



US Army Corps
of Engineers
Kansas City District

TUTTLE CREEK DAM

FACT SHEET

April 2001

SEDIMENTATION

When the Tuttle Creek Lake project was designed, a certain amount of storage was reserved in the lake for the accumulation of sediment carried into the lake from the Blue River watershed. The amount of storage allocated to sediment accumulation was 185,000 Acre Feet (AF) (one acre covered to a depth of one foot). This amounted to an annual accumulation of 3700 AF per year over a 50 year design life. As was the practice in 1952, that sediment accumulation was assumed to occur at the bottom of the lake. In this case, that meant below elevation 1061.

Surveys of the volume of storage available upstream of the dam have been conducted in 1962, 1972, 1973, 1983, 1987, 1993, 1996 and 2000. Using data from these surveys, it is possible to determine the amount of sediment that has accumulated in the lake. In the 38 year period from the dam closure (1962) to the 2000 survey, the lake accumulated about 145,000 AF of sediment. This total amounts to an annual average accumulation of about 3,800 AF per year, which is only slightly higher than the 3,700 AF per year rate used in the original design. At this rate, the 50 year accumulation will be 190,000 AF, slightly higher than the planned 185,000 AF.

Although the rate of sedimentation is as expected, instead of accumulating in the bottom of the lake, the sediment is building up as delta-like deposits. These deposits are present in the main channel of the Blue River upstream of the Highway 16 bridge, and in the Fancy Creek channel. There is very little accumulation in the bottom of the main body of the lake itself. This pattern has resulted in extensive shallow water-mud flat areas upstream of the Highway 16 bridge. There is a fairly steep drop off from these shallow water areas into the main body of the lake, which is the advancing front of the delta into the lake. While not consistent with the design assumptions of the 1950's, this pattern of deposition has been observed at many other lakes. This pattern of deposition has not decreased the project's overall flood control capabilities.

At the current rate of deposition, the sediment deposits will move down to the vicinity of the dam in the year 2076. The advance of the front of the delta is expected to slow down somewhat as it moves into the deeper waters of the lake.

This fact sheet is published by the U.S. Army Corps of Engineers, the lead agency for the Tuttle Creek Dam Safety Assurance Program. Comments or questions about this fact sheet or the Dam Safety Assurance Program should be directed to Bill Empson of the Kansas City District, Corps of Engineers at (816) 983-3556 or by E-mail at tcdam.nwk@usace.army.mil.

Questions or comments about lake operations or Tuttle Creek project office activities should be directed to the on-site Operations Manager, Brian McNulty at 785-539-8511.

For additional information, visit our web site: <http://www.nwk.usace.army.mil/tcdam>



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