

本期目录 | 下期目录 | 过刊浏览 | 高级检索

[打印本

页] [关闭]

论文

高陡岩质料场边坡稳定性与支护设计研究

赵建军^①,唐茂颖^②,巨能攀^①,霍宇翔^①,黄润秋^①

(^①成都理工大学地质灾害防治与地质环境保护国家重点实验室 ■ 成都 ■ 610059)

(^②国电大渡河流域水电开发有限公司 ■ 成都 ■ 610041)

摘要:

水电站料场高边坡具有高度大、坡度陡、卸荷速度快等特点,因多按临时边坡进行设计,故施工期变形破坏事例频发。基于这一现状,依托瀑布沟水电站两岩质料场边坡,通过两年多跟踪施工过程的支护设计工作,总结出一套操作性强的料场高边坡稳定性及支护设计方法。针对料场边坡存在的受软弱结构面控制的边坡整体稳定性、浅表层块体稳定性、碎裂岩体稳定性三种工程地质问题,在跟踪施工过程开展岩体结构调查的基础上,按照先整体后局部的稳定性评价思路,开展高边坡稳定性评价。施工期动态支护设计按照“保证整体稳定,控制局部变形,顾全潜在失稳区域”的理念,通过定性评价确定不稳定区域并优先设计提交施工;针对施工中最易出现的块体变形和碎裂岩体变形,建立了合理的支护设计原则和严格的施工规定;对稳定性差、施工风险高、支护造价大的潜在不稳定区域,应及时地调整开挖方案,减少工程造价。实践表明,这套方法保证了料场高边坡的快速施工安全,减少了工程投资。

关键词: 料场边坡 ■ 稳定性评价 ■ 支护设计 ■ 岩体结构

STUDY ON STABILITY EVALUATION AND SUPPORTING WORK DESIGN FOR HIGH AND STEEP ROCK SLOPE IN MATERIAL DEPOTS

ZHAO Jianjun^①,TANG Maoying^②,JU Nengpan^①,HUO Yuxiang^①,HUANG Runqiu^①

扩展功能

本文信息

- Supporting info
- PDF(4377KB)
- [HTML全文]
- 参考文献 [PDF]
- 参考文献

服务与反馈

- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- 引用本文
- Email Alert
- 文章反馈
- 浏览反馈信息

本文关键词相关文章

- 料场边坡 ■ 稳定性评价 ■ 支护设计 ■ 岩体结构

本文作者相关文章

PubMed

(①State Key Laboratory of Geohazard Prevention and Geoenvironment Protection, Chengdu University of Technology, Chengdu 610059)

(②Dadu Hydropower Development CO. [KG-5] | LTD, Chengdu 610041)

Abstract:

Slope in material depots for hydropower station construction is generally characterized by great height and great slope angle. Considering its usage, this type of slope is usually designed as temporary slope with, therefore, temporary supporting scheme. Due to the rapid unloading caused by rock exploration, large deformation and failure happen frequently within such slope. Two slopes in material depots for the construction of Pubugou hydropower station in Sichuan Province, China, were taken as examples in this study. The supporting scheme were of dynamic design, that is, the design of supporting work was kept updated according to the monitoring of deformation in the progress of rock exploration. This paper concludes the dynamic design method and flowchart employed for these two slopes and puts forward a practical methodology for stability evaluation and supporting work design for such slopes. Firstly, three engineering geological problems about the selected slopes are summarized: (1) overall instability controlled by particular combination of weak discontinuities; (2) block instability; and (3) instability of cataclastic rock masses. Secondly, the overall slope stability is evaluated followed by local stability evaluation on the basis of dynamic investigation of rock mass during excavation. Dynamic design for slope supporting works during rock exploration obeys a general rule, "ensuring overall stability, controlling local distortion and paying attention to potential instable zone". The instable zones, which could be determined and delineated by qualitative analysis were designed and constructed prior to others. Rules for the design of supporting works and standard for construction are stipulated for the blocks and cataclastic rock masses

susceptible to deforming during rock exploration.