US Army Corps of Engineers
Kansas City District

TUTTLE CREEK DAM

FACT SHEET

April 2001

Original Project Construction

Tuttle Creek Reservoir was proposed in Senate Document 1, 75th Congress, primarily as a flood control project. Construction was authorized by Public Low 761, 75th Congress, 3rd Session, more commonly known as the 1938 Flood Control Act.

Construction of the Project was initiated by the Corps of Engineers in 1952 and closure of the dam was made in July 1959. Storage of water in the reservoir began in July 1962 and the multipurpose elevation was reached in April 1963.

Extensive soil and rock investigation was performed prior to construction, through exploratory core holes and laboratory tests. Based on these investigations, cement grout was pumped under pressure into the rock at the following locations: embankment left abutment; right bank; under conduits; embankment right abutment; spillway right abutment; spillway left abutment; under weir; horizontal holes through the left and right bulkhead spillway grout wells, including to seal a minor fault. The average grout hole was 100 feet deep, with the total of approximately 85,000 feet drilled.

The excavation for the area where the dam was to be built was limited to stripping from 1 to 3 feet of topsoil and a 5-foot deep by 75 to 100-foot wide trench along the center of the dam. In the Blue River channel area the muck was removed from 300 feet upstream to 600 feet downstream and from 15 to 20 feet of pervious fill placed, which was overlain by a minimum of 18 feet of impervious fill blanket. Areas where the natural (impervious) blanket was thinner were reinforced by a minimum 10 feet of impervious fill under the (upstream) shale-limestone fill.

Most of the construction rock material used to build the dam came from the excavation for the outlet works and the spillway. The central core of the dam is the main zone of the dam that holds back water. The core is composed of high shear strength natural flood-plain blanket silts, obtained from areas upstream and downstream of the dam. In order to ensure the ability to control water seepage, sand fill was used in a major portion of the downstream shell, including a horizontal drainage blanket. This sand came from the area now known as the River Pond. The surface of the entire dam is protected against rainfall erosion with rock fill.

The control of water moving through the natural sand beneath the dam is provided by a line of relief wells along the downstream toe. There are 43 relief wells that were put in when the dam was built. These wells have wooden screens and were replaced in 1988 - 1990 with 42 new relief wells. The new wells have stainless steel screens. The old wells were lined with plastic screens and are still effective.

This fact sheet is published by the U.S. Army Corps of Engineers, the lead agency for the Tuttle Creek Dam Safety Assurance Program.
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For additional information, visit our web site: http://www.nwk.usace.army.mil/tcdam