MINERAL RESERVES AND MINERAL RESOURCES
Year ended 31 December 2020

Mineral Reserves and Mineral Resources estimation methods

The annual review of Mineral Reserves and Mineral Resources is mainly focused on mine reserve reports, depletion through production, analysis of company plans, new exploration results, new technical reports and other changes affecting the Mineral Reserves and Mineral Resources.

Kazakhstan inherited the classification system and estimation methods for minerals that were established in the Former Soviet Union (FSU). Updated 'Regulations for the Classification of Non-ferrous Metals Reserves' became law in Kazakhstan in 2006. In practice, this means that the statements of resources and reserves developed by KAZ Minerals (and the mining plans to which they relate) must be submitted for approval to the corresponding committees of the Ministry of Industry and Infrastructural Development, for which adherence to the standardised national system of resource and reserve estimation is mandatory.

Under the FSU inherited system, copper deposits are classified according to their degree of geological complexity into one of three deposit categories, which determine the density of exploration sampling and the proportions and classifications of the State Commission on Mineral Reserves (GKZ) reserves that must be estimated. As part of the exploitation licence for each mineral deposit, a set of 'Conditions for Estimation of Reserves' are prepared by a Kazakhstan licenced design institute and submitted for approval to the State. The Conditions for each deposit specify the minimum thickness for exploitation of the ore body and cut-off grades, plus special considerations which may apply where the conditions for mineral extraction are exceptional or present difficulties.

Kazakhstan is now in a transition period where it will relinquish the old GKZ based reporting system and will fully adopt the KAZRC reporting code by 2023.

The three operating mines in the East Region are being migrated to KAZRC reporting of Mineral Reserves and Resources. The estimation assumptions and ore body models used by GKZ have been reproduced using computer-based models. Resource estimates show almost identical tonnage values and similar, but arguably more accurate, grade values. Under the GKZ system, grade estimation was based on polygonal methods with no interpolation between data points. Under KAZRC, the estimation method is not prescribed but ordinary kriging has been selected which allows for interpolating data between data points and, in theory, produces a smoother grade distribution. When future exploration drilling results are received, the computer models and resource estimates will be updated independently of GKZ considerations.

To convert resources to reserves in the East Region, a system of computerised three-dimensional mine planning is being implemented. During 2020, the new system was used at Artemyevsky and introduced at Orlovsky, where it will be fully implemented in 2021. Although it is time consuming to set up the new computerised mine planning system, because of the extent of historical survey data that has to be captured, it will enhance and expedite mine planning in the future, and is an introduction of international best practice.

At Bozymchak in Kyrgyzstan, a review has been made of the mine's reserves statements and they are presented in accordance with the criteria to meet JORC standards. The Committee for Mineral Reserves International Reporting Standards (CRIRSCO) guidelines for the alignment of former Soviet reporting standards and the CRIRSCO Template have been used. Under these guidelines, categories of Kyrgyzstan reserves (B, C1 and C2) have been aligned with appropriate JORC Mineral Resource categories (Measured, Indicated and Inferred). The Competent Person, however, remains responsible for any estimate that is reported.

For the Company's newer mining operations at Aktogay and Bozshakol, the assessment of Mineral Reserves and Mineral Resources is based on computer modelling and estimated in accordance with the guidelines of KAZRC. At both mines during 2020, new models were created incorporating recent exploration drilling results. The new models were created in-house and replace previous models which were inherited from consultants since the pre-operational stage.

A new geological model was also created in-house for the Koksay deposit to include additional exploration drilling results. This forms the basis of a revised Mineral Resource estimate according to KAZRC.

An updated JORC compliant Mineral Resource estimate was released for the Peschanka deposit in 2020. The work was undertaken by an external consultant and incorporates additional exploration drilling results. The Competent Person for this work has provided consent for the disclosure of the estimates for which they are responsible, as shown at the end of this report.

Stockpiling of mined ore is common practice at large open pit mines, usually as a means of providing a consistent tonnage and grade feed to the processing plant. Stockpiled ore is included in the inventory of Mineral Reserves and Mineral Resources, but reference is made to the quantity of material held in stockpile at year end. In the case of mined ore added to a heap leach pad, this is considered as 'in process' and hence is not included in the Mineral Reserve and Mineral Resource Statement.

All Mineral Reserves quoted in the following tables are discounted for ore losses and dilution and refer to estimates of tonnes and contained metal grades at the point of delivery to the processing plant. Tonnage figures refer to dry metric tonnes.

Mineral Resources are reported inclusive of Mineral Reserves, but not discounted for loss and dilution.

Read more on pages 194 to 197 of KAZ Minerals Annual Report and Accounts 2020.