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A Recommended Improvement to the Search and Rescue Regional and Command Construct

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**A Recommended Improvement to the Search and Rescue
Regional and Command Construct**

Lieutenant-Colonel François Fasquelle

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SEARCHING FOR EFFECTIVENESS: A RECOMMENDED IMPROVEMENT TO THE SEARCH AND RESCUE REGIONAL AND COMMAND CONSTRUCT

AIM

1. The objective of this service paper is to explore the necessity of challenging the current construct of Search and Rescue (SAR) establishment in Canada. More specifically, it will focus on analyzing the arctic SAR situation, and examine its structural relevance as it pertains to the context of contemporary and future domestic SAR. The paper will offer answers and recommendations to the following question: Should there be a fourth Search and Rescue Region (SRR) established to operate more effectively in the northern portions of Canada.

INTRODUCTION

2. Unlike many other NATO countries, where SAR services are either privatized or service contracted, domestic SAR operations in Canada is a federal jurisdiction. It is the responsibility of the Government of Canada (GOC) to provide federal assets – equipment, human resources, infrastructure, and financial resources – for the delivery of SAR services. Led by Public Safety Canada, domestic SAR activities rely mainly on the Canadian Armed Forces (CAF) and on the Canadian Coast Guard (CCG), respectively responsible for aeronautical incidents and maritime incidents.¹ The Royal Canadian Air Force (RCAF) is the SAR instrument and executor for the CAF. The responsibility pertaining to humanitarian incidents (defined as a SAR incident not otherwise classified as an aeronautical or maritime incident²) is distributed to many other entities, such as provincial, territorial, regional and volunteer organizations. However, the CAF and CCG are also mandated to assist in humanitarian missions as complementary SAR tasks.³

3. “SAR is considered a no-fail mission”.⁴ Quoted as such in many documents, it highlights the importance that SAR holds within the GOC. SAR operations are missions “that must be undertaken and to which resources must be assigned and actions taken to minimize injury and loss of life”.⁵ It is therefore of the utmost significance that the organizational structure of the Canadian SAR institution be dissected to ensure the most efficient delivery of SAR services to people in Canada and within its bordering oceans and regions.

¹ Government of Canada, Public Safety Canada, National Search and Rescue Program, accessed 21 Dec 2021, <https://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/rspndng-mrgnc-vnts/nss/prgrm-en>.

² Canada, Department of National Defence, Department of Fisheries and Oceans Canada. B-GA209-001/FP-001, DFO 5449, Canadian Aeronautical and Maritime Search and Rescue Manual. (2018).

³ Ibid.

⁴ Canada, Office of the Auditor General, Report of the Auditor General of Canada to the House of Commons, Chapter 7: Federal Search and Rescue Activities. (Ottawa, Office of the 100 Auditor General of Canada Distribution Centre, 2013). ⁵ Ibid.

4. To that effect, this service paper will provide the current SAR context, and discuss the distribution of Search and Rescue Regions (SRR) and how they manage SAR services. The paper will then evaluate the current situation through the lenses of operational functions and challenge the status quo by assessing the necessity of adding a fourth SRR to enhance SAR responsiveness in the northern regions of Canada. Tying it to the CAF doctrine and capability gaps, the paper will conclude with courses of actions (COAs) and recommendations for implementation.

CONTEXT

5. Domestic SAR encompasses and integrates all six doctrinal operational functions of Command, Sense, Act, Shield, Sustain, and Generate. Specifically pertaining to SAR operations, these functions are applied as follows:^{5 6}

- a. Command: The function that integrates all the op functions into specific and inclusive concepts and effects.⁷ Under this function, commanders direct resources to achieve SAR effects. It is exercised at all levels – Strategic, Operational, and Tactical – and provides a C2 framework for all entities involved in SAR operations, including SAR Force Generation (FG) and Force Employment (FE).
- b. Sense: The function that provides SAR commanders situational awareness and knowledge to prosecute SAR operations. At the tactical level, for example, this can take the form of using search sensors, analyzing casualties' background information, environmental evaluation etc. At the strategic and operational level, it can take the form of Information Operations, statistical analysis, tracking of deployed assets/equipment, managing response postures, etc.
- c. Act: The function that provides the delivery of desired SAR effects. The function of Act has a large spectrum in SAR operations and is omnipresent. Some examples of Act are:
 - i. Assignment by Commander Canadian Joint Operations Command (CJOC) of SAR assets to prosecute a SAR mission;
 - ii. Prioritization of activities by SAR Unit Commanders to improve local SAR response;

⁵ Canada, Dept. of National Defence, B-GJ-005-300/FP-001, Canadian Forces Joint Publication, 3.0 Operations, (Ottawa, Ont : Joint Doctrine Branch, 2010).

⁶ Canada, Dept. of National Defence, B-GJ-005-000/FP-001, Canadian Forces Joint Publication, 01 Canadian Military Doctrine, (Ottawa, Ont : Joint Doctrine Branch, 2009).

⁷ Ibid.

iii. Deployment by Crew Commanders of SAR Technicians (SAR Techs) on the scene of a disaster.

- d. Shield: This function provides protection against threats to people, to capabilities and to freedom of action. The Shield function is inherent to SAR activities.⁸⁹ From a civilian perspective, it is the ability to respond to people in need of assistance, to protect the population from environmental dangers (which relates to Canadian sovereignty). From the CAF perspective, it is the function that protects personnel and equipment involved in SAR operations by mitigating and managing risk.
- e. Sustain: This function regenerates and maintains SAR capabilities in support of operations. Many layers of complexities are added to the Sustain function when SAR crews are deployed away from their Main Operating Bases (MOB) for extended periods (during Major Searches or for Major Air Disaster (MAJAD) operations), or deployed to isolated areas such as the northern territories and the Arctic.
- f. Generate: This function pertains to SAR Force Generation, Force Readiness and Force Development.

6. Canada is currently divided in three Search and Rescue Regions (SRR) – Victoria, Trenton, Halifax – as depicted in figure 1. From West to East, the respective SRR Commanders are the Joint Task Force Pacific (JTFFP) Comd, the Joint Force Air Component Comd (JFACC), and the Joint Task Force Atlantic (JTFA) Comd. Their corresponding Joint Rescue Coordination Centers (JRCC) control each SRR. For ease of clarity, the CAF SAR Management Structure is represented in figure 2.

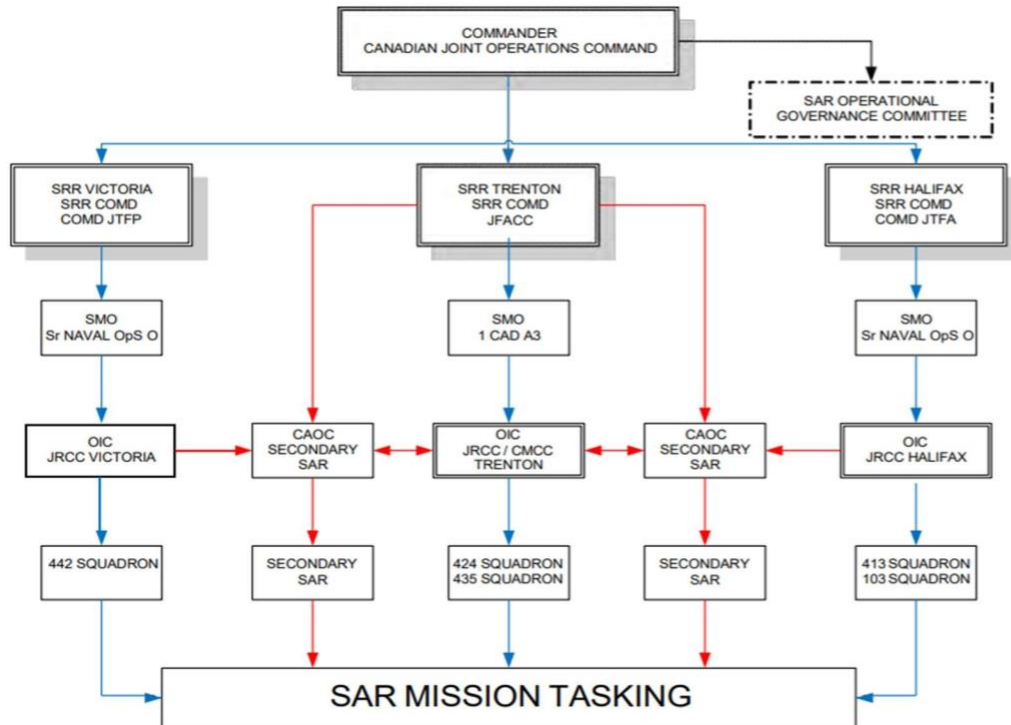
⁸ Canada, Dept. of National Defence, B-GJ-005-300/FP-001, Canadian Forces Joint Publication,

⁹ .0 Operations, (Ottawa, Ont : Joint Doctrine Branch, 2010).



Figure 1: Search and Rescue Regions (SRR)

Source: Report of the Auditor General of Canada, Federal Search and Rescue Activities



Primary SAR – Blue / Secondary SAR – Red (All RCAF Aircraft are Considered Secondary SAR Assets)

Figure 2: CAF SAR Management Structure

Source: Canadian Aeronautical and Maritime Search and Rescue Manual

7. Parallel to this structure, SAR Force Generation (FG) activities fall under the Operational Command (OPCOM) of Commander 1 Canadian Air Division (1 Cdn Air Div). From this structure, all Force Employment (FE) missions and tasks are the OPCOM authority of Comd CJOC. When a SAR mission is assigned to an asset, the JRCC of the SRR in which the SAR mission will be executed, is vested Tactical Control (TACON) for that specific mission (under the respective SRR Comd).

DISCUSSION

8. “Canada has one of the world’s largest areas of responsibility for SAR, covering 18 million square kilometers of land and water, more than 243,800 kilometers of coastline, three oceans, three million lakes, and the St. Lawrence River system”.¹⁰

¹⁰ Canada, Government of Canada, Public Safety Canada, Quadrennial Search and Rescue Review, Public Safety ADM(PA), (Ottawa, 2013).

9. Trenton SRR is the biggest of the three SRRs. It covers 10 million square kilometers, spans more than 5000 km to the North Pole, and encompasses the northern territories and most of the Canadian Arctic Archipelago.¹¹¹² Due to its vastness, SAR operations and associated C2 face a variety of challenges in its northern regions, characterized by complex geography, severe meteorology, isolated demography, unique cultural traits, and an absence of infrastructure and communications systems.

10. The Regional distribution of SAR Areas of Responsibilities (AOR) needs to better align with Canadian SAR policies and context, as it does not allow for a fully effective SAR prosecution in the Arctic. Even though the majority of SAR cases take place south of 60° of latitude, there is an inequality and a lack of efficiency in SAR services as it relates to northern operations.

11. RCAF SAR assets (equipment and aircraft) are concentrated in the southern regions, where the population density is the highest, challenging the timely response of SAR aircraft towards the Arctic regions. Notwithstanding this crucial gap, a more critical problem resides in the lack of Arctic regional knowledge and expertise within the Command structure of the SRRs. This problem is largely due to the absence of permanent SAR facilities in the North, and to the fact that all Arctic SAR operations are controlled from southern JRCCs (mainly Trenton JRCC), which do not incorporate Arctic regional experts. With a robust and resilient command network, these JRCCs are staffed and tailored for southern-type SAR responses. However, they are not adequately equipped to prosecute and manage the full spectrum of Arctic SAR operations that must factor elements such as:

- a. Remoteness from medical infrastructure;
- b. Inaccessibility to alternative agencies (SAR, medical etc);
- c. Hostile environments, geography, topography and meteorology;
- d. Extreme isolation and unique cultural patterns;
- e. Scarcity of aeronautical and maritime facilities and services; and
- f. Overall vulnerability inherent to regional threats and realities.

12. The level of activity is continuously increasing in the Arctic, both from a commercial and private perspective. As an example, from 2013 to 2019, the number of ships travelling through the Canadian Arctic has increased by 44%, and their travelled distances increased by 107%.¹³ In addition to civilian activity, military activity is also on the rise. More northern exercises and operations are being conducted annually, either with NATO Allies or independently, and it is expected that by 2040, an increase of

¹¹ Government of Canada, Search and Rescue in Central Canada, JRCC Trenton, accessed 5 Jan 2022, <https://www.canada.ca/en/department-national-defence/services/operations/militaryoperations/types/search-rescue/central-canada>.

¹³ Arctic Council Organization, Arctic Council Report, Report on Shipping in the Northwest Passage Launched, accessed 10 Jan 2022, <https://arctic-council.org/news/report-on-shipping-in-the-northwest-passage-launched>, (2019).

military personnel and material will be in the order of 18% and 10% respectively.¹⁴ The prevalence of sovereignty operations such as Op Nanook and Op Nunaliut, and the replenishment operations of Op Boxtop are just a few examples of amplified Arctic military presence, which exposes more risk to personnel.

13. Notwithstanding the importance of geo-locating SAR platforms in the Arctic, Information Management is a critical element to effective SAR operations. There is currently an institutionally imposed limitation on the available resources and expertise, due to the absence of an Arctic SRR. As it pertains to SAR synchronization activities, the ability to coordinate, to analyze and to project SAR information is crucial, and currently not at capacity in the northern regions.

14. JRCCs are staffed and operated with RCAF and CCG personnel. While this is an adequate model for southern and oceanic SAR operations that are predominantly aeronautic and maritime in nature, it is unsatisfactory for northern SAR taskings. The majority of northern RCAF tasked missions pertain to humanitarian cases and are uniquely influenced by Arctic elements and intricacies as described in para 11 above. Within the context of op functions and the SAR doctrine,¹⁵ northern infrastructure and Subject Matter Experts (SME) are lacking in JRCCs; the need to have a northern component within the C2 structure is imperative. In line with the concept of whole-of-government approach, the expertise of Arctic SAR coordinators is needed. By implementing an Arctic component and tapping into entities of the northern communities, such as Canadian Rangers, indigenous populations and Arctic professionals, the ability to Command, Sense, Shield, Act, and Sustain will become more practical in the context of SAR.

15. To that effect, creating a fourth SRR and corresponding JRCC – a SAR epicenter focused on northern resources to effectively deliver the National SAR mandate – would enable the SAR Command op function and integrate all the op functions into SAR concepts and effects. Within this fourth SRR – dubbed for sake of nomenclature Arctic SRR – Commander CJOC could efficiently direct resources to achieve SAR effects via the Arctic SRR Comd.

16. Staying within the realm of the possible, the most resourceful and cost effective implementation would be to assign Comd Joint Task Force North (JTFN) as the SRR Comd, akin to Comds JTFP and JTFA for the Victoria and Halifax SRRs respectively.

17. JTFN is currently responsible for leading CAF continental operations in the northern AOR (land and waters north of 55° latitude). One of the roles of JTFN pertains

¹⁴ Avascent Management Consulting Company, Defence Air Mobility Requirements, Utility Transport Aircraft Replacement Study, Prepared for Innovation, Science and Economic Development Canada, (March 2020).

¹⁵ Canada, Dept. of National Defence, B-GJ-403-0XX/FP-001, DRAFT Royal Canadian Air Force SAR Force Employment Concept, (RCAF Aerospace Warfare, Trenton, Ont: 2021).

to CAF assistance response to disaster relief, support of critical incidents, and Canadian Rangers support to ground SAR,¹⁶ a mission statement similarly aligned with SAR principles and Force Employment Concepts.¹⁷ In addition, JTFN already has an operating framework and C2 structure similar to the other SAR regional constructs, and Comd JTFN already reports to CJOC.¹⁸

18. The other critical and necessary element to a fourth SRR is the creation of a robust JRCC as the Control Center for the Arctic SRR. Directly tied to op functions, the following predominant factors must be considered: C2 support system, Information Management, focus on desired SAR effects, Risk Management balance, and Sustainment activities. These concepts will shape where and how an Arctic JRCC would be established, influencing location, infrastructure, and overall resources. To that effect, two courses of action (COAs) stand out:

- a. COA 1: Yellowknife JRCC. By collocating the Arctic JRCC with its SRR Comd, the currently existing JTFN HQ in Yellowknife NT could be exploited with minimal staff and infrastructure addition. However, given the fact that the majority of northern SAR cases occur in Nunavut – more specifically centered on Baffin Island¹⁹ – a JRCC in Yellowknife would remain confronted to SAR service deficiencies, mainly in terms of accessing personnel and SMEs with sufficient regional-centered experience for the efficient control and coordination of SAR operations. Moreover, by being geographically and legislatively separated from Nunavut, gaining access to alternative local or provincial agencies and entities, as well as fully understanding the environmental intricacies, would prove challenging.
- b. COA 2: Iqaluit JRCC. As the epicenter of historical and current SAR occurrences, a JRCC located in Iqaluit Nunavut would allow the merging of effective SAR resources, combining all op functions efficiently. Iqaluit being the only capital inaccessible by road, the isolated nature of its entire region is prey to unique and complex CAF domestic operations and SAR conditions. As described in the Sense function above, the collection and processing of accurate regional and cultural intelligence is paramount in SAR operations. With the movement increase in the Northwest Passage, and the surge in commercial and private activity on Baffin Island and surrounding areas, establishing the JRCC in Iqaluit would be a crucial step. It would allow access to regional SMEs, such as Canadian Rangers, local authorities and indigenous

¹⁶ Canada, Department of National Defence, Joint Task Force North, accessed 11 Jan 2022, <https://www.canada.ca/en/department-national-defence/services/operations/militaryoperations/conduct/regional-task-force/north>.

¹⁷ Canada, Dept. of National Defence, B-GJ-403-0XX/FP-001, DRAFT Royal Canadian Air Force SAR Force Employment Concept, (RCAF Aerospace Warfare, Trenton, Ont: 2021).

¹⁸ Ibid.

¹⁹ Culver B.K. Bryce, telephone conversation with CJOC HQ-J3, SAR 3, 16 Dec 2021.

expertise, and more importantly, it would permit the creation of networks to prepare and enable safe and effective SAR operations in the Arctic. Furthermore, it would contribute to SAR maneuvers by exploiting alternative local, regional and provincial agencies, while being capable of integrating the regional environmental considerations into SAR planning and execution.

19. The creation of a fourth SRR – the Arctic SRR with its distinct JRCC – is a contemporary requirement aligned with Canadian²⁰ and international Policies,²¹ CAF and RCAF doctrine,²² as well as the SAR national mandate.^{23 24} By establishing an Arctic SRR, the RCAF (as custodian of the SAR mandate) will be more adequately postured to protect Canadians from internal threats and assuring sovereignty. By applying and integrating the op functions at all levels, from the strategic down to the tactical level, an Arctic SRR will enable a more fluid SAR mandate.

CONCLUSION

20. This Service Paper has dissected the current institutional SAR structure and evaluated its organizational relevance as it pertains to contemporary domestic SAR context. The analysis and discussion have validated the obvious need for a fourth Search and Rescue Region. There is compelling evidence demonstrating that the current SRR status quo is defective as it relates to Arctic SAR operations. Notwithstanding the lack of SAR aircraft in the North, the addition of a fourth SRR would allow effective integration of all op functions as it connects to SAR activities.

21. The creation of an Arctic SRR aligns naturally with policies and doctrine, bridges the current capability gap, and enables a more effective operational tempo in the northern portions of Canada. Overall, it will ensure the provision of efficient delivery of SAR services to people in Canada, within its bordering oceans and regions, and enhance SAR responsiveness.

RECOMMENDATION

22. Based on the analysis and discussion above, it is highly recommended that an Arctic SRR be integrated to the SAR system. To facilitate a seamless transition, the

²⁰ Canada, Government of Canada, Prime Minister of Canada Justin Trudeau, Mandate Letters 16 Dec 2021, <https://pm.gc.ca/en/mandate-letters>. (2021).

²¹ Arp, Bjorn. The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic & the Treaty between Norway and Russia on the Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean. (International Legal Materials 50, no. 6, 2011), 1110-1130.

²² Canada, Dept. of National Defence, B-GA-400-000/FP-001, Royal Canadian Air Force Doctrine, (Ottawa, Ont : Joint Doctrine Branch, 2016).

²³ Government of Canada, Public Safety Canada, National Search and Rescue Program, accessed 21 Dec 2021, <https://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/rspndng-mrgnc-vnts/nss/prgrm-en>.

²⁴ Canada, Department of National Defence, Department of Fisheries and Oceans Canada. B-GA209-001/FP-001, DFO 5449, Canadian Aeronautical and Maritime Search and Rescue Manual. (2018).

recommendation is to endorse a SAR C2 absorption with the pre-existing Command structure of JTFN in Yellowknife, with a JRCC based on COA 2 in Iqaluit. Modest infrastructure addition will be necessary in Iqaluit to accommodate the JRCC assets, which will in turn exploit and employ northern resources to efficiently control and coordinate SAR operations in the Arctic. The recommended SRR boundaries, with its Command HQ and JRCC locations are depicted in figure 3 herein.



Figure 3: Recommended Arctic SRR delimitations with JRCC location
Source: LCol Francois Fasquelle, Student JCSP 48

23. The SRR is bounded to the west by the Yukon Rockies (Selwyn Mountains), to the south by the 60° latitude, to the east by the Labrador Sea and Baffin Bay, and runs to the geographic North Pole.
24. By creating a tailored approach to the employment of SAR forces, the Arctic SRR will gain SAR operational advantage and enable a resilient synergy between:
 - a. C2 systems supporting a commander's intent (Command);

- b. Information Management, and collection & processing of SAR data (Sense);
- c. Maneuver and focus on desired SAR effects (Act);
- d. Assistance to people in distress, as well as SAR Risk Management and Force Protection (Shield); and
- e. Sustainment activities for the maintenance and regeneration of SAR capabilities (Sustain).

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