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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

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ENERGY AND MINERALS
DIVISION



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NOVEMBER 10, 1981

B-204996

The Honorable Malcolm Baldrige
The Secretary of Commerce

Dear Mr. Secretary:

Subject: Need for Better Monitoring and Analysis of
Foundry Data by the Department of Commerce
(EMD-82-15)

This letter, like our recent report to you and Defense Secretary Weinberger, discusses our concerns pertaining to the Nation's foundry industry. That first report ^{1/} discussed foundry closures and their effect on defense production capacity and Federal data collection problems. This letter discusses deficiencies in the organization and the foundry data analysis within the Department of Commerce over and above the data collection problems stressed in our first report.

The foundry industry, fifth largest manufacturing industry, is an integral part of our Nation's industrial base, as foundry castings are used in approximately 90 percent of all U.S. durable goods production. The Department of Commerce's Office of Basic Industries (OBI) monitors and analyzes the foundry industry, but OBI has done little to provide a useable data base. This is evidenced by inadequate staff, no permanent files, and a general unawareness of all available Government and private foundry data. Because of this the OBI has been unable to contribute to useful analyses of key issues, i.e., foundry closures, reasons for the closures such as regulations and imports, and impacts of closures on the industry such as production capacity. Much of the foundry data available is either contradictory or inadequate, leaving to speculation the impact some of these issues have on the industry.

STATUS OF COMMERCE'S
MONITORING AND ANALYSIS

The Office of Basic Industries is charged with monitoring and analyzing roughly 150 basic industries, one of which is foundries. OBI is considered the focal point for foundry industry information, both by other governmental entities

^{1/}"Potential Impediment of Foundry Capacity Relative to National Defense Needs," (EMD-81-134, Sept. 15, 1981).

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and by industry itself. Yet OBI places a low priority on monitoring the industry. OBI is unaware of all available Government foundry data, and it does not utilize or coordinate all of its available foundry data.

As shown in table 1, OBI's authorized spending and staffing has declined in current dollars while no significant changes have occurred in its level of responsibilities. Moreover, OBI's relative attention to the foundry sector has declined due in part to staffing constraints.

Table 1

Office of Basic Industries

<u>Fiscal year</u>	<u>Authorization of funds</u>	<u>Authorized positions</u>
	(000 omitted)	
1982	\$1,933 (Proposed)	42
1981	1,933	42
<u>a/1980</u>	--	--
1979	1,978	50
1978	1,991	58

a/Funding and staffing data were not readily available due to a Department of Commerce reorganization in January 1980.

Source: Department of Commerce, Bureau of Industrial Economics for 1981 and 1982 data, and International Trade Administration for 1978 and 1979 data.

OBI does not emphasize the foundry industry in its staffing even though it is the third largest industry in OBI's area of responsibility. Nonferrous foundries are segmented according to the major type of metal produced. For example, to the aluminum or copper specialists, foundries are a small part of the total picture, thus there is little incentive for them to jointly analyze problems common to all foundries. Further, the ferrous castings industry specialist usually spends two-thirds of his time on four other industries--foundry equipment, industrial furnaces and ovens, industrial patterns and molds, and miscellaneous fabricated metal products. During the past year this one-third time on foundries

has been further reduced by time spent on an Office of Industrial Mobilization study of foundry equipment. Expertise within OBI on ferrous castings is further limited by a turnover of the specialist three times in the last 4 years.

Better use of available information would help greatly, but OBI is unaware of all foundry data available within the Government or from private sources. OBI officials stated that they do not keep permanent files on the foundry industry. The only data which the ferrous castings specialist receives on a regular basis are the Current Industrial Reports (CIRs) and a monthly publication of the Iron Castings Society. The ferrous castings specialist was not aware of the Census Bureau's capacity publications or the Bureau of Labor Statistics' published foundry industry wage surveys. The specialist was also unaware of the special foundry studies published by other Government agencies such as the Department of Transportation's study of foundries serving the auto industry or the Environmental Protection Agency's (EPA) economic impact study of water regulations on the foundry industry. Although OBI knew of the Department of the Interior's Bureau of Mines current work in developing an econometric model of the foundry industry, little collaboration has occurred to date between OBI and the Bureau.

OBI does not use private data sources such as the Penton/IPC computerized listing of census data on individual foundries or its published annual census of the foundry industry (discussed in EMD-81-134, Sept. 15, 1981), nor does it use the detailed responses to the Penton/IPC annual Business Outlook Survey--which were valuable sources in our analysis.

OBI does little to coordinate foundry work or foundry information within the Government nor are any channels of communication open to alert OBI of any new foundry data sources. No memos of coordination exist showing coordination of Government foundry work with OBI. Though various agency officials discussed an informal communication network, this cannot be relied upon to ensure the passage of important information, and it in fact appears to be virtually nonexistent given the studies and agency officials that were not known to other agencies. Thus, OBI specialists are attempting to perform analyses using an incomplete decentralized foundry data base.

VARYING ESTIMATED IMPACT OF GOVERNMENT REGULATION

Regulatory costs have been an issue between Government and industry. Though the aggregate impact of regulation appears to be manageable and generally not the primary reason for plant closures, some industry segments are impacted more severely. Complying with proposed EPA and Occupations Safety and Health Administration (OSHA) regulations is a growing concern of the industry. We have found a great disparity between regulatory costs as reported by the Census Bureau and industry associations.

According to Census Bureau data, and despite industry contentions of severe impact, pollution abatement programs are not currently a major financial factor in the operation or competitiveness of the foundry industry as a whole. Aggregate pollution abatement costs rose nearly 100 percent from 1973 through 1978, yet for a 1-year period, 1977, pollution abatement costs--capital expenditures and operation costs--were less than one cent per pound of produced castings. No comparable data on the economic impact of OSHA regulations is published by the Census Bureau or the Department of Labor despite wide concerns about its incremental impacts.

Regulatory cost data reported by a major foundry association suggests much higher expenditures than the Census Bureau data. The Census Bureau reported that less than 10 percent of capital expenditures were spent on pollution, while the Cast Metals Federation (CMF) reported 35-percent expenditures. Also 1974 air regulation costs to foundries varied from \$600 million reported by CMF to \$129 million shown by Census Bureau data.

Within segments of the foundry industry pollution abatement control regulations clearly can have a more severe impact. For instance, in 1974 over 75 percent of the capital expenditures for a new steel casting process (the "investment" method) was devoted to pollution abatement while malleable iron foundries spent 40 percent, and copper base foundries spent 30 percent. As indicated in table 2, costs vary widely by foundry type and by the measure used.

Table 2

Pollution Abatement Costs for 1977
By Type of Foundry

<u>Foundry type</u>	<u>Pollution Abatement</u>		
	<u>Cost per employee</u>	<u>Cost per ton shipped</u>	<u>Cost as percent of shipment value</u>
	---- dollars----		
Ferrous	\$880	\$12.63	1.8
Nonferrous	278	13.99	0.6

Source: Derived from Department of Commerce, Bureau of the Census, Current Industrial Reports, Pollution Abatement Costs and Expenditures, 1977, MA-200 (77) and Department of Commerce, Bureau of the Census, Census of Manufactures, 1977.

Although industry has emphasized the adverse impact of regulation on small foundries, the annual Business Outlook Surveys conducted by Penton/IPC indicate that larger foundries overall are much more likely to identify EPA and OSHA regulations as a problem than their smaller counterparts.

In the past it was generally believed that most of regulatory-related closures were typically the small marginal operations. The character of regulatory-induced foundry closures may be changing, however. For example, Saunders Foundry of Wichita, Kansas, was a state-of-the-art aerospace engineering foundry specializing in magnesium castings, having \$3 to \$5 million in annual sales, and employing about 70 persons when it closed on May 30, 1980. At the time of its closure Saunders was reportedly the only all electric, air conditioned foundry in the world. The owner stated that the major reason for the closure was his refusal to comply with an OSHA requirement for explosion-proof electrical equipment. He indicated that this requirement would have necessitated an outlay of \$500,000. We contacted several important customers of this foundry to assess the effect its closure had on them. The buyers reported difficulty qualifying new vendors, additional tooling and retooling costs of up to \$348,000, price increases of up to 30 percent, additional subcontracting required by gaps in the finishing capability of some new vendors, and quality problems resulting in substantial reworking after delivery.

Currently, EPA is proposing that dust collected by cupola air pollution control systems and certain other iron foundry wastes be considered hazardous materials requiring controlled disposal. In addition, many foundries are subject to the metal molding and casting effluent standards currently under development and economic analysis by EPA. Although no final regulatory actions have yet been taken, nor costs yet estimated by EPA, industry officials fear that complying with these regulations without some relief will significantly increase their compliance costs and threaten the economic future of hundreds of foundries.

OSHA's lead standard is acknowledged to have a severe potential economic impact on certain industry segments, particularly the brass foundries and to a lesser degree some iron foundries. OSHA has not performed an economic assessment of implementing the current lead standard. However, in 1977 it sponsored a study ^{1/} of a substantially less stringent standard which still reported, nevertheless, that many small brass and bronze foundries would close, capacity and competition would be reduced, productivity

^{1/}Prepared for OSHA by D. B. Associates, Inc., Technical Feasibility, Costs of Compliance and Economic Impact Assessment of the Proposed Standard for Lead for Selected Industries, February 1977.

could decline by 22.5 percent, and obtaining necessary occupational professionals would be difficult. The study's best estimates of capital expenditures and annual operating costs would be \$161 million and \$41.2 million, respectively. About 1,620 foundries cast some bronze, and it is the primary metal cast for about 750 foundries according to Penton/IPC. The Cast Metals Federation and other industry associations have already challenged this standard and OSHA has been reexamining elements of it as well.

IMPORTS ARE GROWING

Overall, casting imports are small, but are rapidly growing. While no comprehensive statistics on imports are available, the Department of Labor's Office of Trade Adjustment Assistance (OTAA) has developed estimates--by major metal poured--of U.S. production, exports, and imports.

The levels of reported imports for iron and steel castings are low, but OTAA states that this may be significantly underestimated due to a large portion of imported castings being classified instead as finished products. For both iron and steel castings imports have increased more than three times faster than domestic production from 1975 to 1979.

The OTAA investigation of diecasters, who pour over 60 percent of the tonnage cast by aluminum foundries, indicates a level of imports about double ferrous levels. Also imports of brass castings have reached 16 percent of domestic production in 1979, including products such as plumbing supplies and hardware.

Casting imports appear to be increasing in the high-technology, engineered casting sector, although we were unable to quantify this increase due to lack of overall statistics. While the major reason for imports was lower price, a number of importing firms reported to us that they were purchasing castings--at premium prices--from technologically advanced foreign sources. Another reason was that lead times from domestic plants of 8 to 12 months were commonplace.

One energy firm requires extremely rigid specifications and inspection procedures, and has had to tighten these further because of domestic foundry performance problems, including pits and fractures that cannot be acceptably repaired. Officials of another energy firm explained that new crude oil discoveries are typically higher in sulphur content requiring the upgrading of refinery piping, valves and fixtures, at an industrywide cost estimated to be \$20 billion, \$11 billion of which is for equipment and materials. These firms feel that not enough capable foundries exist in the United States to supply the products, and major increases in imports appear likely. A February 12, 1981, Purchasing article disclosed

that the last three big refinery jobs in the United States went to the Japanese. American companies, who have been losing the market share in valves, "weren't even asked to bid," the article said.

One valve manufacturer produces 25 percent of its castings and imports the remaining cast valve bodies because of lower prices and higher quality. The rejection rate for their own castings is five times higher than for the imports and a typical stainless valve body can be imported for \$490, whereas the lowest domestic quote was \$1,100. The opinion of the buyer is that the domestic foundry industry lacks the high speed, modern equipment being used overseas, and where the equipment is in place, its full utilization lags due to labor skill problems in U.S. foundries.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The Commerce Department's Office of Basic Industries monitors and analyzes basic industries, the third largest of which is the foundry industry. However, the Office of Basic Industries' organizational structure appears to hinder comprehensive analysis of foundry problems (see p. 1). OBI has placed a very low priority, in terms of staffing, on monitoring and analyzing the foundry industry; less than 1 staff year was devoted to foundries in 1980 by OBI and assigned staff have undergone frequent turnover.

The Office of Basic Industries' data files do not appear consonant with the quantitative importance of the foundry sector; they provide at best an incomplete knowledge of industry trends and their effect on the national industrial base (see p. 3).

Further impediments to the analyses of the foundry industry by OBI and others are the classification problem and contradictory information published by the Bureau of the Census in the Census of Manufacturers and Annual Survey of Manufacturers and Current Industrial Reports on the number of active foundries and shipment tonnage (discussed in EMD-81-134, Sept. 15, 1981, pp. 16-17). We realize that full and complete reconciliation may be expensive and unnecessary but the Census Bureau should attempt to reduce these differences or at a minimum cross-reference explanations in these publications.

OBI has no formal channels of communication within Commerce and with other Government agencies which could help alert OBI to new foundry data (see p. 3). For example, OBI's ferrous

castings specialist was unaware of pertinent Census Bureau data on the industry as well as special foundry studies published by other Government agencies. If the Office of Basic Industries is to effectively monitor and analyze this important industrial sector, closer coordination and cooperation are needed with other foundry data sources. Also, continuous contact between the Office of Basic Industries and the Interior Department's Bureau of Mines is needed during the latter's development of an econometric model of the foundry sector to be completed in 1984.

As stated in our earlier report, we are concerned over trends in foundry closures and their impact on foundry capacity. Two possible explanations for trends are the impact of Federal regulations and increasing imports. Although no definitive judgment on their role in closures could be made given existing data, we feel further examination of both issues by the Office of Basic Industries is required. For example, poorly documented Federal and private estimates of regulatory costs and impacts, vary substantially. Estimated regulatory costs as a percent of capital spending range from less than 10 percent reported by the Census Bureau to 35 percent reported by the Cast Metals Federation (see p. 4). Also, fragmentary import information shows a small but rapidly growing level of total casting imports with particular concern for high technology castings. Iron and steel castings imports have increased more than three times faster than domestic castings production between 1975 to 1979 (see p. 6).

Recommendations

While serious, many of the inadequacies referred to earlier can be corrected or ameliorated at minimal expense through better use of existing Government and private data. OBI should take full advantage of these data banks to help fulfill its monitoring and analysis responsibilities. We recommend that the following be done by the Secretary of Commerce to ensure that better, more reliable foundry data be created and effectively used:

- Initiate preparation of memoranda of understanding with the Secretary of Labor and the Administrator of the Environmental Protection Agency for the purpose of keeping the Department of Commerce's Office of Basic Industries apprised of planned, ongoing, and completed work related to the foundry industry.
- Ensure that adequate resources are assigned within the Office of Basic Industries to ferrous and non-ferrous casting and foundry equipment sectors. Also require OBI to establish continuous contact with the Bureau of Mines, Department

of the Interior, for beneficial collaboration in development of the foundries sector industrial model being sponsored by the Bureau.

--Through the Department's designated Chief Economist:

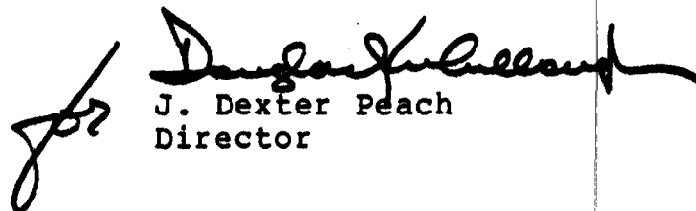
--Direct the Office of Basic Industries to annually develop a list of foundries closed, reasons for the closure, and other data necessary to determine the impact of closures on the foundry industry, such as capacity and employment effects.

--Direct the Bureau of the Census to include in the Census of Manufactures or Current Industrial Reports, reconciliations or explanations for the discrepancies in foundry shipment data between these two publications.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of the Federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We discussed matters presented in the report with appropriate Commerce officials. We appreciate the courtesy and cooperation extended to our staff during the review and would appreciate being informed of any actions taken as a result of our observations and suggestions.

Sincerely,

 J. Dexter Peach
Director