INTISARI

Bendungan Bener memiliki bangunan pelengkap berupa *intake*. Bangunan *intake* berada pada lereng kedalaman 100 m dengan metode perkuatan *shotcrete* pada sisi selain pintu *intake*. Sedangkan sisi pintu *intake* belum diterapkan perkuatan. Penggalian lereng dengan peledakan dapat mengganggu stabilitas lereng sehingga analisis stabilitas lereng diperlukan. Terbatasnya data *bor log* memerlukan interpretasi data untuk pemodelan yang akurat. Tujuan penelitian mencakup interpretasi data sekunder, memperhitungkan *Factor of Safety*, mengetahui pengaruh muka air tampungan, dan penerapan perkuatan yang efisien. Batasan masalah dalam penelitian adalah lokasi penelitian pada pintu *intake*, beban dinamis peledakan tidak diperhitungkan, pemodelan lereng 2D, interpretasi data dengan interpolasi.

Data yang digunakan adalah *bor log*, selanjutnya akan diinterpretasi dengan nilai *Geological Strength Index* (GSI). Perhitungan kapasitas lapisan batuan akibat peledakan dapat menggunakan metode *Generalized Hoek-Brown* dengan memperhitungkan nilai D (nilai faktor pengaruh peledakan). Analisis stabilitas lereng menggunakan *limit equilibrium method* 2D dengan memperhitungkan *Factor of Safety* dalam aplikasi Slide2. Tampungan *intake* memungkinkan terjadinya perubahan muka air. Nilai FS diperhitungkan pada tiga kondisi kritis muka air yaitu muka air di bawah lereng, muka air di *intake* dan muka air maksimum.

Hasil interpretasi data menunjukkan lapisan batuan andesit dengan nilai GSI yang berbeda-beda. Analisis stabilitas yang mengacu pada kondisi lereng tinggi serta lapisan batuan bermacam-macam. Maka metode utama yang digunakan adalah *Morgenstern-Price*. Hasil analisis kondisi kritis nilai FS 0,497 pada lapisan tanah bagian atas lereng. Selanjutnya pengecekan *line of thrust* dilakukan dengan penambahan *tension crack* yang menyebabkan berkurangnya nilai FS menjadi 1,288 pada kegagalan lereng secara keseluruhan. Oleh karena itu pada lereng *intake* digunakan dua jenis perkuatan yaitu *retaining wall* dan *rock bolts*. *Retaining wall* yang digunakan adalah tipe *gravity* dengan mutu beton K-300 dan menghasilkan nilai *Factor of Safety* (FS) sebesar 1,757. Sedangkan *rock bolts* dengan tipe *Permanent Hollow Bar* 38x20 menghasilkan nilai FS sebesar 1,507 dengan sudut pemasangan *rock bolts* sebesar 0^o.

Kata kunci: lereng, *intake*, *limit equilibrium method*, *Generalized Hoek-Brown, Geological Strength Index,* Slide2, RocData, *Factor of Safety*.

ABSTRACT

Bener Dam has complementary buildings in the form of intakes. The intake building is on a depth slope of 100 m with a method of reinforcement the shotcrete on the side other than the intake door. While the side of the intake door has not been applied reinforcement. Excavation of the slope with blasting can disrupt the stability of the slope so an analysis of slope stability is required. Limited log drill data requires accurate interpretation of the data for accurate modeling. Research objectives include the interpretation of secondary data, taking into account the Factor of Safety, knowing the influence of the reservoir surface, and the efficient application of reinforcement. The limitations of the problem in the study are the location of the study on the intake door, the dynamic load of blasting is not taken into account, 2D slope modeling, interpretation of data with interpolation.

The data used is a log drill, then it will be interpreted with the value of the Geological Strength Index (GSI). Calculation of the capacity of rock layers due to blasting can use the Generalized Hoek-Brown method by taking into account the value of D (the value of the effect factor of blasting). Slope stability analysis uses the 2D limit equilibrium method taking into account the Factor of Safety in the Slide2 application. Intake reservoirs allow for changes in water levels. FS values are taken into account in three critical conditions of the water level, namely the water level below the slope, the water level in the intake and the maximum water level.

The results of the interpretation of the data showed andesite rock layers with different GSI values. Stability analysis refers to high slope conditions as well as various rock layers. The main method used is Morgenstern-Price. The results of the critical condition analysis of FS value 0.497 in the upper soil layer of the slope. Furthermore, the line of thrust check is done with the addition of tension crack which causes a reduction in the value of FS to 1,288 on the overall slope failure. Therefore, on the intake slopes are used two types of reinforcement, namely retaining wall and rock bolts. Retaining wall used is a gravity type with K-300 concrete quality and produces a Factor of Safety (FS) value of 1,757. While rock bolts with permanent hollow bar type 38x20 produce an FS value of 1,507 with an angle of installation of rock bolts of 0^{o}.

Keywords: slope, intake, limit equilibrium method, Generalized Hoek-Brown, Geological Strength Index, Slide2, RocData, Factor of Safety.