

## **Failure impact assessment of a mine site flood levee in Australia**

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SYNOPSIS. Coal production from the 200 million tonne Curragh North coal resource in Central Queensland commenced in late 2005. The mine is located on the eastern floodplain of the Mackenzie River, and requires a 22 km long flood levee before operations can proceed. The earthfill embankment will generally be 1 m to 5 m in height; however, in eight locations the height will be between 11 m and 15 m. Although the levee's primary function is to protect the mine from flooding it will also form part of the site water management plan, retaining run-off across the 31 km<sup>2</sup> site.

Under the Queensland Water Act 2000, a dam is referable and requires licensing if there is a population at risk (PAR) below the dam. Five potentially affected low-lying homesteads were identified over a 50 km downstream reach of the flood plain. An assessment of maximum breach characteristics was made using the mine layout and the State of Queensland Department of Natural Resources and Mines (DNRM) Guidelines. The unsteady hydraulic modelling program HEC RAS was used to model the breach impact at the homestead locations for both sunny-day and flood events. The assessment concluded that the levee is non-referable and a costly dam safety management program is therefore not required.