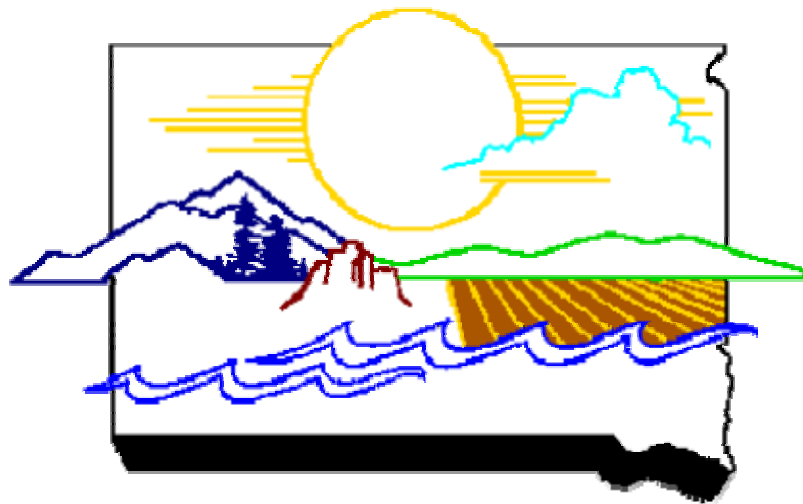


**SUMMARY OF  
THE MINING INDUSTRY IN SOUTH DAKOTA**

**2005**



*Protecting South Dakota's Tomorrow ... Today*

**PREPARED BY  
THE MINERALS AND MINING PROGRAM  
SD DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
MAY 2006**

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# INTRODUCTION

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The Department of Environment and Natural Resources is required by state law to prepare a "Summary of the Large Scale Gold Surface Mining Industry in the Black Hills" and a "Publication of Surface Mine Disturbed Land and Reclamation Acreages under Chapter 45-6B." These two reports have been combined into a single report entitled "Summary of the Mining Industry in South Dakota." This report covers mining activities from January 1 to December 31, 2005. The information in this report is based on annual reports and other information submitted by mining operations permitted under Chapter 45-6B.

## **2005 Summary**

Large scale gold mines continued to make progress in 2005 in reclaiming lands affected by mining in the Black Hills. About 70 percent of the acreage affected by large scale gold mining has now been reclaimed. Homestake Mining Company completed work on the park in the former mill complex area and dedicated it on June 3, 2005. The company also completed reclamation of the Yates Waste Rock Facility in August and sealed and closed several mine adits around the Lead area. Wharf Resources reclaimed an additional 26 acres at its mine near Lead.

Efforts continued to convert the Homestake mine into an underground national laboratory to study neutrinos and other sub-atomic particles. In July, the National Science Foundation selected the Homestake Mine and the Henderson Mine in Colorado as the two finalists for the deep underground science and engineering laboratory, or DUSEL. A decision on which mine will be the preferred site for the DUSEL will be made at a later date. In September, Governor Rounds signed an agreement with Barrick Gold to turn the underground mine over to the state's Science and Technical Authority. The South Dakota Legislature approved \$19.9 million in additional funding during a special session in October to fund the development of an interim lab at the 4850 level of the mine.

Gold production and value decreased in 2005 despite an increase in gold prices. Wharf Resources was the only company to report gold production in 2005, with 62,470 ounces produced which was a decrease from the 76,186 ounces reported in 2004.

\S/

Steven M. Pirner  
Secretary

**SUMMARY OF THE LARGE SCALE GOLD MINING INDUSTRY IN THE  
BLACK HILLS**

**2005**



Photo 1.1 – Reclaimed Turnaround pit at LAC’s Richmond Hill Mine with volunteer pine trees in background

# MAJOR EVENTS IN 2005

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## Homestake Completes Several Reclamation Projects

Homestake completed several reclamation projects in 2005. On June 3, Homestake dedicated Gold Run Park. The park, which was developed in the former mill area that was demolished in 2002, consists of a picnic area, restrooms, and an interpretive pathway. Homestake placed various pieces of historic mine equipment as well as interpretive kiosks along the path. The park was developed to preserve the historical significance of the Homestake mine.

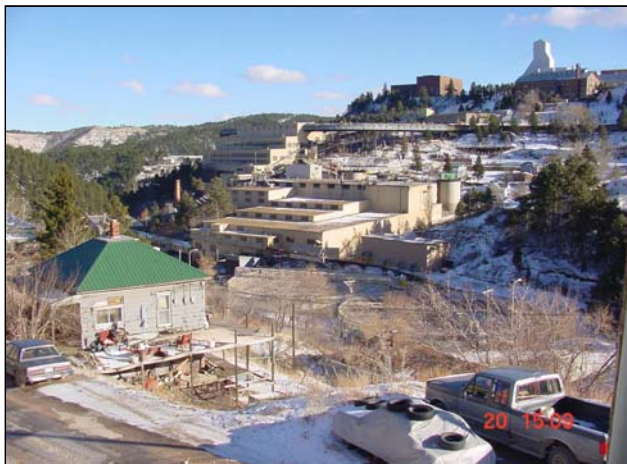


Photo 1.2 – Mill area in 2002



Photo 1.3 – Gold Run Park in 2005

The company also completed reclamation of its Yates Waste Rock Facility in August 2005. The slopes on the facility were reduced and revegetated to improve long-term stability and appearance of the facility. In addition, the Mickelson Trail, the Kirk Road, and Whitewood Creek were rerouted around the reclaimed facility. The creek was previously routed through a 400-foot culvert that was removed during the reclamation project.

Homestake sealed and closed several mine adits near Lead which have been in existence since the early 1900's. The adits were pressure grouted or backfilled with cellular concrete.

The company also constructed a water treatment plant at the toe of its East Waste Rock Depository near Central City. The plant was constructed to treat water seeping from the toes of the East and Sawpit Waste Rock Depositories. The water has elevated levels of total dissolved solids and selenium that exceed surface water standards in Homestake's surface water discharge permit. The treated water will be discharged to Deadwood Creek or the Lead-Deadwood Sanitary District's treatment plant.

## **Homestake Lab Update**

Work continued in 2005 on the conversion of the Homestake underground mine into a national underground science laboratory. In July, the National Science Foundation selected the Homestake Mine and the Henderson Mine in Colorado as the two finalists for the deep underground science and engineering laboratory, or DUSEL. A decision on which mine will be the preferred site for the DUSEL will be made at a later date. In September, Governor Rounds signed an agreement with Barrick Gold to turn the underground mine over to the state's Science and Technical Authority. The South Dakota Legislature approved \$19.9 million in additional funding during a special session in October to fund the development of an interim lab at the 4850 level of the mine. The interim lab may help Homestake's chances of being selected as the site for the DUSEL.

## **Gilt Edge Update**

EPA continued acid water treatment at the Gilt Edge Superfund Site in 2005. Water treatment resumed on September 29, 2005 after some adjustments were made earlier in the year to improve the efficiency of the water treatment plant. The plant treated 19.1 million gallons in 2005, and water treatment will continue in 2006.

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. The test entered its operational phase in 2004 and EPA discharged 100,000 gallons of water from the pit. During 2005, EPA discharged 12 million gallons from the pit. Additional discharges are planned for 2006. The process still needs additional work before it can be considered an alternative treatment method to the current water treatment plant.

At the end of the year, the leachate collection pond at the toe of the reclaimed Ruby Waste Rock Depository was replaced with an underground vault. Leachate from the toe will be collected in the new vault and pumped to the water treatment plant. A new pumphouse is currently under construction at the toe of the depository and will be completed in early 2006.

EPA and the state continue to prepare plans to reclaim the rest of the site, including the mine pits and heap leach pad. A feasibility study on reclamation options is scheduled to be completed sometime in 2006.

## **Mitigation Update at Richmond Hill Mine**

Reclamation activities at the Richmond Hill Mine, an open pit heap leach gold mine that developed an acid mine drainage problem during operations in the early 1990's, continue to be successful.

Most of the reclamation was completed by the mine operator, LAC Minerals (USA), LLC, in the mid-1990s. The pit impoundment, backfilled with acid-generating rock and covered with a low permeability capping system, continues to perform as designed. The cap is effective in limiting oxygen and water infiltration and is preventing acid generation. The capped leach pads also continue to perform well. Monitoring data shows the capping systems are effective in reducing water infiltration into the spent ore. Most chemical parameters in the pad effluent continue to improve.

Ground and surface water quality around the mine site is closely monitored. Monitoring wells continue to show decreasing or steady trends in sulfate and metal concentrations and increasing pH. Biological assessments of Cleopatra Creek below the mine show that the stream remains healthy and supports a viable cold water fishery despite low flows due to drought conditions in the Black Hills.

LAC operated its water treatment plant from June to November 2005 and discharged about 25.1 million gallons of effluent. Effluent from the leach pads is collected and stored in the former process ponds and is then treated prior to discharge. LAC's goal in 2005 was to significantly reduce the volume of water in the Stormwater Pond.

In July, the company announced plans to construct two pilot plants to test the effectiveness of two different media types in the biological treatment process for selenium removal. If successful, LAC will construct a full-scale biological treatment plant capable of treating the entire leach pad effluent to discharge standards. In addition, the biological treatment system would operate on a year-round basis minimizing the volume of stored water in the process ponds and ultimately reducing the required holding capacity of the Stormwater Pond.

## **Goldcorp Merges with Wheaton River**

In early 2005, Wharf Resources' parent company, Goldcorp, merged with Wheaton River Minerals Ltd. The new company is the lowest-cost, million-ounce gold producer in the world. Goldcorp is also the third largest overall gold producer in North America and the fifth largest overall gold producer in the world.

## **Technical Revisions Approved by the Department in 2005**

- |             |   |
|-------------|---|
| January 27  | Homestake Mining – Construct topsoil borrow area west of the Sawpit Waste Rock Facility.                            |
| February 1  | Wharf Resources – Establish additional injection points for biological treatment of shallow aquifer in Ross Valley. |
| February 16 | Wharf Resources – Construct a cover over the Ross Valley biological treatment cells.                                |

May 20	Wharf Resources – Use the Contingency Pond to increase the efficiency of spent ore denitrification/metal reduction.
May 26	Golden Reward – Perform final closure and reclamation of the Surge Pond.
June 17	Homestake Mining – Approve Phase 1 construction of the water collection and management system for the Sawpit and East Waste Rock Facilities.
August 15	LAC Minerals – Construct biological water treatment pilot plant to test the use of bacteria to remove selenium from leach pad leachate.
September 1	Homestake Mining – Eliminate requirements to enhance raptor nesting habitat and create habitat favoring small mammals under the nesting sites on the western face of the Open Cut.
September 26	Homestake Mining – Approve Phase 2 construction of the water collection and management system for the Sawpit and East Waste Rock Facilities.
October 11	Wharf Resources – Terminate water quality sampling at Cleopatra Creek surface site and modify sampling frequency for seven other water quality sampling sites.
November 7	Homestake Mining – Place a potable water tank for Central City within the permit boundary.
November 29	Wharf Resources – Modify topsoil placement on remaining catch benches in the lower Trojan Pit.



# **LARGE SCALE GOLD MINE ACREAGE AND PRODUCTION TABLES**

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The following tables were developed by compiling information from operator annual reports, supplemental information submitted to the department by the large scale gold mines, inspection reports, and other available information. Acreage from the Gilt Edge Superfund site that was previously mined by Brohm is included in the tables to show the progress being made to reclaim the mine site.

Various charts and graphs comparing total affected and reclaimed acreage can be found in Appendix 1. The bar chart on page A-2 compares affected acreage versus reclaimed acreage for each company. The graph on page A-3 shows the trend of total affected acres and total reclaimed acres for the large scale gold industry from 1990 to 2005. The pie chart on the same page shows total reclaimed acres versus total unreclaimed acres for the large scale gold mine industry in 2005.



Photo 1.5 – Reclaimed Whiteside pit at Wharf mine

**TABLE 1.1 – AFFECTED MINED LAND ACREAGE**

<b>Permit Number</b>	<b>Operator</b>	<b>Permitted Affected Acres</b>	<b>Acres Affected Year 2005</b>	<b>Total Acres Affected as of Dec. 31, 2005</b>
439 & 462	Brohm Mining Corp.	564.00	0.00	263.00
450	Golden Reward Mining Co., L.P.	493.62	0.00	388.09
332 & 456	Homestake Mining Company	671.09	14.90	634.52
445	LAC Minerals (USA), LLC	439.10	0.00	337.83
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	122.00	0.00	0.00
356, 434, 435, & 464	Wharf Resources (USA), Inc.	1001.17	0.00	955.94
<b>TOTALS</b>		3290.98	14.90	2579.38

**Definitions:**

**Permitted Affected Acres** - As defined in SDCL 45-6B-3(1), permitted affected land involves all lands permitted to be affected by a mining operation. This includes land from which overburden is to be or has been removed; land upon which overburden, waste rock, mine spoil, or mill tailings are to be or have been deposited; land disturbed by the building of access roads, railroad loops, warehouses, storage areas, or other support facilities for the purpose of mining; and land affected by surface subsidence, unstable slopes, and other surface effects caused by underground mine workings.

**Acres Affected Year 2005** - Previously unaffected acres disturbed from January 1 to December 31, 2005. This acreage is also included in "Total Acres Affected as of Dec. 31, 2005."

**Total Acres Affected as of Dec. 31, 2005** - All land currently affected by the large scale gold and silver operations under permit as of December 31, 2005. This includes all lands described above in "Permitted Affected Acres."

<b>TABLE 1.2 – SURFACE MINING DISTURBED LAND ACREAGE</b>			
<b>Permit Number</b>	<b>Operator</b>	<b>Surface Mining Disturbed Acres Year 2005</b>	<b>Total Surface Mining Disturbed Acres as of Dec. 31, 2005</b>
439 & 462	Brohm Mining Corp.	0.00	202.10
450	Golden Reward Mining Co., L.P.	0.00	354.66
332 & 456	Homestake Mining Company	0.00	581.23
445	LAC Minerals (USA), LLC	0.00	190.13
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	0.00	0.00
356, 434, 435, & 464	Wharf Resources (USA), Inc.	0.00	854.71
<b>TOTALS</b>		0.00	2182.83

**Definitions:**

**Surface Mining Disturbed Acres Year 2005** - Previously unaffected surface mining land disturbed from January 1 to December 31, 2005. This acreage is also included in "Total Surface Mining Disturbed Acres as of Dec. 31, 2005."

**Total Surface Mining Disturbed Acres as of Dec. 31, 2005** - As defined in SDCL 45-6B-3(15), surface mining disturbed land is land from which overburden has been removed; land upon which overburden, waste rock, mine spoil, or mill tailings have been deposited; land mined which has no overburden; heap leach pads; and process ponds. Surface mining disturbed lands include overburden and waste rock dumps, spent ore dumps, tailings impoundments, heap leach pads, open pits, process ponds, haul roads in pit areas, or haul roads constructed largely of waste rock, spent ore, or overburden. Surface mining disturbed lands **do not** include access roads, haul roads constructed from normal cut and fill methods, railroad loops, utility corridors, buildings including process plants, land application areas, topsoil stockpiles, ore stockpiles, crusher areas, storage areas, sediment and erosion control structures, and land affected by surface subsidence, unstable slopes, and other surface effects caused by underground mine workings.

**TABLE 1.3 – INTERIM RECLAIMED ACREAGE**

<b>Permit Number</b>	<b>Operator</b>	<b>Interim Reclaimed Acres Year 2005</b>	<b>Total Interim Reclaimed Acres as of Dec. 31, 2005</b>
439 & 462	Brohm Mining Corp.	0.00	0.95
450	Golden Reward Mining Co., L.P.	0.00	0.00
332 & 456	Homestake Mining Company	0.00	0.00
445	LAC Minerals (USA), LLC	0.00	17.90
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	0.00	0.00
356, 434, 435, & 464	Wharf Resources (USA), Inc.	0.00	22.64
<b>TOTALS</b>		0.00	41.49

**Definitions:**

**Interim Reclamation** - As defined in ARSD 74:29:01:01(17), interim reclamation is reclamation performed during a mining operation or between mining phases to stabilize affected land by regrading and revegetating to control erosion, improve aesthetics, and minimize hazards. It can be construed to be temporary reclamation or soil stabilization for affected land that will be disturbed again.

**Interim Reclaimed Acres Year 2005** - Acres under interim reclamation from January 1 to December 31, 2005. These acres are also included in "Total Interim Reclaimed Acres."

**Total Interim Reclaimed Acres as of Dec. 31, 2005** - The total number of acres under interim reclamation as of December 31, 2005. Acres redisturbed or now considered as final reclamation are not included in these totals.

<b>TABLE 1.4 – FINAL RECLAIMED ACREAGE FOR YEAR 2005</b>			
<b>Permit Number</b>	<b>Operator</b>	<b>Final Reclaimed Acres Year 2005 that Meet Post-Mine Land Use<sup>1</sup></b>	<b>Final Reclaimed Acres Year 2005 that Do Not Meet Post-Mine Land Use</b>
439 & 462	Brohm Mining Corp.	0.00	0.00
450	Golden Reward Mining Co., L.P.	0.00	0.00
332 & 456	Homestake Mining Company	37.47	21.83
445	LAC Minerals (USA), LLC	0.00	0.00
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	0.00	0.00
356, 434, 435, & 464	Wharf Resources (USA), Inc.	0.00	26.43
<b>TOTALS</b>		37.47	48.26

<sup>1</sup>The final reclaimed acres during the past year that meet the post-mining land use in this table are industry figures. The department may not necessarily agree with the reported acreage and will need to confirm in the field that these acres do meet the post-mine land use criteria.

**Definitions:**

**Final Reclaimed Acres Year 2005 That Meet Post-Mine Land Use** – Affected land reclaimed prior to 2005, previously considered as not meeting the post-mine land use, that met the post-mine land use in 2005. These acres meet the requirements of the reclamation plan, SDCL 45-6B, and ARSD 74:29, and can be considered for bond release.

**Final Reclaimed Acres Year 2005 That Do Not Meet Post-Mine Land Use** - Affected land reclaimed between January 1 and December 31, 2005, that does not meet the requirements of the approved reclamation plan and the reclamation requirements of SDCL 45-6B and ARSD 74:29. Final grading, topsoil placement, erosion and drainage control, and seeding and planting have been conducted on these acres. However, these acres cannot be considered for bond release since they have not met the post-mining land use criteria.

**TABLE 1.5 – TOTAL FINAL RECLAIMED ACREAGE  
As of December 31, 2005**

<b>Permit Number</b>	<b>Operator</b>	<b>Final Reclaimed Acres that Meet Post-Mine Land Use<sup>1</sup></b>	<b>Final Reclaimed Acres that Do Not Meet Post-Mine Land Use</b>
439 & 462	Brohm Mining Corp.	0.00	79.50
450	Golden Reward Mining Co., L.P.	185.99	195.62
332 & 456	Homestake Mining Company	513.81	107.96
445	LAC Minerals (USA), LLC	244.95	19.97
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	0.00	0.00
356, 434, 435, & 464	Wharf Resources (USA), Inc.	213.25	262.43
<b>TOTALS</b>		<b>1158.00</b>	<b>665.48</b>

<sup>1</sup>The final reclaimed acres that meet the post-mining land use in this table are industry figures. The department may not necessarily agree with the reported acreage and will need to confirm in the field that these acres do meet the post-mine land use criteria.

**Definitions:**

**Final Reclaimed Acres That Meet Post-Mine Land Use** - Affected land reclaimed as of December 31, 2005, that has a permanent, self-sustaining vegetative cover which meets the requirements of the approved reclamation plan and meets the reclamation requirements of SDCL 45-6B and ARSD 74:29. These acres can be considered for bond release.

**Final Reclaimed Acres That Do Not Meet Post-Mine Land Use** - Affected land reclaimed as of December 31, 2005, that does not meet the requirements of the approved reclamation plan and the reclamation requirements of SDCL 45-6B and ARSD 74:29. Final grading, topsoil placement, erosion and drainage control, and seeding and planting have been conducted on these acres. However, these acres cannot be considered for bond release since they have not met the post-mining land use criteria.

**TABLE 1.6 – SURFACE MINED RECLAMATION ACREAGE AND  
RECLAMATION CREDITS  
As of December 31, 2005**

<b>Permit Number</b>	<b>Operator</b>	<b>Surface Mined Acres Reclaimed (SDCL 45-6B-86)</b>	<b>Total Affected Acres Reclaimed that Apply as Reclamation Credit per 1992 Mining Initiative (SDCL 45-6B-97)</b>
439 & 462	Brohm Mining Corp.	65.00	73.20
450	Golden Reward Mining Co., L.P.	348.18	381.61
332 & 456	Homestake Mining Company	581.23	621.77
445	LAC Minerals (USA), LLC	160.32	264.92
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	0.00	0.00
356, 434, 435, & 464	Wharf Resources (USA), Inc.	465.16	475.68
<b>TOTALS</b>		1619.89	1817.18

**Definitions:**

**Surface Mined Acres Reclaimed** - Total amount of surface mining disturbed acres under final reclamation as of December 31, 2005. The department is required to report these acres under SDCL 45-6B-86. Final grading, topsoil replacement, erosion and drainage control, and seeding and planting have been conducted on these acres.

**Total Affected Acres Reclaimed That Apply as Reclamation Credit per 1992 Mining Initiative** - Affected land under final reclamation as of December 31, 2005, that can be considered for reclaimed acreage credit as provided under SDCL 45-6B-97. Pursuant to SDCL 45-6B-97, reclamation is performed when the operator completes required grading, topsoil placement, erosion and drainage control, and seeding and planting.

**TABLE 1.7 - ORE AND WASTE ROCK PRODUCTION  
January 1 to December 31, 2005**

<b>Permit Number</b>	<b>Operator</b>	<b>Tons of Ore Mined Year 2005</b>	<b>Tons of Ore Processed Year 2005</b>	<b>Tons of Waste Rock and Overburden Mined Year 2005</b>
439 & 462	Brohm Mining Corp.	0	0	0
450	Golden Reward Mining Co., L.P.	0	0	0
332 & 456	Homestake Mining Company (Open Cut)	0	0	0
445	LAC Minerals (USA), LLC	0	0	0
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	0	0	0
356, 434, 435, & 462	Wharf Resources (USA), Inc.	3,043,594	3,006,389	6,105,083
<b>TOTALS</b>		3,043,594	3,006,389	6,105,083



**TABLE 1.8 – GOLD AND SILVER PRODUCTION  
January 1 to December 31, 2005**

<b>Permit Number</b>	<b>Operator</b>	<b>Ounces of Gold Produced Year 2005</b>	<b>Ounces of Silver Produced Year 2005</b>
439 & 462	Brohm Mining Corp.	0	0
450	Golden Reward Mining Co., L.P.	0	0
332 & 456	Homestake Mining Company	0	0
445	LAC Minerals (USA), LLC	0	0
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	0	0
356, 434, 435, & 462	Wharf Resources (USA), Inc.	62,470	166,998
<b>TOTALS</b>		62,470	166,998
<b>ESTIMATED VALUE<sup>1</sup></b>		\$27,782,908	\$1,222,425

<sup>1</sup>Based on 2005 average gold price of \$444.74/oz and 2005 average silver price of \$7.32/oz.

**TABLE 1.9 – WATER AND CYANIDE USE  
January 1 to December 31, 2005**

<b>Permit Number</b>	<b>Operator</b>	<b>Gallons Ground Water Withdrawn Year 2005</b>	<b>Gallons Surface Water Withdrawn Year 2005</b>	<b>Pounds of Cyanide Used Year 2005</b>
439 & 462	Brohm Mining Corp.	0	0	0
450	Golden Reward Mining Co., L.P.	9,268,550 <sup>1</sup>	0	0
332 & 456	Homestake Mining Company	0	0	0
445	LAC Minerals (USA), LLC	848,860	0	0
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	0	0	0
356, 434, 435, & 462	Wharf Resources (USA), Inc.	53,235,000	0	577,286
<b>TOTALS</b>		63,352,410	0	577,286

<sup>1</sup>Golden Reward pumped its Bonanza well and discharged the water. None of the water was used at the mine.

<b>TABLE 1.10 – BOND AMOUNTS FOR LARGE SCALE GOLD MINES</b>				
<b>Permit Number</b>	<b>Operator</b>	<b>Reclamation Bond</b>	<b>Postclosure Bond<sup>1</sup></b>	<b>Cyanide Spill Bond<sup>2</sup></b>
439 & 462	Brohm Mining Corp.	\$5,951,535 <sup>3</sup>	\$0	\$0
450	Golden Reward Mining Co., L.P.	\$1,549,000 <sup>4</sup>	\$132,000	\$0
332 & 456	Homestake Mining (Open Cut)	\$1,737,000 <sup>4</sup>	\$0	\$0
445	LAC Minerals (USA), LLC	\$10,700,000 <sup>4</sup>	\$0	\$0
416	Southpoint Resources, Inc. (formerly Naneco Minerals)	\$661,800 <sup>5</sup>	\$0	\$0
356, 434, 435, & 464	Wharf Resources (USA), Inc.	\$10,730,400 <sup>4</sup>	\$8,120,700 <sup>6</sup>	\$449,000

<sup>1</sup> Postclosure bonds are not generally required to be submitted until the reclamation bond is released. However, by condition to Mine Permit No. 464, Wharf was required to submit a postclosure bond prior to closure. Golden Reward submitted a postclosure bond as per agreement for drainage control work in the West Liberty Pit.

<sup>2</sup> Financial assurance, or “cyanide spill bonds” are required under SDCL 45-6B-20.1. This financial assurance covers the cost of remediating accidental releases of cyanide or other leaching agents to the environment if a mine fails to do so. Wharf is the only mine where cyanide heap leaching is being done at this time. Wharf’s cyanide bond was updated in April 2005.

<sup>3</sup> Because of Dakota Mining Corp’s bankruptcy, Brohm’s reclamation bond has been placed in a state account for use in reclamation of the Gilt Edge Mine. \$2 million was used for reclamation expenses in March 2002. Interest from the bond is compounded and applied to the bond. The bond amount shown is current as of December 31, 2005.

<sup>4</sup> The department is in the process of completing reclamation bond calculations for Golden Reward, Homestake, LAC, and Wharf Resources. The revised calculations will be completed in 2006.

<sup>5</sup> Southpoint Resources is required to submit a reclamation bond in the amount of \$661,800 before the commencement of mining.

<sup>6</sup> Wharf submitted an \$8,115,055 postclosure bond which is not part of the reclamation bond.

# **OPERATIONAL PLANS FOR 2006**

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## **Brohm Mining Corp.**

EPA will continue water treatment at the site in 2006. Routine operation and maintenance activities will continue through the year which will include demolishing various buildings and structures on the site. The department will also continue to work with EPA to develop reclamation plans for the remainder of the site, including the mine pits and the leach pad. The remaining reclamation activities are anticipated to begin when federal Superfund money becomes available.

## **Golden Reward Mining Company, L.P.**

Golden Reward plans to complete vegetation studies on the reclaimed mine site in 2006. The company will also be asking the Board of Minerals and Environment for liability release on portions of the reclaimed areas after the vegetation studies are completed. Abandoned water wells will be plugged and closed in accordance with state regulations. Environmental maintenance and monitoring will continue. The Black Hills Chairlift Company will continue to pump and store water in the process ponds for snow making purposes at the Terry Peak ski area.

## **Homestake Mining Company (Barrick Gold Corp.)**

Homestake will continue the reclamation and closure activities it started in 2002. The company plans to ask the Board of Minerals and Environment for liability release on approximately 514 acres of the reclaimed mine area in April. Construction of the waste rock water collection system will be completed, and the water treatment plant will be operating by the end of 2006.

## **LAC Minerals (USA), LLC (Richmond Hill Mine)**

LAC Minerals will continue monitoring and active water treatment at the Richmond Hill Mine. The company will be conducting test work on a biological water treatment system in 2006. If successful, LAC will be constructing a full-scale biological treatment plant later in 2006.

## **Southpoint Resources, Inc.**

Southpoint Resources has no activities planned for the Johnson Gulch area in 2006 under Large Scale Mine Permit No. 416, formerly held by Naneco Minerals, Inc.

## **Wharf Resources (USA), Inc.**

Wharf Resources plans to continue mining in the Trojan pit. Waste rock from the pit will be used as backfill in the Foley pit and Phase 2 of the Trojan pit.

The company also plans to reclaim about 25 acres in the Juno and Trojan pit areas.



Photo 1.6 –Reclaimed East Liberty pit at the Golden Reward Mine

**SUMMARY OF SURFACE MINE DISTURBED AND RECLAMATION  
ACRES UNDER SDCL 45-6B-86**

**2005**



Photo 2.1 – Reclaimed Cold Spring Granite Company Grout Pile

# SUMMARY OF ALL MINE PERMITS

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This portion of the report summarizes information on the number of acres of surface mining disturbed land and the amount reclaimed as required by SDCL 45-6B-86 and as defined in section 45-6B-83.1 for the period January 1 to December 31, 2005. This does not include acreages for mining operations regulated under SDCL Chapter 45-6 (510 active licensed mine operators and 1,913 active licensed sites), mineral exploration regulated under SDCL Chapter 45-6C (9 operators and 22 permits, excluding oil and gas), or uranium exploration regulated under SDCL Chapter 45-6D (no current operators or permits.) Sources for this information include permit applications, operating and reclamation plans, annual reports, department inspections, and operator information.

## New Permits

The department received one small scale mine permit application in 2005. On August 9, 2005, Cold Spring Granite Company submitted a small scale mine permit application to expand its existing granite quarry covered under Large Scale Mine Permit No. 8. The 6.79 acre area will be used to store granite blocks. The reclamation plan for the area is based on a postmine land use of cropland. The permit will be granted sometime in 2006.

The department is also reviewing mine permit applications that were previously submitted by American Colloid Company for the Kudlock project near Belle Fourche and by Charles McKinney for a placer operation on Whitewood Creek near Deadwood. Further action on these applications is pending.



Photo 2.2 – Future Cold Spring Block Storage area

## Special or Unique Land Determinations

The department approved one request for the determination of special, exceptional, critical, or unique lands for a small scale mining operation in 2005. In late 2004, Cold Spring Granite submitted a request for determination for an expansion of its existing granite quarry covered under Large Scale Mine Permit No. 8. The 6.79 acre expansion area will be used to store granite blocks. On March 18, 2005, the department determined that the area was not eligible for inclusion on the preliminary list of special, exceptional, critical, or unique lands. Cold Spring has since submitted a small scale mine permit application for the area (see New Permit section).

## Pacer Corporation Dedicates New Mill Near Custer

In 2005, Pacer Corporation completed construction on a new mica mill three miles south of Custer. The new mill replaces a mica mill in Custer that was demolished in early 2006. The new mill was dedicated in late September, and the mill began operating in mid-October. State-of-the-art air pollution control equipment was installed in the new mill. With the new mill, Pacer can produce higher quality mica that can be used in numerous products around the world.



Photo 2.3 – New Pacer Mill

## Sand and Gravel Mines Reclaimed with Forfeited Sureties

In 2003 and 2004, the Board of Minerals and Environment allowed the department to use money from forfeited reclamation sureties and the Special Reclamation Fund to reclaim 12 sand and gravel mines. Since that time, \$46,758 (including \$16,335 from forfeited sureties and \$30,423 from the Special Reclamation Fund) have been used to reclaim 38.24 acres at 11 sites at an average cost of \$1,222 per acre. Including accrued interest, \$6,017 remained in the Special Reclamation Fund at the end of 2005. Reclamation on one site will be completed in 2006.

License No.	Operator	Location	Acres Reclaimed	Year Reclaimed	Land Use
98-639	Mike Ford	5 mi. S of Redfield	2.20	2003	Grazing
98-639	Mike Ford	22 mi. NE of Miller	8.29	2006	Crop land
83-220	Tyrone Peters	1 mi. N of Wagner	2.39	2004	Wet land
83-46	Gordon Ziemer	12 mi. E of Sisseton	15.19	2004	Crop land
83-82	Winter Concrete Products	6 mi. E of Flandreau	4.74	2004	Grazing
88-367	Gordon Olson	12 mi. N of Yankton	0.50	2004	Grazing
98-639	Mike Ford	8 mi. W of Tulare	2.95	2004	Hay Prod.
83-251	Gene Steffes	10 mi. NW of Watertown	0.25	2004	Mining
98-641	Herrick Services	4 mi. NE of Roslyn	0.52	2004	Grazing
98-641	Herrick Services	8 mi. E of Grenville	0.75	2004	Grazing
83-52	Dakota Improvement Co.	1 mi. E of Estelline	1.50	2005	Grazing
83-120	James Olson	1 mi. E of Troy	0.87	2005	Grazing
83-120	James Olson	6 mi. N of Goodwin	1.79	2005	Grazing



<b>Table 2.1 – Number of Mine Permits and Permitted Affected, Total Affected, and Surface Mine Disturbed Acreage</b>				
	<b>All Small Scale Permits</b>	<b>All Non-Gold Large Scale Permits</b>	<b>Large Scale Gold Permits<sup>1</sup></b>	<b>All Mine Permits</b>
Number of Permits	17	19	11	47
Permitted Affected Acres	719	2,992	3,291	7,002
Total Affected Acres	54	1,710	2,579	4,343
Surface Mining Disturbed Lands Acres	40	1,390	2,183	3,613

<sup>1</sup> The acreage figures for large scale gold mines are separated for clarification purposes. The large scale gold mine statistics are not included in the figures for all non-gold large scale permits.

**Definitions:**

**Small Scale Mining Permit** - Permit for operations that extract less than 25,000 tons of ore or overburden per calendar year and disturb less than 10 acres of land.

**Large Scale Mining Permit** - Permit for operations that extract more than 25,000 tons of ore or overburden per calendar year and disturb more than 10 acres.

**Permitted Affected Acres** - Pursuant to SDCL 45-6B-3(1), this involves all lands permitted to be disturbed by a mining operation, including land from which overburden is to be or has been removed, and land upon which overburden, waste rock, mine spoil, or mill tailings is to be or has been deposited; land which is disturbed by the building of access roads, railroad loops, warehouses, storage areas, or other support facilities for the purpose of mining; and land affected by surface subsidence, unstable slopes, and other surface effects caused by underground mine workings.

**Total Affected Acres** - This includes all the land currently affected by the mining operations under permit. The total affected acres statistics are included in the figures for permitted affected acres.

**Surface Mining Disturbed Lands Acres** - Pursuant to SDCL 45-6B-3(15), this includes all the land from which overburden has been removed, land upon which overburden, waste rock, mine spoil, or mill tailings have been deposited, land mined which has no overburden, heap leach pads, and process ponds. The surface mining disturbed lands statistics are included in the figures for total affected acres.

**Table 2.2 – Reclaimed and Released Reclaimed Acres**

	<b>All Small Scale Permits</b>	<b>All Non-Gold Large Scale Permits</b>	<b>Large Scale Gold Permits<sup>1</sup></b>	<b>All Mine Permits</b>
Total Reclaimed Acres	24	1,003	1,817	2,844
Reclaimed Surface Mining Disturbed Acres	13	893	1,620	2,526
Releasable Reclaimed Acres	5	241	1,158	1,404
Released Reclaimed Acres in 2005	0	0	0	0

<sup>1</sup> The acreage figures for large scale gold mines are separated for clarification purposes. The large scale gold mine statistics are not included in the figures for all non-gold large scale permits.

**Definitions:**

**Total Reclaimed Acres** - This includes all the land for which the operator completes required grading, topsoil replacement, erosion and drainage control, and any required planting and seeding that the department finds has resulted or will later result in final reclamation. For large scale gold mines, these acres can be applied toward reclamation acreage credit as provided under SDCL 45-6B-97.

**Reclaimed Surface Mining Disturbed Acres** - Pursuant to SDCL 45-6B-86, this includes all surface mining disturbed lands for which the operator has completed required grading, topsoil replacement, erosion and drainage control, and any required planting and seeding that the department finds will later result in final reclamation.

**Releasable Reclaimed Acres** - This includes all the reclaimed land for which reclamation surety and liability can be released as determined by the department. Such land must meet the minimum reclamation standards pursuant to ARSD 74:29:07. These figures do not include any acreage for which release of surety or liability has been granted by the Board of Minerals and Environment. The releasable reclaimed acres statistics are included in the figures for total reclaimed acres.

**Released Reclaimed Acres** - This includes all the reclaimed land for which reclamation surety and liability has been released by the Board of Minerals and Environment in 2005. This land has met the minimum reclamation standards pursuant to ARSD 74:29:07. The released reclaimed acres statistics are included in the figures for total reclaimed acres.

# **APPENDIX 1**

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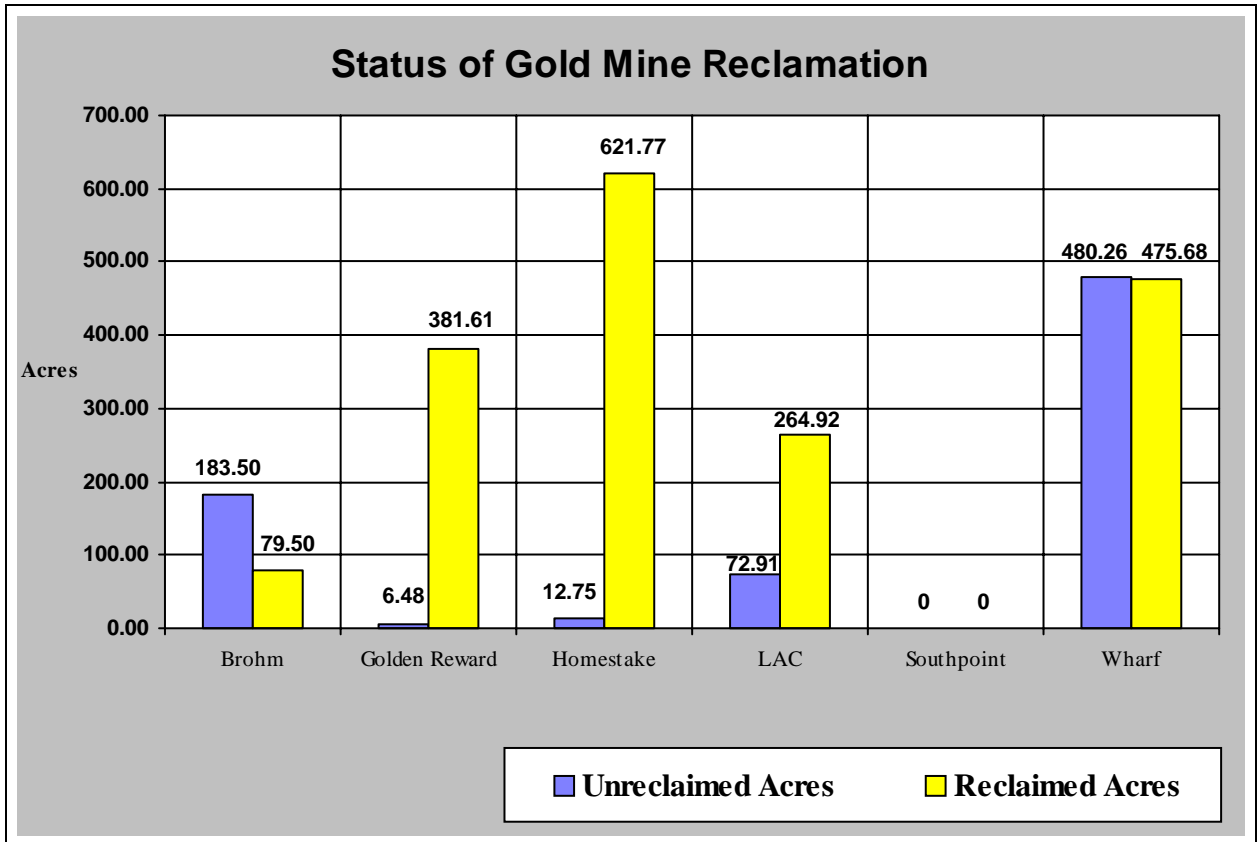


Figure 1A – Unreclaimed vs. Reclaimed Acreage at Large Scale Surface Gold Mines as of December 31, 2005.

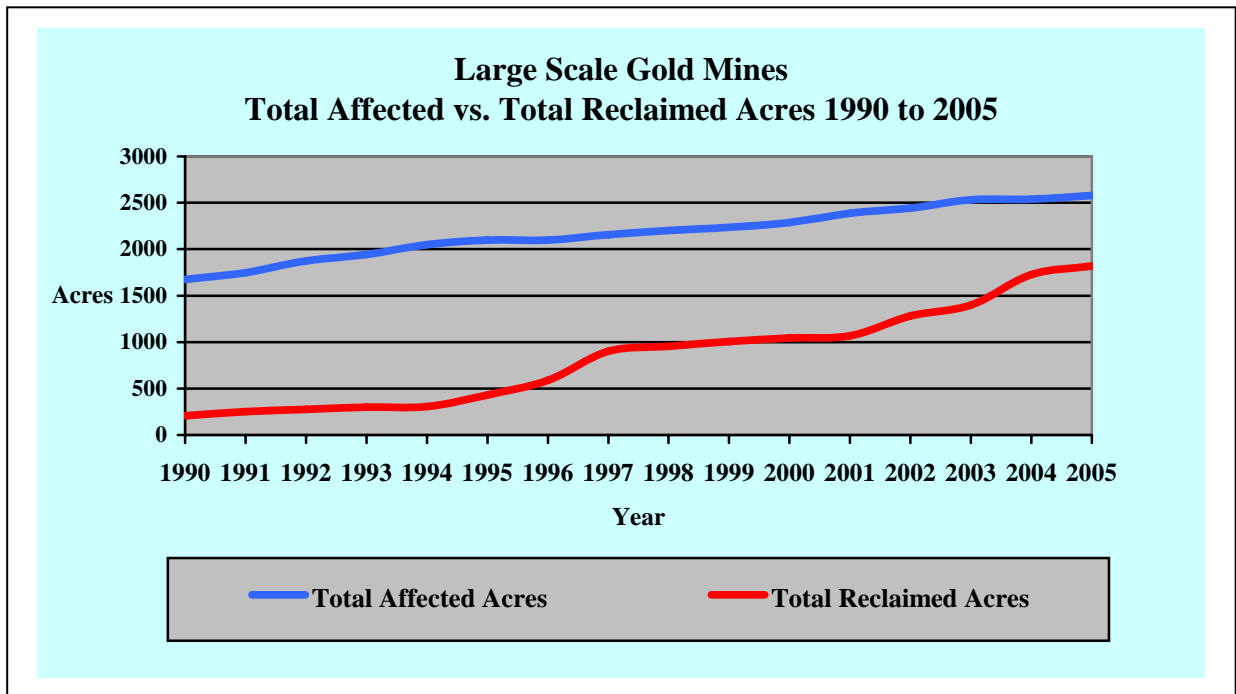


Figure 2A – Total Affected vs. Total Reclaimed Acreage at Large Scale Surface Gold Mines from 1990 to 2005.

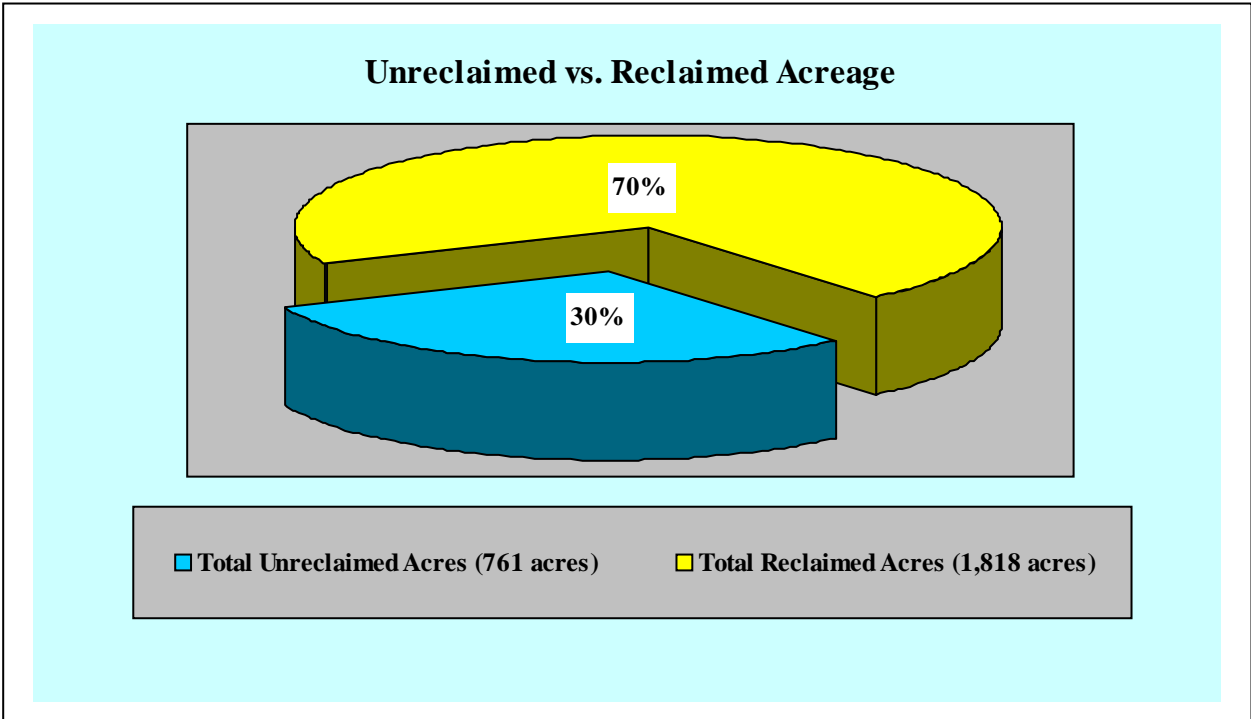


Figure 3A – Comparison of Unreclaimed vs. Reclaimed Acreage at Large Scale Surface Gold Mines in 2005.