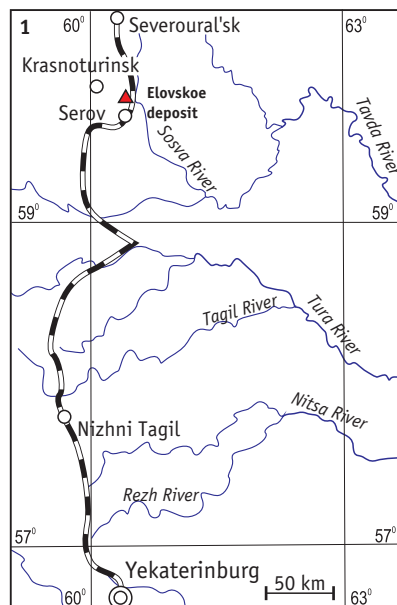


## MINERALS OF THE ELOVSKOE NICKEL DEPOSIT, NORTHERN URALS

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1. Geographical setting of Elovskoe nickel deposit in North Urals, Russia.

The Elovskoe nickel deposit, located in the North Urals in the Sverdlovskaya Oblast, 8 km of the town of Serov, belongs to the Serov deposit group (Fig. 1). This is the largest group of Ni reserves in the Urals (inferred reserves about billion tons). The deposit was operated by open pit from 1985 to 2017 and was the resource base for the Ufaley and Rezh nickel plants located toward the south. At present, the open pit does not operate and is flooded. The company was dissolved due to several reasons, which had adversely affect its activity for a long time: the relatively low Ni grade, absence of complex metal recovery (over the last years, even cobalt was not extracted), long distance of the source base from metallurgical plants, and obsolete technology of metallurgical treatment (Fig. 2).

### Geological description

The Serov nickel district comprises the Usteya, Kola, and Vagran ophiolite massifs (located along a meridian) extending along the eastern side of the Tagil trough. These massifs are associated with a deep-seated fault separating this trough from the East Ural Rise. These massifs are hosted by a complex of the Late Silurian and Early through Middle Devonian volcanic, sedimentary, and magmatic units. Ultramafic rocks are the most highly transformed in the Kola massif with which economic nickel ores opened by the Elovskoe open pit are associated. All ultramafic rocks of the Kola massif are strongly serpentinized and are highly hydrothermal altered in the zone of the deep-seated fault; as a result of hydrothermal activity, serpentinites were altered to tremolite-talc, chlorite,



2. Open pit of Serovskiy mine, Elovskoe nickel deposit in North Urals.  
Photo: Mikhail V. Tsyganko, 2007.



7 (a,b). **Aragonite** crystal clusters (up to 3 cm in size) with spherulites of snow-white **calcite** in cavity of limonite ore.  
Specimen and photo: Dmitry E. Vologin.



8. **Aragonite**, crystal clusters to 3 cm with spherulites of snow-white **calcite** in cavity of limonite ore.  
Specimen and photo: Dmitry E. Vologin.

9. **Aragonite**, clusters of long prismatic on serpentinite. 6.5 x 5 x 3 cm.  
Specimen: Mineralogical museum "Shtufnoi kabinet", Severouralsk. Photo: Mikhail V. Tsyganko.

10. **Aragonite**, cluster of crystals (to 4 x 3 cm) with **calcite** in serpentinite cavity, *in situ*. Elovskoe deposit, North Urals.  
Photo: Mikhail V. Tsyganko.

