

THOMAS W. BIDGOOD, PH.D., P.G.

*Institute for Mining Geology
Principal Consulting Geologist*

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EXPERTISE

Dr. Thomas Bidgood has worked for major gold and base metal mining companies and has over thirty years experience in both the exploration and operations side of the mining business. He has provided high level technical expertise to projects in the USA and overseas and has managed multiyear exploration and development projects. He has expertise and experience in porphyry copper and molybdenum systems, volcanogenic massive sulfides, shear-zone and volcanic-hosted mesothermal gold systems and magmatic Cu-Ni-PGE systems. His project related experience includes grass-roots, green-fields reconnaissance programs, brownfields exploration and development programs and geological modeling in support of acquisitions and operations. He has developed innovative cross-training techniques for exploration and mine geologists, has excellent computer skills and is an expert Geophysics for Geology practitioner. From 2001 to 2011 he was Professor and Chairman of the Natural Sciences and Math Department—Colorado Christian University, Lakewood, CO.

CERTIFICATION

Professional Geologist – Wyoming PG-497

SME Registered Member 4054453

Member--AIPG

PROJECT EXPERIENCE

MINING/MINERALS – RELATED

- **Hermosa Project, Arizona.** Exploration evaluation and geologic mapping to support feasibility study for proposed open pit Ag mine. For Arizona Minerals/Wildcat Minerals.
- **Tushar Mountains, Utah.** Evaluate porphyry copper potential of the Marysvale Mining District, Utah a past volcanic-hosted gold/silver district with significant base metal limestone replacement deposits. For Private client.
- **Butte Highlands Project, Montana.** Geologic modeling program to include re-log of surface and underground drill holes to support ore reserve estimate and pre-feasibility study for underground Au mine. Surface geologic map of portion of the district also completed.

For Timberline Resources.

- **Goldfield Project, Nevada.** Geological mapping to support exploration and development drill program for open pit Au mine. For International Minerals Inc.
- **Cote Lake Project, Ontario.** Reviewed geological program and drill results, confirmed the rock type and alteration signature characteristic of porphyry Au deposits, and recommended technical evaluation parameters for a Archean porphyry hosted Au target. For Trelawny Mining and Exploration.
- **Ocampo Mine (Au and Au targets-underground and open pit), Chihuahua state Mexico.** Geologic mapping and exploration at the producing Ocampo Mine; reserve expansion, target generation, and geologic modeling. For Gammon Gold Corporation—now Aurico Corp.
- **Liberty Mine Project, Nevada.** Drill core logging and evaluation to include cross sections and surface pit map in support of bankable feasibility study for the Liberty Mine project. For General Moly, Inc.
- **Thompson Creek Mining Company, Endako Mine, British Columbia and Thompson Creek Mine, central Idaho.** Completed geological mapping and evaluation of exploration drilling for evaluation, geological modeling, reserve expansion, and ore reserve estimation. Both properties are open pit Mo producers. For Thompson Creek Mining Company.
- **Millrock Resources Inc., Seward Peninsula, AK.** completed a helicopter supported remote project location geological mapping and project evaluation at the Bluff Project (Au). Trained a geological crew in project evaluation and project geology protocols. For Millrock Resources.
- **Mt. Hope Molybdenum project. Eureka County, Nevada.** Mapping and cross-sectional evaluation for the Climax-type, Mt. Hope molybdenite deposit. Follow-up relogging, geological mapping, and geological interpretation and modeling of the Mt Hope molybdenite deposit. For General Moly, Inc.
- **Geological logging of drill core and cross section preparation BIC, Roland Lake, and Eagle East projects, Marquette, MI.** For Kennecott Mining Company.
- **Geological Mapping, Cobriza Area Exploration projects, Ayacucho, Peru.** Mapped lithology, structure, alteration and mineralization in Cu-skarn/porphyry related prospect.. For the Doe Run Company.
- **Geological Mapping, Tripp-Veteran Pit and Robinson District environs, Robinson Nevada Mining Company, Ely, Nevada, USA.** Mapped lithology, structure, alteration and mineralization in a structurally disrupted porphyry copper deposit. Determined geological controls on ore and waste distributions and on geotechnical stability and to test and prove geological modeling based on drilling information. For Robinson Nevada Mining Company.

- **Remote Camp Helicopter-supported Drill Project, Alaska Range, Alaska.** Managed helicopter-supported diamond drill evaluation for magmatic hosted PGE-Ni-Cu mineralization and conducted concurrent regional geological mapping and geochemical sampling program. For Nycon Resources, Inc.
- **Geotechnical and Geological logging, Eagle Cu-Ni-PGE deposit, Marquette County, Michigan, USA.** Geotechnical and geological logging of drill core to determine rock mechanical characteristics and deposit modeling for newly discovered Magmatic Cu-Ni-PGE deposit. For Kennecott Mining Company.
- **District Geological Mapping, Questa Molybdenum Mine, Taos County, New Mexico, USA.** Re-mapped surface lithology, alteration and mineralization for the Questa mining district. Provided mapping constraint for re-modeled sectional geological interpretation and refined rock stability controls for slope stability studies. For SRK Consultants and for Molycorp.
- **Evaluation of Gold and Base Metal Targets, Interior Alaska.** Completed helicopter supported property scale geologic maps, rock chip and geochemical sampling, and geophysical interpretation on base metal and gold property positions in interior Alaska. Technical adviser to diamond drill program to explore Pogo-style gold target. For Northstar Exploration, Inc.
- **Mine Exploration and Geological Services--Copper Exploration, Arizona, USA, Peru and Chile.** Directed geology intensive exploration evaluations and ore reserve due-diligence for active mining operations and targeted mining acquisitions. For Cyprus Amax Minerals Company.
- **Gold and Base Metal Exploration, Western and Eastern, USA, Canada.** Directed and executed geology-geochemistry-geophysical exploration programs in South Carolina, Wisconsin, Montana and in British Columbia. In addition, technical advisor for geologic review of Precambrian gold targets and underground mines in Ontario. For Amax Exploration, Inc; Amax Gold, Inc.
- **Porphyry Molybdenum Exploration and Evaluation.** Participant in feasibility study leading to acquisition of Mt. Tolman Mo deposit, Washington. Exploration and drill evaluation of porphyry Mo targets in Wyoming, Utah, Montana, and Nevada. Underground geologic mapping and core logging to support production at Climax and Henderson, Colorado. For Amax Exploration, Inc.
- **Precambrian Cu-Zn Massive Sulfide Exploration, Great Lakes District, USA.** Planned and directed airborne and ground geophysical and geochemical prospecting surveys to target mineral lands for acquisition and subsequent drilling. For Cominco American, Inc.

DESIGNATED COMPETENT PERSON/QP PROJECTS/TRAINING

- **Lynchburg Project, Virginia.** Site examination, geological, geochemical, and geophysical data evaluation for 43-101 technical report. For Jack's Fork Exploration, Inc.

- **Apex Project, Colorado.** Historical exploration data review, cross sectional ore reserve calculation from underground mapping and assaying and surface drill holes. Assessment of geophysical targets and recommendations for drilling to support 43-101 technical report. For Nycon Resources.
- **Millrock Resources Inc., Seward Peninsula, AK.** Trained a geological crew in project evaluation and project geology protocols. For Millrock Resources.
- **Freeport Copper Corp., Cerro Verde Mine, Arequipa, Peru.** Presented week-long geological mapping and ore reserves short course to mine and exploration staff at the Cerro Verde porphyry copper mine, Arequipa, Peru. For Freeport Copper Corporation.

COLORADO CHRISTIAN UNIVERSITY, Lakewood, CO 2001-2011
Associate Professor of Physical Science—Science and Math Department

Member of Science Faculty at Colorado Christian University.

Taught undergraduate classes in:

- Physical Geology with concurrent Lab
- Environmental Science with concurrent Lab
- Physical Science with concurrent Lab
- Physics I and II with concurrent Recitation and Lab
- Water Resources—the West and Colorado
- Energy and Society
- Astronomy
- Great Ideas in Science
- College Math and College Algebra

Advise, coach, and mentor undergraduate students who have declared a Biology or Science major to insure progress toward meeting general education and graduation requirements.

PROFESSIONAL EMPLOYMENT HISTORY

Geological Consultant (present)

Associate Professor of Physical Sciences and Chairman—Department of Science and Math, Colorado Christian University, Lakewood, Colorado (2001-2011)

Manager, Mine Exploration and Geological Services, Cyprus Amax Mining Company, Denver CO (1997-2000)

Senior Staff Geologist, Senior Geologist, Exploration Geologist (1978-1997)

Amax Gold, Inc., Amax Exploration, Inc. (acquired by Cyprus 1993)

Exploration Geologist, Cominco American, Inc., Spokane, WA (1977-1978)

EDUCATION

Ph.D., Geology, - South Dakota School of Mines and Technology (1978)

M.S., Geology - South Dakota School of Mines and Technology (1973)

B.A., Geology, University of Minnesota (1970)

PROFESSIONAL DEVELOPMENT/CONTINUING EDUCATION

MEDSYSTEM, Mintec, Tucson, AZ
Economic Evaluation and Investment Decision Methods, Denver, CO
Geostatistical Ore Reserve Estimation, Denver, CO
Hydrology and Groundwater Management, Denver, CO
Airphoto Interpretation, Tucson, AZ
Satellite Imagery and Landsat Interpretation, Golden, CO
GIS for Environmental Applications, Denver, CO
Mine Safety and Health Administration