

## Mines and Exploration in Montana— 2011

Robin McCulloch, Mining Engineer

Mining operations experienced a broad variety of conditions through 2011. For the small operators, especially the placer miners, the spring was late in coming and the heavy winter snowpack transitioned into local floods that lasted well into July. Many access roads were washed out, dry stream beds became torrents, and some placers became unworkable.

Larger metal operations enjoyed strong prices while industrial minerals mines noted a slow but steady recovery from the 2009 collapse. Operating costs have been steady, purchasing was slow and capital projects were limited. The construction industry has shown very little rebound thus the earliest projected market recovery in the portland cement industry is expected in 2014. Other sectors of the mining industry have speculated that total recovery may not be possible until 2017. One company stated that it was an accomplishment to have survived under these business conditions. For most, it appeared to be a year of entrenchment rather than celebration.

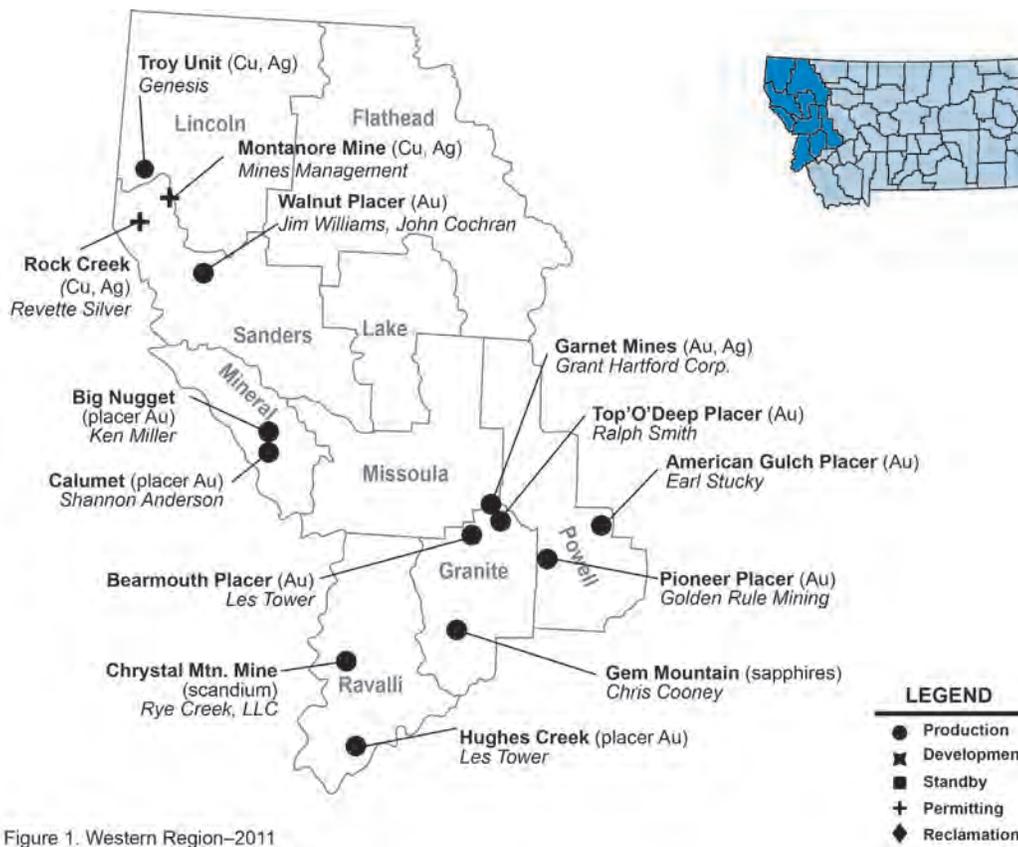


Figure 1. Western Region—2011

of those reserves is expected in the coming year. Current reserves stand at 7 years, with 5 additional years of resources at the JF property.

The company has made tremendous progress in building a cohesive workforce that has developed an "ownership attitude" of the company. Many employees now lead local discussions on the environment and the mine's activities. The company and the employees have developed a very proactive program between the environment and company operations resulting in benefits for all especially the environment.

During the year, the company made upgrades on their tailings pond and replaced some equipment.

Operations were compromised when they could not secure rail cars to ship concentrates to the smelter; which interrupted their cash flow for a period of time.

### **Rock Creek Mine (Cu, Ag)**

The Rock Creek Mine (Rock Creek Resources), a wholly owned subsidiary of Revett Minerals, Inc., continued efforts to permit their world-class strataform copper-silver deposit under the Cabinet Mountains near Noxon. This project has the record for the longest mining permit cycle in Montana as it started in the fall of 1983. The company is working on a supplemental EIS to update sections of the original EIS following yet another intervention by the Federal court.

The biological opinion of the project was appealed by environmental groups to the 9<sup>th</sup> circuit where a favorable decision was awarded to the company and agencies.

At the same time a Helena judge determined that the State was wrong in allowing the company to develop the mine under a generic water discharge permit and will require the company to obtain an individual MPDES permit.

### **Montanore Mine (Cu, Ag)**

The supplementary DEIS is out for public review on the re-permitting of the mine for Mines Management, Inc. The company is continuing to pump to maintain the water level in the decline until permitting is completed. The operations are located southeast of Libby at the upper portion of the Libby Creek drainage.

Current delays in permitting appear to be focused on the results of a water modeling program that was employed with very little relevant data. The erroneous model indicated that the project would dewater surface streams when the workings were developed. The implications of employing ground-water modeling without adequate data may have long reaching effects on future development of mines in the state.

### **Walnut Placer (Au)**

Jim Williams and John Cochran continued testing paleo-placer gravels near Lyons Gulch and producing from the last of the placer deposit in the Vermillion River bottom near Trout Creek. The company struggled with extended, catastrophic run-off and disappearing roads. The Vermillion placer appears to consist of reworked gravel from the paleo-channel perched above Lyons Creek.

### **Calumet Placer (Au)**

In Quartz creek (near Superior), Shannon Anderson continued production of the Calumet placer mine. Excavations at the downstream end of the existing pit have revealed a deeper channel with larger boulders. Bulk tests have produced some nice nuggets.

### **Big Nugget Placer (Au)**

Ken Miller continued a gold placer bulk test along an old drift mine in lower Meadow creek. The gold produced consisted of small yet abundant flakes accompanied by ample amounts of black sand. The small sized gold particles and gravel with black sand indicated that the excavation was likely on the margins of the main pay zone and further testing will be necessary to characterize the deposit. Ken Miller sold the mine and equipment and retired at the end of the season.

### **Chrystal Mine Tailings**

Rye Creek LLC, a wholly owned subsidiary of Boulder Scientific Mining Co., reprocessed tailings and mine waste from the Chrystal Mountain fluorite deposit and mill pond in Darby. The company is recovering thortveitite, a scandium mineral.

### **Hughes Creek Placer (Au)**

Les Towner and company mined placer gravels during the summer in upper Hughes Creek, southwest of Darby. The company had located an unworked bench deposit in the previously mined drainage and produced some nice nuggets and wire gold.

### **Garnet Mines (Au, Ag)**

West of Drummond, Grant Hartford Corp. shipped dumps from the Lead King mine to the Golden Sunlight mill. They drove 400 ft. of decline into the Nancy Hanks mine and started the infrastructure for mining operations planned during 2012. The mill is planned for completion in 2013. The company did not succeed in raising the necessary capital to complete their projects but are planning to renew operations in April, 2012.

### **Bear Gulch Placer (Au)**

Les Towner's placer operation near Bear Gulch (west of Drummond) was flooded out. The previous year's pit had been reclaimed and promptly became a lake for a long portion of the spring/summer. A small bulk test completed during the spring revealed the extent of drift mining that had been completed in the deposit. Large barren, mined-out stopes exposed in the excavation emphasize the need for future testing prior to mining.

### **Top "O" Deep Creek Placer (Au)**

Placer operations near Garnet on Top "O" Deep (upper Deep Creek) were suspended for the year while the company tested a placer property in Idaho. Future work is planned in 2012.

### **Gem Mountain (Sapphire)**

Chris Cooney continued production of sapphires at the Gem Mountain placer, located west of Philipsburg. Operations included a commercial operation as well as tourist operation for fee processing. The company has opened an additional outlet in downtown Philipsburg that includes panning and gifts.

### **Pioneer Placer (Au)**

Near Garrison, Golden Rule Mining closed operations in early spring to upgrade safety requirements on their mining operation and equipment. Operations resumed in the fall on their Tertiary gold placer. The company spent the winter upgrading their facilities and recovery circuit in preparation of the 2012 season. The deposit was one of the first discoveries of gold in Montana in 1852.

### **American Gulch Placer**

Earl Stucky mined placer gravels north of Avon in the Finn district.

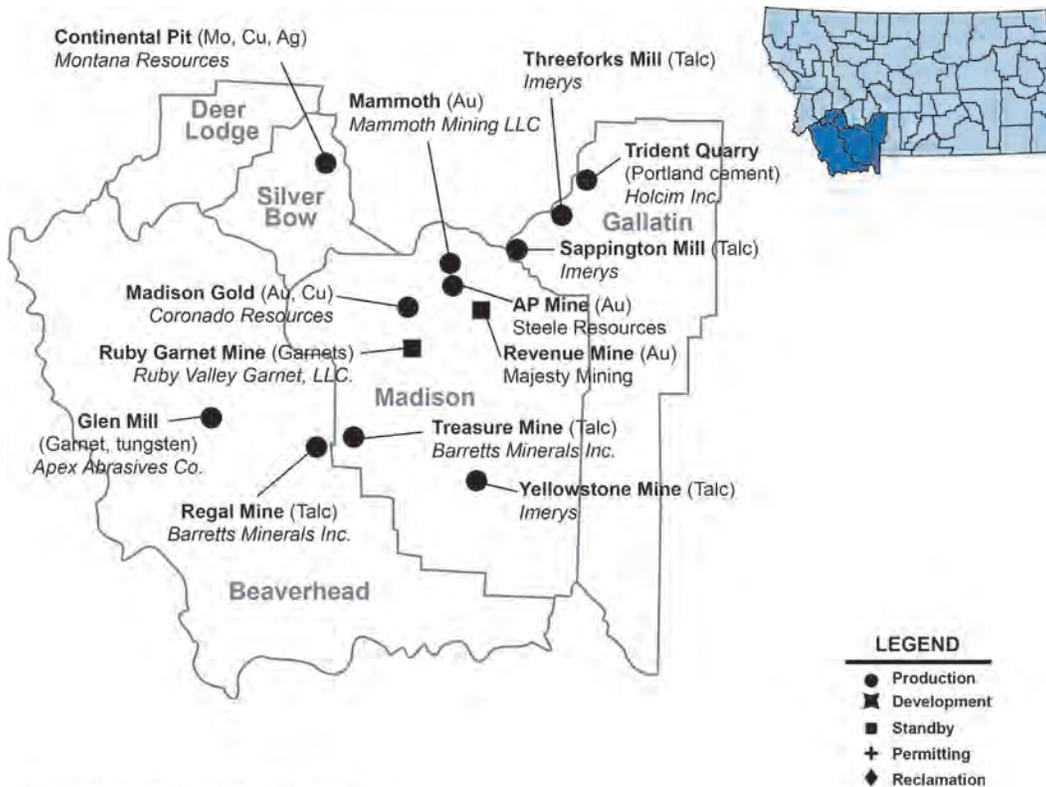


Figure 2. Butte-Anaconda Region-2011

## Butte-Anaconda Area

### Continental Pit (Cu, Mo, Ag)

The largest metal mining operation in Montana is owned and managed by Montana Resources, LLP in Butte. They maintained production of about 56,000 tons of ore per day as one of the lowest cost copper/molybdenum producers in North America. During the year, the company purchased ancillary replacement equipment such as dozers and cranes but made no

major changes. The company reported increased costs for diesel and grinding media. Tire costs have stabilized and the availability has steadily improved.

Near Interstate-15 on the eastern mine boundary, some portions of the waste rock dumps were re-graded and top-soiled in preparation of final reclamation. Results of their exploration drilling program beneath dumps on the south have substantially increased their reserve base. An additional year is planned for further exploration.

### Madison Gold (Cu, Au)

West of Silver Star, Coronado Resources, Ltd continued to campaign mine a copper-gold skarn at a rate of 500 tons per month. They purchased a mucker and a 15-ton truck and took over the mining of the deposit from their contractor. The high grade copper ore has been shipped to China in recent years but it has diminished in availability. The remaining lower grade copper ore was shipped to the Contact Mill in Philipsburg for enrichment and metallurgical testing while the gold ore was shipped to the Golden Sunlight (Barrick Gold Corp.). The company is trying to develop a drilling program to further define their reserves.

### Ruby Valley Garnet Mine (Garnet)

Ruby Valley Garnet, LLC, located near Alder, has been inactive during the transition from the exhaustion of their placer resources and the development of their open pit resources. Expected development costs of \$2 to \$5 million for redesign of the mill and development of the open pit operations had prompted a search for capital that ended in the sale of the company late in 2011 to Garnet USA. The new company has initiated a trenching program on their lode deposit.

### Glen Mill (Garnet, Tungsten)

South of Melrose, Apex Abrasives, Inc. expanded their operation from production into marketing. After very limited sales in the wholesale market, the company has established a distribution network for

their product. Apex personnel have reported favorable results in selling their water-jet cutting media but had concerns that they may not have produced enough product to meet the demand. The company is the only mine in Montana producing tungsten. They have also developed a web page as part of their marketing efforts ([http://apexabrasives.com/Home\\_Page.html](http://apexabrasives.com/Home_Page.html)).

#### **Regal and Treasure Mines (talc)**

Barretts Mineral, Inc., a subsidiary of Specialty Minerals, Inc., produced talc from two open pit mines near Dillon. The Regal and the Treasure mines are mined on alternating years to provide stockpiles for mill-feed.

The company had a good year, increased personnel and experienced increased sales. They have continued to expand their reserves with an active exploration program. They added a grinding mill to the plant south of Dillon.

In operations, they replaced a truck and a loader and built a new shop at the Regal mine dump. At the Treasure mine, the company received approval on a new water and discharge system. Operations continued with no major changes.

#### **Yellowstone Mine (talc)**

The Yellowstone Talc mine has been operated most recently by Rio Tinto Minerals under the Luzenac Group. On August 1, 2011, the property was purchased by Imerys, an international industrial minerals company. Their new name is Imerys Talc, which is a division under the Performance and Filtration Minerals Group of Imerys.

Local operations reported no changes in labor or reserves. They purchased a haul truck during the year but had no large capital projects.

#### **A&P Mine (Au, Ag)**

West of Pony, Steel Resources Corp. shipped the dumps from the A-&-P mine (Mineral Hill gold property) to the Golden Sunlight mill. Late in the year, they drove a 166-ft decline /drift into the A & P shear zone, which hosted the original orebody and sampled for future targets. A diamond drilling program from the surface is planned for the coming year.

#### **Trident Quarry (Portland Cement)**

Near Three Forks, Holcim, Inc. maintained production of their Portland cement plant. The plant continues with normal routine maintenance to ensure uninterrupted operations in the future.

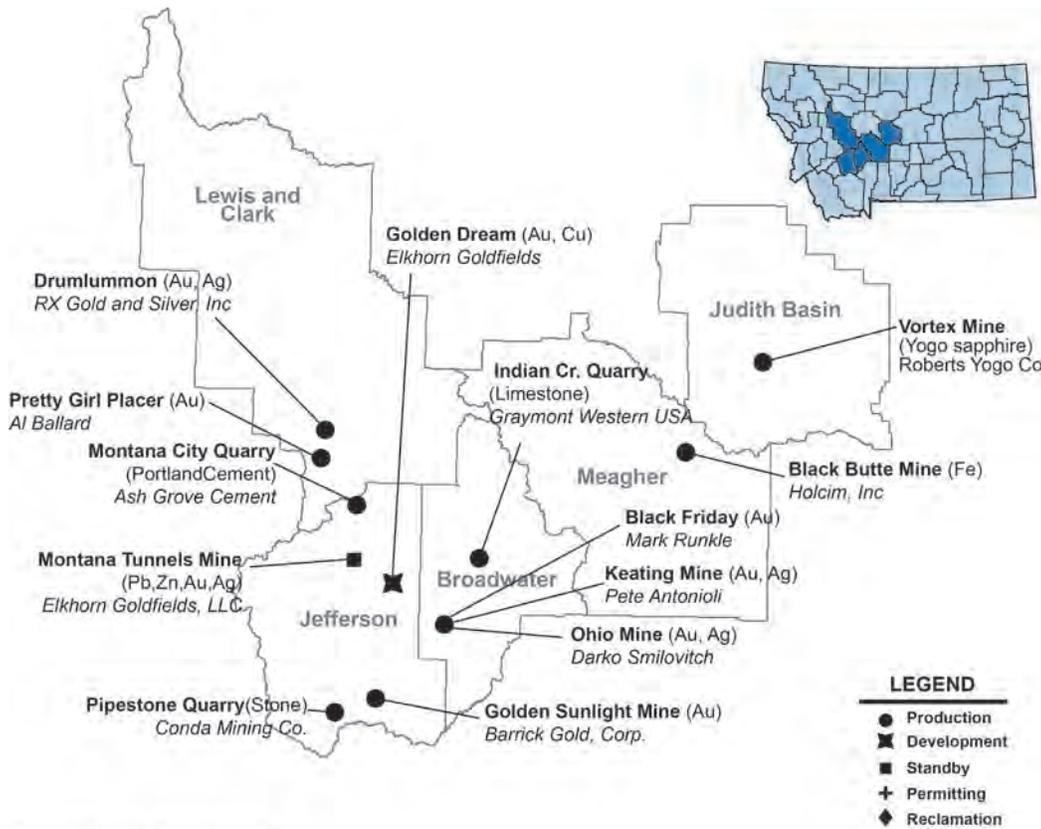


Figure 3. Helena Region—2011

## Helena Region

### Drumlummon Mine (Au, Ag)

North of Helena, RX Gold and Silver, Inc. completed the necessary underground development at the Drumlummon mine to facilitate production. The external decline was completed and connected to the internal decline off the Charley vein, providing the required secondary escape way. Production has been

steady at 300-350 tpd with grades of 0.3 opt Au; silver credits bring the gold equivalent to 0.4 opt Au. The ore was shipped to the Contact mill in Philipsburg for processing. While completing the assessment of the Charley vein, production was confined to ancillary veins and gob from the old stopes. Company employment in Montana, including the regional exploration office, has run between 125-130 personnel.

### Pretty Girl placer (Au)

On the western side of south Helena, Al Ballard maintained operations on the Pretty Girl placer. The mine is now under new management and the mine name has been changed to J. M. Safe Haven A. Mine. The plant site has been relocated and the company is trying to identify the location of the economic portions of the deposit.

### Montana City Quarry (Portland Cement)

Operations continued at Ash Grove Cement in Montana City. In general, the year was very slow ending in furloughs of the workforce for nearly 2 months. The labor force has been steady; with the decline in demand, capital projects and replacement equipment have been placed on hold. For the near future, capital projects will be focused on changes within the cement plant to meet the forth-coming EPA regulations.

### Montana Tunnels Mine (Au, Pb, Zn, Ag)

The Montana Tunnels mine, operated by Montana Tunnels Mining, Inc., a subsidiary of Elkhorn Goldfields, LLC, remained in standby mode. The operation, located west of Jefferson City, is still searching for funding for the "M" pit development. Operations have been manned by a skeleton force until financing can be secured.

### Pipestone Quarry (Railroad Ballast, Stone)

Conda Mining Inc. (URS Corporation) continued production of railroad ballast from their quarry at Pipestone. They recently purchased additional rock resources from the Bureau of Land Management.

### **Golden Dream Mine (Au, Cu)**

The Golden Dream mine (Elkhorn Goldfields, LLC) commenced development north of Elkhorn, late in 2011. Final permits were granted by the Montana DEQ and the bond was posted. The company prepared their portal and drove the decline to 632 ft. A 200-ft crosscut was driven to the oxide ore body before too much water was encountered to prevent further development. Current mining operations are on hold while the company completes building a water disposal system and treatment plant.

### **Golden Sunlight Mine (Au, Ag)**

The Golden Sunlight mine (Barrick Gold Corporation), located east of Whitehall, completed mining the satellite orebody near the mill crushing circuit. They have completed the pre-strip for the last mine expansion for the main pit. Production in the pit resumed in mid-November 2011. Operations on that ore body will continue through 2015. During this latest stripping program, the company spent \$6 million refurbishing and upgrading the mill.

To sustain the mine, exploration has been focused on satellite ore bodies. Preliminary drilling results have been favorable and reserves have been expanded by a year. The company has planned an aggressive exploration budget to find additional reserves.

Through all of this activity, the company has worked to attain ISO-compliant standards 14001 (environmental). They have received "international cyanide code compliant" status.

The company has purchased rock for mill feed from a number of small mining operations around southwestern Montana. Without that market opportunity, most of these sites would have required Federal funds for cleanup of sites predating the 1930s.

### **Mammoth Mine (Au, Ag)**

South of Cardwell, Mammoth Mining, LLC shipped the mill tailings from the Mammoth Mine tailings pond. The waste material ranged in grade from 0.03 to 0.07 opt Au. Although substantially lower in grade than desired, the operation has provided an opportunity for old tailings to be removed, potential pollution to be averted, and a profit to be made. This type of mining operation utilizes resources already mined and lost from a time of limited mining technology.

### **Indian Creek Quarry (Burnt lime)**

Near Townsend, Graymont Western USA reported continuous production. The company said demand was steady although competition within the market remains strong.

Staffing at the operation has remained unchanged except for some attrition due to retirements. Capital improvements were limited but they added some mobile equipment and replaced an ID fan motor on one of their kilns. The new road to the southern claims has been designed but not constructed.

The transition of surface management from the Bureau of Land Management to the Corps of Engineers has been an orderly process. The process is taking a bit longer than anticipated, but the company is anticipating a favorable result.

### **Black Friday Mine (Au, Ag)**

West of Radersburg, the mining district was bustling. There was easily more mining activity than there had been in years. Mark Runkle shipped mine dumps from the Black Friday mine to the Golden Sunlight mill and explored reopening the old workings.

### **Ohio Mine (Au Ag)**

Darko Smilovich shipped the waste rock dumps from the Ohio mine, near the Black Friday mine, to the Golden

Sunlight mill and then initiated a sampling program of the crown pillars in the underground mine workings.

### **Black Butte Mine (Fe)**

Holcim, Inc. continued mining iron ore from the Black Butte mine located north of White Sulphur Springs. Operations are campaigned during summer and fall months to feed a stockpile.

### **Park Region**

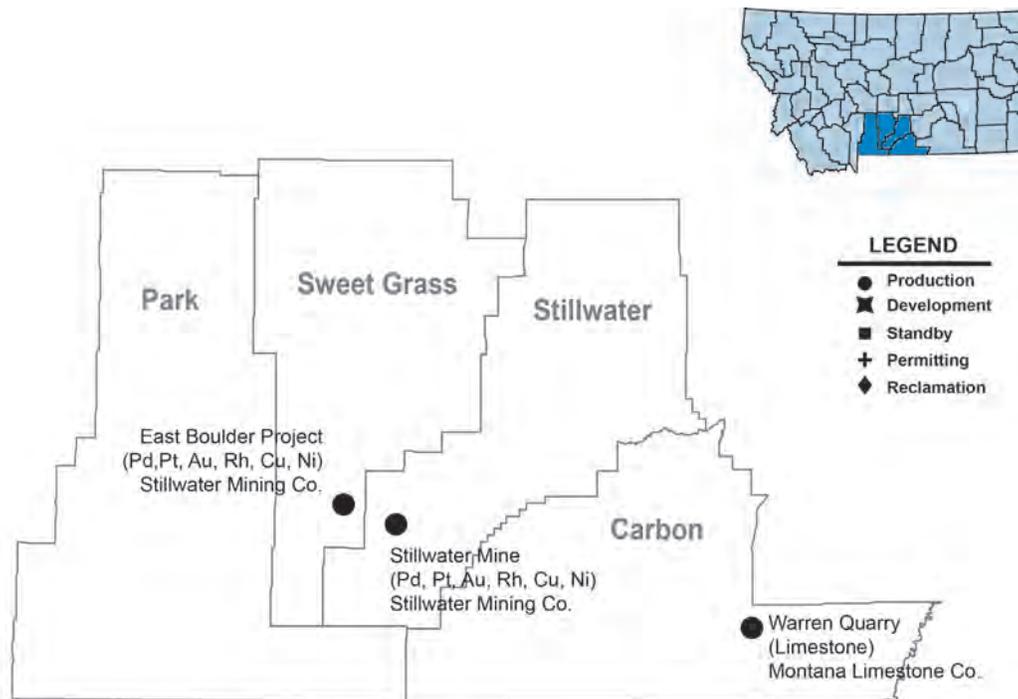


Figure 4. Park Region-2011

### **Stillwater Mine (Pd, Pt, Rh, Cu, Ni, Co, Au)**

In the Park region, the Stillwater Mining Company operated the Stillwater mine near Nye, the East Boulder mine near Big Timber, as well as the Stillwater smelter in Columbus. They experienced one of their most profitable years with a net income of \$144.3 million. They did this while improving their safety record to only 3.3 accidents per 200,000 hours worked; certainly a commendable accomplishment.

The company completed a 4-year contract agreement with the United Steelworkers

Union. Grades have improved near the shaft in the lower levels. Productivity was high, even with a few temporary production delays due to local stream flooding that blocked major transportation routes in the spring and evacuations related to smoke in the mine later in the year. Since production budgets had been met, operations shifted the emphasis from production to development during the 4th quarter.

They experienced a downturn in platinum- group-metal (PGM) prices in the second half of 2011. The Stillwater mine produced 297,300 ounces of palladium and 89,600 ounces of platinum for the year. Cash costs per ounce increased by 5.5 percent to \$401/oz PGM.

The company is constructing infrastructure in preparation for starting a tunnel bore to the east on the 5000 level and a conventional tunnel to the east on the 5600 level for the “Blitz Project”. The anticipated start of development is in the 2<sup>nd</sup> quarter of 2012. The “Blitz Project” is expected to develop ore resources over an additional 20,000 feet east of the existing Stillwater Mine.

### **Stillwater Smelter**

Production from recycling catalytic converters is up by 70 percent to 486,700 PGM. Income from recycling has risen from \$11.5 million to \$18.8 million. The recycling of catalytic converters challenges the overall PGM production of the mines.

### East Boulder Mine (Pd, Pt, Rh, Cu, Ni, Co, Au)

Operating costs were up from \$442/oz PGM to \$475/oz PGM due to higher royalties and metal taxes as well as increases in labor and material costs. The Graham Creek project completed a 1,200 ft., foot-wall lateral by the 3<sup>rd</sup> quarter. Diamond drill results have demonstrated mineable PGM ore grades. The project has another 7,000 ft. of development planned. The mine produced 101,600 oz palladium and 29,400 oz of platinum for the year, a slight decrease from 2010.

### Warren Limestone Quarry (Limestone)

The Montana Limestone Co., located near Warren, a subsidiary of Dakota Coal Co. shipped about 650,000 tons of limestone products over the year. Capital improvements included permitting and building 9 miles of power lines to take the operation from diesel power to grid power. Like the rest of the industry, they have experienced steady growth in market but have also seen an increase in energy and steel costs. Rail costs are up about 4 ½ percent and the company has had to increase prices correspondingly.

### Metal Mines Exploration

Metals exploration was dismal in 2011. Grassroots exploration was non-existent. The remaining lode projects continued to expand their reserve base while preparing for permitting for full production. Of nine projects, seven explored for placer gold resources. Gold placer mines usually only employ 1 to 2 individuals on a seasonal basis.

The combination of limited exploration and the exploration to production lag time (typically 5 to 10 years) must raise serious concerns about the long-term future of mining in Montana after the existing large-scale operations have exhausted their reserves.

### Lost Gulch placer (Au)

Near Superior, Shannon Wagner tested the Lost Gulch placer near the midpoint and identified resources on both sides of the existing mine workings. The program was not completed and will continue in the coming year.

### Bear Gulch (Au)

West of Drummond, Dick Komberec purchased many of the remaining patented placer claims in Bear Gulch. Much of the middle-portion of the drainage was sampled at various vertical intervals to determine gold values, stripping volumes and related costs. The values were very favorable but much of it was deep and confined in a narrow canyon.

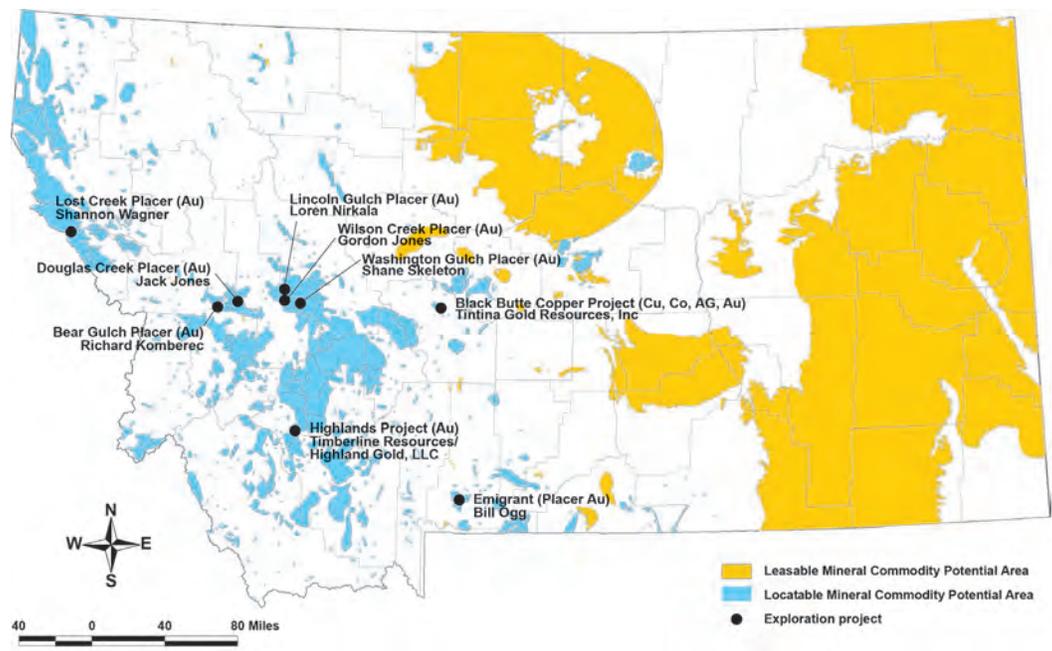


Figure 5. Exploration in Montana—2011

### **Douglas Creek Placer (Au)**

Jack Jones sampled placer gravels in Weasel Creek and Douglas Creek. No results were released.

### **Lincoln Gulch Placer (Au)**

Loren Wirkkala undertook a small sampling program on a placer near the historic town of Lincoln. Results were disappointing with sample size and frequency identified as the problem. A second program at a larger scale will be completed this year.

### **Wilson Creek Placer (Au)**

Gordon Jones sampled placer gravels in upper Wilson Creek near Helmsville. The results were favorable and further work is planned.

### **Washington Creek Placer (Au)**

Shane Skeleton sampled gravels on the Stucky ranch north of Avon. Early results had been disappointing and there were no reports on the final segment of the testing program.

### **Highland Project (Au)**

South of Butte, Timberline Resources and Highland Mining LLC, joint-ventured the project to explore and develop remaining resources beneath and near the Highland mine that produced in the 1930s. The joint venture completed an 86-hole, 49,500 ft diamond drilling program on the "old mill block". This program outlined an ore body 275 ft on strike, 1,100 ft down dip, and 8-15 ft thick. They have completed their pump tests and believe the water volume is manageable but will require treatment to remove uranium.

The company decided to go ahead with permitting but is now considering trucking the ore west, down Moose Creek to Interstate-15 prior to shipping to the Golden Sunlight mill to minimize conflicts. Permitting has been on hold pending a resource assessment.

### **Black Butte Copper Project (Cu, Co, Ag)**

North of White Sulphur Springs, Tintina Resources, Inc. continued drilling to expand their resource base for the Black Butte Copper deposit. There are two distinct underground minable deposits, each of which consists of a multiple zones of copper-rich massive sulfides hosted by Precambrian shale.

The company drilled 100,000 ft of infill and exploration diamond drill holes during 2011 and have continued into 2012. They have indicated resources of 533 million pounds of copper at a grade of 2.96 percent and 623 million pounds of copper in inferred resources at 3.19 percent copper.

The resources currently identified are underground mineable, massive sulfides in two distinct deposits. The Johnny Lee deposit upper zone contains an indicated resource of 9.32 million tons at 2.96 percent Cu, 0.12 percent Co, 0.58 oz/ton Ag, and an inferred resource of 1.28 million ton at 2.64 percent Cu, 0.10 percent Co, and 0.58 oz/ton Ag. The Johnny Lee deposit lower zone contains an inferred resource of 2.70 million ton at 4.71 percent Cu, 0.06 percent Co, 0.0124 oz /ton Au, and 0.18 oz /ton Ag. The Lowry Deposit Middle Zone contains an inferred resource of 5.65 million ton at 2.6 percent Cu, 0.12 percent Co, and 0.52 oz/ton Ag.

Tintina reports an \$8 million exploration budget for next year. Limits of the current resources have not been delineated, other known deposits need more drill definition, and multiple targets are yet to be drilled. The company has initiated a preliminary economic assessment that is scheduled for completion by mid-2012 along with environmental baseline work.

### **Emigrant Placer (Au)**

Bill Ogg and company initiated a placer testing program on the North Fork of Emigrant. Operations

were focused in the disturbed area from the 1990s and results were reported as disappointing.

### **Coal Mining**

Coal production was down 6.2 percent to 41,958,168 tons from 44,711,711 tons. The lower production was almost entirely due to problems created by the excessive precipitation across the western United States.

#### **Rosebud Mine**

The Rosebud mine (Western Energy) production was down 28.2 percent to 8,581,708 tons. The Colstrip Energy Limited Project (CELP) plant that processes coal from the top 2 feet was

down 25.6 percent to 203,121 tons. The company attributed the lower production to a number of reasons. On the western front, the record setting snowfall in the Cascade Range prolonged hydroelectric production well through the summer thus reducing the need for coal-fired energy generation. On the eastern front, floods in the Mississippi River drainage basin limited rail shipment of coal to the market. One customer had experienced a fire and reduced coal purchases for the year. PPL Montana also had some extended maintenance at the power generation facilities during this period.

#### **Decker Mines**

The Decker Coal Company (a joint venture of Cloud Peak Energy and Level III Communication) is managed by Kiewit Mining Group. They accepted a buyout offer for a coal supply contract (30 percent of production) and currently have no long term contracts.

Production on the East Decker mine was up 1.8 percent to 2,749,387 tons. Production of the West Decker mine is up 29.6 percent to 295,575 tons. Two years ago that operation was said to be experiencing lower quality and an increasing strip ratio. It was said that it would be mined out about this year.

#### **Spring Creek Mine**

Near Decker, Cloud Peak Energy had a slight reduction at the Spring Creek mine. Production was down 1.3 percent to 19,080,553 tons. Substantial production is shipped west to Vancouver, Canada, for export to the Pacific Rim. Reductions may have been in the amount shipped to Centralia, Washington for power generation where the extended hydro-power season was extended by heavy winter snowfall. The company reported higher diesel costs and an increased strip ratio that were offset by increased prices and a strengthening Asian market.

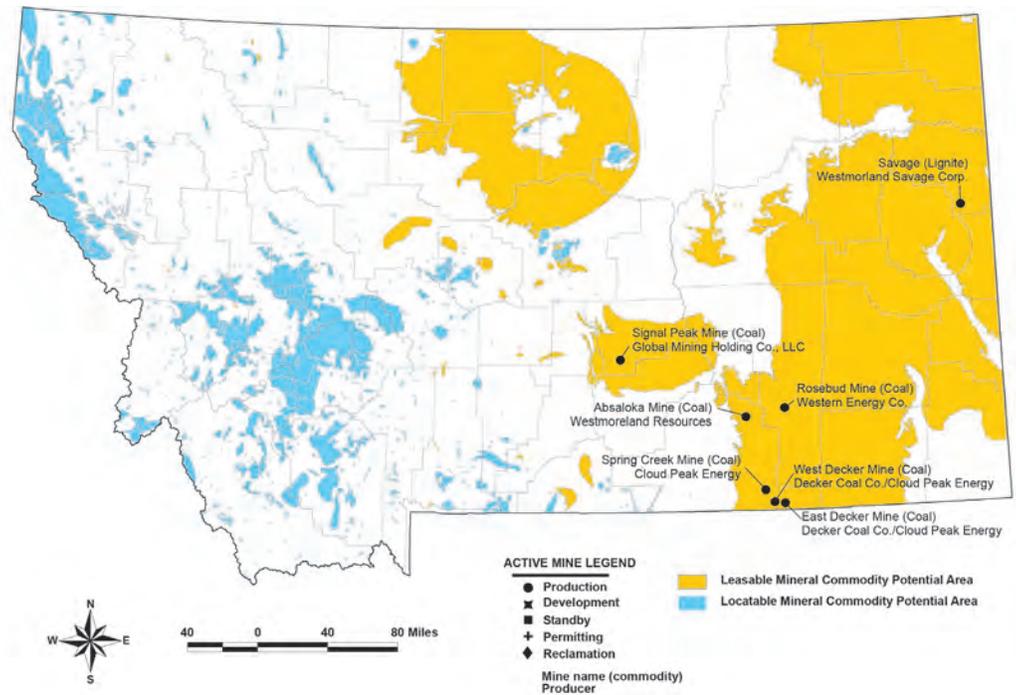


Figure 6. Coal Mines in Montana—2011

### **Savage Strip Mine**

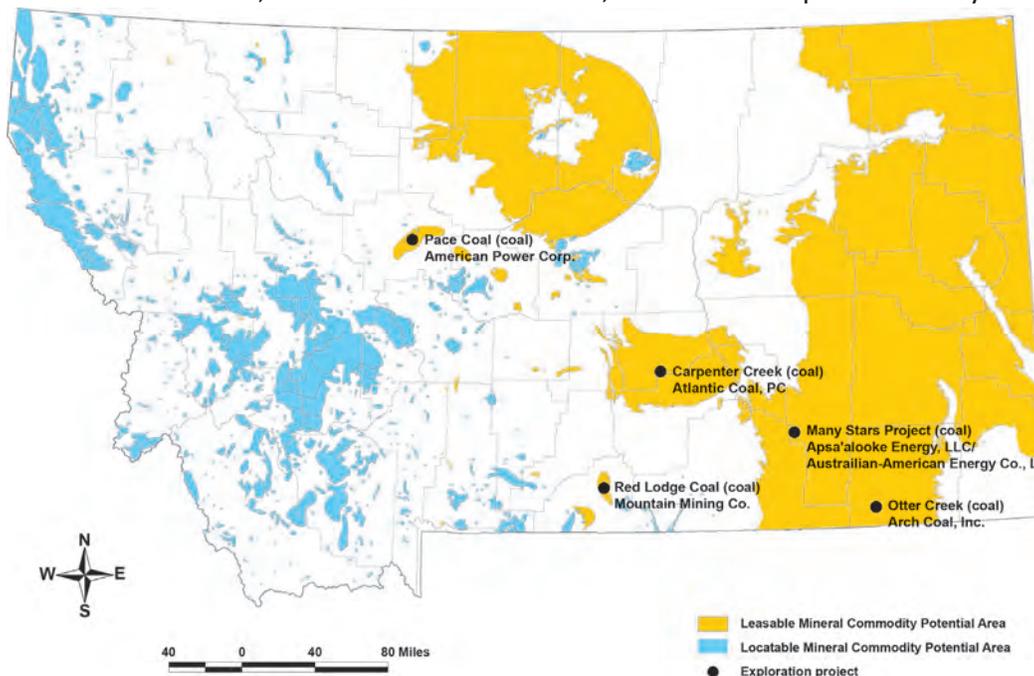
Near Sidney, Westmoreland Savage Corp. increased lignite production by 0.9 percent to 354,669 tons to the Montana Dakota Utilities power generation facilities located in Sidney.

### **Signal Peak mine**

Near Roundup, Wayne Boich and First Energy, who own the Signal Peak mine, sold 1/3 interest to the Gunvar Group. The mine is now managed by Global Mining Holding Company, LLC. Operations were suspended periodically during the summer because of roof falls. Production was up 17.0 percent to 5,135,571 tons as Montana's only underground coal mine. Their production target is 7,000,000 tons per year. The company received an additional lease for 35.5 million tons from the Bureau of Land Management.

### **Absaloka mine**

Near Hardin, Westmoreland Resources, Inc. increased production by 1.6 percent to 5,557,604 tons.



Production was also reduced by the flood impacts to rail service in the Mississippi River Drainage.

### **Coal Exploration**

#### **Otter Creek Coal**

Arch Coal Company continued efforts to permit the Otter Creek coal tracts. Lawsuits have been filed on both the coal leases and the proposed railroad that is necessary for transportation of the coal. The company has opened an office in

Figure 7. Coal Exploration in Montana—2011

Billings and is expected to submit an application for mining in 6 to 8 months.

#### **Carpenter Creek Coal**

Atlantic Coal, PC has entered into a non-binding memorandum of understanding to acquire the Maple Carpenter Creek coal resources. These are located near Roundup and contain measured resources of 91.3 million tons, an indicated resource of 145.2 million tons, and an inferred resource of 144.3 million tons. Similar to the Signal Peak mine, they appear to contain underground mineable resources.

#### **Red Lodge Coal**

Coal Mountain Mining Company has secured a prospecting permit for exploration of coal near Red Lodge. Mining ceased there after a disastrous mine fire in the 1940s.

#### **Pace Coal Project**

American Power Corporation has drilled 30 to 40 holes near Stanford, on a 29,000 acre lease in the Great Falls coal field. The estimated resource is 172 to 410 million tons. The deposits have a history of high

pyrite concentrations and have not produced since early in the 20<sup>th</sup> century. When the coal was cleaned and the waste pyrite was sold as a fuel to the smelter in Great Falls.

### **Many Stars Project**

The Crow Nation, through Apsa'alooke Energy, LLC and Australian-American Energy Company, LLC continue to explore coal resources on the Crow tribal lands. The joint venture had announced plans to build a coal biomass conversion plant to produce energy fuels such as diesel and gasoline. Those plans are on hold or at a reduced scale while they explore the possibility of shipping coal to the Asian market.

### **Acknowledgements**

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# Montana Mines

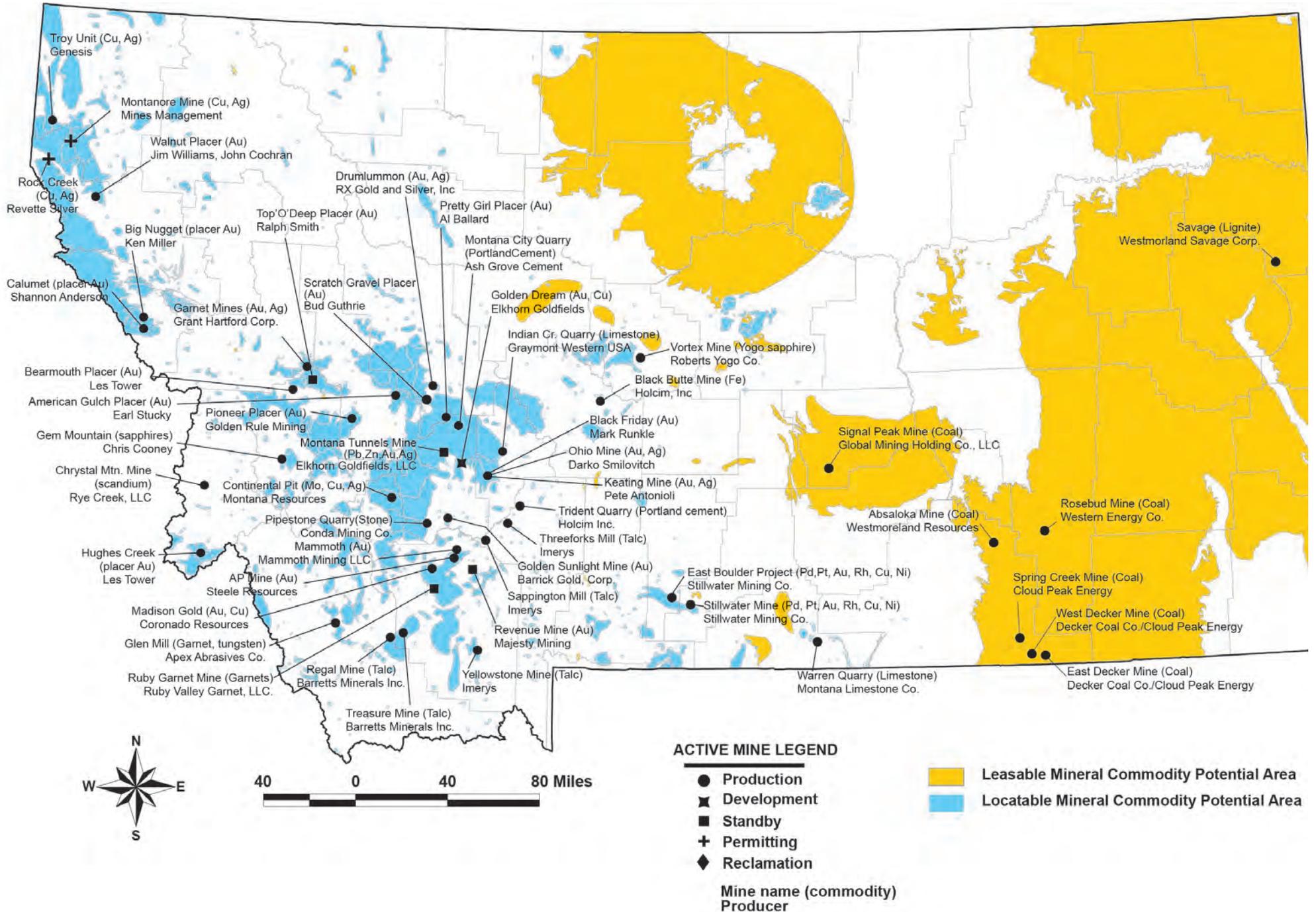


Figure 8. Active Mines in Montana—2011