

IMWA 2013 Mid-Conference Tour to Leadville, Colorado: August 7th, 2013

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Abstract An itinerary, maps, and details about the IMWA 2013 mid-conference tour from Golden, Colorado to Leadville, Colorado on August 7, 2013, are provided.

Keywords IMWA 2013, mid-conference tour, Leadville

Introduction

A summary of the IMWA 2013 mid-conference tour to Leadville, Colorado is provided. This trip will be on Wednesday, August 7th, 2013. An itinerary, maps, and a few details about what we will see (along with web links) are provided below. North is toward the top of the page on all maps.

Itinerary

7:30 Leave Golden, CO

9:30 Arrive in Leadville, CO (fig. 1) at the

National Mining Hall of Fame and Museum with a half hour break

10:00 – 12:00 One group will tour the National Mining Hall of Fame and Museum and one group will tour the nearby abandoned mine lands and drainage tunnels (fig. 2)

12:00 – 13:00 Lunch altogether in the National Mining Hall of Fame and Museum ballroom with an overview presentation of the Climax Molybdenum Mine (given by a Climax Mine employee)

13:00 – 15:00 Groups will switch and one

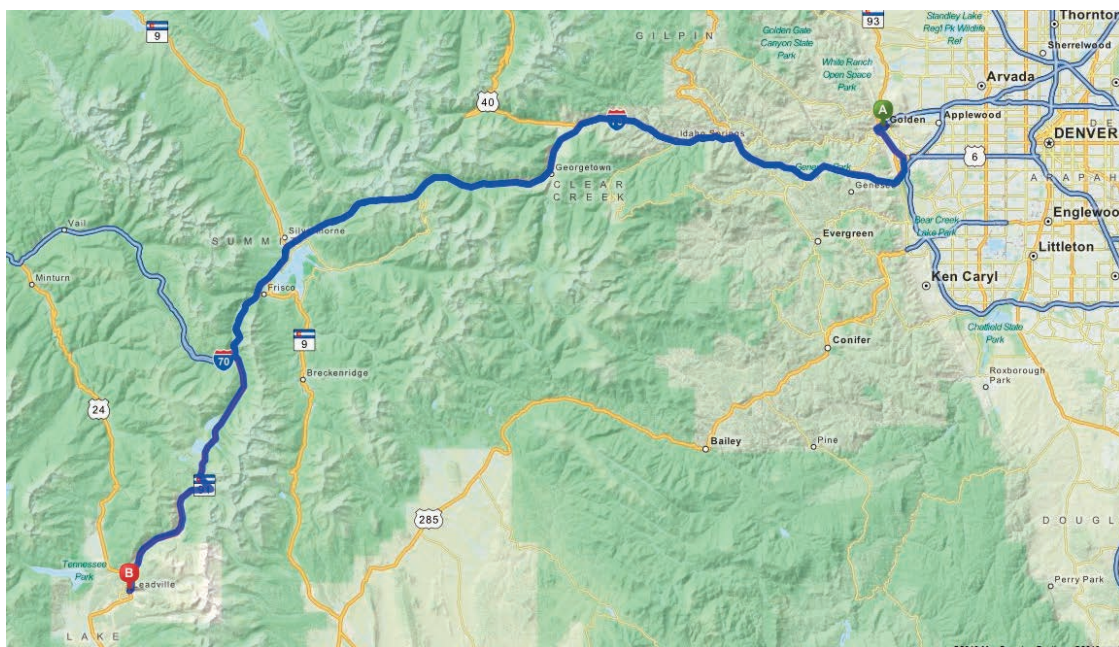


Fig. 1 Map of IMWA 2013 mid-conference field trip route. Golden, Colorado (A) to Leadville, Colorado (B). Distance from Golden to Leadville is approximately 148 km (92 mi). Map base is from www.mapquest.com.

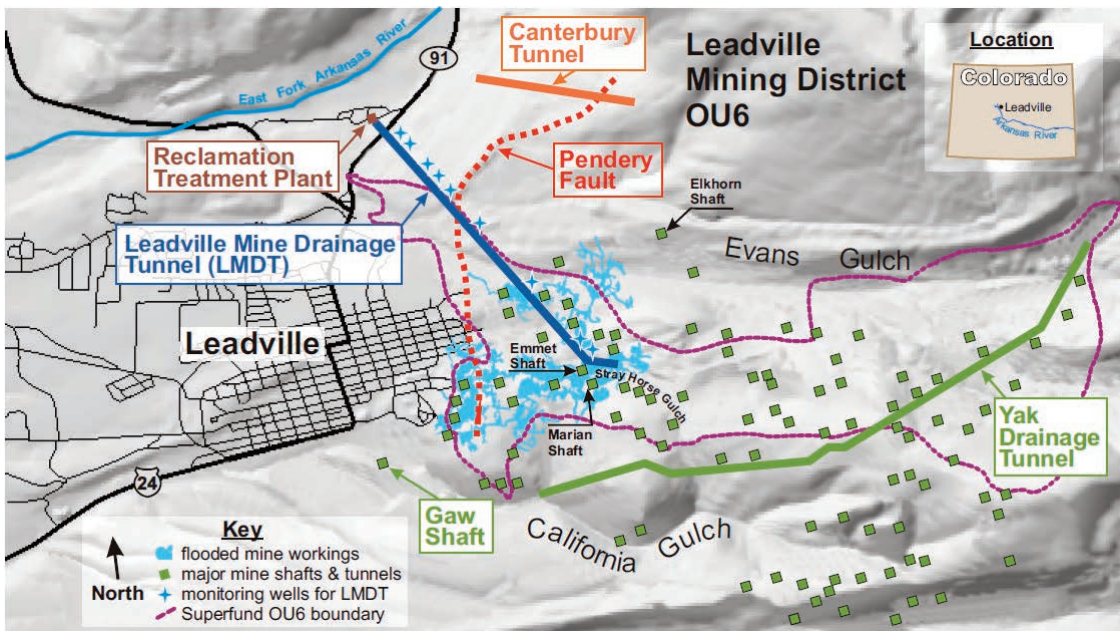


Fig. 2 Map of Leadville's abandoned mine lands and mine drainage tunnels. Map source is the U.S. Department of Interior, Bureau of Reclamation (pdf link is provided in the text).

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15:00 – 15:15 Travel by bus to the Climax Mine

15:15 – 16:15 Two stops: (1) overlook of Climax Mine operations, and (2) overlook of the Climax tailings disposal facility (fig. 3). At both stops a mine employee will be available to discuss the operations in more detail and answer questions.

16:15 – 18:00 Travel by bus back to Golden

Note: all times are approximate

Leadville, Colorado

Leadville, Colorado, has a colorful mining history with the discovery of gold in 1860, followed by silver-lead deposits in 1876. By 1880, Leadville had a population of over 40,000 as one of the world's largest silver camps. As of 2010, the population in Leadville was 2,602. At 3,094 m (10,152 ft) Leadville is the highest incorporated city in the United States and has an

alpine subarctic climate. Average high temperatures in August are 20.8 °C (69.5 °F), so bring a light jacket. Many additional details about Leadville, Colorado can be found at http://en.wikipedia.org/wiki/Leadville,_Colorado and www.visitleadvilleco.com.

Leadville National Mining Hall of Fame and Museum

This is a very extensive mining museum that covers the history of mining in the Leadville area. Details about the museum can be found at www.mininghalloffame.org. During the museum time, participants can also visit downtown Leadville if interested.

Abandoned Mine Lands: California Gulch and mine drainage tunnel

In 1983 the abandoning mining area around Leadville was added to the National Priorities List (Superfund) for environmental remediation due to past mining, milling, and smelting operations. The United States Environmental Protection Agency (EPA) has a detailed web site on the remediation efforts



Fig. 3 Location of the Climax Molybdenum Mine. Distance from Leadville to the Climax Mine is approximately 21 km (13 mi). Inset is a view of the tailings facility. Map base is from

(www.epa.gov/Region8/superfund/co/cal-gulch). The California Gulch Superfund listing is divided into 12 operable units and includes 46.6 km² of Lake County, Colorado. As of September 2011, remediation efforts at four of these operable units have been declared complete.

A brief overview on the mine drainage tunnels in the area (including the Yak Tunnel and the Leadville Mine Drainage Tunnel or LMDT, fig. 2) are provided in http://www.usbr.gov/gp/eca/leadville/lmdt_overview.pdf. The Leadville Mine Drainage Tunnel was constructed in 1943 to 1952 to drain portions of the Leadville Mining District in order to continue development of strategic mineral reserves. In 1959, the U.S. Bureau of Reclamation acquired the tunnel in a failed attempt to use the flow for water supply purposes. In 1992 the U.S. Bureau of Reclamation completed a water treatment facility at the tunnel's portal. Subsequent collapses of the Leadville Mine Drainage Tunnel created water blockages that threat-

ened sudden releases of mine drainage water into the nearby Arkansas River. Emergency response by the EPA included a relief well and pipeline construction in 2008.

The Yak Tunnel (fig. 2) is another main tunnel that drained the historic mining district and was a primary focus of studies and cleanup activities from 1989 to 1994 overseen by the EPA (EPA oversight in the area is still ongoing). The initial portion of the Yak Drainage Tunnel was constructed in 1895 to drain water from the surrounding mines. The Yak Tunnel treatment plant began operating in 1992 and prior to that date 210 tons of metals drained from the California Gulch area into the nearby Arkansas River each year. Water quality in the Arkansas River has now improved substantially.

Climax Molybdenum Mine

The history of the Climax Mine can be found at http://en.wikipedia.org/wiki/Climax_mine and in a book by S.M. Voynick

(http://mountain-press.com/item_detail.php?item_key=615). This mine is located in what was the unincorporated mining village of Climax, Colorado (http://en.wikipedia.org/wiki/Climax,_Colorado). The Climax Mine produces molybdenum, which is used mainly to strengthen steel, but is also used as a solid lubricant. The Climax Molybdenum Mine first produced ore in 1915. The mine was recently closed, but reopened again on May 10, 2012 and is operated by Climax Molybdenum

(www.climaxmolybdenum.com), which is part of Freeport-McMoRan Copper and Gold (www.fcx.com). The Climax Mine is an open-cut mine with an extensive tailings disposal facility (fig. 3).

Disclaimer

All mention of company names are for informational purposes only and do not constitute any endorsement by the author or the U.S. Geological Survey.