

CANADA

Disposal of Chemical Agents

It is the purpose of this paper to review common techniques for the disposal of chemical warfare agents and specifically to bring the Committee on Disarmament up to date on the Canadian experience in the disposal of World War II stocks of Mustard.

DISPOSAL METHODS

Historically a number of methods have been used to destroy toxic chemicals. They include:

- (a) venting to the atmosphere;
- (b) burning in the atmosphere;
- (c) burial in the ground; and
- (d) disposal at sea.

In each case it was left to nature to disperse or detoxify them. Unfortunately these processes have not always worked well as the chemicals have polluted the environment and in some cases remained a hazard for many years. Over the past two decades it has become increasingly apparent that hazardous materials must be destroyed under controlled conditions and only the most innocuous residues should be returned to the environment. Each toxic chemical must be considered individually as each may require a different process to destroy it especially if it must be done chemically. Laws governing disposal in the environment may vary from nation to nation, but the release of hazardous materials into the air or into water systems will affect all nations alike. As a result the above techniques are no longer considered to be acceptable for chemical agent disposals.

A great variety of toxic chemicals have been used or proposed as war agents and it may be useful to review suitable methods for their disposal. The following is a brief survey of some of the more common agent types.

Hydrogen Cyanide, Chlorine, Phosgene, Cyanogen Chloride

These were all used during World War I and are among the so-called "dual purpose agents" having common commercial uses. Because of their relatively low toxicity and the widespread availability of adequate respiratory protection, they are now of marginal utility as warfare agents. If any stocks of these materials should be declared under a new treaty, it would be necessary to consider their disposal. All are reactive chemically and could easily be destroyed by numerous reactions. They are also relatively volatile and could be readily vented to the atmosphere, although this would result in unnecessary pollution. It would be far better not to destroy such stocks, but to use them and all other dual purpose agents for legitimate industrial purposes, even when it involves drilling and draining of shells or other munitions.