# *ABSTRACT*

*PT. Bara Alam Utama is one of several surface coals mining which has the biggest production target in Indonesia at the moment. Mine planning process is the most important thing for PT. Bara Alam Utama to achieve their production target. In order to achieve the target, it is necessary to construct mining stage plan to excavate up all of the reserve starting from initial point until the ultimate of pit limit. Design of mining steps divide ultimate pit into smaller mining plan (stage plan) hence it will be easier to be managed. These stage plans make the complexity of 3 dimension planning problems become simpler.*

*Coal deposits that are mined generally exposed in the slope of land surface ranges between 8º - 13º with 19 meters of coal thickness. Coal mining operations will be carried out by surface mining system using strip mine method. The executions of modeling, calculation of reserve and pit design are using Autocad and Gemcom Surpac software for a good and directional design.*

*The result of coal tonnage with Gemcom Surpac Software is 2.404.997 tonnes and overburden volume in amount of 9.735.843,46 BCM resulting on Stripping Ratio of 4,05 : 1. Mining geometry obtained from geotechnical recommendations are 10 meters bench height, 5 meters bench width, single slope 55º, and overall slope 50º, 8% ramp grade, haulageway widths on the straight road is 13 meters, and haulageway widths on the curves road 15 meters. With a production target of 100.000 tonnes of coal per month, then the age of mine is about 2 years.*

*Overburden removal and overburden digging at PT. Bara Alam Utama use conventional methods. The equipment that will be used to remove overburden materials is PC300-7 excavator backhoe supported by bulldozers, and coal excavation also use PC300-7 excavator backhoe and bulldozer. Overburden and coal hauling units that will be used was Toyota Rino Dyna 110 PS dump truck with PC300-7 excavator backhoe loading units.*