MINING AND MINERALS
IN IDAHO, 1992

PRELIMINARY DRAFT
Version 3/10/93

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Preliminary Draft
Information Circular
February, 1992
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MINING AND MINERALS IN IDAHO, 1992

INTRODUCTION

The purpose of this paper is to summarize and describe all mining and mineral related activity in Idaho for 1992. Sources used to compile this document include U.S. Forest Service and Bureau of Land Management mineral specialists in the state, the U.S. Bureau of Mines, information from the Mine Safety and Health Administration (MSHA), numerous company geologists and spokespersons, and clippings from area and trade newspapers and periodicals. This preliminary version is for the sole use of the U.S. Bureau of Mines, the Idaho Mining Association, the Idaho Geological Survey, and the state's Congressional delegation. Locations of selected cities and towns referenced in this report are shown in Figure 1.

International Mineral Economics

The year 1992, featuring many incredible economic events which just a few years ago would have driven metal markets into wild gyrations. In April, riots were touched off in Los Angeles when a jury found four police officers innocent of brutally beating a black man, Rodney King, although the incident was captured on video tape. The United States began to pull out of the worldwide recession in the second half of the year but recovery was slow. The national debt reached an astounding $4 trillion. President George Bush, unbeatable in the polls six months before the election, was beaten by President-elect Bill Clinton. The capture of the presidency and the election of an overwhelming Democratic majority in both houses of Congress was interpreted as inflationary by the rest of the world, but even this had little effect on metal markets. In June, the Dow Jones Industrial Average went over 3,400 for the first time in history. The Nikkei 225 stock average, the Japanese equivalent of the DOW, went south losing 8,000 points. The incredible Japanese economy faltered, as real estate prices crashed, banks lost billions of yen, and the vaulted Japanese industry tightened its belt by many notches. The North American Free Trade Agreement (NAFTA) between Mexico, Canada, and the United States was signed in August.

High interest rates in Germany caused chaos on European money markets in September. Germany is keeping rates on the mark high to attract investment for rebuilding east Germany and to discourage inflation, which is greatly feared. Traders began playing off currencies against each other with the result that England and Italy abandoned the European Exchange Rate system which controls currencies under the European Monetary System. France was under attack by currency traders but the Franc survived after massive intervention by the French and German central banks. Sweden protected the Krona by offering an incredible 500% interest rate for a short while and Spain discounted the Peseta by 5%. The currencies of Portugal, Denmark, and Ireland were also under attack. In November, Sweden, Norway, and Finland decided to abandon the
Figure 1. Location of selected cities and towns in Idaho
ECU and let their money float. The Wall Street Journal (10/01/92) estimates that European central banks lost $4 to $6 billion attempting to prop up weak currencies.

On another European matter, the U.S. threatened a 200% tariff on French wines and other European commodities, if France did not resolve a dispute over farm subsidies. War in former Yugoslavia between Slovenia and Croatia threatened to spill over to other countries and the United Nations looked hard at intervention. The U.S. sent 35,000 marines on a mission of mercy to feed thousands of starving people in Somalia where famine runs rampant. We signed a treaty with Russia to slash the number of nuclear warheads on both sides. Finally, IBM, the venerated bastion of capitalistic stability, announced its first layoffs in 50 years in December. The effect of any or all of these amazing events hardly caused a ripple in metal markets.

The flood of base metals from the Commonwealth of Independent States (CIS, former Soviet Union) continued throughout 1992. Confusion in the CIS has resulted in a disorderly dumping of base metals (especially aluminum and nickel) on the world markets for badly needed foreign exchange. Kerr McGee’s plant in Idaho has been affected by Russian vanadium exports which have helped lower the price of the steel additive from nearly $9 per pound in 1990 to $1.70 this year. Sales of precious metals from the CIS were off sharply from last year and declining production will insure that exports remain stable for some time. Although most of the precious metals are being handled through former official outlets, experts believe that tons of gold continue to be smuggled out of the CIS. The Russians began talks with South Africa about cooperative programs in minerals. Between the two countries, they control several of the world’s most important minerals including, platinum-palladium-rhodium (90%), vanadium (75%), manganese (50%), chrome (66%), gold (40%), and 25% of the world’s diamonds. If the two countries ever unite in pricing and marketing strategies, they would constitute a powerful cartel similar to OPEC’s place in the international petroleum business.

About 70% of the world’s cobalt comes from Zaire (largest producer) and Zambia in Africa. Both countries have had several year’s of political unrest which have resulted in dramatic increases in the world price from about $13 per pound (producers price) late last year to $30 per pound (free market price) early in 1992. However, dumping of lower grade cobalt by CIS countries reduced the price to around $15 per pound in mid-year. Zambia and Zaire set a producer price of $18 per pound in November, but stocks continued to accumulate. Due to severe political and economic unrest in the two countries, there was skepticism that long-term contracts could be met. Spot prices closed the year at $15.50 per pound for western cobalt and $14 for lower-grade Russian metal. Cobalt is a steel additive and is widely used in magnets.

In Idaho, experts watched the world’s cobalt markets carefully. The Blackbird mine in east central Idaho is the nation’s most readily available source of this metal. Noranda Mining Company owns the property. The company invested $30 million in Blackbird from 1979 to 1981 before the price of the metal plunged from over $30 per pound to $5 per
 pound. As a result, the mine was never placed in production. The state has sued for an estimated $7 million environmental clean up of the old mine and the problem has been exacerbated by the listing of several species of salmon as threatened or endangered. Acid water from the mine flows into Panther Creek which used to be a salmon run. One of the best ways to clean up the mine would be to incorporate the cleanup as part of a mining plan. The College of Mines and Earth Resources at the University of Idaho prepared a feasibility study for reopening Blackbird, which utilizes an experimental extraction process for processing the copper/cobalt/gold ore.

Silver, the former star of Idaho's mining industry, stayed tarnished with prices well below production costs for mines in the Silver Valley. The metal started the year on a positive note rising to over $4.00 per ounce with the perception that the U.S. might be coming out of recession. However the price quickly retreated, sinking below $4.00 in June and setting an 18-month low of $3.64 in August. As depressing was the new life of contract low on COMEX set in August at $3.67, the lowest since last December. The decline was stimulated by the sale of 20 million ounces of silver by the National Commercial Bank of Saudi Arabia owned by the Mahfouz family. The former head of the bank, Sheik Kahlid bin Mahfouz, was fined $170 million by the Federal Reserve Board for his involvement in the BCCI Bank scandal. The selloff stimulated more sales from the Middle East which totaled about 40 million ounces. Silver prices declined 15 cents in one day as a result of the sale. Prices slowly increased till November when, after the election, the silver market again collapsed, finishing the year at $3.69 per ounce, one cent above the yearly average.

Estimates in a study by the CPM Group for the Silver Institute are that for the third year in a row, world demand for silver will outpace new supplies, but this fact failed to stimulate investor interest. A report by Charles Rivers Associates for the Silver Institute concluded that there is not a huge overhang of silver just waiting to come out on the market when silver reaches $5.00 per ounce. The Institute commissioned the report to try and determine how much silver is stockpiled around the world and how available this silver is to the market place. There has been little speculative interest in silver for the past few years as the public's perception is that there is a huge overhang in supply. This belief is fostered by the amount of silver held in traders stocks, mainly COMEX, which reached a record 283.7 million ounces in mid-March and closed the year at over 280 million ounces. The CRA report concluded that there is nowhere near as much silver available to the market at prices below $5.00 per ounce, as perceived by the general investor. The report had mixed reviews and had little effect on the metal's price. Although some silver mines closed (including some in the Coeur d'Alene district) silver production continues to be fed as a by-product of gold, copper, and other base metal mining. For example, MIM Holdings Ltd. and several Japanese partners announced that they will open the McArthur River mine in the Northern Territory of Australia which will add 1.6 million ounces of newly mined silver to the world's production.
On a more positive note, Congressman Larry LaRocco saw his Desert Storm medal legislation signed into law in May. The bill calls for issuing every one of the 641,000 service persons who participated in the Middle East war, a silver medal which will use up about 8 million ounces of the metal. A bronze copy of the medal will be sold to raise money for striking the silver issue. Low silver prices are also stimulating the demand for sterlingware, more good news for the industry. The Senate Armed Service Committee called for disposing of 51-materials from the nations' strategic stockpile including 84 million ounces of silver. However, the silver can only be used for coinage or as material furnished to a contractor in the performance of a federal contract. The mint has been using stockpiled silver for making U.S. commemorative coins and for the one-ounce Silver Eagle (the most popular silver coin in the world), which uses about 7 million ounces per year.

In May, Newmont Mining Corporation bought 375,000 ounces of gold for $126 million ($335 per ounce) to pay off a gold loan obtained in 1988. This move was thought to signal the bottom of gold prices as Newmont gambled that they had bought the cheapest gold for the year. Few others dared to follow in the same water. The yellow metal started the year at $355 per ounce, sank to $334 per ounce in late June, bounced to the $360 level in July (supported by slow recovery from the world wide recession), declined again, went up over $350 in September, (buoyed by the European currency market collapse), and finished 1992 at $333, averaging $3.29 per ounce for the year. In June, the National Bank of Belgium noted that they had disposed of some 202 metric tons (6.5 million ounces) of gold over a five week period and had done so, making hardly a ripple in the world market. According to the U.S. Bureau of Mines, this was the largest gold sale since the International Monetary Fund sold 23.5 million ounces in 1980. In October, heavy selling by middle eastern interests drove the price down to $337, the lowest level in two months. This in spite of the general belief that the Democratic landslide, anticipated for the November election, would result in a surge in inflationary spending. Gold is usually considered a hedge against inflation. Demand for the metal (mostly for jewellery) remained strong in Japan, Hong Kong, Singapore, and other east Asian countries with China becoming a major market. One of the problems with the gold market is that when there is a significant price rally, gold companies tend to sell mine production forward which, in effect, stifles interest in the market. If there is a supply problem, selling forward eliminates the shortage and also the associated price increase that results from a shortage.

Lead and zinc prices reached recent highs in mid-year and then collapsed as inventories swelled. The amount of zinc held by the London Metal Exchange reached an all-time high in mid-December. Zinc spot prices finished the year at 48 cents-per-pound, 26% lower than the summer highs and lead ended the year at about 21 cents-per-pound, off 15% from mid-year, with both metals right on the average for 1992. Concerns about the German and Japanese economies, as well as our own, were responsible for the downturn and are expected to keep base metal prices depressed well into next year. Hard hit is the U.S. auto industry, which uses zinc in galvanizing body parts. China is
becoming an important player in base metals both as an importer and exporter and will undoubtedly have an even bigger role as the country’s economy continues to expand.

Idaho Mineral Economics

Much of Idaho’s colorful history is coupled to the mining industry which is still a major factor in the state’s economy today. The best known mining area in the state is the Coeur d’Alene mining district (largest recorded silver production in the world) but significant amounts of other minerals including phosphate, antimony, vanadium, garnet, and gold are also mined in Idaho.

In Idaho in 1992, 49 metal, phosphate, and other industrial rock and mineral mines were active and 108 stone and rock crushing quarries and sand and gravel pits were in operation according to the Mine Safety and Health Administration (MSHA). At the end of the year, there were 2,400 people directly employed in the state’s mining industry (a 11.1% decrease from 1991) with 1,400 in metal mining. In addition, 1,100 were employed in stone, clay, glass, and concrete products related industries (most using minerals from Idaho) and 4,000 were employed in chemical industries with the majority working in the phosphate processing plants and associated businesses in southeast Idaho (Idaho Department of Employment, November, 1992). According to the Department of Employment, mining suffered a 15% decrease in employment in 1992, following a 20.5% decrease in 1991. They project a further loss of 9.5% to 2,500 jobs in 1993. Since 1990, the industry has lost about 1,500 jobs or 39% of its work force. In spite of the downturn, mineral industry wages continue to be among the highest for industrial groups in the state.

In spite of the fame of the Coeur d’Alene, the phosphate industry has been the largest contributor to the value of the state’s non-fuel mineral production for several years, winning products worth some $585,695,000 from 5,501,000 metric tons of ore (includes newly mined and stockpiled) in 1990. The value of elemental phosphorous (many uses) and phosphoric acid (used to make fertilizer) was 2 1/1 times greater in 1990 than the rest of the state’s mineral production combined (Table 1) and the phosphate industry is by far the largest employer in the state’s mining sector. The largest elemental phosphorous plant (FMC Corporation) in the world and one of the largest fertilizer plants (J.R. Simplot Company) in the United States are both located in Pocatello. According to the Bureau of Land Management, receipts from mineral leases on federal land in Idaho were $3.7 million in FY-91, with most of the money derived from phosphate leases. Contrast this amount with the approximately $2.3 million from grazing fees on BLM land and the importance of phosphate mining to Idaho is further amplified.

Note that in Table 1 the value of elemental phosphorous and phosphoric acid is given rather than the value of raw phosphate ore. This differs from the traditional U.S. Bureau of Mines production figures (Table 2). The numbers for phosphate production provided by the Idaho Mining Association (IMA) for 1990 indicate that a ton of ore in Idaho is
Table 1. VALUE OF NON-FUEL MINERAL PRODUCTION IN IDAHO 1987-1992
(add 000 to all dollar figures)

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<td>Gold</td>
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<td>37,602</td>
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<tr>
<td>Moly</td>
<td>38,850</td>
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<td>53,890</td>
<td>44,634</td>
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<td>Pb + Zn + Cu</td>
<td>7,402</td>
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<td>Silver</td>
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<td>77,651</td>
<td>68,418</td>
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<td>Phos</td>
<td>361,566</td>
<td>498,730</td>
<td>488,236</td>
<td>464,280</td>
<td>627,626</td>
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<td>583,867</td>
<td>738,335</td>
<td>776,742</td>
<td>773,939</td>
<td>838,256</td>
<td>831,971</td>
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Based on figures provided by the U.S. Bureau of Mines (USBM) except phosphate, which equals the USBM newly mined (not stockpiled) tonnage multiplied by a value of $106 per tonne. Annual totals include this new phosphate value and are therefore different than USBM totals. Other includes antimony, cement, clay, garnet, lime, stone (dimension and crushed), vanadium, feldspar, perlite, pumice, gemstones, and sand and gravel. Estimate = e. Preliminary = p.
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<td>Silver</td>
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*Combined value of antimony, cement clays, copper, nickel, granite, lead, molybdenum, perlite, vanadium ore, zinc and values indicated by symbol W. Total includes with combined value figure. X/Not applicable. xx/Estimated. NA/Not Available. W/Witheld to avoid disclosing company proprietary data.

Data from U.S. Bureau of Mines.

Production as measured by mine shipments, sales of marketable production (including consumption by producers), and values indicated by symbol W.

Combined value of antimony, cement clays, copper, nickel, granite, lead, molybdenum, perlite, vanadium ore, zinc and values indicated by symbol W.

Note: Certain data may not be included with Combined Value figure due to confidentiality and proprietary data.
converted into about $106 per ton worth of phosphoric acid or elemental phosphorous. We have taken the USBM tonnage figure and multiplied it by $106 instead of the approximately $25 per ton that the bureau uses for the value of raw phosphate rock. For example, in 1990, the USBM credited Idaho with almost $68 million in phosphate production based on newly mined phosphate rock, however, this tonnage was processed into $464 million in acid and elemental phosphorous; none was shipped as raw ore. This is the same reasoning that is used to credit Idaho with the value of silver metal, not silver ore or concentrate, even though much of the concentrate is smelted outside of the state. This more equitable treatment for phosphate substantially increases the value of Idaho's non-fuel mineral production and gives a truer measure of our state's mineral industry. For instance, in 1992, Idaho ranked 30th in non-fuel mineral production in the United States based on the USBM's preliminary production figures for the year. The total value of non-fuel minerals for the year is estimated at $320 million by the Bureau. However, using the new, more objective calculations, Idaho was actually 13th in the nation with a value estimated at almost $832 million (Table 1).

Other changes from 1991 to this year in Table 1 include, an increase in Idaho gold production, a decrease in moly production (closing of Thompson Creek mine), a decrease in base metal production (reflecting closures and reduced production in the Coeur d'Alene district), and an increase in the total value of the other commodities mined in the state. Note that even though the Coeur d'Alene district has suffered over the past few years, the total value of non-fuel mineral production in Idaho has increased by nearly $250 million since 1987.

Production for 1992 was off significantly in the Coeur d'Alene district with the Galena mine closing and only the Lucky Friday and Sunshine mines working, but at reduced rates. Stable prices for copper helped somewhat, but could not compensate for the disastrous plunge in recent years in the price of silver, the Gem State's most famous mineral commodity. Much lower prices for gold and molybdenum, and flat prices for lead and zinc, added to the mining industry's problems. The state's open-pit gold mines at Stibnite and Black Pine (opened in January by Pegasus Gold) maintained operations while the Champagne and Yellowpine mines finished production and began reclamation. NERCO Minerals operated the DeLamar open-pit silver-gold mine in Owyhee County. Cyprus Mineral's Thompson Creek molybdenum mine (largest open-pit mine in the state) produced "moly" most of the year but announced that the mine would be temporarily shut down due to low moly prices in November. Other industrial mineral operations in Idaho included pumice, perlite, garnet, cement, lime, gypsum, clay, zeolites, stone, silica, crushed rock, and sand and gravel.
ACTIVE MINES AND PROCESSING PLANTS

The Coeur d'Alene District (Figures 2 and 3)

Introduction

Historically low silver prices and declining lead and zinc prices forced the closure of the Galena mine operated by Asarco in July. Over 500 mining jobs have been lost in the Silver Valley in the past year due to low metal prices. In August, the Idaho Department of Employment noted that out of a labor pool of 4,800 workers in Shoshone County, 1,000 or 21%, were unemployed, the highest rate in the state. The rate may well reach 25% as seasonal workers are laid off for the winter. County tax delinquencies, exacerbated by the economic turndown, reached record proportions this year with almost $1.3 million outstanding. Although businessmen in the Silver Valley are valiantly trying to supplant the lost jobs with others related to tourism, the high-paying mining employment will be difficult, if not impossible, to replace. Examples of new attempts to diversify the local economy include the Silver Mountain Ski Resort (served by the longest gondola in the world), and in a smaller way, the Sierra Silver mine tour, which is one of the most popular tourist attractions in the state, drawing some 20,000 visitors in 1991. The Bunker Hill Superfund site has impeded a number of new businesses from the Kellogg area as investors are worried about being obligated for clean up costs. Projects currently on hold include, a Super 8 Motel, a major department store, a McDonald's restaurant, and a 150 room hotel and convention center near the gondola terminal.

More bad news hit the district in October when the Interstate Commerce Commission (ICC) voted 3-2 to authorize the Union Pacific Railroad to abandon its 71.5 mile-long track from Plummer to Mullan that services the Silver Valley. The decision was made in spite of appeals by Senator Larry Craig and Representative Larry LaRocco that the line be kept open. The company proposed the abandonment last year, claiming that the line is unprofitable. Soon after the decision, the railway announced it would stop service on February 2, 1993. All ore and other supplies that used to be shipped into and out of the district by rail will now have to be trucked. In March, the Utah Western Railroad Company expressed interest in buying the line but shelved their plans claiming the Coeur d'Alene Indian Tribe threatened to name them in a massive environmental law suit filed by the tribe against mining companies and Union Pacific for damages to Lake Coeur d'Alene. The tribe denied making the threat and said they were not opposed to the purchase. Hecla Mining Company offered a dollar for the line in November which was judged a fair offer under ICC guidelines. This will delay closing the line while Hecla and UP negotiate. In the meantime, several appeals have been filed with the ICC to keep the line open.

There were a few rays of hope this year in the valley including the discovery by Hecla Mining Company of high-grade silver mineralization beneath the old Gold Hunter mine near Mullan. Coeur d'Alene Mines Corporation also remains optimistic about the valley's
Figure 2. Major active mines (●), processing plants (○), and mines under development (✕) in Idaho, 1992
Figure 3. Coeur d'Alene Mining District, Idaho, 1992
future, purchasing the Galena mine, the rest of the Coeur mine, and other mining properties in the district. The success of Silver Valley Laboratories is another positive note. Revenues last year reached $3.6 million (a whopping 732% increase since 1987) and the lab made Inc. magazine's list of the 500 fastest growing private companies in America. A new firm, Reclamation Management Company, was formed by ex-miners from the district. The firm specializes in environmental cleanup and reclamation, a business that is currently thriving in the valley and everywhere else.

Asarco, Inc.

The Silver Valley suffered another severe blow in May when Asarco announced that the Galena mine would close in July costing 215 workers their jobs. Although facing economic uncertainty, many of the miners gathered at Sweet's Cafe in Wallace for the "last shift" on Friday, the day the mine closed. The Galena, produced 1,643,609 ounces of silver and 559 tons of copper from 91,617 tons of ore in 1992, compared to 3,426,381 ounces of silver, 1,040 tons of lead, and 1,025 tons of copper from 182,836 tons of ore in 1991. Asarco operates the mine which is owned by Coeur d'Alene Mines Corporation following their merger last year with the former owner, Callahan Mining Corporation, and the recent purchase of Asarco's 12.5% share. Asarco was forced to close the Coeur mine, its other operation in the district, last year. The disastrous effects of recent low silver prices are directly to blame for the Galena closure as the mine has always been the model of efficient operation and production in the district. The laid off miners are eligible for assistance under the Trade Act of 1974 and through programs administered by the Idaho Department of Employment.

Bunker Hill Mine

The Bunker Limited Partnership, who purchased the Bunker Hill mine and refining complex from Gulf Resources and Chemical Corporation (Gulf) in 1982, and declared bankruptcy last June, had their reorganization plan approved in July. There are $200 million in outstanding claims against the Partnership. Under the plan, the company will liquidate assets over the next three years and provide up to $13 million ($5 million now in addition to $2 million already spent and $6 million later) for cleanup of the Bunker Hill Superfund site. Secured creditors like Shoshone County (taxes) and West One Bank, will get their money back while unsecured creditors will be paid about 15 cents on the dollar for outstanding bills. The funds will be obtained by liquidating commercial property and timberlands owned by the Partnership. Bids for the Rock House (destroyed by fire last summer), the concentrator, the water system, the Crescent Mine portal and surface rights on two claims, a lab near the concentrator, a boat landing near Cataldo Flats (150 acres), and land near the water treatment plant were submitted in March. Pintlar Corporation (a subsidiary of Gulf) will receive $2 million to settle a dispute over pension funds. Gulf has outstanding claims of over $50 million against the Partnership.
A district judge in Moscow ruled that Duane Hagadone and Harry Magnuson, two of the owners of the Bunker Ltd. Partnership, are liable for up to $3 million in pension benefits owed to former employees of the mining and smelting operation. The actual amount of the owed benefits will be determined at another trial. The court action, initiated by Pintlar Corporation three years ago, was moved from Ada County to Latah County by order of the Idaho Supreme Court. Hagadone reached an agreement with Gulf Resources concerning the pension suit in April, although details of the agreement were not released.

In May, the mineral rights at the Bunker Hill mine were transferred to a new owner, Robert Hooper, Placer Mining Company, of Bellevue, WA. Some work was done during the year to partially restore air and electrical systems in the mine but reopening the property will be a far more expensive venture, estimated at $3 million just to get the mine repaired.

**Coeur d'Alene Mines Corporation**

Coeur d'Alene Mines Corporation finished the year with a small loss of $759,000 on total revenues of $56,428,000. The company was profitable in the fourth quarter. The company had a net loss of $14 million in 1991 including approximately $11 million in nonrecurring expenses associated with the merger with Callahan Mining Corporation. The reduction in red ink was achieved by careful cost control of mining operations, administration, and exploration resulting in a decrease in total expenses of 52%. Part of the reduction was due to sales from the Flexhaust Company, a subsidiary that manufactures flexible ducting and hose, that was acquired when Cda took over Callahan last year. In May, Dennis E. Wheeler, President and Chief Executive Officer, was elected Chairman of the Board. He succeeded Justin L. Rice, who had served as Chairman since 1980 and had been a director of the company since 1961. Mr. Wheeler was also elected to a one-year presidency of the Silver Institute, a world wide association of silver producers and fabricators. Mr. Michael Clark, formerly with Pegasus Gold Corporation, was named Chief Operating Officer. Coeur d'Alene Mines' major source of income is the Rochester silver/gold mine in Nevada. Major projects include a joint venture with Echo Bay Mines at the Kensington gold property in the Juneau gold belt in Alaska and a feasibility study of the Fachinal gold-silver project in Chile.

The company announced a public offering of $75 million in convertible subordinated debentures due in the year 2,002 and underwritten by Kidder, Peabody, and Company, Inc. The offering, which is the largest in the company's 64-year history, was sold out. The money will be used for general corporate purposes including mine acquisition, or development of new or existing properties.

Cda Mines purchased the 12.5% interest in the Galena mine owned by Asarco in January. Cda now owns 75% of the mine (Hecla owns the other 25%) which was closed in July and is operated by Asarco under a long-term lease. Cda also purchased the adjacent Hornsilver-Peerless property from Hecla Mining Company for $500,000.
The company deservedly won yet another award for its superb reclamation efforts at Thunder Mountain, site of a heap-leach gold mine closed in 1991. Cda Mines was awarded a "highest habitat certification" from the Wildlife Habitat Council based in Maryland. Local environmental groups, including the Idaho Conservation League, praised the company for its efforts. The company created wetlands, backfilled and recontoured pits and made a hiking trail at the mine site. Adding a personal note, we would like to recognize Mr. Robert T. Richens, who heads up Cda Mine's environmental group and is recognized nationally for his expertise and high standards for protecting and reclaiming areas that have been disturbed by mining operations.

**Hecla Mining Company**

Hecla Mining Company suffered a $15.4 million loss ($7.5 million due directly to silver operations) in 1991 due mainly to poor metal prices. To save money, the company was forced to lay off 20 workers at the Lucky Friday mine in January bringing the work force down to 145. More cost cutting in December trimmed 25% of the corporate work force (about 20 persons), some of whom will be offered early retirement. The company posted further losses of $49.3 million, including $24 million in write downs and reclamation accruals for 1992. This included $8 million for environmental clean up at Bunker Hill. Without the write offs, Hecla would have had a loss of $7.3 million on revenues of $113 million. As in 1991, most of the loss was due to continuing erosion of metal prices.

The Lucky Friday mine produced 1,850,531 ounces of silver, 18,857 tons of lead, and 3,164 tons of zinc from 152,150 tons of ore last year compared to 2,031,779 ounces of silver, 21,336 tons of lead, 4,213 tons of zinc, and 965 ounces of gold from 175,170 tons mined in 1992. Thanks to the new underhand longwall mining method, the mine is the lowest cost producer in the district but costs are still above the price of silver, although the mine was helped by better lead and zinc prices. Fortunately, the estimated $3 million needed to close the mine is still higher than operating losses.

The company's industrial minerals division continued to do well with profits tripling from 1990 to $6.2 million in 1991. Hecla earned a profit of $1.2 million for the first three quarters of 1992, by selling $9 million worth of timber and land. The company lost an important court decision with one of its' insurance companies (St. Paul Fire and Marine Insurance Company) when a district judge ruled that the carrier was not liable for Hecla's share of the Superfund cleanup at the old Bunker Hill complex in Kellogg. The judge did rule that the insurance company would have to pay for Hecla's legal expenses in the suit filed by the Coeur d'Alene Indian Tribe regarding pollution and natural resource damages in the Lake Coeur d'Alene drainage basin. Hecla will contest the decision as an Appeals Court ruling last year stated that clean up costs were covered by standard industrial insurance.

The company joined many other mining firms who are heading south, when it announced it had purchased a gold prospect called the La Choya project in Sonora, Mexico, 30
miles from the U.S. border. A forty hole drill program has outlined reserves calculated at 4 million tons of ore containing 150,000 ounces of recoverable gold. The gold recovery plant from Yellowpine will be moved to the site. Production is scheduled for 1993 with an investment of about $16 million.

Hecla’s main flagship is the Republic Unit in Washington. The gold mine has a cash cost of $140 per ounce and set a new production record of 97,000 tons of ore yielding 77,736 ounces of gold in 1991. Hecla also owns 28% of the Greens Creek mine (operated by Kennecott Corp.) on Admiralty Island, Alaska, which broke even last year. Closer to home, the company is interested in selling some $8 million in commercial real estate adjacent to the Silver Lake Mall across from its headquarters in Coeur d’Alene according to ads placed in the Wall Street Journal.

Hecla is using the Idaho Business Network started by the Idaho Department of Commerce to find local suppliers of the many and varied materials the company purchases yearly. The company likes to “buy Idaho” when it can, and the computer network’s list of state vendors makes it easier to do. Over $50 million in contracts have been awarded throughout the state since the network started operating 3 years ago.

Sunshine Precious Metals, Inc.

Sunshine Precious Metals, Inc, (a subsidiary of Sunshine Mining Company) filed for bankruptcy in March. The company operates the Sunshine mine and refinery in Idaho and a mint in Hayden Lake. Sunshine ran into trouble when it could not pay back the principal or interest on the silver backed bonds which were issued in the 1980’s. The bonds were used to fund capital improvements including the No.12 shaft and the silver refinery. The company’s reorganization plan was accepted by the court in August. Under the plan, holders of the old silver backed bonds (8 issues worth $71.5 million) were issued new 8% silver indexed bonds with a face value of $800 and $200 worth of Sunshine stock for each $1,000 of the old bonds. The bond holders now have a mortgage on the mine. Under the plan the company has set aside $5 million to cover cash losses at the Sunshine mine. This should see them through 1993, although continuing very low silver prices are a time bomb working against the big mine. A minor scandal erupted when the court-appointed reorganization committee submitted a $170,000 expense bill to the company, including $300 per hour attorney fees and $200 per night stays at the Coeur d’Alene Resort.

Sunshine reported a third quarter net loss of $20.1 million compared to $8.4 million in the same period last year. Part of the loss was related to the reorganization and low silver prices. The company also had a $3.5 million write off related to closing it’s Dallas headquarters. The company lost $31.1 million in 1991 and reportedly had losses of $1.8 million for the first five months of 1992. Sunshine sold its Canadian oil and gas holdings to Chauvco Resources in October for $15 million with no net gain or loss to the company. At year’s end the company announced the impending sale of the mint in
Hayden Lake to its current manager, Marvin Otten. The mint just finished a contract for providing blanks for Silver Eagle coins for the U.S. Mint and has bid on another similar contract. Sunshine also closed down operations at the Burgin and Trixie leases in Eureka, Utah.

Production was scaled back in 1990, when the Sunshine mine produced 5.5 million ounces of silver. In 1991, the mine yielded 3.7 million ounces of silver, 1.6 million pounds of copper, and 500,000 pounds of antimony from 157,323 tons of ore. In 1992, the mine produced 2,540,363 ounces of silver, 809,8532 pounds of copper, 792,635 pounds of antimony, and 88 ounces of gold from 104,602 tons of ore. Mining costs in the third quarter were about $5.20 per ounce. During 1992, about $1 million was spent on underground exploration in the mine, focusing on the West Chance and Silverline areas. These targets resulted from new ideas generated by the mine geologists after a detailed study the attitudes of the known orebodies in the mine. A new antimony process circuit, developed and designed by Sunshine metallurgists, was installed in the Antimony Plant. The new system will result in substantial savings estimated at 35 cents per ounce of silver.

A lawsuit concerning a diamond mining plan in Sierra Leone went against the company last year and a jury awarded $39.6 million to the plaintiff, the Boullé Group of Dallas, TX. In January, a judge reduced the award to $24.25 million. The dispute was finally settled in April when Sunshine agreed to pay Boullé $1.5 million in cash and a note for $3.5 million payable over the next 30 months. Sunshine retains a 100% interest in the project. On a more positive note, a jury awarded Sunshine $1.9 million in a dispute with Western Gas Resources regarding a change in natural gas prices paid to Sunshine's former affiliate, Woods Petroleum.

In October, G. Michael Boswell, Chairman and CEO of Sunshine announced he would step down. Boswell had run the company since he and other officers wrested the silver mine from the Hunt Brothers of Dallas, TX in 1977. The corporate offices will be moved from Dallas to Boise, ID, and John Simko, the company's senior vice president and general counsel, will replace Boswell. With Boswell's farewell, another chapter in the saga of the richest silver mine in the world draws to a close.

Other Coeur d'Alene Mines

A bankruptcy plan for the Star-Phoenix Mining Company was approved in August. In 1990, the company closed down the Star mine which had been reopened to mine lead and zinc. The company's main asset is a $25 million lawsuit against Hecla Mining Company claiming wrongful termination of the Star lease. All physical assets of the company are pledged as collateral to Star Phoenix' largest creditors, West One Bank and Cominco Ltd. Hecla, owner of the mining property, canceled the lease after liens were placed against the mine when Star-Phoenix was having financial problems. Star-Phoenix claimed it was on the verge of becoming profitable when the lease was canceled, forcing
the mine to close. Hecla counter-claimed that the company was insolvent and doomed to failure. The dispute remains unresolved in Shoshone County.

The Idaho Division of Environmental Quality (DEQ) issued a notice of violation to Aqua-Tech Precious Metals, Inc., citing mishandling and improper storage of hazardous waste at the old DayRock mine on Ninemile Creek. Fines could reach $81,000 and the company and state are negotiating a settlement. In December, the company was fined $60,000 by the federal Environmental Protection Agency (EPA) for the violations. The DEQ citation noted that 400, 55-gallon drums of waste and 250 containers of various chemicals were stored unsafely at the mine site which was being used as a laboratory by Aqua-Tech. Late in the year, Aqua-Tech filed suit against Hecla Mining Company, the former owner of the DayRock mine, claiming that part of the cleanup was Hecla's responsibility. The company stated that Hecla had left transformers and minor amounts of hazardous metals at the mine and that they were responsible for removal. The complaint covers only a very small part of the hazardous waste problem at the mine.

Other Producing Metal Mines (Figure 2)

Cyprus Minerals Company

Historically low prices for molybdenum and other metals ($1.90 per pound for molybdenum oxide at year's end), forced Cyprus Minerals Company in March to lay off 25% (115 people) of its corporate headquarter's work force in Denver after posting a 61% decrease in corporate earnings for 1991 and two months after the resignation of the company chairman and CEO. The effects of the red ink quickly spread to Idaho. In April, Cyprus announced that 56 employees would be cut at the Thompson Creek molybdenum mine near Challis. Another 50 were cut in July reducing the work force to 205. The company wrote off $57 million for Thompson Creek along with other writedowns early in the year. About 6.5 million pounds of MoS2 were produced last year from the open-pit mine compared to 6.9 million pounds in 1992. The mine complex is the major employer in the Challis area. In November, there was very bad news when the company announced that the big open-pit mine would temporarily close until molybdenum prices improved. The closure will cost 177 jobs. A Community Action Team has been formed in Challis to address the crisis and Cyprus is assisting laid off workers in finding other mining jobs. Cyprus Minerals' copper mines in Arizona can provide all the molybdenum (as a byproduct) that is needed under existing contracts. Another reason for the closure was that a large slide had developed in the high wall. The 6-8 million-ton rotational slump required seven months of stripping to stabilize. The slide occurred above a major bench in the pit and left only two years of accessible reserves before another extensive highwall layback would be needed. In spite of this adversity, Cyprus pursued patenting 505 millsite claims at the mine. A small staff of about 20 people will maintain the facility during the shutdown. A number of the laid off employees are hoping for work at Hecla's Grouse Creek gold mine, if it starts up next year. The closure followed an announcement late last year that the Questa mine, a major
molybdenum mine in New Mexico owned by MolyCorp, would close after 70 years of operation.

As part of a corporate realignment, Cyprus sold its talc operations in Montana to RTZ Corporation. Cyprus and the Yankee Fork Ranger District of the Challis National Forest received a special reclamation award from the Idaho Department of Lands and Governor Andrus for clean-up and reclamation work at the old Scheelite Gem mill on lower Thompson Creek. The cost-share project was designed by the Forest Service and constructed with the help of Cyprus's equipment and operators. An old mill building and ore bins were removed, 2 acres of tailings were pushed back from the creek, tailings were encapsulated and the ground was revegetated. Cyprus also reclaimed another tungsten mill on upper Thompson Creek.

NERCO Minerals Company

Mining properties owned by NERCO Minerals (a subsidiary of PacificCorp) are for sale including the Con Mine in Canada and the Delamar silver/gold mine in Owyhee County. As a result of the sale, development work at the Stone Cabin mine adjacent to Delamar is on hold. In November, ratings on NERCO (and $6 billion in Pacific Corp debt) were placed on a CreditWatch by Standard and Poor's Corporation. PacificCorp took a $20 million write-down for NERCO in the third quarter and the parent noted it may take another $150 million in one-time charges for telephone and other mining assets that are for sale. Failing to find a buyer for the entire NERCO Minerals division, the company may now be willing to sell the properties piecemeal. An example of cost cutting measures included the laying off of NERCO's entire Delamar-based exploration group at the end of November. Exploration work, both near-mine and reconnaissance, was minimal during the year due to budget constraints.

Production from the Delamar mine in 1992 is estimated at 35,000 ounces gold and 1.8 million ounces silver from 1.3 million tons of ore. Most of the production was from the Glen Silver Pit, though the South Wahl and Sommercamp-Regan pits were also mined. Next year should be a banner year for production as the higher grade (0.1 ounce-per-ton gold) sections of the South Wahl pit will be mined, raising production to 50,000 ounces.

The Counter-Current Decantation Circuit in the Delamar mill, originally designed to process 1,700 tons-per-day, was increased to 2,300 tpd, and then expanded again in February, 1991, to 3,500 tons-per-day (1.3 million tons-per-year) at a cost of some $4 million. A new ball mill and other equipment were added to the existing ball and sag mills. Lower grade and harder ore from the Sommercamp and Glen Silver pits, necessitated the mill expansion to make the mine economic. In the mill, the ore is ground to -200 mesh and passed to the leach tanks and the Counter-Current Decant tanks. The solution from the overflow of the thickeners containing gold and silver is processed in a standard Merrill Crowe circuit. The thickener slurry containing about 300 ppm cyanide goes to the 130 acre tailings pond and this has caused a big problem for
the company. The cyanide in the pond is lethal to water fowl and has caused the death of about 200 birds. The tailings pond was neutralized after the first bird kills by pumping in many tank trucks of hydrogen peroxide, which oxidized the NaCN and left the water essentially non-toxic to water fowl.

To permanently solve the cyanide problem NERCO built a new $7 million Acidification, Volatilization and Readsoption (AVR) Plant. This is the second such plant in the world and is based on an improved design from the original plant built in New Zealand. The plant became operational in April. Sulfuric acid is added to the slurry from the No. 4 thickener converting dissolved NaCN to HCN. This fluid goes through two packed towers (outside the building) where the HCN gas is separated. The HCN is then treated with caustic soda to produce NaCN which is then pumped back to the mill for reuse. The system works under a light vacuum to prevent any possible escape of HCN and the plant is loaded with safeguards to prevent human contact with the deadly gas. The slurry with a much lower non-toxic cyanide content is pumped to the tailings pond. The current cyanide level in the pond is about 7ppm.

Although Pacific Corp is trying to sell their minerals division, NERCO pressed ahead with patenting 192 millsite claims at DeLamar. For the validity exam on the area under the tailings pond, NERCO will drill angle condemnation holes, and the BLM will do the sampling. As noted, permitting for their proposed Stone Cabin mine is on hold due to corporate uncertainties, mediocre gold prices, and continued wetlands negotiations.

**Stibnite Mines Inc., (MinVen Gold Corporation)**

Stibnite Mines (a subsidiary of MinVen Gold Corporation) plans on expanding the Stibnite gold mine. The company is seeking permits from the Payette National Forest to open six new sites named, the Stibnite, Broken Hill, Ridge Top, Cinamid, Doris K, and Garnet Creek pits. The new deposits cover 286 acres of federal land and could extend the mine’s life by 15 years. The deposits contain an estimated 15.2 million tons of ore which will be mined at a rate of 990,000 tons per year. The ore will be processed at the existing heap-leach facility. The current work force, numbering about 110 people, will be retained. The draft Environmental Impact Statement is due out in January, 1993.

This year, mining activity shifted from the West End Pit, which is almost exhausted, to two new pits, the Midnight Pit at the south end of the West End, and the Northeast Pit. Additional oxide reserves have been delineated in the West End Pit, but they are economically marginal at current gold prices. Approximately 950,000 tons of ore were mined during the May to November mining season. MinVen loads the crushed gold ore on five leach pads. The 50,000 tons of ore on the pads are neutralized prior to off-loading. The company reclaimed the Upper West End dump this season.
**Hecla Mining Company**

Hecla finished leaching and started reclamation at the Yellow Pine mine at Stibnite in Valley County. About 2,000 ounces of gold will be won as part of the effort, which includes dismantling the mine plant and reclaiming roads, ponds, and the leach pad. Close to 100,000 ounces of gold have been extracted from the mine since 1989. Total production of gold from the Stibnite District is 650,000 ounces. Hecla is using an experimental process developed by Pintail Systems Inc. to neutralize and detoxify the heaps. A cyanide-eating bacteria, which is grown in the lab, freeze-dried for transport, and then cultured on-site in the heaps literally eats the cyanide. Monitoring tests show the bacteria are working well. An added advantage is that the extra nutrients added to the heaps for the bacteria compliment the reclamation effort. Monitoring of the new process will continue through the spring. The company received the Pacific Northwest Pollution Control Association's 1992 Industrial Pollution Control Award for Idaho for pioneering the innovative bio-neutralization process. The Yellow Pine pit has already been recontoured and revegetated. The company used a tree spade to transplant mature trees in the reclaimed area and will plant an additional 12,000 new seedlings as well. A drought hurt grass growth, but lodgepole pine seedlings are thriving. The gold recovery plant (20 semitrailer loads) is being recycled and shipped to Hecla's new gold mine in Mexico.

**Pegasus Gold Corporation**

The first gold from Pegasus' new Black Pine mine in Cassia County was poured in January. The company held a grand opening in September. The ceremony included a color guard from the Burley VFW, speeches by company officials, the mayor of Burley and the Supervisor of the Sawtooth National Forest, a Dutch oven lunch, and guided tours of the mine and plant facilities. The large crowd included a number of enthusiastic residents of Cassia County.

The mine is located on 117 acres, 67 miles southeast of Burley on the east side of the Black Pine Mountains. The gold is hosted in calcareous siltstone and limestone. Pegasus bought the property from Noranda in 1990 for $6 million. A dozen major permits from 8 different agencies were required to bring the mine on-line. Capital investment in the project is $20 million. The mine is expected to produce 50,000 ounces of gold per year through 1995 by mining over 3.2 million tons/year. Reserves are about 15.7 million tons at 0.022 ounces per ton recoverable gold. Exploration continues to define several anomalies on the property. The mining plan includes extracting ore from three separate pits, the Tolman (nearly mined out) and the A and B pits. The waste to ore strip ratio is about 0.7:1. Run-of-mine ore is heaped onto a 100 acre valley-fill leach pad which is divided into 5 cells for additional environmental protection. The ore heap is ripped with a bulldozer prior to spraying with sodium cyanide. Ames Construction is the mining contractor. About 75 people are employed at Black Pine which has a $2.9 million payroll.
The gold-bearing pregnant solution is fed to a carbon adsorption plant. Gold is redissolved by a strong cyanide/caustic mixture to produce a more concentrated gold solution which is passed through an electrowinning circuit to precipitate the gold onto steel wool cathodes. The cathodes are retorted to recover mercury before being melted in a propane-fired furnace to produce the dore bullion. A dore button, weighing 278 troy ounces and worth $81,000, was on display at the open house. The dore averaged 81% gold and 18% silver. Operating costs are about $202 per ounce of recovered gold.

Pegasus planned on mining from a new E-pit (located atop Black Pine Cone) via an access road from the A-pit. However, the company withdrew the EIS for this project as the Forest Service needed more data that could not be provided within the company's timeframe for the new pit. The proposal will be resubmitted at a later date.

A minor environmental problem surfaced when 5 cows died from ingesting tailings from the old Tolman mill near the Black Pine mine. The tailings from the old mercury/gold mine had been impounded in settling ponds constructed at Forest Service request to control erosion of the tailings. Unfortunately, the cattle consumed some of the toxic metals while walking in the settling ponds. A new remediation plan is under development.

Idaho Gold Corporation

Idaho Gold Corporation (a subsidiary of BEMA Gold) is shutting down the Champagne heap-leach gold mine in Butte County. Approximately 150,000 tons of ore were hauled out of the South Zone pit during the year. Leaching and gold recovery will continue until July, 1993. Since opening in 1989, the mine has produced 46,000 ounces of gold and 450,000 ounces of silver worth $17.5 million. About 10,000 ounces of gold will be recovered this year compared to 25,000 ounces two years ago. Detoxification and neutralization of the heaps and reclamation work will extend into 1994. It will take three years to complete reclamation and long term monitoring at the site. Fifteen employees currently work at the mine and Arco office, down from 60 people last year. The closure will be a blow to the county as the mine paid $187,000 or 13 percent of the county's property tax in 1991.

U.S. Antimony Corporation

Although facing possible Chapter 11 bankruptcy due to a $1.2 million adverse court decision, U.S. Antimony (USAC) and joint venture partner BumbleBee, Inc. continued work at the Yellowjacket Mine in Lemhi County. Bumblebee, coming to USAC's rescue, invested $800,000 in the venture for a 40% share. The small, open-pit gold mine, which was opened late last year, had startup problems with the tailings pond and suffered from a lack of grinding capacity. A second grinding mill was installed to boost production up to 250 tons per day (60% of originally projected mill feed). The Yellowjacket mill is a straight flotation circuit processing oxidized ore containing free gold. Concentrates are
trucked to U.S. Antimony’s Preachers Cove mill on the Yankee Fork of the Salmon River for processing. Production in 1992 is estimated at 3,500 ounces gold from about 40,000 tons of ore. Average recovered grade is 0.08 ounces-per-ton gold. Fifteen to twenty men work at the Yellowjacket, which will operate through the winter. Exploration has extended the reserves significantly. An unproven resource probably continues down-dip in the main Yellowjacket pit and across the valley to the Continental-Columbia area. The Preachers Cove mill did not accept any custom orders this year as the crusher was moved to the Yellowjacket mine and because of the company’s legal and financial problems, but the mill should be open next year.

Other Small Mining Operations

NJB Mines, Inc., hauled about 50 tons of gold ore out of the new NJB pit at the Red River mine near the Red River Ranger Station southeast of Elk City. A 10 ton-per-day gravity mill was set up on private land some eight miles from the pit. According to owner Richard Johnson, “the gold is as fine as frog hair” and that has caused some recovery problems. A flotation circuit may be added to the mill next year.

Placer Mines

Jim Riggans and a 3-man crew ran a 300 ton-per-day placer operation on the North Fork of the Salmon River below Gibbonsville. The active gravels and old benches were formerly worked in the 1930’s with a dragline. Riggans purchased the private property last year. He had previously placered on Kirtley Creek near Salmon. The gravel is excavated with a D8 Cat and loader. Two 12-yard dump trucks transport the ore to a washing plant with a wet grizzly, trommel, and sluice boxes. Some coarse gold is recovered. They expect to be back in the area next year.

George Castle processed about 500 cubic yards of material at the Twin Springs placer deposit on the Middle Fork of the Boise River before his water supply dried up.

Arvid Wolfgram ran a sluice box operation on a half acre in the Florence Basin, and there was a similar operation on the Salmon River near Lucille. Both operators filed for extensions, but plans were delayed because of anadramous fish issues and they shut down for the winter.

U.S. Gold leased a small placer gold deposit north of Dixie in Idaho County. They brought in some equipment, mined for a few days, did reclamation, and returned to Utah. The property belongs to Pat Holmberg, a leader in the “People for the West” multiple use group.

Golden Bull Mining of Riggins planned on placerping 3-4 million cubic yards of gravel on the main Salmon River.
Don Clark of Nampa proposed starting a placer mine on the Echo claims near Secesh Meadow.

A small placer operation was reportedly in operation on Kirtley Creek, east of Salmon.

There were several small dredge/placer operations on the Yuba River near Atlanta.

Minor work done by Mace Ridley of Rexburg on a small gold placer at South Boone Creek on the east side of the Targhee Forest.

A number of small hobby suction dredges operate in parts of Idaho which have produced placer gold in the past. According to the Department of Water Resources, 518 one-stop permits (required to run the dredges) were issued in 1992. Most of these were in the northern and southwestern parts of the state with only 40 permits issued in southeast Idaho.

PHOSPHATE MINES AND PLANTS (Figures 2 and 4)

Introduction

The U.S. Bureau of Mines noted that for crop year 1992 (July 1, 1991-June 30, 1992), production of phosphate rock in the U.S. increased 4% to 48.7 million metric tonnes from 46.8 million tons the previous crop year. The value of this rock decreased from $22.97 per ton in 1991 to $22.73 per ton in 1992. Most of the mined rock is used to make phosphate fertilizer. Major fertilizer producers (with 85% of U.S. reserves) are in Florida and North Carolina with smaller plants in Idaho, Utah and Montana. Idaho produces about 10-15% of the phosphate in the United States. About 12 million tons of fertilizer are made in the U.S. each year. The early year report does not tell the whole story however, as fertilizer sales crashed in the fall to near 15 year lows. According to the Wall Street Journal (12/11/92) the reason for the disaster was a bumper corn crop (about 45% of domestically produced fertilizer is used for the corn crop) which depressed prices and will result in a lower acreage being planted next year and a similar scenario for the soybean crop. Projections are that 2%-3% less fertilizer will be used next year. Wet weather in the Fall resulted in a late harvest leaving no time for fertilizer application which cut into this year’s market. Over 700 workers were furloughed from Florida phosphate mines in 1992 (USBM, Minerals Today, 12/92). Export demand is also down, especially to India who accounts for about 1/5 of the 10.7 million tons of diammonium phosphate (DAP) fertilizer that the U.S. exported last crop year. Russia has been exporting DAP at a loss for foreign exchange. A decrease in the cost of sulphur should have helped producers but buyers demanded that the savings be passed on to them and the price fell to near the cost of production.
Idaho producers were somewhat insulated from the mid-continent and eastern market problems. NuWest is specializing in producing high demand, super phosphoric acid and J.R. Simplot markets fertilizer primarily in the western states. Monsanto and FMC produce elemental phosphorous which has different applications than fertilizer. Rhone-Poulenc mines phosphate in Idaho and then ships it to an elemental phosphorous plant in Silver Bow, Montana. None of the Idaho producers ship raw phosphate rock as a commodity. About 2,500 workers are employed in the state’s phosphate industry and these are some of the highest paid industrial employees in Idaho.

**FMC Corporation**

FMC began operations at their new Dry Valley mine in Caribou County. The new facility replaces the mined out Gay mine on the Fort Hall Indian Reservation. The Gay mine has provided about one third of the revenue for the Sho-Ban Indians on the Fort Hall Reservation for the past 40 years. The tribe is seeking alternative sources of income including bingo and a trading post complex. The Sho-Bans are also looking into producing their own fertilizer in a joint venture with the Ogala Tribe on the Pine Ridge Reservation in South Dakota. Zeolites on the Ogala’s land can possibly be combined with phosphate to make a time-release fertilizer.

Simplot was the contractor at the Gay mine but FMC will do its own mining at Dry Valley. Production began from the A pit and will be followed by the B pit, just to the south. The B-pit will be some 380 feet deep when mining is completed. The mine has a 15-25 year lifespan at a rate of 1.6 million tons-per-year. Mining equipment at Dry Valley includes a new P and H 2250 25-yard hydraulic loader and 150 ton trucks.

The Dry Valley mine will disturb about 700 acres when completed. Environmental costs are about $2,000 per acre. The company is creating 111 acres of new wetlands to replace 35 acres that will be drained. The new wetlands plus 300 additional acres will be given to the Boy Scouts of America for a summer camp. The Boy Scouts have agreed to maintain the wetlands in perpetuity. A new precast shop and office at the minesite is complete. The garage doors at the shop are 28 feet high to accommodate the big mining trucks and even larger equipment that may be used in the future. The initial haul distance from the A pit to the loadout, located on a spur of the railroad down Dry Valley, will be 2.5 miles. Estimated start up costs for the new mine are $25-30 million.

About 550 people are employed at FMC’s Pocatello facility, the largest elemental phosphorous plant in the world. Members of Iron Workers Local 732, employed by Idaho Iron, picketed FMC’s plant in June protesting the hiring of non-union workers. The problem resulted when FMC contracted with non-union Southern Idaho Equipment to do work that had been done by Idaho Iron in the past. The lost contract will cost Idaho Iron about 80-100 jobs. Southern Idaho submitted the most favorable bid to FMC for the three year contract. Machinists Union Local 1933 was more successful, signing a new three-year contract covering about 350 workers at the plant.
Figure 4. Phosphate mines and plants in Idaho, 1992
Simplot and FMC hired Bechtel Environmental, Inc., of San Francisco to study the extent of pollution at the Eastern Michaud Flats Superfund site northwest of Pocatello. The 2,530 acre site (most of the Fort Hall Reservation) was contaminated by mining and processing wastes stored in unlined ponds over many years. The companies are working cooperatively with EPA, the State Department of Environmental Quality, and the Shoshone-Bannock Tribe on the clean up effort, which will take at least five years at an unknown cost. Part of the study will be to assess the effects of airborne P2O5 emissions on people and how to control such emissions.

The companies are also studying small particulate air pollution (also known as PM10 pollution) emitted from their plants and known to contribute to smog problems in downtown Pocatello and surrounding areas. FMC and Simplot are working with the State Division of Environmental Quality, local government, and EPA to come up with a state implementation plan (SIP) to meet EPA standards by November 15, 1993. The penalty for non-compliance is loss of federal highway funds and service money. Dust from handling phosphate ore (mostly FMC) appears to be the biggest industry problem. Other problem areas are wood stoves, road dust, and other industries. The air quality problem is exacerbated by cold weather.

**Monsanto Chemical Company**

Late in November, Monsanto announced a 10% cut of its worldwide work force of 32,000 people. The diversified chemical and drug company also plans to sell some businesses and curb research. Stiff global competition and the demand for lower cost products was blamed. On a brighter note, the company's elemental phosphorous plant in Soda Springs won the Bureau of Land Management's Partners in the Public Spirit Award in March. Governor Cecil Andrus and BLM Director, Cy Jamison, presented the award for outstanding reclamation work at the Henry mine located north of Soda Springs. The company was selected from 22 candidates nationwide to receive one of six of the prestigious awards. Monsanto started work at the Henry mine in 1969; the mine was exhausted last year. The company has received numerous awards and citations for reclamation at the 1,200 acre site. Monsanto's success is based on a simple premise, "make the land better than it was before mining began."

Full operations continued at the Enoch Valley mine that replaced the Henry mine last year. Dravo-Soda Springs is the mining contractor. Dravo received a Sentinels of Safety award from the Mine Safety and Health Administration for working 169,841 hours without a lost time accident in 1991. About one million tons of phosphate ore is trucked to Monsanto's elemental phosphorous plant at Soda Springs annually. The plant employs about 400 people with another 80 working at the mine. The company also mines quartzite for making slag in the plant's electric furnaces from a quarry near Soda Springs. Monsanto will celebrate 40 year's of operation at the Soda Springs facility in December.
Monsanto and FMC will fund a new study to find out what harmful effects, if any, slag (a byproduct of the elemental phosphorous process) may have. Both FMC and Monsanto have stopped selling slag which has been widely used as an aggregate throughout the area. In 1990, EPA warned that the slag might constitute a cancer risk due to low-level radiation from uranium, which occurs naturally in Idaho's phosphate ore. However, the original EPA study was flawed according to a EPA science advisory board review released in January. A 12-member Technical Work Group will design and do the new study which hopefully, will answer the health questions. EPA, Monsanto, FMC, the Shoshone-Bannock tribe, the Idaho Department of Health and Welfare, and local government are represented in the Work Group.

**Kerr-McGee Corporation**

Kerr-McGee operated their vanadium extraction plant located across the road from Monsanto’s plant, all year in spite of seriously declining vanadium prices. The company produces about four million pounds of vanadium per year which is extracted from ferrophosphorous metal, a byproduct of Monsanto and FMC's elemental phosphorous plants. The company is the largest producer of vanadium in the U.S. and employs about 60 people at the Soda Springs plant. The price of the catalyst and steel additive has dropped from almost $9 per pound in 1990 to $1.70 at year's end. One of the reasons is increased exports from the Commonwealth of Independent States (former Soviet Union) and China.

**Nu-West Industries, Inc.**

After a two month lay off at the end of last year, Nu-West's fertilizer plant and mine were back in business in January. The company bought out their partner Western Cooperative Fertilizer's 50% interest in the Conda Partnership, and now Nu-West owns the entire mining and processing facility. The purchase included $150,000 cash and a $4.95 million interest bearing promissory note secured by the facility and Nu-West stock.

Production of fertilizer from the Conda plant increased 10% in FY-92 over the previous fiscal year. Most of the improved cash flow from the plant ($10-11 million) went to the banks. The company is looking at refinancing loans at a lower interest rate. Nu-West is concentrating on producing liquid fertilizer (green acid) which is purer and more amenable to custom blending than solid fertilizer. The market for the liquid product is excellent and is expected to grow.

The Conda plant employs about 250 people and processes almost 1.8 million tons of ore mined from the Mountain Fuels Lease in Dry Valley. Conda Mining, a division of Washington Construction Company, is the mining contractor. The Mountain Fuels lease is almost exhausted so the company will expand the Champ pit and open new mining operations at the North Maybe Canyon Extension. The company received the state reclamation award for a large operator.
Nu-West constructed a new plant to produce very pure SiO2 from the phosphoric acid line. The process involves making SiF4, absorbing the gas onto ammonium fluorite, and eventually ending up with very pure SiO2. The product is then shipped to a plant in South Dakota for further processing. The SiO2 will compete favorably with imported Japanese silica. Potential markets include fiber optics and computer chips. The pilot plant will produce about 1,000 tons of SiO2 per year and employ about 15 people. The market for pure SiO2 in the U.S. is about 60-80,000 tons and if warranted, Nu-West may expand production. The new line is a diversification for the company into other areas besides fertilizer.

**J.R. Simplot Company**

J.R. Simplot Company expanded its fertilizer capacity by buying Chevron's fertilizer plant in Rock Springs, WY and mine in Vernal, UT with partner Farmland Industries. Farmland is a cooperative manufacturing and food processing company based in Kansas City with annual sales of $3.5 billion, almost double Simplot's total. The mine and plant were valued at $100 million but the partners were rumored to have paid about $70 million for the facilities. Chevron reportedly took a $400 million write off on the Rock Springs operation. The mine has a hundred years of reserves and the ore is pumped through a 96 mile-long slurry pipeline to Wyoming. The state-of-the-art Rock Springs plant can produce about 500,000 tons of dry and liquid fertilizer per year and employs about 165 workers. The partners, known as FS Industries Ltd, will split the production and Simplot's annual fertilizer output will increase about 30%.

Production has nearly ceased at the Gay mine on the Fort Hall Indian Reservation. The big mine, named for Simplot's daughter, provided phosphate ore for both Simplot's fertilizer plant and FMC's elemental phosphorous plant in Pocatello. Simplot now obtains ore from its Smoky Canyon mine on the Idaho-Wyoming border.

Operations were normal at the Pocatello fertilizer plant. Ore is pumped to Pocatello through a $22 million, 87 mile-long pipeline completed last year from the Smoky Canyon mine. The pipeline moves about 240 tons of slurred phosphate ore per hour and has significantly reduced dust problems at Pocatello. The plant uses about 1.5 million tons of ore per year and produces about 400,000 tons of fertilizer. The company asked Power, Caribou, and Bannock Counties for a 60% property tax exemption on the pipeline which they classify as a pollution control system.

Simplot and EG&G at the Idaho National Engineering Laboratory at Idaho Falls continued a coop program started last year. The partners signed a $1.9 million agreement to develop phosphate solubilization which could revolutionize the industry. The biological process would eliminate the use of sulfuric acid to extract phosphorous from phosphate ore, the current method used for fertilizer production. Not only would this eliminate the problems associated with the acid, but it would end the production of phosphogypsum, a
waste product which has no use, and is produced in large quantities as a result of the fertilizer manufacturing process.

Rhone-Poulenc Basic Chemicals Company

Rhone Poulenc continued full operations at the South Rasmussen Ridge mine. About 60 people are employed at the mine which produces about 500,000 tons of phosphate ore per year. The ore is shipped by rail to the company's elemental phosphorous plant at Silver Bow, Montana. Rhone Poulenc is a chemical and pharmaceutical firm owned by the French government. France sold 10.5% of the company's shares (the first such sale) to private investors during the year.

Other Phosphate News

In a slightly new approach, the Forest Service granted two exploration licenses for work in the Known Phosphate Lease Area prior to putting the parcels up for competitive lease. This allows the Forest Service to know in advance what the resource is before starting required NEPA studies. Monsanto and Simplot joined forces to explore the Manning Creek area south of Simplot's Smoky Canyon Mine. Conda Partnership, Monsanto, and FMC drilled the Dairy Syncline area. Both programs were successful and the formal leasing process is underway.

AEI Corporation, a manufacturer of specialty phosphate fertilizer products, was fined $125,000 for polluting groundwater on the Fort Hall Indian Reservation. The company planned to contest the fine. The plant is located across from FMC's elemental phosphorous plant.

The federal Bureau of Land Management, Caribou National Forest, state Departments of Lands and Fish and Game, and six phosphate companies collaborated to produce a 28 minute video (and three shorter versions) telling the story of phosphate mining in southeast Idaho. The excellent video informs viewers about the industry which employs some 3,000 people in the Pocatello/Soda Springs area and produces about 15% of the phosphate mined in the United States. The presentation stresses not only processes, but the great efforts that the industry has expended to extract minerals in harmony with nature and highlights the award-winning reclamation for which the industry is well known.

Alumet did not do any mining at the Lanes Creek mine this year. The company did some drilling to improve reserves in Swan Lake Gulch in the Aspen Range.
Industrial Minerals (Figure 5)

Limestone

*Idaho Travertine*, one of the largest stone cutters west of the Mississippi River, had a good year. The company has a number of large diamond saws and other equipment for cutting, slabbing, and polishing travertine and other stone at its' plant in Idaho Falls. Some of these machines utilize microprocessors and lasers for precise operation. The largest circular saw is 91 inches in diameter. The plant can cut about 30,000 square feet of stone per month. Presently, the company is preparing Idaho Sandstone from the Table Rock Quarry near Boise for construction of new buildings at the Albertson College of Caldwell and for repairing the Statehouse in Boise. The company's mainstay, travertine, graces the new Idaho Power Building in Boise. Idaho Travertine has two quarries, one at Fall Creek where large boulders of travertine are quarried and then shipped to Idaho Falls for slabbing, and another mine on the Continental Divide in the Medicine Lodge Limestone. They are trying to patent Fall Creek but are having problems, as the U.S. Forest Service in Washington, D.C., wants to classify the stone as a saleable rather than locatable commodity.

*Chemstar Lime Company* and the citizens of Bancroft celebrated the grand opening of the state's newest lime plant. Highlighted by the energy efficient, 171 foot-high Maerz kiln and 5,300 feet of conveyor belts, the plant, built at a cost of some $24 million, is one of the most efficient and environmentally sound in the world. The facility will produce some 600 tons of high calcium lime per day and will operate 24 hours around the clock. The high efficiency kiln uses some two million cubic feet of natural gas daily. A 2,400 foot-long conveyor brings the crushed limestone from the quarry to the kiln where it is heated to 2,200 degrees, driving off carbon dioxide and leaving calcium oxide behind. The lime is then trucked to Bancroft for rail shipment. It is used in gold mining, as a water purifier, for soil stabilization, and for manufacturing glass, paper, cement, copper, steel and asphalt. The company's annual payroll is about $1 million and the new plant increased the assessed valuation of Caribou County by 9% to $439 million. Reserves in the quarry and nearby are sufficient for 50 to 100 years at current production. Current activity is on public land (patents are being issued for 40 millsite claims) but Chemstar has mineral leases on adjacent state land and plans to develop them in future. The plant will employ about 35 people at full operation.

*Idaho Lime* did not do any mining in 1992 but did have an active exploration program. Five core holes, about 200 feet deep, were drilled early in the year on a marble deposit on Orofino Creek, where the company is trying to open a quarry for agricultural lime and decorative limestone. Nine core holes averaging 150 feet deep were put down on a state lease at Slate Point off the Nut Basin Road northeast of Riggins. Six holes were drilled at No Business Creek near Slate Creek. Idaho Lime also did some reclamation at the Slate Creek pit and submitted a proposal to drill on a nearby ridge. The plan was turned down or put on hold by National Marine Fisheries Service (NMFS) requirements for a biological
Figure 5. Industrial mineral mines, plants, and exploration projects in Idaho, 1992
assessment of the impact on anadramous fish. The company is trying to open the Slate Creek deposit which hosts industrial quality lime for use as fillers in paint or paper. Idaho Lime's plant in Grangeville operated very little this year and only on rock purchased from the Mission Creek quarry on the Nez Perce Reservation.

_Ash Grove Cement Company_ (the only cement producer in the state) is experimenting with fueling their cement kiln at Inkom with old tires. Burning TDF's (tire-derived fuels) will help alleviate the landfill problems in southeast Idaho. The process is feasible because the 3,000 degrees F. temperatures in the cement kiln should totally disintegrate the tires. Under state law, the old tires must be removed from county and city landfills. In November, the state awarded Ash Grove a $45,000 grant to burn the rubber. A final decision on using TDF's has not been made, but the company does burn tires at a plant in Oregon. Potlatch Corporation burns 50 tons of chipped tires a day in its waste power boiler in Lewiston, the largest such operation in the United States. The money comes from the Waste Tire Grant Account established by the state legislature in 1991 and funded by a $1 fee collected on the purchase of every new tire. Cement production at the Inkom plant was up slightly to about 220,000 tons. Most of the cement is a Type 2 product. Limestone and silica feed is mined from quarries just west of the plant. Prices were steady and it was a good year for the facility.

The _Nez Perce tribe_ mined about 10,000 tons of limestone from the Mission Creek quarry which was sold to Potlatch Corporation's paper mill in Lewiston. Three to five men were employed in the mining operation. The tribe is interested in getting into the agricultural lime business.

_Faxe Kalk_ (a Danish company) contracted with Idaho Travertine for mining and crushing 40,000 tons of travertine from Faxe Kalk's deposit near Lidy Hot Springs. Patents for 2 claims are in progress. E.J. Wilson mined several bulk samples for testing from the Lidy Hot Springs deposit while Faxe Kalk continued to do market research. Some of the rock was ground to 1 to 3 micron size to test its use as a paper, paint, and plastic filler. Decorative rock and animal feed supplements are also potential uses.

_Treasure Canyon Calcium_ shipped about 20,000 tons of limestone to Simplot's fertilizer plant in Pocatello. The lime is use in processing phosphoric acid. Treasure Canyon employs about a dozen people at its plant and quarry in Franklin County. The company shipped a small amount of limestone for use as an animal feed supplement and is interested in expanding this end of the business.

_Owyhee Calcium_ applied for patent on claims covering an oolitic limestone deposit in the Glenns Ferry Formation south of Grandview. About 8-10,000 tons were mined during the year for use in animal feed.

_West One Minerals_ is still looking for a market for their limestone deposit near Leslie Butte, about 20 miles north of Arco.
Del Bain shipped screened oolitic limestone to Yakima, WA, for a fertilizer additive. The material is reportedly bringing a good price.

Big John Mining, owned by Walter Lindsey, a Lewiston real estate agent, drilled 7 core holes looking for limestone at Slate Point in the Nut Basin area northeast of Riggins. Idaho Lime has a deposit on adjacent land and was willing to buy 100,000 tons of the high grade 98% CaO limestone over three years if Big John could develop their quarry. Plans for a test pit were derailed by Forest Service requirements for an EIS, which could not be budgeted by the Forest until 1994. The listing of several species of salmon as endangered or threatened and related environmental requirements was also a factor.

Silica

Unimin Corporation enjoyed a good year at their silica sand quarry and washing plant near Emmett. The highlight of the year came in July when the company received the first patent to be issued in 1992 in Idaho on a placer claim. The patent on five claims totalling 90 acres, culminated a two and a half year legal process. The volume and quality of the feldspatic glass sand produced from the plant was about the same as last year. Unimin had two drilling projects during the year to define reserves in their active Pearl quarry and to sample and study additional unpatented claims. The BLM assisted with sampling on some of the holes. The sand is used in glass-making, sandblasting, filtration, and in golf course bunkers. City Transfer is the mining contractor at the site.

Diatomite

In August, Grefco reopened three 30-inch diameter drillholes (completed in 1989) for bulk sampling at the Deep Creek diatomite property in southwestern Idaho. One of the holes went down 70 feet and two others 35 feet. As part of a validity exam, a BLM geologist was lowered down the holes in a chair hoist to collect samples of the diatomite horizon; sounds a bit bizarre but the procedure is perfectly safe. The ore is very pure diatomite located 50 feet below the surface. Grefco operates a large diatomite mine near Lompoc, California, 150 miles north of Los Angeles. The diatomite is used for filtering beer, wine, swimming pools, and drinking water.

Perlite

In 1991, National Perlite (a division of Oglebay Norton) shut down the Wrights Creek mine and plant operations at their perlite facility in Malad due to air quality problems. The plant, located in town, and the crushing facility at the mine were creating too much dust. The company submitted plans for opening a new pit in harder perlite that would produce less dust. Another part of the plan called for improving the road to the mine along Wrights Creek. These plans were approved, however, the company has placed the plant and mining operation on hold.
Pumice

*Hess Pumice* had another good year, shipping some 35,000 tons of pumice from their Wrights Creek pit and plant in Malad during 1992. Export markets, principally to Japan, expanded slightly. The ultra-pure pumice abrasive is used to polish television picture tubes and for other abrasive applications. Hess also sell pumice for lightweight aggregate in concrete blocks to markets in Utah and Montana. The company signed a new, one-time contract with the Idaho Department of Transportation to provide 20,000 yards of pumice for sanding highways this winter. Hess employs 40 persons.

*Producer's Pumice* (a subsidiary of Builders Masonry Supply) was sold to Joe Smith of Boise. The company mined pumice all summer from the Rock Hollow mine near Idaho Falls. The material is loaded in railcars and taken to a plant in Meridian where it is used for lightweight aggregate.

*AMCOR, Inc.* extracted 4,620 tons of pumice from the Sunnyside pit near Idaho Falls. Most of the pumice is used for lightweight aggregate. About 5 to 7 employees worked at the pit during the summer.

Garnet

The *Western Garnet Company* (formerly Hawkeye Development), from Canada, purchased Emerald Creek Garnet, the nation's largest garnet mine last year for $2.9 million plus a royalty. The plant, employing about 45 people, ran all year and expansion plans are in the wind. The garnet is dredged from Emerald and Carpenter Creeks using washing plants. The company operated all summer on private ground and two federal leases. Mining was completed on one of the leases and preliminary stripping has started on the other 12-acre lease from the BLM. The operation produces about 30,000 tons of finished garnet product per year but Western would like to double production in the near future. The finished garnet is worth about $157 per ton and is used as an abrasive, in filtration, and in high pressure water-jet torches. Western is also trying to improve the purity and sizing of the product to increase the potential market uses. Polestar (18% owned by Western) and Western Garnet are studying the feasibility of opening the Crystal Peak mine, a 225 ton-per-day operation, which should produce about 60,000 tons of garnet per year, near the Apex recreation area, 32 km. west of Penticin, B.C. Western Garnet is capitalized for about 10.5 million shares with a market value of some $84 million and has enjoyed a recent increase in the value of its stock.

The U.S. Forest Service's public garnet digging area near St. Mary's sold a record of 2,670 permits to visitors. The diggers took out 655 pounds of garnets. The largest crystal weighed eight ounces. The popular recreational site is the location for finding star garnets, the state gemstone of Idaho.
Clay

*Applied Industrial Minerals Corporation (AIMCOR)* mined bentonite from the Ben-Jel deposit near Oreana. The clay is processed in Caldwell and is then sold to the paper industry for a good value-added price. The company is also looking at developing the Castle Creek zeolite deposit near the Ben-Jel pit.

*E.J. Wilson and Sons* shipped 4,000 tons of bentonite from a quarry in eastern Idaho. The material was used for ditch and canal linings to reduce water loss during the current drought.

*Clayburn Industries* did not ship any calcined clay from the old Simplot clay plant near Deary. The company reclaimed and reseeded about 4 acres disturbed by clay mining during the past few years. Clayburn was shipping about 1,200 tons of calcined clay per year to their refractories plant at Abbotsford, British Columbia.

Scoria

*Mountain West Bark Products, Inc.*, of Rexburg expanded pumice operations north of Magic Reservoir. Uses included landscaping and road metal.

*Lava Flow Products* went bankrupt and closed their cinder pit and plant near Mountain Home.

Stone

A request by *International Stone Company* for a permit to remove 200 boulders of basalt for landscaping from the dry channel of the Big Wood River in the Lava Wilderness Study Area north of Shoshone was refused by BLM. The river has carved and polished basalt resulting in a "Fossil River" that is probably unique in the world. Long targeted by BLM for preservation, the mining request brought a quick decision. Secretary of the Interior, Manuel Lujan approved a two-year temporary withdrawal of 12 miles of the river bed in July. It is very rare that BLM withdraws public lands from mineral entry or invalidates mining claims and Fossil River is one of the exceptions.

Three Oakley Stone producers operated, including *Oakley Valley Stone* (Jim Birch), *Northern Stone* (Gary Mullard), and Dave Rodriguez. Northern Stone Supply has a patent report in progress for 17 claims in T15S, R22E, Sections 10, 15, 22, 23. They were also planning to expand but only quarried six months this year.

*The Rocktile Company* in Boise maintained normal operations cutting about 125,000 square feet of tile from Oakley Stone. Most of the material is used as facing stone. The company which employs about 8-11 people, has been in business for 11 years (not five as reported last year). New markets developed last year in Japan are growing and the
company is encouraged by foreign sales. Rocktile buys its stone from several Oakley quarries and does not mine any rock themselves.

*Table Rock Sandstone*’s quarry near Boise was active, as workers quarried stone to repair the state Capitol Building damaged in a fire in 1990. The new sandstone had to be matched to the existing masonry. The rough blocks were shipped to Idaho Travertine in Idaho Falls for final cutting and finishing. Some rock was shipped to California by Cloverdale Nursery for landscaping. The quarry was originally worked by prisoners from the nearby old State Penitentiary.

A number of BLM and USFS districts reported an increase in demand for building stone of many types. Sandstone talus, rhyolite, lava rock, granite, quartzite, etc. are used by local contractors for building, landscaping, and other growth-related purposes. Idaho stone was in hot demand for expensive homes in Sun Valley and even in Seattle, at prices of $100 per ton. Some tough battles over classifying different types of stone as leasable versus locatable are anticipated in the near future.

**Gemstones**

Larry Ridley continued small-scale operations at Willow Creek Jasper northwest of Boise. There are 2 or 3 small jasper mines near Bruneau.

Operations continued at Spencer Opal near Spencer. There was also some activity on the adjoining Lichtenwalder opal claims.

Some excitement was generated in October when Golconda Resources Ltd. announced that it had recovered indicator minerals and one micro-diamond from stream sediment samples in the Rocky Flat area west of McCall. This is the same area where the only semi-authenticated diamonds ever found in Idaho were reported in the 1920’s. The company suggests that a yellow-weathering clay containing phlogopite crystals may be a lamproite pipe that could host the diamonds. Available geological information does not describe any such rocks; rather, Rocky Flat is underlain by Columbia River Basalt, which sometimes weathers to an olive yellowish tint. As the area is currently under two feet of snow, the mystery will remain until spring. Diamonds are a glitter in the exploration scene because of a phenomenal staking rush to recent discoveries in the Northwest Territories of Canada.

**Aluminum Recycling Plant**

IMSAMET’s aluminum recycling plant at Hauser Låke maintained full operations processing 90 million pounds of aluminum cans, 55 million pounds of aluminum scrap, and 47 million pounds of dross in 1992. The molten aluminum is trucked 12 miles to Kaiser’s Trentwood aluminum plant. Initial problems with air quality have been resolved. Permits have been revised for even lower emissions, as the plant is now cleaner than
originally designed. The company completed a new facility on the Bonneville Salt Flats for recovering salt and potash from salt cake, a residue of the recycling process considered a hazardous waste. As noted by the plant manager at Hauser Lake, "Now, the only thing left of the salt cake when we are done with it, is a memory."

Zeolites

*Teague Mineral Products* had their best year ever, mining 3,000 tons of zeolites, a 10% increase over last year. Half of that production was from the Chrisman Hill Pit in Idaho, the remainder was from Oregon. The clinoptilite is processed in Teague’s plant at Adrian, Oregon. The company is working on a new product called Aqua-Sand. It is a soil additive for water retention and as a potting mix. It should be available next spring and will help keep trees and other plants alive in drought-stricken southern Idaho and elsewhere. Once the zeolite is initially saturated with water and fertilizer, the fluid will release slowly from the mineral’s structure, decreasing the amount and frequency of watering.

Some zeolites were mined for Kitty Litter from a small operation near Bruneau and Castle Creek.

*Steelhead Resources* mined about 12,000 tons of zeolites from pits near Succor Creek on the Idaho-Oregon line. The material was crushed to 1/4 inch and then trucked to Calgary, Alberta, Canada.

**EXPLORATION (Figure 6)**

**Introduction**

The great exodus of mining companies from the United States and Canada to warmer climes in Mexico and South America changed from a foot race to a stampede in 1992. The number of exploration projects in Idaho decreased from 99 two years ago, to 70 last year and 47 this year. The average expenditure at each of these exploration projects is conservatively estimated at $250,000 for a total of $11.8 million in 1992. The reason for the exodus includes environmental costs and permitting headaches which have made it difficult to mine or conduct exploration in the U.S., easing of investment regulations and a perception that there are many untested, favorable targets south of the border. This marks the completion of the largest gold rush (exploration cycle) in the U.S. since the 1930’s. Over regulation is often given as an example of why mining is difficult in the U.S., but it is just as quickly dismissed by others who point to other reasons why a project was not completed. However, the abandonment of the Lynne base metal deposit in Wisconsin by Noranda after investing some $8 million does point out that we are slowly regulating our industry out of business— at least business in the United States.
Figure 6. Exploration projects in Idaho, 1992
Coeur d'Alene District

The only major exploration project underway in the Coeur d'Alene district was the exciting development of a new silver discovery by *Hecla Mining Company* beneath the old Gold Hunter mine near Mullan. One of the only bright spots for the district in 1992, Hecla announced that they would spend up to $2 million and hire 29 miners to evaluate the discovery made last year. The Gold Hunter was mined from 1903 to 1947 and was a lead/silver mine hosted by the Wallace Formation. Typical of these type of deposits, the ore was often very rich but spotty. From 1968 to 1977, a 4,000 foot crosscut was completed from the 4050 level of the Lucky Friday mine beneath the Gold Hunter. Some minor ore was discovered before the project was shelved. While reviewing the old reports, Randy Anderson, a geologist with Hecla, noticed that the old veins in the Hunter raked westward, meaning that the earlier exploration efforts had not gone quite far enough. The study of the rake of the veins in the district's mines has recently been used with great success in the Sunshine mine to find ore extensions and new mineralization. Using the new idea, a new vein was discovered at the Hunter during a diamond drilling program. An exploration drift under way this year, opened about 300 feet of the vein exposing a four-foot length running 28 ounces of silver to the ton and 3.5% lead.

*Golden Chest Mining*, spearheaded by former Minnesota Vikings football star, John Beasley, did confirmation drilling on the Golden Chest claims near Murray. Previous work by *Newmont Exploration* had discovered gold mineralization. Golden Chest is looking at opening a small, approximately 40 tons per day, underground mine.

*Kennecott Exploration* drilled one deep (over 2,000 feet) core hole at Tributary Creek near Wallace in the fall. They completed some geologic mapping and geophysics to aid in target selection. The drill site, called the Galena Giant property, is near the old Jack Waite mine which was mined for lead-zinc by ASARCO in the 1940's. The target was selected based on geophysics and a mercury anomaly. Kennecott was searching for stratiform Pb-Zn mineralization in the Prichard Formation. Results are still being evaluated. The project is a joint venture with two Canadian firms, *Wealth Resources* and *Arbor Resources*.

Other North Idaho

The *Wilson Exploration Company* staked 368 claims near Shale Mountain on the Idaho-Montana border in Clearwater County. The claims are in the Hoodoo Roadless area (also known as the proposed Great Burn Wilderness area) which was slated for wilderness designation in the McClure-Andrus Wilderness Bill in 1989. Anomalous gold was discovered by geologists of the U.S. Bureau of Mines, U.S. Geological Survey, and Idaho Geological Survey, during a mineral potential evaluation of the area in 1991 requested by Idaho's Senator James A. McClure. The discovery was announced publicly at the Northwest Mining Association Convention in Spokane Washington, in December of last year. Wilson's work this year consisted of a helicopter assisted stream sediment
and rock-chip sampling program. Geologically interesting breccias host hematite, tourmaline, and uranium and thorium anomalies, as well as up to an ounce-per-ton gold. 

**Wilson's future plans await the results of this summer's work.**

**Idaho Gold Corporation** finally received a 404 wetlands permit for the Buffalo Gulch-Erickson Reef heap-leach gold mine near Elk City. The proposed mine contains 4.8 million tons of .023 ounce-per-ton gold. Mining several other nearby deposits would expand reserves to 9.2 million tons. However, the company has placed the project on hold, waiting for better gold prices. The property is also rumored to be for sale. Baseline water quality monitoring was the only activity at the site this year.

**Cominco** received a permit to drill at Big Creek near Dixie in Idaho County. However, due in part to delays from listing of the Sockeye Salmon as an endangered species, Cominco dropped their interest without doing any work this summer. The owner is trying to interest another company in the property.

**Newmont Exploration** did reclamation work and then dropped their claims at Newsome and Leggett Creeks near Golden. Last year, the company drilled 25 holes on a shear-zone hosted, low-grade gold deposit.

**Salmon Area**

**Formation Capital Corporation** was very active on their claims in the Salmon area. Work centered on the Bob Cat Gulch property located south and west of North Fork. The mineralization at Bobcat Gulch is a copper porphyry system with associated gold veins. The company dug 2,000 feet of trenches and drilled 12 reverse circulation holes at Comet Ridge. A number of gold anomalies were intersected but the center of the porphyry system may lie further south. The company hopes to examine this potential next year. **Formation also drilled four holes across the Panther Creek Fault on Moose Creek Ridge. A wide zone of strong alteration surrounds the fault. Two holes were drilled across a small high-grade vein in Sawmill Gulch.**

In June, **Formation Capital Corporation** obtained a lease option on the 1,000 acre Blackpine mine (not to be confused with Pegasus' new gold mine in Cassia County) three miles east of the Cobalt Ranger Station on Copper Creek in Lemhi County. The former copper producer sits about half way between the Blackbird mine (Noranda) and the Iron Creek copper/cobalt occurrence being explored by Cominco along the Idaho cobalt belt. The mine is a stratabound occurrence that was mined underground in the 1940's for copper and in the 1950's for cobalt and copper. In 1947, the property was sold to Montana Coal and Iron who did extensive underground and surface development. In 1961, the property was leased to Western Uranium who continued the underground work and did some mining. There is a DMEA report on Blackpine which lists potential reserves of 580,000 tons of 3.5% copper, 0.02 ounce-per-ton gold, and 1.0 ounce-per-ton silver across a significant width. A discrete cobalt-bearing horizon locally contains up to
0.25% Co and 0.25 ounce-per-ton gold over a 3 to 10 foot width. There are over 5,000 feet of underground workings at the site and mineralization extends some 5,800 feet along strike within a 200 foot-wide zone. The stratabound mineralization appears to have been remobilized and probably enriched by folding, metamorphism, and fracturing. Formation sampled the mineralized horizon along 5,800 feet of strike length in trenches and an additional 4,000 feet using soil samples. They also ran geophysics (magnetics and VLF) over the property. Formation applied for a drill permit for next year and may try to reopen one of the old adits this winter.

*Cominco American* continued doing work on the Jackass claims on the Iron Creek copper/cobalt occurrence.

*American Gold Resources* (AGR) performed infill drilling at the Haidee area of the Arnett Creek property (held since 1988). Results from 17,000 feet of reverse circulation drilling in 28 holes are still being evaluated, although AGR plans to do additional drilling next year. The company also submitted metallurgical samples to Kappes Cassidy for column leach tests and was very encouraged by the results. Plans for a more extensive drill program were delayed by an archeological clearance needed from the State Historical Preservation Officer.

*Meridian Gold Company* (a subsidiary of FMC Gold) did some surface drilling in the Joss target area and in Mores and Wards Gulchs at the Beartrack deposit. The 2 core holes and 12 reverse circulation holes were mainly for assessment and delineation purposes. A 125-foot decline was driven into the North Zone of the Beartrack deposit and a bulk sample removed for metallurgical testing. Meridian also did a gradient IP survey and additional geologic mapping. It was announced early in the year that the big deposit, possibly the largest gold discovery ever made in the state, would be put on hold, waiting for more favorable gold prices. The deposit contains at least 600,000 ounces of heap-leachable gold. It is believed that a price around $385 per ounce is needed to make the mine profitable. Gold is currently selling at $340 per ounce but was $450 per ounce when the property was discovered in 1986. Meridian halved its 12 person work force in Salmon. More than $20 million has been invested in the project to date, and over 400 holes have been drilled to evaluate the property. About 150 workers will work at the mine, when goes into production. Early in the year, Canyon Resources, discoverer of Beartrack, sold its 15% interest to Meridian in lieu of repaying a $1,750,000 loan.

*COGEMA*, a French company, was reported doing work in the Morning Glory mine area between Jessie and Wallace Creeks.

*Newmont Mining Company* acquired the rights to mining properties owned by *Atlas Precious Metals* for $22.5 million. Included was the Grassy Mountain mine, with claims covering some 43 square miles in Malheur County, southeastern Oregon, and the Musgrove mine, covering about 20 square miles in Lemhi County, Idaho. Atlas has been active at Musgrove for the past two years. Terms of the Newmont-Atlas agreement,
which was finalized in mid October, called for Newmont to take out a 35-year lease on the properties, with options for 30 additional years. Atlas will be paid $22.5 million, plus $7.5 million as an advance royalty and the company retains a 5% production royalty on the two properties. Limited drilling by Atlas at Musgrove indicates promising gold mineralization. Atlas drilled 9 holes from one drill site on top of a cliff last December, after extensive surface mapping and sampling. Rumor said one hole intersected 90 feet of a quarter ounce-per-ton gold. Last winter, the company drilled some 14,000 feet on the Musgrove property.

*Harvey Fredericks*, an independent miner, shipped a 62 ton sample to the East Helena smelter from his adit in the Musgrove Creek drainage before shutting down for the season. Atlas leased his property but allowed Fredericks to retain mining rights on the vein.

Pathfinder Exploration leased Formation Capital’s claims at the King Solomon mine on Bob Moore Creek, northwest of Salmon. Pathfinder dug over 1,000 feet of trench and drilled about 6 holes with mixed results. Pathfinder also put in about 1,500 feet of trench on the Gilt Edge and Wallace Creek properties.

Jettra Resources formed a joint venture with Formation Capital and two other property owners on the Queen of the Hills and Tendoy properties between Wallace Creek and Bob Moore Creek. Following grid mapping and sampling, Jettra excavated 8 trenches, about 2,000 feet in total length, and mapped and sampled them. The company attempted to reopen an old adit, but it was badly caved so they sealed it up and reclaimed the area. Mineralization was said to be confined to high grade, narrow zones.

As world cobalt prices fluctuated, speculation was rampant about the fate of Noranda Minerals’ Blackbird mine. The National Oceanic and Atmospheric Agency (NOAA) did some environmental studies as part of a government effort to persuade Noranda and prior companies to pick up the several million dollar bill for environmental clean-up at Blackbird. Noranda operates a water treatment plant at the site. Rumors vary as to whether Noranda may be interested in mining the copper-cobalt resource. The state’s attorney general was preparing to go to court to force Noranda and prior owner Hanna Mining Company to pay for the environmental damage, the result of decades of mining. The site is a candidate for the Superfund list.

There was a minor amount of exploration in the Wagonhammar drainage and O’Neal Gulch in the North Fork area.

**West-Central Idaho**

*Thunder Mountain Gold, Inc.*, Dewey Mining Company, and the Sunnyside Consolidated Mining Company leased their combined properties in the Thunder Mountain District to Kennecott Exploration Company. Kennecott is reportedly interested in the Dewey mine
which last operated in 1983 before closing due to litigation and environmental problems. The legal problems were resolved in 1991 and the property was unitized for the first time since the 1970's. Operator Kennecott mapped and sampled the area prior to drilling eight diamond drill holes. The mine, hosted in volcaniclastic sediments in what was once a swamp, is unique in that native gold crystals are found growing in the growth rings of coalified logs in the deposit. The Dewey is very close to the Sunnyside (Thunder Mountain) mine which was successfully operated as a heap leach mine by Coeur d'Alene Mines Corporation from 1984 to 1990 when reserves were exhausted. The Thunder Mountain mine produced some 90,000 ounces of gold.

Strata Mining and Exploration of McCall proposed trenching claims near Canada Saddle on the Payette National Forest near the old Alberta mine.

An operation plan was filed with the Payette National Forest by Harold McDowell to do exploration at the Firecracker mine near Warren. The mine is located two miles south of Warren in the Webfoot Creek drainage. Plans called for some back hoe excavation and sampling with minimal environmental impact.

The Heritage Mining Company of Cascade planned on building a 50 foot by 50 foot tailings pond and updating existing mill facilities at the Heritage Mine located on the North Fork of Smith Creek near Big Creek in Valley County.

Don Clark applied for a permit for digging test holes on the Echo No. 1 and No. 2 claims in Secesh Meadows.

CSC Mining Company (Jim Striker) proposed building a small gravity mill at the Rescue mine near Warren to recover free gold. The mill will handle two tons per hour and all process water will be recycled. A small tailings pond would be constructed at the mill site. CSC intersected the main vein in the mine while drifting from a decline that was opened last year. Striker's crew then drifted 280 feet along the 2.5-foot wide vein (100 feet to the west and 180 feet east). They stockpiled about 500 tons of ore, some containing rare visible gold.

Independence Mining did surface work, including mapping and soil sampling, at Florence. Their proposal to trench this fall was held up by archaeological and historical resource issues, as well as the need for a biological assessment of impact on fish. Gold Fields Mining drilled the area in 1990. The company is reassessing their plans in light of the permitting delays.

Alta Gold Company installed bulkheads in two old adits at the Red Ledge mine in Hells Canyon. The six-foot-thick reinforced concrete barriers will prevent acidic water from draining from the mine. The copper mine is the largest massive sulfide deposit in Idaho and was last worked in 1990. Alta also did some reclamation work at the Copper Cliffs mine at Cuprum.
Unity Gold Mines, Inc. continued with their underground rehabilitation of the old Unity Mine at Warren. The tunnel intersected a strongly altered zone about 2,400 feet from the portal where rock and muck from old stopes kept caving into the drift. Not much progress was made towards the primary target of the drift, the Little Giant vein. Next year the company plans to drive a new drift through the bad ground.

Bill Hommel of Warren has submitted a new proposal in to reopen the old Good Enough adit on the same vein as the Rescue Mine.

Charlie Blount was operating a one man gold mine where the Warren Wagon Road crosses the South Fork of the Salmon River.

There was a little activity in the Wallowalla area past Marshall Mountain at Canada Saddle by Strata Mining, Inc.

Robert Scott reopened some old excavations on the Trapper Flat claims southeast of Yellow Pine. He also did some road maintenance on the Warbum claims near Stolle Meadows.

Another operator drilled three holes on claims on Antimony Ridge near Yellow Pine. A new road was surveyed and a drilling program was planned for the fall in the Johnson Creek drainage.

Cambior drilled 5 helicopter-supported core holes, totaling about 2,200 feet, in September on claims west of Johnson Creek just south of Yellow Pine. They had trouble obtaining a decent sample with the portable Winkie drill, but did intersect as much as 100 feet of 0.025 ounce-per-ton gold. A rock-chip sampling program outlined a sizeable surface anomaly elongate along the Johnson Creek shear zone. Cambior hired a biological consultant who finally was able to obtain the necessary permits from the USFS for building a road. The company turned the property back to the owner because of the permitting problems.

Hecla Mining and American Barrick Resources Corporation joined forces in June for a major exploration program at Hecla's Yellow Pine Mine at Stibnite. Hecla mined about 80,000 ounces of gold at Yellow Pine in 1990-91. The joint venture's target was the extensive sulfide gold resource (2-4 million ounces) known from previous work at the property. Hecla only mined the oxide ore at Yellowpine; the sulfides require a different treatment with which Barrick has considerable experience. The JV drilled 14 core and 3 reverse circulation holes, totalling over 10,000 feet. As a result of the exploration effort, American Barrick decided to withdraw from the joint venture at year's end.

Placer Dome did their final reclamation work at Red Mountain and left.

Great Basin Exploration reclaimed past work at the McCrae mine near Big Creek and left.
American Independence Mines mined some ore from the Fourth of July Mine on Logan Creek. A gravity mill was moved to the site.

Kennecott Exploration did not do any work this year at the Moscow Mine property on Logan Creek. They were reportedly looking for a joint venture partner. The company had a substantial drill program for the past two years and had intersected significant gold mineralization.

East-Central Idaho

Hecla Mining Company continued to develop the Grouse Creek gold project (located at the site of the old Sunbeam mine) which has been under development and study for several years. Fill-in drilling at the volcanic-hosted Sunbeam gold-silver and sediment-hosted Grouse Creek silver-gold deposits continued for several months. The operation will include two pits, one on Sunbeam Mountain and another on Grouse Creek. The ore will be processed in a carbon-in-pulp circuit. The project was expected to yield 70-100,000 ounces of gold and 400,000 ounces of silver annually for 8 years. About 200 people would be employed during the construction phase with a permanent work force of about 125. Exploration highlights in 1992 included high grade intercepts from Hole 92-706, which lies outside of the planned pits in an area called Soapstone Hill, some 2,000 feet southwest of the Sunbeam deposit. The hole contained 90 feet of .056 ounce-per-ton gold and 21.8 ounces of silver and a 10 foot section ran .372 ounces-per-ton gold and 166.7 ounces of silver.

All federal and state permits necessary to begin the mining operation have been obtained. In an innovative solution to wetlands mitigation required for a 404 permit, Hecla is restoring a wetlands in the Sawtooth Valley rather than at the project site to replace the Pinyon Basin and other wetlands which will be filled in during mining. Part of the Sawtooth Valley restoration work was completed late in 1992. The company backfilled ditches and restored vegetation along some 40-80 acres of wetlands along Vat Creek in the upper Stanley basin. The Idaho Conservation League toured the mine site this summer.

Hecla also conducted exploration work, including drilling, on Estes Mountain which lies across the valley from the Sunbeam Mine area.

Western Mining, an Australian company, drilled two deep (2,000 foot) core holes in the Bayhorse District west of Challis. One was located near the Ramshorn Mine and one was on BLM ground at Poverty Flat. Western tried a deep-penetrating Transient EM survey prior to the drilling. Results from both studies are still being evaluated. The Custer County district is known for its rich replacement deposits in carbonate hosts. In July, the company helped clean up a mud flow caused by the collapse of an old mine adit on property near their project. A back hoe was used to channel the water into settlement.
ponds. Thanks to company efforts, none of the muddied water reached the Salmon River.

Newmont Exploration was rumored to have conducted a helicopter magnetic survey over the Yankee Fork area.

Independence Mining did preliminary exploration work at the old Lucky Boy mine south of the town of Custer on the Yankee Fork. Work included mapping and sampling and a small reverse circulation drilling program on patented claims. They submitted a Plan of Operations to the Challis Forest, but permitting delays caused by the NMFS anadromous fish ruling delayed any drilling on public land. No decision on next year’s plan has been made, but the regulatory environment will influence where the company puts its dollars in 1993.

Some new players were interested in the Hoodoo Mine on Slate Creek, however, there is an ownership dispute over the former zinc producing property between Replacement Corporation and General Minerals. There was additional activity nearby at Carbonate Creek, and on the Livingston silver claims on Jim Creek, all south of Clayton.

Jett Toone of Buhl reports values up to 10 ounce-per-ton gold in a backhoe trench in one vein south of Couch Summit and in several 500 foot deep holes.

Alan Getty was working in Frenchman Creek south of Sawtooth City.

Three men were working at the Lost Packer mine in Custer County. They rehabilitated about 500 feet of old drift. The mine has been under development by the Lost Packer Mining Company for several years and has had minor production. This year’s work was on an upper level, near the original discovery point. Next year the company will explore towards the north.

South-Central Idaho

Curator American Inc., a subsidiary of International Curator Resources, Ltd., a Vancouver company, took over Westmont Mining’s DSA property at the head of the North Fork of the Big Lost River. Financial problems forced Westmont to sell off their base metal properties. Cambior, who purchased DSA and other properties, had no interest in lead-zinc and sold their interest back to Curator, who was a partner in the original joint venture with Westmont in the early 1980’s. Consequently, Curator now holds 100 % of the property. Curator did minor fill-in grid geochemistry and detailed mapping this year. If budgets allow, Curator plans to forge ahead with an intensive exploration plan for 1993. Westmont drilled this stratabound, base metal deposit over a 3 year period.
There was not much activity at Rothchild’s Mill on Warm Springs Road west of Ketchum. They did do some repair work on the silver mill and a bit of assaying. Mill feed used to come from the Webfoot mine in the Vienna District.

William Yancey of Fallon and Don Bowman of Hailey did a little work on the WB claims up Deer Creek in the Hailey Gold Belt.

During the 1992 field season Biomyne Inc. expanded its gold exploration program. Geologic mapping and soil sampling were conducted at five locations of interest in central and south-central Idaho. The Warm Springs area (Waldemar-Lindgren Watterson claim block) west of Ketchum was the site of Biomyne’s most active project. This year geologic mapping and soil sampling were extended to cover more of the claim area. A total of 4,600 feet of reverse circulation drilling during 1991 and 1992 have outlined an extensive zone of mineralization. An expanded drilling program is planned for the 1993 field season to test a large target zone outlined by a soil geochem anomaly.

The Idaho Conservation League asked the USFS for two 5,000 acre withdrawals on the Ketchum Ranger District covering Deer Creek and parts of Bald Mountain. There was justified concern expressed by the ICL about 34 claims staked in the vicinity of Adams Gulch, Warm Springs and Lake, Trail, Corral, Deer and Croy Creeks by Sun Valley Ltd. Partnership from Portland, OR. The company claims that minerals have been found on all claims and has 30 more claims in Garden Valley in Valley County. A company principal, who was released from the Boise penitentiary in December, says he is staking the claims to protect the rights of individual citizens from the Federal government. He maintains that these rights are threatened by attempts to change the 1872 Mining Law. In September, the Mine All Mining Company, staked claims in the middle of the Elkhorn Resort golf course. The company, a fabrication of the Idaho Conservation League (ICL), was formed to show how easy it is to stake claims and to highlight perceived problems with the 1872 Mining Law. The mineral rights on the golf course are owned by the federal government. The Idaho Mining Association offered the ICL a check for $10,000 if they could patent the claims in one year and also invited them to join the IMA as an exploration member. The owner of the golf course suggested that the ICL buy Tequila Joe’s Restaurant near the golf course, noting that selling Margaritas would be much more profitable than the mining venture. The ICL, having had its say, abandoned its’ claims and company five days after incorporation. After the fun was over, it was pointed out by several people, that the ICL had violated the 1872 law by not having made a valid mineral discovery prior to staking their claims and that they could have been sued by Elkhorn’s owner for trespass.

Mont Stocking shipped a test run of ore from the Greer claims on Valley Creek northwest of Stanley.

Atlanta Gold Corporation sold 675,676 shares of stock early in the year to finance ongoing exploration at its gold property near Atlanta. The property has reserves of
750,000 ounces of gold with ore averaging .087 ounces per ton. Newmont Gold dropped an option on the ground last year after finding some interesting high-grade intercepts in deep drill holes. The company drilled 23 reverse circulation holes totaling 6,580 feet on the west side of their property this year. The holes were fill-in drilling in the West Pit area where topography had made earlier drilling difficult. Results were being evaluated at year’s end but would probably add to the tonnage in the West Pit. Reopening the 900 Level Adit was delayed until next year after it was decided that the company would need a National Pollution Discharge Elimination System (NPDES) permit. The Forest Service was willing to let the work go ahead, though the EPA said an NPDES permit was needed because water is draining out of the adit. The company also caught up on reclamation work this summer, and Atlanta geologists were doing exploration elsewhere for the corporation’s affiliated companies. Atlanta Gold is continuing evaluation of the property and is seeking a joint venture partner.

The bridge near Atlanta that washed out last year when Kirby Dam failed was rebuilt as planned by the Forest Service. The U.S. Food and Drug Administration issued a warning about consuming fish caught in the Middle Fork of the Boise River and in ArrowRock Reservoir. The fish could be contaminated with methylmercury, which was washed down the river when the dam failed and thousands of tons of old mine tailings spilled into the Middle Fork.

RST Mining drilled 5 core holes along the road which passes over James Creek Summit between Atlanta and Rocky Bar. Some intercepts reportedly assayed up to 0.5 ounce-per-ton gold. The company plans on returning next year but is worried about new royalties and taxes that may be levied by the new administration in Washington, D.C.

A prospecting permit, filed by Nathan Cook and Steve Atlakson for a project outside of Pine and Bird Gulch involved opening two portals and sampling, plus building 300 feet of access road.

Newmont finished their reclamation work at Rocky Bar and left. The company has had an active drilling program in the area for the past few years.

Boise Basin

Cominco American did some mapping and soil sampling at their Elk Creek property in early summer. They submitted a Plan of Operations to trench and drill but dropped the lease without doing the work. Elk Creek is located northeast of Idaho City.

Cactus West drilled five holes at the old Gold Hill mine near Quartzburg. The deepest hole was 1,090 feet deep. Results were disappointing. Other work included an IP survey and soil sampling on the Century property which extends from Quartzburg to Alder Creek Summit. The geophysical survey delineated a 7,000 foot-long anomaly that will be tested next year.
Willoughby Shepard and son reopened the Dead Dog Mine north of Lucky Peak Nursery.

Theron Richardson of Ontario, Oregon, drilled five rotary drill holes on a state lease at Clear Creek, just south of Placerville in Boise County. The target was a vein that had been sampled at a caved in mine shaft. Only trace mineralization was encountered and they are not sure of future plans.

The BLM was taking 30 foot channel samples for a patent exam on claims at Centerville. The claims also cover an archeological site in the old mining town.

Southeast Idaho

An operating plan was filed for a small exploration project in Sawmill Canyon at the head of the Little Lost River drainage.

Gold Fields Mining completed one drill hole (section 36, T12S, R3 6E) north of Malad, and about 8 reverse circulation holes in the Cherry Creek area, south of Malad, in Oneida County. The gold bearing jasperoid mapped at the surface did not go anywhere and the drill results were negative.

Atlas Precious Metals drilled one hole this fall at the Rock Creek hot springs gold property (53 claims) in the Third Fork of Rock Creek in the South Hills, south of Hansen. The hole was located 700 feet up the Third Fork trail from the trailhead and was drilled using a track-mounted rig. A few weeks later, a skeptical and concerned crowd of over 100 people showed up for a Forest Service informational meeting on Atlas's proposal to drill an additional 6-12 holes at the site, which is a popular recreational area. Some members of the public reportedly threatened the Atlas geologists with sabotage should they follow through with their plans. The future of this program is contingent, as usual, on budgets and permits.

Placer Dome made progress at the Kilgore deposit in Clark County. A geologic mapping and limited rock sampling program was accompanied by surface geophysics, including IP/Resistivity, magnetics, and VLF surveys. Fifteen drillholes, four core and 11 reverse circulation, had limited success at finding additional mineralized zones in this young, precious metal, volcanic-hosted hot spring system. Placer geologists have been providing mineral data to the Targhee National Forest as it revises its forest-use plan. The company expects to continue its drilling next year.

Newmont Exploration did reclamation work at Caribou Mountain and then pulled out. They had drilled the gold property over the past two years.

There was some activity reported on the Tincup claims on Willow Creek near Mt. Jefferson on the Continental Divide.
Southwest Idaho

_Amax Exploration_ drilled 5 or 6 core and RC holes (totaling some 21,000 feet) at the Idaho Almaden mine north of Weiser in Washington County. Amax obtained a lease on the old mercury mine from ICAN Minerals. The property contains 30 million tons of 0.03 ounce-per-ton gold which is silica encapsulated making recovery by conventional heap-leach methods nearly impossible. AMAX also did a feasibility study during the year. Idaho Almaden is one of several hot springs mercury-gold deposits being explored in the Weiser area.

_Minnova_ optioned the Blue Dog hot springs gold show near Weiser, the third recent lease, following Noranda last year and Gold Fields Mining still earlier. _Gold Canyon Resources_ owns the property and did a small amount of drilling very early in the year. The Adit zone contains an estimated 6 million tons of .033 ounce-per-ton gold.

_J.L. Carroll Exploration_ drilled 11 reverse circulation holes totaling some 2,200 feet on the WD-VAR claims (old Consolidated Mercury prospect) near the mouth of Crane Creek in Washington County. The property is owned by Western Epithermal and was drilled by Cyprus Minerals in 1990.

_Charlie Blount_ was driving a tunnel next to the road along upper Mann Creek.

_Cominco American_ proposed drilling two holes on a potential volcanogenic massive sulfide deposit near Harrington Springs in the Peck Mountain area in Adams County. Access was by an existing trail and surface disturbance was less than 0.1 acre. Results from the project were disappointing.

_Sunshine Mining_ drilled 10 RC holes on their property in Cartwright Canyon in Boise County. One hole, NS-4, contained a 55 foot intercept assaying .064 ounce-per-ton gold. The intercept included a 15 foot section that ran .135 ounce-per-ton. Five additional holes drilled in the vicinity of NS-4 returned assays ranging from .034 to .058 ounce-per-ton gold.

_NERCO Exploration_ did minor drilling near the DeLamar Mine. Wetlands issues continued to delay permitting for the Stone Cabin mine.

_War Eagle Resources_ did about 500 feet of trenching on their claims in the the Silver City area.

_Placer Dome_ finished drilling three core holes in January at the Black Sheep project in Slaughterhouse Gulch north of the DeLamar Mine. The project was later dropped.
OTHER MINING RELATED NEWS

Bunker Hill Superfund site and Lake Coeur d'Alene

There was a lot of news this year concerning the Bunker Hill mine and processing site and related Superfund cleanup process. A 21-square-mile area around the smelter and zinc plant was designated as a Superfund site in 1982. In June, EPA issued a proposed plan for cleanup of the area. A summary of the site history and work to date from this plan is quoted below:

"The Bunker Hill Superfund site encompasses 21 square miles along Interstate 90 in the Silver Valley area of Northern Idaho (Figure 1). Mining for lead, zinc, silver and other metals began in 1883. The first mill for processing lead and silver ores at the Bunker Hill site was constructed in 1886. Smelting operations began in 1917 producing lead, zinc, cadmium, silver, and alloys of these heavy metals. Smelting operations resulted in fugitive and stack emission of metals which were deposited throughout the valley. Other process plants produced sulfuric acid, zinc oxide and phosphate fertilizers.

Before the widespread use of ponds to contain milling waste products, tailings were often disposed of in local surface waters. The South Fork of the Coeur d'Alene River (SFCDR) received tailings in this manner and subsequent flooding caused the tailings to be spread throughout the valley floor.

All smelting operations at the Bunker Hill complex ended in 1982, and mineral mining and milling at the site ended in 1991. The presence of elevated levels of metals, such as lead, zinc, cadmium and arsenic in the soil, groundwater and surface water, is a result of the historic mining, milling and smelting activities in the valley.

The first health study conducted for the Site was in 1974; a follow-up study of the most sensitive resident population was competed the following year. Additional evaluations conducted in 1983 (18 months after the smelter closed) continued to show elevated blood lead levels in local children. A health intervention program, initiated by IDHW [Idaho Department of Health and Welfare] in 1985 continues today under the auspices of the Panhandle Health District to educate the public about ways to minimize exposures to heavy metals. This program, in combination with actions taken to control sources of contamination, has resulted in the average blood lead level for children in Smelterville declining from 65 micrograms per deciliter (ug/dl) in 1974 to less than 10 ug/dl in 1991.

Since the Bunker Hill site was proposed for inclusion on the National Priorities List (NPL) in December of 1982 (final listing 9/8/83) a number of actions have been taken to reduce public exposure to contaminated air, soil, water and source materials. As a result of the EPA Removal Actions and Orders, contaminated soil and sod has been removed and replaced with clean materials at 330 residential properties and 16 public properties including parks, playgrounds, roadsides, and parking areas throughout the site.
To control contaminated sediment transport from hillside areas, and to facilitate establishing vegetation, over forty miles of terraces have been constructed to date. Concurrently, approximately 400,000 trees have been planted on barren hillside slopes. Several abandoned mine dumps in the hillside area have been regraded and planted to adapted vegetation. Several large detention basins have been constructed in Deadwood Gulch, Magnet Gulch, Government Gulch, and the Page Mine area to control erosion and sediment loadings from those areas to the South Fork of the Coeur d'Alene River (SFCDR).

To protect certain residential properties from erosion a 2,600-foot-rock-lined diversion channel and 600-feet of sediment retention structures have been constructed in the Smelterville area. Cribbing walls and other sediment retention structures have also been installed in Wardner and Kellogg.

Actions taken to control contaminated windblown dust include; thirty-six acres stabilized with rock surface armoring and 142 acres of chemical treatment. Other areas have received approximately 6 inches of organic amendments to promote revegetation efforts.

EPA Unilateral Administrative Orders to control sources of contamination within the Smelter Complex were issued by EPA in 1989 and 1991. Recently the copper dross flue dust pile, previously located in Magnet Gulch, was moved to the Smelter Complex in preparation for cement-based stabilization. Mercury acid sludges have been removed from storage facilities at the fertilizer plant and shipped off-site for disposal.

Contamination at the Bunker Hill site was characterized during Remedial Investigation/Feasibility Studies (RI/FS) conducted from 1987 to 1992. Risks to human health were evaluated through the Risk Assessment Data Evaluation Report (RADER), October 1990, and the Human Health Risk Assessment (HHRA), May 1992. Risks to the environment were evaluated in the Ecological Risk Assessment (ERA), November 1991."

The preferred remedial action as outlined in the above report, calls for revegetating and stabilizing hillsides, removing 100 acres of mine waste, capping a central impoundment area, controlling dust blowing off old mill tailings, preventing contamination of ground and surface waters, and razing of the smelter and zinc plants and other measures. The cost of this effort will be approximately $68 million. Under a separate plan approved by EPA and the state last year, an additional $40.6 million will be needed to remove lead tainted soil from several hundred residential yards. Mining companies including Asarco, Inc., Coeur d'Alene Mines Corporation, Hecla Mining Company, Sunshine Mining Company, Gulf U.S.A. (formerly Gulf Resources and Chemical Corporation), and the Union Pacific Railroad will be asked to pay the clean up costs of $108 million. The Idaho Citizens Network criticized the plan for failing to address health concerns. The group wants $5 million set aside for future health problems. The Coeur d'Alene Indians are also unhappy with the plan and would like the entire Coeur d'Alene River-Lake basin, not just the smelter site, addressed by the cleanup effort.

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The Idaho Citizens Network was formed by concerned residents who are worried about the effects of lead contamination at the smelter site. They want the federal government to establish a $5 million trust fund for future health problems associated with the site. The problem goes back to 1974 when blood tests on 201 children in the smelter area registered alarming levels. In 1977, parents of 9 children living near the smelter, successfully sued Gulf Resources and Chemical Corporation for $20 million. Since then, testing has shown a reduction in blood lead levels but it is still a concern to many citizens. Blood lead levels in tests this year were slightly elevated but this was probably due to variables in the lab work. The reduction is credited to better hygiene and the replacement of soil in many of the yards of 400 (1,500 targeted) homes near the smelter and from parks and playgrounds. Like most of the ponderables about the Superfund site, even the effectiveness of the soil removal program has been questioned. Findings released in September from a $15 million EPA funded study, noted that many scientists now believe that soil removal has a limited value in reducing lead levels in children living in contaminated areas. The study received a mixed reaction from local superfund officials and experts. The Environmental Health Network released a controversial study entitled, "Inconclusive by Design" accusing federal agencies of being rife with waste, fraud, and abuse, and failing to address health problems at sites like Bunker Hill.

In October, Zanetti Brothers of Osburn, were awarded a contract to clean up contaminated mill tailings along a stretch of the South Fork of the Coeur d'Alene River. The money will come from the Idaho Natural Resource Damage Fund, a $5.2 million state fund created by mining companies that have operated in the area. The fund was established to settle a lawsuit with the state in 1983. A flood control levee will be constructed to keep tailings out of the river between Montgomery and Moon Creeks. The tailings are from a dam built across the South Fork near Montgomery Creek which years ago, captured millions of tons of metal-contaminated mine tailings. The work will begin next spring.

In May, preparations were underway for demolition of the mechanic's shop in the smelter complex by the Division of Environmental Quality. Other work scheduled for the summer by EPA included, starting a $2 million project to stabilize toxic copper dross flue dust and other contaminants (paid for by Bunker Ltd. Partnership), planting 320,000 trees, dust control measures, soil removal from houses with children under 12 years old, and construction of terraces to control erosion (funded by Pintlar Corp. and Hecla Mining Company). Pintlar employs 28 people in Kellogg in addition to summer help for coordinating remediation efforts for Gulf Resources.

A federal auditor for EPA recommended that the state Division of Environmental Quality (under the Department of Health and Welfare) repay EPA $3 million which was misspent on the Bunker Hill cleanup. The complaint alleged that the state broke rules when it awarded an engineering contract to CH2M Hill instead of a local firm, TerraGraphics, Inc. of Moscow, who had done some of the preliminary work at the site. The audit claimed that Terragraphics was more qualified for the job than CH2M Hill, based on bids from the
original Call for Proposals. The $3 million is about three quarters of all the money spent by the state on clean up studies from 1985 to 1991. The state denied the charges and placed the blame for the questionable expenditures back on EPA.

This latest round of confusion and name calling concerning the Superfund effort continued to escalate. Rumors abounded that the switch to another contractor had occurred as a political campaign payoff by Governor Cecil D. Andrus to mining company officials, who did not agree with Terragraphics' conclusions. The assertion was flatly denied by the Governor's office. Adding more fuel to the fire, the Idaho Citizens Network demanded that the Chairman of the Citizens Task Force, which is overseeing the cleanup plan, resign, as he is related to an owner of the Bunker Hill complex.

In mid-December, the Department of Health and Welfare voided bids for the next phase of the clean up, citing violations of federal procedures when the names of the four companies who had submitted bids for the next phases of the Superfund cleanup were released prematurely. The two contracts in question included demolition and clean up management (four bids) and continued monitoring of health risks due to exposure of heavy metals. The successful bidders will manage the cleanup effort that will be handled by the mining companies.

A U.S. Court of Appeals overturned a lower court ruling that Gulf Resources insurance companies were not liable for costs of the Superfund site cleanup. This marks another round in an ongoing battle between the mining companies in the Valley and their insurance companies concerning liability of the carriers for clean up costs. At stake is some $200 million, the estimated final cost of the cleanup effort.

As noted, concern about the contamination at the official 21-square-mile Superfund site has spread to the rest of the Coeur d'Alene River system and to Lake Coeur d'Alene itself. State public health officials have asked that the federal government (Agency for Toxic Substances and Disease Registry) extend its blood lead level monitoring program in children from the 21 square mile Superfund site to the rest of the basin. The Coeur d'Alene tribe sued the State of Idaho over ownership of the lake last October. The Indians claim ownership under an 1873 treaty signed by President Ulysses S. Grant. The state claimed that they are immune from suit in federal court under the 11th amendment to the U.S. Constitution. The case is scheduled to be heard by the 9th Circuit Court of Appeals in San Francisco next year.

Three months before the state suit, the tribe sued eight mining companies and the Union Pacific Railroad for having contaminated the lake with 72 million tons of mine waste, since mining started in 1884. In January, Coeur d'Alene Mines Corporation (on behalf of itself and Callahan Mining Corporation who merged with Coeur d'Alene Mines last year) agreed to contribute $350,000 to help clean up mine waste from the Coeur d'Alene River near the K Mission and boat ramp. The settlement ended Cda Mine's involvement in the Indian's lawsuit. The tribe announced that they plan on using $50,000 of the money for
scholarships. Several other mining companies questioned the appropriateness of using the money for education instead of remediation.

The State of Washington got in the act in October when the state Department of Ecology threatened to sue Idaho's mining industry for pollution of the Spokane River and Long Lake drainage. Such a lawsuit could greatly expand the size of the Bunker Hill Superfund site.

The safety of the lake's water is a concern for hundreds of people who live on the water body and several water companies who draw water from the lake. There is little doubt that the lake bottom is polluted by mining waste and that water quality has suffered from increased development along the lake's shores. The U.S. Geological Survey has been studying Lake Coeur d'Alene for several years and has stated that sediments on the lake bottom are indeed, polluted with a variety of metals from the old mining operations in the Cda district. A scientist from the federal survey stated that the lake's heavy metal contamination rivaled any that he had ever seen including industrialized rivers such as the Meuse and Rhine Rivers in Europe. The Council for Mineral Information, a study group funded by mining companies, engaged two environmental consulting firms, Parametrix Inc., and Environmental Toxicology International, to study the lake. Results of the studies indicated that the water in the lake was safe to drink and swim in and that fish in the lake were safe to eat. Parts of the studies were immediately questioned by the state Department of Environmental Quality.

The Coeur d'Alene Basin Interagency Group (EPA and state Division of Environmental Quality) has been coordinating studies of the river and lake. Seven months of bickering ended in November when the state, EPA, and the Coeur d'Alene Indians agreed to form a three member steering committee to oversee all aspects of the clean up and implement the Coeur d'Alene Basin Restoration Project. Mining companies, left out of the agreement, cried foul, since the state and the tribe are involved in an ownership dispute over Lake Coeur d'Alene and the Indians are suing the mining companies over contamination of the basin's waterways. The companies may sue to block the agreement. In December, it was announced that the U.S. Fish and Wildlife Service would give $1.2 million to the Coeur d'Alene Tribe, the U.S. Geological Survey and the Bureau of Land Management to study the extent of metal pollution in the lake. More funding may be forthcoming next year. The money is from a $4 million fund established by the Department of Interior to assess natural resource damages nationwide.

Other News

A new kind of mining venture may soon start at the Triumph mine on the East Fork of the Wood River near Hailey. In 1989, the EPA sampled the old tailings at the mine site which was a lead, zinc, and silver producer for 70 years and has been inactive for thirty years. Testing by EPA and the state Department of Environmental Quality discovered lead and arsenic contamination at the site. One solution to the problem is to remove 60 acres of
old tailings. A study by an EPA contractor in 1991 concluded that the site was an immediate threat to public health. The mine may be listed on the National Priorities list for Superfund cleanup. Local citizens were skeptical of the hazard which may adversely affect property values. Blood and urine tests on local residents last year showed blood lead levels within acceptable limits although more tests this summer showed elevated levels, probably due to more outdoor activity. No children had lead levels higher than 10 micrograms per deciliter, the level of concern according to the Center for Disease Prevention. At the end of the year EPA evaluated a bio-uptake test where pigs were fed tailings from the site to see what kind of metal ingestion they might have. The agency warned that listing on the Priorities List was likely. Most of the local citizens are opposed to the listing and are annoyed with EPA’s methods. The Center for Hazardous Waste Remediation at the University of Idaho also hopes to study the site, if funding can be found. The center will see if chemical or biological techniques can be used to remediate the problem without the cost of removal. This may include putting the neutralized mine waste back in the old underground mine workings.

Debate continued in Congress on the fate of the 1872 Mining Law. Senator Dale Bumpers (Arkansas, SB 1126) and Rep. Nick Rahall (W. Virginia, HR 918) both introduced modified versions of previous bills to replace the law with new language containing more regulations, environmental requirements, and lease/rent fee structures. Most industry people believe that the Rahall bill would have shut down most of the mining industry in the United States. The American Mining Congress sponsored amendments to the Interior Appropriations Bill calling for paying fair surface value for patented claims and assessing a $100 fee per claim in lieu of assessment work. However, neither the bill or amendments became law. Instead an amendment was added to the Interior Appropriations Bill calling for a rental fee of $100 per year per claim in lieu of assessment work. The assessment year extends from September 1 to August 30. Claimants will have to pay $200 next year covering 1993 and 1994. There is a small miner’s exemption covering 10 claims or fewer for miners who meet criteria being established now by the BLM for production or exploration. The fees will be deposited with the Treasury and part of the money will be used to fund the BLM’s mining program. It is widely acknowledged that many claims will be dropped as a result of this legislation. It is also acknowledged that many companies will be watching closely to see who drops what and if the dropped claims may be worth reclaiming.

Work continued on a 844-mile-long, 42 inch diameter, $1.6 billion, natural gas pipeline that will stretch from Canada to California and go through Boundary, Bonner, and Kootenai Counties in north Idaho. An 18 mile section of the pipeline, under construction for the Pacific Gas Transmission Company, parallels and crosses the Moyie River. Welded Construction, a pipeline contractor, had problems maintaining water quality in the eight places where trenches were dug across the river. Clay stirred up by the construction, clouded the drinking water supply in the town of Moyie Springs and the company spent $100,000 to drill a new well and install two new pumps for the town. The contractors are also working with state officials to mitigate any environmental damage.
caused by the construction. The Idaho Geological Survey mapped the 16 foot deep trench for the pipeline which crosses many miles of glacial deposits.

The Idaho Department of Lands approved permanently removing a 31 mile stretch of the South Fork of the Salmon River, extending from the confluence with the main Salmon, from mining activity. The withdrawal is aimed at suction dredges and other placer mining that is detrimental to improving water quality and fish habitat according to the Department of Water Resources. The action is designed to help rebuild salmon runs which have fallen to all time lows.

The state legislature approved the designation of the main stem of the Middle Fork of the Salmon River as an Outstanding Resource Water. The segment is entirely within the Frank Church River of No Return Wilderness. Environmentalists had tried to get a number of Middle Fork tributaries designated as ORW's but were unsuccessful.

The Idaho Department of Parks and Recreation, in conjunction with the Challis Forest Service, Bureau of Land Management, local mining companies, State legislators, and citizens of Challis opened the new Land of Yankee Fork Interpretive Center this summer in Challis. It is a unique state park in that it is primarily dedicated to historical displays of the mining history of the Challis-Yankee Fork area. About 75 people a day have visited the Center in its first few months of operation. The displays include a video film, old photographs and mining equipment. The Forest Service will be helping out the Yankee Fork Dredge Association, who provide summer tours of the Custer dredge. A new tour path accessible to the handicapped was built this year.

Last November, the National Marine Fisheries Service (NMFS) listed the Snake River Sockeye Salmon as an endangered species. In April, three runs of Chinook Salmon were listed as threatened. The impact of these decisions was felt in almost all areas of the state. In March, a drawdown of the Lower Granite and Little Goose reservoir pools examined the effects such a drawdown would have on the dam system and users of the waterways. The idea is that salmonid fry are unable to get to the ocean quickly enough and need more water to speed their journey; a giant flush of the system might mitigate the problem. The drawdown was not a biological test but a test of the physical facilities along the river. Estimates were that there was a loss in business of $2.8 million and physical damage of $1.3 million, most in the river ports of Lewiston and Clarkston. The Army Corp of Engineers, the NMFS, the Northwest Power Planning Council, and the Pioneer Ports River Alliance among other groups, are all studying ways to address the endangered listing. The NMFS ruling requires any activity on public lands to be analyzed for its impact on the anadramous fish population. Consequently a biological assessment was mandated for all activities on Forest Service land, including mining, timber sales, road building, and if the law is followed, campground and boating area uses. The Forest Service is caught between the NMFS decision and other environmental laws which require permitting decisions and documents in a 90-day or other specified time frame. For example, at the end of the year the Payette National Forest noted that 71 activities
ranging from grazing to a timber sale were on hold until it could be determined if salmon spawning grounds might be impacted. Also, a study is being made of 64 bridges and roads in the forest, some of which may have to be closed if they endanger salmon runs.

The U.S. Fish and Wildlife Service is expected to list the Bruneau Hot Springs Snail as an endangered species early in 1993. The decision goes against recommendations by the Department of Water Resources which has been studying the snail’s habitat for several years. The snail which lives in hot springs along Hot Creek and the Bruneau River was thought to be near extinction. However, the snail has since been found living in over 100 sites along the waterways. Environmentalists claim that over pumping of the local aquifer for irrigation has lowered the water level and dried up the snail’s hot springs habitat. This is disputed by the Department’s findings. The Bruneau area has been listed as a groundwater management area for the past 10 years to control the drilling of new wells. If listed, new and existing irrigation wells in the area will be impacted.

In December, four more snails on the Middle Fork of the Snake River were listed as endangered and another species as threatened. Development and pollution of the river is blamed for the classification. The U.S. Fish and Wildlife Service now has two months to devise a plan for the snail’s recovery. The service cites a study by the U.S. Geological Survey which has not been released to the public yet, as the basis for their decision.

The State of Idaho and the U.S. Air Force may be close to an agreement on expanding the training range at Mt. Home Air Force Base. Under the plan, the state will swap some 19,000 acres of state lands for 21,000 acres of federal land in Owyhee County. The state would lease the new state land to the air force for the training range. Idaho would derive income from the arrangement and be able to minimize environmental damage at the site. Governor Andrus, approved the plan, and noted that the range expansion is necessary to insure that the base stays open in these times of major military downsizing. A new composite wing at the base will need the expanded training area. The new training range will be split into two parcels, one area of 96,000 acres north of the Owyhee River and another 70,000 acre section south of the river.

In April, the Selkirk-Priest River Basin Association and the Idaho Environmental Council filed suit against the State Land Board claiming mismanagement of 2.5 million acres of state endowment lands. The suit states that the Land Board manages the land for the benefit of the timber industry, is more interested in making money than protecting the environment, and shuts out public involvement on how the lands are managed. Revenue from state timber, mineral, or land sales or long term leases such as grazing or cottage sites goes into eight Endowment Trust Funds that contain about $340 million. The interest from the trusts goes to public schools, School of Science, charitable institutions, University of Idaho, State Hospital South, penitentiary, Agricultural School, and public buildings. The state constitution mandates that the state lands be managed for maximum income for the Trust. The matter is before a 1st District Court judge who will review the claims on both sides of the issue.
Congressman Larry LaRocco is making good on a campaign promise to try and settle the thorny question of Idaho Wilderness. At stake are 9.3 million acres of federal lands in the state. The congressman held well attended town meetings in Coeur d'Alene, Lewiston, McCall and Boise to learn the public's opinion. LaRocco's attempt follows failed efforts by former Senator James McClure and Governor Cecil Andrus and the state to settle the problem using professional mediation. It is well known that drawing lines around areas is not a major problem anymore, as most of the areas in question have been under study for years. More of an issue is what will become of the remaining lands; industry wants hard release language (also called certainty language) stipulating that these lands will be returned to multiple use, environmentalists want the lands to stay in limbo under control by the U.S. Forest Service planning process. The Congressman may introduce a bill dealing with lands on the Clearwater National Forest first. There was as close a consensus on this area during the mediation process as has ever been reached. LaRocco has experience in this arena, having worked on the Gospel Hump wilderness negotiations as a representative for the late Senator Frank Church. All acknowledge that settling this issue will be difficult and many are skeptical, but the congressman is known for trying to keep campaign pledges and not being afraid of difficult issues. LaRocco will need the support of both of Idaho's Republican senators to get a bill passed.

A peripheral problem to wilderness, endangered species, and other environmental issues is the "taking" or restricting the use of private or legally held public lands (wetlands, grazing lands, mining claims, timber sales) by the federal or state government. The recent "Lucas decision" by the U.S. Supreme Court has added fuel to this fire. The high court found in favor of David Lucas who was barred by the state from building a home on two beach front lots in South Carolina. The court noted that by denying Lucas the right to build, the state had made his land worthless. All the ramifications of this decision are unclear and are being hotly debated. Sixteen statewide organizations in Idaho formed the Idaho Private Property Coalition whose goal is to protect the rights of private property owners under the 5th amendment to the U.S. Constitution.

The EPA promulgated new rules regarding stormwater runoff. Companies impacted will have to prepare detailed plans and applications to obtain a National Pollutant Discharge Elimination System permit. These rules were challenged by the American Mining congress in May but were upheld by the Ninth Circuit Court of Appeals. The new regulations will probably have a significant economic impact on all hardrock mines, sand and gravel operations, and stone quarries in the United States.

The College of Mines and Earth Resources (COMER) at the University of Idaho broke ground on October 31 for McClure Hall which will be COMER's new home. The $12 million project was made possible by federal funds obtained by Senator McClure, $2 million from the state, and $1 million from private industry. The 70,000 square foot building will be twice the size of the current mine's building. Attending the ceremony were Dr. Robert W. Bartlett, Dean of COMER, Senator McClure, Dr. Elisabeth Zinser,
President of the University of Idaho, COMER Advisory Board members, state officials, and other dignitaries and visitors. The new building should be completed by the fall of 1994.
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