DRAFT ONLY

POLLUTION FROM LAND USE ACTIVITIES

REFERENCE GROUP

LEGISLATIVE STUDY

INTERIM REPORT NO. 5

EXTRACTIVE OPERATIONS

SEPTEMBER 1976.

CONTENTS*

PART I	FEDERAL CONTROLS
PART II	PROVINCIAL AND LOCAL CONTROLS

*A table of contents precedes each Part, with a Notes section at the conclusion of each Part.

PART I - FEDERAL

TABLE OF CONTENTS

		Page
I.	OVERVIEW	1
II.	GENERAL ENVIRONMENTAL CONTROLS	
	A. Fisheries Act	2
III.	OTHER STATUTORY CONTROLS	
	A. Atomic Energy Control Act	3
IV.	NON-STATUTORY ACTIVITIES	
	A. Environmental Code of Practice for Mines	
	B. Guidelines for the Control of Liquid Effluents from Existing Metal Mines	
	C. Guidelines for the Measurement of Acute Toxicity and the Control of Effluents from New, Expanded and Reopened Metal Mines	5
V.	COMMENT	6
VI.	NOTES	10

I. OVERVIEW

Federal capacity to ensure water pollution control from new, expanded or reopened mining operations will increase with the advent of metal mining liquid effluent regulations under the Fisheries Act. Codes and guidelines associated with the regulations, but with no legal effect in and of themselves, will permit federal environmental agencies to negotiate with mine operators for incorporation of appropriate mine drainage and tailings disposal controls.

Adequacy of federal enforcement staff, the length of time given active and new mine operations to comply and the role of the public in the process, are prospective problem areas with the new provisions.

The approval process for uranium and thorium mining operations that are under the jurisdiction of federal atomic energy regulatory agencies is currently being reviewed to determine the extent of provincial authority to incorporate valid environmental including water quality, constraints consistent with constitutional divisions of power.

II. GENERAL ENVIRONMENTAL CONTROLS

A. Fisheries Act

1. Base Metal Mining Effluent Regulations

a. Purpose and Administration

These proposed regulations under the Fisheries Act are intended to protect fish and other aquatic life from the discharge of deleterious substances in effluents from base metal, uranium and iron ore mines.[1] These controls are regarded as baseline once they come into effect. Where a mine is located in an environmentally sensitive area it may be subject to stricter controls. It is further intended that the regulations, and the accompanying guidelines, discussed below, will ensure that all base metal, uranium and iron ore mines operating in Canada will apply "best practicable technology" to the control of their liquid effluents. BPT is understood to include technology both technically and economically viable. The regulations will be administered by the Environmental Protection Service of Environment Canada.

b. Key Provisions

The regulations apply to every new, expanded or reopened mine, except a gold mine.[1] The regulations further prescribe several substances as deleterious,[2] permit mine operators to deposit such substances into water bodies if the concentrations meet concentrations found appropriate in a schedule attached to the regulation[3] or permit mine operators to deposit such deleterious substances in any quantity or concentration into a tailings impoundment area designated in writing by the Minister.[4] Where a tailings impoundment area is to be constructed in an area which does not include within its boundaries any bodies of water frequented by fish then section 5(2) is not applicable. The Minister would not have to be informed by the mine operator in such circumstances for the purposes of designating a tailings impoundment area. The effluent from such a tailings impoundment area would be required to meet the requirements of section 5(1) if it is being deposited into water frequented by fish. Effluent sampling and analysis from the mine discharge point or points must be made on a periodic basis by the mine operator.[5] Sampling frequency,[6] test methods[7] and reporting requirements[8] are also outlined. Permitted variations in testing, sampling or reporting requirements may be authorized where it is demonstrated to the Minister's satisfaction that alternate procedures will still permit him to determine whether the mine operator is complying with the authorized limits respecting deposit of deleterious substances.[9]

Although not included as part of the regulations requirements for reporting, explanatory notes to the regulations indicate that the Department requires that the following additional information also be submitted: (1) plans and a complete water balance which clearly indicate the manner in which a mine operator proposes to, or has constructed facilities to; minimize the volume of fresh water required in the operation; maximize the recycle and reuse of water and; minimize the volume of effluent deposited (2) information which identifies watersheds either contaminated or uncontaminated, depending on the quality of surface drainage that is to be expected or actually exists within the various watersheds, such information to be in the form of detailed maps of the operation area which indicate the watersheds; direction and volume of all flows that enter or leave the operation area; the location of all receiving water couses; and the location or proposed locations of all known or potential sources of contamination, including ore stock-piles, waste rock dumps, haulage roads, tailings and treatment ponds, and exposed rock containing reactive minerals; and (3) information and plans which clearly indicate the manner in which a mine operator proposes to, or has, constructed facilities to segregate and divert both contaminated and uncontaminated surface drainage, and; collect and treat contaminated surface drainage, where applicable.

III. OTHER STATUTORY CONTROLS

A. Atomic Energy Control Act[10]

1. Atomic Energy Control Regulations[11]

a. Mine Safety Advisory Committee

Safety committees of advisors may be established respecting certain atomic energy disciplines for the purposes or reviewing license applications, and the making of recommendations to the Atomic Energy Control Board.[12]

With respect to mining, a Mine Safety Advisory Committee has been established to advise the AECB on safety aspects of uranium and thorium mining and milling operations, as well as providing advise on the adequacy of safety precautions in uranium and thorium mines and milles licensed by the AECB.

Terms of reference of the committee include evaluation of information contained in pre-licensing reports or post-licensing periodic reports and recommendation of conditions to be imposed in the Board's or AECB's licences or remedial orders.

Recommendations are expected to cover such matters as inspection, monitoring requirements, effluent control and tailings management. The membership of the committee is drawn from experts in mine safety including representatives from federal and provincial government departments and agencies that have an interest in uranium mining. For Ontario, two of eleven members of the committee have environmental expertise.

b. Licensing

No person, unless exempted in writing by the AECB, is permitted to mine for any prescribed substance except in accordance with a licence issued under AEC regulations.[13] Other provisions of the regulations outline broad requirements for licence applications.[14]

The AECB has also prepared a licensing guide and procedure, pursuant to the regulations, which describes the requirements for obtaining a licence to operate a uranium or thorium mine-mill facility.[15]

Compliance with such a licensing guide is not mandatory in whole or in part. However, if an applicant chooses to diverge from a licensing guide or its provisions, he must demonstrate to the satisfaction of the Board staff or advisors that the alternative approach or method adequately fulfills the intent and requirements of the regulations.

There are five stages of approval activity covered in the licensing process: (1) exploration or pre-development (2) site (3) construction (4) operation and (5) abandonment.

The site approval stage would include the siting of the tailings management area, which is critical because of its potential for extensive environmental impact. The licensing guide indicates that the site approval stage is where an appropriate environmental assessment and review would take place. The description of what should be included in the site phase report includes the route and destination of runoff from the mine-mill site with special reference to periods of heavy rain or thaw; the susceptibility of the area to flooding; the ability of the ground and surface water environment to disperse, dilute or concentrate accidental releases of liquid radioactive or chemically toxic effluents respecting existing or potential water users; and a program for monitoring effluents and receiving water quality during operation of the facility.

The licensing guide further notes that a condition of an operating licence is the submission of an annual report. The purpose of such a report is to summarize the performance and operation of the mine-mill facility and associated waste management facilities, to describe any changes in procedures, and to report the occurrences of events of significance respecting public safety.

IV. NON-STATUTORY ACTIVITES

A. Environmental Code of Practice for Mines[16]

The Code is a technical document. It outlines what the Environmental Protection Service regards as good practice in design and operation to minimize water pollution. The Code applies to industrial liquid effluents and waste rock and mill tailings resulting from base metal, uranium and iron ore mining and milling operations. It is intended as a guide for professionsls in meeting their environmental control responsibilities and emphasizes pollution control practices that should be considered at all stages of mine-mill development from initial planning to abandonment. Areas covered include minimization and treatment of water borne wastes, including mine and surface drainage, waste rock and mill tailings disposal monitoring, contingency planning and rehabilitation.

The Code was prepared to indicate methods and practices which should be followed to meet both the intent and substance of the environmental regulations on Metal Mining Liquid Effluents. It is of no legal effect, though it can be adopted in whole or in part by government agencies responsible for regulatory water pollution control from mining operations.

B. Guidelines for the Control of Liquid Effluents from Existing Metal Mines[17]

These guidelines are without legal effect. They are not regulations, which as law, must be complied with. These guidelines instead describe the practices that should be followed by mine operators for the purposes of bringing their operations up to a state of performance that would not bring them into conflict with the general water pollution provisions of the Fisheries Act.

These guidelines are to be used to permit the Environment Minister to negotiate with mine operators on the implementation of a compliance schedule respecting such items as tailings and waste rock disposal and minimizing contaminated surface drainage in addition to planning, monitoring and reporting matters.

C. Guidelines for the Measurement of Acute Toxicity and the Control of Effluents from New, Expanded and Reopened Metal Mines[18]

As guidelines, these measures are also without specific legal effect. Violation of these guidelines is not an offence in and of itself. Explanatory notes to the guidelines indicate that the procedures and practices outlined have been designed

to permit the Minister and the mine operator time to negotiate and implement a compliance schedule. The guidelines are silent on the role of any third parties, such as the general public, in such negotiation. The Fisheries Act itself is also silent on the role the public would have in any pollution negotiations.

Provisions of these guidelines concern acute toxicity testing procedures respecting fish, as well as minimization of contaminated surface runoff, control of tailings and waste rock disposal and planning respecting tailings impoundments, ore stockpiles and waste dumps.

V. COMMENT

Because the mining regulations, codes and guidelines have not yet come into effect, it is not possible to evaluate their effectiveness in meeting water quality concerns respecting metal mining operations.

The guidelines and code of practice define the principle practices and procedures for minimizing water pollution from surface mine drainage and tailings impoundment areas. As noted above, they are without legal effect, in part because there is a perceived need for the government and mine operators to have sufficient time to negotiate and implement a compliance schedule. Such a schedule is an agreed upon time period in which a comprehensive effluent control program can be designed and constructed.

Fish toxicity requirements are also expressed as a guideline rather than a regulation because at the time the standards were developed, it was not certain that the effluents from all mines meeting the prescribed concentration limitations would also pass the toxicity test.[19] (The toxicity test involves exposing trout to effluent samples under controlled conditions. The guidelines require that more than 50 per cent of the fish survive through the period of the test.)

Because negotiation respecting compliance is necessarily done on an individual case by case basis, fluctuation in local conditions, length of time needed to comply and the mix of controls agreed upon may be expected. Thus, while the code of practice and the guidelines express uniform standards and controls, the negotiation process may result in lack of uniformity. Whether the failure to achieve uniform approaches will still result in adequate water pollution control under the new standards is not answerable until experience with the standards is obtained.

The mining industry has long argued that the diversity of mining activities and local environmental conditions is so great that it is undesirable or even harmful to consider a rigid standardized control program for all mines. The industry also argues that a strict standards program would be harmful to both the environment and the mining industry as well as being a

discouragement to development of new methods and equipment. It thus concludes that each existing or proposed mine with its associated facilities must be examined in relation to the actual local environment to arrive at a practical arrangement.[20]

The federal government's imminent regulatory program for metal mining operations has, with some exceptions, adopted this position. As such, it would appear that the federal government's prospectively more active pre-development approval posture would have to be supported by appropriate inspection, monitoring and enforcement. This would, accordingly, require far more federal staff in Ontario than is currently the case.

Traditionally in Ontario, however, because of constitutional divisions of power, and more recently because of availability and deployment of staff, the Fisheries Act has been administered by the province. This has served to place in one set of regulatory hands responsibility for fisheries protection (under the British North America Act s. 91(12) a federal responsibility) and water pollution control (a provincial matter arising out of general sections of the BNA Act respecting property s. 92(13), local matters s. 92(16) and natural resources s. 109). Because of this administrative arrangement, the Fisheries Act as a water pollution prevention mechanism in Ontario has, with some exceptions, fallen into disuse. The province has its own water pollution control legislation, and as such it generally has not utilized the older, narrower federal legislation. Thus, the Fisheries Act, in theory, always applicable to water pollution by mining operations (at least as they effect fisheries) has not been used in Ontario for such purposes in recent memory. The Act has been used against mining operations in other provinces where it has remained within federal administration.[21] What arrangements have been made for expansion of federal staff or delegation to the province of responsibility for the mining regulations, guidelines and code of practice are unknown at this time.

It is submitted that the proposed federal standards or provisions need clarification in the following respects. For example, with respect to testing, sampling and reporting requirements and permitted variations thereon, the regulations and other federal materials are silent on the public availability of such periodic reports. Also public input into any government/mine operator negotiations respecting methods, procedures, prescribed concentrations or alternatives which may be permitted or authorized is not outlined in any federal materials. Nor is any mechanism set up in the regulations or other federal materials for indicating on what timetable additional deleterious substances must be incorporated into the regulations, nor is any mechanism indicated for a public capacity to require consideration of such matters. (Explanatary notes to the regulations indicate that other deleterious substances which have not been prescribed as yet include mercury, cyanide and oxidizable sulphur compounds.)

It is further submitted that the unextinguished common law right of any citizen to privately prosecute a violator of legislation[22] will be severely effected if such information is not available to the public. Indeed, it may be said that the effect of the proposed regulations in not authorizing or permitting the availability of such information to the public is to extinguish that common law right to the extent such lack of information results in the unavailability of sufficient evidence to properly prosecute a case. Moreover, this extinguishment of a common law right has occurred by administrative not legislative action. It is submitted that only Parliament may extinguish rights of this nature by considering the matter in a properly constituted bill directly addressing itself to the issue.

Uranium and thorium mining controls under the AECB licensing process are also under review. Currently, AECB licences frequently indicate that the mining applicant will be expected to comply with all provincial and federal pollution control regulations which are not inconsistent with the Atomic Energy Control Act and regulations.[15] In the past this has meant that provincial environmental agency approvals have preceded AECB approvals. However, Ontario environmental agency officials have recently come to doubt the validity of provincial approvals in an area of exclusive federal jurisdiction.[23] Recent judicial decisions indicating that local by-laws cannot prevent the establishment of federal facilities (e.g. airports) have been a substantial basis for the view taken by Ontario environmental agency officials.[24] This has especially been true where the works have been designated by Parliament as works for the general advantage of Canada.[25] Parliament has so designated nuclear facilities which would include uranium and thorium mining operations.[26]

Provincial officials would like to see the current approvals process reversed. That is to say, an AECB approval first and a provincial environmental approval thereafter. In order to be intra vires (within the power of) the province, the AECB approval under the AEC Act would have to aid or provide for provincial approval as a further condition the mining operator would have to meet. However, while the provincial approval could probably add terms and conditions which would have to be met by the mining operator, whether a provincial environmental approval could be so stringent as to amount to a virtual rejection of the project is problematic in the face of exclusive federal jurisdiction.

For example, the province has recently indicated its intention to hold a public hearing before its newly constituted Environmental Assessment Board respecting a three-fold expansion of uranium mining in the Elliot Lake area. The proposed expansion has been spurred by increased world prices for uranium.[27] The companies involved in the expansion have

agreed to prepare an environmental assessment dealing with such areas as tailings drainage and runoff which have been local area problems in the past from such facilities. The companies preference currently, however, is for approval of a deep water disposal site for radioactive tailings.

Costs and physical land available for the reception of the estimated tailings tonnages have been factors in the companies' preference for a deepwater site it is understood. However, provincial environmental research on tailings disposal indicates that when mineral tailings are directed to a properly engineered land storage site, maximum environmental control is possible. Only a moderate degree of environmental control is possible at land-water tailings disposal sites. Minimum opportunities for environmental control are found to exist by deepwater tailings disposal.[28] Whether provincial government insistence on a land disposal site would jeopardize the proposal and come into conflict with the federal (AECB) mandate is illustrative of the current jurisdictional dilemma.

AECB officials also indicate that there may be some question as to whether the AECB under the current Act could condition, reject or revoke a mining or other licence for exclusively environmental, including water quality, reasons.[29] The AEC Act permits the AECB to do or order that all things be done respecting the health, safety and security of the public. While many environmental matters could be subsumed under health, safety or security, AECB official believe that a substantial aspect of environmentally appropriate considerations might not be deemed to be caught under any of those three headings. Amendments under the Act to better define the involvement of environmental regulatory agencies respecting standards, surveillance and related matters are currently being considered.

The AEC Act does not require the holding of public hearings by the AECB before it decides on licence applications or revocations. Hearings could be held under the Environmental Assessment and Review Process of the federal department of Environment. However, as described in previous reports, regulatory agencies under legislative mandate, such as the NEB, CTC and the AECB are the final arbiters of the nature and type of constraints they will impose, if any, on an applicant.[30]

NOTES

1. s.3
2. s.4 These include arsenic, copper, lead, nickel, zinc, total suspended matter and radium 226.
3. s.5(1)
4. s.5(2)
5. s.6
6. s.7
7. s.8
8. s.10
9. s.11
10. R.S.C. 1970, c. A-19 as amended. Principal sections discussed in previous reports.
11. S.O.R./74-334. Principal provisions discussed in previous reports.
12. s.16
13. s.3
14. s.7
15. Atomic Energy Control Board. Guide to the Licensing of Uranium and Thorium Mine-Mill Facilities. No. 31, August 1976. (Final Draft).
16. Environment Canada. November 1975. (Draft).
17. Environment Canada. October 1975. (Draft).
18. Environment Canada. October 1975. (Draft).
19. T.S. Munro, Environment Canada. "Development of federal environmental protection requirements," The Northern Miner, April 22, 1976.
20. L.S. Price, Falconbridge Nickel Mines Limited. "Changing the environmental impact on mining," The Northern Miner, April 22, 1976.
21. See J. MacLatchy, Environment Canada. Case Law: Prosecutions Under the Pollution Control Provisions of the Fisheries Act, September 1976.
22. See S.H. Berner, Private Prosecution and Environmental Control Legislation: A Study. (1972) Commissioned by Environment Canada.
23. Interview with J.N. Mulvaney, Director, Legal Services, Ontario Ministry of Environment, Toronto, September 13, 1976.
24. See Orangeville Airport Limited v. The Corporation of the Township of Caledon (1975) 9 O.R. 2d 7 (Ontario Divisional Court and Court of Appeal) and; Johanneson v. West St. Paul (1952) 1.S.C.R. 292 (Supreme Court of Canada).
25. Following the British North America Act, 1867 s.92(10)(c) an area normally of exclusive federal jurisdiction.
26. Supra note 10, section 17. This would also include radioactive waste management facilities and nuclear reactors.
27. Ontario Ministry of the Environment, News Release. "Public Hearing on Expansion of Elliot Lake Uranium Mining," September 23, 1976.
28. Ontario Ministry of the Environment. Tailings Disposal: Recommendations for Site Selection (1976).
29. Interview with M. Duncan and A. Dory, Mining Licensing Directorate, Atomic Energy Control Board, October 5, 1976, Ottawa.
30. See, Report No. 4 Transportation Corridors. Part I. September 1976.

PART II - PROVINCIAL AND
LOCAL CONTROLS

TABLE OF CONTENTS

		Page
I	OVERVIEW	1
II.	GENERAL ENVIRONMENTAL CONTROLS	2
A.	Ontario Water Resources Act	2
B.	Environmental Protection Act	3
C.	Environmental Assessment Act	3
III.	OTHER STATUTORY CONTROLS - PROVINCIAL AND LOCAL	4
A.	Pits and Quarries Control Act	4
B.	Mining Act	8
C.	Petroleum Resources Act	10
D.	Beach Protection Act	10
E.	The Planning Act and Local Control	11
F.	The Municipal Act and Local Control	11
IV.	NON-STATUTORY ACTIVITIES	12
A.	Ministry of Environment Guidelines for Mining Operations	12
V.	COMMENT	13
VI.	NOTES	29

TABLES

Table #		Page
1.	Ontario Ministry of Natural Resources Licensing of Pits and Quarries	16

MAPS

Map #		Page
1.	Regions and Offices of the Ontario Ministry of the Environment	14
2.	Regions and Administrative Districts of the Ontario Ministry of Natural Resources	17

I. OVERVIEW

The Ministry of the Environment has the principal responsibility for water pollution control from mining, pits and quarries and related activities. However, responsibility for ensuring that some facets of mining and pit and quarry operations are controlled which might otherwise result in water quality degradation(e.g. security deposits to ensure that rehabilitation takes place) is vested in other provincial agencies. Generally, such security deposits have either been insufficient or under utilized to effect appropriate rehabilitation.

Abandoned mines are regarded as the principal environmental problem in the mining industry. A provincial government program is being developed to deal with this problem though remedial measures on unowned mining property are expected to cost in the millions of dollars.

Existing mining operations are sometimes subject to ministerial order to bring their operations up to appropriate standards. Often extensions to these orders are given which lengthen the time required to comply. These extensions are based on arguments of available technology or the economic situation of the operator. However, members of the public are not legislatively authorized to be involved in such negotiations in order to test such industry assertions.

Some jurisdictional conflict might also be possible between MOE approval powers and the authority vested in the Mining Commissioner to grant land and water easements to mining companies. While administrative arrangements could solve this problem, a legislative solution would appear preferable in order to ensure a measure of certainty that such easements are circumscribed by appropriate environmental controls.

A survey revealed that many pit and quarry operations are operating in areas of the province to which the principal provincial legislative control does not apply. In such areas, less comprehensive control is possible through other provincial or local mechanisms.

While municipal capacity to control the location and management of pit and quarry operations may be severely restricted in future if a provincial working group's recommendations are implemented, area municipalities may still be able to exercise a measure of control, at least at the approvals stage, by utilizing regional government mechanisms and conditions. Such conditions could include measures for water pollution control where appropriate.

II. GENERAL ENVIRONMENTAL CONTROLS

A. Ontario Water Resources Act[1]

1. Administration

The Industrial Approvals Section of the Ministry of Environment is responsible for assessing the technical adequacy of all applications from industry, including the mining industry, with respect to all facets of the environment including water quality. The Industrial Abatement Sections of each regional office of the Ministry are responsible for protection of the environment from emissions and land/water contamination problems from industrial processes. The Technical Support Water Resource Groups of each regional office of the Minstry of Environment are responsible for monitoring the quality and quantity of water within the region; responding to complaints on water quality or interference and establishing a network of surface and groundwater stations for determining water quantity and quality. Analyses are also performed on the impact of development on water quality and quantity; and recommendations are made on what is required to minimize or correct environmental degradation.

2. Key Provisions

a. Water Taking Permits

The Act authorizes the Ministry of Environment to require a water taking permit from any person who intends to take more than a total of 10,000 gallons of water in a day by means of well, inlet supplies or diversion structures or works constructed for that purpose.[2] The Ministry or a designated Director of the Ministry is authorized to issue or cancel such permits, impose terms and conditions before issuance or alter such terms and conditions of a permit after it is issued.[3] Where the taking of water interferes with the use and interest of other people in the water, the person responsible for the water taking is prohibited from such further activity without a permit issued by the Ministry.[4] Flowing or leaking water from a permitted well, diversion or other work that interferes with another public or private interest in the water, may be required to be corrected to the satisfaction of the Ministry.[5] Contravention of the above provisions is an offence and upon summary conviction liable to a fine of not more than $200 for every day that the contravention continues.[6]

b. Approvals

Plans for drainage, storm water and industrial waste works must be submitted to the Ministry of Environment for approval prior to the undertaking or commencement of such works.[7] Mining activities are included under such procedures. Where such works are undertaken without prior Ministry approval, the Ministry or a designated Director is authorized to require the person to undertake changes in the works or their location to the Director's satisfaction to correct any effluent discharge problems. Such works must be carried out at the person's expense.[8] The Act also authorizes the Ministry or a Director designate to approve with terms and conditions, or reject such sewage or drainage works where in his opinion it is in the public interest to do so.[9] Where any person (1) fails to comply with a Ministerial order,[10] or (2) contravenes any terms and conditions of a Ministerial approval[11] he is guilty of an offence and on summary conviction is liable to a fine of $500 for every day upon which the default or contravention continues.[12] Section 42 approval requirements do not apply to sewage or drainage works where the sewage will not drain or be discharged directly or indirectly into a ditch, drain or storm sewer or a well, lake, river, pond, spring, stream, resevoir or other water or watercourse.[13]

c. Directives for Existing or Additional Works

The Ministry or its Director designate is authorized to require an industrial or commercial enterprise to (1) make investigations and submit reports (2) install appropriate collection, transmission, treatment or disposal of sewage facilities (3) and maintain them where the existing facilities are considered unsatisfactory by the Ministry,[14] or where no arrangement for such facilities has been made.[15] An industrial or commercial enterprise that contravenes a direction or requirement of the Ministry or its Director designate is guilty of an offence and on summary conviction is liable to a fine of not more than $200 for every day the contravention continues.[16]

B. Environmental Protection Act[17]

1. Waste Management Regulations[18]

Rock fill and mill tailings from mines are designated as wastes[19] and exempted[20] from the provisions of the Waste Management Part of the EPA and the regulations.

C. Environmental Assessment Act[21]

This Act is to be implemented in stages. It will first apply to the public sector both provincial and local, except where exempted by order or regulation,later it will apply to the private sector

where so designated. Recent exemption orders issued by the provincial cabinet have exempted for the time being an otherwise undefined process known as "mineral management" on public lands as carried out by and for the provincial Ministry of Natural Resources.[22] It is also understood that a provincial government committee known as the Ontario Mineral Aggregate Working Party, created to review the current government regulation of pits and quarries operations and propose legislative changes to the Minister of Natural Resources, will likely recommend that pits and quarries operations be exempted from the provisions of the Environmental Assessment Act.

III. OTHER STATUTORY CONTROLS - PROVINCIAL AND LOCAL

A. Pits and Quarries Control Act[23]

1. Purpose and Administration

The Act provides for the regulation of pit and quarry operations in designated parts of Ontario.[24] Operations in designated areas must be licenced under the Act and are subject to periodic review to assure compliance with the provisions of the Act, the regulations and the site plan. The Act is administered by the Industrial Minerals Section of the Ministry of Natural Resources. The Section's function in administration of the Act includes (1) consultation and guidance to the Ministry's field offices which through their pits and quarries inspectors, are responsible for implementing the requirements of the Act, and (2) processing applications for, and renewals of, pit and quarry licences received through the field offices for recommendation to the Minister.

2. Key Provisions

a. General Obligations of Pit and Quarry Operators Where Act is Designated Applicable

Where this Act is in force through township designation, six months after such designation no person is permitted to open, establish or operate a pit or quarry except under the authority of a licence issued by the Minister of Natural Resources to the operator.[25] A pit or quarry operator must carry on his operations in accordance with the sit plan upon which his licence is based. The site plan may be amended by the operator with the consent of the Minister.[26] The pit and quarry operator is under a further duty to ensure that the requirements of the Act and regulations are complied with.[27] No quarrying is permitted in certain geologic formations of rock at any point nearer to the natural edge of the Niagara escarpment than 300 horizontally measured feet, not withstanding the issuance of a permit or licence under the Act.[28] One month after township designation, the Act applies to a wayside pit or quarry, and no person may open, establish or operate such a site without a permit

from the Minister.[29]

b. Licensing, Site Plan Control, Notice and Hearings

Applications for licences to operate a pit or quarry must be filed with the Minister and be accompanied by a site plan.[30] The site plan must include a description of the lands to be disturbed,[31] existing and anticipated final grades of excavation, contours and set backs,[32] drainage provisions,[33] ultimate pit development, including progressive and ultimate road plan, water diversion or storage, location of stockpiles for stripping, tree screening and berming, progressive and ultimate rehabilitation[34] and progressive pit development and ultimate rehabilitation.[35]

An applicant for a licence to establish a new pit or quarry operation must give public notice of his application.[36] Where a pit or quarry was operating immediately before the date when the area where it is located is designated by regulation, no public notice of the receipt of the application nor public hearings as to whether or not or on what terms and conditions it should be issued need be held.[37] When the Minister receives an application for a licence to establish a pit or quarry, he is required to fix a day as the last day upon which written objections may be filed with him by the municipal council or any other authority having an interest or any person directly affected by the issuing of a licence.[38] If any person entitled to object under s. 5(1) requires a hearing by notice in writing to the Minister before the expiration of the period for objection, the Minister is required to refer the matter to the Ontario Municipal Board for a hearing.[39] The Minister may refer an application to the OMB for a hearing on his own motion as well.[40] The OMB must hold a public hearing on the application upon reference to it by the Minister.[41]

The Minister is required to refuse to issue a licence to operate a pit or quarry where the site plan does not comply with the Act or regulations or where, in his opinion, the operation of the pit or quarry would be against the interest of the public taking into account, (a) the preservation of the character of the environment; (b) the availability of natural environment for the enjoyment of the public; (c) the need, if any, for restricting excessively large total pit or quarry output in the locality; (e) any possible effect on the water table or surface drainage pattern; (f) the nature and location of other land uses that could be affected by the pit or quarry operation.[42]

In at least one case, the OMB has applied the above criteria in its own consideration of an application to rezone land to allow the operation of a gravel pit. Application of the above criteria, including consideration of adverse impact on the local water table, resulted in rejection of the proposed rezoning.[43]

The Minister is also required to reject a licence for a pit or quarry where the location is in contravention of an official plan or by-law of the municipality where it is located.[44] Recent case law interpretation of this provision, as well as provisions from the Planning Act[45] and the Municipal Act[46] have complicated section 6(2). The apparent meaning of s.6(2) of the Pits and Quarries Control Act as interpreted by the Uxbridge v. Timbers Bros. Sand and Gravel LTD.[47] decision is that if a municipality has only an official plan and it purports to prevent the operation of a pit or quarry at a location desired by an applicant, the Minister is prohibited from issuing a licence. But where the official plan does not make clear that it prohibits the operation of pits and quarries in any particular part of the municipality, and the municipality only has a by-law that specifically prohibits the establishment of making of pits or quarries,[48] the Minister is only prevented by s. 6(2) of the Pits and Quarries Control Act from issuing the licence to new operations. The Minister would not be barred from issuing a licence to pre-existing operations.[49]

Where a local municipality does not have an official plan or by-law governing the location of pits and quarries, the Minister is required to give the municipal council notice of the filing of the application. If the council objects to the location of the pit or quarry within forty-five days after receiving the notice, the Minister is barred from issuing a licence. No public hearing is required in such instance.[50]

Where a licence is issued by the Minister it may be issued subject to terms and conditions.[51]

An applicant notified by the Minister of his intention to refuse a licence may require a hearing before the OMB within 30 days of the notice. The Minister may refuse the application where no hearing is requested by the applicant after the 30 day period.[52]

Following an OMB hearing requested by the Minister or the applicant, the OMB must make a report to the Minister.[53] The Minister's decision is final.[54]

c. Licence Review and Revocation

The Minister is authorized (required) to review the operation of each licensee annually for the purpose of reassessing the licensee's compliance with the Act, regulations, site plan and terms and conditions of the licence. The Minister is authorized (at his discretion) to revoke a licence for a contravention of any provision of the site plan, any term or condition of the licence or any requirement of the Act or regulations.[55] Notice and the opportunity for an OMB hearing are available to the licence holder.[56] The Minister may also make an interim suspension of the licence where in his opinion the operation of the pit or quarry constitutes an immediate threat to the public interest.[57] If no hearing is required by the licence holder within 30 days of Ministerial notice

the Minister may then proceed to revoke the licence.[58] In holding a revocation hearing[56] the OMB may consider matters not directed to it by the Minister, including environmental matters.[59]

d. Offences, Penalties and Restraining Orders

Every person who violates any provision of the Act, regulations or is in breach of any term or condition of his licence or permit is guilty of an offence and on summary conviction liable to a fine not to exceed $5,000 for each day on which the offence occurs or continues.[60] No prosecutions may be instituted without the consent or under the direction of the Minister.[61] This provision alters the unrestrained common law right of any person to prosecute for violations of legislation.[62]

The Minister is also authorized to apply to a judge of the High Court for an order directing any person not complying or not intending to comply with the Act or regulations, to comply with such provision. The judge, upon application may make such order deemed fitting.[63] An appeal from such order lies to the Supreme Court of Ontario.[64]

e. Regulations on Operation and Rehabilitation[65]

The pit or quarry operator is required to deposit a security equal to 2 cents per ton of material removed from the pit or quarry property in the previous calendar year.[66] These monies are to meet requirements in the Act respecting rehabilitation of active and abandoned pit and quarry operations.[67] Where the operator has carried out progressive rehabilitation he is entitled to refunds from the security deposit, through the operator is not entitled to reduce the amount payable to less than $100 for each acre requiring rehabilitation.[68]

Every operator of a pit or quarry[69] or wayside pit or quarry[70] has a duty, where possible, to rehabilitate the site while the pit is operating. Existing top soil must be maintained in sufficient quantity and condition to permit the growth of vegetation adequate to bind the soil and to prevent erosion. Such top soil must be replaced in excavated areas and other areas designated in the site plan, and must be planted with the appropriate trees, shrubs, legumes or grasses.[71]

Every operator of a pit or quarry or wayside pit or quarry must stockpile sufficient existing top soil, stripping or fill to facilitate rehabilitation of the site.[72] Such stockpile must have stable slopes and seeding so as to prevent erosion.[73] Where earth berming instead of trees is used as a screen for the excavation site or sites the earth berm must be seeded to prevent erosion.[74] Where the Minister permits the operating of a pit or quarry to within

fifty feet of the road allowance of a highway instead of the normal one hundred feet, the operator must be responsible for a program of progressive rehabilitation of that additional fifty foot right-of-way.[75]

All perched ponds[76] which may be a hazard to life must be drained to the lowest level of the land in the pit or quarry excavation.[77]

B. Mining Act[78]

1. Purpose and Administration

The Act on Crown mining lands is administered by the Mining Lands Section of the Ministry of Natural Resources. The Section is authorized to manage Crown mining lands by ruling on and issuing licences relating to exploration and drilling for, and the production of, minerals and oil and natural gas; as well as issuing permits for sand and gravel removal. The Mining Commissioner is authorized to grant orders respecting easements and similar rights over land; and awarding compensation for interference with surface rights. The Act is directed principally toward the regulation and facilitation of mining operations in the province. The Mining Lands Section is also responsible for protection and rehabilitation of such lands.

2. Key Provisions

The Mining Commissioner is authorized to grant a mine or quarry operator the right to: discharge water upon any land or by, through or into any existing means of drainage whether natural or artificial[79]; drain off, lower or divert and use any specified water, notwithstanding that the water or part thereof may be on land of or owned by any other person[80]; collect and dam back water, notwithstanding that it may overflow other land[81]; and deposit tailings, slimes or other waste products upon any land, or to discharge the same into any water, provided the deposit or discharge is not injurious to life or health.[82] These rights may be granted subject to a provision for compensation for any injury caused.[83] Re Faraday Uranium Mines and Arrowsmith[84] is authority for the proposition that once the Mining Commissioner grants an application to a mine operator for an easement under section 645, the Commissioner's order has the effect of ruling out, depriving or superceding individual land/water owner's common law rights to the remedy of injunction for prospective or actual damages or injury suffered, and substituting compensation instead. In this case, land owners abutting a lake[85] argued unsuccessfully before the Mining Commissioner that the mine operator's application for an order permitting

it to continue to deposit mine tailings into a compound on its own land be denied because the overflow from the compound was already entering a stream flowing into the lake where they resided, resulting in alleged water pollution harmful to their health. On appeal, the Court of Appeal held that where government water quality and health experts agree that no injury to life or health has occurred the mining company has discharged its responsibility and no injunction, will lie against its operation, though it must pay adequate compensation. Should government agencies upon continuing lake monitoring find subsequent land, water or health damage or injury, the recourse of the landowners is to apply to the Mining Commissioner for a revision of his order at such time.[86]

The above notwithstanding, mining companies would still have to comply with the water quality provisions of the Ontario Water Resources Act.[87] This would include the requirement of obtaining a certificate of approval from the Ministry of Environment prior to start up for mining discharges or drainage works into or near water. For example, in R. v North Canadian Enterprises LTD.[88] a mining company was convicted for violating the general prohibitory sections of the OWRA respecting wacer quality preservation, when its tailing dam or impoundment area burst during a heavy rainfall, causing mining effluent to escape into nearby creeks and watercourses. The company's defence that the bursting of the dam by heavy rainfall was an Act of God was rejected by the court in that precautions normally associated with areas of heavy rainfall were not taken by the company. Moreover, the company also argued that although no formal approval, was received for the construction of the dam,[89] the Ministry, through acquiescence and passivity, gave tacit approval of the construction and manner of operation of the tailings dam. The effect of the tacit approval, the company argued, was to bring the company under the protective statutory immunity provisions of the OWRA.[90] That is, the company argued that it could not be prosecuted for adhering to the tacit approval the Ministry appeared to give to the company's constructing the tailings dam and operating it without a Ministerial certificate. The court rejected this argument as well since there was evidence that the Ministry had attempted to get the company to obtain the appropriate approvals though it had not instituted legal action for the company's failure to do so.[91] The court noted, however, that a tacit Ministerial approval could have been construed had the Ministry done nothing. In the instant case, the Court held that a statutory immunity from prosecution only lies where the defendant mining company's sewage works are constructed at the direction of the Ministry and maintained and operated in conformity with the order or orders of the Ministry.[88,92]

Thus, the above Mining Act provisions must be read together with the OWRA provisions and cases arising therefrom. It should be noted that the general provisions of the Environmental Protection Act[93] would also be applicable to mining activities authorized under the Mining Act.

Other provisions of the Mining Act require brinewell operators to take precautions so that brine is not allowed to escape[94]; mining companies on government leases must observe several conditions including not doing any act that would result in damage to fish or the fishing industry[95]; and dredging operators must obtain licences before removing valuable or precious minerals.[96]

Fines for breach of such provisions are only set at $20 for every day upon which an offence occurs or continues.[97] Moreover, private prosecutions for breaches of Mining Act provisions cannot be launched except with the permission of the Ministry of Natural Resources or the provincial Attorney General.[98]

C. Petroleum Resources Act[99]

D. Beach Protection Act[100]

1. Purpose and Administration

The Mining Lands Section of the Ministry of Natural Resources is responsible for administration of this Act. The Act provides for the removal of sand or gravel from the bed, bank, beach, shore or waters of any lake, river or stream for commercial operations. Licences are required and licensees may be required to pay a fixed sum per cubic yard of sand removed from Crown property. Before licences are issued, field investigations are made in coordination with other Ministries respecting erosion and related matters. The Mining Commissioner is authorized to hold hearings and make reports respecting the refusal and cancellation of licences issued under the Act.

2. Key Provisions

No person may remove sand, earth, gravel and stone from any bed, beach, shore, waters, bar or flat on any lake, river, stream, channel or entrance to any such body of water, without a licence from the Minister of Natural Resources.[101] The prohibition of the removal of sand applies to persons who own the land on which the material is removed as well. The prohibition does not apply to municipalities removing sand for municipal use nor to a bona fide Ontario resident removing sand for his personal use and not for resale or for use for commercial purposes. However, municipalities must obtain written consent from an official where the sand is located and submit a copy to the Ministry.[102]

The Minister may make special provisions regarding the removal of such materials from any part of the waters or shores of Lakes Erie, Ontario and Huron. He may also revoke licences he has issued.[103]

Licence revocation hearings have recently been held respecting sandsucking operations off Point Pelee National Park in Lake Erie. The sandsucking operations may be a source of accelerated erosion of such park lands.[104]

Convictions under this Act for violating licence requirements or provisions may only bring a fine between $10 and $100. Moreover no prosecution may be commenced without the consent of the Attorney General.

E. The Planning Act[45] and Local Control

1. Key Provisions

Municipalities may pass by-laws for prohibiting the use of land, for or except for such purposes as may be set out in the by-law.[105] Municipalities may also prohibit the making or establishment of pits and quarries within the municipality or within certain defined areas within the municipality.[106] Any by-law passed under section 35 may prohibit or regulate all or any matters mentioned in section 35(1).[107]

No activity, may of course, take place in a municipal planning area or part of a municipal planning area that is not authorized by the municipality's official plan.

F. The Municipal Act[46] and Local Control

Section 354(1)122 provides that where, prior to January 1st, 1959, the use of land in any area of a municipality was restricted to residential or commercial use a municipality may, through a by-law prohibit the carrying on of the operation of a pit or quarry in the area.

Section 354(1)122 permits municipalities to regulate by by-law the operation of pits and quarries within the municipality and to require the owners of pits and quarries that are located within 300 feet of a road and that have not been in operation for a period of twelve months to level and grade the floor and sides of the pit and the area within 300 feet of their edge or rim. This requirement though principally directed to public safety and aesthetics may also have both positive and negative water quality implications.

IV. NON-STATUTORY ACTIVITIES

A. Ministry of Environment Guidelines on Mining Operations

The Ministry of Environment has developed a number of sets of guidelines respecting surface mining, subaqueous mining and related operations.[108] These guidelines are without legal affect, except to the extent that some or all of their provisions are incorporated into OWRA certificate of approval provisions respecting drainage, storm water, sewage and related works for a particular operation.

The guidelines outline the effects of such mining activities on water quality and make recommendations for prevention and abatement procedures that should generally be followed.

Subaqueous mining, which includes the removal of sand and related material from beach areas, often results in loss of aquatic habitat from turbidity or siltation arising from excavation activity; and erosion and loss of recreational areas arising from removal of beach feeding source material. The Beach Protection Act, administered by the Ministry of Natural Resources is the principal legislative tool that could be used to incorporate MOE recommendations into any licences issued under that Act.

Effects and recommendations for surface mining operations including strip, open-pit or quarry and hydraulic mining activities are also outlined.

Information that is or would be required for evaluation of a mining activity in relation to water resource concerns includes site location, procedures of operation, time of operation, duration of operation and frequency of maintenance. Information regarded as desirable includes type of equipment used and sequences of operation.

Information required respecting the mining activity and watershed characteristics includes annual precipitation, seasonal variation in precipitation, rainfall intensity and duration, soil erodibility, slope, type and density of vegetation, evidence of slides or soil movement, and location of streams and tributaries.[108]

To the extent that the above information relates to sewage, drainage or storm water works that would be needed for a new mine facility, the OWRA can provide that MOE concerns be met by the applicant as a precondition to approval under section 42. Where other MOE concerns respecting mining activities and water quality do not relate to sewage, drainage or storm water works then these items must be covered prospectively under the Environmental Assessment Act once it applies to the private sector.

V. COMMENT

Pits and Quarries and Provincial Controls

Recent governmental studies in Ontario indicate that pit and quarry operations can be sources of both surface and groundwater pollution.[109] Provincial agency field experience has also been that such operations may create problems of erosion, runoff and sedimentation, though this is not regarded as the case for most operations of this type.[110,111]

The three principal avenues of control open to provincial agencies to prevent or minimize water resource interference from pits and quarries are (1) a water taking permit under section 37 of the Ontario Water Resources Act (2) a certificate of approval under section 42 of the OWRA or (3) a permit or licence under the Pits and Quarries Control Act.

Water Taking Permits

Provincial environmental officials indicate that the water taking permit program on its face and as applied is primarily a measure in relation to water quantity interference and not water quality degradation.[111,112] The water quantity concern relates to ensuring that a pit or quarry operation won't disturb water tables or effect the quantity of water available to downstream riparian owners. Historically, the water taking permit system was devised to ration water used for agricultural irrigation systems during low flow periods. Administrators of the Ministry of the Environment's water taking permit program are thus not legislatively authorized to attach conditions to such permits respecting water quality degradation from pits and quarries operations.

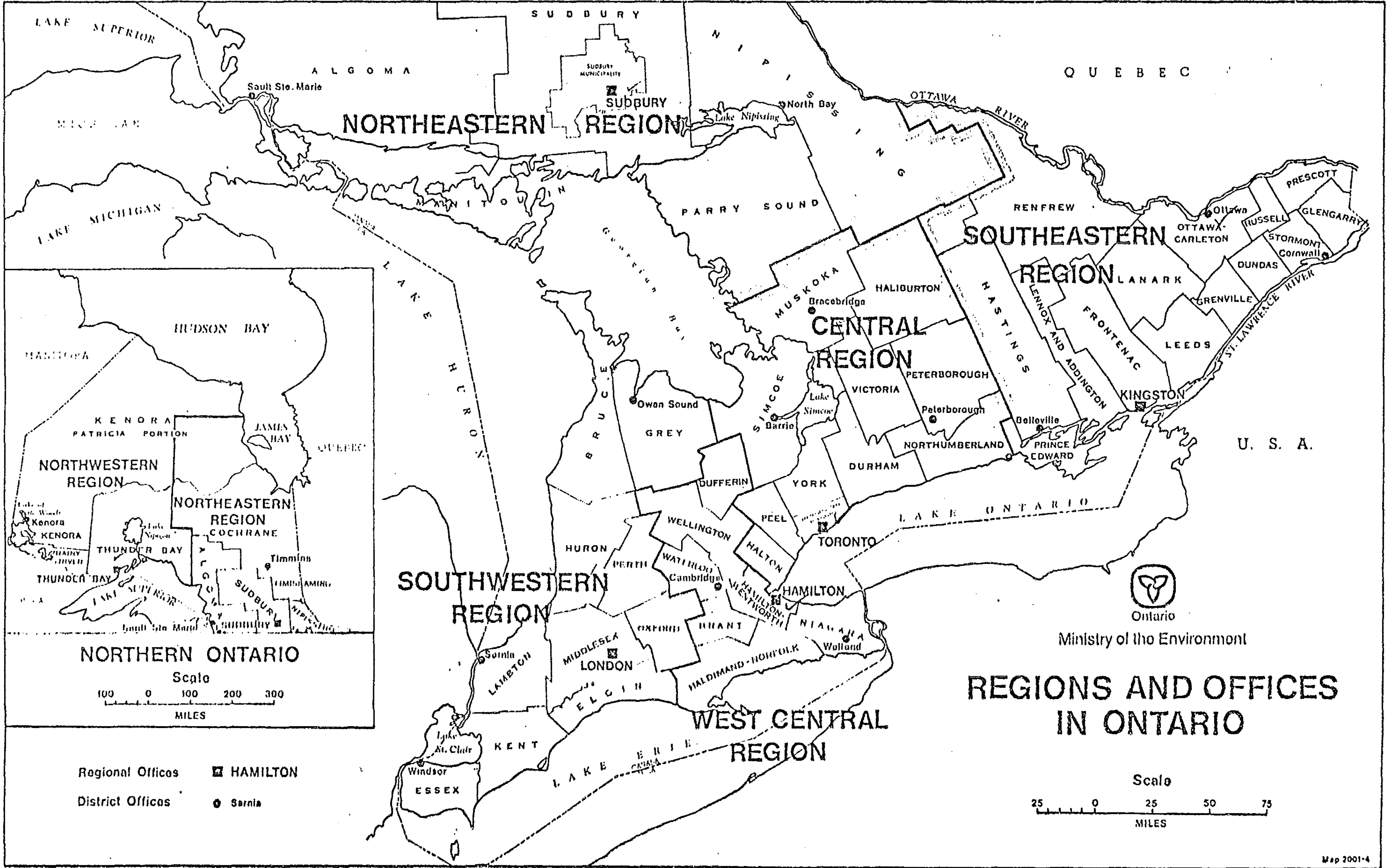
Certificates of Approval

Where there is an effluent discharge associated with a pit or quarry operation, either as a result of a water taking or otherwise, certificates of approval would be necessary. Environment Ministry administrators indicated, though, that a certificate of approval for water quality concerns surrounding the operation of a pit or quarry would be rare. For example, preliminary response to a survey of regional Ministry of the Environment industrial abatement offices indicated that in at least two MOE administrative regions no pit or quarry operations have certificates of approval, though several have water taking permits.[113] (See map on page 14 for geographic area covered by each administrative region). This is understood to be the case because normally pits and quarries are "dry operations" in the sense that no discharge or drainage of contaminated effluents is made to watercourses. As such, these operations would not require a certificate of approval which is directed to matters of water quality. Similarly, no certificate of approval would be necessary for such operations if they merely effected a water table, in the sense of raising or lowering it, if there was not also an alteration to water quality.

Pit and Quarry Licences

Matters respecting water quality degradation from pit and quarry operations may also be addressed through the licence and permit conditions under the Pits and Quarries Control Act. Pursuant to the

MAP 1



site plan requirements under the Act, the applicant must satisfy the Ministry of Natural Resources that he will meet Ministry conditions respecting stockpiles of stripped topsoil; the use of excavation equipment; grading; drainage and; progressive and ultimate rehabilitation of the pit or quarry site.[30-35] These provisions are understood to be not exclusively designed to control erosion or eliminate sedimentation, though the net effect may be the same as applied by MNR.[114]

Rehabilitation

However, at least with respect to rehabilitation controls, recent governmental review of the administration of the Pits and Quarries Control Act and operator compliance has indicated that there has been "little evidence of rehabilitation achieved to date."[115]

Whether this failure leads or has led to water pollution problems depends on the particular location of the pit or quarry and other factors, such as slope, amount of rainfall, topography, soils etc. Ministry of Natural Resources publications on pit and quarry rehabilitation note though that the first step to take "when rehabilitating a site is to stabilize the surface to prevent erosion by wind and water".[116] Presumably, where site rehabilitation is not undertaken, the potential for erosion and sedimentation is increased if local conditions are right.

Mining Act Controls

Less control, respecting such matters as rehabilitation, may result where the Pits and Quarries Control Act has not been designated as applicable to an area. In such circumstances, the principal MNR control would be the Mining Act which is applicable to quarrying activity on Crown lands.[117] Some MNR administrators were of the opinion that quarry operations under the Mining Act might be subject to less control because under that Act no site plan comparable to the one required in the Pits and Quarries Control Act is required to be submitted as a condition precedent to the granting of a permit. It was thus felt that an operator is handicapped in the sense of lacking guidance which is normally provided by a site plan, in order to avoid and control erosion or sedimentation problems.[114] Moreover, the Mining Act does not authorize a system for obtaining security deposits to ensure that such operations on Crown lands will be rehabilitated. It is also understood that operations on Crown lands within otherwise designated areas of the Pits and Quarries Control Act must only comply with the less comprehensive provisions of the Mining Act. Amendments to current legislative procedures are in the process of development. It is understood that they will result in quarries on Crown lands within designated areas being subject to a revised Pits and Quarries Control Act. Quarries on Crown lands in non-designated areas will continue to be subject to the existing arrangements under the Mining Act.[115] Table 1 outlines Ministry of Natural Resources licensing of pits and quarries both within and without the Great Lakes Basin for approximately 95 per cent of all such operations in the province. (See map on page 17 for geographic area covered by each MNR administrative region).

TABLE 1

ONTARIO MINISTRY OF NATURAL RESOURCES LICENSING OF PITS AND QUARRIES*

Region**	# of pits and quarries	# of pits and quarries licenced under Pits and Quarries Act[a]	# of pits and quarries not licenced under Pits and Quarries Act	# of pits and quarries licenced under local law in areas not designated under Pits and Quarries Act Non-Crown lands	# of pits and quarries licenced under the Mining Act. Crown lands
Central	782	782[b]	0	N.A.	0
North Central	1000	0	1000	50	200
Eastern	1000+	290	710+	N.A.	N.A.
North Eastern	320+	25[c]	295+	N.A.	295
South-western	700	400	300	N.A.	N.A.
Northern	540-590	0	540-590	N.A.	190
TOTAL	4342-4392	1497	2845-2895		

* All figures are estimates based on information provided by MNR Regions where approximately 95% of all pits and quarries are understood to be located. Two other MNR Regional Offices are not included in the survey. Survey accurate to January 1977.

** Region refers to Ministry of Natural Resources Regional Offices. (See page 17 for geographic area covered by each region).

N.A. Indicates information not available.

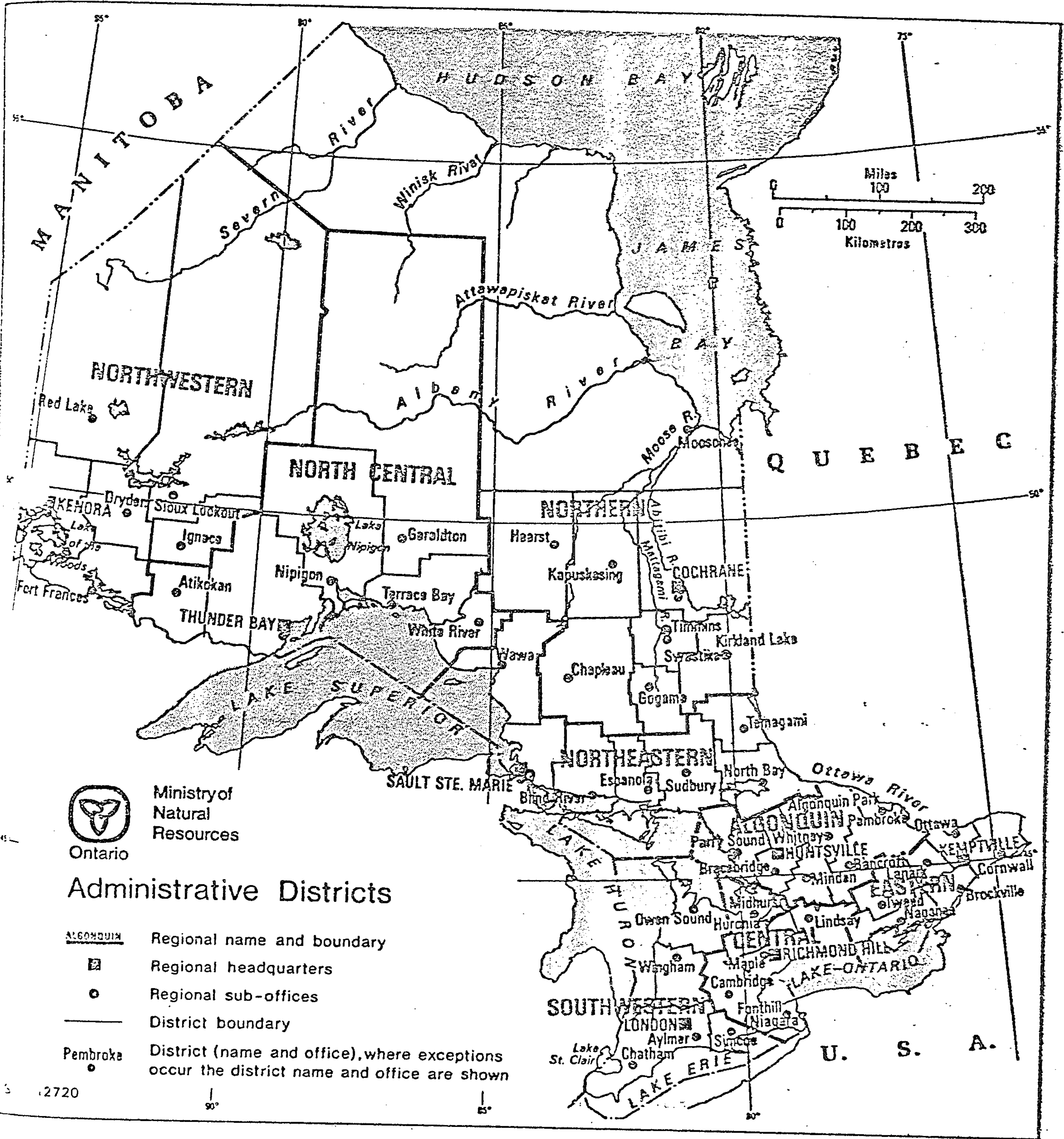
\+ Indicates that totals were unknown.

a In such Pits and Quarries Act designated areas, local licences may also apply but are not tabulated here.

b 20 additional licences are pending.

c 50 additional licences are pending.

MAP 2



The estimates illustrate that gaps exist in the Pits and Quarries Control Act's application to some regions in Southern Ontario. For example, in the MNR Southwestern administrative region, approximately 43 per cent of the estimated pits and quarries in the region are not covered by the Act. In the MNR Eastern administrative region, approximately 70 per cent of the estimated pit and quarry operations in the region are not covered by the Act. Of course, many of these operations would be covered by local by-laws or if they are on Crown lands, the Mining Act. Control pursuant to the Pits and Quarries Control Act would also appear limited in northern MNR regions where less aggregate reserve is understood to exist. However, much of the geographic areas of these regions would not appear to influence the Great Lakes Watershed.

Security Deposits

The adequacy or perceived adequacy of security deposits is one yardstick of the problems the province has had in ensuring that rehabilitation will be achieved. Fifty per cent of MNR regional offices surveyed indicated that the current required security deposit of two cents per ton was either "too low" or "inadequate" to achieve its objective of supporting sufficient rehabilitation. An additional thirty-three per cent of MNR regional offices indicated that in their administrative region no performance bond or security deposit was required to ensure that pits or quarries are rehabilitated. (This would be the case in those regions where the Mining Act applied to such operations on Crown lands). One regional office noted that since 1971 it had allocated and expended approximately $100,000 rehabilitating fifty sites.[118]

The Mineral Aggregate Working Party, in reporting to the province on pit and quarry operations, concluded that "probably less than ten per cent of all areas excavated had been rehabilitated since 1971". The Working Party also found "sufficient evidence to conclude that many operators view the two cents per ton rehabilitation security fee as simply a tax, which they propose to forego and leave the task of rehabilitation to the Province".[115] The Working Party therefore concluded that the amount of the security deposit be made equal to eight cents per ton of material removed from the pit or quarry property in the previous calendar year and; that where a pit or quarry is in operation and progressive rehabilitation has been carried out, the operator may file a claim for a rehabilitation refund for such amounts as are approved by the Minister of Natural Resources having been expended in progressive rehabilitation in the previous calendar year, provided that the operator not be entitled to reduce the amount on deposit to less than $300 for each acre still requiring rehabilitation.[115]

Topsoil Control

With respect to other items such as topsoil control; drainage; grading and use of excavation equipment, fifty per cent of regional MNR offices found no difficulties in the manner in which operators dealt with such items in the site plan or in practice. The remaining

fifty per cent of regional MNR respondents characterized operator practice respecting such matters as varying from "good" to "satisfactory" to "poor", "terrible" or "disappointing". The Working Party also noted that most aggregate extraction areas are covered by very limited amounts of topsoil and overburden. It further noted that during the course of its review of pit and quarry operations it was informed that topsoil was being stripped off land not only as a source of revenue but also to facilitate rezoning by changing the agricultural classification of the land involved. The Working Party supported municipal legislation in this area but recommended that licenced pit or quarry areas be exempt from such municipal control.[115]

MNR publications note that the proper moving and storing of overburden and topsoil are essential to rehabilitation.[116] Ministry of the Environment offices indicate that silty runoff can enter a watercourse from extractive operations where stripped or overburden materials have been improperly moved and become susceptible to erosion.[111]

Enforcement

In addition to the general conclusions of the Aggregate Working Party already noted, it also found that the provincial government has lacked credibility in its performance administering the Pits and Quarries Control Act as a result of a "failure to enforce the Act."[115]

Despite this conclusion the Working Party did not recommend that current provisions of the Pits and Quarries Control Act be repealed which have the effect of extinguishing the common law right of any citizen to prosecute operators for violations of the legislation. Currently, no prosecutions may be instituted without the consent or under the direction of the Minister of Natural Resources.[61] Nor, despite the Working Party's findings of lack of enforcement did it recommend prospectively under proposed Mineral Aggregate legislation that any member of the public be authorized to institute court action to require government officials to enforce such legislation.

It should be noted that the Working Party did recommend that the Ontario Water Resources Act be maintained as the controlling legislation over surface and groundwater as it is affected by pit and quarry operations. Under this legislation the common law right to private prosecution for violations of statutory provisions has been maintained. Thus, subject to the normal difficulties surrounding problems of proof for a private prosecutioner[62] retroactive enforcement of water quality problems with such aggregate activities may be addressed by the private citizen.

The Working Party further recommended increased staff for MNR as a principal means of permitting greater flexibility in enforcement under a revised aggregate management statute. It believed that, in most cases, the problem of insufficient staff resources had been the reason for inadequate enforcement in the past. The Working Party recommended an increase in enforcement staff so that a minimum ratio of one supervisor or inspector for every eighty pits could be achieved.[115]

Summation

In summary, provincial control of pit and quarry operations is undergoing a transition. A Working Party created by the province to review current government regulation of the sand and gravel industry has concluded that to date there has been little evidence of rehabilitation of sites and that the government has failed to enforce the Act. The latter conclusion is based in part on a finding that the Ministry of Natural Resources has had insufficient staff to undertake adequate enforcement. Increases in staff support have been recommended by the Working Party to remedy the latter deficiency. The Working Party has also recommended an increase in the required security deposit as a means of increasing the likelihood that adequate rehabilitation will take place. These recommendations will be incorporated into a new legislative package for regulation of the industry.

Provincial government reports indicate that where such matters as rehabilitation do not take place, the likelihood of wind and water erosion is increased. Whether such occurrences result in sedimentation to streams depends on a variety of local environmental conditions. Provincial agency experience is that while sedimentation problems may occur, they do not typify general experience with such operations.

A survey of provincial agencies also revealed that many pits are operating in areas of the province to which the principal provincial legislative control (i.e. the Pits and Quarries Control Act) does not apply. In such areas, less comprehensive control is possible through such measures as the provincial Mining Act (for Crown lands) or local municipal by-laws (for non-Crown lands).[119] It is difficult to ascertain how many of these operations might influence waters tributory to the Great Lakes Basin.

Water pollution control requirements under the Ontario Water Resources Act would still be applicable to all such operations to the extent they may be water quality problems. However, responsibility for ensuring that some facets of aggregate operations are controlled which may otherwise result in water quality degradation (e.g. control of rehabilitation through revegetation techniques) is not vested in this Act, but in the Pits and Quarries Act.

Pits and Quarries and Municipal Controls

The Uxbridge decision

Until the early 1970's control of the management and location of pit and quarry operations resided primarily with municipalities.[120] The enactment of the Pits and Quarries Control Act in 1971 granted the province principal jurisdictional control over such operations where the Act was designated as applicable. Municipalities in designated and non-designated areas retained jurisdiction to regulate and prohibit such operations. As noted above, the recent Uxbridge v. Timber Bros. Sand and Gravel[47] decision now indicates that if a municipality has only an official plan and purports to prevent the operation of a

pit or quarry at a location desired by an applicant, the Minister of Natural Resources is prohibited from issuing a licence under the Pits and Quarries Control Act. But where the official plan does not make clear that it prohibits the operation of pits and quarries in any particular part of the municipality, and the municipality only has a by-law that specifically prohibits the establishment of such operations,[48] the Minister is only prevented by section 6(2) of the Pits and Quarries Control Act from issuing the licence to new operations. The Minister would not be barred from issuing a licence to pre-existing operations.

Aggregate Working Party Proposals

As noted above, a provincial Working Party on Aggregate Resource Management was established to review current regulation of pits and quarries operations. Because the province is concerned that it be able to ensure that adequate supplies of aggregate resources are available for future use a number of recommendations of the Working Party were directed to eliminating the overlap and conflict that may arise between an Aggregate Resource statute (e.g. a revised Pits and Quarries Control Act) and extant provisions of the Municipal Act and the Planning Act that permit municipalities to regulate and prohibit such operations. To this end the Working Party proposed changes to the Municipal and Planning Acts that would eliminate municipal control through those Acts in areas of the province where the proposed Aggregate Resource statute would apply. In regions and counties where aggregate supply areas are designated in the official plan, decisions on the issuance of licences would reside with the regional or county council, subject to appeal to a provincial resources board. The regional or county council could attach conditions to the issuance of a licence which could include measures respecting water pollution control (eg. special rehabilitation measures). The Minister of Natural Resources would retain the right to appeal a council's decision or conditions to the licence which he regards as vexatious or prohibitive. The Minister's appeal would be to the proposed provincial resources board. The board's decision would be subject to review by the provincial cabinet or by a Minister designated by the cabinet.

The Working Party's recommendations are based in part on its own investigations and public meetings and in part on a consultant's study issued two years ago[109] which predicted that the Central Ontario region would run out of sand and gravel in 20 years unless changes were made. The report stated that a major factor reducing the province's potential aggregate resources is the spread of urban development. It recommended a reduction in local control to counter the tendency of municipalities to prohibit or severely restrict aggregate operations. The Working Party's policy proposals are currently before the provincial government for its consideration.

Regional Government

Review of municipal official plans and by-laws indicates that municipalities have expressed and addressed concerns respecting the water quality implications surrounding pit and quarry operations.

For example, the Regional Municipality of Sudbury indicates that in the past, abandoned or unreclaimed pits and quarries have resulted in problems of erosion within the Region. Problems of erosion generally have been seen to contribute to accelerated sedimentation in local lakes and streams.[121]

Generally, the Region intends to prohibit the operation of pits and quarries from all areas of the Region other than three areas designated for industrial mineral extraction. Where the Region will make an exception to this policy and permit the operation of a pit or quarry through amendment to the zoning by-law[122] the Regional Council is required to consider a number of additional factors including "the effect the extractive operations will have on the natural environment including...drainage considerations;" and the "environmental policies of the official plan" which include "water pollution abatement and control."

The Region also notes its limitations vis-a-vis provincial jurisdiction. Noting the fact that primary jurisdiction for pit and quarry regulation resides with the province, the Region indicates that it will "comment" to the provincial Ministry of Natural Resources regarding pit and quarry operations and that the Region can control their "location". Management control is thus seen to reside principally with the province. There appears to be no desire to attempt to duplicate the province's regulatory control principally because of lack of resources. There is regional concern that provincial control is unequally applied on Crown lands versus private lands.[121] As noted above, pit and quarry operations on Crown lands are currently subject only to Mining Act controls which are less comprehensive than those which may be applied to such operations under the Pits and Quarries Control Act.

Other Regional governments have expressed concern over potential water quality problems with such operations. For example, Peel Region, in a submission to the Aggregate Working Party,[123] indicates that "because of the possibility of ground and surface water pollution (including siltation of streams, etc.)...an environmental assessment and details of the operation should accompany licence applications or renewals (for existing pits)." The Working Party recommendations included exempting pits and quarries from the provisions of the provincial Environmental Assessment Act because the proposed statute on Aggregate Resources is intended to contain equal environmental requirements applicable to such operations.

Area Municipal Official Plans

Area municipal official plans in areas that are subject to heavy gravel extraction also enumerate general principles and specific procedures which may have water quality implications. For example, the Township of Uxbridge Official Plan[124] states that before rezoning land for quarrying or related purposes, the Township Council must ensure that provision is made for such matters as the preservation of soil cover for future rehabilitation; storm drainage; the clarification of wash water by the use of settling basins prior to the water leaving the pit or quarry property; and the rehabilitation of

worked-out areas by levelling, grading and replacing of top-soil so that the land may be returned to use for other purposes.

The Uxbridge Official Plan also notes that "applications for re-zoning to permit new pits or the enlargement of existing pits may be given consideration provided that the municipal Council, after consultation with it's Planning Board, is satisfied that the operations will not be detrimental to the Township". Such provisions as this, until the Uxbridge case, generally would provide a municipality with the opportunity to evaluate proposals and determine whether they should exercise their veto power under s.6(2) of the Pits and Quarries Control Act. That decision indicates that an official plan provision as general as the Uxbridge one would probably be insufficient to restrain the Minister of Natural Resources from issuing a licence. In order to meet the test in the Uxbridge decision, the municipal official plan would practically have to prevent the operation of a pit or quarry at the location decided by the applicant. Normally, such local official plans do not ban such activities outright.

Local and Regional Government Interface

Local municipal official plans and other controls may also come into conflict with regional official plans and the powers of regional governments under their enabling legislation. Generally, regional governments are authorized to plan for their large geographic areas, which encompass the planning areas of local municipalities. Once a regional plan has been approved by the Minister all other official plans must be amended to conform with the regional official plan.[125]

Prospectively, such regional government authority will be even further strengthened respecting pits and quarries extraction if the above enumerated Aggregate Working Party proposals are adopted by the Province. These would permit extraction to take place in an area designated within a regional official plan regardless of whether a municipality approved or not. Such overriding authority wouldn't necessarily preclude a regional government from adopting a local government's conditions for operation of such activities, as long as the conditions didn't amount to a prohibition of the extractive activity. As noted above, such conditions could include matters regarding water quality preservation.

In turn regional government mechanisms could be adopted into municipal by-laws[126] or agreements respecting pit and quarry operations, that could serve to strengthen regional or local control. For example, the Durham Region plan[127] notes that rezonings to allow pit and quarry operations may be granted at the discretion of the local area municipality, but no such rezoning will be granted unless the local municipal council has enacted a by-law or other mechanism which contains provisions authorizing the area municipality to enter into agreements with the operators of pits and quarries. These agreements must include site plans submitted in accordance with the provisions of the Pits and Quarries Control Act 1971 providing the following

additional information to the satisfaction of the area municipal council: a soils survey describing soil type, organic matter content, depth of top soil and depth of overburden; a survey of existing surface water systems and provisions for anticipated changes due to the extraction and subsequent management practices; a survey of groundwater determining the source of water, quantity, quality and seasonal fluctuation; a survey of the location and character of existing vegetation systems, and; the intended slope or slopes of the rehabilitated site and the angle of repose of the material. These agreements must further include provisions requiring the pit or quarry operation to be conducted in accordance with the site plan, and; provisions requiring the posting of a financial security in the form of a performance bond or fund sufficient to ensure the complete rehabilitation of the pit or quarry.

The O.M.B. Role

The Ontario Municipal Board, which may hear pit and quarry applications referred to it pursuant to the Pits and Quarries Control Act, has in the past accepted the arguments of municipalities and citizen groups that the establishment of such operations in certain areas might result in water quality degradation. The O.M.B.'s reports to the Minister of Natural Resources have noted these concerns and included them as a basis for recommending denial of such applications where appropriate.[128] Aggregate research groups fear that the provincial government's concerns for sufficiency of aggregate supplies will result in the Minister disregarding such O.M.B. recommendations in future.[129] This could occasionally have implications for water quality.

Municipal By-laws

Enforcement of municipal by-laws can be a valuable supplement to other control strategies at the provincial and regional level. Fines upon conviction, however, are normally quite small. In the City of Mississauga, for example, average fines for all municipal by-law infractions are usually in the $25 - $75 range. In the period 1970 - 1975 the average fine upon conviction for a pit and quarry operator was $50.[130] It may well be that such fines are regarded by pit and quarry operators as little more than a tax on their activities which they can well afford. However, even a small fine upon conviction may still result in a higher public profile for the operator in future, to the extent the quality and nature of his operation is brought into public view.

Summation

Municipal capacity to control the location and management of pit and quarry operations may be severely restricted in future if a provincial working group's recommendations are implemented. Area municipalities may still be able to exercise a measure of control over such operations within their jurisdiction by utilizing regional government mechanisms. Through such regional mechanisms, area municipalities could attach conditions respecting the operation of such activities. Such conditions could include measures for water pollution control where appropriate.

Mining Activities

Acid mine drainage and contaminated runoff can be water pollution problems at surface and underground mines in Ontario.[131] Such problems can continue at a property long after the property has been abandoned.[131,132] Tailings disposal areas can also be sources of acid mine drainage contamination.[131] They may also be direct sources of water pollution through tailings dam breaks or overflows[88] or if such tailings sites are located in deepwater or land/water areas.[133]

Approvals

The Ministry of Environment's current approvals process pursuant to section 42 of the Ontario Water Resources Act for mining proposals requires that applicants report on a number of items to the satisfaction of the Ministry including: a description of regional physiography and geology in order to anticipate and demonstrate special control techniques; submission of water quality samples on an area wide basis; identification of local soil and slope characteristics and with respect to tailings disposal areas, precise details of all retaining structures; details of all decant systems; details with regard to the direction and route followed by the flow of wastes and/or wastewaters from the area and; indications of the distance to the nearest major watercourse.[134]

Ministry of Environment guidelines also note that the mining operator should deal with problems relating to the stripping and disposal of open pit overburden and erosion.[135] These items are not, however, specifically raised in the available application/information forms.[134] Since these guidelines are prepared for the information and guidance of the mining applicant, they may well be read together with the Ministry's application form by the applicant. However, since the application form is meant to require the mining operator to respond directly to Ministry concerns, it may be appropriate to amend the current application forms so that the mining applicant is clearly aware that the Ministry will require that he address such matters in the forms to the Ministry's satisfaction. Moreover, such mining applicant committments would then become specific parts of the Ministry's approval.

Tailings Area Rehabilitation

Ministry of Environment application forms for mining proposals also request that the applicant explain whether all tailings areas on the property will be revegetated or otherwise stabilized. Revegetation is a method of controlling acid mine drainage and other contaminated runoffs.[131] However, there is no legislative authorization under the OWRA for this concern to be met. Legislative authority for requiring and ensuring that tailings areas will be stabilized by vegetative or other means resides with the Ministry of Natural Resources pursuant to the Mining Act.[136] The mine manager is responsible for this activity. The Mining Act also authorizes the MNR to require that a bond or security deposit be deposited with it in an amount considered necessary to complete rehabilitation. However, while security deposits

are authorized under the Mining Act for rehabilitation of tailings areas, with minor exceptions, such securities have not been required by the Ministry of Natural Resources.[137]

Tailings Area Sites

The Ministry of Environment has generally attempted to reduce the water pollution potential of tailings areas by supporting the land storage of such materials. Ministry research indicates that maximum environmental control is possible at such land storage sites. In normal situations, only moderate environmental control is possible at land-water tailings disposal sites. Deepwater tailings disposal sites have been found to offer only minimum opportunities for environmental control.[133] In keeping with these research findings, Ministry approvals of tailings disposal area sites have emphasized the land storage of such wastes. Currently, there are no deepwater tailings sites. There are approximately six land-water tailings sites. Figures were not available for the number of land-storage sites but they would, of course, constitute the remainder of such tailings site approvals.

Mining Commissioner and MOE Approvals

As noted earlier, despite the considerable authority that the Mining Commissioner has under the Mining Act to authorize or grant easements to a mine operator to deposit mine tailings or other waste products upon any land or water if the effects are not injurious to health, such powers must still be exercised in cognizance of MOE authority under the Ontario Water Resources Act. In practice such easements are granted quite rarely. For example, between January 1974 and December 1976 only four such easements under section 645 of the Mining Act were granted by the Mining Commissioner.[138] However, while the Mining Commissioner in practice has taken cognizance of MOE concerns regarding the granting of such easements, nothing in the Mining Act specifically requires the Mining Commissioner to condition his easement granting on subsequent MOE approvals. Because of this concern the Ministry of Environment has begun to request the Mining Commissioner to condition any easements granted by his office, on the satisfactory compliance by the mining operator of relevant environmental legislation.[139] This procedure would appear to at once acknowledge but alleviate the difficulties which have not otherwise been addressed by the legislature in relation to the Mining Act and relevant environmental approvals legislation.

Existing Mines

Water quality problems with existing mining operations generally center around degradation from suspended solids and heavy metals concentrations. No figures were available respecting the number of existing or active operations that were under Ministerial order to abate such problems. Where the Ministry establishes a time table for compliance with abatement goals the factors that are considered in such time-table include the availability of technology, the economic position of the company and related matters. Extensions to such time-tables have been granted by the Ministry, but no information was available as to the number of

such extensions. It is understood that such extensions normally run from some months to a year.[137] Ontario environmental legislation does not authorize that members of the public be included in such industry-government negotiations.

Enforcement

Since 1969 there have been approximately twelve prosecutions for mining violations of environmental legislation. No information was available as to the amount of fine upon conviction as a measure of the incentive that prosecutions may have in compelling mine operators to improve their operations. Several of the more significant mining prosecutions are noted above.[88,92]

Abandoned Mines

Ministry of Environment officials regard abandoned mines as the major problem in the mining industry. There are approximately 30,000 such abandoned facilities in Ontario, though no more than 30 - 50 are regarded as contributing to significant environmental degradation.[137] As a means of dealing with this problem in future the Ministry has taken two approaches. First, for all approvals under environmental legislation the Ministry is now including a provision whereby the mine operator is legally compelled to control his operation including post abandonment phase for as long as the operation continues to generate contaminants. Second, the Ministry has begun a programme respecting cataloging abandoned mine problems. In the first phase of the programme the Ministry will catalogue all abandoned mines or such mines as are regarded as contributing significant environmental contaminants. Then the Ministry will rank the problems found in order of environmental significance (eg. waste rock, tailings, liquid effluents, runoff, etc.).[140]

In the second phase of the program the MOE will notify the mine owners of the problems found at the sites and of the MOE recommended remedial measures. This is regarded as a difficult phase as normally a company is not very willing to pour money into a site which is providing absolutely no return.

In the third phase, assuming that no ownership of the facility can be ascertained, the provincial government will undertake the appropriate remedies. The most likely remedial measures will include revegetation, removal of waste rock, the sealing off of underground mines and the like. It is expected that the programme especially its third phase will run into the millions of dollars.

Summation

The Ministry of Environment has the principal responsibility for water pollution control from mining activities. However, responsibility for ensuring that some facets of mining operations are controlled which might otherwise result in water quality degradation (e.g. security deposits to ensure that tailings area rehabilitation takes place) are vested with the Ministry of Natural Resources. Such security deposits have not generally been required by MNR. Some jurisdictional conflict might also be possible between MOE approval powers and the authority vested in the Mining Commissioner to grant land and water easements. It would appear that administrative

arrangements could solve this problem but a legislative solution would be preferable. Abandoned mines are generally regarded as the major problem in the mining industry. A government programme to identify and remedy environmental contamination at such sites is being developed.

NOTES

1. R.S.O. 1970 c. 332 as amended.
2. s.37(3)
3. s.37(6)
4. s.37(4)
5. s.37(7)
6. s.37(8)
7. s.42(1)
8. s.42(3)
9. s.42(4)
10. Under s.42(3)
11. Under s.42(4)
12. s.42(5)
13. s.42(6)(a)
14. s.69(1)
15. s.69(1a)
16. s.69(2)
17. S.O. 1971, c. 86 as amended.
18. R.R.O. 1970, O. Reg. 824 as amended.
19. s.2.10
20. s.3.6
21. S.O. 1975, c. 69 as amended. Provisions of this Act have been discussed in previous reports.
22. Order in Council 2891/76
23. S.O. 1971, c. 96
24. Through the end of 1975 a total of 267 townships had been designated as those to which the Act applies. There are over 800 municipalities in the province. Ministry of Natural Resources. Ontario Mineral Review 1975. See also section 2 of the Act.
25. s.4 respecting pit or quarry licence requirement; s.20 respecting period of time (ie six months) after township designation before applicability of Act to such operations.
26. s.4(4)
27. s.3.
28. s.10
29. s.12 and s.20(2). A wayside pit or quarry is a temporary excavation normally undertaken by provincial or local road authorities for the purposes of road construction.
30. s.4(2)
31. s.4(2)(a)
32. s.4(2)(d)
33. s.4(2)(e)
34. s.4(2)(g). Pit rehabilitation security deposits must be made. s.11
35. s.4(2)(h)
36. s.5(2)
37. s.20(3)
38. s.5(1) The municipal council would have to have an official plan or by-law governing the location of pits and quarries. See s.6(3) for procedures where a municipality does not have an official plan or by-law governing the location of pits and quarries.

39. s.5(3)
40. s.5(4)
41. s.9(1)
42. s.6(1)
43. Re Township of Puslinch Restricted Area By-Law (1973) 2 C.E.L.N. 51 (Ontario Municipal Board)
44. s.6(2)
45. R.S.O. 1970 c. 349 ss. 35(1)1 and 35(1)6 as amended. Discussed infra.
46. R.S.O. 1970 c. 284 ss. 354(1) paras. 122 and 123 as amended. Discussed infra.
47. (1975) 7 O.R. (2d) 484 (Ontario Court of Appeal)
48. eg pursuant to s.35(1) of the Planning Act.
49. For a fuller discussion of this case see D. Estrin "Controls Over Pits and Quarries in Ontario" (1975) 4 C.E.L.N. 232.
50. s.6(3)
51. s.6(4)
52. s.8
53. s.9(3)
54. s.9(4)
55. ss. 7(1)(2)
56. ss. 8(1)(2)
57. s.8(4)
58. s.8(3)
59. See Re Horan and Minister of Natural Resources (1974) 3 CELN 114 (Supreme Court of Ontario, Divisional Court) respecting matters covered in s.6 of the Act.
60. s.18(1)
61. s.18(2)
62. For general background see S. H. Berner, Private Prosecution and Environmental Control Legislation: A Study (1972) Commissioned by Environment Canada.
63. s.15(1)
64. s.15(2)
65. O. Reg. 541/71 as amended
66. s.5(1)(2)
67. s.11 of the Act
68. s.5(4) of O. Reg. 541/71 as amended
69. s.6(1)
70. s.6(2)
71. s.8
72. s.11(1)
73. s.11(2)
74. s.5
75. s.14
76. Defined in the regulations (s.1(a)) as a pond resulting from a pit or quarry or wayside pit or quarry excavation which is above the natural water table and is in excess of certain depths and covers a certain area in square feet.
77. s.16

78. R.S.O. 1970 c. 274 as amended.
79. s.645(1)(b)
80. s.645(1)(c)
81. s.645(1)(d)
82. s.645(1)(i)
83. s.645(2)(3)
84. (1962) O.R. 503 (Ontario Court of Appeal)
85. At common law frequently known as riparian owners.
86. s.645(13)
87. ss. 32, 42 and 69 for example.
88. (1974) 3 C.E.L.N. 204
89. Approval of such works is required under the OWRA s.42 prior to commencement of construction.
90. s.32(5) which says in part: "The discharge into any stream or watercourse of sewage from sewage works that have been constructed and are operated in accordance with departmental approval is not a contravention (of the Act).
91. This prosecution was for a violation of general water quality provisions and prohibitions only.
92. Relying on R. v. Sheridan (1973) 2 O.R. 192
93. s.14 and s.96. Section 96 states in part that where a conflict appears between any provision of the EPA or its regulations and any other Act or regulation in a matter related to the natural environment or a matter specifically dealt with in the EPA or its regulations, the provisions of the EPA or its regulations prevail.
94. s.611
95. ss. 105 and 108
96. s.125
97. s.628
98. s.633
99. Provisions of this statute have been reviewed in previous reports, especially respecting environmental controls from brines generated by oil and gas operations. See Report No. 3.
100. R.S.O. 1970, c. 40.
101. s.2
102. s.3
103. s.2(b)7
104. See "Sandsucking Off Point Pelee" (1974) 3 C.E.L.N. 89 and 122.
105. s.35(1)1
106. s.35(1)6
107. s.35(2)
108. Ontario Ministry of the Environment. Evaluating Construction Activities Impacting on Water Resources (January 1976) Incorporates segments on Sub-aqueous Mining and Surface Mining. (Draft).
109. Ontario Ministry of Natural Resources. Mineral Aggregate Study Central Ontario Planning Region (March 1974) (Prepared by Proctor and Redfern, Consultants); and Ministry of Natural Resources. Mineral Aggregate Study and Geological Inventory Eastern Region (November 1975) (Prepared by Proctor and Redfern; Gartner and Lee, Consultants).

110. Correspondence from R. A. Baxter, Director, North Central Region, Ontario Ministry of Natural Resources, Thunder Bay, Ontario, December 8, 1976.
111. Correspondence from J. Viirland, Groundwater Evaluator, Ontario Ministry of the Environment, Stoney Creek, Ontario, November 26, 1976.
112. Correspondence from N. Conroy, Chief, Water Resources Assessment, Ontario Ministry of the Environment, Sudbury, Ontario, December 22, 1976.
113. Correspondence from the staff of C. E. Duncan, Manager, Industrial Abatement, Ontario Ministry of the Environment, West Central Region, Stoney Creek, Ontario, November 1, 1976 and; D. G. Currie, Manager, Industrial Abatement, Ontario Ministry of the Environment, Southeastern Region, Kingston, Ontario, January 20, 1977.
114. Correspondence from D. E. McHale, District Manager, Ontario Ministry of Natural Resources, Northeastern Region, Sudbury, Ontario, January 18, 1977.
115. Ontario Ministry of Natural Resources. *A Policy for Mineral Aggregate Resource Management in Ontario*. Report of the Ontario Mineral Aggregate Working Party, December 1976.
116. Ontario Ministry of Natural Resources. *Vegetation for the Rehabilitation of Pits and Quarries*. 1975.
117. See Part VII of the Mining Act ss. 127-133.
118. Correspondence from J. R. Oatway, Director, Northern Region, Ontario Ministry of Natural Resources, Timmins, Ontario, January 12, 1977.
119. Greater discussion of the municipal role is found, infra.
120. See W. R. Smithies, *The Protection and Use of Natural Resources in Ontario*, Ontario Economic Council, January 1974.
121. Official Plan for the Regional Municipality of Sudbury, July 1976. (Draft).
122. By-law 76-90.
123. Regional Municipality of Peel. Brief to the Ontario Mineral Aggregate Working Party. Adopted by Peel Region Council, April 8, 1976.
124. Township of Uxbridge Official Plan, June 1968.
125. See, for example, *Regional Municipality of Peel Act* S. O. 1973 c. 60. Part IV sections 54-56. The City of Mississauga has preceded with the development of its official Plan on the understanding that when the Peel Region Official Plan is approved, the Mississauga O.P. will be deemed to conform.
126. This comment ignores for the moment the Aggregate Working Party's recommendations respecting elimination of municipal control of pits and quarries through the Municipal Act and Planning Act enabling mechanism.
127. Regional Municipality of Durham Official Plan. As adopted by Regional Council, July 14, 1976. Pits and Quarries Section.
128. See, for example, *Re Preston Sand and Gravel Company* (1974) 3 C.E.L.N. 81 (Ontario Municipal Board). Recommendation accepted by the Minister of Natural Resources.
129. Foundation for Aggregate Studies. Submission to the Planning Act Review Committee. May 1976.
130. City of Mississauga By-law 3186; and City of Mississauga Annual Reports. By-law Enforcement Section Statistics 1970 - 1975.

131. Ontario Ministry of the Environment. The Problem of Acid Mine Drainage in the Province of Ontario. 1972
132. K. E. Arkay, Environment Canada. "Exploration and Abandonment: Environmental Aspects;" a paper delivered for the Technology Transfer Seminar on Mining Effluent Regulations/Guidelines and Effluent Treatment Technology as Applied to the Base Metal, Iron Ore and Uranium Mining and Milling Industry, Sudbury, Ontario, Montreal, P.Q. and Banff, Alberta, November/December 1975.
133. Ontario Ministry of the Environment. Tailings Disposal: Recommendations for Site Selection. (1976).
134. Ontario Ministry of the Environment. Mineral Industries Application/Information Sheet. September 1973.
135. Ontario Ministry of the Environment. Environmental Design Considerations for Ontario Mining Operations. 1976.
136. The Mining Act, section 176.
137. Interview with J. R. Hawley, Mining Industry Specialist, Ontario Ministry of the Environment, February 9, 1977, Toronto.
138. Communication from the office of the Ontario Mining Commissioner, January 25, 1977, Toronto.
139. See, for example, Denison Mines v. North American Nuclear Ltd. and Her Majesty the Queen in Right of Ontario. Order of the Mining Commissioner, August 5, 1976.
140. See, for example, Ontario Ministry of the Environment. Pollutional Characteristics of Kam - Kotia Mines Limited: An Abandoned Base Metal Mine-Mill Complex. 1976