RINGKASAN

PT Borneo Edo International (PT BEI) adalah perusahaan pertambangan yang memiliki wilayah IUP Eksplorasi Sebadu seluas 20.000Ha, berlokasi di Kecamatan Menjalin, Sompak, Sengah Temila, Sebangki, dan Mandor, Kabupaten Landak, Provinsi Kalimantan Barat. Penelitian ini dilakukan karena PT BEI belum memiliki rancangan teknis penambangan bijih Bauksit untuk memenuhi target produksi *washed* Bauksit (Wbx) sebesar 2.700.000ton/tahun dan bagaimana membahasakan rancangan teknis penambangan tersebut dalam suatu tampilan yang mudah dipahami.

Berdasarkan hasil kegiatan eksplorasi dengan *test pit* didapatkan 67 persebaran endapan bijih Bauksit di lokasi penelitian yaitu blok Sebadu Utara (2.000Ha). Endapan bijih Bauksit tersebut memiliki kualitas kadar Al_2O_3 antara 36,03%-44,35%, SiO_2 2,3-6,74%, dan Fe_2O_3 4,19%-13,77%. Penaksiran cadangan yang dilakukan menghasilkan total cadangan bijih Bauksit sebesar 30,46 juta ton dengan c*ut off grade* (*COG*) Al_2O_3 36% dan total *stripping ratio* (*SR*) 0,61:1.

Metode penambangan yang digunakan adalah *open cast* secara selektif dengan rekomendasi geometri lerengnya adalah tinggi jenjang tunggal 5m, lebar jenjang minimal 8m, dan kemiringan jenjang tunggal 60^o. Berdasarkan perhitungan dimensi jalan diperoleh lebar jalan angkut adalah 12m untuk jalan lurus dengan nilai *cross slope* 1,72° dan 24m untuk jalan tikungan dengan nilai *superelevasi* 0,0395m/m. Rencana penjadwalan produksi bijih Bauksit dan *overburden* pada daerah penelitian dilakukan pertahun (1 tahun) selama 5 tahun:

a. Tahun 1 produksi *washed* Bauksit (Wbx) 2.717.290,12ton, pengupasan *overburden* 5.362.967,22BCM, kadar rata-rata Al_2O_3 40,17%, SiO_2 4,36%, dan Fe_2O_3 9,8%, dengan *COG* Al_2O_3 36,2%.
b. Tahun 2 produksi *washed* Bauksit (Wbx) 2.760.033,85ton, pengupasan *overburden* 4.206.989,61BCM, kadar rata-rata Al_2O_3 39,88%, SiO_2 3,92%, dan Fe_2O_3 9,67%, dengan *COG* Al_2O_3 36,03%.
c. Tahun 3 produksi *washed* Bauksit (Wbx) 2.770.708,75ton, pengupasan *overburden* 3.794.629,37BCM, kadar rata-rata Al_2O_3 38,25%, SiO_2 4,26%, dan Fe_2O_3 8,02%, dengan *COG* Al_2O_3 36,34%.
d. Tahun 4 produksi *washed* Bauksit (Wbx) 2.680.782,12ton, pengupasan *overburden* 3.440.801,72BCM, kadar rata-rata Al_2O_3 38,81%, SiO_2 4,47%, dan Fe_2O_3 8,55%, dengan *COG* Al_2O_3 36,65%.
e. Tahun 5 produksi *washed* Bauksit (Wbx) 1.096.547,87ton, pengupasan *overburden* 1.894.408,60BCM, kadar rata-rata Al_2O_3 37,23%, SiO_2 4,49%, dan Fe_2O_3 6,94%, dengan *COG* Al_2O_3 36,04%.

Dalam kegiatan penambangan direncanakan menggunakan 7 unit *bulldozer* Komatsu D85EX-15 untuk alat gusur, 8 unit *excavator* Komatsu PC 300 LC-8 untuk alat gali dan muat serta 29 unit *Articulated Dump Truck* Volvo A35E untuk alat angkut. Dalam membahasakan rancangan teknis penambangan bijih Bauksit agar lebih mudah dipahami, maka dihasilkan video *virtual reality*.

ABSTRACT

PT Borneo Edo International (PT BEI) is a mining company that has an IUP Exploration area in Sebadu approximately 20.000Ha, located in Menjalin, Sompak, Sengah Temila, Sebangki, and Mandor sub district, Landak Regency, West Borneo Province. This research is being conducted because PT BEI doesn't have technical design Bauxite ore mining plan yet in order to fulfill the production target of washed Bauxite (Wbx) approximately 2.700.000tons/year and order to discuss technical mine plan describes in a display that is easy to understand.

According to the exploration results with the test pit, we have gotten 67 distribution of Bauxite ore deposit in the research area of Sebadu Utara block (2.000Ha). The Bauxite ore deposits have quality grades between 36,03%-44,35% of Al_2O_3, 2,3%-6,74% of SiO_2, and 4,19%-13,77% of Fe_2O_3. Valuation of the reserves which do generate a total of Bauxite ore reserves 30,46 million tons with a cut off grade (COG) 36% Al_2O_3 and total of stripping ratio (SR) by 0,61: 1.

The mining method that being used is the selective open cast mining with a bench height of 5m, a minimum bench width is 8m, a single slope angel 60°. Based on the calculation of the hauling road, we have got 12m for the width of the straight road with the value cross slope 1,72° and 24m for the width of the curve road with the value superelevation 0,0395m/m. The production scheduling plan of Bauxite ore and overburden in the research conducted annually (1 year) for the 5 years:

a. First year, with the washed Bauxite (Wbx) production approximately 2.717.290,12tons, overburden stripping by 5.362.967, 22BCM, average grades of Al_2O_3 40,17%, 4,36% of SiO_2 and 9,8% of Fe_2O_3, with COG 36,2% of Al_2O_3.
b. Second year, with the washed Bauxite (Wbx) production approximately 2.760.033,85tons, overburden stripping by 4.206.989,61BCM, average grades of Al_2O_3 39,88%, 3,92% of SiO_2, and 9,67% of Fe_2O_3, with COG 36,03% of Al_2O_3.
c. Third year, with the washed Bauxite (Wbx) production approximately 2.770.708,75tons, overburden stripping by 3.794.629,37BCM, average grades of Al_2O_3 38,25%, 4,26% of SiO_2, and 8,02% of Fe_2O_3, with COG 36,34% of Al_2O_3.
d. Fourth year, with the washed Bauxite (Wbx) production approximately 2.680.782,12tons, overburden stripping by 3.440.801,72BCM, average grades of Al_2O_3 38,81%, 4,47% of SiO_2, and 8,55% of Fe_2O_3, with COG 36,65% of Al_2O_3.
e. Fifth year, with the washed Bauxite (Wbx) production approximately 1.096.547,87tons, overburden stripping by 1.894.408,60BCM, average grades of Al_2O_3 37,23%, 4,49% of SiO_2, and 6,94% of Fe_2O_3, with COG 36,04% of Al_2O_3.

The mining activity is being planned using 7 units of Komatsu D 85 EX-15 bulldozer, 8 units of Komatsu PC LC 300-8 excavator and 29 units of Volvo A35E Articulated Dump Truck. In explaining the mining technical design Bauxite ore to be more easily understood, then the generated virtual reality video.