a seven-year study.
- cap hatchery production of salmon smolts at 197 million fish to lower crossbreeding and competition with wild stocks.

Critics claimed that the drawdown study should be done at once and were mystified by what could be gained by a study without a drawdown. Draining water from Dworshak Reservoir by as much as 80 feet was criticized by those who fear the loss of the recreational use of the water body. Idaho’s congressional delegation and others were concerned about using Idaho water for the flushes.

The Northwest Power Planning Council agreed early in February to revisit the above plan. New members added late last year were against drawdowns and Idaho’s delegation was against using Idaho water.

A coalition of 44 environmental groups known as the "Save our Wild Salmon Coalition" offered their own plan in late January. It called for drastically altering or destroying Columbia dams to allow safe fish passage.

In March, NMFS issued a revised draft of the 500-page Biological Opinion, which now called for spilling water at Lower Granite in the spring when flows are greatest and deciding if drawdowns will be needed at the four Lower Snake reservoirs by 1999 instead of seven years out, as noted in the earlier decision. Upper Snake River water (some 427,000 acre-feet bought from willing sellers) will be used to aid migration. The Biological Opinion will result in less
power being generated from Snake River dams, with a resulting increase in rates by the
Bonneville Power Administration, who will help pay for the plan. President Clinton promised
that the federal government would pick up $90-$110 million of the $160 million in increased
power rates. The opinion enforced the PacFish habitat protection plan adopted by the USFS
and BLM in eight national forests and called for even more protection for pristine or easily
restored streams. Emphasis would also be placed on protecting fall chinook salmon by
phasing out commercial salmon fishing on the Columbia and limiting ocean harvests. The
Army Corps of Engineers signed a new Record of Decision, noting their intention to fulfill
the Biological Opinions in a responsive manner.

NMFS announced in March that they would ask the Army Corps of Engineers to draw
down Dworshak reservoir in the summer to aid salmon migration. The water level would be
dropped 80 feet by midsummer. Recreationists who use the reservoir protested.

In April, Idaho’s two members on the Northwest Power Planning Council issued a one-
year plan for boosting salmon revival that was approved by Governor Batt. This plan called
for increased barging and no drawdowns of Snake River reservoirs in 1995. The reservoirs
would be held at minimum pool. Water in Dworshak Reservoir would be kept to within 40
feet of full pool until after Labor Day, when an additional 200,000 acre-feet of water would be
released to aid fall chinook migration. Water would also be used from Brownlee Reservoir to
augment high river flows (427,000 acre-feet would be used from upper Snake reservoirs).

In May, NMFS took their plan on the road via a series of town meetings. In June four
Native American tribes (Yakima, Umatilla, Warm Springs, and NezPerce tribes) unveiled
their own $325 million plan for saving the salmon.

This year is crucial to salmon survival as the “Class of 95” may be the last relatively large
migration left. This is because the little fish are the progeny from the 1993 migration when 28,900 adult chinook salmon returned to Idaho to spawn, compared to only 3,900 the next
year.

As noted, a key to NMFS’s plan is the use of water from Dworshak Reservoir to augment
Snake River flows to lower Snake Reservoirs and dams. This plan was highly contested by
the citizens of Orofino, who rely on recreational use of the reservoir for a tourist industry.
Any drawdown below 30 feet is deleterious to recreational use. The Corps of Engineers
increased flows from Dworshak in late April, spilling water to aid young salmon and
steelhead going down river. The act required an exemption from the state Division of
Environmental Quality as the spilled water contains nitrogen in excess of state water quality
standards. The nitrogen can give young fish a fatal case of the “bends” and is one of the
reasons why spills have been criticized by some biologists. Governor Batt also gave the green
light to the spill.

The Orofino Chamber of Commerce filed suit against NMFS and the Corps to stop the
Dworshak spill, but U.S. District Judge Edward Lodge rejected the request. A public protest
against the drawdown was held in Orofino in August. Governor Batt later apologized to the
town for not offering more leadership in the Dworshak issue. The drawdown was stopped in
late August. Late in the year, Governor Batt announced support for a plan to keep Dworshak

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full during peak recreational use (Memorial Day to Labor Day), but then the water would be
used to augment Snake River flows.

In late October, Vice President Gore and Northwest Congressmen, including Senator Patty
Murray (WA), Senator Max Baucus (MT), and Senator Mark Hatfield (OR), announced that a
deal had been made to save the salmon. The Clinton administration would provide a $325
million emergency fund to make sure Northwest power users are not hurt by increased
hydroelectric rates. The money will come from Bonneville Power Administration credits
issued to agencies such as the Army Corps of Engineers and the Bureau of Reclamation for
flood control and irrigation costs. The BPA would also spend some $435 million each year
altering dam operations on the Columbia/Snake system to insure salmon survival.

Steelhead

Salmon were not the only fish with problems in Idaho in 1995. By September, officials
from the Idaho Department of Fish and Game were warning that the B-run steelhead (bigger
fish that spend two years in the ocean and migrate to the Clearwater River) were in serious
jeopardy and that the fish might have to be listed as endangered under the ESA. The good
news was that the A-run fish that migrate to the Salmon and Columbia Rivers were in healthy
numbers.

Bull Trout

Two years ago enviromentalists sued to have the bull trout listed as an endangered species.
Former Governor Cecil Andrus selected the trout as a topic for the first major conference for
his new Public Policy Center in June. As with many species proposed for protection, the
actual danger facing bull trout populations is contestable. The Alliance for the Wild Rockies
sued the Fish and Wildlife Service last year for failing to protect the trout. At the June
conference, the federal Fish and Wildlife Service announced that the trout would not be listed
as an endangered species. The reason given was that the state and the Forest Service had both
announced intentions to help protect the species. The decision was made to give the state a
chance to handle the problem without the onerous endangered species listing and required
federal agency involvement. Governor Batt was pleased with the decision and noted that both
Montana and Idaho were formulating protection plans. In late July, the U.S. Forest Service
unveiled its plan (the Inland Native Fish Strategy) for bull trout protection. Projects such as
logging, mining and grazing could continue as long as they were in compliance with the
protection strategy which resembles the PacFish plan. The interim plan will be in effect for
18 months until the Eastside Columbia Basin Ecosystem study is completed and
environmental impact statements are formulated based on the study. In October, the state Fish
and Game Commission ordered anglers to stop keeping bull trout caught in Lake Pend Oreille
and the Clark Fork River. With the decision, a statewide ban on keeping the fish is complete.

Kootenai Sturgeon

The Kootenai white sturgeon was listed as endangered last year. Fish and Wildlife
Service biologists have a plan for the fish’s recovery in the Kootenai River in Boundary
County, which includes high springtime water releases from behind Libby Dam in Montana.
The spent water will cause a loss in hydropower revenues and some flooding of farmland in
addition to affecting the recreational use of Lake Koocanusa behind the dam. Biologists
believe that the big fish stopped reproducing 20 years ago when the dam was completed. An estimated 800 sturgeon still survive.

**Rainbow Trout**

There was good news for another fish. Huge rainbow trout were counted by wildlife biologists in the Moyie River in north Idaho. Part of the success story is credited to habitat construction when a natural gas pipeline was laid under and along 18 miles of the river in 1992 by the Pacific Gas Transmission Company. The company placed big rocks in the river that made pools, the perfect home for the lunkers.

**Wolves**

More wolves were scheduled for release in Idaho in early 1996. Fifteen of the animals (captured in Canada) were released late last year in the Frank Church-River of No Return Wilderness area in the central part of the state. The U.S. Fish and Wildlife Service plans on releasing up to 300 of the animals by 2002. The state legislature turned down a role in the wolf program in February. A contract was signed with the NezPerce tribe for their involvement in the program. One of the released wolves was shot and killed on a central Idaho ranch soon after it was released. The wolf had killed a calf. The other wolves have survived, and pups are expected next spring.

**Grizzly Bear**

As controversial as wolf introduction is a plan by the U.S. Fish and Wildlife Service to reintroduce grizzly bears into the Bitterroot Mountains of Idaho and Montana. Comments were received until August, and a draft EIS for the introduction is being prepared.

**Bruneau Snail**

Back in the limelight was the Bruneau Hot Springs Snail, and the creature is also back on the Endangered Species List. A decision by the Ninth Circuit Court of Appeals overturned a decision by U.S. District Judge Harold Ryan made in 1993 to delist the small crustacean after it was listed earlier that year by the U.S. Fish and Wildlife Service. Ryan’s decision was appealed by the Idaho Conservation League and the Committee for Idaho’s High Desert. The snail is found along a 5-mile stretch of the Bruneau River and lives in hot springs that environmentalists claim are threatened by groundwater pumping by local farmers.

**Coeur d’Alene Aquifer Contamination**

A subsurface plume of industrial solvent (trichloroethylene, or TCE) is moving west from Coeur d’Alene towards Post Falls and Spokane in the Spokane Rathdrum aquifer. The chemical could endanger one of Coeur d’Alene’s municipal water wells. A computer simulation estimates that the pollution may reach the state line in about 5 years. The contamination was first detected in the 1980s and resulted from legal dumping of the solvent in the 1950s. The contamination shows the sensitivity of the aquifer, which provides water for some 400,000 users.

The Coeur d’Alene problem is only one of many groundwater concerns in Idaho. Ada County will conduct a modeling study of the aquifers that provide drinking water to the rapidly growing Boise urban area. A shallow aquifer is contaminated and there are concerns
about the health of a more important deep aquifer that provides drinking water for many of Canyon and Ada counties’ 350,000 residents.

Placer Mine Closure

Early in the year, Idaho Rivers United petitioned the state Land Board to close off a 40-mile stretch of the main Salmon River from White Bird to Riggins and upstream to Long Tom Bar from placer mining and sand and gravel extraction. The federal Bureau of Land Management, state departments of Lands, Water Resources, and Parks and Recreation supported the closure. Local placer miners spoke against the measure. Citing a reluctance to impact local economies and reduce state mineral leases, the Land Board rejected the restriction in February.

State Grazing Leases

A Hailey conservationist, John Marvel, was outbid in March for a state grazing lease for the first time. The activist lost the bid on 320 acres of state range land in Clark County to Sheridan Golden Eagle Ranch, which has held the lease for many years. Marvel, who founded the 150-member Idaho Watersheds Project, claimed victory as a purpose of the group is to force ranchers to pay more for these leases. Sheridan Golden Eagle had to bid three times the going rate to win the land. The environmentalists are bidding on the range land to stop damage by grazing animals. The state Land Board is reluctant to remove the land from local use even though it may mean more money for the state school endowment fund. Last year the board awarded a lease in Custer County to a local rancher although Marvel had the highest bid. Marvel has appealed the decision to the State Supreme Court. In December, the Land Board again refused to consider Marvel bids, including one for 2,200 acres of a 12,000-acre lease in Owyhee county held by the Simplot Livestock Company. The board claimed that Marvel was trying to “cherry pick” the lease by only bidding on riparian areas. Marvel did get leases on three other tracts of state land where he was the only bidder. The activist said he would fight the Owyhee County decision in the Fourth District Court.

Hells Canyon Recreation Area Plan

A plan to limit jetboat use on the upper 21-mile stretch of Hells Canyon National Recreation Area for 24 days during the peak summer season was put on hold by the U.S. Forest Service in March. The idea is part of the Hells Canyon National Recreation Area river management plan that has taken eight years to complete. The Hells Canyon Preservation Council claimed the delay was due to political pressure by Senator Larry Craig. The postponement was applauded by the Hells Canyon Alliance, a group of mostly jet boat owners and river guides. The Preservation Council sued the USFS late in the year to force the limitations on the jet boats.

Mountain Home Bombing Range Expansion

In May, the U.S. Air Force dropped plans for a controversial 25,000-acre bombing range expansion that could be used by a composite wing (fighters, bombers, and support aircraft) at the Mountain Home Air Base. The plan was opposed by Native Americans and environmental groups, but supported by both former Governor Cecil Andrus and Governor Batt. The plan, under study for three years, was dropped when U.S. District Judge Edward
Lodge ruled that the USAF should not have done separate environmental impact studies on the results of moving the wing to Idaho in 1992 and the effects of the bombing range expansion in 1994. A combined study was required. The Air Force will review the expansion plan and come up with an alternative estimated to be less than half the acreage of the original expansion. The location of the composite wing at Mountain Home is important as it almost insures the survivability of the base at a time when closures are occurring due to defense budget cuts. The base is the economic back bone for Mountain Home.

Columbia Basin Ecosystem Study

A draft report on the progress of the Upper Columbia River Basin Eastside Ecosystem Study (covering 144 million acres in parts of six northwestern states) was released by the Bureau of Land Management and the U.S. Forest Service in January at 27 sites via a satellite linkup. The study involves some 300 federal land managers and scientists and will be completed next year in spite of attempts to cut its funding by Congress. The controversial study will examine all aspects of the huge area’s ecosystem, and conclusions will be incorporated in USFS and BLM operating plans. In December, Governor Batt expressed concern that information from the study might be used to override the state’s water quality and bull trout protection programs. The governor’s warning was in response to letters from regional directors of the EPA, NMFS, and the federal Fish and Wildlife Service to the steering committee for the ecosystem study noting that a draft EIS based on the study was inadequate in protecting fish and water quality. In a reply to Batt’s query, federal officials claimed that the study would not preclude state programs for water quality and species preservation.

Radioactive Waste Storage at INEL

An ongoing battle between the State of Idaho and the Department of Energy that at one time threatened to have state police halt trucks carrying radioactive waste at Idaho borders was resolved in October. Governor Batt clinched the deal that calls for 1,133 loads of nuclear waste to be delivered to the Idaho National Engineering Laboratory (INEL) over the next 40 years. However, all of the waste must be removed from Idaho by the year 2035 and, if it isn’t, DOE will pay $60,000 per day or more in fines. Earlier the governor sought and got reaffirmation of a 1993 court injunction that the state could refuse the shipments (mostly Navy waste from nuclear reactors) until an environmental impact study (EIS) had been completed. The EIS was finished in April and there was little impact reported from the waste storage. However, in May, a federal judge ruled to keep the injunction in place until the government guaranteed that Idaho would not become a permanent nuclear waste dumping ground. The state appropriated $300,000 from the new $1 million Constitutional Defense Fund established by the 1995 legislature to fund the court challenge to the federal government.

The first waste shipment arrived at INEL in October. Members of the Shoshone-Bannock tribe blocked the train from crossing the Fort Hall Reservation. Eventually, the train was allowed to proceed and the Indians noted that they were upset because they had not been consulted about the shipments or included in the negotiations between the governor and DOE.
Cove-Mallard Logging Controversy

In August, 12 members of the Cove Mallard Coalition (which includes the environmental activist group, Earth First) were arrested in conjunction with a protest against logging in the Cove-Mallard area of the Nezperce National Forest. Earth First has been protesting timber sales in this area for four years. The Noble Creek sale area was closed to the public in June, and the protestors had entered the area when they were arrested.

Mining Law Reform

In March, Senator Larry Craig introduced a Mining Law Reform Act (S. 506) in the Senate. This was essentially the same bill he introduced last year as S. 775. Past attempts by both environmental and mining proponents to change the 1872 Mining Law have all failed. Craig's bill would lift a moratorium on patenting mining claims (approved by Congress last year), require miners to pay fair market value for the surface rights when patenting claims, pay a 2.5% net royalty on extracted minerals (with an exemption for small miners), provide a reverter clause so that if the land was not used for mining it would return to the government and stipulated that half of the collected fees would be used for abandoned mine cleanup.

Hearings were held on the bill in the Senate Committee on Energy and Natural Resources, but there was no further action. A similar bill, H.R. 1580 (but calling for a 3.5% gross royalty) was introduced in May by Congressman Ken Calvert. This bill languished in the House, where it faced a hostile reception. In addition to these two bills, an amendment lifting the patent moratorium was added to the Interior Appropriations Bill for FY-96. The House twice rejected the appropriations measure due in part to the moratorium release. A third version required the Secretary of Interior to move more expeditiously on pending patents but left the moratorium intact. As promised, President Clinton vetoed the appropriations measure in January 1996. The House was unable to override the veto and the bill was dead. Senator Craig was able to get most of the other points of S. 506 amended to another piece of legislation, the Balanced Budget Act. This act was also vetoed on December 6, so there was no change to the mining law in 1995.

Other News

Mammoth Story

Heavy rains postponed resumption of the Mammoth dig at Lake Tolo near Grangeville. The fossil site was discovered last year when the lake was drained by the state Department of Fish and Game for rehabilitation as a bass fishery. Bones from several 11,000-year-old animals, including mammoths and a bison, were found sticking out of the bottom of the lake, and “mammoth fever” infected north Idaho as hundreds of people visited the site. The dig was done mostly by volunteers under the watchful eye of Robert M. Yohe, State Archeologist. In September, 29 bones of what may be a rare woolly mammoth were uncovered. There was hope that signs of early man would be discovered at the dig, but nothing was found. Over 300 bones were recovered during the summer. The future of the project is in doubt as the cost of building a dike to protect the site while the lake is rehabilitated is prohibitive. Earlier in the summer, another dig was underway near Kamiah. A leg and other bones from a mammoth were discovered here in 1957, but the site was never excavated. Lee Sappington, archeologist
Figure 32. Coeur d'Alene Basin restoration- South Fork of the Coeur d'Alene River near Elizabeth Park.

Figure 33. The dedication of McClure Hall. Left to right- Dr. Robert Bartlett (Dean, COMER), Dr. Thomas Bell (Act. Pres., U of I), Dennis Wheeler (CEO, Cda Mines), Sen. James A. McClure, Duane Hagadone, Roy E. Mosman (Board of Regents), and Joseph C. Bennett.
from the University of Idaho, led this dig. Part of a skeleton was recovered, and the bones will be given to the Lewis County Historical Society for display.

New College of Mines Building

The University of Idaho dedicated James A. McClure Hall on October 20 (Figure 33). The four-story 70,000-square-foot structure is the new home of the College of Mines and Earth Resources. The building cost $11.8 million ($8.8 million in federal funds, $2 million in state funds, and $1 million from private donations). Former Senator and U of I alum James McClure led the list of dignitaries present at the celebration and was later given a Distinguished Idahoan Award, the highest recognition granted by the University. Dr. Robert Bartlett, Dean of the College of Mines, led the campaign for the new high-tech building and smiled unabashedly as he helped cut the ribbon to the campus's newest addition.

Director of IGS Honored

Dr. Robert W. Bartlett, Director of the Idaho Geological Survey and Dean of the College of Mines and Earth Resources (COMER) at the University of Idaho, was elected to the prestigious National Academy of Engineering. He was one of only 77 scientists chosen nationwide to join the select 1,790 member academy and is one of a handful ever chosen from Idaho. The National Academy of Science and the affiliated Academy of Engineering is the premier science organization in the nation and is called upon frequently to study relevant issues and provide guidance and advice to Congress and the President. Dr. Bartlett's long and distinguished career in extractive metallurgy and his international reputation more than qualified him for the honor. He has served as Dean of COMER and Director of IGS since 1987.

Boise State University Donation

Boise State University is now a mine owner. Alice and Robert Harper of Deerfield, Mass., gave the institution the Pass mine (located about 12 miles northwest of Hailey). The Argent section of the mine produced some $160,000 in metals many years ago. Although the old silver producer has not been worked for a long time, the 200-acre site will be useful as a natural laboratory for BSU's geology students. The mine has been in Mrs. Harper's family for many years and she felt that it should be returned to the state.

City of Rocks Improvement

The National Park Service has proposed a $47.5 million plan to improve the 14,320-acre City of Rocks National Reserve near Almo in Cassia County. The work would include $6.3 million for a visitor center, $5.6 million for a campground to accommodate up to 100 motor homes, $4.1 million for staff housing, and millions of dollars in road improvements. About 28 people would work at the reserve. Management costs of the facility would be shared with the state. The rock formations in the reserve are well known to rock climbers, and the 78 primitive camping sites currently available are frequently full.
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