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## A Call for Fire: Rethinking the Organisational Structure of the Royal Regiment of Canadian Artillery

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THE ROYAL REGIMENT OF CANADIAN ARTILLERY**

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## **A Call for Fire: Rethinking the Organisational Structure of the Royal Regiment of Canadian Artillery**

### **AIM**

1. The aim of this service paper is to analyse the current force structure of the Close Support (CS)<sup>1</sup> Regiments of the Royal Regiment of Canadian Artillery (RCA) and determine if they meet the requirements of current Canadian Army (CA) doctrine or the force generation requirements articulated by the CAF. It will suggest that, as composed, the current structures of RCA field Regiments do not have the build required to truly meet either area as we move to a contemporary conflict. By adding a third firing battery, the RCA will become better served moving into the future.

### **INTRODUCTION**

2. The current force structure of an RCA CS Regiment consists of five batteries; two gunline (firing) batteries, one Forward Observer (FO) battery, one surveillance and target acquisition (STA) battery and one headquarters and support battery. This structure changed in the 2000s and resulted in better force generation for Canadian operations in Afghanistan as it allowed for elements of the STA to be attached to the gun batteries to form composite gun batteries for deployment. These batteries would eventually be attached to whichever Battlegroup (BG) was in the rotation.

3. Historically (prior to Afghanistan) the CS Regiments of the RCA had three gun batteries with a headquarters battery. STA capabilities came and went over time but were usually employed outside of the CS Regiments<sup>2</sup>. On top of force generation requirements, there was also a degree of political manoeuvring in protecting PY positions for Majors which also pulled the FOs from the gun batteries into the FO battery.

### **DISCUSSION**

4. One of the larger influences on the change seen in the RCA during Afghanistan was a result of the nature of counter insurgency (COIN) operations. During this time, the need for a large footprint and massive weights of fire was relegated in favour of greater gun coverage and precision fires. This could be seen through the troop level deployments across the AOR, the focus on “converge” as a distribution of fire and the procurement of GPS guided Excalibur rounds. As a result of this, the decision to reroll a gun battery to an STA battery was made when the need for UAS and Lightweight Counter Mortars (LCMRs) increased. However, Canadian doctrine never accounted for having two gun batteries in the CS Regiments.

5. The role of the CS Regiment was to provide fire support to its supported brigade and its units. There are several doctrinal reasons why the CS Regiments require a third battery to operate in a full-scale war. While useful at the time, the reroll of the third gun battery to STA capabilities

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<sup>1</sup> This service paper will address only the force composition of the Close Support Regiments. All reference to the RCA should be assumed to only include the field guns unless otherwise noted.

<sup>2</sup> In WWII the 2<sup>nd</sup> Army Group RCA employed 1<sup>st</sup> Radar Battery in its ORBAT.

was done to address a need and did not fall in line with doctrine.

- a. The current brigade structure of the CAF has three to four manoeuvre units (the discrepancy lies with if you consider brigade recce as a manoeuvre unit). As it stands right now, tactical groupings see three of them receiving Artillery Tactical Groups (ATGs) with one of the ATGs not having gun support (this third ATG is generated from the FO Battery). This third ATG can perform their job in terms of advising fires to the supported arm commander, however, to prosecute targets they would have to request missions through the brigade Fire Support Coordination Centre (FSCC), causing a delay in fire support<sup>3</sup>. Further, if the other two batteries are either out of range, unavailable due to movement or prosecuting other priority missions, there is a risk that this ATG could have no support.
- b. While Artillery doctrine highlights possible ammunition consumption rates for operations<sup>4</sup>, it is stipulated that they need to be updated as more data becomes available. However, what can be drawn from these numbers is operations in a full-scale war will require massive amounts of ammunition (something that has been confirmed in the Ukrainian conflict). The projected rates do not account for the current force structure, however that is usually mitigated by “doubling the rate”. However, this too is problematic as it has impacts to equipment management<sup>5</sup> and time in location prior to moving the battery for survivability reasons.
- c. When attacking an enemy company position, typically it becomes a Regimental task to engage. This assumes that the enemy position will generally employ three positions likely in a two up one back position (though not required) as is like our doctrine. By employing a Regiment, the idea was that the three batteries would be able to suppress each position during the advance. With only two batteries, this capability is diminished, allowing one position to continue to engage friendly troops during the advance.

6. The need for mobility in the artillery has never been greater. Threats posed by counter-battery fires coupled with the increasing importance of mass fires in current conflicts (Ukraine) have made artillery units priority targets. While the capability gap in mobility between towed and self-propelled guns is large, it is not the scope of this paper and will not be touched in detail here. However, what will be discussed are the implications of maintaining the current force structure of the CS Regiment in a full-scale conflict.

- a. On an advance, the quickest way for the artillery to keep up is through what is called the leapfrog method where batteries in the rear will bound past the batteries

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<sup>3</sup> Artillery Tactical Tasks do not define any relationship between an ATG and gunline from two different batteries other than making the ATG “ordinary observers” who can only request fires, not order them.

<sup>4</sup> Department of National Defence (DND). B-GL-371-003/FP-001. “Field Artillery Operational Procedures” (Ottawa: DND Canada, 2000). P. 145-146.

<sup>5</sup> Barrel life is measured in “equivalent full charges (EFCs)”. This means the more rounds that are fired from a particular barrel will inevitably push it closer to its life expectancy.

in the front and repeat. While this method of movement is possible with two batteries, the issues arise in the gaps of coverage. To maintain the pace, batteries will have to conduct longer bounds or risk being left behind. This is further compounded by the time it takes for a towed howitzer to become “ready”. A third battery would allow for more intermediate bounds and would also allow for more flexibility for any delays that may arise in unsuitable positions that may be found or unforeseen delays on the routes.

- b. In the current force structure, any movement of the guns will result in a loss of 50 percent of the combat power provided by the artillery. This would be common to both defensive and offensive operations. Having a third battery would help mitigate the risks of the loss of firepower during crucial moments in the fight.

7. As we are seeing in the current Ukrainian conflict, the need for artillery ammunition is imperative. To this end, an argument could be made that Canada does not have the military industry to support additional guns on the battlefield. Moreover, the CAF does not have the capabilities to even resupply artillery ammunition in the quantities required for a full-scale war. The responsibility of artillery resupply is doctrinally held with the artillery division<sup>6</sup>, which does not exist in the CAF. Currently, the CMBGs rely on the Service Battalions to conduct this task, one that they are not staffed nor equipped for. It is important to note here that the need for a structure to resupply artillery (Divisional Artillery) is still a critical function that also needs addressing. However, problems with artillery resupply will continue to persist regardless of number of fire units. One way to mitigate this would be to attach an RCA unit to another nation who has a artillery division.

8. Having a third gun battery in RCA Regiments would be the minimum to meet the demands articulated in Strong, Secure, Engaged (SSE), which articulates a number of concurrent operations that the CAF is expected to do. Of note, it cites the need to maintain the ability to deploy two sustained missions of 500-1500 personnel in two different theatres, a one-time limited deployment of 500-1500 personnel as well as DART and IRU remits<sup>7</sup>. Without attempting to forecast what those potential missions look like, we can assume at least one would involve the sustained deployment of a BG (Op REASSURANCE), with the possibility of deploying another for any contingencies. As it stands right now, the eFP deployment of Op REASSURANCE consumes the entirety of the high readiness regiment with each of the batteries deploying for the six-month deployments sequentially. With the current force structure, there is no built-in redundancy for contingent operations, not to mention any DART or IRU remits that may occur. While some redundancies can be found on these operations through the HQ, STA and FO batteries, the fact is that soldiers from these are often sent to augment the eFP battery.

9. Any significant change in the force structure of the RCA would likely need to be neutral in terms of PYs. Despite efforts to grow the force, most trades remain understrength, and the artillery is no exception. There are several methods that can be used to achieve a third battery in the RCA. Attached in Annex A is a copy of the current REMAR of 2 RCHA. There are currently

<sup>6</sup> B-GL-371-003/FP-001 “Field Artillery Operational Procedures”, P. 143.

<sup>7</sup> DND. “Strong, Secure, Engaged: Canada’s Defence Policy”. (Ottawa: DND Canada, 2017) P. 81.

116 personnel allocated for each gun battery<sup>8</sup>, likewise there are 72 PYs in the STA Battery. There are only 19 positions officially allocated to the FO Battery, however, there are FO positions in each of the gun batteries. The next subsections provide possible solutions to the PY issue.

- a. Use the PYs currently allocated to the STA and FO batteries in the RCA. The need for the STA equipment currently employed by the close support regiments overdue. Currently, the STA batteries employ the LCMR and the Raven-B UAS both with ranges of 10km. For the LCMR specifically, while it held a purpose during FOB-based COIN operations, it is too slow to set up and move in a near-peer or peer-to-peer conflict, nor does it have the range to detect enemy howitzers. Radars held by the General Support Regiments<sup>9</sup> like the Medium Range Radar (MRR) hold ranges much more useful in contemporary battles. For the Raven-B, while good for a time, the increased proliferation of UAS at the company level drastically reduces the need for the close support regiments to employ it.
- b. Employ the additional Major PY as either the Ops Officer or Plans Officer. This is something that is done in the Infantry Battalions with the Combat Support Company Commander moving into a staff role on deployment or exercise.
- c. Augment these PYs by procuring equipment that would lower the PY count required by the gun batteries. Each gun detachment holds ten PYs, which is the requirement to employ the M777 howitzer. However, new technologies may be able to lower this requirement, leveraging digitalization and automatic loading<sup>10</sup>. An M109 requires a crew of four, however it should be noted that there would be additional positions required for a maintenance bill should the RCA look at self-propelled howitzers.

10. While a more detailed look at the infrastructure of the close support Regiments is required, each of them at one time employed a third gun battery. While the infrastructure of that battery was redistributed, the buildings have not changed and there would be no immediate need for additional “infrastructure” (less room outside for the additional vehicles). Further, unlike the F-35 procurement, additional security measures would also not be required if the RCA remained with the M777 as the platform. Should the RCA look at procuring a different weapon system than the M777, this would change.

11. There has been growing calls to incorporate Multiple Launch Rocket Systems (MLRS) or High Mobility Artillery Rocket Systems (HIMARS) into the Canadian inventory. While these capabilities would help augment fire support in a near peer conflict, they are normally employed

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<sup>8</sup> I removed EO, weapon and vehicle techs as well as medics, cooks and signalers as they are typically attached to the gun battery structure on exercise or deployments only.

<sup>9</sup> 4<sup>th</sup> Regiment General Support based in Gagetown, NB holds the MRR.

<sup>10</sup> During a brief to JCSP 49 the Commander of the Canadian Army mentioned that new technologies that reduced PY counts that could be rerolled into other areas is something that is being looked at. Permission to quote the CCA was received via email 23 January 23.

at higher levels than brigade<sup>11</sup>. In a 2014 article published in the Canadian Military Journal Lt Col Paul Johnston articulated that “the CAF is not *required* nor *able to generate* military forces larger than brigade army groups”<sup>12</sup>, something that was re-affirmed in SSE<sup>13</sup>. Any discussion of HIMARS in this sense would detract from current CAF capabilities and strategic direction. This is not to say that the capability is not required in a conflict, but rather that it may not be something that Canada can employ at the current force construct. If this is a route that the CAF wishes to pursue, it may be a capability that the GS Regiment could maintain.

## CONCLUSION

12. The need to integrate fires at all levels of command is a capability that the CAF has recognized as important for all future conflicts. While the ability to do so with the RCA at the sub-unit command level is there (there are three ATGs that can integrate with the three manoeuvre units in the CMBGs), what is lacking is the responsiveness of fires for one of the ATGs. This has implications not only on the battlefield, but also any contingency missions that the CAF may be required to conduct in accordance with SSE. Further to this, the temporary degradation of RCA firepower when batteries are required to displace is significant.

13. There remains a need to conduct further research solutions to problems that continue to exist in the RCA. Artillery resupply in a full-scale conflict not only at the tactical level but also at the national industry level will define the effectiveness of fires in the future.

14. New emerging technologies can assist in providing solutions to PYs. Capabilities like automatic loading and computing may lower the total PY count (though a maintenance bill would likely offset significant gains). Further, a closer look at relevancy of the Brigade STA capabilities may also prove to be useful in generating positions.

15. The move away from a third gun battery towards the STA was a result of our experiences in COIN operations and was not based on our current doctrinal requirements. Any movement away from the doctrinal employment of the CS Regiments will risk rendering firepower less effective in the next conflict.

## RECOMMENDATION

16. It is recommended that the RCA look at bringing a third gun battery back into its force structure. The flexibility, firepower and need to meet SSE remits underlines the need to have additional firepower integral to the CMBGs.

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<sup>11</sup> DND. B-GL-371-001/FP-001. “Field Artillery Doctrine”. (Ottawa: DND Canada, 1999) P. 13.

<sup>12</sup> Johnston, Paul. “A Canadian Approach to Command at the Operational Level”. (*Canadian Military Journal*, Vol 14, No. 4: 2014). P. 10.

<sup>13</sup> DND. “Strong, Secure, Engaged”. P. 36.

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