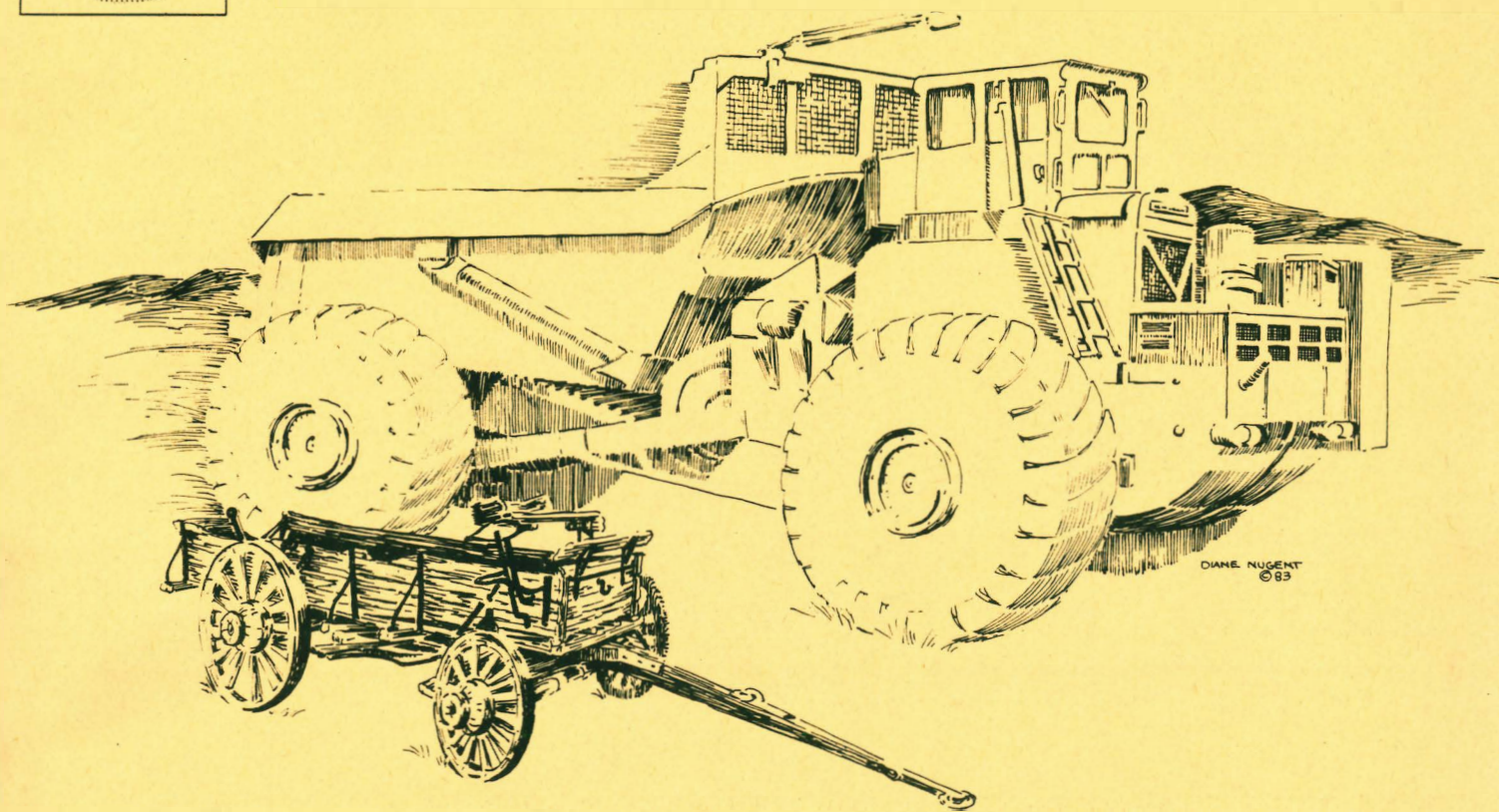


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MONTANA

MINING DIRECTORY — 1993

Compiled by
Robin McCulloch



Open-File Report 329

1994

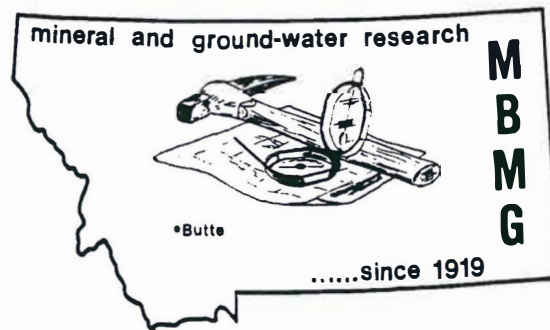
Montana Bureau of Mines and Geology
A Department of Montana Tech of
the University of Montana

MBMG 329



Montana Mining Directory 1993

Compiled by
Robin McCulloch
Mining Engineer



Montana Bureau of Mines and Geology

1994

Front cover:
Ore Wagons – Yesterday and Today
by Diane Nugent

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Preface

Continual interest in the mining industry of Montana has shown a need for more detailed data on each exploration project and mining operation. The *Directory* is published annually to accommodate those needs. Properties that are actually producing or developing, with production anticipated in the foreseeable future are listed with available data. Newly incorporated mining companies and exploration projects are listed in separate sections. To further assist the user, the *Directory* also includes a listing of agencies that affect mining in Montana, a section on permits and contracts, and area maps showing the locations of various operations. To further advise the reader, this year "Mining and Mineral Developments-1993" has been included as part of the *Directory*. This will provide more background for the reader to understand the mining activity in the State.

The data presented are gathered by the compiler through property visits and telephone interviews of both regulatory agency and company professionals. The mining properties are listed by mines, quarries and developing properties. Entries are listed alphabetically by county. Data include location, geology, commodity information, costs, ownership, activities, history, and property status. An index of mines and operators is available in the back of the volume, followed by an index of new mines and exploration projects.

Table 9 (page 28) represents the most recent available data from the U.S. Bureau of Mines on mineral production in Montana for the years 1990 and 1991, with estimated production for 1992. Commodity values are from average annual prices featured in *Commodity Profiles*, also available from the U.S. Bureau of Mines.

Every effort has been made to publish exact and complete information. The fact that a property is listed in the *Directory*, however, is not to be regarded as an endorsement of the property by the Montana Bureau of Mines and Geology. Conversely, if a property is omitted from the *Directory*, it does not imply a question as to its value or potential. Such omissions do occur, but most are traceable to failure by the last known operator to respond to requests for necessary information. In most cases, the missing data have been supplied from the best available sources.

If any additional facts or corrections are known, please submit such information to Robin McCulloch, Montana Bureau of Mines and Geology, 1300 West Park Street, Butte, MT 59701-8997, phone 406/496-4171.

The compiler wishes to thank the many Montana property owners, Bureau of Land Management and U.S. Forest Service professionals, who have provided data for this publication.

The abbreviations and symbols used in the *Directory* are: section (sec); township (T); range (R); short ton (ST); tons per year (TPY); tons per month (TPM); tons per day (TPD); tons per hour (TPH); gallons per day (gal/day); cubic yards per hour (yd³/hr); and cubic yards per day (yd³/day).

Robin McCulloch
Mining Engineer
Montana Bureau of Mines and Geology

Butte
December 30, 1994

Mining and Mineral Developments in Montana-1993

Introduction

This 1993 summary of mining and mineral developments in Montana would not have been possible without the assistance of the many mining companies, and state and federal agencies that have freely contributed information on exploration and current mining activities in the State. The Montana Department of Revenue provided data on taxes. The U.S. Bureau of Mines, U.S. Forest Service, U.S. Bureau of Land Management and the Montana Department of State Lands added significant information on mineral activities. Finally, information on energy resources was obtained from the Montana Oil Journal, Oil and Gas Conservation Division of the Department of Natural Resources and Conservation, the Montana Coal Council, and the Petroleum Association.

Overview

Mining activity continued in spite of inclement weather and an increasingly complicated permitting procedure. Increased precious metal prices provided welcome relief to many companies that have operated for the last two years with commodity prices nearly equal to their operating costs. Many companies' investment decisions have been negatively influenced by the pending legislation in Congress on the general mining law. Confusion also continued as industry attempted to get a revision in the State regulations for the water nondegradation rules. All industries, including mining, have agreed that as the rules are being administered, any operation that uses or impacts water is economically impaired in Montana.

Developing projects continued as did mine-plan amendments. However, permitting time frames have become increasingly longer because of lawsuits from environmental special interest groups and from lack of clarity in the federal permitting process. Environmental impact statements were completed for the East Boulder project in Sweetgrass County, the Montanore project in Lincoln County, and the South Beal project in Silverbow County. All necessary permits were obtained for those projects, however, legal decisions remain at the Montanore project.

A production record was set at the Golden Sunlight mine with over 120,000 ounces of gold produced in 1993, and their millionth ounce poured.

Industrial minerals operations continued smoothly. Market growth in the United States was slow to steady in talc, and burnt lime production may be approaching the market limit.

Small operations, which are primarily family placer gold mines, were severely impacted by the high levels of precipitation throughout the State. Many operations forestalled production until late August or September.

Exploration activity continued to decline as companies reclaimed their properties—many of them moving their professional offices out of the State and Country. Status of late stage projects is as follows:

- 1) Garnet - Pegasus Gold; dropped and reclaimed
- 2) Southern Cross - ASARCO; dropped
- 3) Elkhorn - Santa Fe; standby
- 4) Seven-Up Pete - Phelps Dodge/Canyon Resources; continuing
- 5) Ophir Creek - ACNC; continuing
- 6) Londondarry - Cameco; dropped and reclaimed
- 7) Miller Mountain - Pegasus Gold; dropped and reclaimed
- 8) Diamond Hill - Pegasus Gold; continuing
- 9) Kearsarge - Kennicott; continuing

- 10) Sheep Creek - Cominco-American Resources; inactive
- 11) Checkerboard - Kennicott/BHP Utah International; minor activity
- 12) Emigrant Creek - Pegasus Gold; dropped and reclaimed
- 13) Crevice - American Copper and Nickel; continuing

[These projects will be discussed in more detail in the exploration sections.]

Although corporate interest continues in gold properties, it is confined to properties with drilled reserves. Grassroots programs have been difficult to sell to management for the last few years; presently they are impossible to sell.

As shown in **Table 1**, the new federal law requiring rental fees have resulted in an estimated 62 percent reduction in unpatented claims from 1992 levels. Many companies employed contract geologists just long enough to evaluate their claim holdings and then dropped their unaffordable claims and staff before the August 31, deadline.

Table 1—Unpatented claims (from Bureau of Land Management).

	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
New claim	13,084	8,434	5,745	5,718	2,413
Continuing claims	46,575	60,341	56,932	61,396	22,826
Total	59,659	68,775	62,677	67,114*	25,239*

* estimate

Claim patenting remained at zero (**Table 2**), as the Secretary of Interior refused to sign patent applications until a new mining law was passed. Although applications were received, none were approved. New applications were processed by the local offices of the Bureau of Land Management (**Table 3**), but the necessary investigations and reports will not be complete for signature for a number of years.

Table 2—Patented claims (from Bureau of Land Management).

	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
Patents granted	5	2	0	2	0
No. of claims	118	13	0	7	0
Total acres	2645.982	230.16	0	121.77	0
Commodities	iron, copper-silver, gold, bentonite	bentonite	None	gold, silver lode & placer	None

Table 3—New mineral patent applications filed during fiscal year.

No. of applications	12	2	24	13	19
No. of claims	9	3	132	54	66
No. of acres	unknown	unknown	2290.0	unknown	4,072.85
Commodities	unknown	placer gold	platinum palladium limestone gold, copper chrome, stone garnet, silver	bentonite talc, platinum palladium stone	platinum palladium gold, garnets

In fiscal year 1992 (October 1, 1991-September 30, 1992), the federal government paid the State of Montana \$22,365,601.00 for mineral leases and right-of-way funds. **Table 4** shows an increase in revenues of \$3,458,188.85 since 1992. This reflects an increase in gas production and a slight increase in oil production because of production enhancement techniques used in our aging oil fields.

Table 4—Government payments to the State of Montana (from Bureau of Land Management).

	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
Rents, minimum royalties, production royalties and bonuses collected from federal lands through the minerals management services.	\$19,871,031.00	\$20,318,356.41	\$23,218,465.26	\$19,053,824.37	\$22,365,601.00
Mineral leases and permits from grasslands and right of ways.	unknown	\$293,827.93*	\$250,791.76*	\$191,950.40*	\$338,362.62

* Past year estimates corrected.

All mineral activity, whether on private, state, or federal land, is regulated by the Department of State Lands under three classes of permits—Small Miner Exclusion Statements (SMES), Exploration Licenses, or Operating Permits. There were 390 exploration projects (**Table 5**) current in 1993. As of February 1994, 48 exploration projects were seeking mineral reserves; the other 342 were either in reclamation or were waiting for resolution between companies and regulatory agencies.

Table 5—Metallic and industrial mineral activity.

Year	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
Exploration Projects*	1000	700	845	433	390
Operating Plan mines	95	87	90	89	88
Operating SME mines*	41	36	21	23	25

* Properties operating under an 'SME' with significant production.

The Operating Plan mines declined by one with the official closure of the Kenelty Barite mine (Montana Barite). However, many of the 88 properties are inactive. Only 37 are currently producing rock, at least on a seasonal basis.

Of the small mines functioning under the SMES, only about 25 operate continuously enough and at a large enough scale to influence their annual income. Many operations are continuous but the technical restraints in permitting make it very difficult for new operations that lack experience to get started. The SMES permit represents individuals or family operations in most cases.

Table 6 represents the gross value of production for the last five years. Production has been relatively static. However, lower commodity prices and closures are reflected in the lower gross values of both metallic and industrial minerals. The lower coal values reflect diminished production at the East and West Decker mines and the Rosebud mine.

Table 6—Gross value per calendar year.

<u>Commodity</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Coal	429,088,977	365,146,698	394,213,258	397,254,427	381,721,975
Metal ores	424,693,471	339,820,036	407,951,362	362,506,405	351,820,119
Industrial minerals	29,582,910	31,934,528	29,212,556	27,718,327	20,136,999

As shown in **Table 7**, increases in cement and gypsum taxes and the slight increase of license fees correspond to increases in price and production. Coal license and severance taxes decreased due to the reduced production rate. Metalliferous mine taxes decreased with the diminished production caused by closures. Oil and gas severance taxes remained reasonably constant considering price variability and the ages of the oil fields.

Table 7—Five-Year summary of State mineral tax statistics.

(from Natural Resource and Corporation Tax Division of the Montana Department of Revenue)

<u>Type</u>	<u>* FY 89</u>	<u>* FY 90</u>	<u>* FY 91</u>	<u>* FY 92</u>	<u>* FY 93</u>
Cement & gypsum tax & license fee	130,406	131,592	122,935	129,787	134,081
Coal license & Severance tax	58,565,576	67,870,544	50,457,839	54,114,111	35,481,334
Metalliferous mines license tax	6,355,005	6,306,356	7,739,030	6,595,467	6,521,076
Micaceous mineral license tax	6,212	4,067	2,456	- 0 -	- 0 -
Natural gas severance tax	1,724,735	1,057,277	1,277,368	1,395,778	1,638,965
Oil producers severance tax	13,234,516	14,510,149	18,885,901	20,427,115	17,037,621
Resource indemnity trust tax	4,782,042	5,071,681	3,573,502	4,194,434	3,776,385
Oil and Gas Producers Privilege & License Tax	789,045	877,825	978,223	994,384	798,380
TOTAL (mineral taxes)					
Total Department of Rev- enue Tax Collection	**581,622,023	**635,470,333	**657,366,390	**534,037,276	579,255,966
Percentage of total taxes produced from mineral resources	14.7%	15.1%	12.6%	16.4%	11.3%

* Montana Fiscal year ends on June 30th of the year indicated.

** Numbers have been changed to more closely resemble gross collections.

Table 8 reflects county and local school taxes paid by mineral resource industries. Many of the numbers show only taxable amounts, not taxes paid. These amounts are multiplied by local mill levies to derive money collected by the counties. They do not include county taxes on buildings, equipment, and property owned by the companies, or corporation license and income taxes.

Table 8—Five-Year summary of property taxes on nonrenewable resources.

	<u>FY 89</u>	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>	<u>FY 93</u>
Metal mines Gross Proceeds	12,740,804*	10,145,292*	12,227,346*	10,844,982*	10,560,872
Mines Net Proceeds	8,814,808*	8,413,267*	8,428,017*	8,352,334*	5,332,096
Oil & Gas Proceeds	190,369,985*				
Local Government Severance Tax—Oil		64,162,844*	29,599,143	23,936,821	21,296,750
Local Government Severance Tax—Gas		299,207,890*	6,582,211	5,944,073	6,024,542
Oil & Gas Net Proceeds—New Production	25,378,043*	41,046,280*	4,876,774	5,303,641	6,409,948
Coal Gross Proceeds (taxes assessed)	13,431,744	12,467,015	13,148,124	14,021,404	13,466,045

* Total amount taxable (multiplied by local Mill levies) (from Natural Resource and Corporate Tax division of the Montana Department of Revenue.)

In FY 1991, 1,354 companies filed corporate returns in mining. These represented 6.3% of the total filed. In FY 1992, 1,356 companies filed corporate tax returns in mining. These represented 6.1% of the total. Of the top 100 taxpayers in the corporate mining code, 3 made the list in FY 1991, and 2 in FY 1992. Total paid by those companies was less than \$1 million. This reflects the low profits experienced by companies during this period of depressed commodity prices.

Metals

Metal mining activity has remained relatively static with the exception of the closure of Asarco's Troy mine. Precious metal prices climbed a little in the fall and held steady to provide welcome relief to companies that had been operating near their operating costs for the last year. Copper prices were subdued during the same period of time, influenced by the sale of the copper stockpile by the Defense Logistics Agency. Lead and zinc prices continued at low values while molybdenum prices recovered slightly.

Primary company efforts were concentrated in permitting amendments to extend mine life at many operations. Although permits were obtained and EIS's completed, many lawsuits have been filed by special interest groups. In many cases the final corporate investment decisions will be withheld until conclusion of legal processes.

Western region

Mining and development (Figure 1)

Asarco's Troy unit announced a temporary closure in April and laid off all but 12 employees. The equipment was mothballed and stored underground. Surface facilities were preserved for the future which will most likely occur when the Rock Creek project has the necessary permits and prices are stable enough to assure a potential for a profitable operation. There are two to four years' reserves remaining at the Troy unit at the historic production rates.

Noranda's Montanore mine has completed the EIS process and has all of the necessary permits for production. This includes the necessary water quality variance permit that will allow them to continue the decline next to Libby Creek. Montana Reserves is no longer a partner in the operation but has until June 1994, to buy back in. Meanwhile, Noranda continues to seek a partner in the mining venture. The only obstacle left to be overcome is a lawsuit by the Sierra Club Legal Defence Fund against the U.S. Forest Service over the 1983 validity of the Montanore claims. All uncertainty in the project is anticipated to be settled by mid-1994. Barring low commodity prices the project will continue. Major development is still not anticipated until 1995.

Asarco's Rock Creek project has cleared the completeness review and is on its way to a draft EIS that is expected in early 1995. Although Asarco proposed a predevelopment incline to obtain a bulk sample, permission has not been granted by the Forest Service.

Near Trout Creek, the Walnut placer on the Vermillion River operated briefly during the summer. Operations are usually limited to a couple of weeks per year and weekends, however inclement weather further limited activities.

Near Superior, the Brockbank placer in upper Cedar Creek had no mining activity. The operator spent the summer reclaiming portions of the property and developing blocks for production in 1994. In Quartz Creek, Max Johnson worked in the lower portion of the Tammy Lynn claims in late August and September. High water and rain curtailed planned activities until a brief weather window allowed temporary production.

Don Peterson worked briefly in the Ninemile drainage west of Missoula. Most of his work at the mouth of Mattie V Creek was confined to exploration and development. In the same area, B & S Mining cleared five acres at the mouth of Favorite Gulch and rebuilt the wash plant. Favorable recovery encountered early in the 1993 season lead to the preparation of the property for the 1994 season.

South of Darby on Hughs Creek, Wade and E.A. Cox continued operations on their historic placer ground. They completed reclamation on a large block of ground early in 1993 and worked steadily the rest of the year. Up the hill from there, mining continued on the Hughs Creek underground placer mine. Bedrock was sloping steeply in the ground they are mining and values were dropping off. The operators indicated limited reserves remained.

Near Philipsburg, Asarco mined flux for the East Helena smelter. The ore is mined during the summer months, crushed, and shipped to Helena. Activities are suspended in November of each year.

East of Missoula, in the Elk Creek area, placer activity continued on a limited basis because of weather. Mining was continued on The Rat, Day Gulch, and Deep Creek placers.

North of Avon, in the Finn district, Montana Pacific Mining, Inc. continued to build an extremely large wash plant at the mouth of Washington Creek. The operation will employ a stationary wash plant and 50-ton haul trucks to process gravels in the narrow mouth of the drainage. Although the company intended to operate in 1993, the plant was still being constructed in September. Rumors indicated that the plant and ground were tested in late fall. Production is anticipated during the 1994 season.

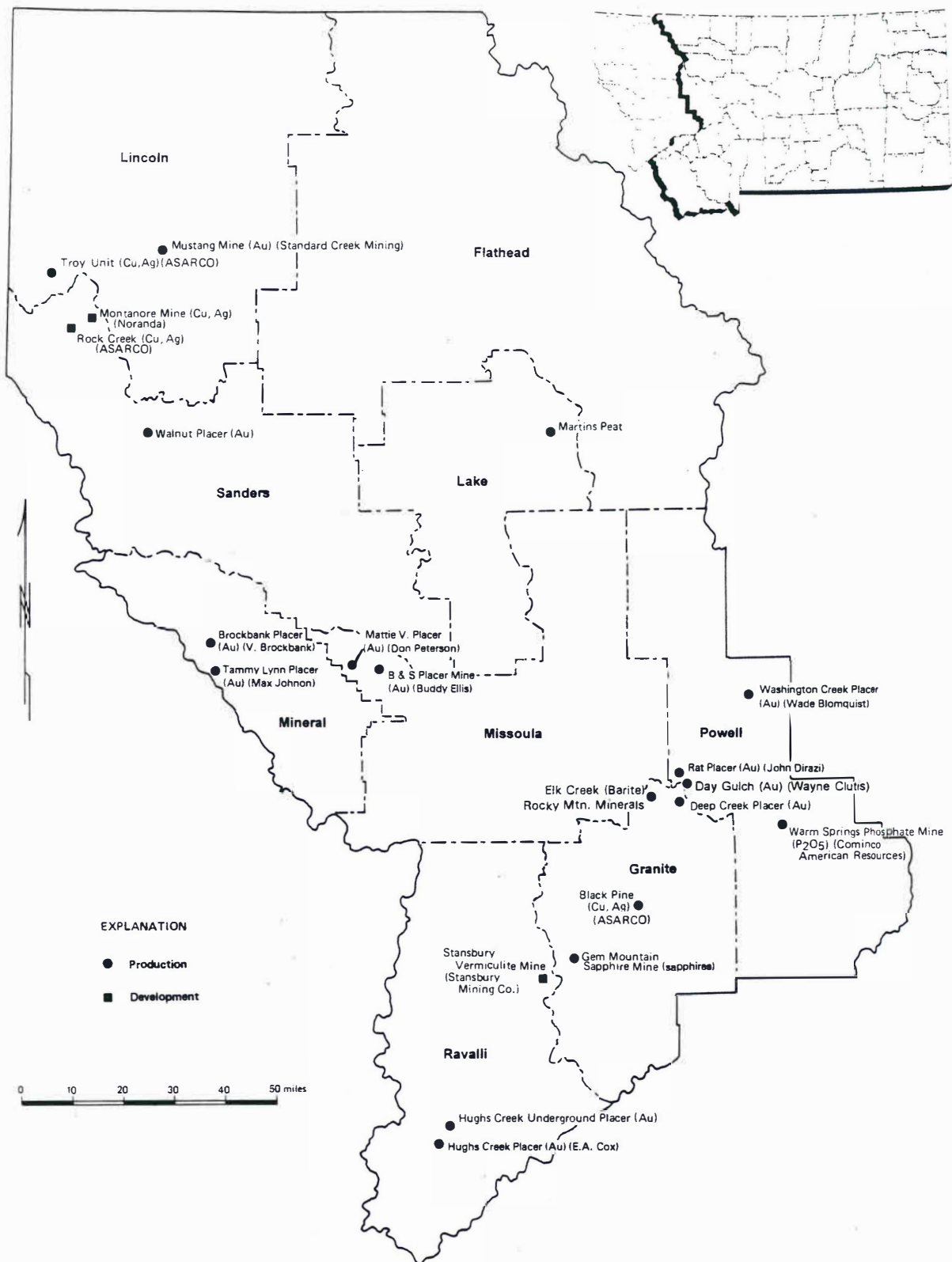


Figure 1—Mines and mineral development in the western region.

Exploration (Figure 2)

Exploration projects were very limited in northwestern Montana. Near Trout Creek, John Entiene reopened an adit on his Princess Ann/King David project. Montana Copper Corporation drilled a single hole on their Galena Giant project. These activities were near the old Jack Waite property.

In Mineral County, near Superior, Byron Dodd continued extending a drift near Keystone. Placer exploration continued in Lost Creek with Ray Wagner, and along Rabbit Creek with Jim Almond and Jim Almond, Jr.

In the Garnet Mountains, Garnet Mining Co. continued to explore their properties with a drilling program. Near Philipsburg, CAMECO continued drilling on their Londondarry project. They have since dropped the project. In the Rock Creek drainage, west of Philipsburg, FMC drilled a few encouraging holes near the Quartz, Basin, and Kornish Gulches, as did Ron Pertue with Cable Mountain Mining.

Pegasus Gold continued exploration in the Anaconda area near the Hidden Lake deposit. They have subsequently dropped their interests in those claims.

In eastern Powell county, Rob Towner tested placer gravel in the Blackfoot City area. American Copper and Nickel Company completed another successful year of drilling on properties between Ophir and Carpenter Creek. Results continue to be encouraging. Placer Dome drilled their Chamounix property just over the border in Lewis & Clark County.

Placer exploration was continued in Carpenter Creek by Jack Brultz and Skip Meader. Marvin Ratcliff continued exploration on his Hope #4 project near the divide just over the top from the head of Ophir Creek.

Butte-Anaconda region

Mining and development (Figure 3)

West of Butte, Pegasus Gold continued operations at their Beal Mountain mine. They completed their EIS for the South Beal project and have obtained all the necessary permits. All the necessary equipment for operations were purchased and the mine started self-mining in February 1994.

They continue to search for reserves in the Beal area but have had limited success. About one and a half years reserves remain permitted with a potential for two and a half years in the Deep Beal project. The time and money spent in permitting will determine the feasibility of deepening the currently permitted reserves.

The Beal operation had a difficult summer as did many of the mining operations because of the record rainfall. At Beal, higher than expected nitrate levels were noted in toe sumps of reclaimed waste dumps. The sources are expected to be residues from blasting, and the fertilizer which was applied during reclamation.

In Butte, Montana Resources continued profitable production in spite of low copper prices. The low prices coincided with the disposal of copper stocks from the Defense Logistics Agency. Operations continued with reclamation being a big part of concerns on the site. They completed one dump on the northeast side and have nearly backfilled the East Continental pit from 1974. The company gave a five percent raise to their employees and are very proud of being profitable during these tough times.

Southwest of Wisdom, RLTCO Placer mined gravel on Swansea's property in the Ruby Creek drainage. Gold values dropped off in the summer and company officials said someone had destroyed their D-9 dozer with acid. The combination made the operation very unprofitable.

Southwest of Dillion, Del Rio Corporation continued negotiations with State and Federal officials for a new operating plan. Reclamation obligations for past mining practices placed considerable financial encumbrances on the property.

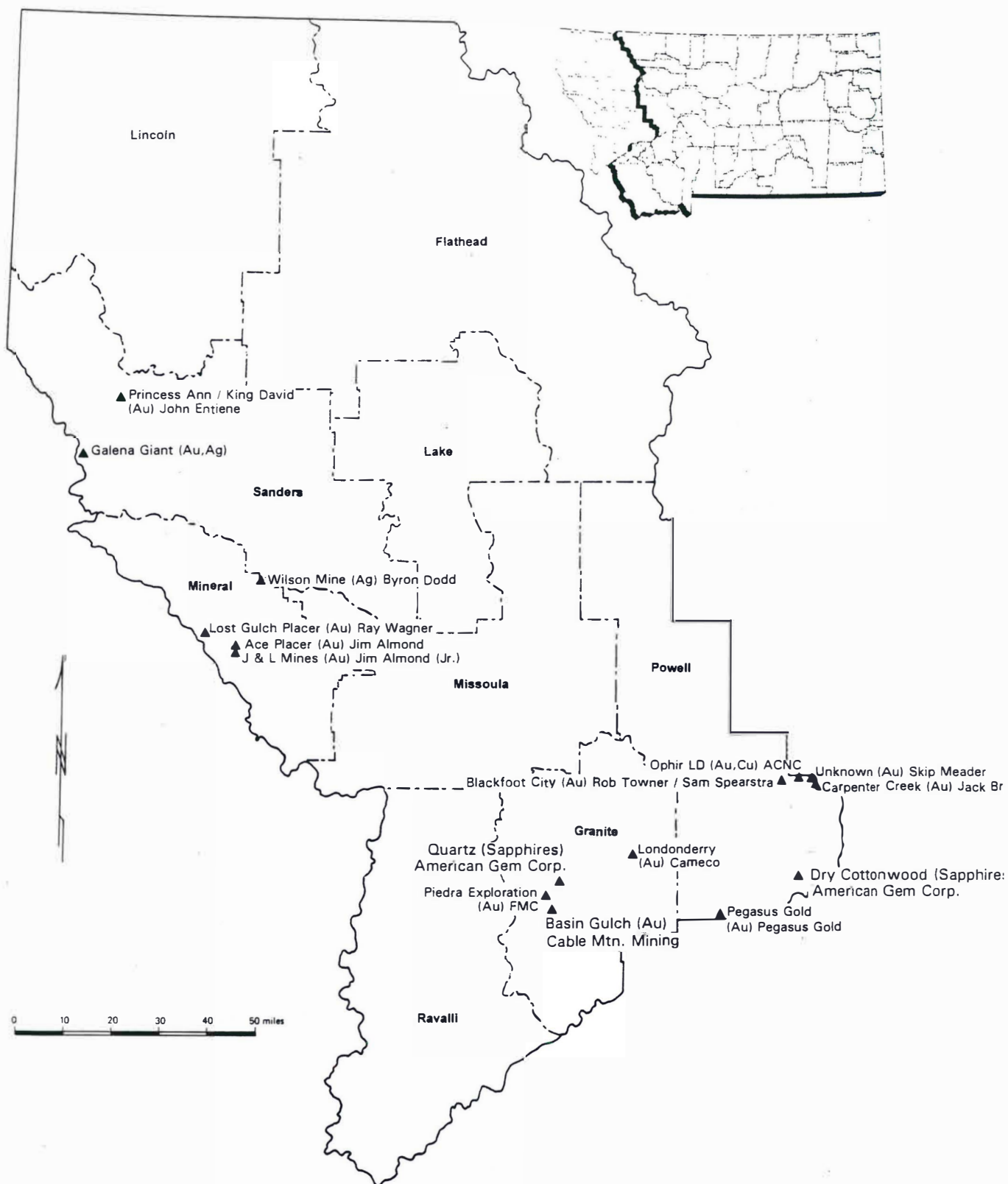


Figure 2—Exploration projects in the western region.

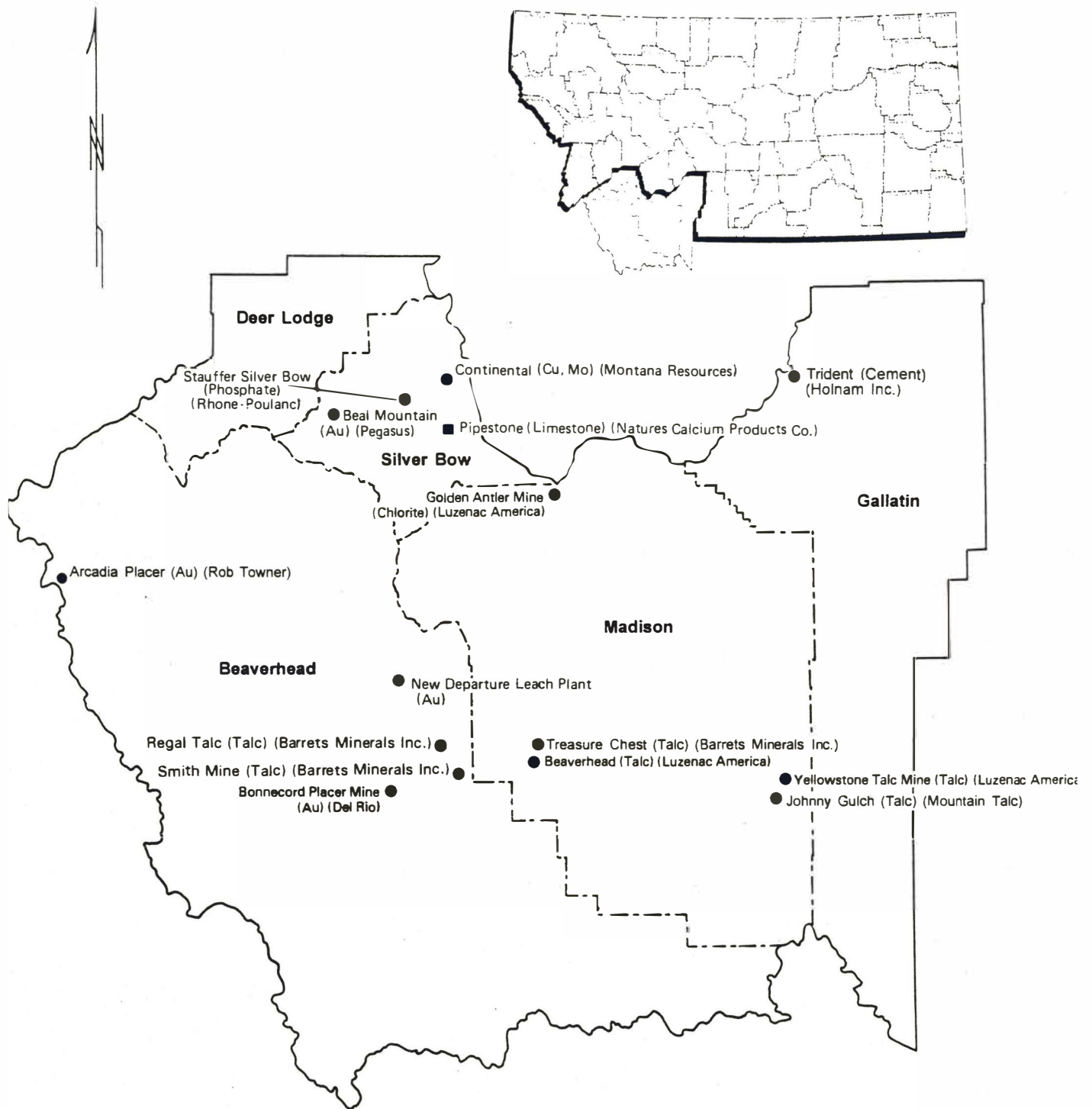


Figure 3—Mines and mineral development in the Butte-Anaconda region.

Exploration (Figure 4)

In the Butte-Anaconda area, Orvana drilled most of the year near the old Highland mine. Previous drilling had outlined a resource of 500,000 tons of 0.47 oz. Au/ton. Initial drilling by Orvana had an intercept of .225 ft. of 0.69 oz. Au/ton. Although analysis of the core is not complete, the company hit several good intercepts with the program. They have identified three (3) separate gold zones with most mineralization starting at about 800 ft. They have expanded the target area by 300 ft. to the east and are planning to continue to step out. A medium large drilling program is planned for the 1994 field season.

Phelps Dodge and Cominco American each drilled one (1) hole in the Camp Creek drainage east of Melrose.

South of Melrose, Joe Reynolds continued exploration in the Willow Creek drainage.

In the Argenta area, Monte Cristo Mining Company continued sampling of dumps near the Groundhog. The Nygren family continued testing of the Mayday property and Jim Lundbeck continued work in the E.M. claims.

South of Dillon, Bruce Cox continued evaluating zeolite deposits both in the Grasshopper Creek drainage and in Madison County. A plan to test both the deposit and potential markets early in 1994 has already been approved.

In the Tobacco Roots Mountains, Consolidated Top Gun Exploration initiated a drilling program for gold near Sheridan.

Near Virginia City, Kennecott continued drilling their properties in Alder Gulch. Results seem quite favorable on and around the old Kearsarge mine. Drill intercepts indicate at least nine veins with continuity along strike. Some of the holes have exhibited multiple feet of 0.5 oz. Au/ton or better. The drilling program has been shallow and widespread to sample the property package.

At the same time, Hanover Gold has undertaken an evaluation program on the Kearsarge and Apex properties. They have driven a number of drifts along shears and have set up drill stations for continued underground exploration.

Helena region

Mining and development (Figure 5)

Northwest of Lincoln, Bill Lewis continued placer operations in Lincoln gulch. Activity was limited because of rain. South of there, his father and brother, Clay and Bob, washed gravel in Sauerkraut Creek. Operations were difficult because of the endless spring, however, they washed most of the pay gravel they had stockpiled. By mid-summer they had completed washing and were back to stockpiling pay for washing in 1994.

In Marysville, Montana Mining and Manufacturing worked all spring and summer to reopen the Belmont mine. An unsupported fault zone in the decline had failed causing the new operator to have to drive spiling through the cave. When that failed, a bypass drift was driven through an old muck bay. Complications with sedimentation in waste water and a misunderstanding of pay schedules from Asarco's East Helena smelter caused Montana Mining and Manufacturing to close operations early in 1994.

Pegasus Gold's Montana Tunnels mine, located near Jefferson City, again changed their reserve calculations and continued fine-tuning their operations. They have added 3 years mine life and 12 million tons reserves. They have changed to a higher stripping rate and have hired 45 new employees to accomplish it. Their gravity circuit was so successful that they are updating and automating it, and should have it completed in 1994. To

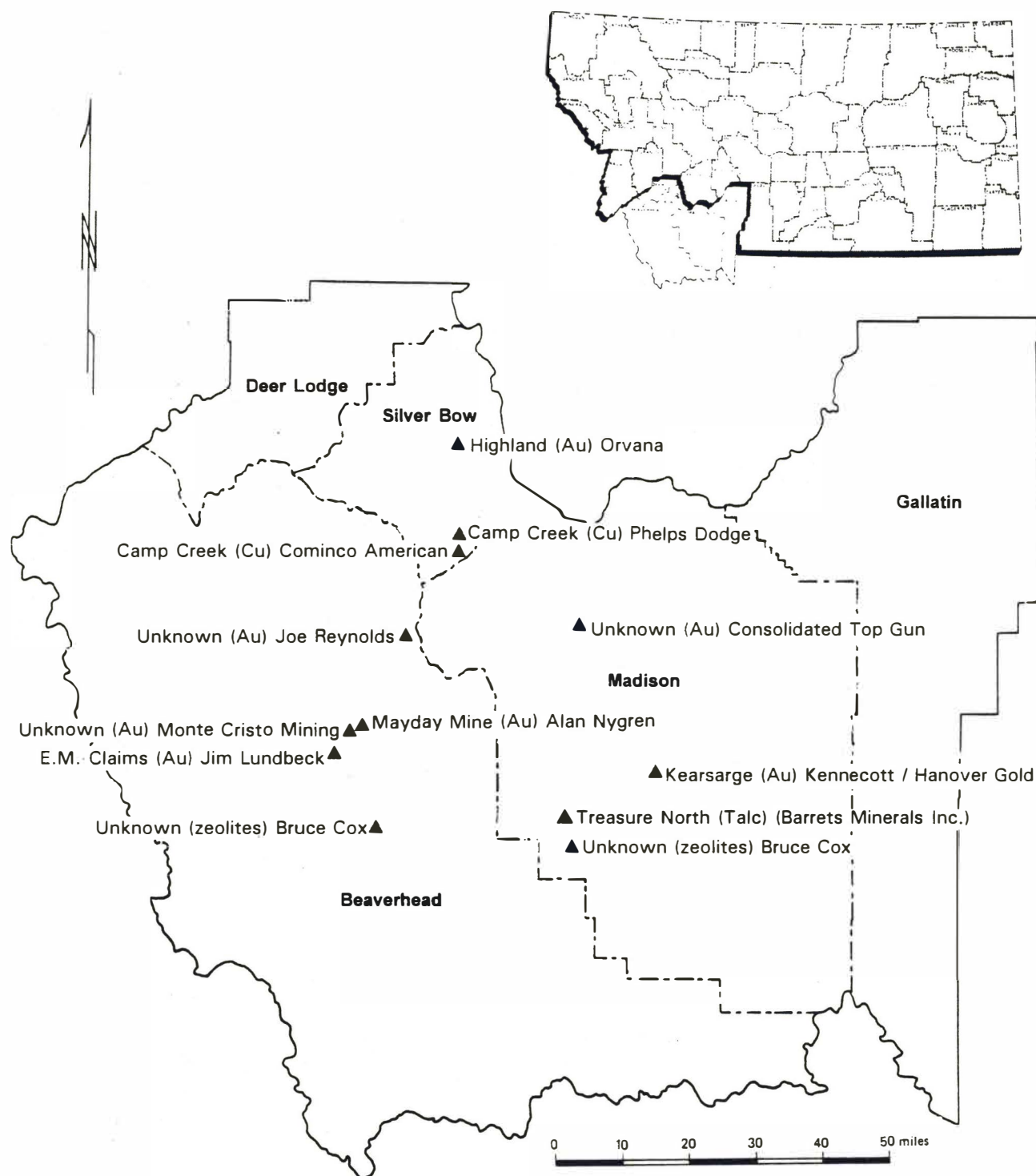


Figure 4—Exploration projects in the Butte-Anaconda region.

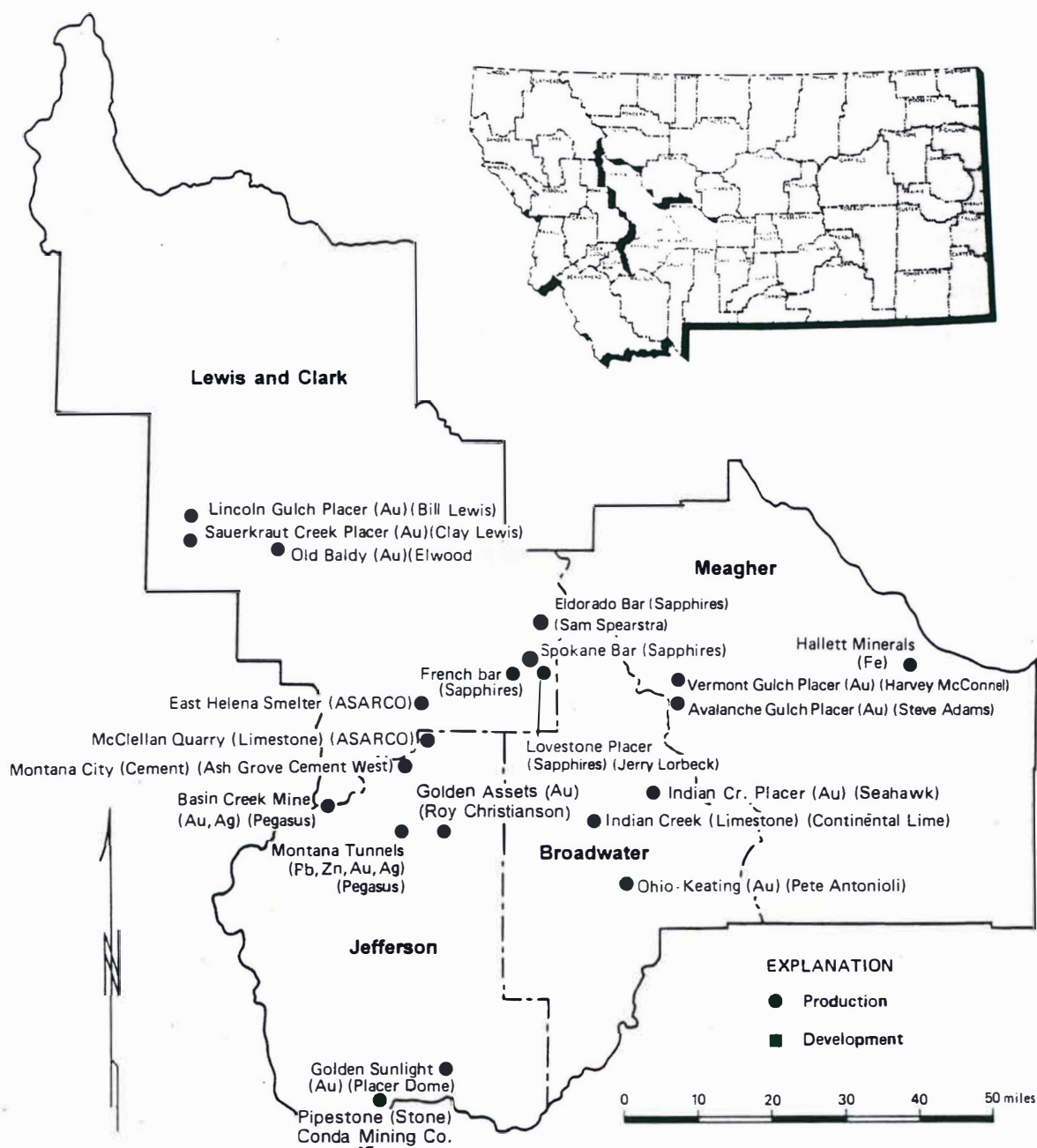


Figure 5—Mines and mineral development in the Helena region.

make their tailings pond more reclaimable they initiated a wick drain program where 120-foot-deep wells are drilled on 20-foot centers in the pond to allow trapped water to escape. That program has resulted in cost savings because of increased pond capacity and tailings density. Their overall reclamation program has seen continued success with each of their tests. The acid rock drainage prevention system for the waste dump appears to be one of the best in the State. With all these successes, they did have a few drawbacks. Their grade was down due to a pushback with the new mine plan. At the same time profit margins were slim as 65 percent of their product is zinc, and zinc prices were severely depressed. Smelter costs also increased during the year as zinc concentrates were shipped to Japan or to Trail, British Columbia, depending on cost.

The Basin Creek mine, near Basin—another Pegasus Gold operation—reopened to test a concept that might make it profitable. Bench scale tests done last year indicated the heaps of mine run ore instead of agglomerated ore might be economic. The test was scheduled to mine during the dry portion of the season and put 150,000 tons of rock on the pad to test recovery from fall and winter leaching techniques. The test was not as successful as anticipated largely because of the lack of a dry season to mine the rock. The fall and winter months have been spent trying various alternate techniques to enhance recovery. The operation did successfully reclaim 20 acres, and they continue to recover gold from the old agglomerated heap using a fresh- water leach.

Placer Dome's Golden Sunlight mine, located near Whitehall, had their best year ever. They established a new record of 120,000 ounces of gold during 1993 and poured their millionth ounce in July. They completed construction on their new tailings pond and started reclamation on their old pond. Their mining costs are up slightly because of longer hauls, but mill costs are down because less reagent is needed with this ore. Recovery has remained static at 80-81 percent. The mine has purchased a fleet of eight 170-ton trucks to facilitate lower cost stripping of waste from the pit. They also drilled 30,000 feet of holes in the pit floor to further define existing reserves and possibly expand reserves for the future. Preliminary results indicate grade is increasing with depth. Also in 1993, the Interior Board of Land Appeals ruled in favor of the Golden Sunlight mine in the continuing litigation from environmental special-interest groups.

In the Big Belt Mountains, east of Townsend, placer operations continued in Vermont Gulch and Avalanche Gulch. Sea Hawk continued their intermittent operation on the Indian Creek alluvial fan west of Townsend.

West of Radersburg, Pete Antonioli continued small scale heap leach operations on the Keating property.

Exploration (Figure 6)

In the Helena Region near Lincoln, Phelps Dodge continued baseline studies for the Seven-Up Pete Joint Venture project with Canyon Resources. Drilling and trenching were continued to delineate gold reserves on the property.

Northwest of Helena, Richard Shreeves and Glenn Hogsdon tested placer gravels in two portions of the Butcherknife drainage. One used conventional testing methods and the other used dry techniques.

East of Helena, in the Big Belt Mountains, Tony Carberry tested placer gravels in upper Vermont gulch. Pegasus Gold drilled 19 holes on their Miller Mountain project. Late in the fall they changed their program and by Christmas they had enlisted four contractors to reclaim the entire surface disturbance by the end of the calendar year. The project has been returned to FMC.

In Confederate Gulch, James Collins tested placer gravels and has reclaimed the property.

On the east side, Roy Kinne continued evaluation of placer gravels in Atlanta Creek. Pegasus Gold continued evaluation of their Diamond Hill property, located west of Townsend. The company has indicated an interest in permitting it as an underground operation which would be a first for Pegasus.

Frank Antonioli drilled a few holes near the Keating Mine west of Radersburg.

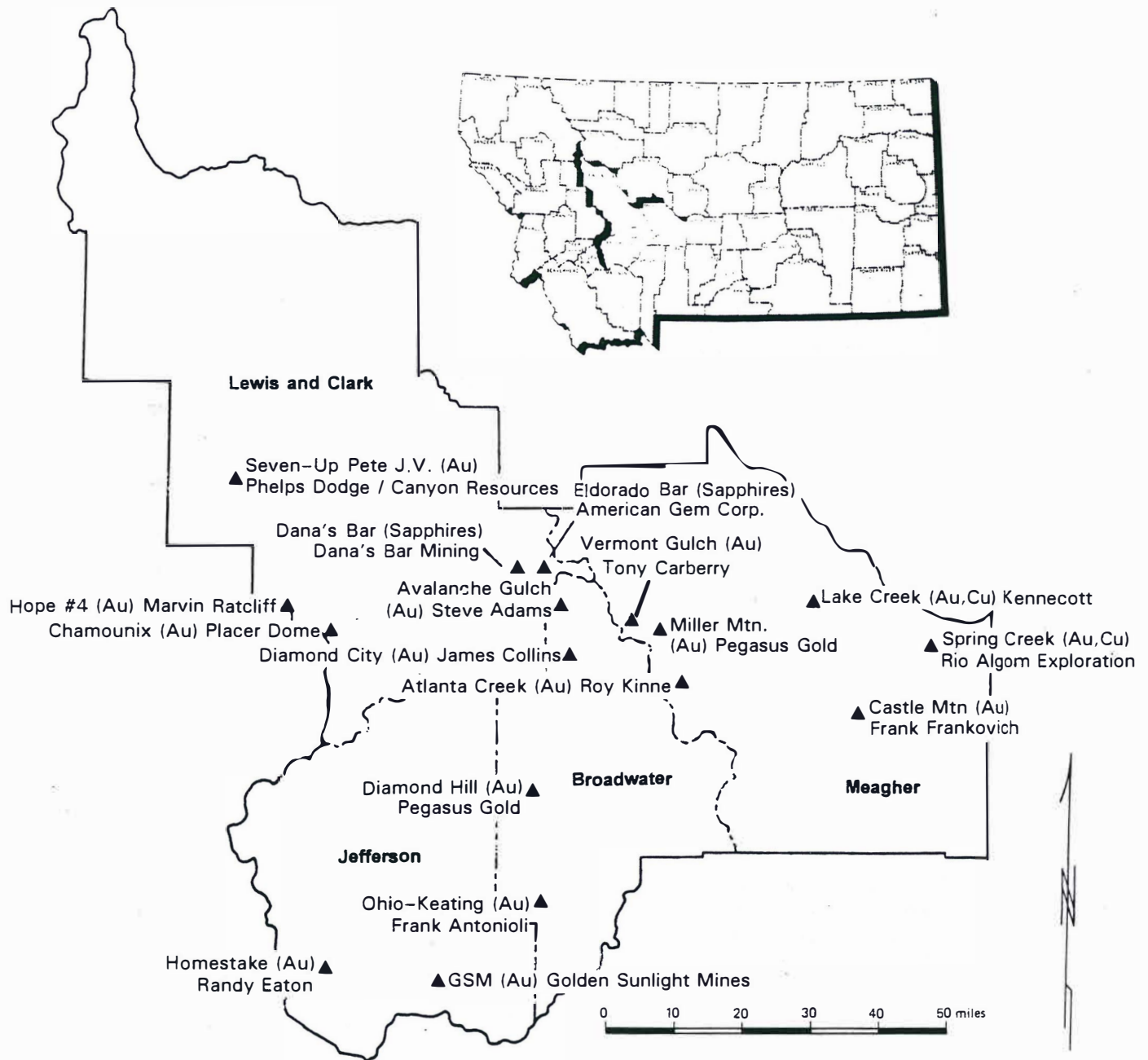


Figure 6—Exploration projects in the Helena region.

Near Whitehall, Randy Eaton tested placer gravels in the Homestake area, and Golden Sunlight mines continued an extensive exploration program for further mine reserves. The drilling program is planned to continue through 1994.

In the White Sulfur Springs area, Kennecott conducted a small RVC and geophysics program. Activities were concentrated in Lake Creek and Charcoal Gulch.

Rio Algom Exploration drilled one hole in the Spring Creek area.

In the Castle Mountains, Frank Frankovich drilled five holes for copper and precious metals in the Hensly Creek drainage.

North central region

Mining and Development (Figure 7)

Near Lewistown, Canyon Resources C.R. Kendall mine had a good year in spite of inclement weather. They are scheduled to complete mining operations in October 1994. They completed a layback in the Muleshoe pit and encountered much better grade than was originally anticipated. They are currently finishing up the remaining reserves in the Horseshoe pit. Production costs were up a little this year because of longer haul distances. Reclamation of pads #1 and #2 continued with exceptional success largely due to the excessive rainfall. Production on the rest of the pads was hampered because of the rainfall. The company changed to misting sprays to reduce the accumulation of moisture in the ponds.

Near Malta, Pegasus Gold Corporation's Zortman-Landusky mine maintained production and continued permitting on the sulfide portion of the Zortman orebody. The final permit decision appears to depend heavily upon the ability of the company to remediate ARD in the existing drainages and develop preventative ARD waste rock repositories. The excessive 1993 precipitation created acid rock drainage (ARD) from waste dumps on both the Zortman and Landusky deposits. The company has since removed the sulfide bearing dumps to preempt future ARD. They are currently cleaning up the acid water that was produced. All water is kept on site and treated. Surplus water is land applied. Production remained steady on the Landusky side. The company had a safe year with continued successful prediction of old workings by ground penetrating radar. The mine connected the Queen Rose, August, and Gold Bug properties in one continuous pit. The western end of the Gold Bug pit was turned into an acid-secure waste-rock dump.

Exploration (Figure 8)

Near Lewistown, exploration activity was brisk. C.R. Kendall had one last large drilling project in the North Moccasin's Iron Gulch. Results were disappointing.

In the Judith Mountains, Canyon Resources drilled one helicopter support hole in Maiden Canyon. BHP-Utah International drilled BRVC holes on the Linster Peak property. Heller Drilling drilled the Collar Gulch, Elk Peak, and Judith Peak properties. The latter two projects were four hole programs while Collar Gulch was an eight hole program. The results are not available at this time.

Further exploration in the Little Rockies has been delayed until the permit of the Zortman Expansion is completed.

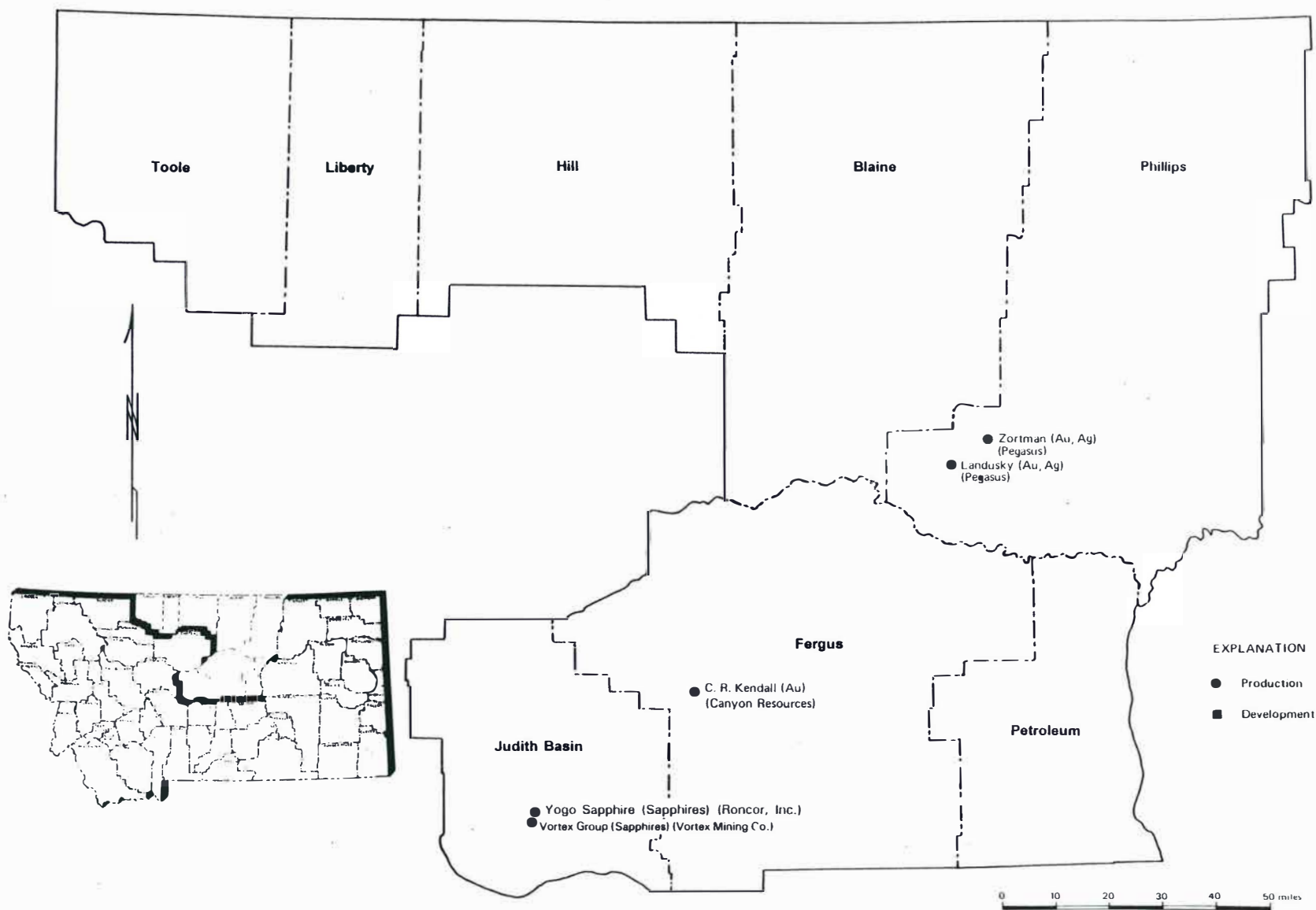


Figure 7—Mines and mineral development in the north central region.

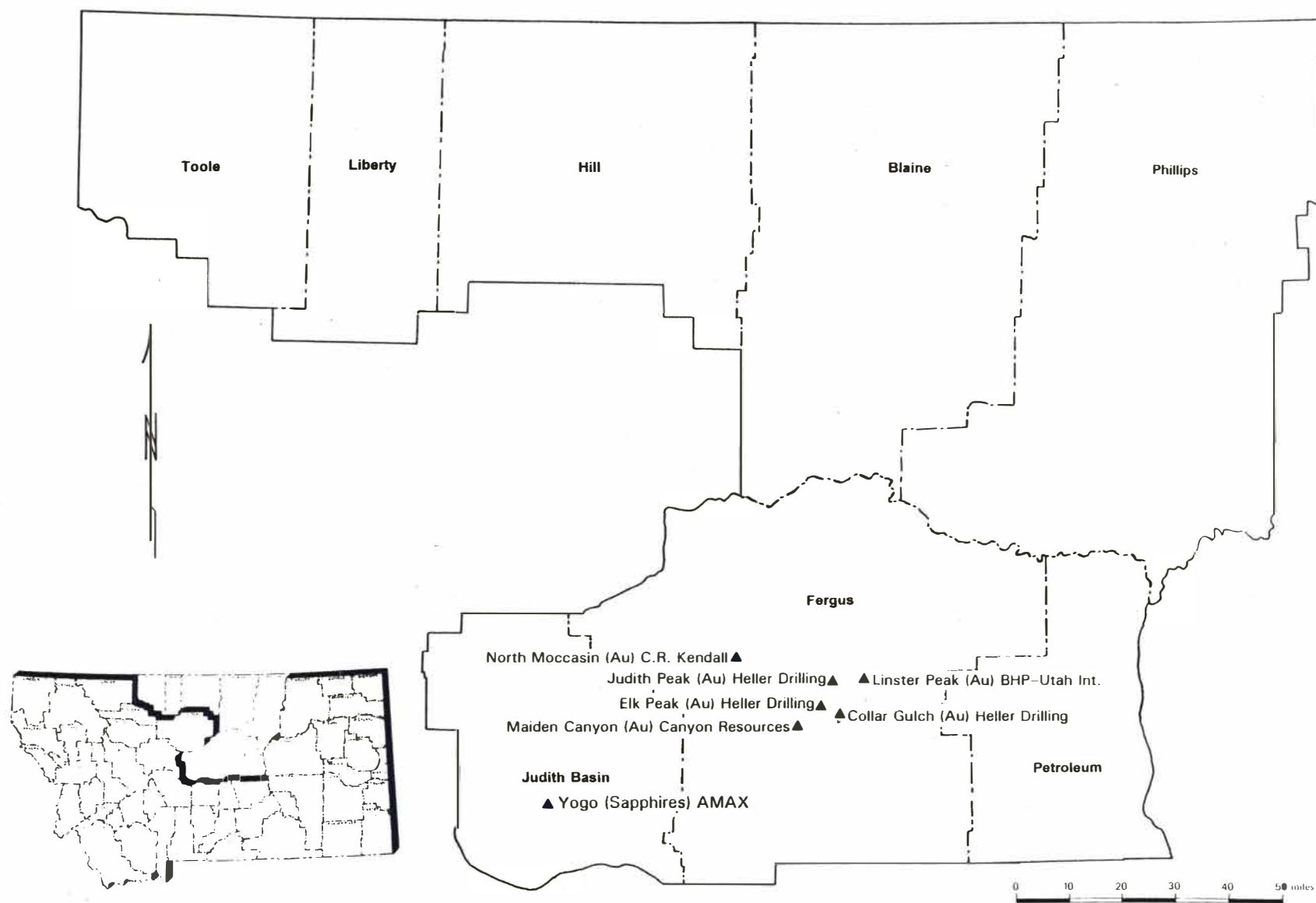


Figure 8—Exploration projects in the north-central region.

Park region

Mining and development (Figure 9)

The Park region only has two active metal mines; the Mineral Hill mine and the Stillwater mine.

The Mineral Hill mine, located in Jardine, was a joint venture of INCO and Homestake; however, in 1992 INCO spun the property off under the name TVX Gold, Inc. In 1993 they sold their TVX Gold stock and set the property on its own. TVX Gold then bought out Homestake's share and is the sole owner and operator of the Mineral Hill mine and associated properties. Their goal for the next few years will be to expand reserves, permit adjacent properties and maintain profitability. They continue to produce from the limited reserves at the mine while completing baseline studies on Crevice. Additional exploration is scheduled for the mine orebody in the coming field season. They have completed their first stage of reclamation and will maintain concurrent exploration through the life of the mine. They continue nitrate abatement research for mine water and maintain one of the most environmentally sound mining operations in the State.

The Stillwater mine, run by Stillwater Mining Company, took a turn for the better in 1993 after some difficult years of management problems, poor funding, and low commodity prices. In addition to their Coeur d'Alene style cut and fill mining methods, the company was experimenting with sublevel retreat methods in the lower levels. This method allowed for subsurface storage of development rock which is very important because of the space confines in the narrow valley. In the upper levels where the ore is found to be relatively continuous, the company is utilizing ramp access and mechanized mining methods. Both of these methods have decreased overall mining costs and have allowed for an increase production rate. In order to maintain production, the operations are mining four 10 hour shifts in ore with Friday operations reserved for waste production. Early in 1993, the company completed EIS's on development and production of the East Boulder project and a doubling of production from the present operation. This work was completed and the necessary permits have been acquired. Because of the constraints caused by the narrow valleys where these operations are located, it was also necessary to secure water quality variances to allow for slightly increased levels of nitrate from blasting in their discharge water. Those permits have also been acquired. In addition to all of these improvements, the overall average grade of the ore increased from 0.8 ounces/ton combined platinum and palladium to 0.9 ounces/ton. Even the prices increased in mid-1993, providing an optimistic sign for the future.

Exploration (Figure 10)

In the Park Region, Phelps Dodge planned a four hole RVC program in Arrastra Creek in November 1993 but was snowed out. The project will be continued in 1994.

Helmo Gold/Crown Butte continued delineating reserves in their New World project. They finally received a "completeness" approval and the project has advanced to the EIS stage. A draft is expected in late 1994. In the meantime, the company reclaimed the old McClaren and Glengarry pits, rechanneled snowmelt from underground workings —thus reducing ARD by 40%, and continued research to make this operation even more environmentally sound. Further reclamation by the company has been stalled by environmental groups demanding greater public input.

TVX Gold, Inc. continued exploration at Crevice, which is located 2.5 miles south of the Mineral Hill mine. They drilled 7 holes in 1993 and have plans for a significantly larger program in 1994.

Industrial minerals

Barite

Rocky Mountain Mineral has suspended operations in the Elk Creek/Coloma area (**Figure 1**). They continue to ship some stockpiles but expect reclamation to be completed by fall 1994.

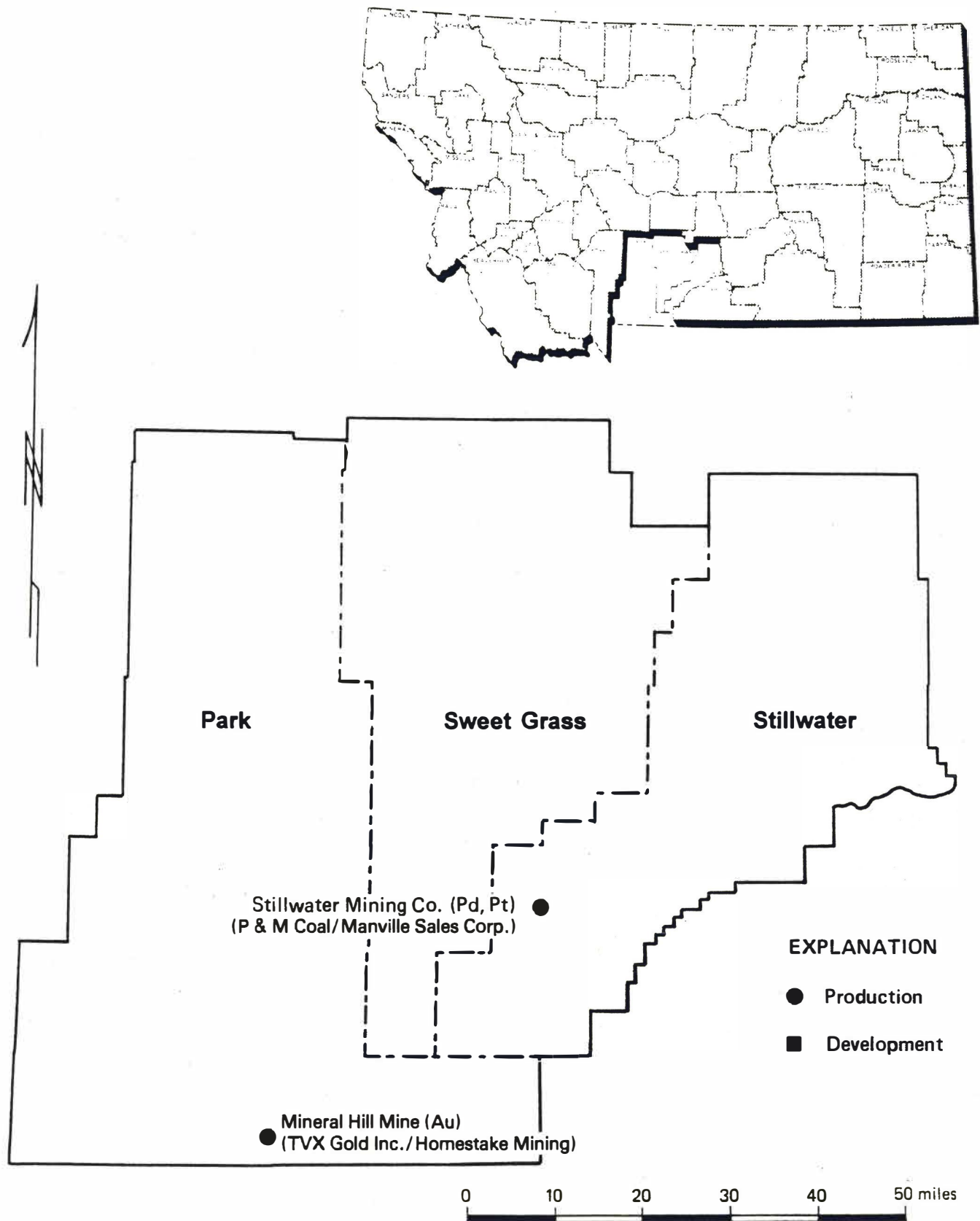


Figure 9—Mines and mineral developments in the Park region.

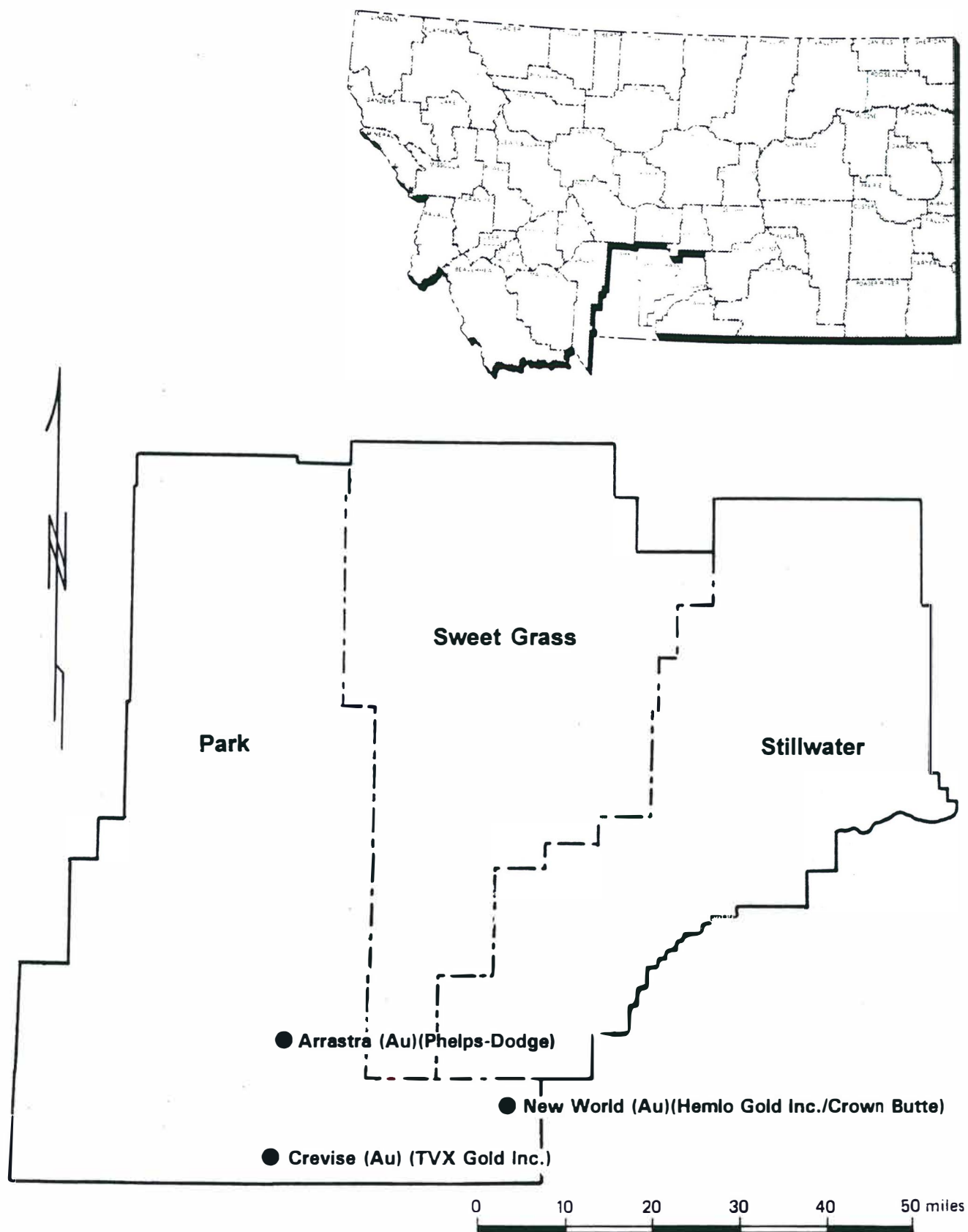


Figure 10—Exploration projects in the Park region.

Chlorite

Luzenac America continued stable production from their Golden Antler mine (**Figure 3**) with the exception of a six-month cessation of mining operation during the construction of the new sorting facility on site. Markets have been steady to growing while ore quality has maintained stability. Operations are expected to maintain an even keel over the next year.

Cement

The cement industry continued with another year of production at market capacity. Considerable legislative effort was put into securing permits to burn hazardous waste such as tires and paint solvents as a substitute fuel during the kilning portion of the process. This is the same process which is permitted in Tacoma, Washington and many of the larger cities in the nation. After significant discussion, the Montana Legislature passed a law which placed limitations precluding the use of hazardous waste in any of the existing cement plants in the State.

Production was directed mainly to sales in Canada and the Pacific Northwest with the exception of an EPA project in Anaconda. For the latter, large volumes of cement were combined with burnt lime and copper-arsenic flu dust from the old Anaconda smelter. This combination was entombed on the grounds of the old smelter and is expected to isolate the flu dust from ground water, soils, and surface water.

The cement industry continues to be at risk as the plants are old, use less efficient technology, and are long distances from their primary markets. The State lacks population and development to consume more than a token amount of available production. With the State industrial minerals tax and Workman's Compensation fees, profit margins are quite limited. The companies may find it more cost effective to ship cement in from their west coast plants and close the Montana plants.

Limestone

The limestone industry appears to be approaching the market capacity in the shipping range. The prices are steady but the competition is fierce for available market shares. Weakness in the market early in the year firmed up with increased local demand for burnt lime on EPA Superfund project sites during the fourth quarter.

The Indian Creek operation (**Figure 5**), run by Continental Lime, maintained production in spite of the soft markets but worked hard to cut costs and make the operation more efficient. During the winter months one of the kilns was rebuilt and redesigned using stainless steel lips on the lower end. The operation of the kilns and associated bins and conveyors were automated with new computer software. The company studied the potential cost savings in reclamation and possibly production, of purchasing an in-pit mobile crusher. They also plan on constructing a 15 TPH hydrator in 1994.

An agreement appears to have been formulated between the National Guard, BLM, and Continental Lime on mining claims the National Guard has been using for a firing range. A considerable expense may be incurred by the National Guard to clear the area of unfired explosive ordinance.

The McClellan quarry near Helena (**Figure 5**), continued to produce minor amounts of flux for the East Helena smelter.

The Warren quarry, located south of Billings (**Figure 11**), continued production of limestone for Basin Electric's burnt lime plant in Frannie, Wyoming and both sugar plants in eastern Montana. The quarry processes none of their own rock beyond crushing but sells a variety of products to a number of consumers. The scale of their operation has grown substantially over recent years and is expected to continue.

Phosphate

The phosphate industry in Montana has dwindled over the years with the last few years having only one operating plant, owned by Rhone Poulenc (**Figure 3**); and one mine, owned by Cominco America Resources (**Figure 1**). In 1993, Cominco closed the last underground phosphate operation in the United States which was the last phosphate mine in Montana. A combination of high industrial mineral taxes, Workman's Compensation rates, shipping costs, mercury in the phosphate ore, and production problems at the Cominco Smelter in Trail, British Columbia, Canada, all contributed to the demise of the operation. The company is salvaging their operation and expects to have reclamation completed by early 1995.

Rhone Poulenc's food grade elemental phosphorus plant located west of Butte, continued production at capacity. The market continues to shrink as phosphate is used less and less in consumer markets. Following a long negotiation with the Air Quality Bureau, the company invested heavily in new scrubbers to decrease airborne effluents from their operations.

They continue to mine their phosphate rock in southern Idaho at the Rasmusson Ridge mine and ship it to Silverbow. They also mine silica for flux at Maiden Rock which is located just north of Melrose.

Sapphires

The interest in sapphires increased greatly in 1993, with substantial investment and speculation in many properties. The biggest player for the year is the American Gem Company of Helena which has negotiated contracts from the Helena valley to Philipsburg. A tremendous effort was put into starting a mining operation in Quartz Creek, west of Philipsburg, until the Forest Service discovered the land has been withdrawn from mineral entry for a number of years. American Gem also had an extensive property evaluation program on upper Dry Cottonwood Creek south of Deerlodge (**Figure 2**).

During the fall, American Gem continued staking claims on all open sapphire bearing ground. Additionally, they started an exploration program on the Eldorado Bar east of Helena (**Figure 6**).

Also east of Helena, near Eldorado Bar, exploration and development planning continued on Dana's Bar (**Figure 6**). This project completed bulk tests during 1993 to test recovery and mapping programs of previous years. The deposit appears to average four-feet thick with enough soil depth in some areas to make reclamation easy. The entire deposit is perched high above existing river levels.

Southwest of Utica, Amax (**Figure 7**) drove two 20-percent declines on the Yogo dike. They averaged 300 feet in length and explored the dike approximately 60 feet from the surface. The company collected 1000 tons of ore to process during the 1994 operating season. They also encountered severe difficulties in the declines because of the clay in the dike and the heavy rainfall during 1993. Operators said the need to tow LHD's out of the declines became all too common.

Adjacent to Amax, Vortex deepened their shaft below their 75 foot level. Sinking continued through the fall and winter of 1993, and drifting from the bottom of the shaft is expected to start during the late spring, 1994. Exploration has provided the company with encouraging targets for their mining program.

Stone (aggregate)

Two operations in railroad ballast were curtailed this year when concern was raised over the potential liability of silica dust which is created when working on railroad track beds. The railroads are now concentrating on sources of silica rich volcanic rocks such as basalt and igneous rocks such as diorite to meet their needs for ballast. The existing operations at McQuarrie and Essex will try to develop markets in road projects and local development projects to consume the stockpiles they have on site. Future mining is not planned at this time.

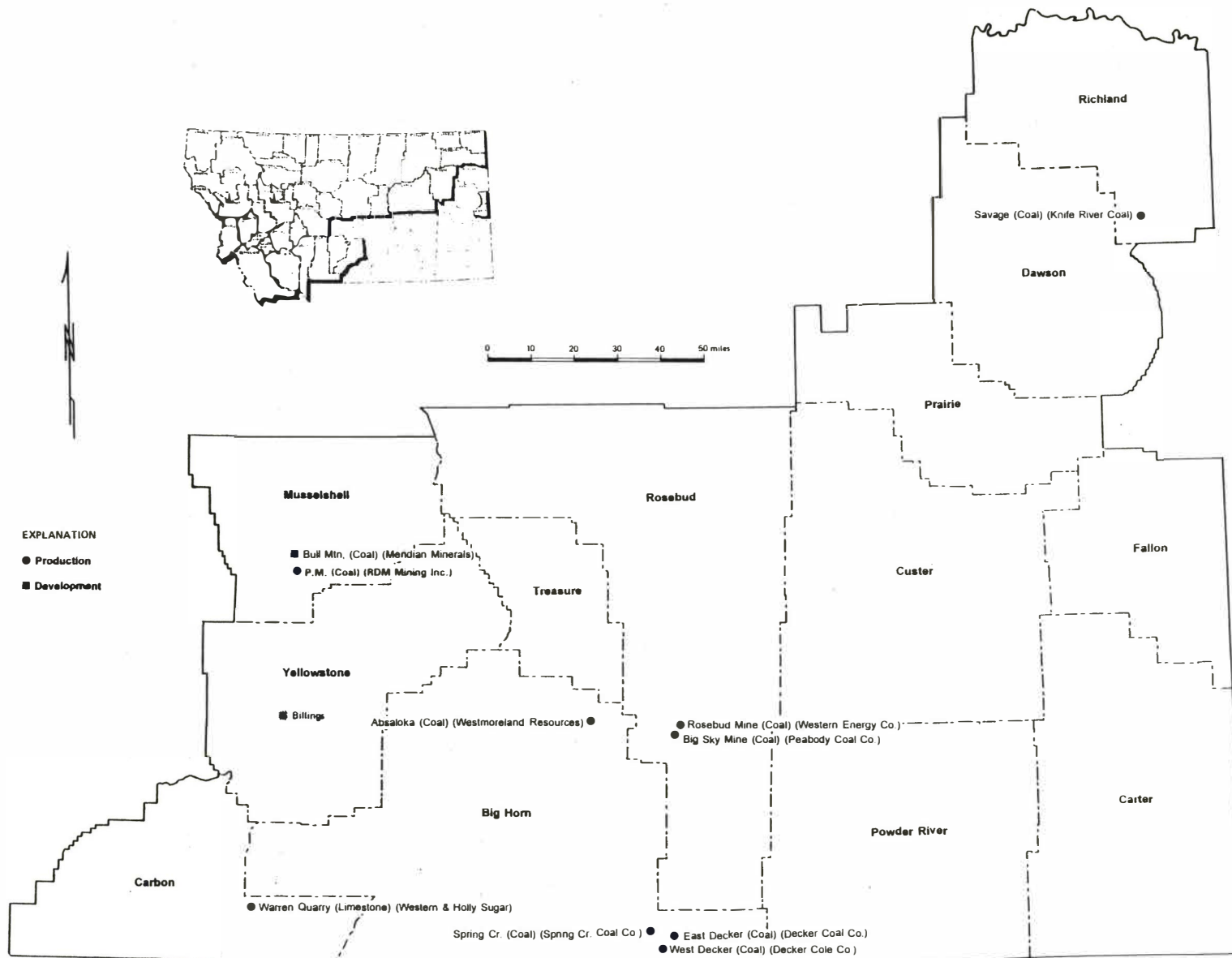


Figure 11—Mines in the Southeastern region.

Silica production continued at the Maiden Rock quarry by Rhone Poulenc for their phosphate smelter at Silverbow (**Figure 3**). The operation only blasts a few times per decade and then sizes the material to meet the needs of the smelter.

A new quarry opened at Pipestone with Conda Mining, Inc. (**Figure 5**) producing diorite for railroad ballast. Product sizes available ranged from $\frac{3}{4}$ " to rip rap. The life of the operation is expected at 10 years. Production is estimated at 100,000 - 200,000 tons per year.

Stone (building)

Montana contains many different types and qualities of decorative stone. The demand appears to be expanding with exposure of the products to the building industry. The main limiting factor involving the industry is the small size of the companies and limited production capabilities. The majority of our decorative stone producers maintain very limited inventories or only produce the stone they need for one job at a time.

The largest production areas are: 1) near St. Regis; or, 2) Helena area for slate and shales; while, 3) Livingston/Gardiner area is known for travertine. The rest of the western half of the state has the potential for development of good quality decorative stone quarries.

The U.S. Government has money available for municipalities to develop the necessary infrastructure for marketing and shipping of stone.

Talc

The talc industry maintained operations within the State at about the same rate as was seen in the recent past. The domestic market remained steady to growing as did prices, while access to some European markets declined.

East of Dillon, Barretts Minerals maintained production at the Treasure Chest mine (**Figure 3**) and developed the Regal orebody for production in 1995. The Regal contains chemical and low brightness ore largely known for its ceramic properties. During 1993, the company tested 2000 tons through their mill and prestripped a large portion of the orebody.

Barretts Minerals also continued exploration at the Treasure North deposit which is located north of the Treasure Chest deposit.

South of the Treasure Chest, Luzenac America maintained production at their underground mine, the Beaverhead (**Figure 3**). The company moved their sorting facilities from Alder to the mine. Operations continued at about the same rate as in the past, utilizing pneumatically emplaced cement backfill in an underhand mining method. Ore is hoisted to the surface with a shaft while materials are delivered to the working face by a ramp system. The mine is run extremely efficiently with skilled employees utilizing cost savings at every opportunity.

South of Ennis, Luzenac completed their prestripping program at the Yellowstone mine (**Figure 3**). Approximately 30% of the staff was laid off when Luzenac decided to fill European orders for talc from their mines in Europe. Additional layoffs may be necessary as fewer employees are needed with the company's lower strip ratio of less than 8:1.

Adjacent to the Yellowstone mine, Montana Talc continued production of their Johnny Gulch mine (**Figure 3**). They initiated a stripping program to the west of their present orebody that is nearing the maximum depth allowed for safety concerns. Montana Talc is, and has been for sale for the last five or six years.

Mineral Fuels

Coal (Figure 11)

Coal remained as the most valuable solid mineral in the state. The total taxable value of coal mined was \$381,721,975 (calendar year 1992). This reflects a further declining price and reduced production. Total production for 1993 was 35,933,317 tons, which was down roughly three million tons from 1992. This regression of price from \$14.00/ton in the mid 1970's to as low as \$2.20/ton, reflects a general overproduction from Wyoming. Industry specialists speculate that the upper limits of production from Montana's share of the Powder River Basin are possibly being approached as train traffic appears to be near its limits.

Many companies are aggressively pursuing foreign contracts to expand the available market share. As the profit per ton decreases a sincere effort is being put into increasing the production tonnage to maintain the corporate economics. Other companies are making capital investments for conveyors to offset truck haulage and personnel costs. This reduces their overall operating costs and allows them to be competitive with the lower prices.

Many companies are continuing research in coal drying plants. This technique increases the value BTU's and decreases sulfur/BTU ratios. The only problem is that the dried coal tends toward spontaneous combustion and is unstable. Further research is directed toward coatings and special storage and shipping facilities.

North of Billings, in Musselshell county, RBM Mining, Inc. produced high BTU coal for local contracts. This operation at the PM mine is the only underground coal mine in the state. Their production was up by 1947 tons to 11,182 tons. Their operations closed down in April of 1994, in anticipation of a larger underground operation taking over the property.

East of Billings, in Big Horn County, Westmoreland Resources maintained production at their Absoloka mine. As with many of the operations, they faced a tough year with decreased prices. This was compounded by a 266,654-ton decrease in production from 1992. Although prices have remained depressed, 1994 tonnage is up from a number of test runs the company has produced for prospective clients.

In Rosebud County, the Big Sky mine (Peabody Coal Company) increased production by 300,000 tons and enjoyed an increase in sales. Permitted reserves were exhausted and a new area was permitted to allow continued production. Coal from that area contained excessive sodium and was not compatible with the existing contract. A second area was permitted and production has continued.

North of the Big Sky mine, Western Energy reduced production at their Rosebud mine. Their Number Four power plant was down for two and a half months with generator problems and production was reduced by 2,437,736 tons. They currently ship their lower grade coal to the Montana #1 project which is in the demonstration phase. This unit dries the coal and increases the BTU to sulfur ratio. They are continuing research to derive cost effective methods to eliminate the spontaneous combustion problem.

Production related to the coal-fired generators is expected to be steady but long term contracts to Midwest purchasers are expected to end in the decade. Production is anticipated to decline by 10 percent to 20 percent unless a better market share can be secured.

Northeast of Glendive, Knife River Coal Mining had a good year at their Savage mine. Their prices were steady and production was up by 43,773 tons.

In southern Big Horn County, Spring Creek Coal Company had an excellent year. They decreased their stripping ratio to 0.85:1 and increased production by 534,102 tons. They installed a large conveyor which eliminated the need for some haul trucks and 40 employees. The company anticipates that this may decrease their operating costs enough to establish an economic edge for the market share. They are currently trying to increase their present permitted production limits and have been shipping test runs to foreign countries in an attempt to break into the foreign markets.

Near Spring Creek, Decker Coal Company continued operations at their east and west pits. Production was down by 1,140,797 tons because of the competition for the available market share. Production in the future is dependent on sales and demand but prices appear to be steady to lower.

Oil and gas

Oil and gas operations in Montana were steady throughout 1993. The gas production was steadily up by 3 percent and oil production was steadily down by 4 to 5 percent. Most oil exploration was in Valley and Phillips counties and most gas exploration was in Toole and Glacier counties.

Most activity in the gas fields was confined to shallow wells in known fields. An oil well tax incentive started a year ago in December. The result was five new horizontal wells in 1993 and ten planned in 1994. This may result in better utilization of remaining resources in existing fields.

The drill rig count has been up one or two for most of 1993 but big changes are not expected in the near future. Approximately 315 companies are operating in the State with the majority being mid-sized. A new seismic program is being conducted in the northeast corner of the State (Fort Peck Indian Reservation) by Texaco.

Table 9—Nonfuel mineral production in Montana* (from U.S. Bureau of Mines).

Mineral	Measure	1990		1991		1992ε	
		Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays	metric tons	⊛29,741	⊛\$193	362,635	\$11,332	346,694	\$13,934
Gemstones	carats	n/a	3,692	n/a	2,796	n/a	1,081
★Gold	kilograms	13,012	161,861	18,511	216,211	18,410	207,163
Palladium metal	kilograms	5,930	21,735	6,050	16,923	6,050	16,445
Platinum metal	kilograms	1,810	27,176	1,730	20,635	1,730	19,801
Sand and gravel (construction)	thousand short tons	5,114	14,319	ε4,800	ε13,700	6,500	18,900
★Silver	metric tons	220	34,114	222	28,893	198	25,463
Stone (crushed)	thousand short tons	ε4,000	ε15,300	2,107	5,725	2,100	5,900
Talc and pyrophyllite	metric tons	430,125	18,883	w	w	390,765	18,498
Combined value of barite, cement, clays (bentonite [1990]), copper iron ore (useable), lead, lime, molybdenum, peat, phos- phate rock, sand and gravel (industrial), stone (dimen- sion), vermiculite, zinc, and value indicated by symbol W		xx	275,944	xx	274,082	xx	276,088
TOTAL		xx	573,024	xx	590,297	xx	603,273

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

⊛ Excludes certain clays; kind and value included with "combined value" figure.

★ Recoverable content of ores.

ε Estimated

n/a Not available

w Withheld to avoid disclosing company proprietary data; value included with "combined value" data.

xx Not applicable

Mines, quarries, and developing properties

Precious Metals

Metal mines

Baldy Mountain claims

General location—South of Lincoln
Tract—NE ¼ Sec. 8, T.13N., R.8W.
County—Lewis and Clark
Commodities produced—Gold, lead
Status—Intermittent production
Mining method—Open stope
Ore production—1-5 TPD
Waste production—None
Acres disturbed—<1
Acres reclaimed—0
Mineral ownership—100% federal
Ore processing method—Gravity mill
Processing capacity—5
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—1800s
Initial investment—Unknown
Employees—Family operation
Annual payroll—None

Production cost—Unknown
Commodity production—Confidential
Ore type—Quartz-calcite breccia containing free gold.
Geologic deposit model—Ore occurs in flatlying quartz-calcite breccia containing clay-filled karst features; includes native lead and gold-encrusted quartz crystals.
Published reserves—None
Owner—Elwood Hiatt
Operator—Elwood Hiatt
Address—Box 516, Lincoln, MT 59639
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Basin Creek mine (Paupers Dream project)

Mining district—Rimini
General location—Southwest of Helena
Tract—Sec. 24, 25, T.8N., R.6W.; Sec. 19, 30, T.8N., R.5W.
County—Lewis and Clark
Commodities produced—Gold, silver
Status—Testing
Mining method—Open pit
Ore production—8,000 TPD
Waste production—2,000 TPD
Acres disturbed—330
Acres reclaimed—60
Mineral ownership—100% private
Ore processing method—Mine-run ore; cyanide heap leach; carbon column recovery
Processing capacity—750 gal/min
Mine life at startup—Unknown
Starting date—1988
Discovery date—1892
Initial investment—\$34 million
Employees—20
Annual payroll—\$940,000
Production cost—Unknown

Commodity production—2,000 oz. Au/yr
Ore type—Structurally controlled disseminated gold in rhyolitic tuff.
Geologic deposit model—280 to 300-foot-thick rhyolitic tuff which caps the tops of ridges. The tuff is composed of a lithic-tuff sequence on top of pumice fragments. The lower levels are composed of a tuffaceous unit which extends to a quartz monzonite.
Published reserves—5 million tons @ 0.040 oz. Au/ST, 7.5 million tons @ 0.042 oz. Au/ST
Owner—Basin Creek Mining, Inc.
Address—Executive Office, Suite 400, North 9 Post Street, Spokane, Wa 99201
Operator—Basin Creek Mining
Address—Basin, MT 59631
Telephone—(406) 494-5904
Mine manager—Tad Dale
Mine superintendent—Dan Adams
Mill superintendent—Dave Swanson
Plant manager—
General manager—

Beal Mountain mine (German Gulch)

Mining district—Siberia
General location—West of Butte
Tract—Sec. 6, T.2N., R.10W.
County—Silver Bow
Commodities produced—Gold, silver (1:1 ratio)
Status—Producing
Mining method—Open pit
Ore production—10,000 TPD, 1.9 million TPY
Waste production—9,700 TPD (1.0:1 ratio), 1.5 million TPY
Acres disturbed—436.7
Acres reclaimed—13
Mineral ownership—100% private
Ore processing method—Crush, agglomerated, and leach pad (carbon-in-pulp); new crushing plant
Processing capacity—1.9 million TPY
Mine life at startup—11 years
Starting date—March 1, 1989
Discovery date—1800s
Initial investment—\$16 million (mine); \$5 million (exploration); \$1.9 million new crushing plant
Employees—110 (contractors and company)
Annual payroll—\$3.1 million
Production cost—\$211/oz. gold—\$6.75/ton (1991)

Commodity production—50,004 oz. gold (1991); 8,334 oz. silver (1991); 60,000 oz. gold (est. 1993)
Ore type—Disseminated gold and silver in a skarn; prograde disseminated gold; retrograde and adularia gold vein system.
Geologic deposit model—Ore hosted by Late Cretaceous continental clastic rocks thermally metamorphosed to pyroxene hornfels facies quartzites, hornfelses, and metaconglomerates by granodiorite and diorite intrusions.
Published reserves—9.8 million tons at .047 oz. Au/ST
Owner—Beal Mountain Mining, Inc.
Address—Executive Office, Suite 400, North 9 Post Street, Spokane, WA 99201
Operator—Beal Mountain
Address—1806 Fairmont Road, Anaconda, MT 59711
Telephone—(406) 797-3215
Mine manager—Cal Mckee
Mine superintendent—Glen Luther
Mill superintendent—Joe Michelletti
Plant manager—
General manager—

Black Pine mine

Mining district—Black Pine
General location—Northwest of Philipsburg
Tract—Sec. 7, 8, 16, 17, 18, T.8N., R.14 W.
County—Granite
Commodities produced—Silica, silver, copper, gold and lead (silica flux for East Helena smelter)
Status—Intermittent operations dependent of smelter need for flux.
Mining method—Room and pillar stoping (underground)
Ore production—1,000 TPM
Waste production—Unknown
Acres disturbed—20
Acres reclaimed—0
Mineral ownership—5% federal, 95% private
Ore processing method—Crushing & shipping
Processing capacity—1,000 TPM
Mine life at startup—Unknown
Starting date—1885
Discovery date—1882
Initial investment—Unknown

Employees—5
Annual payroll—60,000
Production cost—Unknown
Commodity production—Unknown
Ore type—Mixed oxide and sulfide copper minerals containing silver credits.
Geologic deposit model—Stratabound ore in quartz-filled fissure between bedding planes in quartzite of the Spokane Formation (Belt Supergroup).
Published reserves—2 million tons @ 5.2 oz. Au/ST
Owner—ASARCO, Inc.
Address—
Operator—ASARCO, Inc.
Address—Box 440, Wallace, ID 83873
Telephone—(208) 752-1116
Mine manager—John Breen
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Contact Mining Custom mill

Mining district—Flint Creek
General location—South of Philipsburg
Tract—Sec. 36, T.7S., R.14W.
County—Granite
Commodities produced—Sulfide concentrates (ores); free gold (oxide ores)
Status—Inactive
Mining method—N/A
Ore production—N/A
Waste production—N/A
Acres disturbed—<40
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Flotation circuit-crush/grind, ball mills, two parallel closed circuits flotation; gravity circuit-crush/grind, ball mills, cyclone jig table
Processing capacity—1,000 TPD flotation circuit; 500 TPD gravity circuit
Mine life at startup—N/A

Starting date—1981
Discovery date—N/A
Initial investment—Unknown
Employees—unknown
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—N/A
Geologic deposit model—N/A
Published reserves—N/A
Owner—Contact Mining Company
Address—P.O. Box 337, Philipsburg, MT 59858
Operator—Contact Mining Company
Address—P.O. Box 337, Philipsburg, MT 59858
Telephone—(406) 859-3827
Mine manager—
Mine superintendent—
Mill superintendent—Bill Antonioli
Plant manager—
General manager—

Continental Pit

Mining district—Summit Valley
General location—Butte
Tract—Sec. 5-8, 18, T.3N., R.7W.
County—Silver Bow
Commodities produced—Molybdenum, copper, silver; occasional gold credits
Status—Producing
Mining method—Open pit
Ore production—47,000 TPD, 17.3 million TPY
Waste production—40,000 TPD, 15.1 million TPY (strip ratio .82:1)
Acres disturbed—701
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Leach pads with sulfuric acid (oxide ores); flotation (sulfide ores)
Processing capacity—48,000 TPD (flotation mill)
Mine life at startup—25 years (present reserves will extend mine life to 2027)
Starting date—1981
Discovery date—1800s
Initial investment—Unknown
Employees—327
Annual payroll—\$11.7 million

Production cost—Unknown
Commodity production—89.6 million lbs. copper; 7.2 million lbs. molybdenum; 764,000 oz. silver
Ore type—Sulfide ores consisting of chalcocite, chalcopyrite, pyrite and molybdenite; copper oxide ores near surface.
Geologic deposit model—Copper/molybdenite porphyry; occurs in Cretaceous-age Butte Quartz Monzonite.
Published reserves—547 million short tons at 0.33% copper, 0.032% molybdenum; 0.072 oz. Ag/ST
Owner—Montana Resources, Inc.
Address—600 Shields, Butte, MT 59701
Operator—Montana Resources, Inc.
Address—600 Shields, Butte, MT 59701
Telephone—(406) 723-4081
Mine manager—
Mine superintendent—Steve Walsh
Mill superintendent—Charlie Palagi
Plant manager—
General manager—J.F. Gardiner

Golden Sunlight mine

Mining district—Cardwell
General location—Northeast of Whitehall
Tract—Sec. 17-20, T.2N., R.3W.
County—Jefferson
Commodities produced—Gold, silver
Status—Producing
Mining method—Open pit
Ore production—6,707 TPD, 2.4448 million TPY
Waste production—100,000 TPD, 33 million TPY (strip ratio 14:1)
Acres disturbed—1,609 (no change)
Acres reclaimed—9 (test plots); 40 acres (no change)
Mineral ownership—100% private
Ore processing method—Agitated vat leach (cyanide); carbon in pulp recovery; spiral section for pyrite recovery and regrind.
Processing capacity—6,750 TPD
Mine life at startup—22 years
Starting date—1983
Discovery date—1890
Initial investment—\$60 million
Employees—275
Annual payroll—\$11.0 million
Production cost—\$175/oz. Au. cash costs
Commodity production—120,000 oz. Au/yr.

Ore type—Shallow epigenetic epithermal system associated with latite porphyry magmatism.
Geologic deposit model—Free gold in pyrite; gold mineralization occurs in pipe-shaped breccia approximately 700 feet in diameter and over 1,200 feet deep. Breccia plunges at 35° W-SW and is open at depth. Both disseminated and structurally controlled mineralization exist within the deposit. Free gold occurs between pyrite grains. Other minerals are auriferous tellurides, chalcopryrite, galena, sphalerite, marcasite, and tennantite.
Published reserves—42 million tons of 0.048 oz. Au/ST (demonstrated) 1992
Owner—Placer Dome, Inc.
Address—
Operator—Golden Sunlight Mines, Inc.
Address—453 Montana Highway 2E, Whitehall, MT 59759
Telephone—(406) 287-3257
Mine manager—Don Wilson
Mine superintendent—John Freeman
Mill superintendent—Paul Dale
Plant manager—
General manager—

Groundhog mine

Mining district—Argenta
General location—West of Dillon
Tract—Sec. 18, T.6S., R.10W.
County—Beaverhead
Commodities produced—Gold, silver, lead
Status—Operating leach plant
Mining method—Open pit
Ore production—None
Waste production—None
Acres disturbed—<3
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Cyanide heap leach (agglomerated ore)
Processing capacity—Unknown
Mine life at startup—Unknown
Starting date—1987
Discovery date—1800s

Initial investment—Unknown
Employees—Family operation
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Confidential
Ore type—Unknown
Geologic deposit model—Unknown
Published reserves—None
Owner—William M. Hand
Address—70 South Arizona, Dillon, MT 59725
Operator—William M. Hand
Address—70 South Arizona, Dillon, MT 59725
Telephone—(406) 683-4420
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Kendall mine

Mining district—North Moccasin
General location—North of Lewistown
Tract—Sec. 31, T.18N., R.18E.
County—Fergus
Commodities produced—Gold, silver
Status—Producing
Mining method—Open pit
Ore production—6,000 TPD, 1.6 million TPY
Waste production—24,000 TPD; (3:1 strip ratio in Horseshoe pit)
Acres disturbed—385
Acres reclaimed—80
Mineral ownership—3.6% federal (40 acres); 96.4% private
Ore processing method—Agglomeration, cyanide heap leach, (Merrill Crowe recovery plant)
Processing capacity—6,500 TPD, 1.5 million ST ore/year
Mine life at startup—Ore reserves proven until 1993 (additional reserves to 1995)
Starting date—1988
Discovery date—1898
Initial investment—\$21,162,000 (to date)
Employees—74 (80% local employees)

Annual payroll—\$2.5 million
Production cost—\$200/oz. gold; \$7.73/ton operating cost & burden (1991)
Commodity production—59,857 oz./yr. gold, 18,229 oz./yr silver.
Ore type—Disseminated gold
Geologic deposit model—Production from Muleshoe deposit; ore controlled by fracture-induced porosity; hydrothermal solutions trapped by impermeable layers (Kibbey Formation) below Madison Group limestone (Mississippian age).
Published reserves—1.3 million tons at 0.04 oz. Au/ST (indicated)
Owner—Canyon Resources
Address—
Operator—C.R. Kendall
Address—P.O. Box 799, Hilger, MT 59451
Telephone—(406) 538-2501
Mine manager—Kevin Ryan
Mine superintendent—Kevin Ryan
Mill superintendent—Larry Jennings
Plant manager—
General manager—

Mineral Hill mine

Mining district—Sheepeater
General location—Northeast of Gardiner
Tract—Sec. 9, T.9S., R.9E.
County—Park
Commodities produced—Gold, silver, tungsten (not recovered)
Status—Producing
Mining method—Cut and fill (using borrow material); shrinkage
Ore production—191,033 TPY
Waste production—40,000 TPY
Acres disturbed—16
Acres reclaimed—1.7
Mineral ownership—100% private
Ore processing method—Agitated vat leach (cyanide); Merrill Crowe recovery plant
Processing capacity—500 TPD, 16,000 TPM, 180,000 TPY
Mine life at startup—7 years
Starting date—1989
Discovery date—1880
Initial investment—\$29 million
Employees—90

Annual payroll—\$3.5 million
Production cost—\$262/oz. gold (cash operating costs)
Commodity production—Annual: 43,300 oz. gold (1993)
Ore type—Arsenopyrite, pyrite, pyrrhotite, loellingite, chalcopyrite, galena, scheelite, gersdorffite, and electrum in a silica matrix.
Geologic deposit model—Archean-age metamorphic rocks (Jardine Formation).
Published reserves—650,000 tons @ .27 oz. Au/ST (gold to silver ratio approximately 8:1)
Owner—50% TVX Gold; 50% Homestake Mining Company
Address—
Operator—TVX Mineral Hill, Inc.
Address—P.O. Box 92, Gardiner, MT 59030
Telephone—(406) 848-7421
Mine manager—Eric Edwards
Mine superintendent—Dewayne Chambers
Mill superintendent—Robert Dynan
Plant manager—
General manager—

Montana Tunnels mine

Mining district—Wickes
General location—South of Helena
Tract—Sec. 8, T.7N., R.4W.
County—Jefferson
Commodities produced—Lead, zinc, gold, silver
Status—Producing
Mining method—Open pit
Ore production—13,300 TPD, 4.8 million TPY (3.8:1 ratio)
Waste production—50,540 TPD, 8.4 million TPY, (3.8:1 strip ratio)
Acres disturbed—950
Acres reclaimed—5
Mineral ownership—99% private; 5 acres of BLM in pit
Ore processing method—Flotation
Processing capacity—12,500 TPD
Mine life at startup—11 years
Starting date—1987
Discovery date—1864
Initial investment—\$52 million
Employees—232

Annual payroll—\$11.6 million
Production cost—\$115/oz. gold
Commodity production—68,700 oz. gold; 1,400,000 oz. silver; 18,000 tons zinc; 7,000 tons lead
Ore type—Galena, sphalerite, pyrite, chalcopryite, argentite, and gold electrum
Geologic deposit model—Eocene-age breccia pipe in volcanics.
Published reserves—Indicated - 34.3 million ST @ .019 oz. Au/ST; 0.34 oz. Ag/ST; 0.24% lead; 0.62% zinc
Owner—Montana Tunnels Mining, Inc
Address—Executive Office, Suite 400, North 9 Post Street, Spokane, WA 99201
Operator—Montana Tunnels Mining
Address—P.O. Box 176, Jefferson City, MT 59638
Telephone—(406) 933-8314
Mine manager—Bill Orr
Mine superintendent—Ed Fenwick
Mill superintendent—Barney Damton
Plant manager—
General manager—Wayne Loxton

Montanore mine

(Rock Lake deposit, Noxon project)

Mining district—Noxon (unorganized)
General location—East of Noxon
Tract—Sec. 17, 29, 30, T.27N., R.31W.
County—Sanders
Commodities produced—Copper, silver
Status—Permitting stage (inactive until permits are obtained)
Mining method—Room and pillar (proposed)
Ore production—20,000 TPD
Waste production—Minimal after development
Acres disturbed—20
Acres reclaimed—0
Mineral ownership—20 acres private; remainder federal land
Ore processing method—Flotation
Processing capacity—20,000 TPD
Mine life at startup—16 years (proposed)
Starting date—1994
Discovery date—1983
Initial investment—\$250 million (proposed)
Employees—450 (proposed)

Annual payroll—\$12.5 million (proposed)
Production cost—Unknown
Commodity production—None
Ore type—Bornite, chalcocite and native silver occurring in quartzite.
Geologic deposit model—Stratabound mineralization in quartzite of the Ravalli Formation (Belt Supergroup).
Published reserves—142 million tons @ 1.9 oz. silver; 0.9% copper
Owner—Noranda, Inc.; Montana Reserves Company
Address—
Operator—Noranda Montanore
Address—101 Woodland Road., P.O. Box 1486, Libby, MT 59923
Telephone—(406) 293-8795
Mine manager—
Mine superintendent—John Stroiazzo
Mill superintendent—
Plant manager—
General manager—Mark Petersmeyer

New Departure Custom Vat Leach

Mining district—Bannack
General location—Southwest of Dillon
Tract—NW¼, NW¼, Sec. 26, T.7S., R.11W.
County—Beaverhead
Commodities produced—Gold, silver
Status—Producing
Mining method—N/A
Ore production—N/A
Waste production—N/A
Acres disturbed—<5
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Custom vat leach (cyanide) mill
Processing capacity—700 TPM
Mine life at startup—N/A
Starting date—Unknown
Discovery date—N/A

Initial investment—Unknown
Employees—None
Annual payroll—Unknown
Production cost—Confidential
Commodity production—Confidential
Ore type—Gold and byproduct silver
Geologic deposit model—N/A
Published reserves—N/A
Owner—Carl Brown
Address—307 Janney Road, Dillon, MT 59725
Operator—Carl Brown
Address—307 Janney Road, Dillon, MT 59725
Telephone—(406) 683-4046
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Rock Creek mine

Mining district—Noxon (unconsolidated)
General location—Cabinet Mountains Wilderness
Tract—Sec. 33, 34, T.27N., R.32W.
County—Sanders
Commodities produced—Copper, silver
Status—Permitting stage (pre-EIS)
Mining method—Room and pillar (proposed)
Ore production—10,000 TPD (proposed)
Waste production—Minimal after development
Acres disturbed—N/A
Acres reclaimed—N/A
Mineral ownership—100% private
Ore processing method—Flotation
Processing capacity—10,000 TPD
Mine life at startup—30 years (proposed)
Starting date—2000
Discovery date—1963
Initial investment—\$130 million (proposed)
Employees—355 (proposed)
Annual payroll—\$10.5 million (proposed)

Production cost—N/A
Commodity production—None
Ore type—Bornite, chalcocite and native silver.
Geologic deposit model—Ore zone is a flat-lying deposit approximately 12,000 feet long, 6,000 feet wide, and averages 27 feet in thickness. Stratabound mineralization occurs in the Revett Formation (Belt Supergroup).
Published reserves—143,760,000 tons @ 2.2 ounces Ag/ST; 0.8% copper
Owner—ASARCO, Inc.
Address—
Operator—ASARCO, Inc.
Address—P.O. Box 868, Troy, MT 59935
Telephone—(406) 295-5882
Mine manager—D. Miller
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Stillwater mine

Mining district—Nye
General location—South of Nye
Tract—Sec. 21, 22, T.5S., R.15E.
County—Stillwater
Commodities produced—Platinum, palladium, rhodium, gold
Status—Producing
Mining method—Couer d'Alene-style cut and fill, sublevel retreat, ramp access cut and fill
Ore production—1,000 TPD, 365,000 TPY
Waste production—300,000 TPY
Acres disturbed—3
Acres reclaimed—4.1
Mineral ownership—1,206 acres permitted; percentage public (unknown)
Ore processing method—Flotation
Processing capacity—1,200 TPD
Mine life at startup—Unknown
Starting date—1987
Discovery date—1974
Initial investment—\$89 million
Employees—425
Annual payroll—\$17.0 million

Production cost—Unknown
Commodity production—250,000 oz. platinum and palladium; gold and rhodium credits
Ore type—Sulfide zones containing chalco-pyrite, pyrrhotite, pentlandite
Geologic deposit model—Magmatic differentiation of an ultramafic intrusive.
Published reserves—500,000 tons @ .8 oz./ton combined platinum - palladium; ratio =1 platinum:3.4 palladium
Owner—Stillwater Mining Company
Address—County Route 2, Box 365, Nye, MT 59061
Operator—Stillwater Mining Company
Address—County Route 2, Box 365, Nye, MT 59601
Telephone—(406) 328-6400;
 Big Timber—(406)932-4646
Mine manager—John Thompson
Mine superintendent—Alan Buell and Lew Myers
Mill superintendent—G. Hodges
Plant manager—John Andrews
General manager—Jack Burgess

Troy unit

Mining district—Troy (unconsolidated)
General location—East of Heron
Tract—Sec. 12-14, 23-26, 35, 36, T.29N., R.34W.; Sec. 6, T.28N., R.33W.
County—Lincoln
Commodities produced—Copper, silver
Status—Inactive April 1993
Mining method—Room and pillar
Ore production—8,500 TPD
Waste production—Minimal
Acres disturbed—600
Acres reclaimed—10
Mineral ownership—100% private
Ore processing method—Flotation
Processing capacity—9,500 TPD
Mine life at startup—16 years
Starting date—1981
Discovery date—1940s
Initial investment—\$90 million
Employees—12
Annual payroll—\$400,000
Production cost—Unknown

Commodity production—3,044,000 oz. silver; 20,000 tons copper
Ore type—Quartzites and siltites provide silica-rich hosts for native silver, bornite, chalcopryrite, covellite, mala-chite, with minor amounts of pyrite and galena.
Geologic deposit model—Stratbound deposit in Revett Formation (Belt Supergroup); slab-like ore zone 7,400' x 1,800' x 60'.
Published reserves—12 million tons; 1.42 oz/ST silver; 0.75% copper (1976)
Owner—ASARCO, Inc.
Address—
Operator—ASARCO, Inc. (Troy unit)
Address—Box 868, Troy, MT 59935
Telephone—(406) 295-5882
Mine manager—Dave Young
Mine superintendent—
Mill superintendent—L.R. McKinney
Plant manager—
General manager—

U.S. Antimony Smelter and Refinery

Mining district—Prospect Creek
General location—Southwest of Thompson Falls
Tract—Sec. 17, T.21N., R.31W.
County—Sanders
Commodities produced—Antimony
Status—Producing, processing purchased ore concentrates
Mining method—Not producing
Ore production—N/A
Waste production—N/A
Acres disturbed—10
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Smelter and refinery
Processing capacity—250 TPD
Mine life at startup—Unknown
Starting date—1967
Discovery date—1800s
Initial investment—Unknown

Employees—12
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Confidential
Ore type—Purchases concentrates from China and various other foreign producers.
Geologic deposit model—None
Published reserves—Concentrates purchased from China & Sunshine Mining Company.
Owner—U.S. Antimony Corporation
Address—
Operator—U.S. Antimony Corporation
Address—Box 643, Thompson Falls, MT 59873
Telephone—(406) 827-3523
Mine manager—John C. Lawrence
Mine superintendent—
Mill superintendent—T. Campbell
Plant manager—
General manager—John C. Lawrence

Zortman-Landusky mine

Mining district—Little Rockies
General location—Southwest of Malta
Tract—Sec. 14, 15, 22, T.25N., R.24E.; Sec. 7, T.25N., R.25E.
County—Phillips
Commodities produced—Gold, silver
Status—Producing at full capacity; expansion in Zortman area planned for 1993/1994.
Mining method—Open pit
Ore production—68,000 TPD, 12 million TPY
Waste production—12,000 TPD (.5:1 strip ratio)
Acres disturbed—Zortman 401, Landusky 747= Total 1148.6
Acres reclaimed—63
Mineral ownership—90% private, 10% federal
Ore processing method—Mine run ore heap leach; activated carbon and Merrill Crowe recovery methods
Processing capacity—50,000 to 120,000 TPD
Mine life at startup—4 years (5-year planning periods)
Starting date—1979
Discovery date—1884
Initial investment—\$2-5 million (\$35 million proposed cost for Zortman expansion).
Employees—222
Annual payroll—\$10.9 million (including benefits)

Production cost—\$214/oz. gold
Commodity production—116,300 oz. gold; 954,400 oz. silver
Ore type—Structurally controlled epithermal systems (stockworks, breccia, fractured "sheeted" zones).
Geologic deposit model—Free gold (with silver) occurring in oxide ores. Little Rocky Mountains were formed when calc-alkalic to alkalic magma penetrated Precambrian basement into overlying Paleozoic and Mesozoic sedimentary rocks. This intrusive center is part of the central Montana alkalic province.
Published reserves—Landusky (oxide) 47.2 million tons @ 0.015 oz. Au/ST; Zortman (sulfide) 61.3 million tons @ 0.020 oz. Au/ST
Owner—Pegasus Gold Corporation
Address—Executive Office, Suite 400, North 5 Post Street, Spokane, WA 99201
Operator—Zortman/Landusky
Address—P.O. Box 313, Zortman, MT 59546
Telephone—(406) 673-3252
Mine manager—Jim Geyer
Mine superintendent—Clayton Krall
Mill superintendent—Francis Kolezak
Plant manager—
General manager—

Gold placers

Arcadia placer

Mining district—Ruby Creek
General location—Southwest of Wisdom
Tract—Sec. 23, 26, T.3S., R.18W.
County—Beaverhead
Commodities produced—Gold
Status—Seasonal operation
Mining method—D9G pushing to stationary wash plant
Ore production—600 yd³/day
Waste production—3,600 yd³/day
Acres disturbed—3.5
Acres reclaimed—2
Mineral ownership—100% private
Ore processing method—Shaker screen (-¾"), sluices, gravel pump
Processing capacity—1,200 yd³/day
Mine life at startup—Unknown
Starting date—1991
Discovery date—1870s

Initial investment—Unknown
Employees—3
Annual payroll—Unknown
Production cost—Confidential
Commodity production—Confidential
Ore type—Gold
Geologic deposit model—Residual placer along structure
Published reserves—None
Owner—Hirschy Ranch
Address—
Operator—Rob Towner
Address—601 N. 6th Street, Hamilton, MT 59840
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Avalanche Creek placer

Mining district—Missouri River
General location—Upper Avalanche Creek
Tract—Sec. 8, T.11N., R.2E.
County—Broadwater
Commodities produced—Gold
Status—Producing
Mining method—Open cut
Ore production—50-60 yd³/day
Waste production—8'-10' overburden, 4' pay, (2.5:1 strip ratio)
Acres disturbed—1½
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Trommel and sluice
Processing capacity—80 yd³/day
Mine life at startup—Unknown
Starting date—1990
Discovery date—1800s
Initial investment—Unknown

Employees—None
Annual payroll—None
Production cost—Unknown
Commodity production—Unknown
Ore type—Gold
Geologic deposit model—Paleoplacer gravels situated on elevated benches.
Published reserves—Unknown
Owner—Steve Adams
Address—
Operator—Steve Adams
Address—P.O. Box 742, Townsend, MT 59644
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

B & S placer

Mining district—Ninemile
General location—Mouth of Favorite Gulch
Tract—Sec. 15, T.16N., R.23W.
County—Missoula
Commodities produced—Gold
Status—Producing
Mining method—Open cut
Ore production—75-80 yd³/day
Waste production—240 yd³/day
Acres disturbed—1
Acres reclaimed—4
Mineral ownership—100% public
Ore processing method—Portable wash plant
 (trommel and sluice)
Processing capacity—75-80 yd³/day
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—1800s
Initial investment—Unknown
Employees—None
Annual payroll—None

Production cost—Unknown
Commodity production—Confidential
Ore type—Gold
Geologic deposit model—Alluvial and residual
 placer gold deposit; source may be a range-
 front fault; placer concentrates contain galena,
 gold and quartz; bedrock is hydrothermally
 altered.
Published reserves—None
Owner—Buddy Ellis
Address—
Operator—Buddy Ellis
Address—1810 Ninemile Creek, Huson, MT
 59846
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Bonnecord placer

Mining district—Bannack
General location—Southwest of Dillon
Tract—Sec. 16, T.8S., R.11W.
County—Beaverhead
Commodities produced—Gold
Status—Inactive
Mining method—Open cut
Ore production—50-100 yd³/hr.
Waste production—None
Acres disturbed—<5
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Trommel and sluice
Processing capacity—100 yd³/hr.
Mine life at startup—Unknown
Starting date—1988
Discovery date—1860s
Initial investment—Unknown

Employees—3-4
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Gold
Geologic deposit model—Bench gravels in
 Quaternary alluvium.
Published reserves—None
Owner—RLT Company
Address—
Operator—Del Rio Corporation
Address—P.O. Box 5527, Helena, MT 59604
Telephone—(406) 227-7334
Mine manager—Roger Goddard
Mine superintendent—Garland Ashe
Mill superintendent—
Plant manager—
General manager—

Cedar Creek placer

Mining district—Cedar Creek
General location—South of Superior
Tract—Sec. 17, T.15N., R.27W.
County—Mineral
Commodities produced—Gold
Status—Developing reserves; reclaiming disturbed acres.
Mining method—Stripping with 2.5-yard dragline
Ore production—Unknown
Waste production—Unknown
Acres disturbed—4-5
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Trommel and sluice
Processing capacity—45 yd³/hr.
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—1880s
Initial investment—Unknown

Employees—None
Annual payroll—None
Production cost—Unknown
Commodity production—Confidential
Ore type—Gold
Geologic deposit model—Quaternary placer consists of both valley and bench deposits.
Published reserves—None
Owner—Vaughn Brockbank
Address—
Operator—Vaughn Brockbank
Address—Route 1, Box 310A, Provo, UT 84160
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Day Gulch placer

Mining district—Elk Creek
General location—East of Missoula
Tract—Sec. 1, T.12N., R.14W.
County—Granite
Commodities produced—Gold
Status—Minor production and reclamation
Mining method—Excavator; 35 ton trucks
Ore production—60 yd³/hr.
Waste production—Minimal
Acres disturbed—9.5
Acres reclaimed—1
Mineral ownership—100% public
Ore processing method—Counter rotating trommels with sluices
Processing capacity—60 yd³/hr.
Mine life at startup—Unknown
Starting date—1991
Discovery date—1880s
Initial investment—Unknown

Employees—3
Annual payroll—Unknown
Production cost—\$5/yd³
Commodity production—Unknown
Ore type—Placer gold
Geologic deposit model—Residual placer deposit; includes weathered vein material along intrusive and limestone contact.
Published reserves—None
Owner—Day Creek Resources
Address—
Operator—Wayne Clutis
Address—Box 27, Greenough, MT 59836
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Douglas Creek placer

Mining district—Unorganized
General location—Douglas Creek
Tract—Sec.3, T.12N., R.13W.
County—Powell
Commodities produced—Gold
Status—Reprocessed sediment from pond
Mining method—Open cut
Ore production—50-75 yd³/day
Waste production—400-500 yd³/day
Acres disturbed—4
Acres reclaimed—0.5
Mineral ownership—100% public
Ore processing method—Trommel and sluices
Processing capacity—150 yd³/day
Mine life at startup—Unknown
Starting date—1989
Discovery date—1870s
Initial investment—Unknown

Employees—None
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Placer gold
Geologic deposit model—Quaternary alluvium
Published reserves—None
Owner—Bill Wheeler
Address—4606 Graham St., Missoula, MT 59802
Operator—Bob Lawson
Address—
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Eldorado Bar placer

Mining district—Missouri River
General location—Northeast of Helena
Tract—Sec. 17, T.11N., R.2W.
County—Lewis and Clark
Commodities produced—Sapphires, gold
Status—Producing (recreational and commercial)
Mining method—Open pit
Ore production—Unknown
Waste production—None
Acres disturbed—<5
Acres reclaimed—Unknown
Mineral ownership—100% private
Ore processing method—Commercial (wash plant, trommel and jigs); recreation (dry screening with jig concentrate)
Processing capacity—Unknown
Mine life at startup—Unknown
Starting date—1989
Discovery date—1880s

Initial investment—Unknown
Employees—Unknown
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Sapphires; gold
Geologic deposit model—Elevated ancient river terrace
Published reserves—None
Owner—Unknown
Address—Unknown
Operator—Sam Speerstra
Address—Box 4308, Helena, MT 59604
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Hughes Creek placer

Mining district—Hughes Creek
General location—Southwest of Darby
Tract—Sec. 33, 34, T.2S., R.21W.; Sec. 3,4, T.3S., R.21W.
County—Ravalli
Commodities produced—Gold, tin
Status—Seasonal production
Mining method—Open cut
Ore production—75 yd³/day
Waste production—350-400 yd³/day
Acres disturbed—2.5
Acres reclaimed—4
Mineral ownership—100% private
Ore processing method—Floating plant consisting of vibrating screen and sluices.
Processing capacity—50-100 yd³/day
Mine life at startup—Unknown
Starting date—1970s
Discovery date—1860s
Initial investment—Unknown
Employees—Partnership

Annual payroll—None
Production cost—Unknown
Commodity production—Confidential
Ore type—Gold
Geologic deposit model—Quaternary-age gravel.
 Gold occurs in thin flakes in pay streaks 1-2 feet thick on a clay layer above bedrock; cassiterite is also recovered. Source of gold is paleoplacer deposit on ridge between Hughes Creek and Overwiche Creek.
Published reserves—None
Owner—E.A. Cox, Wade Cox
Address—
Operator—E.A. Cox, Wade Cox
Address—Star Route West, Darby, MT 59829
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Hughes Creek placer (underground)

Mining district—Hughes Creek
General location—Southwest of Darby
Tract—SW ¼ sec. 34, T.2S., R.21W.
County—Ravalli
Commodities produced—Gold, tin
Status—Exploration
Mining method—Open stope; cut and fill
Ore production—20 TPD
Waste production—Minimal
Acres disturbed—1
Acres reclaimed—0
Mineral ownership—100% federal
Ore processing method—Stationary trommel and sluice box
Processing capacity—20 TPD
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—1860s
Initial investment—Unknown

Employees—Partnership
Annual payroll—None
Production cost—Unknown
Commodity production—Unknown
Ore type—Gold
Geologic deposit model—Indurated paleoplacer containing thin flakes of gold and reniform stream tin.
Published reserves—None
Owner—Unknown
Address—
Operator—Tom Watts
Address—21 W. Mullan, Kellogg, ID 83831
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Lincoln Gulch placer

Mining district—Lincoln
General location—Northwest of Lincoln
Tract—Sec. 8, T.14N., R.9W.
County—Lewis and Clark
Commodities produced—Gold
Status—Seasonal production (July-October)
Mining method—Open cut
Ore production—70 YPD
Waste production—100 YPD
Acres disturbed—2.5
Acres reclaimed—3
Mineral ownership—100% public
Ore processing method—Trommel and sluice wash plant
Processing capacity—150-200 YPD
Mine life at startup—Unknown
Starting date—1988
Discovery date—1870s
Initial investment—Unknown

Employees—None
Annual payroll—None
Production cost—Unknown
Commodity production—Confidential
Ore type—Gold
Geologic deposit model—Quaternary alluvium
Published reserves—None
Owner—Bill Lewis
Address—
Operator—Bill Lewis
Address—3000 Market Street NE, No. 113, Salem, OR 97301
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Mattie V placer

Mining district—Ninemile
General location—Northwest of Missoula
Tract—Sec. 27, T.17N., R.24W.
County—Missoula
Commodities produced—Gold
Status—Development and exploration
Mining method—Dragline and excavator (open cut)
Ore production—100 yd³/day (5' pay gravel)
Waste production—1,100 yd³/day (57' overburden)
Acres disturbed—4
Acres reclaimed—0
Mineral ownership—100% public
Ore processing method—Trommel and sluice
Processing capacity—100 yd³/day
Mine life at startup—4 years
Starting date—1991
Discovery date—1880s

Initial investment—Unknown
Employees—1
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Gold
Geologic deposit model—Quaternary alluvium
Published reserves—None
Owner—Don Peterson
Address—
Operator—Don Peterson
Address—P.O. Box 571, Frenchtown, MT 59834
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Sauerkraut Creek placer

Mining district—Lincoln
General location—Southwest of Lincoln
Tract—Sec. 5, T.13N., R.9W.
County—Lewis and Clark
Commodities produced—Gold
Status—Seasonal production
Mining method—Open cut
Ore production—120-180 yd³/day
Waste production—120-200 yd³/day
Acres disturbed—2
Acres reclaimed—80
Mineral ownership—100% private
Ore processing method—Wash plant (grizzly, trommel, sluice)
Processing capacity—50 yd³/hr.; 100-150 yd³/day
Mine life at startup—3-5 years
Starting date—1987
Discovery date—1800s
Initial investment—Unknown

Employees—Partnership
Annual payroll—None
Production cost—Unknown
Commodity production—Confidential
Ore type—Gold
Geologic deposit model—Quaternary alluvial and residual deposits containing magnetite, hematite, and pyrite from veins that crosscut the valley.
Published reserves—None
Owner—Unknown
Address—
Operator—Clay Lewis, Bob Lewis
Address—Box 593, Lincoln, MT 59636
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Seahawk placer (B and B mine)

Mining district—Indian Creek
General location—Northwest of Townsend
Tract—Sec. 22, 23, 28, T.7N., R.1E.
County—Broadwater
Commodities produced—Gold
Status—Intermittent production
Mining method—Open cut
Ore production—120-130 yd³/day
Waste production—50-100 yd³/day (25' pay gravel, 8' overburden)
Acres disturbed—5
Acres reclaimed—55
Mineral ownership—100% private
Ore processing method—Trommel and sluice
Processing capacity—200 yd³/day
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—1880s
Initial investment—Unknown

Employees—6-10
Annual payroll—Unknown
Production cost—Confidential
Commodity production—Confidential
Ore type—Gold
Geologic deposit model—Alluvial placer deposit in Quaternary gravels (alluvial fan).
Published reserves—None
Owner—B and B Mining, Ltd.
Address—
Operator—Larry Lunan
Address—Box 1138, Townsend, MT 59644
Telephone—No business number
Mine manager—Butch Harper
Mine superintendent—Don McLavey
Mill superintendent—
Plant manager—
General manager—

Tammy Lynn placer

Mining district—Quartz Creek
General Location—Quartz Creek
Tract (PLS)—Sec. 36, T.13N., R.26W.
County—Mineral
Commodities produced—Placer
Status—Seasonal Production
Mining method—Open cut
Ore production—18–25 yd³/day
Waste production—50 yd³/day
Acres disturbed—1–3
Acres reclaimed—1–3
Mineral ownership—Private
Ore processing method—Screening plant and sluices
Processing capacity—10 yd³/hr
Mine life at startup—Unknown
Starting date—1986
Discovery date—1872
Initial investment—Unknown

Employees—None
Annual payroll—None
Production cost—confidential
Commodity production—Confidential
Ore type—Placer gold
Geologic deposit model—Alluvial gold deposits on bedrock benches and valley sideslopes
Published reserves—None
Owner—Max Johnson
Address—Cedar Creek Rd., Superior, MT 59872
Operator—Max Johnson
Address—Cedar Creek Rd., Superior, MT 59872
Telephone—None
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

The Rat placer

Mining district—Elk Creek
General location—East of Missoula
Tract—Sec. 1, T.12N., R.14W.
County—Missoula
Commodities produced—Placer gold
Status—Minor production
Mining method—Backhoe and dozer (open cut)
Ore production—30 yd³/day
Waste production—40 yd³/day
Acres disturbed—4.5
Acres reclaimed—.5
Mineral ownership—100% public
Ore processing method—Trommel and sluice
Processing capacity—30 yd³/day
Mine life at startup—Unknown
Starting date—1992
Discovery date—1880s
Initial investment—Unknown

Employees—None
Annual payroll—None
Production cost—Confidential
Commodity production—Confidential
Ore type—Placer gold
Geologic deposit model—Alluvial and residual placer deposits
Published reserves—None
Owner—John D'orazi
Address—
Operator—John D'orazi
Address—716 Harrison Ave., Missoula, MT
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Vermont Gulch placer

Mining district—Unknown
General location—Vermont Gulch
Tract—Sec. 31, T.11N., R.3E.
County—Meagher
Commodities produced—Gold
Status—Produced
Mining method—Open cut
Ore production—70 yd³/day
Waste production—None
Acres disturbed—1
Acres reclaimed—5
Mineral ownership—100% public
Ore processing method—Trommel to jig to sluice
Processing capacity—200 yd³/day
Mine life at startup—Unknown
Starting date—1985
Discovery date—1979
Initial investment—Unknown
Employees—None

Annual payroll—None
Production cost—Unknown
Commodity production—Confidential
Ore type—Gold
Geologic deposit model—Pay streak is 80 feet across; values are spotty. Black sands contain magnetite and cinnabar. Deposit may be colluvial and is weathering out of west-trending, small to medium-size quartz veins.
Published reserves—None
Owner—Harvey McConnel
Address—
Operator—Randy Sealey
Address—2220 Rosewyn, Billings, MT 59102
Telephone—(406) 652-6096
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Walnut placer

Mining district—Silver Butte
General location—East of Trout Creek
Tract—Sec. 4, 9, T.24N., R.30W.
County—Sanders
Commodities produced—Gold
Status—Seasonal production
Mining method—Open cut
Ore production—10 yd³/hr.
Waste production—Minimal
Acres disturbed—2
Acres reclaimed—0
Mineral ownership—100% public
Ore processing method—trommel, sluices and jigs
Processing capacity—20 yd³/hr.
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—1800s
Initial investment—Unknown
Employees—None (partnership)

Annual payroll—None
Production cost—Unknown
Commodity production—Unknown
Ore type—Gold
Geologic deposit model—Quaternary placer deposit on gravel bar in Vermillion River flood plain.
Published reserves—None
Owner—Marvin and Doris Eichert, Jim and Debra Williams
Address—
Operator—Jim Williams
Address—1457 Bluestide Road, Thompson Falls, MT 59873
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Washington Gulch placer

Mining district —Finn	Initial investment —1.5 million
General location —North of Avon	Employees —21
Tract —Sec. 7, 18, T.12N., R.8W.	Annual payroll —1.0 million
County —Powell	Production cost —Unknown
Commodities produced —Gold	Commodity production —Unknown
Status —Developing	Ore type —Gold
Mining method —Excavator and truck (50-ton KW Dart)	Geologic deposit model —Quaternary gravels
Ore production —200 yd ³ /hr	Published reserves —536,000 tons @\$16.40/yd ³
Waste production —Minimal	Owner —Montana Pacific Mining, Inc.
Acres disturbed —2	Address —
Acres reclaimed —0	Operator —Montana Pacific Mining, Inc.
Mineral ownership —100% private	Address —P.O. Box 367, Avon, MT 59713
Ore processing method —Trommel and shaking tables	Telephone —(406) 492-6092
Processing capacity —100 yd ³ /hr	Mine manager —Wade Blomquist
Mine life at startup —4 years	Mine superintendent —
Starting date —1993	Mill superintendent —
Discovery date —1880s	Plant manager —
	General manager —

Industrial Minerals**Barite mines****Elk Creek mine**

Mining district —Elk Creek	Annual payroll —Unknown
General location —East of Missoula	Production cost —Confidential
Tract —Sec. 16, T.13N., R.14W.	Commodity production —3,000 tons
County —Missoula	Ore type —Vein barite
Commodities produced —Barite	Geologic deposit model —Fissure filling along faults
Status —Reclaiming	Published reserves —None
Mining method —Underground	Owner —State of Montana (lease)
Ore production —3,000 TPY	Address —
Waste production —Minimal	Operator —Rocky Mountain Minerals
Acres disturbed —<1	Address —P.O. Box 700, Lethbridge, Alberta, Canada T1J 3Z6
Acres reclaimed —0	Telephone —(403) 329-0443
Mineral ownership —100% State land	Mine manager —Steven Butrenchuk
Ore processing method —Gravity (jigs)	Mine superintendent —
Processing capacity —40 TPH	Mill superintendent —
Mine life at startup —Unknown	Plant manager —
Starting date —1951	General manager —
Discovery date —1940s	
Initial investment —Unknown	
Employees —Contract	

Bentonite mines

(Unnamed)

Mining district —Unorganized	Employees —31
General location —Northwest of Alzada	Annual payroll —Confidential
Tract —T.8S., R.58E; T.9S., R.58E.	Production cost —Confidential
County —Carter	Commodity production —Unknown
Commodities produced —Bentonite	Ore type —Clay (montmorillonite)
Status —Producing	Geologic deposit model —Volcanic ash (tuff)
Mining method —Open cut	Published reserves —Unknown
Ore production —Confidential	Owner —American Colloid
Waste production —3-4 million yd ³	Address —
Acres disturbed —170	Operator —American Colloid
Acres reclaimed —150	Address —Box 2010, Belle Fourche, SD
Mineral ownership —100% private	Telephone —(605) 892-3237
Ore processing method —Dry and crush	Mine manager —Denise Zimmerman
Processing capacity —Confidential	Mine superintendent —
Mine life at startup —Unknown	Mill superintendent —
Starting date —1976	Plant manager —
Discovery date —1976	General manager —
Initial investment —Unknown	

Chlorite mines

Antler mine

Mining district —Silver Star	Employees —8
General location —South of Silver Star	Annual payroll —\$265,000
Tract —Sec. 14, R.2S., R.6W.	Production cost —Unknown
County —Madison	Commodity production —12,000 TPY
Commodities produced —Chlorite	Ore type —Chlorite
Status —Intermittent production	Geologic deposit model —Solution replacement
Mining method —Open pit	Published reserves —160,000 tons (processed product)
Ore production —12,000 TPY	Owner —Luzenac America, Inc.
Waste production —100,000 TPY (8:1 ratio)	Address —
Acres disturbed —<10	Operator —Luzenac America, Inc.
Acres reclaimed —Unknown	Address —P.O. Box 99, Alder, MT 59103
Mineral ownership —100% public	Telephone —(406) 684-5836
Ore processing method —Hand sort	Mine manager —Mike Toelle
Processing capacity —4,000 TPM; 1 shift, 5 days/week	Mine superintendent —
Mine life at startup —25 years (proven reserves)	Mill superintendent —
Starting date —1980	Plant manager —
Discovery date —Unknown	General manager —
Initial investment —\$1 million	

Iron mines

Black Butte mine

Mining district—Unorganized
General location—North of White Sulphur Springs
Tract—Sec. 34, T.12N., R.6E.
County—Meagher
Commodities produced—Iron
Status—Producing
Mining method—Open pit
Ore production—15,000 TPY
Waste production—2,000 TPY
Acres disturbed—12
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Unknown
Processing capacity—None
Mine life at startup—Unknown
Starting date—1980
Discovery date—1917
Initial investment—\$300,000

Employees—3
Annual payroll—\$90,000
Production cost—Unknown
Commodity production—15,000 TPY
Ore type—Hematite
Geologic deposit model—Gossan Cap
Published reserves—1 millions tons proven; 2 million tons (hypothetical @ 60% iron)
Owner—R. Borland; J. Potter
Address—White Sulphur Springs, MT 59645
Operator—Hallet Minerals Company
Address—Box 169, Livingston, MT 59047
Telephone—(406) 222-1446
Mine manager—Irving Sewell
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Limestone quarries

Indian Creek mine

Mining district—Indian Creek
General location—Northwest of Townsend
Tract—Sec. 28, 33, T.7N., R.1E.
County—Broadwater
Commodities produced—Limestone (burnt lime)
Status—Producing
Mining method—Open pit
Ore production—1 million TPY
Waste production—Minimal (no stripping)
Acres disturbed—50
Acres reclaimed—10
Mineral ownership—100% public (patent process)
Ore processing method—Crushing, screening and kilns
Processing capacity—1,000 TPD
Mine life at startup—30+ years
Starting date—1982
Discovery date—1800s
Initial investment—\$10-\$12 million (subsequent

investment)
Employees—50 mine, 15 contract (Grayrock Construction)
Annual payroll—\$2.2 million
Production cost—Unknown
Commodity production—300,000 tons
Ore type—Limestone
Geologic deposit model—Mission Canyon limestone (Mississippian age)
Published reserves—13 million tons
Owner—Continental Lime, Inc.
Address—
Operator—Continental Lime, Inc.
Address—P.O. Box 550, Townsend, MT 59644
Telephone—(406) 266-5221
Mine manager—Elton Chorney
Mine superintendent—Elton Chorney
Mill superintendent—
Plant manager—
General manager—

McClellan quarry

Mining district—McClellan
General location—South of East Helena
Tract—Sec. 7, T.9N., R.2W.
County—Jefferson
Commodities produced—Limestone
Status—Producing
Mining method—Open pit
Ore production—30,000 TPY
Waste production—None
Acres disturbed—10
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Crushing -¼"
Processing capacity—100 TPD
Mine life at startup—Unknown
Starting date—1932
Discovery date—1890s
Initial investment—\$50,000

Employees—4-5
Annual payroll—\$30,000
Production cost—Unknown
Commodity production—30,000 TPY
Ore type—Limestone
Geologic deposit model—Meagher Formation
 (Cambrian age)
Published reserves—Unknown
Owner—ASARCO, Inc.
Address—Box 1230, East Helena, MT 59635
Operator—Maronick Construction Company, Inc.
Address—Box 1100, East Helena, MT 59635
Telephone—(406) 442-1185
Mine manager—E.P. Maronick
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Montana City quarry

Mining district—Montana City
General location—South of Helena
Tract—Sec. 12, 13, T.9N., R.2W.
County—Jefferson
Commodities produced—Limestone
Status—Producing
Mining method—Open pit (mined on 20-foot benches)
Ore production—2,500 TPD
Waste production—Minimal
Acres disturbed—85
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Jaw crusher/rock house-hammer mill/ball mills/slurry tanks/ kilns
Processing capacity—1,000 TPD
Mine life at startup—Unknown
Starting date—1962
Discovery date—1880s

Initial investment—Unknown
Employees—84
Annual payroll—\$2.9 million
Production cost—Unknown
Commodity production—Confidential
Ore type—Limestone
Geologic deposit model—Altered limestone
Published reserves—Unknown
Owner—Ash Grove Cement West, Inc.
Address—
Operator—Ash Grove Cement West, Inc.
Address—Montana City, MT 59602
Telephone—(406) 442-8855
Mine manager—Dan Peterson
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Trident quarry

Mining district—Unorganized
General location—Northeast of Three Forks
Tract—Sec. 9, 10, T.2N., R.2E.
County—Gallatin
Commodities produced—Cement
Status—Producing
Mining method—Open pit
Ore production—534,538 TPY
Waste production—Minimal
Acres disturbed—256
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Crush/raw grind/ burn
 (kilns)/finish grind
Processing capacity—600,000 TPY
Mine life at startup—150+ years
Starting date—1902
Discovery date—1890s
Initial investment—Unknown

Employees—88
Annual payroll—\$2.8 million
Production cost—Unknown
Commodity production—534,538 TPY
Ore type—Limestone
Geologic deposit model—Madison Group
 limestone (Mississippian age)
Published reserves—None
Owner—Cement Division—Ideal Basic Industries
Address—
Operator—Cement Division—Ideal Basic Industries
Address—4070 Trident Road, Three Forks, MT
 59752
Telephone—(406) 285-3241
Mine manager—Bill Springlan
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Pipestone mine

Mining district—Little Pipestone
General location—East of Butte
Tract—Sec. 35, T.2N., R.6W.
County—Jefferson
Commodities produced—Chemical-grade
 calcium carbonate (92-98% pure)
Status—Producing
Mining method—Open pit
Ore production—3,000 TPY
Waste production—Minimal
Acres disturbed—3.5
Acres reclaimed—0
Mineral ownership—100% federal
Ore processing method—Crushing (cone 3-deck
 screen); feed 6", 4 products -3" to ¾, -¾ to +4
 mesh, -4 mesh to +400 mesh, -400 mesh
Processing capacity—50 TPH
Mine life at startup—Unknown
Starting date—1990
Discovery date—Unknown

Initial investment—Unknown
Employees—6
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Crystalline calcite
Geologic deposit model—Derived from contact
 metamorphism
Published reserves—50 million tons proven; 200
 million tons probable
Owner—Natures Calcium Products Company
Address—
Operator—Natures Calcium Products Company
Address—P.O. Box 512, Whitehall, MT 59759
Telephone—(406) 723-4569
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Warren quarry

Mining district—Unorganized
General location—South of Billings
Tract—Sec. 24, 25, T.8S., R.25E.; Sec. 19, 30, T.8S., R.26E.
County—Carbon
Commodities produced—Limestone
Status—Producing (seasonal)
Mining method—Open pit
Ore production—600,000 TPY
Waste production—100,000 TPY
Acres disturbed—37.9
Acres reclaimed—In progress
Mineral ownership—100% private
Ore processing method—Crushing and screening; various products (6" to 2"); hammermill (3/8" to 200 mesh)
Processing capacity—450 TPH (16-hr/d), 1 million TPY
Mine life at startup—Unknown
Starting date—1940s
Discovery date—1800s
Initial investment—\$2.1 million

Employees—21
Annual payroll—\$740,000
Production cost—Unknown
Commodity production—600,000 tons (various limestone products)
Ore type—High-purity limestone
Geologic deposit model—Madison Group limestone (Mississippian age)
Published reserves—1 billion tons (6 x 40 miles)
Owner—Big Horn Limestone Company (Western Sugar Company/Holly Sugar Company)
Address—Colorado Springs, CO
Operator—Montana Limestone Company
Address—P.O. Box 463, Bridger, MT 59041
Telephone—Quarry—(406) 764-2511; Office—(406) 764-2513
Mine manager—Ken Pike
Mine superintendent—
Mill superintendent—Mark Chrisman
Plant manager—
General manager—

Peat mines

Martin's Peat, Inc.

Mining district—Unorganized
General location—Northeast of Whitefish
Tract—Sec. 16, T.24N., R.17W.
County—Lake
Commodities produced—Peat
Status—Intermittant production
Mining method—Open pit
Ore production—5,000 yd³/yr.
Waste production—None
Acres disturbed—<1
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Screen plant
Processing capacity—30 yd³/hr.
Mine life at startup—25 years
Starting date—1975
Discovery date—1974
Initial investment—\$320,000

Employees—1
Annual payroll—unknown
Production cost—Unknown
Commodity production—2,000 TPY
Ore type—Peat
Geologic deposit model—Peat bog
Published reserves—None
Owner—Martin's Peat, Inc.
Address—
Operator—Martin's Peat, Inc.
Address—Swan Route, Bigfork, MT 59911
Telephone—(406) 837-5086
Mine manager—Ronald I. Martin
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Phosphate mines

Warm Springs mine

Mining district—Garrison
General location—Northwest of Garrison
Tract—Sec. 11, 13, 24, T.10N., R.10W., Sec. 19, T.10N., R.9W.
County—Powell
Commodities produced—Phosphate
Status—Closed and reclaiming
Mining method—Open stope
Ore production—800 TPD
Waste production—Minimal
Acres disturbed—38
Acres reclaimed—Ongoing
Mineral ownership—100% public
Ore processing method—Dry grinding
Processing capacity—1,000 TPD
Mine life at startup—Unknown
Starting date—1929
Discovery date—1928
Initial investment—\$12 million

Employees—13
Annual payroll—\$293,233
Production cost—Unknown
Commodity production—Confidential
Ore type—Bedded phosphate rock
Geologic deposit model—Phosphoria Formation (Permian age)
Published reserves—15 years (minimum)
Owner—Cominco American, Inc.
Address—
Operator—Cominco American, Inc.
Address—Garrison, MT 59731
Telephone—(406) 846-2084
Mine manager—Martin Dippold
Mine superintendent—Hugh Moore
Mill superintendent—
Plant manager—
General manager—

Semiprecious and gem mines

Eldorado Bar placer

Mining district—Missouri River
General location—Northeast of Helena
Tract—Sec. 17, T.11N., R.2W.
County—Lewis and Clark
Commodities produced—Gold, sapphires
Status—Producing (recreational and commercial)
Mining method—Open pit
Ore production—Unknown
Waste production—None
Acres disturbed—5
Acres reclaimed—Unknown
Mineral ownership—100% private
Ore processing method—Commercial (wash plant, trommel and jigs); recreational (dry screening with jig concentrate)
Processing capacity—Unknown
Mine life at startup—Unknown
Starting date—1989
Discovery date—1880s

Initial investment—Unknown
Employees—Unknown
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Gold, sapphires
Geologic deposit model—Elevated river terrace
Published reserves—None
Owner—Unknown
Address—Unknown
Operator—Sam Speerstra
Address—Box 4308, Helena, MT 59604
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Four V's claims

Mining district—Unorganized
General location—North of Lolo Pass
Tract—Sec. 22, T.11N., R.24W.
County—Missoula
Commodities produced—Smoky quartz crystals
Status—Producing
Mining method—Hand work
Ore production—Unknown
Waste production—Unknown
Acres disturbed—<1
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Hand sorting
Processing capacity—Unknown
Mine life at startup—Unknown
Starting date—1970s
Discovery date—Unknown
Initial investment—Unknown

Employees—None
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Quartz
Geologic deposit model—Unknown
Published reserves—None
Owner—Albert E. Volker
Address—
Operator—Albert E. Volker
Address—1806 S. 10th West, Missoula, MT
 59801
Telephone—(406) 543-3992
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

French Bar placer

Mining district—Missouri River
General location—East of Helena
Tract—Sec. 4, 5, T.10N., R.1W.
County—Lewis and Clark
Commodities produced—Sapphires, gold
Status—Producing (recreational)
Mining method—Open cut
Ore production—Unknown
Waste production—None
Acres disturbed—<5
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Wash plant (vibrating
 screens and jigs)
Processing capacity—Unknown
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—Unknown
Initial investment—Unknown

Employees—Unknown
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Sapphires; gold
Geologic deposit model—River terrace
Published reserves—None
Owner—Ron McLean
Address—
Operator—Ron McLean
Address—7032 Canyon Ferry Road, Helena, MT
 59601
Telephone—
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Lovestone placer

Mining district—Missouri River
General location—East of Helena
Tract—Sec. 5, T.10N., R.1W.
County—Lewis and Clark
Commodities produced—Sapphires, gold
Status—Intermittent contract runs (property for sale)
Mining method—Open cut
Ore production—Intermittent contract runs
Waste production—Unknown
Acres disturbed—<5
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Screening plant with jigs; fines processed on table and spirals.
Processing capacity—Unknown
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—1800s

Initial investment—Unknown
Employees—None
Annual payroll—None
Production cost—Unknown
Commodity production—Unknown
Ore type—Sapphires, gold
Geologic deposit model—Ancient alluvial terrace
Published reserves—None
Owner—Lovestone Mining
Address—
Operator—Jerry Lorbeck
Address—4448 Jim Town Road, Helena, MT 59601
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Gem Mountain mine

Mining district—Rock Creek
General location—Near Skalkaho Pass
Tract—Sec. 16, T.6N., R.16W.
County—Granite
Commodities produced—Sapphires
Status—Producing
Mining method—Open cut
Ore production—124 yd³/day
Waste production—100 yd³/day (average)
Acres disturbed—<5
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Sluice and trommel
Processing capacity—124 yd³/day
Mine life at startup—Unknown
Starting date—1800s
Discovery date—1800s
Initial investment—Unknown
Employees—13

Annual payroll—Unknown
Production cost—Unknown
Commodity production—400 lbs.
Ore type—Sapphire
Geologic deposit model—Quaternary-age placer deposits in drainages; elevated paleoplacer bench deposits on ridges.
Published reserves—Unknown
Owner—Theo T. Smith
Address—27207 N. 39th Drive, Glendale AZ 85308
Operator—Gem Mountain Sapphire Company
Address—P.O. Box 701, Philipsburg, MT 59856
Telephone—(406) 859-3530
Mine manager—T.R. Hess
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—T.R. Hess

P.C. Crystal mine

Mining district—Basin Creek
General location—North of Basin
Tract—Sec. 22-24, T.7N., R.6W.
County—Jefferson
Commodities produced—Quartz crystals
 (Japanese twin law)
Status—Producing
Mining method—Open cut
Ore production—Unknown
Waste production—Minimal
Acres disturbed—1
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Crystal collecting
 (hand processing)
Processing capacity—Unknown
Mine life at startup—Unknown
Starting date—Unknown
Discovery date—Unknown

Initial investment—Unknown
Employees—None
Annual payroll—Unknown
Production cost—Unknown
Commodity production—Unknown
Ore type—Quartz
Geologic deposit model—Breccia pipe (Elkhorn
 Mountains Volcanics)
Published reserves—None
Owner—Forrest L. Klies
Address—
Operator—Peter Knudsen
Address—W. Park Street, Butte, MT 59701
Telephone—No business phone
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Vortex Group

Mining district—Yogo
General location—Southwest of Utica
Tract—Sec. 19, 20, T.13N., R.11E.
County—Judith Basin
Commodities produced—Sapphires
Status—Exploring and developing
Mining method—Open stope and stull
Ore production—0
Waste production—0
Acres disturbed—<2
Acres reclaimed—0
Mineral ownership—100% public
Ore processing method—Trommel and sluice
Processing capacity—100 YPD
Mine life at startup—Unknown
Starting date—1984
Discovery date—1920
Initial investment—\$200,000
Employees—Partnership

Annual payroll—None
Production cost—Confidential
Commodity production—Sapphires
Ore type—Sapphire
Geologic deposit Model—Pods of sapphire bearing
 material in altered Madison Group limestone.
Published reserves—Unknown
Owner—Lanny and Joy Perry, Charles and Marie
 Ridgeway, Pete Ecker
Address—Utica, MT 59452
Operator—Vortex Mining
Address—Utica, MT 59452
Telephone—(406) 423-5390
Mine manager—Charles Ridgeway
Mine superintendent—Peter Ecker
Mill superintendent—
Plant manager—
General manager—

Yogo mine

Mining district—Yogo
General location—Southwest of Utica
Tract—Sec. 19-22, T.13N., R.11E.
County—Judith Basin
Commodities produced—Sapphires
Status—Seasonal production
Mining method—Systematic cleanup of remnant surface reserves from previous operations.
Ore production—Unknown
Waste production—Unknown
Acres disturbed—<5 acres
Acres reclaimed—Unknown
Mineral ownership—100% private
Ore processing method—Stationary wash plant, trommel, and sluices
Processing capacity—500 YPD
Mine life at startup—Unknown
Starting date—1896
Discovery date—1896
Initial investment—Unknown

Employees—Partnership
Annual payroll—None
Production cost—Unknown
Commodity production—Unknown
Ore type—Sapphire
Geologic deposit model—Nearly vertical sapphire-bearing lamprophyre dike cutting through gently dipping limestone (Madison Group).
Published reserves—Unknown
Owner—Roncor, Inc.
Address—
Operator—Roncor, Inc.
Address—2056 South Barrington Avenue, Los Angeles, CA 90025
Telephone—
Mine manager—Ronald H. Kunisaki
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Silica mines

Canyon Creek quarry

Mining district—Melrose
General location—Southwest of Butte
Tract—Sec. 32, T.1S., R.9W.
County—Beaverhead
Commodities produced—Metallurgical silica
Status—Producing
Mining method—Open pit
Ore production—45,000 TPY
Waste production—None
Acres disturbed—3
Acres reclaimed—Unknown
Mineral ownership—100% private
Ore processing method—Crush and screen (-3" to +½")
Processing capacity—100 TPH
Mine life at startup—Unknown
Starting date—1968
Discovery date—1952
Initial investment—Unknown
Employees—2

Annual payroll—\$60,000
Production cost—Unknown
Commodity production—45,000 TPY
Ore type—Silica
Geologic deposit model—Pennsylvanian-age Quadrant Formation
Published reserves—1 million tons @ 98% SiO₂
Owner—Rhone-Poulenc Basic Chemicals Company
Address—
Operator—Rhone-Poulenc Basic Chemicals Company
Address—Box 3146, Butte, MT 59701
Telephone—(406) 782-7300
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—Greg Gorton

Stone (crushed)

Essex quarry

Mining district—Unorganized
General location—East of Kalispell
Tract—Sec. 33, T.30N., R.16W.
County—Flathead
Commodities produced—Rail ballast and highway products
Status—Closed
Mining method—Open pit
Ore production—0
Waste production—0
Acres disturbed—70
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Crushing and screen
Processing capacity—600 TPH (2 10-hr shifts/d)
Mine life at startup—80 years
Starting date—1940s
Discovery date—1930s

Initial investment—2.5 million
Employees—2 permanent
Annual payroll—Unknown
Production cost—Unknown
Commodity production—250,000 TPY
Ore type—Quartzite
Geologic deposit model—Precambrian quartzite
Published reserves—None
Owner—Meridian Aggregates Company
Address—Englewood, CO
Operator—Meridian Aggregates Company
Address—P.O. Box 839, Granite Falls, WA 98252
Telephone—(206) 691-7735
Mine manager—Dave Piper
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

McQuarrie quarry

Mining district—Clinton (Wallace)
General location—North of Clinton
Tract—Sec. 17, T.12N., R.17W.
County—Missoula
Commodities produced—Ballast and road-bed material
Status—Producing
Mining method—Open pit
Ore production—200,000 TPY
Waste production—80,000 TPY (road metal for highway projects)
Acres disturbed—60
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Drill-blast crush - $2\frac{1}{2}$ " to $+\frac{3}{4}$ ", $-\frac{3}{4}$ "
Processing capacity—600 TPH (two 10-hr shifts/d)
Mine life at startup—80 years
Starting date—1940s

Discovery date—1940s
Initial investment—\$2.5 million (portable plant located 25% of year at site)
Employees—34 temporary, 2 permanent
Annual payroll—\$220,000 TPY
Production cost—Unknown
Commodity production—200,000 TPY
Ore type—Quartzite
Geologic deposit model—Precambrian quartzite
Published reserves—None
Owner—Meridian Aggregates Company
Address—Englewood, CO
Operator—Meridian Aggregates Company
Address—Box 839, Granite Falls, WA 98252
Telephone—(206) 691-7735
Mine manager—Dave Piper
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Pipestone quarry

Mining district—Pipestone
General Location—North of Pipestone
Tract (PLS)—Sec. 20, T.2N., R.5W.
County—Jefferson
Commodities produced—Crushed aggregate
Status—Operating
Mining method—Open pit
Ore production—100,000–200,000 TPY
Waste production—None
Acres disturbed—5
Acres reclaimed—None
Mineral ownership—100% Federal (lease)
Ore processing method—Drill-blast crush --
 $2\frac{1}{2} + \frac{3}{4}$, - $\frac{3}{4}$, Derrick and riprap
Processing capacity—1,000 TPH
Mine life at startup—10 years
Starting date—March, 1993
Discovery date—Unknown
Initial investment—Unknown

Employees—6–10
Annual payroll—\$150,000–\$200,000
Production cost—Unknown
Commodity production—Unknown
Ore type—Aggregate
Geologic deposit model—Diorite intrusive
Published reserves—Unknown
Owner—Conda
Address—
Operator—Conda Mining, Inc.
Address—P.O. Box 8175, 101 International Way,
 Missoula, MT 59
Telephone—(406) 523-1207
Mine manager—John Rosenbaun
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Stone (decorative)**Livingston Marble and Granite quarry**

Mining district—Unorganized
General location—East of Gardiner
Tract—Sec. 14, 24, T.9S., R.8E.
County—Park
Commodities produced—Ashlar, cut stone,
Status—Producing
Mining method—Open pit
Ore production—2,000 TPY
Waste production—3,000 TPY
Acres disturbed—10
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Sawed into slabs/tiles
Processing capacity—N/A
Mine life at startup—135+
Starting date—1955
Discovery date—1910
Initial investment—Unknown

Employees—7
Annual payroll—Unknown
Production cost—Unknown
Commodity production—N/A
Ore type—Travertine
Geologic deposit model—Travertine and marble
 associated with hot springs deposits.
Published reserves—None
Owner—Greg Strong
Address—711 E. Park, Livingston, MT 59047
Operator—Livingston Marble and Granite Works
Address—Livingston, MT 59047
Telephone—(406) 222-1342
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Talc mines

Beaverhead mine

Mining district—Unorganized
General location—South of Alder
Tract—Sec. 11, 14, T.7S., R.6W.
County—Madison
Commodities produced—Talc
Status—Producing
Mining method—Underhand (cemented backfill using borrow material)
Ore production—9,000 TPY
Waste production—500 TPY
Acres disturbed—<5
Acres reclaimed—0
Mineral ownership—100% federal
Ore processing method—Hand sorting
Processing capacity—200 tons per shift; 10 shifts/mo
Mine life at startup—15 years
Starting date—1987
Discovery date—Unknown

Initial investment—\$3 million
Employees—7
Annual payroll—\$268,000
Production cost—Unknown
Commodity production—9,000 TPY
Ore type—Talc
Geologic deposit model—Solution replacement of dolomitic marble
Published reserves—150,000 tons (proven)
Owner—Luzenac America, Inc.
Address—
Operator—Luzenac America, Inc.
Address—P.O. Box 99, Alder, MT 59103
Telephone—(406) 683-4611
Mine manager—Mike Toelle
Mine superintendent—John Glenn
Mill superintendent—
Plant manager—
General manager—

Johnny Gulch mine

Mining district—Unorganized
General location—South of Ennis
Tract—Sec. 9, T.9S., R.1W.
County—Madison
Commodities produced—Talc
Status—Producing
Mining method—Open pit
Ore production—500 TPD (four 10-hour shifts/wk), 100,000 TPY
Waste production—7,820 TPD, 1,600,000 TPY (16:1 strip ratio)
Acres disturbed—170
Acres reclaimed—14
Mineral ownership—100% private
Ore processing method—Hand Sorting
Processing capacity—75,000 TPY
Mine life at startup—12 years
Starting date—1984
Discovery date—1940s
Initial investment—\$12 million

Employees—92
Annual payroll—\$2.8 million
Production cost—Unknown
Commodity production—75,000 TPY
Ore type—Talc
Geologic deposit model—Solution replacement of dolomitic marble.
Published reserves—Unknown
Owner—Costain Minerals, Inc.
Address—
Operator—Montana Talc Company
Address—28769 Sappington Road, Three Forks, MT 59752
Telephone—Main office—(406) 285-3286; Mine—(406) 682-4100
Mine manager—Fred Earnest
Mine superintendent—
Mill superintendent—Mike Cerino
Plant manager—
General manager—Ron Shelton

Treasure Chest mine

Mining district—Unorganized
General location—South of Dillon
Tract—NE ¼, NE ¼ of sec. 14, T.7S., R.6W.
County—Beaverhead
Commodities produced—Talc
Status—Producing
Mining method—Open pit
Ore production—155,000 TPY
Waste production—1.625 million TPY
Acres disturbed—600
Acres reclaimed—0
Mineral ownership—90% private, 10% State (dumps)
Ore processing method—Mechanical sorting and flotation
Processing capacity—150,000 TPY (dry); 165,000 TPG (wet)
Mine life at startup—40 years
Starting date—1966
Discovery date—1950s

Initial investment—\$8.5 million
Employees—125
Annual payroll—\$5.7 million
Production cost—Unknown
Commodity production—133,000 TPY
Ore type—Talc
Geologic deposit model—Solution replacement of dolomitic marble.
Published reserves—4 million tons (proven)
Owner—Barretts Minerals, Inc.
Address—
Operator—Barretts Minerals, Inc.
Address—Box 1147, Dillon, MT 59725
Telephone—Plant—(406) 683-4231;
 Mine—(406) 683-6791
Mine manager—Darren Lindsey
Mine superintendent—
Mill superintendent—Nick Hoyrup
Plant manager—
General manager—Bill Piombino

Yellowstone mine

Mining district—Unorganized
General location—South of Ennis
Tract—Sec. 4, T.9S., R.1W.
County—Madison
Commodities produced—Talc
Status—Producing
Mining method—Open pit
Ore production—165,000 TPY
Waste production—7 million TPY (42.4:1 strip ratio)
Acres disturbed—408
Acres reclaimed—0
Mineral ownership—50% state, 50% private
Ore processing method—Mechanical and hand sorting
Processing capacity—300,000 TPY
Mine life at startup—5 years
Starting date—1947
Discovery date—1940s
Initial investment—\$15 million

Employees—97
Annual payroll—\$4 million
Production cost—Unknown
Commodity production—165,000 TPY
Ore type—Talc
Geologic deposit model—Solution replacement of dolomitic marble.
Published reserves—3 million tons (recoverable product)
Owner—Luzenac America, Inc.
Address—
Operator—Luzenac America, Inc.
Address—P.O. Box 572, Cameron, MT 59720
Telephone—Mine—(406) 682-4882;
Mine manager—Mike Toelle
Mine superintendent—
Mill superintendent—John Close
Plant manager—
General manager—

Mineral Fuels

Coal mines

Absaloka mine

Mining district—Unorganized
General location—East of Hardin
Tract—Sec. 25, T.1N., R.37E.
County—Big Horn
Commodities produced—Coal
Status—Producing
Mining method—Strip mine
Ore production—3,224,143 TPY
Waste production—7,257,322 TPY (2.251:1 strip ratio)
Acres disturbed—61
Acres reclaimed—79
Mineral ownership—60-70% Crow Indian Reservation; 30% State
Ore processing method—Crush (-6"), Crush (-2")
Processing capacity—2,400 TPD
Mine life at startup—20 years
Starting date—1973
Discovery date—1800s
Initial investment—Unknown

Employees—63
Annual payroll—\$3.2 million
Production cost—Confidential
Commodity production—3,224,143 TPY
Ore type—Subbituminous coal (class C)
Geologic deposit model—Rosebud-McKay coal beds
Published reserves—100 million tons
Owner—Westmoreland Resources
Address—Box 430, Hardin, MT 59034
Operator—Morrison-Knudsen Company, Inc.
Address—Box 529, Hardin, MT 59034
Telephone—Mine—(406) 342-5241;
Office—(406) 342-5201
Mine manager—J.V. O'Laughlin
Mine superintendent—Kenny Pretty On Top
Mill superintendent—Kenny Pretty On Top
Plant manager—
General manager—

Big Sky mine

Mining district—Unorganized
General location—South of Colstrip
Tract—Sec. 27, T.1N., R.41E.
County—Rosebud
Commodities produced—Coal
Status—Producing
Mining method—Strip mine
Ore production—2,518,117 TPY
Waste production—7,554,351 TPY (3:1 strip ratio)
Acres disturbed—2,485.4 (cumulative)
Acres reclaimed—36.4 (1993); 1,505.5 (cumulative)
Mineral ownership—50% private, 50% federal
Ore processing method—Crush (-2")
Processing capacity—2,000 TPH
Mine life at startup—36 years
Starting date—1969
Discovery date—1900s
Initial investment—Unknown

Employees—70
Annual payroll—\$2.1 million
Production cost—Unknown
Commodity production—2,518,117 TPY
Ore type—Subbituminous coal
Geologic deposit model—Rosebud coal bed
Published reserves—57 million tons
Owner—Peabody Coal Company
Address—301 North Memorial Drive, St. Louis, MO 63102
Operator—Peabody Coal Company
Address—Box 97, Colstrip, MT 59323
Telephone—Mine—(406) 748-2321;
Home office—(602) 774-5253
Mine manager—Tracy Hendricks
Mine superintendent—Gary Rader
Mill superintendent—
Plant manager—
General manager—Kurt Beldon

Decker Coal Company (East & West pits)

Mining district—Unorganized
General location—Southeast of Hardin
Tract—Sec. 11, 12, 14, T.9S., R.40E.
County—Big Horn
Commodities produced—Coal
Status—Producing
Mining method—Strip mine
Ore production—10,804,090 TPY
Waste production—45.9 million TPY (4.25:1 strip ratio)
Acres disturbed—213 (1993); 4,969 (cumulative)
Acres reclaimed—59.6 (1993); 503.6 (cumulative)
Mineral ownership—30% State, 70% federal
Ore processing method—Crush (-2")
Processing capacity—2 plants (3,000 TPH; 3,600 TPH)
Mine life at startup—20 years (45 to date)
Starting date—1971
Discovery date—1950s (by present company)

Initial investment—\$340 million
Employees—341
Annual payroll—\$11 million
Production cost—Unknown
Commodity production—10,804,090 TPY
Ore type—Subbituminous coal (class B)
Geologic deposit model—Anderson–Dietz coal bed
Published reserves—250 million tons
Owner—Joint venture of NERCO and Kiewit Mining Group, Inc.
Address—1000 Kiewit Plaza, Omaha, NE 68131
Operator—Decker Coal Company
Address—Box 12, Decker, MT 59025
Telephone—(406) 757-2561
Mine manager—Frank Kawalok
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

P.M. mine

Mining district—Unorganized
General location—Southwest of Roundup
Tract—Sec. 13, T.6N., R.26E.
County—Musselshell
Commodities produced—Coal
Status—Producing
Mining method—Underground mine (room and pillar)
Ore production—11,182 TPY
Waste production—Minimal
Acres disturbed—4
Acres reclaimed—0
Mineral ownership—100% private
Ore processing method—Crush (*1 ½"); wash (heavy media separation)
Processing capacity—100 TPH
Mine life at startup—Unknown
Starting date—1932
Discovery date—1800s
Initial investment—Unknown

Employees—7
Annual payroll—\$160,000
Production cost—Unknown
Commodity production—11,182 TPY
Ore type—Subbituminous coal (12,500-13,000 BTU)
Geologic deposit model—Mammoth coal bed
Published reserves—Unknown
Owner—Meridian Minerals
Address—
Operator—RBM Mining, Inc.
Address—127 P.M. Coal Road, Roundup, MT 59072
Telephone—(406) 323-1131
Mine manager—Bob Morehead
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—

Rosebud mine

Mining district—Unorganized
General location—Colstrip
Tract—Sec. 1-5, 12, T.1N., R.40E.; Sec. 1-10, 12, 18, T.1N., R.41E.; Sec. 29, 32, 33, 35, T.2N., R.41E.
County—Rosebud
Commodities produced—Coal
Status—Producing
Mining method—Strip mine
Ore production—11,909,423 TPY
Waste production—46,446,749 TPY (3.9:1 strip ratio)
Acres disturbed—10,702 (cumulative)
Acres reclaimed—181 (1993); 4,351 (cumulative)
Mineral ownership—50% private, 50% federal
Ore processing method—Crush (-3")
Processing capacity—4,800 TPH, 20 million TPY
Mine life at startup—52 years
Starting date—1968
Discovery date—Early 1900s
Initial investment—\$61 million
Employees—360
Annual payroll—19.7 million
Production cost—Unknown
Commodity production—11,909,423 TPY
Ore type—Subbituminous coal (class C)
Geologic deposit model—Rosebud coal bed
Published reserves—400+ million tons
Owner—Western Energy Company
Address—
Operator—Western Energy Company
Address—Box 99, Colstrip, MT 59323
Telephone—(406) 748-5100
Mine manager—
Mine superintendent—Eldon Woods
Mill superintendent—
Plant manager—
General manager—R.W. Cope

Savage mine

Mining district—Unorganized
General location—West of Savage
Tract—Sec. 27, T.20N., R.57E.
County—Richland
Commodities produced—Lignite
Status—Producing
Mining method—Strip mine
Ore production—290,928 TPY
Waste production—1,112,198 TPY (5:1 strip ratio)
Acres disturbed—9.6
Acres reclaimed—Leveled 7, spread 7, Seeded 28
Mineral ownership—50% private, 50% federal (royalty @ 2%)
Ore processing method—Crush (-3")
Processing capacity—900-1,200 TPD
Mine life at startup—Unknown
Starting date—1958
Discovery date—Early 1900s
Initial investment—Unknown
Employees—13
Annual payroll—\$630,000
Production cost—Unknown
Commodity production—290,928 TPY
Ore type—Lignite
Geologic deposit model—Pust lignite bed
Published reserves—235 million tons
Owner—Knife River Coal Mining Company
Address—1914 Kavaney Drive, Bismarck, ND 58501
Operator—Knife River Coal Mining Company
Address—Box 37, Savage, MT 59262
Telephone—(406) 798-3651
Mine manager—
Mine superintendent—Rich Kalina
Mill superintendent—
Plant manager—
General manager—Rod Nibbe

Spring Creek mine

Mining district—Unorganized
General location—North of Decker
Tract—Sec. 16, T.8S., R.40E.
County—Big Horn
Commodities produced—Coal
Status—Producing
Mining method—Strip mine
Ore production—7,175,434 TPY
Waste production—6,098,119 TPY (0.85:1 strip ratio)
Acres disturbed—77.8
Acres reclaimed—0
Mineral ownership—100% federal
Ore processing method—Crush (-2")
Processing capacity—3,200 TPH
Mine life at startup—Unknown
Starting date—1979
Discovery date—1950s
Initial investment—Unknown

Employees—116
Annual payroll—\$6,989,000
Production cost—Confidential
Commodity production—7,175,434 TPY
Ore type—Subbituminous coal (class C)
Geologic deposit model—Anderson–Dietz coal bed
Published reserves—254,793,000 tons
Owner—NERCO, Inc.
Address—111 SW Columbia, Portland, OR 97201
Operator—Spring Creek Coal Company
Address—Box 67, Decker, MT 59025
Telephone—(406) 757-2581
Mine manager—
Mine superintendent—
Mill superintendent—
Plant manager—
General manager—Clynt Nayman

New Mining Companies Incorporated in Montana—1993

Basin Exploration, Inc.

Registered Agent: C.T. Corporation System
1209 Orange Street
Wilmington, DE 19801

Belmont Gold Mines, Inc.

Registered Agent: Ronald F. Spry
2992 Herrin Road Space 34-Helena
Box 224
Marysville, MT 59640

BHP Minerals International Exploration, Inc.

Registered Agent: C.T. Corporation System
550 California Street
San Francisco, CA 94104

Carter Creek Mining Corporation

Registered Agent: Don R. Lee
158 Main Street
Box 790
Shelby, MT 59474

Crow Agency Gold, Inc.

Registered Agent: Kathleen Altman
33 Parker Loop
Box 410089
Radersburg, MT 59641-0089

Gabrielle Resource Company

Registered Agent: Peter S. Antonioli
1405 West Steel Street
Butte, MT 59701

Grasslands Minerals, Inc.

Registered Agent: Keith P. Rhea
104 Fairway Drive
Missoula, MT 59803

High Country Minerals, Inc.

Registered Agent: James T. Harrison Jr.
2225 Eleventh Avenue, Suite 21
Helena, MT 59601

Ingenuity Exploration, Inc.

Registered Agent: Thomas Gignoux
2755 Lincoln Hills Road
Missoula, MT 59802

Jamestown Resources, Ltd.

Registered Agent: Nancy K. Moe
2001 Main Street
Vancouver, WA 98660

JM, Inc.

Registered Agent: John Magnus
213 Boundary Street
Box 258
Sheridan, MT 59749

Kennecott Coal Company

Registered Agent: C.T. Corporation System
1201 Orange Street
Wilmington, DE 19801

KPS Mining Company

Registered Agent: Koehler Stout
1327 West Granite Street
Butte, MT 59701

Long Bay Resources, Inc.

Registered Agent: Larry Ratliff
444 17th Street, Suite 830
Denver, CO 80202

**Metanetix Marketing Corporation
(Provisional)**

Registered Agent: Marvin J. Knapstad Jr.
129 West Park Street
Butte, MT 59701

Minerals Gardens, Inc.

Registered Agent: Bill Hand
30 South Arizona
Box 1298
Dillion, MT 59725

Mining and Milling Corporation of America

Registered Agent: Mike Baston
100 North View Drive
Missoula, MT 59807

Montana Metals Management, Inc.

Registered Agent: James Alexander
HCR 30 Stemple Pass
Lincoln, MT 59639

Montana Silver & Gold, Inc.

Registered Agent: David E. Orr
Hwy 2 & Mineral Avenue
Libby, MT 59923

Pacific Metal Company

Registered Agent: Prentice-Hall Corporation
System
3400 SW Bond Avenue
Portland, OR 97201

Prima Exploration, Inc.

Registered Agent: Reed Gunlikson
7800 East Union Avenue # 605
Denver, CO 80237

Prometheus Gold, Inc.

Registered Agent: Kristin M. Krause
2030 Watts Lane
Bozeman, MT 59715

Sandhurst Mining Company

Registered Agent: C.T. Corporation System
13630 Stuart Street
Broomfield, CO 80020

Trace Ventures Exploration, Inc.

Registered Agent: Lawco
203 Westwall #1001
Midland, TX 79702

Verde Ltd.

Registered Agent: Hartmut W. Baitis
2705 Loraine Drive
Missoula, MT 59803

Vision Mining Corporation

Registered Agent: Sharon D. Parker
212 West 8th Avenue
Box 73
Twin Bridges, MT 59754

Washington Gulch L.P., Inc.

Registered Agent: John P. Casper
1 Cityplace Drive #160
St. Louis, MO 63141

Western Mining Corporation (USA)

Registered Agent: C.T Corporation System
1209 Orange Street
Wilmington, DE 19801

Exploration Projects in Montana - 1993

Beaverhead County

Project name: **E.M. Claims**

Location: Sec. 33, T.6S., R.11W.; Sec.4, T.7S., R.11W.

County: Beaverhead

Drainage: Badger Pass

Company: Jim Lundbeck

Activities: 3 RVC holes

Commodity: Gold

Activity status: Ongoing

Property status: Unknown

Project name: **Mayday Mine**

Location: Sec. 7, T.6S, R.10W.

County: Beaverhead

Drainage: Frying Pan

Company: Alan Nygren

Activities: Bulk sampling

Commodity: Gold

Activity status: Ongoing

Property status: Partnership available

Project name: **Unknown**

Location: T.6S., R.10W.; T6S., R.11W.

County: Beaverhead

Drainage:

Company: Monte Cristo (Bill Hand)

Activities:

Commodity: Gold

Activity status: Ongoing

Property status: Unknown

Project name: **Unknown**

Location: Sec. 4, 9, T.9S., R.5W.

County: Beaverhead

Drainage: Grasshopper

Company: Bruce Cox

Activities: Sampling

Commodity: Zeolites

Activity status: Ongoing

Property status: Unknown

Project name: **Unknown**

Location: Sec. 4,5, T.4S., R.9W.

County: Beaverhead

Drainage: Willow Creek

Company: Joe Reynolds

Activities: Unknown

Commodity: Gold

Activity status: Ongoing

Property status: Unknown

Project name: **Unknown**

Location: Sec. 27,28, T.8S., R.10W.

County: Beaverhead

Drainage: Unknown

Company: Bruce Cox

Activities: Sampling

Commodity: Zeolites

Activity status: Ongoing

Property status: Unknown

Broadwater County

Project name: **Avalanche Gulch**

Location: Sec. 16, T.11N., R.2E.

County: Broadwater

Drainage: Avalanche Creek

Company: Steve Adams

Activities: Placer testing

Commodity: Placer gold

Activity status: Ongoing

Property status: Unavailable

Project name: **Diamond City Placer**

Location: Sec. 25, T.10N., R.2E.

County: Broadwater

Drainage: Confederate Gulch

Company: James Collins

Activities: Placer test

Commodity: Placer gold

Activity status: Completed & Reclaimed

Property status: Available

Project name: **Diamond Hill**

Location: Sec. 18, T.7N, R.1W.

County: Broadwater

Drainage: Indian Creek

Company: Pegasus Gold

Activities: 2 drill holes

Commodity: Gold

Activity status: Completed, working through feasibility

Property status: Unavailable

Project name: **Miller Mountain**

Location: Sec. 1,6,12,13,18,23, T.10N., R.3E.

County: Broadwater

Drainage: Confederate Gulch

Company: Pegasus Gold

Activities: 19 RVC holes, total reclamation

Commodity: Gold

Activity status: Completed

Property status: Available

Project name: **Radersburg (Keating Mine, etc.)**

Location: Unknown

County: Broadwater
 Drainage: None
 Company: Frank Antonioli
 Activities: 2 drill holes
 Commodity: Gold
 Activity status: Ongoing
 Property status: Unknown

Project name: **Vermont Gulch**
 Location: Sec. 29-32, T.11N. R.3E.
 County: Broadwater
 Drainage: Vermont Gulch
 Company: Tony Carberry
 Activities: Placer trenches
 Commodity: Placer gold
 Activity status: Ongoing
 Property status: Unknown

Fergus County

Project name: **Collar Gulch**
 Location: Sec. 12,13, T.16N., R.20E.
 County: Fergus
 Drainage: Collar Gulch
 Company: Heller Drilling
 Activities: 8 RVC holes
 Commodity: Gold
 Activity status: Completed
 Property status: Unknown

Project name: **Elk Peak**
 Location: Sec. 5, T.16N., R.20E.
 County: Fergus
 Drainage: Armells Creek
 Company: Heller Drilling
 Activities: 4-5 RVC holes
 Commodity: Gold
 Activity status: Completed
 Property status: Unknown

Project name: **Judith Peak**
 Location: Sec. 19, T.17N., R.20E.
 County: Fergus
 Drainage: Warm Spring Creek
 Company: Heller Drilling
 Activities: 4 RVC holes
 Commodity: Gold
 Activity status: Completed
 Property status: Unknown

Project name: **Linster Peak**
 Location: Sec. 8,9,17, T.17N., R.21E.
 County: Fergus
 Drainage: Fords Creek, Box Elder
 Company: BHP-Utah International
 Activities: 13 RVC holes, 2500 ft. of road

Commodity: Gold
 Activity status: Ongoing
 Property status: Unknown

Project name: **Maiden Canyon**
 Location: Sec. 21, T.16N., R.19E.
 County: Fergus
 Drainage: Maiden Creeek
 Company: Canyon Resources
 Activities: 1 hole, helicopter support
 Commodity: Gold
 Activity status: Completed
 Property status: Unknown

Project name: **North Moccasin Project**
 Location: Sec. 25,30, T.18N., R.17E.
 County: Fergus
 Drainage: Iron Gulch
 Company: C.R. Kendall
 Activities: 30 RVC holes
 Commodity: Gold
 Activity status: Completed
 Property status: Unknown

Granite County

Project name: **Garnet Mining**
 Location: Various
 County: Granite & Missoula
 Drainage: Various
 Company: Garnet Mining
 Activities: Drilling
 Commodity: Gold
 Activity status: Ongoing
 Property status: Available

Project name: **Londondarry**
 Location: Sec. 4,8,9, T.8N., R.13W.
 County: Granite
 Drainage: Ham Gulch
 Company: Cameco
 Activities: 5-10 holes on BLM
 Commodity: Gold
 Activity status: Completed
 Property status: Available

Project name: **Piedra Exploration**
 Location: Sec. 19, T.7N., R.16W.
 County: Granite
 Drainage: Shively Gulch
 Company: FMC
 Activities: Exploration drilling
 Commodity: Gold
 Activity status: Unknown
 Property status: Unknown

Jefferson County

Project name: **GSM**
Location: Sec. 18, T.2N., R.3W.
County: Jefferson
Drainage: None
Company: Golden Sunlight Mines
Activities: 2 drill holes
Commodity: Gold
Activity status: Completed
Property status: Unavailable

Project name: **Homestake #1**
Location: Sec. 2, T.2N., R.6W.
County: Jefferson
Drainage: Unknown
Company: Randy Eaton
Activities: Bulk test, 7 trenches
Commodity: Placer gold
Activity status: reclaimed
Property status: Unknown

Project name: **Pegasus Gold**
Location: Sec. 23, T.6N., R.13W.
County: Jefferson
Drainage: Unknown
Company: Pegasus Gold
Activities: Exploration drilling
Commodity: Gold
Activity status: Unknown
Property status: Unknown

Lewis and Clark County

Project name: **Butcher Knife**
Location: Sec. 35, T.10N., R.2E.
County: Lewis & Clark
Drainage: Butcher knife
Company: Richard Shreeves
Activities: Dry placer (nugget hunting)
Commodity: Placer nuggets
Activity status: Ongoing
Property status: Unknown

Project name: **Butcherknife**
Location: T.10N., R.2E.
County: Lewis & Clark
Drainage: Butcher knife
Company: Glenn Logsdon
Activities: Placer exploration
Commodity: Placer gold
Activity status: Ongoing
Property status: Unknown

Project name: **Chamounix**
Location: Sec. 35,36, T.11N., R.6W.

County: Lewis & Clark
Drainage: Austin Creek
Company: Placer Dome
Activities: 3 drill holes
Commodity: Gold
Activity status: Completed
Property status: Unknown

Project name: **Hope #4 Placer**
Location: Sec. 13, T.11N., R.7W.
County: Lewis & Clark
Drainage: Uncle Ben Gulch
Company: Marvin Ratcliff
Activities: Placer testing
Commodity: Placer gold
Activity status: Ongoing
Property status: Unknown

Project name: **Seven-up Pete Joint Venture**
Location: Sec. 10, T.14N., R.8W.
County: Lewis & Clark
Drainage: Hogum Creek
Company: Phelps Dodge
Activities: Drilling, trenching
Commodity: Gold
Activity status: Ongoing
Property status: Unavailable

Madison County

Project name: **Kearsarge Project**
Location: Sec.13, T.7S., R.3W.
County: Madison
Drainage: Alder Gulch
Company: Kennecott
Activities: Drilling
Commodity: Gold
Activity status: Ongoing
Property status: Unavailable

Project name: **Unknown**
Location: Sec. 34, T.3S., R.5W.,
County: Madison
Drainage: Unknown
Company: Consolidated Top Gun Exploration
Activities: Drilling program
Commodity: Gold
Activity status: Ongoing
Property status: Unknown

Meagher County

Project name: **Castle Mountain**
Location: Sec. 2, T.8N, R.8E.
County: Meager

Drainage: Hensly Creek
 Company: Frank Frankovich
 Activities: 5 drill holes
 Commodity: Copper, silver, gold
 Activity status: Completed
 Property status: Unknown

Project name: **Lake Creek/Charcoal Gulch**
 Location: Sec. 23,24,25,26,27, T.11N., R.7E.,
 Sec19, T.11N., R.8E., Sc. 3,35, T.11N., R.9E.
 County: Meager
 Drainage: Unknown
 Company: Kennecott
 Activities: 4 RVC holes, geophysics
 Commodity: Copper
 Activity status: Ongoing
 Property status: Unknown

Project name: **Spring Creek**
 Location: Sec. 15, T.10N., R.10E
 County: Meager
 Drainage: Spring Creek
 Company: Rio Algom Exploration
 Activities: Drilling (1 hole)
 Commodity: Copper, Gold
 Activity status: Completed
 Property status: Unknown

Project name: **Atlanta Creek**
 Location: Sec. 8,9, T.9N., R.4E.
 County: Meagher
 Drainage: S. Fork Atlanta Creek
 Company: Roy Kenne
 Activities: Placer testing
 Commodity: Placer gold
 Activity status: Ongoing
 Property status: Unknown

Mineral County

Project name: **Ace Placer**
 Location: Sec. 4, T.15N., R.27W.
 County: Mineral
 Drainage: Cedar Creek, Rabbit Creek
 Company: Jim Almond
 Activities: Placer testing
 Commodity: Placer gold
 Activity status: Ongoing
 Property status: Unknown

Project name: **J&L Mines**
 Location: Sec. 4, T.15N., R.27W.
 County: Mineral
 Drainage: Spring Gulch
 Company: J. Almond Jr.
 Activities: Placer testing

Commodity: Placer gold
 Activity status: Ongoing
 Property status: Unknown

Project name: **Lost Gulch Placer**
 Location: Sec. 24, T.16N., R.28W.
 County: Mineral
 Drainage: Lost Creek
 Company: Ray Wagner
 Activities: Reclamation, further testing
 Commodity: Placer
 Activity status: Ongoing
 Property status: Available

Project name: **Wilson Mine**
 Location: Sec. 27, T.18N., R.26W.
 County: Mineral
 Drainage: Keystone area
 Company: Byron Dodd
 Activities: Advance drift 50 ft.
 Commodity: Silver
 Activity status: Ongoing
 Property status: Unknown

Park County

Project name: **Arrastra Creek**
 Location: Sec. 33,34, T.6S., R.9E.
 County: Park
 Drainage: Arrastra Creek
 Company: Phelps Dodge
 Activities: 4 RVC holes
 Commodity: Gold
 Activity status: Planned for Spring 1994
 Property status: Unknown

Project name: **New World**
 Location: Various
 County: Park
 Drainage: Various
 Company: Hemlo Gold/Crown Butte
 Activities: 2-8 drill holes
 Commodity: Gold
 Activity status: Continuing
 Property status: Unavailable

Powell County

Project name: **Blackfoot City**
 Location: Sec. 25, T.11N., R.8W.
 County: Powell
 Drainage: Ophir
 Company: Sam Spearstra/Rob Towner
 Activities: Placer testing
 Commodity: Placer gold

Activity status: Ongoing
Property status: Unavailable

Project name: **Ophir LD Group**
Location: Sec. 20, T.11N., R.7W.
County: Powell
Drainage: Ophir
Company: American Copper & Nickel Co., Inc.
Activities: Exploratory drilling (3 holes)
Commodity: Copper, gold
Activity status: Completed
Property status: Unknown

Project name: **Unknown**
Location: Sec. 29, T.11N., R.7W.
County: Powell
Drainage: Carpenter Creek & Woodson
Company: Jack Brultz
Activities: Placer testing
Commodity: Placer gold
Activity status: Ongoing
Property status: Unknown

Project name: **Unknown**
Location: Sec. 29, T.11N., R.7W.
County: Powell
Drainage: Carpenter Creek (head end)
Company: Skip Meader
Activities: Placer test
Commodity: Placer gold
Activity status: Ongoing
Property status: Unknown

Sanders County

Project name: **Galena Giant**
Location: Sec. 16, T.22N., R.32W.
County: Sanders
Drainage: Beaver Creek
Company: Montana Copper Corp.
Activities: 1 DD hole (3000 ft.)
Commodity: Gold, silver
Activity status: Completed
Property status: Unknown

Project name: **Princess Ann/King David**
Location: Sec. 14, T.24N., R.31W.
County: Sanders
Drainage: Vermillion River
Company: John Entiene
Activities: Reopen adit
Commodity: Gold
Activity status: Ongoing
Property status: Unknown

Silverbow County

Project name: **Camp Creek**
Location: Sec. 26, T.1S., R.8W.
County: Silverbow
Drainage: Camp Creek
Company: Phelps Dodge
Activities: 2+ drill holes
Commodity: Copper
Activity status: Completed
Property status: Unknown

Project name: **Camp Creek**
Location: T.2S., R.8W.
County: Silverbow
Drainage: Camp Creek
Company: Cominco American
Activities: drilled 1 hole
Commodity: Copper
Activity status: Completed
Property status: Unknown

Toole County

Project name: **(Sweet Grass Hills)**
Location: Sec.18,19,25,30,36, T.37N., R.1&2E.
County: Toole
Drainage: Unknown
Company: Unknown
Activities: Driving drift
Commodity: Gold
Activity status: Ongoing
Property status: Unknown

Federal agencies affecting mining in Montana

Department of Agriculture

Mineral and Geology Staff

Regional Office Northern Region (Montana,
northern Idaho, North Dakota, north-western
South Dakota)

Federal Building

200 E. Broadway

P.O. Box 7669

Missoula, MT 59807

Chuck Wassinger (406) 329-3518

Mike Burnside (406) 329-3565

Ray TeSoro (406) 329-3523

Jim Sheldon (406) 329-3577

FAX: (406) 329-3132

Mineral Contacts

Beaverhead National Forest

420 Barret Street

Dillon, MT 59725

Phyllis Denton (406) 683-3934

FAX: (406) 683-3925

Wise River Ranger District

Box 100

Wise River, MT 59762

Dale McKnight (406) 832-3178

Wisdom Ranger District

Box 238

Wise River, MT 59761

Bill Avery (406) 689-3243

Bitterroot National Forest

1801 North 1st Street

Hamilton, MT 59840

Lynn Dickman (406) 363-7144

FAX: (406) 363-7106

Stevensville Ranger District

88 Main Street

Stevensville, MT 59870

Dave Silvius (406) 777-5461

Darby Ranger District

Darby, MT 59829

Winnie Schreiber (406) 821-3913

Sula Ranger District

Sula MT, 59871

Gino Owens (406) 821-3913

West Fork Ranger District

Darby, MT 59829

Jim Aronson (406) 821-3269

Custer National Forest

2602 First Avenue North

P.O. Box 25556

Billings, MT 59103

Carol McCoy-Brown

Greg Visconty (406) 657-6361

FAX: (406) 657-6444

Beartooth Ranger District

Route 2, Box 3420

Red Lodge, MT 59068

David Hatfield (406) 446-2344

FAX: (406) 446-3918

Ashland Ranger District

Box 168

Ashland, MT 59003

John A. Macivor (406) 784-2344

Deerlodge National Forest

Federal Building

P.O. Box 400

Butte, MT 59703

Dan Avery (406) 496-3452

FAX: (406) 396-3354

Deerlodge Ranger District

91 Frontage Road

Deer Lodge, MT 59722

(406) 846-1770

Jefferson Ranger District

405 East Legion

P.O. Box F

Whitehall, MT 59759

Pat Barringer (406) 287-3223

Philipsburg Ranger District

P.O. Box H

Philipsburg, MT 59858
Kurt Kneivel (406) 859-3211

Flathead National Forest

1935 Third Avenue East
Kalispell, MT 59901
Ed Fivas (406) 758-5330
FAX: (406) 758-5393

Swan Lake Ranger District

P.O. Box 370
Bigfork, MT 59911
Remy Pochelon (406) 837-5081

Spotted Bear Ranger District

P.O. Box 310
Hungry Horse, MT 59919
Dale Luhman (406) 752-7345

Hungry Horse Ranger District

P.O. Box 340
Hungry Horse, MT 59919
Fred Flint (406) 387-5243

Glacier View Ranger District

P.O. Box W
Columbia Falls, MT 59912
Neil Malksian (406) 892-4372

Tally Lake Ranger District

1335 Highway 93
Whitefish, MT 59937
Neil Malksian (406) 862-2508

Gallatin National Forest

Federal Building
10 East Babcock Street
Bozeman, MT 59771
Sherm Sollid (406) 587-6733
Mary Lennon (406) 587-6709
FAX: (406) 587-6804

Big Timber Ranger District

P.O. Box A
Big Timber, MT 59011
Jerry England (406) 932-5155

Livingston Ranger District

Route 62, Box 3197
Livingston, MT 59047
Steve Kratuille (406) 222-1892

Gardiner Ranger District

P.O. Box 5
Gardiner, MT 59030
Ron Gardner (406) 848-7375

Bozeman Ranger District

601 Nikles
Bozeman, MT 59715
Patti Souceli (406) 587-6920

Hebgen Lake Ranger District

P.O. Box 520
West Yellowstone, MT 59758
Mark Romey (406) 646-7369

Helena National Forest

2880 Skyway Drive
Helena, MT 59601
(406) 449-5201
FAX: (406) 449-5436

Townsend Ranger District

P.O. Box 29
415 South Front
Townsend, MT 59644
Bethany Ihle (406) 266-3425

Helena Ranger District

2001 Poplar Street
Helena, MT 59601
Dave Turner (406) 449-5490

Lincoln Ranger District

P.O. Box 219
Lincoln, MT 59639
Rod Bullis (406) 362-4265

Kootenai National Forest

506 U.S. Highway 2, West
Libby, MT 59639
Rich Stearns (406) 293-6211

Rexford Ranger District

1299 Highway 93, North
Eureka, MT 59917
Eric Heyn (406) 296-2536

Fortine Ranger District

P.O. Box 116
Fortine, MT 59918
Ron Williams
Mike Lui (406) 882-4451

Three Rivers Ranger District

1437 North Highway 2
Troy, MT 59935
Jerry Berry
Mark Mason (406) 295-4693

Libby Ranger District

1263 Highway 37

Libby, MT 59923
Mike Guthneck
Bobbie Lacklen (406) 293-7741

Fisher River Ranger District
12557 Highway 37
Libby, MT 59923
Dick Harlow (406) 293-7773

Cabinet Ranger District
2693 Highway 200
Trout Creek, MT 59874
Bruce Haflich (406) 827-3534

Lewis and Clark National Forest
1101 15th Street North
P.O. Box 869
Great Falls, MT 59403
Robin Strathy (406) 791-7726
FAX: (406) 329-3795

Rocky Mountain Ranger District
1102 Main Avenue, Northwest
P.O. Box 340
Choteau, MT 59422
Seth Diamond (406) 466-5341

Judith Ranger District
109 Central Avenue
P.O. Box 484
Stanford, MT 59479
Dick Schwecke (406) 566-2292

Musselshell Ranger District
809 2 Northwest
P.O. Box F
Harlowton, MT 59036
Dave Wanderass (406) 632-4391

Kings Hill Ranger District
204 West Folsom
P.O. Box A
White Sulphur Springs, MT 59645
Charles "Stu" Deschamps (406) 547-3361

Lolo National Forest
Building 24, Fort Missoula
Missoula, MT 59801
Norm Smyers (406) 329-3775
FAX: (406) 329-2795

Missoula Ranger District
Building 24-A, Fort Missoula
Missoula, MT 59801
Jack Fisher (406) 329-3976

Ninemile Ranger District
P.O. Box 616
Huson, MT 59846
Ron Hilmo
Lisa Stoeffler (406) 626-5201

Plains/Thompson Falls Ranger District
Plains, MT 59859
Marc Childress
Fred Haas (406) 826-3821

Seeley Lake Ranger District
Drawer G
Seeley Lake, MT 59868
Bruce Johnson
Karen Shaffer (406) 677-2233

Superior Ranger District
Superior, MT 59872
Roger Lindgren
Don Stadler (406) 822-4233

Department of the Army

Corps of Engineers
1520 East 6th Avenue
Helena, MT 59801
(406) 444-6670

Environmental Protection Agency

Montana Operations Office
301 South Park
Drawer 10096
Helena, MT 59626
Director - John F. Wardell
(406) 449-5432

Department of the Interior

Bureau of Mines

Spokane Research Center
East 315 Montgomery Avenue
Spokane, WA 99207
Research Director - D.D. Bolstad
(509) 484-1610

Western Field Operations Center
East 360 Third Avenue
Spokane, WA 99202-1413

Chief - Richard G. Grabowski (509) 353-2712
State Mineral Officer - Rod Minarik (MT, ID, OR,
WA, WY)
(509) 353-2700

U. S. Geological Survey

Branch of Central Mineral Resources

P.O. Box 25046, Stop 905
Denver Federal Center
Denver, CO 80225-0046
Chief - Gary R. Winkler
(303) 236-5568

Menlo Park Field Office

345 Middlefield Road, MS 919
Menlo Park, CA 94025
Chief - Joel Bergquist
(415) 329-5448

Fish, Wildlife, and Parks

Interior Building

Washington, DC 20240
Assistant Secretary - Constance B. Harriman
(202) 208-4416

Fish and Wildlife Service

Main Interior Building, Rm. 3256
Washington, DC 20240
Director - John F. Turner
(202) 208-4717

Regional Offices

Region 1

911 Northeast 11th Avenue
Portland, OR 97232-4181
Regional Director - Marvin L. Plenert
(503) 231-6118

Region 6

P.O. Box 25486, DFC
Denver, CO 80225
Regional Director - Galen Buterbaugh
(303) 236-7920

National Park Service

P.O. Box 37127
Washington, DC 20013-7127
Director - James M. Ridenous
(202) 208-4621

Regional Offices

Pacific Northwest Region

83 South King Street, Ste. 212
Seattle, WA 98104
Regional Director - Charles Odegard
(206) 553-5565

Rocky Mountain Region

12795 West Alameda Parkway
P.O. Box 25287
Denver, CO 80225-0287
Regional Director - Robert M. Baker
(303) 969-2500

Bureau of Land Management

Interior Building, Rm. 5660
1849 C Street, Northwest
Washington, DC 20240
Director - Cy Jamison
(202) 208-3801

State Director - Montana

Granite Tower
222 North 32nd Street
P.O. Box 36800
Billings, MT 59107-6800
Acting State Director - Thomas P. Lornie
(406) 255-2904
Acting Deputy State Director for Mineral
Resources - Donald L. Gilchrist (406) 255-2805
Geologist - Don Wirth (406) 255-2820

District Offices

Butte - (406) 494-5059
Geologist - Dave Williams
Mining Engineer - Bill Weatherly
Dillon - (406) 683-2337
Geologist - John McKay
Missoula - (406) 329-3914
Geologist - Mindy Mason
Lewistown - (406) 538-7461
Geologist - Scott Haight

Department of Labor

Mine Safety & Health Administration (MSHA)

Rocky Mountain District

P.O. Box 25367
Denver Federal Center
Denver, CO 80225-0367
District Manager - Rodric Breland (303) 231-5465
Supervisory Mine Inspector - Arle Brown
(406) 449-5357 (Montana)

Occupation Safety and Health Administration

Montana Area Office

19 North 25th Street
Billings, MT 59101
Area Director - David J. DiTommaso
(406) 657-6649

Washington, DC 20510-2602
(202) 224-2651

Conrad Burns (R)

SD-183 Dirksen Senate Office Building
Washington, DC 20510-2603
(202) 224-2644

Montana Congressional Delegation

Senators

Max S. Baucus (D)

SH-706 Hart Senate Office Building

Representative

Pat Williams (D-1)

2457 Rayburn House Office Building
Washington, DC 20515-2601
(202) 225-3211

State agencies affecting mining in Montana

Office of Governor

Capitol Station
1625 11th Avenue
Helena, MT 59620
Governor - Marc Racicot
(406) 444-3111
Senior Administrative Assistant for Natural
Resources - Wayne Phillips

Hard Rock Mining Impact Board/DOC

Cogswell Building, Rm. C-211
Helena, MT 59620
Contact - Carol Ferguson
(406) 444-4478
Function: Assistance with hard rock mining impacts
to local governments and communities.

Department of Fish, Wildlife and Parks

1420 East 6th Avenue
Helena, MT 59620
(406) 444-3186

Resource Assessment Unit

1420 East 6th Avenue
Helena, MT 59620
Administrator - James Posewitz
Function: Mining and milling operations
pertaining to fish and wildlife. No
permits.

Department of Health and Environmental Sciences

Cogswell Building

Helena, MT 59620

Director - Bob Robinson
(406) 444-2544

Division of Environmental Sciences

Cogswell Building
Helena, MT 59620
Administrator - Steven L. Pilcher
(406) 444-3948

Air Quality Bureau

Cogswell Building
Helena, MT 59620
Chief - Jeff Chaffee
(406) 444-3454
Function: Air-quality emission permits and air-
quality standards.

Solid and Hazardous Waste Bureau

Cogswell Building
Helena, MT 59620
Chief - Duane Robertson
(406) 444-1430
Function: Permits relating to hazardous waste.

Water Quality Bureau

Cogswell Building, Rm. A206
Helena, MT 59620
Chief - Dan L. Fraser
(406) 444-2406
Function: Waste-water discharge permits and
water-quality standards.

Department of Labor and Industry

Labor and Industry Building, Rm. 412

P.O. Box 1728

Helena, MT 59624

Commissioner - Laurie Ekanger

(406) 444-3555

Function: Administers employment, training, labor-management relations; conditions for workers and employee/ employers rights.

Division of Workers Compensation

Margaret "Peg" Condon Building

5 South Last Chance Gulch

Helena, MT 59601

Administration - Patrick Sweeney

(406) 444-6500

Safety Bureau

Mining Section

P.O. Box 1728

Helena, MT 59624

Chief - Ed Gatzemeier

(406) 444-6401

Function: Mine safety and training; accident investigation.

Department of State Lands

Capitol Station

1625 11th Avenue

Helena, MT 59620

Commissioner - Bud Clinch

(406) 444-2074

Division of Lands Administration

Capitol Station

Helena, MT 59620

Administrator - Jeff Hagener

(406) 444-2074

Function: Mineral leases.

Reclamation Division

Capitol Station

Helena, MT 59620

Administrator - Gary Amestoy

(406) 444-2074

Function: Mine and mill reclamation and exploration permits, environmental assessments, environmental impact statements, bonding requirements. Small metal mine operations, excavating, stripping; moving less than 35,500 tons per year and disturbing 5 acres or less. Exempted from all permits except by letter of

agreement to conform to certain conditions.

Hard Rock Bureau

Capitol Station

1625 11th Avenue

Helena, MT 59620

Chief - Sandy Olson

(406) 444-2074

Open Cut Bureau

Capitol Station

1625 11th Avenue

Helena, MT 59620

Chief - Steve Walsh

(406) 444- 2704

Coal and Uranium Bureau

Capitol Station

1625 11th Avenue

Helena, MT 59620

Chief - Bonnie Lovelace

(406) 444-2074

Montana Bureau of Mines and Geology

Montana Tech of the University of Montana

1300 West Park Street

Butte, MT 59701-8997

(406) 496-4180

State Geologist and Director - John C. Steinmetz

Function: Mineral and ground-water resources research and information.

No regulatory function.

Department of Natural Resources and Conservation

1529 East 6th Avenue

Helena, MT 59620-2301

(406) 444-6699

Director - Mark Simonich

Division of Energy

1520 East 6th Avenue

Helena, MT 59620

(406) 444-6697

Administrator - Van Jamison

Function: Analyzes the need for, and alternatives to proposed major facilities as part of environmental impact statements called for by the Major Facility Siting Act and the Montana Environmental Policy Act. Has a broad range of responsibilities in energy planning and analysis, renewable energy and conservation.

Division of Water Resources

1520 East 6th Avenue
Helena, MT 59620-2301
(406) 444-6601

Administrator - Gary Fritz

Function: Coordinates the development,
utilization, conservation, and
protection of water resources.

Office of Secretary of State

Capitol Station
1625 11th Avenue
Helena, MT 59620
(406) 444-2034

Secretary of State - Mike Cooney

Function: Corporate and assumed business
information.

Department of Revenue

Sam Mitchell Building
Helena, MT 59620
(406) 444-2460

Director - Mick Robinson

Function: Tax information

Permits and contracts

Department of Health and Environmental Sciences Cogswell Building Helena, MT 59620

MPDES Discharge Permit 75-5402, MCA
MGWPCS Ground-Water Pollution Control Permit 75-5-402, MCA
Contact: Water Quality Bureau (406) 444-2406

MONTANA CLEAR AIR ACT 75-2-211, 75-2-204, MCA, 75-20203, MCA
Air Pollution Permit, Open Burning Permit
Contact: Air Quality Bureau (406) 444-3454

PERMIT FOR HAZARDOUS WASTE OR STOCKPILES 75-10-406, MCA
Contact: Solid Waste Management Bureau (405) 444-2821

Department of State Lands Capitol Station Helena, MT 59620 (406) 444-2074

HARD ROCK MINING ACT Title 82, Chapter 4, Part 3, MCA
Exploration License, Metalliferous Rock, Operating Permit, Small Miner
Exclusion, Placer-Dredge Bonds, Small Miner Cyanide Permits
Contact: Hard Rock Bureau

OPEN CUT MINING ACT Title 82, Chapter 4, Part 4 Montana Codes, MCA
Sand Gravel, Bentonite, Clay, Scoria, Phosphate Reclamation Contract
Contact: Hard Rock Bureau

STRIP AND UNDERGROUND MINE SITING ACT Title 2, Chapter 4, Part 2 MCA

MONTANA STRIP AND UNDERGROUND MINE RECLAMATION ACT Title 2, Chapter 4, Part 1 MCA
Coal and Uranium Prospecting Permit, Surface Mining Permit
Contact: Open Cut Bureau

MONTANA ENVIRONMENTAL POLICY ACT Title 75, Chapter 1, Parts 1, 2, 3 MCA
Environmental Assessment (EA)
Environmental Impact Statement (EIS)
Contact: Hard Rock Bureau

Department of Natural Resources and Conservation 1520 East 6th Avenue Helena, MT 59620-2301

PERMIT FOR APPROPRIATION OF GROUND WATER 85-2-301, 85-2-301, 85-2-306, MCA (1983)
Contact: Water Resources Division, Water Rights Bureau (406) 444-6610

PERMIT FOR LARGE MINES RELATED TO MINERAL FUELS Major Facility Siting Act
Contact: Energy Division (406) 444-6676

Local Governing Bodies

Building Codes 69-2105 et. seq. RCM 1947
Burning Permits 28-114, RCM 1947; 28-601 et. seq. RCM 1947
Floodway Regulation-Floodway Management Act 89-3501 et. seq. RCM 1947
Stream Bed Preservation-Stream Bed Preservation Act 26-1501 et. seq. RCM 1947
Timber Removal-Fire Hazard Reduction Agreement 28-403.1 et. seq. RCM 1947
Utility Extensions-Permission to Extend Utility Facilities 11-3316, RCM 1947

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