

Michigan: 2002

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2002 Economic Census

Mining

Geographic Area Series



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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 to 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.

INDUSTRY CLASSIFICATIONS

Data from the 2002 Economic Census are published primarily according to the 2002 North American Industry Classification System (NAICS). NAICS was first adopted in the United States, Canada, and Mexico in 1997. The 2002 Economic Census covers 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 Food Services
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), largely covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 100 subsectors (three-digit codes), 317 industry groups (four-digit codes), and, as implemented in the United States, 1,179 industries (six-digit codes).

RELATIONSHIP TO HISTORICAL INDUSTRY CLASSIFICATIONS

Prior to the 1997 Economic Census, data were published according to the Standard Industrial Classification (SIC) system. 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 1997 Economic Census *Bridge Between NAICS and SIC* demonstrates the relationships between NAICS and SIC industries. Where changes are significant, it may not be possible to construct time series that include data for points both before and after 1997.

Most industry classifications remained unchanged between 1997 and 2002, but NAICS 2002 includes substantial revisions within the construction and wholesale trade sectors, and a number of revisions for the retail trade and information sectors. These changes are noted in industry definitions and will be demonstrated in the *Bridge Between NAICS 2002 and NAICS 1997*.

For 2002, data for enterprise support establishments (those functioning primarily to support the activities of their company's operating establishments, such as a warehouse or a research and development laboratory) are included in the industry that reflects their activities (such as warehousing). For 1997, such establishments were termed auxiliaries and were excluded from industry totals.

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. (For selected industries, only payroll, employment, and classification are collected for individual establishments, while other data are collected on a consolidated basis.)

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for states, metropolitan and micropolitan statistical areas, counties, and corporate municipalities (places) including cities, towns, townships, 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 administrative sources is used as a basis for coding.

AVAILABILITY OF ADDITIONAL DATA

All results of the 2002 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on digital versatile discs (DVD-ROMs) for sale by the Census Bureau. The American FactFinder system at the Internet site allows selective retrieval and downloading of the data. For more information, including a description of reports being issued, see the Internet site, write to the U.S. Census Bureau, Washington, DC 20233-6100, or call Customer Services at 301-763-4100.

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 service trades in 1933. Censuses of construction, manufacturing, and the other business 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 and 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 report forms.

The range of industries covered in the economic census expanded between 1967 and 2002. 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. New for 2002 is coverage of four industries classified in the agriculture, forestry, and fishing sector under the SIC system: landscape architectural services, landscaping services, veterinary services, and pet care services.

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. Reports for 1997 were published primarily on the Internet and copies of 1992 reports are also available there. CD-ROMs issued from the 1987, 1992, and 1997 Economic Censuses contain databases that include all or 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 the 2002 Economic Census and related surveys is published in the *Guide to the 2002 Economic Census* at www.census.gov/econ/census02/guide. More information on the methodology, procedures, and history of the census will be published in the *History of the 2002 Economic Census* at www.census.gov/econ/www/history.html.

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Mining

SCOPE

The Mining sector (sector 21) 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 (except mine site preparation and construction of oil/gas pipelines).

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.

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

The tabulations for this sector do not include central administrative offices, warehouses, or other establishments that serve mining establishments within the same organization. Data for such establishments are classified according to the nature of the service they provide. For example, separate headquarters establishments are reported in NAICS Sector 55, Management of Companies and Enterprises.

The reports described below exclude establishments of firms with no paid employees. These "nonemployers," typically self-employed individuals or partnerships operating businesses that they have not chosen to incorporate, are reported separately in Nonemployer Statistics. The contribution of nonemployers, relatively moderate for this sector, may be examined at www.census.gov/nonemployerimpact.

The reports described below cover all mining establishments with one or more paid employees.

Definitions. Industry categories are defined in Appendix B, NAICS Codes, Titles, and Descriptions. Other terms are defined in Appendix A, Explanation of Terms.

REPORTS

The following reports provide statistics on this sector:

Industry Series. There are 29 reports, each covering a single NAICS industry (six-digit code). These reports include such statistics as number of establishments, employment, payroll, value added by mining, cost of supplies, value of shipments and receipts for services, capital expenditures, etc. The industry reports also include data for states with 100 employees or more in the industry. The data in industry reports are preliminary and subject to change in the following reports.

Geographic Area Series. There are 52 separate reports, one for each state, the District of Columbia, and offshore areas. Each state report presents similar statistics at the “all mining” level for each state. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

Subject Series:

- **Industry-Product Analysis Summary.** This report presents value of shipments and receipts for services, value of product shipments or receipts for services, percentage of product shipments of the total value of shipments and receipts for services, and percentage of distribution of value of product shipments or receipts for services on the NAICS six-digit industry level and by the six- and seven-digit product code levels. It also includes miscellaneous receipts at the six- and seven-digit product code levels by NAICS six-digit industry levels.
- **General Summary.** This 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.
- **Product Summary.** This report summarizes the products data published in the industry reports.
- **Materials Summary.** This report summarizes the materials and fuels data published in the industry reports.
- **Location of Mines Summary.** This report contains statistics on the number of establishments for the three- and six-digit NAICS industry by state and offshore area by employment-size of the establishment.

Other reports. Data for this sector are also included in reports with multisector coverage, including Nonemployer Statistics, Comparative Statistics, Bridge Between 2002 NAICS and 1997 NAICS, Business Expenses, and the Survey of Business Owners reports.

GEOGRAPHIC AREAS COVERED

1. The United States as a whole.
2. States and the District of Columbia.
3. Offshore Areas. 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 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 that includes the following areas:

-
- a. 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, and Florida state Atlantic offshore.
 - b. 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, and Florida state Gulf offshore.
 - c. Pacific Offshore: Pacific Federal areas defined by Universal Transverse Mercator Coordinate System, Oregon state offshore, and Washington state offshore.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 2002 data are expressed in 2002 dollars, and 1997 data, in 1997 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.

COMPARABILITY OF THE 1997 AND 2002 ECONOMIC CENSUSES

Both the 2002 Economic Census and the 1997 Economic Census present data based on the North American Industry Classification System (NAICS). There were several revisions to selected industries in the mining sector, for 2002. These changes were due to industries that are now being classified in the construction sector. These changes are:

- 213112 – Construction of field gathering lines on a contract basis
- 213112 – Site preparation and related construction activities on a contract basis
- 213113 – Site preparation and related construction activities on a contract basis
- 213114 – Site preparation and related construction activities on a contract basis
- 213115 – Site preparation and related construction activities on a contract basis

More detailed information of NAICS changes from 1997 to 2002, may be examined at www.census.gov/epcd/naics02/n02ton97.htm.

In addition, there have been several additional data tables added, which did not exist in 1997. These tables for 2002 include industry-product analysis, e-commerce value of shipments and receipts for services, and leased and nonleased detail employment statistics by subsectors.

RELIABILITY OF DATA

All data compiled for this sector are subject to nonsampling errors. Nonsampling errors can be attributed to many sources: inability to identify all cases in the actual universe; definition and classification difficulties; differences in the interpretation of questions; errors in recording or coding the data obtained; and other errors of collection, response, coverage, processing, and estimation for missing or misreported data.

No direct measurement of these effects has been obtained except for estimation for missing or misreported data, as by the percentages shown in the tables. Precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize the effects of nonsampling errors. More information on the reliability of the data is included in Appendix C, Methodology.

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 in a specific industry or geographic area is not considered a disclosure; therefore, this information may be released even though other information is withheld. Techniques employed to limit disclosure are discussed at www.census.gov/epcd/ec02/disclosure.htm.

The disclosure analysis for "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. Nonetheless, the suppressed data are included in higher-level totals.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county, and Statistics of U.S. Businesses provides annual statistics classified by the employment size of the enterprise, further classified by industry for the United States, and by broader categories for states and metropolitan areas.

CONTACTS FOR DATA USERS

Questions about these data may be directed to the U.S. Census Bureau, Manufacturing & Construction Division, Information Services Center, 301-763-4673 or ask.census.gov.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with these 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
S	Withheld because estimates did not meet publication standards
X	Not applicable
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
nsk	Not specified by kind
-	Represents zero (page image/print only)
(CC)	Consolidated city
(IC)	Independent city

Table 1. Industry Statistics for the State or Offshore Areas: 2002

[Offshore areas refer to those areas not associated with a state. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

NAICS code	Geographic area and industry	E ¹	All establishments ²		All employees		Production, development, and exploration workers			Value added (\$1,000)	Total cost of supplies (\$1,000)	Total value of shipments and receipts for services (\$1,000)	Capital expenditures (\$1,000)
			Total	With 20 employees or more	For pay period including March 12 ³	Annual payroll (\$1,000)	For pay period including March 12	Annual hours (1,000)	Annual wages (\$1,000)				
21	MICHIGAN												
	Mining	2	446	76	5 747	257 997	4 551	8 658	201 421	967 604	604 761	1 427 350	145 015
211	Oil and gas extraction	3	99	19	1 082	49 283	728	1 264	31 630	352 928	147 824	427 758	72 994
2111	Oil and gas extraction . . .	3	99	19	1 082	49 283	728	1 264	31 630	352 928	147 824	427 758	72 994
21111	Oil and gas extraction .	3	99	19	1 082	49 283	728	1 264	31 630	352 928	147 824	427 758	72 994
211111	Crude petroleum and natural gas extraction	4	88	16	926	41 363	586	970	24 431	339 964	87 977	360 879	67 062
211112	Natural gas liquid extraction	1	11	3	156	7 920	142	294	7 199	12 964	59 847	66 879	5 932
212	Mining (except oil and gas)	1	203	31	3 189	156 913	2 723	5 252	131 342	446 474	417 508	830 609	33 373
2122	Metal ore mining	-	6	2	g	D	D	D	D	D	D	D	563
21221	Iron ore mining	-	5	2	g	D	D	D	D	D	D	D	D
212210	Iron ore mining	-	5	2	g	D	D	D	D	D	D	D	D
21223	Copper, nickel, lead, and zinc mining	9	1	-	a	D	D	D	D	D	D	D	D
212234	Copper ore and nickel ore mining	9	1	-	a	D	D	D	D	D	D	D	D
2123	Nonmetallic mineral mining and quarrying	2	197	29	g	D	D	D	D	D	D	D	32 810
21231	Stone mining and quarrying	2	29	11	f	D	D	D	D	D	D	D	12 085
212311	Dimension stone mining and quarrying	4	2	-	b	D	D	D	D	D	D	D	D
212312	Crushed and broken limestone mining and quarrying	2	21	11	655	30 402	558	1 261	25 473	103 477	50 169	141 804	11 842
212319	Other crushed and broken stone mining and quarrying	1	6	-	25	960	21	47	809	4 456	D	5 546	D
21232	Sand, gravel, clay, and ceramic, and refractory minerals mining and quarrying	2	159	13	1 163	49 961	893	1 772	34 646	160 939	67 836	210 983	17 792
212321	Construction sand and gravel mining	2	149	9	979	42 990	744	1 462	29 607	133 718	57 190	174 809	16 099
212322	Industrial sand mining	-	7	3	c	D	D	D	D	D	D	D	D
212325	Clay and ceramic and refractory minerals mining	9	3	1	b	D	D	D	D	D	D	D	D
21239	Other nonmetallic mineral mining and quarrying	-	9	5	c	D	D	D	D	D	D	D	2 933
212393	Other chemical and fertilizer mineral mining	-	1	1	b	D	D	D	D	D	D	D	D
212399	All other nonmetallic mineral mining	-	8	4	c	D	D	D	D	D	D	D	D
213	Support activities for mining	6	144	26	1 476	51 801	1 100	2 142	38 449	168 202	39 429	168 983	38 648
2131	Support activities for mining	6	144	26	1 476	51 801	1 100	2 142	38 449	168 202	39 429	168 983	38 648
21311	Support activities for mining	6	144	26	1 476	51 801	1 100	2 142	38 449	168 202	39 429	168 983	38 648
213111	Drilling oil and gas wells	7	41	8	429	17 036	348	687	12 408	82 558	16 043	70 732	27 869
213112	Support activities for oil and gas operations	6	94	18	1 005	33 010	721	1 389	24 724	81 464	20 647	92 289	9 822
213113	Support activities for coal mining	9	3	-	a	D	D	D	D	D	D	D	22
213114	Support activities for metal mining	9	3	-	a	D	D	D	D	D	D	D	D
213115	Support activities for nonmetallic minerals (except fuels) mining	2	3	-	28	1 311	21	49	990	3 185	D	4 691	D

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.

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

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 2. Detailed Statistics for the State or Offshore Areas: 2002

[Offshore areas refer to those areas not associated with a state. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
MICHIGAN	
Companies ¹	402
All establishments ²	446
Establishments with 0 to 19 employees	370
Establishments with 20 to 99 employees	70
Establishments with 100 employees or more	6
All employees for pay period including March 12	5 747
Total compensation	\$1,000.. 332 719
Annual payroll	\$1,000.. 257 997
Annual fringe benefits not included in payroll	\$1,000.. 74 722
Production, development, and exploration workers for pay period including March 12	4 551
Production, development, and exploration worker annual hours	1,000.. 8 658
Production, development, and exploration worker annual wages	\$1,000.. 201 421
Total cost of supplies	\$1,000.. 604 761
Supplies used, minerals received, and purchased machinery installed	\$1,000.. 409 359
Resales	\$1,000.. 15 254
Purchased fuels consumed	\$1,000.. 46 583
Purchased electricity	\$1,000.. 76 518
Contract work	\$1,000.. 57 047
Quantity of electricity purchased	1,000 kWh.. 2 356 226
Quantity of electricity generated less sold	1,000 kWh.. -
Total other expenses	\$1,000.. 58 193
Response coverage ratio ³	percent.. 38
Communications services	\$1,000.. 1 908
Legal services	\$1,000.. 1 240
Accounting, auditing, and bookkeeping services	\$1,000.. 1 075
Advertising and promotional services	\$1,000.. 465
All other expenses (not included above)	\$1,000.. 53 505
Total value of shipments and receipts for services	\$1,000.. 1 427 350
Value of resales	\$1,000.. 17 627
Value added	\$1,000.. 967 604
Total inventories, end of 2001	\$1,000.. 142 175
Mineral products, crude petroleum, and natural gas liquids inventories	\$1,000.. 69 956
Supplies, parts, fuels, etc., inventories	\$1,000.. 72 219
Total inventories, end of 2002	\$1,000.. 113 938
Mineral products, crude petroleum, and natural gas liquids inventories	\$1,000.. 49 790
Supplies, parts, fuels, etc., inventories	\$1,000.. 64 148
Capital expenditures (except land and mineral rights)	\$1,000.. 145 015
Capital expenditures for buildings, structures, machinery, and equipment (new and used)	\$1,000.. 110 779
Capital expenditures for mineral exploration and development ⁴	\$1,000.. 34 236
Capital expenditures for mineral land and rights ⁵	\$1,000.. D
Total rental payments during year	\$1,000.. 48 071
Buildings and other structures	\$1,000.. 6 335
Machinery and equipment	\$1,000.. 41 736

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

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

³A response coverage ratio is derived for this item by calculating the ratio of the employment for those establishments that reported this item to the total employment for all establishments classified in this industry.

⁴Excludes data for support activities for mining subsector and natural gas liquid extraction industries where data were not collected.

⁵Excludes data for support activities for mining subsector and oil and gas extraction industries where data were not collected.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 3. Industry Statistics by Type of Operation for the State or Offshore Areas: 2002

[Offshore areas refer to those areas not associated with a state. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Geographic area and type of operation	All establishments ¹		All employees		Production, development, and exploration workers			Value added (\$1,000)	Total value of shipments and receipts for services (\$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)		
MICHIGAN									
Sector 21, Mining									
All establishments	446	76	5 747	257 997	4 551	8 658	201 421	967 604	1 427 350
Producing establishments	443	75	5 721	256 994	4 533	8 633	200 781	D	1 427 350
Mines or wells only	108	17	1 089	46 363	720	1 209	28 420	355 276	380 291
Underground mines	—	—	—	—	—	—	—	—	—
Open-pit mines	21	2	183	5 766	148	257	4 442	15 312	19 412
Combination mines, well operations, or other types of mines	87	15	906	40 597	572	952	23 978	339 964	360 879
Mines with preparation plants	84	25	2 614	134 281	2 257	4 352	113 768	368 097	732 729
Underground mines	1	1	b	D	D	D	D	D	D
Open-pit mines	82	24	h	D	D	D	D	D	D
Combination mines or other types of mines	1	—	a	D	D	D	D	D	D
Separately operated preparation plants	9	3	150	7 683	138	287	7 012	D	66 879
Undistributed ²	242	30	1 868	68 667	1 418	2 785	51 581	231 267	247 451
Nonproducing establishments	3	1	26	1 003	18	25	640	D	—

¹Includes establishments with payroll at any time during the year.

²Includes data for establishments that were not possible to classify based on information available.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Appendix A.

Explanation of Terms

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 (FIFO, LIFO, market, to name a few). 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, crude petroleum, and natural gas liquids, and (2) supplies, parts, fuels, etc., were collected.

CAPITAL EXPENDITURES

This item includes permanent additions and major alterations as well as new and used machinery and equipment used for replacement and additions to plant 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. In addition, these data include expenditures made during the year for development and exploration of mineral properties. Excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses and capital expenditures for mineral land and rights. 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.

PURCHASED SERVICES

Included in the cost of purchased services for communication is the actual expense incurred or payable during the year for any type of communication. Such types of communication include telephone, data transmission, telegraph, Internet, connectivity, FAX, telex, photo transmission, paging, cellular telephone, online access and related services, etc.

Included in the cost of selected purchased services for legal services are payments made to other companies for these services that were paid directly by the establishment. Excluded are the salaries paid to employees of the establishment for these services.

Included in the cost of selected accounting, auditing, and bookkeeping services are payments made to other companies for these services that were paid directly by the establishment. Excluded are the salaries paid to employees of this establishment for these services.

Included in the cost of selected advertising and promotional services are payments made to other companies for these services that were paid directly by the establishment. These include payments for printing, media coverage, and other advertising services and materials. Excluded are the salaries paid to employees of this establishment for these services.

Included in the all other expenses are payments made to other companies for services not included in communication, legal, accounting, auditing, bookkeeping, and advertising and promotional services previously mentioned that were paid directly by the establishment. Excluded are the salaries paid to employees of this establishment for these services.

Response coverage ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is derived by calculating the ratio of the employment for those establishments that reported this item to the total employment for all establishments classified in this industry.

COST OF SUPPLIES

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 that were important parts of the cost of production, exploration, and development of a particular industry. Also included are all new and used machinery, equipment, and parts installed whether purchased or received from other establishments of the same company.
2. Cost of products bought and sold in the same condition.
3. Cost of purchased fuels consumed for heat, power, or the generation of electricity. Includes the cost of fuels 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.

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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 that 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.

EXPENSED MINERAL EXPLORATION, DEVELOPMENT, LAND AND RIGHTS

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 that 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.

NUMBER OF EMPLOYEES

These individuals consist of all full-time and part-time employees on the payrolls of establishments during any part of the pay period including 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; not included are proprietors and partners of unincorporated firms.

The “all employees” number is the number of production, development, and exploration workers plus the number of all other employees on the payrolls of establishments during any part of the pay period including the 12th of March.

The “production, development, and exploration workers” number 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 plants), 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 and those of contractors are excluded from this item.

The “other employees” number covers nonproduction employees of the mining establishment including those engaged in the following activities: supervision above the working-supervisor level, sales, highway trucking or other transportation (by employees not entering mines or pits), advertising, credit, collection, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), and professional (engineers, geologists, etc.) and technical work. 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. Employees of contractors are excluded from this item.

TOTAL FRINGE BENEFITS

This item is the employer’s costs for social security tax, unemployment tax, workmen’s compensation insurance, state disability insurance pension plans, stock purchase plans, union-negotiated benefits, life insurance premiums, and insurance premiums on hospital and medical plans for employees.

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, deferred profit-sharing plans, and payments made directly to retired employees or their survivors that do not pass through a fund. They exclude such items as losses on company-operated cafeterias and snack bars, cost of in-plant medical services, cost of free parking lots, discounts on employee purchases, cost of uniforms and other work clothing supplied to employees and similar expenditures, and wages and salaries reported in payroll (holidays, vacations, sick pay, bonuses, jury pay, costs for training, and partially subsidized housing and safety).

GROSS BOOK 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.

It shows the value of depreciable and/or depletable assets for the beginning of year (BOY) and end of year (EOY). 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.

COMPANY

A company or "enterprise" is comprised of all the establishments that operate under the ownership or control of a single organization. A company may be a business, service, or membership organization; consist of one or several establishments; and operate at one or several locations. It includes all subsidiary organizations, all establishments that are majority-owned by the company or any subsidiary, and all the establishments that can be directed or managed by the company or any subsidiary.

A company may have one or many establishments. Examples include product and service sales offices (retail and wholesale), industrial production plants, processing or assembly operations, mines or well sites, and support operations (such as an administrative office, warehouse, customer service center, or regional headquarters). Each establishment should receive, complete, and return a separate census form.

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 mining at the same location, a separate report was requested for each activity.

Establishment

An establishment is a single physical location where business is conducted or where services or industrial operations are performed. Data in this sector includes those establishments where mineral operations are performed. A separate report was required for each mining establishment of firms with one employee or more that was in operation at any time during the year.

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.

For the crude petroleum and support activities for mining industries, the basis for reporting is different from the establishments' 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 operation 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.

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit 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.

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. Since the 1997 census programs, information is collected on the output of almost 10,000 individual product items.

In the mining sector for 2002, there are 3 subsectors (three-digit NAICS), 5 industry groups (four-digit NAICS), 10 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 29 U.S. industries (six-digit NAICS). Product classes and products of the mining industries have been assigned codes based on the industry from which they originate. There are 63 product classes (seven-digit codes) and 136 ten-digit product codes. The ten-digit products are considered the primary products of the industry with the same first six digits.

For the 2002 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 for services, etc.) reflect the activities of the establishments that 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 for services, to the product statistics, the composition of the industry's output should be considered.

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 1997 information is presented for most products.

Typically, both quantity and value of shipments and receipts for services information were collected. However, if quantity was not significant or could not be reported by mining establishments, only value of shipments and receipts for services 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 all 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 when the employee was not at the establishment. Excluded are hours worked by employees of contractors and hours of proprietors or partners.

QUANTITY OF ELECTRICITY PURCHASED 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, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets.

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

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 for services (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 for services 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.

TOTAL VALUE OF SHIPMENTS AND RECEIPTS FOR SERVICES

Includes the net selling values, “Free on Board” (FOB) 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 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 for services:

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 — includes repair work, installation, sales of scrap, etc.

Industry primary product value of shipments and receipts for services represents one of three components of value of shipments and receipts for services. These components are:

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

An establishment is classified in a particular NAICS industry when its shipments of a particular group of products exceed in value its shipments of products classified in any other single industry.

An establishment's value of shipments and receipts for services 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 for services

The aggregate of the cost of supplies, etc., and value of shipments and receipts for services 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

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 (except mine site preparation and construction of oil/gas pipelines).

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 natural gas; 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, sulfur recovery from 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, mine site preparation, and construction of oil/gas pipelines) are classified in Subsector 213, Support Activities for Mining.

2111 OIL AND GAS EXTRACTION

This industry group 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 natural gas; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. This industry group includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, the production of natural gas, sulfur recovery from natural gas, and the recovery of hydrocarbon liquids from oil and gas field gases. Establishments in this industry group also operate oil and gas wells on their own account or for others on a contract or fee basis.

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 natural gas; 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, sulfur recovery from 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.

211111 CRUDE PETROLEUM AND NATURAL GAS EXTRACTION

This U.S. industry group comprises establishments primarily engaged in the following:

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.

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.

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 industry group 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).

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 of bituminous coal and lignite;
2. developing bituminous coal and lignite surface mine sites;
3. surface mining and beneficiating (e.g., cleaning, washing, screening, and sizing coal) of bituminous coal; or
4. beneficiating (e.g., cleaning, washing, screening, and sizing coal), but not mining, bituminous coal.

212112 BITUMINOUS COAL UNDERGROUND MINING

This U.S. industry comprises establishments primarily engaged in one or more of the following:

1. underground mining of bituminous coal;
2. developing bituminous coal underground mine sites; and
3. underground mining and beneficiating of bituminous coal (e.g., cleaning, washing, screening, and sizing coal).

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 mine sites; and
3. beneficiating anthracite coal (e.g., cleaning, washing, screening, and sizing coal).

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 the following:

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.

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.

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.

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.

212234 COPPER ORE AND NICKEL ORE MINING

This U.S. industry comprises establishments primarily engaged in:

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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.

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 manganese ores valued for their iron content, gold ore, silver ore, copper, nickel, lead, and zinc ore).

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.

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).

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 establishments primarily engaged in the following:

1. 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. 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).

212312 CRUSHED AND BROKEN LIMESTONE MINING AND QUARRYING

This U.S. industry comprises establishments primarily engaged in:

1. 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

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2. beneficiating limestone (e.g., grinding or pulverizing).

212313 CRUSHED AND BROKEN GRANITE MINING AND QUARRYING

This U.S. industry comprises establishments primarily engaged in:

1. developing the mine site, and/or mining or quarrying crushed and broken granite (including related rocks, such as gneiss, syenite, and diorite); and
2. beneficiating granite (e.g., grinding or pulverizing).

212319 OTHER CRUSHED AND BROKEN STONE MINING AND QUARRYING

This U.S. industry comprises establishments primarily engaged in the following:

1. developing the mine site and/or mining or quarrying crushed and broken stone (except limestone and granite);
2. beneficiating (e.g., grinding and pulverizing) stone (except limestone and granite); and
3. mining or quarrying bituminous limestone and bituminous sandstone.

21232 SAND, GRAVEL, CLAY, AND CERAMIC AND REFRACTORY MINERALS MINING AND QUARRYING

This industry group comprises establishments primarily engaged in the following:

1. 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.

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;
3. washing, screening, or otherwise preparing industrial grade sand.

212324 KAOLIN AND BALL CLAY MINING

This U.S. industry comprises establishments primarily engaged in:

1. developing the mine site and/or mining kaolin or ball clay (e.g., china clay, paper clay, and slip clay) and
2. beneficiating (i.e., preparing) kaolin or ball clay.

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;

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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.

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.

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.

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).

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, and chemical and fertilizer minerals).

213 SUPPORT ACTIVITIES FOR MINING

Industries in the Support Activities for Mining subsector group establishments primarily providing support services, on a contract or fee 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 contract or fee 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, excavating slush pits and cellars, and such oil and gas operations as spudding in, drilling in, re-drilling, directional drilling, 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 industry group comprises establishments primarily engaged in providing support services, on a contract or fee 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 contract or fee basis, is included in this industry.

21311 SUPPORT ACTIVITIES FOR MINING

This industry comprises establishments primarily engaged in providing support services, on a contract or fee 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 contract or fee 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.

213112 SUPPORT ACTIVITIES FOR OIL AND GAS OPERATIONS

This U.S. industry comprises establishments primarily engaged in performing support activities on a contract or fee basis for oil and gas operations (except site preparation and related construction activities). Services included are exploration (except geophysical surveying and mapping); excavating slush pits and cellars; 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.

213113 SUPPORT ACTIVITIES FOR COAL MINING

This U.S. industry comprises establishments primarily engaged in providing support activities for coal mining (except site preparation and related construction activities) on a contract or fee basis. 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.

213114 SUPPORT ACTIVITIES FOR METAL MINING

This U.S. industry comprises establishments primarily engaged in providing support activities (except site preparation and related construction activities) on a contract or fee basis for the mining and quarrying of metallic minerals and for the extraction of metal ores. 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.

213115 SUPPORT ACTIVITIES FOR NONMETALLIC MINERALS (EXCEPT FUELS) MINING

This U.S. industry comprises establishments primarily engaged in providing support activities, on a fee or contract basis, for the mining and quarrying of nonmetallic minerals (except fuel) and for the extraction of nonmetallic minerals (except site preparation and related construction activities). 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.

Appendix C.

Methodology

SOURCES OF THE DATA

The mining sector includes approximately 25,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of mining. The amount of information requested from mining establishments was dependent upon a number of factors. The more important consideration was the size of the company.

Establishments in the 2002 Economic Census are divided into those sent report forms and those not sent report forms. The coverage of and the method of obtaining census information from each are described below:

1. Establishments sent a report form:

- 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 15 economic census — mining regular forms. The first seven 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.
- 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 “not specified by kind” (nsk) categories.

2. Establishments not sent a report form:

- a. 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 the Census Bureau’s ability to assign the correct six-digit NAICS industry classification to the establishment. For each six-digit NAICS industry code, an annual payroll cutoff 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 that requested information for assigning NAICS industry codes. Establishments below the cutoff 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 that 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 six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between mining and nonmining activity.

Sometimes the administrative-record cases had only two- or three-digit NAICS group classification codes available in the files. For 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 “All other,” 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.

- b. All nonemployers, i.e., all firms subject to federal income tax, with no paid employees, during 2002 are excluded as in previous censuses. Data for nonemployers are not included in this report, but are released in the annual *Nonemployer Statistics* series.

The report forms used to collect information for establishments in this sector are available at help.econ.census.gov/econhelp/resources/.

A more detailed examination of census methodology is presented in the *History of the Economic Census* at www.census.gov/econ/www/history.html.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

The classifications for all establishments covered in the 2002 Economic Census — Mining are classified in 1 of 29 industries in accordance with the industry definitions in the *North American Industry Classification System, (NAICS), United States, 2002* manual. Changes between 1997 and 2002 affecting this sector are discussed in the text at the beginning of this report. Tables at www.census.gov/epcd/naics02/ identify those industries that changed between the 1997 North American Industry Classification System (NAICS) and 2002 NAICS. When applicable, Appendix F of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar 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 2002, there are 3 subsectors (three-digit NAICS), 5 industry groups (four-digit NAICS), 10 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 29 U.S. industries (six-digit NAICS). Product classes and products of the mining industries have been assigned codes based on the industry from which they originate. There are 63 product classes (seven-digit codes) and 136 ten-digit product codes. The ten-digit products are considered the primary products of the industry with the same first six digits.

For the 2002 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 that 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 2002 Economic Census — Mining covers each mining establishment of firms with one or more paid employees operating in the United States. A company operating at 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, 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 2002 figures for establishments include the summation of operations for each state allocated from these nationwide reports.

In 2002, as in prior 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 2002 Economic Census — Mining excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service mining establishments of the same company. These data are published in a separate report series.

RELIABILITY OF DATA

All data compiled in the economic census are subject to nonsampling errors. Nonsampling errors can be attributed to many sources during the development or execution of the census:

- inability to identify all cases in the actual universe;
- definition and classification difficulties;

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- differences in the interpretation of questions;
 - errors in recording or coding the data obtained; and
 - other errors of collection, response, coverage, processing, and estimation for missing or misreported data.

The Census Bureau obtains limited information extracted from administrative records of other federal agencies, such as gross receipts from federal income tax records and employment and payroll from payroll tax records. This information is used in conjunction with other information available to the Census Bureau to develop estimates for nonemployers, small employers, and other establishments for which responses were not received in time for publication.

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 2002 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.

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 in a specific industry or geographic area is not considered a disclosure; therefore, this information may be released even though other information is withheld. Techniques employed to limit disclosure are discussed at www.census.gov/epcd/ec02/disclosure.htm.

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. Nonetheless, the suppressed data are included in higher-level totals.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan and Micropolitan Statistical Areas

Not applicable for this report.

