
2015 ANNUAL REPORT

Biological and
Chemical Defence
Review Committee

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Biological and Chemical Defence Review Committee

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INTRODUCTION

The policy of the Government of Canada is to press for global, comprehensive and verifiable treaties banning all biological and chemical weapons. To this end, Canada is a State Party to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (the Biological and Toxin Weapons Convention or BTWC) and also, to the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (the Chemical Weapons Convention or CWC).

However, for as long as the threat from such weapons endures, be they in the hands of state, or potentially, non-state actors, the Government has a recognized obligation to ensure that members of the Canadian Armed Forces (CAF) are adequately equipped and trained to protect themselves from exposure to biological and chemical warfare agents. Such protection is required not only during the course of operational deployments abroad, but also in the context of military support to responses to terrorist incidents at home or other domestic emergencies involving these agents.

This said, the Canadian public, as well as the international community, have the right to be assured that the Government's policy of maintaining only a defensive capability in this field is fully respected at all times and that any related research, development or training activities undertaken are conducted in a professional manner with minimal risk to public safety or the environment.

To facilitate this assurance, the Minister of National Defence (MND), in May 1990, directed the establishment of the Biological and Chemical Defence Review Committee (BCDRC or, "the Committee") as an adjunct to the Defence Science Advisory Board. Today, the BCDRC operates at arm's length from Government. Its mandate is to provide an independent, third-party review of the Biological and Chemical Defence (BCD) research, development and training activities undertaken by the Department of National Defence (DND) and the CAF with a view to assessing whether they are defensive in nature and conducted in a professional manner with minimal risk to public safety or the environment.

The BCDRC normally comprises three experts in scientific disciplines relevant to BCD such as chemistry, microbiology and toxicology. One of these is selected by the Committee to serve as Chair. New members are appointed by the Chair based on nominations from such professional societies and associations as the Royal Society of Canada, the Canadian Society of Microbiologists, the Chemical Institute of Canada and the Society of Toxicology of Canada. The Chair also arranges for an administrative staff member to function as the Committee's Executive Officer.

Committee membership as of 1 April 2015 was as follows:

Dr. Julia M. Foght (Committee Chair)

Professor Emerita of Microbiology

University of Alberta

Dr. Heather D. Durham

Professor of Neurology and Neurosurgery at the Montreal Neurological Institute and Hospital

McGill University

Dr. Pierre G. Potvin

Professor of Chemistry

York University

Brigadier-General (Ret'd) J.J. Selbie serves as Executive Officer to the Committee.

The Committee's annual cycle of activity includes:

- Briefings in Ottawa from representatives from National Defence Headquarters (NDHQ) and the Department of Foreign Affairs, Trade and Development (DFATD) on BCD issues
- Visits to selected CAF education and training establishments, operational formations and units where BCD activity takes place, and to associated government (mostly DND) research and development facilities such as the Defence Research and Development Canada (DRDC) research centre at Suffield, Alberta (which is visited every year)
- Attendance at selected BCD exercises, training courses, workshops, seminars, symposia etc., conducted by the CAF or DND
- Publication of an Annual Report in the public domain with key observations, findings and recommendations

The Committee's Annual Reports, dating back to 1991, are available on its website (www.bcdrc.ca). No report was produced in 2010 due to a delay in renewing the Committee's mandate.

The work of the Committee is funded by a contribution from the Government of Canada Department of National Defence.

SUMMARY

Having detected no evidence to the contrary during the course of its 2015 briefing and visit programme, the Committee concludes that:

- Canada's policy of maintaining a purely defensive biological and chemical warfare capability is fully respected by the DND and the CAF
- The BCD research, development and training activities undertaken by the DND and the CAF are compliant with Canada's obligations as a State Party to the BTWC and to the CWC
- The BCD research, development and training activities undertaken by the DND and the CAF, as observed by the Committee, pose minimal risk to public safety or the environment
- There is no covertness or duplication within the BCD program
- In addition to its principal conclusions, the Committee, drawing upon its observations made during the course of its visits to DND and CAF education and training establishments, operational formations, units and research and development facilities, offers one new recommendation aimed at reinforcing the good management and effectiveness of Canada's BCD program.

COMMITTEE ACTIVITIES 2015

During the course of 2015, the Committee conducted the following briefings, visits and related activities:

- **Maritime Forces Pacific – Esquimalt (11 May).** BCD staff and instructors briefed the Committee on Royal Canadian Navy (RCN) BCD policy and doctrine; shipboard BCD organization; equipment; tactics, techniques and procedures; and, training. The Committee also toured Damage Control Training Facility GALIANO, where BCD training takes place, and HMCS VANCOUVER. Prior to departure, we met with the Commander Pacific Fleet.
- **DRDC Suffield Research Centre (SRC) (12-14 May).** The Committee's visit to the SRC incorporated a full program of presentations, discussions, information exchanges and verification activities including the following:
 - An overview presentation by the Centre Director covering organization, infrastructure, resource allocation, notable initiatives and other activities undertaken during the past year including inter-departmental and international involvements

- A presentation and discussion of the current BCD research and development program at the Centre and specialized BCD training delivered at the Counter Terrorism Technology Centre (CTTC)
- A presentation and discussion of recent and current safety and environmental stewardship program initiatives
- A presentation and discussion of infrastructure and other corporate services issues related to safety and environmental protection
- A review and discussion of local developments in connection with relevant recommendations contained in the BCDRC 2014 Annual Report
- Review and discussion of various biological and chemical warfare agent (BWA and CWA) threat issues
- Review of Material Transfer Agreements executed between 1 May 2014 and 30 April 2015
- Review of all BCD contracts awarded to outside agencies
- Review and discussion of chemical holdings including management protocols and procedures and an inspection of chemical holdings and laboratory facilities
- Review and discussion of the Chemical Safety Program
- Review and discussion of biological, viral and toxin holdings including management protocols and procedures and an inspection of Biosafety Level 2 (BSL 2) biological, viral and toxin holdings and laboratory facilities
- Video inspection of Biosafety Level 3 (BSL 3) selected agent holdings
- Review and discussion of the transfer of pathogenic biological materials between 1 May 2014 and 30 April 2015 including procedures for control and tracking by receiving agencies
- Review and discussion of the Biological Safety Program
- Contractor briefings
- Informal laboratory visits and research and development project briefings
- Review of Animal Use Protocols
- Tour and discussion of activities at the CTTC's Cameron Centre training facility
- Review and discussion of the discovery and safe disposal of munitions at CFB Suffield suspected to contain CWA

- Private meetings with the Acting General Safety Officer, Chair of the Bio-hazard Committee, Acting Chair of the Chemical Safety Committee and the Acting Environmental Officer
- Meeting with staff from the Base Medical Section
- Meeting with the Commander of CFB Suffield
- An opportunity for SRC staff to meet in confidence with the Committee
- Following its visit, the Committee debriefed the Centre Director and his executive management team on its initial observations and conclusions.
- **1st Canadian Mechanized Brigade Group – Edmonton (15 May).** The Committee received briefings from the Brigade Commander and his staff on BCD capability issues. The Committee also received presentations from representatives of 1 PPCLI and 1 Field Ambulance. At 1 Service Battalion, the Committee viewed a decontamination line set-up and discussed BCD equipment holdings with members of the Battalion's Decontamination Section.
- **Canadian Forces Firefighting and Chemical, Biological, Radiological and Nuclear (CBRN) Defence Academy (CFFCA) - Borden (8 June).** The Committee met with the Academy Commandant and instructors who provided an update on the Academy's BCD training programme including description of individual training courses, training output and support to NATO collective training exercises. The Committee also viewed the new sensor integration and decision support systems and one of the new personnel, equipment and vehicle decontamination systems acquired by the Forces. On departure, we met with the Commander of the Canadian Forces Support Training Group to whom the Commandant CFFCA reports.
- **1 Canadian Field Hospital – Petawawa (9 June).** The Committee met with the Acting Commanding Officer who explained this hospital's capabilities and limitations with respect to the treatment of biological or chemical warfare agent casualties. We also toured the field hospital facility set-up in its Role 2 (Enhanced) configuration.
- **Central Medical Equipment Depot – Petawawa (9 June).** The Committee met with the Commanding Officer and staff of the Depot and toured its pharmaceutical procurement, storage, packaging and distribution facilities with an emphasis on arrangements for BCD-related Medical Countermeasures (MCM).

- **Assistant Deputy Minister Policy - NDHQ Ottawa (10 June).** With the assistance of representatives from DFATD, the Committee was briefed on changes to the strategic security environment as well as the status of the CWC and BTWC, including an update on compliance by the DND and the CAF. The Committee also was briefed on recent counter-proliferation support and other threat reduction activities conducted under the auspices of the DFATD-led Global Partnership Program.
- **Canadian Armed Forces Intelligence Command – NDHQ Ottawa (10 June).** The Committee was briefed on the current assessed biological and chemical warfare agent threat.
- **Chief of Force Development – NDHQ Ottawa (10 June).** Officers of the Directorate of Chemical, Biological, Radiological and Nuclear Defence (D CBRN D) briefed the Committee on the role and organization of the Directorate; BCD policy, doctrine and plans; and, the status of the BCD equipment procurement projects.
- **Defence Research and Development Canada - Centre for Security Science - Ottawa (11 June).** The Committee received an update on the BCD aspects of the Canadian Safety and Security Program.
- **Canadian Forces Health Services Group Headquarters – Ottawa (11 June).** We met with the Surgeon General and his operational medicine staff who briefed the Committee on matters pertaining to medical support to BCD including doctrine, professional-technical guidance and training; the Group's participation in Canada's response to the Ebola outbreak in West Africa; medical aspects of the new CAF decontamination system (which we had viewed during our visit to the CFFCA in Borden); participation in international BCD fora; medical support-related research and development interests and priorities; regulatory affairs; and an update of the Biological Weapons Threat Medical Countermeasures (BWTMCM) project. We also discussed the disposition of the BCDRC's current recommendation concerning the provision of specialized training to medical personnel posted to the medical section at CFB Suffield.

- **Defence Research and Development Canada Corporate Office - Ottawa (12 June).** The Committee met with Dr. Camille Boulet, Chief of Staff to the Chief Executive Officer DRDC and Assistant Deputy Minister (Science & Technology) (ADM (S&T)), Department of National Defence, for the purpose of sharing the Committee's preliminary observations from its visits, and to obtain Dr. Boulet's views on current issues related to DRDC work in the realm of BCD. Specific items in the meeting agenda included changes to corporate level BCD research and development; safety and risk management arrangements including discussion of possible observation by the BCDRC of the proceedings of the newly created ADM (S&T) CBRN Oversight Committee; an overview of current BCD research and development program Project Charters and resource allocations; explanation of DRDC corporate level participation in BCD inter-departmental and international fora; and, an update of responses to recommendations in the BCDRC's 2014 annual report.
- **Exercise FIRE DRAKE – Suffield - (17 Sep).** The Committee Executive Officer, on behalf of the Committee, observed the conduct of FIRE DRAKE, an exercise carried out annually, at SRC's Counter-Terrorism Technology Centre in support of the National Chemical, Biological, Radiological, Nuclear and Explosives Response Team.
- **Medical Countermeasures Consortium Meeting – Winnipeg (21-22 Sep).** Dr. Foght, Committee Chair, attended, as an observer, a portion of the semi-annual meeting of the CBR Enterprise Medical Countermeasures Consortium (MCMC) held at the National Microbiology Laboratory. The consortium involves defence and public health representatives from Australia, Canada, the United Kingdom and the United States.
- **CBRN Defence Workshop – Ottawa (16-19 November).** The Committee's Executive Officer attended this workshop, which brought together representatives of the various DND and CAF stakeholders in CBRN Defence for the purpose of exchanging information on current activities and issues.

OBSERVATIONS

General. The Committee was warmly welcomed and received complete and proactive cooperation of authorities at all the headquarters, units, agencies and sites visited. The presentations and other information packages received were relevant, focused and detailed.

Threat. The briefings that the Committee received from Canadian Armed Forces Intelligence Command attested to a continued credible biological and chemical warfare agent threat.

Defensive Capability. During the course of its briefings and visits, the Committee had occasion to view capability requirements and procurement plans; research and development facilities and activity; in-service equipment and other materiel; doctrine; and, training. In all instances, the Committee was satisfied that these pertained solely to the defensive functions of biological and chemical agent detection, identification and monitoring; information management (e.g., warning and reporting); protection; hazard management (e.g., decontamination); and, medical countermeasures. The Committee assesses such functions as consistent with the maintenance of a purely defensive capability.

Compliance with Policy and International Conventions

DND/CAF chemical and biological defence policy is set out in Defence Administrative Order and Directive (DAOD) 8006-0 (accessible on the Internet). On 12 June 2015, the Committee received written certification from Director General Science and Technology – Centre Operations, Acting Director General Science and Technology - Force Employer and Assistant Deputy Minister Science and Technology that the projects in the FY 2015-16 DRDC Canada R&D program related to BCD and for which they are responsible, are compliant with the provisions of DAOD 8006-0.

In addition, during our visit to DRDC Corporate Headquarters, the Committee was again, this year, provided with copies of the CBRN Research Program Project Charters that include detailed project descriptions and resource allocations.

From time to time, the Organization for the Prohibition of Chemical Weapons (OPCW) conducts verification inspections of Canadian chemical defence research and development facilities. The Committee was informed that the OPCW conducted a verification inspection of the Canadian National Single Small-scale Facility (CNSSF) at the DRDC SRC on 14-15 September 2015. We have not yet seen the inspection report, however, we understand from discussion with the Centre Director at Suffield that the inspection went well. We will ask to see the inspection report during our next visit in order to confirm that the OPCW inspectors found the CNSSF facility to be compliant with Canada's obligations pursuant to the CWC.

It should be noted that occasionally, due to historical activities at CFB Suffield, munitions meriting treatment as suspected Chemical Weapons are found on the restricted access experimental proving ground or in the range and training area at Suffield. These munitions are reported to NDHQ and the OPCW in order to obtain permission for their destruction. The latest information the Committee has in this connection is the report of a discovery of two suspect artillery projectiles on 22 July 2015, and a third on 31 July 2015. These three projectiles were destroyed on 01 October 2015. A suspect aerial spray tank was discovered on 24 July 2015. We await notification of its destruction.

Safety

The Committee observed that at all units and locations visited in 2015, there existed a positive culture of safety and environmental stewardship.

Holdings of biological and toxin samples at DRDC SRC were inspected and verified. We noted a few minor errors with respect to toxin vials being in a storage position different from that indicated in the listing document but no associated safety concerns. Biological holdings, including soil samples and particularly toxins, continue to be slowly reduced to the minimum required for current defensive research. In this connection, the inventory management information system is now operating as it should, with newly acquired samples being properly barcoded and good progress being made to complete the barcoding of legacy holdings.

On 1 December 2015, new regulations under the Human Pathogens and Toxins Act will come into effect as will new Canadian Biosafety Standards. DRDC SRC is revising its laboratory procedures to ensure compliance, and will provide the Committee with a copy of their updated biological laboratory operating manual when this work is done.

The Committee observed that control and accounting procedures for chemical holdings have been enhanced to include the establishment of limits on the amount of agent that can be synthesised on strictly local authority and new provisions for the destruction of samples or sub-stocks of agent upon the completion of projects and exercises. We inspected the CNSSSF and were pleased to note that the fume hood drain has been modified as we previously suggested.

In our 2011 Annual Report, we recommended re-evaluation of the necessity for the licensed chemical synthesis facility at the Royal Military College that is operated for the purpose of producing small amounts of CWA for analytical science and protective research purposes. Were the requirement to remain, we further recommended that arrangements be put in place for the exchange of laboratory best practices between RMC and DRDC SRC. DND/CAF responses to this recommendation left us uncertain as to the actual situation regarding this facility. During our visit to RMC in 2014, the Committee confirmed that the facility operates subject to the provisions of a new and more restrictive license permitting it to synthesize and hold very small amounts of stipulated CWA for what we agree are necessary uses. We also observed evidence of the employment of best practices for this type of facility thus alleviating our immediate concern. However, given that the existing small holdings of CWA at RMC will meet requirements for a considerable time to come, we asked if it might be more prudent to replenish these holdings through the CNSSSF at the Suffield Research Centre rather than by synthesis in an infrequently used local facility. We now understand that the RMC license has, in fact, been further amended to permit the holding but not the synthesis of CWA and that arrangements are being investigated for the replenishment from stocks at SRC of RMC's very small holding if and when this is required. As such, while we will continue to monitor this situation, we will close our 2011 recommendation as having been adequately addressed.

During our 2012 visit to DRDC SRC, we were briefed on the launch of a Chemical Safety Review, the mandate of which was to compare current local procedures with best practices in allied defence laboratories with a view to identifying gaps or deficiencies at Suffield and making recommendations for their rectification. Amongst the recommendations of the since-completed Review, were proposals to establish a Chemical Safety Officer position; standardize safety procedures and equipment across laboratories; improve training and certification procedures for chemical agent workers; increase agent security; better define risks associated with various laboratory operations; dedicate resources to ensuring consistent compliance with chemical safety policies; modify certain emergency response procedures; consider provisions for the enhanced assurance of appropriate medical support; and, investigate implementation of a Medical Surveillance Program to include monitoring of acetylcholinesterase (AChE) levels in pertinent laboratory personnel.

Implementation of the last of the Review's recommendations continues. A part-time Chemical Safety Officer has taken up his duties and the process of officially establishing the position and hiring a full-time employee is well underway. A chemical agent worker multi-level certification program has been initiated for laboratory workers and field safety staff. The lowest level of certification standard has been established and all applicable personnel certified. Subsequent levels of certification standards are under development. AChE testing protocols have been designed and are being reviewed prior to implementation. Finally, further updates have been made to the Chemical Safety Manual including the tightening of agent access procedures; standardization of procedures and safety postures at specified risk thresholds; and, changes to emergency response first aid procedures.

As we reported last year, Committee representatives observed, in November 2014, a biological emergency response exercise in Building 1 at DRDC SRC. This followed our observation of a chemical emergency response exercise in May 2013. We did not have the opportunity to observe a response exercise this year. We were informed, however, of exercises that took place in January 2015 in Buildings 60 and 600 for Counter Terrorism Technology Centre staff and, in Building 10 for Casualty Management Section personnel. Also, an exercise involving response to current emergencies occurred prior to the start of Exercise PRECISE RESPONSE – the annual NATO live agent training activity hosted at Suffield. We applaud the inclusion by the Centre Director of “table top” exercises in the annual programme of emergency preparation activities. We have also suggested that future chemical emergency response exercises include, in addition to the CNSSSF, other workplaces where chemical agent may be used. We will also request that an emergency response exercise be scheduled during our next visit.

Also during the course of our 2013 visit to DRDC SRC, the Base Surgeon suggested that Canadian Forces Health Services personnel posted to the medical section at CFB Suffield should receive a short course of specialized training before or upon their arrival to ensure that they are adequately prepared to deal appropriately with chemical or biological agent casualties of the type that could

occur within the SRC setting. We concurred and made a recommendation to this effect in our 2013 Annual Report. In following up this recommendation during our meeting in 2014 with the Deputy Surgeon General and other staff at the Canadian Forces Health Services (CFHS) Group Headquarters, we noted a commitment that, should the requirement be verified, appropriate training would be provided, especially for the Base Surgeon. The Committee was pleased to learn during our visit to that headquarters this year that, subsequent to an assessment of the potential health threats posed by the training and research activities at Suffield, it has been determined that the Medical Officer at CFB Suffield should receive either the UK CBRN Clinical Course or the US Army Medical Management of Chemical and Biological Casualties Course. Additionally, we have been pleased to note that the current Suffield Base Surgeon has completed the US course and that (when he is away on leave or training), there are two Medical Officers in 1 Field Ambulance in Edmonton who can substitute for him. Moreover, we commend the drafting by CFHS Group of a training protocol for use at Suffield that addresses some unique hazards. These developments permit us to close our 2013 recommendation as having been adequately addressed.

The ability of the SRC and those who provide it medical and emergency response support to deal with potential or real exposures to chemical or biological warfare agent - be it before, at the time of, or after an incident - has been substantially reinforced by measures taken in recent years. We are aware that the SRC Director is continuing efforts to identify and address any remaining deficiencies in the completeness or consistency of this support system. We applaud this diligence and look forward to the receipt of a comprehensive update of the medical support system during our next round of visits.

The live agent training we observed during Exercise FIRE DRAKE, we believe, was conducted in a safe and professional manner and illustrated highly effective collaboration amongst the RCMP, the Canadian Armed Forces and other components of the National CBRNE Response Team as well as between the team and the exercise control and safety staff at the DRDC Suffield's Counter-Terrorism Technology Centre's Cameron training facility.

Based on our discussions with the Acting General Safety Officer and the Chairs of the Bio-hazard and Chemical Safety committees, as well as a review of recent minutes of meetings of the Chemical Biological Joint Occupational Safety and Health Committee and the General Health and Safety Committee, we believe that these committees continue to operate effectively. We reviewed two hazardous occurrence investigation reports both of which were of a minor nature.

The recent DND Chief of Review Services audit of CBRN Material Management across DRDC (to which our 2014 Annual Report refers) recommended the designation of a National Authority to be responsible for the oversight and provision of direction related to the compliance, control and risk management of DRDC CBRN activities. Dr. Marc Fortin, ADM (S&T) has appointed his Chief of Staff (currently, Dr. Camille Boulet) to this role. To assist the National Authority, a DRDC CBRN

Oversight Committee has been formed. During our visit to the DRDC Corporate Office in June, Dr. Boulet briefed us on his Terms of Reference and those of the Oversight Committee. He also offered a seat at Committee meetings to a BCDRC observer, an invitation which we have accepted.

DRDC SRC is a strategic national asset and, as such, its infrastructure deserves commensurate care and attention. The main laboratory building, Building 1 (which also houses the Centre's administrative offices), is close to sixty years old and, as long ago as the Barton Report of 1988, it was identified for replacement. Apart from its age, the Committee has harboured a long-standing safety concern about the co-location of scientific and administrative functions. The coming into force of new regulations under the Human Pathogens and Toxins Act and the new Canadian Biosafety Standards may give rise to additional concerns. Our unease has been mitigated, to an extent, by the diligent adherence by SRC management and employees to a comprehensive occupational health and safety program including emergency response exercises; by the prospect of the construction of a new laboratory complex; and, most important, by the proposal to place new modular BSL 3 laboratories in the shell of a nearby building (the so-called Modular Biological Containment Facility (MBCF)) pending their ultimate relocation to the new complex. The Committee follows closely the progress of the MBCF project. We understand that DRDC, in 2014, expended significant effort to reinvigorate this project and shepherd it through the various review and approval gates. Completion of the interim relocation, it is estimated, will occur in 2022. In the meantime, careful attention must be paid to the maintenance of utility systems and laboratory suites in Building 1 where the BSL 3 and other biological and chemical suites are presently situated. We observed that much good work, in this regard, was completed in FY 2014-15 including replacement of the domestic hot water generation system and the central uninterruptible power system; installation of non-absorptive flooring material; and, the mechanical overhaul of the aging autoclaves in the BSL 2 and BSL 3 laboratories. On the near horizon, is the assessed necessity to replace the autoclaves, building electricity feed and potentially, sewer piping on the first floor. We were told that, depending on the scope of work, the last of these projects could prove not only expensive but also significantly disruptive. This is a concern which merits monitoring by relevant authorities. Of more general importance is the need for these same authorities to keep on track the new laboratory complex project and the MBCF project.

Environmental Protection

In 2014, we received a detailed presentation from DRDC SRC's Environmental Officer, in which she explained the Centre's Environmental Management System and provided an update on those issues most directly related to BCD activities including: management of hazardous materials and hazardous waste; monitoring and control of incinerator air emissions; and, sustainability of the Experimental Proving Ground (EPG) including management of CBRN-contaminated sites.

This year, we observed that the environmental protection programme continues to run well. We were particularly pleased to note that the longstanding backlog of hazardous waste generated by research and training activities has at last been cleared, save for a small amount of inert material for which appropriate disposal procedures are being investigated.

We also learned more detail of a project to record in a digitized map format the location and other pertinent information with respect to all contaminated sites on the Experimental Proving Ground (EPG) for the purpose, *inter alia*, of aiding long-term site management and, by extension, EPG sustainability. We look forward to viewing the results of this work.

Other Observations

- **DRDC SRC/CFB Suffield**
 - During our visit to SRC's Casualty Management Section, we reviewed in-place animal use protocols and their system of management. We found activities to be compliant with the regulations of the Canadian Council on Animal Care.
 - The DRDC corporate services functional reporting model has previously attracted comment by managers we have met regarding its efficacy in view of geographical and conceptual differences amongst the research centres. It will be reviewed at the end of FY 2015-16.
 - We are happy to see that relations between DRDC Suffield and the Commander and staff of CFB Suffield remain entirely constructive.
- **Maritime Forces Pacific.** During its visit to Maritime Forces Pacific in Esquimalt, the Committee obtained good insight to RCN BCD policy, doctrine, organization, equipment, tactics, techniques, procedures and training. Taken together, these would seem to constitute a reasonable capability to sustain operations and uphold command flexibility in a biological or chemical warfare environment. We note that BCD capability readiness is included as an integral component of mission "work-up" training conducted at sea and that BCD "battle problems" are evaluated by specialized "sea training" and damage control staff. This said, we ask if a sufficient number of naval officers are receiving the appropriate training and qualification at the CFFCA to provide the essential BCD advice

and expertise to apply this concept in all naval units, establishments and headquarters – both afloat and ashore.

- **1 Canadian Mechanized Brigade Group**

- During our visit to 1st Canadian Mechanized Brigade Group in Edmonton, we noted a heightened awareness of BCD issues corresponding to a shift on the part of the Army from a focus on counter-insurgency to preparation for conventional or hybrid operations. We also sensed an admission that ambitions in connection with this shift may not be matched by available resources. Brigade headquarters staff are knowledgeable of BCD individual training qualifications across the brigade and have a plan to attain or maintain the requisite numbers of qualified personnel. Some concern was expressed that training course seat allocations at CFFCA are not fully synchronized with the Army's managed readiness program. We learned later in our visit program that seat allocations at the CFFCA are controlled in large measure by the Army and so we believe that any deficiency in this regard might be easily rectified. There is also a good understanding at Brigade HQ of the distribution of BCD equipment holdings at unit and supply depot levels.
- We received very thorough and knowledgeable briefings and demonstrations at 1 PPCLI, 1 Service Battalion and 1 Field Ambulance on the BCD capability of an infantry battalion and, the decontamination capabilities resident in the brigade. The presentation we received on 1 Field Ambulance's Patient Decontamination Centre gave evidence of a particularly thoughtful analysis of their mission and tasks by the personnel responsible for the Centre. They also freely shared ideas to improve their capability such as the addition of some low cost but helpful equipment such as "litter rollers" and specialized BCD medical kits; and also, access to live agent training at Suffield and BCD-specific medical courses of the sort that are currently available outside of Canada but for which the Canadian Forces Health Services Group is currently developing a Canadian equivalent. We will continue to monitor developments.
- 1 Service Battalion provided a good demonstration of their decontamination capability using existing equipment under their current limited mandate. We understand that responsibility for high-readiness decontamination capability will now rotate amongst the Army's 2nd, 3rd and 4th Canadian Divisions in accordance with the Army's managed readiness plan. Moreover, the new and more capable decontamination system acquired under the CBRN Defence omnibus project, which we learned is being tested at CFFCA, will be issued to the Army in keeping with this concept.

- **CFFCA**
 - Training output at the CFFCA increased from 181 graduates from six BCD Defence-specific courses in FY 2011-12 to 382 graduates from 17 serials of six course types in FY 2014-15 and is projected to be 324 from 14 serials of six course types in FY 2015-16. The increase from FY 2011-12 to FY 2014-15 is understood to be attributable to an increase in demand from the Army, in turn due to a determined effort by the Army to “re-institutionalize” BCD as an important part of its general purpose operational capability. The Academy’s intent in FY 2015-16 is to run fewer course serials but with a maximum number of students in each. It is hoped this will free up resources to update training qualification standards and course material and also, facilitate the Academy’s support to Canadian participation in NATO BCD exercises.
 - During our visit to the CFFCA, we also witnessed the Academy’s role in assisting the introduction of new BCD capability such as the sensor integration and decision support information system and the new decontamination system. Both of these systems are well regarded and this is due in significant measure to the Academy’s experimentation with prototypes and subsequent suggestions for improvements.
 - Notably, only simulants are used during training at the Academy – no biological or chemical warfare agents. All required live agent training is conducted at DRDC SRC.
- **1 Canadian Field Hospital.** The mission of 1 Canadian Field Hospital is to provide tailored Role 2 and 3 health services support to CAF operations. The Hospital’s medical capabilities and field-deployable infrastructure are indeed impressive. This said, we heard that the Hospital’s ability to operate in a BCD environment is very limited and that awareness by clinicians of biological and chemical treatment protocols is thought to be currently low. Clarification of the CFHS Group’s expectations of the Hospital’s BCD-related capability would be useful.
- **Central Medical Equipment Depot.** While at the Central Medical Equipment Depot in Petawawa, we were pleased to meet the recently hired Quality Assurance staff member who is assisting the Commanding Officer and staff of the Depot in working toward pharmaceutical “good manufacturing practice (GMP)” accreditation. We also applaud the measures being taken to avoid a repetition of an event in 2014 when a freezer failure resulted in the loss of a significant amount of BCD-related pharmaceuticals. It is likely that accreditation will require, in addition to changes in applicable processes and procedures, significant attention to and investment in the Depot’s infrastructure given the age of the building and some of its systems.

- **National Defence Headquarters**

- As in previous years, transparency and frankness again typified our talks with policy and intelligence staff at NDHQ and also with personnel from the DFATD, who spoke with us not only about the status of the BTWC and CWC, but also, as they have generously done before, the state of the Global Partnership Program created to address weapons of mass destruction proliferation risks. Impressed by the results of Canadian-funded Chemical Weapons Destruction efforts in the Former Soviet Union as well as recent and ongoing activities in the Middle East and North Africa, we continue to follow with interest the evolution of Canada's contribution to the Partnership, particularly its growing emphasis on biological security and the countering of WMD knowledge proliferation. Current Canadian-funded programming activities of interest include security and capacity-building upgrades to vulnerable biological laboratories in Nigeria and Ghana; strengthening capacities in the Americas to detect, diagnose and respond to a bio-attack or incident before it can spread and threaten Canada; strengthening capacities in Association of South East Asian Nations member countries to detect, diagnose and contain outbreaks of dangerous infectious diseases; and, strengthening Jordanian capacities to detect, identify and respond to a CBRN attack or incident originating in Syria.
- The Chief of Force Development's Directorate of CBRN Defence at NDHQ continues to effectively discharge its responsibilities for the development of CBRN defence capabilities to enable the armed forces to survive and operate in a CBRN contaminated environment, either at home or abroad. In this connection, one of its principal tasks is the provision of guidance to DRDC with respect to the BCD R&D program. The Directorate remains most helpful to the work of the Committee, having this year provided us with additional details of the intended use of the new sensor integration and decision support and decontamination systems that we observed at the CFFCA as well as a copy of the "capability roadmap" they have recently produced and which usefully encapsulates BCD development activity in all domains.
- The annual CBRN Defence Workshop organized and chaired by the Director of CBRN Defence is a valuable forum for activity coordination and information exchange amongst the members of the Canadian CBRN Defence community. This year we observed discussion highlights including progress of CBRN Defence contingency planning and concern over insufficient CBRN Defence training qualifications amongst naval personnel.

- **Centre for Security Science.** At DRDC's Centre for Security Science, we were again provided a comprehensive and insightful update of the Canadian Safety and Security Program with a helpful emphasis on its biological and chemical defence aspects. This said, notwithstanding the quality and quantity of activity in the chemical and biological defence R & D domain, we ask if the current population of BCD scientists will remain sufficient to uphold Canada's international reputation and obligations. We will monitor this issue.
- **Canadian Forces Health Services Group HQ.**
 - During our visit to Canadian Forces Health Services Group Headquarters (CFHS Group HQ), we learned of current issues and developments with respect to BCD medical doctrine; training course development; chemical agent treatment protocols; and, as mentioned above, efforts to address DRDC SRC's reported medical support requirements. We were also briefed on the Surgeon General's BCD research and development priorities that include: new or improved medical counter-measures (MCM) against CW and BW agents; clinical treatments to lessen tissue damage and restore function; an evidence base for chemical and biological medical assessment and treatments; diagnostics; tactical decision matrices; and, research that enhances MCM production or facilitates regulatory approval for CAF use.
 - We learned of the impressive support provided by the CFHS Group to Canadian efforts to help contain the Ebola outbreak in West Africa. We especially commend the work done to develop in short time an expedient Aeromedical Evacuation suite for use in this and future operations.
 - The mandate of the CFHS Group HQ Regulatory Affairs Section is to ensure adherence to Health Canada and DND regulations for the reporting, accounting and handling of unlicensed medical products; to advise on regulations for their use; and, to seek Canadian regulatory approval for them, where feasible. We observed that the section remains proactively, energetically and fully engaged in obtaining regulatory approval under Health Canada's Extraordinary Use New Drug policy and Special Access Program for an impressive range of biological and chemical defence-related products.
 - We salute the impressive progress of the Biological Warfare Threat MCM project including its first product licensing success and its role in the development of a film array bio-threat detection system.

- **Medical Counter-Measures Consortium Meeting.**

- The Committee appreciated the invitation for the BCDRC Chair to attend a portion of the semi-annual meeting of the Medical Countermeasures Consortium (MCMC) Working Group, which operates under the auspices of the Chemical, Biological, Radiological (CBR) memorandum of understanding among Australia, Canada, the United Kingdom and the United States of America. The MCMC meeting was held in September 2015 at the National Microbiology Laboratory of the Public Health Agency of Canada in Winnipeg, with representation from all nations. Attendance at the meeting enhanced the Committee's understanding of how Canada's relatively small CBR Science and Technology programme is leveraged at the national level by financial and administrative 'burden sharing' between Defence and Public Health agencies. Continued and strengthened cooperation between federal agencies should ensure efficient communication and alignment of national CBR priorities. Moreover, regular face-to-face discussion among the four nations of priorities, outputs and efforts in several MCM areas enables critical outcomes including: identification of strategic assets and reduction of potential overlap, so as to husband resources; rational distribution of research efforts; rapid communication of emerging issues; and, planned interoperability of MCM technologies. Most important, Canada's continued participation in the MCMC allows Canada access to our allies' more extensive science and technology programmes. Canada's modest contributions secure a place in this important consortium. It is possible that reduced support of national CBR programmes would significantly jeopardise Canada's international reputation and its place at the MCMC table, diminishing national CBR preparedness many-fold.
- The Committee applauds Canada's participation in the consortium and would hope that its level of contribution to the MCMC effort will remain sufficient to safeguard the valuable international leverage that it derives from membership.

CONCLUSIONS

Having detected no evidence to the contrary during the course of its 2015 briefing and visit activities, the Committee concludes that:

- Canada's policy of maintaining a purely defensive biological and chemical warfare capability is fully respected by the DND and the CAF.
- The BCD research, development and training activities undertaken by DND and the CAF are fully compliant with Canada's obligations as a State Party to the BTWC and CWC.

- The BCD research, development and training activities undertaken by DND and the CAF pose minimal risk to public safety or the environment.
- There is no covertness or duplication within the BCD program.

RECOMMENDATION

The Committee this year offers one new recommendation:

- The Canadian Forces Health Services Group should clarify its expectations of 1 Canadian Field Hospital with respect to the Hospital's capability to operate in a BCD environment including the provision of treatment to biological and chemical warfare agent casualties.

STATUS OF COMMITTEE RECOMMENDATIONS

Please see Annex A for DND/CAF responses to Committee recommendations.

ANNEXES

A – Status of Recommendations

B – Acronyms and Abbreviations

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STATUS OF COMMITTEE RECOMMENDATIONS

No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
1.	2011	DRDC Suffield should continue to reduce its biological, viral and toxin holdings to the minimum required for current research and that it complete as soon as possible procurement of specialized software and management tools for inventory management	<p>DND/CAF Response (March 2012): “In 2011, DG DRDC Suffield directed: the completion of a full inventory of all biological, viral holdings; minimization of all holdings to levels that are sufficient to support current and future program requirements and the destruction of surplus materials. This task is expected to be completed by 29 February 2012. The updates to the inventory management software have been received and implemented.”</p> <p>BCDRC Comment (November 2012): Good progress is being made but some work remains to be done with respect to further reductions and inventory management tools. We will continue to monitor.</p> <p>DND/CAF Response (April 2013): “DND/CF DRDC Suffield continues to annually review holdings of bacterial, viral and toxin stocks, and reduce the number of redundant stocks to minimal amounts sufficient to support current and future program requirements. The updates to the inventory management software have been implemented and improvements and progress continue to be made.”</p> <p>BCDRC Comment (December 2013): We commend the progress made to date while noting that the inventory management system has not yet been fully implemented. We will continue to monitor.</p> <p>DND/CAF Response (February 2014): “The inventory management software has been completely updated. DRDC Suffield is currently relabeling all Bio Safety Level 3 stock inventories with database-generated bar-code labels. Concurrently, a complete inventory check of all stocks is also underway to ensure accurate holding records. The anticipated completion date for this phase is the end of April 2014.”</p>	OPEN

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
			<p>BCDRC Comment (December 2014): We acknowledge that the inventory management software is now performing correctly; that new samples added to holdings are properly bar-coded and that work aimed at bar-coding legacy stocks is progressing. We will continue to monitor progress during our annual visits and encourage reductions where possible.</p> <p>DND/CAF Comment (July 2015): “The inventory software is working well without issues. Approximately half of the viral holdings have been barcoded to date and the current viral holdings are being reviewed to see if further reductions can be made. The labelling process for bacterial holdings has just begun. The labels have been printed and are ready to be affixed awaiting the availability of technical staff required for completion. A reduction of the anthrax agar slants and soil samples is also underway with plans to progress this work over the next year.”</p> <p>BCDRC Comment (December 2015): We acknowledge this good progress and will continue to monitor efforts to further improve the management of holdings including their reduction to the minimum required.</p> <p>DND/CAF Comment (September 2016): “Inventory of all biological holdings continues to progress, and the review of viral holdings has been completed. Holdings are reviewed annually and recommendations are made for reductions where appropriate. As a result of the identification by US suppliers of inactivated anthrax that could no longer be trusted as inactivated, our inventory procedures have been modified to track all inactivated material as well. It is estimated that the inventory will be completed by spring 2017. To date, several hundred vials of excess stock have been destroyed.”</p>	

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
2.	2011	NDHQ and DRDC should support, as requested, DRDC Suffield's initiative to conduct a comprehensive external review of its safety and environmental stewardship programs	<p>DND/CAF Response (March 2012): "DRDC Suffield has initiated a multi-phased program aimed at modernizing its safety practices. A review of our allies' chemical safety programs and waste management processes has been completed and compared to established policies and programs. The recommendations from this process are undergoing an internal review, prior to forwarding to the DG of DRDC Suffield for approval. In addition, a comprehensive review of the planning and approval process for experimental and training activities has been completed. The result is a web-based system that will be implemented on 1 April 2012 and considers activities underway at DRDC Suffield. This system ensures that essential safety, regulatory, scientific integrity, ethical and resource requirements are identified and reviewed by line managers and safety experts before being approved. NDHQ recognizes the effort DRDC Suffield has put into its safety and environmental stewardship programs and commends them on this latest initiative."</p> <p>BCDRC Response (November 2012): Reviews are ongoing. Safety manuals have been updated. Safety and Health Management System is being implemented. Good progress is being made. We will continue to monitor.</p> <p>DND/CAF Response (April 2013): "The internal ONTAP web-based review process has been fully implemented within the Centre and is working well. The Chemical Safety Committee continues to work through the recommendations from the review committee and has started implementation of those approved by the DG. The BCDRC will be updated during their next visit to Suffield."</p> <p>BCDRC Comment (December 2013): Notwithstanding the departure, due to restructuring, of some of the personnel involved in the original</p>	OPEN

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
			<p>review, we trust that the impetus behind the review will be sustained and we look forward to receiving a report of further substantial progress during our 2014 visit. We will continue to monitor.</p> <p>DND/CAF Response (February 2014): “The comprehensive chemical safety review resulted in 11 recommendations. A majority of these recommendations resulted in changes to DRDC Suffield’s safety manuals and standard operating procedures. There are a few recommendations still in the review and implementation process. BCDRC will receive a detailed status update of all 11 recommendations during their 2014 visit.”</p> <p>BCDRC Comment (December 2014): We acknowledge the essential or imminent implementation of all but one of the Chemical Safety Review recommendations – that being the adoption of AChE testing in support of a Medical Surveillance Program. We look forward to an update on this issue during our next visit.</p> <p>DND/CAF Response (July 2015): “The recommendations continue to be implemented, with the remaining effort focused on a certified agent worker standard and AChE testing. The lowest level of agent worker standards has been established and certification is underway. The next level is now under development. The AChE testing protocols have been designed and are being reviewed as part of an experimental process involving the use of human subjects. As well, the results of a chemical worker workplace risk assessment have been presented to Health Canada in order to establish occupational health assessment guidelines (OHAG) that will also be implemented.”</p> <p>BCDRC Comment (December 2015): We commend this progress and look forward to a report of the completed implementation of the</p>	

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
			<p>certified agent worker program, AChE testing protocols and hiring of a full-time Chemical Safety Officer.</p> <p>DND/CAF Response (September 2016): “The recommendations continue to be implemented, with the remaining effort focused on worker certification, Acetylcholinesterase (AChE) testing, and the hiring of a chemical safety officer. Agent worker certification at the first level has been completed, and the second level assessment tools are being finalized, with testing to begin shortly. AChE testing was completed in July 2016, and the full program is expected to be implemented by the end of 2016. The process to hire a full time chemical safety officer has also been initiated.”</p>	
3.	2011	NDHQ should evaluate the necessity for the licensed small-scale synthesis facility at the Royal Military College of Canada. If the requirement remains, arrangements should be put in place for the exchange of laboratory best practices with DRDC Suffield	<p>DND/CAF Response (March 2012): “The research conducted at RMC is distinct from research conducted elsewhere. Exchange of information on best practices between RMC and DRDC Suffield is already occurring. Discussions are underway between the Chief of Military Personnel (CMP) and DRDC regarding the RMC infrastructure requirements in the area of chemical defence. The review will consider the BCDRC’s recommendations. NDHQ supports and encourages continued information exchange between these vital organizations.”</p> <p>BCDRC Comment (November 2012): We understand this issue remains active. We will continue to monitor.</p> <p>DND/CAF Response (April 2012): “There have been some additional discussions between DRDC Suffield and RMC and they have de-conflicted their activities, but little has been established in terms of ongoing information exchanges.”</p> <p>BCDRC Comment (December 2013): We understand that the RMC facility continues to operate subject to a new and more restrictive</p>	CLOSED

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
			<p>license but that there has been little or no exchange of best practices with DRDC Suffield. We will continue to keep this recommendation open pending receipt of a clear and conclusive response.</p> <p>DND/CAF Response (February 2014): “Points of contact have been established at the Royal Military College of Canada (RMCC) and DRDC Suffield. Discussions have occurred regarding the scale and safety of work at RMCC. No current issues have been identified and neither party has identified issues of concern. However, channels of communications remain open to ensure that work at RMCC remains consistent with best practice.”</p> <p>BCDRC Comment (December 2014): We are satisfied based on discussions and observations during our visit to RMC in June that a requirement exists for the Analytical Sciences Group to hold small amounts of CWA for its work and that best practices are being observed in the SSSF. We will keep this recommendation open, however, until we are informed of the outcome of deliberations aimed at determining if these holdings can be replenished by the transfer of material from the CNSSSF in Suffield, allowing decommissioning of the synthesis facility at RMC.</p> <p>DND/CAF Response (July 2015): “Royal Military College (RMC) has modified its current license in accordance to BCDRC recommendations so that they currently have authority to hold and use, not synthesise. Discussions between RMC and SRC have occurred and it has been agreed to review synthesis or alternative sourcing from the SRC NSSF when more stock is required. Under the existing risk management approach, SRC is able to synthesise and ship small amounts of this material in accordance with Transport of Dangerous Goods regulations.”</p>	

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
			<p>BCDRC Comment (December 2015): We commend this agreement between RMC and SRC and now consider this recommendation closed as having been implemented.</p>	
4.	2013	Canadian Forces Health Services Group should evaluate the need for personnel posted to the medical section at CFB Suffield to receive a short course of specialized training before or upon their arrival to ensure that they are adequately prepared to deal appropriately with chemical or biological agent casualties of the type that could occur within the DRDC Suffield setting.	<p>DND/CAF Response (February 2014): “The Canadian Forces Health Services Group presently has limited training resources and capability in the medical aspects of CBRN defence. Presently this includes introductory lectures and training on military occupation/qualification level courses for all medical trades and occupations, training prepared and conducted with (<i>sic</i>) unit lines (notably 5 Field Ambulance, Valcartier), and access to CBR medical training at DRDC Suffield. We have relied on courses in the UK and USA (5-6 training days) for unit Medical Officers and a variety of Canadian Forces Health Services Group staff with CBRN responsibilities. Canadian Forces Health Services (CFHS) Group Headquarters is proceeding with the development of a Patient Decontamination Course. This is intended to provide knowledge about the medical aspects of CBRN threats, practical skills in setting up CBRN medical decontamination centres and conducting decontamination, use of CBR medical countermeasures and overall treatment of CBR casualties. This would be suitable for all Canadian Armed Forces medical personnel posted to Suffield.”</p> <p>BCDRC Comment (December 2014): We look forward to learning of the outcome of the Surgeon General’s verification of the overall training requirement for medical personnel posted to, or employed at Suffield, and, if the requirement is agreed, what additional training has been provided or planned.</p> <p>DND/CAF Response (July 2015): “Canadian Forces Health Services Group (CFHSG) has assessed the potential health threats posed by the</p>	CLOSED

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
			<p>training and research activities conducted at Canadian Forces Base (CFB) Suffield. It has been determined that the Medical Officer at CFB Suffield should receive either the UK <i>CBRN Clinical Course</i> or the US Army <i>Medical Management of Chemical and Biological Casualties Course</i>. The current Base Surgeon, Capt Carrière, has completed the US Army <i>Medical Management of Chemical and Biological Casualties Course</i>. For those periods when Capt Carrière is away from CFB Suffield (e.g. vacation, training), there are two Medical Officers from 1 Field Ambulance, Edmonton, who have completed the UK <i>CBRN Clinical Course</i> and can provide backfill. In addition, CFHSG staff have drafted a medical protocol specifically for support to Defence Research and Development Canada (DRDC), and this was provided to Capt Carrière and to Dr. John Mikler (DRDC research scientist) in 2014. This protocol addresses some unique hazards associated with research on novel chemical agents. On 11 June 2015, BCDRC visited the Canadian Forces Health Services Group Headquarters. Cdr R.W. Brittain, the Section Head for Operational Medicine, requested that item 7 of Annex A be closed.”</p> <p>BCDRC Comment (December 2015): We commend these actions and consequently consider this recommendation closed as having been implemented. We will continue to monitor the subject of BCD-related training for medical personnel during our future visits.</p>	

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
5.	2014	We encourage acceleration of the final approval and funding of the project to replace DRDC Suffield's BSL 3 suites in Building 1 with new modular BSL 3 laboratories to be located in a separate nearby building pending completion of a new laboratory complex.	<p>DND/CAF Response (July 2015): "During 2014, DRDC reviewed the original 2004 requirement and has invested significant effort to revise the Statement of Requirement (SOR), update the project identification documents (SS(ID)), and review the main options for presentation to a senior review board (SRB) in April 2015. This will be the first official stage in getting what amounts to a new \$14M project into the DND infrastructure investment plan."</p> <p>BCDRC Comment (December 2015): We commend this effort and will closely monitor further progress of this vital undertaking. In the meantime, we urge that the maintenance of critical systems in Building 1 continue to receive diligent attention.</p> <p>DND/CAF Response (September 2016): "DND/CAF has initiated a process for the replacement of the biological laboratories at the DRDC Suffield Research Centre for handling of risk group 2 and 3 biological agents. This project has been identified in internal development and acquisition plans and is undergoing options analysis and review. Taking into account administrative processes, the anticipated timeline to update existing facilities is 3-5 years. While this process continues, DRDC continues to exercise its extensive preventative maintenance program"</p>	OPEN

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
6.	2015	The Canadian Forces Health Services Group should clarify its expectations of 1 Canadian Field Hospital with respect to the Hospital's capability to operate in a BCD environment including the provision of treatment to biological and chemical warfare agent casualties.	<p>DND/CAF Response (September 2016): "In the event of a chemical, biological and (sic) nuclear (CBRN) incident, there are four tasks that would be expected of 1 Canadian Field Hospital:</p> <ul style="list-style-type: none"> • provision of medical and surgical care to CBRN casualties; • protection of medical personnel and their patients in the event of a local CBRN attack; • protection and maintenance of critical capabilities (i.e., surgery) in the event of a local CBRN attack (through the use of collective protection); and • small scale decontamination of patients in the vicinity of the medical facility. <p>1 Canadian Field Hospital possesses the specialized equipment needed to operate in a Biological and Chemical Defence (BCD) environment. Regarding the provision of treatment in a BCD environment, the Canadian Forces Health Services Group (CFHSG) currently sends clinicians to clinical biological and chemical warfare training courses in the United Kingdom and the United States. Non-clinical CBRN courses are also available in Canada to further support the unit's ability to operate in a CBRN environment. As well, the CFHSG units, including 1 Canadian Field Hospital, are required annually to achieve individual CBRN training for the Individual Battle Task Standards for Land Operations, Individual Standard Level 2.</p> <p>CFHSG will include specific collective training standards for 1 Canadian Field Hospital in the 2016/2017 Commander's Annual Planning Guidance, which should be available in fall 2016. Furthermore, 1 Canadian Field Hospital will be requested to review the four tasks listed</p>	OPEN

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No.	Year	Recommendation	DND/CAF Response & BCDRC Comment	Status
			above in order to identify any additional resource requirements (e.g., personnel/equipment/training) needed to further support the unit in providing the expected capabilities."	

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ACRONYMS AND ABBREVIATIONS

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

BCD - Biological and Chemical Defence

BCDRC - Biological and Chemical Defence Review Committee

BSL - Bio-safety Level

BTWC - Biological and Toxin Weapons Convention

BWA - Biological warfare agent

BWTMCM - Biological Warfare Threat Medical Counter-measures

CA - Canadian Army

CAF - Canadian Armed Forces

CANSOF - Canadian Special Operations Forces

CBAP - Chemical Biological Assessment and Protection

CBR – chemical, biological and radiological

CBRN - chemical, biological, radiological and nuclear

CBRNE - chemical, biological, radiological, nuclear or explosive

CFB - Canadian Forces Base

CFFCA - Canadian Forces Firefighting and CBRN Academy

CFHS Gp HQ - Canadian Forces Health Services Group Headquarters

CJIRU - Canadian Joint Incidence Response Unit

CM - counter-measures

CMED - Central Medical Equipment Depot

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CMP - Chief of Military Personnel

CNSSF - Canadian National Single Small-scale Facility

CTTC - Counter Terrorism Technology Centre

CSSP - Canadian Safety and Security Program

CWA - chemical warfare agent

CWC - Chemical Weapons Convention

DAOD - Defence Administrative Order and Directive

DFATD - Department of Foreign Affairs, Trade and Development

DG - Director General

DHSO – Directorate of Health Services Operations

DND - Department of National Defence

DRAP - Deficit Reduction Action Plan

DRDC - Defence Research and Development Canada

DSAB - Defence Science Advisory Board

FG - Force Generation

FY - fiscal year

GMP - Good Manufacturing Practices

HMRA - Hazardous Materials Reference Application

HQ - headquarters

HVAC - heating, ventilation and air conditioning

LegAd - Legal Advisor

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MCL - Mobile Chemical Laboratory

MCM - medical countermeasures

MND – Minister of National Defence

NATO – North Atlantic Treaty Organization

NDHQ - National Defence Headquarters

ONTAP - On-line Turbo Approval Process

OPCW - Organization for the Prohibition of Chemical Weapons

OpMed - Operational Medicine

PHAC - Public Health Agency of Canada

RCAF - Royal Canadian Air Force

RCMP - Royal Canadian Mounted Police

RMC - Royal Military College

RCN – Royal Canadian Navy

S&T - science and technology

SAP - Special Access Program

SLA - Service Level Agreement

SOFCOM - Special Operations Forces Command

SOP - Standard Operating Procedure

SRC – Suffield Research Centre

TB - Treasury Board

WMD - weapons of mass destruction