Slurry Walls

Design, Construction, and Quality Control

Paul/Davidson/Cavalli, editors

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Slurry Walls: Design, Construction, and Quality Control

David B. Paul, Richard R. Davidson, and Nicholas J. Cavalli, editors

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Peer Review Policy

Each paper published in this volume was evaluated by three peer reviewers. The authors addressed all of the reviewers' comments to the satisfaction of both the technical editor(s) and the ASTM Committee on Publications.

The quality of the papers in this publication reflects not only the obvious efforts of the authors and the technical editor(s), but also the work of these peer reviewers. The ASTM Committee on Publications acknowledges with appreciation their dedication and contribution to time and effort on behalf of ASTM.

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Foreword

This publication, *Slurry Walls: Design, Construction, and Quality Control,* contains papers presented at the symposium of the same name, held in Atlantic City, NJ on 27–28 June 1991. The symposium was sponsored by ASTM Committee D-18 on Soil and Rock. David B. Paul of the U.S. Bureau of Reclamation in Denver, CO, Richard R. Davidson of Woodward-Clyde Consultants in Denver, CO, and Nicholas J. Cavalli of Wehran Envirotech in Middletown, NJ presided as symposium chairman and co-chairmen, respectively, and are all editors of the resulting publication.

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SEEPAGE CUTOFFS

STRUCTURAL

Overview

The first International Symposium on Slurry Walls: Design/Construction/Quality Control was held on 27–28 June, 1991 in Atlantic City, NJ. The purpose of this symposium was to bring together an interdisciplinary and international group of engineers and scientists to: (1) provide a forum to exchange experiences and findings related to the design, construction, and quality control methods for slurry walls; (2) learn from both successful and unsuccessful case histories; (3) promote technology transfer between the various disciplines and countries represented; and (4) provide an education resource for those attending. In fact, due to the large attendance from a truly international group of engineers, scientists, and practitioners, a broader perspective was provided by the authors.

Eighteen papers presented at the symposium and 12 other papers that were not presented due to time constraints, are included in this volume. The thirteen papers, in addition to several others, were presented at a poster session. They are grouped into four main categories: (1) State-of-the-Art; (2) Hazardous Waste; (3) Seepage Control; and (4) Structural.

The state-of-the-art presentations included a history of slurry wall development by Ressi which describes the techniques and equipment typically used for slurry wall construction. Vanel presented several innovations including a new joint system between panels. Tamaro and Poletto described the importance of construction quality control and pointed out that there are no national standards for the design and construction of slurry walls. Millet and Perez provided an update to a paper they presented 10 years ago on the then state-of-the-practice of slurry wall construction specifications in the United States.

The importance of dealing with hazardous waste has grown tremendously in the last decade and slurry cutoff walls have been the primary method for preventing underground migration of pollutants. Grube provided the perspective of the Environmental Protection Agency (EPA) on the use of slurry cutoff walls for environmental pollution control. Cavalli presented a composite vertical barrier system that utilizes a geomembrane installed through slurry. The recent introduction into practice of biodegradable slurries was discussed by Ryan and Tallard. Instead of bentonite slurry, guar-gum based slurries are used to maintain the open trench. They have been used in recent projects to allow for the installation of deep drains that eliminates sheeting, shoring, and dewatering. The effects of soil pollution interaction on the stability of geosynthetic composite walls was presented by Fang, Chaney, and Pamukcu.

Davidson et al. discussed the use of plastic concrete to construct a seepage barrier at a large copper mine in Vancouver, B. C. Construction of a 400-foot-deep wall through the Corps of Engineers Mud Mountain Dam outside of Seattle was described by Davidson et al. Compaction grouting was utilized by the contractor to restress the dam to allow for excavation of the deep panels without large slurry losses.

Papers were also presented which describe the use of cutoff walls for unique structural applications. Johnson et al. presented two case studies where barrettes or load-bearing elements (LBEs) were installed for projects constructed by the "up/down" method. Schoenwolf presented very interesting results from a monitored reinforced concrete wall utilized for the deepest building excavation ever undertaken in Boston. Bruce and Tamaro presented a valuable case history of the use of a cutoff wall to construct a 165-foot-deep shaft, 52 feet in diameter, within two city blocks of the ocean.

The editors are grateful to the authors for their efforts in preparing the excellent papers included in this volume. They provide a valuable contribution to the state-of-practice not only in the United States, but all over the world.

David B. Paul

U.S. Bureau of Reclamation, Denver, CO; chairman.

Richard R. Davidson

Woodward-Clyde Consultants, Denver, CO; co-chairman.

Nicholas J. Cavalli

Wehran Envirotech, Middletown, NY; co-chairman.

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