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基于挤压边墙技术水布垭面板堆石坝应力－应变研究

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摘要 混凝土挤压边墙技术是混凝土面板堆石坝上游坡面施工的新方法。挤压边墙技术与传统方法相比，在施工方面有明显的先进性，新工艺对工程质量的提高、进度的加快以及增加导流度汛的安全性等方面产生的效果是显而易见的，且比传统工艺简化了施工工序，降低了施工费用。但是，在结构性能方面，挤压边墙对面板堆石坝特别是对面板的应力－应变的影响，目前还很不清楚。以水布垭面板堆石坝工程为对象，采用先进的网格离散技术和大型方程求解方法，研究了基于挤压边墙技术水布垭面板堆石坝的应力－应变。计算结果表明，挤压边墙不仅可以替代传统工艺中垫层料的超填、削坡、修整、碾压以及坡面防护等工序，加快了施工进度，使得施工质量得到了保证和提高，而且还对改善面板的受力状态是有利的，对面板的变形也起着改善作用。

关键词 水工结构；挤压边墙；水布垭面板堆石坝；应力－应变

分类号

RESEARCH ON THE STRESS-STRAIN OF SHUIBUYA CONCRETE FACE ROCKFILL DAM BASED ON THE CONCRETE CRUSHING-TYPE SIDE WALL TECHNOLOGY

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Abstract

The concrete crushing-type side wall technology is a new method for constructing the upstream side-slope of concrete face rockfill dam(CFRD). Compared with the traditional method，this technology is obviously more advanced such as enhancing the project quality，quickening the pace，increasing the safety of river diversion and etc.. Further more，the technology has simplified the construction procedure and cut down the construction cost. However，It¢s still uncertain about the effect of the concrete crushing-type side wall on CFRD，particularly on its stress-strain. This paper，applying the advanced grid discreteness technique and the method to solve large scales of equations，researches the stress-strain of Shuibuya CFRD based on the concrete crushing-type side wall technology. Through calculating，it indicates that the concrete crushing-type side wall can not only replace the procedure of bedding material extra-filling，scaling，dressing，roller compacting and slope face protection，so as to quicken the schedule and enhance and guarantee the construction，but also improve the stress situation of the face and its deformation.

Key words hydraulic structure；concrete crushing-type side wall；Shuibuya concrete face rockfill dam；stress-strain

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