

ABSTRACT

PT. Semen Indonesia (Persero) Tbk is one of the companies engaged in the cement industry which is also engaged in the mining industry. Mining industry sector which is being done one of them is mining of Clays as raw material in making cement. Clays needs are filled by Mliwang's Quarry with high quality Alumina. Location of Clay's Mliwang X KSO Barat in Karangasem Village, Jenu District, Tuban Regency, East Java Province, with Mining Business License 235 ha.

The problem in this research is PT. Sement Indonesia (Persero) Tbk needs to do mining design at quarry Clay's Mliwang X KSO Barat which includes mining method selection, Push Back mining design with production target 600,000 ton/quarter clays, production scheduling Clays and top soil every quarter, Design of haul roads, and calculation of the need for mechanical equipment.

Mining system uses the Open Mine with Quarry Pit Type method. Based on calculations that have reserves owned is 3,097,620tons with a mine life for 5 quarters. Details The mined clay is as follows:

1st quarter is 618,198tons; The area of the mine is 6.80Ha.

2nd quarter is 618,239tons; The area of the mine is 11.98Ha.

3rd quarter is 618,200tons; The area of the mine is 13.80Ha.

4th quarter is 618,252tons; The area of the mine is 13.80Ha.

5th quarter is 624,732tons; The area of the mine is 13.80Ha.

The above results have accounted for a 3% loss factor on the mining front.

Production and the need for equipment is divided into two seasons, namely the summer season and the rainy season. The loading equipment used is Komatsu PC300 Excavator, production 192,075BCM/quarter - 197,860BCM/quarter with the need of 3 equipment per quarter in the summer season and production 114,530BCM?quarter - 118,040BCM/quarter with the need 4 equipment per quarter in the rainy season. Haulage equipment using Scania P380 Dump Truck, production 24,960LCM/quarter with equipment needs 20 equipment - 21 equipment per quarter for summer season and 19,422LCM/quarter and 26 equipment - 27 equipment per quarter for rainy season. Match Factor (MF) of the summer season from 1st quarter - 5th quarter between 0.55 – 0.57, while in the rainy season between 0.52 – 0.54.