

2004 ANNUAL REPORT
OF
THE BIOLOGICAL AND CHEMICAL DEFENCE
REVIEW COMMITTEE

THE COMMITTEE

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October 2004

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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 in Canada exists, 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]
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and

Member	Dr. Kenneth L. Roy	University of Alberta [Microbiology]
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Early in 2004, the third member of the Committee, Dr. Francine Denizeau from the University of Quebec at Montreal, lost her battle with leukemia. Dr. Denizeau made an exemplary contribution to the work of the Committee during 2003. Drs. McArthur and Roy appreciate her efforts, made in spite of obvious fatigue, and regret the early passing of this outstanding academic. As an interim measure, a former chair of the Committee, Dr. Heather D. Durham from McGill University, has filled in as the toxicologist and is an author of this report.

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 2004 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.

The BCDRC notes that concern for the threat from biological and chemical weapons seems to be diminishing perhaps because there is a perception that the threat itself is diminishing. This perception may be a result of media attention being diverted by other forms of violence and terrorist action, *e.g.* suicide bombers. This lack of a perceived threat may result in a loss of momentum in efforts to develop Canada's defence against biological and chemical warfare (BCW). The BCDRC believes biological and chemical agents remain potential instruments for terrorist attacks. The BCDRC recommends that the biological and chemical defence programme in the Department of National Defence continue with undiminished resources.

There continues to be a requirement for researcher scientists and technicians at DRDC Suffield to devote time in support of training that is not related to their research. This problem was pointed out in the 2003 BCDRC report and it continues. The Counter Terrorism Training Centre at Suffield (implementation is in progress) is beginning to assume some of the training workload.

There has been significant growth in the biological and chemical defence programme at DRDC Suffield. Some of this growth has been a result of successful competition by DRDC scientists for research funding through programmes such as the Chemical, Biological, Radiological/Nuclear Research and Technology Initiative (CRTI). BCDRC commends these scientists for their initiative in seeking this funding. The expansion of the BCD programme, however, has strained the currently available resources, in particular, laboratory space in Level III Containment. The ability to deliver on the research objectives will depend on interim and long term solutions to infrastructure requirements during this time of growth. The BCDRC recommends that a suitable balance be kept among increases in the number of researchers and increases in laboratory space and equipment within the BCD programme.

The rapid implementation of the Joint NBC Defence Company in Trenton has left some important “loose ends”. These include poorly defined test and evaluation criteria for new equipment, the lack of dedicated air transportation for longer-range deployments and the lack of an intelligence gathering and assessment capability. The BCDRC recommends that some attention be paid to shortcomings in the working relationships of the Joint NBC Defence Company.

COMMITTEE ACTIVITIES - - 2004

During 2004, the BCDRC 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 and the Associate Director General Programs;
Directorate Nuclear, Biological and Chemical Defence (DNBCD) including a meeting with the acting director;
Directorate Arms Proliferation Control Policy (DAPC Pol) including a meeting with the director; and
Director General of Health Services (DGHS): Canadian Forces Medical Group/Operational Medicine (CFMG Op Med);
Maritime Forces Atlantic, Halifax N.S. including a meeting with the Commander;
12 Wing, Shearwater (Dartmouth) N.S. including a meeting with the Commander;
The Joint NBC Defence Company (Trenton) with briefings about its start-up and current activities;
Canadian Forces Nuclear, Biological and Chemical School (CFNBSC) with briefings about its responsibilities, resources and training; and
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.

Outside of DND, the BCDRC met with

officers in Foreign Affairs Canada to discuss the Chemical Weapons Convention (CWC) and the Biological and Toxins Weapons Convention (BTWC) and Canada's participation in them;
officers in the Canadian Science Centre for Human and Animal Health, Winnipeg; and
a representative of the Canadian Security Intelligence Service.

In October, the Committee members attended a DNBCD workshop in Cornwall Ontario.

The BCDRC reviewed DND's 2004 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 and 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. 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.

DISCUSSION

Within DND, there is an opinion that the public perception of a threat in Canada from biological and chemical agents has diminished. This may be because media interest in BCW has been reduced. Suicide bombers, car bombs and terrorist attacks with small arms or grenades that result in multiple casualties of innocent civilians, including defenceless children, and against Canadian servicemen abroad, are more newsworthy than the investigation of a benign white powder sent through the mail. Biological and chemical attacks are simple to simulate and the investigation of hoaxes by first responders is no longer of the same interest to reporters seeking the sensational. This lack of a perceived threat is resulting in a loss of momentum in efforts to develop Canada's defence against biological and chemical warfare (BCW).

The BCDRC receives briefings from DND on the development of BCW and, periodically, including in 2004, visits CSIS to assess the real threat of agents being used in Canada or against Canadian soldiers. However, it is not the Committee's role in its annual report, to make an assessment of the threat or to judge the seriousness of the threat. As academics and researchers in the fields of chemistry, microbiology and toxicology, the members of the Committee are only competent to judge whether there is a potential for the use of biological and chemical agents against Canadian Forces (CF) members serving abroad or within Canada against civilian or military targets. The members of the Committee agree that there is such a potential. The Committee members are concerned, therefore, that the DND programme of biological and chemical defence (BCD) not lose momentum even if public perception of the threat might diminish.

Training is an essential element of the BCD programme. The Counter Terrorism Training Centre (CTTC) is being built at Canadian Forces Base (CFB) Suffield as part of Defence R&D Canada (DRDC) Suffield. The CTTC will include laboratories for training with agents and for the investigation of agents that could be used by terrorists. The BCDRC remains interested in the development of the CTTC because its completion will ease the training workload on the scientists at Suffield who would be better employed using their time for research. This fact was mentioned in our 2003 report. In 2004, DRDC Suffield is turning away various Canadian and allied agencies that take the BCW threat seriously and want to take part in biological and chemical agent training at the base. The DRDC BCD research effort could be overwhelmed by training support if all these agencies were permitted to use the resources. Even with the refusals to some outside agencies, the number of training days at Suffield is 1.5 times the 2003 level. This is in spite of the fact that both DRDC Suffield and the Canadian Forces Nuclear Biological and Chemical School (CFNBCS) at CFB Borden report that training of CF soldiers at Suffield has been reduced because of budget constraints that restrict travel by CF students. The increase in training at Suffield is evidently in support of users from outside of DND. The CTTC has begun to assume much of the work associated with training but it may be concluded that time spent by researchers in support of training continued to be significant in 2004. This issue is discussed further in Annex B to this report in the final recommendation (number 17).

Training is not the only factor that affects the amount of research done at DRDC Suffield. The size of the research staff, the number of working laboratories and the availability of equipment are also important. During its 2004 visit, the BCDRC noted some new state-of-the-art instrumentation in the Suffield laboratories. The scientists and technicians attributed the acquisitions to money that has become available through the Chemical, Biological, Radiological/Nuclear Research and Technology Initiative (CRTI: for details, please refer to the web site: <http://www.crti.drdc-rddc.gc.ca/>). DRDC Suffield is a partner of several universities and commercial companies on BCD projects funded by CRTI. The new equipment will increase research output. Funds from CRTI as well as money earned through joint ventures with other agencies and through the marketing of the training facilities are also being used by DRDC Suffield to hire employees outside of the salary and wage envelope (SWE) funded by DND. This increase in staff, utilizing money earned, is possible because, since 2000, DRDC has been an agency with the

capability to make a profit that can be reinvested. Before that, any money earned at defence research establishments was returned to the Receiver General for Canada.

DRDC headquarters in Ottawa has said that it is committed to the construction of a high toxicity laboratory for chemical research and additional Level III biological laboratories at DRDC Suffield. The BCDRC is concerned that the availability of laboratories is becoming the most serious constraint on research in the BCD. Some areas of research are developing slowly because of limitations in time and space available, especially in Level III containment facilities. DRDC has attempted to gain access to facilities outside the department but, after polling three-quarters of the laboratories in Canada, found that there was no Level III space available to DRDC for its research.

Annually, the BCDRC visits directorates in Foreign Affairs Canada (FAC) that are responsible for Canada's participation in international organizations responsible for the Chemical Weapons Convention (CWC) and the Biological and Toxins Weapons Convention (BTWC). The Directorate of Arms Proliferation Control Policy (DAPC Pol) at NDHQ provides liaison and support to these directorates and the need for a DND BCD programme is related to the international efforts to restrict the use of chemical and biological weapons. FAC remains at the forefront of world efforts to implement a meaningful BTWC. These efforts are largely unreported but should be applauded.

The emphasis on BCD in DND since the destruction of the World Trade Centre towers and the subsequent anthrax attacks through the United States mail has resulted in many useful changes in organization and equipment. The need for rapid implementation of change can result in falling behind in some details. The organization and entry into service of the independent Joint Nuclear Biological and Chemical Defence Company (JNBCD Coy) was a step for which the BCDRC recognized a need. The Company is being brought up to strength rapidly and the members of the company are well trained, competent first responders for biological and chemical attacks. However, the BCDRC has noticed shortcomings in the implementation of the Company. Three of these are described below.

New equipment is appearing at the Company in CFB Trenton and also at the CFNBCS in CFB Borden. The instruction from NDHQ seems to be to try out the equipment and see how it works. The Committee has seen a duplication of effort at the School and the Company and the need for reporting on the value of new equipment does not seem to be consistent. It is the responsibility of DNBCD to coordinate the testing and evaluation of new equipment with the subordinate organizations.

An important attribute of the JNBCD Coy is its ability to respond quickly to BCW attacks in Canada and with Canadian troops deployed overseas. The Company has plans for deployment by road to sites in Ontario and Quebec and by air to sites further away and it rehearses these deployments. The BCDRC notes that there is no formal arrangement for the provision of aircraft for the rapid deployment of the Company to distant locations.

The JNBCD Coy will have a full strength of 93 people. The small size of the unit does not permit the organization of an intelligence cell. The superior headquarters in the Company's chain of command is a Joint Headquarters in Kingston that does have an intelligence element. The Kingston headquarters, however, does not seem to have a mandate to collect and collate BCW information and provide the JNBCD Coy with intelligence about potential BCW threats to which it may have to respond.

CONCLUSIONS

The perception that the threat of biological and chemical attack is diminishing results from media attention being diverted to other forms of violence and terrorist action. Biological and chemical agents, however, remain in the arsenal of terrorist weapons.

There continues to be a requirement for researchers at DRDC Suffield to devote time in support of training. This problem was pointed out in the 2003 BCDRC report and it continues. The Counter Terrorism Training Centre at Suffield is assuming some of the training workload.

There is growth in the biological and chemical defence programme at DRDC Suffield. Successful expansion to meet research commitments requires maintaining a balance among availability of laboratory space, numbers of research personnel and equipment.

Foreign Affairs Canada is actively working to develop conventions to limit the possession and use of biological and chemical agents by states. The Department of National Defence cooperates with FAC in this work.

The rapid implementation of the Joint NBC Defence Company in Trenton has left some important "loose ends". These include poorly defined test and evaluation criteria for new equipment; the lack of dedicated air transportation for longer-range deployments and the lack of an intelligence gathering and assessment capability.

RECOMMENDATIONS

The BCDRC recommends that the biological and chemical defence programme in the Department of National Defence continue with undiminished resources.

The BCDRC recommends that a suitable balance be kept among increases in the number of researchers and increases in laboratory space and equipment within the BCD programme during the current period of growth to meet research commitments.

The BCDRC recommends that some attention be paid to shortcomings in the working relationships of the Joint NBC Defence Company.

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 2004 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. These reports satisfy this recommendation. The 2002-2003 Annual Report is on the DRDC web site: <http://www.crad.dnd.ca> under "publications".

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. The web site (<http://www.drdc.dnd.ca> or www.drdc-rddc.gc.ca) has been established and provides the public with information on biological and chemical defence work. 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 2004. 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. A full assessment of DND hazardous sites is underway, including those at Suffield. The study that is underway is developing a methodology for cleaning up the various sites. At Suffield, there is a potential hazard from old munitions containing mustard and nerve gas. Cleaning the subsoil and handling material buried in it will be challenges at Suffield.

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. (1990)**

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. (1993)**

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. (1994)

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. (1995)**

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. (1996)**

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. (1996)**

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. (1999)**

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 visited the centre in 2004. This recommendation will be removed after a second visit.

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. (2000)**

Approved. The recommendation is being implemented on a case by case basis. The need for GLP remains important to the regulatory process and more attention should be paid to its implementation.

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. (2001)**

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 logbooks are in order during our 2005 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. (2001)

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. This recommendation may be removed if the BCDRC is satisfied with progress during its next visit to DRDC Toronto.

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. (2001)**

The recommendation has been agreed to and CFMG intends to establish such a committee. Action is underway but not complete in 2004.

12. **It is recommended that the BCDRC be informed when containers or expended rounds that may contain live agent are discovered at any facility. (2001)**

The recommendation has been accepted but DRDC Suffield neglected the commitment in 2003-04.

13. **It is recommended that doctrine be developed for the provision of medical care in biological and chemical warfare (BCW) conditions. (2002)**

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. (2002)**

Accepted. DRDC Headquarters (Director Science and Technology

Human Performance) has prepared the guidelines and current DND regulations are being enforced. The BCDRC is attempting to monitor the transfer of agents.

- 15. It is recommended that the scheduled visits of the BCDRD include the Joint NBC Defence Company at CFB Trenton. (2002)**

Accepted. The Committee visited the Joint NBC Defence Company in June 2003 and 2004. This recommendation may be removed following the next visit.

- 16. 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. (2003)**

Accepted. The full approval of medical products is difficult because of the HC requirement for human efficacy trials. DND cannot test the efficacy of (for example) a medical countermeasure for nerve agent poisoning so must depend on "special access" approval for a restricted population such as CF members. DND has been proposing an interdepartmental committee consisting of representatives from the CF, Health Canada Therapeutic Products Directorate (TPD) and Public Safety and Emergency Preparedness Canada (PSEPC) but has not had a response from Health Canada.

- 17. 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. (2003)**

DRDC responded to this recommendation by stating that it continues to place a very high priority in BCD R&D. Throughout the year, the CTTC has hired 12 personnel and has undertaken a major effort in staff training and development, and in facility upgrades. A further 4-6 specialists will be hired in the coming months. The impact of live agent training on BCD R&D will diminish in the coming training season, as the CTTC becomes established. The BCDRC noted a heavy live agent training schedule during its 2004 visit to DRDC Suffield. It was difficult to determine how much this load is affecting the BCD research programme. The Committee will address this issue during its 2005 visit.

ABBREVIATIONS AND TERMS

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

BTWC: Biological and Toxins Weapons Convention

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)

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 (see FAC)

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

FAC: Foreign Affairs Canada (replaces DFAIT)

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

Level III Containment or Level III: A high level of physical containment requiring a dedicated laboratory with independent air supply and security features. For more information please see http://www.phac-aspc.gc.ca/publicat/lbg-ldmbl-96/lbg5_e.html#5.3

MARLANT: Maritime Forces Atlantic

MCM: Medical Countermeasures

MOU: Memorandum of Understanding

NATO: North Atlantic Treaty Organization

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 (see PSEPC)

PCB: polychlorinated biphenyls

PSEPC: Public Safety and Emergency Preparedness Canada. Replaced OCIPEP in 2003.

PWGSC: Publics Works and Government Services Canada

UNSCOM: United Nations Special Commission on Iraq

R&D: Research and Development

RSDL: reactive skin decontamination lotion

SWE: Salary and Wage Envelope

TPD: Health Canada Therapeutic Products Directorate

VCDS: Vice Chief of the Defence Staff