

SUMMARY

PT Hillconjaya Sakti (PT HJS) is a company engaged in mining contractors with the main commodity of nickel laterite. The company is located in Lelilef Village, North Weda, Central Halmahera Regency, North Maluku Province with a total pit area of 66,2 ha. Mining is carried out with an open mining system with the block strip mining method. Before mining activities are carried out, it is necessary to design the mining area, haul road and stockpile area. So this study aims to design mining, haul road design, calculation of waste stockpile area, and calculate the number of mechanical equipment needed to achieve a production target of 1.830.000 tons/year.

The methodology used in this research includes a literature study followed by data collection to obtain primary and secondary data, which is then analyzed and processed to produce conclusions. The mining design was prepared based on nickel reserve data, and data processing was carried out with the help of Micromine software. The sequence uses a simulation method, with production target data as the basis for designing mining designs to achieve a production target of 1.830.000 tons/year.

The reserve results based on the design in 2024 obtained a waste volume of 1.852.500 BCM and nickel ore of 1.871.250 tons with an SR of 0.98. Mine progress is planned for one year in quarters, in the first quarter the volume of waste is 478.570 BCM and ore 455.411 tons with an SR value of 1,05, in the second quarter the volume of waste is 465.338 BCM and ore 496.953 tons with an SR value of 0,93, in the third quarter obtained a waste volume of 452.417 BCM and ore 443.165 tons with an SR value of 1,02, in the fourth quarter obtained a waste volume of 416.319 and ore 437.312 tons with an SR value of 0,95. The mine road is designed to be traversed by a Volvo A60H articulated dump truck with a road width on a straight track of 14 meters for 2 lanes and on a turning track of 18 meters, a minimum bend radius of 7,97 meters, superelevation of 0,04 m / m, cross slope 0,28 m. The slope of the road is made according to the topographic terrain with a maximum slope of 10%. The stockpile area is designed for waste material stockpiling. The capacity of the waste dump area is 1.492.663 CCM. Equipment needs change every quarter due to differences in waste material production and differences in transportation distance to the waste dump. Fleet requirements in each sequence are 2 fleets. With the number of transportation equipment for each sequence of 10 to 12 units.