

# THE MINERAL INDUSTRY OF UTAH

**This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Utah Geological Survey for collecting information on all nonfuel minerals.**

In 1999, the preliminary estimated value<sup>1</sup> of nonfuel mineral production for Utah was \$1.26 billion, according to the U.S. Geological Survey (USGS). This was about a 6% decrease from that of 1998,<sup>2</sup> and followed a 20.2% decrease from 1997 to 1998. The State ranked 11th (9th in 1998) among the 50 States in total nonfuel mineral production value, of which Utah accounted for more than 3% of the U.S. total.

Metals accounted for about 62% of Utah's nonfuel mineral production value, copper being a substantial majority of the State's entire metal value. In 1999, the largest increase in value was an approximate \$22 million increase in the value of potash. Smaller yet significant increases of about \$4 million occurred in magnesium metal, portland cement, crushed stone, and magnesium compounds (descending order of the magnitude of change). However, decreases were greater, resulting in a net drop in value: copper was down \$42 million; construction sand and gravel, \$20 million; and gold, \$5 million. Lime and molybdenum also had small yet significant decreases in value (table 1).

In 1998, the drop in Utah's value from that of 1997 was mainly attributable to decreases of about \$200 million in the value of copper, \$121 million in gold, \$75 million in molybdenum, \$14 million in phosphate rock, and almost \$11 million in that of crushed stone (table 1). Smaller yet significant decreases occurred in silver and gypsum. Somewhat offsetting these decreases were higher values for construction sand and gravel, up about \$41 million; portland cement, up about \$29 million; and potash, up almost \$9 million. Although the amounts of increase were smaller, magnesium metal and Grade-A helium also had significant increases.

Based upon USGS estimates of quantities produced in the 50 States during 1999, Utah remained the only State to produce beryllium concentrates and was the first of 2 magnesium-metal-producing States. The State continued as second in copper and

<sup>1</sup>The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the minerals or mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 1999 USGS mineral production data published in this chapter are preliminary estimates as of May 2000, and are expected to change. For some mineral commodities, such as, construction sand and gravel, crushed stone, and portland cement, estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. A telephone listing for the specialists may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals/contacts/comdir.html>, by using MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset (request Document #1000 for a telephone listing of all mineral commodity specialists), or by calling USGS information at (703) 648-4000 for the specialist's name and number. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

<sup>2</sup>Values, percentage calculations, and rankings for 1998 may vary from the Minerals Yearbook, Area Reports: Domestic 1998, Volume II, owing to the revision of preliminary 1998 to final 1998 data. Data for 1999 are preliminary and are expected to change; related rankings may also be subject to change.

potash; fourth in gold, molybdenum, phosphate rock, and Grade-A helium; and fifth in silver, bentonite, and perlite. Utah rose to third from fourth in magnesium compounds, to fifth from sixth in salt, to sixth from seventh in gemstones, but dropped from sixth to ninth in construction sand and gravel. Additionally, the State was a significant producer of lime.

The Utah Geological Survey<sup>3</sup> (UGS) provided the narrative information that follows. Production data in the following text are those reported by the UGS, based upon its own surveys, estimates, and information gathered from company annual reports. The UGS data may differ from some USGS preliminary estimates and production figures as reported to and estimated by the USGS.

Utah has 79 active large mines (excluding sand and gravel) that are grouped by industry segment as follows: base metals, 4; precious metals, 1; coal, 14; and industrial minerals, 60. The State has more than 350 active and permitted small mines; 80 reported production in 1998, the same number as in 1997. Producing small mines are grouped as follows: industrial minerals, 62 (including building, decorative, and dimension stone); gemstones, 7; precious and base metals, 7, and fossils and geodes, 4.

In December 1999, the Utah Division of Oil, Gas and Mining (DOGMA) sent 434 annual production questionnaires to all large mine (2 hectares (ha) and larger disturbance) and small mine (less than 2 ha disturbance) permit holders. By March 10, 2000, 289 questionnaires had been returned. Sixty-one large mines and 98 small mines reported production. Several reporting mines produced more than one commodity. In addition, 12 coal mines reported production in 1999.

Base-metal production, valued at \$626 million, was the largest contributor to the value of minerals produced in 1999. In descending order of value, those metals were: copper, magnesium metal, molybdenum, and beryllium. Kennecott Utah Copper Corp.'s Bingham Canyon Mine, a few kilometers west of Salt Lake City in Salt Lake County, was the State's only significant producer of copper, molybdenum, and silver and was a major producer of gold. The combined value of minerals produced from the Bingham Canyon Mine was more than one-third of the total value of all minerals produced statewide.

Kennecott's Bingham Canyon Mine produced approximately 279,000 metric tons (t) of copper metal in 1999, a slight decrease from 1998 production of approximately 298,000 t. Refinery production rose from 239,000 t to 265,000 t in 1999.

Magnesium Corp. of America produced magnesium metal from Great Salt Lake brines at its electrolytic plant at Rowley in Tooele County. The plant had a capacity to produce 40,000 metric tons per year (t/yr) magnesium metal (99.9% purity), but production was less than capacity in 1999 due to decreased worldwide demand and low domestic producer prices.

<sup>3</sup>Robert Gloyn, Senior Geologist, and Roger Bon, Industry Outreach Specialist, at the Utah Geological Survey authored the text of the State minerals information provided by that agency.

The sole molybdenum producer in Utah was Kennecott's Bingham Canyon Mine, which produced more than 10,000 t of molybdenum concentrate ( $\text{MoS}_2$ ) in 1999, a slight increase from the amount produced in 1998 (R.L. Bon and R.W. Gloyn, Utah Geological Survey, 1999 summary of mineral activity in Utah, accessed November 15, 2000, via URL <http://www.ugss.state.ut.us/economic.htm>). Bingham Canyon was 1 of 8 (down from 11 in 1998) molybdenum-producing mines in the United States in 1999.

Utah led the Nation in production of beryllium. Brush Wellman Inc. mined beryllium ore (bertrandite) at its Topaz and Hogs Back Mines in Juab County and processed it with imported beryl at the company's plant a few kilometers north of Delta in Millard County. The product (beryllium hydroxide) was then sent to the company-owned refinery and finishing plant in Ohio where it was converted into beryllium metal, alloys, and oxide. In 1999, approximately 91,000 t of ore was mined and trucked to the company's Delta plant for processing, a slightly lower amount than in 1998. The demand for beryllium alloys and beryllium oxide has increased modestly over the past several years as alloys are increasingly being used in components for the automotive and electronics industries.

No vanadium or uranium ores were mined in Utah in 1999, although the White Mesa mill, near the town of Blanding in San Juan County, processed stockpiled vanadium and uranium ores mined in Colorado. Vanadium ( $\text{V}_2\text{O}_5$ ) 907 t and uranium ( $\text{U}_3\text{O}_8$ ) 221 t were recovered.

Precious-metal production, valued at \$153 million, included gold (87% of total value) and silver (13% of total value). Gold production in 1999 was estimated to be more than 15 t, a slight increase from the nearly 14 t produced in 1998. Gold was produced from two surface mines owned by Kennecott Corp.: one primary producer (Barneys Canyon Mine) and one byproduct operation (Bingham Canyon Mine), both in Salt Lake County. Several small mines in the State produced minor amounts of precious metals, but metal-specific production was not reported and was not included in the above totals. In 1999, silver production statewide was estimated to be approximately 115 t, nearly 9 t less than in 1998. The Bingham Canyon Mine produced nearly all of this silver as a byproduct metal of copper mining.

The industrial minerals segment, with 1999 production valued at \$583 million, was the second-largest contributor to the value of minerals produced in Utah. Major commodities produced by group or individual commodity in descending order of value included: (1) sand and gravel and crushed stone; (2) portland cement, lime, limestone, and dolomite; (3) salines, including sulfate of potash, salt, potash (KCl), and magnesium chloride; (4) phosphate rock; (5) gilsonite; (6) common clay and bentonite; (7) expanded shale and perlite; and (8) gypsum.

Sand and gravel and crushed stone (including limestone and dolomite) were the largest contributors to the value of industrial minerals produced in 1999. These materials were produced in every county in Utah by commercial operators, and by State, Federal, and county agencies. Data compiled by the USGS show that in 1998, 40.7 million metric tons (Mt) of sand and gravel and 11.8 Mt of crushed stone were produced with a combined value of \$179.3 million. USGS's estimate for the combined value of sand and gravel and crushed stone for 1999 (based upon the USGS 1999 midyear data) was \$188.7 million. Several large crushed stone producers included: Valley Asphalt

Co. from two quarries in Utah County, Staker Paving and Construction Co. from one quarry in Salt Lake County and one quarry in Utah County, IME Inc. from one quarry in Utah County, and Harper Construction Co. from one quarry in Salt Lake County. Due to increased highway construction, airport runway construction, rapid population growth, and railroad maintenance (ballast), usage should remain relatively high for the next several years.

Portland cement, lime, limestone, and dolomite were the second highest value industrial minerals produced in 1999 with a combined value of \$156.4 million. Two operators produced portland cement in Utah: Holnam, Inc. and Ash Grove Cement Co. Holnam's Devil's Slide plant is east of Morgan in Morgan County, and Ash Grove's Leamington plant is east of Lynndyl in Juab County. The two plants have a combined capacity of more than 1.4 million metric tons per year of cement. Both plants operated at or near capacity in 1999.

Lime production was slightly higher in 1999 than in 1998. Continental Lime Co., which produced high-calcium and dolomitic quicklime, and Chemical Lime Co., which produced dolomitic quicklime and hydrate, had a combined capacity of more than 900,000 t/yr. Both operations served markets in Utah and surrounding States. Continental Lime's plant is approximately 56 kilometers (km) southwest of Delta in Millard County, and Chemical Lime of Arizona's plant is near Grantsville in Tooele County.

Nine large mine operators quarried 3.2 Mt of limestone and dolomite in 1999, of which 1.94 Mt was used in the construction industry. Approximately 272,000 t was used in steelmaking and for flue gas desulfurization in powerplants. A small amount of limestone and dolomite was also crushed to a fine powder and marketed as "rock dust" to the coal mining industry.

Saline resources were the third largest contributor to the value of industrial mineral production in Utah. In addition to salt, saline products included magnesium chloride, potash (potassium chloride or KCl), and sulfate of potash (SOP). One company, North Shore Limited Partnership, produced a small amount of concentrated brine, which was used as an ingredient in health food mineral supplements. The statewide production of salt and other saline products, excluding magnesium metal, was estimated to be 2.9 Mt in 1999, 420,000 t more than in 1998.

Salt production alone was estimated to be 2.12 Mt in 1999, with most of the production coming from three operators using brine from Great Salt Lake. These operators were, in descending order of production: IMC Kalium Ogden, Inc. (formerly GSL Minerals, Inc.), Cargill Salt Co., and Morton International, Inc. In addition, three other companies produced salt from operations not related to Great Salt Lake: Reilly Chemical Co. at Wendover in Tooele County, Moab Salt Co. (a subsidiary of Potash Corp. of Saskatchewan) near Moab in Grand County, and Redmond Minerals Inc. near Redmond in Sanpete County.

KCl and SOP were produced by three companies: IMC Kalium Ogden Inc. (SOP), Reilly Chemical Co. (KCl), and Moab Salt Co. (KCl). Potash production was estimated to be more than 426,000 t in 1999, approximately 36,000 t less than in 1998.

Utah's only active phosphate mine, SF Phosphate Ltd.'s Vernal Phosphate Operation, is 18 km north of Vernal in Uintah County. SF Phosphate is a partnership of Farmland Industries, Inc. (Missouri) and J.R. Simplot Co. (Idaho). During 1999 the

mine produced substantially more than 2.3 Mt of ore, the highest production level in the past 8 years.

Gilsonite production for 1999 was estimated to be more than 45,000 t, approximately 9,000 t less than in 1998. Gilsonite is an unusual solid hydrocarbon that has been mined in Utah for more than 100 years. The three operations that produced gilsonite are all near the town of Bonanza in eastern Uintah County. In descending order of production they were: American Gilsonite Co.'s Bonanza Mine, Zeigler Chemical and Minerals Co.'s Zeigler and Tom Taylor Mines, and Lexco, Inc.'s Cottonwood Mine.

More than 263,000 t of both common and high-alumina clay and approximately 91,000 t of bentonite were produced by five companies in 1999, a 23% increase in common and high-alumina clay and a 19% increase in bentonite compared with 1998. In descending order of production the companies were: Interstate Brick Co. (common clay), Interpace Industries Inc. (common clay), Redmond Minerals, Inc. (bentonite), Paradise Management Co. (high-alumina clay), and Western Clay Co. (bentonite). More than 75% of all clay was used in the manufacture of brick. Two other companies (Holnam Inc. and Ash Grove Cement Co.) mined modest amounts of shale for use in the manufacture of cement.

Two companies produced lightweight aggregate. Utelite Inc. mined more than 181,000 t of shale in 1999 to manufacture "expanded shale" for use in the construction industry. The mine is near the town of Wanship in Summit County. Production of "expanded shale" products has increased moderately over the past several years. Pearl Queen Perlite Corp. produced approximately 18,000 t of perlite in 1999 from its recently opened perlite mine northeast of Milford in Beaver County. The ore was trucked to the company's mill in Milford for processing and distribution.

Five large mine operators produced more than 435,000 t of gypsum in 1999, 73,000 t more than in 1998. The companies were, in descending order of production, Georgia Pacific Corp., U.S. Gypsum Co., Nephi Gypsum, H.E. Davis and Sons, and D.K. Gypsum Industries. Both U.S. Gypsum and Georgia Pacific operated wallboard plants near Sigurd in Sevier County. The majority of gypsum produced in Utah was used for making wallboard, but several operators supplied raw gypsum to regional cement companies for use as an additive to retard the setting time of cement and to the agriculture industry for use as a soil conditioner.

During 1999, DOGM received 8 large mine permit applications and 51 new small mine permit applications. Seven of the large mine applications were made to change from small to large mine status. These numbers represent no increase in large mine permit applications but an increase of nine small mine permit applications compared with 1998. New large mine permits included two dimension stone quarries, two precious metal mines, one limestone quarry (aggregate), one gypsum

quarry, one gemstone mine, and one road construction permit for a potential phosphate mine. New small mine permits were grouped by commodity as follows: industrial minerals, 32; base and precious metals, 8; gems and fossils, 7; uranium/vanadium, 2; and other, 2.

Several mines and quarries, mostly for industrial rocks and minerals, began or substantially increased production in 1998 and 1999. Red Emerald Resource Corp. began production of red beryl from its Ruby Violet Mine southwest of Milford in Beaver County. Between January and September 1999, the company mined more than 43,000 t of material, including 8,240 t of ore, and recovered nearly 52,000 grams of run-of-mine beryl crystals. Valley Asphalt Co. opened two quarries in Utah County and produced more than 1.09 Mt of crushed stone in its first year of production in 1999. Twin Mountain began production from its railroad ballast quarry north of Milford in late 1997, produced more than 2,000 t in 1998, and continued to increase production in 1999. Pearl Queen Perlite Corp. substantially increased production in 1999, producing nearly 18,000 t of perlite from its deposit northeast of Milford. Substantial premining stripping was done at U.S. Gypsum's Kimbal Draw Mine in Emery County, with gypsum mining beginning in late 1999.

Exploration for base and precious metals in 1999 remained at a relatively low level. DOGM received 26 Notices of Intent (NOI) to explore, which was several more than in 1998, but significantly less than the 50 to 60 NOI's received per year during the early 1990's. Nine NOI's were for precious metals, 6 for base and precious metals, and 11 for industrial minerals. Most exploration for metals was concentrated in and around old mining districts, particularly in the Milford and Marysvale areas. Most exploration was done by small- to medium- sized companies; Breccia Development Co. (Milford, UT) was one of the most active metal explorers in the State, drilling more than 60 holes on several prospects in the Milford area. The few drilling programs by large companies were relatively small and limited in scope. No discoveries were announced.

Uncertainty about land status and availability continues to affect mineral exploration and development, particularly concerning the various wilderness proposals. There were two new wilderness developments in 1999. First, the U.S. Bureau of Land Management (BLM) released results of its reinventory of lands having wilderness characteristics in Utah. The BLM inventoried 7,674,463 ha of Federal land outside of existing wilderness study areas (WSA's) and concluded that 6,439,265 ha had wilderness characteristics. An additional 7,992,920 ha were contained in existing WSA's. The WSA's are now managed under Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP) and the "reinventory wilderness" areas are managed under current management plans. (URL accessed February 27, 2001 at <http://www.ut.blm.gov/wilderness/faq-plan.htm>).

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN UTAH 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1997		1998 r/		1999 p/		
	Quantity	Value	Quantity	Value	Quantity	Value	
Beryllium concentrates	metric tons	5,760	6	6,080	7	5,900	7
Clays: Common		299	4,510	298	4,760	300	4,650
Gemstones		NA	974	NA	W	NA	735
Salt		1,670	69,000	1,770	68,100	1,760	67,300
Sand and gravel: Construction		33,200	99,400	46,300	140,000	39,000	120,000
Stone: Crushed		11,100	50,200	7,820	39,500	8,100	42,000
Combined values of cement (portland), clays [bentonite, fuller's earth (1997)], copper, gold, gypsum (crude), helium (Grade-A), lime, magnesium compounds, magnesium metal, mercury (1997-98), molybdenum, perlite (crude), phosphate rock, potash, silver, and value indicated by symbol W		XX	1,450,000	XX	1,090,000 r/	XX	1,020,000
Total		XX	1,680,000	XX	1,340,000 r/	XX	1,260,000

p/ Preliminary. r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined values" data. XX Not applicable.

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

2/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 2  
UTAH: CRUSHED STONE SOLD OR USED, BY KIND 1/

Kind	1997				1998			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	15 r/	2,700 r/	\$15,300 r/	\$5.69 r/	16	3,100	\$18,200	\$5.88
Dolomite	3 r/	3,590 r/	13,000 r/	3.62 r/	3	3,250	14,400	4.44
Granite	1	W	W	3.76	1	W	W	3.86
Sandstone and quartzite	2	W	W	7.95 r/	4	W	W	5.19
Volcanic cinder and scoria	2 r/	54 r/	276 r/	5.11 r/	3	82	728	8.88
Miscellaneous stone	2 r/	W	W	4.52 r/	7	W	W	5.30
Total or average	XX	11,100	50,200	4.51	XX	7,820	39,500	5.06

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 3  
UTAH: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1998, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Coarse aggregate (+ 1 1/2 inch):</b>			
Riprap and jetty stone	27	\$299	\$11.07
Filter stone	W	W	3.39
<b>Coarse aggregate, graded:</b>			
Concrete aggregate, coarse	(3/)	(3/)	7.52
Railroad ballast	(3/)	(3/)	5.32
Other graded coarse aggregate	198	1,170	5.90
<b>Fine aggregate (-3/8 inch):</b>			
Stone sand, concrete	W	W	10.20
Screening, undesignated	17	85	5.01
<b>Coarse and fine aggregates:</b>			
Graded road base or subbase	(3/)	(3/)	3.32
Unpaved road surfacing	(3/)	(3/)	4.24
Terrazzo and exposed aggregate	(3/)	(3/)	18.79
Crusher run or fill or waste	(3/)	(3/)	3.30
Other coarse and fine aggregate	187	677	3.62
Drain fields	W	W	9.64
Other construction materials	5	17	3.40
<b>Agricultural:</b>			
Agricultural limestone	W	W	W
Poultry grit and mineral food	9	194	21.56
<b>Chemical and metallurgical:</b>			
Cement manufacture	W	W	7.50
Lime manufacture	W	W	3.85
Dead-burned dolomite manufacture	W	W	3.94
Chemical stone	W	W	3.80
Sulfur oxide removal	W	W	5.85
<b>Special:</b>			
Mine dusting or acid water treatment	W	W	W
Asphalt fillers or extenders	W	W	W
Other fillers or extenders	W	W	W
<b>Unspecified: 4/</b>			
Actual	3,050	13,500	4.41
Estimated	1,140	4,590	4.02
Total or average	7,820	39,500	5.06

W Withheld to avoid disclosing company proprietary data; included in "Total."

1/ Data are rounded to no more than three significant digits, except unit value; may not add to totals.

2/ Includes dolomite, granite, limestone, limestone-dolomite, miscellaneous stone, sandstone and quartzite, volcanic cinder and scoria.

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

4/ Reported and estimated production without a breakdown by end use.

TABLE 4  
UTAH: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1998, BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) 2/	W	W	W	W	8	35	--	--
Coarse aggregate, graded 3/	W	W	W	W	--	--	--	--
Fine aggregate (-3/8 inch) 4/	W	W	W	W	--	--	--	--
Coarse and fine aggregate 5/	W	W	W	W	(6/)	(6/)	--	--
Other construction materials	185	1,480	307	1,250	--	--	--	--
Agricultural 7/	(6/)	(6/)	(6/)	(6/)	--	--	--	--
Chemical and metallurgical 8/	2,420	12,100	(6/)	(6/)	(6/)	(6/)	--	--
Special 9/	(6/)	(6/)	--	--	(6/)	(6/)	--	--
Unspecified: 10/								
Actual	--	--	(6/)	(6/)	(6/)	(6/)	124	548
Estimated	161	708	979	3,880	--	--	--	--
Total	2,780	14,400	4,820	24,000	97	590	124	548

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials." -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes filter stone, and riprap and jetty stone.

3/ Includes concrete aggregate (coarse), railroad ballast, and other graded coarse aggregate.

4/ Includes stone sand (concrete), and screening (undesignated).

5/ Includes crusher run (select material or fill), drain fields, graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, and other coarse and fine aggregate.

6/ Withheld to avoid disclosing company proprietary data; included in "Total."

7/ Includes agricultural limestone and poultry grit and mineral food.

8/ Includes cement manufacture, chemical stone or alkali works, dead-burned dolomite manufacture, lime manufacture, and sulfur oxide removal.

9/ Includes asphalt fillers or extenders, mine dusting or acid water treatment, and other fillers or extenders.

10/ Reported and estimated production without a breakdown by end use.

TABLE 5  
UTAH: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,  
BY MAJOR USE CATEGORY 1/

Use	Quantity	Value	Unit
	(thousand metric tons)	(thousands)	value
Concrete aggregate	3,320	\$15,000	\$4.50
Plaster and gunite sands	92	627	6.82
Asphaltic concrete aggregates and other bituminous mixtures	1,040	5,740	5.54
Road base and coverings 2/	3,970	13,400	3.37
Road stabilization (cement)	665	1,580	2.38
Fill	2,580	5,010	1.95
Other miscellaneous uses 3/	91	276	3.03
Unspecified: 4/			
Actual	9,750	32,800	3.36
Estimated	24,800	65,900	2.65
Total or average	46,300	140,000	3.03

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes road and other stabilization (cement).

3/ Includes filtration and snow and ice control.

3/ Reported and estimated production without a breakdown by end use.

TABLE 6  
UTAH: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,  
BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2	
	Quantity	Value	Quantity	Value
Concrete aggregates 2/	909	4,640	1,880	7,860
Asphaltic concrete aggregates and other bituminous mixtures	W	W	W	W
Road base and coverings 3/	1,760	4,990	1,460	5,190
Fill	161	323	2,330	4,450
Other miscellaneous uses 4/	44	75	41	186
Unspecified: 5/				
Actual	W	W	W	W
Estimated	1,600	5,240	21,600	55,000
Total	5,440	18,500	34,100	95,500
	District 3		Unspecified districts	
	Quantity	Value	Quantity	Value
Concrete aggregates 2/	622	3,100	--	--
Asphaltic concrete aggregates and other bituminous mixtures	419	3,010	244	1,310
Road base and coverings 3/	1,180	4,400	230	383
Fill	87	235	--	--
Other miscellaneous uses 4/	4	14	--	--
Unspecified: 5/				
Actual	1,510	6,730	859	1,420
Estimated	1,660	5,680	--	--
Total	5,490	23,200	1,330	3,120

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes plaster and gunite sands.

3/ Includes road and other stabilization (cement).

4/ Includes snow and ice control.

5/ Reported and estimated production without a breakdown by end use.