DAM SAFETY PROGRAM

Although the Corps does not anticipate a dam failure at Wolf Creek, the Dam Safety Program includes coordination with state and local emergency management officials to prepare for any possible emergency situation.

The Corps has identified trigger events that, if observed at the dam, would initiate emergency procedures. These procedures include emergency drawdown of the lake, distribution of emergency warnings, and possible evacuation.

MORE INFORMATION:

The Corps is using news releases and public meetings to keep the public informed of important updates at Wolf Creek Dam. Get the most up-to-date information on construction, lake levels, public meetings, and project news on the Corps website at www.lrn.usace.army.mil/WolfCreek

WHAT CAN YOU DO?

Your local emergency management office can provide you with detailed information about warning systems and emergency plans for your area. These offices and Corps offices also have inundation maps that show areas that may be flooded in the case of dam failure.

If you live near the Cumberland River or one of its major tributaries, you may want to:

- Purchase a weather band radio for early warning.
- Have a plan for evacuation of your family to a gathering place.
- Practice your evacuation plan.
- Secure your property by locking doors upon departure.
- Establish a contact person outside the flooded area for check-in.
- Consider purchasing flood insurance. (This is strictly a personal choice; visit fema.gov for more information.)

US Army Corps of Engineers®
Nashville District

WOLF CREEK DAM

FAST FACTS:

- On the Cumberland River in Russell County, Kentucky
- In service since 1952
- Provides flood damage reduction, hydropower, recreation, water supply and water quality
- Impounds Lake Cumberland, the largest manmade reservoir east of the Mississippi River
- Concrete dam and earthen embankment
- Lake receives more visitors (over 4 million) each year than Yellowstone Park

SEEPAGE PROBLEMS

Wolf Creek Dam was designed and built in the 1940's on a limestone foundation prone to having cracks and fractures. Small amounts of water move under and through the dam, seeking out a path of least resistance. This movement is called seepage. All dams have some seepage. However, seepage must be controlled to keep the dam safe.

The Corps has closely monitored and maintained Wolf Creek Dam over the years, and has pumped grout (a mixture of sand, cement & water) into the foundation to slow and control the seepage.

An emergency grouting program in 1968 slowed the progression of seepage, but was not a long-term fix. The Corps constructed a concrete barrier wall within the dam to block off seepage. The wall was built through two-thirds of the length of the earthen embankment and into the rock foundation, and was completed in 1979.

Since completion of the wall, the Nashville District has monitored the project closely. In recent years, the Corps has noted signs indicating that water is finding new paths through the foundation and seepage is progressing.

Although we believe there is no imminent danger to the structure, the repairs need to be completed now to ensure the long-term safety of the dam.

Limestone foundation at time of construction.

FIXING THE DAM

The Nashville District of the Corps of Engineers completed a Major Rehabilitation Report in 2005 which evaluated ways to improve the long-term reliability of Wolf Creek Dam.

The rehabilitation plan includes more grouting, as well as a modern cut-off wall to stop the seepage. The new wall will use innovative technology that will reinforce the original wall. It will also run the entire length of the earthen embankment, extending farther and deeper than the existing wall to cut off seepage.

The total estimated cost of the rehabilitation plan is $317 million. The project is funded through annual appropriations from Congress, and the projected completion date is 2014. The Corps of Engineers has designated Wolf Creek Dam as a top priority and is committed to continual funding.

Work at Wolf Creek Dam began in 2006 with the first grouting contract. The initial upstream grout line is near completion, and the secondary downstream grout line is underway. Cut-off wall construction will follow the grouting and is expected to begin in 2009.

LOWERING THE RISK

High lake levels at Wolf Creek put stress on the weakened foundation and increase seepage. Since March 2005, the Corps has changed Lake Cumberland operations, trying to keep lake levels lower than normal to reduce the risk of failure.

Determining the appropriate levels has meant addressing the risk to those downstream, as well as the impacts to those upstream who depend on the lake. The process is complex and continual, and public safety is always the Corps' highest concern.

In January 2007, the Corps made an emergency decision to lower Lake Cumberland to elevation 680. The Corps has since developed a dynamic process for determining future lake level decisions. As structural improvements to the foundation are completed and conditions improve at the dam, the Corps will reassess pool elevations at Lake Cumberland.

The Corps has an aggressive Dam Safety Program, including 24/7 visual monitoring of the dam, increased frequency of instrumentation readings, dam safety training, and emergency planning. Corps personnel are dedicated to ensuring the safety of the public while a fix is completed.