



# USACE Dam Safety Facts for Lewisville Lake Dam

U.S. ARMY CORPS OF ENGINEERS

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**Project Location and Description:** Lewisville Lake Dam was designed and built by the U.S. Army Corps of Engineers (USACE) and completed in 1955. USACE operates Lewisville Lake Dam for flood damage reduction, water supply, recreation, and non-federal hydropower.



The main components of the project are a concrete ogee weir spillway structure and earthen embankment section. The ungated spillway is located on the left abutment (looking downstream) and is 560 feet wide with a crest elevation of 532.0 feet, NGVD, above mean sea level. The spillway is designed to pass up to 1,621,000 gallons per second or approximately two and a half times the volume of an Olympic size swimming pool each second. The earthen dam is 32,328 feet long, 125 feet high, and top of the dam is 20 feet wide. The elevation of the top of the earthen embankment is 560 feet, NGVD, above mean sea level. The foundation is made up of clayey sands and sandy clays.

**Benefits associated with Lewisville Lake Dam:** This dam provides \$725.1 million in annual public benefits including water supply, flood damage reduction, recreation and hydropower. Lewisville Lake plays a vital role in flood control within the Trinity River Basin. Lewisville Dam impounds the Elm Fork of the Trinity River, and helps to buffer the effects of floods and droughts. The Lewisville project helps to prevent flood damage to the downstream Texas communities of Lewisville, Carrollton, Irving and Dallas. Lewisville Dam and Lake is credited with preventing \$31.2 billion in flood damages since its completion in 1955. Lewisville Dam and reservoir provide \$196.1 million in annual water supply benefits and is a principal municipal water source for the city of Dallas, Texas. Recreational activities at Lewisville Lake include camping, boating, fishing, swimming and picnicking. The lake is surrounded by 16,843 acres of park and wildlife management lands. Annual visitors to the lake between 2004 and 2008 averaged 3,176,331.

**Risks associated with dams in general:** Dams reduce the risk of damages and loss of life from inundation due to floods but do not eliminate this risk. Large amounts of water that could cause flooding downstream might have to be released when a flood exceeds the reservoir's storage capacity (such as during a large flood or storm event). This release could be damaging. A fully-functioning dam could be overtopped when a very rare or infrequent, large flood comes along. Or, a dam could breach because of a deficiency, which raises the risk of property damage and life loss even further. This means there will always be inundation 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 Lewisville Lake Dam:** Based upon the most recent risk assessment of Lewisville Lake Dam in 2005, USACE considers this dam to be a very high risk dam among its more than 700 dams. USACE is implementing interim risk reduction measures and long term risk reduction measures to reduce this risk.

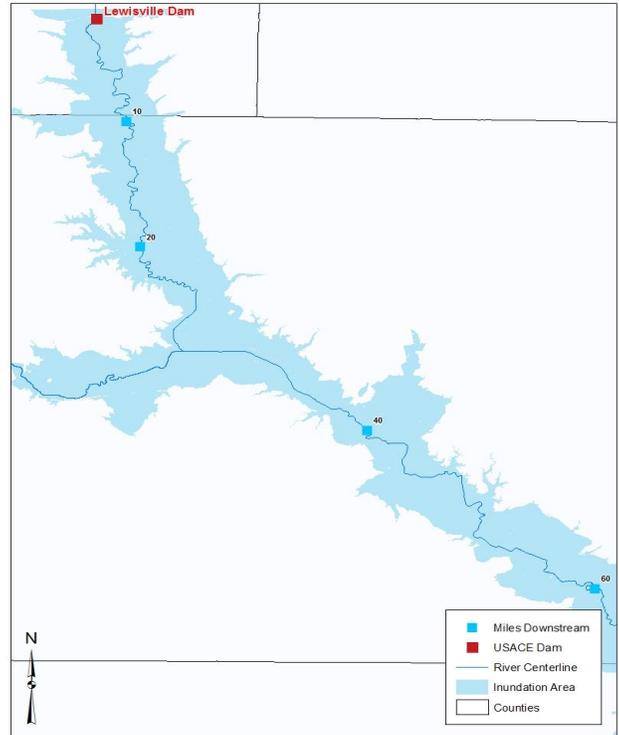
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FACT SHEET – 01 AUG 2013

**What residents should know:** Dams do not eliminate all inundation 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/outlet works flows. The high risk in the communities immediately downstream of the dam and the associated consequences warrant increased efforts on the part of USACE, local emergency management officials and residents to heighten awareness of the potential inundation 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/outlet works flows are shown in the map. The potential for loss of life is highest within a couple miles of the dam with loss of life concerns decreasing substantially 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 breach with a full reservoir during a rare flood event.

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



Recommendations for Residents	Lewisville Lake 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 for 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><b>Estimated consequences with full reservoir, rare flood event and breach (Top Active Storage-Fail) / (Max. High -Fail)</b></p> <ul style="list-style-type: none"> <li>• Population at risk: 308,000 / 436,000</li> <li>• Structures at risk: 32,000 / 53,000</li> <li>• Land and property at risk: \$14 billion / \$22.9 billion</li> </ul> <p><b>Estimated consequences with full reservoir, rare flood event and non-breach (Max High-No Fail)</b></p> <ul style="list-style-type: none"> <li>• Population at risk: 248,000</li> <li>• Structures at risk: 23,000</li> <li>• Land and property at risk: \$9.9 billion</li> <li>• Damages prevented to date: \$31.2 billion (1955-2012)</li> </ul>

Residents should listen to and follow instructions from local authorities. For more information, please contact the local USACE district office using the information on this fact sheet.

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)