SOUTH DAKOTA – 2000 Mineral Summary
Production, Exploration and Environmental Issues

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Production

Gold: Gold production continued to decline for the fifth consecutive year in South Dakota in 2000. The gold mines in the northern Black Hills produced 265,012 ounces of gold in 2000. This represented a 17 percent drop in the amount of gold produced compared to 1999, but gold continued to remain the leading mineral commodity in South Dakota in terms of value. The average price of gold in 2000 was $279.11, yielding a gross value of about $73.9 million. This was 17 percent lower than the 1999 gross value of $89.3 million. Table 1 compares gold production for 1999 and 2000 from the active large scale gold operations in South Dakota. The mines are surface heap leach operations, with the exception of Homestake.

Table 1 – Gold Production in South Dakota – 1999 and 2000

Company	2000 Production (ounces)	1999 Production (ounces)
Brohm Mining Corp.	0	365
Homestake Mining Company	170,906[1]	212,700[2]
LAC Minerals (USA), LLC	292	0
Wharf Resources (USA), Inc.	93,814	107,222
Total	**265,012**	**320,287**
Estimated Value	**$73,967,499**	**$89,353,667**

[1]All production came from Homestake's underground mine
[2]Open Cut production 25,413 ounces. Underground production 187,287 ounces.

Production from the Homestake Mine decreased from 212,700 ounces in 1999 to 170,906 ounces in 2000. The reason for the decline is that Homestake completed mining in the Open Cut in September 1998. All 170,906 ounces produced in 2000 came from the underground mine, which was less than the 187,287 ounces produced from the underground mine in 1999.

On September 11, 2000, Homestake Mining Company announced that it was closing its flagship Homestake Mine in Lead at the end of 2001. The mine has been in operation for 125 years and was once the largest gold mine in the Western Hemisphere. It produced about 40 million ounces of gold during its long history. Homestake restructured its operations in 1998 in an attempt to keep the mine operating, but the company could not overcome low gold prices, high production costs, and lower than expected ore grades.

Homestake has made a commitment to reclaim all the areas it disturbed during mining. It is estimated that the reclamation project will take eight years to complete at a cost of around $66 million. It is currently developing closure plans for the mine, and will begin implementing these plans when production ceases at the end of 2001. The National Science Foundation has expressed interest in using the underground mine as a laboratory for studying neutrinos and other subatomic particles. In early March, the National Laboratory Committee recommended the mine as the site of the National Underground Science Laboratory.

Wharf and LAC Minerals were the only other companies to report gold production in 2000. Wharf reported gold production of 93,814 ounces in 2000, a decrease from the 107,222 ounces reported in 1999.

LAC Minerals recovered 292 ounces of gold from pond sediments in 2000. The Golden Reward Mine remained under temporary cessation and produced no gold in 2000.

Homestake, Wharf, and LAC Minerals also produced silver as a by-product in the gold recovery process. A total of 79,842 ounces of silver was recovered in 2000. At an average price of $4.95, the value of the silver was $395,218. This is an increase from the 65,759 ounces and $343,262 value reported in 1999.

There are currently 12 mine permits that cover seven large scale gold mining operations in the state. No new mine permits or mine permit amendments were issued to large scale gold operations in 2000.

Industrial and Other Minerals: Industrial and other mineral production for 2000 is summarized in Table 2. During the 2000 reporting period, 495 companies had active mine licenses in South Dakota. An operator must obtain a license to mine for sand, gravel, pegmatite minerals, materials used in the process of making cement or lime, and rock to be crushed and used in construction. There were also 37 mine permits that covered the mining of other minerals such as slate, bentonite, placer gold, and dimension stone.

Table 2 – 2000 Non-Metallic Mineral Production

Mineral	Production (Tons)
Bentonite	57,000
Dimension Stone	385,553
Gypsum	52,024
Limestone	2,850,147
Iron Ore	31,775
Mica Schist	8,840
Pegmatite Minerals	7,820
Placer Gold	138
Quartzite	1,000,000
Shale	219,297
Slate	1,120
Sand & Gravel	7,739,364

Source: Annual reports submitted by mining companies

Sand and gravel was the major non-metallic mineral commodity produced with 7,739,364 tons reported removed. Sand and gravel is produced in nearly every county in South Dakota and is used mainly for road construction projects.

The second largest non-metallic mineral commodity produced in 2000 was limestone with 2,850,147 tons produced. Dacotah Cement alone produced 1,297,802 tons of limestone. It also produced 210,164 tons of shale, 52,024 tons of gypsum, and 37,206 tons of sand. In December 2000, Governor William J. Janklow announced plans to sell the Dacotah Cement Plant near Rapid City to Grupo Cementos de Chihuahua of Mexico. The legislature approved the sale in late December. Final closure of the sale was completed in March 2001. In April 2001, voters decided to place proceeds from the sale in a trust fund to be used for educational purposes.

Sioux quartzite was the third largest non-metallic mineral commodity produced with 1,000,000 tons reported removed. It is quarried from four locations in southeastern South Dakota. Most of the quartzite is crushed and used in construction. Some larger blocks are used for rip-rap, railroad ballast, and occasionally for decorative purposes.

A total of 385,553 tons of granite was mined by Dakota Granite Company and Cold Spring Granite Company from quarries near Milbank, South Dakota. Due to its beauty and distinctive red color, the mahogany granite is used primarily for floor tiles, monuments, and building construction. Much of it goes to international markets.

Other minerals produced in lesser amounts in 1999 include bentonite, iron ore, mica schist, pegmatite minerals (feldspar, mica, rose quartz), placer gold, and slate.

Exploration

Limited gold exploration was conducted in South Dakota in 2000 due to continued low metal prices and other factors. Wharf Resources (USA) Inc. continued active exploration in the direct vicinity of its existing operations in Lawrence County. Wharf's current operation exploits disseminated gold and silver mineralization occurring in the Cambrian Deadwood Formation and Tertiary monzonite porphyry. Wharf completed 128 drill holes in 2000. Apex Minerals conducted exploration in Custer County for placer gold and associated detrital heavy minerals in Oligocene terrace gravel deposits. This work included 22 bulk sampling sites. Currently, 113 exploration permits remain active in South Dakota primarily for gold and silver exploration within the northern Black Hills. The state is in the process of closing a number of these permits.

Environmental Issues

Brohm Mine: On August 1, 2000, EPA and the Bureau of Reclamation took over acid water treatment operations and management of the Gilt Edge Mine (Brohm Mine) from the State of South Dakota. The Gilt Edge Mine is an abandoned 258-acre open pit, cyanide heap leach gold mine. Before EPA took over, the state had funded water treatment and site maintenance beginning in July 1999 when Brohm Mining Corporation's parent, Dakota Mining Inc. declared bankruptcy.

On December 1, 2000, EPA listed the mine on the Superfund National Priorities List, which makes it eligible for remedial Superfund money to reclaim the mine. EPA is completing Records of Decision for interim water treatment and for capping the waste rock dump. The agency is also preparing feasibility studies for final closure of the site.

Reclamation at Richmond Hill Mine: The Richmond Hill Mine continues to show improvement since major reclamation activities were completed in the mid-1990's. The performance of the pit impoundment, backfilled with acid generating rock and covered with a low permeability capping system, surpassed expectations again in 2000. Monitoring data shows that only minimum amounts of oxygen and water are being detected in the impoundment. This indicates the cap is effective in limiting oxygen and water infiltration and is preventing acid generation. No signs of settling or slumping were found during routine surveys of the pit impoundment by the department and LAC contractors. A dense, self-sustaining vegetative cover has become established on the pit impoundment and most of the waste dump area.

The capped leach pads are also performing well. No signs of settling or slumping were found on the leach pads, and a good vegetative cover is becoming established. Monitoring data shows that the capping systems are effective in reducing water infiltration into the spent ore. Because of the low metal concentrations in the pad effluent, LAC believes that passive treatment may be feasible for long-term water treatment. Passive treatment systems allow naturally occurring biological processes to treat acid drainage in a controlled environment, such as an artificial wetland. A full scale passive treatment facility was constructed in 2000 after pilot plant results showed that passive treatment would be feasible.

Ground and surface water quality around the mine site continues to be closely monitored. Ground water impacted by acid rock drainage prior to mine reclamation is steadily improving. Monitoring wells generally show decreasing trends in sulfate and metal concentrations and increasing pH. Biological assessments of Squaw Creek below the mine show that the stream is healthy and supports a viable cold water fishery. Water treatment at the mine site is now only required on a seasonal basis.

Inactive and Abandoned Mines: The department continued working with the US Forest Service, the Bureau of Land Management (BLM), and EPA to reclaim two historic abandoned mine sites in the northern Black Hills. Both of these mines have open adits and shafts, acid mine drainage, eroding streamside tailings, and small sulfide waste rock piles.

The US Forest Service will reclaim the Minnesota Ridge Mine in the summer of 2001. This mine is located about 14 miles south of Lead in Lawrence County. In the fall of 2000, buildings at the site were demolished in preparation for reclamation activities. Reclamation plans include removing acid generating rock from a drainage and placing it in a capped facility on a nearby ridge. The drainage will then be reconstructed. The demolished buildings will be burned early in the spring of 2001, and contaminated soil will be removed from the mine site. It is anticipated that reclamation activities will be completed this fall.

BLM completed reclamation of the Belle Eldridge Mine located in Spruce Gulch about 1.5 miles southeast of Deadwood in Lawrence County. The mine tailings that were stockpiled last year were hauled to a nearby repository and capped. The entire area, including the capped repository, was then hydroseeded. The only activities to be completed this year are the burning of slash from the repository area and construction of a flume to measure flows from the mine area. BLM plans to monitor the site over the next several years to assess the success of the reclamation project.

The department is also involved in a partnership with the Western Governors Association and the US Forest Service to obtain additional funding to reclaim the King of the West and Yellow Bird Mines through the Abandoned Mined Land Initiative. The initiative is a partnership created in 1997 between the Western Governors Association and the National Mining Association to address obstacles to abandoned mine reclamation. These mines are located about 3 miles southwest of Rochford in Pennington County. Hazards at the sites include acid generating tailings, open shafts, collapsed buildings, and other structures. The US Forest Service is currently developing a plan to reclaim the site, with reclamation scheduled to start later in 2001 or 2002.