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No. 801

REVIEW OF ENVIRONMENTAL PROTECTION ACTIVITIES FOR 1975

PROPRIETARY TO
IMPERIAL OIL AND
AFFILIATES

IMPERIAL OIL LIMITED
TORONTO, ONTARIO

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1975 ENVIRONMENTAL PROTECTION REVIEW
AND COORDINATION ACTIVITIES

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1975 ENVIRONMENTAL PROTECTION REVIEW
AND COORDINATION ACTIVITIES

SECTION I

PERSPECTIVE

1. United Nations Environmental Programs

There was considerable criticism from some quarters that activities of UNEP were not focused on finding solutions to specific regional or global environmental problems. This criticism sprung from a misunderstanding of the role assumed for UNEP by Maurice Strong and the mandate given to it by the U.N. There are encouraging developments of sound environmental policies by member states and of the coordination of environmental programs of other U.N. agencies and associations. Major concern was also felt by many observers over the frequent repetition by Strong and his successor, Dr. Mostafa Tolba, of the statement, "UNEP must have a concrete role in leading the world's governments to the new Economic Order."

Problems and Issues

Chart
1

The Executive Director states world environmental problems in capsule form from two viewpoints. In the developed countries, both voluntary and regulated actions will control recognized pollutants, but grave concern is emerging with respect to toxic substances and the physical and emotional effects of noise. Concern is also being expressed over the loss of plant and animal species, natural habitat, and deterioration in the quality of life.

In the underdeveloped countries, the problems are associated with past or continuing poverty, manifested by poor housing, poor health, and unemployment. Planned development is UNEP's suggested solution. Dr. Tolba recently enunciated the five main issues to be addressed by the Governing Council at their fourth annual meeting.

Chart
2

First is the question of shared natural resources. It is proposed to prepare a set of guidelines for shared river basins and shared air sheds, and hopefully develop a convention on shared resources.

The Second major issue is the question of environment versus development. How to sustain growth while avoiding harmful effects to the environment?

Third, the question of irrational and wasteful use of resources. Criteria are needed to determine rational use for three specific areas -- soil, water, and energy.

Fourth, the question of institutional arrangements within the U.N. to accomplish environmental objectives and programs.

Fifth, the final major issue is funding for the Human Settlement Foundation

Burgeoning Bureaucracy

A vast bureaucracy exists to deal with world environmental problems which is seemingly irresistably growing in both numbers and complexity. This trend applies to both government and industry sides of the picture. The chart indicates our understanding of points of contact, but without a manual, it would be hard to decipher who is responsible for what.

Chart
3

In simplest terms, UNEP is the interface and communication channel between world industry represented by the International Chamber of Commerce, and world government represented by the General Assembly.

There is a firm conviction amongst environmental representatives in international bodies that UNEP's activities and programs will have significant influence on the conduct of national and international industry.

1975 Achievements

The most significant achievement of UNEP in 1975 was the convening of a meeting, Barcelona 1, between 16 Mediterranean states and obtaining agreement between them of the necessity of a Convention on pollution control measures to protect their common sea. Only Albania and Algeria were absent. As a postscript, 12 of the 16 nations signed a Protocol on Cooperation and on Ocean Dumping during Barcelona 2 in early February of this year.

Chart
4

During 1975, seven international conventions came into force as the result of the required number of signatory parties passing the necessary national legislation to ratify these conventions. Conventions 1, 2 and 6 on the chart all bare on our business, but have yet to be ratified by Canada. Ratification of these conventions and ageement by Canada to participate in the International Compensation Fund for Oil Pollution would eliminate most reasons for continuation of the Maritime Pollution Claims Fund. Offshore drilling operations are not yet subject to any international regulation.

There was little apparent progress made at 1975 (second) session of the Law of the Sea Conference with degree of sovereignty over sea and seabed resources, and right of passage through straits continuing to be the stumbling blocks.

2. U.S. Review

In the U.S., interminable congressional committee hearings and debates occurred with respect to necessary amendments to their Clean Air Act and Water Pollution Control Act. On the air side, the principal issues were Auto Emission Standards and definition of intent and strategies to ensure non-degradation of air quality. On the water side, the unattainable need for compliance by 1983 with use of Best Available Technology Economically Achievable (BATEA) on top of compliance by 1977 with Best Practicable Control Technology Currently Available (BPCTCA) has pitted industry and municipal groups solidly against stubborn congressional and public advocacy groups. Compliance with the 1983 requirement would drive many U.S. companies to the wall, if not to the grave.

Environmental Impact Assessment requirements are adding at least a year to the lead time for obtaining permit approvals of mineral and energy projects in the U.S. This same procedure has delayed our Superior, Wisconsin Products Terminal by two years.

EPA regulations came into force in 1975 requiring control of vapours at service stations in 17 of the nation's 247 air quality control regions. Stage I required 90% control of vapour during the filling of underground service station tanks. Stage II, which so far has limited application, requires control of vapours during vehicle filling. The technology and costs to accomplish stage II has all gasoline marketers very disturbed.

The growing proliferation of state laws establishing compensation funds for oil spill damage to civil property and natural resources is a matter of considerable concern to the U.S. oil industry. Exxon and the API are working hard to win support for the Administration's congressional bill which would create a national superfund and which would preempt state funds.

Finally, there is a growing tendency and stated policy of Exxon, U.S.A. to use the courts "whenever it is concluded that any regulatory body is mandating environmental requirements beyond the scope of legislative intent." Exxon was involved in at least seven such challenges of EPA authority, alone, with API, or in amicus curiae positions.

As a postscript, the overall quality of the U.S. national environment was assessed by the National Wildlife Association to have declined slightly in 1975. In seven major environmental areas that constitute its index, the Federation found a net gain in only one area -- that of air pollution. Preservation of timber resources was stable, but setbacks were reported in water pollution, minerals, wildlife, soil conservation and open space.

3. Canadian Overview

A considerable amount of new legislation was issued in Canada in 1975, both statutory and regulatory. Perhaps the most significant trend and actions demonstrated Ottawa's intent to preempt the field. It is now evident that the federal government plans to bring as much environmental management under its control as possible. In 1975, seven provinces signed environmental accords with Ottawa. Ostensibly these accords appear to aim at cooperation rather than duplication in programs and regulatory jurisdiction, but more than the camel's head is in the tent. Quebec, British Columbia, and Newfoundland have yet to sign accords.

In this review, only those acts or regulations which have direct or significant indirect impact on our industry will be mentioned.

Federal Legislation

Ocean Dumping Act

Chart
5

This Act will prohibit in some cases and control in others the dumping of all hazardous substances in the oceans. The building of artificial islands may require dumping permits, in addition to land use permits.

Environmental Contaminants Act

This Act may be used for outright ban of the use of hazardous substances, such as PCB's, but will also be used to register and regulate use of substances and chemicals which the Minister of Environment and/or the Minister of Health and Welfare "suspect may be entering the environment in a quantity or concentration that may constitute a danger to human health or the environment."

The intent is clear -- every invention or novel use must be proven safe before it may be marketed or else be subject to regulations for use.

Commencing April 1, 1976, subsection (6) of section 4 comes into force and reads:

"Where, during a calendar year, a person manufactures or imports a chemical compound in excess of five hundred kilograms and he manufactures or imports that compound in excess of that quantity for the first time, he shall, within three months of manufacturing or importing the said quantity, notify the Minister of the name of the compound, of the quantity manufactured or imported during that year, and of any information in his possession respecting any danger to human health or the environment posed by the compound."

Offences under the Act are criminal in nature and severe in penalty (i.e., (a) on summary conviction of guilt, liability is a fine not exceeding \$100,000, (b) on conviction upon indictment subject to imprisonment for two years. The liability for offence is very broadly applied to include "any officer, director, or agent of the corporation who directed, authorized, assented to, acquiesced in, or participated in the commission of the offence is party to and guilty of the offence.")

A regulation limiting the concentration of lead in leaded grades of gasoline to a maximum of 3.5 grams per Imperial gallon was imposed January 1, 1975.

The most significant activity to our industry was and will be the work of the PACE Air Quality Committee in the Federal/Provincial/Industry Task Force constituted to draft guidelines and regulations for new and existing petroleum refineries. The PACE group, under the chairmanship of Dr. Lee Scott of Logistics, spent many hours in preparatory and in committee work on this project.

Provincial Legislation

Ontario passed into law the Environmental Assessment Act, but as yet no regulations have been issued. The Act will be applied first to provincial government, and their corporations and agencies, then to major industrial or commercial activities.

Quebec introduced first draft of a regulation re Quality of the Occupational Environment which has exhaustive industrial safety and hygiene provisions. Interdepartmental rivalry has forced this back to a committee. The second official draft of the Quebec Air Pollution Control Regulation was issued, and although somewhat less onerous than the first, it has prompted tough opposition from many companies and industry associations.

Prince Edward Island passed its first Environmental Protection Act. Several provinces passed amendments to their Air Pollution Control Acts or their Environmental Protection Acts, which either broadened their scope or set stricter standards.

Noise control legislation was under consideration in many jurisdictions. Toronto issued an Anti-Noise By-Law and Ontario issued a draft of a Model Municipal Noise Control By-Law. Noise considerations now need to be applied to all our operations' equipment purchases, and any devices we may market which will affect residential sound levels.

4. Public Attitude

If one were to accept only public opinion polls and media signals, such as frequency of appearance or column inches printed, the importance of environment as an issue in Canada might well be rated fourth, fifth, or even miniscule. Announcement of environment's death as an issue would, in Mark Twain's words, be "very premature".

A few examples of projects which were either delayed, deferred, changed, or might be shut-down, primarily by intervention on environmental grounds, should serve to illustrate the point:

- Canadian Arctic Gas Pipeline -- The Berger Hearings may delay project for years.
- Beaufort Sea Environmental Project -- delayed drilling a year.
- Ontario Hydro High Voltage Transmission Corridors -- The Solandt Hearings have delayed building two major high-voltage transmission lines at least three years.
- Ontario Hydro's Long Range Plan for New Generating Capacities -- The Porter Commission is starting hearings this fall which has caused the plan to be shelved indefinitely. The hearings were forced by the sensitivity of the Ontario government to environmental protest over the plan.
- The New Pickering Airport -- shelved indefinitely in response to environmental activists' protests.
- The Proposed B.C. Government Oil Refinery -- a location acceptable to local municipal governments and ratepayers' associations was never found.
- Tar Sands Project -- there is mounting opposition to any additional strip-mining type of operations.

In most cases the questioning or outright opposition to projects has been led by academics and well-informed groups who generally are asking rational questions regarding the need for, or environmental effects of, a particular project.

There is no doubt that environmental acceptability will be the first criterion for all future major projects.

SECTION II

PERFORMANCE AND PROBLEMS OF OPERATING FUNCTIONS

Our company performance met the test of our corporate environmental policy successfully. Considerable effort was devoted to optimizing facility improvement programs.

Interest in the environmental assessment process is increasing at all levels of government. Our first experience with this has been in connection with northern resource development and indirectly with the IPPL terminal expansion project at Superior, Wisconsin. Planning for all major projects will have to recognize the cost and timing implications of this process. For example, in Ontario, up to 22 forms will need to be completed. It is a powerful weapon in the hands of anti-development, anti-business, or anti-oil industry groups.

1. Accomplishments

(a) Exploration and Production

- Completed environmental impact statement for:
 - (i) Taglu gas plant land use permit application.
 - (ii) Berger hearings.
- Further environmental studies completed for
 - (i) Artificial island construction.
 - (ii) APOA/Government Beaufort Sea Environmental Program
 - (iii) Disposal of drilling fluids
- Reduced sulphur emissions from Quirk Creek gas plant through improved close-loop control of stack emissions.
- Reduced white smoke (SO₃) emission from Joffre gas plant by modifications to incinerator burner.

(b) Logistics

- Capital cost deferral on the Montreal and Dartmouth water effluent projects while still meeting original commitment.
- Noise survey of all refineries as a basis for engineering and cost planning.
- New biological oxidation plants at Sarnia and Ioco on-stream.
- Development of mathematical tool for the contribution of Sarnia refinery to the area ambient SO₂ concentration.

(c) Transportation

- Water pollution protection facilities at 5 plants.
- Upgraded Esso 2000 facilities at 3 plants.
- Overfill sensors in Prairie Region trucks.
- Continued pressure on outside carriers to reduce work errors.
- A multi-industry approach was developed for pipeline corrosion protection against stray currents from Toronto subway.
- Region Environmental Advisors in place on Region Distribution staff.

Chart
8

(d) Marketing

- Upgraded 10 high-risk consumer plants.
- Upgraded 20 consumer plants in Quebec to meet regulation.
- Upgraded Stevenson, B.C. marine plant.
- Maintained significant ongoing participation in industry/government groups in developing improved standards of product quality, facilities and operation.

(e) Esso Chemical

- Sarnia
- Completed studies on treatment methods to eliminate fish toxicity and reduce tainting.
 - Facilities installed to reduce VCM in PVC slurry and plant waste water.
 - Completed development and design of caustic neutralization facilities.

Redwater - New process reduced total SO_x emissions in expanded sulphuric acid unit.

- Completed study of fluoride emission problem.

Fab.Prod. - Installed filtration units for roofing machine fumes at LaSalle and Winnipeg.

(f) New Energy Resources

- Cold Lake water re-use laboratory study completed.

(g) Business Development

- Received permit for exploratory decline, Gays River, N.S.

2. Oil Spill Incident Report and Related Activities

Chart
9

Changes in the reporting procedures in Logistics and Marketing in 1975 prevents meaningful comparison of the total spills both corporately and for those functions with previous years, but should provide very valuable information in future.

The Production Department achieved a significant reduction in spills of 25% in 1975 compared to 1974. The Transportation Department reduced their spills by employees by 18%; but spills by outside carriers increased slightly.

Chart
10

Although the number of reported oil spills increased by 52% over 1974 (because of the change in reporting procedures), the volume of oil spilled increased by only 14%. The latter includes the spill by Winnipeg refinery of 1000 barrels into the Red River. The clean-up of this incident was very well handled and drew favourable comments from the government authorities.

Chart
11

The contingency planning by an industry task force continued in B.C. which led to the recommendation for the formation of a major oil spill cooperative in Burrard Inlet. By year-end the legal agreement, which had been drafted by Imperial and reviewed with other companies at the head office level, was close to completion. The initial equipment recommendations, costing about \$1.2 MM, are receiving further study.

There is interest in the industry and pressure from governments to do similar contingency planning studies in Ontario, Quebec, and Atlantic Regions. The government people in the Atlantic are becoming a bit restive at industry's inaction towards the big spill.

Industry, through PACE, has prepared a model contingency plan for a major offshore incident. The Canadian Coast Guard are preparing a National Emergency Plan. Unfortunately CCG have not responded to our overtures to coordinate the two plans.

Chart
12

The Imperial Sarnia spill demonstrated the need for an improved regional corporate response mechanism. Accordingly, the organization, job descriptions, etc., were developed for the Region Major Oil Spill Response Team. Plans were laid in each region to staff and train the Response Team in 1976.

A manual was prepared which described Imperial's relationship to and method of operation and access to the Federal Government's computerized National Emergency Equipment Locator System (NEELS).

3. Major Problems Remaining

Chart
13

- Refinement of Beaufort offshore contingency plans, including improvement of capability for control and clean-up of spills.
- Environmental assessment and planning for future East Coast offshore operations.
- Greater and more detailed regulations are expected to cause some program delays and require more effort on environmental assessment studies throughout E and P operations.
- Satisfying environmental requirements at refineries:
 - Strathcona expansion
 - Air permit for Ioco
 - SO₂ problem in Montreal East
 - Minimizing SO₂ emissions from Dartmouth
- Trend to closed vapour systems in the distribution system in the U.S.
- Ground water contamination from leaking underground tanks.
- Pipeline protection legislation is gaining momentum in both Canada and the U.S.
- Retention of associate/dealer commitment and awareness.
- Government objectives for tighter controls on discharges from chemical plants:
 - VCM emissions
 - fish tainting
 - NO_x emissions from nitric acid unit
 - BOD and suspended solids from paper mills
- Water re-use relating to both Cold Lake and Syncrude operations.

4. Plans

Chart
14

Despite rather sizable and successful efforts throughout the company in 1975, the magnitude of the environmental challenge has not diminished and will continue to demand a significant share of our financial and manpower resources.

Working with government agencies to develop realistic and achievable regulations must continue to have high priority. In general, industry associations have been reasonably effective in dealing with governments. Imperial's input to these groups has brought the company favourable recognition. It would therefore seem advisable to make the maximum use of industry vehicles in our dealings with government on environmental matters wherever it is possible to do so.

Within the company, environmental concerns are becoming increasingly blended into the fabric of our operations. The balancing of these concerns with economic and other issues remains an important challenge. A few examples of the many ways in which it is planned to cope with these problems include:

1. Reinforce employee awareness and training through the use of a variety of workshops, work error reviews, regular meetings, and training aids.
2. Develop least-cost solutions which are environmentally sound and meet commitments (e.g. noise control, fish toxicity of effluents, biox sludge disposal).
3. Continue planned programs to upgrade facility standards and operating procedures (e.g. agency plants) and reduce or eliminate waste production at the source (e.g. water re-use).
4. Develop specific programs to meet needs (e.g. develop methods, reduce costs, eliminate toxic chemicals, because of new Alberta drilling fluid disposal regulations).
5. Develop expertise in formulating the requirements for and preparing Environmental Impact Assessments.

SECTION III

COORDINATION ACTIVITIES

1. Technical Effort, Expenditures and Budget

Chart
15

The technical effort required to sustain all aspects of the Company's environmental program decreased substantially in 1975 (86.45) compared to 1974 (112), falling back to about the level of 1973 (88). The number of full-time people increased by three, while the large drop came in the number of the part-time category. Almost all of the decrease can be accounted for in the Logistics Department reflecting the completion of a large amount of construction work (Ioco and Sarnia) and project development work (Montreal and Dartmouth) in 1974.

Chart
16

Environmental expenditures on Imperial facilities dropped in 1975 from about \$39 million in 1974 to about \$31 million in 1975. They are forecast to decline further in 1976 to \$27 million, followed by a swing upwards to the \$35 million range by 1978 and beyond. The environmental expenditures for the Syncrude project will peak in 1975 and 1976 in the \$25 to \$30 million range and fall off thereafter. Overall the Company's expenditure will be about \$55 million through 1976 and fall to about \$40 million through 1979.

It should be noted that these forecasts do not include any expenditures for the Taglu Gas Plant, East Coast offshore exploration, or any unexpected impact of the National Air Quality Emission Regulations for refineries currently under negotiation.

2. Industry Activities

APOA and CPA

The Arctic Petroleum Operators' Association had their busiest year providing industry liaison to the \$12 million Beaufort Sea Environmental Program with industry's share being \$4.5 million. The Association additionally had 17 research projects in progress, funded by industry only. The completed cost of these projects is estimated to be \$2.26 million. Guidelines for the Disposal of Drilling Wastes were developed by a government/APOA task force at a cost of \$200,000 to industry.

There was considerable dialogue and some controversy between CPA and PACE with respect to the coordination of oil spill contingency planning and oil spill technology development. This appears to have been resolved by the proposal to have the National Coordinating Committee on Contingency Planning sponsored by and responsible to both associations through a steering committee.

PACE

Chart
17

In 1975, members' involvement in directors' meeting and in work of the ten active committees amounted to the

equivalent of 18 man-years' work time. Progress and positive achievements were made in many areas of the Association's work:

(1) Oil Spill Contingency Planning

The over-all organization and administration of industry oil spill clean-up cooperatives was considerably improved in some areas. Two colour videotape training aids were produced dealing with Contingency Planning and Safety. Field training exercises were conducted for local co-ops in all regions.

(2) Research

In 1975, eight research projects were in progress, costing approximately \$150,000. Five projects which were completed are:

- (a) A rapid bioassay for refinery wastewater.
- (b) Characterization of refinery biosludges.
- (c) Characterization of bulk plant wastewater.
- (d) Reducing bird mortality from oil spills.
- (e) Solving car wash noise problems.

The thrust of the majority of these projects was acquisition of knowledge, either to be able to frame or live more easily with regulations.

(3) Briefs to Governments

The Association prepared or assisted in the preparation of three major briefs to various governments. In all cases, government reaction was favourable to the industry positions taken.

(4) Other Regulation Development

The Air Quality Committee had four two-day sessions with Federal/Provincial/Industry Task Force formed by Environment Canada to develop National Air Emission Guidelines for Petroleum Refineries. This represented only a minor portion of the total effort, as the bulk of work was done in several subcommittees and by the industry members working alone and in their own committee.

The Water Quality Committee worked with Alberta and Ontario government personnel on the development of Refinery Wastewater Guidelines.

The PACE Marine Committee issued an interpretive guideline booklet for the Federal Government's Pollution Prevention Regulations for Oil Transfers. This booklet has been well received by both member companies' terminal employers and large volume customers.

PACE provided considerable technical and advisory support to the provincial and regional petroleum associations on a wide spectrum of environmental concerns.

3. Environmental Quality Committee

The Environmental Quality Committee met six times in 1975. The highlights of the meetings were as follows:

Chart
18

- (1) Legislation, as reported in detail in Section I, from federal and provincial governments occupied a significant portion of the time of the committee.
- (2) In response to government pressure, an oil spill contingency plan was developed for Burrard Inlet, which involved forming an oil spill cooperative with about \$1 million worth of equipment. The Committee endorsed Imperial participation and the Environmental Protection Department coordinated a corporate presentation for Board approval, which was granted.
- (3) A special meeting was arranged to hear a presentation by Environment Canada on the catastrophic tank failure at the Mizushima refinery on the Inland Sea of Japan. About 10 million Imperial gallons of heavy bunker blending stock escaped, resulting in a combined clean-up and damage claim bill of over \$160 million.
- (4) The Committee endorsed the Region Major Oil Spill Response Team organization, which was proposed by the Environmental Protection Department, for adoption and implementation by the Regions.
- (5) The Committee endorsed the establishment of the position of Region Environmental Advisor within each Region. Environmental Protection Department coordinated the preparation of the job description and funding.
- (6) The problem of ground water contamination from leaking underground storage tanks, and government concern about it, was reviewed on several occasions as developments occurred (e.g. Manitoba regulations).
- (7) Waste oil disposal came before the Committee for three reasons: an interest by Canpac Disposals, a study by the Ontario government, and an industry position paper developed by PACE. The federal government delayed the proposed government/industry task force for one year.
- (8) The progress of the Environmental Impact Assessment of the Taglu Gas Plant was reviewed for the information of other departments.

4. Coordination Department Activities

The coordination group represented the company and/or Canadian industry on one international, two API, three PACE, and several other environmental committees of various industry and technical associations. The group presented several technical or policy papers at meetings of these associations.

Leadership was provided in several areas of industry actions, such as chairing the National Coordinating Committee on Oil Spill Contingency Planning, The Burrard Inlet Contingency Plan, response to the Quebec Air Pollution Regulations, appearance before an Ontario parliamentary committee on the Environmental Assessment Act. A seminar was arranged, bringing together federal and provincial government experts with industry representatives on the subject of "Rehabilitation of Oiled Birds".

Considerable assistance was provided to the Production Department with respect to IOL environmental studies in the North, preparation of the application for the Taglu gas plant, and for the Berger Commission Hearings. The staff biologist represented industry on the five marine biology projects included in the Beaufort Sea Environmental Program.

The department advised the Business Development Department regarding environmental studies and operating permit requirements for the Gays River Mine Project.

Directories were compiled with summaries of all environmental legislation and regulations pertaining to each of our five major refineries and two major chemical operations.

Finally, it is gratifying to report that, during 1975, negotiations with TOVALOP and CRISTAL on the recovery costs incurred with respect to the Imperial Sarnia incident culminated in payments to the Company of nearly \$2.0 million. This sum represents the major share of our out-of-pocket costs other than repair of damage to the vessel and loss of use.

WORLD ENVIRONMENTAL PROBLEMS

<u>Where</u>	<u>What</u>	<u>Solutions</u>
IN DEVELOPED COUNTRIES	POLLUTION	LEGISLATION
	- TOXIC CHEMICALS	REGULATION
	- NOISE	TECHNOLOGY
		ETHICS
	CONSERVATION	
	- RENEWABLE RESOURCES	
	- ENDANGERED SPECIES	
	- NATURAL HABITAT	
	- QUALITY OF LIFE	
IN DEVELOPING COUNTRIES	- POVERTY	PLANNED
	- POOR HOUSING	DEVELOPMENT
	- BAD PUBLIC HEALTH	TO AVOID URBAN
	- MALNUTRITION	PROBLEMS OF
	- INADEQUATE EMPLOYMENT	DEVELOPED
	- EDUCATION	COUNTRIES

Chart 2

UNEP ISSUES

1. ENVIRONMENTAL CONTROL OF SHARED NATURAL RESOURCES
 - AIR SHEDS - WATER SHEDS
2. ENVIRONMENT VS. DEVELOPMENT
 - GROWTH WITHOUT ENVIRONMENTAL DAMAGE
3. IRRATIONAL USE AND WASTE OF RESOURCES
 - SOIL, WATER, ENERGY
4. INSTITUTIONAL ARRANGEMENTS
 - MANAGEMENT
5. HUMAN SETTLEMENTS FOUNDATION
 - LACK OF FUNDS

ENVIRONMENTAL BUREAUCRACY

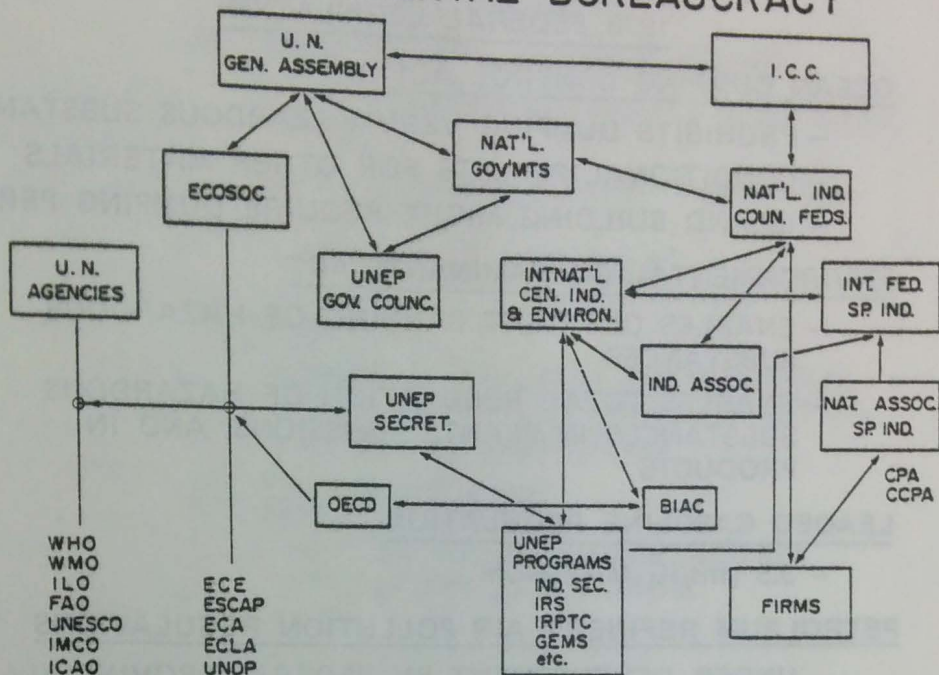


Chart 4

INTERNATIONAL CONVENTIONS COMING INTO FORCE IN 1975

	<u>Year</u> <u>Signed</u>	<u>Name</u>
1.	1969	— INTERVENTION OF SHIPS ON HIGH SEAS IN CASES OF OIL POLLUTION CASUALTIES
2.	1969	— CIVIL LIABILITY FOR OIL POLLUTION DAMAGE
3.	1971	— WETLANDS OF INTERNATIONAL IMPORTANCE TO WATERFOWL
4.	1972	— PROTECTION OF WORLD CULTURAL AND NATURAL HERITAGE
5.	1972	— PREVENTION OF MARINE POLLUTION BY DUMPING OF WASTES
6.	1973	— PREVENTION OF MARINE POLLUTION BY DUMPING FROM SHIPS AND AIRCRAFT
7.	1973	— TRADE IN ENDANGERED SPECIES OF FAUNA AND FLORA

1975 FEDERAL LEGISLATION

OCEAN DUMPING CONTROL ACT

- PROHIBITS DUMPING VERY HAZARDOUS SUBSTANCES
- CONDITIONAL PERMITS FOR OTHER MATERIALS
- ISLAND BUILDING MIGHT REQUIRE DUMPING PERMIT

ENVIRONMENTAL CONTAMINANTS ACT

- ENABLES OUTRIGHT BANNING OF HAZARDOUS SUBSTANCES
- ENABLES TOTAL REGULATION OF HAZARDOUS SUBSTANCES IN PLANTS, EMISSIONS, AND IN PRODUCTS

LEADED GASOLINE REGULATION

- 3.5 gms/IG MAXIMUM

PETROLEUM REFINERY AIR POLLUTION REGULATIONS

- UNDER DEVELOPMENT BY FEDERAL/PROVINCIAL/ PACE TASK FORCE

Chart 6

1975 PROVINCIAL LEGISLATION

ONTARIO

- ENVIRONMENTAL ASSESSMENT ACT - PASSED
- MODEL MUNICIPAL NOISE BY-LAW
- ANTI-NOISE BY-LAW

QUEBEC

- ECOLOGICAL RESERVES ACT - PASSED
- 1ST DRAFT RE - QUALITY OF THE OCCUPATIONAL ENVIRONMENT - VERSION OF OSHA
- 2ND DRAFT REG'S RE - AIR POLLUTION CONTROL
- FINAL REG'S RE - LIQUID WASTE MANAGEMENT

P.E.I.

- ENVIRONMENTAL PROTECTION ACT

SASK., ALBERTA, N.B.

- REG'S RE - AIR POLLUTION CONTROL

ACCOMPLISHMENTS

- (a) EXPLORATION AND PRODUCTION
 - ENVIRONMENTAL IMPACT STATEMENT FOR
 - (i) TAGLU GAS PLANT LAND USE PERMIT
 - (ii) BERGER HEARINGS
- (b) LOGISTICS
 - CAPITAL DEFERRAL ON MONTREAL AND DARTMOUTH PROJECTS WITHIN COMPLIANCE SCHEDULE
- (c) TRANSPORTATION
 - WATER POLLUTION PROTECTION FACILITIES AT 5 PLANTS

Chart 8

ACCOMPLISHMENTS

(Cont'd)

- (d) MARKETING
 - UPGRADED 30 CONSUMER PLANTS
- (e) ESSO CHEMICAL
 - SARNIA — STUDIES ON TREATMENT METHODS TO ELIMINATE FISH TOXICITY AND TAINING
 - REDWATER — REDUCED SO_x EMISSIONS AT SULPHURIC ACID PLANT
- (f) NEW ENERGY RESOURCES
 - COLD LAKE WATER RE-USE STUDY
- (g) BUSINESS DEVELOPMENT
 - PERMIT RECEIVED FOR GAYS RIVER EXPLORATORY DECLINE

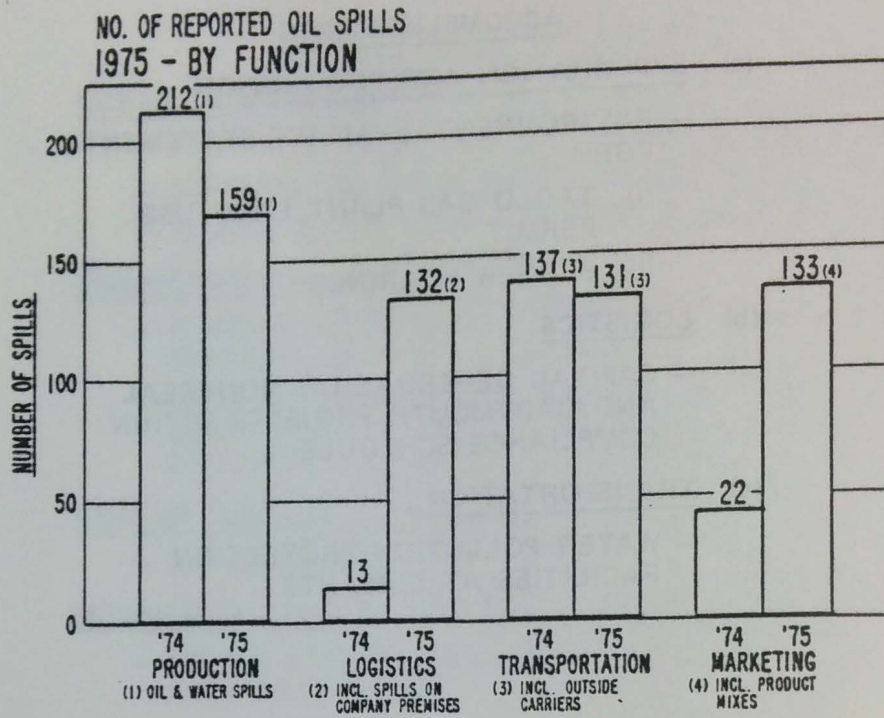
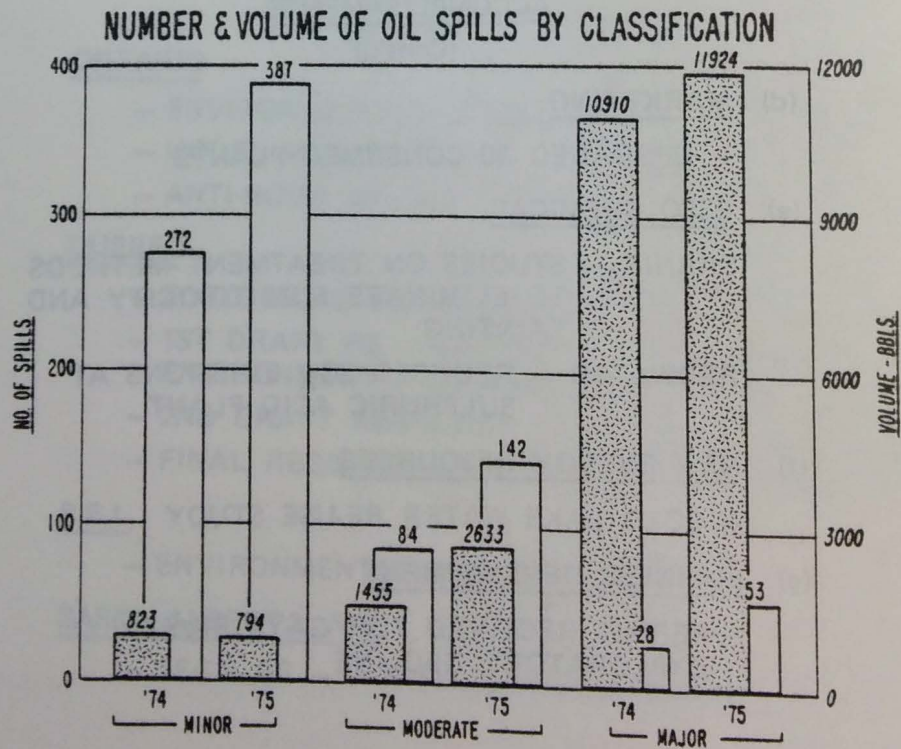


Chart 10



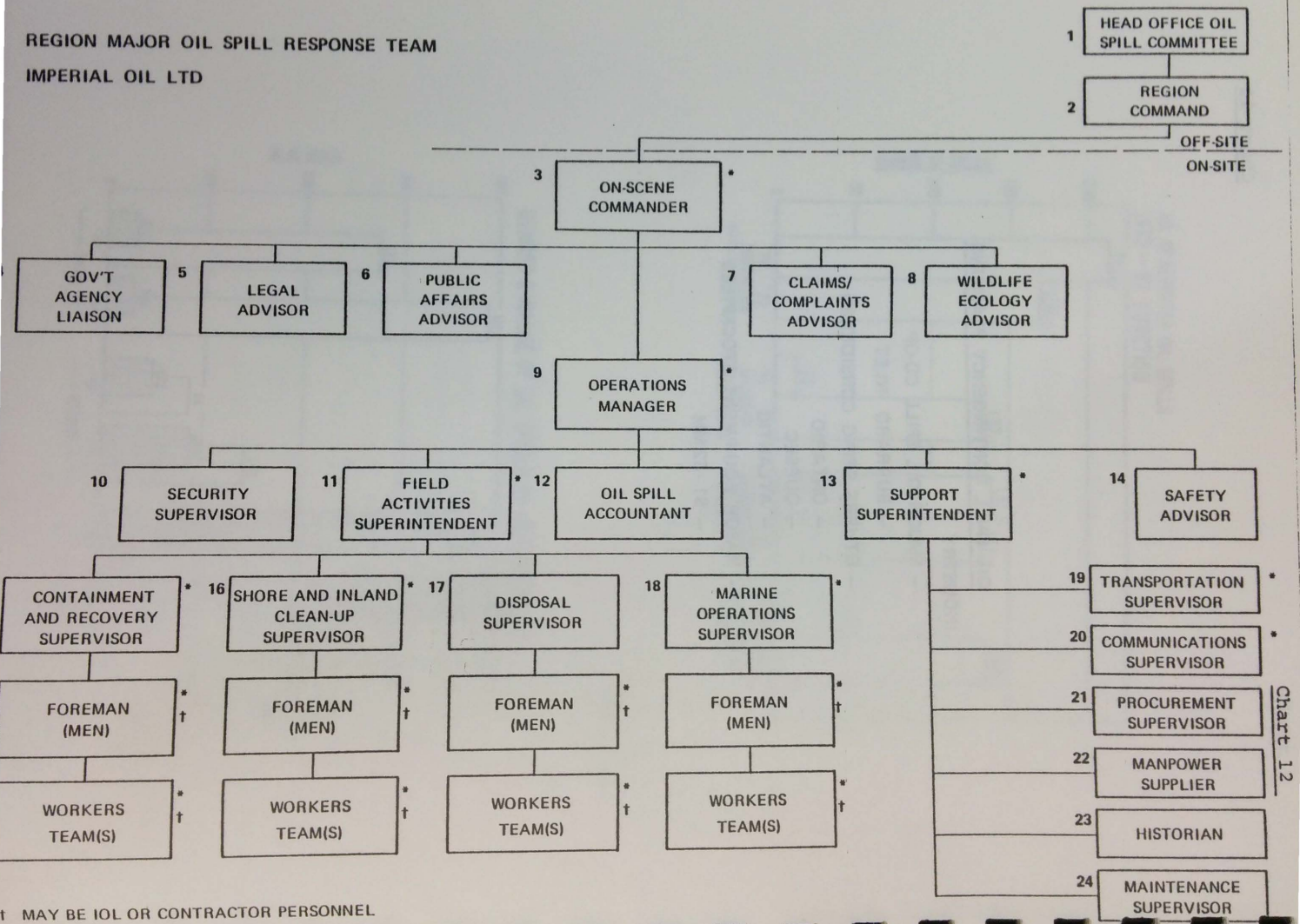
OIL SPILL CONTINGENCY PLANNING

INDUSTRY

- MAJOR OIL SPILL CO-OP
 - BURRARD INLET
- OTHERS BEING CONSIDERED
 - ONTARIO
 - QUEBEC
 - ATLANTIC
- MAJOR EQUIPMENT STOCKPILES
 - \$1 - \$2 MM

REGION MAJOR OIL SPILL RESPONSE TEAM

IMPERIAL OIL LTD



MAJOR PROBLEMS REMAINING

- BLOW-OUT IN BEAUFORT SEA
- PLANNING FOR FUTURE EAST COAST OFFSHORE OPERATIONS
- ENVIRONMENTAL REQUIREMENTS AT REFINERIES
- CLOSED VAPOUR SYSTEM IN DISTRIBUTION
- GROUND WATER CONTAMINATION FROM LEAKING UNDERGROUND TANKS

PLANS

ENVIRONMENTAL CHALLENGE UNDIMINISHED

- UTILIZE INDUSTRY GROUPS
- REINFORCE EMPLOYEE AWARENESS AND TRAINING
- DEVELOP LEAST-COST ENVIRONMENTALLY-SOUND SOLUTIONS
- CONTINUE PROGRAMS TO UPGRADE
 - FACILITY STANDARDS
 - OPERATING PROCEDURES
- DEVELOP EXPERTISE IN HANDLING ENVIRONMENTAL IMPACT ASSESSMENTS

ENVIRONMENTAL MANPOWER SUMMARY
(MAN YEARS)

Department	1973		1974		1975	
	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time
LOGISTICS	11	21	16	36	13	11
EXPLOR./PROD'N	3	18	3	18	6	18
ESSO CHEMICAL	2	10	4	6	5	4.5
TRANSPORTATION	1	4.5	0	3.5	0	3.1
MARKETING	3	4	3	11.5	3	11.5
NEW ENERGY RES.	0	0.1	0	1	-	0.1
REG. ENVIR. ADV.	6	-	5	-	6	-
E.P. DEPARTMENT	3	-	3	-	3	-
RESEARCH	1	0.5	1	1	2	0.25
	<u>30</u>	<u>58.1</u>	<u>35</u>	<u>77</u>	<u>38</u>	<u>48.45</u>
TOTALS	88.1		112		86.45	

EXCLUDES OPERATING MANPOWER

ENVIRONMENTAL EXPENDITURES - \$MM

Department	1975	1976	1977	1978	1979
LOGISTICS	18.5	15.2	11.9	18.1	20.8
EXPLORATION/ PRODUCTION	4.8	5.8	10.7	11.0 ⁽¹⁾	11.0 ⁽¹⁾
ESSO CHEMICAL	4.2	1.8	5.1	4.3	2.6
MARKETING	1.8	2.9	2.4	2.3	1.4
TRANSPORTATION	1.4	1.3	0.9	0.9	0.9
BUSINESS DEVELOP.	-	-	0.4	0.1	0.1
	<u>30.7</u>	<u>27.</u>	<u>31.4</u>	<u>36.7</u>	<u>36.8</u>
NEW ENERGY RESOURCES					
SYNCRUDE	24.9	28.3	9.5	4.3	1.0
COLD LAKE/COAL	-	-	0.3	0.2	0.2
TOTAL	<u>55.6</u>	<u>55.3</u>	<u>41.2</u>	<u>41.2</u>	<u>38.0</u>

(1) DOES NOT INCLUDE ANY EXPENDITURES FOR TAGLU GAS PLANT OR ATLANTIC OFFSHORE DRILLING.

PACE 1975 ACHIEVEMENTS

1. OIL SPILL CONTINGENCY PLANNING ADVANCED
 - ORGANIZATIONALLY AND TRAINING ACTIVITIES
2. FIVE RESEARCH PROJECTS COMPLETED (e.g.)
 - RAPID BIOASSAY OF REFINERY WASTEWATER
 - REDUCING BIRD MORTALITY FROM OIL SPILLS
3. THREE FORMAL BRIEFS TO GOVERNMENTS
 - OTTAWA — AUTOMOTIVE EMISSION STANDARDS
 - QUEBEC — PROPOSED AIR REGULATIONS
 - MANITOBA — CONTROL OF LEAKS FROM UNDERGROUND TANKS
4. OTHER REGULATORY DEVELOPMENTS (e.g.)
 - NATIONAL AIR EMISSION GUIDELINES FOR REFINERIES
 - ANNUAL REVIEWS WITH ENVIRONMENT CANADA SET-UP

ENVIRONMENTAL QUALITY COMMITTEE

1975

1. REVIEWED LEGISLATION
2. ENDORSED PARTICIPATION IN BURRARD INLET OIL SPILL CO-OP
3. MIZUSHIMA OIL SPILL
4. SPONSORED REGION MAJOR OIL SPILL RESPONSE TEAM PROGRAM
5. ENDORSED REGION ENVIRONMENTAL ADVISOR POSITION
6. LEAKING UNDERGROUND STORAGE TANKS
7. ENVIRONMENTAL IMPACT ASSESSMENT

