

# The Mineral Industry of South Dakota

This chapter has been prepared under a Memorandum of Understanding between the Bureau of Mines, U.S. Department of the Interior, and the South Dakota Geological Survey for collecting information on all nonfuel minerals.

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In 1986, the value of South Dakota's nonfuel mineral production was almost \$233 million, an increase of 12% over the 1985 value. The growth was attributed to increases in production and value of gold, lime, and construction sand and gravel. Declining interest rates helped boost building construction, which increased demand for most mineral commodities used in construction. Precious metals production and value increased mostly because of increased metals prices. South Dakota ranked 34th in the Nation for value of nonfuel mineral production.



UNITED STATES DEPARTMENT OF THE INTERIOR • Donald Paul Hodel, Secretary

BUREAU OF MINES • T S Ary, Director

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Table 1.—Nonfuel mineral production in South Dakota<sup>1</sup>

Mineral	1984		1985		1986	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Cement:						
Masonry ----- thousand short tons..	5	\$283	4	W	4	W
Portland ----- do.-----	619	30,773	655	W	635	W
Clays <sup>2</sup> ----- do.-----	119	343	117	\$309	119	\$375
Feldspar ----- short tons..	7,219	124	13,721	W	W	W
Gem stones -----	NA	<sup>e</sup> 70	NA	<sup>e</sup> 70	NA	100
Gold (recoverable content of ores, etc.)						
----- troy ounces..	310,527	111,994	356,103	113,119	W	W
Gypsum ----- thousand short tons..	W	W	34	269	31	268
Sand and gravel (construction) ----- do.-----	5,786	12,168	<sup>e</sup> 6,400	<sup>e</sup> 16,000	9,713	19,853
Silver (recoverable content of ores, etc.)						
----- thousand troy ounces..	50	407	63	388	W	W
Stone:						
Crushed ----- thousand short tons..	<sup>e</sup> 3,800	<sup>e</sup> 12,800	4,071	14,412	<sup>e</sup> 3,600	<sup>e</sup> 12,600
Dimension ----- do.-----	<sup>r</sup> <sup>e</sup> 57	<sup>r</sup> <sup>e</sup> 18,032	<sup>r</sup> 51	<sup>r</sup> 18,336	<sup>e</sup> 55	<sup>e</sup> 18,399
Combined value of beryllium, clays (bentonite), lime, mica (scrap), and values indicated by symbol W -----	XX	11,265	XX	<sup>r</sup> 44,800	XX	181,291
Total -----	XX	<sup>r</sup> 198,259	XX	<sup>r</sup> 207,703	XX	232,886

<sup>e</sup>Estimated. <sup>r</sup>Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" figure. XX Not applicable.

<sup>1</sup>Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

<sup>2</sup>Excludes bentonite; value included with "Combined value" figure.

Table 2.—Nonfuel minerals produced in South Dakota in 1985, by county<sup>1</sup>

County	Minerals produced in order of value
Butte	Clays.
Custer	Stone (crushed), feldspar, mica, beryllium.
Fall River	Stone (crushed).
Grant	Stone (dimension).
Hanson	Stone (crushed).
Lawrence	Gold, stone (crushed), silver.
Minnehaha	Stone (crushed).
Pennington	Cement, stone (crushed), lime, clays, gypsum.
Yankton	Stone (crushed).
Undistributed <sup>2</sup>	Sand and gravel (construction), gem stones.

<sup>1</sup>No production of nonfuel mineral commodities was reported for counties not listed.  
<sup>2</sup>Data not available by county for minerals listed.

Table 3.—Indicators of South Dakota business activity

	1984 <sup>F</sup>	1985	1986 <sup>P</sup>
<b>Employment and labor force, annual average:</b>			
Population	705	708	708
Total civilian labor force	344	343	345
Unemployment	4.3	5.1	4.7
<b>Employment (nonagricultural):</b>			
Mining total	2.7	2.5	2.6
Oil and gas extraction <sup>1</sup>	.2	.1	.1
Manufacturing total	29.2	27.5	28.3
Stone, clay, and glass products <sup>1</sup>	1.1	1.1	1.1
Chemicals and allied products <sup>1</sup>	.2	.3	.3
Construction	9.3	9.5	9.6
Transportation and public utilities	12.3	12.7	12.6
Wholesale and retail trade	65.3	65.9	65.6
Finance, insurance, real estate	13.1	14.0	14.2
Services	57.8	59.3	60.1
Government and government enterprises	57.2	57.9	58.7
<b>Total<sup>2</sup></b>	<b>247.0</b>	<b>249.4</b>	<b>251.6</b>
<b>Personal income:</b>			
Total	\$7,465	\$7,815	\$8,364
Per capita	\$10,586	\$11,034	\$11,814
<b>Hours and earnings:</b>			
Total average weekly hours, production workers	42.1	41.8	42.0
Total average hourly earnings, production workers	\$7.1	\$7.4	\$7.7
<b>Earnings by industry:<sup>3</sup></b>			
Farm income	\$603	\$675	\$883
Nonfarm	\$4,476	\$4,673	\$4,907
Mining total	\$86	\$92	\$92
Metal mining	\$53	\$54	\$59
Nonmetallic minerals except fuels	\$22	\$21	\$20
Oil and gas extraction	\$10	\$13	\$13
Manufacturing total	\$539	\$533	\$575
Primary metal industries	\$6	\$6	\$7
Stone, clay, and glass products	\$23	\$24	\$24
Chemicals and allied products	\$4	\$5	\$6
Construction	\$278	\$294	\$317
Transportation and public utilities	\$420	\$425	\$432
Wholesale and retail trade	\$914	\$939	\$951
Finance, insurance, real estate	\$266	\$293	\$320
Services	\$968	\$1,054	\$1,127
Government and government enterprises	\$959	\$1,010	\$1,052
<b>Construction activity:</b>			
Number of private and public residential units authorized <sup>4</sup>	3,221	2,544	1,981
Value of nonresidential construction <sup>4</sup>	\$101.0	\$90.4	\$106.4
Value of State road contract awards <sup>5</sup>	\$101.3	\$90.4	\$132.2
Shipments of portland and masonry cement to and within the State	228	296	336
<b>Nonfuel mineral production value:</b>			
Total crude mineral value	\$198.3	\$207.7	\$232.9
Value per capita	\$281	\$293	\$329

<sup>P</sup>Preliminary. <sup>F</sup>Revised.  
<sup>1</sup>Bureau of Economic Analysis, Regional Economic Measurement Division, U.S. Department of Commerce.  
<sup>2</sup>Data may not add to totals shown because of independent rounding.  
<sup>3</sup>Includes wages and salaries, proprietors' income, and other labor income; cannot be directly related to employment because of inclusion of proprietors' income.  
<sup>4</sup>Construction Review, International Trade Administration, U.S. Department of Commerce, May-June 1987, pp. 26-27, 35-36.  
<sup>5</sup>Highway and Heavy Construction Magazine, Jan. 1986, p. 32.

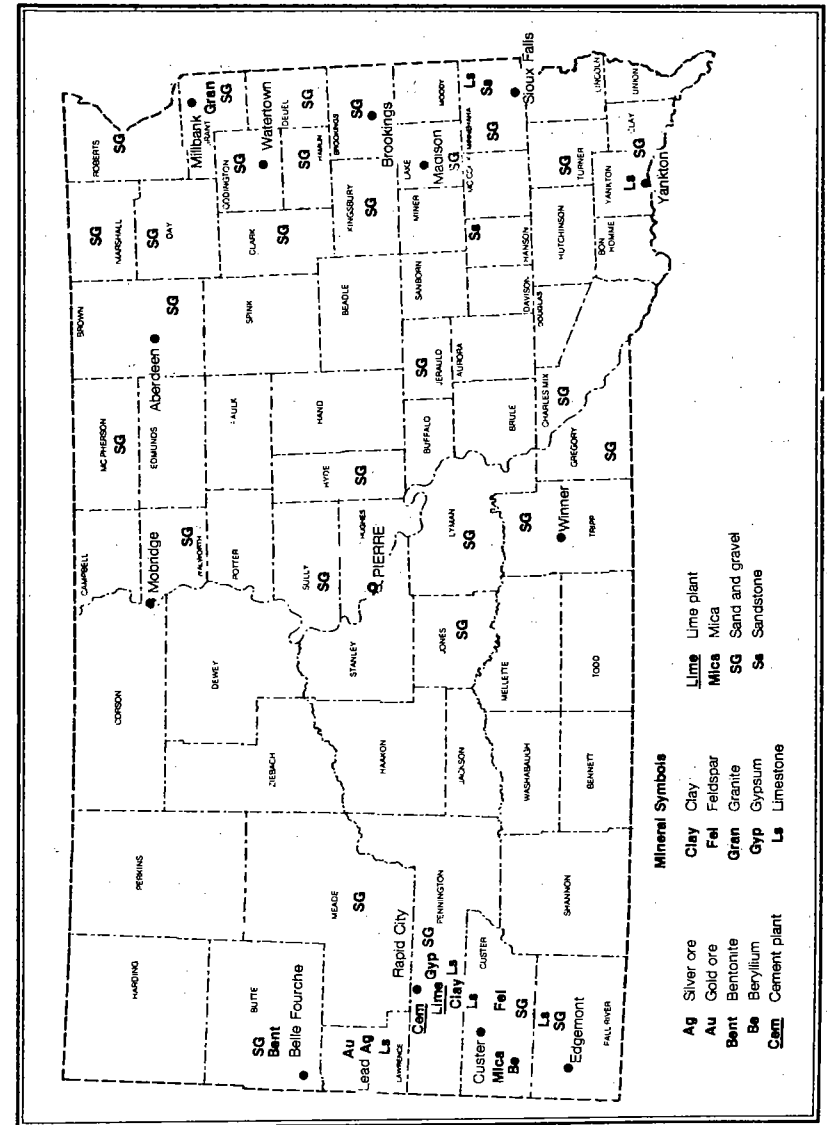


Figure 1.—Principal mineral-producing localities in South Dakota.

**Trends and Developments.**—Environmental concerns about reclamation of open pit gold mines and the effects of cyanide heap-leaching methods on ground water gained a wider audience during 1986. The concerns grew because of increased exploration and announced intentions by several mining companies to mine gold near Lead, in Lawrence County. Additionally, Homestake Mining Co. resumed gold mining operations at its Lead Open Cut Mine, which had been idle since 1945. Advances in

heap-leach technology in recent years have resulted in improved economics for mining large, low-grade gold deposits. This in turn has spawned an increase in exploration activity in the Black Hills by foreign and domestically owned mining companies. Ten life-of-mine permits, summarized in table 4, were issued by the State during 1986. These permits also reflected increased precious metals activity; four of them were issued for gold-silver operations in 1986 compared with one during 1985.

Table 4.—South Dakota: Life-of-mine permits issued in 1986

Company	County	Commodities
A & H Mining	Custer	Pegmatite minerals.
Gilt Edge Inc. (Brohm Resources Inc.)	Lawrence	Gold and silver.
Pacer Corp. <sup>1</sup>	Custer	Pegmatite minerals.
South Dakota Cement Commission	Pennington	Limestone.
Do.	do	Shale.
Trojan Mining Co.	Lawrence	Gold and silver.
Wharf Resources (U.S.A.) Inc. <sup>2</sup>	do	Do.

<sup>1</sup>3 permits issued.

<sup>2</sup>2 permits issued.

Source: South Dakota Department of Water & Natural Resources, Exploration and Mining Program.

**Employment.**—Mining employment for 1986 increased 4%, to 2,600 workers, compared with that of 1985.<sup>2</sup> This was the largest percentage growth among industries for which the South Dakota Department of Labor compiled statistics.

**Exploration Activities.**—During 1986,

gold exploration in the Northern Black Hills continued at the near feverish pace witnessed in 1985. Of the 18 new exploration permits issued by the State in 1986, 15 were for gold and other precious metals. A summary of permitting activities is provided in table 5.

Table 5.—South Dakota: Exploration permits issued in 1986

Company	County	Commodities
FMC Corp.	Custer	Precious metals.
Frank Fowler & Associates	do	Gold and garnets (placers).
Freeport-McMoRan Gold Co.	Pennington	Precious and base metals.
Gilt Edge Inc. (Brohm Resources Inc.)	Lawrence	Gold.
Homestake Mining Co.	do	All minerals, except uranium.
Meridian Minerals Co. <sup>1</sup>	Minnehaha	Quartzite.
Moruya Gold Mines of North America Inc.	Lawrence	Gold and silver.
Noranda Exploration Inc.	Pennington	Do.
SABA Resources Corp.	Butte	Do.
St. Joe American Corp. <sup>2</sup>	Lawrence	Do.
Seis Pros Services Inc.	Harding	Oil and gas.

<sup>1</sup>2 permits.

<sup>2</sup>7 permits.

Source: South Dakota Department of Water & Natural Resources, Exploration and Mining Program.

Wharf Resources Ltd. reported 57,884 feet of exploration drilling in 1986. All of the drilling was done to define additional reserves at its Annie Creek-Foley Ridge Mine in Lawrence County. St. Joe Gold Corp. continued drilling exploration in the vicinity of its Richmond Hill-Turn-around de-

posit in the Carbonate Mining District in Lawrence County.

**Legislation and Government Programs.**—There were two mineral industry-related laws enacted during 1986. One requested a 1986 interim study regarding the social and economic effects of surface min-

ing. The other revised certain severed mineral interest taxation provisions.

Legislation was enacted that allows minting of South Dakota centennial commemorative coins. A contractor would mint 0.999 fine gold or silver coins, sell them and pay the State a royalty for use of the State seal.

The South Dakota Geological Survey, in a cooperative effort with the U.S. Geological Survey, continued its geologic-hydrologic mapping program of the eastern South Dakota counties. Sand and gravel resource evaluations were included in the mapping effort.

In September, results were released on a study by Engineering-Science of Denver, CO, of heap-leach technology and potential environmental effects in the Black Hills.<sup>3</sup> The study was done on behalf of the U.S. Environmental Protection Agency, Water

Management Division. The study indicated that since a cyanide heap-leach facility is a closed system and would not ordinarily discharge fluids to surface or ground water, impacts from a properly designed and operated project would not be a greater threat to the environment than projects not using cyanide. It further stated that in the unlikely event of a discharge, most impacts would be short term because of dilution and cyanide attenuation.

The U.S. Bureau of Mines distributed \$142,000 to the State's Mining and Mineral Resources and Research Institute of the South Dakota School of Mines and Technology at Rapid City. The funds were provided as part of a program to assist the institute's efforts in training engineers and scientists in mineral-related disciplines.

## REVIEW BY NONFUEL MINERAL COMMODITIES

### METALS

Metal production accounted for over one-half of the State's mineral value in 1986. South Dakota was the site of the second largest gold-producing mine in the country and ranked third of 15 States in gold production.

**Beryllium.**—Pacer Corp. produced beryl, feldspar, and mica from pegmatite deposits in Custer County. Production and value increased markedly compared with 1985 figures. The increases were attributed to

the corporation's resumption of purchases from small mining operations and intensified marketing efforts.

**Gold.**—South Dakota ranked behind Nevada and California, which ranked first and second, respectively, in gold production. According to Homestake Mining Co. and Wharf Resources Ltd. annual reports to stockholders, gold production totaled 367,715 ounces. The average gold price in 1986 was about \$368 per troy ounce.

Table 6.—South Dakota: Mine production of gold and silver in terms of recoverable metal

Year	Mines producing		Material sold or treated <sup>1</sup> (thousand metric tons)	Gold (lode and placer)		Silver (lode and placer)	
	Lode	Placer		Troy ounces	Value (thousands)	Thousand troy ounces	Value (thousands)
1982	1	--	1,059	185,038	\$69,558	26	\$209
1983	2	--	1,771	309,784	131,348	62	713
1984	2	--	2,252	310,527	111,994	50	407
1985	2	--	2,309	356,103	113,119	63	388
1986	3	--	W	W	W	W	W
1876-1985	NA	NA	NA	38,970,185	2,103,130	13,706	16,318

NA Not available. W Withheld to avoid disclosing company proprietary data.

<sup>1</sup>Excludes placer gravel.

Homestake was the State's largest gold producer. In February, the company began excavation of about 25 million cubic yards of overburden and ore at its Open Cut Mine at Lead. Excavation was expected to cost about \$56 million and to take 5 years. Life of the mine, based on 1986 economics,

was expected to be about 15 years. The Open Cut is the site of the original discovery, in 1877, which would become the Homestake Mine. The Open Cut was last mined in 1945 after removal of about 40 million short tons of ore.<sup>4</sup> Ore reserves total about 6.5 million tons, with an average

grade of 0.127 troy ounce per ton.<sup>5</sup> During 1986, ore was hauled to Homestake's South Mill by dump truck. At yearend, construction was essentially completed on a new crusher and pipe conveyor system at the Open Cut. The conveyor will span 6,600 feet and was designed to transport 350 tons of ore per hour. It was the first of its kind in the United States and the longest in the world. The company expects the system will improve mining economics and safety by eliminating the need to haul ore by truck through the town of Lead; thereby reducing dust and noise problems. At yearend, more than 13.1 million tons of ore and waste had been mined and nearly 32,000 ounces of gold recovered. The project was expected to become fully operational in March 1987.

Mining and exploration work at the Homestake Mine continued below the 6,800-foot level. Major development work occurred on the 6,950, 7,100, 7,250, 7,550, 7,700, and 8,000-foot levels. Late in the year, sinking of the No. 4 Winze from the 6,950- to 7,450-foot level was begun. Exploration drilling also continued below 8,000 feet. Homestake Mine ore reserves totaled about 18.8 million tons with an average grade of about 0.212 troy ounce per ton. Average grade of ore from underground operations in 1986 was 0.174 ounce per ton, and total gold production was 341,647 ounces. The company also reported an average production cost of \$298 per ounce in 1986, an increase over the \$294 per ounce reported in 1985. Overall grade of ore milled improved slightly, and mill recovery improved to 94.7%.<sup>6</sup>

A new 3-year labor contract signed during the year will be in effect until May 31, 1989.

Wharf Resources (U.S.A.) Inc., a wholly owned subsidiary of Wharf Resources Ltd., a Canadian company continued operations at its Annie Creek-Foley Ridge deposit in the Bald Mountain Mining District west of Lead. According to the Wharf annual report to shareholders, gold production was a little over 26,000 troy ounces. Average ore grade for the deposit was 0.048 ounce of gold per ton, and average cash operating cost per ounce of gold sold was \$176.

In June, Wharf essentially completed mining the Annie Creek open pit and began opening the Foley Ridge North and South Pits. Construction on Heap Leach Pad No. 3 also was begun. In April, the company completed purchase of the remaining interest of Homestake in the Foley Ridge deposit. During 1986, Wharf also upgraded its

facilities, which will increase ore production to about 1.2 million tons per year by using a load-unload leach pad system. A tertiary crushing system that will reduce the size of crushed ore to about one-half inch was installed. This additional crushing step will allow the company to convert its heap-leach system from 100-foot-high heaps to 20-foot-high heaps. The smaller heaps will shorten the time needed for cyanide leaching of the rock from 350 to 60 days and will increase gold recovery from about 70% to 74%. After the leaching cycle has been completed, the heaps will be neutralized with hydrogen peroxide solution to reduce the residual sodium cyanide content to acceptable levels. Once the waste residue is neutralized, it will be hauled to a disposal site and the leach pads will be reused. The transition to 20-foot heaps was expected to be completed in 1988 if the neutralizing procedure proves satisfactory.

St. Joe Gold, a subsidiary of St. Joe Minerals Corp., continued evaluation of its Richmond Hill deposit in the Carbonate District near Lead. The project is a joint venture between St. Joe Gold and Viable Resources Inc. of Casper, WY. St. Joe Gold controlled about 6 square miles around the old Carbonate Mine. Drilling outlined a gold deposit reaching to depths of about 245 feet that may be amenable to heap-leach processing. Preliminary ore reserve estimates ranged from 3 to 6 million tons.<sup>7</sup> In June, St. Joe Gold began a feasibility study to determine whether it should file for a State mining permit for the Richmond Hill deposit and the nearby Turnaround deposit.

Brohm Resources Inc. completed the permitting process for the Gilt Edge Project in Lawrence County. Brohm bought the Lacana Gold Inc. interest in the Gilt Edge gold mine in February. Life of the mine is expected to be 7 to 10 years, with production rates up to 750,000 tons of ore per year.<sup>8</sup>

Golden Reward Mining Co.—a joint venture composed of Moruya Gold Mines (1983) NL of Australia, Coin Lake Gold Mines Ltd. of Canada, and Ventures Trident of Colorado—continued exploration and environmental assessment of its property southwest of Lead. The Coin Lake 1986 annual report to stockholders stated that ore reserves at a cutoff grade of 0.03 ounce of gold per ton totaled about 3.2 million tons with an average grade of 0.079 ounce of gold per ton.

**Silver.**—Homestake continued to produce silver as a coproduct from mining oper-

ations at the Homestake Mine. Production and value posted increases in 1986 compared with 1985 figures. Average silver price for the year was about \$5.47 per troy ounce.

#### INDUSTRIAL MINERALS

**Cement.**—Portland cement sales and attendant value decreased about 3% in 1986. Masonry cement sales for the same period declined about 5% in both quantity and value. The only government-owned cement plant in the Nation, and the only plant in South Dakota, is operated by the State. The business is administered by the seven-member South Dakota Cement Commission, which is appointed by the Governor. The facility can produce up to 1 million short tons of cement per year. Cement products are marketed in South Dakota, its six adjacent States, and Colorado. About 57% of the finished portland cement was sold to ready-mixed concrete companies, 11% to highway contractors; 19% to other contractors; and 13% to various other consumers.

**Clays.**—The South Dakota Cement Commission mined common clay and shale in Pennington County for its own use in the State-owned cement plant at Rapid City. Production and value increased about 2% and 21%, respectively.

Crude bentonite was mined in Butte County by American Colloid Co. and processed at its Belle Fourche plant. The product was sold for more than 2 dozen uses, including animal feed additive, drilling muds, foundry sand, pelletizing iron, and waterproofing and sealing. Production increased over that of 1985.

**Feldspar.**—In 1986, Pacer was the only processor of feldspar in South Dakota. Production decreased slightly. Pacer owns several surface mines and a crushing plant in Custer County. Ore from the pegmatite district of the Southern Black Hills is mined by Pacer and about 25 independent mine operators. After crushing at Pacer's plant in Custer, the product is sold in bulk and bag form to the electrical, porcelain, and pottery industries.

**Gem Stones.**—The collection of gem

stones and mineral specimens was a small but active facet of the mineral industry. Production statistics are not available; however, value was estimated to have increased about 43%. Several varieties of agate are found in the State, as are many types of vertebrate and invertebrate fossils.

**Gypsum.**—In 1986, crude gypsum production was down about 9% and value was basically unchanged. The South Dakota Cement Commission surface mined crude gypsum from a deposit in Pennington County where it was crushed and shipped by rail to the commission's cement plant in Rapid City.

**Lime.**—Pete Lien & Sons Inc. produced both hydrated lime and quicklime at a plant in Rapid City and was the only producer in South Dakota. In 1986, production and value increased about 27% and 47%, respectively. Limestone was supplied from a surface mine in Pennington County.

**Mica.**—Mica production during 1986 increased about 113%, and value increased 81%. The substantial increases were due to intensified efforts by Pacer to identify new markets.

**Sand and Gravel (Construction).**—Construction sand and gravel is surveyed by the U.S. Bureau of Mines for even-numbered years only; this chapter contains actual data for 1984 and 1986 and estimates for 1985. Data for odd-numbered years are based on annual company estimates.

South Dakota's sand and gravel production in 1986 increased 52% in tonnage over that estimated for 1985 and reflected expanded survey coverage. A total of 162 firms and government agencies reported production from 340 pits in 61 of the State's 66 counties. In the previous canvass year of 1984, production was reported by 106 entities that operated at 183 sites in 50 counties.

Principal producing counties, in descending order of production, were Minnehaha, Pennington, Codington, Brown, and Davison. Production from each was in excess of 500,000 tons, and together they accounted for over one-third of the State's output.

**Table 7.—South Dakota: Construction sand and gravel sold or used in 1986, by major use category**

Use	Quantity (thousand short tons)	Value (thousands)	Value per ton
Concrete aggregates (including concrete sand) -----	1,148	\$4,205	\$3.66
Plaster and gunita sands -----	8	38	4.75
Concrete products (blocks, bricks, pipe, decorative, etc.) -----	W	W	3.58
Asphaltic concrete aggregates and other bituminous mixtures -----	1,366	3,122	2.29
Road base and coverings <sup>1</sup> -----	4,468	6,745	1.50
Fill -----	464	681	1.47
Snow and ice control -----	45	203	4.51
Railroad ballast -----	W	W	1.00
Other <sup>2</sup> -----	69	141	2.05
Other unspecified <sup>3</sup> -----	2,145	4,718	2.20
Total or average -----	9,713	19,853	2.04

W Withheld to avoid disclosing company proprietary data; included with "Other."

<sup>1</sup>Includes road and other stabilization (cement).

<sup>2</sup>Includes roofing granules and data indicated by symbol W.

<sup>3</sup>Includes production reported without a breakdown by end use and estimates for nonrespondents.

**Stone.**—Stone production is surveyed by the U.S. Bureau of Mines for odd-numbered years only; this chapter contains only estimates for 1984 and 1986 and actual data for 1985. Data for even-numbered years are based on annual company estimates.

**Crushed.**—Estimated production and value of crushed stone in 1986 was down about 12% and 13%, respectively.

**Dimension.**—In 1986, estimated production increased about 8%, with value remaining about the same as that of 1985. Average value per short ton decreased 6%.

<sup>1</sup>State Mineral Officer, Bureau of Mines, Minneapolis, MN.

<sup>2</sup>South Dakota Labor Bulletin. 1986 Nonfarm Employment in Review, Jan. 1987.

<sup>3</sup>U.S. Environmental Protection Agency, Water Management Division, State Programs Branch, Denver, CO. Heap Leach Technology and Potential Effects in the Black Hills. 1986, 367 pp.

<sup>4</sup>Atlas Blasting News. Blasting is Key Factor in Open Cut Project at Homestake Mine. Oct. 1986.

<sup>5</sup>Homestake Mining Co. 1986 Annual Report.

<sup>6</sup>Work cited in footnote 5.

<sup>7</sup>The Rapid City Journal. Another Company Exploring for Gold. June 28, 1986.

<sup>8</sup>Lead Daily Call. Canadian Firm Wants To Mine Gilt Edge. July 11, 1986.

**Table 8.—Principal producers —Continued**

Commodity and company	Address	Type of activity	County
<b>Sand and gravel (construction) — Continued</b>			
Fischer Sand & Gravel Co ---	Box 1034 Dickinson, ND 58601	Pits and plants -----	Charles Mix, Davison, Lawrence, Ziebach.
Mehlhoff Construction Co ---	Route 1, Box 25 Tripp, SD 57376	Pit and plant -----	Hutchinson.
Myrl & Roy's Paving Inc -----	1500 East 39th St. North Sioux Falls, SD 57101	Pits and plants -----	Minnehaha.
Sweetman Construction Inc ---	100 South Dakota Ave. Summit, SD 57266	-----do-----	Minnehaha and Roberts.
<b>Silver:</b>			
Homestake Mining Co -----	Box 875 Lead, SD 57754	See "Gold" -----	Lawrence.
<b>Stone (1985):</b>			
<b>Crushed:</b>			
<b>Limestone:</b>			
Pete Lien & Sons Inc ---	Box 440 Rapid City, SD 57709	Quarries and plants -----	Custer and Pennington.
Northwestern Engineering Co. (Hills Materials Co.)	Box 2320 Rapid City, SD 57709	-----do-----	Fall River and Pennington.
South Dakota Cement Commission.	Box 360 Rapid City, SD 57709	Quarry and plant -----	Pennington.
Sandstone-quartzite: Concrete Materials Co	Box 809 Sioux Falls, SD 57101	-----do-----	Minnehaha.
L. G. Everist Inc ---	Box 829 Sioux Falls, SD 57101	-----do-----	Do.
Spencer Quarries Inc	Box 25 Spencer, SD 57374	-----do-----	Hanson.
<b>Dimension:</b>			
<b>Granite:</b>			
Cold Spring Granite Co.	202 South 3d Ave. Cold Spring, MN 56320	Quarries -----	Grant.
Dakota Granite Co --	Box 1351 Milbank, SD 57252	-----do-----	Do.

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**Table 8.—Principal producers**

Commodity and company	Address	Type of activity	County
<b>Beryllium concentrate:</b>			
Pacer Corp -----	Box 912 Custer, SD 57730	Mine and plant -----	Custer.
<b>Cement:</b>			
South Dakota Cement Commission.	Box 360 Rapid City, SD 57709	3 rotary kilns -----	Pennington.
<b>Clays:</b>			
American Colloid Co -----	5100 Suffield Ct. Skokie, IL 60076	Open pit mine and plant ---	Butte.
South Dakota Cement Commission.	Box 360 Rapid City, SD 57709	Open pit mine -----	Pennington.
<b>Feldspar:</b>			
Pacer Corp -----	Box 912 Custer, SD 57730	Open pit mines and dry-grinding plant.	Custer.
<b>Gold:</b>			
Homestake Mining Co -----	Box 875 Lead, SD 57754	Underground and open pit mines, cyanidation mill, refinery.	Lawrence.
Wharf Resources (U.S.A.) Inc --	Box 897 Lead, SD 57754	Open pit mine and heap leaching.	Do.
<b>Gypsum:</b>			
South Dakota Cement Commission.	Box 360 Rapid City, SD 57709	Open pit mine -----	Pennington.
<b>Lime:</b>			
Pete Lien & Sons Inc -----	Box 440 Rapid City, SD 57709	1 rotary kiln, 1 vertical kiln, continuous-hydrator plant.	Do.
<b>Mica:</b>			
Pacer Corp -----	Box 912 Custer, SD 57730	Mine and dry-grinding plant	Custer.
<b>Sand and gravel (construction):</b>			
Birdsall Sand & Gravel Co ---	Box 767 Rapid City, SD 57709	Pits and plants -----	Fall River, Pennington, Sully.