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**THE CANADIAN FERROUS FOUNDRY INDUSTRY
REPORT OF THE 1976 NATIONAL SURVEY**



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THE CANADIAN FERROUS FOUNDRY INDUSTRY
REPORT OF THE 1976 NATIONAL SURVEY

PREFACE

This report is an update of the 'Report of the Canadian Ferrous Foundry Industry 1974 National Survey'. It is the result of a cooperative effort by the Canadian Ferrous Foundry Industry, the Ministry of Industry, Trade and Commerce, and the Federal Department of Industry, Trade and Commerce. It is presented to the statistical community of the industry in 1977, reflecting the conditions of the industry in 1976. The method of presentation has a twofold purpose: to inform the Canadian ferrous foundrymen and specialists in the industry of the results of the study, and, secondly, to present a study of the industry to government and other interested people not directly associated with the industry.

The need for a periodic update of the information collected in the 1974 survey was recognized by the industry and the Department of Industry, Trade and Commerce. The industry agreed to carry on by themselves. The Department agreed to assist on the basis of Provincial Government cooperation in the 1974 survey.

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Recognition should be given to all those in the various Provincial Ministries of Industry who contributed to the gathering and processing of this information before presenting it to the Department of Industry, Trade and Commerce. Of equal importance were the efforts of all those in the Department of Industry, Trade and Commerce who contributed toward the initiation of the work and the preparation of this report. Finally, special recognition should be given to all those in the foundry industry who, through their valuable time and effort, to supply this data without which this report would not have been possible.

THE CANADIAN FERROUS FOUNDRY INDUSTRY

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FOREWORD

This report is an update of the "Report of the Canadian Ferrous Foundry Industry 1974 National Survey". It is the result of a cooperative effort by the Canadian ferrous foundry industry, the Ministries of Industry of eight Provincial Governments and the Federal Department of Industry, Trade and Commerce. It is presented as the statistical summation of the data gathered during 1976, reflecting the conditions of the industry in 1975. The method of presentation has a two-fold approach; to inform the Canadian ferrous foundrymen and specialists in the industry of the results of the study, and secondly, to present a study of the industry to government and other interested people not directly associated with the industry.

The need for a periodic update of the information offered in the 1974 report was recognized by the Canadian Foundry Association. However, since they were in the throes of getting organized at the time, they asked the Department of Industry, Trade and Commerce to conduct the first update after which they felt they could carry on by themselves. The Department agreed to assist on the basis of Provincial Government cooperation as in the 1974 survey.

Recognition should be given to all those in the various Provincial Ministries of Industry who contributed to the gathering and processing of this information before presenting it to the Department of Industry, Trade and Commerce. Of equal importance were the efforts of all those in the Department of Industry, Trade and Commerce who contributed toward the collation of the data and the preparation of this report. Finally, special recognition should be given to all those in the foundry industry who gave their valuable time and effort to supply this data without which this report would not have been possible.

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SUMMARY

This 1976 National Survey is an update of the Report of the Canadian Ferrous Foundry Industry 1974 National Survey, and most of the observations made about the industry in 1974 remain true in 1976. The response to the 1976 survey provided less detail than was collected in the 1974 survey. The present study is based on information from 127 iron foundry companies representing 136 manufacturing establishments and 23 steel foundry manufacturing establishments. Although they were in business at the time, 36 iron foundry companies and 5 steel foundries did not respond to the survey.

During 1973 and 1974, the peak of a business cycle, most foundries reported a shortage of both skilled and unskilled labour. Further, in Ontario and Québec most skilled employees were over 45 years of age, the unskilled employees were mostly in their mid twenties. By 1976, the industry was experiencing a serious decline in the business cycle. Foundries reported no shortage of labour except in a few skilled categories. It is interesting to note that age ranges have changed somewhat with employees 31 to 45 years of age being common in all categories.

The ferrous foundry industry remains a major consumer of energy, however, due to the rapid escalation of prices in recent years, it is no longer meaningful to compare the costs of energy in different periods of time. In 1976 an unsuccessful attempt was made to get quantitative values for the various forms of energy being used. The following table is useful only in illustrating the rapid climb of energy costs since 1971.

<u>YEAR</u>	<u>NO. OF FDRIES (IRON AND STEEL)</u>	<u>TOTAL ENERGY COSTS \$ MILLIONS</u>
1971	176	21.7
1972	176	24.6
1973	176	32.0
1974	136	40.7
1975	148	60.7

During 1974 and 1975, 66 iron foundry companies and 13 steel foundry companies spent a total of \$18.6 million on environmental control, mostly on atmospheric problems. During the same period, 108 iron foundries and 18 steel foundries spent a total of \$79.9 million on capital investment, excluding environmental control. Over the period 1976 to 1980, the industry has indicated it will spend a further \$52 million for environmental control and \$147.3 million on other capital investments.

Concerning tonnage and value of sales for 1974 and 1975, company returns were difficult to compare. Some replies specified both tons and dollars, others gave only one measure, others again volunteered no information on sales.

In addition, few gave complete data for the five-year period. As in the preparation of the 1974 report, when tonnage values only were received, dollar values have been estimated wherever possible. These estimates were made on the basis of comparable shipments to the same, or similar markets and reflect the dollars per ton information supplied by some foundries. On this basis, aggregate shipments in 1975 appear to have been 1.16 million tons of iron and 206 thousand tons of steel castings for an estimated total value of \$859.5 million.

To get a clearer picture of the market distribution for castings, the questionnaire was modified for the 1976 survey. The major domestic markets in 1975 are shown below as a percentage of total tonnage produced.

<u>IRON CASTING PRODUCTION</u>		<u>STEEL CASTING PRODUCTION</u>	
<u>MARKET</u>	<u>%</u>	<u>MARKET</u>	<u>%</u>
Motor Vehicle Equipment	35.1	Railway Equipment	
Municipal Govt's and		and Operations	59.4
Construction	21.4	Mining Equipment and	
Agricultural Equipment	6.2	Machinery	15.9
Mining Equipment	4.3	Motor Vehicle Equipment	7.2
Railway Equipment and		Machinery n.e.s.	4.2
Operations	2.4	Valves and Pumps	2.9
Others	30.6	Others	10.4

Export Sales for 1975 amounted to \$124 million for iron castings and \$18.4 million for steel castings. The U.S. continues to be our major foreign market for ferrous castings taking approximately 99% of export tonnage. Exports are predominately high volume, low unit cost items. Exports of iron castings represent 24.7% and steel castings 5% of total tonnage shipped. The following table shows the relative importance of major export markets in 1975.

<u>IRON CASTINGS EXPORTS</u>		<u>STEEL CASTING EXPORTS</u>	
<u>MARKET</u>	<u>%</u>	<u>MARKET</u>	<u>%</u>
Motor Vehicle Equipment	74.6	Motor Vehicle Equipment	40.2
Municipal Govt's and		Mining Equipment and	
Construction	15.4	Machinery	29.4
Agricultural Equipment	4.3	Valves and Pumps	8.7
Others	5.7	Others	11.7

In the 48 iron and 11 steel foundries reporting, a total of \$3.6 million was spent on all forms of industrial research and development. Of this, approximately 80% was spent on product development.

As in 1974, many of the statistics reported in the body of this report and the attached appendices conflict with figures reported by Statistics Canada. No effort has been made to reconcile these figures for the reasons given below:

- Statistics Canada collect data primarily to contribute information to the report on the Gross National Product; not necessarily as a tool for foundry management.
- Statistics Canada's method of collecting the data is by mailing out a questionnaire and requesting a prompt and accurate reply. This method can produce responses of uneven accuracy.
- Statistics Canada's practice of classifying a company by its major activity, which means that some foundries are not included in the iron foundry report. Similarly, steel foundries are classed as part of the basic steel industry and their identity is lost.
- For export, or import data, "castings" means rough castings only. If a foundry classifies a casting as a component part of an assembly or, if any machine work is done to it, it loses its identity as a casting and is not recorded as such.

This report is aimed at offering information as a tool for management. The questionnaires were mailed to the foundries by provincial Ministries of Industry requesting a response. All ferrous foundries were canvassed regardless of their major manufacturing activity. Exports as defined in this report are those products that go from the foundry directly to a foreign buyer regardless of function or machine work done on them. No attempt has been made to rationalize the difference between the data in this report and figures supplied by Statistics Canada.

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OBSERVATIONS AND CONCLUSIONS

During the period 1971 to early 1976, when the survey was conducted, the ferrous foundry industry went through one complete business cycle; from a period of low demand and significant idle capacity, through a period of maximum demand with approximately 82% effective utilization of plant capacity, back to a period of low demand and unused capacity. The observations and conclusions of the 1974 National Survey are essentially true today and can be restated with only minor modifications, as follows:

1. The Canadian ferrous foundry industry suffers many of the problems and constraints typical of fragmented and heterogeneous small industry. With the exception of a few new plants, and several older ones that have been modernized and expanded, which constitutes an estimated 60% to 70% of total capacity, many smaller Canadian foundries still operate with obsolete equipment and outdated techniques.
2. The industry remains basically labour intensive despite major modernization investments. Labour shortages are critical in such categories as the skilled trades, technical and managerial levels.
3. Environmental control measures have diverted resources from modernization programs, which in the long run, would have alleviated the pollution problems, and at the same time would have increased the industry's efficiency.

4. In recent years the industry has spent large sums on modernization and expansion programs and will probably continue to do so. The cyclical nature of the industry and historically poor return on investment discourages investors. However, plants which have modernized have generally realized a better return on investment.

5. During this past business cycle the foundry industry has experienced price increases and material shortages unprecedented in peacetime. Ferrous scrap prices went from \$40.00 per ton to over \$150.00 per ton and back to \$75.00. Pig iron rose from \$65.00 per ton in 1971, over \$150 per ton in 1974 and has remained at this level. Energy in all its forms has had large increases in price but information on unit price has been difficult to assemble. The supply of materials and energy was a more serious problem than price during the peak production period. Shortages of scrap, pig iron and coke threatened the operations of many foundries. While these problems have been eased in the downturn of the business cycle, they can recur and disturb the orderly growth of the industry. It should be noted that Canada's only merchant coke producer has ceased production and Canadian foundries are now totally dependent on foreign sources.

6. Almost 99% of total export trade is with the U.S.A., predominantly in the high volume, low unit cost, low profit items, and frequently in tariff-free categories such as automotive and farm equipment. Efforts to increase exports outside the tariff-free categories have been hampered by U.S. customs rulings. Examples are the classification of ductile iron as steel castings, attracting a higher tariff; charges for engineering drawings and patterns included as part of the dutiable value of the casting; rough castings classified as end-use components, rather than castings (Canadian tariff regulations classify these products as "castings" regardless of end-use). Measures such as these have frequently prevented Canadian foundries from competing on an equal basis in the U.S.A.

7. Annual statistics relating to the ferrous foundry industry are inadequate. Information provided by Statistics Canada is:
 - combined with other industries (as with the steel foundries)
 - produced so long after the fact it is of historical value only.

8. Basic and applied research is virtually non-existent in the Canadian ferrous foundry industry. Spending reported in these two categories in 1975 was \$722,000 or approximately 0.1% of sales. An additional 0.4% of sales was expended for product and process development. Most Canadian foundries adopt foreign technology, often paying royalties.

9. The foundry industry originally developed to serve regional markets. Factors discouraging major expansion include the size of these local markets and the transportation costs to more distant markets. The scarcity of skilled manpower is another constraint since the older manufacturing techniques used by many Canadian foundries depend heavily on large numbers of skilled tradesmen. In some areas of Canada today, many of these constraints still exist. The local markets are small and distances present expensive transportation costs for both raw materials and finished castings. Large pools of skilled labour do not exist in these areas and the volume of business does not permit extensive modernization to reduce dependence on skilled labour. The opportunity for expansion and modernization of regional foundries varies in proportion to reasonable access to markets.

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PART I

INTRODUCTION

The report of the 1974 National Survey devoted considerable space to a discussion of the development and growth of the Canadian ferrous foundry industry. The 1976 survey has confirmed that the industry continues to grow with little change in the centres of concentration. Please refer to Charts 1, 2A and 2B of Appendix 2.

The iron foundry business remains concentrated in Ontario where 74% of iron casting capacity is located. Since 1973 iron foundry business nationally has climbed from 1,673,832 to 1,772,785 tons despite the closure of six large establishments and several smaller firms. Thirty-six foundries did not return the 1976 questionnaire, twenty-five of these being in Ontario.

Montréal continues to be the focus of the major concentration of steel foundry capacity. Of the established steel foundries in 1974, five across Canada declined to answer the survey, consequently, capacity figures reported for Ontario and Western Canada are significantly below the actual capacity. The annual capacity shown in Chart 2B does not include the contributions of two new foundries which have just recently begun operations.

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PART II

PURPOSE AND PROCEDURE

THE NEED FOR A STUDY OF THE FOUNDRY INDUSTRY

In the early 'seventies a group of iron foundry managers, recognizing both the growing opportunities for and the increasing complexity of the foundry industry, began to examine more critically the industry information and data available for business purposes. It was concluded that there was a need for information more specialized and characteristic of the foundry business than was available from Statistics Canada.

This need culminated in the 1974 National Survey of the Canadian Ferrous Foundry Industry.

METHOD OF APPROACH

Following the publication of the Canadian Ferrous Foundry Industry Report of the 1974 National Survey, the fledgling Canadian Foundry Association asked the Department of Industry, Trade and Commerce if it would conduct an updating along the lines of the first. The Department agreed subject to the continuing participation of the provincial governments. Subsequently, a new questionnaire was drawn up providing somewhat more information than the original. (See Exhibit 1, Appendix 1). The provinces offered to distribute and collect the questionnaires. The Department of Industry, Trade and Commerce was given the responsibility of analysis and report preparation.

THE INFORMATION PROBLEM

Statistics Canada publishes several reports which have some limited significance for the foundry industry. The principal publications (and their limitations) are:

Catalogue 41-226 "Iron Foundries" is an annual report dealing with manpower, materials and energy costs. It also shows quantity and value of shipments. Apart from the time delay in reporting, more than two years between the year end and date of publication, there is another major problem: not all foundries participate in this survey due to the classification of a company by its major manufacturing activity, even though an excluded company may have a large foundry.

Catalogue 41-004 "Iron Castings and Cast Iron Pipe and Fittings" a monthly tabulation of production and shipments. Iron castings other than pipe and fittings are given in total only. There is no geographical or size breakdown and figures are complicated by the inclusion of information concerning steel pipe and fittings.

Catalogue 41-001 "Primary Iron and Steel". This monthly publication gives the production of steel castings but little else of direct significance to the foundry industry.

Catalogue 65-004 "Exports by Commodities"

and

Catalogue 65-007 "Imports by Commodities". These are monthly reports on the quantity and value of domestic

exports and imports, showing the countries to which the commodities are exported, and the source of imports. These reports have the following two shortcomings:

- (1) castings which are further processed are no longer shown as castings
- (2) import values reported are value for duty rather than market value

In summary, the information available from Statistics Canada on the foundry industry is incomplete and, in many cases, somewhat confusing. This should not be construed as a criticism of that group, since when consideration is given to the reason for the data collection, and in some cases the poor quality of response, the staff of Statistics Canada does an excellent job. A major reason for collecting the data is to compile figures to contribute to the Study on Gross National Product. It is not done to be used as a tool for foundry management. The method of collecting the data and the quality of the replies also leave much to be desired. The questionnaires are mailed to the various companies and a prompt and accurate reply is requested. The demand on the manager's time to complete these reports frequently leaves him less than enthusiastic, hence a degree of co-operation may be lacking. In other instances, the manager does not see the completed questionnaire to verify the figures, since completion is done by the accounting department or some other service department within the company. This can lead to a further deterioration of the quality of the reply.

There is a requirement for the continuous publication of an effective set of foundry statistics, that can be used as a tool by foundry management. One of the objectives of this report is to highlight this need and to investigate methods of implementation.

Many of the statistics presented in the various charts and tables of this report will vary considerably from those published by Statistics Canada. In view of the above explanations, this is to be anticipated. Wherever possible, an explanation of the differences will be given.

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PART III

GENERAL STATEMENT OF RESULTS

Questionnaires were distributed to the provincial government offices in late May of 1976. by December 1976 replies had been received from 127 iron foundry companies representing 136 manufacturing establishments and 21 steel foundries representing 23 manufacturing establishments. In Chart 1, the iron foundry figures represent numbers of companies whereas the steel foundry figures represent individual manufacturing establishments due to their locations in various regions of Canada. Complete or nearly complete coverage in terms of company responses was received in all provinces except Ontario where most of those companies which did not respond were in the jobbing or custom manufacturing business. If one adds to the reported capacities shown in Charts 2A and 2B, the 1973 stated capacities of the foundries that declined to answer the latest inquiry, the 1975 results show the iron foundry industry has responded in excess of 90% of the total capacity whereas the steel foundries have reported approximately 70% of total capacity.

Sections IV, V and VI of this report present the results of the survey in detail. The more important highlights are:

- (a) realizing that the 1976 survey was conducted when the economic cycle was on the wane, the industry no longer reported a serious shortage of manpower, except in a few specialized fields such as millwrights, electricians, etc. In all, the foundry industry, for 1975, reported a total employment of 19,600 people in all categories.

(b) The contrast between 1973 and 1975 is shown in capacity utilization. From the information of plant capacity as shown in Chart 2 and total production as shown in Chart 10, the iron foundry industry had a plant utilization of 65.5% whereas the steel foundries had a plant utilization of 83%. The higher plant utilization by the steel foundries, in the face of a declining market is explained by a large backlog of orders which carried them well into 1976.

(c) the industry has continued to put money into environmental controls and in the two years, 1974 - 1975, 66 iron foundry firms spent \$16.8 million, mostly for air pollution control. In the same period, thirteen steel foundries reported spending \$1.8 million. Over the five year period of 1976 - 1980, the ferrous foundry industry anticipates spending a further \$52 million for environmental control. In the future more emphasis will be placed on noise and environmental health.

(d) expansion and modernization programs in the industry have continued to consume a considerable amount of capital. In the years 1974 - 1975, 108 iron foundry firms spent a total of \$61.8 million. In the same period 18 steel foundries spent a total of \$18.1 million. In the period 1976 - 1980, the ferrous foundry industry estimates they will spend \$147.3 million for further capital investment, all of which is in addition to the cost of environmental controls.

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PART IV

PRODUCTION DETAILS

GENERAL INFORMATION

Before considering the specifics of production, market and capitalization of the industry, a few general remarks on ownership, available production, and foundry societies are appropriate.

OWNERSHIP

Three categories of ownership are recognized:

- privately controlled
- subsidiary of a Canadian company
- subsidiary of a foreign company

Charts 3A and 3B show the distribution of ownership by province, or in the case of steel foundries, by region. Of the 127 iron foundry companies responding, 107 or 85% are Canadian-owned; 20 companies or 15% are subsidiaries of foreign companies. Of the 23 steel foundry operations (representing 21 companies) 15 or 65% are Canadian-owned, and 8 or 35% are foreign-owned.

DEFINITION OF FOUNDRY CLASSIFICATIONS

For the purpose of this report, a "captive" foundry is one whose total production is used within the corporation. A "jobbing" foundry is one that only does custom founding for other clients. Foundries can be partially captive and partially jobbing. In the 1974 study, the three categories were shown separately, however, in the 1976 study, Charts 2A and 2B show only the jobbing

capacity and the captive capacity. The jobbing capacity includes all the custom jobbing foundries plus the custom capacity of a captive foundry. It is shown that 43% of our total capacity of iron foundries is available for custom work, while only 15% can be considered captive.

MANPOWER

The industry is a comparatively large employer as shown below:

EMPLOYMENT BY YEAR

	<u>1974</u>		<u>1975</u>		<u>1980</u>	
	<u>FDRIES</u>	<u>PEOPLE</u>	<u>FDRIES</u>	<u>PEOPLE</u>	<u>FDRIES</u>	<u>PEOPLE</u>
Iron	110	13,713	125	14,226	99	9,775
Steel	21	5,109	22	5,363	17	5,275
TOTAL	131	18,822	147	19,589	166	15,050

The above figures are taken from replies to the questionnaire. If we add to this an estimate of the numbers of employees of the companies that declined to reply, total employment is in the order of 22,000 for 1975. Some foundries have subsequently ceased operations, others have come into production and a net loss of jobs has occurred since 1975. The figures for 1974-1975 and an estimate for 1980 are shown on Charts 4, 5 and 6.

Foundry size and distribution in terms of numbers of employees are shown on Charts 8A and 8B for 1974 and 9A and 9B for 1975. Of the 125 iron foundries responding to this question, 68 foundries or 54.4% employed 50 or fewer people; 95 or 76% employed 100 or less. Of the 22 steel foundries responding, 7 or 32% of the total employ 50 or fewer; while 9 or 41% employ 100 or fewer.

Charts 7A and 7B indicate that most employees in all occupation categories are between 31 years and 45 years of age.

PRODUCTION

The expressions maximum plant capacity, production, and shipments are frequently confused. In this study, capacity is defined as "the maximum tonnage of finished castings, both captive and commercial, assuming a normal mix, that the foundry would be prepared to ship on an economical basis, using existing facilities, in one month".

Production is the actual number of tons of acceptable castings produced whether for shipment or inventory. Charts 2A and 2B show the capacity as reported by 127 iron foundries and 22 steel foundries for 1975. Charts 10A and 10B show the production by grade of iron and steel for 1975 by province as reported by 117 iron foundries and 21 steel foundries.

Charts 10A and 10B show that the most common grade of iron produced is gray iron, being 72% of total production, followed by nodular iron 22%, malleable 2.6%, alloy irons 2%, and white iron 1.4%. The most common grade of steel is carbon steel, being 74% of production, followed by 14% low alloy grades, manganese steel 8%, and 4% high alloy steel.

MELTING

A wide range of melting facilities are available to the foundry industry. These include the coke-fired cupola; the electric arc furnace; the coreless induction electric furnace; the channel induction electric furnace; the rotary oil or gas fired furnace, and the reverbatory coal or gas fired furnace. Most foundries tend to use one melting system only, however, some do have more than the one. Sometimes these methods are used independently of each other, but frequently they are used as a duplexing operation, especially in iron foundries, to increase their melt capacity, the iron being melted in one unit and refined or held in the second. The numbers of systems are shown on Charts 12A and 12B, and summarized below. The number of foundries shown represent manufacturing establishments reporting in 1975.

<u>MELTING SYSTEM</u>	<u>IRON FOUNDRIES</u>	<u>STEEL FOUNDRIES</u>	<u>TOTAL</u>
<u>No. of Fdries Reporting</u>	128	22	150
Cupola	106	-	106
Electric Arc	18	47	65
Coreless Induction	58	14	72
Channel Induction	25	-	25
Rotary	6	-	6
Reverbatory	15	-	15

MOULDING AND CASTING

Foundries can, and frequently do, use more than one moulding practice, or sand system. An attempt was made in this survey to list the details of the various moulding and sand systems used, but the results in total were too sketchy to be tabulated. We were particularly interested in automated or semi-automated systems. Frequently companies that are known to have automatic moulding machines reported "cope and drag", with no further information. Sizes and numbers of units were, in general, not reported.

Foundry distribution by the maximum weight of casting is of interest. In Charts 11A and 11B the distribution of foundries by maximum size of castings is shown for both iron and steel foundries. It will be noted that 45% of the iron foundries responding have a maximum size of 500 lbs; 80% of all iron foundries responding have a maximum of 5,000 lbs. Of 21 steel foundries responding only 3 have a maximum size of 500 lbs., whereas 12 foundries representing 57% of the total have capacities in excess of 5,000 lbs. It should be emphasized, however, this does not mean that 80% of all iron castings are less than 5,000 lbs. or that 57% of all steel castings are in excess of 5,000 lbs., it merely means that these are the limiting capabilities of this number of foundries.

Quality control is a continuing problem in the foundry industry. All foundries strive to maintain top quality castings. However, not all foundries install the necessary equipment to

adequately measure quality. Many depend on visual inspection only. This is especially true among the iron foundries. Charts 13A and 13B show the numbers and distribution of foundries, with some form of mechanical testing, non-destructive testing, and laboratory facilities. It should be pointed out, however, that the foundries reporting do not necessarily qualify in every category. Indeed very few would. Most who do not have the necessary testing facilities felt that it could be done locally, if required.

RAW MATERIALS AND ENERGY

The worldwide demand for ferrous scrap climbed in 1973, resulting in the United States placing a limitation on the export of scrap. Because Canada is a net importer of scrap, it was necessary to implement the Canadian Export Controls Act. The demand continued well into 1974 but by the end of the year there were indications that the demand was decreasing and as of January 1st, 1975, the U.S.A. removed the export limitations on scrap and Canada subsequently liberalized the scrap export controls. This rise and fall in the demand for ferrous foundry scrap through 1973 to 1975, can be seen in the following Table:

TONS PURCHASED BY YEAR

	<u>1973</u>		<u>1974</u>		<u>1975</u>	
	<u>FDRIES</u> <u>REPORTING</u>	<u>TONS</u>	<u>FDRIES</u> <u>REPORTING</u>	<u>TONS</u>	<u>FDRIES</u> <u>REPORTING</u>	<u>TONS</u>
Iron	126	901,644	107	897,516	114	803,410
Steel	<u>22</u>	<u>152,208</u>	<u>18</u>	<u>196,702</u>	<u>20</u>	<u>195,071</u>
Total	148	1,053,852	125	1,094,218	134	998,481

By mid-1974 the price of scrap in most areas was double what it was in mid-1973. However, with the decreasing demand in 1975, the price of scrap began to fall and at the time of writing this report it has fallen substantially from the 1974 high. Consumption in tons and dollars for iron and steel foundries is shown in Charts 14A and 14B.

The price of pig iron is normally higher than the price of ferrous scrap. For a short period in 1973 and early 1974, the price of scrap exceeded the price of pig iron, but by late 1974 the price of pig iron had again surpassed scrap and has remained at a high level since that time. There were shortages of pig iron when it was cheap relative to scrap, however, the relationship has returned to normal and pig iron is quite readily available again. The consumption and costs of pig iron for 1974 and 1975 is shown in Chart 15A and 15B.

Early in 1973, the industry was faced with its first wave of fuel shortages and the beginning of the rapid escalation of prices. In the 1974 questionnaire, only dollar values for energy consumption were requested with the exception of coke, where information in both tons and dollar values was requested. In the questionnaire for the 1976 study, quantitative values for the various forms of energy were solicited. The information received was very incomplete as not all foundries had the required data available. Consequently, there is no relationship between the quantity of energy used and the dollar outlay. The figures for the consumption of energy in the iron foundries for 1974 and 1975 are shown in Charts 16A and 17A, and for the steel foundries during this period, the figures are shown in 16B and 17B. It should be noted that each chart is in two parts - Part 1 and Part 2.

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PART V

SALES AND MARKETS

While the value of annual sales for 1971 to 1973 were shown in the 1974 Ferrous Foundry Report, shipments were reported only for 1973. For the 1976 study an attempt was made to obtain both tons and dollars for 1971 through to 1975. In addition the study tried to determine how much steel was made by iron foundries and how much iron was made by steel foundries. The responses obtained were most difficult to interpret and compare because few returns were totally complete. However, interpolation proved to be possible and although the values shown on Charts 19A and 19B are not strictly as reported, it is felt that the degree of error between estimate and actual is small. Once again, due to the size of the chart, each is presented in two parts.

Of interest to many foundry marketing people is the extent of the market in terms of distance from the foundry. For 1975, 119 iron foundries reported that \$388,000 or 64% of reported sales was sold domestically within 300 miles of the producing plant, while a further \$95.5 million or 15.7% was sold domestically beyond 300 miles of the foundry, and \$124 million or 20.4% went to export. The 22 steel foundries reported \$1.56 million or 53.5% was sold domestically within 300 miles of the plant, \$73 million or 37.2% was sold domestically beyond 300 miles; while only \$18.4 million or 9.3% went to export. These figures are shown in detail on Charts 21A and 21B.

The 1974 ferrous foundry report was the first attempt to measure the size of certain specific markets for ferrous castings in Canada and for export. However, there was some ambiguity in the wording of the question. In an effort to clarify this, the 1976

study extended the list of specific markets and defined the categories more carefully. This question was answered by all foundries and the results are shown for domestic shipments in Charts 22A and 22B and for exports in 23A and 23B.

In order of importance, the domestic market for the iron foundry group in 1975 was motor vehicle equipment 35%, construction and municipal castings including manhole frames, covers, etc. 21%, and agricultural equipment 6.2%.

Exports of iron castings in 1975 amounted to 311,760 tons of which 75% went to the automotive market, while 15% was of the municipal and construction category and 4.3% was agricultural equipment.

The major domestic market for the steel foundry groups in 1975 was railway and locomotive equipment totalling 59% of total shipments, followed by mining equipment and machinery as 16%, and primary automotive market at 7%.

The export of steel castings in 1975 amounted to 9,948 tons of which 40% went to primary automotive markets, while 29% went to mining equipment and machinery.

In the iron foundry industry 94% of the tons exported are in three industries which are, in order of size, motor vehicles, municipal and construction castings, and agricultural equipment. These three markets represent high volume, low unit cost castings. In the steel foundry export market, 70% of the export were in two major categories, automotive primary market, 40%; and mining equipment and machinery, 29%.

RESEARCH AND DEVELOPMENT

As a percentage of total dollar sales, very little money is devoted to research and development by Canadian iron and steel foundries. Due to the small number of companies reporting and the regional distribution of these reports, full disclosure of this section is inappropriate. A summary of research and development costs for 1975 shows that one iron foundry spent a total of \$5,000 on pure research, while ten iron foundries and four steel foundries spent a total of

\$722,000 on applied research or 0.1% of total sales; 48 iron foundries, and 11 steel foundries spent a total of \$2,869,000 on product and process development, or 0.4% of total sales. The overall R & D activity amounts to 0.5% of total sales in the ferrous foundry industry.

There are a number of federal government programs to help fund research and development programs. While these are designed to assist one company or, under special contractual arrangements a small group of companies in a similar field working on a specific project, they are not available to industry associations or societies as a group. The programs are administered by various departments or agencies of the federal government such as - Industry, Trade and Commerce, National Research Council, et.

THE CANADIAN FERROUS FOUNDRY INDUSTRY

REPORT OF THE 1976 NATIONAL SURVEY

PART VI

CAPITAL EXPENDITURES

MODERNIZATION AND EXPANSION

The loss of production capacity in the iron foundry industry as reported in the 1974 National Survey has continued through 1974 and 1975 and to the time of preparing this report, Canada has lost a further nine iron foundries, some of which are in the medium to large size category. The cost of modernization, poor market conditions, and the traditional poor return on investment have been the major causes of most of these foundry closures. During this same period, however, a number of new iron foundries have come into being, some of which are medium size, very modern operations.

The steel foundry industry has not experienced the same attrition. During this period, there have been no closures of existing steel foundries and of the two new operations that started up, one has subsequently ceased operations.

The increasing cost of labour and materials and the continuing demand for higher quality has increased the pressures for modernization and automation. Some companies have combined modernization and automation with expansion programs. Charts 24A and 24B show the expenditures for capital investment, exclusive of environmental control costs, for 1974 and 1975 (with a forecast for 1976 to 1980). During this period 108 iron foundries and 18 steel foundries spent a total of \$79,900,000 for capital investment. The forecast by 98 iron foundries and 17 steel foundries indicate a further expenditure of \$147.3 million in the next five years.

ENVIRONMENTAL CONTROL

The outlay for environmental controls to improve the working conditions and reduce pollution continues to be a factor seriously effecting the availability of capital for the industry. The cost is high with very little immediate return on investment. However, better working conditions may lead to improved labour relations that increase productivity. In the years 1974 and 1975, 66 iron foundries spent a total of \$16.8 million, while 13 steel foundries spent a total of \$1.8 million on environmental controls. It is indicated by 74 iron foundries and 13 steel foundries they anticipate spending a further \$52 million in the years 1976 to 1980. These costs are over and above the cost for capital expenditures in other areas, as indicated in the previous section. Details of the expenditure for environmental controls are shown on Charts 18A and 18B.

THE CANADIAN FERROUS FOUNDRY INDUSTRY

REPORT OF THE 1976 NATIONAL STUDY

APPENDIX I

The Questionnaire used to gather the
Data Incorporated in this Study



ENQUÊTE DE 1976 SUR LA FONTE DES MÉTAUX FERREUX

PART - PARTIE 1

CORPORATE STRUCTURE - ORGANISATION DE LA SOCIÉTÉ

1. Company name - <i>Nom de la société</i>	Telephone - <i>Téléphone</i>
Head office address - <i>Adresse du siège social</i>	Telex - <i>Télex</i>
	Postal code - <i>Code postal</i>

Foundry address(es) - *Adresse(s) de la (des) fonderie(s)*

Executive officers - <i>Administrateurs</i>	Titles - <i>Titres</i>

Officer to contact - <i>S'adresser à:</i>	Person interviewed - <i>Personne interviewée</i>
-------------------------------------------	--------------------------------------------------

<p>2. Is this company: - <i>Votre société est-elle</i></p> <p>a) privately controlled? <i>privée?</i> Yes <input type="checkbox"/> No <input type="checkbox"/> <i>Oui</i> <i>Non</i></p> <p>b) wholly owned subsidiary of a Canadian company? <input type="checkbox"/> <i>une filiale en propriété exclusive d'une société canadienne?</i></p> <p>c) wholly owned subsidiary of a foreign company? <input type="checkbox"/> <i>une filiale en propriété exclusive d'une société étrangère?</i></p>	<p>3. The production of your foundry is: - <i>La production de votre fonderie est:</i></p> <p>captive <input type="text"/> % <i>destinée à une autre société</i></p> <p>jobbing <input type="text"/> % <i>destinée à vos propres clients</i></p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

4. Number of people employed in the foundry operation <i>Nombre de personnes travaillant à la fonderie</i>		1974	1975	1980 Forecast <i>Prévision</i>	1975 Average age <i>Moyenne d'âge</i>
1. Managerial <i>Personnel de gestion</i>					
2. Sales and marketing <i>Personnel de vente et de mise en marché</i>					
3. Production supervisory <i>Superviseurs de production</i>					
4. Staff technical <i>Personnel technique</i>					
5. Clerical <i>Personnel de bureau</i>					
6. Moulders <i>Mouleurs</i>	a) Floor <i>manoeuvres</i>				
	b) machine operators <i>opérateurs de machines</i>				

4. Number of people employed in the foundry operation <i>Nombre de personnes travaillant à la fonderie</i>	1974	1975	1980 Forecast <i>Prévision</i>	1975 Average age <i>Moyenne d'âge</i>
Maintenance <i>Personnel d'entretien</i>				
Pattern makers <i>Modeleurs</i>				
Production (all others) <i>Production (toutes les autres catégories)</i>				
Totals <i>Totaux</i>				

5 a) Does a labour shortage exist? *Votre société connaît-elle une pénurie de main-d'oeuvre*

Yes
Oui

No
Non

b) If yes, to what extent and in which categories?

Dans l'affirmative, dans quelle mesure et dans quelles catégories d'employés?

c) Of these categories, in (b), what is the:

Dans les catégories mentionnées en (b), quelle est:

average length of service
la durée moyenne d'emploi

rate of turn-over per year
le pourcentage annuel de roulement

6. Are there any specific problems associated with obtaining reliable labour?
L'embauchage d'employés dignes de confiance vous pose-t-il des problèmes?

Yes
Oui

No
Non

Elaborate – *Veillez préciser*

PART - PARTIE 2

7. What is the MAXIMUM tonnage of finished castings, both captive and commercial assuming a normal mix, that the foundry would be prepared to ship on an economical basis, using existing facilities, in one month?

Quel tonnage MAXIMAL de moulage finis produits pour le compte d'une autre société ou pour divers clients, si l'on présume une production suffisamment mixte, votre fonderie est-elle en mesure d'expédier de façon économique, au cours d'un mois, grâce aux installations existantes?

Iron - Fonte _____ tons - tonnes

Steel - Acier _____ tons - tonnes

8. a) Iron and steel grades shipped. <i>Quels types de fonte et d'acier fabriquez-vous (1975).</i>		% of total tons % des tonnes totales	8b) What is the size range of your castings? <i>Quelle est la série de dimensions de vos moulages?</i>		
Iron - Fonte	Grey <i>Grise</i>		Iron - Fonte: maximum _____ minimum _____		
	Ductile		Steel - Acier: maximum _____ minimum _____		
	Malleable <i>Malléable</i>		9. Melting facilities <i>Installations pour la fusion</i>	No. of units <i>Nombre d'unités</i>	Melting rate tons/hr. <i>Taux de fusion tonnes/hr.</i>
	White <i>Blanche</i>		1 Cupola <i>Cubilot</i>		
	Alloy <i>Alliées</i>		2 Electric arc <i>Arc électrique</i>		
Steel - Acier	Charbon <i>Au carbone</i>		3 Coreless induction <i>Induction sans noyau</i>		
	Low alloy <i>Alliage à faible teneur</i>		4 Channel induction <i>Induction à canal</i>		
	Manganese <i>Au manganèse</i>		5 Rotary (gas or oil fired) <i>Four rotatif (chauffé au gaz ou au mazout)</i>		
	High alloy <i>Alliage à haute teneur</i>		6 Reverberatory <i>Four à réverbère</i>		
		7 Other (specify) <i>Autres (préciser)</i>			
10. Moulding practices used <i>Techniques de moulage</i>	Type of equipment <i>Type de matériel</i>	Maximum flask size <i>Dimensions maximales du châssis</i>	Numbers of units of each <i>Nombre d'unités de chaque moule</i>		
1 Cope and drag <i>En châssis</i>					
2 Matchplate <i>Sur plaque - modèle</i>					
3 Pit <i>En fosse de coulée</i>					
4 Floor <i>A plat</i>					
5 Shell <i>En carapace</i>					
6 Permanent mould <i>En moule permanent</i>					
7 Other - <i>Autres</i>					

11. Checklist of testing and inspection facilities - *Liste des installations d'essai et d'inspection*

	In plant <i>Sur place</i>	Available locally <i>Existant dans votre région</i>		In plant <i>Sur place</i>	Available locally <i>Existant dans votre région</i>
Tensile <i>de traction</i>	<input type="checkbox"/>	<input type="checkbox"/>	Sonar <i>aux ultra sons</i>	<input type="checkbox"/>	<input type="checkbox"/>
Impact <i>de résilience</i>	<input type="checkbox"/>	<input type="checkbox"/>	Magnetic particle <i>Particules magnétiques</i>	<input type="checkbox"/>	<input type="checkbox"/>
Bend <i>de flexion</i>	<input type="checkbox"/>	<input type="checkbox"/>	Chemical <i>Chimique</i>	<input type="checkbox"/>	<input type="checkbox"/>
Hardness <i>de dureté</i>	<input type="checkbox"/>	<input type="checkbox"/>	Spectrograph <i>Spectrographe</i>	<input type="checkbox"/>	<input type="checkbox"/>
Radiography <i>Radiographie</i>	<input type="checkbox"/>	<input type="checkbox"/>	Sand <i>Sable</i>	<input type="checkbox"/>	<input type="checkbox"/>
Die penetrant <i>à la teinture pénétrante</i>	<input type="checkbox"/>	<input type="checkbox"/>	Other (specify) <i>Autres (préciser)</i>	<input type="checkbox"/>	<input type="checkbox"/>

12. Notwithstanding price, are you able to get sufficient quantities of ferrous scrap and pig iron to keep your plant operating satisfactorily? <i>Indépendamment du prix, êtes-vous capable d'obtenir assez de ferraille et de fer en saumons pour assurer un fonctionnement satisfaisant de votre usine?</i>					Yes-Oui <input type="checkbox"/> No-Non <input type="checkbox"/> N/A Néant <input type="checkbox"/>		
13. List below total tonnage (all grades) and values purchased <i>Indiquer ci-dessous le tonnage total (toutes les catégories) et valeur d'achats</i>					Scrap — Ferraille <input type="checkbox"/> Pig iron — fer en saumons <input type="checkbox"/>		
Year Année	Tons — Tonnes		Value — Valeur (\$,000)		14. Does the current energy shortage affect your operations? <i>La pénurie d'énergie actuelle affecte-t-elle votre exploitation?</i> Elaborate — Veuillez préciser		
	Scrap — Ferraille	Pig iron-Fer en gue	Scrap — Ferraille	Pig iron-Fer en gue			
1974							
1975					<input type="checkbox"/> Yes Oui <input type="checkbox"/> No Non		
15. List units of energy consumed and value of purchase — Donner le nombre d'unités énergétiques consommées et leur valeur d'achat							
Energy class Type d'énergie		Units — Unités		Units Unités 1974	\$,000	Units Unités 1975	\$,000
Electricity Électricité		KWH					
Oil Mazout		Gallons					
Gas Gaz		1,000 cu.ft. 1,000 pi.cu.					
Coal Charbon		Net tons Tonnes courtes					
Coke		Net tons Tonnes courtes					
Other (Specify) Autres (préciser)							
Total costs Coût total							
16. What has been the impact on your company for the demands for environmental control? <i>Quels effets ont eu sur votre société les exigences en matière de protection de l'environnement?</i>							
17. How much did you spend for environmental controls <i>Combien avez-vous dépensé en matière de protection de l'environnement? (\$,000)</i>				18. Give an estimate of your future costs for environmental controls in your present plant 1976-1980 (\$,000) <i>Donner une estimation des dépenses à venir pour votre usine au cours de la période 1976-1980 en matière de protection de l'environnement (\$,000)</i>			
\$		1974		\$		1975	

19. Are you faced with demands for future action in this area?
Avez-vous encore des mesures à prendre pour satisfaire aux exigences dans ce domaine?

Yes-Oui

No-Non

What would be the impact of those costs? Elaborate
A votre avis, quels seront les effets de ces coûts? Veuillez préciser

PART - PARTIE 3

20. What were the tonnages and annual values of foundry sale, f.o.b. your plant? (\$,000)

Donner en tonnes et en milliers de dollars la valeur annuelle des ventes f.o.b. de votre usine.

IRON - FONTE	1971	1972	1973	1974	1975
Net short tons <i>Tonnes courtes nettes</i>					
\$,000					
STEEL - ACIER					
Net short tons <i>Tonnes courtes nettes</i>					
\$,000					
Combined total - total					
Net short tons <i>Tonnes courtes nettes</i>					
\$,000					

21. Present method of selling - *Méthode de vente actuelle*

Direct sales by company employed salesman
Ventes directes par des vendeurs au service de la société

Manufacturer's agent
Représentant de fabricant

Other (specify)
Autres (préciser)

22. Check any major, single product lines produced: % of total production (1975)
Cocher toute série principale de produits fabriqués: % de la production totale (1975)

Soil pipe - *Tuyaux d'égoût* _____ %

Pressure pipe - *Tuyaux résistants* _____ %

Pipe fittings - *Raccords de tuyaux* _____ %

Engine blocks - *Blocs moteurs* _____ %

Other (specify) - *Autres (préciser)* _____ %

Definition of "EXPORT SALES"

Sales that go directly from the foundry to the foreign customer. They do not include sales to a domestic customer who might include them into articles or equipment, destined for foreign markets.

Définition de "VENTES D'EXPORTATION"

Les ventes qui sont expédiées directement de la fonderie aux clients de l'étranger. Elles ne doivent pas comprendre les ventes faites aux clients du pays qui pourraient les ajouter à des articles ou du matériel destinés aux marchés étrangers.

23. What is the extent of your market? (% of total sales)

Quelle est l'importance de votre marché? (% des ventes totales)

Local (Less than 300 miles) _____ %
Local (moins de 300 milles)

National (More than 300 miles, in Canada) _____ %
National (plus de 300 milles au Canada)

Export - *d'exportation* _____ %

24. To which countries do you export and % of total exports? — *Vers quels pays exportez-vous et % des exportations totales*

- a. _____ %
- b. _____ %
- c. _____ %
- d. _____ %
- e. _____ %

25. Are you interested in increasing your export sales?
Aimeriez-vous augmenter vos ventes à l'exportation?

Yes-Oui

No-Non

Elaborate — *Préciser*

26. Check the usual or preferred markets for your castings in terms of sectors below and list the percentage of tons shipped. *See definitions on supplement sheet.
*Indiquer sur la liste suivante les marchés où vous écoutez habituellement vos moulages ou qui ont votre préférence et dans chaque cas, indiquer le pourcentage de tonnes de vos expéditions. *Consulter la feuille ci-jointe pour les définitions.*

% of total plant
shipments 1975
% des expéditions
totales 1975

% of total plant
shipments exported 1975
% des exportations
totales 1975

A. * Automotive — *L'industrie de l'automobile*

1. Primary market — *Marché primaire*

2. Secondary market — *Marché secondaire*

B. Forklift, elevator and other mobile equipment counterweights
Contrepoids pour chariots élévateurs, ascenseurs, et autre équipement mobile motorisé

C. Manhole frames and covers, grates and frames
Chassis et couvercles de puisard, grilles et chassis d'égoût

D. * Other municipal and construction castings
Autres moulage du secteur municipal et de l'industrie du bâtiment

E. Agricultural equipment
Instruments aratoires

F. Mining equipment and machinery
Outillage et matériel miniers

G. Pulp and paper mill equipment and machinery
Outillage et matériel d'usine de pâtes et papiers

H. Forest products equipment and machinery
Outillage et matériel d'exploitation forestière

I. Petrochemical industry
Industrie pétrochimique

J. Railway equipment, locomotives and cars
Matériel de chemin de fer, locomotives et wagons

K. Shipbuilding
Construction maritime

L. Valves and pumps
Soupapes et pompes

M. * Machinery n.e.s.
Machinerie n.d.a.

N. * Other manufacturing n.e.s. and miscellaneous uses
Autres marchés manufacturiers n.d.a. et autres marchés divers

27. Do you have any restrictions to exporting by:
Étes-vous assujettis à des restrictions d'exportations en raison:

	Yes-Oui	No-Non
Licensing agreements D'accord de licence	<input type="checkbox"/>	<input type="checkbox"/>
Corporate policy D'une politique de votre société	<input type="checkbox"/>	<input type="checkbox"/>

Elaborate – Préciser

PART – PARTIE 4

28. Excluding the cost of environmental controls shown in question #17 estimate how much you spent on capital equipment in terms of production facilities (\$,000) *En ne tenant pas compte des dépenses occasionnées par la protection de l'environnement figurant à la question 17, donner une estimation en milliers de dollars du capital engagé dans les installations de production*

1974 _____

1975 _____

29. Excluding the cost of environmental controls shown in question #18, estimate how much you expect to spend on capital equipment in terms of production facilities for 1976 through 1980 (\$,000) *En ne tenant pas compte des dépenses occasionnées par la protection de l'environnement figurant à la question 18, donner une estimation en milliers de dollars des sommes que vous investirez dans les installations de production de 1976 à 1980*

30. Estimate the research and development expenditures for 1975 (\$,000)
Donner une estimation des sommes dépensés en 1975 pour la recherche et le développement (\$,000)

Pure research \$ _____	Applied research \$ _____	Product development \$ _____
<i>Recherche pure</i>	<i>Recherche appliquée</i>	<i>Mise au point de produits</i>

31. Do you have access to the results of research and development conducted by an affiliated firm?
Votre société a-t-elle accès aux fruits des travaux de recherche et de développement effectués par une filiale?

Yes-Oui No-Non

If yes, name and address of affiliate. – *Dans l'affirmative, nom et adresse de la filiale.*

Terms of participation – *Conditions de participation.*

32. Do you make use of patents for which a royalty or other fee is paid?
Votre societe utilise-t-elle des brevets pour lesquels elle doit verser une redevance ou un droit quelconque?

Yes-Oui No-Non

If yes, give amount paid during 1975 \$ _____
Dans l'affirmative, indiquer le montant versé en 1975

33. Can you offer any other information or comments that would assist us in helping your company?
Pouvez-vous nous fournir d'autres renseignements ou formuler des observations qui nous permettraient d'aider votre société?

MARKET DEFINITIONS FOR QUESTION 26

DÉFINITIONS DES MARCHÉS POUR LA QUESTION 26

(a) Automotive castings

- (i) passenger cars
- (ii) trucks
- (iii) buses
- (iv) off-highway motorized mobile construction equipment and vehicles:
(bulldozers, graders, shovels, loaders, cranes, etc.)
- (v) fork-lift trucks
- (vi) snowmobiles

(a) Moulages pour l'industrie automobile

- (i) voitures
- (ii) camions
- (iii) autobus
- (iv) machinerie de construction et véhicules autres que les véhicules routiers
(bulldozers, niveleuses, pelles mécaniques, chargeurs, grues, etc.)
- (v) chariots élévateurs
- (vi) autoneiges

(d) Municipal and construction castings

- (i) cast iron pressure pipe
- (ii) cast iron soil pipe
- (iii) pipe fittings, bell traps, drain traps
- (iv) fire hydrants
- (v) water shut-off boxes
- (vi) bridge expansion joints and other bridge components
- (vii) chimney rings, doors, dampers, etc.
- (viii) construction equipment other than mobile as in (1-d) above

(d) Moulages pour les services municipaux et la construction

- (i) tuyaux pressurisés en fonte
- (ii) tuyaux souterrains en fonte
- (iii) raccords de tuyaux, siphons-cloches, siphons de drainage
- (iv) bornes d'incendies
- (v) vannes d'arrêt
- (vi) joints de dilatation des ponts et autres pièces pour ponts, etc.
- (vii) bagues de cheminée, portes, registres, etc.
- (viii) équipement de construction autre que la machinerie susmentionnée à 1 d).

(m) Machinery n.e.s.

Process and production machinery and equipment and components thereof, not mentioned above: e.g.

- (i) food and beverage processing
- (ii) metal rolling, stamping and forging machinery
- (iii) foundry machinery and equipment
- (iv) furnaces, boilers and other industrial melting or heating equipment
- (v) cranes, conveyors and other material handling equipment
- (vi) textile production machinery
- (vii) rubber and plastics processing machinery
- (viii) carpentry and woodworking machinery and equipment

(m) Machinerie, n.d.a.

Procédés et machinerie de production, équipement et pièces non susmentionnées: p. ex.

- (i) procédés alimentaires et pour les boissons
- (ii) machinerie de laminage, d'emboutissage et de forgeage des métaux
- (iii) machinerie et équipement de fonderie
- (iv) chaudières et autres équipements de fusion ou de chauffage
- (v) grues, convoyeurs et autre équipement de manutention de matériel
- (vi) machinerie de production du textile
- (vii) machinerie de transformation du caoutchouc et des plastiques
- (viii) équipement et machinerie de menuiserie et de travail du bois

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APPENDIX II

INDEX OF SUPPORTING DATA CHARTS

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2-A	Iron Foundry Production Capacity & Capacity Distribution in 1975
2-B	Steel Foundry Production Capacity & Capacity Distribution in 1975
3-A	Iron Foundry Ownership in 1975
3-B	Steel Foundry Ownership in 1975
4-A	Iron Foundry Distribution of Manpower by Occupation in 1974
4-B	Steel Foundry Distribution of Manpower by Occupation in 1974
5-A	Iron Foundry Distribution of Manpower by Occupation in 1975
5-B	Steel Foundry Distribution of Manpower by Occupation in 1975
6-A	Forecast of the Iron Foundry Distribution of Manpower by Occupation in 1980
6-B	Forecast of the Steel Foundry Distribution of Manpower by Occupation in 1980
7-A	Iron Foundry Average Age of Manpower by Occupation in 1975
7-B	Steel Foundry Average Age of Manpower by Occupation in 1975

<u>CHART NO.</u>	<u>TITLE</u>
8-A	Iron Foundries: Size Distribution by Number of Employees in 1974
8-B	Steel Foundries: Size Distribution by Number of Employees in 1974
9-A	Iron Foundries: Size Distribution by Number of Employees in 1975
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12-A	Iron Foundry Melting Facilities in 1975
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15-A	Iron Foundry Consumption of Pig Iron
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16-A	<u>Part 1</u> : Iron Foundry Consumption of Energy During 1974 <u>Part 2</u> : Iron Foundry Consumption of Energy During 1974

<u>CHART NO.</u>	<u>TITLE</u>
16-B	<u>Part 1:</u> Steel Foundry Consumption of Energy During 1974 <u>Part 2:</u> Steel Foundry Consumption of Energy During 1974
17-A	<u>Part 1:</u> Iron Foundry Consumption of Energy During 1975 <u>Part 2:</u> Iron Foundry Consumption of Energy During 1975
17-B	<u>Part 1:</u> Steel Foundry Consumption of Energy During 1975 <u>Part 2:</u> Steel Foundry Consumption of Energy During 1975
18-A	Iron Foundry Costs for Environmental Controls
18-B	Steel Foundry Costs for Environmental Controls
19-A	<u>Part 1:</u> Iron Foundry Value of Annual Sales <u>Part 2:</u> Iron Foundry Value of Annual Sales
19-B	<u>Part 1:</u> Steel Foundry Value of Annual Sales <u>Part 2:</u> Steel Foundry Value of Annual Sales
20-A	Iron Foundry Method of Selling
20-B	Steel Foundry Method of Selling
21-A	Iron Foundry Sales Distribution: 1975
21-B	Steel Foundry Sales Distribution: 1975
22-A	The Usual or Preferred Market for Iron Castings in 1975
22-B	The Usual or Preferred Market for Steel Castings in 1975
23-A	Export of Iron Castings - 1975
23-B	Export of Steel Castings - 1975
24-A	Iron Foundry Capital Investment
24-B	Steel Foundry Capital Investment

CHART/TABLEAU NO. 1

RESPONDENTS TO THE FOUNDRY SURVEY 1976

REONDANTS AU SONDAGE SUR LES FONDERIES EN 1976

IRON FOUNDRIES: FONDERIES DE FONTE

British Columbia	10	Colombie Britannique
Alberta	8	Alberta
Saskatchewan	2	Saskatchewan
Manitoba	7	Manitoba
Ontario	46	Ontario
Quebec	43	Québec
New Brunswick	6	Nouveau - Brunswick
Nova Scotia	5	Nouvelle - Ecosse
Total	127	Total

STEEL FOUNDRIES: FONDERIES D'ACIER

Quebec/Atlantic	7	Québec/Atlantique
Ontario	7	Ontario
Prairies	4	Prairies
British Columbia	5	Colombie Britannique
Total	23	Total

CHART/TABLEAU NO. 2-A

IRON FOUNDRY PRODUCTION CAPACITY & CAPACITY DISTRIBUTION IN 1975: NET TONS

CAPACITE DE PRODUCTION ET REPARTITION DE LA CAPACITE EN 1975 DES FONDERIES DE FONTE: TONNES NETTES

<u>PROVINCE</u>	<u>NO. OF FOUNDRIES</u> <u>NO. DE FONDERIES</u>	<u>TOTAL CAPACITY</u> <u>CAPACITE TOTALE</u>	<u>TOTAL JOBBING CAPACITY</u> <u>CAPACITE ENTIEREMENT A FORFAIT</u>	<u>TOTAL CAPTIVE CAPACITY</u> <u>CAPACITE ASSIGNEE</u>
British Columbia Colombie Britannique	10	31,932	17,981	13,951
Alberta - Saskatchewan	10	31,380	18,468	12,912
Manitoba	7	61,080	21,432	39,648
Ontario	46	1,313,604	448,538	865,066
Quebec - Québec	43	318,181	248,635	69,546
New Brunswick Nouveau Brunswick	6	10,080	1,050	9,030
Nova Scotia Nouvelle-Ecosse	5	6,528	5,038	1,490
Total	127	1,772,785	761,142	1,011,643
% of/du Total		100.0	42.9	57.1

CHART/TABLEAU NO. 2-B

STEEL FOUNDRY PRODUCTION CAPACITY & CAPACITY DISTRIBUTION IN 1975: NET TONS

CAPACITE DE PRODUCTION ET REPARTITION DE LA CAPACITE EN 1975 DES FONDERIES D'ACIER; TONNES NETTES

<u>REGION</u>	<u>NO. OF FOUNDRIES NO. DE FONDERIES</u>	<u>TOTAL CAPACITY CAPACITE TOTALE</u>	<u>TOTAL JOBBING CAPACITY CAPACITE ENTIEREMENT A FORFAIT</u>	<u>TOTAL CAPTIVE CAPACITY CAPACITE ASSIGNEE</u>
Quebec - Atlantic Québec - Atlantique	7*	93,681	72,413	21,268
Ontario	7	59,367	48,101	11,266
Prairies	4	76,569	76,569	-
British Colombie Colombie Britannique	5	3,903	3,140	763
Steel Made in Iron Foundries Acier des Fonderies de Fonte	3	2,760	1,640	120
Total	22	236,280	201,863	33,417
% of/du Total		100.0	84.0	16.0

*Includes the steel foundry of Dominion Engineering Works Limited, which is combined in other tables under Iron Foundries.

*Comprend la fonderie d'acier de l'Atelier d'Ingénierie Dominion Limitée, qui est incorporé dans les autres tableaux sous la rubrique Fonderies de fonte.

CHART/TABLEAU NO. 3AIRON FOUNDRY OWNERSHIP IN 1975PROPRIETE DES FONDERIES DE FONTE EN 1975

<u>PROVINCE</u>	<u>NO. OF/DE FDRIES</u>	<u>PRIVATELY CONTROLLED ACTIONS PRIVEES</u>	<u>SUBSIDIARY OF A CANADIAN COMPANY UNE FILIALE EN PROPRIETE EXCLUSIVE D'UNE SOCIETE CANADIENNE</u>	<u>SUBSIDIARY OF A FOREIGN COMPANY UNE FILIALE EN PROP- RIETE EXCLUSIVE D'UNE SOCIETE ETRANGERE</u>
British Columbia Colombie Britannique	10	7	3	-
Alberta - Saskatchewan	10	7	2	1
Manitoba	7	5	1	1
Ontario	46	26	6	14
Quebec	43	30	10	3
New Brunswick Nouveau-Brunswick	6	4	1	1
Nova Scotia Nouvelle-Ecosse	5	3	2	-
TOTAL	127	82	25	20
% of/du TOTAL	100	65	20	15

CHART/TABLEAU NO. 3BSTEEL FOUNDRY OWNERSHIP IN 1975PROPRIETE DES FONDERIES D'ACIER EN 1975

<u>REGION</u>	<u>NO. OF/DE FDIRES</u>	<u>PRIVATELY CONTROLLED ACTIONS PRIVEES</u>	<u>SUBSIDIARY OF A CANADIAN COMPANY UNE FILIALE EN PROPRIETE EXCLUSIVE D'UNE SOCIETE CANADIENNE</u>	<u>SUBSIDIARY OF A FOREIGN COMPANY UNE FILIALE EN PROP- RIETE EXCLUSIVE D'UNE SOCIETE ETRANGERE</u>
Quebec - Atlantic Québec - Atlantique	7	2	1	4
Ontario	7	4	2	1
Prairies	4	2	-	2
British Columbia Colombie Britannique	5	2	2	1
TOTAL	23	10	5	8
% of/du TOTAL	100	43	22	35

CHART/TABLEAU NO. 4-A

IRON FOUNDRY DISTRIBUTION OF MANPOWER BY OCCUPATION IN 1974

LA REPARTITION DE LA MAIN D'OEUVRE PAR OCCUPATION DANS LES FONDERIES DE FONTE EN 1974

<u>PROVINCE</u>	<u>NO. OF/DE FDRIES</u>	<u>MANAGERIAL PERSONNEL DE GESTION</u>	<u>SALES AND MARKETING VENTES ET MARCHE</u>	<u>PRODUCTION SUPERVISORY SUPERVISEURS DE PRODUCTION</u>	<u>TECHNICAL PERSONNEL TECHNIQUE</u>	<u>CLERICAL PERSONNEL DE BUREAU</u>	<u>MOULDERS - FLOOR MANOEUVRES</u>	<u>MOULERS - MACHINE OPERATORS DE MACHINES</u>	<u>MAINTENANCE D'ENTRETIEN</u>	<u>PATTERN MAKERS MODELEURS</u>	<u>PRODUCTION (ALL OTHERS PRODUCTION (TOUTES LES AUTRES CATEGORIES)</u>	<u>TOTAL</u>
British Columbia Colombie Britannique	10	20	8	17	4	17	39	29	25	3	247	409
Alberta - Saskatchewan	10	13	14	31	10	17	26	33	33	12	260	449
Manitoba	7	14	4	21	5	26	16	46	29	10	390	561
Ontario	46	189	90	525	249	399	161	820	1,281	320	5,669	9,707
Quebec - Québec	28	73	30	90	63	63	448	151	118	82	1,147	2,265
New Brunswick Nouveau Brunswick	5	7	1	16	5	9	36	19	14	16	90	213
Nova Scotia Nouvelle - Ecosse	5	4	4	7	1	7	37	8	3	4	34	109
Total	110	320	155	707	337	538	763	1,106	1,503	447	7,837	13,713
% of/du Total		2.3	1.1	5.2	2.5	3.8	5.6	8.0	11.0	3.3	57.2	100.0

CHART/TABLEAU NO. 4-B

STEEL FOUNDRY DISTRIBUTION OF MANPOWER BY OCCUPATION IN 1974

LA REPARTITION DE LA MAIN D'OEUVRE PAR OCCUPATION DANS LES FONDERIES D'ACIER EN 1974

<u>REGION</u>	<u>NO. OF/DE FDRIES</u>	<u>MANAGERIAL PERSONNEL DE GESTION</u>	<u>SALES AND MARKETING VENTES ET MARCHÉ</u>	<u>PRODUCTION SUPERVISORY SUPERVISEURS DE PRODUCTION</u>	<u>TECHNICAL PERSONNEL TECHNIQUE</u>	<u>CLERICAL PERSONNEL DE BUREAU</u>	<u>MOULDERS - FLOOR MANOEUVRES</u>	<u>MOULEURS MACHINE OPERATEURS DE MACHINES</u>	<u>MAINTENANCE D'ENTRETIEN</u>	<u>PATTERN MAKERS MODELEURS</u>	<u>PRODUCTION (ALL OTHERS PRODUCTION (TOUTES LES AUTRES CATEGORIES)</u>	<u>TOTAL</u>
Quebec - Atlantic Québec - Atlantique	6	55	44	115	62	188	72	53	240	44	1,620	2,493
Ontario	7	23	28	124	45	60	96	171	105	32	1,275	1,959
Prairies	4	14	7	46	7	21	13	10	41	10	353	522
British Columbia Colombie Britannique	4	8	6	8	5	6	25	18	14	8	37	135
Total	21	100	85	293	119	275	206	252	400	94	3,285	5,109
% of/du Total		2.0	1.7	5.7	2.3	5.4	4.0	4.9	7.8	1.8	64.4	100.0

CHART/TABLEAU NO. 5-A

IRON FOUNDRY DISTRIBUTION OF MANPOWER BY OCCUPATION IN 1975

LA REPARTITION DE LA MAIN D'OEUVRE PAR OCCUPATION DANS LES FONDERIES DE FONTE EN 1975

PROVINCE	NO. OF/DE FDRIES	MANAGERIAL PERSONNEL DE GESTION	SALES AND MARKETING VENTES ET MARCHE	PRODUCTION SUPERVISORY SUPERVISEURS DE PRODUCTION	TECHNICAL PERSONNEL TECHNIQUE	CLERICAL PERSONNEL DE BUREAU	MOULDERS - MOULEURS FLOOR MANOEUVRES	MACHINE OPERATORS DE MACHINES	MAINTENANCE D'ENTRETIEN	PATTERN MAKERS MODELEURS	PRODUCTION (ALL OTHERS PRODUCTION (TOUTES LES AUTRES CATEGORIES)	TOTAL
British Columbia Colombie Britannique	10	21	8	19	7	17	36	33	28	2	211	382
Alberta - Saskatchewan	10	15	17	34	14	20	36	38	39	14	290	517
Manitoba	7	15	4	23	11	18	11	38	30	10	356	516
Ontario	47	189	94	525	249	399	161	820	1,281	320	5,669	9,707
Quebec - Québec	40	96	57	129	81	96	533	189	175	99	1,344	2,799
New Brunswick Nouveau-Brunswick	6	6	1	15	5	8	41	12	13	13	81	195
Nova Scotia Nouvelle - Ecosse	5	4	5	6	2	8	35	8	3	4	35	110
Total	125	346	186	751	369	566	853	1,138	1,569	462	7,986	14,226
% of/du Total		2.4	1.3	5.3	2.6	4.0	6.0	8.0	11.0	3.2	56.2	100.0

CHART/TABLEAU NO. 5-B

STEEL FOUNDRY DISTRIBUTION OF MANPOWER BY OCCUPATION IN 1975

LA REPARTITION DE LA MAIN D'OEUVRE PAR OCCUPATION DANS LES FONDERIES D'ACIER EN 1975

<u>REGION</u>	<u>NO. OF/DE FDRIES</u>	<u>MANAGERIAL PERSONNEL DE GESTION</u>	<u>SALES AND MARKETING VENTES ET MARCHE</u>	<u>PRODUCTION SUPERVISORY SUPERVISEURS DE PRODUCTION</u>	<u>TECHNICAL PERSONNEL TECHNIQUE</u>	<u>CLERICAL PERSONNEL DE BUREAU</u>	<u>MOULDERS - MOULEURS MACHINE OPERATORS OPERATEURS FLOOR DE MANOEUVRES MACHINES</u>	<u>MAINTENANCE D'ENTRETIEN</u>	<u>PATTERN MAKERS MODELEURS</u>	<u>PRODUCTION (ALL OTHERS PRODUCTION (TOUTES LES AUTRES CATEGORIES</u>	<u>TOTAL</u>	
Quebec - Atlantic Québec - Atlantique	6	58	46	120	67	192	74	52	253	44	1,683	2,589
Ontario	7	23	30	134	50	61	104	171	120	32	1,184	1,909
Prairies	4	15	9	59	7	22	16	11	47	11	403	600
British Columbia Colombie Britannique	5	9	9	13	7	11	33	16	19	12	136	265
Total	22	105	94	326	131	286	227	250	439	99	3,406	5,363
% of/du Total		2.0	1.8	6.1	2.4	5.3	4.2	4.7	8.2	1.8	63.5	100.0

CHART/TABLEAU NO. 6-A

FORECAST OF THE IRON FOUNDRY DISTRIBUTION OF MANPOWER BY OCCUPATION IN 1980

PREVISION DE LA REPARTITION DE LA MAIN D'OEUVRE PAR OCCUPATION DANS LES FONDERIES DE FONTE EN 1980

<u>PROVINCE</u>	<u>NO. OF/DE FDRIES</u>	<u>MANAGERIAL PERSONNEL DE GESTION</u>	<u>SALES AND MARKETING VENTES ET MARCHE</u>	<u>PRODUCTION SUPERVISORY SUPERVISEURS DE PRODUCTION</u>	<u>TECHNICAL PERSONNEL TECHNIQUE</u>	<u>CLERICAL PERSONNEL DE BUREAU</u>	<u>MOULDERS- FLOOR MANOEUVRES</u>	<u>MOULEURS MACHINE OPERATORS DE MACHINES</u>	<u>MAINTENANCE D'ENTRETIEN</u>	<u>PATTERN MAKERS MODELEURS</u>	<u>PRODUCTION (ALL OTHERS) PRODUCTION TOUTES LES AUTRES CATEGORIES)</u>	<u>TOTAL</u>
British Columbia Colombie Britannique	9	19	8	17	9	18	25	37	28	4	159	324
Alberta - Saskatchewan	8	13	16	30	12	15	31	33	33	17	258	458
Manitoba	7	21	8	29	14	20	10	49	23	9	384	567
Ontario	37	155	108	372	189	297	121	559	594	112	3,494	6,001
Quebec	32	76	51	89	60	89	285	131	116	84	1,270	2,251
New Brunswick Nouveau-Brunswick	3	3	1	6	-	3	23	12	6	5	16	75
Nova Scotia Nouvelle-Ecosse	3	3	4	6	3	5	28	13	4	4	29	99
Total	99	290	196	549	287	447	523	834	804	235	5,610	9,775
% of/du Total		3.0	2.0	5.6	2.9	4.6	5.4	8.5	8.2	2.4	57.4	100.0

CHART/TABLEAU NO. 6-B

FORECAST OF THE STEEL FOUNDRY DISTRIBUTION OF MANPOWER BY OCCUPATION IN 1980

PREVISION DE LA REPARTITION DE LA MAIN D'OEUVRE PAR OCCUPATION DANS LES FONDERIES D'ACIER EN 1980

REGION	NO. OF/DE FDRIES	MANAGERIAL PERSONNEL DE GESTION	SALES AND MARKETING VENTES ET MARCHE	PRODUCTION SUPERVISORY SUPERVISEURS DE PRODUCTION	TECHNICAL PERSONNEL TECHNIQUE	CLERICAL PERSONNEL DE BUREAU	MOULDERS FLOOR MANOEUVRES	MOULEURS MACHINE OPERATORS OPERATEURS DE MACHINES	MAINTENANCE D'ENTRETIEN	PATTERN MAKERS MODELEURS	PRODUCTION (ALL OTHERS) PRODUCTION (TOUTES LES AUTRES CATEGORIES)	TOTAL
Quebec - Atlantic Québec - Atlantique	6	62	51	131	75	198	83	58	262	49	1,748	2,717
Ontario	6	23	33	136	58	65	135	143	127	38	1,267	2,025
Prairies	2	7	6	43	4	13	6	6	41	4	303	433
British Columbia Colombie Britannique	3	7	7	7	6	6	15	14	13	5	20	100
Total	17	99	97	317	143	282	239	221	443	96	3,338	5,275
% of/du Total		1.9	1.8	6.0	2.7	5.3	4.5	4.2	8.4	1.8	63.4	100.0

CHART/TABLEAU NO. 7-A

IRON FOUNDRY AVERAGE AGE OF MANPOWER BY OCCUPATION IN 1975

L'AGE MOYEN DE LA MAIN D'OEUVRE PAR OCCUPATION DANS LES FONDERIES DE FONTE EN 1975

<u>PROVINCE</u>	<u>NO. OF/DE FDRIES</u>	<u>MANAGERIAL PERSONNEL DE GESTION</u>	<u>SALES AND MARKETING VENTES ET MARCHÉ</u>	<u>PRODUCTION SUPERVISORY SUPERVISEURS DE PRODUCTION</u>	<u>TECHNICAL PERSONNEL TECHNIQUE</u>	<u>CLERICAL PERSONNEL DE BUREAU</u>	<u>MOULDERS - FLOOR MANOEUVRES</u>	<u>MOULEURS MACHINE OPERATORS OPERATEURS DE MACHINES</u>	<u>MAINTENANCE D'ENTRETIEN</u>	<u>PATTERN MAKERS MODELEURS</u>	<u>PRODUCTION (ALL OTHERS) PRODUCTION (TOUTES LES AUTRES CATEGORIES)</u>
British Columbia Colombie Britannique	5	42	44	43	35	33	37	33	41	45	35
Alberta - Saskatchewan	8	49	43	44	34	27	40	35	42	48	35
Manitoba	5	45	41	34	32	29	47	37	40	46	37
Ontario	37	46	42	41	37	35	43	36	40	44	37
Quebec - Québec	35	43	40	43	35	33	35	34	43	42	35
New Brunswick Nouveau-Brunswick	2	45	-	-	36	-	28	-	-	33	-
Nova Scotia Nouvelle-Ecosse	3	46	40	38	56	28	38	33	50	43	33
Total	94	-	-	-	-	-	-	-	-	-	-
Average Age L'âge Moyen		45	42	41	38	31	38	35	43	43	35

CHART/TABLEAU NO. 7-B

STEEL FOUNDRY AVERAGE AGE OF MANPOWER BY OCCUPATION IN 1975

L'AGE MOYEN DE LA MAIN D'OEUVRE PAR OCCUPATION DANS LES FONDERIES D'ACIER EN 1975

<u>REGION</u>	<u>NO. OF/DE FDRIES</u>	<u>MANAGERIAL PERSONNEL DE GESTION</u>	<u>SALES AND MARKETING VENTES ET MARCHE</u>	<u>PRODUCTION SUPERVISORY SUPERVISEURS DE PRODUCTION</u>	<u>TECHNICAL PERSONNEL TECHNIQUE</u>	<u>CLERICAL PERSONNEL DE BUREAU</u>	<u>MOULDERS FLOOR MANOEUVRES</u>	<u>MOULEURS MACHINES OPERATEURS DE MACHINES</u>	<u>MAINTENANCE D'ENTRETIEN</u>	<u>PATTERN MAKERS MODELEURS</u>	<u>PRODUCTION (ALL OTHERS) PRODUCTION (TOUTES LES AUTRES CATEGORIES)</u>
Quebec - Atlantic Québec - Atlantique	6	44	43	45	38	34	45	40	42	44	41
Ontario	5	45	40	37	37	33	38	28	35	44	30
Prairies	2	44	34	38	33	34	30	26	44	43	36
British Columbia Colombie Britannique	3	46	54	45	35	32	42	34	47	35	35
Total	16	-	-	-	-	-	-	-	-	-	-
Average Age L'âge Moyen		45	43	41	36	33	39	32	42	42	36

CHART/TABLEAU NO. 8A

IRON FOUNDRIES: SIZE DISTRIBUTION BY NUMBER OF EMPLOYEES IN 1974

FONDERIES DE FONTE: REPARTITION EN IMPORTANCE SELON LE NOMBRE D'EMPLOYES EN 1974

PROVINCE	NUMBER OF FOUNDRIES NOMBRE DE FONDERIES	NUMBER OF FOUNDRIES EMPLOYING - NOMBRE DE FONDERIES EMPLOYANT					
		0 - 10	11 - 50	51 - 100	101 - 250	251 - 500	+ 500
British Colombie Colombie Britannique	10	1	6	3	-	-	-
Alberta - Saskatchewan	9	-	4	4	1	-	-
Manitoba	7	2	1	2	1	1	-
Ontario	46	3	13	9	12	3	6
Quebec	30	3	12	11	1	3	-
New Brunswick Nouveau-Brunswick	6	1	3	1	1	-	-
Nova Scotia Nouvelle-Ecosse	5	-	5	-	-	-	-
Total	113	10	44	30	16	7	6
% of/du Total	100.0	8.9	38.9	26.5	14.2	6.2	5.3

CHART/TABLEAU NO. 8-B

STEEL FOUNDRIES: SIZE DISTRIBUTION BY NUMBER OF EMPLOYEES IN 1974

FONDERIES D'ACIER: REPARTITION EN IMPORTANCE SELON LE NOMBRE D'EMPLOYES EN 1974

REGION	NUMBER OF FOUNDRIES NOMBRE DE FONDERIES	NUMBER OF FOUNDRIES EMPLOYING - NOMBRE DE FONDERIES EMPLOYANT					
		0 - 10	11 - 50	51 - 100	101 - 250	251 - 500	+ 500
Quebec - Atlantic Québec - Atlantique	6	-	-	-	3	2	1
Ontario	7	1	2	-	2	-	2
Prairies	4	-	1	-	3	-	-
British Columbia Colombie Britannique	4	-	4	-	-	-	-
Total	21	1	7	-	8	2	3
% of/dû Total	100.0	4.8	33.3	-	38.1	9.5	14.3

CHART/TABLEAU NO. 9-A

IRON FOUNDRIES: SIZE DISTRIBUTION BY NUMBER OF EMPLOYEES IN 1975

FONDERIES DE FONTE: REPARTITION EN IMPORTANCE SELON LE NOMBRE D'EMPLOYES EN 1975

PROVINCE	NUMBER OF FOUNDRIES NOMBRE DE FONDERIES	NUMBER OF FOUNDRIES EMPLOYING - NOMBRE DE FONDERIES EMPLOYANT					
		0 - 10	11 - 50	51 - 100	101 - 250	251 - 500	+ 500
British Columbia Colombie Britannique	10	1	7	1	1	-	-
Alberta - Saskatchewan	10	-	5	4	1	-	-
Manitoba	7	2	1	2	2	-	-
Ontario	47	2	15	11	11	2	6
Quebec - Québec	41	4	21	9	5	2	-
New Brunswick Nouveau-Brunswick	5	-	4	1	-	-	-
Nova Scotia Nouvelle-Ecosse	5	-	5	-	-	-	-
Total	125	9	59	27	20	4	6
% of/du Total	100.0	7.2	47.2	21.6	16.0	3.2	4.8

CHART/TABLEAU NO. 9-B

STEEL FOUNDRIES: SIZE DISTRIBUTION BY NUMBER OF EMPLOYEES IN 1975

FONDERIES D'ACIER: REPARTITION EN IMPORTANCE SELON LE NOMBRE D'EMPLOYES EN 1975

REGION	NUMBER OF FOUNDRIES NOMBRE DE FONDERIES	NUMBER OF FOUNDRIES EMPLOYING - NOMBRE DE FONDERIES EMPLOYANT					
		0 - 10	11 - 50	51 - 100	101 - 250	251 - 500	+ 500
Quebec - Atlantic Québec - Atlantique	6	-	-	-	3	2	1
Ontario	7	1	2	-	2	-	2
Prairies	4	-	1	-	3	-	-
British Columbia Colombie Britannique	5	-	3	2	-	-	-
Total	22	1	6	2	8	2	3
% of/du Total	100	4.5	27.3	9.1	36.4	9.1	13.6

CHART/TABLEAU NO. 10-A

IRON FOUNDRY CASTINGS BY CATEGORY PRODUCED IN 1975: NET TONS

PRODUCTION DE MOULAGES DES FONDERIES DE FONTE PAR CATEGORIES EN 1975: TONNES NETTES

PROVINCE	NO. OF/DE FDRIES	TOTAL		IRON -- FONTE					STEEL -- ACIER			
		IRON FONTE	STEEL ACIER	GRAY FONTE GRISE	NODULAR NODULAIRE	MALLEABLE MALLEABLE	WHITE BLANCHE	ALLOY ALLIEES	CARBON AU CARBONE	LOW ALLOY ALLIAGE A FAIBLE TENEUR	MANGANESE AU MANAGANESE	HIGH ALLOY ALLIAGE A HAUTE TENEUR
British Columbia Colombie Britannique	8	21,720	316	11,651	8,549	- -	1,014	506	224	92	-	-
Alberta - Saskatchewan	9	43,777	-	19,113	24,402	- -	-	262	-	-	-	-
Manitoba	6	22,832	-	14,966	7,339	- -	-	527	-	-	-	-
Ontario	44	880,302	2,047	637,146	210,786	29,945	462	1,963	1,765	-	-	282
Quebec - Québec	40	176,167	5,725	138,040	4,019	-	14,165	19,943	5,267	286	-	172
New Brunswick Nouveau-Brunswick	5	5,122	-	4,659	391	-	72	-	-	-	-	-
Nova Scotia Nouvelle-Ecosse	5	2,367	-	2,327	-	-	-	40	-	-	-	-
From Steel Foundries Des Fonderies d'Acier		9,613		8,806	536	-	1	270	-	-	-	-
Total	117	1,161,900	8,008	836,708	256,022	29,945	15,714	23,511	7,256	378	-	454
% of/du Total		100.0		72.0	22.0	2.6	1.4	2.0				

CHART/TABLEAU NO. 10-B

STEEL FOUNDRY CASTINGS BY CATEGORY PRODUCED IN 1975: NET TONS

PRODUCTION DE MOULAGES DES FONDERIES D'ACIER PAR CATEGORIES EN 1975: TONNES NETTES

PROVINCE	NO. OF/DE FDRIES	TOTAL		IRON -- FONTE					STEEL -- ACIER			
		IRON FONTE	STEEL ACIER	GRAY FONTE GRISE	NODULAR NODULAIRE	MALLEABLE MALLEABLE	WHITE BLANCHE	ALLOY ALLIEES	CARBON AU CARBONE	LOW ALLOY ALLIAGE A FAIBLE TENEUR	MANGANESE AU MANGANESE	HIGH ALLOY ALLIAGE A HAUTE TENEUR
Quebec - Atlantic Québec - Atlantique	6	-	81,681	-	-	-	-	-	56,517	10,522	13,266	1,376
Ontario	7	8,851	59,368	8,770	63	-	-	18	37,307	14,872	1,477	5,712
Prairies	4	-	48,479	-	-	-	-	-	46,639	730	780	330
British Columbia Colombia Britannique	4	762	3,907	36	473	-	1	252	1,386	1,771	640	110
From Iron Foundries Des Fonderies de Fonte		-	8,008	-	-	-	-	-	7,256	378	-	454
Total	21	9,613	201,523	8,806	536	-	1	270	149,105	28,273	16,163	7,982
%_of/du Total			100.0						74.0	14.0	8.0	4.0

CHART/TABLEAU NO. 11-A

IRON FOUNDRY DISTRIBUTION BY MAXIMUM SIZE OF CASTING IN 1975

REPARTITION DES FONDERIES DE FONTE PAR DIMENSIONS MAXIMALES DES MOULAGES EN 1975

PROVINCE	NUMBER OF FOUNDRIES NOMBRE DE FONDERIES	CASTING WEIGHT TO: (LBS) DIMENSION DES MOULAGES DE: (LIVRES)					
		0 - 100	0 - 500	0 - 1,000	0 - 5,000	0 - 10,000	OVER PLUS DE 10,000
British Columbia Colombie Britannique	9	1	3	2	2	-	1
Alberta - Saskatchewan	10	-	3	2	5	-	-
Manitoba	6	-	4	-	2	-	-
Ontario	46	10	12	4	9	6	5
Quebec - Québec	41	7	10	6	7	6	5
New Brunswick Nouveau-Brunswick	5	2	1	-	1	1	-
Nova Scotia Nouvelle-Ecosse	5	-	-	1	3	1	-
Total	122	20	35	14	28	14	11
% of/du Total	100.0	16.4	28.7	11.5	23.0	11.5	9.0

CHART/TABLEAU NO. 11-B

STEEL FOUNDRY DISTRIBUTION BY MAXIMUM SIZE OF CASTING IN 1975

REPARTITION DES FONDERIES D'ACIER PAR DIMENSIONS MAXIMALES DES MOULAGES EN 1975

REGION	NUMBER OF FOUNDRIES NOMBRE DE FONDERIES	CASTING WEIGHT TO: (LBS) DIMENSION DES MOULAGES DE: (LIVRES)					OVER PLUS DE 10,000
		0 - 100	0 - 500	0 - 1,000	0 - 5,000	0 - 10,000	
Quebec - Atlantic Québec - Atlantique	6	-	-	2	-	-	4
Ontario	6	1	2	1	-	1	1
Prairies	4	-	-	1	1	1	1
British Columbia Colombie Britannique	5	-	-	-	1	4	-
Total	21	1	2	4	2	6	6
% of/du Total	100.0	4.8	9.5	19.0	9.5	28.6	28.6

CHART/TABLEAU NO. 12-A

IRON FOUNDRY MELTING FACILITIES IN 1975

INSTALLATIONS POUR LA FUSION DANS LES FONDERIES DE FONTE EN 1975

NUMBER OF UNITS: NOMBRE DES INSTALLATIONS

<u>PROVINCE</u>	<u>NO. OF/DE FDRIES</u>	<u>CUPOLA CUBILOTT</u>	<u>ELECTRIC ARC ARC ELECTRIQUE</u>	<u>CORELESS INDUCTION SANS NOYAU</u>	<u>CHANNEL INDUCTION A CANAL</u>	<u>ROTARY FOUR ROTATIF</u>	<u>REVERBORATORY FOUR A REVERBERE</u>	<u>OTHER AUTRES</u>
British Columbia Colombie Britannique	10	5	2	2	-	1	3	2
Alberta - Saskatchewan	9	7	-	5	-	-	2	2
Manitoba	8	4	1	6	-	-	-	-
Ontario	47	47	10	37	15	-	3	2
Quebec - Québec	43	31	5	8	9	5	7	5
New Brunswick Nouveau-Brunswick	6	6	-	-	-	-	-	-
Nova Scotia Nouvelle-Ecosse	5	6	-	-	-	-	-	-
Total	128	106	18	58	25	6	15	11

CHART/TABLEAU NO. 12-B

STEEL FOUNDRY MELTING FACILITIES IN 1975

INSTALLATIONS POUR LA FUSION DANS LES FONDERIES D'ACIER EN 1975

NUMBER OF UNITS: NOMBRE DES INSTALLATIONS

<u>REGION</u>	<u>NO. OF/DE FDRIES</u>	<u>CUPOLA CUBILOT</u>	<u>ELECTRIC ARC ARC ELECTRIQUE</u>	<u>CORELESS INDUCTION SANS NOYAU</u>	<u>CHANNEL INDUCTION A CANAL</u>	<u>ROTARY FOUR ROTATIF</u>	<u>REVERBORATORY FOUR A REVERBERE</u>	<u>OTHER AUTRES</u>
Quebec - Atlantic Québec - Atlantique	6	-	12	-	-	-	-	-
Ontario	7	-	14	10	-	-	-	-
Prairies	4	-	14	4	-	-	-	-
British Columbia Colombie Britannique	5	-	7	-	-	-	-	-
Total	22	-	47	14	-	-	-	-

CHART/TABLEAU NO. 13-A

NUMBER OF TESTING AND INSPECTION FACILITIES IN IRON FOUNDRIES: 1975

NOMBRE DES INSTALLATIONS D'ESSAI ET D'INSPECTION DANS LES FONDERIES DE FONTE: 1975

<u>PROVINCE</u>	<u>NO. OF/DE FDRIES</u>	<u>TENSILE TRACTION</u>	<u>IMPACT RESILIENCE</u>	<u>BEND FLEXION</u>	<u>HARDNESS DURETE</u>	<u>RADIOGRAPHY RADIOGRAPHIE</u>	<u>DIE PENETRANT TEINTURE PENETRANTE</u>	<u>ULTRASONIC ULTRASONS</u>	<u>MAGNETIC PARTICLE PARTICULES MAGNETIQUES</u>	<u>CHEMICAL CHIMIQUE</u>	<u>SPECTRO-GRAPH SPECTRO-GRAPHE</u>	<u>SAND SABLE</u>	<u>OTHER AUTRES</u>
British Columbia Colombie Britannique	8	-	-	4	8	1	4	1	2	3	1	4	2
Alberta - Saskatchewan	8	-	-	-	6	-	2	-	-	3	-	6	4
Manitoba	6	2	1	1	6	-	3	-	1	3	1	4	1
Ontario	39	15	5	8	37	4	14	6	11	19	9	32	9
Quebec - Québec	24	8	4	5	17	2	8	2	2	10	7	18	5
New Brunswick Nouveau-Brunswick	4	1	-	1	2	-	2	1	1	1	-	2	1
Nova Scotia Nouvelle-Ecosse	2	-	-	-	-	-	1	1	1	1	1	1	2
Total	91	26	10	19	76	7	34	11	18	40	19	67	24

CHART/TABLEAU NO.13 -B

NUMBER OF TESTING AND INSPECTION FACILITIES IN STEEL FOUNDRIES: 1975

NOMBRE DES INSTALLATIONS D'ESSAI ET D'INSPECTION DANS LES FONDERIES D'ACIER: 1975

<u>REGION</u>	<u>NO. OF/DE FDRIES</u>	<u>TENSILE TRACTION</u>	<u>IMPACT RESILIENCE</u>	<u>BEND FLEXION</u>	<u>HARDNESS DURETE</u>	<u>RADIOGRAPHY RADIOGRAPHIE</u>	<u>DIE PENETRANT TEINTURE PENETRANTE</u>	<u>ULTRASONIC ULTRASONS</u>	<u>MAGNETIC PARTICLE PARTICULES MAGENT- IQUES</u>	<u>CHEMICAL CHIMIQUE</u>	<u>SPECTRO- GRAPH SPECTRO- GRAPHE</u>	<u>SAND SABLE</u>	<u>OTHER AUTRES</u>
Quebec - Atlantic Québec - Atlantique	6	5	2	4	6	2	5	4	6	6	4	6	2
Ontario	7	5	3	2	6	2	4	2	3	3	4	7	7
Prairies	4	1	1	-	4	-	2	1	3	2	3	4	-
British Columbia Colombie Britannique	5	2	2	2	5	1	5	2	3	3	3	5	-
Total	22	13	8	8	21	5	16	9	15	14	14	22	9

CHART/TABLEAU NO. 14-A

IRON FOUNDRY CONSUMPTION OF IRON AND STEEL SCRAP

CONSOMMATION DE FERRAILLE DANS LES FONDERIES DE FONTE

PROVINCE	1974			1975		
	NO. OF/DE FDRIES	TONS - TONNES	\$.000	NO. OF/DE FDRIES	TONS - TONNES	\$.000
British Columbia Colombie Britannique	5	24,395	2,187.3	5	18,900	1,613.6
Alberta - Saskatchewan	8	15,383	1,592.6	7	23,446	1,904.5
Manitoba	7	28,377	3,172.0	8	34,070	2,842.0
Ontario	45	658,608	65,042.0	47	561,725	48,423.0
Quebec - Québec	34	162,052	15,906.4	39	142,678	12,346.5
New Brunswick Nouveau-Brunswick	6	5,997	610.5	6	4,496	484.6
Nova Scotia Nouvelle-Ecosse	2	2,749	40.0	2	2,749	42.0
Total	107	897,561	88,550.8	114	830,410	67,656.2

CHART/TABLEAU NO. 14-B

STEEL FOUNDRY CONSUMPTION OF IRON AND STEEL SCRAP

CONSOMMATION DE FERRAILLE DANS LES FONDERIES D'ACIER

REGION	1974			1975		
	NO. OF/DE FDRIES	TONS - TONNES	\$.000	NO. OF/DE FDRIES	TONS - TONNES	\$.000
Quebec - Atlantic Québec - Atlantique	6	63,366	6,849.0	6	67,085	6,458.0
Ontario	5	76,106	7,155.6	6	73,041	5,523.4
Prairies	3	43,990	4,657.5	4	46,655	4,420.3
British Columbia Colombie Britannique	4	13,240	1,513.0	4	8,290	756.5
Total	18	196,702	20,175.1	20	195,071	17,158.2

CHART/TABLEAU NO. 15-A

IRON FOUNDRY CONSUMPTION OF PIG IRON

CONSOMMATION DE FONTE EN GUEUSES DANS LES FONDERIES DE FONTE

PROVINCE	1974			1975		
	NO. OF/DE FDRIES	TONS - TONNES	\$.000	NO. OF/DE FDRIES	TONS - TONNES	\$.000
British Columbia Colombie Britannique	5	2,785	573.0	5	2,795	605.0
Alberta - Saskatchewan	5	2,939	412.0	4	1,751	348.0
Manitoba	5	12,321	1,503.0	6	12,569	2,373.0
Ontario	33	198,163	19,612.0	34	149,829	19,781.0
Quebec - Québec	29	53,953	6,555.3	32	40,162	7,083.1
New Brunswick Nouveau-Brunswick	5	1,065	125.1	5	8,805	118.0
Nova Scotia Nouvelle-Ecosse	2	276	37.0	2	276	38.0
Total	84	271,502	28,817.4	88	216,187	30,346.1

CHART/TABLEAU NO. 15-B

STEEL FOUNDRY CONSUMPTION OF PIG IRON

CONSOMMATION DE FONTE EN GUEUSES DANS LES FONDERIES D'ACIER

PROVINCE	1974			1975		
	NO. OF/DE FDRIES	TONS - TONNES	\$.000	NO. OF/DE FDRIES	TONS - TONNES	\$.000
Quebec - Atlantic Québec - Atlantique	3	3,692	347.0	3	4,490	703.0
Ontario	4	10,531	707.1	4	9,300	831.0
Prairies	2	5,476	570.7	2	5,512	992.7
British Columbia Colombie Britannique	1	400	86.0	1	400	91.0
Total	10	20,099	1,710.8	10	19,702	2,617.7

CHART/TABLEAU NO. 16-A

IRON FOUNDRY CONSUMPTION OF ENERGY DURING 1974: PART 1

CONSUMMATION DE L'ENERGIE PAR LES FONDERIES DE FONTE PENDANT 1974: PARTIE 1

PROVINCE	ELECTRICITY - ELECTRICITE				OIL - MAZOUT				GAS - GAZ			
	NO. OF/DE		KWH	\$.000	NO. OF/DE		GALLON	\$.000	NO. OF/DE		M. CU. FT M. PI. CU	\$.000
	FDRIES	VOLUME			FDRIES	VOLUME			FDRIES	VOLUME		
British Columbia Colombie Britannique	7	4	3,693,200	92.2	-	-	-	-	6	3	69,203	100.4
Alberta - Saskatchewan	5	5	6,648,200	99.0	1	1	3,615	1.2	5	5	195,326	55.3
Manitoba	3	1	5,526,200	112.9	-	-	-	-	2	1	223	18.4
Ontario	41	31	463,725,921	7,558.0	21	17	3,128,613	736.3	32	25	6,890,496	3,320.9
Quebec - Québec	28	11	33,175,217	794.5	20	14	2,348,026	675.0	12	8	189,649	313.7
New Brunswick Nouveau Brunswick	6	6	6,266,640	67.25	6	6	127,805	47.4	1	1	2,750	9.1
Nova Scotia Nouvelle Ecosse	1	-	-	1.0	2	2	21,500	8.2	-	-	-	-
Total	91	58	519,035,378	8,724.9	50	40	5,629,559	1,468.1	58	43	7,347,647	3,817.8

CHART/TABLEAU NO. 16-A

IRON FOUNDRY CONSUMPTION OF ENERGY DURING 1974: PART 2

CONSOMMATION DE L'ENERGIE PAR LES FONDERIES DE FONTE PENDANT 1974: PARTIE 2

PROVINCE	COAL - CHARBON				COKE				TOTAL COSTS COUT TOTAL	
	NO. OF/DE FDRIES		TONS TONNES	\$.000	NO. OF/DE FDRIES		TONS TONNES	\$.000	NO. OF/DE FDRIES	\$.000
	\$	VOLUME			\$	VOLUME				
British Columbia Colombie Britannique	-	-	-	-	4	4	5,281	632.2	8	824.9
Alberta - Saskatchewan	-	-	-	-	6	7	6,575	648.8	7	804.3
Manitoba	1	-	-	44.0	1	1	944	91.1	4	265.6
Ontario	5	5	31,826	349.2	32	28	301,998	15,822.0	45	27,787.0
Quebec - Québec	3	2	4,847	413.3	25	15	25,039	2,767.5	35	4,964.0
New Brunswick Nouveau-Brunswick	-	-	-	-	6	6	2,033	273.0	6	396.8
Nova Scotia Nouvelle-Ecosse	-	-	-	-	2	2	800	162.0	3	171.2
Total	9	7	16,637	806.5	76	63	342,670	20,396.7	108	35,213.8

CHART/TABLEAU NO. 16-B

STEEL FOUNDRY CONSUMPTION OF ENERGY DURING 1974: PART 1

CONSOMMATION DE L'ENERGIE PAR LES FONDERIES D'ACIER PENDANT 1974: PARTIE 1

REGION	ELECTRICITY - ELECTRICITE				OIL - MAZOUT				GAS - GAZ			
	NO. OF/DE		KWH	\$.000	NO. OF/DE		GALLON	\$.000	NO. OF/DE		M. CU. FT M. PI. CU.	\$.000
	FDRIES	VOLUME			FDRIES	VOLUME			FDRIES	VOLUME		
Quebec - Atlantic Québec - Atlantique	6	6	107,818,384	1,338.4	5	5	3,509,173	969.5	4	3	876,924	423.6
Ontario	6	6	68,945,999	1,175.3	2	2	82,809	28.0	6	6	1,046,337	687.7
Prairies	4	2	39,926,000	577.1	1	1	61,919	13.5	4	2	214,558	132.1
British Columbia Colombie Britannique	3	2	2,170,000	74.0	-	-	-	-	1	1	4,819	5.0
Total	19	16	218,860,383	3,164.8	8	8	3,653,901	1,011.0	15	12	2,142,638	1,248.4

CHART/TABLEAU NO. 16-B

STEEL FOUNDRY CONSUMPTION OF ENERGY DURING 1974: PART 2

CONSOMMATION DE L'ENERGIE PAR LES FONDERIES D'ACIER PENDANT 1974: PARTIE 2

REGION	COAL - CHARBON				COKE				TOTAL COSTS COUT TOTAL	
	NO. OF/DE FDRIES		TONS TONNES	\$.000	NO. OF/DE FDRIES		TONS TONNES	\$.000	NO. OF/DE FDRIES	\$.000
	\$ VOLUME				\$ VOLUME					
Quebec- Atlantic Québec - Atlantique	-	-	-	-	-	-	-	-	6	2,731.5
Ontario	1	1	1	0.1	2	-	-	94.2	6	1,985.3
Prairies	-	-	-	-	-	-	-	-	4	722.7
British Columbia Colombie Britannique	-	-	-	-	-	-	-	-	3	79.0
Total	1	1	1	0.1	2	-	-	94.2	19	5,518.5

CHART/TABLEAU NO. 17-A

IRON FOUNDRY CONSUMPTION OF ENERGY DURING 1975: PART 1

CONSUMMATION DE L'ENERGIE PAR LES FONDERIES DE FONTE PENDANT 1975: PARTIE 1

REGION	ELECTRICITY - ELECTRICITE				OIL - MAZOUT				GAS - GAZ			
	NO. OF/DE FDRIES		KWH	\$.000	NO. OF/DE FDRIES		GALLONS	\$.000	NO. OF/DE FDRIES		M. CU. FT.	\$.000
	\$ VOLUME				\$ VOLUME				\$ VOLUME		M. PI. CU.	
British Columbia Colombie Britannique	7	4	2,514,200	177.1	-	-	-	-	6	3	36,155	73.2
Alberta - Saskatchewan	6	5	6,559,400	183.6	1	1	3,945	1.9	6	5	218,445	100.6
Manitoba	3	2	6,460,252	262.6	1	1	36,628	12.0	3	2	30,783	54.4
Ontario	43	34	458,080,084	8,637.2	21	18	2,267,343	811.5	35	30	15,548,175	5,062.7
Quebec - Québec	29	11	37,856,754	961.5	23	16	2,782,158	904.6	12	8	222,238	320.7
New Brunswick Nouveau-Brunswick	6	6	3,004,700	75.4	6	6	79,300	31.8	1	1	2,062	7.5
Nova Scotia Nouvelle-Ecosse	1	-	-	1.0	2	2	21,500	8.5	-	-	-	-
Total	95	62	514,475,390	10,298.4	54	44	5,190,874	1,770.3	63	49	16,057,858	5,619.1

CHART/TABLEAU NO. 17-A

IRON FOUNDRY CONSUMPTION OF ENERGY DURING 1975: PART 2

CONSOMMATION DE L'ENERGIE PAR LES FONDERIES DE FONTE PENDANT 1975: PARTIE 2

PROVINCE	COAL - CHARBON				COKE				TOTAL COSTS COUT TOTAL	
	NO. OF/DE FDRIES		TONS TONNES	\$.000	NO. OF/DE FDRIES		TONS TONNES	\$.000	NO. OF/DE FDRIES	\$.000
	\$ VOLUME				\$ VOLUME					
British Columbia Colombie Britannique	-	-	-	-	4	4	3,283	451.8	9	702.1
Alberta - Saskatchewan	-	-	-	-	8	8	7,529	929.9	9	1,216.0
Manitoba	1	-	-	62.0	4	4	2,706	300.8	6	711.8
Ontario	5	5	28,983	266.2	31	27	271,281	19,081.0	46	33,858.0
Quebec-Québec	3	2	5,399	615.3	25	17	26,883	4,119.7	39	6,921.8
New Brunswick Nouveau-Brunswick	-	-	-	-	6	6	1,438	221.5	6	336.2
Nova Scotia Nouvelle-Ecosse	-	-	-	-	2	2	800	153.7	3	163.2
Total	9	7	34,292	943.5	79	68	313,920	25,258.4	118	43,909.1

CHART/TABLEAU NO. 17-B

STEEL FOUNDRY CONSUMPTION OF ENERGY DURING 1975: PART 1

CONSOMMATION DE L'ENERGIE PAR LES FONDERIES D'ACIER PENDANT 1975: PARTIE 1

REGION	ELECTRICITY - ELECTRICITE				OIL - MAZOUT				GAS - GAZ				
	NO. OF/DE		KWH	\$.000	NO. OF/DE		GALLON	\$.000	NO. OF/DE		M. CU. FT	M. PI. CU.	\$.000
	FDRIES				FDRIES				FDRIES				
	\$	VOLUME			\$	VOLUME			\$	VOLUME			
Quebec - Atlantic Québec - Atlantique	6	6	110,475,970	1,483.8	5	5	3,194,932	954.3	4	3	1,064,380	810.1	
Ontario	6	6	68,584,333	1,313.6	2	2	79,701	29.0	6	6	1,160,630	1,076.0	
Prairies	4	2	44,604,000	751.4	1	1	62,498	18.5	4	2	222,852	207.1	
British Columbia Colombie Britannique	4	2	1,788,100	168.0	-	-	-	-	3	2	87,379	9,827.8	
Total	20	16	225,452,403	3,720.8	8	8	3,337,131	1,001.8	17	13	2,535,241	11,921.0	

CHART/TABLEAU NO. 17-B

STEEL FOUNDRY CONSUMPTION OF ENERGY DURING 1975: PART 2

CONSOMMATION DE L'ENERGIE PAR LES FONDERIES D'ACIER PENDANT 1975: PARTIE 2

REGION	COAL - CHARBON				COKE				TOTAL COSTS COUT TOTAL	
	NO. OF/DE FDRIES		TONS TONNES	\$.000	NO. OF/DE FDRIES		TONS TONNES	\$.000	NO. OF/DE FDRIES	\$.000
	\$ VOLUME				\$ VOLUME					
Quebec - Atlantic Québec - Atlantique	-	-	-	-	-	-	-	-	6	3,238.2
Ontario	1	1	11	0.6	2	-	-	120.2	6	2,543.4
Prairies	-	-	-	-	-	-	-	-	4	977.0
British Columbia Colombie Britannique	-	-	-	-	-	-	-	-	5	9,995.8
Total	1	1	11	0.6	2	-	-	120.2	21	16,754.4

CHART/TABLEAU NO. 18-A

IRON FOUNDRY COSTS FOR ENVIRONMENTAL CONTROLS

DEPENSES POUR LA PROTECTION DE L'ENVIRONNEMENT PAR LES FONDERIES DE FONTE

PROVINCE	SPENT DURING -- DEPENSES PENDANT				ESTIMATED FUTURE COSTS: ESTIMATION DES DEPENSES A VENIR: 1976-1980		DEMANDS FOR FUTURE ACTION? EXIGEANCES D'AMELIORATIONS A FAIRE	
	1974		1975		NO. OF/DE FDRIES	\$.000	NO. OF/DE FDRIES	NO. OF/DE YES-QUI NO-NON
	NO. OF/DE FDRIES	\$.000	NO. OF/DE FDRIES	\$.000				
British Columbia Colombie Britannique	3	64.5	6	68.0	6	920.0	6	2
Alberta - Saskatchewan	4	60.8	5	1,136.0	8	1,675.0	7	3
Manitoba	-	-	3	205.0	2	265.0	2	5
Ontario	33	6,240.0	29	7,153.6	30	34,359.0	20	19
Quebec - Québec	19	1,112.8	22	719.8	22	7,961.0	21	16
New Brunswick Nouveau-Brunswick	2	10.1	1	5.6	4	812.0	-	5
Nova Scotia Nouvelle-Ecosse	1	5.0	-	-	2	105.0	-	4
Total	62	7,493.2	66	9,288.0	74	46,097.0	56	54

CHART/TABLEAU NO. 18-B

STEEL FOUNDRY COSTS FOR ENVIRONMENTAL CONTROLS

DEPENSES POUR LA PROTECTION DE L'ENVIRONNEMENT PAR LES FONDERIES D'ACIER

REGION	SPENT DURING - DEPENSES PENDANT				ESTIMATED FUTURE COSTS: ESTIMATION DES DEPENSES A VENIR: 1976-1980		DEMANDS FOR FUTURE ACTION? EXIGEANCES D'AMELIORATIONS A FAIRE	
	1974		1975		NO. OF/DE FDRIES	\$.000	NO. OF/DE FDRIES	NO. OF/DE FDRIES
	NO. OF/DE FDRIES	\$.000	NO. OF/DE FDRIES	\$.000				
Quebec - Atlantic Québec - Atlantique	2	425.0	3	600.0	3	2,955.0	5	1
Ontario	6	262.2	6	281.5	5	1,566.0	3	4
Prairies	1	0.5	-	-	1	500.0	-	3
British-Columbia Colombie Britannique	1	27.0	4	180.0	4	877.0	2	3
Total	10	714.7	13	1,061.5	13	5,898.0	10	11

CHART/TABLEAU NO. 19-A

IRON FOUNDRY VALUE OF ANNUAL SALES: PART 1

LA VALEUR DES VENTES ANNUELLES POUR LES FONDERIES DE FONTE: PARTIE 1

PROVINCE	1971				1972				1973			
	NO. OF/DE FDRIES	TONS-TONNES		\$.000	NO. OF/DE FDRIES	TONS-TONNES		\$.000	NO. OF/DE FDRIES	TONS-TONNES		\$.000
	IRON FONTE	STEEL ACIER				IRON FONTE	STEEL ACIER				IRON FONTE	
British Columbia Colombie Britannique	6	11,451	-	2,248	6	8,423	-	2,023	7	38,711	-	6,061
Alberta - Saskatchewan	7	8,347	-	4,856	7	10,158	-	6,171	8	12,339	-	7,420
Manitoba	4	7,576	-	2,674	5	6,540	-	2,220	5	7,343	-	2,848
Ontario	36	722,178	2,604	207,212	37	773,964	1,694	234,838	40	1,019,861	1,656	332,721
Quebec, Québec	28	34,169	-	45,159	30	155,801	-	52,210	32	171,210	-	62,178
New Brunswick Nouveau-Brunswick	4	8,852	-	2,752	4	6,085	-	2,665	4	5,398	-	2,521
Nova Scotia Nouvelle-Ecosse	5	1,643	-	917	5	1,718	-	936	5	2,055	-	1,376
Total	90	794,216	2,604	265,818	94	922,689	1,694	301,063	101	1,256,917	1,656	415,125

CHART/TABLEAU NO. 19-A

IRON FOUNDRY VALUE OF ANNUAL SALES: PART 2

LA VALEUR DES VENTES ANNUELLES POUR LES FONDERIES DE FONTE: PARTIE 2

PROVINCE	1974				1975			
	NO. OF/DE FDRIES	TONS-TONNES		\$.000	NO. OF/DE FDRIES	TONS-TONNES		\$.000
		IRON FONTE	STEEL ACIER			IRON FONTE	STEEL ACIER	
British Columbia Colombie Britannique	8	30,524	-	9,715	9	21,720	316	13,178
Alberta - Saskatchewan	9	47,984	-	23,677	9	40,570	-	25,798
Manitoba	4	12,240	-	8,783	6	22,832	-	15,794
Ontario	42	979,121	1,848	456,845	44	882,645	2,046	492,897
Quebec, Québec	35	180,725	-	82,605	40	176,164	-	93,835
New Brunswick Nouveau-Brunswick	5	9,782	-	3,513	5	5,122	-	2,983
Nova Scotia Nouvelle-Ecosse	5	2,230	-	1,677	5	2,367	-	1,853
Total	108	1,262,606	1,848	586,815	118	1,151,420	2,362	646,338

CHART/TABLEAU NO. 19-B

STEEL FOUNDRY VALUE OF ANNUAL SALES: PART 1

LA VALEUR DES VENTES ANNUELLES POUR LES FONDERIES DE FONTE: PARTIE 1

PROVINCE	1971				1972				1973			
	NO. OF/DE FDRIES	TONS-TONNES		\$.000	NO. OF/DE FDRIES	TONS-TONNES		\$.000	NO. OF/DE FDRIES	TONS-TONNES		\$.000
		IRON FONTE	STEEL ACIER			IRON FONTE	STEEL ACIER			IRON FONTE	STEEL ACIER	
Quebec - Atlantic												
Quebec - Atlantique	6	-	69,207	40,250	7	-	70,718	44,194	7	-	74,262	51,156
Ontario	6	4,922	51,845	38,128	6	5,847	48,350	36,535	6	8,971	53,475	40,653
Prairies	3	-	52,740	15,577	3	-	39,250	12,157	3	-	43,899	14,979
British Columbia												
Colombie Britannique	3	-	790	2,495	3	-	612	2,922	3	-	687	3,623
Total	18	4,922	174,582	96,450	19	5,847	158,930	95,808	19	8,971	172,323	110,411

CHART/TABLEAU NO. 19-B

STEEL FOUNDRY VALUE OF ANNUAL SALES: PART 2

LA VALEUR DES VENTES ANNUELLES POUR LES FONDERIES DE FONTE: PARTIE 2

REGION	1974				1975			
	NO. OF/DE FDRIES	TONS-TONNES IRON FONTE	STEEL ACIER	\$.000	NO. OF/DE FDRIES	TONS-TONNES IRON FONTE	STEEL ACIER	\$.000
Quebec - Atlantic Québec - Atlantique	7	-	80,333	68,990	7	-	87,406	96,189
Ontario	7	9,599	61,462	56,058	7	8,851	59,367	76,685
Prairies	3	-	49,972	20,381	4	-	52,954	28,954
British Columbia Colombie Britannique	5	1,100	5,397	11,485	5	762	3,907	11,330
Total	22	10,698	197,164	156,914	23	9,613	203,634	213,158

IRON FOUNDRY METHOD OF SELLING

METHODE DE VENTE ACTUELLE PAR LES FONDERIES DE FONTE

PROVINCE	NO. OF/DE FONDERIES	DIRECT SALES BY COMPANY SALESMAN VENTES DIRECTES PAR DES VENDEURS DE LA SOCIETE	MANUFACTURER AGENT REPRESENTANT DE FABRICANT	OTHER AUTRE
British Columbia Colombie Britannique	10	5	1	4
Alberta - Saskatchewan	17	14	-	3
Manitoba	8	6	-	1
Ontario	38	31	11	12
Quebec - Québec	43	31	7	11
New Brunswick Nouveau-Brunswick	6	4	1	1
Nova Scotia Nouvelle-Ecosse	5	3	1	3
Total	127	88	22	37

CHART/TABLEAU NO. 20-B

STEEL FOUNDRY METHOD OF SELLING

METHODE DE VENTE ACTUELLE PAR LES FONDERIES D'ACIER

REGION	FONDERIES	DIRECT SALES BY COMPANY SALESMAN VENTES DIRECTES PAR DES VENDEURS DE LA SOCIETE	MANUFACTURER AGENT REPRESENTANT DE FABRICANT	OTHER AUTRE
Quebec - Atlantic Québec - Atlantique	6	6	2	1
Ontario	7	7	1	1
Prairies	2	2	1	-
British Columbia Colombie Britannique	5	5	-	-
Total	20	20	4	2

CHART/TABLEAU NO. 21-A

IRON FOUNDRY SALES DISTRIBUTION: 1975

DISTRIBUTION DES VENTES POUR LES FONDERIES DE FONTE: 1975

PROVINCE	NO. OF/DE FDRIES	LOCAL (LESS THAN 300 MILES) LOCALES (MOINS DE 300 MILLES)		MORE THAN 300 MILES IN CANADA PLUS DE 300 MILLES AU CANADA		EXPORT EXPORTATIONS	
		% OF/DE TOTAL	\$.000	% OF/DE TOTAL	\$.000	% OF/DE TOTAL	\$.000
British Columbia Colombie Britannique	9	43.3	5,253.0	45.7	5,546.0	11.0	1,330.0
Alberta - Saskatchewan	10	29.6	7,636.0	69.5	17,939.0	0.9	225.0
Manitoba	7	61.9	9,781.0	26.7	4,210.0	11.4	1,803.0
Ontario	43	68.4	307,906.2	6.8	30,684.1	24.7	111,245.0
Quebec - Québec	41	55.6	55,199.3	35.2	35,003.2	9.2	9,157.7
New Brunswick Nouveau-Brunswick	6	30.4	908.1	67.3	2,006.0	2.3	68.7
Nova Scotia Nouvelle-Ecosse	5	84.2	1,561.0	6.6	122.0	9.2	170.0
Total	119	63.9	388,244.6	15.7	95,508.3	20.4	123,999.5

CHART/TABLEAU NO. 21-B

STEEL FOUNDRY SALES DISTRIBUTION: 1975

DISTRIBUTION DES VENTES POUR LES FONDERIES DE FONTE: 1975

REGION	NO. OF/DE FDRIES	LOCAL (LESS THAN 300 MILES) LOCALES (MOINS DE 300 MILLES)		MORE THAN 300 MILES IN CANADA PLUS DE 300 MILLES AU CANADA		EXPORT EXPORTATIONS	
		% OF/DE TOTAL	\$.000	% OF/DE TOTAL	\$.000	% OF/DE TOTAL	\$.000
Quebec - Atlantic Québec - Atlantique	6	34.5	28,792.0	59.7	49,769.0	5.8	4,795.0
Ontario	7	66.2	48,904.4	19.5	14,428.4	14.3	10,525.3
Prairies	4	70.3	20,364.3	23.6	6,821.0	6.1	1,769.0
British Columbia Colombie Britannique	5	66.7	7,530.5	21.3	2,406.4	12.0	1,353.1
Total	22	53.5	105,591.2	37.2	73,424.8	9.3	18,442.4

THE USUAL OR PREFERRED MARKET FOR IRON CASTINGS IN 1975: NET TONS

LES MARCHES HABITUELS OU PREFERABLES POUR LES MOULAGES EN FONTE EN 1975: TONNES NETTES

MARKET -- MARCHÉ	BRITISH COLOMBIA COLOMBIE BRITANNIQUE	ALBERTA - SASKATCHEWAN	MANITOBA	ONTARIO	QUEBEC	NEW BRUNSWICK NOUVEAU - BRUNSWICK	NOVA SCOTIA NOUVELLE - ECOSSE	TOTAL	% OF/Du TOTAL
Automotive Primary Market L'Industrie de l'automobile: Marché Primaire	17	-	318	432,520	219	-	-	433,074	34.3
Automotive Secondary Market L'Industrie de l'automobile: Marché Secondaire	-	848	254	5,404	3,131	-	-	9,637	0.8
Mobile Equipment Counter Weights Contrepoids pour équipement Mobile Motorisé	291	-	-	2,544	349	-	-	3,184	0.3
Manhole Frames and Covers, Grates and Frames Chassis et Couvertres de Puisard, Grilles et Chassis D'Egouts	2,198	3,271	1,227	7,756	13,411	329	1,527	29,719	2.4
Other Municipal and Construction Castings Autres Moulages du Secteur Municipal et de L'Industrie du Bâtiment	7,247	34,130	1,607	101,528	94,465	966	150	240,093	19.0
Agricultural Equipment Instruments Aratoires	-	2,518	13,337	60,201	1,996	-	12	78,064	6.2
Mining Equipment and Machinery Outillage et Matériel Miniers	6,848	229	1,457	11,194	34,046	-	344	54,118	4.3
Pulp and Paper Mill Equipment and Machinery Outillage et Matériel D'Usine de Pâtes et Papiers	213	36	185	2,014	4,115	7	13	6,583	0.5
Forest Products Equipment and Machinery Outillage et Matériel D'Exploitation Forestière	726	641	132	1,288	1,601	14	-	4,402	0.3
Petrochemical Industry Industrie Pétrochimique	17	1,380	85	1,285	662	7	3	3,439	0.3
Railway Equipment, Locomotives and Cars Matériel de Chemin de Fer, Locomotives et Wagons	119	-	65	28,275	2,122	-	-	30,581	2.4
Shipbuilding Construction Maritime	152	-	-	301	513	36	117	1,119	0.1
Valves and Pumps Soupapes et Pompes	558	590	2,533	9,544	5,255	3,298	12	21,790	1.7
Machinery N.E.S. Machinerie N.D.A.	686	-	494	17,312	3,650	-	148	22,290	1.8
Other Manufacturing N.E.S. Autres Marchés Manufacturiers N.D.A.	2,589	981	631	303,225	16,483	1,127	39	325,075	25.7
Total	21,661	44,624	22,325	984,391	182,018	5,784	2,365	1,263,186	100.0
% of/du Total	1.7	3.5	1.8	77.9	14.4	0.5	0.2	100	

CHART/TABLEAU NO. 22B

THE USUAL OR PREFERRED MARKET FOR STEEL CASTINGS IN 1975: NET TONS

LES MARCHES HABITUELS OU PREFERABLE POUR LES MOULAGES EN ACIER EN 1975: TONNES NETTES

MARKET -- MARCHE	QUEBEC - ATLANTIC QUEBEC - ATLANTIQUE	ONTARIO	PRAIRIES	BRITISH COLUMBIA COLOMBIE BRITANNIQUE	TOTAL	% OF/Du TOTAL
Automotive Primary Market L'Industrie de l'automobile : Marché Primaire	387	13,559	180	200	14,326	7.23
Automotive Secondary Market L'Industrie de l'automobile: Marché Secondaire	-	174	-	-	174	0.09
Mobile Equipment Counter Weights Contrepoids pour équipement Mobile Motorisé	-	53	-	-	53	0.02
Manhole Frames and Covers, Grates and Frames Chassis et Couvercles de Puisard, Grilles et Chassis D'Egoûts	-	-	36	15	51	0.02
Other Municipal and Construction Castings Autres Moulages du Secteur Municipal et de L'Industrie du Bâtiment	-	487	540	30	1,057	0.53
Agricultural Equipment Instruments Aratoires	49	448	-	-	497	0.25
Mining Equipment and Machinery Outillage et Matériel Minier	19,822	7,904	3,393	360	31,479	15.90
Pulp and Paper Mill Equipment Outillage et Matériel D'Usine de Pâtes et Papiers	722	271	308	591	1,892	0.96
Forest Products Equipment and Machinery Outillage et Matériel D'Exploitation Forestiere	224	33	230	848	1,335	0.67
Petrochemical Industry Industrie Pétrochimique	83	800	236	40	1,159	0.59
Railway Equipment, Locomotives and Cars Matériel de Chemin de Fer, Locomotives et Wagons	45,752	24,196	46,827	69	116,844	59.04
Shipbuilding Construction Maritime	1,352	283	540	266	2,441	1.23
Valves and Pumps Soupapes et Pompes	4,072	1,641	50	-	5,763	2.91
Machinery N.E.S. Machinerie N.D.A.	5,046	2,640	230	412	8,328	4.21
Other Manufacturing N.E.S. Autres Marchés Manufacturiers N.D.A.	4,270	7,168	-	1,078	12,516	6.32
Total	81,779	59,657	52,570	3,909	197,915	100.00
% of/du Total	41.3	30.1	26.6	2.0	100.0	

EXPORT OF IRON CASTINGS - 1975: NET TONS

LES EXPORTATIONS DE MOULAGES EN FONTE - 1975: TONNES NETTES

MARKET -- MARCHÉ	BRITISH	ALBERTA -	MANITOBA	ONTARIO	QUEBEC	NEW	NOVA	TOTAL	%
	COLUMBIA COLOMBIE BRITANNIQUE					BRUNSWICK NOUVEAU BRUNSWICK	SCOTIA NOUVELLE ECOSSE		of/du Total
Automotive Primary Market L'Industrie de l'automobile: Marché Primaire	6	-	-	232,573	53	-	-	232,632	74.62
Automotive Secondary Market L'Industrie de l'automobile: Marché Secondaire	-	-	254	1,366	2,100	-	-	3,720	1.19
Mobile Equipment Counter Weights Contrepoids pour équipement Mobile Motorisé	6	-	-	182	-	-	-	188	0.06
Manhole Frames and Covers, Grates and Frames Chassis et Couverts de Puits Grilles et Chassis D'Egoûts	51	-	-	-	12	-	225	288	0.09
Other Municipal and Construction Castings Autres Moulages du Secteur Municipal et de L'Industrie de Bâtiment	-	-	170	43,561	3,930	7	-	47,668	15.29
Agricultural Equipment Instruments Aratoires	-	180	1,226	11,848	196	-	-	13,450	4.31
Mining Equipment and Machinery Outillage et Matériel Miniers	366	-	527	105	1,425	-	-	2,423	0.78
Pulp and Paper Mill Equipment Outillage et Matériel D'Usine de Pâtes et Papier	-	-	-	1,380	642	-	-	2,022	0.65
Forest Products Equipment and Machinery Outillage et Matériel D'Exploitation Forestière	-	-	-	-	-	-	-	-	-
Petrochemical Industry Industrie Pétrochimique	-	-	-	-	-	-	-	-	-
Railway Equipment, Locomotives and Cars Matériel de Chemin de Fer, Locomotives et Wagons	-	-	-	916	-	-	-	916	0.29
Shipbuilding Construction Maritime	-	-	-	-	-	-	-	-	-
Valves and Pumps Soupapes et Pompes	51	-	140	690	-	-	-	881	0.28
Machinery N.E.S. Machinerie N.D.A.	-	-	-	1,249	447	41	12	1,749	0.56
Other Manufacturing N.E.S. Autres Marchés Manufacturiers N.D.A.	-	-	-	4,084	1,692	47	-	5,823	1.87
Total	480	180	2,317	297,954	10,497	95	237	311,760	100.00
% of/du Total	0.15	0.06	0.74	95.57	3.37	0.03	0.08	100.00	

CHART/TABLEAU No. 23B

EXPORT OF STEEL CASTINGS - 1975: NET TONS

LES EXPORTATIONS DE MOULAGES EN ACIER -1975: TONNES NETTES

MARKET -- MARCHÉ	QUEBEC - ATLANTIC QUEBEC - ATLANTIQUE	ONTARIO	PRAIRIES	BRITISH COLUMBIA COLOMBIE BRITANNIQUE	TOTAL	% of/du Total
Automotive Primary Market L'Industrie de l'automobile: Marché Primaire	-	3,929	54	20	4,003	40.24
Automotive Secondary Market L'Industrie de l'automobile: Marché Secondaire	-	-	-	-	-	-
Mobile Equipment Counter Weights Contrepoids pour équipement Mobile Motorisé	-	-	-	-	-	-
Manhole Frames and Covers, Grates and Frames Chassis et Couvertres de Puisards Grilles et Chassis D'Egoûts	-	-	-	-	-	-
Other Municipal and Construction Castings Autres Moulages du Secteur Municipal et de L'Industrie du Bâtiment	-	-	36	-	36	0.36
Agricultural Equipment Instruments Aratoires	17	-	-	-	17	0.17
Mining Equipment and Machinery Outillage et Matériel Miniers	1,345	856	689	31	2,921	29.36
Pulp and Paper Mill Equipment Outillage et Matériel D'Usine de Pâtes et Papiers	-	-	-	16	16	0.16
Forest Products Equipment and Machinery Outillage et Matériel D'Exploitation Forestière	-	-	-	26	26	0.26
Petrochemical Industry Industrie Petrochimique	-	87	-	-	87	0.87
Railway Equipment, Locomotives and Cars Matériel de Chemin de Fer, Locomotives et Wagons	-	-	-	-	-	-
Shipbuilding Construction Maritime	-	-	-	-	-	-
Valves and Pumps Soupapes et Pompes	866	-	-	-	866	8.71
Machinery N.E.S. Machinerie N.D.A.	-	13	-	-	13	0.13
Other Manufacturing N.E.S. Autres Marchés Manufacturiers N.D.A.	1,390	524	-	49	1,963	19.73
Total	3,618	5,409	779	142	9,948	100.00
% of/du Total	36.4	54.4	7.8	1.4	100.0	

CHART/TABLEAU NO: 24-A

IRON FOUNDRY CAPITAL INVESTMENT: EXCLUDING COST OF ENVIRONMENTAL CONTROL

IMMOBILISATIONS DES FONDERIES DE FONTE EXCLUANT LES COÛTS POUR LA PROTECTION DE L'ENVIRONNEMENT

PROVINCE	1974		1975		FORECAST-PREVISION 1976-80	
	NO. OF/DE FDRIES	\$.000	NO. OF/DE FDRIES	\$.000	NO. OF/DE FDRIES	\$.000
BRITISH COLUMBIA COLOMBIE BRITANNIQUE	7	759	9	550	7	2,430
ALBERTA - SASKATCHEWAN	9	746	8	2,946	10	4,180
MANITOBA	4	914	6	2,999	5	1,970
ONTARIO	43	15,245	43	13,881	39	68,040
QUEBEC	22	8,273	34	14,736	30	35,217
NEW BRUNSWICK NOUVEAU-BRUNSWICK	4	97	5	494	5	300
NOVA SCOTIA NOUVELLE-ECOSSE	4	50	3	84	2	280
TOTAL:	93	26,084	108	35,690	98	112,417

CHART/TABLEAU NO: 24-B

STEEL FOUNDRY CAPITAL INVESTMENT: EXCLUDING COST OF ENVIRONMENTAL CONTROL

IMMOBILISATIONS DES FONDERIES D'ACIER EXCLUANT LES COÛTS POUR LA PROTECTION DE L'ENVIRONNEMENT

REGION	1974		1975		FORECAST- PREVISION 1976-1980	
	NO. OF/DE FDRIES	\$.000	NO. OF/DE FDRIES	\$.000	NO. OF/DE FDRIES	\$.000
QUEBEC - ATLANTIC QUEBEC - ATLANTIQUE	6	2,609	6	6,119	6	17,995
ONTARIO	7	1,599	7	2,986	6	12,295
PRAIRIES	3	517	3	1,019	2	3,500
BRITISH COLUMBIA COLOMBIE BRITANNIQUE	1	12	2	3,267	3	1,057
TOTAL:	17	4,737	18	13,391	17	34,847

THE CANADIAN FERROUS FOUNDRY INDUSTRY
REPORT OF THE 1976 NATIONAL SURVEY

APPENDIX III

The names of foundries contributing data
to this study are shown on the following pages.

PART I: STEEL FOUNDRIES
PART II: IRON FOUNDRIES

THE CANADIAN FERROUS FOUNDRY INDUSTRY

REPORT OF THE 1976 NATIONAL SURVEY

APPENDIX III

PART 1: STEEL FOUNDRIES

<u>Name</u>	<u>City</u>	<u>Province</u>
Griffin Steel Foundries Ltd.	St-Hyacinthe	Québec
La Fonderie Canadian Steel Foundry Division of Hawker Siddeley Canada Limited	Montréal	Québec
Les Fonderies de Sorel Limitées	Sorel	Québec
Abex Industries Ltd. Amsco Joliette Division	Montréal	Québec
Lynn MacLeod Metallurgy Limited	Thetford Mines	Québec
Unit Cast - Division of Midland Ross of Canada Limited	Sherbrooke	Québec
Dominion Engineering Works Ltd.	Lachine	Québec
Black Clawson - Kennedy Ltd.	Owen Sound	Ontario
C. S. Castings Limited	Orillia	Ontario
Dayton-Walther Co. Ltd.	Guelph	Ontario
Dominion Foundries and Steel Limited	Hamilton	Ontario
Fahramet Limited	Orillia	Ontario
Johnson Matthey & Mallory Ltd.	Toronto	Ontario
Magalloy Ltd.	Mitchell	Ontario
Abex Industries Ltd.	Selkirk	Manitoba
Griffin Steel Foundries Ltd.	Transcona	Manitoba
Irving Industries Limited (Foothills Steel Foundry Division)	Calgary	Alberta
Quality Steel Foundries Ltd.	Edmonton	Alberta

PART 1: STEEL FOUNDRIES (CONT'D)

A-1 Steel - Division of The Ardiem Industrial Corporation	Vancouver	British Columbia
CAE Machinery Ltd.	Vancouver	British Columbia
Kockums-Letson & Burpee Ltd.	Surrey	British Columbia
Reliance Foundry Company Ltd.	Surrey	British Columbia
Victoria Machinery Depot Co. Ltd.	Victoria	British Columbia

THE CANADIAN FERROUS FOUNDRY INDUSTRY

REPORT OF THE 1976 NATIONAL SURVEY

APPENDIX III

PART II: IRON FOUNDRIES

<u>Name</u>	<u>City</u>	<u>Province</u>
Angel Manufacturing & Supply Co. Ltd.	North Sydney	Nova Scotia
Cape Breton Development Corporation (Coal Division)	Sydney	Nova Scotia
Industrial Marine Products Ltd.	Dartmouth	Nova Scotia
Lunenburg Foundry and Engineering Ltd.	Lunenburg	Nova Scotia
Steel & Engineering Products Ltd.	Liverpool	Nova Scotia
Courtney Iron & Brass Foundry Co. Ltd.	St. John	New Brunswick
Enheat Ltd.	Sackville	New Brunswick
Lauder Mfg. Ltd.	Hillsboro	New Brunswick
McAavity-Crane Ltd.	St. John	New Brunswick
Saint John Iron Works Limited	St. John	New Brunswick
The Enterprise Foundry Co. Ltd.	Sackville	New Brunswick
Belgren Inc.	Drummondville	Québec
Canadian Ohio Brass Company Limited	Baie d'Urfe	Québec
Canron Limitée	Trois Rivières	Québec
Daigle Aqua Inc.	Longueuil	Québec
Darling Duro Limitée	Montréal	Québec
Desjardins Limitée	Cté Kamouraska	Québec
Dusseault & Lamoureux Inc.	St-Hyacinthe	Québec
Elgin Iron Works Reg.	Kensington	Québec
Emery Cormier Fonderie	Joliette	Québec
Fonderie Canadienne Enr.	St-Jean	Québec
Fonderie Desrosiers Limitée	Cté Richelieu	Québec
Fonderie Dion Limitée	Ste-Thérèse	Québec
Fonderie Grand'Mère Limitée	Grand'Mère	Québec
Fonderie Z. Laroche & Frères Ltée	Pont Rouge	Québec

PART II: IRON FOUNDRIES (CONT'D)

Fonderie Magog	Magog	Québec
Fonderie Maska Foundry Inc.	Cté Dorchester	Québec
Fonderie Napierville Ltée	Napierville	Québec
Fonderie Nova Inc.	St-Hyacinthe	Québec
Fonderie St-Anselme Limitée	St-Anselme	Québec
Fonderie Ste-Croix Ltée	Ste-Croix de Lotbinière	Québec
Fonderie Ste-Croix Ltée	St-Jean	Québec
Fonderie de Thetford (1969) Inc.	Thetford Mines	Québec
Fonderie Waterloo Inc.	Waterloo	Québec
Fontac Inc.	Trois-Rivières	Québec
Forano Limitée	Plessisville	Québec
Industries Couture Limitée	Chicoutimi	Québec
Jenkins Bros. Limited	Lachine	Québec
Jos. Poitras & Fils Ltée	L'Isletville	Québec
La Fonderie de Lauzon Limitée	Lauzon	Québec
La Fonderie Laperle Limitée	St-Ours	Québec
La Fonderie Ouellet Inc.	Cté Nicolet	Québec
Legare Foundry (1961) Limited	Sherbrooke	Québec
Dominion Engineering Works Limited	Lachine	Québec
Les Produits de Chauffage J.L. Ltée	Daveluyville	Québec
Les Fonderies Sigama Inc.	Ste-Anne-de-la- Pérade	Québec
Les Fonderies Monsarrat Limitée	Rivière-du-loup	Québec
Métallurgie Karby Enr.	St-Pierre	Québec
Métallurgie de St-Raphael Limitée	St-Raphael	Québec
Mueller Industries Limited	St-Jérôme	Québec
Pierre Thibault (1972) Limitée	Cté Yamaska	Québec
Québec Iron Foundries Ltd.	Mont-Joli	Québec
Québec Iron Foundries	Noranda	Québec
Stanton Foundry Limited	St. Hubert	Québec

PART II: IRON FOUNDRIES (CONT'D)

Ancast Industries Ltd.	Winnipeg	Manitoba
Contract Castings Ltd.	Winnipeg	Manitoba
Farm King Ltd.	Morden	Manitoba
M.B.E. Ltd.	Winnipeg	Manitoba
Monarch Industries Ltd.	Winnipeg	Manitoba
Teledyne Canada Bell Foundry	Winnipeg	Manitoba
Thor Foundry Ltd.	Winnipeg	Manitoba
Blanchard Foundry Co.	Saskatoon	Saskatchewan
John East Iron Works Limited	Saskatoon	Saskatchewan
Canron Limited Pipe Division	Calgary	Alberta
Crane Canada McAvity Division	Medicine Hat	Alberta
Dominion Bridge Co. Ltd.	Edmonton	Alberta
General Foundry Ltd.	Edmonton	Alberta
Lethbridge Iron Works Co. Ltd.	Lethbridge	Alberta
Norwood Foundry Limited	Edmonton	Alberta
Sovereign Castings Ltd.	Calgary	Alberta
Titan Foundry Ltd.	Edmonton	Alberta
Associated Foundry Ltd.	Surrey	British Columbia
Century Pacific Foundry Ltd.	Burnaby	British Columbia
Highland Foundry Ltd.	Vancouver	British Columbia
Mainland Industries Ltd.	Vancouver	British Columbia
McLean and Powell Iron Works Ltd.	Vancouver	British Columbia
Nye's Foundry Co. Ltd.	Vancouver	British Columbia
Ocean Foundries	Surrey	British Columbia
Robar Industries Ltd.	Surrey	British Columbia
Thompson Foundry Ltd.	Surrey	British Columbia
Victoria Foundries Ltd.	Victoria	British Columbia

PART II: IRON FOUNDRIES (CONT'D)

Algoma Steel Corporation Limited	Sault Ste. Marie	Ontario
Alloy Foundry Company, Limited	Merrickville	Ontario
Appleton Electric Limited	Cambridge	Ontario
S. A. Armstrong Limited	Belleville	Ontario
Babcock & Wilcox Canada Ltd.	Cambridge	Ontario
Benn Iron Foundry Limited	Wallaceburg	Ontario
Bibby Foundry Limited	Cambridge	Ontario
Brown Foundry Ltd.	Morrisburg	Ontario
Canada Valve Ltd.	Kitchener	Ontario
Canadian Blower and Forge Co. Ltd.	Kitchener	Ontario
Canron Ltd. - Foundry Division	Hamilton	Ontario
	St. Thomas	Ontario
	New Liskeard	Ontario
Canron Ltd. - Pipe Division	Toronto	Ontario
Crouse-Hinds Canada Ltd.	Scarborough	Ontario
Crowe Foundry Limited	Cambridge	Ontario
Crowle Fittings Limited	Weston	Ontario
Dart Foundry Limited	Stevensville	Ontario
Date Industries Limited	Ayr	Ontario
Dorr-Oliver-Long Limited	Orillia	Ontario
FMC of Canada Ltd.	Elmira	Ontario
Findlay Foundry Limited	Carleton Place	Ontario
Fittings Limited	Oshawa	Ontario
Galt Malleable Iron Limited	Cambridge	Ontario
Galt Malleable Iron Limited	Brantford Township	Ontario
General Motors of Canada Limited	St. Catharines	Ontario
Georgian Bay Foundry Limited	Meaford	Ontario
Hamilton Foundry Co. Ltd.	Hamilton	Ontario
John T. Hepburn, Limited	Toronto	Ontario
Holmes Foundry Limited	Sarnia	Ontario
International Hardware Co. of Canada Limited	Belleville	Ontario
International Malleable Iron Company Limited	Guelph	Ontario
Kanmet Ltd.	Cambridge	Ontario

PART II: IRON FOUNDRIES (CONT'D)

Kelsey-Hayes Canada Limited	Woodstock	Ontario
Lake Foundry & Machine Co. Ltd.	Grimsby	Ontario
Massey-Ferguson Industries Ltd.	Brantford	Ontario
McLean Foundry Limited	Brantford	Ontario
Neelon Steel Limited	Sudbury	Ontario
Northern Ontario Castings Ltd.	Bracebridge	Ontario
Otaco Limited	Orillia	Ontario
Standard Induction Castings Ltd.	Windsor	Ontario
Stanton Pipes Limited	Hamilton	Ontario
Stittsville Foundry Limited	Stittsville	Ontario
The Technovation Corporation Ltd.	Cannington	Ontario
Welland Iron and Brass Ltd.	Welland	Ontario
Wells Foundry Limited	London	Ontario
Western Foundry Co. Ltd.	Wingham	Ontario
Windsor Casting Plant		
Ford Motor Company of Canada, Ltd.	Windsor	Ontario
Woodside Machinist and Foundry Ltd.	Thunder Bay	Ontario

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APPENDIX IV

Index of Non-Foundry Contributors to
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Information Used in the Preparation
of this Report.

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APPENDIX IV

Industry Operations Branch,
Department of Development,
Province of Nova Scotia.

Industrial Development Branch,
Department of Economic Growth,
Government of New Brunswick.

Ministry of Industry and Commerce,
Province of Québec.

- (a) Industry Branch
- (b) Industrial Expansion Branch.

Ministry of Industry and Tourism,
Province of Ontario.

- (a) Industry Research Branch
- (b) Technology Branch.

Industrial Materials & Construction Branch,
Department of Industry and Commerce,
Province of Manitoba.

Industry Development Branch,
Department of Industry and Commerce,
Province of Saskatchewan.

Industry Development Branch,
Department of Industry and Commerce,
Province of Alberta.

APPENDIX IV (cont'd)

Business Development Branch,
Department of Industrial Development, Trade & Commerce,
Province of British Columbia.

Department of Industry, Trade and Commerce,
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