ABSTRAK

Bendungan Sadawarna di Kabupaten Subang, Jawa Barat, ialah bendungan tipe urugan dengan inti tegak yang sangat penting untuk mengontrol banjir, memberi air irigasi, serta mendapat listrik.

Didalam penelitian berikut, pemodelan SEEP/W serta SLOPE/W pada Geostudio diterapkan untuk menghitung nilai rembesan serta nilai stabilitas lereng bendungan. Koendisi muka air bendungan termasuk banjir, normal, minimum, serta surut cepat, kemudian skenario kondisi baik tanpa beban gempa ataupun beban gempa (MDE serta OBE).

Berlandaskan kapasitas tampung, tinggi bendungan, kebutuhan evakuasi, serta kemungkinan kerusakan, temuan penelitian berikut mengindikasi bahwasanya Bendungan Sadwarna memiliki tingkat resiko yang termasuk dalam kategori ekstrem (skor 32). Dengan debit rembesan yang jauh di bawah batas 1% debit *inflow* bendungan, debit rembesan dikategorikan aman dengan nilai tertinggi $3{,}079 \times 10^{-7}$ m^3/detik. Stabilitas lereng hulu maupun lereng hilir memenuhi syarat keamanan faktor keamanan sebab (FK) > 1,5 untuk gempa tanpa gempa, (FK) > 1,2 untuk gempa OBE, serta (FK) > 1,0 untuk gempa MDE.

Temuan studi mengindikasi bahwasanya Bendungan Sadawarna aman secara struktural dari rembesan berlebih. Rekomendasi termasuk memantau piezometer serta memastikan debit rembesan dengan alat ukur secara langsung.

Kata kunci: Bendungan Sadawarna, Stabilitas lereng, Rembesan, Geostudio, Gempa

ABSTRACT

The Sadawarna Dam in Subang Regency, West Java, is a vertical core embankment dam that is essential for agricultural water supply and flood control, and electricity generation.

SEEP/W and SLOPE/W in this study modeling in Geostudio were used to calculate the dam's slope stability and seepage values. The dam water level conditions included flood, normal, minimum, and rapid ebb, as well as scenarios with and without earthquake loads (OBE and MDE).

Based on the storage capacity, dam height, evacuation needs, and potential harm, the results of this study demonstrate that the Sadwarna Dam has a risk level that is included in the extreme category (score 32). With a seepage discharge far below the 1% limit of the dam inflow discharge, the seepage discharge is categorized as safe with the highest value of $3.079x10^{-7}$ m^3/second. Because (SF) > 1.5 for earthquake-free conditions, (SF) > 1.2 for OBE, and (SF) > 1.0 for MDE, the safety is satisfied by the upstream and downstream slopes' stability criteria of the safety factor.

The study results indicate that the Sadawarna Dam is structurally safe from excessive seepage. Recommendations include monitoring piezometers and directly verifying seepage discharge using measuring instruments.

Keywords: Sadawarna Dam, Slope stability, Seepage, Geostudio, Earthquak