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Landfill Design for Reclamation of Şırnak Coal Mine Dumps: Shalefill Stability and Risk Assessment

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Abstract : By GEO5 FEM program with four rockfill slope modeling and stability analysis was performed for S1, S2, S3 and S4 slopes where landslides of the shalefills were limited. Effective angle of internal friction (φ'°) 17°-22.5°, the effective cohesion (c') from 0.5 to 1.8 kPa, saturated unit weight 1.78-2.43 g/cm3, natural unit weight 1.9-2.35 g/cm3, dry unit weight 1.97-2.40 g/cm3, the permeability coefficient of 1x10-4 - 6.5x10-4 cm/s. In cross-sections of the slope, GEO 5 FEM program possible critical surface tension was examined. Rockfill dump design was made to prevent sliding slopes. Bulk material designated geotechnical properties using also GEO5 programs FEM and stability program via a safety factor determined and calculated according to the values S3 and S4 No. slopes are stable S1 and S2 No. slopes were close to stable state that has been found to be risk. GEO5 programs with limestone rock fill dump through FEM program was found to exhibit stability.

Keywords : slope stability, stability analysis, rockfills, sock stability
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