

## The Leadville Mine Drainage Tunnel (LMDT)

The Leadville Mine Drainage Tunnel was constructed from 1943 to 1952 by the Bureau of Mines. The tunnel was built to drain off water from portions of the Leadville Mining District so that development of strategic mineral reserves could continue.

Reclamation acquired the tunnel in 1959 in a failed attempt to use the natural flow issuing from the portal for the Fryingpan-Arkansas Project. The agreement to acquire the LMDT assumed that it was not necessary to maintain the tunnel since mining was in decline. Reclamation owns no other tunnels, shafts or mines in the area.

Beginning in the 1970s Reclamation stabilized the first 465 feet of the tunnel by adding an additional bulkhead, creating a permeable plug upstream of the new bulkhead by selective backfilling and grouting, and concrete lining of the tunnel from the portal to the bulkhead. In 1992 Reclamation began operating a water treatment facility at the tunnel's portal which treats the water flowing from the tunnel to a high enough quality to allow it to be discharged into the Arkansas River.

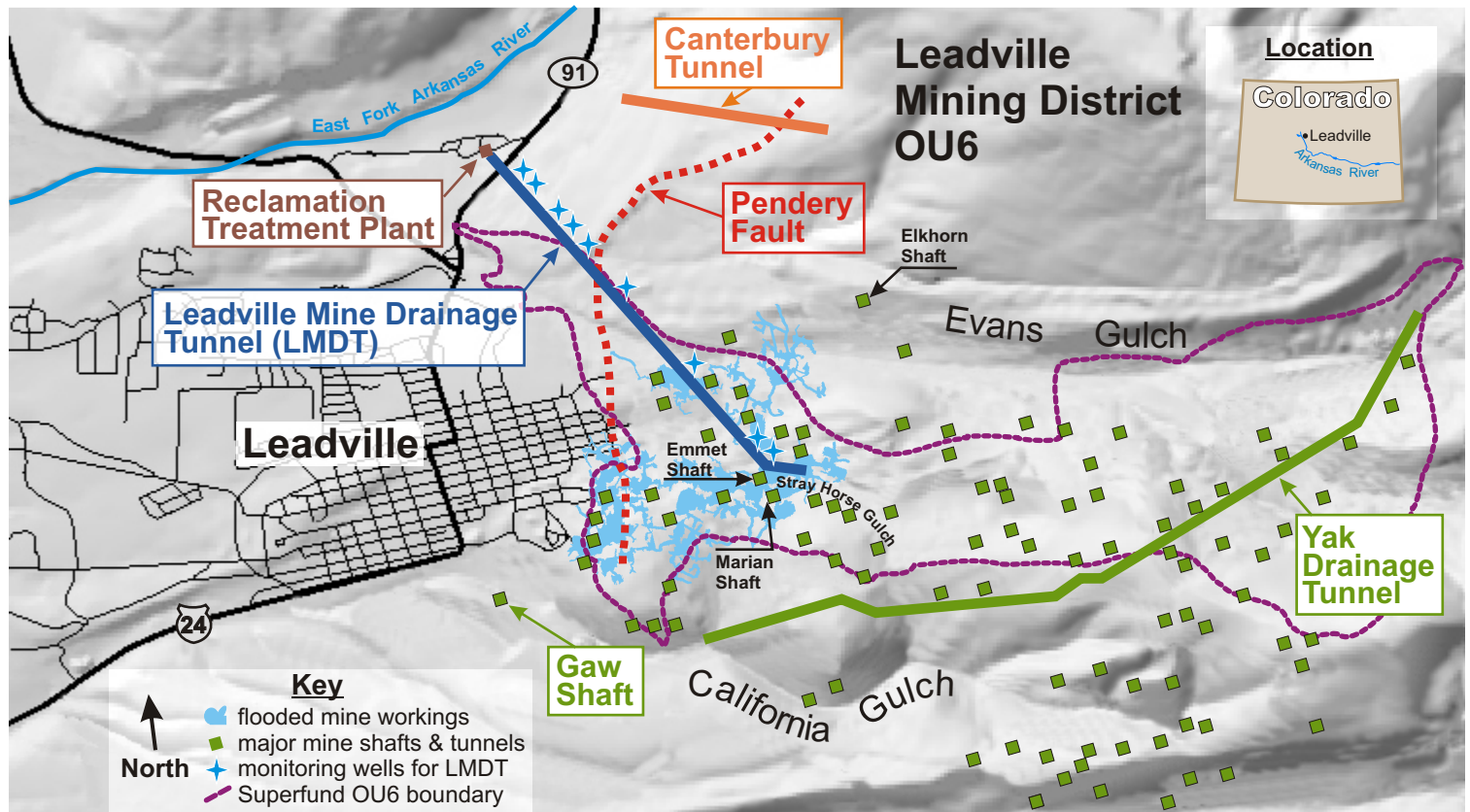
Reclamation monitors water levels in the LMDT to provide warning of changing conditions. An alarm system will provide warning to the public if conditions warrant. Public safety is utmost in all Reclamation projects and facilities.

## The Canterbury Tunnel

Constructed in 1922 to drain groundwater away from mines, the tunnel has deteriorated such that water again enters upper LMDT areas. Water from the Canterbury has been used by the Parkville Water District to augment their supply.

## Pendery Fault

A collapse of the LMDT near the fault may be a contributing factor in increasing groundwater levels upstream. Other factors include increased groundwater inflows and reduced drainage from other tunnels. The EPA also pipes some contaminated surface runoff from Stray Horse Gulch into mine works near the Marian Shaft.



## Water in the mines and surrounding rock

There is no consolidated underground body of water - it is in a series of collapsed and deteriorating mines and surrounding rock. While groundwater behind the blockage at the Pendery Fault is higher, Reclamation does not believe there is a danger of a sudden release of water.

If conditions did change, extensive instrumentation in the LMDT would reveal changes in the turbidity and elevation of water.

The EPA plans pumping from the upstream side of the fault through an above-ground pipeline to the treatment plant as a short-term solution. Reclamation has agreed to treat the water at the LMDT Treatment Plant.

Since November 2007, Reclamation has been working on an assessment of the risks associated with the build-up of water behind the Pendery Fault.

## The Gaw Shaft

EPA pumping of clean water has begun at the Gaw Shaft to relieve elevated groundwater levels. The water is released into California Gulch and flows to the Arkansas River.

## The Yak Drainage Tunnel

Construction of the initial portion of the Yak Tunnel began in 1895 to drain water from the mines. Several expansions increased its length to over four miles. A bulkhead retains water in the tunnel and surrounding mines. A treatment plant operated by Newmont Mining Corporation treats water which flows from the tunnel.