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# 2022 ANNUAL REPORT

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Biological and  
Chemical Defence  
Review Committee

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(Chair)  
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March 2024

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**Biological and Chemical Defence Review Committee**

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**2022 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 equipped and trained to protect themselves from exposure to biological and chemical warfare (BCW) agents. Such protection is required not only during 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 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, 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 or neurology. 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, the Society of Toxicology of Canada, and the Canadian Association for Neuroscience. The Chair also arranges for an administrative staff member to function as the Committee's Executive Officer.

Committee membership, as of 1 April 2022, was as follows:

Dr. Jonathan Van Hamme (Committee Chair)  
*Professor of Microbiology*  
*Thompson Rivers University*

Dr. Heather Durham  
*Professor of Neurology and Neurosurgery*  
*Montreal Neurological Institute and Hospital*  
*McGill University*

Dr. Heinz-Bernhard Kraatz  
*Professor of Chemistry*  
*University of Toronto*

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

The Committee's annual cycle of activity includes:

- briefings in Ottawa on BCD issues by officials from National Defence Headquarters (NDHQ) and Global Affairs Canada (GAC)
- visits to government (mostly DND) research and development (R&D) facilities such as the Defence Research and Development Canada (DRDC) research centre at Suffield, Alberta (which we visit every year) and to selected CAF education and training establishments, operational formations, and units where BCD activity takes place
- attendance at selected BCD exercises, training courses, workshops, seminars, symposia, *etc.*, conducted by the CAF or DND
- publication in the public domain of an Annual Report with key observations, conclusions, 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 its 2022 visit and verification 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
- while there is always room for improvement, the BCD programme, as a whole, is conducted in a professional manner
- there is no covertness or duplicity within the BCD programme

From time to time, the Committee does discern the need for improvement to safety and environmental practices and procedures or to the professional conduct of the BCD programme which it expresses in the form of general observations or specific recommendations.

The Committee this year offers six new recommendations. We will also continue to pursue with DND and CAF authorities mutually satisfactory resolution of the three open recommendations made in previous Annual Reports.

## COMMITTEE ACTIVITIES 2022

- **CBRNE Convergence Canada Conference (Gatineau 12-13 April)** The Committee Executive Officer attended this year's conference as an observer. Organized by the publisher of CBRNe World magazine, the conference convenes representatives of Allied government agencies, academia, and industry to exchange information and insights pertaining to the countering of chemical, biological, radiological, and nuclear and explosive (CBRNe) threats by ways and means of practice, science, and technology.
- **Maritime Forces Pacific (Esquimalt 9 May)** BCD staff and instructors briefed the Committee on Royal Canadian Navy (RCN) BCD policy and doctrine; shipboard BCD organization; equipment; tactics, techniques, and procedures; and training. The Committee toured Damage Control Training Facility GALIANO, where BCD training takes place, and HMCS OTTAWA. We also met with the Commander of CFB Esquimalt.

- **DRDC Suffield Research Centre (SRC) (Suffield 11-13 May)** Meeting with the Centre Director and staff we followed a programme incorporating the following presentations and discussions:
  - an overview presentation and discussion of SRC's role, mission, and tasks; organization; infrastructure; resource allocation; staffing, notable activities and initiatives undertaken over the past year; inter-departmental and international involvements; and other issues of note
  - an overview presentation and discussion of the current BCD research and development programme and associated projects underway at SRC
  - a review of all BCD research and development contracts awarded to outside agencies and presentations on selected contracts by the contractors
  - discussions of their work with members of the Bio-Threat Defence, Chemical Threat Defence, and Casualty Management Sections
  - an update on the oversight of potential dual-use research of concern (DURC)
  - a classified discussion of aspects of the current BCW agent threat having a significant impact on current research and development activity
  - a review and discussion of microbiological, viral, and toxin holdings, including management protocols and procedures
  - inspection of selected microbiological, viral and toxin holdings and laboratory facilities
  - a review and discussion of chemical holdings, including management protocols and procedures
  - inspection of selected chemical holdings
  - an update on the Centre's compliance with the Controlled Drugs and Substances Act and its attendant regulations
  - a review and discussion of transfers from SRC of chemical agents or pathogenic biological materials during the period 1 Oct 21 – 30 April 22
  - a presentation and discussion of the BCD training programme and other activities at the Counter Terrorism Technology Centre
  - a review and discussion of the current safety programme and related issues including:
    - an indication of any additional follow-up action taken in response to the agent exposure occurrence reported to us last October

- a summary of any biological or chemical hazardous occurrences or “near misses” over the past year and the action taken in response to same
- status of the fire protection programme
- status of the respiratory protection programme
- status of the agent worker certification programme
- status of the acetylcholinesterase (AChE) surveillance programme
- status of the Integrated Emergency Response Plan
- status of the Safety and Environmental Management System
- a separate private meeting with the General Safety Officer and each of the Chairs of the Biological and Chemical Safety Committees
- observation of a Biological Threat Defence Section emergency response exercise
- a meeting with the CFB Suffield Medical Officer for the purpose of updating our understanding of the readiness of the Suffield Medical Centre (1 Field Ambulance Detachment Suffield) to respond to chemical or biological warfare agent casualties
- a meeting with the Suffield Research Centre Medical Advisor for the purpose of updating our understanding the medical aspects of the Centre’s health and safety programme
- a review and discussion of the current infrastructure development programme and other notable corporate services issues (to include the renovation of Building 010 and the related response to Canadian Council on Animal Care requirements)
- a review and discussion of the current environmental stewardship programme to include a separate private meeting with the Environmental Officer
- a review and discussion of the discovery and disposal of any legacy munitions suspected to contain chemical or biological warfare agent
- a review and discussion of the current physical and information security programme
- an update on the further development of SRC’s CBRN Risk Management Framework



- a review and discussion of any recent local developments in connection with open recommendations contained in the BCDRC's 2021 Annual Report
- a meeting with the Base Commander
- a debriefing of the Centre Director on preliminary observations and conclusions
- **2 Wing, RCAF (Bagotville 27 May)** Discussions with the Wing Commander and staff afforded us an insight to the RCAF's expeditionary capability and measures aimed at defending deployed air forces against biological and chemical warfare threats.
- **Directorate of Scientific and Technical Intelligence (NDHQ Ottawa 30 May)** The Committee was briefed on the current biological and chemical warfare agent threat assessment.
- **Assistant Deputy Minister (Policy) (NDHQ Ottawa 30 May)** 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 biological and chemical weapons counter-proliferation support and other activities conducted under the auspices of the GAC-led Weapons Threat Reduction Program.
- **Headquarters Canadian Joint Operations Command (Ottawa 30 May)** Force protection staff briefed us on BCD relevant contingency plans and shared their prospective on the state of the CBRN defence enterprise within the CAF.
- **Directorate of Joint CBRN Defence (D JCBRN D) (NDHQ Ottawa 31 May)** The Director of JCBRN D updated the Committee on the role and organization of the Directorate; the status of the BCD equipment procurement projects; calls for R&D proposals; the evolution of policy and doctrine; and Exercise PRECISE RESPONSE – the live-agent training exercise for NATO nations normally held annually at SRC. This year the Director also provided his professional opinion of the overall governance of the CBRN defence enterprise within the CAF.
- **DRDC Centre for Security Science (NDHQ Ottawa 31 May)** The Committee received an update on the status of biological and chemical projects within the CBRNE Security line of effort of the Canadian Safety and Security Program (CSSP) as well as other Centre activities conducted with domestic and international partners.

- **Canadian Forces Health Services Group Headquarters (Ottawa 1 June)** The Committee was briefed by staff of the Operational Medicine Section on BCD-related activities over the past year including clinical training initiatives; R&D; international collaboration; regulatory affairs; and the status of the Strategic Medical Countermeasures Program (SMCP). The Committee's recommendation that consideration be given to the replacement and relocation of the Central Medical Equipment Depot (CMED) was also discussed.
- **Assistant Deputy Minister (Infrastructure & Environment) (ADM IE) (NDHQ Ottawa 1 June)** The Chief of Staff to the ADM (IE) and the project director briefed us on the status of the laboratory modernization project at SRC.
- **DRDC Corporate Office (NDHQ Ottawa 2 June)** The Assistant Deputy Minister Defence Research and Development Canada (ADM (DRDC)) chaired a discussion of current issues with DRDC Corporate Office subject matter experts. Agenda items included an update on the implementation of the Defence and Security Science & Technology (DSST) Program; the CBRN defence and security lines of effort within the programme; corporate, domestic, and international research delivery vehicles; the status of responses to recommendations in the Committee's 2021 Annual Report; and preliminary observations made during the 2022 round of visits.
- **DRDC Environment, Health & Safety (EHS) Council (NDHQ Ottawa 13 June)** The Committee Executive Officer attended the Council's meeting as an observer. The Council meets, as required, to review and prioritize high-level EHS issues within DRDC, inform the ADM of emerging risks, and provide strategic direction and guidance to management action plans.
- **Exercise PRECISE RESPONSE (Suffield Research Centre 27 July)** The Committee observed the conduct of PRECISE RESPONSE, a NATO training activity carried out annually, at SRC's CTTC and aimed at further developing NATO's capacity for the detection, identification, sampling and decontamination of CBRN agents, and interoperability.

## OBSERVATIONS

**General.** Authorities at all the headquarters, units, and agencies we visited welcomed the Committee warmly and extended their complete and proactive cooperation. Presentations were relevant, focused, and detailed, and the discussions that followed were free-flowing and transparent.

**Threat.** The briefings that the Committee received from Canadian Armed Forces Intelligence Command/Directorate of Scientific and Technical Intelligence attested to continued credible biological and chemical warfare threats from both state and non-state

actors, which speak to the importance of reliable intelligence and appropriate defensive preparedness.

### **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).

At the end of our visit to the DRDC Corporate Office on 2 June, the Committee received written certification from the Director-General R&D Science and Engineering, Director-General R&D Program and Acting ADM (DRDC) that the projects in the FY 2022-23 DRDC R&D programme related to BCD, for which they are responsible, are compliant with the provisions of DAOD 8006-0 (CBRN Defence) and DAOD 8006-1 (CBRN Defence Operations, Training and Capability Development and Sustainment).

The Committee asks for and receives information on current R&D projects including those undertaken by DRDC contractors. This information includes detailed project descriptions, resource allocations and progress reports. In our view, all projects are in keeping with the provisions of applicable conventions, defence policy, and the BCD programme.

In accordance with the provisions of the Chemical Weapons Convention, the Organization for the Prohibition of Chemical Weapons (OPCW), from time to time, conducts verification inspections of Canadian chemical defence R&D facilities. The most recent of these, two inspections of the Canadian National Single Small-scale Facility (CNSSSF) at the SRC, were conducted in September and October of 2019. During our 2021 visit to Suffield, we examined the reports of both and determined that the OPCW inspection team raised no issues of concern.

It should be noted that no equivalent verification regime exists with respect to the Biological and Toxin Weapons Convention.

Occasionally, due to historical activities at CFB Suffield, munitions meriting treatment as suspected legacy chemical weapons are found on the restricted-access experimental proving ground (EPG) or in the military training area at Suffield. These munitions are reported to NDHQ and the OPCW and permission is 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, as noted in the BCDRC 2015 Annual Report. There have been no further discoveries since that date of which we are aware.

**Defensive Capability.** During its discussions with DND and CAF officials, the Committee had occasion to receive information and ask questions about capability requirements and procurement plans; R&D 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 BCW threat assessment; 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.

## **Safety & Environment**

### **Safety and Environmental Management System**

The conduct of Canada's BCD programme is subject to the provisions of a broad array of legislation, regulations, policy, standards, orders, directives, and guidance intended to uphold the safety and well-being of defence personnel and the general public, and to protect and preserve the environment.

To manage the execution of its particular responsibilities in this connection, DRDC has formulated a Safety and Environmental Management System (SEMS) in accordance with ISO 45001:2018 (Occupational Health & Safety Management Systems) and ISO 14001:2015 (Environmental Management Systems). Moreover, it has directed the design and implementation of corresponding systems at each of its research centres including Suffield. Accordingly, SRC, in March 2019, established a SEMS that integrated its formerly separate occupational health and safety and environmental management programmes. It is through the lens of the SEMS and informed by the expertise and experience of its members that the BCDRC assesses risks to personnel and public safety and the environment posed by BCD programme activities.

### **High Potency Material Management**

The overriding safety concern of the Committee during its visits to SRC is the appropriate management of high potency and other hazardous materials used in BCD research and development, and in training activities. Such management follows a life-cycle approach, which addresses risks within the stages of initial selection, procurement or synthesis, transportation, handling, storage, use, decontamination, and disposal.

### ***Inspections of Holdings***

The Committee conducted physical inspections of CL2 microbiological and toxin holdings (the CL3 facility being shut down for maintenance). No significant issues were detected, although our discussion with the Centre's bioarchivist indicated that work to update the database of holdings continues. As previously reported, the toxin inventory requires further effort to validate the integrity of current stocks and ensure they align with current and future programme requirements, to integrate the inventory database with that of other biologicals, and to establish ownership by current researchers. These efforts are in progress. A subset of toxins being used in current projects has been verified, aliquoted and catalogued.

Control and accounting procedures for chemical holdings remain satisfactory. The Committee continues to emphasize the importance of consistent compliance with the Centre's policy of recording agent use from "cradle to grave". Efforts to reduce old or

surplus holdings are not without technical and administrative challenges – a state of affairs we will monitor.

Last year, we learned that significant renovations of the CNSSSF are required to comply with fire code requirements and that these were scheduled to occur during the summer of 2022. This would necessitate the transfer of Schedule 1, 2 and 3 chemicals to a temporary storage facility. We inspected this facility during our visit and believe it to be adequate for this purpose. This will be a significant task for the Chemical Threat Defence Section and one that will require OPCW permission. It may also trigger an OPCW inspection. We look forward to learning the results of these activities in 2023.

### *Update of Publications*

Work continues to update the following key publications:

- Standard Operating Procedure for Acquisition, Management, Accounting, and Usage of Risk Group 2 and Risk Group 3 Biomaterials and Toxins at DRDC Suffield
- Bio-security Manual
- Biological Laboratory Operating Manual (to ensure compliance with the provisions of the Human Pathogens and Toxins Act and with new Canadian Biosafety Standards)

### *Agent Worker Certification*

Agent Worker Certification programme documentation has been updated with input from employees and is now subject to a document control regimen. We were told that three employees have been certified at Level 1 of the revised programme. Training was completed in a timelier manner than previous iterations and with better recordkeeping. Employees and trainers are reportedly more comfortable with the certification process. Provision has been made for regular review of the training to ensure that it remains suited to the objectives of the programme. Beyond Level 1, certification is meant to encourage life-long learning with room for specialization at Level 3.

### *Transfers of Material*

There were no transfers of chemical agents or pathogenic biological materials in or out of the Centre during the period 1 October 21 – 30 April 2022.

### *Hazardous Material Disposal*

No hazardous material was exported from SRC in FY 2020/21. The next disposal contract was forecast for execution in the autumn of 2022.

Contracts have been let for the renovation and emission testing of the Centre's hazardous incinerators during FY 2022-23.

## General Safety

### *General Safety Officer*

Responsive to the Centre Director through the Environment, Health & Safety Officer and the Assistant Director Corporate Services Operations, the General Safety Officer (GSO) plays a key role in assuring the health and safety of employees at SRC. The GSO does so *inter alia* by assisting the Centre Director to maintain the following components of a general safety programme:

- a signed safety policy statement
- a safety organization and committee structure with prescribed responsibilities
- an effective local indoctrination and continuing programme of safety, Workplace Hazardous Management Information System (WHMIS), and hazardous material training and safety education
- a system of periodic safety inspections and surveys
- an effective accident investigation and reporting system
- a programme to ensure awareness of, and compliance with, applicable safety directives, standards, and precautions
- a set of procedures to determine requirements for provision of, training on, and controlled use of, protective equipment for personnel

The Committee notes that given that health and safety functional authorities are centralized in the DRDC Corporate Office in Ottawa, the effectiveness of this programme relies on the maintenance of good personal relations between the Centre Director and local Corporate Services staff which, we believe, exist at this time.

### *Hazardous Occurrences*

The GSO reported six hazardous occurrences since our last visit (follow-up action indicated in parentheses):

- discovery of a mercury thermometer in a container for broken glass awaiting disposal (the thermometer was given to the Hazardous Material Officer for proper disposal and mercury awareness training and a count of mercury thermometers were conducted)
- unauthorized removal of an oxygen monitoring sensor in the liquid nitrogen room (the sensor was replaced)
- fluorescent light tubes disposed of in a general waste container by a contractor (CFB Suffield Real Property Operations Office was advised and asked to counsel contractor on proper disposal procedures)

- departure from COVID protection protocols during an off-site training course (employees were reminded of the continued application of protocols)
- ladder and tools left in the Nuclear Magnetic Resonance spectroscopy room by a contractor (items were removed and the contractor counselled on the hazard created by their actions)
- contractor circumvented roof safety protocols on the roof of Building 001 (Defence Construction Canada was asked to counsel contractor and more closely monitor rooftop activity)

The GSO also stated that additional follow-up actions taken in response to the February 2020 chemical spill described in last year's report included:

- installation of plumbed and single-use eyewash stations
- amendment of standard operating procedures with the aim of further mitigating the risk of reoccurrences and the resulting impact of such incidents in future — such amendments include the clarification, reinforcement or addition of rules pertaining to the transportation of samples within Building 001, the required wear of specified personal protective equipment, safe handling techniques, and the obligatory presence of a second person when executing certain procedures

The Committee observes that procedures are subject to the corrosive effect of “human factors”, a phenomenon best countered by persistent vigilance and the regular exercise of emergency response capabilities.

### *Occupational Hygienist Qualification*

Occupational hygiene is “the discipline of anticipating, recognizing, evaluating, and controlling health hazards in the working environment with the objective of protecting worker health and well-being and safeguarding the community at large”.<sup>1</sup>

Similarly, an occupational hygienist (or, in the US, an industrial hygienist) “is a professional who is capable of assessing and controlling physical, chemical, biological or environmental hazards present in the workplace, work environment or public space that could cause injury or illness. An industrial hygienist also can advise on how to minimize or control the worker exposure to harmful conditions and hazardous materials”.<sup>2</sup>

Given their experience of the distinctive presence, nature and complexity of risks and hazards present at SRC, the Centre Director and GSO are of the belief that an occupational

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<sup>1</sup> International Occupational Hygiene Association. “About Us – What is Occupational Hygiene” <https://www.ioha.net/about/occupational-hygiene/>. Accessed 14 December 2022.

<sup>2</sup> Safeopedia. “Industrial Hygienist”. <https://www.safeopedia.com/definition/174/industrial-hygienist/>. Accessed 14 December 2022.

or industrial hygienist registration or certification should be a prerequisite for employment as the General Safety Officer.

The Committee strongly supports this view, not only on the basis of our own understanding of the hazard environment at Suffield, but also in light of the DRDC corporate decision to base its SEMS and the corresponding system at SRC on ISO criteria. Such criteria are demanding, and their sustained fulfillment requires dedicated expertise of the kind possessed by an occupational or industrial hygienist. Indeed the 2019 audit of the SRC SEMS pointed to non-compliance in the realms of risk assessment and procedure documentation. We understand that staff at Suffield, with their current qualifications, are challenged to meet such stipulations.

We note that the impending retirement of the incumbent GSO at the end of March 2023 represents a convenient opportunity to implement this change.

#### *Biological Safety Committee*

Based on our discussions with the GSO and the committee chair, we believe the Biological Safety Committee continues to operate effectively. Vaccines relevant to current work are available to staff while a list of MCM thought to be similarly pertinent has been developed and supplied to local health care providers. Also, in accordance with laboratory licensing requirements, a training needs assessment for staff working in the CL2 and CL3 facilities has been submitted to the Public Health Agency of Canada and the Canadian Food Inspection Agency. Biological Safety Committee review and concurrence has now been incorporated as a step in the “On-line Turbo Approval Process” (OnTAP) applicable to new R&D activity.

#### *Chemical Safety Committee*

As reported in 2021, the Chemical Safety Committee is now operating more effectively. The committee is seized of the following issues:

- updating of chemical safety-related standard operating procedures (SOP) such as those related to the conduct of field trials and the movement of agent from the CNSSSF to other locations within SRC
- standardization of PPE and establishment of appropriate local holdings
- safe handling of high potency material
- fume hood safety
- modelling and safety templating of training scenarios at the Cameron Centre
- conduct of BCD training activities in Building 600 (Counter Terrorism Technology Centre) with a view to verifying training objectives and design, and emergency response procedures during training



- decontamination procedures during an emergency
- decontamination procedures and return policy pertinent to trainees' equipment that has come into contact with live agent
- management of discharges from the wastewater lagoon at the Cameron Centre

### *Biological & Chemical Safety Officers*

A key component of safety culture is the continual monitoring of laboratory protocols aimed at ensuring they are equal to the task of countering existing or emergent hazards. To this end, we encourage the Biological and Chemical Safety Officers, now that pandemic public health measures have been relaxed, to renew their efforts to take part in the routine activities of the laboratories including those in the Casualty Management Section in Building 010 in order to develop good relationships with staff, observe laboratory practices at first-hand, respond to concerns informally, or formally, when necessary, and assess biological and chemical safety culture across SRC. It is crucial that the terms of reference for these positions be modified to formalize this vital aspect of their role and that management ensures that all personnel understand and support this mandate.

We were pleased to hear that SOP standardization guidelines have been published; that version control is in effect, and that a central document registry has been established.

### *Dual-use Research of Concern*

We were told that the OnTAP review process revealed no case of Dual Use Research of Concern (DURC) at SRC. SRC staff remain mindful of the requirement to identify same by means of the application of the mandated Plan for Administrative Oversight for DURC.

We also learned that SRC staff have been actively engaged in national and international forums aimed at expanding and deepening understanding of DURC issues.

### *Risk to Civilian Employees Supporting Live Agent Training*

As reported last year, there is concern over the risk borne and accumulated by civilian personnel involved in live-agent training activities at the Cameron Centre (*e.g.*, safety officers and decontamination team members). Specific issues include:

- should civilians be required to endure the same risks as military members during live-agent training
- the transitory risk faced by military members compared to longer exposures and accumulated risk experienced by civilian staff
- risk threshold definitions, assessment, and monitoring
- modelling and risk assessment of training scenarios including real-time environmental modelling
- differences in military and civilian operating concepts

- matching appropriate PPE to specific hazards and risks
- requirement for the inclusion of periods of rest during training
- health-related decision-making during field exercises
- approaches for collecting and storing data on individual activities over a career

The Head of the Chemical Threat Defence Section and the Chemical Safety Officer are championing the need to address this concern. It is argued that a legislatively and policy compliant, adequately resourced, bespoke integrated health and safety system is required for the benefit of civilians involved in live agent training. We observe that given the distinctiveness of the operating environment at SRC and its inherent risks, it is sometimes difficult for central authorities to understand the reasoning behind such concerns and to respond effectively to them.

### *Fire Protection*

The GSO reported that the last fire protection review assigned SRC a rating of 'Improvement Required'. The review indicated that in some buildings, fire orders and building evacuation plans were missing or outdated; a high percentage of fire warden reports were not being submitted or were incomplete; and that building fire inspection records were incomplete.

### *Respiratory Protection*

In 2021, we observed that as required by law, SRC had started work to implement a respiratory protection programme applicable to employees required to wear supplied air breathing systems or filtering respirators during the performance of their duties. Components of this programme include:

- programme administration roles and responsibilities
- occupational and workplace risk assessments and inspections to determine what devices are required to be worn and by whom
- initial and periodic occupational health assessments from Health Canada to gauge the fitness of employees to wear a stipulated device
- user training
- mask fit testing
- provisions for procurement, cleaning, inspection, maintenance, and storage of respirators
- appropriate record keeping

At the time of our visit, risk assessments of laboratories by a registered industrial hygienist on loan from CFB Wainwright were nearing completion while arrangements were being

pursued for a contractor to assess other Centre facilities and for Health Canada to conduct health assessments. We will ask for an update on programme implementation in 2023.

## Occupational Health

### *Acetylcholinesterase Monitoring*

The AChE monitoring programme for chemical agent workers mentioned in previous reports is now at steady state with an evolved policy, demonstrated test capability, and a good set of baseline data. We understand that manufacture of the current monitoring instrument has been discontinued. A search has commenced for an alternative device for future use.

### *Medical Advisor*

Essential to the operation of an occupational health programme at SRC is access to a licensed physician who, in addition to advising the Centre Director on medical and occupational health matters, is in a position to fulfill the requirements of provincial and federal public health authorities for the authorization and procurement of such components of the programme as specialized vaccines, medical countermeasures appropriate to ongoing research and instruments such as that used for AChE monitoring.

At present, the SRC Medical Advisor is a contracted physician with excellent knowledge and experience of the medical aspects of biological and chemical warfare agents. He is also a contracted physician with the CFB Suffield medical section.

The Medical Advisor contract will expire at the end of March 2023. SRC is exploring options for the sustainment of this critical function. This effort merits the support and facilitation of all relevant authorities.

## Environmental Protection

### *Incorporation of Environmental Considerations in OnTAP*

Environmental considerations are now incorporated in the On-line Turbo Approval Process (OnTAP) for the approval and renewal of R&D field trials and other activities with eight such reviews having been conducted since our last visit in November 2021.

### *Environmental Impact Statements*

An environmental impact assessment is being conducted on the demolition of a 300-foot communications tower which Ferruginous Hawks have been known to use as a nesting platform.

### *Species at Risk*

SRC produces an annual work plan in conjunction with CFB Suffield aimed at mitigating the impact of Centre operations on Species at Risk (SAR) notwithstanding the local applicability of exceptions under Section 83 of the Species at Risk Act regarding Burrowing Owls and Ferruginous Hawks.

The Western Tiger Salamander is a current SAR concern. A population of these was relocated from an underwater explosive test pond in 2020. Informal surveys of the test pond and the relocation area in 2021 resulted in zero observations. Consideration is now being given to the contracting of a formal survey to include water sampling for environmental DNA analysis to assess further the continued presence of this species in either location.

### *Contaminated Sites Management*

DND policy with respect to contaminated sites located on SRC's Experimental Proving Ground is that they be fenced and signed. Since 2020, twenty-three registered and suspected sites have been reviewed for required repairs to fences and signs and necessary work completed.

A plan for construction of three new fence lines has been submitted to the Base Commander for approval.

Phytoremediation is being successfully used at sites where derelict vehicles and other scrap metal have been removed from the EPG.

### *Spill Response*

No hazardous spills were reported to the Environmental Officer since our last visit.

The landfarm for the treatment of hydrocarbon- and coolant-impacted soil has been closed.

With the assistance of CFB Suffield, spill response training is being provided to SRC employees, as are the Hazardous Material Coordinator course and the Environmental Site Assessment course.

### *Emergency Preparedness & Response*

#### *Integrated Emergency Response Plan (IERP)*

The current approved plan is dated 2012 and does not reflect current requirements and capabilities. An updated plan is due for release this year.

#### *Emergency Response Exercise – Biological Threat Defence Section*

Exercises are vital to the validation of the IERP and to maintain the effectiveness and efficiency of response. During this year's visit, we were briefed on an exercise that occurred in the Biological Threat Defence Section's CL3 facility on 7 March 2022 and we observed an exercise involving a toxin spill in the Section's CL2 laboratory.

The scope of the exercise involved the immediate response by those present in the laboratory, emergency notification (up to and including the DRDC Corporate Office), mobilization of the Section's emergency response team, decontamination of the casualty, arrival of fire department paramedics and casualty evacuation. A "hot wash-up" session was conducted with all participants after the exercise was ended during which lessons

were identified and discussed freely and professionally. Regular exercises such as this are an invaluable tool for use in upholding a strong safety culture.

### *Emergency Medical Support*

Given the nature of the R&D undertaken at SRC, not only the occupational health but also the potential emergency medical support needs of the Centre are specialized and complex. For several years, we have, in our reports, underlined the essential importance of maintaining an emergency medical response capability at Suffield tailored to its distinctive needs. During past annual visits, we have observed problematic aspects of the Centre's situation in this regard and, notwithstanding the diligent efforts of authorities to overcome associated challenges, have noticed a tendency for issues to re-emerge due to changed circumstances, the *ad hoc* or temporary nature of solutions to problems, or, more fundamentally, the lack of a shared and accepted understanding of requirements, roles and responsibilities by both the providers and recipients of support services.

These observations led to the inclusion in the Committee's 2016 report of the recommendation that an appropriate high-level authority, with the participation of relevant stakeholders, conduct a comprehensive assessment of occupational health and emergency medical support needs, including verification that these needs are being met. The objective of this undertaking would be to ensure the long-term adequacy and stability of these essential supports to the work of SRC. We further suggested this same authority should take the lead in designing and implementing cooperative, long-term solutions to any gaps so identified.

While this recommendation *per se* has not been acted upon, we were pleased, during this year's visit to hear the SRC Director, the Base Commander, and CAF medical authorities agree on the need for, and express their intention to put in place, a service level agreement (SLA) covering provision of emergency medical support to SRC. As such, we will close our 2016 recommendation in favour of a new recommendation urging the rapid negotiation and implementation of the intended SLA.

## Infrastructure

### *Laboratory Modernization*

The Committee has long recommended the acceleration of the project to modernize the biological and chemical research laboratories at SRC (Project No. C.000068). The Independent Review Panel for Defence Acquisition has also emphasized the urgency of moving this project forward. We were therefore pleased this year to be invited by DND's ADM (IE) to discuss this project during our June visit to NDHQ. During this meeting, hosted by the Chief of Staff to the ADM, we were fully briefed on the aim and scope of the project, which will not only replace outdated laboratories, but also consolidate and reduce in size SRC's overall infrastructure footprint and contribute to DND's effort to lead on

implementation of the federal “Greening Government Strategy”<sup>3</sup>. Key project drivers are safety, security, flexibility, and information management. Cost is estimated at \$450 - \$600 million. We were shown a functional space allocation diagram which indicates input from SRC staff and an understanding of the distinctive needs of the BCD R&D programme. The project schedule estimates that project development and definition activities (including completion of design) will continue until June 2026 when a submission will be made seeking approval for project implementation with a response to same expected by March 2027. As such, the project remains at risk until then. Should approval be forthcoming, the new facilities are planned to achieve initial operating capability (IOC) by December 2032 and be fully operational and certified by December 2034. We will continue to closely follow and report on the progress of this project.

### *Other Projects*

SRC’s Casualty Management Section is housed in Building 010 - a structure separate and at a distance from Building 001. While the Section will be housed in the new laboratory complex as an interim measure, significant renovations to the building have been launched to address instances of non-compliance with Canadian Council on Animal Care (CCAC) standards; in particular, the requirement for separation of laboratories and offices from the vivarium and the separation of species therein. The vivarium will also see additional improvements including individually ventilated cages with in and out HEPA filters, separate and redundant ventilation systems for rodent animal handling rooms (AHR), night lighting for rodent AHR, and ‘Arcoplast’ washable ceilings for rodent AHR. During a recent site visit CCAC representatives pronounced themselves pleased with the work done so far. Quarterly progress reports will continue to be submitted to the CCAC until renovations are complete, at which time the Council is expected to lift the facility’s probationary status.

A proposed new Neurobehavioural Facility (Project C.000065) is currently in design. Should project implementation be approved, the facility is expected to achieve IOC sometime in 2025.

Dependable, high quality radio communications linking users of the Experimental Proving Ground with Suffield range control and emergency first responders are critically important to the maintenance of safety and security. The existing system is showing its age and so we were pleased to hear of planned upgrades to the communications backbone, and that SRC has transitioned to a digital system for its internal use.

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<sup>3</sup> Government of Canada. Greening Government Strategy: A Government of Canada Directive. <https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html>. Accessed 24 December 2022.

### *Maintenance & Repair*

Since completion of the new laboratory complex is at least ten years away, a proactive maintenance and repair programme for Building 001 is vitally important. We were therefore pleased to be told that the working relationship between CFB Suffield, SRC and the local Real Property Operations office is much improved, with the latter having developed a better understanding of the specialized functions and requirements of SRC. That said, the first line of defence against breakdowns is SRC's integral facilities engineering team and as such, we urge that it be organized and staffed appropriately.

Based on recent experience, power supply (including back-up power essential to the uninterrupted operation of refrigerators wherein biological material is held) and toxic exhaust systems (fume hoods) merit especially close attention.

We are also concerned by the age of Building 001's CL3 bio-containment laboratory and the growing challenge this will pose to maintenance of the facility's non-absorbent surfaces, filters, seals, over-pressure system, and autoclave, amongst other components. Scheduled annual maintenance shutdowns, formerly a month in duration, are now three months or more long, due to an increase in the amount of work required and the difficulty of coordinating contractors. A continuation of this trend, or a single breakdown beyond economical repair, could result in serious impairment or even cessation of biological threat defence research at SRC prior to the completion of the new laboratory. Such developments would jeopardize Canada's ability to meet its domestic responsibilities and international commitments. We understand that a contingency plan is being developed to offset the impact of this risk, should it materialize. We will ask for an explanation of the plan during our next visit.

### *Security*

As does fit-for-purpose infrastructure, effective physical and information security programmes contribute importantly to the safety of activities at SRC.

Improving the Centre's capability and capacity for secure computing and communications remains a priority objective given its "reach-back" support role, and the "new normal" of less travel and more on-line meetings. Accordingly, work has started on a secure VTC facility with completion to occur not later than the end of 2024. This will obviate the current need to drive to Edmonton in order to access this capability.

Other security projects include an update of the fire alarm system in Building 001 and implementation of a text message-based mass notification system for employees.

### *Risk Management Framework*

As illustrated above, the risks of harm to the workforce and environment at SRC or of damage or loss to other resources dedicated to its programme of work are multitudinous and often highly potent. Equally, centrally mandated safety and loss prevention

programmes are plentiful and constantly demanding of attention. The challenge confronting leaders in effectively tracking risks and ensuring the full implementation of all stipulated mitigation measures, including ascertaining their performance, is a formidable one with the demands of these functions often stretching or exceeding their capacity to respond. In 2016, ADM (S&T) (as the position was titled at the time) released a draft CBRN Material Risk Management Framework the purpose of which was to identify key risks as well as risk and performance indicators relevant to the management of these risks. This framework struck us as being comprehensive yet straightforward and reasonably simple to apply and as such, of considerable practical value. Since that time, we have encouraged its adoption by SRC and adaptation to the management of risks beyond those purely associated with CBRN material. During our November 2021 visit, we were shown a draft framework which although representing a promising start, remains incomplete due, we understand, to a shortage of personnel to do the work. This said, we note that during the same period, SRC has been required to implement the Safety and Environmental Management System (SEMS).

Discussions with the Centre Director and other managers this year gave us the impression they feel overwhelmed by the quantity of risk management direction and guidance they receive - much of it they believe to be tangential to the reality of circumstances at Suffield. As stated earlier in this report, the Committee believes that the presence of a professional Occupational Hygienist would be of great assistance to management in coping with this situation by virtue of their specialist skill and knowledge. Health, safety, and environmental protection activities could be customized and prioritized on the basis of analysed local need and furthermore, focussed on pragmatic execution and practical results rather than being what might be termed, “exercises in paperwork”. SRC’s commendable actions, in recent years, to mitigate the risks of dual-use research of concern (DURC) offer an example of this approach.

We intend to delve further into the matter of risk management during our next round of visits.

### **Other Observations**

The following observations pertain to the professional conduct of Canada’s BCD programme. The Committee defines “professional conduct”, in this context, as the effective, efficient, and economical application of requisite expertise and resources to defence of the CAF against biological and chemical warfare agents be it with respect to capability, capacity, or readiness.

#### **SRC/CFB Suffield**

##### *Base Relations*

Productive relations between SRC and CFB Suffield authorities are essential to the success of their respective missions. As in recent years, our meetings with the Base Commander,



the Centre Director, the Corporate Services Manager and other SRC staff have been denoted by a common refrain, that being that relations are good and growing stronger with a focus on common goals and mutually beneficial outcomes.

The recently signed service level agreement (SLA) between the base and SRC should help regulate and sustain this relationship.

This SLA, however, does not include health services and so we were pleased to observe, as noted earlier in this report, that it is intended to negotiate a separate SLA between the relevant parties for the provision of emergency medical services to SRC. Negotiation and implementation of this agreement should be completed as soon as possible.

### *Support to Readiness*

We have always been impressed by the live-agent training that occurs at the Cameron Centre in support of the readiness of the national CBRNE team; elements of the CAF; NATO partners; other friendly nations; and in the past, Canadian domestic first responders. Our observation of this year's iteration of NATO-sponsored Exercise PRECISE RESPONSE again pointed to a safe, well-run exercise designed to practice small, multinational CBRN defence task forces in tactical command and control, point reconnaissance, and sampling and identification of biological, chemical, and radiological agents as well as decontamination of personnel and equipment, and extraction and medical treatment of casualties in counterterrorism or counterinsurgency scenarios. The nature of this exercise constitutes a unique and highly valued Canadian contribution to NATO's CBRN defence capability. It also provides a venue for the operationalization of research and development efforts at SRC allowing as it does the exchange of insights between military exercise participants, and Centre scientists and technologists who deliver instruction in the basics of biological and chemical warfare agents and also serve as safety officers.

We were pleased this year to observe the participation of a decontamination team drawn from 2 Service Battalion and other units of the Canadian Army's 2 Canadian Mechanized Brigade Group based at Petawawa, Ontario. Speaking with the battalion's commanding officer, we learned that while he greatly valued this training opportunity, its timing did not optimally mesh with that of other training activities required to bring the battalion to its required state of high readiness in accordance with the Army's managed readiness programme.

Representatives of the allied nations present at PRECISE RESPONSE with whom we spoke were also strong in their praise of the exercise. While largely content with the current exercise design and its counterterrorist/counter-insurgent scenario, at least one representative suggested that in light of the war in Ukraine, it may be time to consider how live agent training might be adapted to conventional warfare scenarios.

A formal presentation from DRDC to national representatives on visitors' day explained a new "Exercise Science & Technology Initiative" intended to derive benefits to capability development by way of the formal integration of scientifically rigorous research, development and testing methods with selected exercise objectives and activities in a multinational setting. Areas for the application of such methods could potentially include testing of, or experimentation with, newly acquired equipment; standardization of decontamination and sampling procedures based on the comparison of existing national best practices; human performance; and interoperability. This is not meant to be a Canadian effort only but would invite participation, including in lead roles, from other NATO or partner nation science and technology establishments. The initiative would also lend itself to the quantification of the impact and value of PRECISE RESPONSE from the perspective of science and technology research and development, readiness of existing capability, and NATO interoperability and preparedness. We understand that this initiative will deliberately inform the conduct of PRECISE RESPONSE 23. We look forward to returning to Suffield to observe the results.

Beyond observing PRECISE RESPONSE, we appreciated the presentations we received on other aspects of SRC's support to readiness including an expeditionary analytical capability specialist training course provided to members of CJIRU aimed at enhancing their ability to sample and identify biological matter in austere settings.

We continue to hear anecdotal evidence of interest from the civilian first responder community in the restoration of the former federal First Responder Training Programme, which offered instruction in the emergency management of chemical, biological and radiological material, including elements of live agent training, to police, fire and paramedic agencies.

As valued as SRC's support to readiness seems to be, there is, as we have previously reported, tension between the delivery of training and the conduct of the science and technology research and development programme.

Training requires funding and the presence of scientists and technologists to act as instructors and safety officers. While some earmarked funds are provided, they are insufficient to meet the demands of scheduled training with the result that funds are diverted from R&D activities to alleviate the shortfall, or training is simply cancelled. When scientific staff are away from their laboratory benches, research suffers.

We were told that a training board formed in 2019 to regulate CBRND training supply and demand has recently met after a long hiatus.

The Centre Director, for his part, explained his proposal to embed six to eight appropriately trained personnel in the Chemical Threat Defence, Biological Threat Defence and Casualty Management Sections who could be withdrawn as required to support training without negatively impacting the work of their section. While

implementation would take time, he believes this would constitute a durable solution to this aspect of the tension between training and research.

These are encouraging developments which we will follow closely.

That said, given the chronic nature of the concerns we have heard in recent years, we believe that a more fundamental and higher-level approach is warranted. We therefore recommend that the role of the Suffield Research Centre in supporting the readiness of the CAF and allied entities should be verified and if confirmed, the Centre should be appropriately organized and adequately resourced to do so without impinging on its research and development function.

### *Staffing*

In our 2019 Report, the Committee observed that maintenance of the required level of knowledge, skill, and experience amongst the research and support staff at the SRC is a formidable task. Unfilled establishment positions, together with the Centre's aging infrastructure, constitute the leading risks to the execution of the Centre's mission.

During our 2021 visit, we were satisfied to note that our concern over succession planning was being addressed, that useful adjustments had been made to the Centre's organization, and that efforts to recruit new staff were beginning to pay off.

We were, therefore, surprised this year to learn that a centrally directed "freeze" on hiring to fill vacant positions had been imposed on SRC for reasons that were not well understood at the Centre and as such was having a dispiriting effect on staff. Raising this issue during our subsequent visit to the DRDC Corporate Office, we were informed that senior management was aware of SRC's concern and that action to address it was in hand.

We will verify the situation during our next visit. It is fair to say, however, that given its geographic location, staffing of positions at SRC will always merit close attention.

On a positive note, we were pleased to meet the Centre's new veterinarian who had been hired prior to the freeze.

### *Procurement*

We also heard that problems with the timely procurement of laboratory supplies and other goods and services were severely hampering scientific and training productivity and that as a consequence employee morale was also suffering due to frustration over their critical work being slowed or halted. Moreover, funds provided to SRC to undertake work on behalf of the Canadian Forces Health Services Group and others were "lost" when spending authority lapsed at the end of the fiscal year before they could be spent on their intended purpose.

The Centre Director explained that of all DRDC research centres, Suffield had the largest number of small procurements and that for this reason, and due also to the fact that currently two of three procurement staff positions are vacant, the procurement cell is

overwhelmed by demand. He also pointed to restrictions on the use of corporate credit or procurement cards.

As a means of improving the situation, he described his intention to assign priorities for procurement and to consolidate orders of specific supplies to reduce the number of individual requisitions. He also mentioned that SRC's former Associate Director for Corporate Services had been posted to the DRDC Corporate Office staff with the task of improving the procurement function within DRDC.

### *Morale*

Many we spoke with at SRC expressed concern over what they perceived as a generalized decline in employee morale or mental health due to an accumulation of stress and frustration arising from a list of issues including:

- the number and persistence of vacancies in the approved organization of the Centre resulting in actual or perceived overwork or organizational ineffectiveness
- an impaired goods and services procurement process, which has the effect of denying or delaying the provision of the tools needed to do the job
- centralization of certain bureaucratic authorities (*e.g.*, travel approval) resulting in a sub-optimal allocation of the time required to elicit decisions or act
- distractions from the job at hand
- the lingering effects of the COVID pandemic including public health measures and the challenges associated with hybrid work environments

The deliberations of the DRDC Environment, Health and Safety Council indicated that these issues, or variations thereof, are present in other parts of DRDC and that they are acknowledged by senior management. During our visits to SRC, we are invariably struck by the dedication of staff to the achievement of the Centre's mission and their pride in what they do. Depression of morale or mental health is not due, in our view, to disillusionment or intractable systemic issues, but rather from a frustrated desire to do one's job to the best of one's ability unimpeded by a lack of tools or other distractions. We believe that alleviation of the staffing and procurement situations accompanied by a demonstrated policy of enabling people to focus on their primary duties would substantially address this concern.

### *Centre for Security Science*

The Canadian Safety and Security Program (CSSP) traces its origins to the aftermath of the September 2001 terrorist attacks. The programme, co-managed by the CSS and Public Safety Canada, not only remains relevant, but it also compellingly demonstrates the leverage to be gained from modest expenditures when these are coordinated with other

agencies and allied nations in pursuit of common interests across public safety, national security and even defence domain boundaries.

We received an overview of the public safety and national security roles of the CSS followed by a detailed explanation of the Centre's contribution to capability-based planning and inter-agency incident response exercises by way of highly realistic scenario development.

We were also given a copy of an excellent infographic for First Responders produced by CSS to convey key information with respect to responding to an incident involving organophosphorus nerve agents. This infographic draws from the safety advisory and guidance paper on this subject written by DRDC scientists last year.

### DRDC Corporate Office

#### *Defence and Security Science & Technology Programme*

We were told that the transition to the new Defence and Security Science & Technology Programme (DSST) launched in 2020 continues to go well. CBRN Defence is a Line of Effort within the Program's so-called "People" Strategic Focus Area (SFA). There is also CBRN-related activity in the "Domestic Security" SFA aimed at enabling safety and security and led by the CSS (as described above).

The objective of R&D on the CBRN Defence Line of Effort is to enable the CAF to conduct operations, with agility and effectiveness, in any domestic, continental, or international environment where there is a risk or threat of the use or release of CBRN material, with a focus on new and emerging threats including pharmaceutical-based agents.

The scope of such R&D comprises:

- provision of critical evidence-based information on CBRN threats/hazards to enable planning and development of policy, doctrine, and tactics
- delivery of enabling, integrated technologies that provide rapid detection, identification, and monitoring of CBRN threats/hazards
- development of protection technologies that minimize the harm to personnel, equipment, and infrastructure from exposure to CBRN material
- provision of specialized CBRN training and reach-back capability as needed to support CAF operations
- provision of science and technology to mitigate and reduce the immediate and long-term health effects of exposure to these hazards

Specific investments are, or will be made, in the following areas:

- risk analyses on CBRN threats/hazards and capability gap assessments
- threat characterization

- support to acquisition to fill any immediate capability gaps for CBRN detection
- novel technologies for rapid detection, identification, and monitoring of CBRN threats/hazards
- development of innovative materials, systems, and prototypes for next generation combat uniforms
- development of technologies for decontamination and hazard management
- individual and collective CBRN training including live-agent and live-tissue
- support to operations, including reach-back expertise
- MCM against biological threats (broad spectrum)
- MCM against chemical threats
- diagnostic technologies
- novel platforms for MCM development

DRDC delivers CBRN research via the following vehicles:

- DRDC Research Centres at Suffield and Valcartier, and the DRDC Centre for Security Science for joint public safety and security requirements
- national innovation programmes including the Innovation for Defence Excellence and Security Program (IDEaS) and Innovation Solutions Canada (ISC)
- Public Health Agency of Canada National Microbiology Laboratory in the case of animal efficacy studies for counter-COVID MCM
- National Research Council in the case of novel chemical and biological agent sensor work
- SLAs/MOUs with other Government departments, industry, and academia

The CBR MOU between Australia, Canada, the United States and the United Kingdom remains DRDC's primary mechanism for chemical and biological defence strategic alignment and collaboration with Allies. Working groups in the threat and hazard assessment (Assess), decision-making support (Inform), and physical protection, decontamination and medical countermeasures (Protect) domains identify research and development tasks and coordinate their execution by the member nations. An additional working group, with the inclusion of Sweden, has been recently formed to address the threat posed by pharmaceutical-based agents.

Tri-lateral MOUs exist, or are planned, with Sweden and the Netherlands for research into aspects of biological and chemical hazard assessment, safer handling of highly toxic compounds, and the medical management of chemical casualties.

Canada is also cooperating with the UK and the Netherlands on the development of a new nerve agent countermeasure.

We learned that funding for DRDC CBRN programme increased from \$4.056 million in FY 2021-22 to \$7.066 million in FY 2022-23 – an increase of 72%.

#### *Discussion With ADM (DRDC) and Staff*

We were pleased to meet the newly appointed ADM (DRDC), Dr. Jaspinder Komal, and to have the opportunity to share with him and senior members of his staff our observations from our visits to SRC and the CSS. We met Dr. Komal again during his hosting of the VIP visitor's day of Exercise PRECISE RESPONSE. Our observations were well-received, as always, and led to mutually beneficial discussions supportive of the Committee's mandate and DRDC's mission.

#### *Canadian Forces Intelligence Command, ADM (Policy) and Global Affairs Canada*

Transparency and frankness once again denoted our talks with intelligence and policy staff at NDHQ and with personnel from GAC. They provided briefings not only on the threat landscape and the status of the BTWC and CWC, but also, the Weapons Threat Reduction Programme (WTRP). The WTRP encapsulates Canadian activities undertaken in support of our country's membership in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

#### *Threat & Threat Analysis Capability*

As stated earlier in this report, the briefings we received from the intelligence staff attested to continued credible BCW agent threats from both state and non-state actors, which necessitate appropriate defensive preparedness. We were informed that the monitoring and ongoing assessment of the threat landscape relies upon the expertise of an exceedingly small number of experts whose ranks have been further reduced recently due to retirement. During our visits to the DRDC Corporate Office, we have heard expressed the desire for more CBRN intelligence input to the formulation of the R&D program and that the ability to infer adversarial intent deserves more attention. Moreover, as the international norms around the prohibited use of biological and chemical weapons continue to come under erosive pressure from malign actors, the specialized threat analysis capability of CFINTCOM seems to us to be increasingly important. Given the key role of intelligence in steering research and development, resources dedicated to the analysis of the biological and chemical threat facing the CAF should be reviewed to ensure their sufficiency.

#### *Biological and Toxins Weapons Convention*

As a State Party to the BTWC, Canada is obliged to:

- neither develop, possess, nor acquire biological weapons (BW) nor facilitate their production by another

- put in place national implementation legislation, extending the BW prohibition to citizens
- provide assistance if another State is attacked with a BW
- provide fullest possible exchange in the life sciences

GAC officials told us that the following issues continue to limit the effectiveness of the BTWC or otherwise give rise to concern:

- lack of universality of adherence – 14 states remain outside the Convention and not all States Parties have effectively implemented it
- lack of the institutional infrastructure and verification regime possessed by the CWC – instead, it essentially relies on good-faith adherence by States. (A three-person Implementation Support Unit serves as treaty secretariat and “declaration” of confidence building measures (CBM) by States improves transparency by sharing information on CL4 laboratories, biological defence research programs, disease outbreaks that deviate from normal patterns, scientific publications of relevance, a declaration of past offensive programs post-1946, and vaccine production capacity. Canada regularly submits CBMs and makes them available to the public.)
- financial viability – lack of a working capital fund
- biological research intended for peaceful purposes could be misused or exploited to develop or to produce biological weapons – so-called dual use research of concern or DURC. It is also becoming difficult to prevent biological weapons proliferation without impeding research in the life sciences. Canada now funds a position in the World Health Organization dedicated to this issue.

Canada’s policy is to continue to look for ways to support the financial, technical, and operational well-being and effectiveness of the Convention.

### *Chemical Weapons Convention*

The CWC is a global disarmament treaty which bans development, production, acquisition, stockpiling, retention, transfer, and use of Chemical Weapons (CW). It has provisions for declarations and inspections of CW production facilities, and oversees the destruction of CW and CW production facilities.

The Organisation for the Prohibition of Chemical Weapons (OPCW) administers the Convention and operates a comprehensive verification scheme which incorporates declarations of compliance; on-site inspections of permitted facilities that produce, process, or consume, import, or export certain listed chemicals; and investigations of allegations of use of CW. The OPCW records that 98% of all States Parties’ declared CW has been destroyed.



We heard that the OPCW is following the war in Ukraine closely, having received diplomatic notes advising that the other side is preparing to use chemical weapons. We were also told that Russian disinformation around this topic is prevalent.

### *Weapons Threat Reduction Program*

We remain impressed by the WTRP and the extent of its projects and activities undertaken in conjunction with partner countries, international organizations, NGOs, and other government departments aimed at mitigating threats posed by CBRN weapons and related materials. (The wider international collaboration is known as the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP)). Key activities are prevention, detection, and response to weapons of mass destruction threats; securing or destroying dangerous CBRN materials; improvement of security at facilities; strengthening of global networks; and building partner capacity to meet international obligations. It has delivered more than \$1.6 billion in programming since 2002 and is currently funded at \$73.4 million annually.

With respect to BW, the WTRP pursues collaboration between the security and health sectors at the “health-security” interface where respective interests and responsibilities coincide *i.e.*, strengthened public health capability to respond to natural outbreaks equals strengthened preparedness for deliberate outbreaks. Its portfolio includes securing and accounting for biological pathogens; prevention of the deliberate misuse of pathogens; enhancement of regional surveillance networks; reinforcement of biological non-proliferation instruments; and the promotion of responsible conduct in biological sciences. The WTRP’s priority effort is leadership of the GP’s signature initiative to mitigate biological threats in Africa. It has also been active in global COVID response via the funding of biological laboratories in Ghana, Nigeria, Jordan, South Africa, and the Caribbean; and the provision of over 13 million respirator masks to Africa and Southeast Asia.

Regarding CW, the WTRP’s portfolio includes assisting States Parties to the Chemical Warfare Convention to implement their obligations; addressing emerging threats posed by chemical weapons; and supporting chemical weapons destruction activities. Recent projects and activities have included the mapping of Syria’s chemical weapons complex; and strengthening of the OPCW’s capabilities by means of a \$10 million contribution to the construction of a new Centre for Chemistry and Technology in the Netherlands.

Regarding the war in Ukraine, we were told that:

- Canada proposed and played a key role in drafting the GP Statement on Ukraine (29 March 2022) which:
  - expressed outrage at the evocation of the threat of use of weapons of mass destruction and that military action is creating serious CBRN risks for the population and the environment, with the potential for catastrophic results

- voiced dismay that the threat reduction activities by the Global Partnership in and with Ukraine, which have been undertaken in full transparency and openness, have become the object of fabricated claims and false allegations, and categorically denounced this malicious and completely unfounded disinformation campaign.
  - deplored Russia’s reckless military attacks at and in the direct vicinity of civil nuclear, biological, and chemical facilities in Ukraine and condemned any acts compromising the safety of these facilities devoted to peaceful purposes
  - reaffirmed full support to fellow GP member Ukraine and stated determination to continue to assist Ukraine in all possible ways to counter CBRN risks caused by this war
- WTRP and DND collaborated on acquisition/delivery of \$18 million in non-lethal military assistance to Ukraine including CBRN respirators and replacement filters, ballistic helmets, body armour, dosimeters, and satellite phones
  - Canada and Germany are leading GP efforts to coordinate additional CBRN-related assistance
  - WTRP is exploring ways to counter Russian disinformation about biological and chemical weapons

### Canadian Joint Operations Command Headquarters

The Canadian Joint Operations Command (CJOC) is responsible for most CAF operations in Canada and abroad. It directs missions from initial planning to closure. It also helps ensure rapid response to emerging requirements by planning for contingencies and maintaining structures and processes with respect to command and control, intelligence, and operational support.

Force protection staff from the headquarters briefed us on the status of contingency plans relevant to BCD and shared their perspective on the state of the CBRN defence enterprise within the CAF.

### *Contingency Operation Plan RUBICON*

RUBICON refers to the contingency plan for the CAF’s response to domestic CBRN incidents. In 2017, an officer from CJOC headquarters explained to us in detail the factors that were considered in the development of this plan. This year, we heard expressed the staff opinion that RUBICON has “withered” and, as such, needs a detailed review to verify the assumptions upon which it is based, including the expectations of civil authorities (federal, provincial, and municipal) and the comparative capability, capacity, and readiness of the CAF and of civil agencies (first responders and others) to respond. Provisions for specialized support from U.S. sources in accordance with the U.S. – Canada Civil Assistance Plan should also be confirmed. As indicated by the results of this

examination, appropriate revision of the plan should follow. At present, we understand that there is no direction or intent to undertake such a review. That said, the Committee believes that an update of this key contingency plan is warranted.

### *State of the CBRN Defence Enterprise*

We heard that the war in Ukraine, specifically Russian threats to employ weapons of mass destruction and the consequent need to meet the CBRN defence needs of Canadian forces deployed on Operation REASSURANCE (as part of NATO's deterrence and assurance measures in central and eastern Europe), has drawn the attention of force protection staff to the state of the CBRN defence "enterprise" within the CAF.

Staff are of the strong opinion that a strategic level vision of required CBRN defence capability, capacity, and readiness on the part of the CAF as a whole, but especially amongst the conventional forces, is lacking. This applies to both potential domestic and continental, as well as expeditionary operations. Also missing, it was suggested, is a definition of the CBRN defence enterprise and clarity around high-level responsibility, authority, and accountability for implementation of the vision and governance of the enterprise. It was also observed that there is seemingly no designated point of contact for CBRN defence matters within the Strategic Joint Staff – that element of NDHQ responsible for the provision of military analysis and advice to the Chief of the Defence Staff (CDS) within the realms of operations, plans, support, and strategic initiatives.

### D JCBRN D

D JCBRN D is nested within the Canadian Army staff at NDHQ. Its stated mission is to enable the CAF to conduct operations in a CBRN threat environment through the provision of expert advice, operational capability development, doctrine, policy, and the coordination of training requirements. As in the past, this year's visit provided us an update of activities and issues across the complete spectrum of this mission. This said, the focus of discussion, as at CJOC HQ, was on the state of the CBRN defence enterprise in the CAF with the concerns voiced by the CJOC force protection staff echoed and amplified by the Director JCBRN D.

Direction and guidance for the conduct of CBRN defence by DND and the CAF are contained in two keystone documents (last updated in 2019):

- Defence Administrative Orders & Directives 8006-0 Chemical, Biological, Radiological & Nuclear Defence
- Defence Administrative Orders & Directives 8006-1 Chemical, Biological, Radiological & Nuclear Defence Operations, Training and Capability Development and Sustainment

Notwithstanding the reasonable thoroughness and clarity of this direction and guidance, we heard the view that the CBRN defence enterprise has been performing activities across

the force governance functions (force development, force generation, force employment, force sustainment, and force management) in an *ad hoc* manner without a coherent purpose or desired end-state. The force management function, responsible for the orchestration of the other functions in accordance with strategic-level direction and guidance, is impaired. Consequently, the enterprise has been allowed to erode, resulting in a widening capability gap that threatens the CAF's ability to operate in a CBRN threat environment.

Aggravating factors are said to include:

- CBRN defence is a low priority
- lack of CBRN defence expertise at operational and strategic levels
- key stakeholders are not being held accountable for their DAOD-stipulated CBRN defence responsibilities
- some responsibilities and authorities are misaligned with current CAF organization
- commanders are not adequately identifying capability deficiencies nor defining requirements resulting in poor investment decisions
- little or no collective CBRN defence training is occurring resulting in widespread skill fade
- since the disbandment of the Nuclear, Biological and Chemical (NBC) Defence Company in favour of investment in the Special Operating Forces' CJIRU CBRN, the conventional forces have lacked a CBRN defence general support capability

To rectify this situation, D JCBRN D is advocating the launch of a CBRN Defence Enterprise Renewal Initiative led by the Strategic Joint Staff that, *inter alia*, would review and update the CBRN defence DAODs; define the enterprise; ensure the correct definition and alignment of responsibilities, authorities, and accountabilities; and then, most importantly, hold authorities accountable for the discharge of their responsibilities. In so doing, it is further advised that close account be taken of the ongoing NATO CBRN policy review in which ADM (Policy) and GAC are participating.

Noting that the CJOC HQ staff independently expressed a similar need, we are inclined to support this proposal.

## CFHS Group HQ

### *Auto-injectors*

Inspection of auto-injector stocks and replacement of those found to be faulty continues. We were told that international auto-injector standards are being upgraded and that US auto-injector manufacturer, Meridian Medical Technologies, is returning to full production.

### *Medical CBRN Doctrine*

Efforts to revitalize operational medicine doctrine continue including, with respect to collective protection (COLPRO), consideration of Allied doctrine.

### *CBRN Clinical Training*

It was confirmed that CFHS Group will send medical personnel abroad (UK and US) for CBRN clinical training. There may be *ad hoc* opportunities for team-based training of medical technicians posted to CFB Suffield.

### *CBRN Collective Training*

Canada will send a medical team of six to the Czech Republic to participate in Exercise CLEAN CARE 2022, a NATO JCBRN Centre of Excellence sponsored event aimed at practicing decontamination, evacuation, and medical treatment skills. The setting is a deployed medical/CBRN specialist task force in the early stages of a Peace Support Operation/Non-Article Five Crisis Response Operation with host nation (first responder) support. The scenario is a terrorist threat with access to toxic industrial materials and potentially legacy chemical weapons. There is also a background of endemic disease and environmental hazards consistent with an early insertion operation.

### *CBRN R&D*

Notable R&D activities currently under the direction of CFHS include plague vaccine, evaluation of potential prophylaxis against SARS-CoV-2, new auto-injectors, and the development of bioscavenger capability.

### *International Collaboration*

International collaboration continues within two frameworks. The first is that of NATO's Committee of Chiefs of Medical Services (COMEDS) where contributions are made to the CBRN Medical Working Group, which conducts "deep dive" CBRN medical risk assessments and capability gap analysis. The second framework is that provided by the Chemical, Biological and Radiological Memorandum of Understanding (CBR MOU) between Australia, Canada, the United Kingdom, and the United States within which the CBRN Medical Counter Measures Consortium operates, and research and capability development efforts are coordinated.

### *CMED Replacement*

We remain strong in our support of the need to replace and relocate the CMED, but understand this may not occur for many years – the project being 18th on the relevant list of CAF infrastructure priorities. In the meantime, we are happy that renovations to bring the laboratory and storage facilities to as close to GMP standards as possible are nearing completion. We commend the efforts of CFHS Group to address the risk to which this situation gives rise, and hope that the current heightened public awareness of the

importance of appropriate medical equipment and pharmaceutical supply and distribution facilities will be of benefit in this connection.

### *Regulatory Affairs*

In our view, Regulatory Affairs remains proactive, diligent, and effective in ensuring adherence to Health Canada and DND regulations and policies for the reporting, accounting, and handling of unlicensed medical products; advising on regulations for their use; and seeking regulatory approval for them, where feasible. The section is also effective in providing product development support to the Strategic Medical Countermeasures Program (SCMP), DRDC research, the Medical Countermeasures Consortium, manufacturers, and allies. One issue of concern mentioned this year is the urgent requirement to revamp the system for tracking, from “cradle to grave”, unlicensed medical products. Health Canada mandates such a system and can ask for an accounting of authorized products at any time they deem appropriate.

### *Strategic Medical Countermeasures Programme*

The SMCP is progressing well with the principal concern now being the capacity of the CMED to store the soon to be procured stocks of MCM. It is estimated that the Depot will be out of space by 2028/29. Commercial storage offers a short-term solution, but one that may not be suited for Surgeon General controlled products. Another issue is the securing of baseline funding for the programme in the interest of confident long-term availability and stewardship of stocks, as is the desire for additional intelligence support to the programme’s identification of emergent or evolved medical threats.

### *Maritime Forces Pacific*

During its visit to Maritime Forces Pacific in Victoria, the Committee was provided a good insight to current RCN BCD policy, doctrine, organization, equipment, tactics, techniques, procedures, and training. Taken together, and effectively managed, these would seem to constitute a reasonable capability with which to meet the Navy’s expectation that, “a Ship's company with sufficient individual and team CBRN skills, and clear CBRN policy, plans, and procedures, will be able to sustain operations and can give Command flexibility when operating in a CBRN environment”<sup>4</sup>

### *DCTF GALIANO*

The RCN’s tactical-level subject matter experts regarding CBRN defence are found amongst the staff of its two damage control training facilities — KOOTENAY on the East Coast and GALIANO on the West Coast. We were told that GALIANO trains approximately 5,200 personnel annually in subjects ranging from shipboard fire and flood fighting, first aid and casualty clearing to CBRN defence. CBRN defence topics include use of the

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<sup>4</sup> Royal Canadian Navy. Damage Control (Sea). Volume 2.

individual protective ensemble (suit, boots, and respirator) and medical countermeasures, as well as both portable and fitted shipboard equipment. The former includes hand-held detection systems while the latter includes fixed-site detectors, cleansing stations, CBRN filtration systems, the “Citadel” over-pressure system, and the ship’s “pre-wet” system. While in GALIANO, we heard expressed the desire for more CBRN advanced training opportunities for instructors. The recent posting of an RCN instructor to the CFFCA is good news and may facilitate the provision of more “course seats” to the Navy.

### HMCS OTTAWA

During past visits to the RCN, we have learned that deployment specific CBRN defence preparations are informed by the mission’s assessed CBRN threat and that, as required, CBRN defence “work-up” training and evaluation may be conducted *en route* to the theatre of operations. This said, Naval Combat Information Operators and Officers (who perform the CBRN warning and reporting function in ships) we spoke with, expressed concern that in recent years there had been little or no formal individual training opportunities for personnel in CBRN defence billets. They went on to suggest that modularization of the CBRN Defence NCO and CBRN Defence Officer courses to match these warning and reporting responsibilities would make it easier for the Navy to maintain the requisite number of qualified personnel.

### 2 Wing

2 Wing, located at CFB Bagotville, is the Royal Canadian Air Force’s air expeditionary wing, a formation intended to rapidly deploy as a self-contained unit, employing air power and providing associated support wherever needed, across Canada or abroad. The Wing is a key element of the Air Force Expeditionary Capability (AFEC) Project, a \$250 million investment in equipment and infrastructure whose mandate is to optimize the RCAF’s ability to rapidly deploy and conduct sustained operations whenever and wherever required. The Wing comprises five squadrons: operational support; mission support; construction engineering; air communication and control; and air expeditionary training. CBRN defence capability and expertise resides in the force protection element of the mission support squadron. RCAF doctrine recognizes that all environments require the appropriate degree of force protection to ensure that operations can be conducted effectively. While it may be more common for an air task force (ATF) to be deployed to a low- or medium-threat environment, the force still needs to be prepared to operate in higher threat environments, including hostile ones. As such, ATFs, in an expeditionary context, require force protection adequate to protect vital assets from attack and to

minimize operational losses by identifying, detecting, assessing, deterring, and mitigating known threats and hazards.<sup>5</sup>

Again, according to RCAF doctrine, key components forming the force protection element in the physical domain include intelligence, protective security, law enforcement, CBRN defence, force protection engineering, firefighting, ground defence, air and missile defence, camouflage and concealment, force health protection as well as safety and loss-prevention programmes. This said, the RCAF is not equipped or staffed to provide force protection alone, particularly in high-risk areas, and will normally need augmentation from CAF, allied, coalition or host nation forces.

It was in this context that we learned that, similar to the policy of the RCN, specific mission threat assessment will determine requirements for CBRN defence capability, capacity, and readiness. We were also told that the Wing has received no recent direction with respect to CBRN readiness. Also stated, were the beliefs that ATFs would seek to avoid deploying in any environment contaminated by CBRN or toxic industrial materials, and that others would provide additional integral or, close or general CBRN defence support (*e.g.*, equipment decontamination).

In view of the above, it was not surprising to discover that the Wing's CBRN defence capability is limited to personal protection (*i.e.*, suits and respirators) and point detection, identification, and monitoring equipment. We are not able to provide a definitive opinion on the readiness of this capability. On the positive side, we are told that all Wing personnel undergo "gas hut" training annually while on the negative side, we heard that at the time of our visit, there were two unfilled CBRN defence positions in the force protection flight and that no assigned personnel had received any advanced CBRN defence training (although one member was departing for the CFFCA on the day of our visit).

The Committee finds that the RCAF's policy that CBRN defence capability, capacity and readiness requirements will be determined on the basis of specific mission threat assessment is understandable and reasonable. However, it seems to us that given the Air Force's stated intent that its expeditionary ATFs be able to deploy rapidly in response to contingencies anywhere in a world increasingly fraught with tension and conflict, that verification of the minimal acceptable requirements for the CBRN defence component of its force protection elements is advisable. In this connection, NATO collective training opportunities of which we are aware, such as Exercises PRECISE RESPONSE (see above), BRAVE BEDUIN (CBRN warning and reporting), and TOXIC TRIP (operations in a

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<sup>5</sup> Royal Canadian Air Force Doctrine: Expeditionary Air Operations (B-GA-402-005/FP-001). Issued on authority of Commander of the Royal Canadian Air Force. Custodian: Royal Canadian Air Force Aerospace Warfare Centre. 31 July 2018.



contaminated environment on a deployed airfield) may once again be worthy of consideration.

## CONCLUSIONS

Having detected no evidence to the contrary during its 2022 visit and briefings, 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
- while there is always room for improvement, the BCD programme, as a whole, is conducted in a professional manner
- there is no covertness or duplicity within the BCD programme

## RECOMMENDATIONS

The Committee this year offers six new recommendations. We will continue, however, to pursue with DND and CAF authorities the mutually satisfactory resolution of the three open recommendations made in the reports of previous years.

1. Given the distinctive nature and complexity of risks and hazards present in the work environment at the Suffield Research Centre, and in light of the founding of DRDC's Safety & Environmental Management System on International Standards Organization (ISO) criteria, Occupational Hygienist Registration should be a required qualification for employment as the General Safety Officer (GSO). Moreover, the classification of the position of GSO should be reviewed in consideration of the addition of this new requirement and the skills, knowledge, experience, and responsibilities it entails.
2. Given the nature of the R&D undertaken at the Suffield Research Centre, a service level agreement for the provision by the CAF of emergency medical support to the Centre should be implemented as rapidly as possible.
3. Given the key role of intelligence in steering research and development, resources dedicated to the analysis of the biological and chemical threat facing the CAF should be reviewed to ensure their sufficiency.

4. The role of the Suffield Research Centre in supporting the readiness of the CAF and allied entities should be verified and if confirmed, the Centre should be appropriately organized and adequately resourced to do so without impinging on its research and development function.
5. Given that problems with the timely procurement of laboratory supplies and other goods and services are severely hampering scientific and training productivity at SRC, the procurement function within DRDC should be examined and as necessary, reformed, with a view to ensuring that procurement processes, assigned resources, and authorities are congruent with the needs of front-line staff.
6. Given reported issues with the governance and management of the CBRN defence enterprise, support should be given to the proposal for a renewal initiative led by the Strategic Joint Staff that, *inter alia*, would review and update the CBRN defence DAODs; define the enterprise; ensure the correct definition and alignment of responsibilities, authorities, and accountabilities; and then, most importantly, hold authorities accountable for the discharge of their responsibilities. In so doing, it is further advised that close account be taken of the ongoing NATO CBRN policy review in which ADM (Policy) and GAC are participating.

## **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. **(2014)** *We encourage acceleration of the final approval and funding of the project to replace DRDC Suffield's BSL 3 suites in Building 1 in an expedient manner compatible with safe continuation of the biological program in both the short and long term. [This recommendation has been reworded to better reflect the situation in 2019]*

**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.

**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

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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.”

**BCDRC Comment (December 2018):** While both projects are gaining momentum, there is concern that despite their intimate connection, the MBCF project risks becoming de-linked from the longer-range laboratory re-capitalization (which is ranked as DND’s number one priority project within its price range). Were this to occur and the MBCF project abandoned, the continuity of the biological defence programme would be threatened, given the likelihood that the aging current bio-containment facility will fail before the laboratory recapitalization project is completed. The lack of a bio-containment facility at SRC, even temporarily, would jeopardize Canada’s ability to meet its domestic responsibilities and international commitments.

**DND/CAF Response (February 2019):** “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. SRC was visited by ADM (IE)’s Project Director for SRC’s recapitalization project and a member of his support team from Defence Construction Canada to meet key staff and discuss the information needed over the next 24 months that will form the package required to enable project definition. The interim replacement of the biological laboratories continues through the major capital equipment program; however, there are currently insufficient human resources within ADM (S&T) to complete the requirements needed to advance progress to the next stage with ADM (Mat).”

**BCDRC Comment (December 2019):** At DRDC Corporate Office, the Committee was updated on potential strategies for the replacement of the aging Containment Level 3 suites. The recommendation will remain open. The Committee will continue to stress the critical importance of infrastructure renewal to safety of operations and continuation of the programs.

**DND/CAF Response (April 2020):** “The efforts towards recapitalization of the Suffield Chemical and Biological Laboratories (Recap) are continuing, with the ‘Identification’ and ‘Options Analysis’ phases occurring to develop a Statement of Requirements and cost estimation, respectively. This is planned to occur over a 24-month period beginning in Fall 2020. Both of these will result in the selection of a course of action for the ‘Design’ phase. Additionally, a site for the new facility has been selected and approved. With Recap now advanced, its timeline is converging with that anticipated for the Modular Bio Containment Facility (MBCF). As such, options for coordinating the two efforts are currently under consideration.”

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**BCDRC Comment (December 2020):** This year, we were told that the separate MBCF project has been side-lined in favour of building the new laboratory complex, possibly in stages. The rationale for this change is that the planned completion date for the two projects has been converging with the MBCF due to be commissioned only a few years before the larger project. The new, unified endeavour is titled the Laboratory Modernization Project. A modified site has been selected and contracts for preliminary studies (environmental impact, topographic, geophysical, *etc.*) have been awarded. Current estimated cost is \$275-350M with occupancy anticipated to occur within 12-15 years. Given this timeline, contingency plans for catastrophic failure of the existing infrastructure are apparently being developed. We will be interested to learn more about these plans as we believe that it is likely the aging biocontainment facility will fail before the modernization project is completed. The lack of a such a facility at SRC, even temporarily, would jeopardize Canada's ability to meet its domestic responsibilities and international commitments.

**DND/CAF Response (April 2021):** "The efforts towards the Modernize Chemical and Biological Research Laboratories DRDC Suffield project are continuing. The 'Identification' and 'Options Analysis' phases to develop a Statement of Requirements and cost estimation, respectively, are planned over a 24-month period via contract which has been awarded. The contractor that will carry out this work is currently completing the security process. Both phases will result in the selection of a course of action for the 'Design' phase. The Modular Bio Containment Facility (MBCF) project is currently on hold since the Modernize project is making progress. Both projects draw on the same scientific staff. Their timelines are converging and their commissioning is expected to be a few months apart. The Independent Review Panel for Defence Acquisition (IRPDA) provided advice on the 'Modernize' project, which resulted in bolstering the project documents with a better description of the capability gaps. The Panel also emphasized the urgency of moving this project forward with an accelerated timeline, if possible."

**BCDRC Comment (December 2021):** The February 2020 chemical spill incident made more acutely apparent than ever before, the present-day inadequacies of the design of the 66-year-old main laboratory/administration building at Suffield - and how these deficiencies heighten the risk of the occurrence of accidents of this sort and the possibility of consequent serious injury or death. The Committee has long underlined these inadequacies and recommended the acceleration of the project to modernize the biological and chemical research laboratories at SRC. The Independent Review Panel for Defence Acquisition has also emphasized the urgency of moving this project forward. We understand that the Associate Deputy Minister of National Defence having been briefed on this incident by DRDC senior leadership, is now seized of the same imperative. We therefore hope this project will proceed swiftly to completion. DND's ADM (IE) has invited us to discuss this project when we next visit NDHQ. We welcome this opportunity and will share what we learn in our 2022 report.

**DND/CAF Response (August 2022):** "The efforts towards the Modernize Chemical and Biological Research Laboratories DRDC Suffield (Modernize) project are continuing. The

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'Identification' and 'Options Analysis' phases to develop a Statement of Requirements (SOR) and cost estimation, respectively, are planned over a 24-month period via contract to an infrastructure consulting firm. Both phases will result in the selection of a course of action for the 'Design' phase. Thus far, the selected firm has held numerous discussions with DRDC Suffield Research Centre (SRC) and Assistant Deputy Minister (Infrastructure and Environment) (ADM(IE)) staff to gather pertinent information, leading to development of a draft Statement of Operational Requirements for which feedback has been provided. Additional meetings and discussions are scheduled between DRDC SRC and the Contractor over the coming weeks and months to further refine the document. Further, the Contractor is tasked with conducting a Business Case Options Analysis, wherein four options are presented. Finally, the Independent Review Panel for Defence Acquisition (IRPDA) provided advice on the 'Modernize' project at the IRP1 meeting; DRDC and ADM(IE) are now preparing for the IRP2 meeting. Overall, this project is progressing ahead of schedule given that the original deadline for SOR development was October 2022."

**BCDRC Comment (January 2023)** Our meeting with the Chief of Staff to the ADM (IE), confirmed that solid progress is being made. The project schedule estimates that development and definition activities (including completion of design) will continue until June 2026 when a submission will be made seeking approval for project implementation with a response to same expected by March 2027. As such, the project remains at risk until then. Should approval be forthcoming, the new facilities are planned to achieve initial operating capability (IOC) by December 2032 and be fully operational and certified by December 2034. We commend the work behind these recent advances will continue to follow closely and report on further progress.

**DND/CAF Response Comment (March 2024)** "The efforts towards the Modernize Chemical and Biological Research Laboratories DRDC Suffield Research Centre (Modernize) project are continuing. The 'Identification' and 'Options Analysis' phases to develop a Statement of Requirements (SOR) and cost estimation, respectively, are nearing completion. A detailed functional space program has been developed that addresses all relevant scientific research needs of DRDC's Suffield Research Centre. This work will result in a selection of a course of action for the 'Design' phase. The project team is preparing documentation required to seek Ministerial approval in order to commence Design work. Finally, DRDC and ADM(IE) are now preparing for another engagement with the Independent Review Panel for Defence Acquisitions to allow the Panel to provide advice to the Minister of National Defence on the work conducted to date."

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**2. (2016) *A comprehensive assessment of Suffield Research Centre's unique occupational health and emergency medical support needs should be conducted under the leadership of DRDC in order to identify gaps and to design and implement long terms solutions involving relevant stakeholders. [This recommendation has been reworded to reflect the situation in 2019]***

**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 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.

**BCDRC Comment (December 2018):** As stated in our 2018 report, the occupational health and emergency medical support situation has improved substantially over the past year. Nevertheless, the Committee believes that a comprehensive assessment is still merited in order to stabilize and sustain appropriate occupational health and medical support programmes and systems for the future. It may be that the current Health and Safety Management System Review will achieve the same goal. As such, we will ask for a report on the Review's results during our 2019 visit to SRC, after which we will revisit this recommendation.

**DND/CAF Response (February 2019)**

**"Notes from DRDC Suffield:**

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,

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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.

The Suffield Research Centre has established a more comprehensive Integrated Emergency Response Plan, involving the CFB Suffield Medical Centre, the CFB Suffield Fire Department, CFB Suffield Military Police, and Alberta Health Services. To reflect this, modifications to the current Service Level Agreements are taking place. Indeed, a comprehensive Integrated Emergency Response Exercise (IERE) organized by DRDC Suffield and conducted at CFB Suffield on September 5, 2018 demonstrated the cooperation by DRDC Suffield to bring relevant stakeholders together, including DRDC Suffield, CFB Suffield Fire Department, CFB Suffield Field Ambulance, CFB Suffield Military Police, Medics from the British Army Training Unit Suffield (BATUS), and Alberta Health Services, to successfully complete one of the most advanced emergency exercise cross the agency [*sic*]. Any news of the IERE was posted on the Government Canada website by ADM Public Affairs on September 7, 2018 (<https://www.canada.ca/en/department-national-defence/news/2018/09/successful-integrated-emergency-response-exercise-conducted-at-cfb-suffield.html>). Further, the Suffield Research Centre has an external audit of its entire safety system scheduled for Fall 2019. 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 several years, significant internal efforts have been made to establish a more integrated H&S Program at the Suffield Research Centre which is consistent with ADM (S&T)'s Environment, Health and Safety Policy, indicating that a comprehensive review via an external audit organization may not be needed. However, once the current HSMS review and safety external audit are complete, the Suffield Research Centre will re-evaluate the need to conduct any additional reviews.

### **Notes from Canadian Forces Health Services:**

Not related to Canadian Forces Health Services. Canadian Forces Health Services would participate in a comprehensive review but are not the primary stakeholder.”

**BCDRC Comment (December 2019):** Notwithstanding that this recommendation *per se* has not been acted upon, we have noted, as recorded in last year's report, several substantial and enduring improvements commendably effected locally by SRC, CFB Suffield and others with the support of regional and national level authorities. Foremost amongst these was the engagement of a Medical Advisor by SRC. Consequently, our major concerns have been alleviated – at least temporarily. We maintain, however, that the components of an occupational health programme and an emergency medical response capability that meet the needs of SRC (and which already exist in large measure) should be locally defined, integrated and incorporated in a tool such as the existing SRC Risk Management Framework and their status monitored. Moreover, where appropriate, these components should be cemented in place by officially promulgated policy or formal agreements between parties including non-DND or CAF parties. As soon as the first of these steps is completed, the Committee would be inclined to close the recommendation as having been superseded by other actions.



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**DND/CAF Response (April 2020):** “The Health & Safety Management System (HSMS) Manual has been completed and is available to all Suffield Research Centre (SRC) staff. This is an overarching document describing the various elements of the SRC Health and Safety Program as well as their interdependencies; it was designed to meet the CAN/CSA OHSAS 18001:07 Standard (ISO 45001:2018 equivalent) for health and safety management best practice. Additionally, an external audit was performed in September 2019 on the Safety and Environmental Management System (SEMS) and went very smoothly; the report is currently in draft and SRC is awaiting its release to review and implement any recommended actions. Further, a job hazard analysis was initiated in September 2019, with the data collection completed by a scientist from the Defence Research and Development Canada Toronto Research Centre. The data are now with a contractor for analysis. The Integrated Emergency Response Plan (IERP) is also complete, including emergency response plans for a variety of incidents. CF Health Services will continue to support SRC’s occupational health and emergency medical support needs. DND/CAF considers this recommendation completed.”

**BCDRC Comment (December 2020):** While acknowledging these important actions, we continue to believe that the components of an occupational health program and an emergency medical response capability that meet the needs of SRC (and which already exist in large measure) should be locally defined, integrated, and incorporated in a tool such as the existing SRC Risk Management Framework and their status monitored with a view to quickly flagging to management the re-emergence of deficiencies. Moreover, where appropriate, these components should be cemented in place by officially promulgated policy or formal agreements between parties including non-DND or non-CAF parties to avoid slippage and dependence on specific personal relationships. As soon as the first of these steps is completed, the Committee would be inclined to close this recommendation as having been superseded by other actions.

**DND/CAF Response (April 2021):** “The Health & Safety Management System (HSMS) Manual has been completed and is available to all Suffield Research Centre (SRC) staff. This is an overarching document describing the various elements of the SRC Health and Safety Program as well as their interdependencies; it was designed to meet the CAN/CSA OHSAS 18001:07 Standard (ISO 45001:2018 equivalent) for health and safety management best practice. Additionally, an external audit was performed in September 2019 on the Safety and Environmental Management System and went very smoothly; the report is currently in draft and SRC continues to wait for its release to review and implement any recommended actions. Further, a job hazard analysis was initiated in September 2019, with the data collection completed by a scientist from the DRDC Toronto Research Centre. The analysis of the collected data continues and a final report is expected. The Integrated Emergency Response Plan is also complete, including emergency response plans for a variety of incidents.

The SRC Risk Management Framework was discussed at some length during the virtual visit with BCDRC in September 2020, and the intent behind this portion of Recommendation 2 was clarified. This Framework is in the process of being updated

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based on this discussion; however, a completion date cannot be provided at this time for two reasons: 1) it relies on updating other tracking systems (e.g., a list of current SOPs and their revision history); and 2) a shortage of personnel.

With regards to emergency medical support, SRC continues to rely on the Base Medical Centre for emergency response to any chemical exposure and on our contracted Medical Advisor along with public health for other types of exposures and incidents. In Fall 2020, the Base Surgeon was posted out and the incoming Base Surgeon arrived. Due to COVID-19, neither of the usual CBRN courses (US and UK CBRN courses) were available to the incoming Base Surgeon. To mitigate this, DRDC SRC and the outgoing Base Surgeon designed and executed a 1-week CBRN Clinical Course which was also offered to other CAF medical staff. The course was well received and there are ongoing discussions to make it a regular offering.”

**BCDRC Comment (December 2021):** We continue to believe that the components of an occupational health program, and an emergency medical response capability, that meet the needs of SRC, should be locally defined and incorporated in a tool such as the existing SRC Risk Management Framework, and that their status should be monitored, with a view to quickly flagging to management the re-emergence of deficiencies. Moreover, where appropriate, these components should be cemented in place by officially promulgated policy or formal agreements between parties, including non-DND or non-CAF entities, to avoid slippage and dependence on specific personal relationships. As we stated in last year’s report, as soon as the first of these steps is completed, the Committee would be inclined to close the recommendation as having been superseded by other actions. We viewed the first draft of such a framework during our November visit, and we consider a good start. We will wait until it is finalized before committing to closing our recommendation.

On a related note, we believe that this framework would lend itself to tracking the relevance and currency of the numerous health, safety, and environmental protection SOP in force at SRC.

**DND/CAF Response (August 2022):** “This recommendation is being addressed using a multifaceted approach:

1) The Health & Safety Management System (HSMS) Manual has been completed and was last revised in March 2020; it is available to all SRC staff on the DRDC intranet site. This is an overarching document (reviewed and updated bi-annually) describing the various elements of the SRC Health and Safety Program as well as their interdependencies; it was designed to meet the Canadian Standard Association Occupational Health and Safety Management Systems (CAN/CSA OHSAS) 18001:07 Standard (ISO 45001:2018 equivalent) for health and safety management best practice. Additionally, an external audit was performed in September 2019 on the Safety and Environmental Management System and went very smoothly; the report was received in January 2020. A copy of this report was provided to the Committee following its most recent in-person visit. While the audit did not specifically examine chemical and biological safety elements, it did highlight several related non-conformances, including the need to update the Integrated Emergency

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Response Plan (IERP). The Environmental Health and Safety (EHS) group has initiated corrective action and reviews progress quarterly; the last such review was completed in February 2022. The IERP is currently undergoing a major revision to improve the coordination with other emergency response documentation (e.g., Emergency Response Team Standard Operating Procedures).

2) A job hazard analysis was initiated in September 2019 and data collection was completed by a scientist from the DRDC Toronto Research Centre. Unfortunately, the data analysis was not conducted and the DRDC SRC EHS group has now adopted the analysis task. A Registered Industrial Hygienist (RIH) has been hired and will complete the assessments and analysis in the May-July 2022 timeframe.

3) In 2020, the Canadian Forces Fire Marshall indicated that SRC must develop and maintain its own CBRN respiratory protection plan. This plan is nearing completion and should be published by the end of May 2022.

4) The SRC Risk Management Framework has been updated and slightly modified to better reflect the health and safety (H&S) elements in place at SRC; this activity is ongoing. As indicated previously, a shortage of personnel to manage this task has been an impediment to its advancement.

5) There is now an approved process for creating and managing Standard Operating Procedures (SOPs) that includes appropriate oversight and archiving. This process will be implemented in spring 2022 with an expectation that all SRC SOPs, including those critical to our H&S Program, will gradually align.

6) With regards to emergency medical support, SRC continues to rely on the Base Medical Centre (BMC) for emergency response to any chemical exposure. For response to other types of exposures and incidents, SRC relies on our contracted Medical Advisor and public health. In fall 2020, DRDC SRC and the outgoing Base Surgeon designed and executed a 1-week CBRN Clinical Course which was well received. However, due to instructor availability challenges and the requirement for formal course development in accordance with Canadian Forces Individual Training & Education System (CFITES) course standards, the current position is to continue to obtain the training from the US and UK. Due to recent international chemical incidents and the specialized knowledge required for response, DRDC and Canadian Forces Health Services (CFHS) are attempting to establish a national medical team for reach-back purposes during chemical incidents. This will likely include updates to current doctrine and medical practice; this information will be shared among Canadian Armed Forces professional medical networks.

7) Finally, the DRDC SRC Medical Advisor has been comparing SRC SOPs against those at the BMC to identify gaps. He is also continuing to foster relationships at Medicine Hat Regional Hospital, with the intent of clarifying what support might be available from this facility.”

**BCDRC Comment (January 2023):** While this recommendation *per se* has not been acted upon, we were pleased during this year’s visit to hear the SRC Director, the Base Commander, and CAF medical authorities agree on the need for, and express their

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intention to put in place, a service level agreement (SLA) covering provision of emergency medical support to SRC. As such, we will close our 2016 recommendation in favour of a new recommendation urging the rapid implementation of the intended SLA.

**Status: CLOSE**

**3. (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.”

**BCDRC Comment (December 2018):** We are encouraged by the support voiced for this recommendation by CFHS Gp HQ and other NDHQ authorities. CMED replacement is now identified as a requirement and is included as priority 32 of 144 departmental infrastructure projects. Notwithstanding this placement, construction is many years off. In the meantime, we commend the Group’s intention to continue to strengthen its partnership with PHAC, and, in so doing, to look for opportunities to mitigate some of the risks associated with CMED’s current situation. We will closely monitor developments beginning with our next visit to CMED in 2019.

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**DND/CAF Response (February 2019)**

**“Notes from Canadian Forces Health Services:**

Canadian Forces Health Services Group (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 minimise the risk of operationally essential medical resources being compromised.

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In November 18, a briefing note was sent to ADM (IE) requesting approval to engage in a strategic infrastructure collaboration between DND and the Public Health Agency of Canada (PHAC) on a shared medical warehouse on CFB Trenton. This project continues to be 35<sup>th</sup> on the priority list for ADM (IE) and 3<sup>rd</sup> for Military Personnel Command’s infrastructure requirements. The importance of this project to CF H Svcs and the CAF will continue to be emphasized.”

**BCDRC Comment (December 2019):** Renovations to mitigate the shortfalls of the existing facility continue including a proposal to construct a GMP certifiable room to permit exchange of products with PHAC. We encourage expedient funding of this proposal.

**DND/CAF Response (April 2020):** “The replacement of the Central Medical Equipment Depot (CMED) continues to be a high priority for the CF Health Services. A number of joint activities between CF Health Services and the Public Health Agency of Canada have occurred in support of the new CMED facility. Site options in Trenton have been developed and are pending final review. Overall, good progress has occurred in the project to construct a new CMED facility.”

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**BCDRC Comment (December 2020)** We remain strong in our support of the need to replace and relocate the CMED, but understand this may not occur for many years – the project being 35<sup>th</sup> on the relevant list of CAF infrastructure priorities. In the meantime, we are happy that renovations to bring the laboratory room up to GMP standards are underway. We commend the efforts of CFHS Group to address the risk to which this situation gives rise and hope that the current heightened public awareness of the importance of appropriate medical equipment and pharmaceutical supply and distribution facilities will be of benefit in this connection.

**DND/CAF Response (April 2021):** “Initial design requirements developed in 2018 delineated the need for the facility to be compliant with current Good Manufacturing Practices as described in GUI-0069 Health Canada Guideline. The project staff have been engaged in the identification of potential siting locations, and are currently working with DND Real Property Managers as to the footprint best suited to the facilities’ requirements. However, completion of the project depends on where it figures on the list of Departmental priorities and availability of funds. DND is maintaining engagement with the Public Health Agency of Canada (PHAC) about possible collaboration with the construction of this facility that could serve both organisations’ purposes. Of note, renovations are nearing completion on the CMED laboratory room with temperature mapping scheduled for February 2021 and again in summer 2021. It will be used as an interim approach while the capital project for a new facility continues to progress through the DND project process.”

**BCDRC Comment (December 2021):** We remain strong in our opinion that the location, condition, and capacity of the CMED merit its replacement and relocation noting that the direction of the Strategic Medical Countermeasures Program (SMCP) suggests that even more demands will soon be placed on this unit. This said, we were impressed by the interim measures that have been, or soon will be implemented at the Depot to address the most pressing concerns over condition and capacity.

**DND/CAF Response (August 2022):** “The Central Medical Equipment Depot (CMED) remains highly prioritized for a new building project on the Military Personnel Command list of priority projects, but with the current capital pressure on ADM(IE), the timeline for the CMED project is in the 10-year range. The Department of National Defence continues to pursue the building replacement project, and the Canadian Forces Health Services Directorate of Health Services Delivery has re-engaged with the Public Health Agency of Canada on the feasibility of interoperability for storage of critical medical countermeasures. CMED is also actively pursuing increasing its storage capacity in the current facility by re-occupying space currently used by other units.”

**BCDRC Comment (January 2023):** We understand this project is now 18<sup>th</sup> on the relevant list of CAF infrastructure priorities, but that the timeline for completion remains in the ten-year range. We look forward to an update on interim renovations and expanded storage space during our next in-person visit to the Depot.

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**DND/CAF Response (March 2024)** “The Central Medical Equipment Depot (CMED) continues to be highly prioritized on the Military Personnel Command list of priority projects for a new building project, but due to ongoing capital pressure on ADM(IE) the timeline for the CMED project is still in the 10-year range. The Department of National Defence continues to pursue the building replacement project, and the Canadian Forces Health Services (CFHS) Directorate of Health Services Delivery has been re-engaging with the Public Health Agency of Canada (PHAC) on the feasibility of developing new common warehouse infrastructure and capabilities. CFHS has initiated a formal analysis of the current and future infrastructure requirements of CMED. CFHS is committed to sharing its medical warehouse infrastructure requirements with PHAC so that they may be included during the identification and options analysis phase for any new infrastructure project(s) under consideration by PHAC. CMED is also actively pursuing increasing its storage capacity in the current facility by re-occupying space currently used by other units.”

**Status: OPEN**

- 4. (2022) *Given the distinctive nature and complexity of risks and hazards present in the work environment at the Suffield Research Centre, and in light of the founding of DRDC’s Safety & Environmental Management System on International Standards Organization (ISO) criteria, Occupational Hygienist Registration should be a required qualification for employment as the General Safety Officer (GSO). Moreover, the classification of the position of GSO should be reviewed in consideration of the addition of this new requirement and the skills, knowledge, experience, and responsibilities it entails.***

**DND/CAF Response (March 2024)** “DRDC is currently in the process of staffing a replacement for the Suffield GSO position, due to the impending (31 March 2023) retirement of the incumbent. Occupational Hygienist Registration will be considered in evaluation of candidates. If such registration is not achievable at hire, DRDC will pursue it through enabling subsequent formal education. The classification of the position will be reviewed within the context of its location, competencies and responsibilities, including the addition of those related to occupational hygiene.”

**Status: OPEN**

- 5. (2022) *Given the nature of the R&D undertaken at the Suffield Research Centre, a service level agreement for the provision by the CAF of emergency medical support to the Centre should be implemented as rapidly as possible.***

**DND/CAF Response (March 2024)** “A service level agreement to govern the provision of CAF emergency medical support to Suffield Research Centre is being drafted. In the interim, emergency medical support to the Centre by the CAF will continue to be facilitated through ministerial approval and direct coordination between the Centre and CAF Health Services elements in Suffield and Edmonton.”

**Status: OPEN**

6. ***(2022) Given the key role of intelligence in steering research and development, resources dedicated to the analysis of the biological and chemical threat facing the CAF should be reviewed to ensure their sufficiency.***

**DND/CAF Response (March 2024)** “Staffing actions are underway to hire personnel in both the chemical and biological expertise areas in the Directorate of Technical and Scientific Intelligence. Due to security clearance requirements, the incoming personnel will likely take up to two years to become fully operational. In the interim, resource deficits are being mitigated through several actions: retaining a retired expert intelligence analyst on casual contract to maintain some level of continuity, continued collaboration with other national intelligence agencies as well as with other DND/CAF organization (D JCRBN D for instance) to maintain awareness of threats as well as increased collaboration and information sharing with FVEY agencies in this area.”

**Status: OPEN**

7. ***(2022) The role of the Suffield Research Centre in supporting the readiness of the CAF and allied entities should be verified and if confirmed, the Centre should be appropriately organized and adequately resourced to do so without impinging on its research and development function.***

**DND/CAF Response (March 2024)** “DRDC is part way through a multi-year process of improving program governance, including converging demands into a common operating picture. As part of this process, efforts are ongoing to define long-term requirements in both research and training areas of activity, as they pertain to CBRN defence. Additionally, Director General (Research and Development) Science and Engineering is currently implementing a new capability management process that will be fully in place during the course of FY23-24. This process will be applied to confirm the scientific capability requirements at each DRDC research centre, including Suffield, and ensure that they have the required resources and are appropriately configured to fulfill their mandate.”

**Status: OPEN**

8. ***(2022) Given that problems with the timely procurement of laboratory supplies and other goods and services are severely hampering scientific and training productivity at SRC, the procurement function within DRDC should be examined and reformed as necessary, with a view to ensuring that procurement processes, assigned resources, and authorities are congruent with the needs of front-line staff.***

**DND/CAF Response (March 2024)** “DRDC Procurement has undergone a year of significant transition where we have seen a number of major change events including staff tum-over, limited hiring capability due to salary pressures, a new procurement service delivery model, interim restructuring and a new prioritization tool. Outside of DRDC,



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there have been other factors which have impacted procurement operations. Specifically, DND enacted an update to its Defence Resource Management Information System (DRIMS) which records and enables financial, procurement and asset management transactions, among other functions. The modifications resulted in considerable additional effort to codify all assets prior to procurement. While this will result in better accounting of the Department's asset holdings, the operational impact was a significant slowdown of procurement processing times.

As with any major transition period, this one presents significant opportunities for reinventing/modifying our tools and processes to better support front-line staff. Of note is an expanded use of payment cards; a centre-led model for managing procurement resources to allow flexibility and facilitate the reallocation of resources to the organization's highest priorities; a new tool to allow individual requests to be prioritized equitably across all of the organization and recent approvals to start staffing vacant procurement positions. Most of these initiatives have been under development since the middle of FY22-23 and will be implemented in FY23-24.”

**Status: OPEN**

**9. (2022) *Given reported issues with the governance and management of the CBRN defence enterprise, support should be given to the proposal for a renewal initiative led by the Strategic Joint Staff that, inter alia, would review and update the CBRN defence DAODs; define the enterprise; ensure the correct definition and alignment of responsibilities, authorities, and accountabilities; and then, most importantly, hold authorities accountable for the discharge of their responsibilities. In so doing, it is further advised that close account be taken of the ongoing NATO CBRN policy review in which ADM (Policy) and GAC are participating.***

**DND/CAF Response (March 2024)** “The efforts to keep the DAOD 8006 series effective and relevant are ongoing. In October 2022, a routine staff and stakeholder review of the DAOD was conducted. Change proposals will be considered routinely by the appropriate offices of responsibility. Specific changes will be duly considered and appropriate action taken. NATO's Chemical, Biological, Radiological and Nuclear (CBRN) Defence Policy (2022) issued and agreed by all NATO members in July 2022 will be implemented by the CAF through existing planning processes and its capability plans. Canada is fully in agreement with the core principles and commitments of enhancing its military CBRN capabilities and resilience, which are consistent with the Government of Canada's Defence Policy. The Government notes and endorses, in particular, that "national capability development plans will support the full and timely implementation of CBRN defence capabilities, in particular those required by the Alliance in line with the NATO Defence Planning Process.”

**Status: OPEN**

## **ACRONYMS AND ABBREVIATIONS**

AChE – acetylcholinesterase

ADM DRDC – Assistant Deputy Minister – Defence Research and Development Canada

ADM IE – Assistant Deputy Minister – Infrastructure and Environment

AWC – Agent Worker Certification

BATUS – British Army Training Unit Suffield

BCD – Biological and Chemical Defence

BCDRC – Biological and Chemical Defence Review Committee

BCW – Biological and Chemical Warfare

BTWC – Biological and Toxin Weapons Convention

CAF – Canadian Armed Forces

CBM – Confidence Building Measures

CBRN – chemical, biological, radiological, and nuclear

CBRNE – chemical, biological, radiological, nuclear, and explosive

CFB – Canadian Forces Base

CFFCA – Canadian Forces Firefighting and CBRN Academy

CFHS Group – Canadian Forces Health Services Group

CFHS Group HQ – Canadian Forces Health Services Group Headquarters

COLPRO – Collective Protection

CMED – Central Medical Equipment Depot

CNSSSF – Canadian National Single Small-scale Facility

CTTC – Counter Terrorism Technology Centre

CWC – Chemical Weapons Convention

DAOD – Defence Administrative Order and Directive

DCTF – Damage Control Training Facility

DND – Department of National Defence

DRDC – Defence Research and Development Canada

DSSTP – Defence and Security Science & Technology Program

DURC – Dual Use Research of Concern

EPG – Experimental Proving Ground

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FY – fiscal year

GAC – Global Affairs Canada

GLP – Good Laboratory Practice

GMP – Good Manufacturing Practice

GSO – General Safety Officer

MBCF – Modular Biological Containment Facility

MCM – medical countermeasures

NATO – North Atlantic Treaty Organization

NDHQ – National Defence Headquarters

ONTAP – On-line Turbo Approval Process

OPCW – Organization for the Prohibition of Chemical Weapons

PPE – Personal Protective Equipment

PAO – Plan for Administrative Oversight

PHAC – Public Health Agency of Canada

S&T – science and technology

SLA – Service Level Agreement

SOP – Standard Operating Procedure

SMCP – Strategic Medical Countermeasures Program (formerly BWTMCM – Biological Warfare Threat Medical Countermeasures project)

SRC – Suffield Research Centre

WTRP – Weapons Threat Reduction Program