



2007 Minerals Yearbook

TEXAS [ADVANCE RELEASE]

TEXAS

LEGEND

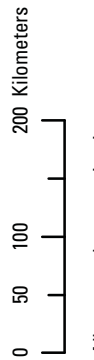
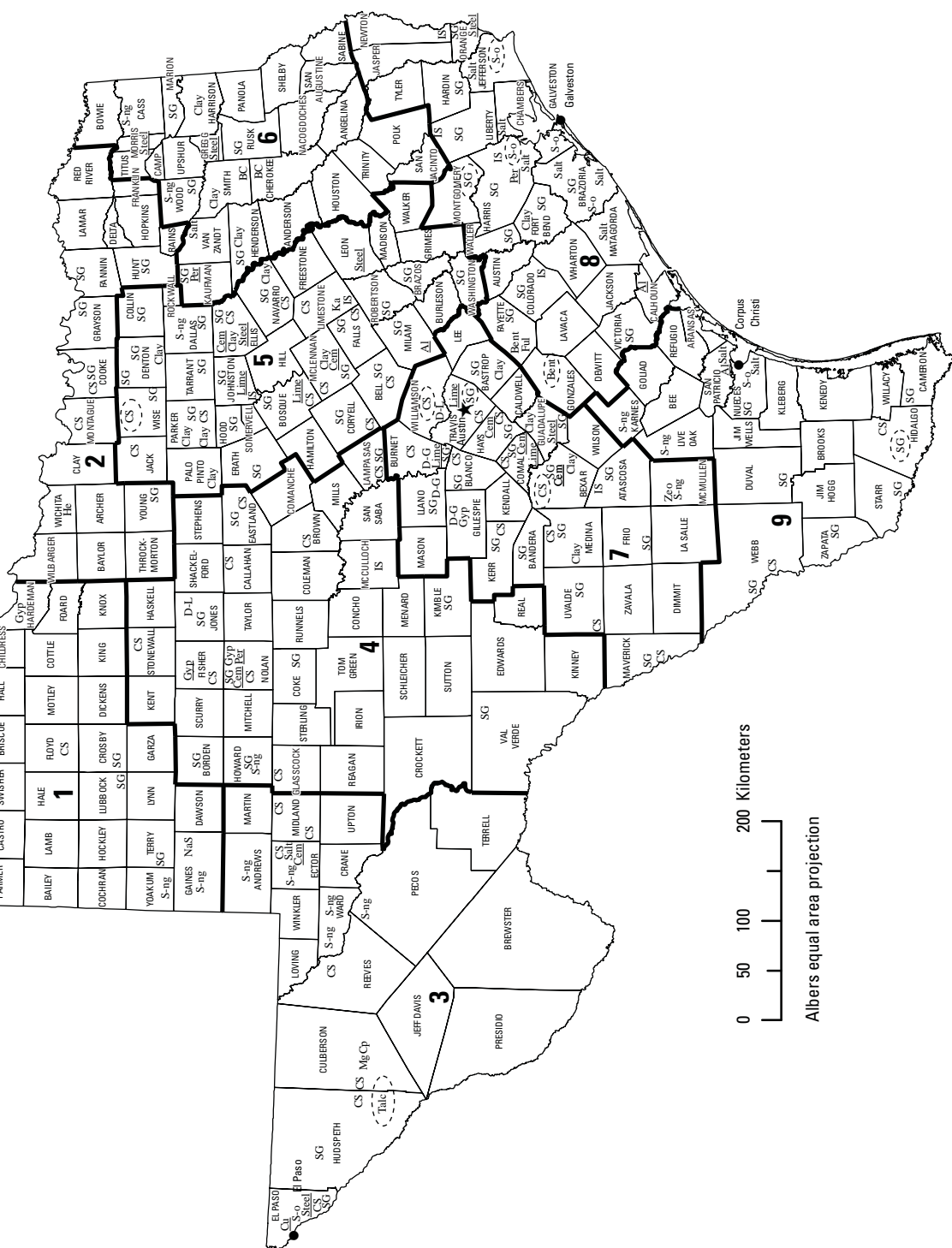
- County boundary
- ★ Capital
- City
- Crushed stone/sand and gravel district boundary

MINERAL SYMBOLS (Major producing areas)

- Al Aluminum plant
- BC Ball clay
- Bent Bentonite
- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- Cu Copper plant
- D-G Dimension granite
- D-L Dimension limestone
- Ful Fuller's earth
- Gyp Gypsum
- Gyp Gypsum plant
- He Helium
- IS Industrial sand
- Ka Kaolin
- Lime Lime plant
- MgCp Magnesium compounds
- Per Perlite plant
- S-ng Sulfur (natural gas)
- S-o Sulfur (oil)
- Salt Salt
- NaS Sodium sulfate
- SG Construction sand and gravel
- Steel Steel plant
- Talc Talc
- Zeo Zeolites

○ Concentration of mineral operations

DALLAM	SHERMAN	HANSFORD	OCHILTREE	UPSCOMB
HARTLEY	S-ng MOORE He HUTCHINSON	He HARTLEY	ROBERTS	HEMPHILL
ODDHAM	POTTER	CARSON	GRAY	WHEELER
DEAF SMITH	RANDALL	ARMSTRONG	DONLEY	COLLINGSWORTH
PARKER	CASTRO	SWISHER	BRISCOE	HALL
CHILDRESS	BAILEY	LAMB	1	HALE
ROY	FLOYD	MOTLEY	COTILE	2
WICHITA	ARCHER	BAYLOR	KNOX	THROCKMORTON
YOUNG	STEINWALL	HASKELL	KENT	3
STEWART	DAWSON	BORDEN	4	S-G SHERMAN
WICHITA	STEWART	SCURRY	5	6
COMAL	COMAL	COMAL	COMAL	COMAL
COMAL	COMAL	COMAL	COMAL	COMAL
COMAL	COMAL	COMAL	COMAL	COMAL



Albers equal area projection

Source: University of Texas at Austin, Bureau of Economic Geology/U.S. Geological Survey (2007).

THE MINERAL INDUSTRY OF TEXAS

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the University of Texas at Austin, Bureau of Economic Geology, for collecting information on all nonfuel minerals.

In 2007, Texas nonfuel raw mineral production¹ was valued at \$3.24 billion, based upon annual U.S. Geological Survey (USGS) data. This was a 7.6% increase from the State's total nonfuel mineral value of \$3.01 billion for 2006, which followed a \$298 million, or 11%, increase from 2005 to 2006. For the second consecutive year, Texas ranked seventh among the 50 States in total nonfuel mineral production value, accounting for 4.7% of the U.S. total value.

The top three nonfuel mineral commodity values in 2007 were, in descending order of value, portland cement, crushed stone, and construction sand and gravel. These three mineral commodities accounted for 83% the total nonfuel mineral industry value. Portland cement alone accounted for nearly 33% of the State's total value. Texas was the Nation's leading producer of portland cement and crushed stone and the second leading producer of construction sand and gravel. These three major construction nonfuel mineral values together with those of salt and lime accounted for 91% of the State's total nonfuel mineral value.

Almost all of the State's nonfuel mineral commodities increased in total production value in 2007. The largest increases took place in crushed stone, industrial sand and gravel, and construction sand and gravel, with increases of \$118 million, \$57.1 million, and \$47.7 million, respectively. The large increase in crushed stone value comprised a 13.9% increase from 2006 values and a 3.9% increase in quantity produced. The value of industrial sand and gravel increased by 87.1%, with production quantities more than doubling, in response to the nationwide increased demand for use in ceramics, chemicals, container, flat and specialty glass, fillers (ground and whole-grain), filtration, hydraulic fracturing, and recreational uses. Though construction sand and gravel value increased substantially, production decreased slightly (4.2%), perhaps owing to its continued replacement by crushed stone as the predominant choice for construction aggregate use. Other significant increases in value took place in salt, up by \$11.2 million with a 6.5% decrease in production; Grade-A helium, up by more than \$4 million; and lime, up \$2.4 million with a slight decrease in production. Smaller rises in commodity value of \$1 million or more, in descending order of change, took place in brucite, masonry cement, and dimension stone. Despite Texas' overall increase in raw nonfuel mineral value, decreases took place in the value of several minerals. The greatest decrease took place in portland cement, a \$10 million decrease

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the 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 2007 USGS mineral production data published in this chapter are those available as of June 2009. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

in value and a 3.8% decline in production. Also, crude gypsum and talc decreased in value by more than \$2 million each. The production and resultant values of ball clays, bentonite clays, and common clays decreased slightly as well (table 1).

In 2007, Texas remained the leading producer in the United States of crushed stone, brucite, and portland cement, accounting for nearly 12% of the Nation's portland cement and 9% of its crushed stone. Texas remained second in the production of construction sand and gravel, salt (accounting for nearly 20% of the U.S. total), crude helium (of two-producing States), ball clay, crude talc, and zeolites (listed in descending order of value); third in Grade-A helium; fifth in lime; and sixth in kaolin clay, crude gypsum, and bentonite clay. The State rose in rank to second from seventh in the production of industrial sand and gravel, to sixth from seventh in masonry cement, and to eighth from 12th in dimension stone. Texas also decreased in rank from first to second in the production of common clay and from 10th to 11th in fuller's earth clay production.

Texas' metal industry remained strong, producing aluminum, raw steel, and refined copper. The State maintained its position as the leading producer of electrolytically refined copper and decreased in rank from third to fourth in the production of aluminum. Production of raw steel increased by more than 10% with an output of 4.17 million metric tons (Mt), up 7.7% from that in 2006 (American Iron and Steel Institute, 2007, p. 126).

The following narrative information includes information provided by the Texas Bureau of Economic Geology² (BEG). In 2007, the mineral industry, as was monitored by the BEG, remained a strong and diverse component of the Texas economy as evidenced by the increased production and values of most of the State's nonfuel minerals from those of 2006. Annual job growth in natural resources and mining, as reported by the Texas Workforce Commission (Texas Workforce Commission, 2008), increased 7.7% from December 2006 through December 2007. This number includes mining and support services for nonfuel minerals as well as oil and gas extraction and coal mining. Steadily increasing gains were made in the growth of construction industry employment. The Commission reported an increase of about 2.1% in the number of construction industry jobs Statewide in 2007 compared with those of 2006, showing slowed, but continued, growth from the 7.7% increase of 2006 and the 3.2% increase during 2005 compared with those of the previous year.

²Sigrd Clift, Research Associate, Texas Bureau of Economic Geology, and J. Richard Kyle, Professor, Department of Geological Sciences, both of the John A. and Katherine G. Jackson School of Geosciences, University of Texas at Austin, coauthored the text of the State mineral industry information provided by the Texas Bureau of Economic Geology.

Commodity Review

Industrial Minerals

Cement.—Texas Industries, Inc. received a permit in February to expand its TXI Hunter Cement plant located in New Braunfels from 1 Mt to 1.4 Mt to begin operation in 2010 (Texas Industries, Inc., 2007a, p.162). The company is in the process of expanding its TXI's (Midlothian and Hunter) Cement plants capacity during the next 3 years (Texas Industries, Inc., 2007b). CEMEX continued expansion at its Balcones Cement Plant in New Braunfels. The major expansion includes the construction of a second kiln, which was expected to double the plant's capacity by yearend 2008 (CEMEX, S.A.B de C.V., 2006). The joint-venture cement terminal facility managed under Houston Cement Co. (a partnership company between Alamo Cement Co., Ash Grove Cement Co., and Texas Lehigh Cement Co.) was completed and opened. The project featured the capacity to import and distribute 1.5 million metric tons per year (Mt/yr) of cement, made possible by the construction of six 57-meter-high (186-foot-high) concrete silos with 100,000 metric tons of storage space. The facility was designed to service vessels at its 197-meter (645-foot) dock, using the largest capacity cement ship unloader currently operating in the United States. Construction of the project was conducted through a partnership between River Management, Consulting and Engineering Services, Co. (project design and engineering) and Continental Construction Co., with the two developing an efficient facility layout in conjunction with engineers at Ash Grove (Amburgey, 2007).

Significant company acquisitions took place with two cement companies. German-based aggregate manufacturer, HeidelbergCement AG, acquired Hanson PLC in August (HeidelbergCement AG, 2007). Hanson was a British-based industrial conglomerate with global locations that operated under the company name of Lehigh Cement Company in Texas throughout the United States. Holcim Participations (U.S.) Inc. announced its purchase of a significant minority ownership of Lattimore Materials Company, L.P. of McKinney, TX (Holcim (US) Inc., 2007).

Stone, Crushed.—Capitol Aggregates, Ltd. increased production at its Marble Falls quarry to 3.6 Mt/yr (4 million short tons per year). Vulcan Materials Company continued

negotiations for a plan to construct a 14-kilometer (9-mile) rail line to transport construction aggregates from its Medina County quarry. The rail line is to be built by Southwest Gulf Railroad Co. (a subsidiary of Vulcan) and was scheduled for completion in 2010.

Recent Publications

Texas Mine Safety and Health Program (<http://www.utexas.edu/cee/txmshp/>) developed a Safety Update newsletter in an effort to reach those who might benefit from or have an interest in Texas mine safety. Objectives of the newsletter are to provide mining-related groups with current information on events that have recently happened or will happen in the near future, as well as safety advice. The newsletter is currently produced on a quarterly electronic-publication basis.

References Cited

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TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN TEXAS^{1,2}

(Thousand metric tons and thousand dollars)

Mineral	2005		2006		2007	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	395	48,500 ^e	382	50,700 ^e	368	52,100 ^e
Portland	11,600	951,000 ^e	11,300	1,070,000 ^e	10,900	1,060,000 ^e
Clays:						
Ball	W	7,730	W	W	W	W
Bentonite	W	W	71	4,000 ^r	64	3,730
Common	2,340	8,680	2,360	12,600	1,950	12,100
Gemstones, natural	NA	201	NA	202	NA	202
Gypsum, crude	824 ^r	9,520 ^r	1,010 ^r	10,200 ^r	1,180	8,200
Lime	1,610	112,000	1,650	130,000	1,620	132,000
Salt	9,600	118,000	9,570	132,000	8,950	143,000
Sand and gravel:						
Construction	80,700	472,000	99,500	603,000	95,400	651,000
Industrial	2,840	114,000	1,530	65,600	3,280	123,000
Stone:						
Crushed	137,000	820,000	139,000 ^r	853,000 ^r	145,000	972,000
Dimension	44	12,200	31	12,600	44	13,900
Combined values of brucite, clays (fuller's earth, kaolin), helium (crude, Grade-A), talc (crude), zeolites, and values indicated by symbol W						
	XX	41,500	XX	68,200	XX	72,100
Total	XX	2,710,000^r	XX	3,010,000^r	XX	3,240,000

^eEstimated. ^rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in "Combined values" data. XX Not applicable.

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

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

TABLE 2
TEXAS: CRUSHED STONE SOLD OR USED, BY TYPE¹

Type	2006			2007		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone ²	144 ^r	130,000 ^r	\$793,000 ^r	185	137,000	\$919,000
Marble	4	148	1,970	5	275	3,150
Granite	2	141	1,260	2	139	1,520
Sandstone and quartzite	4	708	5,480	4	789	6,420
Miscellaneous stone	29 ^r	7,750 ^r	51,200 ^r	28	6,400	41,000
Total	XX	139,000^r	853,000^r	XX	145,000	972,000

^rRevised. XX Not applicable.

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

²Includes limestone-dolomite reported with no distinction between the two.

TABLE 3
TEXAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2007, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	385	4,060
Filter stone	626	4,900
Other coarse aggregate	1,860	16,700
Coarse aggregate, graded:		
Concrete aggregate, coarse	5,440	44,500
Bituminous aggregate, coarse	2,240	21,100
Bituminous surface-treatment aggregate	557	5,270
Railroad ballast	782	6120
Other graded coarse aggregate	9,280	102,000
Fine aggregate (-¾ inch):		
Stone sand, concrete	443	3,720
Stone sand, bituminous mix or seal	716	5,450
Screening, undesignated	1,320	3,450
Other fine aggregate	2,280	18,000
Coarse and fine aggregate:		
Graded road base or subbase	20,400	99,500
Unpaved road surfacing	W	W
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	1,790	5,310
Other coarse and fine aggregates	8,040	65,100
Other construction materials	9	76
Agricultural:		
Limestone	316	2,570
Poultry grit and mineral food	W	W
Chemical and metallurgical:		
Cement manufacture	12,200	39,700
Lime manufacture	W	W
Sulfur oxide removal	W	W
Special:		
Asphalt fillers or extenders	W	W
Other fillers or extenders	695	16,800
Other miscellaneous uses and other specified uses not listed	379	4,390
Unspecified:²		
Reported	46,700	310,000
Estimated	27,000	180,000
Total	145,000	972,000

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

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

²Reported and estimated production without a breakdown by end use.

TABLE 4
TEXAS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2007, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	Districts 1 and 2 ²		Districts 3 and 4 ²		Districts 5 and 6 ²		Districts 7, 8, and 9 ²	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction:								
Coarse aggregate (+1½ inch) ³	W	W	W	W	497	4,730	2,330	20,500
Coarse aggregate, graded ⁴	318	4,820	W	W	W	W	13,500	129,000
Fine aggregate (¾ inch) ⁵	79	532	712	4,250	887	3,970	3,080	21,900
Coarse and fine aggregates ⁶	806	4,760	3,330	16,500	4,940	25,800	21,000	119,000
Other construction materials	9	76	--	--	--	--	--	--
Agricultural ⁷	W	W	--	--	W	W	W	W
Chemical and metallurgical ⁸	--	--	--	--	W	W	W	W
Special ⁹	--	--	--	--	W	W	W	W
Other miscellaneous uses	--	--	--	--	--	--	379	4,390
Unspecified:¹⁰								
Reported	--	--	1,020	6,870	17,800	117,000	27,900	186,000
Estimated	1,800	12,000	4,900	33,000	12,000	84,000	7,700	52,000
Total	3,000	22,200	12,400	84,100	48,600	305,000	80,200	552,000
<u>Unspecified districts</u>								
	Quantity	Value						
Construction:								
Coarse aggregate (+1½ inch) ³	--	--						
Coarse aggregate, graded ⁴	30	636						
Fine aggregate (¾ inch) ⁵	--	--						
Coarse and fine aggregates ⁶	521	7,810						
Other construction materials	--	--						
Agricultural ⁷	--	--						
Chemical and metallurgical ⁸	--	--						
Special ⁹	--	--						
Other miscellaneous uses	--	--						
Unspecified:¹⁰								
Reported	--	--						
Estimated	--	--						
Total	551	8,450						

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

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

²Districts 1 and 2, 3 and 4, 5 and 6, 7, 8, and 9 are combined to avoid disclosing company proprietary data.

³Includes filter stone, riprap and jetty stone, and other coarse aggregate.

⁴Includes bituminous aggregate (coarse), bituminous surface-treatment aggregate, concrete aggregate (coarse), railroad ballast, and other graded coarse aggregate.

⁵Includes screening (undesignated), stone sand (bituminous mix or seal), stone sand (concrete), and other fine aggregates.

⁶Includes crusher run or fill or waste, graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, and other coarse and fine aggregates.

⁷Includes agricultural limestone and poultry grit and mineral food.

⁸Includes cement and lime manufacture and sulfur oxide removal.

⁹Includes asphalt fillers or extenders and other fillers or extenders.

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

TABLE 5
 TEXAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2007,
 BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate and concrete products	32,200	\$240,000	\$7.46
Plaster and gunitite sands	514	4,960	9.65
Asphaltic concrete aggregates and other bituminous mixtures	731	6,770	9.25
Road base and coverings	3,280	16,900	5.15
Road and other stabilization (cement)	965	6,810	7.06
Road and other stabilization (lime)	121	541	4.47
Fill	6,570	20,000	3.05
Roofing granules	25	400	16.00
Other miscellaneous uses ²	106	1,140	10.72
Unspecified: ³			
Reported	14,500	98,300	6.77
Estimated	36,000	260,000	7.01
Total or average	95,400	651,000	6.82

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

²Includes filtration, golf course, and snow and ice control.

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

TABLE 6
TEXAS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2007, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	W	W	1,600	11,300	W	W
Asphaltic concrete aggregates and road base materials ³	W	W	W	W	W	W
Fill	108	565	445	582	107	369
Other miscellaneous uses ⁴	849	9,440	343	1,570	596	4,080
Unspecified: ⁵						
Reported	95	754	108	804	527	3,750
Estimated	5,400	38,000	720	5,100	1,500	11,000
Total	6,410	48,800	3,210	19,400	2,770	19,100
Use	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	348	3,520	7,730	55,600	W	W
Asphaltic concrete aggregates and road base materials ³	--	--	W	W	W	W
Fill	109	599	3,000	8,860	4	13
Other miscellaneous uses ⁴	--	--	1,000	6,530	887	6,870
Unspecified: ⁵						
Reported	41	492	2,810	15,400	--	--
Estimated	2,000	14,000	12,000	88,000	2,100	15,000
Total	2,510	18,900	26,900	174,000	3,030	22,100
Use	District 7		District 8		District 9	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	5,280	38,200	11,900	85,800	4,020	35,900
Asphaltic concrete aggregates and road base materials ³	674	2,540	1,830	10,300	W	W
Fill	1,090	4,690	1,560	4,150	142	194
Other miscellaneous uses ⁴	61	409	4	400	773	4,790
Unspecified: ⁵						
Reported	4,390	31,200	6,560	45,900	--	--
Estimated	3,000	21,000	6,600	44,000	2,700	19,000
Total	14,500	97,800	28,400	191,000	7,610	59,900

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses." -- Zero.

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

²Includes plaster and gunite sands.

³Includes road and other stabilization (cement and lime).

⁴Includes filtration, golf course, roofing granules, and snow and ice control.

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