SOUTH DAKOTA – 1997 Mineral Summary
Production, Exploration and Environmental Issues

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http://www.state.sd.us/denr/DES/mining/mineprg.htm

Production

Gold: The gold mines in the northern Black Hills produced 527,400 ounces of gold in 1997. Gold remained the leading mineral commodity in South Dakota in terms of value. The average price of gold in 1997 was $331.29, yielding a gross value of about $175 million. While the amount of gold produced in 1997 dropped by only about 6% from the previous year, the lower gold price equated to a 19% drop in gross value. The table below lists production figures at the four active large scale gold operations in South Dakota. All mines are surface heap leach operations with the exception of Homestake.

	1997 (ounces)	1996 (ounces)
Homestake	397,298 (259,350 U) (137,948 OC)	407,324 (284,126 U) (123,198 OC)
Wharf Resources	103,145	106,394
Brohm Mining	26,957	23,748
Golden Reward	0	21,430
TOTAL	**527,400**	**558,896**

Key: U - Homestake's Underground Operation
OC - Homestake's Open Cut Surface Operation

Wharf Resources completed their state mine permit application for their proposed Clinton Project. The Clinton Project is a 679,137 ounce gold project with an average grade of 0.032 ounce per ton, yielding 21,354,000 tons of ore and 54,969,000 tons of waste. It is scheduled for hearing in front of the South Dakota Board of Minerals and Environment in May 1998. If approved, the project will continue production at Wharf's mine through 2007. Ore from the Clinton Project would be processed at Wharf's existing heap leach facility, which has operated in South Dakota since 1982.

Non-Metallic Industrial Minerals: During the 1997 reporting period, 426 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 a total of 52 mine permits that covered the mining of other non-metallic minerals such as slate, bentonite, and dimension stone.

Sand and gravel was the major non-metallic industrial mineral commodity produced with 13,412,311 tons reported removed. Sand and gravel is produced in nearly every county in South Dakota and is used mainly for road construction projects.

Sioux quartzite was the next largest non-metallic industrial mineral commodity produced with 2,247,587 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.

Pegmatite mining, mainly in the southern Black Hills, produced 7,780 tons of pegmatite minerals such as feldspar, mica, and rose quartz.

The South Dakota Cement Plant reported mining 1,246,611 tons of limestone, 201,185 tons of shale, 56,140 tons of gypsum, and 70,208 tons of sand.

Dimension Stone: A total of 259,219 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. Total sales from 1997 production were $35.2 million.

Bentonite: There was 69,000 tons of bentonite mined in the western portion of South Dakota.

Exploration

Four exploration permits were issued in 1997 to Wharf Resources, Homestake Mining, Brohm Mining, and Naneco Minerals. Primary minerals explored were gold and silver. A total of 2,157 test holes were permitted for drilling in Lawrence and Pennington Counties, a three fold increase over the number of exploration drill holes permitted the previous year. The majority of holes will be drilled to depths less than 2,500 feet and a few diamond core holes may be drilled to depths of up to 15,000 feet. Approximately 8 miles of new roads were permitted to access drill sites.

Environmental Issues

Enforcement: The Department of Environment and Natural Resources (DENR) issued three notices of violation to two large-scale gold mines in 1997. Brohm Mining was issued two notices of violation for two separate releases of acidic water into Strawberry and Bear Butte Creeks. In settlement of these violations, Brohm has paid penalties and agreed to take steps to prevent future acid water discharges. Wharf Resources was issued one notice of violation for exceeding nitrate ground water quality standards and cyanide surface water quality standards. While the cyanide levels exceeded the limit in their permit, they were considered non-toxic to the environment. In settlement of the notice, Wharf agreed to pay a penalty of $40,000 and give the Department of Game, Fish, and Parks $160,000 over the next three years for stream improvement projects in the northern Black Hills. In addition, Wharf agreed to, and has constructed, a biological treatment plant to reduce nitrate concentrations at the mine to acceptable levels. Preliminary analyses have shown that the nitrate treatment plant is very effective at removing nitrate from mine waters.

Reclamation: The large scale gold mines were successful in reclaiming 500 acres of mining disturbed land that was required by law to be completed by September 1, 1997. In fact, the gold

mines reclaimed about 620 acres of mining disturbed land by July, two months before the September deadline. The South Dakota Board of Minerals and Environment held a three-day public hearing in July, which included tours of the reclaimed areas. The purpose of the public hearing was to review the effectiveness of state mine reclamation standards. The board, on a unanimous vote, found that the current reclamation standards are adequate and no additional requirements were needed. The board commended the large-scale gold mines for their hard work and dedication to successful reclamation.

The pit impoundment at LAC Minerals' Richmond Hill mine, designed to reclaim impacts from acid rock drainage (ARD) that occurred at the site in 1992, continued to perform exceptionally well based on results of extensive post-closure performance monitoring of the facility. Relocation and capping of reactive sulfide wastes in the manner in which it was conducted, provides the added benefit of avoiding the need for long-term active water treatment. With a minor amount of site maintenance and routine post-closure monitoring, the reclamation strategy undertaken at Richmond Hill provides a near walk-a-way situation.

Brohm Mining's Gilt Edge and Anchor Hill Projects: Brohm Mining continued to reclaim ARD at their Gilt Edge Mine, which was permitted in 1986, ran into an acid problem, and is currently undergoing reclamation. In 1996, Brohm was issued a permit for their Anchor Hill Project, which was carefully designed to avoid ARD problems and provide additional resources to improve upon reclamation at Gilt Edge. Mining of the private land portion of the Anchor Hill Project was completed in 1997 and provided substantial improvements to reclamation efforts at Gilt Edge. However, a portion of the Anchor Hill project affects U.S. Forest Service land and requires federal approval before mining can proceed. Brohm temporarily suspended mining in September 1997 until federal Environmental Impact Statement permitting and appeal issues could be resolved.

Inactive and Abandoned Mine Inventory: The DENR completed an inventory of inactive and abandoned mines in the Black Hills. Approximately 900 historic mine sites were identified, of which about 200 are located on U.S. Forest Service land and 700 on private land. A web page on Inactive and Abandoned Mines in the Black Hills is found at http://www.state.sd.us/denr/DES/mining/acidmine.htm For more information on inactive and abandoned mines contact Tom Durkin at (605) 773-4201.