

THE CANADIAN MILITARY AND THE ENVIRONMENT

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**ENVIRONMENTAL PROTECTION AND SUSTAINABLE  
DEVELOPMENT IN THE MILITARY:  
A GLIMPSE BEHIND THE CURTAIN**

By  
Ecaterina Pascariu

Supervised by  
Mark Winfield

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Toronto, Ontario, Canada

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## **I. ABSTRACT**

In this paper, I explore the role of the military in relation to environmental sustainability, internationally and in Canada. The Department of National Defence (DND) and Canadian Armed Forces (CAF) are analyzed in regards to their motives and goals as well as the Canadian laws they abide by in order to ensure environmental protection and sustainable development as well as their intent to minimize their ecological footprint. Particular attention is given to the roles of the Office of the Auditor General and Commissioner for the Environment and Sustainable Development in overseeing the environmental performance of the Canadian military. The roles of departmental Sustainable Development Strategies (SDS) and the Federal Sustainable Development Strategy (FSDS) are also examined.

**Keywords:** Military; DND/CAF; Environmental Protection; Canadian Environmental Law; Species at Risk Act; Hazardous Waste; Contaminated Land; Fisheries Act; Sustainable Development; Auditor General

## **II. FOREWORD**

Upon finishing my Bachelor in Environmental Studies with an area of concentration in Environmental Politics, my passion was International Environmental Law. Thus, when I started the Master of Environmental Studies program, I was certain and confident in my decision that my Major Research Paper (MRP) would be focused on International Environmental Politics and Intergenerational Ethics. However, a year and a half into the program I decided that despite my high interest into my subject and my advantage on knowing the subject well, were no longer relevant with the alignment of my drive and curiosity. Being in the Aerospace industry, my curiosity peaked and interests started shifting towards environmental protection and sustainable development in the military. Thus, I changed my MRP to Military Effects on the Environment and decided to focus on the Canadian Military while also incorporating my knowledge in international law. My areas of concentration are: environmental laws in the military, sustainable development, and environmental protection and thus, under those, this paper satisfies the learning objectives.

Military activities, tests, as well as warfare can have detrimental effects on lands, water, and air. Thus, laws focusing on the environment ensure the security and protection of it and concentrate on minimizing or avoiding risks. Since I was not an expert in military affairs and Canadian environmental law, my learning objectives were to learn in depth about military's efforts towards the betterment of the environment, learn how environmental laws are applied in the military context and become familiar with case studies which would help me explore both negative and positive of outcomes.

Sustainable development plans and strategies can ensure that military operations and activities are processed in a manner that would satisfy any moral and ethical responsibilities but also ensure compliance with the Canadian Environmental Laws. Thus, I wanted to gain a broad understanding of sustainability and its application in the military.

Lastly, if environmental laws were followed and sustainable development strategies and plans were in fact prioritized by the military, then it would suggest that environmental protection is the main concern. My main learning objective was to understand how environmental protection was ultimately achieved and what tools are available to ensure it.

During my time in the MES program I learned that many subjects are interconnected and to trust my instincts. Moreover, my findings conclude that the military is not a negative entity that does not follow rules or is chasing exceptions, instead I was pleasantly surprised to find proper laws and regulation in place and genuine efforts.

### **III. ACKNOWLEDGMENTS**

Throughout my MES, there were a series of events that have thrown me off. Probably the most difficult two years of my life - full of vicissitudes. I was starting to be scared- between juggling two jobs, masters, and family I felt I was slowly failing and disappointing everyone. I was always very good at handling stress but for the first time, I could not see the end objective and thus the light at the end of the tunnel was getting blurry. I was beyond lucky to have had Ray Rogers as an advisor for a year. I was in his office full of tears and between all of the events happening I thought for sure he would lose faith. As soon as Mark Winfield became my supervisor and eventually also my advisor for the rest of my MES, he too was beyond understanding and supportive, hands down best supervisor. I was starting to feel ashamed and embarrassed for everything and I thought my absence was misunderstood for lack of seriousness – needless to say, I was scared to disappoint academically.

Thus, I would like to thank both Professor Ray Rogers and especially Professor Mark Winfield, for the advisory support and guidance throughout my MES program but even more so, for truly believing in me and allowing me to grow. I ended up changing my MRP idea at the last minute and I could have been turned down or discouraged but instead I was fortified every step of the way.

Moreover, I would like to thank my parents and Adrian for being understanding, patient throughout this havoc, pushing me to do better and always supporting my decisions and accepting my stubbornness. I always wanted to make everyone proud and I hope I did it.

Last, but most certainly not the least, I would like to thank my mentor, Linda Starodub, for being there and guiding me through this process and for teaching me that no matter what I do, I should not focus solely on the end result but enjoy the journey and learning from every step taken and from those around me.

Thank You/ Merci Beaucoup/ Mulțumesc,

Ecaterina

#### **IV. DISCLAIMER**

This major paper does not represent the views of any organization and the conclusions and opinions are solely based on the information analyzed.

## V. ABBREVIATIONS

AECB	Atomic Energy Control Board
AG	Auditor General
AR	Army Reserves
Bill C-38	Omnibus Bill
BNA Act	British North America Act
CA	Canadian Army
CAF	Canadian Armed Forces
CB	Chemical and Biological
CBWA	Chemical and Biological Warfare Agents
CEAA	Canadian Environmental Assessment Act
CEPA	Canadian Environmental Protection Act
CESD	Commissioner of the Environment and Sustainable Development
CFAO	Canadian Forces Administrative Orders
CFB	Canadian Forces Base
CNSC	Canadian Nuclear Safety Commission
CFDS	Canada First Defence Strategy
CWA	Chemical Warfare Agents
CWC	Chemical Weapons Convention
DAOD	Defence Administrative Orders and Directives
DDT	Dichlorodiphenyltrichloroethane
DES	Defence Environmental Strategy
DEW	Distant Early Warning
DND	Department of National Defence

DRES	Defence Research Establishment Suffield
EA	Environmental Assessment
EBR	Environmental Bill of Rights
EOs	Executive Orders
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
EPCO	Environmental Protection Compliance Order
EPG	Environmental Proving Ground
FGS	Final Governing Standards
FSDS	Federal Sustainable Development Strategy
GHG	Greenhouse Gas
GP	Green Procurement
MARLANT	Canada's Maritime Forces Atlantic
MRP	Major Research Paper
NATO	North Atlantic Treaty Organization
NDA	National Defence Act
NS	National Security
NSE	National Security Exception
NSW	North Warning System
OAG	Office of the Auditor General
PCBs	Polychlorinated Biphenyls
PNCIMA	Pacific North Coast Integrated Management Area
SARA	Species at Risk Act
SD	Sustainable Development



SDS	Sustainable Development Strategy
TNT	Trinitrotoluene
U.K.	United Kingdom
UN	United Nations
UNEP	United Nations Environment Programme
U.S.	United States
UXO	Unexploded Explosive Ordnance
WWI	World War I
WWII	World War II

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## **1.0 INTRODUCTION**

The military is far from being an openly discussed topic. Apart from the overall economic and political scrutiny it faces on international and domestic fronts, there seems to be a lack of focus on how its actions and pursuits have, and possibly continue to, affect the environment. Meanwhile, there are growing environmental concerns in regards to resource depletion; global warming; as well as air, water, and land pollution which begs questions such as: what role does the military play in the environment? Are there any environmental management frameworks in place for military activities or any sustainable developments plans? If they are in fact intertwined with these environmental regulations are they exempted from fully abiding with the law or are there any special permissions? These will be the questions that will be investigated in more detail throughout this major research paper (MRP) and some of the discussions that will be further explored.

The main focus of this paper will be on Canada – Canadian Environmental Laws, Sustainable Development and the Canadian Military, officially known as; the Department of National Defence (DND) and Canadian Armed Forces (CAF). However, for comparative purposes, the United States (U.S.) military will be used in examples sprinkled throughout the paper. Environmental management, the military, and sustainable development will be examined at the international level. This will allow for a more precise understanding of the military's role within all these frameworks.

Despite popular belief, the U.S. has much stronger and seemingly more transparent military laws with a specific environmental focus. Yet, some sources believe that the U.S. allegedly has and continues, to contribute to vast environmental problems over many years. Loopholes are always available, especially in the field of environmental protection.

An example of this would be of the U.S. military not regarding the environment as an objective and not doing anything towards its betterment (Flounders, 2009). Allegedly, the military seems to always have a way around environmental protection standards, while other agencies and entities have to abide by them (*ibid*). Besides not awarding the environment with the proper attention it deserves, the [U.S.] military, for example, supposedly also fought the Environmental Protection Agency (EPA)<sup>1</sup> when it tried to impose pollution standards for rocket fuels and munitions.

Canada on the other hand, has gained the “peacekeeper” nickname due to its involvement with the United Nations (UN) but also due to strong environmental legislations such as: The Fisheries Act, Species at Risk Act (SARA), Environmental Bill of Rights (EBR) and the Canadian Environmental Protection Act (CEPA). Unfortunately, despite this strong foundation, Canada’s reputation started to change since 2006. The complex Canadian legal system was truly put to the test when interests and priorities shifted due to investments made towards military resources instead of environmental departments, organizations or legislations. This change resulted in many environmental acts being amended, struck down, or simply ignored. The international community also quickly realized that Canada’s focus was on becoming like the U.S. military.

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<sup>1</sup> The Environmental Protection Agency (EPA) is the equivalent of Environment Canada. EPA has complete control over implementation of American environmental legislation however Environment Canada has primary but not exclusive control of implementing Canada’s environmental policies.

Thus, Canada was quickly stripped of the “peacekeeper” nickname and suddenly everyone was taking a closer look at the Department of National Defence and the federal government in order to understand what the new motives and priorities were. This was confirmed in the January 2008 Canada’s World Poll report, that was conducted by Canada’s World, a non-partisan initiative focused on consulting Canadians in regards to their opinion on Canada’s international and domestic affairs:

Canadians see peacekeeping as their country’s most important contribution to the world, while the environment is most apt to be viewed as its greatest missed opportunity for global leadership (...) the decline in peacekeeping support to other countries as the major reason for this decline (37%). Others mention a lack of independence and leadership (17%), Canada’s failure to differentiate itself from the United States (16%), overall poor governance by the federal government (16%) and support for the war on terror (14%) as reasons for a loss of influence in world affairs. (Canada's World, 2008)

These events raised many questions for the public as they recognized the drastic changes of a once renowned environmentally concerned and diligent country, to a power hungry military focused state. However, despite the shift, did the DND/CAF operate under any environmental legislative and policy framework? Is that framework effective in advancing environmental protection and sustainability in military activities? And lastly, where does the Canadian military stand in terms of environmental management? At first glance, the Canadian military seems to be engaged with environmental protection plans and sustainable development strategies but will a closer look reinforce the initial finding or will it prove earlier suspicions to be correct?

In order to answer the above questions amongst the others raised at the beginning of the introduction, sustainable development will be the core fundamental framework for this paper which will aid in determining whether or not the military is focused on environmental protection. The military and environmental history will be discussed internationally followed by a closer look domestically, at more specifically Canada. In order to better understand how the Canadian military works, and what Canada's directions are in regard to the above, we will also look at environmental laws followed by case studies which will determine if Canada has a federal environmental management framework and if the military is held accountable for any mishaps.

## **2.0 BACKGROUND – AN OVERVIEW OF THE LINK BETWEEN THE MILITARY AND THE ENVIRONMENT**

In order to get a better understanding of how the military is connected with the environment, I will briefly give an overview of their history and interaction with each other. An introductory dialog will lay the foundation in better considering how sustainable development is a key factor in environmental and military interconnectivity.

Historically, the environment and the military have a long and tempestuous relationship. According to Professor Steve Dutch, there are four identified military class effects that demonstrate this: collateral effects, use of the environment as a weapon, environmental modification, and eco-terrorism (environmental terrorism) (Dutch, 2006). These four military effects all use the environment to their advantage in combat and in military strategy. This has been put into practice in many wars and battles, including the two World Wars.

The four effects listed above can be further explained in a simpler manner; starting with collateral effects – it is explained as indirect environmental effects resulting from warfare. Those results can sometimes leave the land untouched for many years due to people's fears of unexploded explosive ordnance (UXOs) which are discussed in detail in section 5.3.3. Due to the land inactivity, the fauna has enough time to convalesce and to regrow. With that being said, despite nature regenerating and regaining control, it does *not* mean the land, air, and water are no longer contaminated by any chemical residue. An example, although not military, would be of the Chernobyl disaster in 1986. Thirty years after the accident, it is still not deemed safe to live on or around the contaminated land. However, the biodiversity and abundance of species in those areas grew much higher than imaginable. The exclusion zone became a unique wildlife sanctuary



(World Nuclear Association, 2016). On the other hand, biodiversity abundance may not be native to its topography, which could also be problematic as it changes certain factors. Furthermore, collateral effects do not always take place after a war. Many times, the aftermath of military involvement is beyond devastatingly damaging to not only humans but also to the ecosystem as a whole. An example would be of Cambodia's civil conflicts which resulted in the destruction of 35% of their intact forests (Adley & Grant, n.d.). This further connects with the next point.

Environmental modification is referred to the environmental alterations done by human activities (in this case military) in order to create advantageous circumstances in warfare, but it too alludes to the repercussion. Examples of such would be: trenches, traps, hideouts or explosives being used as catalysts of environmental calamities which could have potential long term effects on the environment (Dutch, 2006). During World War I (WWI) both Italy and Austria used artillery in the Alps in order to trigger snow avalanches on their opponents, which caused numerous deaths (*ibid*). In this case the environment was used as a weapon. Knowing their surrounding area, they knew exactly what to manipulate in order to use the environment as a strategic weapon against the other party.

A slightly more recent example is that of Agent Orange, used during the Vietnam War in order to eliminate any tree cover so that it would deprive the Vietnam communist forces of concealment (*ibid*). Agent Orange is a dangerous pesticide and in this case, it was used as a chemical weapon that had detrimental effects on both humans and the environment, leaving behind contaminated lands and children that were born, after the event, with birth defects and higher cancer rates (Flounders, 2009). This too is an example of environmental modification but could also be used under the definition of environmental terrorism.

Environmental terrorism is defined as depriving [a state] of their environmental resources and their use thereof. A great example is that of the 1990-1991 Gulf War where the intent was clear - destroying the enemy's environment (Department of National Defence, 2010). Over 600 oil wells were ignited and due to the smoke from the fires, black rain was formed which affected anyone between Iran to, as far, as India, leaving communities devastated and lands destroyed and unstable (*ibid*).

All of the above have and continue to be used in the military in order to gain power and control but once the environment has been abused and natural resources are dangerously depleted, even the military has something to lose. However, it is safe to say that since the cold war and the first environmental wave in the 1970s, conversations have naturally shifted from wars and military power gain, into conversations about environmental management, sustainable development, and environmental protection (including both human health and nature).

The environment has often been used as a tool of war, from the salting of Carthage to the Russians' scorched earth retreats before the armies of Napoléon and Hitler. Plato, mocking the notion of a republic of leisure, argued that such a regime would soon resort to a war to satisfy its taste for more space and natural resources. But sustained thinking about the environment-conflict connection is a product only of the last few decades. While clashes over non-renewable resources such as oil or gold are as familiar as the Persian Gulf war, the question now is about the role of renewable resources such as water, fish, forests, and arable land (Dabelko, 1999).

In conclusion, by exploring the four military effects: collateral effects, use of the environment as a weapon, environmental modification, and eco-terrorism, we can use them to better understand past military strategies and the use of the environment that may still perhaps be relevant in today's military activities. However, in the next chapters (Chapter 3, 4 and 5) we will discuss how international and domestic conversations as well as debates, have truly shifted towards the achievement of a sustainable future through action plans and through recognizing environmental stewardship responsibilities.

### **3.0 INTERNATIONAL MILITARY & ENVIRONMENTAL HISTORY AND INTERNATIONAL SUSTAINABLE DEVELOPMENT**

In this chapter, we will explore the military and environmental history as well as that of sustainable development in an international context.

#### **3.1 International Military & Environmental History**

The military use of the environment is becoming fairly clear. They depend on the environment for training purposes, strategic planning, and overall military activities. There are currently numerous domestic and international conversations in regards to how the environment can be used, future cleanup plans or remediation, improving natural resource dependency, and creating realistic sustainable strategies.

Despite relatively new terms such as ‘environmental protection’ and ‘sustainable development’, military warfare and effects on the environment have been discussed internationally for many years. For example, one of the first references to protection and the military was in the first Hague Peace Conference in 1899, assembled at the urging of Tsar Nicholas II of Russia. It was aimed at limiting the use of armaments in order to avoid the effects of past wars such as the Napoleonic Wars (which had collateral damages) (Encyclopaedia Brtinnica, 1899, 1907). The second Hague Peace Conference in 1907, proposed by Theodore Roosevelt, adopted thirteen conventions. Bombardment by land, forces of undefended targets, and the discharge of projectiles from balloons were amongst the activities prohibited in the document. The thirteenth meeting from September 9<sup>th</sup>, 1907, is important to highlight, as the fourth commission, Article 23 subsection ‘g’ states: “In addition to the prohibitions provided by special conventions, it is especially forbidden: (g) To destroy or seize the enemy's property,

unless such destruction or seizure be imperatively demanded by the necessities of war;” (Ministry for Foreign Affairs, 1907). While this does not specifically concern itself with environmental protection, it is one of the first to set prohibitions around the conduct of wars. The focus on human protection and property destruction could also suggest the environment. This laid the foundation for other international discussions to eventually focus on the military and environmental effects directly. A clear example would be that of the 1977 Geneva Convention. Protocol I, Part III, Section I, Article 35, subsection 3, states “It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment” (United Nations, 1977). Furthermore, under Part IV, Section I, Chapter III, Article 55, it states that:

1. Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.
2. Attacks against the natural environment by way of reprisals are prohibited (United Nations, 1977).

Military prohibitions were covered in the Geneva Convention Part I and IV of Protocol I as a result of the military not being held responsible in the past for any catastrophes, environmental damages, and health risks caused to communities through past actions.<sup>2</sup> This convention was one of the first to mention the relationship between military activity and the environment while previous declarations, acts or conventions were merely bringing into light natural resources, sovereignty or military affairs separately.

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<sup>2</sup> As a side note, the United Nation’s forerunner was the League of Nations which was created after WWI in order to ensure that another international war would be avoided but as we know that failed. Thus, the UN has history rooted in military affairs and its aftermath.

Agenda 21 is another good example of an international effort. Section II, Chapter 20:22, subsection 'h', states that; "Governments should ascertain that their military establishments conform to their nationally applicable environmental norms in the treatment and disposal of hazardous wastes" (United Nations Sustainable Development, 1992). Chapter 20 focuses particularly on military activities that in the past had caused and/or contributed to numerous types of destruction of natural resources which even the United Nations Environment Programme (UNEP) confirmed they were not tested or verified (Division of Environmental Law and Conventions, n.d.). This could be problematic as without past sustainable strategies and plans, there were no limits as to how much one could pollute and what material and chemical concentrations could be dumped in waters or buried underground. Conventions, protocols, agendas, and treaties were specifically created in order to ensure and maintain a clear notion of state responsibilities in regards to military and environmental actions or concerns. Moreover, by being able to achieve mutual understanding, agreeing on drafting clear cut responsibilities, and expectations, it also ensures future state interconnectivity, respect, and reciprocity which relieve tension around the fact that there is no international enforcement. With this being said, it does not mean that some states do not attempt to negate past faults and will continue to do so to avoid responsibilities. For example, in December 1997 when the Kyoto Accords negotiations took place:

(...) the U.S. demanded as a provision of signing that any and all of its military operations worldwide, including operations in participation with the UN and NATO, be exempted from measurement or reductions. After attaining this concession, the Bush administration then refused to sign the accords and the U.S. Congress passed an explicit provision guaranteeing the U.S. military exemption from any energy reduction or measurement (Project Censored, 2010).

The U.S. leveraged its position with the UN in order to ensure that their worldwide military interests were not held accountable for the pollution they generated. As mentioned above, international enforcement is practically non-existent which would explain why the U.S. was able to pull back from the Kyoto negotiations without any consequences or further concerns. The lack of international enforcement is still very much an ongoing issue which unfortunately will most likely not be resolved as long as states still claim sovereignty.

To conclude, the military and the environment are both subjects that have been frequently discussed in the international community as these are main issues bringing together the states involved in the UN. In the next section, we will look at sustainable development, which is a result of international discussions.

### **3.2 Sustainable Development – Internationally Rooted**

The tragedy of the commons, a term coined by ecologist Garrett Hardin in 1968, refers to personal gain being put above the good of the environment and that of society as a whole. The example used by Hardin is that of the herdsmen who individually tend to their own land and focus on collecting dividends, eventually running out of resources and putting everyone at risk (Hardin, 1968). “Without sufficient knowledge or structure to restrain them, people (or states) will logically pursue their interest in utilizing the earth’s common resources until they are destroyed, resulting in the tragedy of the commons” (Chasek, Downie, & Brown, 1991). This concept is essential for sustainable development as the threat of overusing shared resources and the need to properly manage them is put in perspective. Soon after, Rachel Carson’s *Silent Spring* exploration of *dichlorodiphenyltrichloroethane* (DDT) made waves and opened more discussion about the environment, health, development, and environmental protection.

After the 1970s, environmental ideologies, national and international efforts, and laws, were used alongside ethical positions in order to form frameworks in relation to environmental regulations and policies. The 70s have caused some awareness waves, a revolution if you will, as it was soon realized that environmental issues were far more intricate than originally thought (Weyler, 2012). This was further observed in the 1971 debate between Paul Ehrlich and Barry Commoner. Ehrlich's argument was that population, over-consumption, and technology would be the key in determining environmental impact and was sure that pollution derived from overpopulation (Feenberg, 1996). Meanwhile, Commoner argued that technology was really the problem as after World War II (WWII) there was a growth in products and inventions; use of pesticides, aluminum, soaps, and other detrimental materials (*ibid*).

Those pending matters became more noticeable at a transboundary level too, which meant states could no longer tackle these problems on their own and had to find solutions together. Those shared worries brought forth numerous international attempts at finding methods to eliminate at least a portion of the growing threats.

Sustainable development (SD) appeared in treaties in the 80s and was formally introduced internationally in the 1987 Brundtland Report. Throughout the Brundtland Report there are references to the importance of sustainable development and highlighting of the responsibilities for protecting present and future generations (United Nations World Commission on Environment and Development , 1987). This concept is supposed to promote social, economic and environmental welfare (also known as the three central pillars of sustainable development) which work in harmony. Despite some suggestions to add 'politics' and 'culture' as additional pillars, it was decided that those usually fall under the original three anyway. With growing



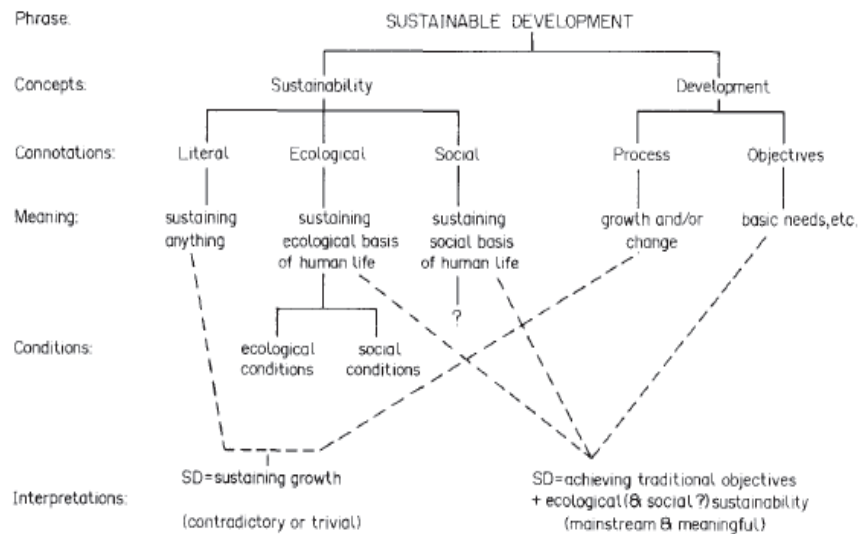
development, the Report mentioned the need to move forward in a sustainable fashion that will ensure the same amount of privileges to future generations without compromising growth. (United Nations World Commission on Environment and Development , 1987).

The exact statement from the Report is found in Section 3, subsection 27:

Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits - not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities (*ibid*).

Despite the Brundtland quote being widely used in describing sustainable development, it is vague and can be quite open-ended and thus, it has influenced numerous debates and gave birth to many more definitions. These definitions would range anywhere from ‘sustained growth’ to ‘successful development’ (Lélé, 1991). Figure 3-1 untangles some of the confusion about the SD semantics.

**Figure 3-1. The Semantics of Sustainable Development**



[Source (Lélé, 1991)].

### 3.2.1 Conceptual Frameworks and Measuring Sustainable Development

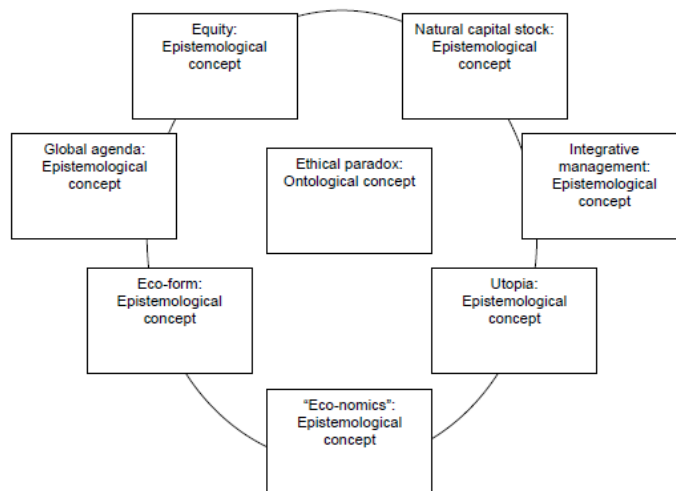
Yosef Jabareen, states that the “current usage of terms *conceptual framework* and *framework* are vague and imprecise” thus his definition of those are: “a network, or ‘a plane’, of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena” (Jabareen, 2009). SD, as mentioned previously, consists of three pillars. However, this means that it is part of a multidisciplinary study and reveals in substantial literature that there is a “lack of comprehensive theoretical framework for understanding the phenomenon and its complexities” (*ibid*). Thus, Jabareen used conceptual analysis in order to address the lack of theoretical framework and he came up with seven concepts that are based on the Brundtland Report definition of SD:

1. Ethical Paradox: This concept refers to the contradiction between development and sustainability. Development in this case, affects the environment and exhausts natural resources while sustainability means a state being maintained for an x amount of time. Thus, SD’s role is providing understanding of the paradox and creating a bridge between the two interests in order to cope with the environmental crisis without the economy being affected.
2. Natural Capital Stock: This includes all assets related to natural resources and the environment to remain constant and not deplete in order to provide future generations with the same privileges that we have.
3. Equity: The concept is based on the social aspect. Sustainability relies on the distribution of equity in order to extend care to both present and future generations.

4. Eco-form: Refers to environmentally desired urban spaces and communities which focus on sustainable design and functions by thus reducing environmental pressure.
5. Integrative Management: This concept looks at integrating social, economic and environmental protection and social development
6. Utopianism: Put in simple terms – it looks to achieve utopia. A vision of a new society where justice prevails based on SD.
7. Global Political Agenda: This concept looks at a new global agenda where SD becomes of international importance and is at the core of environmental policies.

All seven concepts represent the aspects of theoretical foundation of sustainability. These concepts are intertwined but at the core, the ethical paradox is the ontological basis of the framework (*ibid*). In Figure 3-2 the conceptual framework which was discussed in detail above, is shown in much simpler terms.

**Figure 3-2. Conceptual Framework of Sustainable Development**



[Source (Jabareen, 2009)].

Furthermore, in issue 3 of *Environment: Science and Policy for Sustainable Development*, Volume 47, Kates *et al.* created a table (see Table 3-1) with “definitions of sustainable development implicitly or explicitly adopted by selected indicator initiatives” (Kates, Parris, & Leiserowitz, 2005). The table below will show in much greater detail the lack of consistency in the SD definitions across selected indicator initiatives such as the Commission on Sustainable Development or Ecological Footprint. It also taps into the diversity of the seven concepts presented by Jabareen and furthermore its ambiguity could potentially be both a positive and negative simultaneously. The main strength is that it is inclusive and allows for flexibility which organizations take a liking to, because they can promote positive initiatives and efficiency at their own discretion. The negative on the other hand could be seen as a major flaw. In the 1987 Report, there is no mention of whose needs must be met, it does not offer any solutions or further explanation regarding how development can progress in ways to meet needs, and lastly, there is no clarification about needs or wants or if there are any to begin with.

Presented with the lack of consistency from the SD definition it is clear that its ambiguity can be positive at an international scale as it allows military entities and states to experiment with the term, use it, and to explore and develop it at their own pace. However, when zooming in on domestic sovereign affairs, it is much harder to follow and comply with laws based on a flexible term without a concrete definition. In the next chapter, Canada’s environmental issues and military history will be explored in order to determine how it influenced or influences the course of environmental law (discussed in Chapter 5). Sustainable Development will also be examined at a domestic level while uncovering the role it plays within military environmental laws and their responsibilities.

**Table 3-1. Definition Table**

<b>Table 1. Definitions of sustainable development implicitly or explicitly adopted by selected indicator initiatives</b>					
<b>Indicator Initiative</b>	<b>Number of Indicators</b>	<b>Implicit or explicit definition?</b>	<b>What is to be sustained?</b>	<b>What is to be developed?</b>	<b>For how long?</b>
Commission on Sustainable Development <sup>a</sup>	58	Implicit, but informed by Agenda 21	Climate, clean air, land productivity, ocean productivity, fresh water, and biodiversity	Equity, health, education, housing, security, stabilized population	Sporadic references to 2015
Consultative Group on Sustainable Development Indicators <sup>b</sup>	46	Same as above	Same as above	Same as above	Not stated; uses data for 1990 and 2000
Wellbeing Index <sup>c</sup>	88	Explicit	"A condition in which the ecosystem maintains its diversity and quality—and thus its capacity to support people and the rest of life—and its potential to adapt to change and provide a wide range of choices and opportunities for the future"	"A condition in which all members of society are able to determine and meet their needs and have a large range of choices to meet their potential"	Not stated; uses most recent data as of 2001 and includes some indicators of recent change (such as inflation and deforestation)
Environmental Sustainability Index <sup>d</sup>	68	Explicit	"Vital environmental systems are maintained at healthy levels, and to the extent to which levels are improving rather than deteriorating" [and] "levels of anthropogenic stress are low enough to engender no demonstrable harm to its environmental systems."	Resilience to environmental disturbances ("People and social systems are not vulnerable (in the way of basic needs such as health and nutrition) to environmental disturbances; becoming less vulnerable is a sign that a society is on a track to greater sustainability"); "institutions and underlying social patterns of skills, attitudes, and networks that foster effective responses to environmental challenges"; and cooperation among countries "to manage common environmental problems"	Not stated; uses most recent data as of 2002 and includes some indicators of recent change (such as deforestation) or predicted change (such as population in 2025)
Genuine Progress Indicator <sup>e</sup>	26	Explicit	Clean air, land, and water	Economic performance, families, and security	Not stated; computed annually from 1950–2000

SOURCE: Adapted from T. M. Parris and R. W. Kates, "Characterizing and Measuring Sustainable Development," *Annual Review of Environment and Resources* 28 (2003): 559–86.

<sup>a</sup> United Nations Division of Sustainable Development, *Indicators of Sustainable Development: Guidelines and Methodologies* (2001), <http://www.un.org/esa/sustdev/natlinfo/indicators/IndIsd/IndIsd-mg2001.pdf>.

<sup>b</sup> Consultative Group on Sustainable Development Indicators, <http://www.itsd.org/ogsdi/>.

<sup>c</sup> R. Prescott-Allen, *The Wellbeing of Nations: A Country-by-Country Index of Quality of Life and Environment* (Washington DC: Island Press, 2001).

<sup>d</sup> World Economic Forum, *2002 Environmental Sustainability Index* (Davos, Switzerland: World Economic Forum, 2002), <http://www.weforum.org/indicators/ESI/downloads.html>; and D. C. Esty and P. K. Cornelius, *Environmental Performance Measurement: The Global Report 2001–2002* (Oxford, UK: Oxford University Press, 2002).

<sup>e</sup> C. Cobb, M. Glickman, and C. Cheslog, *The Genuine Progress Indicator: 2000 Update* (Oakland, CA: Redefining Progress, 2000).

Indicator Initiative	Number of Indicators	Implicit or explicit definition?	What is to be sustained?	What is to be developed?	For how long?
Global Scenario Group <sup>f</sup>	65	Explicit	"Preserving the essential health, services, and beauties of the earth requires stabilizing the climate at safe levels, sustaining energy, materials, and water resources, reducing toxic emissions, and maintaining the world's ecosystems and habitats."	Institutions to "meet human needs for food, water, and health, and provide opportunities for education, employment and participation"	Through 2050
Ecological Footprint <sup>g</sup>	6	Explicit	"The area of biologically productive land and water required to produce the resources consumed and to assimilate the wastes produced by humanity"		Not explicitly stated; computed annually from 1961–1999
U.S. Interagency Working Group on Sustainable Development Indicators <sup>h</sup>	40	Explicit	Environment, natural resources, and ecosystem services	Dignity, peace, equity, economy, employment, safety, health, and quality of life	Current and future generations
Costa Rica <sup>i</sup>	255	Implicit	Ecosystem services, natural resources, and biodiversity	Economic and social development	Not stated; includes some time series dating back to 1950
Boston Indicator Project <sup>j</sup>	159	Implicit	Open/green space, clean air, clean water, clean land, valued ecosystems, biodiversity, and aesthetics	Civil society, culture, economy, education, housing, health, safety, technology, and transportation	Not stated; uses most recent data as of 2000 and some indicators of recent change (such as change in poverty rates)
State Failure Task Force <sup>k</sup>	75	Explicit		Intrastate peace/security	Two years
Global Reporting Initiative <sup>l</sup>	97	Implicit	Reduced consumption of raw materials and reduced emissions of environmental contaminants from production or product use	Profitability, employment, diversity of workforce, dignity of workforce, health/safety of workforce, and health/safety/privacy of customers	Current reporting year

<sup>f</sup> P. Raskin et al., *The Great Transition: The Promise and Lure of the Times Ahead* (Boston, MA: Stockholm Environmental Institute, 2002), [http://www.tellus.org/selb/publications/Great\\_Transitions.pdf](http://www.tellus.org/selb/publications/Great_Transitions.pdf); and P. Raskin, G. Gallopini, P. Gutman, A. Hammond, and R. Swart, *Bending the Curve: Toward Global Sustainability*, Polestar Report 8 (Boston, MA: Stockholm Environmental Institute, 1998), <http://www.tellus.org/selb/publications/bendingthecurve.pdf>.

<sup>g</sup> M. Wackernagel et al., "Tracking the Ecological Overshoot of the Human Economy," *Proceedings of the National Academy Science* 99, no. 14 (2002): 9266–71; and M. Wackernagel, C. Montreda, and D. Deumling, *Ecological Footprint of Nations: November 2002 Update* (Oakland, CA: Redefining Progress, 2002).

<sup>h</sup> U.S. Interagency Working Group on Sustainable Development Indicators (IWGSDI), *Sustainable Development in the United States: An Experimental Set of Indicators*, IWGSDI Report PR42.8:SU 8/EX 7 (Washington, DC, 1998).

<sup>i</sup> Sistema de Indicadores sobre Desarrollo Sostenible (System of Indicators for Sustainable Development), *Principales Indicadores de Costa Rica* (Principal Indicators of Costa Rica) (San José, Costa Rica: Ministerio de Planificación Nacional y Política Económica (Ministry of National Planning and Political Economy), 1998), <http://www.mideplan.go.cr/sides/>.

<sup>j</sup> The Boston Indicator Project, *The Wisdom of Our Choices: Boston's Indicators of Progress, Change and Sustainability 2000* (Boston, MA: Boston Foundation, 2002), <http://www.tbf.org/indicators/shared/news.asp?id=1542>.

<sup>k</sup> D. C. Esty et al., 1998. "The State Failure Project: Early Warning Research for US Foreign Policy Planning," in J. L. Davies and T. R. Gurr, eds., *Preventive Measures: Building Risk Assessment and Crisis Early Warning Systems* (Boulder, CO: Rowman & Littlefield), 27–38; and D. C. Esty, J. A. Goldstone, T. R. Gurr, P. T. Surko, and A. N. Ungert, *Working Paper: State Failure Task Force Report* (McLean, VA: Science Applications International Corporation, 1995); State Failure Task Force, "State Failure Task Force Report, Phase II Findings," *Environmental Change and Security Project Report 5* (1999): 49–72.

<sup>l</sup> Global Reporting Initiative, <http://www.globalreporting.org/>.

[Source (Kates, Parris, & Leiserowitz, 2005)].

## **4.0 CANADIAN MILITARY & ENVIRONMENTAL HISTORY AND CANADIAN SUSTAINABLE DEVELOPMENT**

In the previous chapter, the military and environmental history as well as sustainable development were discussed at an international level. While it provided an overall understanding of what the terms consist of, their history, and transnational interconnection, this chapter will focus on the domestic affairs of the subjects above and take a closer look at their framework. These will be applied through Canadian Environmental Law and also explain the role they play within Canada. Focusing on a sovereign state where laws are strict and there is a constitution enacted for many years, issues can be difficult to unpack due to their complexity. At the same time, SD for example, can benefit in a domestic context as it is provided with a structure and could potentially be more useful in military environmental regulations, enactment, and enforcement. This chapter is also important as it will explore the military's views and goals towards environmental and SD discussions. Furthermore, a close look will also be taken at Canadian Environmental Law, enforcement measures, and the Office of Auditor General.

### **4.1 Canadian Military & Environmental History**

As explained in the previous chapters, the military is no stranger to environmental discussions and concerns as they are semi-dependent on what the environment has to offer. While the military's main scope is national security, one of their duties is also to protect state interest, which would make the environment and its natural resources an important asset. In the past, these would be considered luxuries to be guarded and protected; although at the rate we are moving environmentally, natural resources will become once again luxuries. After WWI, WWII and the Cold War, conversations around military operations and environmental management

were opened for discussion in North America. Around the 1990s Canada started developing strong environmental frameworks and tools such as the Canadian Environmental Protection Act and the Canadian Environmental Assessment Act. Although Canada has had numerous environmental acts and regulations focusing on environmental protection prior to the 90s, none mention the military, whether it may be for permits, exceptions or military responsibilities.

During the Harper government, many thought the environment was put on the back burner and the state's interest shifted far away from anything environmental. While many environmental laws were repealed or unfavorably amended, surprisingly, there were still some strides. Canada has taken environmental issues seriously for the majority of the time, and while at first glance, there seems to be a lot of vague statements, the Canadian legal system is very complex and many regulations are codependent. Thus, if one regulation may be vague or it is referring to another, then the law referenced will most likely have more information on the subject. For example, many military regulations state to refer back to, for example, the Fisheries Act and the Fisheries Act may state to look at SARA for more specific information on an endangered species. Thus, while some laws may seem very general or even superficial, Canada has numerous acts and policies in place that perhaps have more of a pull than first meets the eye. Although in the case studies in chapter 5 we can debunk our theories.



#### **4.2 Department of National Defence & Canadian Armed Forces (DND/CAF)**

The Department of National Defence (DND) and the Canadian Armed Forces (CAF) are Canada's military and are responsible for the country's interests, safety, and some domestic as well as international assets. Under the *National Defence Act*, CAF is an independent and separate entity and it is not to be confused with being part of the DND. Although, it is important to note and highlight that both the DND and CAF have the responsibility to protect and look after domestic and international assets - the environment and natural resources being some examples.

Attention was brought to the DND and CAF around 2006, when Stephen Harper became Canada's Prime minister. He began shifting Canada's direction internationally by focusing on gaining military power. As a result, Canada First Defence Strategy (CFDS) was originally unveiled in 2008, promising to invest \$490 billion in equipment and upgrades over the next 20 years. It was about setting detailed road-maps for CAF's modernization and set clear roles and missions. This was supposed to be an investment plan which discussed four pillars of investment allocation (National Defence, 2013). Those four pillars were: the personnel, equipment, readiness, and infrastructure. The personnel were to increase to 70,000 Regular Forces and 30,000 Reserve Forces while the equipment was to be replaced. To be more specific, Harper suggested replacing core equipment fleets with 17 fixed-wing search and rescue aircraft, 65 next generation fighter aircraft, 10-12 maritime patrol aircraft and 15 ships replacing the destroyers and frigates (*ibid*). As mentioned, Canadian Law was starting to change and the Harper Government was being questioned every step of the way despite the Conservatives trying to "return" Canada to the international stage as a credible and influential country. The focus was on rebuilding DND/CAF into a first-class modern military as "it is a fundamental requirement".

This would have allegedly increased security for Canadians and benefit the economy – although it is hard to see how the economy would benefit when the plan was to “invest” \$490 billion.

Under the 2008 Budget, it was decided to raise annual defense funding to 2% of GDP from the current 1.5% starting the 2011-2012 fiscal year (National Defence, 2013). The plan was turned down in 2011 by the government due to insufficient funding although there has been continuous talk of renewing the plan as their objectives remained.

With that being said, DND/CAF recognize themselves that they have the potential to affect the Canadian environment and they too have a responsibility to aid in its protection (Ferro, 2012). The sustainable development plans will be further discussed below and will set a better understanding of military action and environmental efforts. Below we will look at Defence Administrative Order and Directives that are specifically environmentally focused and which the DND/CAF have to comply with.

#### **4.2.1 Defence Administrative Order and Directives (DAODs)**

Defence Administrative Order and Directives (DAODs) are the new documents created from the remains of Canadian Forces Administrative Orders (CFAOs), Civilian Personnel Administrative Orders, and National Defence Headquarters Policy Directives and Instructions. CFAOs are no longer available to the public due to legal concerns and have been made accessible only to employees. The main reason they are no longer available is because in 2012 they were superseded by DAOD manuals, other standard operating procedures and instruments, while others were cancelled or replaced (Government of Canada, 2015). In short, they are no longer used.

The following table is compiled from the Canadian Forces website where it lists all of the DAODs that are environmentally focused (Government of Canada, 2016).

**Table 4-1. Environmental DAODs**

DAODs	Description
<p>3015-0 Green Procurement (GP)</p>	<p>Focused on sustainable development and development that meets military needs without compromising future generation's own needs</p>
	<p>Green procurement mean achieving sustainable development</p>
	<p>DND &amp; CAF shall apply principle of GP by integrating environmental performances into decision making processes and practices</p>
<p>3015-1 Management of Green Procurement</p>	<p>Increasing durability, quality and efficiencies</p>
	<p>Saving money during acquisition, operation, maintenance and disposal of goods</p>
	<p>Purpose it to explain how GP policy is to be implemented as well as defining roles and responsibilities</p>
	<p>Military equipment can be verified through environmental assessments, life cycle analysis, environmental officers and different tools and websites</p>
	<p>Preventive measures discussed in order to prevent pollution, contamination of sites and cost savings</p>
<p>3016-1 National Security Exception (NSE) Under Trade Agreements</p>	<p>NSE clauses in trade agreements are there in order to ensure that a government is not going to prevent action or protecting information in relation to its procurements that it considers necessary to safeguard security interests</p>
	<p>NSE should not be invoked in order to address time pressure (unless national security) and provide justification for sole source where there is no NS needed</p>
	<p>Security interests are for example: sensitive nature has to be restricted to specific suppliers</p>

DAODs	Description
<p>3029-1</p> <p>Cleaning, Disinfection and Disinfestation of Vehicles, Military Equipment and Personal Goods Entering Canada and Leaving Areas Within Canada Regulated for Soil-Borne Plant Pests and Animal Diseases</p>	<p>Responsible for cleaning and disinfecting military vehicles</p> <p>Military vehicles, generators, shovels, tents and other military equipment must be washed with pressurized water and steam or freed of soil debris</p>
<p>4002-0</p> <p>Nuclear Technology Regulation and Control</p>	<p>DND &amp; CAF governs all nuclear activities, nuclear weapons and explosive devices</p> <p>Military is the largest user of diverse nuclear technology using thousands of different ionizing radiation emitting devices</p> <p>Nuclear activities are regulated under Nuclear Safety and Control Act</p>
<p>4002-1</p> <p>Nuclear and Ionizing Radiation Safety</p>	<p>Nuclear Safety Orders and Directives and permits or certificates are mandatory obligations upon DND/CAF employees and members</p> <p>Nuclear Safety Program shall aim at minimizing human exposure and protecting the environment</p> <p>DND/CAF have to implement safety review process consistent with that of Canadian Nuclear Safety Commission to require safety assessment</p>
<p>4003-0</p> <p>Environmental Protection and Stewardship</p>	<p>Lists military responsibilities and need to exercise due diligence</p>
<p>4003-1</p> <p>Hazardous Materials Management</p>	<p>HAZMAT should be used, stored, handled and disposed in a manner that protects human health, the environment and equipment as well as meeting legal requirements – due diligence is to be carried out (reasonable standard of care)</p> <p>A person who causes damage to the environment and contravenes a federal or provincial law is liable on conviction in civilian court to fine or imprisonment or both</p>
<p>4003-2</p> <p>Environmental Assessment</p>	<p>EA may be required by CEAA or the Cabinet Directive policy and exercising due diligence</p> <p>In accordance with Cabinet Directive, an EA is to be conducted for a policy, plan or program proposal when the proposal is submitted to an individual Minister or Cabinet for approval and implementation of proposal may result in important environmental effects</p> <p>A project is excluded from undergoing an EA if it is listed under the exclusion list regulations, national emergency or carried out in response to an emergency in interest of preventing damage to environment</p>

DAODs	Description
8000-0 Explosive Ordnance Disposal (EOD)	DND/CAF have authority to use explosives for EOD
	Non-compliance with this DAOD may have consequences for the department and will be investigated if suspected
8006-0 Chemical, Biological, Radiological and Nuclear Defence	It is DND/CAF policy to not develop, produce, stockpile or retain biological or chemical agents or toxins other than in quantities permitted under treaties or conventions to which Canada is a party
	Non-compliance may also breach domestic or international obligation thus could result in DND management or CAF command responsibility and personal liability

The table above clearly shows that DND/CAF have orders in place that are environmentally related and in case of emergencies, non-compliance or lack of due diligence reports need to be completed and investigations are started. DAOD 4003-0, *Environmental Protection and Stewardship*, is one of the most important, as it sets the tone for taking responsibility and protecting the environment. The DAOD states under Section 3, Policy Direction, subsection 3.2, *Code of Environmental Stewardship*, that the Department of National Defence (DND) and Canadian Armed Forces (CAF) shall:

- a. integrate environmental concerns with other relevant concerns including those from operations, finance, safety, health and economic development in decision-making;
- b. meet or exceed the letter and spirit of all federal laws;
- c. improve the level of environmental awareness throughout the DND and the CAF through environmental awareness training, and encourage and recognize the actions of personnel leading to positive impacts on the environment;
- d. recognize that the life cycle aspects of hazardous material management (initial selection, procurement, use, handling, storage, transportation and disposal) is an essential factor in all planning with particular emphasis on determining whether the material should even be acquired given its characteristics (see DAOD 4003-1, Hazardous Materials Management);
- e. ensure that environmental considerations are integrated into procurement policies and practices;

- f. practice pollution prevention in day-to-day activities and operations by seeking cost-effective ways of reducing the consumption of raw materials, toxic substances, energy, water, and other resources, and of reducing the generation of waste and noise; and
- g. acquire, manage and dispose of lands in a manner that is environmentally sound, including the protection of ecologically significant areas (Government of Canada, 1993).

DND and CAF have to exercise due diligence which is the reasonable standard of care for the environment and others which has to be exercised in the course of one's actions and duties. That is done by adhering to the Code discussed above, implementing strategies, and conducting environmental assessments (EA) (*ibid*). This takes us to DAOD 4003-2, *Environmental Assessment*. The DAOD states that an EA may be required by the Canadian Environmental Assessment Act (CEAA), by exercising due diligence, and by the Cabinet Directive. CEAA generally requires an EA to be completed before proceeding with a project (Government of Canada , 2000). These DAODs amongst the others listed in Table 4-1 clearly show a standard of responsibility. Despite some initial concerns, the military seem to not be as dismissive as originally believed and seem to follow certain codes of conduct in order to ensure order, protect the environment and compliance with other environmental laws and regulations.

In the following subsections, we will look at Canadian Environmental Law, Sustainable Development and the Office of the Auditor General. These will further our aim of determining if the Canadian Military follows environmental management frameworks to aid in environmental protection and ensuring sustainable development.

### **4.3 Canadian Environmental Law**

#### **4.3.1 Constitution and the Environment**

To understand the way Canadian Law is structured and what responsibilities governmental bodies have, the Constitution will be briefly discussed followed by federal enforcement measures.

The Constitution includes the British North America Act (BNA) 1867, also now known as the Constitution Act, 1867, and the Constitution Act 1982. Together they form the supreme law of Canada (Government of Canada, 2016). In the 1867 Canadian Constitution Act, section 91 and 92 are focused on the division of power which is split between federal jurisdiction and provincial jurisdiction (Government of Canada, 1867-1982). The main concern is that the term ‘environment’ is not mentioned anywhere in the 1867 Act as its own entity. Instead, there are various ‘heads of power’ for both federal and provincial governments that have environmental implications or aspects. In short, neither the federal nor provincial government is assigned any legislative power *sui generis* for the “environment” (Greenbaum & Wellington, 2010). Since the environment is a subject that is very dispersed and fluid, all three levels of government are regulating it in some way. The three-government level being; federal, provincial, and municipality (entity of the province and must ensure that their policies are not *ultra vires*).

There have been many discussions on the environment not being a head of power and the lack thereof throughout Canadian legislation – including the BNA Act. During the enactment of the original constitution, the environment was not seen as a coherent subject (Cotton & MacKinnon, 1993). Although the 1982 amended constitution brought forth some changes in the division of powers pertaining to natural resources, it did not change the discombobulation that

results when trying to determine responsibility for environmental protection under the constitution (Greenbaum & Wellington, 2010).

The discussion above serves as general background as to where the environment fits nationally. As noted previously, the Department of National Defence falls under federal jurisdiction and it is specified as its own federal head of power under the Constitution Act, section 91 subsection 7. This is important to note as the Canadian Parliament has the power to legislate and set any rules they choose in regards to military activities and environmental rules. Thus, federalism is not an issue in the case and are not restricted by the provincial regime.

Below, the federal enforcement measures will be discussed as it will give an overview of how enforcement measures are determined and applied within the federal jurisdiction.

#### **4.4 Federal Enforcement Measures**

In Canadian Law and especially environmental law, enforcement is one of the final stages in regulatory process. “When policy goals have been set, when instruments have been chosen for implementation (e.g. regulatory standards get developed in accordance with enabling legislation), and when there has been monitoring and inspection, enforcement issues will arise if non-compliance is detected” (Greenbaum & Wellington, 2010). Those are the stages of the regulatory system. Non-compliance may also happen due to: the lack of electoral incentive, reliance on single enforcement regime, federal/provincial division of power and constitutional constraints, resource limitation, and provincial resistance (weakening the role of federal government in environmental protection) (*ibid*).



CEPA, EAs or the Fisheries Act are some of the tools used at a federal level for enforcement purposes. For example, an administrative enforcement action may be an Environmental Protection Compliance Orders (EPCO) and that can be issued under CEPA 1999 for: a) preventing a violation occurrence; b) correcting omissions where conduct is compulsory under CEPA or one of its regulations and that conduct is not occurring and c) correcting or stopping a violation which is occurring or continuing over a period of time. Moreover, under CEPA, failure to provide a report as required by regulation or failing to provide documents within the stipulation time limit. The problem is however that according to Ecojustice the number of CEPA investigations, prosecutions and overall convictions has declined since 2003-2004 (Ecojustice, 2011). With an average of \$10,000 in fines per CEPA conviction for environmental offences, it is much too low to actually deter any serious polluters and it took Environment Canada “more than 20 years to collect \$2.4 million in fines under CEPA”, The Toronto Public Library, as a comparison, “collected \$2.6 million in fines for overdue books in 2009 alone.” (*ibid*). This in itself is concerning as we will see in the below subsection. The Commissioner of Environment and Sustainable Development 2016 Fall Report showed that DND/CAF have failed to apply Cabinet directives to most of their policy, plans, and program proposals, yet there do not seem to be any consequences as of yet. In the following subsection, the Auditor General will be discussed, determining findings and recommendations based on the audit reports which will clarify DND/CAF’s focus in terms of environmental protection.

## **4.5 Office of the Auditor General (OAG)**

The Auditor General plays an important role in the federal government as it is the only entity that is able to audit the DND/CAF to ensure compliance with environmental laws and regulations as well as point out and give recommendations to any misconduct.

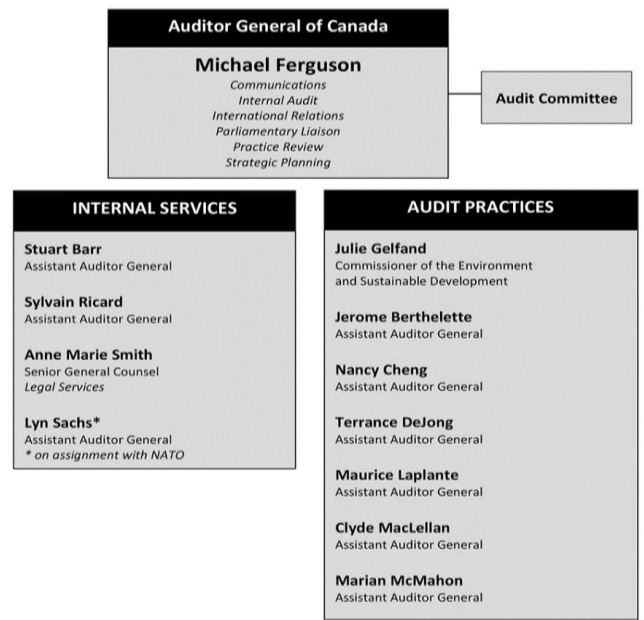
### **4.5.1 Brief History**

The first independent Auditor General (AG) of Canada was appointed in 1878 and in 1977 the *Auditor General Act* was enacted. The Act expanded AGs responsibilities and clarified their role as well as explained that they do not comment on policy choices but instead only examine how these policies are implemented. The Office of the Auditor General of Canada (OAG) is defined by the Government as serving the Parliament “by providing it with objective, fact-based information and expert advice on government programs and activities, gathered through audits” (Office of the Auditor General of Canada, n.d.). The Privy Council Office refers to the OAG as Officer of Parliament or the AG as an Agent of Parliament; thus, carrying out work for the Parliament, as the name suggests (Parliament of Canada, 2014).

In the 1995 amendment of the Act, within the OAG, the position of the Commissioner of the Environment and Sustainable Development (CESD) was established (Office of the Auditor General of Canada, 2016). The CESD’s job is to provide parliamentarians with objective, independent analysis and/or recommendation of the federal government while monitoring sustainable development strategies, overseeing the environmental petitions process and auditing the federal government’s management of environmental and sustainable development in order to protect and ensure the proper application of the above (Office of the Auditor General of Canada, n.d.). See Figure 4-1 for the current OAG Organizational Chart.

Canada’s Parliament consists of 3 parts: The Queen, the House of Commons and the Senate. The three are part of the legislative branch of the federal government that work together to make Canadian laws. Thus, the OAG’s objectivity is confirmed through its independence of government which ensures fair audits. Moreover, the office is also annually audited by external auditors appointed by the Treasury Board of Canada. The office is required to submit annual spending estimates to Parliament and explain their estimates, priorities, and management practices. In 1999 the OAG was audited by an external firm who looked at the quality management systems for financial audits. In 2003 they were audited by an international team led by the National Audit Office of United Kingdom (U.K.) who reviewed performance audit practices; and lastly, in 2009 another international peer review team from the Australian National Audit Office examined the work of the OAG (Office of the Auditor General of Canada, 2016). As mentioned, this ensures that objectivity is achieved and audits are conducted in a fair manner.

**Figure 4-1. Organization of the Office of the Auditor General of Canada**



[Source (Office of the Auditor General of Canada, 2016)]

## **4.6 OAG and the Military**

As previously mentioned, the OAG's duty is to audit the federal government which includes about 100 departments and agencies from small boards to large complex organizations where activities range and extend across Canada and overseas. They also audit about 40 Crown corporation and the governments of Nunavut, Yukon and the Northwest Territories as well as 20 territorial corporations and agencies (Office of the Auditor General of Canada, 2016). The DND/CAF falls under the umbrella of the federal government department and for the purpose of this paper, I will examine the Auditor General Reports and Commissioner of the Environment and Sustainable Development Reports from 2001 until 2016 in regards to National Defence and Environmental concerns, for the summary of the reports, see Appendix B. Moreover, the OAG audits government activities and environmental matters. These matters range anywhere between the environment, transportation, finances to agriculture and health.

Under the Auditor General Act, the AG addresses 3 main questions:

1. Is the government presenting its financial information fairly?
  - a. Attest Auditing (Verifies that the government financial statements are a fair presentation of its financial position and results)
2. Did the government collect or spend the amount of money authorized by Parliament and for the purposes Parliament intended?
  - a. Compliance Auditing (Did the government has complied with the Parliament's wishes?)

3. Where programs run economically and efficiently? Does the government have the means to measure their effectiveness? Was appropriate attention paid to environmental consequences?
  - a. Value-for-Money Auditing (Are taxpayers got value for their tax dollars and are programs managed well?)

Table B-1 and Table B-2 were created in order to summarize all the OAG reports (AG & CESD) over the past 15 years on the Department of National Defence audits in regards to environmental concerns and sustainable development. Upon counting the total AG and CESD reports over the past 15 years, the sum would be 62. Out of those 62 reports 36 were more or less concerned with the environment and DND/CAF directly. Out of the 36 reports, 2 will be discussed in detail in the section below as they were the most concerning, those are: the CESD 2016 Fall Report (Report 3) and the AG 2003 April Report (Chapter 7). Coincidentally they both have something in common which would be discussed in the conclusion of the section below.

#### **4.6.1 CESD 2016 Fall Report & AG 2003 April Report**

The focus of report 3 of the 2016 CESD Fall report was on determining if the DND amongst, the Department of Justice Canada, Parks Canada, Public Services and Procurement Canada, and Veterans Affairs Canada, adequately applied Cabinet Directive on the Environmental Assessment (EA) of Policy, Plan and Program Proposals, if they reported their strategic EA practices (as required by the Cabinet) and if they met their departmental sustainable development strategy commitments under the Federal Sustainable Development Strategy commitments (Commissioner of Environment and Sustainable Development, 2016). Upon the completion of the audit, it was found that the Cabinet directive was not applied to most policies,

plans and program proposals. The Cabinet directive, as briefly discussed under DND/CAF DAODs, requires department and agencies to conduct EAs if the “proposal is submitted to an individual minister or to Cabinet and implementing the proposal may result in important environment effects” (Commissioner of Environment and Sustainable Development, 2016). The Cabinet recognized that there may be special cases where EA is not required but those are related to emergencies when EAs can’t be obtained due to time sensitive matters. The Commissioner found that 263 policy plans did not have the Cabinet directive applied. DND more specifically applied the directive to only 4 out of its 122 proposals between January 2013 and December 2015 (*ibid*). The Commissioner’s recommendation was for the DND, amongst the others, to apply Cabinet Directive on the plans, policies, and proposals to their individual minister or cabinet as required, and to do so in a timely manner. The DND agreed and stated that they will review and update existing policy and guidance documents related to EA and they will define and categorize the types of proposals submitted to the Minister. Their tasks are to be achieved by March 31<sup>st</sup>, 2017 (*ibid*). Moreover, it was also found that the DND did not consistently report on the results of their strategic environmental assessment practices and it was recommended to report consistently on these matters. Once again DND agreed and will improve monitoring process to better track the completion of the preliminary scans and detailed strategic EAs.

Chapter 7 of the 2003 Auditor General April Report, concerns itself with Environmental Stewardship of Military Training and Test Areas. The Department of National Defence is required to comply with federal legislation protecting the environment even though it is understood that training and testing areas are potentially damaging to the environment (Office of the Auditor General of Canada, 2003). It has been found that the DND did not, in some cases, comply with certain legislation and even continued to train on lands that were identified, as far back as 1988, as unsustainable and weak for military training (*ibid*). As stated above, the Department must comply with legislations such as the Fisheries Act, CEAA and CEPA. DND/CAF have a total of about 18,000 square kilometers of land for the purpose of training, testing, and other military activities. To put this in perspective, that is approximately 3 times the size of Prince Edward Island. It was expected that Crown land occupiers would comply with existing laws and regulations, identify ranges suitable for military activities, developing and implementing management tools and developing a list of potentially contaminated sites (*ibid*).

The main problem found was the lack of due diligence from the Department, as they were non-compliant with the Fisheries Act and CEAA. At the Combat Training Centre Gagetown, New Brunswick, up to 7,250 hectares of trees were cut between 1995 and 1997 in order to expand the mounted manoeuvre area. In short, the tree cutting was not authorized by the Canadian Forest Service as required by the 1993 Timber Regulations under the Forestry Act. They were legally required to obtain proper authorization before cutting the timber and moreover, EA was required under CEAA so that work would be done in that area (Office of the Auditor General of Canada, 2003). Due to the land clearing activities, erosion and silting took place and as a result affected a salmon spawning stream which was contrary to the Fisheries Act.

This is a perfect domino effect example. Moreover, these issues have been further aggravated by continuous actions and movement of vehicles over the affected land which also affected the salmon streams. In this, case Fisheries and Oceans Canada could have easily resorted to the offence provision of the Act; however, they chose to encourage DND/CAF to comply by working cooperatively.

The AG's recommendation was that due diligence should be exercised by complying with fish habitat and pollution protection provisions of the Fisheries Act on designated military areas.

DND/CAF responded that they are:

...committed to meeting or exceeding the letter and spirit of all federal environmental legislation, including the provisions of the Fisheries Act and the Canadian Environmental Assessment Act. Additionally, the Defence Team is committed to exercising due diligence. This commitment is clearly stated in our Environmental Policy.

The Department will continue to reinforce environmental responsibilities, of which due diligence is a component, through various forums (Office of the Auditor General of Canada, 2003).

With that being said, if the commitment is clearly stated under DND/CAF's Environmental Policy there should have been no confusions in the first place and compliance with the Fisheries Act and CEAA should have come naturally. Moreover, AG also recommended that EAs be carried out on all projects in test and training areas for which assessments are required. The response was that they would comply with CEAA and ensure EAs required would be fulfilled.



In conclusion both documents demonstrate that if the DND/CAF have one consistent problem, it is the lack of EAs required under the CEAA for their activities. CEAA requires that DND/CAF conduct EAs before proceeding with a project and, where appropriate, they are prompted to ensure public involvement. While there are some special cases under the Cabinet Directive where EAs are not required, e.g. if DND/CAF are responding to immediate emergency and there is no sufficient time to undertake an EA, the military activities were not under immediate emergency status and thus should have obtained an EA. Therefore, the AG and CESD were correct in their findings as the DND/CAF did not properly comply under DAOD 4003-2 which clearly discusses the structure of Environmental Assessment required by the military and their responsibility to obey. DAOD 4003-2 states under section 7 that “DND employees and CAF members are responsible for ensuring that the EA process is implemented for applicable DND and CAF projects, activities, policies, plans and programs for which they are responsible” (Government of Canada, 2016).

A major concern that I noticed consistently in the reports over the past 15 years, is that the Department of National Defence gives the AG and CESD very diplomatic answers. All responses state that they agree and will be perfectly compliant in the future and will also exceed expectations. While the clear and constant communications is a positive outcome of the OAG work, there are some negatives aspects in the sense that the military cannot be forced by the OAG to abide with legislations that they are currently not compliant with. This however would be the best solution as the OAG has access to military information and could direct them, on a path that would ensure environmental and sustainable development success.

The next section will explore Sustainable Development in Canada and discuss the strategies and processes. Despite DND/CAF's misconduct found in the CESD and AG reports, federal and departmental strategy reports still possess a good overview of their plans and goals in order to attain environmental protection in the military.

#### **4.7 Sustainable Development in Canada**

Sustainable Development is pertinent to study in regards to DND and environmental regulations as it presents a clear plan and lists strategies that the federal government needs to attain until a new strategic plan is developed. It also gives more insight into environmental management frameworks and any Canadian future goals. As previously mentioned, SD was introduced in the international platform which then was integrated into national policies, making its way further in environmental discussions. However, an SD precursor was emerged in Canada in 1973 in the Science Council of Canada Report, *Natural Resource Policy Issues in Canada* (Shrubsole, 2010). Within the report, the term 'conserve society' is used to "portray what it maintained was key to solving the environmental problems of the time. Rather than being consumers of resources, the Science Council argued, Canadians should ensure the wise and efficient use of resources, and reduce their generation of waste" (*ibid*). Thus, the concept is very similar to SD. The 2008 Federal Sustainable Development Act (FSDA) shares the same SD definition as the Brundtland Report<sup>3</sup>. In the Act, it states that the Canadian Government accepts that SD as being based on ecologically efficient use of "natural, social and economic resources

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<sup>3</sup> After the 1987 Brundtland Report, Canada founded the same year, the National Round Table on the Environment and the Economy (NRTEE) which was a Canadian advisory agency. Their focus was on sustaining prosperity without affecting future generations and raising awareness about SD challenges, amongst Canadian citizens and their governments. They also released numerous reports on priority issues and were objective to government opinions and blunt in their suggestions but after 25 years NRTEE ceased to exist on March 31<sup>st</sup> 2013 due to Harper's government stopping funding (Newfoundland and Labrador Environmental Industry Association, n.d.)

and acknowledges the need to integrate environmental, economic and social factors in the making of all decision by government” (Federal Sustainable Development Act, 2008).

Thus, the following sections will be examining Departmental Sustainable Development, Defence Environment Strategy (DES) and Federal Sustainable Development Strategy (FSDS), the 2016-2019 FSDS to be specific. These should be able to help determine if the Military is serious in its sustainable development missions and environmental protection goals.

#### **4.7.1 Departmental Sustainable Development Strategies & Federal Sustainable Development Strategy (FSDS)**

In December 1997, DND/CAF put together their first Sustainable Development Strategy (SDS) which was tabled in 1999 in Parliament (National Defence, 2006). Between 1997 and 2009 the defence developed four iterations of the DND SDS as required by the AGA. Due to past inconsistencies, Departmental Sustainable Development Strategies were superseded by a whole new governmental approach under the 2008 FSDA, and thus, the Federal Sustainable Development Strategy (FSDS) was first introduced in October 2010 - being the main driver for sustainable development planning and reporting (National Defence, 2016). However, due to the gap between DND SDS and FSDS, a Defence Environment Strategy (DES) was identified within defence priorities in 2010. It was developed to address federal sustainability plans through the presence of the FSDS and it “integrates and employs best practices through life-cycle management into workplace activities and operations at an organizational level in support of a sustainable modern military” (Government of Canada, 2016).

The FSDS provides Canadians with SD priorities, goals, and targets that are being set up in order to maintain and restore ecosystems, provide healthy environments and gain economic growth in an economical way. Moreover, it also highlights government actions from 41 federal organizations to be reevaluated every 3 years (Government of Canada, 2016). Its introduction in the Canadian environmental legal framework was important as it was one of the kind. It was quickly considered as an indicator that the Canadian Government sees SD a priority. The main themes are divided in four so that it can address climate change and air quality, water maintenance quality and availability, protection of nature and its citizens, and shrinking the environmental footprint, which was agreed that it start with the Government.

#### **4.7.1.1 FSDS 2016-2019**

The 2016-2019 Federal Sustainable Development Strategy was tabled by Parliament in October 2016 with a draft released for public consultation from February through June 2016. The new strategy presents “13 aspirational goals...and outlines federal leadership on climate change and the environment-related 2030 Sustainable Development Goals” (Government of Canada, 2016). The FSDS is focused on including new targets, short-term milestones and action plans that promote growth, ensure healthy ecosystems, and building safe and sustainable communities over the next three years (*ibid*). According to the document, waiting for the people’s concerns to be addressed will no longer be an issue, instead the governmental website will continue to be available to the public to send suggestions and leave comments. The FSDS will reflect those updated changes in 2019 when the 2019-2022 strategy will be renewed (*ibid*).

Focusing in detail on the 2016-2019 FSDS, the DND should be part of responsible departments/agencies under all the different sections listed throughout the report: Effective action on climate change, Low-carbon government, clean growth, modern and resilient infrastructure, clean energy, health coasts and oceans, pristine lakes and rivers, sustainably managed lands and forests, healthy wildlife populations, clean drinking water, sustainable food, connecting Canadians with nature and safe and healthy communities. Unfortunately, from all of those, the DND is listed under *responsible agencies* in only two sections - Low-Carbon Government and Healthy Wildlife Populations. These are discussed below in the following subsections.

#### **4.7.1.1.1 Low-Carbon Government**

Canada's long term goal is to become a leader by example on climate change and being able to make its operations low-carbon. With a large property portfolio, Canada uses a great amount of energy, meaning billions of dollars spent yearly on services and goods. The medium-term targets are to reduce GHGs by 40% from federal buildings and fleets by 2030 with the aspiration of achieving it 5 years earlier. The short-term milestones encourage departments to take sustainable workplace actions, review procurements practices in order to align with green objectives and adopt building standards as well as take a closer look at GHG emissions and energy use. As of 2014-2015 agencies have reduced by 4.6% of the GHG emissions relative to the 2005-2006 fiscal year (Government of Canada, 2016). The plan is to improve efficiency of buildings in order to reduce energy consumption and GHG emissions; modernize fleets in order to support electric vehicles; support transitions to a low-carbon economy through green procurements by taking in account environmental considerations in purchasing decisions;

demonstrate innovative technologies in order to increase operational efficiency; promote sustainable travel practice in order to reduce impact of government travel; understanding climate change impacts and building resilience; improving transparency and accountability so that they align with international standards and be able to accomplish goals; and developing policies for low-carbon government in order to reduce environmental impacts (*ibid*).

In the other sections the DND is not mentioned as responsible for action. This is surprising considering that in order to reduce GHG emissions then all the other sections should be further explored.

#### **4.7.1.1.2 Healthy Wildlife Populations**

Canada's long term goal for Wildlife is that all species have healthy and viable populations. Maintaining biodiversity is very important since it benefits Canadians through providing food, medicines, controlling floods, and pollinating crops. Some species have experienced population declines and are at risk of becoming extinct. Species in general are threatened as a result of human activities. Thus, the medium-term targets are that by 2020 secure species will remain the same and species that are at risk (listed under federal law) will be on the path to recovery. By 2025, migratory bird species will be expected by 59% to have population growth within acceptable range (Government of Canada, 2016). Furthermore, the short-term milestones are that species at risk will finally exhibit stabilizing trends. The plan is really to work with partners to protect species and their habitat, use legislation to protect species at risk and to control invasive alien species, build capacity and promote education about species and their habitat, and uphold international commitments related to wildlife.

## **4.8 Conclusion**

In comparison to chapter 3, *International Environmental and Military History and International Sustainable Development*, chapter 4 was concerned with understanding these concepts, terms and plans by exploring their application in a domestic context. We started by exploring the military's relationship with the environment in Canada, followed by understanding who DND/CAF is and what their sustainable strategies and plans are. I then explored most of the Defence Administrative Order Directives concerned with environmental protection and SD by then looking at the Canadian constitution and enforcement measures at the federal level. These were interesting to investigate as it was determined that federal entities have to adhere to certain regulation and they are audited by OAG in order to ensure that they are compliant with environment protection laws and regulations and that they commit to their sustainable strategy commitments. As we saw earlier in the CESD and AG reports, the military has failed to comply with the Cabinet Directive EAs requirements but according to their responses, they will work on frameworks and plans to avoid these issues from happening again and plan on catching up by 2017. Further reports of sustainable development progress may determine that DND/CAF plan to be recognized for the environmental efforts and strive to protect the environment and be part of making a change and setting examples.

Furthermore, it is also important to point out that the notion of environmental management framework for the military is a relatively new concept. It can be traced as early as the 90s when the 1995 OAG Act amendment created the requirement for DND SDS which were superseded in 2008 by the FSDA paving the way for FSDS and DES. This is noted because it shows how late Canada decided to link the discussions between the environment and military. There is however, room for improvement and despite some of the hiccups along the way during the time the Conservative government was in power, there seemed to be a want for change. The best conclusion though, would be that it is a work in progress.

In chapter 5, a couple of case studies will examine specific examples and put the above plans, theories, and strategies in action. We will then see what the military reactions and responses were and are when faced with environmental protection and sustainable development issues at hand.



## **5.0 CASE STUDIES**

The case studies below reflect the main topics discussed throughout the document: Canadian Environmental Law, Sustainable Development and Military Environmental Protection. By looking at the case studies on the Fisheries Act, SARA, and Contaminated Land and Hazardous Waste I will further assess the Canadian Military's efforts in environmental protection and maintenance of sustainable development.

### **5.1 Fisheries Act**

The Fisheries Act is the longest standing federal environmental law to date. It was first adopted in 1868 after the enactment of the British North America Act and it became stronger throughout the years until 2012 (EcoJustice, 2012). This Act has been particularly important due to the fact that it empowered the government to not only protect fish while prohibiting harmful alteration, destruction or disruption of fish habitat (*ibid*). Unfortunately, in 2012, Bill C-38, also known as the Omnibus Bill, was introduced by the Harper government to amends 70 federal laws in just one single bill the: *Jobs, Growth and Long-term Prosperity Act*.

The Fisheries Act was amongst affected legislation. Some ecologists commented that “it is possibly one of the biggest setbacks to conservation law in almost 50 years” (Galloway, 2013). One of the most substantial changes, was abandoning the government role in habitat management as they removed the broad protection which covered all fish habitat. Now, the Act only protects fish of commercial, Aboriginal, and recreational value – protection of which has also been weakened further since the adoption of the amendment.

This change is very important particularly because in the past it was difficult to avoid an environmental assessment (EA) under the Canadian Environmental Assessment Act (CEAA). For the military in general it is much harder to track their projects, usage of hazardous materials and chemicals due to national security reasons and censorship, which is being used to shield them from EAs. Since Bill C-38 essentially overwrote the CEAA, and EAs are no longer required for projects proposed or regulated by the federal government, it became tougher to identify hazardous and unsustainable military actions or activities. Moreover, when a project should be up for environmental assessment, the new act allows provincial assessments to replace the federal assessments (David Suzuki Foundation, 2012). The next example ties in with hazardous waste and contaminated land but in cases of nuclear projects, for example, when they are assigned for EA they are not referred to an independent panel anymore. Instead they are assessed in-house by government agencies such as the Canadian Nuclear Safety Commission. Even if federal EAs are authorized, the Act limits their scope (*ibid*). With Bill C-38 GHG emission reporting became less frequent. In addition, marine conservation areas are no longer required to provide the Parliament with annual corporate plans and reports and are reviewed much less frequently – every ten years rather than the original five (*ibid*). As a result of all this, the Fisheries Act became a less useful issue since.

An example that relates to the fisheries act is the Ocean Act, which the parliament enacted back in 1996, except it is very largely unimplemented. The actual efforts come from the Pacific North Coast Integrated Management Area (PNCIMA) which focus on implementing ocean management planning on the Pacific coast. PNCIMA development however was impaired by the government's withdrawal of support and not much came of it (EcoJustice, 2012). This is a perfect example as to why the government should be implicated and solely responsible for

avoiding environmental catastrophes, by having strong laws and regular assessments that would hold the true culprit responsible instead of deflecting the issue.

Moreover, Canada's Maritime Forces Atlantic (MARLANT) engage in a range of activities including sovereignty patrols, maritime surveillance, search and rescue, training and combat readiness, exercises and support to other government departments for law enforcement as well as fisheries and environmental protection (Fisheries and Oceans Canada, 2008). To this end, MARLANT uses numerous vessels, including submarines, ship-borne helicopters, long-range patrol aircraft, coastal defense vessels, patrol frigates and so on. With these vessels being geared towards military applications and defence, little consideration is given to their actual impact on the environment. What materials are they made of? What are their emissions? How are they affecting the marine ecosystem?

The DND regulates CAF and Maritime Forces activities and obviously, there are exemptions for the Canadian Military vessels if their activities are for the purpose of: law enforcement, national security, sovereignty and public safety [sec. 10 (a)] (*ibid*). If they are not under those specific terms they are required to follow the Plan under Marine Navigation. There is a very fine and subjective line and no one can really make sure that these laws and regulations are properly applied. MARLANT does have environmental management plans for regional exercise areas and they indeed do have to provide information and mitigation measures for their activities in exercise areas. But what happened to activities outside those exercise areas? Who do they report to and who holds them responsible in case of an accident?

In this case study, I assumed the role of the devil's advocate as it is too easy with this specific example to question the military and their connection to these affairs. Furthermore, this case study was chosen as the Fisheries Act was known as one of the best and strongest environmental law up until the point Bill C-38 was passed.

Below we will take a look at Species at Risk Act (SARA) and determine if it too has some gaps or if the Canadian military has some potential loopholes available.

## **5.2 Species at Risk Act (SARA)**

Species at Risk Act also known as SARA defines federal land (but it is not limited to) Canada's, military training areas, waterways and oceans, national parks, national wildlife, First Nations reserve lands and some migratory bird sanctuaries (Environment Canada, 2007). The government has a three-part strategy in order to protect species at risk and those are: SARA, the accord for the protection of Species at Risk, and stewardship and incentive programs. Moreover, SARA make it an offense to kill, harm, capture, destroy the residence of species at risk and so on. According to the act, the prohibitions also apply to all national wildlife areas, military training areas, national parks and essentially everything that is also listed as federal land (*ibid*). While SARA seems to present itself as a thorough Act, it was another victim of Bill C-38.

Bill C-38 removes time limitation on permits and agreements which consequentially allow for activities to affect these species at risk or their habitat; meanwhile in the past they were restricted to three and five years which created a sort of structure and was much easier to regulate (David Suzuki Foundation, 2012). A major problem recently has been DND not releasing recovery strategies in time. SARA requires recovery strategies in order to follow strict timelines so that it protects endangered species. However, without the strict timelines and with the delayed recovery

strategies, Ecojustice and the David Suzuki Foundation state that the following wildlife is threatened; killer whales, humpback whales, white sturgeon, seabirds, caribous and many other endangered marine mammals and fish (David Suzuki Foundation, 2014). As a result, Environmental groups decided to take the federal government to court over its continued failure to meet legal responsibilities under SARA (*ibid*).

A main concern with SARA is section 83 that states:

83 (1) Subsections 32(1) and (2), section 33, subsections 36(1), 58(1), 60(1) and 61(1), regulations made under section 53, 59 or 71 and emergency orders do not apply to a person who is engaging in:

(a) activities related to public safety, health or national security, that are authorized by or under any other Act of Parliament or activities under the Health of Animals Act and the Plant Protection Act for the health of animals and plants; or

(b) activities authorized under section 73, 74 or 78 by an agreement, permit, license, order or similar document. (Environment Canada, 2007).

Despite both AG and CESD having determined that DND/CAF have been upfront and admitted they were not in compliance with CEAA in obtaining EAs, SARA's exception section allows room for dishonesty. DND/CAF is upfront about their issues and mistakes as they are not held responsible and have nothing in particular to lose. However, if Bill C-38 wasn't passed and legislations were a bit tighter, section 83 could have been used as 'national security' excuse in order to exclude them of any responsibilities of future potential accidents.

A relatively newer case involving the military is that of the Killer Whale Recovery Strategy. The DND often conducts sonar testing in whale habitats, and are sometimes in joint operations with U.S. Navy. This is problematic because Killer Whales are being threatened and are one of the endangered species listed under SARA. A team of marine scientist created a

science based plan. However, Fisheries and Oceans Canada (DFO) blocked any release of the Team's Recovery Strategy (which they were legally required to release by June 1<sup>st</sup> 2006). Numerous environmental groups sent DFO letters threatening to file a lawsuit if the Killer Whale Recovery Strategy was not released by June 4<sup>th</sup> 2007 (Ecojustice, 2013). The DND wanted to weaken the Recovery Strategy and argued that Canadian and American naval vessels which operate in Canadian waters should not be bound by sonar-specific regulations. Meanwhile the DFO continued to refuse to release anything and thus they were hit with a lawsuit regarding their failure to legally protect critical habitat and endangered species under SARA. However, on September 9<sup>th</sup>, 2009 the federal court found the DFO guilty in "failing to identify the habitat of the Nooksack dace, an endangered fish restricted to only four streams in BC's Lower Mainland" (David Suzuki Foundation, 2009)

This case study was chosen for the same reason I chose the Fisheries Act. Bill C-38 weakened some of the strongest environmental laws, acts and regulations but in this case particularly the environmental groups were able to stand their ground and sue DFO for their lack of compliance and failure to provide the recovery strategy which was legally required. In the next section of Contaminated Land and Hazardous Waste there are three subsections with case studies under the title. The Distant Early Warning will be discussed, followed by COSMOS 954 and UXO sites.

### **5.3 Contaminated Land and Hazardous Waste**

#### **5.3.1 Distant Early Warning (DEW) Line**

In the military, contaminated lands and hazardous waste are two issues that come up often. While looking at these two topics, the Distant Early Warning (DEW) Line was considered the biggest military project in Arctic history. In the early 50s the U.S. government decided that they were in need of a series of radar station across the Arctic that would detect any enemy bombers. DEW used to be a line of radar stations that ran across the arctic; from Alaska through all of Canada and over Greenland to Iceland. In the late 80s due to changes in technology the DEW line was shut down and replaced with the North Warning System (NWS). With this, both countries soon realized the negative impacts the Line had on the environment and human health and started the DEW Line Clean-Up Protocols.

DYE-Main was one of the largest of the 21 sites, located at Cape Dyer on Baffin Island. The cleanup started in the early 90s and it involved demolishing buildings, removing hazardous waste, and materials. The total cost of the cleanup was \$575 million dollars and every year soil and water samples are tested to ensure that the cleanup was successful (National Defence, 2013). This is very concerning because the military insisted that there were no major environmental and health effects. If this was the truth why are water, and air still tested every year since the incident to 'ensure' safety? CBC described the DEW line as a 'Toxic Legacy' and "an environmental nightmare: rotting vehicles in the lakes, rows of containers full of hazardous materials, dumps leaking arsenic and PCBs" (CBC, 1997). The problem is that the dump was full of waste from the Canadian and U.S. military, and the main concern in the 90s was the fact that these dumps were leaking: copper, zinc, arsenic and polychlorinated biphenyls (PCBs). These were highly contaminated sites with high levels of PCBs found on buildings and materials. When DND was

confronted about this, Pete Quinn, DND's spokesman at the time, argued that PCB are used in paints all over the world and it is a much bigger issue than the military. He then continued by stating that they are not looking at breaking the law or making an exception just for them but they are looking for a 'sound approach for Canada and the environment' (CBC, 1997).

Since the PCB levels were so high and the law did not allow for those materials to be buried, they would have had to be taken in Alberta at Swan Hills – the only PCB destruction site in Canada (high-intensity incinerator). Since there were no funds, DND asked to change the toxic burial grounds laws as they argued that they are not asking for exception just for DND but this would be the best solution for this particular problem as it would allegedly benefit everyone (*ibid*).

An estimated 30 tons of PCBs were used in radio equipment, generators and paint. “By the end of the clean-up, 35,000 cubic meters of waste, weighing more than 40 million kilograms - most of it soil contaminated with PCBs and lead - will have been shipped south for incineration or burial. That includes the 5,000 bags and crates lined up at DYE-Main, waiting to be transported.” (Contenta, 2011).

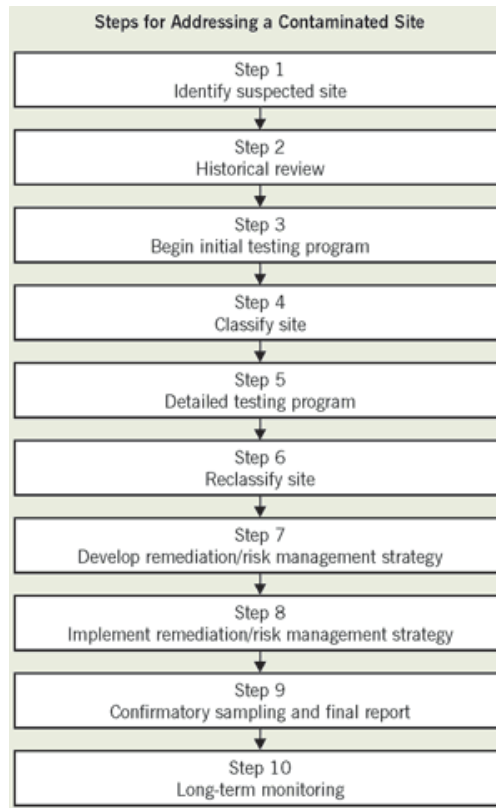
The PCB paint and materials used in the buildings located in the tundra seeped into the ground, contaminating it and causing major environmental damage. The rusting fuel drums soaked the soils with mercury, asbestos, antifreeze, lead, hydrocarbons and many other agents, which was extremely problematic since aboriginal communities were located around those areas (Pfeiff, 2012). These bases contained as many as 20,000 of rusting fuel drums. (*ibid*). The 2002 CESD October Report (See Table C-2) and the 2003 AG April Report (See Table C-1) state that the federal government still does not know how many sites have been contaminated, do not have ranking of worst sites by order of risk, or know the full extent of risks to human health and



environment but there was a report stating that \$40 million per year in clean-ups and site management would be due (Office of the Auditor General of Canada, 2003) (See Table C-1).

Below is a figure of the steps needed in order to address contaminated sites. This has been drafted in the 2008 CESD Report (Chapter 3) (*ibid*).

**Figure 5-1. Steps for Addressing Contaminated Sites**



The DEW Lines are an example to learn from and a warning to comply with environmental laws and obtain environmental assessments and create sustainable plans in order to avoid catastrophic results. The next case study focuses on COSMOS 954 and while it is not a direct DND/CAF example it is still pertinent to this subject.

### 5.3.2 COSMOS 954

Another example of contaminated land and hazardous waste is the COSMOS 954 Accident that took place on January 24<sup>th</sup>, 1978. COSMOS 954 was a Soviet nuclear-powered surveillance satellite that re-entered the atmosphere and crashed in the Northwest Territories (Health Canada, 2008). A large amount of radioactivity was scattered over 124,000 km<sup>2</sup> that stretched southward from the Great Slave Lake into Northern Alberta and Saskatchewan (*ibid*). The cleanup was a coordinated effort between the U.S. and Canada and was called “Operation Morning Light” and it continued well into October 1978 with an estimated recovery of 0.1% of COSMOS 954’s power source (Canadian Nuclear Safety Commission, 2014). The design of COSMOS 954 was to eject its nuclear reactor into space in case of an emergency but the ejection failed and thus Canada was faced with clean-up (*ibid*). While this example may not be directly connected to the military, the federal government and CAF were part of organizing the cleanup. The Canadian Nuclear Safety Commission (CNSC) then known as the Atomic Energy Control Board (AECB), alongside CAF and U.S. teams, flew over the contaminated area trying to detect the power source parts on the ground surface. Decontamination teams went by foot to locate the radioactive bits, package and remove them in shielded canisters following Step 1, 3 and 5 of the Addressing Contaminated Sites Steps. The resolution was that the government of the Union of Soviet Socialist Republic paid the Government of Canada the sum of three million dollars in a settlement claim between the two (Schwartz & Berlin, 1982).

I chose to discuss COSMOS 954 as it was an event that happened during the Cold War. Despite being an accident, Canada had a quick reaction time to clean up the mess and used its resources and followed the right steps in addressing contaminated sites. Below, the last example

is of UXOs and CBWAs in Canada, in this section we will explore Canada's efforts to reduce the potential risks and move in a positive direction for the future.

### **5.3.3 Unexploded Explosive Ordnance (UXOs), Chemical and Biological Warfare Agents (CBWA)**

During WWII, Canada was one of the main producers of chemical and biological (CB) warfare agents (CBWA). Soldiers were subjected to mustard gas and other chemical weapon experiments but allegedly they were not used on opponents (Salat, 2004). After the war, Canada was left with vast amounts of toxic munitions which were dumped into oceans or buried. Even to this day, these deadly agents such as lewisite ( $C_2H_2AsCl_3$ ), an organoarsenic compound, which acts as a blister agent and/or lung irritant, and mustard gas ( $C_4H_8Cl_2S$ ), which essentially has the same ability as lewisite, are underwater (*ibid*). The 1972 London Convention prohibited disposal of CB warfare agents at sea and thus these forms of disposals were stopped but unfortunately by the time the convention was put in place, many countries had dumped “hundreds of thousands of tons of the material into the waters” (*ibid*). Refer to tables C-1 and C-2 for Auditor General Reports and the Commissioner of the Environment and Sustainable Development Reports from 2001 to 2015 which discusses these issues.

In 1989 Canada started DND's Project SWIFTSURE which focused on the destruction of chemical agent waste at Defence Research Establishment Suffield (DRES) (McAndless, 1995). DRES is located at the Canadian Forces Base (CFB) Suffield which is about 50 kilometers Northwest of Medicine Hat, Alberta. DND pressed DRES to accelerate and complete by 1992 the disposal programs which have been an ongoing process at CFB Suffield since the end of WWII. The agent waste inventory was already sorted at the Experimental Proving Ground (EPG)

and it included 12 tonnes of mustard gas, 2.5 tonnes of lewisite, 0.3 tonnes of nerve agents and 400 tonnes of contaminated scrap metal (McAndless, 1995). SWIFTSURE ended up being a great success.

The cleanup chapter did not end there and nor will it really end as long as military materials and weapons continue being a threat to human health and the environment. As a result, from 2005 to 2013 alone, the government spent \$70 million in cleaning up leftover explosive which were littered across hundreds of sites throughout Canada (McKnight, 2013). “Fifteen people have been killed and at least 20 others seriously injured at Canadian sites that are confirmed or under assessment for having unexploded ordnance” (*ibid*). Unexploded Explosive Ordnance (UXO) are warfare explosive weapons that have not been depleted or are faulty. They are extremely dangerous especially since there are more than 860 sites with leftover UXOs and another 1,100 sites off the Atlantic coast which are considered at risk of live explosives (*ibid*). In this case the DND and CAF took responsibility to clean them up as in the past the weapons ranges and training facilities were vital to providing Canadas army, naval air force and navy with the skills needed to fight overseas. Training at these sites involved the use of live ammunition and some of them did not explode. Thus, UXOs are now a danger to people and as the population grows, some of those historic military areas are now used by the public which pose a great danger. People’s mentality is that since they are old they are no longer dangerous but this proves not be true at all as their unpredictability is what makes them dangerous.

For the 2013 ‘Confirmed and Under Assessment’ list of the UXO sites, please refer to Appendix C.

In conclusion, these case studies provide an overall look at the military and their actions in regards to sustainable development and environmental protection. Bill C-38 was a great example of its involvement in giving the military control, power and options to take advantage of weakened laws and regulation due to it being passed. Furthermore, while efforts have been made and certain actions have been taken to clean contaminated sites and hazardous waste such as that of the DEW Lines, the DND/CAF are not in a positive spotlight. Their lack of proper steps being taken due to 'costs' and inconveniences left behind polluted air, land, and water which ultimately had also affected numerous marginalized communities by the chemical remains. A positive could be that every year testing is done but that also makes one wonder if pollution levels were much higher than declared since they claim now that levels are safe but it continues to be an annual activity.

On a higher note, the COSMOS 954 example showed that Canada took immediate action, as it should have, and the UXO examples proved that DND/CAF assumed responsibility, invested in research, cleanups and remediation but also created projects such as SWIFTSURE that were successful. Therefore, this demonstrates that the military have the accessibility, resources, and power to be responsive, fast, and conduct proper investigations where polluted land, air and water, contaminated sites, and hazardous waste could be cleaned up, remediated or monitored to reach safe levels. Environmental protection and sustainable development can be achieved and are indeed attainable goals but if energy is invested in cutting corners and making processes easier or certain acts weaker, then sadly, the wanted title of environmental stewardship will not be earned and the environment will be in a worse condition.

## **6.0 CONCLUSION**

Over many years, the military and the environment have had a long and turbulent relationship. The four military effects (collateral effects, use of the environment as a weapon, environmental modification and environmental terrorism) have proved that the military is depended on its environment whether it may be for training or testing purposes or for war and warfare strategies. However, misuse and environmental pressure caused by military, weapons, chemicals, toxic substances and other training and combat materials as well as equipment required, could cause detrimental damages to the environment. These concerns were discussed internationally as it was recognized that the military could have major impacts on the environment and there was a need for protection from their side. The Geneva Convention was one of the first to mention military prohibitions and to trace a clear relationship between military activities and the environment. The convention induced conversations about protecting present and future generations and thus in the Brundtland Report, the term ‘sustainable development’ was coined and first discussed internationally. Although the definition was vague and flexible, it made its way to sovereign states where they adopted the term as per their liking.

Canada, on the other hand, started developing an environmental management framework for military in the early 90s where environmental tools such as CEAA were adopted but it was not a comprehensive environmental management regime within federal jurisdiction and thus, it continues to be a work in progress. The only real available structure is the Federal Sustainable Development Strategy and the requirements of specific legislations such as SARA or the Fisheries Act. Throughout the paper, the OAG has been mentioned as an important entity and that is because they are the only body that has access to the DND/CAF and can audit them in

order to ensure compliance with environmental laws and regulations. However, this suggests that the oversight is weak and is limited to reporting by OAG and CESD. While Canada has good intentions, and are constant in responding to petitions in a timely fashion and in keeping clear communication with the Auditor General or the Commissioner of the Environment and Sustainable Development, bona fide is not enough in order to successfully protect the environment and ensure sustainable development.

As a result of their negligence, such as the DEW line or UXOs and contaminated lands, DND/CAF have accepted accountability and proceeded to clean up or remediate contaminated sites. Although, as per the CESD and AG reports, it was concluded that the Department was found non-compliant in their activities a couple of times and they did not use an EA when it was required by the Cabinet Directive under CEAA and also by their DAODs.

The military has plans and strategies in place but in the end, they are their own federal head of power which gives them the freedom to make their own rules in regard to military affairs and environmental rules. Moreover, there are no clear and strong environmental management frameworks in the military and especially after the Harper government passed Bill C-38. The passing of the bill made sure to weaken all the relevant environmental legislation which as a result set back the military in environmental protection efforts and sustainable development strategies.

In conclusion, the DND/CAF have enough power to potentially reinvent Canadian environmental protection regulations and strengthen environmental Canadian laws in order to ensure sustainability. However, this will not be achieved until there are some serious changes in the legal system. The OAG have been the only ones to shed some light on military activities but despite their quick responses, they do not seem to address the core issues but instead give diplomatic answers which ensure they are off the radar for another two years (until they are audited again for follow-ups). In the 2010 DES, the Department themselves have expressed their desires in wanting to become environmental stewards. Thus, if they were to invest some of the money from their funds into research on sustainable equipment and comply with the Cabinet Directive and other legislative tools, they would be able to avoid leaving Canada defenseless against environmental degradation and could in fact set examples to other federal bodies to take charge. If they are successful in achieving sustainable development while also protecting the environment and being prepared for their duties; then *Vigilamus pro Te*<sup>4</sup> would gain a whole new meaning.

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<sup>4</sup> *Vigilamus pro Te* translates as “We stand in guard for thee” from Latin, which is the Canadian Military motto.



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## **Appendix A. CANADIAN ARMED FORCES BASES**



**A-1 LIST OF ACTIVE CANADIAN FORCES BASES (WINGS, INSTALLATIONS AND SITES)**

Below is a list with the active bases as well as a figure of the Canadian map of where these bases are situated. The list and figure are from a 2013-2014 Report on Plans and Priorities and seems to be no updates.

**Table A-1. CAF Bases Across Canada**

CAF Active Bases		
Aldershot	Halifax	Shearwater
Alert	Inuvik	Shilo
Bagotville	Iqaluit	St-John's
Borden	Kingston	Suffield
Cold Lake	Meaford	Toronto
Comox	Montréal	Trenton
Edmonton	Moose Jaw	Valcartier
Esquimalt	North Bay	Victoria
Eureka	Ottawa-Gatineau	Wainwright
Gagetown	Petawawa	Whitehorse
Gander	Quebec	Winnipeg
Goose Bay	Rankin Inlet	Yellowknife
Greenwood	Resolute	

**Figure A-1. CAF Bases Map**



[Taken from the National Defence and the Canadian Armed Forces Archive Page]

**Appendix B. AUDITOR GENERAL REPORTS AND COMMISSIONER OF THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT REPORTS 2001 - 2016**

**Table B-1. Auditor General Reports 2001 – 2016**

Year	Reports	Main Issues	Observations/Findings	Recommendations	DND Response
2001	December Chapter 10 (ND-In Service Equipment)	-DND spends about 20% of an \$11.2 billion defence budget to manage repair and maintain military equipment -Management decided to reduce readiness levels of CF equipment bc budget constraints -Hard to determine how well the Navy maintains warship due to unavailable data	-CF do not complete, file, or analyze post-exercise reports on 60% of conducted exercises, nor are post-op reports always completed thus making it hard to assess both causes and impacts of equipment availability problems - Data not properly filed regarding equipment, making hard to know the true state of its major equipment platforms	-DND should enforce requirement to complete post-exercise and post-deployment reports -Should give high priority to equipment support occupations and rectify gaps in maintenance training	-Agrees with findings and will take steps to improve readiness information system and data quality
2002	April Chapter 5 (ND -Recruitment and Retention of Military Personnel)	-Not enough personnel in the Canadian Forces to meet current occupational demands -Shortstaff (over 3000 positions vacant) o Due to downsizing in the mid-90s -Concerned that few military personnel assigned to HR is properly trained in HR policies and Practices	-DND is pushing to recruit to reach target of 7000.	-Need to focus more on diversity and recruiting Canadians from minority groups -Need to have a knowledgeable group trained and experienced in managing HR changes needed for long-term	-Agreed with findings and will consider options to improve HR management -Will take appropriate steps to report performance measurement results to Parliament
	September Chapter 4 (ND -NATO Flying Training in Canada)	-DND entered a \$2.8 billion contract to train pilots over 20 years as part of NATO Flying training(NFTC) in Canada program o During first 2 years DND used only 41% of training capacity -Payments are not tied to performance thus DND paid around \$65 million for unused training capacity	-DND have been working on fixing problems over 2 yrs but cannot determine when will be resolved -DND considering new management arrangements for the program	-The DND should resolve the program management issues and implement a revised management framework as a matter of urgency -Despite the 20-year plan, departmental document show that the contractor risk is anywhere between \$360 and \$460 million some of the risks are also environmental	-It will take in consideration concerns and recommendations -The NFTC Program is a unique program that despite some of the humps it will forward the military in training technology and training philosophy -Any missed training will be made up later in the contract
	December	N/A	N/A	N/A	N/A

Year	Reports	Main Issues	Observations/Findings	Recommendations	DND Response
2003	April Chapter 7 (ND – Environmental Stewardship of Military Training and Test Areas)	-DND have areas set up for training and testing military personnel. It is expected for the nature of the activities to be damaging to the environment but it is also understood that the military must continue in training but DND still must comply with federal legislation in protecting the environment o Some training did not comply with certain federal legislation indicating the DND did not use due diligence in those cases -DND needs to better demonstrate environmental stewardship of crown lands -In Some cases, they have continued to train on unsustainable lands for training purposes – didn't address the use of stressed and overused areas -No action plan for managing sites potentially contaminated with energetic material from firing of munitions	-DND/CAF must be ready to defend Canada and Canadian interest while also contributing to international peace and security -It is the responsibility of the DND to ensure that damage is mitigated and manage the land so that training activities can continue in the future -Findings of non-compliance with Fisheries Act and CEPA -At the Combat Training Centre Gagetown, NB up to 7,250 hectares of trees were cut between 1995 and 1997 to expand mounted maneuver area o Tree cutting was not authorized by Canadian Forest Services o Under CEPA a EA was required for the work in that area o Salmon was affected due to erosion and silting of stress thus violating the Fisheries Act as well	-Maneuver Area Planning System (MAPS) protocol should have been implemented -DND should identify sites that are potentially contaminated and develop and action plan -DND should identify which types of military training are sustainable on which lands	-Have committed to practice sustainable development and protecting the environment as it conducts its activities -Some case studies only serve to illustrate the past not current -DND claims energetic material is a new field and their research is internationally recognized -Additional policy direction is required in the area of contaminated site management and contamination emanating from energetic material -“sustainable training, training area carrying capacity, range and training development, range management, environmental stress and sustainable military training” are all terms related to the same idea – where, when and how to train so that they continue to do so in the future. -Indicators will be developed to measure sustainable military training on each of those areas
	May	N/A	N/A	N/A	N/A
	November	N/A	N/A	N/A	N/A

Year	Reports	Main Issues	Observations/Findings	Recommendations	DND Response
2004	March	N/A	N/A	N/A	N/A
	November Chapter 3 (ND - Upgrading the CF-18 Fighter Aircraft)	-14 years will elapse from the time DND identified the need to modernize the CF-18 until phase1 upgrades are completed on 80 of 119 fighter aircrafts in 2006 -Phase 2concluded modernization and it is scheduled for completion in 2009 and then DND expects to fly the aircraft until 2017 or longer	-Risk management, staff shortage and approval delays with Phase 1 – those need to be addressed before they impede the successful completion of phase 2 -\$2.6 billion upgrade will enable the Air force to fly it until 2017with improved avionics, weapons and communication system -It was purchased in 1980 and the life expectancy was until 2003	-	
2005	February	N/A	N/A	N/A	N/A
	April Chapter 4 (ND – C4ISR Initiative in Support of Command and Control)	N/A	N/A	N/A	N/A
	November	N/A	N/A	N/A	N/A
2006	May Chapter 2 (ND – Military Recruiting and Retention)	-**Follow up -Need to address recruiting and retention problems -Related to 2002 report -Examining management	-DND made satisfactory progress since 2002 in response to the recommendations -Improved at recruiting and retaining the number of people needed -Recruiting from changing demographic	-Recruiters should have necessary knowledge and skill to recruit suitable candidates	-DND will continue to improve quality of recruiting staff through enhancing selection and training measures
	Chapter 3 (ND – NATO Flying	-** Follow-up	-Seems department has no recourse to recover losses which will likely to continue	-Should begin action to ensure compensation is received in timely manner	- Will follow up with contractor and other relevant parties to ensure that funds

Year	Reports	Main Issues	Observations/Findings	Recommendations	DND Response
2007	Training in Canada)	-DND is still unable to enroll enough pilots in the program to use all the training available -Contractor is meeting contractual obligation now thus the department bears the costs of paying for any unused training capacity -Since December 2002 the Crown paid about \$39 million for flying training that it could not use	-About \$89 million was determined to be of missed training from the start of the program until the time the contractor could meet its obligations		due to Canada are paid promptly in accordance with NFTC agreement
	November	N/A	N/A	N/A	N/A
2007	February	N/A	N/A	N/A	N/A
	May Chapter 6 (Modernizing the NORAD System in Canada -ND)	-CAD and US partners in air defence of North America under the North American Aerospace Defence (NORAD) agreement -In 1997 both upgraded and modernized the system -Its primary mission includes surveillance, detection, monitoring, validation, and warning of air attacks against NA	-NORAD recently installed Battle Control System – Fixed (BCS-F) air surveillance and control system -Installation started in North Bay in early 2006 – it is the 3 <sup>rd</sup> attempt by ND to install a modernized air surveillance and control system in the sector (process spanned over 12 years approx.)	-ND should ensure that any further modernization and upgrade to surveillance and control system is supported by a current and clearly defined Statement of Operational Requirement	-Agreed -Canada and US have continued to evolve the system modernization requirements over time
	October Chapter 4 (Military Health Care – ND)	N/A	N/A	N/A	N/A
2008	May Chapter 2 (Support for Overseas Deployments – ND)	N/A	N/A	N/A	N/A

Year	Reports	Main Issues	Observations/Findings	Recommendations	DND Response
	December	N/A	N/A	N/A	N/A
2009	February	N/A	N/A	N/A	N/A
	March	N/A	N/A	N/A	N/A
	Spring Chapter 5 (Financial Management and Control – ND)	N/A	N/A	N/A	N/A
	Fall Chapter 5 (Acquiring Military Vehicles for Use in Afghanistan)	N/A	N/A	N/A	N/A
2010	Spring	N/A	N/A	N/A	N/A
	Fall Chapter 6 (Acquisition of Military Helicopters)	-Upgrading helicopter fleet and will nearly spend \$11 billion to acquire 2 new types of helicopters along with long term service support (Cyclone and Chinook)	-Essential to the support of military operations internationally and domestically	-DND should review and apply lessons learned to ensure that for future major capital equipment is fully reflected in approval documents	-DND strives to capture the lessons learned in undertaking complex acquisitions in this context
	December	N/A	N/A	N/A	N/A
2011	June	N/A	N/A	N/A	N/A
	Spring Chapter 3 (Reserve Force Pension Plan - ND)	N/A	N/A	N/A	N/A

Year	Reports	Main Issues	Observations/Findings	Recommendations	DND Response
	Fall Chapter 5 (Maintaining and Repairing Military Equipment)	-In 2009-2010 DND estimated to spend over \$2 billion to maintain and repair military equipment -Increased pace o operations (deployment in Afghanistan since 2002) -Increased costs	-Ensuring that military equipment meets operational requirements in a cost-effective manner over its intended useful life -DND has indicated that it is likely that its long-term investment plan for new equipment has allocated insufficient funds for equipment life-cycle costs	-DND should develop and implement a capacity to provide information on performance and impacts of maintenance and repair activities, effectiveness and efficiency	-Agreed -Defence Resource Management Information System will be rolled out in support of maintenance of weapon system and equipment which will have the capacity to provide information outline in the recommendations – implementations are planned for completion by Dec 2013
2012	Spring Chapter 2 (Replacing Canada's Fighter Jets)	N/A	N/A	N/A	N/A
	June	N/A	N/A	N/A	N/A
	June	N/A	N/A	N/A	N/A
	Fall Chapter 5 (Real Property – ND)	-DND property include lands, 20,000 buildings and over 13,000 works in installation and bases across Canada -Real property infrastructure is essential to undertake its core mission in Canada and abroad	-ND doesn't have yet a real property management framework or national strategy for managing real property - Has drafted but not implemented an overarching document intended to deal with all matters relating to its real property portfolio	-ND should complete development of and implement its Real Property Strategy, Real Property Management Framework and national master real property development plan -Should set and document firm timeline under \$ million and document cost estimates	-ND is taking measures and necessary actions to complete the development and implementation of its Real Property Strategy, and management framework -Agreed – all project implementation procedures and timelines will be reviewed, redesigned and documented by April 2014
2013	Spring	N/A	N/A	N/A	N/A

Year	Reports	Main Issues	Observations/Findings	Recommendations	DND Response
	Fall	N/A	N/A	N/A	N/A
2014	April	N/A	N/A	N/A	N/A
	Spring	N/A	N/A	N/A	N/A
	Fall	N/A	N/A	N/A	N/A
2015	Spring	N/A	N/A	N/A	N/A
	June	N/A	N/A	N/A	N/A
	Fall Report 5 (Canadian Armed Forces Housing)	N/A	N/A	N/A	N/A
2016	Spring Report 5 (Canadian Army Reserve -ND)	-ND organizing, equipping and training Army Reserve soldiers -CA needs support of Army Reserve to successfully conduct domestic and international missions -	- AR units lacked clear guidance on preparing for major international missions -AR lack access to key equipment on deployment and training exercises - CA did not give ARs clear guidance as to how to prepare soldiers and teams to contribute to major international missions	- Should provide individual AR units with clear guidance so that they prepare their soldiers for key tasks assigned to AR for missions	- Training ARs for missions is of paramount importance to CA

**Table B-2. Commissioner of the Environment and Sustainable Development Reports  
2001-2016**

Year	Reports	Focus / Environmental Petitions	Observations/Findings	Recommendations	DND Response
2001	October	N/A	- Good reporting practices - Good management functioning system	N/A	N/A
2002	October Chapter 2 (The Legacy of Federal Contaminated Sites)	- Surveying DND amongst other federal departments on owning and managing their contaminates sites	- ND reported about \$40 million per year was spent in clean ups and managing sites - ND undertook much of their cleanup efforts bc the gov decided to sell federal lands but the sites they cleaned up were not necessarily high risk	- All federal department responsible for the contaminates sites should complete the identification and assessment of contaminated sites under their responsibility - Should establish firm commitment including action plan and timetable to complete assessments, rank sites, cleanup and management - Should periodically report on progress	- Accepts recommendation and have addressed the identification and assessment of contaminated sites - Sites still requiring assessment and remediation will be included in management plans and action is ongoing - Progress will be reported through SDS and their annual report
	Chapter 6 (Exercising Your Right to Know: The environmental petitions process)	- Myles Kehoe (resident of Cape Breton) gathered evidence about the dumping of mustard gas and other CW agents in the Atlantic Ocean by the DND after WWII	- Submitted environmental petition to Commissioner upon hearing that proposed oil and gas exploration might be taking place in areas where sites are located	-	-
2003	October Chapter 4 (Environmental Petitions)	- Impacts of sites on the marine ecosystem due to CW military dumping in Cape Breton - Wants sites confirmed	- 1 <sup>st</sup> mentioned in Chapter 6 of the 2002 October Report	N/A	- DND confirmed existence of the sites and location and munition disposal sites in Canadian Waters - Minister of ND stated that project initiated to identify biological warfare agents and munitions of ocean disposal sites, scientific research on those will be reviewed and compiled and sited will then be

Year	Reports	Focus / Environmental Petitions	Observations/Findings	Recommendations	DND Response
					prioritize based on risk assessment (remediation or cleanup will be considered as option in action plans) - Confirmed that \$10.5million was committed to the project over the next 5 years
2004	October Chapter 6 (Environmental Petitions)	- Military dumpsites off Canada's Atlantic Coast *Myles Kehoe's petition (No. 50A) - Focus on the actions of the DND - Asses extent of commitments made in response to the petition (see 2003 report – DND response)	- ND initiated 2 major projects: 1) Warfare Agent Disposal & 2) Underwater Unexploded Ordnance (UXO) - Warfare Agent Disposal project is scheduled for completion in 2008 (\$14.4 million committed for project but does not cover cleanup or remediation) - UXO is scheduled for completion in 2006 (\$1.1 million total funding and does not include funds for cleanup or remediation) - ND is taking steps to fulfill commitment to communicate with stakeholder	N/A	- Will seek funding if the sites require further action
2005	September	N/A	N/A	N/A	N/A
2006	September Chapter 5 (Environmental Petitions)	- In 2004 the Mshkegowuk Council submitted petition asking fed gov to acknowledge its responsibility to participate in remediation of the Ontario Mid-Canada Radar Sites - Sites were abandoned by the DND in the 1960s and are currently discharging contaminants	N/A	N/A	- DND noted that although the lands are now the responsibility of the Province of Ontario but they will remain open to discussing cleanup of the sites with the province



Year	Reports	Focus / Environmental Petitions	Observations/Findings	Recommendations	DND Response
2007	October Chapter 2 (Environmental Petitions)	- Petitions received and timeliness of responses - Petition 199 (Mr. Kiloran) seeking information on contamination and closure of federal weather station in For Reliance, NT. Request information on potential for radioactive contamination of the environment, recovery effort made on debris of the Cosmos 954 satellite and if past personnel were exposed to toxic substances such as uranium 235	- There have been 8 petitions received since 1995 in regards to the DND and 1 late response since 2001 - There have been 169 petitions received since 1995 in regards to Environment Canada and 13 late responses since 2001	N/A	- Reply pending
2008	March Chapter 13 (Previous Audits of Responses to Environmental Petitions – Military Dumpsites)	- Determining if DND have made satisfactory progress in addressing observation from the 2004 audit report regarding military dumpsite	- Progress is satisfactory - Noted that the identification risk assessment of the sites are only the first steps in a long-term management approach which include almost 700 oceans based sites and more than 700 land based sites containing UXO	- Developing consistent methodology for charting underwater unexploded explosive ordnance sites on nautical charts	- Agrees and have begun to address it
	Chapter 3 (Chemical Management – Federal Contaminated Sites)	N/A	N/A	N/A	N/A
	December Chapter 5 (Annual Report on Environmental Petition)	- Timeliness of Petition Responses due between July 1 <sup>st</sup> 2007 and June 30 <sup>th</sup> 2008	- DND had 3 responses due, no late responses, 100% on time and no extension requested - In comparison Environment Canada had 45 responses due, 14 late responses, 69% on time and 1 extension requested	N/A	N/A
	Chapter 4 (Annual Report on SDS)	- Well-functioning management system	- DND developed and approved green procurement training module	N/A	- Firewall issue will be resolved by fall 2008

Year	Reports	Focus / Environmental Petitions	Observations/Findings	Recommendations	DND Response
		- Achieved progress on 2007-2009 SDS commitments	in conformance with policies of Public works and government services and treasury board - Firewall issue has restricted access to course		
2009	March	N/A	N/A	N/A	N/A
	Spring	N/A	N/A	N/A	N/A
	November	N/A	N/A	N/A	N/A
2010	Fall	N/A	N/A	N/A	N/A
2011	October	N/A	N/A	N/A	N/A
	December Chapter 6 (Environmental Petitions)	- On time responses - Environment assessments not properly carried out	- DND – 1 number of responses due, 1 late response, no percentage on time and no notification delay - As of June, 30 <sup>th</sup> 2011 ND was 6 days late - Environment Canada have 16 number of responses due, there are no late responses, 100% on time and no notification delay	N/A	N/A
2012	Spring	N/A	N/A	N/A	N/A
	Fall Chapter 5 (Environmental Petitions)	- Responding petitions on time	- DND had 1 responses due, no late responses, 100% on time and no notifications of delay - Environment Canada had 18 responses due, no late responses, 100% on time and no delay notifications	N/A	N/A
2013	Fall	- On-time response rate from previous year	- DND had 1 response due and was late, with no delay notification	N/A	N/A

Year	Reports	Focus / Environmental Petitions	Observations/Findings	Recommendations	DND Response
			-Environment Canada had 12 responses due, one late response, 92% was on time and no notification of delay		
2014	Fall	N/A	N/A	N/A	N/A
2015	Fall Report 4 (Environmental Petitions Annual Report)	-Receiving Petitions -Only pertinent petition is 375 "Status of contaminated site near Canadian Forces Base Valcartier" but the summary is not posted	-DND received 3 -Environment Canada received 11		- Replies received but not displayed
	Spring	N/A	N/A	N/A	N/A
2016	Fall Report 5 (Environmental Petitions Annual Report)	-Department not responding on time -Petition 380 "Relocation of the 443 Maritime Helicopter Squadron..."	-ND had 4 responses due, 1 response is late by 2 days and there was no notification of delay -Environment and Climate Change Canada had 9 responses due of which 1 was late by 19 days and there was no notification delay -The petition asks ND to clarify why they decided to exclude helicopter flights from the 2010 Supreme Court decision that listed operational noise as a factor (to be included) in EA -Screening Assessment process did not include consultation with the public input from federal or provincial entities other than ND and Victoria Airport Authority -Will ND commit to a "good neighbor" policy to reduce helicopter noise in surrounding residential areas	N/A	- Completed but not displayed on the website

Year	Reports	Focus / Environmental Petitions	Observations/Findings	Recommendations	DND Response
	Report 3 (Departmental Progress in Implementing Sustainable Development Strategies)	-Audit examined whether the Department of Justice Canada, ND, Parks Canada, Public Services and Procurement Canada and Veterans Affairs Canada if they met their departmental strategy commitments and FSDS commitments to strengthen environmental assessment practices; reported on the extent and results of their strategic environmental assessment and applied the Cabinet Directive on the EA Policy	-Cabinet directive was not applied to most policy, plan and program proposals -None consistently applied it to proposals submitted to their individual ministers -Cabinet directive was applied to only 23% of proposals submitted for approval to Cabinet -The Cabinet directive was applied to 23% of the 243-policy plan. -All other entities applied most Cabinet directives to most of their proposals -ND applied CD to only 4 of its 122 proposals	-All departments including the ND should apply the Cabinet Directive on EAP, plan and program proposals to all policy, plan and program proposals submitted for approval to their individual ministers or to Cabinet as required -Should ensure proposal assessment in a timely manner as required by CD -ND should report consistently on the extent and results of their strategic environmental assessment practices as required	- Agreed - Will review and update its existing policy and guidance documents related to strategic environmental assessment to support consistent application of the Cabinet directive. - Will define and categorize the types of proposals submitted to the Minister that should be subject to the strategic EA process and identify those that are not – should be completed by March 31 <sup>st</sup> 2017 - Will raise departmental awareness of the requirements of the Cabinet directive through various communication tools - Will develop a monitoring process to better track the completion of preliminary scans and detailed strategic environmental assessment

## **Appendix C. UNEXPLODED EXPLOSIVE ORDNANCE (UXO) SITES**

## C-1 UXO SITES

Unexploded Explosive Ordnance (UXO) are old bombs or explosive weapons that have been used in previous warfare that have not exploded or are not functioning as intended. Thus, it presents as a clear threat to communities living around those areas. In fact, there have been numerous cases where people died or were taken to the hospital in critical condition. Below there is a confirmed list from June 4<sup>th</sup> 2013 of confirmed and in approval UXO Sites in Canada.

**Table C-1. 2013 UXO Confirmed Sites in Canada**

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
AB900-204	Calgary- Peripheral Lands	AB	Confirmed
AB900-023	Calgar- Sarcee Training Area (Tract 1 & Tract 2)	AB	Confirmed
AB900-195	Lethbridge- Bombing and Gunnery Range	AB	Confirmed
AB900-124	Lethbridge- No. 8 B&GS	AB	Confirmed
AB900-122	Lethbridge- Practice Bombing Range 4	AB	Confirmed
AB900-123	Lethbridge- Practice Bombing Range 5	AB	Confirmed
AB900-197	Medicine Hat- Gas City Metals	AB	Confirmed
AB900-201	The 940 Area (formerly Harvey Barracks and Practice Lands)	AB	Confirmed

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
AB900-181	Tsuu T'ina Nation- Mortar Pit	AB	Confirmed
AB900-177	Yekau Lake	AB	Confirmed
BC900-423	Albert Head	BC	Confirmed
BC900-416	Batchelor Bay Place	BC	Confirmed
BC900-425	Kelowna- Lake Okanagan Manhattan Point	BC	Confirmed
BC900-161	Oyster River	BC	Confirmed
BC900-424	Prince Rupert- Verney Point	BC	Confirmed
BC900-417	Roger's Pass	BC	Confirmed
BC900-289	Tofino- Airport	BC	Confirmed
BC900-092	Tofino- Florencia Bay Range	BC	Confirmed
BC900-052	Tofino- Wickaninnish Bay	BC	Confirmed
BC900-342	Vernon- Camp Vernon	BC	Confirmed
BC900-373	Vernon- Coldstream Ranch	BC	Confirmed
BC900-375	Vernon- Commonage	BC	Confirmed
BC900-374	Vernon- Cosens Bay	BC	Confirmed

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
BC900-376	Vernon- Goose Lake Range	BC	Confirmed
BC900-377	Vernon- Madeline Lake (formerly Glenemma Range)	BC	Confirmed
EC900-009	Halifax Explosion	EC	Confirmed
EC900-022	HMS Raleigh	EC	Confirmed
EC900-038	SS CITY OF VIENNA	EC	Confirmed
EC900-039	SS Claire Lilley	EC	Confirmed
MB900-119	CFB Rivers	MB	Confirmed
MB900-020	Churchill	MB	Confirmed
MB900-162	No.1 Air Navigation School - PBR	MB	Confirmed
MB900-124	Spirit Sands	MB	Confirmed
NB900-074	Saint John- HMCS Brunswicker	NB	Confirmed
NB900-117	Tracadie	NB	Confirmed
NL900-178	Cape Porcupine	NL	Confirmed
NL900-336	Stephenville- North and South Bunkers	NL	Confirmed
NS900-086	Debert- Colquhoun Weapons Range	NS	Confirmed

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
NS900-076	Debert- Explosives Demolition Area	NS	Confirmed
NS900-075	Debert- Main Site	NS	Confirmed
NU900-047	Grey Goose Island	NU	Confirmed
ON899-082	Brantford- Burtch R1	ON	Confirmed
ON899-226	Ipperwash- CLS Range and training area	ON	Confirmed
ON899-152	Melbourne Bombing Range	ON	Confirmed
ON899-091	Mer Bleue	ON	Confirmed
ON900-065	North Gower- Demolition Exercises	ON	Confirmed
ON900-399	Ostrander Point	ON	Confirmed
ON900-189	Petawawa- Ottawa River	ON	Confirmed
ON900-513	Toronto- Solway Metal Sales	ON	Confirmed
ON899-110	Wellers Bay	ON	Confirmed
ON900-396	Winisk	ON	Confirmed
QC900-031	Camp Bouchard	QC	Confirmed
QC900-001	Granby	QC	Confirmed

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
QC900-140	Lac St Pierre	QC	Confirmed
QC900-414	Parc Des Laurentides Plane Crash	QC	Confirmed
QC900-323	St-Henri de Levis- Bombing Target Area	QC	Confirmed
SK900-176	Regina	SK	Confirmed
WC900-001	Estevan Point	WC	Confirmed
WC900-015	HMCS THIEPVAL	WC	Confirmed
WC900-002	USAT BGEN M.G. Zalinski	WC	Confirmed
YT900-025	Watson Lake- Air to Ground Range	YT	Confirmed
YT900-019	Whitehorse- Lake Laberge	YT	Confirmed
AB900-001	Airdrie- Air Bombing Range	AB	in assessment
AB900-007	Beaverhill Lake- Bombing Range	AB	in assessment
AB900-012	Bittern Lake	AB	in assessment
AB900-015	Bonnyville- Bombing Range	AB	in assessment
AB900-178	Calgary- Bragg Creek	AB	in assessment
AB900-030	Calgary- Rifle Range	AB	in assessment



<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
AB900-040	Camrose- Rifle Range	AB	in assessment
AB900-062	Cochrane- Training Area	AB	in assessment
AB900-053	Eagle River- Bombing Range	AB	in assessment
AB900-180	Grande Prairie- No.1 Staging Unit	AB	in assessment
AB900-098	Grande Prairie- Wapiti River	AB	in assessment
AB900-103	Hanna Rifle Range	AB	in assessment
AB900-117	Jasper- 3 Inch Mortar Practice	AB	in assessment
AB900-114	Jasper- Training Area	AB	in assessment
AB900-119	Lac la Biche- Air Weapons Range	AB	in assessment
AB900-118	Lethbridge- Kipp Rifle Range	AB	in assessment
AB900-132	Medicine Hat- Air-to-Ground Firing Range	AB	in assessment
AB900-017	Medicine Hat- Bowell Air-to-Ground Gunnery Range	AB	in assessment
AB900-018	Medicine Hat- Bowell Practice Bombing Range	AB	in assessment
AB900-063	Morley- Field Firing Range	AB	in assessment

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
AB900-154	Red Deer- 600 Yd. Rifle Range	AB	in assessment
AB900-155	Red Deer- Range and Training Area	AB	in assessment
AB900-200	Weaselhead Natural Environment Area	AB	in assessment
AB900-172	Wetaskiwin- Army Training Centre	AB	in assessment
AB900-173	Wetaskiwin- SA & Grenade Range	AB	in assessment
AB900-175	Winterburn- Range	AB	in assessment
BC900-011	Alliford Bay- Scottish Beach	BC	in assessment
BC900-014	Armstrong- Rifle Range	BC	in assessment
BC900-022	Bella Bella- PBR	BC	in assessment
BC900-180	Berkley Sound- Naval Bombardment Range	BC	in assessment
BC900-031	Boundary Bay- PBR	BC	in assessment
BC900-197	Boundary Bay- Point Roberts Air-to-Ground Gunnery Range	BC	in assessment
BC900-032	Bralorne- Rifle Range	BC	in assessment
BC900-286	Braun's Island	BC	in assessment
BC900-036	Burnaby- Magazines	BC	in assessment

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
BC900-162	Camp Nanaimo	BC	in assessment
BC900-073	Chilliwack- Cultus Lake	BC	in assessment
BC900-272	Chilliwack- Soowahlie Reserve	BC	in assessment
BC900-047	Chilliwack (Main Site)	BC	in assessment
BC900-049	Church Hill	BC	in assessment
BC900-054	Coal Harbour - RCAF Station	BC	in assessment
BC900-413	Cowichan Lake	BC	in assessment
BC900-414	Crash Site- Mount Whympier	BC	in assessment
BC900-074	D'Arcy- Rifle Range	BC	in assessment
BC900-064	Denman Island	BC	in assessment
BC900-372	Dewdney	BC	in assessment
BC900-165	Diver Lake	BC	in assessment
BC900-085	Enderby- Rifle Range	BC	in assessment
BC900-087	Esquimalt	BC	in assessment
BC900-343	Esquimalt Harbour - Lang's Cove	BC	in assessment

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
BC900-427	Esquimalt Harbour- Colwood Ammo Depot/Jetty	BC	in assessment
BC900-357	Esquimalt Harbour- Fort Rodd Hill	BC	in assessment
BC900-428	Esquimalt Harbour- Mortar Firing	BC	in assessment
BC900-418	Fort Nelson- Clarke Lake	BC	in assessment
BC900-094	Fort Nelson- No. 3 Staging Unit	BC	in assessment
BC900-104	Gabriola Island	BC	in assessment
BC900-105	Gabriola Reefs	BC	in assessment
BC900-106	Golden- Rifle Range	BC	in assessment
BC900-068	Goose Spit	BC	in assessment
BC900-110	Haro Strait- Naval Training Area	BC	in assessment
BC900-113	Haystack Island	BC	in assessment
BC900-114	Hecate Strait	BC	in assessment
BC900-411	Kamloops- 37 Ordnance Ammunition Depot	BC	in assessment
BC900-121	Kamloops- Kamloops Rifle Range	BC	in assessment
BC900-122	Kamloops- No. 15 "X" Depot	BC	in assessment

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
BC900-125	Kamloops- No. 21 Magazine Detachment	BC	in assessment
BC900-123	Kamloops- RCN Armament Depot	BC	in assessment
BC900-129	Kelowna- Summerland	BC	in assessment
BC900-128	Kelowna- Training Area	BC	in assessment
BC900-063	Kye Bay	BC	in assessment
BC900-137	Lantzville	BC	in assessment
BC900-069	Lazo Beach	BC	in assessment
BC900-139	Lillooet	BC	in assessment
BC900-142	Lytton	BC	in assessment
BC900-149	Maude Island	BC	in assessment
BC900-150	Mayne and Saturna Island	BC	in assessment
BC900-152	Merritt- Rifle Range	BC	in assessment
BC900-160	Nanaimo- Timberlake	BC	in assessment
BC900-415	Nanaimo- Underwater Ammo Disposal	BC	in assessment
BC900-067	Navy Beach	BC	in assessment

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
BC900-159	Neck Point	BC	in assessment
BC900-174	North Vancouver	BC	in assessment
BC900-380	North Vancouver	BC	in assessment
BC900-179	Otter Point	BC	in assessment
BC900-352	Patricia Bay- Bazan Bay Coastal Artillery	BC	in assessment
BC900-070	Patricia Bay- Bombing Range	BC	in assessment
BC900-348	Patricia Bay- Galliano Island AFR	BC	in assessment
BC900-354	Patricia Bay- Range	BC	in assessment
BC900-181	Patricia Bay- Small Arms Range	BC	in assessment
BC900-198	Port Alberni- Bivouac Area	BC	in assessment
BC900-201	Port Alberni- Military Camp	BC	in assessment
BC900-210	Powell River	BC	in assessment
BC900-214	Prince George- Artillery Range	BC	in assessment
BC900-211	Prince George- Foreman	BC	in assessment
BC900-400	Prince George- Old Airport	BC	in assessment

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BC900-212	Prince George- Otway	BC	in assessment
BC900-216	Prince George- Rifle Range	BC	in assessment
BC900-218	Prince George- Tabor Mountain	BC	in assessment
BC900-232	Prince Rupert- 10 Mile Post	BC	in assessment
BC900-409	Prince Rupert- Barrett Point Battery	BC	in assessment
BC900-043	Prince Rupert- Casey Point	BC	in assessment
BC900-082	Prince Rupert- Douglas Point	BC	in assessment
BC900-233	Prince Rupert- Fairview Battery	BC	in assessment
BC900-234	Prince Rupert- Galloway Rapids	BC	in assessment
BC900-230	Prince Rupert- HMCS Chatham- Main Site	BC	in assessment
BC900-240	Prince Rupert- Practice Bombing Range	BC	in assessment
BC900-287	Prince Rupert- Tobey Point	BC	in assessment
BC900-368	Prince Rupert - York Island	BC	in assessment
BC900-236	Prince Rupert- Dundas Point	BC	in assessment
BC900-239	Prince Rupert- Frederick Point	BC	in assessment

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BC900-344	RCAF Patricia Bay	BC	in assessment
BC900-253	Revelstoke- Rifle Range	BC	in assessment
BC900-254	Roberts Bank	BC	in assessment
BC900-255	Royal Roads Military College - Rifle Range	BC	in assessment
BC900-066	S16 Combined Operations School / Sandwich Camp	BC	in assessment
BC900-256	Saanich Inlet	BC	in assessment
BC900-259	Salmon Arm- Rifle Range	BC	in assessment
BC900-065	Seal Island (Sandy Island)	BC	in assessment
BC900-264	Shalalth	BC	in assessment
BC900-001	Spanish Banks- Demolitions Training	BC	in assessment
BC900-394	Terrace- Armoured Train Route	BC	in assessment
BC900-283	Terrace- Field Firing Range	BC	in assessment
BC900-280	Terrace- Lakelse Lake	BC	in assessment
BC900-282	Terrace- Rifle Range	BC	in assessment
BC900-281	Terrace- Second World War Army Camp	BC	in assessment



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BC900-277	Terrace- Terrace Mountain	BC	in assessment
BC900-298	Tofino- Army Camps	BC	in assessment
BC900-430	Tofino- Chesterman's Beach	BC	in assessment
BC900-421	Tofino- Clayoquot Range	BC	in assessment
BC900-288	Tofino- RCAF Sea Bombing and Anti-Sub Area	BC	in assessment
BC900-429	Tofino- Schooner Cove	BC	in assessment
BC900-302	Trail- Rifle Range	BC	in assessment
BC900-002	Tree Island (Sandy Island)	BC	in assessment
BC900-012	Ucluelet- Amphitrite Point	BC	in assessment
BC900-432	Ucluelet- Kennedy Lake	BC	in assessment
BC900-305	Ucluelet- Seaplane Base	BC	in assessment
BC900-173	Vancouver- Ambleside Park AA Guns	BC	in assessment
BC900-315	Vancouver- Jericho Beach PBR	BC	in assessment
BC900-323	Vancouver- Lapointe Pier Ordnance Depot	BC	in assessment
BC900-309	Vancouver- Lulu Island Transmitter Site	BC	in assessment

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BC900-317	Vancouver- Narrows North Bridge CD Battery	BC	in assessment
BC900-316	Vancouver- Steveston CD Battery	BC	in assessment
BC900-026	Vancouver- Blair Rifle Range	BC	in assessment
BC900-324	Vancouver- Hamilton St Ordnance Depot	BC	in assessment
BC900-408	Vernon- Kalamalka Lake	BC	in assessment
BC900-355	Victoria- Colwood	BC	in assessment
BC900-108	Victoria- Gordon Head Coastal Defence	BC	in assessment
BC900-107	Victoria- Gordon Head PBR	BC	in assessment
BC900-157	Victoria- Mount Tomli	BC	in assessment
BC900-349	Victoria- Trial Islands	BC	in assessment
BC900-363	Victoria- Army Camp	BC	in assessment
BC900-053	Victoria- Clover Point Seaplane Base	BC	in assessment
BC900-369	York Island	BC	in assessment
BC900-410	Yorke Island	BC	in assessment
EC900-001	Argentia Disposal Site	EC	in assessment

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EC900-002	Argentia Harbour	EC	in assessment
EC900-003	Bay of Fundy- Dumping Area	EC	in assessment
EC900-005	Botwood Harbour	EC	in assessment
EC900-006	Charles Haskell	EC	in assessment
EC900-007	Emerald Basin	EC	in assessment
EC900-044	HMCS CLAYOQUOT	EC	in assessment
EC900-045	HMCS ESQUIMALT	EC	in assessment
EC900-033	HMS L 26	EC	in assessment
EC900-034	HMS P 514	EC	in assessment
EC900-055	MV Athelviking	EC	in assessment
EC900-013	MV British Freedom	EC	in assessment
EC900-056	MV Kolkhosnik	EC	in assessment
EC900-012	Pennant Point	EC	in assessment
EC900-048	SS LORD STRATHCONA	EC	in assessment
EC900-023	SS PLM 27	EC	in assessment

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EC900-024	SS ROSE CASTLE	EC	in assessment
EC900-025	SS SAGANAGA	EC	in assessment
EC900-027	SS TRONGATE	EC	in assessment
EC900-028	SS WILLIAM MCCALY	EC	in assessment
EC900-015	St. Anne's Bay	EC	in assessment
EC900-014	St. Lawrence River Disposal- Site 1	EC	in assessment
EC900-052	St. Lawrence River Disposal- Site 2	EC	in assessment
EC900-053	St. Lawrence River Disposal- Site 3	EC	in assessment
EC900-054	St. Lawrence River Disposal- Site 4	EC	in assessment
EC900-016	Sydney Deep Disposal	EC	in assessment
EC900-015	Sydney Shallow Disposal	EC	in assessment
EC900-040	U-520 Submarine	EC	in assessment
EC900-029	USS NATSEK	EC	in assessment
EC900-031	USS TRUXTON	EC	in assessment

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MB900-169	Brandon- Rifle Range	MB	in assessment
MB900-168	Camp Hughes/Sewell	MB	in assessment
MB900-017	Churchill	MB	in assessment
MB900-016	Gimli- Charfield Lake Air Gunnery and BR	MB	in assessment
MB900-125	Gimli- Sleeve Lake Air Gunnery and BR	MB	in assessment
MB900-070	Langruth - RCAF Range	MB	in assessment
MB900-170	Macdonald- No. 3 B&GS PBR #1	MB	in assessment
MB900-075	MacDonald- No. 3 B&GS PBR #2	MB	in assessment
MB900-076	MacDonald- No. 3 B&GS PBR #3	MB	in assessment
MB900-077	MacDonald- RCAF Aerodrome (Main Site)	MB	in assessment
MB900-128	Oak Hammock Marsh	MB	in assessment
MB900-098	Paulson - RCAF Station	MB	in assessment
MB900-174	Paulson- Air Firing and PBR 4	MB	in assessment
MB900-171	Paulson- PBR 1	MB	in assessment
MB900-172	Paulson- PBR 2	MB	in assessment

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MB900-097	Paulson- PBR 3	MB	in assessment
MB900-094	Paulson- PBR 5	MB	in assessment
MB900-093	Paulson- PBR 6	MB	in assessment
MB900-175	Paulson- PBR 7	MB	in assessment
MB900-100	Pine Falls- Rifle Range	MB	in assessment
MB900-118	Portage-La-Prairie- Pratt Air to Ground Range	MB	in assessment
MB900-108	Portage-la-Prairie- BCATP No.14 EFTS	MB	in assessment
MB900-105	Portage-la-Prairie- BCATP No.7 AOS	MB	in assessment
MB900-176	Portage-la-Prairie- No. 100 Army (Basic) Training Camp	MB	in assessment
MB900-116	Portage-la-Prairie- PBR	MB	in assessment
MB900-013	Shilo- Carberry Airfield	MB	in assessment
MB900-137	Viriden- Rifle Range	MB	in assessment
MB900-138	Viriden- Training Area	MB	in assessment
MB900-152	Winnipeg- Ordnance Workshop	MB	in assessment

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NB900-001	Bellefleur	NB	in assessment
NB900-003	Berwick- Firing and Bombing Range	NB	in assessment
NB900-008	Campbellton- Rifle Range	NB	in assessment
NB900-017	Chatham- Huskisson Range	NB	in assessment
NB900-035	Chatham- Loggieville PBR	NB	in assessment
NB900-021	Edmundston- No.71 CA(B)TC	NB	in assessment
NB900-022	Edmundston- Rifle range	NB	in assessment
NB900-023	Eel River	NB	in assessment
NB900-029	Fredericton	NB	in assessment
NB900-122	Fredericton- Nashwaaksis Rifle Range	NB	in assessment
NB900-038	McGivney- CFAD No. 32	NB	in assessment
NB900-050	Miramachi- Rifle Range	NB	in assessment
NB900-047	Moncton- LAA Site	NB	in assessment
NB900-041	Moncton- PBR	NB	in assessment
NB900-046	Moncton- Rifle Range	NB	in assessment

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NB900-057	Musquash - PBR	NB	in assessment
NB900-056	Pennfield - Lake Utopia PBR	NB	in assessment
NB900-055	Pennfield Ridge	NB	in assessment
NB900-058	Renous	NB	in assessment
NB900-061	Sackville - Rifle Range	NB	in assessment
NB900-071	Saint John- Beaconsfield Rd HAA Camp	NB	in assessment
NB900-066	Saint John- Blue Rock LAA Gun Sites	NB	in assessment
NB900-082	Saint John- Coldbrook Magazine Site	NB	in assessment
NB900-097	Saint John- Coldbrook No.7 Ordnance Depot	NB	in assessment
NB900-076	Saint John- Courtenay Breakwater CD Battery	NB	in assessment
NB900-124	Saint John- Courtenay Breakwater LAA Gun Sites	NB	in assessment
NB900-126	Saint John- Courtney Hill LAA Gun Sites	NB	in assessment
NB900-123	Saint John- East St. John School LAA Gun Sites	NB	in assessment



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NB900-092	Saint John- Fort Mispec CD Battery	NB	in assessment
NB900-095	Saint John- Grandview Ave AA Temporary Deployment Magazine	NB	in assessment
NB900-083	Saint John- Indiantown Rifle Range	NB	in assessment
NB900-127	Saint John- Likely's Beach LAA Gun Sites	NB	in assessment
NB900-125	Saint John- Navy Island LAA Gun Sites	NB	in assessment
NB900-067	Saint John- Park Ave HAA Camp	NB	in assessment
NB900-079	Saint John- Partridge Island CD Battery	NB	in assessment
NB900-090	Saint John- Point Dufferin CD Battery	NB	in assessment
NB900-069	Saint John- Saint's Rest Rifle Range	NB	in assessment
NB900-068	Saint John- Sand Cove Road AA Temporary Deployment Magazine	NB	in assessment
NB900-081	Saint John- Smith Farm HAA Camp	NB	in assessment
NB900-062	St. Andrews- Rifle Range	NB	in assessment
NB900-099	St. Margarets- EOD Site	NB	in assessment
NB900-114	Sussex- Camp Sussex	NB	in assessment

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NB900-113	Sussex- Roachville	NB	in assessment
NB900-118	Utopia- Camp Utopia	NB	in assessment
NB900-119	Utopia- Range Area	NB	in assessment
NB900-120	Woodstock- Rifle Range	NB	in assessment
NL900-006	Bay Bulls	NL	in assessment
NL900-008	Bell Island	NL	in assessment
NL900-009	Bishop's Falls	NL	in assessment
NL900-173	Botwood- Gander Lake	NL	in assessment
NL900-172	Botwood- Killick Island	NL	in assessment
NL900-171	Botwood- 28th AA Battery	NL	in assessment
NL900-013	Botwood- AA Sites	NL	in assessment
NL900-012	Botwood- Phillip's Head CD Site	NL	in assessment
NL900-011	Botwood- Wiseman's Head CD Site	NL	in assessment
NL900-028	Cape Spear	NL	in assessment
NL900-042	Emerald Vale	NL	in assessment

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NL900-050	Gander- PBR	NL	in assessment
NL900-052	Gander- RCAF PBR	NL	in assessment
NL900-053	Gander- Various AA Sites	NL	in assessment
NL900-057	Goose Bay- CYD 69 Gunnery Range	NL	in assessment
NL900-062	Goose Bay- Hamilton River	NL	in assessment
NL900-065	Goose Bay- Lake Melville Gunnery Range	NL	in assessment
NL900-061	Goose Bay- Little Muskrat Lake	NL	in assessment
NL900-059	Goose Bay- Otter Creek	NL	in assessment
NL900-064	Goose Bay- PBR	NL	in assessment
NL900-058	Goose Bay- Practice AA Range	NL	in assessment
NL900-063	Goose Bay- Small Arms Training	NL	in assessment
NL900-069	Gulf of St-Lawrence- Air Weapons Range	NL	in assessment
NL900-085	Lewisporte- 29th AA Battery	NL	in assessment
NL900-089	Lewisporte- CD Site	NL	in assessment
NL900-087	Lewisporte- HAA Camp	NL	in assessment

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NL900-090	Logy Bay	NL	in assessment
NL900-092	Middle Cove Range	NL	in assessment
NL900-095	Placentia Bay	NL	in assessment
NL900-102	Rigolet	NL	in assessment
NL900-103	Rigolet Narrows	NL	in assessment
NL900-164	St. John's- Brennan AA Site	NL	in assessment
NL900-168	St. John's- Blackhead Rd AA Site	NL	in assessment
NL900-160	St. John's- Calver's Field AA site	NL	in assessment
NL900-111	St. John's- Campbell Ave AA Site	NL	in assessment
NL900-134	St. John's- Chain Rock CD Site	NL	in assessment
NL900-036	St. John's- Conception Bay Bombing Range	NL	in assessment
NL900-166	St. John's- Fort Amherst AA Site	NL	in assessment
NL900-132	St. John's- Fort Amherst CD Site	NL	in assessment
NL900-165	St. John's- Governor's Field AA Site	NL	in assessment
NL900-161	St. John's- Hill O' Chips AA Site	NL	in assessment

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NL900-116	St. John's- No.6 Fuel Depot	NL	in assessment
NL900-167	St. John's- Pennywell Rd AA Site	NL	in assessment
NL900-123	St. John's- Portugal Cove Rd Receiver Station	NL	in assessment
NL900-140	St. John's- Red Cliff CD Site	NL	in assessment
NL900-139	St. John's- Signal Hill CD Site	NL	in assessment
NL900-163	St. John's- Torbay AA Battery	NL	in assessment
NL900-115	St. John's- Torbay RCAF Station	NL	in assessment
NL900-138	St. John's- White Hills U.S. Ammunition Depot	NL	in assessment
NL900-162	St. John's- South Side Hills AA Site	NL	in assessment
NL900-147	Stephenville- CAS Ernest Harmon Air Force Base.	NL	in assessment
NL900-148	Stephenville- Harmon AF Base Guns sites	NL	in assessment
NL900-152	Whitbourne	NL	in assessment
NS900-002	Amherst- Ordnance Depot	NS	in assessment
NS900-003	Amherst- Rifle Range	NS	in assessment

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NS900-008	Baccaro Point	NS	in assessment
NS900-009	Bay of Fundy- Air Target Area	NS	in assessment
NS900-349	Bay of Fundy- Surface Firing	NS	in assessment
NS900-024	Bedford	NS	in assessment
NS900-025	Ben Eoin	NS	in assessment
NS900-026	Berwick- Operational Training	NS	in assessment
NS900-027	Big Island	NS	in assessment
NS900-028	Bras D'Or Lake	NS	in assessment
NS900-364	Broughton- Training Area	NS	in assessment
NS900-032	Canso	NS	in assessment
NS900-035	Chebucto	NS	in assessment
NS900-036	Chezzetcook- Range	NS	in assessment
NS900-097	Cornwallis- Granville Ferry Mortar Training	NS	in assessment
NS900-323	Cornwallis- Victoria Beach Coastal Artillery	NS	in assessment
NS900-360	Dartmouth- Ammunition Dump	NS	in assessment

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NS900-057	Dartmouth- Burnside AA Site	NS	in assessment
NS900-065	Dartmouth- Connelly Road AA Gun Site	NS	in assessment
NS900-045	Dartmouth- Cow Bay Air Firing and BR	NS	in assessment
NS900-058	Dartmouth- Eastern Passage CD Battery	NS	in assessment
NS900-053	Dartmouth- Eastern Passage No.16 R/D	NS	in assessment
NS900-071	Dartmouth- Gaston Road AA Temporary Deployment Magazine	NS	in assessment
NS900-050	Dartmouth- Imperoyal HAA site	NS	in assessment
NS900-356	Dartmouth- Infantry Camp	NS	in assessment
NS900-357	Dartmouth- Infantry Posts	NS	in assessment
NS900-056	Dartmouth- Morris Lake HAA	NS	in assessment
NS900-261	Dartmouth- Porters Lake Air Bombing Range	NS	in assessment
NS900-060	Dartmouth- Russel Lake HAA	NS	in assessment
NS900-359	Dartmouth- Woodlawn Infantry Camp	NS	in assessment
NS900-077	Debert- Belmont Range	NS	in assessment

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NS900-079	Debert- Debert Range (active)	NS	in assessment
NS900-098	Debert- Great Village	NS	in assessment
NS900-074	Debert- Horse Point Marsh PBR	NS	in assessment
NS900-083	Debert- Spencer's Point PBR	NS	in assessment
NS900-082	Debert- Staples Brook Range	NS	in assessment
NS900-092	Economy- Cobequid Bay BR	NS	in assessment
NS900-093	Economy Point	NS	in assessment
NS900-096	Glace Bay	NS	in assessment
NS900-327	Greenwood- West Paradise Range	NS	in assessment
NS900-106	Guysborough	NS	in assessment
NS900-185	Halifax- Fort Ogilvie CD Battery	NS	in assessment
NS900-134	Halifax- AA Gun Site (Curran's Knoll)	NS	in assessment
NS900-125	Halifax- AA Gun Site (Fort Needham)	NS	in assessment
NS900-139	Halifax- AA Gun Site (Greenbank)	NS	in assessment
NS900-124	Halifax- AA Gun Site (Lynch St)	NS	in assessment



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NS900-136	Halifax- AA Gun Site (Marion Heights)	NS	in assessment
NS900-138	Halifax- AA Gun Site (NS Tech School)	NS	in assessment
NS900-137	Halifax- AA Gun Site (SR)	NS	in assessment
NS900-140	Halifax- AA Gun Site (Tower Road)	NS	in assessment
NS900-130	Halifax- AA Temporary Deployment Magazine	NS	in assessment
NS900-129	Halifax- Bedford CFAD	NS	in assessment
NS900-191	Halifax- Chebucto Battery	NS	in assessment
NS900-110	Halifax- CMS Demolitions Range	NS	in assessment
NS900-166	Halifax- Connaught Battery	NS	in assessment
NS900-174	Halifax- Fort Hugonin	NS	in assessment
NS900-172	Halifax- Fort McNab	NS	in assessment
NS900-170	Halifax- Fort York Redoubt Battery	NS	in assessment
NS900-133	Halifax- HAA Site (McNab's Island)	NS	in assessment
NS900-132	Halifax- HAA Site (Navy Island Cove)	NS	in assessment
NS900-128	Halifax- HAA Site (Prince's Lodge)	NS	in assessment

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NS900-131	Halifax- HAA Site (Purcell's Cove)	NS	in assessment
NS900-127	Halifax- HAA Site (Rockhead)	NS	in assessment
NS900-126	Halifax- HAA Site (Spryfield)	NS	in assessment
NS900-173	Halifax- Ives Point Battery	NS	in assessment
NS900-107	Halifax- LAA Gun Site	NS	in assessment
NS900-143	Halifax- LAA Gun Site (Fort Charlotte)	NS	in assessment
NS900-151	Halifax- Naval School (active)	NS	in assessment
NS900-184	Halifax- Point Pleasant Battery	NS	in assessment
NS900-118	Halifax- RCN Mortar Range	NS	in assessment
NS900-109	Halifax- Rifle Range	NS	in assessment
NS900-171	Halifax- Strawberry Battery	NS	in assessment
NS900-167	Halifax- York Shore Battery	NS	in assessment
NS900-203	Hall's Harbour	NS	in assessment
NS900-204	Hartlen Point	NS	in assessment
NS900-207	Johnstown	NS	in assessment

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NS900-210	Lawrencetown	NS	in assessment
NS900-214	Loch Broom Range	NS	in assessment
NS900-351	Louisbourg- Coastal Defense Site	NS	in assessment
NS900-142	Lunenburg- LAA Gun Site	NS	in assessment
NS900-218	Lunenburg- Rifle Range	NS	in assessment
NS900-222	Margaretsville	NS	in assessment
NS900-225	Minas Basin	NS	in assessment
NS900-233	Mulgrave- Auld Cove CD Battery	NS	in assessment
NS900-232	Mulgrave- Havre Boucher CD Battery	NS	in assessment
NS900-226	Mulgrave- Melford Point CD Battery	NS	in assessment
NS900-234	New Glasgow- No.61 Army Basic Training Camp	NS	in assessment
NS900-239	New Waterford- CD Battery	NS	in assessment
NS900-251	North Sydney- Chapel Point Battery	NS	in assessment
NS900-252	North Sydney- Cranberry Head	NS	in assessment
NS900-249	North Sydney- Jacksonville	NS	in assessment

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NS900-244	North Sydney- Kelly's Beach RCAF Base	NS	in assessment
NS900-248	North Sydney- North Bay CD Battery	NS	in assessment
NS900-247	North Sydney- Oxford Point Battery	NS	in assessment
NS900-246	North Sydney- RCA Forward Observation Post	NS	in assessment
NS900-250	North Sydney- Stubbert Point	NS	in assessment
NS900-368	North Sydney- Wireless Hill	NS	in assessment
NS900-352	Shearwater- Explosives Disposal Site	NS	in assessment
NS900-273	Sheet Harbour	NS	in assessment
NS900-274	Shelburne- Air Area CYD 707/Sea Area G	NS	in assessment
NS900-283	Shelburne- Government Point Battery	NS	in assessment
NS900-284	Shelburne- McNutt Island Battery	NS	in assessment
NS900-276	Shelburne- Naval Installations (Main Site)	NS	in assessment
NS900-266	Shelburne- Red Head	NS	in assessment
NS900-280	Shelburne- Sand Point Battery	NS	in assessment
NS900-281	Shelburne- Tea Chest Battery	NS	in assessment

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NS900-268	St. Margaret's Bay	NS	in assessment
NS900-022	Sydney- Muggah Street	NS	in assessment
NS900-018	Sydney- Barracks	NS	in assessment
NS900-300	Sydney- Cossitt Lake HAA Gun Site	NS	in assessment
NS900-308	Sydney- Crawley Creek	NS	in assessment
NS900-301	Sydney- Edward Point CD Battery	NS	in assessment
NS900-296	Sydney- Low Point CD Battery	NS	in assessment
NS900-314	Sydney- Murphy Rd AA gun site	NS	in assessment
NS900-297	Sydney- Point Petrie Battery	NS	in assessment
NS900-288	Sydney- Port Morien PBR	NS	in assessment
NS900-023	Sydney- Reserve Airport	NS	in assessment
NS900-289	Sydney- Rifle Range	NS	in assessment
NS900-315	Sydney- South Bar CD Battery	NS	in assessment
NS900-019	Sydney- Westmount	NS	in assessment
NS900-313	Sydney- Westmount AA Gun Site	NS	in assessment

<b>Site ID</b>	<b>Site Name</b>	<b>Province WC=West Coast EC=East Coast</b>	<b>UXO Confirm Status</b>
NS900-021	Sydney- Whitney School	NS	in assessment
NS900-317	Truro - Rifle Range	NS	in assessment
NS900-324	Wallace	NS	in assessment
NS900-326	West Chezzetcook AWR	NS	in assessment
NS900-342	Yarmouth	NS	in assessment
NS900-034	Yarmouth- Chebogue Point Bombing Range	NS	in assessment
NS900-340	Yarmouth- Port Maitland Practice Bombing Range (PBR)	NS	in assessment
NS900-341	Yarmouth- RCAF Station and LAA Battery (Main Site)	NS	in assessment
NT900-045	Kittigazuit- Crash Site	NT	in assessment
ON899-014	Amherstburg- Small Arms Range	ON	in assessment
ON899-030	Aylmer- Lake Erie PBR	ON	in assessment
ON899-029	Aylmer- RCAF Station (Main Site)	ON	in assessment
ON899-033	Barriefield- Rifle Range	ON	in assessment
ON899-048	Borden- Bombing Range	ON	in assessment

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ON899-016	Borden- CFAD Angus	ON	in assessment
ON899-052	Brampton- No. 24 Army (Basic) Training Camp	ON	in assessment
ON899-059	Brantford- Airport	ON	in assessment
ON899-186	Brantford- Grand River Range	ON	in assessment
ON899-060	Brantford- Hartley Bombing Range	ON	in assessment
ON900-073	Brantford- Onondaga Bombing Range	ON	in assessment
ON899-058	Brantford- Training Area & Range	ON	in assessment
ON900-505	Brockville- Brockville Country Club	ON	in assessment
ON899-064	Brockville- Burns-Baker Area	ON	in assessment
ON899-077	Brockville- Cranberry Lake	ON	in assessment
ON899-079	Brockville- Fairfield	ON	in assessment
ON899-065	Brockville- Landon Farm	ON	in assessment
ON899-067	Brockville- Lyn	ON	in assessment
ON899-075	Brockville- Mallorytown Landing	ON	in assessment
ON899-004	Brockville- Metcalfe Farm	ON	in assessment

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ON899-076	Brockville- North Augusta	ON	in assessment
ON899-068	Brockville- North of North Parade Ground	ON	in assessment
ON899-069	Brockville- Rifle Range	ON	in assessment
ON899-066	Brockville- Sherwood Springs	ON	in assessment
ON899-071	Brockville- St. Mary's College	ON	in assessment
ON899-078	Brockville- Tincap	ON	in assessment
ON899-074	Brockville Yonge Mills	ON	in assessment
ON900-400	Cambridge- Galt Rifle Range	ON	in assessment
ON899-171	Cambridge- Rifle Range	ON	in assessment
ON900-199	Camp Picton- Aerodrome	ON	in assessment
ON900-197	Camp Picton- No.2 PBR	ON	in assessment
ON900-196	Camp Picton- No.4 PBR	ON	in assessment
ON900-201	Camp Picton- Turret Training Range	ON	in assessment
ON899-094	Carp- Airfield	ON	in assessment
ON899-097	Chatham- Cedar Springs Rifle Range	ON	in assessment



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ON899-104	Cobourg- Ordnance Depot	ON	in assessment
ON899-105	Cobourg- Rifle Range	ON	in assessment
ON899-108	Collingwood- Rifle Range	ON	in assessment
ON899-112	Cornwall- 31 Army (Basic) Training Camp	ON	in assessment
ON899-116	Demorestville	ON	in assessment
ON899-121	Dexter	ON	in assessment
ON899-122	Diver	ON	in assessment
ON899-129	Dunnville- Grand River Bombing Range	ON	in assessment
ON899-128	Dunnville- Mohawk Pt Bombing Range	ON	in assessment
ON899-133	Dutton	ON	in assessment
ON899-153	Fingal- Bombing Range 1	ON	in assessment
ON899-154	Fingal- Bombing Range 2	ON	in assessment
ON899-155	Fingal- Bombing Range 3	ON	in assessment
ON899-149	Fingal- Lake Erie Targets	ON	in assessment
ON899-151	Fingal- Land Range for B&GS	ON	in assessment

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ON899-271	Frenchman's Bay Bombing and Gunnery Range	ON	in assessment
ON899-174	Georgian Bay	ON	in assessment
ON899-192	Guelph	ON	in assessment
ON899-195	Hagersville- No.16 SFTS	ON	in assessment
ON899-202	Hamilton- Mount Hope	ON	in assessment
ON899-219	Haycock Island	ON	in assessment
ON900-500	Horse Point- Firing and Bombing Range	ON	in assessment
ON899-230	Jarvis- Blott Point BR	ON	in assessment
ON899-228	Jarvis- Evans Point BR	ON	in assessment
ON899-232	Jarvis- Hoover Point BR	ON	in assessment
ON899-001	Jarvis- Lake Erie (Nantucket BR)	ON	in assessment
ON899-268	Jarvis- Lake Erie (Port Dover BR)	ON	in assessment
ON899-002	Jarvis- Lake Erie (Port Maitland BR)	ON	in assessment
ON899-229	Jarvis- Long Point Bay BR	ON	in assessment
ON899-235	Jarvis- No.1 B&GS	ON	in assessment

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ON900-183	Jarvis- Peacock Point BR	ON	in assessment
ON899-234	Jarvis- Port Ryers BR	ON	in assessment
ON899-231	Jarvis- Turkey Point BR	ON	in assessment
ON899-233	Jarvis- Wood's Property BR	ON	in assessment
ON899-260	Kingston- Loughborough Lake BR SFTS	ON	in assessment
ON899-261	Kingston- Millhaven BR STFS	ON	in assessment
ON899-262	Kingston Mills- Bombing Range	ON	in assessment
ON899-062	Kitchener- Breslau Rifle Range	ON	in assessment
ON899-267	Lake Erie	ON	in assessment
ON899-269	Lake Huron - Bombing & Gunnery Range	ON	in assessment
ON899-283	Lindsay- RCOC Storage	ON	in assessment
ON899-281	Lindsay- Training Area	ON	in assessment
ON899-308	London- Bombing Range	ON	in assessment
ON899-295	London- Ordnance Stores	ON	in assessment
ON899-305	London- Range (SA/MG)	ON	in assessment

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ON899-303	London- RCOC 27 Central Ordnance Depot	ON	in assessment
ON899-307	London- Training Area	ON	in assessment
ON899-304	London- Wolsely Barracks	ON	in assessment
ON900-207	Mamainse Point- Training Area	ON	in assessment
ON900-020	Mississauga- Long Branch Canadian Small Arms School	ON	in assessment
ON899-316	Mississauga- Long Branch Range	ON	in assessment
ON900-019	Mississauga- No.15 Regional Ordnance Depot	ON	in assessment
ON900-033	Mountain View- Athol Bay B&GS Target Area	ON	in assessment
ON900-031	Mountain View- Hillier Bombing Range	ON	in assessment
ON900-034	Mountain View- Lake Ontario B&GS Target Area	ON	in assessment
ON900-035	Mountain View- Wellington Bay B&GS Target Area	ON	in assessment
ON900-042	Newmarket- No.23 Army Basic Training Camp	ON	in assessment
ON899-028	Newmarket- RCOC Returned Stores Depot	ON	in assessment

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ON899-027	Newmarket- RCOC Stores Depot	ON	in assessment
ON900-050	Niagara-on-the-Lake	ON	in assessment
ON900-048	Niagara-on-the-Lake	ON	in assessment
ON900-507	Niagara-on-the-lake Sewage Treatment Plant	ON	in assessment
ON900-012	North Bay- Reserve Training Area	ON	in assessment
ON900-063	North Bay- Surface-to-Air Missile Site	ON	in assessment
ON900-068	Nottawasaga Bay- RCAF Firing & Bombing Range	ON	in assessment
ON900-412	Orillia	ON	in assessment
ON900-085	Oshawa- Camp X	ON	in assessment
ON900-082	Oshawa- Rifle Range	ON	in assessment
ON900-084	Oshawa- Tank Training Area	ON	in assessment
ON900-465	Ottawa- Anti-submarine Warfare Storage Facility	ON	in assessment
ON900-155	Ottawa- BCATP Site	ON	in assessment
ON900-425	Ottawa- Central Ordnance Depot	ON	in assessment

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ON900-428	Ottawa- PBR	ON	in assessment
ON900-423	Ottawa- Rifle Range	ON	in assessment
ON900-429	Ottawa- Rifle Range	ON	in assessment
ON900-431	Ottawa- Small Arms Range	ON	in assessment
ON900-178	Owen Sound- Rifle Range	ON	in assessment
ON900-185	Pendleton- BCATP Site	ON	in assessment
ON900-193	Peterborough- Rifle Range	ON	in assessment
ON900-195	Point Petre	ON	in assessment
ON900-208	Point Petrie	ON	in assessment
ON900-210	Port Albert- PBR	ON	in assessment
ON900-214	Port Dalhousie- Proof Range	ON	in assessment
ON900-216	Port Hope- Rifle Range	ON	in assessment
ON900-220	Prescott- Ordnance Stores	ON	in assessment
ON900-512	Prince Edward Point- Underwater PBR	ON	in assessment
ON900-205	Prince Edward Point (Camp Picton PBR No.3)	ON	in assessment

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ON900-230	Sandhurst	ON	in assessment
ON900-235	Sault Ste. Marie- Rifle Range	ON	in assessment
ON900-240	Sioux Lookout- Rifle Range	ON	in assessment
ON900-198	South Bay	ON	in assessment
ON900-255	St. Catharines- Mortar Training	ON	in assessment
ON900-277	Sudbury- Brodill Lake Rifle Rge & Training Area	ON	in assessment
ON900-274	Sudbury- Minnow Lake Camp	ON	in assessment
ON900-281	Sudbury- Rocket and Bombing Target Area	ON	in assessment
ON900-287	Thunder Bay- Bombing Range	ON	in assessment
ON899-236	Thunder Bay- Kakabeka Falls Dry Training Area	ON	in assessment
ON900-285	Thunder Bay- No.2 Chemical Warfare Mortar Co.	ON	in assessment
ON900-293	Thunder Bay- Rifle Range	ON	in assessment
ON900-303	Toronto- Bren Gun Proof Range	ON	in assessment
ON900-301	Toronto- No. 1 Equipment Depot	ON	in assessment

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ON900-337	Toronto- No. Ordnance Depot Detachment	ON	in assessment
ON900-335	Toronto- No.2 Ordnance Depot	ON	in assessment
ON900-338	Toronto- No.2 Ordnance Depot Detachment	ON	in assessment
ON900-347	Toronto- Ordnance Depot Detachment	ON	in assessment
ON900-329	Toronto- Ordnance Depot Detachment	ON	in assessment
ON900-310	Toronto- Possible Bombing Range	ON	in assessment
ON900-299	Toronto- RCASC Salvage Depot	ON	in assessment
ON900-419	Trenton- PBR	ON	in assessment
ON900-374	Uxbridge- Rifle Range	ON	in assessment
ON900-385	Winchester	ON	in assessment
ON900-393	Wingham- Rifle Range	ON	in assessment
ON900-392	Wingham- Training Area	ON	in assessment
PE900-011	Charlottetown- Kensington Range	PE	in assessment
PE900-004	Charlottetown- PBR	PE	in assessment
PE900-010	Egmont Bay	PE	in assessment



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PE900-012	Milton- Rifle Range	PE	in assessment
PE900-015	Mount Pleasant- Higgins Wharf	PE	in assessment
PE900-013	Mount Pleasant- Hog Island	PE	in assessment
PE900-014	Mount Pleasant- Rock Point	PE	in assessment
PE900-020	Summerside- EOD Site	PE	in assessment
PE900-019	Summerside- RCAF Bombing and Gunnery Range	PE	in assessment
PE900-021	Summerside- Rifle Range	PE	in assessment
QC900-013	AFR- Perron	QC	in assessment
QC900-005	Arvida	QC	in assessment
QC900-413	Bagotville- Aircrash Site	QC	in assessment
QC900-412	Buckingham	QC	in assessment
QC900-037	Cap de la Madeleine- Ammunition Depot	QC	in assessment
QC900-035	Cap de la Madeleine- BCATP No.11 EFTS	QC	in assessment
QC900-415	Cap de la Madeleine- Dominion Rubber Munitions Ltd.	QC	in assessment

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QC900-384	Cap de la Madeleine- OTC Mortar shoot	QC	in assessment
QC900-036	Cap de la Madeleine- Tank training	QC	in assessment
QC900-053	Delson	QC	in assessment
QC900-071	Garrison St-Hubert	QC	in assessment
QC900-076	Gaspé	QC	in assessment
QC900-079	Gaspé	QC	in assessment
QC900-080	Gaspé	QC	in assessment
QC900-081	Gaspé	QC	in assessment
QC900-082	Gaspé	QC	in assessment
QC900-083	Gaspé	QC	in assessment
QC900-084	Gaspé- Point St-Pierre	QC	in assessment
QC900-075	Gaspé- Sandy Beach	QC	in assessment
QC900-100	Huntington- Basic Training Centre No.41	QC	in assessment
QC900-103	Ile Maligne	QC	in assessment
QC900-104	Joliette- Rifle Range	QC	in assessment

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QC900-109	Kazabazua	QC	in assessment
QC900-115	La Macaza- BOMARC Missile Site	QC	in assessment
QC900-121	Lac Champlain- Bombing Range	QC	in assessment
QC900-184	Lac Champlain- Missisquoi Bay BR	QC	in assessment
QC900-125	Lac Deschenes- Bombing Range	QC	in assessment
QC900-132	Lac Megantic- No.52 CA(B)TC	QC	in assessment
QC900-182	Lac Megantic- Reserve Training Area	QC	in assessment
QC900-131	Lac Megantic- Training Area	QC	in assessment
QC900-114	L'Acadie- RCOC No.1 Ordnance Ammo Coy	QC	in assessment
QC900-157	Levis- AA Camp	QC	in assessment
QC900-168	Levis- Ammo Depot & Infantry Base	QC	in assessment
QC900-161	Levis- Beaumont Battery	QC	in assessment
QC900-164	Levis- CD Battery	QC	in assessment
QC900-165	Levis- Fort de la Martiniere CD Battery	QC	in assessment
QC900-163	Levis- LAA gun site	QC	in assessment

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QC900-169	Levis- Rifle Range	QC	in assessment
QC900-170	Longue Pointe	QC	in assessment
QC900-172	Longueuil- Naval Armament Depot	QC	in assessment
QC900-193	Mont Joli	QC	in assessment
QC900-194	Mont Joli- BCATP Practice Bombing Range	QC	in assessment
QC900-190	Mont Joli (Main Site)	QC	in assessment
QC900-197	Montmagny- Army Basic Training Centre No.54	QC	in assessment
QC900-222	Montréal	QC	in assessment
QC900-226	Montréal	QC	in assessment
QC900-246	Montréal	QC	in assessment
QC900-253	Montréal	QC	in assessment
QC900-255	Montréal	QC	in assessment
QC900-259	Montréal	QC	in assessment
QC900-294	Quebec- Bourg Royal HAA gun site	QC	in assessment
QC900-286	Quebec- La Citadelle (still DND owned)	QC	in assessment

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QC900-287	Quebec- Parc de L'Artillerie	QC	in assessment
QC900-285	Quebec- Petit Riviere Range and Training Area	QC	in assessment
QC900-293	Quebec- Rampart Street LAA gun site	QC	in assessment
QC900-292	Quebec- RCOG Rifle Testing Range	QC	in assessment
QC900-405	Saguenay	QC	in assessment
QC900-017	Saint-Jerome (Metaketchouan) AFR	QC	in assessment
QC900-375	Sherbrooke- 30 Yd. Rifle Range	QC	in assessment
QC900-379	Sherbrooke- No.43 Army Basic Training Centre	QC	in assessment
QC900-371	Sherbrooke- Rifle Range	QC	in assessment
QC900-363	Sherbrooke- Sand Hill Rifle Range	QC	in assessment
QC900-372	Sherbrooke- Tank Training Area	QC	in assessment
QC900-382	Sorel- No.45 Army (Basic) Training Camp	QC	in assessment
QC900-014	St-Gedeon PBR	QC	in assessment
QC900-016	St-Honoré	QC	in assessment

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QC900-328	St-Hubert- No.13 SFTS	QC	in assessment
QC900-343	St-Jean- Field Training Area	QC	in assessment
QC900-342	St-Jean- PBR	QC	in assessment
QC900-347	St-Lawrence River	QC	in assessment
QC900-349	St-Lawrence River	QC	in assessment
QC900-350	St-Lazare	QC	in assessment
QC900-354	St-Maurice - Proof Range	QC	in assessment
QC900-356	St-Polycarpe	QC	in assessment
QC900-319	Ste Anne des Plaines	QC	in assessment
QC900-360	St-Thérèse-de-Blainville	QC	in assessment
QC900-393	Trois-Rivières- 600 Yd. Rifle Range	QC	in assessment
QC900-387	Trois-Rivières- Coteau Barracks	QC	in assessment
QC900-386	Trois-Rivières- Les Vieilles Forges Training Area	QC	in assessment
QC900-390	Trois-Rivières- No.3 AGTS	QC	in assessment

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QC900-385	Trois-Rivières- St Thomas de Caxton Training Area	QC	in assessment
SK900-001	Abbey- Rifle Range	SK	in assessment
SK900-005	Alsask- Practice Bombing Range	SK	in assessment
SK900-010	Beacon Hill	SK	in assessment
SK900-018	Burke Lake	SK	in assessment
SK900-033	Dafoe- BCATP No.5 & GS	SK	in assessment
SK900-030	Dafoe- Impact Area	SK	in assessment
SK900-032	Dafoe- Turret Training Range	SK	in assessment
SK900-175	Dundurn- CF Ammo Depot	SK	in assessment
SK900-174	Lac Pelletier- Training Area	SK	in assessment
SK900-066	Maple Creek- Basic Training Centre	SK	in assessment
SK900-074	Moose Jaw- Small Arms Range	SK	in assessment
SK900-078	Moosomin- Light Anti-Aircraft Battery	SK	in assessment
SK900-083	Mossbank- Bombing & Gunnery Range	SK	in assessment
SK900-090	North Battleford- Air-To-Ground Range	SK	in assessment

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SK900-057	North Battleford- Jackfish Lake Ranges	SK	in assessment
SK900-084	North Battleford- PBR	SK	in assessment
SK900-085	North Battleford- RCAF Training	SK	in assessment
SK900-094	Pense	SK	in assessment
SK900-097	Prince Albert- Cheal Lake PBR	SK	in assessment
SK900-105	Prince Albert- No.122 Basic Army Training Camp	SK	in assessment
SK900-098	Prince Albert- Rifle Range	SK	in assessment
SK900-132	Regina- 14 "X" Depot	SK	in assessment
SK900-116	Regina- Exhibition Grounds - Main Site	SK	in assessment
SK900-117	Regina- RCOC Depot	SK	in assessment
SK900-140	Saskatoon- Ordnance Depot	SK	in assessment
SK900-144	Saskatoon- PBR	SK	in assessment
SK900-147	Saskatoon- Rifle Range	SK	in assessment
SK900-155	Swift Current- Rifle Range	SK	in assessment
SK900-162	Weyburn- PBR	SK	in assessment



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SK900-164	Weyburn- Training Area	SK	in assessment
SK900-168	Yorkton- Rifle Range	SK	in assessment
WC900-036	Air Crash CN 23	WC	in assessment
WC900-035	Air Crash CN 24	WC	in assessment
WC900-018	Air Crash CN 25	WC	in assessment
WC900-037	Air Crash CN 26	WC	in assessment
WC900-071	Ammo Dumping Area No. 61	WC	in assessment
WC900-082	Ammo Dumping Area No. 62	WC	in assessment
WC900-073	Becher Bay- Dumping Area	WC	in assessment
WC900-097	DND Air Space CYD 102	WC	in assessment
WC900-098	DND Air Space CYD 107	WC	in assessment
WC900-099	DND Air Space CYD 124	WC	in assessment
WC900-100	DND Air Space CYR 101	WC	in assessment
WC900-101	DND Air Space CYR 106	WC	in assessment
WC900-012	DND Area WK	WC	in assessment

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WC900-093	DND Area WL	WC	in assessment
WC900-094	DND Sea Area WN	WC	in assessment
WC900-096	DND Sea Area WO	WC	in assessment
WC900-095	DND Sea Area WP	WC	in assessment
WC900-104	Dump Site 107	WC	in assessment
WC900-041	Esquimalt Harbour- Coburg Peninsula	WC	in assessment
WC900-087	Esquimalt Harbour- Munition Dumping Area CN 87	WC	in assessment
WC900-089	Exercise Area WB	WC	in assessment
WC900-091	Exercise Area WH	WC	in assessment
WC900-090	Former Exercise Area NF	WC	in assessment
WC900-088	Former Exercise Area WA	WC	in assessment
WC900-048	FY 42 Barge	WC	in assessment
WC900-116	Galiano Island	WC	in assessment
WC900-109	Georgia Strait- Explosives Area	WC	in assessment
WC900-040	Haro Strait- Cordova Bay Torpedo Firing	WC	in assessment

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WC900-051	HMCS RAINBOW	WC	in assessment
WC900-063	Marine Mine 052	WC	in assessment
WC900-064	Marine Mine 053	WC	in assessment
WC900-065	Marine Mine 054	WC	in assessment
WC900-066	Marine Mine 055	WC	in assessment
WC900-067	Marine Mine 056	WC	in assessment
WC900-068	Marine Mine 057	WC	in assessment
WC900-069	Marine Mine 058	WC	in assessment
WC900-045	Moresby Island	WC	in assessment
WC900-025	Nanoose Bay	WC	in assessment
WC900-072	Naval Guns 063	WC	in assessment
WC900-102	Pacific Disposal CN 105	WC	in assessment
WC900-006	Pacific Disposal CN 106	WC	in assessment
WC900-007	Pacific Disposal CN 107	WC	in assessment
WC900-008	Pacific Disposal CN 21	WC	in assessment

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WC900-009	Pacific Disposal CN 86-1	WC	in assessment
WC900-081	Pacific Disposal CN 86-2	WC	in assessment
WC900-083	Pacific Disposal CN 86-3	WC	in assessment
WC900-084	Pacific Disposal CN 86-4	WC	in assessment
WC900-085	Pacific Disposal CN 86-5	WC	in assessment
WC900-086	Pacific Disposal CN 86-6	WC	in assessment
WC900-012	Parry Bay	WC	in assessment
WC900-039	Sooke Basin	WC	in assessment
WC900-053	Sooke Harbour Cash Site	WC	in assessment
WC900-076	Spoil Area 070	WC	in assessment
WC900-054	Submarine Attack 042	WC	in assessment
WC900-057	Submarine Attack 048	WC	in assessment
YT900-018	Teslin	YT	in assessment
YT900-020	Watson Lake- Airfield and WWE Testing Area	YT	in assessment
YT900-026	Watson Lake- Francis Air to Air Range	YT	in assessment

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YT900-028	Watson Lake- Ammunition Dump	YT	in assessment
YT900-027	Watson Lake- Ground Firing Range	YT	in assessment
YT900-022	Whitehorse- MacRae Rifle Range	YT	in assessment
YT900-004	Whitehorse- Champagne Village	YT	in assessment