ABSTRACT

At this time nickel is one of minerals a widely used, but along with the massive exploitation of nickels making this minerals becoming decreased. With the massive uttilition to get the amount of nickel that more must be done by a nickel mining industries in Indonesia. Based on these problems using the suitable method is needed to obtain optimal results in estimating mineral resources of nickel. This final project will discuss 3D geological modeling using kriging method. This method used to solve numerous cases in geostatistics, for example, there mineral sample deposits that do not have a specific tendency (trend). The suitable kriging method is Ordinary Kriging because this method can be used when the population mean is unknown, and the spatial data must be stationary. The purpose of this research is to estimate nicekel content and nickel resources based on data drilling, and visualize in 3D that can provide distribution information content of nickel and iron profile along with variance of kriging. The input parameters are coordinates x, y, z and the content of nickel and iron. The conclusion that can be taken from this research is the implementation of ordinary kriging on geological modeling 3D for nickel content carried out by first determining semivariogram 3D on each layer that will generate 3D maps contour in it shows the information that most of the nickel profiles of layer 6, 7, 8, 9, and 10 are saprolite ore, and the best performance of variance are in the layer 7 and layer 10. If the variance is getting small, then the accuracy of estimates is getting better.

Keywords: Nickel, Spatial data, Staioner, Semivariogram, geological Modeling, Ordinary Kriging