

ABSTRACT

PT. Tansri Madjid Energy is a Mining Company of gold ore that located on Lebong Village, North Lebong Subdistrict, Lebong Regency, Bengkulu Province. The Company is still developing an alternate process will be applied with some research. One of them is Gravity Recoverable Gold (GRG) test will known the gold liberation, mineralogy, the increased of grade and the gold recovery using Knelson Concentrator. Those parameter will be used to analyze applied unit operation especially with gravity concentration method. For that reason, analysis in laboratory test result by company is need to be done.

Optic monitoring reveals that liberated gold in size of grain $\leq 80\mu\text{m}$ concentrate with most of the gold liberated perfectly and gold in electrum also present with the most of gold is native. Beside in the tested sample there's indication that quartz is the main constituent in the rocks that followed by feldspar and sulfide mineral like pyrite, chalcopyrite, sphalerite, covellite, digenite, marcasite, and iron oxide like hematite in lesser amount. Then the test result also gain total calculated grade of 2,27 ppm and head grade of 2,3 ppm.

Based on the calculation, there are some result. First, all values of concentration criteria $> 2,5$ that means separation in a gravity concentration could be done in various size. Second, value of total recovery 64,59% was obtained. Third, total ratio of concentration 1,76 was obtained as well. Fourth, based on the analysis from gold recovery aspect, the increased grade and its ratio of concentration, the size fraction of $75\mu\text{m}$ as feed size for Knelson Concentrator was choosen. This is because at the size fraction of $75\mu\text{m}$, either at result stage 1 and 2 (65,30% and 66,80%), the increased of concentrate grade at stage 1 and 2 (7,36 and 2,43) along with the ratio of concentration at stage 1 and 2 (2,68 and 2,71), a high result was obtained.