

2002 ANNUAL REPORT  
OF  
THE BIOLOGICAL AND CHEMICAL DEFENCE  
REVIEW COMMITTEE

**THE COMMITTEE**

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## **INTRODUCTION**

The policy of the government of Canada is to press for global, comprehensive and verifiable treaties to ban all biological and chemical weapons. Even so, the threat from such weapons persists. Accordingly, Canada has an obligation to ensure that members of the Canadian Forces (CF) have adequate training and equipment to protect themselves against exposure to chemical and biological agents. This protection is required for deployments on foreign soil and, as the threat of terrorist action exists in Canada, it is also required for military response to domestic emergencies.

The Canadian public has the right to be assured that Canada's policy of maintaining only a defensive capability in this field is fully respected at all times, and that any research, development and training activities undertaken pose no threat to public safety or the environment.

To facilitate this assurance, the Biological and Chemical Defence Review Committee (BCDRC) was established by the Minister of National Defence. The Committee is mandated to review annually the research, development and training activities in biological and chemical defence (BCD) undertaken by the Department of National Defence (DND) to ensure that they are defensive in nature and conducted in a professional manner with no threat to public safety or the environment.

The Committee members' appointments are approved by the Deputy Minister of National Defence and the Chief of the Defence Staff on the recommendation of the Committee Chairperson. Nominations for BCDRC membership are solicited by the Chairperson from the Canadian Society of Microbiologists, the Chemical Institute of Canada, and the Society of Toxicology of Canada.

The present members are:

Chair	Dr Colin R McArthur	York University [Chemistry]
Member	Dr Heather D Durham	McGill University [Toxicology]
Member	Dr Kenneth L Roy	University of Alberta [Microbiology]

Commencing in 1990, Annual Reports have been submitted. All have been made available to the public and are reproduced on the BCDRC Internet web page ([www.vcds.dnd.ca/bcdrc/index.html](http://www.vcds.dnd.ca/bcdrc/index.html)).

## **SUMMARY**

This report records the 2002 year activities of the BCDRC. Included in annexes are the Committee's review of the current state of the implementation of the recommendations made in the 1988 Barton Report and the progress made on implementing recommendations made in previous BCDRC reports. The BCDRC was itself organized as the result of a recommendation in the Barton Report. The Barton Report may be read on the BCDRC Internet web page.

The BCDRC has concluded that there are neither indications of duplicity within Canada's biological and chemical defence (BCD) program nor evidence that offence related activities are being conducted either on behalf of Canadian authorities or to comply with any multilateral treaty commitment.

The use of anthrax spores as a tool of terrorism and the growing threat of military and terrorist use of biological and chemical warfare agents has reinforced the Committee's belief that Canada should retain the capability to conduct a program of defensive research and development to permit military operations under the threat of biological and chemical weapons.

In this report, the BCDRC makes the following recommendations that are explained later in the text:

It is recommended that military doctrine be developed for the provision of medical care in biological and chemical warfare (BCW) conditions.

It is recommended that Defence R&D Canada (DRDC) prepare formal guidelines for the transfer and use of chemical and biological agents and toxins to civilian facilities taking into account the concerns of the BCDRC expressed both in this report and separately to DRDC.

It is recommended that the scheduled visits of the BCDRC include the Joint Nuclear Biological and Chemical Defence Company (JNBCD Coy) at Canadian Forces Base (CFB) Trenton.

## **COMMITTEE ACTIVITIES - - 2002**

The BCDRC had an active schedule of visits in April and May, 2002. In April, the Committee met with the Assistant Deputy Minister Science and Technology (ADM(S&T)), Dr. John Leggat, in Ottawa, and attended a Nuclear, Biological and Chemical (NBC) Defence Workshop in Cornwall, Ontario. At the end of April the BCDRC commenced its round of annual visits to DND Establishments and associated ranges, laboratories and training facilities. In 2002, places visited were:

National Defence Headquarters (NDHQ) with briefings from or meetings with:  
Defence R&D Canada (DRDC) headquarters  
Directorate Nuclear, Biological and Chemical Defence (DNBCD)

Director General of Health Services (DGHS):  
Canadian Forces Medical Group/Operational Medicine  
Office of Critical Infrastructure Protection and Emergency Preparedness  
(OCIPEP)

Canadian Forces Base Petawawa

Canadian Forces Nuclear, Biological and Chemical School (CFNBCS) with briefings about its responsibilities, resources and training and about the NBC Response Team (NBCRT).

DRDC Toronto

DRDC Suffield with briefings about the responsibilities, resources and activities of the research establishment and the BCD program. The Committee also heard plans for developing the Counter Terrorism Technology Centre (CTTC) at Suffield and was briefed on the Chemical, Biological, Radiological/Nuclear Research and Technology Initiative (CRTI), a federal government initiative led by DRDC in which Suffield will participate. The mandates of CTTC and CRTI are discussed below. During the visit, the Committee attended part of a workshop organized by DRDC Suffield on the subject of Anthrax Incident Management. The Committee toured the facilities and met with research scientists from several research groups in the establishment. Time was made available to allow any member or groups of members to approach the Committee to discuss matters of concern. Some concerns were brought to the Committee in this forum. While at DRDC Suffield, the BCDRC held discussions with the General Safety Officer and the Environmental Safety Officer.

The BCDRC met with officers in the Department of Foreign Affairs and International Trade (DFAIT) to discuss the Chemical Weapons Convention (CWC) and the Biological and Toxins Weapons Convention (BTWC).

We reviewed DND's 2002 BCD Research and Development (R&D) Program and determined that it was in accordance with current Canadian Government Policy. The latest version of the DRDC Suffield Service Level Agreement, DRDC Toronto Fact Sheets, current R&D contracts and publications lists were examined. In addition, the DRDC accountability documents were scrutinized.

To enhance our perspective of the concerns of Canadians in Canada's BCD activities, the Committee invites any group of concerned citizens to meet and discuss issues. The Committee met with John Bryden, MP and Bryon Wilfert, MP to discuss BCDRC activities with them. The Committee is also developing contacts with "first responders" to biological and chemical incidents in Canada. The Committee has been contacted for information by other organizations and individuals during the year. Any group or individual that wishes to make representation to the Committee should contact the executive officer in writing. Contact information is found in the Introduction section of the web site.

In the past, during meetings with representatives of special interest groups and of the media, some concerns about DND's BCD program have been identified and reasoned responses were given by the Committee at those times. Some of these concerns did merit

recorded comment. These comments were repeated in the BCDRC annual report until last year (the 2001 and earlier reports available on this web site). Please refer to these reports for explanations of the difference between offensive and defensive BCD research and means of obtaining information on BCD from DND.

## **COMMENT**

The members of the BCDRC would like to express their appreciation for the cooperation they received throughout the 2002 visits schedule. Attendance of the Committee at the NBC Workshop, three weeks before the schedule began, reduced the need for formal briefings and allowed more time for informal discussions. This was particularly so at the CFNBCS and at DNBCD.

### **Canadian Forces Base Petawawa**

The Committee wishes to thank particularly the people at Canadian Forces Base Petawawa who organized and participated in the visit there. The initial reaction from the base was that Petawawa had very little to demonstrate in BCD. However, a very worthwhile program was developed. In Petawawa, the Committee had the opportunity to visit the Central Medical Equipment Depot (CMED) where DND maintains its stock of medical countermeasures (MCM) for biological and chemical warfare (BCW). The BCDRC also visited 1 Canadian Field Hospital and was encouraged to hear that, in the future, DND's deployable hospital may include an Advanced Surgical Centre capable of working in BCW conditions. However, the Committee was also informed that the medical branch lacks doctrine for the hospital operating during BCW.

### **Evolution of Defence R&D Canada**

In its 2000 and 2001 reports, the BCDRC noted that DRDC, particularly DRDC Suffield, will be conducting more biological and chemical research with non-government organizations and will rely more and more on external funding for its programs in defence research and development. These two trends are accelerating.

A development of the first is that, as part of a DND-sponsored contract, DRDC Suffield will be asked to transfer live biological samples to a Level 3 civilian establishment as part of a project to develop a new vaccine. Such a vaccine, when developed, will protect against infection by a pathogen that not only occurs endemically but also is considered a threat as a biological agent in warfare and terrorism. The position of the BCDRC is that its members must receive updated reports on such projects to fulfill the Committee's mandate of ensuring the Canadian public that the project in no way could imperil human safety or the environment. The Committee is not involved in facilitating approval of the contract, nor does it wish to impede progress towards achieving the aims of the project.

Committee members require information that can be relayed to citizens that describes the safety measures undertaken during and after the transfer of pathogens to

the location away from Suffield. Details on quantities of culture, packaging, transportation, security, record keeping and destination are required. As well, the professional and security qualifications of all personnel involved in handling the live cultures must be described. In addition, special measures that guarantee that there can be no loss of control of live organisms, accidentally or otherwise, that could endanger employees, the public, agriculture, or any aspect of the environment must be fully developed and disclosed.

The BCDRC has provided to DRDC its recommendations for the handling of live strains belonging to DND when they are transferred outside a DND establishment. These recommendations cover the areas of record keeping, verification of the inventory, security and safety.

The second trend at DRDC Suffield is towards external funding. Often these funds are received for activities other than research: activities such as providing subject matter experts to first responders such as the Nuclear, Biological and Chemical Response Team (NBCRT), training with live agents and forensic analysis of chemical and biological samples. For example, the Suffield facility for training using live chemical or biological agents is used by select organizations in DND including the CFNBC School and the NBCRT and by select organizations outside of DND. With more awareness of the possibility of terrorist use of BCW, the demand for this facility, and the other non-research activities, is growing. These counter-terrorism (CT) related activities often require the presence of defence scientists, who, therefore, are taken away from their research work.

The establishment of the Counter Terrorism Technology Centre (CTTC) at Suffield is intended to reduce the impact of CT activities on the DRDC Suffield Research Program and to extend the capability of the nation to respond to terrorist attack involving chemical or biological agents. Capital costs to construct a building at DRDC Suffield, to house CTTC, were provided in the 2001 budget. The BCDRC supports the establishment of the CTTC because it believes that BCD research is of fundamental importance and the defence scientists at DRDC Suffield should be concentrating on research.

In the 2001 budget, the federal government established the CBRN Research and Technology Initiative (CRTI) to strengthen the nation's preparedness for prevention and response to a CBRN terrorist attack. For details, please refer to the web site: <http://www.crti.drdc-rddc.gc.ca/>. CRTI is led by DND/DRDC on behalf of the wider community. A Secretariat has been set up within DRDC, directed by Dr. Cam Boulet, to administer and award the funds. The activities are overseen by a Steering Committee at the ADM level, chaired by DND ADM(S&T), Dr. John Leggat. R&D funds are being awarded through open competition. DRDC scientists are well positioned to take advantage of this funding opportunity to expedite current projects and fund future development. This research will involve other government departments and the private sector, making it more and more important for DRDC to put in place the proper policies and procedures for these collaborations at the outset.

## **NBC Response Team and the Joint NBC Defence Company**

During the NBC Workshop in Cornwall, Ontario and during visits to DNBCD and the CFNBC School at CFB Borden, the BCDRC was informed of the establishment of a Joint NBC Defence Company at CFB Trenton. The Company will relieve the School of emergency response duties and will permit it to concentrate on providing NBC defence training for military personnel. The JNBCD Company will assume the School's responsibility for the NBC Response Team task of responding to NBC emergencies and the planning for countering the use of BC Warfare against the CF and Canadian targets. The dedication of scarce personnel to this important function is one example of more interest in BC Defence. Small increases in staff at DRDC Suffield, the Operational Medicine side of Director General Health Services and within the Directorate of NBC Defence are other indications.

## **BC Defence Equipment Deficiencies**

The BCDRC monitors BCD equipment deficiencies that may affect the operational capabilities of the Canadian Forces (CF). In recent years, it has seen the overcoming of a compatibility problem between BCD equipment and a helicopter pilot's ability to fly. It has also followed the investigation of problems with the C7 charcoal filters associated with the C4 mask. These types of problems are inevitable with leading-edge technology. This year the Committee learned of tears in the same C4 mask. In fact, the problem had already been identified by the life cycle managers of the mask and been reported upon by DNBCD but people in the field were not fully informed. Awareness of the problem has not changed the fact that masks are damaged and are being removed from service. It is important that this type of problem be dealt with thoroughly and expeditiously so that confidence in the equipment remains high.

## **CONCLUSIONS**

The BCDRC found neither indications of duplicity within Canada's biological and chemical program nor evidence that offence related activities were being conducted either on behalf of Canadian authorities or to comply with any multilateral treaty commitment.

We remain convinced that Canada must retain a capability to effect essential defensive research and development to permit the conduct of conventional military and counter-terrorist operations under the threat of biological and chemical weapons. We believe that Canada's ability to respond rapidly and effectively to biological and chemical threats, domestically or offshore, will depend upon the maintenance of core expertise in defence science within DND.

At a time when the use of BCW agents may be increasing, particularly as terrorist tools, it is a concern of the BCDRC that 1 Canadian Field Hospital is not

prepared to operate during BCW. Money to provide the equipment for a BCD Advanced Surgical Centre is a matter that DND can deal with only within its own financial constraints but the development of doctrine for operating a hospital in those conditions is something that can be done now. The BCDRC knows that there are difficult issues to face. Casualties who are wounded and also contaminated by biological or chemical agents may not be treatable because they cannot be decontaminated sufficiently to be admitted to a “clean” hospital environment. Issues like this must be faced and the doctrine developed so that medical personnel operating in BCW conditions know the risks and understand the procedures that they must follow.

It is evident to the BCDRC that cooperation between DRDC Suffield and non-DND establishments will increase and, in fact, the CRTI will provide funds for such joint research projects. It is inevitable that the transfer of samples of chemical and biological agents from Suffield will become normal procedures in some of these projects. Policy related to the handling, storage, etc. of chemical agents is governed by the Chemical Weapons Convention and overseen by the National Authority, DFAIT. Other than limited quantities of dilute samples, chemical agents are confined to the Single Small Scale Facility at DRDC Suffield. The Biological and Toxin Weapons Convention is yet to include an agreement on rigorous control of stockpiling and verification for biological and toxin pathogens. Relative to chemical agents, there is the added risk that biological agents can replicate. Procedures for these transfers and use of the agents at other governmental and civilian facilities should be established now to ensure the safety of personnel, civilians and the environment and to prevent transfer to unauthorized individuals or sites. DRDC can provide leadership on the national and international front since it is only a matter of time until these requirements for biological and toxin agents will be legislated, as they have been for chemical agents.

## **RECOMMENDATIONS**

It is recommended that doctrine be developed for the provision of medical care in biological and chemical warfare (BCW) conditions.

It is recommended that Defence R&D Canada (DRDC) prepare guidelines for the transfer and use of chemical and biological agents and toxins to civilian facilities taking into account the concerns of the BCDRC as already expressed both in this report and separately to DRDC.

It is recommended that the scheduled visits of the BCDRC include the Joint NBC Defence Company at CFB Trenton.

## IMPLEMENTATION OF BARTON REPORT RECOMMENDATIONS

The current implementation status of the Barton Report recommendations was ascertained to be:

### GENERAL

1. **In the course of the annual program and budgetary process, the authorizing officer at each level be required to sign a certificate of compliance with Departmental policies.**

Certificates of Compliance for 2002 were reviewed and found to be in order.

2. **A senior Review Committee be established in association with the Defence Science Advisory Board (DSAB).**

The BCDRC constitutes such a Committee. In 1997 the Committee was removed from the aegis of the DSAB and established as a self-administering agency.

3. **"Second opinions" should be obtained from outside sources on some of the potentially controversial test programs.**

The BCDRC suggested that the most effective way to obtain credible second opinions would be to establish external committees and to encourage collaboration through workshop type conferences. Defence Research and Development Branch (which became Defence R&D Canada in 2000) held a Technology Investment Workshop on biotechnology in November 1996. Also an independent Peer Review of the DRES BCD R&D program was conducted in June 1997. In 2000, DRDC established a permanent Advisory Board. It is co-chaired by the Chief of Defence Staff and the Deputy Minister of National Defence and has as members the Vice Chief and Deputy Chief of Defence Staff, the Chiefs of Air, Maritime and Land Staffs, and other individuals at the associate deputy minister level. The Director General Health Services is also a military member. Industry, academia and medicine are also represented.

4. **A document be prepared annually which would set out the nature of the research and development work under way, the number of people**

**involved, and allocated funding.**

The 1990/91 Chief Research and Development (CRAD) Review was published in February 1992 and the 1991/92 Review in January 1994. The Defence Research and Development, Science and Technology for the New Century was published in March 1996. The initial Defence Research and Development Branch Outline of Program was published in April 1996, the second edition in June 1997 and the third edition in June 1998. The branch produced its first annual report, covering the fiscal year 1998/99. DRDC has continued this practice with a second annual report. These reports satisfy this recommendation. The 2000-2001 Annual Report is on the DRDC web site: <http://www.drdc.dnd.ca>.

**5. A layman's pamphlet be published which would help improve public understanding about Biological and Chemical Defence.**

An appropriate departmental pamphlet was published in August 1990. A similar pamphlet entitled "Meeting the Challenge - Research and Development in Defence Sciences and Technologies", emphasizing the work at DRES, was published in April 1993. DRDB published "Defence R&D Highlights" six times yearly and the web site (<http://www.drdc.dnd.ca> or [www.drdc-rddc.gc.ca](http://www.drdc-rddc.gc.ca)) has been established and continues to grow. In addition, DRDC Toronto and DRDC Suffield publish Fact Sheets recapitulating the essential components of their R&D programs.

**6. A DND directive on policies and procedures regarding the use of volunteers and animals be published.**

DND Policy - Animal Use in R&D was issued on 15 June 1989. Defence Administrative Orders and Directives (DAOD) 5061-0 and 5061-1, Research Involving Human Subjects, were issued on 20 August 1998. These administrative orders may be viewed on the DAOD web site at: [http://www.dnd.ca/admfincs/subjects/daod/intro\\_e.asp](http://www.dnd.ca/admfincs/subjects/daod/intro_e.asp)

**DRES (DRDC Suffield)**

**1. A procedure be established to ensure that the DRES Safety Manual is reviewed at prescribed regular intervals of not more than three years. Safety drills should also be conducted at prescribed regular intervals.**

An effective, dynamic safety program has been established. Drills and exercises are conducted and any safety related issues are resolved quickly. One workplace safety-related incident was reported to the Committee during April 2002 meetings. The situation was dealt with expeditiously

and appropriately.

2. **An automatic annual review and certification procedure be instituted to confirm that stocks of toxic agents are being kept to the minimum level necessary for the conduct of an efficient research and development program.**

The annual inventory audit was reviewed by the BCDRC in April/May 2002. Chemical and biological agent holdings were verified then. Minor discrepancies were resolved. The committee agrees that stocks are being properly maintained at a minimum level, which in most cases is only a fraction of the authorized levels.

3. **The arrangements being implemented to improve security and access controls be expedited.**

Completed.

4. **Pending the destruction of the excess agent stocks now stored in the Experimental Proving Ground (EPG), the adequacy of existing physical security arrangements be reviewed with a view to strengthening them.**

Completed.

5. **The incinerator which is to be acquired for the program be considered for use in the destruction of other dangerous industrial chemicals, including PCBs.**

The Alberta Provincial Government legislated this recommendation unimplementable. The incinerator was sold and its removal from DRES was completed by 6 August 1992.

6. **The Experimental Proving Ground (EPG) operation and maintenance be given "project" status within the CRAD program.**

Implemented. Thus positive visibility is given to all activities, funding and personnel involved in the EPG and ensures an annual review as a separate program component.

7. **The scope of the safety and environmental requirements governing outdoor testing at DRES be determined by the provisions of the Canadian Environmental Protection Act.**

Although the present Act does not include such express provisions, the Federal Minister of Environment has said that the department will develop

the requisite guidelines as and when necessary. In addition, a staff control system is in place and functioning to ensure compliance with all constraints.

8. **A full environmental audit of DRES be commissioned as soon as possible and that it be repeated at regular intervals of, say, five years.**

Acres Consultants Ltd, having completed the audit under a Supply and Services Canada contract, submitted their final report in February 1992. An internal staff agency was created to initiate recommendation compliance. All the Report's recommendations have been addressed and full compliance is anticipated. The Acres' report has been deposited with the Canada Institute for Scientific and Technical Information (CISTI), the National Library and major university libraries throughout the country. The first follow-on audit was conducted by Acres International Ltd in early 1997 and the report was received at DRES on 31 March 1997. A second five year audit had not been conducted by May 2002. However, the Auditor General has conducted an Environmental Audit and Suffield is implementing an Environmental Management System (by 2003). Also, significant progress has been made on recommendations in the previous independent audit. The BCDRC agrees that an independent audit would be redundant at this time and more appropriate as a verification procedure for the Environmental Management System and Auditor General's report in the future.

#### **DREO (DRDC Ottawa)**

The entire Defence Research Establishment Ottawa (DREO) chemical agent inventory has been destroyed, all storage and handling facilities removed, laboratories dismantled and the facility decommissioned. The BCDRC ceased reporting on DREO (DRDC Ottawa) activities in 1994.

## IMPLEMENTATION OF BCDRC REPORT RECOMMENDATIONS

Note: Once a recommendation has been complied with to the satisfaction of the Committee it will cease to be included in subsequent Reports. However, if the effect of the recommendation is of a continuing nature it will be subject to periodic monitoring by the Committee.

1. **The flow of information within the Defence Research laboratories between sections, management and staff might be improved -- possibly through occasional informal meetings and discussions with senior managers.**

Although there is some improvement in awareness levels, additional effort is required. An effective plan of communication is particularly important because of the significant restructuring and budget reductions in DND over the last few years. Monitoring at DRDC Suffield and DRDC Headquarters, as well as DNBCD and military units, will continue.

2. **The Annual Agent Inventories Audit Reports be restructured as follows:**
  - a. **biological agents used for research purposes are to be identified by complete strain or antigenic designator;**
  - b. **stocks of biological agents are to be quantified in meaningful terms; i.e., infectious titres or colony-forming units per given volume;**
  - c. **stocks of biological agents that are clearly not agents of biological warfare should be identified as such with an accompanying statement to the effect that such agents may be found in Public Health, University and Industrial laboratories.**

Approved. This work will be completed in accordance with a schedule agreed to by BCDRC and DRDC Suffield. There is satisfying progress and monitoring will continue.

3. **The biological agent holdings of DRES (DRDC Suffield) be restricted to those microorganisms that are in frequent use or not readily available from central strain repositories.**

Approved. Compliance will be effected in accordance with a schedule agreed to by BCDRC and DRDC Suffield. Progress is being made towards this goal. Monitoring will continue. This recommendation may be dropped from the 2003 report.

4. **The BCDRC be contractually guaranteed access to all private sector laboratories that become involved in the Biological and/or Chemical Defence Research and Development program either under the prevailing contracting system or through the auspices of the industrial partnership proposal.**

This recommendation was approved in 1994. Although contractors routinely provide formal briefings to BCDRC during our annual visits to DRDC Suffield and DRDC Toronto and circumstances have yet to arise when BCDRC has considered an on-site visit necessary, the committee does not have guaranteed access to such private sector laboratories. Discussions between DRDC and BCDRC have occurred in order to resolve this issue in a manner which respects the committee's mandate to verify the defensive nature of all work carried out under DND's auspices and the proprietary nature of private sector research. The position of the BCDRC outlined in the 2001 report was that a standard clause should be included when other public sector or private sector laboratories are contracted to carry out BCD-related work for DND. The clause should stipulate that, as part of DND's R&D program in BCD, the work is subject to review by the BCDRC, that BCDRC reserves the right to conduct this review onsite in the laboratories where the research is being conducted, and that members of the BCDRC would be subject to confidentiality agreements to protect proprietary rights of the contractor. Similarly, when DND is contracted by other parties to carry out work related to BCD, the contract should stipulate that all work related to BCD carried out in DND facilities is subject to review by the BCDRC and that members of the BCDRC would be subject to confidentiality agreements to protect proprietary rights of the contractor. This issue was discussed with the ADM (S&T) during a meeting in April 2002 and he is in agreement. Therefore, the BCDRC has requested a formal statement to this effect in a letter that also sets out how the guaranteed access is to be implemented.

5. **The CFNBC School Training Library collection be reviewed and dated reference material be replaced. Additionally, the ability to access information servers, e.g.; Internet or World Wide Web, be provided.**

Agreed. Marked progress has been made in this endeavour. The library has Internet access and is using it to obtain increased amounts of scientific material. In 2002, the library has been able to purchase several new and useful reference text books. Monitoring will continue.

6. **The skills of the present DRES (DRDC Suffield) Staff be reviewed to ensure that no critical imbalances have been created that might affect productivity, safety or responsiveness.**

The current DRDC Suffield staff is under continual review. Budgetary restrictions have not resulted in compromise of safety, which continues to be of the highest standard. However, for Defence Research Establishments (DRE) to maintain productivity and their current world class reputation, continuing education of staff through attending courses and scientific meetings is mandatory. In his response to the 2000 BCDRC report, the ADM (S&T) said that DRDC will make every effort to maintain current momentum in staffing and noted that a molecular geneticist with experience in endemic diseases has joined the DRES staff. However, staffing remains a concern at DRDC Suffield and it concerns the BCDRC. To ensure continued performance over the long term, more recruitment will be required to provide continuity upon retirement of several senior scientists and to provide expertise in new fields of biotechnology. The Committee will continue to monitor the staffing issue. DRDC Suffield has agreed to keep the Committee informed of staff changes.

7. **The DRES Safety Manual and Emergency Response Plans be updated and tested at least annually.**

Agreed. Monitoring will continue. The DRDC Suffield General Safety Officer conducts a dynamic program. He has added computer-based training and uses the DRDC Suffield local area network to circulate safety information.

8. **The BCDRC mandate be amended to include an annual visit to Health Canada's Laboratory Centre for Disease Control (LCDC) in Winnipeg whenever research is being conducted there either by or directly for DRES (DRDC Suffield).**

The Winnipeg laboratory is now called "The Canadian Science Centre for Human and Animal Health" which is part of the Population and Public Health Branch of Health Canada. Health Canada and DND have signed a memorandum of understanding for collaborative work but there are no joint projects underway.

9. **DRES (DRDC Suffield) renegotiate the annual containment facility decontamination contract to permit the verification of its biological agent holdings by the BCDRC during the annual May visit.**

DRDC Suffield agreed. Dates of the BCDRC visit and the Level III

decontamination are now set one year in advance through consultation between BCDRC and the BioSafety Officer at DRDC Suffield. This procedure worked very well for 2001 and 2002 and dates for 2003 were set during our 2002 visit. This recommendation may be dropped from the 2003 report.

10. **To facilitate the Health Canada approval process for new medical countermeasures against chemical and biological agents, it is recommended that eventual regulatory requirements be considered at early stages of R& D and all data be collected and records maintained according to Good Laboratory Practice (GLP) guidelines.**

Approved. The recommendation is being implemented on a case by case basis. The Operational Medicine Branch of DGHS is proceeding through the approval process with several medical countermeasures and is meeting with some success.

11. **It is recommended that annual visits to OCIPEP be included in the BCDRC's sessions at NDHQ.**

Recommendation is accepted and the BCDRC met with representatives of OCIPEP in May 2002. This recommendation may be removed after the 2003 report.

12. **It is recommended that all freezers in the Level II containment facility at the Defence Research Establishment Suffield (DRES/DRDC Suffield) be labeled with the name of the person(s) responsible for the freezer and have a logbook of the contents attached. Should the logbook be removed, its location and the person responsible should be indicated on the freezer.**

The recommendation is accepted and implemented. The BCDRC noted that freezers were labeled and included logbooks during the visit in April/May 2002. Although monitoring will continue to ensure compliance with this good laboratory practice, this recommendation may be dropped from the next report if log books are in order during our 2003 visit.

13. **It is recommended that DRDC establish a mechanism to ensure that Human Research Ethics protocols from Defence Research Establishment (DRE) scientists are evaluated consistently, expeditiously and according to the latest TriCouncil Policy Statements on Ethical Conduct for Research Involving Humans.**

The recommendation is accepted. DRDC is establishing policy to ensure that any updates in TriCouncil Guidelines concerning research involving

human subjects are incorporated into the review process.

14. **It is recommended that an arms-length committee of civilian professionals be formed to serve an advisory role to CFMG on biological and chemical medical countermeasures or that the mandate of the BCDRC be changed to include this responsibility.**

The recommendation has been agreed to and CFMG intends to establish such a committee.

15. **It is recommended that the BCDRC be informed when containers or expended rounds that may contain live agent are discovered at any facility.**

DRDC intends to make every possible effort to action this recommendation. The BCDRC was informed of the discovery of an artillery shell containing agent during the visit to DRDC Suffield in April/May 2002. The committee feels that it could have been informed sooner.

## **ABBREVIATIONS**

ADM: Assistant Deputy Minister; Associate Deputy Minister

ADM (S&T): Assistant Deputy Minister Science and Technology

BCDRC: Biological and Chemical Defence Review Committee

BCD: Biological and Chemical Defence

BCW: Biological and Chemical Warfare

CBRN: Chemical, Biological, Radiation and Nuclear

CDS: Chief of the Defence Staff

CISTI: Canadian Institute for Scientific and Technical Information

CF: Canadian Forces

CFNBCS: Canadian Forces Nuclear, Chemical and Biological School

CFMG: Canadian Forces Medical Group

CMED: Central Medical Equipment Depot

CRAD: Chief of Research and Development; from 2000, the Assistant Deputy Minister Science and Technology

CRTI: Chemical, Biological, Radiological/Nuclear Research and Technology Initiative (for details, please refer to the web site: <http://www.crti.drdc-rddc.gc.ca/>.)

CT: Counter-terrorism

CTTC: Counter Terrorism Technology Centre

CWC: Chemical Weapons Convention

DAOD: Defence Administrative Orders and Directives (see the web site at [www.dnd.ca/admfincs/subjects/daod/intro\\_e.asp](http://www.dnd.ca/admfincs/subjects/daod/intro_e.asp))

DCDS: Deputy Chief of the Defence Staff

DCIEM: Defence and Civil Institute of Environmental Medicine; in 2002 became DRDC Toronto (see DRDC)

DFAIT: Department of Foreign Affairs and International Trade

DGHS: Director General Health Services

DM: Deputy Minister

DNBCD: Directorate of Nuclear, Biological and Chemical Defence

DND: Department of National Defence

DRDB: Defence Research and Development Branch; in 2000 became DRDC

DRDC: Defence R&D Canada is the preferred title (see the web site at <http://www.drdc.dnd.ca>)

DRE: Defence Research Establishment

DREO: Defence Research Establishment Ottawa; in 2002 became DRDC Ottawa

DRES: Defence Research Establishment Suffield; in 2002 became DRDC Suffield

DSAB: Defence Science Advisory Board

EPG: Experimental Proving Ground

GLP: Good Laboratory Practice

JNBCD Coy: Joint Nuclear Biological and Chemical Defence Company (the company will have 93 members when it is complete)

LCDC: Laboratory Centre for Disease Control; renamed the Canadian Science Centre for Human and Animal Health

MCM: Medical Countermeasures

MOU: Memorandum of Understanding

NDHQ: National Defence Headquarters

NBC: Nuclear, Biological and Chemical

NBCRT: Nuclear, Biological and Chemical Response Team

OCIPEP: Office of Critical Infrastructure Protection and Emergency Preparedness

NATO: North Atlantic Treaty Organization

PCB: polychlorinated biphenyls

PWGSC: Publics Works and Government Services Canada

UNSCOM: United Nations Special Commission on Iraq

R&D: Research and Development

VCDS: Vice Chief of the Defence Staff