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2006 Minerals Yearbook

CALIFORNIA

U.S. Department of the Interior
U.S. Geological Survey

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CALIFORNIA

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The Mineral Industry of California

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

In 2006, California's nonfuel raw mineral production[1] was valued at $4.59 billion, based upon annual U.S. Geological Survey (USGS) data. This was a $310 million increase, or up 7.2%, from the State's total nonfuel mineral value in 2005, which then had increased by $520 million, or up nearly 14%, from that of 2004. The State was third in rank among the 50 States in total nonfuel mineral production value in 2006, having been second in 2005 following 6 consecutive years (1999-2004) as first in the Nation. California accounted for 6.9% of the U.S. total.

Industrial minerals accounted for more than 99% of California's nonfuel mineral value; the remaining value resulted from gold, silver, and iron ore mining (descending order of value). In 2006, California continued as the leading construction sand and gravel-producing State, accounting for more than 11.5% of the commodity's total U.S. mine production and nearly 18% of the Nation's total value for that mineral commodity. Construction sand and gravel was, by value, also the State's leading nonfuel mineral, accounting for 33% of the State's total nonfuel mineral production value. Cement (portland and masonry) was the second ranked nonfuel mineral, followed by boron minerals, crushed stone, soda ash, and diatomite; these six accounted for 95% of the State's total industrial mineral value (table 1).

In 2006, increases in the values of crushed stone (up by $153 million), construction sand and gravel (up by $80 million), portland cement and masonry cement (up by a combined $69 million), and soda ash (up by more than $15 million) led California's significant increase in nonfuel mineral production value for the year. The production of each of these commodities showed relatively small-to-only-slight decreases in production, indicating higher overall unit values for each, especially in those of crushed stone and soda ash. Smaller yet significant increases took place (in descending order of change) in the values of boron, gypsum, and salt. The unit values of the latter two mineral commodities showed significant increases. The largest decreases in value for the State's nonfuel mineral commodities were in those of gold, common clays, and diatomite. Smaller yet significant decreases took place in the values of lime and industrial sand and gravel (table 1).

California continued to be the Nation's only State to produce boron in 2006 and remained first in the quantities of construction sand and gravel produced (listings in descending order of value). The State also continued to rank first of four diatomite-producing States; second among two States that produced soda ash; second in masonry cement; third in feldspar and in pumice and pumicite; fourth in industrial sand and gravel and gemstones (gemstones based upon value); fifth in perlite and magnesium compounds; eighth in bentonite, and ninth in salt. California rose to third in the production of fire clay in 2006 following no production in 2005, while also increasing in rank to fourth from fifth in crude gypsum, to sixth from seventh in fuller's earth, to seventh from eighth in gold, and to eighth from ninth in dimension stone. Additionally, California was a significant producer of crushed stone and common clays. The only decrease in production ranking was in that of portland cement, to second from first.

The following narrative information was provided by the California Geological Survey[2] (CGS).

Commodity Review

Industrial Minerals

Boron.—U.S. Borax (a subsidiary of Rio Tinto Minerals, London, United Kingdom), led the State and the World in the production of borates at its Boron Mine in Kern County. Boron ranked third in value of the minerals produced in the State during 2006.

Cement.—Masonry cement combined with portland cement ranked second in the production value of mineral commodities, increasing by about 10.6% compared with that of 2005 to $1.3 billion. Production in 2006 reached 11.7 million metric tons (Mt), a modest increase compared with that of 2005. Modernization of the TXI Oro Grande cement plant and mining and crushing facilities in San Bernardino County was begun in late 2005. The $360 million, 2-year project of Texas Industries, Inc., Dallas, TX, was expected to nearly double the yearly cement processing capacity from 1.1 to 2.1 Mt.

Mitsubishi Cement Corp., Lucerne Valley, continued work toward mitigating any environmental impact of the expansion at its Cushenbury Limestone quarry in San Bernardino County. The 81-hectare (ha) expansion, approved in October 2004, added 45 Mt of cement-grade limestone to the company's existing reserves at the site.

Rare Earths.—Molycorp, Inc.'s Mountain Pass Mine, San Bernardino County, remained closed in 2006. The rare-earths mine and ore processing plant were kept on care-and-maintenance status, but the company planned to initiate efforts toward reopening of these facilities. Molycorp continued to process stockpiled intermediate concentrates to mixed rare-

[1]The 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 2006 USGS mineral production data published in this chapter are those available as of March 2008. 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.

[2]Susan Kohler, Senior Engineering Geologist, authored the text of information submitted by the California Geological Survey.

earth compounds during the year, but the compound separation facility remained closed.

Sand and Gravel, Construction.—Production of construction sand and gravel reached 153 Mt in 2006, leading all industrial mineral in terms of value at an estimated $1.5 billion. Vulcan Materials Company, Birmingham, AL, led the State in the production of sand and gravel.

During the year, Hanson Aggregates, San Diego, began mining the 56-ha expanded region of its Sunol sand and gravel operation in Alameda County. Hanson had purchased the Sunol Mine from Mission Valley Rock Company Inc. in mid-2005. The expansion effectively added 35 Mt of construction sand and gravel reserves to the south San Francisco Bay region, an area in which aggregate demand exceeded supply.

A revised environmental impact report (EIR) was submitted to Tulare County for Kaweah River Rock Company's proposal to mine 113 ha of land south of the company's existing sand and gravel operation. In 2005, a superior court ruled that the EIR prepared for the project had failed to adequately address environmental issues. The EIR was undergoing further public review at yearend, with the Board of Supervisors scheduled to make its decision on the revised EIR by spring 2007. If approved, Kaweah River Rock expected to begin mining in the new area by July 2007. The mine expansion was expected to add about 14 to18 Mt of alluvial sand and gravel reserves to the northern Tulare County area.

The Madera Ranch Quarry project in Madera County was approved in October 2006. The permit allowed for approximately 41 Mt of construction sand and gravel to be mined during a period of 50 years. According to the permit, production was to be limited to about 820,000 metric tons per year. Sand and gravel mined at the site was to be marketed mainly in the Madera and Fresno areas. In addition to mining, the Madera Ranch operation was to include an asphaltic concrete plant.

Granite Construction, Inc., Watsonville, began mining and processing aggregate in June 2006 at its Handley Ranch Quarry, about 24 kilometers (km) southeast of Salinas in Monterey County. The permit, approved in 2004, allowed for about 109 Mt of construction grade aggregate to be mined during a period of 113 years.

Canyon Rock Co., Inc., Forestville, was granted a permit in December to expand by 13 ha the mining area at its Canyon Rock Quarry in Sonoma County. The new permit allowed for an additional 13.6 Mt of construction sand and gravel to be mined during a period of 20 years. Canyon Rock planned to begin construction on a new processing plant in late 2007.

In November, a State appellate court reversed a 2004 superior court ruling that had halted the plans of Teichert Inc., Woodland, to establish a 282-ha aggregate mine and processing plant about 6 km northwest of Lincoln in Placer County. The proposed Lincoln project would provide about 64 Mt of construction sand and gravel to Placer and Sacramento Counties.

Importation of aggregate by ship and barge continued during the year from Canada and Mexico. Most of this aggregate was designated for use in the San Francisco and San Diego regions. California imported about 2.9 Mt of sand and gravel during 2006. Hanson Aggregate was the leading importer of aggregate in the State.

Stone, Crushed.—Granite Construction Company, Inc. announced plans for its Liberty Quarry project, a proposed 63-ha crushed stone quarry in southeastern Riverside County, about 4.8 km south of Temecula near the Riverside-San Diego County border. If approved, the quarry would provide approximately 245 Mt of construction aggregate to the eastern San Diego County region during the next 75 years. However, much of eastern San Diego County's available aggregate resources remained unpermitted by yearend 2006. Granite Rock Company's Wilson Quarry, San Benito County, continued to be California's leading crushed stone mine in 2006.

San Benito Supply Inc., Hollister, began mining its Hidden Canyon Rock Quarry near Greenfield, Monterey County, which had been approved in March 2005. The permit allowed for about 6 Mt of crushed granite and 3 Mt of decomposed granite to be mined during a period of 20 years.

Metals

Gold.—Although gold prices continued to increase during 2006, the State's gold production continued to decline during the year. Annual production totaled about 1,000 kg (32,000 troy ounces), a 50% decrease compared with production in 2005.

Western Goldfields Inc. continued production from leach pads at its Mesquite Mine, Imperial County. Mining had ceased at Mesquite in 2001 when gold prices were declining, and mining had become unprofitable. Western had purchased the property from Newmont Mining Corporation, Denver, CO, in 2003, and since then had continued efforts to reopen and expand the mine. In preparation for reopening, the company made a commitment of $67 million for the purchase of a fleet of vehicles, and also committed $30.9 million to upgrade the plant and infrastructure, including construction of new leach pads. The company expected stripping operations to resume in June 2007, and the first ore to be placed on leach pads by January 2008. Full production was anticipated by April 2008. Once in full operation, annual production of about 5,100 kg (165,000 troy ounces) was considered likely. Drilling results during the first half of 2006 confirmed gold reserves of 73,400 kg (2.36 million troy ounces). Western Goldfields anticipated a substantial increase in reserves upon completion of a 21,000-meter (m) drilling program initiated in September 2006.

Canyon Resources Corporation, Golden, CO, continued feasibility studies toward restarting both open pit and underground mine operations at its Briggs Mine, Inyo County. Mining had ceased at the Briggs property in 2004. Canyon Resources' studies included exploratory drilling on two high-grade underground mining targets associated with the Goldtooth Fault and an open pit target located between the previously mined Briggs North and Goldtooth pits. Proven reserves for these deposits were estimated to be about 4,000 kg (130,000 troy ounces). Canyon Resources also explored the nonpermitted Cecil R property, located about 6 km north of the Briggs Mine. Six holes totaling 620 m were drilled during the year. Information obtained from this drill program, coupled with prior drilling results from the area, showed an estimated 5.20 Mt of gold ore averaging 0.81 gram per metric ton (0.024 troy ounce per short ton). In July 2006, Canyon Resources acquired the

Suitcase and Mineral Hill properties, also nonpermitted, near the Cecil R property. Previous exploration results obtained from these properties by several companies had delineated favorable gold ore zones.

Sutter Gold Mining Inc., Riverton, WY, conducted a $1.2 million, 5,500-m drilling program during the year at its Sutter Gold project, Amador County. Results from this program were expected to be released in early 2007. The project area consists of about 220 ha along a 5.2-km segment of the Mother Lode belt and includes the historic Lincoln Mine. In 2005, Sutter Gold Mining Company had been granted its last major permit necessary to begin mining at the property. The company was awaiting an evaluation of the drilling program results and subsequent financing before mining commenced.

Emgold Mining Corporation, Vancouver, British Columbia, Canada (a subsidiary of Idaho Maryland Mine Corporation) continued its permitting process during 2006 to reopen the historic Idaho Maryland Gold Mine located in Grass Valley, Nevada County. A major permitting milestone was met in 2006 when the master environmental assessment (MEA) for the mine was completed for the city of Grass Valley. Emgold's principal focus was to address some of the environmental issues raised in the MEA. Two workshops were held during the year to educate the public and to gain local support for the project. The Idaho Maryland Corporation identified measured and indicated resources of 14,700 kg (472,000 troy ounces) of gold. A key component of the proposed Idaho Maryland Mine project is an onsite manufacturing facility that would use waste rock for the production of ceramic products.

In addition to the above-mentioned mines, placer gold was produced as a secondary mineral at several sand and gravel mines operated mainly in the northern and central part of the State. California also produced specimen gold at several small underground gold mines.

Other Metals.—Silver production made up less than 1% of California's total metal production. All the silver produced in California was a byproduct of gold production. Iron ore mined in California was used in the production of portland cement and was considered an industrial mineral.

Government Legislation and Programs

State and Local Legislation.—Californians approved a $19.9 billion transportation bond measure (proposition 1B) in November 2006 that likely would increase the State's demand for construction aggregate and portland cement throughout the next 10 years. Revenue from the sale of the bonds was to be used for safety improvements and repairs to State highways, upgrades to freeways to reduce congestion, repairs to local streets and roads, improvements to the seismic safety of local bridges, and expansion of public transit. One billion dollars of the bond revenue was to be specifically earmarked for improvements in the Route 99 corridor in the San Joaquin and Sacramento Valleys. The bond measure also authorized State and regional agencies to engage in public and private partnerships to attract additional revenue in private investment for further development of the transportation infrastructure within the State.

The California Geological Survey.—The CGS completed an updated statewide aggregate resource map in December 2006 (CGS Map Sheet 52, updated 2006, Aggregate Availability in California). The map and report compare projected aggregate demand for the next 50 years with existing permitted aggregate resources in 31 regions of the State. These 31 regions cover about 25% of the State and provide aggregate for about 90% of California's population. The map also shows aggregate production areas and highlights regions where there are less than 10 years of permitted aggregate resources remaining. A report provided with the map discusses supply and demand status of the State's permitted aggregate resources, aggregate quality and use, aggregate prices, and transportation issues. The map and report are available on line at: http://www.consrv.ca.gov/CGS/minerals/mlc/index.htm.

CGS's Mineral Land Classification Project, a mandate of the State's Surface Mining and Reclamation Act of 1975, continued to provide lead agencies with mineral resource maps. These maps have proved to be of great value in land-use planning and mineral resource conservation. At yearend, CGS had completed mineral resource studies in about one-third of the State. CGS also began aggregate classification projects in the San Bernardino and Palm Springs areas (San Bernardino County), the Claremont-Upland area (San Bernardino and Los Angeles Counties), the North San Francisco Bay area (Marin and Napa Counties) and in San Joaquin County. These reports were scheduled for completion during 2007 and 2008.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN CALIFORNIA[1, 2]

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral		2004 Quantity	2004 Value	2005 Quantity	2005 Value	2006 Quantity	2006 Value
Boron minerals		1,210	626,000	1,150	713,000	W	W
Cement:							
Masonry		W	W	694	80,600 e	698	89,500 e
Portland		11,900	1,000,000 e	11,600	1,130,000 e	10,900	1,190,000 e
Clays:							
Bentonite		24	2,640	20	2,200	24	2,510
Common		1,230	20,700	1,010	16,600	744	7,640
Fuller's earth		197	W	W	W	W	W
Gemstones, natural		NA	1,070	NA	1,130	NA	1,040
Gold[4]	kilograms	3,260	43,000	W	W	W	W
Sand and gravel:							
Construction		166,000	1,280,000	163,000	1,440,000	153,000	1,520,000
Industrial		1,990	55,700	2,030	60,400	1,670	57,800
Silver[3]	kilograms	801	172	269	63	W	W
Stone:							
Crushed		55,300 [4]	364,000 [4]	55,200 r	491,000 r	54,900	644,000
Dimension		42	10,200	41	10,200	40	10,000
Combined values of clays [fire (2006), kaolin], diatomite, feldspar, gypsum (crude), iron ore (usable shipped), lime, magnesium compounds, perlite (crude), pumice and pumicite, salt, soda ash, stone [crushed shell (2004)], talc [crude (2004, 2006)], zeolites, and values indicated by symbol W		XX	349,000	XX	332,000	XX	1,070,000
Total		XX	3,760,000	XX	4,280,000 r	XX	4,590,000

eEstimated. rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in "Combined value" 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.
[3]Recoverable content of ores, etc.
[4]Excludes certain stones; kind and value included with "Combined values" data.

TABLE 2
CALIFORNIA: CRUSHED STONE SOLD OR USED, BY KIND[1]

Kind	2005 Number of quarries	2005 Quantity (thousand metric tons)	2005 Value (thousands)	2006 Number of quarries	2006 Quantity (thousand metric tons)	2006 Value (thousands)
Limestone[2]	26 r	21,600 r	$187,000 r	25	24,000	$282,000
Dolomite	4	705	5,150	2	94	1,000
Marble	2	W	W	1	W	W
Shell	1	W	W	1	W	W
Granite	25	13,800 r	126,000 r	28	13,500	154,000
Traprock	45	11,600	115,000	33	10,300	121,000
Sandstone and quartzite	6	3,810	24,300	7	1,990	21,200
Slate	4	319 r	3,220 r	3	286	4,760
Volcanic cinder and scoria	7 r	291 r	2,870 r	8	308	3,680
Miscellaneous stone	25 r	2,890 r	27,600 r	42	4,390	56,300
Total	XX	55,200 r	491,000 r	XX	54,900	644,000

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

TABLE 3
CALIFORNIA: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 2006, BY USE[1]

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	977	24,000
Filter stone	56	739
Other coarse aggregate	143	1,120
Total	1,180	25,900
Coarse aggregate, graded:		
Concrete aggregate, coarse	757	10,500
Bituminous aggregate, coarse	408	3,990
Bituminous surface-treatment aggregate	W	W
Railroad ballast	524	8,290
Other graded coarse aggregate	2,080	34,700
Total	3,770	57,500
Fine aggregate (-⅜ inch):		
Stone sand, concrete	164	1,010
Stone sand, bituminous mix or seal	606	6,140
Screening, undesignated	744	6,400
Other fine aggregate	286	5,020
Total	1,800	18,600
Coarse and fine aggregates:		
Graded road base or subbase	3,670	42,000
Unpaved road surfacing	347	3,450
Terrazzo and exposed aggregate	39	891
Crusher run or fill or waste	230	830
Roofing granules	446	8,380
Other coarse and fine aggregates	1,410	14,800
Total	6,150	70,300
Other construction materials[2]	448	10,200
Agricultural:		
Limestone	(3)	(3)
Poultry grit and mineral food	(3)	(3)
Other agricultural uses	(3)	(3)
Total	210	3,820
Chemical and metallurgical:		
Cement manufacture	10,600	106,000
Flux stone	(3)	(3)
Glass manufacture	(3)	(3)
Sulfur oxide removal	(3)	(3)
Total	11,000	108,000
Special:		
Asphalt fillers or extenders	(4)	(4)
Whiting or whiting substitute	(4)	(4)
Other miscellaneous uses and specified uses not listed	781	28,600
Unspecified:[5]		
Reported	11,300	124,000
Estimated	18,000	200,000
Total	29,500	321,000
Grand total	54,900	644,000

W Withheld to avoid disclosing company proprietary data; included with "Other graded coarse aggregate."
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes drain fields.
[3]Withheld to avoid disclosing company proprietary data; included in "Total."
[4]Withheld to avoid disclosing company proprietary data; included in "Grand total."
[5]Reported and estimated production without a breakdown by end use.

TABLE 4
CALIFORNIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2006, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 4		District 5	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction:										
Coarse aggregate (+1½ inch)[3]	39	654	69	1,180	W	W	531	12,700	149	3,140
Coarse aggregate, graded[4]	--	--	416	8,370	199	3,000	W	W	W	W
Fine aggregate (-⅜ inch)[5]	--	--	88	879	188	2,190	W	W	47	1,030
Coarse and fine aggregates[6]	W	W	W	W	W	W	1,200	15,000	407	4,850
Other construction materials[7]	--	--	--	--	--	--	367	6,470	4	207
Agricultural[8]	--	--	W	W	W	W	--	--	--	--
Chemical and metallurgical[9]	W	W	W	W	--	--	--	--	W	W
Special[10]	--	--	--	--	--	--	--	--	--	--
Other miscellaneous uses	--	--	--	--	--	--	--	--	--	--
Unspecified:[11]										
Reported	277	2,360	63	769	400	5,250	658	7,010	598	6,380
Estimated	700	8,600	110	1,100	2,800	30,000	630	6,700	980	10,000
Total	1,090	12,700	2,010	22,300	4,690	52,000	4,010	54,000	2,280	27,400

	Districts 6 and 7[2]		Districts 8 and 9[2]		Districts 10 and 11[2]		District 12		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction:										
Coarse aggregate (+1½ inch)[3]	W	W	136	2,970	161	3,610	--	--	--	--
Coarse aggregate, graded[4]	592	9,630	1,650	26,100	415	4,840	--	--	--	--
Fine aggregate (-⅜ inch)[5]	520	5,410	736	7,100	W	W	--	--	--	--
Coarse and fine aggregates[6]	846	8,990	1,010	13,400	988	10,900	--	--	--	--
Other construction materials[7]	--	--	73	3,440	4	80	--	--	--	--
Agricultural[8]	62	784	W	W	W	W	--	--	--	--
Chemical and metallurgical[9]	W	W	W	W	W	W	--	--	--	--
Special[10]	W	W	--	--	--	--	--	--	--	--
Other miscellaneous uses	--	--	763	28,200	18	436	--	--	--	--
Unspecified:[11]										
Reported	2,790	31,000	3,590	36,600	433	4,490	2,430	29,700	18	149
Estimated	4,800	53,000	7,400	79,000	400	4,200	410	4,400	--	--
Total	11,200	119,000	24,200	291,000	2,560	31,600	2,840	34,000	18	149

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]Districts 6 and 7, 8 and 9, 10 and 11 are combined to avoid disclosing company proprietary data.

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

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

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

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

[7]Includes drain fields.

[8]Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

[9]Includes cement and glass manufacture, flux stone, and sulfur oxide removal.

[10]Includes asphalt fillers or extenders and whiting or whiting substitute.

[11]Reported and estimated production without a breakdown by end use.

TABLE 5
CALIFORNIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	40,400	$417,000	$10.32
Plaster and gunite sands	2,910	36,200	12.46
Concrete products (blocks, bricks, pipe, decorative, etc.)	269	6,100	22.66
Asphaltic concrete aggregates and other bituminous mixtures	14,700	170,000	11.60
Road base and coverings[2]	9,850	98,000	9.94
Fill	6,880	54,700	7.96
Snow and ice control	8	116	15.50
Railroad ballast	13	47	3.57
Other miscellaneous uses	46	401	8.79
Unspecified:[3]			
Reported	53,300	507,000	9.51
Estimated	24,500	233,000	9.49
Total or average	153,000	1,520,000	9.96

[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes road and other stabilizations (cement).
[3]Reported and estimated production without a breakdown by end use.

TABLE 6
CALIFORNIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006, BY USE AND DISTRICT[1]

(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]	144	2,380	739	7,690	W	W
Asphaltic concrete aggregates and road base materials[3]	359	3,230	1,120	11,400	W	W
Fill	19	248	2	17	66	519
Other miscellaneous uses[4]	1	14	44	346	135	1,360
Unspecified:[5]						
Reported	259	2,310	232	2,150	430	4,490
Estimated	628	6,170	1,050	10,400	221	2,180
Total	1,410	14,300	3,190	31,900	852	8,550
	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products[2]	4,180	45,200	W	W	W	W
Asphaltic concrete aggregates and road base materials[3]	3,420	31,200	497	4,530	W	W
Fill	1,220	10,400	17	137	1,480	17,000
Other miscellaneous uses[4]	2	27	131	1,370	2,650	29,100
Unspecified:[5]						
Reported	21,400	220,000	1,320	12,400	4,470	49,400
Estimated	1,550	15,300	1,180	11,600	640	6,320
Total	31,800	323,000	3,150	30,000	9,240	102,000
	District 7		District 8		District 9	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products[2]	955	9,150	5,980	64,500	16,100	153,000
Asphaltic concrete aggregates and road base materials[3]	W	W	3,820	43,200	8,490	90,300
Fill	322	1,890	179	2,410	983	4,210
Other miscellaneous uses[4]	166	1,960	8	129	--	--
Unspecified:[5]						
Reported	746	9,400	5,620	53,300	8,500	76,800
Estimated	166	1,640	663	6,550	12,600	122,000
Total	2,360	24,000	16,300	170,000	46,700	446,000
	District 10		District 11		District 12	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products[2]	1,640	16,300	11,200	133,000	1,230	14,900
Asphaltic concrete aggregates and road base materials[3]	486	4,460	3,300	41,600	1,340	17,700
Fill	141	1,470	1,750	11,500	688	4,980
Other miscellaneous uses[4]	--	--	5	13	--	--
Unspecified:[5]						
Reported	939	8,630	7,150	57,300	630	5,910
Estimated	198	1,650	3,780	30,500	1,910	18,900
Total	3,410	32,600	27,200	274,000	5,800	62,300
	Unspecified districts					
	Quantity	Value				
Concrete aggregate and concrete products[2]	--	--				
Asphaltic concrete aggregates and road base materials[3]	--	--				
Fill	--	--				
Other miscellaneous uses[4]	--	--				
Unspecified:[5]						
Reported	1,610	4,380				
Estimated	--	--				
Total	1,610	4,380				

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses." -- 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, railroad ballast, and filtration.

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