

Determining The Effect from The Tailing of Alluvial Tin Washing Process on the Feasibility of Raw Water Quality Using the Storet Method at Bangka District, Indonesia

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Abstract

Mining and washing process on alluvial tin exploitation activity at Bangka Area, West Bangka and South Bangka in general to causes the formation of mine void. Especially on tin ore washing process will produces tailing (waste of tin washing process) which still contains associated minerals and deposited in the former mining pond. The accumulation of the tailings will affect the groundwater (aquifer) around the pond, especially in terms of groundwater quality. On the other hand, the community around the mining area still uses groundwater that is obtained through shallow wells to fulfill the needs of raw water and MCK. Therefore, this research was conducted to assess the feasibility of raw water quality based on the Storet Method. Groundwater sampling in the field refers to the SNI 6989.58:2008 procedure for groundwater sampling methods, then continued with the analysis of groundwater chemical content in accredited laboratory. The results of field observations and measurements, obtained 3 (three) selected observation locations with groundwater level between 2 - 5 m above sea level. From the results of groundwater chemical content analysis, the indicator for pH value that range from 4.06 - 5.17 with index from Total Dissolved Solid, Fe³⁺ range from 0.0113 - 0.0372 mg/L, Mn²⁺ range from 0.0197 - 4.3600 mg/L, Zn range from 0.0068 - 1.2300 mg/L, and Pb range from 0.0250 - 0.4650 mg/L. The analysis of the raw water quality status using the Storet Method based on the Decree of the Minister of Environment of the Republic of Indonesia Number 115 of 2003 and the results of the analysis showed that the research area received a score of 12 - 20 with a moderate contaminated category.

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Biography

Andra Pratama has completed his bachelor degree of Geological Engineering at the age of 22 years from Padjadjaran University, Indonesia. He is a mine geologist of PT. Timah Tbk, a state-owned enterprise company engaged in tin mining.