

2003 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. Kenneth L Roy	University of Alberta [Microbiology]
Member	Dr. Francine Denizeau	University of Quebec at Montreal [Toxicology]

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).

SUMMARY

This report records the 2003 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 the implementation of 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.

In 2003, the BCDRC observed far more emphasis on BCD than in previous years. More training was being conducted, more staff was at work or being recruited and some new facilities were completed or under construction. However, more training at DRDC Suffield can have a detrimental effect on research as scientists are taken away from their research in order to supervise other activities involving chemical agents. Therefore, The BCDRC recommends that research in BCD be given the utmost priority in DRDC Suffield. Rather than employing researchers to supervise training, other arrangements should be found.

Initiatives such as the Chemical, Biological, Radiological/Nuclear Research and Technology Initiative will result in new medical countermeasures (MCM) to chemical and biological agents. Health Canada (HC) approval for the use of these medications is difficult. Therefore, the BCDRC recommends that the process of obtaining Health Canada approval for medical countermeasures be given more attention by DND. The BCDRC would like to see policy drafted by an interdepartmental committee (HC and DND) which addresses the extraordinary use of MCM that are approved for use within the military, to treat civilian casualties of terrorism or war.

COMMITTEE ACTIVITIES - - 2003

During 2003, the BCDRC has made a special visit to DRDC Suffield to observe the investigation and destruction of a suspected chemical munition which was fired as part of a test shortly after the Second World War. Also, the Committee made its annual visits to DND establishments involved in the BCD program. These establishments included:

National Defence Headquarters (NDHQ) with briefings from or meetings with:
Defence R&D Canada (DRDC) Corporate Centre, including meetings with the Assistant Deputy Minister of Science and Technology, the Associate Director General Program and the Director of Science and Technology Human Performance;

Directorate Nuclear, Biological and Chemical Defence (DNBCD) including a meeting with the director;
Directorate Arms Proliferation Control Policy (DAPC Pol) including a meeting with the director;
Director General of Health Services (DGHS):
Canadian Forces Medical Group/Operational Medicine (CFMG Op Med); and
Office of Critical Infrastructure Protection and Emergency Preparedness (OCIPEP);
Canadian Forces Base Trenton (8 Wing Trenton);
The Joint NBC Defence Company (Trenton) with briefings about its start-up and current activities;
Canadian Forces Nuclear, Biological and Chemical School (CFNBCS) with briefings about its responsibilities, resources and training;
DRDC Toronto with briefings about the organization of its Human Research Ethics Committee (HREC) and discussions with the Associate Deputy Director General/Chief Medical Officer;
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 participates. 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. While at DRDC Suffield, the BCDRC met with the director general, the deputy director general/head of CTTC, the head of the BCD program and other members of the senior staff. The Committee held discussions with the General Safety Officer and the Environmental Safety Officer; and
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) and Canada's participation in them.

The BCDRC reviewed DND's 2003 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 with Dr. Clive E. Holloway and Dr. Heather Durham, former chairs of the Committee who remain interested in the work of the BCDRC. The Committee also met with a senior "first responder" to biological and chemical incidents in Ottawa. 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. 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. These comments were repeated in the BCDRC annual report until 2001 (the 2001 and earlier reports are available on this web site). Please refer to these reports for explanations of the difference between offensive and defensive biological and chemical research and means of obtaining information on BCD from DND. In May of 2003, the 2002 BCDRC annual report was discussed in articles in the Ottawa Citizen and the National Post. The committee is gratified by the interest in its work and encourages members of the media to contact the members for information on the work of the Committee.

DISCUSSION

The Committee members note that there has been progress on a number of recommendations made by the BCDRC in recent reports. The BCDRC has received timely information about the discovery of suspected chemical munitions used many years ago on the ranges at DRDC Suffield (BCDRC recommendation in 2001). The disclosure of the information to the Committee is, in effect, its disclosure to the Canadian public and it reflects DND's willingness to share information with the public. So far, in 2003, (until October), the BCDRC has been informed of 12 suspected chemical munitions at Suffield. Many of them were discovered during the improvement of a road in the range area. The shells are investigated and then destroyed. As well as informing the BCDRC, DRDC Suffield informs National Defence Headquarters and the Canadian National Authority for the Chemical Weapons Convention.

The Committee also notes that DRDC is taking action to improve the mechanism to ensure that Human Research Ethics protocols from Defence Research Centres are being evaluated consistently, expeditiously and according to the latest TriCouncil Policy Statements on Ethical Conduct for Research Involving Humans (BCDRC recommendation in 2000). The Committee approves of DRDC's action to have a single, informed Human Research Ethics Committee conduct these evaluations for all of DRDC.

The Committee recognizes that progress is being made to formalize doctrine for the treatment of chemical warfare casualties. DRDC Suffield and the Canadian Forces Medical Group (Operational Medicine) (CFMG Op Med) are participating in the development of this doctrine with the forces of partner nations. This action should help satisfy the BCDRC recommendation in the 2002 report that doctrine be developed for the provision of medical care in biological and chemical warfare (BCW) conditions.

The destruction of the World Trade Center on 11 September 2001 was followed by anthrax attacks initiated through the U.S. mail system. Although dwarfed by the

tragedy in New York, the anthrax attacks were dangerous. They caused deaths and illness and they disrupted the U.S. mail service. In Canada, nuisance incidents in which imitations of biological agents were sent through the mail to Canadian federal buildings followed the problems in the United States. Disruptions to Canadian government services resulted and the incidents showed that it will be difficult to protect the public from genuine attacks. These events brought increased emphasis to the biological and chemical defence (BCD) program in the DND and in the Office of Critical Infrastructure Protection and Emergency Preparedness (OCIPEP). The Chemical, Biological, Radiological/Nuclear Research and Technology Initiative (CRTI) program, organization of the Counter Terrorism Technology Centre (CTTC) in Suffield, increased staff levels in directorates and agencies involved in BCD and increased cooperation between agencies are the obvious signs of this emphasis.

The CRTI program has involved many civilian research centres in BCD. The active research and development projects range from methods of detecting biological and chemical agents to the development of medical countermeasures (MCM) to fight agents and infectious diseases that might be used as agents. The research projects are partnerships between civilian enterprises (including universities) and federal government organizations. DRDC Suffield is the federal partner for many of these projects. Of necessity, these projects include the sharing of information and resources between the partners. This sharing sometimes includes the transfer of chemical or biological agents from defence facilities such as DRDC Suffield to academic or private facilities. In its 2002 report, the BCDRC recommended that DRDC prepare guidelines for the safe transfer of and accounting for this material. The Committee is pleased that this action is well underway.

The successful completion of CRTI projects will eventually make important contributions to DND's program of BCD. Successful research and development will produce technologies that will be useful in the fight against chemical and biological weapons. The BCDRC recommended in its 2000 report that DND laboratories follow "Good Laboratory Practice" (GLP) for the collection of data from the early stages of R&D. This will facilitate Health Canada (HC) approval of new MCM against chemical and biological agents. However, GLP is one early step in the process of gaining HC approval for the use of drugs. The process is not simple. A small cell in the CFMG Op Med is charged with seeking HC regulatory approval for MCM. The process is long and expensive and, because of the cost, it is difficult for DND to achieve HC approval for the use of these antidotes to treat the general public. The department can apply for "special access" from HC for use of MCM within the military. Also, there is seldom a large enough commercial market for the developments to warrant private investment in the approval process. Therefore, for example, for the use of an excellent product developed in Suffield called Reactive Skin Decontamination Lotion (RSDL[®]), DND can receive a Health Canada exemption for the forces to use it for military personnel. The Canadian Forces train with a simulated RSDL[®] and the actual lotion is available in the Forces supply chain. However, RSDL[®] is considered to be a drug because part of the formulation may be absorbed into the body. Military personnel involved in a chemical or biological incident in Canada are not cleared to use RSDL[®] to decontaminate civilian

casualties. The BCDRC is concerned by this situation but does not see that the solution is entirely a DND responsibility.

RSDL[®] is one example of a successful R&D project completed at DRDC Suffield. Some of the CRTI projects underway are searching for countermeasures for infections from tuberculosis, anthrax and malaria. The BCDRC is supportive of the work being done but questions whether the resulting countermeasures will be licensed for civilian use without support from outside of DND. In 2001, the BCDRC recommended that an arms-length committee of civilian professionals be formed to serve an advisory role to CFMG on biological and chemical MCM. This committee is apparently still being planned but it alone will not be a solution to the problem of licensing MCM.

In previous reports, the BCDRC has expressed concern that defence scientists involved in important research at DRDC Suffield are taken away from their duties to supervise training with chemical agents. Part of the reason for this is that training of agencies outside DND can generate revenue for DRDC. However, that is not the case for DND in-department training. There is no cost-benefit to DRDC for the supervision of this training. The increased emphasis on BCD has increased the training load at DRDC Suffield. More organizations from both within and outside DND are taking advantage of the Suffield field and laboratory facilities and this has increased the need for training supervisors. The CTTC should eventually relieve scientific officers from this training obligation but the centre is not yet completed and new staff has not been hired.

The emphasis on BCD within DND has resulted in more service people being trained in basic procedures for working in biological and chemical conditions and better facilities to train them. The Committee observed this during its visit to CFB Trenton. Since 2001, the NBCD cell on the base has received improved facilities including a permanent classroom, an improved gas hut and storage facilities at the hut. The two-man NBC staff is now devoted solely to its NBC duties whereas the non-commissioned members previously had other duties to perform. The number of soldiers and airmen trained by the section doubled during the 2001/02 training year and has continued to increase in 2002/03.

CONCLUSIONS

The years of budget shortages and staff reductions in agencies involved in biological and chemical defence (BCD) may be ending in the Department of National Defence (DND). The tragedy of “nine eleven” and other events have focused attention on the need for defence against terrorism including the need for defence against biological and chemical weapons. The Chemical, Biological, Radiological/Nuclear Research and Technology Initiative (CRTI) has resulted in partnerships between DRDC Suffield and civilian research centres. Staff is being recruited at Suffield to work on the new projects. Undoubtedly new technology for BCD will be developed. However, the cost of seeing new medical countermeasures through to completion and Health Canada approval will be high and perhaps beyond the resources of DND.

The increased emphasis on BCD has increased the training at DRDC Suffield. More training further impinges on the time available for defence scientists to do research. Completion of the Counter Terrorism Technology Centre (CTTC) should alleviate the problem because the centre will be responsible for training support and research scientists should be freed from training supervision duties.

RECOMMENDATIONS

The BCDRC recommends that the process of obtaining Health Canada approval for medical countermeasures be given more attention by DND. The BCDRC would like to see policy drafted by an interdepartmental committee (HC and DND) which addresses the extraordinary use of MCM that are approved for use within the military.

The BCDRC recommends that research in BCD be given the utmost priority in DRDC Suffield. Rather than employing researchers to supervise training, other arrangements should be found. Therefore, the BCDRC encourages the completion and manning of the CTTC if that will permit scientists to conduct more research.

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 2003 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 (DRDC Suffield 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 2001-2002 Annual Report is on the DRDC web site: <http://www.crad.dnd.ca> or as listed below in recommendation 5.

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 DRDC Suffield, 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) 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

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.

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 May 2003. Chemical and biological agent holdings were verified then. 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 has implemented an Environmental Management System. Also, significant progress has been made on recommendations in the previous independent audit. The BCDRC agreed that an independent audit would be redundant in 2002/03 and more appropriate as a verification procedure for the Environmental Management System and Auditor General's report in the future. The Auditor General's report of her audit was not available during the Committee visits in 2003.

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 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. 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. ADM (S&T) and the Chair of the BCDRC have agreed on the wording of this clause and BCDRC awaits its incorporation into contracts between DRDC and private sector laboratories.

4. **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. Since 2001, the library has been able to purchase several new and useful reference text books. Monitoring will continue.

5. **The skills of the present 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. Safety remains a concern as the size of the staff increases but the chairman of the Safety committee keeps the issue in the forefront. Staffing remains a concern at DRDC Suffield. A hiring freeze in the 1990s has produced a gap in the age range of defence scientists from 35 to 40 years of age. People in this range should be moving into management in preparation for the retirement of the present managers. With the shortage of scientists, the move will thin the ranks of experienced scientists in that age range who are conducting effective research. On the positive side, recruitment of new scientists to work in the CTTC and on CRTI projects is becoming possible. The Committee will continue to monitor the staffing issue. BCDRC reminds DRDC that DRDC Suffield has agreed to keep the Committee informed of staff changes.

6. **The DRDC Suffield Safety Manual and Emergency Response Plans be up-dated 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. He is conscious of the need to ensure that new staff is trained in safety procedures and he has brought the issue to the attention of management.

7. **The BCDRC mandate be amended to include an annual visit to Health Canada's Canadian Science Centre for Human and Animal Health in Winnipeg whenever research is being conducted there either by or directly for DRDC Suffield.**

Health Canada and DND have signed a memorandum of understanding for collaborative work. The Winnipeg laboratory is involved in some CRTI projects and the BCDRC will ask for a visit to the centre in 2004.

8. **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 need for GLP remains important to the regulatory process.

9. **It is recommended that all freezers in the Level II containment facility at the Defence Research Establishment Suffield (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 2004 visit.

10. **It is recommended that DRDC establish a mechanism to ensure that Human Research Ethics protocols from defence research establishment scientists are evaluated consistently, expeditiously and according to the latest TriCouncil Policy Statements on Ethical Conduct for Research Involving Humans.**

Note: the TriCouncils are the Natural Sciences and Engineering

**Research Council of Canada; the Social Sciences and Humanities
Research Council of Canada and the Canadian Institutes of Health
Research.**

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. The BCDRC supports action to consolidate a Human Research Ethics Committee at DRDC Toronto where much of the human research is conducted.

11. **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 but action is not complete in late 2003.

12. **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 is being provided with timely information about the discovery of suspected chemical munitions on the Suffield range area.

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

Accepted. A staff officer has been appointed and doctrine will be formalized. Canada is involved with other nations in the development of doctrine.

14. **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.**

Accepted. DRDC Headquarters (Director Science and Technology Human Performance) is preparing the guidelines and current DND regulations are being enforced.

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

Accepted. The Committee visited the Joint NBC Defence Company in June 2003.

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)

DAPC Pol: Directorate Arms Proliferation Control Policy

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; correct terminology is now Defence Research Centre but abbreviation is used in earlier reports

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)

HC: Health Canada

HREC: Human Research Ethics Committee

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

RSDL[®]: reactive skin decontamination lotion

VCDS: Vice Chief of the Defence Staff