SOME ASPECTS OF TAILING DUMP DEVELOPMENT

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Purpose. The technology of underground coal mining and its enrichment is accompanied by a significant accumulation of man-made deposits - tailings. Today's development of mining companies, based on conventional mining technologies, poses a number of challenges. The optimal solution for the prospects and innovation in coal regions is a full-fledged and rational use of available energy resources. Thus, the authors of the work set as a basis to substantiate the possibility of additional production of carbon-containing raw materials, based on the example of the tailings development in conditions of concentrating mill "Chervonohradska "PJSC "Lviv Coal Company". This will form the concept of long-term development of this mining region.

Methodology. In accordance with the requirements of Articles 4, 13, 18, 22 and 34 of the Mining Law of Ukraine, paragraphs V and VII of statutory and regulatory enactments 0.00-1.24-10 "Rules of labor protection during the development of opencast mining", Article 50 of the Mineral Resources Code of Ukraine and paragraph 5.8 .2 of State Building Regulations.2.4-5: 2012. "Tailings and sludge storages" substantiated the parameters of development of the project of tailings development of concentrating mill "Chervonohradska" on the basis of a mobile complex. In particular, paragraph 5.8.2 of State Building Regulations B.2.4-5: 2012 emphasizes that the production technology should provide for the reprocessing of previously stored tailings and sludge for more efficient use of valuable components of raw materials and valuable properties of waste, as well as to free part of storage capacity.

Findings. The separation of the carbonaceous product from the sludge will take place in two stages:

1st stage. On four hydrocyclones H/C-360. Dehydration of the obtained carbonaceous product will take place on 12 high-frequency screens GVCh-41, equipped with sieves # 100 μm (0.1 mm);

2nd stage. Isolation of carbonaceous products from the saturated material of the first stage on 12 hydrocyclones G/C-150. Dehydration will take place on two high-frequency screens GVCh-41, equipped with sieves # 50 microns (0.05 mm).

The result is three products:

- carbonaceous product with a size of 0.1-3 mm, ash content up to 30% and humidity up to 25%;
- carbonaceous product with a size of 0.035-0.1 mm, ash content up to 50% and humidity up to 35%;
- clay and argillite inclusions - sieve material.

Given the heterogeneity of the sludge in the particle size distribution, the yield of carbonaceous products at different stages will also be different. The output will be:

- carbonaceous product with a size of 0.1-3 mm, ash content up to 30% and humidity up to 25% - 19.2-35.3%;

- carbonaceous product with a size of 0.035-0.1 mm, ash content up to 50% and humidity up to 35% - 8.5-9.6%.

Thus, positive ecological, sanitary-and-epidemiological and social consequences at development of tailings will allow to receive the following positive results: development of tailings will allow to release capacities for the further storage of tails; the need for a new tailings dump disappears; allows to receive additional marketable products; contributes to the reduction of industrial waste.

Key words: mining enterprise, tailings dump, coal-containing product, mobile complex, sludge

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DOUBLE-UNIT LONGWALLS AS THE METHOD FOR MINING CONCENTRATION

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Purpose. Justifying the mining concentration by using double-unit longwalls in different geological conditions at economically expedient level.

Methodology. Using the practical researches and analytical strengths justifications of the rockmass it was defined the possibility of double-unit longwall usage for mining the coal reserves from thing and very thin seams.

Findings. One of the directions of mining operations intensification is the search for internal reserves using existing mining equipment. This is motivated by the aging of the park of mechanized complexes, deterioration of mining and geological conditions and other negative factors. Such situation is especially noticeable in state-owned mines. In the work of these enterprises is offered to introduce grouping of several wallfaces on limited volumes of mine fields. Researches were provided for the conditions of mines of the Lviv-Volyn coal basin. In this case, the preparatory working provides the ventilation (the middle draft) and transport networks is