



**US Army Corps  
of Engineers.**

# USACE Dam Safety Facts for Table Rock Dam

**Project location and description:** Table Rock Dam was designed and built by the U.S. Army Corps of Engineers (USACE) and completed in 1958. USACE operates Table Rock Dam for flood damage reduction, municipal water supply, hydropower and recreation.



The main components of the project are the concrete and earthen embankment sections, which serve as the main water barriers; spillway gates that allow controlled water flow out of the reservoir; and an auxiliary gated spillway, which is a segment of the structure used to provide additional release of water from the dam during major flood events. The main concrete dam section is 1,602 feet long, 252 feet above the original streambed, and includes 10 spillway gates, and a hydropower plant with four 50 MW generators. Earthen embankments flank the main concrete dam with a total length of 4,821 feet a maximum height of about 185 feet with a top width of 35 feet. The elevation of the top of the embankment and concrete dam is 947 feet<sup>1</sup>. An auxiliary spillway is placed to the north of the main concrete dam and embankments and includes eight spillway gates with a top elevation of 948<sup>1</sup> feet, 467 feet in length, and 85 feet tall. The concrete dams are founded on limestone bedrock while the embankments are founded on a mixture of bedrock and soil. Releases through the main concrete dam spillway can pass 4,174,000 gallons per second (558,000 cubic feet per second) or almost six and a half Olympic sized swimming pools each second. Should releases through the auxiliary spillway also be required, this spillway could pass an additional 3,373,000 gallons per second (451,000 cubic feet per second) or an additional five Olympic sized swimming pools each second.

**Benefits associated with Table Rock Dam:** This dam has provided \$550,900,000 in average annual flood damage reduction since placed into service. During the 2015/16 December and January event, the dam prevented flooding of about \$22.6 million in flood damages. Annual hydropower benefits to the power grid of \$42.5 million. Annual recreational benefits to the area are about \$64.5 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.

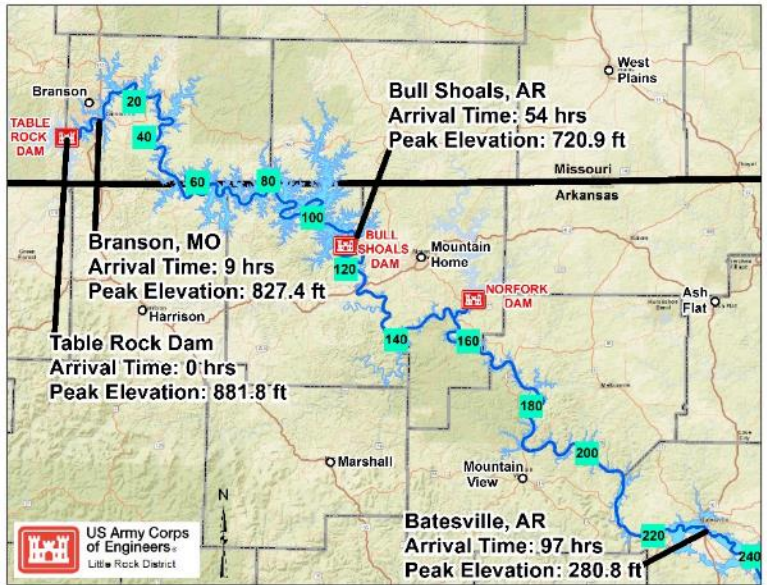
**Risk associated with Table Rock Dam:** Based upon the most recent risk assessment in 2012, USACE considers this dam to be a moderate to high risk dam among its more than 700 dams primarily due to the potential for slope instability or erosion issues in the embankment or operational issues of spillway equipment during an extreme flood. USACE has implemented interim risk-reduction measures and/or long-term measures to reduce this risk.

<sup>1</sup> North Geodetic Vertical Datum 1929 (or NAVD29)

**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 Branson 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 highest within a couple of miles of the dam with the loss of life concerns decreasing beyond 60 miles downstream of the 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).



Flooded area with rare flood event and breach is displayed on the map. Map Disclaimer: Actual areas flooded and flood arrival times will depend on specific flooding and failure conditions and may differ from the areas shown on the map.

Recommendations for Residents	Table Rock 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: <u>~23,700</u></li> <li>• Structures at risk: <u>7,300</u></li> <li>• Land and property at risk: \$1.74 billion</li> </ul> <p>Estimated consequences with rare flood event and no breach:</p> <ul style="list-style-type: none"> <li>• Population at risk: <u>~12,600</u></li> <li>• Land and Property at risk: \$792 million</li> </ul> <p>Damages prevented: \$550.9 million (1961-2005) National Inventory of Dams (NID) No.: MO30202</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 contact 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)