
2017 ANNUAL REPORT

Biological and
Chemical Defence
Review Committee

Heather Durham, Ph.D. (Chair)
Pierre Potvin, Ph.D.
Jonathan Van Hamme, Ph.D.

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Biological and Chemical Defence Review Committee

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**2017 ANNUAL REPORT
BIOLOGICAL AND CHEMICAL DEFENCE
REVIEW COMMITTEE**

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INTRODUCTION

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

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

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

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

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

Committee membership as of 1 April 2017, was as follows:

Dr. Heather Durham (Committee Chair)
Professor of Neurology and Neurosurgery
Montreal Neurological Institute and Hospital
McGill University

Dr. Pierre Potvin
Professor of Chemistry
York University

Dr. Jonathan Van Hamme
Associate Professor of Microbiology
Thompson Rivers University

Brigadier-General (Ret'd) James 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 Global Affairs Canada (GAC) on BCD issues
- Visits to selected CAF education and training establishments, operational formations and units where BCD activity takes place, and to associated government (mostly DND) research and development facilities such as the Defence Research and Development Canada (DRDC) research centre at Suffield, Alberta (which is visited every year)
- Attendance at selected BCD exercises, training courses, workshops, seminars, symposia, *etc.*, conducted by the CAF or DND
- Publication of an Annual Report in the public domain with key observations, findings and recommendations

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

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

SUMMARY

Having detected no evidence to the contrary during its 2017 briefing and visit programme, the Committee concludes that:

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

COMMITTEE ACTIVITIES 2017

During 2017, the Committee conducted the following briefings, visits and related activities:

- **DRDC Chemical Biological Radiological and Nuclear Oversight Committee (CBRN OC) – Ottawa (14 March).** The BCDRC Executive Officer observed a meeting of the Oversight Committee at which the Suffield Research Centre Director reported on implementation of the CBRN Material Risk Management Framework at Suffield and reviewed activities pertaining to licensing and inspection provisions of the Human Pathogens and Toxins Act and its complementary Human Pathogens and Toxins Regulations. The impending move of radiological and nuclear defence related research and development activities from DRDC's Ottawa Research Centre to SRC was also discussed.

- **Canadian Science Centre for Human & Animal Health (CSCHAH) – Winnipeg (8 May).** With the kind permission of the Scientific Director-General of the National Microbiology Laboratory (NML) and the Director of the National Centre for Foreign Animal Disease (NCFAD), we visited the CSCHAH where we received an overview presentation on the Laboratory and the Centre and toured the facility. We also discussed with staff current Canadian Safety and Security Programme (CSSP) projects; participation of NML scientists in the National CBRNE Response Team; and, the Centre’s biosafety and security programme.
- **1 Canadian Air Division Headquarters (1 CAD HQ) – Winnipeg (8 May).** At 1 CAD HQ (which we last visited in 2014), we were greeted by the Deputy Commander and then met with the Headquarters’ Chief of Combat Operations and Force Protection Section staff who provided us a thorough update of the RCAF’s operational-level BCD capability including RCAF organization; CBRN Defence policy and doctrine; assigned roles, missions and tasks; current and anticipated equipment; and, training. Given the Headquarters’ NORAD role, we also received the Canadian NORAD Region CBRN Command Brief and toured the Combined Air Operations Centre during which we learned of the Centre’s role in supporting the BCD warning and reporting function.
- **Centre for Security Science Regina Office (CSS Regina) (9 May).** We last visited this facility in 2014 soon after its stand-up under the name of the Emergency Responder Test and Evaluation Establishment and when it appeared it might play a role in DND’s BCD programme. During this year’s visit, we assessed that CSS Regina does not have an on-going integral connection to DRDC’s BCD programme although it does play an important part in managing non-BCD related Canadian Safety and Security Programme projects. Therefore, we will remove it from our visit roster until it again becomes involved in BCD-related activities.
- **DRDC Suffield Research Centre (SRC) (10-12 May).** The Committee’s visit to the SRC incorporated a full program of presentations, discussions, information exchanges and verification activities including the following:
 - An overview presentation by the Centre Director covering organization, infrastructure, resource allocation, notable initiatives and other activities undertaken during the past year including inter-departmental and international involvements
 - A presentation and discussion of the current BCD research and development program at the Centre and specialized BCD training delivered at the Counter Terrorism Technology Centre (CTTC)
 - A presentation and discussion of recent and current initiatives in their programs related to safety and environmental stewardship

- A presentation and discussion of infrastructure and other corporate services issues related to safety and environmental protection
- A review and discussion of local developments concerning relevant recommendations contained in the BCDRC 2016 Annual Report
- Review and discussion of various biological and chemical warfare agent (BWA and CWA) threat issues
- Review of Material Transfer Agreements executed between 1 May 2016 and 30 April 2017
- Review of all BCD contracts awarded to outside agencies
- Review and discussion of chemical holdings, including management protocols and procedures; an inspection of chemical holdings and laboratory facilities; and, video inspection of agent holdings in the Canadian National Single Small Scale Facility (CNSSSF)
- Review and discussion of the Chemical Safety Program
- Review and discussion of microbiological, viral and toxin holdings, including management protocols and procedures, and an inspection of Biosafety Level 2 (BSL 2) microbiological, viral and toxin holdings and laboratory facilities
- Video inspection of selected agent holdings in the Biosafety Level 3 (BSL 3) facility
- Review and discussion of the transfer to authorized recipients of pathogenic biological materials between 1 May 2016 and 30 April 2017 including procedures for control and tracking by receiving agencies
- Review and discussion of the Biological Safety Program
- Contractor briefings
- Informal laboratory visits and research and development project briefings
- Review of Animal Use Protocols
- Review and discussion of the discovery and safe disposal of legacy munitions at CFB Suffield suspected to contain CWA
- Private meetings with the General Safety Officer, Chair of the Biohazard Safety Committee and the Chair of the Chemical Safety Committee
- Meeting with staff from the Base Medical Section
- Meeting with the Commander of CFB Suffield
- An opportunity for SRC staff to meet in confidence with the Committee

- In concluding the visit, the Committee debriefed the Centre Director and his executive management team on its initial observations and conclusions.
- **Canadian Forces Fire & CBRN Academy (CFFCA) - Borden (12 June).** The Committee met with the Academy's Chief Instructor and other senior instructors who provided an update on the Academy's BCD training programme including description of individual training courses, training output and support to NATO collective training exercises. The Committee also viewed in-service detection, sampling and identification equipment; the recently developed sensor integration and decision support system; and, one of the newly acquired personnel, equipment and vehicle decontamination systems. Finally, we toured the Academy's training scenario facilities. On departure, we met with the Commander of the Canadian Forces Support Training Group to whom the Commandant CFFCA reports.
- **1 Canadian Field Hospital - Petawawa (13 June).** The Committee met with the Commanding Officer who explained the hospital's mission and tasks; personnel disposition; continuum of care; modularization of surgical care; deployability; and, capabilities and limitations with respect to the treatment of biological or chemical warfare agent casualties. We also toured the field hospital facility set-up in its Role 2 (Enhanced) configuration.
- **Central Medical Equipment Depot (CMED) (13 June).** The Committee met with the Acting Commanding Officer and staff of the Depot and toured its pharmaceutical procurement, storage, packaging and distribution facilities with an emphasis on arrangements for BCD-related Medical Countermeasures (MCM).
- **Assistant Deputy Minister Policy – NDHQ Ottawa (14 June).** With the assistance of GAC representatives, the Committee was updated 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 was also briefed on recent counter-proliferation support and other activities conducted under the auspices of the GAC-led Weapons of Mass Destruction Threat Reduction Program.

- **Canadian Armed Forces Intelligence Command – NDHQ Ottawa (14 June).** The Committee was briefed on the current biological and chemical warfare agent threat assessment.
- **Chief of Force Development – NDHQ Ottawa (14 June).** Officers of the Directorate of Chemical, Biological, Radiological and Nuclear Defence (D CBRN D) updated the Committee on the role and changes to the organization of the Directorate; the status of the BCD equipment procurement projects; and, involvement of the Directorate in various national and international BCD-related activities.
- **Canadian Joint Operations Command (14 June).** A staff officer from the Command headquarters explained the factors that went into the development of the CAF's domestic CBRN incident response contingency plan.
- **Canadian Forces Health Services Group Headquarters (CFHS Group HQ) – Ottawa (15 June).** We met with the Surgeon General and his operational medicine staff who briefed the Committee on their response and follow-up to our recommendations in recent annual reports; CFHS Group BCD-related activities over the past year including professional-technical training, operations and international collaboration notably the MCM Consortium; operational medicine priorities for BCD research and development; regulatory affairs developments; and, the status of the Biological Weapons Threat Medical Counter-Measures (BWTMCM) project.
- **DRDC Centre for Security Science (CSS) - Ottawa (15 June).** The Committee received an update on the BCD aspects of the Canadian Safety and Security Program (CSSP), which is led by the CSS in partnership with Public Safety Canada.
- **DRDC Corporate Office - Ottawa (16 June).** The Committee met with Dr Marc Fortin Chief Executive Officer DRDC and Assistant Deputy Minister (Science & Technology), his Chief of Staff, Dr. Camille Boulet and several DRDC subject matter experts. Agenda items included an update on the work of DRDC's CBRN OC and discussion of corporate-level safety and risk management arrangements; DRDC infrastructure renewal; a presentation on the current BCD-related research and development program including project charters, resource allocation and the provision of certificates of compliance with DND/CAF CBRN defence policy; and, a summary of DRDC participation in BCD-related inter-departmental and international fora. We also discussed the status of the response to recommendations in the Committee's 2016 Annual Report. Finally, the Committee Chair de-briefed Dr. Fortin on preliminary observations made during our 2017 round of visits.

- **Exercise FIRE DRAKE – Suffield - (21 September).** Dr. Van Hamme and Brig.-Gen. (Ret'd) Selbie, on behalf of the Committee, observed the conduct of FIRE DRAKE, an exercise carried out annually, at SRC's Counter-Terrorism Technology Centre in support of the National Chemical, Biological, Radiological, Nuclear and Explosives Response Team.
- **CBRN Defence Workshop – Ottawa (7-8 November).** The Committee's Executive Officer attended this workshop, which brought together representatives of the various DND and CAF stakeholders in CBRN Defence for an exchange of information on current activities and issues.

OBSERVATIONS

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

Threat. The briefings that the Committee received from Canadian Armed Forces Intelligence Command attested to continued credible biological and chemical warfare threats from both state and non-state actors, which necessitate appropriate defensive preparedness.

Defensive Capability. During its briefings and visits, the Committee had occasion to view capability requirements and procurement plans; research and development facilities and activity; in-service equipment and other materiel; doctrine; and, training. In all instances, the Committee was satisfied that these pertained solely to the defensive functions of biological and chemical agent detection, identification and monitoring; information management (*e.g.*, warning and reporting); protection; hazard management (*e.g.*, decontamination); and, MCM. The Committee assesses such functions as being 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). During our visit to the DRDC Corporate Office on 16 June 2017, the Committee received written certification from the Chief of Staff Science & Technology/Chair CBRN OC and the ADM S&T that the projects in the FY 2017-18 DRDC R&D program related to BCD, and for which they are responsible, are compliant with the provisions of DAOD 8006-0 (Chemical, Biological, Radiological and Nuclear Defence) and DAOD 8006-1 (Chemical, Biological, Radiological and Nuclear Defence Operations, Training and Capability Development and Sustainment).

The Committee was also provided copies of the CBRN Research Program Project Charters, which include detailed project descriptions and resource allocations.

It should be noted that occasionally, due to historical activities at CFB Suffield, legacy munitions meriting treatment as suspected legacy chemical weapons are found on the restricted-access experimental proving ground or in the military training area at Suffield. These munitions are reported to NDHQ and the OPCW and permission requested for their destruction. The latest information the Committee has in this connection is the report of the destruction on 11 May 2016 of the suspect aerial spray tank discovered on 24 July 2015, noted in the BCDRC 2015 Annual Report. There have been no further discoveries since that time of which we are aware.

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 most recent of these, an inspection of the Canadian National Single Small-scale Facility (CNSSSF) at the SRC, was conducted 16-19 October 2017. A second inspection team, comprising two inspectors, was to have visited SRC 14-15 December to review the records of destruction for all suspected legacy chemical warfare munitions found since 2013. During our visit to Suffield in May 2018, we will ask to examine the reports of these inspections.

Safety

The Committee observed that at all units and locations visited in 2017, there exists a positive culture of safety and environmental stewardship.

Based on our discussions with the SRC General Safety Officer and the Chairs of the Biohazard and Chemical Safety Committees, we believe that these committees continue to operate effectively. We were briefed on investigations of six hazardous occurrences, five of which were of a minor nature for which appropriate responsive and follow-up action was taken. The sixth, relating to the presence of volatile organic compounds in the air due to fume-hoods not working as a result of damage from a power outage, is addressed later in this report.

Holdings of microbiological, viral and toxin samples at SRC were inspected and verified. There were neither significant discrepancies nor any associated safety concerns. Biological holdings, including soil samples and particularly toxins, continue to be reduced to the minimum required for current defensive research. To date, several hundred vials of excess stock have been destroyed. In this connection, the inventory management information system, introduced a few years ago, continues to operate as it should, with newly acquired samples being properly barcoded and their usage tracked. Moreover, the barcoding of legacy holdings is essentially complete. As such, we will consider our recommendation made in 2011 pertaining to the reduction and inventory management of holdings as having been implemented. We will continue to monitor the management of sample holdings during future visits.

On 1 December 2015, new regulations under the Human Pathogens and Toxins Act came into effect. New Canadian Biosafety Standards are also now in force. We understand that SRC continues to revise its laboratory procedures to ensure compliance, and look forward to receiving from the Centre a copy of their updated biological laboratory operating manual when this work is done.

The Committee observed that control and accounting procedures for chemical holdings remain satisfactory, strengthened as they were in 2016 by the establishment of limits on the amount of agent that can be synthesized on strictly local authority, and by new provisions for the tracking of the destruction of samples or sub-stocks of agent upon the completion of projects and exercises. Our verification of the chemical holdings revealed no discrepancies. We were informed of an incident wherein chemical agent was detected on the exterior of its container in a fume hood. This incident was managed safely and all such containers are being inspected to assure their integrity.

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

- As of May 2016, all personnel requiring agent-worker certification – both laboratory workers and field safety staff – had been re-certified at the basic level. Beyond the basic level, certification will be conducted in two streams: laboratory and field safety, in accordance with the workers' needs. While agent-worker performance requirements have been defined for the higher levels of certification, training and testing materials for these levels remain under preparation.
- An AChE Monitoring Program based on a UK model has been locally endorsed; however, certain Canadian regulatory requirements remain to be met before the programme can be implemented.

- At the time of our visit, the work description for a full-time Chemical Safety Officer had been completed and the classification of the position had been determined. As of 6 April 2018 the position has been filled with a start date in mid-July 2018. In the meantime, the duties of the position are being executed on a part-time basis by an existing staff member.

Emergency response exercises continue to be regularly conducted at SRC. This year, we were pleased to be able to observe, on 11 May, a chemical emergency response exercise based on a road accident scenario involving a vehicle transporting agent from the small-scale synthesis facility in Building 1 to the Cameron Training Centre. This exercise additionally conveyed to us an understanding of the standard procedures used for the transport of agent. In this connection, we noted insistence on a written chain of custody, use of a specially equipped vehicle, employment of appropriately qualified and attired driver and co-driver; military police escort; and, coordination with First Responders from both the Base and SRC. A “tabletop” exercise and “walk-through”, we were told, preceded the training event, which we understand to be typical practice. The accident response we witnessed went well with the full cast of agencies including range control, military police, fire department, ambulance and a decontamination team playing their roles knowledgeably and confidently. We afterwards sat in on the exercise “hot wash-up” which involved all participants. The response was deemed effective and efficient; however, a few aspects were identified for improvement, most notably radio communications. Here, some easily rectifiable procedural issues were raised. Also voiced was a more intractable concern over the aging telecommunications infrastructure at Suffield and some apparent SRC-user equipment issues. Both the Acting Base Commander and the Centre Director acknowledged this concern and described current initiatives aimed at recapitalizing the radio system with input from all users.

The live-agent training that we observed during Exercise FIRE DRAKE, we believe, was conducted in a safe and professional manner and illustrated effective collaboration amongst participants, as well as between the training audience and the exercise control and safety staff.

This Committee, as evidenced in past reports, has regularly and consistently expressed the view that the SRC is a strategic national asset and, as such, its infrastructure deserves commensurate care and attention. The main laboratory building, Building 1 (which also houses the Centre’s administrative offices), is close to sixty years old and, as long ago as the Barton Report of 1988, was identified for replacement. Apart from the age of the building, the Committee has harboured a long-standing safety concern about the co-location of scientific and administrative functions – a concern exacerbated by the advanced age of the BSL 3 laboratories. Our unease has been mitigated, to an extent, by the diligent attention of SRC management and employees to building maintenance and safety including emergency response exercises; by the prospect of the construction of a new laboratory complex; and, most important, by the proposal to place new modular BSL

3 laboratories in the shell of a nearby building (the so-called Modular Biological Containment Facility (MBCF)) pending their ultimate relocation to the new complex. The Committee follows closely the progress of both of these projects. We understand that, with the transfer in 2014 of Suffield real property responsibilities from the Army to ADM Infrastructure and Environment (ADM IE), these projects have been subject to a re-definition of requirements and, also, re-prioritization in competition with other projects from across the country. Timelines remain uncertain. On a positive note, the DRDC Corporate Office has assumed the Project Director role for these projects, with which responsibility comes a small budget to assist with the definition of requirements. We will ask for another update during our visit to the Corporate Office in 2018 at which time the potential impact of the recently released Defence Policy Review may have been determined.

In the meantime, senior regional and national ADM IE officials should visit Suffield with a view to developing a personal understanding of SRC's specialized requirements and the distinctive consequences of infrastructure failures in settings where hazardous biological and chemical material are kept and hence, the need for attentive preventative maintenance and the urgency of repair. Last year, we described in our report the serious impact of Building 1 power supply failures on the BSL 3 laboratory. During our visit SRC this year, we learned of another power outage event, in March 2017, that caused several chemical containment fume-hoods to cease operation, thus creating an unsafe condition in a key Building 1 laboratory. Repair took more than six weeks leading the chemist concerned to refuse to work in the laboratory, thus impeding research; delaying completion of a mandated inventory of the chemicals stored there; and, creating additional risk due to the need to move chemicals between laboratories.

In 2013, the DND Chief of Review Services conducted an audit of the handling of CBRN material across DRDC. This audit generated several recommendations aimed at further strengthening in-place processes and controls intended to mitigate the risks associated with this activity. These recommendations were accepted by DRDC and the Committee remains pleased by the progress of their implementation:

- A DRDC Corporate Safety and Environmental Management System (SEMS) to address the safety and environmental risks associated with DRDC operations has been designed. SRC has commenced integration of its existing Health and Safety and Environmental Management Systems in accordance with the requirements of the SEMS. We will ask for an update on this integration during our next visit.
- The CBRN OC is chaired by the Chief of Staff Science and Technology in his capacity as the National Authority responsible for the oversight and provision of direction related to the compliance, control and risk management of CBRN activities. It is meeting regularly – the last time in March 2017.

- The CBRN OC has approved a CBRN Material Risk Management Framework, which describes DRDC's organizational assets; categorizes the threats to these assets; assigns responsibilities for risk management; and, establishes a set of facility, personnel and material risk indicators and corresponding risk management performance indicators.
- Application of this framework at SRC is now well underway and incorporates the following performance indicators, which in the view of the Committee, are commendably comprehensive:
 - In-place standard operating procedures that address:
 - CBRN S&T approval
 - Inventory control, from creation to disposal, of CBRN material
 - CBRN material production and holdings limits
 - Security measures for facilities holding CBRN material
 - In-place Environmental, Health and Safety Manuals that address:
 - Handling procedures for CBRN material
 - Emergency response procedures
 - Disposal procedures for CBRN material
 - Tracking and analysis of Health and Safety observations and incidents
 - Regular exercising of emergency response capabilities
 - Verification of personnel screening, training and certification
 - Personnel screening compliance
 - Chemical Agent Worker Certification
 - Biological Worker Certification
 - Radiation Worker Certification
 - Tracking CBRN S&T activity approval
 - Tracking and analysis of threat and risk assessments relevant to CBRN S&T activities and holdings
 - Annual review of the status of infrastructure used to hold CBRN S&T activity
 - Infrastructure projects
 - Infrastructure deficiencies
 - Records of licenses, permits, routine audits and validation of holdings

- Records of external validation by inspection and review by BCDRC, OPCW, PHAC and, in the case of RN material, Director Nuclear Safety and the International Atomic Energy Agency.
- As mentioned in last year's report, inventory records of chemical agents are now being tracked from procurement to disposal.

Given the nature of the research and development undertaken at SRC, the occupational health and potential emergency medical support needs of the Centre are relatively specialized and complex. During recent annual visits, we have become aware of several seemingly problematic aspects of the Centre's situation in this regard and the challenges to which they, from time to time, give rise. We have also learned of the diligent and effective efforts of the many stakeholders involved to confront and overcome these challenges with a view to maintaining the completeness and consistency of the required support system. This said, we have also noticed a tendency for issues to re-emerge due to circumstances beyond local control *e.g.*, the retirement of the contracted medical advisor, changes in military medical personnel, modifications to special treatment protocols, and the commercial availability of MCM. During this year's visit, we noted some improvement to the situation due to wider awareness and deeper understanding of the complexities involved and better communications and cooperation amongst the various stakeholders. Specific improvements include more effective arrangements for "back-fill" of the Base Surgeon and the procurement of additional biological and chemical casualty treatment training opportunities for Canadian medical personnel including one for the current Base Surgeon prior to her arrival in Suffield.

The lack of Medical Director/Advisor for SRC is a continuing source of bedevilment on several fronts but especially regarding Suffield-centric medical regulatory issues such as special access to certain MCM and the proposal for a local AChE testing regime.

Another remaining challenge is the maintenance of an advisable level of expertise in biological and chemical casualty management among the staff at the Medicine Hat Regional Hospital. The Base Surgeon and SRC staff outlined some ideas aimed at sharing treatment protocols as well as generally improving relations with the Hospital.

While visiting the Canadian Science Centre for Human and Animal Health in Winnipeg, the Committee heard of what was described as an excellent emergency response relationship between the CSCHAH and the Winnipeg Health Sciences Centre. We were also impressed by the dimensions of the Centre's biosafety programme. Might there be value in CFB Suffield and SRC jointly approaching the Centre to compare notes in these areas?

In any event, the Committee remains steadfast in its belief that a comprehensive assessment of occupational health and emergency medical support needs, including verification that these needs are being met, is worthy of conduct by an appropriate high-level authority with the possible participation of relevant stakeholders (*e.g.*, SRC, CFB Suffield, CFHS Group, 3rd Canadian Division, Health Canada, Alberta Health Services, *etc.*),

the objective of this undertaking being to ensure the long-term adequacy and stability of these essential supports to the work of the SRC.

Environmental Protection

No environmental issues were detected during our visit to SRC other than the continuing problem of how best to dispose of the legacy chemical agent Lewisite.

We were pleased to learn that a direct reporting relationship was formally re-established on 1 April 2017 between the Environmental Officer and General Safety Officer to the Centre Director through the SRC Corporate Services Officer.

An environmental issue was noted at CFFCA where there is uncertainty with respect to the toxicity and bio-degradability of the DF 200 decontamination solution selected for use with the recently procured personnel, fighting equipment and vehicle decontamination system and also, the surrogate solution to be used for training. Enquiries are being made and it is hoped that soon, sufficient clarity will be achieved to permit confident training and operational use.

Other Observations

- **CSCHAH.** We again left the Centre impressed by and appreciative of the unique contributions to the health and security of Canadians made by the NML and NCFAD, and the expert and dedicated scientists and allied public servants who staff these vital national assets. The strong endorsement of the CSSP by the Director NCFAD and its contribution to preparedness in his field was a message we were pleased to pass on to the co-sponsors of the Programme at the CSS.
- **1 CAD HQ.** The comprehensiveness and thoroughness of the presentation we received at 1 CAD HQ spoke to the expertise and dedication of the small Force Protection staff at that Headquarters. With CBRN Defence policy, doctrine, direction and guidance now in place and a considerable quantity of new equipment on its way, the challenge facing the RCAF will be one of identifying the positions and personnel needed to operate this capability and accessing timely and adequate training for them.
- **SRC/CFB Suffield**
 - The CBR Memorandum of Understanding (MOU) amongst the “4 Eyes” nations (Australia, Canada, the United Kingdom and the United States) remains the primary venue for international collaboration in the chemical and biological domain. New possibilities for collaboration are being explored with other countries, but these will be restrained by resource availability. The past five years have been, in large measure, characterized by a reduction in resources allocated to BCD. The extent to which this could diminish the leverage that Canada has traditionally obtained from its international engagement is yet to be determined. The Committee

commented on this risk in our 2016 report and will continue to monitor this issue closely. In any event, we will likely observe, in the short term, efforts to identify and focus on “niches” where Canada’s contributions will generate the most value.

- We enjoyed a most informative meeting with the Acting Base Commander at CFB Suffield. He explained, in a level of detail we had not previously encountered, the Base’s five lines of operation - support to British Army training, support to DRDC; oil and gas; grazing; and the environment – and the desired end-state of a sustainable, world-class military estate for training and defence research with integrated development of strategic national resources. He identified as the principal risk to the attainment of this objective as “fragmented planning, communications and authority”. This led to a stimulating discussion of how to achieve and maintain mutually advantageous levels of cooperation between the Base and an entity such as SRC. Drawing from the example of the structure governing British Army training in Canada, it was suggested that a statement of common intent was required – a service level agreement, for instance – managed, possibly, by regular coordination sessions; annual working group sessions with breakouts; and meetings of a steering group. This discussion seemed to speak to a renewed commitment to cooperation and collaboration at Suffield, which was referred to several times at other points in our visit.
- For the first time, we met this year with the newly appointed Security Officer at SRC who was strong in his opinion that the major security issue facing the Centre was an inadequate secure communications backbone. The nearest secure video-tele-conferencing facility is in Edmonton. Given the often-classified nature of the work undertaken at SRC, the importance of scientists being able to easily share information with their Canadian and international colleagues and the existing budgetary restrictions on travel, the placement of a similar capability at Suffield would seem compelling.
- *Eximius Ordo* (“in a class of its own”) is the name applied to the locally led process to evolve and modernize SRC with a view to maximizing its impact and value on the delivery of the defence science, technology and knowledge priorities within DRDC (priorities which focus on the “strategic, the sensitive or the classified”). Introduced to this undertaking in 2016, we this year received updates of various subsidiary initiatives under the headings of Service Delivery, Workplace Well-being, Targeted Capability Areas, Engaged Performers and Networked Leaders. The Centre Director pointed to much progress in all areas.

- Last year, the SRC Director also drew our attention to the looming retirements of some of SRC's most experienced and knowledgeable staff. He identified these departures, in company with the Centre's aging infrastructure, as the leading risks to the successful execution of its mission. An orderly succession plan including the timely hiring of new staff constitutes the obvious mitigation strategy for the "retirement risk". Implementation of this strategy deserves continued active DRDC corporate support and follow-up by the Committee during future visits.
- **CFFCA.** In FY 2016-17, the CFFCA conducted 14 CBRN Defence courses with 264 graduates with 15 courses and 340 graduates forecast for FY 2017-18. Additionally, Academy personnel supported NATO CBRN Defence Exercises BRAVE BEDUIN in Denmark (CBRN calculating, warning and reporting procedures and, decision making support); TOXIC TRIP (maintenance of air operations in a contaminated environment on a deployed airfield); and PRECISE RESPONSE (live agent training at Suffield). On-going initiatives include the development of on-line course modules; updating of qualification standards and training plans; and, support to the entry into service of the new personnel, combat equipment and vehicle decontamination system. The greatest challenge faced by the Academy is a shortage of instructors with only 10 of 19 such positions filled when we visited. Of acute need are French-language instructors and personnel with Canadian Joint Immediate Response Unit - CBRNE (CJIRU-CBRNE) experience.
- **1 Canadian Field Hospital.**
 - Following our last visit to the Hospital, the Committee recommended that the Canadian Forces Health Services Group clarify its expectations of 1 Canadian Field Hospital with respect to the Hospital's ability to operate in a BCD environment including the provision of treatment to biological and chemical warfare agent casualties. Implied in this recommendation is the need to verify both the intended and practical capability contribution of the CBRN collective protection kit (COLPRO) issued to the Hospital under the CBRN Defence omnibus equipment programme. The Health Services Group has since provided guidance which includes the identification of the following tasks:
 - Provision of medical and surgical care to CBRN casualties
 - Protection of medical personnel and their patients in the event of a local CBRN attack
 - Protection and maintenance of critical capabilities (*e.g.*, surgery) in the event of a local CBRN attack (through the use of collective protection)

- Small scale decontamination of patients in the vicinity of the medical facility
- Relatedly, the Group increased access to CBRN Defence clinical medical training in the United Kingdom with a view to enhancing the Hospital's ability to perform these tasks. We understand that three specialist medical officers, a nursing officer and a medical technician have recently received such training.
- During this year's visit, we learned from the Hospital's Commanding Officer that with the participation of the Health Services Group's Directorate of Health Services Operations, the COLPRO will be deployed and its capabilities tested on a field exercise later in 2017 with a view to verifying its fitness for purpose, and establishing doctrine and procedures for its use. Similarly, the Commanding Officer intends to take time over the next 2-3 years to carefully determine the extent to which the Hospital is able to execute its other stipulated CBRN defence-related tasks.
- **CMED.**
 - This year's visit permitted the Committee to gain an understanding of the CMED's progress toward Good Manufacturing Practices accreditation – a status essential to the Depot's qualification to import or export drugs and to collaborate with the Public Health Agency of Canada (PHAC) on the potential provision of reciprocal back-up capability for the storage and distribution of MCM and other medical items. The presence on staff of a long-sought quality assurance specialist has served to illuminate several issues standing in the way of accreditation — most of these relate to the age and condition of the existing warehouse. The mission-essential air-conditioning system dates to 1960 and is subject to break-down. Asbestos is present; installation records pertaining to fixtures, fittings and utilities are absent; and, the temperature-control alarm system is prone to malfunction. A related challenge is finding suppliers willing to serve the Depot's relatively remote location with refrigerated tractor-trailer combinations whose temperature-control systems meet the exacting GMP standards.
 - With respect to potential collaboration with the CMED, we are led to believe that PHAC considers not only lack of GMP accreditation to be an impediment, but so too the Depot's distance from a major airfield.
 - These factors convince us to recommend the replacement and relocation of the CMED facility.

- **NDHQ**

- As in previous years, transparency and frankness typified our talks with policy staff at NDHQ and with personnel from GAC, who spoke with us not only about the status of the BTWC and CWC, but also, as they have generously done before, Canada's contribution to the Global Partnership Program Against the Spread of Weapons and Materials of Mass Destruction or, as it is now named, the Weapons of Mass Destruction (WMD) Threat Reduction Program. We have, for several years, been impressed by the extent and impact of our country's involvement and applaud the growing number of projects aimed at strengthening both global chemical and biological security.
- One issue arising during the update of the CWC, was the extent of the licence held by the Royal Military College (RMC) pertaining to the permitted possession of chemical warfare agent for defensive research and development purposes. In its 2011 report, the Committee recommended that the necessity for RMC to synthesize small quantities of chemical warfare agent be re-evaluated. DND replied in July 2015 that RMC's license would be modified to authorize holding and use, but not synthesis. Material would be resupplied, as required, by the CNSSSF at SRC. Notwithstanding this declaration, the Committee understands that the new licence issued to RMC on 25 August 2015 does permit production of chemicals included in Schedule 1 of the Chemical Weapons Convention. Queries by the Committee indicate this was likely an administrative oversight and that, in fact, since the issue of the new licence, no material has been or is being synthesized at RMC. This licence is next up for renewal in 2018 at which time the Committee expects that the 2015 oversight will be rectified.
- The Chief of Force Development's Directorate of CBRN Defence at NDHQ is responsible for the development of joint CBRN defence capabilities to enable the armed forces to survive and operate in a CBRN-contaminated environment at home or abroad. In this connection, one of its principal tasks is the provision of guidance to DRDC with respect to the BCD R&D program. The Directorate remains most helpful to the work of the Committee, having this year provided us with an update of completed, divested, active and proposed projects. This year's update also included confirmation of the posting of a CAF member to the NATO CBRN Centre of Excellence at Vyskov, Czech Republic, which will afford Canada access to the 24/7 scientific reach-back capability provided by the Centre.
- This year, in addition to our normal agenda, an officer from Canadian Joint Operations Command Headquarters delivered an intriguing presentation

on the various factors considered in developing the response plan for a domestic CBRN incident. This was our first exposure to contingency plan RUBICON and one which provided valuable context for our work.

- **CSS**

- At the CSS, we were again provided with a comprehensive and insightful update of the CSSP with an emphasis on its BCD aspects. The program's mandate is to strengthen Canada's ability to anticipate, prevent, mitigate, prepare for, respond to, and recover from natural disasters, serious accidents, crime, and terrorism through the convergence of science and technology with policy, operations, and intelligence. The CSSP supports federal, provincial and municipal government-led projects in collaboration with response and emergency management organizations, non-governmental agencies, industry, and academia.
- Of special note this year, were the high profile and evident value of CSSP projects that exploit advances in bioinformatics to promote various aspects of biosecurity. Similarly, the Committee was impressed by the role of the CSSP in the promotion of biosecurity related networking initiatives such as enhancement of the Canadian Network for Public Health Intelligence and implementation of the international Biosafety Level 4 Zoonotic Network.

- **CFHS Group HQ**

- During our visit, 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 SRC's reported medical support requirements. We were also briefed on the Surgeon General's BCD research and development priorities that include: new or improved MCM against CW and BW agents; clinical treatments to lessen tissue damage and restore function after CWA exposure; an evidence base for chemical and biological medical assessment and treatment protocols; point of care diagnostics; research that enhances MCM production or facilitates regulatory approval for CAF use; and, greater emphasis on host-directed and/or broad spectrum therapies.
- We also heard of consideration to bring all BCD-related activity together as a distinct programme which, by the nature of a programme, would promote the sustainability of these activities and more and better long-term planning.
- The mandate of the CFHS Group HQ Regulatory Affairs Section is to ensure adherence to Health Canada and DND regulations for the reporting,

accounting and handling of unlicensed medical products; to advise on regulations for their use; and, to seek Canadian regulatory approval for them, where feasible. We observed that the section remains proactively, energetically and fully engaged in obtaining regulatory approval under Health Canada's Extraordinary Use New Drug policy and Special Access Program covering an impressive range of BCD-related products.

- We salute the progress of the BWTMCM project including its first product licensing successes and its role in the development of a FilmArray bio-threat detection system.
- **CBRN Defence Workshop.** The annual CBRN Defence Workshop, organized and chaired by the Director of CBRN Defence, remains a valuable forum for activity coordination and information exchange amongst the members of the Canadian CBRN Defence community. This year, it was announced that the Directorate of CBRN Defence would be moved under the command of the Commander of the Canadian Army effective 1 December 2017. The Committee will be alert to any impact this change might have on the development of BCD capabilities in the RCN and RCAF.

CONCLUSIONS

Having detected no evidence to the contrary during its 2017 briefing and visit activities, the Committee concludes that:

- Canada's policy of maintaining a purely defensive biological and chemical warfare capability is fully respected by the DND and the CAF.
- The BCD research, development and training activities undertaken by DND and the CAF are fully compliant with Canada's obligations as a State Party to the BTWC and CWC.
- The BCD research, development and training activities undertaken by DND and the CAF pose minimal risk to public safety or the environment.
- There is no covertness or duplicity within the BCD program.

RECOMMENDATION

The Committee this year offers one new recommendation:

Given the unique and essential capability of the Central Medical Equipment Depot, the operational importance of its gaining Good Manufacturing Practice accreditation; and, the potential value of collaboration with the Public Health Agency of Canada; consideration should be given to the replacement and relocation of this facility with a view to overcoming the shortfalls and impediments posed by its current state and location.

STATUS OF COMMITTEE RECOMMENDATIONS

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

ANNEXES

A – Status of Committee Recommendations

B – Acronyms and Abbreviations

STATUS OF COMMITTEE RECOMMENDATIONS

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.*

DND/CAF Response (March 2012): “In 2011, DG DRDC Suffield directed: the completion of a full inventory of all biological, viral holdings; minimization of all holdings to levels that are sufficient to support current and future program requirements and the destruction of surplus materials. This task is expected to be completed by 29 February 2012. The updates to the inventory management software have been received and implemented.”

BCDRC Comment (November 2012): Good progress is being made but some work remains to be done with respect to further reductions and inventory management tools. We will continue to monitor.

DND/CAF Response (April 2013): “DND/CF DRDC Suffield continues to annually review holdings of bacterial, viral and toxin stocks, and reduce the number of redundant stocks to minimal amounts sufficient to support current and future program requirements. The updates to the inventory management software have been implemented and improvements and progress continue to be made.”

BCDRC Comment (December 2013): We commend the progress made to date while noting that the inventory management system has not yet been fully implemented. We will continue to monitor.

DND/CAF Response (February 2014): “The inventory management software has been completely updated. DRDC Suffield is currently relabeling all Bio Safety Level 3 stock inventories with database-generated bar-code labels. Concurrently, a complete inventory check of all stocks is also underway to ensure accurate holding records. The anticipated completion date for this phase is the end of April 2014.”

BCDRC Comment (December 2014): We acknowledge that the inventory management software is now performing correctly; that new samples added to holdings are properly bar-coded and that work aimed at bar-coding legacy stocks is progressing. We will continue to monitor progress during our annual visits and encourage reductions where possible.

DND/CAF Comment (July 2015): “The inventory software is working well without issues. Approximately half of the viral holdings have been barcoded to date and the current viral holdings are being reviewed to see if further reductions can be made. The labelling process for bacterial holdings has just begun. The labels have been printed and are ready to be affixed awaiting the availability of technical staff required for completion. A reduction of the anthrax agar slants and soil samples is also underway with plans to progress this work over the next year.”

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BCDRC Comment (December 2015): We acknowledge this good progress and will continue to monitor efforts to further improve the management of holdings including their reduction to the minimum required.

DND/CAF Response (September 2016): “Inventory of all biological holdings continues to progress, and the review of viral holdings has been completed. Holdings are reviewed annually and recommendations are made for reductions where appropriate. As a result of the identification by US suppliers of inactivated anthrax that could no longer be trusted as inactivated, our inventory procedures have been modified to track all inactivated material as well. It is estimated that the inventory will be completed by spring 2017. To date, several hundred vials of excess stock have been destroyed.”

BCDRC Comment (December 2016): We look forward to the inclusion of all holdings in the inventory in the Management Information System.

DND/CAF Response (April 2017): “DRDC Suffield has completed all viral and toxin inventories and only bacterial holdings remain to be entered into the inventory tool. In order to complete this activity, approximately 75% of the bacterial holdings require labels to be affixed. This is scheduled to be completed by October 2017. The inventory of all uncertain inactivated materials is now complete.”

BCDRC Comment (December 2017): Since our visit to SRC in May 2017, it has been reported to us that essentially all samples have now been barcoded. We will continue to verify holdings during future visits but will now close this recommendation as having been implemented.

Status: CLOSE

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.*

DND/CAF Response (March 2012): “DRDC Suffield has initiated a multi-phased program aimed at modernizing its safety practices. A review of our allies’ chemical safety programs and waste management processes has been completed and compared to established policies and programs. The recommendations from this process are undergoing an internal review, prior to forwarding to the DG of DRDC Suffield for approval. In addition, a comprehensive review of the planning and approval process for experimental and training activities has been completed. The result is a web-based system that will be implemented on 1 April 2012 and considers activities underway at DRDC Suffield. This system ensures that essential safety, regulatory, scientific integrity, ethical and resource requirements are identified and reviewed by line managers and safety experts before being approved. NDHQ recognizes the effort DRDC Suffield has put into its safety and environmental stewardship programs and commends them on this latest initiative.”

BCDRC Comment (November 2012): Reviews are ongoing. Safety manuals have been updated. Safety and Health Management System is being implemented. Good progress is being made. We will continue to monitor.

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DND/CAF Response (April 2013): “The internal ONTAP web-based review process has been fully implemented within the Centre and is working well. The Chemical Safety Committee continues to work through the recommendations from the review committee and has started implementation of those approved by the DG. The BCDRC will be updated during their next visit to Suffield.”

BCDRC Comment (December 2013): 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.

DND/CAF Response (February 2014): “The comprehensive chemical safety review resulted in 11 recommendations. A majority of these recommendations resulted in changes to DRDC Suffield’s safety manuals and standard operating procedures. There are a few recommendations still in the review and implementation process. BCDRC will receive a detailed status update of all 11 recommendations during their 2014 visit.”

BCDRC Comment (December 2014): We acknowledge the essential or imminent implementation of all but one of the Chemical Safety Review recommendations – that being the adoption of AChE testing in support of a Medical Surveillance Program. We look forward to an update on this issue during our next visit.

DND/CAF Response (July 2015): “The recommendations continue to be implemented, with the remaining effort focused on a certified agent worker standard and AChE testing. The lowest level of agent worker standards has been established and certification is underway. The next level is now under development. The AChE testing protocols have been designed and are being reviewed as part of an experimental process involving the use of human subjects. As well, the results of a chemical worker workplace risk assessment have been presented to Health Canada in order to establish occupational health assessment guidelines (OHAG) that will also be implemented.”

BCDRC Comment (December 2015): We commend this progress and look forward to a report of the completed implementation of the certified agent worker program, AChE testing protocols and hiring of a full-time Chemical Safety Officer.

DND/CAF Response (September 2016): “The recommendations continue to be implemented, with the remaining effort focused on worker certification, Acetylcholinesterase (AChE) testing, and the hiring of a chemical safety officer. Agent worker certification at the first level has been completed, and the second level assessment tools are being finalized, with testing to begin shortly. AChE testing was completed in July 2016, and the full program is expected to be implemented by the end of 2016. The process to hire a full time chemical safety officer has also been initiated.”

BCDRC Comment (December 2016): We now understand that while an AChE Monitoring Program based on a UK model has been endorsed and a pilot program approved and executed, full implementation of the program is now expected in 2017. We look forward

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to completion of the definition of the higher agent certification level criteria and to meeting the new CSO.

DND/CAF Response (April 2017): “DRDC is expecting a staffing classification decision to be made soon, which will permit the start of the hiring process for the chemical safety officer. The Acetylcholinesterase (AChE) monitoring report has been submitted for review, and draft standard operating procedures are being developed that take into account issues raised during the pilot project. The full program is planned for use in July during Exercise Precise Response 2017, a NATO CBRN live training exercise. The evaluation material for Level 2 Agent Worker Certification is undergoing final review.”

BCDRC Comment (December 2017): We understand that the classification of the CSO position has been determined, candidate interviews conducted and a job offer made with a starting date of 16 July 2018. We await confirmation of offer acceptance. With respect to AChE monitoring, we acknowledge that regulatory issues have arisen that must be addressed before this initiative is implemented. We look forward to a report of the completed development and implementation of the Agent Worker Certification Programme.

DND/CAF Response (April 2018): “DRDC has hired a Chemical Safety Officer who will be in place by mid-July 2018. The Acetylcholinesterase (AChE) monitoring report has been submitted for review, and draft Standard Operating Procedures (SOPs) are under development and will take into account issues raised during the pilot project. The monitoring program was used in July during Exercise Precise Response 2017, a NATO CBRN live training exercise and no adverse events were reported. Extension of this monitoring program to DRDC and CAF personnel is dependent upon the establishment of a contract for a Medical Advisor who will be able to apply for Special Access to use the ChE Check device. This contract is expected to be in place in 2018. The evaluation material for Level 3 Agent Worker Certification is undergoing final review.”

Status: OPEN

3. (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.*

DND/CAF Response (July 2015): “During 2014, DRDC reviewed the original 2004 requirement and has invested significant effort to revise the Statement of Requirement (SOR), update the project identification documents (SS(ID)), and review the main options for presentation to a senior review board (SRB) in April 2015. This will be the first official stage in getting what amounts to a new \$14M project into the DND infrastructure investment plan.”

BCDRC Comment (December 2015): We commend this effort and will closely monitor further progress of this vital undertaking. In the meantime, we urge that the maintenance of critical systems in Building 1 continue to receive diligent attention.

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DND/CAF Response (September 2016): “DND/CAF has initiated a process for the replacement of the biological laboratories at the DRDC Suffield Research Centre for handling of risk group 2 and 3 biological agents. This project has been identified in internal development and acquisition plans and is undergoing options analysis and review. Taking into account administrative processes, the anticipated timeline to update existing facilities is 3-5 years. While this process continues, DRDC continues to exercise its extensive preventative maintenance program”

BCDRC Comment (December 2016): We acknowledge the additional complications introduced by the transfer of real property responsibilities to ADM IE, but continue to urge priority attention to this project. We will continue to monitor and report progress.

DND/CAF Response (April 2017): “During the transfer of responsibilities to ADM (IE), the review of outstanding infrastructure projects resulted in a significant improvement in the recapitalization of the Suffield Chemical and Biological Laboratories as it has become the highest rated ADM(S&T) project within the ADM(IE) major construction queue. While it still remains in the unfunded queue, it is expected that this improvement will result in concrete action in the near future. The interim replacement of the biological laboratories continues through the capital equipment program.”

BCDRC Comment (December 2017): Continuing to see, as we do, serious infrastructure issues, we applaud the appointment of a Project Manager who will be instrumental to moving the project forward.

DND/CAF Response (April 2018): “During the transfer of responsibilities to ADM (IE), the review of outstanding infrastructure projects resulted in a significant improvement in the recapitalization of the Suffield Chemical and Biological Laboratories, as it has become the highest rated ADM (S&T) project within the ADM (IE) major construction queue. While it still remains in the unfunded queue, it is expected that this improvement will result in concrete action in the near future. The interim replacement of the biological laboratories continues through the capital equipment program; a Statement of Requirements is currently being drafted for this replacement.”

Status: OPEN

4. (2015) *The Canadian Forces Health Services Group should clarify its expectations of 1 Canadian Field Hospital with respect to the Hospital's capability to operate in a BCD environment including the provision of treatment to biological and chemical warfare agent casualties.*

DND/CAF Response (September 2016): “In the event of a chemical, biological and (sic) nuclear (CBRN) incident, there are four tasks that would be expected of 1 Canadian Field Hospital:

- provision of medical and surgical care to CBRN casualties;

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- protection of medical personnel and their patients in the event of a local CBRN attack;
- protection and maintenance of critical capabilities (i.e., surgery) in the event of a local CBRN attack (through the use of collective protection); and
- small scale decontamination of patients in the vicinity of the medical facility.

1 Canadian Field Hospital possesses the specialized equipment needed to operate in a Biological and Chemical Defence (BCD) environment. Regarding the provision of treatment in a BCD environment, the Canadian Forces Health Services Group (CFHSG) currently sends clinicians to clinical biological and chemical warfare training courses in the United Kingdom and the United States. Non-clinical CBRN courses are also available in Canada to further support the unit's ability to operate in a CBRN environment. As well, the CFHSG units, including 1 Canadian Field Hospital, are required annually to achieve individual CBRN training for the Individual Battle Task Standards for Land Operations, Individual Standard Level 2.

CFHSG will include specific collective training standards for 1 Canadian Field Hospital in the 2016/2017 Commander's Annual Planning Guidance, which should be available in fall 2016. Furthermore, 1 Canadian Field Hospital will be requested to review the four tasks listed above in order to identify any additional resource requirements (e.g., personnel/equipment/training) needed to further support the unit in providing the expected capabilities."

BCDRC Comment (December 2016): We look forward to learning of the results of these actions during our next visits to 1 Canadian Field Hospital and to CFHS Group HQ.

DND/CAF Response (April 2017): "The Canadian Forces Health Services Group (CF H Svs Gp) has provided guidance to 1 Canadian Field Hospital, which will be reiterated in the Commander's Annual Planning Guidance, tentatively set to be released in April 2017. This includes the identification of the following tasks expected of a deployed medical facility:

1. Provision of medical and surgical care to CBRN casualties;
2. Protection of medical personnel and their patients in the event of a local CBRN attack;
3. Protection and maintenance of critical capabilities (i.e. surgery) in the event of a local CBRN attack (through the use of collective protection); and
4. Small scale decontamination of patients in the vicinity of the medical facility.

Furthermore, CF H Svcs Gp was able to significantly increase access to the Clinical CBRN course in the United Kingdom, which will greatly enhance the unit's ability to perform the tasks identified above. Ten clinical personnel, nine of which are from 1 Canadian Field Hospital and the other from another CF H Svcs Gp unit, have been selected to receive this training between January and April 2017."

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BCDRC Comment (December 2017): We commend these initiatives and look forward to learning of the outcome of the intended assessment of the Hospital's ability to perform these tasks.

DND/CAF Response (April 2018): "Provision of medical and surgical care to CBRN casualties was actioned through the intentional selection of 1 Cdn Fd Hosp personnel for clinical CBRN training. This will be maintained through inclusion of 1 Cdn Fd Hosp staff on these courses as necessary. A draft training plan has been produced which will help identify priority individual training requirements and provide some basic guidance on collective CBR training at the unit level. DND considers that this item is complete.

Small scale decontamination – CF H Svcs HQ Op Med staff have developed doctrine related to casualty decontamination. A draft document has been completed and will soon be circulated to our operational units, including 1 Cdn Fd Hosp, for their input. It is anticipated that approval of this doctrine will be achieved within the next year and such approval should constitute completion of this sub-item. In the interim, this sub-item should remain open.

Individual and collective protection – Efforts on these items were deferred due to the high operational tempo of 1 Cdn Fd Hosp. This elevated tempo is anticipated to remain a factor for the upcoming year which may affect the Group's ability to definitively address this item. The subject of COLPRO will remain an item to be actioned if an opportunity presents itself but it should remain an open sub-item until actioned."

Status: OPEN

5. (2016) *A comprehensive assessment of Suffield Research Centre's unique occupational health and emergency medical support needs should be conducted under the leadership of an appropriate high-level authority with the possible participation of relevant stakeholders (e.g., SRC, CFB Suffield, 3rd Canadian Division, CFHS Group, Health Canada, Alberta Health Services, etc.). This same authority should also take the lead in designing and implementing cooperative, long-term solutions to any gaps so identified.*

DND/CAF Response (April 2017): "As the national authority responsible for the oversight and provision of direction related to the compliance, control and risk management of CBRN S&T activities, the Chief of Staff (Science and Technology) will undertake an assessment of Suffield Research Centre's occupational health and emergency support needs during Fiscal Year 17/18. The assessment will be designed to engage all relevant stakeholders in identifying any potential gaps and providing options to address them."

BCDRC Comment (December 2017): We look forward to learning of the outcome of this assessment during our next visits to SRC and the DRDC Corporate Office.

DND/CAF Response (April 2018): "The Health and Safety Management System (HSMS) at Suffield Research Centre is comprised of an overarching Health and Safety manual with annexes for each safety area, including chemical and biological safety. The HSMS is reviewed on a bi-annual basis and is currently under review by relevant Section Heads and safety staff. In addition, the Suffield Research Centre has established a more

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comprehensive Integrated Emergency Response Plan, involving the Base Medical Centre and the CFB Suffield Fire Department. To reflect this, modifications to the current Service Level Agreements (SLA) are taking place. Further, the Suffield Research Centre has a scheduled audit of its entire safety system for later in 2018. Moving forward, there is an initiative to examine the feasibility of integrating the HSMS into the framework of our Environmental Management System. Over the last years, significant internal efforts have been made to establish a more integrated H&S Program, indicating that a comprehensive review via an external organization may not be needed. However, once the current HSMS review and safety audit are complete, the Suffield Research Centre will re-evaluate the need to conduct any additional reviews.

Status: OPEN

6. (2017) *Given the unique and essential capability of the Central Medical Equipment Depot, the operational importance of its gaining Good Manufacturing Practice accreditation; and, the potential value of collaboration with the Public Health Agency of Canada; consideration should be given to the replacement and relocation of this facility with a view to overcoming the shortfalls and impediments posed by its current state and location.*

DND/CAF Response (April 2018): “CF H Svcs Gp appreciates that BCDRC is emphasizing this in its report and fully agrees with this recommendation. The current condition, capacity and location of the CMED facility poses several risks to the ongoing management of our medical stockpile.

A Good Manufacturing Practices-compliant (GMP) facility and a Health Canada issued Establishment License are essential to ensuring the quality of the various medical products that the Group imports, stores, distributes and potentially shares with other government departments and allied partners. A licensed facility, with a robust quality assurance system in place should minimize the risk of operationally essential medical resources becoming compromised.

A strategic level partnership between CF H Svcs Gp and PHAC has recently been formalized between the Surgeon General and the VP of Health Security Infrastructure Branch at PHAC. Ongoing efforts will be applied to exploring short term solutions while scoping an ongoing collaborative partnership that would be focused on common infrastructure requirements and coordinated inventory management and procurement.

CMED replacement has been identified as a requirement and has been included in the DND infrastructure plan. However, given the current prioritization of the project, we anticipate that it will be at least ten years before the facilities are replaced and relocated. CF H Svcs must accept and manage these risks but our ability to mitigate them remains limited. Although our strengthened partnership with PHAC may introduce other risk mitigation opportunities, the limitations of the current CMED facility may prevent a full realization of the benefits of this partnership. The ideal solution to the problem would be an acceleration of the approval and funding of this project and early efforts are taking place to elevate its position on the departmental prioritization list.”

Status: OPEN

ACRONYMS AND ABBREVIATIONS

AChE – acetylcholinesterase

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

ADM (IE) – Assistant Deputy Minister (Infrastructure and Environment)

BCD - Biological and Chemical Defence

BCDRC - Biological and Chemical Defence Review Committee

BSL - Bio-safety Level

BTWC - Biological and Toxin Weapons Convention

BWA - Biological warfare agent

BWTMCM - Biological Warfare Threat Medical Counter-measures

CA - Canadian Army

CAF - Canadian Armed Forces

CANSOF - Canadian Special Operations Forces

CBAP - Chemical Biological Assessment and Protection

CBR – chemical, biological and radiological

CBRN - chemical, biological, radiological and nuclear

CBRNE - chemical, biological, radiological, nuclear or explosive

CBRN OC – Chemical, Biological, Radiological and Nuclear Oversight Committee

CFB - Canadian Forces Base

CFFCA - Canadian Forces Firefighting and CBRN Academy

CFHS Group 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

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

ANNEX B
to BCDRC 2017 Annual Report

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

GAC – Global Affairs Canada

GMP - Good Manufacturing Practices

HMRA - Hazardous Materials Reference Application

HQ - headquarters

HVAC - heating, ventilation and air conditioning

LegAd - Legal Advisor

MCL - Mobile Chemical Laboratory

MCM - medical countermeasures

MND – Minister of National Defence

NATO – North Atlantic Treaty Organization

NDHQ - National Defence Headquarters

ONTAP - On-line Turbo Approval Process

OPCW - Organization for the Prohibition of Chemical Weapons

OpMed - Operational Medicine

PHAC - Public Health Agency of Canada

RCAF - Royal Canadian Air Force

RCMP - Royal Canadian Mounted Police

RMC - Royal Military College

RCN – Royal Canadian Navy

S&T - science and technology

SAP - Special Access Program

SLA - Service Level Agreement

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to BCDRC 2017 Annual Report

SOFCOM - Special Operations Forces Command

SOP - Standard Operating Procedure

SRC – Suffield Research Centre

TB - Treasury Board

CRV – Centre de recherche de Valcartier

WMD - weapons of mass destruction