



Bluestone Dam Safety Assurance Mega-Project

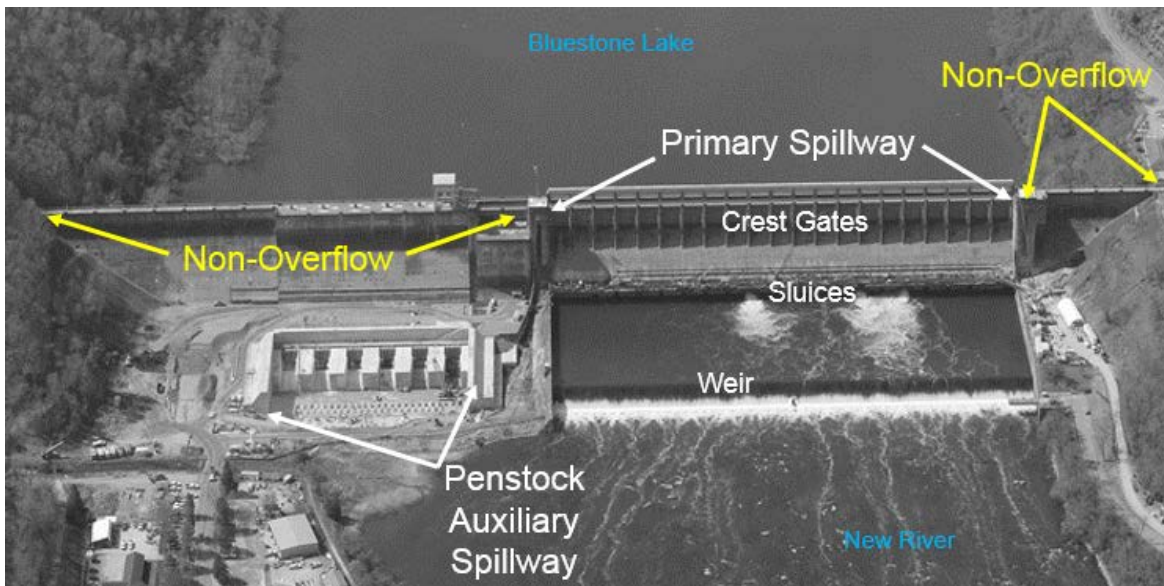
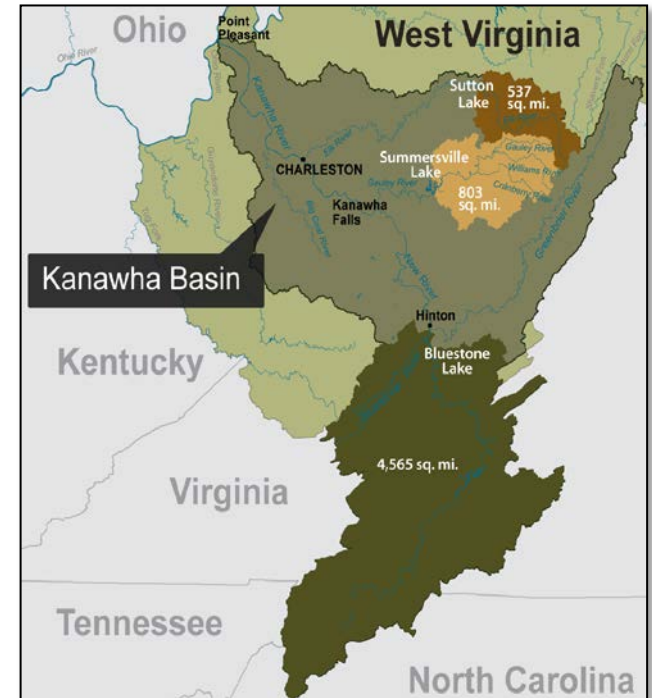
Fact Sheet As of 29 January 2019

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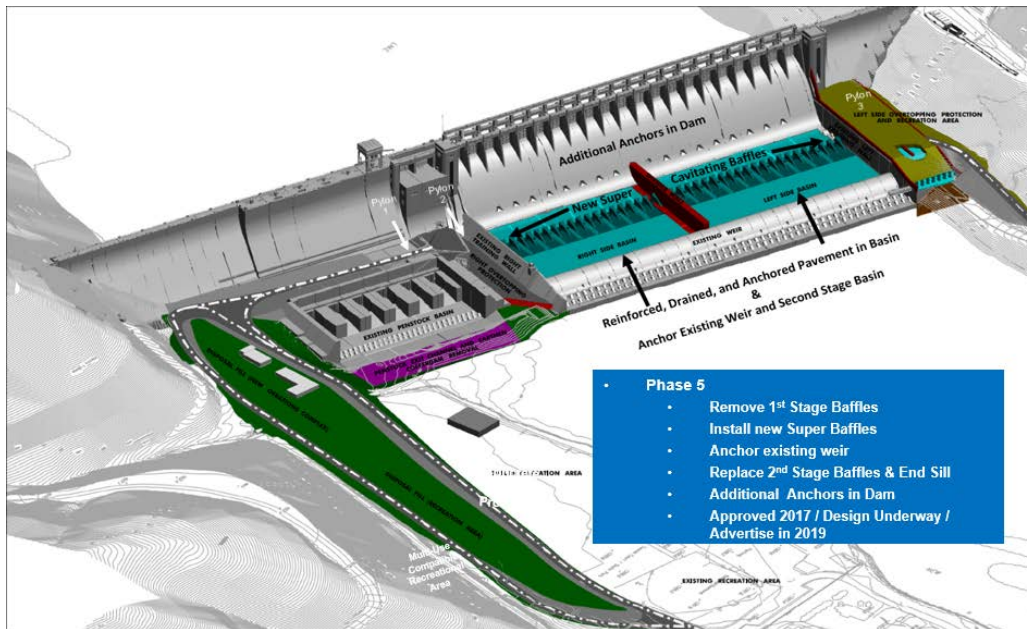
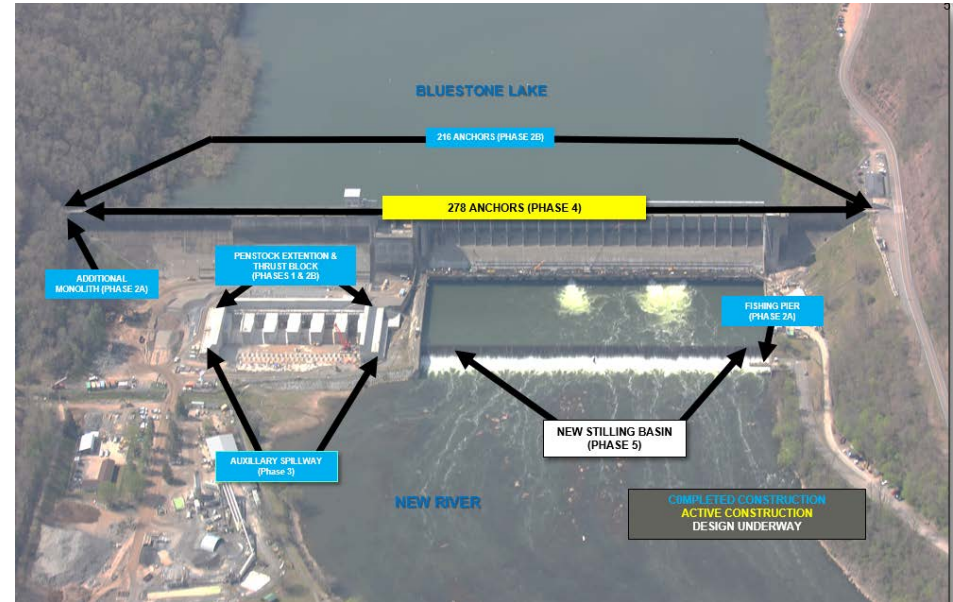
Location: Bluestone Dam is located in West Virginia in Summers County within the New River Basin, which is a sub-basin of the Kanawha River Basin. Bluestone Dam is located approximately one and a half miles upstream of the City of Hinton and a half mile upstream of the confluence of the New and Greenbrier Rivers. The project began operations in 1949 and controls a drainage basin approximately 4,600 square miles in size. The dam is a conventional concrete gravity dam measuring nearly a 0.5 mile long and 165 feet tall.

Purpose: A Dam Safety Assurance (DSA) report was approved in 1998 to address a hydrologic deficiency. Investments approved by a 1998 Dam Safety Assurance (DSA) (Phases 1-4) study increase confidence in the dam's ability to store water to its original design elevation (EI 1520). However, without further investment, the primary spillway cannot pass significant flow without substantially increasing the potential for a breach of the dam. A breach would cause catastrophic flooding along the largest river valleys in West Virginia that include the capital city of Charleston and major manufacturing and chemical industries. Dam failure could put 165,000 lives at risk and result in property damages in excess of \$20B



Completion of the existing DSA work underway, primarily consisting of raising the dam to prevent overtopping, increasing outflow capacity with an auxiliary spillway and stabilizing the dam with rock anchors and thrust blocks, is anticipated to be complete in 2019.

Project Description and Background: is designated a DSAC 2 project. Phase 1 of the phased modification project was awarded in 2000 and completed in 2004. Phase 1 included an access bridge over the stilling basin, a mass concrete thrust block, extension of six penstocks and installation of three penstock bulkheads. Phase 2A was awarded in 2004 and completed in 2007. Phase 2A consisted of a highway swing gate closure, an upgraded access road, a fisherman pier for mitigation, a right abutment gravity wall and utility line relocation. Phase 2B was awarded in 2005 and completed in 2011. Phase 2B installed 150 anchors and 3 remaining penstock bulkheads. American Recovery & Reinvestment Act (ARRA) funding helped to install gallery drains and 66 additional anchors. Phase 3 was awarded in 2010 and was completed in 2016. Phase 3 completes an auxiliary stilling basin for the penstocks. Phase 4 was awarded in 2012. Phase 4 work included installation of 278 high strength steel strand anchors in the spillway and non-overflow monoliths. Phase 4 is expected to be complete in 2019.



Additional Concern & Supplementary Study: In 2008, an Issue Evaluation Study concluded that risks to the public will continue to be unacceptably high and further study was warranted. In 2013, a Baseline Condition Risk Assessment confirmed an additional failure mode not addressed by the 1998 study which required attention. A Dam Safety Modification Report Supplement (DSMRS) examining alternatives for reducing risk associated with the failure modes not covered by the 1998 DSA report was approved in 2017. The Selected Plan (Phase 5) has been identified which includes changing the primary stilling basin to handle extreme outflows without concern of scour leading to dam failure. The DSMRS was approved in 2017. **Phase 5 is anticipated to be advertised in 2019**

Email Questions to: BluestoneDamDSA@usace.army.mil