

Preface

Tailings dams are characterized by hydraulically placed fills held in place by an embankment. Failure of tailings dams due to earthquakes has occurred many times in the past in countries such as Chile, Peru, and Japan, causing significant loss of property and human lives as well as severe environmental problems. According to a recent study by the Mine Safety and Health Administration (MSHA), the seismic stability of coal waste impoundments has become a very important issue in coal producing regions and is of great national interest. According to the National Inventory of Dams, there are 860 coal waste tailings dams in the US. 232 of them are classified as having high hazard potential by the FEMA hazard rating system. Government regulatory agencies such as the Office of Surface Mining (OSM) and the Mine Safety and Health Administration (MSHA) require comprehensive seismic analysis in the design of new tailings dams, which creates unique challenges to geotechnical engineers.

The International Workshop on Seismic Stability of Tailings Dams brought together experts in the field of geotechnical earthquake engineering, representatives from government regulatory agencies, and practicing engineers in the field to discuss the important issues related to the seismic stability of tailings dams. The objectives of the workshop were: 1) to summarize the current state-of-the-art in research and the state-of-the-practice in design in seismic analyses of tailings dams; 2) to identify research needs and to recommend strategies to funding agencies to meet these research needs; 3) to facilitate communication and collaboration between researchers, government regulatory agencies, and practicing engineers so that the results of future research will be quickly disseminated to benefit the industry and to enhance engineering education.

The workshop, which took place at Case Western Reserve University in November 2003, was sponsored jointly by Grant No. CMS-0302358 of the Geotechnical and GeoHazards Systems Program of the National Science Foundation and a grant from the Mine Safety and Health Administration. I would like to acknowledge the support and encouragement of the program director of NSF, Dr. Clifford Astill, and Dr. Kelvin Wu and Mr. Gardner of MSHA. The members of the Organizing Committee of the workshop were Mr. John Craynon (OSM), Mr. George Gardner (MSHA), Mr. Dick Gary (GAI Consulting), Dr. Kelvin Wu (MSHA), Mr. Roger Cecil of Geo/Environmental Associates, Inc., and Prof. Xiangwu Zeng (Case Western Reserve University). The support of the committee members is highly appreciated. I would also like to thank my colleagues at Case Western Reserve University for their help throughout the workshop. Finally, I would like to recognize the help of my graduate students, Mr. Venu Tammineni and Miss Judith Wang, in editing the proceedings.