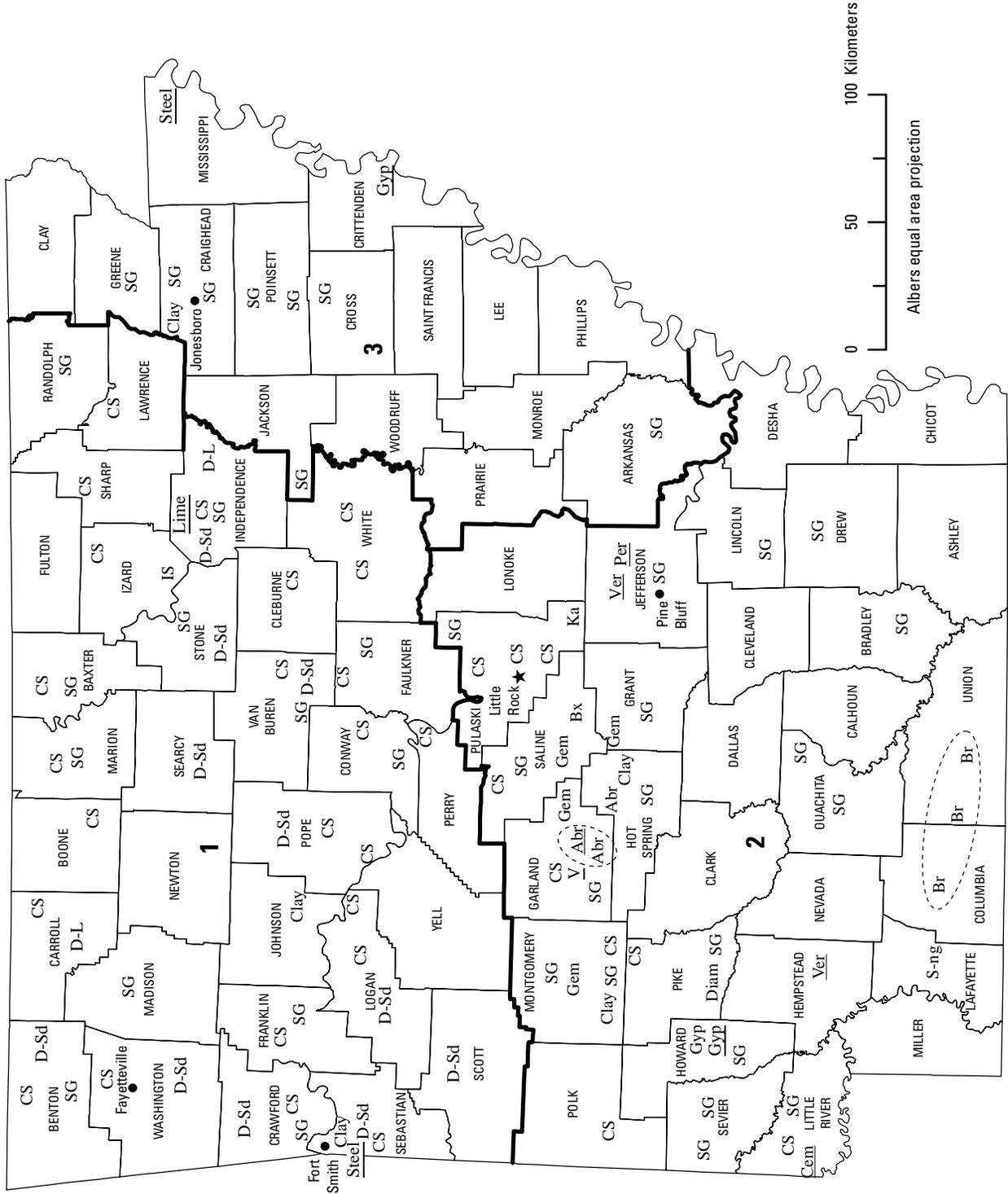




2007 Minerals Yearbook

ARKANSAS [ADVANCE RELEASE]

ARKANSAS



Source: Arkansas Geological Survey/U.S. Geological Survey (2007).

THE MINERAL INDUSTRY OF ARKANSAS

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

In 2007 Arkansas nonfuel raw mineral production¹ was valued at \$768 million, based upon annual U.S. Geological Survey (USGS) data. This was a 3.9% decrease from the State's total value of \$799 million in 2006, which followed a \$202 million, or nearly 34%, increase from 2005 to 2006. The State was 29th (28th in 2006) in rank among the 50 States in total nonfuel mineral production value in 2007 and accounted for more than 1% of the U.S. total. Yet, per capita, the State ranked 15th in the Nation in its minerals industry's value of nonfuel mineral production; with a population of slightly more than 2.8 million, the value of production was about \$271 per capita in 2007.

In 2007, bromine followed by crushed stone, cement (portland and masonry combined), and construction sand and gravel were Arkansas leading nonfuel minerals by value, these commodities together accounting for nearly 92% of the State's total nonfuel mineral production value. For nearly four decades, bromine and crushed stone have been the State's two leading nonfuel minerals, by value, bromine leading in value from 1969 up to 1996 when crushed stone went from second to first. Since then the two have exchanged rank several times; crushed stone was first in 1996–98, 2001–03, and 2005, with bromine back in the lead in the intervening years and significantly in the lead in 2006–07. For more than a decade, cement has ranked third and construction sand and gravel has ranked fourth. Actual production data for bromine and cement have been withheld (company proprietary data).

In 2007, modest increases of between \$3 million and \$4 million took place in the production values of portland cement, lime, and industrial sand and gravel; common clays value also increased, by \$1.2 million. But decreases (in descending order) in the values of crushed stone of \$18 million, bromine (data withheld—company proprietary data), construction sand and gravel, down by \$7.3 million, and crude gypsum (also proprietary) resulted in an overall decrease in total nonfuel mineral production value for the State. While not significantly affecting the State's total value, the unit values of tripoli and common clays showed large increases and the value of gemstones showed a substantial increase. Although a modest decrease took place in the production of tripoli, there was an 80% increase in its total value. A slight decrease took place in

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>.

common clays production, but its value rose by 47%. The value of gemstones rose by 37% (table 1).

In 2007, Arkansas was the Nation's only State to produce bromine, which was extracted in solution from deep bromine-rich brines from wells located adjacent to oil fields in the State. Arkansas continued to be the only State that produced silica stone and it remained third in the quantities of tripoli of four producing States, fifth in crude gypsum, and fifth in gemstones (gemstones based upon value). The State rose to sixth from seventh in the production of common clays and it decreased to fourth from third in that of kaolin clays. Additionally, significant quantities of crushed stone, portland cement, lime, and industrial sand and gravel were produced in the State. Metals that were produced in the State—for the most part raw steel—were processed from materials acquired from other domestic and foreign sources. The principal steel mills in the State were Quanex Corp. (purchased by Gerdau Ameristeel US, Inc. in November) in Sebastian County, Nucor-Yamato Steel Co. and Nucor Corp. in Mississippi County, and Arkansas Steel Associates in Jackson County. Strategic Minerals Corp., or Stratcor, continued operation of the mill facility at Potash Sulphur Springs in Garland County; the mill extracts vanadium pentoxide from recycled out-of-State vanadium-bearing feed.

The following narrative information was provided by the Arkansas Geological Survey² (AGS).

Exploration and Development

Numerous companies continued to be engaged in nonfuel minerals exploration, mine expansion, and facility construction activities in 2007 to further the development of the minerals industry within the State. In particular, several companies continued exploration efforts from the previous year: Arkhola Sand and Gravel Co. explored for additional quarry sites in the western portion of the Arkansas River Valley; Duffield Stone and Gravel Co. explored for additional resources in the Arkansas River Valley; McClinton-Anchor, Inc. explored for new aggregate quarry sites in the limestone-bearing region of northwest Arkansas; and Vulcan Materials Co., based in Birmingham, AL, continued aggregate exploration, with the focus on Morrowan and Atokan age sandstones in White and Cleburne Counties.

Rogers Group, Inc. was evaluating new quarry sites in northwest Arkansas in the Boone and Pitkin Formations (both of the Mississippian Period). Texas Industries Group continued to evaluate tuff deposits on leases in southern Polk County. Martin Marietta Co. acquired new leases from east of its Hatton Quarry

²J. Michael Howard, Geology Supervisor/Mineralogist, authored the text of the State mineral industry information provided by the Arkansas Geological Survey.

site in southern Polk County to near the Cossatot River and investigated reserves of tuff on those leases.

Commodity Review

Industrial Minerals

During 2007, 213 noncoal mine sites were permitted or authorized in Arkansas. The total of noncoal areas under permit was nearly 6,220 hectares (ha) (nearly 15,400 acres) and 4,480 ha (nearly 11,100 acres) was under bond.

Abrasives, Natural.—There were seven companies that mined and processed whetstones in the Hot Springs, Garland County area, including B & C Abrasives, Inc., Blue Mountain Whetstone, Co., Dan's Whetstone Co., Eagle Mountain Whetstones Co., Halls Arkansas Oilstones, Inc., Saint Gobain Abrasives, Inc. (Norton Stones Co.), and Smiths Abrasives, Inc., while Parker Quarries of Malvern, Hot Spring County, also was active. Interest in novaculite (Mississippian-Devonian Arkansas Novaculite) as oilstones has increased in recent years, it being viewed as a more natural product than synthetic alternatives. In addition to aggregate, Martin Marietta also produced high-silica novaculite from a quarry near Glen Rose in Hot Spring County. Malvern Minerals Co. produced tripoli from its Garland County mine, Saline County, in the Bigfork Chert (Ordovician) for processing at its plant in Hot Springs, Garland County.

Bromine.—Albermarle Corp. and Chemtura, Corp. continued operations at the companies' bromine extraction and production plants in Columbia and Union Counties, respectively. Prices for bromine-based products continued to steadily increase worldwide during the year.

Cement.—Ash Grove Cement Co. in Little River County broke ground on a new \$350 million plant to replace its existing facilities, increasing production and efficiency. Cement production capacity was anticipated to increase to more than 1.5 million metric tons per year with the new dry kiln technology. Ash Grove used chalk from the Annona Formation and silica from the Marlbrook Formation, both of Cretaceous age. This plant was expected to be the company flagship plant and a state-of-the-art plant for the industry. Midwest Lime Co. of Batesville, Independence County, produced hydrated lime and quick lime, as well as agriculture lime and pulverized limestone for glass manufacturing. Midwest Lime's quarry was in a section of Ordovician limestones that are of high purity and also low in silica (chert).

Clay and Shale.—Acme Brick Co. (owned by Berkshire-Hathaway) near Malvern, Hot Spring County, continued operation of its Wilcox Group (Eocene age) clay mines for brick production at Perla, AR. McGeorge Construction Co. continued custom mining of bauxite on ALCOA property in Saline County for an undisclosed customer. CertainTeed Corp. continued mining and processing of slaty shale from the Mississippian age Stanley Formation north of Glenwood in Pike County. The company's product was a black roofing granule.

Gemstones.—There are currently 19 quartz contracts, 4 quartz leases, 2 wavellite leases, and 1 novaculite contract on the Ouachita National Forest under the U.S. Forest Service in Arkansas. These generated about \$8,000 in revenue.

In 2007, more than 1,020 diamonds were recovered at the Crater of Diamonds State Park, Pike County. The total weight of the stones was nearly 253 carats, with an average weight of 0.25 carats. Of these diamonds, 44 weighed more than 1 carat. Diamonds recovered included 698 white, 174 brown, and 151 yellow. The largest stone recovered in 2007 was a white diamond that weighed 4.80 carats. More than 27,000 diamonds have been recovered since this property became a State park in 1972. A new facility at the park, the Diamond Discovery Center, had its first full year of operation in 2006. Additional plans for the park include a new museum.

Gypsum.—Saint Gobain Corp.'s gypsum mine and wallboard plant operation near Nashville, Howard County, continued to be the world's leading wallboard manufacturing plant, with a capacity of 130 million square meters per year of wallboard. Saint Gobain was a France-based manufacturer and distributor of building materials. The plant and mines employed about 200 people in 2007. The principal markets for the wallboard, sold under the trade name CertainTeed, were in the eastern United States and the product was shipped by rail and truck.

Nepheline Syenite.—Minnesota Mining and Manufacturing Co. (a 3M company), Maplewood, MN, mined nepheline syenite from its Big Rock Arch Street Quarry to supply material for its roofing granule plant in Sweet Home, Pulaski County. (More information can be found in the crushed stone narrative that follows regarding other active producer information.)

Sand and Gravel, Construction.—As of yearend 2008, there were 123 permitted sites that produced sand and gravel. There were 51 quarries operating under authorizations issued by the Mining Division of the Arkansas Department of Environmental Quality (ADEQ). Approximately \$20,000 in revenue was generated from 30 gravel and stone operations under lease in the Ouachita National Forest under the jurisdiction of the U.S. Forest Service.

Sand and Gravel, Industrial.—Industrial sand was produced by Unimin Corp. from its mine and processing facility at Guion, Izard County. The sand was sourced from the Ordovician St. Peter Sandstone Formation, found prevalent throughout the midwestern United States; markets included foundry, glass, and hydraulic frac sand uses. Frac sand was comprised of washed and graded high silica-content quartz sand with a proper grain size and was used to prop open fractures created by high-pressure fluids pumped into oil and gas wells, enlarging openings in oil- or gas-bearing rock. Arkhola Sand and Gravel Co. of Sebastian County produced industrial sand, as well as construction sand, from its dredging operations on the Arkansas River. Both companies have local markets for their industrial sand as frac sand during the continuing development of the Fayetteville Shale gas play within the Arkansas Valley region of the State. A new frac sand producer came online in 2007 when Delta Co. opened its sand pit east of Little Rock in Pulaski County.

Stone, Crushed.—Arkhola Sand and Gravel Co. produced road aggregates and asphalt mix at the Preston Quarry near Van Buren, Crawford County. Arkhola continued work with the Jenny Lind quarry, Sebastian County, in the Hartshorne Formation (Pennsylvanian Period). R.D. Plant Construction Co., Inc. operated the R.D. Plant quarry, south of Kirby in central

Pike County, in the Jackfork Formation (Pennsylvanian Period).

Duffield Stone and Gravel Co. operated two sandstone aggregate quarries (Pennsylvanian Period) in Pope County—one in the Hartshorne Sandstone at Russellville, and the other, the Gumlog Quarry, in the upper Atoka Formation. Pyramid Co. produced aggregate from the middle Atoka Formation (Pennsylvanian Period) north of Greenbriar, Faulkner County.

Granite Mountain Quarries, Inc. (GMQ) produced aggregate from nepheline syenite at two quarries in Pulaski County and from the Granite Mountain No. 3 quarry near Bryant, Saline County. GMQ also operated a sandstone quarry near Y-City, Scott County, in the Atoka Formation (Pennsylvanian Period). Martin Marietta Co. actively quarried the Hatton Tuff lentil of the Stanley Group (Mississippian Period) at its Hatton Quarry in southern Polk County, and continued operations at the company's Jones Mill Quarry near Magnet Cove, Hot Spring County, producing from both the hornfels and quartzite alteration zone in the Stanley Group adjacent to the Cretaceous-age igneous intrusion and the intrusive rock. Martin Marietta also operated an asphalt plant at this site.

Rogers Group, Inc. continued sandstone aggregate operations at the company's Greenbriar Quarry and its Jefferson Island Quarry, both in the middle Atoka Formation in Faulkner County, at its Conway County Quarry in upper Atoka Formation south of Solgohachia, and at its Lowell Quarry in the limestone of the Boone Formation (Mississippian Period) in southern Benton County. Schwartz Stone Co. quarried sandstone from the Hartshorne Sandstone quarry for aggregate and dimension stone north of Midway in Logan County. McGeorge Sand and Gravel Co. continued riprap barge operations along the Arkansas River from its River Mountain Quarry in the Hartshorne Sandstone area north of New Blaine in eastern Logan County. Chrisman Co. mined sandstone aggregate in the Hartshorne Sandstone area near Hunt in Johnson County and from the Savanna Formation near Ratcliffe, Franklin County.

Vulcan Materials Co. produced aggregate from its upper Morrowan age sandstone operations at Judsonia and middle Atokan age sandstones at Floyd; both sites are in White County. Vulcan also produced dolomitic limestone from lower Ordovician units near Black Rock, Lawrence County. Webco Mining Co. produced crushed stone from its quarry in the middle Atoka Formation near El Paso, White County. Quality Stone Co. produced sandstone aggregate from the Atoka Formation (Pennsylvanian Period) at its Lonestar quarry in south Cleburne County, north of the Rosebud community. Midwest Lime Co. produced aggregate from middle and upper Ordovician-age limestones near Batesville, Independence County. Limestone Specialties, Inc. produced aggregate that was shipped by rail from upper Ordovician units in Independence County.

Stone, Dimension.—Oran McBride Stone Co. of Batesville, Independence County, continued production of interior and exterior structural and architectural stone at its plant in Bethesda. Marble, limestone, and sandstone were quarried from Ordovician and Mississippian-age formations and processed as polished, cut, and rough surface product. Schwartz Stone Co. also quarried sandstone from the Hartshorne Sandstone

quarry north of Midway in Logan County. Broken dimension stone (Cotter Formation) in a variety of shades was produced by Johnson Landscaping from their Ozark Southern Stone quarry, north of Eureka Springs in Carroll County. Eureka Stone Co.'s saw shop is located near this quarry and produces a variety of sawn and turned architectural pieces. Bennett Brothers Stone Co., Inc. obtained building stone materials from deposits in Franklin, Garland, Logan, and other counties, principally from Pennsylvanian-age formations.

Environmental Issues and Mine Reclamation

Near the end of 2006, three proposed in-stream gravel mine permits were denied based on the listing of Crooked Creek, as an impaired water body on the State's 303(d) list. The director's decision was appealed to the Arkansas Pollution Control and Ecology Commission for two of the applications. An administrative hearing was held in 2007 and the ADEQ's decision to deny new permits and suspend existing in-stream permits on Crooked Creek was upheld. There were nearly 80 ha (197 acres) of reclaimed land released from 10 permitted/authorized sites during 2007–2008.

Umetco, Inc. continued reclamation (that began in 1997) of the LeCroy area at the Wilson Springs vanadium mines in Garland County. The Black Lick diamond property, which was reclaimed in 2004 by Star Resources Corp. of Houston, TX, is northeast of the Crater of Diamonds State Park in Pike County; Star was awaiting release of its bond money.

Legislation and Government Programs and Activities

Previously, during the 2005 legislative session, Act 855 of 2005 was passed that gave the ADEQ the authority to develop and issue general permits under the State's Non-Coal Program. Regulation 15 was modified to incorporate the new legislation and it was promulgated on May 28, 2006. No regulatory changes were made to Regulation 15 during 2007.

With preparation having begun in 2006, the Arkansas Act 129 of 2007 was passed officially changing the name of the Arkansas Geological Commission to the Arkansas Geological Survey (AGS) to more properly reflect the activities of the agency to the public.

The AGS Web site at URL <http://www.state.ar.us/agc/agc.htm> hosted more than 169,000 visitors in 2007, which was its 9th year of online operation; the number of visitors holding essentially the same as 2006. Information posted on the Web site included State resource data; USGS annual nonfuel mineral production data; publications and map ordering information; State stratigraphic, geologic, and geohazard data; online geologic maps; agency services; and news items. The site has links to State agency services, Federal agencies, geology Web sites, organizations, and universities.

The AGS continued preparation of a spreadsheet database that contains all identified sites of mineral extraction in the State, excluding petroleum and natural gas. By the close of 2007, more than 7,450 entries had been made and field checking for 30 of 75 counties completed. Site locations were entered by latitude and longitude and by general land office survey techniques.

The AGS has been an active participant in the STATEMAP program since 1995. STATEMAP is a component of the congressionally mandated National Cooperative Geological Mapping Program (NCGMP), through which the USGS distributes Federal funds to support geologic mapping efforts through a competitive funding process. The NCGMP has three primary components: (1) FEDMAP, which funds Federal geologic mapping projects, (2) STATEMAP, which is a matching-funds grant program with State geological surveys, and (3) EDMAP, a matching-funds grant program with universities that has a goal to train the next generation of geologic mappers. During 2007, three digitized 7.5-minute

USGS topographic geologic maps and one 1:100,000 digital compilation map were completed under the STATEMAP cooperative agreement. Three additional 7.5-minute geologic maps were started in July, as well as another 1:100,000 compilation map. Additional information about the STATEMAP geologic mapping program in Arkansas can be found on the AGS Web site.

Staff cartographers completed the digitization of an additional 12 USGS 7.5-minute topographic-based geologic maps across Arkansas, with legends. Digitized 7.5-minute geologic maps are available for download as free .pdf files on the AGS Web site.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN ARKANSAS^{1,2}
(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2005		2006		2007	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, common	1,210	1,900	1,140	2,550	1,120	3,760
Gemstones	NA	711	NA	439	NA	601
Sand and gravel, construction	10,600	62,000	11,100	73,600	9,080	66,300
Silica stone ³ metric tons	576	2,290	227	992	231	1,020
Stone, crushed	37,200 ⁴	229,000 ⁴	36,800 ^r	250,000 ^r	32,300	232,000
Combined values of bromine, cement, clays (kaolin), gypsum (crude), lime, sand and gravel (industrial), stone [crushed slate (2005), dimension limestone and sandstone], tripoli	XX	301,000 ^r	XX	471,000 ^r	XX	464,000
Total	XX	597,000	XX	799,000 ^r	XX	768,000

^rRevised. NA Not available. 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.

³Grindstones, pulpstones, and sharpening stones; excludes mill liners and grinding pebbles.

⁴Excludes certain stones; kind and value included with "Combined values" data.

TABLE 2
ARKANSAS: 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	34 ^r	13,300 ^r	\$91,300 ^r	37	12,800	\$89,600
Dolomite	1	572	4,100	1	591	4,750
Granite	4 ^r	7,290	47,100	4	5,340	39,600
Sandstone and quartzite	23 ^r	13,400 ^r	93,400 ^r	23	11,100	81,900
Miscellaneous stone	15 ^r	2,230 ^r	14,400 ^r	16	2,430	16,400
Total	XX	36,800 ^r	250,000 ^r	XX	32,300	232,000

^rRevised. XX Not applicable.

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

TABLE 3
 ARKANSAS: 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	41	389
Filter stone	195	1,240
Other coarse aggregate	262	1,690
Coarse aggregate, graded:		
Concrete aggregate, coarse	565	4,440
Bituminous aggregate, coarse	326	2,880
Bituminous surface-treatment aggregate	W	W
Railroad ballast	W	W
Other graded coarse aggregate	603	5,030
Fine aggregate (-¾ inch):		
Stone sand, bituminous mix or seal	61	761
Screening, undesignated	371	1,460
Other fine aggregate	201	1,290
Coarse and fine aggregates:		
Graded road base or subbase	1,660	9,870
Unpaved road surfacing	866	5,610
Terrazzo and exposed aggregate	W	W
Crusher run or fill or waste	105	347
Roofing granules	W	W
Other coarse and fine aggregates	3,150	21,100
Other construction materials	36	197
Agricultural:		
Limestone	187	1,250
Other agricultural uses	8	37
Chemical and metallurgical, lime manufacture	W	W
Special:		
Asphalt fillers or extenders	W	W
Other fillers or extenders	W	W
Other miscellaneous uses and specified uses not listed	1	4
Unspecified: ²		
Reported	13,400	102,000
Estimated	9,700	70,000
Total	32,300	232,000

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
 ARKANSAS: CRUSHED STONE SOLD OR USED BY PRODUCERS 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
Construction:						
Coarse aggregate (+1½ inch) ²	W	W	W	W	W	W
Coarse aggregate, graded ³	1,670	13,600	--	--	W	W
Fine aggregate (-¾ inch) ⁴	W	W	W	W	W	W
Coarse and fine aggregates ⁵	5,370	33,900	W	W	W	W
Other construction materials	36	197	--	--	--	--
Agricultural ⁶	195	1,280	--	--	--	--
Chemical and metallurgical ⁷	W	W	--	--	--	--
Special ⁸	W	W	W	W	--	--
Other miscellaneous uses	--	--	1	4	--	--
Unspecified: ⁹						
Reported	6,220	46,000	7,230	55,600	--	--
Estimated	5,600	40,000	4,100	30,000	--	--
Total	20,100	142,000	12,100	89,800	51	827

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.

²Includes filter stone, riprap and jetty stone, and other coarse aggregate.

³Includes bituminous aggregate (coarse), bituminous surface-treatment aggregate, concrete aggregate (coarse), railroad ballast, and other graded coarse aggregate.

⁴Includes screening (undesignated), stone sand (bituminous mix or seal), and other fine aggregate.

⁵Includes crusher run or fill or waste, graded road base or subbase, unpaved road surfacing, roofing granules, terrazzo and exposed aggregate, and other coarse and fine aggregates.

⁶Includes agricultural limestone and other agricultural uses.

⁷Includes lime manufacture.

⁸Includes asphalt fillers or extenders and other fillers or extenders.

⁹Reported and estimated production without a breakdown by end use.

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

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand) ²	2,590	\$19,100	\$7.38
Asphaltic concrete aggregates and other bituminous mixtures	197	1,890	9.57
Road base and coverings	288	1,570	5.45
Fill	87	366	4.21
Other miscellaneous uses ³	48	857	17.97
Unspecified: ⁴			
Reported	2,590	18,600	7.17
Estimated	3,280	24,000	7.31
Total or average	9,080	66,300	7.31

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

²Includes plaster and gunite sand.

³Includes golf course and snow and ice control.

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

TABLE 6
 ARKANSAS: 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 (including concrete sand) ²	W	W	1,440	10,800	W	W
Asphaltic concrete aggregates and road base materials	W	W	290	1,680	W	W
Fill	58	264	28	101	1	1
Other miscellaneous uses ³	417	3,320	22	623	950	7,000
Unspecified: ⁴						
Reported	1,070	7,450	1,020	7,620	509	3,510
Estimated	525	3,870	1,930	14,100	829	6,060
Total	2,070	14,900	4,730	34,900	2,290	16,600

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

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

²Includes plaster and gunite sands.

³Includes golf course and snow and ice control.

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