CONFIDENTIAL

AIR/WATER POLLUTION IN CANADA

A PUBLIC RELATIONS ASSESSMENT FOR IMPERIAL OIL LIMITED

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<u>Note:</u> This report was prepared in co-operation with the TDC Activity on Protection of the Environment.

A few selected references are cited in footnotes; a complete bibliography is available upon request.

Imperial Oil Limited. Public Relations Dept. 628.5097/ Air/water pollution in Canada: a public relations assessment for Imperial Oil Limited (by) Frank T. LeBart. (Toronto) 1967.

* 628.5097/ T

> LeBart/pj 1, 1967

628.50971

AIR/WATER POLLUTION IN CANADA

Air and water pollution are problems in all cities in an industrial civilization. Canadian cities are no exceptions. However, Canadian cities are favoured, in many cases, by satisfactory meteorological conditions and adequate water resources.¹ Further, the Canadian population, with the exception of a few major urban areas, is widely dispersed across a vast geographic area. These factors all help to minimize and postpone -- but not eliminate -- problems of pollution.

A national conference on "Pollution and Our Environment" held in November of 1966 in Montreal under sponsorship of the Canadian Council of Resource Ministers, broadly concluded:

- 1. "Generally the concentrations of pollutants in Canada are well below the critical levels but there are locations where there is actual or potential pollution.
- "With the anticipated increases in population and the mass and complexity of wastes, continuing strenuous efforts in all fields will be required to improve or even maintain these conditions.
- 3. "The situation in the U.S.A. is much more serious, but it is being attacked vigorously. The results of these programs will provide invaluable guidance and information for the Canadian effort.
- 4. "There is cause for concern and a major increase in Canadian efforts to protect the environment but there is no need for alarm or hysteria."²

Looking to the future, the Ontario Government, for example, predicts 16 million inhabitants in southern Ontario by the year 2000 and studies conducted by Dr. Doxiadis for Detroit Edison forecast a Great Lakes megalopolis stretching from Chicago to beyond Montreal by the end of the century. Confirming this trend towards urbanization, a report on the 1966 census issued by the Dominion Bureau of Statistics on September 11, 1967 indicated that 736 of every 1,000 Canadians are now living in urban centres compared with 696 of every 1,000 in 1961. Projected population growth and urbanization of this magnitude pose challenges to future air/water pollution control.

Water Pollution

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In Canada, water pollution is caused primarily by sewage; industrial wastes of many varieties (e.g. acids, alkalis, ammonia, cyanides, oil, phenols, saw and pulp mill effluents and tars); runoff of sediments, fertilizers, insecticides, weed killers and pesticides; and there is growing concern about "thermal pollution" in some areas where industrial plants are returning large volumes of heated water to rivers.

1 Vancouver and Sarnia are examples of cities that must cope with complicating meteorological conditions. Looking at Canada as a whole, the dumping of raw or semi-treated sewage by municipalities is probably the most important single cause of water pollution in heavily populated areas. However, some progress is being made to correct this situation, especially in Ontario where the Water Resources Commission and a provincial formula for financing sewer plant construction have been effective. In B.C. the Department of Municipal Affairs recently announced that legislation will be proposed which will enable the Pollution Control Board to compel municipalities to build sewage treatment plants within a specified time.

Considerable information and data on the pollution of rivers and lakes, including the Great Lakes, exist and further studies, surveys and research are underway. Water pollution and its causes, although complex, can be detected and measured in many of its forms; consequently realistic objectives can be established.

There are, however, broad areas of scientific disagreement. These include, for example, the role of viruses and bacteria in treated sewage and other effluents; the actual effect of insecticides, pesticides and other chemicals (in what concentration?) on fish and biological processes; and the extent to which sewage, using present treatment techniques, can safely be recycled for drinking water. Finally, water quality criteria need to be defined for use of water in agriculture, by aquatic life, as drinking water, by industry and in recreation.³

Air Pollution

There are approximately 35 types of atmospheric contaminants of some importance.⁴ In large municipalities, all of these pollutants occur in varying degrees from trace amounts to fairly large concentrations. Examples of the more significant include the following:

<u>Aldehydes</u> - Aldehydes, especially formaldehyde, are introduced into the city air from incinerator smoke, stack gases and by automobile and diesel exhausts. Some aldehydes may be created by the oxidation of hydrocarbons after they are emitted into the atmosphere. The concentration of aldehydes is rarely high enough to cause coughing or choking but may be pungent and irritating.

<u>Carbon Monoxide</u> - Automobile exhaust contributes about 97 per cent of the total CO in a city and is the principal source at ground level. While carbon monoxide in sufficient concentration over a long enough period of time is highly toxic, little authoritative data exist on the significance of CO as a pollutant of a city's environment.

<u>Fluorides</u> - Fertilizer and aluminum manufacturing activities are the principal sources of fluorides in Canada. Fluorides in fairly low concentrations can cause damage to vegetation, including agriculture crops.

³ Proceedings of the national conference on "Pollution and Our Environment" - Canadian Council of Resource Ministers, Montreal, Oct. 31-Nov. 4, 1966, page 151.

4 "Sources of Pollutants" - H.A. Belyea, F.W. Taylor and R.J. Morse. A paper prepared for a one-day symposium of the Institute of Combustion and Fuel Technology (Quebec Branch) of Canada - Montreal. Nov. 30, 1966 In sufficient concentrations over extended periods of time they can be toxic to humans and animals. Fluorides are persistent and may be harmful as trace elements in water, milk or vegetation when consumed by humans and animals. However, fluorides in small quantities are generally considered beneficial (e.g. fluoridation of water for dental health).

<u>Hydrocarbons</u> - Through evaporative losses and exhaust emissions, the automobile is a major source of hydrocarbons (85 per cent in Toronto⁵). While hydrocarbons are relatively low in toxicity in the concentrations found in a city's atmosphere, they do contribute to smog under certain atmospheric conditions.

Hydrogen Sulphide - Hydrogen sulphide is emitted by combustion of fuels and from pulp mills, cement plants, sewage treatment plants, gas plants, oil refineries and production, tanneries, dye manufacturers and polluted streams. Hydrogen sulphide causes tarnishing of silver and copper, may darken painted buildings and, in sufficient concentration, such as under inversion conditions, can be highly odorous and harmful to health.

Lead - Lead has received considerable attention in the U.S. from public officials and the mass media. This does not appear to be true in Canada. No stories originated by Canadian sources have appeared in the 23 key newspapers monitored by the IOL Public Relations during the past two years. There also are relatively few references to lead in the Canadian technical literature. Results of an extensive survey conducted by Dr. T. J. Haley, a toxicologist at the University of California, indicate that the U.S. has a "highly-leaded" environment but that chronic lead poisoning poses no problem. According to Dr. Haley, use of leaded gasoline does not appear to affect health; only a small percentage of lead inhaled is in particles of a size the lungs will retain. Most of the lead retained in the human body is received in food, not by inhalation. Dr. Haley's study indicates that lead body burdens have remained steady during the past 30 years and that the incidence of acute lead poisoning has actually decreased.

Oxides of Nitrogen - Oxides of nitrogen are emitted from combustion of all types of fuels such as coal, oil and natural gas. They contribute to photochemical smog and may be toxic in sufficient concentration over a long period of exposure. This smog, first noted in Los Angeles, is produced by chemical reactions of hydrocarbons, especially olefins, with nitrogen dioxide in the presence of bright sunlight. Photochemical smog causes haze, eye irritation and plant damage.

<u>Sulphur Oxides</u> - Sulphur oxides are produced primarily by the combustion of fossil fuels containing sulphur. Sulphur dioxide is the common form. The concentrations required to give acute health effects are relatively high even in the presence of suspended particulates. Safe levels for continuous exposure have not yet been established firmly but they may be approached or even exceeded in large metropolitan and industrial centres. Sulphur trioxide is also produced in combustion and some sulphur dioxide is oxidized to this form in the air. (Sulphur dioxide, oxygen and sunlight, with particulate matter acting as a catalyst, react under certain conditions to form SO₃.) Sulphur trioxide, in turn, reacts readily with water vapour to form sulphuric acid. The resulting mist can be extremely irritating in very low concentrations. Products of sulphur oxides can also cause damage to building exteriors, fabrics and art treasures.

Other Pollutants - Other pollutants of varying degrees of importance include carcinogens (polynuclear aromatic hydrocarbons have received considerable attention in the literature), organic and inorganic chlorides, coarse and suspended particulates and air-borne organisms (bacteria, viruses, fungi, spores and pollen).

All sizeable concentrations of population and industry in the country have actual or potential air pollution problems. Generally concentrations are at the nuisance level without readily detectable health effects. But with continued growth, control of emissions will become essential.

The petroleum industry, directly or indirectly, is a major contributor to many of the key forms of pollution. This fact is well known by government air pollution control and health officials and is widely documented, albeit not always objectively, in the technical and medical literature.

Unfortunately, air pollution is an area highly charged with emotion and one characterized by a lack of meaningful data and rational guidelines. It is a subject on which intelligent, well-informed and rational individuals can disagree with good intentions. The health aspect of air pollution is especially critical in this respect. The medical data which do exist are based on relatively high concentrations as they may apply to specialized industrial plants or may be studied in laboratory experiments. There has been a tendency by some to extrapolate from these data to a community's atmosphere without making the essential distinction between acute toxicity due to high concentrations versus the unknown effects of continuous exposures at low concentrations. Concentrations utilized for industrial hygiene purposes cannot be readily extrapolated to ambient air quality.

Collection of basic data on air pollution in all major urban areas in Canada with existing techniques should be given a high priority. These basic data are essential for the creation of meaningful objectives and control programs. In addition, more technical knowledge and data are needed in such areas as:

- 1. Effects of air pollution on human health, agriculture and property.
- 2. Meteorological factors affecting air pollution.
- 3. Chemical reactions in the atmosphere which contribute new pollutants.
- Improved and standardized techniques for measurement and identification of pollutants.
- 5. Improved control methods and equipment.

A Committee on Air Pollution Control of the Canadian Standards Association is currently working on development of an acceptable set of guidelines and objectives for air pollution control. The committee (comprised of 1/3 industrial members, 1/3 provincial officials and 1/3 research personnel from branches of federal government) is approaching the problem in terms of ambient air quality rather than emissions standards. H. R. Holland is a member of the committee.

In Canada, there is considerable disagreement as to whether there is a serious pollution problem or not. There is even more disagreement on standards of air and water quality and as to the priority pollution control should be given in relation to other economic and national goals.

In urging improved budget management and an improved assessment of spending priorities for all levels of government, the Economic Council of Canada, in its fourth annual review, made the following recommendation as reported by the Globe and Mail (September 18, 1967):

"Anti-pollution measures will require large investment...and governments should plan ahead for this in their spending programs -- just as they should have been able to foresee the needs of education and not been forced to deal with it as a crisis."

Industrial corporations would be well advised to assume a similar posture. The effect of air and water pollution on human health, property, agricultural crops and vegetation, domestic animals and wild life and other aspects of our environment and the way the public, the mass media and governments react to these effects, real or imagined, will have a profound impact on the future of the oil and chemical industries.

PUBLIC ATTITUDES TOWARD POLLUTION

An accurate assessment of the present state of Canadian public opinion toward pollution is not possible. The data do not exist or at least have not been published.

However, the Canadian Council of Resource Ministers conducted an informal survey in preparation for its 1966 conference on "Pollution and Our Environment" and concluded: (1) there are great differences in individual attitudes and awareness; (2) there is no strong public demand to assign pollution control a high priority for the allocation of public funds; (3) the problems of public education on the necessity, cost and benefits of controlling environmental quality are formidable. A conclusion of the conference, however, was that a vigorous educational campaign on all aspects of the pollution problem is essential. As one step in that direction, the Council has established National Resources Reporting Awards for excellence in reporting on pollution in the various media.

The above informal survey results do not agree entirely with Imperial's own studies conducted during the summers of 1965 and 1967⁶. These data indicate:

(See table 1)

- . Air and water pollution is an important problem; 47% consider additional government action absolutely essential.
- . People who live in the Maritimes, the Prairies and British Columbia are more concerned about pollution in 1967 than they were in 1965.
- . Ontario residents are less concerned in 1967. However, they are also less concerned about the other issues as well. This may reflect more satisfaction with what the government is doing in these areas. In pollution control, Ontario is a leader. For example, it just recently extended control of air pollution with a new act that could become a model for other provinces.

(See table 2)

6

- . 81% of Canadian men currently associate pollution with specific industries, compared with only 66% in 1965. This suggests a greater awareness of pollution as a public issue.
- There continues to be low agreement on the industries most responsible for pollution with no more than 20% mentioning any one industry nationally.
- The oil industry, while among the top five blamed for pollution, fared reasonably well in comparison with other major industries.
- Automobiles and buses are not widely considered to be a major source of pollution in Canada.

Air/water pollution as a major national issue has been brought more sharply into focus in the U.S. during recent years. It is reasonable to assume that the great amount of attention devoted recently to pollution by the U.S. mass media of communication and government officials at all levels will increase Canadian concern about the problem.

"Canadian Attitudes Towards the Oil Industry" - Summer 1965 and Summer 1967

The most recent data, as reported by Louis Harris⁷, available from the U.S. indicate:

Table 3: 72-75% of people living in cities and suburbs feel there is a considerable amount of air pollution where they live.

Table 4: 53-49% of people in cities and suburbs feel air pollution is worse compared with a few years ago.

Table 5: 45% feel that motor vehicle exhaust causes most air pollution.

<u>Table 6:</u> Only 44% would be willing to spend \$15 per year in increased taxes to finance a federal program to control air pollution; 46% would oppose such a move. (While not wholly comparable, this question most closely approximates a question used by Imperial, i.e. consider additional government action "absolutely essential" - see table 1. It is interesting to note that the percentage response is also similar -- 44% in the U.S. vs. 47% in Canada.)

To the extent there are similarities between U.S. and Canadian opinion, the Harris data are significant. Attitudes toward the existence of air pollution and the feeling that air pollution is worse compared with a few years ago, clearly mirrors increased attention devoted to pollution by U.S. mass media. The fact that automotive pollution, which was not considered a problem a few years ago, is named the number one offender by 45% of the people (compared with 8% in Canada) is affirmation of the impact of the mass media.

However, the public attitudes expressed in table 6 are also significant and tend to support the findings of the Canadian Council of Resource Ministers. A majority of the people apparently do not feel strongly enough about air pollution to invest their own tax dollars in the problem. Unfortunately, due to a misunderstanding of basic economics, the public may be far more willing to invest the "profits of big corporations" in pollution control.

There is, however, considerable tolerance for polluted air as a necessary part of local industrial operations. In answer to the following question posed by the Harris Survey, 63% agreed, 25% disagreed and 12% were undecided:

"It has been argued that if industry is to provide jobs in an area, it is likely to cause some air pollution; therefore, some air pollution has to be put up with. Do you agree with this point of view?"

Discussions with various experts in Imperial suggest that similar attitudes probably prevail in Canada.

7 Louis Harris, New York Post, July 24, 1967

MASS MEDIA COVERAGE OF POLLUTION

In the absence of specific public opinion data, it is difficult to assess objectively the impact of the mass media. However, one fact is clear: the Canadian press has been devoting a considerable amount of attention to pollution subjects. During 1966, 368, an average of about 1.0 per day, <u>significant</u> stories on pollution were clipped from the 23 key newspapers monitored by the IOL Public Relations Department. During the first eight months of 1967, 337 significant articles were clipped which raises the daily average to are summarized in table 7.

The following is a summary of conclusions based on a study of the coverage which is summarized in table 7:

- 1. Less than 10% of all pollution coverage in 23 key Canadian newspapers during 1966-67 has been favourable or helpful to industry. Further, most of this coverage appears in financial pages which are not apt to be widely read by the general population. Conversely, 90% of all coverage has been generally unfavourable to industry either directly or indirectly by urging more stringent government regulation.
- Surprisingly, relatively little pollution coverage is based on actual "pollution events". This category accounted for only 3% of all coverage during 1966; however, this percentage increased sharply to 23.5% during 1967 due to the widespread coverage accorded the Torrey Canyon disaster (55 stories out of a total of 77).
- 3. Government statements, actions, studies and programs generate about one third of all pollution news coverage. Government agencies are the big newsmakers in the pollution field.
- 4. Feature stories and editorials which tend to be critical of industry or "crusading" for more government regulation account for about one-fifth of all coverage.
- Societies and other organizations are generating news which is unfavourable to industry.
- 6. U.S. developments, surprisingly, accounted for only 5.5-7% of pollution coverage. However, U.S. newspapers are widely read by Canadian editors and probably have considerable indirect influence on editorial policy, feature stories, editorials, etc., in the pollution field.
- Political statements and citizen actions or complaints account for about 7% of all coverage. Organized citizens' groups have been far less active in Canada compared with the U.S.

It is reasonable to assume that a continuation of the present trend of news coverage can only result in biased opinions about the nature, cause and control of pollution. It is obvious that the public, and legislators, editors and society members will form opinions about pollution based on the information which is most readily available to them.

POLLUTION LEGISLATION AND CONTROL

The control of air and water pollution is exercised primarily at the provincial and municipal levels of government under specific legislation and bylaws and broad public health powers. With the exception of the Albertan legislation, most of the key pollution acts at the provincial level have been passed since 1960 (see table 8). All proof actual regulation and control varies considerably. Eight provinces -- New Brunswick and Quebec excepted -- have air pollution legislation (in various forms). Quebec has been considering air pollution legislation for some time, but there has been, as yet, no notice of the introduction of any law. Ontario and Alberta are most advanced in air pollution legislation and control.

Ontario, due no doubt in part to the extent of its industrial development and urbanization, has led the way in pollution control. The Ontario Water Resources Commission is doing an aggressive, effective job. More importantly, the Air Pollution Control Act passed this year by the Ontario legislature establishes far reaching powers over the control of atmospheric pollution. The primary features of this act which will probably become a model for other provinces are as follows:⁸

- . "Authority to control new stationary sources of air pollution by requiring a certificate of approval before new sources may be created.
- . "Authority to control and regulate all sources of air pollution through investigations by provincial officers and orders of the Minister.
- . "Establishment of an Air Pollution Control Advisory Board to review recommendations of a provincial officer and after a hearing to report with its recommendations to the Minister.
- . "Authority in the Minister, after investigation, to order the discontinuance of the discharge of any air contaminant in unusual cases where such discharge creates an immediate and serious danger to the health of the public and a delay in following the usual procedures under the Act would prejudicially affect the public.
- . "Provision for a board of negotiation to negotiate the settlement of claims of persons whose crops or livestock are damaged by air pollution resulting in economic loss.
- "Authority to control and regulate the discharge of air contaminants from motor vehicles by setting standards of emission and requiring motor vehicles to be equipped with systems or devices to prevent or lessen the emission of air contaminants.
- · "Authority to regulate the quality of fuels that may be used for heating, generating steam or electricity or for industrial processes.
- . "Provision for investigation of air pollution problems and for research and educational programs in the field of air pollution.

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"Pollution Control - Provincial" - IOL Law Department, Sept. 18, 1967

- . "Authority to prescribe the ambient air quality criteria to be used in controlling, regulating or prohibiting the emission of any air contaminant or contaminants into the outdoor atmosphere and the standards thereof.
- Provincial control and regulation of air pollution rather than by municipalities."

While the Act is comprehensive in all respects, the sections of greatest significance are the new ones which establish specific authority to regulate automotive emissions and transfer all control to the provincial level. The other powers had existed either directly or indirectly in previous legislation and have been updated and made more specific.

Under provisions of the Act, Ontario Health Minister Mathew Dymond announced on September 21st that exhaust controls will be mandatory on all 1969 model automobiles sold in Ontario. He also announced that plans are under way for inspection facilities and roadside spot checks to ensure effective operation of the devices.

Although air/water pollution is regulated principally at the provincial and local level, there are some areas of federal control. These include:

- . Pollution problems which involve both Canada and the United States are handled by the International Joint Commission under terms of the Boundary Waters Treaty of 1909. The IJC has been increasingly active in recent years on both air and water pollution "references".
- . Under the Canadian Shipping Act, regulations have been issued which provide for control of oil pollution and emission of smoke from vessels.
- The Navigable Waters Protection Act of 1952 prohibits the throwing of sawdust, edgings, slates, bark, rubbish, stone, gravel, earth, cinders, ashes into any rivers, streams or other waters, any part of which is navigable or flows into navigable waters. An amendment passed in 1967 places financial responsibility on owners for removal of wrecks or their cargoes.
- The National Harbours Board issues regulations which control pollution in Canadian harbours.
- The National Energy Board Act provides authority to review the design of pipelines and power to issue regulations to protect the public safety; immediate and follow-up detailed reports on spills are also required.
- Emissions of smoke from locomotives and other railway installations are regulated by General Order No. 838, issued in February 1959 under the Railway Act, by the Board of Transport Commissioners of Canada.

In addition, the Fisheries Act and Criminal Code apply to pollution in specific cases and the Income Tax Act provides for a fast write-off for installation of certain water pollution control equipment.

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POLITICAL/GOVERNMENTAL ACTIVITIES AND TRENDS

In addition to existing legislation, air/water pollution matters continue to receive considerable attention from political parties, government officials and politicians. Up until recently, pollution has been regulated, if at all, by municipalities. All current developments point toward more stringent regulations and control with authority passing increasingly from municipalities to the provinces. The federal government also has broad authority and responsibilities including interprovincial regulation. These powers likely will be exercised jointly with the provinces concerned.

The following selected events of the last 12 months, presented in chronological order, are indicative of current political/governmental activities

In a plenary session on October 11, 1966, the Liberal Party adopted the following policy decisions:

- . That a joint federal provincial water advisory board be immediately established to make recommendations with respect to pollution, flood control, fisheries, irrigation, etc., with a view to making the best possible use of all the waters of Canada.
- . That in view of the national dimension of the problem of water pollution, that negotiations be undertaken between the federal and provincial governments to give to the federal government exclusive jurisdiction in this field. (The provinces will probably continue to reject this as an alternative.)
- That federal tax incentives be established for installation of air as well as water pollution control equipment.

In the Speech From the Throne, the federal government proposed a new Canada Water Act to combat pollution and indicated that it intends to seek cooperation of provincial governments, universities and industries to promote the health of the nation which is injured by intensifying accumulation of contaminants in the air.

On April 11, Resources Minister Jean-Luc Pepin informed a meeting of the Association for Great Lakes Research that a new Canada Water Act aimed at federal-provincial cooperation to control water pollution will be presented to parliament in the fall. In addition, the Act will stimulate joint federal-provincial agreement on research, planning and development of water programs. He stated that the Act would be "in the spirit of co-operative federalism".

Also in April, Prime Minister Lester B. Pearson and Opposition Leader John Diefenbaker, in a rare moment of public accord, agreed that a federal-provincial conference on air pollution should be called. In Commons, Mr. Diefenbaker asked whether the government would consider calling such a conference. Mr. Pearson replied that a conference had been considered and that the consideration would be "speeded up".

During early May, the Saskatchewan Water Resources Commission conducted a series of public hearings to secure views of individuals and organizations on water pollution, corrective measures required and standards to be used in the administration of the province's control program to be established under a new law passed during the 1967 session of the legislature.

On May 5 a National Advisory Council on Water Pollution Control was proposed at a meeting of provincial resource ministers by Federal Resources Minister Jean-Luc Pepin. It is expected to be approved by the ministers in a meeting this fall.

On June 25th, the B.C. Conservatives at their quarterly policy meeting recommended the creation of a federal pollution research agency to explore the problems of air, water and soil pollution across Canada.

On June 29th, Premier Daniel Johnson announced that the Quebec government plans to create a research centre to study the utilization and quality of water, to amend laws concerning water and to launch a campaign to educate the public about the need to conserve water.

On July 25th, more than 500 delegates to the Canadian Federation of Mayors and Municipalities unanimously supported federal-provincial programs to reduce pollution of Canada's natural resources and endorsed full use of municipal power to curb litter and halt contamination of air and water.

Premier John Robarts of Ontario also announced in July that he will call a provincial pollution control conference in December to cope with air, soil and water pollution problems. The conference, a follow up to the Montreal national conference, will be attended by representatives of government, industry and private agencies, including farm groups.

On August 1st, Alberta announced the establishment of a 64-man provincial pollution control committee under the direction of Health Minister J. Donovan Ross. The committee, which is being organized into 11 subcommittees will look into all aspects of air, water and soil pollution. It will also consider the possible need for increased control and new legislation.

Also on August 1st, Health Minister Gordon Grant of Saskatchewan announced the appointment of a seven-member air pollution advisory committee; A. G. Stewart, manager of IOL's Regina refinery is a member.

On September 6th, the B.C. Pollution Control Board launched a three year study. The government instructed the Board to bring in recommendations for a solution to the pollution problem by October 1, 1970. Lands, Forests and Water Resources Minister Ray Williston has asked for six month progress reports and the Board has been authorized to make specific pollution control proposals at any time during the next three years, directly to the provincial cabinet.

In early September, the Progressive Conservative Party adopted the following resolution:

The Federal Government must, in determining priorities for expenditures and actions, give full consideration to the special problems of urban areas relating to air, water and land pollution, mass transportation, conservation and recreational facilities, in accordance with the future planning requirements of these areas.

On September 26th, Premier Louis J. Robichaud outlined the Liberal Party platform for the October 23rd general election in New Brunswick. A major plank was a pledge to "carry out aggressive pollution control programs".

On October 6th, Mr. Heward Grafftey (Brome-Missisquoi) referred in the House of Commons to the build-up of air pollution in Montreal due to the increased automotive traffic caused by the transit strike and asked if the government had speeded up its study of the exhaust control regulations established by Washington "so we could have a national standard as quickly as possible". Mr. A. J. MacEachen, Minister of National Health and Welfare, replied to the affirmative.

In the October 17th election in Ontario, the NDP, which increased its position from 8 to 20 seats and extended its strength in urban areas, offered the following policy statement as a part of its program for a "New Ontario":

"New Democrats believe that government should accept the responsibilities brought by progress. That is why a New Democratic government would be ready with plans to:

 Protect Ontario from pollution in all its forms -- dirty air, impure water, excessive noise and general unsightliness.(...)"

On October 24th, Federal Health Minister Allan J. MacEachen informed the House of Commons about the government's plans for a national clean air act to set air quality standards throughout Canada. He indicated that the federal government must take a leading role in the control of air pollution and must be ready to assist in co-ordinating the work of the provinces and other agencies involved. Mr. MacEachen stated that a national clean air act might include:

- Air quality criteria, emissions standards and their maintenance by an efficient monitoring system.
- A uniform approach to the control of motor vehicle pollution.
- Technical assistance to provincial control agencies.
- Research into specific air pollution problems (e.g. effect of pollution on human health, livestock, vegetation and property).
- Financial assistance to provinces, universities and others for pollution research.
- Possible creation of an advisory council.

Outline of this program apparently was triggered in part by reaction to the CBC program, "Air of Death", presented on Sunday evening, October 22nd. On October 26th, the Ontario cabinet proclaimed the Air Pollution Control Act of 1967, more than two months ahead of the original target date of January 1, 1968. This action also appeared to be triggered by reaction to the CBC television program "Air of Death".

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ijor capital investments are required to control air and water pollo or existing petroleum and chemical manufacturing units. The follow presents were propered for Jersey's Refining Coordination ?

In addition to the above investment costs required to improve existing facilities, the future costs for unvironmental protection are expected to be 10 per cent of new investment. Assuming an average denual investment of \$25 million for the next 20 years, the total minimum additional requirements would be \$50 million. (This completes with expenditures of \$1044 during 1960-67.)

Markating

Product composition will also be affected by pollution requirements. This, in turn, can have a major impact on process investment and operating conts. For example, it is estimated that it would cost 101 \$250-300 Mex in new technology to remove lead from gasoline and subphur from fuel oil. The following premarism anticipated effects of pollution trends on key anothere. 10

identical - The antomotive emissions problem continues to attract conridentable attention in the U.S. It does not appear to be at the crisis stage in Canada; however, significant pollution of the air by estemptive chaustr is a Canadian fact of life and memorous navepaper articles and controlsis and statements by government officials have made it a public rate. Public pressure to reduce or aliminate feed, and speed up develment of automotive see inclines and the electric car ate examples of reserve of automotive see inclines and the electric car ate examples of articles relations/ sovernment relations aspects may affect this market. Articley (possibly after 1971) and hydroterbon composition may also

BUSINESS IMPLICATIONS FOR IMPERIAL

The manner in which Imperial and the oil industry handle air and water pollution problems can have a direct effect on markets, profits, recruiting and retention of top employees, the company's ability to grow and expand, investor attitudes, government relations -- in short, the company's overall business and public relations posture.

Manufacturing

Major capital investments are required to control air and water pollution for existing petroleum and chemical manufacturing units. The following forecasts were prepared for Jersey's Refining Coordination:⁹

PERIOD	<u>AIR - \$M</u>	WATER - \$M	TOTAL - ŚM
1967/1970	10,050	5,560	15,610
1971/1986	28,900	<u>17,300</u>	46,200
Total	38,950	22,860	61,810

In addition to the above investment costs required to improve existing facilities, the future costs for environmental protection are expected to be 10 per cent of new investment. Assuming an average annual investment of \$25 million for the next 20 years, the total minimum additional requirements would be \$50 million. (This compares with expenditures of \$12MM during 1960-67.)

Marketing

Product composition will also be affected by pollution requirements. This, in turn, can have a major impact on process investment and operating costs. For example, it is estimated that it would cost IOL \$250-300 MM in new technology to remove lead from gasoline and sulphur from fuel oil. The following summarizes anticipated effects of pollution trends on key products:¹⁰

<u>Gasoline</u> - The automotive emissions problem continues to attract considerable attention in the U.S. It does not appear to be at the crisis stage in Canada; however, significant pollution of the air by automotive exhausts is a Canadian fact of life and numerous newspaper articles and editorials and statements by government officials have made it a public issue. Public pressure to reduce or eliminate lead, and speed up develissue. Public pressure to reduce or eliminate lead, and speed up develissue of automotive gas turbines and the electric car are examples of opment of automotive gas turbines and the electric may affect this market. how public relations/government relations aspects may affect this market. Volatility (possibly after 1971) and hydrocarbon composition may also be affected.

9 "Survey of Pollution Control Problems in the Manufacturing Department of Imperial Oil Enterprises Ltd." H. R. Holland, January 30, 1967 (includes proposed capital projects to improve both air and water quality for each proposed capital projects to improve both air and water quality for each

of Imperial refineries.) 10 Based in part on product quality forecasts prepared by Technical Services of IOL Marketing Dept. and minutes of a joint meeting of the Technical of IOL Marketing Dept. and minutes of a joint meeting, December 20, 1966.

Turbo Fuels - Percentage contribution of jet fuels to pollution is small Turbo Fueld and up until recently has not been considered significant; however, U.S. and up until and Up until been considered significant; however, U.S. surgeon-General, William H. Stewart, testified on August 15, 1967 before surgeon-senter of the second the second the U.S. House Commerce Committee that "jet aircraft are significant the U.S. not the nation's mounting air pollution."11 Smoke emissions on landing and takeoff are a major visual public relations problem. The

piesel Fuels - Percentage contribution of diesel fuels to pollution is relatively small; however, diesel fuels are an especially sensitive visual/ odour problem. Lower sulphur content (0.2% by 1975), improved smoke suppressants, and mechanical or chemical exhaust control devices will probably be required. As gas turbine trucks become more popular (due in part to the pollution factor), increased competition between diesel and turbine trucks may result in more pressure for a lower gravity fuel to improve

Furnace Oil - Future changes in the specifications for furnace oils will be based on competitive activities and air pollution considerations. Sulphur content of Esso Furnace Oil will drop to 0.4% by 1969-1973 and 0.2% by 1978. Air pollution control legislation could be a significant factor, especially in IOL's major marketing areas -- Montreal, Quebec and Halifax.

Heavy Fuel Oils - Fuel oil desulphurization (in line with Mr. M. L. Haider's recent announcement) and more extensive use of lighter grades in blending will be required. By 1985, sulphur content will be restricted to 0.5-1.0%. Competitive, non-polluting forms of energy such as nuclear and hydroelectric will be promoted.

Solvents - In line with recent California regulations, a requirement to eliminate aromatics could be imposed. The Canadian paint industry is concerned.

Other products - Fertilizers, detergents, insecticides, pesticides and other products in which IOL has a direct or indirect interest will continue to come under public scrutiny and possibly increased regulation.

Other Corporate Functions

Other corporate functions are also directly affected by pollution control considerations.

Due to strict conservation regulation of oil and gas production imposed by regulatory bodies and enlightened industry practices, pollution, although a problem, has, for the most part, been brought under control in producing. Brine disposal has been regulated for many years; very little is now per-Mitted to be evaporated in open pits and none may be discharged into streams. Most brine is returned to producing formations to replace voidage. Emission problems arise when gas containing hydrogen sulphide is vented or flared. This most often occurs when an oil field is being delineated (gas being delineated) Once delineation is completed (gas being produced is generally flared). Once delineation is completed,

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a gas conservation plant is usually built which provides marketable gas and other products. These plants are moderately economic. However, flaring is permitted, as long as it is not hazardous to the public, when gas conservation is definitely uneconomic. There has been some public criticism of this practice. Emission of sulphur dioxide from plants that process non-associated gas is also strictly regulated; IOL does not operate this type of plant and hence is not directly involved. The historic approach to conservation in oil production has led in many cases to cooperative actions and good relationships between industry and the government.

In the transportation and supply field, tanker and pipeline operations have been under close supervision for some time. IOL is doing a responsible job. All new ships have sewage disposal equipment and studies are being conducted re possibility of installing sewage disposal equipment on five older ships.¹² Compliance with existing smoke regulations creates no problems, Imperial tankers comply with Jersey's clean seas policy which exceeds requirements of regulations and no major problems are anticipated in complying with possible future regulations re sulphur content of fuels. The Torrey Canyon incident, however, has increased world-wide concern about tankers and the potential problems of spills. The Torrey Canyon incident could lead to increased regulation of all phases of tanker operation. Pipelines have also been under attack in the U.S. and Europe and could come under closer Canadian scrutiny. Safety and pollution prevention design features may represent up to 25% of capital costs for some pipeline projects.

In addition, effective control of evaporation losses from marketing facilities and tankage in all locations will likely be required in the future.

4. There is none built-in colorence for a degree of industrial

Collingwood, Cornwall, London, Sarnia and Windsor. Installation would 12 average about \$5M per ship. ity boing transferred from susteipalities to provinces. The federal

severement will also play a more active role.

SUMMARY - PUBLIC RELATIONS IMPLICATIONS

- Air/water pollution in Canada is an actual or potential problem in all major Canadian cities. Trends toward increased population and further urbanization will complicate, extend and intensify this problem.
- 2. The petroleum industry is a major contributor to many of the key forms of pollution. This fact is well known by government air pollution control and health officials; however, the Canadian general public, based on IOL public opinion research data, are not unduly critical of oil. This situation could change quite quickly based on a single "major pollution event" or intensified mass media exposure as evidenced by reaction to CBC's "Air of Death".
- 3. Available public opinion research data on Canadian attitudes is inadequate. Improved and continuing collection of data should be a high priority. Such data might most appropriately be obtained by an industrial association since the information is non-proprietary and would be useful to industry in general. Available Canadian/U.S. information suggests:
 - a. Pollution is an important public relations problem.
 - b. Automotive emissions are receiving increased attention by the public as a principal source of pollution.
 - c. There is no urgent public demand to make pollution control a high priority for the allocation of public funds.
 - d. There is some built-in tolerance for a degree of industrial air pollution which is considered acceptable in return for the benefits of industry.
- 4. The mass media are devoting increasing coverage to pollution. During 1966, an average of one significant story per day was clipped from 23 key Canadian newspapers by IOL Public Relations. The average has increased 40% to a rate of 1.4 per day during the first eight months of 1967 and will probably continue to increase. This coverage is unfavourable to industry by a ratio of about 9:1. It is obviously desirable to bring information available to editors, legislators and the general public more into balance.
- 5. There is a growing amount of political/governmental activity directed toward the control of air and water pollution. Trends point toward more stringent regulation and control with authority and responsibility being transferred from municipalities to provinces. The federal government will also play a more active role.
- 6. Pollution is an area highly charged with emotion and one characterized by a lack of data and rational guidelines. This makes <u>opinions</u> and the status of public opinion especially important.
- 7. Public opinion, catalyzed by politicians and mass media is out of control in the United States. Kerryn King, vice president of employee and public relations at Texaco, sums up the situation in

this way:

"Consequently, a major public relations problem facing the oil industry, along with everyone else concerned with air and water conservation, is the fact that public and official concern and demands for action are increasing more rapidly than the actual growth of the problem and more rapidly than the ability of all levels of government and industry to deal with it."13

A similar situation could happen in Canada. (At present, government officials and mass media appear to be ahead of public opinion.)

8. The manner in which Imperial and the oil industry handle air and water pollution problems can have a direct effect on the company's markets, costs, profits and overall business and public relations posture. Investments of more than \$100MM to control air/water pollution in manufacturing over the next 20 years and the prospect of profound effects on major product lines (investments of \$250-\$300MM to remove lead from gasoline and sulphur from fuel oil alone) are involved. Other functions such as producing and transportation will also be affected.

Publicity concerning air/water pollution and possible restrictions on products such as gasoline, fuel oil, etc., can influence employee attitudes towards the future of the oil industry. This will affect recruiting, morale and employee turnover. The same publicity can have an adverse effect on shareholder and investor attitudes.

Due to continuing exposure to stories in the mass media, the general public could easily be persuaded to support increased pollution regulation and legislation. It could be encouraged to support the electric car, nuclear energy and other technology favouring competitive fuels. A failure to handle the public relations aspects of this problem effectively could result in chronic, difficult-to-change anti-oil industry attitudes.

- 9. A public relations program in pollution is not a simple undertaking. The subject is negative by definition. Further, to be effective, because of the 9:1 unfavourable news ratio and sheer volume of coverage, it must be a program of considerable scope, preferable one in which other companies and associations take an active part.
- 10. A public relations program cannot be a substitute for good performance in the pollution area. As a responsible corporate citizen, Imperial obviously would not deliberately want to harm human health, property, vegetation, wild life or other Canadian resources. At best, a public relations program can only help to keep public and legislative opinion in control so that increased pollution control measures affecting all corporate functions can proceed on an orderly, economic and reasonable basis. A properly planned and
- 13 Public Relations Journal, July 1967 "Crisis of Concern: Air and Water Pollution" - page 12

executed public relations program might also help to retain and further improve Imperial's corporate reputation and position of leadership in Canadian industry. It is recommended that IOL develop and undertake such a program.

was "Canadian Areizudes Towards the Dil Industry" - Sumer, 1967

TABLE 1

		-	Conside	er Add Absolu	itiona telv H	al Go	ver ti:	nmen	t Acti	lon	
	Air Wat <u>Pollu</u> <u>1967</u> %	and er ition 1965 %	Mir mu <u>Waş</u> <u>1967</u> %	ni- um <u>ges</u> <u>1965</u> %	Aut mob: Safe <u>Featu</u> <u>1967</u> %	to- ile ty ires <u>1965</u> %	71	Ch: <u>Wel:</u> <u>1967</u> %	ild <u>fare</u> <u>1965</u> %	Mist men <u>Anim</u> <u>1967</u> %	reat- t of <u>nals</u> <u>1965</u> %
All Canada	(47)	(46)	35	40	34	35		31	32	12	16
Maritimes	44	27	48	25	39	26		35	20	19	6
Quebec	60	58	44	65	41	52		40	51	14	19
Ontario	39	50	25	35	28	30		24	28	11	19
Prairies	41	30	37	24	34	25		29	21	7	16
British Columbia	54	45	35	28	28	30		37	28	11	8

Source: "Canadian Attitudes Towards the Oil Industry" - Summer, 1967

interested towards the Oil Industry - Summer, 195

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		A 7 7	Per	cent of	Canadi	an Men	
		AII	Mari-		Ont-		British
		Canada	times	Quebec	ario	Prairies	Columbia
ssociate air and w pollution with so	ater me	7.	%	%	%	%	%
industries more t others	han 1967	81	83	83	78	76	88
·	1965	66	62	60	71	63	79
ssociate air and w pollution with:	ater						
aper industry							
	1967	19	32	19	12	11	49
	1965	20	29	20	19	6	38
hemical plants							
	1967	15	6	11	22	16	7
	1965	15	10	16	17	14	8
teel industry							
	1967	13	6	6	22	5	19
	1965	11	16	7	17	6	9
il industry							-
	1967	12	6	18	/	20	6
	1965	11	4	12	8	23	4
ewage, garbage, et	с.			10	11	10	10
burg bur	1967	12	16	12	11	20	12
	1965	8	5	1	0	0	13
utomobiles and bus	es		-	15	4	5	10
	1967	8	5	15	4	5	6
	1965	5	L	4	0	,	U

"Canadian Attitudes Towards the Oil Industry" - Summer, 1967 ource:

TABLE 3

"From what you know or have heard, do you think there is a lot of air pollution around here, some but not a lot, only a little or hardly any?"

	Amount of Air Pollution						
Nationwide	Some-Lot 56%	Little-None 40%	Not Sure 4%				
By size of place: Cities	72	21	7				
Suburbs	75	22	3				
Towns	36	61	3				
Rural	33	63	4				

TABLE 4

"Compared with a few years ago, do you feel that air pollution has become worse around here, that the situation has improved or that it has remained about the same?"

	Sector Sector	Air Pollution: Bet	Better or Worse?	
actouride.	Worse	Improved 5%	No Change	
Nationwide	20%	576 ,	5770	
By size of place: Cities	53	5	42	
Suburbs	49	8	43	
Towns	23	3	74	
Rural	22	2	76	

Source: Louis Harris, the New York Post, July 24, 1967.

TABLE 5

-25-

"Who or what do you think causes most of the air pollution around here?"

Causes of Air Pollution

Notor vehicle orhand	Total Public
Industry smoke fune	45%
Purping garbage mest	40
Airplanes trains	9
pust and dirt	3
Incontinidan	2
Insecticides	1

ons, studies, programs, sto.

TABLE 6

"Would you be willing to pay \$15 a year more in taxes to finance a federal program to control air pollution?"

Pay \$15 More Taxes to Control Air Pollution

Nationwide	Willing 44%	Unwilling 46%	Not Sure 10%
By size of place: Cities Suburbs Towns Rural	44 54 43 32	47 38 46 53	9 8 11 15
By Income: Under \$5,000 \$5,000-\$9,000 \$10,000 & over	34 43 54	53 47 40	13 10 6
By age: Jnder 35 39-49 50 and over	52 46 38	38 44 51	10 10 11

TABLE #7

Coverage of Pollution

By 23 Key Canadian Newspapers

During 1966-67

Nature and Source of Coverage

		ARIICLED					
	1966			1967 (Jan. 1-A)	ug.31		
Government (local, provincial & federal govt. statements, actions, studies, programs, etc.	numbe	r 137	% 37.5	number	11		
Editorials Unfavourable to industry Favourable to industry Critical of govt. action/inaction Favourable to govt. action Other (primarily general background) Total	41 3 15 - 2 61	61	16.5	5 1 21 9 <u>3</u> 39	3		
Societies, Labor, Farm & Other Organizations (actions, statements, speeches at conferences, etc.)		49	13.5		2		
Unfavourable to industry Favourable to industry Critical of govt. action/inaction Favourable to govt. action Other (primarily general background) Total	21 1 21 - 6 49			9 - 7 - 4 20			
Industry (pollution control actions, statements by companies or industrial associations that helped cause of industry)		32	8.5		2		
U.S. Developments (U.S. Pollution news covered by 23 key Can. pap	ers)	25	6.5				
Political Statements statements of a political nature by local, pro ial and federal politicians)	ovin-	20	5.5				
General articles about nature & extent of ollution, existing regulations, etc. Most are rusading for more pollution control.)		20	5.5				

	ARTICLES					
	1966		196			
	Number	%	Number	%		
Pollution Events (Specific violations, accidental spills, etc.)	 11	3.0	77*	23.5		
Citizen Complaints, Actions	7	2.0	2	.5		
Miscellaneous	_6	1.5	1	.5		
Total	368	100	337	100		
Average per day	1.0		1.4	10.5		

55 of 1967 stories related to Torrey Canyon incident.

-20-

TABLE 8

SUMMARY OF KEY PROVINCIAL LEGISLATION

WATER POLLUTION CONTROL

The Public Health Act - 1955 Water Resources Act - 1955 City Municipal and Town and Villages Acts - 1955 The Oil and Gas Conservation Act - 1957

The Municipal Act - 1960 The Water Act - 1960 The Dept. of Lands Forests and Water Resources Act - 1960 The Pollution Control Act - 1967

Pollution of Water Prevention Act - 1954 The Municipal Act - 1954 The Public Health Act - 1965

The Health Act - 1952 The Water Act - 1960-61

The Local Government Act - 1952 The Waters Protection Act - 1964 Water Resources and Pollution Control Act - 1967

The Smelting & Refining Encouragement Act - 1954 The Public Health Act - 1962 (no regulations issued re pollution) The Water Act - 1954¹

The Public Health Act - 1960 Water Resources Commission Act - 1960 The Lakes and Rivers Improvement Act - 1960

WARD ISLAND The Public Health Act - 1951 (no regulations have been promulgated re pollution) The Water Authority Act - 1965

> Water Board Act - 1964 Public Health Act - 1964

The Pollution of Waters (Prevention) Act - 1965 The Water Resources Commission Act - 1965

- 1905

AIR POLLUTION CONTROL

The Public Health Act - 1955 City, Municipal and Town & Village Acts - 1955 The Oil and Gas Conservation Act - 1957

The Municipal Act - 1960 The Petroleum and Natural Gas Act - 1960 The Pollution Control Act - 1967

The Municipal Act - 1954 The Planning Act - 1965 The Public Health Act - 1965

(none)

Water Resources and Pollution Control Act - 1967

The Smelting & Refining Encouragement Act - 1954 The Public Health Act - 1962

The Air Pollution Control Act - 1967

The Public Health Act - 1951

(none)

The Air Pollution Control Act - 1965 The Public Health Act - 1965

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TABLE 8

WAN continued

The Public Health Act - 1965 Oil and Gas Conservation Act - 1965 The Ground Water Conservation Act - 1965

Cities, Towns and Village Acts - 1965

fore details on the above legislation and other legal aspects are recorded in the following IOL memoranda:

Liability of Plant Operators and Industrial Sources for Air and Water Collution" - W. A. Willows, Law Department, June 9, 1967.

Legislation Pertaining to Air and Water Pollution in Alberta - Manitoba -Askatchewan and British Columbia" - G. M. Burden, Law Department, June 1967.

morandum on legislation and regulations concerning air and water pollution and regulations operates - G. L. Colpitts, June 30, 1967.

Pollution Control - Provincial" - IOL Law Department, September 18, 1967.

The Control of Air and Water Pollution in Nova Scotia, New Brunswick, and Fince Edward Island" - IOL Law Department, October 1967.