

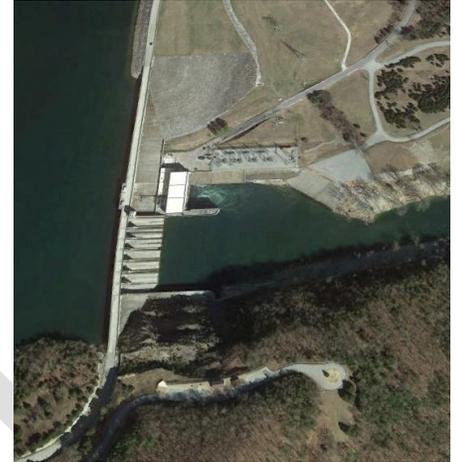


US Army Corps  
of Engineers®

# USACE Dam Safety Facts for Beaver Dam

**Project location and description:** Beaver Dam was designed and built by the U.S. Army Corps of Engineers (USACE) and completed in 1965. USACE operates Beaver Dam for flood damage reduction, hydropower generation, municipal and industrial water supply, and recreation.

The main components of the project are a concrete gravity dam section, a compacted earthen embankment section, and three (3) earthen dikes, which serve as the main water barriers; a concrete spillway used to provide additional release of water from the dam during major flood events; and a powerhouse. The concrete dam (including the spillway) is 1,333 feet long and 228 feet high. The concrete spillway is 328 feet wide with a crest elevation of 1,093 feet<sup>1</sup>. The total combined length of the earthen embankment and dikes is 3,202 feet long and have crest width of 30 feet. The elevation of the top of the dam and embankments is 1,142 feet<sup>1</sup>. The dam foundation is founded on bedrock while the embankments are founded on a mixture of bedrock and native soils. The spillway can pass up to 2.52 million gallons per second (337,000 cubic feet per second) or approximately the volume of 3.82 Olympic size swimming pools each second. The powerhouse contains two generators that each have a 56,000 kilowatt capacity.



During the fall and winter months, when excessive rainfall is likely, the lake is kept at a relatively low level (referred to as winter pool). Should heavy rains occur, surface water runoff is stored in the lake until the swollen streams and rivers below the dam recede and can handle the release of stored water without damage to lives, property or the environment. Sometimes water must be released to protect the dam's integrity even though streams and rivers may have already reached or exceeded their capacity.

**Benefits associated with Beaver Dam:** This dam has provides \$77.8 million in average annual flood damage reduction. The dam produces an average of 133 million KW hours per year, and an annual hydropower benefit of \$11.2 million. The dam provides 160,148 acre-feet<sup>2</sup> of water, and the annual water supply benefit is about \$165 million. Annual recreational benefits to the area are about \$19.8 million.

**Risks associated with dams in general:** Dams reduce but do not eliminate the risk of economic and environmental damages and loss of life from flood events. When a flood exceeds the reservoir's storage capacity, large amounts of water may have to be released that could cause damaging flooding downstream. A fully-functioning dam could be overtopped when a rare, large flood occurs, or a dam could breach because of a deficiency, both of which pose risk of property damage and life loss. This means there will always be flood risk that has to be managed. To manage these risks, USACE has a routine program that inspects and monitors its dams regularly. USACE implements short- and long-term actions, on a prioritized basis, when unacceptable risks are found at any of its dams.

**Risk associated with Beaver Dam:** Based upon the most recent risk assessment in 2016, USACE considers this dam to be a moderate to high risk dam among its more than 700 dams primarily due to gate operation and the possibly of rapidly increasing the releases necessary during an extreme flood. USACE has implemented interim risk-reduction measures and/or long-term measures to reduce this risk.

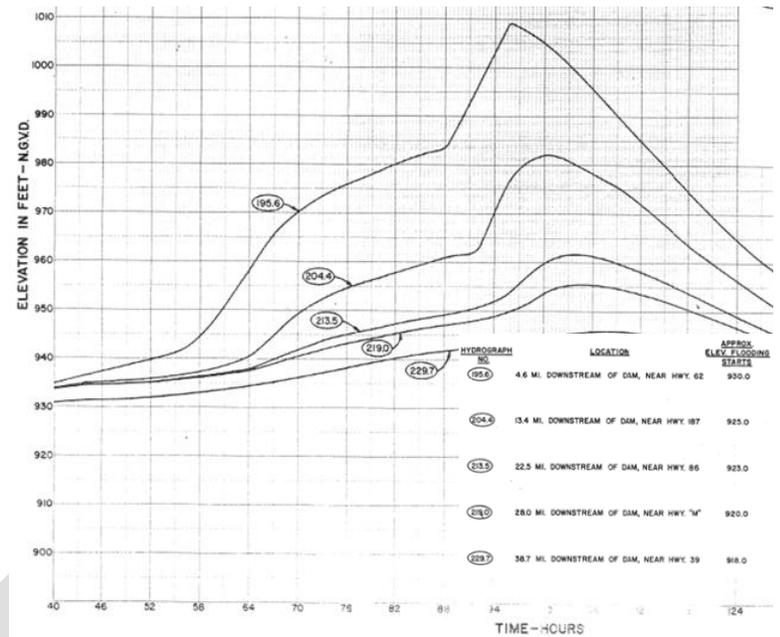
<sup>1</sup> North American Vertical Datum 1988 (or NAVD 88)

<sup>2</sup> One acre-foot is equal to 1/2 Olympic-sized swimming pool.

**What residents should know:** Dams do not eliminate all flood risk, so it is important that residents downstream from the dam are aware of the potential consequences should the dam breach, not perform as intended, or experience major spillway or outlet works flows. The moderate to high risk in rural communities of Carroll, Arkansas, and Stone and Taney Counties in Missouri and the related consequences further downstream warrant increased efforts on the part of USACE, local emergency management officials, and residents to heighten awareness of the potential flood risk associated with the dam.

The primary areas impacted should the dam breach with a full reservoir during a rare flood event or experience major spillway or outlet works flows are shown on the map. The potential for loss of life is greatest 60 miles downstream of Beaver Dam. Advanced warning of problems and events plays a major role in protecting life and property. See the map for a general indication of flooding with a rare flood event and breach.

**Public awareness:** Dams are designed to pass large amounts of water on a regular basis, and this means there will always be flood risk that has to be managed (see facts below).



Disclaimer: Actual areas flooded and flood arrival times will depend on specific flooding and failure conditions and may differ.

Recommendations for Residents	Beaver Dam Facts
<ul style="list-style-type: none"> <li>Living with flood risk-reduction infrastructure comes with risk – know your risk.</li> <li>Living with flood risk-reduction infrastructure is a shared responsibility – know your role.</li> <li>Know your risk, know your role, and take action to reduce your risk.</li> <li>Listen to and follow instructions from local emergency management officials.</li> <li>Strongly consider purchasing flood insurance.</li> <li>Contact your elected local, county, and state officials to make sound flood risk management decisions in your area.</li> </ul>	<p>Estimated consequences with rare flood event and breach:</p> <ul style="list-style-type: none"> <li>Population at risk: ~5,631</li> <li>Structures at risk: 7,800</li> <li>Land and property at risk: \$1.4 billion</li> </ul> <p>Estimated consequences with rare flood event and no breach:</p> <ul style="list-style-type: none"> <li>Population at risk: ~3,500</li> <li>Structures at risk: 3,000</li> <li>Land and Property at risk: \$568 million</li> </ul> <p>Damages prevented: \$78 million (1966-2005) National Inventory of Dams (NID) No.: AR00174</p>

Residents should listen to and follow instructions from local authorities. For more information, please contact the USACE Little Rock District office using the information on this fact sheet or your local emergency management office.

For additional information about dam safety and living with dams, please visit <http://www.usace.army.mil/Missions/CivilWorks/DamSafetyProgram.aspx> and [http://www.damsafety.org/media/Documents/DownloadableDocuments/LivingWithDams\\_ASDSO2012.pdf](http://www.damsafety.org/media/Documents/DownloadableDocuments/LivingWithDams_ASDSO2012.pdf)