

THE MINERAL INDUSTRY OF NORTH CAROLINA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Bureau of Mines, U.S. Department of the Interior, and the Division of Land Resources, North Carolina Department of Environment, Health, and Natural Resources, for collecting information all nonfuel minerals.

In 1994, for the third year in a row, North Carolina ranked 17th nationally in total nonfuel mineral value,¹ according to the U.S. Bureau of Mines. The estimated value for 1994 exceeded \$700 million, an increase of more than 14% above that of 1993. This followed a gain of about 4% in 1993 over that of 1992. The State accounted for 2% of the U.S. total. The commodities crushed stone, construction sand and gravel, dimension stone, phosphate rock, and lithium compounds had the most impact on the changing values of the last 2 years. The first three had significant increases between 1992-94. The State's overall mineral value gain in 1993 was moderated by more than a 15% decrease for phosphate rock and nearly a 17% drop for lithium compounds. Based on preliminary 1994 values, both mineral commodities rebounded: phosphate rock value was up almost 19% above that of 1993 to little more than the value in 1992, and lithium compound values were up by 6%. Compared with that of 1993, increases occurred in the value of the following mineral commodities in 1994: crushed stone, phosphate rock, construction sand and gravel, lithium, industrial sand and gravel, dimension stone, crushed quartzite and slate, mica, olivine, talc and

pyrophyllite, and peat. Decreases occurred in feldspar, common clays, and gemstones.

The mines of North Carolina exclusively have been producers of industrial minerals since the early 1970's, in particular with the 1971 closing of the Tungsten Queen Mine, an underground mine located in Vance County. Conversely, significant exploration for gold has occurred during the last several years. Although no metals are currently mined in North Carolina, metals refined from ore shipped into the State or from recycled materials have played an important role in the State's mineral industry. Included in this group are aluminum, chromium, cobalt, copper, ferroalloys, steel, titanium, and tungsten. In estimated mineral production for 1994, North Carolina remained first in feldspar, first of two States that produced lithium and olivine, first of five mica-producing States, second in phosphate rock, and fifth in talc and pyrophyllite. While the State climbed from 8th to 5th in the production of industrial sand and gravel and from 10th to 6th in that of dimension stone, it dropped from 1st to 3d in common clays.

According to the Division of Land Resources (DLR),

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN NORTH CAROLINA¹

Mineral	1992		1993		1994 ^p	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays ² thousand metric tons	2,120	\$9,775	2,381	\$11,165	2,200	\$11,100
Feldspar metric tons	438,624	15,498	471,879	16,687	448,000	16,400
Gemstones	NA	1,219	NA	546	NA	W
Mica (scrap) thousand metric tons	51	2,967	51	2,696	56	2,950
Peat do.	W	108	W	162	W	W
Sand and gravel:						
Construction do.	9,283	42,717	^e 11,100	^e 53,800	12,000	59,400
Industrial do.	1,088	17,533	1,344	18,597	W	W
Stone:						
Crushed ³ do.	^e 44,089	^e 262,400	47,787	297,657	^e 52,000	^e 338,000
Dimension metric tons	^e 23,014	^e 7,469	31,733	12,268	^e 51,700	^e 21,700
Combined value of clays (kaolin), lithium minerals, olivine, phosphate rock, stone [crushed quartzite, slate and volcanic cinder (1993-94), volcanic cinder (1992)], talc and pyrophyllite, and values indicated by symbol W						
	XX	235,962	XX	203,812	XX	255,000
Total	XX	595,648	XX	617,390	XX	⁴ 705,000

^eEstimated. ^pPreliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data.

XX Not applicable.

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

²Excludes certain clays; value included with "Combined value" data.

³Excludes certain stones; value included with "Combined value" data.

⁴Data do not add to total shown because of independent rounding.

North Carolina Department of Environment, Health and Natural Resources, a Nashville, TN, firm, Franklin Industrial Minerals Co., acquired 100% ownership of KMG Minerals Inc., the largest domestic producer of ground mica. Franklin reported that the KMG operations at Kings Mountain, NC, have a capacity of up to 27,000 metric tons per year of gravity-separated, surface-treated and untreated mica, in addition to secondary production of both floated silica and potassium feldspar for glass applications and ball clays for ceramic brick and refractory applications.

In other developments, Unimin Corp. bought Applied Industrial Minerals Corp.'s olivine mine, the Daybrook Mine. State and USDA Forest Service officials reported that a number of efforts to develop gold properties were underway at several locations on the State's national forest lands. Three prospecting permits were issued to a joint venture involving Battle Mountain Gold Co. and Cominco American Resources, Inc., by the U.S. Bureau of Land Management in the Uwharrie National Forest in Montgomery and Randolph Counties. Meanwhile, ASARCO Incorporated drilled six holes and applied for a permit to drill another in search for gold in the same south-central counties, while J. B. Morris also was prospecting for gold by dewatering and taking samples from the

historical Tebe Saunders Mine, where mining originally began in the latter 1800's, in Montgomery County. Elsewhere, BHP was conducting a copper-zinc exploration program under a special use prospecting permit in the Nantahala National Forest near the Tennessee border. The North Carolina Geological Survey (NCGS), in cooperation with DLR, published its annual report *Permitted Active and Inactive Mining Operations in North Carolina*, to include mining activity as of June 1994. It provided a comprehensive listing of permitted mines by county and commodity and included historical data on permitting and reclamation statistics, mineral exploration and production news (including activity on Forest Service lands as well as non-Federal lands), changes in regulations, legislation, and sources of geological and mineral processing information and topographic maps in the State. The 1994 report was particularly significant because it was written at the conclusion of a very active permitting cycle, both for new permits and the withdrawal of permits. Future editions will be published at the end of the calendar year, rather than June, and all are available for purchase from the NCGS.

¹The term value means the total monetary value as represented by either mine shipments, mineral commodity sales, or marketable production as is applicable to the individual mineral commodities.

TABLE 2
NORTH CAROLINA: CRUSHED STONE¹ SOLD OR USED BY PRODUCERS IN 1993, BY USE

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	481	\$1,932	\$4.02
Riprap and jetty stone	523	4,150	7.93
Filter stone	179	1,194	6.67
Other coarse aggregate	W	W	3.28
Coarse aggregate, graded:			
Concrete aggregate, coarse	3,064	20,612	6.73
Bituminous aggregate, coarse	1,953	14,622	7.49
Bituminous surface-treatment aggregate	211	1,393	6.60
Railroad ballast	1,404	6,480	4.62
Other graded coarse aggregate	W	W	6.26
Fine aggregate (-3/8 inch):			
Stone sand, concrete	269	1,056	3.93
Stone sand, bituminous mix or seal	320	1,670	5.22
Screening, undesignated	1,839	8,798	4.78
Coarse and fine aggregates:			
Graded road base or subbase	6,640	33,130	4.99
Unpaved road surfacing	521	3,187	6.12
Terrazzo and exposed aggregate	W	W	11.02
Crusher run or fill or waste	1,050	6,108	5.82
Other coarse and fine aggregates	W	W	5.87
Other construction materials	810	6,176	7.62
Agricultural:			
Agricultural limestone	(?)	(?)	5.51
Poultry grit and mineral food	(?)	(?)	8.41
Special:			
Mine dusting or acid water treatment	(?)	(?)	15.00
Other fillers or extenders	2	14	7.00
Unspecified:³			
Actual	27,339	180,408	6.60
Estimated	<u>1,151</u>	<u>6,522</u>	<u>5.67</u>
Total ⁴	47,787	297,657	6.23
Total ^{5 6}	52,676	297,657	5.65

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

¹Includes dolomite, granite, limestone, marl, miscellaneous stone, and traprock; excludes quartzite, slate, and volcanic cinder from State total to avoid disclosing company proprietary data.

²Withheld to avoid disclosing company proprietary data; included with "Total."

³Includes production reported without a breakdown by use and estimates for nonrespondents.

⁴Data may not add to totals shown because of independent rounding.

⁵One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

⁶Total shown in thousand short tons and thousand dollars.

TABLE 3
NORTH CAROLINA: CRUSHED STONE SOLD OR USED, BY KIND

Kind	1991 ¹				1993 ¹			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	8	3,472	\$20,941	\$6.03	9	3,454	\$23,626	\$6.84
Dolomite	1	160	1,075	6.72	1	179	1,254	7.01
Calcareous marl	4	267	331	1.24	3	60	257	4.28
Granite	69	34,559	198,834	5.75	70	40,090	246,229	6.14
Traprock	4	2,303	14,374	6.24	4	2,212	14,921	6.75
Miscellaneous stone	3	1,436	8,365	5.83	3	1,792	11,371	6.35
Total ²	XX	42,196	243,919	5.78	XX	47,787	297,657	6.23
Total ^{3 4}	XX	46,513	243,919	5.24	XX	52,676	297,657	5.65

¹Revised. XX Not applicable.

¹Excludes quartzite, slate, and volcanic cinder and scoria from State total to avoid disclosing company proprietary data.

²Data may add to totals shown because of independent rounding.

³One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

⁴Total shown in thousand short tons and thousand dollars.

TABLE 4
NORTH CAROLINA: CRUSHED STONE¹ SOLD OR USED BY PRODUCERS IN 1993, BY USE AND DISTRICT

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) ²	340	2,363	W	W	(³)	(³)
Coarse aggregate, graded ⁴	2,393	14,305	W	W	W	W
Fine aggregate (-3/8 inch) ⁵	716	4,150	W	W	W	W
Coarse and fine aggregate ⁶	3,520	19,547	W	W	W	W
Other construction materials	153	1,130	10,272	58,721	1,353	8,253
Agricultural ⁷	(³)	(³)	—	—	(³)	(³)
Special ⁸	(³)	(³)	—	—	—	—
Unspecified: ⁹						
Actual	447	2,683	14,632	95,464	12,260	82,262
Estimated	82	157	678	3,615	392	3,750
Total ¹⁰	7,668	44,428	25,581	157,798	14,538	95,431
Total ^{11 12}	8,453	44,428	28,198	157,798	16,025	95,431

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

¹Excludes quartzite, slate, and volcanic cinder and scoria from State total to avoid disclosing company proprietary data.

²Include filter stone, macadam, riprap and jetty stone, and other coarse aggregate.

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

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

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

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

⁷Includes agricultural limestone and poultry grit and mineral food.

⁸Includes mine dusting or acid water treatment, and other fillers or extender.

⁹Includes production reported without a breakdown by use and estimates for nonrespondents.

¹⁰Data may not add to totals shown because of independent rounding.

¹¹One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.

¹²Total shown in thousand short tons and thousand dollars.