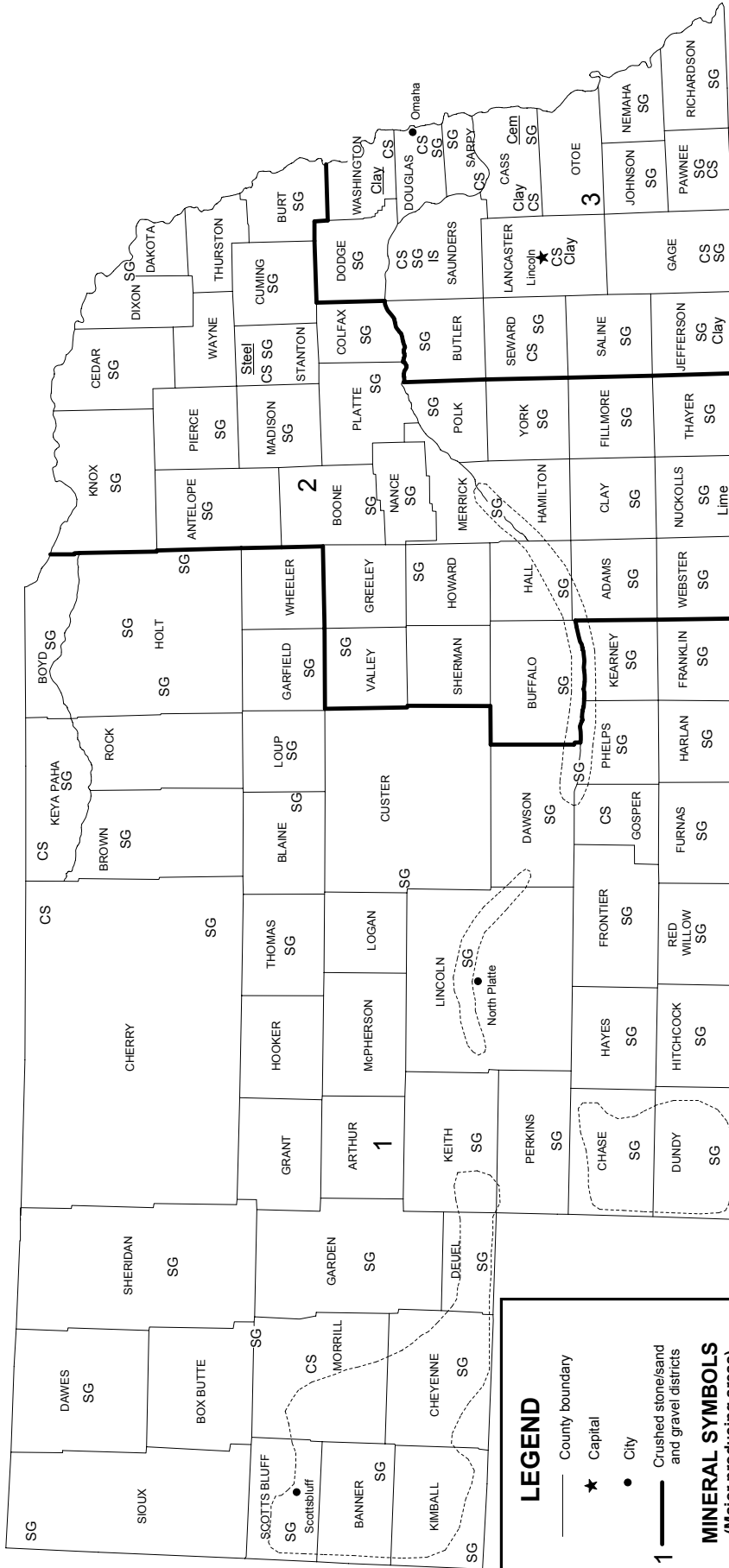


# NEBRASKA



**LEGEND**

- County boundary
- ★ Capital
- City
- 1 — Crushed stone/sand and gravel districts

**MINERAL SYMBOLS (Major producing areas)**

- Cem Cement plant
- Clay Common clay
- Clay Clay plant
- CS Crushed stone
- IS Industrial sand
- Lime Lime plant
- SG Construction sand and gravel
- Steel Steel plant
- Concentration of mineral operations



# THE MINERAL INDUSTRY OF NEBRASKA

**This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the University of Nebraska-Lincoln, Nebraska Geological Survey, for collecting information on all nonfuel minerals.**

In 2001, the estimated value<sup>1</sup> of nonfuel mineral production for Nebraska was \$91.4 million, based upon preliminary U.S. Geological Survey (USGS) data. This was about a 9% increase from that of 2000<sup>2</sup> and followed a 3.6% decrease from 1999 to 2000. Because data for industrial sand and gravel and masonry and portland cements were withheld to protect company proprietary data, the actual total values for 1999-2001 are substantially higher than those reported in table 1.

In 2001, Nebraska's leading nonfuel minerals, in descending order of value, were portland cement, crushed stone, and construction sand and gravel, as has been true for the past several years. In 2000, decreases in the values of crushed stone and construction sand and gravel, down \$2.1 million and \$11.6 million, respectively, accounted for the State's drop in value. While the value of industrial sand and gravel was up, those of portland and masonry cements were down, slightly.

Compared with USGS estimates of the quantities of minerals produced in the 50 States during 2001, Nebraska was a significant producer of construction sand and gravel. Metals produced in the State, mostly that of raw steel, were processed from materials acquired from other domestic and foreign sources.

The following narrative information was provided by the Nebraska Geological Survey (NGS)<sup>3</sup>. Nebraska's mineral industry experienced economic setbacks in 2001, but it retained vitality. Multiple companies are seeking to expand their mining operations and their regional-to-national markets.

Limestone operations in the State continued to find relatively consistent markets, and a general interest in finding new sources of aggregate and cement-grade materials emerged. Ash Grove Cement Co. (Louisville), which operates the only cement plant in the State, obtained a permit to screen and reclaim waste fines

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<sup>1</sup>The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the minerals or 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 2001 USGS mineral production data published in this chapter are preliminary estimates as of August 2002 and are expected to change. For some mineral commodities, such as construction sand and gravel, crushed stone, and portland cement, estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. Specialist contact information may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals/contacts/comdir.html>; alternatively, specialists' names and telephone numbers may be obtained by calling USGS information at (703) 648-4000 or by calling the USGS Earth Science Information Center at 1-888-ASK-USGS (275-8747). All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals/>.

<sup>2</sup>Values, percentage calculations, and rankings for 2000 may differ from the Minerals Yearbook, Area Reports: Domestic 2000, Volume II, owing to the revision of preliminary 2000 to final 2000 data. Data for 2001 are preliminary and are expected to change; related rankings may also change.

<sup>3</sup>Matthew Joeckel, Research Geologist with the University of Nebraska-Lincoln and the NGS, authored the text of mineral industry information submitted by the NGS.

from a limestone aggregate mining operation at Weeping Water in 1998. These waste fines are now trucked 15 kilometers to the Louisville plant as an important source of low-magnesium limestone for cement kiln feed. The removal of waste fines from Weeping Water also facilitates reclamation. A total of 1,351,794 metric tons (t) of fines has been reclaimed, and 1,264,962 t has actually been incorporated into the cement manufacturing process. An existing 86,832 t limestone fines inventory at the Louisville plant will eventually be consumed, as will the remaining estimated 450,000 to 900,000 t remaining at Weeping Water.

The vast majority of limestone mined in Nebraska is used for various aggregate applications, cements, and agricultural lime. Limestone wall rock (limestone used for making walls), however, is currently produced from the Ervine Creek Limestone Member (Upper Pennsylvanian) by B&R Wallrock near Weeping Water.

Yankee Hill Brick Co. (Lincoln), which uses kaolin and illite-smectite clays from the Cretaceous Dakota Formation, is operating at capacity and mined approximately 54,000 t of raw materials in 2001. The company also introduced a new product line of embedded brick veneer for precast concrete panels, which has already been used in a major construction project at Ford Field baseball stadium in Detroit, MI. Endicott Clay Products (Endicott) also uses Dakota clays for glazed ware, tile, pavers, face and residential brick, swimming pool coping, and brick murals. Endicott has upgraded its processing facilities with a Stedman impactor for crushing clay and with scalping screens to remove fines before initial crushing runs, thereby increasing overall efficiency. More efficient mills and handling equipment for the prefiring stage have also been installed.

Blair Ag LLC (Blair) processes attapulgite (palygorskite) from Florida into liquid clay, a suspension agent for feed and fertilizer solids. With the acquisition of rail unloading capacity, the company has now shifted from truck shipments of raw material to more economical rail shipments.

Ongoing mineral-industry-related legislative and legal issues in the State are dominated by the relevance and application of U.S. Environmental Protection Agency air quality regulations to limestone mining operations and a dispute about a multi-State low-level radioactive waste disposal compact. Furthermore, sand and gravel producers in Nebraska have expressed concerns about the potential economic impacts of the proposed Platte River Recovery Plan, as discussed in reports to the Land Committee, Third Party Subcommittee, U.S. Bureau of Reclamation.

Two former limestone quarry sites, one south of Lincoln and one at Ashland, have been converted into high-value residential properties, and, at the Ashland site, a golf course. These projects have made use of post-mining topography and water-filled pits to produce unique and aesthetically pleasing landscapes. A former underground diatomite mine at Scotia, NE, which once supplied paint filler, poultry-feed additive,

abrasive, and even building stone (case-hardened diatomite near the surface), has been reopened as a tourist attraction.

The University of Nebraska Conservation and Survey Division or Nebraska Geological Survey (CSD) received multiple inquiries about subsurface limestone mining, clay resources, and ornamental gravel deposits in 2001. Suburban expansion in the Lincoln-Omaha-Council Bluffs (Iowa) metropolitan area, recently projected to reach a population of 2 million by 2050, will probably strain local sources of limestone, limestone aggregate, and construction sand and gravel by impinging on current production areas and could prevent potential new development. Therefore, the CSD encouraged

local producers and planners to consider long-term resource planning.

Through the University, the CSD has been granted custody of over 100 deep cores drilled by Molycorp, Inc. through the REE-bearing Elk Creek carbonatite igneous intrusive in Johnson and Pawnee Counties. These cores will gradually be available for detailed research in coming years. Mineral-related research at the CSD in 2001 focused on the Elk Creek carbonatite cores as well as the stratigraphy, sedimentology, and underground mining of the Plattsmouth Limestone Member (Upper Pennsylvanian) in Cass County, NE, and Miocene lacustrine diatomites in Greeley County.

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN NEBRASKA 1/ 2/

(Thousand metric tons and thousand dollars)

Mineral	1999		2000		2001 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	W	(3/)	W	(3/)	W	(3/)
Portland	W	(3/)	W	(3/)	W	(3/)
Clays, common	133	(3/)	133	338	133	340
Gemstones	NA	3	NA	3	NA	3
Lime	18	1,510	20	1,690	20	1,200
Sand and gravel:						
Construction	12,000	40,800	11,700	39,200	10,700	36,300
Industrial	W	(3/)	W	(3/)	W	(3/)
Stone, crushed	7,090	44,500	6,590	42,400	8,100	53,600
Total	XX	86,800	XX	83,700	XX	91,400

p/ Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary 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/ Value excluded to avoid disclosing company proprietary data.

TABLE 2  
NEBRASKA: CRUSHED STONE SOLD OR USED, BY KIND 1/

(Thousand metric tons)

Kind	1999				2000			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	11	7,090	\$44,500	\$6.28	11	6,590	\$42,400	\$6.43

1/ Data are rounded to no more than three significant digits.

TABLE 3  
NEBRASKA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2000, BY USE 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
<b>Construction:</b>			
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	174	\$1,760	\$9.62
Filter stone	W	W	8.27
Other coarse aggregate	73	343	4.70
Total or average	247	2,100	8.52
Coarse aggregate, graded:			
Concrete aggregate, coarse	W	W	8.39
Bituminous aggregate, coarse	W	W	7.61
Railroad ballast	W	W	7.38
Other graded coarse aggregate	1,600	13,000	8.09
Fine aggregate (-3/8 inch):			
Screening, undesignated	30	116	3.87
Other fine aggregate	4	15	3.75
Total or average	34	131	3.85
Coarse and fine aggregates:			
Unpaved road surfacing	272	2,460	9.06
Terrazzo and exposed aggregate	(2/)	(2/)	4.00
Crusher run or fill or waste	470	3,590	7.63
Roofing granules	(2/)	(2/)	7.00
<b>Agricultural:</b>			
Agricultural limestone	119	787	6.61
Poultry grit and mineral food	W	W	15.76
Other agricultural uses	214	2,620	12.24
Total or average	333	3,410	10.23
<b>Chemical and metallurgical:</b>			
Cement manufacture	(2/)	(2/)	3.21
Flux stone	(2/)	(2/)	8.00
Special, asphalt fillers or extenders	(2/)	(2/)	18.86
Other miscellaneous uses, pipe bedding	(2/)	(2/)	7.25
Unspecified, reported 3/	1,990	12,000	6.01
Grand total or average	6,590	42,400	6.43

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

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

2/ Withheld to avoid disclosing company proprietary data; included in "Grand total."

3/ Reported production without a breakdown by end use.

TABLE 4  
NEBRASKA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2000,  
BY USE AND DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Use	District 3	
	Quantity	Value
Construction:		
Coarse aggregate (+1 1/2 inch) 3/	247	2,100
Coarse aggregate, graded 4/	1,600	13,000
Fine aggregate (-3/8 inch) 5/	W	W
Coarse and fine aggregate 6/	762	6,190
Agricultural 7/	333	3,410
Chemical and metallurgical 8/	W	W
Special 9/	W	W
Other miscellaneous use 10/	W	W
Unspecified, reported 11/	1,990	12,000
Total	6,590	42,400

W Withheld to avoid disclosing company proprietary data; included in "Total."

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

2/ No production reported in Districts 1 and 2.

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

4/ Includes bituminous aggregate (coarse), concrete aggregate (coarse), railroad ballast, and other graded coarse aggregate.

5/ Includes screening (undesignated) and other fine aggregate.

6/ Includes crusher run (select material or fill), roofing granules, terrazzo and exposed aggregate, and unpaved road surfacing.

7/ Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

8/ Includes cement manufacture and flux stone.

9/ Includes asphalt fillers or extenders.

10/ Includes pipe bedding.

11/ Reported production without a breakdown by end use.

TABLE 5  
NEBRASKA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2000,  
BY MAJOR USE CATEGORY 1/

Use	Quantity	Value	Unit value
	(thousand metric tons)	(thousands)	
Concrete aggregate and concrete products	1,160	\$4,330	\$3.73
Plaster and gunite sands	53	148	2.79
Asphaltic concrete aggregates and other bituminous mixtures	513	1,760	3.44
Road base and coverings 2/	1,690	5,380	3.18
Fill	404	739	1.83
Snow and ice control	56	185	3.30
Roofing granules	12	38	3.17
Other miscellaneous uses	15	129	8.60
Filtration	(3/)	1	3.86
Unspecified: 4/			
Reported	1,670	4,740	2.83
Estimated	6,200	22,000	3.54
Total or average	11,700	39,200	3.34

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

2/ Includes road and other stabilization (lime).

3/ Less than 1/2 unit.

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

TABLE 6  
NEBRASKA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2000, BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	256	872	532	2190	427	1,420	--	--
Asphaltic concrete aggregates and other bituminous mixtures	186	496	W	W	W	W	--	--
Road base materials 3/	727	1,810	773	2,620	193	962	--	--
Fill	58	91	226	432	120	216	--	--
Snow and ice control	16	29	26	92	14	65	--	--
Other miscellaneous uses 4/	19	100	261	987	72	350	--	--
Unspecified: 5/								
Reported	532	879	252	485	890	3,370	--	--
Estimated	760	2,500	2,900	9,900	2,500	9,200	48	180
Total	2,550	6,750	4,970	16,700	4,170	15,600	48	180

W Withheld to avoid disclosing company proprietary data; included with "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 (lime).

4/ Includes filtration and roofing granules.

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