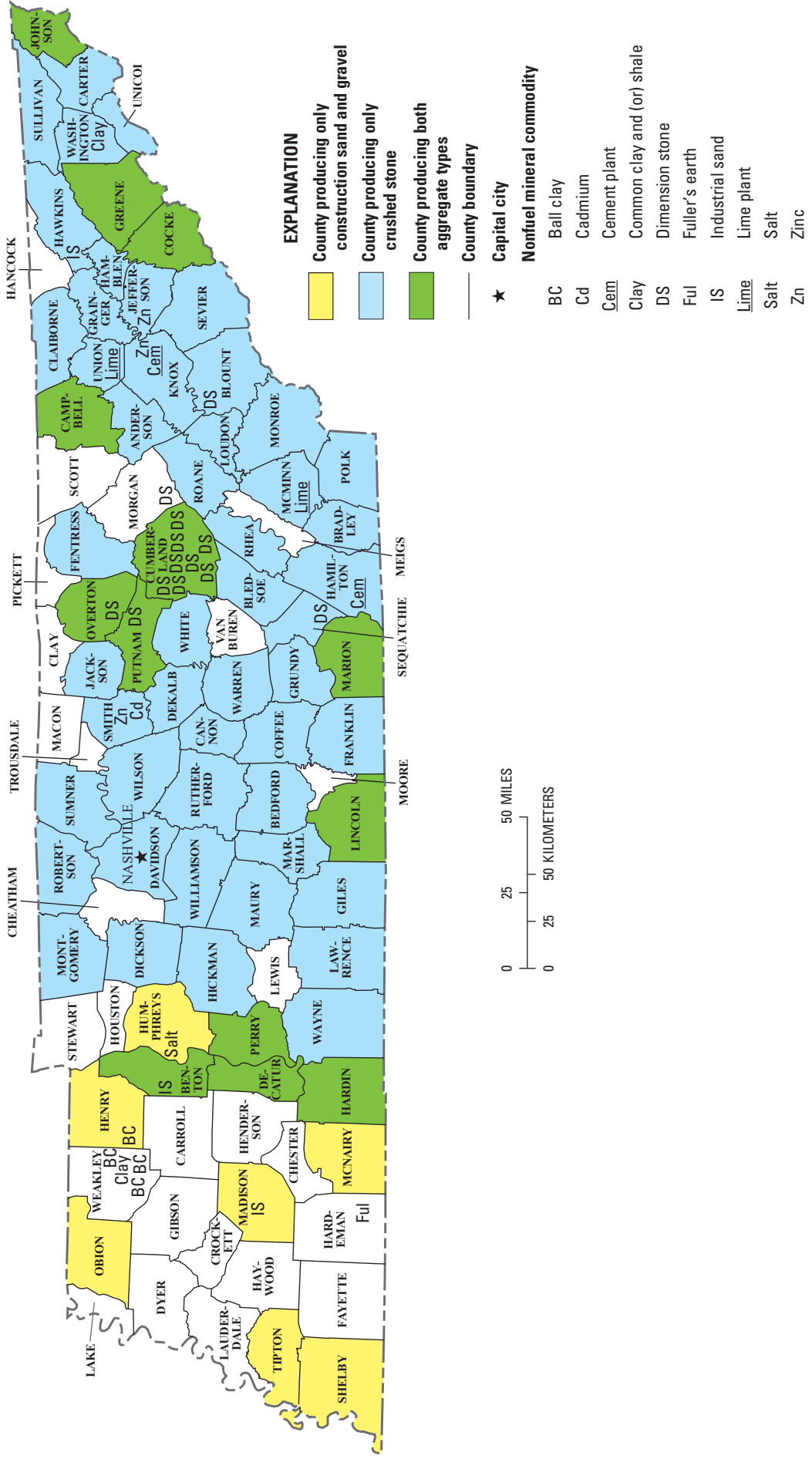




2014 Minerals Yearbook

TENNESSEE [ADVANCE RELEASE]



Base from U.S. Geological Survey digital data
 Albers Equal-Area Conic projection

Figure 1. Map showing major nonfuel-mineral-producing areas in Tennessee in 2014. Sources: Tennessee Department of Environment and Conservation and U.S. Geological Survey.

THE MINERAL INDUSTRY OF TENNESSEE

By Robert M. Callaghan

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Tennessee Department of Environment and Conservation, Division of Geology, for collecting information on all nonfuel minerals.

In 2014, the nonfuel mineral production¹ value in the State of Tennessee (fig. 1) increased to \$1.04 billion, a 7% increase from the State's revised nonfuel mineral production value of \$971 million in 2013 (table 1). On the basis of value, crushed stone was the leading mineral commodity in the State; other major mineral commodities included cement, construction sand and gravel, industrial sand and gravel, and zinc. Tennessee was the leading ball clay producer and the second-ranked zinc producer among the States. The State ranked 11th in total dimension stone production, but first in the subcategory of dimension marble of the 15 producing States, though the majority of the dimension stone produced was sandstone (44%) and limestone (20%). Of the crushed stone, about 97% consisted of limestone or limestone-dolomite mixtures. For total nonfuel mineral value, the State ranked 25th in the Nation in 2014 and, on a per capita basis, had a value of \$159 compared with the national average of \$252 (table 2).

Events, Trends, and Issues

After 5 years of increases following the recession of 2007–09, Tennessee's total nonfuel mineral production value surpassed the \$1 billion level for the first time, increasing beyond the prerecession record in 2007 by 5% (fig. 2). One major factor was the restart of the State's zinc mines after purchase by Nyrstar NV in 2009, ramping up production in subsequent years. Production in 2014 of 111,000 metric tons of zinc in concentrate was 8% below that in 2013 owing to lower ore grades and equipment problems (Nyrstar NV, 2015, p. 49–50). The Middle Tennessee mine complex was also the source of cadmium, recovered at the company's zinc smelter, and a germanium leach product, which was exported for refining and, therefore, not included as domestic production of germanium. Industrial sand was also a major contributor to the State's rising mineral value, owing to increased demand for industrial sand for use in hydraulic fracturing in the oil and gas industry; production value increased by 70% in 2014 from 2013. Of the bulk commodities, aggregates production—construction sand and gravel and crushed stone—remained relatively flat after the recession of

2007–09, though a small increase in unit value did cause a 4% increase in the production value of crushed stone in 2014.

Tennessee published an economic report stating that in the mining, logging, and construction job sector, employment increased by 1% from 2009 to 2014 compared to a 7.5% increase in total nonfarm employment in this time period, though there was 2.8% growth in 2014 compared with that in 2013 for that sector. In the category of mining, except oil and gas, there were 138 firms with 3,029 employees in 2014, down from 139 firms with 3,044 employees in 2013. Overall, the natural resources and mining sector was expected to grow at a 1.66% annual rate in the near term (Tennessee Department of Labor & Workforce Development, 2015b, p. 2, 11, 16). In a 10-year projection from 2014 to 2024, the natural resources and mining job sector in Tennessee was expected to decrease at an average of 0.7% annually (Tennessee Department of Labor & Workforce Development, 2015a, p. 2).

Aggregates by State and End Use

A companion dataset, “Aggregates by State and End Use,” replaces the discrete aggregate tables that were included in the individual State chapters prior to 2014 and is available on the State Minerals Statistics and Information web page at <https://minerals.usgs.gov/minerals/pubs/state/>. This dataset is updated annually.

References Cited

- Nyrstar NV, 2015, Annual report 2014: Balen, Belgium, Nyrstar NV, 188 p. (Accessed February 16, 2018, at <http://www.nyrstar.com/~media/Files/Nyrstar/results-reports-and-presentations/english/2015/nyrstar-ar14-en-planche.pdf>.)
- Tennessee Department of Labor & Workforce Development, 2015a, Tennessee industry and occupational employment projections 2014–2024: Nashville, TN, Tennessee Department of Labor & Workforce Development, 15 p. (Accessed February 16, 2018, at [https://www.jobs4tn.gov/admin/gsipub/htmlarea/uploads/LMI/Publications/Tennessee_7-25_2014-2024_Overview_update_for_website_\(REUPDATE\)2016_0727.pdf](https://www.jobs4tn.gov/admin/gsipub/htmlarea/uploads/LMI/Publications/Tennessee_7-25_2014-2024_Overview_update_for_website_(REUPDATE)2016_0727.pdf).)
- Tennessee Department of Labor & Workforce Development, 2015b, Tennessee's economy—An overview—Labor market information 2014: Nashville, TN, Tennessee Department of Labor & Workforce Development, 52 p. (Accessed February 16, 2018, at https://www.jobs4tn.gov/admin/gsipub/htmlarea/uploads/TN_Economy_2014.pdf.)

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 USGS mineral production data published in this chapter are those available as of June 2017. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the internet at <http://minerals.usgs.gov/minerals>.

TABLE 1
NONFUEL MINERAL PRODUCTION IN TENNESSEE^{1,2,3}

(Thousand metric tons and thousand dollars)

Mineral	2012		2013		2014	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays:						
Ball clay	W	W	623	28,500	648	27,400
Common clay	114	817	W	W	W	W
Sand and gravel:						
Construction	6,110	47,500	6,060 ^r	48,300 ^r	5,870	40,100
Industrial	1,040	26,600	1,090	35,600	1,490	60,500
Stone:						
Crushed	38,800	476,000	38,200	474,000	39,200	493,000
Dimension	32	7,210	32	6,140	51	11,000
Combined values of cadmium, ⁴ cement, clays (fuller's earth), gemstones (natural), lime, salt, zinc, and values indicated by symbol W	XX	377,000	XX	378,000 ^r	XX	407,000
Total	XX	935,000	XX	971,000 ^r	XX	1,040,000

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

¹Includes data available through June, 2017.

²Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

³Data are rounded to no more than three significant digits; may not add to totals shown.

⁴Cadmium contained in zinc concentrates.

TABLE 2
MINING ACTIVITY IN TENNESSEE

Mining activity	2012	2013	2014
State rank ¹	24	26	25
Employment, number: ²			
Nonfuel mineral mines	2,057	2,014	1,959
Mills and plants	1,129	1,127	1,158
Number of nonfuel mineral mines ²	264	259	252
Number of mills and plants ²	118	122	122
Average annual wage, all mining ³	dollars per year	65,085	62,690
Average annual wage, all industries ³	do.	44,255	44,273
Per capita value ¹	dollars per person	145	149
National per capita value ¹	do.	241	236
do. Ditto.			252

¹Based on unadjusted State total value.

²Source: U.S. Mine Safety and Health Administration.

³Source: National Mining Association.

TABLE 3
STRUCTURE OF THE NONFUEL MINERAL INDUSTRY IN TENNESSEE

(Nonfuel-mineral-producing companies, not including aggregate producers)

Commodity	Company	County
Cadmium	Nyrstar NV	Smith
Cement	Buzzi Unicem USA Inc.	Hamilton
Do.	Cemex	Knox
Clays:		
Ball clay	H.C. Spinks Clay Co.	Henry and Weakley
Do.	Old Hickory Clay Co.	Weakley
Do.	Unimin Corp.	Do.
Common clay and (or) shale	General Shale, Inc.	Washington
Do.	Kentucky Tennessee Clay Co.	Weakley
Fuller's earth	EP Minerals, LLC	Hardeman
Gemstones ¹	Various	Various
Lime	Carneuse Lime & Stone	Union
Do.	Resolute Forest Products	McMinn
Salt	E.I. du Pont de Nemours & Co.	Sevier
Sand and gravel, industrial	Short Mountain Silica Co.	Hawkins
Do.	Unimin Corp.	Carroll
Do.	U.S. Silica Co.	Madison
Stone, dimension	Arreola Stone	Putnam
Do.	Bobby Hall Stone Quarries	Cumberland
Do.	Carl Wallace Quarrying	Do.
Do.	Cook Stone Co.	Morgan
Do.	R&M Quarries	Do.
Do.	Rocky Ridge Stone Co. LLC	Do.
Do.	Silvara Stone Co., LLC	Do.
Do.	Stone Sales & Services Inc	Sequatchie
Do.	Swafford Contracting LLC	Cumberland
Do.	Tennessee Marble Co.	Blount
Do.	Turner Brothers Stone of Crossville, Inc.	Cumberland
Do.	Walker Stone	Overton
Do.	York & Sons Quarries	Cumberland
Zinc	Nyrstar NV (East Tennessee Zinc Complex)	Jefferson and Knox
Do.	Nyrstar NV (Middle Tennessee Zinc Complex)	Smith

Do. Ditto.

¹Most natural gemstone producers in the United States are small businesses that are widely dispersed and operate independently.

EXPLANATION

- Other
- Clays (ball clay)
- Sand and gravel (industrial)
- Stone dimension
- Sand and gravel (construction)
- Stone (crushed)

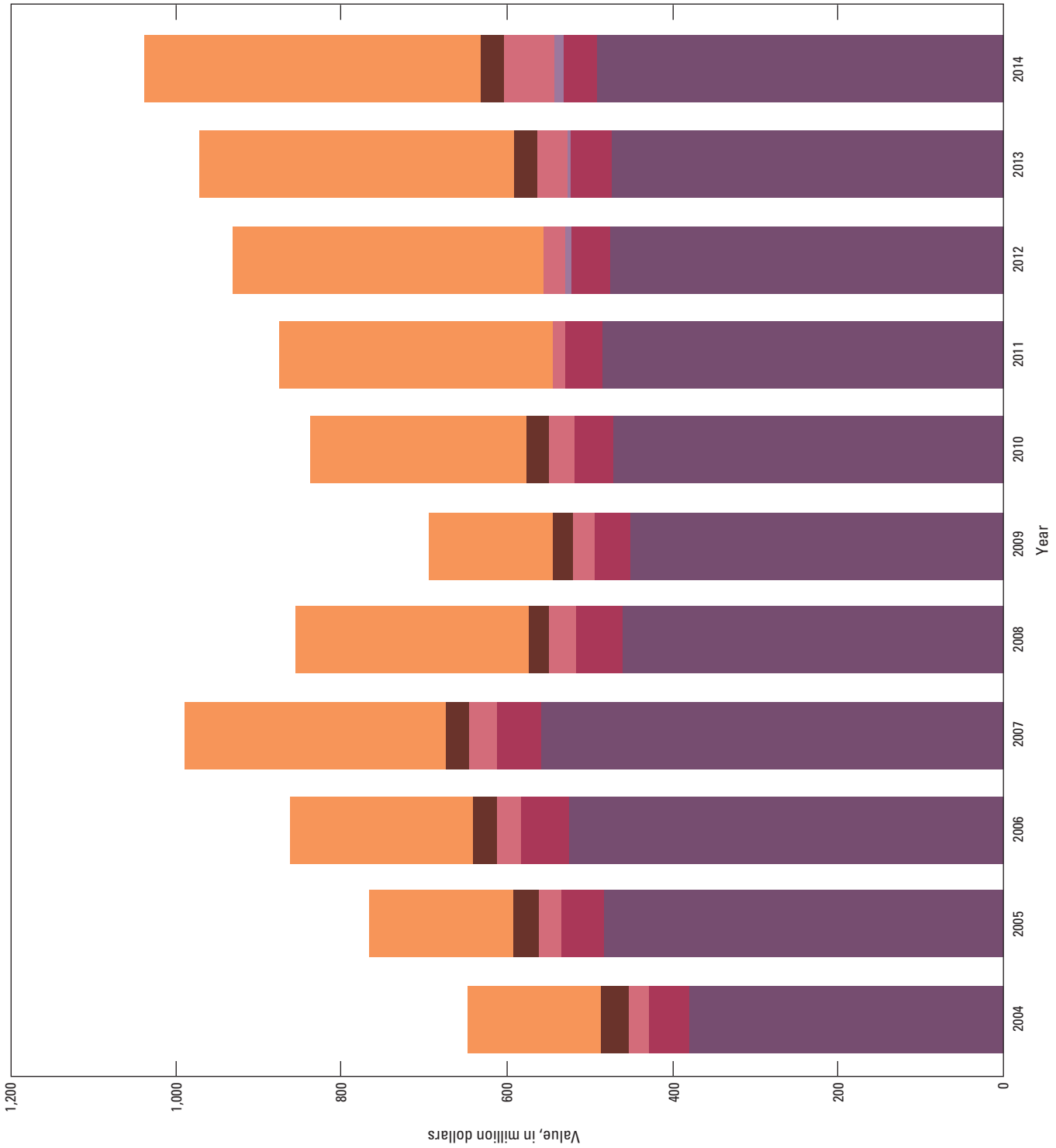


Figure 2. The production value of nonfuel mineral commodities from 2004 through 2014 in Tennessee. "Other" includes the "Combined values" data listed in table 1 in this and (or) previous years. Values less than \$5 million are not shown. For a complete list of nonfuel mineral commodities and production values for all States, please refer to the Statistical Summary chapter (tables 5, 6).