

## **DIVERSITY OF PGE OCCURRENCES IN THE EARLY PROTEROZOIC MONCHEGORSK LAYERED COMPLEX, KOLA PENINSULA, RUSSIA**

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The Monchetundra and Monchegorsk layered intrusions (~2504 Ma) are located within inner corner of the paleoproterozoic Pechenga- Imandra rift-transform system. Akin to recent oceanic intrusions of the same location these massifs underwent a long thermal history and contain extremely various rock and ore associations. The massifs include the critical zones, chromitite seams and PGE-Cu-Ni deposits. The bottom veinlet copper sulfide ores enclose a rich PGE mineralization (5-35 ppm) consisted mainly of Pd and Pt bismuthotellurides. PGE contents in chromitite (0.01-2.0 ppm PGE) connect with tiny inclusions of laurite-erikhmanite. The new PGE-bearing disseminated sulfide mineralization (1-5 ppm) is established in marginal zone of the Monchegorsk Pluton (Mt. Vurechuaivench). The PGE reef (1-4 m thick) has been traced over 2 km through strike. Mineral association includes sperrylite, hollingworthite, platarsite, irarsite, guanglinite, kotulskite, merenskyite. PGE are incoming as isomorphic admixture into Ni-Co-Fe sulfarsenides and pentlandite. PGM are in close association with post-magmatic sulfides (millerite, chalcopyrite). Prospective PGE-enriched occurrences associated with pegmatitic bodies and pyroxenite and norite layers within gabbro-norites are revealed in the Monchetundra massif. Mineralisation is dominated by cooperite-braggite-vysotskite isomorphic group, with minor sperrylite, kotulskite, moncheite, merenskyite, electrum, and characterized by exceedingly irregular PGE distribution (1-10 ppm). Co-existence of several, genetically different types of PGE-Ni-Cu-Cr mineralization composed of diverse PGM parageneses is consistent with intricate evolution of the Monchegorsk magmatic complex involved multiple filling of magmatic chambers, prolonged influxes of sulfide-bearing melt and fluids, equilibration of magmatic and postmagmatic products, and subsolidus metasomatism. The work is supported by RFFI, grant 98-05-64671