

Dog and Cat Food Manufacturing: 2002

Issued December 2004

EC02-311-311111 (RV)

2002 Economic Census

Manufacturing

Industry 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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Manufacturing

SCOPE

The Manufacturing sector (sector 31-33) comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. The assembling of component parts of manufactured products is considered manufacturing, except in cases where the activity is appropriately classified in Sector 23, Construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and characteristically use power-driven machines and materials-handling equipment. However, establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores, and custom tailors, may also be included in this sector. Manufacturing establishments may process materials or may contract with other establishments to process their materials for them. Both types of establishments are included in manufacturing.

The materials, substances, or components transformed by manufacturing establishments are raw materials that are products of agriculture, forestry, fishing, mining, or quarrying, as well as products of other manufacturing establishments. The materials used may be purchased directly from producers, obtained through customary trade channels, or secured without recourse to the market by transferring the product from one establishment to another, under the same ownership. The new product of a manufacturing establishment may be finished in the sense that it is ready for utilization or consumption, or it may be semifinished to become an input for an establishment engaged in further manufacturing. For example, the product of the alumina refinery is the input used in the primary production of aluminum; primary aluminum is the input to an aluminum wire drawing plant; and aluminum wire is the input for a fabricated wire product manufacturing establishment.

The subsectors in the manufacturing sector generally reflect distinct production processes related to material inputs, production equipment, and employee skills. In the machinery area, where assembling is a key activity, parts and accessories for manufactured products are classified in the industry of the finished manufactured item when they are made for separate sale. For example, a replacement refrigerator door would be classified with refrigerators and an attachment for a piece of metal working machinery would be classified with metal working machinery. However, components, input from other manufacturing establishments, are classified based on the production function of the component manufacturer. For example, electronic components are classified in Subsector 334, Computer and Electronic Product Manufacturing; and stampings are classified in Subsector 332, Fabricated Metal Product Manufacturing.

Manufacturing establishments often perform one or more activities that are classified outside the manufacturing sector of NAICS. For instance, almost all manufacturing has some captive research and development or administrative operations, such as accounting, payroll, or management. These captive services are treated the same as captive manufacturing activities. When the services are provided by separate establishments, they are classified to the NAICS sector where such services are primary, not in manufacturing.

The boundaries of manufacturing and the other sectors of the classification system can be somewhat blurry. The establishments in the manufacturing sector are engaged in the transformation of materials into new products. Their output is a new product. However, the definition of what constitutes a new product can be somewhat subjective. As clarification, the following activities are

considered manufacturing in NAICS: milk bottling and pasteurizing; water bottling and processing; fresh fish packaging (oyster shucking, fish filleting); apparel jobbing (assigning of materials to contract factories or shops for fabrication or other contract operations); as well as contracting on materials owned by others; printing and related activities; ready-mixed concrete production; leather converting; grinding of lenses to prescription; wood preserving; electroplating, plating, metal heat treating, and polishing for the trade; lapidary work for the trade; fabricating signs and advertising displays; rebuilding or remanufacturing machinery (i.e., automotive parts); ship repair and renovation; machine shops; and tire retreading.

Exclusions. There are activities that are sometimes considered manufacturing, but for NAICS are classified in another sector. These activities include logging, classified in Sector 11, Agriculture, Forestry, Fishing and Hunting is considered a harvesting operation; the beneficiating of ores and other minerals, classified in Sector 21, Mining, is considered part of the activity of mining; the construction of structures and fabricating operations performed at the site of construction by contractors, is classified in Sector 23, Construction; establishments engaged in breaking of bulk and redistribution in smaller lots, including packaging, repackaging, or bottling products, such as liquors or chemicals; the customized assembly of computers; sorting of scrap; mixing paints to customer order; and cutting metals to customer order, classified in Sector 42, Wholesale Trade or Sector 44-45, Retail Trade, produce a modified version of the same product, not a new product; and publishing and the combined activity of publishing and printing, classified in Sector 51, Information, perform the transformation of information into a product where as the value of the product to the consumer lies in the information content, not in the format in which it is distributed (i.e., the book or software diskette).

The tabulations for this sector do not include central administrative offices, warehouses, or other establishments that serve manufacturing 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 small for this sector, may be examined at www.census.gov/nonemployerimpact.

The reports described below cover all manufacturing 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 473 reports, each covering a single NAICS industry (six-digit code). These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, 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 51 separate reports, one for each state and the District of Columbia. Each state report presents similar statistics at the “all manufacturing” level for each state and its metropolitan and micropolitan areas with 250 employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

Subject Series:

x Manufacturing

2002 Economic Census

- **Industry-Product Analysis Summary.** This report presents value of shipments, value of product shipments, percentage of product shipments of the total value of shipments, and percentage of distribution of value of product shipments 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. This report also includes a table with data for products that are primary to more than one industry, which are not in the industry reports.
- **Materials Summary.** This report summarizes the materials data published in the industry reports.
- **Concentration Ratio Summary.** This report publishes data on the percentage of value of shipments and value added accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Herfindahl-Herschmann indexes for each industry.
- **Location of Manufacturing Plants Summary.** This report contains statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

ZIP Code Statistics. This report contains statistics on the number of establishments for the three- and six-digit NAICS industry by employment-size of the establishment by ZIP Code.

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

The level of geographic detail varies by report. Maps are available at www.census.gov/econ2002maps. Notes specific to areas in the state are included in Appendix D, Geographic Notes.

1. The United States as a whole.
2. States and the District of Columbia.
3. Metropolitan and micropolitan statistical areas with 250 employees or more. A core based statistical areas (CBSA) contains a core area with a substantial population nucleus, together with adjacent communities having a high degree of social and economic integration with that core. CBSAs are differentiated into metropolitan and micropolitan statistical areas based on size criteria. Both metropolitan and micropolitan areas are defined in terms of entire counties, and are listed in Appendix E, Metropolitan and Micropolitan Statistical Areas.
 - a. Metropolitan Statistical Areas (metro areas). Metro areas have at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.
 - b. Micropolitan Statistical Areas (micro areas). Micro areas have at least one urban cluster of at least 10,000 but less than 50,000 population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.
 - c. Metropolitan Divisions (metro divisions). If specified criteria are met, a metro area containing a single core with a population of 2.5 million or more may be subdivided to form smaller groupings of counties referred to as Metropolitan Divisions.

-
- d. Combined Statistical Areas (combined areas). If specified criteria are met, adjacent metro and micro areas, in various combinations, may become the components of a new set of areas called Combined Statistical Areas. The areas that combine retain their own designations as metro or micro areas within the larger combined area.
4. Counties and county equivalents defined as of January 1, 2002, with 500 employees or more. Counties are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs, census areas, and city and boroughs. Maryland, Missouri, Nevada, and Virginia have one place or more that is independent of any county organization and constitutes primary divisions of their states. These places are treated as counties and as places.
 5. Economic places with 500 employees or more.
 - a. Municipalities of 2,500 inhabitants or more defined as of January 1, 2002. These are areas of significant population incorporated as cities, boroughs, villages, or towns according to the 2000 Census of Population. For the economic census, boroughs and census areas in Alaska and boroughs in New York are not included in this category.
 - b. Consolidated cities defined as of January 1, 2002. Consolidated cities are consolidated governments that consist of separately incorporated municipalities.
 - c. Townships in Michigan, New Jersey, and Pennsylvania, and towns in New York, Wisconsin, and the six New England states with 10,000 inhabitants or more (according to the 2000 Census of Population).
 - d. Balance of county. Areas outside the entities listed above, including incorporated municipalities with populations of fewer than 2,500, town and townships not qualifying as noted above, and the remainders of counties outside places are categorized as "Balance of county."

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). While there were revisions to selected industries for 2002, this sector is not affected by those revisions.

For 2002, there have been several additional data tables added, which did not exist in 1997. These tables for 2002 include products primary to more than one industry, industry-product analysis, e-commerce value of shipments, 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. Selected data in tables titled "Detailed Statistics" are based on the Annual Survey of Manufactures and are subject to sampling errors as well as nonsampling errors.

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. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. Nonetheless, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures, which can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 55,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data. In addition to the ASM, the Census Bureau conducts the Current Industrial Reports (CIR) program. The CIR program publishes selected detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) Program, which publishes detailed statistics for manufacturing industries at the U.S. level.

In addition, 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. Historical Statistics for the Industry: 2002 and Earlier Years

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year ¹	Com- panies ²	All estab- lish- ments ³	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)
			Number ⁴	Payroll (\$1,000)	Number ⁴	Hours (1,000)	Wages (\$1,000)				
311111, Dog and cat food manufacturing .. 2002..	175	242	14 453	635 016	11 019	23 419	436 732	5 924 702	4 786 688	10 662 237	'243 071
2001..	N	N	14 146	568 042	10 683	22 698	381 971	5 153 879	4 575 993	9 734 935	287 022
2000..	N	N	14 766	583 793	11 512	25 134	390 032	4 283 007	4 471 446	8 751 420	337 444
1999..	N	N	14 219	557 523	11 013	23 982	380 321	4 249 708	4 324 871	8 559 564	246 382
1998..	N	N	14 088	528 068	10 824	23 958	370 073	4 396 812	4 548 587	8 967 129	211 127
1997..	129	187	13 979	502 207	10 587	23 431	345 400	4 307 078	4 402 139	8 688 239	261 079

¹Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during the year.

⁴Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and 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. Industry Statistics for Selected States: 2002

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by *, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	All establishments ²			All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
	E ¹	Total	With 20 employees or more	Number ³	Payroll (\$1,000)	Number ³	Hours (1,000)	Wages (\$1,000)				
311111, Dog and cat food manufacturing												
United States.....	—	242	116	14 453	635 016	11 019	23 419	436 732	5 924 702	4 786 688	10 662 237	[†] 243 071
California.....	3	31	10	1 189	68 489	785	1 638	45 606	541 242	406 412	983 983	[†] 26 281
Georgia.....	—	7	4	460	21 095	350	566	14 304	245 412	236 513	466 270	[†] 9 259
Illinois.....	—	13	2	310	15 884	230	536	10 516	152 412	59 868	212 183	[†] 6 235
Indiana.....	—	7	4	512	19 553	402	819	12 579	276 517	147 064	423 130	[†] 4 723
Kansas.....	—	12	9	1 082	44 350	906	1 748	34 557	267 151	271 536	538 188	[†] 17 181
Missouri.....	1	15	12	1 262	52 571	945	2 117	33 567	273 457	408 890	683 379	[†] 12 247
Nebraska.....	—	7	4	658	24 425	518	1 092	17 260	152 709	206 055	359 747	[†] 6 434
New York.....	—	7	5	642	28 100	500	1 050	19 548	399 405	253 111	648 529	[†] 15 543
Ohio.....	—	10	8	1 347	71 785	1 113	2 533	57 012	498 405	344 857	841 069	[†] 28 643
Pennsylvania.....	—	12	8	1 434	56 228	1 096	2 235	36 659	406 812	437 522	827 061	[†] 15 865
Texas.....	1	12	6	501	15 956	410	827	11 302	112 285	117 628	227 093	[†] 3 976
Virginia.....	—	5	2	163	5 553	142	304	4 261	23 159	37 435	60 511	[†] 1 503

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 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 with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

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. For geographical definitions, see Appendix D.

Table 3. Detailed Statistics by Industry: 2002

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
311111, Dog and cat food manufacturing	
Companies ¹	number.. 175
All establishments ²	number.. 242
Establishments with 1 to 19 employees.....	number.. 126
Establishments with 20 to 99 employees.....	number.. 66
Establishments with 100 employees or more.....	number.. 50
All employees ³	number.. 14 453
Total compensation.....	\$1,000.. 842 246
Annual payroll.....	\$1,000.. 635 016
Total fringe benefits.....	\$1,000.. 207 230
Production workers, average for year.....	number.. 11 019
Production workers on March 12.....	number.. 11 009
Production workers on May 12.....	number.. 11 048
Production workers on August 12.....	number.. 10 987
Production workers on November 12.....	number.. 10 995
Production worker hours.....	1,000.. 23 419
Production worker wages.....	\$1,000.. 436 732
Total cost of materials.....	\$1,000.. 4 786 688
Materials, parts, containers, packaging, etc., used.....	\$1,000.. 3 754 871
Resales.....	\$1,000.. 866 226
Purchased fuels.....	\$1,000.. 68 344
Purchased electricity.....	\$1,000.. 66 630
Contract work.....	\$1,000.. 30 617
Quantity of electricity purchased for heat and power.....	1,000 kWh.. 1 298 257
Quantity of electricity generated less sold for heat and power.....	1,000 kWh.. -
Total value of shipments.....	\$1,000.. 10 662 237
Primary products value of shipments.....	\$1,000.. 9 668 875
Secondary products value of shipments.....	\$1,000.. 30 808
Total miscellaneous receipts.....	\$1,000.. 962 554
Value of resales.....	\$1,000.. 930 716
Contract receipts.....	\$1,000.. D
Other miscellaneous receipts.....	\$1,000.. D
Primary products specialization ratio.....	percent.. 100
Value of primary products shipments made in all industries.....	\$1,000.. 9 774 467
Value of primary products shipments made in this industry.....	\$1,000.. 9 668 875
Value of primary products shipments made in other industries.....	\$1,000.. 105 592
Coverage ratio.....	percent.. 99
Value added.....	\$1,000.. 5 924 702
Total inventories, beginning of year.....	\$1,000.. 390 079
Finished goods inventories.....	\$1,000.. 186 035
Work-in-process inventories.....	\$1,000.. 11 965
Materials and supplies inventories.....	\$1,000.. 192 079
Total inventories, end of year.....	\$1,000.. 459 731
Finished goods inventories.....	\$1,000.. 235 796
Work-in-process inventories.....	\$1,000.. 11 357
Materials and supplies inventories.....	\$1,000.. 212 578
Gross value of depreciable assets (acquisition costs) at beginning of year.....	\$1,000.. 3 352 016
Total capital expenditures (new and used).....	\$1,000.. '243 071
Buildings and other structures (new and used).....	\$1,000.. '55 723
Machinery and equipment (new and used).....	\$1,000.. '187 348
Automobiles, trucks, etc., for highway use.....	\$1,000.. '4 112
Computers and peripheral data processing equipment.....	\$1,000.. '8 185
All other expenditures for machinery and equipment.....	\$1,000.. '175 051
Total retirements.....	\$1,000.. '222 690
Gross value of depreciable assets at end of year.....	\$1,000.. '3 372 397
Depreciation charges during year.....	\$1,000.. '222 989
Total rental payments.....	\$1,000.. 53 848
Buildings and other structures.....	\$1,000.. 28 699
Machinery and equipment.....	\$1,000.. 25 149
Total other expenses ⁴	\$1,000.. 351 264
Response coverage ratio ⁵	percent.. 84
Repair and maintenance services of buildings and/or machinery ⁴	\$1,000.. 54 927
Communications services ⁴	\$1,000.. 4 622
Legal services ⁴	\$1,000.. 1 353
Accounting, auditing, and bookkeeping services ⁴	\$1,000.. 1 233
Advertising and promotional services ⁴	\$1,000.. 27 643
Expensed computer hardware and supplies and purchased computer services ⁴	\$1,000.. 3 086
Refuse removal (including hazardous waste) services ⁴	\$1,000.. 13 158
Management consulting and administrative services ⁴	\$1,000.. 35 648
Taxes and license fees ⁴	\$1,000.. 15 744
All other expenses ⁴	\$1,000.. 193 849

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.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

⁴Based on 2002 Annual Survey of Manufactures (ASM) sample data.

⁵A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

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 and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and 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 4. Industry Statistics by Employment Size: 2002

[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]

Employment size class	E ¹	All establishments ²	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number ³	Payroll (\$1,000)	Number ³	Hours (1,000)	Wages (\$1,000)				
311111, Dog and cat food manufacturing											
All establishments	—	242	14 453	635 016	11 019	23 419	436 732	5 924 702	4 786 688	10 662 237	'243 071
Establishments with—											
1 to 4 employees	9	82	c	D	D	D	D	D	D	D	D
5 to 9 employees	7	21	148	5 980	113	224	3 808	37 656	32 896	70 839	'1 109
10 to 19 employees	6	23	316	11 741	230	468	7 440	48 491	47 069	95 703	'1 735
20 to 49 employees	1	39	1 350	51 840	944	2 015	29 750	313 783	437 855	739 982	'12 415
50 to 99 employees	1	27	1 970	69 869	1 471	3 100	42 718	453 490	403 837	854 918	'26 361
100 to 249 employees	—	37	5 960	257 158	4 517	9 575	174 052	2 941 401	2 156 495	5 071 818	'105 965
250 to 499 employees	1	12	3 930	191 496	3 069	6 524	138 604	1 770 910	1 578 763	3 340 231	'80 363
500 to 999 employees	—	1	f	D	D	D	D	D	D	D	D
1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—
2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—
Administrative records ⁴	9	91	254	9 772	191	382	6 316	60 522	45 732	106 256	'1 884

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 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 with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

⁴Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

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 5. Industry Statistics by Primary Product Class Specialization: 2002

[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]

Industry or product class code	Industry or primary product class	All establishments ¹	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number ²	Payroll (\$1,000)	Number ²	Hours (1,000)	Wages (\$1,000)				
311111	Dog and cat food manufacturing	242	14 453	635 016	11 019	23 419	436 732	5 924 702	4 786 688	10 662 237	'243 071
3111111	Dog food	103	11 325	494 044	8 670	18 376	338 359	4 647 122	3 881 354	8 489 038	'201 858
3111114	Cat food	15	2 297	109 076	1 763	3 877	78 873	1 123 974	792 499	1 906 947	'36 658

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

²Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

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 6a. Products Statistics: 2002 and 1997

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. 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]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
311111	Dog and cat food manufacturing	2002.. N 1997.. N	X X	X X	9 774 467 8 183 172
3111111	Dog food	2002.. N 1997.. N	X X	X X	5 960 362 5 213 728
31111111	Canned dog food	2002.. N 1997.. N	X X	X X	1 344 280 1 155 943
311111111	Canned dog food, ration-type	2002.. 13 mil lb. 1997.. 11	X X	P279.8 217.3	106 089 77 672
3111111121	Canned dog food, other types	2002.. 17 mil lb. 1997.. 11	X X	S 2 175.7	1 238 191 1 078 271
31111112	Dry and semi moist dog food, shipped in packages less than 25 lb	2002.. N 1997.. N	X X	X X	2 001 250 1 795 231
3111111231	Dry and semi moist dog food, shipped in packages less than 25 lb	2002.. 42 mil lb. 1997.. 43	X X	4 940.7 4 701.6	2 001 250 1 795 231
31111113	Dry and semi moist dog food, shipped in packages 25 lb or more	2002.. N 1997.. N	X X	X X	2 598 115 2 200 345
3111111341	Dry and semi moist dog food, shipped in packages 25 lb or more	2002.. 52 mil lb. 1997.. 63	X X	P7 900.9 6 194.5	2 598 115 2 200 345
3111111Y	Dog food, nsk	2002.. N 1997.. N	X X	X X	16 717 62 209
3111111YWV	Dog food, nsk	2002.. N 1997.. N	X X	X X	16 717 62 209
3111114	Cat food	2002.. N 1997.. N	X X	X X	3 570 388 2 754 568
31111141	Canned cat food, fish-base	2002.. N 1997.. N	X X	X X	923 507 580 191
3111114111	Canned cat food, fish-base	2002.. 9 mil lb. 1997.. 7	X X	1 382.3 1 024.9	923 507 580 191
31111142	Canned cat food, meat-base or other	2002.. N 1997.. N	X X	X X	1 068 125 776 883
3111114221	Canned cat food, meat-base	2002.. 11 mil lb. 1997.. 11	X X	P1 170.8 P971.6	636 152 432 361
3111114231	Canned cat food, other (ration meat-base)	2002.. 9 mil lb. 1997.. 5	X X	P792.5 720.8	431 973 344 522
31111143	Cat food, dry or semi moist	2002.. N 1997.. N	X X	X X	1 547 900 1 352 833
3111114341	Cat food, dry	2002.. 36 mil lb. 1997.. 35	X X	3 019.2 D	D D
3111114351	Cat food, semi moist	2002.. 4 mil lb. 1997.. 6	X X	D D	D D
3111114Y	Cat food, nsk	2002.. N 1997.. N	X X	X X	30 856 44 661
3111114YWV	Cat food, nsk	2002.. N 1997.. N	X X	X X	30 856 44 661
311111W	Dog and cat food manufacturing, nsk, total	2002.. N 1997.. N	X X	X X	243 717 214 876
311111WY	Dog and cat food manufacturing, nsk, total	2002.. N 1997.. N	X X	X X	243 717 214 876
311111WYWW	Dog and cat food manufacturing, nsk, for nonadministrative-record establishments	2002.. N 1997.. N	X X	X X	141 488 95 001
311111WYWY	Dog and cat food, nsk manufacturing, for administrative-record establishments	2002.. N 1997.. N	X X	X X	102 229 119 875

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

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 6b. Product Class Shipments for Selected States: 2002 and 1997

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by *, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
3111111	Dog food		
	United States	2002.. 5 960 362 1997.. 5 213 728	
	California	2002.. 408 139 1997.. 449 265	
	Indiana	2002.. 318 242 1997.. 210 959	
	Kansas	2002.. 376 818 1997.. 335 356	
	Missouri	2002.. 297 515 1997.. 268 087	
	New York	2002.. 417 685 1997.. 388 786	
	Ohio	2002.. 704 055 1997.. 535 278	
	Pennsylvania	2002.. 405 071 1997.. 268 655	
	Texas	2002.. 120 470 1997.. 147 844	
	3111114	Cat food	
		United States	2002.. 3 570 388 1997.. 2 754 568
		California	2002.. 518 544 1997.. 367 943
Kansas		2002.. 119 641 1997.. 59 764	
Missouri		2002.. 366 614 1997.. 253 694	
Ohio		2002.. 122 963 1997.. 206 538	

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. For geographical definitions, see Appendix D.

Table 7. Materials Consumed by Kind: 2002 and 1997

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. 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]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
311111	Dog and cat food manufacturing		
0090001	Total materials	X	3 754 871
	.....2002..	X	3 690 959
	.....1997..		
11114001	Wheat	P345.7	39 098
	.....1,000 s tons		260.8
	.....2002..		37 755
	.....1997..		252 873
11115001	Field corn, whole grain	5 142.0	337 791
	..... mil lb	5 485.9	
	.....2002..		
	.....1997..		
11119901	Oats	17.3	3 284
	.....1,000 s tons	13.8	2 630
	.....2002..		
	.....1997..		
11119903	Barley	83.9	10 605
	.....1,000 s tons	11.1	3 064
	.....2002..	D	D
	.....1997..	D	D
31121101	Wheat flour	3 901.5	41 773
	.....1,000 cwt	S	60 013
	.....2002..		31 760
	.....1997..		57 355
31122207	Soybean millfeed and screenings	50.4	7 420
	.....1,000 s tons	51.6	10 125
	.....2002..		
	.....1997..		
31121135	Other millfeed and screenings	D	D
	.....1,000 s tons	29.9	5 711
	.....2002..		4 460
	.....1997..		5 343
31121137	Hominy feed and corn meal	24.4	4 460
	.....1,000 s tons	21.1	5 343
	.....2002..		137 678
	.....1997..		136 512
31111900	Alfalfa meal (excluding alfalfa hay)	1.6	298
	.....1,000 s tons	D	D
	.....2002..		
	.....1997..		
31131002	Sugar, cane and beet (sugar solids), excluding molasses	15.2	8 376
	.....1,000 s tons	N	N
	.....2002..		
	.....1997..		
31131007	Molasses .....	.9	190
	.....1,000 s tons	S	503
	.....2002..		
	.....1997..		
31122307	Cottonseed cake and meal	D	D
	.....1,000 s tons	D	D
	.....2002..		
	.....1997..		
31100017	Fats and oils	P516.1	160 328
	.....1,000 s tons	463.7	174 086
	.....2002..		185 737
	.....1997..		318 622
31161303	Meat meal and tankage	P786.8	185 737
	.....1,000 s tons	P1 075.7	318 622
	.....2002..		
	.....1997..		
31161305	Poultry feather and byproducts meal	P915.8	301 216
	.....1,000 s tons	469.5	205 682
	.....2002..		75 371
	.....1997..		100 931
31170000	Fish meal and solubles (dry weight equivalent)	225.4	100 931
	.....1,000 s tons	359.1	56 260
	.....2002..		70 877
	.....1997..		
31212000	Brewers' and distillers' grains	233.3	70 877
	.....1,000 s tons		
	.....2002..		
	.....1997..		
31122205	Soybean cake and meal	528.6	89 711
	.....1,000 s tons	627.1	154 191
	.....2002..		3 307
	.....1997..		3 029
32518827	Calcium	89.9	4 338
	.....1,000 s tons	P71.2	17 882
	.....2002..		
	.....1997..		
32518837	Phosphorus, elemental (technical)	12.8	4 338
	.....1,000 s tons	S	17 882
	.....2002..		
	.....1997..		
31194205	Salt	104.5	6 452
	.....1,000 s tons	S	2 767
	.....2002..		18 562
	.....1997..		13 663
32518841	Other minerals (excluding trace minerals)	66.6	13 663
	.....1,000 s tons	20.9	75 470
	.....2002..		44 219
	.....1997..		
32541109	Vitamins	X	75 470
	.....2002..	X	44 219
	.....1997..		
32541111	Drugs and antibiotics	X	781
	.....2002..	X	D
	.....1997..		
32541105	Other microingredients (including trace minerals)	X	66 149
	.....2002..	X	65 670
	.....1997..		87 398
32221001	Paperboard containers, boxes, and corrugated paperboard	X	87 398
	.....2002..	X	82 972
	.....1997..		
001900A1	Packaging paper and plastics film, coated and laminated	X	72 246
	.....2002..	X	93 051
	.....1997..		307
31491101	Textile bags (burlap, cotton, polypropylene, etc.)	X	D
	.....2002..	X	179 024
	.....1997..		138 999
001900A3	Bags (plastics, foil, and coated paper)	X	179 024
	.....2002..	X	138 999
	.....1997..		
32222401	Bags (uncoated paper and multiwall)	X	202 744
	.....2002..	X	102 370
	.....1997..		458 283
33243101	Metal cans, lids, and ends	X	377 377
	.....2002..	X	647 082
	.....1997..		628 370
00970099	All other materials and components, parts, containers, and supplies	X	487 710
	.....2002..	X	434 739
	.....1997..		
00971000	Materials, ingredients, containers, and supplies, nsk	X	487 710
	.....2002..	X	434 739
	.....1997..		

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

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.

Appendix A.

Explanation of Terms

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 stage of fabrication

Total inventories and three detailed components (1)finished goods, (2)work-in-process, and (3)materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by an establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for all publication levels.

COST OF MATERIALS

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 materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc. Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.
3. Cost of fuels consumed for heat and power. Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity. The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work. This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific materials consumed

In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials that were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the "Cost of all other materials" Census material code 00970099.

Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the "Materials not specified by kind" Census materials code 00971000.

Duplication in cost of materials and value of shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries.

Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

SELECTED PURCHASED SERVICES

Annual Survey of Manufactures (ASM) establishments were requested to provide information on the cost of selected purchased services for the repair and maintenance services of buildings and/or machinery; communication services; legal services; accounting, auditing, and bookkeeping services; advertising and promotional services; expensed computer hardware and supplies and purchased computer services; refuse removal services; management consulting and administrative services; taxes and license fees; and all other expenses not previously stated. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these services. These expenses are normally considered as nonproduction related costs purchased from other companies.

Included in the cost of selected purchased services for the repair and maintenance services of buildings and/or machinery are payments made for all maintenance and repair work on buildings and equipment. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Excluded from this item are extensive repairs or reconstruction that was capitalized, which is considered capital expenditures; costs incurred directly by the establishment in using its own work force to perform repairs and maintenance work; and repairs and maintenance provided by the building or machinery owner as part of the rental contract.

Included in the cost of selected 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, on-line 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 services and materials. Excluded are the salaries paid to employees of this establishment for these services.

Included in the cost of selected expensed computer hardware and supplies and purchased computer services are actual expenses incurred or payable during the year for this item. Purchases for computer hardware and supplies, computer services (software, data transmission, processing services, Web design, etc.) are all included. Excluded are services provided by other establishments of the same company (such as a separate central data processing unit).

Included in the cost of selected purchased refuse removal services are payments made to other companies for these services that were paid directly by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures and the salaries paid to employees of the establishment for these services.

Included in the cost of selected purchased management consulting and administrative 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 purchased taxes and license fees are payments made to other companies for these services that were paid directly by the establishment, excluding income, sales, payroll, and excise taxes. Excluded are also 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 made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and nonreporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed 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.

NUMBER OF EMPLOYEES

This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period that included the 12th of the months specified on the report form. Included are employees on paid sick leave, paid holidays, and paid vacations; not included are proprietors and partners of unincorporated businesses.

These individuals comprise of all full-time and part-time employees who are on the payrolls of establishments who worked or received pay for any part of the pay period including the 12th of March, May, August, and November.

The “all employees” number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November

Production Workers

The “production workers” number includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant’s own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All Other Employees

The “other employees” covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver-salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

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 are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of federal old age and survivors’ insurance, unemployment compensation, and workers’ compensation. Payments for voluntary programs include all programs not specifically required by legislation, whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

GROSS VALUE OF DEPRECIABLE ASSETS (ACQUISITION COSTS) AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms.

It shows the value of depreciable assets for the beginning of year (BOY) and end of year (EOY). The data encompass all fixed depreciable 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, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable 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.

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 manufacturing is performed. A separate report was required for each manufacturing establishment (plant) with one employee or more that were 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.

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 line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing 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 manufacturing 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.

The ASM provides estimates of employers' total supplemental labor costs (those required by federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

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 manufacturing sector for 2002, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are 1,450 product classes (seven-digit codes), 5,674 census products, and an additional 3,746 ten-digit product codes. The ten-digit products are considered the primary products of the industry with the same first six digits.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives.

Comparability with previous figures was given considerable weight in the selection of product categories, so that comparable 1992 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant (quantity produced and consumed) was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

PRODUCTION-WORKER HOURS

This item covers all hours worked or paid for at the manufacturing plant, 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.

QUANTITY OF ELECTRICITY PURCHASED FOR HEAT AND POWER

Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the Annual Survey of Manufactures (ASM) form. 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. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM 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 and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments.

However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

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

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

CAPITAL EXPENDITURES FOR NEW AND USED PLANT AND EQUIPMENT

Represents the total new and used capital expenditures reported by establishments in operation and any known plants under construction.

These data include expenditures for:

1. Permanent additions and major alterations to manufacturing and mining establishments.
2. New and used machinery and equipment used for replacement and additions to plant capacity, if they are of the type for which depreciation, depletion, or (for mining establishments) Office of Minerals Exploration accounts are ordinarily maintained. In addition, for mining establishments, these data include expenditures made during the year for development and exploration of mineral properties. For manufacturing establishments, these data are broken down into three types.
 - a. Automobiles, trucks, etc. for highway use. These include vehicles acquired under a lease-purchase agreement and excludes vehicles leased or normally designed to transport materials, property, or equipment on mining, construction, petroleum development, and similar projects. These vehicles are of such size or weight as to be normally restricted by state laws or regulations from operating on public highways. It also excludes purchases of vehicles that are purchased by a company for highway use.
 - b. Computers and peripheral data processing equipment. This item include all purchases of computers and related equipment.
 - c. All other expenditures for machinery and equipment excluding automobiles and computer equipment.

Capital expenditures include work done by contract, as well as by the establishment's own workforce.

These data exclude expenditures for land and mineral rights and cost of maintenance and repairs charged as current operating expenses.

VALUE ADDED

This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). 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 merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

VALUE OF SHIPMENTS

This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer 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 product shipments: Reported contract work — receipts for work or services that a plant performed for others on their materials. Value of resales — sales of products brought and sold without further manufacture, processing, or assembly. Other miscellaneous receipts — such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are: Primary products value of shipments. Secondary product value of shipments. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in cost of materials and value of shipment

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since, the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries.

Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries that included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and coverage ratio

These items are not collected on the report forms, but are derived from the data shown in Table 3. An establishment is classified in a particular industry, if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.).

Specialization and coverage ratio have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in Tables 1 through 5 and data on product shipments shown in Tables 6a and 6b.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

Appendix B.

NAICS Codes, Titles, and Descriptions

311111 DOG AND CAT FOOD MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing dog and cat food from ingredients, such as grains, oilseed mill products, and meat products.

Appendix C.

Methodology

SOURCES OF THE DATA

The manufacturing sector includes approximately 350,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing. The amount of information requested from manufacturing establishments was dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the Annual Survey of Manufactures (ASM).

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. ASM sample establishments. This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers all the units of large manufacturing establishments, as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size. For more information, see the Description of the ASM Survey Sample.

In an economic census year, the ASM report form (MA-10000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A. Explanation of Terms, for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 473 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to perform. Respondents were requested to identify the products, the value of each product, and, in certain cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided

for the respondent to describe significant materials not listed on the form.

A wide variety of special inquiries were included to measure activities peculiar to a given industry, such as operations performed and equipment used.

- b. Large and medium establishments (non-ASM). Approximately 30 percent of all manufacturing 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 220 economic census — manufacturing regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.
- c. Small single-establishment companies (non-ASM). This group includes approximately 15 percent of all manufacturing 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 “short form” was used. These establishments received 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, 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 and materials consumed 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 manufacturing 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 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 cutoff 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 cost of materials were not distributed among specific products and materials for these establishments, but were included in the product and material “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 manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit NAICS group classification codes available in the files. For manufacturing, 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” industries 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 — Manufacturing are classified in 1 of 473 industries in accordance with the industry definitions in the *North American Industry Classification System (NAICS), United States, 2002* manual. There were no changes between the 2002 edition and the 1997 edition affecting this sector. 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 production processes. 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 number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 2002, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are 1,450 product classes (seven-digit codes), 5,674 census products, and an additional 3,746 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 — Manufacturing, 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. For 2002, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, 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, to the product statistics, the composition of the industry's output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The 2002 Economic Census — Manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports, if the plant records permit such a separation and if the activities are substantial in size.

In 2002, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures, except for data on number of establishments for a few industries.

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

DESCRIPTION OF THE ASM SURVEY SAMPLE

The ASM sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1999 survey year based on the 1997 Economic Census — Manufacturing. This sample will be in place through the 2003 ASM.

In 1997, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the establishments in the 1997 manufacturing population were partitioned into two components for developing estimates within the ASM. The details of each are described below:

1. Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies

that operate at more than one physical location). Approximately 200,000 of the 370,000 establishments in the 1997 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1999 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1997 census. Supplemental samples representing both 1998 and 1999 births (newly active establishments that were not included in the 1997 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 2003.

The 1999-2003 ASM sample design is similar to the one used since 1984. Companies in the 1997 Economic Census — Manufacturing with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1999-2003 sample, there are approximately 500 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. Across these arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1997 Economic Census — Manufacturing.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1997 industry classification and its 1997 product class data. For each product class (1,755) and six-digit industry (473), a desired reliability constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints, while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by the Census Bureau's primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) that permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

2. Nonmail stratum. The initial nonmail component of the survey was comprised of approximately 170,000 small, single-establishment companies that were tabulated as administrative records in the 1997 Economic Census — Manufacturing. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

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. The following are two ways that further explain this method: ASM Estimating Procedure. Most of the ASM

estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1997 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the “difference” between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1998-2002 ASM estimates, the 1997 Economic Census — Manufacturing values serve as the base year. For the 2003 ASM, the base will be updated to be the 2002 Economic Census — Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contained approximately 170,000 individual establishments in 1999, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication. ASM Data Qualifications. The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sample lists, but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the difference between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of estimates.

The particular sample selected for the ASM is one of many similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

- From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
- From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
- From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown at 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected during the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

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 — Manufacturing shows value of shipments 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.

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. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for capital expenditures. Nonetheless, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures, which can be suppressed even though value of shipments data are published.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas and Micropolitan Statistical Areas

Not applicable for this report.

2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published
3112252591	3112251591	3112251591	3113301	3113301	3113301	3114211	3114211	3114211
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31122525B1	31122515B1	31122515B1	3113302	3113302	3113302	3114211131	3114211131	3114211131
31122525C1	31122515C1	31122515C1	3113302100	3113302100	3113302000	3114211141	3114211141	3114211141
3112252701	3112251701	3112251701				3114211151	3114211151	3114211151
3112252706	3112251706	3112251706	311330W pt	311320W pt	311320W pt	3114211161	3114211161	3114211161
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3112252721	3112251721	3112251721	311330W pt	311330W	311330W	3114211181	3114211181	3114211181
3112252731	3112251731	3112251731	311330WYW	311330WYW	311330WYW	3114211191	3114211191	3114211191
			311330WYW	311330WYW	311330WYW	31142111A1	31142111A1	31142111A1
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31122527YV pt	31122517YV pt	31122517YV pt	3113402	3113402	3113402	31142111E1	31142111E1	31142111E1
			3113402100	3113402100	3113402000	31142111F1	31142111F1	31142111F1
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311225WYW pt	311221WYW pt	311221WYW pt						
311225WYW pt	311225WYW pt	311225WYW pt						
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			3113407241	3113407241	3113407241			
			3113407YV	3113407YV	3113407YV			
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			3114111141	3114111141	3114111141			
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			3114111491	3114111491	3114111491			
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			31141116G1	31141116G1	31141116G1			
			31141116H1	31141116H1	31141116H1			
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2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published
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3114231115	3114231115	3114231111 pt	311513WYWW	311513WYWW	311513WYWW	311611DYWW	311611DYWW	311611DYWW
3114231115	3114231115	3114231111 pt	311513WYWW	311513WYWW	311513WYWW	311611G	311611G	311611G
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3114235151	3114234151	3114234151	3115141671	3115141671	3115141671	311611GYWW	311611GYWW	311611GYWW
3114235161	3114234161	3114234161	3115141681	3115141681	3115141681	311611J	311611J	311611J
3114235181	3114234181	3114234181	3115141791	3115141791	3115141791	311611J111	311611J111	311611J111
3114235YWW	3114234YWW pt	3114234YWW pt	31151418A1	31151418A1	31151418A1	311611J121	311611J121	311611J121
3114237	311999A pt	311999A pt	31151419YWW	31151419YWW	31151419YWW	311611J131	311611J131	311611J131
3114237100	311999A117	311999A111 pt	3115147	3115147	3115147	311611J141	311611J141	311611J141
3114237211 pt	311999A127 pt	311999A121 pt	3115147111	3115147111	3115147111	311611J151	311611J151	311611J151
3114237211 pt	311999A127 pt	311999A131 pt	3115147121	3115147121	3115147121	311611JYWW	311611JYWW	311611JYWW
3114237311	311999A137	311999A141 pt	3115147131	3115147131	3115147131	311611M	311611M	311611M
3114237411 pt	311999A147 pt	311999A151 pt	3115147YWW	3115147YWW	3115147YWW	311611M100	311611M100	311611M100
3114237411 pt	311999A147 pt	311999A161 pt	3115148	3115148	3115148	311611P	311611P	311611P
3114237YWW	311999AYWW pt	311999AYWW pt	3115148A1	3115148A1	3115148A1	311611P111	311611P111	311611P111
3114238	311999F	311999D pt	3115148YWW	3115148YWW	3115148YWW	311611P121	311611P121	311611P121
3114238111	311999F111	311999D131 pt	3115149	3115149	3115149	311611P131	311611P131	311611P131
3114238121	311999F121	311999D141 pt	3115149111	3115149111	3115149111	311611P141	311611P141	311611P141
3114238131	311999F131	311999D151 pt	3115149211	3115149211	3115149211	311611PYWW	311611PYWW	311611PYWW
3114238131	311999F131	311999D151 pt	3115149311	3115149311	3115149311	311611R pt	311119T pt	311119T pt
3114238YWW	311999FYWW	311999DYWW pt	31151494YWW	31151494YWW	31151494YWW	311611R pt	311611T pt	311611T pt
311423W	311423W pt	311423W pt	3115147	3115147	3115147	311611R111	311611R111	311611R111
311423W pt	311999W pt	311999W pt	3115147111	3115147111	3115147111	311611R121	311611R121	311611R121
311423WYWW pt	311423WYWW pt	311423WYWW pt	3115147121	3115147121	3115147121	311611R131	311611R131	311611R131
311423WYWW pt	311999WYWW pt	311999WYWW pt	3115147131	3115147131	3115147131	311611R141	311611R141	311611R141
311423WYWW pt	311423WYWW pt	311423WYWW pt	3115147YWW	3115147YWW	3115147YWW	311611R151	311611R151	311611R151
311423WYWW pt	311999WYWW pt	311999WYWW pt	311514A	311514A	311514A	311611R161	311611R161	311611R161
3115111	3115111	3115111	311514A111	311514A111	311514A111	311611R171	311611R171	311611R171
3115111111	3115111111	3115111111	311514A121	311514A121	311514A121	311611R181 pt	311119T pt	311119T pt
3115111221	3115111221	3115111221	311514A131	311514A131	311514A131	311611RYWW pt	311119T pt	311119T pt
3115111231	3115111231	3115111231	311514A241	311514A241	311514A241	311611RYWW pt	311611TYWW	311611TYWW
3115111241	3115111241	3115111241	311514A251	311514A251	311514A251	311611W pt	311119W pt	311119W pt
3115111YWW	3115111YWW	3115111YWW	311514A261	311514A261	311514A261	311611WYWW pt	311119WYWW pt	311119WYWW pt
3115115	3115115	3115114 pt	311514A271	311514A271	311514A271	311611WYWW pt	311119WYWW pt	311119WYWW pt
3115115111	3115115111	3115114111 pt	311514A2YWW	311514A2YWW	311514A2YWW	311611WYWW pt	311611WYWW	311611WYWW
3115115211	3115115211	3115114221 pt	311514D	311514D	311514D	3116121	3116121	3116121
3115115311	3115115311	3115114331 pt	311514D111	311514D111	311514D111	3116121111	3116121111	3116121111
3115115441	3115115441	3115114441	311514D121	311514D121	311514D121	311612121	311612121	311612121
3115115451	3115115451	3115114451	311514D131	311514D131	311514D131	311612131	311612131	311612131
3115115461	3115115461	3115114461	311514D141	311514D141	311514D141	311612141	311612141	311612141
3115115471	3115115471	3115114471	311514D151	311514D151	311514D151	311612151	311612151	311612151
3115115481	3115115481	3115114481	311514D161	311514D161	311514D161	311612161	311612161	311612161
3115115YWW	3115115YWW	3115114YWW pt	311514DYWW	311514DYWW	311514DYWW	311612171	311612171	311612171
3115117	3115117	3115117	311514W pt	311511W pt	311511W pt	3116121781	3116121781	3116121781
3115117111	3115117111	3115117111	311514W pt	311514W pt	311514W pt	3116121YWW	3116121YWW	3116121YWW
3115117121	3115117121	3115117121	311514WYWW pt	311514WYWW pt	311514WYWW pt	3116124	3116124	3116124
3115117131	3115117131	3115117131	311514WYWW pt	311514WYWW pt	311514WYWW pt	311612411	311612411	311612411
3115117YWW	3115117YWW	3115117YWW	311514WYWW pt	311514WYWW pt	311514WYWW pt	311612421	311612421	311612421
311511A	311511A	311511A	311514WYWW pt	311514WYWW pt	311514WYWW pt	311612431	311612431	311612431
311511A111	311511A111	311511A111	3115200	3115200	3115200	311612441	311612441	311612441
311511A121	311511A121	311511A121	3115200111	3115200111	3115200111	3116124451	3116124451	3116124451
311511AYWW	311511AYWW	311511AYWW	3115200221	3115200221	3115200221	3116124YWW	3116124YWW	3116124YWW
311511D	311511D	311511D	3115200331	3115200331	3115200331	3116127	3116127	3116127
311511D111	311511D111	311511D111	3115200441	3115200441	3115200441	3116127100	3116127100	3116127100
311511D121	311511D121	311511D121	3115200451	3115200451	3115200451	311612A	311612A	311612A
311511D131	311511D131	311511D131	3115200461	3115200461	3115200461	311612A111	311612A111	311612A111
311511D141	311511D141	311511D141	3115200471	3115200471	3115200471	311612A221	311612A221	311612A221
311511D151	311511D151	311511D151	3115200481	3115200481	3115200481	311612A331	311612A331	311612A331
311511D161	311511D161	311511D161	3115200491	3115200491	3115200491	311612A441	311612A441	311612A441
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2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published
311612W	311612W	311612W	3117122	3117122	3117122	311812D	311812D	311812D
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311612WYWY	311612WYWY	311612WYWY	311712221	311712221	311712221	311812D131	311812D131	311812D131
			311712231	311712231	311712231	311812D151	311812D151	311812D151
3116131	3116131	3116131	311712241	311712241	311712241	311812D181	311812D181	311812D181
311613111	311613111	311613111	311712251	311712251	311712251	311812D191	311812D191	311812D191
3116131121	3116131121	3116131121	311712261	311712261	311712261	311812DYWW	311812DYWW	311812DYWW
3116131YVW	3116131YVW	3116131YVW	311712271	311712271	311712271			
			311712281	311712281	311712281	311812W pt.	311812W	311812W
3116135 pt.	3112251 pt.	3112251 pt.	3117122881	3117122691	3117122881			
			3117122891	31171226A1	3117122891	311812W pt.	311812W	311812W
3116135 pt.	3116134	3116134				311812WYWW pt.	311812WYWW	311812WYWW
3116135111	3116134111	3116134111	3117122991	31171227B1	3117122991	311812WYWW pt.	311812WYWW pt.	311812WYWW pt.
3116135221	3116134221	3116134221	3117122AA1	31171228C1	3117122AA1	311812WYWY pt.	311812WYWY pt.	311812WYWY pt.
3116135243 pt.	3116134241 pt.	3116134241	3117122AB1	31171228D1	3117122AB1	311812WYWY pt.	311812WYWY pt.	311812WYWY pt.
3116135243 pt.	3116134241 pt.	3116134241	3117122BC1	31171229E1	3117122BC1			
3116135251	3116134251	3116134251	3117122CD1	3117122AF1	3117122CD1	3118130	3118130	3118130
3116135261	3116134261	3116134261	3117122CE1	3117122AG1	3117122CE1	3118130111	3118130111	3118130111
3116135271	3112251D1	3112251D1	3117122E1	3117122AG1	3117122E1	3118130221	3118130221	3118130221
3116135YVW pt.	3112251YVW pt.	3112251YVW pt.	3117122YVW	3117122YVW	3117122YVW	3118130331	3118130331	3118130331
3116135YVW pt.	3116134YVW	3116134YVW				3118130341	3118130341	3118130341
			3117123	3117123	3117123	3118130351	3118130351	3118130351
311613W pt.	311225W pt.	311225W pt.	3117123111	3117123111	3117123111	3118130361	3118130361	3118130361
			3117123121	3117123121	3117123121	3118130371	3118130371	3118130371
311613WYVW pt.	311225WYVW pt.	311225WYVW pt.	3117123131	3117123131	3117123131	3118130391	3118130391	3118130391
311613WYVW pt.	311225WYVW pt.	311225WYVW pt.	3117123141	3117123141	3117123141	31181303V1	31181303V1	31181303V1
311613WYVW pt.	311225WYVW pt.	311225WYVW pt.	3117123251	3117123251	3117123251	3118130YVW	3118130YVW	3118130YVW
311613WYVW pt.	311225WYVW pt.	311225WYVW pt.	3117123261	3117123261	3117123261	3118130YVW	3118130YVW	3118130YVW
311613WYVW pt.	311225WYVW pt.	311225WYVW pt.	3117123271	3117123271	3117123271			
			3117123281	3117123281	3117123281			
3116151	3116151	3116151	3117123291	3117123291	3117123291	3118212	3118212 pt.	3118212 pt.
311615111	311615111	311615111	31171232A1	31171232A1	31171232A1	311821211	311821211	311821211
3116151221	3116151221	3116151221				311821221	311821221	311821221
3116151331	3116151331	3116151331	31171232B1	31171232B1	31171232B1	3118212331	3118212331	3118212331
3116151441	3116151441	3116151441	31171232C1	31171232C1	31171232C1	3118212341	3118212341	3118212341
3116151551	3116151551	3116151551	31171232D1	31171232D1	31171232D1	3118212391	3118212391	3118212391
3116151YVW	3116151YVW	3116151YVW	31171232E1	31171232E1	31171232E1	3118212YVW	3118212YVW pt.	3118212YVW pt.
			3117123YVW	3117123YVW	3117123YVW			
3116154	3116154	3116154	3117124	3117124	3117124	3118214	3118214	3118214
3116154111	3116154111	3116154111	3117124111	3117124111	3117124111	3118214111	3118214111	3118214111
3116154121	3116154121	3116154121	3117124121	3117124121	3117124121	3118214221	3118214221	3118214221
3116154YVW	3116154YVW	3116154YVW	3117124131	3117124131	3117124131	3118214331	3118214331	3118214331
			3117124141	3117124141	3117124141	3118214341	3118214341	3118214341
3116157	3116157	3116157	3117124211	3117124211	3117124211	3118214351	3118214351	3118214351
3116157111	3116157111	3116157111	3117124221	3117124221	3117124221	3118214361	3118214361	3118214361
3116157221	3116157221	3116157221	3117124231	3117124231	3117124231	3118214371	3118214371	3118214371
3116157331	3116157331	3116157331	3117124241	3117124241	3117124241	3118214381	3118214381	3118214381
3116157341	3116157341	3116157341	3117124311	3117124311	3117124311	3118214391	3118214391	3118214391
3116157YVW	3116157YVW	3116157YVW	3117124YVW	3117124YVW	3117124YVW	3118214YVW	3118214YVW	3118214YVW
311615A	311615A	311615A	311712W	311712W	311712W	311821W	311821W pt.	311821W pt.
311615A111	311615A111	311615A111	311712WYWW	311712WYWW	311712WYWW	311821WYWW	311821WYWW pt.	311821WYWW pt.
311615A121	311615A121	311615A121	311712WYWY	311712WYWY	311712WYWY	311821WYWY	311821WYWY pt.	311821WYWY pt.
311615AYVW	311615AYVW	311615AYVW						
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311615D	311615D	311615D	3118110111	3118110111	3118110111	3118220121	3118220121	3118220121
311615D111	311615D111	311615D111	3118110121	3118110121	3118110121	3118220211	3118220211	3118220211
311615D121	311615D121	311615D121	3118110131	3118110131	3118110131	3118220231	3118220231	3118220231
311615D131	311615D131	311615D131	3118110141	3118110141	3118110141	3118220241	3118220241	3118220241
311615D141	311615D141	311615D141	3118110151	3118110151	3118110151	3118220251	3118220251	3118220251
311615D151	311615D151	311615D151	3118110161	3118110161	3118110161	3118220261	3118220261	3118220261
311615D161	311615D161	311615D161	31181101V1	31181101V1	31181101V1	3118220271	3118220271	3118220271
311615D171	311615D171	311615D171	3118110YVW	3118110YVW	3118110YVW	3118220YVW	3118220YVW	3118220YVW
311615DYVW	311615DYVW	311615DYVW	3118110YVY	3118110YVY	3118110YVY	3118220YVY	3118220YVY	3118220YVY
311615W	311615W	311615W	3118121	3118121	3118121	3118230 pt.	3118230 pt.	3118230 pt.
311615WYWW	311615WYWW	311615WYWW	3118121111	3118121111	3118121111	3118230 pt.	311999A pt.	311999A pt.
311615WYWY	311615WYWY	311615WYWY	3118121121	3118121121	3118121121	31182301 pt.	311999W pt.	311999W pt.
			3118121231	3118121231	3118121231	3118230111	3118230111	3118230111
3117110	3117110	3117110	3118121241	3118121241	3118121241	3118230121	3118230121	3118230441
3117110111	3117110111	3117110111	3118121351	3118121351	3118121351	3118230211	311999A115	311999A111 pt.
3117110221	3117110221	3117110221	3118121361	3118121361	3118121361	3118230231	311999A135	311999A141 pt.
3117110331	3117110331	3117110331	3118121471	3118121471	3118121471	3118230YVW pt.	3118230YVW pt.	3118230YVW pt.
3117110341	3117110341	3117110341	3118121481	3118121481	3118121481	3118230YVW pt.	311999AYVW pt.	311999AYVW pt.
3117110351	3117110351	3117110351	3118121491	3118121491	3118121491	3118230YVW pt.	311999WYVW pt.	311999WYVW pt.
3117110461	3117110461	3117110461	31181214A1	31181214A1	31181214A1	3118230YVY pt.	3118230YVY pt.	3118230YVY pt.
3117110471	3117110471	3117110471	31181214G1	31181214G1	31181214G1	3118230YVW pt.	311999WYVW pt.	311999WYVW pt.
3117110481	3117110481	3117110481	31181214J1	31181214J1	31181214J1	3118230YVW pt.	311999WYVY pt.	311999WYVY pt.
3117110591	3117110591	3117110591	3118121YVW	3118121YVW	3118121YVW			
31171106A1	31171106A1	31171106A1				3118300	3118300	3118300
			3118125 pt.	3118124	3118124	3118300100	3118300100	3118300100
31171107B1	31171107B1	31171107B1	3118125 pt.	3118124	3118124	3118300YVW	3118300YVW	3118300YVW
31171107C1	31171107C1	31171107C1	3118125111	3118124111	3118124111	3118300YVY	3118300YVY	3118300YVY
31171107D1	31171107D1	31171107D1	3118125121	3118124121	3118124121			
31171107E1	31171107E1	31171107E1	3118125231	3118124231	3118124231	3119111	3119111	3119111
3117110YVW	3117110YVW	3117110YVW	3118125241	3118124241	3118124241	3119111111	3119111111	3119111111
3117110YVY	3117110YVY	3117110YVY	3118125251	3118124251	3118124251	3119111121	3119111121	3119111121
			3118125261	3118124261	3118124261	3119111131	3119111131	3119111131
3117121	3117121	3117121	3118125271	3118124271	3118124271	3119111241	3119111241	3119111241
3117121111	3117121111	3117121111	3118125281	3118124281	3118124281	3119111251	3119111251	3119111251
3117121121	3117121121	3117121121	3118125291	3118124291	3118124291	3119111261	3119111261	3119111261
3117121131	3117121131	3117121131	31181252A1	31181242A1	31181242A1	3119111371	3119111371	3119111371
3117121141	3117121141	3117121141				3119111381	3119111381	3119111381
3117121151	3117121151	3117121151	31181252B1	31181242B1	31181242B1	3119111391	3119111391	3119111391
3117121161	3117121161	3117121161	31181252C1	31181242C1	31181242C1	31191113A1	31191113A1	31191113A1
3117121171	3117121171	3117121171	31181252D1	31181242D1	31181242D1	3119111YVW	3119111YVW	3119111YVW
3117121181	3117121181	3117121181	31181252E1	31181242E1	31181242E1			
3117121191	3117121191	3117121191	31181252F1	31181242F1	311812			

2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published	2002 published	2002 collected	1997 published
3119197	3119197	3119197	3119414	3119414	3119414	3119910YWW pt	311999AYWV pt	311999AYWV pt
3119197111	3119197111	3119197111	3119414111	3119414111	3119414111	3119910YWW pt	311999AYWV pt	311999AYWV pt
3119197221	3119197221	3119197221	3119414221	3119414221	3119414221	3119910YWW pt	311999AYWV pt	311999AYWV pt
3119197YVW	3119197YVW	3119197YVW	3119414YVW	3119414YVW	3119414YVW	3119910YWW pt	311999AYWV pt	311999AYWV pt
311919W	311919W	311919W	3119417	3119417	3119417	3119911	3119991	3119991
311919WYWW	311919WYWW	311919WYWW	3119417111	3119417111	3119417111	3119911111	3119991111	3119991111
311919WYVW	311919WYVW	311919WYVW	3119417221	3119417221	3119417221	3119911121	3119991121	3119991121
3119201	3119201	3119201	3119417331	3119417331	3119417331	3119911131	3119991131	3119991131
3119201111	3119201111	3119201111	3119417441	3119417441	3119417441	3119911141	3119991141	3119991141
3119201211	3119201211	3119201211	3119417YVW	3119417YVW	3119417YVW	3119911151	3119991151	3119991151
3119201331	3119201331	3119201331	311941W	311941W	311941W	3119911YVW	3119991YVW	3119991YVW
3119201YVW	3119201YVW	3119201YVW	311941WYWW	311941WYWW	311941WYWW	3119994	3119994	3119994
3119205 pt	3119204	3119204	311941WYVW	311941WYVW	311941WYVW	3119994111	3119994111	3119994111
3119205 pt	3119424 pt	3119424 pt	3119421	3119421	3119421	3119994121	3119994121	3119994121
3119205111	3119204111	3119204111	3119421111	3119421111	3119421111	3119994YVW	3119994YVW	3119994YVW
3119205121	3119204121	3119204121	3119421121	3119421121	3119421121	3119997	3119997	3119997
3119205131	3119424141	3119424141	3119421131	3119421131	3119421131	3119997111	3119997111	3119997111
3119205YVW pt	3119204YVW	3119204YVW	3119421241	3119421241	3119421241	3119997121	3119997121	3119997121
3119205YVW pt	3119424YVW pt	3119424YVW pt	3119421351	3119421351	3119421351	3119997131	3119997131	3119997131
3119207	3119207	3119207	3119421YVW	3119421YVW	3119421YVW	3119997141	3119997141	3119997141
3119207111	3119207111	3119207111	3119425 pt	3119307 pt	3119307 pt	3119997YVW	3119997YVW	3119997YVW
3119207221	3119207221	3119207221	3119425 pt	3119425 pt	3119425 pt	311999B pt	311999A pt	311999A pt
3119207231	3119207231	3119207231	3119425111	3119425111	3119425111	311999B pt	311999B pt	311999D pt
3119207YVW	3119207YVW	3119207YVW	3119425121	3119425121	3119425121	311999B11 pt	311999A113 pt	311999A111 pt
311920W pt	311920W	311920W	3119425131	3119425131	3119425131	311999B111 pt	311999A123 pt	311999A121 pt
311920W pt	311942W pt	311942W pt	3119425151	3119307131	3119307131	311999B121 pt	311999A123 pt	311999A131 pt
311920WYVW pt	311920WYVW	311920WYVW	3119425YVW pt	3119307YVW pt	3119307YVW pt	311999B131 pt	311999A133 pt	311999A141 pt
311920WYVW pt	311942WYVW pt	311942WYVW pt	3119425YVW pt	3119424YVW pt	3119424YVW pt	311999B141 pt	311999A143 pt	311999A151 pt
311920WYVW pt	311942WYVW pt	311942WYVW pt	3119427	3119427	3119427	311999B141 pt	311999A143 pt	311999A161 pt
311920WYVW pt	311942WYVW pt	311942WYVW pt	3119427111	3119427111	3119427111	311999B141 pt	311999A143 pt	311999A161 pt
311920WYVW pt	311942WYVW pt	311942WYVW pt	3119427121	3119427121	3119427121	311999B141 pt	311999A143 pt	311999A161 pt
311920WYVW pt	311942WYVW pt	311942WYVW pt	3119427131	3119427131	3119427131	311999B141 pt	311999A143 pt	311999A161 pt
311920WYVW pt	311942WYVW pt	311942WYVW pt	3119427241	3119427241	3119427241	311999B141 pt	311999A143 pt	311999A161 pt
3119301	3119301	3119301	3119427251	3119427251	3119427251	311999B141 pt	311999A143 pt	311999A161 pt
3119301111	3119301111	3119301111	3119427YVW	3119427YVW	3119427YVW	311999B141 pt	311999A143 pt	311999A161 pt
3119301121	3119301121	3119301121	311942W pt	311930W pt	311930W pt	311999B141 pt	311999A143 pt	311999A161 pt
3119301YVW	3119301YVW	3119301YVW	311942W pt	311942W pt	311942W pt	311999B141 pt	311999A143 pt	311999A161 pt
3119304	3119304	3119304	311942W pt	311942W pt	311942W pt	311999B141 pt	311999A143 pt	311999A161 pt
3119304111	3119304111	3119304111	311942WYVW pt	312120W pt	312120W pt	311999B141 pt	311999A143 pt	311999A161 pt
3119304121	3119304121	3119304121	311942WYVW pt	311930WYVW pt	311930WYVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119304131	3119304131	3119304131	311942WYVW pt	311942WYVW pt	311942WYVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119304141	3119304141	3119304141	311942WYVW pt	311942WYVW pt	311942WYVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119304151	3119304151	3119304151	311942WYVW pt	311942WYVW pt	311942WYVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119304161	3119304161	3119304161	311942WYVW pt	311942WYVW pt	311942WYVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119304YVW	3119304YVW	3119304YVW	3119910 pt	3118231 pt	3118230 pt	311999B141 pt	311999A143 pt	311999A161 pt
3119305	3121117	3121117	3119910 pt	311823W	3118230 pt	311999B141 pt	311999A143 pt	311999A161 pt
3119305111	3121117111	3121117111	3119910 pt	3119910	3119910	311999B141 pt	311999A143 pt	311999A161 pt
3119305121	3121117121	3121117121	3119910 pt	3119910 pt	3119910 pt	311999B141 pt	311999A143 pt	311999A161 pt
3119305YVW	3121117YVW	3121117YVW	3119910 pt	311999A pt	311999A pt	311999B141 pt	311999A143 pt	311999A161 pt
3119308	3119307 pt	3119307 pt	3119910 pt	311999W pt	311999W pt	311999B141 pt	311999A143 pt	311999A161 pt
3119308111	3119307111	3119307111	3119910111	3119910111	3119910111	311999B141 pt	311999A143 pt	311999A161 pt
3119308121	3119307121	3119307121	3119910221	3119910221	3119910221	311999B141 pt	311999A143 pt	311999A161 pt
3119308141	3119307141	3119307141	3119910331	3119910331	3119910331	311999B141 pt	311999A143 pt	311999A161 pt
3119308YVW	3119307YVW pt	3119307YVW pt	3119910441	3119910441	3119910441	311999B141 pt	311999A143 pt	311999A161 pt
311930W pt	311930W pt	311930W pt	3119910551	3119910551	3119910551	311999B141 pt	311999A143 pt	311999A161 pt
311930W pt	312111W pt	312111W pt	3119910561	3119910561	3119910561	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	311930WYVW pt	311930WYVW pt	3119910671	3119910671	3119910671	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910781	3119910781	3119910781	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910811 pt	3118231211 pt	3118230221	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910811 pt	3118231211 pt	3118230331	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910911 pt	3118231321 pt	3118230451	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910911 pt	3118231321 pt	3118230461	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910A11 pt	311999A125 pt	311999A121 pt	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910A11 pt	311999A125 pt	311999A131 pt	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910A21 pt	311999A145 pt	311999A151 pt	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910A21 pt	311999A145 pt	311999A161 pt	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910YVW pt	3118230YVW pt	3118230YVW pt	311999B141 pt	311999A143 pt	311999A161 pt
311930WYVW pt	312111WYVW pt	312111WYVW pt	3119910YVW pt	3118230YVW pt	3118230YVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119411	3119411	3119411	3119910YVW pt	3118230YVW pt	3118230YVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119411111	3119411111	3119411111	3119910YVW pt	3118230YVW pt	3118230YVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119411121	3119411121	3119411121	3119910YVW pt	3118230YVW pt	3118230YVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119411131	3119411131	3119411131	3119910YVW pt	3118230YVW pt	3118230YVW pt	311999B141 pt	311999A143 pt	311999A161 pt
3119411YVW	3119411YVW	3119411YVW	3119910YVW pt	3118230YVW pt	3118230YVW pt	311999B141 pt	311999A143 pt	311999A161 pt

