SOUTH DAKOTA – 2004 Mineral Summary
Production, Exploration and Environmental Issues

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Production

Gold: Gold production decreased slightly in 2004, but the value increased slightly due to the increase in gold prices. Homestake Mining Company, LAC Minerals, and Wharf Resources Inc. produced 76,198 ounces of gold in 2004. This represents a 3 percent decrease in the amount of gold produced compared to 2003. Wharf, the only large scale gold mine still operating, reported a 5,200 ounce increase in gold production in 2004. Homestake recovered 90 ounces of gold during the completion of mill demolition activities. LAC Minerals recovered 79 ounces of gold during removal of sediments from its process ponds. Gold continued to remain the leading mineral commodity in South Dakota in terms of value. The average price of gold in 2004 was $409.72, yielding a gross value of about $31.3 million. This was 8.5 percent higher than the 2003 gross value of $28.6 million. Table 1 compares gold production for 2003 and 2004 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 – 2003 and 2004

Company	2004 Production (ounces)	2003 Production (ounces)
Golden Reward Mining Co., LP	0	0
Homestake Mining Company	90	7,754
LAC Minerals (USA), LLC	79	149
Wharf Resources (USA), Inc.	76,119	70,902
Total	**76,288**	**78,805**
Estimated Value	**$31,256,719**	**$28,636,161**

Wharf was again the only company to report silver production, which is a by-product of its gold recovery process. A total of 89,418 ounces of silver was recovered in 2004. At an average price of $6.67, the value of the silver was $596,418. This is an increase from the 76,577 ounces and $372,930 value reported in 2003.

Homestake made significant progress on reclamation projects at its historic gold mine in Lead during 2004. The company continued work on the new park in the former mill area. Homestake plans to open the park to the public in the spring of 2005. The company also began reclaiming the Yates Waste Rock Facility in July. Regrading and revegetation of the waste rock facility will be completed in 2005.

In late August, Homestake shut down its waste water treatment plant which has been in operation for the last twenty years. The plant, which was considered "state of the art" when it opened in 1984, will eventually be replaced by a new plant that will be constructed next to Homestake's Grizzly Gulch tailings impoundment. The impoundment will store water for treatment while the new plant is being constructed. The old plant will be mothballed and possibly used if the mine is chosen as the site for the national underground laboratory.

Work continued in 2004 on the conversion of the Homestake underground mine into an underground science laboratory to study neutrinos. A proposal to convert the lower portion of the underground mine into a laboratory was developed in 2004. The proposal was one of eight that was submitted to the National

Science Foundation in February 2005. The Foundation will select two or three of the proposals later in 2005 for further development and funding.

There are currently 11 mine permits that cover six large scale gold mining operations in South Dakota. Wharf Resources, the only gold mine still actively mining in South Dakota, holds four of these permits. No new mine permits or mine permit amendments were issued to large scale gold operations in 2004.

Industrial and Other Minerals: Industrial and other mineral production for 2004 is summarized in Table 2. During the 2004 reporting period, 500 companies and individuals 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 36 mine permits that cover mining other minerals such as slate, bentonite, placer gold, and dimension stone.

Table 2 – 2004 Non-Metallic Mineral Production

Mineral	Production (Tons)
Bentonite	77,600
Dimension Stone	364,647
Gypsum	57,928
Iron Ore	27,794
Limestone	3,636,697
Mica Schist	11,154
Pegmatite Minerals	7,381
Placer Gold Ore	92
Quartzite	3,219,852
Shale	206,472
Slate	2,236
Sand & Gravel	15,730,601

Source: Annual reports submitted by mining companies

Sand and gravel was again the major non-metallic mineral commodity produced during 2004 with 15,730,601 tons reported. Sand and gravel is produced in nearly every county in South Dakota and is used mainly for road construction projects.

Limestone regained its spot as the second most prolific non-metallic mineral commodity produced during 2004. Limestone production was reported at 3,636,697 tons while sioux quartzite production followed closely at 3,219,852 tons. Limestone is produced in the Black Hills of western South Dakota and is used primarily in the production of cement and for construction projects. Sioux quartzite 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 360,369 tons of dimension stone was mined by Dakota Granite Company and Cold Spring Granite Company from quarries near Milbank in northeastern South Dakota. Due to its beauty and distinctive red color, the "mahogany" granite is used primarily for monuments and building construction. Much of it goes to international markets.

Other minerals produced in smaller amounts during 2004 include iron ore, mica schist, pegmatite minerals (feldspar, mica, rose quartz), placer gold, shale, and slate. Pacer Corporation was issued a large scale mine permit application to expand its existing mica schist mine covered under Large Scale Mine Permit No. 311 on November 24, 2004. The operation will be expanded in a northwesterly direction and will include an additional 2.71 acres. The reclamation plan for the mine is based on a post mine land use of grazing. Mining in the expansion area will begin in spring 2005 contingent on Pacer obtaining an operating plan from the US Forest Service.

Exploration

Gold exploration activities in South Dakota continued to be limited despite higher gold prices. No exploration permits were issued in 2004, and only one of the large scale gold mines conducted exploration activities during the year. Wharf Resources completed seven exploration drill holes in the vicinity of its existing operation in Lawrence County.

The Golden Reward Mining Company completed reclamation activities required under its last five exploration permits in 2004. A close-out inspection was performed by department staff in September 2004. In October 2004, the South Dakota Board of Minerals and Environment released Golden Reward from liability at these exploration sites.

In November and December 2003, Western Mining Corporation conducted nickel and copper exploration activities in southeastern South Dakota. This exploration was conducted by the company to test targets identified during an earlier airborne geophysical survey of the area. On April 8, 2004, the company announced that samples from the exploration program indicated little potential for nickel and copper in the area. As a result, the company will not conduct further exploration in southeastern South Dakota.

Environmental Issues

Gilt Edge Mine: EPA continued acid water treatment at the Gilt Edge Superfund Site in 2004. Adjustments were made throughout the year to improve the efficiency of the water treatment plant. The new plant, which was dedicated on September 19, 2003, treated 2.25 million gallons of water per week after the adjustments were made. However, due to drought conditions and the lack of water to treat, the plant was shut down for the year on August 23, 2004.

Over the last few years, EPA has been conducting a large-scale test to treat water in the Anchor Hill Pit using biological processes. After pH adjustments were made using lime and caustic, ethanol, molasses, and phosphoric acid were added to the water to enhance the growth of bacteria. The bacteria created conditions for metals precipitation. The goal of the test was to reduce the acidity and heavy metal concentrations of the water so it could meet water quality standards and be discharged directly without further treatment. During 2004, the test entered its operational phase and EPA began planning to directly discharge water from the pit. After adding a filtration process, EPA's contractor discharged for the first time 100,000 gallons of water from the pit. The process still needs additional work before it can be considered an alternative treatment method to the current water treatment plant. Additional discharges are planned for 2005.

EPA and the state continued to prepare plans to reclaim the rest of the site, including the mine pits and heap leach pad.