



# ROLES INSIGHTS

ROLES Insights is a commentary series written by our staff and project members on pressing issues relating to politics, security, religion, and society. Views expressed in the analyses are those of the authors and do not represent the official position of ROLES, nor necessarily the author's affiliations. The commentaries may be reproduced electronically or in print with prior permission from ROLES, but with due recognition to the author/s and ROLES. Please email: [office@me.rcast.u-tokyo.ac.jp](mailto:office@me.rcast.u-tokyo.ac.jp)

## **How Much More Can Russia Fight? Satellite Image Analysis of Spare Storage Equipment in the Eastern Military District of the Russian Armed Forces**

Number 2022-06

November 18, 2022

**By Yu Koizumi**

### **BACKGROUND**

In the first nine months of the invasion of Ukraine, the Russian military is estimated to have lost an enormous amount of equipment, amounting to 1,465 tanks, 1,682 infantry fighting vehicles, 259 armored personnel carriers, and 695 other armored fighting vehicles <sup>(1)</sup>. As of the beginning of the war, the Russian military possessed 3,417 tanks, 4,293 infantry fighting vehicles, and 7,452 armored personnel carriers <sup>(2)</sup>, with tanks in particular suffering extremely heavy losses.

As a result, the Russian military has been forced to redeploy old reserve weapons to active service. According to reports in October 2022, Russia is planning to modernize and refurbish 800 obsolete T-62M tanks produced in 1960s and other armored fighting vehicles <sup>(3)</sup>.

### **RESEARCH DESIGN**

So how much of Russia's reserve weapons have been returned to service so far, and how much capacity does it possess to withstand enormous damage and continue fighting? While it is difficult to answer these questions, we can identify the overall trends by locating reserve equipment storage bases, *Baza Khraneniia Remonta Vooruzheniia i Tekhniki*, or BKhRVT and tank storage bases, *Tsentral'naia Baza Rezerva Tankov*, or TsBRT (Fig. 1) and observing them via satellite imagery.

In this research, we observed BKhRVTs and a TsBRT located in Russia's Eastern Military District (EMD) with Maxar Technologies' high resolution (50cm~) satellite imagery. This research design is based on the assumptions below:

- Russian Ground Forces has total 13 reserve (cadre) brigades <sup>(4)</sup>;

- Of 8 brigades are concentrated in the EMD (3 for Central MD, 2 for Western MD) <sup>(5)</sup>;
- Given this, most of them is considered to exist in the EMD although the total number of BKhRVTs and TsBRTs are unknown <sup>(6)</sup>;
- The EMD is the most eastern one among total 5 Military Districts (Fig.2), and the only way to transport heavy equipment from the EMD to Ukraine is to allocate the transportation capacity of the Trans-Siberian Railway;
- However, the EMD is approximately 7,000 km away from Ukraine, and the cost of moving equipment is relatively high compared to the Western and Southern Military Districts adjacent to Ukraine.

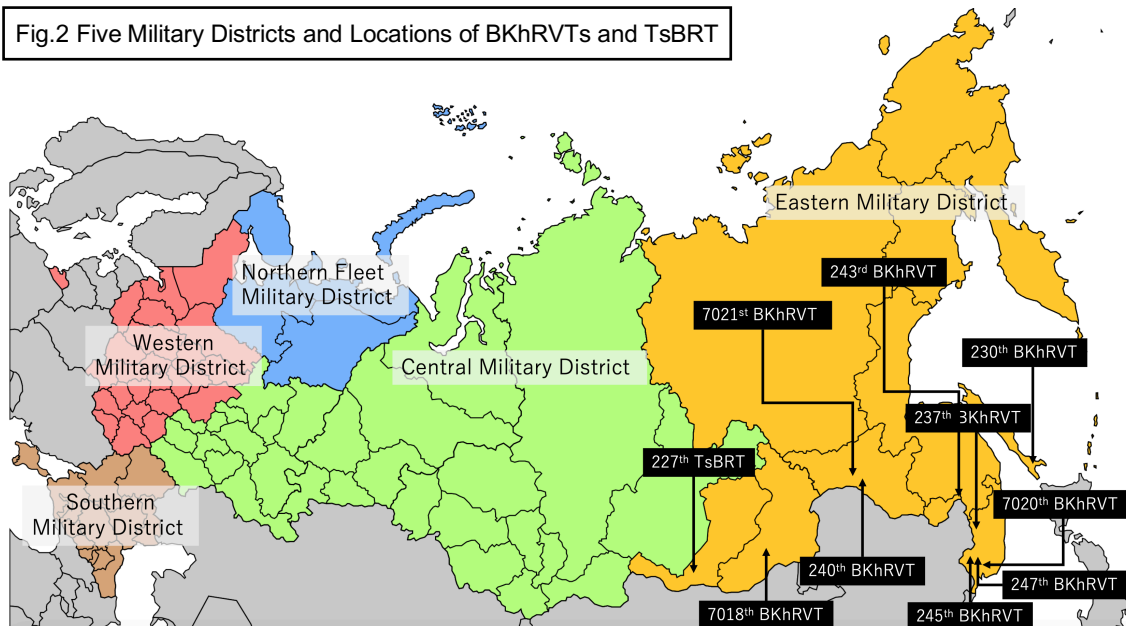
Thus, if the number of reserve weapons is significantly reduced in BKhRVTs and TsBRTs in the EMD, it would suggest the severe decline of Russia's capability to continue the war.

A total of 10 BKhRVTs and one TsBRT are reported to exist in the EMD <sup>(7)</sup>. However, the presence of the 225th BKhRVT (Yasnyi, Zabaikalskii Krai) among these could not be confirmed by satellite imagery. In addition, satellite imagery for the 245th BKhRVT (Lesozavodsk, Primorskii krai) was not available after May 2022. Therefore, the remaining nine sites are included in this study.





Fig.2 Five Military Districts and Locations of BKhRVTs and TsBRT



## ANALYSIS

For the nine EMD BKhRVTs and TsBRT, we compared the situation before and after the outbreak of the war and in October-November 2022.

### (1) 227th TsBRT (Divizionnaia, Republic of Buriat)





February 7, 2022  
Image © 2022  
Maxar Technologies



October 25, 2022  
Image © 2022  
Maxar Technologies



February 7, 2022  
Image © 2022  
Maxar Technologies



October 25, 2022  
Image © 2022  
Maxar Technologies





(2) 7018th BKhRVT (Drovianaia, Zabaikalskii krai)

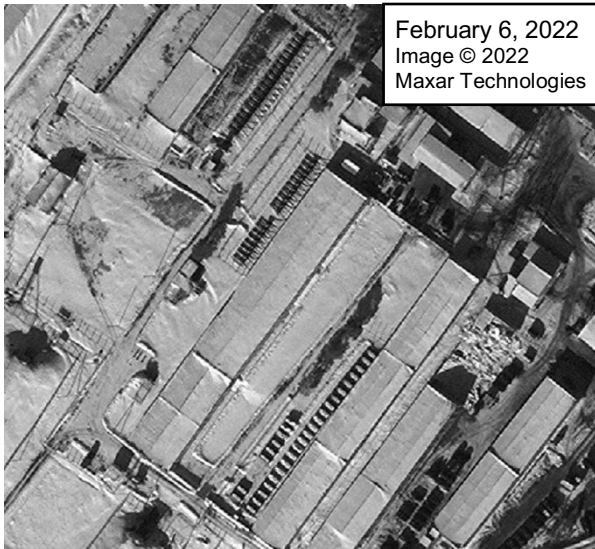


(3) 7020th BKhRVT (Ussuriisk, Primorskii krai)





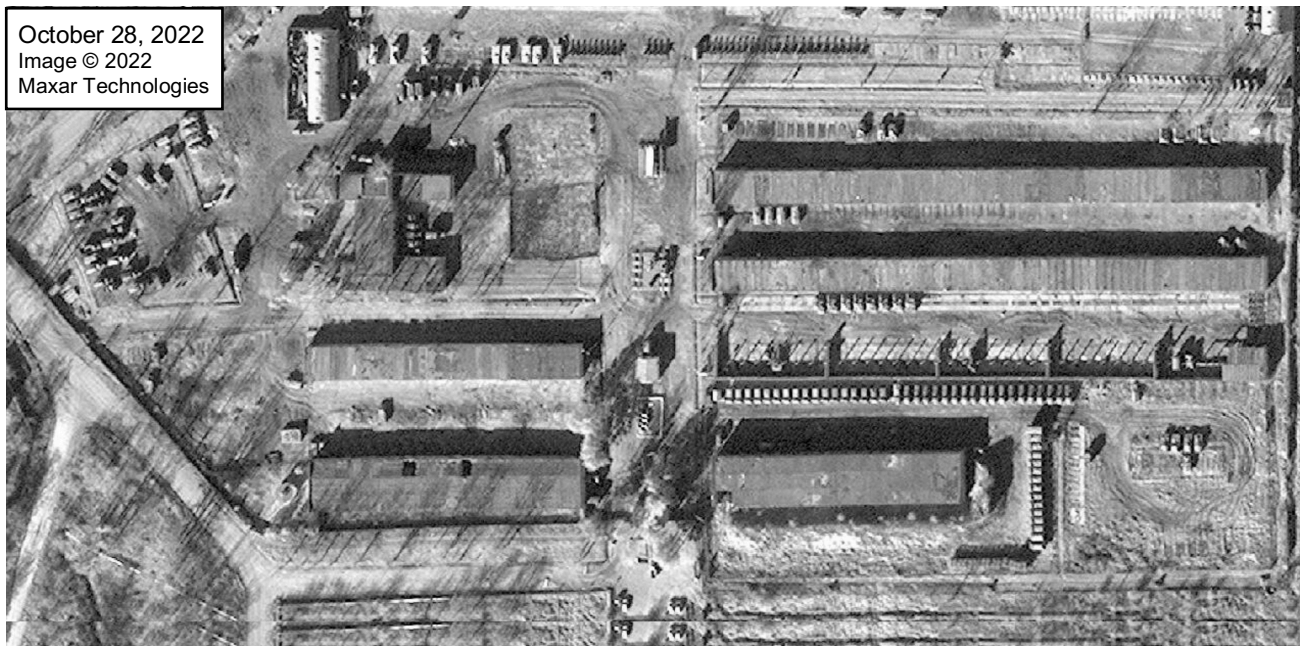
(4) 7021st BKhRVT (Nikol'skoe, Amurskaia oblast')



(5) 240th BKhRVT (Belogorsk, Amurskaia oblast')





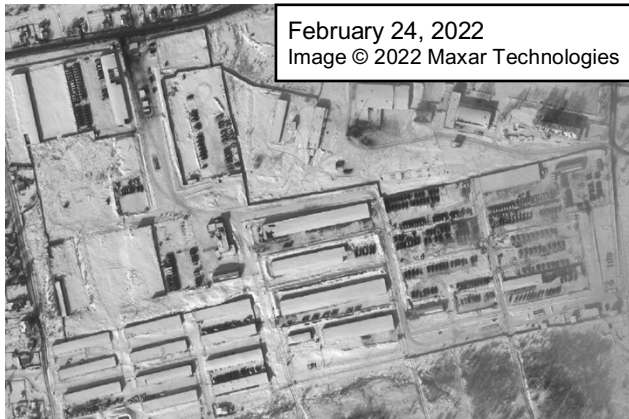


(6) 243rd BKhRVT (Khabarovsk, Khabarovskii krai)





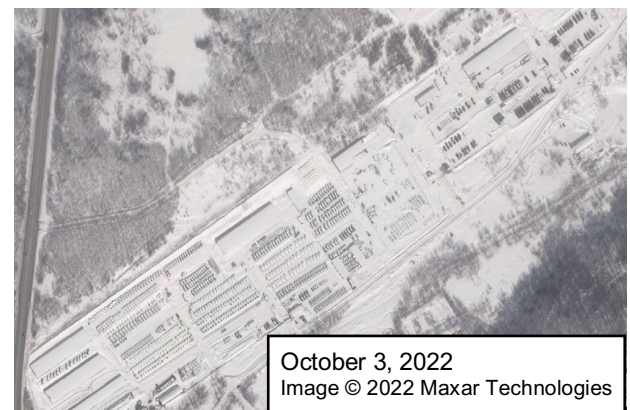
(7) 237th BKhRVT (Bikin, Khabarovskii krai)



(8) 247th BKhRVT (Monastyrishche, Primorskii Krai)



(5) 230th BKhRVT (Dachnoe, Sakhalinskaia oblast')





## CONCLUSION

The analysis showed a significant decrease in spare storage equipment at seven of the nine BKhRVTs. The exceptions are the 243rd BKhRVT in Khabarovsk and the 230th BKhRVT in southern Sakhalin, the latter of which appears to have left its reserve storage equipment untouched due to lack of capacity to transport heavy equipment across the sea to the Russian mainland. On the other hand, why the former's reserve storage equipment remains untouched is unclear. In addition, not all of the equipment in reserve storage has been removed from the seven facilities where a significant decrease in the amount of equipment in reserve storage was confirmed. This leads to the conclusion that Russia has not yet completely lost its ability to continue fighting the war while it is under significant pressure.

## SOURCES

- <sup>(1)</sup> “Attack On Europe: Documenting Russian Equipment Losses During The 2022 Russian Invasion Of Ukraine,” Oryx, <https://www.oryxspioenkop.com/2022/02/attack-on-europe-documenting-equipment.html>.
- <sup>(2)</sup> Institute for International Strategic Studies (IISS), *The Military Balance 2022* (Routledge, 2022), pp. 194, 199, 201.
- <sup>(3)</sup> Алексей Моисеев, “Модернизированные Т-62 получают новые средства обнаружения и защиты,” *Русское вооружение*, 2022.10.13, <https://rg.ru/2022/10/13/modernizirovannye-t-62-poluchat-novye-sredstva-obnaruzheniia-i-zashchity.html>.
- <sup>(4)</sup> IISS, *op. cit.*, 2022, p. 194
- <sup>(5)</sup> Ibid, pp. 202-206.
- <sup>(6)</sup> Each BKhRVT is considered to have a capacity to equip a reserve brigade with storage weapons. For example, the Central MD is reported to have three BKhRVTs when there are three reserve brigades. Александр Храмчихин, “Чем сильны войска Центрального военного округа,” *Независимое военное обозрение*, 2019.9.6, [https://nvo.ng.ru/forces/2019-09-06/11\\_1060\\_army.html](https://nvo.ng.ru/forces/2019-09-06/11_1060_army.html).
- <sup>(7)</sup> Ibid.; Александр Храмчихин, “Дальний и беззащитный восток,” *Независимое военное обозрение*, 2018.11.30, [https://nvo.ng.ru/forces/2018-11-30/1\\_1024\\_east.html](https://nvo.ng.ru/forces/2018-11-30/1_1024_east.html); Александр Храмчихин, “Неполноценная оборона Приморья,” *Независимое военное обозрение*, 2019.10.11, [https://nvo.ng.ru/nvoexpert/2019-10-11/7\\_1065\\_defence.html](https://nvo.ng.ru/nvoexpert/2019-10-11/7_1065_defence.html); Александр Храмчихин, “Ржавый замок китайской границы,” *Независимое военное обозрение*, 2020.7.24, [https://nvo.ng.ru/armament/2020-07-24/8\\_1101\\_china.html](https://nvo.ng.ru/armament/2020-07-24/8_1101_china.html).

\*\*\*\*\*

Yu Koizumi is a Lecturer at the Research Center for Advanced Science and Technology at the University of Tokyo.