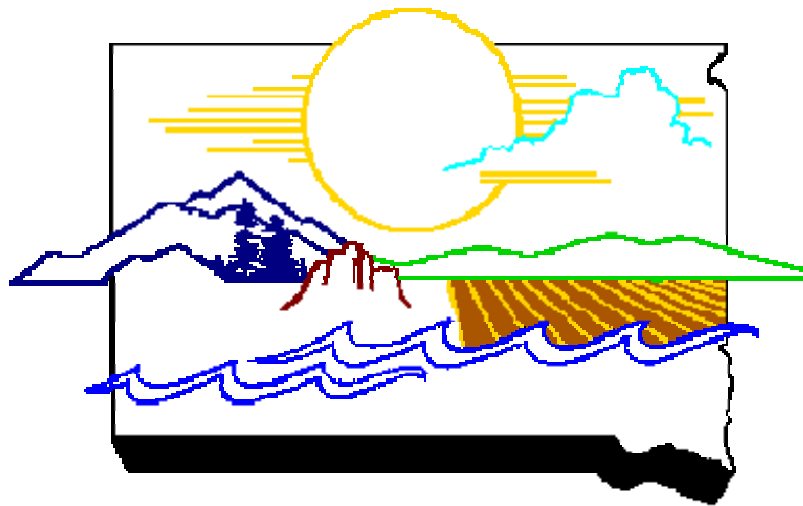


**SUMMARY OF  
THE MINING INDUSTRY IN SOUTH DAKOTA**

**2007**



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

**PREPARED BY  
THE MINERALS AND MINING PROGRAM  
SD DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
MAY 2008**

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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, 2007. The information in this report is based on annual reports and other information submitted by mining operations permitted under Chapter 45-6B.

## **2007 Summary**

On July 10, 2007, the National Science Foundation selected the Homestake underground mine as the site for a deep underground science and engineering laboratory. This is great news for South Dakota. While plans are being developed for the deep underground laboratory, a state operated interim laboratory will be developed at the 4850 level of the mine. Crews re-entered the mine in July to begin refurbishing the mine infrastructure and installing the equipment needed to pump out water that has been filling the mine since it was closed in preparation for the interim laboratory.

Gold production decreased in 2007, but the value increased due to higher gold prices. Wharf Resources was the only company to report gold production in 2007, with 57,628 ounces produced, a slight decrease from the 63,039 ounces reported in 2006. The department approved a 60-acre expansion of the American Eagle area of the Wharf Mine which will extend the life of the mine until 2010.

With the recent increase in uranium prices, there is a growing interest from companies wanting to conduct uranium in situ leach mining in South Dakota. As a result, the Board of Minerals and Environment promulgated rules for the construction, operation, monitoring, and closure of uranium and other in situ mines. The board adopted the rules following a public hearing which became effective on July 1, 2007. The board also approved a uranium exploration permit for Powertech (USA) Inc. in January 2007 following a contested case hearing. This was the first uranium exploration application issued in more than 25 years. By the end of 2007, Powertech drilled approximately 70 uranium exploration holes under its exploration permit.

\S/

Steven M. Pirner  
Secretary

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

**2007**



Photo 1.1 –Deer utilizing wildlife habitat on reclaimed Pet Hill area at Golden Reward Mine

# MAJOR EVENTS IN 2007

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## National Science Foundation Selects Homestake Mine as Site for Deep Underground Laboratory

On July 10, 2007, the National Science Foundation selected the Homestake underground mine as the site for a deep underground science and engineering laboratory. The Homestake mine was chosen from four finalists that included the Henderson Mine in Colorado, a railroad tunnel in Washington, and the Souden iron mine in Minnesota. Scientists will receive about \$15 million over the next three years to develop plans for an underground laboratory at the 7400 level of the mine.

After the Homestake Mine was selected, the Science and Technology Authority made plans to re-enter the underground mine to develop a state operated interim laboratory at the 4850 level of the mine. The interim laboratory would allow some experiments to begin while the plans for the laboratory at the 7400 level are being developed. Crews re-entered the mine in July to begin refurbishing the mine infrastructure and installing the equipment needed to pump out water that has been filling the mine since it was closed in preparation for the interim laboratory. Current plans are to have the interim lab operating by late 2008 or early 2009.

## Wharf Expands Mining Operation

The department approved a technical revision and a permit amendment in 2007 to allow Wharf to expand its mine near Lead and extend the life of the mine. The expansion involves 60 acres along the northwestern edge of the Trojan Pit in an area known as the American Eagle pushback. Higher gold prices have allowed the expansion areas to become economical to mine. The mine expansion was approved in two phases. On April 30, 2007, the department approved a technical revision which allowed Wharf to mine 20 acres of the American Eagle expansion area.



Photo 1.2 – American Eagle expansion area.

Later, the department approved a permit amendment on September 17, 2007 which allowed Wharf to mine the remaining 40 acres of the expansion area. The mine expansion will extend the life of the mine into 2010. The company is also exploring other areas of the mine for possible expansion.

Because of the extra ore from the expansion area, Wharf needed to expand its leach pads. On June 7, 2007, the department approved a technical revision which allowed Wharf to construct an eight-acre expansion on the east side of Leach Pads 1 and 4. The expanded leach pad area would hold an additional two million tons of ore.

## **Gilt Edge Update**

EPA continued acid water treatment at the Gilt Edge Superfund Site in 2007. A total of 134.7 million gallons were treated and discharged in 2007, and water treatment will continue in 2008. 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 outlining reclamation options is scheduled to be completed sometime in 2008.

## **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 capped leach pads also continue to perform well. Monitoring data shows the capping systems are effective in reducing water infiltration into the spent ore.

Ground and surface water quality around the mine site is closely monitored. Monitoring continues to show stable or improving water quality in all of the reclaimed areas. Biological assessments of Cleopatra Creek below the mine show that the stream remains healthy and supports a viable cold water fishery.

LAC will construct a full-scale biological treatment plant in 2008 capable of treating the entire leach pad effluent to discharge standards. The biological treatment system would operate on a year-round basis to reduce the volume of water in the storage ponds and ultimately reduce the required holding capacity of the storm water pond.

## **Technical Revisions Approved by the Department in 2007**

February 21                      Wharf Resources – Use approximately 0.6 million tons of crushed ore to fill the valley located between Pads 1 and 4.

April 30                         Wharf Resources – Add 20 acres of contiguous affected land along the northwestern edge of the Trojan Pit in an area known as the American Eagle pushback.

- June 7 Wharf Resources – Construct an eight-acre expansion on the eastern side of Pads 1 and 4 to hold an additional two million tons of ore, and to install a double lining system on the Ross Valley Holding Pond to allow the pond to store PMP storm event water.
- July 12 Homestake Mining – Place material from removal of the Deadwood Creek tech span at the Sawpit borrow area.
- November 6 LAC Minerals – Construct phase two of biological water treatment system to treat leach pad effluent.



Photo 1.3 – Reclaimed Turnaround area at LAC Mineral's Richmond Hill Mine.



# **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, total reclaimed, and released acreage are in Appendix 1. The bar chart on page A-2 compares affected acreage, reclaimed acreage, and released acreage for each company. The graph on page A-2 shows the trend of total affected acres, total reclaimed acres, and released acres for the large scale gold industry from 1990 to 2007. The pie chart on page A-3 shows total reclaimed acres, total unreclaimed acres, and released acres for the large scale gold mine industry in 2007.



Photo 1.4 – Reclaimed Trojan Waste Rock Depository 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 2007</b>	<b>Total Acres Affected as of Dec. 31, 2007</b>
439 & 462	Brohm Mining Corp.	564.00	0.00	263.00
416	E4 Energy, Inc.	122.00	0.00	0.00
450	Golden Reward Mining Co., LP	493.62	0.00	408.44
332 & 456	Homestake Mining Company	177.50	0.00	137.39
445	LAC Minerals (USA), LLC	439.10	0.00	337.83
356, 434, 435, & 464	Wharf Resources (USA), Inc.	1065.37	7.06	968.79
<b>TOTALS</b>		2861.59	7.06	2115.45

**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. Released acres are not included.

**Acres Affected Year 2007** - Previously unaffected acres disturbed from January 1 to December 31, 2007. This acreage is also included in "Total Acres Affected as of Dec. 31, 2007."

**Total Acres Affected as of Dec. 31, 2007** - All land currently affected by the large scale gold and silver operations under permit as of December 31, 2007. This includes all lands described above in "Permitted Affected Acres." Released acres are not included.

<b>TABLE 1.2 – SURFACE MINING DISTURBED LAND ACREAGE</b>			
<b>Permit Number</b>	<b>Operator</b>	<b>Surface Mining Disturbed Acres Year 2007</b>	<b>Total Surface Mining Disturbed Acres as of Dec. 31, 2007</b>
439 & 462	Brohm Mining Corp.	0.00	202.10
416	E4 Energy, Inc.	0.00	0.00
450	Golden Reward Mining Co., LP	0.00	368.16
332 & 456	Homestake Mining Company	0.00	108.70
445	LAC Minerals (USA), LLC	0.00	190.13
356, 434, 435, & 464	Wharf Resources (USA), Inc.	2.04	862.54
<b>TOTALS</b>		2.04	1731.63

**Definitions:**

**Surface Mining Disturbed Acres Year 2007** - Previously unaffected surface mining land disturbed from January 1 to December 31, 2007. This acreage is also included in "Total Surface Mining Disturbed Acres as of Dec. 31, 2007."

**Total Surface Mining Disturbed Acres as of Dec. 31, 2007** - 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. Released acres are not included.

**TABLE 1.3 – INTERIM RECLAIMED ACREAGE**

<b>Permit Number</b>	<b>Operator</b>	<b>Interim Reclaimed Acres Year 2007</b>	<b>Total Interim Reclaimed Acres as of Dec. 31, 2007</b>
439 & 462	Brohm Mining Corp.	0.00	0.95
416	E4 Energy, Inc.	0.00	0.00
450	Golden Reward Mining Co., LP	0.00	0.00
332 & 456	Homestake Mining Company	0.00	0.00
445	LAC Minerals (USA), LLC	0.00	17.90
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 2007** - Acres under interim reclamation from January 1 to December 31, 2007. These acres are also included in "Total Interim Reclaimed Acres."

**Total Interim Reclaimed Acres as of Dec. 31, 2007** - The total number of acres under interim reclamation as of December 31, 2007. Acres redisturbed or now considered as final reclamation are not included in these totals.

<b>TABLE 1.4 – FINAL RECLAIMED ACREAGE FOR YEAR 2007</b>			
<b>Permit Number</b>	<b>Operator</b>	<b>Final Reclaimed Acres Year 2007 that Meet Post-Mine Land Use<sup>1</sup></b>	<b>Final Reclaimed Acres Year 2007 that Do Not Meet Post-Mine Land Use</b>
439 & 462	Brohm Mining Corp.	0.00	0.00
416	E4 Energy, Inc.	0.00	0.00
450	Golden Reward Mining Co., LP	117.86	2.41
332 & 456	Homestake Mining Company	0.00	5.89
445	LAC Minerals (USA), LLC	0.00	0.00
356, 434, 435, & 464	Wharf Resources (USA), Inc.	0.00	8.08
<b>TOTALS</b>		117.86	16.38

<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 2007 That Meet Post-Mine Land Use** – Affected land reclaimed prior to 2007, previously considered as not meeting the post-mine land use, that met the post-mine land use in 2007. These acres meet the requirements of the reclamation plan, SDCL 45-6B, and ARSD 74:29, and can be considered for bond release. Released acres are not included.

**Final Reclaimed Acres Year 2007 That Do Not Meet Post-Mine Land Use** - Affected land reclaimed between January 1 and December 31, 2007, 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 AND RELEASED ACREAGE****As of December 31, 2007**

<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>	<b>Final Reclaimed Acres that Have Been Released</b>
439 & 462	Brohm Mining Corp.	0.00	79.50	0.00
416	E4 Energy, Inc.	0.00	0.00	0.00
450	Golden Reward Mining Co., LP	400.80	2.41	0.00
332 & 456	Homestake Mining Company	13.08	120.07	499.74
445	LAC Minerals (USA), LLC	244.95	19.97	0.00
356, 434, 435, & 464	Wharf Resources (USA), Inc.	312.90	136.07	0.00
<b>TOTALS</b>		<b>971.73</b>	<b>358.02</b>	<b>499.74</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, 2007, 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. Released acres are not included.

**Final Reclaimed Acres That Do Not Meet Post-Mine Land Use** - Affected land reclaimed as of December 31, 2007, 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.

**Final Reclaimed Acres that Have Been Released** – Final reclaimed acres that meet the post-mine land use and have been released by the Board of Minerals and Environment. These acres are now under postclosure status.

**TABLE 1.6 – SURFACE MINED RECLAMATION ACREAGE AND  
RECLAMATION CREDITS  
As of December 31, 2007**

<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
416	E4 Energy, Inc.	0.00	0.00
450	Golden Reward Mining Co., LP	362.93	403.21
332 & 456	Homestake Mining Company	104.46	133.15
445	LAC Minerals (USA), LLC	160.32	264.92
356, 434, 435, & 464	Wharf Resources (USA), Inc.	438.91	448.97
<b>TOTALS</b>		<b>1131.62</b>	<b>1323.45</b>

**Definitions:**

**Surface Mined Acres Reclaimed** - Total amount of surface mining disturbed acres under final reclamation as of December 31, 2007. 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. Released acres are not included.

**Total Affected Acres Reclaimed That Apply as Reclamation Credit per 1992 Mining Initiative** - Affected land under final reclamation as of December 31, 2007, 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. Released acres are not included.



**TABLE 1.7 - ORE AND WASTE ROCK PRODUCTION  
January 1 to December 31, 2007**

<b>Permit Number</b>	<b>Operator</b>	<b>Tons of Ore Mined Year 2007</b>	<b>Tons of Ore Processed Year 2007</b>	<b>Tons of Waste Rock and Overburden Mined Year 2007</b>
439 & 462	Brohm Mining Corp.	0	0	0
416	E4 Energy, Inc.	0	0	0
450	Golden Reward Mining Co., LP	0	0	0
332 & 456	Homestake Mining Company (Open Cut)	0	0	0
445	LAC Minerals (USA), LLC	0	0	0
356, 434, 435, & 462	Wharf Resources (USA), Inc.	2,955,010	3,278,915	12,786,648
<b>TOTALS</b>		2,955,010	3,278,915	12,786,648

**TABLE 1.8 – GOLD AND SILVER PRODUCTION  
January 1 to December 31, 2007**

<b>Permit Number</b>	<b>Operator</b>	<b>Ounces of Gold Produced Year 2007</b>	<b>Ounces of Silver Produced Year 2007</b>
439 & 462	Brohm Mining Corp.	0	0
416	E4 Energy, Inc.	0	0
450	Golden Reward Mining Co., LP	0	0
332 & 456	Homestake Mining Company	0	0
445	LAC Minerals (USA), LLC	0	0
356, 434, 435, & 462	Wharf Resources (USA), Inc.	57,628	133,718
<b>TOTALS</b>		57,628	133,718
<b>ESTIMATED VALUE<sup>1</sup></b>		\$40,073,935	\$1,789,147

<sup>1</sup>Based on 2007 average gold price of \$695.39/oz and 2007 average silver price of \$13.38/oz.

**TABLE 1.9 – WATER AND CYANIDE USE**  
**January 1 to December 31, 2007**

<b>Permit Number</b>	<b>Operator</b>	<b>Gallons Ground Water Withdrawn Year 2007</b>	<b>Gallons Surface Water Withdrawn Year 2007</b>	<b>Pounds of Cyanide Used Year 2007</b>
439 & 462	Brohm Mining Corp.	0	0	0
416	E4 Energy, Inc.	0	0	0
450	Golden Reward Mining Co., LP	100,000	0	0
332 & 456	Homestake Mining Company	0	0	0
445	LAC Minerals (USA), LLC	523,310	0	0
356, 434, 435, & 462	Wharf Resources (USA), Inc.	44,400,000	55,180,000	758,712
<b>TOTALS</b>		45,023,310	55,180,000	758,712

<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.	\$6,385,678 <sup>3</sup>	\$0	\$0
416	E4 Energy, Inc.	\$0 <sup>4</sup>	\$0	\$0
450	Golden Reward Mining Co., LP	\$1,549,000 <sup>5</sup>	\$132,000 <sup>5</sup>	\$0
332 & 456	Homestake Mining (Open Cut)	\$1,246,000	\$39,200,424	\$0
445	LAC Minerals (USA), LLC	\$10,700,000 <sup>6</sup>	\$0	\$0
356, 434, 435, & 464	Wharf Resources (USA), Inc.	\$11,174,422 <sup>6</sup>	\$8,120,700 <sup>6</sup>	\$500,000

<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 and has submitted the maximum \$500,000 bond allowed under state mining law.

<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, 2007.

<sup>4</sup> E4 Energy, Inc. is required to submit a reclamation bond in the amount of \$661,800 before the commencement of mining.

<sup>5</sup> The department will update the reclamation and postclosure bonds for Golden Reward in 2008 after the release of liability petition and postclosure plan are submitted.

<sup>6</sup> The department is in the process of reviewing reclamation bond calculations for LAC Minerals and reclamation and postclosure bond calculations for Wharf Resources. Any revisions to the calculations will be completed in 2008.

# **OPERATIONAL PLANS FOR 2008**

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## **Brohm Mining Corp.**

EPA will continue water treatment at the site in 2008. Routine operation and maintenance activities will continue through the year. The department will also continue to work with EPA to finalize a feasibility study outlining 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.

## **E4 Energy, Inc.**

E4 Energy has no activities planned for the Johnson Gulch area in 2008 under Large Scale Mine Permit No. 416. The company will be looking at entering a joint venture to proceed with mining in the future.

## **Golden Reward Mining Company, LP**

In 2008, Golden Reward plans to ask the Board of Minerals and Environment for liability release on the reclaimed mine site. Vegetation studies were conducted during summer 2006, and the data from the studies will be included in the release of liability petition which will be submitted in spring 2008. The department conducted a final inspection of the reclaimed area in August and September 2007.

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

Homestake will continue reclamation and closure activities in 2008. Postclosure monitoring, maintenance, and water treatment activities will continue in the released areas. The company plans to remove a portion of the Deadwood Creek crossing in 2008 that was part of the haul road to the Sawpit Waste Rock Facility.

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

LAC Minerals will continue monitoring and active water treatment at the Richmond Hill Mine. The company will construct a full-scale biological water treatment system to replace the current chemical treatment system at the site.

## Wharf Resources (USA), Inc.

Mining in the Deep Portland pit will be completed by late 2008. Development of the American Eagle expansion area will begin in January 2008 with removal of overburden in the mining area. The company plans to reclaim most of the Trojan pit since mining in the pit has been completed. The water treatment system and in situ treatment of shallow ground water and spent ore will be modified to improve performance.



Photo 1.5 – Relic Yates Waste Rock Facility reclaimed by Homestake in 2005.



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

**2007**



Photo 2.1 – Hills Materials backfilling pit at Rapid City Limestone Quarry.

# **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, 2007. This does not include acreages for mining operations regulated under SDCL Chapter 45-6 (517 licensed mine operators and 1,909 active licensed sites), mineral exploration regulated under SDCL Chapter 45-6C (10 operators and 25 permits, excluding oil and gas), or uranium exploration regulated under SDCL Chapter 45-6D (1 operator, 1 permit.) Sources for this information include permit applications, operating and reclamation plans, annual reports, department inspections, and operator information.

## **New Mine Permits**

Two companies were granted mine permits in 2007. Cold Spring Granite Company submitted a small scale mine permit application in 2005 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 post-mine land use of cropland. The department granted the permit on February 22, 2007.

American Colloid Company submitted a large scale mine permit application in 2006 for the Kudlock project near Belle Fourche. About 71.9 acres will be mined for bentonite and 144.3 acres will be affected during the operation. The area will be reclaimed to rangeland for livestock grazing. The permit was granted by the department on March 15, 2007.

J.R. Merchant submitted a small scale mine permit application on June 29, 2007 for a proposed placer mining operation along Bear Butte Creek about 6.5 miles southeast of Deadwood. Mr. Merchant plans to use a highbanker dredge, sluice box, shovels, and pans during the placer mining operation. Department action on the permit application is anticipated sometime in 2008.



Photo 2.2 – J.R. Merchant proposed placer mining area.

## **Permit Amendments**

Dakota Granite submitted an application in April 2007 to amend Large Scale Mine Permit No. 15. The amendment would allow Dakota Granite to add 24.61 acres of contiguous affected land within

the mine permit boundary. 12.44 acres will be used for expansion of the quarries, 10.16 acres will be used for expansion of the grout (waste rock) piles, and 2.01 acres will be used for the expansion of block storage areas. The department issued the permit amendment on February 1, 2008.

## **Board of Minerals and Environment Releases Reclaimed Acres from Reclamation Liability**

The Board of Minerals and Environment released several areas from reclamation liability in 2007. On April 19, 2007, the board released Crazy Horse Memorial Foundation's reclamation liability for a one-acre site approximately four miles north of Custer that was mined under Small Scale Mine Permit No. 412. On October 18, 2007, American Colloid's reclamation liability on a 44.50-acre area mined under Large Scale Mine Permit No. 463 was released.



Photo 2.3 – Area reclaimed under Mine Permit No. 463 by American Colloid.

## **Special or Unique Land Determinations**

The department approved one request for the determination of special, exceptional, critical, or unique lands for a small scale placer mining operation in 2007. In March 2006, J.R. Merchant submitted a request for determination for a proposed placer mining operation along Bear Butte Creek about 6.5 miles southeast of Deadwood. Mr. Merchant plans to use a highbanker dredge, sluice box, shovels, and pans during the placer mining operation. On July 16, 2007, the department determined that the area was not eligible for inclusion on the preliminary list of special, exceptional,



critical, or unique lands. Mr. Merchant has since submitted a small scale mine permit application for the area (see New Permits section).

The department also received one request for the determination of special, exceptional, critical, or unique lands for a small scale placer mining operation in 2007. In October 2007, B4Time, LLC submitted a request for determination for a proposed placer mining operation along Crooked Creek about 3.5 miles southwest of Mystic. B4 Time plans to use a small bobcat, backhoe, and dump truck to mine material and process it in a trammel sluice. The department will make its determination on whether the area has special, exception, critical, or unique attributes sometime in 2008.

## **Board Grants Powertech Uranium Exploration Permit**

Powertech (USA) Inc. submitted a uranium exploration permit application in July 2006 for an area in the southern Black Hills located northwest of Edgemont. This is the first application the department received for a uranium exploration operation since the uranium exploration statutes (SDCL 45-6D) were adopted in the early 1980's. On January 17, 2007, the Board of Minerals and Environment unanimously approved the application. Under the permit, Powertech plans to drill 155 exploration holes for uranium and conduct two pump tests to evaluate the ground water hydrology in the area. Each hole will be 500 to 600 feet in depth. By the end of 2007, Powertech drilled approximately 70 holes under its exploration permit. Most of the holes were plugged in accordance with state plugging regulations. However, some holes were developed into monitoring and test wells. The company plans to conduct additional drilling in 2008 and submit a mine permit application for an in situ leach mining operation for uranium sometime in 2008.



Photo 2.4 – Powertech 2007 exploration drilling.

## **In Situ Leach Mining Rules Adopted by Board**

Due to growing interest in uranium mining and to prepare for the possibility of uranium in situ leach mining operations moving into South Dakota, the 2006 Legislature passed a bill authorizing the Board of Minerals and Environment to promulgate rules for the construction, operation, monitoring, and closure of uranium and other in situ leach mines. In response to this legislation, the Department of Environment and Natural Resources prepared a draft set of rules. On January 18, 2007, the board held a public hearing on the new in situ leach mining rules. After considering written and oral comments, the board adopted the rules, which became effective in July 2007.

<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	16	16	11	43
Permitted Affected Acres	562	2,851	2,861	6,274
Total Affected Acres	53	1,671	2,115	3,839
Surface Mining Disturbed Lands Acres	39	1,368	1,732	3,139

<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.

<b>Table 2.2 – Reclaimed and Released Reclaimed Acres</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>
Total Reclaimed Acres	24	981	1,323	2,328
Reclaimed Surface Mining Disturbed Acres	13	895	1,132	2,040
Releasable Reclaimed Acres	10	301	972	1,283
Released Reclaimed Acres in 2007	1	45	0	46

<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 2007. 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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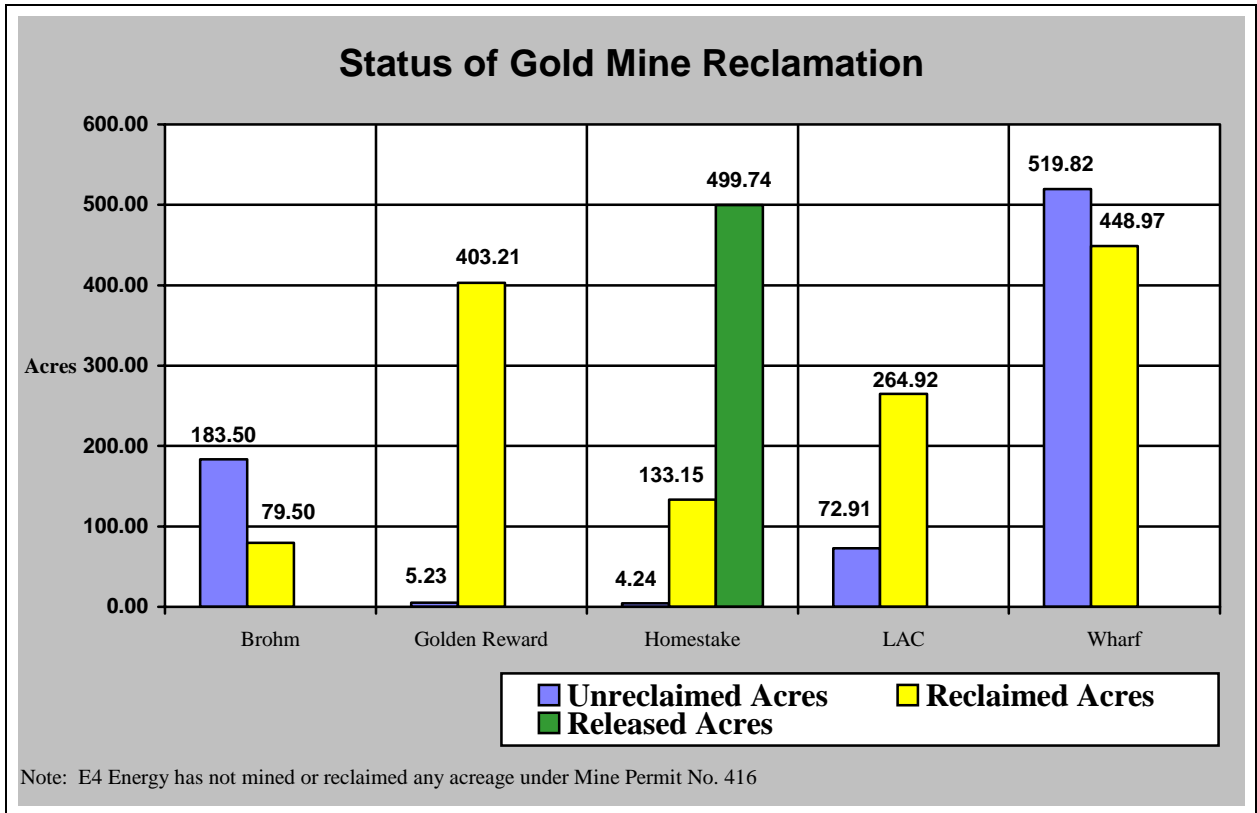


Figure 1A – Unreclaimed, Reclaimed, and Released Acres at Large Scale Surface Gold Mines as of December 31, 2007.

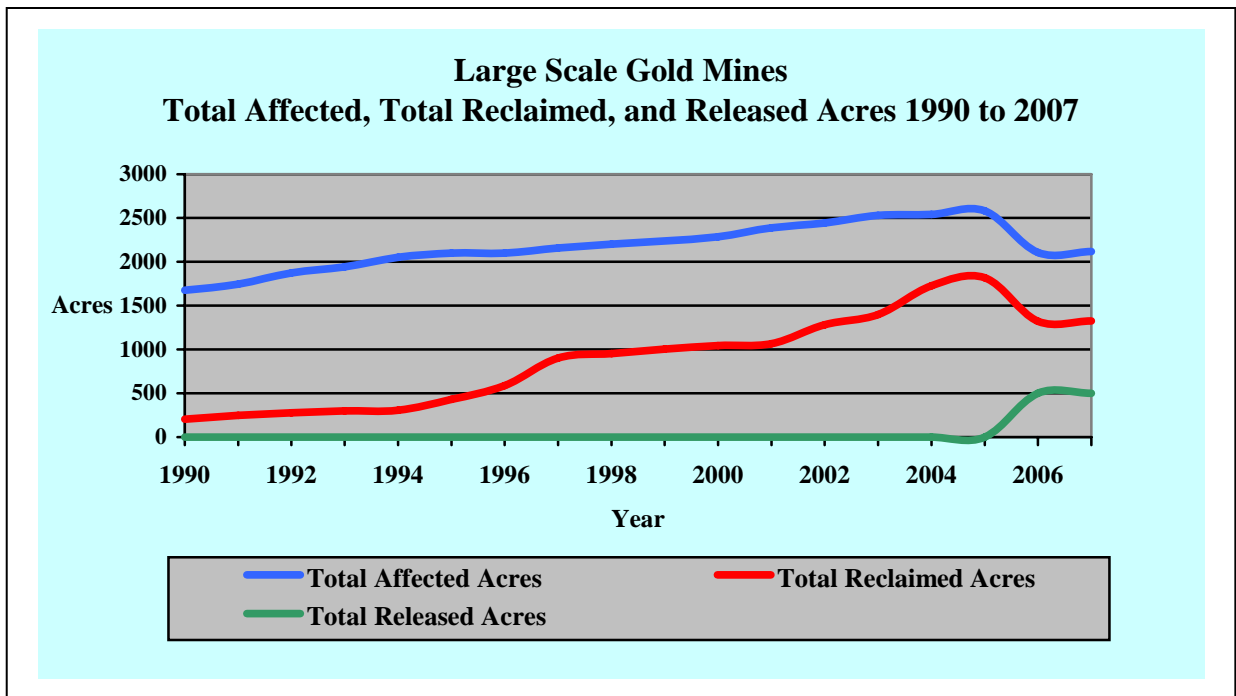


Figure 2A – Total Affected, Total Reclaimed, and Released Acreage at Large Scale Surface Gold Mines from 1990 to 2007.

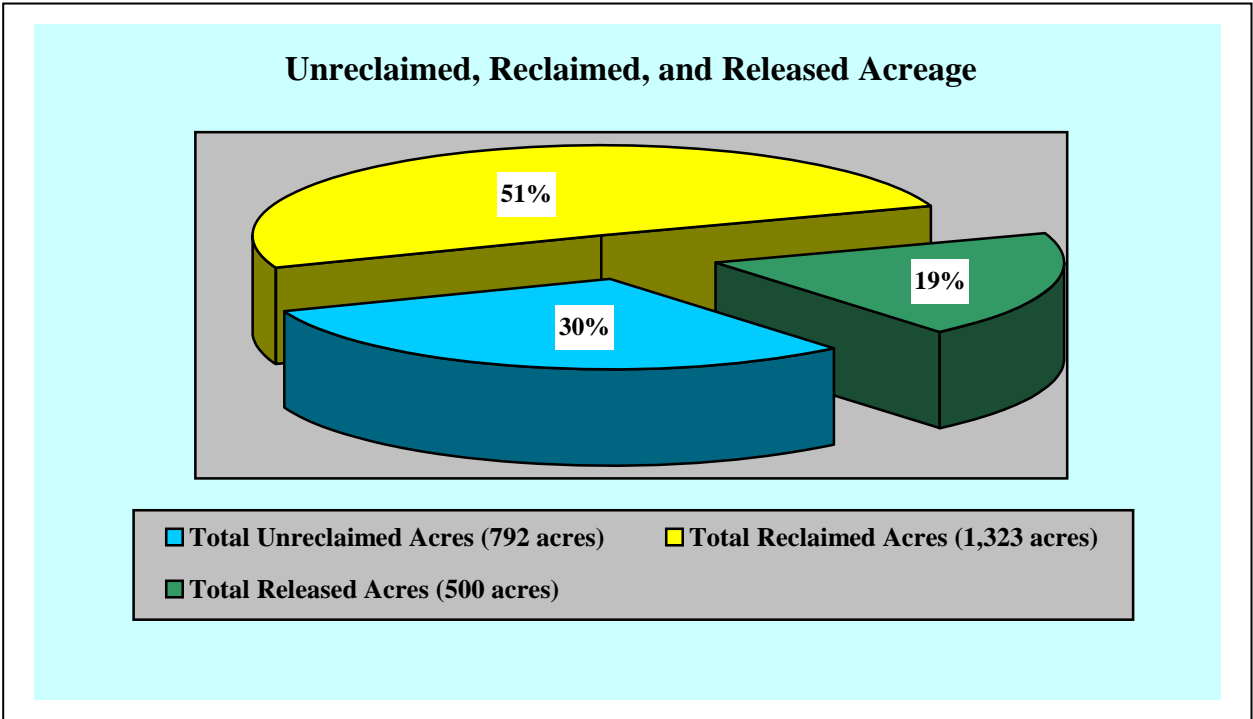


Figure 3A – Comparison of Unreclaimed, Reclaimed, and Released Acreage at Large Scale Surface Gold Mines in 2007.