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# Summary Report on the Canadian Visit to European Hazardous Waste Treatment/Disposal Facilities October 20-28, 1980

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SUMMARY REPORT ON THE CANADIAN

VISIT TO EUROPEAN HAZARDOUS WASTE TREATMENT/DISPOSAL FACILITIES

OCTOBER 20-28, 1980

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**ABSTRACT**

A Canadian delegation comprised of federal and provincial officials visited several European hazardous waste treatment facilities and met with environmental officials in England, West Germany, Denmark and France to discuss their hazardous waste management programs. This report summarizes the main findings of the visit.



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## **1 INTRODUCTION**

This report presents a summary of findings of a visit (October 20 to 28, 1980) by a Canadian delegation to hazardous waste treatment/disposal facilities in England, West Germany, Denmark and France. During its visit, the delegation, which included federal and provincial environmental officials and two officials from the Environmental Council of Alberta, also met with waste management officials from the environmental agencies in England, Germany and France. The names and addresses of the members of the visiting group, the facilities visited, and the names and addresses of all the European officials contacted are presented in the Appendix.

More detailed information on discussions with the environmental officials and on facilities visited is contained in a separate technical report which can be obtained by writing to the Waste Management Branch, Environment Canada, Ottawa, K1A 1C8. Also, an earlier document entitled Canadian Fact-finding Mission on Hazardous Waste Management in Europe, dealing with a similar visit in July 1979, is available in both official languages from the Waste Management Branch.

## **2 SUMMARY OF FINDINGS**

### **2.1 Background**

European involvement with hazardous wastes management began in the early 1970's when several countries realized that many abandoned as well as operating disposal sites dangerously polluted vital ground and surface water resources. Since landfills were found to be the primary polluters, they concluded that ordinary landfills could not properly handle the increasing quantities of dangerous and toxic waste materials. Recognition of such problems led to positive action and resulted in a comprehensive program for the management of hazardous wastes. In brief, the main components of the program included the development of appropriate legislation, policies, systems for storage and transportation, and disposal/treatment technology. Since Europe is both densely populated and highly industrialized and has a multitude of dangerous goods and hazardous wastes continually crossing national borders, close consultation among the countries was an integral part of their program. The consultation was probably facilitated through membership in the European Common Market and the presence of multinational companies within the European community. Information on key elements of the European

hazardous wastes management program gathered by the Canadian delegation during its visit are summarized below.

## **2.2 Legislation**

The following two legislative trends were found to be common to the European countries visited. Firstly, all enabling hazardous waste management legislation was generally based on water pollution concerns. Legislation was enacted by the central governments of each country, while the administration and implementation were usually left to the various local governments (counties, landers, etc.). Secondly, the European countries visited generally developed new legislation for hazardous wastes, although some countries were able to benefit from existing or new comprehensive environmental legislation which integrated air, water and land aspects.

## **2.3 Policies**

Policies among the countries visited varied considerably. England, for instance, relies on a philosophy of "attenuation and dispersion"; on the other hand, Denmark, West Germany and France, seem to favor the philosophy of "total destruction" by incineration and secure landfilling of treated wastes. All of the countries also promote reuse, recycle and recovery as fundamental components of their hazardous waste management programs. Many of the policies appeared to be influenced by economic factors and concerns for public safety. In general, the countries visited had not made special provisions for long-term liability of their facilities. The movement of hazardous wastes across international borders was common, possibly because of the Common Market influence as well as other economic reasons such as transportation costs.

## **2.4 Effectiveness of the European Approach**

The European approach in the fields of legislation and policies appears to have been successful in preventing the development of serious new environmental problems by largely reducing uncontrolled disposal or dumping of hazardous wastes. Furthermore, no serious environmental problems related to the operation of European hazardous waste facilities were reported, although some of the older landfills which had received toxic waste have caused environmental problems. In addition, some concerns were raised over existing private landfills. As in Canada, some public opposition had been encountered during their planning and developmental stages. It should be noted, however, that most of their facilities were developed in the early seventies when European public opposition was



perhaps not as acute and as well organized as it is today in Canada and Europe. Another factor which supports the technical integrity and the environmental acceptability of European programs is that several of the facilities visited were planning expansion of their operations using the same technology as was installed initially.

## **2.5 Problems Encountered by European Countries**

Discussions with the environmental officials revealed that the difficulties they had encountered earlier in addressing the hazardous wastes management problems were essentially the same as the ones Canada faces today. The following issues were identified as problems of common interest:

- preparation of detailed inventories of hazardous wastes;
- analysis of waste streams;
- tracking systems for movement of wastes (manifest) from the generator to the disposal facility within the countries or across international boundaries;
- definition of hazardous wastes;
- debate with the industry;
- effective control technology;
- responsibilities of various levels of governments;
- problems with old disposal sites;
- public opposition to the siting of facilities and development of meaningful public information and consultation programs.

Many of the concerns, such as analysis of waste streams, manifest systems, definition of wastes and effective control technology, have been resolved on a national scale. There are, however, still some problems in harmonizing manifests and definitions at the international level with respect to transboundary movement of hazardous wastes.

Some regulatory officials and facility operators also noted that, after regulations came into force, some shifts in the nature and quantity of wastes occurred, possibly as a result of greater re-use and recycle of waste materials to reduce the cost of off-site treatment. More recently the thermal energy value of solvents shipped to incinerators has been declining, which suggests greater use of solvents at the source for energy recovery in face of the increasing fuel costs in Europe.

## **2.6 Institutional Arrangements**

Institutional and organizational arrangements in the ownership and operation of hazardous waste treatment systems in the countries visited varied widely ranging from totally private ownership and operation to a mix of government/industry joint ownership and operation. In England, for instance, most facilities are owned and operated by private firms. Under such a market philosophy, a waste stabilization process such as Stablex must compete with cheaper processes such as landfilling. In Denmark, facilities are owned by the government but operated by private companies. In West Germany and France, ownership and operation are usually a mixture of government, industry, and private interests. Although some of these options may be applicable in Canada, they probably reflect a much greater variety of socio-economic conditions in Europe.

## **2.7 Financing and Liability**

The financing and liability of the hazardous wastes facilities visited were quite variable, ranging from a mixture of government/private enterprise financing to completely private financing. Interestingly, direct government subsidies were found only in France, and long-term liability had not received special attention by the countries visited.

## **2.8 Transportation**

Transportation, collection and handling of hazardous wastes in Europe were well organized, and included a wide range of various collection and transfer systems. Manifest documents were in place in the countries visited, although no standard multinational, multilingual manifest document was used throughout Europe. In international transportation, the manifest form of the receiving country normally prevailed. Railways were used extensively and all vehicles used for the transportation of hazardous wastes appeared impressive and had to meet special standards. In the case of spills and emergencies, the local fire and police authorities and other emergency measures organizations provided initial response capability. Governments normally paid the cleanup costs and billed the responsible party later.

## **2.9 Technology**

The technology observed in Europe for disposal/treatment of hazardous wastes is not new and is available in Canada. In brief, after initial testing, classification and blending, the wastes are subjected to thermal (incineration) or physical/chemical treat

ment and, in some cases, solidification. In some instances the effluents from treatment facilities undergo a biological treatment prior to discharge to the receiving waters. The final disposal methods used are basically, secure landfilling, co-disposal and storage in abandoned salt mines. The philosophy of integrated systems was followed by Germany, Denmark and France. Although the technology for treatment and disposal of most hazardous wastes was available, there is a need for further research and technology development for those wastes which are presently stored. It was also noted that the recycling of materials and the recovery of energy were increasing continuously in Europe probably because of the high cost of treatment and disposal.

## **2.10 Current Concerns**

The following concerns over hazardous wastes management were mentioned by European officials to the visiting group:

- the increasing use of sensational and often incomplete information by the press which often leads to a confrontation climate at public hearings;
- growing concern over abandoned sites (France has started a formal program in that field);
- long-term adequacy of present technologies such as solidification and secure landfilling, especially where co-disposal methods were used;
- long-term fate of wastes which are stored in salt mines and cannot be treated by existing technology;
- growing competition, with more advanced techniques, of cheap and environmentally questionable alternatives for disposal;
- limited monitoring, as well as quality and accuracy of data, especially in the field of stack emissions;
- harmonization of definitions, manifests and technology at the international level to ensure hazardous wastes shipped across international boundaries are treated and disposed of in an environmentally safe manner.

Notwithstanding the need to examine the above noted concerns, which in fact are equally applicable to many other environmental protection programs, the European experience demonstrates that hazardous wastes can be managed in an environmentally acceptable way using current technology.



**APPENDIX**  
**NAMES OF CANADIAN DELEGATES AND OF**  
**EUROPEAN OFFICIALS CONTACTED**



## APPENDIX

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