

# Image Cover Sheet

**CLASSIFICATION**

UNCLASSIFIED

**SYSTEM NUMBER**

149585



**TITLE**

OVERVIEW OF CB DEFENCE RESEARCH PROGRAM AT DRES

**System Number:**

**Patron Number:**

**Requester:**

**Notes:**

**DSIS Use only:**

**Deliver to:** DK



**Annex K**

2 pages in total



Theme 1: Biological and Chemical Defence (BCD)

OPI: Multienvironmental - J3 NBC, Surg Gen

OCI: DCIEM

Background

The changing global threat from chemical and biological weapons (CBW) defines the requirements for the BCD program. Through collaboration with its major allies (U.S. and UK), Canada is able to identify the agents of most concern and the countries most likely to use them and to develop a common approach to hazard assessment. At DRES this information is used to assess the hazard posed by CBW to Canadian troops in current and anticipated operational scenarios. This front-end analysis is performed in close consultation with DSTI, Surg Gen, J3 NBC and other military directorates. Threat definition and hazard assessment define the requirements in all other areas, such as detection, protective equipment and medical countermeasures.

Investment Objective

To provide the CF with equipment, materials and procedures to defend against the lethal and debilitating effects of CBW agents on the battlefield. To solve immediate operational problems for the CF and to advise them on future implications. To enhance Canada's ability to support treaties to ban CBW. These aims are accomplished by conducting R&D, by support for CB training and through partnerships with Canadian industry.

Major Thrusts

Detection and Identification of BW Agents: BW agents are disseminated as solid aerosols. Key technologies for their detection and identification are particle sizing and counting, immunochemistry and gene probes. A major milestone is to field a concept demonstrator for joint trials with the U.S. and UK in September 1995.

Next Generation CB Protective Equipment: Research is conducted to create the knowledge and technology for the development of clothing suitable for hot climates. In the next generation of protective clothing, CB protection will be integrated with other forms of protection. New materials and concepts will play a key role in solving these problems.

Medical Countermeasures against BW Agents: BW agents enter the body through the lungs. Research to develop prophylaxis and therapy includes the use of liposomes to deliver antibiotics across the cell membrane and active (vaccines) and passive (antibodies) approaches to immunity. Another approach being evaluated are drugs which increase non-specific immunity.

Other Significant R&D Effort

- detection of CW agents
- nerve agent therapy
- mode of action and treatment of mustard
- identification of toxins by mass spectroscopy
- mode of action and treatment of toxin poisoning

Effort in Support of Canadian Industry

In accordance with the Chemical Weapons Convention (CWC), DRES provides a secure and approved site where Canadian companies can come to conduct test and evaluation of CB defence equipment using CW agent. Over the next few years, it is anticipated that this support will increase and be carried out in a dedicated facility on the Experimental Proving Ground (EPG). This facility, called the Chemical Biological Defence Industrial Centre of Expertise (CBDICE), will permit partnerships with industry whereby DRES R&D can be translated into commercial products and services.

Effort in Support of CF Training

DRES provides the kind of training for the CF they cannot obtain anywhere else in Canada. The essential component of this training is the handling of CW agent in realistic scenarios. DRES provides this training for the NBC School and the NBC Response Team.

Support to the United Nations

DRES provides support to the UN in two main areas:

- technology for verification and agent disposal; and
- experts to serve on inspection teams (eg, the UNSCOM series in Iraq) and advisory committees (eg, on destruction of Iraqi CW agent).

DRES Division: Defence Sciences Division

Other DREs Involved in BCD: DCIEM (lead establishment in the integrated protective clothing and equipment project).

Dr W.S. Myles  
Director/Defence Sciences Division  
Defence Research Establishment Suffield  
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