

SITE REPORT · SAMPLE

# Lamartine Mine

Empire, Colorado · 39.7589, -105.6783 · Operational 1869-1934

## REDIG POTENTIAL SCORE

82 / 100

Above-average reactivation candidate. Confidence band tightens as field outcomes feed back.

## PRIMARY COMMODITY (HISTORICAL)

Silver · Lead · Zinc

Polymetallic sulfide ore body

## Predicted Critical-Minerals Bycatch

### Germanium

Ge

12-40 g/t

85% confidence band

Sphalerite-hosted germanium consistent with the Front Range polymetallic belt. Historically discarded with zinc concentrate.

### Gallium

Ga

Trace

72% confidence band

Associated with the sulfide ore body. Recoverable in the same flotation pathway used for the primary zinc concentrate.

### Tellurium

Te

Possible

61% confidence band

Indicated by cross-cluster signature match with Central City telluride province. Not directly assayed in historical records.

## Sources Combined In This Prediction

- U.S. Geological Survey Mineral Resources Data System (MRDS)
- Colorado Geological Survey historical assay records (1869-1934)
- Front Range polymetallic-belt cluster signatures (cross-site embedding)
- Sentinel-2 multi-spectral satellite analysis (modern era)
- Era-specific recovery efficiency models (Front Range, 1869-1934 operational window)

## Reprocessing Pathway (Summary)

Primary path: gravity concentration + flotation of the historical zinc-sulfide tailings, with sequential leach circuits for germanium and gallium recovery from the zinc concentrate stream. Mercury sequestration is not required for this site (low mercury risk per historical recovery method).

## Regulatory and ESG Framework

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Site is on private land within an established mining district. State-level reclamation framework applies. Tailings volume estimated within standard ESG reporting envelope. Full regulatory pathway and ESG framework analysis are included in the operator-tier report.

## What Is Not In This Sample

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The production report includes: full reprocessing economics with cost-per-ton modeling, ESG framework with reclamation cost projection, regulatory pathway with state-by-state permitting timeline, three comparable-site case studies with verified field outcomes, and a grant-ready submission package targeting DOE / DOD / state geological survey funding mechanisms.

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This is a sample output for partner conversations. All predictions are generated from the integrated MotherLode CMI corpus and are accompanied by confidence intervals. Production reports include full source records and methodology binding such that every prediction is traceable back to its sources.