



DEC 8216 EWS-6

REVIEW OF ENVIRONMENTAL PROTECTION ACTIVITIES FOR 1974

PROPRIETARY TO
IMPERIAL OIL AND
AFFILIATES

IMPERIAL OIL LIMITED
TORONTO, ONTARIO

628.5
I34

[May, 1975]

1974 ENVIRONMENTAL PROTECTION REVIEW

AND COORDINATION ACTIVITIES

CONTENTS

	<u>Page No.</u>
I. <u>PERSPECTIVE</u>	
1. Global Activities	1
2. Law of the Sea Conference	1
3. U.S. Overview (Regulation, Status)	2
4. Canada Overview Federal Legislation and Regulations Provincial Legislation and Regulations	3 4
5. Public Attitude	6
II. <u>PERFORMANCE AND PROBLEMS OF OPERATING FUNCTIONS</u>	
1. Accomplishments (1) Exploration and Production (2) Logistics (3) Transportation (4) Marketing (5) Esso Chemical (6) Building Products (7) New Energy Resources (8) Business Development	7 7 7 8 8 8 8 8
2. Oil Spill Incident Report	9
3. Major Problems Remaining	9
4. Plans	10
III. <u>COORDINATION DEPARTMENT ACTIVITIES</u>	
1. Environmental Quality Committee Summary	12
2. Service to Executive and Departments	13
3. Technical Effort, Expenditures, and Budget	14
4. Industry Activities CPA and APOA PACE	14 15
IV. <u>SUMMARY</u>	18

1974 ENVIRONMENTAL PROTECTION REVIEW
AND COORDINATION ACTIVITIES

SECTION I

PERSPECTIVE

1. Global Activities

The United Nations Environmental Program (UNEP) priorities remained as stated in our last review. Most of the activities were for planning purposes, expert meetings, inter-governmental conferences and seminars. Maurice Strong completed staffing of the Nairobi headquarters with a full slate of qualified experts. Strong feels the organization is now ready to recommend concrete action proposals.

UNEP has started to work closely with industry to explore ways to reduce global pollution. The Pulp and Paper Industry were the first singled out for consultations. Indications are that the oil industry, represented by IPIECA, will participate in a seminar with UNEP in early 1976.

UNEP's major accomplishment in 1974 was obtaining agreement of the 16 Mediterranean countries to convene and discuss a comprehensive plan to protect the Mediterranean Sea. Part of the impetus for such an accord was concern over increased oil pollution as a result of re-opening of the Suez Canal. Malta has proposed a regional centre to cope with massive oil spills.

The Global Environmental Monitoring System under Dr. Francesco Sella, a distinguished Italian physicist, is rapidly taking shape. Within a few years, we should have the answers to Scandinavia "acid rains" and "where has all the ozone gone."

2. Law of the Sea Conference

The Law of the Sea Conference held in Caracas last summer was adjourned after ten weeks without reaching a conclusive agreement on any of the major issues. Imperial made a submission in this regard to the Standing Committee on External Affairs and National Defence. The company strongly encouraged the Canadian Government in its stand for coastal state jurisdiction of subsea and subsoil resources to the seaward edge of the continental margin or 200 miles, whichever is greater. In the brief, Imperial also urged Canada to ratify the 1973 IMCO "Convention for the Prevention of Pollution from Ships".

The major issues to be resolved by the Law of the Sea Conference are:

Chart
2

1. Width of the Territorial Sea
2. Right of innocent passage for commercial vessels through "International Straits"
3. International Agreements for commercial vessels transitting all seas covering safety and pollution control standards, liability and compensation provisions
4. Flag State vs. Port State enforcement of pollution regulations
5. Jurisdiction of Seabed Resources
 - economic resource zone for Coastal States 200 miles, Continental Shelf or Margin?
 - international regime beyond economic zones
6. Definition of international rights to conduct and obtain information from Marine Scientific Research
7. Right of Coastal States (Canada) to impose more stringent pollution control standards.

3. U. S. Overview

The "Great American Dream" for clean air and clean water, as mandated by congress under the Clean Air Act of 1970 and PL 92-500, the Federal Water Pollution Control Act Amendments 1972, is becoming even more illusory. When congress passed PL 92-500 the Environmental Protection Agency estimated the cost of facilities, to comply with the standard of best practicable technology by 1977 and best available by 1983 for all municipal sewage treatment discharges at 24 billion dollars. Congress by law was to provide 75% of the funding. With clarification of intent of the law by EPA and the courts, this estimate has grown to 350 billion dollars.

Despite this dilemma in the public sector, many sectors of American industry have made great strides toward achieving their objectives. We could cynically summarize the situation, saying that in 1977 many American streams will still be full of

faeces, but safe for fish.

Chart 3 In air legislation the sulphate emissions problem from converter-equipped vehicles has forced EPA to propose relaxations to automotive emission standards. The proposed standards as shown are tempting, all except G. M., to once again improve their emissions control technology to the point where converters and lead-free gasoline are not required. There appears to be a willingness by EPA to set the NO_x standard high enough to preclude a second converter with a reduction catalyst.

A three-member Appeal Court decision in December upheld Ethyl Corporation's plea that lead in the air from motor fuels was not a significant health hazard. The Court declared the lead-in-gasoline phase-out regulations ultra vires. EPA has appealed and the full nine-member judges of this court will soon rule on this most important issue.

A new subject of considerable concern to all industry, and the petroleum industry in particular, is EPA's "transport phenomenon" hypothesis. This hypothesis argues that air pollutants are transported not only short but long distances, and during the transport, atmospheric reactions--such as the conversion of SO₂ to sulphuric acid mist and hydrocarbons and NO_x to photochemical smog--occur. Thus one region's air pollution may be caused by emissions hundreds of miles away. If the hypothesis gains credence, the present strategies of air quality management could be abandoned in favour of stringent national controls on all sources.

Congress is under tremendous pressures from the state regulatory agencies, industry and technical associations to make sweeping changes to air and water legislation. So far the 94th Congress, with its two to one majority of "social" democrats, seems little inclined to yield on any of the Utopian intentions of the laws.

4. Canada Overview

A. Federal Legislation and Regulations

In 1974 two major environmental control bills were presented to parliament, namely the Environmental Contaminants Act and the Ocean Dumping Control Act.

The Contaminants Act would give the government broad discretionary powers:

- to demand information about products and substances that may be harmful to the environment or to human health
- to specify harmful substance by regulation
- to prohibit the discharge, manufacture, or sale of such substances if in the Minister's judgement there is reasonable suspicion of adverse environmental effects.

This bill is now in committee and strong representation against some of the provisions has been made by C.M.A.

The Ocean Dumping Control Act is aimed at eliminating deliberate discharge of hazardous wastes from ships, airplanes, and drilling platforms. Three schedules of prohibited hazardous substances have been proposed. Oil is included in the highest hazard schedule, for which an act of contravention may incur a penalty up to \$100,000.

A federal regulation was issued limiting the lead content of motor gasoline, manufactured or imported for sale, to 3.5 grams/I.G., starting January 1, 1976.

B. Provincial Legislation and Regulations

New Brunswick

Draft Water Quality Regulations to control pollution from municipal and industrial discharges were published in October. Comments were solicited from interested parties. The regulations were not well conceived; therefore, PACE prepared an extensive brief with recommendations for improvement.

Quebec

The draft Air Pollution Control Regulation issued in late 1973 was studied by PACE. Using a hypothetical but typical 100,000 B/D refinery investment and operating costs were calculated to comply with the proposed regulations. Investment costs to the existing refineries were estimated to be approximately 700 million dollars, and annual operating costs--including a 10% after-tax return--325 million dollars. PACE pointed out that this would add \$1.56/B. to the cost of all

petroleum products sold in Quebec. PACE and QPA requested a hearing with the Conseil Consultatif (a government-appointed Environmental Advisory Board) and presented technical and economic arguments against the regulation. An extensive re-draft of the regulation is under way, which hopefully will achieve improved air quality at less cost to the industry and Quebec economy.

Ontario

The Ontario Ministry of the Environment issued draft guidelines for control of liquid effluents from petroleum refineries and organic chemical plants. Discussions between PACE and the Ministry appear to be resolving major difficulties which would have been encountered if the first proposals had been promulgated.

Saskatchewan

Draft regulations under the Saskatchewan Pollution Control Act will establish a permit system for emissions from industrial sources.

Alberta

Regulations were issued under the Land Surface Conservation and Reclamation Act and these will affect all of Imperial's resource recovery interests. The regulations require that comprehensive and detailed development and reclamation plans be submitted before a project may receive a permit.

B. C.

An informal appeal was made to the B.C. Pollution Control Board against some of the provisions in the province's Air and Water Effluent Quality Objectives for Petroleum Refineries. PACE prepared and argued the case of the BCPA. Although the Board appeared sympathetic, the administering Control Branch continues to reject overtures for technical discussion of the contentious points.

Although no legislation requiring Environmental Impact Assessment was passed in 1974, the legislation has been introduced in the Ontario Legislature. Considerable controversy has ensued regarding definition of need and procedural requirements. The implications to business and government project planning injects another element of uncertainty, which is unlikely to be resolved for several years.

The Federal Government has set up an Environmental Assessment Panel for all major projects by the government or Crown Corporations, and for private projects with government funding or requiring federal approval for land use or other permit reasons.

It is almost certain that all future major projects or major expansions of existing facilities by the company will require an Environmental Impact Statement and Assessment Procedure.

5. Public Attitude

Environmental concern was fourth in rank amongst issues troubling Canadians in 1974. The expression of the weight of this concern was so overwhelmed by the weight on the inflation issue that interpretation could be misleading. A recent Gallup poll indicated somewhat lower concern today versus 1970, regarding the seriousness of pollution as a single issue. Nevertheless, over 90% of respondents felt that it was either a fairly or a very serious problem.

Chart
5

Technical societies which should represent the informed public are devoting an increasing amount of their programs and publications volume to environmental subjects.

In contrast to the Canadian scene, a recent Lou Harris poll in the U.S. indicates growing concern. The number of respondents who considered water pollution very serious jumped from 40% in 1973 to 51% in 1975. In air pollution, the very concerned population grew from 34 to 46%. Three-fourths of those interviewed told the Harris pollsters that they do not believe a temporary slowdown on pollution controls would help ease the energy shortage, ease unemployment, or get the economy going.

Chart
6

SECTION II

PERFORMANCE AND PROBLEMS OF OPERATING FUNCTIONS

Overall our company performance was satisfactory. Many projects initiated in prior years were completed and some very large new ones were initiated. The largest projects in the near term will be facilities for waste water treatment of refinery effluents at Dartmouth and Montreal. Although the quality of our compliance schedules was praised, we have been criticized for the pace of the work since we will lag industry by up to two years.

1. Accomplishments

(1) Exploration and Production

- Completed Environmental Impact Assessment for delta gas system
- Participated in \$4.5 MM industry/government Beaufort Sea Environmental Program
- Completed majority of research on drilling fluid disposal leading to guidelines
- Completed environmental study related to island construction.

(2) Logistics

- Submitted schedule of compliance for waste water treatment for Montreal and Dartmouth
- Reduced hydrocarbon emissions by floating roofs at Dartmouth, Sarnia and Ioco
- Successfully applied filtration to reduce oil and solids in effluent at Sarnia.

(3) Transportation

- Esso 2000 facilities installed at 20 plants
- Water pollution protection investment at 10 plants
- Completed program with outside carriers to reduce work errors

- Continued program to prevent or mitigate pipeline spills, overflow alarms, main-line valves, internal inspection.

(4) Marketing

- Esso 2000 facilities at 450 retail locations
- Upgraded 39 Consumer Plants to New Environmental Standards
- Completed operational assessments for 1100 plant operations; problem areas identified and action taken or programmed; increased manpower for plant operational supervision
- Completed training for 1100 Consumer, Aviation and Marine agents; developed training for bulk delivery drivers.

Chart
8

(5) Esso Chemical

- Completed all items of Ministerial Order (Air) at Sarnia
- Developed program to reduce VCM emissions; both plant emissions and residual VCM in resin
- Reduced oily water flow almost 75% and installed filtration system at Sarnia
- Completed gypsum pond expansion at Redwater.

(6) Building Products

- High efficiency air filtration systems designed and under construction for saturators at Winnipeg and LaSalle.

(7) New Energy Resources

- Initiated water reuse study for Cold Lake
- Completed preliminary environmental impact study for Cold Lake.

(8) Business Development

- Completed baseline study at Gays River, N.S.

2. Oil Spill Incident Report

Chart 9
Chart 10
The grounding of the "Imperial Sarnia" in the St. Lawrence River on April 15, 1974 resulted in a major oil spill. Containment and cleanup was effected to the complete satisfaction of U.S. authorities, with the assistance of Exxon. A total of 3800 B. escaped from the ship and 3500 B. wererecovered. The cost of the cleanup was about \$2.2 MM. Presentations, including lessons learned, were made to Region Corporate Committees. A program is under way to strengthen the capability in each region to respond to a major incident.

Contingency plans are being developed in a number of locations which will require the expenditure of sizable sums for equipment and on-going operations on the part of industry.

Chart 11
The total number of reported oil spill incidents decreased in 1974 compared to 1973 from 408 to 384. The emphasis which has been placed on spill prevention and safety in the Transportation Department, both in-house and with outside carriers, resulted in a substantial reduction in spill incidents in 1974. The improved performance of the outside carriers is particularly noteworthy.

Despite this reduction in frequency, the volume of oil spilled increased from 9.8 MB in 1973 to 13.2 MB in 1974, excluding the "Imperial Sarnia" incident. Most of the increase occurred in the major spill category (over 100 B) where the average spill size doubled despite a 35% reduction in frequency.

Chart 12
In examining the causes, tank overflows continued to account for a substantial portion of the work error incidents. In the equipment failure category, incidents due to corrosion were reduced primarily by the testing and replacement program in the Production Department.

3. Major Problems Remaining

- Chart 13
- Oil spill contingency plan and response capability for (a) major marine casualty and (b) well blow-out in the Arctic offshore
 - Environmental Impact Statements on major expansions and new projects; lead time for studies

- Chart 14
- Drilling fluid and solid waste disposal in the Arctic
 - Ground water contamination from leaking underground tanks
 - Development of realistic refinery emission guidelines by Federal/Provincial/Industry Task Force
 - Optimization of designs for pollution control processes and hardware, e.g. sour water strippers, bio-plant and oily waste sludges
 - Reducing in-plant and fence-line noise levels
 - Responding to government requests for information and initiatives for increasingly stringent discharge controls. Government agencies (particularly Federal) are well-staffed, well-funded and becoming increasingly knowledgeable
 - Jurisdictional disputes between Federal agencies and between Federal and Provincial agencies; most acute in the Arctic
 - Time delays in obtaining multiplicity of environmental permits and difficulty in keeping abreast of permit requirements
 - Maintaining the necessary priority on environmental matters in competition with other compelling issues and challenges
 - Concern for the health effects of sulphate emission from catalytic converters will require low-level desulphurization of gasoline.

4. Plans

In keeping with our environmental policy, a great deal of effort will continue to be required in working with governments to ensure regulations are needed and achievable. Governments generally have shown a strong preference to work with industry associations and our industry has gained their respect by its positive and constructive attitude and accomplishments. It is crucial, therefore, that we continue to contribute our share to these activities.

The implementation of projects to meet obvious deficiencies and meet regulations will continue in all aspects of our operations. Recognition of environmental implications and requirements has become much more commonplace in the

Chart
15

operating functions and is becoming well-accepted as a part of the job. Only a few examples will be cited of the many ways in which we plan to cope with the outstanding issues.

1. Develop expertise in formulating the requirements for and preparing Environmental Impact Assessments
2. Support development and application of new technology for emission control, incident prevention, waste treatment and noise control
3. Continue planned programs to upgrade facility standards and operation procedures (e.g. agency plants) and reduce or eliminate waste production at source (e.g. water reuse)
4. Develop specific programs (e.g. leak-testing procedures, equipment, and frequency for underground tanks).

SECTION III

COORDINATION DEPARTMENT ACTIVITIES

1. Environmental Quality Committee Summary

The Environmental Quality Committee met seven times in 1974. In mid year, at the request of one member, the committee examined its functions and procedures. There was a general consensus that agenda and presentations were meeting corporate needs, but that bi-monthly meetings could usually accomplish these objectives.

A summary of the more important items discussed and actions taken were:

- (1) Guidelines were finally approved for the field handling of contaminated oil problems, including a position re customers' waste lubricating oils.
- (2) The PACE overview brief to the Quebec Government regarding their draft Air Pollution Regulations was endorsed. The regulations, if promulgated as proposed, would cost the industry hundreds of millions of dollars for heavy fuel desulphurization facilities.
- (3) The need for an Oil Industry Contingency Plan for Burrard Inlet to replace the very expensive proposal of Environment Canada was recognized. B.C. regional managements were encouraged to develop the plan and request funds for implementation.
- (4) An extensive review was made of the "Imperial Sarnia" spill and the lessons learned from this incident. The committee recommended this experience be transmitted to all regions.
- (5) Esso Chemical and the Medical Department reviewed the serious health threat, angiosarcoma (liver cancer) from prolonged exposure to vinylchloride monomer vapours. Fatalities have occurred worldwide, including nine in Quebec, attributable to worker exposure in VC Monomer and PVC resin plants. An ad hoc committee of the Society for Plastics Industries has reviewed the problem with Ontario and Federal Government Environmental and Health officials. There are major differences of opinion over the level of appropriate standards for both occupational health and environmental health situations. An extensive monitoring program of worker exposures is under way by Medical and a facilities improvement program to reduce in-plant and external emissions of vinylchloride

is in progress at Sarnia. Ontario and B. C. have set an occupational health standard of 10 ppm. Quebec have proposed a standard of 1 ppm, which will become effective in the U.S. on January 1, 1978.

- (6) The health effects controversy regarding sulphate and sulphuric acid aerosols from automobile with catalytic emission control systems was reviewed by Dr. Fowler. Sulphate emissions are approximately ten times as high from converter-equipped cars. Only two control strategies appear feasible -- either removal of the converters or intensive desulphurization of all gasoline fractions. Cost estimates of the latter range from three to six billion dollars for U.S. refining industry.
- (7) The need for and role of the Regional Oil Spill Prevention Coordinators was reviewed. There is generally strong support from field managements for continuance of this position.
- (8) The purpose and progress of the Beaufort Sea Environmental Program was reviewed by the Environmental Protection Department. The Federal Government will not give permits for offshore drilling in the Beaufort from any facilities other than artificial islands until results of this study have been evaluated.
- (9) The PACE expenditures for 1974 and proposed budget for 1975 were reviewed and no exception was taken.
- (10) The toxicity of certain petroleum products, in particular the carcinogenicity of cutting oils and process oils, was reviewed by Medical Department. This item was referred to the company by Shell. Shell U.K. have circulated information to their customers in this connection. The Law Department were asked to review the desirability of use of warning labels for certain products.

2. Service to Executive and Departments

The executive was again assisted in their obligations to international and national environmental committees. The Coordinator and Assistant Coordinator spent considerable effort in administering activities in connection with the "Imperial Sarnia" incident.

The Assistant Coordinator supplied policy, organization, program direction, and technical information to the Region Oil

Spill Prevention Coordinators.

The staff biologist provided guidance to the Production Department on all of the contracted environmental studies in the delta. In addition, the staff biologist was industry coordinator for all of the marine biology studies in the Beaufort Sea Environmental Program.

The department prepared guidelines for the preplanning and invitations to bid on studies in the delta.

Any department considering a new project or major expansion would be well-advised to consult the Environmental Coordination Department early in the planning cycle for recommendations on the nature and extent of environmental studies which may be required.

3. Technical Effort, Expenditures, and Budget

Chart 17 The company's total in-house technical effort involved with E.P. activities increased again from 88 in 1973 to 112 in 1974. Refinery effluent improvement projects and Marketing facilities upgrading programs accounted for all the increase. In addition, the equivalent of 14 men were used in contractors' offices on logistics projects which Engineering Division could not physically handle.

Chart 18 Exclusive of Imperial's portion of Syncrude environmental controls, expenditures will continue around the 40 million dollar range until 1978. The logistics expenditures will jump to almost 42 million in 1978 when biox. treatment units for refinery effluent water must be built at Montreal and Halifax.

It is possible that 1978 expenditures may be higher, depending on the stringency and compliance schedule of the National Air Quality Objectives for Refineries. The Syncrude investments are a major factor in the totals throughout the forecast period.

The planned environmental protection expenditures by the operating functions reflect the current financial management constraints of the company. Projects are being deferred or stretched out unless they are mandatory to meet published regulations or economic guidelines.

4. Industry Activities

CPA and APOA

In the upstream side of the industry, CPA's Environmental Conservation Committee have been assuming more

responsibility for all environmental matters in their end of the business. They have drafted a public relations program to improve the industry's environmental image and forwarded it to the CPA Board of Directors for approval. Environmental research activities are still somewhat fragmented between the ECC., the APOA, and ad hoc groups.

Under CPA auspices, a new coordination group for all segments of the industry has been formed to manage the contingency planning activities and industry-owned equipment of all the oil spill cooperatives on the prairies.

APOA have continued an active role in the development of exploratory drilling regulations in the Territories. Particular effort in 1974 was devoted to the disposal of drilling wastes both on-shore and off-shore, and interim guidelines have been drafted.

APOA have coordinated industry interests in the Beaufort Sea Environmental Program of twenty-nine studies. Eighteen companies with acreage interests in the Arctic have funded 21 of the studies at a cost of 4.1 million dollars and the Federal Government has put in 1.5 million dollars for the other eight studies. The studies are grouped into eight major categories, marine life, existing pollutants, physical oceanography, meteorology, environmental geophysics, sea-ice, and oil cleanup.

PACE

The year 1974 witnessed increased efforts in the areas of industry environmental problems for which the association assumes responsibility. Some eighty people filled one hundred positions on the eight Standing Committees and four Task Forces which deal with specific areas. The president, in his annual report, estimated that the equivalent of sixteen full-time people were volunteered by the companies collectively on mutual projects or problems.

Time will only permit comment on a few of the many important activities and accomplishments of the PACE Association.

- (1) The Oil Industry Contingency Plans National Coordinating Committee, under Chairman Bob Fern and Secretary Ken Evans of Gulf, has stirred action from industry regional and local management so that industry now has cooperative contingency response capability for minor or moderate-sized spills at 147 locations in Canada.

Working with a Consortium of the Federal and Ontario Governments, they have developed a program for the production of seven or eight coloured videotape training modules. In conjunction with Environment Canada and a computer service company, a computerized inventory system for all oil spill equipment in Canada was developed and is operational.

The Committee prepared a model agreement for co-operatives and member companies who will need the assistance of outside clean-up contractors for many spill situations.

- (2) A Task Force finalized agreements for the manufacture and sale of the PACE Oil Spill Boom. To date this is the only boom which will contain oil in flowing streams with a current over 1.5 miles per hour.
- (3) The Air Quality Committee are the industry part of a tripartite Task Force with Environment Canada, and the provinces set up to draft National Emission Guidelines for Petroleum Refineries. The committee was successful in having the Task Force accept PACE's Terms of Reference for the conduct of the work. The Committee also provided valuable expertise for discussion with Quebec Government authorities.
- (4) The Marine Committee maintained contact with the Ministry of Transport in several areas of ship pollution regulations. A Task Force has prepared an Industry Code of Procedures for Oil Transfers between Ship and Shore which translate the Government's Oil Transfer Regulation into operational language.
- (5) The Research Committee coordinates the development, preparation, and management of all PACE research projects. In 1974 \$128,000 were expended on nine projects. A rapid bioassay method, which can be done by refinery technicians and which simulates the elaborate government 96-hour fish toxicity test, was developed.

A consultant is measuring and categorizing the contaminants in storm run-off water from distribution terminals and bulk plants. This will enable industry to specify the nature of facilities and degree of treatment necessary for anticipated government regulations.

PACE and the Ontario Petroleum Association are jointly researching the extent of the noise problem from car washes and attenuation methods to meet noise by-laws.

A major project with Guelph University has been measuring the sub-lethal effects on fish of a well-treated refinery effluent stream. It is hoped this work will prove that such effluents are relatively innocuous.

A consultant was retained to assess the considerable amount of work that has been done on the rehabilitation of oiled birds and on warning devices for preventing birds from entering spill areas. The Canadian Wildlife Service have cooperated in this study.

- (6) The Waste Oil Committee kept a watching brief on waste oil disposal developments and research. The Federal Government have indicated they wish to set up a Government/Industry Task Force to prepare codes of practice for the collection and disposal of waste oils.
- (7) The Water Quality Committee was one of the most active PACE groups, meeting thirteen times. This committee sponsored five regional two-day seminars to acquaint local refinery personnel, provincial agencies, and regional federal government authorities with the technical and reporting requirements of the Federal Government's Refinery Effluent Water Quality Guidelines.

The committee held meetings with the Alberta and Ontario Governments regulatory authorities regarding provincial refinery effluent standards. Considerable effort was expended on both Quebec and New Brunswick proposed discharge regulations.

Although this report on PACE has been somewhat lengthy, two important Standing Committees and two Task Forces have been reluctantly omitted. It should be realized that both PACE and APOA are actually negotiating millions of dollars of capital and operating costs for the industry without any legal standing to perform such a service. Only the confidence of the various company managements and the trust of the various government authorities in the PACE and APOA personnel and industry's good intentions permits this unusual arrangement to work. It is working, and regulations appropriate to human and environmental health are being developed at reasonable cost to the industry and the economy.

Chart 21 The cost of participating in environmental associations in 1974 was over one million dollars, up sharply from the \$438,000 in 1973. The increase was mainly from participation in the Beaufort Sea Environmental Program. On the positive side, the company is obtaining the benefits of almost nine million dollars of work for a one-million dollar cost.

SECTION IV

SUMMARY

Global concerns for the environment are melding into the fabric of world socio-economic problems. In North America public attitudes show a continuing high level of concern toward the environment. More sophisticated research efforts and tools are turning up new and potentially serious threats to human and environmental health almost monthly.

Overall, the company maintained a reasonable position in 1974 with respect to protecting the environment. Further progress was achieved in making environmental concerns part of the job. Continuing difficulty is foreseen in balancing the need to meet environmental requirements against the availability of funds.

Further effort should be made to improve the efficiency of industry environmental activities. Improved coordination between functional and regional groups or new organizational approaches are required to more effectively manage the common environmental problems of the various segments of the industry.

Federal agencies, backed up by hundreds of scientists and some provincial agencies, are becoming increasingly knowledgeable. The industry will be hard-pressed to devote the necessary time and talent to respond in depth to new regulatory initiatives. Extra special attention will be required to the mushrooming area of environmental impact assessment regulations to ensure that fossil energy projects will be viable and our long-range corporate interests protected.

U.N. ENVIRONMENTAL PROGRAM

BUDGET — 1974 \$18 MILLION 1975 \$20 MILLION

PROGRAM

- ENVIRONMENTALLY SOUND TECHNOLOGY FOR UNDERDEVELOPED COUNTRIES
- PROTECTION OF MARINE ENVIRONMENT
- MANAGEMENT OF ARID REGIONS, DESERT RECLAMATION
- GLOBAL MONITORING SYSTEM FOR POLLUTANTS & EFFECTS
- INTERNATIONAL REFERRAL SERVICE FOR ENVIRONMENTAL INFORMATION

LAW OF SEA CONFERENCE ISSUES

1. WIDTH OF TERRITORIAL SEA
2. RIGHT OF INNOCENT PASSAGE THROUGH INTERNATIONAL STRAITS
3. INTERNATIONAL AGREEMENTS ON SHIPS RE —
 - SAFETY AND POLLUTION STANDARDS
 - LIABILITY AND COMPENSATION
4. FLAG STATE VS. PORT STATE ENFORCEMENT
5. JURISDICTION OF SEABED RESOURCES
 - WIDTH OF ECONOMIC ZONE
 - INTERNATIONAL REGIME BEYOND ECONOMIC ZONE?
6. RIGHT TO CONDUCT AND INFO FROM MARITIME SCIENTIFIC RESEARCH
7. RIGHT OF COASTAL STATES TO IMPOSE SPECIAL STANDARDS

PROPOSED U.S. EMISSION REGULATIONS

<u>NATIONAL</u>	<u>HC</u>	<u>CO</u>	<u>NOx</u>
1978/79	1.5	15	2.0
1980/81	0.9	9.0	2.0
1982	0.41	3.4	UNDER REVIEW

CAN BE MET WITHOUT CATALYST

CALIFORNIA (CARB)

1977	0.41	9.0	1.5
------	------	-----	-----

UNITS: GRAMS PER MILE

1974 LEGISLATIVE AND REGULATORY ACTIONS

1. ENVIRONMENTAL CONTAMINANTS ACT – FEDERAL
2. OCEAN DUMPING CONTROL ACT – FEDERAL
3. NEW BRUNSWICK WATER QUALITY REGULATIONS FOR DISCHARGES
4. QUEBEC DRAFT AIR POLLUTION REGULATION – VERY COSTLY
5. ONTARIO GUIDELINES FOR REFINERY WASTE WATER EFFLUENTS
6. PERMIT SYSTEM FOR SASKATCHEWAN INDUSTRIAL DISCHARGE
7. ALBERTA REGULATIONS FOR LAND SURFACE DEVEL. & RECLAMATION
8. B.C. OBSTINATE RE REFINERY POLLUTION REGULATIONS

CANADIAN PUBLIC ATTITUDE TO POLLUTION 1974/75

	<u>1970 (%)</u>		<u>1975 (%)</u>	
HAVE HEARD OR READ ABOUT POLLUTION	91		93	
	<u>Very</u>	<u>Fairly</u>	<u>Very</u>	<u>Fairly</u>
HOW SERIOUS DO YOU THINK IT IS	69	27	56	37
	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
IS POLLUTION A PROBLEM IN YOUR AREA	61	35	57	40

U.S. PUBLIC ATTITUDE TO POLLUTION 1974/75

		1973 (%)		1975 (%)	
		Very Serious	Some-what Serious	Very Serious	Some-what Serious
HOW SERIOUS IS WATER POLLUTION IN U.S.					
PUBLIC		40	27	51	35
CONGRESS		—	—	53	35
HOW SERIOUS IS AIR POLLUTION IN U.S.					
PUBLIC		34	30	46	39
CONGRESS		—	—	44	42

ACCOMPLISHMENTS

1. EXPLORATION AND PRODUCTION

- ENVIRONMENTAL BASELINE AND ASSESSMENT STUDIES
 - DELTA GAS SYSTEM
 - BEAUFORT SEA
 - ARCTIC ISLAND CONSTRUCTION

2. LOGISTICS

- WASTE WATER TREATMENT DARTMOUTH AND MONTREAL

3. TRANSPORTATION

- WATER POLLUTION PROTECTION AT 10 PLANTS

4. MARKETING

- UPGRADED 39 CONSUMER PLANTS

ACCOMPLISHMENTS (CONT'D)

5. ESSO CHEMICAL

- PROGRAM TO REDUCE VCM IN-PLANT AND EMISSIONS; AND RESIDUAL IN RESIN

6. BUILDING PRODUCTS

- SATURATOR AIR FILTRATION EQUIPMENT DESIGNED OR UNDER CONSTRUCTION

7. NEW ENERGY RESOURCES

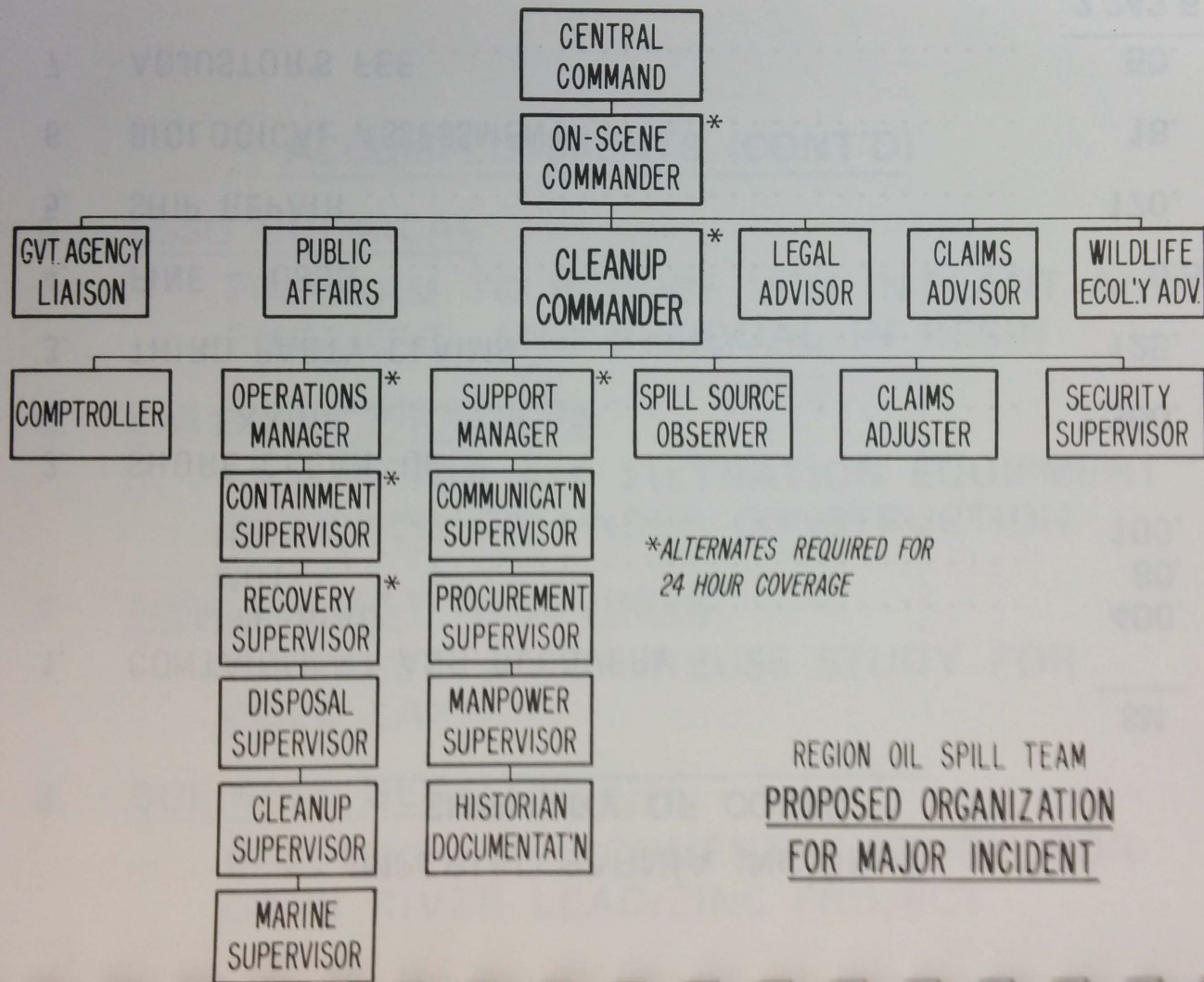
- INITIATED WATER REUSE STUDY FOR COLD LAKE

8. BUSINESS DEVELOPMENT

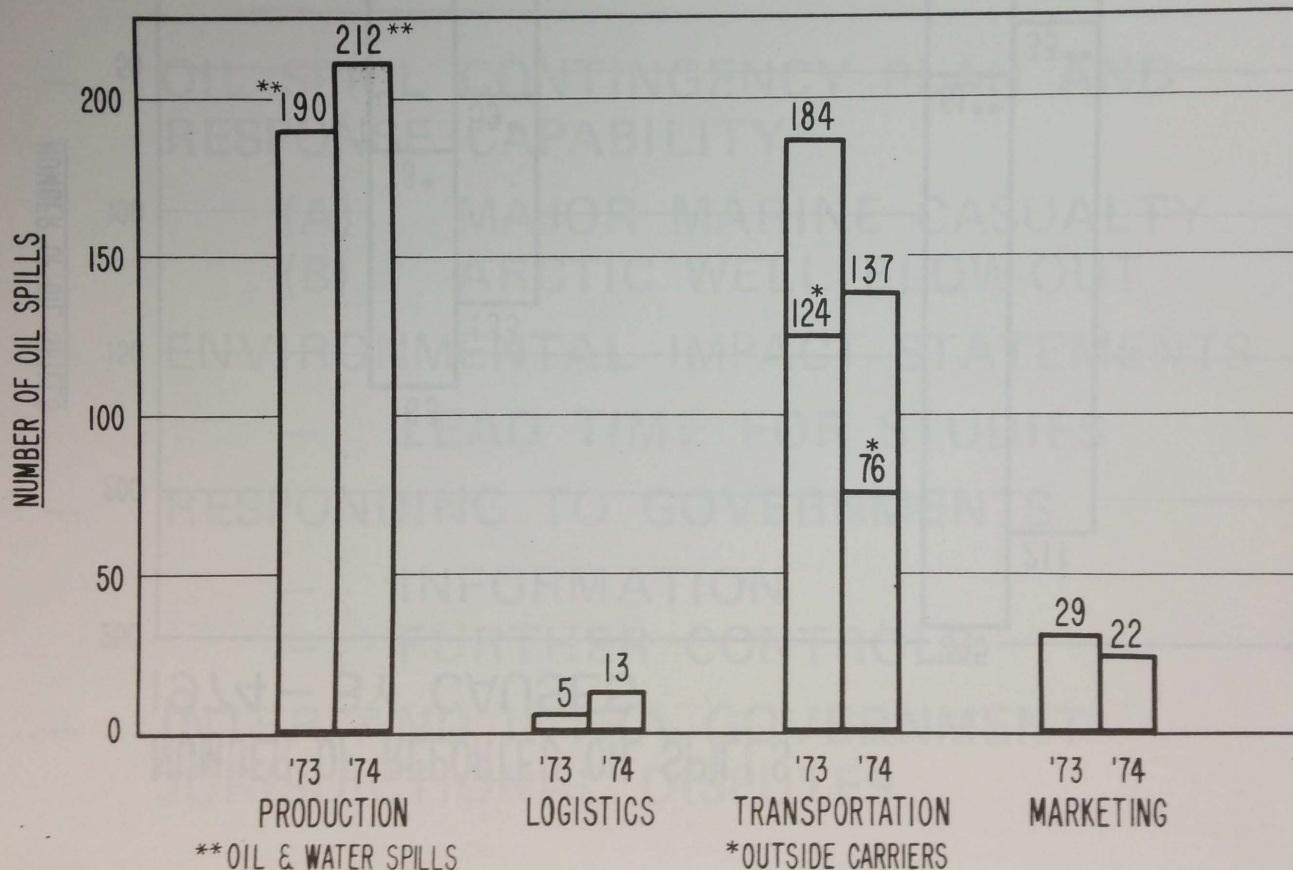
- BASELINE ENVIRONMENTAL STUDY FOR GAYS RIVER LEAD/ZINC PROJECT

IMPERIAL SARNIA INCIDENT
SUMMARY OF COSTS

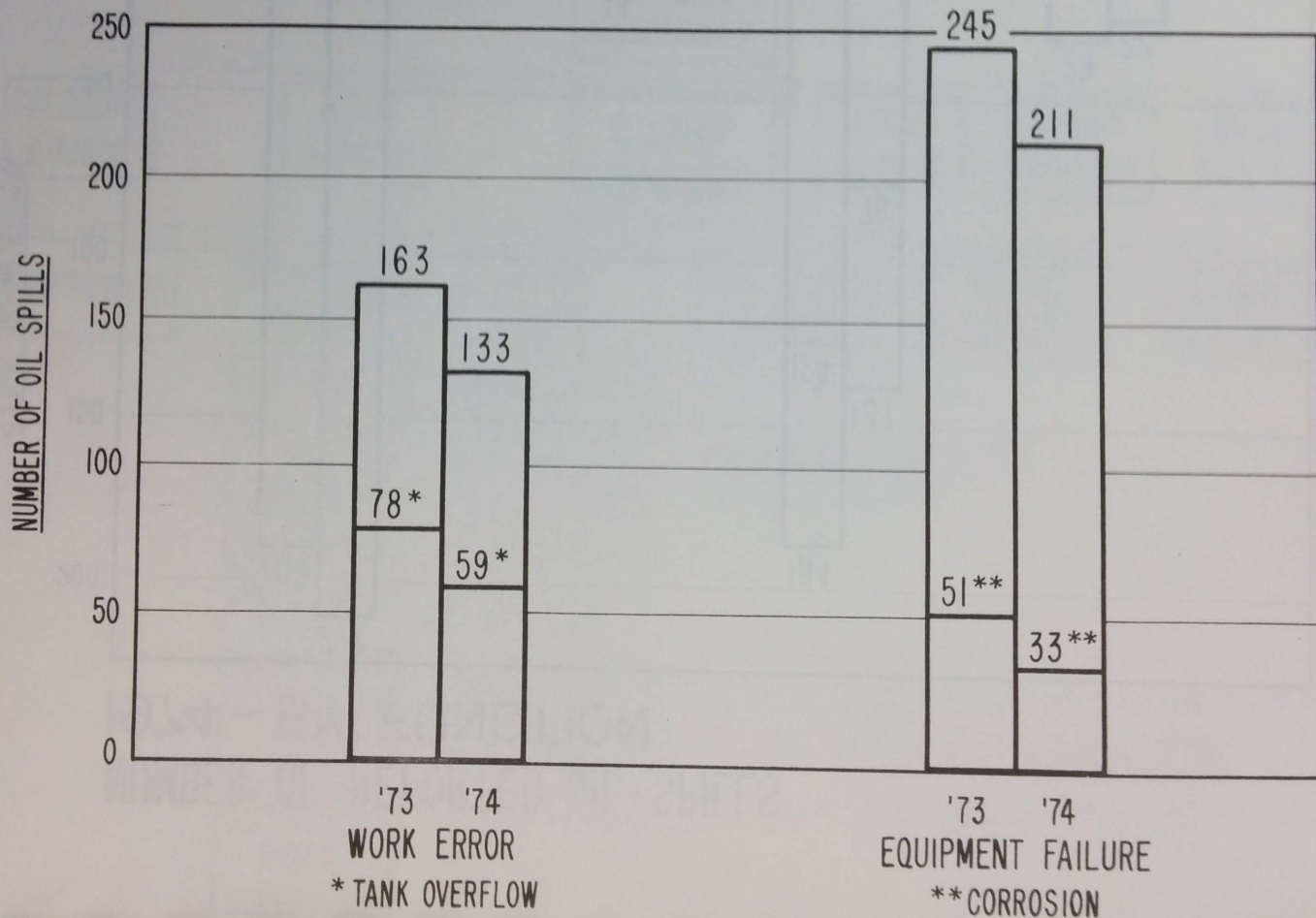
	<u>\$M</u>
1. CONTAINMENT AND RECOVERY	
IMPERIAL	400.
MOT	80.
USCG	100.
2. SHORE CLEAN-UP	
EXXON	1,300.
3. THIRD PARTY CLAIMS	125.
4. FINE - USCG	0.5
5. SHIP REPAIR	170.
6. BIOLOGICAL ASSESSMENT	18.
7. ADJUSTOR'S FEE	50.
	<hr/> 2,243.5



NUMBER OF REPORTED OIL SPILLS 1974 - BY FUNCTION



NUMBER OF REPORTED OIL SPILLS 1974 - BY CAUSES



MAJOR PROBLEMS REMAINING

- OIL SPILL CONTINGENCY PLAN AND RESPONSE CAPABILITY
 - (A) MAJOR MARINE CASUALTY
 - (B) ARCTIC WELL BLOW-OUT
- ENVIRONMENTAL IMPACT STATEMENTS
 - LEAD TIME FOR STUDIES
- RESPONDING TO GOVERNMENTS
 - INFORMATION
 - FURTHER CONTROLS
- INTER AND INTRA GOVERNMENT JURISDICTIONAL DISPUTES

MAJOR PROBLEMS REMAINING (CONT'D)

- DRILLING FLUID AND SOLID WASTE DISPOSAL
- GROUNDWATER CONTAMINATION FROM LEAKING UNDERGROUND TANKS
- REALISTIC REFINERY EMISSION GUIDELINES
- OPTIMIZATION OF POLLUTION CONTROL PROCESSES AND HARDWARE
- REDUCING IN-PLANT AND FENCE-LINE NOISE LEVELS
- MULTIPLICITY OF PERMITS
 - TIME DELAYS
 - AWARENESS OF REQUIREMENTS
- MAINTAINING THE NECESSARY PRIORITY
- DESULPHURIZATION OF GASOLINE TO REDUCE SULPHATE EMISSIONS

PLANS

1. DEVELOP EXPERTISE IN ENVIRONMENTAL IMPACT ASSESSMENT.
2. SUPPORT DEVELOPMENT AND APPLICATION OF NEW TECHNOLOGY.
3. CONTINUE PLANNED PROGRAMS TO UPGRADE FACILITY STANDARDS AND OPERATING PROCEDURES.
4. DEVELOP SPECIFIC PROGRAMS
 - UNDERGROUND TANK LEAK TESTING PROCEDURES, EQUIPMENT AND FREQUENCY

ENVIRONMENTAL QUALITY COMMITTEE
ACTIVITIES AND REPORT HIGHLIGHTS 1974

1. CORPORATE GUIDELINES FOR WASTE OIL HANDLING
PRODUCED
2. ENDORSED PACE OVERVIEW BRIEF RE QUEBEC AIR REGS
3. ENCOURAGED BURRARD INLET OIL SPILL CONTINGENCY
PLAN
4. REVIEWED ACTIONS TAKEN, LESSONS LEARNED, IMPERIAL
SARNIA SPILL
5. POTENTIAL OF VINYL CHLORIDE TO KILL LEARNED
– APPROPRIATE ACTION BY ESSO CHEM & MEDICAL
TAKEN
6. REVIEWED NEW POTENTIAL HEALTH SCARE
– SULPHURIC ACID MIST EX CATALYTIC CONVERTERS
7. OIL SPILL PREVENTION, INCIDENTS AND ORGANIZATION
REVIEWED
8. BEAUFORT SEA ENVIRONMENTAL PROGRAM EXPLAINED
9. PACE 1975 BUDGET AND 1974 EXPENDITURES REVIEWED

ENVIRONMENTAL MANPOWER SUMMARY (MAN YEARS)

	1972		1973		1974	
	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time
LOGISTICS	12	20	11	21	16	36*
EXPLOR./PROD'N	2	14	3	18	3	18
ESSO CHEMICAL	2	8	2	8	4	4.5
TRANSPORTATION ...	2	4	1	4.5	0	3.5
MARKETING	1	2	3	4	3	11.5
BUILDING PRODUCTS	—	1.4	—	2	—	1.5
NEW ENERGY RESOURCES	—	0.1	—	0.1	—	1
REGION O.S. COORD.	5	—	6	—	5	—
E.P. DEPARTMENT ...	3	—	3	—	3	—
RESEARCH	—	—	1	0.5	1	1
	27	49.5	30	58.1	35	77
TOTAL	76.5		88.1		112	

*DOES NOT INCLUDE OPERATING MANPOWER (I.E. LAB, PROCESS, MECHANICAL) ESTIMATED TO BE 28 MAN-YEARS. DOES NOT INCLUDE 14 MAN-YEARS BY ENGINEERING CONSULTANTS.

BUDGET EXPENDITURES – \$MM

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
LOGISTICS	22.2	19.0	21.9	25.6	41.7
EXPLORATION/ PRODUCTION	7.3	4.0	5.0	6.0	5.5
ESSO CHEMICAL	2.0	5.9	6.9	6.3	2.5
MARKETING	4.2	1.8	3.6	3.8	4.0
TRANSPORTATION	3.6	1.2	0.7	0.5	0.5
BUSINESS DEVELOP.	<u>—</u>	<u>—</u>	<u>0.1</u>	<u>0.2</u>	<u>—</u>
	39.3	31.9	38.2	42.4	54.2
NEW ENERGY RESOURCES					
SYNCRUDE	5.9	22.2	25.0	25.0	13.2
COLD LAKE	<u>—</u>	<u>0.2</u>	<u>0.5</u>	<u>—</u>	<u>—</u>
TOTAL	45.2	54.3	63.7	67.4	67.4

PACE ORGANIZATION

BOARD OF DIRECTORS

EXECUTIVE COMMITTEE

MANAGER

COMMITTEES

- OIL SPILL CONTINGENCY PLANNING
- WATER QUALITY
- AIR QUALITY
- RESEARCH AND DEVELOPMENT
- MARINE
- PUBLIC RELATIONS
- WASTE OIL
- LEGAL

TASK FORCES

- BULK PLANT STANDARDS
- LEAD-IN-GASOLINE REGULATIONS
- BOOM COMMERCIALIZATION
- MARINE CONTINGENCY PLAN

PACE

1. OIL INDUSTRY CONTINGENCY PLANS NATIONAL COORDINATING COMMITTEE
 - INDUSTRY RESPONSE CAPABILITY AT 147 LOCATIONS
 - VIDEOTAPE TRAINING AIDS
2. PACE OIL SPILL BOOM – COMMERCIALY AVAILABLE
3. AIR QUALITY COMMITTEE – GOVT./INDUSTRY TASK FORCE ON REFINERY EMISSIONS
4. MARINE COMMITTEE – CODE OF PRACTICE FOR OIL TRANSFER
5. RESEARCH COMMITTEE – 1974 BUDGET OF \$128,000 FOR 9 PROJECTS
6. WASTE OIL COMMITTEE – CODES OF PRACTICE FOR COLLECTION AND DISPOSAL
7. WATER QUALITY COMMITTEE – FIVE REGIONAL TWO-DAY INDUSTRY SEMINARS
 - NEGOTIATIONS/BRIEFS WITH ONTARIO, ALBERTA, QUEBEC, AND NEW BRUNSWICK

COST OF ENVIRONMENTAL ASSOCIATIONS (1974)

<u>Name</u>	<u>Total Budget</u>	<u>I.O.L. Share</u>
APOA	\$1,014,000	\$350,000
CAGSL	3,088,000	125,000
BEAUFORT E.P.	4,100,000	410,000
LAVAL (Montreal)	188,000	28,500
LAMBTON (Sarnia)	195,000	36,400
PACE	273,000	64,300
TOTAL	\$8,858,000	\$1,014,200
1973 TOTAL	\$5,783,500	\$ 438,500

