Technologies of Processing /Solid State Phenomena. Trans Tech Publication Ltd: Zurich, Switzerland (291), 137-148. <u>https://doi.org/10.4028/www.scientific.net/SSP.291.137</u>

18. Tabachenko, M. (2016). Features of setting up a complex, combined and zero-waste gasifier plant. Min. Miner. Depos., 10(3), 37-45. <u>http://dx.doi.org/10.15407/mining10.03.037</u>

19. Pazynich, Y., Kolb, A., & Potempa, M. (2017). Implementation of Energy Safety Policy in Ukraine by Means of Energy Saving in Electric Drive Systems. Advanced Engineering Forum, (25), 96-105. <u>https://doi.org/10.4028/www.scientific.net/aef.25.96</u>

20. Declarative patent of Ukraine # 37426. The method of determining the distribution of materials in the blast furnace. *Bulletin of Inventions*, # 7-21

SOME ISSUES OF THE THIN COAL EXPLORTION AT JSW GROUP MINES

DYCHKO Artur¹ & DUPLIAK Maria²

¹Jastrzębska Spółka Węglowa S.A. (JSW Group), Jastrzębie-Zdrój, Poland ²Dnipro University of Technology, Dnipro, Ukraine

Purpose. Carrying out the research for application of the extraction technologies for thin coal seams at JSW Group mines at economically expedient level.

Methodology. Applying the methods of mathematical statistics, as well as the assessment of existing technological solutions in mining, the possibility of technical and technological justification of the thin coal seams mining at an economically feasible level.

Findings. Global trends in the development of coal deposits show different approaches to standardization of reserves and the application of standards to their assessment. Today, in Poland, to thin seams are included reserves with formations less than 1.5 m thick. However, directly in this structures the significant reserves of coal in mines are concentrated. This means, that these reserves are defined as off-balance. So they are not economically feasible for extraction by existing mining equipment. At the same time, the practice of mining reserves, even with a smaller thickness, is quite widespread in other countries. In particular, in Ukrainian mines for a long period have been effectively mined the coal seams below 1.2 m. There are also other positive examples of mining equipment usage in such conditions. Therefore, the article considers the possibility of introducing technical and technological improvements for the extraction of off-balance reserves at JSW Group and other polish mines. Along with technical improvement, an economic assessment is conducted, which proves the validity of the proposed approaches.

The study was conducted as part of the individual researches of the author.

Key words: mining, thing coal seam, technology, technical occupation

References

^{1.} Kopacz, M., Kulpa, J., Galica, D., Dyczko, A., & Jarosz, J. (2019). Economic valuation of coal deposits – The value of geological information in the resource recognition process. Resources Policy, 63, 101450. <u>https://doi.org/10.1016/j.resourpol.2019.101450</u>

2. Дичковський, Р.О. (2013). Наукові засади синтезу технологій видобування вугілля у слабометаморфізованих породах. – Дніпропетровськ: НГУ.

3. Dyczko, A., & Jarosz, J. (2010). Exploitation of thin hard coal beds in Poland – strategic decisions at the threshold of the 21st century. Mine Safety and Efficient Exploitation Facing Challenges of the 21st Century, 371-378. https://doi.org/10.1201/b11761-51

4. Dyczko, A., & Jarosz, J. (2010). Exploitation of thin hard coal beds in Poland – strategic decisions at the threshold of the 21st century. Mine Safety and Efficient Exploitation Facing Challenges of the 21st Century, 371-378. https://doi.org/10.1201/b11761-51

5. Lewinska, P., Matula, R., & Dyczko, A. (2017). Integration of Thermal Digital 3D Model and a MASW (Multichannel Analysis of Surface Wave) as a Means of Improving Monitoring of Spoil Tip Stability. 2017 Baltic Geodetic Congress (BGC Geomatics). https://doi.org/10.1109/bgc.geomatics.2017.29

6. Dychkovskiy, R., & Bondarenko, V. (2006). Methods of Extraction of Thin and Rather Thin Coal Seams in the Works of the Scientists of the Underground Mining Faculty (National Mining University). International Mining Forum 2006, New Technological Solutions in Underground Mining, 21-25. <u>https://doi.org/10.1201/noe0415401173.ch3</u>

7. Deposit model as a first step in mining production scheduling. (2012). Geomechanical Processes During Underground Mining, 231-247. <u>https://doi.org/10.1201/b13157-39</u>

8. Kicki, J., & Dyczko, A. (2010). The concept of automation and monitoring of the production process in an underground mine. New Techniques and Technologies in Mining, 245–253. <u>https://doi.org/10.1201/b11329-41</u>

9. Griadushchiy, Y., Korz, P., Koval, O., Bondarenko, V., & Dychkovskiy, R. (2007). Advanced Experience and Direction of Mining of Thin Coal Seams in Ukraine. Technical, Technological and Economical Aspects of Thin-Seams Coal Mining, International Mining Forum, 2007, 2-7. <u>https://doi.org/10.1201/noe0415436700.ch1</u>

10. Dychkovskyi, R., Falshtynskyi, V., Ruskykh, V., Cabana, E., & Kosobokov, O. (2018). A modern vision of simulation modelling in mining and near mining activity. E3S Web of Conferences, 60, 00014. <u>https://doi.org/10.1051/e3sconf/20186000014</u>

11. Dychkovskyi, R., Tabachenko, M., Zhadiaieva, K., Dyczko, A., & Cabana, E. (2021). Gas hydrates technologies in the joint concept of geoenergy usage. E3S Web of Conferences, 230, 01023. <u>https://doi.org/10.1051/e3sconf/202123001023</u>

12. Haslett, G. (1984). Conversion of advancing longwall to retreat longwall: a review report. <u>https://doi.org/10.4095/304751</u>

13. Falshtynskyi, V., Dychkovskyi, R., Khomenko, O., & Kononenko, M. (2020). On the formation of a mine-based energy resource complex. E3S Web of Conferences, 201, 01020. <u>https://doi.org/10.1051/e3sconf/202020101020</u>

14. Dychkovskyi, R., Shavarskyi, I., Saik, P., Lozynskyi, V., Falshtynskyi, V., & Cabana, E. (2020). Research into stress-strain state of the rock mass condition in the process of the operation of double-unit longwalls. Mining of Mineral Deposits, 14(2), 85–94. https://doi.org/10.33271/mining14.02.085

15. Peng, S. S. (2019). Longwall face move. Longwall Mining, 437–460. https://doi.org/10.1201/9780429260049-12