

# Virginia

# 1997

Issued May 2000

EC97N21A-VA

## 1997 Economic Census

*Mining*

Geographic Area Series



# U.S. CENSUS BUREAU

*Helping You Make Informed Decisions*

U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU



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-- Not applicable for this report.

# Introduction to the Economic Census

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## PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

## ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

## RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

## GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

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required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

## **BASIS OF REPORTING**

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

## **DOLLAR VALUES**

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

## **AVAILABILITY OF ADDITIONAL DATA**

### **Reports in Print and Electronic Media**

All results of the 1997 Economic Census are available on the Census Bureau Internet site ([www.census.gov](http://www.census.gov)) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

### **Special Tabulations**

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) that govern the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673  
Service Sector Statistics Division 301-457-2668

## **HISTORICAL INFORMATION**

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

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## SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at [www.census.gov/econguide](http://www.census.gov/econguide). More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at [www.census.gov/econ/www/history.html](http://www.census.gov/econ/www/history.html).

## ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.



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# Mining

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## SCOPE

The Mining sector of the 1997 Economic Census covers all mining establishments of companies with one or more paid employees. Mining is defined as the extraction of naturally occurring mineral solids, such as coal and ores; liquid minerals, such as petroleum; and gases, such as natural gas. The term mining is used in the broad sense to include quarrying, well operations, beneficiating (e.g., crushing, screening, washing, and floatation), and other preparations customarily performed at the mine site or as part of the mining activity.

The Mining sector distinguishes two basic activities: mine operation and mining support activities. Mine operation includes establishments operating mines, quarries, or oil and gas wells on their own account or for others on a contract or fee basis. Mining support activities include establishments that perform exploration (except geophysical surveying) and/or other mining services on a contract or fee basis.

Establishments in the Mining sector are classified by industry according to the natural resources mined or to be mined. Included are establishments that develop the mine site, extract the natural resources, and/or those that beneficiate (i.e., prepare) the mineral mined. The operations that take place in beneficiation are primarily mechanical, such as grinding, washing, magnetic separation, and centrifugal separation. The range of preparation activities varies by mineral and the purity of any given ore deposit.

Mining, beneficiation, and manufacturing activities often occur in a single location. Separate receipts are collected for these activities whenever possible. When receipts cannot be broken out between mining and manufacturing, establishments that mine or quarry nonmetallic minerals and beneficiate the nonmetallic minerals into more finished manufactured products are classified based on the primary activity of the establishment.

Hauling and other transportation beyond the mine property and contract hauling (except out of open pits in conjunction with mining) are excluded.

## GENERAL

This report, from the 1997 Economic Census – Mining, is one of a series of 29 industry reports and 51 geographic area reports, each of which provides statistics for individual industries, states, or offshore areas. Also included for this sector are the General, Products, and Materials and Fuels Consumed Summary reports, and data files on Location of Mining Operations.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by mining, cost of supplies used, value of shipments and receipts, capital expenditures, etc., for each mining industry. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more.

State reports present similar statistics at the sector level for each state, the District of Columbia, and the offshore areas. The state of Delaware and the District of Columbia are combined in a single report. The state reports also include data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports as well as revisions to the data made after the release of the industry and state reports.

The Products Summary and the Materials and Fuels Consumed Summary reports summarize the products, materials, and fuels data published in the industry series reports.

The Location of Mining Operations data files include statistics on the number of establishments by three- and six-digit NAICS industry by state and offshore area by employment size of the establishment.

## GEOGRAPHIC AREAS COVERED

The state reports for the mining industries include data at the state level and some offshore areas. No substate data are available.

Data for offshore areas that are part of Alaska, California, Louisiana, and Texas are included in their respective state area reports and represent offshore operations on all these state offshore leases and all Federal offshore leases defined by their state plane coordinate systems. State offshore includes the areas extending from the coastline up to 3 geographical miles distance except for Texas and Florida which extend 3 marine leagues from the coastline in the Gulf of Mexico. Data for offshore areas not associated with a state are in an Offshore Areas geographic report which includes the following areas:

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#### Atlantic Offshore

- Atlantic Federal Area
- New Hampshire state offshore
- Maine state offshore
- Massachusetts state offshore
- Connecticut state offshore
- New York state offshore
- New Jersey state offshore
- Delaware state offshore
- Maryland state offshore
- Virginia state offshore
- North Carolina state offshore
- South Carolina state offshore
- Georgia state offshore
- Florida state Atlantic offshore

#### Northern Gulf of Mexico Offshore

- Northern Gulf of Mexico Federal Areas defined by the Universal Transverse Mercator Coordinate System (including areas generally south of the state plane coordinate systems of Louisiana and Texas)
- Mississippi state offshore
- Alabama state offshore
- Florida state Gulf offshore

#### Pacific Offshore

- Pacific Federal areas defined by Universal Transverse Mercator Coordinate System
- Oregon state offshore
- Washington state offshore

### COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had only a minor effect on the comparability of data between the 1992 and 1997 censuses at the sector level. However, within the sector the number of major levels changed from four to three. In

addition, portions of industries left mining for the services sector. Prominent among items leaving mining are geophysical surveying and mapping services for metal mining, oil and gas, and nonmetallic minerals mining. If industries are not comparable between the two censuses, historic data are not shown.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with mining are no longer included in the mining data. This change affects all levels of data shown in the reports.

### DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files is based on the total value of shipments and receipts. When the total value of shipments and receipts cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. If capital expenditures alone is a disclosure, only capital expenditures and cost of supplies statistics are suppressed. The suppressed data are included in higher-level totals.

### AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The County Business Patterns program of the U.S. Census Bureau offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county and state.

**Table 1. Industry Statistics for the State or Offshore Areas: 1997**

[Offshore areas refer to those areas not associated with a state. For information on geographic areas followed by \* and explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

NAICS code	Industry	All establishments		All employees		Production, development, and exploration workers			Value added by mining (\$1,000)	Cost of supplies used, purchased machinery installed, etc. (\$1,000)	Value of shipments and receipts (\$1,000)	Capital expenditures (\$1,000)	
		E <sup>1</sup>	Total	With 20 employees or more	For pay period including March 12 <sup>2</sup>	Annual payroll (\$1,000)	For pay period including March 12	Annual hours (1,000)					Annual wages (\$1,000)
<b>VIRGINIA</b>													
<b>21</b>	<b>Mining .....</b>	<b>1</b>	<b>417</b>	<b>177</b>	<b>11 711</b>	<b>429 463</b>	<b>9 860</b>	<b>19 684</b>	<b>351 573</b>	<b>1 448 504</b>	<b>1 115 916</b>	<b>2 348 022</b>	<b>216 398</b>
211	Oil & gas extraction .....	2	22	1	173	6 759	96	188	2 970	79 561	38 378	84 958	32 981
2111	Oil & gas extraction .....	2	22	1	173	6 759	96	188	2 970	79 561	38 378	84 958	32 981
21111	Oil & gas extraction .....	2	22	1	173	6 759	96	188	2 970	79 561	38 378	84 958	32 981
211111	Crude petroleum & natural gas extraction .....	4	21	1	c	D	D	D	D	D	D	D	D
212	Mining (except oil & gas) ....	1	340	162	10 754	399 173	9 148	18 356	330 274	1 320 257	1 055 531	2 197 200	178 588
2121	Coal mining .....	1	207	107	7 696	297 056	6 723	12 980	252 566	955 338	891 397	1 742 693	104 042
21211	Coal mining .....	1	207	107	7 696	297 056	6 723	12 980	252 566	955 338	891 397	1 742 693	104 042
212111	Bituminous coal & lignite surface mining .....	-	61	33	1 830	71 614	1 619	3 166	63 955	278 120	482 622	724 310	36 432
212112	Bituminous coal underground mining ..	1	146	74	5 866	225 442	5 104	9 814	188 611	677 218	408 775	1 018 383	67 610
2123	Nonmetallic mineral mining & quarrying .....	1	133	55	3 058	102 117	2 425	5 376	77 708	364 919	164 134	454 507	74 546
21231	Stone mining & quarrying .....	1	87	44	2 342	77 341	1 863	4 204	58 425	276 717	128 713	360 430	45 000
212312	Crushed & broken limestone mining & quarrying .....	3	38	18	1 120	32 310	868	1 808	23 471	95 193	41 679	124 093	12 779
212313	Crushed & broken granite mining & quarrying .....	-	35	19	824	31 103	673	1 662	24 218	124 665	58 229	163 128	19 766
212319	Other crushed & broken stone mining & quarrying .....	1	14	7	398	13 928	322	734	10 736	56 859	28 805	73 209	12 455
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying .....	-	40	10	678	23 103	532	1 114	18 032	84 852	33 968	89 466	29 354
212321	Construction sand & gravel mining .....	-	33	4	376	11 999	286	590	9 452	37 882	16 892	47 571	7 203
212325	Clay & ceramic & refractory minerals mining .....	-	5	5	e	D	D	D	D	D	D	D	D
213	Support activities for mining ..	2	55	14	784	23 531	616	1 140	18 329	48 686	22 007	65 864	4 829
2131	Support activities for mining .....	2	55	14	784	23 531	616	1 140	18 329	48 686	22 007	65 864	4 829
21311	Support activities for mining .....	2	55	14	784	23 531	616	1 140	18 329	48 686	22 007	65 864	4 829
213111	Drilling oil & gas wells ..	-	4	3	132	5 178	121	272	4 431	11 930	5 997	16 746	1 181
213112	Support activities for oil & gas operations ..	1	22	2	c	D	D	D	D	D	D	D	1 561
213113	Support activities for coal mining .....	4	28	8	395	11 000	330	589	9 235	21 396	D	28 536	D

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

<sup>2</sup>Industries with 100 employees or more are shown. Some statistics are withheld to avoid disclosing data for individual companies. If employment is 100 or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: c-100 to 249 employees; e-250 to 499 employees; f-500 to 999 employees; g-1,000 to 2,499 employees; h-2,500 to 4,999 employees; i-5,000 to 9,999 employees; j-10,000 to 24,999 employees. Statistics for subsectors shown include data for all component industries, regardless of whether data are shown for individual industries in the subsector.

**Table 2. Detailed Statistics for the State or Offshore Areas: 1997**

[Offshore areas refer to those areas not associated with a state. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
<b>VIRGINIA</b>		<b>VIRGINIA—Con.</b>	
Companies <sup>1</sup> .....	308	Quantity of electricity generated less sold .....	1,000 kWh.. D
All establishments .....	417	Cost of purchased communications services .....	\$1,000.. 1 930
Establishments with 0 to 19 employees .....	240	Total value of shipments and receipts .....	\$1,000.. 2 348 022
Establishments with 20 to 99 employees .....	164	Value of resales .....	\$1,000.. 10 160
Establishments with 100 employees or more .....	13	Value added by mining .....	\$1,000.. 1 448 504
All employees for pay period including March 12 .....	11 711	Total inventories, end of 1996 .....	\$1,000.. 149 737
Annual payroll .....	429 463	Mineral products, crude petroleum, and natural gas liquids inventories, end of 1996 .....	\$1,000.. 108 670
Annual fringe benefits not included in payroll .....	134 582	Supplies, parts, fuels, etc., inventories, end of 1996 .....	\$1,000.. 41 067
Production, development, and exploration workers for pay period including March 12 .....	9 860	Total inventories, end of 1997 .....	\$1,000.. 161 353
Production, development, and exploration worker annual hours .....	19 684	Mineral products, crude petroleum, and natural gas liquids inventories, end of 1997 .....	\$1,000.. 122 907
Production, development, and exploration worker annual wages .....	351 573	Supplies, parts, fuels, etc., inventories, end of 1997 .....	\$1,000.. 38 446
Total cost of supplies .....	\$1,000.. 1 115 916	Capital expenditures (except land and mineral rights) .....	\$1,000.. 216 398
Cost of supplies used, minerals received, and purchased machinery installed .....	\$1,000.. 835 022	Capital expenditures for buildings, structures, machinery, and equipment (new and used) .....	\$1,000.. 188 612
Cost of resales .....	\$1,000.. 8 946	Capital expenditures for mineral exploration and development <sup>2</sup> .....	\$1,000.. 27 786
Cost of purchased fuels consumed .....	\$1,000.. 45 171	Capital expenditures for mineral land and rights <sup>3</sup> .....	\$1,000.. 24 781
Cost of purchased electricity .....	\$1,000.. 56 864	Total rental payments during year .....	\$1,000.. 37 221
Cost of contract work .....	\$1,000.. 169 913	Rental payments for buildings and other structures .....	\$1,000.. 1 615
Quantity of electricity purchased .....	1 300 537	Rental payments for machinery and equipment .....	\$1,000.. 35 606

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>2</sup>Excludes data for mining service industries and natural gas liquids industries where data were not collected.

<sup>3</sup>Excludes data for mining service industries and oil and gas extraction industries where data were not collected.

**Table 3. Industry Statistics by Type of Operation for the State or Offshore Areas: 1997**

[Offshore areas refer to those areas not associated with a state. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS code	Geographic area and type of operation	All establishments		All employees		Production, development, and exploration workers			Value added by mining (\$1,000)
		Total	With 20 employees or more	For pay period including March 12	Annual payroll (\$1,000)	For pay period including March 12	Annual hours (1,000)	Annual wages (\$1,000)	
<b>21</b>	<b>VIRGINIA</b>								
	<b>Mining</b>								
	Producing establishments .....	409	176	11 677	428 823	9 837	19 669	351 266	1 449 233
	Mines or wells only .....	189	80	4 494	162 069	3 947	7 510	139 493	479 588
	Underground mines .....	122	56	3 076	107 932	2 741	5 086	93 053	279 101
	Open-pit mines .....	43	21	1 138	41 217	1 011	2 026	37 649	128 300
	Combination mines, well operations, or other types of mines .....	24	3	280	12 920	195	398	8 791	72 187
	Mines with preparation plants .....	143	75	5 922	225 384	4 877	10 319	178 932	795 084
	Underground mines .....	21	18	2 784	117 457	2 360	4 724	95 507	398 173
	Open-pit mines .....	118	55	2 998	102 128	2 396	5 355	78 407	371 598
	Combination mines or other types of mines .....	4	2	140	5 799	121	240	5 018	25 313
	Separately operated preparation plants .....	12	7	435	16 923	369	656	13 802	123 309
Undistributed <sup>1</sup> .....	65	14	826	24 447	644	1 184	19 039	51 252	
Nonproducing establishments .....	8	1	34	640	23	15	307	S	

<sup>1</sup>Includes data for establishments that were not possible to classify based on information available.



# Appendix A.

## Explanation of Terms

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### **ANNUAL PAYROLL**

This item includes the gross earnings of all employees on the payrolls of operating mining establishments paid in the calendar year. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' social security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of mining establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' social security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

Also collected, but not included in payroll, are employers' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

### **BEGINNING- AND END-OF-YEAR INVENTORIES**

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method. Beginning in 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

#### **Inventory Data by Type**

Total inventories and two detailed components (1) mined or quarried products and (2) supplies, parts, fuels, etc., were collected.

### **CAPITAL EXPENDITURES**

This item includes permanent additions and major alterations as well as replacements and additions to capacity for which depreciation, depletion, or Office of Minerals

Exploration accounts are ordinarily maintained. Reported capital expenditures include work done on contract, as well as by the mine forces. Totals for expenditures include the costs of assets leased from other concerns through capital leases. Excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses. Also excluded are capital expenditures for mineral land and rights which are shown as a separate item.

For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

### **CAPITAL EXPENDITURES FOR MINERAL LAND AND RIGHTS**

This item includes all capital expenditures for acquiring either undeveloped or developed acreage. Included are all capitalized lease bonuses and any other outlays necessary to acquire leases, mineral rights, fee lands incident to mineral exploration, development, or production.

### **COST OF PURCHASED COMMUNICATION SERVICES**

Establishments were requested to provide information on the cost of purchased communication services for such items as telephone, data transmission, fax, etc. This item reflects the costs paid directly by the establishment.

### **COST OF SUPPLIES USED, PURCHASED MACHINERY INSTALLED, ETC.**

This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these items. It includes the cost of these items whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year. Included are items charged to both current and capital accounts.

Included in this item are:

1. **Costs of supplies used, minerals received for preparation, and purchased machinery installed.**

Includes all major supplies which were important parts of the cost of production, exploration, and development of a particular industry.

2. **Cost of products bought and sold in the same condition.**
3. **Cost of fuels consumed for heat and power.** Includes the cost of fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. **Cost of purchased electricity.** The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy purchased and also the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other establishments of the same company.
5. **Cost of contract work.** This term applies to the cost of all work done for an establishment by others. It includes payments for supplies and equipment furnished by the contractor incidental to the contract work, and cost of services performed by others in the operation or development of the establishment. The term "contract work" refers to the fee a company pays to another company to perform a service. It excludes payments to miners paid on a per ton, car, yard, or footage basis. Also excluded are payments to suppliers who mined for their own account on property owned or leased by them and who paid royalties either directly or indirectly on the minerals mined.

### **Duplication in Cost of Supplies, Etc., and Value of Shipments and Receipts**

The aggregate of the cost of supplies, etc., and value of shipments and receipts figures for industry groups and all mining industries includes some duplication since the products of some industries are used as supplies by others. Some duplication exists because of the inclusion of minerals transferred from one establishment to another for mineral preparation or resale. Duplication may also exist within the products of some individual industries where minerals shipped for preparation are also reported as the prepared product by another establishment.

### **EMPLOYEES FOR PAY PERIOD INCLUDING MARCH 12**

This item includes all full-time and part-time employees on the payrolls of establishments during any part of the pay period which included the 12th of March. Included are all persons on paid sick leave, paid holidays, and paid vacations during this pay period. A distribution of those

employees who work in units that serve manufacturing, distribution, or construction operations also carried on at the mining establishment in addition to the minerals operation is also included. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded.

### **Production, Development, and Exploration Workers**

This item includes workers (up through the working-supervisor level) engaged in manual work (using tools, operating machines, hauling materials, loading and hauling products out of the mine, and caring for mines, plants, mills, shops, or yards). Included are exploration work, mine development, storage, shipping, maintenance, repair, janitorial and guard services, auxiliary production for use at establishments (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Gang and straw bosses and supervisors who performed manual labor are included, as are employees paid on either a time- or piece-rate basis. Also included are miners paid on a per ton, car, or yard basis and persons engaged by them and paid out of the total amount received by these miners. Employees above the working-supervisor level are excluded from this item.

### **All Other Employees**

This item covers nonproduction employees of the mining establishment including those engaged in the following activities: supervision above the working-supervisor level, sales, highway trucking (by employees not entering mines or pits), advertising, credit, collection, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional (such as engineers and geologists), and technical activities. Also included are employees on the payroll of the mining establishment engaged in the construction of major additions or alterations utilized as a separate work force. Workers engaged in regular maintenance and repair operations are not included here but are classified as production, development, and exploration workers.

### **FRINGE BENEFITS**

Fringe benefits include both legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension

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plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

#### **NUMBER OF ESTABLISHMENTS AND COMPANIES**

A separate report was required for each mining establishment of firms with one employee or more. An establishment is defined as a single physical location where mining is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same mineral product, a separate report was requested for each location. If the company operated in two or more distinct lines of activity at the same location, a separate report was requested for each activity.

For the crude petroleum and support activities for mining industries, the basis for reporting is different from the establishment basis used for other types of mining. Firms operating oil and gas wells, drilling wells, or exploring for oil and gas for their own account were required to submit a separate report for each state or offshore area adjacent to a state in which it conducted such activities. Firms that performed contract services for oil and gas field operations or for mining establishments were required to submit one report covering all such activities in the United States and to include information on receipts for services and production-worker wages and hours by state. These consolidated reports were then allocated to state establishments based on the data reported at the state level.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

#### **PRODUCTION, DEVELOPMENT, AND EXPLORATION WORKER HOURS**

This item covers hours worked or paid for at the establishment, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave. Also excluded are hours worked by employees of contractors.

#### **QUANTITY OF ELECTRIC ENERGY CONSUMED FOR HEAT AND POWER**

Data on the quantity and cost of purchased electric energy were collected on all census forms, except for the short forms. In addition, information is collected on the

quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

#### **RENTAL PAYMENTS**

Total rental payments are collected on all census forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, machinery, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

#### **VALUE ADDED BY MINING**

This measure of mining activity is derived by subtracting the cost of supplies, minerals received for preparation, purchased machinery installed, purchased fuel, purchased electricity, and contract work from the sum of the value of shipments and receipts (mining products plus receipts for services rendered) and capital expenditures. The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of products sold without further processing).

"Value added" avoids the duplication in the figure for value of shipments and receipts that results from the use of products of some establishments as supplies, energy sources, or materials by others. Moreover, it provides a measure of value added not only in mineral production but also in the development of mineral properties. Value added is considered to be the best value measure available for comparing the relative economic importance of mining among industries and geographic areas.

#### **VALUE OF SHIPMENTS AND RECEIPTS**

This item covers the net selling values, f.o.b. mine or plant after discounts and allowances (exclusive of freight and excise taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all products physically shipped by the establishments,

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whether sold, transferred to other plants of the same company, or shipped on consignment. For products transferred to other establishments of the same company, or prepared on a custom or toll basis, companies were requested to report the estimated value, not merely the cost of producing the product. In the case of multiunit companies, the mineral operation was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit.

In addition to the value for North American Industry Classification System (NAICS) defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment's value of shipments and receipts:

1. **Receipts for services.** Receipts for work or services that an establishment performed for others.
2. **Value of resales.** Sales of products brought and sold without further processing.

3. **Other miscellaneous receipts.** Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. Those components are:

1. Primary products value of shipments.
2. Secondary products value of shipments and receipts for services.
3. Value of resales.

An establishment is classified in a particular NAICS industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's value of shipments and receipts include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), receipts for services and miscellaneous activities, and the value of resales.

# Appendix B.

## NAICS Codes, Titles, and Descriptions

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### SECTOR 21 MINING

The Mining sector comprises establishments that extract naturally occurring mineral solids, such as coal and ores; liquid minerals, such as crude petroleum; and gases, such as natural gas. The term mining is used in the broad sense to include quarrying, well operations, beneficiating (e.g., crushing, screening, washing, and flotation), and other preparation customarily performed at the mine site, or as a part of mining activity.

The Mining sector distinguishes two basic activities: mine operation and mining support activities. Mine operation includes establishments operating mines, quarries, or oil and gas wells on their own account or for others on a contract or fee basis. Mining support activities include establishments that perform exploration (except geophysical surveying) and/or other mining services on a contract or fee basis.

Establishments in the Mining sector are grouped and classified according to the natural resource mined or to be mined. Industries include establishments that develop the mine site, extract the natural resources, and /or those that beneficiate (i.e., prepare) the mineral mined. Beneficiation is the process whereby the extracted material is reduced to particles that can be separated into mineral and waste, the former suitable for further processing or direct use. The operations that take place in beneficiation are primarily mechanical, such as grinding, washing, magnetic separation, and centrifugal separation. In contrast, manufacturing operations primarily use chemical and electrochemical processes, such as electrolysis and distillation. However some treatments, such as heat treatments, take place in both the beneficiation and the manufacturing (i.e., smelting/refining) stages. The range of preparation activities varies by mineral and the purity of any given ore deposit. While some minerals, such as petroleum and natural gas, require little or no preparation, others are washed and screened, while yet others, such as gold and silver, can be transformed into bullion before leaving the mine site.

Mining, beneficiating, and manufacturing activities often occur in a single location. Separate receipts will be collected for these activities whenever possible. When receipts cannot be broken out between mining and manufacturing, establishments that mine or quarry nonmetallic minerals, beneficiate the nonmetallic minerals into more finished manufactured products are classified based on the primary activity of the establishment. A mine that manufactures a small amount of finished products will be

classified in Sector 21, Mining. An establishment that mines whose primary output is a more finished manufactured product will be classified in Sector 31-33, Manufacturing.

### 211 Oil and Gas Extraction

Industries in the Oil and Gas Extraction subsector operate and/or develop oil and gas field properties. Such activities may include exploration for crude petroleum and natural gas; drilling, completing, and equipping wells; operating separators, emulsion breakers, desilting equipment, and field gathering lines for crude petroleum; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. This subsector includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, and the production of natural gas and recovery of hydrocarbon liquids.

Establishments in this subsector include those that operate oil and gas wells on their own account or for others on a contract or fee basis. Establishments primarily engaged in providing support services, on a fee or contract basis, required for the drilling or operation of oil and gas wells (except geophysical surveying and mapping) are classified in Subsector 213, Support Activities for Mining.

### 2111 Oil and Gas Extraction

This NAICS Industry Group includes establishments classified in NAICS Industry 21111, Oil and Gas Extraction.

### 21111 Oil and Gas Extraction

This industry comprises establishments primarily engaged in operating and/or developing oil and gas field properties and establishments primarily engaged in recovering liquid hydrocarbons from oil and gas field gases. Such activities may include exploration for crude petroleum and natural gas; drilling, completing, and equipping wells; operation of separators, emulsion breakers, desilting equipment, and field gathering lines for crude petroleum; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. This industry includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, the production of natural gas and the recovery of hydrocarbon liquids from oil and gas field gases. Establishments in this industry operate oil and gas wells on their own account or for others on a contract or fee basis.



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## **211111 Crude Petroleum and Natural Gas Extraction**

This U.S. industry comprises establishments primarily engaged in (1) the exploration, development and/or the production of petroleum or natural gas from wells in which the hydrocarbons will initially flow or can be produced using normal pumping techniques, or (2) the production of crude petroleum from surface shales or tar sands or from reservoirs in which the hydrocarbons are semisolids. Establishments in this industry operate oil and gas wells on their own account or for others on a contract or fee basis.

The data published with NAICS code 211111 include the following SIC industry:

1311 Crude petroleum and natural gas

## **211112 Natural Gas Liquid Extraction**

This U.S. industry comprises establishments primarily engaged in the recovery of liquid hydrocarbons from oil and gas field gases. Establishments primarily engaged in sulfur recovery from natural gas are included in this industry.

The data published with NAICS code 211112 include the following SIC industry:

1321 Natural gas liquids

This definition comes from the 1997 NAICS Manual. However, for this industry, the 1997 Economic Census Mining did not fully implement the conversion to NAICS. Data for NAICS industry 211112 do not include establishments primarily engaged in sulfur recovery from natural gas. The NAICS definitions will be fully implemented with the 2002 Economic Census.

## **212 Mining (Except Oil and Gas)**

Industries in the Mining (except Oil and Gas) subsector primarily engage in mining, mine site development, and beneficiating (i.e., preparing) metallic minerals and nonmetallic minerals, including coal. The term "mining" is used in the broad sense to include ore extraction, quarrying, and beneficiating (e.g., crushing, screening, washing, sizing, concentrating, and flotation), customarily done at the mine site.

Beneficiation is the process whereby the extracted material is reduced to particles which can be separated into mineral and waste, the former suitable for further processing or direct use. The operations that take place in beneficiation are primarily mechanical, such as grinding, washing, magnetic separation, centrifugal separation, and so on. In contrast, manufacturing operations primarily use chemical and electrochemical processes, such as electrolysis, distillation, and so on. However some treatments, such as heat treatments, take place in both stages: the beneficiation and the manufacturing (i.e., smelting/ refining) stages. The range of preparation activities varies by

mineral and the purity of any given ore deposit. While some minerals, such as petroleum and natural gas, require little or no preparation, others are washed and screened, while yet others, such as gold and silver, can be transformed into bullion before leaving the mine site.

Establishments in the Mining (except Oil and Gas) subsector include those that have complete responsibility for operating mines and quarries (except oil and gas wells) and those that operate mines and quarries (except oil and gas wells) for others on a contract or fee basis. Establishments primarily engaged in providing support services, on a contract or fee basis, required for the mining and quarrying of minerals are classified in Subsector 213, Support Activities for Mining.

## **2121 Coal Mining**

This NAICS Industry Group includes establishments classified in NAICS Industry 21211, Coal Mining.

### **21211 Coal Mining**

This industry comprises establishments primarily engaged in one or more of the following: (1) mining bituminous coal, anthracite, and lignite by underground mining, auger mining, strip mining, culm bank mining, and other surface mining; (2) developing coal mine sites; and (3) beneficiating (i.e., preparing) coal (e.g., cleaning, washing, screening, and sizing coal).

### **212111 Bituminous Coal and Lignite Surface Mining**

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) surface mining or development of bituminous coal and lignite; (2) developing bituminous coal and lignite surface mine sites; and (3) beneficiating bituminous coal (e.g., cleaning, washing, screening, and sizing coal) whether mined on surface or underground.

The data published with NAICS code 212111 include the following SIC industry:

1221 Bituminous coal and lignite surface mining

### **212112 Bituminous Coal Underground Mining**

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) the underground mining of bituminous coal; (2) developing bituminous coal underground mine sites; and (3) the underground mining and beneficiating bituminous coal (e.g., cleaning, washing, screening, and sizing coal).

The data published with NAICS code 212112 include the following SIC industry:

1222 Bituminous coal underground mining

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### **212113 Anthracite Mining**

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) mining anthracite coal; (2) developing anthracite coal mining sites; and (3) beneficiating anthracite coal (e.g., cleaning, washing, screening, and sizing coal).

The data published with NAICS code 212113 include the following SIC industry:

1231 Anthracite mining

### **2122 Metal Ore Mining**

This industry group comprises establishments primarily engaged in developing mine sites or mining metallic minerals, and establishments primarily engaged in ore dressing and beneficiating (i.e., preparing) operations, such as crushing, grinding, washing, drying, sintering, concentrating, calcining, and leaching. Beneficiating may be performed at mills operated in conjunction with the mines served or at mills, such as custom mills, operated separately.

#### **21221 Iron Ore Mining**

This industry comprises establishments primarily engaged in (1) developing mine sites, mining, and/or beneficiating (i.e., preparing) iron ores and manganiferous ores valued chiefly for their iron content and/or (2) producing sinter iron ore (except iron ore produced in iron and steel mills) and other iron ore agglomerates.

#### **212210 Iron Ore Mining**

This U.S. industry comprises establishments primarily engaged in (1) developing mine sites, mining, and/or beneficiating (i.e., preparing) iron ores and manganiferous ores valued chiefly for their iron content and/or (2) producing sinter iron ore (except iron ore produced in iron and steel mills) and other iron ore agglomerates.

The data published with NAICS code 212210 include the following SIC industry:

1011 Iron ores

#### **21222 Gold Ore and Silver Ore Mining**

This industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) ores valued chiefly for their gold and or silver content. Establishments primarily engaged in the transformation of the gold and silver into bullion or dore bar in combination with mining activities are included in this industry.

#### **212221 Gold Ore Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) ores valued chiefly for their gold

content. Establishments primarily engaged in transformation of the gold into bullion or dore bar in combination with mining activities are included in this industry.

The data published with NAICS code 212221 include the following SIC industry:

1041 Gold ores

#### **212222 Silver Ore Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) ores valued chiefly for their silver content. Establishments primarily engaged in transformation of the silver into bullion or dore bar in combination with mining activities are included in this industry.

The data published with NAICS code 212222 include the following SIC industry:

1044 Silver ores

#### **21223 Copper, Nickel, Lead, and Zinc Mining**

This industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) ores valued chiefly for their copper, nickel, lead, or zinc content. Beneficiating includes the transformation of ores into concentrates.

#### **212231 Lead Ore and Zinc Ore Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) lead ores, zinc ores, or lead-zinc ores.

The data published with NAICS code 212231 include the following SIC industry:

1031 Lead and zinc ores

#### **212234 Copper Ore and Nickel Ore Mining**

This U.S. industry comprises establishments primarily engaged in (1) developing the mine site, mining, and/or beneficiating (i.e., preparing) copper and/or nickel ores, and (2) recovering copper concentrates by the precipitation, leaching, or electrowinning of copper ore.

The data published with NAICS code 212234 include the following SIC industries:

1021 Copper ores

1061 Ferroalloy ores, except vanadium (pt)

#### **21229 Other Metal Ore Mining**

This industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) metal ores (except iron and manganiferous ores valued for their iron content, gold ore, silver ore, copper, nickel, lead, and zinc ore).

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### **212291 Uranium-Radium-Vanadium Ore Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) uranium-radium-vanadium ores.

The data published with NAICS code 212291 include the following SIC industry:

1094 Uranium-radium-vanadium ores

### **212299 All Other Metal Ore Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) metal ores (except iron and manganese ores valued for their iron content, gold ore, silver ore, copper, nickel, lead, zinc, and uranium-radium-vanadium ore).

The data published with NAICS code 212299 include the following SIC industry:

1099 Miscellaneous metal ores, n.e.c.,

1061 Ferroalloy ores, except vanadium (pt)

### **2123 Nonmetallic Mineral Mining and Quarrying**

This industry group comprises establishments primarily engaged in developing mine sites, or in mining or quarrying nonmetallic minerals (except fuels). Also included are certain well and brine operations, and preparation plants primarily engaged in beneficiating (e.g., crushing, grinding, washing, and concentrating) nonmetallic minerals.

Beneficiation is the process whereby the extracted material is reduced to particles which can be separated into mineral and waste, the former suitable for further processing or direct use. The operations that take place in beneficiation are primarily mechanical, such as grinding, washing, magnetic separation, and centrifugal separation. In contrast, manufacturing operations primarily use chemical and electrochemical processes, such as electrolysis and distillation. However some treatments, such as heat treatments, take place in both the beneficiation and the manufacturing (i.e., smelting/refining) stages. The range of preparation activities varies by mineral and the purity of any given ore deposit. While some minerals, such as petroleum and natural gas, require little or no preparation, others are washed and screened, while yet others, such as gold and silver, can be transformed into bullion before leaving the mine site.

### **21231 Stone Mining and Quarrying**

This industry comprises (1) establishments primarily engaged in developing the mine site, mining or quarrying dimension stone (i.e., rough blocks and/or slabs of stone), or mining and quarrying crushed and broken stone and/or (2) preparation plants primarily engaged in beneficiating stone (e.g., crushing, grinding, washing, screening, pulverizing, and sizing).

### **212311 Dimension Stone Mining and Quarrying**

This U.S. industry comprises establishments primarily engaged in developing the mine site and/or mining or quarrying dimension stone (i.e., rough blocks and/or slabs of stone).

The data published with NAICS code 212311 include the following SIC industry:

1411 Dimension stone

### **212312 Crushed and Broken Limestone Mining and Quarrying**

This U.S. industry comprises (1) establishments primarily engaged in developing the mine site, mining or quarrying crushed and broken limestone (including related rocks, such as dolomite, cement rock, marl, travertine, and calcareous tufa), and (2) preparation plants primarily engaged in beneficiating limestone (e.g., grinding or pulverizing).

The data published with NAICS code 212312 include the following SIC industry:

1422 Crushed and broken limestone

### **212313 Crushed and Broken Granite Mining and Quarrying**

This U.S. industry comprises (1) establishments primarily engaged in developing the mine site, and/or mining or quarrying crushed and broken granite (including related rocks, such as gneiss, syenite, and diorite) and (2) preparation plants primarily engaged in beneficiating granite (e.g. grinding or pulverizing).

The data published with NAICS code 212313 include the following SIC industry:

1423 Crushed and broken granite

### **212319 Other Crushed and Broken Stone Mining and Quarrying**

This U.S. industry comprises (1) establishments primarily engaged in developing the mine site and/or mining or quarrying crushed and broken stone (except limestone and granite), (2) preparation plants primarily engaged in beneficiating (e.g., grinding and pulverizing) stone (except limestone and granite), and (3) establishments primarily engaged in mining or quarrying bituminous limestone and bituminous sandstone.

The data published with NAICS code 212319 include the following SIC industries:

1429 Crushed and broken stone, n.e.c.

1499 Miscellaneous nonmetallic minerals, except fuels (pt)

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### **21232 Sand, Gravel, Clay, and Ceramic and Refractory Minerals Mining and Quarrying**

This industry comprises (1) establishments primarily engaged in developing the mine site and/or mining, quarrying, dredging for sand and gravel, or mining clay, (e.g., china clay, paper clay and slip clay) and (2) preparation plants primarily engaged in beneficiating (e.g., washing, screening, and grinding) sand and gravel, clay, and ceramic and refractory minerals.

#### **212321 Construction Sand and Gravel Mining**

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) operating commercial grade (i.e., construction) sand and gravel pits; (2) dredging for commercial grade sand and gravel; and (3) washing, screening, or otherwise preparing commercial grade sand and gravel.

The data published with NAICS code 212321 include the following SIC industry:

1442 Construction sand and gravel

#### **212322 Industrial Sand Mining**

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) operating industrial grade sand pits; (2) dredging for industrial grade sand; and (3) washing, screening, or otherwise preparing industrial grade sand.

The data published with NAICS code 212322 include the following SIC industry:

1446 Industrial sand

#### **212324 Kaolin and Ball Clay Mining**

This U.S. industry comprises (1) establishments primarily engaged in developing the mine site and/or mining kaolin or ball clay (e.g., china clay, paper clay, and slip clay) and (2) establishments primarily engaged in beneficiating (i.e., preparing) kaolin or ball clay.

The data published with NAICS code 212324 include the following SIC industry:

1455 Kaolin and ball clay

This definition comes from the 1997 NAICS Manual. However, for this industry, the 1997 Economic Census Mining did not fully implement the conversion to NAICS. Data for NAICS industry 212324 do not include establishments only engaged in beneficiating or preparing kaolin and ball clay. The NAICS definitions will be fully implemented with the 2002 Economic Census.

#### **212325 Clay and Ceramic and Refractory Minerals Mining**

This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) mining clay (except kaolin and ball), ceramic, or refractory minerals;

(2) developing the mine site for clay, ceramic, or refractory minerals; and (3) beneficiating (i.e., preparing) clay (except kaolin and ball), ceramic, or refractory minerals.

The data published with NAICS code 212325 include the following SIC industry:

1459 Clay, ceramic, and refractory minerals, n.e.c.

This definition comes from the 1997 NAICS Manual. However, for this industry, the 1997 Economic Census Mining did not fully implement the conversion to NAICS. Data for NAICS industry 212325 do not include establishments only engaged in beneficiating or preparing clay, ceramic and refractory minerals. The NAICS definitions will be fully implemented with the 2002 Economic Census.

#### **21239 Other Nonmetallic Mineral Mining and Quarrying**

This industry comprises establishments primarily engaged in developing the mine site, mining, and/or milling or otherwise beneficiating (i.e., preparing) nonmetallic minerals (except coal, stone, sand, gravel, clay, ceramic, and refractory minerals).

#### **212391 Potash, Soda, and Borate Mineral Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining and/or milling, or otherwise beneficiating (i.e., preparing) natural potassium, sodium, or boron compounds. Drylake brine operations are included in this industry, as well as establishments engaged in producing the specified minerals from underground and open pit mines.

The data published with NAICS code 212391 include the following SIC industry:

1474 Potash, soda, and borate minerals

#### **212392 Phosphate Rock Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining, milling, and/or drying or otherwise beneficiating (i.e., preparing) phosphate rock.

The data published with NAICS code 212392 include the following SIC industry:

1475 Phosphate rock

#### **212393 Other Chemical and Fertilizer Mineral Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining, milling, and/or drying or otherwise beneficiating (i.e., preparing) chemical or fertilizer mineral raw materials (except potash, soda, boron, and phosphate rock).

The data published with NAICS code 212393 include the following SIC industry:

1479 Chemical and fertilizer mineral mining, n.e.c.



This definition comes from the 1997 NAICS Manual. However, for this industry, the 1997 Economic Census Mining did not fully implement the conversion to NAICS. Data for NAICS industry 212393 do not include establishments only engaged in beneficiating or preparing chemical and fertilizer minerals. The NAICS definitions will be fully implemented with the 2002 Economic Census.

### **212399 All Other Nonmetallic Mineral Mining**

This U.S. industry comprises establishments primarily engaged in developing the mine site, mining and/or milling or otherwise beneficiating (i.e., preparing) nonmetallic minerals (except stone, sand, gravel, clay, ceramic, refractory minerals, chemical and fertilizer minerals).

The data published with NAICS code 212399 include the following SIC industry:

1499 Miscellaneous nonmetallic minerals, except fuels (pt)

This definition comes from the 1997 NAICS Manual. However, for this industry, the 1997 Economic Census Mining did not fully implement the conversion to NAICS. Data for NAICS industry 212399 do not include establishments only engaged in beneficiating or preparing miscellaneous nonmetallic minerals. The NAICS definitions will be fully implemented with the 2002 Economic Census.

### **213 Support Activities for Mining**

Industries in the Support Activities for Mining subsector group establishments primarily providing support services, on a fee or contract basis, required for the mining and quarrying of minerals and for the extraction of oil and gas. Establishments performing exploration (except geophysical surveying and mapping) for minerals, on a contract or fee basis, are included in this subsector. Exploration includes traditional prospecting methods, such as taking core samples and making geological observations at prospective sites.

The activities performed on a fee or contract basis by establishments in the Support Activities for Mining subsector are also often performed in-house by mining operators. These activities include: taking core samples, making geological observations at prospective sites, and such oil and gas operations as spudding in, drilling in, re-drilling, directional drilling, excavating slush pits and cellars; grading and building foundations at well locations; well surveying; running, cutting, and pulling casings, tubes and rods; cementing wells; shooting wells; perforating well casings; acidizing and chemically treating wells; and cleaning out, bailing, and swabbing wells.

### **2131 Support Activities for Mining**

This NAICS Industry Group includes establishments classified in NAICS Industry 21311, Support Activities for Mining.

### **21311 Support Activities for Mining**

This industry comprises establishments primarily engaged in providing support services, on a fee or contract basis, required for the mining and quarrying of minerals and for the extraction of oil and gas. Drilling, taking core samples, and making geological observations at prospective sites (except geophysical surveying and mapping) for minerals, on a fee or contract basis, is included in this industry.

#### **213111 Drilling Oil and Gas Wells**

This U.S. industry comprises establishments primarily engaged in drilling oil and gas wells for others on a contract or fee basis. This industry includes contractors that specialize in spudding in, drilling in, re-drilling, and directional drilling.

The data published with NAICS code 213111 include the following SIC industry:

1381 Drilling oil and gas wells

#### **213112 Support Activities for Oil and Gas Operations**

This U.S. industry comprises establishments primarily engaged in performing oil and gas field services (except contract drilling) for others, on a contract or fee basis. Services included are exploration (except geophysical surveying and mapping); excavating slush pits and cellars; grading and building foundations at well locations; well surveying; running, cutting, and pulling casings, tubes, and rods; cementing wells; shooting wells; perforating well casings; acidizing and chemically treating wells; and cleaning out, bailing, and swabbing wells.

The data published with NAICS code 213112 include the following SIC industries:

1382 Oil and gas field exploration services (pt)

1389 Oil and gas field services, n.e.c.

#### **213113 Support Activities for Coal Mining**

This U.S. industry comprises establishments primarily engaged in providing support services, on a fee or contract basis, required for coal mining. Exploration for coal is included in this industry. Exploration includes traditional prospecting methods, such as taking core samples and making geological observations at prospective sites.

The data published with NAICS code 213113 include the following SIC industry:

1241 Coal mining services

#### **213114 Support Activities for Metal Mining**

This U.S. industry comprises establishments primarily engaged in providing support services, on a fee or contract basis, required for the mining and quarrying of metallic minerals and for the extraction of metal ores.



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Exploration for minerals is included in this industry. Exploration (except geophysical surveying and mapping services) includes traditional prospecting methods, such as taking core samples and making geological observations at prospective sites.

The data published with NAICS code 213114 include the following SIC industry:

1081 Metal mining services (pt)

**213115 Support Activities for Nonmetallic Minerals (Except Fuels)**

This U.S. industry comprises establishments primarily engaged in providing support services, on a fee or contract basis, required for the mining and quarrying of nonmetallic minerals and for the extraction of nonmetallic

minerals. Exploration for minerals is included in this industry. Exploration (except geophysical surveying and mapping services) includes traditional prospecting methods, such as taking core samples and making geological observations at prospective sites.

The data published with NAICS code 213115 include the following SIC industry:

1481 Nonmetallic minerals services, except fuels (pt)

# Appendix C.

## Coverage and Methodology

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### MAIL/NONMAIL UNIVERSE

The mining universe includes about 25,000 establishments. This number includes those industries in the NAICS definition of mining, but not those portions of industries leaving the mining sector in the classification change. The amounts of information requested from mining establishments were dependent on a number of factors. The most important consideration was the size of the company. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the mining establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cut-off was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to account for no more than 3 percent of the value of shipments and receipts for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cut-off that could be directly assigned a six-digit NAICS code were excused from filing any report. For below-cut-off establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements which safeguarded their confidentiality.

Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and receipts, cost of supplies, etc., and cost of fuels were not distributed among specific products, supplies, and fuels for these establishments but were included in the product, supplies, and fuels "not specified by kind" (nsk) categories.

The industry classification codes included in the administrative-record files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to a four-digit SIC industry and then erroneously recoded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between mining and non-mining activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census—Mining, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as a default within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments sent a report form.

The establishments covered in the mail canvass were divided into two groups:

- a. Large and medium size establishments.

Approximately 48 percent of all mining establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 10 economic census – mining regular forms. The first four pages, requesting establishment data for items, such as employment and payroll, costs, assets, and capital expenditures, were fairly standard although some variation occurred depending on the industries collected on

the form. The remaining pages of the form contained product, supply, fuel, and special inquiries. The diversity of the mining activities necessitated the use of several forms to canvass the 29 mining industries. Each form was developed for a group of industries.

b. Small single-establishment companies.

This group included approximately 12 percent of all mining establishments. For those industries where application of the variable cutoff for administrative-record cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or short form was used. Establishments in the crushed stone, sand and gravel, and crude petroleum and natural gas industries with 5 to 19 employees received 1 of 2 versions of the short form. The form requested summary product and material data and totals but no details on payrolls, cost of supplies and fuels, assets, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products, supplies, and fuels was not collected on the short form; thus, its use would increase the value of the nsk categories.

## INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Mining was classified in 1 of 29 mineral industries in accordance with the industry definitions in the 1997 NAICS manual. This is the first edition of the NAICS manual and is a major change from the 1987 SIC manual that was used in the past. Appendix A of the 1997 NAICS manual notes the comparability between the 1987 SIC and the 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product comparability between the two systems for the data in this report.

In the NAICS system, an industry is generally defined as establishments grouped according to similarity in the processes used to produce the mineral products. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of its number, value added by mining, value of shipments and receipts, number of employees, and payroll.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the mining sector for 1997, there are 3 subsectors (three-digit NAICS), 5 industry groups (four-digit NAICS), and 10 NAICS industries (5-digit NAICS) that are comparable with Canadian and Mexican classification and 29 U.S. industries (six-digit

NAICS). This represents a slight reduction of the four-digit SIC-based U.S. industries from 31 in 1987. Within industries, there are 141 seven-digit product classes and 196 ten-digit products. The ten-digit products are considered the primary products of the industry with the same first six digits.

For the 1997 Economic Census – Mining, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by mining, value of shipments and receipts, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics (especially the value of shipments and receipts) to the product statistics, the composition of the industry's output should be considered.

## ESTABLISHMENT BASIS OF REPORTING

The 1997 Economic Census – Mining covers each mining establishment of firms with one or more paid employees operating in the United States. A company operating more than one establishment is required to file a separate report for each location. A mining establishment is defined as a single physical location where mineral operations are conducted. However, a company engaged in distinctly different lines of activity at one location is required to submit a separate report for each activity if the plant records permit such a separation and if the activities are substantial in size.

For oil and gas field operations and for contract services, the basis for reporting is different from the "establishment" basis used for other types of mining. Firms operating oil and gas wells, drilling wells, or exploring for oil and gas for their own account were required to submit a separate report for each state or offshore area adjacent to a state in which it conducted such activities. Firms that performed contract services for oil and gas field operations or for mining establishments were required to submit one report covering all such activities in the United States and to include information on receipts for services and production-worker wages and hours by state. These consolidated reports were then allocated to state establishments based on the data reported at the state level. The 1997 figures for establishments include the summation of operations for each state allocated from these nationwide reports.

In the 1997 Economic Census – Mining, as in censuses since 1967, data for single-unit firms without paid employees were excluded. This exclusion had only a slight

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effect on industry aggregates for most industries. Data for firms without employees were included in the 1963, 1958, and 1954 censuses if they reported more than \$500 in (1) value of shipments and receipts, (2) cost of supplies and purchased machinery, or (3) capital expenditures.

The 1997 Economic Census – Mining excludes data for central administrative offices. Statistics for employment and payroll for individual industries and industry groups no longer include employment and payroll figures for administrative offices, warehouses, storage facilities, and other auxiliary establishments servicing mining establishments. These data are included in a separate report series.

#### **DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS**

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

#### **VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS**

The 1997 Economic Census – Mining shows value of shipments and receipts data for industries and products. In the industry statistics tables and files, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment. The value of products shipped also may include some products shipped from manufacturing establishments with mining operations.

## Appendix D. Geographic Notes

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Not applicable for this report.



# Appendix E. Metropolitan Areas

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Not applicable for this report.

