3. Measures to Control Thermal Stress in Massive Water-gate Concrete and Evaluation of Their Effects
- Application of Vertical Pipe Cooling and Low-heat Blast-furnace Cement -

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In massive water-gate concrete, improving quality by taking crack control measures is required. Pier concrete constructed in a water-gate was a structure in which controlling cracking was difficult because walls 2.0 in width, 8.15 m in height and 23.5 m in length were placed on a 2.0-m-thick slab. As major crack control measures, low-heat blast-furnace cement type B and expansive admixtures were used as materials and vertical cooling was adopted as the construction method. The effectiveness of individual crack control measures was reviewed by comparing field measurements with analysis results. Vertical pipe cooling proved effective in the structure and only minor cracks occurred in the concrete cover.

Key words: water-gate concrete, vertical pipe cooling, low-heat blast-furnace cement type B, thermal stress analysis