ABSTRACT

DETERMINATION OF LITHOLOGY CLASSIFICATION AND COAL SEAM THICKNESS USING THE 1-D CONVOLUTIONAL NEURAL NETWORK (CNN) METHOD IN BALIKPAPAN FORMATION, KEC. LOA JANAN, KAB. KUTAI KARTANEGARA

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This research is in the Balikpapan Formation and includes the Coal Bearing Formation where the distribution of coal seams is quite thick, besides that the research area is also on the anticline wing of Palaran. This research used 14 wellbore points and among them there were 5 well logging data points whose status have been validated yet or logging results were <90%, while the other 9 well points had valid status with 100% logging results.

Determination of classification based on well logging data which is the result of reconciled in the form of gamma ray log data and density log as well as shale volume calculation results. The results of the three data show different values for each lithology and become characteristics that will then be analyzed and classified using the CNN method. The CNN method will classify lithology data in more detail based on the reference well data provided.

The results of research using the CNN method on IKJL 7, IKJL 7A, IKJL 21, IKJL 20, and IKJL 6 showed that there were several thin layers that could not be recognized by CNN, especially for coal seams so that there was a difference in thickness before and after the application of the CNN method. The application of the CNN method to coal seams will get better results depending on the large amount of reference data used as a source of information.

Keywords: Coal *Seam* Thickness, *Well* Logging, CNN, lithology classification.