

RINGKASAN

Pabrik peremuk batu andesit UD. Muncul Karya berlokasi di Desa Wijimulyo, Kecamatan Nanggung, Kabupaten Kulon Progo. Kegiatan peremukan batu andesit pada unit peremuk terdiri dari 2 tahap, yaitu *jaw crusher* I dan *jaw crusher* II. Saat ini pabrik peremuk hanya mampu memproduksi batu andesit pecah sebesar 225,382 ton/hari dengan ukuran (-30mm+ 20 mm) sebesar 73,325 ton/hari (32,53%), (-20mm+ 10mm) sebesar 75,965 ton/hari (33,71%), (-10mm+ 5mm) sebesar 52,386 ton/hari (23,24 %), (-5mm)sebesar 23,706 ton/hari (10,52%)

Target produksi yang ditetapkan yaitu sebesar 300 ton/hari dan untuk presentase material yang diinginkan dengan ukuran (-30 mm+ 20 mm) sebesar 90 ton/hari (30%), (-20 mm +10 mm) sebesar 90 ton/hari (30%), (-10 mm + 5 mm) sebesar 60 ton/hari (20%), (-5 mm) sebesar 60 ton/hari (20%).

Untuk mencapai sasaran produksi yang ditetapkan maka perlu dilakukan evaluasi terhadap kinerja unit alat peremuk batu andesit, dalam penelitian ini perbaikan terhadap proses produksi unit alat peremuk. Perbaikan proses produksi dilakukan dengan cara

1. Perbaikan pengaturan kerja *wheel loader*

Dilakukan dengan mengatur penggunaan *wheel loader* sesuai dengan fungsinya masing-masing yaitu satu *wheel loader* sebagai alat muat memasukan umpan ke *hopper* dan satu *wheel loader* lagi sebagai alat muat material produk ke dump truck konsumen.

2. Penambahan jumlah umpan ke *hopper*

Penambahan jumlah umpan ke *hopper* sebesar 11,055 ton/jam. Sehingga jumlah total produk batu andesit setelah perbaikan sebesar 44,445 ton/jam.

3. Pemasangan *Grizzly feeder*

Pemasangan *grizzly feeder* dilakukan untuk mengatur keluarnya material dari hopper menuju *jaw crusher*. *Grizzly feeder* yang digunakan memiliki lubang bukaan sebesar 100 mm, sehingga produk *oversize* dari *grizzly feeder* (+100)mm akan menjadi umpan *jaw crusher* I dan produk *undersizenya* menjadi umpan *jaw crusher* II.

4. Perubahan setting *jaw crusher* I dan *jaw crusher* II

Perubahan setting yang dilakukan yaitu :

- a) Untuk *Jaw Crusher*I setting berubah dari 70 mm menjadi 60 mm.
- b) Untuk *Jaw Crusher*II setting berubah dari 20 mm menjadi 22 mm.

5. Perbaikan waktu produksi efektif

Dengan melakukan perbaikan waktu produksi efektif ini didapat perubahan waktu produksi hari menjadi 7,15 jam per/hari.

Dengan upaya-upaya perbaikan yang dilakukan diatas, maka untuk masing-masing produk yang dihasilkan setelah perbaikan adalah (-30 mm+ 20 mm) sebesar 98,883 ton/hari (30,6%), (-20 mm +10 mm) sebesar 98,089 ton/hari (30,3%), (-10 mm + 5 mm) sebesar 63,668 ton/hari (19,8%), (-5 mm) sebesar 62,141 ton/hari (19,3%) dengan efektifitas *jaw crusher* I sebesar 34,51% dan *jaw crusher* II 86,80%.

Dengan mempertimbangkan tingkat efektifitas dari masing- masing *jaw crusher*, kuantitas dan prosentase produk yang dihasilkan, maka upaya-upaya tersebut dapat dipilih sebagai alternatif penyelesaian masalah.

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ABSTRACT

Andesite crusher plant, *UD Muncul Karya* is located in Wijimulyo village, Nanggulan subdistrict, in the regency of Kulon Progo. Andesite crushing activities in the crusher unit consist of 2 stages, i.e. the *jaw crusher* I and the *jaw crusher* II. Meanwhile, the plant is only capable of producing shattered andesite as many as 225,382 tons/day. For the measurement of andesite as big as (-30 mm+20mm)the plant could produce as many as 73,325 tons/day or (32.53%) for that of (20 mm-10 mm); it produces 75,965 tons/day or (33,71%), for that of (5 mm-10 mm); it produces 52,386 tons/day or (23,24%) for that of (-5 mm), it produces 23,706 tons/day or (10,52%).

The target of production that was set amounted to 300 ton/days and for the percentage of material desired, i.e. those with the measurement of (-30 mm+ 20 mm) the production target was as many as 90 tons/ day or (30%), those of (-20 mm +10 mm) would make its production target as many as 90 tons/day or (30%), those of (-10 mm + 5 mm) would make it as many as 60 tons/day or (20%), (-5 mm) would make it as many as 60 tons/day (20%)

To reach the target of production that was set, then the evaluation on unit performance of andesite crusher instrument need to be implemented. In this research, the follow up was in the form of production process of crusher instrument unit. The improvement of production process was carried out through:

1. The improvement of wheel loader work setting

It was carried out by regulating the use of *wheel loaders* in accordance with their functions those are one wheel loader as a loading tool for entering fed to the *hopper* and one other wheel loader as a loading tool of product material transferred to the consumer dump truck.

2. The addition of the quantity of feeder into *hopper*

The addition of the quantity of feeder into hopper amounted to 11,055 tons/ hour. So the total sum of andesite products after the improvement amounted to 44,445 tons/hour.

3. The installation of *Grizzly feeder*

The installation of *grizzly feeder* was carried out to regulate the release of material from *hopper* to *jaw crusher*. *Grizzly feeder* used having opening holes of 100 mm so that the oversize products of *grizzly feeder* (+ 100) mm would be a fed to the *jaw crusher* I and its undersize products would be a fed to the *jaw crusher* II.

4. The setting change of *jaw crusher I* dan *jaw crusher II*

The setting change conducted were :

- a) On *Jaw Crusher I* the setting was changed from 70 mm into 60 mm
- b) On *Jaw Crusher II* the setting was changed from 20 mm into 22 mm

5. The improvement of effective production time

The change of day production time to be 7,15 hours per day was obtained by conducting the improvement of this effective production time.

With all the improvements conducted above, then products produced after the improvement were : 98,8883 tons/day or (30,6 %) for the product measurement of (-30 mm + 20 mm), 10 tons/day or (30,3 %) for the product measurement of (-20 mm + 98,089 mm), 63,668 tons/day or (19,8 %) for the product measurement of (-10 mm + 5 mm), 62,141 tons/day or (19,3 %) for the product measurement of (-5 mm) with the effectiveness rate of *jaw crusher* I amounted to 34,51 % and that of *jaw crusher II* was 86,80 %.

