

Water and wildlife under impact

Three flotation tailing ponds that exist in the area of Bor present the constant source of trouble for inhabitants of this region, and their environmental impact is devastating. More than two thousand hectares of arable land have no capacity for plant life self-renewal, and coastal areas of Bor River, tailing ponds created in the layer of more than half a meter! At the mouth of the river Bor in Timok tailings sediment thickness is more than three meters. The paper "The influence of flotation tailing ponds on the environment of Bor and protection measures" resulted from the project "Research and monitoring of changes in stress state in "in-situ" rock mass around the underground chambers with model development with special emphasis on the tunnel of the River Krivalja and Bor pit", financed by the Ministry of Education, Science and technological development of the Republic of Serbia. The authors are Ruzica Lekovski, Milos Mikic and Daniel Krzanovic, all from the Bor Institute of Mining and Metallurgy.

Preparation of poor copper ore in Bor flotation and Veliki Krivelj flotation, resulting in a copper concentrate, give large amounts of flotation tailings, which requires taking large space for their storage (disposal). In southeast Serbia, in the municipality of Bor, there are three flotation tailings: Floatation tailing pond Bor, Floatation tailing pond Ore body H, and Floatation tailing pond Veliki Krivelj . Bor flotation tailing pond was abandoned and partially recultivated, while the other two are active. All three tailings are serious polluters of air, water and land. Zone of influence of the dust of the tailing ponds threaten large areas in the direction of the dominant wind from the northwest direction. Bor flotation tailing pond threatens by the zone of influence of dust, an area of over 180 square kilometers, tailing Ore body H area, of 37 square kilometers, while floatation tailing pond Veliki Krivelj has a harmful impact on over 160 square kilometers. The most effective measures against dust raising from the dry surface, is application of optimal re-cultivation with technical stages of technical, agro-technical and biological re-cultivation.

By form of development, these tailing ponds are different: the valley, deep and plain, and with tailing pond Bor, combined approach was applied - initially was built as a valley type, and with the upgrade, it was the plain type of development. The dam is a main object of flotation landfills (tailings), and its stability is very important.

Whether are currently in operation or closed, tailing ponds present a constant threat to the environmental factors of catchment area, downstream from the town of Bor. Breakdowns or accidents on tailings occur due to natural disasters, technical deficiencies or by combination of these two causes.

In the Mining and Metallurgy Basin of Bor there were more environmental accidents, due to

the flotation landfills accidents, in which case the rivers, soil and plants are polluted. Causes of flotation tailings discharge in the Bor River, during seventies, are classified as technical shortcomings and led to the destruction of flora and fauna in the river, and serious pollution of coastal areas.

Much more remains to be done as soon as possible, on all three tailing ponds, as experts concluded in their paper, primarily to make optimal reclamation wherever is possible. On the other hand, it is necessary to use of the existing landfill area, so the new areas not to be occupied and streams and rivers not to be polluted.