



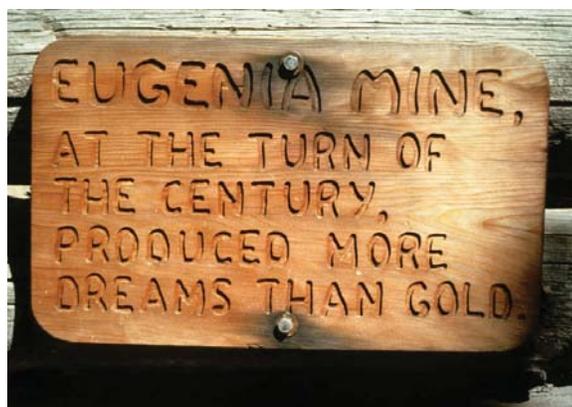
# Cleaning Up the Eugenia Mine

**The Question:** Should the remains of the Eugenia Mine on the slopes of Longs Peak be cleaned up to reduce the runoff of heavy metals?

In the 19th century, prospectors looked for valuable minerals in the area now known as Rocky Mountain National Park. The Eugenia mine was active in the 1800s but was ultimately not successful. The mine shaft has been sealed since the 1960s. Mine tailings remain near the entrance of the mine and may be leaching harmful compounds into groundwater.

**The Project:** Analyze rock samples from waste piles with XRF to determine the concentration of heavy metals.

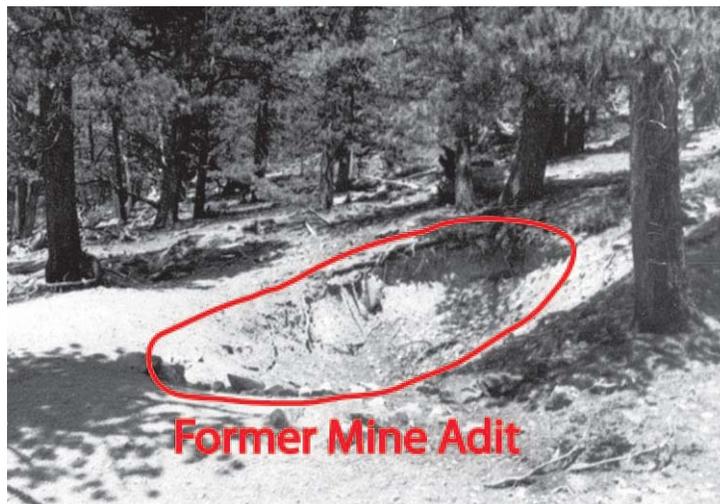
Investigators led by David Rathke, Ph.D., and Richard Graham, Ph.D., from the U.S. Environmental Protection Agency, Region 8, along with John Burghardt from the Geologic Resources Division of the National Park Service examined the Eugenia Mine and surrounding drainages to determine whether heavy metals were present and were being mobilized into local waterways. They sieved waste rock and tailings samples, and they analyzed them with x-ray fluorescence to determine the elemental composition of the samples. They collected water and soil from downgradient drainages to determine whether heavy metals were being mobilized from the mine tailings.



A Sign on the remains of the miners cabin near the Eugenia Mine.

**The Results:** The potential effects of a cleanup operation are more harmful than simply leaving the tailings of the mine in place.

The researchers determined that the effects of cleaning up mine tailings at the Eugenia mine would be more harmful to the ecosystem than simply leaving the tailings in place. Local bedrock does not have high concentrations of heavy metals and is not leaching a significant amount of metals into local waterways. The act of removing mine tailings would likely flush soil and sediment into local streams, doing more net harm than would be gained from leaving the tailings in place. Removing waste rock is likely to increase the amount of heavy metals moving into park waterways therefore the recommended solution is to leave the site as is.



The remains of the Eugenia Mine.