Book review

ICOLD Bulletin 141: Concrete Face Rockfill Dams – Concepts for Design and Construction

ICOLD, Paris, France, 2011, ISSN 0534-8293, €90-00, 401 pp.

This book is well laid out, works logically through the design process and provides information about a number of details.

The introduction provides the background and history of the development of the technique. It also covers the issues that need to be addressed in the design process and the matters that have affected the perception of the technique. There are useful diagrams that help locate the various elements that make up a concrete-face rockfill dam. At the end of each chapter, there is a long list of references for further reading. Within each chapter, there are case studies to illustrate the points being made.

Chapters 2–8 deal with separate parts of the design. Chapter 2 includes advice about the strengths of materials, seismic assessments, settlement characteristics, deformation of the concrete face and estimation methods for seepage through cracks. Chapter 3 looks at the foundation treatment and includes case studies to illustrate points. It includes a short section on grouting. Chapter 4 considers the plinth, which includes the geometric

layout with diagrams and an assessment of stability. Chapter 5 provides information about waterstops and joint design through a short description of the possible techniques that could be used. Chapter 6 covers the face slab and deals with thickness, panel dimensions and joints. It also considers crack control, concrete properties and reinforcement. Chapter 7 deals with the parapet wall, including reduction in rockfill volume, wall height, joints and abutment details, which are illustrated with diagrams and case studies. Chapter 8 provides information about the embankment zones and properties and includes grading criteria for filters and the face slab support material, and notes on slope protection during construction and drainage zones.

Chapter 9 provides information about instrumentation, the reasons for the incorporation of instruments, limitations and a brief description of the possible systems that could be used. Chapter 10 looks at the performance of examples of this dam type. The matters covered include deformation moduli, movement, leakage and remedial works. This is followed by a number of case studies. Chapter 11 looks at appurtenant structures such as low-level outlet and spillways. At the end, there is an appendix giving the vital statistics for about 340 examples of the technique.

Dave Crook