

Copper Ore and Nickel Ore Mining

1997

Issued December 1999

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1997 Economic Census

Mining

Industry Series



U S C E N S U S B U R E A U

Helping You Make Informed Decisions

U.S. Department of Commerce
Economics and Statistics Administration
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-- Not applicable for this report.

Introduction to the Economic Census

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

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) 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.

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. 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.

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

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:

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 on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Companies ¹	All establishments ²	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)
				For pay period including March 12	Annual payroll (\$1,000)	For pay period including March 12	Annual hours (1,000)	Annual wages (\$1,000)				
212234	Copper ore & nickel ore mining	22	48	13 744	550 884	11 680	25 243	446 646	2 634 354	1 912 483	4 017 804	529 033
102100	Copper ores	N	48	13 744	550 884	11 680	25 243	446 646	2 634 354	1 912 483	4 017 804	529 033
109910	Misc metal ores, n.e.c., & ferroalloy ores, exc vanadium (pt)	N	—	—	—	—	—	—	—	—	—	—

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

²Includes establishments of companies with payroll at any time during the year.

Table 2. Industry Statistics for Selected States and Offshore Areas: 1997

[Offshore areas refer to those areas not associated with a state. States that are disclosures or with less than 100 employees are not shown. * Indicates geographic change, but not applicable to this sector. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	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)
		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)				
212234, COPPER ORE & NICKEL ORE MINING												
United States	—	48	25	13 744	550 884	11 680	25 243	446 646	2 634 354	1 912 483	4 017 804	529 033
Arizona	—	25	15	9 911	397 604	8 330	18 112	318 115	1 833 441	1 080 891	2 615 242	299 090

¹Some 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.

Table 3. Detailed Statistics by Industry: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Value	Item	Value
212234, COPPER ORE & NICKEL ORE MINING		212234, COPPER ORE & NICKEL ORE MINING— Con.	
Companies ¹	number.. 22	Value of primary products shipments or services produced in all industries	\$1,000.. 3 860 594
All establishments	number.. 48	Value of primary products shipments or services produced in this industry	\$1,000.. D
Establishments with 0 to 19 employees	number.. 23	Value of primary products shipments or services produced in other industries	\$1,000.. D
Establishments with 20 to 99 employees	number.. 7	Value added by mining	\$1,000.. 2 634 354
Establishments with 100 employees or more	number.. 18	Total inventories, end of 1996	\$1,000.. 361 170
All employees for pay period including March 12	number.. 13 744	Mineral products, crude petroleum, and natural gas liquids inventories, end of 1996	\$1,000.. 199 121
Annual payroll	\$1,000.. 550 884	Supplies, parts, fuels, etc., inventories, end of 1996	\$1,000.. 162 049
Annual fringe benefits not included in payroll	\$1,000.. 176 169	Total inventories, end of 1997	\$1,000.. 335 886
Production, development, and exploration workers for pay period including March 12	number.. 11 680	Mineral products, crude petroleum, and natural gas liquids inventories, end of 1997	\$1,000.. 181 246
Production, development, and exploration worker annual hours	1,000.. 25 243	Supplies, parts, fuels, etc., inventories, end of 1997	\$1,000.. 154 640
Production, development, and exploration worker annual wages	\$1,000.. 446 646	Gross book value of depreciable/depletable assets at beginning of year	\$1,000.. 6 213 400
Total cost of supplies	\$1,000.. 1 912 483	Capital expenditures (except land and mineral rights)	\$1,000.. 529 033
Cost of supplies used, minerals received, and purchased machinery installed	\$1,000.. 1 333 575	and equipment (new and used)	\$1,000.. 440 163
Cost of resales	\$1,000.. —	Capital expenditures for mineral exploration and development	\$1,000.. 88 870
Cost of purchased fuels consumed	\$1,000.. 104 424	Capital expenditures for mineral land and rights	\$1,000.. 19 377
Cost of purchased electricity	\$1,000.. 306 447	Deductions from depreciable/depletable assets during year	\$1,000.. 101 478
Cost of contract work	\$1,000.. 168 037	Gross book value of depreciable/depletable assets at end of year	\$1,000.. 6 660 332
Quantity of electricity purchased	1,000 kWh.. 7 779 128	Total depreciation/depletion charges during year	\$1,000.. 303 698
Quantity of electricity generated less sold	1,000 kWh.. D	Total rental payments during year	\$1,000.. 22 122
Cost of purchased communications services	\$1,000.. 2 137	Rental payments for buildings and other structures	\$1,000.. 929
Total value of shipments and receipts	\$1,000.. 4 017 804	Rental payments for machinery and equipment	\$1,000.. 21 193
Primary products value of shipments	\$1,000.. D	Lease rents	\$1,000.. D
Secondary products value of shipments and receipts for services	\$1,000.. —	Expensed mineral exploration, development, land, and rights	\$1,000.. 136 130
Value of resales	\$1,000.. —		

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

Table 4. Industry Statistics by Employment Size: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Employment size class	E ¹	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)
		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)				
212234, COPPER ORE & NICKEL ORE MINING												
All establishments	—	48	25	13 744	550 884	11 680	25 243	446 646	2 634 354	1 912 483	4 017 804	529 033
Establishments with 0 to 4 employees	9	8	—	21	577	13	26	398	1 587	659	2 068	178
Establishments with 5 to 9 employees	9	6	—	D	D	D	D	D	D	D	D	D
Establishments with 10 to 19 employees	9	9	—	126	5 234	99	195	4 020	8 530	5 838	3 470	10 898
Establishments with 20 to 49 employees	—	4	4	119	3 887	84	158	2 250	29 609	14 156	42 719	1 046
Establishments with 50 to 99 employees	—	3	3	215	10 363	168	375	7 176	182 493	D	216 879	D
Establishments with 100 to 249 employees	—	3	3	483	17 592	412	814	14 158	44 259	D	212 608	D
Establishments with 250 to 499 employees	—	4	4	1 594	62 691	1 299	2 770	48 500	182 998	221 490	313 861	90 627
Establishments with 500 to 999 employees	—	9	9	D	D	D	D	D	D	D	D	D
Establishments with 1,000 to 2,499 employees	—	1	1	D	D	D	D	D	D	D	D	D
Establishments with 2,500 employees or more	—	1	1	D	D	D	D	D	D	D	D	D
Administrative records ²	9	11	—	65	2 096	47	75	1 431	5 040	2 138	6 703	475

¹Some 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.

²Some 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. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Type of Operation: 1997

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry 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)	
212234, COPPER ORE & NICKEL ORE MINING								
All establishments	48	25	13 744	550 884	11 680	25 243	446 646	2 634 354
Producing establishments	38	25	13 634	545 399	11 591	25 049	442 163	2 628 754
Mines or wells only	17	4	804	31 131	756	1 526	28 853	50 134
Underground mines	-	-	-	-	-	-	-	-
Open-pit mines	17	4	804	31 131	756	1 526	28 853	50 134
Combination mines, well operations, or other types of mines	-	-	-	-	-	-	-	-
Mines with preparation plants	18	18	11 995	481 715	10 054	21 812	384 193	2 311 118
Underground mines	-	-	-	-	-	-	-	-
Open-pit mines	11	11	7 540	288 767	6 342	14 246	232 517	1 835 159
Combination mines or other types of mines	7	7	4 455	192 948	3 712	7 566	151 676	475 959
Separately operated preparation plants	3	3	835	32 553	781	1 711	29 117	267 502
Undistributed ¹	-	-	-	-	-	-	-	-
Nonproducing establishments	10	-	110	5 485	89	194	4 483	5 600

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

Table 6a. Products or Services Statistics: 1997 and 1992

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product or service code	Product or service	1997		1992			
		Quantity of production for all purposes	Product shipments or receipts for services		Quantity of production for all purposes	Product shipments or receipts for services	
			Quantity	Value (\$1,000)		Quantity	Value (\$1,000)
212234	Copper and nickel ores	X	X	3 860 594	N	N	N
2122341	Crude copper-bearing ores	X	X	248 898	X	X	204 008
21223411	Crude copper-bearing ores	X	X	248 898	X	X	N
2122341111	Crude copper ores mined #	744.9	X	X	597.5	X	X
2122341121	Crude copper ores and residues shipped to smelters	X	D	D	X	-	-
2122341131	Crude copper ores and residues shipped to mills	X	D	D	X	74.8	204 008
2122343	Copper concentrates	X	X	2 340 840	X	X	1 982 248
21223431	Copper concentrates	X	X	2 340 840	X	X	N
2122343100	Copper concentrates	4.2	4.2	2 340 840	3.6	3.5	1 982 248
2122345	Copper precipitates and electrowon copper recovered from leaching operations	X	X	1 262 842	X	X	1 093 062
21223451	Copper precipitates and electrowon copper recovered from leaching operations	X	X	1 262 842	X	X	N
2122345111	Copper precipitates	24.4	21.6	25 224	36.4	35.6	40 724
2122345121	Electrowon copper recovered from leaching operations	581.9	579.7	1 237 618	444.5	464.5	1 052 338
212234W	Copper ores, nsk, and nickel ores and concentrates	X	X	8 014	X	X	N
212234WY	Copper ores, nsk, and nickel ores and concentrates	X	X	8 014	X	X	N
212234WYWT	Copper ores, nsk, and nickel ores and concentrates #	X	X	8 014	X	X	N

Additional information is available for this item; see Appendix F.

Table 6b. Product Class Shipments for Selected States and Offshore Areas: 1997 and 1992

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product or service class code	Product class and geographic area	Value of product shipments or receipts for services (\$1,000)	
		1997	1992
2122341	CRUDE COPPER-BEARING ORES		
	United States	248 898	204 008
2122343	COPPER CONCENTRATES		
	United States	2 340 840	1 982 248
	Arizona	1 536 295	1 230 035
2122345	COPPER PRECIPITATES AND ELECTROWON COPPER RECOVERED FROM LEACHING OPERATIONS		
	United States	1 262 842	1 093 062

Table 7. Selected Supplies, Minerals Received for Preparation, Purchased Machinery, and Fuels Consumed by Type: 1997 and 1992

[Includes quantity and cost of supplies and fuels consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS supply or fuel code	Supply or fuel consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
212234	COPPER ORE & NICKEL ORE MINING				
	SUPPLIES CONSUMED BY TYPE				
21220001	Crude ore and residues received for concentration mil metric tons . .	77.7	212 140	N	N
21220003	Crude ore and residues mined and concentrated at same establishment mil metric tons . .	652.6	X	N	X
33300007	Purchased machinery installed, including mobile loading, transportation, and other equipment installed at the operation	X	277 435	X	N
33300009	Parts and attachments for mining, mineral preparation, construction, and conveying machinery and equipment	X	284 288	X	N
32500073	Industrial chemicals (chemical reagents, calcium chloride, etc.) except explosive materials and blasting accessories	X	99 791	X	N
32592001	Explosive materials (including ammonium nitrate) and blasting accessories	X	52 293	X	N
32621001	Tires and inner tubes	X	74 746	X	N
32741001	Lime (including quicklime and hydrated lime) and dead-burned dolomite	X	23 778	X	N
33151003	Iron and steel castings	X	48 084	X	N
33211101	Iron and steel forgings	X	17 029	X	N
33120059	Steel shapes and forms, except castings and forgings	X	47 064	X	N
00970098	All other supplies	X	195 059	X	N
00973000	Undistributed - minerals, purchased machinery, parts, attachments, and supplies used#	X	1 868	X	N
	FUELS CONSUMED BY TYPE				
21211003	Coal (bituminous, subbituminous, lignite, and anthracite) consumed as a fuel 1,000 s tons . .	-	-	N	N
32411017	Distillate (light) grade numbers 1, 2, 4, and light diesel fuel used as a fuel 1,000 barrels . .	3 057.9	95 634	N	N
32411019	Residual (heavy) grade numbers 5 and 6 and heavy diesel fuel used as a fuel 1,000 barrels . .	D	D	N	N
21111015	Gas (natural, manufactured, and mixed) used as a fuel bil cu ft . .	1.8	4 085	N	N
32411015	Gasoline used as a fuel mil gal . .	3.1	3 307	N	N
00960018	Other fuels (liquified pet. gas, coke, wood, etc.)	X	357	X	N
00974000	Undistributed fuels#	X	D	X	N

Additional information is available for this item; see Appendix F.

Appendix A.

Explanation of Terms

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.

Specific Supplies Used, Minerals Received for Preparation and Purchased Machinery Installed

In addition to the total cost of supplies, purchased machinery installed, etc., which every establishment was required to report, information also was collected on the consumption of the major supplies used in mining. The inquiries were restricted to those supplies which were important parts of the cost of production, exploration, and development in a particular industry and for which cost information was available from the establishment's records. Except for the crude petroleum and natural gas and the support activities for mining industries, figures were also obtained on crude minerals mined at the establishment, received from other establishments of the company or purchased from others, and received for preparation on a custom or toll basis. If less than \$25,000 of a listed supply was consumed by an establishment, the cost data could be reported in the "All other supplies..." census supply code 00970098. Also, the cost of supplies for small establishments for which administrative records or

short forms were used was imputed into the "Undistributed - minerals, purchased machinery, parts.....," census supply code 00973000.

Specific Fuels Consumed

For most industries, separate quantity and cost figures are shown for purchased coal, distillate fuel oil, residual fuel oil, gas, gasoline, and a cost figure for other fuels. Data also were obtained on the quantity of crude petroleum, natural gas, and coal produced and consumed at the same establishment for heat and power. The cost of fuels for small establishments for which administrative records or short forms were used was imputed into the "Undistributed fuels," census fuel code 00974000.

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.

CURRENT ACCOUNT EXPENDITURES FOR MINERAL PROPERTIES

This item includes all expenses for mineral properties, exploration, and development charged to current accounts. Included are all supplies, machinery, equipment, parts, fuels, power, etc., used for development or exploration and charged to current operating expenses. Also included are royalty payments, acquisition costs for mineral land and rights which were not associated with exploration or development activity, and the cost of maintenance and repairs associated with exploration or development activity and charged to current accounts.

DEPRECIATION AND/OR DEPLETION CHARGES

This item includes depreciation, depletion, and amortization charged during the year against assets. Depreciation charged against assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation or depletion.

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 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.

GROSS VALUE OF DEPRECIABLE AND/OR DEPLETABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable and/or depletable assets is collected on all census forms except for the crude petroleum and natural gas form. This item shows the value of depreciable and/or depletable assets for the beginning and end of year. The data encompass all depreciable and/or depletable assets on the books of establishments. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, equipment (production, office, and transportation equipment), capitalized mineral exploration and development, and mineral land and rights for which depreciation, amortization, or depletion reserves are maintained.

The definition of depreciable and/or depletable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress.

In addition, respondents were requested to make certain that assets at the beginning of the year plus capital expenditures, less retirements, equaled assets at the end of the year.

LEASE RENTS

This item represents the lease rents paid by the establishment for mineral properties. It was not collected on the short form or for the crude petroleum and natural gas, natural gas liquids, and the support activities for mining industries.

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.

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	21111	Oil and gas extraction
U.S. industry	211111	Crude petroleum and natural gas extraction
Product class	2111111	Crude petroleum, including lease condensate
BLS link code	2111111X	
Product code	2111111XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the new system, there are 61 product classes (seven-digit codes) and almost 150 census products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments or receipts information were collected. However, if quantity was not significant or could not be reported, only value of shipments and receipts was collected. Shipments include both commercial shipments and transfers of products to other plants of the same company.

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.

RETIREMENTS OF DEPRECIABLE AND/OR DEPLETABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment

changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

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, 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.

The term “value of primary products shipments or services produced in this industry” is used in this publication and refers to the same data.

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.

Value of product shipments represents the total value of all products shipped that are classified as primary to an industry and includes those that were shipped by all mining and manufacturing establishments regardless of their industry classification.

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.

Appendix B.

NAICS Codes, Titles, and Descriptions

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
- 1099 Miscellaneous metal ores, n.e.c.
- 1061 Ferroalloy ores, except vanadium (pt)

Appendix C.

Coverage and Methodology

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

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

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F.

Footnotes for Products or Services Statistics, and Supplies and Fuels Consumed by Type

Part 1. Products or Services Statistics (Table 6a)

NAICS product or service code	Footnote
# 2122341111	Includes material for leaching
# 212234WYWT	Includes a value for establishments that did not report detailed data and estimates for small companies (estimates were made from administrative-record data rather than collected from respondents).

Part 2. Supplies, Minerals Received for Preparation, Purchased Machinery, and Fuels Consumed by Type (Table 7)

NAICS supply or fuel code	Footnote
# 00973000	Represents cost for establishments that did not report detailed data, including establishments that were not mailed a form.
# 00974000	Represents cost for establishments that did not report detailed data, including establishments that were not mailed a form.

Appendix G. Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
2121111	12211	12211	2122341	10211	10211	212322W	14460	14460
212111111	1221101	1221101	2122341111	1021104	1021104	212322WYWT	1446000	1446000
212111221	1221103	1221103	2122341121	1021121	1021121	2123240 pt.	14550	14550
212111YVW	12211XX	12211XX	2122341131	1021123	1021123	2123240 pt.	14552 pt	14551
2121113	12212	12212	2122341YVW	10211XX	10211XX	2123240 pt.	14552 pt	14551
2121113111	1221201	1221201	2122343	10212	10212	2123240 pt.	14552 pt	14552
2121113221	1221217	1221217	2122343100	1021200	1021200	2123240111 pt	1455211 pt	1455100 pt
2121113331	1221218	1221218	2122345	10213	10213	2123240111 pt	1455211 pt	1455201
2121113441	1221219	1221219	2122345111	1021301	1021301	2123240121 pt	1455212 pt	1455100 pt
2121113YVW	12212XX	12212XX	2122345121	1021303	1021303	2123240121 pt	1455212 pt	1455202
212111W	12210	12210	2122345YVW	10213XX	10213XX	2123240YWT	1455000	1455000
212111WYWT	1221000	1221000	212234W pt.	10210	10210	2123251	14591	14591
2121121	12221	12221	212234W pt.	10990 pt	10990 pt	2123251100	1459100	1459100
2121121111	1222101	1222101	212234W pt.	10997 pt	10997 pt	2123253	14592	14592
2121121221	1222103	1222103	212234WYWT pt	1021000	1021000	2123253100 pt	1459200 pt	1459211
2121121YVW	12221XX	12221XX	212234WYWT pt	1099000 pt	1099000 pt	2123253100 pt	1459200 pt	1459221
2121123	12222	12222	212234WYWT pt	1099733 pt	1099733 pt	2123255	14593	14593
2121123111	1222201	1222201	212234WYWT pt	1099733 pt	1099733 pt	2123255100	1459300	1459300
2121123221	1222217	1222217	2122911	10941	10941	2123257	14596	14596
2121123YVW	12222XX	12222XX	2122911100	1094102	1094102	2123257100	1459600	1459600
212112W	12220	12220	2122913	10942	10942	2123258	14597	14597
212112WYWT	1222000	1222000	2122913111 pt	1094201 pt	1094201 pt	2123258111	1459711	1459711
2121131	12311	12311	2122913111 pt	1094201 pt	1094201 pt	2123258121	1459721	1459721
2121131111	1231101	1231101	2122913121	1094205	1094205	2123258YVW	14597XX	14597XX
2121131121	1231103	1231103	2122913YVW	10942XX	10942XX	2123259	14599	14599
2121131YVW	12311XX	12311XX	212291W	10940	10940	2123259100	1459900	1459900
2121133	12312	12312	212291WYWT	1094000	1094000	212325W	14590	14590
2121133111	1231201	1231201	2122991	10992	10992	212325WYWT	1459000	1459000
2121133121	1231217	1231217	2122991100 pt	1099200 pt	1099211	2123911 pt.	14745 pt	14741
2121133YVW	12312XX	12312XX	2122991100 pt	1099200 pt	1099221	2123911 pt.	14745 pt	14742
212113W	12310	12310	2122993	10997 pt	10997 pt	2123911 pt.	14745 pt	14744
212113WYWT	1231000	1231000	2122993111	1099701	1099711 pt	2123911100 pt	1474500 pt	1474100
2122101	10111	10111	2122993121	1099731	1099731	2123911100 pt	1474500 pt	1474200
2122101111	1011121	1011121	2122993131	1099732	1099729 pt	2123911100 pt	1474500 pt	1474400
2122101121	1011123	1011123	2122993YVW	10997XX	10997XX	2123913	14743	14743
2122101YVW	10111XX	10111XX	2122995	10998	10998	2123913111	1474301	1474301
2122103	10112	10112	2122995100 pt	1099800 pt	1099811	2123913121	1474303	1474303
2122103111	1011203	1011203	2122995100 pt	1099800 pt	1099821	2123913YVW	14743XX	14743XX
2122103121	1011205	1011205	212299W pt.	10990 pt	10990 pt	212391W	14740	14740
2122103131	1011207	1011207	212299W pt.	10990 pt	10997 pt	212391WYWT	1474000	1474000
2122103YVW	10112XX	10112XX	212299WYWT pt	1099000 pt	1099700	2123921	14751	14751
212210W	10110	10110	212299WYWT pt	1099000 pt	1099700	2123921100 pt	1475100 pt	1475101
212210WYWT	1011000	1011000	2123110	14110	14110	2123921100 pt	1475100 pt	1475103
2122211	10411	10411	2123110111	1411011	1411011	2123921100 pt	1475100 pt	1475105
2122211111	1041104	1041104	2123110121	1411015	1411015	2123923	14752	14752
2122211121	1041121	1041121	2123110221	1411019	1411019	2123923111 pt	1475202 pt	1475201
2122211131	1041123	1041123	2123110YWT	1411000	1411000	2123923111 pt	1475202 pt	1475203
2122211YVW	10411XX	10411XX	2123120	14220	14220	2123923111 pt	1475202 pt	1475205
2122213	10412	10412	2123120100	1422000	1422000	2123923131	1475207	1475207
2122213100	1041200	1041200	2123120YWT	14220XX	14220XX	2123923YVW	14752XX	14752XX
2122215	10413	10413	2123130	14230	14230	212392W	14750	14750
2122215111	1041303	1041303	2123130100	1423000	1423000	212392WYWT	1475000	1475000
2122215121	1041307	1041307	2123130YWT	14230XX	14230XX	2123931	14791	14791
2122215YVW	10413XX	10413XX	2123190 pt.	14290	14290	2123931100	1479100	1479100
212221W	10410	10410	2123190 pt.	14990 pt	14990 pt	2123933	14793	14793
212221WYWT	1041000	1041000	2123190 pt.	14990 pt	14990 pt	2123933100	1479300	1479300
2122221	10441	10441	2123190 pt.	1499A pt	14992 pt	2123935	14794	14794
2122221111	1044104	1044104	2123190111	1499A22	1499200 pt	2123935100	1479400	1479400
2122221121	1044121	1044121	2123190121	1429000	1429000	2123939	14798	14798
2122221131	1044123	1044123	2123190YWT pt	14290XX	14290XX	2123939100	1479800	1479800
2122221YVW	10441XX	10441XX	2123190YWT pt	1499000 pt	1499000 pt	212393W	14790	14790
2122223	10442	10442	2123211	14421	14421	212393WYWT	1479000	1479000
2122223100	1044200	1044200	2123211111	1442101	1442101	2123991	14996	14996
2122225	10443	10443	2123211111	1442105	1442105	2123991100	1499600	1499600
2122225111	1044303	1044303	212321YVW	14421XX	14421XX	2123993	14997	14997
2122225121	1044307	1044307	2123213	14422	14422	2123993100 pt	1499701 pt	1499712
2122225YVW	10443XX	10443XX	2123213111	1442201	1442201	2123993100 pt	1499701 pt	1499722
212222W	10440	10440	2123213221	1442205	1442205	2123995	14998	14998
212222WYWT	1044000	1044000	2123213YVW	14422XX	14422XX	2123995100 pt	1499801 pt	1499812
2122231	10311	10311	212321W	14420	14420	2123995100 pt	1499801 pt	1499822
2122231111	1031104	1031104	212321WYWT	1442000	1442000	2123999 pt.	1499A pt	14992 pt
2122231121	1031121	1031121	2123221	14461	14461	2123999 pt.	1499A pt	14993
2122231131	1031123	1031123	2123221100	1446100	1446100	2123999 pt.	1499A pt	14994
2122231YVW	10311XX	10311XX	2123223	14465	14465	2123999 pt.	1499A pt	14995
21222313	10312	10312	2123223100	1446500	1446500	2123999 pt.	1499A pt	14995
2122231311	1031201	1031201	2123229	14469	14469	2123999 pt.	1499A pt	14995
21222313121	1031221	1031221	2123229100	1446900	1446900			
21222313YVW	10312XX	10312XX						
212231W	10310	10310						
212231WYWT	1031000	1031000						

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
2123999 pt.....	1499A pt.....	14999	2123999161	1499A05	1499905	212399W pt.....	14990 pt.....	14990 pt
2123999111	1499A10	1499100	2123999171	1499A07	1499907	212399W pt.....	14990 pt.....	14997 pt
2123999121	1499A21	1499200 pt	2123999191 pt	1499A97 pt.....	1499901	212399W pt.....	14990 pt.....	14998 pt
2123999131	1499A30	1499300	2123999191 pt	1499A97 pt.....	1499998	212399WYWT pt ...	1499000 pt.....	1499000 pt
2123999141	1499A40	1499400	2123999191 pt	1499A97 pt.....	1499998	212399WYWT pt ...	1499000 pt.....	1499700
2123999151	1499A50	1499500	2123999YVW	1499AXX	1499AXX	212399WYWT pt ...	1499000 pt.....	1499800

