



AMTS at Cherokee Non-overflow Zone



Douglas Dam



2018 - 2018



Tennessee Valley Authority

**58**

survey prisms

**4**

Cyclops system

## RENOVATION OF DAMS

Toward the end of 2013, the TVA (Tennessee Valley Authority) provided specifications for the construction monitoring of both the Cherokee and Douglas Dam Renovation Projects in Tennessee.

The concrete dams were built in the 1940's and needed to be updated to more current standards to withstand a 1000 year flood. In order to withstand this type of event, the design called for the installation of rock anchors into the concrete blocks in both the spillway and non-overflow zones for the Cherokee Dam and the non-overflow zone for the Douglas Dam.

This construction project also included raised flood walls. During the rock anchor tensioning portion of the project, monitoring was required for the relative movement between the concrete blocks.

The monitoring called for a precision of 1/16" to ensure any potential movement caused by the construction activity could be controlled at a safe level.

## HIGH PRECISION

The main challenge of the monitoring task was the high precision requirements. At first, a manual survey solution was evaluated. However, an Automated Data Acquisition System (AMTS) was proposed by SIXENSE and accepted by the TVA.

The AMTS system provided a near real time monitoring solution for both dams with accuracy of x,y,z coordinates between 1-3mm within 300'-400' of target prism to AMTS.

