



POLLUTION FROM LAND USE

ACTIVITIES

REFERENCE GROUP

LEGISLATIVE STUDY

INTERIM

REPORT NO. 3

DISPOSAL AREAS

September 1976.

CONTENTS *

PART I	FEDERAL CONTROLS
PART II	PROVINCIAL CONTROLS
PART III	MUNICIPAL CONTROLS

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

Part I
Disposal Areas
Federal Controls
Table of Contents

	<u>Page</u>
I. Overview	1
II. General Environmental Controls	1
A. The Fisheries Act	1
B. The Canada Water Act	1
III. Other Legislative Mechanisms	3
A. The Indian Act	3
B. National Parks Act	4
C. Atomic Energy Control Act	4
IV. Non-Statutory Programs	9
A. Control and Abatement of Pollution from Federal Facilities	9
B. Environmental Protection Service Codes and Guidelines	9
C. Resource Recovery	13
V. Agreements	16
A. Canada-Ontario Agreement on Great Lakes Water Quality	16
B. Canada-U.S. Agreement on Great Lakes Water Quality	16
Notes	17

1. Overview

There is currently no regulation of waste management at the federal level. Control of disposal areas is perceived to be principally a provincial and local matter, though landfill leachate toxicity to fisheries, it is submitted, gives the federal government jurisdiction with respect to such areas to the extent necessary to protect fisheries and water frequented by fish. The appropriate scope of federal involvement in waste disposal practices vis-a-vis fisheries protection is a matter under debate within government at present. Technology development, demonstration, information transfer and limited funding for improved waste management systems in cooperation with other government levels is perceived as the extent of federal involvement with respect to waste management - a role in short that is complementary to provincial controls. Greater federal involvement is anticipated in the area of resource recovery - an option with indirect benefits to water quality to the extent it reduces the total number of waste disposal area sites.

II. General Environmental Controls

A. The Fisheries Act

B. The Canada Water Act

Comment

The Environmental Protection Service of the Department of Environment has principal responsibilities in this area which include developing and enforcing environmental protection regulations, codes and other measures used to implement federal legislation; ² initiating developing and implementing research and control measures for solid waste management and hazardous materials disposal; providing source information for other federal departments administering legislation within which environmental regulations are developed; administering phosphorous concentration control regulations under the Canada Water Act; and dealing with environmental pollution matters associated with the facilities and activities of federal agencies.

The Solid Waste Management Branch of EPS is responsible for devising and implementing programs to (1) contribute to the reduction of the environmental impact of solid waste management and disposal operations and (2) increase resource recovery.

It is submitted that the Fisheries Act has application to the problem of water contamination from land disposal areas due to the (1) broad quality of the prohibitory language in the Act and (2) the capacity to require submission of plans and specifications to the Minister prior to the construction of works. This would include disposal area activities whether on federal or provincial lands if such activities effected or were likely to effect fisheries or water frequented by fish. ³ In practice, because the Act is ostensibly administered by the province, all disposal area activities that are not on federal lands or facilities are subject to provincial legislation with more detailed waste management provisions. ⁴ Thus, the frequency of use

of the Fisheries Act by the province for control of disposal area pollution would be limited. Nothing would appear to preclude the federal government through EPS from utilizing the Act's provisions where it was felt that such action was warranted.^{4A} However, because land disposal areas have traditionally been a provincial and local responsibility, federal government thinking currently holds that the environmental impact of such activities also place primary jurisdiction for control in provincial and local governments, consistent with perceived constitutional divisions of power.⁵ Systematic involvement in disposal area matters by the federal government pursuant to the Fisheries Act, besides being perceived to be duplicative of provincial efforts, might also require detailed federal waste management regulations, which given the perceived jurisdictional primacy of the province, is regarded as undesirable administratively and politically.

For disposal area activities that do take place on federal lands or facilities, provincial legislation would not apply. Particularly in this area would the provisions of the Fisheries Act be applicable. However, the likelihood of one federal department prosecuting or even requiring plans and specifications from another is regarded as unlikely in a parliamentary system. While compliance with such legislative requirements might reasonably be expected from proprietary and non-proprietary crown corporations,⁶ it is understood that departments and such crown entities alike are instead generally expected to cooperate with EPS pursuant to a 1972 federal cabinet directive regarding federal activities cleanup, including solid waste and hazardous materials disposal.

With respect to the Canada Water Act, it has already been noted that no "water quality management area" has been designated for the Great Lakes area. The prohibitory, as well as other sections of the Act, therefore have no application. The prohibitory section, however, prohibits any person from depositing a waste of any type in such areas, or in any "place" under any conditions where such waste or any waste that results from the deposit of such waste may enter any such waters, "Place" is not further defined in the Act. Query whether, if such an area in the Great Lakes Basin was so designated, if "place" could be construed to include land, including landfill, lagoon and landspreading sites where wastes might enter watercourses through runoff or leaching? Other provisions in the Act, meant to provide a regulatory thrust to water quality management, appear to limit their focus to waste treatment facilities.

Current Canada/Ontario discussions pursuant to the Canada Water Act have been limited to the establishment of a consultative committee.¹⁰ The committee presently has limited its concern to quantitative aspects of water resources, leaving water quality considerations to existing mechanisms, including the Canada-Ontario Agreement on Great Lakes Water Quality.

III. Other Legislative Mechanisms

A. The Indian Act ¹²

1. Indian Reserve Waste Disposal Regulations ¹³

a. Administration

The Act and Regulations are administered by the Department of Indian Affairs and Northern Development.

b. Key Provisions of the Regulations

No person is permitted to operate a garbage dump in a reserve, or use any land in a reserve for the disposal or storage of waste unless a permit has been issued by the Minister or a delegated authority, such as a council of a band, and in the manner specified in the permit. ¹⁴ The permit must specify the land in respect of which the permit is issued; and the manner in which the activity authorized will be conducted. ¹⁵ Where the holder of a permit has violated its terms, the Minister or the delegated authority, may cancel the permit and order the holder of the permit to close and clean up the garbage dump or to clean up the land in the reserve, in a manner satisfactory to the Minister or the delegated authority. ¹⁶ Every person who violates the regulations is liable on summary conviction to a fine not exceeding one hundred dollars or imprisonment for a term not exceeding three months, or both. ¹⁷

Comment

The vast majority of waste storage and disposal facilities on Indian reserves in Ontario are built by the Department itself. ¹⁸ As a result few permits are issued by the Department pursuant to the above regulations. ¹⁹ Those permits that are issued by the Department require the applicant to submit plans and specifications of the facilities to the Department which may require the establishment of leachate monitoring wells and the filing of periodic reports with respect to water quality in and around the disposal site. It is understood that installation of monitoring wells and filing of periodic reports are also performed on DIAND built disposal facilities through external consulting contracts. Generally before DIAND builds or authorizes ²⁰ such a site its policy is to consult with EPS and to follow EPS guidelines ²⁰ and Ontario Ministry of Environment regulations ²¹ whichever are more stringent in a particular situation. In Ontario, DIAND utilizes approximately twenty construction supervisors and maintenance officers to perform inspection and coordination activities (if consultants are used) during construction, maintenance and operations stages of a disposal site or other facility. After installation of a disposal site or other facility has been achieved, maintenance inspections are performed every six months to ²² a year with respect to such matters as effluent quality. Currently, ²³ 4-5 disposal site, storage or septic tank facilities are undergoing upgrading for the mitigation and correction of water pollution concerns. Such concerns generally relate to low quality leachate or the overloading of a sewage lagoon system. ²³

All lagoon effluents are ultimately hauled to landfill sites.²⁴ Where such sites are not on federal lands or property, it is a DIAND policy to only contract with haulers that have been approved and certified pursuant to provincial environmental regulations.

B. National Parks Act²⁵

1. National Parks Garbage Regulations²⁶

a. Administration

The Act and Regulations are administered by the Department of Indian Affairs and Northern Development.

b. Key Provisions of Regulations

The Superintendent of a National Park, or his designate, may issue a permit in writing to any person authorizing that person to deliver miscellaneous waste or trade wastes originating in the Park to the Park's sanitary landfill, or dump area; or garbage originating in the Park to such point as may be designated by the Superintendent.²⁷

Comment

No information was available at the time of writing with respect to the numbers of such sites and permits in Ontario National Parks, the criteria used in selection and management of such sites or problems encountered therein.

C. The Atomic Energy Control Act²⁸

1. Purpose

The purpose of the Act is to make provision for the control and supervision of the development, application and use of atomic energy, and to enable Canada to participate effectively in measures of international control of atomic energy.

2. Administration

The Act is administered by the Ministry of Energy, Mines and Resources and the Atomic Energy Control Board, the latter established under the Act.²⁹ Four members of the Board are appointed by the Cabinet and the fifth consists of the person who from time to time holds the office of President of the National Research Council.³⁰ One of the members is appointed by the Cabinet to be President and Chief Executive Officer of the Board.³¹

3. Key Provisions

The Board may make rules for regulating its proceedings and the performance of its functions.³² The Board may with the approval of the federal cabinet make regulations for developing, controlling, supervising and licensing the production, application and use of atomic energy; respecting mining and prospecting for

prescribed substances; for the purpose of keeping secret information respecting the production, use and application of, and research and investigations with respect to, atomic energy, as in the opinion of the Board, the public interest may require. 33

4. Key Regulations

"Nuclear facility" is defined to include a facility for the disposal of radioactive wastes. 34 The Board may issue a licence to operate a nuclear facility upon receipt of a written application setting out such matters as a description of the operating procedures of the nuclear facility; a description of the measures to be taken to prevent or minimize hazards involved in the operation of the facility. 35 A licence issued by the Board may contain such conditions as the Board deems necessary in the interests of health, safety and security, including conditions respecting the method of disposing of radioactive or other hazardous material resulting from the operation of the nuclear facility. 36 The Board shall not issue a licence for a facility unless the approval in writing of the Board to construct or acquire the nuclear facility has previously been obtained and the Board has received evidence satisfactory to it of compliance with the conditions, if any, of the approval. 37 Unless exempted in writing by the Board, no person shall operate a nuclear facility except in accordance with a licence issued by the Board. 38 The Board or its designate may appoint inspectors to review premises where a nuclear facility is being constructed or operated. 39 Where a breach of the regulations or a condition of any licence has occurred, an inspector may direct the person holding the appropriate licence to submit a report respecting such breach and any remedial action to be taken and may direct such action to be taken as he deems necessary to remedy the breach. 40

The Board or its designate may appoint any person or committee to advise on radiation safety. 41 Any person or committee shall review at the request of the Board applications for licences under the regulations; and make recommendations to the Board respecting the granting of licences or changes in the conditions of any licence. 42

Every person in charge of a nuclear facility shall, in the event of an occurrence that results or is likely to result in the release of an excess amount of radiation as defined in the regulatory schedules, report such occurrence to the appropriate Board inspector and send a complete report, as soon as possible after the occurrence, to the Board, to the appropriate inspector and to the relevant committee established pursuant to section 16. 43

No person shall abandon or dispose of radioactive materials except in accordance with the conditions in any licence that is in force or in accordance with the written instructions of the Board. 44

The Board or its designate may, by written notice to any licence holder, revoke, suspend or amend a licence. The Board shall not issue a notice unless the licence holder has first been informed in writing of the reasons for the proposed notice, or in the case of an amendment of the terms and conditions, the proposed amendments, and has been given reasonable opportunity to be heard by the Board after receiving such information.⁴⁵

The Board may however, by written notice with reasons, suspend a licence without giving the lice holder an opportunity to be heard, where it is considered necessary to do so in the interests of health, safety or security.⁴⁶ Where a licence has been suspended, the licence holder may within 10 days of the date of receipt of the notice of suspension submit a request in writing to the Board⁴⁷ to hold an inquiry into the reasons for such suspension. Upon receipt of such a written request the Board shall hold an inquiry within thirty days of the receipt of such request, and provide the licence holder at least seven⁴⁸ days notice in writing of the time and place of the inquiry. At the inquiry's conclusion the Board may revoke the licence; revoke the suspension; or extend the suspension until the⁴⁹ conditions prescribed by the Board have been complied with.

Where a breach of any terms and conditions of a licence has occurred, the licence-holder intends to surrender his licence, or a licence has been revoked or suspended the Board may, in writing, require the holder of the licence to take such measures as are considered necessary for protection of persons and property until such time as the breach has been rectified or the activities being carried out under the authority of the licence have been properly terminated.⁵⁰

5. Special Developments - The Radioactive Waste Safety Advisory Committee

Pursuant to the regulations⁵¹ the Radioactive Waste Safety Advisory Committee was created to advise the Board on radioactive waste management policy and to consider and make recommendations on the safety aspects of specific licensing applications for the siting, construction and operation of waste management facilities.⁵² The committee is composed of scientists and engineers including personnel from governmental health and environmental departments.

Comment

The objectives of the radioactive waste management program are understood to include (1) the management of wastes so that the potential hazards of the material are minimized, and (2) the management of wastes in a manner which places⁵³ the minimum possible burden on future generations. Because the Board is currently not satisfied with the adequacy of any proposed disposal method, it only licences waste storage facilities.⁵⁴ The types of storage facilities which the Board currently licences include (1) facilities for the collection, processing, packaging and temporary storage of radioactive wastes for periods of up to a few

years; (2) facilities for storage of radioactive wastes for some intermediate period limited by the integrity of the facility; (3) facilities for very long term storage and management of radioactive wastes.

In Ontario at present it is understood that waste management sites being cleaned up, under licence or in the process of being licensed include four storage or residue areas owned by Eldorado Nuclear, a crown corporation; two waste management sites on Atomic Energy Control Limited property at Chalk River Nuclear Laboratories and two waste management sites at Ontario Hydro's Bruce Nuclear Power Development facilities in Bruce County.⁵⁵

A federal-provincial working group created to "expedite the approval of an appropriate waste management site to handle the material from the clean-up of radioactive contamination in the Port Hope area" has recently chosen Chalk River facilities as the site for the first stage of remedial clean-up measures. It is also understood that Eldorado Nuclear is planning a new refinery complex to include provision for a waste management facility which would have to be approved by AECEB.

With respect to the water quality/land use concerns of this study, the criteria currently used by the Board and the committee in evaluating each application for the design and operation of an intermediate term storage facility, for example, include that the waste should be stored in solid form in near-surface engineered structures; the facilities should be designed to prevent the escape of the contained radioactive materials to the surroundings; provision should be made to detect the escape of radioactive material into the immediate surroundings of the facilities; provision should be made to allow corrective action in the event that unacceptably high levels of activity are detected in the surroundings, including provision to retrieve the radioactive material safely from any of the facilities in a form suitable for ordinary commercial transport to another location; provision for surface water run-off to be monitored and controlled before discharge, should be provided; and there should be at least two levels of containment⁵⁶ to prevent escape of radioactive material to the public domain.

Interim term storage facility siting requirements of interest to this study include that groundwater conditions must exist which prevent contact between waste management facilities and groundwater, when a facility is located in a geologic formation, groundwater movement⁵⁷ out of the area must be minimized or controlled.

From a review of the above provisions as well as a review by the contractor of files regarding specific waste management facility licence applications and general draft guidelines, it is clear that contaminated runoff and its control is a matter of concern from such facilities. It is understood that the AECEB is in the process of drafting criteria and guidelines for radioactive waste management facilities. Preliminary DOE comments on such guidelines include siting, land characteristics and site management concerns. Unofficial

DOE recommendations for siting argue that site boundaries should be a minimum of 600 feet from any surface water. With respect to land characteristics, DOE argues that soil permeability should be high to minimize surface run-off, and that slopes in excess of 3 per cent should be avoided for such sites. With respect to site management, DOE recommends ground and surface water monitoring at regular intervals as well as special precautions to avoid surface run-off or in the event of such run-off, remedial action of an undefined nature. At the time of writing it is not known whether such recommendations will be incorporated by the AECB.

From a review of the Act above it is clear that AECB's jurisdiction on all matters related to atomic energy production, use, disposal etc is exclusive. While DOE has membership on AECB advisory committees it of course has no regulatory authority to require that its recommendations be included in AECB licences. (Query, however, if radioactive run-off or leaching from such facilities was adversely affecting fisheries whether DOE would have jurisdiction in theory pursuant to the Fisheries Act to require measures to control pollution from such activities to the extent necessary to protect fisheries?)

The AEC Act and regulations are silent on the question of notice or hearings before approval of waste management facility applications or appeals thereafter. The practice of the AECB is to generally require the applicant to conduct a "public information program." ⁵⁸ In such a program the applicant would have to (1) make known and describe his plans and (2) explain how his plans would impact on environmental and other factors. Because no "public information programs" have yet been conducted on waste management facility applications, it is not possible to review their adequacy in addressing matters of interest to this study, nor their adequacy as a substitute for statutory hearing procedures in so addressing relevant issues. As noted above, the only hearing the Act authorizes is one which may be invoked by a licence holder where the AECB has suspended or intends to suspend a licence. The only notice required is notice to the licence holder of intention to suspend or actual notice of suspension with reasons attached.

IV. Non-Statutory ProgrammesA. Control and Abatement of Pollution by Federal Activities 591. Purpose

To control environmental pollution generated from federal facilities and activities, including water pollution, solid wastes and hazardous substances disposal; to ensure that a mechanism is in place to accomplish this end; and to demonstrate federal leadership in this area for other public and private sectors.

2. Administration

Creation of a central fund controlled by the Treasury Board for the cleanup of existing federal pollution sources identified and evaluated by the Department of Environment with the assistance⁶⁰ of other government departments and agencies involved.

3. Key Provisions

To ensure that pollution cleanup and preventive action for Federal activities reflects federal policy and conforms with recognized material regulations or guidelines based on the best practicable pollution control technology; that the Department of Environment responsibilities include planning and implementing programs, including a capability for identifying pollution problems (existing and potential), recommending remedial measures, setting priorities for funding cleanup and monitoring the control systems installed; to ensure that satisfactory control measures are incorporated into the design of all new facilities and activities initiated or supported by the federal government or under its jurisdiction.

B. Environmental Protection Service Codes and Guidelines1. Code of Good Practice on Dump Closing or Conversion to Sanitary Landfill at Federal Establishments⁶¹(a) Purpose

To provide recommended practices for personnel who are engaged in the management of solid wastes at federal facilities. Pursuant to the June 1972 Cabinet directive on Control and Abatement of Pollution from Federal Activities the purpose of the Code is to provide a consistent and exemplary environmental pollution control program by reviewing, and where necessary, upgrading the design, operation and maintenance of federal installations, thus offering leadership in the efforts at protection and enhancement of environmental quality.

(b) Application

The code is meant to apply to federal facilities under the jurisdiction of the federal government.

(c) Key Provisions

The deposit of refuse in locations where contact between refuse and the groundwater table is possible should be avoided. The disposal site should be graded and/or provided with proper drainage facilities to minimize run-off into and onto the fill, and prevent collection of standing water. The final surface of the fill should be graded to a slope but in such a manner as to ensure that erosion does not occur. Seeding with appropriate grasses to promote stabilization of the cover should be performed on finished portions of the site. With respect to control of surface and ground water pollution, the dump closure or conversion process should minimize environmental hazards and should conform to applicable ground and surface water quality regulations. Runoff should be diverted from the land disposal site by trenches and proper grading, and provisions for flood control should be made. Leachate collection and treatment systems should be used when necessary to protect ground and surface waters. Collected leachate should receive adequate treatment before discharge to receiving body. In no case should solid waste be allowed to contact ground water. The ground water and deposited solid waste should be at least five feet apart. Closed dumps and converted sanitary landfills should be annually inspected by the appropriate government agency including EPS.

2. Guidelines for Effluent Quality and Waste Water Treatment at Federal Establishments⁶²(a) Purpose and Policy

To meet the requirements of the Cabinet directive on federal activities cleanup. To indicate the degree of treatment and effluent quality applicable to all wastewater⁶³ discharged from existing and proposed federal installations. To promote a consistent approach towards the cleanup and prevention of water pollution and ensure that the best practicable control technology is used. In keeping with a national leadership role federal facilities for water pollution control are to reflect sound engineering and best practicable technology regardless of dilution available from receiving waters. Guidelines for effluent release are to be equal to or more stringent than the established standards of any federal or provincial regulatory agency.

(b) Application

The guidelines apply to all effluents discharged from federal land based establishments, but exclude those owned by crown corporations.

(c) Key Provisions

If soil and groundwater conditions are satisfactory it is acceptable

to use land disposal systems such as one-celled retention lagoons. Septic tanks with subsurface disposal systems or elevated file fields should be considered satisfactory only when soil conditions are suitable as determined by on-site investigations. Holding tanks should be considered acceptable provided their operation constitutes no threat to public health or impairs aesthetic conditions of the site at which they are utilized. The contents of such holding tanks should be disposed of on a regular basis. Septic tanks discharging directly to surface waters are not considered acceptable.

Every effort should be made in the design, operation and maintenance of sludge disposal facilities to ensure protection of the receiving environment. Processes involving disposal of sludge should reflect the best practicable technology. The disposal method of treated sewage sludge should comply with pollution control requirements of concerned municipal and provincial authorities.

3. Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Facilities ⁶⁴

(a) Purpose, Application, Objectives

Principally the same as the above noted Codes and Guidelines. In addition special objectives include the reduction of detrimental effects on the ecology due to hazardous and toxic wastes generated within federal facilities; the reduction of waste generation within federal facilities; the attainment of maximum safety, efficiency and economy in the handling and disposal of wastes within federal facilities; the recovery of reusable materials from waste within federal facilities; the establishment and maintenance of the interface between each federal facility and the public or private waste disposal agency.

(b) Key Provisions

Efforts should be made to reduce both the purchasing and use of large quantities of hazardous and toxic wastes for federal facilities, including where applicable, substitution of a less hazardous or toxic substance where possible.

All hazardous wastes should be evaluated to establish if recovery is feasible. Where recovery procedures are not currently available for those compounds listed for recovery, they should not be released to the water, air or soil. They should be buried in chemical landfills where geological, geographic locations and operating practices prevent contamination beyond the designated area.

With respect to chemical landfill of certain hazardous and toxic wastes EPS recommendations include; prior consultation with EPS before design and construction of a fill site; avoidance of site locations near heavily populated areas; sufficient distances between the site and nearby industries, public roads or highways; and a minimum of 500 feet between disposal areas and residences. ⁶⁵

Further recommendations include prior investigation - through field inspection and testing programs - of geological and groundwater conditions. Appropriate investigations should determine the depth and occurrence of ground water and its quality, and indicate either that geological conditions will prevent migration of hazardous material or that appropriate design features are feasible to prevent such migration.

Leachate ⁶⁶ must not be allowed to reach groundwater sources. Where geological conditions are such that this may occur, impermeable materials should be imported or artificial linings installed. Pre-testing should be conducted on the suitability of such linings vis-a-vis the types of wastes to be landfilled.

With respect to drainage in and around the site, all runoff from areas tributary to the disposal site should be diverted around the site. Drainage devices, such as culverts, to bypass storm runoff from disposal areas, should be adequately sized to carry the required flow capacity. Landfill surfaces should be properly sloped to prevent ponded water conditions and to prevent erosion.

Where leachate from large quantities of wastes are disposed of at a site, use of interceptor drains or collection facilities may be necessary at the lower end of the site. The purpose of this recommendation is to allow recycling of any leachate into upper portions of the disposal site, or to treat the leachate in another manner.

With respect to site management, EPS recommends neutralization or stabilization at source of materials before transportation to a disposal site. It further recommends an estimate of the types, characteristics, and quantities of wastes received be prepared as well as establishment of a grid system which separates the disposal site into specific, well-defined areas for reception of various types or classes of wastes. Wastes should also be mixed with the soil in a site to utilize the absorbent capacity of the soil as well as achieve some biological breakdown of the waste.

Keeping of records regarding types, chemical composition and concentration and quantities received, and portion of site used is also recommended.

4. Code of Good Practice for the Handling of Solid Waste at Federal Establishments ⁶⁷

C. Resource Recovery

An indirect means of reducing the adverse impact on water quality of waste disposal sites is to reduce the number of such sites through resource recovery initiatives. The federal government, including the Solid Waste Management Branch of EPS, is currently engaging in or sponsoring a number of studies to determine new strategies for the maximization of resource recovery.

Current activities in this regard include development of a national inventory and data base on solid wastes to evaluate their air, land and water pollution potential as well as their potential for energy and materials recovery. Emphasis is presently on municipal solid wastes as opposed to industrial solid wastes and recovery because of budgetary constraints.

Investigations are also being undertaken to review existing federal policy instruments that influence or might be applied to encourage municipal and industrial solid waste reduction and resource recovery and reuse. ^{67A} Feasibility studies are also being undertaken to review resource recovery options with respect to glass, non-ferrous materials, rubber and plastics etc.

Resource recovery and new landfill site studies are being conducted in conjunction with federal facilities and local and provincial jurisdictions. ⁶⁸

Comment

Because the federal government owns and operates considerable land and facilities in Ontario, ⁶⁹ it is in the position to demonstrate exemplary management techniques at its various waste disposal area sites as well as encourage new waste management and recovery strategies. The impetus for the Cabinet directive on clean up at federal facilities was in part an acknowledgement of this potential leadership role. It was also clear that the federal government would be undermining its policy and program goals for the protection of environmental quality if it were seen to be continuing to contribute to pollution. It could not reasonably expect other public sectors and industry to improve their operations. at federal insistence, if the federal government itself was incapable of managing its own operations in accordance with appropriate environmental standards.

In this regard, where operations at federal disposal area facilities have been unacceptable such operations have been closed or converted. ⁷⁰ Typical problems at such sites include dumping, leachate migration and pollution to groundwater tables and encroachment onto wetlands and stream and marshy areas. In order to avoid repetition of past mistakes, completed and ongoing federal studies have been commissioned to determine the extent of water pollution problems with old sites, to develop appropriate preventive strategies for future sites and to gather background data on environmental conditions prior to commencement of operations at new facilities. ⁷¹ As a supplement to these efforts, federally sponsored studies are continuing to evaluate resource recovery and sanitary landfill

options where such ventures would service not only federal facilities but financially constrained local communities that might otherwise only look to the disposal option as financially viable.⁷² While the Cabinet directive and the several codes and guidelines were developed to act as substitutes for legislation in regards to federal activities, including disposal activities, the codes and guidelines themselves are regarded by EPS as too new to permit an evaluation of how other federal departments and agencies are responding to them. Many of the codes are still in draft form. Thus in the interim EPS expects that other federal departments will, as a matter of accepted procedure, consult with it prior to making significant decisions with environmental implications. Indeed, the EARP which also evolved from the Cabinet directive as the preventive side for controlling future government initiatives with potential environmental effects, is also predicated on this notion. It is understood though that unlike the clean up program of existing facilities, where funds are available for such cleanup, EARP possesses no similar funding mechanism. This coupled with other federal departments' reluctance to submit their projects to Environment scrutiny limits EARP's usefulness in this area. EARP, for example, could be used to evaluate the adequacy, funding and scope of the federal governments' programs in respect of resource recovery and make appropriate recommendations. As noted above, the greater the transition to waste reduction and resource recovery the lesser the impact of disposal areas on environmental quality, including water quality.

Federal land and facilities aside, land as a disposal medium is not regarded as one that is primarily in the federal domain to regulate. The jurisdiction is perceived to be principally provincial, with the federal role to be mainly complementary, in the sense of technology development, demonstration and information transfer.⁷³ However, the growing volume and toxicity⁷⁴ of solid wastes is perceived to be a national problem.

The other half of the disposal problem, resource conservation and recovery, is perceived to be a matter that the federal government can more properly address than local or provincial governments on their own.⁷⁵ The indirect benefits that may accrue to water quality from the resulting reduction in the number of disposal sites have already been discussed.

V. Agreements

A. Canada - Ontario Agreement on Great Lakes Water Quality (1971)⁷⁶

1. Land Disposal of Sludge Subcommittee

a. Purpose

The Land Disposal of Sludge Subcommittee was established as part of the research program for the abatement of municipal pollution, pursuant to the Canada - Ontario Agreement.

b. Terms of Reference

The terms of reference of the committee include providing advice and direction in the development of a research strategy in the area of application of sewage sludge to land; to review research proposals and assess their implications; to provide general advice in these areas and; to liaise with groups concerned with environmental quality aspects of sludge disposal on land.

c. Devc. Development of Guidelines for the Utilization of Processed Sewage Sludges on Agricultural Lands⁷⁸

Canada - U.S. Agreement on Great Lakes Water Quality (1972)

B. Canada - U.S. Agreement on Great Lakes Water Quality (1972)

1. Objective

To improve the quality of the water in the areas of the Great Lakes now suffering from pollution and to ensure that Great Lakes Water Quality will be protected in future.

2. Administration

The International Joint Commission was given primary responsibility for overseeing implementation of the agreement. The Commission has established a number of Reference Groups to carry out the various provisions of the agreement. These include the Pollution from Land Use Activities Reference Group.

3. Key Provisions

The Agreement called for the development and implementation of programs and other measures directed toward the achievement of the water quality objectives as soon as practicable in accordance with legislation in the two countries.⁷⁹ These to include measures governing the disposal of solid wastes and contributing to the achievement of the water quality objectives, including encouragement to appropriate regulatory agencies to ensure proper location of land fill and land dumping sites and regulations governing the disposal on land of hazardous polluting substances.⁸⁰ The Commission was requested to consider the adequacy of existing programs and control measures, and the need for improvements with respect to land fills, land dumping and deep well disposal practices.⁸¹

4. Status

Studies which have been initiated to meet the above requirements include evaluation of approximately one-half dozen landfill sites. These sites were selected on the basis of obtaining as much information as possible during the study period. Wastes accepted at the study sites are understood to range from domestic to industrial. The data is currently being analyzed and it is understood that a report is expected in the fall of 1976. Other studies and projects ongoing pursuant to the Agreement include waste characterization studies, in which twenty-six (26) industries were studied and disposal procedures reviewed. (A report is also expected shortly); and two Canada - U.S. round-table workshops on leachate and landfill monitoring. One manual has been printed with the second currently under review. A third workshop is expected to be held in June 1976.

NOTES

1. Remarks with respect to the Fisheries Act and Canada Water Act will be limited to a brief commentary as the main provisions of these statutes were highlighted in Interim Report No. 1. Where necessary, reference should therefore be made to that report.
2. The Fisheries Act is currently administered by the Ontario Ministry of Natural Resources pursuant to an 1899 delegation of powers to the provincial government by the federal. The Environmental Protection Service maintains an audit function of the Act's administration.
3. Recent studies conducted by and for EPS indicate that leachate migration and toxicity levels from landfill sites may adversely effect fisheries. See Minutes of Solid Waste Management Division meeting May 6, 1975, Toronto, and EPS draft document on "Solid Waste Management" (1976).
4. See the Ontario Environmental Protection Act, S.O. 1971, c.86 as amended, Part V (Waste Management provisions); discussed infra.
- 4A. It is understood that recently two disposal area sites on non-federal lands, which were perceived to be adversely effecting fisheries in B.C., were shut down after indications from Pacific Region EPS officials that use of the Fisheries Act would be contemplated if conditions at the sites weren't improved. Administration of the Fisheries Act in B.C. is still conducted by EPS.
5. Municipalities have traditionally been permitted to enact by-laws regarding control of land for disposal of refuse by such provincial enabling provisions as those in The Municipal Act, R.S.O. 1970, c.284 as amended (s. 354 (1) 116). The power to enact such a statute delegating such powers to municipalities comes in part from the British North America Act, 1867, ss. 92(13) and (16) which grant to the provinces powers with respect to "property and civil rights "and" matters of a local or private nature.
6. "Non proprietary crown corporations" are those entities chartered by the federal government and not in competition with private enterprise. Proprietary crown corporations are those entities chartered by the federal government and which are in competition with private enterprise (eg. Canadian National Railways). The latter category, because of their competitive relationship to private enterprise are understood to be more reticent to engage in cleanup programs, including solid waste and landfill cleanup, under regulations or through cooperative mechanisms, because of the perceived competitive disadvantage in which this might place them vis-a-vis private enterprise. It is conceivable therefore that in a hypothetical disposal area activity taking place on federal lands, such entities could escape both federal and provincial control in the event of water contamination from such areas.

7. Government of Canada, Cabinet Committee on Government Operations directive on "Control and Abatement of Pollution by Federal Activities - Cleanup and Prevention, "June 8, 1972. Discussed, *infra*.
8. R.S.C. 1970, c.5 (1ST Supp.) s.8.
9. See, for example, s. 13.
10. This consultative arrangement is provided for in section 3 of the Act. It permits such committees; to maintain continuing consultation on water resource matters and to advise on priorities for research, planning, conservation, development and utilization relating thereto. To advise on the formulation of water policies and programs; and to facilitate the coordination and implementation of water policies and programs.
11. See, Canada/Ontario Consultative Committee on Water agreed terms of reference, May 21, 1975.
12. R.S.C. 1970 cI-6.
13. S.O.R. 74/153, Canada Gazette Part II, Vol. 108, No. 6, March 27, 1974 as amended. These regulations have been promulgated pursuant to ss.73 (1) (f), (i) (k) and (2) of the Act. Those sections permit the Cabinet to make regulations to prevent, mitigate and control the spread of diseases on reserves; to provide for the inspection of premises on reserves; to provide for sanitary conditions in public and private premises on reserves; and to prescribe for levels of fines or imprisonment for the violation of the regulations upon summary conviction.
14. s.3.
15. s.6.
16. s.11.
17. s.13.
18. There are 105 Indian reserves in Ontario. Approximately three-quarters of the 105 reserves would have DIAND built facilities.
19. Since January 1, 1975 10 permits have been issued by the Department for disposal facilities not built by the Department itself. Figures are approximate. Interview with K.C. Chan, pollution control engineer, DIAND, Ontario Region, Toronto, July 29, 1976.
20. EPS, Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments, June 1974. Discussed *infra*.
21. Regulation 824 (Waste Management) of R.R.O. 1970 as amended, pursuant to the Environmental Protection Act, *supra* note 4.
22. As of July 29, 1976.
23. Most sewage lagoon systems on Indian reserves are understood to have two cells, such that when one cell has reached capacity the next cell may be brought on stream to accept wastes. The overloading is generally due to an insufficient number of cells within the lagoon system.
24. It is understood that there is no land application of sludges on Indian Reserve lands in Ontario.
25. R.S.C. 1970 c. N-13 as amended.

26. SOR 68/540, Canada Gazette Part II, Vol. 102, No. 23, December 11, 1968.
27. Ibid, s.7. The Act provides that any person violating a provision of the regulations is liable on summary conviction to a penalty of not more than five hundred dollars and in default of immediate payment of the penalty, to imprisonment with or without hard labour for any term not exceeding six months. Section 8(1) of the Act.
28. R.S.C. 1970, c. A-19 as amended
29. s.3.
30. s.4.
31. s.5.
32. s.8(a)
33. s.9
34. SOR 74-334, Canada Gazette Part II, Vol. 108, No. 12, June 4, 1974, s.2.
35. s.9
36. Ibid.
37. s.10
38. s.8
39. s.12
40. Ibid
41. s.16. See discussion regarding the Radioactive Waste Safety Advisory Committee, *infra*.
42. Ibid.
43. s.21
44. s.25
45. s.27
46. s.27 (4)
47. s.27 (5)
48. s.27 (6)
49. s.27 (7)
50. s.28
51. s.16
52. See AECB Fact Sheet, Materials and Equipment Control Directorate, on the Radioactive Waste Safety Advisory Committee, November 20, 1974.
53. J.P. Didyk, AECB; a paper delivered to the International Plant Engineering Conference on "Radioactive Waste Management in Canada, Montreal, 1976.
54. Even Eldorado Nuclear Limited's Port Granby site, for example, is licenced as an intermediate term storage facility. The Board recently ordered Eldorado to stop using the facility by January 31, 1977, and to carry out further studies of the impact the leaching and runoff of toxic substances from Port Granby has had on the water quality of adjacent Lake Ontario. See "Eldorado Nuclear ordered to end residue dumping at Port Granby, "The Globe and Mail, July 8, 1976."
55. See, AECB report, "Radioactive Waste Locations in Canada," February 19, 1976.
56. Supra note 53.
57. Ibid.
58. AECB licensing approvals for all nuclear facilities, including waste management facilities, are done in three stages. First a site approval is given. This approval is itself divided into two phrases; conditional site approval and final site approval. The "public information program" takes place between these two phases. The second stage is construction approval. The third stage is operation approval. Interview with R. W. Blackburn, Secretary, AECB, August 19, 1976.

59. Supra note 7. Comment on the Cabinet directive will follow the discussion of several EPS codes and guidelines that have been developed or are in the process of development to effectuate the directive's ends.
60. Approximately \$60 million was originally estimated as necessary for cleanup to control air, water, hazardous substances, solid wastes and noise pollution from existing federal facilities. The cleanup period was envisioned as spanning approximately four-five years with annual budgetary expenditures not to exceed \$20 million. Because the initial estimates of funds necessary for the cleanup were not based on an exhaustive inventory of federal facilities, associated contingency cost overruns or inflation the original figure is currently regarded as potentially short of the final amount that will be needed for full cleanup.
61. The Code is still subject to change. Discussion of its contents will proceed on the basis of its draft status as of June 1976.
62. EPS, Final Guidelines, June 1974.
63. "Wastewater" is defined in the Guidelines to include land runoffs.
64. EPS, Draft accurate as of June 1976.
65. The Code is silent on minimum separation distances between such disposal areas and streams or watercourses except for text commentary below. It would appear that such an omission is predicated on the notion that appropriate distances are far more dependent on a variety of factors including geological conditions, soil type etc., and therefore one set distance would be too inflexible for all circumstances encountered.
66. Defined as liquid that percolates through a landfill and may contain certain other dissolved or suspended materials.
67. This Code is currently undergoing draft revision, consequently no information was available at time of writing as to its provisions.
- 67A. Such measures are understood to potentially include placing the costs of waste on the consumer of any particular product rather than on the public generally, by use of a disposal tax; requiring that packaging and products have a minimum useful life; demonstration of appropriate resource conservation and reuse by the federal government in its own procurement activities as well as other fiscal, tariff and incentive and disincentive measures. For a general survey of the area see, for example, "Recycling: Identifying the Barriers," a municipal solid waste study by the Pollution Probe Foundation, May 1975, Toronto.
68. Such studies are currently underway, for example, in the Department of National Defence (CFB Petawawa) - City of Pembroke area in Ontario.
69. There are approximately 2000 federal establishments in Ontario. Many such establishments would utilize provincial and local sanitary landfill sites. Approximately 30-40 landfill sites and lagoons are on 1% of federal lands excluding those on Indian Reserve lands.
70. In Ontario, it is understood that this would apply to no more than two or three federal disposal area facilities aside from those operations that had reached their intended capacity.

71. Such studies are in progress, for example, at Department of National Defence disposal area facilities at CFB Borden in Ontario.
72. Supra note 68.
73. The jurisdiction that the Fisheries Act might grant to the federal government with respect to leachate toxicity to fisheries from land-fill sites on federal or non-federal lands and property has been discussed above. The federal position on the Act's use in this regard, particularly in Ontario, has not been developed to date.
74. See EPS draft document "Solid Waste Management" (1976) in which under a heading entitled "National Solid Waste Management Problems" the following observations are made: "Municipal and industrial solid wastes to be handled and disposed of or recovered are growing faster than the increase in population; many industrial wastes, especially hazardous and toxic forms, are not presently being handled in industrial treatment centres, resulting in their being indiscriminately disposed of on land with ensuing environmental impacts; There exists and increased desire to engineer sites rather than continue to search for the "best" site, yet insufficient technology exists at present.
75. This is in part due to the federal government's jurisdiction over interprovincial and international trade and commerce, including of course flow of goods. The B.N.A. Act, 1867 as amended, s.91(2).
76. The COA was renewed for the period January 1, 1976 to March 31, 1980 on March 12, 1976. The main purpose of the agreement is to ensure that Canada will be able to meet its continuing obligations under the Canada-U.S. Agreement on Great Lakes Water Quality. The key element in the revised agreement is surveillance of Great Lakes Water Quality. The scope of the original five-year agreement is extended beyond research and capital construction for sewage works, with more emphasis perceived to be placed on environmental assessment and protection.
77. Principle concerns with respect to sewage sludge land application and water quality appear to include the balance movement and fate of nitrogen compounds to water as well as the level of heavy metals in sludges because of potential problems associated with pollution of surface water due to runoff; pollution of groundwater due to leaching. Studies include sewage sludge characterizations, equipment application, field trial, environmental effects (noted in part above) etc.
78. These guidelines have been developed by the Ontario Ministry of Environment and the Ministry of Agriculture and Food, and are continually reviewed and updated as circumstances warrant. They will be reported on in greater detail under the provincial controls part of this report.
79. Article V,1.
80. Article V, 1(d) (iii)
81. Text of the Reference to investigate pollution from land use activities, annexed to the Agreement.