Thermal and stress analysis of Kinta RCC dam

ABSTRACT

The thermal analysis of roller compacted concrete dams (RCC) plays an important role in their design and construction. This paper focuses on the application and verification of a two-dimensional finite element code developed for the thermal and structural analysis of RCC dams. The Kinta RCC gravity dam, which is the first RCC dam in Malaysia, has been taken for the purpose of verification of the finite element code. The dam is 78 m in height and still under construction. The actual climatic conditions and thermal properties of the materials were considered in the analysis. The predicted temperatures obtained from the finite element code that was developed are found to be in good agreement with actual temperatures measured in the field using thermocouples installed within the dam body.

Keyword: Roller compacted concrete dams, Birth death, Thermal analysis, Placing temperature, Finite element