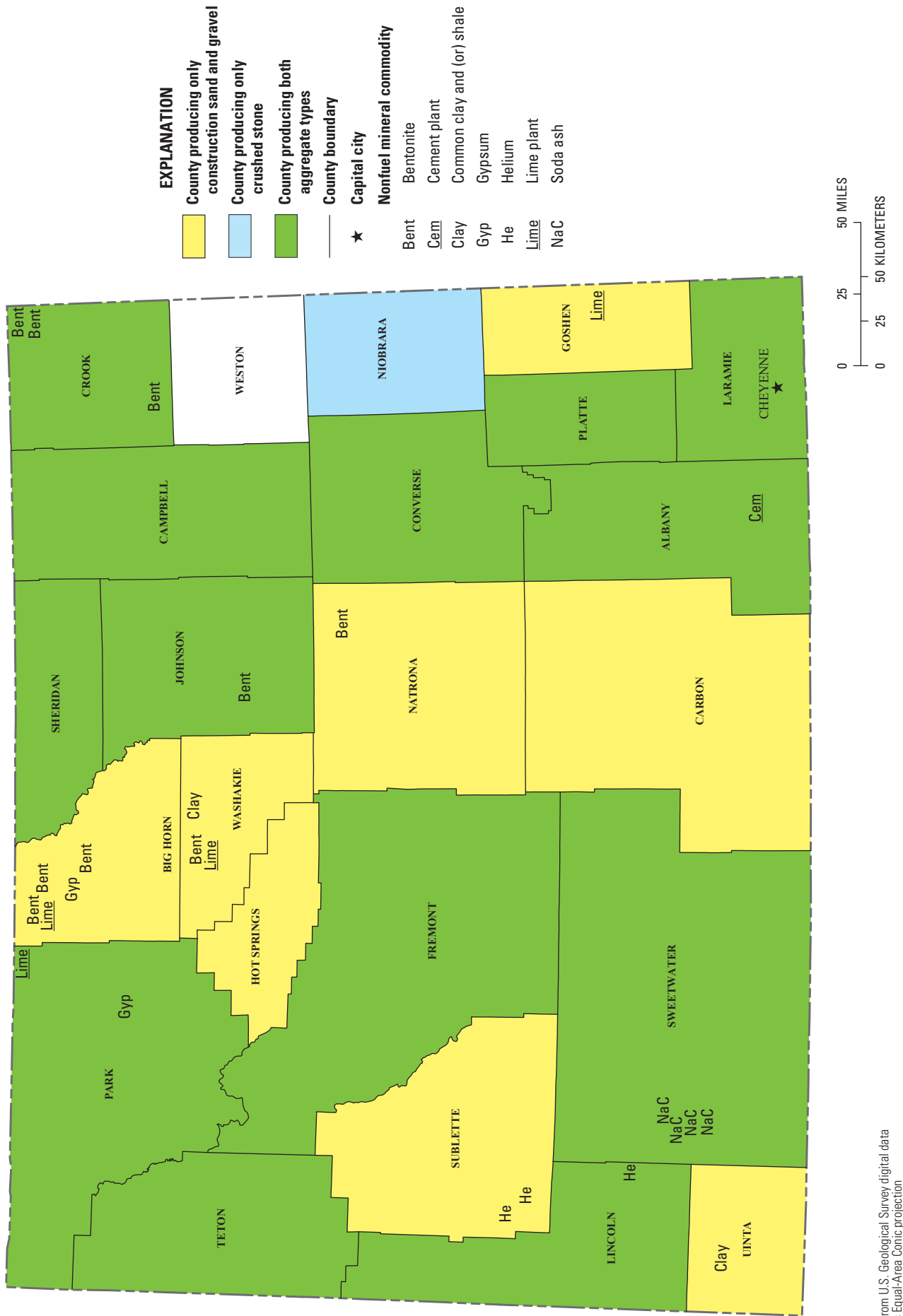




2014 Minerals Yearbook

WYOMING [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 Wyoming in 2014. Sources: Wyoming State Geological Survey and U.S. Geological Survey.

THE MINERAL INDUSTRY OF WYOMING

By Robert M. Callaghan

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

In 2014, the value of the nonfuel mineral production¹ in the State of Wyoming (fig. 1) was \$2.52 billion, an 11% increase from 2013 (table 1). Leading nonfuel mineral commodities included bentonite, helium (Grade-A), and soda ash. On the basis of quantity, Wyoming was the leading bentonite and soda ash producer among 10 and 2 producing States, respectively. Other mineral operations active in the State (table 3) produced clays, gypsum, and lime. Lime was produced for the processing of sugar in Wyoming's large sugar beet industry. The Wyoming State gemstone was jade; small quantities of this and other gemstone-quality rocks and minerals, such as agate, corundum, opal, and quartz, were collected at various localities. In 2014, on the basis of total nonfuel mineral production value, the State ranked 12th in the Nation and, on a per capita basis, the State ranked 2d, with a value of \$4,320 compared with the national average of \$252 (table 2).

Events, Trends, and Issues

Wyoming's total nonfuel mineral production value was not affected as much by the recession of 2007–09 as many other States. By 2011, the State's total nonfuel mineral production value had surpassed the pre-recession peak in 2008 and in 2014 set a new record (fig. 2). This was in part because the State's leading nonfuel mineral commodities were not construction dependent. Soda ash, the leading nonfuel mineral commodity, set a record in 2014 for production quantity after 5 years of increasing production and exports, and in 2014, unit values for soda ash were near the record high set in 2012 (Bolen, 2015, p. 70.1). One company announced plans to increase soda ash production capacity by 12% to meet expected increased export demand (Solvay Chemicals, Inc., 2014). Major end uses for Wyoming soda ash included the manufacture of chemicals, detergents and soaps, and glass.

Bentonite production in 2014 increased, reflecting a 33% increase in bentonite consumption in drilling muds used in the oil and gas industry (a recovery from a 22% decrease in 2013) and a 23% increase in sales to the pet waste absorbent industry in the United States (Flanagan, 2017, p. 18.3). Wyoming produced only sodium bentonite, the swelling type that was also used in binding foundry sand and for pelletizing iron ore. During the recession of 2007–09, bentonite demand was much lower owing to cuts in iron and steel production, but rebounded

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>.

mainly because of the increasing consumption for drilling muds in the oil and gas industry (Southerland, 2014).

Wyoming's helium production was a byproduct from natural gas fields in the Riley Ridge area in Sublette County. In 2014, a new helium purification and liquefaction plant in Sublette County was completed as a joint venture between Air Products and Matheson Tri-Gas, Inc., which would process a raw gas stream from the Denbury Resources Riley Ridge gas plant (Air Products and Chemicals Inc., 2014). The Riley Ridge plant, however, remained on standby status during the year. In 2014, the United States began implementing phase B of the Helium Privatization Act of 2013, with an auction of 10% of the total volume available for sale from the Federal Helium Reserve. The goal was to increase taxpayer returns and to stimulate investment in private helium sources by selling crude helium at market-driven prices (Hamak, 2016, p. 35.1).

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

- Air Products and Chemicals, Inc., 2014, Air Products and Matheson helium production begins in Wyoming: Air Products and Chemicals, Inc. press release, June 11. (Accessed February 12, 2018, at <http://www.airproducts.com/company/news-center/2014/06/0611-air-products-and-matheson-helium-production-begins-in-wyoming.aspx>.)
- Bolen, W.P., 2015, Soda ash [advance release], *in* Metals and minerals: U.S. Geological Survey Minerals Yearbook 2014, v. I, p. 70.1–70.9. (Accessed February 12, 2018, at https://minerals.usgs.gov/minerals/pubs/commodity/soda_ash/myb1-2014-sodaa.pdf.)
- Flanagan, D.M., 2017, Clay and shale [advance release], *in* Metals and minerals: U.S. Geological Survey Minerals Yearbook 2014, v. I, p. 18.1–18.23. (Accessed February 12, 2018, at <https://minerals.usgs.gov/minerals/pubs/commodity/clays/myb1-2014-clays.pdf>.)
- Hamak, J.E., 2016, Helium [advance release], *in* Metals and minerals: U.S. Geological Survey Minerals Yearbook 2014, v. I, p. 35.1–35.8. (Accessed February 12, 2018, at <https://minerals.usgs.gov/minerals/pubs/commodity/helium/myb1-2014-heliu.pdf>.)
- Solvay Chemicals, Inc., 2014, Solvay to increase its natural soda ash production capacity in the US: Brussels, Belgium, Solvay Chemicals, Inc. press release, February 4. (Accessed February 12, 2018, at https://www.solvay.com/en/media/press_releases/20140203-Soda-ash-Green-River-US.html.)
- Southerland, W.M., 2014, Wyoming bentonite summary report September 2014: Wyoming State Geological Survey, 4 p. (Accessed February 12, 2018, at <http://www.wsgs.wyo.gov/products/wsgs-2014-bentonite-summary.pdf>.)

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

(Thousand metric tons and thousand dollars)

Mineral	2012		2013		2014	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays:						
Bentonite	4,500 ^r	267,000	4,000	253,000	4,340	289,000
Common clay	31	114	W	W	W	W
Gemstones, natural ^c	NA	19	NA	18	NA	18
Sand and gravel, construction	11,800	98,600 ^r	11,300 ^r	91,100 ^r	12,600	107,000
Stone, crushed	11,400	50,500	9,380	41,400 ^r	11,000	51,500
Combined values of cement, gypsum (crude), helium (Grade-A), lime, soda ash, stone [dimension (2012)], and values indicated by symbol W	XX	1,910,000	XX	1,880,000	XX	2,070,000
Total	XX	2,330,000	XX	2,260,000	XX	2,520,000

^aEstimated. ^rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data; included in "Combined values." 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.

TABLE 2
MINING ACTIVITY IN WYOMING

Mining activity	2012	2013	2014
State rank ¹	9	11	12
Employment, number: ²			
Nonfuel mineral mines	1,653	1,574	1,600
Mills and plants	1,900	1,893	2,128
Number of nonfuel mineral mines ²	187	182	186
Number of mills and plants ²	35	35	34
Average annual wage, all mining ³	dollars per year	80,774	82,416
Average annual wage, all industries ³	do.	44,309	44,699
Per capita value ^{1, 4}	dollars per person	4,040	3,880
National per capita value ¹	do.	241	236

do. Ditto.

¹Based on unadjusted State total value.

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

³Source: National Mining Association.

⁴Data rounded to no more than three significant digits.

TABLE 3
STRUCTURE OF THE NONFUEL MINERAL INDUSTRY IN WYOMING

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

Commodity	Company	County
Cement	Eagle Materials Inc.	Albany
Clays:		
Bentonite	American Colloid Co.	Big Horn and Crook
Do.	Bentonite Performance Minerals, LLC	Do.
Do.	Black Hills Bentonite, LLC	Big Horn, Crook, Johnson, Natrona, Washakie
Common clay and (or) shale	Interstate Brick Co.	Uinta
Do.	Georgia-Pacific Corp.	Washakie
Gemstones ¹	Various	Various
Gypsum	Certainteed Corp.	Park
Do.	Georgia-Pacific Gypsum LLC	Big Horn
Helium	APMTG Helium LLC	Sublette
Do.	Denbury Onshore, LLC	Do.
Do.	Exxonmobil Gas Marketing Co.	Sweetwater
Lime	Western Sugar Cooperative, Inc.	Big Horn and Goshen
Do.	Wyoming Lime Producers	Park
Do.	Wyoming Sugar Co. LLC	Washakie
Soda ash	FMC Wyoming Corp.	Sweetwater
Do.	OCI Wyoming LLC	Do.
Do.	Solvay Chemicals, Inc.	Do.
Do.	Tata Chemicals (Soda Ash) Partners	Do.

Do. Ditto.

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

EXPLANATION

- Other
- Clay (bentonite)
- Sand and gravel (construction)
- Stone (crushed)

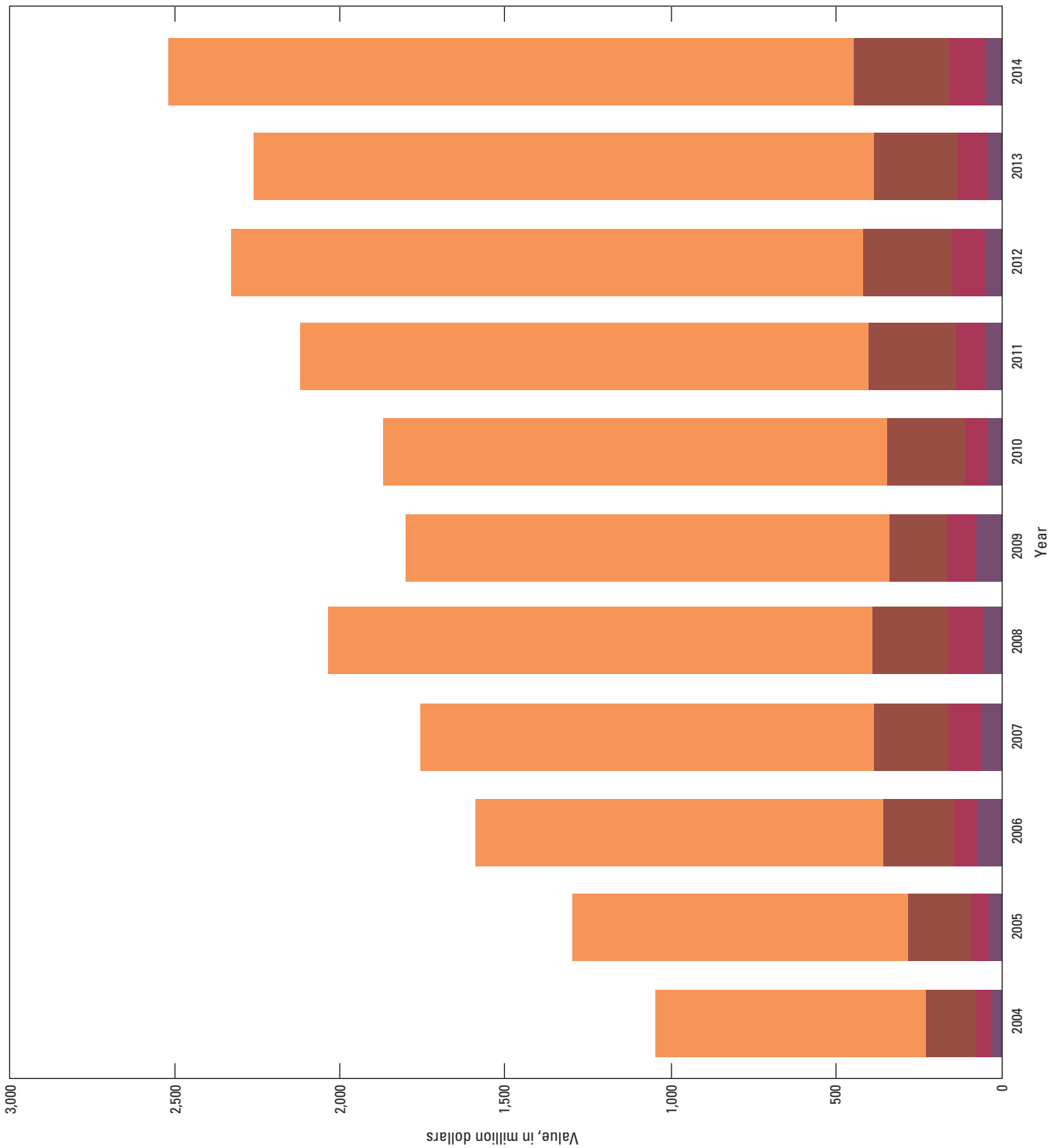


Figure 2. The production value of nonfuel mineral commodities from 2004 through 2014 in Wyoming. "Other" includes the "Combined values" data listed in table 1 in this and (or) previous years. Values less than \$5 million are not shown. For a complete list of nonfuel mineral commodities and production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