

Dr. Elizabeth A. Holley

- Assistant Professor, Mining Engineering Department, Colorado School of Mines
- Previously:
 - Teaching Faculty, Department of Geology & Geological Engineering, Colorado School of Mines
 - Lecturer, Regis College, Denver
- Consulting experience:
 - Member of the discovery team for the White Gold deposit, Yukon
 - Led exploration projects in South America, Canada, Australia and the USA
- Degrees:
 - PhD, Geology, Colorado School of Mines, 2012
 - MS, Geochemistry, University of Otago, New Zealand, 2006
 - BA, Geology, Pomona College, California, 2004



Elizabeth Holley: Teaching and Research

Academic Activities:

- CSM Courses (in past 5 years):
 - MNGN 428/429 “Mining Engineering Design”
 - MNGN 625 “Graduate Seminar”
 - MNGN 598 “Mining Geology of the Western US”
 - GEGN 403 “Mineral Exploration Design”
 - GEOL 520 “New Developments in the Exploration of Ore Deposits”
 - GEOL 523 “Reflected Light & Electron Microscopy”
- Education Innovation:
 - Development of pedagogical techniques in STEM education: student-driven inquiry, deeper learning by controversy, the flipped classroom, field education
 - Industry-CSM collaboration for graduate field school
 - Program coordinator for more than 50 Society of Economic Geologists short courses, workshops, and field trips

Research Activities:

- Mineral Exploration vectors and genetic models: Carlin-type, porphyry and epithermal deposits
- Sulfide and sulfate behavior in heap leach and mine waste
- Corporate social responsibility and public participation in science in mining projects

Elizabeth Holley: Current Research Projects

- Relationship of Intrusions to Gold Mineralization, Marigold Mine, Nevada
 - Funded by: Goldcorp, Inc.
 - PI: Dr. Elizabeth Holley
- New Models for Sediment-hosted Gold Deposits, Nevada
 - Funded by: Newmont CIERSE
 - PI: Dr. Elizabeth Holley
- Sulfide Sequestration in Agglomerated Mill Concentrates, Cripple Creek
 - Funded by: Cripple Creek and Victor Gold Mining Company
 - PI: Dr. Elizabeth Holley; Co-PI: Dr. Alexis Sitchler

Relationship of Intrusions to Gold Mineralization, Marigold Mine, Nevada

Project Objectives:

Background: Sediment-hosted deposits are the largest producer of gold in the US but the origin of the gold is not known.

- The goal is to evaluate whether gold-bearing intrusions at the dominantly sediment-hosted Marigold deposit were a potential gold source and thus an exploration vector.
- Techniques include pit mapping, geochronology, textural analysis, geochemical characterization of ore and host rocks.

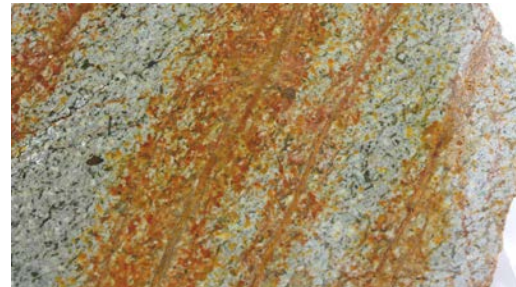
Funded by: Goldcorp Inc.



Funded Period: 2013-2014

Principal Investigators:

Dr. Elizabeth Holley



Left: graduate student Matt Fithian samples an intrusion in the Marigold pit

Right: Au-bearing intrusion at Marigold



New Exploration Models for Sediment-Hosted Gold

Project objectives:

- Comparison of intrusion-related and sediment-hosted gold deposits in Nevada to evaluate whether they are a genetic continuum, thus providing new exploration vectors for gold.
- Techniques include determination of paragenetic relationships, geochronology, and geochemical characterization of host rocks, alteration, and ore.

Funded by: Newmont CIERSE



Funded Period: 2014-2015

Principal Investigators:

Dr. Elizabeth Holley



Left: Stockwork porphyry-style veining,
Copper Basin, Nevada

Right: Carlin-type sediment-hosted gold
at Gold Quarry, Nevada



Sulfide Sequestration in Agglomerated Mill Concentrates, Cripple Creek

Project objectives:

- Develop an agglomeration for high-grade sulfide-rich mill concentrates to minimize acid generation in the heap leach.
- Using a laboratory-scale model heap leach, the rate of acid generation, oxidation, and gold recovery will be assessed in agglomerated sulfide-cement spheres.

Funded by: CC&V Mining Company



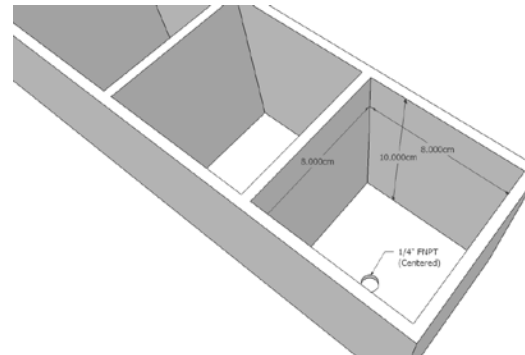
Cripple Creek & Victor
Gold Mining Company
Living a Mining Heritage

Funded Period: 2014-2015

Principal Investigators:

Dr. Elizabeth Holley

Dr. Alexis Sitchler



Left: Cripple Creek Gold Mine, Colorado

Right: Schematic of laboratory heap-leach reactors

