Hope Is Not A Strategy: Our Experience with Rapid Dam Break Analysis Tools

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Since the historic flooding that occurred in October of 2015, the South Carolina Department of Health and Environmental Control (SCDHEC) has been in full swing with Dam Safety Evaluations. That year Hurricane Joaquin flung up to 26 inches of rain, termed by some as an “Atmospheric River,” over the large regions of the state and caused major flooding. The following year, almost to the day, Hurricane Matthew struck an already saturated state, causing further damage to the infrastructure in South Carolina. These storm events, which led to over 70 dam failures, paved the way for legislative funding to be directed into the state dam safety program. SCDHEC then contracted CDM Smith to provide inspections, inundation mapping, permit review assistance and other consultation. In late 2016, the software called DSS-WISE Lite (Decision Support System for Water Infrastructure Security) became available for state use. SCDHEC and CDM Smith have used this rapid-dam break simulation software to quickly evaluate the downstream hazards of vulnerable dams. This paper discusses some case studies of specific dams and how this software helped identify “safe” reservoir levels. This paper also discusses how the state resources are being used to effectively communicate the modeling results to emergency responders, dam owners and the general public. Additional Co-authors: Stephen L. Whiteside, P.E.; Senior Geotechnical Engineer; CDM Smith; 919-325-3556; whitesideSL@cdmsmith.com