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Nebraska Mineral Operations Review, 1992


R. R. Burchett

University of Nebraska-Lincoln

Duane A. Eversoll

Nebraska Geological Survey - Univ. Nebraska, deversoll2@unl.edu

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**NEBRASKA MINERAL
OPERATIONS REVIEW, 1992**

R. R. Burchett and D. A. Eversoll

May 1993

**Nebraska Geological Survey
Conservation and Survey Division
Institute of Agriculture and Natural Resources
The University of Nebraska—Lincoln**

NEBRASKA MINERAL OPERATIONS REVIEW, 1992

A total of 3,786 quarries, pits, and mines have been active at various times over approximately the last 92 years in Nebraska (table 1). Of these, there were 370 limestone quarries; 3,228 sand, gravel, and silt pits; 26 clay or shale pits; 98 sandstone pits; 11 quartzite pits; 30 volcanic ash pits; 14 coal mines; one chalk mine; three flint quarries; four peat pits; and one uranium mine. These operations have disturbed about 44,664 acres, of which approximately 57 percent have been reclaimed.

During 1992, there were 24 limestone quarries; 644 sand, gravel, and silt or siltstone pits; 8 clay or shale pits; and 23 sandstone pits active in Nebraska (table 2). These 701 active mining operations disturbed 464 acres and restored 162 acres during the year. The locations of these quarries, pits, and mines are shown in figure 1.

The Nebraska Oil and Gas Conservation Commission reports that 1,682 wells produced 5,474,188 barrels of oil and 691 million cubic feet of casinghead gas. Approximately 486 million cubic feet of dry gas was produced from 22 wells, and 4 gas wells were shut-in during 1992. Locations of the oil and gas fields are shown in figure 2. Of the 103 wells drilled during the year, 57 were for exploration, 43 for development and 3 were classified as miscellaneous service or stratigraphic tests. The largest number of exploration and development wells completed occurred in Cheyenne County, followed by Kimball, Hayes, Hitchcock, and Banner counties.

Current information collected by the Conservation and Survey Division (Nebraska Geological Survey), the U. S. Department of Agriculture Soil Conservation Service, and the Nebraska Department of Roads Materials Division has been compiled and placed on open file at the office of the Conservation and Survey Division, 113 Nebraska Hall, 901 North 17th Street, Lincoln, Nebraska 68588-0517. Area code (402) 472-7520 or 472-7524.

TABLE 1 : CUMULATIVE SUMMARY OF ACTIVE, INACTIVE, AND ABANDONED NEBRASKA QUARRIES, PITS AND MINES: 1900-1992

COUNTY	LIMESTONE			SAND-GRAVEL-SILT			CLAY OR SHALE			SANDSTONE			OTHER MINERALS		
	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.
ADAMS				18	167.3	96.0									
ANTELOPE				26	366.6	146.5									
BANNER				27	164.4	35.3									
BLAINE				8	37.0	25.0									
BOONE				8	99.0	90.5									
BOX BUTTE				1	81.0	0.0				13	60.4	20.0			
BOYD				18	74.5	11.0									
BROWN				45	348.9	152.9							1	2.0	0.0
BUFFALO				124	2031.5	1742.5									
BURT				17	55.0	38.6	1	4.0	0.0	1	3.6	3.6			
BUTLER				23	507.7	427.7									
CASS	156	2438.7	417.6	31	1163.2	716.2	8	25.0	0.0	10	10.5	1.0			
CEDAR	2	5.0	1.3	209	761.1	387.0									
CHASE				43	245.1	137.8				5	20.0	18.5			
CHERRY				17	65.7	9.0				2	8.8	0.0	3	3.0	0.0
CHEYENNE				71	597.1	329.0									
CLAY				10	239.3	140.9									
COLFAX				26	645.8	484.0									
CUMING				16	858.0	444.0									
CUSTER				16	335.0	84.0							3	7.0	0.0
DAKOTA	6	8.5	0.0	22	315.9	182.0				1	2.0	2.0			
DAWES				38	134.8	28.9									
DAWSON				116	1758.9	1527.1									
DEUEL				38	382.8	115.0									
DIXON	5	32.0	8.0	26	84.0	30.0									
DODGE				44	2220.5	2016.0									
DOUGLAS				37	1554.1	852.1									
DUNDY				66	246.6	167.8									
FILLMORE				9	157.6	146.5									
FRANKLIN				31	345.9	127.0							4	72.0	0.0
FRONTIER				4	25.1	17.0							4	38.0	9.0
FURNAS	5	23.0	0.0	31	254.3	84.0							3	3.1	0.0
GAGE	16	140.7	36.3	61	773.8	309.0	1	2.0	0.0	2	2.0	1.0	3	12.0	0.0
GARDEN				50	104.7	33.3									
GARFIELD				7	51.5	47.5									
GOSPER				11	134.6	133.2							1	3.0	0.0
GREELEY				10	21.1	14.5							1	2.0	2.0
HALL				150	2116.5	1257.5									
HAMILTON				31	360.4	183.5									
HARLAN				11	178.3	148.6							2	26.0	26.0
HAYES				12	114.5	82.8									
HITCHCOCK				33	258.0	131.7				1	2.0	2.0			
HOLT				103	704.6	198.0				2	9.9	4.9			
HOOKER				11	68.3	57.0									
HOWARD				21	266.1	126.3									
JEFFERSON	11	57.0	0.0	34	356.0	167.0	6	45.6	32.5				1	1.0	0.0
JOHNSON	2	12.0	4.0	29	45.0	34.6							1	0.1	0.0
KEARNEY				18	280.5	198.0									

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TABLE 1 : CUMULATIVE SUMMARY OF ACTIVE, INACTIVE, AND ABANDONED NEBRASKA QUARRIES, PITS AND MINES: 1900-1992
 LIMESTONE SAND-GRAVEL-SILT CLAY OR SHALE SANDSTONE OTHER MINERALS

COUNTY	LIMESTONE			SAND-GRAVEL-SILT			CLAY OR SHALE			SANDSTONE			OTHER MINERALS		
	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.
KEITH				89	1146.2	744.7									
KEYA PAHA				41	113.7	53.1				28	83.9	32.3	2	1.0	0.0
KIMBALL				72	346.2	155.3									
KNOX				45	622.4	308.0							1	1.5	1.5
LANCASTER	11	225.7	97.7	36	130.3	84.5	4	50.1	3.6	12	34.2	24.5			
LINCOLN				141	1979.6	1186.8							10	26.3	0.5
LOGAN				2	4.0	2.0									
LOUP				21	116.5	94.8									
MADISON				24	916.8	409.4							1	0.5	0.0
MCPHERSON				2	19.5	15.5									
MERRICK				61	777.9	554.9									
MORRILL				80	532.1	291.4				10	17.7	6.9			
NANCE				14	244.2	114.5									
NEMAHA	60	581.7	108.1	12	65.0	44.4							1	0.1	0.0
NUCKOLLS	2	8.1	0.0	27	234.4	77.3							1	1.0	0.0
OTOE	11	86.0	31.0	13	55.0	54.0	2	19.3	7.0				4	0.3	0.0
PAWNEE	15	153.2	104.2	14	47.7	39.0	1	8.0	0.0				4	3.5	0.0
PERKINS				22	125.6	38.1									
PHELPS				11	183.7	54.0									
PIERCE				20	513.5	312.0									
PLATTE				38	1469.8	908.3									
POLK				19	462.9	414.0									
RED WILLOW	1	2.0	2.0	38	673.2	577.4							4	4.0	4.0
RICHARDSON	26	235.5	70.0	27	210.8	182.7	1	2.0	0.0				4	2.1	0.0
ROCK				22	111.8	72.8									
SALINE	3	14.0	0.0	28	274.5	84.0									
SARPY	18	335.3	94.0	34	1097.2	847.0	2	3.8	0.3	4	7.0	0.0			
SAUNDERS	1	126.2	52.0	70	1259.8	731.5				2	2.5	0.0	1	3.0	0.0
SCOTTS BLUFF				131	728.8	385.8									
SEWARD	4	33.4	7.1	15	41.8	23.0									
SHERIDAN				40	140.7	28.2				5	16.2	0.0			
SHERMAN				10	11.8	9.2									
SIOUX				18	41.4	12.5									
STANTON				17	374.0	269.0									
THAYER	3	23.0	0.0	48	631.8	147.5							1	1.0	0.0
THOMAS				25	281.6	228.1									
THURSTON	2	7.0	0.0	20	37.9	14.0							1	0.4	0.0
VALLEY				14	198.0	105.0							2	3.0	1.0
WASHINGTON	3	172.0	84.5	5	8.0	8.0									
WAYNE				2	4.0	4.0									
WEBSTER	7	8.9	0.0	18	306.0	65.0									
WHEELER				2	12.4	12.4									
YORK				32	567.3	439.5									
TOTALS:	370	4728.9	1117.8	3228	39277.4	24116.4	26	159.8	43.4	98	280.7	116.7	64	216.9	44.0

TABLE 2: SUMMARY OF ACTIVE NEBRASKA QUARRIES, PITS AND MINES FOR 1992

COUNTY	LIMESTONE			SAND-GRAVEL-SILT			CLAY OR SHALE			SANDSTONE			OTHER MINERALS		
	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.
ADAMS				4	0.0	0.0									
ANTELOPE				4	0.0	0.5									
BANNER				10	6.4	0.0									
BLAINE				2	0.0	0.0									
BOONE															
BOX BUTTE				1	0.0	0.0				7	0.9	0.0			
BOYD				8	0.4	0.0									
BROWN				20	0.0	0.0									
BUFFALO				9	0.0	0.0									
BURT				3	0.4	0.0									
BUTLER				5	6.0	0.0									
CASS	10	11.8	3.0	7	59.8	17.0	1	0.0	0.0						
CEDAR				7	4.7	8.5									
CHASE				24	0.8	0.0				2	0.3	0.0			
CHERRY				7	0.0	0.0				1	0.0	0.0			
CHEYENNE				45	1.0	3.5									
CLAY				4	0.0	0.0									
COLFAX				5	17.0	7.0									
CUMING				3	8.0	35.0									
CUSTER				3	10.0	1.0									
DAKOTA				2	0.0	0.0									
DAWES				16	4.0	0.0							1	0.0	0.0
DAWSON				12	0.0	0.0									
DEUEL				24	21.0	0.0									
DIXON				3	0.0	0.0									
DODGE				5	13.3	5.0									
DOUGLAS				5	0.0	0.0									
DUNDY				37	3.5	0.0									
FILLMORE				2	0.0	0.0									
FRANKLIN				5	0.0	0.0							1	0.0	0.0
FRONTIER				1	0.0	0.0									
FURNAS				6	0.0	0.0									
GAGE	3	2.0	2.0	7	45.0	0.0									
GARDEN				9	4.0	0.0									
GARFIELD				1	0.0	0.0									
GOSPER				1	0.0	0.0									
GREELEY															
HALL				12	13.0	0.0									
HAMILTON				1	4.4	0.0									
HARLAN				3	2.0	3.5									
HAYES				2	0.0	0.0									
HITCHCOCK				5	2.1	0.5									
HOLT				20	7.5	0.0									
HOOKER				1	2.0	0.0									
HOWARD				5	6.0	0.0									
JEFFERSON				6	10.0	1.0	3	0.0	0.0						
JOHNSON				4	1.3	0.0									
KEARNEY				5	1.5	0.0									

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TABLE 2 : SUMMARY OF ACTIVE NEBRASKA QUARRIES, PITS AND MINES FOR 1992

COUNTY	LIMESTONE			SAND-GRAVEL-SILT			CLAY OR SHALE			SANDSTONE			OTHER MINERALS		
	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.	NO.	ACRES MINED	ACRES RECL.
KEITH				12	0.0	-2.0									
KEYA PAHA				9	0.0	0.0				4	0.0	0.0			
KIMBALL				49	0.8	0.0									
KNOX				11	12.0	7.0									
LANCASTER	2	0.0	0.0	4	10.0	0.0	3	0.0	0.0	1	0.0	0.0			
LINCOLN				10	7.5	3.0									
LOGAN															
LOUP				4	0.0	0.0									
MADISON				6	5.0	0.0									
MCPHERSON				1	4.0	0.0									
MERRICK				5	0.0	0.0									
MORRILL				28	6.5	0.0				7	0.0	1.9			
NANCE				2	6.5	5.5									
NEMAHA				1	4.0	0.0									
NUCKOLLS	1	0.0	0.0	4	0.0	0.0									
OTOE															
PAWNEE	2	14.0	3.0	1	1.5	0.0									
PERKINS				10	0.0	0.0									
PHELPS				5	0.0	0.0									
PIERCE				1	3.0	3.0									
PLATTE				9	0.0	0.0									
POLK				3	2.0	1.5									
RED WILLOW				10	1.0	1.5									
RICHARDSON				7	2.9	0.0									
ROCK				5	0.0	0.0									
SALINE				2	0.0	0.0									
SARPY	1	5.0	5.0	4	3.0	0.0	1	0.0	0.0						
SAUNDERS				10	0.0	0.0									
SCOTTS BLUFF				13	8.3	0.0									
SEWARD	2	1.5	1.5	1	0.0	1.0									
SHERIDAN				14	3.0	0.0				1	0.0	0.0			
SHERMAN				1	0.0	0.0									
SIOUX				5	0.0	0.0									
STANTON				6	3.5	0.0									
THAYER				8	76.6	4.0									
THOMAS				3	4.0	1.0									
THURSTON				1	0.0	0.0									
VALLEY				4	1.0	0.0									
WASHINGTON	2	3.0	3.0												
WAYNE															
WEBSTER	1	0.0	0.0	4	5.0	34.0									
WHEELER															
YORK															
TOTALS:	24	37.3	17.5	644	426.2	142.0	8	0.0	0.0	23	1.2	1.9	2	0.0	0.0

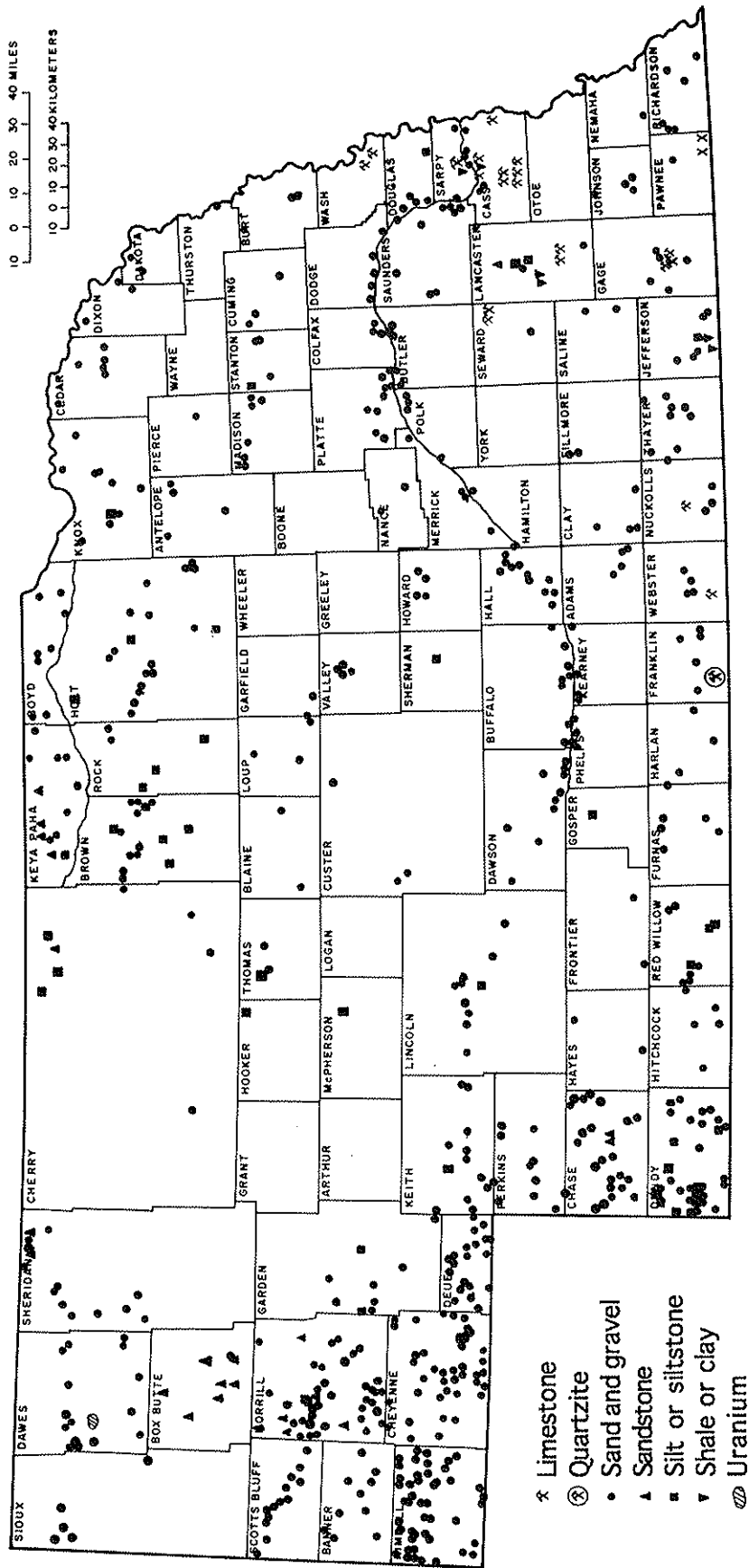


Fig. 1. Location of active quarries, pits, and mines in Nebraska, 1992

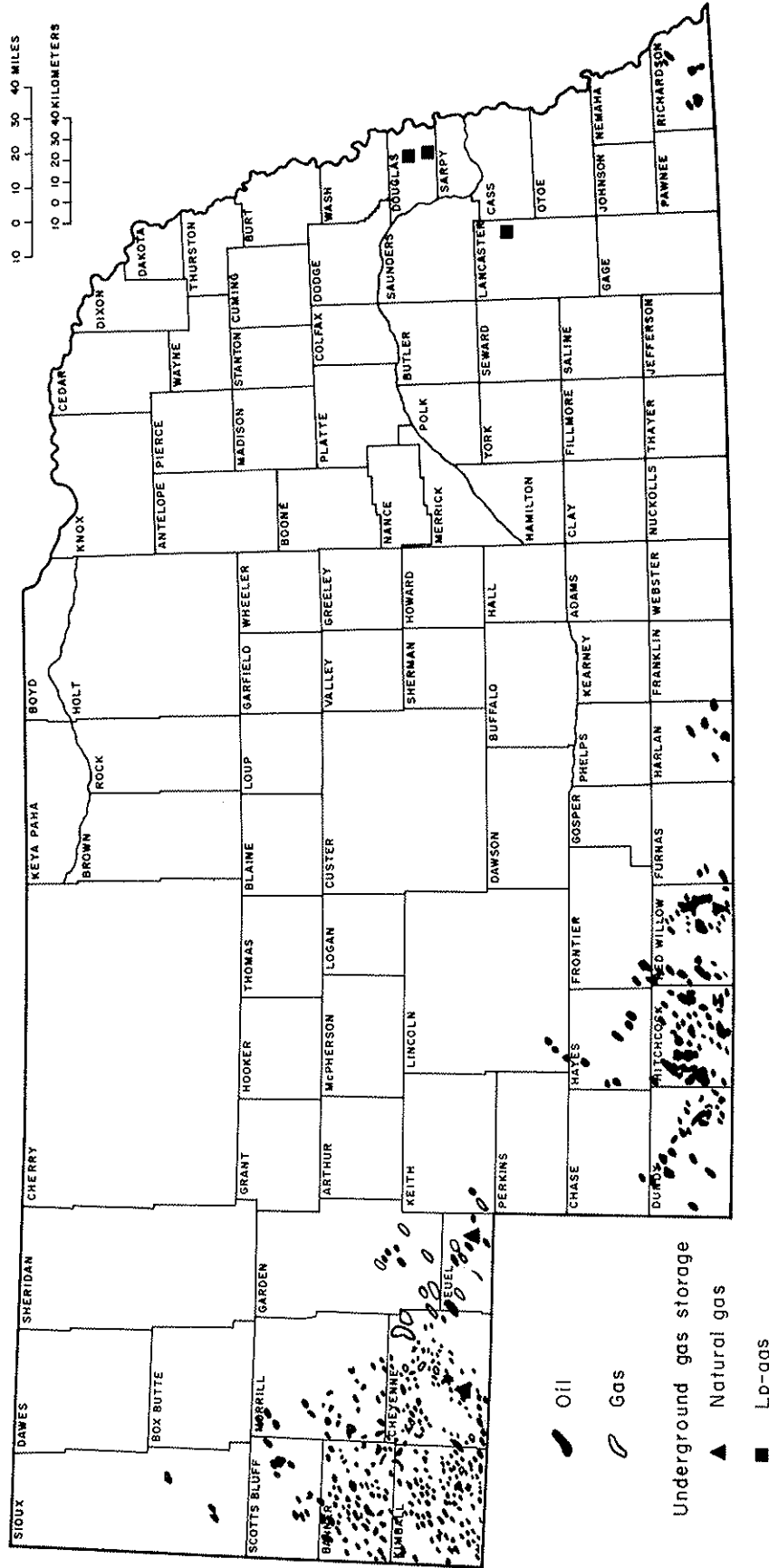


Fig. 2. Location of active oil and gas fields in Nebraska, 1992

Role of Minerals in State Economy

Few Nebraskans live a single day without using raw mineral products or materials manufactured from, processed by, fertilized with, or in some other way affected by minerals or mineral products. Unlike some natural resources, minerals are not renewable.

The value of mineral production in Nebraska during 1992 was \$214.7 million (figure 3). About 1,500 people are employed by the mining industry in Nebraska, the greater number working in the counties with the largest mineral production value. The 1992 mineral production of Nebraska, as reported by the U. S. Bureau of Mines and the Nebraska Oil and Gas Conservation Commission, follows:

Table 3. Preliminary data on mineral production¹ in Nebraska during 1992

	Quantity	Value, thousand dollars
Clays.thousand short tons	189 ^P	1,110 ^P
Lime do	W	W
Sand and gravel:		
Construction do	11,800 ^P	32,600 ^P
Industrial do	W	W
Stone (crushed). do	5,800 ^P	28,700 ^P
Combined value of cement, gem stones, lime, and values indicated by symbol W.	XX	48,821 ^P
Natural gas. . . million cubic feet	1,177	2,094
Petroleum. . thousand 42-gallon barrels . . .	5,474	97,373
Uranium (yellowcake). . .thousand pounds. . .	400 ^P	4,000 ^E
TOTAL	----- XX	\$214,698 ^P

p Preliminary. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" figure.

XX Not applicable.

E Estimated on spot price of \$10.00 per pound.

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

Source of data: U.S. Bureau of Mines and the Nebraska Oil and Gas Conservation Commission

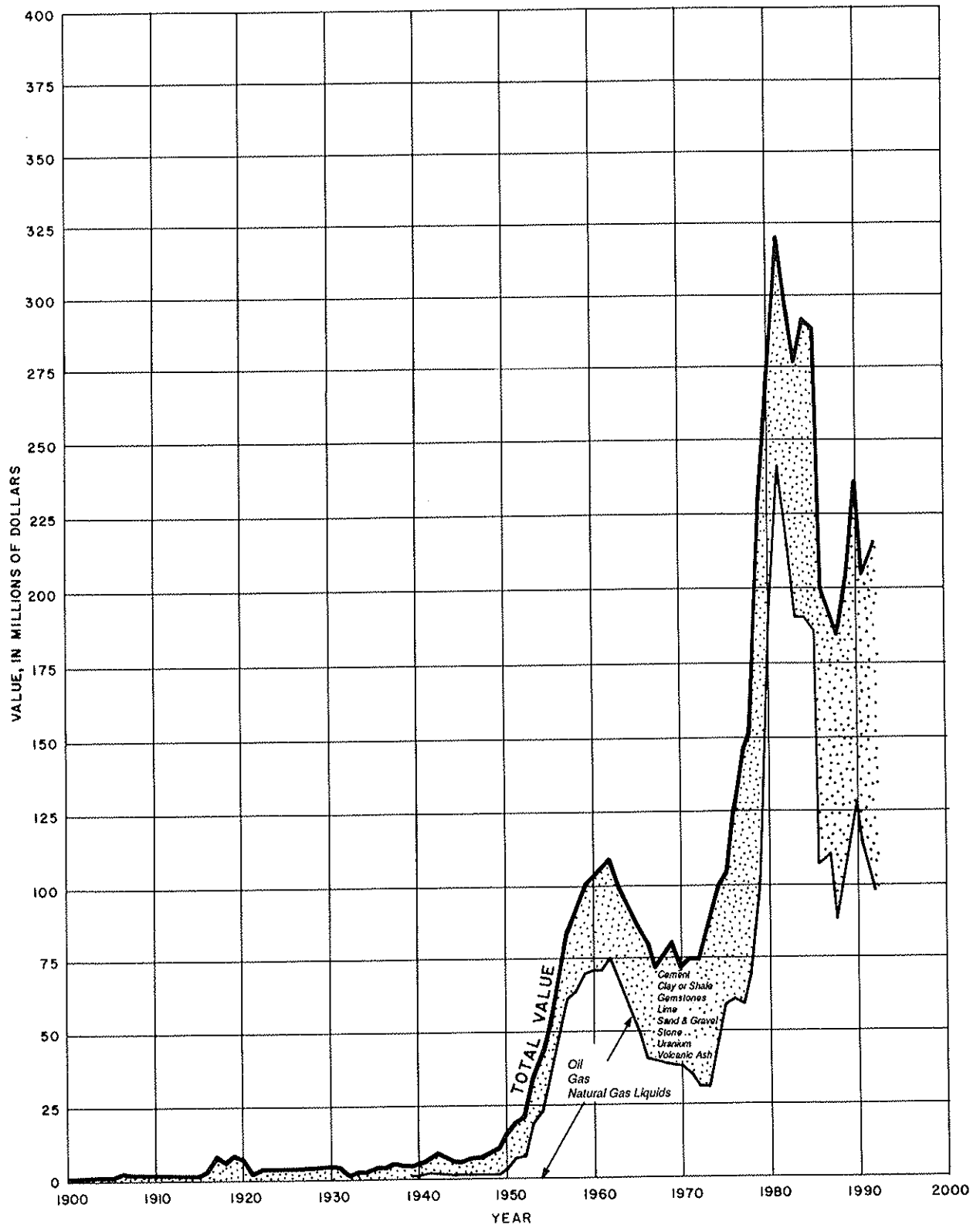


Fig. 3. Value of mineral production in Nebraska.

Mineral Resource Industries

Industrial plants manufacturing products from mineral resources are scattered throughout Nebraska. These plants, whose locations are shown in figure 4, are discussed below:

Agricultural Lime Plants. Two firms produce agricultural lime exclusively. They are located near Garland in Seward County, and near Nelson in Nuckolls County. Most crushed limestone plants, largely in southeastern Nebraska, produce some agricultural lime.

Brick Plants. Three firms produce brick in Nebraska: Endicott Clay Products Company near Endicott in Jefferson County; Yankee Hill Brick Manufacturing near Lincoln in Lancaster County; and Omaha Brick Works near Ralston in Douglas County. Common and face brick are the main products of these plants.

Cement Plants. Cement is produced by Ash Grove Cement Company near Louisville in Cass County. Limestone, shale, and gypsum are the chief raw materials used in cement manufacture.

Concrete Products Plants. Many plants across the state produce concrete products such as block, brick, precast and prestressed slabs and construction beams, tile, pipe, vaults, septic tanks, steps, feed bunks, and bunker silos.

Crushed Limestone Plants. There are approximately 14 limestone plants in the eastern third of Nebraska. Principal producers are Fort Calhoun Stone Company, Kerford Limestone Company, and Martin Marietta Aggregates. Cass and Washington counties are the leaders in production. Crushed limestone is used for aggregate in concrete, cement manufacture, road base, riprap, agricultural lime, wallstone, and mineral fillers.

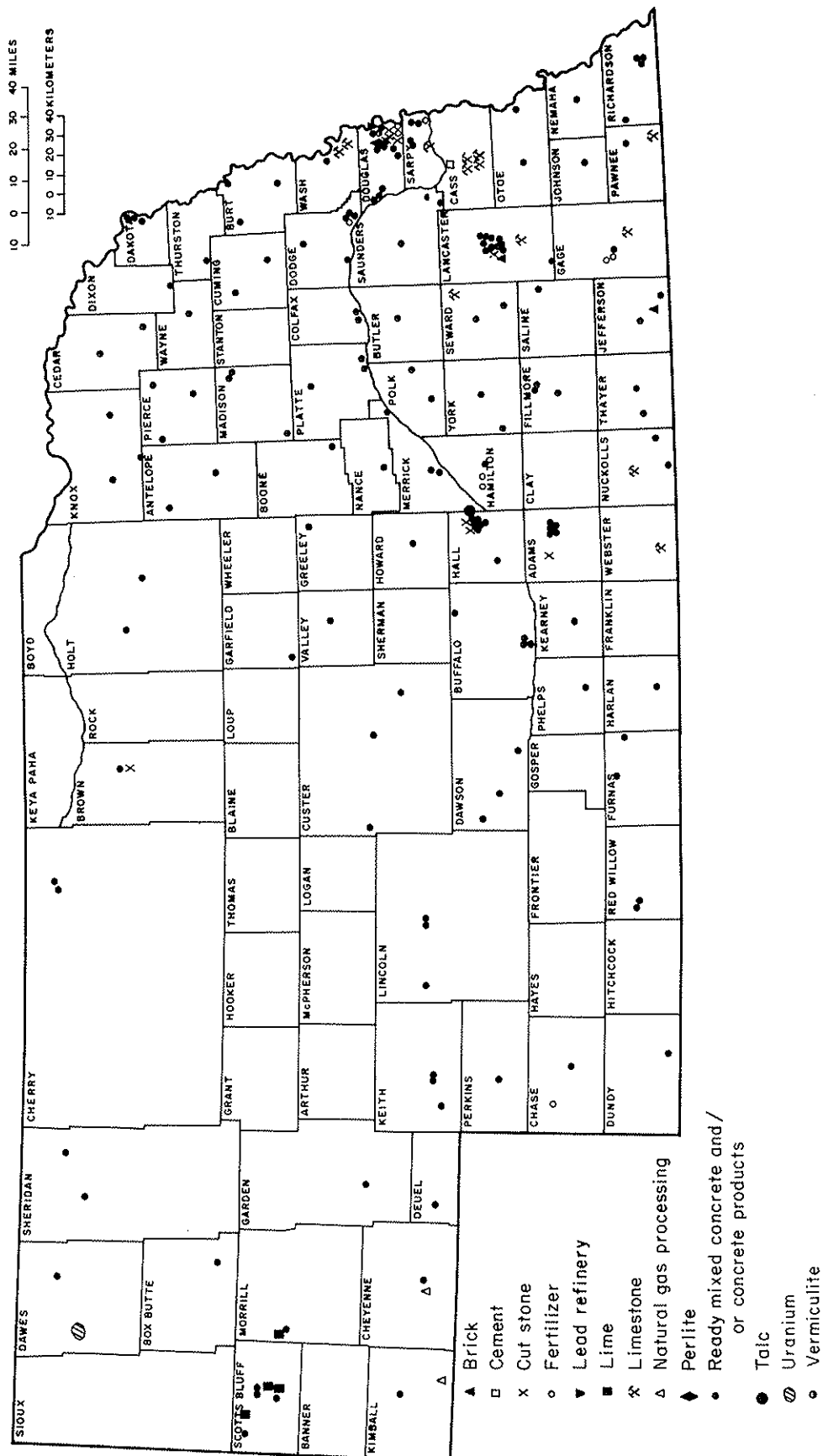


Fig. 4. Location of mineral-resource processing plants in Nebraska, 1992

Cut-Stone Plants. Stone imported from other states is cut by Nebraska firms. Two of these firms are near Grand Island in Hall County, two near Lincoln in Lancaster County, one near Juniata in Adams County, one near Ainsworth in Brown County, and four near Omaha in Douglas County.

Fertilizer Plants. Some of the larger producers of anhydrous ammonia, urea, or ammonium nitrate include Arcadian Corporation at La Platte in Sarpy County; Farmland Industries, Inc. at Fremont in Dodge County; Farmland Industries near Beatrice in Gage County; and Cominco-American also near Beatrice.

Gem and Ornamental Stone Plants. Many small firms around Nebraska cut and polish gems and ornamental stones such as agate, quartz, jasper, chalcedony, chert, and petrified wood.

Glass Plants. Several firms around the state manufacture items from glass produced in other states.

Ground Limestone Plants. Three firms in Nebraska produce finely ground limestone (calcium carbonate) for feed supplements and fillers for cement, paint, and rubber. Kerford Limestone Company and Iowa Limestone Company are west of Weeping Water in Cass County, and Texasgulf is southeast of Weeping Water.

Lead Refinery. Operated by ASARCO Inc. and located in Douglas County in Omaha, the refinery has been in existence since 1870 recovering lead, zinc, and precious metals.

Lime Plants. Western Sugar Company produces lime from limestone imported from their quarry in Wyoming. Limekilns are located at Scottsbluff, and Mitchell in Scotts Bluff County, and at Bayard in Morrill County. The lime is used mainly for sugar refining.

Limestone Pelletizing Plant. Ampel Corp. of Des Moines, Iowa, makes limestone pellets. The plant is located on a reclaimed quarry site west of Weeping Water in Cass County. The patented pellets are for agricultural, lawn, and garden use.

Natural Gas Processing Plants. Only one natural gas processing plant is producing in Nebraska. It is located west of Sidney in Cheyenne County and operated by Marathon Oil Company. Production from this plant includes natural gasoline, cycle products, liquid petroleum gases, and ethane.

Perlite Plant. The Zonolite Division of W. R. Grace & Company is the sole manufacturer of expanded perlite in Nebraska. Its plant near Omaha in Douglas County imports crude perlite from other states, expands it, and sells it as filler material, as aggregate for plaster and concrete, and as a horticultural product.

Ready-Mix Concrete Plants. Ready-mix concrete plants located throughout the state produce wet concrete for construction purposes. Some of these plants also manufacture cured concrete products.

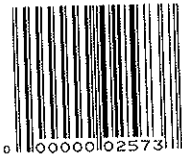
Sand and Gravel Plants. All but eight of Nebraska's counties produce sand and gravel. Among the largest producers are Central Sand and Gravel Company in Butler, Madison, Pierce, and Platte counties; Hartford Sand and Gravel Company in Douglas and Dodge counties; Lyman-Richey Sand and Gravel Corporation in Cass, Dodge, Douglas, Morrill, Platte, Sarpy, and Saunders counties; and Western Sand and Gravel Company in Cass, Dodge, and Saunders counties.

Talc Plants. Cyprus Mines Corporation, United Sierra Division's plant near Grand Island in Hall County, is the only producer of ground talc in Nebraska. The unground talc is obtained from outside the state. The product is used in paper, ceramics, rubber, paint, insecticides, textiles, and toilet articles.

Underground Gas Storage Terminals. There are five underground gas storage areas in Nebraska. Two are natural gas storage areas operated by Kansas-Nebraska Natural Gas Co. and are located in Cheyenne and Deuel counties in western Nebraska. The remaining three are liquid propane gas-storage areas, two of which are located in Douglas County near Omaha and one in Lancaster County near Lincoln. The Douglas County storage units are operated by Metropolitan Utilities District. The storage unit near Lincoln is operated by Mid-America Pipeline Company.

Uranium Plant. Ferret Exploration Company of Nebraska, Inc. produced ore known as yellowcake from their plant and in-situ (in place) mine located southeast of Crawford in Dawes County.

Vermiculite Plants. The only producer of exfoliated vermiculite is the Construction Products Division of W. R. Grace & Company near Omaha in Douglas County. Montana is the source of crude vermiculite. The expanded product is used principally for insulation, concrete aggregate, and fire-proofing.



0 100000 025731 7

MP-35 \$1.00



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