

---

# 2014 ANNUAL REPORT

---

Biological and  
Chemical Defence  
Review Committee

---

Julia M. Foght, Ph.D. (Chair)  
Heather D. Durham, Ph.D.  
Pierre G. Potvin, Ph.D.

---

December 2014

---

Copyright 2014

Biological and Chemical Defence Review Committee

The content of this report is covered by the provisions of the Copyright Act, by Canadian laws, policies, regulations and international agreements. Such provisions serve to identify the information source and, in specific instances, to prohibit reproduction of materials without written permission.

**CONTENTS**

**INTRODUCTION ..... 2**

**SUMMARY..... 4**

**COMMITTEE ACTIVITIES 2014 ..... 4**

**OBSERVATIONS ..... 8**

**CONCLUSIONS ..... 17**

**RECOMMENDATION ..... 18**

**STATUS OF COMMITTEE RECOMMENDATIONS..... 18**

**ANNEXES ..... 18**

## 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 no threat 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 2014 was as follows:

Dr. Julia M. Foght (Committee Chair)  
*Professor of Microbiology*  
*University of Alberta*

Dr. Mallé Jurima-Romet  
*Senior Director, Drug Development*  
*Celerion Inc.*

On 3 October 2014, very sadly, Dr. Jurima-Romet passed away due to illness. She was a talented and accomplished scientist and artist who contributed valuably to our work during her all too short time with us. The Committee offers its condolences to her family and friends. We are grateful to Dr. Heather D. Durham, Professor of Neurology and Neurosurgery and Montreal Neurological Institute of McGill University who, on the recommendation of the Society of Toxicology of Canada, has volunteered to take Dr. Jurima-Romet's place on the Committee.

Dr. Pierre G. Potvin  
*Professor of Chemistry*  
*York University*

Brig.-Gen. (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 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](http://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 2014 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 no apparent threat 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 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 2014

During the course of 2014, the Committee conducted the following briefings, visits and related activities:

- **1 Canadian Air Division Headquarters – Winnipeg (5 May).** The Committee was briefed by force protection staff on the RCAF's BCD capability, current issues in this connection and prospective developments. Members also toured the Combined Air Operations Centre and received an explanation of the Centre's role in supporting the North American Aerospace Defence Command's BCD warning and reporting function.

- **Canadian Science Centre for Human and Animal Health (CSCHAH) – Public Health Agency of Canada’s National Microbiology Laboratory and the Canadian Food Inspection Agency’s National Centre for Foreign Animal Disease - Winnipeg (5 May).** The Committee was pleased to be invited to the CSCHAH for briefings on projects related to the Canadian Safety and Security Program and a tour of the facilities.
- **Defence Research and Development Canada – Centre for Security Science - Emergency Responder Test and Evaluation Establishment – Regina (6 May).** The Committee received briefings and a facility tour aimed at satisfying our curiosity about the purpose and current activities of this new DRDC establishment.
- **Defence Research and Development Canada – Suffield Research Centre (7-9 May).** The Committee’s visit to DRDC Suffield incorporated a full program of presentations, discussions, information exchanges and verification activities including the following:
  - An overview presentation by the Centre Director, DRDC Suffield covering organization, resource allocation and notable initiatives and other activities undertaken during the past year
  - 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 2013 Annual Report
  - Review and discussion of chemical holdings including management protocols and procedures and an inspection of chemical holdings and facilities
  - Review and discussion of the Chemical Safety Program
  - Review and discussion of the Biological Safety Program
  - Review of Material Transfer Agreements executed between May 2013 and April 2014
  - Review of all BCD contracts awarded to outside agencies
  - Contractor briefings
  - Informal laboratory visits and research and development project briefings

- Tour and discussion of activities at the CTTC's Cameron Centre training facility
  - Review and discussion of biological, viral and toxin holdings including management protocols and procedures and an inspection of Bio-safety Level 2 (BSL 2) biological, viral and toxin holdings and facilities
  - Video inspection of Bio-safety Level 3 (BSL 3) selected agent holdings
  - Review and discussion of the transfer of pathogenic biological materials between May 2013 and April 2014 including procedures for control and tracking by receiving agencies
  - Review and discussion of various biological and chemical warfare agent (BWA and CWA) threat issues
  - Review and discussion of the discovery and safe disposal of munitions at CFB Suffield suspected to contain CWA
  - Private meetings with the General Safety Officer, Chair of the Bio-hazard Committee, Acting Chair of the Chemical Safety Committee and the Environmental Officer
  - Meeting with a physician from the Base Medical Section and also a meeting with the Chief of Staff of the Medicine Hat Regional Hospital
  - Meeting with the Commander of CFB Suffield
  - Following its visit, the Committee debriefed, by teleconference, the Centre Director and his executive management team on its initial observations and conclusions.
- **Canadian Joint Incident Response Unit – Chemical, Biological, Radiological and Nuclear – Trenton (9 June).** The Committee received briefings, toured a display of in-service equipment and entered into discussions with unit staff aimed at updating the Committee's understanding of the capability of the CJIRU-CBRN and its approach to maintaining the safety of its members and the public and to protecting the environment during the course of its training.
  - **Royal Military College of Canada - Kingston (10 June).** The Committee received briefings and toured laboratories with a view to updating its understanding of BCD related research underway at the College, and to learn of any recent or local development pertaining to the recommendation in our 2013 Annual Report concerning the licensed synthesis of chemical warfare agent at RMC.



- **Canadian Special Operations Forces Command's Joint Task Force 2 – Ottawa (10 June).** The Committee met with representatives of Joint Task Force 2 (JTF 2) at Canadian Special Operations Forces Command Headquarters in Ottawa for the purpose of gaining an understanding of the BCD capability of JTF 2 and also, its approach to maintaining the safety of their members and the public and to protecting the environment during the course of its BCD training activities.
- **Assistant Deputy Minister Policy - NDHQ Ottawa (11 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 (11 June).** The Committee was briefed on the current assessed biological and chemical warfare agent threat.
- **Chief of Force Development – NDHQ Ottawa (11 June).** Officers of the Directorate of Chemical, Biological, Radiological and Nuclear Defence and Operational Support briefed the Committee on the role and organization of the Directorate; BCD policy and doctrine; and, the status of the BCD system capital procurement program and related issues.
- **Canadian Forces Health Services Group Headquarters (12 June).** The Surgeon General's staff briefed the Committee on operational medicine-related biological and chemical defence research and development including medical countermeasures and regulatory affairs.
- **Defence Research and Development Canada - Centre for Security Science (12 June).** The Committee received an update on the BCD aspects of the Canadian Safety and Security Program.
- **Defence Research and Development Canada Corporate Office (13 June).** The Committee met with Dr. Marc Fortin, 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. Fortin's views on current issues related to DRDC work in the realm of BCD.
- **Defence Research and Development Canada – Suffield Research Centre - Exercise PRECISE RESPONSE (21 July).** Dr. Potvin and the Committee Executive Officer observed Exercise PRECISE RESPONSE, a NATO training activity conducted at Suffield's CTTC and aimed at further developing the Alliance's capacity for the detection, identification, sampling and decontamination of CBRN agents.

- **Defence Research and Development Canada – Suffield Research Centre - Annual Biological Emergency Response Exercise (17 November).** Dr. Foght and the Committee Executive Officer observed this exercise aimed at practicing procedures executed in response to a medical emergency in the Centre’s Bio-safety Level 3 (BSL 3) laboratory.
- **CBRN Defence Workshop – Ottawa (22-24 November).** The Committee’s Executive Officer attended this workshop that brought together representatives of the various stakeholders in CBRN Defence for the purpose of exchanging information on current activities and issues.
- **CBRN Defence Senior Officer Course – Ottawa (1-5 December).** The Committee’s Executive Officer observed the conduct of this course aimed at familiarizing participants drawn from across DND/CAF as well as from other government departments and agencies with various aspects of CBRN Defence.

## 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; warning and reporting; protection; hazard management (e.g., decontamination); and, medical counter-measures. 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 January 2015, the Committee received written certification from Director General Science and Technology - Force Employer and Director General Science and Technology – Centre Operations that the projects in the 2013 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, this year, the Committee was 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 (CNSSSF) at DRDC Suffield on 16-18 April 2013. We understand, having been shown the final inspection report during our visit to Suffield 7-9 May 2014, that the OPCW inspectors found the CNSSSF 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, unexploded 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 to obtain permission for their destruction. The latest information the Committee has in this connection is the report of a discovery of a suspect artillery projectile, on 13 October 2013, which was subsequently destroyed on 19 November 2013 in the presence of OPCW observers.

### **Safety**

The Committee observed that at all units and locations visited in 2014, there existed a positive culture of safety and environmental stewardship.

Holdings of viral, toxin and other biological samples at DRDC Suffield were inspected and verified. We noted one instance of a mislabelled toxin vial and another of a toxin vial in a storage position different from that indicated in the listing document. Holdings 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. Newly acquired samples are properly barcoded; however, considerable work remains to complete the barcoding of legacy holdings.

The Bio-hazard, Chemical and General Safety committees at DRDC Suffield continue to operate effectively. We reviewed six biological or chemical hazardous occurrence investigation reports. These indicate that employees are comfortable reporting hazardous occurrences and that appropriate actions are being taken in response.

The BSL 3 laboratory suites remain subject to a rigorous annual maintenance program including annual controls failure testing with a view to meeting Public Health Agency of Canada and Canadian Food Inspection Agency re-certification requirements. Last year, we heard that the suites will soon reach the end of their life cycle and that, consequently, a project had been initiated to place new modular BSL 3 laboratories in the shell of a nearby building. These modular units will serve to span the gap between the closure of the existing BSL 3 facilities in Building 1 and the expected completion of a new laboratory campus in FY 2021/22. We commend this initiative given our past concern over the presence of a BSL 3 facility in Building 1; its

comparatively modest cost; and, the potential for the eventual relocation of the modular units to the new campus. We encourage acceleration of the final approval and funding process for this project.

In the meantime, we have been pleased to learn recently from Suffield authorities that, since our having been briefed on these issues during our May visit, problematic autoclave gaskets have been replaced during the BSL 3 suite maintenance shutdown, and even more rigorous tests have been adopted for the detection of leaks.

The Committee observed that control and tracking procedures for chemical holdings remain in good order.

During our inspection of the CNSSSF in 2013, we were pleased to note the installation of a new fume hood for CWA storage and the refurbishment of the non-absorbent floor covering. We asked, however, if there remained a significant risk of volatiles, in the event of a spill, escaping the facility via the floor drain, which is dried out, or the dumbwaiter shaft. Also, was there potential for recirculation of fume hood exhaust on the roof of the building? During his visit to Suffield to observe Exercise PRECISE RESPONSE, Dr. Potvin discussed, in detail, with the personnel concerned, including a facility engineer, the DND/CAF response to our 2013 Report recommendation on this subject. He also examined the results of a fume plume dispersion study of the building roof. With the addition of a removable lip from the drain inside the fume hood, we are satisfied that the risk is less than first perceived and that it is being adequately addressed.

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 Suffield. DND/CAF responses to this recommendation left us uncertain as to the actual situation regarding this facility. During this year's visit to RMC, the Committee confirmed that the facility operates subject to the provisions of a new and more restrictive license permitting it to synthesise 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. We simply ask, given that the existing small holdings of CWA at RMC will meet requirements for a considerable time to come, 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 understand that this question is now under consideration by the appropriate authorities and look forward to their response, which, we believe, may allow us to close this recommendation as having been adequately addressed.

During our 2012 visit to DRDC Suffield, 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, are 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. A Chemical Safety Initiatives Working Group is charged with the coordination of the implementation of recommendations. Good progress is being made – examples being: appointment of a Chemical Safety Officer; updates to the Chemical Safety Manual; and, the completion of a comprehensive chemical agent worker certification framework applicable to workers in both laboratory and field operations settings. We are told that an AChE testing program using a German screening system will be trialed in the near future with the participation of volunteers. The results of this trial should, along with input from Health Canada, aid the development of a testing policy for staff working with nerve agent.

Having witnessed a full scale chemical emergency response exercise in Building 1 during our 2013 visit, Dr. Foght and the Committee Executive Officer returned to Suffield in November of this year to observe a biological emergency response exercise that simulated the collapse of a worker in the BSL 3 laboratory and which involved the Building 1 Biological Emergency Response Team and CFB Suffield Emergency Responders. The exercise included the initiation of the Building 1 Integrated Emergency Response Plan to include the raising of the alarm and notification of responders and authorities; the establishment of the incident command, control and communication system; decontamination and evacuation of the mock casualty from the BSL 3 laboratory; and her handover to the responding firefighters preparatory to her simulated evacuation to Medicine Hat Regional Hospital by Alberta Health Service Emergency Medical Service ambulance at which point the exercise was ended. Dr. Foght was stationed inside the BSL 3 facility (which had been shut down for annual maintenance) at the site of the mock casualty occurrence while the Committee Executive Officer shadowed the incident commander and observed the arrival of the external emergency responders and the handover to them of the casualty. As such, we were able to view and gain a good understanding of all aspects of the response. Immediately following the end of the exercise, the Biological Safety Officer chaired a “post incident review” with all key exercise participants in attendance for the purpose of assessing the emergency response and identifying procedures or actions requiring change or improvement. We sat in on this review and were favourably impressed by what we saw and heard. Errors of omission or commission in the response were discussed in an open, professional and collegial manner. These errors were reasonably few, and, we believe, easily corrected.

Indeed, they have been identified for action by the Biological Safety Officer. The input of two EMS Paramedics from Medicine Hat, who also observed the exercise, added significant value to the review discussion.

As last year's chemical emergency exercise ended with the placement of the mock casualty in the CFB Suffield ambulance, we were left with questions concerning evacuation and treatment beyond that point. The Base Surgeon subsequently explained the policies and procedures for onward evacuation and treatment at the Medicine Hat Regional Hospital. This year, we followed up this discussion by meeting with the Medical Chief of Staff of the Medicine Hat Regional Hospital who also serves as a medical advisor to the Centre Director. He explained that he was confident that the hospital was well prepared to handle chemical or biological agent casualties from DRDC Suffield, citing provisions for familiarization and refresher training at Suffield for hospital emergency room staff and internists and other aspects of the close cooperation that exists with Base medical authorities.

Also during the course of our last year's meeting, 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 DRDC Suffield setting. In following up this suggestion during our meeting this year with the Deputy Surgeon General and other staff at the Canadian Forces Health Services Headquarters, we noted that should the requirement be verified, appropriate training would be provided, specifically for the Base Surgeon. We also understand that the Medical Assistants in the CFB Suffield Base Medical Section as well as many of the Base firefighters have undergone chemical and biological agent familiarization training at DRDC Suffield this year. 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 will be provided or planned. Exercise PRECISE RESPONSE involved some 300 participants from nine NATO nations and was aimed at practicing, in a live agent setting, all components and functions of a multi-national CBRN Defence Task Force to include command and control; sampling, detection and identification; techniques to counter improvised dispersion devices; handling evidence; contamination control; and, casualty extraction and decontamination. We observed the training to be conducted in a safe and professional manner and illustrative of effective inter-operability and communication amongst participating nations. We were also pleased to witness the full integration in the exercise of the Mobile Chemical Laboratory, which is situated at DRDC Suffield, and activated and staffed by Centre personnel when required. The exercise demonstrated good collaboration between the national contingents and the exercise control and safety staff at the CTTC's Cameron Centre training facility.

While at Suffield, the Committee was informed of a recent DND Chief of Review Services audit of CBRN Material Management across DRDC. We understand that in response to recommendations in the audit report, Dr. Fortin, ADM (S&T), intends to reinforce measures already in place at DRDC Suffield by means of the development and implementation of an Agency-level Health and Safety System that will complement the existing Environmental Management System. We further understand that he will designate an agency authority who shall be responsible for the oversight and provision of direction related to the compliance, control and risk management of DRDC CBRN activities. Moreover, Dr Fortin will take steps to develop and implement a standard operating procedure for the establishment and communication of risk tolerance levels for CBRN activities and establish processes for the approval and monitoring of CBRN activities. Finally, he will direct a review of procedures for the monitoring of the inventory of chemical agents to include, as appropriate, the development of additional monitoring practices. The Committee will monitor these actions, which we believe are inspired by effective systems and measures that we have observed during our visits to DRDC Suffield.

### **Environmental Protection**

We were pleased to receive a detailed presentation from DRDC Suffield's dedicated 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 hazardous materials and hazardous waste management, sustainability of the Experimental Proving Ground (EPG), incinerator air emissions and CBRN contaminated sites management.

A mandatory Hazardous Materials Reference Application (HMRA) database has been built which records holdings of over 4000 products from 164 HAZMAT storage locations.

The incinerator at the Cameron Centre training facility, augmented by an on-site thermal neutralization unit, remains equal to the task of handling the current hazardous waste stream. Funding has been provided to let contracts for the disposal of segregated legacy waste and more funding is expected in the current fiscal year.

Due diligence environmental assessments are now available for all trial sites on the EPG. These are being reviewed and updated as a priority. Moreover, the environmental review component of DRDC Suffield's On-line Turbo Approval Process (ONTAP) is now working well with the Environmental Officer assessing the validity of the Environmental Concerns Statement for each field trial project.

Stack emission testing, incinerator ash and effluent scrubber waste water testing as well as an environmental assessment of the Centre's two incinerators have been conducted and an action plan is being developed in response to the results and findings.

As previously reported, the project to remediate contaminated soil at selected sites on the EPG was closed as unfeasible due to cost and complexity in favour of risk management of the sites by



means of fencing and access control. A system of quarterly inspection of the physical security at these sites is in place and repairs are undertaken accordingly. A project is also underway to record all contaminated sites in a map format.

### **Other Observations**

At 1 Canadian Air Division Headquarters, we were satisfied to learn that the channel of communication to be used by 427 Special Operations Aviation Squadron in connection with BCD equipment procurement issues has been clarified. This issue was the subject of a recommendation in our 2013 Annual Report, which we now believe can be closed.

Having received in Winnipeg a solid operational level introduction to the RCAF's BCD capability, we look forward to an opportunity to visit the Air Expeditionary Wing in Bagotville there to witness something of this capability, as it actually exists, at the tactical level in the field.

We once again left the Canadian Science Centre for Human and Animal Health deeply impressed by and appreciative of the unique contributions to the health and security of Canadians made by the National Microbiology Laboratory and National Centre for Foreign Animal Disease, and the expert and dedicated scientists and allied public servants who staff these vital national assets. In this regard, the development of an Ebola vaccine by researchers at the National Microbiology Laboratory, which is undergoing clinical trials in parts of Africa severely afflicted by the disease, stands out as a particularly admirable accomplishment.

We noted the emphasis and early success of the Emergency Responder Test and Evaluation Establishment in creating meaningful partnerships with emergency agencies such as the Regina Fire and Protective Service, the RCMP and the UK Home Office and identifying a network of similarly purposed test and evaluation organizations at home and abroad. In this regard, we wonder if there could also be synergy with the CJIRU-CBRN for field-testing and evaluation of materiel, or with the work being done at RMC in the realm of personal protective equipment standards. While it is still "early days" for the Establishment, we would agree that it is well founded and has potential. We left encouraged by the facility's link to the Canadian Safety and Security Program. We also departed heartened by the knowledge that DRDC continues, in this way, to contribute to the capability and capacity of civil first responders to cope with a range of situations including those that might involve biological or chemical warfare agents.

The Committee discerned from its discussions with the Centre Director, Mr. Gary Geling, and others at the Suffield Research Centre and with DRDC Chief Executive Officer, Dr. Marc Fortin, that recent major changes to DRDC's business model are beginning to take hold. In this regard, we saw evidence, in the form of approved BCD Project Charters, of a clearer link between DND/CF requirements and approved science and technology activities. During future visits, we look forward to observing the impact of these charters on programme outcomes.



Work force adjustment at DRDC has been completed and we understand there is a reasonable expectation of stable funding going forward.

This said, the Committee has detected some continued concern over the efficacy of the new DRDC corporate services functional reporting model in view of geographical and conceptual differences amongst the research centres. We also understand, however, that a recent visit to DRDC Suffield by Agency-level corporate services managers for the purpose of building communication and collaboration with local counterparts has helped to alleviate previously held concerns.

Relations between DRDC Suffield and the Commander and staff of CFB Suffield remain entirely constructive.

The expertise, professionalism, dedication and maturity exhibited by all whom we met during this year's visit to the CJIRU-CBRN once again struck us as being of a high standard. We were similarly impressed by the variety and utility of the unit's equipment and by the obvious presence of the features of a "learning organization". We were left with no concerns relative to our Committee's mandate and indeed, were pleased to learn that the issue that gave rise to the recommendation in our 2012 annual report concerning the administration of post-exposure medical counter-measures to non-CAF personnel in emergency situations, has been addressed to the satisfaction of all parties.

At RMC, we appreciated the opportunity to learn of the work of the Analytical Sciences Group in the field of electronics decontamination using electronics-friendly fluids and also that of DRDC scientists located there on personal protective equipment research, testing and standards development. Moreover, we noted the impressive extent to which CBRN-related education is delivered by the College and the commendable connections that exist in this regard with CJIRU-CBRN.

At Canadian Special Operations Forces Command Headquarters, we fully achieved our aim of gaining an insight to the BCD capability and approach of JTF 2 thanks to the comprehensive programme crafted for our visits and the free-flowing and informative dialogue we enjoyed with unit representatives. We especially appreciated the openness and candour that denoted the presentations and answers to our questions. We were left with no concerns relative to our Committee's mandate.

Similar transparency and frankness 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 and Operational Support at NDHQ continues to effectively discharge its responsibilities for developing joint CBRN defence capabilities to enable the armed forces to survive and operate in a CBRN environment; for enhancing joint interoperability with allies; for developing CBRN defence concepts, policy and doctrine; and, for providing specialist advice and information to all levels of command. The CBRN Defence Omnibus Project is moving steadily and smoothly toward completion having already, since 2008, delivered substantial capability to units in the form of personal, hand-held and fixed-site CBRN detection systems, field sampling and detection kits, new protective coveralls, transportable collective protection and medical counter-measures. Active projects include next-generation systems in the realms of CBRN reconnaissance; area chemical agent detection and identification; portable biological agent detection and identification; sensor integration and decision support; reporting and warning of CBRN events; personal protection; and, vehicle and personnel decontamination. The Directorate works closely with Public Safety Canada on the Federal CBRN and Explosives (CBRNE) Plan and collaborates with other government departments as required. It also remains a proactive and effective leader of the Canadian BCD community.

During our visit to Canadian Forces Health Services Group Headquarters (CFHS Gp 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 Suffield'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 treatment algorithms; diagnostics; tactical decision matrices; and, research which enhances MCM production or facilitates regulatory approval.

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 the BioFire Diagnostics FilmArray™ bio-threat detection system, which we have observed at Suffield.

The mandate of the CFHS Gp 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 were delighted by the news that a person has been hired to fill the Quality Assurance staff position at the Central Medical Equipment Depot in Petawawa, an essential step toward implementing pharmaceutical "good manufacturing practice (GMP)" at the Depot. This development will permit us to close a recommendation in our 2011 Report.

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. We noted with interest the Centre's investigation of key concepts in organizational and community resilience and also, the funding priorities it has attached to information management; rapid response to animal and human health issues; food safety; emerging pathogens; and, decontamination. The Centre's collaboration with the Canadian Food Inspection Agency and other partners to develop a virtual "Centre for Emerging and Zoonotic Disease Integrated Intelligence and Response" would seem to be a good example of both the application of these priorities to actual expenditure and an actual contribution to a more resilient national food supply security infrastructure. We also believe commendable the Centre's sponsorship of "tabletop exercises" as a cost-effective tool to bring together and promote knowledge transfer amongst responders, authorities and industry. Finally, we were pleased to learn of the establishment of a non-federal, external advisory board to inform its work. We look forward to hearing more of the progress of these and related initiatives during future visits.

## **CONCLUSIONS**

Having detected no evidence to the contrary during the course of its 2014 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 no apparent threat to public safety or the environment.
- There is no cooptiveness or duplication within the BCD program.

## **RECOMMENDATION**

The Committee this year offers one new recommendation:

- 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.

## **STATUS OF COMMITTEE RECOMMENDATIONS**

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

## **ANNEXES**

A – Status of Recommendations

B – Acronyms and Abbreviations

### 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><b>DND/CAF Response (March 2012):</b> “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><b>BCDRC Comment (November 2012):</b> 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><b>DND/CAF Response (April 2013):</b> “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><b>BCDRC Comment (December 2013):</b> 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> | <b>OPEN</b> |

**ANNEX A  
to BCDRC 2014 Annual Report**

| No. | Year | Recommendation | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Status |
|-----|------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|     |      |                | <p><b>DND/CAF Response (February 2014):</b> “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> <p><b>BCDRC Comment (December 2014):</b> 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><b>DND/CAF Comment (July 2015):</b> “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> |        |

**ANNEX A**  
**to BCDRC 2014 Annual Report**

| 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><b>DND/CAF Response (March 2012):</b> “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><b>BCDRC Response (November 2012):</b> 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><b>DND/CAF Response (April 2013):</b> “The internal ONTAP web-based review process has been fully implemented within the Centre and is working well. The Chemical</p> | <b>OPEN</b> |

**ANNEX A  
to BCDRC 2014 Annual Report**

| No. | Year | Recommendation | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Status |
|-----|------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|     |      |                | <p>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><b>BCDRC Comment (December 2013):</b> Notwithstanding the departure, due to restructuring, of some of the personnel involved in the original 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><b>DND/CAF Response (February 2014):</b> “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><b>BCDRC Comment (December 2014):</b> 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> |        |



**ANNEX A  
to BCDRC 2014 Annual Report**

| No. | Year | Recommendation | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Status |
|-----|------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|     |      |                | <p><b>DND/CAF Response (July 2015):</b> “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> |        |

**ANNEX A  
to BCDRC 2014 Annual Report**

|    |      |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |
|----|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 3. | 2011 | <p>Canadian Forces Health Services Group should support the initiative of the Central Medical Equipment Depot (CMED) to introduce up-dated inventory management software and to establish a Quality Assurance staff position for the purpose of implementing pharmaceutical “good manufacturing practice” (GMP) at the Depot.</p> | <p><b>DND/CAF Response (March 2012):</b> “The updated inventory management software (O&amp;PEN) was implemented in August 2011 when the transition from the older CAMMS software to the newer O&amp;PEN software was effected. This portion of the recommendation has been completed. CFHSG/DHSO/OpMed/Regulatory Affairs is currently leading the effort (with support from CMED) to bring CMED to Good Manufacturing Practices (GMP) compliance, which is a regulatory requirement under the Food and Drugs Act for the activities carried out at the Depot. Reg Affairs is currently still in the first of a three-stage process for this activity, the being the staffing of a Quality Assurance position at CMED. When the position is staffed, the development of an extensive set of SOPs and facility upgrades will follow.”</p> <p><b>BCDRC Comment (November 2012):</b> Response is noted. Good progress is being made. We will continue to monitor.</p> <p><b>DND/CAF Response (April 2013):</b> “CMED has implemented the new inventory management software. No progress has been made on establishing a Quality Assurance position, as the Deficit Reduction Action Plan (DRAP) has effectively halted such staffing activities.”</p> <p><b>BCDRC Comment (December 2013):</b> We understand that the establishment of a Quality Assurance position has been approved and that the position is now being classified. We look forward to the completion of the</p> | <b>CLOSED</b> |
|----|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

**ANNEX A**  
**to BCDRC 2014 Annual Report**

| No. | Year | Recommendation                                                                                                                                                                                                                                                      | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Status      |
|-----|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|     |      |                                                                                                                                                                                                                                                                     | <p>hiring process and further progress toward GMP certification. We will continue to monitor.</p> <p><b>DND/CAF Response (February 2014):</b> “The CMED Quality Assurance position has been established and classified. Applications have been received and are currently being reviewed. Once the screening process is complete, the way forward will be determined.”</p> <p><b>BCDRC Comment (December 2014):</b> We understand that a person has been hired to fill this position. We therefore consider this recommendation closed as having been implemented.</p>                                                                                                                                                                                                                                                                 |             |
| 4.  | 2011 | <p>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> | <p><b>DND/CAF Response (March 2012):</b> “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><b>BCDRC Comment (November 2012):</b> We understand this issue remains active. We will continue to monitor.</p> <p><b>DND/CAF Response (April 2012):</b> “There have been some additional discussions between DRDC Suffield and RMC and they have de-conflicted their activities,</p> | <b>OPEN</b> |

**ANNEX A**  
**to BCDRC 2014 Annual Report**

| No. | Year | Recommendation | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Status |
|-----|------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|     |      |                | <p>but little has been established in terms of ongoing information exchanges.”</p> <p><b>BCDRC Comment (December 2013):</b> We understand that the RMC facility continues to operate subject to a new and more restrictive 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><b>DND/CAF Response (February 2014):</b> “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><b>BCDRC Comment (December 2014):</b> 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,</p> |        |

**ANNEX A**  
**to BCDRC 2014 Annual Report**

| No. | Year | Recommendation                                                                                                                                                                                          | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Status        |
|-----|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|     |      |                                                                                                                                                                                                         | <p>allowing decommissioning of the synthesis facility at RMC.</p> <p><b>DND/CAF Response (July 2015):</b> “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>                                                                                                  |               |
| 5.  | 2012 | <p>NDHQ should, as soon as possible, address the concerns of the CJIRU-CBRN pertaining to the administration of post-exposure medical counter-measures to non-CF personnel in emergency situations.</p> | <p><b>DND/CAF Response (April 2013):</b> “CANSOF Command Surgeon Briefing Note seeking Ministerial approval being completed in consultation with Command LegAd and will be staffed up for appropriate signatures.”</p> <p><b>BCDRC Comment (December 2013):</b> We look forward to hearing that this issue has been resolved. We will continue to monitor.</p> <p><b>DND/CAF Response (February 2014):</b> “A briefing note (BN) was prepared by the CANSOFCOM Command Surgeon, in conjunction with all key stakeholders, regarding the legal ramifications of CAF medical personnel administering medical counter-measures to civilians. The medical counter-measures in question specifically refer to those available only to CAF</p> | <b>CLOSED</b> |

**ANNEX A  
to BCDRC 2014 Annual Report**

| No. | Year | Recommendation                                                                                                                                                                                                                           | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Status        |
|-----|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|     |      |                                                                                                                                                                                                                                          | <p>personnel through the Special Access Program. The BN has been reviewed by Comd CANSOFCOM, the CAF Surgeon General and the Chief of Military Personnel and is currently being staffed higher to the MND for approval.”</p> <p><b>BCDRC Comment (December 2014):</b> We understand from discussions during our visit to CJIRU-CBRN in June 2014 that this concern has been addressed to the satisfaction of all parties and, as such, we consider the recommendation closed as having been implemented.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
| 6.  | 2013 | DRDC Suffield should assess, and remediate as appropriate, the risk of toxic substances escaping the CNSSSF via floor drains or the dumbwaiter shaft and also, the risk of recirculation of fume hood exhaust on the roof of Building 1. | <p><b>DND/CAF Response (February 2014):</b> “Upon reviewing DRDC Suffield’s safety procedures it was found that under standard operating procedures, no toxic substances or related waste will enter the drain system in the CNSSSF. In the event of a major accidental spill from a complex chemical agent, toxic vapour or liquid has the potential to be released in the laboratory, however, a number of physical, procedural, and emergency response mechanisms are in place to mitigate any further release. A further review of additional mitigation options is being undertaken to further reduce any risks associated with major spills. Upon reassessing DRDC Suffield’s safety procedures regarding the dumbwaiter, DRDC Suffield can confirm that the dumbwaiter is not used to move toxic chemicals and is sufficiently isolated that it does not pose a risk of toxic liquids entering the system. Upon re-examining DRDC Suffield’s safety procedures</p> | <b>CLOSED</b> |

**ANNEX A  
to BCDRC 2014 Annual Report**

| No. | Year | Recommendation                                                                                                                                                                                                                                                                                                                                                                                 | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Status      |
|-----|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|     |      |                                                                                                                                                                                                                                                                                                                                                                                                | <p>concerning the recirculation of fume hood exhaust, DRDC Suffield has identified that this does not pose a threat as each fume hood operates independently and on back-up power should the main power source fail, is regularly maintained, and is frequently under test and review to comply with safety regulations.”</p> <p><b>BCDRC Comment (December 2014):</b> Having re-investigated this issue during our June and July visits to DRDC Suffield, we are satisfied that this risk has been correctly assessed and appropriately mitigated by DRDC Suffield authorities and therefore consider the recommendation closed as having been implemented.</p>                                                                                                                                                                                     |             |
| 7.  | 2013 | <p>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> | <p><b>DND/CAF Response (February 2014):</b> “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</p> | <b>OPEN</b> |

**ANNEX A**  
**to BCDRC 2014 Annual Report**

| No. | Year | Recommendation | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Status |
|-----|------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|     |      |                | <p>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><b>BCDRC Comment (December 2014):</b> 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><b>DND/CAF Response (July 2015):</b> “Canadian Forces Health Services Group (CFHSG) has assessed the potential health threats posed by the 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 Carriere, has completed the US Army <i>Medical Management of Chemical and Biological Casualties Course</i>. For those periods when Capt Carriere 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</p> |        |



**ANNEX A  
to BCDRC 2014 Annual Report**

| No. | Year | Recommendation                                                                                                                                                                                                                         | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Status        |
|-----|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|     |      |                                                                                                                                                                                                                                        | <p>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 Carriere 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>                                                                                                                                                                                                                                                                                                                                                                   |               |
| 8.  | 2013 | <p>In view of 427 Special Operations Aviation Squadron’s dual reporting relationship, SOFCOM, RCAF and Squadron authorities should clarify the correct channel of communication with respect to BCD equipment and related matters.</p> | <p><b>DND/CAF Response (February 2014):</b> “The RCAF acknowledges the recommendation. Extant Force Development processes are considered sufficient but improved communication and coordination is required between Air Staff, 1 Canadian Air Division (1 CAD), Canadian Special Operations Forces Command and 427 Squadron to ensure the processes are well understood and appropriately implemented at all levels. Director General Air Force Development will reappraise all concerned to raise awareness. CONSOFCOM is actively working to ensure developmental activities include the RCAF/1 CAD Technical Airworthiness authorities for the safe operation of air-crew specific BCD equipment.”</p> <p><b>BCDRC Comment (December 2014):</b> At 1 Canadian Air Division Headquarters, we were satisfied to learn that the channel of communication to be used by 427 Special Operations Aviation Squadron in connection</p> | <b>CLOSED</b> |

**ANNEX A**  
**to BCDRC 2014 Annual Report**

| No. | Year | Recommendation                                                                                                                                                                                                                                                   | DND/CAF Response & BCDRC Comment                                                                                                                                                                                                                                                                                                                                                                                                                                     | Status      |
|-----|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|     |      |                                                                                                                                                                                                                                                                  | with BCD equipment procurement issues has been clarified to the satisfaction of all parties. As such, we consider this recommendation to be closed as having been implemented.                                                                                                                                                                                                                                                                                       |             |
| 9.  | 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. | <b>DND/CAF Response (July 2015):</b> "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." | <b>OPEN</b> |

## **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

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

CMP - Chief of Military Personnel

**ANNEX B**  
**to BCDRC 2014 Annual Report**

CNSSSF - 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

MCL - Mobile Chemical Laboratory

**ANNEX B**  
**to BCDRC 2014 Annual Report**

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

S&T - science and technology

SAP - Special Access Program

SLA - Service Level Agreement

SOFCOM - Special Operations Forces Command

SOP - Standard Operating Procedure

TB - Treasury Board

WMD - weapons of mass destruction