

RINGKASAN

PT Arga Wastu adalah perusahaan dengan Penanaman Modal Dalam Negeri (PMDN) yang bergerak pada bidang pertambangan batu andesit. Lokasi di Desa Sanetan, Kecamatan Sluke, Kabupaten Rembang, Provinsi Jawa Tengah. Metode penambangan terbuka *quarry system*. PT Arga Wastu melakukan kegiatan pengangkutan batu andesit hasil peledakan maupun hasil *breaker* dari *loading point* ke lokasi *crushing* dengan target produksi batu andesit sebesar 1000 ton/hari. Tetapi produksi batu andesit masih sebesar 522,10 ton/hari. Hal ini menunjukkan bahwa perusahaan mengalami kekurangan produksi batu andesit sebanyak 477,9 ton/hari. Salah satu faktor yang menyebabkan kekurangan produksi adalah adanya waktu tunggu alat angkut, sehingga terjadi antrian alat angkut di *loading point* dan lokasi *crushing*. Tujuan penelitian yaitu menganalisis penyebab terjadinya antrian alat angkut *Hino FM 260 Ti* dan *Isuzu FVZ 34 P 285 PS*, dan menyelesaikan permasalahan antrian dengan melakukan pendekatan teori antrian agar target produksi alat angkut sebesar 1000 ton/hari dapat tercapai

Data hasil penelitian diantaranya % *swell* = 22,17 %, *swell factor* = 0,82, *density in bank* = 2,48 ton/m³, *loose density* = 2,03 ton/m³, faktor pengisian mangkuk = 0,84, lebar rata-rata pada jalan lurus = 9 meter, lebar pada jalan tikungan = 18,3 meter, waktu edar alat gali muat = 14,76 detik, efisiensi kerja alat muat = 67,2 %, efisiensi kerja alat angkut = 67,2 %, total waktu edar alat angkut = 24,46 menit. Faktor penyebab antrian yaitu kegiatan lain alat muat yaitu memilih *boulder* untuk dipecah oleh *Rock Breaker*, penyempitan jalan di segmen tertentu, perbaikan jalan angkut, dan penumpahan material langsung pada *hopper*.

Ada 4 alternatif perbaikan, alternatif I yaitu penambahan jumlah alat muat didapatkan waktu edar alat angkut 13,063 menit dan produksi sebesar 977,61 ton/hari. Alternatif II yaitu penambahan jumlah alat muat, perbaikan jalan angkut dan perataan permukaan jalan angkut didapatkan waktu edar alat angkut 12,612 menit dan produksi sebesar 1012,61 ton/hari. Alternatif III yaitu penambahan jumlah alat muat dan penjadwalan alat angkut didapatkan waktu edar alat angkut 12,65 menit dan produksi sebesar 1604,07 ton/hari. Alternatif IV yaitu penambahan jumlah alat muat, perbaikan jalan angkut, perataan permukaan jalan angkut dan penjadwalan alat angkut didapatkan waktu edar alat angkut 12,60 menit dan produksi sebesar 1610,50 ton/hari. Maka hanya alternatif II, III, dan IV yang dapat diterapkan karena dapat memenuhi target produksi.

ABSTRACT

Arga Wastu Ltd. is a business with Domestic Investment which is active in andesite mining. It is located in Sanetan village, Sluke sub-district, Rembang regency, Central Java. Using the open mining method quarry system, Arga Wastu Ltd. transports the andesite from the result of explosion and breaker from loading point to the crushing location with 1000 ton/day target production of andesite. Yet, they produce andesite only 522.10 ton/day. It shows that the company cannot reach the target about 477.9 ton/day. A waiting list from the conveyance is one of the significant factors. The long line of conveyance happens from loading point and crushing location. The main objective of this research is to analyze the cause of long queue of Hino FM 260 Ti and Isuzu FVZ 34 P 285 PS conveyance, and solve the problem about the long line of with queue approach theory target production of 1000 ton/day can be reached with those conveyance

The factors that influences the production of mechanical devices are about % swell = 22.17%, swell factor = 0.82, density in bank = 2.48 ton/m^3 , loose density = 2.03 ton/m^3 , the bucket fill factor=0.84, the wide average on straight road = 9 meter, the wide of a bend in the road = 18.3 meter, time of the unloading device = 14.76 seconds, work efficiency of conveyance means = 67.2%, total time of the conveyance = 24.46 minutes. The cause of the queue is other activities of the loading devices such as choosing the boulder to be broken by Rock Breaker, road narrowing in certain segment, road transport improvement, directly shedding material in hopper.

There are 4 alternatives improvement. The first (I) is about increasing the loading tools amount which has 13.063 minutes of conveyance means time and 977.61 ton/day of production. Second (II), it is about the adding the loading tools, also repairing and leveling surface of the transport road which have 12.612 minutes of conveyance means time and 1012.61 ton/day of production. Third (III) is adding the loading tools and scheduling the conveyance means which have 12.65 minutes of conveyance means time and 1604.07 ton/day. The last (IV) is about adding the conveyance, repairing and leveling the surface of transport road, and scheduling the loading tools means which have 12.60 minutes and 1610.50 ton/day of production. Thus, it is only the II, III, and IV alternative which can be applied because only those three alternatives can fulfill the target of andesite production.